



**For Immediate Release**

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**LTO PROGRAM ANNOUNCES UPDATED TECHNOLOGY ROADMAP**

*First Ever LTO Roadmap Update Includes Speed, Capacity Expectations for LTO Ultrium Generations 5 and 6*

**SILICON VALLEY, CALIF. — (Dec. 14, 2004) —** After extensive end user, analyst and tape storage trend research, Certance, HP and IBM – the three technology provider companies (TPCs) for the LTO (Linear Tape-Open) Program – today announced an extension to the LTO Ultrium format roadmap to include generations 5 and 6. In addition, the LTO Program is also modifying performance with the LTO Ultrium generation 4. The updated roadmap can be found at [http://www.ultrium.com/newsite/html/format\\_roadmap.html](http://www.ultrium.com/newsite/html/format_roadmap.html).

“This is a momentous occasion for the LTO Program and the tape storage industry, as it marks the only update since the original LTO technology roadmap was established in 1998 – the first published tape storage industry roadmap,” said Howard Matthews, president and CEO, Certance LLC. “The original roadmap was based on comprehensive industry research that looked at market needs eight years out. The updated roadmap, through generations 5 and 6, is a direct reflection of the anticipated market need.”

A recent survey of 200 IT managers and storage administrators by the LTO Program found that capacity was more than twice as important to end users than performance. In fact, storage administrators revealed that doubling data transfer speeds would not meet their needs, and would require them to pay for performance they would not be able to use.

“To meet the explosive enterprise data storage growth, IT managers will demand that tape storage vendors double tape storage capacity in each new generation,” said Fara Yale, vice president of research, Gartner. “And while substantially increasing data transfer speed is a must to meeting ever-shrinking back-up windows, most companies won't require tape technology to double performance generation over generation.”

### **LTO Ultrium Generation 5**

The LTO Ultrium format generation 5 is planned to double physical storage capacity over generation 4, increasing to 3.2 TB compressed (assuming a 2:1 compression). Transfer rates in generation 5 are planned to improve up to 360 MB per second (MB/s) compressed (assuming a 2:1 compression).

### **LTO Ultrium Generation 6**

The LTO Ultrium format generation 6 is planned to double physical storage capacity over generation 5, increasing to 6.4 TB compressed (assuming a 2:1 compression). Transfer rates in generation 6 are planned to improve up to 540 MB/s compressed (assuming a 2:1 compression).

### **Additional LTO Technology Roadmap Changes**

In addition to extending the four-generation roadmap to generations 5 and 6, the LTO Program is making two other changes to the roadmap.

The first change is in the way the LTO Program describes data transfer speeds. The LTO Program provides data transfer speed ranges to licensees of the LTO Ultrium format as part of its specification, which allows LTO technology manufacturers to include a data transfer speed within that range that still meets the specification guidelines while providing an element of differentiation from competing LTO products. Ranges were included in the original roadmap.

With the updated roadmap, instead of data transfer speed ranges, such as 80-160 MB/s compressed (assuming a 2:1 compression) as in the LTO Ultrium format generation 3, the LTO Program will now publish the high end of the data transfer speed. For the third generation LTO Ultrium, the roadmap will now read “up to 160 MB/s” compressed (assuming a 2:1 compression). This change will help simplify how the LTO Program communicates its performance measurements.

The second change is in the maximum data transfer speed for the LTO Ultrium format generation 4. The updated roadmap will maintain the originally published 1.6 TB physical capacity, but the anticipated high end of the data transfer speed is up to 240 MB/s compressed (assuming a 2:1 compression) – the middle of the range from the original four-generation roadmap of 160-320 MB/s data transfer speed compressed (assuming a 2:1 compression).

The LTO Ultrium format is based on an open specification, providing the benefits of competition while supporting data interchange. With an impressive roster of over 30 licensees, the LTO specification is available for license to any manufacturer, giving users the unique ability to choose from a number of tape drive and data cartridge offerings. This pro-competitive environment fosters technological innovation, competitive pricing, and multiple sources of compatible products.

#### **How to License LTO Ultrium Technology**

The LTO program offers several different license packages – from enhanced packages that provide the specifications and licenses to manufacture Ultrium products, to basic packages, providing Ultrium format specifications and guidelines for interchangeability. Buyers seeking Ultrium format-compliant products should look for the Ultrium format compliance verification trademarks on both tape drives and data cartridges. Storage and media manufacturers interested in licensing LTO technology may obtain information by contacting the Law Offices of Ladas & Parry at (323) 934-2300, or by e-mail at [LTO\\_INFO@ladasparry.com](mailto:LTO_INFO@ladasparry.com).

#### **About Linear Tape-Open (LTO) Technology**

LTO technology is a powerful, scaleable, adaptable open tape format created by technology providers Certance, HP, and IBM Corporation to help meet the growing demands of data protection in the midrange to enterprise-class server environments. This ultra-high capacity generation of tape storage products is designed to deliver outstanding performance, capacity and reliability combining the advantages of linear multi-channel, bi-directional formats with enhancements in servo technology, data compression, track layout, and error correction.

The LTO Ultrium format has a well-defined roadmap for growth and scalability. The roadmap represents intentions and goals only. There is no guarantee that these goals will be achieved. Independent compliance verification is vital to meet the free-interchange objectives that are at the core of the LTO Program. Ultrium tape mechanism and tape cartridge interchange specifications are available on a licensee basis. For additional information on LTO technology, visit the LTO Program Web site at [www.ultrium.com](http://www.ultrium.com).

Note: Linear Tape-Open, LTO, the LTO logo, Ultrium, and the Ultrium logo are trademarks of Certance, HP and IBM in the US and other countries.

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