STORAGETEK
T10000B TAPE DRIVE

BREAKTHROUGH
ECONONICS FOR YOUR
DATA CENTER

· **Drive efficiencies.** Combine the highest native data capacity on tape—1 terabyte—with the highest native throughput of 120 MB/sec.

· **Protect your investment. Lower** TCO—reuse existing StorageTek T10000 media and simplify deployment with broad compatibility with StorageTek libraries and third-party applications.

· **Minimize risk.** Support 24/7 business operations with dependable enterprise-class technology, designed for high-duty cycle environments, including unique dual-head design, which requires fewer passes to fill a tape.

· **Ensure data protection.** Limit your exposure to potentially costly litigation while you support regulatory and compliance policies. The cryptoready StorageTek T10000B tape drive works with the Sun Crypto Key Management System to enable simple, scalable data encryption and with StorageTek VolSafe secure media technology for WORM protection.

Oracle's StorageTek T10000B enterprise tape drive blends the highest capacity, reliability, performance, and data security to support demanding, 24/7 data center operations. The ecoefficient StorageTek T10000B tape drive also ensures low total cost of ownership—reuse existing StorageTek T10000 media and rely on proven compatibility with StorageTek enterprise libraries and third-party hardware and software.

The StorageTek T10000B tape drive delivers breakthrough economics in all the ways that count.

Support the Most Demanding Data Center Operations

The StorageTek T10000B tape drive delivers superior performance for high-duty cycle data storage and retrieval:

· Drive efficiencies related to media capacity, productivity, and power/cooling.

· Protect your investment by reusing existing StorageTek T10000 media and by simplifying deployment.

· Minimize risk with proven enterprise-class technology and Oracle's world-class service organization.

· Ensure data protection with device-level encryption and write-once read-many (WORM) technology.

Drive Efficiencies in Enterprise and Midsize Data Centers

The StorageTek T10000B tape drive delivers a potent combination: native capacity of 1 terabyte and performance of 120 MB/sec. You can double capacity in the same footprint while you simplify media management because you manage fewer tapes.

Since you can write a terabyte of data in under 2.5 hours without a media exchange, you improve your operational efficiency. Sport cartridges enable faster access to data, so when you add them to the mix, you achieve a hybrid access/capacity solution.

Tape-based storage also minimizes power, cooling, and acquisition cost. Compared to disk, tape is much more energy efficient. As a key component of ecoefficient data centers, tape excels in applications as diverse as production, data management, backup/restore, disaster recovery, and archive.

Pair the StorageTek T10000B tape drive with the StorageTek SL8500 or SL3000 modular library system to accelerate data consolidation efforts. As data center storage needs increase, you manage growth cost effectively when you combine the highest tape capacity on the market with media reusability and ecoefficiencies.

Maximize Your Return on Investment

The StorageTek T10000B tape drive protects your investment through media reusability, connectivity, and exceptional compatibility.

Read cartridges written by the StorageTek T10000 drive, or reuse regular and sport StorageTek T10000 data cartridges to store twice as much data on the same cartridge. Because the StorageTek T10000B tape drive offers both mainframe (FICON) and open systems (Fibre Channel) connectivity, you can transition between the two environments easily.

The broad compatibility of the StorageTek T10000B tape drive helps you simplify deployment, because it integrates seamlessly with StorageTek enterprise libraries, enterprise software applications, and leading business applications. To save you time and effort, Oracle has tested and prequalified the StorageTek T10000B tape drive on the StorageTek SL8500, SL3000, L1400, L700, and L180 tape libraries. Even better, the StorageTek T10000B tape drive integrates directly into your existing mainframe infrastructure—no additional parts or pieces to add cost, complexity, and floor space. Virtual tape systems? No problem—in mainframe or open systems environments.

Minimize Risk with Exceptional Tape Drive Design and Mechanics

Data centers require lots of starts and stops, which add stress on storage components and subassemblies. The StorageTek T10000B tape drive is designed to support demanding 24/7 high-duty cycle operations.

The StorageTek SafeGuide system, which is the tape guiding system of the StorageTek T10000B tape drive and previous generation StorageTek T10000 drive, provides long-term data and drive reliability:

- The buckler mechanism securely attaches the cartridge leader to the drive leader.

- The long tape path guides the media more accurately and reduces tape tension, which also reduces stresses on the drives and media.

- The tape guides contact only the back side of the media, not the recording

surface, minimizing lateral tape motion and protecting data integrity.

- The unique hub-locking mechanism protects your data during cartridge transport.

The dual-head design of the StorageTek T10000B tape drive spreads data across the tape width and provides the highest level of error code correction capability. It also ensures high throughput, even at lower tape speeds, which reduces stress on the drive and media. In addition, the dual heads provide 32 tracks that write data simultaneously on each pass. Competitive tape drives write with 16 tracks, which means they require more tape passes to fill the media and increases media wear.

Oracle's worldwide service organization backs up our superior tape solutions with installation, maintenance, or support when you need it.

Protect Your Data, Protect Your Business

Choose one or both—encryption and WORM technology—to meet evolving requirements for data security and compliance.

The StorageTek T10000B tape drive has built-in encryption that works in conjunction with the Sun Crypto Key Management System, an appliance that provides a simple, centralized, scalable solution for managing the keys used to encrypt and decrypt data written by the StorageTek T10000B tape drive. The encryption capability is the same proven technology that is used in the previous generation StorageTek T10000 tape drives and the T9840D tape drive. Use encryption and you can be sure that only the right people have access to the data, and you can avoid potential legal and financial problems caused by loss or theft of unencrypted data.

StorageTek VolSafe secure media technology for the StorageTek T10000B tape drive helps you meet stringent electronic storage regulatory and legal requirements with WORM capability. Store data securely on nonerasable, nonrewritable tape and recall data quickly when you need it.

Achieve Breakthrough Economics with Oracle's Open Approach to Storage

Closed, proprietary storage can lock you in and limit flexibility and scalability. Break free with the StorageTek T10000B tape drive, which allows you to add capacity cost effectively in the same footprint and easily and dynamically scale your infrastructure.

The StorageTek T10000B tape drive supports your consolidation efforts, delivering breakthrough economics in all the ways that count:

- Doubles the capacity on your existing StorageTek T10000 media

- Protects your investment in the StorageTek T10000 media you've purchased

- Integrates seamlessly with StorageTek's infinitely scalable enterprise libraries and your existing infrastructure, so you don't incur unnecessary expense and delays caused by compatibility issues

- Attaches to virtual tape systems in open systems and mainframe environments

- Enables choice—FICON and Fibre Channel drives use the same hardware, so you can repurpose the StorageTek T10000B tape drive in mainframe and open systems environments

- Interoperates with the products of many hardware and software vendors

Simplify Media Services

When you want to organize and optimize media to reduce downtime, risk, and maintenance, turn to Oracle for expert assistance. Media conversion services help you move data in optical, tape, and disk formats to new or different technology that offers higher capacity, lower cost, and lower risk. For example, it may be time to convert WORM optical to WORM VolSafe tape.

Tape relocation services expedite data center relocation and rack relocation. Tape degaussing and destruction services can be performed at secure onsite or offsite locations, and they comply with local environmental regulations.

Engage the Storage Experts

Oracle's service professionals help you address storage challenges by delivering integrated services and solutions that optimize and manage storage performance over the life of your data. Oracle offers services that address utilization, availability, capability planning, and management efficiency—helping you quickly realize the benefits from your investment so you can continue to access the information you need, when you need it. Oracle's consulting and managed services offer clear and simple choices in solutions that address your regulatory concerns, complex storage growth, resource management, and scalability. Let Oracle's dedicated storage service professionals help you gain and sustain measurable results with the reliability and flexibility that you require.

StorageTek T10000 Tape Drive Specifications

The following specifications apply to both drives unless otherwise noted.

Performance
Access time* (see chart note)
• Tape load and thread: 16 sec
• Average file access (excludes load/thread): 46 sec (14 sec for Sport Cartridge)
• Maximum rewind: 91 sec (26 sec for Sport Cartridge)
• Average rewind: 48 sec (13 sec for Sport Cartridge)
• Unload time: 23 sec
Data transfer rate, native (uncompressed): 120 MB/sec
Data transfer rate, (compressed, maximum): 360 MB/sec (4 Gb Interface)
Capacity
Capacity, native (uncompressed)
• StorageTek T10000B: 1 TB (240 GB for Sport Cartridge)
• StorageTek T10000: 500 GB (120 GB for Sport Cartridge)

Availability

- Archive life: 30 years
- Error Correction Capability (ECC): 1 x 10^{19}
- Drive loads/unloads: >100,000

Compatibility

- Interface: 4 Gb Fibre Channel, FICON
- Burst transfer rate (uncompressed): 240 MB/sec
- Channel rate, uncompressed sustained (Fibre Channel): 120 MB/sec
- Interface specifications (Fibre Channel): N and NL port, FC-AL-2, FCP-2, FC-tape, 4 Gb FC
- Read/write compatibility interface: T10000 format
- Emulation modes: 3592 (MVS), VSM

Mechanical

- Height: 3.5 in. (8.89 cm)
- Depth: 16.75 in. (42.55 cm)
- Width: 5.5 in. (14.61 cm)

Environmental

Temperature	Relative humidity
• Operating: +59°F to +90°F (+15°C to +32°C) • Nonoperating (storage): +50°F to +104°F (+10°C to +40°C)	• Operating: 20% to 80% • Nonoperating: 10% to 95%

Tape Format

Linear serpentine

Power

Voltage: 88–264 V AC @ 48 Hz–63 Hz

Consumption/dissipation (operating maximum continuous—not peak):
63 W (drive only) and 90 W (including power supply)/420 BTU/hr

Encryption

The cryptoready StorageTek T10000B tape drive works in conjunction with the Sun Crypto Key Management System (KMS). The KMS delivers a simple, secure, centralized solution for managing the keys used to encrypt and decrypt data written by the StorageTek T10000B tape drive. Developed on open security standards, the KMS consists of the Key Management Appliance, a security-hardened Sun Fire x2100 M2 rackmounted server, and the KMS Manager graphical user interface (GUI) that is executed on a workstation. The KMS runs without regard to application, operating platform, or primary storage device. It complies with Federal Information Processing Standard (FIPS) 140-2 certification. Requirements and specifications may change, so check with your Oracle representative.

*The actions of the tape drive can be divided into four distinct phases:

Phase 1. Load time—the amount of time required to insert a cartridge in the drive, load the tape and prepare to read, write or search.

Phase 2. Average file access time—the amount of time required to search from the beginning of the tape to the midpoint; does not include load time.

Phase 3. Maximum rewind time—the amount of time required to rewind the tape from the end to the beginning of the tape. The average rewind time is the time to rewind a tape from the midpoint to the beginning, that is, one-half of the maximum rewind time.

Phase 4. Unload time—the amount of time required to eject the cartridge from the drive.

Warranty

Visit oracle.com/sun/warranty for Oracle's global warranty support information on StorageTek products.

Services

Visit oracle.com/sun/services for information on Oracle's service program offerings for StorageTek products.

Contact Us

For more information about Oracle's StorageTek T10000B enterprise tape drive, please visit oracle.com/storage or call +1.800.786.0404 to speak to an Oracle representative.