



LINEAR TAPE OPEN (LTO)

# ULTRIUM

TAPE CARTRIDGES

## Key benefits

### Reduced costs

The high capacities of LTO tape cartridges can help you meet the ever-increasing storage requirements of your archival backup and disaster recovery applications. Higher capacities also mean fewer cartridges to buy and maintain, fewer tape mounts and improved overall automation efficiency.

### Enhanced performance

Higher performance translates to greater output. The LTO drive's impressive data transfer speed means more work is completed in less time. The cartridge memory, LTO-CM, minimizes access time to files for faster restores.

### High durability

LTO cartridges were designed with an improved dual-coating system and an improved substrate for greater durability and stability, even under changing environmental conditions. This durability helps keep your data safe and is designed to protect your media investments use after use.

### Drive compatibility

LTO tape cartridges are compatible with the tape drives from all three of the manufacturers of LTO devices: Hewlett-Packard, IBM and Certance.

### WORM capability

LTO Ultrium Generation 3 is the first generation in the LTO Ultrium roadmap to support WORM (write once, read many) functionality. The LTO Gen 3 specification includes the ability for WORM-enabled and non-WORM-enabled drives to co-exist and provides users with a cost-effective means of storing data to meet compliance regulations in a secure technology.



## Linear Tape Open (LTO) Ultrium tape cartridges

The high capacity (up to 400 gigabytes native) and solid durability of LTO Ultrium tape cartridges help you economically meet ever-increasing data storage requirements. Combined with the technology's requisite performance of 80 megabytes per second (native), these features make the LTO tape cartridges ideal for use in your archiving, backup and restore, and disaster recovery applications. LTO tape 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's LTO Ultrium cartridges feature a wide range of innovative technology advancements including:

- patented ceramic-coated 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 and hence 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, four-kilobyte cartridge memory, which allows storage of historical usage records, indexing and high-speed data searches by the drive

### To learn more

To learn more about StorageTek's media cartridge technology and how it can help you unleash trapped profits in your storage environment, talk to your StorageTek representative or visit [www.storagetek.com](http://www.storagetek.com).

# Linear Tape Open (LTO) Ultrium tape cartridges specifications

Performance	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Tape speed			
Read and write	4.0 m/sec	5.9 m/sec	5.9 m/sec
Search and rewind	7.0 m/sec	7.0 m/sec	7.0 m/sec
Formulation	Metal particle (MP)	Metal particle (MP)	Metal particle (MP)
Coercivity	1,850+/-75 Oersteds (147,218 A/m)	1,850+/-75 Oersteds (147,218 A/m)	1,850+/-75 Oersteds (147,218 A/m)
Substrate	Polyethylene naphthalate (PEN)	Polyethylene naphthalate (PEN)	Polyethylene naphthalate (PEN)
Track-following servo	Factory prerecorded	Factory prerecorded	Factory prerecorded
Capacity	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Capacity, native (uncompressed)	100 GB; 200 GB (with 2:1 compression)	200 GB; 400 GB (with 2:1 compression)	400 GB; 800 GB (with 2:1 compression)
Availability	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Archival life	15–30 years	15–30 years	15–30 years
Short-length durability	5,000 load, unload and initialization cycles	5,000 load, unload and initialization cycles	5,000 load, unload and initialization cycles
Long-length durability	260 full file passes	260 full file passes	260 full file passes
Uncorrected bit error rate	1x10 <sup>(-17)</sup>	1x10 <sup>(-17)</sup>	1x10 <sup>(-17)</sup>
Permanent errors	0	0	0
Compatibility	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Supported tape drives	LTO Gen 1	LTO Gen 1, LTO Gen 2	LTO Gen 3
Number of tracks	384	512	704
Form factor	Half-inch	Half-inch	Half-inch
Mechanical	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Height	0.85 in (2.15 cm)	0.85 in (2.15 cm)	0.85 in (2.15 cm)
Depth	4.02 in (10.20 cm)	4.02 in (10.20 cm)	4.02 in (10.20 cm)
Width	4.15 in (10.54 cm)	4.15 in (10.54 cm)	4.15 in (10.54 cm)
Weight	0.463 lb (210.0 g)	0.463 lb (210.0 g)	0.463 lb (210.0 g)
Environmental	LTO Gen 1 tape cartridge	LTO Gen 2 tape cartridge	LTO Gen 3 tape cartridge
Temperature (non-condensing)			
Operating	+50° to +113° F (+10° to +40° C)	+50° to +113° F (+10° to +40° C)	+50° to +113° F (+10° to +40° C)
Storage up to four weeks	+61° to +90° F (+16° to +32° C)	+61° to +90° F (+16° to +32° C)	+61° to +90° F (+16° to +32° C)
Shipping	-10° to +120° F (-23° to +49° C)	-10° to +120° F (-23° to +49° C)	-10° to +120° F (-23° to +49° C)
Humidity			
Operating	20%–80%	20%–80%	20%–80%
Storage up to four weeks	20%–80%	20%–80%	20%–80%
Storage – archive	20%–80%	20%–80%	20%–80%
Shipping	20%–80%	20%–80%	20%–80%
Wet bulb maximum			
Operating	+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)
Storage – archive	+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)

## StorageTek'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 StorageTek's policy regarding tape storage media:

1) StorageTek warrants tape storage media that is StorageTek-branded.

2) The customer is responsible for all expenses and costs related to the repair or replacement of hardware damaged by non-StorageTek-branded tape storage media.

3) The customer may be billed for any service provided by StorageTek resulting from or related to problems caused by non-StorageTek-branded tape storage media.

## ABOUT STORAGETEK®

Storage Technology Corporation (NYSE: STK) is a \$2 billion global company that enables businesses, through its information lifecycle management strategy, to align the cost of storage with the value of information. The company's innovative storage solutions manage the complexity and growth of information, lower costs, improve efficiency and protect investments. For more information, visit [www.storageitek.com](http://www.storageitek.com), or call 1.800.275.4785 or 01.303.673.2800.

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