

Contents

Product Overview..... 1

Included With Your DXi6500 2

 Licenses 2

Installation 3

 Rack Compatibility 3

 DXi6500 Setup and Configuration..... 3

 Network Configuration 3

 Firewall Ports 4

 Installation and Integration Services 5

Service 6

 DXi6500 Warranty 6

 Service Package Upgrades 6

 Email Home 7

 StorageCare™ Guardian 7

 DXi Advanced Reporting 7

DXi6500 Configurations 8

DXi6500 Shipping Information 9

DXi6500 Specifications 9

 Physical Characteristics 10

 Environmental Specifications 15

DXi6500 Site Planning Guide



Product Overview

The DXi6500 family of disk backup and replication appliances use Quantum’s data deduplication technology to expand the amount of backup data users can retain on fast-recovery RAID systems by 10 to 50 times. The result is a cost-effective way for IT departments to store backup data on disk for months instead of days, providing high speed, reliable restores, increasing available data recovery points, and reducing media management.

For disaster recovery in distributed environments, the DXi6500 systems make automated WAN replication practical by dramatically reducing the bandwidth required to move backup data securely between sites.

DXi6500 solutions are integrated systems that are easy to install and use with all leading backup applications. They provide best-in-class performance with flexible, easy-to-use NAS and OST presentations as well as Ethernet and optional Fibre Channel connectivity. DXi6500 appliances are part of a comprehensive set of backup solutions, serviced and supported by Quantum, the leading global specialist in backup, recovery, and archive.

Note: This *Site Planning Guide* is for DXi6500 with DXi 2.1.1 Software.

Included With Your DXi6500

The DXi6500 are fully configured to your specifications and pre-tested in the factory. Every DXi6500 configuration arrives with all necessary parts included. Each system comes with an accessory kit containing rack-mount hardware and a Quick Reference and Documentation CD which includes the *User's Guide*.

Licenses

The following licenses are included with the DXi6500. Some licenses are pre-installed and some are included on License Certificates, as noted below.

- **NAS** - Enables the NAS interface to hosts. (License key is pre-installed on all DXi6500 models.)
- **Backup Application Specific** - Enables the OST Direct PTT (path to tape) capability on DXi6500, Model 6540 and Model 6550. (This license is enabled when the OST license is installed on DXi6500, Model 6540 and Model 6550. A separate license key is not required.)

Note: A Fibre Channel card must be installed in the system to enable the PTT capability.

- **Data Deduplication** - Enables the data deduplication capability. (License key is pre-installed on all DXi6500 models.)
- **Replication** - Enables replication capability. (License key is pre-installed on all DXi6500 models.)
- **Storage Capacity** - Enables the installed storage capacity for the system. (License key is pre-installed on all DXi6500 models.)

A storage capacity license key is pre-installed for all capacity shipped from the factory. You must install license keys for additional capacity purchased after the initial point of sale are installed.

Note: If you purchase a storage capacity upgrade, a License Certificate to enable the additional capacity is included with the upgrade.

- **OST** - Enables the OpenStorage (OST) connection. (License Certificate is included with all DXi6500 models.)

Follow the instructions on the License Certificate to obtain a license key at www.quantum.com. Installing the OST license on a DXi6500, Model 6540 or Model 6550 also enables the OST Direct PTT (path to tape) capability on the DXi.

Installation

Rack Compatibility

Nearly all standard four-post 19" server racks meeting EIA-310 specifications are compatible with the DXi6500 rack mount kits. Rack cabinets meeting EIA-310 specifications have an alternating pattern of three holes per rack unit with center-to-center hole spacing (beginning at the top hole of a 1-U space) of 15.9 mm, 15.9 mm, and 12.7 mm (0.625 inch, 0.625 inch, and 0.5 inch) for the front and back vertical rails. For detailed information, refer to the *DXi6500 Installation and Configuration Guide* for your DXi6500 model.

Note: The rack mounting rails extend to support rack depths from 26.5 to 36.4 inches (67.3 to 92.4 cm).

When planning your rack installation, be sure to consider leaving room in the rack for future system expansion. You can expand the storage capacity of the DXi6500 (some configurations) by adding up to nine expansion modules. Also be sure to leave adequate room behind the rack to open the rear rack door.

See [Physical Characteristics](#) on page 10 for node and expansion module rack space requirements.

DXi6500 Setup and Configuration

After hardware has been installed and initially configured, you are ready to use your DXi6500. The remote management console allows you to reconfigure your DXi6500 at any time.

Required Network Information

To utilize the remote management console of the DXi6500, you must connect it to your network.

Note the following considerations:

- DHCP (Dynamic Host Configuration Protocol) is not supported. You must provide a static IP address at the time of installation.
- The default IP Address is: **10.1.1.1**

You and other administrative users can always return to the remote management console to modify all DXi6500 settings, including network settings. Refer to the *DXi6500 User's Guide* included on the Quick Reference and Documentation CD for additional information on initially configuring your DXi6500.

Network Configuration

During network configuration, each individual interface on the DXi6500 can be configured as a subnet with its own network settings. Each physical Ethernet port can be configured as an interface. In addition, you can also create bonded interfaces (logical ports) consisting of two or more physical ports.

You can specify the type of traffic allowed on each interface (management, replication, or data). Alternately, you can allow any traffic type on an interface. In this case, the routing of different traffic types, as well as firewall capability, must be controlled using the network infrastructure (routers and switches) that the DXi6500 is connected to.

Note: Each configured network interface requires its own set of network settings (IP address, network mask, and gateway).

Caution: For effective bonded network use, a properly configured network switch is required. (A network switch is not supplied with the DXi6500.) The DXi6500 bonding settings must match the switch settings. If the switch settings and the DXi6500 settings do not match, your system may become inaccessible through the switch.

Firewall Ports

The following firewall ports must be opened for correct function of the DXi6500.

TCP Ports Opened for Management Traffic

- 22 (SSH)
- 80 (HTTP)
- 161 (SNMP)
- 162 (SNMP, trap)
- 443 (HTTPS)
- 1311 (Dell OpenManage)
- 8406 (HTTP, jettyd)
- 8407 (HTTP, thrift)

TCP Ports Opened for DXi Replication Traffic

- 22 (DXi Replication)
- 80 (DXi Replication, OST)
- 1062 (DXi Replication, OST)

UDP Ports Opened for Data Traffic

- 111 (RPC, portmap)
- 628 (NFS, statd)
- 682 (NFS, rquotad)
- 880 (NFS, mountd)
- 2049 (NFS, nfsd)

- 32000 (NFS, lockd)

TCP Ports Opened for Data Traffic

- 111 (RPC, portmap)
- 139 (CIFS)
- 445 (CIFS)
- 628 (NFS, statd)
- 682 (NFS, rquotad)
- 880 (NFS, mountd)
- 2049 (NFS, nfsd)
- 3095 (OST)
- 3096 (OST)
- 3097 (OST)
- 3098 (OST)
- 3099 (OST)
- 3100 (OST)
- 3101 (OST)
- 3102 (OST)
- 10001 (OST)
- 10002 (OST)
- 32000 (NFS, lockd)

Installation and Integration Services

Installation and integration of the DXi6500 systems by Quantum is not required since the DXi6500 are customer installable. Quantum recommends that system installation be performed only by qualified network or system administrators who have a working knowledge of ISV setup and configuration.

If you want to purchase professional installation services, please contact your Quantum Sales representative to discuss installation services.

Phone support for the installation process is available via the Quantum support number for your area. Quantum World Wide phone support is as follows:

Americas:

800-284-5101 (toll free)

949-725-2100

Europe, Middle East and Africa:

00800-4-782-6886 (toll free)

+49 6131 3241 1164

Asia Pacific:

+800 7826 8887 (toll free)

+603 7953 3010

Service

DXi6500 Warranty

The DXi6500 warranty includes one year of Quantum's Bronze Support Plan. This includes next business day on-site response, 5x9 telephone support, and on-line resources. This warranty covers the DXi6500 and all drives, and includes firmware downloads, telephone support, Email Home, and Internet access to Quantum's online Customer Support web site.

The Quantum Customer Support web site features online service request processing, Web-based event status tracking, and a comprehensive Knowledge Base. Quantum's Knowledge Base gives you 7x24 real-time electronic access to complete product and support resources and the expertise of Quantum's Global Services organization.

- **Customer Replaceable Units (CRUs)** - Power supply module, solid state drive (64 GB, 2.5") in carrier, hard disk drive (1TB, 3.5") in carrier, external SAS cable
- **Field Replaceable Units (FRUs)** - Chassis (Node), chassis (Expansion Module), 4 port 1 GbE NIC, 2 port 10 GbE NIC, 2 port 8 Gb Fibre Channel HBA, RAID controller, DDR3 memory module, battery backup module (BBU), internal SAS cable (Node), internal SAS cable (Expansion Module), DVD-ROM drive, 80mm chassis fan (internal center), 80mm chassis fan (rear exhaust)

Note: The above lists may not be comprehensive. For additional information on FRUs, please contact your Quantum sales representative.

Service Package Upgrades

Quantum's Global Services organization is geared towards delivering the fastest possible response and root cause resolution, helping you maximize your backup investments, better manage processes, and make the best use of your resources. We ensure total customer satisfaction by providing comprehensive, responsive services on a worldwide basis.

A variety of support options are available to you via Quantum's tiered hardware support plans to meet a range of budget and availability requirements. Quantum's Support Plans include **Next Business Day Gold** (Next Business Day Onsite, 7x24 Phone Support), **Gold** (7x24x4 Hr on-site, 7x24 phone support), and a customized **Platinum** offering. A

Warranty extension of **Bronze** (5x9xNBD on-site, 5x9 phone support) is also an option for the second and third year of ownership. Features of the Gold and Platinum plans include: 24-hour telephone support, on-site response, access to strategic account management (available with select service packages), priority call handling, strategically located spares parts, online resources, and firmware upgrades. For more information on these service plans, please visit www.quantum.com or contact your Quantum Sales Representative.

Quantum service engineers are available around the world and are deployed to respond to on-site service demands. In addition, spare part depots are strategically located around the globe so that service technicians have access to the parts and equipment necessary to maintain or repair your DXi6500.

Email Home

The Email Home capability can be configured to automatically send XML-based reports to e-mail recipients.

The report represents a snapshot of the system information at the time the report is generated. Quantum recommends generating and saving a report before performing a software upgrade or reconfiguring the system.

StorageCare™ Guardian

StorageCare Guardian is a remote monitoring and diagnostic solution that enables Quantum to proactively monitor the health of Quantum systems over the Internet and use intelligent diagnostics data to remotely service the equipment if issues arise.

StorageCare Guardian delivers more reliable backups and faster resolution time for customers at no additional cost for supported products under warranty or service contract.

More Reliable Backups

Leveraging the intelligence inside Quantum's storage systems, StorageCare Guardian proactively monitors the health of the units, uses diagnostics data to predict possible failures, and determines whether or not the problem involves a Quantum product or other critical components in the environment.

Faster Resolution Time

When issues occur, StorageCare Guardian provides better diagnostics data that will enable Quantum to identify the root cause for rapid problem resolution.

StorageCare Guardian can be downloaded from:

<http://www.quantum.com/ServiceandSupport/Services/GuardianInformation/Index.aspx>

DXi Advanced Reporting

DXi Advanced Reporting, which is included on all DXi appliances, sets new standards for onboard intelligence by giving users a detailed view of internal appliance operations and provides them with years of backup and replication data for extended trend analysis.

DXi Advanced Reporting reduces administration time, improves operations, streamlines performance tuning, and helps users maximize the value of their DXi appliances. For systems with a larger scope, Quantum Vision™ management software provides industry-unique capabilities, giving IT departments global management of all their Quantum disk and tape systems from a single console. Vision's centralized reporting and flexible trend analysis tools help users optimize system value by giving them automated, flexible access to the information they need to make proactive decisions concerning on-going system administration, dynamic capacity planning, and system-wide troubleshooting.

DXi6500 Configurations

The DXi6500 can be ordered in the following configurations (see [Table 1](#)).

Table 1 DXi6500 Configurations

DXi6500 Configurations	Usable Capacity	Rack Space Required
Model 6510 1 Node (1 RAID controller card, 2 x 1 GbE Ethernet ports)	8 TB	3U
Model 6520 1 Node (2 RAID controller cards, 6 x 1 GbE Ethernet ports) 0–3 Expansion Modules	8–32 TB	3U for node 2u for each expansion module
Model 6530 1 Node (4 RAID controller cards, 6 x 1 GbE Ethernet ports) 2–9 Expansion Modules	24–80 TB	3U for node 2U for each expansion module
Model 6540 1 Node (4 RAID controller cards, 6 x 1 GbE Ethernet ports, 2 x 8 Gb Fibre Channel ports) 2–9 Expansion Modules	24–80 TB	3U for node 2U for each expansion module
Model 6550 1 Node (4 RAID controller cards, 2 x 1 GbE Ethernet ports, 2 x 10 GbE Ethernet ports (CX4, optical, or Twinax), 2 x 8 Gb Fibre Channel ports) 2–9 Expansion Modules	24–80 TB	3U for node 2U for each expansion module

DXi6500 Shipping Information

The DXi6500 are delivered in the following configurations (see [Table 2](#)). Each node and expansion module ships in its own box. Each node shipping box weighs approximately 125 lbs. (56.7 kg). Each expansion module shipping box weighs approximately 75 lbs. (34.0 kg). All boxes for each DXi6500 configuration are shipped on a single pallet.

Table 2 DXi6500 Shipping Configurations

Number of Nodes	Number of Expansion Modules	Pallet Dimensions	Total Pallet Weight
1	0	Width: 43 in. (109.2 cm) Length: 28 in. (71.2 cm) Height: 16 in. (40.6 cm)	Approximately 125 lbs. (56.7 kg)
1	1	Width: 43 in. (109.2 cm) Length: 28 in. (71.2 cm) Height: 26 in. (66.0 cm)	Approximately 200 lbs. (90.7 kg)
1	2	Width: 43 in. (109.2 cm) Length: 28 in. (71.2 cm) Height: 35 in. (88.9 cm)	Approximately 275 lbs. (124.7 kg)
1	3	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 27 in. (68.6 cm)	Approximately 435 lbs. (197.3 kg)
1	4	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 36 in. (91.4 cm)	Approximately 510 lbs. (231.3 kg)
1	5	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 36 in. (91.4 cm)	Approximately 585 lbs. (265.4 kg)
1	6	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 46 in. (116.8 cm)	Approximately 660 lbs. (299.4 kg)
1	7	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 46 in. (91.4 cm)	Approximately 735 lbs. (333.4 kg)

Number of Nodes	Number of Expansion Modules	Pallet Dimensions	Total Pallet Weight
1	8	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 56 in. (91.4 cm)	Approximately 810 lbs. (367.4 kg)
1	9	Width: 52 in. (132.1 cm) Length: 42 in. (106.7 cm) Height: 56 in. (116.8 cm)	Approximately 885 lbs. (401.4 kg)

DXi6500 Specifications

This section lists characteristics and specifications the DXi6500. These characteristics and specifications are categorized as follows:

- [Physical Characteristics](#)
- [Environmental Specifications](#)

Note: For hard drive specifications see the appropriate hard drive product manual.

Physical Characteristics

The following tables provide dimensions and other physical characteristics of the DXi6500 system components:

- [Table 3 - Physical Characteristics](#)
- [Table 4 - Storage Capacity](#)
- [Table 5 - Cable Drops](#)
- [Table 6 - DXi6500 Virtual Device Limits and Hardware Interfaces](#)
- [Table 7 - Power Requirements](#)

Table 3 Physical Characteristics

	Node	Expansion Module
Height	5.2 in. (13.2 cm)	3.5 in. (8.9 cm)
Width (side to side)	17.2 in. (43.7 cm)	17.2 in. (43.7 cm)
Depth (front to back)	25.5 in. (64.8 cm)	25.5 in. (64.8 cm)
Weight (stand alone)	72 lbs. (32.7 kg)	52 lbs. (23.6 kg)
Rack Space Required	3U	2U
Air clearance	Open 4 in. (10.2 cm) behind unit for proper air flow	

Table 4 Storage Capacity

DXi6500 Storage Capacity	
Usable capacity	DXi6500, Model 6510 - 8 TB DXi6500, Model 6520 - From 8 to 32 TB DXi6500, Model 6530, 6540, or 6550 - From 8 to 80 TB
Capacity increments	8 TB

Table 5 Cable Drops

DXi6500 Cable Drops	
Ethernet Cable Drops	<p>Model 6510 (2 x 1 GbE ports) - 1 to 2 1 GbE Ethernet connections for NAS or OST connectivity, replication, and remote management</p> <p>Model 6520, 6530, 6540 (6 x 1 GbE ports) - 1 to 6 1 GbE Ethernet connections for NAS or OST connectivity, replication, and remote management</p> <p>Model 6550 (2 x 1 GbE ports and 2 x 10 GbE ports) - 1 to 2 1 GbE Ethernet connections and 1 to 2 10 GbE Ethernet connections (CX4, optical, or Twinax) for NAS or OST connectivity, replication, and remote management</p> <p>Note: The 10 GbE Copper (Twinax) cable options that Quantum provides do not support all switches. Please note the supported switches during the purchase-configuration process, and if the Twinax cables supplied by Quantum are <i>not</i> compatible with your switch, then you will need to provide your own compatible Twinax cables from your switch vendor. Be sure to have these available before the system installation takes place.</p>
Fibre Channel Drops	Model 6540, 6550 (2 x FC ports) - 1 to 2 Fibre Channel connections for path-to-tape connection

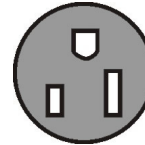
DXi6500 Cable Drops

Power Outlets

Node - 2 USA type 3-prong power outlets (Nema 5-15) or 2 C13 type 3-prong power outlets (IEC320 C13). For additional information, see [Table 7](#).

Expansion Module (each) - 2 USA type 3-prong power outlets (Nema 5-15) or 2 C13 type 3-prong power outlets (IEC320 C13).

USA type 3-prong power outlet (Nema 5-15)



C13 type 3-prong power outlet (IEC320 C13)



Table 6 DXi6500 Virtual Device Limits and Hardware Interfaces

DXi6500 NAS / OST — Maximum Shares and Storage Servers

Virtual Device Limits

DXi6500 NAS backup target: 128 shares maximum (NFS or CIFS)

DXi6500 OST backup target: 100 storage servers maximum

Note: NFS version: NFSv2 and NFSv3

Note: Samba version: 3.6.0

Hardware / Interfaces

Model 6510

2 ports 100/1000BASE-T Ethernet (RJ45 connector)

Model 6520, 6530

6 ports 100/1000BASE-T Ethernet (RJ45 connector)



Model 6540

6 ports 100/1000BASE-T Ethernet (RJ45 connector) and 2 ports 8 Gb Fibre Channel (LC connector)

Model 6550

2 ports 100/1000BASE-T Ethernet (RJ45 connector), 2 ports 10GbE Ethernet (CX4 connector, optical 10GBASE-SR via LC connector, or Twinax copper 10GBASESFP+Cu via SFP+), and 2 ports 8 Gb Fibre Channel (LC connector)

Table 7 Power Requirements

DXi6500 Power Requirements		
Power Supplies and Cords	Node	Two (2) hot-swappable redundant power supplies
		Two (2) USA type 3-prong power cords with IEC320 C13 to Nema 5-15 connectors:
		
		Two (2) C13 to C14 type 3-prong power cords with IEC320 C13 to IEC320 C14 connectors:
		
	Expansion Module	Two (2) hot-swappable redundant power supplies Two (2) USA type 3-prong power cords with IEC320 C13 to Nema 5-15 connectors Two (2) C13 to C14 type 3-prong power cords with IEC320 C13 to IEC320 C14 connectors
Voltage	Node	100–240 VAC
	Expansion Module	100–240 VAC
Frequency	Node	50–60Hz
	Expansion Module	50–60Hz

DXi6500 Site Planning Guide

Average AC Current	Node	570 Watts, 5.7A @ 100 VAC, 1945 BTU/hr 570 Watts, 2.4A @ 240 VAC, 1945 BTU/hr
	Expansion Module	230 Watts, 2.3A @ 100 VAC, 785 BTU/hr 230 Watts, 1.0A @ 240 VAC, 785 BTU/hr
Inrush Peak AC Current	Node	1100 Watts, 11.0A @ 100 VAC 1120 Watts, 4.7A @ 240 VAC
	Expansion Module	300 Watts, 3.0A @ 100 VAC 420 Watts, 1.75A @ 240 VAC

Caution: To safeguard backups and to avoid potential data loss in the event of a power outage, Quantum recommends that you connect the DXi6500 to an uninterruptable power supply (UPS) with a minimum UPS capacity rating that meets the power requirements stated above.

Environmental Specifications

[Table 8](#) provides various DXi6500 environmental specifications.

Table 8 Environmental Specifications

Climatic Environment		
Temperature	Operating	10° to 35°C (50° to 95°F) up to 3048m (10,000 ft)
	Shipping and storage	-20° to 60°C (-4° to 140°F) up 12,000m (39,370 ft)
Relative humidity	Operating	20% to 80% (non-condensing)
	Shipping and storage	5% to 95% (non-condensing)
Altitude	Operating	-30m to 3048 m (-100 to 10,000 ft)
	Shipping and storage	-30m to 12,000 m (-100 to 39,370 ft)
Vibration and Shock		
Operational Shock	Peak Acceleration	3G
	Duration	8 milliseconds
	Wave Shape	½ Sine
Operational Vibration	Mode	Swept frequency
	Frequency Range	20Hz-300Hz
	Amplitude	0.25G
	Rate/Duration	0.75 octaves/minute
	Application	X, Y, and Z axes
Shipping and Storage	Mode	Random Vibration
	Frequency Range	4Hz-300Hz
	Amplitude	0.96 Grms
	Rate/Duration	(PSD can be provided) 30 minutes X, Y, Z axes
Acoustic		
Acoustic output	Operating	< 67 dBA at 1 meter, room temperature (20C)
Agency Approvals		
Safety	IEC 60950-1, CSA 60950-1-03/UL 60950-1	
Emissions	EN55022 Class A, FCC Part 15 Class A, ICES-003 Class A, VCCI Class A, CISPR 22 Class A, CNS13438 Class A, KN22 Class A	

Immunity	EN55024/KN24: EN 61000-3-2 - Harmonic current emissions test EN 61000-3-3 - Voltage fluctuations and flicker in low-voltage supply systems test EN 55024:1998 - Information technology equipment - Immunity characteristics - Limits and methods of measurements EN 61000-4-2 - Electrostatic discharge immunity test EN 61000-4-3 - Radiated, radio-frequency, electromagnetic field immunity test EN 61000-4-4 - Electrical fast transient/burst immunity test EN 61000-4-5 - Surge immunity test EN 61000-4-6 - Immunity to conducted disturbances, induced by radio-frequency fields EN 61000-4-8 - Power frequency magnetic field immunity test EN 61000-4-11 - Voltage dips, short interruptions and voltage variations immunity test
----------	---

Caution: The DXi6500 systems are designed to be installed in a rack enclosure. Ensure that the operating temperature inside the rack enclosure does not exceed the maximum rated ambient temperature. Do not restrict air flow to the DXi6500 components.



For assistance, contact the Quantum Customer Support Center:
USA: 800-284-5101 (toll free) or 949-725-2100
EMEA: 00800-4-782-6886 (toll free) or +49 6131 3241 1164
APAC: +800 7826 8887 (toll free) or +603 7953 3010
Worldwide: <http://www.quantum.com/ServiceandSupport>

Quantum®

Preserving the World's Most Important Data. Yours.™

©2012 Quantum Corporation. All rights reserved. Quantum, the Quantum logo, and all other logos are registered trademarks of Quantum Corporation or of their respective owners. Protected by Pending and Issued U.S. and Foreign Patents, including U.S. Patent No. 5,990,810.

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.