

LTO Ultrium 4 | tape cartridges

advancing the power of
open system data storage





DATA BACKUP JUST BECAME FASTER



The Imation LTO Ultrium Universal Cleaning Cartridge can be used in all generation 1, 2, 3 and 4 Ultrium format tape drives. Each cartridge provides approximately 15–50+ cleanings.

Order Number: 51122-15931



Imation LTO Ultrium Tape Cartridges



*Ultrium LTO 4
Capacity up to 1.6TB*
Transfer rate up to 240MB/sec**



*Ultrium LTO 3
Capacity up to 800GB*
Transfer rate up to 160MB/sec**



*Ultrium LTO 2
Capacity up to 400GB*
Transfer rate up to 80MB/sec**

** assuming 2:1 compression*

the new standard in high-capacity, open system data storage

For years companies have relied on the power of LTO Ultrium technology to provide a scalable, adaptable open tape format for their storage requirements. Now Imation has advanced the power of LTO even further with LTO Ultrium generation 4 tape cartridges. These next-generation cartridges combine the advantages of linear, multi-channel, bi-directional formats with enhancements in servo technology, data compression, track layout and error correction. The result is an exciting new tape storage media that delivers outstanding performance and twice the capacity of LTO generation 3 cartridges. LTO Ultrium WORM Cartridges are also available for write-once archival applications. LTO Ultrium generation 4 cartridges also support encryption technology to further secure mission critical data.

UTILIZES THE MOST ADVANCED TAPE TECHNOLOGY

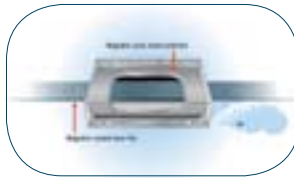
Imation Tera Ångstrom Technology

Imation's Weatherford manufacturing facility features Imation's proprietary Tera Ångstrom™ Technology. Consisting of an advanced metal particulate formulation and manufacturing process, Imation's Tera Ångstrom technology employs three unique steps—an impingement process, a quiescent drying process, and advanced in-line calendering. These steps combine to create magnetic media with a significantly smoother surface and a high signal-to-noise ratio (SNR), delivering reduced errors and increased productivity and throughput. With Tera Ångstrom technology, Imation continues to advance magnetic tape development by reaching the next milestone on the LTO Ultrium roadmap.

For more information, visit www.imation.com/teraangstrom



Impingement process to reach nanometer size particles using >10,000 psi, high-pressure jets.



Quiescent drying process with low air velocity and magnetic coils to achieve high degree of particle orientation.



In-line calendering process to achieve surface smoothness on the order of angstroms.

Imation Tera Ångstrom technology provides advancements in quality, reliability and performance

- Quality:** The development of our new advanced terabyte-class manufacturing facility builds on Imation's quality discipline and incorporates state-of-the-art quality practices.
- Reliability:** Is it a 0 or is it a 1? Surface uniformity (smoothness) and high signal-to-noise ratios (SNR) allow accurate data reading.
- Performance:** High SNR and consistent signal strength help ensure efficient processing time. Noise can slow down processing time—a high SNR helps enable faster transfer rates for increased productivity.

A proprietary servo-writing process optimizes tape tracking and helps ensure accurate read/write operations, enabling best-in-class Position Error Signal (PES) performance to minimize servo off-track errors and improve overall transfer rates.

Example - The digital letter "A" in magnetic bits (1s, 0s)

Weak signal amplitude with competitive process



ERROR!

Strong signal strength (high SNR) with Tera Ångstrom Technology



Accurate Data



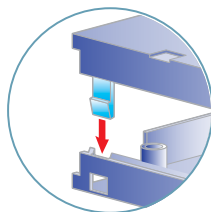
Imation was the first manufacturer to ship LTO 3 and 4 cartridges.



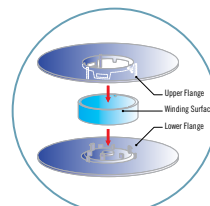
The Imation Ultrium Advantage

Robust cartridge construction

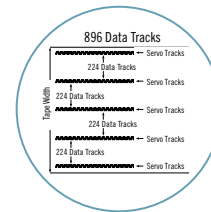
- Imation's proprietary **patented corner snap** keeps the leader pin in place and the cartridge tightly closed. This prevents error-causing debris from entering the cartridge and helps ensure that the tape flows evenly for maximum read/write capability.
- Our **patented three-piece tape spool design** distributes stress more evenly over the tape compared to two-piece spools. This construction keeps the tape flat, helping protect data across the entire tape.



Patented corner snap



Patented three-piece tape spool design



Advance servo writing

Exceptional performance and quality

- Imation introduced the first servo-written tape cartridge more than 10 years ago and continues to improve the technology. **Advance servo writing** allows closer track spacing and more data, while keeping drive heads aligned on the data tracks for precise data reading/writing and improved reliability.

Unmatched service and support

- Imation's **manufacturing expertise** stems from more than 50 years in the media business. As part of 3M, we launched the world's first computer tape in 1952. Today we partner with leading drive manufacturers who count on us to provide the highest quality data storage media.
- Imation offers **data protection unlike any other LTO cartridge**. We pioneered backcoating technology, which is now standard on LTO/Ultrium cartridges. Today, we continue to advance technologies specifically designed to meet the storage demands of midrange and enterprise networks. And because Ultrium technology provides organizations with the first tape storage standard with a six-generation roadmap, not only is your data secure, but so is your technology investment.
- Imation's three-stage service platform includes a telephone helpline, root cause lab analysis and advice from our technical service engineers.
- Imation Ultrium cartridges come with a limited lifetime warranty against manufacturing defects.

A MULTI-GENERATIONAL REMOVABLE MEDIA SOLUTION

Ultrium System Migration Path

		Generation 1	Generation 2	Generation 3	Generation 4	Generation 5 [†]	Generation 6 [†]
Capacity 2:1 compression	Native	100GB	200GB	400GB	800GB		
	Compressed	200GB	400GB	800GB	1.6TB	3.2TB	6.4TB
Transfer Rate 2:1 compression	Up to	40MB/sec	80MB/sec	160MB/sec	240MB/sec	360MB/sec	540MB/sec

[†] Hewlett-Packard, IBM, and Quantum reserve the right to change the information in this migration path without notice.

LTO Ultrium Tape Cartridge Compatibility

LTO CARTRIDGE	LTO Gen 1 Drive	LTO Gen 2 Drive	LTO Gen 3 Drive	LTO Gen 4 Drive
LTO Gen 1 Cartridge	Write & Read at 100GB	Write & Read at 100GB	Read Only	Will not function
LTO Gen 2 Cartridge	Will Not Function	Write & Read at 200GB	Write & Read at 200GB	Read only
LTO Gen 3 Cartridge	Will Not Function	Will Not Function	Write & Read at 400GB	Write & Read at 400GB
LTO Gen 3 WORM Cartridge	Will Not Function	Will Not Function	Write-once & Read at 400GB	Write-once & Read at 400GB
LTO Gen 4 Cartridge	Will Not Function	Will Not Function	Will Not Function	Write & Read at 800GB
LTO Gen 4 WORM Cartridge	Will Not Function	Will Not Function	Will Not Function	Write-once & Read at 800GB
Universal Cleaning Cartridge	Will Clean	Will Clean	Will Clean	Will Clean

LTO Ultrium WORM Cartridge

Imation LTO Ultrium generation 3 and 4 WORM cartridges provide a non-rewritable solution to meet data retention and archival needs. Write once, read many (WORM) technology is designed for archival applications that require data to be unchanged through its retention period. The servo pattern and cartridge memory contain format information that identify the cartridge as write once for WORM-enabled LTO 3 and 4 drives.



specifications

	ULTRIUM LTO 4 Imation LTO Ultrium 4 Tape Cartridge	ULTRIUM LTO 3 Imation LTO Ultrium 3 Tape Cartridge	ULTRIUM LTO 2 Imation LTO Ultrium 2 Tape Cartridge	ULTRIUM LTO 1 Imation LTO Ultrium 1 Tape Cartridge
CHARACTERISTICS				
Tape Width	12.65mm	12.65mm	12.65mm	12.65mm
Tape Length	820m	680m	609m	609m
Cartridge Dimensions (W x L x H)	105.4 x 102 x 21.5mm	105.4 x 102 x 21.5mm	105.4 x 102 x 21.5mm	105.4 x 102 x 21.5mm
Tape Thickness	6.6µm	8.0µm	8.9µm	8.9µm
Number of Data Tracks	896	704	512	384
Capacity (native)	800GB	400GB	200GB	100GB
Capacity (compressed)	1.6TB	800GB	400GB	200GB
Data Transfer Rate (compressed)	240MB/sec	160MB/sec	80MB/sec	40MB/sec
Cartridge Color	Teal	Blue-Gray	Purple	Black
MAGNETIC LAYER CHARACTERISTICS				
Coercivity	2550 Oersted	2690 Oersted	2100 Oersted	1850 Oersted
Surface Resistance	5 x 10 ⁵ Ohm to 5 x 10 ⁹ Ohm	5 x 10 ⁵ Ohm to 5 x 10 ¹⁰ Ohm	5 x 10 ⁵ Ohm to 5 x 10 ¹⁰ Ohm	5 x 10 ⁵ Ohm to 5 x 10 ¹⁰ Ohm
Media Type	Metal Particle (MP5)	Metal Particle (MP4)	Metal Particle (MP3)	Metal Particle (MP2)
BACKCOAT LAYER CHARACTERISTICS				
Surface Resistance	< 2 x 10 ⁷ Ohm	< 2 x 10 ⁶ Ohm	< 2 x 10 ⁶ Ohm	< 2 x 10 ⁶ Ohm
TAPE LIFE				
Estimated Archival Life	30 years	30 years	30 years	30 years
Load/Unload Cycles	20,000	20,000	20,000	20,000

ordering information

20 each/box

UPC	Description
26592	LTO Ultrium 4 Tape Cartridge, with case
26596	LTO Ultrium 4 Tape Cartridge, with case, labeled
26594	LTO Ultrium 4 Tape Cartridge, without case
26597	LTO Ultrium 4 Tape Cartridge, without case, labeled
26598	LTO Ultrium 4 WORM Tape Cartridge, with case
26601	LTO Ultrium 4 WORM Tape Cartridge, with case, labeled
26599	LTO Ultrium 4 WORM Tape Cartridge, without case
26603	LTO Ultrium 4 WORM Tape Cartridge, without case, labeled
17532	LTO Ultrium 3 Tape Cartridge, with case
17533	LTO Ultrium 3 Tape Cartridge, with case, labeled
17534	LTO Ultrium 3 Tape Cartridge, without case
17535	LTO Ultrium 3 Tape Cartridge, without case, labeled
17960	LTO Ultrium 3 WORM Tape Cartridge, with case
17961	LTO Ultrium 3 WORM Tape Cartridge, with case, labeled
16598	LTO Ultrium 2 Tape Cartridge, with case
16599	LTO Ultrium 2 Tape Cartridge, with case, labeled
16601	LTO Ultrium 2 Tape Cartridge, without case
16600	LTO Ultrium 2 Tape Cartridge, without case, labeled
41089	LTO Ultrium 1 Tape Cartridge, with case
16232	LTO Ultrium 1 Tape Cartridge, with case, labeled
41277	LTO Ultrium 1 Tape Cartridge, without case
41278	LTO Ultrium 1 Tape Cartridge, without case, labeled

for more information

To learn how Imation LTO Ultrium 4 Tape Cartridges will deliver outstanding performance with terabyte capacity in you data center, contact your Imation sales representative or visit www.imation.com.

To view our complete line of removable data storage products, visit Imation's website at www.imation.com.

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