

Quantum[®]

User's Guide

Quantum NDX NAS 1U Rack



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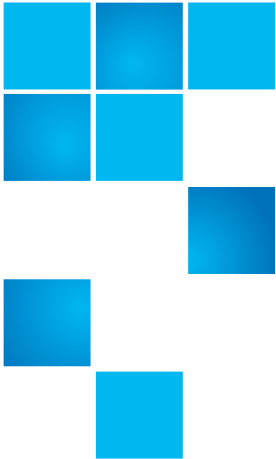
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Preface

This manual introduces the Quantum NDX NAS 1U Rack. 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 1U Rack chassis. Please read this manual before performing installation or maintenance.

The Quantum NDX NAS 1U Rack chassis features 4 enterprise class hard disk drives, Intel Core i3 Processor and 4GB of RAM. The chassis is equipped with a 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 checklist of the main features of the Quantum NDX NAS 1U Rack.
- Chapter 2 System Safety lists warnings, precautions, and system safety. It recommended that you thoroughly familiarize yourself with all safety precautions.
- Chapter 3 provides setup instructions to get your system up and running, and provides procedures for upgrading system memory,
- Chapter 4 System Interface provides interface details on the system interface, which includes the functions and information provided by the control panel on the tower as well as other LEDs located throughout the system.
- Chapter 5 Advanced Chassis Setup covers the steps required to install components and perform maintenance on the Quantum NDX NAS 1U Rack chassis.
- Appendix A: BIOS Error Beep Codes
- Appendix B: System 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>

Convention	Example
File and directory names, menu commands, button names, and window names are shown in bold font.	/data/upload
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).

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אזהרה

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この製品を使用する前に、本文書、および『システム、安全、規制に関する情報ガイド』に記載しているすべての警告と指示をお読みください。

경고

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

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

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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

The Quantum NDX NAS 1U Rack features is a high-end server comprised of two main subsystems: the server chassis and the single processor motherboard.

In addition to the motherboard and chassis, various hardware components are included, as listed below:

- Four sets of 4-cm counter-rotating fans
- One air shroud
- One passive CPU heatsink
- One riser card for one add-on card
- SATA Accessories
 - One SATA backplane
 - Four hard drive carriers
- One rackmount kit

Motherboard Features

Memory

The motherboard has four DIMM sockets that can support up to 32 GB of unbuffered DDR3-1333/1066 memory. Refer to Chapter 3 for installing memory.

Serial ATA

An on-chip SATA controller is integrated into the motherboard to provide a six-port, 3 Gb/sec Serial ATA subsystem, which is RAID 0, 1, 5 and 10 supported (RAID 5 supported with Windows OS only). The SATA drives are hot-swappable units.

I/O Ports

The color-coded I/O ports include one COM port, a VGA (monitor) port, two USB 2.0 ports, PS/2 mouse and keyboard ports and two gigabit Ethernet ports. A dedicated IPMI LAN port is also included.

Graphics Controller

The motherboard features an integrated ATI video controller based on the Matrox G200eW graphics chip, which has 16 MB of DDR2 memory.

Server Chassis Features

Figure 1 Chassis Front View

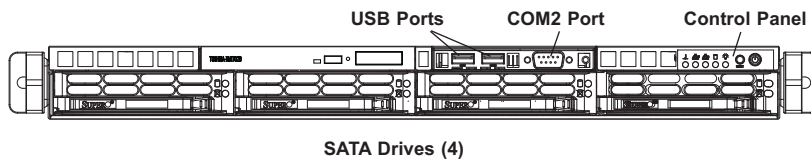
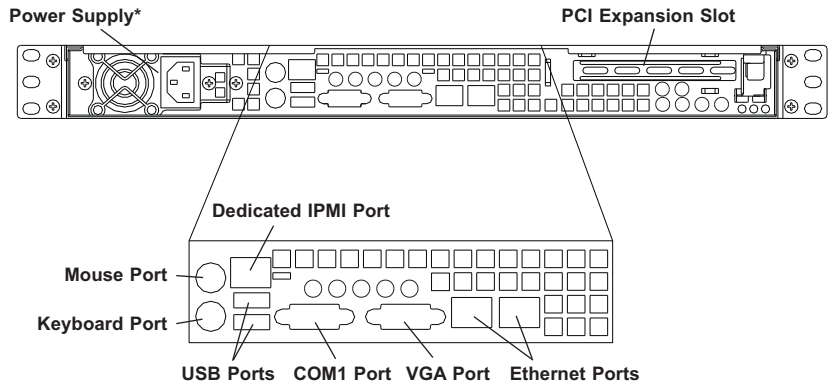


Figure 2 Chassis Rear View



*The 5017C-MTRF includes two power supplies for redundancy.

The following is a general outline of the main features of the chassis.

System Power

The chassis includes a single 350W power supply.

SATA Subsystem

The chassis was designed to support four SATA hard drives, which are hot-swappable units.

Control Panel

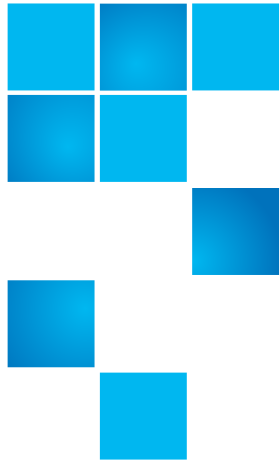
The control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and system overhear conditions. The control panel also includes a main power button and a system reset button. The front also includes a COM port and two USB serial ports for easy access.

Rear I/O Panel

The rackmount chassis I/O panel provides one PCI motherboard expansion slot, one COM port (another is internal), two USB ports, a parallel (printer) port, PS/2 mouse and keyboard ports, a VGA port and two Gb Ethernet ports.

Cooling System

The chassis has an innovative cooling design that features four 4-cm high-performance system cooling fans and an air shroud. Each of these fans plug into a chassis fan header on the motherboard. An air shroud channels the air flow generated by the fans to efficiently cool the processor area of the system.



Chapter 2

System Safety

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

Important: Please thoroughly familiarize yourself with all safety precautions.

Electrical Safety Precautions



Basic electrical safety precautions should be followed to protect yourself from harm and the Quantum NDX NAS 1U Rack 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.
- This product may be connected to an IT power system. In all cases, make sure that the unit is also reliably connected to Earth (ground).
- 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.

- Mainboard replaceable soldered-in fuses: Self-resetting PTC (Positive Temperature Coefficient fuses on the mainboard must be replaced by trained service technicians only. The new fuse must be the same or equivalent as the one replaced. Contact technical support for details and support.

General Safety Precautions

- Keep the area around the Quantum NDX NAS 1U Rack clean and free of clutter.
- The Quantum NDX NAS 1U Rack weighs approximately 38 lbs (~17.3 kg) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.
- 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.

ESD Precautions

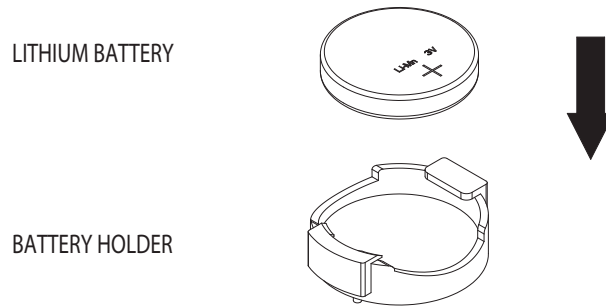
Electrostatic Discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient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

- 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 the board from the 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 serverboard 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 serverboard.

Operating Precautions

Care must be taken to assure that the chassis cover is in place when the Quantum NDX NAS 1U Rack is operating to assure proper cooling. Out of warranty damage to the system can occur if this practice is not strictly followed.

Figure 3 Installing the
Onboard Battery



WARNING: 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.



Chapter 3

Server Installation

Overview

This chapter provides a quick setup checklist to get the Quantum NDX NAS 1U Rack up and running. Following the steps in order given should enable you to have your system setup and operational within a minimal amount of time. This quick set up assumes that you are an experienced computer user familiar with common concepts and terminology.

Unpacking the System

You should inspect the box the Quantum NDX NAS 1U Rack was shipped in and note if it was damaged in any way. If the server itself shows damage, you should submit a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the Quantum NDX NAS 1U Rack. 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 a grounded power outlet. Read the [Warnings and Precautions](#) on page 13.

Preparing for Setup

The box the Quantum NDX NAS 1U Rack was shipped in should include two sets of rail assemblies, six rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimal amount of time.

Important: Read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (-25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient air flow and ease in servicing. This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).
- This product is not suitable for use with visual display work place devices according to §2 of the German Ordinance for Work with Visual Display Units.

Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- Extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 2 System Safety.
- Determine the placement of each component in the rack before you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SATA drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (T_{mra}).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

Installing the System into a Rack

This section provides information on installing the Quantum NDX NAS 1U Rack into a rack unit with the rack rails provided.

There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Identifying the Sections of the Rack Rails

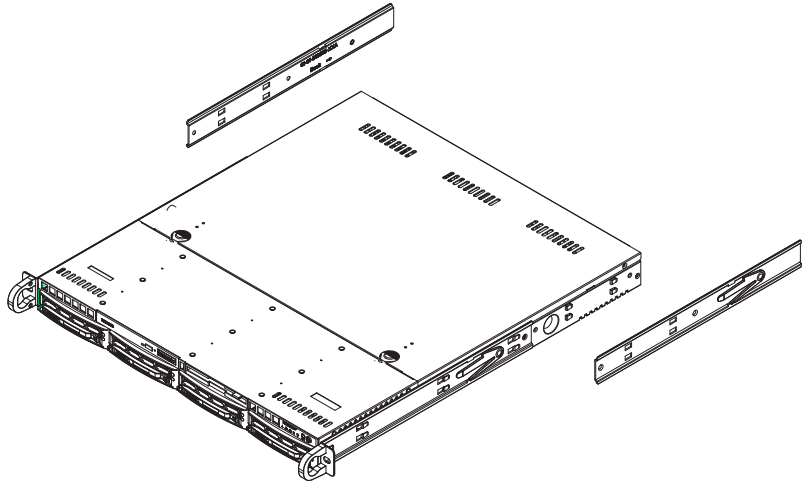
You may have received rack rail hardware with the Quantum NDX NAS 1U Rack. (Two front inner rails should already be attached to the chassis.) This hardware consists of two rear inner rails that secure to the chassis, one on each side just behind the pre installed front inner rails. Note that these two rails are left/ right specific.

Installing the Rear Inner Rails

First, locate the right rear inner rail (the rail that will be used on the right side of the chassis when you face the front of the chassis). Align the two square holes on the rail against the hooks on the right side of the chassis. Securely attach the rail to the chassis with M4 at head screws. Repeat these steps to install the left rear inner rail to the left side of the chassis (see [Figure 4](#)). You will also need to attach the rail brackets when installing into a telco rack.

Locking Tabs: Both chassis rails have a locking tab, which serves two functions. The first is to lock the server into place when installed and pushed fully into the rack, which is its normal position. Secondly, these tabs also lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when you pull it out for servicing.

Figure 4 Installing the Rear
Inner Chassis



Installing the Rack Rails

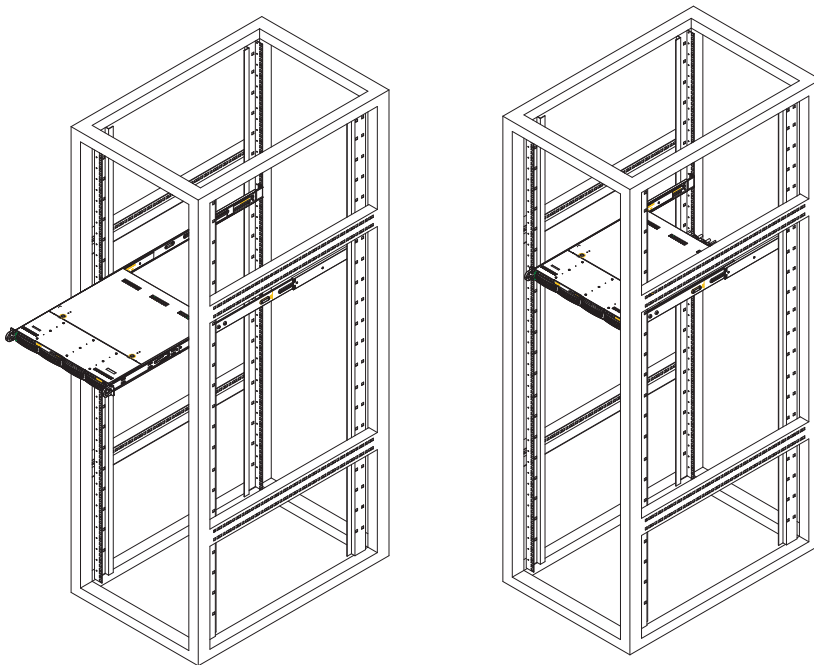
Determine where you want to place the NDX 1U NAS in the rack (see [Warnings and Precautions](#) on page 13). Position the chassis rail guides at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack. Screw the assembly securely to the rack using the brackets provided. Attach the other assembly to the other side of the rack, making sure that both are at the exact same height and with the rail guides facing inward.

Installing the Server into the Rack

You should now have rails attached to both the chassis and the rack unit. The next step is to install the server into the rack. Do this by lining up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). See [Figure 5](#) on page 17.

When the server has been pushed completely into the rack, you should hear the locking tabs “click”.

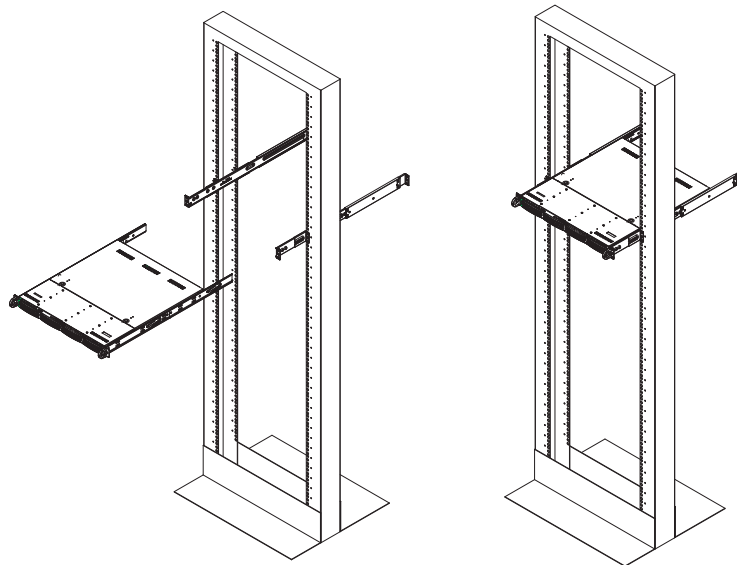
Figure 5 Installing the Server into a Rack (with optional front bezel shown)



Installing the Server into a Telco Rack

To install the Quantum NDX NAS 1U Rack into a Telco type rack, use two L-shaped brackets on either side of the chassis (four total). First, determine how far the server will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it. Then attach the two front brackets to each side of the chassis, then the two rear brackets positioned with just enough space to accommodate the width of the rack. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

Figure 6 Installing the Server into a Telco Rack (with optional front bezel shown)



Installing Memory

Caution: Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Installing DIMMs

- 1 Insert the desired number of DIMMs into the memory slots, starting with slots 1. DIMM1A. Pay attention to the notch along the bottom of the module to pre-vent inserting the DIMM module incorrectly. See [Figure 7](#) on page 20.
- 2 Gently press down on the DIMM module until it snaps into place in the slot. Repeat step 1 to install to DIMM1B if needed.

Memory Support

The NDX NAS supports up to 32GB of ECC unbuffered (UDIMM) DDR3-1333/1066 memory in four memory slots. Populating these slots with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table below:

DDR3 Unbuffered ECC (UDIMM) Memory				
DIMM Slots per Channel	DIMMs Populated per Channel	DIMM Type	POR Speeds	Ranks per DIMM (any combination)
2	1	Unbuffered DDR3	1066, 1333	Single Rank, Dual Rank
2	2	Unbuffered DDR3	1066, 1333	Single Rank, Dual Rank

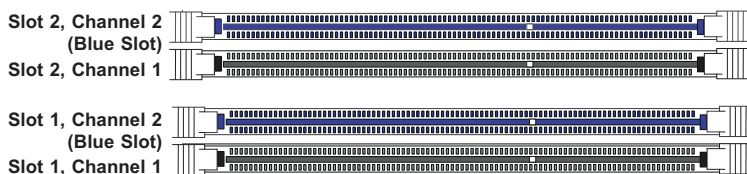
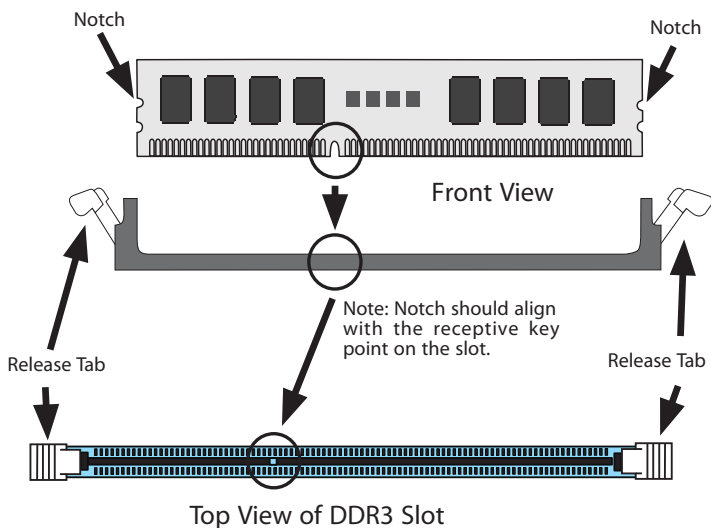


Figure 7 Installing DIMM into Slot

To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

To Remove: Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.



Adding PCI Cards

PCI Expansion Slots

The chassis can accommodate one standard size (full height full length) PCI expansion card. When viewed from the chassis front, the card installs to the left rear of the system.

PCI Card Installation

Before installing a PCI add-on card, make sure it is supported by the riser card. Begin by releasing the locking tab that corresponds to the slot you wish to populate. Insert the expansion card into the riser card by pushing down with your thumbs evenly on both sides of the card.

PCI Slot/Card Configurations

Riser Card	Expansion card supported
Pre-installed	1x PCI-E 2.0 x8 card



Chapter 4

Initial Setup and System Interface

This chapter describes activities required for initial setup, provides a hardware overview, and describes control panel buttons and control panel and hard drive carrier LEDs.

Initial Setup

First Use

When you first use the Quantum NDX NAS 1U Rack, 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 1U Rack comes with three RJ45 ports (see [Figure 1](#) and [Figure 2](#) on page 3). Two are ethernet ports positioned together. Connect the NDX NAS to your network using these two ports.

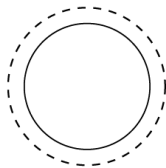
The third RJ45 port is for IPMI (Intelligent Platform Management Interface). This port is used for system monitoring, troubleshooting and technical support.

Hardware Overview

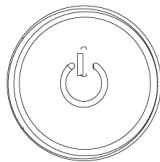
There are several LEDs on the control panel as well as others on the hard drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel and an on/off switch on the power supply. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

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:** This is the main power button, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

Control Panel LEDs

The control panel located on the front of the 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.



Overheat / Fan Fail

When this LED flashes, it indicates a fan failure. When on continuously it indicates an overheat condition, which may be caused by cables obstructing the air flow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the indicated condition exists.



NIC2

Indicates network activity on LAN2 when flashing.



NIC1

Indicates network activity on LAN1 when flashing.



HDD

Channel activity for all HDDs. This light indicates DVD-ROM/hard drive activity when flashing.



Power

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

Hard Drive Carrier LEDs

Each drive carrier has two LEDs.

Green: When illuminated, the green LED on the drive carrier indicates drive activity. A connection to the backplane enables this LED to blink on and off when that particular drive is being accessed.

Red: The red LED to indicate a drive failure. If one of the drives fails, refer to [Removing/Installing a Drive](#) on page 33 for instructions on replacing failed drives.

Chapter 4: Initial Setup and System Interface

Hard Drive Carrier LEDs



Chapter 5

Advanced Chassis Setup

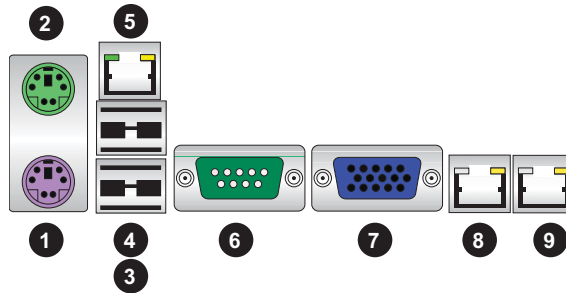
This chapter covers the steps required to install components and perform maintenance on the Quantum NDX NAS 1U Rack chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the step that follows.

Tools Required: The only tool you will need to install components and perform maintenance is a Phillips screwdriver.

I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See [Figure 8](#) on page 30 below for the colors and locations of the various I/O ports.

Figure 8 I/O Ports Diagram



Backplane I/O Ports	
1. Keyboard (Purple)	6. COM 1
2. PS/2 Mouse (Green)	7. VGA
3. USB Port 0	8. LAN1
4. USB Port 1	9. LAN2
5. IPMI LAN	

.System Fans

Four 4-cm high-performance fans provide the cooling for the Quantum NDX NAS 1U Rack. The chassis includes air seals under the fans and at the chassis cross section, which separates the drive bay area from the serverboard area of the chassis to promote better air flow. It is important that the air seal is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis.

The fans can adjust their speed according to the heat level sensed in the system, which results in more efficient and quieter fan operation.

System Fan Failure

If a fan fails, you will need to have it replaced with the same type. Contact Quantum for information on replacement fans.

SATA Drive Replacement and Installation

Accessing the Drive Bays

SATA Drives: Because of their hotswap capability, you do not need to access the inside of the chassis or power down the system to install or replace SATA drives. Proceed to the next step for instructions.

Caution: Use caution when working around the SATA backplane. Do not touch the backplane with any metal objects and make sure no ribbon cables touch the backplane. Also, regardless of how many drives are installed, all four drive carriers must remain in the chassis to maintain proper air flow.

Caution: Enterprise level hard disk drives are recommended for use in Quantum chassis and servers.

Mounting a Drive in a Drive Carrier

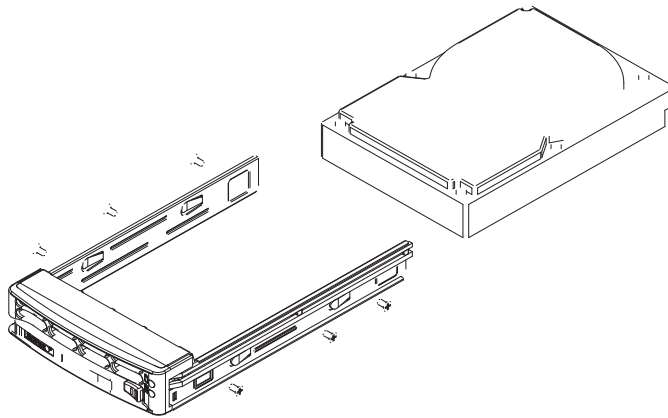
The SATA drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper air flow for the system. For this reason, even empty carriers without drives installed must remain in the chassis.

- 1 Install a new drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
- 2 Secure the drive to the carrier with six screws, as shown in [Figure 9](#).

Installing/Removing SATA Drives

- 1 To remove a carrier, push the release button located beside the drive LEDs.
- 2 Swing the colored handle fully out and use it to pull the unit straight out.

Figure 9 Mounting Drive in
Carrier



DVD-ROM Drive Installation

The top cover of the chassis must be opened to gain full access to the DVD-ROM drive bay. The Quantum NDX NAS 1U Rack accommodates only slim DVD-ROM drives. Side mounting brackets are needed to mount a slim DVD-ROM drive into the server.

WARNING: You must power down the system before installing or removing a DVD-ROM drive.

Removing the Chassis Cover

- 1 Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a “click”).
- 2 Depress the two buttons on the top of the chassis to release the top cover and at the same time, push the cover away from you until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server.

Removing/Installing a Drive

- 1 With the chassis cover removed, unplug the power and data cables from the drive.
- 2 Locate the locking tab at the rear of the drive. It will be on the left side of the drive when viewed from the front of the chassis.
- 3 Pull the tab away from the drive and push the drive unit out the front of the chassis.
- 4 Add a new drive by following this procedure in reverse order. You may hear a faint *click* of the locking tab when the drive is fully inserted.
- 5 Remember to reconnect the data and power cables to the drive before replacing the chassis cover and restoring power to the system.

Power Supply

The Quantum NDX NAS 1U Rack has a single 350 watt power supply. This power supply has the capability of operating at 100 - 240 input volts. Depress the main power button on the front of the chassis and then unplug the AC power cord to completely remove power from the system before removing the power supply.

Power Supply Failure

If the power supply unit fails, the system will shut down and you will need to replace the power supply unit. Replacement units can be ordered directly from Quantum (see contact information in the Preface).

Replacing the Power Supply

To replace a power supply, you must first remove the top chassis cover. Follow the procedure on the previous page.

- 1 Unplug the power cord from the system.
- 2 To remove the failed power unit, remove the two screws on the back of the power supply, which secure it to the chassis. You can then lift the unit straight out of the chassis.
- 3 Replace the failed unit with another unit of the same wattage. It is highly recommended to replace it with the exact same power supply.
- 4 Carefully insert the new unit into position in the chassis and secure it with the two screws at the rear of the unit.
- 5 Before reconnecting the power cord, make sure the power switch on the power supply is in the off position. Then reconnect the power cord, replace the chassis top cover and push the unit back into the rack.
- 6 Finish by turning the power switch on the power supply on, and then depress the power button on the front of the system.



Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue with bootup. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue to bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

BIOS Error Beep Codes

Beep Code/LED	Error Message	Description
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
8 beeps	Display memory read/write error	Video adapter missing or with faulty memory
OH LED On	System OH	System Overheat



Appendix B

System Specifications

Processors

Single Intel® processor in an LGA1155 socket

Chipset

Intel Core i3

BIOS

64 Mb SPI AMI® Flash

Memory Capacity

Four DIMM sockets supporting up to 32 GB of unbuffered DDR3-1333/1066 memory

SATA Controller

Intel on-chip controller for six-port Serial ATA, RAID 0, 1 5 and 10 supported (RAID 5 not supported with Linux OS, Windows only)

SATA Drive Bays

Four hot-swap drive bays to house four SATA or hard drives

Peripheral Drive Bays

Suitable for one slim DVD ROM drive (not included)

Expansion Slots

Riser card for one PCI-E 2.0 x8 add-on card

Chassis

Form Factor: 1U rackmount

Dimensions: (WxHxD) 17.2 x 1.7 x 19.85 in. (437 x 43 x 504 mm)

Weight

Gross Weight: 38 lbs. (17.3 kg.)

System Cooling

Four 4-cm high performance fans

One air shroud

System Input Requirements

AC Input Voltage: 100-240V AC auto-range

Rated Input Current: 4.2A (100V) to 1.8A (240V)

Rated Input Frequency: 50 to 60 Hz

Power Supply

Rated Output Power: 350W (Part# PWS-351-1H)

Rated Output Voltages: +3.3V (15A), +5V (18A), +12V (29A), -12V (.5A),

+5Vsb (3A)

5017C-MTRF:

Rated Output Power: 400W (Part# PWS-351-1H)

Rated Output Voltages: +3.3V (15A), +5V (18A), +12V (29A), -12V (.5A),

+5Vsb (3A)

Operating Environment

Operating Temperature: 10° to 35° C (50° to 95° F)

Non-operating Temperature: -40° to 70° C (-40° to 158° F)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-operating Relative Humidity: 5 to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions:

FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity:

EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety:

EN 60950/IEC 60950-Compliant, UL Listed (USA), CUL Listed (Canada), TUV

Certified (Germany), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials:

This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

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