IPC-623 Series

20-slot 19" Rackmount
Industrial PC Chassis

User's Manual

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Acknowledgments

The IPC-623, PCA-6120, PCA-6120P4, PCA-6119P7, PCA-6119P10, PCA-6119P17, PCA-6120D, PCA-6120DP4, PCA-6118DP7, PCA-6120Q and PCA-6116QP2 are trademarks of Advantech Co., Ltd.

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Part No. 2002062300

1st Edition Printed in Taiwan April 1999

Contents

Chapter 1 General Information

1.1 Introduction

The IPC-623 is a 4U 19" rackmount chassis that is ideal for CTI applications, as well as industrial automation systems.

The IPC-623 can hold either a single IPC system or multi-systems, and can be configured with a 300 W redundant power supply or a 400 W single power supply. A 20-slot PCI/ISA backplane fits easily, as well as a wide variety of multi-segment PCI/ISA or ISA backplanes. Outstanding features include a drive bay that holds three half-height drives and one 3.5" floppy drive, with space for another 3.5" hard drive inside the chassis.

In addition, the IPC-623 also features advanced fault resilient capabilities. Power failure, fan failure or overheating activates an audible alarm to notify that immediate maintenance is necessary.

1.2 Specifications

General

- **Construction**: Heavy-duty steel chassis
- **Drive bay**: Three front accessible half-height drives. One hard drive, one 3.5" floppy drive, and an additional internal 3.5" hard drive. Shock and vibration damped by four mounted cushions
- **Cooling system**: Three 85 CFM, hot-swappable cooling fans (inward flow), 120 x 120 x 25 mm each
- **Controls**: Power on/off switch, alarm reset switch, and system reset switch
- **Indicators**: Bi-color LED (green/red) for power failure
  Bi-color LED (green/red) for any type of fan failure
  Bi-color LED (green/red) for overheating
  Single-color LED (green) for HDD activity
  Single-color LEDs (green) for power source (+5 V, -5 V, +12 V, and -12 V)
- **Two top covers**: a) front top cover for drive bay & cooling fan maintenance
  b) rear top cover for CPU add-on card maintenance
- **Ventilation**: Behind front panel on both sides
- **Slide rails**: General Device C-300 series supported
- **Chassis color**: Black 2U 2X, 2C 2X or PANTONE 414U
- **Dimensions (W x H x D)**: 482 x 177 x 660 mm (19" x 7" x 26")
- **Weight**: 26 kg (57 lbs)

Environmental Specifications

- **Operating temperature**: 0 ~ 45° C (32 ~ 113° F)
- **Relative humidity**: 10 ~ 95% @ 40° C, non-condensing
- **Shock resistance**: 30 G acceleration, peak to peak, 11 ms (non-operating)
  10 G acceleration peak to peak, 11 ms acceleration peak to peak (operating)
- **Vibration**: 5 ~ 500 Hz, 0.5 G sine wave, and 5 ~ 500 Hz, 1 G (rms.) random
- **Safety**: CE compliant, C-UL approved

1.3 Passive Backplane Options

Single segment backplane models

- PCA-6120: 20 ISA slots
- PCA-6120P4: 15 ISA / 4 PCI / 1 CPU slots
- PCA-6119P7: 11 ISA / 7 PCI / 1 CPU slots
- PCA-6119P10: 8 ISA / 10 PCI / 1 CPU slots
- PCA-6119P17: 1 ISA / 17 PCI / 1 CPU slots

Multi-segment backplane models

Two segments

- PCA-6120D: 10 ISA slots x 2
- PCA-6120DP4: 5 ISA / 4 PCI / 1 CPU slots x 2
- PCA-6118DP7: 1 ISA / 7 PCI / 1 CPU slots x 2

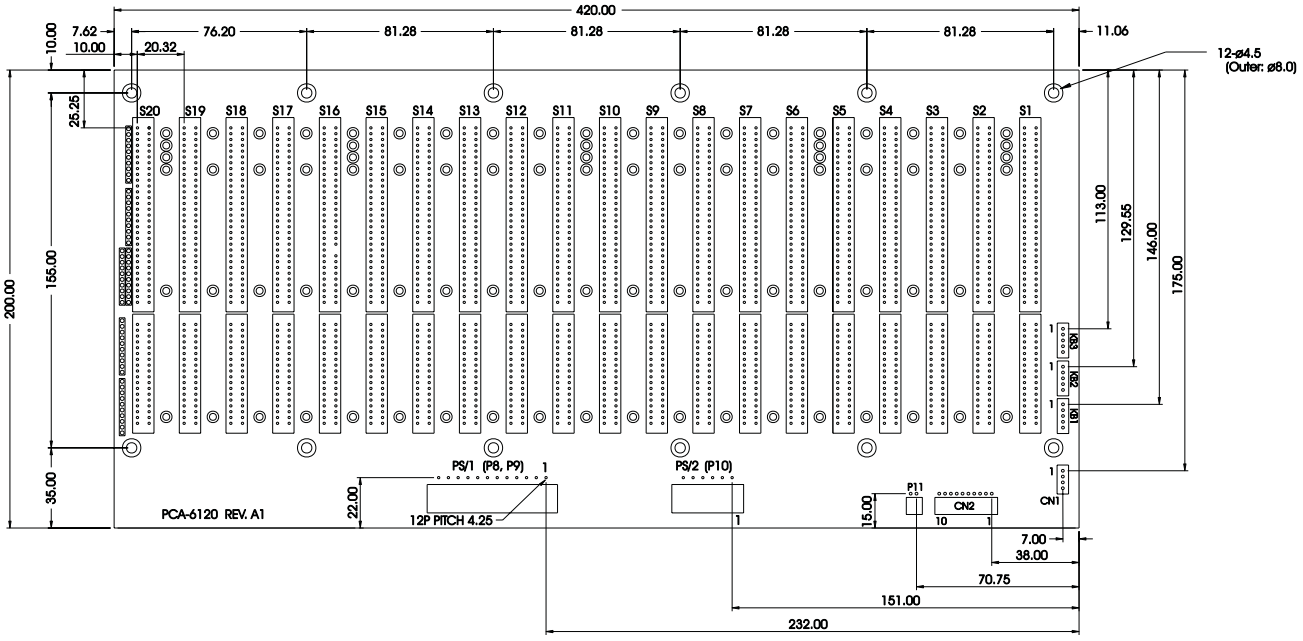
Four segments

- PCA-6120Q: 5 ISA slots x 4
- PCA-6116QP2: 1 ISA / 2 PCI / 1 CPU slots x 4

1.4 Passive Backplane Models

PCA-6120: 20 ISA slots

Dimensions: 420 x 200 mm



Unit: mm

Termination Resistor Signals

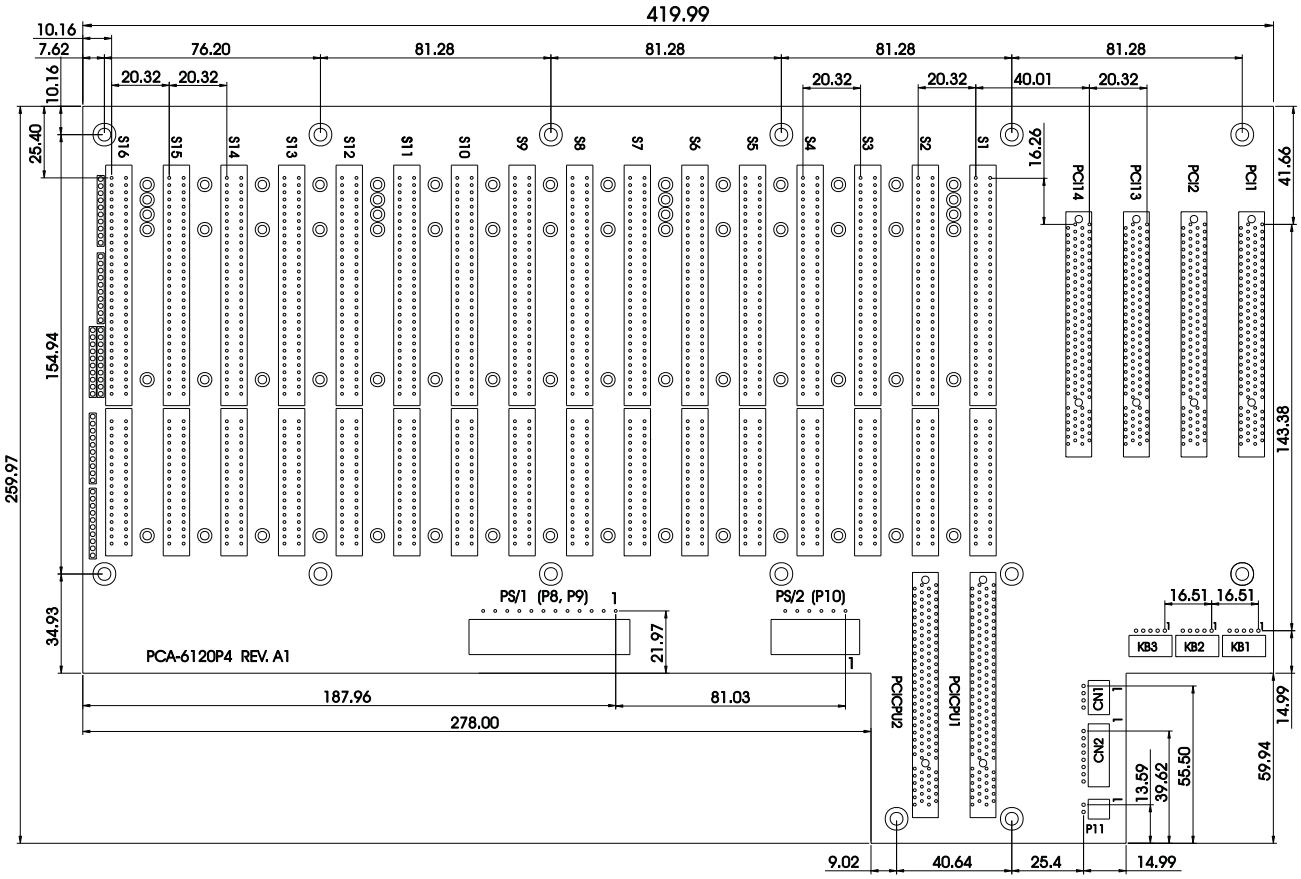
The termination resistors provide an impedance mismatch at the end of the bus to prevent signal reflections. This mismatch has to be balanced by the capability of the CPU and option cards to electrically drive the load imposed by the resistor.

Resistor	Signals	Resistor	Signals
RN1, RN8	SA7-SA0	RP1, RP2	SMEMW, SMEMR, IOW, IOR
RN4, RN11	SA15-SA8	RN2, RN12	SBHE, LA23-LA17
RN5, RN10	SD0-SD7	RN6, RN7	SA19-SA16
RN3, RN9	SD8-SD15		

Figure 1-1: PCA-6120

PCA-6120P4: 15 ISA / 4 PCI / 1 CPU slots

Dimensions: 420 x 260 mm

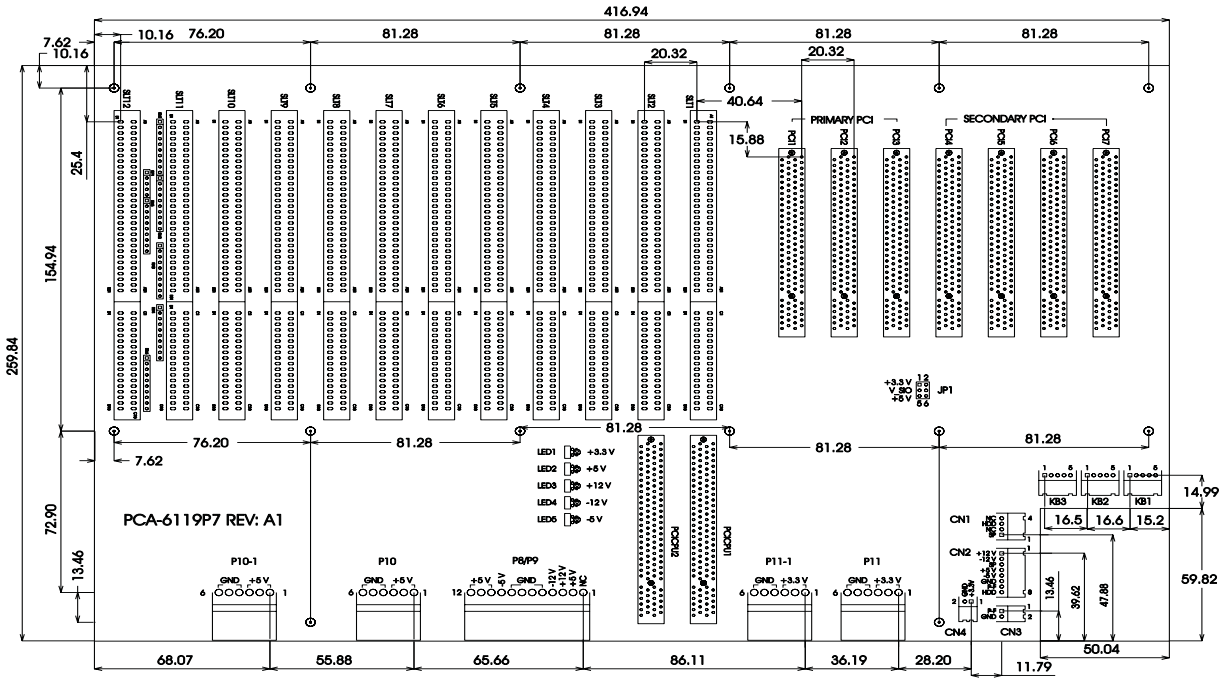


Unit: mm

Figure 1-2: PCA-6120P4

PCA-6119P7: 11 ISA / 7 PCI / 1 CPU slots

Dimensions: 260 x 417 mm



Unit: mm

1. CONNECTORS

CONNECTOR	DESCRIPTION
SLT1 ~ 2	PICMG connectors
SLT3 ~ 12	16-bit ISA-bus connectors
PCI1 ~ 3	32-bit PCI-bus connectors (primary)
PCI4 ~ 7	32-bit PCI-bit connectors (secondary)
KB1 ~ 3	5-pin external K/B connectors
CN1	4-pin HDD and SP connectors
CN2	8-pin power (±5 V, ±12 V), SP, HDD and P-F connector
CN3	2-pin P-F connector
CN4	2-pin +3.3 V DC power connector
P11, P11-1	6-pin +3.3 V DC power connectors
P10, P10-1	6-pin +5 V DC power connectors
P8/P9	To PS/2 power connector
JP1	V - IO for secondary PCI bus

JP1	
1-3, 2-4 closed	V_IO = +3.3 V for secondary PCI bus
✳ 3-5, 4-6 closed	V_IO = +5 V for secondary PCI bus

✳ Default

2. PIN ASSIGNMENTS

KB1~3	
PIN	NAME
1	KBDCLK
2	KBDDATA
3	NC
4	GND
5	+5 V

P8/P9	
PIN	NAME
1	NC
2	+5 V
3	+12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	+5 V
11	+5 V
12	+5 V

CN1	
PIN	NAME
1	SP
2	NC
3	HDD
4	NC

CN2	
PIN	NAME
1	+12 V
2	-12 V
3	SP
4	+5 V
5	-5 V
6	GND
7	P-F
8	HDD

P10, P10-1	
PIN	NAME
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

P11, P11-1	
PIN	NAME
1	+3.3 V
2	+3.3 V
3	+3.3 V
4	GND
5	GND
6	GND

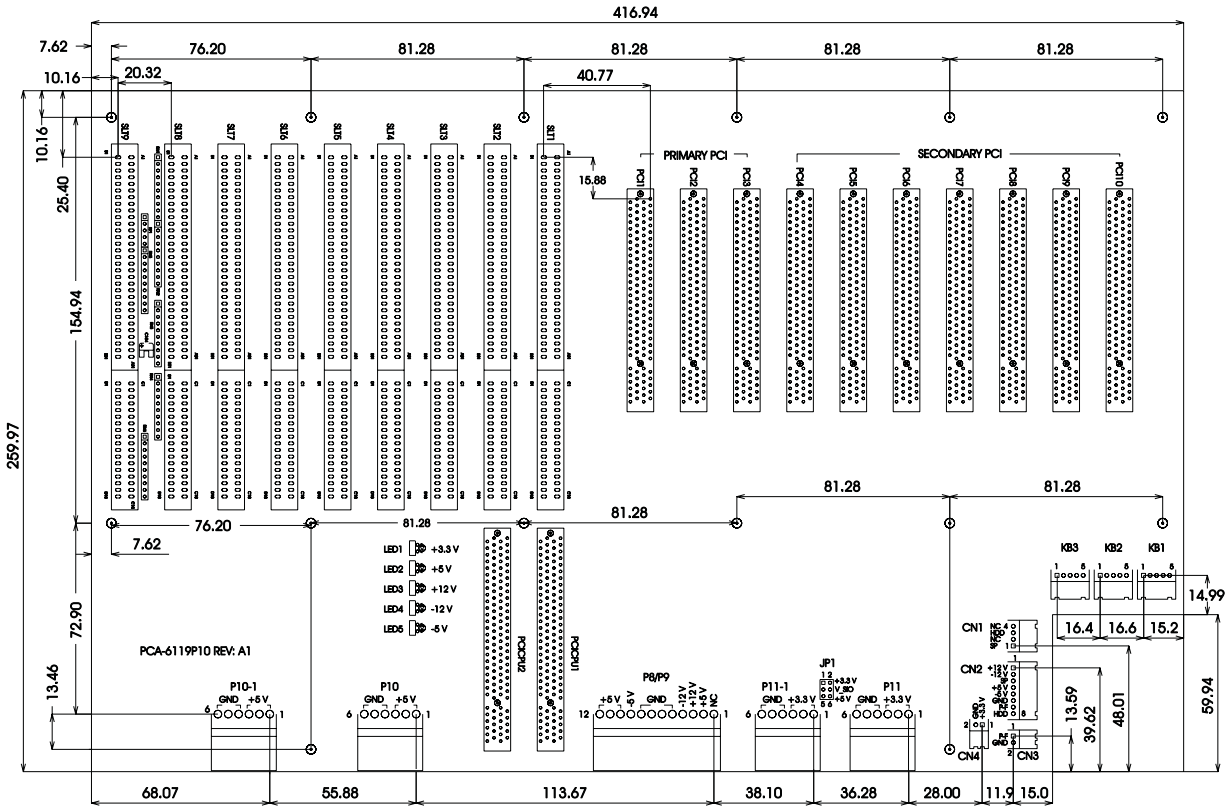
CN3	
PIN	NAME
1	P-F
2	GND

CN4	
PIN	NAME
1	+3.3 V
2	GND

Figure 1-3: PCA-6119P7

PCA-6119P10: 8 ISA / 10 PCI / 1 CPU slots

Dimensions: 260 x 417 mm



Unit: mm

1. CONNECTORS

CONNECTOR	DESCRIPTION
SLT1 ~ 2	PICMG connectors
SLT3 ~ 9	16-bit ISA-bus connectors
PCI1 ~ 3	32-bit PCI-bus connectors (primary)
PCI4 ~ 10	32-bit PCI-bus connectors (secondary)
KB1 ~ 3	5-pin external K/B connectors
CN1	4-pin SP and HDD connector
CN2	8-pin power (±5 V, ±12 V), SP, HDD and P-F connector
CN3	2-pin P-F connector
CN4	2-pin +3.3 V DC power connector
P8/P9	To PS/2 power connector
P10, P10-1	6-pin +5 V DC power connectors
P11, P11-1	6-pin +3.3 V DC power connectors
JP1	V - IO for secondary PCI bus

JP1	
1-3, 2-4 closed	V_IO = +3.3 V for secondary PCI bus
✳ 3-5, 4-6 closed	V_IO = +5 V for secondary PCI bus

✳ Default

2. PIN ASSIGNMENTS

KB1~3	
PIN	NAME
1	KBDCLK
2	KBDDATA
3	NC
4	GND
5	+5 V

P8/P9	
PIN	NAME
1	NC
2	+5 V
3	+12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	+5 V
11	+5 V
12	+5 V

CN1	
PIN	NAME
1	SP
2	NC
3	HDD
4	NC

CN2	
PIN	NAME
1	+12 V
2	-12 V
3	SP
4	+5 V
5	-5 V
6	GND
7	P-F
8	HDD

P10, P10-1	
PIN	NAME
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

P11, P11-1	
PIN	NAME
1	+3.3 V
2	+3.3 V
3	+3.3 V
4	GND
5	GND
6	GND

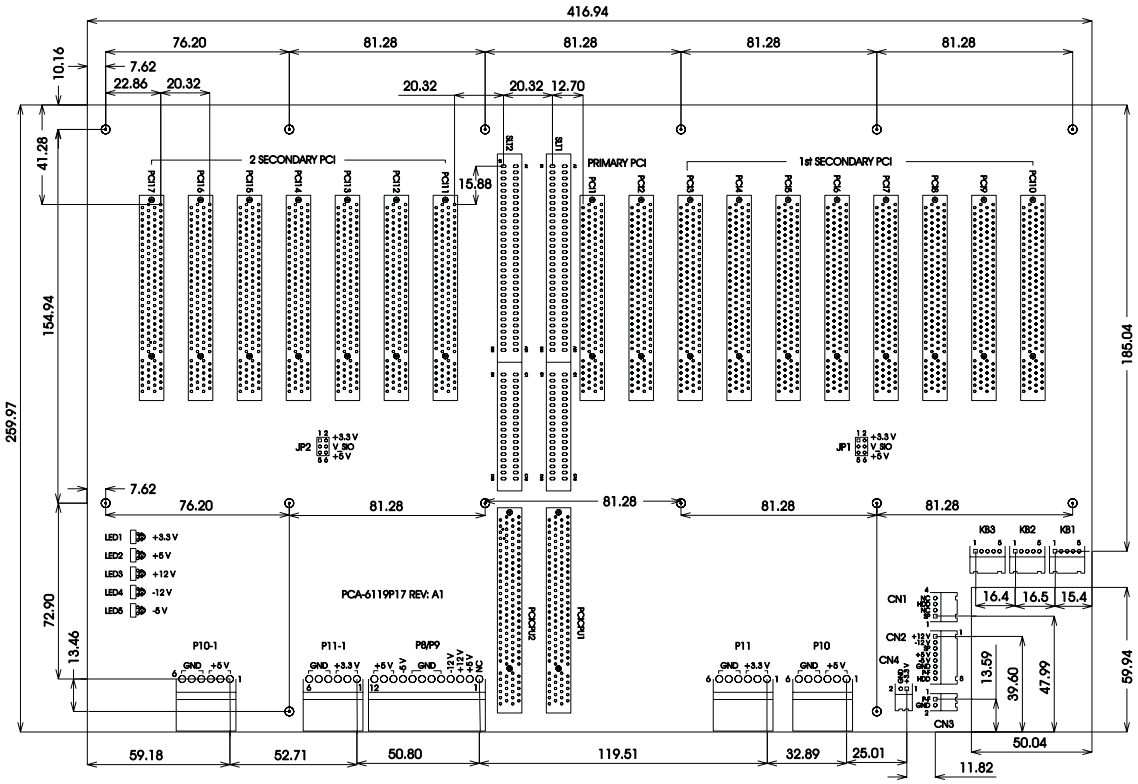
CN3	
PIN	NAME
1	P-F
2	GND

CN4	
PIN	NAME
1	+3.3 V
2	GND

Figure 1-4: PCA-6119P10

PCA-6119P17: 1 ISA / 17 PCI / 1 CPU slots

Dimensions: 260 x 417 mm



Unit: mm

1. CONNECTORS

CONNECTOR	DESCRIPTION
SLT1 ~ 2	PCIMG connectors
PCI1 ~ 2	32-bit PCI-bus connectors (primary)
PCI3 ~ 10	32-bit PCI-bus connectors (1 secondary)
PCI11 ~ 17	32-bit PCI-bus connectors (2 secondary)
KB1 ~ 3	5-pin external K/B connectors
CN1	4-pin SP and HDD connector
CN2	8-pin power (±5 V, ±12 V), SP, HDD and P-F connector
CN3	2-pin P-F connector
CN4	2-pin +3.3 V DC power connector
P8/P9	To PS/2 power connector
P10, P10-1	6-pin +5 V DC power connectors
P11, P11-1	6-pin +3.3 V DC power connectors
JP1	V - IO for 1st secondary PCI bus
JP2	V - IO for 2nd secondary PCI Bus

2. PIN ASSIGNMENTS

KB1~ 3	
PIN	NAME
1	KBCLK
2	KBDATA
3	NC
4	GND
5	+5 V

P8/P9	
PIN	NAME
1	NC
2	+5 V
3	+12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	+5 V
11	+5 V
12	+5 V

CN1	
PIN	NAME
1	SP
2	NC
3	HDD
4	NC

CN2	
PIN	NAME
1	+12 V
2	-12 V
3	SP
4	+5 V
5	-5 V
6	GND
7	P-F
8	HDD

P10, P10-1	
PIN	NAME
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

P11, P11-1	
PIN	NAME
1	+3.3 V
2	+3.3 V
3	+3.3 V
4	GND
5	GND
6	GND

CN3	
PIN	NAME
1	P-F
2	GND

CN4	
PIN	NAME
1	+3.3 V
2	GND

JP1	
1-3, 2-4 closed	V_IO = +3.3 V for 1st secondary PCI bus
✳ 3-5,4-6 closed	V_IO = +5 V for 1st secondary PCI bus

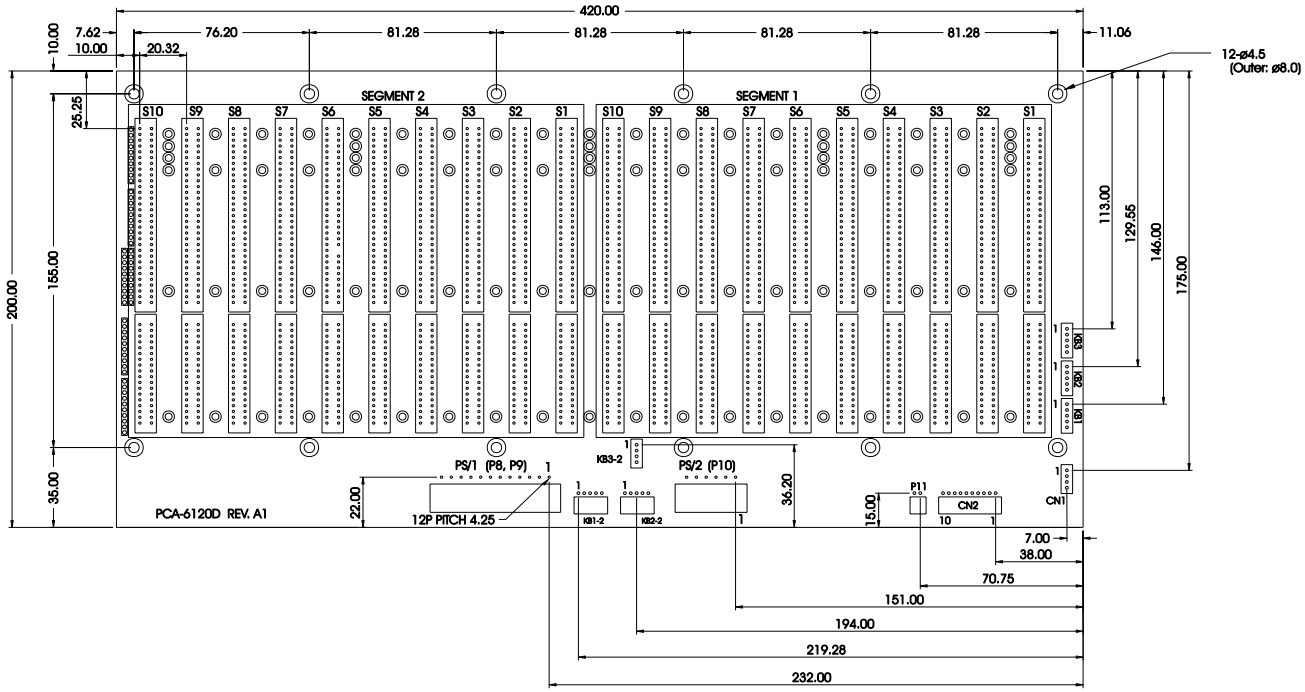
✳ Default

JP2	
1-3, 2-4 closed	V_IO = +3.3 V for 2nd secondary PCI bus
3-5, 4-6 closed	V_IO = +5 V for 2nd secondary PCI bus

Figure 1-5: PCA-6119P17

PCA-6120D: 10 ISA slots x 2

Dimensions: 420 x 200 mm



Unit: mm

Termination Resistor Signals

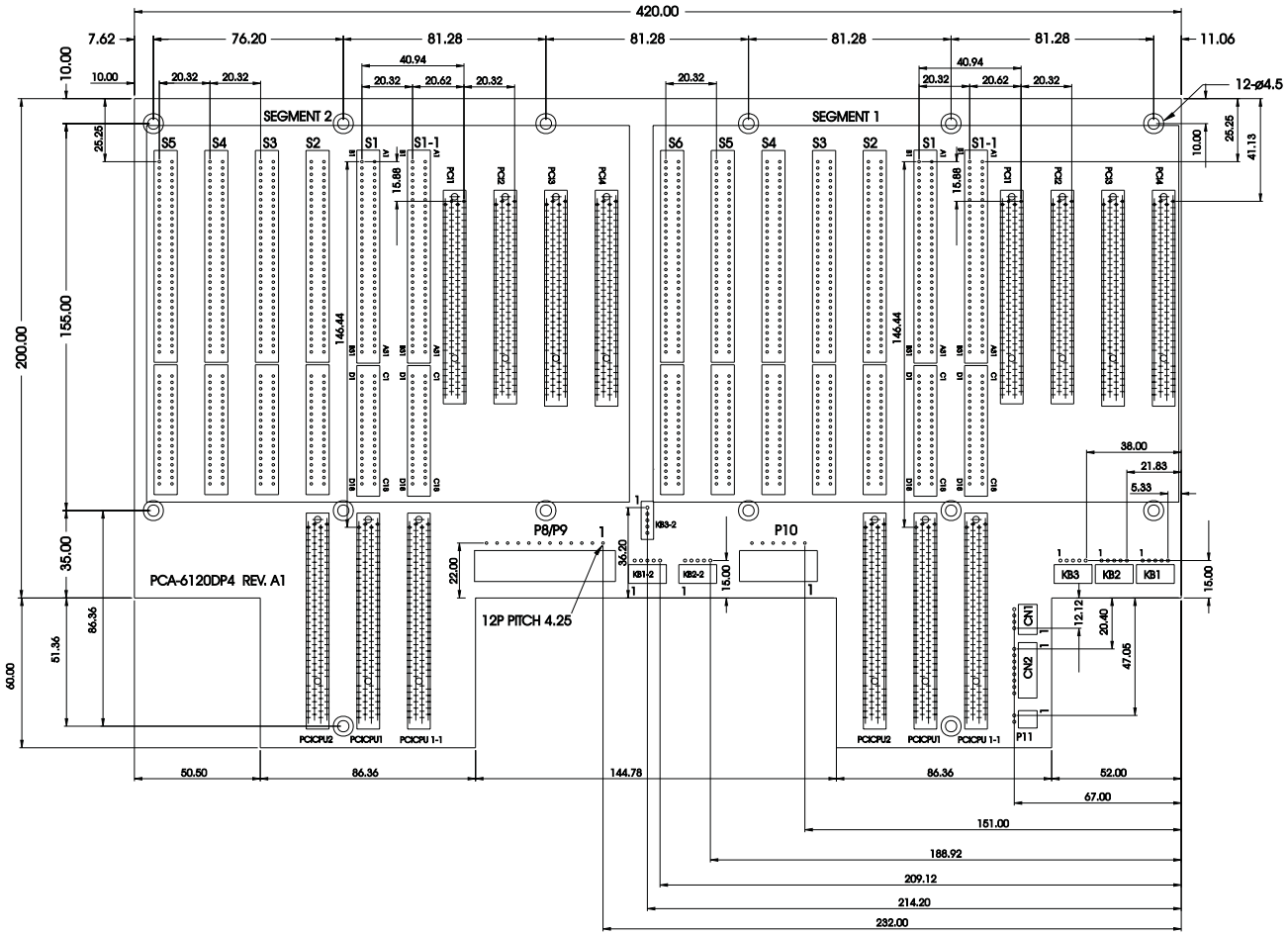
The termination resistors provide an impedance mismatch at the end of the bus to prevent signal reflections. This mismatch has to be balanced by the capability of the CPU and option cards to electrically drive the load imposed by the resistor.

Resistor	Signals	Resistor	Signals
RN1, RN8	SA7-SA0	RP1, RP2	SMEMW, SMEMR, IOW, IOR
RN4, RN11	SA15-SA8	RN2, RN12	SBHE, LA23-LA17
RN5, RN10	SD0-SD7	RN6, RN7	SA19-SA16
RN3, RN10	SD8-SD15		

Figure 1-6: PCA-6120D

PCA-6120DP4: 5 ISA / 4 PCI / 1 CPU slots x 2

Dimensions: 420 x 200 mm

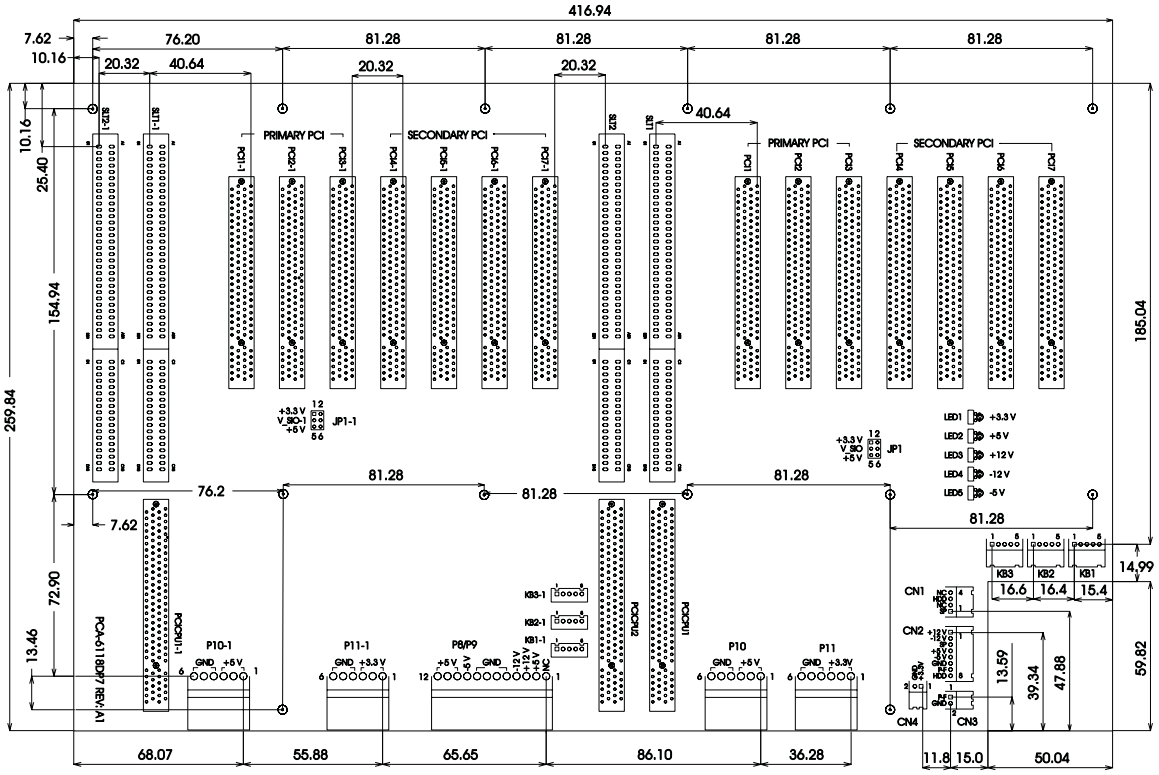


Unit: mm

Figure 1-7: PCA-6120DP4

PCA-6118DP7: 5 ISA slots x 4

Dimensions: 260 x 417 mm



Unit: mm

1. CONNECTORS

CONNECTOR	DESCRIPTION
SLT1 ~ 2 SLT1-1	PICMG connectors
SLT2-1	16-bit ISA-bus connectors
PCI1 ~ 3 PCI1-1 ~ 3-1	32-bit PCI-bus connectors (primary)
PCI4 ~ 7 PCI4-1 ~ 7-1	32-bit PCI-bus connectors (secondary)
KB1 ~ 3 KB1-1 ~ 3-1	5-pin external K/B connectors
CN1	4-pin SP and HDD connectors
CN2	8-pin power (±5 V, ±12 V), SP, HDD and PF connector
CN3	2-pin P-F connector
CN4	2-pin +3.3 V DC power connector
P11 ~ P11-1	6-pin +3.3 V DC power connectors
P10 ~ P10-1	6-pin +5 V DC power connectors
P8/P9	To PS/2 power connector
JP1, JP1-1	V - IO for secondary PCI bus

JP1, JP1-1	
1-3, 2-4 closed	V_IO = +3.3 V for secondary PCI bus
✳ 3-5, 4-6 closed	V_IO = +5 V for secondary PCI bus

✳ Default

2. PIN ASSIGNMENTS

KB1 ~ 3 KB1-1 ~ 1-3	
PIN	NAME
1	KBDCLK
2	KBDDATA
3	NC
4	GND
5	+5 V

P10, P10-1	
PIN	NAME
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

P8/P9	
PIN	NAME
1	NC
2	+5 V
3	+12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	+5 V
11	+5 V
12	+5 V

CN1	
PIN	NAME
1	SP
2	NC
3	HDD
4	NC

P11, P11-1	
PIN	NAME
1	+3.3 V
2	+3.3 V
3	+3.3 V
4	GND
5	GND
6	GND

CN2	
PIN	NAME
1	+12 V
2	-12 V
3	SP
4	+5 V
5	-5 V
6	GND
7	P-F
8	HDD

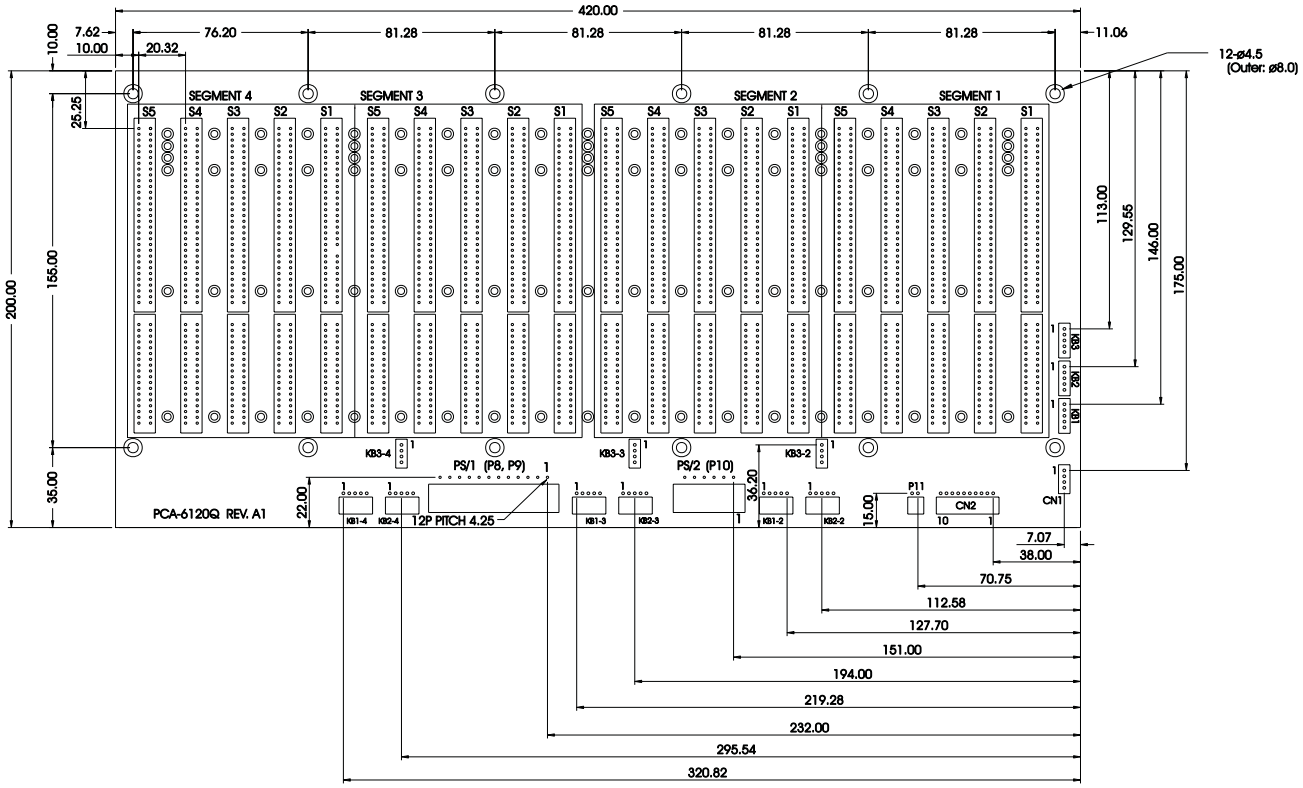
CN3	
PIN	NAME
1	P-F
2	GND

CN4	
PIN	NAME
1	+3.3 V
2	GND

Figure 1-8: PCA-6118DP7

PCA6120Q: 5 ISA slots x 4

Dimensions: 420 x 200 mm

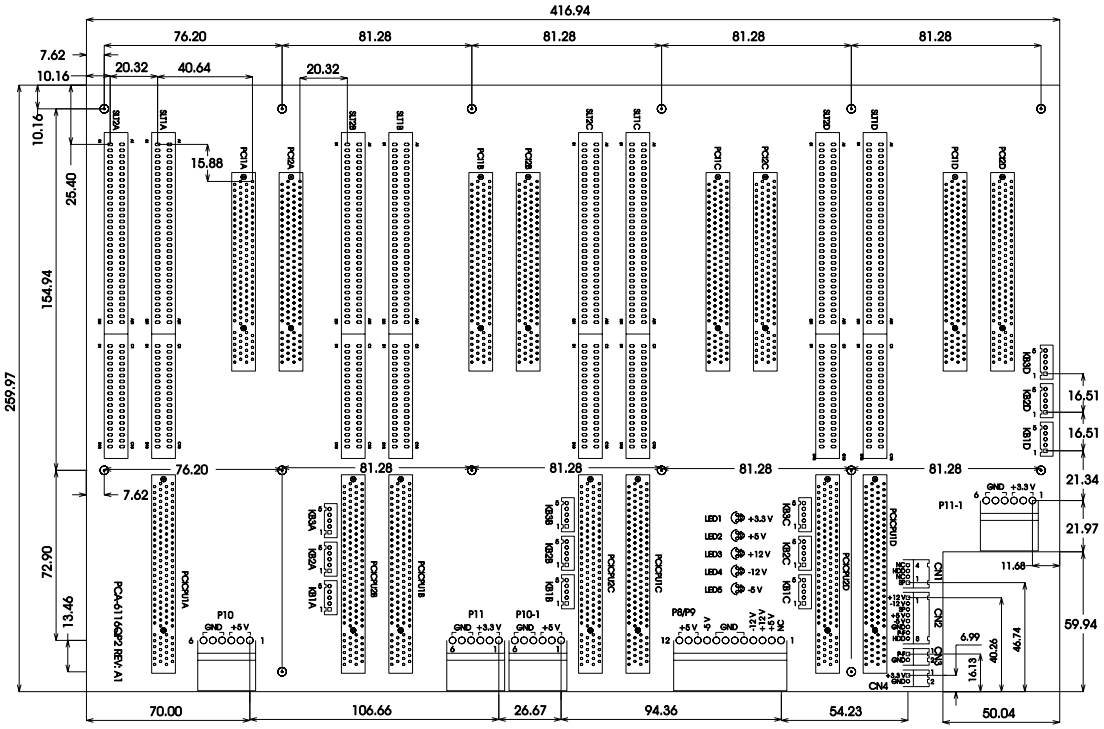


Unit: mm

Figure 1-9: PCA-6120Q

PCA-6116QP2: 1 ISA / 2 PCI / 1 CPU slots x 4

Dimensions: 260 x 417 mm



Unit: mm

1. CONNECTORS

CONNECTOR	DESCRIPTION
KB1A, 2A, 3A 1B, 2B, 3B 1C, 2C, 3C 1D, 2D, 3D	External K/B connectors
CN1	4-pin SP and HDD connector
CN2	8-pin power (±5 V, ±12 V), SP, HDD and P-F connector
CN3	2-pin P-F connector
CN4	2-pin +3.3 V DC power connector
P8/P9	To PS/2 power connector
P10 ~ P10-1	6-pin +5 V DC power connectors
P11 ~ P11-1	6-pin +3.3 V DC power connectors

2. PIN ASSIGNMENTS

KB
1A, 2A, 3A
1B, 2B, 3B
1C, 2C, 3C
1D, 2D, 3D

PIN	NAME
1	KBDCLK
2	KBDDATA
3	NC
4	GND
5	+5 V

P10, P10-1

PIN	NAME
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

P8/P9

PIN	NAME
1	NC
2	+5 V
3	+12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	+5 V
11	+5 V
12	+5 V

P11, P11-1

PIN	NAME
1	+3.3 V
2	+3.3 V
3	+3.3 V
4	GND
5	GND
6	GND

CN1

PIN	NAME
1	SP
2	NC
3	HDD
4	NC

CN3

PIN	NAME
1	P-F
2	GND

CN2

PIN	NAME
1	+12 V
2	-12 V
3	SP
4	+5 V
5	-5 V
6	GND
7	P-F
8	HDD

CN4

PIN	NAME
1	+3.3 V
2	GND

Figure 1-10: PCA-6116QP2

1.5 Power Supply

300 watt redundant power supply

Output rating: 300 W maximum

Input voltage: 90/180 ~ 132/264 V_{AC} @ 47 ~ 63 Hz

Output voltage: +5 V @ 30 A, +12 V @ 12 A, -5 V @ 0.5 A, -12 V @ 1 A

Min. load: +5 V @2 A, +12 V @ 1 A

MTBF: 100 K hours

Safety: UL/CSA/TUV/CE

EMI: FCC part 15 class B, CISPR 22 class B, VCCI class 2

400 watt single power supply

Output rating: 400 W maximum

Input voltage: 100/200 ~ 130/260 V_{AC} @ 47 ~ 63 Hz

Output voltage: +5 V @ 40 A, +12 V @ 20 A, -5 V @ 0.5 A, -12 V @ 1 A

Min. load: +5 V @ 3 A, +12 V @ 0.5 A

MTBF: 150 K hours

Safety: UL 1950, CSA E.B. 1420C

EMI: FCC part 15, CISPR 22 class A

1.6 Dimensions

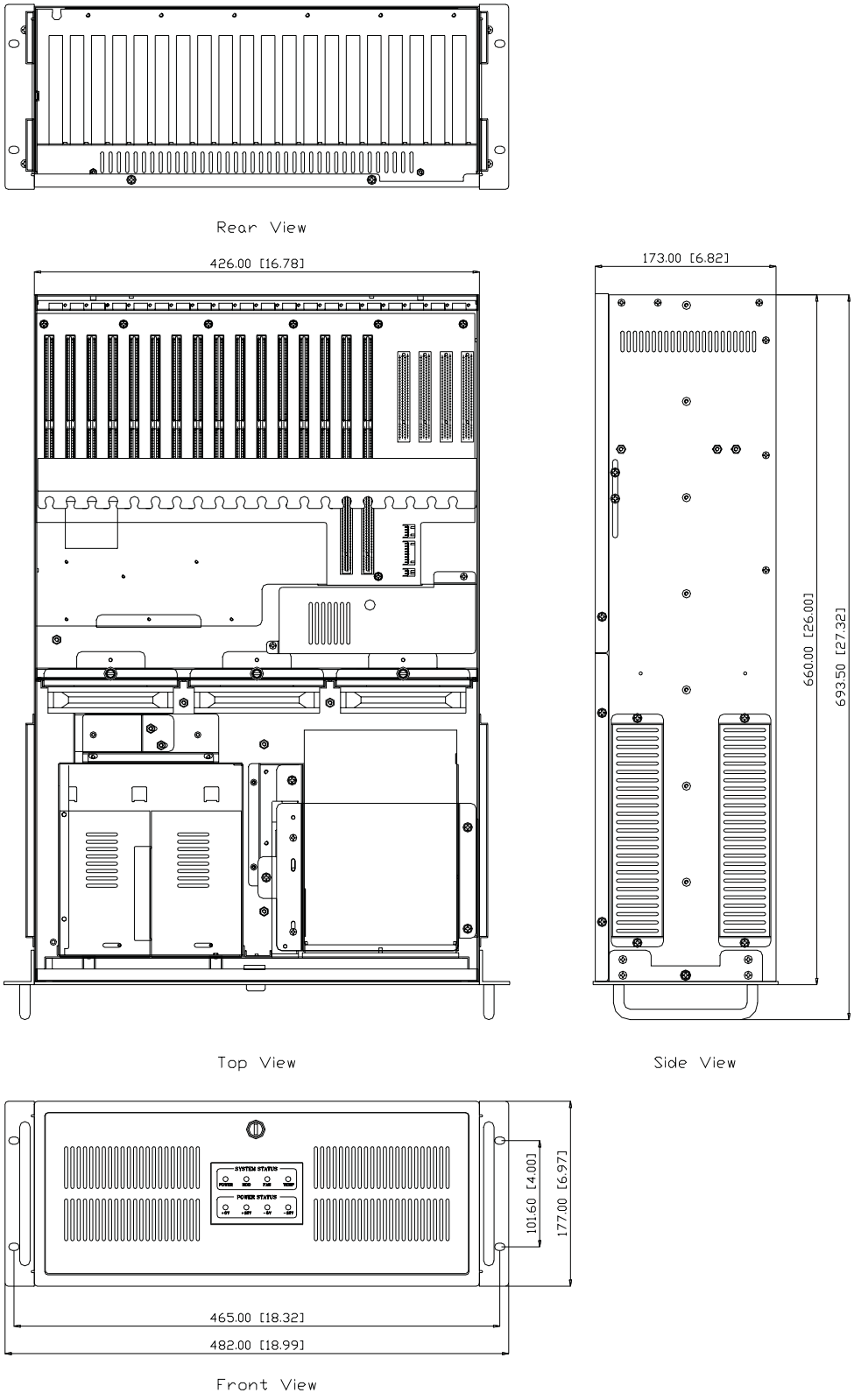


Figure 1-11: Dimensions

1.7 Exploded diagram

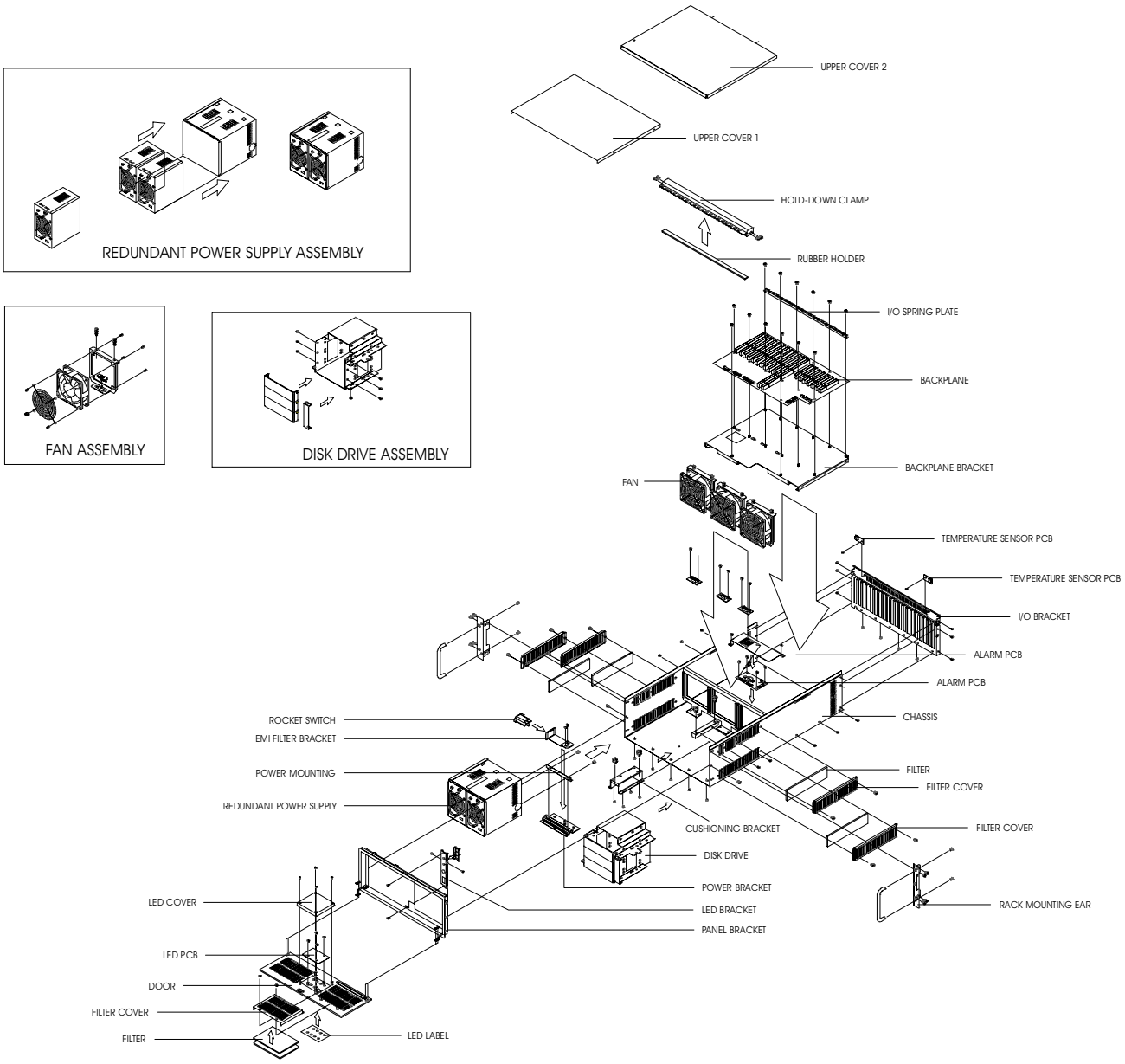


Figure 1-12: Exploded diagram

Chapter 2 System Setup

WARNING: Before starting the installation process, make sure you disconnect all power from the chassis. Do this by turning off the power switch and unplugging the power cord from the power outlet. If you are not sure what to do, let an experienced technician handle it.

2.1 Attaching the Handles

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

2.2 Removing the Top Covers

The first step is to remove the chassis cover. You will need a Philips screwdriver.

There are two top covers for the IPC-623: the front top cover and the rear top cover. Both are fixed to the chassis with four screws, two on each side.

To remove either of the top covers:

1. Detach the four screws on the sides.
2. Lift off the cover.

IMPORTANT: Make sure you remove the front and rear top covers when maintaining full-size cards. See table 2-1 below for further information:

Component in need of maintenance	Remove
Drive bay	front top cover
Cooling fan	front top cover
Half-size CPU card	rear top cover
Full-size CPU card	front top cover & rear top cover
Full-size I/O card	front top cover & rear top cover
Alarm board	rear top cover

IMPORTANT: Check all the power supply cables and make certain that they are not tangled or blocking the cooling fan blades. This prevents any accidental damage to the cables.

Figure 2-1

2.3 Chassis Front and Rear Sections

The IPC-623 comes in two sections: the front section and the rear section. Each of these sections has its own top cover.

The front section includes:

1. Standard drive bay.
2. Three cooling fans.
3. Front chassis door.
4. Control panel.
5. Power supply (two power supply modules for the *Power Redundant Supply Model*; one power supply module for the *Single Power Supply Model*).
6. Additional drive bay (for the *Single Power Supply Model* only).

The rear section includes:

1. Backplane.
2. Two temperature sensors.
3. Alarm board.
4. Hold-down clamp.
5. Power supply (for the *ATX Motherboard System* and the *14-slot System Model*).

2.4 The Standard Drive Bay

The standard drive bay of the IPC-623 can hold up to three front accessible 5.25" drives, such as a CD-ROM unit, a removable drive, a vertically mounted 3.5" floppy drive, or an internal 3.5" hard drive.

Installing disk drives

1. Remove the top front cover.
2. Detach the four screws holding the standard drive bay.
3. Lift off the standard drive bay (please refer to figure 2-3).
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.
6. Install the standard drive bay and secure the top front cover with the four screws.

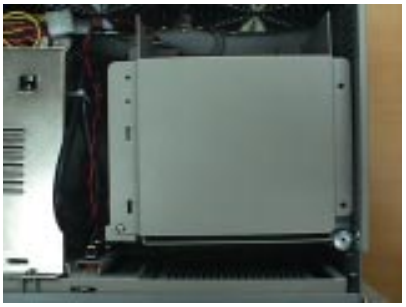


Figure 2-2

Figure 2-3

2.5 Four Models of the IPC-623

Advantech supplies four IPC-623 models.

2.5.1 The redundant power supply model

In this configuration, the power supply is installed in the front section of the chassis. The 300 W redundant power supply comes in two modules, which are located at the left side of the front section.

Figure 2-3-a

Figure 2-3-b

Both modules are hot-swappable and are accessible from the front. Please refer to figures 2-3-a and 2-3-b.

The standard drive bay is at the right side of the front section. Please see section 2.4 for further details.

The backplane is installed at the rear.

Replacing the power supply module

To remove a redundant power supply module:

1. First check that the chassis door is open wide - either to the horizontal or inclined downward.
2. Unlock the power supply module.
3. Flip the power supply module toward yourself.
4. Grab the handle and gently pull out the power supply module (see figure 2-5).

Figure 2-4

Figure 2-5

WARNING: Do not remove the power supply module if the front chassis door is not opened completely. Removing the power supply module in such a way might result in damage of your chassis. See figure 2-6.

Figure 2-6: Do not do this!

Replacing the redundant power supply module:

1. Make sure that the power supply module is the same rating as the one currently installed.
2. Open the front chassis door as wide as you can. See figures 2-4 and 2-5.
3. Slide the power supply module inward until it locks into place.
4. Flip back the power supply module handle toward the chassis.

2.5.2 The single power supply model

Figure 2-6-a

Figure 2-6-b

With this configuration, there is only one single 400 W AT power supply. It is hidden inside the front section of the chassis, at the left. With only one power supply module installed, an additional drive bay can be installed next to that power supply. Six 3.5" hard drives can be installed in this internal drive bay. Please see figures 2-6-a and 2-6-b.

At the right is the standard drive bay. Refer to section 2.4 for a more detailed description. Installed at the rear section is the backplane.

Installing an HDD into the drive bay:

1. Undo the four screws of the drive bay.
2. Align the hard drive with its proper position.
3. Fix the screws into the screw holes on the sides of the drive bay.
4. Connect the disk drive power and signal cables.

2.5.3 The 14-slot system model

Figure 2-6-c

Figure 2-6-d

This model features a 14-slot backplane and a power supply module fitted at the rear section of the chassis.

The front section has two standard drive bays, which allows installation of up to six 5.25" drives (CD-ROM, removable drive), two 3.5" floppy drives, and two internal 3.5" hard drives. See figures 2-6-c and 2-6-d.

Please refer to section 2.4 for installing the drives in the standard drive bay.

2.5.4 The ATX motherboard system model

Figure 2-6-e

Figure 2-6-f

This model allows an ATX motherboard with ATX power supply alongside, both of which are fitted at the rear section. Refer to figure 2-6-e.

The front section is equipped with two standard bays, which enables installation of up to six 5.25" drives (CD-ROM, removable drive), two 3.5" floppy drives, and two internal 3.5" hard drives. See figure 2-6-f.

For installing the drives in the standard drive bay, refer to section 2.4.

2.6 LED Indicators

The front chassis door contains a series of LED indicators, which are grouped into two categories.

System Status LEDs

These LEDs show the current status of critical elements and parameters within the chassis.

LED	Description	Red light (blinking)	Green light (constant)
PWR	system power	not normal	normal
HDD	hard drive activity	no light	data access
FAN	cooling fan status	not normal	normal
TEMP	chassis temperature	not normal	normal

A failed cooling fan triggers a blinking red FAN LED, and also an alarm. In order to stop the alarm, you have to press the alarm reset button. Then replace the fan immediately. Please see section 2.7 for further information.

If the TEMP LED is blinking red, the system has detected excessive temperature inside the chassis. An audible alarm is triggered, which can be switched off by pressing the alarm reset button. Refer to section 2.7. Inspect the rear section immediately and make sure that airflow inside the chassis is smooth and free from dust or other particles.

Power Status LEDs

These LEDs indicated the status of the backplane voltage signals.

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

When an LED fails to light up, it means there is a problem with one of the voltage signals. When this happens, an audible alarm sounds. Check if the power supply connector is properly attached to the backplane. If the problem persists, consult an experienced technician.

2.7 Front Panel Switches

The front panel switches are used for system power, system reset and alarm reset.

Power On/Off Switch Used for switching the system power on or off.

System Reset Switch Reinitializes the system. This switch is similar to the hardware reset button.

Alarm Reset Switch For suppressing or stopping an audible alarm. Whenever a fault in the system occurs (e.g. fan failure, overtemperature, improper backplane voltage), an audible alarm is activated. Pressing this button will cause the alarm to stop.

2.8 Cooling Fans

Three cooling fans are located within the chassis. All of them are hot-swappable and provide the system with ample cooling by blowing air inward. When a cooling fan shuts down, the system will sound a continuous alarm. To turn the alarm off, press the alarm reset switch on the front panel. However, you will have to replace the failed fan immediately.

Replacing the cooling fan

1. Loosen the fixed screw located on top of the fan unit.
2. Use the screw to pull out the fan unit.
3. Replace the cooling fan.
4. Tighten the screw in order to secure the cooling fan unit.

Figure 2-8

Figure 2-9

2.9 Alarm Board

The alarm board is located in the rear section, between the cooling fan and the backplane. It gives an audible alarm when:

a. One of the cooling fans fails

b. Temperature inside the chassis rises to an excessive level

c. A problem occurs in one of the backplane voltage levels

To stop this continuous alarm, press the alarm reset switch at the front panel. Please see the appendix for further details.

2.10 Temperature Sensors

There are two temperature sensors inside the chassis. They are located at the rear section, attached to the left and right upper corner of the chassis backplate. Refer to figure 2-10.

When the temperature rises, the sensors send a signal to the alarm board, and a continuous alarm is sounded. To stop the alarm, press the alarm reset switch at the front panel.

Figure 2-10

Adjusting the temperature sensors

The temperature sensors can only be adjusted during installation of the CPU cards and add-on cards. If you encounter difficulties when installing the cards because of the location of the temperature sensors, you should do the following:

1. Remove the screw which secures the temperature sensor to the chassis.
2. Move the sensor away from its location. See figure 2-11.
3. Insert the card into the slot.
4. Return the temperature sensor back to its original location.
5. Re-attach the screw.

Figure 2-11

2.11 Filters

There are four filtered ventilation holes, two on each side of the chassis. In addition, the fan filter is protected with a metal bracket.

Replacing the fan filters:

1. Loosen the two screws that hold the metal bracket in place.
2. Remove the metal bracket.
3. Remove the filter, which you should either rinse with water or dispose of properly.
4. Use a new filter to replace the old one, or put the clean filter back. Make sure the filter is dry.
5. Return the metal bracket back to its original position.
6. Secure the bracket with the two screws.

2.12 CPU Cards and Add-on Cards

Installing slot-board computers and other add-on boards:

1. Remove the chassis cover. Please refer to section 2-2.
2. Remove the slot cover.
3. If the temperature sensor becomes an obstacle for installing the card, see section 2.10 on adjusting the sensor location.
4. Insert the CPU card or add-on card vertically into the vacant slot. See figure 2-11-a.
5. Align and tighten the screws to secure the card in a fixed position. Refer to figure 2-11-b.

Figure 2-11a

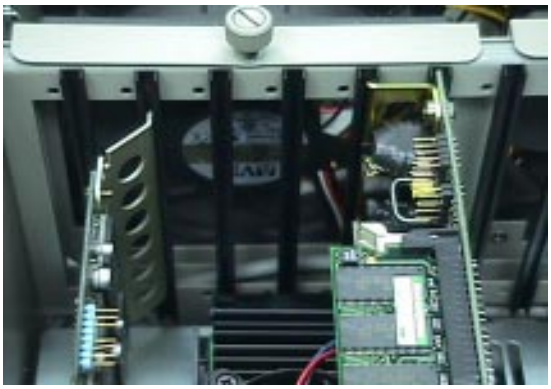


Figure 2-11b

2.13 Hold-down Clamp

The IPC-623 uses a hold-down clamp to secure the cards. This protects the cards against vibration and shocks. After inserting the CPU card and add-on cards, remember to install the hold-down clamp.

Installing the clamp:

1. After plugging in the add-on cards, insert the provided rubber buffers into the hold-down clamp so that their positions correspond with the locations of the cards. These buffers offer the plug-in cards two levels of protection against shocks and vibration.
2. Place the hold-down clamp in its original position.
3. Secure the screws.

Appendix A Jumper and Connector Settings

A.1 Alarm Board Jumper Settings

J1, J2, J3: MB and B/P Selection

Function	Jumper Settings
B/P version	J1, J2: 2-3 closed; J3: open (Default)
MB version	J1, J2: 1-2 closed; J3: closed

J4: +3.3 V Detection

Function	Jumper Setting
Disabled	J4: open (Default)
Enabled	J4: closed

J5, J6: Fan Alarm Selection

Function	Jumper Settings
FAN1 ~ FAN3 All Enabled	J5: open; J6:open (Default)
FAN1 and FAN3 Enabled	J5: closed; J6:open
One FAN Enabled	J5: closed; J6:closed

J7: Temperature Alarm Selection

Function	Jumper Setting
TEMP1 and TEMP2 Enabled	J7: open (Default)
TEMP1 or TEMP2 Enabled	J7: closed

A.2 Connectors

Number	Function
CN1	Main power connector
CN2	External speaker pin header
CN3	FAN3 connector
CN4	FAN2 connector
CN5	FAN1 connector
CN6	Front panel LED connector
CN7	14-slots B/P connector
CN8	20-slots B/P connector
CN9	TEMP2 connector
CN10	TEMP1 connector
CN11	Alarm buzzer reset pin header
CN12	Power fail signal connector
CN13	HDD1/HDD2 LED pin header