MIC-3000 Series

USER'S Manual

MIC-3056

4-slot enclosure with CT bus and rear I/O for CompactPCI™

Advantech CompactPCI™

Modular Industrial Computer

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CE Notification

The MIC-3056, 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-3056 CompactPCI™ enclosure with four-slot backplane (P/N:

• One 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-3056 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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General Information

1.1 Introduction

The MIC-3056 is a slim rugged 2U-high enclosure as a HA platform with four 6U CompactPCI™ slots H.110 backplane for rack mounting. Being only 2U in height, the MIC-3056 provides the space efficiency required in applications such as CT and networking. Due to its limited spaces which occupied by redundant power supply, the MIC-3056 can support one Media Blade (MIC-3960) as an option which can accommodate slim line CDROM, FDD or 2.5" IDE hard disk. Please also see details on MIC-3960 user manual for details. With its flexible module design, the cooling fan and power supply can be hot swappable for easy maintenance. For those mission critical applications in high manageability demands, MIC-3056 also serves with a Chassis Management Module, the MIC-3924A, which is a stand-alone system environment monitoring module, to provide more advance and intelligent system status monitoring and controls. Based on over platform purpose, no driver is needed, so user can do the management via the SNMP/HTTP protocol of network. Please see the MIC-3924 user manual for more details.

There are two MIC-3056 models:

• **MIC-3056A/4-2R:** MIC-3056 clone system, w/ 4-slot CompactPCI™ 6U backplane (MIB-3056-A)

• **MIC-3056B/4-2R:** MIC-3056 clone system, w/ 4-slot CompactPCI™ 6U backplane (MIB-3056-B, which supports Media blade - MIC-3960.)

Option:

• **MIC-3960-A:** The Media blade which can accommodate slim-type FDD, slim-type CD-ROM or 2.5" IDE HDD.

• **MIC-3924A-A:** Chassis management module

1.2 Features

• The most compact 2U-high enclosure

• Supports front and rear I/O for access

• Four 6U-sized CompactPCI™ slots H.110 complaint backplane

• Hot-swap compliant backplane

• Storage devices accommodation through Media blade (MIC-3960)

• The hot swappable system cooling fan module for easy maintenance

• 300 W ATX redundant power supply with two independent AC inlets.

• Integrated intelligent fault detection and alarm module (MIC-3924A, Optional).

1.3 Specifications

1.3.1 General

• **Construction:** Aluminum alloy and Nickel Plated

• 4-slot space (16 TE), including one system slot and three peripheral slots

- (P/N 9692305600: one system slot and three peripheral slots)
- (P/N 9692305610: one system slot, three peripheral slots included one slot reserved for Media blade)

• "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 359 mm (17.3" x 3.5" x 14.1")

• **Weight:** 9 kg (19.8 lb)

• **Operating temperature:** 0 ~ 50° C (32 ~ 122° F)

• **Storage temperatur**e: -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 Hz @ 1.0 Grms (operating)
2.0 Grms (Non-operating)

1.3.2 Fans

• **Air flow:** Three 21-CFM cooling fans (flow in)

• **Power consumption:** 0.18 A @ +12 V (per fan)

• **Rated fan speed:** 4,800 rpm ± 10%

• **Life expectancy:** 50,000 hours @ 25° C

1.3.3 Power supply

• **Input:** Dual input, redundant 100~240 V_{AC} @ 50~60 Hz with auto switching capability -- PFC (Power Factor Correction) can reach the furget of 95% @ 115 V, full load, following the standard of IEC 1000-3-2, Class D.

• **Output** (per module)**:** +3.3 V @ 20 A, +5 V @ 32 A, -5 V @ 0.5 A, +12 V @ 16 A, -12 V @ 0.8 A, 5VSB @ 2A

• **Maximum output:**

- +5 V and +3.3 V total max @ 35 A
- +5 V, +3.3 V and +12 V total max @ 285 W

• **Minimum load:** +3.3 V @ 1.0 A, + 5V @ 3 A, +12 V @ 2 A

• **MTBF:** 100,000 hours @ 70% load

• **Safety:** UL/CUL/CE/FCC.

1.4 Dimensions

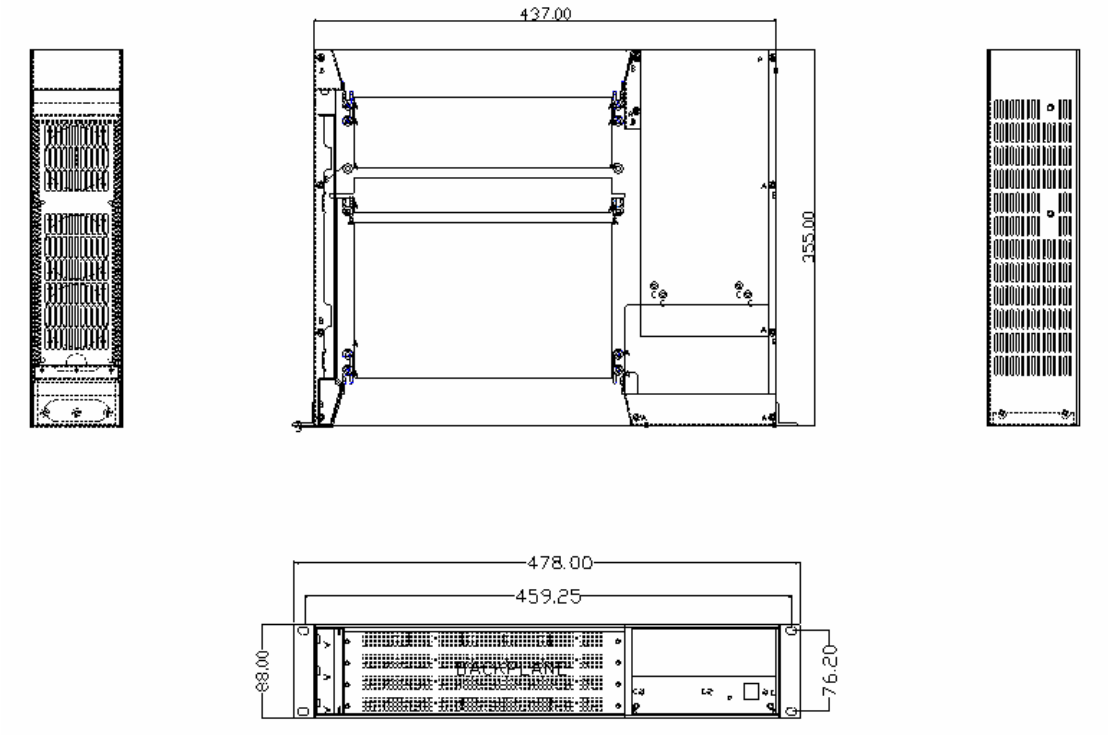


Figure 1-1: MIC-3056 dimensions

1.5 Ordering Information

• **MIC-3056A-A:** 2U-high CompactPCI™ enclosure with 4-slot backplane (MIB-3056-A), hot swappable cooling fan modules, 300W redundant ATX power supply.

• **MIC-3056B-A:** 2U-high CompactPCI™ enclosure with 4-slot backplane (MIB-3056-B), hot swappable cooling fan modules, 300W redundant ATX power supply.

Recommend 6U CompactPCI™ SBC:

• **MIC-3368-A:** Single-slot 6U CompactPCI™ Low power Pentium® III 700MHz processor board with VGA, dual LANs, two PMC sites support and one site for a 2.5" IDE HDD as option.

• **MIC-3377/M-A:** Single-slot 6U CompactPCI™ Pentium® III processor board with VGA and dual LANs

• **MIC-3357-A:** Single-slot 6U CompactPCI™ Pentium® MMX processor board with VGA and triple LANs.

• **MIC-3365-A:** Single-slot 6U CompactPCI™ Pentium® III processor board with VGA and dual LANs

Optional Peripherals:

• **MIC-3924-A:** Chassis management module for hardware environment monitoring and management.

• **MIC-3960-A:** Media Blade for storage devices accommodation (Only available with MIC-3056B-A)

2

Installation

2.1 Initial Inspection

We have carefully inspected the MIC-3056 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-3056, 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-3056 Illustration

The MIC-3056 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-3056

Figure 2-2: Board integration of MIC-3056

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 for more details.

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 slide 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.

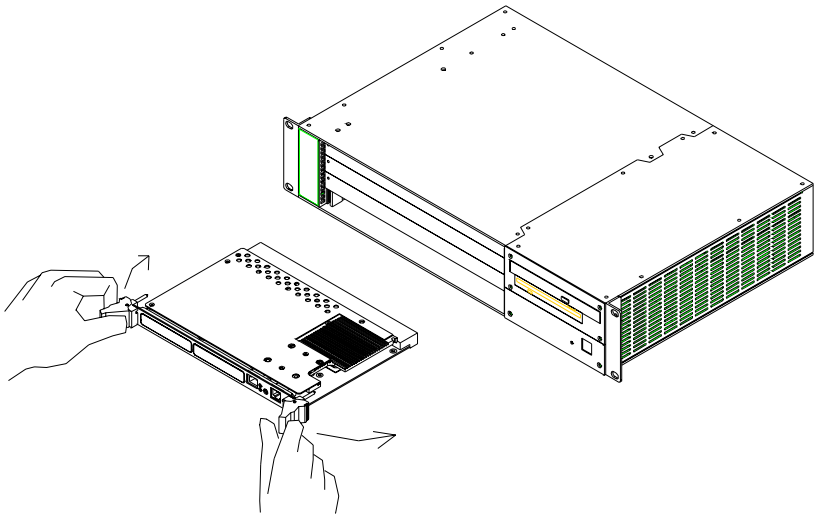


Figure 2-3: Installing a card into the chassis

To remove a card:

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-3056 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-3056 on a 19" rack.

2.3.3 Installing Peripherals (MIC-3960)

The MIC-3960 can accommodate four types of storage devices, including 2.5" hard disk, optional Compact Flash (up to 32MB), slim-type CD-ROM drive, and slim-type FDD drive. Please refer to following table for the media combination availability.

	2.5” HDD	Slim CDROM	Slim FDD	Compact Flash
Type A	1	1	-	1
Type B	1	-	1	1
Type C	2	-	-	1

Table 2-7 MIC-3960 recommended device bay configuration.

Note:

(1) MIC-3960 is only available on MIC-3038B/8-4R

(2) The factory default is Type A

2.3.4 Install a 2.5" Hard Disk Drive

To install 2.5" hard disk drives on the MIC-3960, user just needs to slide the HDD into proper IDE connector and screw it up on the back side of the board.

Figure 2-4: Installing 2.5" hard disk drives and slim CDROM

2.3.5 Installing a Slim-type Floppy Disk or Slim-type CD-ROM Drives (on MIC-3960):

The MIC-3960 supports up to four IDE devices on the two IDE channels including IDE CD-ROM drives. But user only can have up to three IDE devices (including CompactFlash) due to its space limitation. To install an IDE slim type CDROM drive with the MIC-3960 you'll need:

· IDE CD-ROM drive

. Mounting bracket for slim type CDROM

. Several screws for bracket

.

The MIC-3960 does not supply a power cable to run a CD ROM drive or other desktop style IDE device cause the power is provided via the connectors. Steps for installing an IDE CD-ROM drive with the MIC-3960 are as follows:

1. Turn the power off to the card cage and remove the MIC-3960.
2. Mounting the IDE CD-ROM with bracket and screws on MIC-3960
3. Re-insert the MIC-3960 into the card cage.
4. Power up the card cage and the CD ROM.

2.3.6 Replacing the Hot-swap Fan and Air Filter

The MIC-3038 provides two hot-swap fans at both left and rear sides of the MIC-3038. Please refer to Figure 2-1 and 2-2. Each fan can be individually replaced. This can be done without turning off the system power or interrupting system operation.

Follow these steps to replace a fan:

1. Unfasten the fan's holder.
2. Slide the fan's holder out.
3. Replace the old fan with a new one.
4. Slide the fan's holder in.
5. Fasten the new fan's holder.

Figure 2-5: Hot swappable fan maintenance

The air filter may become dirty after a period of time. Follow these steps to replace a filter:

1. Remove the filter cover.
2. Replace the dirty filter with a clean one.
3. Reattach the filter cover.

Repeat steps 1 to 3 to replace other filters.

3

Blackplane

3.1 General Information

There are two models as optional backplane which is used for the 2U-high CompactPCI™ enclosures, MIC-3056, and provides four CompactPCI™ slots. One slot is assigned to the CPU board and the other slots for three peripheral boards. For the Media blade supported backplane can provide different purposes that need flexible storage devices integration. The MIC-3056 supports front I/O wiring, providing simplified system cabling. The backplane also provides one 3-pin connector for connecting hot-swappable cooling fan module. In order to provide users with a flexible system configuration, the MIC-3056 includes one standard ATX power connector to accept one ATX power supply. The MIC-3056 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 three peripheral slot)
• 64-bit PCI bus compliant
• Complies with PICMG 2.1 Hot-Swap Specification
• Accepts redundant ATX power supply
• Media Blade support as an option
• Chassis Management Module support as an option
• Hot-swappable 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 separation for physical and logical slots. Each slot has a physical number and a logical number (refer to the

CompactPCI™ specification version 2.0 R3.0 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	P1:D6	CLK	P1:D6
AD31	P1:E6	IDSEL	P1:B9
REQ0#	P1:A6	REQ#	P1:A6
GNT0#	P1:E5	GNT#	P1:E5
System Slot (Logical Slot 1)		**Peripheral Slot (Logical Slot 3)**	
CLK1	P2:A1	CLK	P1:D6
AD30	P1:A7	IDSEL	P1:B9
REQ1#	P2:C1	REQ#	P1:A6
GNT1#	P2:D1	GNT#	P1:E5
System Slot (Logical Slot 1)		**Peripheral Slot (Logical Slot 4)**	
CLK2	P2:A2	CLK	P1:D6
AD29	P1:B7	IDSEL	P1:B9
REQ2#	P2:E2	REQ#	P1:A6
GNT2#	P2:D2	GNT#	P1:E5

Table 3-1: System to peripheral slot signal assignment

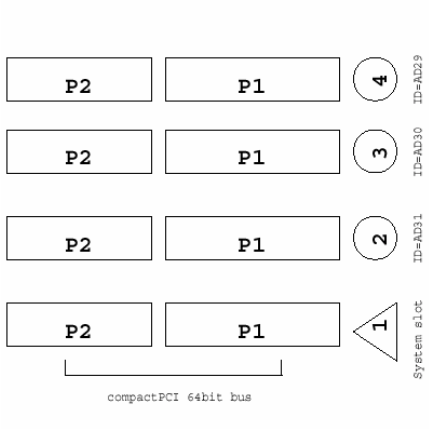


Figure 3-1: MIC-3056A Slot numbering

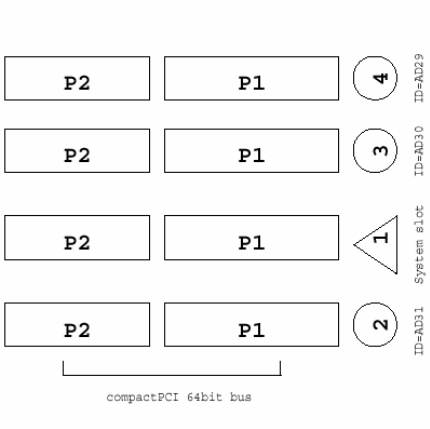


Figure 3-2: MIC-3056B Slot numbering

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
JP6	Led board connector
FAN1, 2, 3, 4	Fan module connectors
PS1	Power switch connector
JP7, 8	V I/O voltage selections
P1, P2	64-bit CompactPCI™ bus
P3, P5	I/O transition
P4	H.110 CT bus (slot 2, 3, 4)

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

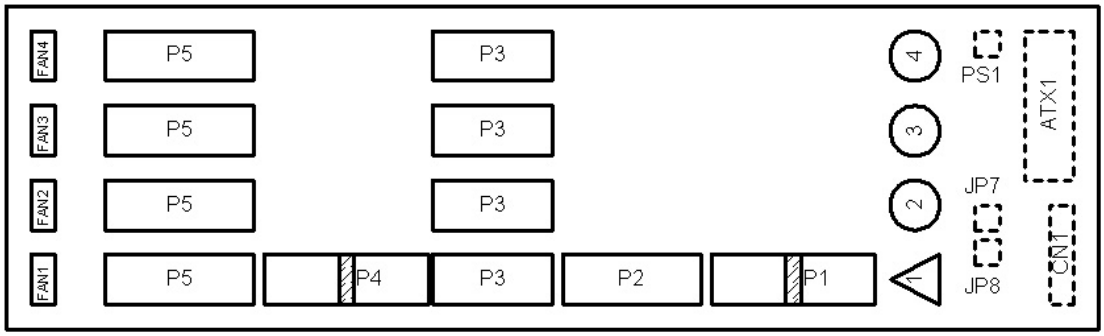


Figure 3-3: The connector and jumper locations on the rear side.

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 (JP7, 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 5V 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).

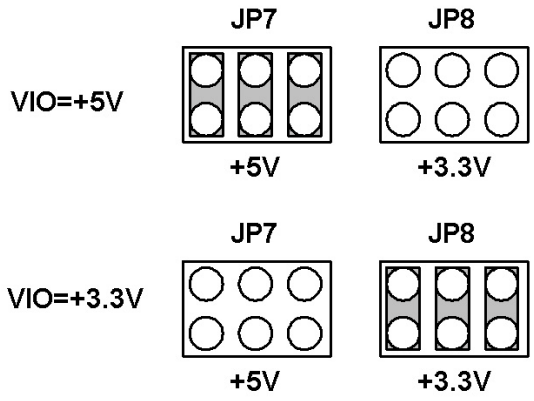


Figure 3-5: V I/O voltage selection

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.

A

Pin Assignments

APPENDIX

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	RRSVP1B5	RST#	GND	GNT0#	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	BRSVP2D18	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 Peripheral Slots P3 Connector**

Table A-3: System and Peripheral 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 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 and Peripheral Slot P5 Connector**

Table A-5: System and Peripheral 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 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	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	RRSVP1B5	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	BRSVP2C18	BRSVP2D18	BRSVP2E18	GND
17	GND	BRSVP2A17	GND	RSV	RSV	RSV	GND
16	GND	BRSVP2A16	BRSVP2B16	RSV	GND	BRSVP2E16	GND
15	GND	BRSVP2A15	GND	RSV	RSV	BRSV	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

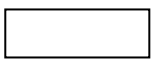
#: Low active

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	SGA4	SGA3	SGA2	SGA1	SGA0	GND
24	N/C	GA4	GA3	GA2	GA1	GA0	GND
23	N/C	-12V	#CT_RT	#CT_EN	+12V	CT_MC	GND
22	N/C	#PF_S0	RSV	RSV	RSV	RSV	GND
21	N/C	-SEL_Vbat	#PF_S1	RSV	RSV	SELVbatRtn	GND
20	N/C	N/C	N/C	N/C	N/C	N/C	GND
19	N/C	N/C	N/C	N/C	N/C	N/C	GND
18	N/C	VRG	N/C	N/C	N/C	VRGRtn	GND
17	N/C	N/C	N/C	N/C	N/C	N/C	GND
16	N/C	N/C	N/C	N/C	N/C	N/C	GND
15	N/C	-Vbat	N/C	N/C	N/C	VbatRtn	GND
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	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 Fan Module Connectors (FAN 1~4)

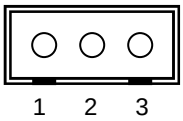


Table A-9: Fan Module Connectors

Pin	Assignment
1	Fan speed
2	+12V
3	GND

A.10 ATX Power Connector (ATX1)

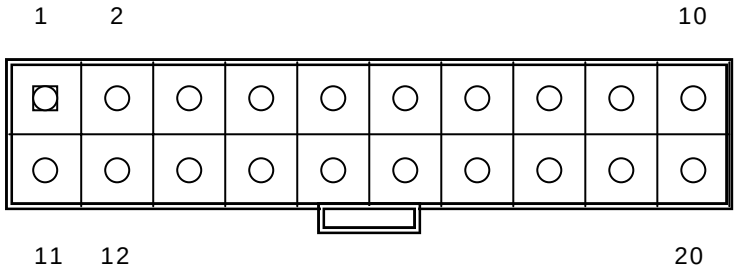


Table A-10: ATX Power Connector

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.11 LED board connector (JP6)

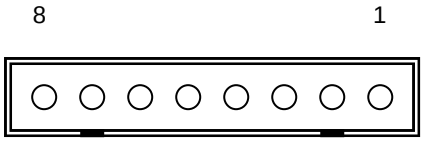


Table A-11: LED board Connector

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

A.12 Alarm board Interface connector (CN1)

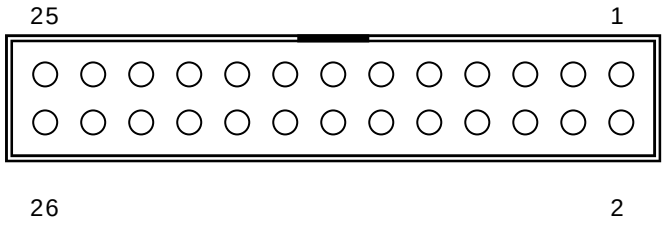


Table A-12: Alarm Board Interface Connector

Pin	Signal
1	VCC
2	VCC
3	VCC
4	N/C
5	VCC
6	VCC3

7	TT1
8	N/C
9	TT2
10	-12V
11	TT3
12	N/C
13	N/C
14	+12V
15	+5VSB
16	N/C
17	N/C
18	LM75-SDA
19	WDT-IN
20	LM75-SCL
21	IPMB-SCL
22	PS_ON
23	IPMB-SDA
24	WDT-OUT
25	GND
26	GND