

FUJIFILM



FUJIFILM NANOCUBIC Technology.



LTO ULTRIUM DATA CARTRIDGE Generation 5



LTO Ultrium 5 DATA CARTRIDGE

High Capacity of **3.0 TB**.
Amazing Transfer Rates of up to **280 MB/sec**.

www.pmdmagnetics.com

The Linear Tape-Open Ultrium (LTO) data cartridge now reached to its latest generation 5.

The high capacity of **3.0TB** and transfer rates of up to **280MB/sec.** (at 2:1 compression)



High Capacity and transfer rates

FUJIFILM's NANOCUBIC technology has achieved LTO G5 data cartridge to have the capacity of 3.0TB (at 2:1 compression; 1.5TB native) by recording 1,280 data tracks within 12.65mm tape width. Also with the utilization of multi-channel recording technology, LTO G5 data cartridge featured transfer rates of up to 280MB/sec. (at 2:1 compression; 140MB/sec. native).

New Reel Design

As the tape length increases, there is a tendency of increased pressure on the hub. The potential risk of causing hub deformation may increase. This will lead to unexpected deformation, such as tape edge damage or other physical anomalies. In order to avoid such hub deformation, FUJIFILM has strengthened the hub structure by applying a new design and materials. As a result, FUJIFILM has successfully achieved both running stability in the drive and high archival life.

Improvement in "NANOCUBIC technology"

For LTO G5 development, FUJIFILM has further advanced the NANOCUBIC technology with the following key technologies and has successfully achieved higher recording density:

- (1) Development of finer metal particles (78% of the size of LTO G4)
- (2) Nano-dispersion technology with a new binder system
- (3) Advanced nano-coating technology to achieve a much smoother and more uniform magnetic layer resulting in significant decrease in the tape surface defects.

Environmental Products

BFR (Brominated Flame Retardants) has been eliminated from all LTO G5 mechanical parts in order to become more environmentally-friendly.

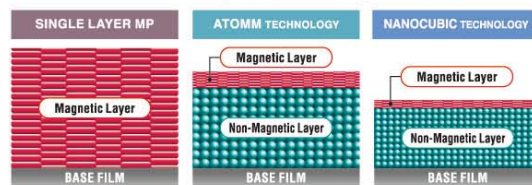


NANOCUBIC Technology

Although the ATOMM technology made submicron metal coating possible, much thin magnetic layer was necessary in order to achieve high resolution for higher recording density. FUJIFILM's **NANOCUBIC technology** has made possible an ultra-thin magnetic layer, **nano-coating** technology, which is about a one tenth of the thickness of magnetic layers under the ATOMM technology. This new technology also incorporates **nano-particle**

technology, an ultra-fine magnetic particles to reduce media noise, and **nano-dispersion** technology, uniform particle dispersion technology featuring newly developed polymer compound. Utilizing the NANOCUBIC technology as the basis of its next-generation data media production technology, FUJIFILM has succeeded in prototyping a high-resolution, low-noise ultra thin magnetic layer media coating that have nano-order microstructure.

Structural Comparison of Magnetic Media



WORM is also available

WORM (Write Once Read Many) functionality provides a cost-effective means for storing data in non-rewritable format to help address compliance requirements.



LTO Ultrium cartridge Line up



Media / Drive Compatibility

Drive	Ultrium 1	Ultrium 2	Ultrium 3	Ultrium 4	Ultrium 5
Media	○	○	△	×	×
	×	○	○	△	×
	×	×	○	○	△
	×	×	×	○	○
	×	×	×	×	○

○ : Able to Read / Write △ : Able to Read Only × : Not Compatible

FUJIFILM Brand LTO G5 / G5 WORM – Media Specification–

LTO Generation	LTO G1	LTO G2	LTO G3 / G3 WORM	LTO G4 / G4 WORM	LTO G5 / G5 WORM	Universal Cleaning Cartridge*
Capacity (Native / Compressed)	100GB (200GB)	200GB (400GB)	400GB (800GB)	800GB (1.6TB)	1.5TB (3.0TB)	—
Transfer Rate (Native / Compressed)	Up to 20MB/sec. (Up to 40MB/sec)	Up to 40MB/sec. (Up to 80MB/sec)	Up to 80MB/sec. (Up to 160MB/sec)	Up to 120MB/sec. (Up to 240MB/sec)	Up to 140MB/sec. (Up to 280MB/sec)	—
Number of Tracks	384	512	704	896	1,280	—
Servo Method	Timing-based servo					—
Cartridge Memory	32,768 bits (4,096 bytes) ; Internal EEPROM			65,280bits (8,160bytes) ; Internal EEPROM		32,768 bits (4,096 bytes) ; Internal EEPROM
Encryption function	—					○
Media Durability (Nominal)	1,000,000 passes					—
Estimated Archival Life	30 years					—
Tape Width	12.65mm					—
Tape Thickness	8.9µm	8.0µm	8.0µm	6.6µm	6.4µm	—
Tape Length	609m	680m	680m	820m	846m	319m
Cartridge Dimensions (H×W×D)	102.0 × 105.4 × 21.5mm					—
Operating Environmental Conditions	Temperature: 10-45°C					—
	Humidity: 10-80% (No Dew Condensation)					—
	Max. Wet Bulb Temperature: 26°C					—
Archival Environmental Conditions	Temperature: 16-32°C					—
	Humidity: 20-80% (No Dew Condensation)					—
	Max. Wet Bulb Temperature: 26°C					—

Note: Specifications are subjected to change without notice.

*The universal cleaning cartridge is capable of being used in all generation 1/2/3/4/5 Ultrium format tape drives. Specific revisions of firmware may be required for proper operation.

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