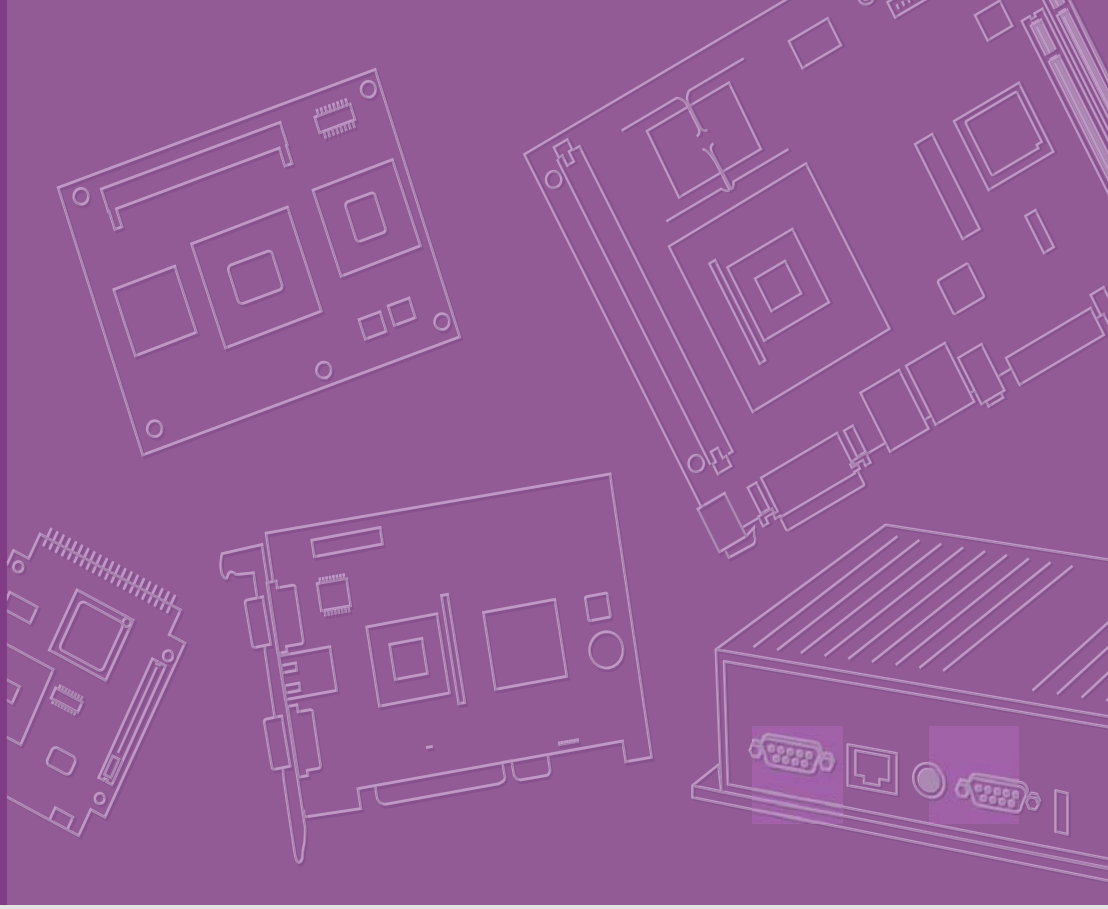

User Manual

IPC-5122

Desktop/Wallmount Chassis for MicroATX Motherboard with PS/2 Power Supply

Trusted ePlatform Services

ADVANTECH

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Part No. 2002512200 Edition 1

Printed in China May 2009

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this user manual for later reference.
3. Disconnect this equipment from AC outlet before cleaning. Do not use liquid or spray detergents for cleaning.
4. For pluggable equipment, the power outlet shall be installed near the equipment and shall be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. Do not leave this equipment in an environment unconditioned where the storage temperature under 0°C (32°F) or above 40°C (104°F), it may damage the equipment.
8. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
10. Place the power cord such a way that people can not step on it. Do not place anything over the power cord. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for long time, disconnect it from the power source to avoid being damaged by transient over-voltage.
13. Never pour any liquid into ventilation openings. This could cause fire or electrical shock.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If any of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well or you cannot get it to work according to user manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.
16. **CAUTION:** The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.
17. THE COMPUTER IS PROVIDED WITH CD DRIVES COMPLY WITH APPROPRIATE SAFETY STANDARDS INCLUDING IEC 60825.

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT

18. This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
    1). This device may not cause harmful interference, and
    2). This device must accept any interference received, including interference that may cause undesired operation.
19. **CAUTION:** Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges.
20. **CAUTION:** Always ground yourself to remove any static charge before touching the motherboard, backplane, or add-on cards. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.
21. **CAUTION:** Any unverified component could cause unexpected damage. To ensure the correct installation, please always use the components (ex. screws) provided with the accessory box.

A Message to the Customer

Advantech Customer Services

Each and every Advantech product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Advantech equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Advantech has come to be known. Your satisfaction is our primary concern. Here is a guide to Advantech's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. If you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

Please consult this manual first. If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Advantech products. In fact, most problems reported are minor and are easily solved over the phone.

In addition, free technical support is available from Advantech engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Initial Inspection

When you open the carton, please make sure that the following materials have been shipped:

- IPC-5122 Chassis
- User Manual
- Warranty Card
- Accessory box with four rubber foots, a pair of wallmount brackets, and a package of screws (for fastening the motherboard, disk drives, rubber foots or wallmount brackets, etc.)

If any of these items are missing or damaged, contact your distributor or sales representative immediately. We have carefully inspected the IPC-5122 mechanically and electrically before shipment. It should be free of marks and scratches and in perfect working order upon receipt. As you unpack the IPC-5122, check it for signs of shipping damage. (For example, damaged box, scratches, dents, etc.) If it is damaged or it fails to meet the specifications, notify our service department or your local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

Contents

Chapter 1

General Information

This chapter provides general information about the IPC-5122. Sections include:

- Introduction
- Specifications
- Power Supply Options
- Environment Specification
- Dimension Diagram

1.1 Introduction

IPC-5122 is an industrial-grade Desktop/Wallmount Chassis for MicroATX motherboard. It meets a variety of application needs for industries with up to 24-hour business/ operation, like backend of bands, hospitals, and convenience store. This powerful computing platform is suitable for industrial automation, and factory management. A wide range of standard computing peripherals, such as slim optical disk drive, 3.5” hard disk drive, PCI/PCIe add-on cards, etc, can be integrated with the chassis to meet different application needs for operation under harsh conditions 24 hours a day, 7 days a week.

1.2 Specifications

- **Construction:** Heavy-duty steel
- **Disk Drive Capacity:** Two 3.5” disk drive bays (one external and one internal), one slim Optical Disk Drive
- **LED Indicators on Front Panel:** Bi-color LEDs (blue/red) for Power, Temperature, HDD, and Fan status
- **Switch and Buttons on Front Panel:** Power switch, System Reset button and Alarm Reset button
- **Front I/O Interfaces:** Dual USB ports.
- **Rear I/O Interfaces:** Reserved six 9-pin D-SUB openings.
- **Cooling System:** One 12 cm (85 CFM) easy-to-maintain cooling fan.
- **Air Filter:** A washable easy-to-maintain filter between the system fan and front iron net.
- **Weight:** 6.5 kg
- **Dimensions (W x H x D):** 157 x 360 x 340 mm

1.3 Power Supply Options

Table 1.1: Power Supply Options

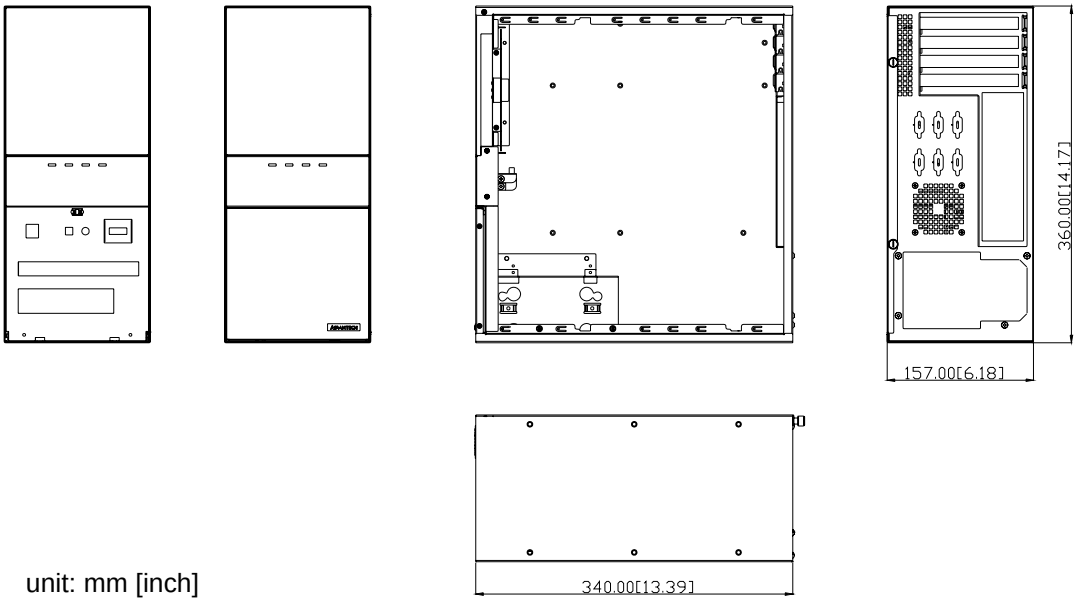
Model Name	**1757001858**	**1757002201**
Output Watt	300 W max. (ATX, PFC) (single PS/2)	400 W max. (ATX, PFC) (single PS/2)
Input rating	100 ~ 240 V_{AC} (Full range)	100 ~ 240 V_{AC} (Full range)
Output voltage	+3.3 V @ 28 A, +5 V @ 30A, +12 V @ 15 A, -5 V @ 0.3 A , -12 V @ 0.8 A, +5 Vsb @ 2 A	+3.3 V @ 25 A, +5 V @ 35 A, +12 V @ 30 A, -12 V @ 0.8 A, -5 V @ 0.8 A, +5 Vsb @ 2 A
Minimum load	+5 V @ 0.5 A, +12 V @ 1 A	+5 V @ 3 A, +12 V @ 1 A
MTBF	100,000 hours @ 25°C	91,000 hours @ 25°C
Safety	UL/TUV/CB/CCC	UL/TUV/CB/CCC

1.4 Environment Specifications

Table 1.2: Environment Specifications

Environment	Operating	Non-operating
Temperature	0 to 40°C (32 to 104°F)	-20 to 60°C (-4 to 140°F)
Humidity	10% to 85% @ 40°C, non-condensing	10% to 95% @ 40°C, non-condensing
Vibration	1 Grms	2 G
Safety	CE compliant	

1.5 Dimension Diagram



unit: mm [inch]

Figure 1.1 Dimension diagram

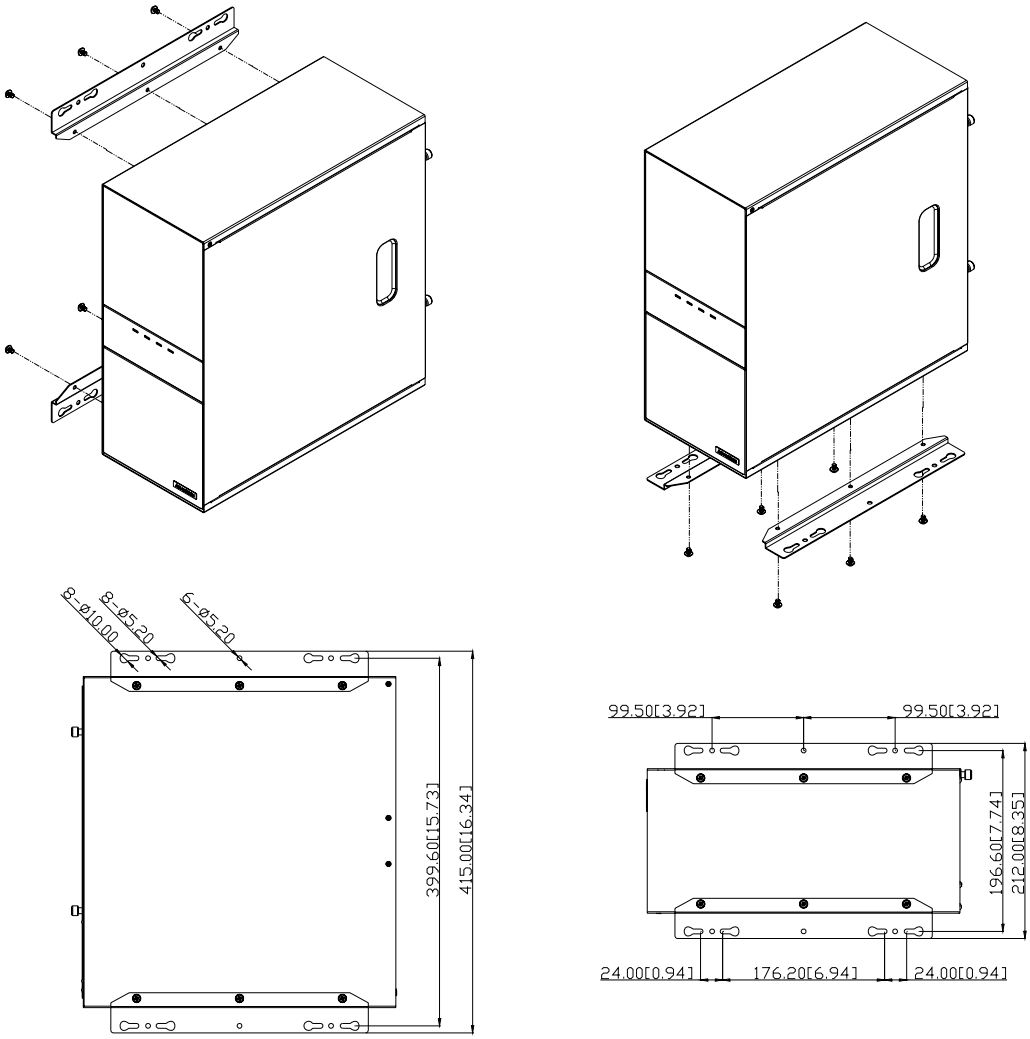


Figure 1.2 Installation

Chapter 2

System Setup

This chapter introduces the installation process.

Sections include:

- **Removing the Side Cover**
- **Installing MicroATX Motherboard**
- **Installing Add-on Card**
- **Installing Disk Drives**
- **Installing Wallmount Bracket**

The following procedures instruct users to install the backplane, add-on cards, disk drives into the IPC-5122 chassis. Please refer to Appendix A, Exploded Diagram, for all the detailed parts names of IPC-5122.

Caution! *Use caution when installing or operating the components with the chassis open. Be sure to turn off the power, unplug the power cord and ground yourself by touching the metal chassis before you handle any components inside the machine.*

2.1 Removing the Side Cover

To remove the side cover of the chassis, please proceed as below.

1. Loose two thumbscrews on the rear edge of the side cover.
2. Pull the chassis side cover backwards and then pull it out (Figure 2.1).

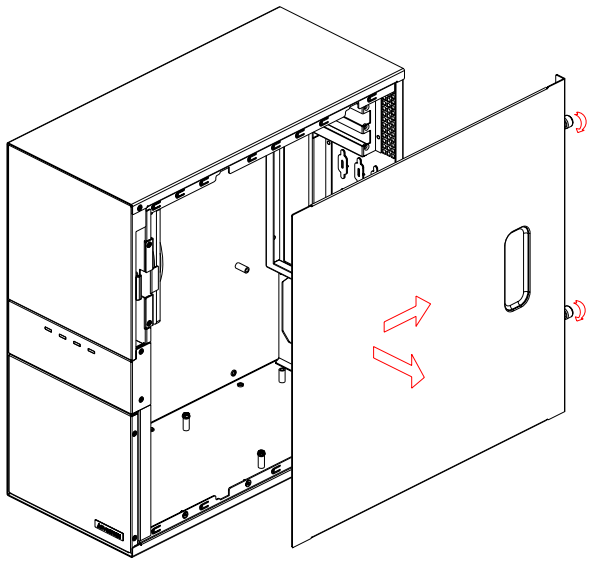


Figure 2.1 Removing the side cover

2.2 Installing MicroATX Motherboard

IPC-5122 supports MicroATX motherboard with up to 4 expansion slots. To install a MicroATX motherboard or some add-on cards, please proceed as follows:

1. While installing a MOTHERBOARD, firstly attach the motherboard I/O shielding onto the rear plate of IPC-5122 chassis. Then fasten the motherboard onto the chassis. (see Figure 2.2)
2. Connect the 20-pin (or 24-pin) ATX power connector and the 4-pin +12V power connector from the power supply to the MicroATX motherboard.
3. Connect the 9-pin USB wire, Power switch wire, and the System Reset switch wire from the chassis to the motherboard.
4. Connect the wire HDD LED from the chassis to the motherboard.

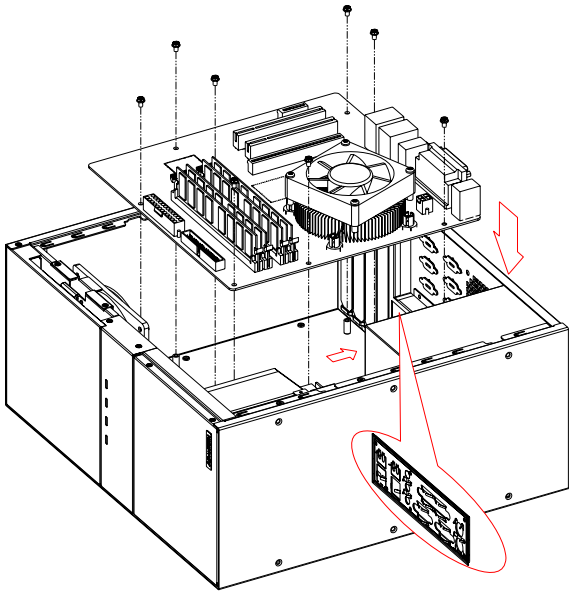


Figure 2.2 Installing a motherboard

2.3 Installing Add-on Card

IPC-5122 supports up to 4 expansion cards depending on the embedded MicroATX specification. To install an add-on card, please proceed as follows:

1. Select a PCI/PCIe slot for the add-on cards. Then, remove the corresponding I/O bracket attached to the rear plate of the chassis.
2. Insert the add-on card vertically into the proper slot. Fasten the screws on the top of both brackets of the card. (See Figure 2.3)
3. Repeat Step 1 and 2 if there is more than one add-on card to be installed.

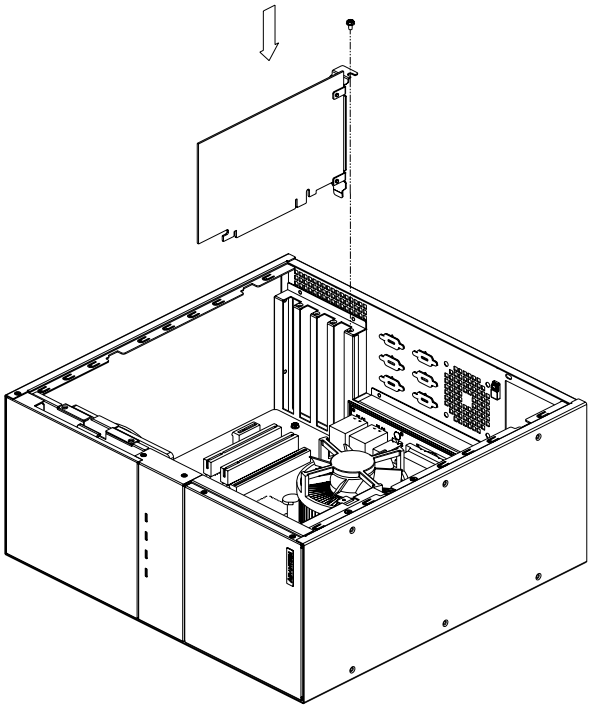


Figure 2.3 Installing an add-on card

2.4 Installing Disk Drives

The IPC-5122 supports two 3.5” disk drives (one 3.5” external, one 3.5” internal HDD) and one slime optical drive. Please refer to the following instructions to install the various disk drives.

To install the 3.5” HDD and the optical disk drive, please follow these steps for installation and refer to Figure 2.4 & Figure 2.5

1. Release the screws of disk drive bracket.
2. Remove the slim ODD cover and HDD cover.
3. Install the 3.5” HDD or FDD and slim ODD into the proper location of the bracket and secure them with the screws provided. (Figure 2.4)
4. Return the disk drive bracket with the disk drive in the original position and fasten it with the screws. (Figure 2.5)
5. Connect the suitable cables from MicroATX motherboard to the 3.5” HDD, or FDD or slim ODD. Then plug the power connector into each disk drive.

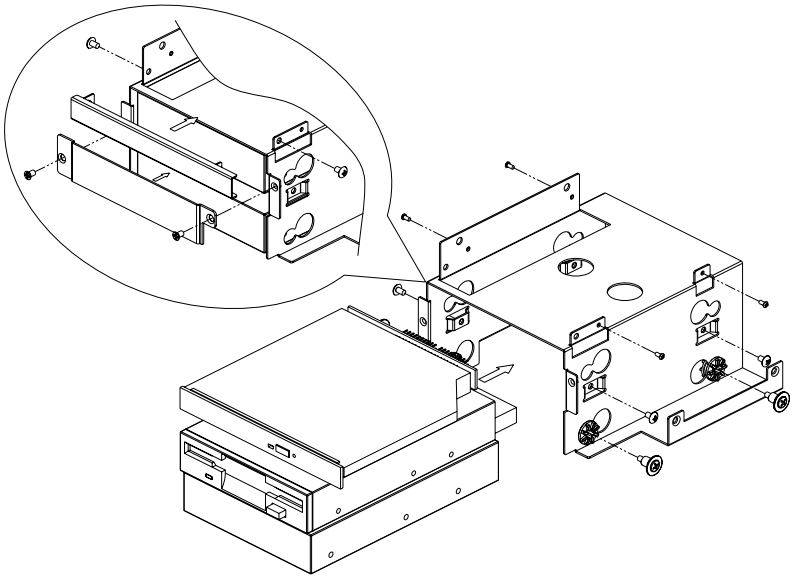


Figure 2.4 Installing 3.5” HDD disk drive, FDD and slim ODD

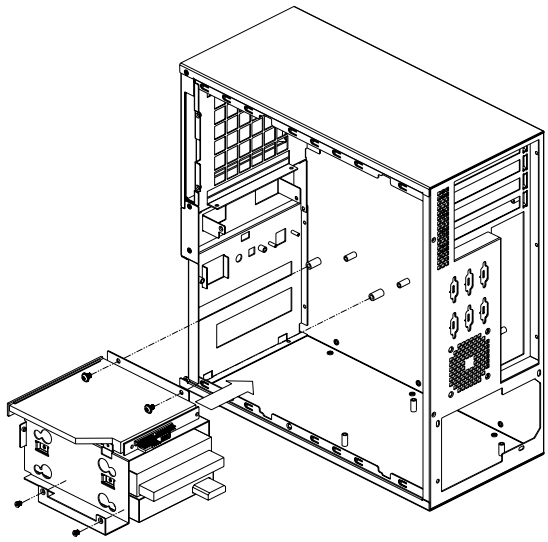


Figure 2.5 Installing disk drive

2.5 Installing Wallmount Bracket

There is a pair of wallmount brackets in the accessory box. If you need to install the brackets into the chassis, please refer to Figure 2.6 to simply fasten wallmount brackets to the right edge and left edge of the bottom. (Figure 2.6)

Or simply fasten wallmount brackets to top edge and button edge of the side cover (Figure 2.7) with the screws provided.

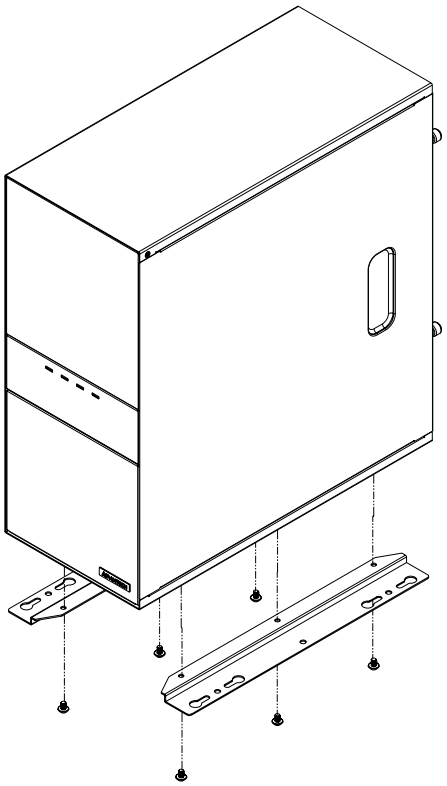


Figure 2.6 Installing wallmount brackets

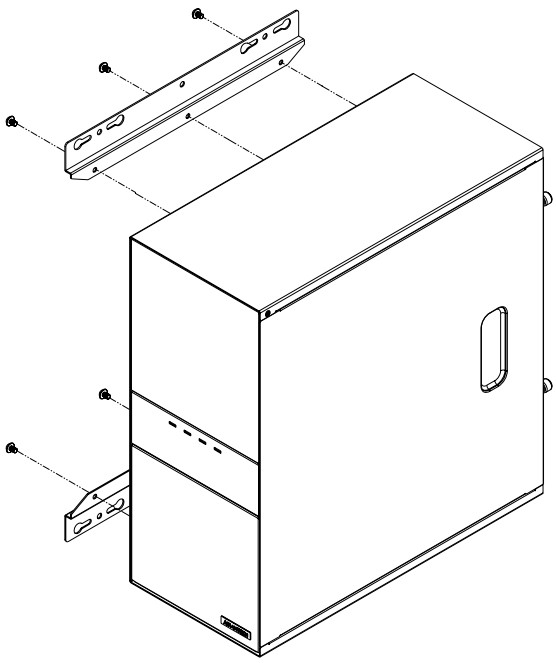


Figure 2.7 Installing wallmount brackets

Chapter 3

Operation

This chapter introduces the system operation information.

Sections include:

- **The Front Panel**
- **The Real Panel**
- **Replacing the Cooling Fan**
- **Cleaning the Filters**
- **Replacing the Power Supply**

3.1 The Front Panel

The front panel features the door and four LED indicators. The user can close the door to prevent the dust. While opening the door, there is a momentary power switch, System Reset buttons, an Alarm Reset button, and two dual USB ports. Their individual functions are described as below.

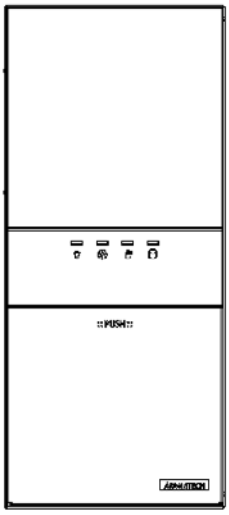


Figure 3.1 Closed front door

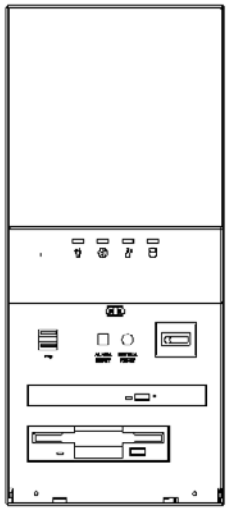


Figure 3.2 Open front door

3.1.1 Switch, Buttons and I/O Interface

- **Momentary Power switch:** Press this switch to turn the system power on or off. Please use system shutdown or press this switch for few seconds to turn off the system ATX power.
- **System Reset button:** Press this button to reboot the system.
- **Alarm Reset button:** Whenever a fault occurs in the system (e.g., fan failure or the chassis is overheated), the audible alarm will be activated. Pressing this button will stop the alarm from beeping.
- **Dual USB ports:** For connecting a wide range of USB devices for data transfer, backup or input.

3.1.2 LED Indicators for System Status

Four LEDs are placed on the front panel to indicate system health and activity. Please refer to Table 3.1 for the LED definition summary.

Table 3.1: LED Indicators for System Status

LED	Description	Blue	Red	Pink
PWR	System power	Normal	Abnormal	NA
FAN	Cooling fan status	Normal	Abnormal (System fan fail)	Abnormal (CPU fan fail)
TEMP	Temperature in the chassis	Normal	Abnormal (System temp fail)	Abnormal (CPU temp fail)
HDD	Hard disk drive activity	Data access	No light	NA

When the system power is on, the power LED is always **BLUE**.

When the system power LED is **RED**, it indicates a failure of power supply. To stop the alarm beep, press the **Alarm Reset** button. Examine the power supply right away and replace the failed power supply with a good one.

When the fan LED is **RED**, it indicates a failed system fan, and the alarm is activated. When the fan LED is **PINK**, it indicates a failed CPU cooler and the alarm is also activated. To stop the alarm beep, press the **Alarm Reset** button and then replace the failed fan with a good one

If the temperature LED is **RED**, it means that it is overheated inside of the chassis (more than 50°C). And if the temperature LED is **PINK**, it means that it is overheated on the CPU card (more than 65°C). An audible alarm will be activated. To stop the alarm beep, press the **Alarm Reset** button. Inspect the fan filter or temperature of CPU card and the upper section of the chassis immediately. Make sure the airflow inside the chassis is smooth and not blocked by dust or other particles.

Note! *Whether CPU cooler or CPU temperature are detectable or not depends on different design of each MicroATX motherboard.*

When HDD LED is **BLINKING,** it indicates the data access from HDD. And when HDD LED is **NO LIGHT**, it indicates no activity from HDD.

3.2 The Rear Panel

The rear plate includes six reserved 9-pin D-SUB openings and one optional 6cm fan. (see Figure 3.3).

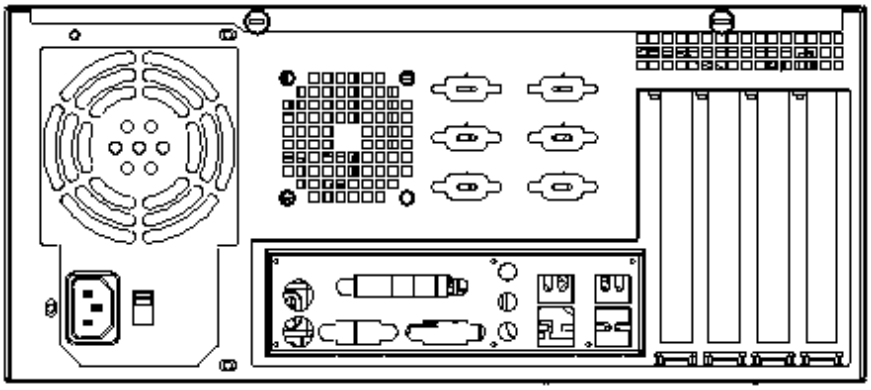


Figure 3.3 The rear panel

3.3 Replacing the Cooling Fan

There is one cooling fans behind the front panel. The fan provides the system with ample cooling by blowing air toward the rear. Please proceed according to the instructions below to replace the cooling fan if needed.

1. Remove the side cover.
2. Unplug the fan power connector.
3. Loose two screws on side of the fan unit and then gently pull it out (see Figure 3.4).
4. Loose four screws on the fan bracket and four screws on the fan guard (see Figure 3.5).
5. Replace it with a new fan.
6. Fix the new cooling fan on the fan bracket by screwing in the four screws. And fix the fan guard with fan by screwing the four screws.
7. Replace the fan unit into the chassis by tightening 2 screws on side of the fan unit and reconnect the fan power connector.
8. Put back the side cover and fasten it with thumbscrews.

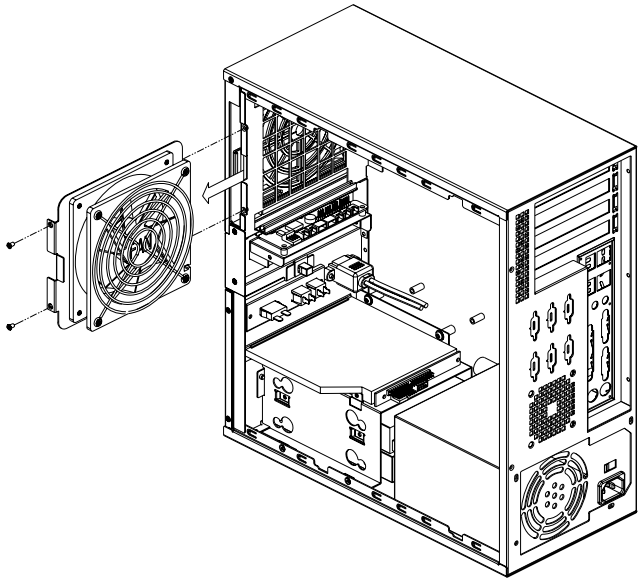


Figure 3.4 Replacing the cooling fan

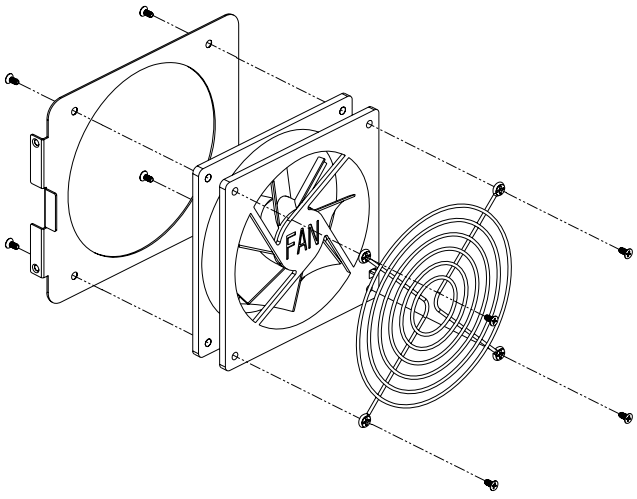


Figure 3.5 Replacing the cooling fan from fan bracket

3.4 Cleaning the Filter

The filter functions to block dust or particles from the work environment and to extend the longevity of the system. It's better to clean the filters periodically. There is a washable fan filter between the iron net and the fan. To remove and clean the filter, proceed as follows.

1. Remove the side cover.
2. Take out the filter which is behind the iron net from the side of chassis. (see Figure 3.6)
3. Clean the filters by a soft brush or wash the dusts away from the filter with fluent water and then dry it.
4. Put the fan filter back from the side of chassis. (see Figure 3.6)

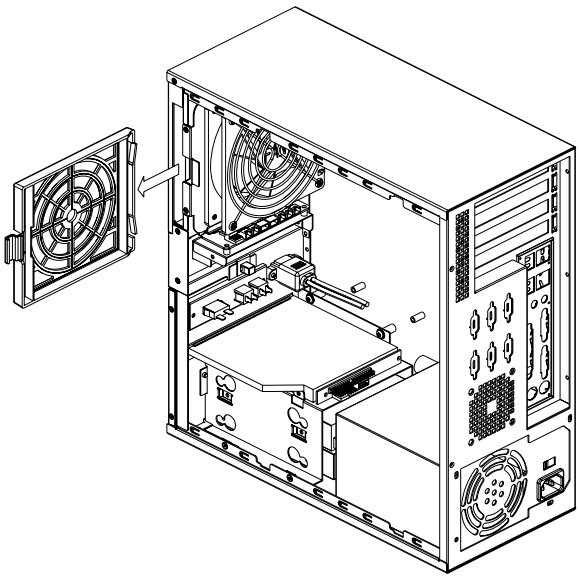


Figure 3.6 Replacing the filters

3.5 Replacing the Power Supply

The IPC-5122 supports a single PS/2 power supply. To replace the power supply, please proceed as below.

1. Unplug the power cord from the power supply and remove the side cover.
2. Unplug the 20-pin (or 24-pin) ATX power connector and 4-pin +12 V power connector from the motherboard, as well as the power connectors from all disk drives.
3. Loose the screws fixed on the inner power supply bracket and loose the screws of power supply from the rear panel of chassis. Then gently pull out the power supply. (see Figure 3.7)
4. Replace the power supply with a new one and then put it back into the chassis.
5. Fasten screws on the inner power bracket and fasten the screws on the rear panel.
6. Plug the 20-pin (or 24-pin) ATX power connector and 4-pin +12 V power connector to the backplane. And plug other power connectors to the disk drives and peripherals.
7. Return side cover and then plug in the power cord.

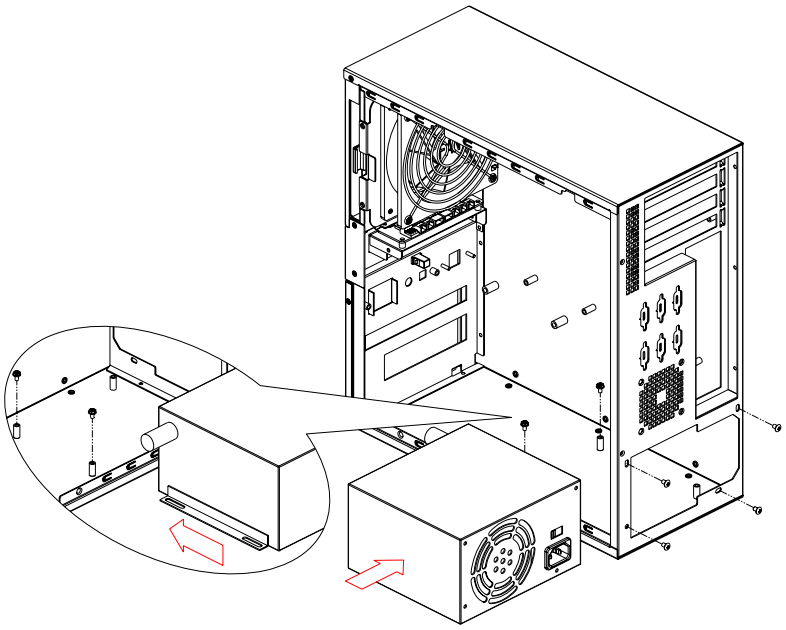


Figure 3.7 Replacing the single power supply

Chapter 4

Alarm Board

This chapter introduces the alarm board and thermal sensor specifications.

Sections include:

- Alarm Board Layout
- Alarm Board Specifications
- Thermal Sensor
- Sensor I.D. Number Setting

The alarm board is located behind the cooling fan near the middle section. The alarm board makes an audible alarm when:

- The ATX power supply fails
- One of the cooling fans fai1s
- Internal temperature of the chassis is too high
- One of hard drive transmits data

To stop the alarm beep, simply press the Alarm Reset button on the front panel behind the front door and then take the necessary action to fix it.

4.1 Alarm Board Layout

The layout and detailed specification of the alarm board are given below.

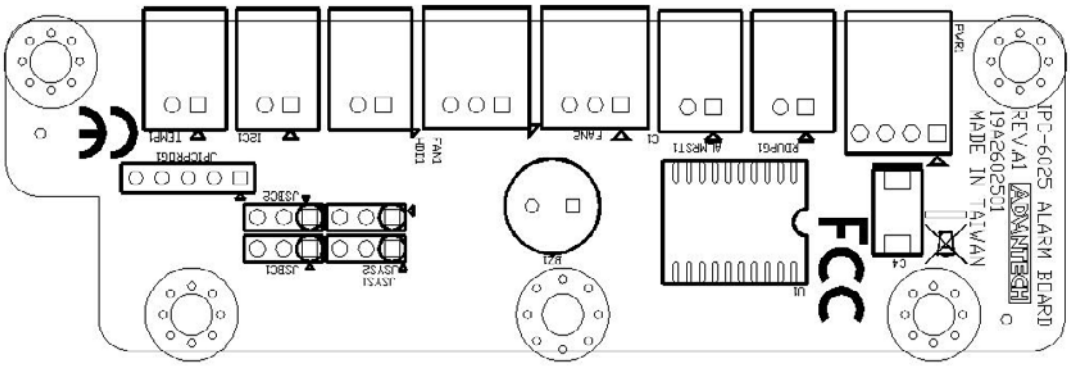


Figure 4.1 Alarm board layout

4.2 Alarm Board Specifications

Input Power: +5 V, +12 V

Input Signals:

- 2 FAN connectors
- One thermal sensor connector
- One power good (redundant power) input
- One alarm reset input
- One 12C connector
- One Hard Disk LED connector (connect from CPU card/motherboard)

Output Signals:

- Four LEDs
- One Buzzer output

4.2.1 Connectors, Jumper and Pin Definition

Table 4.1: PWR1, Auxiliary External Power Connector, Standard Mini 4-Pin Power Connector			
Pin 1	+12 V	Pin 3	GND
Pin 2	GND	Pin 4	+5 V

Table 4.2: RDUPG1, Redundant Power Connector			
Pin 1	GND	Pin 2	PWR FAIL

Table 4.3: ALMRST, Alarm Reset Connector			
Pin 1	GND	Pin 2	ALARM RESET

Table 4.4: FAN1, System Fan Connector			
Pin 1	GND	Pin 2	+12 V
Pin 3	FAN_DEC1		

Table 4.5: FAN2, System Fan Connector			
Pin 1	GND	Pin 2	+12 V
Pin 3	FAN_DEC2		

Table 4.6: HDD, HDD Connector			
Pin 1	N/A	Pin 2	HLED_ACT

Table 4.7: I2C1, I2C Connector			
Pin 1	SCL	Pin 2	SDA

Table 4.8: TEMP1, Temperature Connector			
Pin 1	GND	Pin 2	TEMP_DEC (thermal sensor)

Table 4.9: JSYS1 & JSYS2, System Fan & System Temperature (Jumper Selection)

JSYS1	JSYS2	System Fan	System Temp
2-3	1-2	Disabled	1
1-2	2-3	1	1
1-2	1-2	2	1

Table 4.10: JSYS1 & JSYS2, System Fan & System Temperature (Jumper Selection)			
JSBC1	**JSBC2**	**CPU Fan**	**CPU Temp**
2-3	2-3	Disabled	1
2-3	1-2	1	1
1-2	1-2	2	2

4.3 Thermal Sensor

The IPC-5122 is assembled with a thermal sensor located on the rear plate of the chassis (see Figure 4.2).

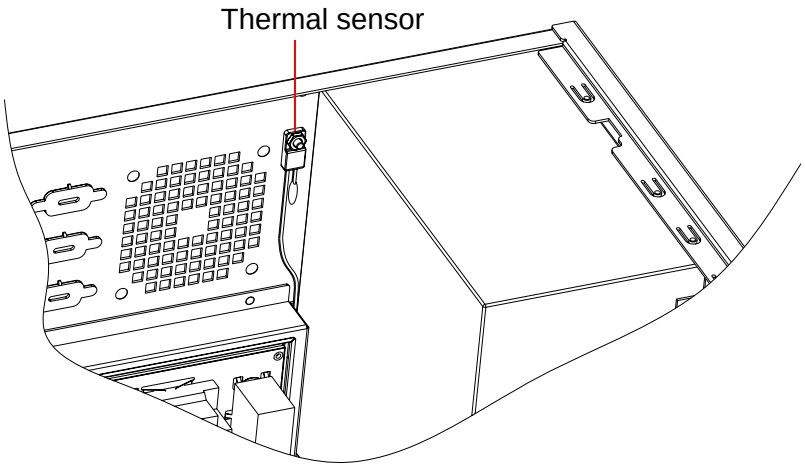


Figure 4.2 Thermal sensor location

Appendix A

Exploded Diagram & Parts List

A.1 Exploded Diagram & Parts List

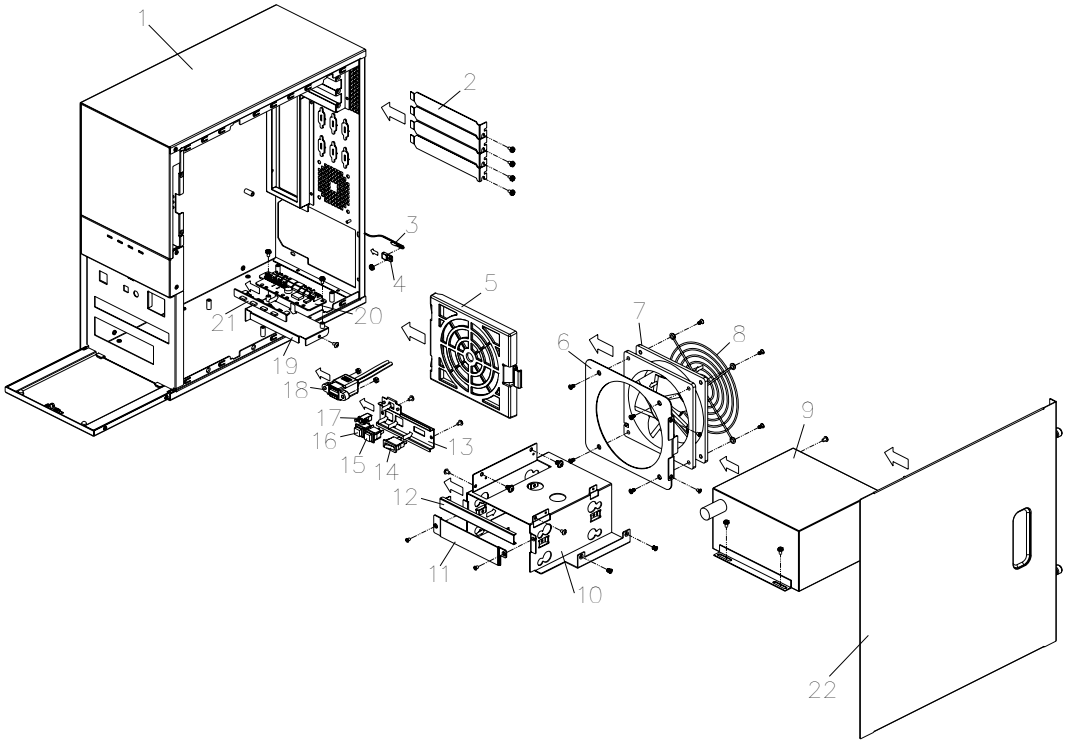


Figure A.1 Exploded Diagram

Table A.1: Parts List			
1	Body of IPC-5122 chassis	12	Slim ODD cover
2	I/O brackets on add-on card slots	13	Switch bracket
3	Thermal sensor	14	Power switch
4	Sensor holder	15	System reset switch
5	Fan filter	16	Alarm reset switch
6	Fan bracket	17	Door latch
7	12 cm fan	18	USB cable
8	12 cm fan guard	19	Alarm board bracket
9	PS/2 single power	20	Alarm board
10	HDD bracket	21	Alarm board lens
11	FDD cover	22	Chassis cover

Appendix B

Motherboard Options

B.1 Motherboard Options

IPC-5122 supports a variety of Advantech MicroATX motherboards as below. Users can contact a local sales representative for detailed specification and information.

Table B.1: Motherboard Options

Model Name	Bus		
	PCI	AGP	SATA
AIMB-566	1 (PCIe x4) 1(PCI 32-bit)	-	6
AIMB-564	1 (PCIe x16) 1 (PCIe x4) 2 (PCI 32-bit)	-	7
AIMB-562	1 (PCIe x16) 1 (PCIe x1) 2 (PCI 32-bit)	-	4
AIMB-560	3 (PCI 32-bit)	-	4
AIMB-556	1 (PCIe x16) 1 (PCIe x4) 2 (PCI 32-bit)	-	4
AIMB-554	1 (PCIe x16) 1 (PCIe x4) 2 (PCI 32-bit)	-	2
AIMB-542	3 (PCI 32-bit)	1	2

Note! *In the stable application environment which is not more than 1G rms with non-operation condition, AIMB-564 and AIMB-562 can be an economic solution.*

In more sever or harsh environment which is 2G rms with non-operational condition, AIMB-566 would be a suitable solution.

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