

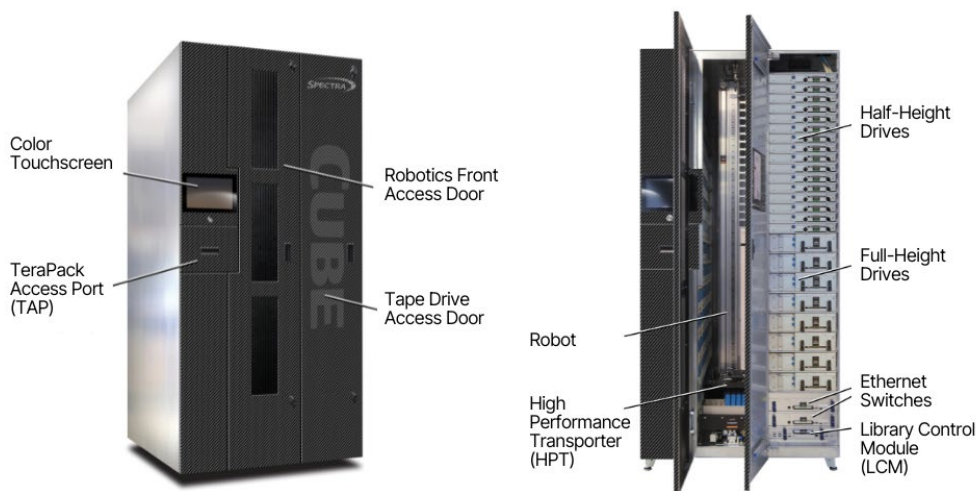
Overview

Spectra Cube Tape Library

Meeting enterprise data growth challenges head-on, the Spectra Cube Tape Library delivers enormous scalability to keep pace with unpredictable data growth. Choose from a range of base configurations and scale up to 1,670 LTO tape cartridges in increments of 10 slots for capacity on demand. Incorporating between 1- 30 Half-Height (HH), 1-16 Full-Height (FH), or a combination of FH and HH LTO tape drives you can consolidate and store up to 30.1 PB native using LTO-9 or 75.2 PB (2.5:1 compressed) maximum using LTO-9 tape cartridges, of enterprise data..



Spectra Cube Tape Library



Standard Features

Key Features

- **Scalability**
 - Capacity on Demand from 50 to 1,670 LTO Tape Cartridges and 1 to 30 half-height (HH), 1 to 16 full-height (FH), or a combination of FH and HH LTO tape drives
 - Scale capacity in 10 LTO tape slot increments
 - Cube area 11.32 ft² which achieves 2,655 TB/SqFt with LTO-9
 - The Cube supports LTO-6, LTO-7, LTO-8 and LTO-9 technology drives
- **High Availability**
 - Redundant power supplies
 - High Performance Transporter (HPT) robot from TFinity Plus
- **Manageability - LumOS**
 - Management access on front panel of library or remotely via web-browser
 - Easy to use web GUI
 - LumOS management software provides proactive hardware health monitoring
 - LumOS 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
 - Designed so almost all access is to the front of the library in the cold aisle and only the redundant power supplies are accessed from the back or hot aisle. This makes servicing the Cube simple with parts designed to be replaced in under 5 minutes.
 - Comprehensive ReST API that can be used to control all LumOS functionality
- **Security**
 - Built-in LumOS Standard and Professional Encryption
 - Hardware Based Encryption through Spectra SKLM using KMIP
- **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 18 TB native and 45 TB of compressed data (2.5:1) on a single LTO-9 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 tape slots at a time
 - More storage capacity in less floor space
- **Continuous data protection**
 - The Cube can be configured either for LTO-6, LTO-7, LTO-8 and LTO-9
 - Data Integrity Verification examines media health before and after data writes, when enabled
 - Integrated LumOS Encryption provides automatic data protection
- **Reduced cost of ownership**
 - Most energy efficient tape library for its class – Platinum rated power supplies
 - Enhanced manageability from any location
 - Proactive and predictive library maintenance supported by LumOS 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 Cube 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
- Versity ScoutAM
- Spectra Logic Black Pearl
- Spectra Logic Object Based Tape

Please contact sales for further details .

Encryption Support

- LumOS Standard Encryption: Included with Tape Library
 - LumOS Professional Encryption
 - The Spectra Cube Tape Library is supported on the following Encryption Key Servers:
 - HPE ESKM 5.0 with KMIP
 - Spectra SKLM with KMIP
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Standard Features

Family Comparison

Cube	
Scalability	1-16 Full Height and 1-30 Half-Height drives with 50 to 1,670 LTO slots
Drive Technology*	LTO-9, LTO-8, LTO-7 or LTO-6 Tape Drives
Capacity range	50 LTO slots minimum 1,670 LTO slots in a max configuration
Maximum Drive Count	1-16 Full Height (FH) 1-30 Half Height (HH) Combination of FH and HH drives as needed
Maximum Capacity (compressed 2.5:1)	30.1 PB using LTO-9 media (max 1,670 slots) 75.2 PB (max compressed)
Maximum Native Throughput	32.4 TB/hr HH and 23.04 TB/hr FH maximum with LTO-9 technology
Standard Form-factor	Free standing
Dual robotics	Not Supported
Data & library security	Encryption: LumOS Standard Encryption Lum OS Professional Encryption HPE ESKM 5.0 with KMIP Spectra SKLM with KMIP
Notes: *Cube can support full-height and half-height LTO-6, 7, 8 and 9 drives	

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 Cube Tape Library is capable of scaling capacity in as little as 10 LTO slots at a time. Both FH and HH tape drives can be used in the Cube with 1 to 30 HH, 1 to 16 FH drives, or a combination of FH and HH. When frame capacity reaches a maximum slot count or more throughput is required, additional Cube libraries may be installed to expand the libraries capacity and total drive count.

Notes: The Cube can support both full-height (LTO-6, LTO-7, LTO-8 and LTO-9) and half-height (LTO-6, 7, 8 and 9) drives



Standard Features

Frame Types	Slots (Max)	Drives (Max)	Max Throughput (Compressed)	Max Capacity (Compressed)
Base Frame Library	LTO		LTO-9	LTO-9
	1670 Slots	30 HH Drives	81.0 TB/hr	45 PB
	1670 Slots	16 FH Drives	51.8 TB/hr	41.4 PB
				36 PB
				TS1170
				110.7 PB
				102.6 PB
				89.1 PB
				LTO-9
				58.5 PB
				TS1170
				148.5 PB
				LTO-9

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 10 pieces of media in a single robotic move, while other tape libraries require 10 separate robotic moves to accomplish this task. Traditional libraries organize tapes one-tape-deep along the library chassis wall. The Cube library uses TeraPack cases to store tapes, with each TeraPack case extending into the library’s interior. This provides Spectra Tape Libraries with very high density, allowing more tapes in a given area than competitors’ libraries.

The library’s TeraPack Access Port (TAP) provides a practical and efficient method for inserting and removing media. To simplify use and reduce time spent on data protection, Spectra 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 front TAP, 10 LTO tapes at a time. Because tapes are loaded in multiple quantities, bulk loads and unloads save significant time.



LumOS Management

The Spectra Cube 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. LumOS is included as a standard feature.



Standard Features

Library Lifecycle Management

LumOS Library Lifecycle Management (LLM) tracks the library and its components across the library's lifecycle. Through Hardware Health Monitoring (HHM), LumOS 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

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 LumOS 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 LumOS 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.



Standard Features

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 Cube Tape Library has 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.

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 Technology drives within the Spectra Cube 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 Technology drive encryption in the Spectra Cube Tape Library provides a complete and secure privacy solution to protect customer's confidential data.

LumOS Professional Encryption

LumOS 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, LumOS 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. LumOS Professional Encryption has the capability to manage up to 30 individual encryption keys on the tape library. The LumOS user interface manages the encryption keys without any need for an external server, reducing operational complexity. LumOS Encryption is fully compatible with all BlueScale Encryption on all Spectra tape libraries.

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.



Standard Features

Bulk media import/export for significant time savings

The Cube library Center TAP (TeraPack Access Point) allows for up to 10 LTO tape cartridges to be imported/exported into the library at one 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.

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 Drives	Data transfer rate range (native)
<ul style="list-style-type: none">• LTO-9 Ultrium Drives• LTO-8 Ultrium Drives• LTO-7 Ultrium Drives• LTO-6 Ultrium Drives	<ul style="list-style-type: none">• 112 to 400 MB/s• 112 to 360 MB/s• 101 to 300 MB/s• 40 to 160 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

Spectra TeraPack Media

Spectra 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 Spectra Cube, 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

Spectra 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 Spectra TeraPack Media and our tape library family's integrated LumOS 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 Spectra 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.

Data Integrity Verification

Spectra Cube, T950 and TFinity ExaScale Tape Libraries' data integrity verification features a set of background processes that provide multiple levels of integrity verification for LTO 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 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
-



Standard Features

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**, the drive will scan each LTO 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.



Service and Support

Warranty Included with the Product

The Spectra Cube 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.spectrallogic.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.spectrallogic.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.



Service and Support

- 24 x 7 x 365 access to the Support Web Portal, knowledge base and online documentation.
- 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.spectrallogic.com/> for Spectra Logic country-specific coverage of service options

More Information <https://support.spectrallogic.com/>



Configuration Information

Cube LTO Base Frame

Please contact your local sales representative for more information.

Description

	SKU
Spectra Cube HPT 30x HH Drive Shelves 5 Entry/Exit Chambers 2x PS Front Graphic Base Frame for HPE	S4T430A
Spectra Cube HPT 30x HH Drive Shelves 5 Entry/Exit Chambers 2x PS Front Custom Graphic Base Frame	S4T31A
Spectra Cube HPT 4x FH/24x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Graphic Base Frame for HPE	S4T32A
Spectra Cube HPT 4x FH/24x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Custom Graphic Base Frame	S4T33A
Spectra Cube HPT 8x FH/16x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Graphic Base Frame for HPE	S4T34A
Spectra Cube HPT 8x FH/16x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Custom Graphic Base Frame	S4T35A
Spectra Cube HPT 12x FH/8x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Graphic Base Frame for HPE	S4T36A
Spectra Cube HPT 12x FH/8x HH Drv Shelves 5 Entry/Exit Chambers 2x PS Front Custom Graphic Base Frame	S4T37A
Spectra Cube HPT 16x FH Drive Shelves 5 Entry/Exit Chambers 2x PS Front Graphic Base Frame for HPE	S4T38A
Spectra Cube HPT 16x FH Drive Shelves 5 Entry/Exit Chambers 2x PS Front Custom Graphic Base Frame	S4T39A
Spectra TeraPack Entry/Exit LTO 10-slot No Media	Q0H10A

Notes:

- Includes 10 Entry/Exit Slots, zero drives, and 50 slots enabled.
- This product is TAA (Trade Agreements Act) compliant.

Cube 4U and 8U Rack Options

Spectra 4U Front Graphic Rack for HPE	S4T40A
Spectra 4U Front Custom Graphic Rack	S4T41A
Spectra 8U Front Graphic Rack for HPE	S4T42A
Spectra 8U Front Custom Graphic Rack	S4T43A

Notes:

- Customers may also be required to also purchase the necessary number of drives, Fibre Channel and SAS 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.

Tape Drives, Slot/Capacity Licenses, and Certified TeraPack Media

LTO-9 Drive Options

Spectra Cube LTO-9 Ultrium Fibre Channel Full Height Drive Sled	S4T44A
Spectra Cube LTO-9 Ultrium SAS Full Height Drive Sled	S4T45A
Spectra Cube LTO-9 Ultrium Fibre Channel Half Height Drive Sled	S4T48A
Spectra Cube LTO-9 Ultrium SAS Half Height Drive Sled	S4T49A

Notes: Quantity: 1 to 30 HH, 1 to 16 FH drives or a combination of driver per Cube.

LTO-8 Drive Options

Spectra Cube LTO-8 Ultrium Fibre Channel Full Height Drive Sled	S4T46A
Spectra Cube LTO-8 Ultrium Fibre Channel Half Height Drive Sled	S4T50A
Spectra Cube LTO-8 Ultrium SAS Half Height Drive Sled	S4T51A

Notes: Quantity: Quantity: 1 to 30 HH, 1 to 16 FH or a combination of drives per Cube.



Configuration Information

LTO-7 Drive Options

Description	SKU
Spectra Cube LTO-7 Ultrium Fibre Channel Full Height Drive Sled	S4T47A
Spectra Cube LTO-7 Ultrium Fibre Channel Half Height Drive Sled	S4T52A
Spectra Cube LTO-7 Ultrium SAS Half Height Drive Sled	S4T53A

Notes: Quantity: 1 to 30 HH, 1 to 16 FH or a combination of drives per Cube

LTO Slots/Capacity Licenses

Spectra Cube LumOS Storage Chamber 10 Slots LTU	S4T58A
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Notes: LTO slots are purchased in 10 slot increments.

Spectra LTO Ultrium TeraPack Media

Non-Custom Labeled LTO Ultrium TeraPack Data Cartridges

Spectra TeraPack LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled 10 Data Cartridges	Q1G95A
Spectra TeraPack LTO-7 Ultrium 15TB RW Non Custom Labeled 10 Data Cartridges	Q1H01A
Spectra TeraPack LTO-8 Ultrium 30TB RW Non Custom Labeled 10 Data Cartridges	Q2R69A
Spectra TeraPack LTO-9 Ultrium 45TB RW Non Custom Labeled 10 Data Cartridges	R7C12A
Spectra TeraPack LTO-9 Ultrium 45TB RW Non Custom Labeled 10 Data Cartridges for Half Height Drives	S4T56A

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.

Spectra TeraPack LTO-6 Ultrium 6.25TB BaFe RW Custom Labeled 10 Data Cartridges	Q1G96A
Spectra TeraPack LTO-7 Ultrium 15TB RW Custom Labeled 10 Data Cartridges	Q1H02A
Spectra TeraPack LTO-8 Ultrium 30TB RW Custom Labeled 10 Data Cartridges	Q2R70A
Spectra TeraPack LTO-9 Ultrium 45TB RW Custom Labeled 10 Data Cartridges	R7C13A
Spectra TeraPack LTO-9 Ultrium 45TB RW Custom Labeled 10 Data Cartridges for Half Height Drives	S4T57A

Non-Custom Labeled Cleaning LTO Ultrium TeraPacks

Spectra TeraPack LTO Ultrium Cleaning 10 Cartridges	Q1H03A
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Empty TeraPack Trays and Dust Covers

Spectra TeraPack LTO Dust Cover	Q1H05A
Spectra TeraPack LTO Empty Tray No Cover or Media	Q1J40A

Spectra Cube Tape Library Licenses and Misc Parts

Spectra Cube Encryption Software Professional Edition LTU	S4T59A
Spectra Cube Tape Library Shared Services Direct Connect Software Service	S4T62A
Spectra Cube SKLM Maximum 30 LTO Drives Encryption Key	S4T66A
APC Basic 1-phase 5.7kVAL6-30P 24A 5-wire 24A/200-240V C13(20) C19(4)2-breaker NA PDU	S4T63A
Spectra C20 3x 1000W/2000W M-CRPS 12V Output 90-140/200-264VAC Power Supply Kit	S4T67A
Spectra Cube 1x Full Height to 2x Half Height Shelf Replacement	S4T54A
Spectra Cube 2x Half Height Shelves to 1x Full Height Shelf Replacement	S4T55A
Spectra Cube/T950/TFinity Per Frame Stability Kit	S3H40A



Configuration Information

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
Spectra 3x Swarm Bracket Kit	S4T65A
Spectra 4x Swarm Bracket Kit	S4T64A

Fibre Channel and SAS Cables

Spectra 10m Duplex Multi-mode 50u LC/LC Optical Cable	Q0G67A
Spectra 20m Duplex Multi-mode 50u LC/LC Optical Cable	Q0G68A
Spectra 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
Spectra Mini SAS HD 4m Cable	P76370-B21
Spectra Mini SAS HD to Mini SAS 4m Cable	P76371-B21

Power Cord

Spectra 220-240V 2.5m AU Power Cord	Q0G56A
Spectra 220-240V 2.5m ZA/IN Power Cord	Q0G57A
Spectra 220-240V 2.5m UK Power Cord	Q0G58A
Spectra 220-240V 2.5m IL Power Cord	Q0G59A
Spectra 220-240V 2.5m JP Power Cord	Q0G60A
Spectra 220-240V 2.5m EU Power Cord	Q0G61A
Spectra NEMA L6-30P 220-240V 4.5m US Power Cord	Q0G62A
Spectra C19 IEC ZA Power Cord	Q0G63A
Spectra C19 IEC - NEMA 5-15P 110-120V 2.5m Power Cord	Q0G64A
Spectra C19 IEC309 220-240V 4.6m 12AWG Power Cord	Q0G66A
Spectra C19 L6-20P 220-240V 20Amp 4.5m US Locking Power Cord	Q0G70A



Additional Options

Cube Support Options

Spectra Cube Professional Encryption Software Support	S4T68A
Spectra Cube Professional Encryption Software Zone 2 Support	S4T69A
Spectra Cube Base Tape Library SpectraGuard 1-year 4-hour Onsite Support	S4T70A
Spectra Cube Base Tape Library SpectraGuard 1-year 4-hour Onsite Zone 2 Support	S4T71A
Spectra Cube Base Tape Library SpectraGuard for Drives 1-year 4-hour Onsite Support	S4T72A
Spectra Cube Base Tape Library SpectraGuard for Drives 1-year 4-hour Onsite Zone 2 Support	S4T73A
Spectra Cube Base Tape Library SpectraGuard Additional 2-year 4-hour Onsite Support	S4T74A
Spectra Cube Base Tape Library SpectraGuard Additional 2-year 4-hour Onsite Zone 2 Support	S4T75A
Spectra Cube Base Tape Library SpectraGuard for Drives Additional 2-year 4-hour NBD Onsite Support	S4T76A
Spectra Cube Base Tape Library SpectraGuard for Drives Additional 2-year 4-hour Zone 2 Support	S4T77A
Spectra Cube Base Tape Library SpectraGuard Additional 2-year NBD Onsite and 5x9 Phone/email Support	S4T78A
Spectra Cube Base Tape Library SpectraGuard Add 2yr NBD Onsite Zone 2 and 5x9 Phone/email Support	S4T79A
Spectra Cube Base Tape Library SpectraGuard 1-year NBD Onsite and 5x9 Phone/email Support	S4T80A
Spectra Cube Base Tape Library SpectraGuard 1-year NBD Onsite Zone 2 and 5x9 Phone/email Support	S4T81A
Spectra Cube LumOS Software ServiceGuard 1-year 4-hour Onsite Support	S4T82A
Spectra Cube LumOS Software ServiceGuard 1-year 4-hour Onsite Zone 2 Support	S4T83A
Spectra Cube LumOS Software ServiceGuard for Drives 1-year 4-hour Next Business Day Onsite Support	S4T84A
Spectra Cube LumOS Software ServiceGuard for Drives 1-year 4-hour NBD Onsite Zone 2 Support	S4T85A
Spectra Cube LumOS Software ServiceGuard 1-year Next Business Day Onsite and 5x9 Phone/email Support	S4T86A
Spectra Cube LumOS Software ServiceGuard 1yr Next Business Day Onsite Zone 2/5x9 Phone/email Support	S4T87A
Spectra Cube LumOS Software ServiceGuard Additional 2-year 4-hour Onsite Support	S4T88A
Spectra Cube LumOS Software ServiceGuard Additional 2-year 4-hour Onsite Zone 2 Support	S4T89A
Spectra Cube LumOS Software ServiceGuard for Drives Add 2yr 4h Next Business Day Onsite Support	S4T90A
Spectra Cube LumOS Software ServiceGuard for Drives Add 2yr 4h NBD Onsite Zone 2 Support	S4T91A
Spectra Cube LumOS Software ServiceGuard Add 2yr NBD Onsite and 5x9 Phone/email Support	S4T92A
Spectra Cube LumOS Software ServiceGuard Add 2yr NBD Onsite Zone 2 and 5x9 Phone/email Support	S4T93A
Spectra Cube SKLM Maximum 30 LTO Drives Additional 2-year Support	S4T94A
Spectra Cube SKLM Maximum 30 LTO Drives Additional 2-year Zone 2 Support	S4T95A
Spectra Cube ServiceGuard for 1 Drive 1-year 4-hour Onsite Support	S4T96A
Spectra Cube ServiceGuard for 1 Drive 1-year 4-hour Onsite Zone 2 Support	S4T97A
Spectra Cube ServiceGuard for 1 Drive 1-year 4-hour Next Business Day Onsite Support	S4T98A
Spectra Cube ServiceGuard for 1 Drive 1-year 4-hour Next Business Day Onsite Zone 2 Support	S4T99A
Spectra Cube ServiceGuard for 1 Drive 1-year Next Business Day Onsite and 5x9 Phone/email Support	S4U00A



Additional Options

Description	SKU
Spectra Cube ServiceGuard for 1 Drive 1-year NBD Onsite Zone 2 and 5x9 Phone/email Support	S4U01A
Spectra Cube ServiceGuard for 1 Drive Additional 2-year 4-hour Onsite Support	S4U02A
Spectra Cube ServiceGuard for 1 Drive Additional 2-year 4-hour Onsite Zone 2 Support	S4U03A
Spectra Cube ServiceGuard for 1 Drive Additional 2-year 4-hour Next Business Day Onsite Support	S4U04A
Spectra Cube ServiceGuard for 1 Drive Additional 2-year 4-hour NBD Onsite Zone 2 Support	S4U05A
Spectra Cube ServiceGuard for 1 Drive Add 2yr NBD Onsite and 5x9 Phone/email Support	S4U06A
Spectra Cube ServiceGuard for 1 Drive Add 2yr NBD Onsite Zone 2 and 5x9 Phone/email Support	S4U07A
Spectra Cube 7x24 Next Business Day Phone Uplift Support	S4U08A

Cube Renewal Support Options

Spectra Cube 1-year 7x24 Phone Renewal Uplift Support	S4U09A
Spectra Cube 3-year 7x24 Phone Renewal Uplift Support	S4U10A
Spectra Cube 1-year 4-hour Onsite 7x24 Phone Renewal Support	S4U11A
Spectra Cube 3-year 4-hour Onsite 7x24 Phone Renewal Support	S4U12A
Spectra Cube 1-year Next Business Day Onsite Renewal Support	S4U13A
Spectra Cube 3-year Next Business Day Onsite Renewal Support	S4U14A
Spectra Cube 1-year 7x24 4-hour Onsite Library/NBD Onsite Drives Renewal Support	S4U15A
Spectra Cube 3-year 7x24 4-hour Onsite Library/NBD Onsite Drives Renewal Support	S4U16A

SWARM Support Options

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

Cube Professional Services Options

Spectra Cube Professional Implementation 1-year Service	S4T61A
Spectra T950/TFinity Tape Library Professional Services Onsite (per Day) Consult and Training	Q0G80A
Spectra Cube Professional Preventive Maintenance Annual Visit 1-year Service	S4T60A
Spectra SKLM Basic Software Installation with up to 5-day Professional Service	Q1J60A
Spectra T950/TFinity Per Frame Stability Kit Installation Professional Service	S3G77A



Technical Specifications

Family Information

Part Name	LTO-6 BaFe	LTO-7	LTO-8	LTO-9	LTO
	Non Custom/Custom TeraPack	Non Custom/Custom TeraPack	Non Custom/Custom TeraPack	Non Custom/Custom TeraPack	Maintenance TeraPack
Part Number	Q1G95A/ Q1G96A	Q1H01A/ Q1H02A	Q2R69A/Q2R70A	R7C13A/R7C12A S4T56A/S4T57A	Q1H03A
Format	LTO-6 BaFe	LTO-7	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 6.25 TB Compressed	6.0 TB LTO-7 Uncompressed 15 TB LTO-7 Compressed	12.0 TB Uncompressed 30 TB Compressed	18.0 TB Uncompressed 45 TB Compressed	-
Tape Length	846 m	960 m	960 m	1,035 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	2,176	3,584 LTO-7	6,656	8,960	-
Magnetic Layer Coercivity	2,280 Oe	2,850 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
Environmental Operating					
Temperature	16 to 32°C (60 to 90°F)	16 to 32°C (60 to 90°F)	16 to 32°C (60 to 90°F)	16 to 32°C (60 to 90°F)	16 to 32°C (60 to 90°F)
Relative Humidity	20-80%	20-80%	20-80%	20-80%	20-80%
Maximum wet bulb temperature	22°C	22°C	22°C	22°C	22°C
Environmental Long Term Storage Conditions					
Temperature	16 to 25°C (60 to 77°F)	16 to 25°C (60 to 77°F)	16 to 25°C (60 to 77°F)	16 to 25°C (60 to 77°F)	16 to 25°C (60 to 77°F)
Relative Humidity	20-50%	20-50%	20-50%	20-50%	20-50%
Maximum wet bulb temperature	22°C	22°C	22°C	22°C	22°C

Technical Specifications

System Architecture

Dimensions	Form Factor	Free standing
	Frame (HxWxD)	79.4 x 35.9 x 45.39 inches (201.68 x 91.12 x 115.29 cm)
Weight		
Base Frame	Out of box	885 lbs (401 kg)
	Shipping	1,200 lbs (544 kg)
Robotic and Host Interface	Fibre Channel, 8Gb Multi-mode optical SAS, 12Gb	
Library Management Interface	Two RJ-45 Ethernet ports, 1000Base-T.	

Drive Performance (1Kb = 1,000 bytes)		LTO-9 Ultrium	LTO-8 Ultrium	LTO-7 Ultrium	LTO-6 Ultrium
	Native Data transfer rate	FH - 400 MB/s with LTO-9 media HH - 300 MB/s with LTO-9 media	FH - 360 MB/s with LTO-8 media HH - 300 MB/s with LTO-8 media	FH and HH - 300 MB/s with LTO-7 media	FH and HH - 160 MB/s with LTO-6 media
	Average load, thread, & initialize time	15 seconds with pre-initialized media	15 seconds	12 seconds	12 seconds
	Average unload time	24 seconds	24 seconds	17 seconds	17 seconds
	Average First File Access Time	66 seconds	66 seconds	60 seconds	60 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	
Power Consumption	Range Line Voltage	50 Hz / 60Hz
	Typical Input Current	200 VAC to 240 VAC
	Max AC input	16 FH drives and redundant power supplies 1,200 Watts max 30 FH drives and redundant power supplies 1,900 Watts max
Connectors	FC, SAS	
Drives Supported	FH and HH Native Fibre Drives: LTO-9, LTO-8, LTO-7, LTO-6 HH SAS Drives: LTO-9, LTO-8, LTO-7, LTO-6	Fibre channel: LC Connector SAS: HD mini-SAS for LTO-9, mini-SAS for LTO-8, LTO-7, LTO-6
Maximum Number of Drives	16 FH drives, 30 HH drives or a combination of the two	
Reliability (Library Only)	MTBF	250,000 Power on Hours
	MTTR	5 minutes for all field replaceable units (FRUs)

Technical Specifications

		LTO-9 Ultrium	LTO-8 Ultrium	LTO-7 Ultrium	LTO-6 Ultrium
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 & Storage	10% to 95% non-condensing			
	Operating	Dry Bulb: 16° to 32° C/60° to 90° F Wet Bulb: 22° C (72° F) maximum			
	Shipping	Dry Bulb: -23° to 49° C/-9° to 120° F Wet Bulb: 26° C (79° 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. Cube			



Summary of Changes

Date	Version History	Action	Description of Change
04-Nov-2024	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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