Quantum®
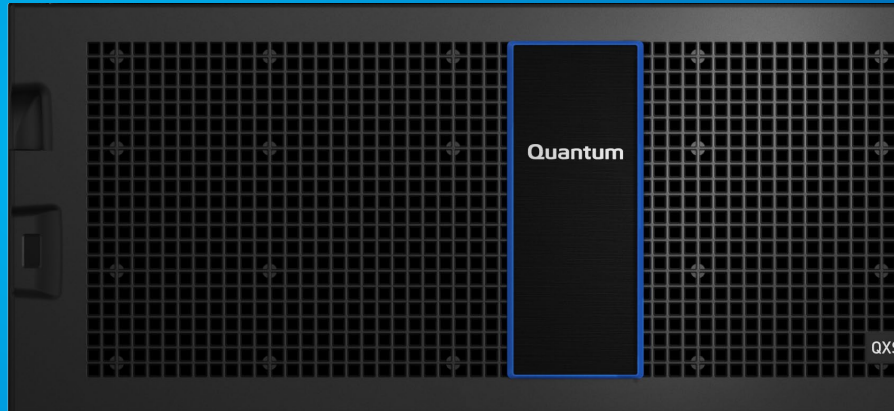
QXS Hybrid Storage

Automated, intelligent systems providing flash speeds at a fraction of the cost

As businesses aim to achieve faster time-to-market and greater customer satisfaction, they look to IT to keep pace by providing a faster, more responsive infrastructure. This challenge is compounded by unrelenting data growth and ongoing pressure on IT budgets. IT leaders recognize that, all too often, storage is the bottleneck in their business. Many of today's storage systems are either all flash—which are fast but are also very expensive—or lack robust data management, effective data protection, and the ability to expand seamlessly.

REAL-TIME, INTELLIGENT TIERING TO OPTIMIZE PERFORMANCE

Traditionally, storage system tradeoffs have been between cost, manageability, reliability, and performance. Acquiring a storage system that had the performance needed was very expensive and often very difficult to manage. With less-expensive storage systems, performance was often inadequate and the reliability questionable. Having a storage system that was high performing, highly reliable, easy to manage, and securely expandable while staying within budget was seen as a pipe dream. That is, until now.

OPTIMAL COMBINATION OF PERFORMANCE, SCALE, FLEXIBILITY, AND ECONOMY

Quantum QXS™ hybrid storage systems' real-time, automatic, intelligent tiering, Q-Tier, enables all-flash-like performance. The QXS Q-Tools provide easy-to-use storage management capability including thin provisioning and caching. With scalable, customizable configurations, QXS storage enables IT to achieve the perfect blend of flash and disk to meet all their requirements with respect to reliability, performance, and cost.

> The performance of the QXS arrays exceeded all of our expectations and demands, enabling us to deliver on our '3 minutes to boot, 15 minutes to recover' service level agreement, we call this our ASAP SLA!
>
> *- Kevin Woodley,*
> *Data Centre Manager,*
> *Oxford Health Informatics Service*

FEATURES & BENEFITS

Intelligent, real-time tiering
Optimizes your storage investment by ensuring frequently accessed data is in the highest performing storage.

Blazing Speed
Designed for demanding sequential I/O performance, QXS hybrid storage maximizes performance regardless of disk type or configuration.

Designed for reliability, proven 99.999% availability
Ensure your mission-critical applications always have access to data. QXS hybrid storage systems are designed with industry-leading, high-reliability specifications and no single point of failure.

Optimizing your budget
QXS provides all-flash performance at a fraction of the cost of an all-flash system.

> **LEARN MORE:**
> **www.quantum.com/hybridstorage**

BUILDING BLOCKS FOR QXS ARCHITECTURE

CONTROLLER
(Performance)

- QXS-3
- QXS-4
- QXS-6

Interface Options
- iSCSI
- FC
- SAS

Ensure you get the intelligence
and connect speed you need.

CHASSIS OPTIONS
(Capacity)

2u48

4u56

2u24

2u12

Maximize storage capacity;
combination of SSD and HDD,
all HDDs or all SSDs.

DEVICES
(Flexibility)

2.5″ HDD

3.5″ HDD

SSD

Based on your application
performance needs and your
budget. Use all HDDs, all SSDs,
or mix SSD with HDD to achieve
the optimal system.

Q-Tier

- **Real-time**
- **Intelligent**
- **Automated**

Ensures the most frequently used data
is in the highest-performing storage.
Constant background scanning for
"hot" data with the "hot" data moved
immediately—no waiting.

QXS Q-Tools

1. **Cache – SSD Read Cache**
   Cache supports SSD / HDD configurations, which dramatically
   increases the amount of read-cache available to the storage system.

2. **Thin – Thin Provisioning**
   Thin provisioning streamlines the tasks of provisioning and modifying
   volumes, allowing IT managers to respond to data growth as needed.

3. **Pool – Automatic Pooling**
   Pool simplifies the definition and management of tiered pools of storage
   with a powerful, yet simple to manage, storage virtualization layer.

4. **Quick – RAID Rapid Rebuilds**
   Quick delivers an accelerated rebuild operation as only the sectors
   that contain actual data are rebuilt, resulting in up to 5 times faster
   restoration of the RAID set.

5. **Snap – Virtualized Snapshots**
   Snap is a powerful new Advanced Copy which includes point-in-time
   snapshots and asynchronous replication.

Designed to Meet Industry Rugged Standards: NEBS and MIL-STD-810G

QXS-3 Series

BEST-IN-CLASS RELIABILITY AND HIGH AVAILABILITY

- **Dual RAID Controller** (Active/Active)
- **2 Ports per Controller** for maximum value
- **Flexible Interface Options** (CNC)
- **8Gb/16Gb FC or 1/10Gb iSCSI**
- **Easy to Set Up and Use** with the RAIDar 2.0 user interface
- **Support HDD and SSD Options**
- **Available with DC Power**
- **Scale to 96 Drives (SFF) - 3 Expansion JBODs**
- **Scales up to 384TB**
- **NEBS-compliant for Telco**
- **MIL-STD-810F/G**

Form/Fit
- 2U12, 2U24
- Interface options per system
  - CNC: 4 x 8Gb/16Gb FC or
  - CNC: 4 x 10Gb iSCSI

Performance
- 40K Read IOPS
- 3300 MBps Read
- 2400 MBps Write

Patented Technology
- EcoStor™: Battery-free protection
- Cache: Low-latency cache mirroring

QXS-4 Series

BEST-IN-CLASS PRICE/PERFORMANCE

- **Increased Bandwidth** & 4 ports per controller
- **Hybrid Interface** with 16G FC & 10G iSCSI
- **Future-Proof** for next-gen host interconnect
- **Data Management Services (DMS) Support**
- **WIN 2012, SMI-S Support**
- **Full Drive Encryption Capable**
- **Scale to 1.9PB**
- **NEBS-compliant for Telco**
- **MIL-STD-810F/G**

Form/Fit
- 2U12, 4U56 LFF
- 2U24, 2U48 SFF
- Interface options per system
  - CNC: 8 x 4Gb/8Gb/16Gb FC or
  - CNC: 8 x 1Gb/10Gb iSCSI or
  - 8 x 12Gb SAS or
  - CNC Hybrid: 4 x iSCSI + 4 x FC

Performance
- 100K Read IOPS
- 6400 MBps Read
- 5300 MBps Write

Patented Technology
- EcoStor™: Battery-free protection
- Cache: Low-latency cache mirroring

QXS-6 Series

HIGH PERFORMANCE

- **Increased Bandwidth** & 4 ports per controller
- **Hybrid Interface** with 16G FC & 10G iSCSI
- **Future-Proof** for next-gen host interconnect
- **Data Management Services (DMS) Support**
- **WIN 2012, SMI-S Support**
- **Full Drive Encryption Capable**
- **Scale to 1.9PB**
- **NEBS-compliant for Telco**
- **MIL-STD-810F/G**

Form/Fit
- 4U56 LFF
- 2U48 SFF
- Interface options per system
  - 8 x 12Gb SAS or
  - CNC Hybrid: 4 x iSCSI + 4 x FC

Performance
- 200K Read IOPS
- 12000 MBps Read
- 5700 MBps Write

Patented Technology
- EcoStor™: Battery-free protection
- Cache: Low-latency cache mirroring

	2U-12 Drive	2U-24 Drive	2U-48 Drive	4U-56 Drive
QXS-3 SERIES				
Controller Ports	4 FC, iSCSI, or 4-8 SAS Ports			
Controller Connectivity	16Gb, 8Gb Fibre Channel 10Gb, 1Gb iSCSI 12Gb SAS			
Primary Capacity	96TB	48TB		
Expanded Capacity	384TB	192TB		
Read Performance	3.3GB/s Read			
Write Performance	2.4GB/s Write			
Supported Drive Sizes	3.5"	2.5"		
Supported Drive Types	SSD, SAS 10K RPM, 15K RPM, and Nearline Drives			
Mix SSD & HDD	Yes			
QXS-4 SERIES				
Controller Ports	8 FC, SAS, or iSCSI Ports			
Controller Connectivity	16Gb, 8Gb, 4Gb Fibre Channel 10Gb, 1Gb iSCSI 12Gb SAS CNC Hybrid: 4 x iSCSI + 4 x FC			
Primary Capacity	96TB	48TB	96TB	448TB
Expanded Capacity	768TB	384TB	384TB	1.9PB
Read Performance	6.4GB/s Read			
Write Performance	5.3GB/s Write			
Supported Drive Sizes	3.5"	2.5"		3.5"
Supported Drive Types	SSD, SAS 10K RPM, 15K RPM, and Nearline Drives			
Mix SSD & HDD	Yes			
QXS-6 SERIES				
Controller Ports			8 SAS	8 SAS
Controller Connectivity			12Gb SAS	12Gb SAS
Primary Capacity			96TB	448TB
Expanded Capacity			384TB	1.9PB
Read Performance			12GB/s Read	
Write Performance			5.7GB/s Write	
Supported Drive Sizes			2.5"	3.5"
Supported Drive Types			SSD, SAS	
Mix SSD & HDD			Yes	

To learn more about Quantum QXS Hybrid Storage, please visit
www.quantum.com/hybridstorage

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