IBM TS4300 Tape Library (LTO10)

Product Guide

IBM TS4300 Tape Library (Machine Type 7DMN) combines IBM enterprise tape automation and reliability with open system affordability. It is a high-density, highly scalable, easy-to-manage solution designed to keep data securely stored long-term, while helping reduce the costs associated with data center space and utilities.

The TS4300 utilizes modular design to meet growing long-term storage requirements. Starting with a single 3U base module, or scale up the tape library to a maximum level by adding up to fifteen 3U expansion modules for the overall capacity of up to 640 LTO cartridges.

Each 3U base or expansion module can house up to 40 cartridges in two removable magazines.

Each 3U module can accommodate up to three half-height tape drives or a combination of one half-height tape drive and one full-height tape drive. The choice of the tape drives includes IBM LTO Ultrium 10, 9, or 8 Tape Drives with SAS or Fibre Channel host connectivity interfaces.



Figure 1. IBM TS4300 Tape Library: Base module (bottom) with one expansion module (top)

Did you know?

Featuring the latest LTO Ultrium 10 technology, the TS4300 Tape Library provides up to 25.6 PB of native backup storage.

Lenovo can be your trusted partner that offers "one stop shop" and single point of contact for delivery of leading edge technologies and innovations from Lenovo and other leading IT vendors. These offerings can satisfy the wide range of your end-to-end IT infrastructure needs, including end-user devices, servers, storage, networking, services, management software, and financing.

Key features

The TS4300 tape library offers the following features:

- Scalable tape library that is designed for high capacity, high performance, and high reliability.
- Adherence to LTO specifications.
- Support for full-high (FH) LTO Ultrium 10.
    - Future support for LTO-10 half-high (HH)
- Support for half-high (HH) or full-high (FH) LTO Ultrium 9, or 8 tape drives.
- Each 3U module can support either of the following tape drives:
    - Up to three half-high tape drives (1, 2, or 3) or one full-high tape drive
    - One half-high tape drive and one full-high tape drive
- Native data transfer rate of up to 400 MB/s (FH drives) and 250 MBp/s (HH drives).
- Native cartridge capacity of up to 18 TB (Ultrium 9), 12 TB (Ultrium 8), 9 TB (Ultrium 7 initialized LTO 8 Type M).
- 12Gb SAS, can negotiate to 6Gbit connectivity SAS or 32 Gb Fibre Channel can auto-negotiate to 16GFC or 8 GFC for connection to Lenovo servers that run Microsoft Windows or Linux server operating systems.
- Support for LTO 10 media specification tape cartridge uncompressed capacity of up to 40 TB and compressed capacity of up to 100 TB with 2.5 to 1 ratio.
- Data security and regulatory compliance through support for LME and WORM media on LTO 9, 8 tape drives and support for Open Data formats like LTFS.
- Each 3U module that can house up to 40 data cartridges each for a total of up to 640 cartridges in the tape library to enable quick population of the tape library and ease the storage needs for media.
- Flexibility in configuring a 5-slot I/O Station for each module, or one I/O Station can be accessed by several modules to help support continuous library operations, while importing and exporting media with little or no disruption to library operation.
- A standard high-speed bar code reader with which you can operate the TS4300 in random access mode. Sequential mode is not currently supported.
- Mixed media support, including IBM LTO Ultrium 10, 9, 8, and 7.
- Remote management capabilities to allow for remote administration of the TS4300 through a web interface.
- Multi-path feature to allow sharing of the library robotics across heterogeneous applications independently of each other. The library can be partitioned into up to 21 logical libraries (each partition must have at least one drive). It also can provide each logical library its own separate and distinct drives, storage slots, and control paths.
- Optional Path Failover that enables the host device driver to transparently switch to an alternative path if there is a communication path failure to the application.
- Extra power supplies for redundant operations.
- Support from an extensive ecosystem of backup software vendors.

The features in the IBM LTO 9 tape drive:

- Servo and track layout technology: There are 6,656 data tracks in LTO 9 versus 3,584 data tracks in LTO 8. The high-bandwidth servo system features a low-mass servo to help more effectively track servo bands and improve data throughput with damaged media in less-than-optimal shock and vibration environments.

- Surface Control Guiding Mechanism: Designed to guide the tape along the tape path in the LTO 9 and 8 tape drive. This method is designed to use the surface of the tape, rather than the edges, to control tape motion to reduce tape damage (especially to the edges of the tape) and tape debris, which comes from the damaged edges and accumulation in the head area.
- Robust drive components optimized for automation environments: With the most robust components available, steel ball bearings in loader, robust leader block design, and single circuit card, the drives offer enhanced reliability and prolonged life.
- Separate writing of multiple filemarks: This is designed to cause any write command of two or more filemarks to cause a separate data set to be written containing all filemarks after the first.
- LTO Data Compression (LTO-DC): The LTO 9 uses LTO-DC, which is an implementation of a Lempel-Ziv class 1 (LZ-1) data compression algorithm. LTO-DC is an extension of Adaptive Lossless Data Compression (ALDC) and an improvement over previous IBM lossless compression algorithms. Patented "Scheme-Swapping" compression from IBM is designed to look ahead at incoming data and determine the most efficient storage method (either ALDC or pass-through mode) to help optimize data compression and increase data throughput. The compressed ratio is up to 2.5 to 1 for LTO 9.
- LTO Cartridge Memory (LTO-CM): Contained within the LTO data cartridge is the LTO-CM, which is a passive, contactless silicon storage device that is physically a part of the cartridge. The LTO-CM is designed to hold information about that specific cartridge, the media in the cartridge, and the data on the media. The storage capacity of the Generation 9 LTO-CM is 16,320 bytes. Communication between the drive and the LTO-CM is through a low-level RF field transmitted by the drive to the cartridge.
- Statistical Analysis and Reporting System (SARS): The LTO 9 tape drive uses SARS to help isolate failures between media and hardware. SARS uses the cartridge performance history saved in the Cartridge Memory module and the drive performance history kept in the drive flash to help determine the likely cause of failure. SARS is designed to cause the drive to request a cleaner tape, to mark the media as degraded, and to indicate that the hardware has degraded.
- Highly integrated electronics using IBM-engineered copper technology: This technology is designed to reduce the total number of components in the drive, help lower chip temperatures, and reduce power requirements, resulting in a more reliable drive. The ninth-generation drive electronics are designed to provide error correction of soft errors in the memory arrays in data and control paths.

Base Module and Expansion

TS4300 base model has the following characteristics:

- Base module can be installed and operate on its own, providing capacity for 40 LTO cartridges.
- Cartridge capacity: configured to hold two removable magazines, one on the left side and one on the right side, holding 20 slots each for a total of 40 data cartridges. This enables quick population of the tape library, as well as ease of storage for media
- I/O station: The full group of five slots will be configurable as either import/export elements or as storage elements. This enables continuous library operation during import or export of data cartridges.
- Media options: Uses LTO Ultrium® 9 Data Cartridge (5-pack)
- Robotics: The base library will include scaling robotics with a barcode reader for identifying, locating, and moving LTO cartridges between storage locations and drives.
- Power supplies: Power supplies are rated 80 PLUS Silver. Each module can run with a single power supply for nonredundant operation. Power supplies will be hot swappable when two are installed in a single module.

TS4300 expansion module has the following characteristics:

The capacity of a base library can be increased by adding one or more expansion modules. Each expansion will add 40 slots of LTO cartridge capacity and can include an additional three half-height LTO drives or an additional one full-height drive plus one half-height LTO drive.

- Cartridge capacity: expansion modules are configured to hold two removable magazines, one on the left side and one on the right side, holding 20 slots each for a total of 40 data cartridges. You may order additional magazines as optional features to ease import/export tape cartridges on a regular basis.
- I/O station: The full group of five slots will be configurable as either import/export elements or as storage elements. This enables continuous library operation during import or export of data cartridges.
- Media options: Uses LTO Ultrium® 9 Data Cartridge (5-pack)
- Power supplies: Each module can run with a single power supply for nonredundant operation. An optional power supply will provide redundant operation. Power supplies will be hot swappable when two are installed in a single module.

Components and connectors

The following figure shows the front view of the TS4300 Tape Library base module

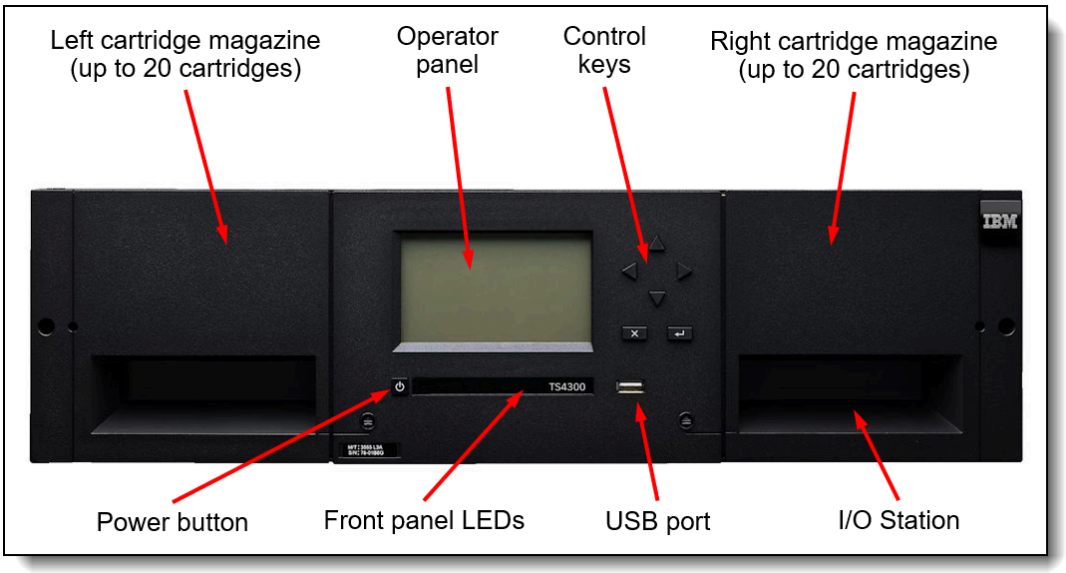


Figure 2. Front view of the TS4300 Tape Library base module

The following figure shows the front view of the TS4300 Tape Library expansion module

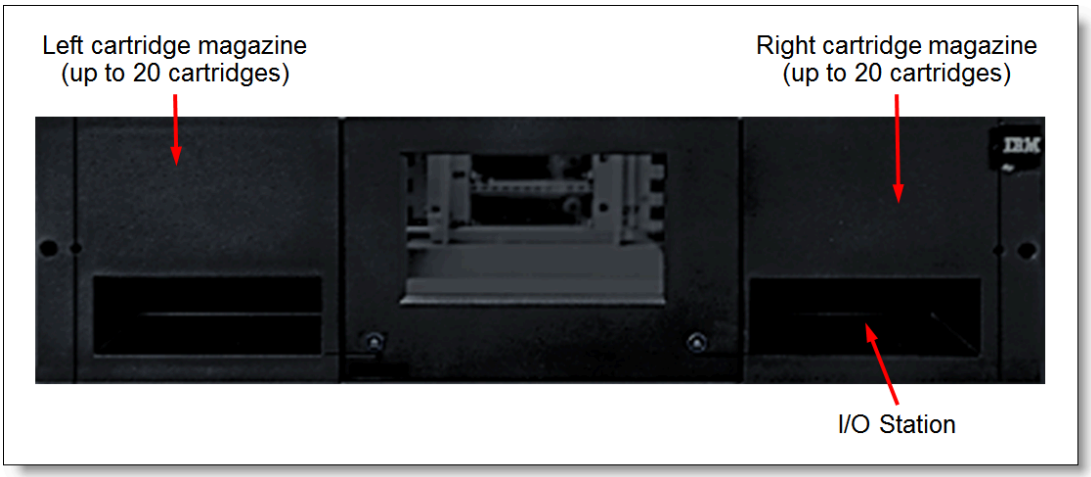


Figure 3. Front view of the TS4300 Tape Library expansion module

The following figure shows the rear view of the TS4300 Tape Library base module

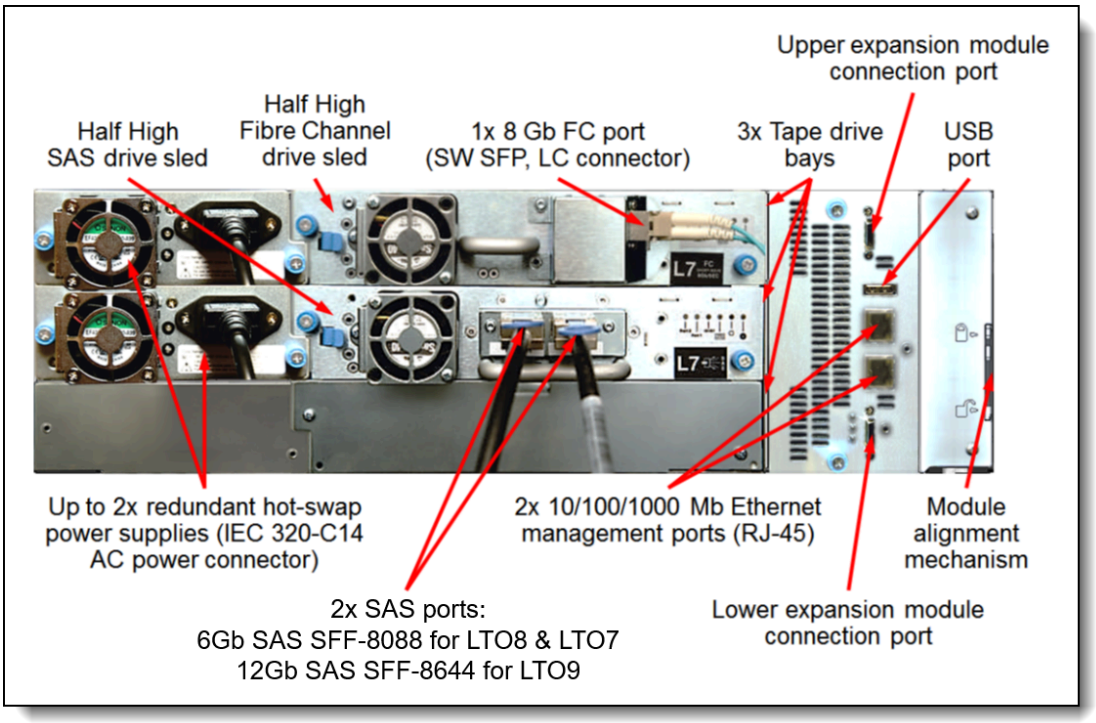


Figure 4. Rear view of the TS4300 Tape Library base module

The following figure shows the rear view of the TS4300 Tape Library expansion module.

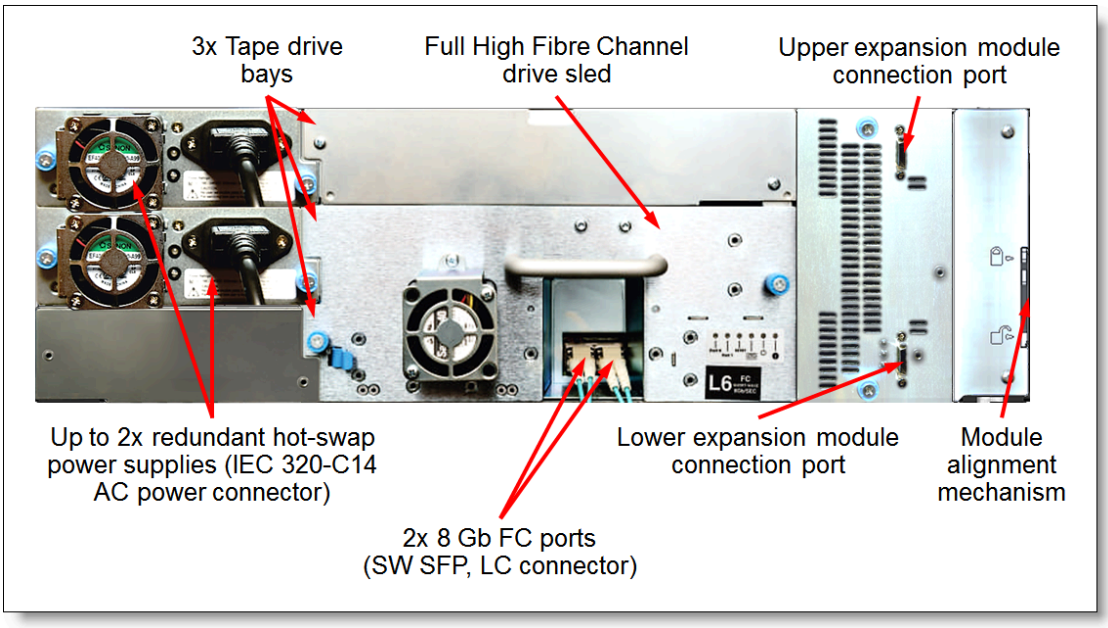


Figure 5. Rear view of the TS4300 Tape Library expansion module

System specifications

The following table lists the TS4300 Tape Library system specifications.

Table 1. System specifications

Attribute	Specification
Form factor	• Base module: 3U rack-mount or stand-alone • Expansion module: 3U rack-mount; up to 15 expansion modules • 16-module library: 48U rack-mount
Drive technology	LTO Ultrium 10, 9, and 8 Full-High (FH) and Half-High (HH) tape drives
Drive interface	Ultrium LTO9 12 Gbps SAS Half-High drive Ultrium LTO8 6 Gbps SAS Half-High drive Ultrium LTO10 32 Gbps Fibre Channel Full High drives Ultrium LTO9 8 Gbps Fibre Channel Half and Full High drives Ultrium LTO8 8 Gbps Fibre Channel Half and Full High drives

Maximum number of drives	• Per module:
	  ◦ Up to 1x full-high and 1x half-high tape drives, or
	  ◦ Up to 3x half-high or 1x full-high tape drives
	• Per 16-module library: Up to 48 hot-swappable tape drives

Number of cartridge slots	• Per module: 40 • Per 16-module library: 640
Configurable I/O station slots	• Per module: 5 • Per 16-module library: 80
Native cartridge capacity	• LTO 10 (L10): 40 TB • LTO 9 (L9): 18 TB • LTO 8 (L8): 12 TB • LTO 8 Type M (M8): 9 TB

Attribute	Specification
Native backup storage capacity	Per module: • LTO 10 (L10): Up to 1.6 PB • LTO 9 (L9): Up to 720 TB • LTO 8 (L8): Up to 480 TB Per 16-module library: • LTO 10 (L10) Up to 25.6 PB • LTO 9 (L9): Up to 720 TB • LTO 8 (L8): Up to 7.68 PB
Native data transfer rate	Per drive: • LTO 10 FH: Up to 400 MB/s • LTO 9 FH: Up to 400 MB/s • LTO 9 HH: Up to 300 MB/s • LTO 8 FH: Up to 360 MB/s • LTO 8 HH: Up to 300 MB/s
Software features	Library partitioning, Path Failover (optional), Library Managed Encryption (optional)
Security features	Secure Socket Layer (SSL), user level security, LDAP, LTO encryption (optional)
Management interfaces (Base module)	• Operator panel • 2x 10/100/1000 Mb Ethernet ports (UTP, RJ-45) for remote management: Web-based GUI; SNMP and email notifications • 2x USB ports (service technician use only)
Cooling	Fixed fans on the tape drives and power supplies
Power supplies	Up to two redundant hot-swap 230 W AC 80 PLUS Silver power supplies (IEC 320-C14 power connector): • Base module: The first power supply is included; the second power supply is optional. • Expansion module: The first power supply is optional; the second power supply is optional. The first power supply is required if the expansion module contains a tape drive.
Hot-swap parts	SAS and Fibre Channel drive sleds, power supplies.
Dimensions	Base or expansion module: • Width: 446 mm (17.6 in.) • Depth: 873 mm (34.4 in.) • Height: 133 mm (5.2 in.)
Weight	• Base module: 21 kg (46.3 lb) • Expansion module: 13 kg (28.7 lb)
Warranty	3 year customer-replaceable unit (CRU) limited warranty with 9x5 next business day parts delivered
Service and support	Optional warranty service upgrades are available through Lenovo Services: onsite coverage, 24x7 coverage, 2-hour or 4-hour response time, 6-hour or 24-hour committed service repair (select countries), 1-year or 2-year warranty extensions
Host operating systems	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES)

Models

The following table lists the ordering information for the TS4300 Tape Library models.

Table 2. TS4300 models

Description	Part number	Machine Type-Model	Feature code
TS4300 3U Tape Library-Base Unit 48U	7DMNL1U	7DMNB1U	CCUX
IBM TS4300 3U Tape Library-Base Unit 48U TAA	7DMNL1U	7DMNB3U	CCUZ
IBM TS4300 3U Tape Library-Expansion Unit	7DMNL3U	7DMNB2U	CCUY
IBM TS4300 3U Tape Library-Expansion Unit 48U TAA	7DMNL3U	7DMNB4U	CCV0

The supported units are:

- Minimum – TS4300 base module only (3U)
- Maximum – TS4300 base module with 15 expansion modules (48U)

The TS4300 Tape Library models include the following items:

- One TS4300 module with the following components:
  - Power supply (base module only)
  - Bar code reader (base module only)
  - Expansion cable (expansion module only)
- Two removable 20-cartridge magazines
- Documentation package

Notes:

- Tape drives are not included; at least one tape drive must be ordered with the TS4300 unit (See Tape drives for details).
- A cleaning cartridge is not included. See Tape media for ordering information.
- A power cable is not included. A rack power cable or a line cord must be ordered with the TS4300 unit (See Power supplies and cables for details).
- Rack mount kit is not included; it should be ordered with the TS4300 unit, if required (see the following table for details). Rack mount kit is required for each module if the configuration contains more than one module.

The following table lists the rack mount kit for the TS4300 units.

Table 3. Rack mount kit

Part number	Feature code	Description	Maximum quantity per module
02JH840	BYR7	TS4300 Rack Mount Kit	1**

** Min extension 23.4 inch to Max 34.3 inch (to fit in shorter racks)

The following figure shows the connectivity topology.

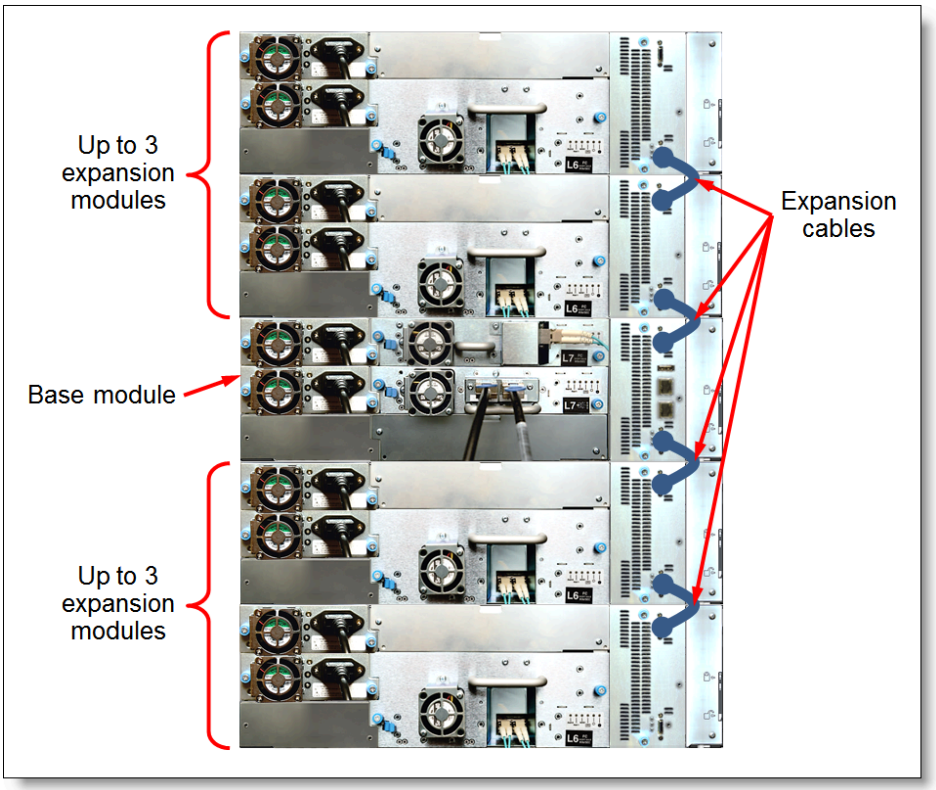


Figure 6. TS4300 tape library connectivity topology

Tape drives

Each TS4300 module (base or expansion) can accommodate up to three LTO Ultrium half-height tape drives or a combination of one LTO Ultrium half-height tape drive and one LTO Ultrium full-height tape drive.

The following table lists the supported tape drives for the TS4300.

Table 4. Tape drive options

Part number	Feature code	Description	Maximum quantity per module
Full Height Fibre Channel			
02JH841	CCV1	LTO 10 Full Height Fibre Channel Drive	1
02JH837	BLW0	LTO 9 FH Fibre Channel Drive	1
01KP954	B1ET	LTO 8 FH Fibre Channel Drive	1
Half Height Fibre Channel			
02JH835	BLVZ	LTO 9 HH Fibre Channel Drive	3
01KP952	B1ER	LTO 8 HH Fibre Channel Drive	3
Half Height 12 Gb SAS			
02JH836	BLW7	LTO 9 HH SAS Drive	3
01KP953	B1ES	LTO 8 HH SAS Drive	3
Tape drive support (Wrap tool)			
01KP939	B16R	Fibre Tape Drive Support (Wrap Tool)	7
02JH839	BLW8	Mini SAS-HD Tape Drive Support (wrap tool)	7
01KP940	B16S	SAS Tape Drive Support (Wrap Tool)	7

A wrap tool is a loopback connector that provides the ability to run port tests and isolate sled problems in tape drives. The Fibre Tape Drive Support is required when at least one Fibre Channel tape drive is installed in the tape library, and the SAS Tape Drive Support is required when at least one SAS tape drive is installed in the tape library.

Cables for host connectivity

A SAS cable or Fibre Channel cable is required to attach a tape drive in the TS4300 Tape Library to a host.

The following table lists supported cable options for LTO9 connectivity.

Table 5. SAS cables for LTO9

Part number	Feature code	Description	Maximum quantity
SAS connectivity cables: Mini-SAS HD (HBA SFF-8644 host) to Mini-SAS HD (HBA SFF-8644 tape drive)			
02JH830	BLW3	3m Mini-SAS HD/Mini-SAS HD 1X Cable	1
02JH832	BLW5	3m Mini-SAS HD/Mini-SAS HD 2X Cable	1

The following table lists supported cable options for LTO8 connectivity.

Table 6. Cable options for LTO 8

Part number	Feature code	Description	Maximum quantity per drive
SAS connectivity cables - Mini-SAS (SFF-8088 host) to Mini-SAS (SFF-8088 tape)			
00NA077	AS0Y	Mini-SAS/Mini-SAS 4x Interposer	1*
00NA009	AS0Z	2 m Mini-SAS/Mini-SAS 1x Cabe (host SFF-8088 to target SFF-8088)	1
SAS connectivity cables - Mini-SAS HD (SFF-8644 host) to Mini-SAS (SFF-8088 tape)			
00NV419	AS10	HD-SAS to Mini-SAS Cable	2
00NV420	AS12	Y-SAS HD to Mini-SAS Cable	2**
Fibre Channel connectivity cable8s			
01KP929	B16M	10 m LC-LC Fibre Cable	2

* The interposer is used on the host side to connect up to four SAS tape drives to a single Mini-SAS x4 port on a SAS HBA with up to four 2 m Mini-SAS to Mini-SAS cables (part number 00NA009).
** The Y SAS HD cable is used to connect up to two SAS tape drives to a single Mini-SAS HD x4 port on a SAS HBA.

Tape media

The TS4300 3U module supports up to 40 data cartridges and comes standard with two removable tape magazines with 20 cartridge slots each. More removable tape magazines can be ordered for the TS4300, if needed.

Note: The first release of the TS4300 tape library supported up to 32 cartridge slots, including up to four I/O station slots, in the single-module configurations and in the lowest module in the multi-module configurations. The second release of the TS4300 tape library supports up to 40 cartridge slots, including up to five I/O station slots, in the single-module configurations and in the lowest module in the multi-module configurations. Please contact a Lenovo service representative in your area for additional details.

The following table lists tape media options and extra magazines that can be ordered for the TS4300.

Table 7. Tape media and extra magazines

Part number	Feature code	Description	Supported tape drive types
Cleaning cartridge			
00NA017	AS1E	Ultrium Cleaning Cartridge L1UCC	All drives
Data cartridges			
02JH842	CCV2	Ultrium 10 Data Cartridges (5-pack)	LTO 10
02JH833	BLW1	Ultrium 9 Data Cartridges (5-pack)	LTO 9
01KP955	B1EW	Ultrium 8 Data Cartridges 5-Pack	LTO 9, LTO 8
02JH005	B5XL	LTO M8 Uninitialized Data Cartridge 5PK	LTO 8
00WF771	ATNZ	Ultrium 7 Data Cartridges 5-Pack	LTO 8, LTO 7
Optional magazines			
01KP931	B16P	Right Side Magazine	All drives
01KP932	B16Q	Left Side Magazine	All drives

LTO Ultrium tape drives support the following backward compatibility for previous generations of tape media:

- LTO 9 Tape Drives can read and write LTO 9 and LTO 8 data cartridges.
- LTO 8 tape drives can read and write LTO 8 and initialized LTO 8 Type M data cartridges.

Configuration notes:

- A 5-Pack of the Ultrium 8, 9 or 10 Data Cartridges includes five unattached barcode labels.
- An LTO 7 initialized LTO 8 Type M data cartridge is a new (unused) LTO 7 data cartridge labelled and initialized to support 9 TB native storage capacity in the LTO 8 tape drive. Once initialized, an LTO 8 Type M cartridge cannot be used in the LTO 7 tape drives, and it cannot be changed back to a 6 TB LTO 7 cartridge.
- LTO M8 Uninitialized Data Cartridges 5-Pack (02JH005) includes five uninitialized LTO 7 data cartridges and five M8 barcode labels. These cartridges will be automatically initialized by the tape library firmware while under the control of ISV applications that recognize the M8 barcode label.

Software

The functionality of the TS4300 can be expanded with the following optional software features:

- Path Failover
- Library Managed Encryption

The TS4300 offers an optional path failover feature that enables the host device driver to resend the command to an alternative control path for the same logical library to ensure smooth library operations if there is a communication error. With control path failover, the alternative control path can include another HBA, SAN, or library control path drive. The device driver starts error recovery and continues the operation on the alternative control path without interrupting the application.

Ultrium 9, and 8 tape drives are encryption-capable, and they support the following modes of encryption management:

- Library Managed: Available for Linux and Windows; requires the IBM Security Key Lifecycle Manager (SKLM).
- Application Managed: Available with third-party software such as IBM Spectrum Protect.

Library Managed Encryption requires an optional encryption license. Application Managed Encryption does not require a license.

The following table lists ordering information for optional software features for the TS4300.

Table 8. Optional software features for TS4300

Part number	Feature code	Description	Maximum quantity per library
01KP984	B21P	TS4300 Path Failover	1
01KP985	B21Q	TS4300 LTO Library Managed Encryption	1

Power supplies and cables

The TS4300 modules support up to two redundant hot-swap 230 W AC power supplies. The base module comes with one power supply, and the second power supply can be ordered for redundancy. The expansion module comes without power supplies, and the first power supply is required when at least one tape drive is installed in the expansion module.

The following table lists the power supply options for the TS4300.

Table 9. Power supply options for TS4300

Part number	Feature code	Description	Maximum quantity per module
01KP928	B16L	First Power Supply	1
01KP927	B16K	Additional Power supply	1

The TS4300 modules and the power supply options ship without power cables. The power cables for the TS4300 are listed in the following table.

Table 10. Power cables

Part number	Feature code	Description	Maximum quantity per module
Line cords			
00NA027	AS29	2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord	2
00NA029	AS2A	2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord	2
00NA031	AS2B	2.8m, 10A/230V, C13 to DK2-5a (Denmark) Line Cord	2
00NA033	AS2C	2.8m, 10A/230V, C13 to BS 1363/A (UK) Line Cord	2
00NA035	AS2D	2.8m, 10A/230V, C13 to SI 32 (Israel) Line Cord	2
00NA037	AS2E	2.8m, 10A/230V, C13 to SEV 1011-S24507 (Sws) Line Cord	2
00NA039	AS2F	2.8m, 10A/230V, C13 to SABS 164 (South Africa) Line Cord	2
00NA041	AS2G	2.8m, 10A/230V, C13 to CEI 23-16 (Italy) Line Cord	2
00NA043	AS2H	2.8m, 10A/230V, C13 to AS/NZS 3112 (Aus/NZ) Line Cord	2
00NA045	AS2J	2.8m, 10A/208V, C13 to NEMA 6-15P (US) Line Cord	2
00NA047	AS2K	2.8m, 10A/220V, C13 to IRAM 2073 (Argentina) Line Cord	2
00NA049	AS2L	2.8m, 10A/220V, C13 to CNS 10917-3 (Taiwan) Line Cord	2
00NA051	AS2M	2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord	2
00NA053	AS2N	2.8m, 10A/110V, C13 to CNS 10917-3 (Taiwan) Line Cord	2
00NA055	AS2P	2.8m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord	2
00NA057	AS2Q	2.8m, 12A/220V, C13 to KSC 8305 (S. Korea) Line Cord	2
00NA059	AS2R	2.8m, 10A/240V, C13 to IS 6538 (India) Line Cord	2
00NA061	AS2T	2.8m, 10A/220V, C13 to NBR 6147 (Brazil) Line Cord	2
Rack power cord			
00NA063	AS2U	4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	2

Physical specifications

The 3U module of the TS4300 Tape Library has the following dimensions and weight (approximate):

- Width: 446 mm (17.6 in.)
- Depth: 873 mm (34.4 in.)
- Height: 133 mm (5.2 in.)
- Weight:
    - Base module: 21 kg (46.3 lb)
    - Expansion module: 13 kg (28.7 lb)

Operating environment

The TS4300 Tape Library is supported in the following environment:

- Air temperature:
  - Operating: 15 °C - 32 °C (59 °F - 90 °F)
  - Non-operating: 5 °C - 45 °C (41 °F - 113 °F)
  - Maximum altitude: 3,050 m (10,000 ft)
- Humidity:
  - Operating: 20% - 80%
  - Non-operating: 8% - 80%
- Electrical power:
  - 100 V AC - 240 V AC (5.0 A to 3.5 A)
  - Frequency: 50 Hz / 60 Hz
  - Power consumption: 350 watts

Warranty upgrades and post-warranty support

The TS4300 Tape Library (machine type 7DMN) has a one-year CRU and onsite limited warranty.

Our global network of regional support centers offers consistent, local-language support enabling you to vary response times and level of service* to match the criticality of your support needs:

- **Standard Next Business Day** – Best choice for non-essential systems requiring simple maintenance.
- **Standard 24x7 4-Hour Response** – Best choice for systems where maximum uptime is critical.

For more information, consult the brochure Lenovo Operational Support Services for Data Centers Services.

* Some service levels may not be available in all markets. Contact your sales representative for more information.

Tape media warranty

When purchased with a supported tape drive or tape library, the tape media assumes the base warranty and any warranty upgrade. For standalone media purchases, the following warranty applies.

IBM BRAND STORAGE MEDIA STATEMENT OF WARRANTY

LIMITED LIFETIME WARRANTY AND LIMITATION OF REMEDIES:

Product is warranted against manufacturing and material defects for the useful life of the product, or until end of support of the product, whichever comes first. IBM warrants that IBM product is free from defects in material and manufacture at the time of purchase. If any defect in material or manufacture appears after the date of purchase, IBM's entire liability, and your exclusive remedy is, at IBM's option, either (a) repair, or (b) replacement of the product.

This warranty does NOT apply to failure of the IBM product resulting from misuse, abuse, accident, neglect or mishandling, improperly adjusted or maintained drives, incorrect environments, or wear from ordinary use.

THIS WARRANTY IS MADE IN LIEU OF ALL OTHER RIGHT S, CONDITIONS AND WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Lenovo TruScale

Lenovo TruScale XaaS is your set of flexible IT services that makes everything easier. Streamline IT procurement, simplify infrastructure and device management, and pay only for what you use – so your business is free to grow and go anywhere.

Lenovo TruScale is the unified solution that gives you simplified access to:

- The industry's broadest portfolio – from pocket to cloud – all delivered as a service
- A single-contract framework for full visibility and accountability
- The global scale to rapidly and securely build teams from anywhere
- Flexible fixed and metered pay-as-you-go models with minimal upfront cost
- The growth-driving combination of hardware, software, infrastructure, and solutions – all from one single provider with one point of accountability.

For information about Lenovo TruScale offerings that are available in your region, contact your local Lenovo sales representative or business partner.

Regulatory compliance

The TS4300 Tape Library conforms to the following regulations:

- FCC: Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003/NMB-03, Class A
- CISPR 32, Class A
- EN 55032, Class A
- Japan VCCI Class A statement
- People's Republic of China Class A Electronic Emission statement
- Taiwan Class A compliance statement
- Korea KCC Class A statement
- Russia Electromagnetic Interference (EMI) Class A Statement

Interoperability

Lenovo provides end-to-end storage compatibility testing to deliver interoperability throughout the network. The TS4300 Tape Library supports attachment to Lenovo servers by using SAS or Fibre Channel connectivity.

Note: End-to-end storage configuration support (including adapters, network switches, and operating systems) *must* be verified through the System Storage Interoperation Center (SSIC) for the TS4300

Fibre Channel SAN switches

Lenovo offers the ThinkSystem DB Series of Fibre Channel SAN switches for high-performance storage expansion. See the DB Series product guides for models and configuration options:

- ThinkSystem DB Series SAN Switches:
  https://lenovopress.com/storage/switches#rt=product-guide

Operating systems

For the list of supported operating systems, refer to the IBM System Storage Interoperation Center (SSIC):
http://www.ibm.com/systems/support/storage/ssic

Note: The LTO tape drives are supported when attached and run from the host operating system, however, in

virtualization environments (for example, Hyper-V, KVM, Xen), the tape drives are not supported in the guest operating systems.

ISV backup software compatibility

The Independent Software Vendors (ISVs) indicate support for the LTO Ultrium Tape Drives for the following ISV backup software:

- Acronis Backup Advanced
- Arcserve Backup
- ASG Time Navigator
- CommVault Simpana
- Dell/EMC NetWorker
- Echoleaf Systems Virtual Drive
- Gemalto SafeNet
- HPE/Micro Focus Data Protector
- IBM High Performance Storage System
- IBM RMS
- IBM Security Key Lifecycle Manager
- IBM Spectrum Archive Drive Edition
- IBM Spectrum Archive Library Edition
- IBM Spectrum Archive Enterprise Edition
- IBM Spectrum Protect
- Microsoft System Center Data Protection Manager
- NetApp Data Storage
- Oracle DIVA
- Oracle OSB
- Oracle SAM-QFS-HSM
- Point Archival Gateway
- Quest NetVault
- Qstar
- Veritas Backup Exec
- Veritas NetBackup
- Veeam Backup and Retention
- Versity Storage Manager

For more information, see the ISV matrix for IBM LTO that is available at this website:
https://www.ibm.com/downloads/cas/ORLZ7EMG

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Seller training courses

The following sales training courses are offered for employees and partners (login required). Courses are listed in date order.

1. **Family Portfolio: Storage**
   2026-02-13 | 50 minutes | Employees and Partners

   This course covers the Lenovo storage portfolio, from tape drives used for backups and archiving all the way through high-performance storage systems. After completing this course about the Storage family, the learner will be able to identify products and features within the family, describe the features of this Product Family, and recognize when a specific product should be selected.

   Tags: Storage, ThinkSystem

   Published: 2026-02-13
   Length: 50 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: SXSW1201r18

2. **Partner Technical Webinar - LTO10 Tape and TruScale IaaS tips and tools**
   2026-01-27 | 60 minutes | Employees and Partners

   In this 60-minute replay, we had two topics on the Partner Technical Webinar. First, Ariel Wang, Lenovo WW Tape PM, presented the new LTO10 Tape and TS4300 Tape Library. Second, Leanne Scott-Williams, Tracie Heath Garcia and Jim Gilliespie, Lenovo TruScale, presented on TruScale IaaS tips and tools including an overview and demo of the TruScale Price Estimator.

   Tags: Storage, TruScale Infrastructure as a Service

   Published: 2026-01-27
   Length: 60 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: JAN2306

3. **Lenovo Data Center Product Portfolio**
   2025-06-11 | 20 minutes | Employees and Partners

   This course introduces the Lenovo data center portfolio, and covers servers, storage, storage networking, and software-defined infrastructure products. After completing this course about Lenovo data center products, you will be able to identify product types within each data center family, describe Lenovo innovations that this product family or category uses, and recognize when a specific product should be selected.

   Course objectives:
   1.Identify product types within each data center family
   2.Describe the features of the product family or category
   3.Recognize when a specific product should be selected

   Tags: Advanced DataCenter, DataCenter Products, Server, ThinkAgile, ThinkEdge, ThinkSystem

   Published: 2025-06-11
   Length: 20 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: SXXW1110r8

Related publications and links

For more information, see the following resources:

- Storage Options for ThinkSystem Servers
  https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers
- Lenovo Data Center Solution Configurator (DCSC)
  http://dcsc.lenovo.com/
- IBM System Storage Interoperation Center (SSIC)
  http://ibm.com/systems/support/storage/ssic
- IBM Redbooks publication, IBM Tape Library Guide for Open Systems
  http://www.redbooks.ibm.com/abstracts/sg245946.html?Open

Related product families

Product families related to this document are the following:

- Backup Units
- Tape Autoloaders and Libraries

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