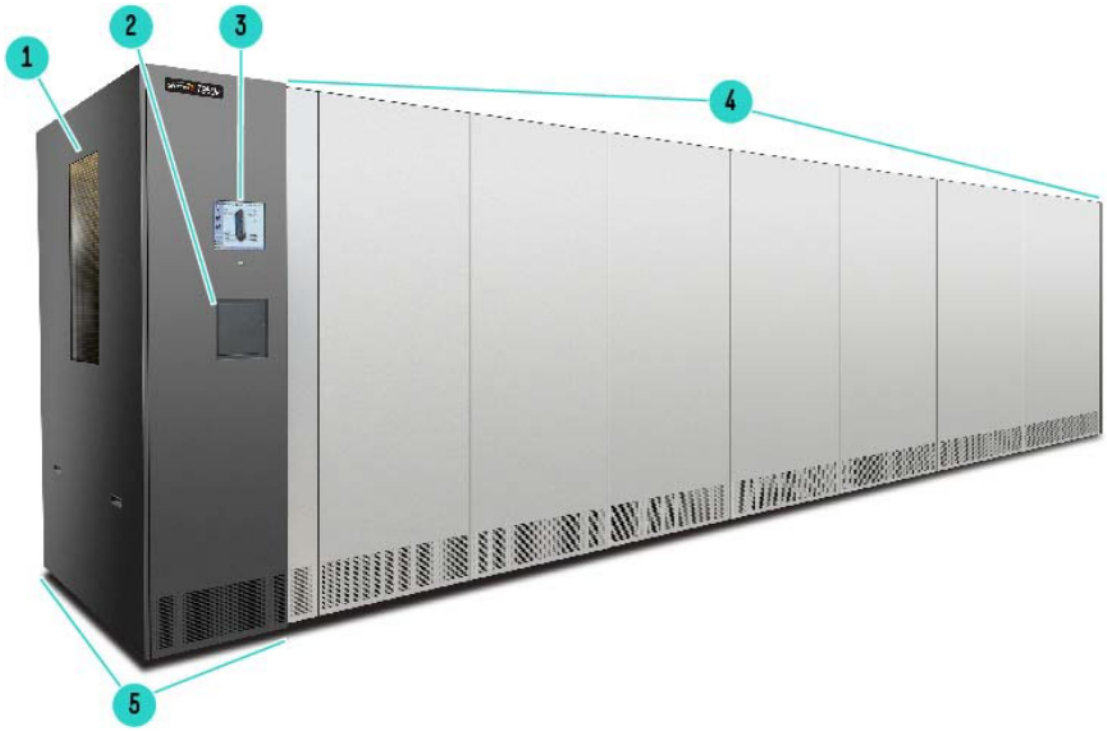
Overview

Spectra T950 Tape Library

Meeting enterprise data growth challenges head-on, Spectra T950 Tape Library deliver enormous scalability to keep pace with unpredictable data growth. Choose from a range of base configurations and scale up to 10,020 LTO tape cartridges in increments of 10 slots or 7,614 TS11xx Technology tape cartridges in increments of 9 slots for capacity on demand. Incorporating between 1 and 120 LTO or TS11xx tape drives you can consolidate and store up to 380.7 PB (compressed 2.5:1) using TS1160 Technology or 450 PB (compressed 2.5:1) using LTO-9 tape cartridges, of enterprise data.



HPE T950V Tape Library (Other models are available)

1. Window Panel
2. Center TAP (Import/Export)
3. Operator Panel Touch Screen
4. Drive and Media Expansion Frames
5. Base Frame

Standard Features

Key Features

- **Scalability**
  - Capacity on Demand from 50 to 10,020 LTO Tape Cartridges (7,614 TS11xx Technology Cartridges) and 1 to 120 LTO or TS11xx tape drives
  - Scale capacity in 10 LTO or 9 Enterprise tape slot increments
  - Library frames/expansion modules add 8.71 ft2 per frame
  - The T950 can be configured either for LTO-6, LTO-7, LTO-8 and LTO-9 or TS115x and TS1160 Technology drives, however mixed media support is not available within the library
  - The T950 and T950V can also support both half-height LTO-7 and LTO-8 drives
- **High Availability**
  - Redundant power supplies
  - Global Spare Drive option
- **Manageability - BlueScale®**
  - Management access on front panel of library or remotely via web-browser
  - Easy to use web GUI
  - BlueScale management software provides proactive hardware health monitoring
  - BlueScale Library management provides advanced logs and reporting on media, drives, power consumption and performance
  - Auto Support Logs (ASL) provide automatic e-mail alerts on monitored thresholds
- **Security**
  - Built-in BlueScale Standard and Professional Encryption (LTO Only)
  - Hardware Based Encryption through Spectra SKLM
- **Cost Effective**
  - Ideal for archiving cold or active data with a media shelf-life of up to 30 years
  - Lowest cost per Gigabyte for longer term storage, no on-going power or energy requirement
  - Portable, high density storage, small footprint with up to 45 TB of compressed data on a single LTO-9 data cartridge and 50 TB compressed on a single TS1160 JE Data Cartridge

Customer Benefits

- **Capacity on demand**
  - Only buy what you need today and add storage capacity as you need it
  - Upgrade capacity in intervals of 10 LTO or 9 Enterprise tape slots at a time
  - More storage capacity in less floor space
  - The T950 can be configured either for LTO-6, LTO-7, LTO-8 and LTO-9 or TS1150, TS1155 and TS1160 Technology Drives, however, mixed media support is not available within the library
- **Continuous data protection**
  - Data Integrity Verification examines media health before and after data writes, when enabled
  - Integrated BlueScale Encryption provides automatic data protection
- **Reduced cost of ownership**
  - Most energy efficient tape library for its class
  - Enhanced manageability from any location
  - Proactive and predictive library maintenance supported by BlueScale management software
- **Enhanced data security**
  - Provides a high level of encryption security, with compression, for strong backup data privacy to secure confidential information and address compliance quickly
  - Supports WORM media (using LTO-9, LTO-8, LTO-7, LTO-6)
  - Provides a fail-safe method for permanently storing data records

Standard Features

Compatibility

Software Support

The Spectra T950 Tape Library are supported by the following ISV's for LTO drives:

- Micro Focus
- ARCserve Backup
- Dell EMC Legato Networker
- IBM Spectrum Protect
- VERITAS Backup Exec
- VERITAS NetBackup
- Veeam Backup Software
- Zmanda Backup Software
- CommVault Simpana
- Oracle Diva Archive
- Quantum StorNext
- HPE DMF
- MassTech MassStore
- MassTech Flashnet
- Dell/Quest Software
- IBM HPSS
- Versity Storage Manager

Please contact sales for further details including current TS11xx Technology Compatibility.

Encryption Support

- BlueScale Standard Encryption (LTO Only): Included with Tape Library
- BlueScale Professional Encryption (LTO Only)
- The Spectra T950 Tape Library is supported on the following Encryption Key Servers:
- HPE ESKM 5.0
- Spectra SKLM

Standard Features

Family Comparison

T950	
Scalability	Scales horizontally with linear robot from 1 to 8 frames, 1-120 drives with LTO or TS11xx and 50 to 10,020 LTO slots or 45 to 7,614 TS11xx Technology slots.
Drive Technology*	LTO-9, LTO-8, LTO-7 or LTO-6 Tape Drives, TS1150, TS1155 or TS1160 Technology Drives
Capacity range	50 LTO slots minimum in a single frame 10,020 LTO slots in a max configuration of 8 frames 45 TS11xx slots minimum in a single frame 7,614 TS11xx slots in a max configuration of 8 frames
Maximum Drive Count	1-24 in a base frame 1-24 in each Drive expansion frame 120 in maximum configuration
Maximum Capacity (compressed 2.5:1)	450 PB using LTO-9 media (max 10,020 slots, 8 frames) 380.7 PB using TS1160 media (max 7,614 slots, 8 frames)
Maximum Throughput	172.8 TB/hr maximum with LTO-9 technology, 136.8 TB/hr maximum using TS1160 technology.
Standard Form-factor	Free standing
Dual robotics	Not Supported
Data & library security	Encryption: BlueScale Standard Encryption (LTO Only) BlueScale Professional Encryption (LTO Only) Spectra SKLM
Notes:*The T950 can be configured either for LTO-6, LTO-7, LTO-8 and LTO-9 or TS1150, TS1155 and TS1160 Technology Drives. Mixed media support (LTO and TS11xx Technology combined) is not available within this library. Both the T950 and the T950V can support both full-height LTO-6, 7, 8 and 9 and half-height LTO-7 and 8 drives and full-height TS1150, TS1155 and TS1160 drives.	

Standard Features

Scalability to meet uncertain data growth

Buy only what you need today for backup and archive, and then expand the library for higher capacity and performance as your data grows.

The Spectra T950 Tape Library is capable of scaling capacity in as little as 10 LTO slots or 9 Enterprise slots at a time. When frame capacity reaches a maximum slot count or more throughput is required, additional expansion frames may be installed to expand the libraries capacity and total drive count.

The Spectra T950 Tape Library provides a modular architecture allowing for capacity increases up to 5.52 PB / 8.71 ft^2.
The library configuration can accommodate:

- Up to 6 robotic interface modules
- 0 to 7 expansion Frames (Media Expansion, Drive Expansion)
- 50 to 10,020 possible cartridges slots maximum
- 1 to 120 LTO or TS11xx Technology Drives

Notes: The T950 can be configured either for LTO-6, LTO-7 and LTO-8 or TS1150, TS1155 and TS1160 Technology Drives. Mixed media support (LTO and TS11xx Technology combined) is not available within this library. Both the T950 and the T950V can support both full-height (LTO-6, 7, 8 and 9) and half-height (LTO-7 and LTO-8) drives and full-height TS1150, TS1155 and TS1160 drives.

Spectra T950 Tape Library offer different expansion frames to best suit your data protection and/or archiving needs.

Frame Types	Slots (Max)	Drives (Max)	Max Throughput (Compressed)	Max Capacity (Compressed)
Base Frame for Single or Multi Frame Library	**LTO**		**LTO-9**	**LTO-9**
	1000 Slots	4 Drives	14.4 TB/hr	45 PB
	920 Slots	12 Drives	43.2 TB/hr	41.4 PB
	800 Slots	24 Drives	86.4 TB/hr	36 PB
	TS11xx		**TS1160**	**TS1160**
	738 Slots	4 Drives	13 TB/hr	36.9 PB
	684 Slots	12 Drives	38.94 TB/hr	34.2 PB
	594 Slots	24 Drives	77.8 TB/hr	29.7 PB
Media Expansion	**LTO** 1,300 Slots	N/A	N/A	**LTO-9** 58.5 PB
	TS11xx 990 Slots	N/A	N/A	**TS1160** 49.5 PB
Drive Expansion	**LTO**		**LTO-9**	**LTO-9**
	1,070 Slots	12 Drives	43.2 TB/hr	48.15 PB
	890 Slots	24 Drives	86.4 TB/hr	40.05 PB
	TS11xx		**TS1160**	**TS1160**
	810 Slots	12 Drives	38.9 TB/hr	40.5 PB
	675 Slots	24 Drives	77,8 TB/hr	33.7 PB

Standard Features

Data Path Failover

With the addition of two Robotic Interface Modules (RIMs), the secondary RIM may be configured to serve as a data path failover.

Media Handling

TeraPack® cases, are unique in how they are used in the library. TeraPacks increase library density beyond all competition. Multiple tape cartridges are grouped in a single container that is used throughout the library and beyond. Library robotics can transport a TeraPack within the library and select a requested tape from the TeraPack case. In this unique architecture, each TeraPack case equals 9 x Enterprise media or 10 x LTO media tape slots. A robot can move a bar-coded TeraPack case that contains 9 or 10 pieces of media in a single robotic move, while other tape libraries require 9 or 10 separate robotic moves to accomplish this task. Traditional libraries organize tapes one-tape-deep along the library chassis wall. The T950 library uses TeraPack cases to store tapes, with each TeraPack case extending into the library's interior. This provides HPE Tape Libraries with very high density, allowing more tapes in a given area than competitors' libraries.



The library's two TeraPack Access Ports (TAPs) provide a practical and efficient method for inserting and removing media. To simplify use and reduce time spent on data protection, HPE Tape Libraries provides a configurable entry/exit pool, so all cases to be exported are identified before the operator unloads media. The TeraPack cases can be swiftly unloaded through the two TAPs, 18 Enterprise tapes or 20 LTO tapes at a time. Because tapes are loaded in multiple quantities, bulk loads and unloads save significant time.

Notes: The T950V library has a single TAP handling 9 Enterprise tapes or 10 LTO tapes at a time.

BlueScale Management

The Spectra T950 Tape Library provides a graphical interface that is extremely easy to use. You can monitor and manage the library from the tape library's front panel or remotely. Reporting is also straightforward the library, drive and media status can be viewed in a glance with complete reporting available if needed at the touch of a button. BlueScale is included as a standard feature.

Thin Provisioning

Thin provisioning provides a method for optimizing the available storage in the partitions of a tape library. The benefit of this feature is that thin provisioning allows an administrator to change the size of a partition in a tape library without having to reconfigure the entire tape library. Thin provisioning is an easy-to-use offering that provides virtual storage capacity for simplified administration, minimized downtime and reduced cost when adding storage.

Library Lifecycle Management

BlueScale Library Lifecycle Management (LLM) tracks the library and its components across the library's lifecycle. Through Hardware Health Monitoring (HHM), BlueScale tracks maintenance thresholds for key library components and notifies you when maintenance tasks are required to keep your library in optimum operating condition. When a component reaches its maintenance threshold, the status bar displays a Maintenance Notification icon and automatic e-mail alerts may be generated.

Library Lifecycle Management (LLM) collects or maintains the following information

- Library serial number and name (if configured)
- Information about key library components monitored by HHM including maintenance thresholds transporter moves including drive-to-drive moves, drive-to-slot moves, slot-to-slot moves, slot-to-drive moves, and importing/exporting media

Standard Features

Drive Lifecycle Management (DLM)

DLM gathers data each time a tape is unloaded from a drive. The data stored by the library includes the following information about the last 50 tapes unloaded:

- Read/write errors, including soft and hard errors
- Tape alerts
- Flags generated while the tape was loaded in the drive
- Recent errors or recent information posted through the drive's single-character display

The library uses this data to generate a report on overall drive health as well as health reports for individual drives. These reports, along with BlueScale drive clean, test, and resets, help you determine whether a problem exists with a drive, a tape, or another library component.

Drive Performance Monitoring

The Drive Performance Monitor lets you get the most out of your library by ensuring that drives are performing at the highest possible throughput rate. Performance monitoring graphically displays the read/write performance of the drives in the library. Metrics can be tracked per individual drive or by tracking overall library throughput.

EnergyAudit Power Monitoring

EnergyAudit, the BlueScale power monitoring feature, tracks power use over time and by component. Customers can use this information to adjust and optimize power use. Tracking this data becomes increasingly important as energy prices continue to climb.

Auto Drive Clean

Auto Drive Clean provides library-based cleaning of drives without user intervention. The Auto Drive Clean feature uses a dedicated cleaning partition with specially labeled Maintenance TeraPacks. The cleaning partition can be shared by multiple storage partitions and is used by the library to automatically clean drives whenever necessary.



Automated drive cleaning results in fewer failed tape read/write operations and is the recommended method for cleaning drives.

Advanced Reporting

Syslog

A Syslog server is used to easily monitor all system messages. Once configured, the library automatically sends all system messages to a designated Linux server that has been configured to support Syslog. Syslog is a standard for forwarding log messages over an Internet Protocol (IP) computer network. It provides separation of the software that generates log messages from the system that stores the messages.

AutoSupport Logs (ASL)

The Spectra T950 Tape Library have a Phone Home feature, AutoSupport, which can be configured to automatically create and send e-mail messages about issues or problems to designated e-mail users, including technical support. The data included in these e-mail messages include trace information, log data, a system description, and information about any message or issue. You can also elect to copy this same data to a USB device, if security concerns prevent the use of automatic outbound e-mail. You can set whether some or all messages are sent, per severity level of the message. This easy-to-use and easy-to-administer feature helps identify issues before they turn into problems, and speeds the resolution of problems. If the site is set up to use SSL, the Phone Home service uses the secure connection; otherwise, the service uses the network.

Standard Features

Best in class reliability

As data becomes more and more mission critical, and downtime becomes more costly to the enterprise, customers are requiring high availability consolidated storage solutions which offer hot-plug components and redundancies of key operating subsystems (tape drives, power supplies, control modules and filters).

Data Encryption for added security

ESKM: The Hewlett Packard Enterprise Secure Key Manager, using the industry-standard KMIP protocol, reduces your risk of a costly data breach and reputation damage while improving regulatory compliance with a secure centralized encryption key management solution for LTO-9, LTO-8, LTO-7 and LTO-6 as well as TS11xx Technology drives within the Spectra T950 Tape Library. In addition, the ESKM provides strong auditable security and reliable lifetime key archival. The ESKM with KMIP and LTO-9/LTO-8/LTO-7/LTO-6 or TS11xx Technology drive encryption in the Spectra T950 Tape Library provides a complete and secure privacy solution to protect customer's confidential data.

BlueScale Professional Encryption

BlueScale Professional Encryption offers LTO users integrated encryption key management provided through the library's user interface, and is the only truly integrated encryption key management option for data on tape. Secure and easy to use, BlueScale Professional Encryption provides powerful key management features for encryption and decryption, and is suitable for customers who desire more than one encryption key for all data stored by a single tape library. BlueScale Professional Encryption has the capability to manage up to 30 individual encryption keys on the tape library. The BlueScale user interface manages the encryption keys without any need for an external server, reducing operational complexity.

Spectra SKLM Encryption

For organizations with more complex and extensive encryption requirements, Spectra SKLM Encryption Key Management is time tested and proven across enterprise-level customers requiring the highest standard of encryption security. With Spectra SKLM, customers can deploy a centralized and redundant key management solution that meets the most complex key management requirements. Spectra SKLM allows multiple tape libraries to connect to a centralized key manager, giving all of the libraries access to the same encryption key store. Optional redundancy provided by Spectra SKLM provides high availability of the encryption keys.

Bulk media import/export for significant time savings

The T950 library Center TAP (TeraPack Access Point) allows for up to 20 LTO or 18 Enterprise tape cartridges to be imported/exported into the library at one time.

Notes: The T950V library has a single TAP handling 9 Enterprise tapes or 10 LTO tapes at a time.

LTO Ultrium Technology

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. LTO technology is an open industry standard format.

Standard Features

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 & TS Technology Tape Drives	Data transfer rate range (native)
• LTO-9 Ultrium Drives	• 112 to 400 MB/s
• LTO-8 Ultrium Drives	• 112 to 360 MB/s
• LTO-7 Ultrium Drives	• 101 to 300 MB/s
• LTO-6 Ultrium Drives	• 40 to 160 MB/s
• TS1160 Technology Drives	• 112 to 400 MB/s
• TS1155 Technology Drives	• 112 to 360 MB/s
• TS1150 Technology Drives	• 112 to 360 MB/s

WORM (Write-Once, Read-Many) Drive and Media Support

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 HIPAA, IT organizations must now integrate new solutions and policies that can verify the integrity of stored data for periods that can extend well beyond seven years.

Every generation of LTO Ultrium since LTO-3 tape drives features 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

HPE TeraPack Media

HPE Certified TeraPack Media is designed to ensure that customers have the most reliable and automated tape storage available. No other supplier places as much emphasis on continual enhancements and features that simplify all aspects of the media management process. From manufacturer selection to testing and customer shipment, every step of the certified media process is designed to ensure you have the most reliable and automated tape storage available.



Standard Features

Quality

Hewlett Packard Enterprise believes that the test program for HPE Ultrium storage supplies is the most thorough and comprehensive in the industry. In order to carry the HPE Brand, designated cartridges must satisfy an exhaustive battery of additional procedures that relate directly to how the product is used in real life situations when real data and real businesses are at stake. Some of these procedures - e.g. "five corner" environmental interchange, load/unload for automation, ageing simulation and drop testing are not found in the standard logo test. These exhaustive tests on media and both HPE and non-HPE drives ensure that HPE LTO Ultrium storage supplies will always offer maximum reliability even in the most extreme conditions. Unique to TeraPack media, an additional CarbideClean® process gives further peace of mind for HPE T950 and Spectra TFinity ExaScale library customers.

Intelligence

Media Lifecycle Management (MLM) reduces the most common media-related failures. MLM allows you to proactively manage your tape inventory through simple monitoring of over 40 health statistics and automatically identifies at-risk tapes ready for retirement.

Verification

HPE TeraPack Media assures data integrity using an integrated, intelligent and comprehensive set of Data Integrity Verification (DIV) tools when integrated with your tape library. PreScan verifies your tapes are safe prior to usage and QuickScan and FullScan verify your data has been properly written to tape.

Protect

When combining HPE TeraPack Media and our tape library family's integrated BlueScale Encryption Key Management, your data is protected with a straightforward, easily-installed solution.

Management

Media arrives on customer's doorsteps, individual tapes unwrapped with pre-applied barcode labels bundled in TeraPack containers and ready for bulk-loading into your tape library.

Warranty

Lifetime Guarantee warrants our tapes to be free from defects in materials and workmanship for the life of the media. All HPE storage media products are 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.

LTO-7 Type M media

The Spectra T950 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

Data Integrity Verification

HPE T950 and TFinity ExaScale Tape Libraries' data integrity verification features a set of background processes that provide multiple levels of integrity verification for LTO and TS11xx data cartridges. These features help ensure that data stored over any length of time, including archived data stored for years, can be retrieved as needed. These processes include PreScan and PostScan (QuickScan or Fullscan). PreScan checks newly imported tapes to make sure they are ready to use (for example, in good health and not write- protected.) FullScan verifies readability of all the data written on the tape. Quickscan verifies the readability of the data on a single pass of the tape.

PreScan:

Once configured, the library automatically inserts each newly imported LTO or TS11xx cartridge into a tape drive in the partition and checks the drive to determine the following about the cartridge:

- Non-MLM-enabled tape
- Broken or dislodged leader
- Poor media health
- Write protected
- Encrypted tape with a moniker not currently stored in the library

---

PostScan:

After data is written to tape, a PostScan can be conducted to verify that the data written to the tape has no errors. Using either **QuickScan** or **FullScan**, the drive will scan each LTO or TS11xx cartridge and confirm that there are no media errors on the tape by reading either a single length of one wrap of tape or the entire length of the tape, up to the end of the recorded data (EOD).

The PostScan process is performed by the library independently of the backup application normally used to read and write data to the tape. The results of the scan are stored in the library's media-health database. The user can set triggers to check the health of tapes over an interval of time, to ensure that the data is valid. You can also verify a specific tape's data integrity manually/by request.

QuickScan Using Global Spare

A Global Spare drive can be used to verify the integrity of all the data on a tape in a single wrap, from the beginning of the tape up to the end of first wrap or the end of recorded data (EOD), whichever comes first. Using a Global Spare drive avoids potential delays in normal operation while a QuickScan is being performed.

Service and Support

Warranty Included with the Product

The HPE T950 has a standard warranty that extends one year from the date of shipment from the factory. This warranty includes a Next Business Day service contract. Additional years of warranty service can be purchased.

Service and Support

A comprehensive set of support options is offered by HPE via Spectra Logic directly. These options span a wide range of business requirements, from simple phone support and parts replacement, to custom add-ons and focused service account management. Professional Services are also available from Spectra Logic to enhance your service and support experience.

Recommended Support Services

Four-Hour On-Site Service

Four-Hour On-Site Service includes:

- Telephone access to a Technical Support representative, 24 hours a day, 7 days a week, 365 days a year (including evenings, weekends, and holidays).
- Upon verification that the unit has malfunctioned, and a part replacement is required, a service visit from a field service representative will be dispatched to arrive on-site within four hours, including evenings, weekends, and holidays. The customer may specify an arrival time after the four-hour window. The customer may be requested to replace the part if appropriate.
- Remote troubleshooting 24 hours a day, 7 days a week, 365 days a year.
- 24 x 7 x 365 access to the Support Web Portal, Knowledge base and online documentation.

Refer to **https://support.spectralogic.com/** for Spectra Logic country-specific coverage of service options

Four-Hour On-Site Library Hardware Service with Next Business Day On-Site Service for Tape Drives

Four-Hour On-Site Library Hardware Service with Next Business Day On-Site Service for Tape Drives includes:

- Telephone access to a Technical Support representative, 24 hours a day, 7 days a week, 365 days a year (including evenings, weekends, and holidays).
- Upon verification that the Library Hardware has malfunctioned, and a part replacement is required, a service visit from a field service representative will be dispatched to arrive on-site within four hours, including evenings, weekends, and holidays. The customer may specify an arrival time after the four-hour window. The customer may be requested to replace the part if appropriate.
- A service visit from a field service representative, upon verification that a tape drive has malfunctioned and a part replacement is required. If Technical Support is notified by 5:00 p.m. (customer local time), a field service representative will be dispatched for arrival on the following business day between 8:00 a.m. and 5:00 p.m.
- Remote troubleshooting 24 hours a day, 7 days a week, 365 days a year.
- 24 x 7 x 365 access to the Support Web Portal, knowledge base and online documentation.

Refer to **https://support.spectralogic.com/** for Spectra Logic country-specific coverage of service options

Next Business Day On-Site Service

Next Business Day On-Site Service includes:

- Access to a Technical Support representative on any business day (not including evenings, weekends, or holidays) from 8:00 a.m. to 5:00 p.m. (customer local time).
- A service visit from a field service representative, upon verification that the unit has malfunctioned and a part replacement is required. If Technical Support is notified by 5:00 p.m. (customer local time), a field service representative will be dispatched for arrival on the following business day between 8:00 a.m. and 5:00 p.m.
- Remote troubleshooting between 8:00 a.m. and 5:00 p.m. (customer local time) during the standard business week, excluding nationally recognized holidays in the customer's location.
- 24 x 7 x 365 access to the Support Web Portal, knowledge base and online documentation.

Service and Support

- A supplemental support option can be added to provide remote troubleshooting 24 hours a day, 7 days a week, 365 days a year.

Refer to **https://support.spectralogic.com/** for Spectra Logic country-specific coverage of service options
More Information **https://support.spectralogic.com/**

Parts and Materials

Hewlett Packard Enterprise 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.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

Configuration Information

LTO T950V Frames Select one

Notes: All T950V Frames, ship with one Tape Access Port (TAP) and without a rear door.
Please contact your local sales representative for more information.

Description	SKU
LTO T950V Base Frame Single Frame Configuration – No Expansion Frames are being added	
Spectra T950V 1 Drive Bay Assembly Max 4 LTO Drives 1000 Slots Tape Library	Q2R71A
Spectra T950V 3 Drive Bay Assembly Max 12 LTO Drives 920 Slots Tape Library	Q2R72A
Spectra T950V 6 Drive Bay Assembly Max 24 LTO Drives 800 Slots Tape Library	Q2R74A

Notes:

- Includes 10 Entry/Exit Slots, zero drives, and 50 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. Please contact your local sales representative to ensure desired capacity is achieved.
- Qty 5 Entry/Exit TeraPacks will be added to a new T950V single and T950V multi-frame configurations
- This product is TAA (Trade Agreements Act) compliant.

LTO T950V Base Frame Multi-Frame Configuration – Expansion Frames being added to Base Frame	
Spectra T950V 1 Drive Bay Assembly for Multi Frame Max 4 LTO Drives 1000 Slots Expansion Library	Q2R77A
Spectra T950V 3 Drive Bay Assembly for Multi Frame Max 12 LTO Drives 920 Slots Expansion Library	Q2R78A
Spectra T950V 6 Drive Bay Assembly for Multi Frame Max 24 LTO Drives 800 Slots Expansion Library	Q2R79A

Notes:

- Includes 10 Entry/Exit Slots, zero drives, and 50 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. T950 Expansion Frame kits are required. Please contact your local sales representative to ensure desired capacity is achieved.
- Qty 5 Entry/Exit TeraPacks will be added to a new T950V single and T950V multi-frame configurations
- These products are TAA (Trade Agreements Act) compliant.

LTO T950V Expansion Frames	
Spectra T950V 3 Drive Bay Assembly Max 12 LTO Drives 1010 Slots Expansion Library	Q2R73A
Spectra T950V 6 Drive Bay Assembly Max 24 LTO Drives 890 Slots Expansion Library	Q2R75A
Spectra T950V LTO 1300 Slots Media Expansion Library	Q2R76A

TS11xx Technology T950V Frames

Select one Base Frame:

TS11xx Technology Base Frame Single Frame Configuration – No Expansion Frames are being added	
Spectra T950V 1 Drive Bay Assembly Max 4 TS Technology Drives 738 Slots Tape Library	Q2R80A
Spectra T950V 3 Drive Bay Assembly Max 12 TS Technology Drives 684 Slots Tape Library	Q2R81A
Spectra T950V 3 Drive Bay Assembly Max 12 TS Technology Drives 810 Slots Expansion Library	Q2R82A

Notes:

- Includes 9 slot Entry/Exit Slots, zero drives, and 45 slots enabled
- As drives and slots are added, additional Expansion Frames may be required.
- Please contact your local sales representative to ensure desired capacity is achieved.
- Five Entry/Exit TeraPacks will be added to a new T950V single and T950V multi-frame configurations
- These products are TAA (Trade Agreements Act) compliant

Configuration Information

TS11xxTechnology Base Frame Multi-Frame Configuration – Expansion Frames being added to Base Frame

Description	SKU
Spectra T950V 1 Drive Bay Assembly for Multi Frame Max 4 TS Technology Drive 738 Slots Expansion Library	Q2R86A
Spectra T950V 3 Drive Bay Assembly for Multi Frame Max 12 TS Technology Drive 684Slots Expansion Library	Q2R87A
Spectra T950V 6 Drive Bay Assembly for Multi Frame Max 24 TS Technology Drive 594Slots Expansion Library	Q2R88A

Notes:

- Includes 9 Entry/Exit Slots, zero drives, and 45 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. T950 Expansion Frame kits are required. Please contact your local sales representative to ensure desired capacity is achieved.
- Five Entry/Exit TeraPacks will be added to a new T950 single and T950 multi-frame configurations
- This product is TAA (Trade Agreements Act) compliant.

TS11xx Technology T950V Expansion Frames

Spectra T950V 3 Drive Bay Assembly Max 12 TS Technology Drives 810 Slots Expansion Library	Q2R82A
Spectra T950V 6 Drive Bay Assembly Max 24 TS Technology Drives 675 Slots Expansion Library	Q2R84A
Spectra T950V TS Technology 990 Slots Media Expansion Library	Q2R85A

LTO T950 Frames

Select one:

LTO Base Frame Single Frame Configuration – No Expansion Frames are being added

Spectra T950B 1 DBA 4 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Expansion	Q1G58A
Spectra T950 3 Drive Bay Assembly Maximum 12 LTO Drives 920 Slots Tape Library	Q1G59A
Spectra T950 6 Drive Bay Assembly Maximum 24 LTO Drives 800 Slots Tape Library	Q1G61A

Notes:

- Includes 20 Entry/Exit Slots, zero drives, and 50 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. Please contact your local sales representative to ensure desired capacity is achieved.
- These products are TAA (Trade Agreements Act) compliant.

LTO Base Frame Multi-Frame Configuration – Expansion Frames being added to Base Frame

Spectra T950 1 Drive Bay Assembly Multi Frame Configuration Max 4 LTO Drives 1000 Slots Tape Library	Q1G64A
Spectra T950B 3 DBA 12 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Multiple Expansion	Q1G65A
Spectra T950 6 Drive Bay Assembly Multi Frame Configuration Max 24 LTO Drives 800 Slots Tape Library	Q1G66A

Notes:

- Includes 20 Entry/Exit Slots, zero drives, and 50 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. Please contact your local sales representative to ensure desired capacity is achieved.
- This product is TAA (Trade Agreements Act) compliant.

LTO Base Frame Multi-Frame Configuration – Expansion Frames being added to Base Frame

Spectra T950 1 Drive Bay Assembly Multi Frame Configuration Max 4 LTO Drives 1000 Slots Tape Library	Q1G64A
Spectra T950B 3 DBA 12 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Multiple Expansion	Q1G65A
Spectra T950 6 Drive Bay Assembly Multi Frame Configuration Max 24 LTO Drives 800 Slots Tape Library	Q1G66A

Notes:

- Includes 20 Entry/Exit Slots, zero drives, and 50 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. T950 Expansion Frame kits are required. Please contact your local sales representative to ensure desired capacity is achieved.
- This product is TAA (Trade Agreements Act) compliant.

Configuration Information

LTO T950 Expansion Frames

Spectra T950B 3 DBA 12 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Expansion	Q1G60A
Spectra T950B 6 DBA 24 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Expansion	Q1G62A
Spectra T950B Media Expansion	Q1G63A
Entry/Exit Terapack LTO 10-slot No Media	Q0H10A

Notes: Five Entry/Exit TeraPacks will be added to a new T950 single and T950 multi-frame configurations

TS11xx Technology T950 Frames

Select one Base Frame:

Description	SKU

TS11xx Technology Base Frame Single Frame Configuration – No Expansion Frames are being added

Spectra T950 1 Drive Bay Assembly Maximum 4 TS11xx Drives 738 Slots Tape Library	Q1G67A
Spectra T950 3 Drive Bay Assembly Maximum 12 TS11xx Drives 684 Slots Tape Library	Q1G68A
Spectra T950B 6 DBA 24 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Enterprise Multiple Expansion	Q1G70A

Notes:

- Includes 18 slot Entry/Exit Slots, zero drives, and 45 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. Please contact your local sales representative to ensure desired capacity is achieved.
- This product is TAA (Trade Agreements Act) compliant.

TS11xxTechnology Base Frame Multi-Frame Configuration – Expansion Frames being added to Base Frame

HPE T950 1 Drive Bay Assembly Multi Frame Configuration Max 4 TS11xx Drives 738 Slots Tape Library	Q1G74A
HPE T950 3 Drive Bay Assembly Multi Frame Configuration Max 12 TS11xx Drives 684 Slots Tape Library	Q1G75A
HPE T950 6 Drive Bay Assembly Multi Frame Configuration Max 24 TS11xx Drives 594 Slots Tape Drives	Q1G76A

Notes:

- Includes 18-slot Entry Exit slots, zero drives, and 45 slots enabled.
- As drives and slots are added, additional Expansion Frames may be required. T950 Expansion Frame kits are required. Please contact your local sales representative to ensure desired capacity is achieved.
- This product is TAA (Trade Agreements Act) compliant.

TS11xx Technology T950 Expansion Frames

Spectra T950B 3 DBA 12 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Enterprise Multiple Expansion	Q1G69A
Spectra T950B 6 DBA 24 Drives MLM DIV DLM Dual AC 5 Chambers Power Pack+ Enterprise Multiple Expansion	Q1G71A
Spectra T950J 110 Chambers Media Expansion	Q1G72A
Spectra Entry/Exit TeraPack TS 9-slot No Media	Q0H14A

Notes: Qty 5 Entry/Exit TeraPacks will be added to a new T950 single and T950 multi-frame configurations.

T950 Expansion Frames Kits – required for Multi-Frame T950 configurations

Spectra T950 Multiple (2 Frames) Assembly Kit	Q1G52A
Spectra T950 Multiple (3 Frames) Assembly Kit	Q1G53A
Spectra T950 Multiple (4 Frames) Assembly Kit	Q1G54A
Spectra T950 Multiple (5 Frames) Assembly Kit	Q1G55A
Spectra T950 Multiple (6 Frames) Assembly Kit	Q1G56A
Spectra T950 Multiple (8 Frames) Assembly Kit	Q1G57A

Configuration Information

Notes:

- Customers may also be required to also purchase the necessary number of drives, Fibre Channel cables, tape media, power cords and software licenses in order to complete the library solution.
- Installation and Support services will be quoted as a part of each library order.

Description	SKU
Tape Drives, Slot/Capacity Licenses, and Certified TeraPack Media	
LTO-9 Drive Options	
Spectra T950/TFinity LTO-9 Ultrium Fibre Channel Full Height Drive EDBA Sled	R7E99A
Spectra T950/TFinity LTO-9 Ultrium Fibre Channel Full Height Drive Sled	R7F00A
Spectra T950/TFinity LTO-9 Ultrium SAS Full Height Drive EDBA Sled	R7F01A
Spectra T950/TFinity LTO-9 Ultrium SAS Full Height Drive Sled	R7F02A
Notes: Quantity: 1 to 24 drives per drive frame; up to 144 drives maximum.	
LTO-8 Drive Options	
Spectra T950/TFinity LTO-8 Ultrium Fibre Channel Full Height Drive EDBA Sled	Q2R67A
Spectra T950/TFinity LTO-8 Ultrium Fibre Channel Full Height Drive Sled	Q2R68A
Spectra T950/TFinity LTO-8 Ultrium Fibre Channel Half Height Drive EDBA Sled	R0Q19A
Spectra T950/TFinity LTO-8 Ultrium SAS Half Height Drive EDBA Sled	R0Q20A
Notes: Half-height LTO-7 and 8 drives are available in both the T950 and the T950V tape library. Quantity: 1 to 24 drives per drive frame; up to 120 drives maximum.	
LTO-7 Drive Options	
Spectra T950/TFinity LTO-7 Ultrium Fibre Channel Full Height Drive EDBA Sled	Q0H09A
Spectra T950/TFinity LTO-7 Ultrium Fibre Channel Full Height Drive Sled	Q0H08A
Spectra T950/TFinity LTO-7 Ultrium Fibre Channel Half Height Drive EDBA Sled	R0Q17A
Spectra T950/TFinity LTO-7 Ultrium SAS Half Height Drive EDBA Sled	R0Q18A
Notes: Half-height LTO-7 and 8 drives are available in both the T950 and the T950V tape library. Quantity: 1 to 24 drives per drive frame; up to 120 drives maximum.	
LTO-6 Drive Options	
Spectra T950/TFinity LTO-6 Ultrium Fibre Channel Full Height Drive EDBA Sled	Q0H02A
Spectra T950/TFinity LTO-6 Ultrium Fibre Channel Full Height Drive Sled	Q0H01A
Notes: Quantity: 1 to 24 drives per drive frame; up to 120 drives maximum.	
TS11xx Technology Drive Options	
Spectra T950/TFinity TS1160 Fibre Channel Drive EDBA Sled	R0R26A
Spectra T950/TFinity TS1160 Fibre Channel Drive DBA Sled	R0R27A
Spectra T950/TFinity TS1160 SAS Full Height Drive EDBA Sled	R7F03A
Spectra T950/TFinity TS1160 SAS Full Height Drive Sled	R7F04A
Notes: Quantity: 1 to 24 drives per drive frame; up to 120 drives maximum.	
LTO Slots/Capacity Licenses	
Spectra T950/TFinity BlueScale Storage Chamber 10-slot LTU	Q0G86A
Notes: LTO slots are purchased in 10 slot increments.	
TS11xx Technology Slots/Capacity Licenses	
Spectra T950/TFinity BlueScale Storage Chamber 9-slot LTU	Q0H11A
Notes: TS11xx Technology slots are purchased in 9 slot increments.	

Configuration Information

HPE LTO Ultrium TeraPack Media

Non-Custom Labeled LTO Ultrium TeraPack Data Cartridges

Description	SKU
HPE LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled TeraPack 10 Data Cartridges	Q1G95A
HPE LTO-7 Ultrium 15TB RW Non Custom Labeled TeraPack 10 Data Cartridges	Q1H01A
HPE LTO-8 Ultrium 30TB RW Non Custom Labeled TeraPack 10 Data Cartridges	Q2R69A
HPE LTO-7 Ultrium Type M 22.5TB RW Non Custom Labeled TeraPack (10 Data Cartridges)	QS211A
HPE LTO-9 Ultrium 45TB RW Non Custom Labeled TeraPack 10 Data Cartridges	R7C12A

Custom Labeled LTO Ultrium TeraPacks Data Cartridges

Notes: Custom labeled products allow customers to choose their own specific label sequence to be printed on their label order. A custom barcode label order form must be completed.

HPE LTO-6 Ultrium 6.25TB BaFe RW Custom Labeled TeraPack 10 Data Cartridges	Q1G96A
HPE LTO-7 Ultrium 15TB RW Custom Labeled TeraPack 10 Data Cartridges	Q1H02A
HPE LTO-8 Ultrium 30TB RW Custom Labeled TeraPack 10 Data Cartridges	Q2R70A
HPE LTO-7 Ultrium Type M 22.5TB RW Custom Labeled TeraPack (10 Data Cartridges)	QS212A
HPE LTO-9 Ultrium 45TB RW Custom Labeled TeraPack 10 Data Cartridges	R7C13A

Non-Custom Labeled Cleaning LTO Ultrium TeraPacks

HPE LTO Ultrium Cleaning TeraPack 10 Cartridges	Q1H03A

Empty TeraPack Trays and Dust Covers

HPE LTO TeraPack Dust Cover	Q1H05A
HPE LTO Empty TeraPack Tray No Cover or Media	Q1J40A
HPE TS Series Empty TeraPack Tray No Cover or Media	Q1J41A
HPE T10000 Empty TeraPack Tray No Cover or Media	Q2P43A

HPE TS11xx Technology TeraPack Media

Non-Custom Labeled TS11xx Technology TeraPack Data Cartridges

HPE TS1150/TS1155 JD Non Custom Labeled TeraPack 9 Data Cartridges	Q1G99A
HPE TS1160 JE Non Custom Labeled TeraPack 9 Data Cartridges	R0R28A

Custom Labeled TS11xx Technology TeraPack Data Cartridges

Notes: Custom labeled products allow customers to choose their own specific label sequence to be printed on their label order. A custom barcode label order form must be completed.

HPE TS1160 JE Custom Labeled TeraPack 9 Data Cartridges	R0R29A
HPE TS1150/TS1155 JD Custom Labeled TeraPack 9 Data Cartridges	Q1H00A

Non-Custom Labeled Cleaning TS11xx Technology TeraPacks

HPE TS Series Cleaning TeraPack 9 Cartridges	Q1H04A

Additional Media Options

HPE LTO Empty TeraPack Tray No Cover or Media	Q1J40A
HPE TS Series Empty TeraPack Tray No Cover or Media	Q1J41A

Configuration Information

Spectra T950 Tape Library Licenses

Description	SKU
Spectra T950 Shared Library Services Direct Connect Software	Q0G94A
Spectra T950 Shared Library Services QIP RIM Connect Software	Q0H03A
Spectra T950 SKLM Encryption per Library LTU	Q1J61A
Spectra T950/TFinity BlueScale Professional Encryption LTU	Q1J70A

Additional Options

Description	SKU
HPE T950 RIM2 Robot Interface Module	Q0H07A
HPE BlueScale SD Card	Q0H06A
HPE T950 to T950B Expansion Frame Connector Kit	Q0G98A
Notes: Needed to connect T950 frame to a T950B Expansion Frame.	
HPE Library Server Upgrade	Q0G97A
Spectra T950/TFinity 24V 8Amp Power Pack	Q0G89A
Spectra T950/TFinity Adjustable Shipping Crate	Q0G85A
Spectra T950/TFinity 5-12V 8Amp Power Pack	R0R72A
Spectra T950/TFinity Dual AC 2 Power Supply	R0R71A
HPE BlueScale Vision Camera for T950/TFinity Drive Expansion Frame	Q1J37A
HPE BlueScale Vision Camera for T950/TFinity Media Expansion Frame	Q1J38A
Notes: T950V frames do no support the HPE BlueScale Vision Camera	
HPE Secure Site Accessory Kit	Q1J39A
HPE T950 Ethernet Drive Bay Assembly	Q0H00A
Notes: Each Drive Bay Assembly can hold up to 4 LTO or TS11xx Technology Drives and 1 Robotic Interface Module.	
HPE T950 VAX Bumper	Q0G91A

SWARM

Spectra T950/TFinity Swarm Ethernet to SAS Bridge Controller	R7F09A
Spectra T950/TFinity Swarm Ethernet 50Gb PCIe Adapter	R7F08A
Spectra T950/TFinity Swarm QSFP Transceiver	R7F07A
Spectra T950/TFinity Multi-mode OM4 10m Trunk Cable	R7F06A
Spectra T950/TFinity Swarm Bracket	R7F05A

Fibre Channel Cables

HPE 10m Duplex Multi-mode 50u LC/LC Optical Cable	Q0G67A
HPE 20m Duplex Multi-mode 50u LC/LC Optical Cable	Q0G68A
HPE 50m Duplex Multi-mode 50u LC/LC Optical Cable	Q0G69A
Spectra T950/TFinity Mini SAS 3m Cable	R7F74A
Spectra T950/TFinity Tape Library Mini SAS HD 3m Cable	R8S08A

Power Cord

HPE 2.5m 220-240V AU Power Cord	Q0G56A
HPE 2.5m 220-240V ZA/IN Power Cord	Q0G57A
HPE 2.5m 220-240V UK Power Cord	Q0G58A
HPE 2.5m 220-240V IL Power Cord	Q0G59A
HPE 2.5m 220-240V JP Power Cord	Q0G60A
HPE 2.5m 220-240V EU Power Cord	Q0G61A
HPE NEMA L6-30P 220-240V 4.5m US Power Cord	Q0G62A
HPE C19 IEC ZA Power Cord	Q0G63A
HPE C19 IEC to NEMA 5-15P 110-120V 2.5m Power Cord	Q0G64A



Additional Options

Description	SKU
HPE C19 IEC309 220-240V 12AWG 4.6m Power Cord	Q0G66A
HPE C19 L6-20P 220-240V 20Amp 4.5m US Locking Power Cord	Q0G70A

T950 Support Options

Spectra T950 Tape Library 5-year 24x7 4hr Onsite Support	R8S02A
Spectra T950 Tape Library 4-year 24x7 4hr Onsite Support	R8S01A
Spectra T950 Tape Library 3-year 24x7 4hr Onsite Support	R8S00A
Spectra T950 Tape Library 2-year 24x7 4hr Onsite Support	R8R99A
Spectra T950 Tape Library 1-year 24x7 4hr Onsite Support	R8R98A
Spectra T950 Tape Library 5-year Next Business Day Onsite Support	R8R92A
Spectra T950 Tape Library 4-year Next Business Day Onsite Support	R8R91A
Spectra T950 Tape Library 3-year Next Business Day Onsite Support	R8R90A
Spectra T950 Tape Library 2-year Next Business Day Onsite Support	R8R89A
Spectra T950 Tape Library 1-year Next Business Day Onsite Support	R8R88A
Spectra T950 Tape Library 5-year 24x7 4hr Onsite and Next Business Day Onsite Drive Support	R8R82A
Spectra T950 Tape Library 4-year 24x7 4hr Onsite and Next Business Day Onsite Drive Support	R8R81A
Spectra T950 Tape Library 3-year 24x7 4hr Onsite and Next Business Day Onsite Drive Support	R8R80A
Spectra T950 Tape Library 2-year 24x7 4hr Onsite and Next Business Day Onsite Drive Support	R8R79A
Spectra T950 Tape Library 1-year 24x7 4hr Onsite and Next Business Day Onsite Drive Support	R8R78A
Spectra T950 1yr Uplift 7x24 Phone Support	Q9D39A
Spectra T950 1 Unit Co-term Support	Q0H39A
Spectra T950/TFinity Swarm 1-year 24x7 Phone Support	R7F10A
Spectra T950/TFinity Swarm 1-year 24x7 Zone 2 Phone Support	R7F11A
Spectra T950/TFinity Swarm 2-year Additional Uplift 24x7 Phone Support	R7F12A
Spectra T950/TFinity Swarm 2-year Additional Uplift 24x7 Zone 2 Phone Support	R7F13A
Spectra T950/TFinity Swarm 1-year 9x5 Phone Support	R7F14A
Spectra T950/TFinity Swarm 1-year 9x5 Zone 2 Phone Support	R7F15A
Spectra T950/TFinity Swarm 2-year Additional Uplift 9x5 Phone Support	R7F16A
Spectra T950/TFinity Swarm 2-year Additional Uplift 9x5 Zone 2 Phone Support	R7F17A
Spectra T950 Tape Library 3-year 24x7 Phone Uplift Renewal Support	R8S10A
Spectra T950 Tape Library 1-year 24x7 Phone Uplift Renewal Support	R8S09A
Spectra T950 Tape Library 3-year 24x7 4hr Onsite Renewal Support	R8S14A
Spectra T950 Tape Library 1-year 24x7 4hr Onsite Renewal Support	R8S13A
Spectra T950 Tape Library 3-year Next Business Day Onsite Renewal Support	R8S18A
Spectra T950 Tape Library 1-year Next Business Day Onsite Renewal Support	R8S17A
Spectra T950 Tape Library 3-year 24x7 4hr Onsite and Next Business Day Onsite Drives Renewal Support	R8S22A
Spectra T950 Tape Library 1-year 24x7 4hr Onsite and Next Business Day Onsite Drives Renewal Support	R8S21A

Additional Options

T950 Professional Services Options

Description	SKU
HPE Professional Services TFinity Onsite Installation Base	Q0G77A
HPE Professional Services TFinity Expansion Frame Installation Base	Q0G78A
HPE Professional Services TFinity Expansion Frame Installation Upgrade	Q0G79A
HPE Professional Services TFinity Onsite (per Day) Consulting and Training	Q0G80A
HPE Professional Services T950 Annual Preventive Maintenance	Q0G76A
HPE Professional Services T950 Individual Preventive Maintenance	Q0G83A
HPE SKLM Basic Software Installation with up to 5-day Professional Service	Q1J60A
Spectra T950/TFinity Remote Consulting Professional Service	Q2R40A

Technical Specifications

Family Information

Part Name	HPE LTO-6 BaFe	HPE LTO-7 & LTO-7 Type M	HPE LTO-8	HPE LTO-90	HPE LTO
	Non Custom/Custom	Non Custom/Custom	Non Custom/Custom	Non Custom/Custom	Maintenance
	TeraPack	TeraPack	TeraPack	TeraPack	TeraPack
Part Number	Q1G95A/ Q1G96A	Q1H01A/ Q1H02A QS211A/ QS212A	Q2R69A/Q2R70A	HPE LTO Ultrium Cleaning TeraPack 10 Cartridges	Q1H03A
Format	LTO-6 BaFe	LTO-7 / LTO-7 Type M	LTO-8	LTO-9	LTO Cleaning Tapes
Media Format	Re-Writable	Re-Writable	Re-Writable	Re-Writable	-
Quantity per Package	10	10	10	10	10
Capacity	2.5 TB Uncompressed	6.0 TB LTO-7 9TB LTO-7 Type M Uncompressed	12.0 TB Uncompressed	18.0 TB Uncompressed	-
	6.25 TB Compressed	15 TB LTO-7 22.5 TB LTO-7 Type M Compressed	30 TB Compressed	45 TB Compressed	-
Tape Length	846 m	960 m	960 m	1035 m	319 m
Tape Width (Metric)	12.65 mm	12.65 mm	12.65 mm	12.65 mm	12.65 mm
Tape Thickness	6.1 um	5.6 um	5.6 um	5.2 um	8.9 um
Particle Type	BaFe	BaFe	BaFe	BaFe	MP
Bit Density	343 kbits/inch	485 kbits/inch	525 kbit/inch	545 kbit/inch	-
Number of Data Tracks	2176	3584 LTO-7 5376 LTO-7 Type M	6,656	8960	-
Magnetic Layer Coercivity	2280 Oe	2850 Oe	2,300 Oe	Between 1,600 and 3,000 Oe	-
Archival Storage Life	30 years	30 years	30 years	30 years	-
Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty

Technical Specifications

Part Name	HPE LTO-6 BaFe	HPE LTO-7 & LTO-7 Type M	HPE LTO-8	HPE LTO-9	HPE LTO
	Non Custom/Custom	Non Custom/Custom	Non Custom/Custom	Non Custom/Custom	Maintenance
	TeraPack	TeraPack	TeraPack	TeraPack	TeraPack
Environmental Operating					
Temperature	10 to 45°C	10 to 45°C	10 to 45°C	15 to 35°C	10 to 45°C
	(50 to 113°F)	(50 to 113°F)	(50 to 113°F)	(68 to 95°F)	(50 to 113°F)
Relative Humidity	10-80%	10-80%	10-80%	20-80%	10-80%
Maximum wet bulb temperature	26°C (79°F)	26°C (79°F)	26°C	22°C	26°C
Environmental Storage Conditions					
Temperature	16 to 32°C	16 to 32°C	16 to 32°C	16 to 32°C	16 to 32°C
	(61 to 90°F)	(61 to 90°F)	(61 to 90°F)	(61 to 90°F)	(60 to 89°F)
Relative Humidity	20-80%	20-80%	20-80%	20-80%	20-60%
Maximum wet bulb temperature	26°C (79°F)	26°C (79°F)	26°C (79°F)	26°C (79°F)	26°C (79°F)

Part Name	HPE TS1160 Non Custom TeraPack	HPE TS1160 Custom TeraPack	HPE TS Series Maintenance TeraPack
Part Number	R0R28A	R0R29A	Q1H04A
Format	TS1160	TS1160 Cust	-
Media Format	Re-Writable	Re-Writable	-
Quantity per Package	9	9	9
Capacity	TS1160 20 TB Uncompressed	TS1160 20 TB Uncompressed	-
	TS1160 50 TB Compressed	TS1160 50 TB Compressed	-
Tape Length	1,072 m	1,072 m	318 m
Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty	Limited Lifetime Warranty
Environmental Operating			
Temperature	16 to 32°C	16 to 32°C	16 to 32°C
	(61 to 90°F)	(61 to 90°F)	(60 to 90°F)
Relative Humidity	20-80%	20-80%	8-10%
Maximum wet bulb temperature	26°C (79°F)	26°C (79°F)	23°C (79°F)
Environmental Storage Conditions			
Temperature	16 to 25°C	16 to 25°C	-
	(61 to 77°F)	(61 to 77°F)	-
Relative Humidity	20-50%	20-50%	-
Maximum wet bulb temperature	26°C (79°F)	26°C (79°F)	-

Technical Specifications

System Architecture

Dimensions	**Form Factor**	**Free standing**
	Frames (Base, Drive Expansion, Media Expansion)- Physical (HxWxD)	79.125-82 x 29.0 x 43.25 inches (201.0-208.3 x 73.7 x 109.9 cm)
	Frames (Base, Drive Expansion, Media Expansion)- Shipping (HxWxD)	86.4 x 42.0 x 55.2 inches (220.0 x 110.0 x 140.0 cm)
Weight		
Base Frame	Out of box	876-895 lbs (397-406 kg)
	Shipping	1,200-1,300 lbs (544-590 kg)
Drive Expansion Frame	Out of box	720-750 lbs (327-340 kg)
	Shipping	1,045-1,155 lbs (474-524 kg)
Media Expansion Frame	Out of box	538 lbs (244 kg)
	Shipping	862 lbs (391 kg)
Robotic and Host Interface	Fibre Channel, 8Gb/2Gb/1Gb Multi-mode optical, LC connector and optional Robotic Interface Module	
Library Management Interface	One RJ-45 Ethernet port, 10/100Base-T.	

Drive Performance (1Kb = 1,000 bytes)		**LTO-9**	**LTO-8 Ultrium FH**	**LTO-8 Ultrium HH**	**LTO-7 Ultrium FH & HH**	**LTO-6 Ultrium**	**TS1160 Technology**	**TS115x Technology**
	Native Data transfer rate	400 MB/s with LTO-9 media	360 MB/s with LTO-8 media	300 MB/s with LTO-8 media	300 MB/s with LTO-7 media	160 MB/s with LTO-6 media	400 MB/s with TS1160 Technology	360 MB/s with TS115x Technology
	Average load, thread, & initialize time	15 seconds with pre-initialized media	15 seconds	12 seconds	12 seconds	12 seconds	12 seconds	12 seconds
	Average unload time	24 seconds	24 seconds	17 seconds	17 seconds	17 seconds	17 seconds	17 seconds
	Average First File Access Time	66 seconds	66 seconds	60 seconds	60 seconds	60 seconds	55 seconds	55 seconds
Notes: For LTO-9 non-pre-initialized media, the time to load, thread and initialize can be considerably longer than the time stated in this table for the first load of the media. Please consult your sales/pre-sales representative for more details.								
Input Requirements	Auto-range to domestic and international AC voltages							
Input Requirements	Nominal / Range Line Frequency							
	Range Line Voltage	50 Hz / 60Hz						
Power Consumption	Typical Input Current	200 VAC to 240 VAC						
	VA max 183W (N+1)	13A max						
Connectors	FC							

Technical Specifications

		LTO-8 Ultrium FH	LTO-8 Ultrium HH	LTO-7 Ultrium FH & HH	LTO-6 Ultrium	TS1160 Technology	TS115x Technology
Drives Supported	Native Fibre Drives: LTO-9, LTO-8 , LTO-7 , LTO-6 and TS115x and TS1160 Technology Drive SAS: LTO-7 and LTO-8 Half Height	LC Connector					
Maximum Number of Drives	24 drives per Base Frame and 24 per Drive Expansion Frame up to maximum of 120 drives per library with multiple expansion frames						
Reliability (Library Only)	**MTBF**	3 Years					
	MTTR	3 minutes for hot-swap components. 30 minutes for non-hot-swap components					
Reliability (Tape Drive)	**MTBF**	250,000 power-on hours 100% duty cycle					
Reliability (Tape Drive)	**MSBF**	100,000					
Relative Humidity (non-condensing)	**Operating**	Operating: 20% to 80% non-condensing					
Temperature Range	**Shipping**	Shipping & Storage: 10% to 95% non-condensing					
	Operating	Dry Bulb: 10° to 40° C/50° to 104° F Wet Bulb: 25° C (77° F) maximum					
Regulatory Compliance	**Shipping**	Dry Bulb: -40° to 65° C/-40° to 149° F Wet Bulb: 46° C (115° F) maximum					
	Safety						
Regulatory Compliance	**EMC**	UL 60950-1, 2nd ed. Including am1, am2 IEC 60950-1(ed.2); am1;am2					
	Country Regulatory Compliance	CISPR 22/class A, CISPR 24, FCC/Class A					
	Regulatory Model Number	For country specific compliance contact your local sales representative. T950					

Summary of Changes

Date	Version History	Action	Description of Change
18-Apr-2022	Version 21	Changed	QS name was updated.
04-Oct-2021	Version 20	Changed	Added LTO-9 tape, SWARM, new SKUs and removed obsolete SKUs
17-Aug-2020	Version 19	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
03-Feb-2020	Version 18	Changed	Standard Features, and Configuration Information sections were revised.
04-Nov-2019	Version 17	Changed	Standard Features and Configuration Information Sections were updated.
03-Sep-2019	Version 16	Changed	TS1160 tape technology technical specifications added Overview, Standard Features, Configuration Information and Technical Specifications sections were updated.
04-Feb-2019	Version 15	Changed	Standard Features, Compatibility, Technical Specifications sections were updated.
03-Dec-2019	Version 14	Changed	Overview, Service and Support and Technical Specifications sections were revised. SKU descriptions were updated.
06-Aug-2018	Version 13	Removed	SKU Q1J59A was removed.
02-Jul-2018	Version 12	Changed	New T950 Support Options were added. Service and Support section was revised.
07-May-2018	Version 11	Changed	Technical Specifications section was revised. SKU descriptions were updated.
02-Apr-2018	Version 10	Changed	Technical Specifications section was revised. SKU descriptions were updated.
12-Feb-2018	Version 9	Changed	Compatibility and Technical Specifications were revised.
05-Feb-2018	Version 8	Changed	Technical Specifications section was revised.
04-Dec-2017	Version 7	Changed	Overview, Compatibility, and Technical Specifications were revised.
06-Nov-2017	Version 6	Changed	Added SKU Q2R40A in the Technical Specifications Section.
05-Jun-2017	Version 5	Changed	Changes made throughout the QuickSpecs.
27-Mar-2017	Version 4	Changed	Changes made throughout the QuickSpecs.
17-Feb-2017	Version 3	Changed	Changes made throughout the QuickSpecs.
09-Dec-2016	Version 2	Changed	Changes made to the Overview section.
28-Nov-2016	Version 1	New	New QuickSpecs.

Copyright

Make the right purchase decision.
Contact our presales specialists.



Get updates

© Copyright 2022 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

BlueScale, TeraPack, and TFinity are registered trademarks of Spectra Logic Corporation. All rights reserved worldwide. All library features and specifications listed are subject to change at any time without notice.

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

c05269704 - 15747 - Worldwide - V21 - 18-April-2022

Hewlett Packard Enterprise