



IBM TS2900 Tape Library for Lenovo Product Guide

IBM TS2900 Tape Autoloader for Lenovo (Machine Type 6171) is an entry-level compact 1U tape unit that offers IBM tape reliability, density, and performance for entry-level and compact tape libraries at a cost-effective price.

With a capacity of nine cartridges, the TS2900 Tape Autoloader is a rack-mountable or deskside unit that contains a single IBM LTO Ultrium half-high SAS tape drive. The choice of the tape drives includes IBM LTO Ultrium 7 Half-High SAS Tape Drive (Model S7H), IBM LTO Ultrium 6 Half-High SAS Tape Drive (Model S6H), IBM LTO Ultrium 5 Half-High SAS Tape Drive (Model S5H), or IBM LTO Ultrium 4 Half-High SAS Tape Drive (Model S4H).

The TS2900 is an ideal solution if you need an entry-level larger capacity or higher performance tape backup with or without random access. The TS2900 is an excellent choice for tape automation for Lenovo System x® and ThinkServer® servers.

The TS2900 Tape Autoloader is shown in the following figure.



Figure 1. TS2900 Tape Autoloader

Did you know?

The TS2900 Tape Autoloader uses patented high-density slot technology that allows you to maximize available backup storage capacity by offering the nine-cartridge magazine in only 1U of rack space.

Featuring the latest LTO Ultrium 7 technology, the TS2900 Tape Autoloader provides up to 135 TB of 2.5:1 compressed backup storage capacity.

With IBM LTO Tape offerings that are available from Lenovo, 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 handheld devices, notebooks, personal computers, servers, storage, networking, services, management software, and financing.

Key features

The TS2900 delivers the following features:

- An entry-level and compact tape library for high capacity, high performance, and high reliability.
- Adherence to LTO specifications.
- Support for one half-high LTO Ultrium 7, Ultrium 6, Ultrium 5, or Ultrium 6 SAS tape drive.
- Native cartridge capacity of up to 6 TB (Ultrium 7), up to 2.5 TB (Ultrium 6), up to 1.5 TB (Ultrium 5), or up to 800 GB (Ultrium 4).
- Native data transfer rate of up to 300 MB/s (Ultrium 7), up to 160 MB/s (Ultrium 6), up to 140 MB/s (Ultrium 5), or up to 120 MB/s (Ultrium 4).
- One removable magazine that houses nine data cartridges (including one I/O station) to enable quick population of the tape library and ease the storage needs for media.
- A single I/O station to help support continuous library operations, while importing and exporting media with little or no disruption to library operation.
- A standard bar code reader with which you can operate the TS2900 in sequential (autoloader) or random (library) access mode.
- Mixed media support, including IBM LTO Ultrium 7, 6, 5, and 4 Write Once Ready Many (WORM) media.
- Remote management capabilities to allow for administration of the TS2900 through a web interface.
- Optional System Managed and Library Managed Encryption on LTO Ultrium 7, 6, 5, and 4 SAS tape drives with a Transparent LTO Encryption feature.
- Optional rack-mount kits, deskside covers, and extra cartridge magazines.
- A 6 Gbps SAS attachment for connection to select System x and ThinkServer servers that run Microsoft Windows and Linux server operating systems.
- Support from an extensive ecosystem of backup software vendors.

The IBM LTO Ultrium Tape Drives include the following IBM LTO Ultrium features:

- **Dual-stage head actuator**
The 16-channel actuator (LTO Ultrium 4, 5, and 6) and 32-channel actuator (LTO Ultrium 7) provide precision head alignment to help support higher track density and improved data integrity.
- **Independent tape loader and threader motors and positive pin retention**
These technologies help improve the reliability of loading and unloading a cartridge and retain the pin, even if tension is dropped. An independent loader motor, coupled with the positive pin retention, causes the tape to thread with a higher level of reliability.
- **Graceful dynamic braking**
If there is a power failure, reel motors maintain tension and gradually decelerate instead of stopping abruptly, which helps reduce tape breakage, stretching, or loose tape wraps during a sudden power outage.
- **Servo and track layout technology**
There are 3584 data tracks in Ultrium 7, 2176 data tracks in Ultrium 6, 1280 data tracks in Ultrium 5, and 896 data tracks in Ultrium 4. 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**
IBM patented Surface Control Guiding Mechanism guides the tape along the tape path in the Ultrium 7, 6, and 5 Tape Drives. This method uses the surface of the tape, rather than the edges, to control tape motion. This configuration helps reduce tape damage (especially to the edges of the tape) and tape debris, which comes from the damaged edges and can accumulate in the head area.

- **Giant Magneto Resistive (GMR) head design**
IBM LTO Ultrium Tape Drives use GMR head technology with beveled contouring for reducing striction and friction. This head design was demonstrated in enterprise tape products to help minimize contact, edge damage, debris accumulation, and wear on the tape as it moves over the read/write heads.
- **Digital speed matching**
The LTO Ultrium Tape Drives perform dynamic speed matching to adjust the drive's native data rate as closely as possible to the net host data rate (after data compressibility is factored out). This matching helps reduce the number of backhitch repositions and improve throughput performance.
- **Robust drive components optimized for automation environments**
To help enhance reliability and prolong the life of the drives, some of the most robust components available are used, such as an all metal clutch, steel ball bearings in the loader, robust leader block design, and a single circuit card.
- **Power management**
The power management function of the Ultrium 7 and Ultrium 6 Tape Drives controls the drive electronics to be completely turned off or in a low-power mode when the circuit functions are not needed for drive operation.
- **Adaptive read equalization**
This equalization automatically compensates for dynamic changes in readback signal response.
- **Dynamic amplitude asymmetry compensation**
This compensation dynamically optimizes readback signals for linear readback response from MR read head transducers.
- **Separate writing of multiple filemarks**
Separate writing of multiple filemarks evokes any write command of two or more filemarks to cause a separate data set to be written that contains all filemarks after the first filemark. It helps improve performance if a subsequent append overwrites somewhere after the first filemark. This change helps prevent the need to rewrite data sets that contain customer data and the first filemark if such an append occurs.
- **LTO Data Compression (LTO-DC)**
The Ultrium LTO 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. IBM patented "Scheme-Swapping" compression looks ahead at incoming data and determines the most efficient storage method (ALDC or pass-through mode) to help optimize data compression and increase data throughput.
- **LTO Cartridge Memory (LTO-CM)**
Contained within the LTO Ultrium 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 holds information about that specific cartridge, the media in the cartridge, and the data on the media. The storage capacity of the Generation 7 and 6 LTO-CM is 16320 bytes, which is double capacity of Generation 5 and 4 LTO-CM 8160 bytes. Communication between the drive and the LTO-CM is via a low-level RF field transmitted by the drive to the cartridge.
- **Statistical Analysis and Reporting System (SARS)**
The Ultrium Tape Drive uses SARS to help isolate failures between media and hardware. SARS uses the cartridge performance history that is saved in the CM module and the drive performance history that is kept in the drive flash EEPROM to help determine the likely cause of failure. SARS causes the drive to request a cleaner tape, mark the media as degraded, and indicate that the hardware is degraded.

Components and connectors

The following figure shows the front of the TS2900 Tape Autoloader.

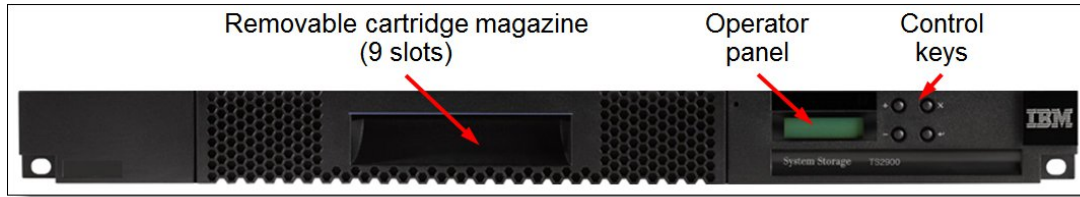


Figure 2. Front view of the TS2900 Tape Autoloader

The following figure shows the rear of the TS2900 Tape Autoloader.

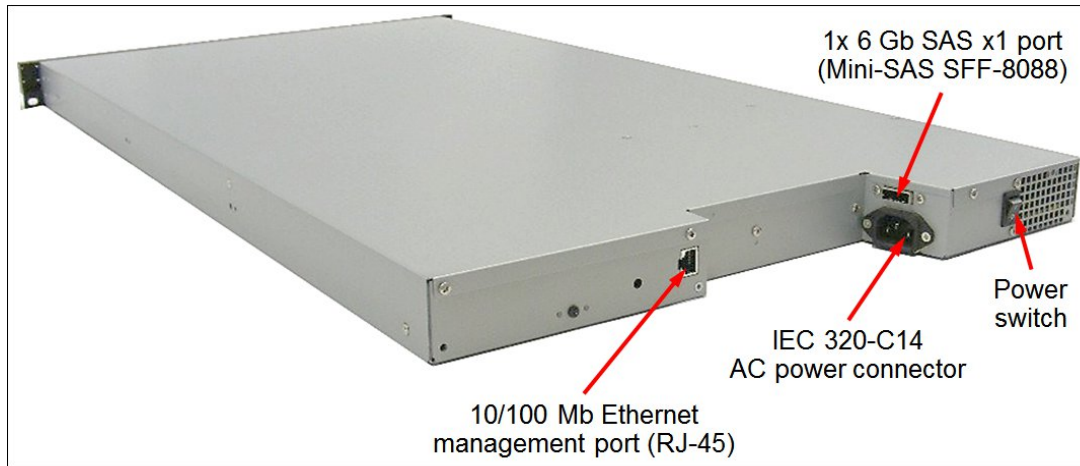


Figure 3. Rear view of the TS2900 Tape Autoloader

System specifications

The following table lists the TS2900 Tape Autoloader system specifications.

Table 1. System specifications

Components	Specification
Form factor	1U rack mount or standalone
Drive technology	LTO Ultrium 7, LTO Ultrium 6, LTO Ultrium 5, or LTO Ultrium 4 half-high drives
Drive interface	1x 6 Gb SAS x1 port (Mini-SAS SFF-8088)
Number of drives	1
Number of cartridge slots	9
Cartridge capacity	<ul style="list-style-type: none"> • LTO7: 6 TB native; up to 15 TB compressed (with 2.5:1 compression ratio) • LTO6: 2.5 TB native; up to 6.25 TB compressed (with 2.5:1 compression ratio) • LTO5: 1.5 TB native; up to 3.0 TB compressed (with 2:1 compression ratio) • LTO4: 800 GB native; up to 1.6 TB compressed (with 2:1 compression ratio)
Total backup capacity	<ul style="list-style-type: none"> • LTO7: Up to 54 TB native; up to 135 TB compressed (with 2.5:1 compression) • LTO6: Up to 22.5 TB native; up to 56.25 TB compressed (with 2.5:1 compression) • LTO5: Up to 13.5 TB native; up to 27.0 TB compressed (with 2:1 compression) • LTO4: Up to 7.2 TB native; up to 14.4 TB compressed (with 2:1 compression)

Components	Specification
Data transfer rate	<ul style="list-style-type: none"> LTO7: Up to 300 MB/s native; up to 750 MB/s compressed (with 2.5:1 compression) LTO6: Up to 160 MB/s native; up to 400 MB/s compressed (with 2.5:1 compression) LTO5: Up to 140 MB/s native; up to 280 MB/s compressed (with 2:1 compression) LTO4: Up to 120 MB/s native; up to 240 MB/s compressed (with 2:1 compression)
Software features	Transparent LTO encryption (optional).
Security features	Secure Socket Layer (SSL), user level security, LTO encryption (optional).
Management interfaces	<ul style="list-style-type: none"> Operator panel 1x 10/100 Mbps Ethernet port (UTP, RJ-45) for remote management: Web-based GUI; SNMP and email notifications
Cooling	Fixed internal fans
Power supply	One 82 W AC fixed power supply with IEC 320-C14 power connector
Hot-swap parts	None
Dimensions	Height: 44 mm (1.7 in.); width: 483 mm (19.0 in.), depth: 850 mm (33.5 in.)
Weight	13 kg (28.7 lb)
Warranty	One-year customer-replaceable unit and onsite warranty with 9x5 next business day terms.
Service and support	Optional warranty service upgrades are available through Lenovo Services: 24x7 coverage, 4-hour response time, up to 5 years of warranty extension, up to 5 years of Remote Technical Support (RTS).
Host operating systems	Microsoft Windows Server 2008, 2008 R2, 2012 and 2012 R2; Red Hat Enterprise Linux (RHEL) 5, 6, and 7; SUSE Linux Enterprise Server (SLES) 10 and 11.
ISV backup software compatibility	Arcserve Backup, ASG Time Navigator, Barracuda Yosemite Backup, CommVault Simpana, Dell NetVault Backup, EMC NetWorker, IBM Spectrum Protect, Microsoft System Center Data Protection Manager, Symantec Backup Exec, Symantec NetBackup

Standard models

The following table lists the ordering information for the TS2900 Tape Autoloader models.

Table 2. Part numbers and feature codes for ordering TS2900 models

Description	Part number	Feature code (6171-S7H)*	Feature code (6171-S6H)*	Feature code (6171-S5H)*	Feature code (6171-S4H)*
IBM TS2900 Tape Autoloader w/LTO7 HH SAS	6171S7R	ATNY	None	None	None
IBM TS2900 Tape Autoloader w/LTO6 HH SAS	6171S6R	None	AS5V	None	None
IBM TS2900 Tape Autoloader w/LTO5 HH SAS	6171S5R	None	None	AS5U	None
IBM TS2900 Tape Autoloader w/LTO4 HH SAS	6171S4R	None	None	None	AS5T

* Machine Type (first four digits); Model (last three digits and letters).

The part numbers for the TS2900 Tape Autoloader models include the following items:

- One TS2900 Tape Autoloader with the half-high LTO SAS tape drive (LTO7, LTO6, LTO5, or LTO4) and with the Bar Code Reader
- One removable nine-cartridge magazine
- Warranty information
- Documentation CD that includes *Setup, Operator, and Service Guide*

Notes:

- Rack mount kit or standalone installation kit are not included; one of the kits must be ordered with the TS2900 unit (for ordering information, see Table 3).
- Rack mount kit includes one 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable, and a country-specific line cord also can be ordered, if needed (for ordering information, see Table 7).
- Standalone kit does not include a power cable; it must be ordered with the TS2900 unit (for ordering information, see Table 7).

The following table lists the rack mount and stand-alone (deskside) kits for the TS2900 unit (one of the kits must be ordered with the autoloader).

Table 3. Rack mount and standalone kits

Description	Part number	Feature code	Maximum quantity
6171 Rack Mount Kit	00NA013	7006	1
6171 Deskside Covers	00NA015	AS1D	1

A SAS cable is required to attach a TS2900 Tape Library with an LTO Ultrium SAS Tape Drive to a host SAS adapter. The following table lists the supported cable options.

Table 4. SAS cable options

Description	Part number	Feature code	Maximum quantity
SAS connectivity cables: Mini-SAS (SFF-8088 host) to Mini-SAS (SFF-8088 tape)			
2 m Mini-SAS/Mini-SAS 1x Cable (host SFF-8088 to target SFF-8088)	00NA009	AS0Z	1
Mini-SAS to Mini-SAS Cable (5.5 m)	00NV418	AS11	1
SAS connectivity cables: Mini-SAS HD (SFF-8644 host) to Mini-SAS (SFF-8088 tape)			
HD-SAS Cable to Mini-SAS (4 m)	00NV419	AS10	1

Tape media

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

- LTO Ultrium 7 tape drives can read and write LTO Ultrium 7 and Ultrium 6 data cartridges, and can read Ultrium 5 data cartridges.
- LTO Ultrium 6 tape drives can read and write LTO Ultrium 6 and Ultrium 5 data cartridges, and can read Ultrium 4 data cartridges.
- LTO Ultrium 5 tape drives can read and write LTO Ultrium 5 and Ultrium 4 data cartridges, and can read Ultrium 3 data cartridges.
- LTO Ultrium 4 tape drives can read and write LTO Ultrium 4 and Ultrium 3 data cartridges, and can read Ultrium 2 data cartridges.

The TS2900 ships with one removable tape magazine with nine cartridge slots that include a single I/O station (if enabled). Extra removable tape magazines can be ordered with the TS2900, if needed.

The following table lists tape media options and extra magazines that can be ordered for the TS2900.

Table 5. Tape media and additional magazines

Description	Part number	Feature code	Supported tape drive types
Cleaning cartridge			
Ultrium Cleaning Cartridge (universal)	00NA017	AS1E	LTO7, LTO6, LTO5, LTO4
Data cartridges			
Ultrium 7 Data Cartridges 5-Pack	00WF771	ATNZ	LTO7
Ultrium 6 Data Cartridges 5-Pack	00NA025	AS24	LTO7, LTO6
Ultrium 5 Data Cartridges 5-Pack	00NA023	AS23	LTO7 (read-only), LTO6, LTO5
Ultrium 4 Data Cartridges 5-Pack	00NA021	AS22	LTO6 (read-only), LTO5, LTO4
Optional magazine			
6171 Additional Tape Magazine	00NA019	AS1K	LTO7, LTO6, LTO5, LTO4

Software options

IBM Ultrium 7, Ultrium 6, Ultrium 5, and Ultrium 4 SAS tape drives are encryption-capable and support the following three modes of encryption management:

- System Managed (available Linux and Windows; uses IBM device driver on a host system to setup encryption)
- Library Managed (available for Linux and Windows; requires an Extensible Key Management [EKM] server)
- Application Managed (available with third-party software such as IBM Spectrum Protect)

System Managed and Library Managed Encryption requires an optional Transparent LTO Encryption license. Application Managed Encryption does not require a license.

Transparent LTO Encryption is enabled through a license key that is listed in the following table.

Table 6. Software options

Description	Part number	Feature code	Maximum quantity
6171 Transparent LTO Encryption	00NA011	AS19	1

Power cables

If the TS2900 is ordered with the rack mount kit, it includes one 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable. A country-specific line cord also can be ordered, if needed.

If the TS2900 is ordered with the stand-alone (deskside) kit, it does not include a power cable. A country-specific line cord must be ordered with the TS2900.

The part numbers and feature codes to order the power cables (one power cable per TS2900) are listed in the following table.

Table 7. Part numbers and feature codes for ordering power cables

Description	Part number	Feature code
2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord	00NA027	AS29
2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord	00NA029	AS2A

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

Physical specifications

The TS2900 Tape Autoloader has the following dimensions and weight (approximate):

- Height: 44 mm (1.7 in.)
- Width: Bezel: 483 mm (19.0 in.); chassis: 445 mm (17.5 in.)
- Depth: 850 mm (3.5 in.)
- Weight: 13 kg (28.7 lb)

Operating environment

The TS2900 Tape Autoloader is supported in the following environment:

- Air temperature:
 - Operating: 10 °C - 38 °C (50 °F - 100 °F)
 - Non-operating: 1 °C - 60 °C (34 °F - 140 °F)
 - Maximum altitude: 2,500 m (8,202 ft)
- Humidity:
 - Operating: 20% - 80%
 - Non-operating: 10% - 90%
- Electrical power:
 - 100 V AC - 240 V AC (4.0 A to 1.5 A)
 - Frequency: 50 Hz - 60 Hz
 - Power consumption: 110 watts
- Acoustical noise emission:
 - 6.6 bels (idling)
 - 6.8 bels (operating)

Warranty

The TS2900 Tape Autoloader has a one-year CRU and onsite warranty with 9x5/next business day (NBD) terms. Lenovo offers the service upgrades through warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are country-specific; that is, each country might have its own service types, service levels, response times, and terms and conditions. Not all covered types of warranty service upgrades might be available in a particular country or area. For more information about Lenovo warranty service upgrade offerings that are available in your country, see the Lenovo Services Product Selector that is available at this website:

<https://www-304.ibm.com/sales/gss/download/spst/servicepac>

The warranty service definitions for the TS2900 Tape Autoloader are listed in the following table.

Table 8. Warranty service definitions

Term	Description
On-site service	A service technician arrives at the client's location for equipment service.
24x7x4 hour	A service technician is scheduled to arrive at the client's location within four hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
9x5x4 hour	A service technician is scheduled to arrive at the client's location within four business hours after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday-Friday, excluding Lenovo holidays. For example, if a customer reports an incident at 3:00 pm on Friday, the technician will arrive by 10:00 am the following Monday.
9x5 next business day	A service technician is scheduled to arrive at the client's location on the business day after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday - Friday, excluding Lenovo holidays. Calls received after 4:00 pm local time require an extra business day for service dispatch. Next business day service is not guaranteed.

In general, the following types of Lenovo warranty service upgrades for the TS2900 Tape Autoloader are available:

- Warranty and maintenance service upgrades:
 - Up to five years of 9x5 or 24x7 service coverage
 - Onsite response from next business day to 4 hours
 - Up to five years of warranty extension for all service levels in one year increments
- Remote Technical Support Services (RTS); up to five years
RTS provides comprehensive technical call center support. RTS can reduce problem resolution time, which decreases the cost to address technical problems and increasing uptime.

Regulatory compliance

The TS2900 Tape Autoloader conforms to the following regulations:

- FCC: Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, Class A
- European Union Council Directive 2004/108/EC
- EN 55022, Class A
- Japan VCCI Class A statement
- People's Republic of China Class A statement
- Taiwan Class A statement
- Korea KCC Class A statement

Interoperability

Lenovo provides end-to-end storage compatibility testing to deliver interoperability throughout the network. The TS2900 Tape Autoloader supports attachment to Lenovo System x and ThinkServer hosts by using SAS storage connectivity interface.

Note: Tables that are provided in this section are for ordering reference purposes only. End-to-end storage configuration support *must* be verified through the System Storage Interoperation Center (SSIC): <http://ibm.com/systems/support/storage/ssic>

The following table lists currently available System x and ThinkServer SAS adapters that are compatible with the TS2900 Tape Autoloader.

Table 9. SAS adapters

Description	Part number
System x SAS HBAs	
6Gb SAS HBA (1x Mini-SAS x4 SFF-8088 external port)	46M0907
N2125 SAS/SATA HBA (6 Gb SAS, 2x Mini-SAS x4 SFF-8088 external ports)	46C9010
N2225 SAS/SATA HBA (12 Gb SAS, 2x Mini-SAS HD x4 SFF-8644 external ports)	00AE912
N2226 SAS/SATA HBA (12 Gb SAS, 4x Mini-SAS HD x4 SFF-8644 external ports)	00AE916
ThinkServer SAS HBAs	
Lenovo ThinkServer 9300-8e PCIe 12Gb 8 Port External SAS Adapter by LSI (2x Mini-SAS HD x4 SFF-8644 external ports)	4XB0F28703

Operating systems

The The TS2900 Tape Autoloader supports host attachments to the System x and ThinkServer servers with the following operating systems:

- Microsoft:
 - Microsoft Windows Server 2012 R2
 - Microsoft Windows Server 2012
 - Microsoft Windows Server 2008 R2
 - Microsoft Windows Server 2008
- Red Hat:
 - Red Hat Enterprise Linux 7
 - Red Hat Enterprise Linux 6
 - Red Hat Enterprise Linux 5
- SUSE:
 - SUSE Linux Enterprise Server 11
 - SUSE Linux Enterprise Server 10

ISV backup software compatibility

The Independent Software Vendors (ISVs) indicated support for the TS2900 Tape Autoloader for the following ISV backup software:

- Arcserve Backup
- ASG Time Navigator
- Barracuda Yosemite Backup
- CommVault Simpana
- Dell NetVault Backup
- EMC NetWorker
- IBM Spectrum Protect
- Microsoft System Center Data Protection Manager
- Symantec Backup Exec
- Symantec NetBackup

For more information, see the Independent Software Vendor matrix for IBM LTO, which is available at: http://www.ibm.com/systems/resources/lto_isv_matrix.pdf

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used in TS2900 Tape Autoloader solutions.

Table 10. Rack cabinets

Description	Part number
11U Rack Office Enablement Kit	201886X
25U S2 Standard Rack	93072RX
25U Static S2 Standard Rack	93072PX
42U S2 Standard Rack	93074RX
42U 1100mm Enterprise V2 Dynamic Rack	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack	93634EX
42U 1200mm Deep Dynamic Rack	93604PX
42U 1200mm Deep Static Rack	93614PX
42U Enterprise Rack	93084PX
42U Enterprise Expansion Rack	93084EX

For more information, see the list of Product Guides in the Rack cabinets category: <http://lenovopress.com/servers/options/racks>

Power distribution units

The following table lists the the power distribution units (PDUs) that are offered by Lenovo that can be used in TS2900 Tape Autoloader solutions.

Table 11. Power distribution units

Description	Part number
0U Basic PDUs	
0U 24 C13 16A 3 Phase PDU with IEC 309 P+N+Gnd line cord	46M4122
0U 24 C13 30A 3 Phase PDU with NEMA L21-30P line cord	46M4125
0U 24 C13 30A PDU with NEMA L6-30P line cord	46M4128
0U 24 C13 32A PDU with IEC 309 P+N+Gnd line cord	46M4131
0U 12 C19/12 C13 32A 3 Phase PDU with IEC 309 3P+N+Gnd line cord	46M4143
0U 12 C19/12 C13 60A 3 Phase PDU with CS8365L 3P+Gnd line cord	46M4140
Switched and Monitored PDUs	
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
1U 9 C19/3 C13 Switched and Monitored 30A 3 Phase PDU with NEMA L21-30P line cord	46M4167
0U 24 C13 Switched and Monitored 30A PDU with NEMA L6-30P line cord	46M4116
0U 24 C13 Switched and Monitored 32A PDU with IEC 309 P+N+Gnd line cord	46M4119
0U 12 C19/12 C13 Switched and Monitored 32A 3 Phase PDU with IEC 309 3P+N+Gnd cord	46M4137
0U 12 C19/12 C13 Switched and Monitored 50A 3 Phase PDU with CS8365L 3P+Gnd cord	46M4134
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU+ Module (without line cord)	71762MX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
Ultra Density Enterprise C19/C13 PDU+ 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763MU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal Rack PDU with US LV and HV line cords	39Y8951
DPI Universal Rack PDU with CEE7-VII Europe line cord	39Y8952

Description	Part number
DPI Universal Rack PDU with Denmark line cord	39Y8953
DPI Universal Rack PDU with Israel line cord	39Y8954
DPI Universal Rack PDU with Italy line cord	39Y8955
DPI Universal Rack PDU with South Africa line cord	39Y8956
DPI Universal Rack PDU with UK line cord	39Y8957
DPI Universal Rack PDU with AS/NZ line cord	39Y8958
DPI Universal Rack PDU with China line cord	39Y8959
DPI Universal Rack PDU (Argentina)	39Y8962
DPI Universal Rack PDU (Brazil)	39Y8960
DPI Universal Rack PDU (India)	39Y8961
NEMA PDUs (6x NEMA 5-15R outlets)	
DPI 100-127V PDU with Fixed NEMA L5-15P line cord	39Y8905
Line cords for PDUs that ship without a line cord	
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI Australian/NZ 3112 Line Cord	40K9617
DPI Korean 8305 Line Cord	40K9618

For more information, see the list of Product Guides in the Power Distribution Units category:
<http://lenovopress.com/servers/options/pdu>

Uninterruptible power supply units

The following table list the uninterruptible power supply (UPS) units that are offered by Lenovo that can be used in TS2900 Tape Autoloader solutions.

Table 12. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category:
<http://lenovopress.com/servers/options/ups>

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For your region specific offers please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:
<http://www.lenovofs.com>

Related publications and links

For more information, see the following resources:

- Lenovo Storage product page:
<http://www.lenovo.com/systems/storage>
- US Announcement Letter - IBM TS2900 Tape Autoloader for Lenovo with LTO Ultrium 7 Drive:
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS115-155>
- US Announcement Letter - IBM TS2900 Tape Autoloader for Lenovo:
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS114-131>
- Lenovo Hardware Configurator:
<http://lesc.lenovo.com/products/hardware/configurator/bhui/launchNI.wss>
- System Storage Interoperation Center (SSIC):
<http://ibm.com/systems/support/storage/ssic>

Related product families

Product families related to this document are the following:

- [Tape Autoloaders and Libraries](#)
- [Backup Units](#)

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