

Lenovo LTO Generation 7 (LTO7) Internal SAS Tape Drive

Product Guide

The ThinkSystem Internal Half High LTO Generation 7 (LTO 7) SAS Tape Drive is a high-performance, high-capacity data-storage device that is designed to back up and restore open-systems applications. It offers native storage capacity of 6 TB per cartridge (15 TB at 2.5:1 compression) and a maximum native data transfer rate of up to 300 Mbps (750 Mbps compressed). This enterprise data protection offering has a 5.25" half-height internal form factor for integration into ThinkSystem servers.

Figure 1 shows the ThinkSystem Internal Half High LTO7 SAS Tape Drive.



Figure 1. ThinkSystem Internal Half High LTO7 SAS Tape Drive

Did you know?

LTO Generation 7 tape drives is compatible with the cartridges of its predecessor. The LTO7 drive can read and write LTO6 cartridges and read LTO5 cartridges.

Part number information

The following table lists the ordering part numbers and feature codes.

Table 1. Ordering information

Part number	Feature code	Description
7T27A01503	AVF5	ThinkSystem Internal Half High LTO Gen7 SAS Tape Drive
7TP7A01606	AVF7	ThinkSystem LTO Gen7 6TB Tape (One 6 TB tape cartridge media)

The tape drive option part number 7T27A01503 includes these items:

- 5.25-inch internal tape drive
- 12Gb SAS cable for internal tape connectivity
- Power cable
- Cleaning cartridge
- Documentation

Features

The LTO Generation 7 Tape Drive is a high-performance, high-capacity tape drive. The drive records data using a linear serpentine recording format on half-inch tape housed within a cartridge. The data tracks are located using preformatted servo tracks.

Features of the LTO Generation 7 Internal SAS Tape Drives include:

- Compatibility
LTO 7 can store 2.4 times as much data (6000 GB) to an LTO-type tape cartridge as the LTO6 drive (2500 GB), without compression. LTO7 can also read and write LTO6 cartridges, and read only Ultrium 5 cartridges, and thus can interchange data with LTO6 and LTO5 tape drives.

Note, however, the LTO7 drive will only allow an LTO6 cartridge to be written at the LTO6 density (2500 GB). The LTO7 drive will not allow an LTO6 cartridge to be re-formatted to the LTO7 format.
- Increased recording density
The Ultrium 7 drive uses a new data cartridge that externally has the same physical dimensions as previous LTO cartridges, however the linear recording density is higher at 19.09 kb/mm and the magnetic particle is now Barium Ferrite (BaFe) compared to Super Finavinx used in LTO6 and earlier cartridges. Such advances have resulted in higher storage capacity of cartridges.
- Write once, read many (WORM) support
LTO7 tape drives and support write once, read many (WORM) cartridges to help protect your data. With WORM cartridges you can store vital data in a non-erasable, non-rewritable format. The WORM cartridge types are geometrically identical to the R/W cartridge, and use the same rewritable media, however, mechanical and electronic features of the cartridge are different for WORM cartridge types, preventing the cartridge from being re-recorded.
- Encryption
The LTO7 drive features hardware-based AES-256 data encryption capabilities which can securely store data to help ensure compliancy with data security, information disclosure, and privacy regulations for data at rest.

- Operator panel

The LTO7 tape drive has a front operator panel comprised of a status LED indicator, an Encryption active LED indicator, an unload push button, and a single-character display. The single-character display indicates errors and communicates messages, such as requests for a cleaning tapes. The display is also used by the operator for diagnostic and maintenance functions.

- SAS connection

The tape drive supports a 6 Gb or 12 Gb SAS connection using a SFF-8482 connection.

Specifications

Specifications for the LTO7 Internal SAS Tape Drives are as follows:

- 6 Gbps SAS host interface
- Native storage capacity of 6 TB per cartridge (15 TB at 2.5:1 compression)
- Maximum native data transfer rate of up to 300 Mbps, 750 Mbps compressed
- Burst data transfer rate of up to 750 MB per second
- 1024 MB read-and-write cache
- Support for encryption on Ultrium 7 and Ultrium 6 tape cartridges
- Single-character display (SCD) operator panel

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 2. ThinkSystem server support (Part 1)

Part number	Description	Intel 2S								AMD			
		ST550 (7X09/7X10)	SR530 (7X07/7X08)	SR550 (7X03/7X04)	SR570 (7Y02/7Y03)	SR590 (7X98/7X99)	SR630 (7X01/7X02)	SR650 (7X05/7X06)	SR670 (7Y36/37/38)	SR635 (7Y98/7Y99)	SR655 (7Y00/7Z01)	SR645 (7D2Y/7D2X)	SR665 (7D2W/7D2V)
7T27A01503	Internal LTO7 SAS Tape Drive	Y	N	N	N	N	N	N	N	N	N	N	N

Table 3. ThinkSystem server support (Part 2)

Part number	Description	E	1S Intel				4S Intel				Dense/ Blade			
			SE350 (7Z46/7D1X)	ST50 (7Y48/7Y50)	ST250 (7Y45/7Y46)	SR150 (7Y54)	SR250 (7Y51/7Y52)	SR850 (7X18/7X19)	SR850P (7D2F/2D2G)	SR860 (7X69/7X70)	SR950 (7X11/12/13)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)
7T27A01503	Internal LTO7 SAS Tape Drive	N	Y	Y	N	N	N	N	N	N	N	N	N	N

Supported HBAs

The following table lists the host bus adapters that are supported with the tape drives

Table 4. Supported HBAs

Part number	Feature code	Description
ThinkSystem HBAs		
7Y37A01088	AUNL	ThinkSystem 430-8i SAS/SATA 12Gb HBA
7Y37A01089	AUNM	ThinkSystem 430-16i SAS/SATA 12Gb HBA

Front panel

The following figure shows the front panel of the tape drive.

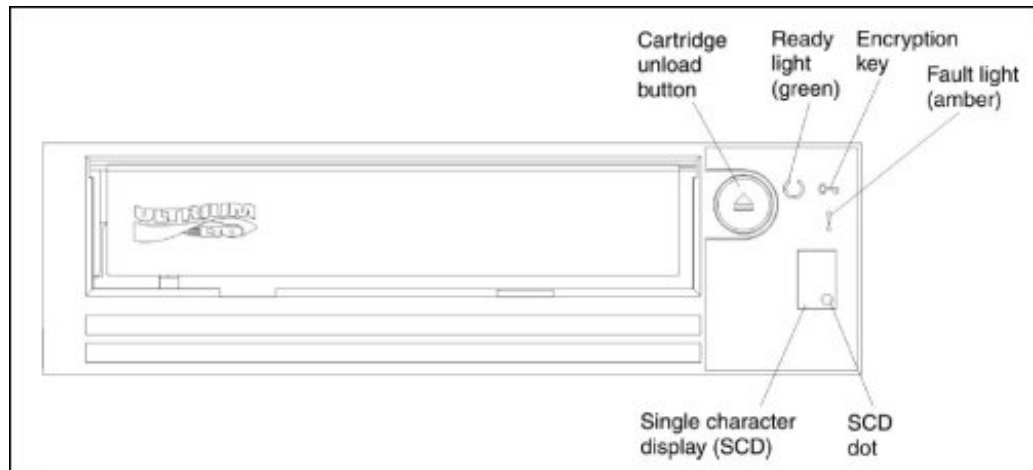


Figure 2. Front panel

The single-character display presents a single-character code for error conditions and informational messages. When the drive is in maintenance mode, the display shows diagnostic or maintenance functions. The SCD dot is off during normal operations; it is used only while the drive is in maintenance mode.

Supported software products

The tape drive supports the following software products:

- NetVault Backup
- ARCServe Backup
- Networker Backup and Recovery (Does not support removable disk)
- Backup Exec
- Tivoli Storage Manager
- Yosemite Server Backup
- Built-in backup functionality of supported operating system (native backup)

Supported operating systems

The following table lists the supported operating systems for the drives:

Tip: These tables are automatically generated based on data from [Lenovo ServerProven](#).

Not supported in guest OSES: The LTO tape drives are supported when attached and run from host operating systems, however, in virtualization environments (for example, Hyper-V, Xen), the tape drives are not supported in the guest operating systems.

Table 5. Operating system support for LTO 7 Internal Tape Drive, 7T27A01503

Operating systems	ST250	ST50	ST550 (Gen 2)	ST550 (Gen 1)
Microsoft Windows Server 2012 R2	N	N	N	Y
Microsoft Windows Server 2016	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y
Red Hat Enterprise Linux 6.10	N	N	N	Y
Red Hat Enterprise Linux 6.9	N	N	N	Y
Red Hat Enterprise Linux 7.3	N	N	N	Y
Red Hat Enterprise Linux 7.4	N	N	N	Y
Red Hat Enterprise Linux 7.5	N	Y	N	N
Red Hat Enterprise Linux 7.6	N	N	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	Y
SUSE Linux Enterprise Server 11 SP4 with Xen	N	N	N	Y
SUSE Linux Enterprise Server 12 SP2	N	N	N	Y
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	Y
SUSE Linux Enterprise Server 12 SP3	Y	N	N	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	Y	N	N	Y
SUSE Linux Enterprise Server 12 SP4	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	N	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	Y	N	Y	Y

Physical specifications

Physical specifications of the tape drive are as follows:

- Height: 39 mm (1.5 in.)
- Width: 146 mm (5.8 in.)
- Depth: 210 mm (8.3 in.)
- Weight: 3.2 kg (7.0 lb)

Shipping dimensions (approximate) are as follows:

- Height: 69 mm (2.7 in.)
- Width: 176 mm (6.9 in.)
- Depth: 240 mm (9.5 in.)
- Weight: 3.8 kg (8.3 lb)

Operating environment

The tape drive is supported in the following environment:

- Temperature:
 - 10° to 40°C (50° to 104°F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 40°C (50° to 104°F) at 3048 m (10,000 ft)
- Relative humidity: 20% to 80% (noncondensing)
- Maximum altitude: 12,192 m (40,000 ft)

Warranty

The ThinkSystem Internal Half High LTO Gen7 SAS Tape Drive has a one-year limited warranty. When installed in a supported server, the tape drive inherits the server's base warranty and any warranty upgrade.

The LTO cartridges are considered consumable media and are not covered by the product warranty.

Related publications

For more information, see the following resources:

- Lenovo product page for LTO tape drives:
<https://www3.lenovo.com/us/en/data-center/servers/server-options/system-x-options/server-storage/backup-and-archive-storage/lto-tape-drives/c/lto-drives>
- ServerProven pages for tape drives
<http://static.lenovo.com/us/en/serverproven/xseries/storage/tmatrix.shtml>

Related product families

Product families related to this document are the following:

- [Backup Units](#)

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