RACK-220GATX
2U Rackmount Chassis
Version: 1.0

Quick Installation Guide

ABOUT THE RACK-220GATX

The 2U, metal RACK-220GATX rackmount industrial chassis supports microATX motherboards. The RACK-220GATX is designed to operate reliably in industrial environments where it will be exposed to dust, wide temperature variations, and shocks and vibrations, among other things.

SPECIFICATONS

- **Form Factor:** Standard 2U, 19" wide
- **SBC Form Factor:** microATX motherboards
- **Construction:** Metal
- **Expansion Slots:** Four
- **Cooling:** 2 x 8cm fans
- **Drive Bays:**
  - 1 x 5.25" Front accessible optical drive bay
  - 1 x 3.5" Front accessible FDD (floppy disk drive) bay
  - 1 x 3.5" Internal HDD (hard disk drive) bay
- **Dimensions (DxWxH):**
  - 487.5mm x 431.0mm x 88.0mm
- **Operating Temperature:** 0°C ~50°C
- **Relative Humidity:** 10%~95%
- **Vibration:**
  - 5Hz ~ 17Hz, 0.1" double amplitude displacement
  - 17Hz ~ 640Hz, 1.5G acceleration peak to peak
- **Shock:** 10G acceleration peak to peak
- **Weight (Net/Gross):** 8.2kg/12.4kg

PACKING LIST

When unpacking the chassis, make sure the following items have been shipped.

- 1 x Quick Installation Guide
- 1 x Power cord
- 2 x Handles
- 1 x Screw set

DETAILS OF INCLUDED SCREWS

The attached screw set includes five types of screws. Screws used for chassis installation are shown below.

1 2 3 4 5

Peripherals/Parts	Screw Label (refer to the picture above)
5.25" Disk Drives	5
3.5" FDD	5
3.5" HDD	1
2.5" HDD	4
Power Supply Unit	1
Rackmount Bracket	3

Table 1: Screws for Peripheral/Parts

DIMENSION DRAWING

The dimensions of RACK-220GATX are shown below.

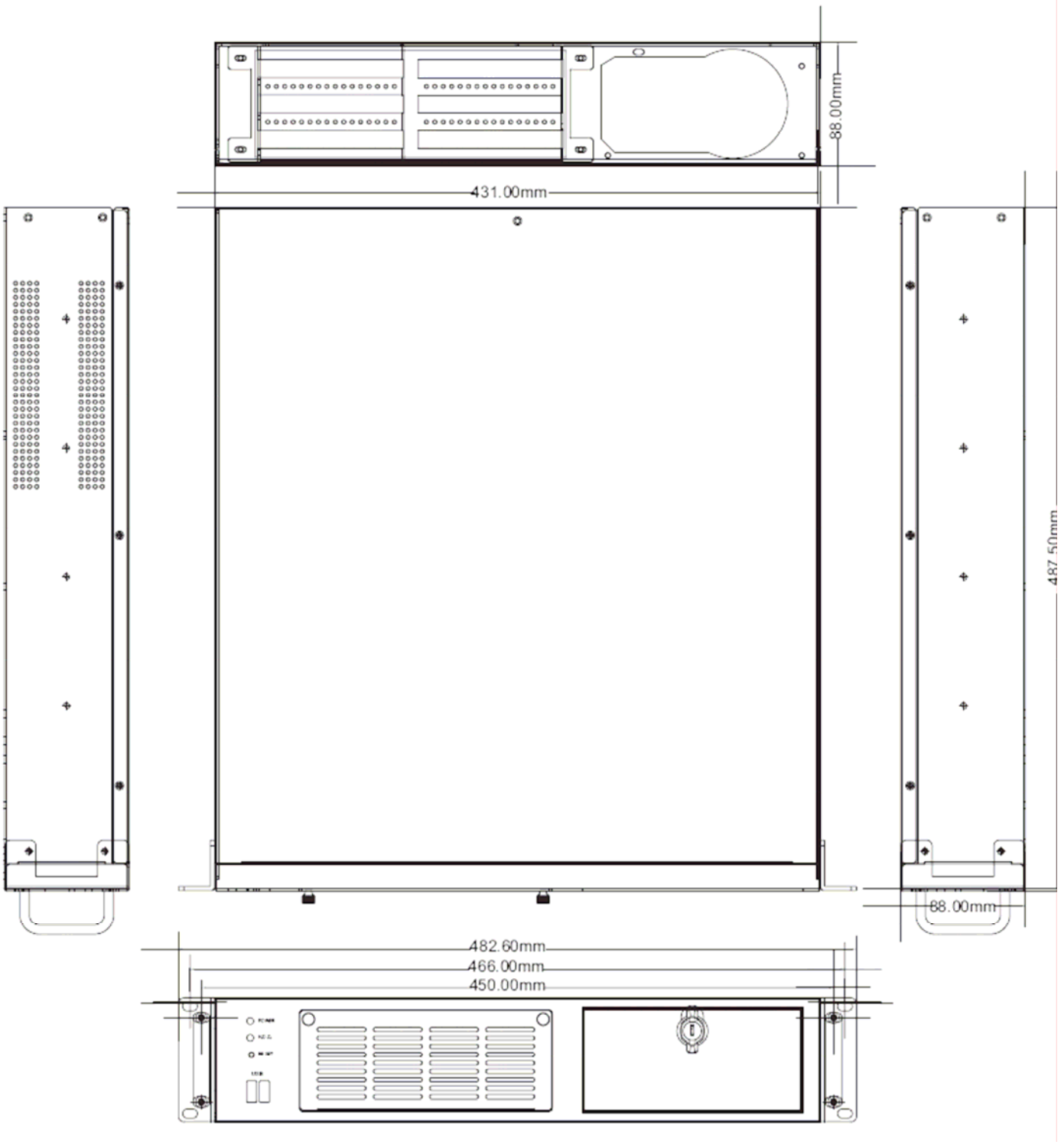


Figure 1: Dimension Drawing (measurement units: millimeter)

INSTALLATION STEPS

To install the RACK-220GATX chassis, the following installation steps must be completed:

Step 1: Unpack the chassis.

Step 2: Remove the top cover.

Step 3: Install the PSU.

Step 4: Install the motherboard.

Step 5: Install the PCI expansion cards.

Step 6: Install the disk drives.

Step 7: Connect the cables.

Step 8: Connect the PSU cable and interface cable.

Step 9: Reinstall the top cover.

Step 10: Install the front handles.

The installation steps outlined above are described in detail below. Please refer to the relevant section.

STEP 1: UNPACK

The RACK-220GATX is shipped in a plastic bag that is placed inside a cardboard box. Accessory items are also shipped with the chassis. When unpacking the chassis please do the following:

- Make sure all the items listed in the **PACKING LIST** section are present.
- Make sure the chassis is not damaged in any way.

STEP 2: REMOVE THE TOP COVER

The top cover is secured to the chassis with seven retention screws, three on each side of the chassis and one at the back of the chassis. To remove the top cover, please follow the steps below.

Step 1: Remove all seven top cover retention screws. Remove three retention screws from each side of the chassis and one retention screw from the top, at the rear, of the cover.

Figure 3: Top Cover Retention Screws

Step 2: Slide the cover backwards and then lift the cover up gently.

Figure 2: Remove the Top Cover

STEP 3: INSTALL THE POWER SUPPLY UNIT (PSU)

Once the top cover has been removed, install a user supplied PSU. Compatible IEI PSUs are listed in **Table 2** on page 4.

The PSU is installed at the rear of the chassis and secured to the chassis with four retention screws. To install a compatible PSU, please follow the steps below.

Step 1: Correctly position the PSU at the rear of the chassis making sure the power switch and the cable socket both face outwards.

Step 2: Once the PSU has been correctly positioned, secure the PSU to the chassis by inserting four retention screws from the rear of the chassis.

Figure 4: Insert Four PSU Retention Screws

Model No.	Input	Type	Watt	Output Range						
				+3.3V	+5V	+12V1	+12V2	-5V	-12V	+5Vsb
ACE-832AP-RS	AC	ATX	300W	28A	30A	15A	N/A	0.3A	0.8A	2A
ACE-841AP-S-RS	AC	ATX	400W	28A	33A	20A	N/A	0.5A	1A	2A
ACE-850AP-RS	AC	ATX	500W	27A	29A	18A	18A	0.3A	0.8A	2A

Table 2: Compatible IEI PSUs.

STEP 5: MOTHERBOARD INSTALLATION

To install the motherboard please follow the instructions below.

Step 1: Locate the I/O shield that should have come with the motherboard. An example of a microATX motherboard I/O shield was shown below.

Figure 5: Motherboard I/O Shield

Step 2: Locate the preformed hole reserved for the I/O shield at the back of the chassis.

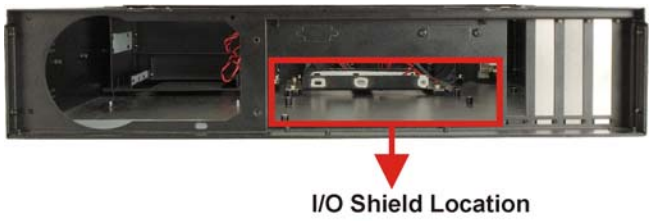


Figure 6: Motherboard I/O Shield Location

Step 3: Correctly align the I/O shield with the preformed space at the back of the chassis. Then, gently push the I/O shield into the space. The I/O shield should be securely clipped into the preformed space.

Figure 7: Motherboard I/O Shield Installed

Step 4: Next, place the motherboard into the chassis. Make sure that the external peripheral connectors on the microATX motherboard are correctly aligned with their respective preformed spaces on the I/O shield.

Step 5: Make sure the microATX motherboard retention screw holes are properly aligned with the retention screw holes in the base of the chassis.

Step 6: Insert the retention screws to secure the microATX motherboard to the chassis.

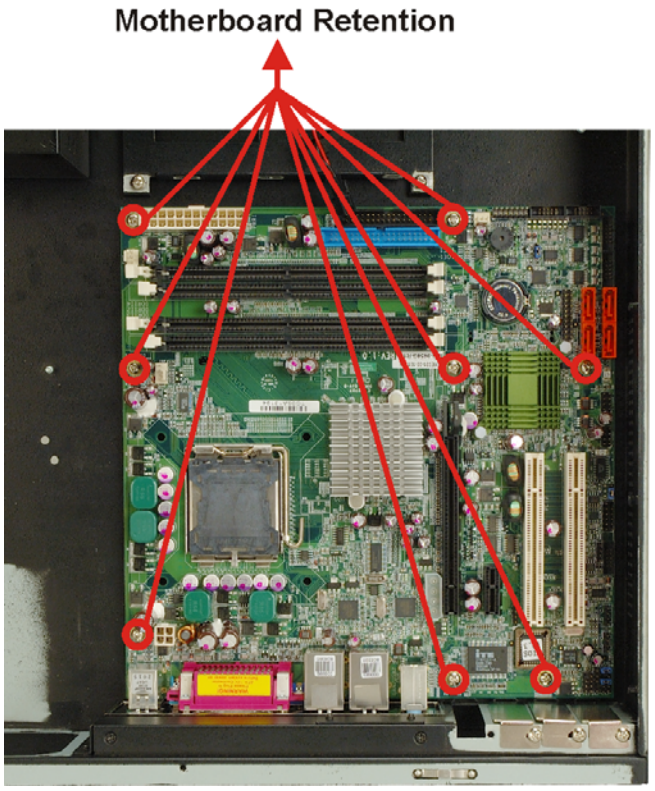


Figure 8: Motherboard Retention Screws

STEP 6: PCI/PCIe EXPANSION CARD INSTALLATION

The RACK-220GATX supports up to four PCI/PCIe expansion cards.

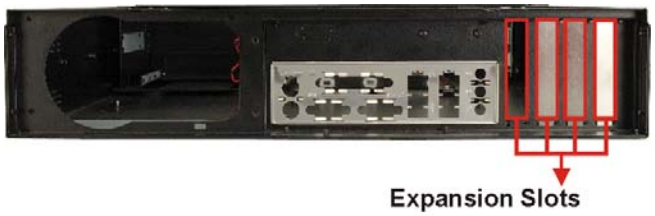


Figure 9: PCI/PCIe Expansion Slots

If a PCI expansion card or a PCIe expansion card is being installed please follow the instructions below.

Step 1: Remove the slot cover at the back of the backplane bracket. To do this, remove the slot cover retention screw on the side of the slot cover.

Figure 10: PCI/PCIe Expansion Slot Retention Screws

Step 2: Slide the PCI/PCIE expansion card into a reserved PCI/PCIE socket on the backplane.

Step 3: To secure the PCI/PCIE expansion card, reinsert the previously removed slot cover retention screw.

STEP 8: DISK DRIVES INSTALLATION

The RACK-220GATX chassis can support

- o 1 x FDD, 1 x HDD and 1 x optical drive, or
- o 2 x HDDs and 1 x optical drive

One 3.5" drive (FDD or HDD) and one optical drive are mounted into a front accessible bracket. One HDD is installed into an internal 3.5" drive bracket. To install the drives please follow the steps outlined in the sections below.

STEP 8.1: INTERNAL 3.5" HDD INSTALLATION

To install an HDD in the internal 3.5" HDD bracket, please follow the steps below.

Step 1: First remove the internal 3.5" HDD bracket by removing the four retention screws that attach the internal 3.5" HDD bracket to the base of the chassis.

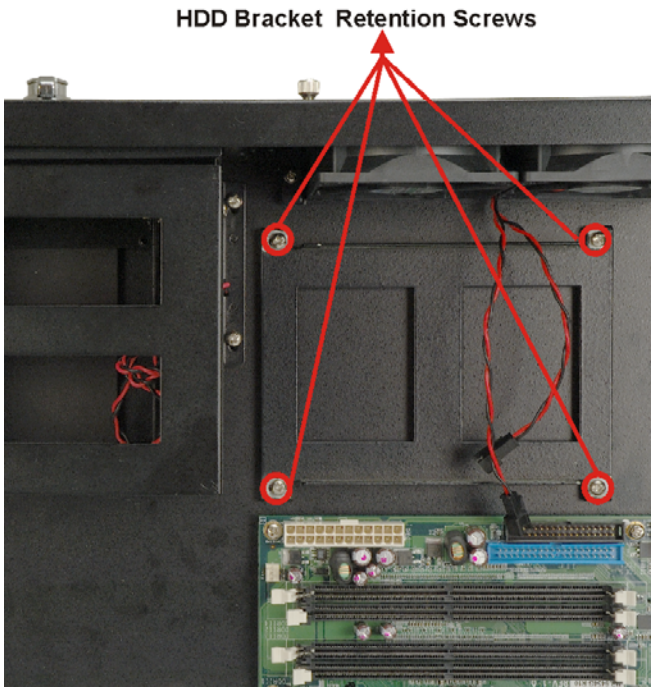


Figure 11: Four Internal 3.5" HDD Bracket Retention Screws

Step 2: Correctly position the HDD into the bracket. Make sure the six retention screw holes in the HDD bracket are all aligned with the retention screw holes in the HDD, and that the HDD PCB board is against the bracket surface.

Step 3: To secure the HDD to the bracket, insert four retention screws, two on each side.

Figure 12: Insert HDD Retention Screws

Step 4: Once the HDD is secured, the HDD bracket can be reinstalled. Correctly position the bracket making sure the power connector and the IDE/SATA connector of HDD face the backplane bracket and reinsert the four previously removed retention screws.

STEP 8.2: FDD INSTALLATION IN THE MAIN BRACKET

The main drive bracket of the RACK-220GATX chassis contains a front accessible FDD drive bay. To install a FDD in the 3.5" front accessible drive bay, please follow the steps below:

Step 1: Remove the main drive bracket by removing the four retention screws that connect it to the chassis.

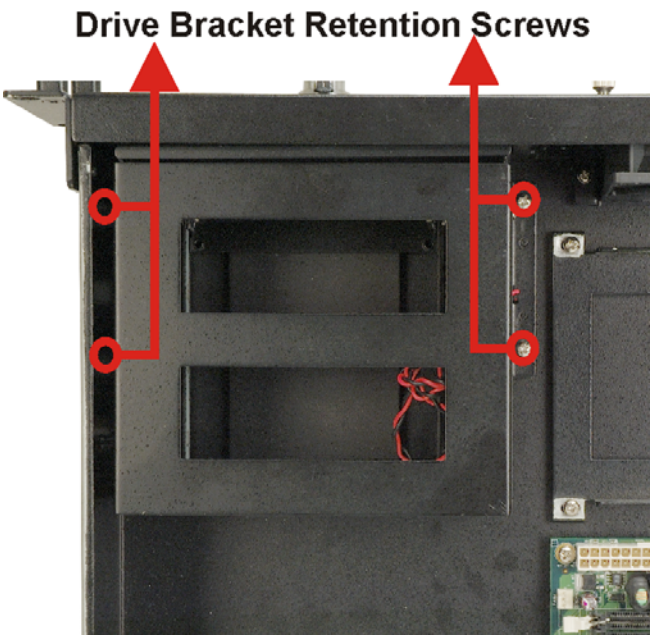


Figure 13: Four Main Drive Bracket Retention Screws

Step 2: Remove the front cover of the 3.5" drive bay by removing the two front cover retention screws, one on each side.

Figure 14: Front Accessible 3.5" Drive Bracket Front Cover Retention Screws

Step 3: Correctly position a 3.5" drive into the correct bracket locations. Make sure the power connector and the IDE/SATA connector are at the rear of the main bracket.

Step 4: The FDD is secured with four retention screws, two on each side.

Figure 15: Insert Four Retention Screws into FDD

Step 8.3: Optical Drive Installation in the Main Bracket

The main drive bracket of RACK-220GATX chassis contains a front accessible 5.25" optical drive bay. To install an optical drive in the 5.25" front accessible drive bay, please follow the steps below:

Step 1: Remove the main drive bracket by removing the four retention screws that connect it to the chassis.

Step 2: Remove the front cover of the 5.25" drive bay by removing the four front cover retention screws, two on each side.

Figure 16: 5.25" Optical Drive Bay Front Cover Retention Screws

Step 3: Correctly position a 5.25" optical drive into the optical drive bay. Make sure the power connector and the IDE/SATA connector are at the rear of the main bracket.

Step 4: The 5.25" optical drive is secured with four retention screws, two on each side.

Figure 17: Insert Four Retention Screws into the 5.25" Optical Drive

Step 5: Reinstall the main drive bracket and reinsert the four previously removed retention screws.

STEP 9: CABLING

The RACK-220GATX front bezel contains LEDs, USB ports and buttons listed below.

- 1 x Power LED

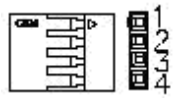
- o 1 x HDD LED
- o 1 x Power switch
- o 1 x Reset button
- o 2 x USB ports

These components are all connected to the motherboard with cables. To correctly connect these cables, please refer to the technical documentation that came with the motherboard. The connectors that are provided with the chassis are listed below.

No.	Name
1	 Power LED cable
1	 Reset Switch cable
1	 HDD LED cable
1	 Power switch cable
2	 USB cable

Table 3: Chassis Connectors

The pin definitions for the USB cable are shown below



PIN No.	Description	Color
1	+5V	Red
2	D-	Dark Yellow
3	D+	Yellow
4	GND	Brown

Table 4: USB Cable Pinout

STEP 10: PSU CABLE AND INTERFACE CABLE CONNECTIONS

To connect the power and ribbon cables please follow the instructions below.

Step 1: Connect the PSU cables from the PSU to the backplane, full-size motherboard, HDD, FDD, cooling fan and optical drives power connector.

Step 2: The drive interface connectors must be connected to the motherboard.

STEP 11: COVER REINSTALLATION

After the above procedures have been completed, the cover can be reinstalled. To do this, slide the cover back over the chassis and reinsert the seven previously removed retention screws.

STEP 12: FRONT HANDLE INSTALLATION

Two handles are shipped with the RACK-220GATX chassis. The handles are installed on the sides, at the front of the chassis. Each handle is secured to the chassis with four retention screws. To install the handles, please follow the steps below:

Step 1: Align the retention screw holes on the side of the chassis with the retention screw holes in the handle.

Step 2: Insert two retention screws for each handle.

Figure 18: Insert Two Retention Screws for Each Handle

CHASSIS MANTENANCE

■ FAN REPLACEMENT

NOTE:

Please ensure that the power of the computer is switched off before replacing a defective cooling fan.

Two 8.0cm cooling fans are secured to the fan bracket inside the RACK-220GATX chassis. To replace the fan, please follow the steps below.

Step 1: Remove the top cover. (Please refer to **STEP 2: REMOVE THE TOP COVER**)

Step 2: To remove the fan bracket, remove two fan bracket retention screws on the base of the chassis.

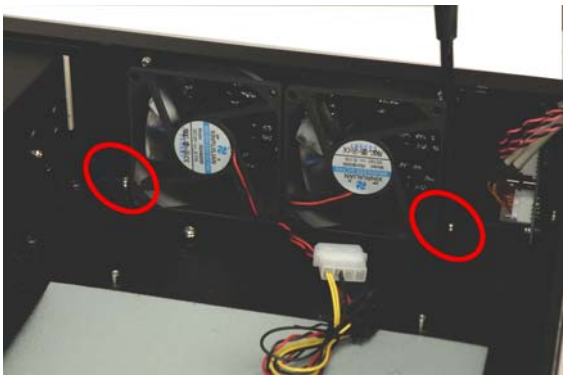


Figure 19: Remove the Two Fan Bracket Retention Screws on the Base of the Chassis

Step 3: Unplug the fan power cable.Remove two fan retention screws from the fan that must be replaced.

Figure 20: Locations of Fan Retention Screws

Step 4: Replace the fan and reinsert the two previously removed fan retention screws.

Step 5: Reinstall the fan bracket and reinsert the two previously removed fan bracket retention screws.

■ FAN FILTER REPLACEMENT

To replace the fan filter, please follow the steps below.

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Step 1: Loosen the two thumbscrews to open the fan filter cover from the left side of the chassis.

Figure 21: Loosen the Two Thumbscrews on Fan Filter Cover

Step 2: Replace the fan filter pad inside.

Step 3: Reinstall the fan filter cover and fasten the two previously loosened thumbscrews.

■ CABINET INSTALLATION

Supporting rails, rack trays, or slide rails can be implemented using the mounting holes on the sides of the chassis. The four mounting holes in the two handles on the sides of the chassis are used to secure the chassis to the front rack posts in the rack cabinet to prevent the chassis from falling forwards.

Figure 22: Four Mounting Holes in the Two Front Handles

NOTE:

If the system is running critical applications, please find the appropriate time to backup data and properly shut down the system.