

## Using Thunderbolt™ and LTF5 with LTO™ Tape to Enhance Media Workflows

Thunderbolt is a fantastic new technology that offers high throughput (20 Gbps) to peripheral devices, but even more important brings versatility to traditionally limited mobile computers. It is also changing how media professionals think about external storage by opening up many new use cases: A single Thunderbolt cable can provide connectivity to 10Gb Ethernet, 16 Gb Fibre Channel, 12Gb SAS, Firewire, USB and DisplayPort as well as high-end external GPUs.

Content is everything in media and entertainment (M&E), and Thunderbolt provides the high-performance connectivity needed to transfer content data to SAS or Fibre Channel storage systems. It also provides the means to quickly distribute content via 10GbE networks. With Thunderbolt, the broadcast and film Industries have more flexibility to manage their creative assets. But now with the arrival of 4K and 8K formats, traditional storage options are too expensive to accommodate the growing amount of data. A challenge also exists in being able to cost effectively protect content.

Thunderbolt provides a solution to these obstacles when combined with LTO tape. Prior to Thunderbolt, moving large volumes of data in the media sector involved portable disks — there was no easy way to move content from a mobile computer to tape, which is less expensive. But now, connecting a Thunderbolt-to-SAS converter outfitted with an LTO SAS tape drive provides a simple and affordable means to store, archive and transport large amounts of content.



### LTO-6 SAS Tape Technology

- Performance: Up to 400MB/sec compressed transfer rate
- Capacity: Up to 6.25TB compressed capacity
- Security/Ease of Use: AES 256-bit data encryption security, WORM functionality, and partitioning capability
- Compatibility: Two generations of backward read and one generation of backward write capability  
simplifies data migration projects and protects a company's investments
- Larger capacity eases tape management since there are fewer tapes to deal with

The value of tape has increased to media professionals since the introduction of Linear Tape File System (LTF5). LTF5 is a format that allows data to be written to tape so that it can be read anywhere with open source LTF5 software. It also indexes the tape and makes it searchable so that files can be retrieved much faster. Users can browse contents and drag and drop files from a desktop or folder directly to and from tape just as with a hard drive or thumb drive. And tapes can be shared with any Mac, Windows or Linux users who have LTF5 installed on their system, regardless of what kind of LTO drive they own (all LTO5 and LTO6 drives can work with LTF5).

LTO-5 and LTO-6 generation cartridges allow for at least two media partitions: one to hold content, and the second to hold that content's index. These can be independently accessed to provide faster data retrieval and improved management, with the ability to recall data down to the frame level. This fits naturally with DPX formats in that applications can control the relative placement of data on tapes to facilitate efficient recall. But the real value of tape is that it provides a near infinite capacity since cartridges can be replaced as they fill up. Tape also has a low cost per gigabyte, making it a good alternative to disk-based storage.

Since LTF5 is free and well-supported, multiple users at multiple locations can easily share the same data, regardless of what hardware and operating system they're using. Another driving factor in M&E is that the increasing visual resolution and complexity of media (HD, 4K, 3D, etc.) creates larger and more numerous files that must be managed. Storing hours of high-resolution media live on disk quickly becomes cost prohibitive — a challenge that LTO tape with LTF5 addresses.





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## ATTO Technology Thunderbolt Desklink Family

	Fibre Channel	Fibre Channel	10GbE (Optical)	10GbE (Copper)	SAS/SATA	SAS/SATA (RAID)
Part #	TLFC-2162-D00	TLSH-2082-D00	TLNS-2102-D00	TLNT-2102-D00	TLSH-2068-D00	TSSC-4808-D00
Inputs	(2) 20Gb/s Thunderbolt					
Outputs	(2) 16Gb Fibre Channel	(2) 8Gb Fibre Channel	(2) 10GbE SFP+	(2) 10GbE 10GBaseT	(2) 6Gb SAS/SATA	(2) 6Gb SAS/SATA



## HP StoreEver SAS Tape Drives

6Gb SAS	6Gb SAS	6Gb SAS
HP StorEver LTO-6	HP StorEver LTO-6	HP StorEver LTO-5
Ultrium 6250 Half Height	Ultrium 6650 Full Height	Ultrium 3000 Half Height
External Tape Drive (EH970A)	External Tape Drive (EH964A)	External Tape Drive (EH970A)



The ATTO Desklink/HP StoreEver solution is fully certified and supported by HP. Please refer to the HP Single Point of Connectivity Knowledgebase (SPOCK) on HP's website for more information

