

RACK-2100G / RACK-2100GR

2U Rackmount Chassis

Version: 1.01

Quick Installation Guide



Figure 1: RACK-2100G Front Panel

ABOUT THE RACK-2100G

The 2U, metal RACK-2100G AT/ATX compatible rackmount industrial chassis is designed to operate reliably in industrial environments where it will be exposed to dust, wide temperature variations, shocks and vibrations.

SPECIFICATONS

- **Form Factor:** Standard 2U, 19" wide
- **SBC Form Factor:** Full-size, PICMG 1.3 slot CPU cards
- **Construction:** Metal
- **Slots Number:** 6-slot
- **Cooling:** 2 x 8cm fans
- **Drive Bays:**
 - 1 x 5.25" Optical drive bay front accessible
 - 1 x 3.5" FDD (floppy disk drive) or HDD (hard disk drive) bay front accessible
 - 1 x 3.5" Internal HDD bay
- **Dimensions (DxWxH):**
 - 576.9mm x 431mm x 88mm
- **Operating Temperature:** 0~40°C
- **Relative Humidity:** 5~95%
- **Vibration:**
 - 5 to 17Hz, 0.1" double amplitude displacement
 - 17 to 640Hz, 1.5G acceleration peak to peak
- **Shock:** 10G acceleration peak to peak

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 and handle plates
- 1 x Screw set
- 1 x PCI/ISA card shock absorber
- 2 x Keys
- PSU rear side mounting bracket (RACK-2100GR model only)

DETAILS OF INCLUDED SCREWS

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



Peripherals/Parts	Screw Label (refer to above picture)
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 the RACK-2100G are shown below.

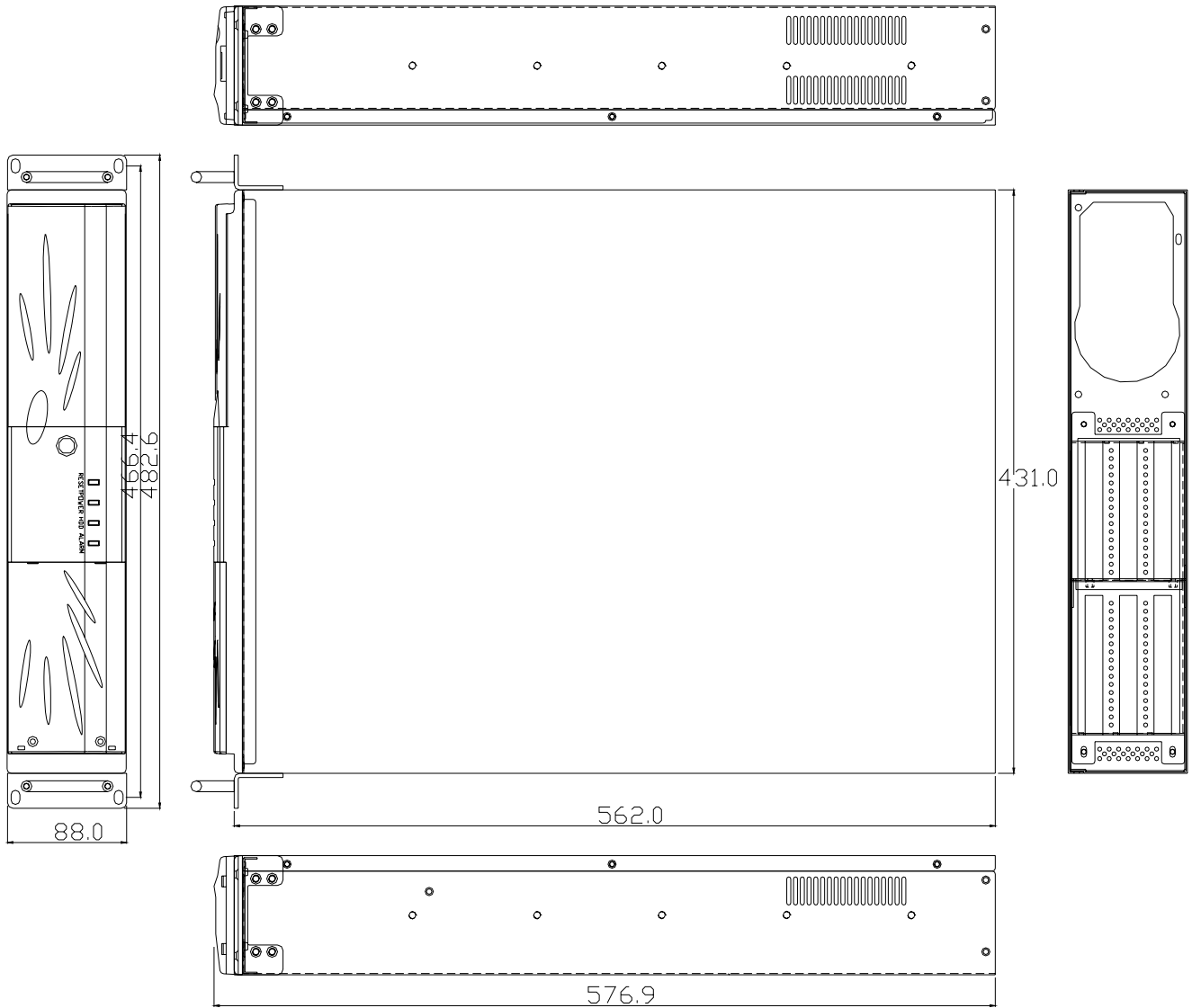


Figure 2: Dimension Drawing (mm)

INSTALLATION STEPS

Complete the following installation steps to install the RACK-2100G chassis.

- Step 1:** Unpack the chassis.
- Step 2:** Install the front handles.
- Step 3:** Remove the top cover.
- Step 4:** Install a PSU.
- Step 5:** Install a backplane.
- Step 6:** Install a CPU card.
- Step 7:** Install PCI and ISA expansion cards.
- Step 8:** Install the backplane bracket.
- Step 9:** Install disk drives.
- Step 10:** Connect cables.
- Step 11:** Connect the PSU cable and interface cable.
- Step 12:** Reinstall the top cover.

The installation steps outlined above are described in detail below.

STEP 1: UNPACK

The RACK-2100G is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When unpacking the chassis:

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

STEP 2: FRONT HANDLE INSTALLATION

Two handles are shipped with the RACK-2100G chassis. Each handle is secured to the chassis with four retention screws, one each on the left and right side panels near the front panel. Follow the steps below to install the handles.

- Step 1:** Align the retention screw holes on the side of the chassis with the retention screws holes in the handle.
- Step 2:** Insert four retention screws for each handle.

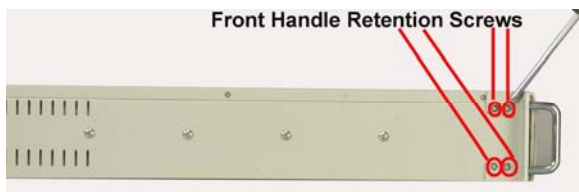


Figure 3: Front Handle Retention Screws

STEP 3: REMOVE THE TOP COVER

The top cover of the chassis is connected to the chassis with seven retention screws, three each on the left and right side panels and one near the rear of the top cover. Follow the steps below to remove the top cover.

- Step 1:** Remove all seven retention screws. Remove six screws from the sides of the chassis, and one retention screw located near the rear of the top cover.

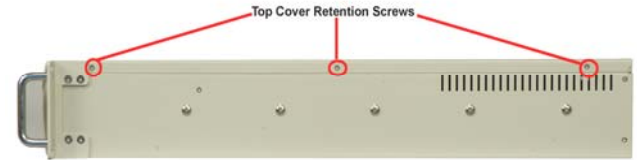


Figure 4: Top Cover Retention Screws

- Step 2:** Slide the cover backwards, lifting gently.



Figure 5: Remove the Top Cover

STEP 4: INSTALL A POWER SUPPLY UNIT (PSU)

Compatible IEI PS/2 and redundant type PSUs are listed in the table below.

Model No.	Input	Type	Watt	Output Range						
				+3.3V	+5V	+12V1	+12V2	-5V	-12V	+5Vsb
RACK-2100G										
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
RACK-2100GR										
ACE-R4130AP-RS	AC	ATX	300W	18A	25A	16A	N/A	0.5A	0.5A	2A
ACE-R4140AP-RS	AC	ATX	400W	25A	25A	30A	N/A	N/A	0.8A	2A
ACE-C232-RS	AC	AT	230W	N/A	20A	10A	N/A	N/A	0.5A	0.5A

Table 2: Compatible IEI PSUs.

STEP 4.1: INSTALL A PS/2 TYPE POWER SUPPLY

- 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.

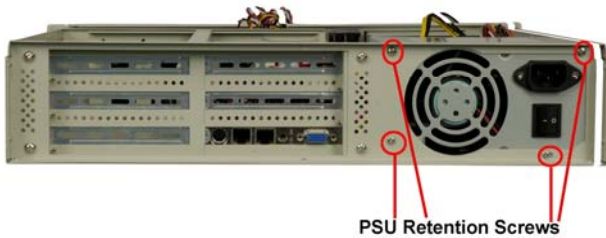


Figure 6: Insert PSU Retention Screws

- Step 3:** Insert two screws through the bottom of the chassis and rear mounting bracket of the power supply. Find the two nuts supplied with the chassis and thread them onto the screws and tighten until the PSU is secured to the chassis.



Figure 7: Insert PSU Rear Bracket Screws and Nuts

STEP 4.2: INSTALL A REDUNDANT TYPE POWER SUPPLY



NOTE:

Remove the power modules from the redundant PSU before installing the PSU into the chassis.

Step 1: Remove the PSU bracket from the chassis by removing three retention screws.

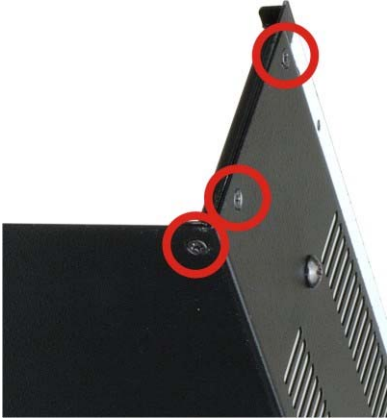


Figure 8: Remove the PSU Bracket

Step 2: Attach the PSU bracket to a redundant PSU with two retention screws.



Figure 9: Attach the PSU Bracket to the PSU

Step 3: Find the PSU rear mounting bracket that came with the chassis and attach it to a redundant PSU with two retention screws.

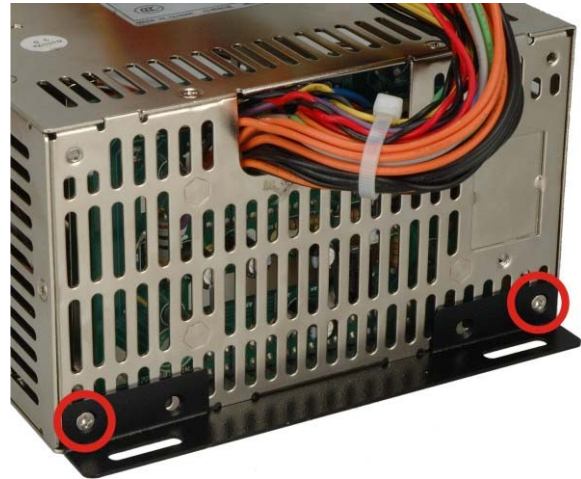


Figure 10: Attach the PSU Rear Mounting Bracket

Step 4: Mount the PSU in the chassis and reinsert the three previously removed retention screws.



Figure 11: Mount the PSU in the Chassis

Step 5: Find the two nuts supplied with the chassis and thread them onto the chassis' preinstalled screws that protrude through the PSU rear mounting bracket until the PSU is secured to the chassis.



Figure 12: Secure the PSU Rear Bracket

Step 6: Secure the PSU to the chassis with two additional retention screws.

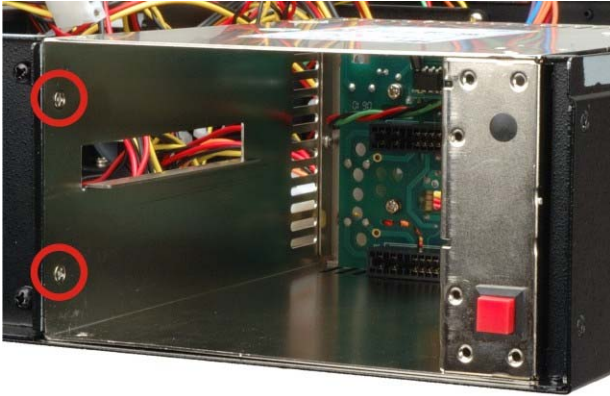


Figure 13: Secure the PSU to the Chassis

Step 7: Insert the power modules into the PSU and lock them in place by tightening the thumbscrews.



Figure 14: Insert the PSU Modules

STEP 5: BACKPLANE INSTALLATION

The IEI backplanes listed below are compatible with the RACK-2100G chassis.

Model No.	SBC Type	PCI	PSU Connector
PE-6SD	PICMG 1.3	0	ATX
PE-6SD2	PICMG 1.3	1	ATX

Table 3: Compatible Backplane Modules

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

Step 1: Remove the backplane by removing the six retention screws that secure the backplane bracket. Remove two retention screws from the base and four from the rear of the chassis.

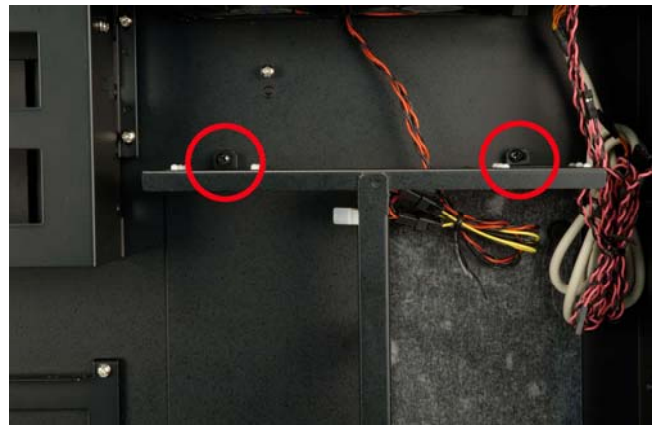


Figure 15: Two Backplane Bracket Retention Screws on the Base of the Chassis



Figure 16: Four Backplane Bracket Retention Screws at the Rear of the Chassis

Step 2: Mount the backplane onto the backplane bracket. Make sure the backplane is properly aligned with the preformed holes in the bracket.

Step 3: Secure the backplane to the backplane bracket with eight retention screws.

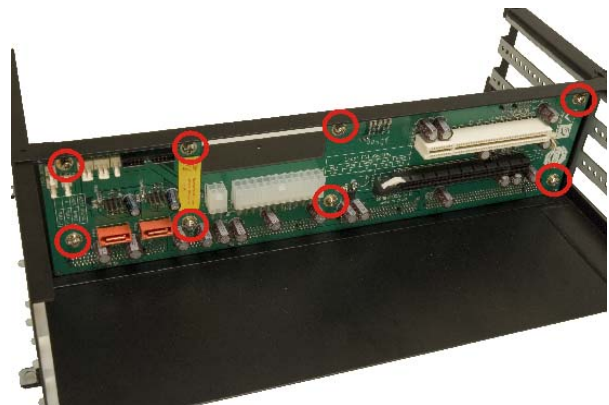


Figure 17: Insert Eight Retention Screws

STEP 6: CPU CARD INSTALLATION

A CPU card must be installed into the backplane before the bracket can be reinstalled into the chassis. Follow the steps below to install a CPU card.

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

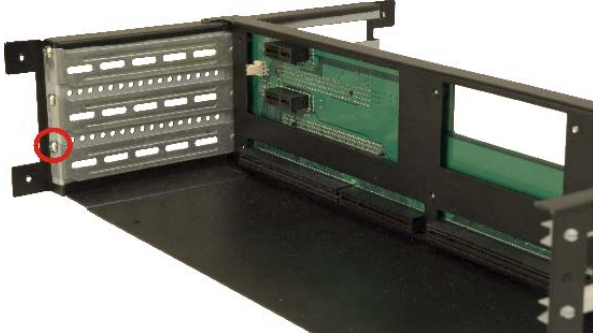


Figure 18: Remove the Slot Cover Retention Screw

Step 2: Slide the CPU card into the CPU socket on the backplane. Make sure the CPU card also slides into the corresponding plastic guide.

Step 3: Reinsert the previously removed slot cover retention screw to secure the CPU card.

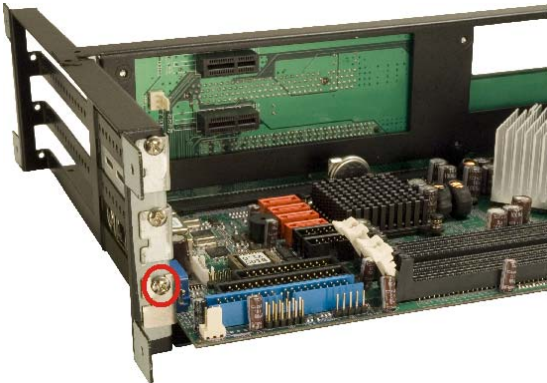


Figure 19: Secure the CPU Card to the Backplane Bracket

Step 4: To secure the CPU card in place, press the rubber end of the PCI/ISA card shock absorber against the top of the CPU card and align the shock absorber screw holes with the backplane bracket screw holes.



Figure 20: Insert Two Shock Absorber Retention Screws

Step 5: Insert two retention screws to secure the shock absorber to the backplane bracket.

STEP 7: PCI/ISA EXPANSION CARD INSTALLATION

The RACK-2100G/R supports up to five PCI/ISA expansion cards. If a PCI expansion card or an ISA 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.

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 8: BACKPLANE BRACKET REINSTALLATION

After the backplane, CPU card and any expansion cards have been secured to the backplane bracket, the backplane bracket can be reinstalled into the chassis.

Step 1: Mount the backplane bracket in the chassis. Make sure the retention screw holes of the bracket are aligned with the screw holes in the base and at the back of the chassis.

Step 2: Secure the backplane bracket to the chassis with the six previously removed retention screws. Insert two retention screws on the base of the chassis and four retention screws at the rear of the chassis.



Figure 21: Backplane Bracket Chassis Retention Screws

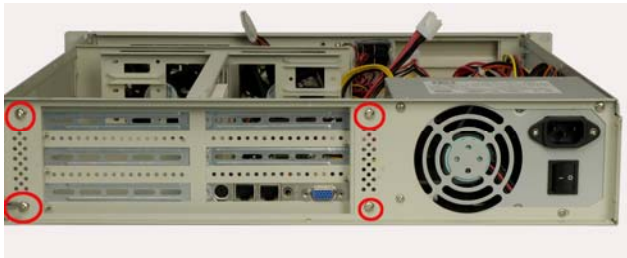


Figure 22: Backplane Bracket Rear Panel Retention Screws

STEP 9: DISK DRIVE INSTALLATION

The RACK-2100G/GR 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" FDD/HDD drive and one optical drive are mounted into a single drive bracket. Another HDD is installed into an internal 3.5" drive bracket. Follow the steps in the sections below to install the drives.

STEP 9.1: INTERNAL 3.5" HDD DRIVE BRACKET

Follow the steps below to install an HDD in the internal 3.5" HDD bracket.

- Step 1:** Remove the 3.5" internal HDD bracket by removing the four retention screws that attach the bracket to the chassis base.

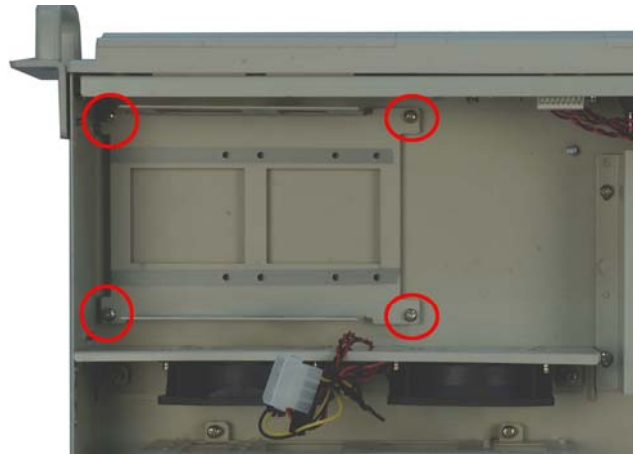


Figure 23: 3.5" HDD Bracket Retention Screws

- Step 2:** Mount the HDD in the bracket. Make sure the HDD does not block any of the retention screw holes at the corners of the bracket and that the HDD PCB board is facing the bottom of the bracket.

- Step 3:** Insert four retention screws, two on each side of the bracket, to secure the HDD.

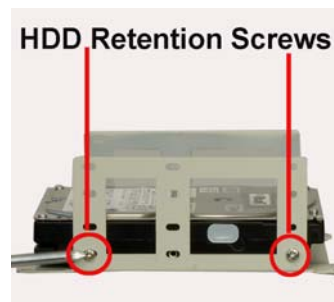


Figure 24: HDD Retention Screws (Opposite Side Similar)

- Step 4:** Once the HDD is secured, the HDD bracket can be reinstalled. Remount the bracket making sure the power connector and the IDE/SATA connector of HDD face the main drive bracket and reinsert the previously removed retention screws.

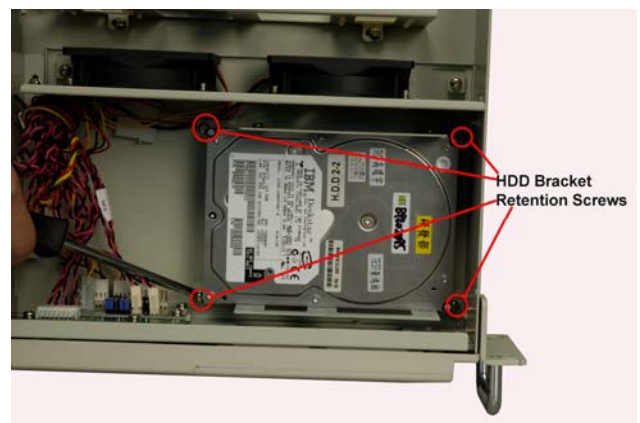


Figure 25: HDD Bracket Retention Screws

STEP 9.2: FDD/HDD AND OPTICAL DRIVE BRACKET

The main drive bracket can support one FDD or HDD and one optical drive. Follow the steps below to install the drives.

Step 1: Remove the retention screws that connect the drive bracket to the chassis.

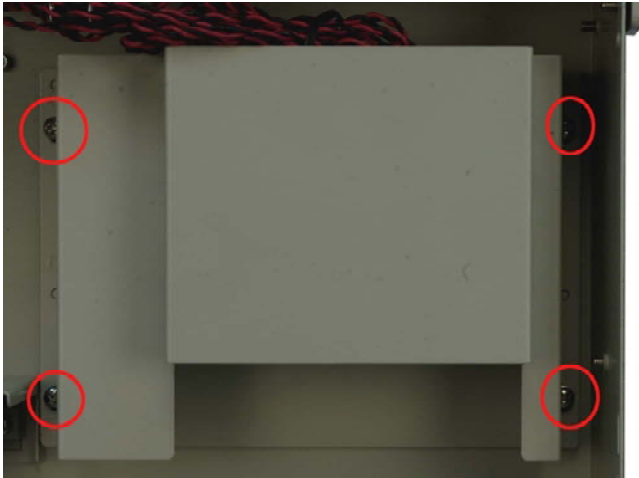


Figure 26: Main Drive Bracket Retention Screws

Step 2: Mount the drives into the bracket. Make sure the power connectors and the IDE/SATA connectors are at the rear of the bracket.

Step 3: Both the FDD/HDD and 5.25" optical drive are secured with four retention screws, two on each side of the bracket.

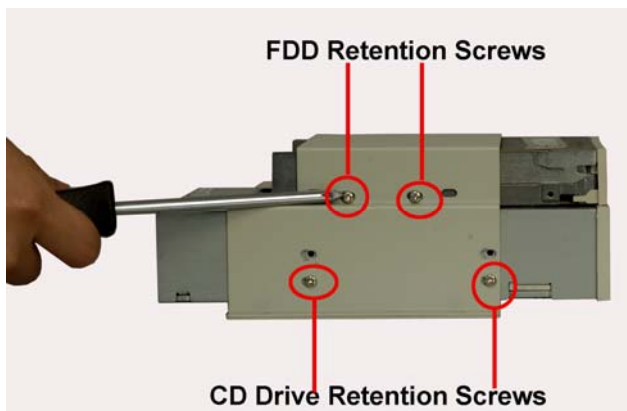


Figure 27: FDD/HDD and Optical Drive Retention Screws

Step 4: Remount the main drive bracket into the chassis and reinsert the previously removed retention screws.

STEP 10: CABLING

The front bezel of the RACK-2100G/GR has the following items:

- o 1 x Power LED
- o 1 x HDD LED
- o 1 x Power switch
- o 1 x Reset button

These items are connected to the CPU card with cables. To connect these items to the CPU card, refer to the technical

documentation that came with the CPU card. The connectors 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

Table 4: Chassis Front Panel Connectors

STEP 11: CABLE CONNECTIONS

Follow the steps below to connect the power and ribbon cables.

Step 1: Connect the power cables from the PSU to the backplane, full-size CPU card, HDD, FDD, cooling fan and CD drive power connectors.

Step 2: Disk drive interface connectors must be connected to the CPU card.

STEP 12: COVER REINSTALLATION

Reinstall the chassis top cover after completing the above procedures. To do this, slide the cover back over the chassis and reinsert the previously removed retention screws.

CHASSIS MAINTENANCE



WARNING:

1. Never attempt to remove the external panels or access any internal components of the chassis while it is connected to a power source. Always be sure to turn off and disconnect the chassis from all power sources before attempting to access the internal components. Failure to do so may seriously injure the user or cause irreparable damage to the internal components of the chassis.

2. Take anti-static precautions whenever carrying out maintenance on the system components. Failure to take anti-static precautions can cause permanent system damage.

■ FAN REPLACEMENT

There are two 8cm cooling fans secured to a fan bracket inside chassis. Follow the steps below to replace a fan.

Step 1: To remove the fan bracket, remove one fan bracket retention screw from the right side of the chassis and two internal fan bracket retention screws on the base of the chassis.



Figure 28: External Fan Bracket Retention Screw

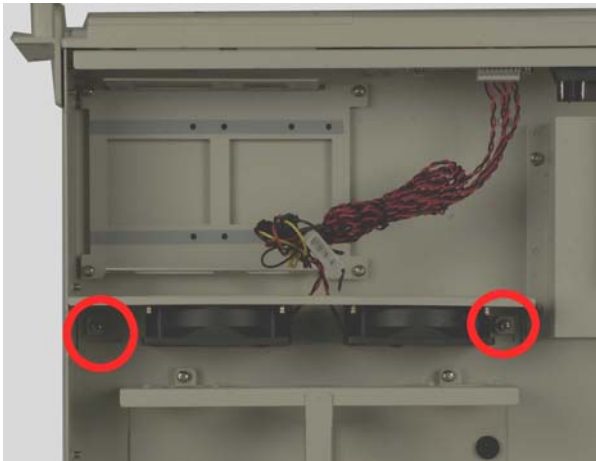


Figure 29: Internal Fan Bracket Retention Screws

Step 2: Remove the retention screws that secure the fan to the bracket.

Step 3: Replace the replacement fan and reinsert the previously removed retention screws.

Step 4: Remount the fan bracket into the chassis and reinsert the previously removed fan bracket retention screws.

■ FAN FILTER REPLACEMENT

Follow the steps below to replace the fan filter.

Step 1: Open the fan filter cover at the right side of the chassis front panel.



Figure 30: Fan Filter Cover

Step 2: Replace the filter pad inside.

Step 3: Close the fan filter cover.

■ RACK/CABINET INSTALLATION

Supporting rails, rack trays, or slide rails can be used with the mounting holes on the sides of the chassis for rack or cabinet installation.



Figure 31: Rack/Cabinet Side Panel Mounting Holes



Figure 32: Rack/Cabinet Front Panel Mounting Holes

■ BACKING UP DATA



NOTE:

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