PAC-1000G
6-slot Wall-mount Chassis
Version: 1.0

Quick Installation Guide

ABOUT THE PAC-1000G

The 6-slot, heavy-duty steel PAC-1000G AT/ATX compact wall-mount 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.

SPECIFICATIONS

- **Form Factor:** 6-slot compact chassis
- **SBC Form Factor:** Full-size, slot CPU cards
- **Construction:** Plastic
- **Slots Number:** 6-slot
- **Cooling:** 1 x 8cm fan
- **Drive Bays:**
  - 1 x 5.25” Front accessible Optical drive bay
  - 1 x 3.5” Front accessible FDD (floppy disk drive) or HDD (hard disk drive)
  - 1 x 3.5” Internal HDD (hard disk drive) drive bay
- **Dimensions (DxWxH):**
  - 421mm x 232mm x 176mm
- **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 you unpack the chassis, make sure the following items have been shipped.

- 1 x Quick Installation Guide
- 1 x Power cord
- 2 x Wall-mount plates
- 3 x Long PCI/ISA card shock absorbers
- 3 x Short PCI/ISA card shock absorbers
- 1 x Screw set
- 2 x Clip nuts

DETAILS OF INCLUDED SCREWS

The attached screw set includes 5 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” Optical Drives	5
3.5” FDD	5
3.5” HDD	1
2.5” HDD	4
Power Supply Unit	1
Wall-mount Bracket	3
Backplane	3
	2

Table 1: Screws for Peripheral/Parts

DIMENSION DRAWING

The dimensions of PAC-1000G are shown below.

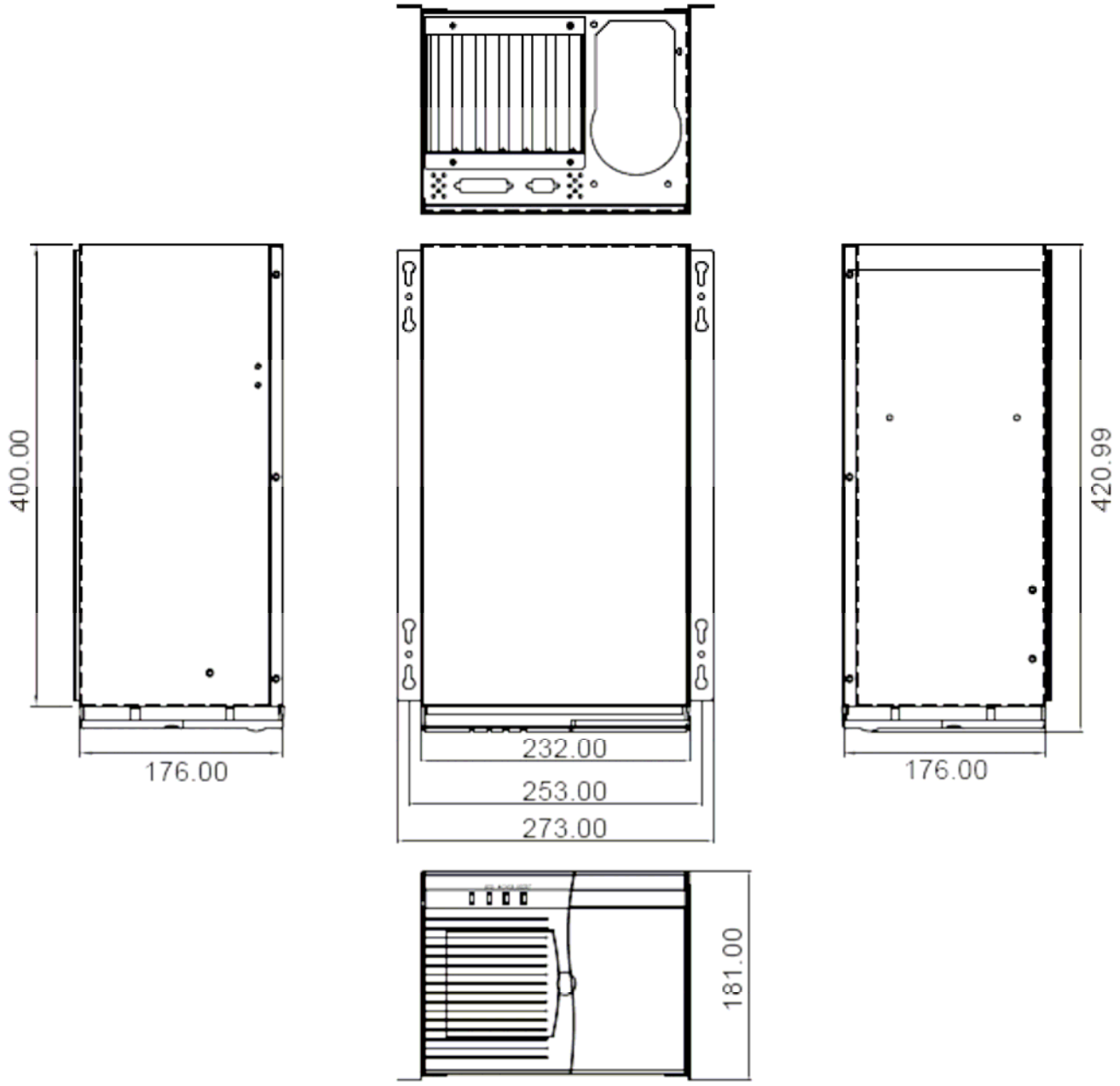

Figure 1: Dimension Drawing (measurement units: millimeter)

INSTALLATION STEPS

To install the PAC-1000G chassis, the following installation steps must be completed:

Step 1: Unpack the chassis.

Step 2: Remove the top cover and hold-down clamp.

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 disk drives.

Step 8: Connect the cables.

Step 9: Connect the PSU cable and the interface cable.

Step 10: Reinstall the hold-down clamp, shock absorbers and top cover.

Step 11: Install the wall-mount plates.

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

STEP 1: UNPACK

The PAC-1000G is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When you unpack the chassis you must:

- 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: REMOVE THE TOP COVER AND HOLD-DOWN CLAMP

STEP 2.1: REMOVE THE TOP COVER

The top cover is secured to the chassis with 6 retention screws, 3 on each side of the chassis.

Step 1: Remove all six top cover retention screws. Remove three retention screws from each side of the chassis.

Figure 2: Remove Top Cover Retention Screws

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

Figure 3: Remove the Top Cover

STEP 2.2: HOLD-DOWN CLAMP REMOVAL

Detach the hold-down clamp by removing the two screws located on the right side of the chassis and pull the hold-down clamp out of the two securing pillars on the left side of the chassis.

Figure 4: Remove Two Hold-Down Clamp Side Retention Screws

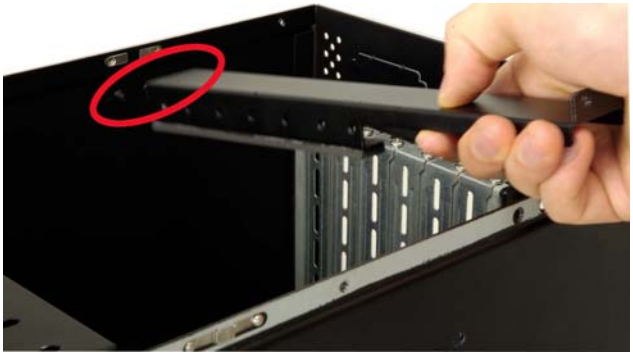

Figure 5: Two Hold-Down Clamp Securing Pillars

STEP 3: INSTALL THE POWER SUPPLY UNIT (PSU)

Once the top cover and hold-down clamp have been removed, the PSU must be installed. Compatible IEI PSUs are listed in the table below.

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.

The PSU is installed at the rear of the chassis and secured to the chassis with six retention screws, four retention screws at the rear of the chassis and two on the right side of the chassis. To install the PSU, please follow the steps below.

Step 1: Slide the two clip nuts onto the two clips on the cable side of the PSU.

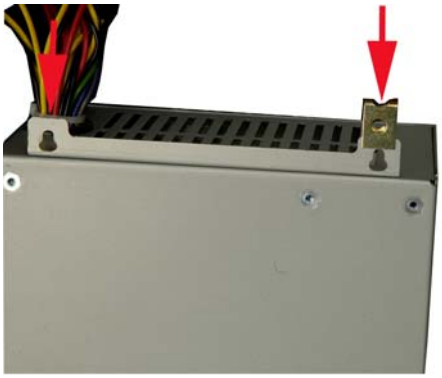

Figure 6: Slide Two Clip nuts onto the Two Clips of PSU

Step 2: Correctly position the PSU at the rear of the chassis. Make sure the power switch and the cable socket both face outwards.

Step 3: Secure the PSU to the rear of the chassis. To do this, insert four retention screws from the rear of the chassis and two retention screws from the right side of the chassis.

Figure 7: Six PSU Retention Screws

STEP 4: Backplane Installation

The IEI backplanes listed below are compatible with the PAC-1000G chassis.

Model No.	SBC Type	PCI	ISA	PSU
BP-6S-RS-R30	ISA	0	6	AT
IP-6S-RS-R30	PCISA	3	2	AT
IP-6SA-RS-R30	PCISA	3	2	ATX
PCI-6S-RS-R30	PICMG 1.0	4	2	ATX/AT

Tabel 1: Compatible Backplane Modules

To install a backplane, please follow the instructions below:

Step 1: Insert six copper pillars into the six predrilled elevated screw holes in the base of the chassis.

Figure 8: Six Copper Pillars

Step 2: Mount the backplane onto the copper pillars and the three predrilled elevated retention screw holes. Make sure the backplane screw holes are aligned with the screw holes in the copper pillar and the predrilled retention screw holes.

Figure 9: Three Predrilled Elevated Retention Screw Holes

Step 3: Secure the backplane to the base of the chassis with nine retention screws.

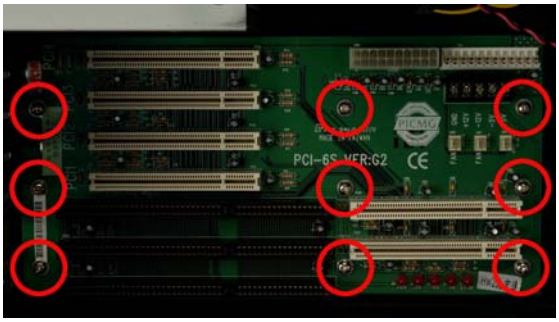

Figure 10: Insert the Nine Backplane Retention Screws

STEP 5: CPU CARD INSTALLATION

To install the CPU card please follow the instructions below:

Step 1: Remove the slot cover at the back of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.

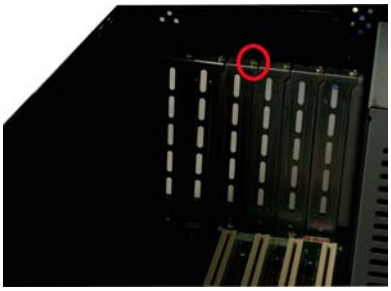

Figure 11: Remove the Slot Cover Retention Screw

Step 2: Slide a full-size 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 card guide located behind the cooling fans.

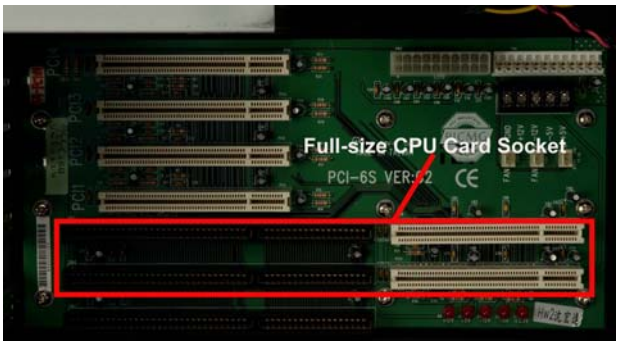

Figure 12: Full-size CPU Card Sockets

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

STEP 6: PCI/ISA EXPANSION CARD INSTALLATION

The PAC-1000G supports up to five PCI/ISA expansion cards. If you wish to install a PCI expansion card or an ISA expansion card please follow the instructions below:

Step 1: Remove the slot cover at the back of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.

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

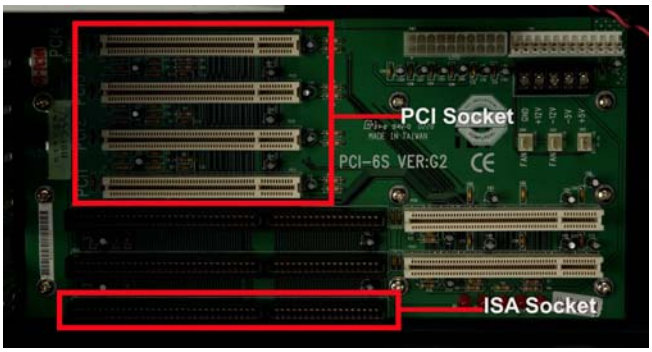

Figure 13: PCI and ISA Sockets

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

STEP 7: DISK DRIVES INSTALLATION

The PAC-1000G chassis has the capacity for one front-accessible 5.25” optical drive, one front accessible 3.5” FDD and one internal 3.5” HDD.

To install the drives please follow the steps outlined in the sections below.

STEP 7.1: DRIVE BRACKET REMOVAL

To remove the drive bracket, please follow the steps below:

Step 1: Remove the four drive bracket retention screws from the right side of the chassis.

Figure 14: Four Side Drive Bracket Retention Screws

Step 2: Remove the one internal drive bracket retention screw from the top of the fan bracket.

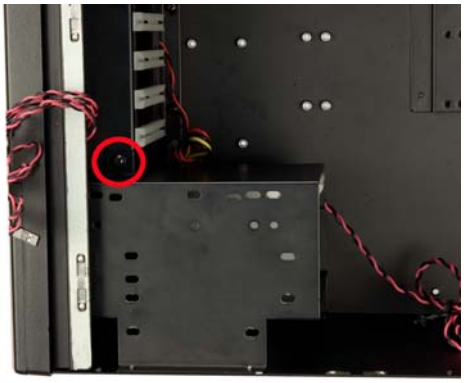

Figure 15: Internal Drive Bracket Retention Screw

STEP 7.2: INTERNAL HDD INSTALLATION

The PAC-1000G can support an HDD to be installed on the right side of the drive bracket. To install a 3.5" HDD into the right side of the drive bracket, please follow the steps below.

Step 1: Remove the drive bracket. To do this, please refer to **STEP 8.1: DRIVE BRACKET REMOVAL**.

Step 2: Slide a 3.5" HDD into the 3.5" drive bay. Make sure both the 4-pin power connector and the IDE/SATA connecter are at the rear of the drive bracket.

Step 3: To secure the 3.5" drive to the drive bracket, insert four retention screws, two on each side.

Figure 16: Secure an HDD to the Right Side of the Drive Bracket

STEP 7.3: FDD/HDD INSTALLATION

To install a 3.5" FDD/HDD into the 3.5" front accessible drive bracket, please follow the steps below:

Step 1: Slide a 3.5" FDD/HDD into the 3.5" FDD drive bay. Make sure both the 4-pin power connector and the IDE/SATA connector are at the rear of the drive bracket.

Step 2: Align the retention screw holes in the 3.5" FDD/HDD drive with the retention screw holes in the 3.5" front accessible drive bay.

Step 3: Insert four retention screws, two on each side to secure the 3.5" FDD/HDD to the drive bracket.

Figure 17: Secure a 3.5" FDD to the 3.5" Drive Bay

STEP 7.4: OPTICAL DRIVE INSTALLATION

To install a 5.25" drive into the drive bracket, please follow the steps below.

Step 1: Remove the drive bracket. To do this, please refer to **STEP 8.1: DRIVE BRACKET REMOVAL.**

Step 2: Slide a 5.25" optical drive into the 5.25" drive bay making sure both the 4-pin power connector and the IDE/SATA connector are at the rear of the drive bracket.

Step 3: Insert four retention screws, two on each side of the drive bay to secure the 5.25" optical drive.

Figure 18: Secure a 5.25” Optical Drive to the 5.25” Drive Bay

STEP 7.5: DRIVE BRACKET REINSTALLATION

After the disk drives have been properly installed into the drive brackets, reinstall the drive brackets into the chassis. To reinstall the drive brackets into the chassis please follow the steps below:

Step 1: Remove the two plastic drive bay front covers from the front of the drive bays by pushing the plastic front covers out of the chassis.

Figure 19: Drive Bay Front Covers

NOTE:

The 3.5” drive bay front cover does not need to be removed, if the 3.5” front accessible drive bay is installed with an HDD.

Step 2: Place the drive bracket into the chassis making sure the front of the drives are facing out of the chassis and the 4-pin drive power connector and the IDE/SATA interface connector are all facing the rear of the chassis.

Step 3: Secure the drive bracket into the chassis by reinserting the five previously removed retention screws, one internal drive bracket retention screw and four drive bracket retention screws from the right side of the chassis.

STEP 8: CABLING

The PAC-1000G has the following components accessible at the front:

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

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 your 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

Table 3: Chassis Connectors

STEP 9: 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 PSUs to the backplane, full-size CPU card, HDD, FDD, cooling fans and optical drives power connector.

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

STEP 10: HOLD-DOWN CLAMP, SHOCK ABSORBER AND TOP COVER REINSTALLATION

After you have completed the above procedures, the hold-down clamp and cover can be reinstalled.

STEP 10.1: HOLD-DOWN CLAMP REINSTALLATION

To reinstall the hold-down clamp, please follow the instructions below:

Step 1: Slide the two pillars on the left side of the chassis into the two holes in one end of the hold-down clamp.

Step 2: Align the screw holes in the other end of the hold-down clamp with the screw holes on the right side of the chassis.

Step 3: Reinsert the two previously removed retention screws.

STEP 10.2: SHOCK ABSORBER INSTALLATION

The PAC-1000G chassis comes with three long PCI/ISA card shock absorbers and three short PCI/ISA card shock absorbers used for securing PCI/ISA cards from vibration. To install a shock absorber, please follow the instructions below:

Step 1: Press the rubber of a shock absorber with proper length against the top of the PCI/ISA card you want to secure, according to the height of the installed PCI/ISA card.

Step 2: Align the retention screw hole in the shock absorber with the corresponding retention screw hole in the hold-down clamp.

Step 3: Insert one retention screw for each shock absorber to secure it to the hold-down clamp.

Figure 20: Shock Absorber Retention Screw

STEP 10.3: TOP COVER REINSTALLATION

To reinstall the top cover, slide the cover back over the chassis and reinsert the six previously removed retention screws.

STEP 11: WALL-MOUNT PLATES INSTALLATION

Two wall-mount plates are shipped with the PAC-1000G chassis. The wall-mount plates are installed on the sides, at the bottom of the chassis. Each plate is secured to the chassis by three retention screws. To install the wall-mount plates, please follow the steps below:

Step 1: Align the retention screw holes on the side of the chassis with the retention screws in the wall-mount plate.

Step 2: Insert three retention screws for each wall-mount plate.

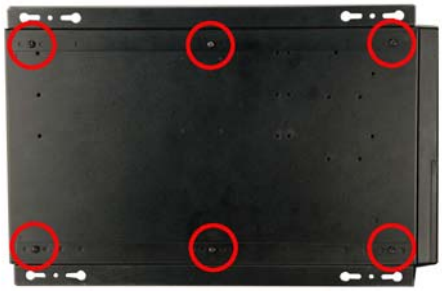

Figure 21: Wall-mount Plate Retention Screws

CHASSIS MAINTENANCE

- **FAN REPLACEMENT**

NOTE:

Please ensure that the power of the computer is switched off before you replace a fan.

There is one 8 cm cooling fan inside the PAC-1000G chassis. To replace a fan, please follow the steps below.

Step 1: Remove the top cover. (Please refer to **STEP 2.1: REMOVE THE TOP COVER**)

Step 2: Unplug the power cable that is connected to the fan.

Step 3: Remove the drive bracket. (Please refer to **STEP 8.1: DRIVE BRACKET REMOVAL**)

Step 4: Remove one side fan bracket retention screw from the right side of the chassis, two internal fan bracket retention screws from the base of the chassis and one other internal fan bracket retention screw from the top of the fan bracket to remove the fan bracket.

Figure 22: Side Fan Bracket Retention Screw

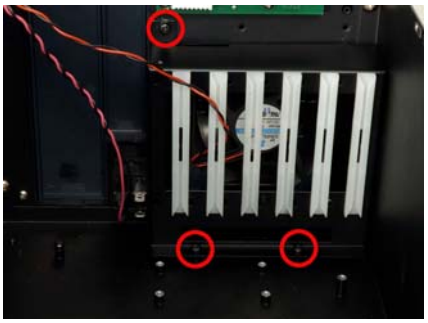

Figure 23: Three Internal Fan Bracket Retention Screws

Step 5: Remove the drive bracket. (Please refer to **STEP 8.1: DRIVE BRACKET REMOVAL**)

Step 6: Remove the five front panel retention screws to remove the front panel.

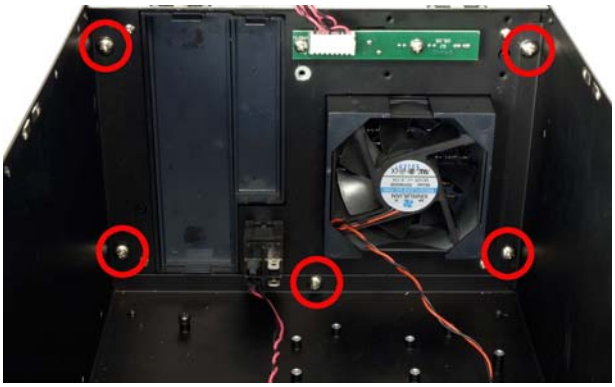

Figure 24: Five Front Panel Retention Screws

Step 7: Remove the four front panel metal plate retention screws to remove the metal front panel plate.

Figure 25: Four Metal Front Panel Plate Retention Screws

Figure 26: Remove the Metal Front Panel Plate

Step 8: Remove the fan filter cover and the fan filter pad inside. (Please refer to Step 1 of **FAN FILTER REPLACEMENT** section)

Step 9: Press the three fan clips, one on the top of the fan and two at the bottom of the fan, and push the fan outwards.

Figure 27: One Fan Clip on the Top of the Fan

Figure 28: Two Fan Clips at the bottom of the Fan

Step 10: Install a new fan.

Step 11: Reinstall the fan filter pad and fan filter cover.

Step 12: Reinstall the front panel metal plate with the four previously removed front panel metal plate retention screws.

Step 13: Reinstall the front panel to the chassis with the five previously removed retention screws.

Step 14: Reinstall the fan filter bracket with the four previously removed retention screws, three internal screws and one from the left side of the chassis.

Step 15: Reinstall the drive bracket. (Please refer to **STEP 8.5: DRIVE BRACKET REINSTALLATION**)

■ FAN FILTER REPLACEMENT

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

Step 1: Flip open the fan filter cover from the right side of the fan filter cover.

Figure 29: Flip Open the Fan Filter Cover

Step 2: Replace the fan filter pad inside.

Step 3: Reinstall the fan filter cover.

■ 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 wall-mount plates, two in each wall-mount plate, on the sides of the chassis are shown below.

Figure 30: Four Wall Mounting Holes

NOTE:

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