MIC-3036

2U high 4-slot CompactPCI™ enclosure

Copyright Notice

Acknowledgements

CE Notification

The MIC-3036, developed by Advantech Co., Ltd., has passed the CE test for environment specifications when shielded cables are used for external wiring. We recommend the use of shielded cables.

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Product warranty

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year 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.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. 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:

1. Collect all the information about the problem encountered. For example, 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.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
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.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before installation, ensure that the following materials have been received:

- One MIC-3036 CompactPCI™ enclosure with four-slot backplane
- One Rear I/O card (RIO-3303) with one IDE FPC cable, a pair of FDD and CD-ROM devices (MIC-3036-S only),
  a pair of rackmount brackets, four rubber stands, as several well as screws.
- One warranty certificate
- One startup Manual
- One CD disc and manual (in PDF format)

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Sales Assistance

If you have any technical questions about the MIC-3036 or any other Advantech products, please visit our support website at:

- **http://www.advantech.com.tw/support**

For more information about Advantech's products and sales information, please visit:

- **http://www.advantech.com**

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CHAPTER 1

General Information

1.1 Introduction

The MIC-3036 is a slim rugged 2U-high enclosure with four 6U CompactPCI™ slots for rack mounting. Being only 2U in height, the MIC-3036 provides the space efficiency required in applications such as CT and networking.

The MIC-3036 can accommodate up to three devices, including one slim-type FDD, one slim-type CD-ROM and one 3.5" HDD. With its flexible module design, various configurations can be made according to particular application requirements.

There are two MIC-3036 models:

- MIC-3036-A: MIC-3036 clone system
- MIC-3036-S: MIC-3036 with rear I/O card (RIO-3303), slim-type FDD and slim-type CD-ROM

1.2 Features

- The most compact 2U-high enclosure
- Four 6U-sized CompactPCI™ slots (one system slot and three peripheral slot)
- Accepts up to three devices
- 200 W ATX power supply

1.3 Specifications

1.3.1 General

- **Construction:** Aluminum alloy and Nickel Plated
- 4-slot space (8 TE), including one system slot and three peripleral slots
- "Hot swappable" platform complies with PICMG 2.1 R 2.0 Hot Swap Specification
- **Dimensions** (W x H x D, mounting flanges not included)**:** 441 x 88 x 295 mm (17.3" x 3.5" x 11.6")
- **Weight:** 5.2 kg (11.5 lb)
- **Operating temperature:** 0 ~ 50° C (32 ~ 122° F)
- **Storage temperature**: -20° C ~ 80° C (-4 ~ 176° F)
- **Relative humidity:** 10 ~ 95% @ 40° C, non-condensing
- **Operating altitude**: 0 ~ 3,048 meters (0 ~ 10,000 feet)
- **Storage/transit altitude**: 0 ~ 12,190 meters (40,000 feet)
- **Shock**: 10 G (operating); 30 G (storage/transit)
- **Random vibration**: 5 ~ 500 MHz 1.0 Grms (operating)
  2.0 Grms (Non-operating)

1.3.2 Fans

- **Air flow**: Two 32-CFM cooling fans (flow in)
- **Power consumption:** 0.28 A @ 12 V
- **Rated fan speed:** 5000 rpm
- **Life expectancy:** 50,000 hours @ 25° C

1.3.3 Power Supply

- **Input:** 100~240 V_{AC} @ 50~60 Hz, auto switchable
- PFC (Power Factor Correction) can reach the furget of 95% @ 115 V, full load, following the standard of IEC 1000-3-2
- **Output:** +3.3 V @ 14 A, +5 V @ 16 A, +12 V @ 9 A, -12 V @ 0.7 A
- **Minumum load:** +3.3 V @ 1.0 A, + 5V @ 2 A, +12 V @ 1.0 A
- **Max output**: 185 W for +5V, +3.3 V and +12 V, 110 W for +5 V and +3.3 V
- **MTBF:** 100,000 hours @ 70% load
- **Safety:** UL/CUL/CE/FCC

1.4 Dimensions

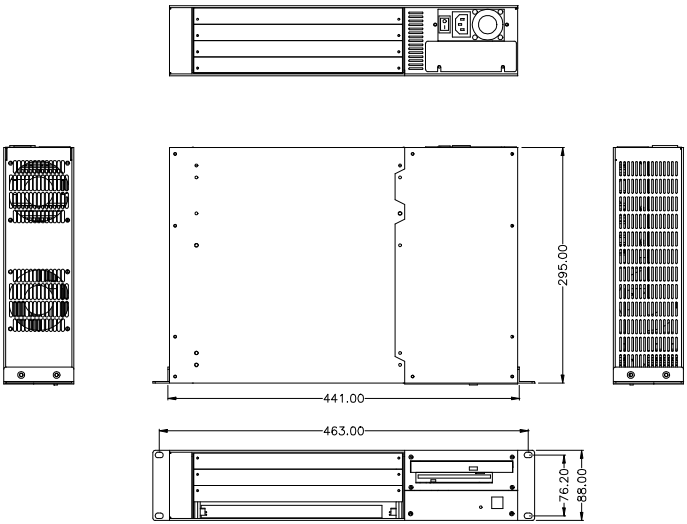


Figure 1-1: MIC-3036 dimensions

1.5 Ordering Information

- **MIC-3036-S:** 2U-high CompactPCI™ enclosure with 4- slot backplane, cooling fans, power supply, and holding bracket of HDD. slim-type FDD and slim-type CD-ROM Devices.
- **MIC-3036-A:** 2U-high CompactPCI™ enclosure with 4- slot backplane, cooling fans, power supply.
- **MIC-3377/M:** Single-slot 6U CompactPCI™ Pentium® III processor board with VGA and dual LANs
- **MIC-3357:** Single-slot 6U CompactPCI™ Pentium® MMX processor board with VGA and three LANs (Available in August 2001)

CHAPTER 2

Installation

2.1 Initial Inspection

We have carefully inspected the MIC-3036 mechanically and electrically before shipping. It should be free of marks and scratches and in perfect working order upon receipt.

As you unpack the MIC-3036, check it for signs of shipping damage (damaged box, scratches, dents, etc.). If it is damaged or fails to meet specifications, notify our service department or your local 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.

Warning! *We strongly recommend that only qualified, experienced personnel install or remove components. They must exercise extreme caution when doing so.*

2.2 The MIC-3036 Illustration

The MIC-3036 is designed to be installed and maintained easily. Figure 2-1 and Figure 2-2 illustrate important components on the front and rear side of the enclosure.

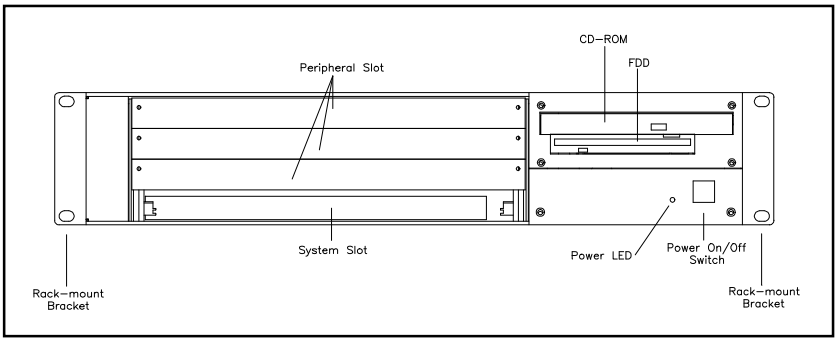


Figure 2-1: Front view of MIC-3036

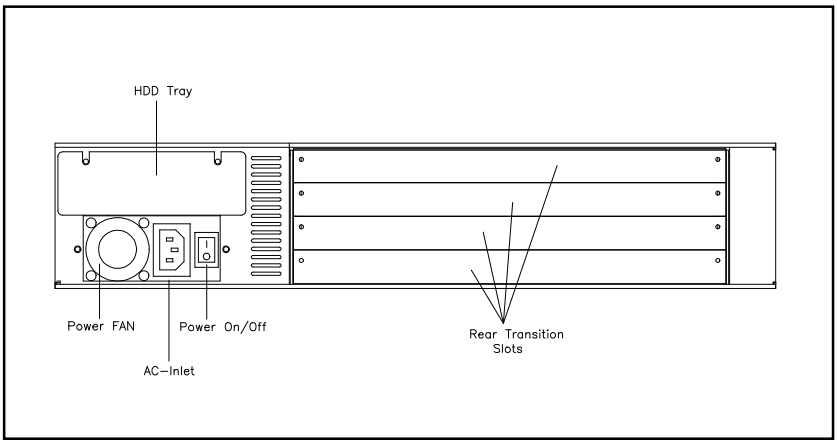


Figure 2-2: Rear view of MIC-3036

2.3 Installation Procedures

2.3.1 Card Installation and Removal

The CompactPCI™ connectors are firm and rigid, and require careful handling while plugging and unplugging. Improper installation of a card can easily damage the backplane of the chassis.

The system card can be installed only in the system slot. Do not insert the system card into the other slot, or insert a peripheral card into the system slot. The system slot is marked by a triangle enclosing the slot number. Please refer to chapter3

Note: Another easy way to distinguish the system slot is that the system slot uses red guide rails while the peripheral slots use gray ones.

The insert/eject handles on CompactPCI™ cards help users to install and remove the cards easily and safely. Follow the procedures below to install a card into a chassis:

To install a card:

1. Hold the card horizontally. Be sure that the card is oriented correctly. The components of the card should be pointing to the upper side.
2. Be sure that the handles of the card are not latched. Release the handles if they are latched. Handles from different vendors may have different latch designs.

Caution: Keep your fingers away from the latch hinges to prevent your fingers from getting pinched.

3. Insert the card into the chassis by sliding the both edges of the card into the card guides.
4. Push the card into the slot gently by sliding the card along the card guide rails until the handles meet the rectangular holes of the handle locker rails.

Note: If the card is correctly positioned and has been slid

all the way into the chassis, the handles should match the rectangular holes. If not, remove the card from the card guide and repeat step 3 again. Do not try to install a card by forcing it into the chassis.

5. Left-pull the right handle and right-pull the left handle to push the card into place.
6. Secure the card by locking the handles into place.

To remove a card:

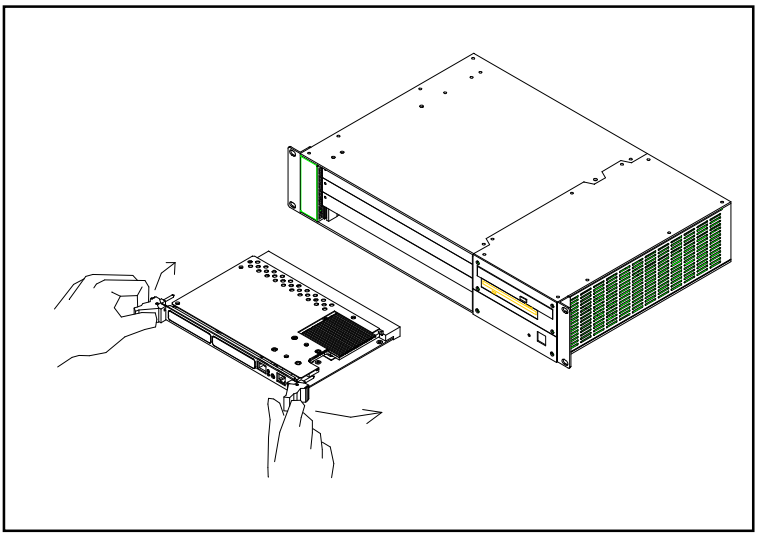


Figure 2-3: Installing a card into the chassis

1. Release the locking latches on the handles.
2. Push the both handles out to release the card from the backplane.
3. Slide the card out.

2.3.2 Before Operating the System

Before operating your system, first check your power supply source. The power supply module included in the MIC-3036 chassis accepts a full input range of 100~240 V_{AC} without any switch setting.

Two mounting flanges are included for users who would like to install the MIC-3036 on a 19" rack.

2.3.3 Installing Peripherals

The MIC-3036 accepts three devices, including one 3.5" devices, one slim-type CD-ROM drive, and slim-type FDD drive.

There are two types of mounting brackets shipped with the MIC-3036. The HDD mounting bracket is designed for mounting one 3.5" hard disk drives, and one mounting bracket is for a slim-type floppy disk drive as well as a slim-type CD-ROM drive. Please refer to Figure 2-4, 2-5, and 2-6 for an illustration of mounting. Figure 2-7 shows the recommended device bay configuration.

2.3.4 Installing a 3.5" Hard Disk Drive

Follow the procedures below to install 3.5" hard disk drives in the MIC-3036:

1. Unfasten and remove the upper cover plate of the MIC-3036.
2. Unfasten the HDD mounting bracket.
3. Fasten the hard disk drives on the HDD mounting bracket.
4. Fasten the mounting bracket with the hard disk drives in the MIC-3036.
5. Connect the IDE FPC cable to the installed devices.
6. Close the upper cover.

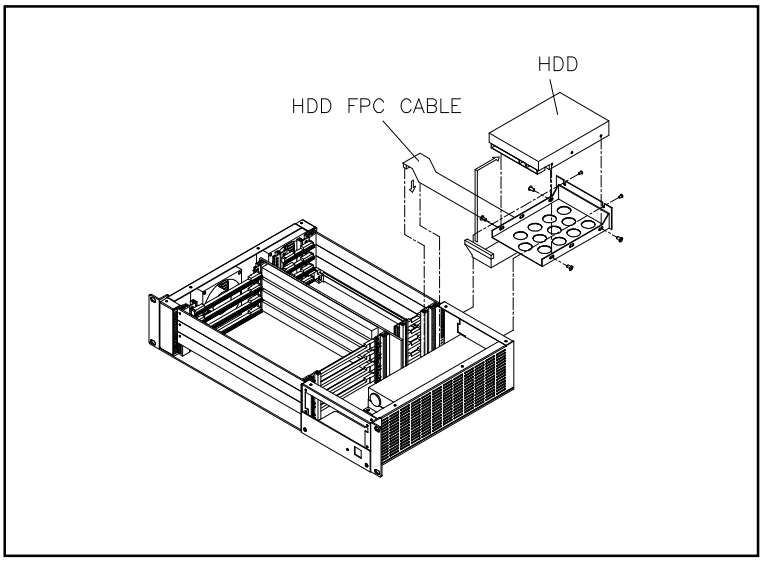


Figure 2-4: Inatalling 3.5" hard disk drives

2.3.5 Installing a Slim-type Floppy Disk and Slim-type CD-ROM Drives

A space is reserved for a slim-type floppy disk drive and slim-type CD-ROM drive in the right-front device bay. Follow the procedures below to install them.

1. Unfasten and remove the upper cover plate of the MIC-3036.
2. Fasten the mounting brackets with the floppy disk drive and CD-ROM drive on the MIC-3036. (Please refer to Figure 2-5)
3. Connect the FFC cable to the floppy disk and the FPC cable to the CD-ROM drive.
4. Close the upper cover.

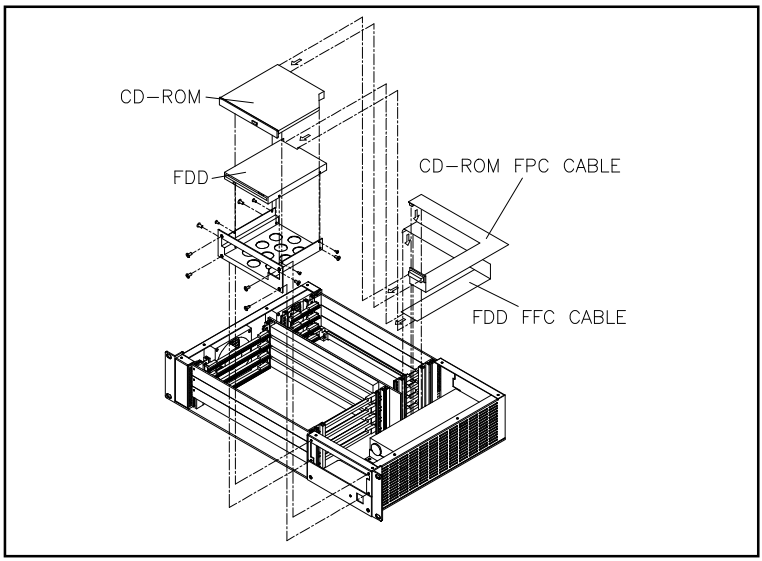


Figure 2-5: Installing a slim-type floppy disk drive

CHAPTER 3

Blackplane

3.1 General Information

This backplane is used for the 2U-high CompactPCI™ enclosures, MIC-3036 , and provides four CompactPCI slots. One slot is assigned to the CPU board and the other slots to three peripheral board. The MIC-3036 supports front I/O wiring, providing simplified system cabling.

The backplane provides two 2-pin connector for connecting 2 cooling fans.

In order to provide users with a flexible system configuration, the MIC-3036 includes one standard ATX power connector to accpet one ATX power supply.

The MIC-3036 complies with PICMG 2.1 Hot-Swap Specification, providing full hot-swapping capability. Users can build a hot-swap system using hot-swap plug-in boards and software.

3.2 Features

- Four CompactPCI™ slots (one system slot and one peripheral slot)
- 64-bit bus width
- Complies with PICMG 2.1 Hot-Swap Specification
- Accepts one ATX power supply
- Fan interface

3.3 Specification

- Four CompactPCI slots (one system slot and three peripheral slots)
- Bus width: 64-bit
- 8-layer PCB, 3.0 mm thick
- Power connector: One ATX power connector for connecting standard ATX power supply
- Complies with CompactPCI Specification PICMG 2.0, R.3.0
- Complies with CompactPCI Hot Swap Specification PICMG 2.1, Complies with CompactPCI Computer Telephony PICMG2.5, R1.0
- Logic Ground and Chassis Ground are common
- Dimensions: 84 x 303.3 mm
- Operating temperature: -25 ~ 80° C (-13 ~ 176° F)

3.4 Slot Assignments

The CompactPCI™ specification defines slot numbering seperating for physical and logical slots. Each slot has a physical number and a logical number (refer to the CompactPCI™ specification version 2.0 R 3.0 for further information on slot assignments). The physical numbers are printed on the backplane, enclosed in circles or triangles, below each slot. Slot 1, marked by a triangle, is the system slot and can only be used by a CPU board. The other slots are peripheral slot and can be used by three peripheral cards.

The logical number of each slot is defined according to the IDSEL signal and the associated address used to select the slot. Table 3-1 shows the system slot and peripheral slots relationships on the backplane. Physical slot 1 (system slot) has a logical number of 1, and physical slot 2,3,4 has a logical number of 2,3,4. The connectors in logical slot 1 are designated as 1-P1, 1-P2 and 1-P3 from the bottom up. Nomenclature for connectors in the other slot is similar, such as 2-P1 and 2-P2.

Connector P1 on the system slot (slot 1) is a keyed connector providing 32-bit CompactPCI bus between the system slot and the peripheral slot. Connector P2 on the system slot (slot 1) is an un-keyed connector providing 64-bit CompactPCI bus between the system slot and the peripheral slots. Connector P3 on the system slot (slot 1) is open for user definition.

Appendix A gives the pin assignment for all the connectors on the backplane.

System Slot (Logical Slot 1):		Peripheral Slot (Logical slot 2)	
CLK0 AD31 REQ0# GNT0#	P1:D6 P1:E6 P1:A6 P1:E5	CLK IDSEL REQ# GNT#	P1:D6 P1:B9 P1:A6 P1:E5
System Slot (Logical Slot 1):		Peripheral Slot (Logical slot 3)	
CLK1 AD30 REQ1# GNT1#	P2:A1 P1:A7 P2:C1 P2:D1	CLK IDSEL REQ# GNT#	P1:D6 P1:B9 P1:A6 P1:E5
System Slot (Logical Slot 1):		Peripheral Slot (Logical slot 4)	
CLK2 AD29 REQ2# GNT2#	P2:A2 P1:B7 P2:E2 P2:D2	CLK IDSEL REQ# GNT#	P1:D6 P1:B9 P1:A6 P1:E5

Table 3-1: System to peripheral slot signal assignment

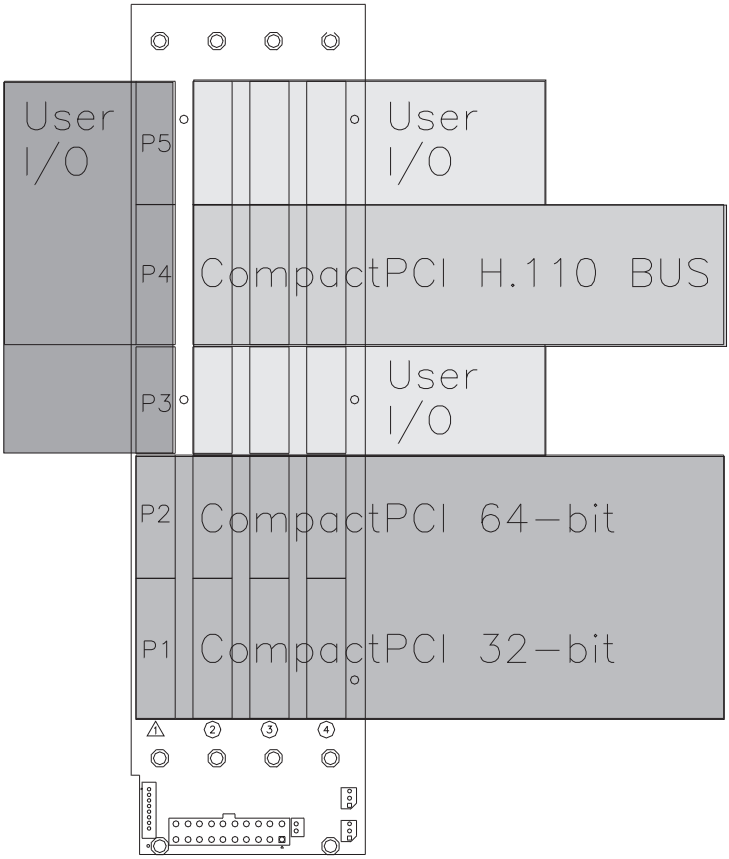


Figure 3-1: Slot numbering of the backplane

3.5 Connector and Jumper Locations

The backplane provides connectors and jumpers for users to configure the backplane for specific application. Table 3-2 gives a brief description to each connector on the backplane. Figure 3-2 and Figure 3-3 illustrate the connector locations of the backplane.

Table 3-2: Backplane's connector and jumper description

Name	Function
ATX1	ATX power connector 1
JP1	Led board connector
FAN1,2,3,4	Fan module connectors
JP4	Power switch connector
JP6,7,8	V I/O voltage selection
P1, P2	64-bit CompactPCI™ bus
P3,P5	I/O transition
P4	H.110 CT bus(slot 2,3,4)

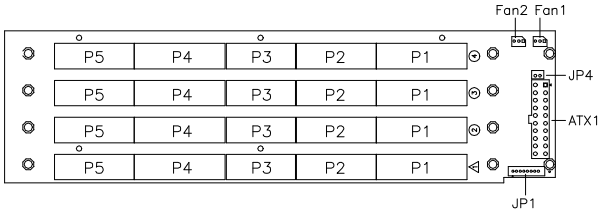


Figure 3-2: The connector and jumper locations on the front side

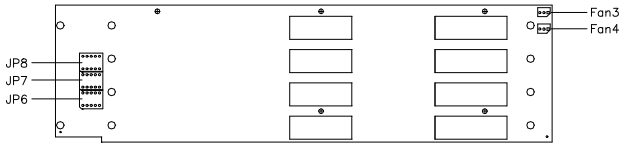


Figure 3-3: The connector and jumper locations on the rear side

3.5.1 ATX Power Connector (ATX1)

This connector accepts one standard ATX power supply.

Note: Do not use ATX power supply and plug-in power module at the same time.

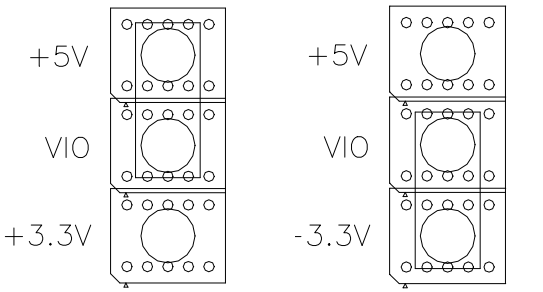
3.5.2 Power Switch (JP1)

This connector provides power on/off control of the ATX power supply or the plug-in power module. If the CompactPCI™ chassis provides a 2-pin power switch cord, connect this cord to the JP1 connector and users can control the power on/off by the power switch. Or users can directly short this connector by a jumper and control the power on/off by the ATX power supply switch.

3.5.3 V I/O Voltage Selection (JP6,7,8)

This jumper is used to select the V I/O voltage. The backplane allows V I/O to be set to either 5 V or 3.3 V. Since the default is configured for use with 5 V CompactPCI boards (blue keyed connectors), once the jumper is set to 3.3 V, the CompactPCI keys must be changed to 3.3 V at the same time (as yellow keyed connectors).

Table 3-3: V I/O voltage selection



VIO FOR +5V VIO FOR +3.3V

3.5.4 Fan Module Connector (FAN1~4)

The FAN connectors FAN 1~4 provide +12 V power for fan operation and accepts the tachometer output from the fans.

3.6 Clock Routing Configuration

The backplane is configured to comply with the clock routing specified in the CompactPCI Hot Swap Specification, PICMG 2.1, R2.0. This Specification requires that each slot be independently clocked.

If users would like to reconfigure the backplane to comply with the earlier CompactPCI™ Specification, PICMG 2.0, version 3.0, which allows the backplane to be backward compatible with CPUs using shared clocks, please contact Advantech for help.

CHAPTER 4

RIO-3303

6U-sized Rear Transition Board for CompactPCI

4.1 Introduction

The RIO-3303 is a CompactPCI 6U-sized rear transition board. It provides access to the rear panel for the I/O function on Advantech's CompactPCI CPU board.

4.2 Specification

4.2.1 Standard functions

- **Ethernet:** Two LAN ports with RJ-45 connectors
- **VGA connector:** One DB-15 VGA connector
- **Serial port:** Two DB-9 RS-232 ports
- **USB interface:** One USB connectors

- **EIDE interface:** One connector for slim-type CD-ROM, the other connector for one IDE device.
- **FDD interface:** Supports one on-board slim-type floppy connector, connects one floppy disk drive.
- **CompactFlash™ interface:** Supports one on-board CompactFlash™ socket
- **Keyboard connector:** One 6-pin mini-DIN connector on rear panel
- **Mouse connector:** One 6-pin mini-DIN connector on rear panel

4.2.2 Mechanical and environmental specifications

- **Board size:** 233.35 x 80 mm (6U), one slot (4TE) wide
- **Max. power requirements:** +5 V (4.75 ~ 5.25 V) @ 1 A
- **Operating temperature:** 0 ~ 60 º C (32 ~ 140 º F)
- **Storage temperature:** -20 ~ 70 º C (-4 ~ 158 º F)
- **Humidity (operating and storage):** 5 ~ 95% (non-condensing)
- **Board weight:** 0.8 Kg
- **Shock:** 20 G (operating); 50 G (storage/transit)
- **Random vibration:** 5~500Mhz Operating: 1.5Grms Non-operating: 2Grms

4.3. Board Layout

The RIO-3303 provides jumpers and connectors for users specific applications.

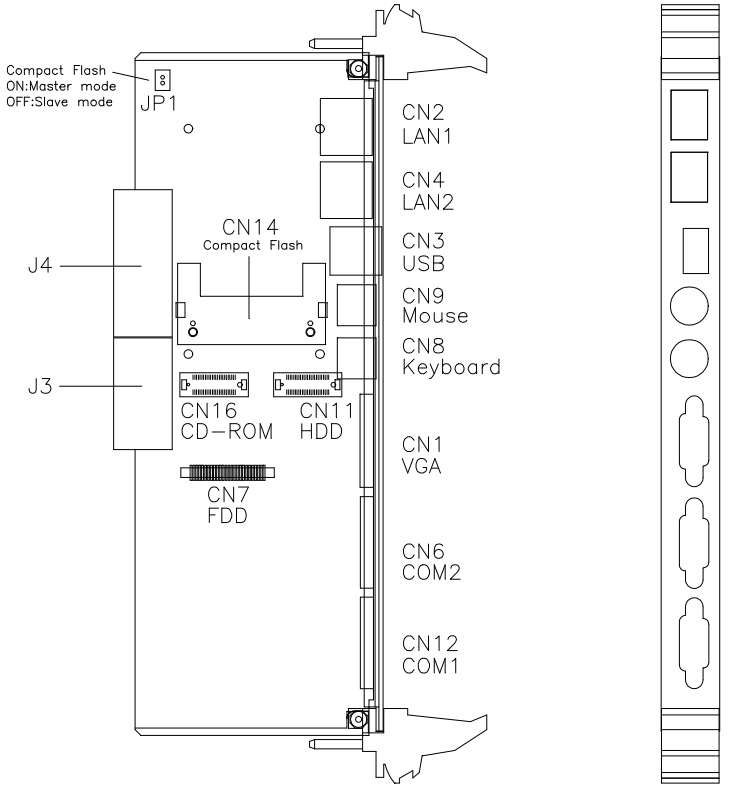


Figure 4-1: RIO-3303 connector and jumper locations

Table 4-1: RIO-3303 connector and jumper descriptions

Number	Function
JP1	CompactFlash™ master/slave selection
CN1	VGA connector
CN2	LAN 1 connector
CN3	USB 1 connector
CN4	LAN 2 connector
CN6	COM2 port
CN7	Floppy disk connector
CN8	PS/2 keyboard connector
CN9	PS/2 mouse connector
CN11	50-pin IDE connector
CN12	COM1 port
CN14	CompactFlash™ socket
CN16	50-pin slim-type CD-ROM connector

Note:

The CompactFlash interface (CN14) uses a primary IDE channel. Users need to set it as master or slave via jumper JP1 when another device is connected on the primary IDE channel as well.

4.4. Pin Assignment

4.4.1 RIO-3303 J3 Connector Pin Assignment

Table 4-2: RIO-3303 J3 Connector Pin Assignment

Pin	Row A	Row B	Row C	Row D	Row E
19	SID3	SID6	SID2	SID10	SID14
18	SID8	SID5	SID1	SID11	SID15
17	SID9	SID4	SID0	SID12	SID13
16	SID7	SCS1#	SIOR#	SCS3#	SRDY
15	SDRQ#	SACK#	SDA2	SIRQ	SIOW
14	NRTS1	NDSR1	SDA1	GND	SDA0
13	NRI1	NCTS1	NTX1	NRX1	NRLSD1
12	PID0	PID2	PID4	PID7	NDTR1
11	PID1	PID3	PID8	PID6	PID12
10	PID5	PID9	PID10	PID11	PID13
9	PID15	PID14	PDRQ#	PCS3#	PIOR#
8	PIRQ	PACK#	+5V	PDA2	PIOW#
7	N/C	GND	PRST#	PRDY	PCS1#
6	N/C	+5V	GND	PDA0	PDA1
5	+5V	N/C	S66DET	N/C	N/C
4	KDAT	KCLK	MDAT	MCLK	P66DET
3	DSKCHG#	MOA#	STEP#	HEAD#	TRAK0
2	DSA#	MOB#	RWC#	RDATA#	WP#
1	INDEX#	DSB#	DIR#	WE#	WD#

#: Low active

Note:

The RIO-3303 supports DMA/66 HDD.

4.4.2 RIO-3303 J4 Connector Pin Assignment

Table 4-3: RIO-3303 J4 Connector Pin Assignment

Pin	Row A	Row B	Row C	Row D	Row E
25	LanTx2-	LanTx1-	USBV1	USBV0	USBD1+
24	LanTx2+	LanTx1+	N/C	USBD1-	USBD0-
23	GND	GND	N/C	N/C	USBD0+
22	LanRx2-	LanRx1-	N/C	N/C	NDTR2
21	LanRx2+	LanRx+	N/C	N/C	NRTS2
20	GND	GND	N/C	N/C	NCTS2
19	N/C	N/C	N/C	N/C	NTX2
18	N/C	N/C	N/C	N/C	NRLSD2
17	N/C	N/C	N/C	N/C	NDSR2
16	N/C	N/C	N/C	N/C	NRI2
15	N/C	N/C	N/C	N/C	NRX2
12-14		Key Area			
11	+5V	N/C	N/C	N/C	N/C
10	+5V	N/C	N/C	N/C	N/C
9	+5V	N/C	N/C	N/C	N/C
8	+5V	N/C	N/C	N/C	N/C
7	N/C	N/C	N/C	N/C	N/C
6	N/C	N/C	N/C	N/C	N/C
5	N/C	N/C	N/C	N/C	N/C
4	N/C	N/C	N/C	VSYNC	N/C
3	N/C	N/C	HSYNC	N/C	N/C
2	BLUE	GREEN	RED	N/C	N/C
1	N/C	N/C	N/C	N/C	N/C

4.4.3 VGA Display Connector (CN1)

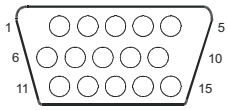


Table4-4: RIO-3303 CRT display connector

Pin	Signal	Pin	Signal
1	RED	9	VGAVCC
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		

4.4.4 Keyboard and Mouse Connnector (CN8,CN9)

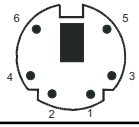


Table 4-5: RIO-3303 keyboard and mouse connector

Pin	Keyboard	Mouse
1	KDAT	MDAT
2	GND	GND
3	VCC	VCC
4	KCLK	MCLK
5	pin 2	N/C
6	pin6	N/C

4.4.5 COM1 and COM2 Serial Port (CN12, CN6)

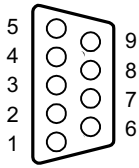


Table4-6: RIO-3303 COM1 and COM2 serial port

Pin	COM1 Signal	Pin	COM2 Signal
1	NRLSD1	1	NRLSD2
2	NRX1	2	NRX2
3	NTX1	3	NTX2
4	NDTR1	4	NDTR2
5	GND	5	GND
6	NDSR1	6	NDSR2
7	NRTS1	7	NRTS2
8	NCTS1	8	NCTS2
9	NRI1	9	NRI2

4.4.6 USB Connector (CN3)

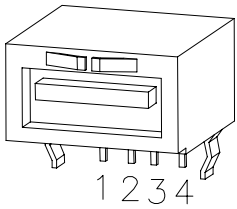


Table 4-7: RIO-3303 USB1 connector

Pin	USB1 Signal
1	VCC
2	USBD0-
3	USBD0+
4	GND

4.4.7 Ethernet RJ-45 Connector (CN2,CN4)

Table 4-8: RIO-3303 Ethernet RJ-45 connector

Pin	Signal	Lan2 (CN4)
1	TX+	TX2+
2	TX-	TX-
3	RX+	RX+
4	N/C	N/C
5	N/C	N/C
6	RX-	RX-
7	N/C	N/C
8	N/C	N/C

4.4.8 CompactFlash Socket (CN14)

Table 4-9: RIO-3303 CompactFlash socket

Pin	Signal	Pin	Signal
1	GND	26	N/C
2	PID3	27	PID11
3	PID4	28	PID12
4	PID5	29	PID13
5	PID6	30	PID14
6	PID7	31	PID15
7	PCS1#	32	PCS3#
8	GND	33	N/C
9	GND	34	PIOR#
10	GND	35	PIOW#
11	GND	36	N/C
12	GND	37	PIRQ
13	VCC	38	VCC
14	GND	39	SANDISK
15	GND	40	N/C
16	GND	41	PRST#
17	GND	42	PRDY
18	PDA2	43	N/C
19	PDA1	44	N/C
20	PDA0	45	PLED
21	PID0	46	N/C
22	PID1	47	PID8
23	PID2	48	PID9
24	N/C	49	PID10
25	N/C	50	GND

4.4.9 Slim-type Floppy Drive Connector (CN7)

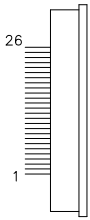


Table 4-10: Slim-type Floppy Drive Connector

Pin	Signal	Pin	Signal
1	+5V	2	INDEX#
3	+5V	4	DSA#
5	+5V	6	DSKCHG
7	N/C	8	N/C
9	N/C	10	MOA#
11	N/C	12	DIR#
13	RWC#	14	STEP#
15	GND	16	WD#
17	GND	18	WE#
19	GND	20	TRACK0#
21	GND	22	WP#
23	GND	24	RDATA#
25	GND	26	HEAD#

low active

4.4.10 Hard Disk Drive Connector (CN11)

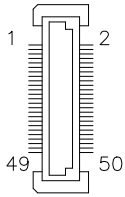


Table 4-11: Hard Disk Drive Connector

Pin	Signal	Pin	Signal
1	PRST#	2	GND
3	PID7	4	PID8
5	PID6	6	PID9
7	PID5	8	PID10
9	PID4	10	PID11
11	PID3	12	PID12
13	PID2	14	PID13
15	PID1	16	PID14
17	PID0	18	PID15
19	GND	20	N/C
21	PDRQ#	22	GND
23	PIOW#	24	GND
25	PIOR#	26	GND
27	PRDY	28	Pull low
29	PACK#	30	GND
31	PIRQ	32	N/C
33	PDA1	34	Pull low
35	PDA0	36	PDA2
37	PCS1#	38	PCS3#
39	HDD_LED	40	GND

low active

4.4.11 Slim-type CD-ROM Connector (CN16)

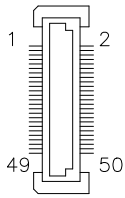


Table 4-12: Slim-type CD-ROM Connector

Pin	Signal	Pin	Signal
1	N/C	2	N/C
3	GND	4	N/C
5	SID8	6	SRST#
7	SID9	8	SID7
9	SID10	10	SID6
11	SID11	12	SID5
13	SID12	14	SID4
15	SID13	16	SID3
17	SID14	18	SID2
19	SID15	20	SID1
21	SDRQ	22	SID0
23	SIOR#	24	GND
25	GND	26	SIOW#
27	SACK#	28	SRDY
29	Pull high	30	SIRQ
31	Pull low	32	SDA1
33	SDA2	34	SDA0
35	SCS3#	36	SCS1#
37	+5V	38	CD_LED
39	+5V	40	+5V
41	+5V	42	+5V
43	GND	44	GND
45	GND	46	GND
47	GND	48	Pull low
49	N/C	50	N/C

low active

APPENDIX A

Pin Assignments

A.1 System Slot P1 Connector

Table A-1: System slot P1 connector

Pin	Z	A	B	C	D	E	F
25	GND	5V	REQ64#	ENUM#	3.3V	5V	GND
24	GND	AD[1]	5V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3V	AD[4]	AD[3]	5V	AD[2]	GND
22	GND	AD[7]	GND	3.3V	AD[6]	AD[5]	GND
21	GND	3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3V	PAR	C/BE[1]#	GND
17	GND	3.3V	IPMBSCL	IPMBSDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3V	FRAME#	IRDY#	GND	TRDY#	GND
12-14			KEY AREA				
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	GND	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ0#	GND	3.3V	CLK	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT0#	GND
4	GND	IPMB PWR	Healthy#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5V	INTD#	GND
2	GND	TCK	5V	TMS	TDO	TDI	GND
1	GND	5V	-12V	TRST#	+12V	5V	GND

= long pins = short pins = medium length pins

#: Low active

A.2 System Slot P2 Connector

Table A-2: System slot P2 connector

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	CLK6	GND	RSV	RSV	RSV	GND
20	GND	CLK5	GND	RSV	GND	RSV	GND
19	GND	GND	GND	RSV	RSV	RSV	GND
18	GND	BRSVP2A18	BRSVP2B18	BRSVP2C18	GND	BRSVP2E18	GND
17	GND	BRSVP2A17	GND	PRST#	REQ6#	GNT6#	GND
16	GND	BRSVP2A16	BRSVP2B16	DEG#	GND	BRSVP2E16	GND
15	GND	BRSVP2A15	GND	FAL#	REQ5#	GNT5#	GND
14	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND
13	GND	AD[38]	GND	V (I/O)	AD[37]	AD[36]	GND
12	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND
11	GND	AD[45]	GND	V (I/O)	AD[44]	AD[43]	GND
10	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND
9	GND	AD[52]	GND	V (I/O)	AD[51]	AD[50]	GND
8	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
7	GND	AD[59]	GND	V (I/O)	AD[58]	AD[57]	GND
6	GND	AD[63]	AD[62]	AD [61]	GND	AD[60]	GND
5	GND	C/BE[5]#	GND	V (I/O)	C/BE[4]#	PAR64	GND
4	GND	V (I/O)	BRSVP2B4	C/BE[7]#	GND	C/BE[6]#	GND
3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

#: Low active
Note: GA[4...0] shall be used for geographic addressing on the backplane

A.3 System and Periphral Slots P3 Connector

Table A-3: System slot P3 connector

Pin	Z	A	B	C	D	E	F
19	GND	N/C	N/C	N/C	N/C	N/C	GND
18	GND	N/C	N/C	N/C	N/C	N/C	GND
17	GND	N/C	N/C	N/C	N/C	N/C	GND
16	GND	N/C	N/C	N/C	N/C	N/C	GND
15	GND	N/C	N/C	N/C	N/C	N/C	GND
14	GND	N/C	N/C	N/C	N/C	N/C	GND
13	GND	N/C	N/C	N/C	N/C	N/C	GND
12	GND	N/C	N/C	N/C	N/C	N/C	GND
11	GND	N/C	N/C	N/C	N/C	N/C	GND
10	GND	N/C	N/C	N/C	N/C	N/C	GND
9	GND	N/C	N/C	N/C	N/C	N/C	GND
8	GND	N/C	N/C	N/C	N/C	N/C	GND
7	GND	N/C	N/C	N/C	N/C	N/C	GND
6	GND	N/C	N/C	N/C	N/C	N/C	GND
5	GND	N/C	N/C	N/C	N/C	N/C	GND
4	GND	N/C	N/C	N/C	N/C	N/C	GND
3	GND	N/C	N/C	N/C	N/C	N/C	GND
2	GND	N/C	N/C	N/C	N/C	N/C	GND
1	GND	N/C	N/C	N/C	N/C	N/C	GND

#: Low active

A.4 System Slot P4 Connector

Table A-4: System slot P1 connector

Pin	Z	A	B	C	D	E	F
25	GND	N/C	N/C	N/C	N/C	N/C	GND
24	GND	N/C	N/C	N/C	N/C	N/C	GND
23	GND	N/C	N/C	N/C	N/C	N/C	GND
22	GND	N/C	N/C	N/C	N/C	N/C	GND
21	GND	N/C	N/C	N/C	N/C	N/C	GND
20	GND	N/C	N/C	N/C	N/C	N/C	GND
19	GND	N/C	N/C	N/C	N/C	N/C	GND
18	GND	N/C	N/C	N/C	N/C	N/C	GND
17	GND	N/C	N/C	N/C	N/C	N/C	GND
16	GND	N/C	N/C	N/C	N/C	N/C	GND
15	GND	N/C	N/C	N/C	N/C	N/C	GND
12-14				KEY AREA			
11	GND	N/C	N/C	N/C	N/C	N/C	GND
10	GND	N/C	N/C	N/C	N/C	N/C	GND
9	GND	N/C	N/C	N/C	N/C	N/C]	GND
8	GND	N/C	N/C	N/C	N/C	N/C	GND
7	GND	N/C	N/C	N/C	N/C	N/C	GND
6	GND	N/C	N/C	N/C	N/C	N/C	GND
5	GND	N/C	N/C	N/C	N/C	N/C	GND
4	GND	N/C	N/C	N/C	N/C	N/C	GND
3	GND	N/C	N/C	N/C	N/C	N/C	GND
2	GND	N/C	N/C	N/C	N/C	N/C	GND
1	GND	N/C	N/C	N/C	N/C	N/C	GND

A.5 System Slot P5 Connector

Table A-5: System slot P5 connector

Pin	Z	A	B	C	D	E	F
19	GND	N/C	N/C	N/C	N/C	N/C	GND
18	GND	N/C	N/C	N/C	N/C	N/C	GND
17	GND	N/C	N/C	N/C	N/C	N/C	GND
16	GND	N/C	N/C	N/C	N/C	N/C	GND
15	GND	N/C	N/C	N/C	N/C	N/C	GND
14	GND	N/C	N/C	N/C	N/C	N/C	GND
13	GND	N/C	N/C	N/C	N/C	N/C	GND
12	GND	N/C	N/C	N/C	N/C	N/C	GND
11	GND	N/C	N/C	N/C	N/C	N/C	GND
10	GND	N/C	N/C	N/C	N/C	N/C	GND
9	GND	N/C	N/C	N/C	N/C	N/C	GND
8	GND	N/C	N/C	N/C	N/C	N/C	GND
7	GND	N/C	N/C	N/C	N/C	N/C	GND
6	GND	N/C	N/C	N/C	N/C	N/C	GND
5	GND	N/C	N/C	N/C	N/C	N/C	GND
4	GND	N/C	N/C	N/C	N/C	N/C	GND
3	GND	N/C	N/C	N/C	N/C	N/C	GND
2	GND	N/C	N/C	N/C	N/C	N/C	GND
1	GND	N/C	N/C	N/C	N/C	N/C	GND

A.6 Perpheral Slot P1 Connector

Table A-6: Perpheral Slot P1 Connector

Pin	Z	A	B	C	D	E	F
25	GND	5V	REQ64#	ENUM#	3.3V	5V	GND
24	GND	AD[1]	5V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3V	AD[4]	AD[3]	5V	AD[2]	GND
22	GND	AD[7]	GND	3.3V	AD[6]	AD[5]	GND
21	GND	3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3V	PAR	C/BE[1]#	GND
17	GND	3.3V	IPMBSCL	IPMBSDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3V	FRAME#	IRDY#	GND	TRDY#	GND
12-14				KEY AREA			
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ#	GND	3.3V	CLK	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	IPMB PWR	Healthy#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5V	INTD#	GND
2	GND	TCK	5V	TMS	TDO	TDI	GND
1	GND	5V	-12V	TRST#	+12V	5V	GND

= long pins = short pins = medium length pins

#: Low active

A.7 Peripheral Slot P2 Connector

Table A-7: Peripheral slot P2 connector

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	RSV	RSV	RSV	RSV	RSV	GND
20	GND	RSV	RSV	RSV	GND	RSV	GND
19	GND	RSV	RSV	RSV	RSV	RSV	GND
18	GND	BRSVP2A18	BRSVP2B18	BRSVP2BC18	GND	BRSVP2E18	GND
17	GND	BRSVP2A17	GND	RSV	RSV	RSV	GND
16	GND	BRSVP2A16	BRSVP2B16	RSV	GND	BRSVP2E16	GND
15	GND	BRSVP2A15	GND	RSV	RSV	NRSV	GND
14	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND
13	GND	AD[38]	GND	V (I/O)	AD[37]	AD[36]	GND
12	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND
11	GND	AD[45]	GND	V (I/O)	AD[44]	AD[43]	GND
10	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND
9	GND	AD[52]	GND	V (I/O)	AD[51]	AD[50]	GND
8	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
7	GND	AD[59]	GND	V (I/O)	AD[58]	AD[57]	GND
6	GND	AD[63]	AD[62]	AD[61]	GND	AD[60]	GND
5	GND	C/BE[5]#	GND	V (I/O)	C/BE[4]#	PAR64	GND
4	GND	V (I/O)	BRSVP2B4	C/BE[7]#	GND	C/BE[6]#	GND
3	GND	RSV	GND	RSV	RSV	RSV	GND
2	GND	RSV	RSV	UNC	RSV	RSV	GND
1	GND	RSV	GND	RSV	RSV	RSV	GND

#: Low active

Note: GA[4...0] shall be used for geographic addressing on the backplane

A.8 Peripheral Slot P4 Connector

Table A-8: Peripheral slot P4 connector

Pin	Z	A	B	C	D	E	F
25	N/C	SAG4	SGA3	SGA2	SGA1	SGA0	FGND
24	N/C	GA4	GA3	GA2	GA1	GA0	FGND
23	N/C	-12V	#CT_RT	#CT_EN	+12V	CT_MC	FGND
22	N/C	#PF_S0	RSV	RSV	RSV	RSV	FGND
21	N/C	-SELVbat	#PF_S1	RSV	RSV	SELVbatRtn	FGND
20	N/C	N/C	N/C	N/C	N/C	N/C	N/C
19	N/C	N/C	N/C	N/C	N/C	N/C	N/C
18	N/C	VRG	N/C	N/C	N/C	VRGRtn	N/C
17	N/C	N/C	N/C	N/C	N/C	N/C	N/C
16	N/C	N/C	N/C	N/C	N/C	N/C	N/C
15	N/C	-Vbat	N/C	N/C	N/C	VbatRtn	N/C
12-14				KEY AREA			
11	N/C	CT_D29	CT_D30	CT_D31	VIO	#CT_FA	GND
10	N/C	CT_D27	+3.3V	CT_D28	+5V	#CT_FB	GND
9	N/C	CT_D24	CT_D25	CT_D26	GND	#FR_CP	GND
8	N/C	CT_D21	CT_D22	CT_D23	+5V	CT_C8A	GND
7	N/C	CT_D19	+5V	CT_D20	GND	CT_C8B	GND
6	N/C	CT_D16	CT_D17	CT_D18	GND	CT_N1	GND
5	N/C	CT_D13	CT_D14	CT_D15	+3.3V	CT_N2	GND
4	N/C	CT_D11	+5V	CT_D12	+3.3V	SCLK	GND
3	N/C	CT_D8	CT_D9	CT_D10	GND	SCLK_D	GND
2	N/C	CT_D4	CT_D5	CT_D6	CT_D7	GND	GND
1	N/C	CT_D0	+3.3V	CT_D1	CT_D2	CT_D3	GND

= long pins = short pins = medium length pins

#: Low active

A.9 Peripheral Slot P5 Connector

Table A-9: Peripheral slot B5 connector

Pin	Z	A	B	C	D	E	F
22	GND	N/C	N/C	N/C	N/C	N/C	GND
21	GND	N/C	N/C	N/C	N/C	N/C	GND
20	GND	N/C	N/C	N/C	N/C	N/C	GND
19	GND	N/C	N/C	N/C	N/C	N/C	GND
18	GND	N/C	N/C	N/C	N/C	N/C	GND
17	GND	N/C	N/C	N/C	N/C	N/C	GND
16	GND	N/C	N/C	N/C	N/C	N/C	GND
15	GND	N/C	N/C	N/C	N/C	N/C	GND
14	GND	N/C	N/C	N/C	N/C	N/C	GND
13	GND	N/C	N/C	N/C	N/C	N/C	GND
12	GND	N/C	N/C	N/C	N/C	N/C	GND
11	GND	N/C	N/C	N/C	N/C	N/C	GND
10	GND	N/C	N/C	N/C	N/C	N/C	GND
9	GND	N/C	N/C	N/C	N/C	N/C	GND
8	GND	N/C	N/C	N/C	N/C	N/C	GND
7	GND	N/C	N/C	N/C	N/C	N/C	GND
6	GND	N/C	N/C	N/C	N/C	N/C	GND
5	GND	N/C	N/C	N/C	N/C	N/C	GND
4	GND	N/C	N/C	N/C	N/C	N/C	GND
3	GND	N/C	N/C	N/C	N/C	N/C	GND
2	GND	N/C	N/C	N/C	N/C	N/C	GND
1	GND	N/C	N/C	N/C	N/C	N/C	GND

A.10 Fan Module Connectors (FAN 1~4)

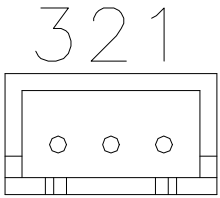


Table A-10: Fan Module Connectors

Pin	Assignment
1	Fan speed
2	+12V
3	GND

A.11 ATX Power Connector (ATX1)

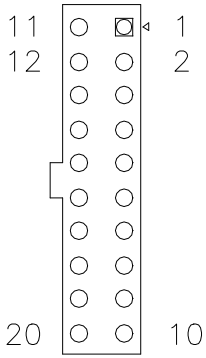


Table A-11: ATX Power Connector

Pin	Signal
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	FAL#
9	N/C
10	+12V
11	+3.3V
12	-12V
13	GND
14	PSON#
15	GND
16	GND
17	GND
18	N/C
19	+5V
20	+5V

A.12 Power Switch Connector (JP4)

Table A-12: Power Switch Connector

Pin	Signal
1	PSON#
2	GND

A.13 Led board connector (JP1)

Table A-13: Led board Connector

Pin	Signal
1	+3.3V
2	N/C
3	+5V
4	N/C
5	+12V
6	GND
7	GND
8	N/C