

Sun StorageTek™ Linear Tape Open (LTO) Ultrium Data Cartridges

Enhanced data availability and protection
with StorageTek™ LTO Ultrium data cartridges



Highlights

- **Reduced costs** – Sun StorageTek™ LTO Ultrium data cartridges provide higher capacity levels which mean fewer cartridges to buy and maintain, fewer tape mounts, and improved overall automation efficiency
- **Enhanced performance** – The cartridge memory, minimizes access time to files for faster restores
- **High durability** – LTO Ultrium data cartridges were designed with an improved dual-coating system and an improved substrate for greater durability and stability, even under changing environmental conditions
- **Drive compatibility** – LTO Ultrium data cartridges are compatible with the tape drives from all three of the manufacturers of LTO Ultrium devices: Hewlett-Packard, IBM, and Quantum
- **WORM capability** – The LTO Ultrium 4 and LTO Ultrium 3 specifications include the ability for WORM (Write Once Read Many)-enabled and non-WORM-enabled drives to co-exist and provide users with a secure means of storing data to meet compliance regulations



The high capacity (up to 800 GB native) and solid durability of Sun StorageTek™ LTO Ultrium data cartridges help you economically meet ever-increasing data storage requirements. The StorageTek LTO Ultrium tape media's performance of 800 GB (native), 1.6 TB (compressed) make the LTO Ultrium data cartridges ideal for use in your archiving, backup and restore and disaster recovery applications. LTO Ultrium data cartridges have high data integrity and longevity so that data may be securely retained over its archived life. Backup and restore activities are accelerated because more data is processed in less time with fewer tape mounts and dismounts.

Advanced technology

StorageTek LTO Ultrium data cartridges feature a wide range of innovative technology advancements including:

- Highly reliable metal particle media, which improves the long-term magnetic stability of media for archival applications
- A unique dual-coating process and an improved substrate for greater durability and stability thus delivering very low error rates, even under changing environmental conditions
- Stable data reading and writing performance for high-density recording and archiving delivered via a PEN base film with dimensional stability
- A precise, timing-based servo technology, which means superior tracking accuracy to minimize data loss and facilitate tape performance levels
- A non-contact, 4 KB cartridge memory, which allows storage of historical usage records, indexing and high-speed data searches by the drive (8 KB for LTO Ultrium4)

- The LTO Ultrium 4 systems will introduce for the first time to midrange tape storage, the Advanced Encryption Standard (AES) 256-bit algorithms to keep data secure. The hardware-based AES 256-bit encryption capability of the new LTO Ultrium 4 format offers a higher level of security during data storage and when transporting sensitive information.

Engage the storage experts

Sun's StorageTek service professionals help you address storage challenges by delivering integrated services and solutions that optimize and manage storage performance over the life of your data. Our recognized, world-class service and customer care gives you confidence that your technology investment is protected and that your business will be responsive to change. To help you pinpoint opportunities to reduce costs, mitigate business risk and better leverage information assets, our consulting and managed services offerings deliver clarity, simplicity and choice in solutions that address regulatory concerns, complex storage growth, resource management and scalability challenges.

Linear Tape Open (LTO) Ultrium Data Cartridges Specifications

	Ultrium 4/Ultrium 4 WORM Tape Cartridge	Ultrium 3/Ultrium 3 WORM Tape Cartridge	Ultrium 2 Tape Cartridge	Ultrium 1 Tape Cartridge
Basic specifications				
Capacity	800 GB; 1.6 TB (with 2:1 compression)	400 GB; 800 GB (with 2:1 compression)	200 GB; 400 GB (with 2:1 compression)	100 GB; 200 GB (with 2:1 compression)
WORM capacity	800 GB; 1.6 TB (with 2:1 compression)	400 GB; 800 GB (with 2:1 compression)	N/A	N/A
Tape length	820m	680m	609m	609m
Number of tracks	896	704	512	384
Cartridge memory	8 KB	4 KB	4 KB	4 KB
Tape width	12.65 mm	12.65 mm	12.65 mm	12.65 mm
Tape thickness	6.6 µm	8.0 µm	8.9 µm	8.9 µm
Cartridge color	Teal	Blue	Purple	Black
WORM cartridge color	Teal/Grey	Blue/Grey	N/A	N/A
Tape speed				
Read and Write	6.2 m/sec	5.9 m/sec	5.9 m/sec	4.0 m/sec
Search and Rewind	7.0 m/sec	7.0 m/sec	7.0 m/sec	7.0 m/sec
Transfer rate (native/compressed)	up to 120 MB/sec (up to 240 MB/sec)	up to 80 MB/sec (up to 160 MB/sec)	up to 40 MB/sec (up to 80 MB/sec)	up to 20 MB/sec (up to 40 MB/sec)
Environmental				
Temperature (non-condensing)				
Operating	+50°F to +113°F (+10°C to +40°C)	+50°F to +113°F (+10°C to +40°C)	+50°F to +113°F (+10°C to +40°C)	+50°F to +113°F (+10°C to +40°C)
Storage up to four weeks	+61°F to +90°F (+16°C to +32°C)	+61°F to +90°F (+16°C to +32°C)	+61°F to +90°F (+16°C to +32°C)	+61°F to +90°F (+16°C to +32°C)
Shipping	-10°F to +120°F (-23°C to +49°C)	-10°F to +120°F (-23°C to +49°C)	-10°F to +120°F (-23°C to +49°C)	-10°F to +120°F (-23°C to +49°C)
Humidity				
Operating	20%-80%	20%-80%	20%-80%	20%-80%
Storage up to four weeks	20%-80%	20%-80%	20%-80%	20%-80%
Storage – archive	20%-80%	20%-80%	20%-80%	20%-80%
Shipping	20%-80%	20%-80%	20%-80%	20%-80%
Wet bulb maximum				
Operating	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)
Storage up to four weeks	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)
Storage – archive	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)
Shipping	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)	+78°F (+26°C)
Compatibility chart				
LTO Ultrium Cartridge	Ultrium 4 Drive	Ultrium 3 Drive	Ultrium 2 Drive	Ultrium 1 Drive
Ultrium 4 Cartridge	Read/Write at 800 GB	Not compatible	Not compatible	Not compatible
Ultrium 4 WORM Cartridge	Read/Write once	Not compatible	Not compatible	Not compatible
Ultrium 3 Cartridge	Read/Write at 400 GB	Read/Write at 400 GB	Not compatible	Not compatible
Ultrium 3 WORM Cartridge	Read/Write once	Read/Write once	Not compatible	Not compatible
Ultrium 2 Cartridge	Read Only	Read/Write at 200 GB	Read/Write at 200 GB	Not compatible
Ultrium 1 Cartridge	Not compatible	Read Only	Read/Write at 100 GB	Read/Write at 100 GB
Universal Cleaning Cartridge (UCC)	Will clean	Will clean	Will clean	Will clean

Data transfer rates are drive dependent. Specifications are subject to change.

Sun's media usage policy:

The tape storage media (tape cartridge) used in a tape drive and/or automated tape system can have a significant impact on the overall performance of the tape drive and/or automated tape system. The following is Sun's policy regarding tape storage media:

- Sun warrants tape storage media that is Sun StorageTek-branded
- The customer may be billed for any service provided by Sun resulting from or related to problems caused by non-Sun StorageTek-branded tape storage media

Learn More

To learn more about Sun StorageTek media cartridge technology and how it can help you unleash trapped profits in your storage environment, talk to your Sun representative or visit sun.com/storagetek. For tape media questions, call **877-STKTAPE**