cPCI-3E10 Series

User's Manual

3U CompactPCI® 4/2 Port
Gigabit Ethernet Card



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Revision History

Revision	Description	Date	By
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2.1	Introduction, specification, board and mechanical layout, driver installation updated	2026-01-06	AL

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Preface

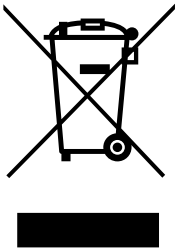
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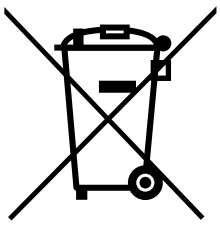
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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



NOTE: Additional information, aids, and tips that help users perform tasks.



CAUTION: Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.



WARNING: Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Introduction

1.1 Overview

The cPCI-3E10 Series is 3U CompactPCI Gigabit Ethernet peripheral card equipped with Intel® i210IT PCIe Gigabit Ethernet con-trollers. The cPCI-3E10 provides four GbE ports on the front panel (RJ-45) with two switchable to the rear transition module, the cPCI-3E12 provides two GbE ports on the front panel (RJ-45), and the cPCI-3E10-SUB provides two Fast Ethernet ports on the front panel (DB-9).

An optional Rear Transition Module (cPCI-R3E10) is available to provide rear access to the GbE ports switched from the cPCI-3E10 front panel.

1.2 Features

- Standard 3U 4HP CompactPCI form factor
- Up to 64-bit/66MHz CompactPCI Interface
- Up to four Intel® i210IT Ethernet controllers with fully-integrated GbE MAC & PHY
- Four or two 10/100/1000BASE-T Gigabit Ethernet ports via RJ-45 connectors
- Two LAN ports switchable to rear (cPCI-3E10 only)
- Two Fast Ethernet ports via D-sub 9-pin connectors (cPCI-3E10-SUB only) for harsh environment applications
- PICMG® 2.0 R3.0 compliant



This product must be protected from static discharge and physical shock. Never remove any of the components except at a static-free workstation. Use the anti-static bag shipped with the product when putting the board on a surface. Wear an anti-static wrist strap properly grounded on one of the system's ESD ground jacks when installing or servicing system components.

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2 Specifications

2.1 Product Specifications

2.1.1 cPCI-3E10 Specifications

PCI Bus Architecture	• Bus Type: PCI • Bus Width: 32- or 64-bit • Bus Speed: 33/66 MHz • PCI Voltage: 3.3V or 5V universal
Ethernet Controller	• Intel i210IT Gigabit Ethernet Controller running at PCIe 1.1 (2.5 GHz) x1 • 4x GbE ports on cPCI-3E10, 2x GbE ports on cPCI-3E12 • Data rates supported (per port): 10/100/1000 Mbps • IEEE Standard/Network Topology: 10BASE-T, 100BASE-TX, 1000BASE-T • IEEE 802.3ab compliant
Ethernet Ports	• cPCI-3E10/3E12: Four or two RJ-45 connectors • cPCI-3E10-SUB: Two DB-9 10/100 Mbps Fast LAN connectors • cPCI-R3E10: Two RJ-45 connectors • Wiring: Cat-5, 4-pair, Maximum 100 meters cable distance
Ethernet LEDs	• Each RJ-45 port and DB-9 port has two "Link/Active" LEDs
Boot ROM	• LAN Boot ROM: 128KB onboard
OS Support	• Windows 10 • Red Hat Enterprise Linux 5.0 and above (Contact ADLINK for other OS availability)
Network Management	• ACPI Power Management • Supports Intel Preboot Execution Environment (PXE 2.0) for remote boot
Environment	• Operating Temperature: 0°C to 60°C • Storage Temperature: -40°C to 70°C • Humidity: 95% @70°C, non-condensing
Dimensions	• 149 mm x 74 mm x 10 mm (L x W x H)



NOTE:

Specifications are subject to change without prior notice.

2.2 I/O Connectivity Table

Function	Model	Faceplate
GbE (RJ-45)	cPCI-3E10	Y x4
	cPCI-3E12	Y x2
	cPCI-R3E10	Y x2
Fast Ethernet (DB-9)	cPCI-3E10-SUB	Y x2

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3 Block Diagram

3.1.1 cPCI-3E10 Block Diagram

The cPCI-3E10 is based on four Intel® i210IT PCI express Giga-bit Ethernet controllers. The Intel® i210IT is a highly integrated chip including Ethernet MAC and PHY. Please refer to the Intel® i210IT datasheet for more information.

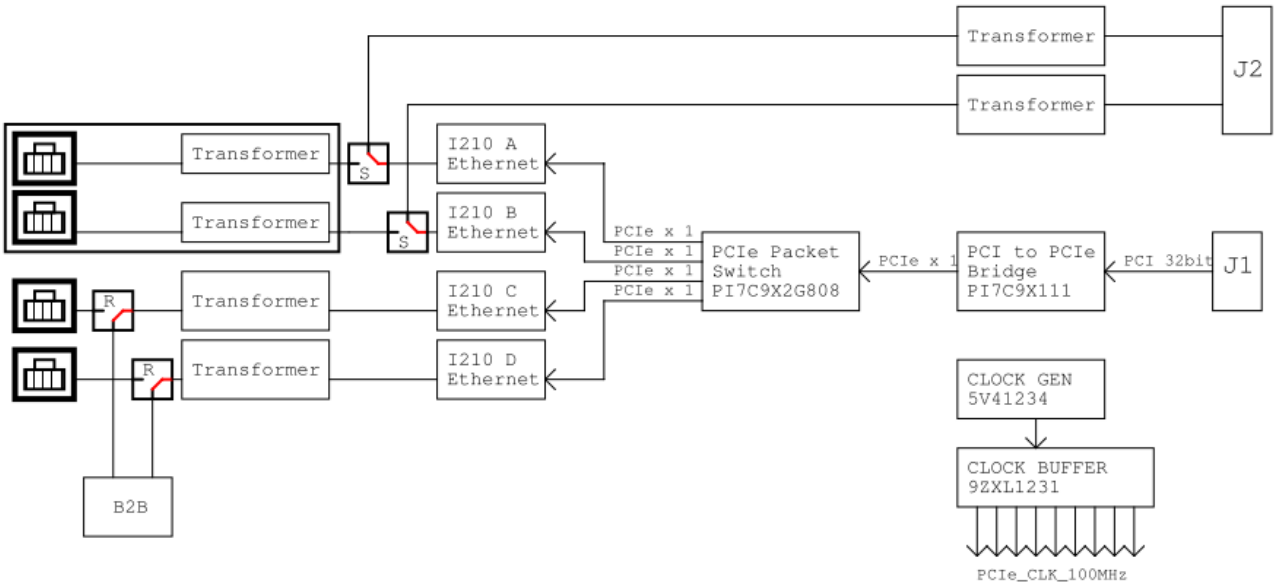


Figure 1: cPCI-3E10 functional block diagram

3.1.2 cPCI-3E12 Block Diagram

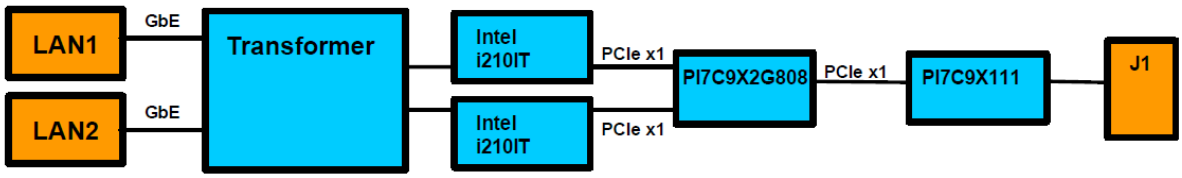


Figure 2: cPCI-3E12 functional block diagram

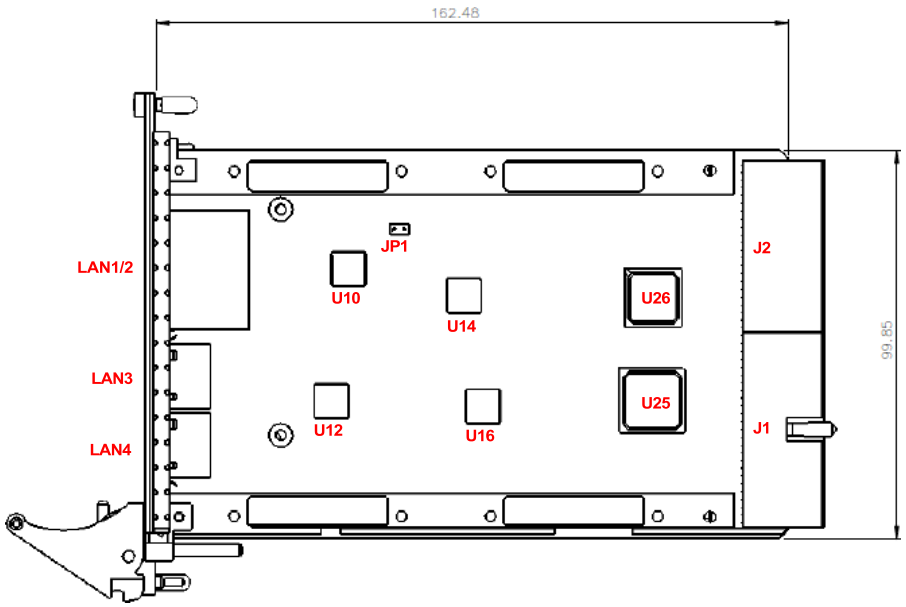
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4 Board Layout

4.1 cPCI-3E10 Series Board Layout



JP1	LAN routing jumper	**U26**	PCIe-to-PCI Bridge PI7C9X111
J1/2	CompactPCI connectors	**U25**	PCIe Switch PI7C9X2G808
LAN1/2	GbE ports (RJ-45 w/ transformer)	**U10/12/ 14/16**	Intel i210IT GbE controllers
LAN3/4	GbE ports (RJ-45)		

Figure 3: cPCI-3E10 board layout

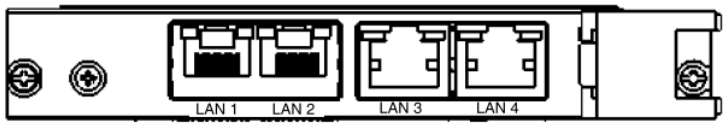
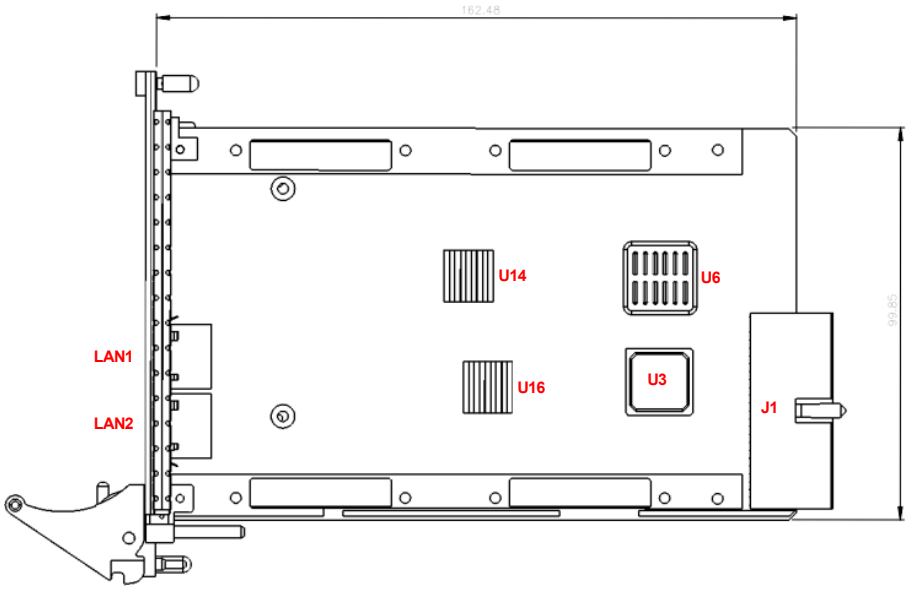


Figure 4: cPCI-3E10 front panel

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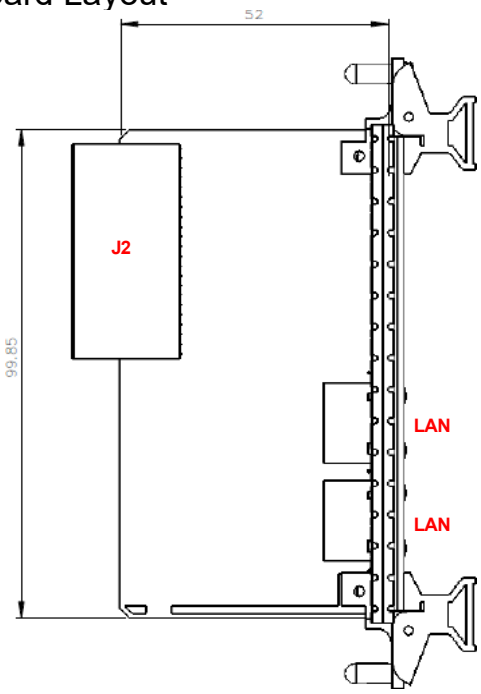
4.2 cPCI-3E12 Board Layout



U3	PCIe-to-PCI Bridge PI7C9X111	**U6**	PCIe Switch PI7C9X2G808
U14/16	Intel i210IT GbE controllers	**LAN1/2**	GbE ports (RJ-45)
J1	CompactPCI connector		

Figure 5: cPCI-3E12 board layout

4.3 cPCI-R3E10 RTM Board Layout



J2	CompactPCI connector	**LAN1/2**	GbE ports (RJ-45)

Figure 6: cPCI-3E10 RTM board layout

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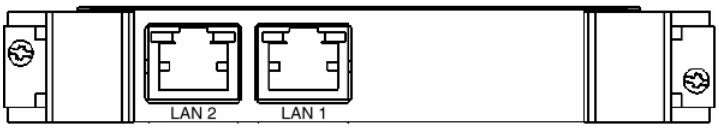


Figure 7: cPCI-3E10 RTM front panel

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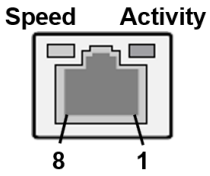
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5 Connector Pinouts and Jumper Settings

5.1 RJ-45 Ethernet Connectors

On the cPCI-3E10, LAN1/2 correspond to "A/B", and LAN3/4 correspond to "C/D". On the cPCI-3E12, LAN1/2 correspond to "C/D". On the cPCI-R3E10 RTM, LAN1/2 correspond to "A/B".

Pin #	10BASE-T/ 100BASE-TX	1000BASE-T
1	TX+	TRANS_ A/B/C/D_MDIP0
2	TX-	TRANS_ A/B/C/D_MDIN0
3	RX+	TRANS_ A/B/C/D_MDIP1
4	—	TRANS_ A/B/C/D_MDIP2
5	—	TRANS_ A/B/C/D_MDIN2
6	RX-	TRANS_ A/B/C/D_MDIN1
7	—	TRANS_ A/B/C/D_MDIP3
8	—	TRANS_ A/B/C/D_MDIN3



LAN LED definitions

Status		Speed LED (Green/Orange)	Activity LED (Yellow)
Network link is not established or system powered off		OFF	OFF
10 Mbps	Link	OFF	ON
	Active	OFF	Blinking
100 Mbps	Link	Green	ON
	Active	Green	Blinking
1000 Mbps	Link	Orange	ON
	Active	Orange	Blinking

5.2 LAN Routing Jumper (JP1)

The cPCI-3E10 is equipped with a jumper JP1 to transfer LAN1/2 (i210IT-A and i210IT-A) to J2 (RTM). See “cPCI-3E10 Board Layout” on page 11 for the location of JP1.

Short pins 1 and 2 on JP1 to route LAN1/2 to the front RJ-45 connectors (default). To route LAN1/2 to J2, remove the shunt shorting pins 1 and 2 (it can be placed on either pin for storage).

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5.3 CompactPCI J1 Connector

Pin	Z	A	B	C	D	E	F
25	GND	P5V	CPCI_REQ64-L	CPCI_ENUM-L	P3V3	P5V	GND
24	GND	CPCI_AD1	P5V	NC	CPCI_AD0	CPCI_ACK64-L	GND
23	GND	P3V3	CPCI_AD4	CPCI_AD3	P5V	CPCI_AD2	GND
22	GND	CPCI_AD7	GND	P3V3	CPCI_AD6	CPCI_AD5	GND
21	GND	P3V3	CPCI_AD9	CPCI_AD8	PCI_M66EN	CPCI_CBE-L0	GND
20	GND	CPCI_AD12	GND	NC	CPCI_AD11	CPCI_AD10	GND
19	GND	P3V3	CPCI_AD15	CPCI_AD14	GND	CPCI_AD13	GND
18	GND	CPCI_SERR-L	GND	P3V3	CPCI_PAR	CPCI_CBE-L1	GND
17	GND	P3V3	IPMB_CLK	IPMB_DAT	GND	CPCI_PERR-L	GND
16	GND	CPCI_DEVSEL-L	GND	NC	CPCI_STOP-L	CPCI_LOCK-L	GND
15	GND	P3V3	CPCI_FRAME-L	CPCI_IRDY-L	GND	CPCI_TRDY-L	GND
12-14	Key						
11	GND	CPCI_AD18	CPCI_AD17	CPCI_AD16	GND	CPCI_CBE-L2	GND
10	GND	CPCI_AD21	GND	P3V3	CPCI_AD20	CPCI_AD19	GND
9	GND	CPCI_CBE-L3	CPCI_IDSEL	CPCI_AD23	GND	CPCI_AD22	GND
8	GND	CPCI_AD26	GND	NC	CPCI_AD25	CPCI_AD24	GND
7	GND	CPCI_AD30	CPCI_AD29	CPCI_AD28	GND	CPCI_AD27	GND
6	GND	CPCI_REQ-L0	GND	P3V3	CPCI_CLK	CPCI_AD31	GND
5	GND	NC	NC	CPCI_RST-L	GND	CPCI_GNT-L0	GND
4	GND	NC	NC	NC	NC	NC	GND
3	GND	CPCI_INTA-L	CPCI_INTB-L	CPCI_INTC-L	P5V	CPCI_INTD-L	GND
2	GND	CPCI_TCK	P5V	CPCI_TMS	NC	CPCI_TDI	GND
1	GND	P5V	NC	CPCI_TRST-L	NC	P5V	GND

5.4 CompactPCI J2 Connector

Pin	Z	A	B	C	D	E	F
22	GND	N28342162	N28355309	N28355465	N28355622	N28346930	GND
21	GND	NC	GND	NC	NC	NC	GND
20	GND	NC	GND	NC	GND	NC	GND
19	GND	GND	GND	NC	NC	NC	GND
18	GND	NC	NC	NC	GND	NC	GND
17	GND	NC	GND	NC	NC	NC	GND
16	GND	NC	NC	NC	GND	NC	GND
15	GND	NC	GND	NC	NC	NC	GND
14	GND	NC	NC	NC	GND	NC	GND
13	GND	P1V8_LANB	GND	NC	NC	P1V8_LANA	GND
12	GND	LANB_LED _100-L	LANB_LED _1000-L	LANB_LED _ACT-L	GND	LANA_LED _ACT-L	GND
11	GND	NC	N28043456	NC	P3V3	P5V	GND
10	GND	NC	NC	NC	N28028706	NC	GND
9	GND	GND	GND	LANA_LED _100-L	LANA_LED _1000-L	NC	GND
8	GND	TRANS_J2_B _MDIP2	TRANS_J2_B _MDIN2	GND	GND	GND	GND
7	GND	GND	GND	GND	TRANS_J2_A _MDIP2	TRANS_J2_A _MDIN2	GND
6	GND	TRANS_J2_B _MDIP3	TRANS_J2_B _MDIN3	GND	GND	GND	GND
5	GND	GND	GND	GND	TRANS_J2_A	TRANS_J2_A	GND

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					_MDIP3	_MDIN3	
4	GND	TRANS_J2_B _MDIP0	TRANS_J2_B _MDIN0	GND	GND	GND	GND
3	GND	GND	GND	GND	TRANS_J2_A _MDIP0	TRANS_J2_A _MDIN0	GND
2	GND	TRANS_J2_B _MDIP1	TRANS_J2_B _MDIN1	GND	GND	GND	GND
1	GND	GND	GND	GND	TRANS_J2_A _MDIP1	TRANS_J2_A _MDIN1	GND

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6 Driver Installation

Drivers can be downloaded through the following link.

https://www.adlinktech.com/products/CompactPCI/Peripherals_Accessories/cPCI-3E10_3E12

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Safety Instructions

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- Please read these safety instructions carefully.
- Please keep this User‘s Manual for later reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment, turn off the power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
  - Keep equipment away from water or liquid sources.
  - Keep equipment away from high heat or high humidity.
  - Keep equipment properly ventilated (do not block or cover ventilation openings).
  - Make sure to use recommended voltage and power source settings.
  - Always install and operate equipment near an easily accessible electrical socket-outlet.
  - Secure the power cord (do not place any object on/over the power cord).
  - Only install/attach and operate equipment on stable surfaces and/or recommended mountings.
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

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