



# Scalar i2000

The Intelligent Tape Library  
for the Enterprise

The Quantum Scalar® i2000 intelligent enterprise tape library uses its integral iLayer management software to reduce the time users spend managing backup, cut the need for service calls by 50%, and shorten issue resolution time by 30%. The Scalar i2000 eliminates the need for external library control servers by integrating advanced management functions inside the library, including proactive alerting and remote diagnostics, library partitioning, I/O management, media integrity analysis, drive usage reports, and support for SMI-S. The Scalar i2000 uses its I/O blade architecture to offer faster, more reliable operation in SAN environments, and its capacity-on-demand scalability lets users grow their backup system easily from 100 to more than 3,400 tape cartridges in a compact, 19-inch rack-compatible form factor.



*The Scalar i2000 features ultra high density and a 19-inch rack form factor and scales from 100 to 3,492 cartridges.*












1 TO 96 DRIVES

100 TO 3,492 CARTRIDGES

CAPACITY-ON-DEMAND

INTEGRATED iLAYER  
MANAGEMENT SOFTWARE









## FEATURES AND BENEFITS

-  Exclusive relational diagnostics reduces service calls by 50% and shortens issue resolution time by 30%
-  Integrates advanced management functions inside the library for more effective management of the backup process
-  Designed to support integration with leading disk-based solutions
-  I/O blade architecture for faster, more reliable SAN operation, reduced switch port requirements and seamless integration and operation
-  Quantum's Security Framework enables flexible integration with data encryption and key management architectures
-  Integrated SMI-S allows the library to be managed through standard SRM tools, including EMC® ControlCenter™
-  Drive usage reports and media integrity analysis tools for advanced library resource management and diagnostics
-  Advanced scalability with rack-compatible capacity-on-demand growth
-  Supported by Scalar Key Manager Appliance in conjunction with LTO-4 drives to meet US Federal government recommended AES-256 Bit Encryption Standard for highest levels of security
-  Supported by Quantum's StorageCare® Guardian with proactive monitoring and intelligent diagnostic solutions that remotely manage the health of your Quantum Library
-  One-year on-site service included for the highest levels of protection

# Scalar i2000

## Designed for the Enterprise Data Center

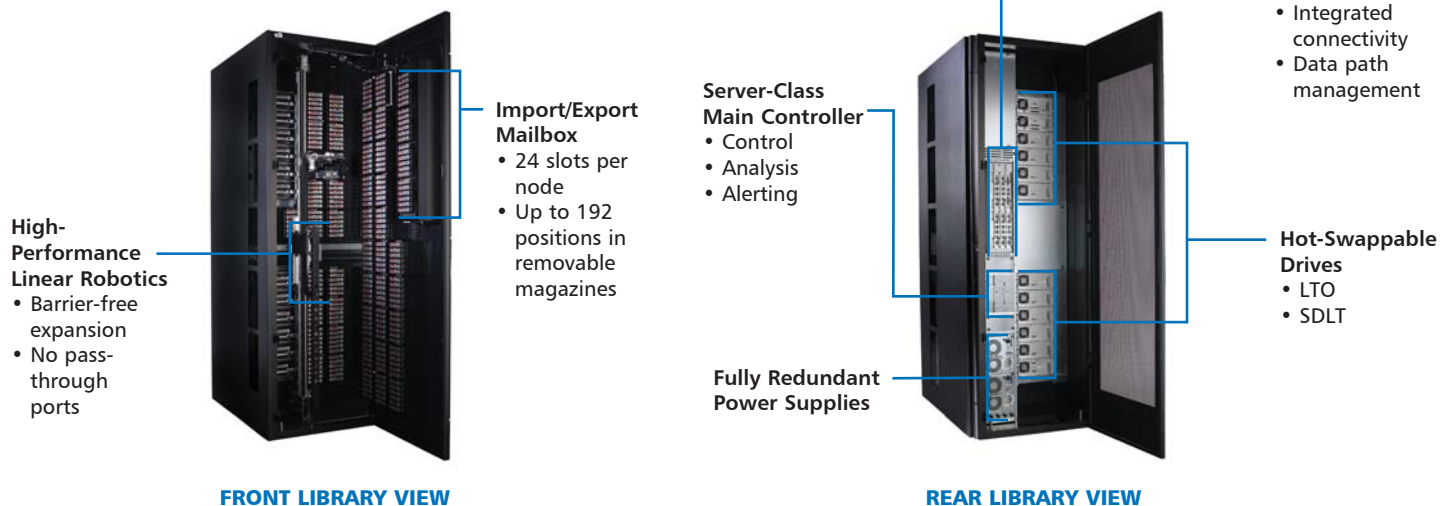
The Scalar i2000 is designed to meet the rigors of high-duty-cycle data center operation and to support the integration of next-generation disk-based backup solutions. In addition, its form factor was carefully designed to provide maximum density, flexibility, and utilization of physical resources in enterprise data centers. Its use of a standard 19-inch rack form factor provides easy space planning and simple integration into data center environments. The Scalar i2000 offers ultra high density of 746 cartridges per square meter and has the highest media import/export capability, offering up to 192 LTO bulk loading slots in one library.

DATA-CENTER-FRIENDLY FORM FACTOR								
								
Configuration	1 CM	1 CM and 1 EM	1 CM and 2 EMs	1 CM and 3 EMs	1 CM and 4 EMs	1 CM and 5 EMs	1 CM and 6 EMs	1 CM and 7 EMs
Physical Size (H × W × D) Inches Centimeters	77.4 × 24.3 × 38.3 196.6 × 61.7 × 97.4	77.4 × 47.9 × 38.3 196.6 × 121.6 × 97.4	77.4 × 71.5 × 38.3 196.6 × 181.5 × 97.4	77.4 × 95.1 × 38.3 196.6 × 241.4 × 97.4	77.4 × 118.7 × 38.3 196.6 × 303.3 × 97.4	77.4 × 142.3 × 38.3 196.6 × 361.2 × 97.4	77.4 × 165.9 × 38.3 196.6 × 421.1 × 97.4	77.4 × 189.5 × 38.3 196.6 × 481 × 97.4
Authorized Slots (LTO)	100 to 300	300 to 756	600 to 1,212	900 to 1,668	1,200 to 2,124	1,500 to 2,580	1,800 to 3,036	2,100 to 3,492
Drives	1 to 12	1 to 24	1 to 36	1 to 48	1 to 60	1 to 72	1 to 84	1 to 96

**Control Module (CM):** Contains the main controller, power supplies, I/O blade, operator panel touch screen, 24 slot import/export mailbox, and the library robotics.

**Expansion Modules (EM):** Provide drive space and cartridge slots, and depending on its position, may be configured with an import/export mailbox for bulk loading and unloading of media.

## Intelligent, Efficient Architecture



The Scalar i2000's design allows all service to be performed through the front or back of the library, eliminating the space-consuming side access requirements found in other libraries.

## Integrating External Functions and Adding Intelligence

Quantum's integrated iLayer management software gives end users an unmatched level of control over the backup process. It provides a server-class main controller, distributed control processors, and I/O blades, all linked by an embedded communications area network. The iLayer management software dramatically improves the manageability of the enterprise backup process by integrating advanced diagnostics services, library resource management, and I/O management inside the library.

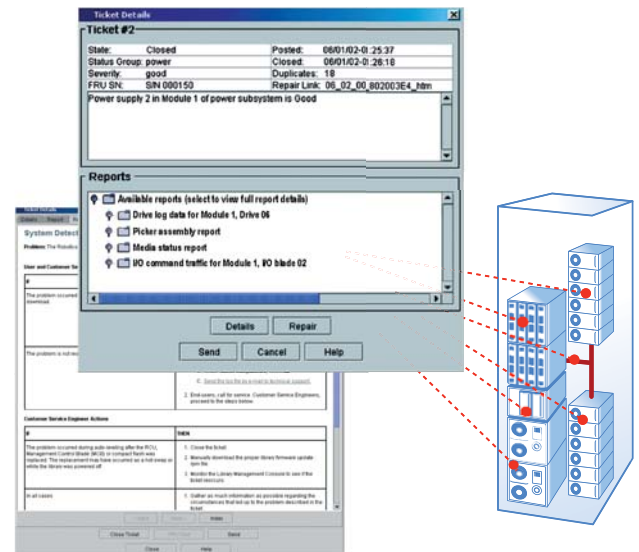
iLayer capabilities include native partitioning, true drive hot swap, proactive path verification and failover, media integrity analysis, drive usage reports, and relational diagnostic logic that provides easier, more certain, and faster issue resolution. A common iLayer management software approach extends across Quantum's iLayer tape libraries and disk-based backup products, enabling end users to transition easily to next-generation backup solutions.

## Industry-Leading Library and Ecosystem Diagnostics

Quantum's iLayer management software uses its exclusive relational diagnostic logic to automatically select, synchronize, store, and analyze data and make it proactively available to end users and the service team. The result is 50% fewer service calls, 30% faster issue resolution, and a library that is ready to backup and restore data whenever it is needed.

The Scalar i2000's proactive diagnostic system is fundamentally different from reactive monitoring approaches. When a Scalar i2000 sensor is triggered, the library determines which subsystems are involved, automatically collects their log data, and proactively sends it to administrators and the service team. This relational diagnostics approach allows diagnosis to start immediately, even without an on-site visit, so issues are resolved faster and less time is spent managing them. Quantum's StorageCare Guardian extends remote diagnostic capability to devices in the storage ecosystem around the library, and the libraries' built-in media integrity analysis tools let users proactively track error rates associated with any piece of media.

Unlike earlier generation libraries, the Scalar i2000 uses relational diagnostics to automatically select, gather, synchronize and analyze data from over 200 components in the library. The result is 50% fewer service calls and 30% faster issue resolution.



The Scalar i2000 leverages iLayer management software to integrate advanced diagnostic services, library resource management, and I/O management features inside the library.

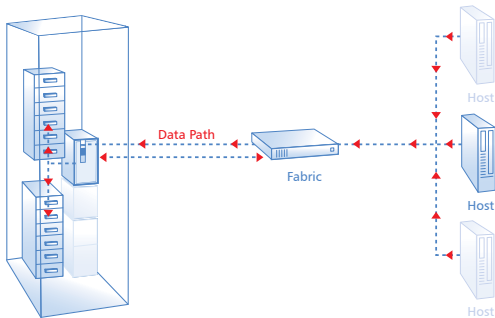
### SECURITY FRAMEWORK AND ENCRYPTION

The Quantum Security Framework enables customers to utilize industry standard encryption and key management solutions to protect their data and ensure regulatory compliance. The LTO-4 drive offers native encryption functionality giving customers strong AES 256 bit encryption and allowing them to take full advantage of drive performance and compression.

## More Efficient And Reliable Backup In SANs

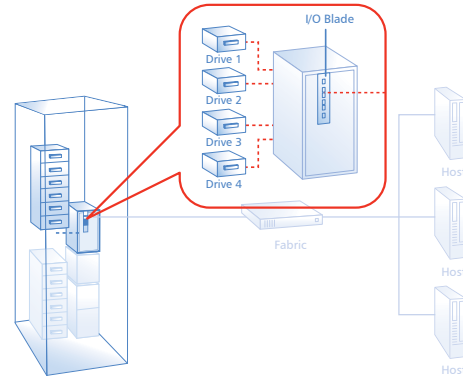
Leveraging the strength of Quantum's SAN expertise, the Scalar i2000 was designed to increase the performance and reliability of backup in SAN environments. It's the first solution to provide unified management of the library, drives, and SAN connectivity. All can be managed by a single graphical interface accessible both locally and remotely.

### DATA PATH READINESS CHECKS AND CONNECTIVITY FAILOVER IMPROVE RELIABILITY



The Scalar i2000 provides end-to-end proactive path and fabric readiness checks, Fibre Channel port failover, and drive performance optimization for improved backup reliability and performance.

### DRIVE AGGREGATION LOWERS COSTS, IMPROVES OPERATION AND INTEGRATION



Segmenting of backup infrastructure on the SAN reduces complexity and potential interference with primary data SAN. Each I/O blade in the Scalar i2000 supports up to four drives, reducing switch port and cabling requirements by up to 75%.

The Scalar i2000 proactively checks the data paths between all hosts and each drive in the library to ensure that the entire system—including fabric connections—is ready to perform the backup. Its performance optimization technology delivers the highest possible drive performance within a SAN, and its blade-based I/O management unit aggregates drive connections, reducing switch port and cabling requirements by up to 75%.

## Enterprise-Class Reliability/Availability/Serviceability

The Scalar i2000 provides RAS features designed to meet the availability requirements of consolidated enterprise backup. The library's comprehensive drive management capabilities offer the industry's first true drive hot swap. When drives are changed, they present the same worldwide node name and serial number as the replaced drives, eliminating the need for library power cycling, software profile rebuilds, or backup server reboots. The library even automatically sets the firmware level of the new drive to match other drives in the library based on user-defined policies.

With the Scalar i2000, full 2N power redundancy means that the library and all its drives are protected from any single point of failure in the power system. And its Fibre Channel port failover feature automatically routes data to a failover path if a library port, switch port, or the cabling connection between the switch and the library fails.

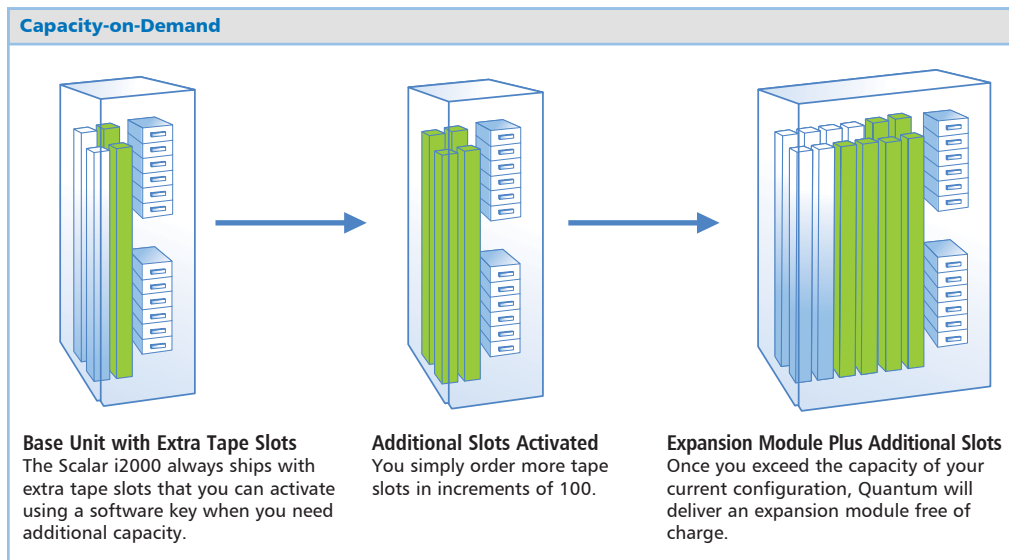


The local and remote user interface in the Scalar i2000 provides at-a-glance data on the status and performance of the library and major subsystems including drive, slot, configuration, mount, I/O, and capacity status.

## Scales With Your Data And Your Budget

The Scalar i2000 takes advantage of Quantum's industry-first scalability architecture: capacity-on-demand. Capacity-on-demand allows you to pay for only the capacity you need today, and easily plan for non-disruptive capacity upgrades as you grow. When you need more capacity, activation of additional 100 slot increments occurs simply by using a software key. To accommodate continual data growth, the Scalar i2000 expands to more than 3,400 LTO slots in a single library.

Quantum's linear expansion model means additional capacity can be added efficiently and cost effectively. Our barrier free, single robotics architecture provides the industry's highest levels of performance and reliability, eliminating the delays risks of pass-through ports.



## Enterprise Proven Security For Your Valuable Data At Rest

To protect and secure your valuable data, the Scalar Key Management Appliance integrates directly with Quantum's Scalar libraries to provide a simple, scalable security solution designed to work with LTO-4 encryption. It offers high-availability key management that can be integrated simply and seamlessly into existing backup architectures and is built to comply with FIPS 140-2 level 1, a security standard established by the US Federal Government and widely adopted outside of the United States. More information on Scalar Key Manager Appliance can be found by downloading the data sheet DS00406.pdf.

## Quantum's Exclusive Service Approach

Quantum's enterprise service approach leverages the intelligence of Quantum solutions and advanced data access technology to provide faster and more certain resolution of even complex, system-wide backup issues. Quantum's secure StorageCare Guardian technology provides Quantum service specialists remote interactive access to comprehensive diagnostic data from the library and surrounding storage ecosystem, including backup applications, switches, and HBAs.

Unlike conventional approaches to service that demand more user time, delay resolution, and may fail to find the root cause of a problem, Quantum's approach provides comprehensive service and support for the entire backup system, improving overall management, performance, and reliability.

**CAPACITY CONFIGURATIONS**

TOTAL DRIVE AND CAPACITY RANGES			
Technology	Drives	Cartridges	Capacity (TB) <sup>1</sup>
LTO-4	1 to 96	100 to 3,492	5,587
LTO-3 <sup>2</sup>	1 to 96	100 to 3,492	2,794
LTO-2	1 to 96	100 to 3,492	1,397
DLT-54	1 to 96	100 to 2,910	4,656
SDLT 600	1 to 96	100 to 2,910	1,746

**OPERATION**

<b>Drive Interface:</b>	Storage Networked 4Gb FC interface option; Native FC interface option
<b>Library Interface:</b>	Native FC interface
<b>Inventory Speed:</b>	100 slots in 20 seconds
<b>Configuration:</b>	Auto-discovery and auto-calibration for installed/added components (modules, tapes, drives, magazines, etc.)
<b>Import/Export:</b>	Up to 192 (LTO), or 160 (SDLT) positions in removable magazines

**ENVIRONMENTAL**

<b>Electrical:</b>	115-230 VAC, 2-16 kVA
<b>Temperature:</b>	15 to 32°C operating
<b>Humidity:</b>	10 to 90% non-condensing operating

**RELIABILITY**

<b>Library MCBF:</b>	Greater than 2,000,000
<b>Library MTTR:</b>	20 minutes
<b>Power:</b>	Optional 2N power for all systems and drives
<b>Diagnostics:</b>	Embedded monitoring of major subsystems, self-diagnostic procedures, and policy-based email and pager alerts to system administrators and Quantum Global Services
<b>Module Upgrade:</b>	Any storage module may be added in two hours; customer-installable components include drives, fans, power supplies, slot upgrades

**PHYSICAL**

System	H×W×D
Control Module (H×W×D):	77.4"×24.3"×38.3" (196.6cm×61.7cm×97.4cm)
Expansion Module (H×W×D):	77.4"×23.6"×38.3" (196.6cm×59.9cm×97.4cm)

CAPACITY-ON-DEMAND STARTING POINTS					
Library	Capacity (TB) <sup>1</sup>				
	LTO-4	LTO-3 <sup>2</sup>	LTO-2	DLT-54	SDLT 600
100-Slot	160	80	40	160	60
200-Slot	320	160	80	320	120
400-Slot	640	320	160	640	240
700-Slot	1,120	560	280	1,120	420
1,500-Slot	2,400	1,200	600	2,400	900
3,000-Slot	4,800	2,400	1,200	N/A	N/A

**COMPLIANCE AND CERTIFICATION**

<b>Safety:</b>	UL-1950 ITE, CSA950, EN 60950
<b>Emissions:</b>	FCC #47 CFR, Part 15, Class A, CSA C108.9M, EN 55022, Class A
<b>Immunity:</b>	IEC (1000-4-2,-3,-4)
<b>International:</b>	CE

**SOFTWARE AND PLATFORMS**

Consult the most recent Software Compatibility Guide on [www.quantum.com](http://www.quantum.com) for a complete list of software and platforms compatible with Scalar i2000.

**DRIVE CAPACITY AND PERFORMANCE**

Drive Type	Cartridge Capacity	Drive Throughput	Data Buffer	File Access
	Native/Compressed <sup>1</sup> (GB)	Native/Compressed <sup>1</sup> (MB/sec)	(MB)	Time (sec)
LTO-4	800 / 1600	120 / 240	128	51
LTO-3 <sup>2</sup>	400 / 800	80 / 160	128	68
LTO-2	200 / 400	35 / 70	64	49
DLT-54	800 / 1600	60 / 120	256	66
SDLT 600	300 / 600	36 / 72	64	79

Please see [www.quantum.com](http://www.quantum.com) for more drive specifications.

1 Assumes 2:1 compression.

2 Choice of IBM or HP models for LTO-3 drives.

For contact and product information, visit [quantum.com](http://quantum.com) or call 800-677-6268

**Quantum**<sup>®</sup>

**Backup. Recovery. Archive. It's What We Do.**

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**About Quantum**

Quantum Corp. (NYSE:QTM) is the leading global storage company specializing in backup, recovery and archive. Combining focused expertise, customer-driven innovation, and platform independence, Quantum provides a comprehensive range of disk, tape, media and software solutions supported by a world-class sales and service organization. This includes the DXi™-Series, the first disk backup solutions to extend the power of data deduplication and replication across the distributed enterprise. As a long-standing and trusted partner, the company works closely with a broad network of resellers, OEMs and other suppliers to meet customers' evolving data protection needs.