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## Highlights

- Provides a modular, scalable tape library designed to grow as your needs grow
  - Features desktop, desk-side and rack-mounted configurations
  - Delivers optimal data storage efficiency with high cartridge density using standard or write-once-read-many (WORM) Linear Tape-Open (LTO) Ultrium data cartridges
  - Can simplify user access to data stored on LTO Ultrium 6 and 5 cartridges through the use of IBM Linear Tape File System™ software
  - Doubles the compressed cartridge capacity and provides over 40 percent better performance compared to 5th generation LTO Ultrium drives
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# IBM System Storage TS3310 Tape Library

*Supporting business continuity and information lifecycle management*

The IBM System Storage® TS3310 Tape Library is a modular, scalable tape library designed to address the tape storage needs of rapidly growing companies that find themselves space- and resource-constrained with tape backup and other tape applications.

Designed around a 5U-high modular base library unit, the TS3310 can scale vertically with expansion for LTO Ultrium cartridges, drives and redundant power supplies.

The base library module, model L5B, is the entry point for the product family. It contains all of the necessary robotics and intelligence to manage the 5U-high library system, which houses up to 41 cartridges—35 storage slots and six input/output (I/O) slots; and two LTO Ultrium 6, 5 and 4 tape drives.

The TS3310 model L5B can be expanded with the addition of expansion units, the model E9U.





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Each model E9U contains 92 physical LTO Ultrium cartridge storage cells and space for up to four LTO Ultrium 6, 5 and 4 tape drives. Additionally, the E9U has space for up to two power supply modules, one of which is redundant. At least one power supply module must be installed if a drive is present in the E9U.

The TS3310 supports either standard or WORM LTO Ultrium data cartridges and has continued support for encryption of data with LTO Ultrium 6 and 5 tape drives. IBM Tivoli® Key Lifecycle Manager version 1 is required for encryption key management with LTO Ultrium 6 drives.

For organizations unsure of their short- or long-term tape capacity needs, the TS3310 Tape Library capacity-on-demand (CoD) capability allows the system to scale as needs grow. In the initially shipped configuration, an E9U has half of its storage cells enabled. The purchase of a CoD key enables the business to scale with the second half of the model E9U storage cells.

Building on the success of the patented IBM multipath architecture, the TS3310 can be divided into one logical library per installed tape drive. These logical libraries can be simultaneously connected to a wide variety of different servers, running different operating systems and tape applications.

IBM offers diverse management software solutions for the TS3310 Tape Library to enhance the use of multipath architecture as well as the use of a single TS3310 Tape Library. In addition, a key path diagnostic function is also available to assist administrative users in the setup, configuration or troubleshooting of encryption-enabled libraries.

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**Management software options**

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<p><b>Linear Tape File System Library Edition and IBM Tivoli Storage Manager</b></p>	<ul style="list-style-type: none"> <li>• Enables users of LTO Ultrium 6 and 5 tape library systems to inventory cartridges in the library and read, write and search data on any cartridge</li> <li>• Enables writing metadata or “tagging” of individual files for easy and fast access to any file stored on any cartridge in the library</li> <li>• Enables users to create, manage and optimize archives with Tivoli Storage Manager</li> <li>• Provides management of concurrent copies of content, plus active, inactive and offsite content</li> </ul>
<p><b>Tivoli Key Lifecycle Manager</b></p>	<ul style="list-style-type: none"> <li>• Enhances data security while dramatically reducing the number of encryption keys to be managed</li> <li>• Simplifies encryption key management with an intuitive user interface for configuration and management</li> <li>• Helps minimize the risk of loss or breach of sensitive information</li> </ul>
<p><b>Advanced reporting</b></p>	<ul style="list-style-type: none"> <li>• Provides graphical displays for diagnostic and trend analysis data, to help evaluate tape drive, and media performance and drive utilization parameters</li> <li>• Enables the Drive Resource Utilization Reporting and Media Integrity Analysis Reporting functions</li> <li>• Drive Resource Utilization Report can identify drives or group of drives that are nearing 100 percent utilization.</li> <li>• Media Integrity Report can measure and evaluate media and drive performance in the library.</li> </ul>
<p><b>Crossroads ReadVerify Appliance*</b></p>	<ul style="list-style-type: none"> <li>• Delivered in its own server, provides dynamic, multi-variable, user-managed reporting for understanding complex system interactions and projecting future budget and system needs</li> <li>• Helps maximize the performance and utilization of tape drives and media in the TS3310 by providing system monitoring, policy-based alerting and reporting</li> <li>• Automates the verification of media quality in idle tape cartridges, while creating an audit to supplement any regulatory compliance for archiving enabled by the ArchiveVerify features</li> </ul>

### TS3310 Tape Library configurations

	3576 model L5B	3576 model L5B and four E9U models
<b>Configuration</b>	Base library	Base library and 4 expansion units
<b>Maximum LTO Ultrium storage slots</b>	41	409
<b>Maximum LTO Ultrium I/O slots</b>	6	54
<b>Maximum tape drives</b>	2	18
<b>Total physical capacity (2.5:1 compression)</b>	Up to 256.25 TB	Up to 2.55 PB
<b>Capacity-on-demand increments</b>	N/A	46 cartridges
<b>Maximum logical libraries</b>	2	18

### TS3310 Tape Library at a glance

<b>Form factor/height (H x W x D)</b>	L5B: 219.7 mm (8.65 in.) x 443.2 mm (17.45 in.) x 801.4 mm (31.55 in.) L5B + E9U: 620.8 mm (24.4 in.) x 443.2 mm (17.45 in.) x 801.4 mm (31.55 in.)
<b>Tape drive interface options</b>	8 Gbps dual-port Fibre Channel (LTO Ultrium 6 and 5), 4 Gbps FC, 3 Gbps SAS and SCSI
<b>Network interface</b>	Ethernet
<b>Power supply</b>	L5B: 1 standard (2 maximum) L5B + E9U: 2 standard (4 maximum); L5B + E9U + E9U: 3 standard (6 maximum); L5B + 3 E9U: 4 standard (8 maximum); L5B + 4 E9U: 5 standard (10 maximum)
<b>Hot-swap components</b>	Power supplies, tape drives
<b>Systems management</b>	Storage Management Initiative Specification (SMI-S) enabled
<b>Operating systems supported</b>	Selected IBM servers and other Linux and Microsoft Windows open-system servers. Latest support information: <a href="http://ibm.com/systems/support/storage/config/ssic">ibm.com/systems/support/storage/config/ssic</a>
<b>Limited warranty</b>	One year, 9 to 5, next business day
<b>Weight</b>	L5B: 38.6 kg (85 lb) max L5B + E9U: 88.5 kg (195 lb) max

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**Crossroads ReadVerify Appliance\* at a glance**

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**1U appliance providing real-time tape library monitoring and alerting**

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Individual drive utilization and performance metrics, as well as comparison across drives in a system  
 Statistics correlating activity by drive and cartridge  
 Supports LTO Ultrium, IBM Enterprise TS11x0 and other enterprise-class tape drives  
 Tape or drive, read or write error correlation; drive-cleaning metrics

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**Policy-based alerting and reporting**

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Daily and weekly reporting on tape library system activity—load-balancing, drive performance and utilization, hard and soft errors correlated to drives and tapes, and alert activity  
 Configurable alerts on potential data recovery issues, such as communication loss, degrading device conditions, stuck tape and excessive tape loads  
 Accessible database of all monitored and derived statistics

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**ArchiveVerify optional feature**

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Enables users to ensure that the data written to tape media can be read for recovery or compliance audits  
 Offers a completely automated process to validate media readability based on administrator-applied policies  
 Verification procedures test the entire written length of written media with no disruption of existing operations, all while the data remains securely within the library

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**ReadVerify Advanced Reporting optional feature**

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Generates dynamic, customizable, multi-variable reports  
 Identifies complex relationships that may impact system behavior, saving operation and capital expenses  
 Provides long-range data views to help project future budget and system needs

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**Physical characteristics**

<b>SAN connectivity</b>	1, 2, 4 Gb Fibre Channel support
<b>AC power</b>	100–240 V ac auto-sensing 50/60 Hz, 4.0 amps
<b>Dimensions (H x W x D)</b>	43.1 mm (1.72 in.) (1U) x 426 mm (16.8 in.) x 358 mm (14.1 in.)
<b>Weight</b>	10.4 kg (23 lb)
<b>Operating environment</b>	
<b>Temperature</b>	10°C – 40°C (50°F – 104°F)
<b>Relative humidity</b>	20% – 80% noncondensing
<b>Heat output</b>	564 BTU
<b>Warranty</b>	One year, provided directly by Crossroads Systems, Inc.

**Why IBM?**

The performance and availability of your storage environment can either enhance or hamper your business processes. That's where IBM comes in. As a market leader in the storage industry, we can help you handle the challenges that your network or company as a whole encounters.

Innovative technology, open standards, excellent performance, and a broad portfolio of storage-proven software, hardware and solutions offerings—all backed by IBM with its recognized leadership—are just a few of the reasons why you should consider IBM storage offerings.

## For more information

To learn more about the IBM System Storage TS3310 Tape Library, please contact your IBM representative or IBM Business Partner, or visit:

[ibm.com/systems/storage/tape/ts3310/](http://ibm.com/systems/storage/tape/ts3310/)

For Crossroads ReadVerify Appliance support and warranty information, visit:

<http://www.crossroads.com/CustomerSupport/HelpDesk.asp>

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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

\* Only available in US, Canada and Europe



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