MIC-3950

6U CompactPCI™ Dual PMC Carrier Board

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CE Notification

The MIC-3950, developed by Advantech CO., LTD., has passed the CE test for environment specification when shielded cable 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 merchandize 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 installing your board, ensure that the following materials have been received:

- One MIC-3950 CompactPCI PMC Carrier board
- One utility CD-ROM disc and user's manual(PDF file)
- One warranty certificate
- One Startup Manual

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-3950 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-3950 is a 6U CompactPCI carrier board which compliant with IEEE1386.1 PMC modules.

It supports two single-width PMC mezzanie modules and 32-bit PCI operation.

Once connected, the modules are accessed via front panel connections.

1.2 Features

- 6U CompactPCI form factor
- 32-bit/33MHz CompactPCI interface
- Support dual PMC modules
- On-board PCI-to-PCI bridge

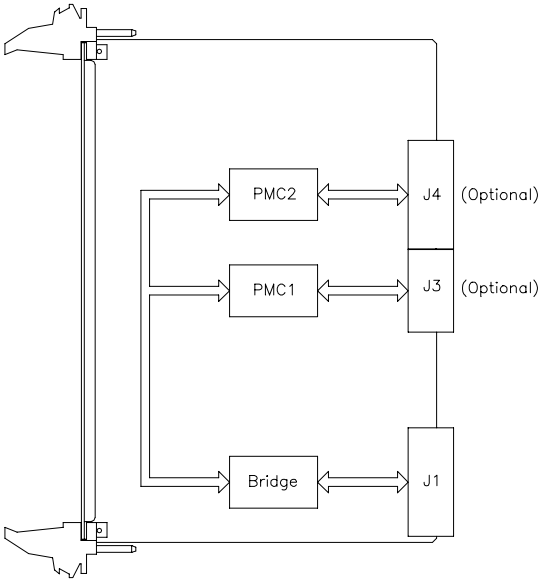
1.3 Specifications

Specifications

- **Bus Interface :** 32-bit/33 MHz Compliance CompactPCI Specification PICMG 2.0 R3.0

  CompactPCI PMC I/O Mapping Specification PICMG 2.3 R1.0

  IEEE P1386.1 PMC Specification, R2.3
- **PCI Bridge :** TI™ 2250 PCI-to-PCI Interface Bridge Chip
- **Operating Temp:** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temp:** -20 ~ 80°C (-4 ~ 176°F)
- **Humidity:** 5 ~ 95% (non-condensing)
- **Power Consump**: 1 w @ 33 Mhz
- **Board Size**: 233.35 x 160 mm (6U size), 1-slot (4 TE) wide



MIC−3950 Block Diagram

1.4 Indicator and Connector Locations

Table 1-1: MIC-3950 connector and indicator descriptions

J1	Primary CompactPCI™ bus
J3, J4	Rear I/O transition
J11, J12	PMC-1 32-bit PCI bus
J21, J22	PMC-2 32-bit PCI BUS
J14, J24	PMC modules I/O
JP2	Internal/External Arbiter
JP3,JP4	PCI Bridge mode
JP5	PVIO voltage selector
JP6	SVIO voltage selector

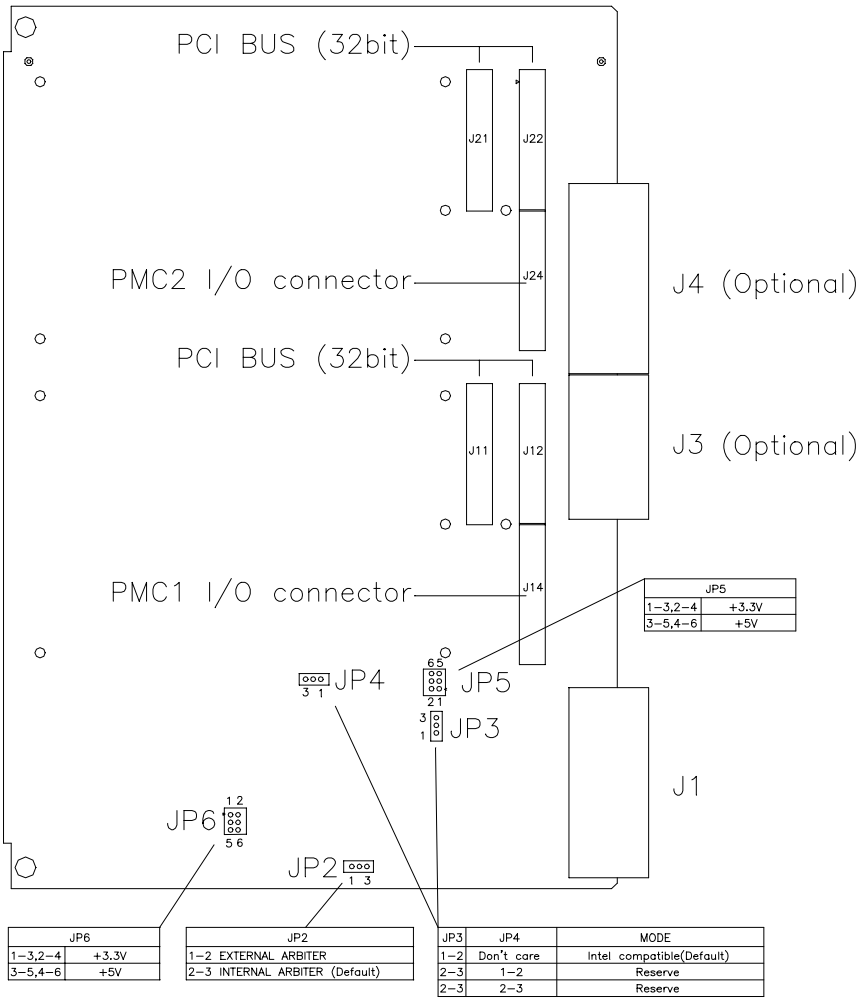


Figure 1-1: MIC-3950 indicator and connector locations

1.5 Safety Precautions

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electric shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Always ground yourself to remove any static charge before you touch your SCSI card. Be particularly careful not to touch the chip connectors. Keep the card in its antistatic packaging when it is not installed in the PC, and place it on a static dissipative mat when you are working with it. Wear grounding wrist strap for continuous protection.

CHAPTER 2

Hardware Installation

2.1 Initial Inspection

We carefully inspected the MIC-3950 mechanically and electronically before shipping. It should be free of marks and scratches and in perfect working order on receipt.

As users unpack the MIC-3950, check it for signs of shipping damage (damaged box, scratches, dents, etc.). If it is damaged or fails to meet specifications, notify Advantech's service department or the local sales representative immediately. Also notify the carrier that was used to ship the product to user's location from Advantech's factory or distributor. Retain the shipping carton and packing material for inspection by the carrier. Advantech will make arrangements to repair or replace the unit after an inspection.

Warning: *Discharge your body's static electric charge by touching the back of the grounded chassis of the system unit (metal) before handling the board. You should avoid contact with materials that hold a static charge such as plastic, vinyl and styrofoam. Touch the board only by its edges to avoid static damage to its integrated circuits. Avoid touching the exposed circuit connectors.*

2.2 Card Installation

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 insert/eject handle of the MIC-3950 helps you to install and remove the card easily and safely. Follow the procedure below to install the MIC-3950 into a chassis:

To install a card:

1. Hold the card vertically. Be sure that the card is pointing in the correct direction. For the MIC-3950, the components of the card should be pointing to the right-hand side.
2. Pull out both handles to unlock it.

Caution: Keep your fingers away from the hinge 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 guide.
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.

Note: If the card is correctly positioned and has been slid all the way into the chassis, the handle 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. Pull the upper handle down and life the lower handle up to push the card into place.
6. Secure the card by pushing in the red portion to lock it into place.

To remove a card:

1. Unscrew the two screws on the front panel.
2. Life the upper handle up and Press the lower handle down to release the card from the backplane.
3. Slide the card out.

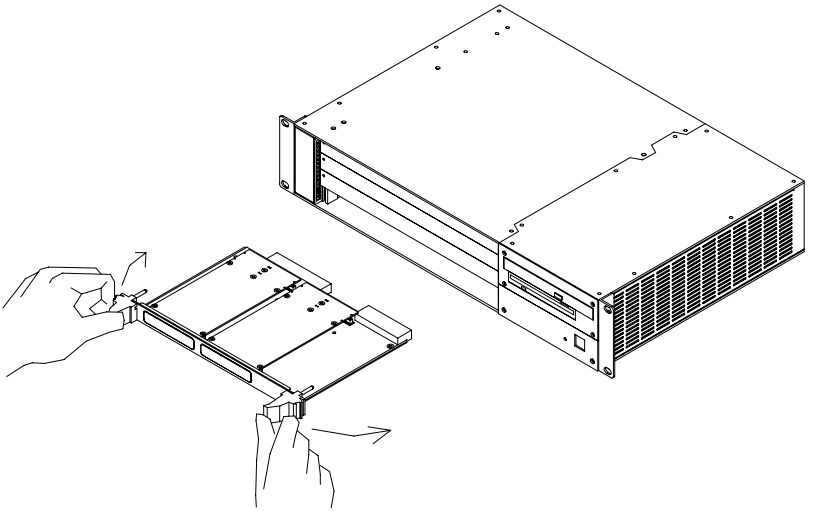


Figure 2-1: Intallation for MIC-3950

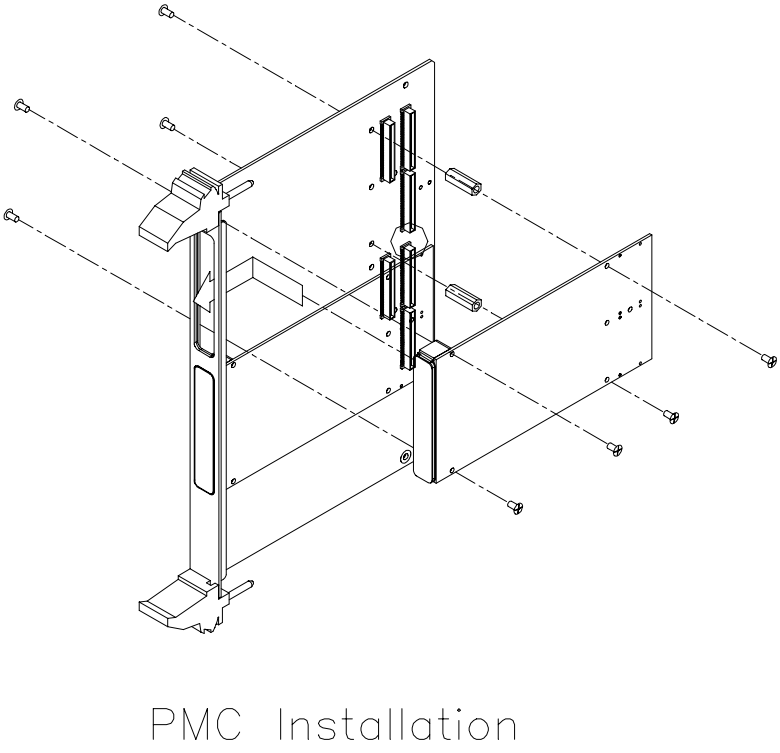


Figure 2-2: PMC module installation

APPENDIX A

Pin Assignments

A.1 MIC-3950 J1 connector pin assignments

Table A-1: J1 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
25	+5 V	REQ64#	N/C	N/C	+5 V
24	AD1	+5 V	N/C	AD0	ACK64#
23	N/C	AD4	AD3	+5 V	AD2
22	AD7	GND	N/C	AD6	AD5
21	N/C	AD9	AD8	M66EN	C/BE0#
20	AD12	GND	N/C	AD11	AD10
19	N/C	AD15	AD14	GND	AD13
18	SERR#	GND	N/C	PAR	C/BE1#
17	N/C	N/C	N/C	GND	PERR#
16	DEVSEL#	GND	N/C	STOP#	N/C
15	N/C	FRAME#	IRDY#	GND	TRDY#
14					
13	KEY	AREA			
12					
11	AD18	AD17	AD16	GND	C/BE2#
10	AD21	GND	N/C	AD20	AD19
9	C/BE3#	IDSEL	AD23	GND	AD22
8	AD26	GND	N/C	AD25	AD24
7	AD30	AD29	AD28	GND	AD27
6	REQ#	GND	N/C	CLK	AD31
5	N/C	N/C	RST#	GND	GNT#
4	N/C	GND	N/C	N/C	N/C
3	INTA#	N/C	N/C	+5 V	N/C
2	N/C	+5 V	N/C	N/C	N/C
1	+5 V	N/C	TRST#	+12 V	+5 V

# indicates "low active".

A.2 MIC-3950 J3 connector pin assignments

Table A-2: J3 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E	Row F
19	PMC24IO45	PMC24IO44	PMC24IO43	PMC24IO42	PMC24IO41	GND
18	PMC24IO50	PMC24IO49	PMC24IO48	PMC24IO47	PMC24IO46	GND
17	PMC24IO55	PMC24IO54	PMC24IO53	PMC24IO52	PMC24IO51	GND
16	PMC24IO60	PMC24IO59	PMC24IO58	PMC24IO57	PMC24IO56	GND
15	VIO	PMC24IO64	PMC24IO63	PMC24IO62	PMC24IO61	GND
14	VCC3	VCC3	VCC3	VCC	VCC	GND
13	PMC14IO5	PMC14IO4	PMC14IO3	PMC14IO2	PMC14IO1	GND
12	PMC14IO10	PMC14IO9	PMC14IO8	PMC14IO7	PMC14IO6	GND
11	PMC14IO15	PMC14IO14	PMC14IO13	PMC14IO12	PMC14IO11	GND
10	PMC14IO20	PMC14IO19	PMC14IO18	PMC14IO17	PMC14IO16	GND
9	PMC14IO25	PMC14IO24	PMC14IO23	PMC14IO22	PMC14IO21	GND
8	PMC14IO30	PMC14IO29	PMC14IO28	PMC14IO27	PMC14IO26	GND
7	PMC14IO35	PMC14IO34	PMC14IO33	PMC14IO32	PMC14IO31	GND
6	PMC14IO40	PMC14IO39	PMC14IO38	PMC14IO37	PMC14IO36	GND
5	PMC14IO45	PMC14IO44	PMC14IO43	PMC14IO42	PMC14IO41	GND
4	PMC14IO50	PMC14IO49	PMC14IO48	PMC14IO47	PMC14IO46	GND
3	PMC14IO55	PMC14IO54	PMC14IO53	PMC14IO52	PMC14IO51	GND
2	PMC14IO60	PMC14IO59	PMC14IO58	PMC14IO57	PMC14IO56	
1	VIO	PMC14IO64	PMC14IO63	PMC14IO62	PMC14IO61	GND

A.3 MIC-3950 J4 Connector Pin Assignment

Table A-3: J4 Connector Pin Assignment

Pin#	A	B	C	D	E	F
25	NC	NC	NC	NC	NC	GND
24	NC	NC	NC	NC	NC	GND
23	NC	NC	NC	NC	NC	GND
22	NC	NC	NC	NC	NC	GND
21	NC	NC	NC	NC	NC	GND
20	NC	NC	NC	NC	NC	GND
19	NC	NC	NC	NC	NC	GND
18	NC	NC	NC	NC	NC	GND
17	NC	NC	NC	NC	NC	GND
16	NC	NC	NC	NC	NC	GND
15	NC	NC	NC	NC	NC	GND
12-14			KEY AREA			
11	NC	NC	NC	NC	NC	GND
10	NC	NC	NC	NC	NC	GND
9	GND	GND	GND	GND	GND	GND
8	PMC24IO5	PMC24IO4	PMC24IO3	PMC24IO2	PMC24IO1	GND
7	PMC24IO10	PMC24IO9	PMC24IO8	PMC24IO7	PMC24IO6	GND
6	PMC24IO15	PMC24IO14	PMC24IO13	PMC24IO12	PMC24IO11	GND
5	PMC24IO20	PMC24IO19	PMC24IO18	PMC24IO17	PMC24IO16	GND
4	PMC24IO25	PMC24IO24	PMC24IO23	PMC24IO22	PMC24IO21	GND
3	PMC24IO30	PMC24IO29	PMC24IO28	PMC24IO27	PMC24IO26	GND
2	PMC24IO35	PMC24IO34	PMC24IO33	PMC24IO32	PMC24IO31	GND
1	PMC24IO30	PMC24IO39	PMC24IO38	PMC24IO37	PMC24IO36	GND

A.4 MIC-3950 J11/J21 PMC1/PMC2 - PCI Connectors Pin Assignment

Table A-4: J11/J21 PMC1/PMC2 - PCI Connectors Pin Assignment

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TCK	17	REQ#	33	FRAME#	49	AD09
2	-12V	18	+5V	34	GND	50	+5V
3	GND	19	VIO	35	GND	51	GND
4	INTA#	20	AD31	36	IRDY#	52	C/BE0#
5	INTB#	21	AD28	37	DEVSEL#	53	AD06
6	INTC#	22	AD27	38	+5V	54	AD05
7	BUSMODE-1	23	AD25	39	GND	55	AD04
8	+5V	24	GND	40	LOCK#	56	GND
9	INTD#	25	GND	41	SDONE#	57	VIO
10	PCI-RSVD	26	C/BE3#	42	SBO#	58	AD03
11	GND	27	AD22	43	PAR	59	AD02
12	PCI-RSVD	28	AD21	44	GND	60	AD01
13	CLK	29	AD19	45	VIO	61	AD00
14	GND	30	+5V	46	AD15	62	+5V
15	GND	31	VIO	47	AD12	63	GND
16	GNT#	32	AD17	48	AD11	64	REQ64

#: Active Low

A.5 MIC-3950 J12 PMC1-PCI Connector Pin Assignment

Table A-5: J12 PMC1-PCI Connector Pin Assignment

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	+12V	17	PCI-RSVD	33	GND	49	AD08
2	TRST#	18	GND	34	PCI-RSVD	50	+3.3V
3	TMS	19	AD30	35	TRDY#	51	AD07
4	TDO	20	AD29	36	+3.3V	52	PCI-RSVD
5	TDI	21	GND	37	GND	53	+3.3V
6	GND	22	AD26	38	STOP#	54	PCI-RSVD
7	GND	23	AD24	39	PERR#	55	PCI-RSVD
8	PCI-RSVD	24	+3.3V	40	GND	56	GND
9	PCI-RSVD	25	IDSEL(AD31)	41	+3.3V	57	PCI-RSVD
10	PCI-RSVD	26	AD23	42	SERR#	58	PCI-RSVD
11	BUSMODE2#	27	+3.3V	43	C/BE1#	59	GND
12	+3.3V	28	AD20	44	GND	60	PCI-RSVD
13	RST#	29	AD18	45	AD14	61	ACK64#
14	BUSMODE-3	30	GND	46	AD13	62	+3.3V
15	+3.3V	31	AD16	47	GND	63	GND
16	BUSMODE-4	32	C/BE2#	48	AD10	64	PCI-RSVD

#: Active Low

A.6 MIC-3950 J14/J24 PMC1/PMC2 Rear-Panel I/O Connectors Pin Assignment

Table A-6: J14/J24 PMC1/PMC2 Rear-Panel I/O Connectors Pin Assignment

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	I/O	17	I/O	33	I/O	49	I/O
2	I/O	18	I/O	34	I/O	50	I/O
3	I/O	19	I/O	35	I/O	51	I/O
4	I/O	20	I/O	36	I/O	52	I/O
5	I/O	21	I/O	37	I/O	53	I/O
6	I/O	22	I/O	38	I/O	54	I/O
7	I/O	23	I/O	39	I/O	55	I/O
8	I/O	24	I/O	40	I/O	56	I/O
9	I/O	25	I/O	41	I/O	57	I/O
10	I/O	26	I/O	42	I/O	58	I/O
11	I/O	27	I/O	43	I/O	59	I/O
12	I/O	28	I/O	44	I/O	60	I/O
13	I/O	29	I/O	45	I/O	61	I/O
14	I/O	30	I/O	46	I/O	62	I/O
15	I/O	31	I/O	47	I/O	63	I/O
16	I/O	32	I/O	48	I/O	64	I/O