

**IPC-610-H**  
**4U Rackmount Chassis**  
**User's Manual**

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## **CE notification**

The IPC-610-H, developed by ADVANTECH CO., LTD., has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.



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**CHAPTER**

**1**

## **General Information**

# Chapter 1 General Information

## 1.1 Introduction

---

IPC-610-H is a 4U height 14-slot rackmount IPC chassis designed for building mission-critical applications. The unit includes a versatile 14-slot passive-backplane by option (which supports ATX M/B form factor), a high-efficiency 300W ATX with power factor correction (PFC) power supply, and dual easy maintenance cooling fan which provides abundant cooling. A wide range of standard computing peripherals can be integrated with the chassis to meet different application development under mission-critical environment 24 hours a day, 7days a week.

## 1.2 Specifications

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### General

- Construction: Heavy duty steel chassis
- Drive bay: Shock-proof. Front accessed three 5.25" & one 3.5" drivers
- Cooling system: Dual easy-to-replace 84 ~ 114 CFM cooling fan with front-access air filter
- Controls: Power switch (on-off or momentary) and reset switch behind the lockable door

### Indicators

- Power: Green LED shows the power status
- HDD: Green LED for HDD activity
- Voltages: 3.3V/+5V/+12V/-5V/-12V/Vsb single-color LED (green) shows the voltage status
- Connectors: Front access USB and PS/2 keyboard, rear panel 9-pin connector (9-pin connector is not included for the M/B version)
- Paint Color: Pantone 414U Gray, textured
- Operating temperature: 0 ~ +40°C (32°F ~ 104°F)



- Storage temperature: -40° to +60°C (-40° to +140°F)
- Relative Humidity: 10 ~ 95% @ 40°C, non-condensing
- Vibration: (Operating) 5Hz ~ 500Hz, 0.5G rams
- Shock (operating): 2.0 G with 11m Sec duration, 1/2 sine wave
- Acoustic Noise: Less than 52 dB sound pressure at +5° to +28°C (+41° to +82°F)
- Altitude: 0 to 3048m (0 to 10,000 ft)
- Slide rails: General Device C-300 series supported
- Dimensions: 482(W) x 173(H) x 480(D)mm (19"x 6.8" x 18.9")
- Weight: 16-18kg (35.2 – 39.6lb)
- Safety: CCC approved

## **1.3 Passive Backplane Options**

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Single System Backplane models (refer appendix for details)

- PCA-6114P4-C

## 1.4 Power Supply Options

Model Name	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-300ATX-Z (ATX,PFC)	300 W	AC 90~135V AC 180~265V (Full-range)	+5 V @ 30 A +3.3 V @ 24 A +12 V @ 15 A -12 V @ 0.8 A -5 V @ 0.3 A +5 Vsb @ 2 A	+5V @ 1A +12V @ 0.5A +3.3V @ 0.3A	UL/cUL/CSA, CE EN61000-3-2 Class D TUV, Nordic, CB CCC	100,000 hours @ 25°C 275W load
PS-400ATX-Z (ATX PFC)	400 W	AC 90~264V (Full-range)	+5V @ 42A +3.3V @ 20A +12V @ 14A -12V @ 1A -5V @ 1A +5 Vsb @ 0.75 A	+5V @ 2.5A +12V @ 0.5A +3.3V @ 0.2A	UL/cUL/TUV/ CCC	100,000 hours @ 25°C 75% load
PS-250ATX-Z (ATX,PFC)	250 W	AC 95~132V AC 190~264V	+5V @ 27A +3.3V @ 20A +12V @ 13A -12V @ 0.8A -5V @ 0.3A +5 Vsb @ 2 A	+5V @ 0.5A +12V @ 0.3A	UL/cUL/CSA/TUV/C B/CCC	100,000 hours@25°C

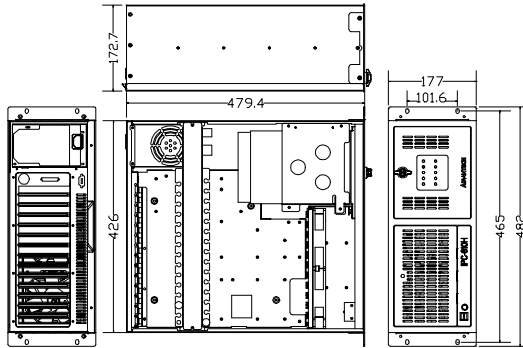
**Table 1-1 Installation Flow Chart**

## 1.5 System Regulation

Model Name	With Power Supply	With Backplane or MotherBoard	Regulation
IPC-610P4-25ZH	PS-250ATX-Z(ATX PFC)	PCA-6114P4-C	CCC
IPC-610BP-00XH	w/o	w/o	None
IPC-610BP-25ZH	PS-250ATX-Z(ATX,PFC)	w/o	CCC
IPC-610BP-30ZH	PS-300ATX-Z(ATX PFC)	w/o	CCC
IPC-610MB-00XH	w/o	w/o	None
IPC-610MB-25ZH	PS-250ATX-Z(ATX,PFC)	w/o	None
IPC-610MB-30ZH	PS-300ATX-Z(ATX PFC)	w/o	None

*Table 1-2 Installation Flow Chart*

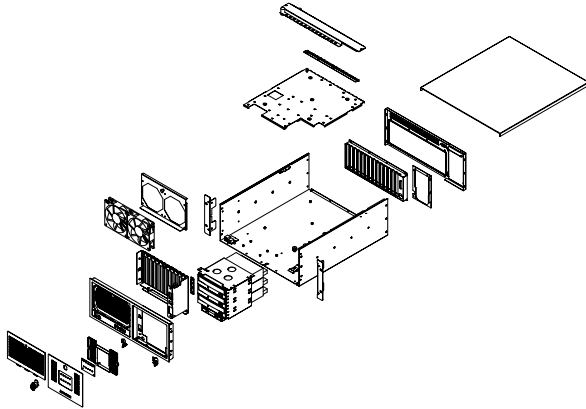
## 1.6 Dimensions



*Fig. 1-1 Installation Flow Chart*

## 1.7 Exploded Diagram

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*Fig. 1-2 Installation Flow Chart*

**CHAPTER**  
**2**

**System Setup**

# Chapter 2 System Setup

## 2.1 System Install

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**WARNING:** Before starting the installation process, make sure to disconnect all power from the chassis. Do this by turning off the power switch, and unplugging the power cord from the power outlet. When in doubt, consult with an experienced technician.

### 2.1.1 Attaching the handles

The handles for the front panel are in the accessory box. To install the handles, simply secure them to the front panel with the screws provided.

### 2.1.2 Removing the top cover

First, remove the chassis cover. You don't need any screwdriver. Top cover is fixed to the chassis by two thumbscrews. To remove the top covers:

- 1. Release two thumbscrews on rear upper location the chassis.**
2. Pull back and lift off the cover.



*Figure 2-1*

### 2.1.3 Chassis Front and Rear Sections

The front panel switches which behind the door are used for system power switch and system reset. The door cover is on the right side of door cover, there are system LED status and key lock switch. The USB and P/S 2 keyboard connector are on the left side of front panel.



Figure 2-2

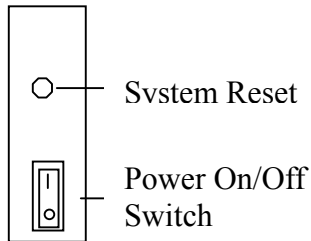


Figure 2-3

**System Reset** : Press this switch to reinitialize the system. This is the same as the hardware reset button.

**Power On/Off Switch**: Use this switch to turn on/off the system power.

**Momentary Switch:** Use this switch and by way of ATX (PS\_ON) function to turn on system power. Please use system shutdown to turn off system power automatic or press momentary switch for a while to turn off system power

**USB connector:** If you have any USB interface device want to connect with system, you could use this connector.

**PS/2 connector:** If you want to connect PS/2 keyboard, you could use this connector.

The rear section of B/P version includes B/P rear window. The rear 14-slot I/O brackets and the sheet metal kit for section of M/B version includes M/B rear window, 7-slot I/O brackets, ATX M/B I/O cover.



*Figure 2-3*

## 2.1.4 Drive Bay Installation

The Standard Drive Bay of the IPC-610-H can hold 5.25" x 3 and 3.5" x 1 devices



## Installation disk drives

1. Remove the top cover
2. Undo the four screws of cushion and four screws fixing the Standard Drive Bay on right side
3. Lift off the Standard Drive Bay. See Figure 2-4
4. Insert the drives into their proper locations in the drive bay and secure them with the screws provided.
5. Connect the disk drive power and signal cables.



*Figure 2-4*

## **2.2 IPC-610-H Series Installation**

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The IPC-610-H can be of two basic models, IPC-610BP-00XH and IPC-610MB-00XH.

### **2.2.1 IPC-610BP-00XH**

IPC-610BP-00XH has no backplane, no power supply and has momentary switch on front panel. The momentary switch is suitable for ATX power supply such as PS-250ATX-Z, PS-300ATX-Z.

For IPC-610BP-00XH, please plug 20-pin ATX power connector with backplane first, then use a orange-white wire (1700030500) to connector between CN# (PSON\_GND\_5VSB) of Backplane and “ATX feature connector” (CN20) of SBC, finally connect POWER SW wire with the “ATX soft power switch”(CN21) on SBC to finish the installation.

### **2.2.2 IPC-610MB-00XH**

ACP-610MB-00X is for M/B using, it is with ATX M/B rear I/O.

ACP-610MB-00X is without M/B inside, has no power supply and has momentary switch on front panel. The momentary switch is suitable for ATX power supply such as PS-250ATX-Z, PS-300ATX-Z. For ACP-610MB-00X, please plug 20-pin ATX power connector with your ATX M/B, and then connect POWER SW wire with your ATX M/B to finish the installation. Please refer your ATX M/B installation guide for correct connection.

## 2.3 LED Indicators

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### 2.3.1 System Status LED

The System Status LED shows as following:

LED	Description	GREEN
PWR	System Power	Normal
HDD	Hard Drive activity	Data access

*Table 2-1*

### 2.3.2 Power Status LED

The Power Status LED indicates the status of the backplane voltage signals.

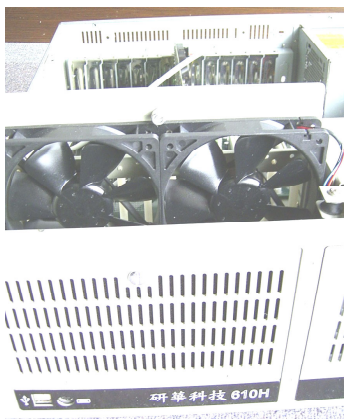
LED	Description	Light	No light
+3.3V	+3.3V signal	Normal	No output
+5V	+ 5V signal	Normal	No output
+12V	+12V signal	Normal	No output
-5V	- 5V signal	Normal	No output
-12V	-12V signal	Normal	No output
+5V <sub>sb</sub>	+5V <sub>sb</sub> signal	Normal	No output

*Table 2-2*

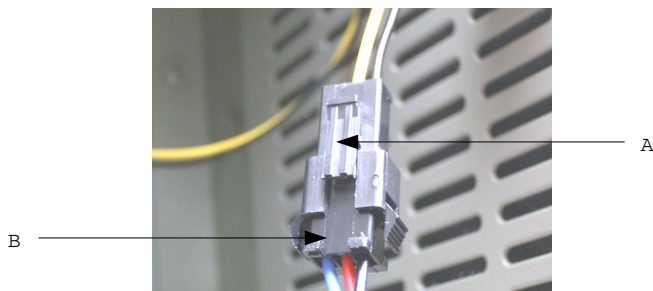
When an LED fails to light, it indicates a problem with one of the voltage signals. Check to make sure that the power supply connector is properly attached to the backplane. If problem persists, consult an experienced technician.

## 2.4 Cooling Fan and Filter

There are two (2) Cooling Fans located inside the chassis. The Cooling Fans are easy maintenance and provide adequate cooling to the system by blowing air inward. Please refer the Figure 2-5 and Figure 2-6 to replace the defective fan. Press the location A and then pull the B which is showed on Figure 2-6 then the connector could be released. Please refer Figure 2-7 to change the filter if you found the filter was blocked with dust or other particles



**Figure 2-5**



**Figure 2-6**



*Figure 2-7*

## **2.5 Installing CPU Cards & Add-On Cards**

To install slot board computers and other add-on boards:

Remove the chassis cover.

Take out the hold down clamp

Insert the CPU or add-on cards on suitable location

Align and fix the screw to tighten the card to a fixed position

Return the top cover after fix the hold down clamp



**APPENDIX**

**A**

## **Backplane**





# 1. Connectors

Connector	Description
ISA1, 4~10	16 Bit ISA Bus connectorr
PCI1~4	32 Bit PCI Bus connector
ISA 2, 3	PICMG connector
KB1	KB-In, from CPU card K/B connector
KB2~KB3	KB-Out, 5 pin extemal K/B connector
KB4	KB-Out, 6 pin PS/2 external K/ B connector
BIG1	Big 4 Pin Power connectorr
AT1	AT Power connector
ATX1	ATX Power connector
CN1	PS-ON Function, to CPU card for ATX power signal, 3 pin connector
CN2	8 pin Alarm Board Power connectorr
CN3	3 pin +5V and +12V Power connector

CN1	
PIN	Name
1	PS-ON
2	GND
3	5VSB

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

BIG1	
PIN	Name
1	+12V
2	GND
3	GND
4	+5V

AT1	
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

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

KB1, 2, 3	
PIN	Name
1	KBCLK
2	KBDATA
3	NC
4	KBGND
5	KBVCC

Table 1.1 Connectors

## 2. PCI Routing Table

PCA Slot	IDSEL	PCI Interrupt Pin Route			
		INT A	INT B	INT C	INT D
PCI1	AD31	INT B	INT C	INT D	INT A
PCI2	AD30	INT C	INT B	INT C	INT D
PCI3	AD29	INT D	INT A	INT B	INT C
PCI4	AD28	INT A	INT B	INT C	INT D

*Table 1.2 Routing Table*