

## Quantum DX-Series Disk-Based Backup Systems



### FEATURES AND BENEFITS

#### Optimized Performance

- Up to 1GB/sec to meet short backup windows and provide quick restores
- Opyon In-Line Data Compression offers 2:1 compression
- Compression adapters offload compression processing to maintain the speed of the main system
- Restore files 5 to 10 times faster than a conventional tape library

#### Seamless Integration

- Emulates a tape library – easy-to-use and requires no changes to existing backup processes or architecture
- Up to 32 virtual library partitions, so you can share the DX-Series between departments, using multiple operating systems and backup applications
- Supported by every major backup software vendor
- Preserves investment in backup software

#### Expandability

- Up to 166TB (usable compressed), 102TB (raw) capacity in 6.4TB increments
- Additional capacity appears as extra virtual tape cartridges to the backup software
- User definable number of virtual tape drives and cartridges

#### Powerful and Robust Management

- Browser-based GUI provides robust management, status and configuration options
- No tedious disk de-fragmentation or tuning required
- Event monitoring and notification via SNMP and e-mail

#### Reliability, Availability, and Serviceability (RAS)

- RAID 5 disk protection
- Hot spare and hot-swappable SATA disk drives
- Up to two RAID controllers per array
- Redundant and hot-swappable power supplies and fans

Since 1980, Quantum has been a recognized leader in the design, manufacture, and service of backup, recovery and archive solutions. Every day, data center managers at global Fortune 500 companies depend upon Quantum for high-performance, reliable solutions while our worldwide support provides additional peace of mind.

The ability to quickly and reliably backup and restore business-critical data is a challenge in any data center. Quantum's innovative DX-Series Disk-Based Backup Systems enable extremely fast and reliable backup and restore operations while maintaining the existing backup architecture.

#### Not All Disk Backup is Created Equal

As a leading supplier of backup, recovery and archive products, Quantum is in a position to deliver unique solutions to the marketplace. While other vendors present their disk-based backup as ordinary disk, the Quantum DX-Series emulates a tape library. By emulating tape, the DX-Series can be seamlessly integrated into existing backup environments without making changes to existing processes. This differentiates the DX-Series from most other available products and saves you a significant amount of effort when configuring and maintaining the backup architecture.

Quantum's unique, patent-pending Opyon™ In-Line Data Compression can double capacity with 2:1 compression without causing performance degradation for either the backup host or the DX-Series processor! In contrast, other software-based compression solutions perform so slowly that their use cancels out the speed benefits of a disk-based solution.

#### Industry-leading Performance

The DX-Series is the fastest disk-based backup solution for open systems environments, with performance that can reach and even exceed 1GB per second. Quantum's DX products, which were the industry's first to incorporate virtual tape technology, are also the fastest. No other backup solution can offer this type of blazing performance, to meet short backup windows and company-specific service level agreements.

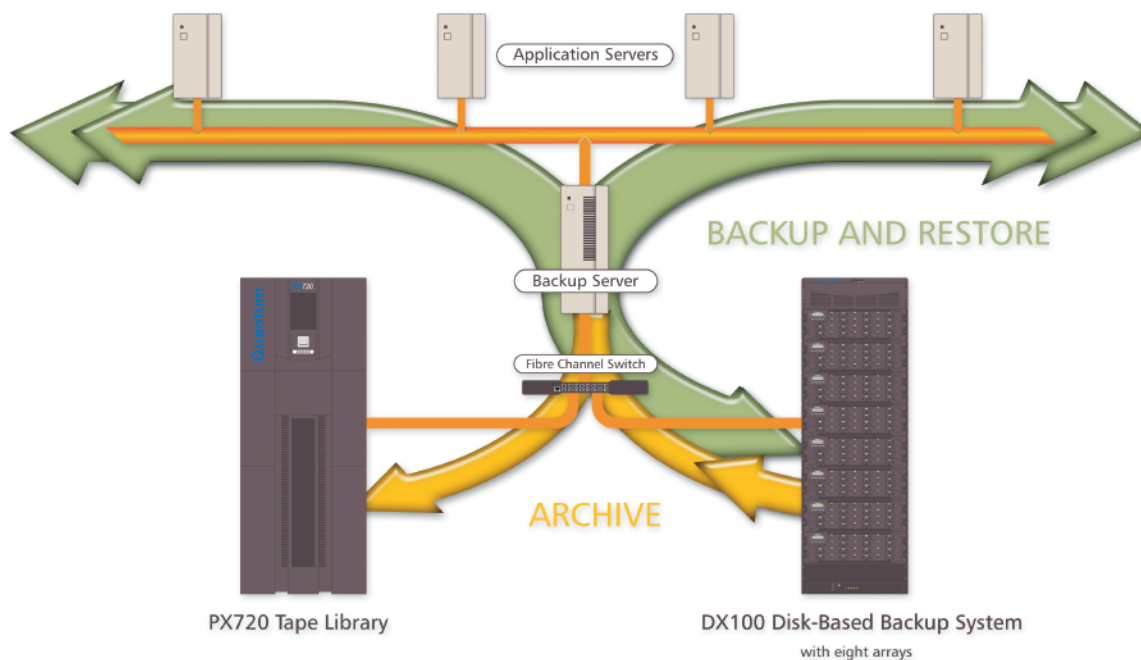
Why can the DX-Series offer this type of speed? The reason lies in the innovative design of these market-leading disk-based libraries. Elimination of robotic movement, cartridge load and unload processes, lagging seek times and slow transfer rates are advantages of any disk used for backup. Specifically, Quantum takes this step further by tuning the DX-Series for performance in backup applications. Unlike off-the-shelf disk arrays that are configured to accommodate a wide range of storage applications and data types, the DX-Series is optimized to sequentially write the large blocks of data that are typically generated by backup applications. The result is the fastest backup times available for your ever-growing corporate data.

#### Compression

With Opyon In-Line Data Compression you can have 2:1 compression while still enjoying the speed of a disk-based backup solution. The Opyon compression adapters use dedicated hardware functionality to offload compression from the main processor, maintaining the high speed of the DX-Series. This industry-leading technology is only available from Quantum.



## Quantum DX-Series Disk-Based Backup Systems



By sending backup jobs directly to the Quantum DX-Series, data center managers can meet short backup windows and quickly restore data when needed. The DX-Series compliments tape libraries, which can now focus on long-term archival and off-site storage for disaster recovery and regulatory compliance. Backup, restore, and archiving can now occur more frequently and reliably, resulting in greater backup confidence and overall data protection.

### Reliability, Availability, and Serviceability (RAS)

High availability and reliability are standard with the DX-Series. Critical data is protected by RAID 5 disk protection, hot spare and hot-swappable SATA disk drives, redundant power and cooling, and up to two RAID controllers per array. Designed for the data center, serviceability is engineered into the DX-Series to ensure complete data protection.

### Scalable Capacity

The DX-Series offers a truly scalable solution, starting at 4TB and expanding to 204TB (raw compressed), 102TB (non-compressed). You can choose the capacity you need and rest assured that the equipment will grow with your data protection needs.

### Functionality

Most backup administrators agree that consistent and reliable backup processes are paramount. Why implement changes to achieve only marginal performance improvements? Because the DX-Series

emulates a tape library, the functionality of the existing backup software is preserved, including all of the processes, classes, and scripts that were designed for the existing environments. For example, customers using VERITAS® Shared Storage Option (SSO) can maintain their same environment with a Quantum DX30 or DX100 Disk-Based Backup System.

### Expandability

Capacity planning is always a significant concern for IT professionals. This process can become very complicated with off-the-shelf disks in the backup architecture. Carving out capacity from the available pool of expensive primary storage devices is not financially viable for most IT budgets. And simply adding disk arrays to the network as a means of increasing backup capacity causes an unacceptable linear increase in the amount of management required. The DX-Series easily solves this problem since storage capacity can be added as needed and the expanded system appears simply as a larger virtual tape

library with more virtual tape cartridges available to the backup software – there are no additional devices to separately manage.

### Management

The DX-Series includes a powerful and robust Web-based graphical user interface (GUI) for system management. For example, the GUI allows you to define the number of emulated tape drives, assign bar codes and labels, and monitor environmental status (cooling and power supplies). Other GUI features include the ability to view the status of the controller, storage arrays, virtual tape drives and cartridges. Also, all alerts including e-mail and SNMP are configured via the GUI. Since an operator does not need to be present to add or remove virtual tape cartridges, the DX-Series is ideal for "lights-out" data center environments. Taking advantage of SNMP enables management of the device through popular Storage Resource Management applications such as HP OpenView.

# Quantum DX-Series Disk-Based Backup Systems

## DX-SERIES SPECIFICATIONS

	DX30	DX100
Raw Total Capacity compressed	12-51TB	25-204TB
Usable Total Capacity - RAID 5 with One Hot Spare Per Array (factory default) compressed	10-41TB	20-166TB
Capacity Increments Per Array (raw)	6.4TB	6.4TB
Capacity Increments Per Array (Usable with RAID 5 and One Hot Spare Per Array - factory default)	5.2TB	5.2TB
Arrays in Base Configuration / Maximum	1 array / 4 arrays maximum	2 arrays / 16 arrays maximum
Number of Virtual Tape Drives	1-30	1-55
Number of Virtual Tape Cartridges	4-320 per array 1,280 (max)	4-320 per array 5,120 (max)
<b>Performance</b>	<b>DX30</b>	<b>DX100</b>
Aggregate Throughput	Up to 1TB/hr	Up to 1GB/sec (3.6TB/hr)
<b>Host Interfaces</b>	<b>DX30</b>	<b>DX100</b>
Hardware	Two, 2 Gigabit Fibre Channel (LC Connector) One, 10/100/1000 BaseT Ethernet (for remote management)	Eight, 2 Gigabit Fibre Channel (LC Connector) Two, 10/100/1000 BaseT Ethernet (one for remote management and one for internal control network)
Software	SCSI-2 Media Changer command set; DLT7000 command set	SCSI-2 Media Changer command set; DLT7000 command set
<b>Power Requirements</b>	<b>DX30 with One Array</b>	<b>DX100 with Two Arrays</b>
Voltage	100-240 VAC	110-240 VAC
Frequency	47 to 63Hz	47 to 63Hz
Current	2.4A @ 230 VAC	4.57A @ 230 VAC
Power Consumption	550 Watts	1,050 Watts
Power Cord	NEMA 5-15P to C13 Connector (Qty 4)	Included in Power Accessory Kit
	<b>Per Additional DX30 Array</b>	<b>Per Additional DX100 Array</b>
Current	1.3A @ 230 VAC	1.57A @ 230 VAC
Power Consumption	300 Watts	360 Watts
<b>Power Accessory Kit (DX100 Only)</b>		
<b>One Power Accessory Kit required for every four arrays</b>		Each kit includes two power sequencers and two power cords or stripped leads; NEMA L5/L6-20P to C19 (N. America) IEC309 to C19 (Europe) Stripped leads (no plug) to C19 (outside N. America and Europe)
<b>Number of Arrays</b>	<b>Total Power Accessory Kit(s)</b>	
1-4	1	
5-8	2	
9-12	3	
13-16	4	
<b>Physical Characteristics</b>	<b>DX30</b>	<b>DX100</b>
<b>Controller</b>		
Bezel width	19.00 in. (482.6 mm)	19.00 in. (482.6 mm)
Chassis width	16.88 in. (428.8 mm)	16.88 in. (428.8 mm)
Chassis height	5.25 in. - 3U (133.4mm)	8.75 in. - 5U (222.3 mm) includes FC and Ethernet switches
Chassis depth	28.00 in. (711.2 mm)	28.00 in. (711.2 mm)
<b>Storage Array</b>		
Bezel width	19.00 in. (482.6 mm)	19.00 in. (482.6 mm)
Chassis width	17.50 in. (444.5 mm)	17.50 in. (444.5 mm)
Chassis height	5.25 in. - 3U (133.4mm)	5.25 in. - 3U (133.4mm)
Chassis depth	19.75 in. (501.6 mm)	19.75 in. (501.6 mm)
Overall depth	20.50 in. (520.7 mm)	20.50 in. (520.7 mm)
<b>AC Distribution Panel (DX100 Only)</b>		
<b>Panel height</b>	<b>DX30 with One Array</b>	<b>DX100 with Two Arrays</b>
	127 lbs / 57.6 kg (installed) 143 lbs / 64.9 kg (shipping)	312 lbs / 142 kg (installed) 334 lbs / 152 kg (shipping)
<b>Weight</b>		
<b>Environmental</b>	<b>DX30</b>	<b>DX100</b>
<b>Operating</b>		
Relative Humidity	20 – 80% non-condensing	20 – 80% non-condensing
Temperature	10 – 35°C 50 – 95°F	10 – 35°C 50 – 95°F
Altitude	0 – 3,048 meters 0 – 10,000 ft.	0 – 3,048 meters 0 – 10,000 ft.
Shock (half-sine)	20 G, 2ms	20 G, 2ms
Vibration (sine)	0.25 G, 20 – 300 Hz, 1 octave/min	0.25 G, 20 – 300 Hz, 1 octave/min
Heat	1,880 Btu / hour (typical)	3,590 Btu / hour (typical)
<b>Non-operating</b>		
Relative Humidity	15 – 95% non-condensing	15 – 95% non-condensing
Temperature	-20 – 60°C -4 – 140°F	-20 – 60°C -4 – 140°F
Altitude	0 – 12,000 meters 0 – 39,370 ft.	0 – 12,000 meters 0 – 39,370 ft.
Shock (half-sine)	30 G, 10ms	30 G, 10ms
Vibration (random)	1.15 G rms, 20 – 300 Hz	1.15 G rms, 20 – 300 Hz
<b>Agency Approvals</b>	<b>DX30</b>	<b>DX100</b>
Safety	UL 60950 Listed, CSA C22.2 – No. 60950-00 (73/23 EED), EN60950, EN60825, GS_Mark	UL 60950 Listed, CSA C22.2 – No. 60950-00 (73/23 EED), EN60950, EN60825, GS_Mark
Emissions	FCC Part 15 Class A, ICES – 003, CE Mark (89/336 EEC), VCCI Class A, C-Tick	FCC Part 15 Class A, ICES – 003, CE Mark (89/336 EEC), VCCI Class A, C-Tick

- DX100 requires Power Accessory Kit (ordered separately)

- The DX-Series is also compatible with Network Data Management Protocol (NDMP) environments via the Dinostar™ TapeServer product (ordered separately).

## Quantum DX-Series Disk-Based Backup Systems

### Worldwide Service and Support

As a global leader in backup, recovery and archive products, Quantum has an established support network that spans more than 60 countries worldwide. A full range of StorageCare™ services are available for our enterprise-class products (DX30, DX100 and PX720). All Quantum enterprise-class products include standard product installation\*, a full year of 5x9 Telephone Support and 5x9xNext Day on-site support. A variety of hardware support plans are available with up to 7x24x4 support in many countries around the globe. Quantum's exclusive SiteCare™ service provides

customers with two proactive visits from a Quantum-authorized StorageCare professional each year. While on-site, the StorageCare professional will run a complete diagnostic check on all covered hardware, firmware and media to ensure optimal performance and reliability. Quantum also offers standard and custom integration packages for all Quantum enterprise-class products in most environments and configurations.

### About Quantum

Quantum, a global leader in storage, delivers highly reliable backup, recovery and archive solutions that meet

demanding requirements for data integrity and availability with superior price/performance and comprehensive service and support. Quantum is the world's largest supplier of tape drives, and its DLT®, LTO Ultrium, DAT/DDS and Travan-based technologies set the standards for tape backup, recovery and archive of business-critical data for the small business to mid-range enterprise. Quantum offers the broadest portfolio of tape autoloaders and libraries and is one of the pioneers in the disk-based backup market, providing solutions that emulate a tape library but are optimized for backup and recovery.

\* Excludes DX30 and DX100 non-racked systems.



Storage magazine and searchstorage.com  
Products of the Year  
Bronze Award for Backup Hardware  
Quantum DX30  
January 2003



China ComputerWorld  
Editor's Choice Award  
Quantum DX30  
December 2003

**"With the DX100, we are not holding up tape drives anymore. That means backup jobs that used to take us 50 hours now take us five. I love numbers like that!"**



Integrated Solutions  
I<sup>3</sup> Award  
Quantum DX30  
March 2003



Network Computing  
Well-Connected Awards  
Quantum DX30  
April 2005

**- Dimitris Krekoukias  
Systems Architect  
Acxiom Corporation**

# Quantum.

**OPTYON™**  
IN-LINE DATA COMPRESSION

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