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cPCI-6860A Series

6U CompactPCI Dual Xeon™ SBC
and Rear I/O Transition Module

User's Guide



Recycled Paper

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Product Model			
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Detail Description			
Suggestions to ADLINK			

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1

Introduction

This manual provides information on the ADLINK cPCI-6860A Series Single Board Computer (SBC) and its corresponding Rear I/O Transition Module (RTM) cPCI-R6860A. The cPCI-6860A Series products comply with PICMG 2.0 Rev. 3.0 CompactPCI specifications for 6U 2-slot (8 TE/HP) form factor boards.

The cPCI-6860A is a state-of-the-art system master processor board in a 6U dual-slot CompactPCI form factor. It features a single Intel® Xeon™ 2.4GHz processor with 512KB L2 cache, or a single/dual Low Voltage Intel® Xeon™ 1.6, or 2.0GHz processor(s). An Intel® E7501 chipset provides support for up to four gigabytes of 144-bit wide PC1600 registered ECC DDR and a processor front side bus speed of 400/533MHz. The cPCI-6860A also features an Intel® 82546EB dual port gigabit Ethernet controller on the local high-speed 133MHz 64bit PCI-X bus. The Ethernet connections can be accessed through the front faceplate or switched to the backplane for PICMG 2.16 compliant applications.

With the cPCI-R6860A rear transition module (RTM), the cPCI-6860A provides two extra gigabit Ethernet ports, an Ultra 320 SCSI controller, and two ATA100 channels which can support either a 2.5 inch IDE HDD or CompactFlash (CF) memory card for non-volatile flash storage applications.

In addition to high computing performance and communication capabilities, the cPCI-6860A supports Intelligent Platform Management IPMI v1.0 using an optional Baseboard Management Controller (BMC) for applications that require high reliability and serviceability. ADLINK's cPCI-6860A is the ideal solution for telecom, data center, and Internet applications.

The topics covered in this chapter are as follows:

- Checklist
- Features
- Specifications
- Block diagram

1.1 Checklist

The cPCI-6860A Series product supports both front and rear panel I/O. The front board and the cPCI-R6860A RTM are sold separately. The board can be configured with either a single or dual CPU. CPU frequency is specified when the order is placed, therefore the thermal solution (heat sink with fans) is dependent on the configuration. ADLINK provides one thermal solution for dual CPUs. The heat sinks and processors are optional and sold separately.

cPCI-6860A Front Board

The cPCI-6860A can be shipped with or without CPU's, memory, or heat sink depending on the options ordered. Please check for possible configurations with your dealer. Check that the following items are included in the package. If there are any items missing, please contact your dealer:

- This User's Manual
- cPCI-6860A board
- ADLINK All-in-One CD
- Y cable for PS/2 keyboard and mouse connection (P/N: 30-01016-000)

Note: The packaging of the cPCI-6860A OEM version non-standard configuration, functionality or package may vary according to the different configuration requests.

CAUTION: This board must be protected from static discharge and physical shock. Never remove any of the socketed parts except at a static-free workstation. Use the anti-static bag shipped with the product to handle the board. Wear a grounded wrist strap when servicing system components.

cPCI-R6860A RTM

The cPCI-R6860A is designed to provide additional I/O functionality and rear I/O connectivity for the cPCI-6860A. The cPCI-R6860A can be shipped with or without a storage device (IDE HDD or CF card) depending on the options ordered. Please check the possible configurations with your dealer. The product package should contain the following item:

- The cPCI-R6860A RTM

Note: The delivery package for OEM versions of the RTM may vary slightly from the standard product.

1.3 Features

- Supports single or dual Low Voltage Xeon 1.6GHz, 2.0GHz; or single Xeon 2.0GHz, 2.4GHz; or higher frequency forward compatible CPUs
- Compliant with CompactPCI specifications, including PICMG 2.0 R3.0, PICMG 2.1 R1.0, PICMG 2.16 R1.0, and optional PICMG 2.9 R1.0
- Two DDR DIMM sockets supporting PC-1600 registered ECC DRR-266 SDRAM up to a maximum of 4GB
- High communication bandwidth with up to four Gigabit Ethernet ports (GbE). Two GbEs are switch-selectable for front or rear access, two optional GbEs are supported on the rear transition module (RTM). A single 10/100 Ethernet is available on the front panel.
- High data transfer rate SCSI-320 storage interface is optional on the RTM
- Support for generic PC features include VGA, IDE, COM ports, USB, keyboard, mouse, and hardware monitoring

1.4 Specifications

cPCI-6860A front board

CompactPCI Compliancy

- PICMG 2.0 CompactPCI core specification R3.0
- PICMG 2.1 CompactPCI hot-swap R1.0
- PICMG 2.16 CompactPCI packet switching backplane R1.0
- Optional PICMG 2.9 System Management R1.0

Form Factor

- Standard 6U CompactPCI (board size: 233.35 x160mm^2)
- 2-slot width (8HP = 40.64 mm)

CPU / Cache

- Dual Xeon architecture. CPU sockets support both FC-mPGA2-604 and INT-mPGA-603 CPU packages
- No need to install termination in the empty CPU socket in single processor configurations
- Supports single or dual Low Voltage Intel® Xeon 1.6GHz, 2.0GHz with 512KB L2 cache and 400 MHz FSB

- Supports single Intel® Xeon 1.8GHz, 2.0GHz, 2.2GHz, 2.4GHz, 2.8GHz with 512KB L2 cache and 400 MHz FSB
- Supports single Intel® Xeon 2.0GHz, 2.8GHz, 3.06GHz with 512KB L2 cache and 533 MHz FSB

Chipset

- Intel® E7501 Memory Control Hub (MCH)
- Intel® 82801CA I/O Control Hub 3 (ICH3-S)
- Intel® 82870P2 PCI/PCI-X 64-bit Hub 2 (P64H2)

Host Memory

- Two DDR DIMM sockets, supports PC-1600 registered ECC DDR200/DDR266 SDRAM
- Capacity of up to 4GB (note: It is dependent on the availability of the DIMM.)
- Memory enhanced OEM version can provide four DDR DIMM sockets, which occupies a 3-slot width space. The memory capacity reach 8GB maximum.

BIOS: ADLINK Enhanced Award / Phoenix BIOS

- Support Intel® Pre-boot Execution Environment (PXE) version 2.x, WFM 2.0. Includes BIOS setup options and boot from LAN
- Support DMI / SMBIOS 2.3
- BIOS write protection, provide anti-virus capability
- Bootable from USB storage devices including USB-Floppy, USB-ZIP USB-CD-ROM and USB-HDD.
- CMOS Backup to onboard I2C EEPROM to record VPD (Vital Product Data)
- Option OEM BIOS features
  - Customized OEM splash image / power on screen
  - Serial remote-console redirected to serial COM1 port

Gigabit Ethernet

- Two Gigabit Ethernet (GbE) ports with Intel® 82546EB Ethernet controller, based on 133MHz/64-bit PCI-X bus
- Support 1000Base-T, 100Base-TX and 10Base-T (IEEE 802.3, 802.3u, and 802.3ab).

- IEEE802.3x compliant flow control, support auto-negotiation and link setup
- The GbE can be either front access or rear access selectable by onboard switch
- PICMG 2.16 PSB when configured for rear access
- Speed and connect LEDs on the front panel
- Optional two Gigabit Ethernet ports on RTM cPCI-R6860A.

10/100 Ethernet

- One 10/100 Mbps Ethernet port by integrated Ethernet MAC in ICH3 and Intel® 82562EM PHY
- Access on the front panel with speed and connect LEDs

Graphic Display

- ATI Rage-XL graphic chip based on 33MHz/32bit PCI with external 8MB SDRAM
- VGA DB-15 connectors on both front and rear I/O
- Supports up to 1280 x 1024 VGA display resolution with 24-bit true color, non-interlaced

USB Interface

- Supports up to four USB version 1.1 ports with integrated USB host controller in ICH3. Two USB ports are front access and two ports are rear access
- USB ports provide 0.5A @ 5V power for peripheral devices with over current protection

IDE Ports

- Bus master IDE controller supports two ultra ATA-100 / 66 / 33 interfaces. Primary IDE is on J3; secondary IDE is on J4. IDE devices are installed on the RTM.

Super I/O, WDT and Hardware Monitoring

- Chipset: Winbond W83627HF
- Two 16C550 UART compatible RS-232 COM ports. COM1 on the front ESD protected up to 2KV. COM2 is on the J3 and can be accessed on the RTM
- Floppy interface on J3.
- PS2 keyboard and mouse supported on both front and rear panels.

- W82782D built-in monitoring CPU temperatures, FAN speed, system temperature, V core, and DC voltages.
- Watchdog timer: Programmable I/O port on addresses 02Eh and 02FH. Programmable timer for 1 to 255 seconds or 1 to 255 minutes. Easy-programming libraries for DOS, Windows 95/98/NT are available.

Optional Baseboard Management Controller (BMC)

- Supports PICMG 2.9 secondary system managing bus
- Implements IPMI functions as defined in the IPMI specification v1.0 (refer to Appendix A for the IPMI Function List)
- Out-of-band access to the BMC provided via the MGMT serial port which can be connected to a modem. It provides a command line interface (CLI) allowing the user to read/write memory content, send IPMI commands, read SDR and SEL, and perform power control (generally used for debug purposes).

LED Indicators

- Four LEDs on the front panel including storage access LED (RED), Power LED (GREEN), integrated Ethernet status LEDs, and Watchdog LED (Yellow), hot-swap LED (Blue)

PCI Bus and CompactPCI connectors

- Support 64-bit/66MHz PCI bus with Intel® 21154BE bridge
- Hub-link interface on J4 provides local RTM PCI bus for RTM mounted PCI devices

cPCI-R6860A RTM

Form Factor

- Standard 6U CompactPCI rear I/O (board size: 233.35x80mm^2)
- 2-slot width (8HP = 40.64mm)

Local Bus

- Interface with cPCI-6860A via Hub-Link 2.0 interface
- P64H2 provide two PCI-X local buses: Bus-A is a 133MHz/64bit PCI-X bus for SCSI interface; Bus-B is a 133MHz/64bit PCI-X bus for dual GbE ports

Gigabit Ethernet

- Two additional Gigabit Ethernet ports with Intel® 82546EB Ethernet controller, based on 133MHz/64-bit PCI-X bus

- Supports 1000Base-T, 100Base-TX, and 10Base-T (IEEE 802.3, 802.3u, and 802.3ab)
- Provides two additional RJ-45 connectors for the GbE ports on the cPCI-6860A front board

SCSI

- Wide Ultra320 SCSI interface with synchronous transfer rate of up to 320MBps on a LVD SCSI bus
- LSI 53C1020R chip based on 133MHz/64bit PCI-X bus, integrated LVDlink™ transceivers support both LVD and single-ended signals
- Fast SCSI, Ultra SCSI, Ultra2 SCSI, Ultra 160 SCSI, and Ultra 320 SCSI are all supported

IDE Connectors

- Secondary IDE with 40-pin connector for two IDE devices
- Primary IDE supported on one 40-pin connector; or one 2.5 inch drive; or a Compact Flash type-II socket which can be rear panel accessed.

Flash Storage Support Options:

- DiskOnModule via the 40-pin IDE, 16 to 256MB
- Compact Flash card via the CF socket, 8 to 512MB
- 2.5 inch Flash disk drive, 32MB to 2GB

cPCI-6860A and RTM Common Specifications

OS Compatibility

- Microsoft® Windows 98/ME, Windows NT, Windows 2000, Windows XP, Red Hat Linux 7.x, Red Hat Linux 8.0, and Red Hat Linux 9.0
- Other OS support upon request

Environment

- Operating temperature: 0 to 50°C (Please refer to the notes below)
- Storage temperature: -20 to 80°C
- Humidity: 5% to 95% non-condensed
- Shock: 15G peak-to-peak, 11ms duration, non-operation
- Vibration:
  - Non-operation: 1.88gRMS, 5 to 500Hz, each axis
  - Operation: 0.5gRMS, 5 to 500Hz, each axis with 2.5” Flash disk drive

Note:

1. Certified with ADLINK thermal design. The thermal performance is dependent on the cooling design.
2. Forced air-cooling with 50 CFM is required for both single 2.4G Xeon or dual low-voltage 1.6G Xeon configurations.
3. The temperature limit of optional mass storage devices can impact the thermal specification of the board.
4. The operational vibration tolerance will be limited by 2.5 inch HDD on the RTM. When application requires a higher definition for anti-vibration, we recommend using a Flash2000 Flash Disk (FFD series) or Compact Flash instead of a conventional hard disk drive.

Safety Certificate and Test

- CE, FCC
- HALT (temperature and vibration stress) verified
- All plastic materials, PCB, and battery used are UL-94V0 certified
- Designed for NEBS 3.0 requirement

Power Requirement (Maximum)

Configurations	+5V	+3.3V	+12V	-12V	Total
Single Xeon 2.0GHz, 2GB RAM, 4GbE	11.0A	13.5A	0.6A	10mA	107W
Dual Low Voltage Xeon 2.0GHz, 2GB RAM, 4GbE	15.5A	11.8A	0.6A	10mA	124W
Dual Low Voltage Xeon 1.6GHz, 2GB RAM, 4GbE	11.0A	11.6A	0.6A	0.6A	99.6W

Test conditions: The above values are the measured power consumption for the SBC with CPU, RAM, HDD, and GbE enabled. The test items include CPU Math, MMX/SSE, RAM, 2D Graphics, 3D Graphics, Hard Disk tests, and one GbE port Network test. Hyper-threading is enabled.

I/O Connectivity

I/O	cPCI-6860A	RTM (cPCI-R6860A)	
	Faceplate	Faceplate	Board
Serial Port (COM1)	Y (DB-9)	--	--
Serial Port (COM2)	--	Y (J3, DB-9)	
Serial Port (MGMT)	--	Y (J4, DB-9)	
PS2 Keyboard	Y (PS2)	Y (J3, PS2)	--
PS2 Mouse		Y (J3, PS2)	--
VGA	Y (DB-15)	Y (DB-15)	--
USB A (port 1, port 2)	Y (dual USB)	--	--
USB B (port 3, port 4)	--	Y (J3/J4, dual USB)	--
Gigabit Ethernet Port 1	Y (RJ-45, LED)	Y (RJ-45, LED)	--
Gigabit Ethernet Port 2	Y (RJ-45, LED)	Y (RJ-45, LED)	--
Gigabit Ethernet Port 3	--	Y (RJ-45, LED)	--
Gigabit Ethernet Port 4	--	Y (RJ-45, LED)	--
ATA-100 Primary IDE	--	Y (J3, CF)	Y (J3, 40-pin and 44-pin
ATA-100 Secondary IDE	--	--	Y (J4, 40-pin)
SCSI	--	Y (SCSI-68)	Y (SCSI-68)
Floppy	--	--	Y (J3,34-pin)
PC Beeper	--	--	Buzzer
General Purpose LED	Y	--	--
Reset button	Y	--	--

Table 1: I/O Connectivity Table

1.5 Block Diagram

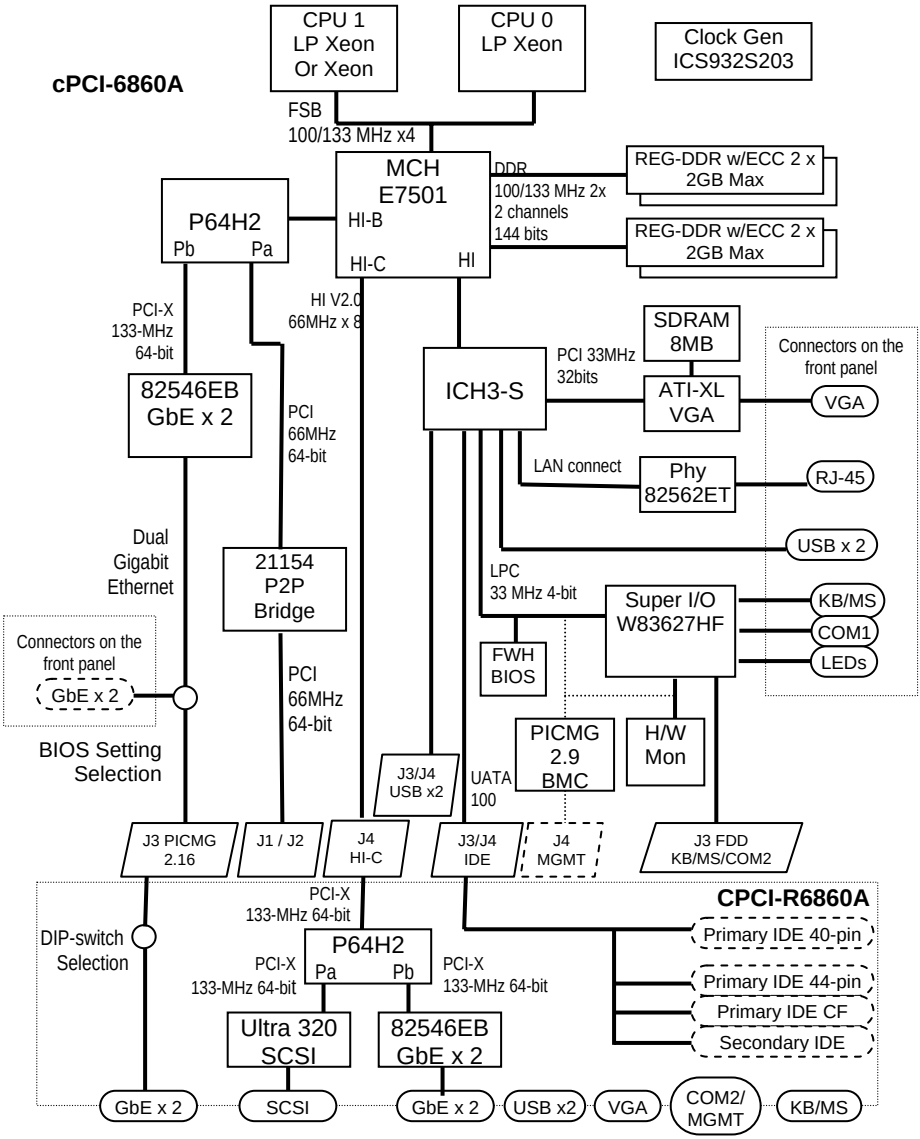


Figure 1: Block Diagram

2

Jumpers and Connectors

This chapter provides information about the SBC and RTM board layout, connector definitions, and jumper settings. It includes information on the following:

- cPCI-6860A Board Outline & Front View
- cPCI-6860A Connector Pin Assignments
- cPCI-R6860A Board Outline & Rear View
- cPCI-R6860A Connector Pin Assignments

2.1 cPCI-6860A Board Outline & Front View

cPCI-6860A Top View

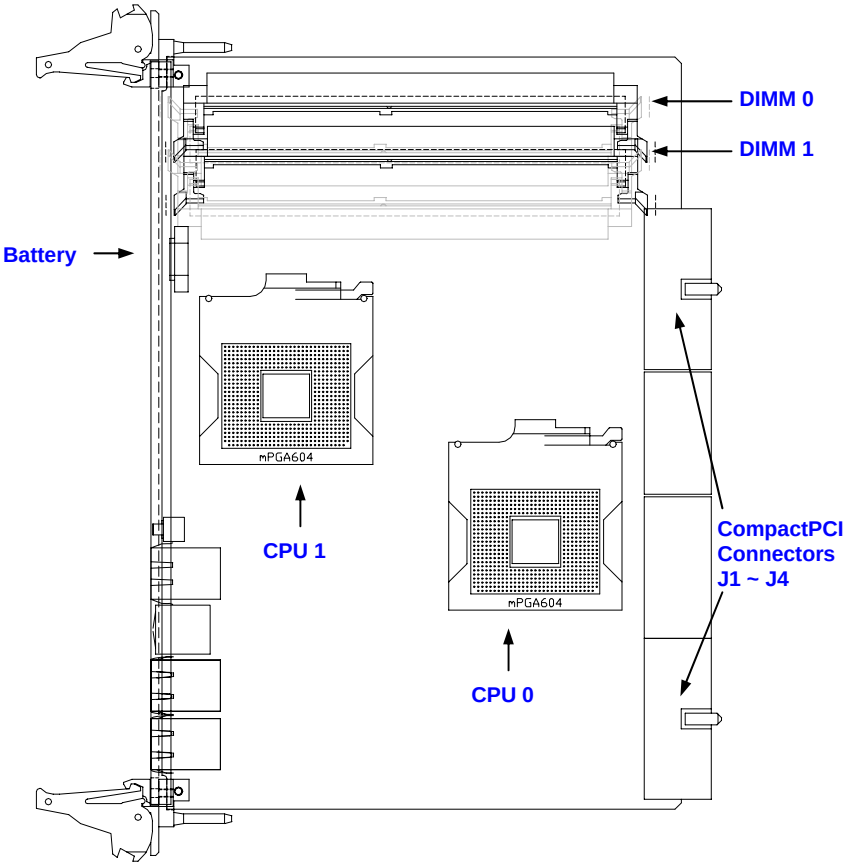


Figure 2: Top View of cPCI-6860A

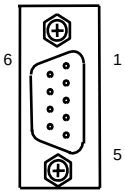
cPCI-6860A Front View



Figure 3: Front View of cPCI-6860A

2.2 cPCI-6860A Connectors Pin Assignment

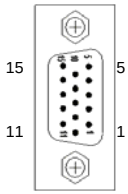
Serial Port COM1 Connector



Pin	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

Table 2: Serial Port COM1 on faceplate

VGA Connector



Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
+5V.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

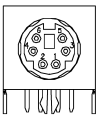
Table 3: VGA Connector on faceplate

General Purpose LED definitions

LED	Color	Status	Description
IDE Media Access	Red	OFF	IDE idle
		ON	IDE access
Power OK	Green	OFF	System is not power-on or power failed
		ON	Power ON
Watchdog timer status	Yellow	OFF	WDT is not enable
		ON	WDT Time out
		Blinking	WDT is enable
Hot-swap	Blue	ON	System is powered OFF and can be removed
		OFF	System is powered ON

Table 4: General Purpose LED definitions

Keyboard and Mouse Combo Connector

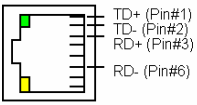


Pin	Signal	Function
1	KBDATA	Keyboard Data
2	MSDATA	Mouse Data
3	GND	Ground
4	+5V	Power
5	KBCLK	Keyboard Clock
6	MSCLK	Mouse Clock

Table 5: Keyboard/Mouse Combo Connector on faceplate

Note: A Y-cable can be used to connect a PS/2 keyboard and mouse simultaneously. Direct connection of a PS/2 keyboard to the port is supported for applications that do not require a mouse.

10/100 Fast Ethernet Connector



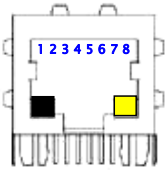
Pin	Signal	Function
1	TDP	Transmit Data (+)
2	TDN	Transmit Data (-)
3	RDP	Receive Data (+)
4	LANCT1	Termination
5	LANCT2	Termination
6	RDN	Receive Data (-)
7	NC	No Connect
8	GND	Ground

Table 6: 10/100 Fast Ethernet Connector LAN1 on faceplate

LED	Color	Status	Description
Link Speed LED	Amber	OFF	10Mbps transfer rate
		ON	100Mbps transfer rate
Link / Activity LED	Green	OFF	No link
		ON	Connecting
		Blinking	Active/Data transferring

Table 7: LED indicators on the Fast Ethernet port

Gigabit Ethernet Ports



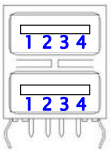
Pin	Signal Name
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI2+
5	MDI2-
6	MDI1-
7	MDI3+
8	MDI3-

Table 8: Gigabit Ethernet Connectors on front board

LED	Color	Status	Description
Link Speed LED	Green	OFF	10 or 100 Mbps
		ON	1000 Mbps
Link / Activity LED	Amber	OFF	No Link
		ON	Linked
		Blinking	Port Accessing

Table 9: LED indicators on the GbE ports

Dual USB Connector



Pin	Signal Name
1	Vcc
2	USB-
3	USB+
4	Ground
1	Vcc
2	USB-
3	USB+
4	Ground

Table 10: USB Connector on front board

CompactPCI J1 Pin Assignments

Pin	Z	A	B	C	D	E	F
25	GND	+5V	REQ64# (2)	ENUM# (2)	+3.3V	+5V	GND
24	GND	S1AD[1]	+5V	V(I/O)	S1AD[0]	ACK64#	GND
23	GND	+3.3V	S1AD[4]	S1AD[3]	+5V	S1AD[2]	GND
22	GND	S1AD[7]	GND	+3.3V	S1AD[6]	AD[5]	GND
21	GND	+3.3V	S1AD[9]	S1AD[8]	M66EN	S1C/BE[0]#	GND
20	GND	S1AD[12]	GND	V(I/O)	S1AD[11]	S1AD[10]	GND
19	GND	+3.3V	S1AD[15]	S1AD[14]	GND	S1AD[13]	GND
18	GND	S1SERR#	GND	+3.3V	S1PAR	S1C/BE[1]#	GND
17	GND	+3.3V	IPMB_SCL	IPMB_SDA	GND	S1PERR#	GND
16	GND	S1DEVSEL#	GND	V(I/O)	S1STOP#	S1LOCK#	GND
15	GND	+3.3V	S1FRAME#	S1IRDY#	BDSEL	S1TRDY#	GND
12-14	Key						
11	GND	S1AD[18]	S1AD[17]	S1AD[16]	GND	S1C/BE[2]#	GND
10	GND	S1AD[21]	GND	+3.3V	S1AD[20]	S1AD[19]	GND
9	GND	S1C/BE[3]#	IDSEL(5)	S1AD[23]	GND	S1AD[22]	GND
8	GND	S1AD[26]	GND	V(I/O)	AD[25]	S1AD[24]	GND
7	GND	S1AD[30]	S1AD[29]	S1AD[28]	GND	S1AD[27]	GND
6	GND	REQ#	GND	+3.3V	S1CLK	S1AD[31]	GND
5	GND	Reserved (1)	Reserved (1)	S1PCIRST#	GND	S1GNT#	GND
4	GND	IPMB_PWR	HEALTHY# (1)	V(I/O)	INTP (1)	INTS	GND
3	GND	INTA#	INTB#	INTC#	+5V	INTD#	GND
2	GND	TCK (2)	+5V	TMS (2)	TDO (1)	TDI (2)	GND
1	GND	+5V	-12V	TRST# (2)	+12V	+5V	GND
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**

Table 11: CompactPCI J1 pin assignments

Note:

1. These signals are not connected.
2. These signals are pulled high on the board.
3. These signals are pulled low on the board.
4. ENUM# can be routed to IRQ 3 or IRQ 9 based on the hardware configuration. There is a BIOS setting to Enable/Disable the ENUM# function. The default BIOS setting is disabled and the factory default hardware configuration is IRQ 9. To support PICMG 2.1 hot-swap for peripheral boards, the backplane should bus all peripheral slots ENUM# together to the system slot and users should enable the ENUM# function.
5. IDSEL is tied to ground.

Compact PCI J2 Pin Assignment

Pin	Z	A	B	C	D	E	F
22	GND	GA4 [2]	GA3 [2]	GA2 [2]	GA1 [2]	GA0 [2]	GND
21	GND	CLK6	GND	BRSV [1]	BRSV [1]	BRSV [1]	GND
20	GND	CLK5	GND	BRSV [1]	GND	BRSV [1]	GND
19	GND	GND	GND	IPMBSDA [1]	IPMBSCL [1]	IPMBALR [1]	GND
18	GND	BRSV [1]	BRSV [1]	BRSV [1]	GND	BRSV [1]	GND
17	GND	BRSV [1]	GND	PRST#	REQ6#	GNT6#	GND
16	GND	BRSV [1]	BRSV [1]	DEG#	GND	BRSV [1]	GND
15	GND	BRSV [1]	GND	FAL#	REQ5#	GNT5#	GND
14	GND	AD [35]	AD [34]	AD [33]	GND	AD [32]	GND
13	GND	AD [38]	GND	V (I/O)	AD [37]	AD [36]	GND
12	GND	AD [42]	AD [41]	AD [40]	GND	AD [39]	GND
11	GND	AD [45]	GND	V (I/O)	AD [44]	AD [43]	GND
10	GND	AD [49]	AD [48]	AD [47]	GND	AD [46]	GND
9	GND	AD [52]	GND	V (I/O)	AD [51]	AD [50]	GND
8	GND	AD [56]	AD [55]	AD [54]	GND	AD [53]	GND
7	GND	AD [59]	GND	V (I/O)	AD [58]	AD [57]	GND
6	GND	AD [63]	AD [62]	AD [61]	GND	AD [60]	GND
5	GND	C/BE [5]#	GND	V (I/O)	C/BE [4]#	PAR 64	GND
4	GND	V (I/O)	BRSV [1]	C/BE [7]#	GND	C/BE [6]#	GND
3	GND	CLK4	GND	GNT3#	REQ#4	GNT4#	GND
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND
Pin	Z	A	B	C	D	E	F

Table 12: CompactPCI J2 pin assignments

Note:

1. These signals are not connected.
2. These signals are pulled high on the board.

CompactPCI J3 Pin Assignments

Pin	Z	A	B	C	D	E	F
19	GND	GND	GND	GND	GND	GND	GND
18	GND	LPa_DA+	LPa_DA-	GND	LPa_DC+	LPa_DC-	GND
17	GND	LPa_DB+	LPa_DB-	GND	LPa_DD+	LPa_DD-	GND
16	GND	LPb_DA+	LPb_DA-	GND	LPb_DC+	LPb_DC-	GND
15	GND	LPb_DB+	LPb_DB-	GND	LPb_DD+	LPb_DD-	GND
14	GND	GND	GND	GND	GND	GND	GND
13	GND	PDACT#	PDCS1#	PDCS3#	PDA0	PDA2	GND
12	GND	PPDIAG	LILED#_B	PDIRQ14	PDA1	PDDACK#	GND
11	GND	PDDREQ	PDIOW#	GND	PDIORDY	PDIOR#	GND
10	GND	PDD13	PDD1	PDD14	PDD0	PDD15	GND
9	GND	PDD4	PDD11	PDD3	PDD12	PDD2	GND
8	GND	PDD8	PDD6	PDD9	PDD5	PDD10	GND
7	GND	PDRST#	PDD7	USB_OC1#	USB_D1-	USB_D1+	GND
6	GND	TRACK#	WRTPRT#	RDATA#	HDSEL#	DSKCHG#	GND
5	GND	MTR1#	FDIR#	STEP#	WDATA#	WGATE#	GND
4	GND	DRVDEN1	INDEX#	MTR0#	DS1#	DS0#	GND
3	GND	MSDAT	MSCLK	KBDAT	KBCLK	DRVDEN0	GND
2	GND	RI1#	DTR1#	CTS1#	PCBEEP	5V (1)	GND
1	GND	TXD1	RTS1#	RXD1	DSR1#	DCD1#	GND
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**

Table 13: CompactPCI J3 pin assignments

Note:

1. 5V power is supplied by the cPCI-6860A to the RTM.

CompactPCI J4 Pin Assignments

Pin	Z	A	B	C	D	E	F
25	GND	CLK66	GND	HI21	GND	HI7	GND
24	GND	100LED#_B	HI6	GND	HI5	1000LED#_A	GND
23	GND	HI4	GND	HI3	GND	HI2	GND
22	GND	GND	HI1	GND	HI0	GND	GND
21	GND	PSTBF	GND	PSTBS	GND	HI20	GND
20	GND	GND	HI15	GND	HI14	GND	GND
19	GND	HI13	GND	HI12	GND	HI11	GND
18	GND	100LED#_A	HI10	GND	HI9	GND	GND
17	GND	HI8	GND	PUSTBF	GND	PUSTBS	GND
16	GND	3.3V (1)	3.3V (1)	3.3V (1)	3.3V (1)	3.3V (1)	GND
15	GND	HI16	5V (1)	HI17	5V (1)	HI18	GND
12-14	KEY						
11	GND	RIO_RST#	SDA0	SDA1	SDA2	SDDRQ	GND
10	GND	SDACK#	SDD0	SDD1	SDD2	SDD3	GND
9	GND	SDD4	SDD5	SDD6	SDD7	SDD8	GND
8	GND	SDD9	SDD10	SDD11	SDD12	SDD13	GND
7	GND	SDD14	SDD15	SDCS1#	SDCS3#	SDIOR#	GND
6	GND	SDIOW#	SDIORDY	SDDIAG#	SDACT#	SDIRQ	GND
5	GND	RIOPWOK	INT#	SMD_RIO	SMC_RIO	USB_OC2#	GND
4	GND	CRT_R	CRT_G	CRT_B	DDC_CLK	USB_D2+	GND
3	GND	CRT_HS	CRT_VS	DDC_DAT	LILED#_A	USB_D2-	GND
2	GND	RTS3#	CTS3#	SIN3	SOUT3	DTR3#	GND
1	GND	1000LED#_B	ACLED#_A	ACLED#_B	RI3#	DCD3#	GND
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**

Table 14: CompactPCI J4 pin assignments

Note:

1. The 3.3V and 5V power lines are supplied from the cPCI-6860A front board to the RTM.

2.3 Jumpers

There is one jumper on the cPCI-6860A, located beside DIMM0 towards the rear of the board (see Figure 2: Top View of cPCI-6860A on P. 12).

Clear CMOS Jumper JPX1

When the mini-jumper is placed across pins 2 & 3, the CMOS values will be cleared (default setting: pins 1 & 2)

2.4 cPCI-R6860A RTM Board Outline & Rear View

cPCI-R6860A Board Outline and Rear View

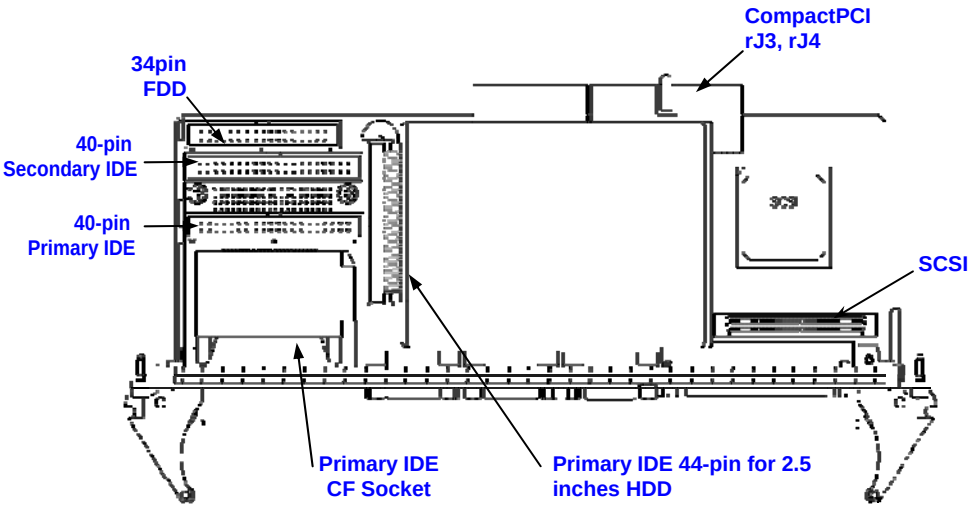


Figure 4: Top View of the cPCI-R6860A

cPCI-R6860A Rear View

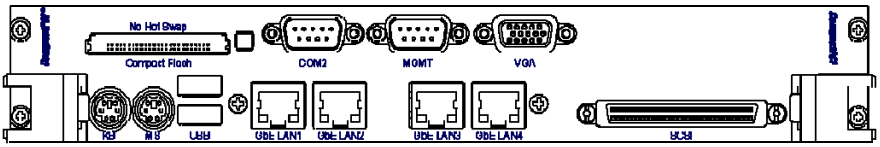


Figure 5: cPCI-R6860A Rear View

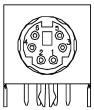
2.5 cPCI-R6860A Connectors & Pin Assignments

Connectors on the RTM with the same functionality as the cPCI-6860A and having the same pin definition will not be highlighted in the following section. Below is a list of common front and rear interfaces with the same pin definitions. Please refer to the relevant section for further detail.

COM2, MGMT	Section 2.2 COM1
VGA	Section 2.2 VGA
Dual USB	Section 2.2 Dual USB
GbE Port 3, 4	Section 2.2 GbE Port 1, 2
CompactPCI rJ3, rJ4	Section 2.2 CompactPCI J3 / J4

Other interfaces are outlined below.

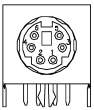
PS2 Keyboard



Pin	Signal	Function
1	KBDATA	Keyboard Data
2	NC	No Connect
3	GND	Ground
4	+5V	Power
5	KBCLK	Keyboard Clock
6	NC	No connect

Table 15: Keyboard Connector on RTM

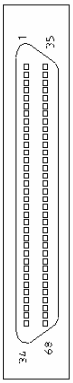
PS2 Mouse Connector



Pin	Signal	Function
1	MSDATA	Mouse Data
2	NC	No Connect
3	GND	Ground
4	+5V	Power
5	MSCLK	Mouse Clock
6	NC	No Connect

Table 16: Mouse Connector on RTM

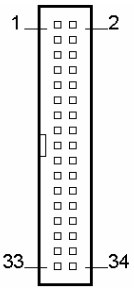
Ultra 320 SCSI



Signal	Pin	Pin	Signal
LVDP12	1	2	LVDM12
LVDP13	3	4	LVDM13
LVDP14	5	6	LVDM14
LVDP15	7	8	LVDM15
LVDPHP	9	10	LVDPHM
LVDP0	11	12	LVDM0
LVDP1	13	14	LVDM1
LVDP2	15	16	LVDM2
LVDP3	17	18	LVDM3
LVDP4	19	20	LVDM4
LVDP5	21	22	LVDM5
LVDP6	23	24	LVDM6
LVDP7	25	26	LVDM7
LVDPLP	27	28	LVDPLM
GROUND	29	30	GROUND
DFFSENSE	31	32	LVEXT68
LVTRMPWR	33	34	LVTRMPWR
LVTRMPWR	35	36	LVTRMPWR
N.C.	37	38	N.C.
GROUND	39	40	GROUND
LVATNP	41	42	LVATNM
GROUND	43	44	GROUND
LVBSYP	45	46	LVBSYM
LVACKP	47	48	LVACKM
LVRSTP	49	50	LVRSTM
LVMSGP	51	52	LVMSGM
LVSELP	53	54	LVSELM
LVCDP	55	56	LVCDM
LVREQP	57	58	LVREQM
LVIOP	59	60	LVIOM
LVDP8	61	62	LVDM8
LVDP9	63	64	LVDM9
LVDP10	65	66	LVDM10
LVDP11	67	68	LVDM11

Table 17: External and Internal Ultra-320 SCSI Interface on RTM

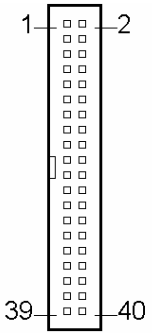
FDD Interface



Signal	Pin	Pin	Signal
Ground	1	2	DRVDEN0
Ground	3	4	NC
NC	5	6	DRVDEN1
Ground	7	8	INDEX#
Ground	9	10	MTR0#
Ground	11	12	DS1#
Ground	13	14	DS0#
Ground	15	16	MTR1#
Ground	17	18	FDIR#
Ground	19	20	STEP#
Ground	21	22	WDATA#
Ground	23	24	WGATE#
Ground	25	26	TRACK0#
Ground	27	28	WPT#
Ground	29	30	RDATA#
Ground	31	32	HDSEL#
Ground	33	34	DSKCHG#

Table 18: FDD Interaface on RTM

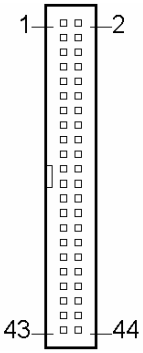
40-pin IDE Port



Signal	Pin	Pin	Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	+5V (for DOM)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	Reserved
DA1	33	34	PDIAG-
DA0	35	36	DA2
CS0-	37	38	CS1-
DASP-	39	40	Ground

Table 19: 40-pin Primary and Secondary IDE pin-headers on RTM

44-pin IDE Port



Signal	Pin	Pin	Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	N.C (key pin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	Reserved
DA1	33	34	PDIAG-
DA0	35	36	DA2
CS0-	37	38	CS1-
DASP-	39	40	Ground
+5V	41	42	+5V
Ground	43	44	TYPE-

Table 20: 44-pin Primary IDE pin-header (CN8) on RTM

2.6 Jumpers and Switches on the RTM

Primary IDE Jumper Setting on RTM

The compact flash card socket on the RTM can either be set to master or slave. Jumper CN3 to the left of the CF card socket is used to set the Primary IDE channel.

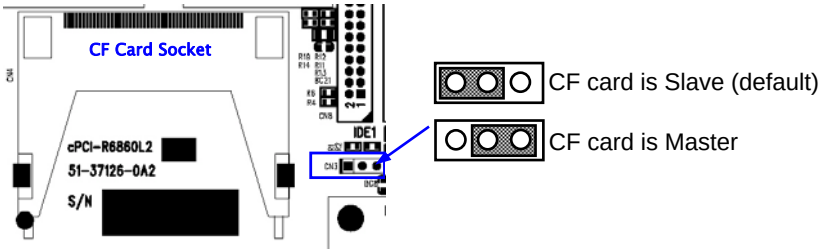


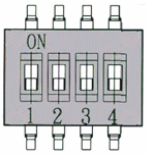
Figure 6: Location of CN3 for setting the Primary IDE channel

GbE Connection Selection

The cPCI-6860A supports dual Ethernet connection on front and rear I/O, allowing the user the benefit of wiring flexibility. However, front and rear I/O operations are not allowed to operate simultaneously.

There are four mini switches that control the GbE routing located on the bottom side (solder side) of the RTM. Refer to the following information when choosing between PICMG 2.16 or rear panel Ethernet connection.

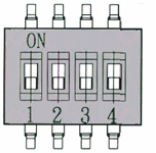
SW2, SW4: LAN1 Connecting Selection



LAN 1 Connecting	2nd Switch		4th Switch	
	Pin	State	Pin	State
PICMG 2.16 Backplane	S2-1	OFF	S4-1	OFF
	S2-2	OFF	S4-2	OFF
	S2-3	OFF	S4-3	OFF
	S2-4	OFF	S4-4	OFF
Rear Panel (Default)	S2-1	ON	**S4-1**	ON
	S2-2	ON	**S4-2**	ON
	S2-3	ON	**S4-3**	ON
	S2-4	ON	**S4-4**	ON

Table 21: LAN1 Connecting Selection

SW1, SW3: LAN2 Connecting Selection



LAN 2 Connecting	1st Switch		3rd Switch	
	Pin	State	Pin	State
PICMG 2.16 Backplane	S1-1	OFF	S3-1	OFF
	S1-2	OFF	S3-2	OFF
	S1-3	OFF	S3-3	OFF
	S1-4	OFF	S3-4	OFF
Rear Panel (Default)	S1-1	ON	S3-1	ON
	S1-2	ON	S3-2	ON
	S1-3	ON	S3-3	ON
	S1-4	ON	S3-4	ON

Table 22: LAN2 Connecting Selection

VGA Connection Selection

The cPCI-6860A supports dual CRT output on front and rear I/O. The mini switch SWXI is used to control the connection of the RTM CRT output and is located next to the GbE routing switches on the bottom side of the RTM.

SWXI Connection Selection

SWXI	ALL ON	Rear VGA ON
	ALL OFF	Rear VGA OFF

3

Getting Started

This chapter provides information on how to install peripherals onto the cPCI-6860A and cPCI-R6860A RTM. Topics covered include:

- CPU Installation
- Board Management Controller Installation
- Thermal Module Installation
- Memory Installation
- HDD Installation
- CF Installation
- Note for RTM Installation/Removal
- Note for Rear I/O Connection

3.1 CPU Installation

The cPCI-6860A supports single or dual Intel® Xeon™ processor with FC-mPGA2-604 and INT-mPGA-603 packages. If the product comes with CPU(s) and thermal module installed, Sections 3.1 and 3.3 may be skipped. If the product comes without CPU(s), the user will need to install them before installing the thermal module. Prior to installing the CPU(s), make sure none of the CPU pins are bent. Make sure to perform all CPU installation procedures at an antistatic workstation while wearing a grounded wrist strap.

To install a CPU, fully raise the CPU locking lever as far as it will go as shown. Carefully place the CPU into the CPU socket. Be sure to align the gold triangle on the corner of the chip with the triangular cut-out in the corner of the socket. Press down gently on the chip to ensure that it is securely in place, and then press the lever down to lock the CPU into position.

Single CPU Installation

When the application requires only one single CPU, install the CPU in CPU1 socket only. Refer to Figure 7 for the location of CPU1.



CAUTION: **DO NOT** install the single CPU configuration with the CPU in the CPU0 Socket. This is an invalid configuration and the board will not operate.

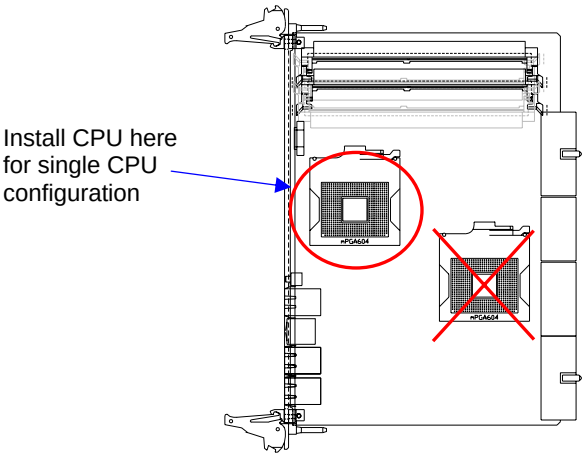


Figure 7: Single CPU Installation

Dual CPU Installation

When using dual CPU configuration, ensure that the ***identical* Low-Voltage Xeon CPU models** are used. Do not mix different type/frequency CPU's as this may damage the CPU chip and/or the cPCI-6860A board.

Installing two non Low-Voltage Xeon CPUs may exceed the thermal and power design limits of the unit resulting in possible board damage.

3.2 Baseboard Management Controller Installation

If you have ordered the optional Baseboard Management Controller (BMC), it must be installed before installing the thermal module. If your product comes with CPU(s) and thermal module installed, first remove the thermal module by reversing the steps described in Section 3.3 below.

To install the BMC, align the connector on the underside of the BMC card with the socket on the cPCI-6860A as shown below in Figure 8. Use the cut-out on the BMC card and the thermal module mounting hole as a visual aid. Press down on the card to ensure it is fully inserted into the socket.

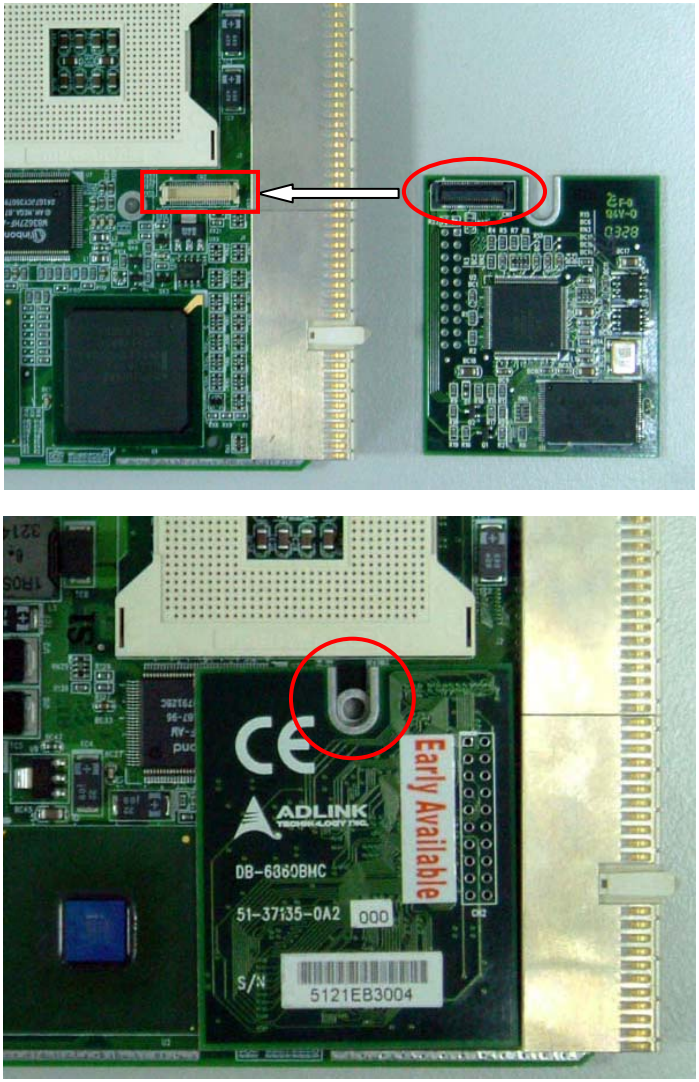


Figure 8: BMC Card Installation

3.3 Thermal Module Installation

Before installing the thermal module (heat sink), ensure that the CPU(s) is completely seated in the CPU socket and the locking lever of the CPU socket is locked. If the product comes with the thermal module installed, skip this section.

Attach the two fans to the thermal module using the 4 long screws included in the accessories packet as shown below.

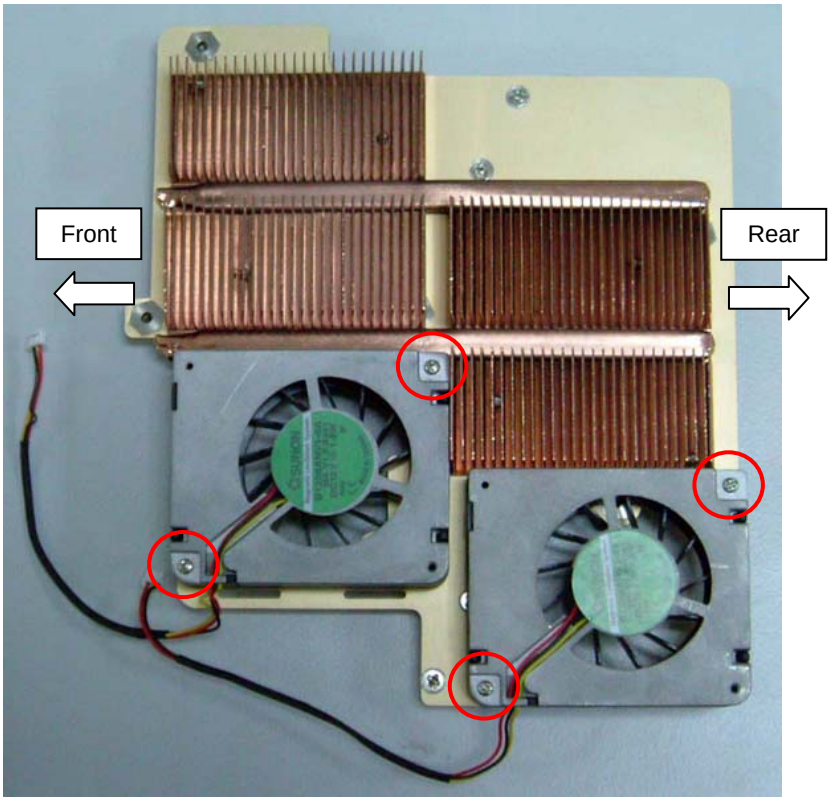


Figure 9: Install Fans on Thermal Module

Turn the thermal module over and install the 6 insulating O-rings onto each of the standoffs as shown below. The O-rings are used to protect delicate

components on the board during thermal module installation and to firmly secure the BMC card (if installed)

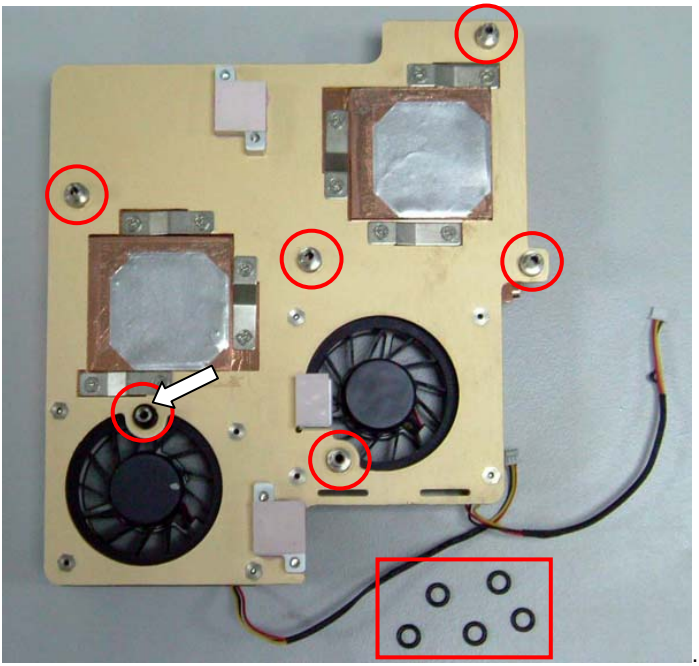


Figure 10: Install O-rings onto Thermal Module

Carefully install the thermal module onto the board (see orientation shown in Figure 9), ensuring that the thermal pads are in contact with the board components. Secure the thermal module to the board using the six screws supplied from the bottom side of the SBC.

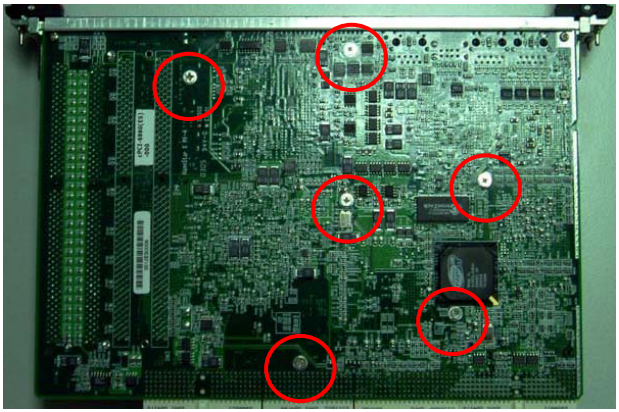


Figure 11: Install Thermal Module onto SBC

After installing the thermal module, connect the fan power cables to the onboard fan connectors as shown and secure the cables to the thermal module using the provided tie-straps to prevent them from catching during insertion or removal of the SBC.

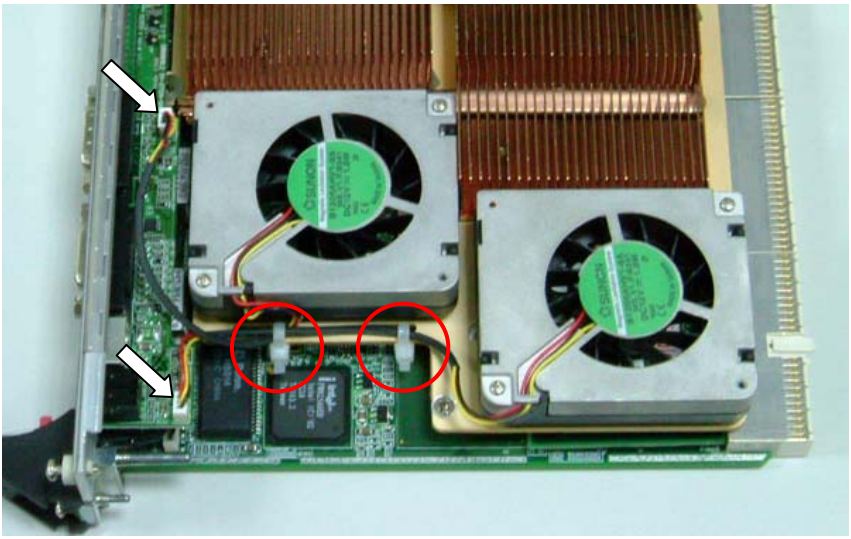


Figure 12: Connect Fan Power Cables

3.4 Memory Installation

The cPCI-6860A SBC supports 144-bit wide registered DDR, which is provided using two 72-bit ECC DIMM sockets. The maximum memory capacity is 4GB. If memory is pre-installed with the product package, this section may be skipped.

The memory must be installed in pairs, that is, ***TWO identical memory modules (in size as well as in capacity) installed in the two DIMM sockets. DO NOT*** install only one or two DIMMs of different RAM type.



The board will not work if the DIMMs are incorrectly installed.

The chipset supports 64-Mb, 128-Mb, 256-Mb, and 512-Mb memory technology. The supported DIMM configurations are listed in the table as follows:

RAM Density	64Mbit		128Mbit		256Mbit		512Mbit	
Device Width (bit)	4	8	4	8	4	8	4	8
No. of memory chips on a memory module	16 + 2	8 +1	16 + 2	8 +1	16 + 2	8 +1	16 + 2	8 +1
Capacity per DIMM (Single Side) M Bytes	128M	64M	256M	128M	512M	256M	1G	512M
Capacity per DIMM (Double Side) M Bytes	256M	128M	512M	256M	1G	512M	2G	1G
Total capacity for two double side DIMM	512M	256M	1G	512M	2G	1G	4G	2G

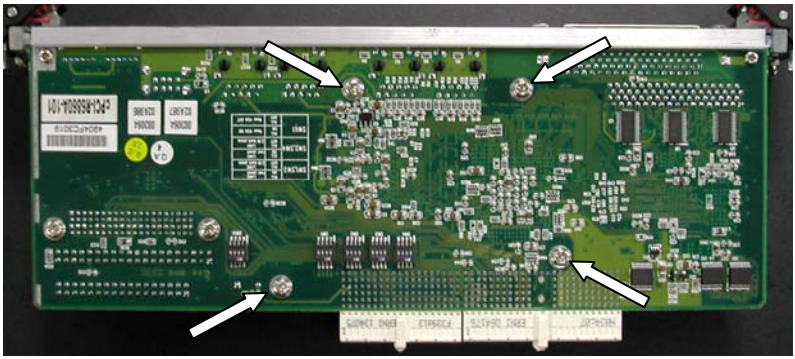
Table 23: cPCI-6860A Supported DIMM Configurations

The cPCI-6860A is designed with an OEM option that allows for support of up to four DIMMs or 8GB of memory. However, the two additional DIMMs are mounted on the bottom side of the SBC, hence occupying an extra one or two slot space (4HP or 8HP) depending on the height of the DIMM. Contact ADLINK for further information on this feature.

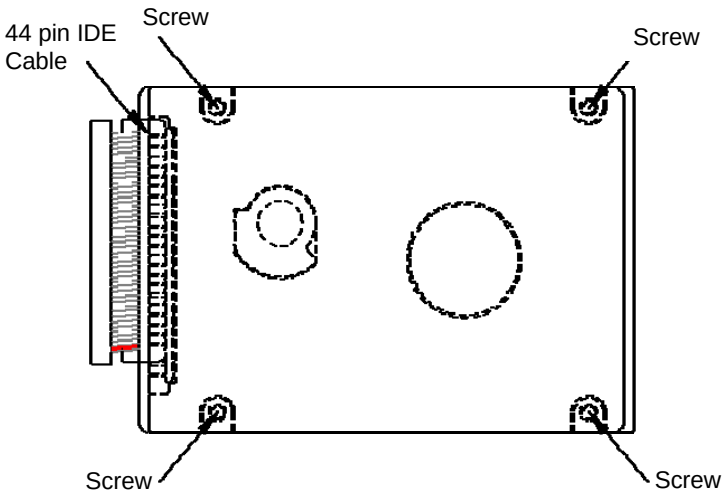
3.5 HDD Installation

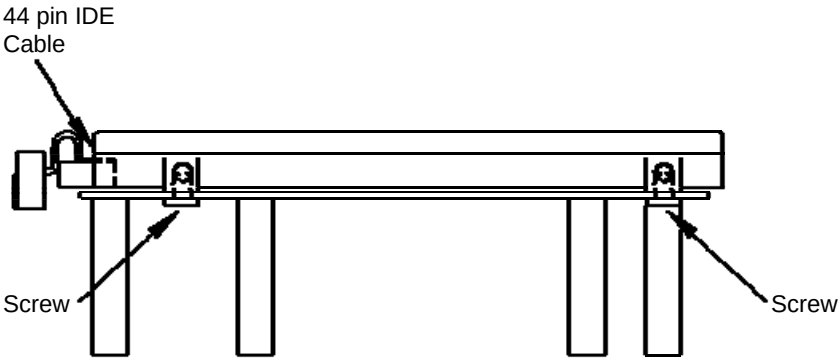
A 2.5 inch HDD can either be installed on the cPCI-R6860A RTM or in the chassis. If a HDD comes pre-installed with the cPCI-R6860A product package, skip this section.

Step 1: Loosen the four screws that hold the HDD mounting bracket in place from the bottom side of the RTM and remove the bracket from the RTM (see photo below).

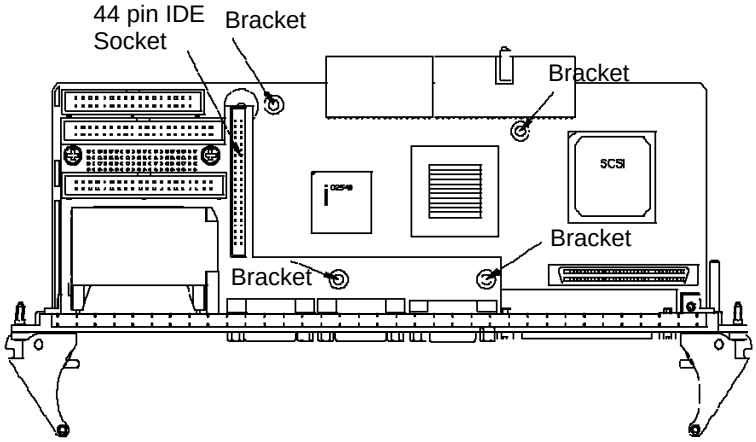


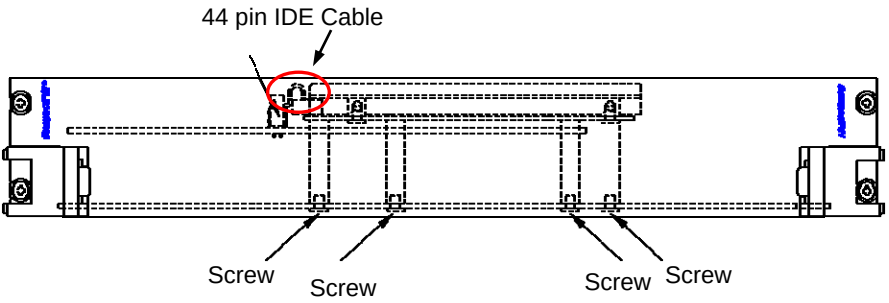
Step 2: Attach the HDD to the bracket using the four screws that come with the HDD mounting kit at the locations marked in the diagrams below. Attach the 44-pin IDE cable to the HDD.





Step 3: Mount the HDD bracket in its original location on the RTM using the four screws removed in Step 1 (see diagrams below).





Note A: The IDE cable should be folded away as shown in the above drawing and away from obstruction during insertion and extraction of the board from its slot.

3.6 CF Installation

A standard CompactFlash (CF) card has an ATA interface that is fully compatible with that of the IDE HDD. The RTM supports both type-I and type-II CF cards. The CF can be inserted or removed from the rear panel. The CF socket is on the Primary IDE port. Before inserting the CF card, ensure that any devices on the Primary IDE port are configured properly for either master or slave operation. Please refer to section 2.6 for more information on Master/Slave jumper setting. The CF port is set to Slave when shipped.

3.7 Note for RTM Installation/Removal

To avoid possible damage to your connectors, read this section before installing or removing the cPCI-R6860A RTM.

Extra caution is required during installation and removal of the cPCI-R6860A RTM when chassis-mounted IDE and/or Floppy devices are connected. If there is no removable blanking plate adjacent to the RTM slot on the “top” side (as is the case with the ADLINK 6400 Series Subsystems), the device cables may be pinched during RTM insertion or catch on the chassis’ internal structure during RTM removal.

Note for ADLINK 6400 Series Subsystems

When installing (or removing) the cPCI-R6860A RTM in (from) an ADLINK 6400 Series Subsystem, first demount the chassis from the rack (if mounted) and remove the top cover of the chassis. Push or pull the cabling as required to prevent damage occurring while carefully and gently inserting or removing the RTM. Replace the chassis cover after installation or removal is complete and remount the chassis into the rack (if required).

3.8 Note for Rear I/O Connection

This section outlines important information regarding the use of rear I/O connections. Refer to section 1.1 for peripheral connectivity of all I/O ports on the RTM. When installing the cPCI-6860A and its RTM, ensure they are paired and aligned behind one another.



Please use the proper RTM to enable all functions (I/O interfaces) on the rear side. The RTM or system board may be damaged if an incorrect RTM is used.

Some I/O ports are supported on both the front board and RTM, including Keyboard, Mouse, VGA, GbE LAN1, and GbE LAN2. These I/O ports can be connected via either front or rear side. DO NOT access both the front and rear ports simultaneously.

4

Device Driver Installation

4.1 Intel® E7501 Chipset

This section describes the installation procedure for the Intel® E7501 chipset device driver under Windows 2000 and Windows XP.

System Requirements

One of the following operating systems must be fully installed on the system before installing any other driver, utilities, or software:

- Windows® 2000
- Windows® XP

Hardware Configuration File Installation

This section describes how to install the hardware configuration files into a system operating Windows 2000 or Windows XP.

1. Check the System Requirements. Windows 2000/XP must be fully installed and running on the system prior to running this software.
2. Close any running applications.
3. The files are stored in an integrated application setup program. This program is designed for a Windows 2000/XP and can be executed from the **Run** command prompt.
4. Place the ADLINK CD into the CD-ROM drive. Run the Setup.exe under X:\ cPCI\cPCI-6860A\Chipset. Where X is the CD drive letter.
5. You will be prompted with a license agreement. If you do not agree with the terms and conditions of using the software, the Installer will exit before extracting any files.
6. Follow the on-screen instructions and use the default settings to complete the setup once the operating system has rebooted. This completes the installation of the Intel® Chipset Software Installation Utility.

4.2 Driver Installation Under Windows 2000

This section describes installation procedures for all software drivers under Windows 2000. Please follow the instructions carefully to ensure efficiency.

VGA Driver Installation

This section describes how to install the ATI 3D Rage XL VGA driver that comes with the ADLINK CD. ATI Rage XL VGA Driver is included in Windows 2000. Follow the steps below to install the display drivers under Windows 2000.

1. The driver is included in the ADLINK CD. Place the ADLINK CD into CD-ROM drive. Run the ***w2k-ragexl-5-0-2195-5012.exe*** file under the directory: **X:\cPCI\cPCI-6860A\VGA\ATI 3D Rage XL\Win2k.**
2. Click ***Next*** to begin the self-extraction process. The extracted files are stored in the default location: ***C:\ATI\support\w2k-ragexl-5-0-2195-5012.***
3. Click ***Yes*** to agree to the license and the driver will be installed.
4. Finish the installation and reboot the system.

LAN Driver Installation

This section describes the LAN driver installation process for the ***Intel® 82562EM*** and ***82546EB*** Gigabit Ethernet controller under Windows 2000. The Intel® software utilities package include Diagnostics utility, Makedisk utility, and 10/100/1000Mbps Ethernet device drivers. All drivers and utilities are stored in the ADLINK CD under the directory: ***X:\cPCI\cPCI-6860A\LAN\82546EB\Win2KXP.*** For the driver installation of other OS, please refer to the ***readme*** file in the CD.

During Windows 2000 installation, the operating system will install a LAN driver automatically. We recommend that the most updated LAN driver be installed, which is shipped with the ADLINK CD. This will ensure total compatibility. After installing the OS, update to the newer driver by following the steps below:

1. Run the self-extracting ***pro2kxpm.exe*** file. The extracted files are stored to the default location ***C:\IntelPRO.***
2. To install or update the Ethernet drivers for the system, click '***Install Now***'. All Ethernet devices in the computer will be updated.
3. Reboot the system to enable the new driver

SCSI driver Installation

This section describes the SCSI driver installation for the SCSI controller ***LSI (SYMBIOS) 53C1000R*** for the optional RTM. All related drivers are stored in the ADLINK CD under the directory:
x***:\cPCI\cPCI-6860A\SCSI\53C1020-U320\Win2000***, where x: is the location of the CD-ROM drive.

The 53C1020 driver in the ADLINK CD only supports the Windows 2000 environment. The installation procedure for this driver under Windows 2000 is outlined in this section. For driver installation of other operating systems, refer to the README file under its respective directory of the ADLINK CD.

NOTE: The most updated SCSI drivers can be downloaded from the LSI Logic web site at URL: http://www.lsilogic.com.

4.3 Driver Installation Under Windows XP

This section describes installation procedures for all software drivers under Windows 2000. Follow the instructions carefully below to avoid any problems after installation.

VGA Driver Installation

This section describes how to install the ATI 3D Rage XL VGA driver that comes with the ADLINK CD. The ATI Rage XL VGA Driver is included in Windows XP. Follow the steps below to install the display drivers under Windows XP.

1. The driver is included in the ADLINK CD. Run the ***wxp-ragexl-5-10-2600-6009.exe*** file under the following directory: ***X:\cPCI\cPCI-6860A\VGA\ATI 3D Rage XL\WinXP.***
2. Click ***Next*** to begin the self-extraction process. The extracted files are stored to the default location: ***C:\ATI\support\wxp-ragexl-5-10-2600-6009***.
3. Click ***Yes*** to agree to the license and the driver will be installed.
4. Finish the installation and reboot the system.

LAN Driver Installation

This section describes the LAN driver installation process for the ***Intel® 82562EM*** and ***82546EB*** Gigabit Ethernet controller under Windows XP. The Intel® software utilities package include Diagnostics utility, Makedisk utility, and 10/100/1000Mbps Ethernet device drivers. All drivers and utilities are stored in the ADLINK CD under the directory: ***X:\cPCI\cPCI-6860A\LAN\8254EB\Win2KXP***, where X: is the location of the CD-ROM drive. For the driver installation of other OS, please refer to the ***readme*** file in the CD.

During Windows XP installation, the operating system will install a LAN driver automatically. It is recommend that the most updated LAN driver be installed, which is shipped with the ADLINK CD to ensure total compatibility. After installing the OS, update to the newer driver by following the steps below.

1. Run the self-extracting ***pro2kxpm.exe*** file. The extracted files are stored to the default location ***C:\IntelPRO.***
2. To install or update the Ethernet drivers for the system, click '***Install Now***'. All Ethernet devices in the computer will be updated.
3. Reboot the system to enable the new driver

SCSI driver Installation

This section describes the SCSI driver installation for the SCSI controller ***LSI (SYMBIOS) 53C1020*** for the optional RTM. All related drivers are stored in the ADLINK CD under the directory:
x***:\cPCI\cPCI-6860A\SCSI\53C1020-U320\WinXP\32-bit***, where x: is the location of the CD-ROM drive.

The 53C1020 driver for Windows XP is included in the standard Windows XP package and is installed automatically during installation of the operating system. For driver installation of other operating systems, refer to the README file under its respective directory in the ADLINK CD.

NOTE: The most updated SCSI drivers can be downloaded from the LSI Logic web site at URL: http://www.lsilogic.com.

During Windows 2000 installation, a SCSI driver will be automatically installed. It is recommended that the user manually updates to the most updated driver, which is shipped with the ADLINK CD to ensure total compatibility. After Windows 2000 installation is completed, update to the new driver by following the steps below:

1. Boot up Windows 2000.
2. Right click on ***My Computer*** and click on the ***Properties*** option. Click on the ***Hardware*** tab, and then the ***Device Manager*** button.
3. Click the **"+"** symbol to the left of the SCSI and RAID controller option to expand the directory. Find the device (or adaptor) for the driver upgrade and ***double-click the entry***. Click on the ***Driver*** tab.
4. Click the "***Update Driver***" button. When the Upgrade Device Driver Wizard starts, click the ***Next*** button to continue.
5. Ensure ***"Search for a suitable driver for my device"*** is selected and click ***Next.***
6. Insert the ADLINK CD and then click the **"*Have Disk"*** button.
7. Browse to the 53C1020 driver in the following location: ***X:\cPCI\cPCI-6860A\SCSI\53C1020-U320\Win2000***, select ***oemsetup.inf***, click ***OPEN*** then click ***NEXT>***.
8. Highlight the model: ***LSI Logic 1020/1030 Ultra320 SCSI-Adapter*** Device.
9. Click the ***NEXT*** button. Windows 2000 may report, ***"Digital Signature Not Found"***, click ***Yes*** to continue.
10. Click on the ***Finish*** button, then click ***CLOSE***.
11. Reboot the system to activate the new driver

Appendix

IPMI Function List

The following table lists the IPMI V1.0 functions supported by the cPCI-6860A.

IPMI V1.0 Function List	cPCI-6860A
IPM Device "Global" Commands	
Get Device ID	✓
Cold Reset	✓
Warm Reset	✓
Get Self Test Results	✓
Set ACPI Power State	✓
Get ACPI Power State	✓
Get Device GUID	✓
BMC Watchdog Timer Commands	
Reset Watchdog Timer	✓
Set Watchdog Timer	✓
Get Watchdog Timer	✓
BMC Device and Messaging Commands	
Set BMC Global Enables	✓
Get BMC Global Enables	✓
Clear Message Flags	✓
Get Message Flags	✓
Enable Message Channel Receive	✓
Get Message	✓
Send Message	✓
Read Event Message Buffer	✓
Get BT Interface Capabilities	✓
Get System GUID	✓
Chassis Device Commands	
Get Chassis Status	✓
Chassis Control	✓
Get POH Counter	✓

Event Commands	
Set Event Receiver	✓
Get Event Receiver	✓
Platform Event (a.k.a. “Event Message”)	✓
Sensor Device Commands	
Get Device SDR Info	✓
Get Device SDR	✓
Reserve Device SDR Repository	✓
Get Sensor Reading Factors	✓
Set Sensor Hysteresis	(2)
Get Sensor Hysteresis	✓
Set Sensor Threshold	(2)
Get Sensor Threshold	✓
Set Sensor Event Enable	(2)
Get Sensor Event Enable	✓
Re-arm Sensor Events	(2)
Get Sensor Reading	✓
Set Sensor Type	(2)
Get Sensor Type	✓
FRU Device Commands	
Get FRU Inventory Area Info	✓
Read FRU Data	✓
SDR Device Commands	
Get SDR Repository Info	✓
Get SDR Repository Allocation Info	✓
Reserve SDR Repository	✓
Get SDR	✓
Add SDR	✓
Partial Add SDR	✓
Delete SDR	✓
Clear SDR Repository	✓
Get SDR Repository Time	✓
Set SDR Repository Time	✓
Enter SDR Repository Update Mode	✓
Exit SDR Repository Update Mode	✓
Run Initialization Agent	✓

SEL Device Commands	
Get SEL Info	✓
Get SEL Allocation Info	✓
Reserve SEL	✓
Get SEL Entry	✓
Add SEL Entry	✓
Partial Add SEL Entry	✓
Delete SEL Entry	(1)
Clear SEL	✓
Get SEL Time	✓
Set SEL Time	✓

Note 1: SEL storage is not supported in random access

Note 2: SDR information is read only.

Warranty Policy

Thank you for choosing ADLINK. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ADLINK's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: http://rma.adlinktech.com/policy/.
2. All ADLINK products come with a limited two-year warranty, one year for products bought in China.
    - The warranty period starts on the day the product is shipped from ADLINK's factory.
    - Peripherals and third-party products not manufactured by ADLINK will be covered by the original manufacturers' warranty.
    - For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ADLINK is not responsible for any loss of data.
    - Please ensure the use of properly licensed software with our systems. ADLINK does not condone the use of pirated software and will not service systems using such software. ADLINK will not be held legally responsible for products shipped with unlicensed software installed by the user.
    - For general repairs, please do not include peripheral accessories. If peripherals need to be included, be certain to specify which items you sent on the RMA Request & Confirmation Form. ADLINK is not responsible for items not listed on the RMA Request & Confirmation Form.
3. Our repair service is not covered by ADLINK's guarantee in the following situations:
    - Damage caused by not following instructions in the User's Manual.
    - Damage caused by carelessness on the user's part during product transportation.
    - Damage caused by fire, earthquakes, floods, lightening, pollution, other acts of God, and/or incorrect usage of voltage transformers.
    - Damage caused by inappropriate storage environments such as with high temperatures, high humidity, or volatile chemicals.
    - Damage caused by leakage of battery fluid during or after change of batteries by customer/user.

- Damage from improper repair by unauthorized ADLINK technicians.
- Products with altered and/or damaged serial numbers are not entitled to our service.
- This warranty is not transferable or extendible.
- Other categories not protected under our warranty.

4. Customers are responsible for all fees necessary to transport damaged products to ADLINK.

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