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TEWS TECHNOLOGIES

TPCI270

PMC Carrier for PCI Card Interface

Version 1.0

User Manual

Issue 1.0.3

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TEWS TECHNOLOGIES GmbH
Am Bahnhof 7 25469 Halstenbek, Germany
Phone: +49 (0) 4101 4058 0 Fax: +49 (0) 4101 4058 19
e-mail: info@tews.com www.tews.com

TPCI270-10

PMC Carrier for PCI Card Interface

TPCI270-20

PMC Carrier for PCI Card Interface with local 3.3 Volt Generation.

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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	May 2003
1.1	Module Version TPCI270-20 added	February 2004
1.2	New address TEWS LLC	September 2006
1.0.3	New notation of User Manual Issue	September 2009

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1 Product Description

The TPCI270 is a standard 33 MHz, 32 bit PCI Carrier for a single PMC Card that provides PMC front I/O and PMC P14 rear I/O. This PCI to PMC adapter allowing to build up modular, flexible and cost effective I/O solutions with PMC devices in standard PCI systems.

The TPCI270 could use as a mechanical adaptor to connect a standard PMC module in standard PCI systems.

The TPCI270 can operate with 3.3V and 5.0V PCI I/O signaling voltage for I/O. This guaranties compatibility with nearly all PC main boards.

The TPCI270-20 provides a local 3.3V Generation with a typical current limit of 2A for PC mainboards that do not support 3.3V as PCI supply voltage.

The TPCI270 supports standard PMC front I/O and PMC P14 rear I/O routed to a VME P2 style connector (603-2-IEC-C064-M). The I/O mapping of P14 complies to the “VITA-35 PMC P4 to VME-P2-Rows-A,C” mapping.

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

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

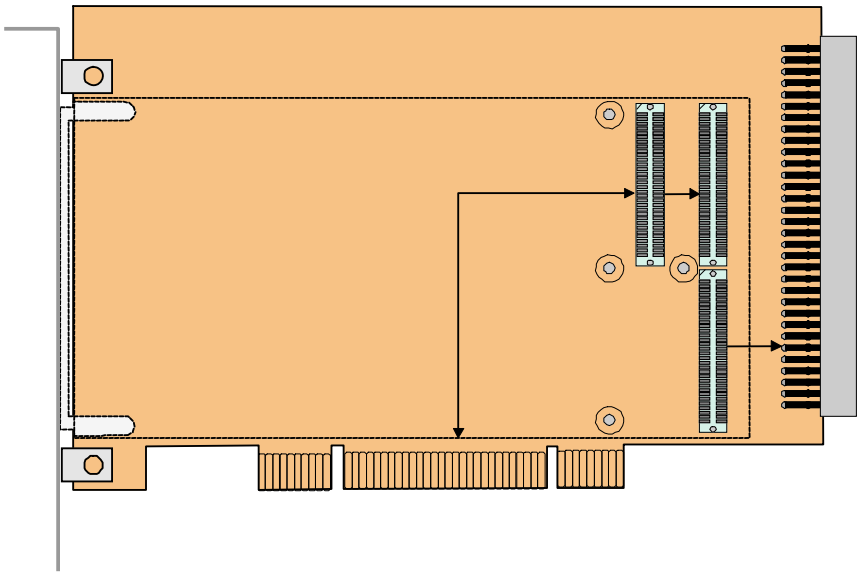


Figure 1-1 : Block Diagram

2 Technical Specification

PCI Interface	PCI 2.2 compliant interface, 33 MHz, 32 bit	
PCI I/O Signaling Voltage	3.3V or 5.0V	
PMC Slots	1	
I/O Access	Front panel I/O P14 I/O connected to VME2 P2 style connector (603-2-IEC-C064-M)	
3.3 Volt Supply for PMC Module	TPCI270-10: depends on host system TPCI270-20: local 3.3V supply, typical current limit 2A	
Power Requirements without PMC Module	10 mA typical @ V I/O DC **Additional power is required by the PMC module**	
Temperature Range	Operating Storage	– 40°C to + 85°C – 40°C to + 85°C
MTBF	592000 h	
Weight	95 g	
Size	170 x 107 mm	
Humidity	5 – 95 % non- condensing	

Tabelle 2-1 : Technical Specification

3 PMC to PCI Interface

The TPCI270 is a mechanical adaptor to connect a standard PMC module in PCI PC systems. As such, it is a passive adapter board and has no PCI-to-PCI bridge. The PCI bus is connected directly to the PMC card.

3.1 PMC BUSMODE[4:1] Signals

The BUSMODE[4:1]# signals are unique to IEEE1386 (PMC) and are not found in the PCI specification. They allow a host to identify the CMC card as a PMC card or some other type. The TPCI270 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#, that is used by the TPCI270 as PESENT[2:1]# signal.

3.2 PCI Signaling Levels and Voltage Keying

PCI and PMC specification both specify 5V and 3.3V signaling voltage. To prevent a PMC to be put onto a mainboard with a different PCI signaling voltage, the PMC 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 just the keying hole for the 3.3V keying pin. Universal PMC cards, which can handle 3.3V and 5VPCI signaling voltage, have keying holes for both voltage keying pins.

As factory default, the TPCI270 is assembled with the 5V keying pin. Before mounting a PMC onto the TPCI270, make sure that your PCI system and the PMC have the same PCI signaling voltage.

If you want to plug a 3.3V only PMC onto the TPCI270, first make sure that your PCI bus works with 3.3V signaling voltage, and then remove the keying pin of the TPCI270 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.

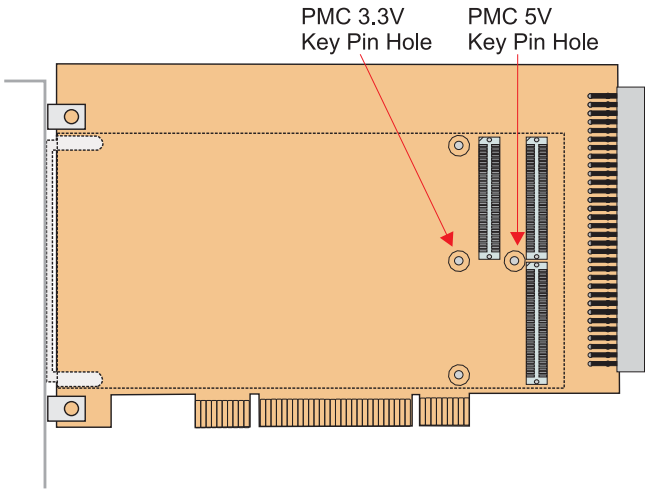


Figure 3-1 : PMC Voltage Keying

4 Installation of a PMC Module

Before installing a PMC, be sure that the power supply for the TPCI270 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.

The PMC is mounted to the TPCI270 prior to installation within the chassis. If the PMC has a front panel, install the PMC at an angle so that the PMC front panel penetrates the PC card front panel cut-out. Then rotate down to mate with the PMC connectors on the TPCI270. If the PMC has no front panel, simply plug in the PMC.

After the PMC has been installed, it can be secured on the TPCI270. This is normally necessary only in vibration or shock environments. Use the mounting screws delivered with the PMC to secure it on the TPCI270. There are four mounting locations, two into the PMC mounting bezel and two for the standoffs near the PMC bus connectors.

WARNING! The TPCI270 is a universal PCI device. It can be plugged into a slot which uses either 5V or 3.3V PCI signaling voltage. 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.

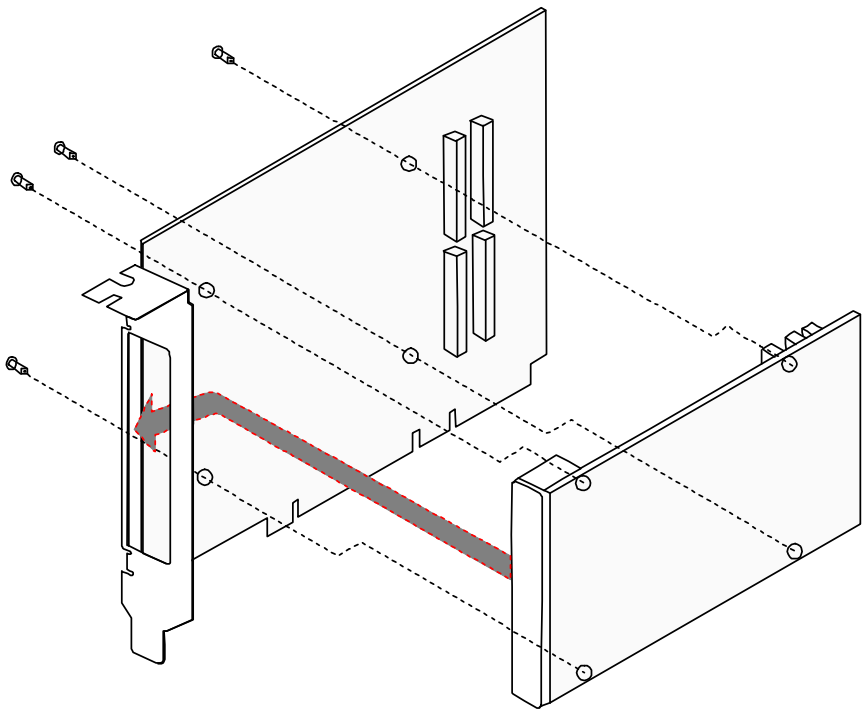


Figure 4-1 : Installation of a PMC Module

5 Pin Assignment

5.1 PCI J1

Pin	Signal	Pin	Signal
1	TRST#	32	AD[16]
2	+12V	33	+3.3V
3	TMS	34	FRAME#
4	TDI	35	GND
5	+5V	36	TRDY#
6	INTA#	37	GND
7	INTC#	38	STOP#
8	+5V	39	+3.3V
9	Reserved	40	Reserved
10	V (I/O)	41	Reserved
11	Reserved	42	GND
12	KEYWAY	43	PAR
13	KEYWAY	44	AD[15]
14	3.3Vaux	45	+3.3V
15	RST#	46	AD[13]
16	V (I/O)	47	AD[11]
17	GNT#	48	GND
18	GND	49	AD[09]
19	PME#	50	KEYWAY
20	AD[30]	51	KEYWAY
21	+3.3V	52	C/BE[0]#
22	AD[28]	53	+3.3V
23	AD[26]	54	AD[06]
24	GND	55	AD[04]
25	AD[24]	56	GND
26	IDSEL	57	AD[02]
27	+3.3V	58	AD[00]
28	AD[22]	59	V (I/O)
29	AD[20]	60	REQ64#
30	GND	61	+5V
31	AD[18]	62	+5V

Table 5-1 : PCI J1 Pin Assignment

Not all signals are used by the TPCI270.

5.2 PCI J2

Pin	Signal	Pin	Signal
1	-12V	32	AD[17]
2	TCK	33	C/BE[2]#
3	GND	34	GND
4	TDO	35	IRDY#
5	+5V	36	+3.3V
6	+5V	37	DEVSEL#
7	INTB#	38	GND
8	INTD#	39	LOCK#
9	PRSNT1#	40	PERR#
10	Reserved	41	+3.3V
11	PRSNT2#	42	SERR#
12	KEYWAY	43	+3.3V
13	KEYWAY	44	C/BE[1]#
14	Reserved	45	AD[14]
15	GND	46	GND
16	CLK	47	AD[12]
17	GND	48	AD[10]
18	REQ#	49	M66EN
19	V (I/O)	50	KEYWAY
20	AD[31]	51	KEYWAY
21	AD[29]	52	AD[08]
22	GND	53	AD[07]
23	AD[27]	54	+3.3V
24	AD[25]	55	AD[05]
25	+3.3V	56	AD[03]
26	C/BE[3]#	57	GND
27	AD[23]	58	AD[01]
28	GND	59	V (I/O)
29	AD[21]	60	ACK64#
30	AD[19]	61	+5V
31	+3.3V	62	+5V

Table 5-2 : PCI 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

Table 5-3 : 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

Table 5-4 : 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

Table 5-5 : PMC J14/P14 Pin Assignment

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