TurboBox

Rac

Guide

External PCIe to GPU Enclosure

Version 1.0

NA260A

NA260A   Rackmount External PCIe to GPU Enclosure

1. Overview

The easy and cost-effective PCIe to PCIe expansion system TurboBox Rac NA260A features easy plug and play installation, containing PCIe 2.0 ×8 host card and data cable for up to 40 Gbps high-speed transfer rate. The TurboBox Rac NA260A is configured by the BIOS from the workstation or server automatically, which makes all the PCIe slots on TurboBox Rac NA260A available to the server or workstation.

2. Package checklist

Before the installation of this unit, verify the package contains the following items.

A TurboBox NA260A x 1

B PCIe 2.0 ×8 host adapter with standard and low profile bracket x 1
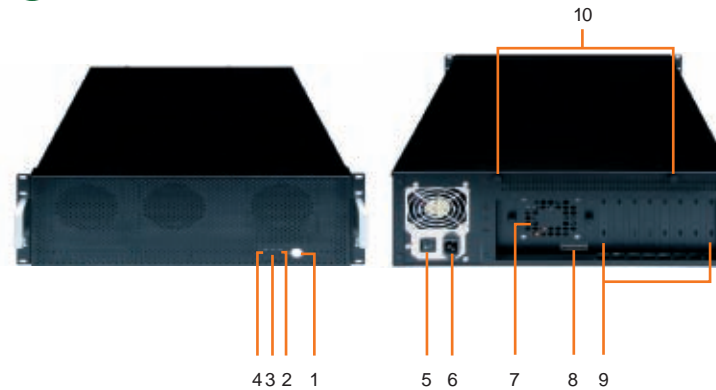
C PCIe 2.0 ×8 cable (1.5 meter) x 1

D Power cord x 1

E CD containing user manual x 1

3. Panel layout

10

4 3 2 1   5 6   7   8 9

1. **Power on/off button**
   Blue – power-on
   Note: To power on/off the TurboBox Rac NA260A, press the button for two seconds.

2. **Buzzer mute button**

3. **Fan LED**
   Green – normal
   Red – fan failure (low frequency of RPM or stop)

4. **Temperature LED**
   Green – normal
   Red – overheated (higher than 55℃)

5. **Power switch**

6. **Power receptacle**

7. **60×60×25 mm hot-swappable cooling fan**

8. **External PCIe ×8 connector for host connection**

9. **PCIe slots**

10. **Thumbscrew to loosen/tighten the side door**

7   6 5 4 3 2 1   1   2 3 4 5 6

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1. **Slot1 : PCIe ×16 connector (×8 signal)**
2. **Slot2 : PCIe ×16 connector (×8 signal)**
3. **Slot3 : PCIe ×4 connector (×4 signal)**
4. **Slot4 : PCIe ×16 connector (×8 signal)**
5. **Slot 5: PCIe ×4 connector (×4 signal)**
6. **Slot 6: PCIe ×16 connector (×8 signal)**
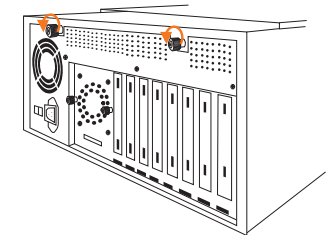7. **8 × 6+2 pin PCI Express power connectors for graphics cards**

To server or workstation, the speed of the PCIe slots on NA260A runs at PCIe ×8 (40 Gbps).

4. Installation of PCI Express Add-On/Graphics Card

Before following the installation procedures, disconnect TurboBox Rac NA260A from power source to prevent electric shock or damage to add-on/graphics card.
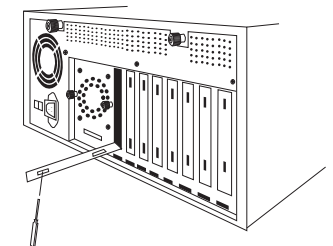
1. First, loosen the two thumbscrews and remove the top cover from TurboBox Rac NA260A.

Step 1

2. Bend the L shape metal bracket on rear panel of TurboBox Rac NA260A for preparation of the installation of PCIe add-on or graphics card
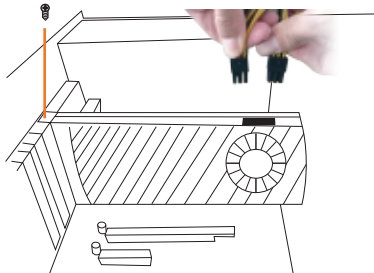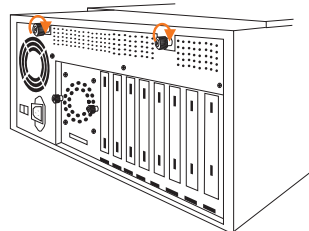
Step 2

Note: it is easier to use a screwdriver to bend the L shape metal bracket.

3. Insert a PCIe add-on/graphics card into PCIe ×16 slot and tighten it with a screw. If you are installing a graphics card that requires extra power resources, connect the 6 pin PCI Express power resource provided by NA260A to the 6 pin PCI Express power connector on graphics card, or connect the 6+2 pin PCI Express power resource provided by NA260A to the 8 pin PCI Express power connector on graphics card.
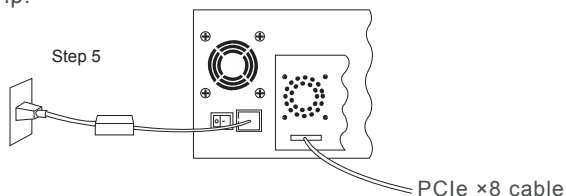
4. Place the top cover back to TurboBox Rac NA260A, and tighten the two thumbscrews to fasten the top cover.
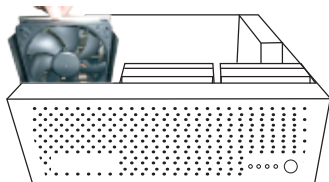
Step 4

5. Connect the end of PCIe ×8 cable to PCIe ×8 connector on rear panel of TurboBox Rac NA260A. Also, connect the end of power cord to power receptacle on TurboBox Rac NA260A and the other end of power cord to a grounded outlet or power strip.
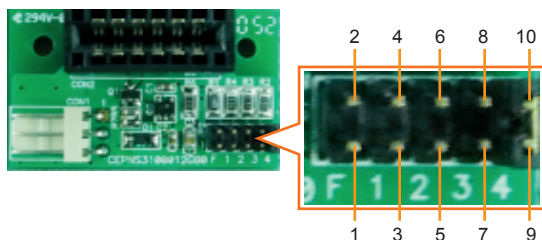
Step 5

PCIe ×8 cable

Note:
there are three hot-swappable 120×120×25 mm cooling fans for ventilation inside TurboBox Rac NA260A. You may simply draw the cooling fans out by pulling the L type metal handle on the fan modules.
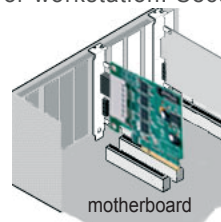
5. Fan Speed Adjustment

You are able to adjust the speed of 120×120×25 mm cooling fan inside TurboBox Rac NA260A. To do so, pull the cooling fan out, and you will see five sets of jumpers labeled with F, 1, 2, 3, and 4 respectively from left to right on the board. The default setting is the jumper being placed over pin 9 and pin 10 for label 4, meaning the slowest speed of fan. If the jumper is placed over pin 1 and pin 2 for label F, the fan will spin at full speed. From label 1 to label 3, the fan speed decreases. If all of the pins are open (meaning no jumper is placed over the pins), the fan will not spin.

	2	4	6	8	10
	F	1	2	3	4
	1	3	5	7	9

6. Installation of Host Adapter and Cable Connection

Before following the installation procedure, disconnect the server or workstation from power source to prevent electric shock or damage to add-on/graphics card.

1. Install TurboBox Rac PCIe 2.0 ×8 host adapter into an available PCIe ×8 connector (compatible with ×16 connector) in server or workstation. Secure the host adapter with a screw.

motherboard

2. Connect the other end of PCIe ×8 cable to TurboBox Rac PCIe 2.0 ×8 host adapter on server or workstation.

7. Power On TurboBox Rac NA260A

Power on the TurboBox Rac NA260A by pressing the power button for two seconds.

8. Power On Server or Workstation

In order to let the BIOS of server or workstation identify and assign resources appropriately, make sure to power on TurboBox Rac NA260A first, and then power on server or workstation.

There is no software required for proper configuration of TurboBox Rac by server or workstation's operating system; however, as a third party PCIe card is installed in TurboBox Rac, a request for the driver of the third party PCIe card will be prompted by the operating system. Please follow the instruction provided by the third party PCIe card.

9. Remove TurboBox Rac from Server or Workstation

To remove TurboBox Rac NA260A from server or workstation, power off server or workstation first, and then power off TurboBox Rac.

10. Verify Installation

To remove TurboBox Rac NA260A from server or workstation, power off server or workstation first, and then power off TurboBox Rac.

· For Windows operating system

When you want to verify a successful installation on Windows operating system, go to My Computer and right click the icon of My Computer. Select Manage from the menu (see figure 10-1), and click Device Manager in the left side of window of Computer Management (see figure 10-2).
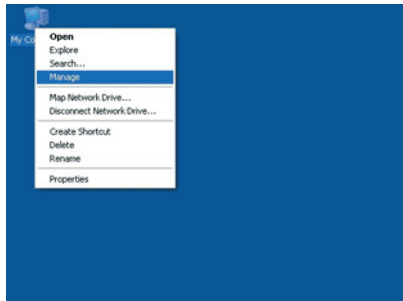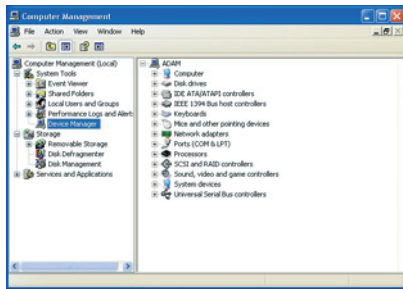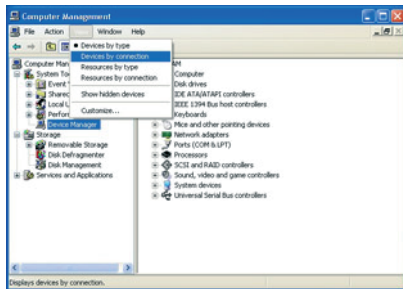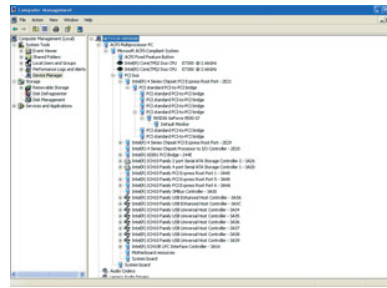
Figure 10-1

Figure 10-2

And then click View from the top side of the window, and select Devices by connection.

Open ACPI Multiprocessor PC, open Microsoft ACPI-Compliant System, open PCI bus, click PCI Express Root Port, click PCI standard PCI-to-PCI bridge, and click again PCI standard PCI-to-PCI bridge. And then you will find your third party PCIe/graphics card under PCI standard PCI-to-PCI bridge.

Note:
You may see PCI Express Root Ports with different ending numbers such as 2E21, 2E29, and 2E20. These different ending numbers indicate different PCIe slots on motherboard
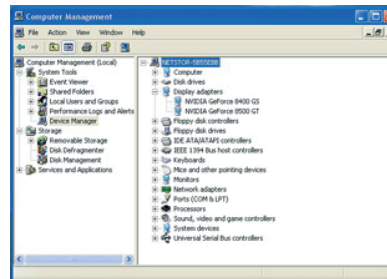

You will see six PCI standard PCI-to-PCI bridges below the PCI Express Root Port.

Note:
If there is a yellow exclamation mark in front of the third party PCIe/graphics card under PCI standard PCI-to-PCI bridge, it means the third party PCIe/graphics card is without the driver, so you have to install its driver on operating system to make it work with the server or workstation.

After the driver is installed on operating system, the third party PCIe/graphics card will work properly with the server or workstation via TurboBox Rac, and the name of the third party PCIe/graphics card will be shown under PCI standard PCI-to-PCI bridge; furthermore, the name of the third party PCIe/graphics card will also be shown in the list of Device Manager.
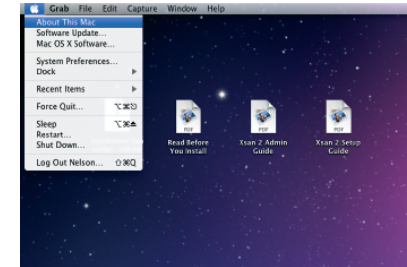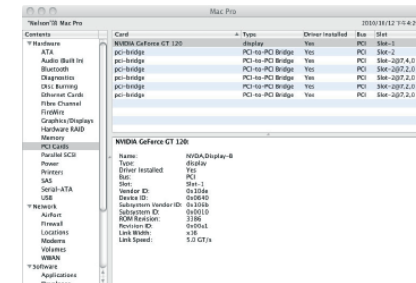

· For Mac OS

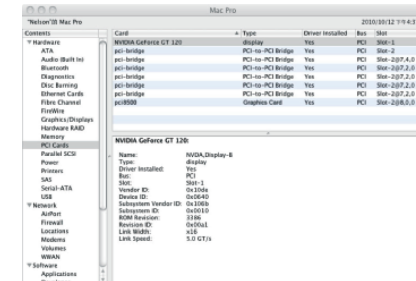To verify a successful installation on Mac OS X, select **About This Mac** under the Apple icon.

Click **More Info**… from the window.

Click **PCI Cards** from the left side of the window, and when there is no third party PCIe/graphics card plugged in TurboBox Rac, you will see six pci-bridges that indicate six PCIe slots on TurboBox Rac.

When a third party PCIe/graphics card is plugged in one of the PCIe slots on TurboBox Rac, the third party PCIe/graphics card will be shown under the six pci-bridges.

When the driver of the third party PCIe/graphics card is installed on Mac OS X, your server or workstation will begin working with the third party PCIe/graphics card on TurboBox Rac.