

**MIC-3039**

1U high 2-slot CompactPCI™ enclosure  
with rear I/O support

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The MIC-3039, 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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*Preface and Table of Contents*



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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

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

- One MIC-3039 CompactPCI™ enclosure with two-slot backplane
- One box of accessories, including, a pair of rackmount brackets, four rubber stands, as well as several screws.
- One warranty certificate
- This user's manual

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

## Technical Support and Sales Assistance

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If you have any technical questions about the MIC-3039 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-3039 is Advantech's latest CompactPCI™ enclosure with the most compact mechanical design of only 1U height. With the 6U-sized 2-slot backplane, the MIC-3039 supports one single-slot CPU board (such as Advantech's MIC-3357 or MIC-3377/M) and one single-slot peripheral board, or one two-slot CPU board merely.

The MIC-3039 supports IEEE 1101.11 rear I/O transition boards. Users can route I/O signals to the rear transition boards for simplified system cabling. Front boards pop in and out without the need to do any hardwiring.

## 1.2 Features

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- The most compact 1U-high enclosure
- Supports two 6U-sized CompactPCI™ slots (one system slot and one peripheral slot)
- Supports rear I/O
- 200 W ATX power supply
- Optional intelligent fault detection and alarm module

## 1.3 Specifications

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### 1.3.1 General

- **Construction:** Aluminum frame and galvanized sheet steel
- 2-slot space (8 TE), including one system slot and one peripheral slot
- "Hot swappable" platform complies with PICMG 2.1 R 1.0 Hot Swap Specification
- **Dimensions** (W x H x D, mounting flanges not included):  
440 x 44 x 280 mm (17.3" x 1.7" x 11.0")
- **Weight:** 4.5 kg (10.0 lb)
- **Operating temperature:** 0 ~ 50° C (32 ~ 122° F)
- **Storage temperature:** -20° C ~ 60° C (-4 ~ 158° 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:** 1.0 Grms (operating)

### 1.3.2 Fans

- **Air flow:** Three 10.5-CFM cooling fans (flow in), one 10.5-CFM cooling fan (flow out)
- **Power consumption:** 0.10 A @ 12 V
- **Rated fan speed:** 7,800 rpm
- **Life expectancy:** 50,000 hours @ 25° C

### 1.3.3 Power Supply

- **Input:** 100 ~ 240 V<sub>AC</sub> @ 50 ~ 60 Hz, 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

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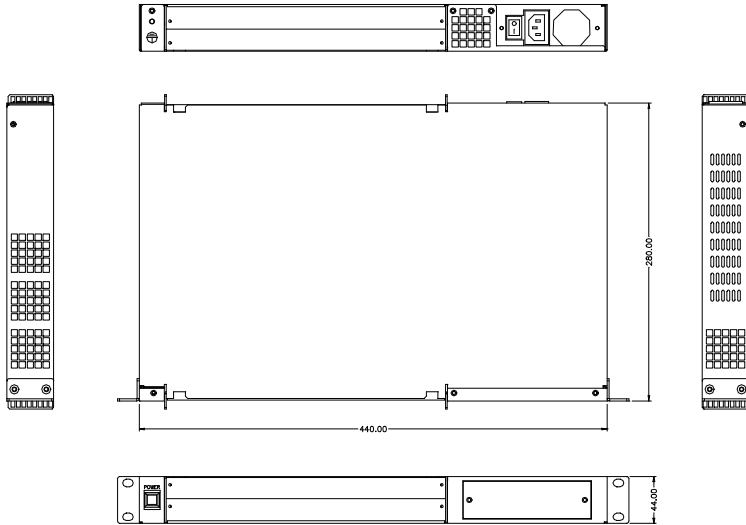


Figure 1-1: MIC-3039 dimensions

## 1.5 Ordering Information

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- **MIC-3039:** 1U-high CompactPCI™ enclosure with 2- slot backplane, cooling fans and 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 triple LANs
- **RIO-3302:** Single-slot 6U CompactPCI™ rear transition board with VGA, 2 x LAN, 1 x USB, 2 x COM, 1 x CompactFlash, 1 x FDD, 2 x IDE, keyboard and mouse connectors



CHAPTER  
**2**

**Installation**



## 2.1 Initial Inspection

---

We have carefully inspected the MIC-3039 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-3039, 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-3039 Illustration

The MIC-3039 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.

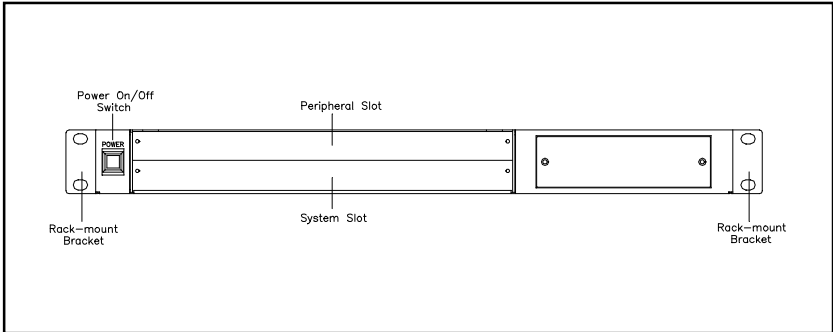


Figure 2-1: Front view of MIC-3039

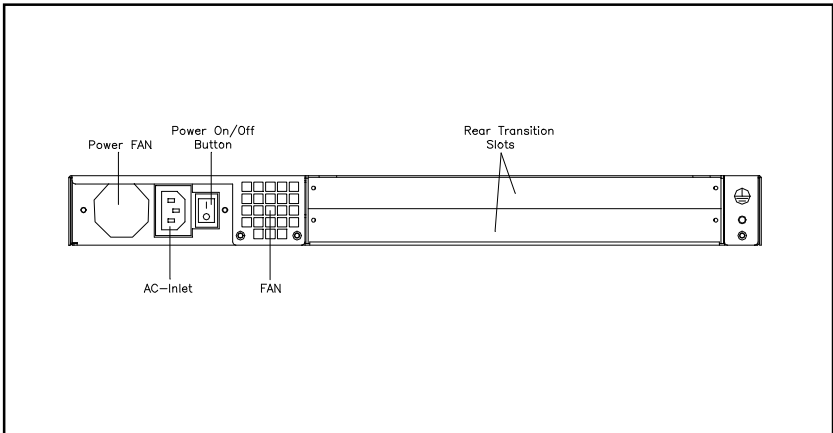


Figure 2-2: Rear view of MIC-3039

## 2.3 Installation Procedures

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### 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. The CompactPCI™ specification allows the system slot to be in any position in the backplane. 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 the backplane user's manual.

**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:**

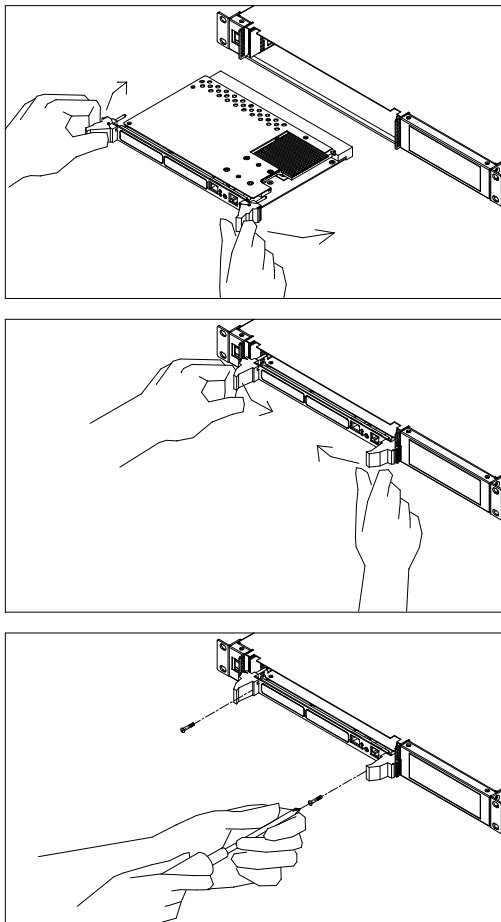
1. Hold the card horizontally. Be sure that the card is oriented correctly. The components of the card should be pointing to the upper side.
2. Be sure that the handles of the card are not latched. Release the handles if they are latched. Handles from different vendors may have different latch designs.

**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. Screw the card if necessary



**Figure 2-3: Installing a card into the chassis**

**To remove a card:**

1. Unscrew the card if necessary.
2. Release the locking latches on the handles.
3. Push the both handles out to release the card from the backplane.
4. 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-3039 chassis accepts a full input range of 100 ~ 240 V<sub>AC</sub> without any switch setting.

Two mounting flanges are included for users who would like to install the MIC-3039 on a 19" rack.

CHAPTER

3

## Blackplane

## 3.1 General Information

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The backplane of the MIC-3039 provides two CompactPCI™ slots. One slot is assigned to the CPU board and the other slot to one peripheral board. To provide users flexible system cabling, the MIC-3039 supports both front and rear I/O wiring.

The backplane provides four 3-pin connector for connecting up to 5 cooling fans. A 20-pin connector can be used for connecting an optional alarm module to detect the system internal conditions, such as bus voltages, fan speed, and temperatures.

In addition, the MIC-3039 includes one standard ATX power connector to accept one ATX power supply.

The MIC-3039 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

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- Two CompactPCI™ slots (one system slot and one peripheral slot)
- 64-bit bus width
- Supports IEEE 1101.11 Rear I/O
- Complies with PICMG 2.1 Hot-Swap Specification
- Accepts one ATX power supply
- Alarm module interface
- Fan interfaces

### 3.3 Specification

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- Two CompactPCI slots (one system slot and one peripheral slot)
- 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, Ver.3.0
- Complies with CompactPCI Hot Swap Specification PICMG 2.1, Ver.1.0
- Supports IEEE 1101.11 Rear I/O
- Logic Ground and Chassis Ground are common
- Dimensions: 36 x 325 mm
- Operating temperature: -40 ~ 80° C (-40 ~ 176° F)



## 3.4 Slot Assignments

---

The CompactPCI™ specification defines slot numbering separating 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 2, marked by a triangle, is the system slot and can only be used by a CPU board. The other slot (slot 1) are a peripheral slot and can be used by one peripheral card.

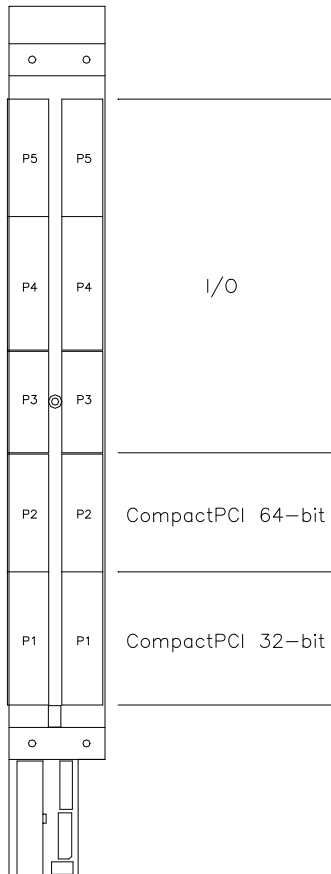
The logical number of each slot is defined according to the IDSEL signal and the associated address used to select the slot. Table 3-1 shows the system slot and peripheral slot relationships on the backplane. Physical slot 2 (system slot) has a logical number of 1, and physical slot 1 has a logical number of 2. 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 2) is a keyed connector providing 32-bit CompactPCI bus between the system slot and the peripheral slot. Connector P2 on the system slot (slot 2) 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 2) is open for user definition.

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

| System Slot 2, (Logical Slot 1): |       | Peripheral Slot 1, (Logical slot 2) |       |
|----------------------------------|-------|-------------------------------------|-------|
| CLK0                             | P1:D6 | CLK                                 | P1:D6 |
| AD28                             | P1:C7 | IDSEL                               | P1:B9 |
| REQ3#                            | P2:E2 | REQ#                                | P1:A6 |
| GNT3#                            | P2:C3 | GNT#                                | P1:E5 |

**Table 3-1: System to peripheral slot signal assignment**



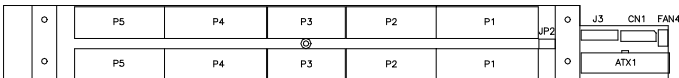
**Figure 3-1: Slot numbering of the backplane**

# 3.5 Connector and Jumper Locations

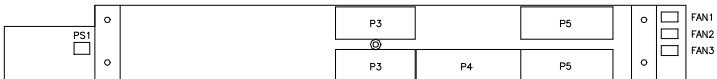
The backplane provides connectors and jumpers for users to configure the backplane for specific application. Table 3-2 gives a brief description to each connector on the backplane. Figure 3-2 and Figure 3-3 illustrate the connector locations of the backplane.

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

| Name    | Function                        |
|---------|---------------------------------|
| ATX1    | ATX power connector 1           |
| CN1     | Alarm board interface connector |
| FAN 1~4 | Fan module connectors           |
| PS1     | Power switch connector          |
| JP2     | V I/O voltage selection         |
| P1, P2  | 64-bit CompactPCI™ bus          |
| P3~P5   | I/O transition                  |



**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 Alarm Board Interface (CN1)

The 30-pin connector CN1 is an interface for an optional external monitoring and alarm module which monitors the conditions of the system. This alarm module will be available in August 2001. For more information about it, please contact with our local sales representatives or visit our website.



### 3.5.3 Power Switch (PS1)

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.

### 3.5.4 V I/O Voltage Selection (JP2)

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

| V I/O         | JP2   |
|---------------|---|
| 5 V (default) |  |
| 3.3 V         |  |

### **3.5.5 Screw Terminal for External Power Supply**

Along the upper and lower edges of the backplane are 4 power pads providing external power supply I/O. These 4 pads facilitate input or output of powers and grounds. Contact Advantech for installation help.

## **3.6 Clock Routing Configuration**

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The backplane is configured to comply with the clock routing specified in the CompactPCI Hot Swap Specification, PICMG 2.1, version 1.0. 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.

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     | IPBSCL   | IPBMSDA | 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      | REQ#     | GND      | 3.3V    | CLK    | AD[31]   | GND |
| 5     | GND      | BRSVP1A5 | BRSVP1B5 | RST#    | GND    | GNT#     | GND |
| 4     | GND      | IPMBPWR  | 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       | NT3#      | 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 Slot P3 Connector

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**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 |

## A.4 System Slot P4 Connector

**Table A-4: System slot P4 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   |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 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.6 Peripheral Slot P1 Connector

Table A-6: Peripheral 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     | IPMBSCSCL | 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      | IPMBPWR  | 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 P3 Connector

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**Table A-8: Peripheral slot P3 connector**

| <b>Pin</b> | <b>Z</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> |
|------------|----------|----------|----------|----------|----------|----------|----------|
| 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.9 Peripheral Slot P4 Connector

**Table A-9: Peripheral slot P4 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.10 Peripheral Slot P5 Connector

**Table A-10: Peripheral slot P5 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.11 ATX Power Connector (ATX1)

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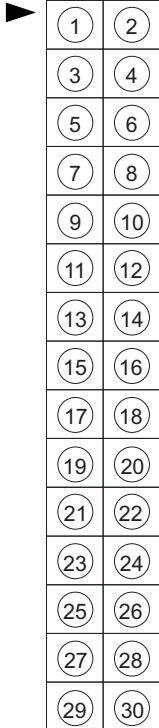
**Table A-11: ATX Power Connector**

| <b>Pin</b> | <b>Signal</b> |
|------------|---------------|
| 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 Alarm Board Interface Connector (CN3)

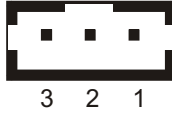
**Table A-12: Alarm Board Interface Connector**

| Pin   | Assignment |
|-------|------------|
| 1     | +5V        |
| 2     | +3V        |
| 3     | +5V        |
| 4     | NC         |
| 5     | SDA_EXT    |
| 6     | NC         |
| 7     | SCL_EXT    |
| 8     | NC         |
| 9     | TX1        |
| 10    | NC         |
| 11    | RXI        |
| 12~18 | NC         |
| 19~20 | GND        |
| 21~30 | NC         |



## A.13 Fan Module Connectors (FAN 1~4)

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**Table A-13: Fan Module Connectors**

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| Pin | Assignment |
|-----|------------|
| 1   | +12 V      |
| 2   | GND        |
| 3   | N/C        |

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## A.14 Power Switch Connector (JP2)

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**Table A-14: Power Switch Connector**

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| Pin | Signal |
|-----|--------|
| 1   | PSO#   |
| 2   | GND    |

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