THe PBP-06V4 backplane is fully PICMG Rev 2.1 compliant. It is a member of PBP's PCI product family and is intended to support all PICMG compliant boards on the market.

Introduction

Traditional PC is outstanding with the all-in-one facility, in which processor seat, chipset, memory sockets, ISA/PCI slots, device and power connectors are accommodated over a single PCB. This would absolutely draw the limitation line on multiple peripheral cards adoption as well as the timing needed for board replacement in the event of system failure. The new generation industrial PC has made a new platform with a combination of two parts – SBC and backplane.

Different from traditional motherboards, industrial PC features on easily removable SBC as the working board that has PICMG or ISA form factor so that users may easily apply or remove the SBC from the system. Reducing the system down time is obviously visible. Backplane is hence designed with PICMG slots to hold the SBC as a system. Some backplanes also have ISA/PCI slots to hold ISA/PCI peripheral cards. This design has been proved successful to provide far more PCI slots than traditional motherboard could ever holds (4 PCI slots) to meet the requirement of current technology and market demands, especially in CTI market.

As a matter of fact, with the needs from industrial PC users moving on, applications with SBC and backplane have been fully required and are currently leading the industrial PC market.

Design Philosophy

Portwell backplane is designed to meet customer's demand. Better power distribution, thick PCB with more ruggedness, and user-friendly designed are the key design routes. We hold the remind to produce backplane of trustable quality throughout the design phases, and this is how Portwell backplane is made and presented.

In order to keep good power filtering and avoid fire explosion, Electrolytic capacitor and Ceramic capacitor are used to replace traditional Tantalum capacitor. All Portwell backplane models have 4 layers with separate power layer and ground layer to reduce power noise. Assorted connectors, including keyboard connectors and power connectors, are provided for easy installation and expansion. All backplanes models are made to meet industrial grade environment requirement (temperature, humidity, etc.).

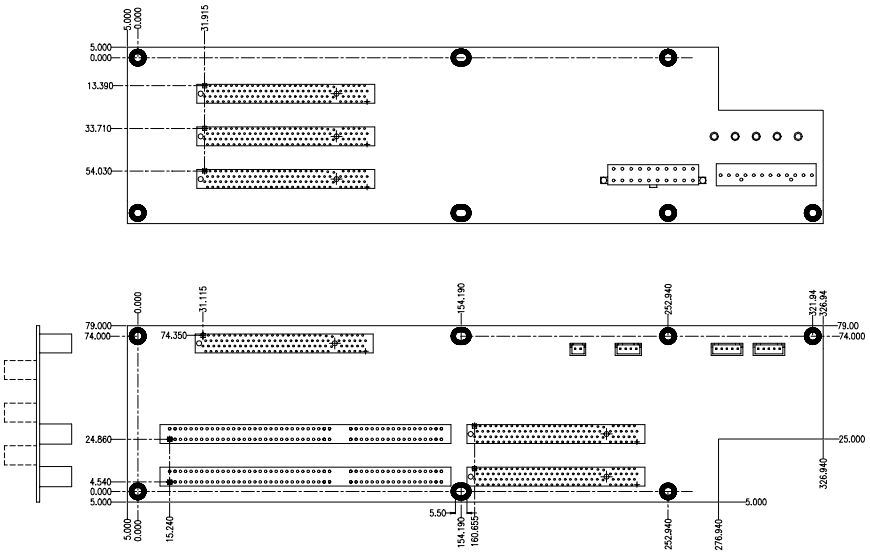
Product Features

Connector	◆ Dual slot PCI/ISA for the CPU board ◆ Four 5V 32bit PCI slots for full-size boards on the Primary bus. These slots are Master/Slave configurable by using Bus Mastering Scheme. ◆ One AT standard power connector: 12 pins, 5A max. per pin for +5V, -5V, +12V, -12V voltages, Ground, and Power Good signal. ◆ One ATX standard power connector: 20 pins, 5A max. per pin for +5V, -5V, +12V, -12V, +3.3V voltages, Ground, and Power Good signal. ◆ One ATX control connector to distribute signals coming from the CPU boards onto connector for soft on/off an ATX power supply. ◆ Pairs of header for local connection of a keyboard, fan power, and Power LED.
PCB	◆ The Printed Circuit Board's (PCB) overall dimensions are 84mm x 321.5mm ("x"), and total thickness is 1.6mm. ◆ 7 Mounting holes are provided and are located to conform to the baby AT form factor. Mounting holes are connected to Signal Ground internally. ◆ Operating Temperature : 0℃ ~ 55℃ ◆ Storage Temperature : -20℃ ~ 75℃
Standard	◆ PCI- conforms to PICMG rev. 2.1 specification ◆ ISA- conforms to IEEE P996 specification.

Jumpers and Connectors

JUMPER / CONNECTOR	DESCRIPTION
PCI A,B/ISA 1,2	**PICMG connectors**
PCI 1-4	**32BIT PCI BUS connectors (primary)**
KB1, KB2	**Keyboard connector**
CN1	**Fan power connector**
CN2	**ATX P/S control connector**
CN3	**ATX power connector**
CN4	**P8/P9 power connector**

Board Drawing



Pin Assignment

CN4 - P8/P9	
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

CN1	
PIN	**NAME**
1	+12V
2	GND

KB1, KB2	
PIN	**NAME**
1	CLK
2	DATA
3	NC
4	GND (Via SBC)
5	+5V (Via SBC)

**Note: this pin assignment may vary if a non-ROBO SBC is used with the backplane.*

CN3 – ATX			
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	PWR-OK	18	-5V
9	5V STB	19	+5V
10	+12V	20	+5V

CN2 (For ATX P/S only)*	
PIN	**NAME**
1	*PW-OK*
2	*5VSB*
3	*PS-ON*
4	*GND*

**Note: If you are using a non-ATX featured SBC board with ATX power supply, you can turn the ATX power supply into AT type by adding an on-off switch over pin3 and 4. By default, pin 3 and 4 is short to trigger the ATX power supply to ON status.*

Installation Guide

SBC

Apply only one full-size SBC over PICMG or half-sized SBC over ISA slot. Apply your ISA/PCI cards over ISA/PCI slots. (**Fig.1**) If you use only half-sized SBC, all the PCI slots are not available.

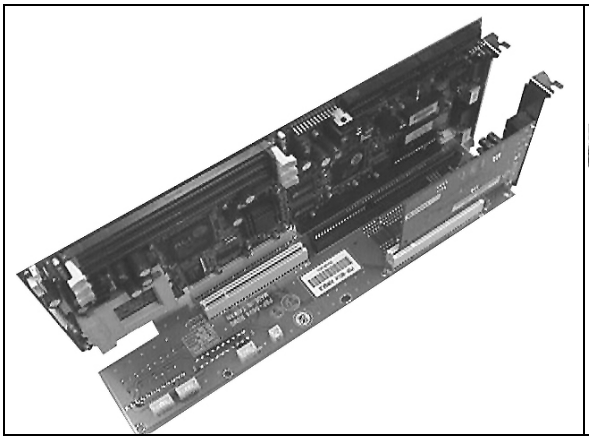


Fig.1

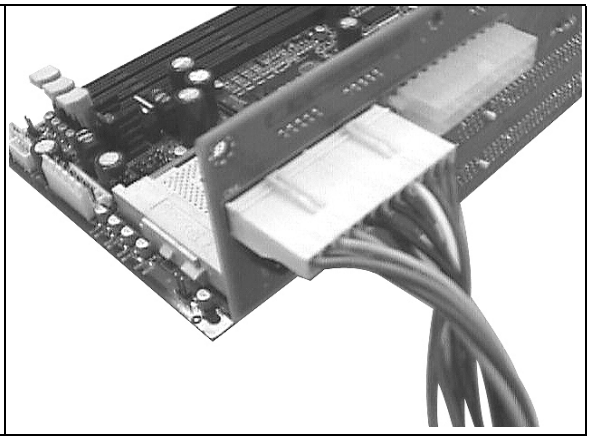


Fig.2

Power Supply

1. If you are using AT power supply, please apply the P8/P9 connector over CN4 (**Fig.2**).

2. If your are using ATX power supply, please apply the 20-pin ATX power connector over CN3 (**Fig.3**). Besides, you need to apply one 4-pin ATX power control cable between your SBC and backplane over the 4-pin header CN2. (A toggle switch is required over your SBC for this application, **Fig.4**).

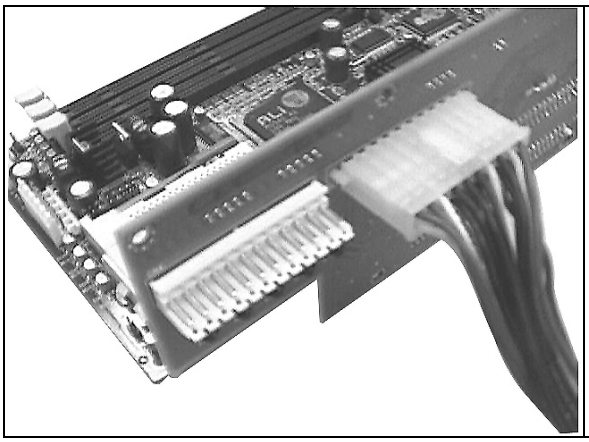


Fig.3

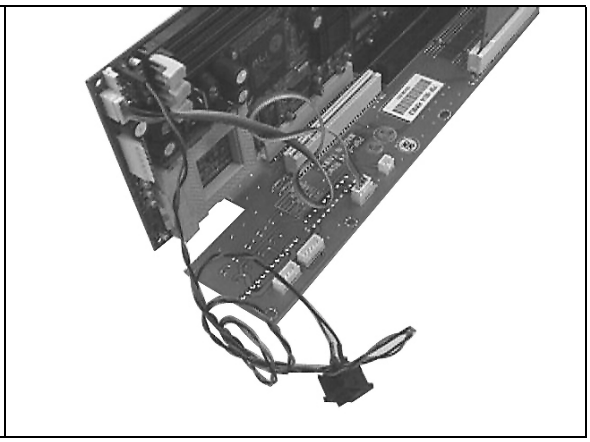


Fig.4

3. If you are using ATX power supply, you may also apply a jumper over pin-3 and pin-4 of CN3. In this application, the 4-pin ATX power control cable is not required, and your ATX power supply will then act as a AT power supply (**Fig.5**).

Keyboard

1. If you are using a standard PC/AT keyboard, please apply a 5-pin keyboard control cable between your SBC and backplane over the 5-pin shrouded header KB1. Another keyboard shrouded connector is then used for external keyboard (generally from chassis) (**Fig.6**).

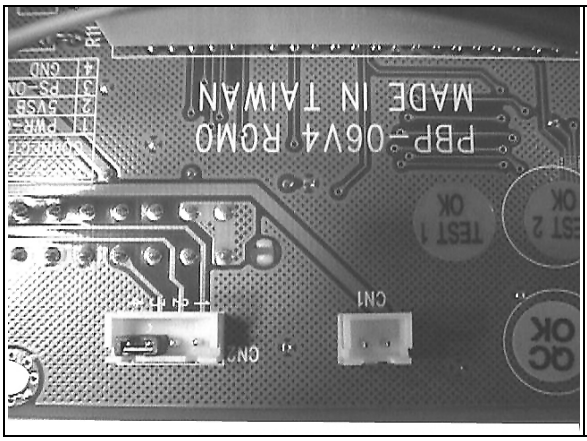


Fig.5

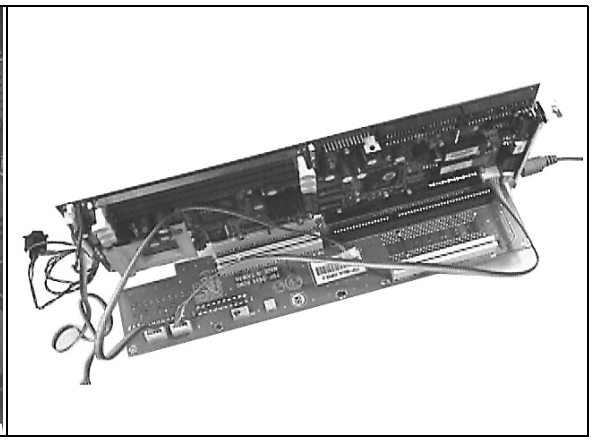


Fig.6

2. If you are using a PS/2 keyboard, simply apply them over the PS/2 connector on your SBC. In this application, the 5-pin keyboard control connector is not required.

Chassis

Make sure the copper lifting stands are placed below all the mounting holes of your backplane.

Fan

CN1 is fan connector. Please refer to the pin assignment table and your chassis fan connector for proper connection.
The PBP-06V backplane is fully ISA specification compliant. It is a member of PBP's ISA product family and is intended to support pure ISA compliant boards on the market.