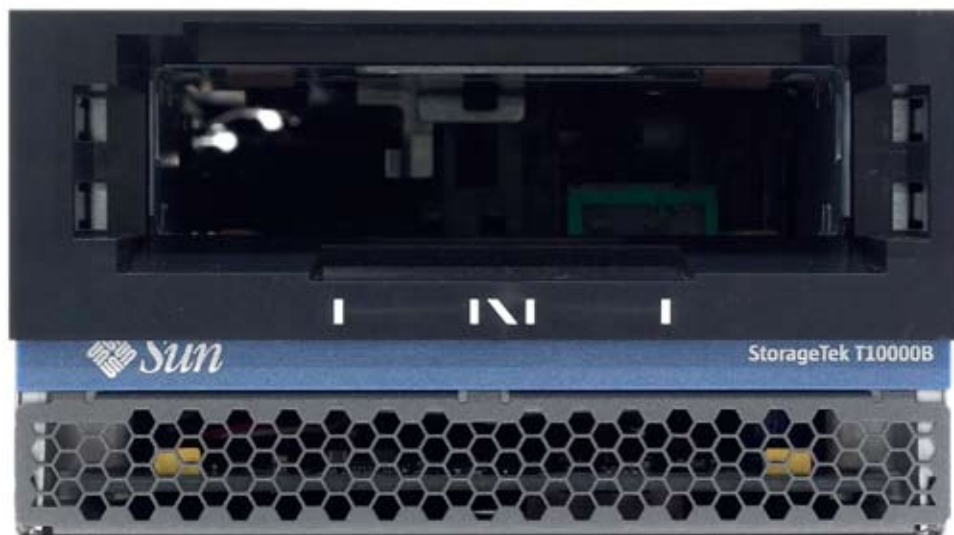




# Sun StorageTek™ T10000B Tape Drive



## Highlights

### • Drive efficiencies

Combine the highest native data capacity on tape — one 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 Sun StorageTek libraries and third-party applications

### • Minimize risk

Support 24x7 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 crypto-ready T10000B drive works with the Sun™ Crypto Key Management System to enable simple, scalable data encryption and with StorageTek VolSafe™ secure media technology for write-once read-many (WORM) protection



The Sun StorageTek™ T10000B enterprise tape drive blends highest capacity, reliability, performance, and data security to support demanding, 24x7 datacenter operations. The eco-efficient StorageTek T10000B drive also assures low total cost of ownership — reuse existing StorageTek T10000 media and rely on proven compatibility with Sun StorageTek enterprise libraries and third-party hardware and software.

The Sun StorageTek T10000B drive tape 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 Sun's world class service organization
- Ensure data protection with device-level encryption and WORM technology

### Drive efficiencies in enterprise and mid-sized data centers

The StorageTek T10000B drive delivers a potent combination: native capacity of one 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 eco-efficient 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 Sun StorageTek SL8500 or SL3500 modular library system to accelerate data consolidation efforts. As datacenter storage needs increase, you manage growth cost effectively when you combine the highest tape capacity on the market with media reusability and eco-efficiencies.

### 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. Since 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 drive helps you simplify deployment because it integrates seamlessly with Sun StorageTek enterprise libraries, with enterprise software applications, and with leading business applications. To save you time and effort, Sun has tested and pre-qualified the StorageTek T10000B drive on the Sun StorageTek SL8500, SL3000, L1400, L700 and L180 tape libraries. Even better, the StorageTek T10000B 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

Datacenters require lots of starts and stops, which add stress on storage components and subassemblies. The StorageTek T10000B tape drive is designed to support demanding 24x7 high duty cycle operations.

The Sun StorageTek SafeGuide™ system, which is the tape guiding system of the StorageTek T10000B 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 increase media wear.

Sun's worldwide service organization backs up our superior tape solutions with installation, maintenance, or support when you need it. Sun's Service Delivery Platform, which provides call home functionality, offers advanced monitoring capabilities for the StorageTek T10000B tape drive.

### Protect your data, protect your business

Choose one or both — encryption and write-once read-many (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.

Sun 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 non-erasable, non-rewritable tape and recall data quickly when you need it.

### Achieve breakthrough economics with Sun'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 T10000 media
- Protect your investment in the T10000 media you've purchased
- Integrates seamlessly with Sun 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 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 Sun 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/or lower risk. For example, it may be time to convert WORM optical to WORM VolSafe tape.



Tape relocation services expedite datacenter 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

Sun'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. Sun Data Readiness Services 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. Our consulting and managed services offer clear and simple choices in solutions that address your regulatory concerns, complex storage growth, resource management, and scalability. Let Sun's dedicated storage service professionals help you gain and sustain measurable results with the reliability and flexibility that you require.

To learn more

To learn more about Sun StorageTek T10000B tape drive, talk with your Sun representative or visit [sun.com/storagetek](http://sun.com/storagetek)

# Sun StorageTek T10000 Tape Drive Specifications

(Specifications apply to both drives unless otherwise noted)

## Performance

Access time	(see footnote)*
Tape load and thread	16 sec
Average file access (excludes load/thread)	46 sec (12 sec for Sport Cartridge)
Maximum rewind	91 sec (23 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)	$1 \times 10^{-39}$
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

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, i.e., one-half of the maximum rewind time.
- Phase 4:** Unload time — the amount of time required to eject the cartridge from the drive.

## Mechanical

Height	3.5 in. (8.89 cm)
Depth	16.75 in. (42.55 cm)
Width	5.75 in. (14.61 cm)

## Environmental

Temperature	
Operating	+50° F to +104° F (+10° C to +40° C)
Non-operating (storage)	+50° F to +104° F (+10° C to +40° C)
Relative humidity	
Operating	20% to 80%
Non-operating	10% to 95%

## Tape format

Linear serpentine
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## Power

Voltage	88-264 VAC @ 48-63 Hz
Consumption/dissipation	63 W (drive only) and 90 W (including power supply)/420 BTU/hr

## Encryption

The crypto-ready 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 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 Sun representative.