

Quantum[®]

User's Guide

Quantum NDX NAS Tower



Quantum NDX NAS Tower User's Guide, 6-67444-01 Rev A, October 2011, Product of USA.

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Preface

This manual introduces the Quantum NDX NAS Tower. This preface includes:

- About This Manual
- Document Organization
- Notational Conventions
- Product Safety Statements
- Contacts
- Worldwide End-User Product Warranty

About this Manual

This manual provides information for the installation and use of the Quantum NDX NAS Tower chassis. Please read this manual before performing installation or maintenance.

The Quantum NDX NAS Tower chassis features 4 hard disk drives, Intel Core i3 Processor and 4GB of RAM. The chassis is equipped with a 500W high-efficiency power supply for superb power savings.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Document Organization

Following is a brief description of chapter contents.

- Chapter 1 Introduction provides a high level summary of the system features.
- Chapter 2 System Safety lists warnings, precautions, and system safety. It recommended that you thoroughly familiarize yourself with all safety precautions.
- Chapter 3 System provides details on the system interface—including the functions and information provided by the control panel on the tower, as well as initial setup and other LEDs located throughout the system.
- Chapter 4 Chassis Setup and Maintenance provides procedures for installing, removing, or reconfiguring your Quantum NDX NAS Tower.
- Appendix A: Power Supply Specifications

Notational Conventions

This manual uses the following conventions:

Convention	Example
User input is shown in bold font.	./DARTinstall
Computer output and command line examples are shown in monospace font.	<code>./DARTinstall</code>
User input variables are enclosed in angle brackets.	http://<ip_address>/cgi-bin/stats
For UNIX and Linux commands, the command prompt is implied.	<code>./DARTinstall</code> is the same as <code># ./DARTinstall</code>
File and directory names, menu commands, button names, and window names are shown in bold font.	/data/upload

Convention	Example
Menu names separated by arrows indicate a sequence of menus to be navigated.	Utilities > Firmware

The following formats indicate important information:

Note: Note emphasizes important information related to the main topic.

Caution: Caution indicates potential hazards to equipment or data.

WARNING: Warning indicates potential hazards to personal safety.

- Right side of the system — Refers to the right side as you face the component being described.
- Left side of the system — Refers to the left side as you face the component being described.
- *b* — All binary numbers are succeeded by “b.”
- *h* — All hexadecimal numbers are succeeded by “h.”
- Error or attention conditions are represented in parenthesis that translate as follows:

(SK=S ASC=AA ASCQ=QQ)

where:

S — hexadecimal sense key value

AA — hexadecimal additional sense code

QQ — hexadecimal additional sense code qualifiers

**Product Safety
Statements**

Quantum will not be held liable for damage arising from unauthorized use of the product. The user assumes all risk in this aspect.

This unit is engineered and manufactured to meet all safety and regulatory requirements. Be aware that improper use may result in

bodily injury, damage to the equipment, or interference with other equipment.

WARNING: Before operating this product, read all instructions and warnings in this document and in the system, safety, and regulatory guide.

警告 在使用本产品之前，请先阅读本文档及系统、安全和法规信息指南中所有的说明和警告信息。

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ADVERSAL Læs alle instruktioner og advarsler i dette dokument og i *Vejledning om system-sikkerheds- og lovgivningsoplysninger*, før produktet betjenes.

AVERTISSEMENT Avant d'utiliser ce produit, lisez la totalité des instructions et avertissements de ce document et du *Guide d'informations sur le système, la sécurité et la réglementation*.

HINWEIS Lesen Sie vor der Verwendung dieses Produkts alle Anweisungen und Warnhinweise in diesem Dokument und im System, Safety, and Regulatory Information Guide (Info-Handbuch: System, Sicherheit und Richtlinien).

אזהרה לפני ההפעלה של מוצר זה, קרא את כל ההוראות והאזהרות הכלולות במסמך זה וכן במדריך מידע בנושאי מערכת, בטיחות ותקינה

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경고 이 제품을 작동하기 전에 이 문서 및 시스템, 안전, 및 규제 정보 안내서에 수록된 모든 지침과 경고 표지를 숙지하십시오.

ПРЕДУПРЕЖДЕНИЕ всеми инструкциями и предупреждениями, приведенными в данном документе и в *Справочном руководстве по устройству, технике безопасности и действующим нормативам*.

ADVERTENCIA Antes de utilizar este producto, lea todas las instrucciones y advertencias en este documento y en la Guía informativa sobre sistema, seguridad y normas.

WARNING Läs alla anvisningar och varningar i detta dokument och i *System, säkerhet och krav från myndigheter - Informationshandbok* innan denna produkt tas i bruk.

Contacts

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APAC	+ 800 7826 8887 (toll free) + 603 7953 3010

For worldwide support:

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

Worldwide End-User Product Warranty

For more information on the Quantum Worldwide End-User Standard Limited Product Warranty:

<http://www.quantum.com/pdf/QuantumWarranty.pdf>



Chapter 1 Introduction

Quantum's NDX tower chassis features a unique and highly-optimized NAS storage design. The NDX NAS is business ready - equipped with 4 hot swappable enterprise class hard disk drives, an Intel Core i3 processor and 4GB of RAM.

In addition, you can customize the NDX NAS to meet your needs. It offers 2 5-1/4" peripheral bays, 4 external USB ports, an internal PCI-e slot, and additional internal SATA and USB ports.

This document guides you through all of the hardware related information you require to use your Quantum NDX NAS system.



Chapter 2

System Safety

This chapter provides information on warnings, precautions, and system safety.

Important: Please thoroughly familiarize yourself with all safety precautions.

Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the NDX Tower. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. The Quantum NDX NAS Tower includes one power supply.

Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the Quantum NDX NAS Tower from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.
- Do not work alone when working with high-voltage components.
- Power should always be disconnected from the system when removing or installing main system components, such as the server board, memory modules or option peripherals like a DVD-ROM (not necessary for hot swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.
- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.
- Server board battery:

Caution: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

General Safety Precautions

- Keep the area around the chassis clean and free of clutter.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the server board and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the server board.



Chapter 3

Initial Setup and System Interface

This chapter describes initial setup, buttons, and LEDs on the Quantum NDX NAS Tower front chassis panel, and provides procedures for first use, connecting to ethernet, and correcting an overheat/fan fail condition.

Initial Setup

First Use

When you first use the Quantum NDX NAS Tower, connect the unit to a keyboard, monitor, and mouse, and proceed with several Microsoft Windows setup wizards. This is a requirement for initial setup only.

Connecting to Ethernet

The Quantum NDX NAS Tower comes with three RJ45 ports (see [Figure 2](#) on page 10). Two are ethernet ports positioned together. Connect the NDX NAS to your network using these two ports.

The third RJ45 port is for IPMI (Intelligent Platform Management Interface). This port is used for system monitoring, troubleshooting and technical support.

Hardware Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. Quantum NDX NAS Tower models have two buttons on the chassis control panel: a reset button and a power on/off switch. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

Figure 1 Front Chassis Panel

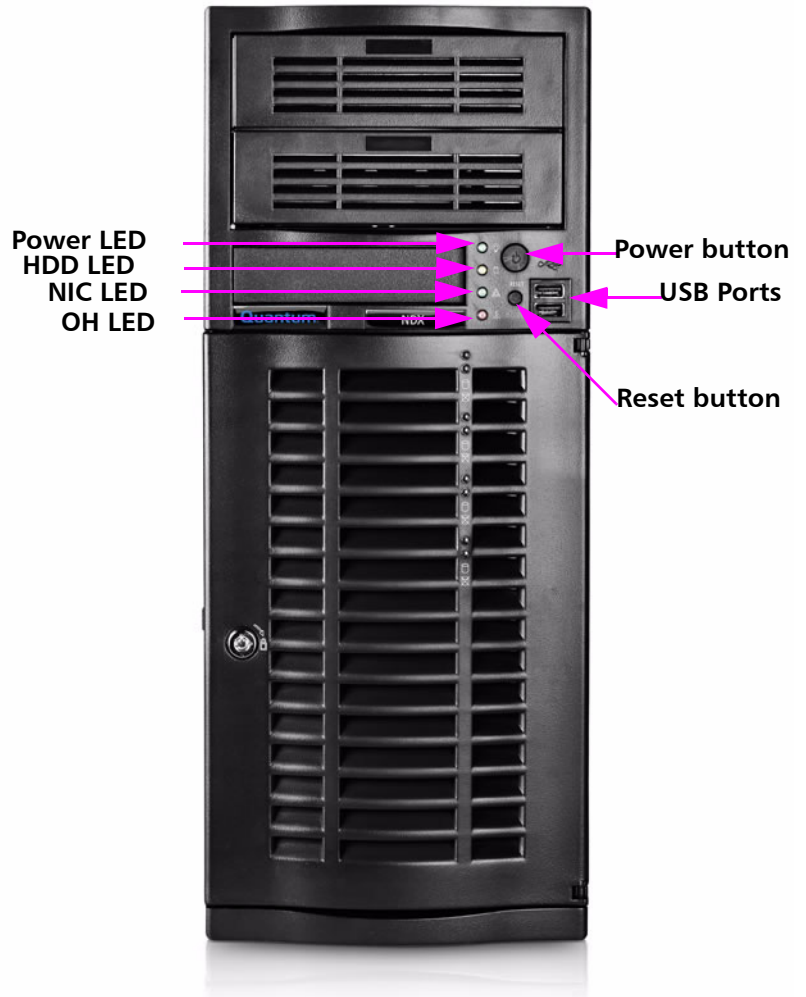
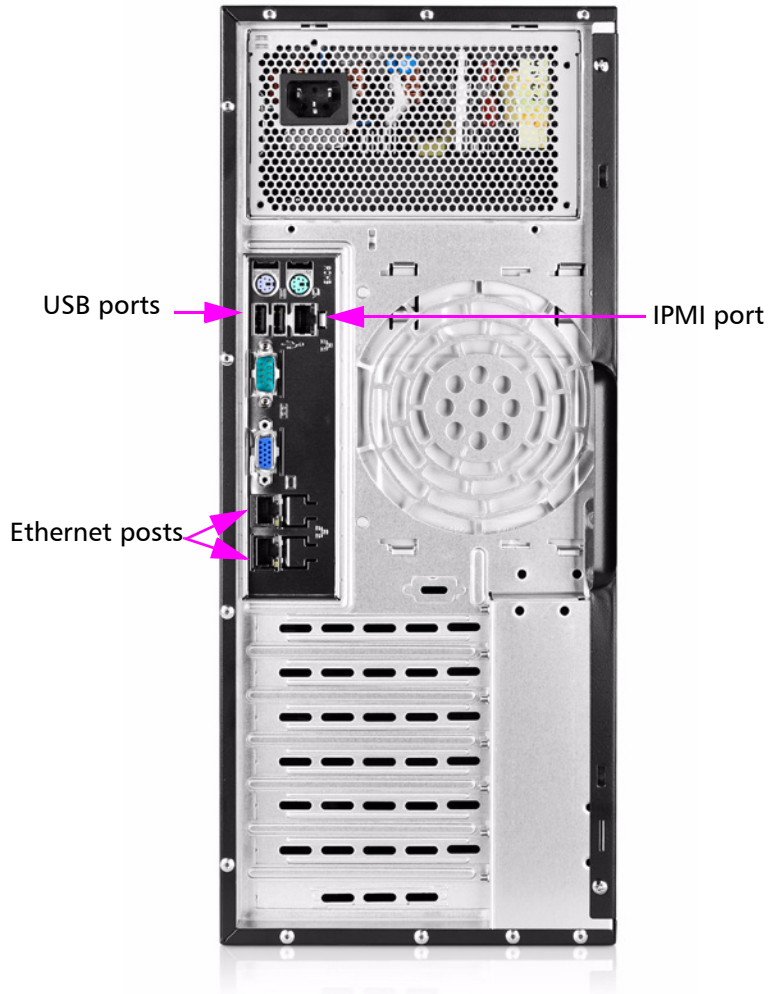
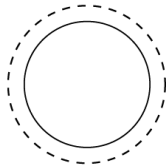


Figure 2 Rear Chassis

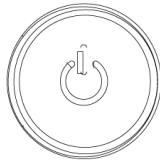


Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.



- **Reset:** The reset button is used to reboot the system.



- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

Control Panel LEDs

The control panel located on the front of the NDX Tower chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



Power: Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.



HDD: Indicates IDE channel activity. Hard Disk Drive and/or DVD-ROM drive activity when flashing.



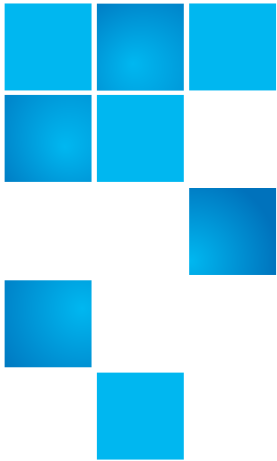
NIC1: Indicates network activity on GLAN1 when flashing.



Overheat: Indicates an overheating or fan failure condition when flashing.

Correcting an Overheat/Fan Fail Condition

- 1 Check the routing of the cables and move any cables that restrict airflow.
- 2 Confirm that all fans are operating normally.
- 3 Verify that the heatsinks are installed properly.
- 4 If the chassis cover is not aligned correctly, the airflow may be disrupted. This leads to overheating. Confirm that the chassis cover is placed correctly.
- 5 This LED will remain active as long as the overheat condition exists.



Chapter 4

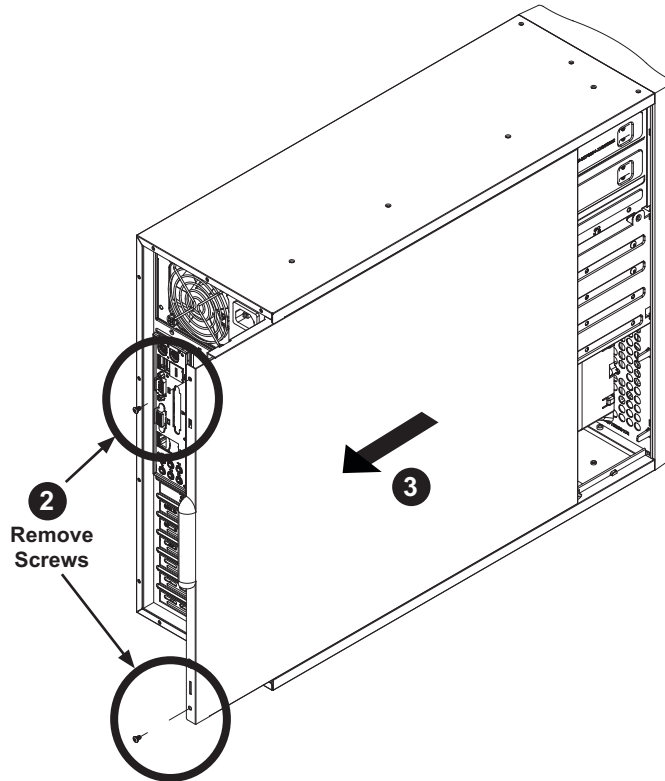
Chassis Setup and Maintenance

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need to install components and perform maintenance is a Phillips screwdriver. Print this chapter to use as a reference while setting up your chassis.

WARNING: Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

Removing the Chassis Cover

Figure 3 Removing the Chassis Cover



- 1 Disconnect the chassis from any power source.
- 2 On the rear of the chassis, remove the two screws holding the cover in place.
- 3 Slide the cover back, toward the rear of the chassis.
- 4 Lift the cover off the chassis.

WARNING: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Replacing a Hard Drive

Figure 4 Removing the Hard Drive Carrier from Chassis



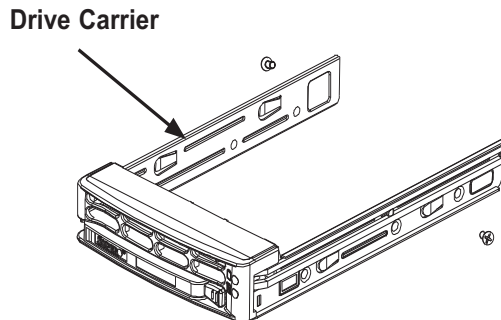
The Quantum NDX NAS Tower features hot-swappable hard drives, which permit the exchange of hard drives, without powering down the system

Removing Hard Drive Carriers

- 1 Open the door on the front of the tower to expose the 4 hot swap hard drives.
- 2 Press the release button on the front of the drive carrier. This will cause the drive carrier handle to pop outward.
- 3 Using the drive carrier handle, gently pull the drive carrier out of the chassis.

WARNING: Enterprise level hard disk drives are recommended for use in the Quantum NDX NAS Tower.

Figure 5 Chassis Drive Carrier



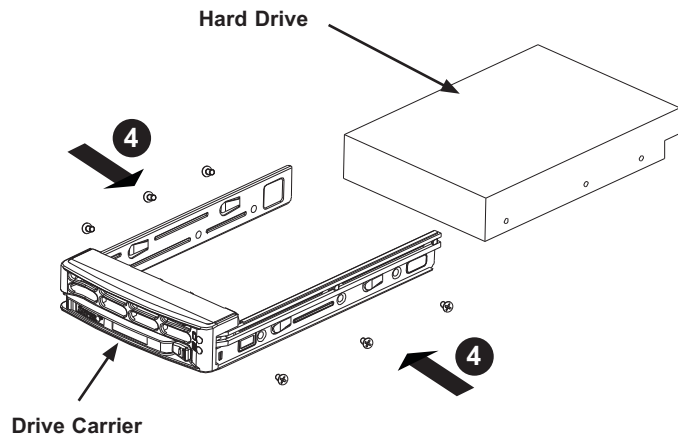
The drives are mounted in drive trays to simplify their installation and removal from the chassis. These trays also help promote proper airflow for the drive bays.

WARNING: Except for short periods of time (swapping hard drives), do not operate the server with the chassis drive bays empty.

Installing the Hard Drive into Hard Drive Carrier

- 1 Remove the two screws securing the hard drive to the drive carrier and remove the hard drive. Place the hard drive carrier on a flat surface such as a desk, table or work bench.

Figure 6 Removing Hard Drive



- 2 Slide the hard drive into the carrier with the printed circuit board side facing down.
- 3 Carefully align the mounting holes in both the drive carrier and the hard drive.
- 4 Secure the hard drive to the carrier using six screws.
- 5 Replace the drive carrier into the chassis. Make sure to close the drive carrier handle to lock the drive carrier into place.

Figure 7 Replacing Hard Drive
in Chassis



Installing a Peripheral Drive

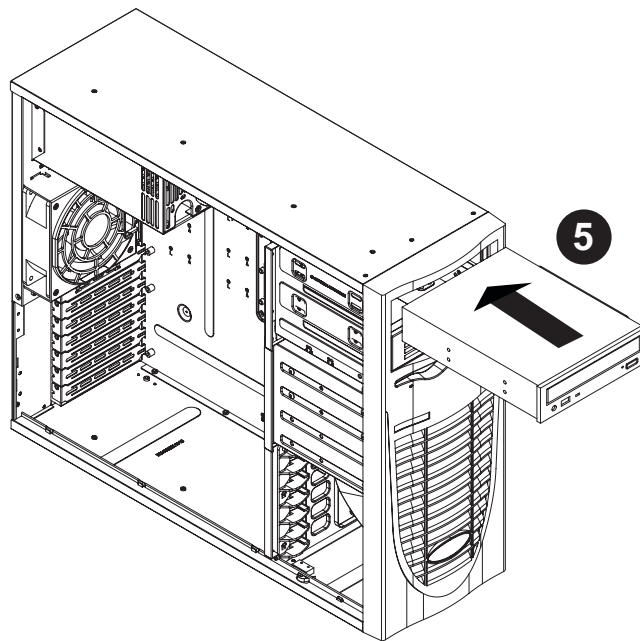
Quantum NDX Towers have peripheral drive bays, in which an optional drive may be installed. This may be a CD-ROM, DVD-ROM, RDX or other device. Use the following procedure to install a peripheral drive:

Adding or Replacing a Peripheral Drive

- 1 Disconnect the chassis from any power source.
- 2 Remove the chassis cover.

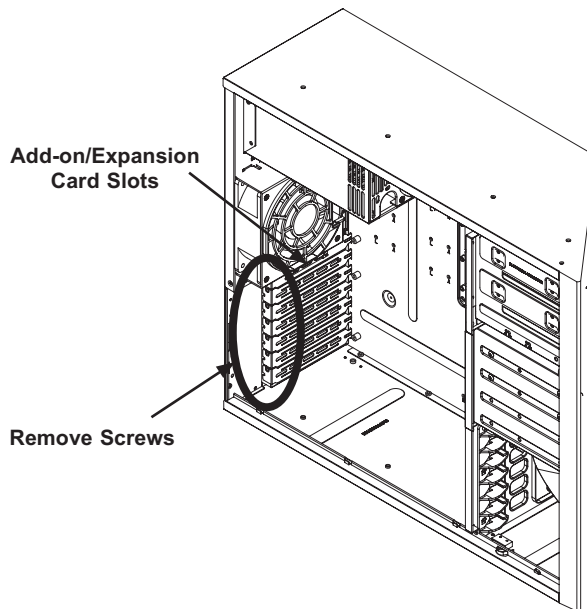
- 3 Unplug the power and data cables from the motherboard and/or backplane.
- 4 If you are adding a new peripheral drive:
Remove the mini-bezel (grate) from the drive bay. The bezel can be removed by pulling out the hard drive beneath the drive bay, then pulling the mini-bezel forward.
- If you are replacing a peripheral drive:
Locate the locking tab at the rear (left hand side when viewed from the front) of the drive. Push the tab toward the drive, and push the drive unit out the front of the chassis.
- 5 Push the new drive unit into the slot, until the tab locks into place.
- 6 Reconnect the data and power cables.
- 7 Replace the chassis cover, reconnect the power source and power up the system.

Figure 8 Installing the Peripheral Drive



Installing Add-on or Expansion Cards

Figure 9 Installing Add-on or Expansion Cards



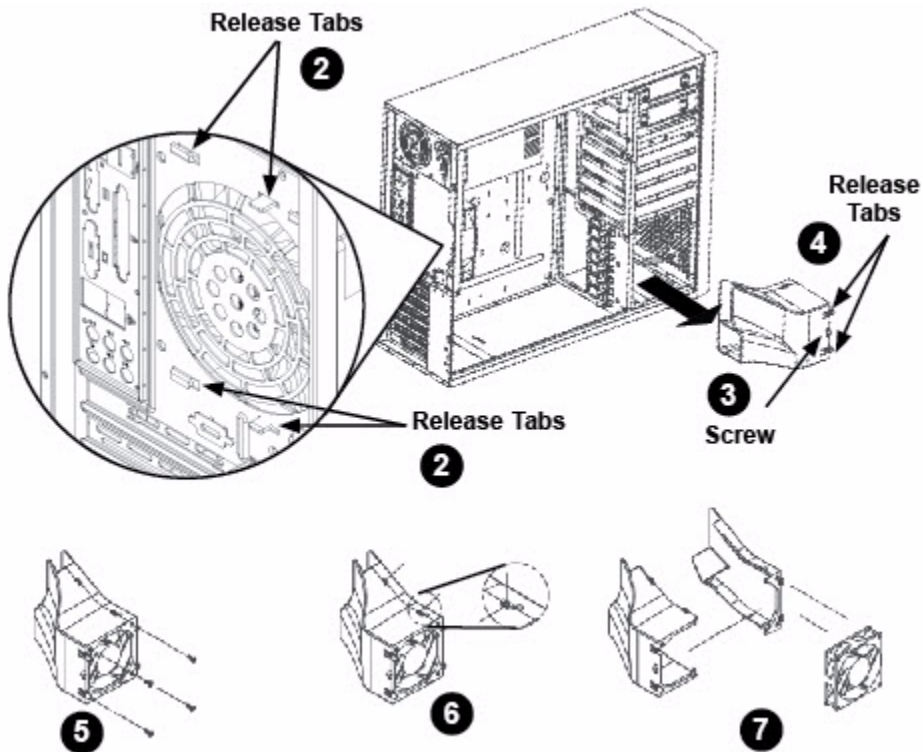
Add-on Card/Expansion Slot Setup

The NDX Tower includes a single PCI-e slot. Follow these instructions for installing a PCI-e card.

- 1 Disconnect the power supply, set the chassis on a flat surface, and open the chassis cover.
- 2 Remove the screws holding the cover in place for each add-on/expansion card slot you want to use. Keep this screw for later use.
- 3 Connect the add-on card to the mother board.
- 4 Secure the card to the chassis using the card's L-bracket and the screw previously removed.

Removing the Fan Duct and System Fan

Figure 10 Replacing the Fan Shroud



The fan duct concentrates airflow to maximize fan efficiency.

Removing the Fan Duct and System Fan

- 1 Disconnect the chassis from any power source.
- 2 Remove the screw securing the fan duct to the chassis.
- 3 Press down the release tabs on the fan duct as shown and pull the fan duct out from its location in the chassis.

- 4 Remove the four screws at the front of the fan duct that hold the fan in place. Then release the two fasteners along the side of the fan duct.
- 5 Separate the fan duct into two pieces remove the fan
- 6 Add a new fan of the same type.

Checking the Server's Air Flow

- 1 Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.
- 2 Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.
- 3 Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.
- 4 The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons.
- 5 In most cases, the chassis power supply and fans are pre-installed. If you need to install fans continue to the Systems Fan section of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

Power Supply

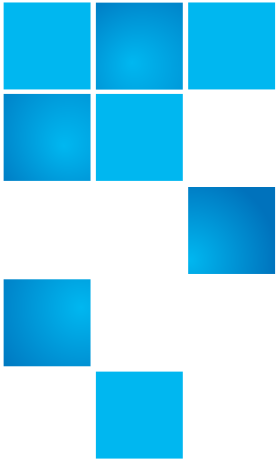
Contact Quantum technical support for a replacement power supply if there is an issue (see the contact information in the Preface).

Figure 11 Removing the Power Supply



Changing the Power Supply

- 1 Disconnect the chassis from any power source.
- 2 Remove the screws securing the power supply to the chassis, which are located on the rear of the chassis.
- 3 Pull the power supply out of the chassis.
- 4 Change the failed power module with the same model.
- 5 Push the new power supply module into the power bay until you hear a click.
- 6 Plug the AC power cord back into the module and power up the server.



Appendix A

Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

Rated AC Voltage	100 - 240V 50 - 60Hz 10 Amp
DC Output	5V + 3.3V . 160W 12V + 5V + 3.3V . 430W
+5V standby	2 Amp
+12V	30 Amp
+5V	26 Amp
+3.3V	30 Amp
-12V	1 Amp

: