cPCI-R6700

6U CompactPCI® Rear Transition Module
with ATI Radeon™ E4690 GPU

User's Manual



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Revision History

Revision	Release Date	Description of Change(s)
2.00	2012/11/02	Initial release

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Preface

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Using this Manual

Audience and Scope

The cPCI-R6700 User's Manual is intended for hardware technicians and systems operators with knowledge of installing, configuring and operating industrial grade computer systems.

Manual Organization

This manual is organized as follows:

Chapter 1, Introduction: Introduces the cPCI-R6700, its features, block diagrams, and package contents.

Chapter 2, Specifications: Presents detailed specification information.

Chapter 3, Board Interfaces: Describes the cPCI-R6700 connectors and switches.

Chapter 4, Getting Started: Describes the installation of the cPCI-R6700 to the system and driver installation.

Chapter 5, VBIOS Update: Provides information on how to update the cPCI-R6700 VBIOS.

Important Safety Instructions: Presents safety instructions all users must follow for the proper setup, installation and usage of equipment and/or software.

Getting Service: Contact information for ADLINK's worldwide offices.

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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-R6700 Series is 6U CompactPCI rear transition module (RTM) designed for use with ADLINK 6U CompactPCI CPU blades. The cPCI-R6700 is an RTM equipped with the ATI Radeon™ E4690 graphics processor unit (GPU) to provide additional graphics performance for embedded applications and supports comprehensive rear I/O functionality. The Radeon™ E4690 GPU features an integrated 600 MHz engine clock, 700 MHz memory clock, 128-bit memory interface and 512MB GDDR3 VRAM. Dual independent display output is via two DVI-I ports and an onboard Realtek ALC262 High Definition Audio Codec provides analog audio output from the audio controller on the CPU blade. The cPCI-R6700 requires a compatible 6U CompactPCI backplane with rear I/O support and correctly configured CPU blade.

Two models are available: the cPCI-R6700 (4HP) and cPCI-R6700D (8HP). The cPCI-R6700 is a 4HP RTM equipped with two DVI-I ports, two GbE ports, three USB Type A ports, and one COM port (RS-232/422/485 selectable) on the faceplate. Onboard I/O includes one 5-pin USB pin header, one 10-pin USB box header, one 10-pin Mic-in/Line-in/Line-out box header, one 10-pin COM box header (TX/RX only), one 10-pin PS/2 box header and three SATA 7-pin connectors for external storage device. The cPCI-R6700D is an 8HP RTM that provides a PS/2 keyboard/mouse Mini-DIN port on the faceplate and space to mount a 2.5" SATA drive for onboard storage requirements.

For applications requiring reduced power consumption, the graphics engine clock can be changed by VBIOS update. When the cPCI-R6700 is used with a CPU blade that consumes over 50W of power or under extended temperature conditions (>60°C), additional power supply must be supplied to the RTM using an auxiliary power cord provided in the package.

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1.2 Features

- 6U CompactPCI RTM in 4HP or 8HP width form factor
- Compliant with CompactPCI Specification 2.0, Rev. 3.0
- Compliant with CompactPCI Packet Switching Backplane Specification PICMG 2.16 Rev. 1.0
- 64-bit/66 MHz CompactPCI interface based on PCI specifications
- ATI Radeon™ E4690 embedded GPU
- Integrated 128-bit memory interface and 512MB GDDR3 VRAM
- Up to 600MHz engine clock and 700MHz memory clock
- Supports DirectX 10.1 and OpenGL 3.x
- Supports display resolutions up to 3840x2400 per display output
- Engine clock can be changed by VBIOS update
- Realtek ALC262 HD Audio codec
- Two DVI-I ports for dual independent displays
- One DB-9 serial port support RS-232/422/485
- Three USB Type A ports
- Two Gigabit Ethernet ports from CPU board
- One PS/2 keyboard mouse on faceplate (cPCI-R6700D only)
- One 5-pin USB 2.0 pin header and one 10-pin USB 2.0 box header onboard
- One onboard 10-pin COM box header support RS-232, TX/RX only
- One onboard 10-pin PS/2 keyboard mouse box header on cPCI-R6700
- One onboard 10-pin audio box header (Mic-in, Line-in, Line-out)
- Three SATA 7-pin connectors
- 2.5" drive space on 8HP version (cPCI-R6700D only)

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1.3 Block Diagram

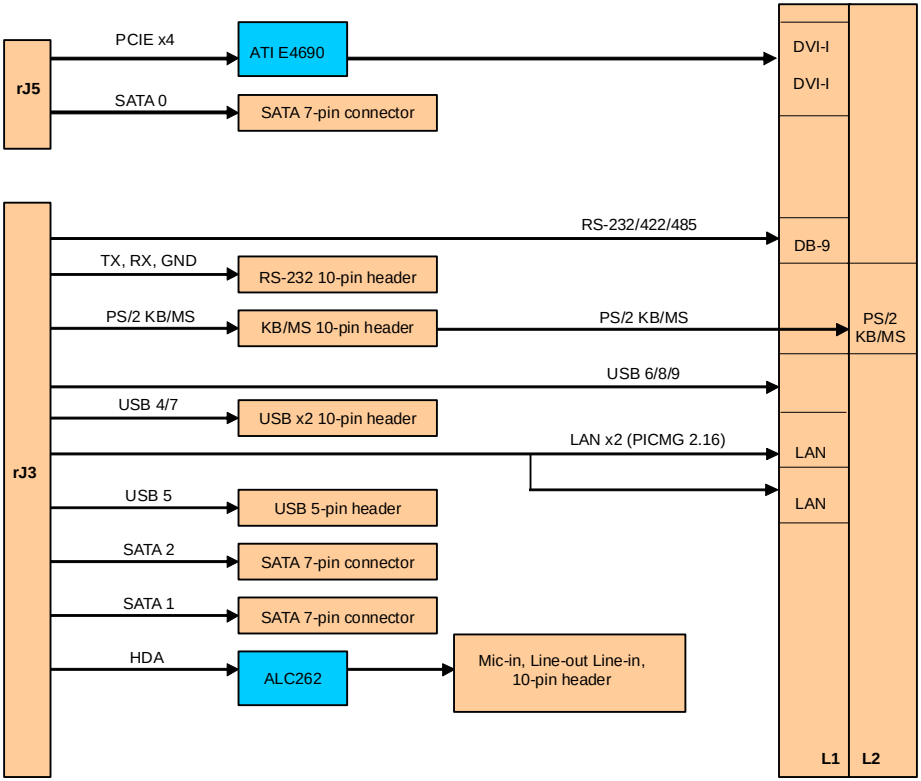


Figure 1-1: cPCI-R6700 Functional Block Diagram

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1.4 Package Contents

The cPCI-R6700 is packaged with the following components. If any of the items on the contents list are missing or damaged, retain the shipping carton and packing material and contact the dealer for inspection. Please obtain authorization before returning any product to ADLINK.

- cPCI-R6700 module
- 2.5" drive bracket kit (cPCI-R6700D only)
- Auxiliary power cord (4-pin Molex to 6-pin RTM onboard connector, 20cm)
- ADLINK All-in-One DVD
- User's manual



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 cPCI-R6700 General Specifications

Standards	• CompactPCI® Specification 2.0, Rev. 3.0 • CompactPCI® Packet Switching Backplane Specification PICMG 2.16 Rev. 1.0
Form Factor	• Standard 6U CompactPCI® Rear Transition Module • Board size: 233.35mm x 80mm • Single-slot (4HP, 20.32mm) or dual-slot (8HP, 40.64mm) • CompactPCI® connectors rJ3 and rJ5
GPU	• ATI Radeon™ E4690 embedded GPU • Integrated 128-bit memory interface and 512MB GDDR3 • 600 MHz engine clock and 700 MHz memory clock • Supports DirectX 10.1 and OpenGL 3.x • Supports resolutions up to 3840x2400 per display output • Engine clock changeable by VBIOS update • PCI Express x4 lane interface
Audio	• Realtek ALC262 HD Audio codec
Faceplate I/O	• 2x 10/100/1000BASE-T Ethernet ports • 3x USB 2.0 Type A ports • 1x DB-9 COM port (RS-232/422/485) • 2x DVI-I ports from onboard ATI E4690 GPU • 1x PS/2 Mini-DIN keyboard/mouse (cPCI-R6700D only)
Onboard Peripherals	• 3x 7-pin SATA connectors • 1x RS-232 10-pin box header (Tx, Rx signals only) • 1x KB/MS 10-pin box header (cPCI-R6700 only) • 1x USB 10-pin box header (2 ports) • 1x Mic-in/Line-out 10-pin box header • 1x USB 5-pin header
OS Compatibility	• Microsoft Windows XP Professional 32-bit • Microsoft Windows 7 64-bit • Microsoft Windows Server 2003 32-bit • Microsoft Windows Server 2008 64-bit • Red Hat Enterprise Linux 6.0 64-bit
Environmental	• Operating Temperature: 0 °C to +60 °C • Extended Temperature: -20 °C to +70 °C

Figure 2-1: cPCI-R6700 General Specifications

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2.2 I/O Connectivity

Function	cPCI-R6700		cPCI-R6700D	
	Faceplate	Board	Faceplate	Board
LAN	Y x2	-	Y x2	-
USB	Y x3	Y x2	Y x3	Y x2
COM	Y x1	Y x1 (RS-232 TX/RX)	Y x1	Y x1 (RS-232 TX/RX)
DVI-I	Y x2	-	Y x2	-
Serial ATA	-	Y x3	-	Y x3
Audio	-	Y x1	-	Y x1
KB/MS	-	Y x1	Y x1 (PS/2)	-
2.5” drive space	-	-	-	Y x1

Table 2-1: cPCI-R6700(D) I/O Connectivity

2.3 GPU

The following sections describe the ATI Radeon E4690 embedded GPU features and functions.

- Integrated 512MB GDDR3 and 128-bit memory interface
- Fully DirectX 10.1 compliant
- Support for OpenGL® 3.0
- Dual independent display controllers support true 30-bpp throughout the display pipe
- Support for display resolutions up to 3840x2400 per display output
- Dual RGB output
- Maximum pixel frequency of 400 MHz for RGB
- Fully compliant with PCI Express Base Specification Rev. 2.0.
- Supports PCI-Express x1, x2, x4, x8, and x16 lane widths.
- Full ACPI 1.0b, OnNow, and IAPC (Instantly Available PC) power management.

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2.4 Power Consumption

The power consumption data of the cPCI-R6700 was measured using 3D Mark06 at different engine clock frequencies (memory clock fixed at 700MHz).

Configuration				
Test Tool	Futuremark® 3DMark06 Professional Edition 1.1.0			
CPU Blade	ADLINK cPCI-6210 w/ Core™ i7-2710QE			
Backplane	ADLINK cBP-6402R			
Power Supply	Sunpower SPX-6500P1			
Power Consumption				
Clock Engine	Voltage (V)	Current (A)	Power (W)	Total Power (W)
600 MHz	+5 V	4.24 A	21.2 W	38.24
	+12 V	1.42 A	17.04W	
400 MHz	+5 V	3.83 A	19.15 W	32.35
	+12 V	1.1 A	13.2 W	
300 MHz	+5 V	3.3 A	16.5 W	28.62
	+12 V	1.01 A	12.12 W	
100 MHz	+5 V	2.8 A	14 W	24.2
	+12 V	0.85 A	10.2 W	

Table 2-2: cPCI-R6700 Power Consumption



Due to limited available power from the CompactPCI back-plane, it is advised to use the auxiliary power cord provided in the package to supply additional power when the CPU blade power consumption exceeds 50W or if used under extended temperature conditions (>60°C). Please refer to 4.2 Auxiliary Power Cord on page 28.

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3 Board Interfaces

This chapter illustrates the board layout, connector pin assignments, and switch settings to familiarize users with the cPCI-R6700.

3.1 cPCI-R6700(D) Assembly Layout

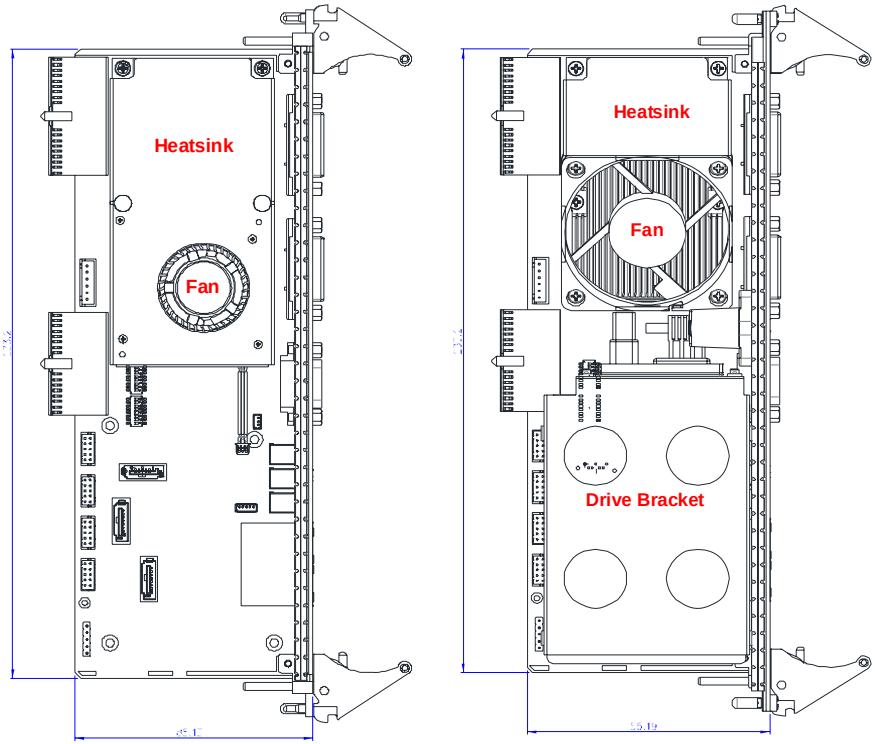
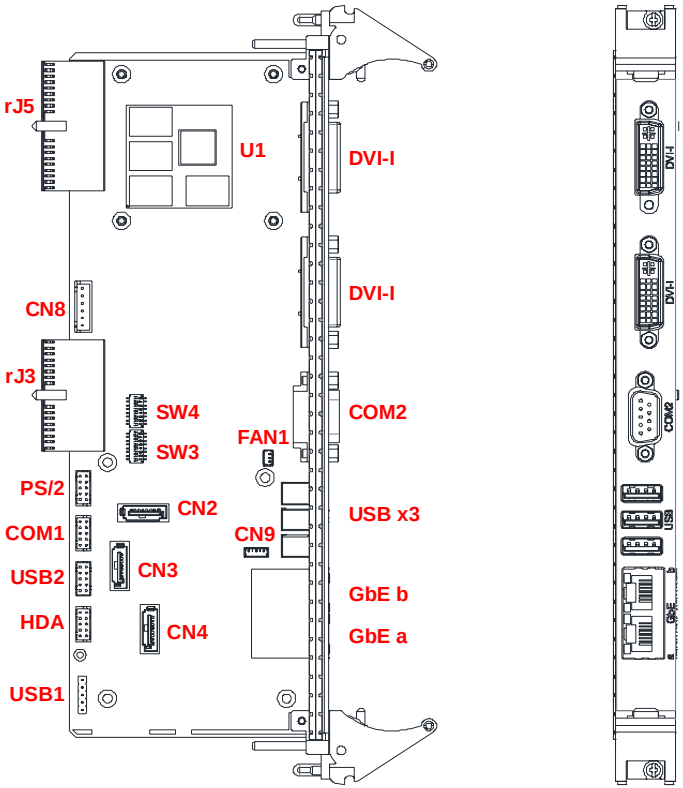


Figure 3-1: cPCI-R6700(D) Assembly Layout

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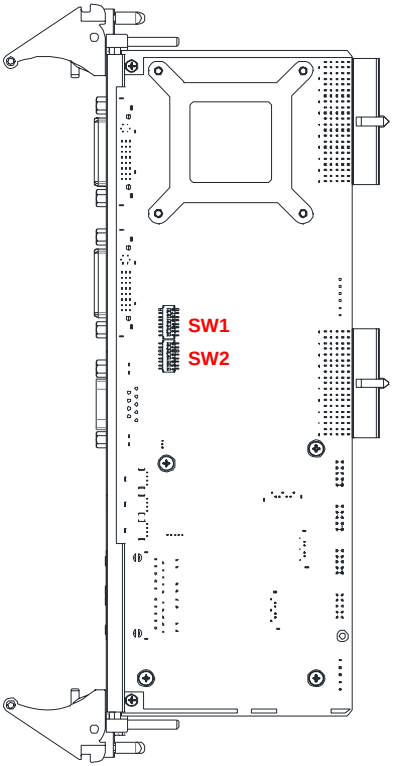
3.2 cPCI-R6700 Board Layout



DVI-I	DVI-I connectors	**HDA**	Audio box header
CN2/3/4	SATA connectors	**PS/2**	PS/2 KB/MS box header
CN8	Aux. Power connector	**rJ3/rJ5**	cPCI connectors
CN9	SATA power connector	**SW3/SW4**	LAN control switches
COM1	COM box header	**U1**	ATI E4690 GPU
COM2	COM2 connector	**USB1**	USB5 5-pin header
FAN1	Fan power connector	**USB2**	USB4/7 box header
GbE a/b	LAN RJ-45 connectors	**USB x3**	USB Type A connectors (USB6/9/8)

Figure 3-2: cPCI-R6700 Board Layout - Component Side

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SW1/2	COM2 mode switches

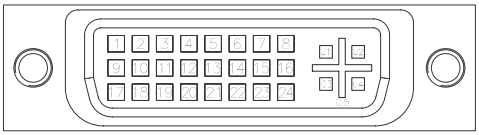
Figure 3-3: cPCI-R6700(D) Board Layout - Solder Side

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3.3 Connector Pin Assignments

Faceplate Connectors

DVI-I Connectors

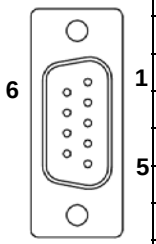


Pin #	Signal	Pin #	Signal
1	TMDS Data2-	16	Hot Plug Detect
2	TMDS Data2+	17	TMDS Data0-
3	GND	18	TMDS Data0+
4	NC	19	GND
5	NC	20	TMDS Data5-
6	DDC Clock [SCL]	21	TMDS Data5+
7	DDC Data [SDA]	22	TMDS Clock Shield
8	Analog vertical sync	23	TMDS Clock +
9	TMDS Data1-	24	TMDS Clock -
10	TMDS Data1+	C1	Analog Red
11	GND	C2	Analog Green
12	NC	C3	Analog Blue
13	NC	C4	Analog Horizontal Sync
14	+5 V Power	C5	Analog GND Return
15	GND		

Table 3-1: DVI-I Connector Pin Definition

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COM2 RS-232/422/485 Connector



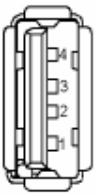
Pin #	RS-232	RS-422/485+	RS-485
1	DCD	TXD-	Data-
2	RXD	TXD+	Data+
3	TXD	RXD+	--
4	DTR	RXD	--
5	GND	GND	GND
6	DSR	--	--
7	RTS	--	--
8	CTS	--	--
9	RI	--	--

NOTE:

See “COM2 Mode Switches (SW1, SW2)” on page 20.

USB6/9/8 Type A Connectors

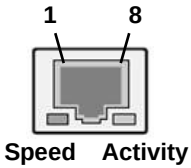
Pin #	Signal Name
1	Vcc
2	USB_D-
3	USB_D+
4	GND



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GbE a/b RJ-45 Connectors

Pin #	10BASE-T/ 100BASE-TX	1000BASE-T
1	TX+	LAN_TXP0
2	TX-	LAN_TXN0
3	RX+	LAN_TXP1
4	--	LAN_TXP2
5	--	LAN_TXP2
6	RX-	LAN_TXN1
7	--	LAN_TXP3
8	--	LAN_TXN3



Status		Speed LED (Green/Amber)	Activity LED (Amber)
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	Amber	ON
	Active	Amber	Blinking

PS/2 Keyboard/Mouse Port (cPCI-R6700D only)

Pin #	Signal	Function
1	KB_DATA	Keyboard Data
2	MS_DATA	Mouse Data
3	GND	Ground
4	KM_VCC	Power
5	KB_CLK	Keyboard Clock
6	MS_CLK	Mouse Clock



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Onboard Connectors

SATA Connectors (CN2~4)

Pin #	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



Auxiliary Power Connector (CN8)

(6-pin, 2.5 mm pitch Wafer)



Pin #	Signal
1	P12V
2	GND
3	GND
4	P5V
5	P5V
6	P5V

SATA Power Connector (CN9)

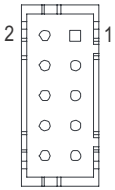


Pin #	Signal
1	P5V
2	P12V
3	NC
4	GND
5	GND

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COM1 RS-232 Box Header (COM1)

(2x5-pin, 2.0 mm pitch Wafer)



Pin #	RS-232 Signal
1	NC
2	NC
3	RXD
4	NC
5	TXD
6	NC
7	NC
8	NC
9	IsoGND
10	NC

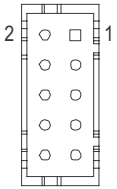
Fan Power Connector (FAN1)



Pin #	Signal
1	GND
2	P12V
3	NC

Audio Box Header (HDA)

(2x5-pin, 2.0 mm pitch Wafer)

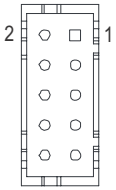


Pin #	Signal	Pin #	Signal
2	L_OUT_L	1	GND
4	GND	3	L_OUT_R
6	L_IN_L	5	GND
8	GND	7	L_IN_R
10	MIC_LR	9	GND

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PS/2 Keyboard/Mouse Box Header (PS/2)

(2x5-pin, 2.0 mm pitch Wafer)



Pin #	Signal	Pin #	Signal
2	KB_CLK	1	KB_DATA
4	MS_CLK	3	MS_DATA
6	GND	5	KM_VCC
8	GND	7	GND
10	NC	9	GND

USB5 Header (USB1)

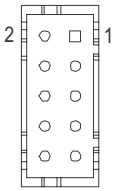
(5-Pin, 2.54 mm pitch)



Pin #	Signal
1	+5V
2	USB5D-
3	USB5D+
4	GND
5	NC

USB 4/7 Box Header (USB2)

(2x5-pin, 2.0 mm pitch Wafer)



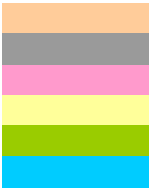
Pin #	Signal	Pin #	Signal
2	+5V	1	+5V
4	USB4_D-	3	USB7_D-
6	USB4_D+	5	USB7_D+
8	GND	7	GND
10	NC	9	Key

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CompactPCI rJ3 Pin Assignment

Pin	Z	A	B	C	D	E	F
19	GND	P5V	P5V	P12V	P5V	P5V	GND
18	GND	LAN2_TXP0 (b)	LAN2_TXN0 (b)	GND	LAN2_TXP2 (b)	LAN2_TXN2 (b)	GND
17	GND	LAN2_TXP1 (b)	LAN2_TXN1 (b)	GND	LAN2_TXP3 (b)	LAN2_TXN3 (b)	GND
16	GND	LAN1_TXP0 (a)	LAN1_TXN0 (a)	GND	LAN1_TXP2 (a)	LAN1_TXN2 (a)	GND
15	GND	LAN1_TXP1 (a)	LAN1_TXN1 (a)	GND	LAN1_TXP3 (a)	LAN1_TXN3 (a)	GND
14	GND	USB-OC4-L	USB-OC5-L	USB-OC6-L	USB-OC7-L	USB-OC8-L	GND
13	GND	USB4P	YSB4N	GND	USB5P	USB5N	GND
12	GND	USB6P	USB6N	GND	USB7P	USB7N	GND
11	GND	USB8P	USB8N	GND	USB9P	USB9N	GND
10	GND	USB-OC9-L	NC	NC	NC	NC	GND
9	GND	CTS1-L	RI1-L	NC	NC	NC	GND
8	GND	SIN1	SOUT1	DTR1-L	DSR1-L	RTS1-L	GND
7	GND	COM_TXD	COM_RXD	DCD1-L	NC	NC	GND
6	GND	SATA3_RXP0	SATA3_RXN0	GND	SATA3_RXP1	SATA3_RXN1	GND
5	GND	GND	GND	NC	GND	GND	GND
4	GND	SATA3_TXP0	SATA3_TXN0	GND	SATA3_TXP1	SATA3_TXN1	GND
3	GND	KB_DATA	KB_CLK	NC	MS_DATA	MS_CLK	GND
2	GND	HDA_SDIN1	HDA_SDIN2	HDA_SDIN3	HDA_EN-L	AUD_RST-L	GND
1	GND	HDA_RST-L	HDA_SYNC	HDA_BIT_CLK	HDA_SDOUT	HDA_SDIN0	GND

Table 3-2: CompactPCI J3 Connector Pin Definition



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CompactPCI rJ5 Pin Assignment

Pin	Z	A	B	C	D	E	F
22	GND	P1V8_LAN	LAN1_LINK-L (a)	LAN1_ACT-L (a)	LAN2_LINK-L (b)	LAN2_ACT-L (b)	GND
21	GND	NC	NC	GND	NC	NC	GND
20	GND	NC	NC	GND	NC	NC	GND
19	GND	NC	NC	NC	NC	NC	GND
18	GND	NC	NC	NC	NC	NC	GND
17	GND	NC	NC	NC	NC	NC	GND
16	GND	NC	NC	NC	NC	NC	GND
15	GND	NC	NC	NC	SATA_RXP0	SATA_RXN0	GND
14	GND	NC	NC	GND	SATA_TXP0	SATA_TXN0	GND
13	GND	LAN1_100-L (a)	LAN2_100-L (b)	NC	LAN2_1G-L (b)	LAN1_1G-L (a)	GND
12	GND	NC	NC	NC	NC	NC	GND
11	GND	NC	NC	GND	NC	NC	GND
10	GND	NC	NC	GND	NC	NC	GND
9	GND	NC	NC	NC	NC	NC	GND
8	GND	NC	NC	GND	NC	NC	GND
7	GND	GND	GND	BAT_RTM	GND	GND	GND
6	GND	PCIE_CLKP	PCIE_CLKN	GND	PLTRST-L	NC	GND
5	GND	GND	GND	GND	GND	GND	GND
4	GND	PCIE_TXP4	PCIE_TXN4	GND	PCIE_RXP4	PCIE_RXN4	GND
3	GND	PCIE_TXP3	PCIE_TXN3	GND	PCIE_RXP3	PCIE_RXN3	GND
2	GND	PCIE_TXP2	PCIE_TXN2	GND	PCIE_RXP2	PCIE_RXN2	GND
1	GND	PCIE_TXP1	PCIE_TXN1	GND	PCIE_RXP1	PCIE_RXN1	GND

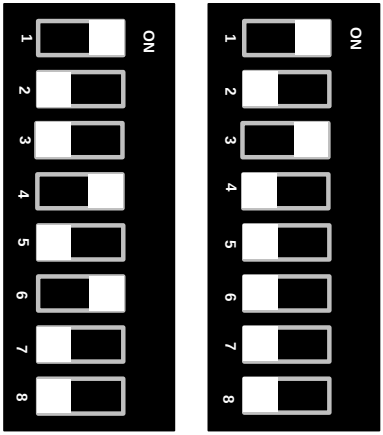
Table 3-3: CompactPCI J5 Connector Pin Definition

PCI-Express x4
Serial ATA
Ethernet port

3.4 Switch Settings

COM2 Mode Switches (SW1, SW2)

The COM2 port on the cPCI-R6700 faceplate supports RS-232/422/485 modes. Switches SW1 and SW2 can be used to configure the COM2 port to the desired mode using the settings shown below (set to RS-232 by default).



SW1 SW2

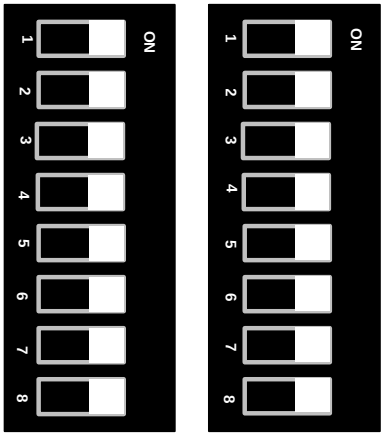
Mode	RS-232 (default)	RS-422	RS-485
SW1	1, 4, 6 ON (all others OFF)	2, 5, 7 ON (all others OFF)	3, 5, 7 ON (all others OFF)
SW2	1, 3 ON (all others OFF)	2, 4, 5, 6 ON (all others OFF)	2, 4, 5, 6 ON (all others OFF)

Table 3-4: COM2 Mode Switch Settings

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LAN Control Switches (SW3, SW4)

The cPCI-R6700 can route LAN signals from the CPU blade to either the PICMG 2.16 backplane or to GbE a/b on the faceplate I/O (but not both simultaneously). Switches SW3 and SW4 can be used to route the LAN signals (set to faceplate RJ-45 connectors by default).



SW3 **SW4**

LAN signals routed to	SW3	SW4
PICMG 2.16 Backplane	All OFF	All OFF
Faceplate RJ-45 connectors (default)	All ON	All ON

Table 3-5: LAN Control Switch Settings

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4 Getting Started

4.1 Installing a 2.5" SATA Drive

The cPCI-R6700D has space onboard to mount a 2.5" storage device using the bracket kit provided. The kit includes 4x M3 4mm screws and 4x M3 6mm screws. Follow the steps below to install a SATA drive on the RTM.

1. Prepare a 2.5" SATA drive and locate the bracket kit in the package.

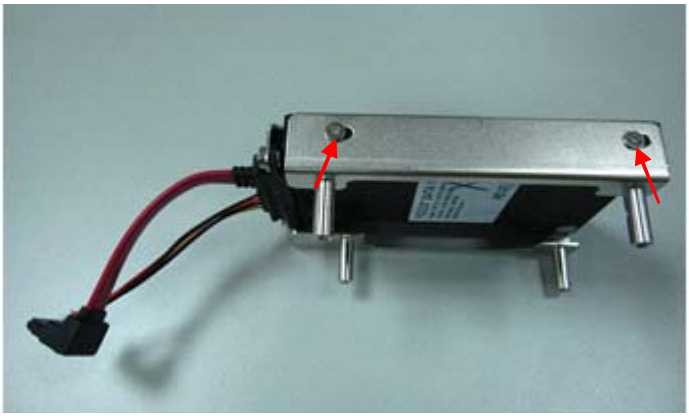


2. Align the bracket with SATA power/signal connectors as shown and mount the drive onto the bracket. Fasten the bracket to the drive with two of the M3 4mm screws.



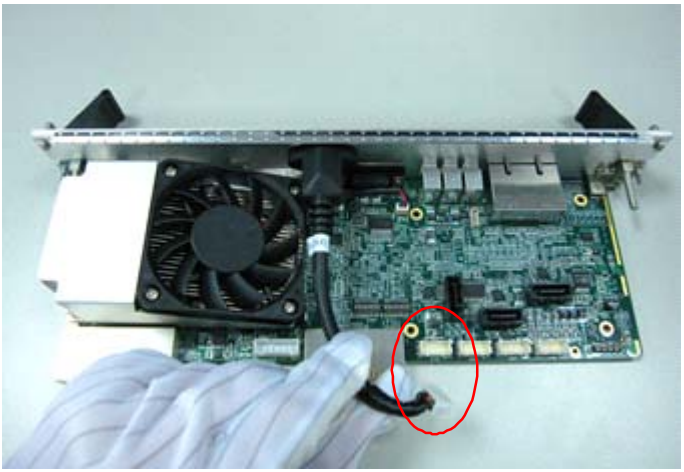
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3. Secure the remaining bracket to the other side of the drive with the two remaining M3 4mm screws. This unit will be hereafter referred to as the "drive assembly".



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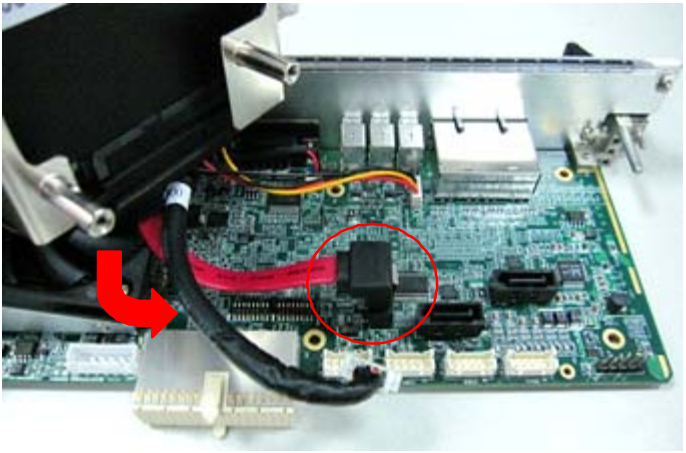
4. Disconnect the PS/2 cable from the onboard connector as shown as below.



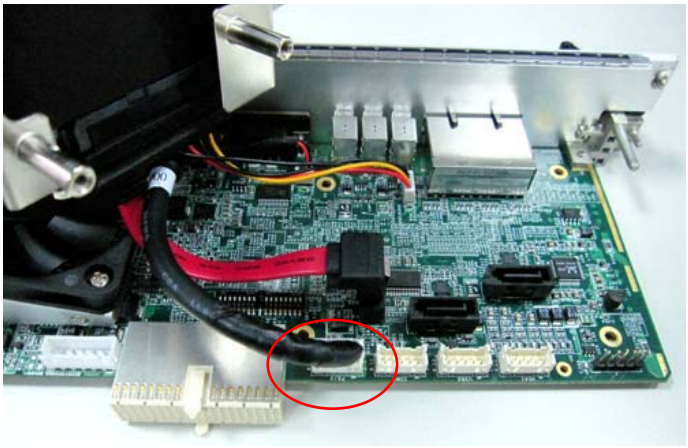
5. Connect the SATA power connector from the drive assembly to the onboard shown as below.



6. Pass the SATA signal cable underneath the PS/2 cable and connect it to the onboard connector as shown.

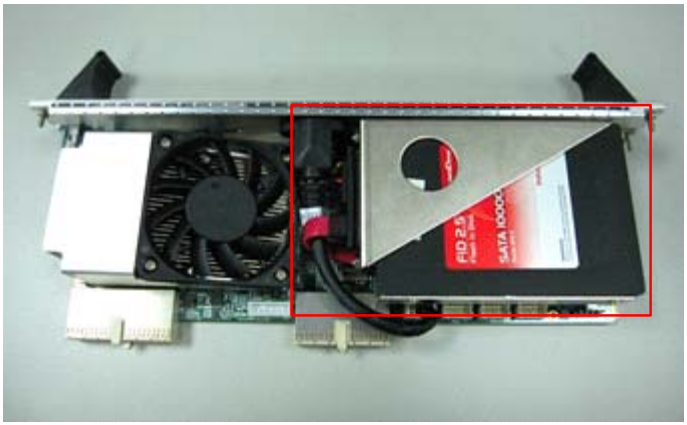


7. Reconnect the PS/2 cable to the onboard connector.

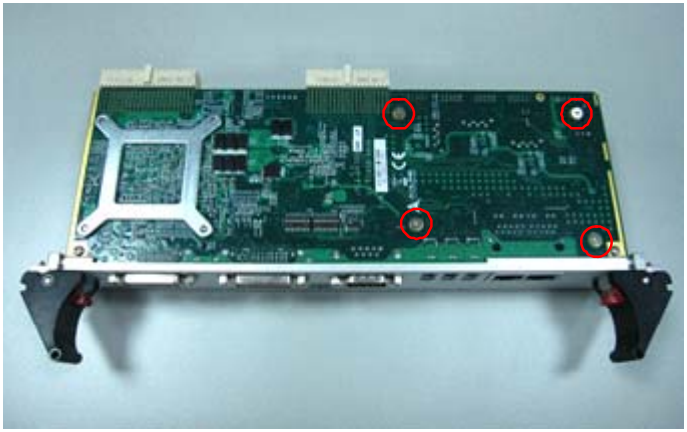


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8. Align the standoffs on the drive assembly with the 4 screw holes on the PCB as shown.



9. Secure the drive assembly to the RTM using the 4 M3 6mm screws from the solder side of the board.



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4.2 Auxiliary Power Cord

If required, install the Auxiliary Power Cord included in the package.

CAUTION:

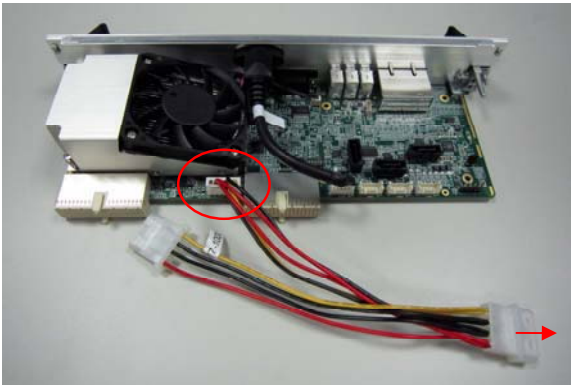
Additional power supply must be supplied to the RTM using an auxiliary power cord when the cPCI-R6700 is used with a CPU blade that consumes over 50W of power or under extended temperature conditions (>60°C).

1. Locate the Auxiliary Power Cord (20 cm) in the package.

To CN8 onboard connector



2. Connect the 6-pin power connector to the cPCI-R6700 RTM (CN8).



To ATX power supply

3. After the RTM is installed in the chassis (see “Installing the cPCI-R6700” on page 29 below), connect either the male or female 4-pin Molex connector to the power supply.

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4.3 Installing the cPCI-R6700

The cPCI-R6700 may be installed in an RTM slot of a 6U CompactPCI chassis when mated to a compatible CPU blade. See the6U RTM Blade-to-RTM Compatibility Guide at http://www.adlinktech.com/cPCI/CompactPCI-Rear-Transition.html.

These instructions are for reference only. Refer to the user guide that comes with the chassis for more information.

1. Ensure that the cPCI-R6700 is compatible with the CPU blade and the backplane prior to installation.
2. If required, ensure that the 2.5" SATA drive, Auxiliary Power Cord, or other peripheral devices are properly installed.
3. Remove the black plastic caps securing the retaining screws to the faceplate.
4. Ensure that the system is powered OFF before proceeding.
5. Select the appropriate slot for the cPCI-R6700 RTM as determined by your application requirements.
6. Align the module's top and bottom edges to the chassis card guides, and then carefully slide the module into the chassis. A slight resistance may be felt when inserting the module. If the resistance it too strong, check if there are bent pins on the backplane or if the board's connector pins are not properly aligned with connectors on the backplane. Then push the board until it is completely flush with the chassis
7. Push the ejector handles outwards to secure the module in place, and then fasten the retaining screws on the module face plate.
8. If required, connect any cables and peripherals to the board, and then power ON the chassis.

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4.4 Driver Installation

The cPCI-R6700 drivers can be found on the ADLINK All-In-One DVD at **X:\cPCI-R6700\GPU**, or at the ADLINK website (**http://www.adlinktech.com**). Driver installation procedures for Windows® XP are described below.

1. Install the Windows operating system before installing any driver. Most standard I/O device drivers are installed during Windows installation.
2. Install the graphics driver by extracting and running the file **issetup.exe** from the archive **ATI_Graphics_WinXP_8.660.0.0.zip**, located in **X:\cPCI-R6700\GPU**.
3. Install the audio driver by extracting and running the executable file in the archive **Realtek_WDM_Audio_WinXP32_Win2003_v2.21.zip** located in **X:\cPCI-R6700\Audio\Windows XP x32 2003**.

We recommend using the drivers provided on the ADLINK All-in-One DVD or downloaded from the ADLINK website to ensure compatibility.

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5 VBIOS Update

For thermal considerations, the engine clock of the cPCI-R6700 can be changed by applying a VBIOS update. ADLINK provides four VBIOS options (100, 300, 400, 600 MHz) for users to set the best performance and thermal combination for their application. The VBIOS updates can be found on the All-In-One DVD at **X:XMC\cPCI-R6700\VBIOS**, or downloaded from the ADLINK website (**http://www.adlinktech.com**).



The graphics driver must be installed before applying any VBIOS updates.

Follow the steps below to update the VBIOS.

1. Create a DOS bootable USB flash drive.
2. Extract the contents of the **R6700_VBIOS.zip** file located in **X:\cPCI-R6700\VBIOS** on the All-In-One DVD or downloaded from the ADLINK website.
3. Copy the files inside the **R6700_VBIOS folder** to the root directory of USB flash drive.
4. Boot the system from the USB flash drive.
5. Type the command "xxx" (without the "...") from the root directory to update the VBIOS, where "xxx" is the desired engine clock frequency (e.g. “100”, “300”, “400”, “600”).

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Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS,** and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- Read these safety instructions carefully.
- Keep this user's manual for future 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 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; and,
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.

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- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

A Lithium-type battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries appropriately.

- Equipment must be serviced by authorized technicians when:
  - The power cord or plug is damaged;
  - Liquid has penetrated the equipment;
  - It has been exposed to high humidity/moisture;
  - It is not functioning or does not function according to the user's manual;
  - It has been dropped and/or damaged; and/or,
  - It has an obvious sign of breakage.

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