



# Dell LTO Ultrium Generation 5 Half-High Tape Drives

Fifth-generation LTO tape drive an exceptional balance between performance and cost

**High speed** — Provides data transfer rates of up to 280 MBps<sup>1</sup> and slower speeds through Digital Speed Matching!

**Fast communications** — Fast data speeds with either a 6 Gbps capable SAS, or an 8 Gbps capable Fibre Channel interface.

**Energy efficient** — 87% greater capacity and 16% faster than previous generations without increased power consumption for 'green' storage environments!\*

**Greater usability** — Media partitioning and Dell Long Term File System technology can significantly improve user experience<sup>5</sup>!

Dell's 5<sup>th</sup> generation of LTO tape drives offer twice the capacity with significantly faster throughput than the preceding Ultrium LTO 4 generation of drives. The Dell LTO 5 Half-high Tape Drive is designed for integration into servers, desktop enclosures, autoloaders, and the Dell TL2000 and TL4000 automated tape libraries.

## Improved reliability, serviceability and cost of operation

With a focus on overall reliability, the Dell LTO 5 Half-high Tape Drive utilizes advanced independent tape loader and threader motors. This, combined with positive pin retention improvements, increases tape handling reliability while loading tapes, recovering tapes, and extracting tapes after a sudden power down. In addition, the Partial Response Maximum Likelihood (PRML) channel includes an adaptive channel calibration feature. This feature enables the drive to compensate for variations in the media, recording function, and read/write head to optimize interchangeability between LTO drives from other vendors.

For enhanced serviceability, the Dell LTO 5 Half-high Tape Drive captures its error information. These errors are stored in the drive's flash memory so that it can be recalled when needed to minimize troubleshooting time for IT staff and Dell technicians.

Despite the increases in performance and capacity, the Dell LTO Half-high Tape Drive continues to be highly efficient, consuming no more power than previous generations making it ideal for 'green' storage environments. Tape drives are inherently environmentally and economically more friendly than any other storage medium. Tape technology enables you to reduce your overall energy requirements by reducing your power needs, lower cooling requirements, and a lower overall cost per gigabyte.

## Partitioning and Long Term File System

The Dell LTO Ultrium Generation 5 Half-High Tape Drives with LTO Ultrium 5 Tape Media provides partitioning support, which, in conjunction with Dell's Long Term File System technology, provides customers the ability to have file-level access to tape data. This unique support helps quickly locate and update information on the tape media. It also provides customers with the knowledge of what is stored on the tape in a user friendly directory tree format, reduces tape file management and opens new use cases in entertainment, medical and manufacturing industries.<sup>5</sup>

Feature	Benefits
Adaptive Data Compression with a 256 MB buffer	<ul style="list-style-type: none"> <li>Helps you achieve optimal performance and storage capacity</li> <li>Helps improve data throughput and tape repositions to optimize performance</li> <li>Supports data integrity via synchronous dynamic swapping of compression schemes</li> </ul>
Skip sync	<ul style="list-style-type: none"> <li>Reduces backhitching when writing to tape</li> <li>Helps increase the speed when reading and writing to tape and improves the reliability of tape cartridges</li> </ul>
LED encryption indicator	<ul style="list-style-type: none"> <li>The LED indicates when data is being encrypted or an encrypted tape is mounted</li> <li>This provides the operator a visual confirmation for additional security</li> </ul>
Data safe mode	<ul style="list-style-type: none"> <li>Provides read/write protection by preventing the accidental overwrite of data already on the cartridge</li> <li>This technology is managed at the drive and can be enabled or disabled<sup>4</sup></li> </ul>
Constant capacity	<ul style="list-style-type: none"> <li>Ensures that the data on the media is limited to a maximum of 3.0TB<sup>1</sup></li> <li>Makes it easier to copy tape to tape and for dual backups</li> </ul>
Partitioning and Long Term File System <sup>5</sup>	<ul style="list-style-type: none"> <li>Can eliminate middleware and reduce the tape management and costs</li> <li>Improves usability by displaying the data stored on the tape in a file tree structure</li> <li>Opens new opportunities for customers to leverage LTO technology in entertainment, manufacturing and medical environments</li> </ul>
<b>Dell LTO 5 Half-High Tape Drive at a glance</b>	
Tape drive type	Dell LTO Ultrium 5
Capacity per cartridge <sup>1</sup>	3.0 TB compressed <sup>1</sup> ; 1.5 TB native
Sustained data transfer rate <sup>1</sup>	Up to 280 MBps compressed <sup>1</sup> ; 140 MBps native
Media type	LTO Ultrium 5, 4 and 3
Data cartridge	LTO Ultrium 5 (rewritable), LTO Ultrium 5 (WORM)
Cleaning cartridge	Universal Cleaning cartridge
Interface	FC-8 or 6 Gbps SAS
Data compression	SLDC (LTO data compression per ECMA-321) <sup>2</sup>
Encryption	AES256
Buffer	256 MB
Data rate matching	Digital Speed Matching 30 – 140 MBps
Dimensions (with Bezel)	148 mm W x 42.7 mm H x 210 mm D (6 in W x 2 in H x 8 in D)
Weight	1.6 kg (4 lb)
Operating temperature	10° to 45° C (50° to 100° F)
Relative humidity	20% to 80% (non-condensing)
Electrical power	SAS: 5 V at 3.4 A, 12 V at 1.1 A (steady state) FC: 5 V at 3.0 A, 12 V at 0.85 A (steady state)
Power dissipation	SAS: 6.5 W (idle, with cartridge), 24.0 W (read/write) FC: 6.5W (idle with cartridge), 24W (read/write)
Operating systems support:	Windows, SLES & RHEL for further details please check the Dell support matrix at <a href="http://support.dell.com/support/edocs/stor-sys/matrix/PVMatrix/index.htm">http://support.dell.com/support/edocs/stor-sys/matrix/PVMatrix/index.htm</a>

\*Visit the LTO Ultrium consortium Web site at <http://www.ultrium.com/technology/generations.html> for further details.

<sup>1</sup> Based on 2:1 compression

<sup>2</sup> Prior to the release of ECMA-321, SLDC (streaming lossless data compression) was known as "LTO-DC." SLDC uses ALDC as its primary data compression scheme, but also has a pass-thru scheme to avoid the expansion of incompressible data—a problem ALDC and most other compression algorithms encounter.

<sup>3</sup> All performance and reliability values are provided "AS IS" and no warranties or guarantees are expressed or implied by Dell. Actual values may vary and depend upon many factors including system hardware configuration and software design and configuration.

<sup>4</sup> May not meet regulatory requirements in some industries, states or countries.

<sup>5</sup> For product availability, contact your Dell sales representative.

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