

# 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 than 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 compliance 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 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. 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)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 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)
4T27A10727	ThinkSystem Internal Half High LTO Gen8 SAS Tape Drive	N	Y	Y	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 4. Supported HBAs

Part number	Feature code	Description
<b>ThinkSystem HBAs</b>		
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.

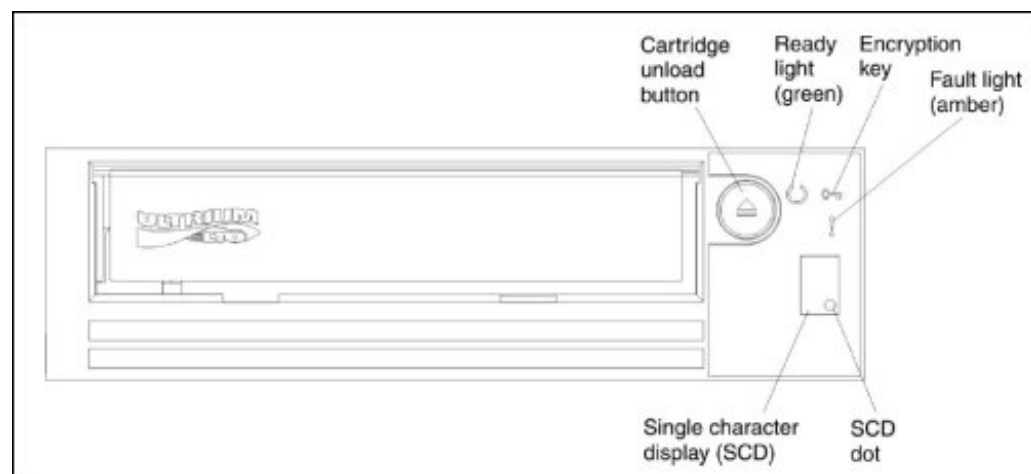


Figure 2. Front panel

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 5. Operating system support for Internal HH LTO8 Tape Drive, 4T27A10727

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	Y	Y	N	Y
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	N
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	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	Y

<b>Operating systems</b>	<b>ST250</b>	<b>ST50</b>	<b>ST550 (Gen 2)</b>	<b>ST550 (Gen 1)</b>
--------------------------	--------------	-------------	----------------------	----------------------

VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	Y	N	N	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	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](#)

## Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.  
1009 Think Place - Building One  
Morrisville, NC 27560  
U.S.A.  
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

**© Copyright Lenovo 2020. All rights reserved.**

This document, LP1011, was created or updated on May 5, 2020.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:  
<http://lenovopress.com/LP1011>
- Send your comments in an e-mail to:  
[comments@lenovopress.com](mailto:comments@lenovopress.com)

This document is available online at <http://lenovopress.com/LP1011>.



## Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®

ServerProven®

ThinkSystem

The following terms are trademarks of other companies:

Intel® is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and other countries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Hyper-V®, Microsoft®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.