Lenovo LTO Generation 8 (LTO8) Internal SAS Tape Drive

Product Guide

The ThinkSystem Internal Half High LTO Generation 8 (LTO8) 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 12 TB per cartridge (30 TB at 2.5:1 compression) and a maximum native data transfer rate of up to 300 MBps (500 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 LTO Gen8 SAS Tape Drive.

Figure 1. ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive

Did you know?

LTO Generation 8 tape drives can read and write prior generation LTO7 cartridges. Note, however, that it cannot read from or write to LTO6 or earlier cartridges.

Part number information

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

Table 1. Ordering information

Part number	Feature code	Description
4T27A10727	B4BM	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive
4TP7A09619	B4BN	ThinkSystem LTO Gen8 12TB Tape

The tape drive option part number 4T27A10727 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 8 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 ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive include:

- Compatibility

  LTO8 can store twice as much data (12000 GB) to an LTO-type tape cartridge as the LTO7 drive (6000 GB), without compression. LTO8 can also read and write LTO7 cartridges, and thus can interchange data with LTO7 tape drives.

  Note: the LTO8 drive cannot read from or write to LTO6 cartridges.

- Increased recording density

  The Ultrium 8 drive uses a new data cartridge that externally has the same physical dimensions as previous LTO cartridges, however the linear recording density is 1.86x higher that LTO7. Like the LTO7 cartridge, uses Barium Ferrite (BaFe) magnetic particles for increased storage capacity of cartridges.

- Write once, read many (WORM) support

  LTO8 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 LTO8 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 LTO8 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 LTO8 Internal SAS Tape Drive are as follows:

- 6 Gbps SAS host interface
- Native storage capacity of 12 TB per cartridge (30 TB at 2.5:1 compression)
- Maximum native data transfer rate of up to 300 MBps, 500 MBps compressed
- Burst data transfer rate of up to 600 MBps
- 1024 MB read-and-write cache
- Support for encryption on Ultrium 8 and Ultrium 7 tape cartridges
    - AES-256 standards based strong symmetric data encryption with GCM formatting
    - T10 Defined encryption capabilities for application-managed encryption (AME) and out-of-band encryption
    - IBM Proprietary Protocol AME and transparent encryption
- Single-character display (SCD) operator panel

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 2. Server support (Part 1 of 4)

Part Number	Description	2S AMD V3				2S Intel V3			4S 8S Intel V3			Multi Node			GPU Rich				1S V3	
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 3. Server support (Part 2 of 4)

		Edge					Super Computing					1S Intel V2			2S Intel V2		
Part Number	Description	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N

Table 4. Server support (Part 3 of 4)

		AMD V1					Dense V2				4S V2		8S	4S V1			1S Intel V1			
Part Number	Description	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N

Table 5. Server support (Part 4 of 4)

		2S Intel V1								Dense V1			
Part Number	Description	ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive	Y	N	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 drive.

Table 6. 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

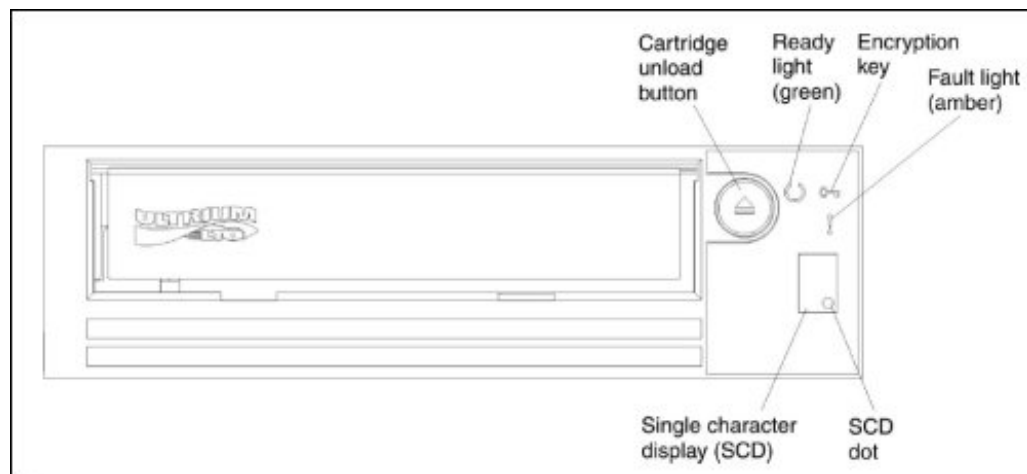The following figure shows the front panel of the tape drive.

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 tape drive:

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 7. Operating system support for ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive, 4T27A10727

Operating systems	ST250	ST50	ST650 V2	ST550 (Xeon Gen 2)	ST550 (Xeon Gen 1)
Microsoft Windows Server 2012 R2	N	N	N	N	Y
Microsoft Windows Server 2016	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	N	Y	Y	Y
Red Hat Enterprise Linux 6.10	N	N	N	N	Y
Red Hat Enterprise Linux 6.9	N	N	N	N	Y
Red Hat Enterprise Linux 7.3	N	N	N	N	Y
Red Hat Enterprise Linux 7.4	N	N	N	N	Y
Red Hat Enterprise Linux 7.5	Y	Y	N	N	Y
Red Hat Enterprise Linux 7.6	N	N	N	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	N	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	N	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	N	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	N	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	N	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	N	Y	Y	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	N	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	N	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	N	Y	Y	N
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	Y
SUSE Linux Enterprise Server 11 SP4 with Xen	N	N	N	N	Y
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	Y

Operating systems	ST250	ST50	ST650 V2	ST550 (Xeon Gen 2)	ST550 (Xeon Gen 1)
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	N	Y
SUSE Linux Enterprise Server 12 SP3	Y	N	N	N	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	Y	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	N	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	N	N	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	N	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	N	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	N	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	N	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	N	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	Y	N	N	Y	N
Ubuntu 18.04.5 LTS	N	N	Y	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	Y	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	N	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	N	Y	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 Gen8 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:

- Storage Options for ThinkSystem Servers:
  https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers
- Lenovo ServerProven
  http://www.lenovo.com/us/en/serverproven

Related product families

Product families related to this document are the following:

- Backup Units

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