

The Embedded I/O Company



TCP270

CompactPCI PMC Carrier

Version 1.0

User Manual

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TCP270-10

CompactPCI Carrier for one PMC module

TCP270-11

CompactPCI Carrier for one PMC module with Back- I/O via J2

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Style Conventions

Hexadecimal characters are specified with prefix 0x, i.e. 0x029E (that means hexadecimal value 029E).

For signals on hardware products, an ‚Active Low‘ is represented by the signal name with # following, i.e. IP_RESET#.

Access terms are described as:

W	Write Only
R	Read Only
R/W	Read/Write
R/C	Read/Clear
R/S	Read/Set

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Issue	Description	Date
1.0	Initial Issue	April 2003
1.1	New address TEWS LLC	September 2006
1.0.2	User Manual Notation Changed	November 2008
1.0.3	Corrected figure Pin Assignment for Back - I/O	October 2021

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1 Product Description

The TCP270 is a standard 3U CompactPCI carrier that provides front I/O and rear I/O for a single width PMC module.

32 bit accesses are supported on PCI bus with PCI frequency 33MHz. The TCP270 could be used as a mechanical adaptor to connect a standard PMC module in 3U CompactPCI systems.

The TCP270 supports standard PMC front I/O and optional CompactPCI rear I/O at CompactPCI connector J2/P2. The pin assignment corresponds to the PICMG 2.3 R1.0 PMC on CompactPCI signal mapping.

The use of PMC I/O on the J2/P2 connector precludes the use of 64 bit CompactPCI backplanes.

The TCP270 carrier complies with the PICMG 2.0 Revision 3.0 CompactPCI specification.

The PMC power lines are blocked by a set of capacitors.

The operating temperature range is -40°C to +85°C.

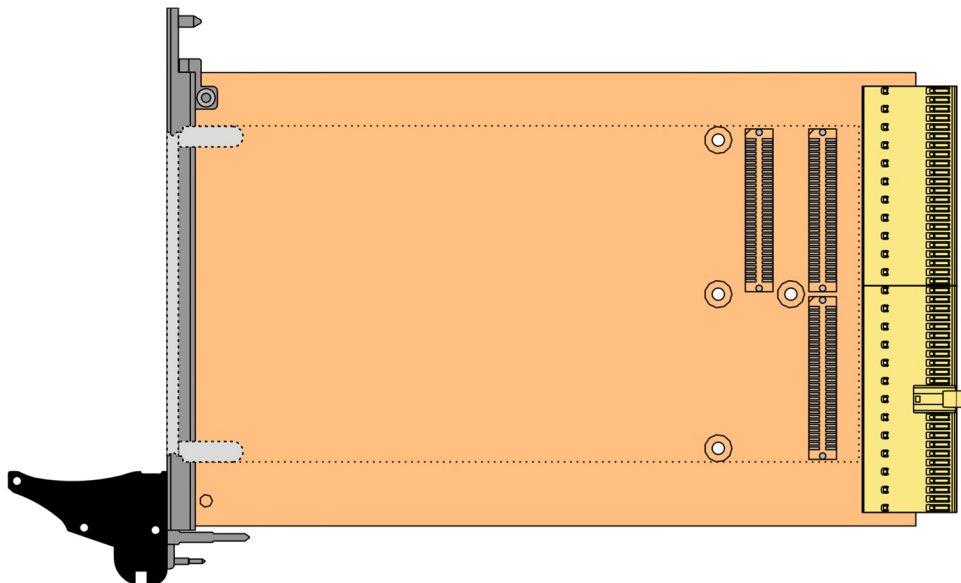


Figure 1-1 : Block Diagram

2 Technical Specification

CompactPCI Interface	CompactPCI 3U, conforming to PICMG 2.0 R3.0	
PCI Interface	PCI 2.2 compliant interface, 33MHz, 32bit	
PCI I/O Signaling Voltage	3.3V or 5.0V	
PMC Slots	1	
I/O Access	Front panel I/O P14 I/O via P2/J2 (TCP270-11 only)	
Power Requirements without PMC Module	10 mA typical @ V/I/O DC Additional power is required by the PMC module	
Temperature Range	Operating	– 40°C to + 85°C
	Storage	– 40°C to + 85°C
MTBF	597657 h	
Weight	115 g	
Size	160 x 100 mm	
Humidity	5 – 95 % non- condensing	

Figure 2-1 : Technical Specification

3 PMC to PCI Interface

The TCP270 is a mechanical adaptor to connect a standard PMC module in 3U CompactPCI systems. As such, it is a passive adapter board and has no PCI-to-PCI bridge. The carrier's PCI bus is connected directly to the PMC card's PCI bus.

3.1 PMC BUSMODE[4:1] Signals

The BUSMODE[4:1]# signals are unique to IEEE1386 (PMC) and are not found in the PCI or CompactPCI specification. They allow a host to identify the CMC card as a PMC card or some other type. The TCP270 only supports PMC cards. This "PMC only" configuration is provided by pulling up BUSMODE2#, and pulling down BUSMODE3# and BUSMODE4#. A PMC card will decode BUSMODE[4:2]# and put a logic "0" onto BUSMODE1#.

3.2 PCI Signaling Levels and Voltage Keying

CompactPCI and PMC boards specify 5V and 3.3V PCI signaling voltage. To prevent a PMC to be put onto a host with a different PCI signaling voltage, the PMC specification defines voltage-keying by pins and holes. PMC cards that support only 5V PCI signaling voltage provide a single keying hole for the 5V keying pin. A 3.3V only PMC provides only the keying hole for the 3.3V keying pin. Universal PMC cards, which can handle 3.3V and 5V PCI signaling voltage, have keying holes for both voltage keying pins.

As factory default, the TCP270 is assembled with the 5V keying pin. Before mounting a PMC onto the TCP270, make sure that your CompactPCI system and the PMC have the same PCI signaling voltage.

If you want to plug a 3.3V only PMC onto the TCP270, first make sure that your PCI bus works with 3.3V signaling voltage, and then remove the keying pin of the TCP270 from the 5V location, and assemble it in the 3.3V location.

WARNING! If PMC modules are plugged into a PCI environment that I/O signaling voltage does not match, damage to the equipment could occur, voiding product warranties.

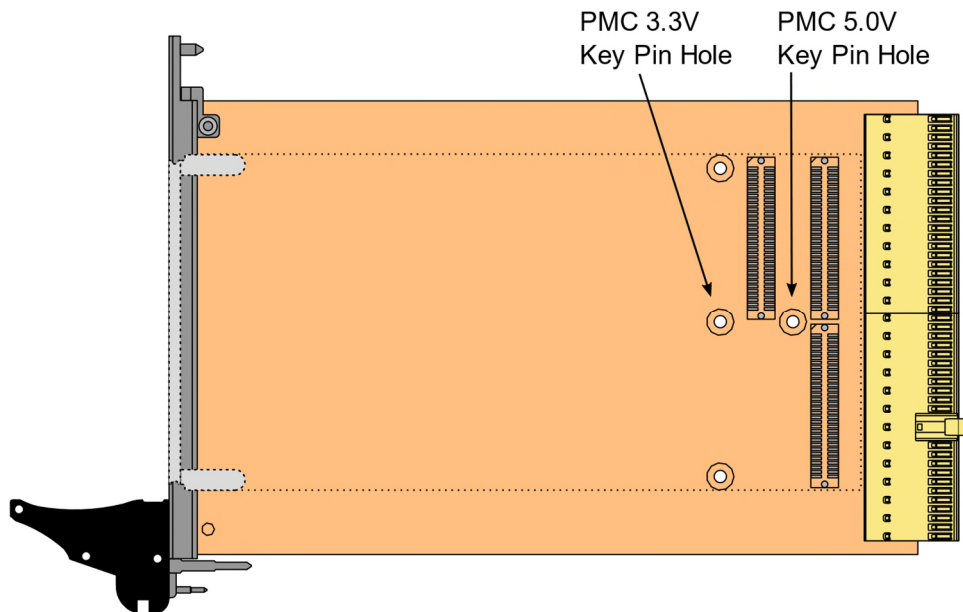


Figure 3-1 : PMC Voltage Keying

4 Installation of a PMC Module

Before installing a PMC, be sure that the power supply for the TCP270 is turned off.

The component is an Electrostatic Sensitive Device (ESD). Use an anti-static mat connected to a wristband when handling or installing the components.

WARNING! Take care that your PMC and the PCI environment have the same PCI signaling voltage. If PMC modules are plugged into a PCI environment, and the I/O signaling voltages do not match, damage to the equipment could occur, voiding product warranties.

WARNING! The use of PMC I/O on the J2/P2 connector (TCP270) precludes the use of 64bit CompactPCI backplanes.

The PMC is mounted to the TCP270 prior to installation within the chassis. If the PMC has a front panel, first remove the cover from the CompactPCI front panel cut-out. Install the PMC at an angle so that the PMC front panel penetrates the CompactPCI front panel cut-out. Then rotate down to mate with the PMC connectors on the TCP270. If the PMC has no front panel, simply plug in the PMC, and leave the cover in the CompactPCI front panel cut-out.

After the PMC has been installed, it can be secured on the TCP270. This is normally necessary only in vibration or shock environments. Use the mounting screws that come with the PMC to secure it on the TCP270. There are four mounting locations. Two into the PMC mounting bezel and two for the standoffs near the PMC bus connectors.

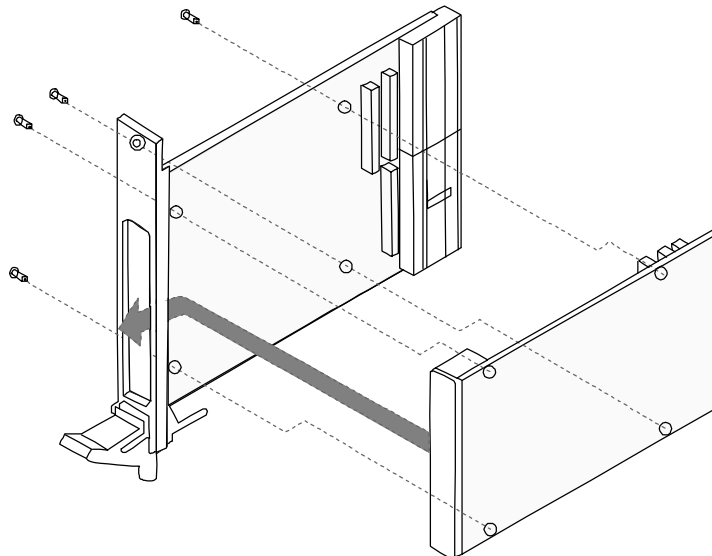


Figure 4-1 : Installation of a PMC Module

5 Pin Assignment

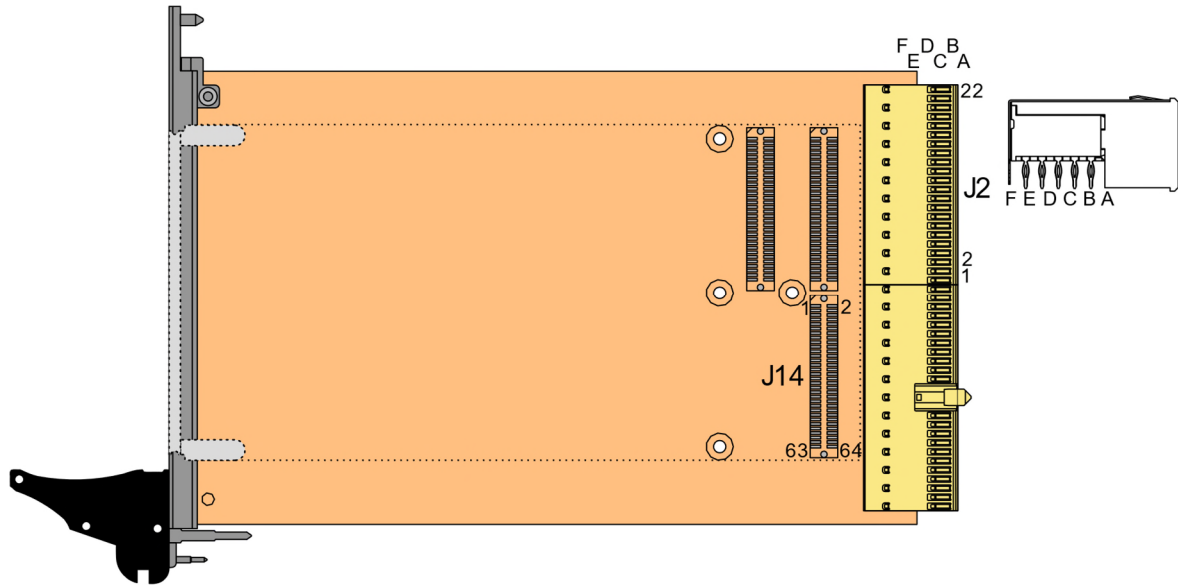


Figure 5-1 : Pin Assignment for Back - I/O

CompactPCI J2 is only assembled on the TCP270-11.

5.1 CompactPCI J1

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

Figure 5-2 : CompactPCI J1 Pin Assignment

Not all signals are used by the TCP270.

5.2 CompactPCI J2

Position	Row					
	F	E	D	C	B	A
22	GND	nc	nc	nc	nc	nc
21	GND	nc	nc	nc	nc	nc
20	GND	nc	nc	nc	nc	nc
19	GND	nc	nc	nc	nc	nc
18	GND	nc	nc	nc	nc	nc
17	GND	nc	nc	nc	nc	nc
16	GND	nc	nc	nc	nc	nc
15	GND	nc	nc	nc	nc	nc
14	GND	5V	5V	3.3V	3.3V	3.3V
13	GND	I/O 1	I/O 2	I/O 3	I/O 4	I/O 5
12	GND	I/O 6	I/O 7	I/O 8	I/O 9	I/O 10
11	GND	I/O 11	I/O 12	I/O 13	I/O 14	I/O 15
10	GND	I/O 16	I/O 17	I/O 18	I/O 19	I/O 20
9	GND	I/O 21	I/O 22	I/O 23	I/O 24	I/O 25
8	GND	I/O 26	I/O 27	I/O 28	I/O 29	I/O 30
7	GND	I/O 31	I/O 32	I/O 33	I/O 34	I/O 35
6	GND	I/O 36	I/O 37	I/O 38	I/O 39	I/O 40
5	GND	I/O 41	I/O 42	I/O 43	I/O 44	I/O 45
4	GND	I/O 46	I/O 47	I/O 48	I/O 49	I/O 50
3	GND	I/O 51	I/O 52	I/O 53	I/O 54	I/O 55
2	GND	I/O 56	I/O 57	I/O 58	I/O 59	I/O 60
1	GND	I/O 61	I/O 62	I/O 63	I/O 64	V I/O

Figure 5-3 : CompactPCI J2 Pin Assignment

5.3 PMC J11 / P11

Pin	Signal	Signal	Pin
1	TCK	-12V	2
3	GND	INTA#	4
5	INTB#	INTC#	6
7	BUSMODE1#	+5V	8
9	INTD#	PCI-RSVD	10
11	GND	3.3Vaux	12
13	CLK	GND	14
15	GND	GNT#	16
17	REG#	+5V	18
19	V (I/O)	AD[31]	20
21	AD[28]	AD[27]	22
23	AD[25]	GND	24
25	GND	C/BE[3]#	26
27	AD[22]	AD[21]	28
29	AD[19]	+5V	30
31	V (I/O)	AD[17]	32
33	FRAME#	GND	34
35	GND	IRDY#	36
37	DEVSEL#	+5V	38
39	GND	LOCK#	40
41	PCI-RSVD	PCI-RSVD	42
43	PAR	GND	44
45	V (I/O)	AD[15]	46
47	AD[12]	AD[11]	48
49	AD[09]	+5V	50
51	GND	C/BE[0]#	52
53	AD[06]	AD[05]	54
55	AD[04]	GND	56
57	V (I/O)	AD[03]	58
59	AD[02]	AD[01]	60
61	AD[00]	+5V	62
63	GND	REQ64#	64

Figure 5-4 : PMC J11/P11 Pin Assignment

5.4 PMC J12 / P12

Pin	Signal	Signal	Pin
1	+12V	TRST#	2
3	TMS	TDO	4
5	TDI	GND	6
7	GND	PCI-RSVD	8
9	PCI-RSVD	PCI-RSVD	10
11	BUSMODE2#	+3.3V	12
13	RST#	BUSMODE3#	14
15	+3.3V	BUSMODE4#	16
17	PME#	GND	18
19	AD[30]	AD[29]	20
21	GND	AD[26]	22
23	AD[24]	+3.3V	24
25	IDSEL	AD[23]	26
27	+3.3V	AD[20]	28
29	AD[18]	GND	30
31	AD[16]	C/BE[2]#	32
33	GND	PMC-RSVD	34
35	TRDY#	+3.3V	36
37	GND	STOP#	38
39	PERR#	GND	40
41	+3.3V	SERR#	42
43	C/BE[1]#	GND	44
45	AD[14]	AD[13]	46
47	M66EN	AD[10]	48
49	AD[08]	+3.3V	50
51	AD[07]	PMC-RSVD	52
53	+3.3V	PMC-RSVD	54
55	PMC-RSVD	GND	56
57	PMC-RSVD	PMC-RSVD	58
59	GND	PMC-RSVD	60
61	ACK64#	+3.3V	62
63	GND	PMC-RSVD	64

Figure 5-5 : PMC J12/P12 Pin Assignment

5.5 PMC J14 / P14

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

Figure 5-6 : PMC J14/P14 Pin Assignment