



Quantum DXi4700 Capacity Upgrade Guide

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Introduction

This document provides instructions for upgrading the storage capacity of a Quantum DXi4700 disk backup system. There are two methods for upgrading storage capacity:

- **Adding a Storage Capacity License** - Upgrade the usable capacity of the system by adding license keys (6TB, 8TB, and 18TB) to enable hardware capacity that is already installed in the system. For example, you can upgrade the usable capacity of a 5 TB system to 11 TB simply by adding a storage capacity license key. See [Table 1 on the next page](#) for the licensed usable capacities that are available for each hardware configuration.
- **Adding Additional Hardware Capacity** - Upgrade the usable capacity of the system by installing additional hardware capacity along with a storage capacity license key. See [Table 1 on the next page](#) for supported configurations.
 - Upgrade the base Node with 6 additional hard drives for a total of 12 hard drives (4 TB each).
 - Add up to three Expansion modules (JBODs) to the system. Each Expansion module contains 12 hard drives (4 TB each).

i Note: You must upgrade the Node to a total of 12 hard drives before adding Expansion modules to the system.

Table 1: DXi4700 Supported Configurations

DXi4700 (NAS/OST) Configuration	Licensed Usable Capacity ^{2 3}	Nominal Capacity	System Memory	Expansion Modules (JBODs)	Total Rack Space Required
<ul style="list-style-type: none"> 1 Node (2U) 3 x 1 GbE Ethernet ports 	5 TB / 11 TB ¹	12 TB	32 GB*	0	2U
<ul style="list-style-type: none"> 2 x 8 Gb Fibre Channel ports (for VTL) 	19 TB / 27 TB	28 TB	32 GB*	0	2U
<ul style="list-style-type: none"> 2 x 6 Gb SAS ports (DXi4700 G1 configurations with Expansion modules only) 	45 TB / 63 TB	64 TB	64 GB*	1	4U
<ul style="list-style-type: none"> 2 x 12 Gb SAS ports (DXi4700 G2 configurations with Expansion modules only) 	81 TB / 99 TB	100 TB	64 GB*	2	6U
<ul style="list-style-type: none"> (Optional) Additional network adapter providing 2 x 10 GbE (SFP+) Ethernet ports or 2 x 10 GBase-T Ethernet ports 	117 TB / 135 TB	136 TB	96 GB*	3	8U

*32 GB systems running a Veeam or DAE configuration require 64 GB system memory.

64 GB systems running a Veeam or DAE configuration require 96 GB system memory.

96 GB systems running a Veeam or DAE configuration require 128 GB system memory.

¹ 1 TB = 1,000,000,000,000 bytes

² Usable storage capacity for installed Array or Expansion modules can be upgraded at any time after purchase in increments of 6TB, 8TB, and 18TB. Storage capacity upgrades are enabled simply by adding a license key. To purchase a storage capacity upgrade license, contact your Quantum sales representative. After you obtain the storage capacity license, refer to the section "Adding a License Key" in the *DXi4700 User's Guide* for instructions on completing the capacity upgrade.

³ Usable space is presented as a decimal (1000) value (TB or Terrabyte) in the DXi GUI. Backup applications may report the binary (1024) value (TiB or Tebibyte) but incorrectly label it as "TB". For example, 272 TB will be seen in the DXi GUI; however a backup application may report 247.38 TB. 247.38 "tebibyte (TiB) = 271.99718647923 "terabyte (TB)"

DXi4700 (VTL) Configuration	Licensed Usable Capacity ^{2 3}	Nominal Capacity	System Memory	Expansion Modules (JBODs)	Total Rack Space Required
<ul style="list-style-type: none"> 1 Node 3 x 1 GbE Ethernet ports 	5 TB / 11 TB ¹	12 TB	32 GB	0	2U
<ul style="list-style-type: none"> 2 x 8 Gb Fibre Channel ports (for VTL) 	19 TB / 27 TB	28 TB	32 GB	0	2U
<ul style="list-style-type: none"> 2 x 6 Gb SAS ports (DXi4700 G1 configurations with Expansion modules only) 	45 TB / 63 TB	64 TB	64 GB	1	4U
<ul style="list-style-type: none"> 2 x 12 Gb SAS ports (DXi4700 G2 configurations with Expansion modules only) 	81 TB / 99 TB	100 TB	64 GB	2	6U
<ul style="list-style-type: none"> (Optional) Additional network adapter providing 2 x 10 GbE (SFP+) Ethernet ports or 2 x 10 GBase-T Ethernet ports 	117 TB / 135 TB	136 TB	96 GB	3	8U

¹ 1 TB = 1,000,000,000,000 bytes

² Usable storage capacity for installed Array or Expansion modules can be upgraded at any time after purchase in increments of 6TB, 8TB, and 18TB. Storage capacity upgrades are enabled simply by adding a license key. To purchase a storage capacity upgrade license, contact your Quantum sales representative. After you obtain the storage capacity license, refer to the section "Adding a License Key" in the *DXi4700 User's Guide* for instructions on completing the capacity upgrade.

³ Usable space is presented as a decimal (1000) value (TB or Terrabyte) in the DXi GUI. Backup applications may report the binary (1024) value (TiB or Tebibyte) but incorrectly label it as "TB". For example, 272 TB will be seen in the DXi GUI; however a backup application may report 247.38 TB. **247.38 "tebibyte (TiB) = 271.99718647923 "terabyte (TB)"**

DXi4700 (Multi-Protocol) Configuration	Licensed Usable Capacity ^{2 3}	Nominal Capacity	System Memory	Expansion Modules (JBODs)	Total Rack Space Required
<ul style="list-style-type: none"> 1 Node 3 x 1 GbE Ethernet ports 	5 TB / 11 TB ¹	12 TB	32 GB*	0	2U
<ul style="list-style-type: none"> 2 x 8 Gb Fibre Channel ports (for VTL) 	19 TB / 27 TB	28 TB	32 GB*	0	2U
<ul style="list-style-type: none"> 2 x 8 Gb Fibre Channel ports (for PTT) 2 x 6 Gb SAS ports (DXi4700 G1 configurations with Expansion modules only) 	45 TB / 63 TB	64 TB	64 GB*	1	4U
<ul style="list-style-type: none"> 2 x 12 Gb SAS ports (DXi4700 G2 configurations with Expansion modules only) 	81 TB / 99 TB	100 TB	64 GB*	2	6U
<ul style="list-style-type: none"> (Optional) Additional network adapter providing 2 x 10 GbE (SFP+) Ethernet ports or 2 x 10 GBase-T Ethernet ports 	117 TB / 135 TB	136 TB	96 GB*	3	8U

*32 GB systems running a Veeam or DAE configuration require 64 GB system memory.

64 GB systems running a Veeam or DAE configuration require 96 GB system memory.

96 GB systems running a Veeam or DAE configuration require 128 GB system memory.

¹ 1 TB = 1,000,000,000,000 bytes

² Usable storage capacity for installed Array or Expansion modules can be upgraded at any time after purchase in increments of 6TB, 8TB, and 18TB.. Storage capacity upgrades are enabled simply by adding a license key. To purchase a storage capacity upgrade license, contact your Quantum sales representative. After you obtain the storage capacity license, refer to the section "Adding a License Key" in the *DXi4700 User's Guide* for instructions on completing the capacity upgrade.

³ Usable space is presented as a decimal (1000) value (TB or Terrabyte) in the DXi GUI. Backup applications may report the binary (1024) value (TiB or Tebibyte) but incorrectly label it as "TB". For example, 272 TB will be seen in the DXi GUI; however a backup application may report 247.38 TB. 247.38 "tebibyte (TiB) = 271.99718647923 "terabyte (TB)"

Preparing for the Capacity Upgrade

Before you begin the DXi4700 storage capacity upgrade, make the following preparations:

- [Software Upgrades below](#)
- [Checking System Health below](#)
- [Gathering Necessary Tools below](#)
- [Taking ESD Precaution on the next page](#)

Software Upgrades

It is highly recommended that you upgrade to the latest version of DXi Software before starting a capacity upgrade. For more information on software upgrades, see the “Software Upgrades” section of the DXi4700 User’s Guide (6-68106).

Checking System Health

Make sure the following conditions are met before you continue with the capacity upgrade:

- All backup jobs are completed and there is no pending I/O.
- All replication jobs are completed, and replication is paused (**Replication > Actions** page).
- All space reclamation tasks are completed without errors (**Utilities > Space Reclamation** page).
- All healthchecks are completed without errors (**Utilities > Space Reclamation** page).
- All components in the system display Normal status (**Status > Hardware** page).
- All outstanding administration alerts are deleted (**Alerts > Admin Alerts** page).
- All service tickets are closed (**Alerts > Service Tickets** page).

For more information, see the DXi4700 User’s Guide or click **Help > Help Contents** in the remote management console to display the DXi online help.

Gathering Necessary Tools

The following tools are required for unpacking and installing the DXi4700 system:

- Small flat head screwdriver

Taking ESD Precaution

Some components within the DXi4700 system contain static-sensitive parts. To avoid damaging these parts while performing installation procedures, always observe the following precautions:

- Keep the DXi4700 system turned off during all installation procedures.
- Keep static-sensitive parts in their original shipping containers until ready for installation.
- Do not place static-sensitive parts on a metal surface. Place them inside their protective shipping bag or on an antistatic mat.
- Wear anti-static wrist bands when unpacking and handling the units, and avoid touching connectors and other components.

i Note: Dry climates and cold-weather heating environments have lower relative humidity and are more likely to produce static electricity.

Capacity Upgrade Overview

To upgrade the usable capacity of the DXi4700 by enabling hardware capacity that is already installed in the system, simply enter the storage capacity license keys (6TB, 8TB, and 18TB). Skip directly to [Installing the Storage Capacity License on page 46](#).

To upgrade the usable capacity of the DXi4700 by installing additional hardware capacity, you need to install one or more components. The components you need to install depend on the initial usable capacity and the total usable capacity after the upgrade (see [Table 1 on the next page](#)):

- Node hard drives (4 TB each) (6)
- Memory modules (4 GB DIMMs) (8 or 16)
- H810 RAID controller card (DXi4700 G1) (1)
- H830 RAID Controller (DXi4700 G2) (1)
- Expansion Modules (JBODS) (1 to 3)

Tasks

To perform the hardware capacity upgrade, complete the following major steps in order:

1. [Determining the DXi4700 Model on page 9](#)
2. [Unpacking the Upgrade Components on page 9](#)
3. [Shutting Down the System on page 13](#)

4. [Installing Components in the Node on page 14](#)
5. [Installing Expansion Modules on page 35](#)
6. [Cabling the System on page 39](#)
7. [Turning On the System on page 45](#)
8. [Installing the Storage Capacity License on page 46](#)

Table 1: DXi4700 Hardware Capacity Upgrades

Initial Capacity	Capacity After Upgrade				
	Components to Add to the System				
	11 TB	19-27 TB	45-63 TB	81-99 TB	117-135 TB
5-11 TB	License Key	6 Node drives License Key	6 Node drives 8 DIMMs 1 RAID Card 1 JBOD License Key	6 Node drives 8 DIMMs 1 RAID Card 2 JBODs License Key	6 Node drives 16 DIMMs 1 RAID Card 3 JBODs License Key
19-27 TB		License Key	8 DIMMs 1 RAID Card 1 JBOD License Key	8 DIMMs 1 RAID Card 2 JBODs License Key	16 DIMMs 1 RAID Card 3 JBODs License Key
45-63 TB			License Key	1 JBOD License Key	8 DIMMs 2 JBODs License Key
81-99 TB				License Key	8 DIMMs 1 JBOD License Key
117 TB					License Key

Determining the DXi4700 Model

You will need to determine if the DXi system is a DXi4700 G1 or DXi4700 G2. Model information is located on the pull-out information tag on the front of the Node (see [Figure 1 below](#)).

- The DXi4700 G2 information tag includes “G2” in the part number (see [Figure 2 below](#)).
- The DXi4700 G1 information tag does not include “G1” in the part number (see [Figure 3 below](#)).

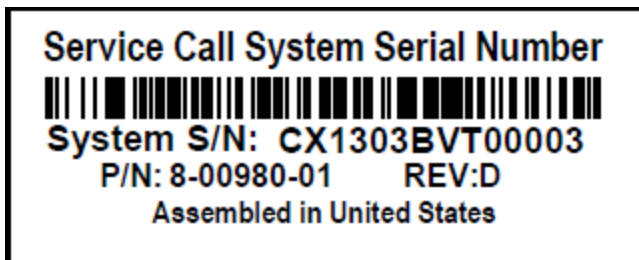
Figure 1: DXi4700 Information Tag

1. Information Tag

Figure 2: DXi4700 G2 Information Tag



Figure 3: DXi4700 G1 Information Tag



Unpacking the Upgrade Components

Depending on the hardware capacity upgrade you are performing, the necessary components ship in one or more boxes. Each box includes a label that notes the number of the box and the total number of boxes in the shipment (for example, box 1 of 3). **MAKE SURE THAT YOU HAVE ALL BOXES IN THE SHIPMENT BEFORE YOU BEGIN THE UPGRADE.**

To unpack the upgrade components, refer to the following sections:

- [Unpacking the Additional Node Components below](#)
- [Unpacking the DXi4700 Expansion Module on the next page](#)

i Note: Make sure to retain all packing materials, as well as the documentation and other items included in the shipping box. The packaging materials must be used if the system is relocated.

⚡ WARNING: The DXi4700 G1 Node and Expansion module (JBOD) weigh 61.0 pounds (27.7 kg) and 62.6 pounds (28.4 kg) respectively. The DXi4700 G2 Node and Expansion module (JBOD) weigh 49.4 pounds (22.4 kg) and 59.2 pounds (26.8 kg) respectively. A minimum of two people are required to lift either chassis.

Unpacking the Additional Node Components

Depending on the upgrade, additional Node components may ship in separate boxes (see [Capacity Upgrade Overview on page 7](#)):

- Node hard drives (4 TB each) (6)
- Memory modules (4 GB DIMMs) (8 or 16)
- H810 RAID controller card (DXi4700 G1) (1)
- H830 RAID controller card (DXi4700 G2) (1)

Carefully unpack and remove the components from the packing materials (see [Figure 4 below](#)).

Figure 4: Unpacking the Additional DXi4700 Node Components



H810 RAID Controller (DXi4700 G1)



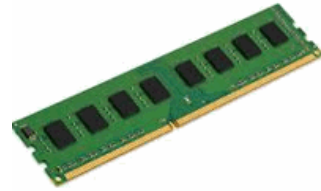
H810 RAID Controller (DXi4700 G1)



X520 10 GbE Card



4 TB Hard Drives



X540 10 GBase-T Card

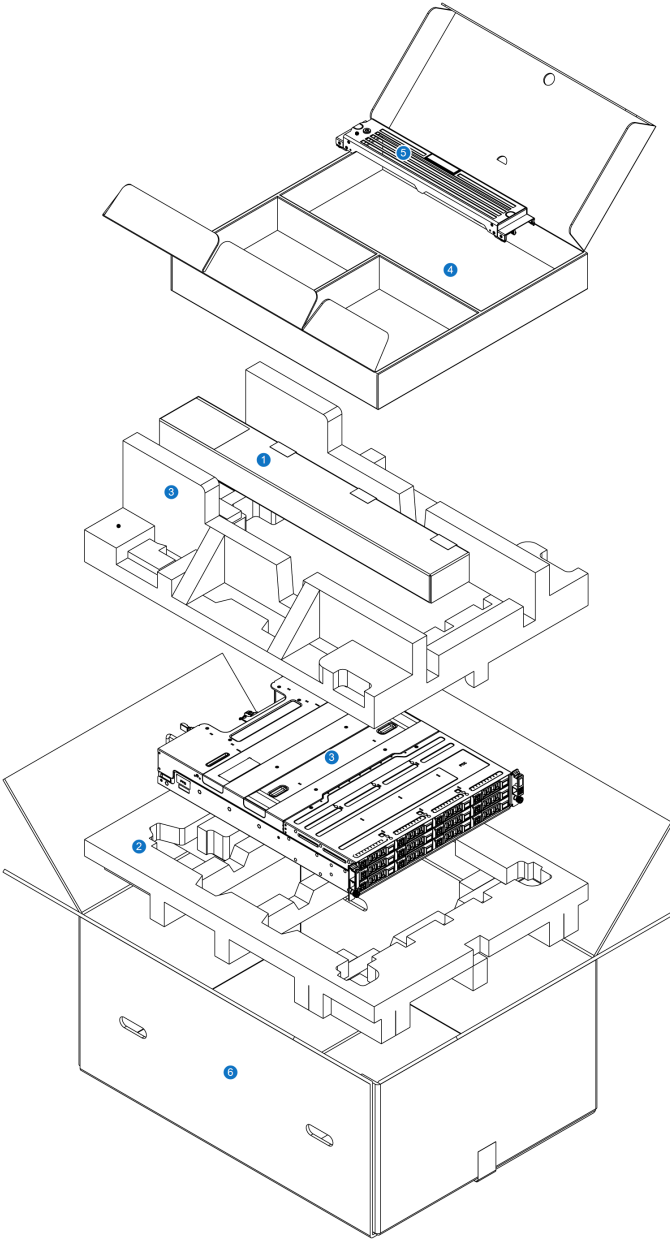
Unpacking the DXi4700 Expansion Module

Depending on the upgrade, 1–3 Expansion modules (JBODs) may ship in separate boxes (see Capacity Upgrade Overview on page 6). The box containing each DXi4700 Expansion module contains the following items:

- Rack mount rails
- Cable management straps
- Accessory kit, which includes the following:
 - C13 to C14 power cord (2)
 - North American power cord (2)
 - SAS interconnect cable (1m) (2)
- Expansion module bezel and bezel key (secured with tape inside bezel)

For each Expansion module (if any), carefully unpack and remove the components from the packing materials (see [Figure 5 on the next page](#)).

Figure 5: Unpacking the Expansion Module



Item	Description
1	Rack mount rails
2	Foam

Item	Description
3	Array/Expansion module
4	Accessory Kit
5	Bezel
6	Box

Shutting Down the System

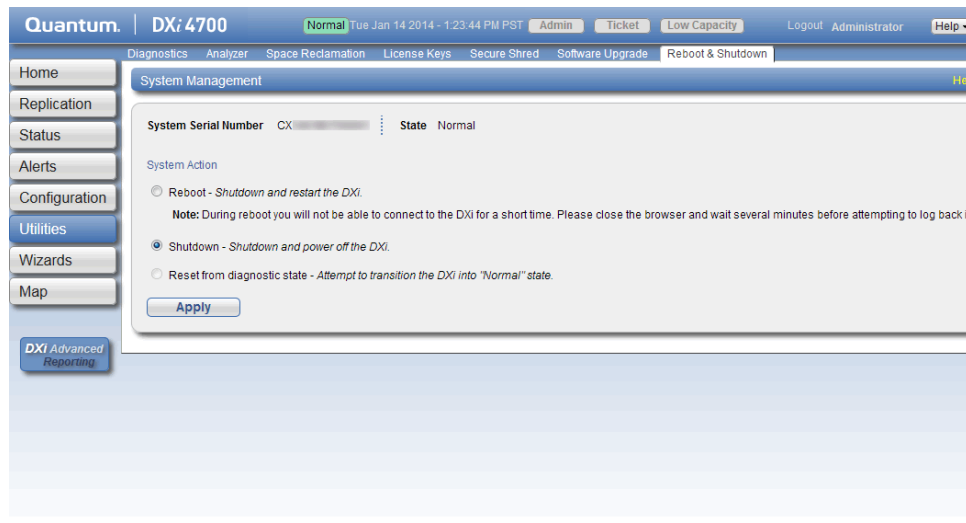
To shut down the system:

Caution: Before shutting down the DXi4700, make sure that all backup and replication jobs are finished, and that space reclamation activity is complete.

1. In the remote management console, navigate to the **Utilities > Reboot & Shutdown** page (see [Figure 6 below](#)).

For information about accessing the remote management console, see the *DXi4700 User's Guide*.

Figure 6: Reboot & Shutdown Page



2. Select **Shutdown** and click **Apply**.
3. Close the browser window.
4. After the Node shuts down, turn off both power switches on the back of all installed Expansion modules

(JBODs) (see [Figure 7 below](#)).

Figure 7: Expansion Module Power Switches - DXi4700



1 - Power Switches

Installing Components in the Node

Depending on the upgrade, you may need to install additional components in the DXi4700 Node (see [Capacity Upgrade Overview on page 7](#)). To install the additional Node components, see the following sections:

- [Installing the Node Hard Drives below](#)
- [Opening the Node Cover on page 17](#)
- [Installing the Memory Modules on page 25](#)
- [Installing the H810/H830 RAID Controller on page 30](#)
- [Closing the Node Cover on page 33](#)

Installing the Node Hard Drives

The Node has a total of 12 hard drive slots. For all configurations, 6 hard drives (4 TB each) are pre-installed in hard drive slots 0–5.

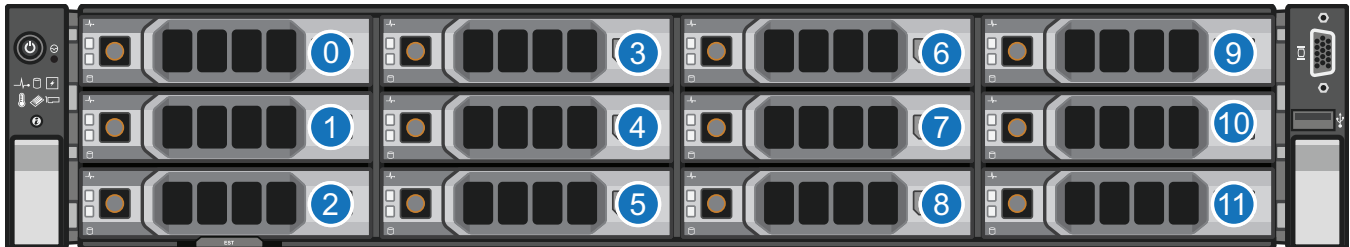
If required for the upgrade, remove the hard drive blanks from slots 6–11 and install 6 hard drives (4 TB each) in the Node. The additional hard drives must be installed in hard drive slots 6–11 (see [Figure 8 on the next page](#)).

⚠ Caution: Do not remove the hard drives pre-installed in hard drive slots 0–5. If these drives are removed for any reason, you must re-install them in their original positions.

Table 1: DXi4700 Node Hard Drive Configurations

DXi4700 Configuration	Node Hard Drives	Actions to Take
5 TB	6	• Slots 0-5
11 TB		
19 TB	12	• Slots 0-5
27 TB		• Slots 6-11
45 TB		
63 TB		
81 TB		
99 TB		
117 TB		
135 TB		

Figure 8: Node Hard Drive Locations



Item	Description
0	HDD Slot 0 (Do not remove)
1	HDD Slot 1 (Do not remove)
2	HDD Slot 2 (Do not remove)
3	HDD Slot 3 (Do not remove)
4	HDD Slot 4 (Do not remove)
5	HDD Slot 5 (Do not remove)
6	HDD Slot 6

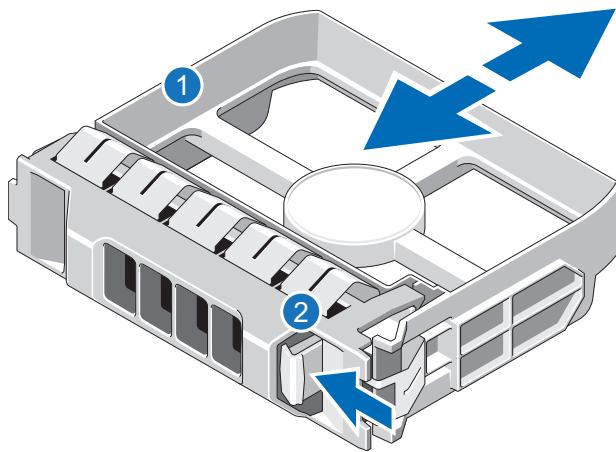
Item	Description
7	HDD Slot 7
8	HDD Slot 8
9	HDD Slot 9
10	HDD Slot 10
11	HDD Slot 11

To install the additional hard drives in the DXi4700 Node:

⚠ Caution: Use appropriate ESD precautions, including the use of a grounding strap, when performing this procedure.

1. Remove the hard drive blank from each hard drive slot (slots 6–11):
 - a. Grasp the front of the hard drive blank and press the release button (see [Figure 9 below](#)).
 - b. Slide the hard blank out until it is free of the hard drive slot.

Figure 9: Removing a Node Hard Drive Blank



Item	Description
1	Hard drive blank
2	Release button

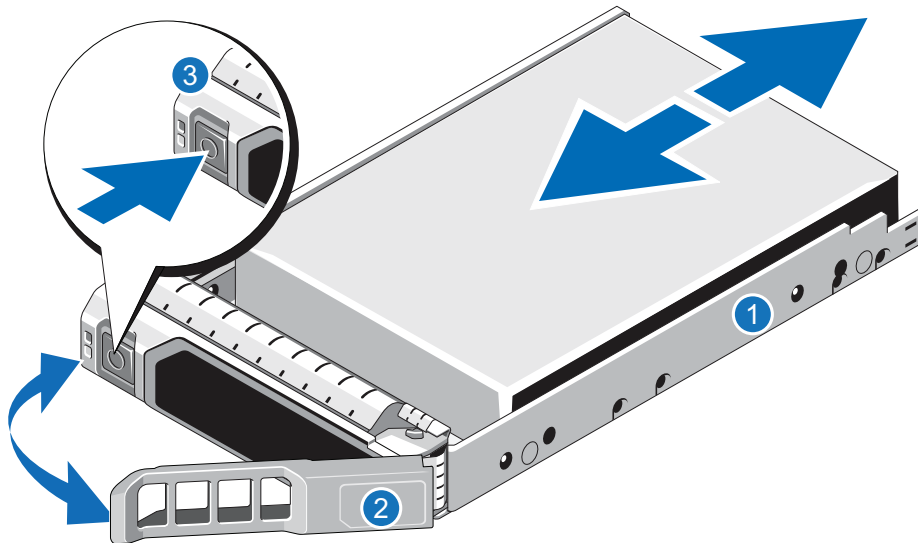
2. Install a hard drive in each hard drive slot (slots 6–11):

Note: The additional hard drives are not keyed to a particular slot. You may install any hard drive in any slot, as long as it is installed in slot 6–11.

Caution: Use only the Quantum-supplied hard drives in the DXi4700 Node. Do not use any other drive (not even one taken from another DXi).

- a. On the drive carrier, press the release button to extend the handle (see [Figure 10 below](#)).

Figure 10: Installing a Node Hard Drive



Item	Description
1	Hard drive carrier
2	Hard drive handle
3	Release button

- b. Insert the drive carrier into the drive slot and push it in all the way.
- c. Close the drive carrier handle to lock the drive in place.

Opening the Node Cover

To remove the DXi4700 Node from the rack and remove the top cover:

WARNING: Opening or removing the system cover when the system is on may expose you to a risk of electric shock.

Caution: Use appropriate ESD precautions, including the use of a grounding strap, when working inside the Node.

New DXi Bezel

A new DXi bezel is available. Please contact your account sales manager to purchase additional new bezels.

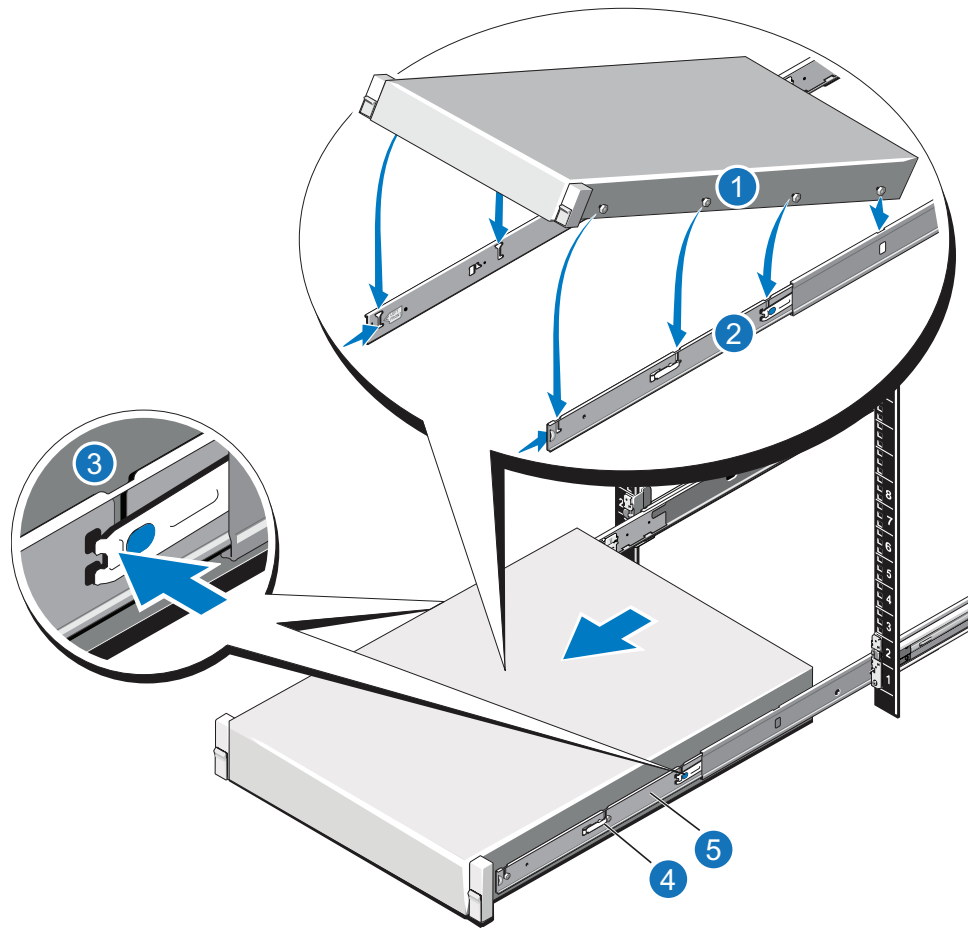


1. If installed, remove the front bezel by lifting the latch on the left side of the bezel. (If necessary, unlock the bezel first.)
2. Disconnect all power, SAS, Ethernet, and Fibre Channel cables from the rear of the Node. Make sure to label the cables so they can be easily identified when they are re-connected to the Node after the upgrade procedure is complete.
3. Press the locking tab on either side of the Node, and pull the Node out from the rack until the inner rails lock.

i Note: If necessary, remove the optional screws securing the Node to the front of the rack (behind the locking tab).

4. Locate the lock levers on the sides of the inner rails (see [Figure 11 on the next page](#)). Unlock each lever by rotating it up to its release position.

Figure 11: Removing the DXi4700 Node from the Rack



Item	Description
1	Rear rail standoffs
2	Rear rail J-slots
3	Slide-release lock button
4	Lock lever
5	Inner slide rails

5. Grasp the sides of the Node firmly and pull it forward until the rail standoffs are at the front of the J-slots.
6. Lift the Node up and away from the rack and place it on a flat, stable surface.

WARNING: The DXi4700 G1 Node and Expansion module (JBOD) weigh 61.0 pounds (27.7 kg) and 62.6 pounds (28.4 kg) respectively. The DXi4700 G2 Node and Expansion module (JBOD) weigh 49.4 pounds (22.4 kg) and 59.2 pounds (26.8 kg) respectively. A minimum of two people are required to lift either chassis.

7. Press and hold the power button on the front of the Node for three seconds to fully drain the system of stored power prior to removing the cover (see [Figure 12 below](#)).

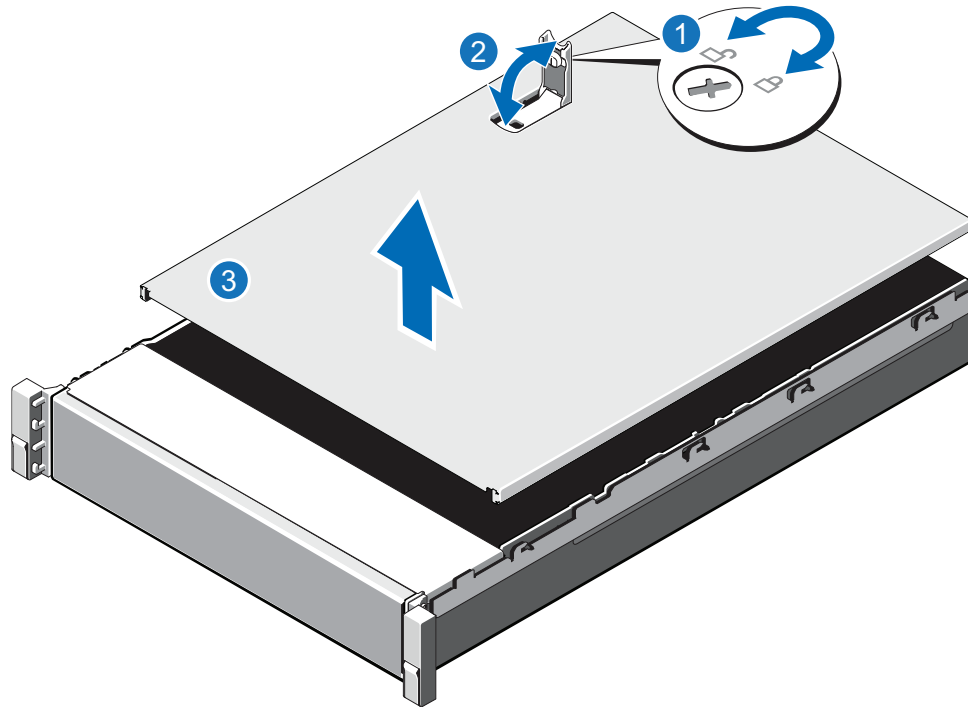
Figure 12: Node Power Button



1. Power Button

8. On the Node cover, rotate the latch release lock counterclockwise to the unlocked position (see [Figure 13 on the next page](#)).

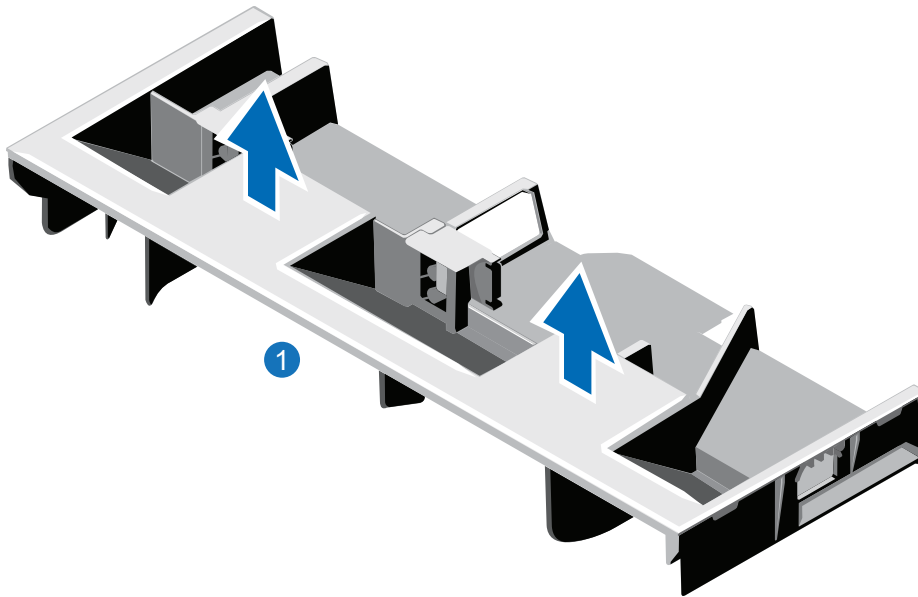
Figure 13: Removing the Node Cover



Item	Description
1	Latch release lock
2	Latch
3	Node cover

9. Lift the latch on top of the Node and slide the cover back.
10. Grasp the cover on both sides, and carefully lift the cover away from the Node.
11. a. Remove the cooling shroud by holding the touch points and lifting the shroud away from the Node (see [Figure 14 on the next page](#)).

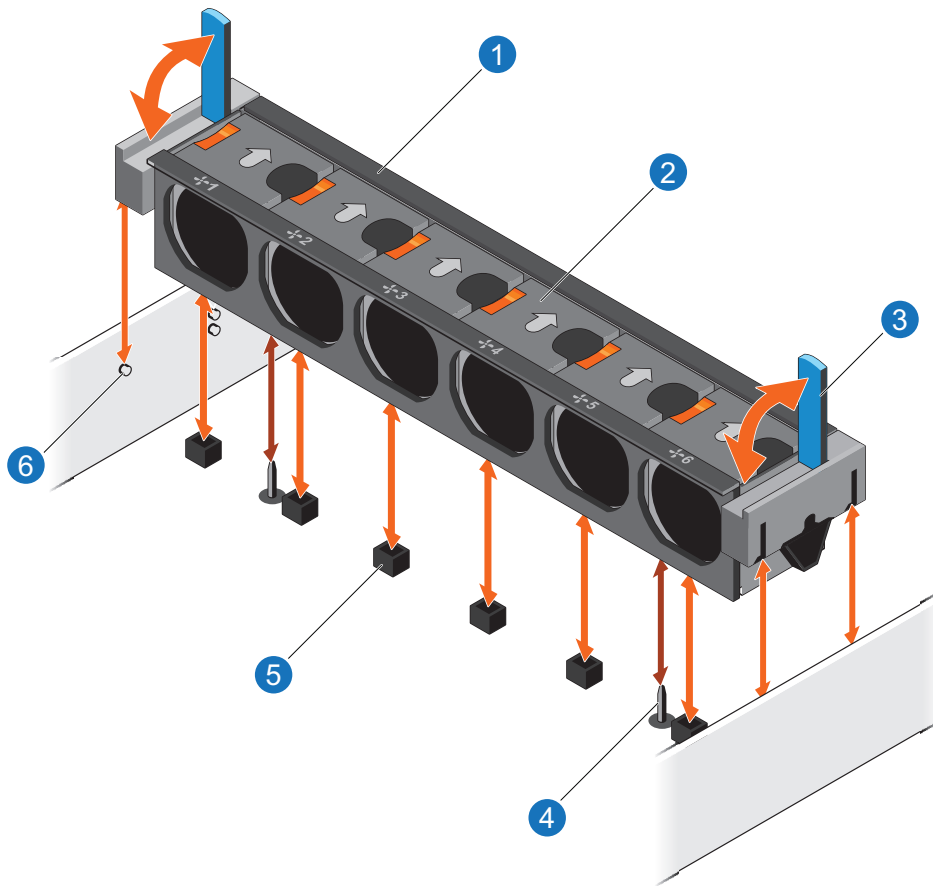
Figure 14: Removing the Cooling Shroud



1. Cooling shroud

12. Remove the cooling-fan assembly by lifting the release levers upwards (see [Figure 15 on the next page](#)).

Figure 15: Removing the Cooling-Fan Assembly

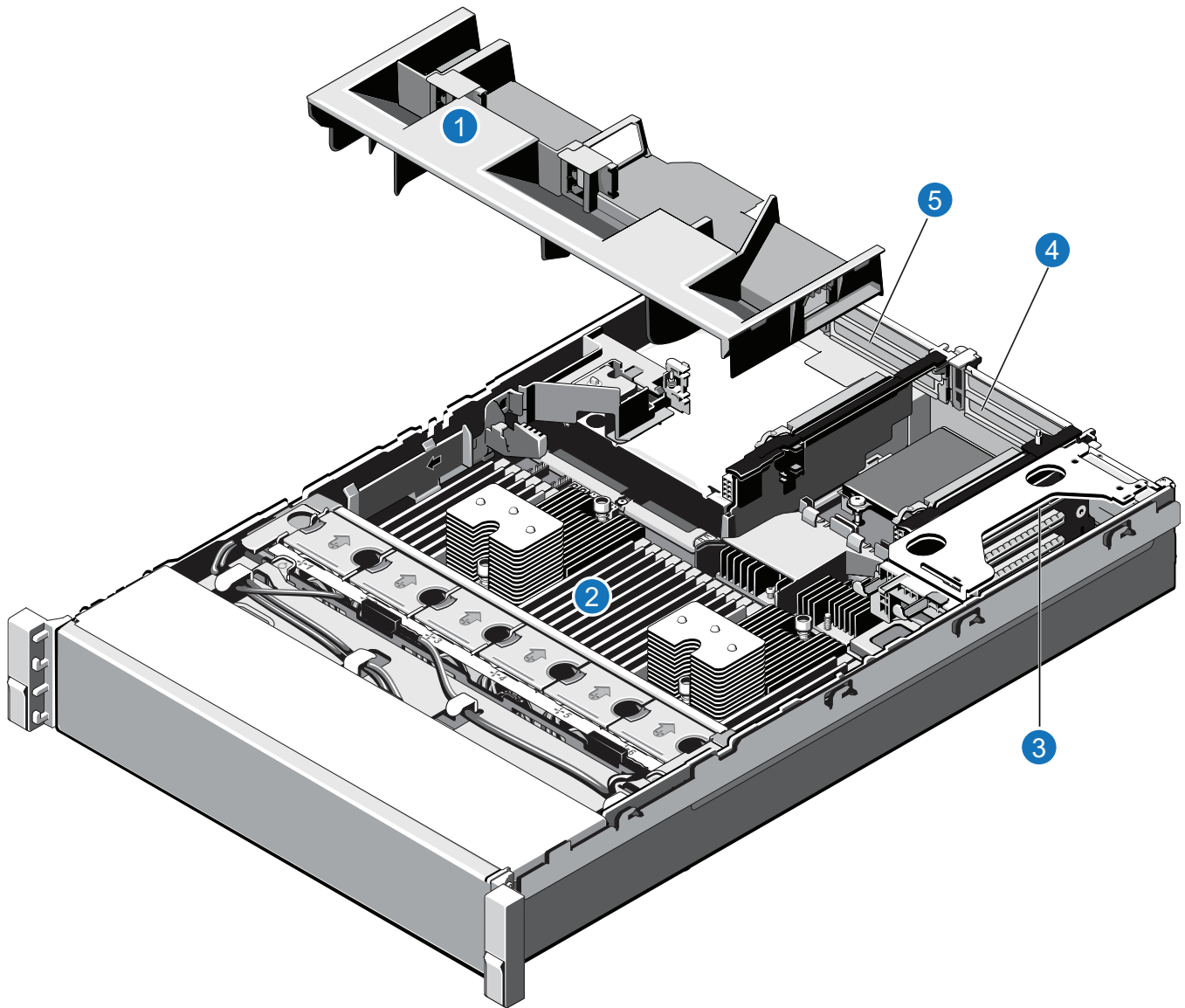


Item	Description
1	Cooling-fan assembly
2	Cooling fan
3	Release lever (2)
4	Guide pin on the system board (2)
5	Cooling-fan connector (6)
6	Guide pin on the chassis (6)

13. Lift the cooling-fan assembly out of the Node.

[Figure 16 on the next page](#) illustrates the interior of the DXi4700 Node with the cover removed.

Figure 16: Inside the DXi4700 Node



Item	Description
1	Cooling shroud.
2	Memory modules.

Item	Description
3	Expansion card riser 1 <ul style="list-style-type: none"> Optional X520 network card (DXi4700 G1)
4	Expansion card riser 2 <ul style="list-style-type: none"> Optional X520 network card (DXi4700 G2) Optional X540 network card
5	Expansion card riser 3 <ul style="list-style-type: none"> H810 RAID Controller (DXi4700 G1) H830 RAID Controller (DXi4700 G2)

Installing the Memory Modules

The Node has 24 memory sockets divided into 2 sets (A and B) of 12 slots each. Each set (A or B) is dedicated to one CPU. The Node ships from the factory with 4 GB memory modules (DIMMs) pre-installed in 8 memory sockets, for a total of 32 GB of memory.

If required for the upgrade, install 8 or 16 additional memory modules (4 GB DIMMS) in the Node (see [Table 2 on the next page](#)). Memory modules must be installed in the correct sockets in order for the system to function properly (see [Figure 17 on page 27](#)).

Dynamic Application Environment (DAE) and Veeam Memory Configurations

For DXi4700 systems that will run a DAE or Veeam configuration, the installation of additional memory modules is required (see [Table 3 on the next page](#)). Memory modules must be installed in the correct sockets in order for the system to function properly (see [Figure 17 on page 27](#)).

For complete DAE/Veeam installation and configuration instructions, please refer to the *DAE Installation Guide* and *Veeam Installation Guide* on the DXi4700 Documentation Center (www.quantum.com/DXi4700Docs).

Note: Memory socket numbers are displayed on the clear window on the cooling shroud.

Table 2: DXi4700 Memory Configurations (No Veeam or DAE)

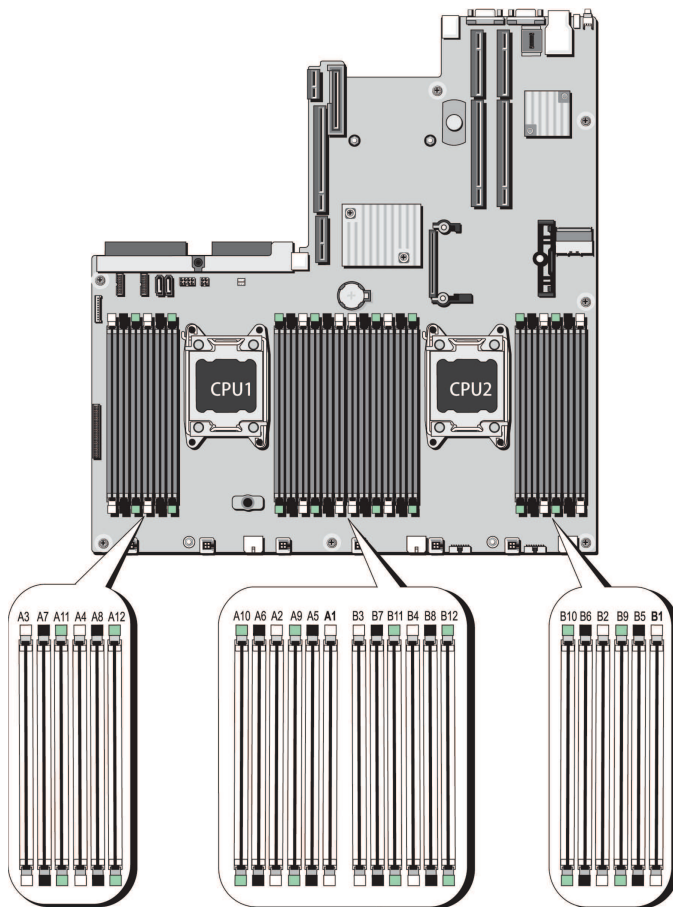
DXi4700 Configuration	Total System Memory	Populated Memory Sockets
5 TB	32 GB	<ul style="list-style-type: none"> A1–A4 and B1–B4 (white sockets)
11 TB		
19 TB		
27 TB		
45 TB	64 GB	<ul style="list-style-type: none"> A1–A4 and B1–B4 (white sockets) A5–A8 and B5–B8 (black sockets)
63 TB		
81 TB		
99 TB		
117 TB	96 GB	<ul style="list-style-type: none"> A1–A4 and B1–B4 (white sockets) A5–A8 and B5–B8 (black sockets) A9–A12 and B9–B12 (green sockets)
135 TB		

Table 3: Memory Configurations (Veeam or DAE)

DXi4700 Configuration	Total System Memory	Actions to Take
5 - 27 TB	64 GB	<ol style="list-style-type: none"> Leave the pre-installed modules in slots A1–A4 and B1–B4 (white sockets). Install 8 x 4 GB memory modules in slots A5–A8 and B5–B8 (black sockets)
45 - 99 TB	96 GB	<ol style="list-style-type: none"> Leave the pre-installed modules in slots A1–A4 and B1–B4 (white sockets). Install 8 x 4 GB memory modules in slots A5–A8 and B5–B8 (black sockets). Install 8 x 4 GB memory modules in slots A9–A12 and B9–B12 (green sockets).

DXi4700 Configuration	Total System Memory	Actions to Take
117 - 135 TB	128 GB	<ol style="list-style-type: none"> 1. Remove the pre-installed modules in slots A1–A4 and B1–B4 (white sockets). 2. Install 8 x 8 GB memory modules in slots A1-A4 and B1-B4 (white sockets). 3. Install 8 x 4 GB memory modules in slots A5–A8 and B5–B8 (black sockets). 4. Install 8 x 4 GB memory modules in slots A9–A12 and B9–B12 (green sockets).

Figure 17: Node Memory Module Locations



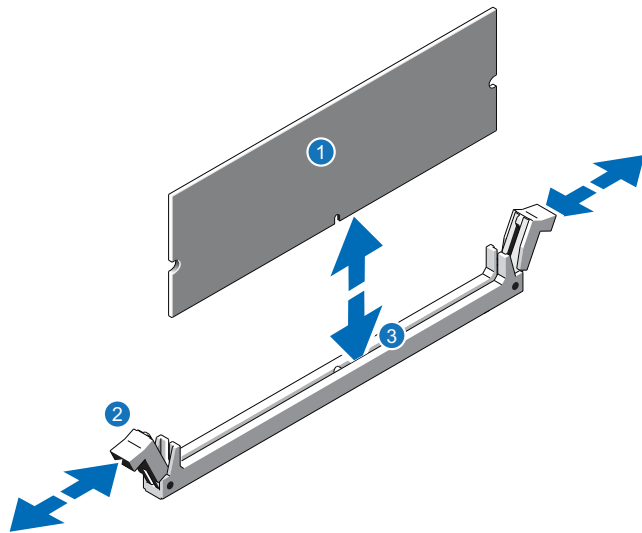
To install the memory modules in the DXi4700 Node:

⚠ Caution: Use appropriate ESD precautions, including the use of a grounding strap, when performing this procedure.

⚠ Caution: Handle the memory modules by the card edges and avoid touching the components on the memory module.

1. Remove the plastic memory blank from the socket by pressing down and out on the ejectors on each end of the socket until the memory blank pops out of the socket (see [Figure 18 below](#)). (The plastic memory blanks are recyclable.)

Figure 18: Installing a Memory Module



Item	Description
1	Memory module
2	Ejector latch
3	Socket alignment tool

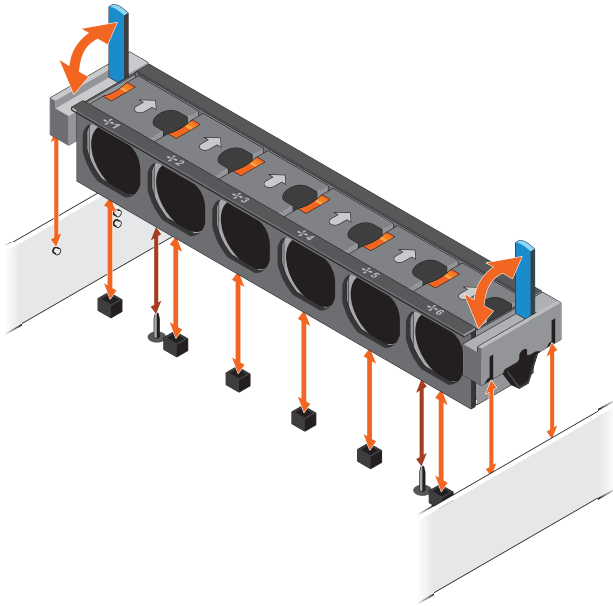
2. Align the memory module's edge connector with the alignment key of the memory module socket, and insert the memory module in the socket.

i Note: The memory module socket has an alignment key that allows you to install the memory module in the socket in only one way.

3. Press down on the memory module with your thumbs until the ejector latches snap into a locked position.
4. Repeat steps 1–3 for each memory module.

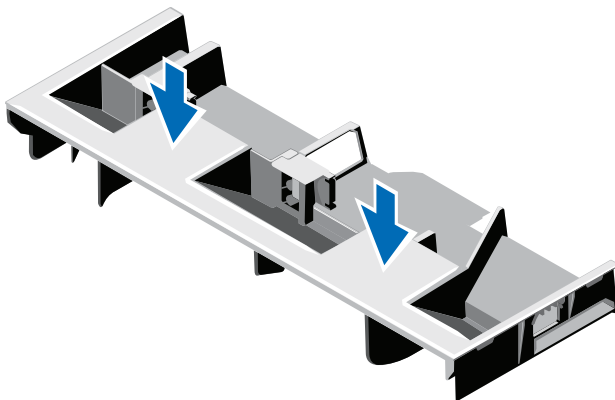
5. Replace the cooling-fan assembly:
 - a. Align the cooling-fan assembly slots with the guide pins on the chassis (see [Figure 19 below](#)).
 - b. Slide the cooling-fan assembly into the chassis.
 - c. Lock the cooling-fan assembly into the chassis.

Figure 19: Replacing the Cooling-Fan Assembly



6. Replace the cooling shroud:
 - a. Align the tabs on the cooling shroud with the securing slots on the chassis (see [Figure 20 below](#)).

Figure 20: Replacing the Cooling Shroud



- b. Lower the cooling shroud into the chassis until it is firmly seated.

Note: For proper seating of the cooling shroud in the chassis, ensure that the cables inside the system are routed along the chassis

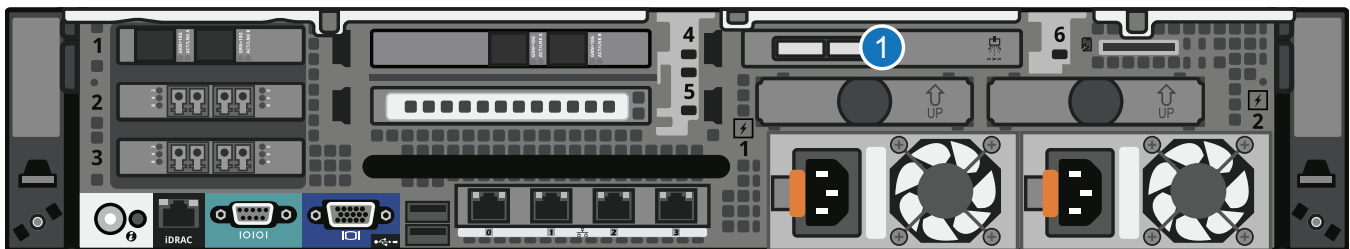
Installing the H810/H830 RAID Controller

The PERC H810 RAID controller (DXi4700 G1) or PERC H830 RAID controller (DXi4700 G2) allows you to connect up to three Expansion modules to the DXi4700 Node (see [Table 4 below](#)). If required for the upgrade, install the H810/H30 RAID controller card in PCIe slot 6, located in expansion card riser 3 (see [Figure 21 below](#) for DXi4700 G1 and [Figure 22 on the next page](#) for DXi4700 G2).

Table 4: DXi4700 RAID Controller Configurations

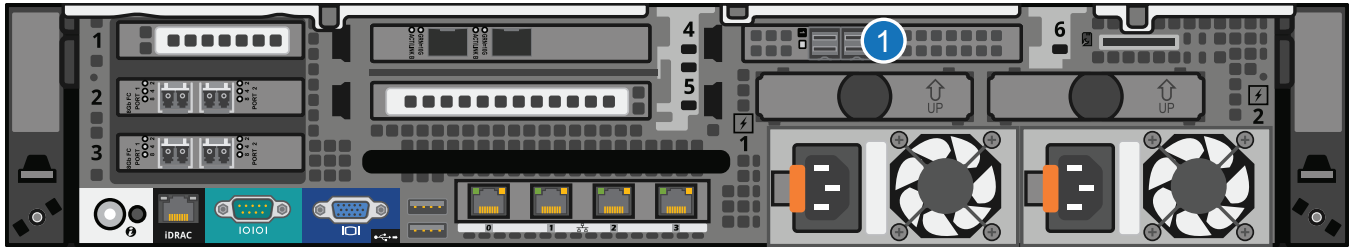
DXi4700 Configurations	Expansion Modules	RAID Controllers
5 TB 11 TB 19 TB 27 TB	0	<ul style="list-style-type: none"> None
45 TB 63 TB	1	<ul style="list-style-type: none"> H810 RAID controller card in PCIe slot 6 (DXi4700 G1)
81 TB 99 TB	2	<ul style="list-style-type: none"> H830 RAID controller card in PCIe slot 6 (DXi4700 G2)
117 TB 135 TB	3	

Figure 21: DXi4700 G1 H830 RAID Controller Card Location



Item	Card Option(s)
1	H810 RAID controller card

Figure 22: DXi4700 G2 H830 RAID Controller Card Location



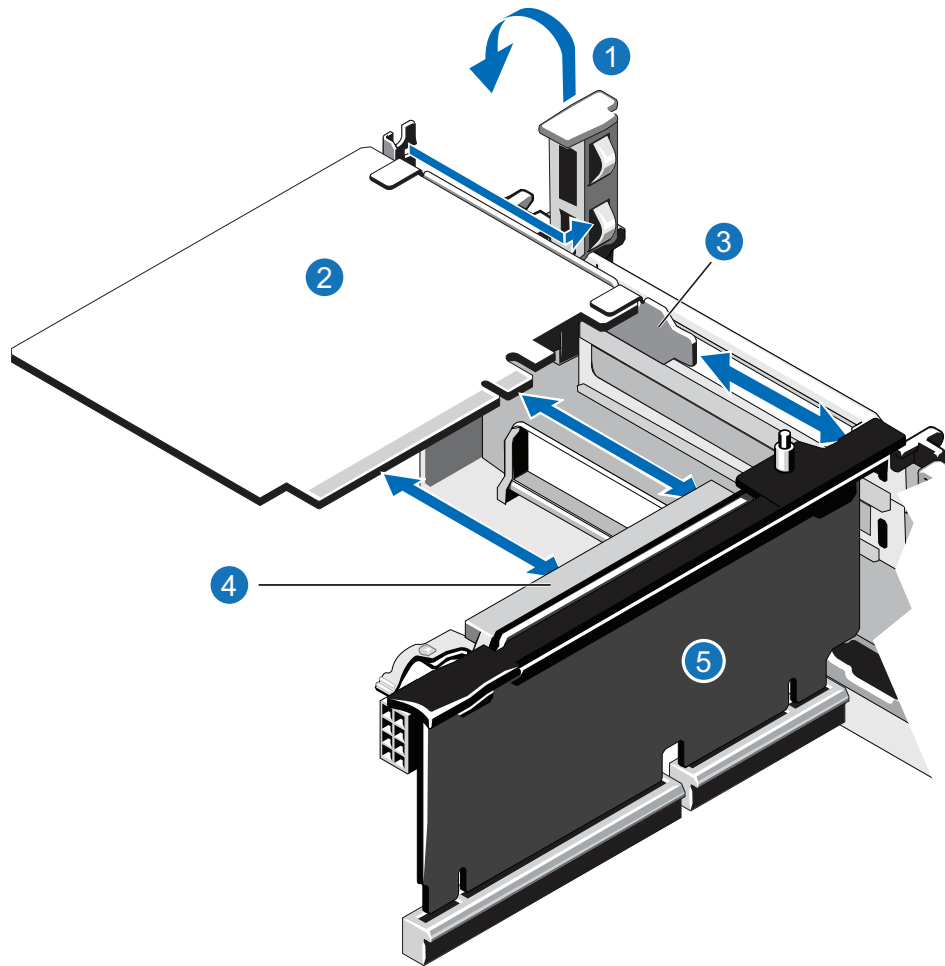
Item	Card Option(s)
1	H830 RAID controller card

To install the H810 or H830 RAID controller card in the DXi4700 Node:

⚠ Caution: Use appropriate ESD precautions, including the use of a grounding strap, when performing this procedure.

1. Lift the blue expansion card latch out of the slot (see [Figure 23 on the next page](#)).
The expansion card latch is located to the right of PCIe slot 6 as you face the rear of the Node. The latch will remain attached to the system.

Figure 23: Installing the H810/H830 Card in Riser 3



Item	Description
1	Expansion card latch (blue)
2	H810/H830 card
3	Metal slot cover
4	Expansion card connector
5	Expansion card riser 3

2. Remove the metal slot cover from slot 6 by sliding it out of the slot.
3. Holding the H810 or H830 card by its edges, position the card so that the connector on the card aligns

with the expansion card connector on the riser.

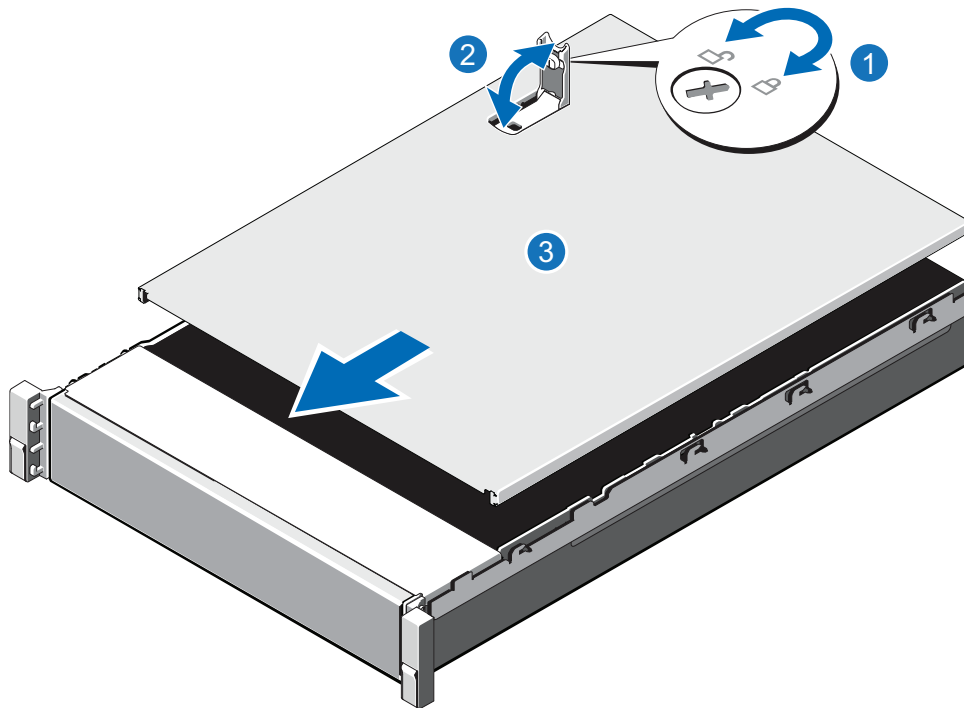
4. Insert the card-edge connector firmly into the expansion card connector until the card is fully seated.
5. Push the expansion card latch down to lock the H810 or H830 card in place.

Closing the Node Cover

To close the DXi4700 Node cover:

1. Lift the latch on the cover (see [Figure 24 below](#)).

Figure 24: Replacing the Node Cover

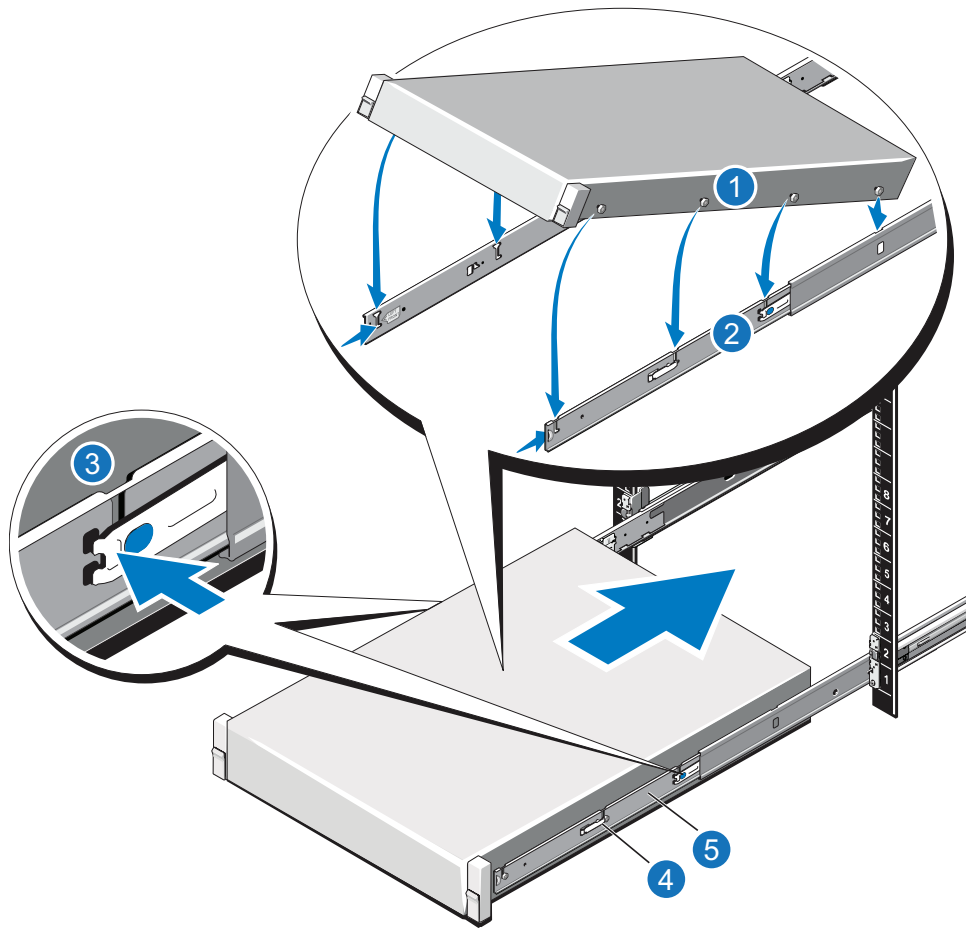


Item	Description
1	Latch release lock
2	Latch
3	Node cover

2. Place the cover onto the Node chassis and offset the cover slightly back so that it clears the chassis hooks and lays flush on the chassis.
3. Push down the latch to move the cover into the closed position.
4. Rotate the latch release lock in a clockwise direction to secure the cover.

5. Pull the inner slide rails out of the rack until they lock into place (see [Figure 25 below](#)).

Figure 25: Installing the DXi4700 Node in the Rack



Item	Description
1	Rear rail standoffs
2	Rear rail J-slots
3	Slide-release lock button
4	Lock lever
5	Inner slide rails

6. Locate the rear rail standoff on each side of the system and lower them into the rear J-slots on the slide assemblies.

7. Rotate the Node downward until all the rail standoffs are seated in the J-slots.
8. Press the slide-release lock buttons on both rails and slide the system into the rack. (Make sure the Node is squarely aligned with the rack as you slide it in.)
9. If applicable, replace the front bezel by inserting the right side of the bezel into the slots on the Node and then snapping the left side of the bezel into place.

Note: You will reconnect all cables after installing any Expansion modules.

Installing Expansion Modules

Depending on the upgrade, you may need to install 1–3 Expansion modules (JBODs) in the rack (see [Capacity Upgrade Overview on page 7](#)).

Tasks

Installing the DXi4700 Expansion Modules in a rack consists of the following steps:

1. [Determining the Order of the Components in the Rack below](#)
2. [Locating the Mounting Position on the next page](#)
3. [Installing the DXi4700 Expansion Module on page 37](#)

Determining the Order of the Components in the Rack

Component Installation Recommendations

To make it easier to correctly cable the system, and for safety reasons, follow these recommendations when installing the DXi4700 system in the rack:

- When installing components, start with the lowest Expansion module in the configuration, and then proceed upward in the rack as you add additional components.
- Make sure to leave enough space below the lowest installed component for future system expansion. The DXi4700 can be expanded to a maximum configuration requiring 8U of rack space.

Figure 26: Recommended Component Rack Order (Maximum Configuration)

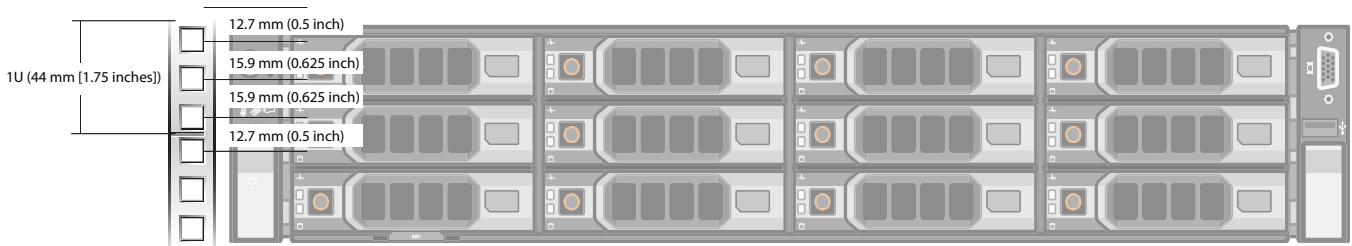


Locating the Mounting Position

The DXi4700 system is designed to fit in a standard 19 inch (48.3 cm) wide rack. It is important for the chassis installation to locate the hole pattern in the rack rails. You must allow 2U (3.4 inches or 8.7 cm) of vertical space for the DXi4700 Node and an addition 2U for each Expansion module (JBOD) installed in the rack.

Rack cabinets that meet EIA-310 standards have an alternating pattern of three holes per rack unit with center-to-center hole spacing (beginning at the top hole of a 1U 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 (see [Figure 27 below](#)). Rack cabinets may have round or square holes. For more information, refer to the *DXi4700 Site Planning Guide*.

Figure 27: Rail Hole Pattern



WARNING: If the rack is empty at the time of installation, do NOT install the DXi4700 chassis too high in the rack. The weight of the chassis may cause the rack to become “top heavy” and unstable if installed in the top of an empty rack.

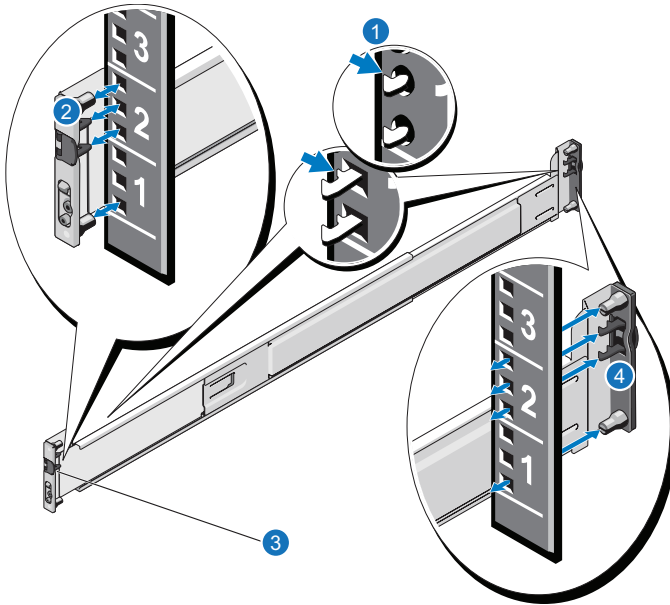
To mark the rack, place a mark (or tape) on the rack’s front vertical rails where you want to locate the bottom of the unit you are installing in the rack. The bottom of each 1U space is at the middle of the narrowest metal strip between holes (marked with a horizontal line on some rack cabinets).

Installing the DXi4700 Expansion Module

Installing the DXi4700 Expansion Module Rack Mounting Rails

1. Position the left and right rail end pieces labeled FRONT facing inward, and orient each end piece to seat in the holes on the front side of the vertical rack flanges (see [Figure 28 below](#)).
2. Align each back end piece in the bottom and top holes of the desired U spaces.
3. Engage the back end of the rail until it fully seats on the vertical rack flange and the latch clicks into place. Repeat these actions to position and seat the front end piece on the vertical rack flange.


Figure 28: DXi4700 Expansion Module Rails Installation




Item	Description
1	Latches click into place in rack flange (round or square holes).
2	Rail front end.
3	Latch release button.
4	Rail back end.


Installing the DXi4700 Expansion Module

WARNING: The DXi4700 Expansion module (JBOD, including hard drives) weighs 62.6 pounds (28.4

 kg). A minimum of two people are required to lift the chassis. To lift the chassis, use the slots in the packing foam to place your hands under the sides of the chassis.

 **Caution:** Before proceeding, ensure that all hard drive latches are completely closed. Quantum recommends that you do not remove the hard drives from the chassis. If they have been removed for any reason during or after the installation, you must install the hard drives in the same position in which they were removed.

1. Align the Expansion module with the rails, and then slide the module into the rack (see [Figure 29 below](#)).
2. Tighten the thumbscrews on each side of the Expansion module's front panel.

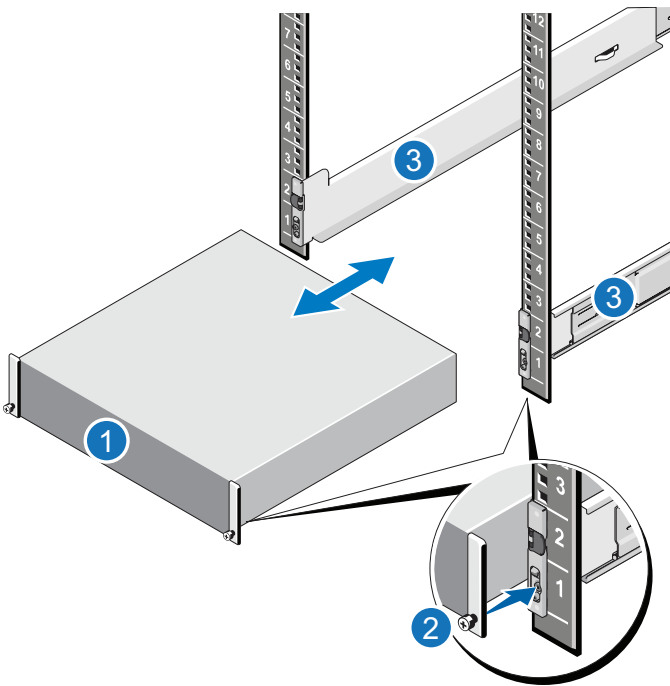
 **Note:** To remove the Expansion module, loosen the thumbscrews and slide the Expansion module out of the rack.

3. Install the end caps on either side of the module by inserting the top of the end cap first and then snapping the bottom into place.

Install the end cap with the indicator icons to the left of the module, and install the end cap with the drive numbers to the right of the module.

 **Note:** To remove the Expansion module, remove the screws and slide the module out of the rack.

Figure 29: DXi4700 Expansion Module Installation



Item	Description
1	Front of Expansion Module
2	Thumbscrew
3	Rails

Cabling the System

After the components are installed in the rack, reconnect all power, SAS, Ethernet, and Fibre Channel cables on the rear of the Node, and connect SAS cables to any new Expansion modules.

Follow these steps to cable the DXi4700:

1. Connect each Array module (RBOD) to the DXi4700 Node.
 - For DXi4700 G1 models, (see [Table 1 below](#) and [Figure 30 on page 41](#)).
 - For DXi4700 G2 models, (see [Table 2 below](#) and [Figure 31 on page 42](#)).

Table 1: Connecting the DXi4700 G1 Expansion Modules (JBODs)


Node	JBOD 1	JBOD 2	JBOD 3
SAS port 1 (left)	Primary SAS In port (top)		
SAS port 2 (right)	Secondary SAS In port (bottom)		
	Primary SAS Out port (top)	Primary SAS In port (top)	
	Secondary SAS Out port (bottom)	Secondary SAS In port (bottom)	
		Primary SAS Out port (top)	Primary SAS In port (top)
		Secondary SAS Out port (bottom)	Secondary SAS In port (bottom)

Table 2: Connecting the DXi4700 G2 Expansion Modules (JBODs)

Node	JBOD 1	JBOD 2	JBOD 3
SAS port 1 (left)	Primary SAS In port 1 (top)		

Node	JBOD 1	JBOD 2	JBOD 3
SAS port 2 (right)	Secondary SAS In port 1 (bottom)		
	Primary SAS port 2 (top)	Primary SAS port 1 (top)	
	Secondary SAS port 2 (bottom)	Secondary SAS port 1 (bottom)	
		Primary SAS port 2 (top)	Primary SAS port 1 (top)
		Secondary SAS port 2 (bottom)	Secondary SAS port 1 (bottom)

- Connect up to three CAT5 Ethernet cables to the 1 GbE ports (1, 2, and 3) (see [Figure 32 on page 42](#)).
- If the DXi4700 is configured with an optional additional Ethernet adapter (10 GbE or 10 GBase-T), connect the appropriate cable type:
 - Dual 10 GbE (SFP+) Option (DXi4700 G1)** - Connect up to two 10 GbE cables (optical or Twinax) to the optional 10 GbE ports (4 and 5) (see [Figure 32 on page 42](#)).
 - Dual 10 GbE (SFP+) Option (DXi4700 G2)** - Connect up to two 10 GbE cables (optical or Twinax) to the optional 10 GbE ports (4 and 5) (see [Figure 33 on page 43](#)).
 - Dual 10 GBase-T Option** - Connect up to two CAT6 Ethernet cables to the optional 10GBase-T ports (4 and 5) (see [Figure 34 on page 43](#)).

 **Caution:** CAT6 Ethernet cables can be easily damaged when tightened with plastic zip ties. Use hook and loop cable straps instead.

- (VTL and Multi-Protocol configurations only) Connect Fibre Channel cables to each Fibre Channel port in slot 3 (see [Figure 35 on page 43](#)). Fibre Channel ports 0 and 1 are used for virtual tape library (VTL) host connection.
- (Multi-protocol configurations only) Connect Fibre Channel cables to each Fibre Channel port in slot 2 (see [Figure 35 on page 43](#)). Fibre Channel ports 2 and 3 are used for path to tape (PTT) connections.
- Connect each power supply to a primary and secondary AC power source using the provided power cables (see [Figure 36 on page 44](#)). Use the attached straps to secure the power cords to the chassis.


 **Note:** Quantum recommends connecting each power cord to a separate AC circuit to ensure system availability in case of a power failure. Power supplies should be checked periodically for audible and LED warnings

Figure 30: DXi4700 G1 SAS Cabling

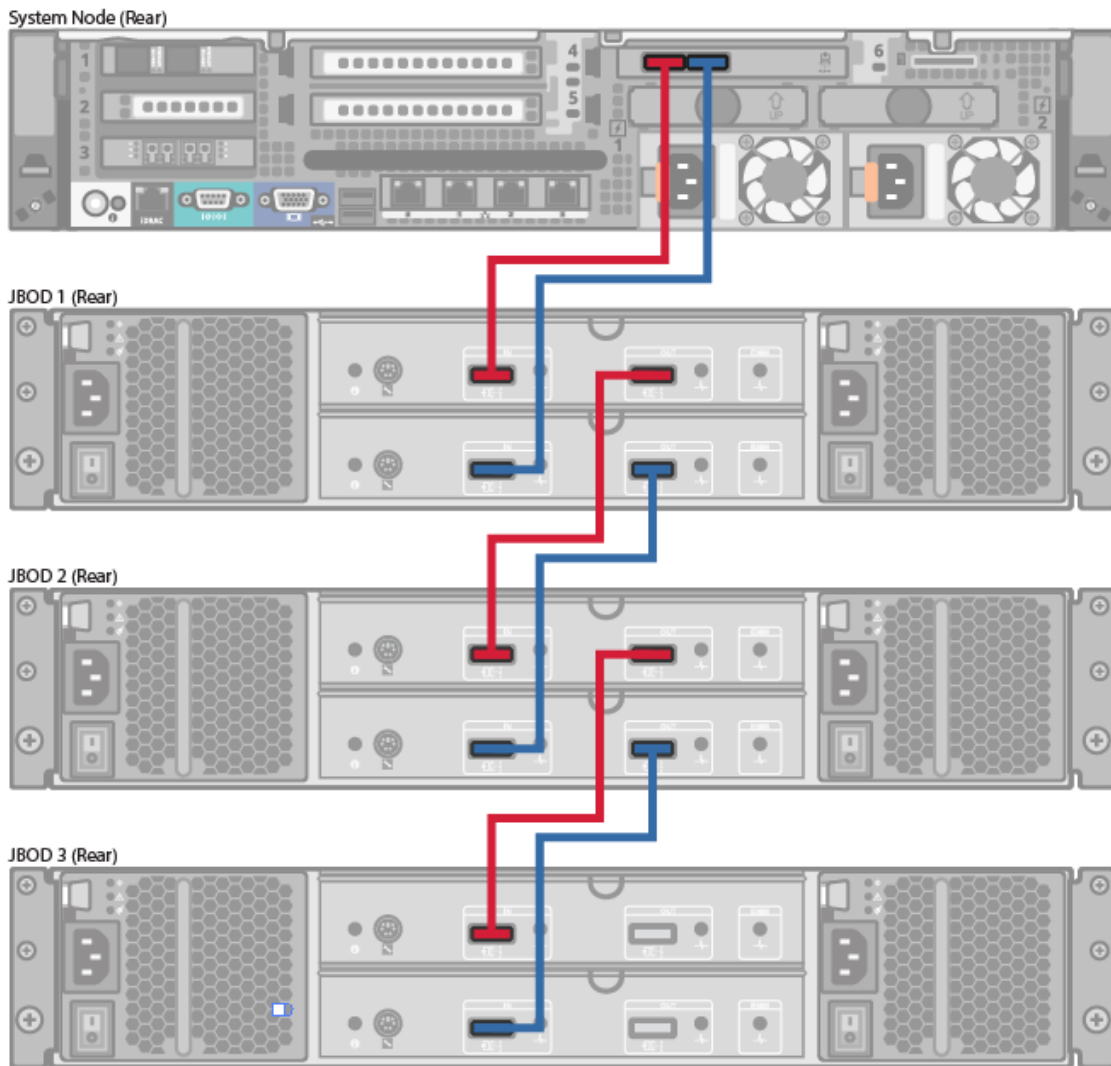


Figure 31: DXi4700 G2 SAS Cabling

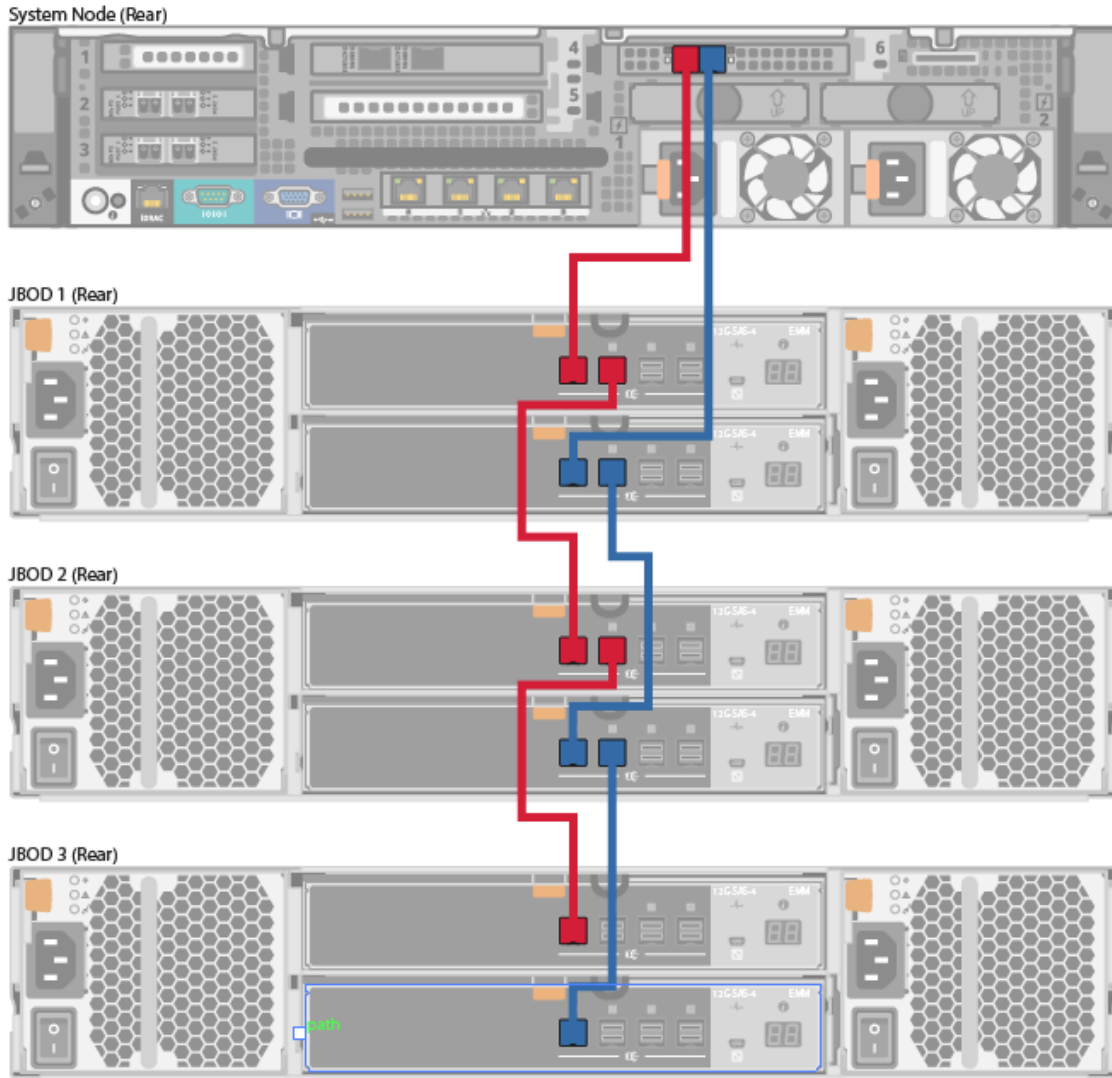


Figure 32: DXi4700 G1 Optional 10 GbE Ethernet Cabling

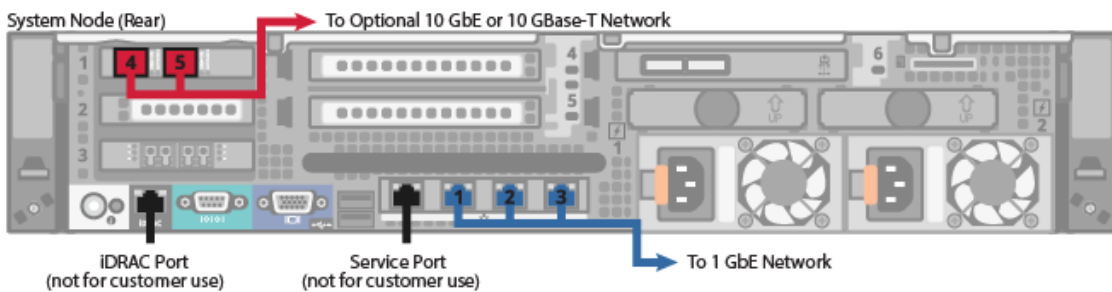


Figure 33: DXi4700 G2 Optional 10 GbE Ethernet Cabling

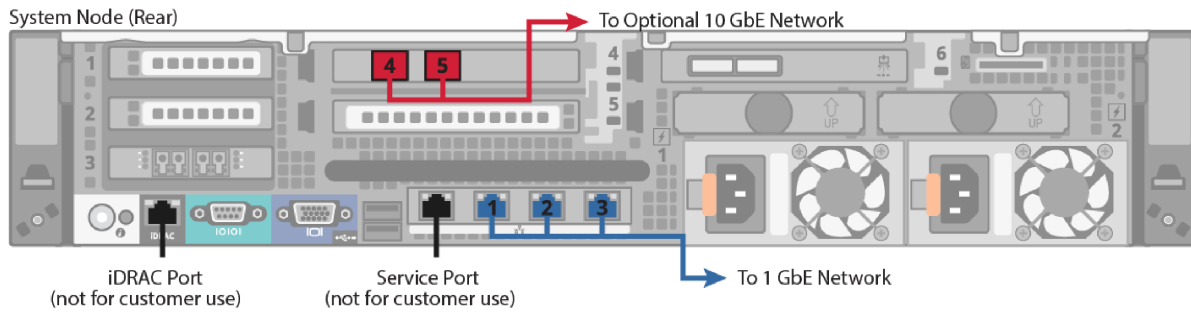


Figure 34: DXi4700 Optional 10 GBase-T Ethernet Cabling

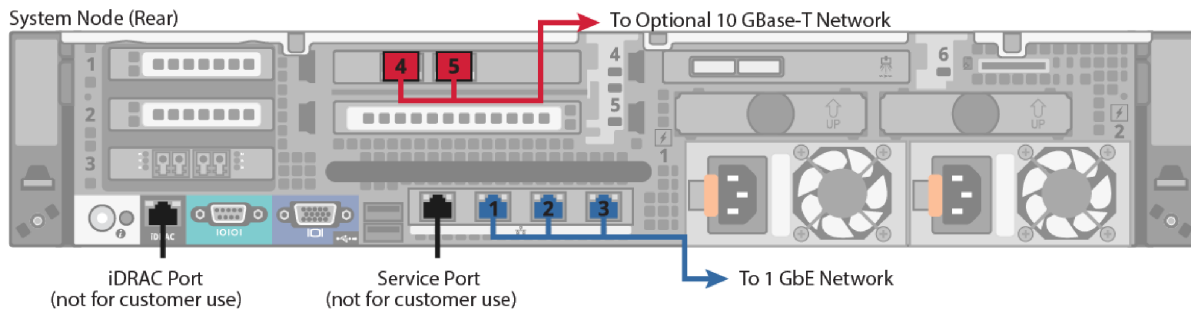


Figure 35: DXi4700 Fibre Channel Cabling (VTL/Multi-Protocol Configurations Only)

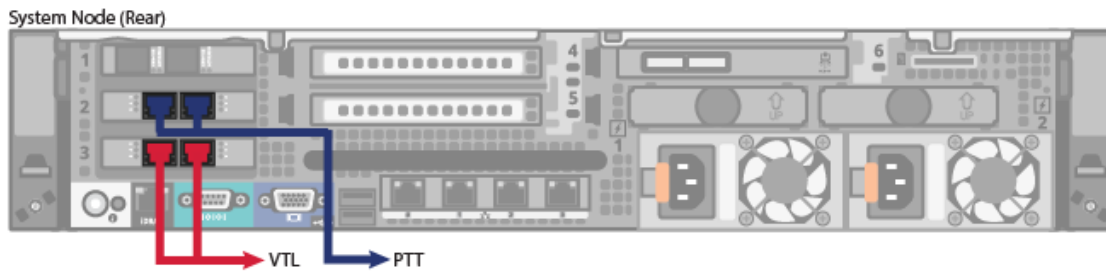
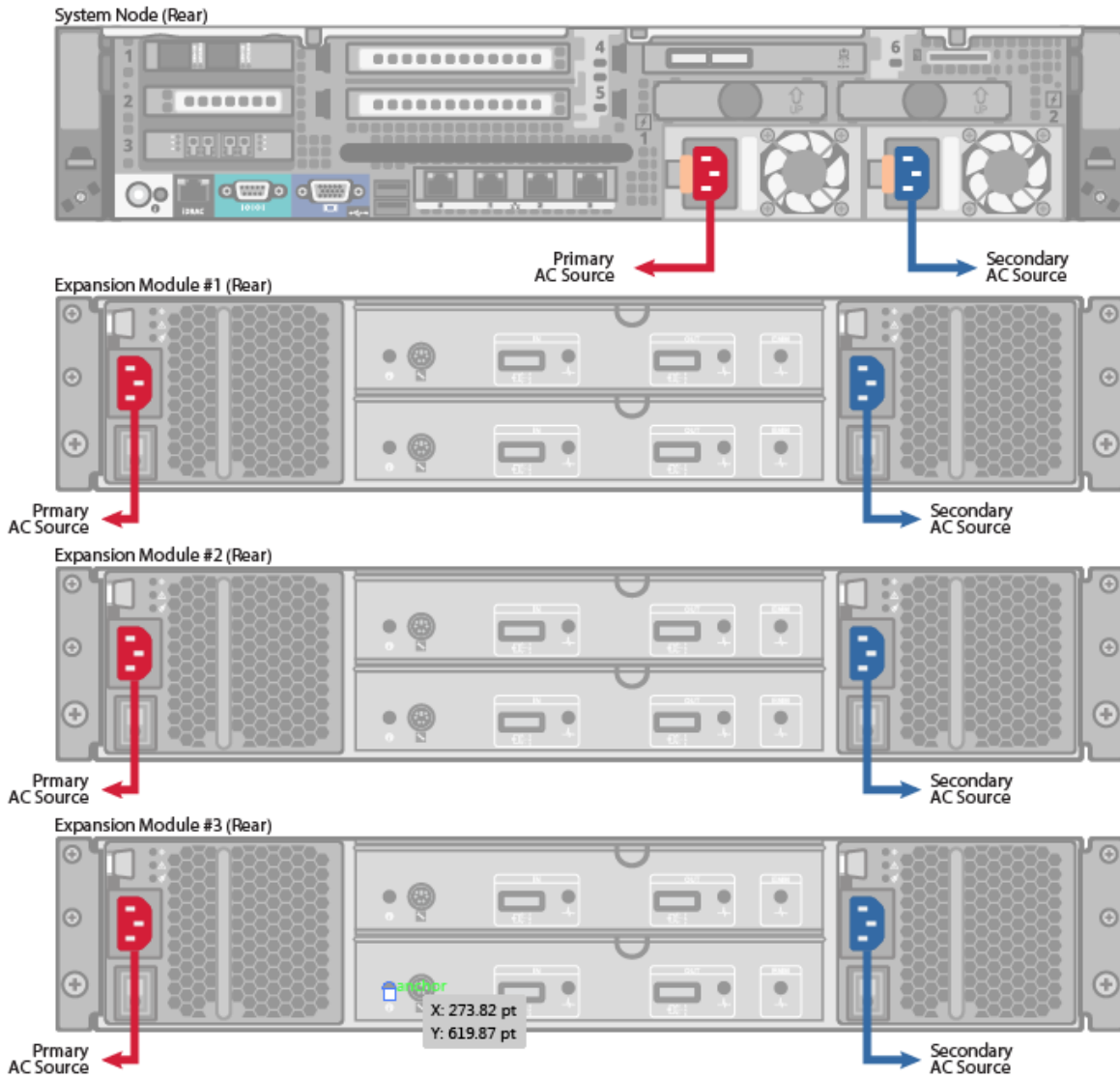


Figure 36: DXi4700 Power Cabling



Turning On the System

To turn on the system:

1. Turn on the DXi4700 system components in the following order:
 - a. Turn on both power switches on the back of each Expansion module (see [Figure 37 below](#)). Wait 30 seconds for the Expansion modules to initialize. Verify on the front panel that the modules have power and there were no hard drive failures (Drive status indicator on hard drive blinks amber four times per second).

Figure 37: Expansion Module Power Switches



1 - Power Switches

- b. Press the power button on the front of the Node (see [Figure 38 below](#)). Wait for the system to boot before continuing with the procedure. (This can take up to 30 minutes.)

i Note: The system may reboot one or more times depending on the components that were installed. If all components are properly installed and cabled, the LEDs on all hard drives in the Node and the Expansion modules will be lit. (The top LED will be solid and the bottom LED will blink.)

Figure 38: Node Power Button



1 - Power Button

Installing the Storage Capacity License

Before the newly installed hardware capacity can be used to store data, you must add a license key to enable the new usable capacity of the system. The 6TB, 8TB, and 18TB licenses each need to be installed separately.

Locate the Storage Capacity License Certificate that was included with the upgrade components, and then complete the following procedure:

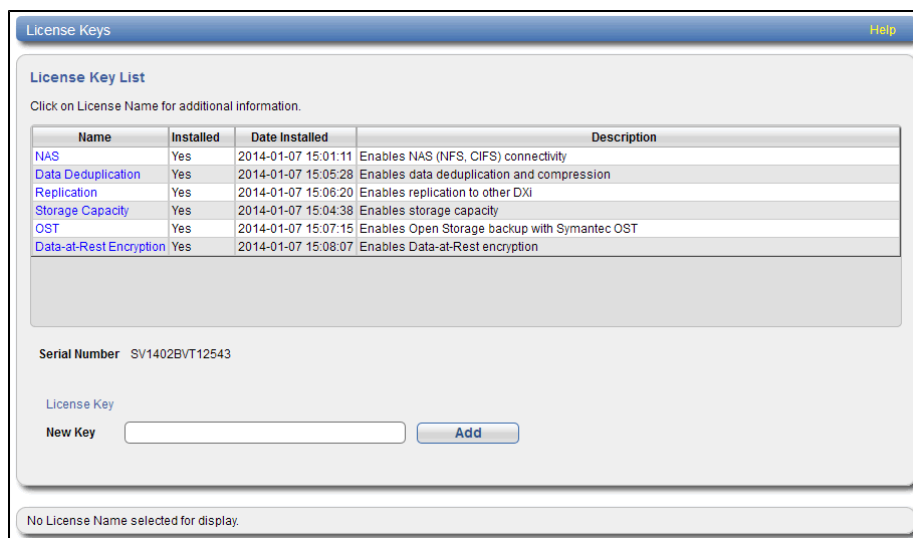
1. Open two Web browser windows on a computer with Internet access.

Note: During this procedure, you can copy and paste required numbers between these two windows.

- a. In one browser, navigate to the **Utilities > License Keys** page in the DXi remote management console (see [Figure 39 below](#)). Note that the system serial number displays directly above the **New Key** box.

For information about accessing the remote management console, see the *DXi4700 User's Guide*.

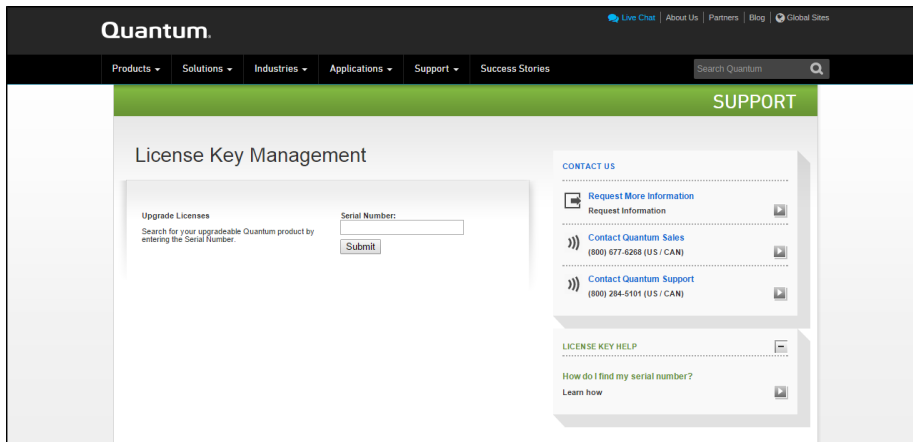
Figure 39: License Keys Page



- b. In the other browser, enter the address for the **License Key Management Web site** (see [Figure 40 on the next page](#)):

<http://www.quantum.com/licensekeys>

Figure 40: License Key Management Web Site



2. On the **License Key Management Web** site, perform the following steps:
 - a. Enter the system serial number in the **Serial Number** box and click **Submit**.
 - b. Enter the authorization code (printed on the License Certificate) and click **Get License Key**.

The **Licensed Feature** page returns a storage capacity key.

3. Switch to the **Utilities > License Keys** page in the DXi remote management console (see [Figure 39 on the previous page](#)).
4. Enter the license key in the **New Key** box and click **Add**.
5. Click the **Storage Capacity** license link on the **License Keys** page. The maximum allowed storage capacity appears under **License Details** (see [Figure 41 on the next page](#)).

Verify that the licensed capacity equals the expected total storage capacity of the system.

i Note: After installation, the DXi4700 performs background initialization of all new storage arrays. This process takes several days. You can use the DXi4700 normally during this time. To monitor the progress of background initialization, navigate to **Status > Hardware > Details > Storage Arrays** in the remote management console. Click a storage array, and then click Volumes to view initialization status.

Figure 41: License Details

The screenshot shows a web interface for managing license keys. At the top, there is a 'License Keys' header with a 'Help' link. Below this is a 'License Key List' section with a note: 'Click on License Name for additional information.' A table lists various licenses, including VTL, NAS, Backup Application Specific, Data Deduplication, Replication, Storage Capacity, OST, Data-at-Rest Encryption, and Data-in-Flight Encryption. Below the table, there are fields for 'Serial Number' (SV) and 'Storage Array (Garray1) Feature ID' (36). There is also a 'License Key' section with a 'New Key' input field and an 'Add' button. The bottom section, titled 'License Details' for 'Storage Capacity', shows the installation date (2014-05-01 08:45:29), description ('Enables storage capacity'), and dependencies ('None'). A 'License Description' box states: 'Installed license allows the maximum nominal storage capacity of up to 17 TB.'

Troubleshooting

If you encounter problems while installing or configuring the DXi4700, see Table 1 for troubleshooting steps.

Table 1: DXi4700 Installation Troubleshooting

Problem	Corrective Action
The system does not power on.	Make sure all power cords are connected to a grounded electrical outlet and the power switches located on the back of the power supplies are on.

Problem	Corrective Action
<p>The following message displays when you log on to the remote management console: There are service tickets that require attention.</p>	<p>Click OK to display the Service Tickets page, or navigate to the Alerts > Service Tickets page. Click a ticket number to view details about the service ticket. Perform any suggested steps listed in the ticket details.</p>
<p>The Home page does not display the expected total Disk Capacity.</p>	<p>Make sure the storage capacity license is installed (see Installing the Storage Capacity License on page 46).</p>
<p>The storage capacity license is correctly installed, but the Home page still does not display the expected total Disk Capacity.</p>	<ol style="list-style-type: none"> 1. Navigate to the Alerts > Service Tickets page. Click a ticket number to view details about the service ticket. Perform any suggested steps listed in the ticket details. 2. Shut down the system (see Shutting Down the System on page 13). 3. Make sure all hard drives are inserted completely and all hard drive latches are closed (see Installing a Node Hard Drive on page 17). 4. Make sure all memory modules are fully inserted in the memory slots (see Installing the Memory Modules on page 25). 5. If present, make sure the H810/H830 RAID controller is securely seated in the PCIe slot (see Installing the H810/H830 RAID Controller on page 30). 6. Make sure all SAS and power cables are securely connected to the correct ports (see Cabling the System on page 39). 7. Turn on the system (see Turning On the System on page 45). Wait at least 30 minutes before logging on.

Contacting Quantum

Contacts

For information about contacting Quantum, including Quantum office locations, go to:

<http://www.quantum.com/aboutus/contactus/index.aspx>

For further assistance, or for training opportunities, contact the Quantum Customer Support Center:

Region	Support Contact
North America	1-800-284-5101 (toll free) +1-720-249-5700
EMEA	+800-7826-8888 (toll free) +49 6131 324 185
Asia Pacific	+800-7826-8887 (toll free) +603-7953-3010

For worldwide support:

<http://www.quantum.com/serviceandsupport/get-help/index.aspx#contact-support>

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doc-comments@quantum.com