NA255A-G4

External PCIe 4.0 to GPU Desktop Chassis

User Manual

Second edition, Mar. 2024

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1. Unpack the NA255A-G4

The box contains the following items:

- Netstor NA255A-G4
- PCIe 4.0 ×16 host card
- Four SFF-8644 to SFF-8644 1.5-meter cables
- Power cord

2. Expansion Chassis Description

2.1 Panel Layout

4. Temperature LED

- Green – normal
- Red – over temperature (above 55°C)

3. Fan LED

- Green – normal
- Red – fan failure
  (low frequency of RPM or stop)

2. Buzzer mute button

1. Power on/off LED button

- Blue - power on

Side Note: when set at mode of powering on/off NA255A-G4 manually, to power on/off Netstor unit, press and hold the power LED button for over two seconds until the LED button shows blue light or goes off.

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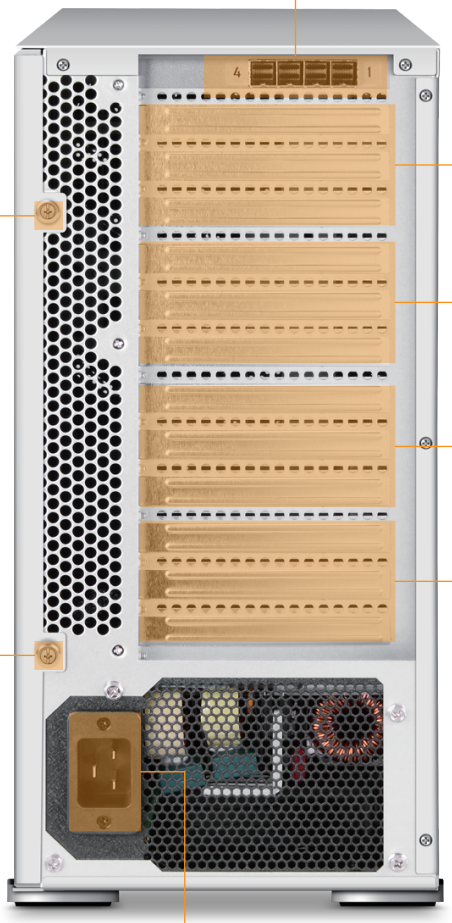
7. Four SFF-8644 connectors for host connection

- Make straight cable connection between NP970AG4-T target card in NA255A-G4 and NP970AG4-H host card in server. Do NOT make crossed cable connection.

8. Thumbscrews to loosen/ tighten the side door



6. PCIe slots

5. Power receptacle

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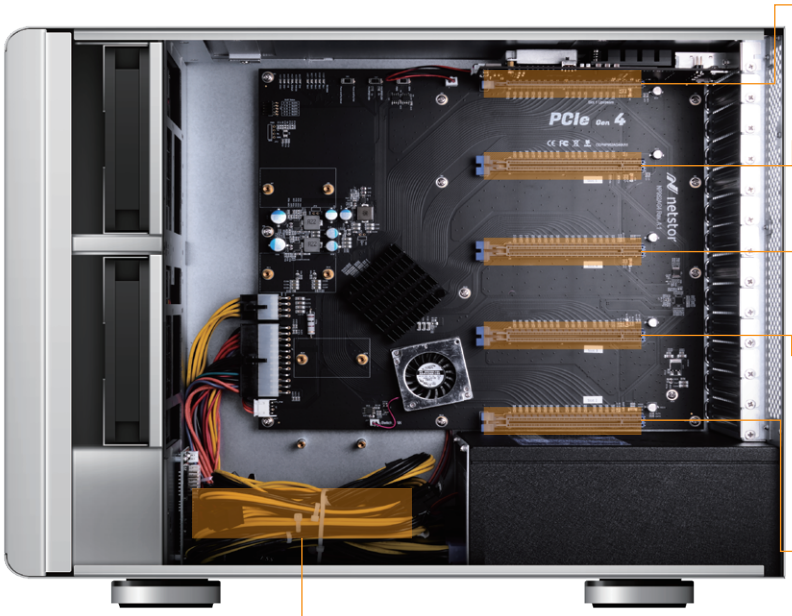
2.2 NP952AG4 Backplane Layout



1. Slot 1 (Upstream)

PCIe ×16 connector (×16 signal)

target card already installed in this slot

2. Slot 5 (Downstream)

PCIe ×16 connector (×16 signal)

3. Slot 4 (Downstream)

PCIe ×16 connector (×16 signal)

4. Slot 3 (Downstream)

PCIe ×16 connector (×16 signal)

5. Slot 2 (Downstream)

PCIe ×16 connector (×16 signal)

6. 12+4-pin (16-pin) 12VHPWR power cables for graphics cards

2.3 Switches Function on NP952AG4 Backplane

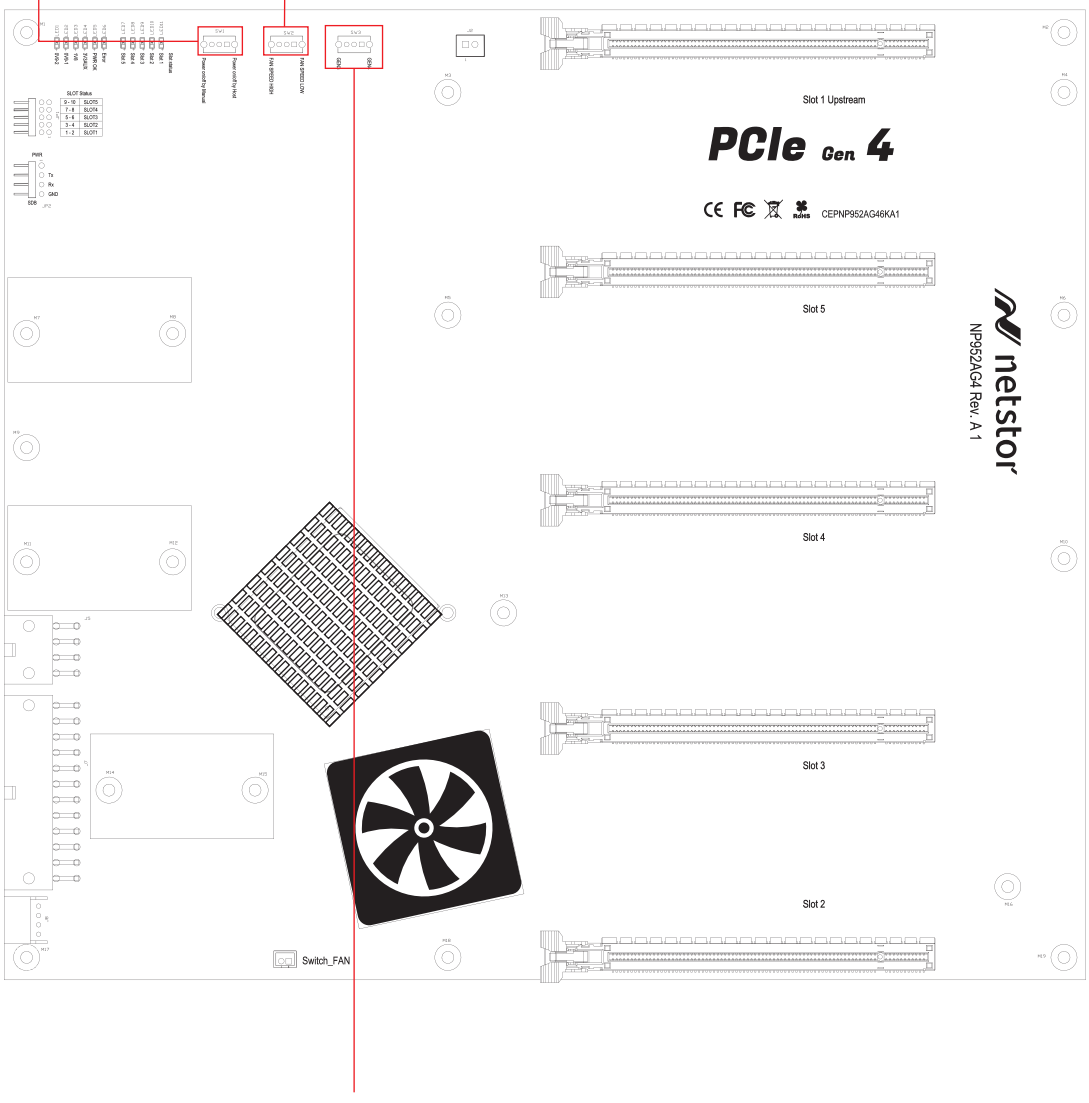
SW1

Go to Chapter 4.

- To set NA255A-G4 as power on/off by host computer, turn SW1 switch to right position labeled Power on/off by Host. (default)
- To set NA255A-G4 as power on/off manually, turn SW1 switch to left position labeled Power on/off by Manual.

SW2

- To set 4.5 x 4.5 cm cooling fan on backplane to low speed, turn SW2 switch to right position labeled FAN SPEED LOW. (default)
- To set 4.5 x 4.5 cm cooling fan on backplane to high speed, turn SW2 switch to left position labeled FAN SPEED HIGH.



SW3

Go to Chapter 3.

- To set NA255A-G4 as Gen4 mode, turn SW3 switch to right position labeled GEN4. (default)
- To set NA255A-G4 as Gen3 mode, turn SW3 switch to left position labeled GEN3.

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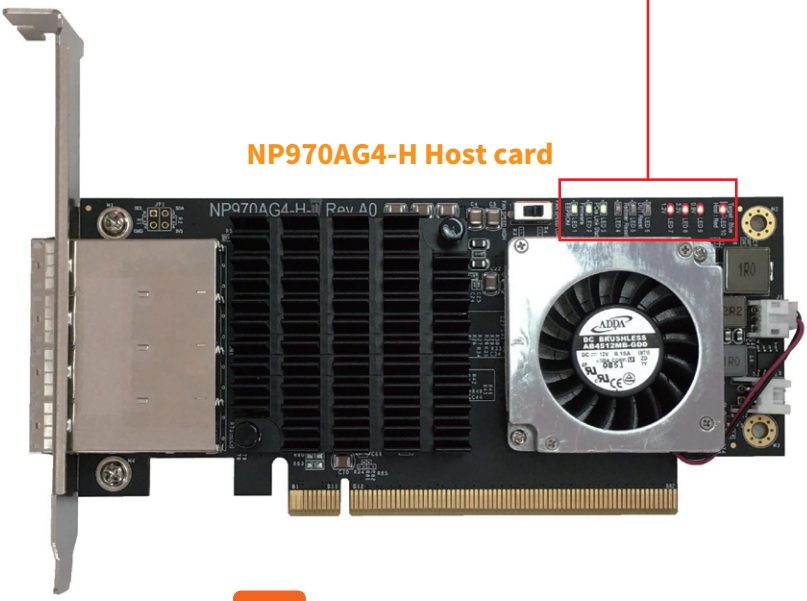
2.4 LED Status on NP970AG4-H Host card and NP970AG4-T Target card

- LED 1: Turns on when Retimer EEPROM load is complete.
- LED 2: Retimer heartbeat, flashes at 4 Hz (0.25 second for one flash) once firmware is successfully loaded.
- LED 3: PCIe link status:
  - PCIe 4.0: 4 Hz (0.25 second for one flash)
  - PCIe 3.0: 2 Hz (0.5 second for one flash)
  - PCIe 2.0: 1 Hz (1 second for one flash)
  - PCIe 1.0: 0.5 Hz (2 seconds for one flash)
- LED 4: Reserved
- LED 5: Turns on for a second when Retimer reset.
- LED 6: Turns on for a second when DUT reset.
- LED 7: Turns on when 1.2V is power good.
- LED 8: Turns on when 3.3V is power good.
- LED 9: Turns on when 0.9V is power good.
- LED 10: Host card: red light / Target card: blue light.

NP970AG4-H Target card

NP970AG4-H Host card



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3. Install Graphics/Third-party PCIe Cards in NA255A-G4

Before card installation in NA255A-G4, read through the following notice and instructions.

The computer's PCIe slot to be linked with NA255A-G4 must be identified first for the correct connection between host computer and NA255A-G4.

Two conditions A and B for connection are listed below:

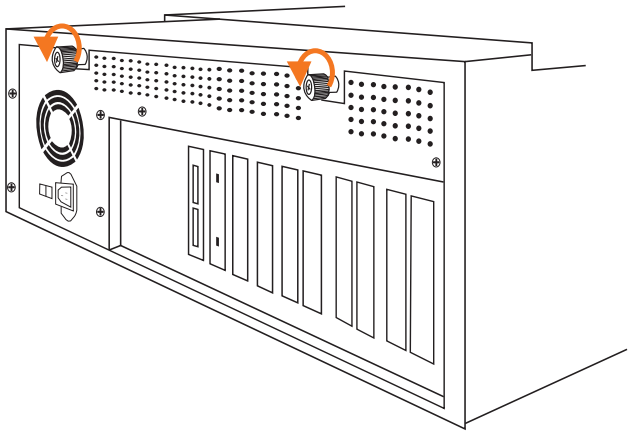
A. If computer's PCIe slot to be linked with NA255A-G4 is PCIe 4.0 ×16 or PCIe 4.0 x8, you don't need to make any change to the switch setting on NA255A-G4 backplane because NA255A-G4 is already set to work with computer's PCIe 4.0 x16/x8 slot by default.

B. If computer's PCIe slot to be linked with NA255A-G4 is PCIe 3.0 ×16 or PCIe 3.0 x8, you will need to set NA255A-G4's backplane to PCIe Gen3 to have Netstor unit be compatible with tower Mac Pro (2019) or PCIe Gen3 host computer. The method to set NA255A-G4 backplane to PCIe 3.0 is given in **section 2.3 (SW3)** in this user's manual.

3.1 Procedure for Card Installation

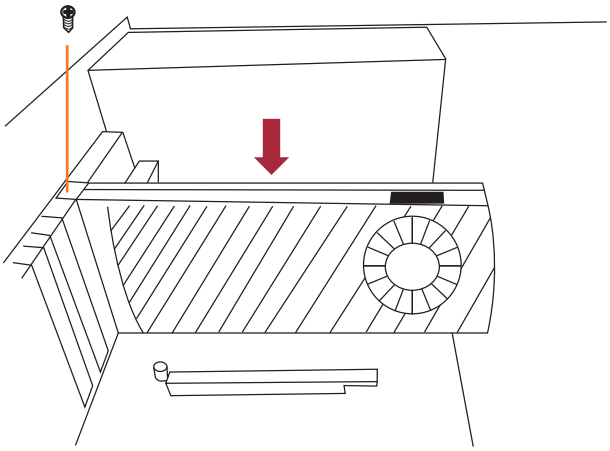
Prior to card installation, make sure NA255A-G4 is disconnected from power source to prevent electric shock or damage to graphics/third-party PCIe card.

1. Install Netstor NP970AG4-H host card into a PCIe slot on motherboard within server or host computer.
2. Loosen the two thumbscrews and remove the side door of NA255A-G4 chassis.

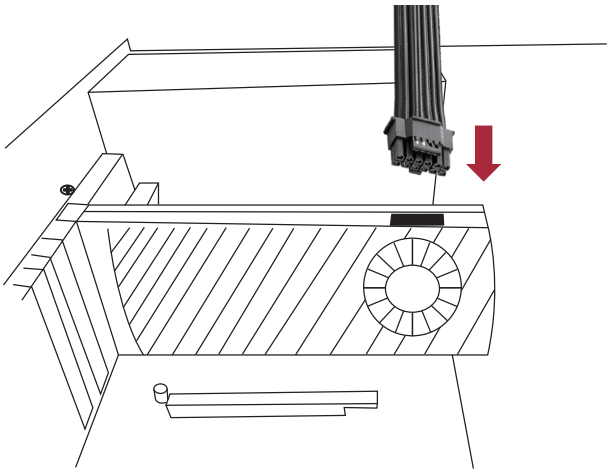


3. Remove the L shape metal bracket at rear of NA255A-G4 through loosening the screw on metal bracket by screwdriver.

4. Install one graphics/third-party PCIe card into a PCIe ×16 slot within NA255A-G4 chassis and fasten the card with screw by screwdriver.

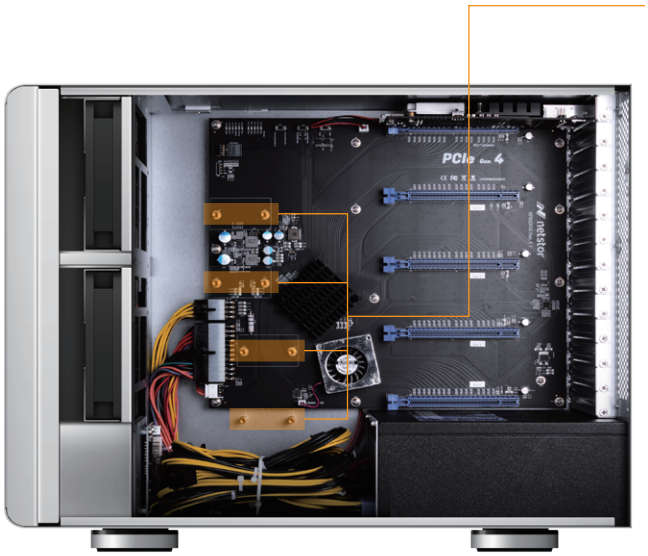


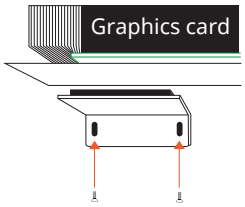
5. Graphics cards in NA255A-G4 are provided with supplementary 12+4-pin (16-pin) 12VHPWR power cables from Netstor unit's PSU for sufficient power. Up to four graphics cards are allowed to be installed in slots 2 ~ 5 within the Netstor chassis.



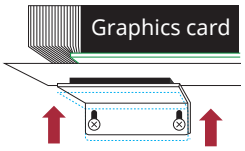
NOTICE

When long length and heavy weight graphics card is to be installed in NA255A-G4, it's **strongly recommended** the graphics card holder is utilized/installed to add stability to heavy weight GPU card within the chassis. The steps for card holder installation are given as follows:

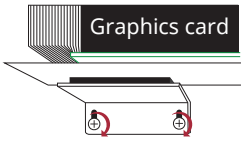




(A) Hold the supplied graphics card holder. Aim holder's two holes at the two screw openings at the two pillars within NA255A-G4 chassis, and have two screws loosely tightened to the card holder.

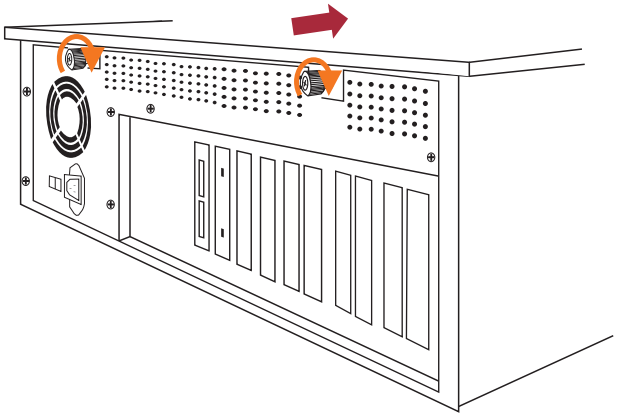


(B) Slowly push up the bottom side of the metal card holder until the top side of holder is firmly attached to graphics card's metal back plate.



(C) At this time, use a screwdriver to firmly tighten the two screws to have graphics card holder securely fastened to the inside of NA255A-G4 chassis.

6. Put the side door back to NA255A-G4, and tighten the two thumbscrews to fasten the side door with chassis.



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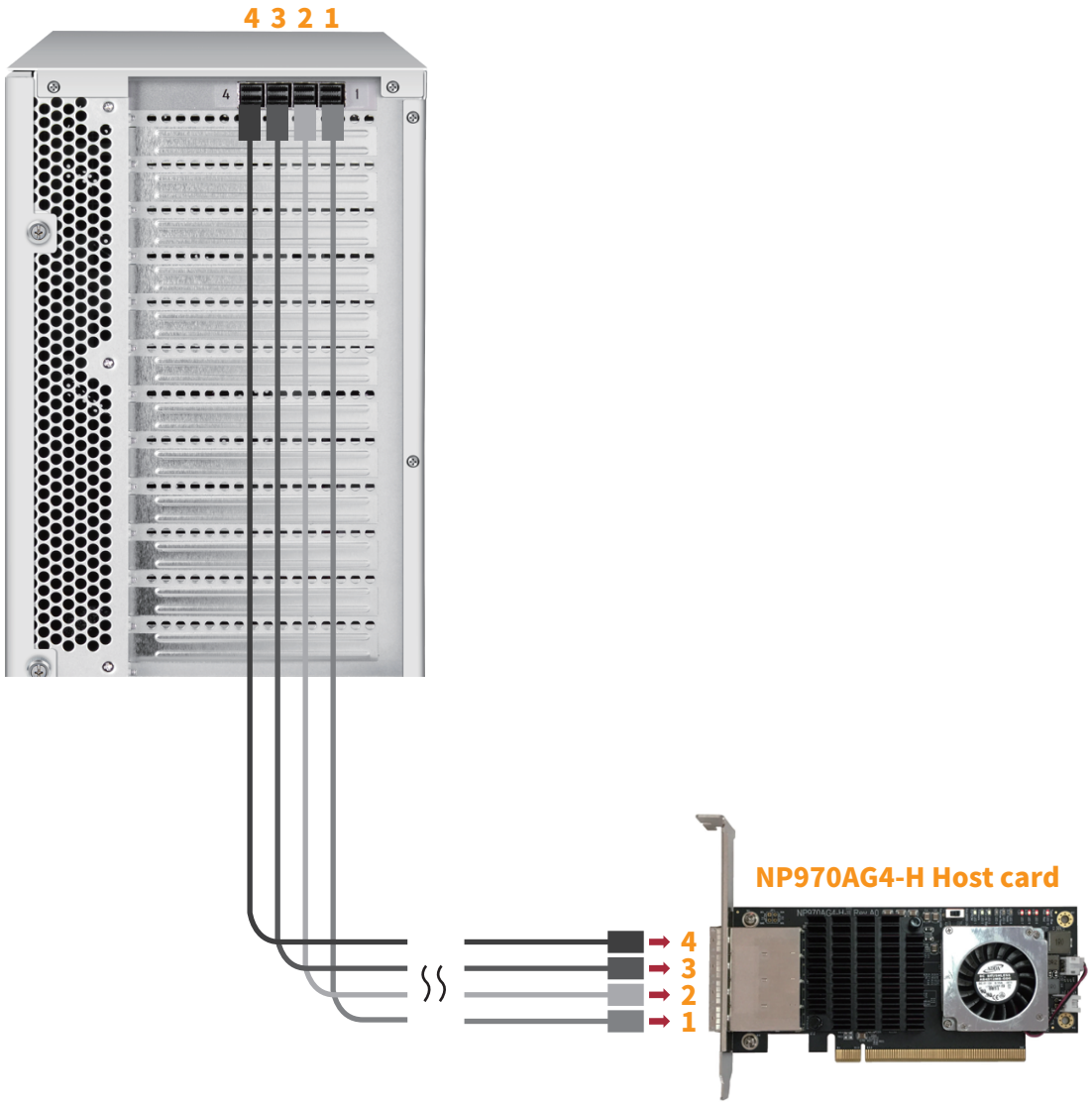
7. Connect one end of SFF-8644 to SFF-8644 data cable to connector 1 at Netstor NP970AG4-T target card at rear of NA255A-G4.

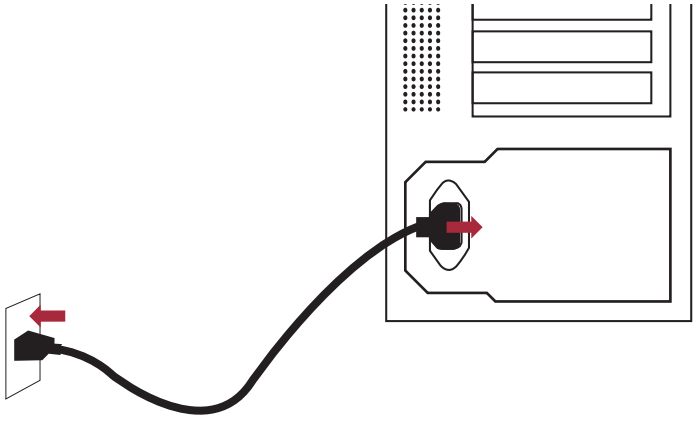
8. Connect the other end of SFF-8644 to SFF-8644 data cable to connector 1 at Netstor NP970AG4-H host card at server/host computer.



9. Repeat steps 7 and 8 for the rest of the three SFF-8644 to SFF-8644 data cables to be connected between NP970AG4-T target card in NA255A-G4 and NP970AG4-H host card in server with connector 2 to connector 2, connector 3 to connector 3, and connector 4 to connector 4.

※ **Note:** Make straight cable connection between NP970AG4-T target card in NA255A-G4 and NP970AG4-H host card in server. Do NOT make crossed cable connection.

10. Connect one end of power cord to NA255A-G4's power receptacle and the other end of power cord to grounded outlet or power strip.



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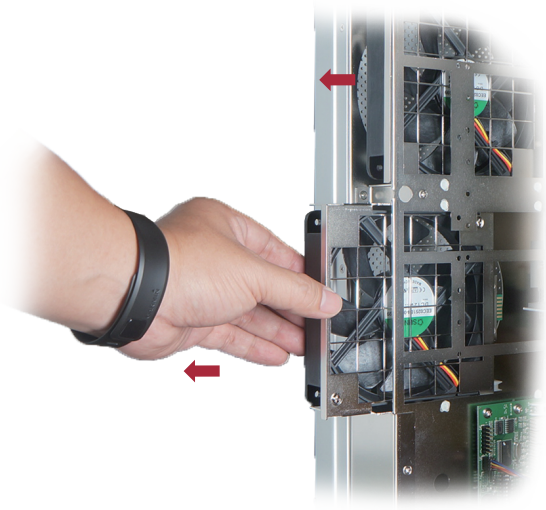
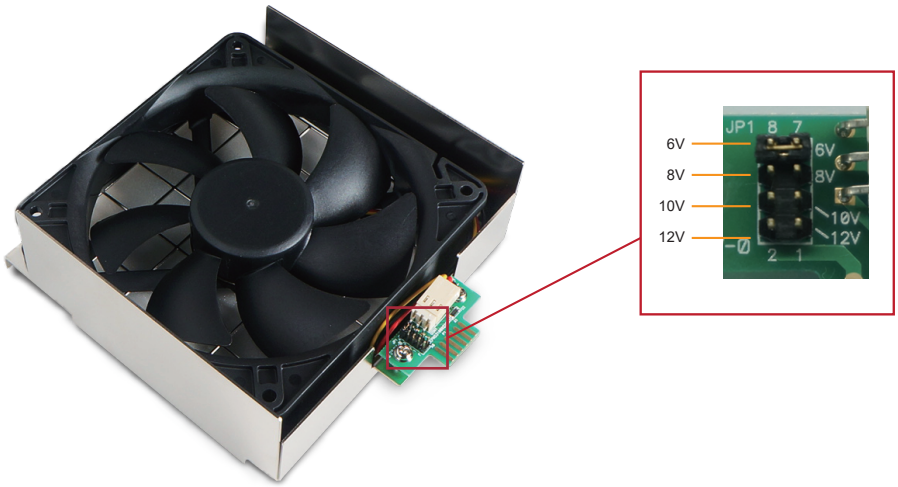
3.2 Cooling Fan Speed Adjustment

1. There are two hot-swappable 12×12 cm cooling fans for ventilation inside NA255A-G4. The cooling fans can be drawn out by pulling the L type metal handle on the fan modules.



2. The front 12×12 cm cooling fan speed can be adjusted. Pull out the fan module; there will be three sets of pins marked with 8V, 10V, and 12V from top to bottom on the fan connector board. The default setting is the jumper being placed over pin 3 and pin 4 for 10V as the most-balanced medium speed. Additionally, according to the application situation, user can set it to 12V for highest speed, or set it to 8V for lower speed.



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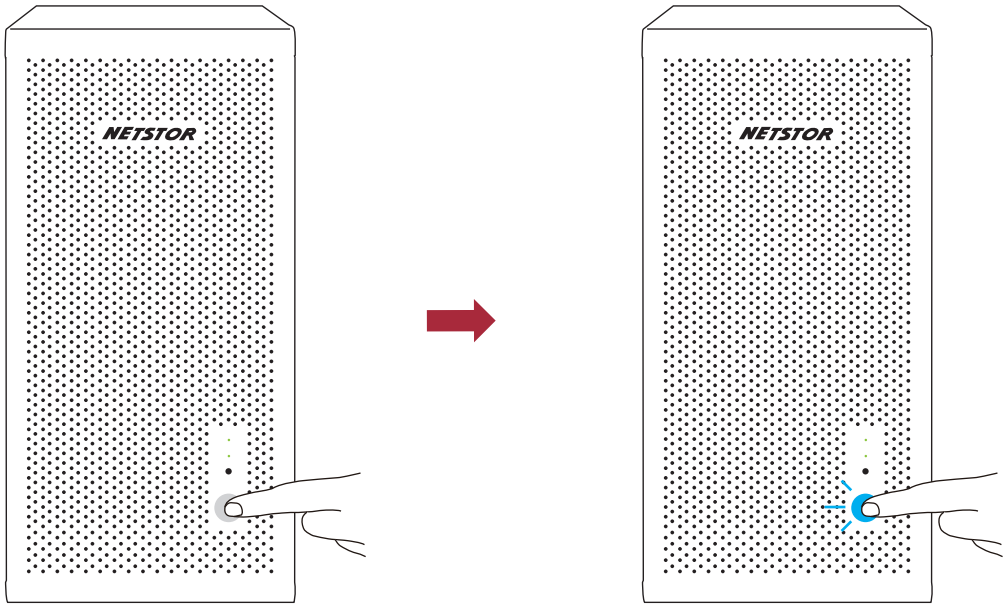
4. Powering On/Off NA255A-G4

When NA255A-G4 is set as powering on/off by host (this is the default setting), the NA255A-G4 unit will be automatically powered on and off with the host server.

Provided that NA255A-G4 is set as powering on/off manually, the standard powering on/off procedure below must be followed: **(go to Section 2.3, SW1)**:

1. Power on NA255A-G4 by pressing and holding the power LED button for over two seconds until the LED button shows blue light. In order to let server's BIOS identify and assign PCIe resources appropriately, always power on NA255A-G4 first, and then power on server.

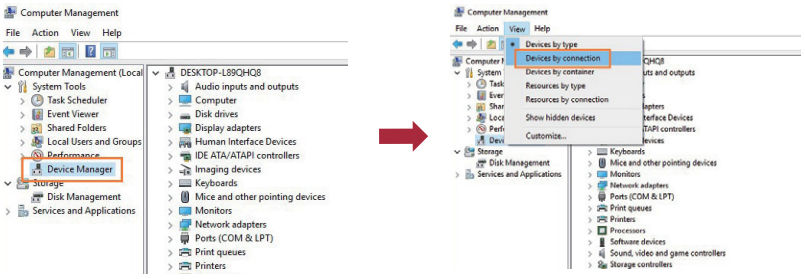


2. To disconnect NA255A-G4 from server, always power off server first, and then power off NA255A-G4. To power off NA255A-G4, press and hold the power LED button for over two seconds until LED button's blue light goes off.

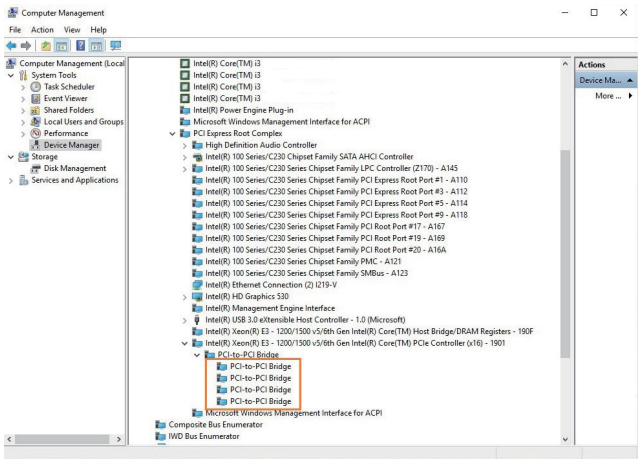
5. Verification

5.1 Windows Operating System

1. Go to Windows' Device Manager. Click **View** at the top menu bar, and select **Devices by connection**.



2. Open **ACPI x64-based PC >> Microsoft ACPI-Compliant System >> PCI Express Root Complex**. Then open **PCI Express Root Port >> PCI standard PCI-to-PCI bridge**.
   The graphics/third-party PCIe cards installed within NA255A-G4 will appear under the PCI standard PCI-to-PCI bridge.



3. There will be PCI Express Root Ports with different ending numbers like 1C10, 1C18, and 1C1A...etc. These different ending numbers mean the different PCIe slots on server motherboard.

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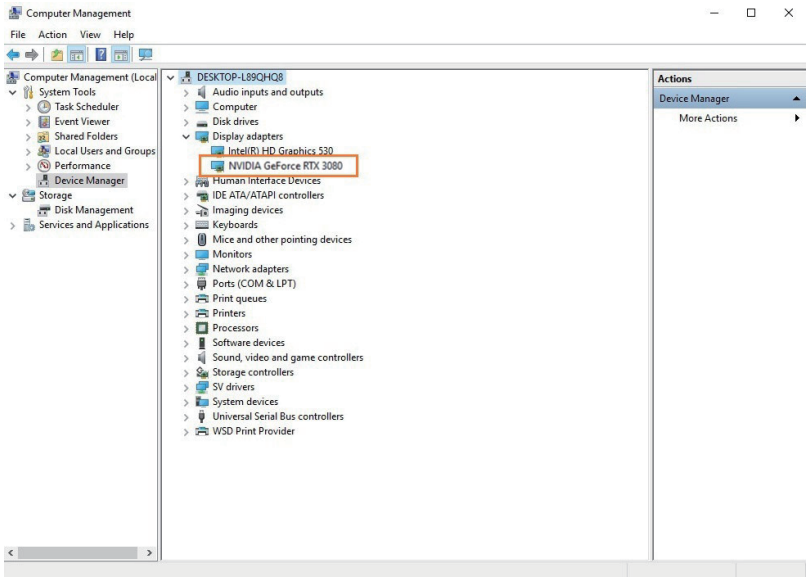
4. No software or driver is required for the NA255A-G4 itself. As a graphics/third-party PCIe card is installed in NA255A-G4, the request for the driver of the graphics/third-party PCIe card will be prompted at Windows operating system. Please follow the driver installation instructions given by the manufacturer of the graphics/third-party PCIe card to complete the driver installation.

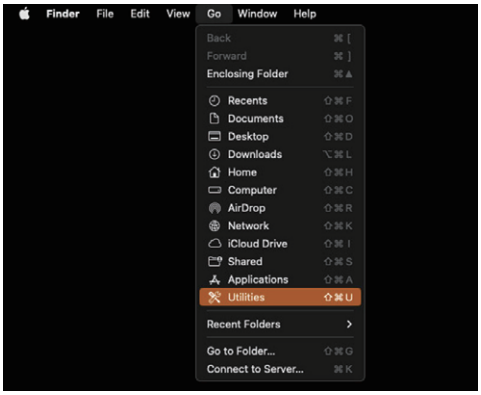
5. As the driver is installed on Windows operating system, the graphics/third-party PCIe card within NA255A-G4 will work properly with server or host computer, and the graphics/third-party PCIe card within Netstor unit will appear correctly in Windows' Device Manager as well.



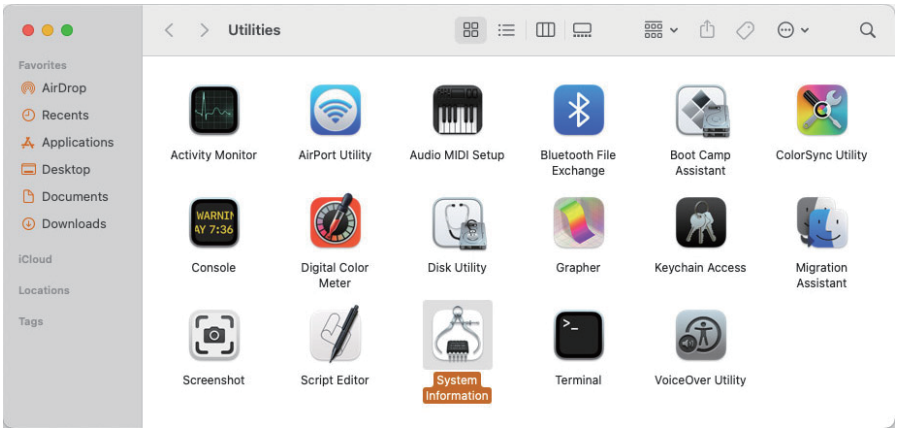
6. Whether a server motherboard supports four graphics cards does depend on the BIOS of the server motherboard. Consult with the manufacturer of server motherboard to see if BIOS's resources support four graphics cards.

5.2 macOS / tower Mac Pro

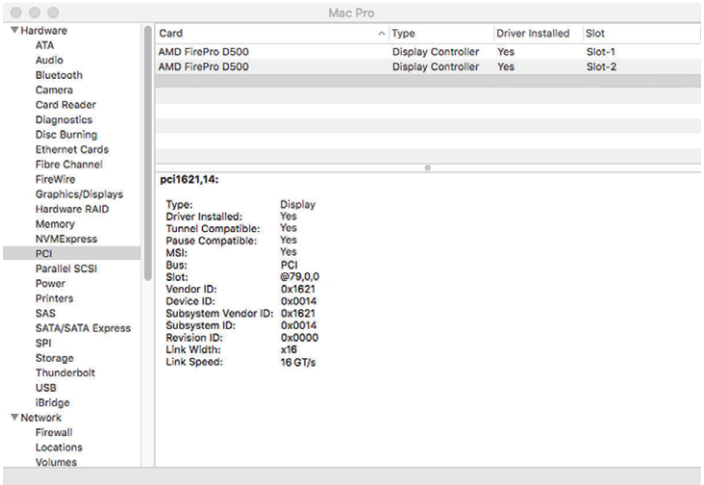
1. To check card verification at macOS of tower Mac Pro, click **Go** at the top menu bar, and select **Utilities**.



2. As pane of Utilities pops up, double click on the icon of **System Information**.



3. When at pane of System Information, click **PCI** in the left column, and it will show the graphics/third-party PCIe cards that are currently installed within the NA255A-G4 chassis.



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4. After graphics/third-party PCIe cards' drivers are installed at macOS, the graphics/third-party PCIe cards within NA255A-G4 will be ready to work with tower Mac Pro.

If you have any questions, please contact your regional distributor,
or Netstor Technology, Taiwan.

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