**IPC-602**

**2U 6-slot Industrial**

**Rackmount Chassis**

**User's Manual**

# Copyright Notice

## 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. So 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.

So 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 able to be 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

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.

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:

Step 1.  Collect all the information about the problem encountered. (For example, type of PC, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

Step 2.  Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

Step 3.  If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.

Step 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.

Step 5.  Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

## Initial Inspection

Before you begin installing your backplane, please make sure that the following materials have been shipped:

• IPC-602 Chassis

• User's Manual

• Warranty card

• Accessory package with screws for disk drives and backplane, a pair of keys and a spare filter

If any of these items are missing or damaged, contact your distributor or sales representative immediately. We have carefully inspected the IPC-602 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-602, 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

# General Information

# Chapter 1  General Information

## 1.1  Introduction

The IPC-602 is a compact rugged 19" 2U-height rackmount chassis designed for space-limited application. With its rugged, sturdy and well-cooled steel chassis specially designed to withstand heavy shocks and thick dust, the IPC-602 can be used in the harshest of environments. It is ideal for Computer Telephony or network system configurations that require high availability within a limited space, such as computer telephony and networking systems.

## 1.2  Specifications

- **Construction:** Heavy-duty steel

- **Disk drive capacity:** One 5.25" and two 3.5" drive bays

- **Indicators:** LEDs for power On/Off, and HDD

- **Controls:** Power On and Reset switches on front panel

- **Cooling fan:** Two 42 CFM fans on front panel, with air filters

- **Weight:** 8.3 kg (18.26 lbs) without power supply

- **Dimensions (W x D x H):** 481.2 x 449.5 x 88 mm (19" x 17.7" x 4")

- **Interior paint color:** Black 2U, 2X; Fabric Texture

### 1.2.1 Passive Backplane Options

| Part Number | Slots | PC Board | Indicators |
|---|---|---|---|
| PCA-6105P4V | 4 PCI / 1 PICMG | 6-layer PCB with ground and power planes for reducing noise and low power-supply impedance | LEDs for +5 V, +12 V, -5 V, -12 V, +3.3 V |
| PCA-6106P4V | 1 ISA / 4 PCI / 1 PICMG | | |
| PCA-6106P3V | 1 ISA / 3 PCI / 2 PICMG | | |

## 1.2.2 Power Supply Options

| Part Number | Watt | Input | Output | Mini-load | Safety | MTBF |
|---|---|---|---|---|---|---|
| PS-300ATX-DC48 | 300 W | DC -36 ~ -72 V | +5 V @ 30 A<br>+12 V @ 15 A<br>-5 V @ 0.3 A<br>-12 V @ 0.8 A<br>+5 Vsb @ 2 A | +5 V @ 0.3 A<br>+3.3V @ 0.3A<br>+12V @ 0.2A | UL/CSA/CE/TUV/FCC | 100,000 hours @25°C |
| PS-260-610E (AT) | 260 W | AC 110/220 V | +5 V @ 25 A<br>+12 V @ 9 A<br>-5 V @ 0.5 A<br>-12 V @ 2 A | +5 V @ 1 A<br>+12 V @ 0.1 A | UL/CSA/CE/TÜV | 140,000 hours @ 50 °C full load |
| PS-250ATX-Z (ATX, PFC) | 250 W | AC 95 ~ 132 V<br>AC 190 ~ 264 V<br>(Selectable) | +5 V @ 27 A<br>+3.3 V @ 20 A<br>+12 V @ 13 A<br>-12 V @ 0.8 A<br>-5 V @ 0.3 A<br>+5 Vsb @ 2 A | +5 V @ 1.5 A<br>+12 V @ 0.3 A | UL/cUL (60950 3rd)/ CE (EN61000-3-2 Class D)/TUV/FCC/ CSA/Nemko/CB/ CCC | 100,000 hours @ 25 °C full load |
| PS-400ATX-Z (ATX, PFC) | 400 W | AC 90 ~ 264V (Full-range) | +5 V @ 42 A,<br>+3.3 V @ 20 A<br>+12 V @ 14 A<br>-12 V @ 1 A<br>-5 V @ 1 A<br>+5 Vsb @ 0.75 A | +5 V @ 2 A<br>+12 V @ 0.5 A<br>+3.3 V @ 0.2 A | UL/cUL/TUV/CCC | 100,000 hours @ 25 °C 75 % load |
| PS-300ATX-ZB (ATX, PFC) | 300W | AC 90-264 V (Full range) | +5 V @ 30 A,<br>+3.3 V @ 28 A<br>+12 V @ 15 A<br>-12 V @ 0.8 A<br>-5 A @ 0.3 A,<br>+5 Vsb @ 2 A | +5 V @ 0.1 A<br>+3.3 V @ 0.3 A | UL/cUL (60950 3rd)/CE (EN61000-3-2 Class D)/TUV/ FCC/CSA/Nemko/ CB/CCC | 100,000 hours @ 25 °C |

## 1.2.3 Environmental specifications

- **Operating temperature:** 0 ~ 45° C (32 ~ 113° F)

- **Relative humidity:** 10 ~ 95% @ 40° C, non-condensing

- **Safety:** CE compliant, UL / cUL certified
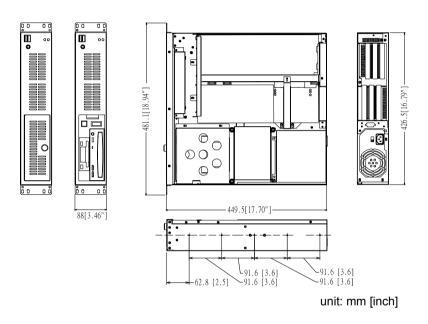
# 1.3 Dimensions



*Figure 1-1: Dimension Diagram*

## 1.4  Safety Precautions

*Warning!*   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. Only experienced electronics personnel should open the PC chassis.

*Caution!*   Always ground yourself to remove any static charge before touching the backplane, mother-board or add-on cards. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a ground-ing 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.

*Caution!*   The computer is provided with a battery-pow-ered Real-time Clock circuit.  There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type rec-ommended by the manufacturer.  Discard used batteries according to manufacturer's instruc-tions.

*Caution!*   There is a danger of a new battery exploding if it is 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 manufac-turer. Discard used batteries according to the manufacturer's instructions.

# FCC

*This device complies with the requirements in 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*

*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 Rules. 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 device in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for compliance would void the compliance to FCC regulations and therefore, the user's authority to operate the equipment.*

# System Setup

# Chapter 2  System Setup

## 2.1  Introduction

The following procedures are provided to assist you in installing drives and plug-in cards into the IPC-602.

## 2.2  Removing the Cover

Unscrew the six screws on the front and rear panels, then slide the top cover toward the rear chassis and open it. See Figure 2-1 below:
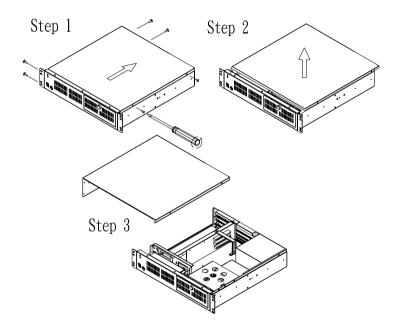
*Figure 2-1: Removing the cover*

## 2.3 Installing Disk Drives

After removing the cover, you can easily install disk drives. Please refer to Figure 2-2 below and do the following:

1. Remove the four outer screws which mount the drive bay to the chassis.

2. Slide the drive bay backwards to a location where it is not obstructed by the top rim. Lift it free from the chassis.

3. Remove the front cover of the drive bay, and insert the drives into the proper locations in the drive bay.

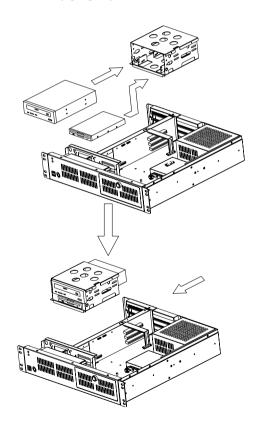4. Put back the drive bay properly and fasten the screws.



*Figure 2-2: Installing disk drives*

## 2.4  Installing Plug-in Cards

After removing the cover, you can easily install plug-in cards by follow-ing the steps.  Please refer to Figure  2-3 below:

1. Unscrew the screws on the card cage.

2. Insert the CPU card carefully into the PICMG slot and then fix it by screwing it into the card bracket.  You can also fix the other edge of the CPU card using the supplied small L-form holder.

3. If users need to insert other cards on the other side of the backplane, please loosen the L-form support first.  After installing the cards, also fix them to the card cage by screwing them into the card bracket. Then replace the L-form support and fasten it.

4. After all cards are installed completely, put card cage back into the correct location in the chassis.  Finally, fasten the screws.
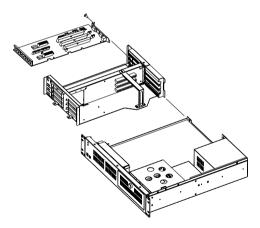


*Figure 2-3: Installing plug-in cards*

## 2.5  Replacing the Fan

1. Unscrew the two screws on the fan bracket, and slide the bracket backwards. See Figure 2-4 below:

2. Replace the new fan and fix it to the bracket.
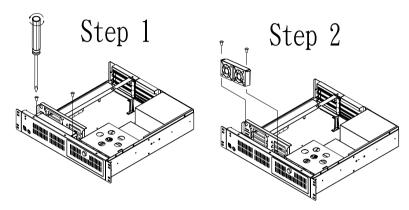
3. Put back the fan bracket and fasten the screws.



*Figure 2-4: Replacing the fan*

## 2.6  Replacing the Filter

The filter is located next to the lockable door. If IPC-602 is under use constantly, the filter should be changed about once a month. To replace the filter, refer to Figure 2-5 below and do the following:

1. Open the lockable door.

2. Remove the filter by gently pulling the tab and sliding the filter rightwards.

3. Slide a new filter in until it snaps into place.
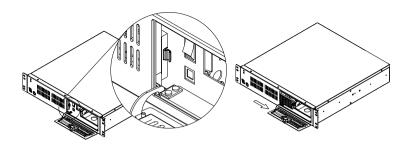
4. Close and lock the lockable door.

*Figure 2-5: Replacing the filter*

## 2.7 Installing the L form holder

Before users mounting IPC-602 Chassis to the rack, please install the L form holders to both sides of the chassis.  Please refer to Figure 2-6 and proceed as following steps.

1.    Find the L form holders and the screws from the accessory package.

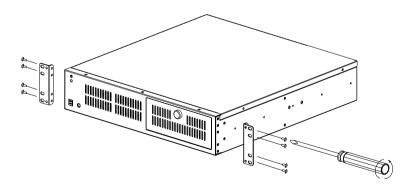2.    Put the holder to the correct location and fasten the screws to the chassis.



*Figure 2-6: L form holders*

**Optional**

**Passive Backplanes**

# Appendix A   Optional Passive Backplanes

## A.1  PCA-6105PV4: 4 PCI / 1 CPU slots

**Dimensions:** 260 x 80 mm



## 1. Connectors

| Connector | Description |
| --- | --- |
| CPC1 | PICMG connectors |
| PCI 1~4 | 32 bit PCI BUS connectors (primary) |
| CN2 | 8-PIN +12V, -12V, +3.3V, +5V, -5V, GND and 5VSB connector |
| CN1 | 3-PIN PS_ON, GND and 5VSB for ATX power |
| CN3 | 3-PIN +12V, GND and +5V DC power connector |
| KB1 | To CPU card K/B connector |
| KB3 | To front part K/B connector |
| ATX1 | ATX Power connector |

# 2. Pin Definition

**CN1**

| Pin | Name |
|-----|------|
| 1 | PS-ON |
| 2 | GND |
| 3 | 5VSB |

**CN3**

| Pin | Name |
|-----|------|
| 1 | +12V |
| 2 | GND |
| 3 | +5V |

**FAN1**

| Pin | Name |
|-----|------|
| 1 | NC |
| 2 | +12V |
| 3 | GND |

**CN2**

| Pin | Name |
|-----|------|
| 1 | 5VSB |
| 2 | GND |
| 3 | GND |
| 4 | -5V |
| 5 | +5V |
| 6 | +3.3V |
| 7 | -12V |
| 8 | +12V |

**KB1, KB3**

| Pin | Name |
|-----|------|
| 1 | KBCLK |
| 2 | KB-DT |
| 3 | NC |
| 4 | GND |
| 5 | +5V |

**ATX1**

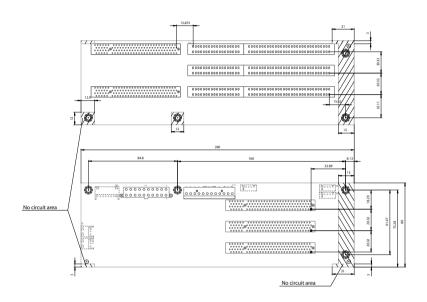| Pin | Name | Pin | Name |
|-----|------|-----|------|
| 1 | +3.3V | 11 | +3.3V |
| 2 | +3.3V | 12 | -12V |
| 3 | GND | 13 | GND |
| 4 | +5V | 14 | PS-ON |
| 5 | GND | 15 | GND |
| 6 | +5V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | NC | 18 | -5v |
| 9 | 5VSB | 19 | +5V |
| 10 | +12V | 20 | +5V |

# 3. PCI Routing table

| PCI Slot | ID SEL | PCI interrupt pin route | | | |
|----------|--------|------|------|------|------|
| | | INTA | INTB | INTC | INTD |
| PCI1 | AD31 | INTB | INTC | INTD | INTA |
| PCI2 | AD30 | INTC | INTD | INTA | INTB |
| PCI3 | AD29 | INTD | INTA | INTB | INTC |
| PCI4 | AD28 | INTA | INTB | INTC | INTD |

## A.2 PCA-6106P3V: 1 ISA / 3 PCI / 2 PICMG slots

**Dimensions:** 260 x 80 mm

No circuit area

No circuit area

# 1. Connectors

| Connector | Description |
|-----------|-------------|
| ISA1, ISA3 | ISA connector for PICMG slot (PCI slot is PICMG1,PICMG3) |
| ISA2 | ISA connector |
| PICMG1,PICMG2 | PCI connector for PICMG slot |
| PCI1~PCI3 | 32 bit PCI slot |
| VKB1 | KB-In, from CPU card K/B connector |
| VKB2,VKB3 | KB-Out, 5 pin external K/B connector |
| VAT1 | AT power connector 90D |
| VATX1 | ATX Power connector 90D |
| HCN1 | PS-ON Function, to CPU card for ATX Power signal, 3 pin connector |
| HCN2 | 8 pin Alarm Board Power connector |
| HCN3 | 3 pin +5V and +12V Power connector |

# 2. Pin Definition

| VKBA1,VKBA2,VKBA3; | |
|---|---|
| Pin | Name |
| 1 | KBCLK |
| 2 | KBDATA |
| 3 | NC |
| 4 | KBGND |
| 5 | KBVCC |

| HCN1 | |
|---|---|
| Pin | Name |
| 1 | PS-ON |
| 2 | GND |
| 3 | 5VSB |

| HCN2 | |
|---|---|
| Pin | Name |
| 1 | 5VSB |
| 2 | GND |
| 3 | GND |
| 4 | -5V |
| 5 | +5V |
| 6 | +3.3V |
| 7 | -12V |
| 8 | +12V |

| HCN3 | |
|---|---|
| Pin | Name |
| 1 | +12V |
| 2 | GND |
| 3 | +5V |

| VATX1 | |
|---|---|
| Pin | Name |
| 1 | +3.3V |
| 2 | +3.3V |
| 3 | GND |
| 4 | +5V |
| 5 | GND |
| 6 | +5V |
| 7 | GND |
| 8 | NC |
| 9 | 5VSB |
| 10 | +12V |
| 11 | +3.3V |
| 12 | -12V |
| 13 | GND |
| 14 | PS-ON |
| 15 | GND |
| 16 | GND |
| 17 | GND |
| 18 | -5V |
| 19 | +5V |
| 20 | +5V |

| VAT1 | |
|---|---|
| Pin | Name |
| 1 | NC |
| 2 | +5V |
| 3 | +12V |
| 4 | -12V |
| 5 | GND |
| 6 | GND |
| 7 | GND |
| 8 | GND |
| 9 | -5V |
| 10 | +5V |
| 11 | +5V |
| 12 | +5V |

# 3. PCI Routing table
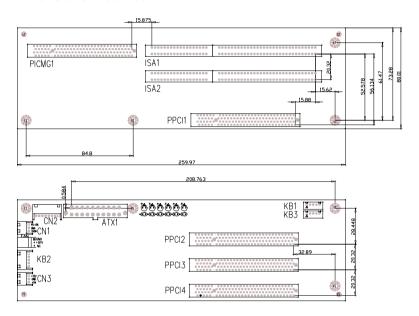
| PCI Slot | ID SEL | PCI | interrupt | pin | route |
|---|---|---|---|---|---|
| | | INTA | INTB | INTC | INTD |
| PCI1 | AD30 | INTC | INTD | INTA | INTB |
| PCI2 | AD29 | INTD | INTA | INTB | INTC |
| PCI3 | AD28 | INTA | INTB | INTC | INTD |

## A.3 PCA-6106PV4: 1 ISA / 4 PCI / 1 CPU slots

**Dimensions:** 260 x 80 mm



## 1. Connectors

| Connector | Description |
|-----------|-------------|
| ISA1~ISA2 | 16 bit ISA Bus connector |
| PPCI1~PPCI4 | 32 bit PCI Bus connector (Primary Group) |
| PICMG1 | PICMG connector |
| ATX1 | ATX Power connector |
| KB1 | KB-In, from CPU card K/B connector |
| KB2~KB3 | KB-Out, 5 pin external K/B connector |
| CN1 | PS-ON Function, to CPU card for ATX power signal, 3 pin |
| CN2 | 8 pin Alarm Board Power connector |
| CN3 | 8 pin +5V and +12V FAN connector |

# 2. Pin Definition

**CN1**

| PIN | Name |
|-----|------|
| 1 | PS-ON |
| 2 | GND |
| 3 | 5VSB |

**ATX1**

| PIN | Name | PIN | Name |
|-----|------|-----|------|
| 1 | +3.3V | 11 | +3.3V |
| 2 | +3.3V | 12 | -12V |
| 3 | GND | 13 | GND |
| 4 | +5V | 14 | PS-ON |
| 5 | GND | 15 | GND |
| 6 | +5V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | NC | 18 | -5V |
| 9 | 5VSB | 19 | +5V |
| 10 | +12V | 20 | +5V |

**CN2**

| PIN | Name |
|-----|------|
| 1 | 5VSB |
| 2 | GND |
| 3 | GND |
| 4 | -5V |
| 5 | +5V |
| 6 | +3.3V |
| 7 | -12V |
| 8 | +12V |

**CN3**

| PIN | Name |
|-----|------|
| 1 | +12V |
| 2 | GND |
| 3 | +5V |

**KB~1/2/3**

| PIN | Name |
|-----|------|
| 1 | KBCLK |
| 2 | KBDAT |
| 3 | NC |
| 4 | KBGND |
| 5 | KBVCC |

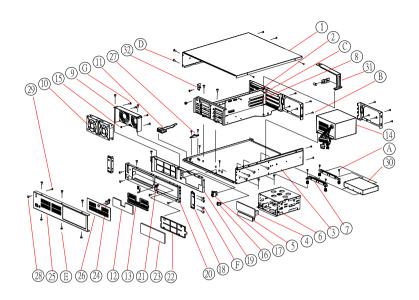# 3. PCI Routing table

| PCI Slot | IDSEL | PCI Interrupt Pin Route | | | |
|----------|-------|-------|-------|-------|-------|
| | | INT A | INT B | INT C | INT D |
| PPCI1 | AD31 | INT B | INT C | INT D | INT A |
| PPCI2 | AD30 | INT C | INT D | INT A | INT B |
| PPCI3 | AD29 | INT D | INT A | INT B | INT C |
| PPCI4 | AD28 | INT A | INT B | INT C | INT D |

# Parts Ordering Guide

# Appendix B  Parts Ordering Guide



| Code | Part No. | Q'ty | Description | Code | Part No. | Q'ty | Description |
|------|----------|------|-------------|------|----------|------|-------------|
| 1 | 1960000404 | 1 | TOP COVER | 22 | 1995000090 | 1 | FILTER HOUS-ING |
| 2 | 1902610682 | 1 | BACKPLANE BASE | 23 | 199902K000 | 1 | FILTER PE |
| 3 | 1960000444 | 1 | CHASSIS | 24 | 1992601085 | 1 | LOCK SETS |
| 4 | 1962011390 | 1 | 5.25" DISK COVER | 25 | 1960000445 | 1 | FRONT PLATE |
| 5 | 1962650600 | 1 | 3.5" DISK COVER | 26 | 1962002810 | 1 | LOCKABLE DOOR |
| 6 | 1962002760 | 1 | DISK DRIVE HOUSING | 27 | 1759400200 | 1 | SPEAKER |
| 7 | 1962002740 | 2 | HDD BRACKET | 28 | 1962002700 | 2 | LED LAMP HOLDER |
| 8 | 9686610603 | 1 | BACKPLANE | 29 | 1994000060 | 2 | LED HOUSING |
| 9 | 1962002730 | 1 | FAN BRACKET | 30 | | 1 | HDD |
| 10 | 1759081200 | 2 | DUAL FAN | 31 | 1962011510 | 1 | PCI CARD BRACKET |
| 11 | 9692A10000 | 1 | PS/2 K/B & USB PCB | 32 | 196202K130 | 1 | CPU CARD HOLDER |
| 12 | 199902K000 | 1 | FILTER PE | | | | |
| 13 | 1995000090 | 1 | FILTER HOUSING | | | | |

| 14 | 1653104030 | 1 | ATX POWER SUPPLY | Code | Part No. | Q'ty | Screw Description |
|----|------------|---|------------------|------|----------|------|-------------------|
| 15 | 1703020550 | 1 | WIRE MOUNT HOLE | A | 193900036 | 16 | HEX/W M3x0.5x5L |
| 16 | 1601000001 | 1 | RESET BUTTON | B | 1939006320 | 8 | HEX/W#6-32 |
| 17 | 1602002100 | 1 | POWER SWITCH | C | 1935330400 | 6 | R/W M3x0.5x5L |
| 18 | 1962002770 | 2 | SIDE FIXING HOLDER | D | 0939000410 | 8 | R/W M4x0.7x5L |
| 19 | 1962002790 | 1 | FRONT WINDOW | E | 1930030500 | 17 | FLAT M3x0.5x5L |
| 20 | 1962002800 | 1 | BEZEL | F | 1931040620 | 8 | FLAT M4x0.7x5L |
| 21 | 1962610130 | 2 | HINGE | G | 1939000515 | 8 | |

# Accessory Options

| Part Number | Descriptions |
|-------------|--------------|
| SCD-FDD-COMBO | Storage kit with slim 24X CD-ROM and standard 3.5" black FDD |
| SCD COMBO 5.25 | 5.25" compact storage kit with slim 24X CD-ROM and a 3.5" drive bay for FDD or HDD |
| 9684000014 | 3.5" FDD with black bezel |
| 1701400652 | HDD cable, ATA 66/100, 45 cm + 20 cm |
| 1750000073 | Low profile P4 CPU cooler up to 3.2 GHz |
| 1759214200 | Low profile P4 CPU cooler up to 2.8 GHZ |

# Ordering Information

| Part Number | With Power Supply | With Backplane | Regulation |
|-------------|-------------------|----------------|------------|
| IPC-602P3-00PB | Without power supply, with AT switch | PCA-6106P3V-0B1 | None |
| IPC-602P3-00XB | Without power supply, with ATX switch | PCA-6106P3V-0B1 | None |
| IPC-602P3-25ZB | PS-250ATX-Z | PCA-6106P3V-0B1 | UL, cUL, CE |
| IPC-602P3-26PB | PS-260-610E | PCA-6106P3V-0B1 | UL, cUL, CE |
| IPC-602P3-30ZB | PS-300ATX-ZB | PCA-6106P3V-0B1 | UL, cUL, CE |
| IPC-602P4-00XB | Without power supply, with ATX switch | PCA-6105P4V-0B2 | None |
| IPC-602P4-25ZB | PS-250ATX-Z | PCA-6105P4V-0B2 | UL, cUL, CE |
| IPC-602P4-30ZB | PS-300ATX-ZB | PCA-6105P4V-0B2 | UL, cUL, CE |

# Safety Instructions

# Appendix C  Safety Instructions

## C.1  English

1. Read these safety instructions carefully.

2. Keep this user's manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For plugable equipment, the power outlet must be installed near the equipment and 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. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. 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 the installation reference guide.

    e.    The equipment has been dropped and damaged.

    f.    The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS MAY DAMAGE THE EQUIPMENT.

The sound pressure level at the operator's position according to IEC 704-1:1982 is equal to or less than 70 dB(A).

*DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.*

## C.2  German - Wichtige Sicherheishinweise

1. Bitte lesen Sie Sich diese Hinweise sorgfältig durch.

2. Heben Sie diese Anleitung für den späteren Gebrauch auf.

3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.

4. Die Netzanschlußsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.

5. Das Gerät ist vor Feuchtigkeit zu schützen.

6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.

7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.

8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.

9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.

10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.

11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.

12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.

13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.

14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

a. Netzkabel oder Netzstecker sind beschädigt.

b. Flüssigkeit ist in das Gerät eingedrungen.

c. Das Gerät war Feuchtigkeit ausgesetzt.

d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

15. Bitte lassen Sie das Gerät nicht unbehehrt hinten unter -20° C (-4° F) oder oben 60° C (140° F), weil diesen Temperaturen das Gerät zerstören könten.


Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.


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