Hardware Installation Guide

RTM-T-DIO32

CPCI Rear Transition Module with Fast Serial Link Transceivers and Digital I/O

1 Installation Notes

The RTM-T-DIO32 Card is a complex electronic sub-assembly. Special care should be taken in handling. The card is susceptible to damage by ESD and improper power connections.

1.1 Ensure ESD precautions [chassis, body grounding] are taken before opening card from packaging.

1.2 This card only fits in 6U CPCI Systems with Rear IO.

1.3 Ensure proper ESD precautions are taken during installation.

1.4 Please be extremely careful to ensure correct card guide alignment when plugging in the cards to avoid back-plane pin damage.

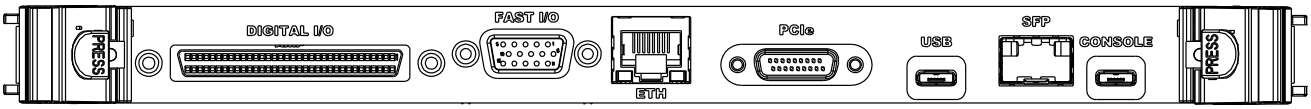
2 Standards Conformance

Product conforms to PICMG2.0 rev 3.0.

Compact PCI Rear Transition Module.

PCI-SIG PCI Express on Cable 1.0 Specification.

3 Physical Appearance



4 System Compatibility.

4.1 ACQ196CPCI Accessory

RTM-T-DIO32 is compatible with ACQ196CPCI-96-25 (66MHz local bus).

It is also compatible with ACQ196CPCI-96-500, provided this is modified to use a 66MHz local bus (return to D-TACQ, or on site solder jumper change).

During streaming data transfer, RTM-T-DIO32 takes over the local bus; new firmware in the RTM-T FPGA uses this bus much more efficiently, so that data rates on the 66MHz bus are higher than was previously achieved on the 100MHz bus.

4.2 ACQ132CPCI Accessory

RTM-T-DIO32 is compatible with ACQ132CPCI, provided this is modified to use a 66MHz local bus (return to D-TACQ, or on site solder jumper change).

During streaming data transfer, RTM-T-DIO32 takes over the local bus; new firmware in the RTM-T FPGA uses this bus much more efficiently, so that data rates on the 66MHz bus are higher than was previously achieved on the 100MHz bus.

4.3 ACQ164CPCI Accessory

RTM-T-DIO32 is compatible with ACQ164CPCI.

4.4 AO32CPCI Accessory.

RTM-T-DIO32 is compatible with AO32CPCI from rev 2 on (fitted with J3, J5 connectors).

Together, AO32CPCI and RTM-T-DIO32 can perform either of two functions:

- Continuous streaming AO device, with PCIe or Fiber Optic data source.
- Networked AWG using Ethernet.

NB: RTM-T-DIO32 is NOT compatible with ACQ216CPCI.

5 Connectors

5.1 SFP Connector

Socket for standard Small Formfactor Pluggable transceiver module.

D-TACQ has developed a compatible FIBER-HBA host bus adapter, available February 2010.

5.2 PCI Express on Cable Connector.

Please contact D-TACQ for a list of compatible third party Host Bus Adapters (HBA).

Compatible with cable: Molex 74576-0003

Signals are as defined in the PCI-SIG standard:

Pin	Description	Normal Usage
A1/A2	PCIe RX n/p	PCIe Receive Data Differential Pair
B8/B9	PCIe TX n/p	PCIe Transmit Data Differential Pair
A5/A6	REFCLCK n/p	PCIe Reference Clock Differential Pair
A8	CABLE RSTn	PCIe Reset Input
B3	CABLE_WAKEn	SideBand Wake-up Output
B4	CABLE_PRESENTn	SideBand Cable Present
A4	SB_RTN	SideBand Return
A9,B1,B5	GND	Signal Ground

RTM-T-DIO32 does not support the Power On SideBand signal.

5.3 Gigabit Ethernet RJ45 Connector.

Standard RJ45 connector for 1000 Base-T Ethernet

5.4 DIO6 Connector.

This is a micro D 15 way connector (standard VGA) for clock and triggers.

Pin	Description	Normal Usage
1	DIO0	CLK
2	0V	
3	DIO1	CLK
4	0V	
5	DIO2	CLK
6	0V	
7	DIO3	TRG
8	0V	
9	DIO4	TRG
10	0V	
11	DIO5	TRG
12	0V	
13	DIO6	ACQ132CPCI GPG OUTPUT
14	0V	
15	DIO7	ACQ132CPCI GPG OUTPUT

5.5 USB

Accepts a standard Micro USB cable for USB connectivity.

5.6 Console

Accepts a standard Micro USB cable for use with an FTDI FT232R UART to USB converter. See the FTDI website[1] if drivers are required.

1 http://www.ftdichip.com/

5.7 Digital I/O

RTM-T-DIO32 uses a 68-way SCSI-II connector for digital I/O with byte-wide direction configuration. Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or, preferably, 34 sheathed wire pairs.

Pin No.	***Signal***	***Pin No.***	***Signal***
1	NC	35	0V
2	NC	36	0V
3	Digital I/O 1	37	0V
4	Digital I/O 2	38	0V
5	Digital I/O 3	39	0V
6	Digital I/O 4	40	0V
7	Digital I/O 5	41	0V
8	Digital I/O 6	42	0V
9	Digital I/O 7	43	0V
10	Digital I/O 8	44	0V
11	Digital I/O 9	45	0V
12	Digital I/O 10	46	0V
13	Digital I/O 11	47	0V
14	Digital I/O 12	48	0V
15	Digital I/O 13	49	0V
16	Digital I/O 14	50	0V
17	Digital I/O 15	51	0V
18	Digital I/O 16	52	0V
19	Digital I/O 17	53	0V
20	Digital I/O 18	54	0V
21	Digital I/O 19	55	0V
22	Digital I/O 20	56	0V
23	Digital I/O 21	57	0V
24	Digital I/O 22	58	0V
25	Digital I/O 23	59	0V
26	Digital I/O 24	60	0V
27	Digital I/O 25	61	0V
28	Digital I/O 26	62	0V
29	Digital I/O 27	63	0V
30	Digital I/O 28	64	0V
31	Digital I/O 29	65	0V
32	Digital I/O 30	66	0V
33	Digital I/O 31	67	0V
34	Digital I/O 32	68	0V

It is common practice for customers to manufacture their own cables to fit in with their own sensor requirements, but D-TACQ Solutions supply a standard range of cables and can also produce custom solutions. RTM-T-DIO32 may be used with standard compatible cables such as L-COM CA900MM-2M.