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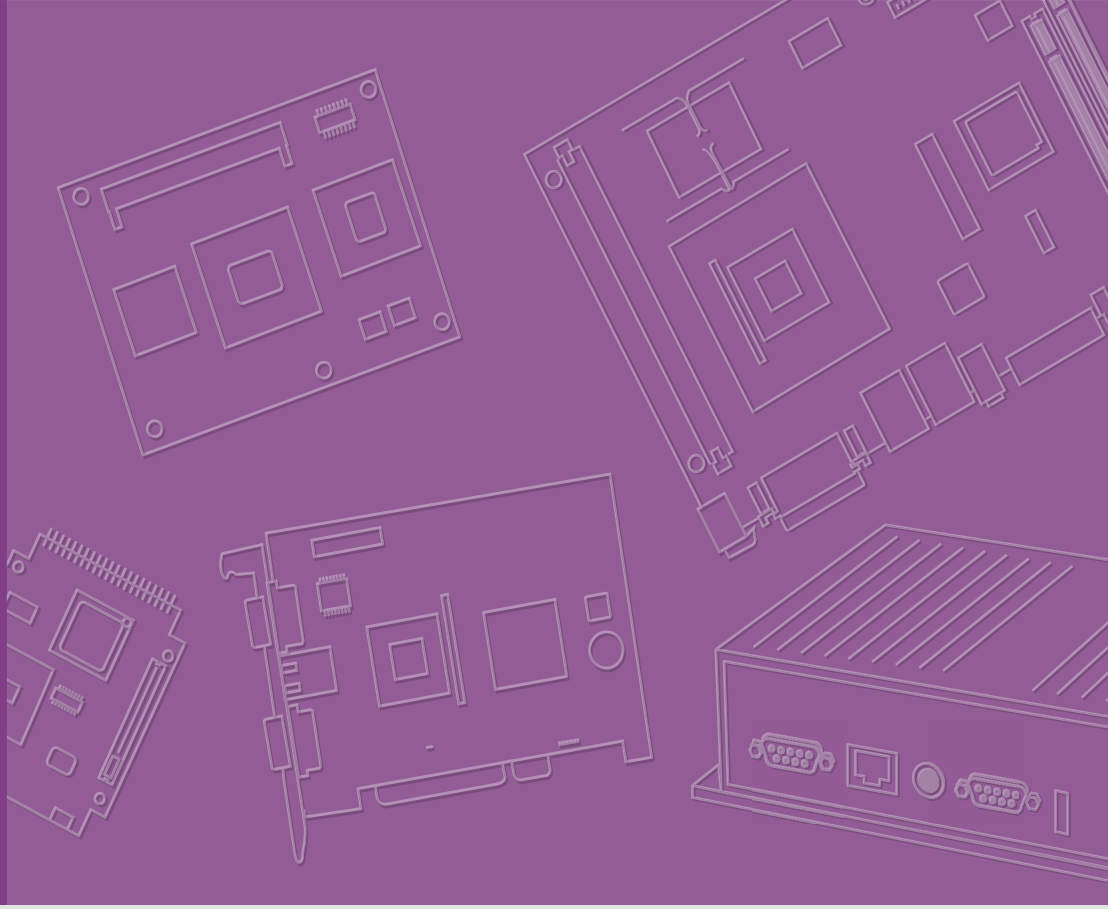
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User Manual

IPC-622 Series

6U, Multi-Segment, Rackmount Industrial Computer Chassis

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Part No. 2002062204 Edition 4

Printed in China March 2015

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. To protect the product from damage by electrostatic discharge (ESD) and electromagnetic interference (EMI) leakage, we strongly recommend using of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In such cases, users are required to correct the interference at their own expense.

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1. Visit the Advantech website at http://support.advantech.com to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
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   - Description of your software (operating system, version, application software, etc.)
   - Comprehensive description of the problem
   - The exact wording of any error messages

Warnings, Cautions, and Notes

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*



Caution! *Cautions are included to prevent hardware damage and data loses.*



For example:

New batteries are at risk of exploding if incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note *Notes provide additional information.*



Document Feedback

To facilitate the ongoing improvement of this manual, we welcome all comments and constructive criticism. Please send feedback in writing to support@advantech.com

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect this equipment from all AC outlets before cleaning. Use a damp cloth the clean the equipment. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect this equipment from humidity.
6. Place this equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. The openings on the enclosure are for air convection. To prevent the equipment from overheating, do not cover the openings.
8. Ensure the power source voltage is correct before connecting the equipment to the power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If idle for a long time, disconnect the equipment from the power source to avoid damage by transient overvoltage.
12. Do not pour liquid into the openings. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should only be opened by qualified service personnel.
14. If one of the following occurs, have the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment is exposed to moisture.
    - The equipment is malfunctioning or does not operate according to the user manual.
    - The equipment has been dropped and damaged.
    - The equipment shows obvious signs of breakage.
15. Do not store this equipment in an environment where the temperature fluctuates below -20 °C (-4° F) or above 60 °C (140 °F) as this may cause damage. This equipment should be stored in a controlled environment.
16. The battery is at risk of exploding if incorrectly replaced or installed. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

The sound pressure level at the operator position does not exceed 70 dB (A), as per the IEC 704-1:1982.

DISCLAIMER: These instructions are provided in accordance with the IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precautions - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from the PC chassis before working on it. Do not touch any components on the CPU card or other cards while the PC is turned on.
- Disconnect the power before making configuration changes. The sudden rush of power as a jumper is connected or card installed may damage sensitive electronic components.

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Chapter 1

General Information

This chapter provides general information about the IPC-622.

- Introduction
- Specifications
- Power Supply Options
- Environmental Specifications
- Dimension Diagram

1.1 Introduction

The IPC-622 is a 6U, rackmount industrial computer chassis designed for multi-system applications. The device supports a backplane with up to 20 slots for a quad-segment industrial system, and can be configured to support a 400W, 500W, or 700W PS/2 power supply, or a 500W or 750W redundant power supply.

Unique alarm detection and notification to reduce system down time

The IPC-622 is equipped with a unique alarm module. This module automatically detects the system operating conditions, such as the power status, HDD, fan, and system temperature. The front LED indicators show the system and power status. In the event of a system failure, the alarm module emits an audible beep to warn users to take the necessary action.

Flexible storage options

The IPC-622 features numerous data storage options, including two drive housings that can accommodate four front-accessible 5.25" devices (optical disk drives or removable disk drives), and two internal 3.5" HDD. The IPC-622 chassis can be integrated with a wide range of computing peripherals.

Outstanding mechanical designs

The IPC-622 is designed for multi-system use. With abundant power supply options, a superior airflow design, and support up to four high-speed cooling fans, this device delivers reliable operation. The shockproof drive bay and rubber pads with rubber cushions protect the system from harsh industrial environments and unexpected shock. The front door with user-friendly rotary lock prevents unauthorized access to the data storage. The redundant power supply module is hot-swappable and rear accessible. All these easily maintained modules reduce the system's Mean Time to Repair (MTTR) and make IPC-622 the best solution in terms of price, performance, and total cost of ownership.

1.2 Specifications

- **Construction**: Heavy duty steel
- **Disk drive capacity**: Four front accessible 5.25" disk drives and two internal 3.5" disk drives
- **Front panel LED indicators**: Bi-color LEDs (green/red) for Power, Fan, and Temperature status; single-color LEDs (green) for HDD activity and Single Power Status (+5 V, -5 V, +12 V, -12 V, and +3.3 V)
- **Front panel switch and buttons**: Power switch, Alarm Reset button, and up to four System Reset buttons located behind a lockable front door.
- **Cooling fans**: Four 9 x 9 cm (53 CFM) cooling fans
- **Air filters**: Two filters (142 x 97 mm) located behind the front door. One filter (380 x 92 mm) behind the upper front cover.
- **Chassis color**: Beige (Pantone 414U)
- **Gross weight**: 30 kg (66 lbs)
- **Dimensions (W x H x D)**: 482 x 266 x 466.5 mm (19" x 10.5" x 18.4")

1.3 Power Supply Options

Table 1.1: Power Supply Options

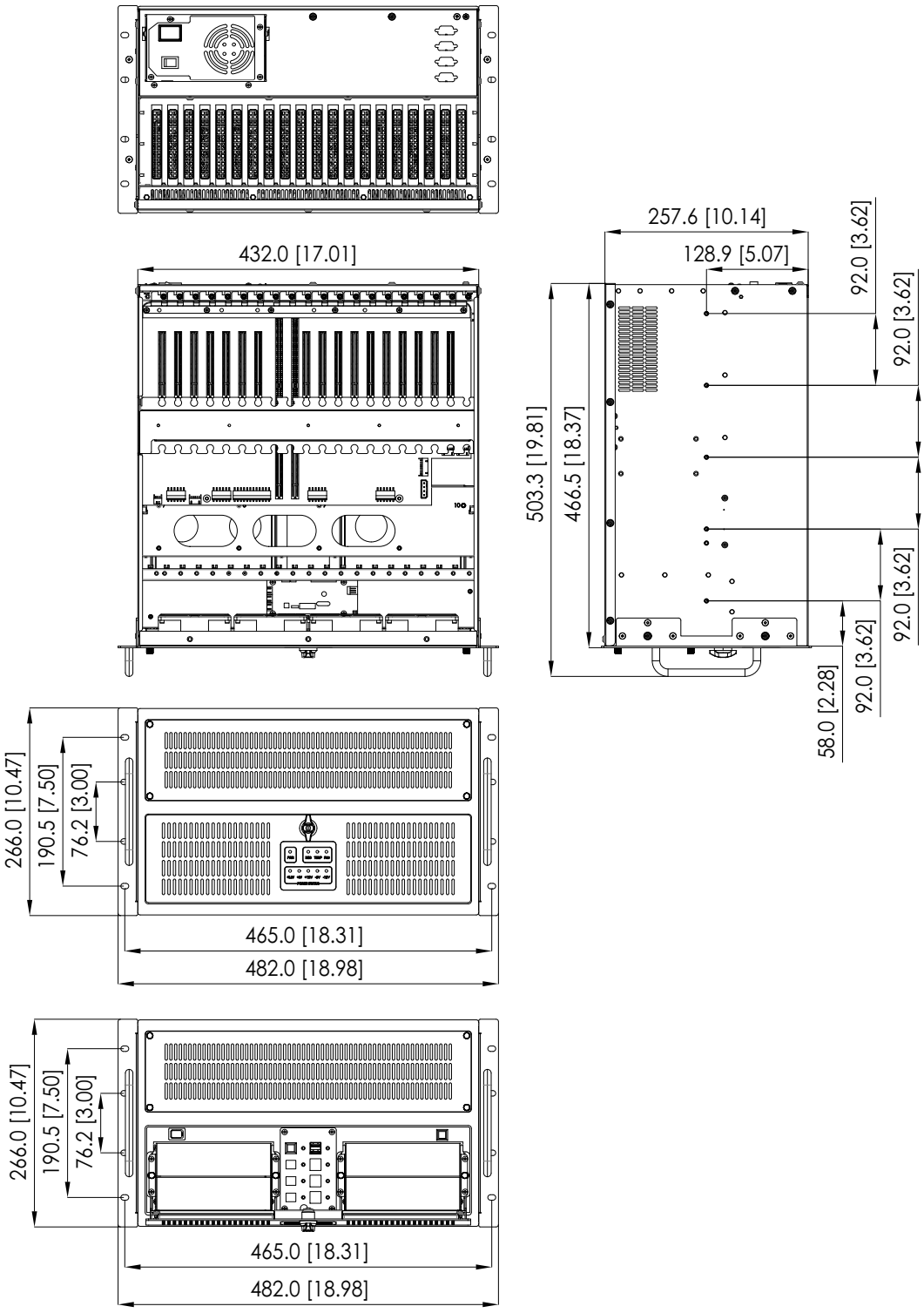
Model Name	1757004407-01	1757004335-01	1757004336-01	1757004393-01	1757004588-01
Vendor Name	FSP400-60PFG	FSP500-60PFG	FSP700-80PSA	FSP500-80MRA(S)	G.P, YH5751-1EA03R
Watt	400W	500W	700W	500W Mini-RPSU, 1+1	750W Mini-RPSU, 1+1
Input Rating	90 ~ 264 V-rms	90 ~ 264 V-rms	90 ~ 264 V-rms	90 ~ 264 V-rms	90 ~ 264 V-rms
Output Voltage	+5V @ 20A +3.3V @ 21A +12V1 @ 16A +12V2 @ 16A -5V @ 0.3A -12V @ 0.5A +5Vsb @ 3.0A	+5V @ 20A +3.3V @ 24A +12V1 @ 16A +12V2 @ 16A -5V @ 0.3A -12V @ 0.5A +5Vsb @ 3.0A	+5V @ 30A +3.3V @ 24A +12V1 @ 16A +12V2 @ 16A +12V3 @ 16A +12V4 @ 16A -5V @ 0.3A -12V @ 0.5A +5Vsb @ 4.0A	+5V @ 20A +3.3V @ 20A +12V1 @ 16A +12V2 @ 16A +12V3 @ 16A -5V @ 0.3A -12V @ 0.5A +5Vsb @ 3A	+5V @ 30A +3.3V @ 24A +12V1 @ 60.9A -12V @ 0.5A +5Vsb @ 4A
Minimum Load	+5V @ 0.2A +12V1 @ 0.1A +12V2 @ 0.5A	+5V @ 0.2A +12V1 @ 0.1A +12V2 @ 0.5A	+5V @ 1.0A +12V1 @ 1A +12V2 @ 1A +12V3@ 1A +12V4 @ 0.5A	+12V1 @ 0.5A +12V2 @ 0.5A +12V3@ 0.5A	+5V @ 0.1A +3.3V @ 0.1A +12V1 @ 1A +5Vsb @ 0.1A
MTBF	100,000 hours @ 25 °C	100,000 hours @ 25 °C	100,000 hours @ 25 °C	100,000 hours @ 25 °C	100,000 hours @ 25 °C
Safety	UL/TUV/CB/ CCC	UL/TUV/CB/ CCC	UL/TUV/CB/ CCC	UL/TUV/CB/ CCC	UL/TUV/CB/ CCC

1.4 Environmental Specifications

Table 1.2: Environmental Specifications

Environment	Operating	Non-operating
Temperature	0 ~ 40 °C (32 ~ 104 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
Humidity	10 ~ 85% @ 40 °C, non-condensing	10 ~ 95% @ 40 °C, non-condensing
Vibration	0.5 Grms	1 Grms
Shock	5 G with 11 ms duration, half sine wave	
Safety	CE compliant	

1.5 Dimension Diagram



Unit: mm [inch]

Figure 1.1 Dimension diagram

Chapter 2

System Setup

This chapter explains the installation process.

- Backplane Installation
- CPU Card / Add-on Card Installation
- Disk Drive Installation
- Ear and Handle Attachment

The following section outlines the procedures for installing the backplane, add-on cards, and disk drives into the IPC-622 chassis. Please refer to Appendix A, Exploded Diagram, for the specific names of the IPC-622 components.

Caution! *Use caution when installing or manipulating the components with the chassis open. Remember to turn off the power, unplug the power cord, and ground yourself by touching the metal chassis before handling any of the internal components.*

2.1 Top Cover Removal

To remove the top cover, please refer to Figure 2.1 and proceed as follows:

1. Loosen the eight screws on the sides and the three screws on the front of the top cover.
2. Remove the top cover.

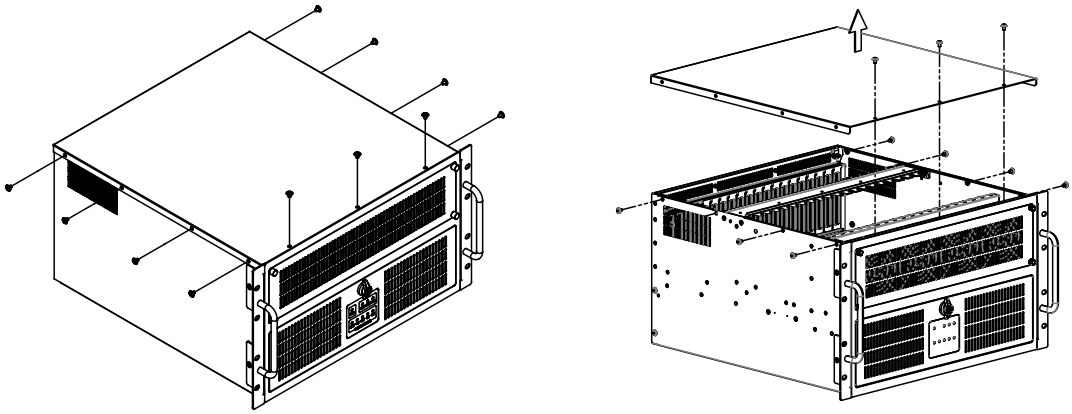


Figure 2.1 Top cover removal

2.2 Backplane Installation

The IPC-622 supports backplanes with up to 20 slots. To install a backplane, please refer to Figure 2.2 and proceed as follows:

1. Attach the EMI spring shielding to the backplane. Place the backplane in the correct location and fasten to the chassis.
2. For the PICMG1.0 backplane, connect the orange-white wire from connector HCN1 on the backplane to connector ATXF1 on the CPU card.
3. Connect the 12-pin AT power connector (to PICMG1.0 backplane), 20-pin (or 24-pin) ATX power connector (to PICMG1.3 backplane), 6-pin +3.3 V, and 6-pin +5 V power connector from the power supply to the backplane.

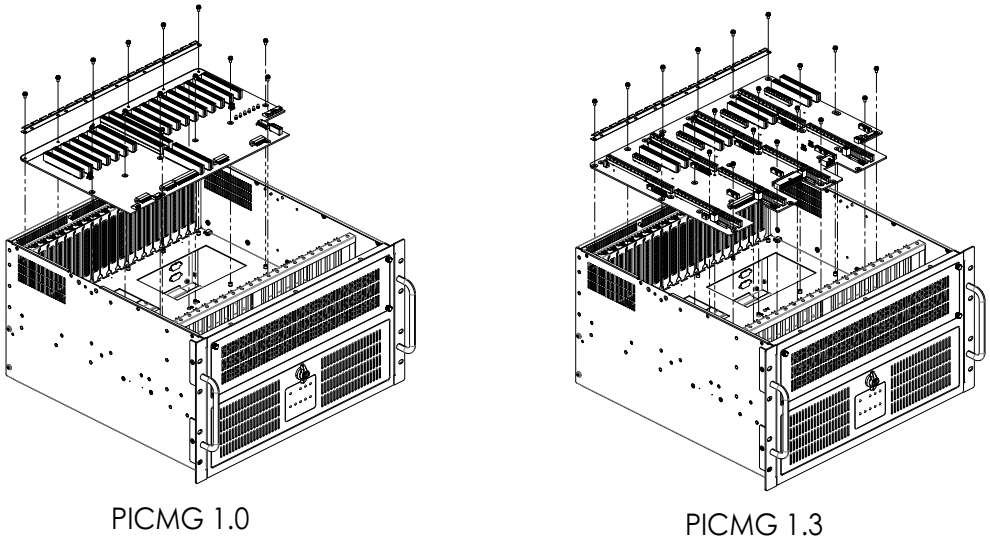


Figure 2.2 Backplane installation

2.3 CPU Card/Add-on Card Installation

2.3.1 Single CPU card/add-on card installation

IPC-622 supports up to 20 add-on cards. To install a CPU card or add-on cards, please proceed as follows:

1. Select a vacant PICMG slot for a full-length CPU card or PCI/ISA slot for add-on cards and remove the corresponding I/O bracket attached to the rear plate of the chassis.
2. Insert the CPU card with CPU, CPU cooler, RAM, and necessary cables installed. Insert the add-on card vertically into the selected slot (see Figure 2.3). For CPU cards or full-length cards, ensure that the card bracket is correctly installed and the card edge is inserted into the plastic guiding fillister. Affix the card to the top of the I/O bracket using a screw.
3. Repeat Steps 1 and 2 to install more than one add-on card.
4. For the PICMG1.3 backplane, plug the ATX power connector from the power supply into the CPU card to be installed.
5. Connect the relevant wires on the chassis to the CPU card, including the 9-pin USB wire, power switch wire, system reset switch wire, power LED wire, and HDD LED wire.
6. For the PICMG1.0 backplane, connect the orange-white wire from the connector “CN20” on the CPU card to the connector “HCN1” on the backplane. Connect the 4-pin +12 V power connector from the power supply to the CPU card.

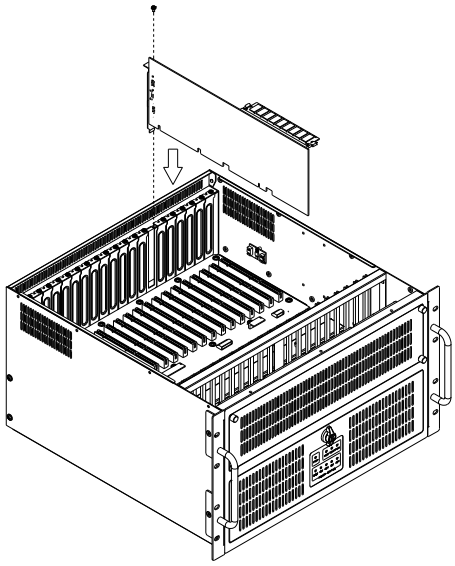
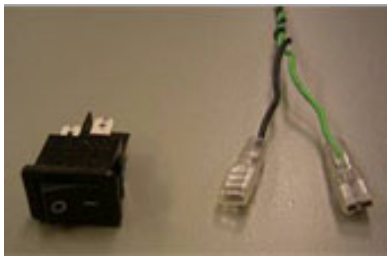


Figure 2.3 CPU card/full-length add-on card installation

2.3.2 Dual CPU Card Installation on a Dual-Segment Backplane

Note! Before installing two CPU cards onto a dual-segment backplane, we recommend changing the system from ATX to AT mode by following the instructions below.

1. Locate the green-black lines from the redundant power supply, and retrieve the AT switch from the accessory box.



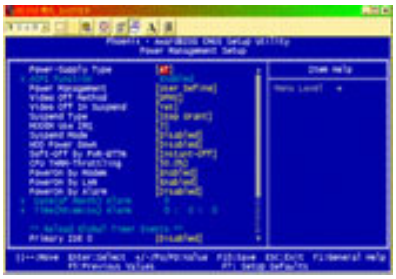
2. Connect the green-black lines to the AT switch.



3. Replace the ATX switch with the AT switch.



4. Change the Power Supply Type setting for each CPU card from “ATX” to “AT” before installing the OS.



2.3.3 Hold Down Clamp

The hold down clamp is designed to protect CPU card from vibration and shock. Regarding PCIe card installation, one rubber foot is required to secure the add-on card into position.

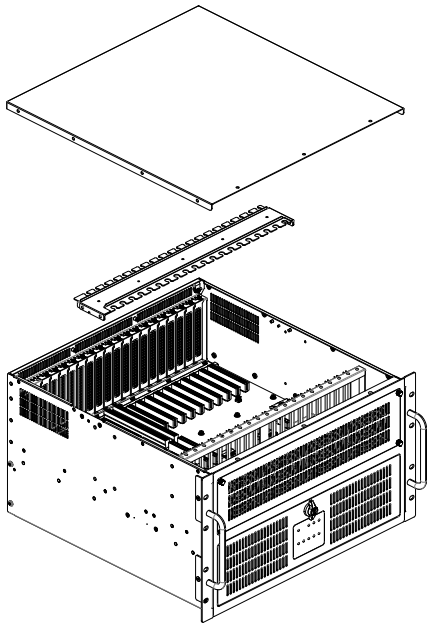


Figure 2.4 Top cover with rubber pad

2.4 Installing Disk Drives

The IPC-622 supports up to four 5.25" disk drives (for example, one CD-ROM drive, one CD-R/W drive, one DVD-ROM drive, and one removable disk drive). To install disk drives, follow the instructions below.

1. Unscrew the four screws on the front of the disk drive shield. Hold the two thumb screws to remove the disk drive housing (Figure 2.5).
2. Insert the disk drive in place in the disk drive housing and affix it into position using the screws provided (Figure 2.6).
3. Connect the appropriate cable from the CPU card to each disk drive or device. Plug a 4-pin power connector into each disk drive.
4. Return the disk drive housing to its original location and fasten into position using the four screws.

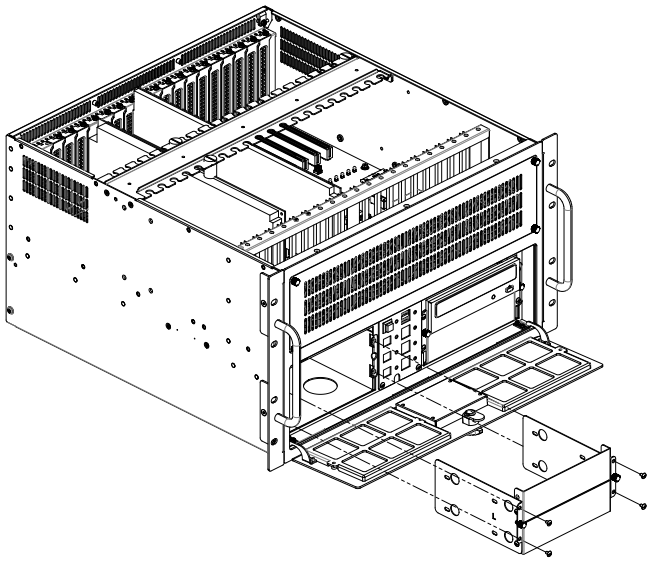


Figure 2.5 Disk drive housing removal

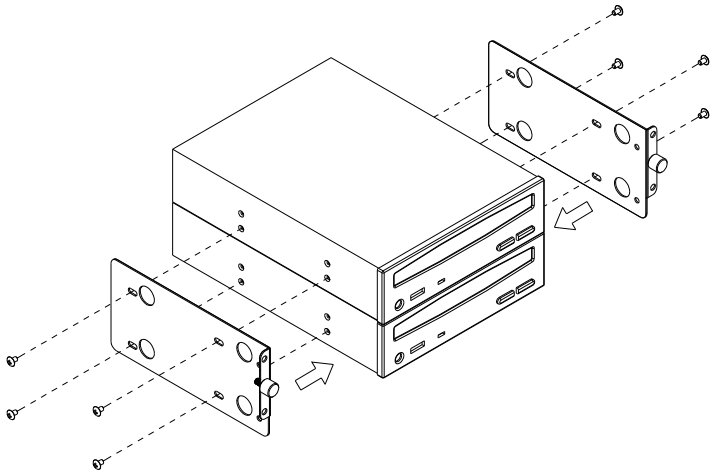


Figure 2.6 Disk drive installation

2.5 Ear and Handle Attachment

A pair of ears and a pair of handles are provided in the accessory box. Fasten them to the front-right and front-left edges of the chassis with the screws provided.

Chapter 3

Operation

This chapter provides the system operation information.

- The Front Panel
- Cooling Fan Replacement
- Filter Cleaning
- Power Supply Replacement

3.1 The Front Panel

The front panel features one Power On/Off switch, one Alarm Reset button, four System Reset buttons, and four USB ports. Nine LED indicators are located on the lockable front door; the individual functions of each are explained below.

3.1.1 Switch and Buttons

Power On/Off switch: Press this button to turn the system power on or off.

System Reset button: Press this button to reboot an individual system (up to four systems).

Alarm Reset button: When a system fault occurs (e.g., fan failure or the chassis temperature is too high), an audible alarm is emitted. Pressing this button will terminate the audible alarm.

3.1.2 LED Indicators for System Status

The LED panel on the front door features several indicators that are divided into two groups - System Status and Power Status.

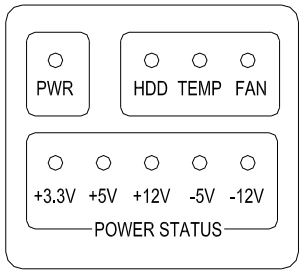


Figure 3.1 LED indicators

The following table describes the LED indicators for System Status.

Table 3.1: LED Indicators for System Status

LED	Description	Green	Red
PWR	System power	Normal	Abnormal
HDD	Hard disk drive activity	Data access	No light
TEMP	Temperature in the chassis	Normal	Abnormal
FAN	Cooling fan status	Normal	Abnormal

When the system powers is on, the PWR LED is Green.

If the PWR LED is RED, this indicates a redundant power supply module failure. To stop the audible alarm, press the Alarm Reset button. Examine the redundant power supply module immediately and replace the failed module with a functioning module.

If the TEMP LED is RED, the inside of the chassis has overheated and an audible alarm will be emitted. To stop the audible alarm, press the Alarm Reset button. Inspect the fan filter and the rear section of the chassis immediately. Check that the airflow inside the chassis is not blocked by dust or other particles.

When the FAN LED is RED, this indicates a failed cooling fan. An audible alarm will also be emitted. To stop the audible alarm, press the Alarm Reset button and replace the failed fan with a functioning fan immediately.

3.1.3 LED Indicators for Power Status

The LEDs that indicate the status of the backplane voltage signals are explained in the table below.

Table 3.2: LED Indicators for Power Status

LED	Description	LED on	LED off
+5 V	+5 V signal	Normal	Abnormal
+12 V	+12 V signal	Normal	Abnormal
-5 V	-5 V signal	Normal	Abnormal
-12 V	-12 V signal	Normal	Abnormal
+3.3 V	+3.3 V signal	Normal	Abnormal

When an LED fails to activate, this indicates a problem with one of the voltage signals. Check that the power supply connector is correctly attached to the backplane. If the problem persists, consult an experienced technician.

3.2 Cooling Fan Replacement

Four cooling fans are located in the front top of the chassis. They provide the system with ample cooling by blowing air rearwards. To replace a cooling fan, please refer to Figure 3.2 and follow the steps outlined below.

1. Remove the front top chassis cover.
2. Loosen and remove the thumb screw on the top of the fan unit. This will disconnect the cooling fan power connector.
3. Replace the cooling fan with a new cooling fan.
4. Attach the new cooling fan by fastening the thumb screw.
5. Replace and fasten the front top chassis cover.

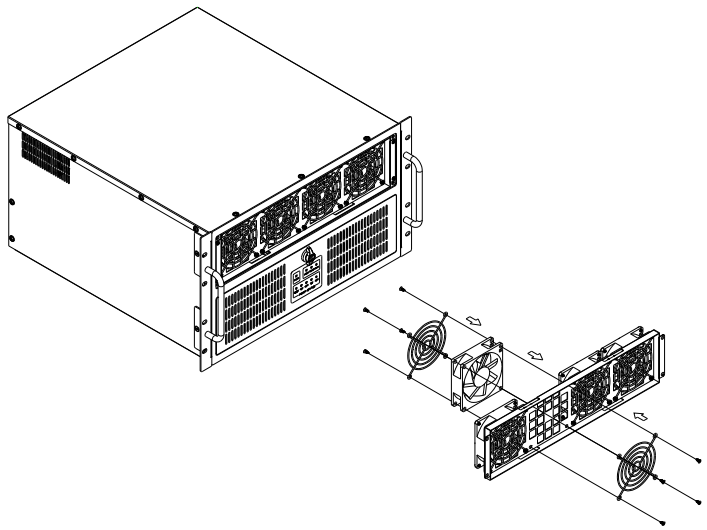


Figure 3.2 Cooling fan replacement

3.3 Filter Replacement

The filter blocks dust or particles in the work environment from entering the chassis and extends the system life. Ideally, the filters should be replaced periodically. One filter is located behind the front upper cover and one filter is located on the lower left and lower right sides of the front door. To replace a filter, please refer to Figure 3.3 and Figure 3.4 and follow the instructions provided below.

3.3.1 Replacing the filter behind the front upper cover

1. Loosen the four thumb screws located on the front upper cover and then gently pull the cover forward (see Figure 3.3).
2. Remove the old filter and replace it with a new filter.
3. Return and fasten the front upper cover.

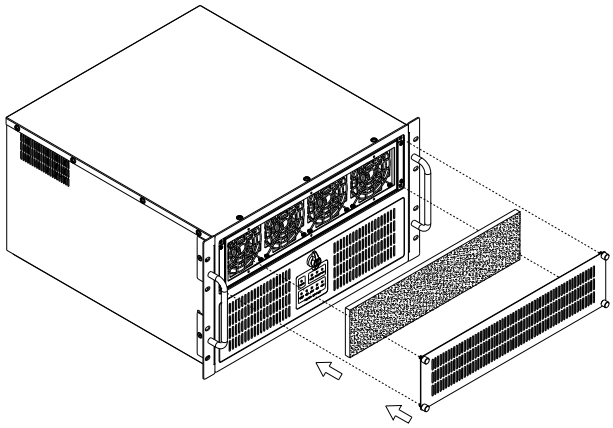


Figure 3.3 Replacing the front upper cover filter

3.3.2 Replacing the filter behind the front door

1. Open the front door by rotating the lock.
2. Loosen the screw on the filter cover (see Figure 3.4).
3. Remove the old filter and replace it with a new filter.
4. Return and fasten the filter cover.

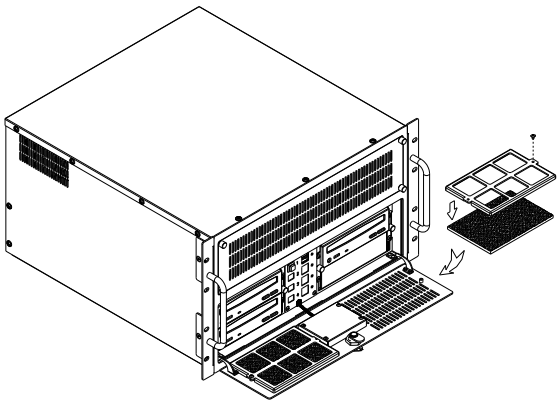


Figure 3.4 Replacing the front door filter

3.4 Power Supply Replacement

The IPC-622 supports either a PS/2 power supply or redundant power supply. To replace the power supply, follow the instructions below.

3.4.1 Redundant Power Supply Module

The redundant power supply module is rear-accessible and hot-swappable. To change the module, follow the instructions below.

1. Press the Alarm Reset button on the front panel to stop the alarm.
2. Unplug the power cord on the failed power supply module.
3. Loosen the screws on the module. Grab the handle and gently pull the module out (see Figure 3.5).
4. Ensure that the new power supply module has the same rating as the previous module.
5. Slide the power supply module into the system (it should lock into place).
6. Fasten the screws and then plug in the power cord.

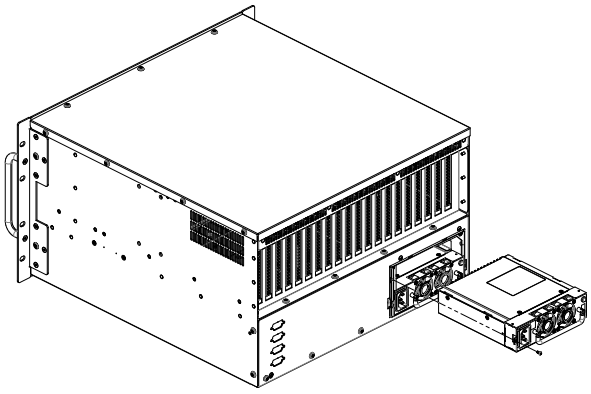


Figure 3.5 Replacing the redundant power supply module

Note *When plugging two or more power cords into a socket, adopt the same orientation (see Figure 3.6).*



Figure 3.6 Power cord socket orientation

3.4.2 Power Supply Module

For the PS/2 power supply module, following the instructions below to replace the power supply.

1. Unplug the power cord from the power supply.
2. Remove the top cover.
3. Unplug the 12-pin AT power connector (or 20-pin (24-pin) ATX power connector), 6-pin +3.3V, and 6-pin +5V power connectors from the backplane. Unplug all other power connectors from the disk drives.
4. Loosen the 8 screws on the top and sides of the rear lower plate.
5. Remove the four screws that fasten the power supply module to the rear plate. Remove the rear lower plate and retrieve the power supply module (see Figure 3.7).
6. Affix a new power supply module onto the rear plate.
7. Return and fasten the rear lower plate.
8. Plug the 12-pin AT power connector (or 20-pin (24-pin) ATX power connector), 6-pin +3.3V, and 6-pin +5V power connectors into the backplane. Plug any other power connectors into the essential disk drives.
9. Replace and fasten the top cover.
10. Plug in the power cord.

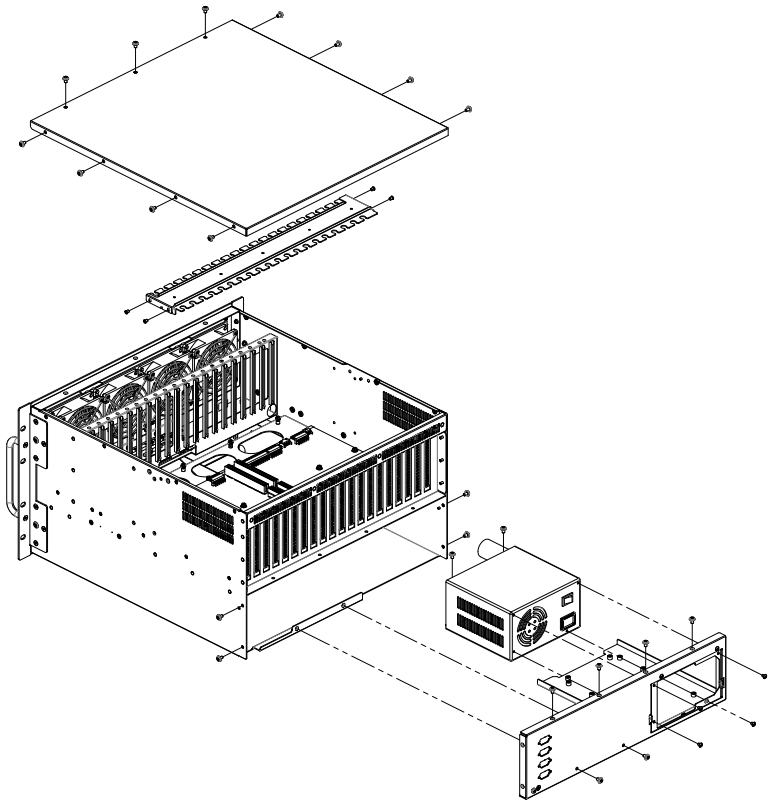


Figure 3.7 Replacing the single power supply

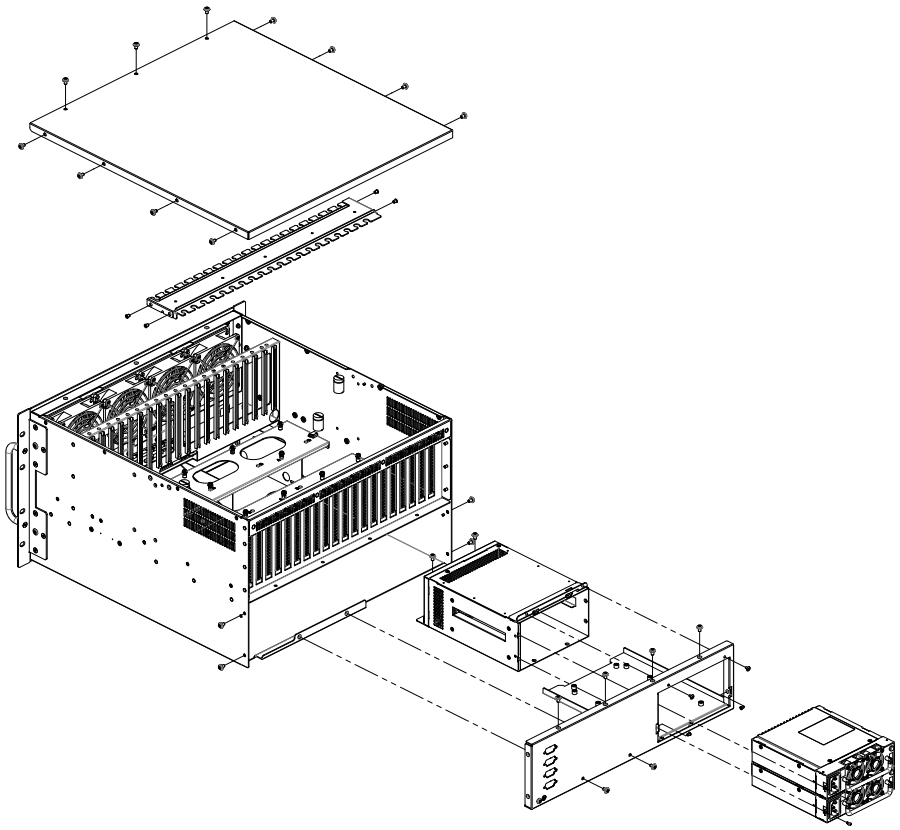


Figure 3.8 Replacing the redundant power supply

Chapter 4

Intelligent System Module (SAB-2000)

This chapter introduces the alarm board and thermal sensor specifications.

- Getting Started
- Specifications
- Connectors and Switch Settings
- SAB-2000 Board Layout
- SAB-2000 Pin Definitions

4.1 Getting Started

Configuring SAB-2000

SAB-2000 is pre-installed in the system chassis. The hardware switch should be adjusted according to the system layout.

Please refer to the user manual for the location of the hardware switch.

For different system layouts, SAB-2000 can be configured using the H/W switch. Please refer to the “Switch Settings” section for detailed information.

For remote management functionality, SUSIAccess must be installed. This enables users to monitor the system fan speed, system temperature, CPU temperature, and voltage. Under SUSIAccess, users can also set their own alarm standards according to their requirements. For detailed information, please refer to the SUSIAccess user guide.

4.2 Specifications

4.2.1 Hardware Specifications

- One 10-pin hardware switch for alarm configuration
- One SMbus interface for monitoring the system and main board status
- Up to four external temperature sensors
- Seven fan tachometer inputs
- One external IPMI module connector
- One built-in buzzer for system health status notifications
- Automatic smart fan control
- Reserved PCB layout for gravity and humidity sensors

4.2.2 Dimensions

- Kernel module (9692S20000E): 115 x 55 mm

4.2.3 Sensor Input Specifications

- Voltage inputs: +5 VDC, -5 VDC, 5 VSB, +3.3 VDC, +12 VDC, -12 VDC
- Temperature sensors: LM75 digital temperature sensor, I2C interface, -30 ~ +125 °C (-22 ~ 257 °F)
- Fan speed monitor: Up to seven fans, 0 ~ 20000 RPM
- Power monitoring:
  Detect redundant power
  IPMI and SUSI command

4.2.4 System Status Monitoring and Management

- Real-time health status monitoring: Real-time system/main board FAN speed and temperature monitor
- Remote system monitoring through SUSIAccess
- Alarm management via on-board buzzer and LED signals

4.2.5 Management Functions

- Web-based remote configuration, control, and monitoring
- Remote reset and power on/off
- Remote digital output signal control

4.2.6 Alarm Notifications

Table 4.1: LEDs and Beeps

Item	Status	Criteria	LED	Beep
PWR	Normal	-	Normal	-
	Redundant power module fail	-	Warn	Keep beep
	Get IPMI and SUSI Command to search	-	Blinking Warn	Keep beep
HDD	Normal	-	Normal	-
	Data transferring	-	Blinking	-
FAN	Normal	> 500 rpm	Normal	-
	CPU FAN fail	< 500 rpm	Warn	Keep beep
	System fan fail	< 500 rpm	Blinking Warn	Keep beep
TEMP.	Normal	-	Normal	-
	CPU thermal fail	> 70 deg.	Warn	Keep beep
	System thermal fail (Thermistor)	> 55 deg.	Blinking Warn	Keep beep
Alarm Reset	Close alarm beep 3 min	Push	-	-
Other	Power off when system fail (ATX only)	LED of fail part	Warn	-

Note *LED colors may differ between each chassis.*

4.2.7 Power Consumption

- 12 V @ 5.25 A

4.3 Connectors and Switch Settings

Table 4.2: Hardware Switch	
Label	**Function**
SW1 ~ 10	Hardware Switch

Table 4.3: Connectors	
Label	**Function**
TR1	Thermistor Connector
TR2	Thermistor Connector
TR3	Thermistor Connector
TR4	Thermistor Connector
ALMRST1	Alarm Reset Connector
IPMB1	IPMI module connector
PMBUS1	PMBUS Connector
LEBOARD1	LED Board Connector
SMB_3V_1	SMBus Device Connector
SMB_3V_2	SMBus Device Connector
BZ1	External Buzzer Connector
HDD1	HDD LED connector
PWR1	PSU Power Connector
SMB_MB1	Main Board SMBus Connector
RDUPG1	Power Good Input Connector
VOLT1	Backplane VOLT1 Connector
FAN1	FAN Connector
FAN2	FAN Connector
FAN3	FAN Connector
FAN4	FAN Connector
FAN5	FAN Connector
FAN6	FAN Connector
FAN7	FAN Connector

Note *Please connect the fan connectors in sequential order. For example, when connecting two fans, connect FAN1 then FAN2. If the fans are connected out of sequence, the alarm will not function correctly.*

Table 4.4: SW1 ~ 3

SW1.Pin1	SW1.Pin2	SW1.Pin3	Cable Status	MB FAN	CPU TEMP
OFF	OFF	OFF	No Connect	Disable	Disable
OFF	OFF	ON	Connect	Disable	1
OFF	ON	OFF	Connect	Disable	2
OFF	ON	ON	Connect	1	1
ON	OFF	OFF	Connect	2	1
ON	OFF	ON	Connect	2	2
ON	ON	OFF	Connect	3	1
ON	ON	ON	Connect	3	2

Table 4.5: SW4 ~ 6

SW1.Pin4	SW1.Pin5	SW1.Pin6	SYS FAN Qty
OFF	OFF	OFF	Disable
OFF	OFF	ON	1 (FAN1)
OFF	ON	OFF	2 (FAN1~2)
OFF	ON	ON	3 (FAN1~3)
ON	OFF	OFF	4 (FAN1~4)
ON	OFF	ON	5 (FAN1~5)
ON	ON	OFF	6 (FAN1~6)
ON	ON	ON	7 (FAN1~7)

Table 4.6: SW7 ~ 9

SW1.Pin4	SW1.Pin5	SW1.Pin6	SYS FAN Qty
SW1.Pin7	SW1.Pin8	SW1.Pin9	TEMP Qty
OFF	OFF	OFF	Disable
OFF	OFF	ON	1 (TR1)
ON	ON	OFF	2 (TR1~2)
ON	ON	ON	3 (TR1~3)
ON	OFF	OFF	4 (TR1~4)

Table 4.7: SW10

SW1.Pin10	Smart FAN
OFF	Enable
ON	Disable

4.4 Board Layout

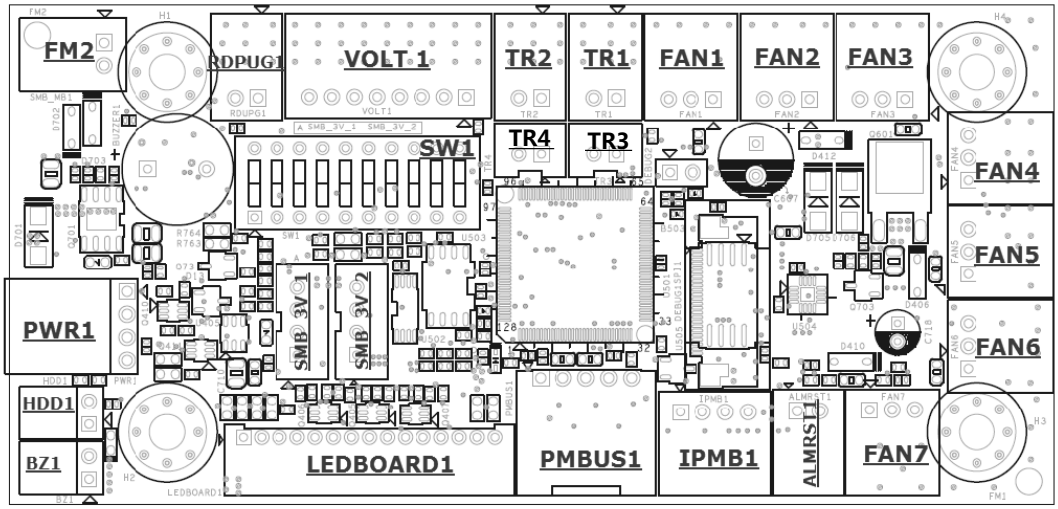


Figure 4.1 SAB-2000 connector locations

4.5 Pin Definitions

Table 4.8: SMB_MB1			
Pin 1	I2C_SCLK	Pin 2	I2C_SDAT

Table 4.9: IPMB1			
Pin 1	NC	Pin 3	S_SDAT_R
Pin 2	S_SCLK_R	Pin 4	GND

Table 4.10: PSBUS1			
Pin 1	+V_PMBUS	Pin 4	I2C_SDAT
Pin 2	GND	Pin 5	I2C_SCLK
Pin 3	NC		

Table 4.11: SMB_3V_1			
Pin 1	+V_SMB	Pin 3	M_SDAT_R
Pin 2	M_SCLK_R	Pin 4	GND

Table 4.12: SMB_3V_2			
Pin 1	+V_SMB	Pin 3	M_SDAT_R
Pin 2	M_SCLK_R	Pin 4	GND

Table 4.13: LEDBOARD1			
Pin 1	GND	Pin 9	T-G_LED
Pin 2	+V5_R	Pin 10	T-F_LED
Pin 3	+V12_R	Pin 11	F-G_LED
Pin 4	-V5_R	Pin 12	F-F_LED
Pin 5	-V12_R	Pin 13	NC
Pin 6	HDD_LED	Pin 14	+V3.3_R
Pin 7	P-G_LED	Pin 15	+V5_SB_R
Pin 8	P-F_LED		

Table 4.14: VOLT1			
Pin 1	+V5_SB	Pin 5	+V5
Pin 2	GND	Pin 6	+V3.3
Pin 3	GND	Pin 7	-V12
Pin 4	-V5	Pin 8	+V12

Table 4.15: TR1~4			
Pin 1	TEMP_SEN1~4	Pin 2	GND

Table 4.16: RDUPG1			
Pin 1	GND	Pin 2	PWR_FAIL_IN#

Table 4.17: BZ1			
Pin 1	+V5_DUAL	Pin 2	EXT_BUZZ#

Table 4.18: HDD1			
Pin 1	NC	Pin 2	HDD_LED_ACT#

Table 4.19: ALMRST1			
Pin 1	GND	Pin 2	ALARM_RST_IN#

Table 4.20: FAN1~7			
Pin 1	GND	Pin 3	FAN_DEC1~7_R
Pin 2	+V12_FAN		

Table 4.21: DEBUG2			
Pin 1	EC_SCLK0	Pin 2	EC_SDAT0

Table 4.22: PWR1			
Pin 1	+V12	Pin 4	GND
Pin 2	GND	Pin 5	+V5

Appendix A

Exploded Diagram

A.1 Exploded Diagram

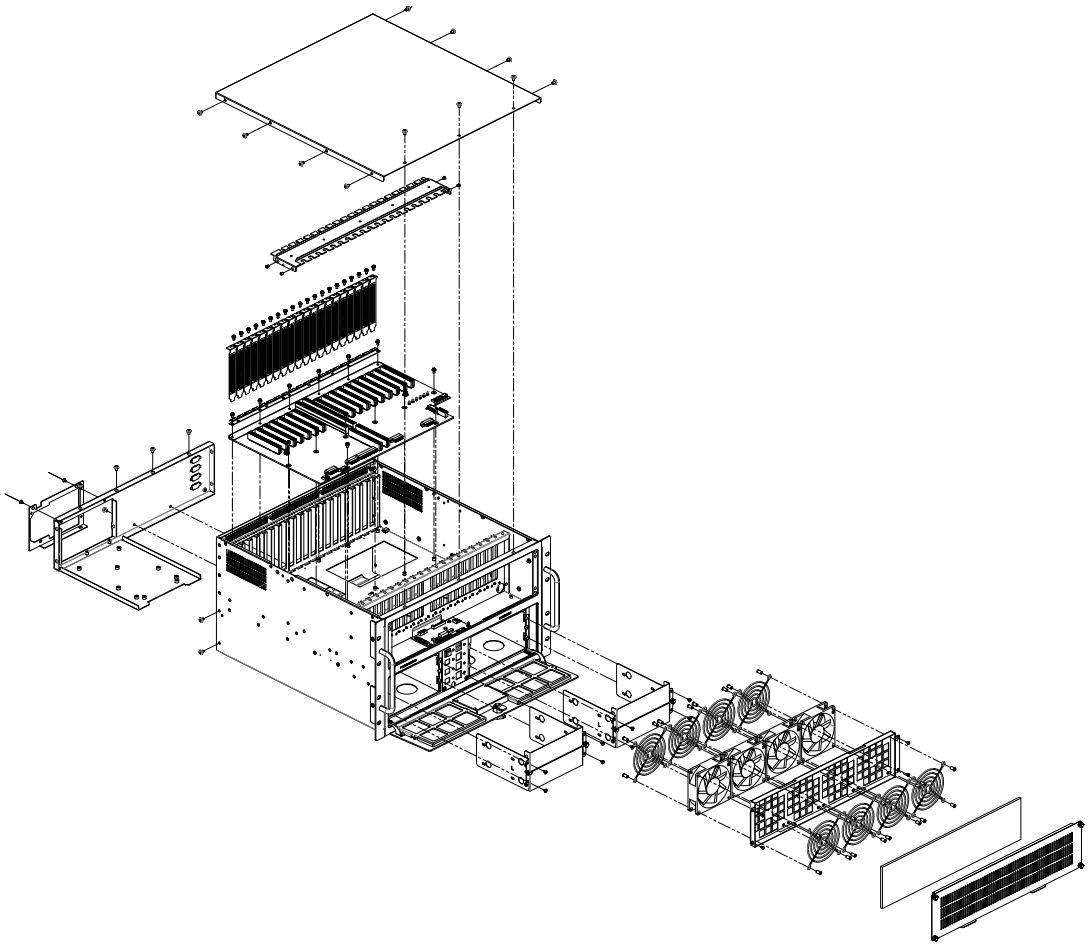


Figure A.1 Exploded diagram (1)

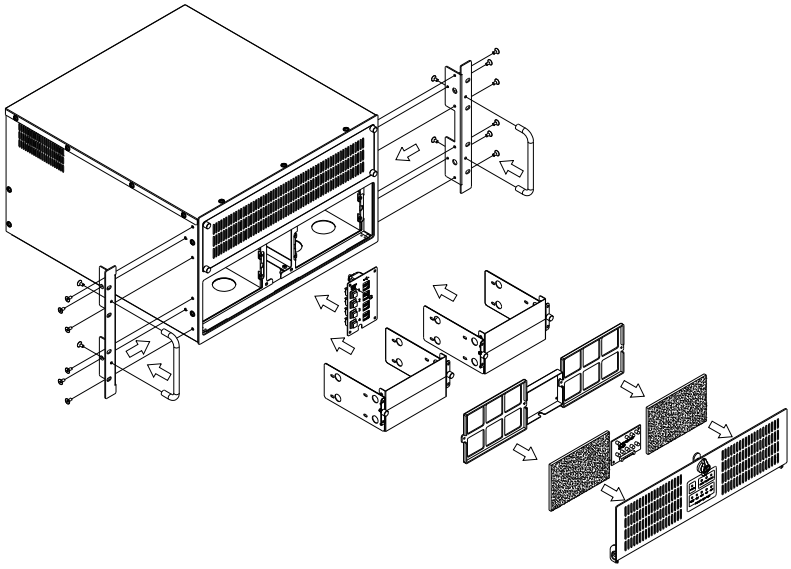


Figure A.2 Exploded diagram (2)

Appendix B

Backplane Options

B.1 Backplane Options

The IPC-622 supports a variety of backplanes ranging from 18-slot to 20-slot. For detailed backplane specifications and information, please contact your local Advantech sales representative.

Table B.1: PCIMG 1.0 Backplane Options

		Slots per Segment				
		Segment	**PICMG**	**PICMG/PCI**	**PCI**	**ISA**
PICMG 1.0	PCA-6120P18	Single	1	1	17	1
	PCA-6120P12	Single	1	1	11	7
	PCA-6120P4	Single	2	-	4	14
	PCA-6119P17	Single	1	1	16	
	PCA-6119P7	Single	2	-	7	10
	PCA-6120DP4	Dual	4	2	6	7
	PCA-6120Q	Quad	-	-	-	20
	PCA-6116QP2	Quad	7	-	8	1

Table B.2: PCIMG 1.3 Backplane Options

		Slots per Segment						
		Segment	**CPU Card Slot**	**PCIe x4**	**PCIe x8**	**PCIe x16**	**PCI-X (64/66)**	**PCI (32/33)**
PICMG 1.3	PCE-5B12-00	Single	1	1	N/A	16	N/A	N/A
	PCE-7B17-00	Single	1	11	5	N/A	N/A	N/A
	PCE-5B18-88	Single	1	N/A	N/A	1	8	8
	PCE-5B16Q-02	Quad	4	N/A	N/A	4	N/A	8
	PCE-7B19-88	Single	1	N/A	2	N/A	8	8
	PCE-7B16Q-02	Single	1	11	5	N/A	N/A	N/A
	PCE-5B19	Single	1	1	N/A	17	N/A	N/A

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