

RACK-1150G

1U Rackmount Chassis

Version: 1.0

Quick Installation Guide



ABOUT THE RACK-1150G

The 1U, metal RACK-1150G AT/ATX compatible rackmount industrial chassis 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 1U, 19" wide
- **SBC Form Factor:** Full-size, slot CPU cards
- **Construction:** Metal
- **Slots Number:** 3-slot
- **Cooling:** 2 x 4cm front fans
1 x 4cm rear fan
- **Drive Bays:**
 - o 1 x 5.25" Front accessible optical drive bay
 - o 1 x 3.5" Internal HDD (hard disk drive) bay
- **Dimensions (DxWxH):**
 - o 449mm x 431mm x 44mm
- **Operating Temperature:** 0~40°C
- **Relative Humidity:** 5~95%
- **Vibration:**
 - o 5 to 17Hz, 0.1" double amplitude displacement
 - o 17 to 640Hz, 1.5G acceleration peak to peak
- **Shock:** 10G acceleration peak to peak

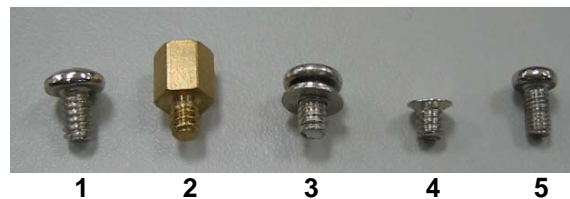
PACKING LIST

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

- 1 x Quick Installation Guide
- 1 x Power cord
- 2 x Rackmount handles
- 1 x Screw set
- 1 x CPU shock absorber

DETAILS OF INCLUDED SCREWS

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



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
Backplane	3
	2

Table 1: Screws for Peripheral/Parts

DIMENSION DRAWING

The dimensions of RACK-1150G are shown below.

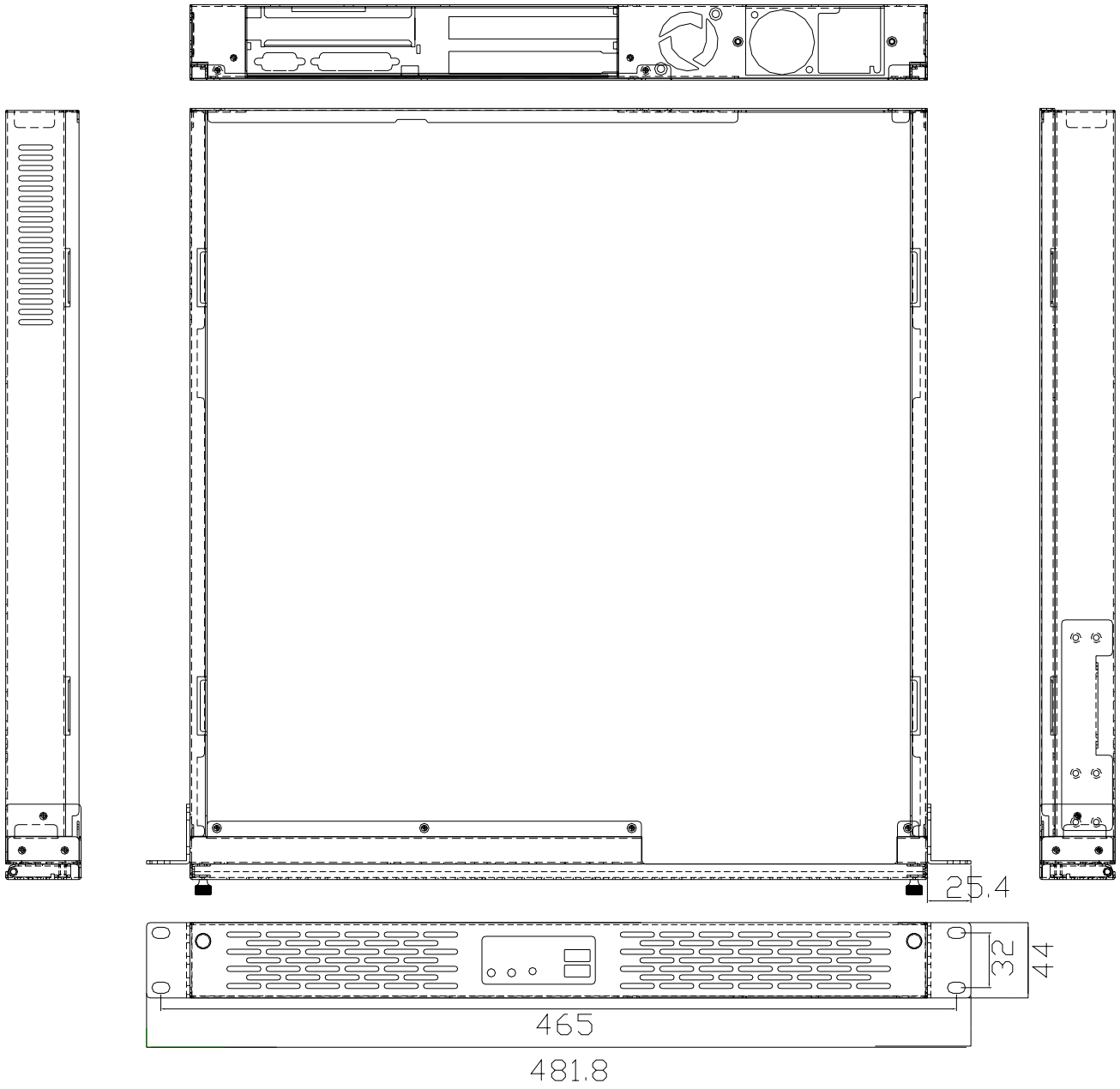


Figure 1: Dimension Drawing (measurement units: millimeter)

INSTALLATION STEPS

To install the RACK-1150G 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 backplane.
- Step 5:** Install the CPU card.
- Step 6:** Install the PCI and ISA expansion cards.
- Step 7:** Install the backplane bracket.
- Step 8:** Install the optical drive.
- Step 9:** Install the HDD (hard disk drive).
- Step 10:** Connect the cables.
- Step 11:** Reinstall the top cover.
- Step 12:** 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-1150G is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When the chassis is unpacked, make sure:

- All the items listed in the **PACKING LIST** section are present.
- The chassis has not been damaged in any way.

STEP 2: REMOVE THE TOP COVER

The top cover is secured to the chassis with six retention screws, four on the top of the chassis and two at the rear of the chassis. To remove the top cover, please follow the steps below.

- Step 1:** Remove all six top cover retention screws. Remove four retention screws from the top, at the front, of the chassis and two from the rear of the cover.



Figure 2: Top Cover Retention Screws at the Front



Figure 3: Top Cover Retention Screws at the Rear

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



Figure 4: Slide the Top Cover Backwards

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**.

To install a compatible PSU, please follow the steps below:

- Step 1:** Remove the PSU bracket by removing the three PSU bracket retention screws, two from the rear and one from the bottom surface of the chassis.



Figure 5: PSU Bracket Retention Screws at the Rear



Figure 6: PSU Bracket Retention Screw at the Bottom Surface

- Step 2:** Mount the PSU onto the PSU bracket. Make sure the PSU fan and the power socket are installed into the corresponding holes in the rear of the PSU bracket.

- Step 3:** To secure the PSU to the PSU bracket, insert three retention screws into the rear and two into the front of the PSU.

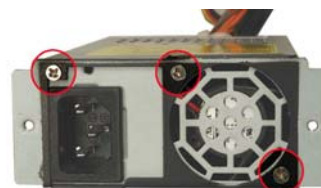


Figure 7: PSU Retention Screws at the Rear

Model No.	Input	Type	Watt	Output Range						
				+3.3V	+5V	+12V1	+12V2	-5V	-12V	+5Vsb
ACE-816AP-RS	AC	AT	150W	10A	14A	4.2A	N/A	N/A	0.3A	2A
ACE-4518AP-RS	AC	ATX	180W	16.8A	12A	10A	N/A	N/A	0.8A	2A
ACE-4520C-RS	DC 24V	ATX	200W	12A	12A	16A	N/A	N/A	0.5A	2A
ACE-4525AP-RS	AC	ATX	250W	16A	16A	16A	16A	N/A	0.5A	2.5A

Table 2: Compatible IEI PSUs.

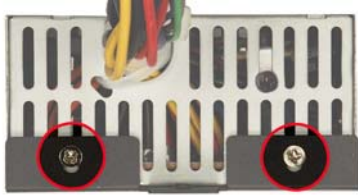


Figure 8: PSU Retention Screws at the Front

- Step 4:** Reinstall the PSU bracket with the PSU. Make sure the power socket and the PSU fan face outwards.
- Step 5:** To secure the PSU bracket to the chassis, reinsert the three previously removed retention screws.

The RACK-1150G chassis is shipped with an optional PSU bracket for the ACE-4525AP-RS PSU. To install the ACE-4525AP-RS PSU, please follow the steps outlined below:

- Step 1:** Remove the PSU bracket by removing three PSU bracket retention screws, two rear retention screws and one internal retention screw.



Figure 9: PSU Bracket Retention Screws at the Rear



Figure 10: PSU Bracket Retention Screw on the Bottom Surface

- Step 2:** Remove the ACE-4525AP-RS PSU clamp by removing the two PSU clamp retention screws.



Figure 11: ACE-4525AP-RS PSU Clamp Retention Screws

- Step 3:** Attach the ACE-4525AP-RS PSU clamp to the front, at the bottom, of the ACE-4525AP-RS PSU.
- Step 4:** Align the two ACE-4525AP-RS PSU clamp retention screw holes with the two retention screw holes at the front of the ACE-4525AP-RS PSU.
- Step 5:** To secure the ACE-4525AP-RS PSU clamp to the ACE-4525AP-RS PSU, insert two retention screws into the front of the ACE-4525AP-RS PSU.

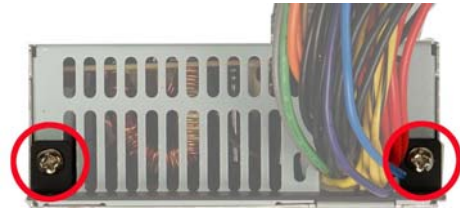


Figure 12: ACE-4525AP-RS PSU Retention Screws at the Front

- Step 6:** Mount the ACE-4525AP-RS PSU onto the base, at the rear, of the lower compartment. Make sure the power socket and the PSU fan face the rear of the chassis.
- Step 7:** Align the two rear PSU retention screw holes with the two retention screw holes at the rear of the lower compartment.
- Step 8:** To secure the PSU to the chassis, insert two retention screws into the rear of the ACE-4525AP-RS PSU and reinsert the two previously removed ACE-4525AP-RS PSU clamp retention screws.

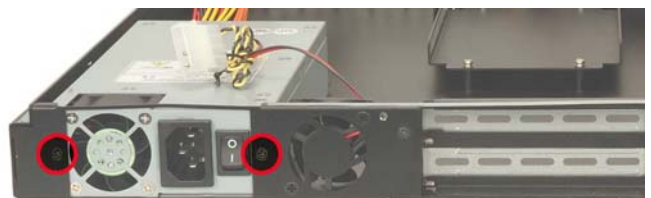


Figure 13: ACE-4525AP-RS PSU Retention Screws at the Rear

STEP 4: BACKPLANE INSTALLATION

The RACK-1150G chassis is compatible with the IEI backplane PCI-2SD2-RS-R30. The details of the backplane are shown below:

- o SBC Type: PICMG 1.0
- o PCI: R2
- o PSU: ATX

The backplane is installed into a backplane bracket. To install a backplane please follow the instructions below.

Step 1: Remove the backplane bracket by removing the four backplane bracket retention screws, two rear and two internal retention screws.



Figure 14: Rear Backplane Bracket Retention Screws



Figure 15: Internal Backplane Bracket Retention Screws

Step 2: Slide the backplane bracket to the front of the chassis and lift it up gently.

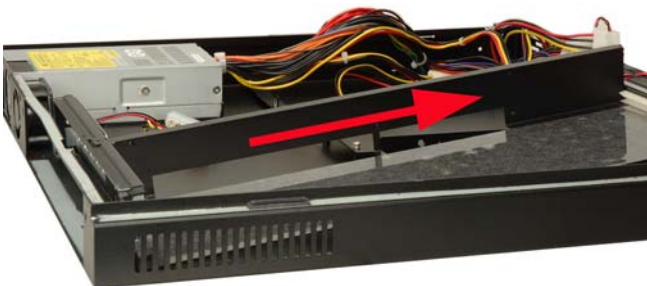


Figure 16: Slide the Backplane Bracket to the Front of the Chassis

Step 3: Mount the backplane onto the five predrilled elevated retention screw holes on the right side of the backplane bracket. Make sure the slot socket reserved for CPU card faces the left side of the backplane bracket.



Figure 17: Predrilled Elevated Retention Screw Holes

Step 4: Before the backplane is installed, make sure the PCI and ISA sockets reserved for the CPU card are installed into the corresponding holes in the backplane bracket.

Step 5: To secure the backplane to the backplane bracket, insert five retention screws.



Figure 18: Backplane Retention Screws



Figure 19: CPU Card Socket

STEP 5: CPU CARD INSTALLATION

Install the CPU card before backplane bracket is reinstalled. To install the CPU card please follow the instructions below.

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



Figure 20: Remove the Slot Cover Retention Screw

Step 2: Slide the CPU card into the socket on the backplane reserved for the CPU card. Make sure the back edge of the CPU card slots into the corresponding plastic card guide at the front of the backplane bracket.

Step 3: To secure the CPU card, reinsert the previously removed slot cover retention screw.



Figure 21: Secure the CPU Card to the Backplane Bracket

Step 5: Insert the two previously removed CPU card shock absorber retention screws

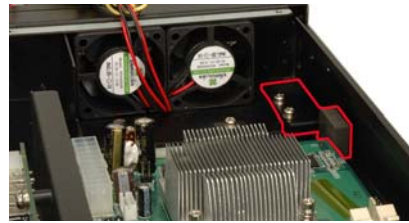


Figure 23: CPU Card Shock Absorber

STEP 6: PCI/ISA EXPANSION CARD INSTALLATION

The RACK-1150G supports up to two PCI/ISA expansion cards. If a PCI expansion card or an ISA expansion card needs to be 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.

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

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

STEP 7: BACKPLANE BRACKET REINSTALLATION

After the backplane and the CPU card have been secured to the backplane bracket, the backplane bracket can be installed into the chassis.

Step 1: Remove the CPU card shock absorber by removing the two shock absorber retention screws.



Figure 22: CPU Card Shock Absorber Retention Screws

Step 2: Mount the backplane bracket onto the base of the chassis. Make sure the retention screw holes of the backplane bracket are aligned with the screw holes in the base and at the rear of the chassis.

Step 3: Once the backplane bracket retention screw holes are aligned with the retention screw holes in the chassis, secure the backplane bracket with the four previously removed retention screws.

Step 4: Reinstall the CPU card shock absorber and press the rubber of the shock absorber against the CPU card.

STEP 8: OPTICAL DRIVE INSTALLATION

The RACK-1150G chassis can support an optical drive at the front. To install the an optical drive, follow the steps below:

Step 1: Remove the two optical drive clamps by removing two retention screws for each optical drive clamp.



Figure 24: Right Optical Drive Clamp Retention Screws

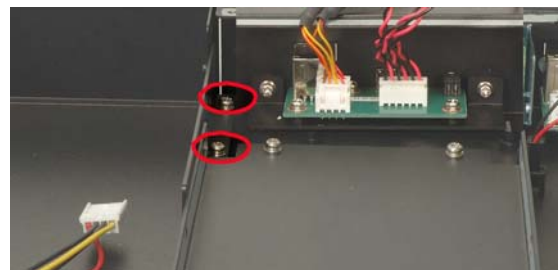


Figure 25: Left Optical Drive Clamp Retention Screws

Step 2: Remove the front cover that is attached to both the left optical drive clamp and the right optical drive clamp by removing two retention screws from each side of the front cover.



Figure 26: Front Cover Retention Screws

Step 3: Attach the right optical drive clamp to the right side of the optical drive. Make sure the front of the right optical drive clamp is at the front of the optical drive.

Step 4: Insert two retention screws into the right optical drive clamp to secure the right optical drive clamp to the right side of the optical drive.



Figure 27: Right Optical Drive Retention Screws

Step 5: Attach the left optical drive clamp to the left side of the optical drive. Make sure the front of the left optical drive clamp is at the front of the optical drive.

Step 6: Insert two retention screws into the left optical drive clamp to secure the left optical drive clamp to the left side of the optical drive.



Figure 28: Left Optical Drive Retention Screws

Step 7: Mount the optical drive onto the base of the chassis. Make sure the power socket and the IDE/SATA connector face the rear of the chassis.

Step 8: Reinstall both the left and right optical drive clamps with the optical drive.

Step 9: To secure the optical drive to the chassis, reinsert the four previously removed optical drive clamp retention screws, two for each optical drive clamp.

Step 10: Connect the PSU cable and ribbon cable to the optical drive.

STEP 9: HDD INSTALLATION

The RACK-1150G chassis can support an internal HDD. To install an HDD, follow the steps below:

Step 1: Remove the HDD bracket by removing the four HDD retention screws in the four corners of the HDD bracket.

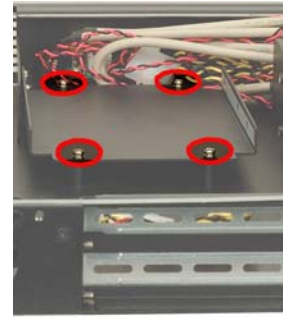


Figure 29: HDD Bracket Retention Screws

Step 2: Mount a 3.5" HDD onto the HDD bracket.

Step 3: Insert four retention screws, two into each side of the HDD.



Figure 30: HDD Retention Screws

Step 4: Position the PSU cables between the HDD bracket predrilled elevated retention screws holes and the backplane bracket.

Step 5: Reinstall the HDD bracket with the HDD and reinsert the four previously removed HDD bracket retention screws.

Step 6: Connect the HDD ribbon cable and the power cable to the HDD.

Step 7: Run the HDD and optical drive ribbon cables through the space between the HDD and the backplane, and the space between the backplane and the front panel of the chassis.



Figure 31: Run the Ribbon Cables through the Space between the Backplane and the HDD



Figure 32: The Space between the Backplane Bracket and the Front Bezel

Step 8: Fold the ribbon cables and power cables backwards and run the cables along side with the backplane bracket.

Step 9: Connect the optical and HDD drive ribbon cables to the CPU card.

STEP 10: CABLING

The RACK-1150G front bezel contains LEDs, USB ports and buttons listed below.

- o 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 CPU card with cables. To correctly connect these cables, please refer to the technical documentation that came with the CPU card. The connectors that are provided with the chassis are listed below.






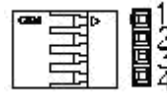
No.	Name
1	 Power LED cable
1	 Reset Switch cable
1	 HDD LED cable
1	 Power switch cable
2	 USB cable

Table 3: Chassis Connectors

USB cable pin definitions 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

To connect the LED, USB, power and reset cables to the CPU card, follow the steps below:

Step 1: Run the LED, USB, power and reset cables through the space between the backplane bracket and the front bezel of the chassis.

Step 2: Run the LED, USB, power and reset cables along the right side of the chassis.



Figure 33: Run the LED, USB, Power and Reset Cables along the Right Side of the Chassis

Step 3: Connect the LED, USB, power, reset and fan power cables to the CPU card.

STEP 11: COVER REINSTALLATION

On the completion of the above procedures, the cover can be reinstalled. To do this, slide the cover back over the chassis and reinsert the six previously removed retention screws.

STEP 12: FRONT HANDLE INSTALLATION

Two handles are shipped with the RACK-1150G 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 three retention screws for each handle.



Figure 34: Rackmount Plate Retention Screws

CHASSIS MAINTENANCE

FAN REPLACEMENT



NOTE:

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

There are two 4cm cooling fans secured to the fan bracket inside the RACK-1150G 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: Unplug the fan power cable.

Step 3: Loosen the two front panel cover thumbscrews to open the front panel cover.



Figure 35: Front Panel Cover Thumbscrews

Step 4: Remove the fan filter bracket by removing the four fan filter bracket retention screws in the four corners of the fan filter bracket.



Figure 36: Remove the Two Fan Bracket Retention Screws on the Base of the Chassis

Step 5: Remove the ventilation clamp by removing the two ventilation clamp retention screws.

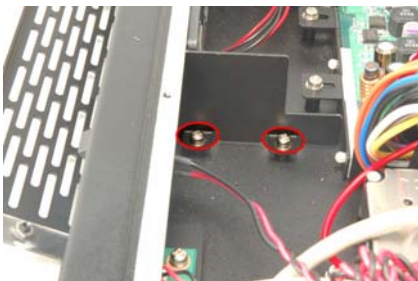


Figure 37: Ventilation Clamp Retention Screws

Step 6: Slide the fan filter bracket backwards to remove the fan filter bracket.



Figure 38: Slide the Fan Filter Bracket Backwards

Step 7: Remove the fan filter plate by removing the two fan filter plate retention screws.



Figure 39: Fan Filter Plate Retention Screws

Step 8: Remove the fan filter pad inside.



Figure 40: Fan Filter Pad

Step 9: Remove the fan that must be replaced by removing the two fan retention screws, one in the upper left corner and one in the lower right corner.

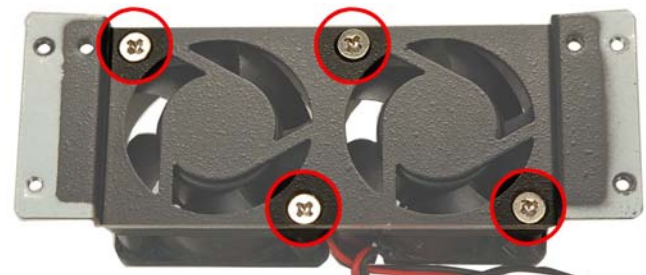


Figure 41: Fan Retention Screws

Step 10: Install a new fan and reinsert the two previously removed fan retention screws.

Step 11: Reinstall the fan filter pad.

Step 12: Reinstall the fan filter plate and reinsert the two previously removed fan filter plate retention screws.

Step 13: Reinstall the fan bracket and reinsert the four previously removed fan bracket retention screws.

■ FAN FILTER REPLACEMENT

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

Step 1: Loosen the two front panel cover thumbscrews to open the front panel cover.



Figure 42: Front Panel Cover Thumbscrews

Step 2: To remove the fan filter plate, remove the two fan filter plate retention screws.



Figure 43: Fan Filter Plate Retention Screws

Step 3: Replace the fan filter pad inside.

Step 4: Reinstall the fan filter plate and reinsert the two previously removed fan filter plate retention screws.

There is one 4cm cooling fan secured to the rear of the RACK-1151G chassis. To replace the fan, please follow the steps below.

Step 1: To remove the fan, remove the two rear fan retention screws, one from the upper right corner and one from the lower left corner of the fan.



Figure 44: Rear Fan Retention Screws

Step 2: Install a new fan and reinsert the two previously removed fan retention screws.

■ 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 45: 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.