

# **PX-20S2**

## **ISA/PCI Bridge Backplane**

# **User's Manual**



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## Introduction

PX-20S2 is exactly the backplane what you want, even in the future. As you know, most of the adapters are of PCI bus, and ISA adapters are on the decrease in the market. If this problem have bothered you for a long time, then PX-20S2 is the right answer for you. In order to solve the problem, PX-20S2, includes 17 32-bit PCI slots (5V/3.3V) on board, gives the great flexibility for your system's extension. We have added P10 (+5V) and DC power outlet (including +3.3V, +5V, -5V, +12V, and -12V) on PX-20S2 to keep system more stable. You can acquire a power supply with great stability, even as the system work under heavy load. Besides, we also add a connector for ATX power supply to which you can connect your SBC (SBC must have the ability to use ATX power).

## Product Features

### Standard

- ◆ PCI-conforms to PICMG 2.1 specification.
- ◆ ISA-conforms to IEEE P996 specification.

### PCB

- ◆ The Printed Circuit Boards (PCB) overall dimension is 264.2mm x 415.9mm (10.4"x 16.4") and total thickness is 1.6mm (4 layers).
- ◆ 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 to 60°C (32 to 140°F).
- ◆ Storage Temperature; -20 to 85°C (-4 to 185°F).
- ◆ Humidity; 5% to 95%, non-condensing.
- ◆ EMI/Safety; Meets FCC, CE Class A and UL, CSA and TUV.

### Connector

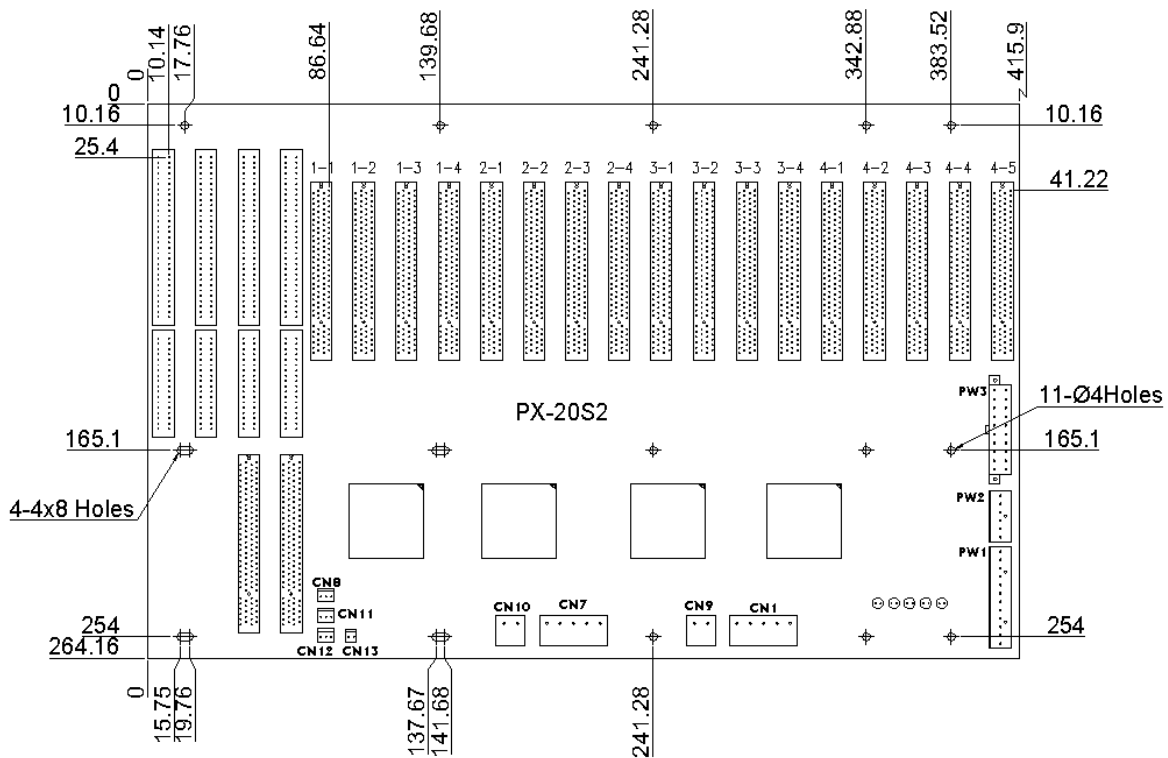
- ◆ Dual slots PCI/ISA for the CPU board.
- ◆ Two ISA slots for full-size ISA board.
- ◆ Seventeen 32-bit PCI slots for full-sized boards on the Primary bus, All slots are Master/Slave configurable by using Bus Mastering Scheme.
- ◆ One AT standard power connector, 12 pins, 5A max, per pin for +5V, -5V, +12V, and -12V voltages and Ground.
- ◆ One ATX standard power connector; 20 pins, 5A max, per pin for +3.3V, +5V, +5VSB, -5V, +12V, and -12V voltages, Ground, and power Good signal.

- ◆ One ATX control connector to distribute signals coming from the CPU boards onto connector for soft on/off ATX power supply.
- ◆ One P10 standard power connector, 5A max, per pin for +5V and Ground.
- ◆ Two DC power outlet.
- ◆ Pairs of header for local connection of a fan power, and power LEDs.

## Routing List

| PCI SLOT | 1-1   | 1-2   | 1-3   | 1-4   | 2-1   | 2-2   | 2-3   | 2-4   | 3-1   | 3-2   | 3-3   | 3-4   | 4-1   | 4-2   | 4-3   | 4-4   | 4-5   |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| IDSEL    | 1AD23 | 1AD22 | 1AD21 | 1AD20 | 2AD23 | 2AD22 | 2AD21 | 2AD20 | 3AD23 | 3AD22 | 3AD21 | 3AD20 | 4AD23 | 4AD22 | 4AD21 | 4AD20 | 4AD24 |
| INTA     | A     | D     | C     | B     | B     | A     | D     | C     | D     | C     | B     | A     | C     | B     | A     | D     | D     |
| INTB     | B     | A     | D     | C     | C     | B     | A     | D     | A     | D     | C     | B     | D     | C     | B     | A     | A     |
| INTC     | C     | B     | A     | D     | D     | C     | B     | A     | B     | A     | D     | C     | A     | D     | C     | B     | B     |
| INTD     | D     | C     | B     | A     | A     | D     | C     | B     | C     | B     | A     | D     | B     | A     | D     | C     | C     |

## Board Drawing



# Connectors

| CONNECTOR                         | DESCRIPTION               |
|-----------------------------------|---------------------------|
| ISA6/ISA7/SLOT1 & ISA7/ISA8/SLOT0 | PICMG connectors          |
| PCI1-PCI17                        | 32-BIT PCI BUS connectors |
| ISA1/ISA2,ISA3/ISA4               | 16-BIT ISA BUS connectors |
| PW1                               | P8/P9 power connector     |
| PW2                               | P10 power connector       |
| PW3                               | ATX power connector       |
| CN1,CN7,CN9,CN10                  | DC power outlet           |
| CN2                               | ATX P/S control connector |
| CN8,CN11                          | Fan connector             |
| CN13                              | Power good signal output  |

## Pin Assignment

| P8/P9(PW1) |        |
|------------|--------|
| PIN        | NAME   |
| 1          | PWR OK |
| 2          | +5V    |
| 3          | +12V   |
| 4          | -12V   |
| 5          | GND    |
| 6          | GND    |
| 7          | GND    |
| 8          | GND    |
| 9          | -5V    |
| 10         | +5V    |
| 11         | +5V    |
| 12         | +5V    |

| P10(PW2) |      |
|----------|------|
| PIN      | NAME |
| 1        | +5V  |
| 2        | +5V  |
| 3        | +5V  |
| 4        | GND  |
| 5        | GND  |
| 6        | GND  |

| Power Extension(CN1,CN7) |      |
|--------------------------|------|
| PIN                      | NAME |
| 1                        | +5V  |
| 2                        | -5V  |
| 3                        | -12V |
| 4                        | +12V |
| 5                        | GND  |

| Power Good output(CN13) |            |
|-------------------------|------------|
| PIN                     | NAME       |
| 1                       | Power Good |
| 2                       | GND        |

| Power Extension(CN9,CN10) |       |
|---------------------------|-------|
| PIN                       | NAME  |
| 1                         | +3.3V |
| 2                         | GND   |

| ATX(PW3) |        |     |       |
|----------|--------|-----|-------|
| PIN      | NAME   | PIN | NAME  |
| 1        | +3.3V  | 2   | +3.3V |
| 3        | +3.3V  | 4   | -12V  |
| 5        | GND    | 6   | GND   |
| 7        | +5V    | 8   | PS_ON |
| 9        | GND    | 10  | GND   |
| 11       | +5V    | 12  | GND   |
| 13       | GND    | 14  | GND   |
| 15       | PWR OK | 16  | -5V   |
| 17       | STB5V  | 18  | +5V   |
| 19       | +12V   | 20  | +5V   |

| ATX control connector(CN12) |       |
|-----------------------------|-------|
| PIN                         | NAME  |
| 1                           | STB5V |
| 2                           | PS_ON |
| 3                           | GND   |

| Fan connector(CN8,CN11) |      |
|-------------------------|------|
| PIN                     | NAME |
| 1                       | NC   |
| 2                       | +12V |
| 3                       | GND  |

# Installation Guide

## ➤ Chassis

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

## ➤ SBC

Apply only one full-sized SBC over PICMG slot or half-sized SBC over ISA slot.

Apply your ISA/PCI cards over ISA/PCI slot (Image 1).

## ➤ Power Supply

1.If you use AT power supply, attach the P8/P9 connector to PW1 (Image. 2).

2.If you use ATX power supply, attach the 20-pin ATX power connector to PW3 (Image. 3).

Besides, you need to apply one 3-pin ATX power control cable between your SBC and backplane over the 3-pin header CN12. (A toggle switch is required over your SBC for this application.

Image. 4).

3.If you use ATX power supply, you may also plug a switch into pin-2 and pin-3 of CN12. In this application, the 3-pin ATX power control cable is not required, and your ATX power supply will then act as AT power supply (Image. 5).

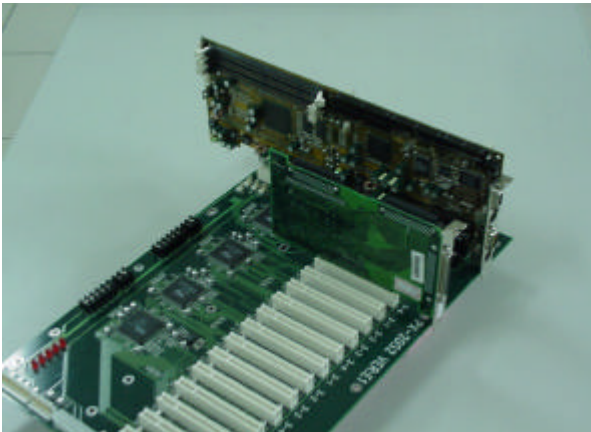


Image 1

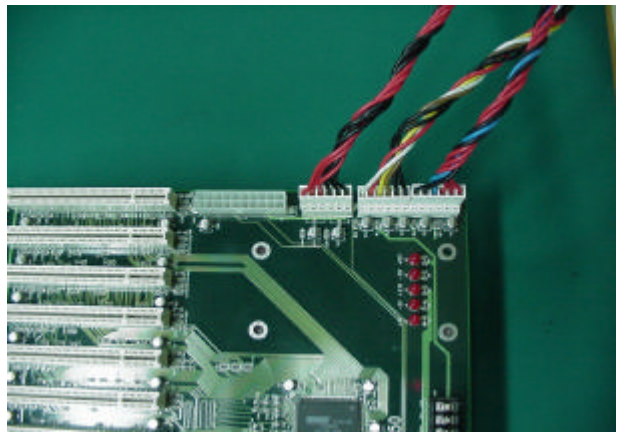


Image 2

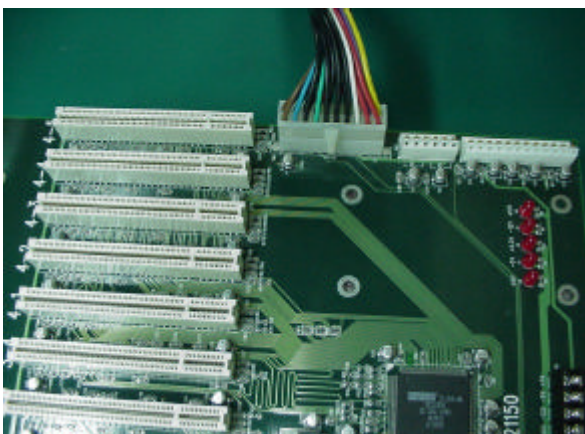


Image 3

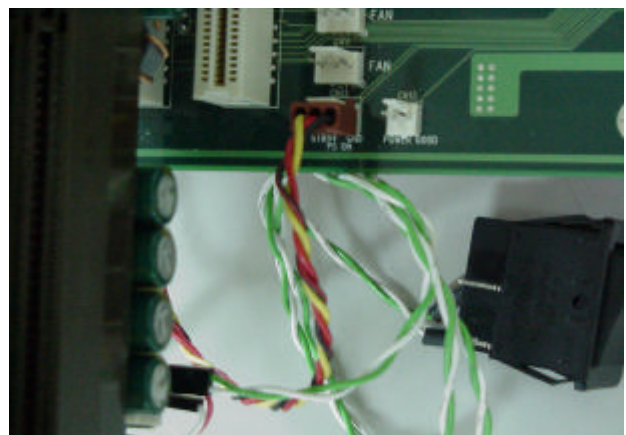


Image 4

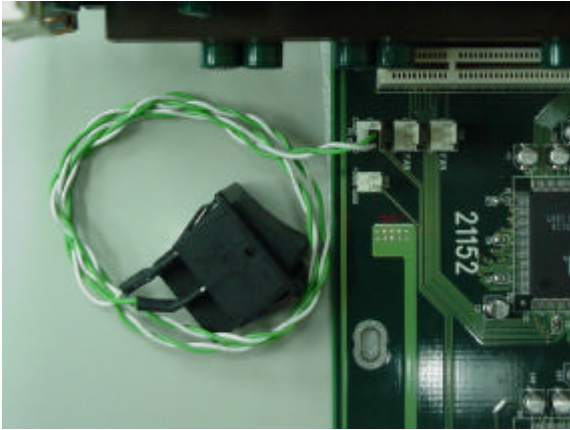


Image 5

➤ **Fan**

CN8 and CN11 are fan connectors. Please refer to the pin assignment table for proper connection.

➤ **Additional Power Connectors**

PW2 are additional power connectors used to draw more power and balanced the power distribution for full loading system. Users need to make a P8-like power connector with three +5V (P10) pins and three ground pins. For pin assignment, please refer to pin assignment section (Image 2)