MIC-3041

Six slot 4U Enclosure with CT bus CompactPCI™ Backplane

User's Manual

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CE Notification
The MIC-3041, 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.

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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-3041 CompactPCI™ enclosure with backplane
• One box of accessories
• One warranty certificate
• One CD-ROM for user manual (PDF file)
• One quick start guide

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-3041 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

Chapter 1   Introduction

1.1   Introduction

The MIC-3041 is a 4U-high enclosure as a HA platform with 6-slot 6U CompactPCI™ slots H.110 backplane for rack mounting. Being 4U in height and proper capacity of CompactPCI™ slot support (6-slot), the MIC-3041 provides the most space efficiency required in applications such as CT, networking and so on. MIC-3041 also equip with 300W redundant type power supply which can fulfill most application requirement under a 4U-high system. With 1U space reserved for storage device (SCSI or IDE) on the top of chassis, it makes the maximum flexibility of approaching most of applications. The MIC-3041 is build-in one slim line CDROM and floppy drives that maximum the space availability in a 4U high chassis. With its flexible module design, the cooling fan and power supply can be hot swappable for easy maintenance, to provide more advance and intelligent system status monitoring and controls. For those mission critical applications in high manageability demands, MIC-3041 also serves with a, Chassis Management Module, the MIC-3924A, which is a stand-alone system environment monitoring module. 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-3041 models:

• MIC-3041A/6-4R: MIC-3041 clone system, w/ 6-slot CompactPCI™ 6U backplane (MIB-3041A) and drive bay (SCSI) support
• MIC-3041B/6-4R: MIC-3041 clone system, w/ 6-slot CompactPCI™ 6U backplane (MIB-3041A) and drive bay (IDE) support
Option:
• MIC-3924A-A: Chassis management module

1.2   Features

• Six 6U card slots
• Supports front and rear I/O
• Supports H.110 CT bus
• SCSI or IDE storage devices support
• 300W ATX Redundant power supply support
• Hot-swap compliant backplane
• Hot-swap fan modules
• Integrated intelligent fault detection and alarm module (MIC-3924A, Optional).

1.3   Specifications

1.3.1 General

• Construction: Aluminum frame and galvanized sheet steel
• 6-slot space (24 TE), including one system slot and five peripheral slots
  (P/N 9692304100: one system slot and five peripheral slots)
• "Hot swappable" platform complies with PICMG 2.1 R 1.0 Hot Swap
  Specification
• Dimensions (W x H x D, mounting flanges not included):
  4U: 440 x 177 x 342 mm (17.3" x 7" x 13.5")
• Weight: 14 kg (30.8 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 Hot-swap Fans

• Air flow: One 163-CFM fan (side), one 44-CFM fan (rear)
• Power consumption: 0.45 A @ 12 V, 0.09 A @ 12V
• Rated fan speed: 2170/4500 rpm
• 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
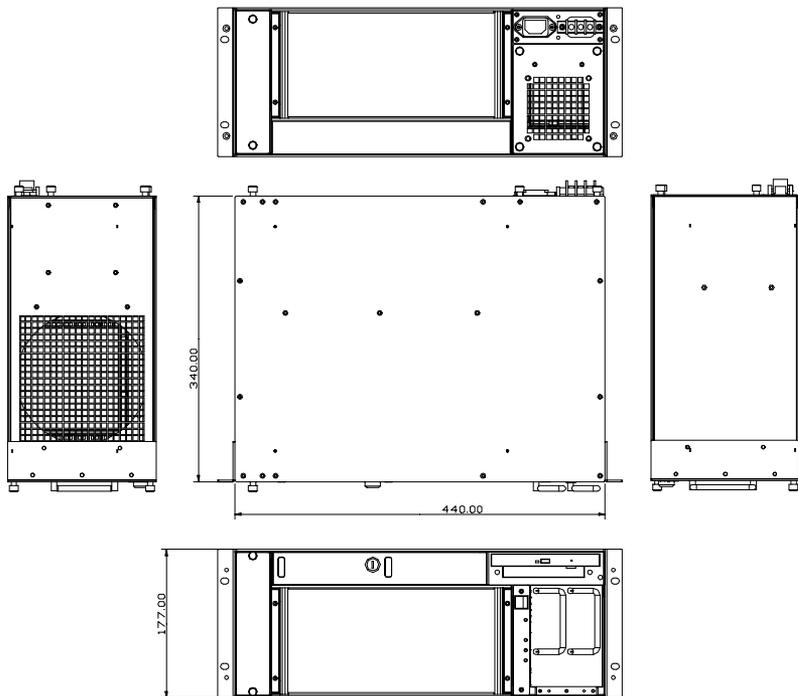
Figure 1-1: MIC-3041 dimensions

Figure 1-2: Outlook of MIC-3041

1.5   Order Information

• MIC-3041A/6-4R: 4U-high CompactPCI™ enclosure with 6-slot backplane (MIB-3041-A), hot swappable SCSI device bay, hot swappable cooling fan modules, 300W redundant ATX power supply.
• MIC-3041B/6-4R: 4U-high CompactPCI™ enclosure with 8-slot backplane (MIB-3041-B), removable IDE device bay, hot swappable cooling fan modules, 300W redundant ATX power supply.

Recommend 6U CompactPCI™ SBC: User can refer to below table for the SBC and RIO accommodation.

Table 1.1 SBC and RIO accommodation				
Chassis	Master SBC	Slave SBC	RIO	Alarm module
MIC-3041A/ 6-4R	MIC-3368E MIC-3368E1		RIO-3308S*	MIC-3924A (optional)
	MIC-3389 MIC-3377/M		RIO-3302S	
	MIC-3369B		RIO-3309B*	
		MIC-3366 MIC-3366B	RIO-3306	
MIC-3041B/ 6-4R	MIC-3368 MIC-3368B		RIO-3308	MIC-3924A (optional)
	MIC-3368E MIC-3368E1		RIO-3308C	
	MIC-3389 MIC-3377/M		RIO-3302	
	MIC-3358A MIC-3369A		RIO-3309C	
		MIC-3366 MIC-3366B	RIO-3306	

* Software RAID-1 function build in (see RIO module user manual)

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

Installation

Chapter 2   Installation

2.1   Initial Inspection

We have carefully inspected the MIC-3041 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-3041, 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-3041 Illustration

The MIC-3041 is designed to be installed and maintained easily. Figure 2-1 and Figure 2-2 illustrate important components on the front and hot swappable parts of the enclosure.

Figure 2-1: Front view of MIC-3041
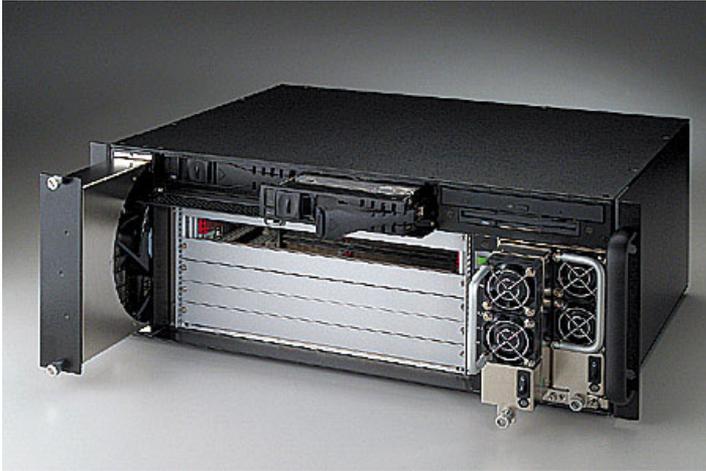
Figure 2-2: Removable parts of chassis

2.3   Installation Procedures

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 any other slot, or insert a peripheral card into the system slot. The MIC-3041 accepts different backplanes, so the location of the system slot may vary. The system slot is marked by a triangle enclosing the slot number. Please refer to the backplane user's manual. 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:

2.3.1 Card Installation and Removal

To install a card:

1. Hold the card vertically. Be sure that the card is oriented correctly. The components of the card should be pointing to the right-hand 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 upper and lower edges of the card into the card guides.

4. Push the card into the slot gently by sliding the card along the card guide until the handles meet the rectangular holes of the cross rails.

Figure 2-3: Installing a card into the chassis

5. Pull the upper handle down and lift the lower handle up to push the card into place.

6. Secure the card by locking the handles into place.

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.:

To remove a card:
1.   Unscrew the screws on the card front panel. Release the locking latches on the handles.
2.   Lift the upper handle up and press the lower handle down 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. Adjust the switch on the power supply to the correct voltage.
Two mounting flanges are included for users who would like to install the MIC-3041 on a 19" rack.

2.3.3 Installing a 3.5" Hard Disk Drive

Follow the procedures below to install 3.5" hard disk drives in the MIC-3041:
1.   Open the disk tray door and remove the mobile rack. For SCSI version the SCSI ID shown on the mobile rack panel, which is the same as SCSI control would find after system start up.
2.   Mount the HDD (SCSI or IDE) on the mobile rack with screws.
3.   Slide the HDD with mobile rack back into the tray.
4.   Power on and check the HDD can be found at the SCSI initializing.

Note: (1) The SCSI version (MIC-3041A) must be used with the RIO module bundled with SCSI controller, like RIO-3038S or RIO-3309S.
(2) The SCSI ID is assigned by the internal SCSI adaptor of MIC-3041, #0 and #1 are fixed and cannot be changed. User can read the number on the disk mobile rack.

2.3.4 Connecting with rear I/O module

The MIC-3041 is limited to be used with rear I/O module, for SCSI devices accommodation, a SCSI on rear I/O module is needed. Advantech provides RIO-3308S, RIO-3302S, RIO-3309B to serve this configuration. Please refer to the recommend configuration list for details. To install the RIO module, please follow the steps below:
1.   Remove the blank panel above the system RIO slot. (Suggest to remove all the blank panels for installation)
2.   User can find there are three cables inside, one IDE (40 pins) cable, one FDD (34 pins) cable and one SCSI cable (68 pins)
3.   Connecting with the right connector on board so and slide into the card cage.
4.   Power up the system and check all the storage devices work properly.

2.3.5 Configuring the build-in RAID (SCSI) module

The MIC-3041 supports SCSI RAID-1 build-in. Note that not all the RIO modules with SCSI controller build-in support RAID function. For a detail configuring RAID feature, please refer to RIO module user manual.

2.3.6 MIC-3041B hardware configuration

MIC-3041B is an IDE version which supports removable only (not hot-swappable), thus it can support all the combination on the list without any driver. See below with the outlook of IDE adaptor, and the connection is easy for just one cable to extend one IDE channel (master/slave). However, not all of the RIO has two channels to support 2x IDE and CDROM at same time because of hardware limitation. Please consult your sales for a suitable configuration.

Note: (1) RIO-3309C only has one channel, thus the IDE CDROM might has to change to "IDE to USB" interface.
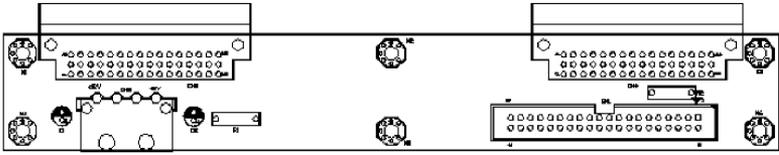
Figure2-4: IDE adaptor

2.3.7 Replacing the Hot-swap Fan and Air Filter

The MIC-3041 provides two hot-swap fans at both left and rear sides of the MIC-3041. 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.
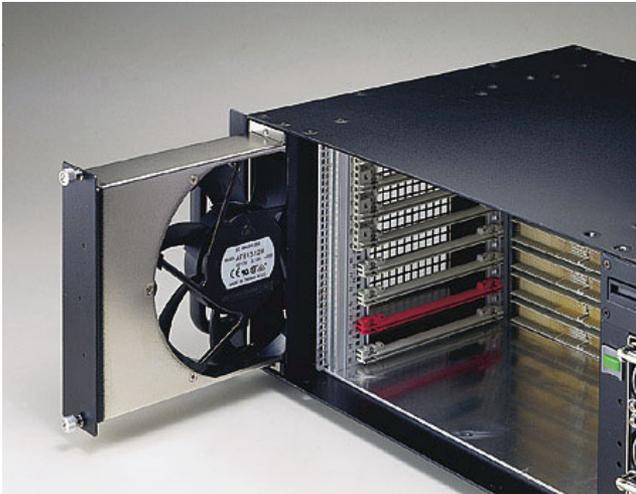
Figure 2-5: Hot swappable fan maintenance

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

Backplane

Chapter 3 Backplane

3.1 General Information

There is a backplane which is used for the 4U-high CompactPCI™ enclosures, MIC-3041, and provides eight CompactPCI™ slots. One slot is assigned to the CPU board and the other slots for five peripheral boards. The MIC-3041 supports front I/O wiring, providing simplified system cabling. The backplane also provides several 3-pin connector for connecting hot-swappable cooling fan module. In order to provide users with a flexible system configuration, the MIC-3041 includes one standard ATX power connector to accept one ATX power supply. The MIC-3041 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

• Six CompactPCI™ slots (one system slot and five peripheral slots)
• 64-bit PCI bus compliant
• Complies with PICMG 2.1 Hot-Swap Specification
• Accepts redundant ATX power supply
• Chassis Management Module support as an option
• Hot-swappable fan interface.

3.3 Specification

• Six CompactPCI™ slots (one system slot and five peripheral slots)
• Bus width: 64-bit
• 10-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: 146 x 255.85 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 2~6 has a logical number of 2~6. 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.

Table 3-1 : System to peripheral slot signal assignment.			
System Slot (Logical Slot 2)		Peripheral Slot (Logical Slot 1)	
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 2)		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 2)		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
System Slot (Logical Slot 2)		Peripheral Slot (Logical Slot 5)	
CLK3	P2:B2	CLK	P1:D6
AD28	P1:C7	IDSEL	P1:B9
REQ3#	P2:E2	REQ#	P1:A6
GNT3#	P2:C3	GNT#	P1:E5
System Slot (Logical Slot 2)		Peripheral Slot (Logical Slot 6)	
CLK4	P2:A3	CLK	P1:D6
AD27	P1:E7	IDSEL	P1:B9
REQ4#	P2:A3	REQ#	P1:A6
GNT4#	P2:E3	GNT#	P1:E5
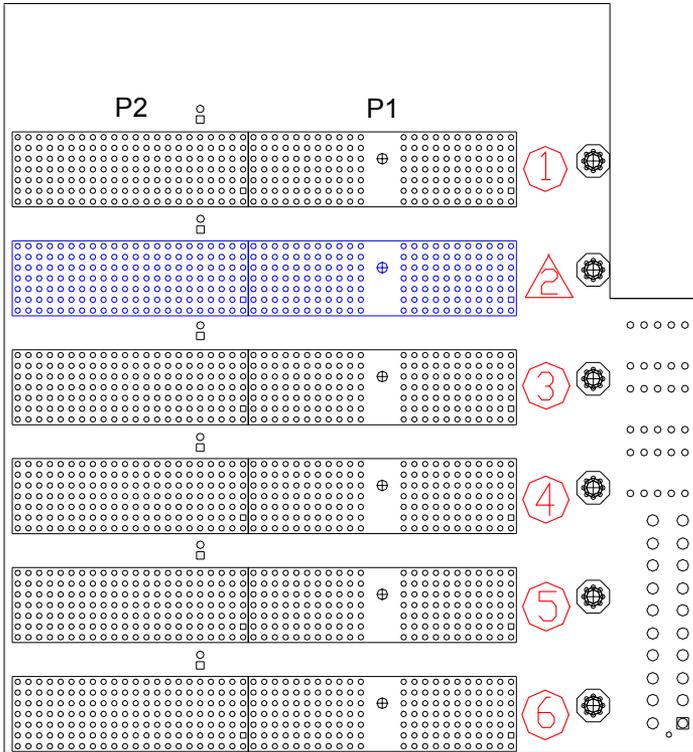
Figure 3-1: MIC-3041A slot numbering

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
JP14	Led board connector
FAN1, 2, 3, 4	Fan module connectors (FAN4 is reserved)
JP12	Power switch connector
JP5, 6, 7	V I/O voltage selections
P1, P2	64-bit CompactPCI™ bus
P3, P5	I/O transition
P4	H.110 CT bus (slot #1 & #3~#6)
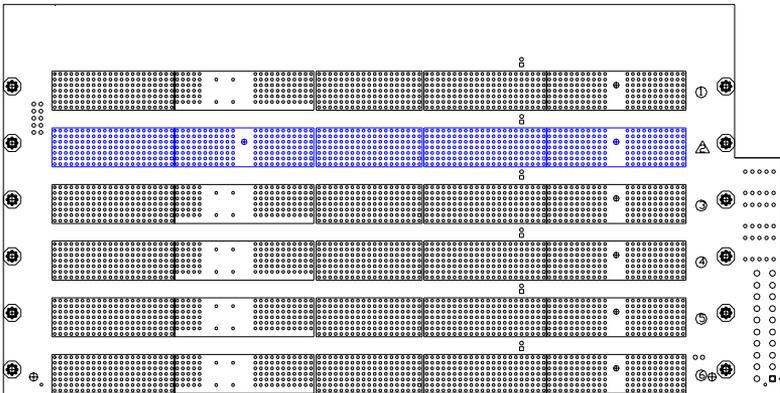
Figure 3-2: The connector and jumper locations on the front side (MIC-3041A)
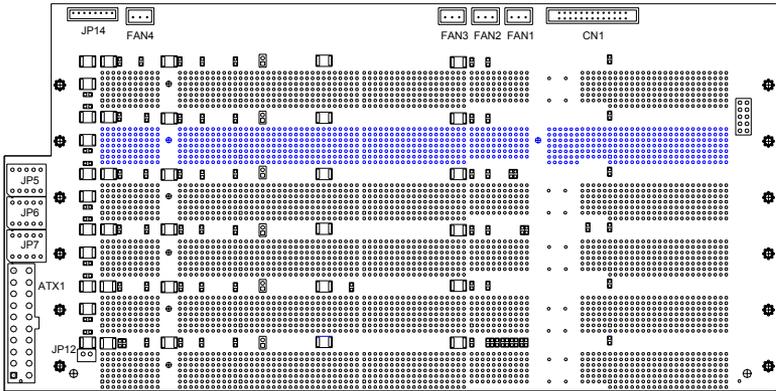
Figure 3-3: The connector and jumper locations on the rear side. (MIC-3041A)

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 (JP12)

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 (JP5, 6, 7)

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).

+5V   **+5V**

VIO   **VIO**

+3.3V   **+3.3V**

VIO for +5V   **VIO for +3.3V**
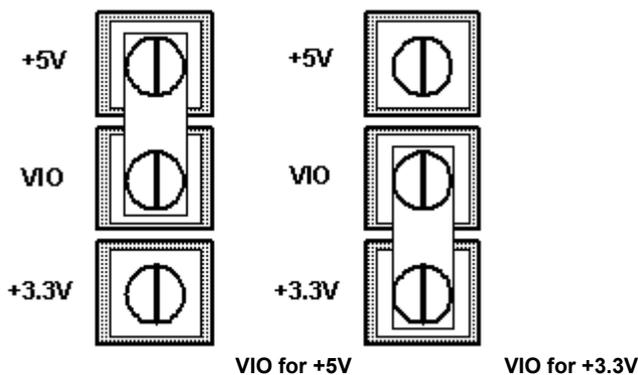
Figure 3-4: V I/O voltage selection

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. Note the fan4 is reserved as factory default.

3.5.5 LED Status Connector (JP14)

This connector provides digital outputs for the alarm module (MIC-3924) to the chassis front panel notification used. Three alarm LED (red) and one power status LED (green) is included for Fan_fail, Power_fail, and Temp_fail for alert notification.

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.

Pin Assignments

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	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

Pin	Z	A	B	C	D	E	F
		Table A-2: System slot P2 connector					
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 Conn

Pin	Z	A	B	C	D	E	F
Table A-3: System and Peripheral slot P3 connector							
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 & 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

31
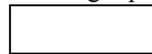
A.7 Peripheral Slot P2 Connector

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

#: Low active

A.9 Fan Module Connectors (FAN 1~4)

```
1     3
┌─────────┐
│ □  ○  ○ │
└─────────┘
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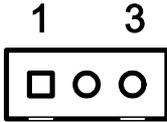
Table A-9: Fan Module Connectors	
Pin	Assignment
1	Fan speed
2	+12V
3	GND

A.10 ATX Power Connector (ATX1)

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1                      10
┌──────────────────────┐
│□○○○○○○○○○│
│○○○○○○○○○○│
└──────────────────────┘
11                     20
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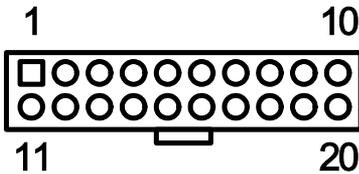
Table A-10: ATX Power Connector			
Pin	**Signal**	**Pin**	**Signal**
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PSON#
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	FAL#	18	N/C
9	N/C	19	+5V
10	+12V	20	+5V

A.11 LED board connector (JP14)

8   1

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 conn (CN1)

25   1

26   2
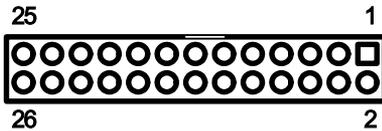
Table A-12: Alarm Board Interface Connector			
Pin	Signal	Pin	Signal
1	VCC	14	+12V
2	VCC	15	+5VSB
3	VCC	16	N/C
4	N/C	17	N/C
5	VCC	18	LM75-SDA
6	VCC3	19	WDT-IN
7	TT1	20	LM75-SCL
8	N/C	21	IPMB-SCL
9	TT2	22	PS_ON
10	-12V	23	IPMB-SDA
11	TT3	24	WDT-OUT
12	N/C	25	GND
13	N/C	26	GND