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NuIPC® cPCI-6760D series

6U CompactPCI Highly Integrated Single Slot
Dual Bridge Low Power Pentium-III CPU Module
and Rear I/O Transition Module

Manual Rev. 2.01

Revision Date: December 21, 2006

Part No: 50-15006-101

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1 Introduction

This manual contains information on the cPCI-6760D series CPU module and its related rear I/O transition modules, including cPCI-R6760D - basic rear I/O transition module for cPCI-6760D and cPCI-R6760S - super rear I/O transition module (super RTM). Topics covered in this chapter include:

- Checklist
- Descriptions
- Features
- Specifications
- Functional block diagram
- Mechanical outline drawing

1.1 Checklist

The cPCI-6760D series comply with the PICMG 2.0 Rev. 3.0 CompactPCI specification with 6U single-slot (4 TE/HP) form factor. The cPCI-6760D series support both front panel I/O and rear panel I/O. It is not necessary to use the rear board if the application requires only front panel I/O wiring or special backplane wiring. The front board (the CPU module) and the rear board (the rear I/O transition module, RTM) are sold separately. The standard models: cPCI-6760D/P7 and cPCI-6760D/P8 are front boards, and the standard models: cPCI-R6760D and cPCI-R6760S are rear boards.

Front Board

Front board is the CPU module. There are two standard versions available for cPCI-6760D series module (see section 1.2 for the model variations comparison table). The default version does not include any RAM or HDD. However, the CPU module may be equipped with different capacity of RAM or HDD by request. Please check your configurations with your dealer and check that

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your package is complete with the items listed below. If there are any damaged or missing items, please contact your dealer.

- The cPCI-6760D CPU module (may be equipped with different capacity of RAM or HDD. Those items may vary according to various configuration requests. The CPU is pre-soldered and the CPU heatsink is pre-mounted.)
- One 2.5” ATA HDD accessory pack (P/N: 58-00023-000) including a specially designed 44-wire connection cable and screws kit. (This accessory pack will not be available if the 2.5” ATA HDD is pre-mounted by request.)
- One DB-6760CF removable CompactFlash socket adaptor (which is pre-mounted on the CPU module for the standard configuration delivery. The DB-6760CF may not be included if customer requests the pre-configuration of 2.5” ATA HDD or by OEM project request.)
- Y cable for PS/2 keyboard and mouse connection. (P/N: 30-01016-000)
- This User’s Manual
- ADLINK CD

Note: The delivery package of cPCI-6760D OEM version (non-standard configuration, functionality, customized logo, modified faceplate or package) may vary according to various customization requests.

Rear Board

The rear board is a rear I/O transition module (RTM). Different rear boards provide different I/O function combinations or extensions. Two models are available for use with the cPCI-6760D series module: cPCI-R6760D and cPCI-R6760S. The cPCI-R6760D is designed for the standard rear panel I/O for cPCI-6760D. And the cPCI-R6760S is designed for the extra rear panel I/O functionality expansion for cPCI-6760D. Please see section 1.2 and the model variations comparison table. Check that your package is complete

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with the items below. If you find any damaged or missing items, please contact your dealer.

- The cPCI-R6760D or R6760S rear I/O transition module
- One 40-wires EIDE cable and one 34-wires FDD cable (P/N: 58-00009-000)
- This User's Manual
- ADLINK CD

Note: The delivery package of cPCI-R6760 OEM version (non-standard configuration, functionality, customized logo, modified faceplate or package) may vary according to the different customization request.

1.2 Description

ADLINK cPCI-6760D is a powerful and flexible CompactPCI host slot processor board based on Intel BGA2 Mobile (or Low Voltage/Ultra Low Voltage) Pentium III processor. This board is specially designed to add total system functional density to ADLINK's 6U CompactPCI platform for CTI and Telecom applications. It is also suitable for clustering high-availability, high-density, and high-reliability embedded applications where performance and a rich feature set are mandatory.

The CPU module uses the Intel® 440BX AGPset chipset which supports processor front side bus (FSB) running at 100MHz and PC-100 SDRAM up to 512MB with optional ECC capacity. The highly integrated design allows the cPCI-6760D to provide full functionality within a single slot space. Users can access the RS-232, AGP-VGA, USB, keyboard, mouse, Dual Ethernet ports and one PMC expansion slot on the front panel. There are two standard models available for cPCI-6760D numbering as cPCI-6760D/P7 and cPCI-6760D/P8 that provide different CPU speed for customized applications.

cPCI-R6760D rear I/O transition module provides the rear panel I/O extension features for cPCI-6760D. It provides the I/O access of

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printer port, dual Ethernet ports, keyboard, mouse, USB, RS-232/422/485, and AGP-VGA on rear panel as well as providing interfaces for inner chassis connection of storage devices such as EIDE and FDD.

cPCI-R6760S rear I/O transition module, the super RTM, provides the extra functionality expansion for cPCI-6760D. It provides the I/O access of Ultra-160 SCSI, four Ethernet ports, keyboard, mouse, COM2 (RS-232/422/485), and one USB on rear panel. The module also provides the interfaces for inner chassis connection of EIDE and FDD. Reserved pin headers of printer port, COM1, and VGA port are used for customized applications.

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cPCI-6760D Model Variations Comparison Table

Model	cPCI-6760D/P7	cPCI-6760D/P8
Processor	**Intel BGA2 Pentium-III 700MHz**	**Intel BGA2 Pentium-III 850MHz**
Processor FSB	100 MHz	100 MHz
Chipset	Intel® 440BX AGPset	Intel® 440BX AGPset
Memory Size	Up to 512MB	Up to 512MB
Memory Type	PC-100 SDRAM in 144-pin SO-DIMM	PC-100 SDRAM in 144-pin SO-DIMM
Graphic	SMI SM721	SMI SM721
Video Memory	Build-in SM721 4MB VRAM	Build-in SM721 4MB VRAM
Serial Port	2 (one RS-232/422/485)*	2 (one RS-232/422/485)*
Parallel Port	1*	1*
USB	2*	2*
Ethernet Port	2 Ports (Intel® 82599 Fast Ethernet Controller)	2 Ports (Intel® 82599 Fast Ethernet Controller)
EIDE	2 UDMA-33 channels*	2 UDMA-33 channels*
FDD I/F	Yes*	Yes*
Flash Storage	Removable CompactFlash Socket or 2.5” Flash Drive	Removable CompactFlash Socket or 2.5” Flash Drive
PMC Socket	Single, 32-bit	Single, 32-bit
cPCI Slots Support	14 slots, all bus mastering	14 slots, all bus mastering

Table 1-1: cPCI-6760D Model Variations Comparison Table

Note: Some functional interfaces should be collocated with cPCI-R6760D or cPCI-R6760S. Please refer to the specification and peripheral connectivity table for more information.

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cPCI-R6760D and cPCI-R6760S Comparison Table

Model	cPCI-R6760D	cPCI-R6760S
SCSI	None	External Ultra-160 SCSI Interface (HD-68)
Ethernet Ports (RJ-45)	Two ports support front and rear I/O	Two ports support front and rear I/O; two extra ports support rear I/O
VGA	DB-15 on faceplate	Reserved pin headers on board
COM1	Reserved pin headers on board (RS-232)	Reserved pin headers on board (RS-232)
COM2	DB-9 on faceplate (RS-232/422/485)	Reserved pin headers on board and DB-9 on faceplate (RS-232/422/485)
Parallel Port	DB-25 on faceplate	Reserved pin headers on board
USB	One connector on faceplate	One connector on faceplate
EIDE	Two 40-pin interfaces on board	Two 40-pin interfaces on board
FDD I/F	One 34-pin interface on board	One 34-pin interface on board
Keyboard	PS/2 on faceplate	PS/2 on faceplate
Mouse	PS/2 on faceplate	PS/2 on faceplate
14-slot support	Yes	No *

Table 1-2: cPCI-R6760D and cPCI-R6760S comparison table

Note: *Please refer to the specification and peripheral connectivity table for more information.

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CAUTION: When collocating cPCI-R6760S with cPCI-6760D, do not apply this combination in the 14-slot support backplane such as cBP-6515R or cBP-6014R. The cPCI-R6760S utilizes the PCI bus from secondary bridge on J4 and J5. Using cPCI-R6760S with a 14-slot support backplane may cause conflict between the add-on card's PCI bus mastering devices and the onboard PCI bus mastering devices such as Ultra-160 SCSI and fast Ethernet controller. It may also result in malfunctions in some add-on cards or onboard devices.

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1.3 Features

- PICMG 2.0 CompactPCI Specification R.3.0 Compliant
- PICMG 2.1 CompactPCI Hot Swap Specification R1.0 Compliant
- PICMG 2.7 CompactPCI Dual System Bus specification R1.0 compliant
- Standard 6U form factor, 1-slot (4TE/HP) width
- Designed for low power or mobile BGA2 Pentium-III CPU running at FSB 100MHz
- Two 144-pin SO-DIMM socket supports up to 512MB PC-100 SD-RAM with optional ECC support
- Built-in housing for 2.5” low profile HDD
- Supports up to two USB ports, two serial port, one parallel port
- Supports 14 bus-master PCI devices on CompactPCI bus peripheral slots (not available on cPCI-R6760S)
- Onboard high performance AGP 2x VGA display output by SMI SM721 controller
- Supports up to dual 10/100Mb Ethernet ports (up to four 10/100Mb Ethernet ports when collocated with cPCI-R6760S)
- Supports external Ultra-160 SCSI interface (only available when collocating with cPCI-R6760S)
- Supports Intel pre-boot execution environment (PXE) for boot from LAN
- Supports CompactFlash type-II socket via removable daughter board
- Supports rear I/O configuration
- Supports remote console on serial ports
- Supports self-hot-swap operation by soft triggering system power off
- WDT status indication
- Self-hot-swap status indication

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1.4 Specifications

Specifications of the front board (cPCI-6760D series)

General CompactPCI Features

- PCI Rev.2.1 compliant
- PICMG 2.0 CompactPCI Specification R.3.0 Compliant
- PICMG 2.1 CompactPCI Hot-swap specification R1.0 compliant
- PICMG 2.7 CompactPCI Dual System Bus specification R1.0 compliant

Form Factor

- Standard 6U CompactPCI (board size: 233.35mm x 160mm)
- 1-slot (4 TE/HP, 20.32mm) width, including housing of 2.5” HDD

CPU/Cache

- Intel® BGA2 Low Voltage Pentium III with 256KB on-die L2 cache @ 700MHz speed and 100MHz FSB (for cPCI-6760D/P7)
- Intel BGA2 Mobile Pentium III with 256KB on-die L2 cache @ 850MHz speed & 100MHz FSB (for cPCI-6760D/P8)
- Intel BGA2 Low Voltage Celeron with 128KB on-die L2 cache @ 400MHz speed & 100MHz FSB (Only available for big quantity OEM project)

Chipset

- Intel® 440BX AGPset
- Intel® 82443BX Host Bridge/Controller and 82371EB(PIIX4E)

BIOS: Award PnP BIOS

- BIOS write protection, provide anti-virus capability
- Onboard Ethernet disable selectable
- Customized power-on screen (for OEM project)
- DMI BIOS Support: Desktop Management Interface (DMI) allows users to download system hardware-level

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information such as CPU type, CPU speed, internal/external frequencies, and memory size.

- Supports Intel pre-boot execution environment (PXE) for boot from LAN
- Remote Console: setup console redirection to serial ports (terminal mode) with CMOS setup access

Note: Due to the BIOS segment limitation, enabling the remote console function may occupy the same memory space for other ROM-mapping add-on or boot-up devices such as Pre-boot Agent of Ethernet Boot ROM, SCSI Boot ROM, or add-on EIDE Boot ROM. It is recommended that the user enables only one ROM-mapping add-on or boot-up device when enabling the remote console function.

Host Memory

- Two 144-pin SO-DIMM sockets, Max. 512MB PC-100 unbuffered SDRAM.
- Optional ECC support (for volume orders OEM project)

IDE Ports

- Bus Master IDE controller supports two EIDE interfaces by J3 and J5 rear I/O for up to four IDE devices, including HDD and ATAPI CD-ROM drives. Pin assignments on cPCI J3 and J5 support an IDE direct connection feature on the cBP-6108R, cBP-6105R, cBP-6515R, cBP-6402, and cBP-6309 backplanes.
- One 44-pin secondary EIDE connector on the front CPU module, which can support an onboard 2.5” notebook size HDD or Flash2000TM flash disk.
- One CompactFlash type-II socket on removable daughter board for front CPU module.
- Two 40-pin EIDE connectors on rear transition module, that can support PIO Mode 3/4 and Ultra DMA/33 IDE devices.

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Note:	The compactFlash daughter board (DB-6760CF) occupies the same space as the 2.5” ATA HDD. cPCI-6760D supports either one 2.5” ATA HDD or one CompactFlash socket, but not both.

Onboard Super I/O

- Winbond W83977EF
- Supports high-speed bi-directional SPP/EPP/ECP parallel ports with ESD protection to 4KV and downstream device protection to 30V. Rear I/O is routed through J3.
- One floppy interface by J3 rear I/O, supports two floppy drives (360KB, 720KB, 1.2MB, 1.44MB, 2.88MB). One 34-pin floppy connector is available on rear I/O transition module.
- One 16C550 UARTs compatible RS-232 COM1 port with ESD protection to 2KV on front CPU module.
- One RS-232/422/485 selectable COM2 serial port by using a rear transition module.

USB Interface

- Supports up to two USB ports, one port on front CPU module, another port on rear I/O transition module.
- USB Specification Rev. 1.1. compliant
- Individual over-current protection

Watch-dog Timer

- Programmable I/O port 3F0h and 3F1h to configure watchdog timer, programmable timer 1 to 255secs or 1 to 255mins.
- A LED indicator on front faceplate for watchdog timer status indication.
- Bundled easy-programming library for DOS, Windows 95, 98, and NT.

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Hardware Monitoring

- Winbond W83782D, monitoring CPU temperature, CPU fan, system temperature, and DC Voltages.

PMC module support

- Onboard one 32-bit PMC module slot for functionality expansion.
- The PMC slot provides +5V V(I/O) PCI signaling environment in default mode. +3.3V V(I/O) PCI signaling environment for volume orders is also available on request.

Onboard VGA Display

- AGP 2x VGA controller SMI Lynx3DM SM721, with built-in 4M VRAM
- VGA display supports both front and rear I/O
- High performance, 128-bit, single clock cycle 2D drawing engine
- High performance, power managed 3D acceleration engine
- AGP 2x, ACPI, VESA DPMS, and VESA DDC 2b compliant
- Supports up to 1280x1024 VGA display resolution with 24-bit true color, non-interlaced.
- Supports up to 1600x1200 VGA display resolution with 16-bit high color at 60Hz refresh rate under WindowsNT*.
- RAMDAC Latch-up protection
- Driver supporting Windows95/98/ME/NT/2000, Linux, and OS/2

Note:	*The 1600x1200 VGA display resolution is non-standard configuration that is available for volume orders upon request. It needs a specially modified BIOS with driver, which can ONLY be supported under Windows NT operating system. This BIOS might cause incompatibility issues with other OS. The standard BIOS can support up to 1280x1024 resolution under all operating systems listed above.

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Onboard Ethernet supporting

- Two Ethernet ports featuring two Intel® 82559 Fast Ethernet controller
- IEEE 802.3 10Base-T and 100Base-TX compatible
- IEEE 802.3u Auto-negotiation support
- IEEE 802.3x 100Base-TX flow control support
- Full duplex support at both 10 and 100 Mbps operation
- Supports Intel pre-boot execution environment (PXE) for boot from LAN
- Supports Intel adapter teaming functions including Fault Tolerance, Adaptive Load Balancing (ALB), Fast Ethernet Channel (FEC), and Link Aggregation

OS Compatibility

- MS-DOS 6.2+, Windows 95/98/ME, Windows NT 4.0, Windows 2000, Red Hat Linux 7.2, and VxWorks

Flash Disk Support

- Supports CompactFlash type-II socket on front CPU module by removable transition daughter board
- Onboard housing for Flash2000TM 2.5” flash disk on front CPU module
- Disk-On-Module via 40-pin IDE ports of rear I/O transition module

PCI Bus Bridge

- Dual TI PCI2050 transparent PCI to PCI bridge
- Supports up to 14 PCI bus mastering devices on CompactPCI bus peripheral slots

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Front Panel LEDs and switch

- Power status (green)
- IDE activity indicator (red)
- Ethernet (integrated with RJ-45): 10/100Mb (amber), link, and activity (green)
- Watchdog timer status indicator (amber)
- Self-hot-swap status indicator (blue)
- On-handle limit switch for soft power-off signal triggering
- Flush tact switch for system reset

Environment

- Operating temperature: 0 to 60°C*
- 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, 5-500Hz, each axis
  - Operation: 0.5Grms, 5-500Hz, each axis, with 2.5” HDD

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Note:

*1.System forced cooling airflow with 10 CFM is required for mobile Pentium-III running at 850MHz and 6 CFM is required for low voltage Pentium-III running at 700MHz.

2. As environment limitations are different from one component to another, please refer to the component specification when mounting a HDD or PMC module into cPCI-6760D. The operating temperature was tested when the HDD is cabled outside the testing chamber, along with the Mobile Pentium-III 850MHz CPU.

3. The vibration limitation of operation is caused by the 2.5" ATA HDD. Should customers wish to use cPCI-6760D in a high vibration environment, it is recommended that the user use a Flash2000 Flash Disk (FFD series) or CompactFlash Card to replace the 2.5" ATA HDD.

Safety Certificate and Test

- CE, FCC Class B
- HALT (temperature and vibration stress)

Power Consumption

Configurations	+5V	+3.3V	+12V	-12V
Intel® Pentium® III processor - Low Power 700MHz, 256MB with cPCI-R6760D	3.8A	4.5A	228mA	0mA
Intel® Mobile Pentium® III 850MHz, 512MB with cPCI-R6760S	6.4A	4.5A	228mA	0mA

Table 1-3: Power Consumption

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Note:	The values above are the measured power consumption for SBC with CPU and RAM only; the CPU is running at 100% loading with HCT, Kpower, and burn-in test programs under Windows 2000 Professional. The powers for all other peripheral devices such as add-on cards, HDD, or CD-ROM are not included.

Specifications of rear board cPCI-R6760D

General CompactPCI Features

- PICMG 2.0 CompactPCI Specification R3.0 compliant
- IEEE 1101.11 rear transition module mechanism compliant

Form Factor

- Standard 6U CompactPCI (board size: 233.35mm x 80mm)
- 1-slot (4TE/HP, 20.32mm) width

Storage Devices Ports

- One 34-pin floppy interface onboard
- Two 40-pin EIDE connectors onboard support PIO Mode 3/4 and Ultra DMA/33 IDE devices

Multi-I/O Ports

- DB-25 printer port on rear faceplate
- DB-9 COM2 port for selectable RS-232/422/485 on rear faceplate
- Reserved one 10-pin interface for COM1 (RS-232) onboard for customized application
- Separate PS/2 type keyboard and mouse connectors on rear faceplate

USB Interface

- One USB type A connector on rear faceplate

VGA Interface

- One DB-15 VGA interface on rear faceplate

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Ethernet Ports

- Two RJ-45 Ethernet ports with integrated transformer and LED indicators on rear faceplate, supporting 10BASE-T or 100BASE-TX Ethernet.

Driver Installation

- No extra driver necessary for using cPCI-R6760D

Miscellaneous

- System buzzer onboard
- Ethernet activity indicator (green LED) for each port
- Ethernet speed (10/100Mb) indicator (amber LED) for each port

CAUTION: IDE2, COM1, Keyboard, Mouse, VGA, and dual LAN ports support wiring by either front I/O or rear I/O. Connect the device either by front I/O or by rear I/O for one I/O function. Do not simultaneously connect devices to one I/O function port on front panel and one on rear panel. This may cause I/O device damage or system module damage and warranty will be void.

Specifications of rear board cPCI-R6760S

General CompactPCI Features

- PICMG 2.0 CompactPCI R3.0 compliant
- PICMG 2.7 CompactPCI R1.0 secondary CompactPCI bus pin definitions compliant
- IEEE 1101.11 rear transition module mechanism compliant

Form Factor

- Standard 6U CompactPCI (board size: 233.35mm x 80mm)
- 1-slot (4TE/HP, 20.32mm) width

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Ultra-160 SCSI

- One external Ultra-160 SCSI interface by HD-68 connector on rear panel.
- LSI 53C1000R single channel Ultra-160 SCSI controller supports up to 15 SCSI devices

Generic Storage Devices Ports

- One 34-pin floppy interface onboard
- Two 40-pin EIDE connectors onboard support PIO Mode 3/4 and Ultra DMA/33 IDE devices.

Multi-I/O Ports

- Reserved one 26-pin interface for printer port onboard for customized application
- Reserved one 10-pin interface for COM1 (RS-232) onboard for customized application
- One DB-9 connector on rear faceplate and reserved one 10-pin interface onboard for selectable RS-232/422/485 COM2 port
- Separate PS/2 type keyboard and mouse connectors on rear faceplate

USB Interface

- One USB type A connector on rear faceplate

VGA Interface

- Reserved one 14-pin VGA interface onboard for customized application

Ethernet Ports

- Four RJ-45 Ethernet ports with integrated LED indicators on rear faceplate, supporting 10BASE-T or 100BASE-TX Ethernet.
- Two RJ-45 Ethernet ports designed for supporting both front and rear I/O. Two additional RJ-45 Ethernet ports are designed for extra expansion purposes by the onboard Intel® 82599 Fast Ethernet Controller, which only supports the rear panel I/O.

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Driver Installation

- Driver installations are required for the onboard LSI 53C1000R Ultra-160 SCSI and the onboard Intel® 82599 Fast Ethernet Controller.

Miscellaneous

- System buzzer onboard
- Ethernet activity indicator (green LED) for each port
- Ethernet speed (10/100Mb) indicator (amber LED) for each port

CAUTION: 

IDE2, COM1, Keyboard, Mouse, VGA, and dual LAN ports support wiring by either front or rear I/O. Connect the device either by front or rear I/O for one I/O function. Do not simultaneously connect devices to one I/O function port on front panel and one on rear panel. This may cause I/O device or system module damage and warranty will be void.

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Peripheral Connectivity for Front and Rear Board

I/O	Front (cPCI-6760D)		Rear (cPCI-R6760D)	
	Faceplate	Board	Faceplate	Board
Serial Port (COM1)	Y (DB-9)	---	---	Y(J3, 10-pin)
Serial Port (COM2, RS-232/422/485)	---	---	Y(J5, DB-9)	---
Parallel Port	---	---	Y(J3, DB-25)	---
PS/2 Keyboard and Mouse	Y (PS/2)	---	Y(J3, PS/2)	---
Floppy	---	---	---	Y(J3, 34-pin)
Ultra DMA 33 Primary EIDE	---	---	---	Y(J3, 40-pin)
Ultra DMA 33 Secondary EIDE	---	Y (44-pin)	---	Y(J5, 40-pin)
USB A	Y	---	---	---
USB B	---	---	Y (J5)	---
PC Beeper	---	---	---	Buzzer
10/100Mb Ethernet Port 1	Y (RJ-45)	---	Y (J3, RJ-45)	---
10/100Mb Ethernet Port 2	Y (RJ-45)	---	Y (J3, RJ-45)	---
VGA	Y (DB-15)	---	Y (J5, DB-15)	---
LEDs	Y	---	---	Y (Ethernet)
Reset button	Y	---	---	---
CompactFlash (via daughter board)	---	Y (CF-II)	---	---

Table 1-4: Peripheral Connectivity for cPCI-6760D with cPCI-R6760D

CAUTION: Please use the correct rear I/O transition module to enable the functions (I/O interfaces) on rear side. Failure to do so may result in board or system damage on the rear I/O transition module. Please refer to Chapter 2 for Ethernet front I/O or rear I/O connecting selection switch setting and Chapter 3 for the rear I/O transition module.

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Peripheral Connectivity for cPCI-6760D with cPCI-R6760S

I/O	Front (cPCI-6760D)		Rear (cPCI-R6760S)	
	Faceplate	Board	Faceplate	Board
Serial Port (COM1)	Y (DB-9)	---	---	Y(J3, 10-pin)
Serial Port (COM2, RS-232/422/485)	---	---	Y(J5, DB-9)	Y (10-pin)
Parallel Port	---	---	---	Y (J3, 26-pin)
PS/2 Keyboard and Mouse	Y (PS/2)	---	Y(J3, PS/2)	---
Floppy	---	---	---	Y(J3, 34-pin)
Ultra DMA 33 Primary EIDE	---	---	---	Y(J3, 40-pin)
Ultra DMA 33 Secondary EIDE	---	Y (44-pin)	---	Y(J5, 40-pin)
USB A	Y	---	---	---
USB B	---	---	Y (J5)	---
PC Beeper	---	---	---	Buzzer
10/100Mb Ethernet Port 1	Y (RJ-45)	---	Y (J3, RJ-45)	---
10/100Mb Ethernet Port 2	Y (RJ-45)	---	Y (J3, RJ-45)	---
10/100Mb Ethernet Port 3*	---	---	Y (RJ-45)	---
10/100Mb Ethernet Port 4*	---	---	Y (RJ-45)	---
Ultra-160 SCSI*	---	---	Y (HD-68)	---
VGA	Y (DB-15)	---	---	Y (J5, 14-pin)
LEDs	Y	---	---	Y (Ethernet)
Reset button	Y	---	---	---
CompactFlash (via daughter board)	---	Y (CF-II)	---	---

Table 1-5: Peripheral Connectivity for cPCI-6760D with cPCI-R6760S

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CAUTION: 	Please use the correct rear I/O transition module to enable the functions (I/O interfaces) on rear side. Failure to do so may result in board or system damage on the rear I/O transition module. Please refer to Chapter 2 for Ethernet front I/O or rear I/O connecting selection switch setting and Chapter 3 for the rear I/O transition module.

Note:	Ethernet ports 3, 4, and Ultra-160 SCSI are add-on functions with onboard controller in cPCI-R6760S. These functional I/Os only support the rear panel I/O.

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1.5 Functional Block Diagram

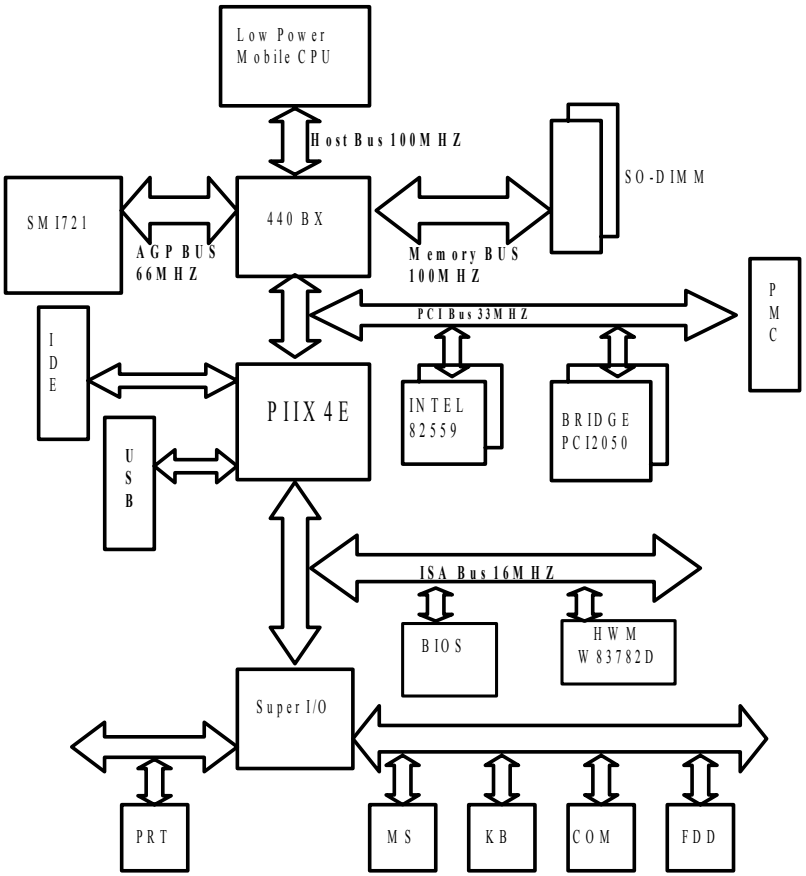


Figure 1-1: Functional Block Diagram

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1.6 Mechanical outline drawing

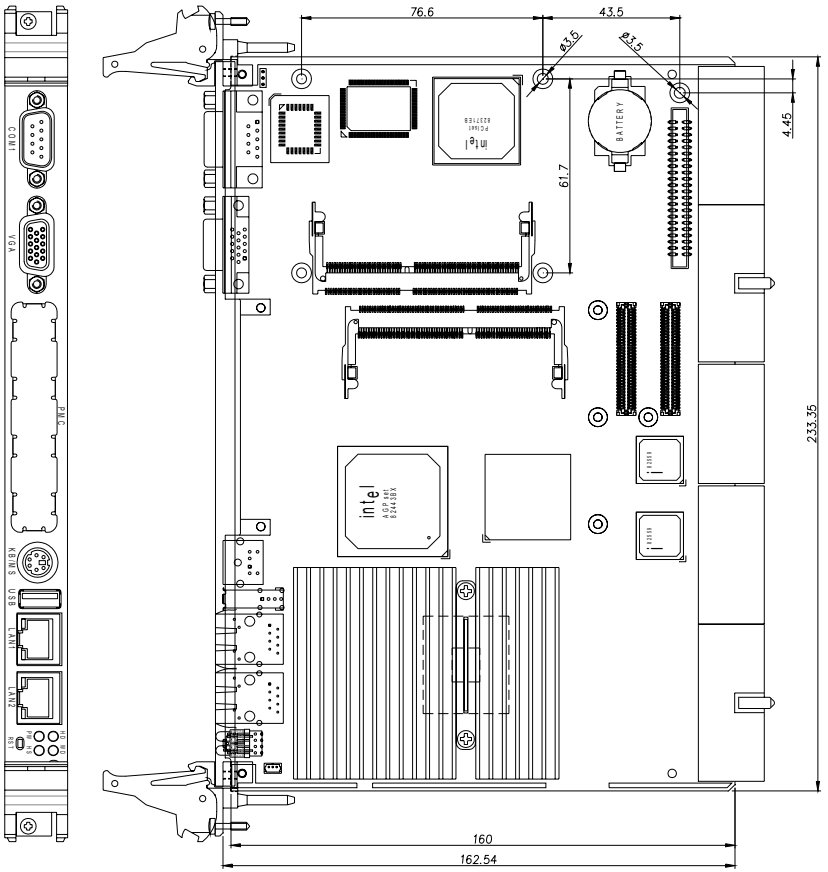


Figure 1-2: Outline drawing for cPCI-6760D series front board

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2 Jumpers and Connectors

This chapter contains information on jumpers, connectors, and LED indicators on the cPCI-6760D. Topics covered include:

- Jumpers, Connectors, and LED indicators on the cPCI-6760D
- Jumpers, Connectors, and LED indicators on the cPCI-R6760D
- Jumpers, Connectors, and LED indicators on the cPCI-R6760S

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Jumpers and connectors map of cPCI-6760D series front board

TOP View

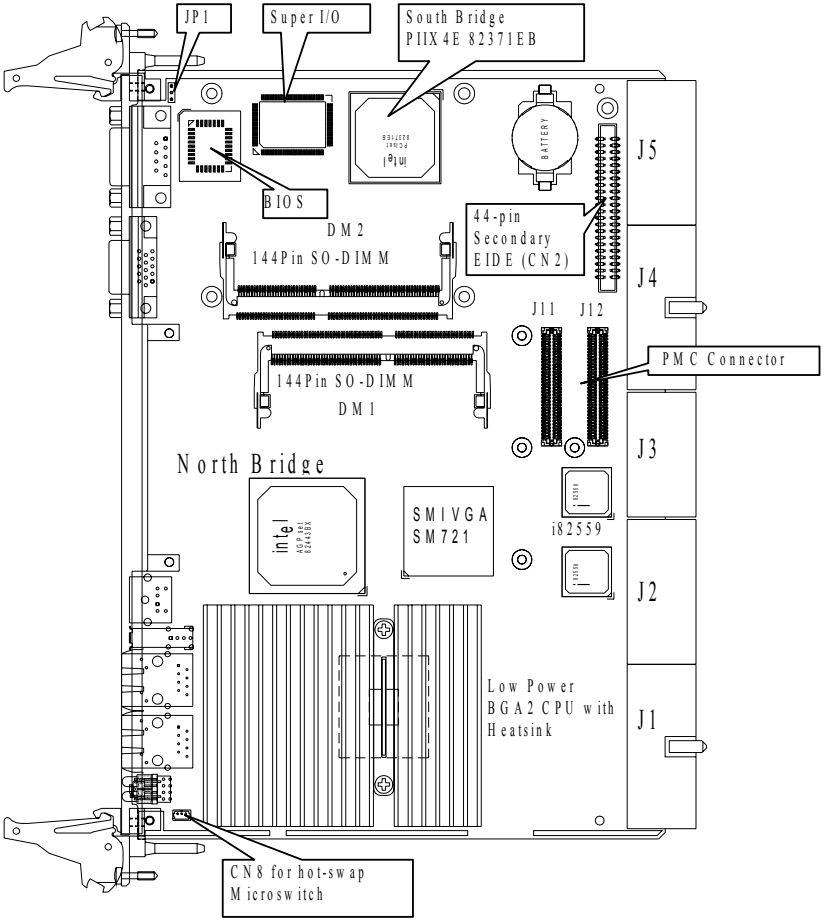


Figure 2-1: Front View

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Bottom and Front Panel View

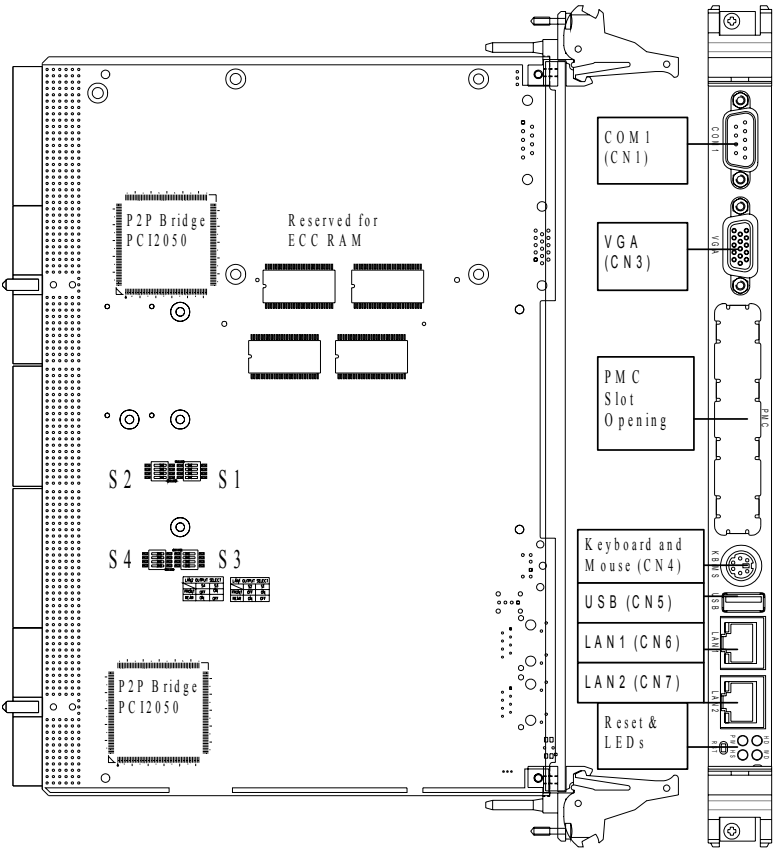


Figure 2-2: Bottom and Front Panel View

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Jumpers and connectors map of cPCI-R6760D board

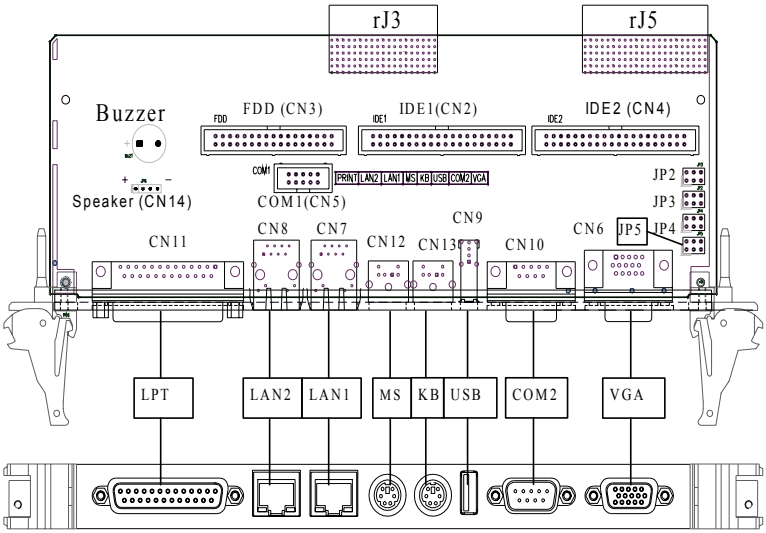


Figure 2-3: Jumpers and connectors map of cPCI-R6760D board

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Jumpers and connectors map of cPCI-R6760S series board

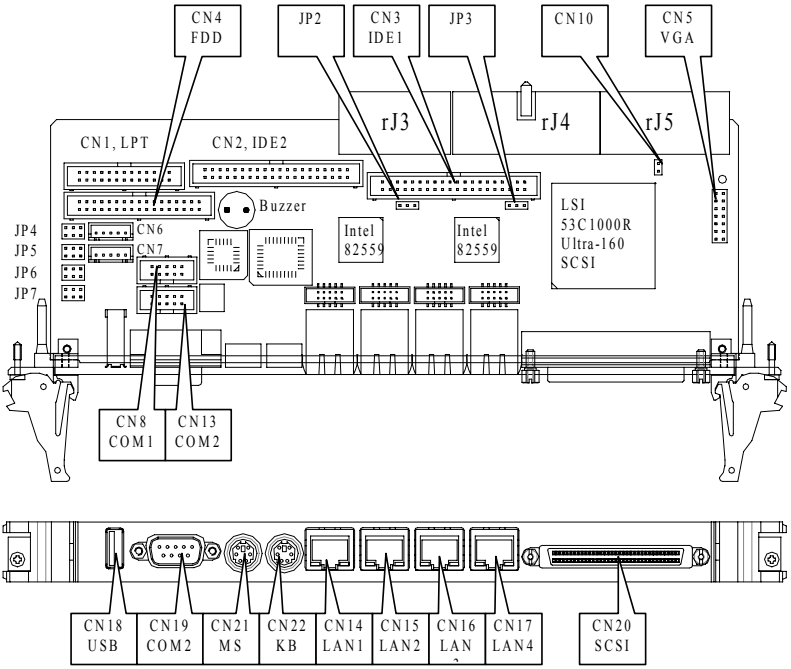


Figure 2-4: Jumpers and connectors map of cPCI-R6760S series board

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2.1 Jumpers, Connectors, and LED Indicators on cPCI-6760D

The jumpers on the cPCI-6760D front board allow users to configure their CPU module according to their applications needs. Should you have any questions on the most ideal jumper configuration best suited to your needs, please contact your dealer or sales representative. The connectors on the cPCI-6760D front board allows the user to connect devices such as keyboard, mouse, VGA, COM port, Ethernet etc.

Note:	There are no jumpers for front side bus (FSB) and CPU speed selection. cPCI-6760D is equipped with a BGA2 pre-soldered CPU that is mounted during SMT process on manufacturing.

CAUTION: 	Some I/O ports support connection either by front or rear I/O. However connect devices either by front or rear I/O for one I/O function. Do not connect devices to one I/O function port on front panel and rear panel simultaneously. This may cause I/O device or system module damage and warranty will be void.

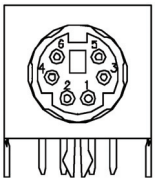
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JP1 on cPCI-6760D

JP1	Setting	Function
	Pin 1-2 Short/Closed	Clear CMOS Content
	Pin 2-3 Short/Closed	Normal Operation (Default)

Table 2-1: JP1 Clear CMOS content

Keyboard and Mouse Combo Connector (CN4) on cPCI-6760D



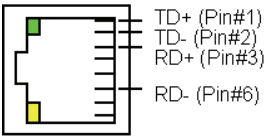
Pin	Signal	Function
1	KBDATA	Keyboard Data
2	MSDATA	Mouse Data
3	GND	Ground
4	+5V	Power
5	KBCLK	Keyboard Clock
6	MSCLK	Mouse Clock

Table 2-2: Keyboard/Mouse Combo Connector (CN4) on cPCI-6760D front board

Note: A Y-cable can be used to connect a PS/2 keyboard and mouse on this connector. A PS/2 keyboard can also be connected on this connector when the mouse is not in use.

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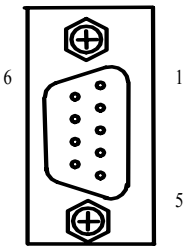
Ethernet Connectors (CN6, 7)



Pin	Signal Name
1	TD+
2	TD-
3	RD+
6	RD-

Table 2-3: Ethernet Connector LAN1 (CN6) and LAN2 (CN7) on cPCI-6760D front board

Serial Port COM1 Connector (CN1)

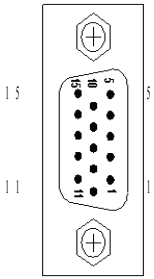


Pin	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, Ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

Table 2-4: Serial Port COM1 (CN1) on cPCI-6760D front board

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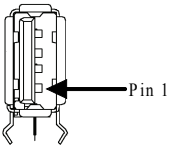
VGA Connector (CN3)



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 2-5: VGA Connector (CN3) on cPCI-6760D front board

SB (Port A) Connector (CN5)

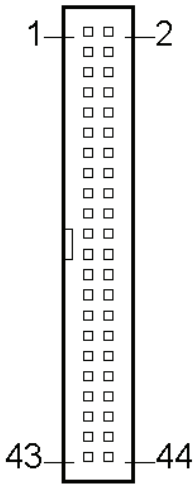


Pin	Signal Name
1	Vcc
2	USB-
3	USB+
4	Ground

Table 2-6: USB Connector (CN5) on cPCI-6760D front board

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DE Connectors (44-pin, CN2)

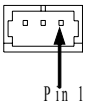


Signal	Pin	Pin	Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	(keypin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	reserved
DA1	33	34	PDIAG-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

Table 2-7: Secondary IDE channel (CN2) on cPCI-6760D front board

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Micro-Switch Connector (CN8)



Pin	Signal Name
1	Power Button
2	+5V
3	GND

Table 2-8: Micro-Switch Connector CN8 on cPCI-6760D

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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) (1)	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(6)	S1C/BE[0]#	GND
20	GND	S1AD[12]	GND	V(I/O) (1)	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 (1)	IPMB_SDA (1)	GND	S1PERR#	GND
16	GND	S1DEVSEL#	GND	V(I/O) (1)	S1STOP#	S1LOCK#	GND
15	GND	+3.3V	S1FRAME#	S1IRDY#	BDSEL (7)	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 (8)	S1AD[23]	GND	S1AD[22]	GND
8	GND	S1AD[26]	GND	V(I/O) (1)	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 (1)	HEALTHY# (1)	V(I/O) (1)	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 2-9: CompactPCI J1 pin assignments

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CompactPCI J2 Pin Assignments

Pin	Z	A	B	C	D	E	F
22	GND	GA4# (1)	GA3# (1)	GA2# (1)	GA1# (1)	GA0# (1)	GND
21	GND	S1CLK6	GND	Reserved	Reserved	Reserved	GND
20	GND	S1CLK5	GND	Reserved	GND	Reserved	GND
19	GND	GND	GND	Reserved	Reserved	Reserved	GND
18	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
17	GND	Reserved	GND	PRST#	S1REQ6#	S1GNT6#	GND
16	GND	Reserved	Reserved	DEG# (2)	GND	Reserved	GND
15	GND	Reserved	GND	FAL# (2)	S1REQ5#	S1GNT5#	GND
14	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
13	GND	Reserved	GND	V(I/O) (1)	Reserved	Reserved	GND
12	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
11	GND	Reserved	GND	V(I/O) (1)	Reserved	Reserved	GND
10	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
9	GND	Reserved	GND	V(I/O) (1)	Reserved	Reserved	GND
8	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
7	GND	Reserved	GND	V(I/O) (1)	Reserved	Reserved	GND
6	GND	Reserved	Reserved	Reserved	GND	Reserved	GND
5	GND	Reserved	Reserved	V(I/O) (1)	Reserved	Reserved	GND
4	GND	V(I/O) (1)	Reserved	Reserved	GND	Reserved	GND
3	GND	S1CLK4	GND	S1GNT3#	S1REQ#4	S1GNT4#	GND
2	GND	S1CLK2	S1CLK3	SYSEN# (2)	S1GNT2#	S1REQ3#	GND
1	GND	S1CLK1	GND	S1REQ1#	S1GNT1#	S1REQ2#	GND
Pin	Z	A	B	C	D	E	F

Table 2-10: CompactPCI J2 Pin Assignments

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CompactPCI J3 Pin Assignments

Pin	Z	A	B	C	D	E	F
19	GND	PDRST#	PDCS16# (1)	PDIORDY	Reserved	PDIRQ14	GND
18	GND	PDACT#	Reserved	PDCS3#	PDCS1#	PPDIAG (1)	GND
17	GND	PDD15	PDD14	PDD13	PDD12	Reserved	GND
16	GND	PDD11	PDD10	PDD9	PDD8	PDDACK#	GND
15	GND	PDA0	PDA1	+5V (4)	PDA2	PDDREQ	GND
14	GND	PDD7	PDD6	PDD5	PDD4	PDIOW#	GND
13	GND	PDD3	PDD2	PDD1	PDD0	PDIOR#	GND
12	GND	DS0#	DRVDEN1	MTR0#	INDEX#	WDATA#	GND
11	GND	DS1#	DSKCHG	MTR1#	DRVDEN0	RDATA#	GND
10	GND	WRTPRT#	HDSEL#	FDIR#	TRACK0#	STEP#	GND
9	GND	WGATE#	ERRORP#	AUTOFD	PBUSY	Reserved	GND
8	GND	PE	SLCTIN#	+5V (4)	PSTROB#	Reserved	GND
7	GND	PPD7	PPD6	PPD5	PPD4	PINIT3	GND
6	GND	PPD3	PPD2	PPD1	PPD0	PACK#	GND
5	GND	Reserved	MSDATA	PCBEEP	KBDATA	SLCT	GND
4	GND	Reserved	MSCLK	+5V (4)	KBCLK	RXD1	GND
3	GND	CTS1#	RTS1#	DSR1#	DCD1#	TXD1	GND
2	GND	TDP1	TDN1	RI1#	DTR1#	TDN2	GND
1	GND	RDP2	RDN2	RDP1	RDN1	TDP2	GND
Pin	Z	A	B	C	D	E	F

Table 2-11: CompactPCI J3 pin assignments

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CompactPCI J4 Pin Assignments

Pin	Z	A	B	C	D	E	F
25	GND	+5V (4)	REQ64# (2)	ENUM# (2)	+3.3V(4)	+5V (4)	GND
24	GND	S2AD[1]	+5V (4)	Reserved	S2AD[0]	ACK64#	GND
23	GND	+3.3V (4)	S2AD[4]	S2AD[3]	+5V (4)	S2AD[2]	GND
22	GND	S2AD[7]	GND	+3.3V (4)	S2AD[6]	S2AD[5]	GND
21	GND	+3.3V (4)	S2AD[9]	S2AD[8]	M66EN (4)	S2C/BE[0]#	GND
20	GND	S2AD[12]	GND	Reserved	S2AD[11]	S2AD[10]	GND
19	GND	+3.3V (4)	S2AD[15]	S2AD[14]	GND	S2AD[13]	GND
18	GND	S2SERR#	GND	+3.3V (4)	S2PAR	S2C/BE[1]#	GND
17	GND	+3.3V (4)	IPMB_SCL (1)	IPMB_SDA (1)	GND	S2PERR#	GND
16	GND	S2DEVSEL#	GND	Reserved	S2STOP#	S2LOCK#	GND
15	GND	+3.3V (4)	S2FRAME#	S2IRDY#	GND	S2TRDY#	GND
12-14	KEY						
11	GND	S2AD[18]	S2AD[17]	S2AD[16]	GND	S2C/BE[2]#	GND
10	GND	S2AD[21]	GND	+3.3V (4)	S2AD[20]	S2AD[19]	GND
9	GND	S2C/BE[3]#	GND	S2AD[23]	GND	S2AD[22]	GND
8	GND	S2AD[26]	GND	Reserved	AD[25]	AD[24]	GND
7	GND	S2AD[30]	S2AD[29]	S2AD[28]	GND	S2AD[27]	GND
6	GND	S2REQ0#	GND	+3.3V (4)	S2CLK	S2AD[31]	GND
5	GND	Reserved	Reserved	S2PCIRST#	GND	S2GNT0#	GND
4	GND	IPMB_PWR (1)	HEALTHY# (1)	Reserved	INTP (1)	INTS	GND
3	GND	INTA#	INTB#	INTC#	+5V (4)	INTD#	GND
2	GND	TCK (2)	+5V (4)	TMS (2)	TDO (1)	TDI (2)	GND
1	GND	+5V (4)	Reserved	TRST# (2)	Reserved	+5V (4)	GND
Pin	Z	A	B	C	D	E	F

Table 2-12: ComapctPCI J4 pin assignments

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CompactPCI J5 Pin Assignments

Pin	Z	A	B	C	D	E	F
22	GND	Reserved	Reserved	Reserved	Reserved	Reserved	GND
21	GND	S2PCLK6	GND	LANLED2	Reserved	Reserved	GND
20	GND	S2PCLK5	GND	SDD7	GND	SIDERST#	GND
19	GND	GND	GND	SDD9	SDD6	SDD8	GND
18	GND	SDD4	SDD11	SDD10	GND	SDD5	GND
17	GND	SDD12	GND	Reserved	S2REQ6#	S2GNT6#	GND
16	GND	SDD3	SDD13	Reserved	GND	SDD2	GND
15	GND	SDD1	GND	Reserved	S2REQ5#	S2GNT5#	GND
14	GND	SDDREQ	SDD14	SDD0	GND	SDD15	GND
13	GND	SDIORDY	GND	Reserved	SDIOW#	SDIOR#	GND
12	GND	SPDIAG	SDCS16#	SDDACK#	GND	SDIRQ15	GND
11	GND	SDA0	GND	Reserved	SDA2	SDA1	GND
10	GND	GREEN	SDACT#	SDCS3#	GND	SDCS1#	GND
9	GND	HSYNC	GND	Reserved	RED	BLUE	GND
8	GND	DDCCLK	DDCDAT	SPDLED2	GND	VSYNC	GND
7	GND	OCJ1	GND	Reserved	LANLED1	SPDLED1	GND
6	GND	USBP1M	USBP1P	DTR2#	GND	RXD2	GND
5	GND	DCD2#	GND	Reserved	TXD2	RI2#	GND
4	GND	Reserved	CTS2#	RTS2#	GND	DSR2#	GND
3	GND	S2CLK4	GND	S2GNT3#	S2REQ4#	S2GNT4#	GND
2	GND	S2CLK2	S2CLK3	Reserved	S2GNT2#	S2REQ3#	GND
1	GND	S2CLK1	GND	S2REQ1#	S2GNT1#	S2REQ2#	GND
Pin	Z	A	B	C	D	E	F

Table 2-13: CompactPCI J5 pin assignments

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Note:

(1) These signals are not connected.

(2) These signals are pulled high onboard.

(3) These signals are pulled low onboard.

(4) These power pins are used for cPCI-R6760S and cPCI-R6760D. If the backplane has any power pins connected to those pins, it will not allow operators to remove or insert the cPCI-6760D front board in a live system.

(5) ENUM# is connected to a BIOS programmable circuitry then connected to either IRQ 3 or IRQ 9 depending on hardware configuration. There is a BIOS setting to Enable/Disable this ENUM# function. The default BIOS setting is set to 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 system slot. Customers should also enable the ENUM# function in the cPCI-6760D BIOS setting. (When R283 and R284 are installed with 0-ohm resistors, ENUM# is routed through IRQ9. If R283 and R284 are removed and R281 and R282 are installed with 0-ohm resistors, ENUM# is routed through IRQ3.)

(6) M66EN is tied to the ground. PCI bus can run in 33MHz.

(7) In backplanes, BDSEL must tie to ground to enable the “self-hot-swap” controller.

(8) IDSEL is tied to ground.

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PMC Slot Pin Assignments J11

Signal	Pin	Pin	Signal
TCK (3)	1	2	-12V
GND	3	4	INTA#
INTB#	5	6	INTC#
BUSMODE1# (1)	7	8	+5V
INTD#	9	10	RESERVED (1)
GND	11	12	+3.3V
CLOCK	13	14	GND
GND	15	16	GNT#
REQ#	17	18	+5V
PMCVIO (4)	19	20	AD[31]
AD[28]	21	22	AD[27]
AD[25]	23	24	GND
GND	25	26	C/BEJ[3]#
AD[22]	27	28	AD[21]
AD[19]	29	30	+5V
PMCVIO (4)	31	32	AD[17]
FRAME#	33	34	GND
GND	35	36	IRDY#
DEVSEL#	37	38	+5V
GND	39	40	LCOK#
RESERVED (1)	41	42	RESERVED (1)
PAR	43	44	GND
PMCVIO (4)	45	46	AD[15]
AD[12]	47	48	AD[11]
AD[9]	49	50	+5V
GND	51	52	C/BEJ[0]#
AD[6]	53	54	AD[5]
AD[4]	55	56	GND
PMCVIO (4)	57	58	AD[3]
AD[2]	59	60	AD[1]
AD[0]	61	62	+5V
GND	63	64	REQ64 # (2)

Table 2-14: PMC Slot Pin Assignments J11

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PMC Slot Pin Assignments J12

Signal	Pin	Pin	Signal
+12V	1	2	TRST# (3)
TMS (2)	3	4	RESERVED (1)
TDI (2)	5	6	GND
GND	7	8	RESERVED (1)
RESERVED (1)	9	10	RESERVED (1)
BUSMODE2	11	12	+3.3V
PCIREST#	13	14	BUSMODE3# (3)
+3.3V	15	16	BUSMODE4# (3)
PME#	17	18	GND
AD[30]	19	20	AD[29]
GND	21	22	AD[26]
AD[24]	23	24	+3.3V
IDSEL#	25	26	AD[23]
+3.3V	27	28	AD[20]
AD[18]	29	30	GND
AD[16]	31	32	C/BEJ[2]#
GND	33	34	RESERVED (1)
TRDY#	35	36	+3.3V
GND	37	38	STOP#
PERR#	39	40	GND
+3.3V	41	42	SERR#
C/BEJ1	43	44	GND
AD[14]	45	46	AD13
M66EN	47	48	AD10
AD[8]	49	50	+3.3V
AD[7]	51	52	RESERVED (1)
+3.3V	53	54	RESERVED (1)
RESERVED (1)	55	56	GND
RESERVED (1)	57	58	RESERVED (1)
GND	59	60	RESERVED (1)
ACK64#	61	62	GND
GND	63	64	RESERVED (1)

Table 2-15: PMC Slot Pin Assignments J12

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Note:

(1) These signals are not connected.

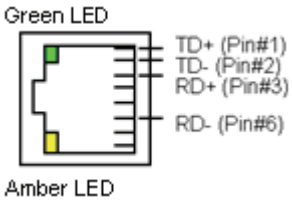
(2) These signals are pulled high onboard.

(3) These signals are pulled low onboard.

(4) PMC VIO power lines are resistors selectable. The default factory setting is tight to 5V by 0-ohm resistors R46 and R48. When the R46 and R48 are removed, and R47 and R49 are installed with 0-ohm resistors, the PMC VIO is 3.3V.

(5) M66EN is tied to ground. The PCI bus can run in 33MHZ.

LAN Port Indicators (Integrated in LAN1 (CN6) and LAN2 (CN7))



Amber LED 10/100Mbps Status	Description
OFF	10Mbps transfer rate
ON	100Mbps transfer rate

Table 2-16: Amber LED indication in LAN port

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Green LED Link/Activity Status	Description
OFF	No link
ON	Connecting
Blinking	Active/Data transferring

Table 2-17: Green LED indication in LAN port

IDE Activity LED Indication

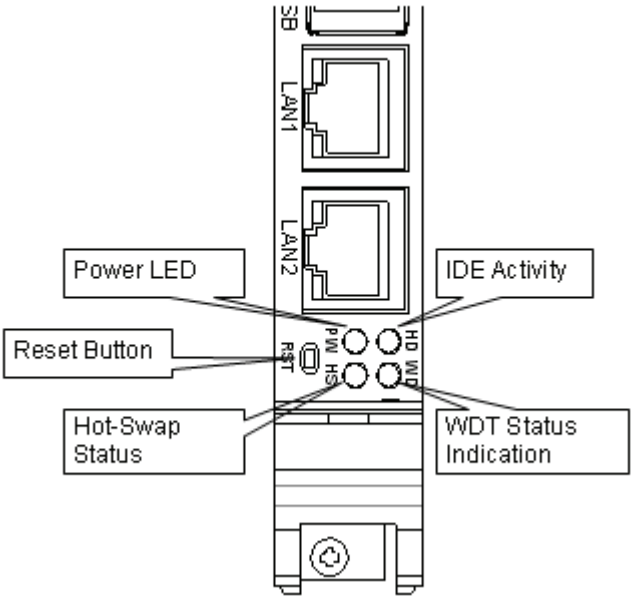


Figure 2-5: IDE Activity LED Indication

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Red LED	Description
OFF	EIDE is not active
ON	Any one EIDE device is active

Table 2-18: IDE Activity LED indication

Power LED Indication

Green LED	Description
OFF	System is not power-on or power failed
ON	System is power-on

Table 2-19: Power LED indication

WDT LED Indication

Amber LED	Description
OFF	WDT is not enabled
Blinking	WDT is enabled

Table 2-20: WDT LED indication

Self-Hot-Swap LED Indication

Blue LED	Description
OFF	Normal operation
ON	System is in hot swap mode, safe to remove

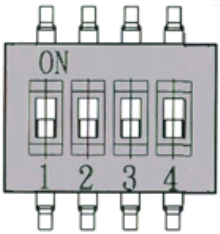
Table 2-21: Self-hot-swap LED indication

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LAN1, LAN2 Front and Rear I/O Connecting Selection

cPCI-6760D supports dual Ethernet connection by front and rear I/O, allowing wiring flexibility. However for ideal signal integrity, no more than one connection interface can be wired from one Ethernet controller. Failure to observe this would result in network instability, poor connectivity, poor compatibility, shorter wiring distance, and lower performance. The circuitry is designed such that customers can choose either front or rear I/O for the most suitable wiring by setting the mini switch. There are four mini switches located on the bottom side (solder side) of cPCI-6760D. Please refer to the information below for LAN connecting selections.

S1, S2: LAN1 Connecting Selection

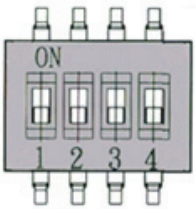


LAN 1 Connecting	Switch S1		Switch S2	
	Pin	State	Pin	State
Front I/O	S1-1	ON	S2-1	OFF
	S1-2	ON	S2-2	OFF
	S1-3	ON	S2-3	OFF
	S1-4	ON	S2-4	OFF
Rear I/O	S1-1	OFF	S2-1	ON
	S1-2	OFF	S2-2	ON
	S1-3	OFF	S2-3	ON
	S1-4	OFF	S2-4	ON

Table 2-22: LAN1 Connecting Selection

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S3, S4: LAN2 Connecting Selection



LAN2 Connecting	Switch S3		Switch S4	
	Pin	State	Pin	State
Front I/O	S3-1	ON	S4-1	OFF
	S3-2	ON	S4-2	OFF
	S3-3	ON	S4-3	OFF
	S3-4	ON	S4-4	OFF
Rear I/O	S3-1	OFF	S4-1	ON
	S3-2	OFF	S4-2	ON
	S3-3	OFF	S4-3	ON
	S3-4	OFF	S4-4	ON

Table 2-23: LAN2 Connecting Selection

CAUTION: Do not set both S1 and S2 "ON" **or** set both S3 and S4 "ON" simultaneously. It may cause Ethernet malfunction or damage the board or devices.

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2.2 Jumpers, Connectors and LED Indicators on the cPCI-R6760D

The jumpers on the cPCI-R6760D rear board allows the user to configure their CPU module according to the needs of their applications. If you have any questions on the jumper configuration best suited to your needs, please contact your dealer or sales representative.

The connectors on the cPCI-R6760D rear board allow users to connect devices such as keyboard, mouse, VGA, COM port, Ethernet, USB, and printer ports.

The LED indicators on the cPCI-R6760D rear board displays the system's status.

CAUTION: Some I/O ports support connection either by front I/O or rear I/O. However, only connect devices by either front or rear I/O for one I/O function. Do not connect devices to one I/O function port on front panel and rear panel simultaneously. It may cause I/O device or system module damage and warranty will be void.

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JP2-5 COM2 Mode Selection on cPCI-R6760D Rear Board

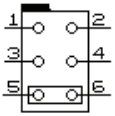
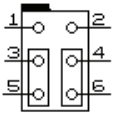
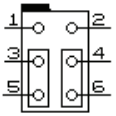
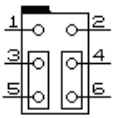
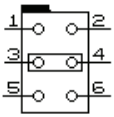
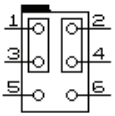
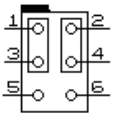
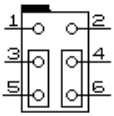
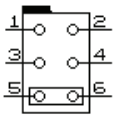
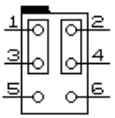
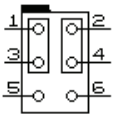
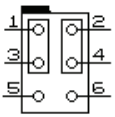
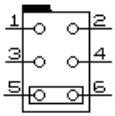
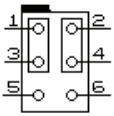
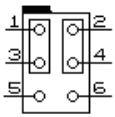
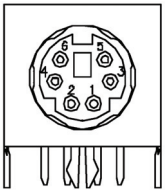
Type	JP5	JP4	JP3	JP2
RS-232 (Default)	unused	 5-6	 3-5 4-6	 3-5 4-6
RS-422	 3-5 4-6	 3-4	 1-3 2-4	 1-3 2-4
RS-485	 3-5 4-6	 1-2	 1-3 2-4	 1-3 2-4
RS-485+	 1-3 2-4	 1-2	 1-3 2-4	 1-3 2-4

Table 2-24: JP2-5 COM2 Mode Selection on cPCI-R6760D rear board

Note: RS-485+ is an advanced feature that enables the hardware auto-redirection function on the RS-485 network. For the conventional RS-485 network connection, users have to define the RS-485 port as transmission or receiving by software.

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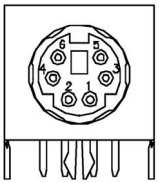
Keyboard Connector (CN13)



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 2-25: Keyboard Connector (CN13) on cPCI-R6760D rear board

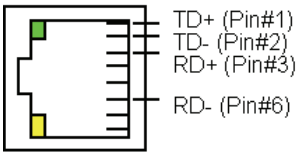
Mouse Connector (CN12)



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 2-26: Mouse Connector (CN12) on cPCI-R6760D rear board

Ethernet Connectors (CN7, CN8)

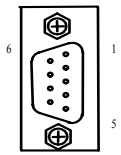


Pin	Signal Name
1	TD+
2	TD-
3	RD+
6	RD-

Table 2-27: Ethernet Connector LAN1 (CN7) and LAN2 (CN8) on cPCI-R6760D rear board

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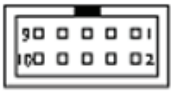
Serial Port COM2 Connector (CN10)



Pin	RS-232 Mode	RS-422	RS-485
1	DCD, Data carrier detect	TX-	DATA-
2	RXD, Receive data	TX+	DATA+
3	TXD, Transmit data	RX+	NC
4	DTR, Data terminal ready	RX-	NC
5	GND, Ground	GND	GND
6	DSR, Data set ready	NC	NC
7	RTS, Request to send	NC	NC
8	CTS, Clear to send	NC	NC
9	RI, Ring indicator	NC	NC

Table 2-28: Serial Ports COM2 (CN10) on cPCI-R6760D rear board faceplate

Serial Port COM1 Pin Headers (CN5)

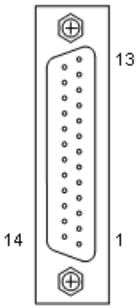


Pin	Signal Name
1	DCD, Data carrier detect
3	RXD, Receive data
5	TXD, Transmit data
7	DTR, Data terminal ready
9	GND, Ground
2	DSR, Data set ready
4	RTS, Request to send
6	CTS, Clear to send
8	RI, Ring indicator
10	NC, No connection

Table 2-29: Serial Ports COM1 (CN5) pin headers on cPCI-R6760D rear board

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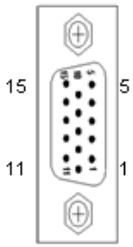
Parallel Port Connector (CN11)



Signal Name	Pin	Pin	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

Table 2-30: Parallel Ports LPT1 (CN11) on cPCI-R6760D rear board faceplate

VGA Connector (CN6)

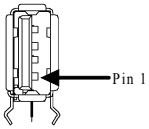


Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
+5V.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

Table 2-31: VGA Connector (CN6) on cPCI-6760D front board

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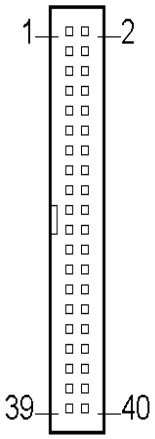
USB (Port B) Connector (CN9)



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

Table 2-32: USB Connector (CN9) on cPCI-R6760D rear board faceplate

IDE Interface (40-pin, CN2, CN4)

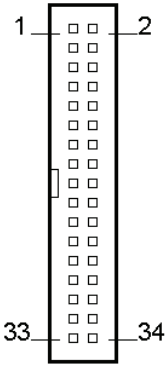


Signal	Pin	Pin	Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	+5V (for DOM)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	reserved
DA1	33	34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

Table 2-33: Primary IDE channel (CN2) and secondary IDE channel (CN4) on cPCI-R6760D rear board

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FDD Interface (34-pin, CN3)



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 2-34: FDD Interface (CN3) on cPCI-R6760D

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CompactPCI rJ3 Pin Assignments

Pin	Z	A	B	C	D	E	F
19	GND	PDRST#	PDCS16#	PDIORDY	Reserved	PDIRQ14	GND
18	GND	PDACT#	Reserved	PDCS3#	PDCS1#	PPDIAG	GND
17	GND	PDD15	PDD14	PDD13	PDD12	Reserved	GND
16	GND	PDD11	PDD10	PDD9	PDD8	PDDACK#	GND
15	GND	PDA0	PDA1	+5V	PDA2	PDDREQ	GND
14	GND	PDD7	PDD6	PDD5	PDD4	PDIOW#	GND
13	GND	PDD3	PDD2	PDD1	PDD0	PDIOR#	GND
12	GND	DS0#	DRVDEN1	MTR0#	INDEX#	WDATA#	GND
11	GND	DS1#	DSKCHG	MTR1#	DRVDEN0	RDATA#	GND
10	GND	WRTPRT#	HDSEL#	FDIR#	TRACK0#	STEP#	GND
9	GND	WGATE#	ERRORP#	AUTOFD	PBUSY	Reserved	GND
8	GND	PE	SLCTIN#	+5V	PSTROB#	Reserved	GND
7	GND	PPD7	PPD6	PPD5	PPD4	PINIT3	GND
6	GND	PPD3	PPD2	PPD1	PPD0	PACK#	GND
5	GND	Reserved	MSDATA	PCBEEP	KBDATA	SLCT	GND
4	GND	Reserved	MSCLK	+5V	KBCLK	RXD1	GND
3	GND	CTS1#	RTS1#	DSR1#	DCD1#	TXD1	GND
2	GND	TDP1	TDN1	RI1#	DTR1#	TDN2	GND
1	GND	RDP2	RDN2	RDP1	RDN1	TDP2	GND
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**

Table 2-35: CompactPCI rJ3 pin assignments on cPCI-R6760D rear board

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CompactPCI rJ5 Pin Assignments (AB type connector)

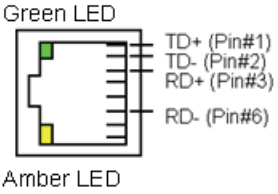
Pin	Z	A	B	C	D	E	F
22	GND	Reserved (1)	Reserved (1)	Reserved (1)	Reserved (1)	Reserved (1)	GND
21	GND	S2PCLK6	GND	LANLED2	+5V	+5V	GND
20	GND	S2PCLK5	GND	SDD7	GND	SIDERST#	GND
19	GND	GND	GND	SDD9	SDD6	SDD8	GND
18	GND	SDD4	SDD11	SDD10	GND	SDD5	GND
17	GND	SDD12	GND	Reserved (1)	S2REQ6#	S2GNT6#	GND
16	GND	SDD3	SDD13	Reserved (1)	GND	SDD2	GND
15	GND	SDD1	GND	Reserved (1)	S2REQ5#	S2GNT5#	GND
14	GND	SDDREQ	SDD14	SDD0	GND	SDD15	GND
13	GND	SDIORDY	GND	V(I/O) (1)	SDIOW#	SDIOR#	GND
12	GND	SPDIAG	SDCS16#	SDDACK#	GND	SDIRQ15	GND
11	GND	SDA0	GND	V(I/O) (1)	SDA2	SDA1	GND
10	GND	GREEN	SDACT#	SDCS3#	GND	SDCS1#	GND
9	GND	HSYNC	GND	V(I/O) (1)	RED	BLUE	GND
8	GND	DDCCLK	DDCDAT	SPDLED2	GND	VSYNC	GND
7	GND	OCJ1	GND	V(I/O) (1)	LANLED1	SPDLED1	GND
6	GND	USBP1M	USBP1P	DTR2#	GND	RXD2	GND
5	GND	DCD2#	GND	V(I/O) (1)	TXD2	RI2#	GND
4	GND	V(I/O)	CTS2#	RTS2#	GND	DSR2#	GND
3	GND	S2CLK4	GND	S2GNT3#	S2REQ4#	S2GNT4#	GND
2	GND	S2CLK2	S2CLK3	Reserved (1)	S2GNT2#	S2REQ3#	GND
1	GND	S2CLK1	GND	S2REQ1#	S2GNT1#	S2REQ2#	GND
Pin	Z	A	B	C	D	E	F

Table 2-36: CompactPCI J5 pin assignments on cPCI-R6760D rear board

Note: (1) These signals are not connected.

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LAN Port Indicators (Integrated in LAN1 (CN7) and LAN2 (CN8))



Amber LED 10/100Mbps Status	Description
OFF	10Mbps transfer rate
ON	100Mbps transfer rate

Table 2-37: Amber LED indication in LAN port on cPCI-R6760D rear board

Green LED Link/Activity Status	Description
OFF	No link
ON	Connecting
Blinking	Active/Data transferring

Table 2-38: Green LED indication in LAN port on cPCI-R6760D rear board

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2.3 Jumpers, Connectors and LED Indicators on cPCI-R6760

The jumpers on the cPCI-R6760S rear board allows you to configure your CPU module according to the needs of your applications. If you have doubts about the best jumper configuration for your needs, please contact your dealer or sales representative.

The connectors on the cPCI-R6760S rear board can be used to connect devices such as keyboard, mouse, COM port, Ethernet, USB, and SCSI.

The LED indicators on the cPCI-R6760S rear board displays the system's status.

The following information lists the jumpers, connectors and LEDs on cPCI-R6760S rear board and their respective functions.

Note:	Some I/O ports support connection either by front I/O or rear I/O. However, only connect devices by either front or rear I/O for one I/O function. Do not connect devices to one I/O function port on front panel and rear panel simultaneously. It may cause I/O device or system module damage and warranty will be void.

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JP2 cPCI-R6760S LAN3 Enable/Disable

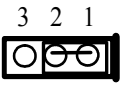
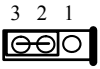
LAN3	JP2
Disable	
Enable (Default)	

Table 2-39: JP2 cPCI-R6760S LAN3 Enable/Disable

JP3 cPCI-R6760S LAN4 Enable/Disable

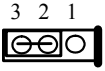
LAN4	JP3
Disable	
Enable (Default)	

Table 2-40: JP3 cPCI-R6760S LAN4 Enable/Disable

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JP4-7 COM2 Mode Selection on cPCI-R6760S Rear Board

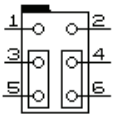
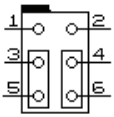
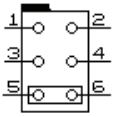
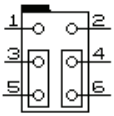
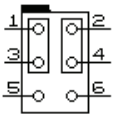
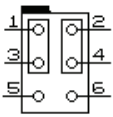
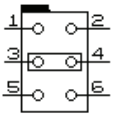
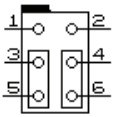
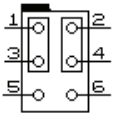
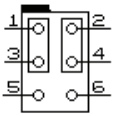
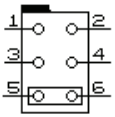
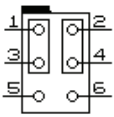
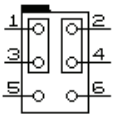
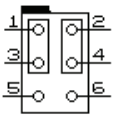
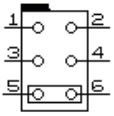
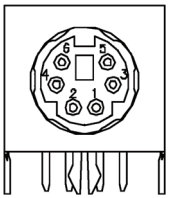
Type	JP7	JP6	JP5	JP4
RS-232 (Default)	unused	 3-5 4-6	 3-5 4-6	 5-6
RS-422	 3-5 4-6	 1-3 2-4	 1-3 2-4	 3-4
RS-485	 3-5 4-6	 1-3 2-4	 1-3 2-4	 1-2
RS-485+	 1-3 2-4	 1-3 2-4	 1-3 2-4	 1-2

Table 2-41: JP4-7 COM2 Mode Selection on cPCI-R6760S rear board

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Note:	RS-485+ is an advanced feature that enables the hardware auto-redirection function on the RS-485 network. For the conventional RS-485 network connection, the user must define the RS-485 port as transmission or receiving by software.

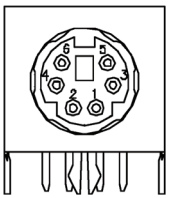
Keyboard Connector (CN22)



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 2-42: Keyboard Connector on cPCI-R6760S rear board

Mouse Connector (CN21)

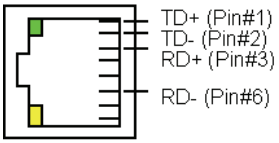


Pin	Signal	Function
1	MSDATA	Mouse Data
2	NC	No Connect
3	GND	Ground
4	+5V	Power
5	MSCLK	Mouse Clock
6	NC	No Connect

Table 2-43: Mouse Connector on cPCI-R6760S rear board

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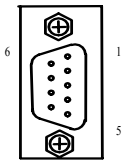
Ethernet Connectors (CN14-17)



Pin	Signal Name
1	TD+
2	TD-
3	RD+
6	RD-

Table 2-44: Ethernet Connector LAN1 to LAN4 on cPCI-R6760S rear board

Serial Port COM2 Connector (CN19)

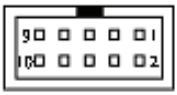


Pin	RS-232 Mode	RS-422	RS-485
1	DCD, Data carrier detect	TX-	DATA-
2	RXD, Receive data	TX+	DATA+
3	TXD, Transmit data	RX+	NC
4	DTR, Data terminal ready	RX-	NC
5	GND, Ground	GND	GND
6	DSR, Data set ready	NC	NC
7	RTS, Request to send	NC	NC
8	CTS, Clear to send	NC	NC
9	RI, Ring indicator	NC	NC

Table 2-45: Serial Ports COM2 (CN19) on cPCI-R6760S rear board faceplate

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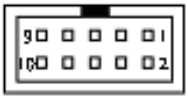
Serial Port COM2 Pin Headers (Reserved, CN13)



Pin	Signal Name	RS-422	RS-485
1	DCD, Data carrier detect	TX-	DATA-
3	RXD, Receive data	TX+	DATA+
5	TXD, Transmit data	RX+	NC
7	DTR, Data terminal ready	RX-	NC
9	GND, Ground	GND	GND
2	DSR, Data set ready	NC	NC
4	RTS, Request to send	NC	NC
6	CTS, Clear to send	NC	NC
8	RI, Ring indicator	NC	NC
10	NC, No connection	NC	NC

Table 2-46: Serial Ports COM2 pin headers (CN13) on cPCI-R6760S rear board

Serial Port COM1 Pin Headers (Reserved, CN8)

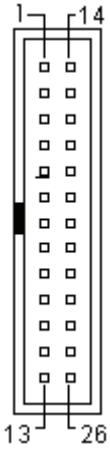


Pin	Signal Name
1	DCD, Data carrier detect
3	RXD, Receive data
5	TXD, Transmit data
7	DTR, Data terminal ready
9	GND, Ground
2	DSR, Data set ready
4	RTS, Request to send
6	CTS, Clear to send
8	RI, Ring indicator
10	NC, No connection

Table 2-47: Serial Ports COM1 pin headers (CN8) on cPCI-R6760S rear board

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Parallel Port Pin Headers (Reserved, CN1)

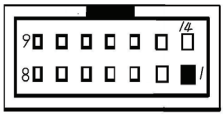


Signal Name	Pin	Pin	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

Table 2-48: Parallel Ports Pin Headers (CN1) on cPCI-R6760S rear board

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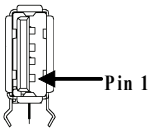
VGA Pin Headers (Reserved, CN5)



Pin	Signal Name	Description
1	DDCDAT	DDC Data for CRT
2	DDCCLK	DDC CLK for CRT
3	RED	Analog RED
4	GREEN	Analog GREEN
5	BLUE	Analog BLUE
6	HSYNC	Horizontal sync
7	VSYNC	Vertical sync
8	+5V	+5V
9	NC	No Connect
10	GND	Ground
11	GND	Ground
12	GND	Ground
13	GND	Ground
14	GND	Ground

Table 2-49: VGA pin headers (CN5) on cPCI-R6760S rear board

USB (Port B) Connector (CN18)

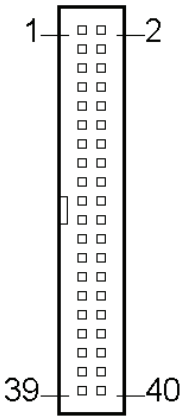


Pin	Signal Name
1	Vcc
2	USB-
3	USB+
4	Ground

Table 2-50: USB Connector (CN18) on cPCI-R6760S rear board faceplate

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IDE Interface (40-pin, CN2, CN3)

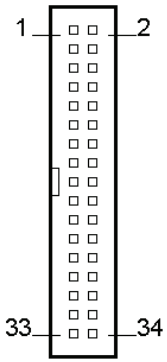


Signal	Pin	Pin	Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	(keypin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	reserved
DA1	33	34	PDIAG-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

Table 2-51: Primary IDE channel (CN3) and secondary IDE channel (CN2) on cPCI-R6760S rear board

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FDD Interface (34-pin, CN4)



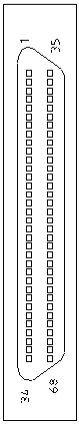
Signal	Pin	Pin	Signal
Ground	1	2	DRVDEN0
Ground	3	4	NC
NC	5	6	DRVDEN1
Ground	7	8	INDEX#
Ground	9	10	MTR0#
Ground	11	12	DS1#
Ground	13	14	DS0#
Ground	15	16	MTR1#
Ground	17	18	FDIR#
Ground	19	20	STEP#
Ground	21	22	WDATA#
Ground	23	24	WGATE#
Ground	25	26	TRACK0#
Ground	27	28	WPT#
Ground	29	30	RDATA#
Ground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

Table 2-52: FDD Interface (CN4) on cPCI-R6760S

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External Ultra-160 SCSI Interface (CN20)

CN10



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 2-53: External Ultra-160 SCSI Interface (CN20) on cPCI-R6760S faceplate

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CompactPCI rJ3 Pin Assignments (cPCI-R6760S)

CompactPCI rJ3: COM1, KB, MS, FDD, PRT, IDE1, LAN (Direct Rear I/O)							
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**
19	GND	PDRST#	PDCS16#	PDIORDY	-12V	PDIRQ14	GND
18	GND	PDACT#	Reserved	PDCS3#	PDCS1#	PPDIAG	GND
17	GND	PDD15	PDD14	PDD13	PDD12	Reserved	GND
16	GND	PDD11	PDD10	PDD9	PDD8	PDDACK#	GND
15	GND	PDA0	PDA1	+5V	PDA2	PDDREQ	GND
14	GND	PDD7	PDD6	PDD5	PDD4	PDIOW#	GND
13	GND	PDD3	PDD2	PDD1	PDD0	PDIOR#	GND
12	GND	DS0#	DRVDEN1	MTR0#	INDEX#	WDATA#	GND
11	GND	DS1#	DSKCHG	MTR1#	DRVDEN0	RDATA#	GND
10	GND	WRTPRT#	HDSEL#	FDIR#	TRACK0#	STEP#	GND
9	GND	WGATE#	ERRORP#	AUTOFD	PBUSY	Reserved	GND
8	GND	PE	SLCTIN#	+5V	PSTROB#	Reserved	GND
7	GND	PPD7	PPD6	PPD5	PPD4	PINIT3	GND
6	GND	PPD3	PPD2	PPD1	PPD0	PACK#	GND
5	GND	Reserved	MSDATA	PCBEEP	KBDATA	SLCT	GND
4	GND	Reserved	MSCLK	+5V	KBCLK	RXD1	GND
3	GND	CTS1#	RTS1#	DSR1#	DCD1#	TXD1	GND
2	GND	TDP1	TDN1	RI1#	DTR1#	TDN2R	GND
1	GND	RDP2	RDN2	RDP1	RDN1	TDP2	GND

Table 2-54: CompactPCI rJ3 pin assignments on cPCI-R6760S rear board

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CompactPCI rJ4 Pin Assignments (cPCI-R6760S)

CompactPCI rJ4:32-bit PCI (From 2nd Bridge)							
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**
25	GND	+5V	Reserved (1)	Reserved (1)	+3.3V	+5V	GND
24	GND	S2AD[1]	+5V	Reserved (1)	S2AD[0]	Reserved (1)	GND
23	GND	+3.3V	S2AD[4]	S2AD[3]	+5V	S2AD[2]	GND
22	GND	S2AD[7]	GND	+3.3V	S2AD[6]	S2AD[5]	GND
21	GND	+3.3V	S2AD[9]	S2AD[8]	GND	S2C/B3[0]#	GND
20	GND	S2AD[12]	GND	Reserved (1)	S2AD[11]	S2AD[10]	GND
19	GND	+3.3V	S2AD[15]	S2AD[14]	GND	S2AD[13]	GND
18	GND	S2SERR#	GND	+3.3V	S2PAR	S2C/BE[1]#	GND
17	GND	+3.3V	Reserved (1)	Reserved (1)	GND	S2PERR#	GND
16	GND	S2DEVSEL#	GND	Reserved (1)	SS2TOP#	S2LOCK#	GND
15	GND	+3.3V	S2FRAME#	S2IRDY#	GND	S2TRDY#	GND
12-14	KEY						
11	GND	S2AD[18]	S2AD[17]	S2AD[16]	GND	S2C/BE[2]#	GND
10	GND	S2AD[21]	GND	+3.3V	S2AD[20]	S2AD[19]	GND
9	GND	S2C/BE[3]#	GND	S2AD[23]	GND	S2AD[22]	GND
8	GND	S2AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	S2AD[30]	S2AD[29]	S2AD[28]	GND	S2AD[27]	GND
6	GND	S2REQ0#	GND	+3.3V	S2CLK	S2AD[31]	GND
5	GND	Reserved (1)	Reserved (1)	S2PCIRST#	GND	S2GNT0#	GND
4	GND	Reserved (1)	HEALTHY#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	+5V	Reserved (1)	GND
2	GND	TCK (2)	+5V	TMS (2)	TDO (1)	TDI (2)	GND
1	GND	+5V	Reserved (1)	TRST# (2)	Reserved (1)	+5V	GND

Table 2-55: CompactPCI rJ4 pin assignments on cPCI-R6760S rear board

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CompactPCI rJ5 Pin Assignments (cPCI-R6760S)

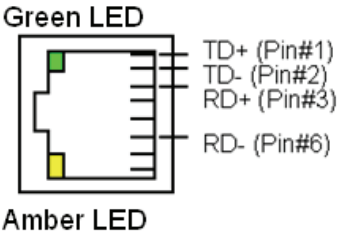
CompactPCI rJ5: 32-bit PCI(From 2nd Bridge), IDE2, LAN, USB2, VGA, COM2 (R I/O)							
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**
22	GND	Reserved (1)	Reserved (1)	Reserved (1)	Reserved (1)	Reserved (1)	GND
21	GND	S2PCLK6	GND	LANLED2	+5V	+5V	GND
20	GND	S2PCLK5	GND	SDD7	GND	SIDERST#	GND
19	GND	GND	GND	SDD9	SDD6	SDD8	GND
18	GND	SDD4	SDD11	SDD10	GND	SDD5	GND
17	GND	SDD12	GND	Reserved(1)	S2REQ6#	S2GNT6#	GND
16	GND	SDD3	SDD13	Reserved(1)	GND	SDD2	GND
15	GND	SDD1	GND	Reserved(1)	S2REQ5#	S2GNT5#	GND
14	GND	SDDREQ	SDD14	SDD0	GND	SDD15	GND
13	GND	SDIORDY	GND	V(I/O) (1)	SDIOW#	SDIOR#	GND
12	GND	SPDIAG	SDCS16#	SDDACK#	GND	SDIRQ15	GND
11	GND	SDA0	GND	V(I/O) (1)	SDA2	SDA1	GND
10	GND	GREEN	SDACT#	SDCS3#	GND	SDCS1#	GND
9	GND	HSYNC	GND	V(I/O) (1)	RED	BLUE	GND
8	GND	DDCCLK	DDCDAT	SPDLED2	GND	VSYNC	GND
7	GND	OCJ1	GND	V(I/O) (1)	LANLED1	SPDLED1	GND
6	GND	USBP1M	USBP1P	DTR2#	GND	RXD2	GND
5	GND	DCD2#	GND	V(I/O) (1)	TXD2	RI2#	GND
4	GND	V(I/O)	CTS2#	RTS2#	GND	DSR2#	GND
3	GND	S2CLK4	GND	S2GNT3#	S2REQ4#	S2GNT4#	GND
2	GND	S2CLK2	S2CLK3	Reserved (1)	S2GNT2#	S2REQ3#	GND
1	GND	S2CLK1	GND	S2REQ1#	S2GNT1#	S2REQ2#	GND

Table 2-56: CompactPCI rJ5 pin assignments on cPCI-R6760S rear board

Note:
(1) These signals are not connected.
(2) These signals are pulled high onboard.
(3) These signals are pulled low onboard.

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LAN Port Indicators (Integrated in LAN1 to LAN4)



Amber LED 10/100Mbps Status	Description
OFF	10Mbps transfer rate
ON	100Mbps transfer rate

Table 2-57: Amber LED indication in LAN port

Green LED Link/Activity Status	Description
OFF	No link
ON	Connecting
Blinking	Active/Data transferring

Table 2-58: Green LED indication in LAN port

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3 Getting Started

This chapter describes the installation process of various components on the cPCI-6760D. Topics include:

- CPU Installation
- Memory Installation
- CF Installation
- HDD Installation
- Device Connection for OS Installation
- Notice for Rear I/O Connection

3.1 CPU Installation

The cPCI-6760D CPU module supports Intel BGA2 Low Power Pentium-III/Celeron processors of 100MHz front side bus (FSB) frequency.

The CPU on cPCI-6760D series products is soldered onto the PCB (printed circuit board) in the factory. The heatsink is also pre-mounted in the factory. Do not attempt to remove the heatsink of the CPU as it may cause irrecoverable damage to the system, as well as voiding the warranty.

WARNING: Do not attempt to replace the CPU or remove the heatsink. This will cause irrecoverable damage to the board and will void the warranty.

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3.2 Memory Installation

The cPCI-6760D CPU module supports two PC-100 144-pin SO-DIMM sockets for a total maximum memory of 512MB with optional ECC support. The memory type must be 3.3V SDRAM. The memory module can come in 32MB, 64MB, 128MB, or 256MB PC-100 144-pin SO-DIMM. The 256MB SO-DIMM should be constructed by 16Mx8 SDRAM chips.

ADLINK's factory also provides the pre-mounting memory service for volume orders of OEM project on request. Please contact your dealer or ADLINK's sales representative.

CAUTION: Ensure that the RAM modules are firmly in place in the SO-DIMM sockets and are not over the height limit, otherwise the components might be damaged when the CPU module is inserted into the chassis.



3.3 CF Installation

The CompactFlash Card (also called a CF storage card) is widely used in digital consumer devices such as PDA's, Digital Cameras, and MP3 players. The CF storage card also features anti-shock, anti-vibration, better environment tolerance, low power consumption, small form factor, and higher reliability, plus cost effective standard interface, and has also been widely accepted in the industrial and mission critical embedded application field. In cPCI-6760D, the CF card socket can be found on DB-6760CF, which is the removable daughter board that can be attached on cPCI-6760D by directly connecting the adaptor board to onboard 44-pin IDE (CN2) connector. DB-6760CF is designed for exchange with 2.5" ATA HDD on IDE interface. DB-6760CF supports both type-I and type-II CompactFlash storage device such as CF card or IBM MicroDrive.

If the user purchases the OEM model - non-standard, customized, or special configuration model, it may not come with DB-6760CF in the package. Users can purchase the CF card adaptor (by

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model name: DB-6760CF) as the optional kit to convert the IDE interface to CF card socket. Because the CF card adaptor uses the same IDE interface as the 2.5” ATA HDD might use, the user must first remove the 2.5” ATA HDD (if any) then install the CF card adaptor. Please refer to the HDD installation section for instructions on removing the 2.5” ATA HDD.

DB-6760CF Outline, Jumper and Connectors

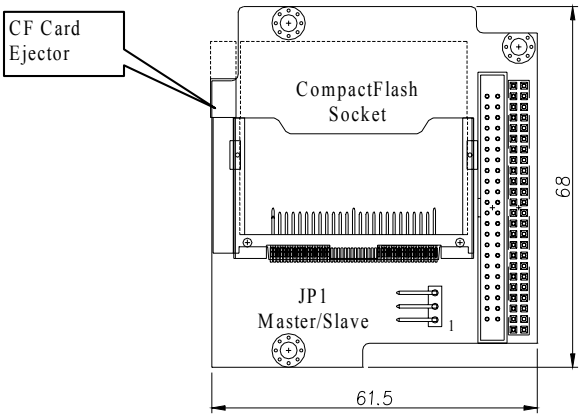


Figure 3-1: DB-6760CF Outline

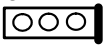
M/S Selection	JP1
Master (Default)	3 2 1  Pin 2 & 3 Short
Slave	3 2 1  Jumper Open

Table 3-1: JP1 DB-6760CF Master/Slave Setting

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DB-6760CF Installation for cPCI-6760D and CF card notice

- Mount the DB-6760CF on cPCI-6760D's IDE connector (CN2). Note that pin 1 on DB-6760CF should be aligned with pin 1 of cPCI-6760D's CN2.
- Fix the DB-6760CF and cPCI-6760D by screwing three hexagonal pillars between them. Leave the hole in front of the CF socket unscrewed.
- Set the CF card as master or slave upon application request.
- Insert the CF card into the socket ensuring the CF card is in place.
- Mount the third screw on the upper side of the CF card to prevent the CF card from dropping out during heavy vibrations.

Note: The CF card on the front board utilizes Secondary EIDE interface (IDE2) which is also wired to the rear board via CompactPCI connector J5. Users need to be aware of the master/slave setting to avoid conflict between devices. The default jumper setting on DB-6760CF is set to "master". As each EIDE interface can only support up to two IDE devices, the IDE2 interface on rear I/O can only support one other IDE device. This should be set to "slave".

Removing DB-6760CF from cPCI-6760D

- Remove the upper screw which keeps the CF card in place
- Remove the CF card by push ejector
- Remove all screws and hexagonal pillars on the DB-6760CF
- Remove DB-6760CF carefully from the 44-pin IDE connector (CN2) of cPCI-6760D

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3.4 HDD Installation

In cPCI-6760D, users can install one 2.5” ATA HDD or flash drive (e.g. FLASH2000 flash disk, FFD) which is 2.5” ATA HDD form factor. The factory default bare model is equipped with DB-6760CF, the removable CF card adaptor and not equipped with any HDD or FFD. If the user wishes to install 2.5” ATA HDD for larger storage capacity or to install FFD for higher vibration tolerance, users can purchase the off-the-shelf 2.5” ATA HDD or FFD from the market. However, ADLINK recommends products that are approved by ADLINK to ensure the best system stability. Due to space limitation and ventilation concerns, only low profile (or called slim type) 2.5” ATA HDD or FFD’s whose thickness is not more than 9.5mm can be used. Because the CF card adaptor (DB-6760CF) uses the same IDE interface, and the same housing that 2.5” ATA HDD might use, hence the user should remove the CF card adaptor (if any) first then install the 2.5” ATA HDD or FFD. Please refer to “CF installation” for instructions on removing the CF card adaptor.

HDD/FFD Installation for cPCI-6760D

- Find the HDD accessory pack inside the original package. (If the user purchases the OEM model, non-standard, customized, or special configuration model, it may not come with the HDD accessory pack inside the package. Please contact your ADLINK dealer or sales representative to purchase this accessory pack (P/N: 58-00023-000).
- If the DB-6760CF exists, remove this by referring to section 3-3 - “CF Installation”
- Check the master/slave setting of your 2.5” ATA HDD
- Screw four copper hexagonal stand-offs on the bottom side of 2.5” ATA HDD
- Mount the HDD by using four M3 screws from cPCI-6760D’s bottom side
- Connect the HDD and cPCI-6760D (CN2) by flat cable which is included in the HDD accessory pack
- Check that pin1 of the IDE connector, flat cable, and HDD

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are all matched

- Check that the flat cable, HDD and HDD supporting stand-off are all firmly fixed and connected.

Note: The 2.5" ATA HDD on front board uses Secondary EIDE interface (IDE2) which is also wired to rear board via CompactPCI connector J5. Users need to pay attention to the master/slave setting to avoid conflict between devices. If the user applies one 2.5" ATA HDD on front board and setting on master, the IDE2 interface on rear I/O could only apply one IDE device which is set on slave.

Removing HDD/FFD from cPCI-6760D

- Remove the four screws from the bottom side that are mounted on the copper stand-off
- Remove the 44-pin flat cable from the CN2 of cPCI-6760D and remove the cable from the HDD
- Remove the copper stand-off from the HDD

3.5 Device Connection for OS Installation

This section describes the installation process of the OS into the 6U CompactPCI platform for the cPCI-6760D CPU module. The easiest way to install the OS is by connecting an ATAPI CD-ROM.

Using cPCI-6760D on ADLINK's cBP-6108, 6105, 6515, and 6402 series backplane

As the cBP-6108 series backplane has direct connections for J3/P3 and J5/P5 rear I/O of IDE interfaces, and pin assignments are compatible with the cPCI-6760D series product, users can connect the 40-pin flat cable into IDE interface on the rear side of the backplane, then connect the flat cable into an ATAPI CD-ROM. If the user has installed a 2.5" ATA HDD or CF card on the

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front board, it is recommend that the ATAPI CD-ROM is connected to the Primary IDE port on the cBP-6108 series backplane to avoid the possibility of master/slave confliction.

Using cPCI-6760D on other backplanes

For backplanes that are not compatible with the pin assignments for J3/P3 and J5/P5 rear I/O of IDE interfaces on cPCI-6760D, connect the 40-pin flat cable into the IDE interface on the cPCI-R6760 series rear board. Then connect the flat cable into an ATAPI CD-ROM. If the 2.5" ATA HDD or CF card has already been installed on the front board, it is recommended that the ATAPI CD-ROM is connected to the Primary IDE port on the rear board to avoid the possibility of master/slave conflict. Note that those backplanes should support P3 to P5 (the CompactPCI sockets) with direct through I/O on system slot.

Note:	The 2.5" ATA HDD or CF card on front board utilizes the Secondary EIDE interface (IDE2). As the cPCI-6760D front board supports rear I/O, the IDE2 interface is also wired to rear I/O from CompactPCI connector J5. Please note that it only supports up to two IDE devices on each EIDE interface, and the master/slave setting should not conflict with each other. As most default settings of the 2.5" ATA HDD or CF card are set to master, make sure the master/slave setting does not conflict with the front board's HDD or CF card when connecting the ATAPI CD-ROM to the IDE2 interface on rear I/O (including the rear I/O port on cBP-6108 backplane and cPCI-R6760 series rear board).

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3.6 Notice for Rear I/O Connection

The cPCI-6760D features fully integrated functionality with AGP-VGA display, dual Ethernet ports, 2S1P, 2USB, UDMA-33 IDE and driving Ultra-160 SCSI, and two more Fast Ethernet. Some of them are implemented for rear I/O only and some are implemented to support both front I/O and rear I/O. Please refer to section 1.4 - “peripheral connectivity” for more information on each I/O.

The I/O implementation is only supported by rear I/O board

Several I/Os are only supported by rear I/O including COM2, LPT, FDD interface, USB2, speaker (buzzer), LAN3, LAN4 and SCSI. Users should use the correct rear I/O board for the particular rear I/O function. Please refer to the cPCI-6760D Model Variations Comparison Table in section 1.2 for the correct front board and rear board combinations.

WARNING: Please use the correct rear I/O transition module to enable the functions (I/O interfaces) on the rear side. The board or system will be damaged if the incorrect rear I/O transition module is used.

The I/O implementation is supported by both rear I/O and front I/O

Several I/Os are supported by rear I/O and front I/O including keyboard, mouse, VGA display and Ethernet connection. Please use the correct rear I/O boards for the particular rear I/O function. Please refer to the cPCI-6760D Model Variations Comparison Table in section 1.2 for the correct front board and rear board combinations. Remember that those I/Os can either be connected via front or rear side, but **not** both.

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WARNING: Please use the proper rear I/O transition module to enable the functions (I/O interfaces) on the rear side. The board or system will be damaged if the incorrect rear I/O transition module is used.



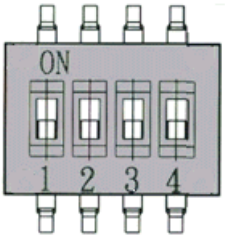
Please connect the device either by front I/O or by rear I/O for one I/O function. Do not connect devices to one I/O function port on front panel and rear panel simultaneously. It may cause I/O device or system module damage resulting in warranty void.

LAN1, LAN2 Front and Rear I/O Connecting Selection

cPCI-6760D supports dual Ethernet connection by front I/O and rear I/O, which provides the user with the benefit of wiring flexibility. However, for best signal integrity, it is not allowed to wire more than one connection interface from one Ethernet controller, otherwise, it will result in network instability, poor connectivity, poor compatibility, shorter wiring distance and lower performance. The circuitry is designed to allow customers to choose either front I/O or rear I/O for the most suitable wiring by setting the mini switch. There are four mini switches located on the bottom side (solder side) of cPCI-6760D. Please refer to the following information when choosing either front I/O or rear I/O Ethernet connection.

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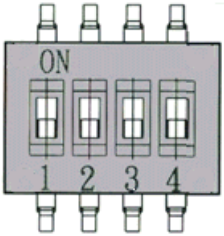
S1, S2: LAN1 Connecting Selection



LAN 1 Connecting	Switch S1		Switch S2	
	Pin	State	Pin	State
Front I/O	S1-1	ON	S2-1	OFF
	S1-2	ON	S2-2	OFF
	S1-3	ON	S2-3	OFF
	S1-4	ON	S2-4	OFF
Rear I/O	S1-1	OFF	S2-1	ON
	S1-2	OFF	S2-2	ON
	S1-3	OFF	S2-3	ON
	S1-4	OFF	S2-4	ON

Table 3-2: LAN1 Connecting Selection

S3, S4: LAN2 Connecting Selection



LAN 2 Connecting	Switch S3		Switch S4	
	Pin	State	Pin	State
Front I/O	S3-1	ON	S4-1	OFF
	S3-2	ON	S4-2	OFF
	S3-3	ON	S4-3	OFF
	S3-4	ON	S4-4	OFF
Rear I/O	S3-1	OFF	S4-1	ON
	S3-2	OFF	S4-2	ON
	S3-3	OFF	S4-3	ON
	S3-4	OFF	S4-4	ON

Table 3-3: LAN2 Connecting Selection

WARNING: Don't set both S1 and S2 to "ON" or set both S3 and S4 to "ON" simultaneously. It may cause Ethernet malfunction or damage the board or devices.

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The FDD and IDE interfaces

If only the rear I/O connection of FDD and IDE interfaces is required the user may consider applying cPCI-6760D with the backplane support FDD and IDE direct connection features (such as cBP-6108, 6105, 6309, or 6402 series backplane) for floppy drive and IDE devices connection. For this kind of application, users do not need to purchase the rear board. If the user uses other backplanes which do not support FDD and IDE direct connection, the proper rear I/O board is required. However, the user might wish to connect drives from the backplane and also use the I/O function on rear I/O board. Please refer to the notes below:

- For FDD connection: connect FDD cable either to backplane or to rear I/O board, do not connect both simultaneously
- For IDE1 connection: The 40-wire IDE cable can be connected to both backplane and rear board when the total cable length is not more 45cm. Pay attention to the master/ slave settings to prevent settings conflict.
- For IDE2 connection, when there is no IDE device on front board: The 40-wire IDE cable can be connected to both backplane and rear board when the total cable length is not more than 45cm. Pay attention to the master/slave setting to prevent setting conflict.
- For IDE2 connection, when there is one IDE device on front board: The 40-wire IDE cable can be connected to **either** backplane **or** rear board, but **not** both simultaneously. Pay attention to the master/slave settings to prevent settings conflict.

WARNING: Please use the correct rear I/O transition module to enable the functions (I/O interfaces) on rear side. The board or system will be damaged if the incorrect rear I/O transition module is used.

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4 Driver Installation

To install drivers and utility for cPCI-6760D, please refer to the installation information in this chapter. The basic information is provided in this manual however, for further installation information, such as non-Windows OS installation, please refer to the ADLINK CD. Chip drivers can be found in the following directories:

Chipset driver	\CHIPDRV\Chipset\440BX
VGA/AGP relative driver	\CHIPDRV\VGA\SM721
LAN relative driver	\CHIPDRV\LAN\100PDISK
Ultra-160 SCSI driver	\CHIPDRV\SCSI\53C10XX
Watchdog relative library	\CHIPDRV\WDT
Hardware Doctor Utility	\Utility\HWDoctor\W8378X

In this user's manual, the bus-mastering IDE driver installation is not described as most Windows based OS will install these drivers automatically.

As Windows NT is a non-Plug and Play OS, below are some tips for installing Windows NT:

1. Install the LAN driver before installing any service pack.
2. Install the VGA/AGP driver after installing the service pack. Ensure the service pack supports AGP. ADLINK recommends using service pack 6 or higher.
3. Should a warning occur during the NT booting procedure, check the Event Viewer to ascertain the problem. If the problem cannot be solved, re-install the Windows NT service pack, then re-install the drivers in a different sequence.

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4.1 VGA Drivers Installation

This chapter describes VGA driver installation for the onboard VGA controller SM721. The relative drivers are in the following ADLINK CD directory: **X:\CHIPDRV\VGA\SM721**, where X: is the location of the CD-ROM drive. The VGA drivers for Windows 98/ 95, Windows NT, and Windows 2000 are included.

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Driver Installation on Windows 2000

Windows 2000 may install the standard VGA driver. It is recommended that the user manually installs the most updated driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 2000, please update to the new drivers by following the instructions below:

1. Boot Windows 2000, Click **Start**. Select **Settings** then double-click **Control Panel**.
2. Double-click on the **System** icon, **Hardware** tab, then **Device Manager** button.
3. Double-click either on the **Display Adapters** or **Other Devices** entry, double-click on the **Video Controller** or **Silicon Motion Lynx3DM** entry.
4. Click on the **Driver** tab, then click **Update Driver…**
5. On the **Upgrade Device Driver Wizard** window, click **NEXT>**.
6. Select **Display a list of...** and click **NEXT**.
7. The next window may show a list of hardware type, select **Display Adapters**, then click **OK**.
8. This window may show a list of VGA model numbers.
9. Insert **ADLINK CD** and click **Have Disk**.
10. Browse for the **SM721** driver in the following path: **X:\CHIPDRV\VGA\SM721\WIN2K**, highlight **smisetup.inf**, click **OPEN**, then click **NEXT>**.
11. Highlight the model: **Silicon Motion Lynx3DM**, then click **NEXT>**.
12. Click **NEXT>**. Windows 2000 may report Digital Signature Not Found, click **Yes** to continue.
13. Click **Finish**, then **CLOSE**

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Driver Installation on Windows 98

Windows 98 may install the standard VGA driver. It is recommended that the user manually installs the most updated driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 98, please update to the new drivers by following the instructions below:

1. Boot Windows 98, Click **Start**. Select **Settings** then double-click **Control Panel**.
2. Double-click on the **System** icon, click on the **Device Manager** tab.
3. Double-click on the **Display Adapters** entry and select **Standard PCI Graphics Adapter (VGA)**. Click **Properties**.
4. Click **Driver**, then **Update Driver…**
5. An **Upgrade Device Driver Wizard** windows will appear, click **NEXT>**.
6. Select **Display a list of...** and click **NEXT>**. The next window allows the user to specify a specific path. Insert the ADLINK CD and click **Have Disk**.
7. Browse for the **SM721 driver** in the following path: **X:\CHIPDRV\VGA\SM721\WIN9XME**, highlight **smi.inf**, click **OPEN**, then **OK**.
8. Click the **NEXT>** button. The Wizard summary window appears.
9. Click **Finish**, then restart the computer to activate the new driver.

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Driver Installation on Windows NT

Windows NT may install the standard VGA driver. It is recommended that the user manually installs the most updated driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows NT, please update to the new drivers by following the instructions below:

1. From the **Control Panel**, double-click on the **Display** icon.
2. Click the **Settings** tab, click **Display Type…**, click **Change…**
3. Insert the ADLINK CD and click **Have Disk**.
4. Browse for the **SM721 driver** which is located in the following path: **X:\CHIPDRV\VGA\SM721\WINNT40**, highlight **smisetup.inf**, click **OPEN** then **OK**.
5. A windows will display the **Silicon Motion Lynx Family**, click **OK**, then **Yes** to continue.
6. An Installation Driver window will appear indicating that installation was successful, click **OK** to continue.
7. Click the **Close** button.
8. Click **Close**. Restart the computer to activate the new driver.

Note:	If the Windows NT service pack is not installed, the VGA/AGP drivers may fail to function, even after installing the VGA/AGP drivers. It is recommended that the user installs NT service pack version 4 or higher to enable APG capability.

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4.2 LAN Drivers Installation

This section describes the LAN driver installation for the onboard Ethernet controller Intel 82559. The relevant drivers are under the following ADLINK CD directory: **X:\CHIPDRV\LAN\100PDISK**, where **X:** is the location of the CD-ROM drive.

Software and Drivers Support

The 82559 drivers support the following OS or platforms:

- Windows 98, Windows 95, Windows 2000, Windows NT
- Novell Netware, DOS Setup for Novell NetWare DOS
- UNIX, OS2, Linux

All of the drivers above are included in the ADLINK CD. In the following section, the driver installations for Windows 98, Windows 2000, and Windows NT will be described. For driver installations of other OS's, please refer to the readme file inside the CD.

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Driver Installation on Windows 2000

Windows 2000 may install the LAN driver. It is recommended that the user manually installs the most updated LAN driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 2000, please update to the new drivers by following the instructions below:

1. Boot Windows 2000. Click **Start**, select **Settings** then double-click **Control Panel**.
2. Double-click on the **System** icon, click **Hardware**, then **Device Manager**.
3. Double-click on the **Network Adapters** entry, double-click **Intel 8255x- based PCI Ethernet Adapter (10/100)**.
4. Select the **Driver** tab, then click **Update Driver…**
5. An Upgrade Device Driver Wizard windows will appear, click **Next>**.
6. Select **Display a list of...** and click **Next>**. The next window may show a list of hardware models.
7. Insert the CD and click **Have Disk**.
8. Browse for the **Intel 82559 driver** in the following path: **X:\CHIPDRV\LAN\100PDISK**, highlight **oemsetup.inf**, click **Open**, then **OK**.
9. Highlight the model: **Intel 8255x- based PCI Ethernet Adapter (10/100)**, then click **NEXT>**. An Update Driver Warning window may pop up, click **Yes** to continue.
10. Click **NEXT>**, the Wizard summary window appears.
11. Click **Finish**, then **CLOSE**.

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Driver Installation on Windows 98

Windows 98 may install the LAN driver. It is recommended that the user manually installs the most updated LAN driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 98, please update to the new drivers by following the instructions below:

1. Boot Windows 98, Click **Start**. Select **Settings** then double-click **Control Panel**.
2. Double-click on the **System** icon, click on the **Device Manager tab**.
3. Either Double-click on the Network Adapters entry, select the **Intel 8255x-based PCI Ethernet Adapter (10/100)** entry. Click **Properties**.
4. Click on the Driver button, then click **Update Driver…**
5. **Update Device Driver Wizard** starts, click **NEXT**.
6. Select **Display a list of...** and click **NEXT**. The next window allows the user to specify a path. Insert the CD and click **Have Disk**.
7. Browse for the **Intel 82559** driver in the following path: **X:\CHIPDRV\LAN\100PDISK**, highlight **net82557.inf**, click **OK**. The Update Wizard will display a dialog box indicating it has found the driver. Click **OK** again to update. Note: Windows 98 may ask you to insert the original Windows 98 CD to install the LAN protocols.
8. Click **NEXT**, the Wizard summary window appears.
9. Click **Finish**. Restart the computer to activate the new driver.

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Driver Installation on Windows NT

Before installing the LAN driver on Windows NT, copy the LAN driver in the CD to a floppy diskette. Insert a new disk into drive A, then type the following batch command under DOS environment to copy the relative NT drivers:
X:\CHIPDRV\LAN\100PDISK\Makedisk\Makedisk NT where **X:** is the CD-ROM drive.

Windows NT may prompt the user to install a LAN driver from its own library of drivers. It is recommended that the user manually updates the LAN, which can be found on the ADLINK CD to ensure compatibility. After installing Windows NT, please update to the new drivers by following the instructions below:

1. From **Control Panel**, double-click the **Network** icon, a Network Configuration window will pop up, click **Yes**.
2. In Network Setup Wizard, click **Next>**, click **Select From List…** button.
3. Insert a LAN driver floppy diskette into A drive and click **Have Disk**.
4. In the dialog box of **Insert Disk window**, type **A:**, Click **OK**.
5. A **Select OEM Option** window pops up, click **OK**, then **Next>**.
6. Select necessary Network Protocols, click **Next>**.
7. Select necessary Network Services, click **Next>**.
8. Click **Next>** until Windows NT Setup dialog box pops up. Type in **D:\i386** in the dialog box, then insert the original Windows NT CD, click **Continue**.
9. Click **OK** until setup is complete.
10. Restart the computer.

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4.3 SCSI Drivers Installation

This chapter describes SCSI driver installation for the onboard SCSI controller LSI (Symbios) 53C1000R. The relative drivers are under the following ADLINK CD directory:
X:\CHIPDRV\SCSI\53C10xx, where **X:** is the location of the CD-ROM drive.

Software and Drivers Support

The 53C1000R drivers support the following OS or platforms:

- Windows 98, Windows 95, Windows 2000, Windows NT 4.0
- Novell Netware, DOS Setup for Novell NetWare DOS
- UNIX, OS2, Linux

All of the above drivers are included in the ADLINK CD. In this section, the driver installation for Windows 98, Windows 2000, and Windows NT will be described. For driver installation of other OS's, please refer to the README file under the respective directory.

Note: The most updated SCSI drivers can be downloaded from the LSI Logic web site at URL:

http://www.lsilogic.com

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Driver Installation on Windows 2000

Windows 2000 may install the SCSI driver. It is recommended that the user manually installs the most updated driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 2000, please update to the new drivers by following the instructions below:

1. Boot Windows 2000. Click **Start**, select **Settings** then double-click **Control Panel**.
2. Double-click **System** icon, click **Hardware** tab, click **Device Manager…**
3. Double-click on the **SCSI** and **RAID** controllers entry, then double-click **Symbios XXX PCI SCSI Adapter**.
4. Click on the **Driver** tab, then click **Update Driver…**
5. An **Upgrade Device Driver Wizard** window will start, click **NEXT>**.
6. Select **Display a list of the known drivers for this device so that I can choose a specific driver**, then click **NEXT>**.
7. Insert the ADLINK CD and click **Have Disk**.
8. Browse for the LSI 53C10xx driver in the following path: **X:\CHIPDRV\SCSI\53C10xx\WIN2000\winnt\miniport**, highlight **oemsetup.inf**, click **OPEN**, then click **OK**.
9. Highlight the model: **Symbios Ultra3 PCI SCSI Adapter**; **53C1010-66 Device**, then click **NEXT>**.
10. Click **NEXT**. Windows 2000 may report **Digital Signature Not Found**. Then click **Yes** to continue.
11. Click on the **Finish** button, then **Close**.

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Driver Installation on Windows 98

Windows 98 will automatically install the SCSI driver. However, it is recommended that the user manually installs the most updated driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows 98, please update to the new drivers by following the instructions below:

1. Boot Windows 98. Click **Start**, select **Settings** then double-click **Control Panel**.
2. Double-click on the **System** icon, click on **Device Manager** tab.
3. Double-click on **SCSI Adapters** entry, select **Symbios Logic xxxxx SCSI PCI Host Adapter**. Click the **Properties** button.
4. Click **Driver**, then click **Update Driver…** button.
5. An **Upgrade Device Driver Wizard** window will appear, click **NEXT>**.
6. Select **Display a list of…** and click **NEXT>**. The next window allows the user to specify a specific path. Insert the ADLINK CD and click **Have Disk**.
7. Browse for the 53C1000R driver in the following path: **X:\CHIPDRV\SCSI\53C10xx\win95,98**, highlight **sym_u3.inf**, click **Open**, then **OK**. The previous window should appear with the selected driver displayed as the driver to install.
8. Click **NEXT>**, the **Wizard summary** window should appear.
9. Click **Finish**. Restart the computer to activate the new driver.

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Driver Installation on Windows NT

Before installing the SCSI driver on Windows NT, copy the contents in the following directory **X:\CHIPDRV\SCSI\53C10xx\NT4** into a new formatted floppy diskette. Please note that all contents in the sub-directory must be copied also.

When installing Windows NT onto a SCSI HDD, it is recommended that an IDE CD-ROM be used as a CD reader. Before installing Windows NT, first install the SCSI driver from the floppy diskette. Follow the instructions below to install the SCSI driver on Windows NT.

1. Start Windows NT 4.0 installation by booting from the Windows NT CD or floppy diskettes.
2. Press **Enter** when the **Welcome to Setup** screen appears.
3. The Windows NT 4.0 Setup window appears next.
4. A screen should display the following message: Setup has recognized the following mass storage devices in your computer.
5. Choose **S** to configure additional SCSI adapters when a screen displays **SCSI adapters found**. Move the highlight bar to **Other** and press **Enter**.
6. The system prompts for the Manufacturer-supplied hardware support disk. Insert the appropriate Symbios Driver diskette, and press **Enter**.
7. Select **Symbios Ultra3 PCI SCSI Driver**. Press **Enter**.
8. The Windows NT setup window reappears, click **Enter**.
9. From here, simply follow the Microsoft Windows NT installation process. Windows NT may have already installed a SCSI driver. It is recommended that the user manually upgrades the driver, which can be found on the ADLINK CD to ensure compatibility. After installing Windows NT, please update to the new drivers by following the instructions below.

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1. From **Control Panel**, double-click on the **SCSI Adapters** icon.
2. Under the **Drivers** tab, click **Add…**
3. Insert the floppy diskette into drive A: and click **Have Disk**.
4. **Browse…** for the **53C1000R driver** in the following path: **A:\winnt\miniport**, highlight **oemsetup.inf**, click **Open**, then **OK**. The previous window appears with the selected driver displayed as the driver to install.
5. In the Window NT Setup window, type **A:\WINNT\MINIPORT driver** in the dialog box, then click **Continue**.
6. An Install Driver window should show that the SCSI adapter is a Symbios Ultra3 PCI SCSI Driver, click **OK**.
7. System Settings Change appears. Click **Yes** to restart.

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5 Watchdog and Utilities

5.1 Watchdog Timer Configuration

The Watch Dog Timer (WDT) can monitor the system's status. Once the WDT receives a value, the timer will begin to count down. Reprogramming a new value to WDT or moving the keyboard can restart the WDT. If the system is idle or hang, it will reboot when the timer time-out.

The function of the watchdog timer is to reset the system automatically. It contains a one-second (or one-minute) resolution down counter (in CRF2 of logical device 8 of super I/O chip) and two Watchdog control registers (CRF4 and CRF3 of logical device 8).

We provide the WDT function calls for easy use under DOS, Windows 95/98/2000, and Windows NT, please refer to the information under **X:\CHIPDRV\WDT**.

WDT Programming

In order to simplify the programming code, a sub function is provided for programmers to implement their software. For DOS, Windows 95, or Windows 98, and Window NT, the sub function format is as follows:

```
out_port (int IOport_number, int
Counter_value)

    IOport_number:0x3F0 -->W83977EF's
    configuration port.

    0x2E -->W83627HF's configuration port.

    Counter_value: 0 ~ 15300 (255 minutes)
```

(write a zero to disable the timer)

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Under DOS, Windows 95, or 98:

Make a project program with wdt.cpp under Turbo C/C++.

Under Windows NT:

The library installation procedure:

1. Run the setup program under NT environment.
2. Reboot the system.

You can also write your own DLL by referring the DOS source we provide.

How to Test the WDT?

Under DOS, Windows 95 or 98:

Open a DOS command prompt and execute the following utility on the CD: **X:\CHIPDRV\WDT\test <n>**

/* n = second value. This program can auto detect which Super I/O chip to use. */

Under Windows NT:

Before executing the program under Windows NT, the setup program must first be runned under Windows NT. Open a DOS command prompt window, execute the following command:

test977 <n>: n = second value. For W83977EF

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5.2 Hardware Doctor Utility

This chapter introduces Hardware Doctor Utility that comes with the CPU board in conjunction with the onboard hardware monitoring function. This section describes the functions of the utility.

Hardware Doctor is a self-diagnostic system for PC and must be used with Winbond's W83781D/W83782D or W83627HF IC series products. It will protect PC Hardware by monitoring several critical items including Power Supply Voltage, CPU Fan speed, and CPU & System temperature. These items are important to the operation of the system; errors may result in permanent damage of the PC. If an item is out of its normal range, a warning will pop up to prompt the user to correct the problem.

The Hardware Doctor utility supports Windows 98 and Windows NT. The software is stored on the ADLINK CD under:

X:\Utility\HWDoctor\W8378X\WIN98

and

X:\Utility\HWDoctor\W8378X\NT40.

Please install the Hardware Doctor by executing the HWM-98.exe or HWM-NT.exe respectively under Windows 98 or Windows NT.

For more information, please refer to HWDoctor.pdf under **X:\Utility\HWDoctor\W8378X**.

5.3 Intel Preboot Execution Environment (PXE)

cPCI-6760D series support Intel Preboot Execution Environment (PXE) which provides the capability of boot-up from Ethernet while executing OS installation from Ethernet. There should be a DHCP server in the network with one or more servers running PXE service and MTFTP service. It could be a Windows NT or Windows 2000 server running DHCP, PXE, and MTFTP service or a dedicated DHCP server with one or more additional servers running PXE and MTFTP service. This section describes the major items for building up a network environment with PXE support.

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1.Setup a DHCP server with PXE tag configuration

2.Install the PXE and MTFTP services

3.Make boot image file on PXE server (that is the boot server)

4.Enable the PXE boot function on the client computer

For more information, please refer to pdkrel30.pdf under **X:\Utility\PXE_PDK**.

5.4 Intel Adapter Teaming

cPCI-6760D series support Intel Adapter Teaming which provides several options for increasing throughput and fault tolerance when running Windows 2000, Windows NT 4.0, or NetWare 4.1x or newer. There are four options that can be supported by cPCI-6760D:

1. Adapter Fault Tolerance: Provides automatic redundancy for your Ethernet port (adapter). If the primary port (adapter) fails, the secondary takes over. Up to eight Fault Tolerance teams can be created. Each team can have 2 - 8 ports (or adapters).
2. Adaptive Load Balancing (ALB): Creates a team of two to eight Ethernet ports (or adapters) to increase transmission throughput. Also includes Fault Tolerance option. Works with most switches.
3. Fast Ethernet Channel (FEC): Creates a team of two, four or eight ports (adapters) to increase transmission and reception throughput. Also includes Fault Tolerance option. Requires a switch with FEC capability. Up to four teams can be created.
4. Link Aggregation: creates a team of two, four or eight ports (adapters) to increase transmission and reception throughput. Also includes Fault Tolerance option. Requires a switch with Link Aggregation capability. Up to four teams can be created.

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For further information, please refer to prosetp.hlp under the **X:\CHIPDRV\LAN\100PDISK**.

5.5 PICMG 2.1 Hot Swap Support

The cPCI-6760D Hot-Swap capability allows non-system slot boards to be added or removed while the system is powered up. Individual clocks for each slot and access to the ENUM# signal on the backplane are compatible to PICMG 2.1 Hot Swap Specification. While hot swap of non-system boards is supported, the cPCI-6760D itself cannot be inserted to or removed from a powered system.

A signal (ENUM#) is provided to notify the cPCI-6760D that either a board has just been inserted or is about to be extracted. This signal drives an interrupt (IRQ9 or IRQ3, according to hardware configuration) to inform the cPCI-6760D that the existence of a peripheral board has changed. The cPCI-6760D then performs any necessary maintenance such as installing a device driver upon board insertion, or quiescing a device driver and the board, prior to the board's extraction. The CompactPCI Hot-Plug System Driver manages the ENUM# sensoring.

Hot Swap Software builds on the PCI Hot-Plug architecture. The Hot-Plug Service, Hot-Plug System Driver, and the Device Drivers are common elements with the Hot-Plug architecture. The Device Drivers for Hot-Swap boards must be Hot-Plug capable. The Hot-Plug Service provides for the Dynamic Configuration of the system as the resources are added or removed. The PCI Hot-Plug Specification defines these services.

To support Hot Swap capability, the peripheral board shall be fully compliant with PICMG 2.0 R3.0 and PICMG 2.1 R2.0. The board's insertion and extraction processes are summarized as follows.

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Insertion process:

1. Insert the peripheral board into the card guide.
2. The peripheral board front panel is discharged to chassis ground through a bleed resistor.
3. The peripheral board logic ground is discharged to chassis ground through a bleed resistor.
4. The bleed resistor breaks contact with chassis ground. Logic ground is again isolated.
5. The front panel makes low resistance contact with chassis ground through the card guide.
6. The peripheral board contacts long pins on backplane, and begins to contact ground, +5V, +3V, and V(I/O) pins.
7. The peripheral board is in an unstable state while pins are first mated. This duration can potentially be infinite if the board is just marginally connecting the longest pins.
8. Enough pins are connected that a stable early power can be achieved. Hardware puts the Hot Swap (blue) LED on the peripheral board to the ON state.
9. The peripheral board contacts the medium length pins on the backplane. The peripheral board is now receiving the PCI clock.
10. The peripheral board contacts the short BD_SEL# pin. This pin is grounded on the backplane and pulled high by a pull-up resistor on the peripheral board. Its assertion indicates that the peripheral board has been fully inserted into the backplane.

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Extraction Process:

1. The peripheral board is installed.
2. The operator starts to extract the peripheral board.
3. The BD_SEL# pin disconnects. The hardware connection layer turns on the blue LED if it hasn't been turned on by software.
4. Medium length CompactPCI pins disengage.
5. Long length CompactPCI pins disengage. Early power goes away. The peripheral board is in an unstable state while pins are first disconnecting. This duration can potentially be infinite if the board is just marginally connecting the longest pins.
6. Board logic ground is connected to chassis ground through a bleed resistor.
7. The board front panel is connected to chassis ground through a bleed resistor.
8. The board is extract from the ESD card guide.
9. The board is uninstalled.

If it is not necessary to support Hot Swap Capability, users could disable the function in BIOS setting and release IRQ9 or IRQ3 for other resource. Please refer to the cPCI-6760D BIOS manual for operating instructions.

Note: Normally, IRQ9 will be occupied by ACPI. Please disable the ACPI function when enabling the ENUM# function in BIOS setting to route ENUM# through IRQ9 for supporting PICMG 2.1 Hot Swap for peripheral boards. If the hot swap drivers of the peripheral boards use only "polling algorithm", it may not use ENUM# to inform the system board of the existence of peripheral boards, then the user can enable ACPI and disable the ENUM# function.

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5.6 Self Hot Swap Support

cPCI-6760D supports “self hot swap”. With this feature, cPCI-6760D can be hot inserted and extracted in a live system, there is no need to turn off power to replace the board. This is particularly useful in high-density server (or blade server) applications. Although the board can be inserted or extracted in a live system at any time without crashing, operators must be aware of data saving. Be familiar with the BIOS and OS settings. The blue led will indicate when operators can insert or extract with safety.

Note: When cPCI-6760D supports PICMG 2.1 Hot Swap for peripheral boards, users may enable the ENUM# function by routing through IRQ9. The ACPI function cannot be enabled due to IRQ9 conflict. Please disable the ENUM# function when enabling ACPI for supporting self hot swap feature.

BIOS and OS Setting for Self Hot Swap

	BIOS Setting	OS Setting
Item	ACPI Function	When I press the power button on my computer
Setting Value	Enable	Power OFF
Note	Factory Default	

Table 5-1: BIOS and OS setting for self Hot Swap

BIOS Setting Process

1. Power ON the computer
2. Press the “Delete” Key
3. Under BIOS Menu, choose **Power Management Setup**
4. Choose ACPI Function, set this item to **Enable**
5. Press F10, Save and Exit

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Windows 98 and 2000 Setting Process

1. From **Start Menu**, choose **Setting**, then **Control Panel**
2. Select **Power Option**
3. Select **Advanced Sheet**
4. Choose **When I press the power button on my computer, set it to Power OFF**.
5. Click **OK** then exit.

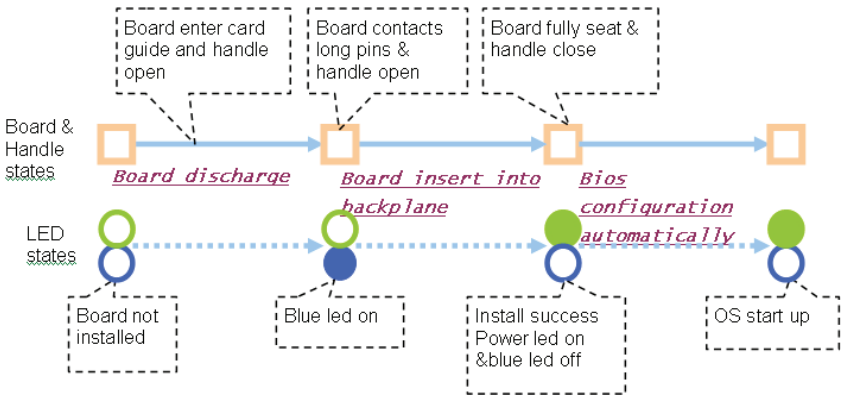
Note:	If operators wish to use the handle as the power button and shut down OS automatically. The operating system must be installed in ACPI mode.

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Insertion Process

This section describes the operational principle during the insertion process when self hot-swap feature is enabled.

1. The cPCI-6760D enters the card guide.
2. The board is discharged to chassis ground through bleed resistors and card guide.
3. The board contacts long pins on backplane, and begins to contact ground, +5V, +3.3V, and VIO pins.
4. Enough pins are connected that a stable Early Power can be achieved. And the BLUE LED is in the ON state.
5. The board contacts the medium length pins on the backplane. Medium length power pins contact and short out the current limiting resistors.
6. The board contacts the short BD_SEL# pin, the handle is fully closed.
7. If hot insertion was successful, the board powers on and the blue LED flashes. If not, the blue LED would remain on. Remove the board and try again.
8. The system BIOS would start up the board and configuration automatically.



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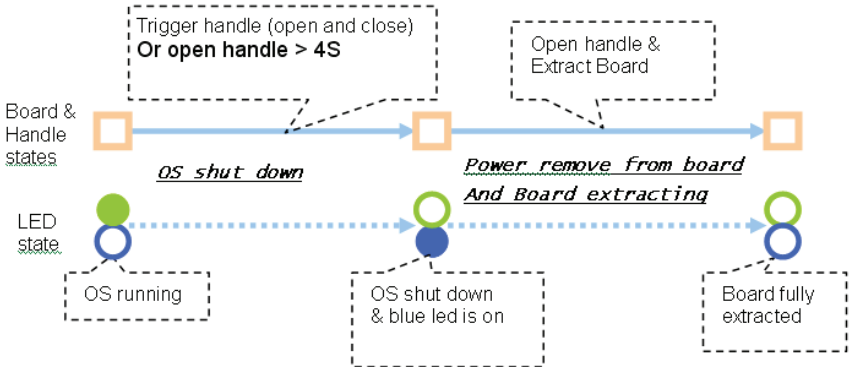
Note:	If the board is fully seated and handle is closed, but the blue LED is still on, it indicates the board installs to the live system fail. And operators must extract the board and insert again.

Extraction Process

In the extraction process, the handle can be treated as a power button. In Windows 2000, Windows 98, or other operating systems that support ACPI. Trigger the handle once (open then close handle) and the operating system will shut down automatically. In other states open the handle for over four seconds, the board will turn off.

1. Trigger or open the handle.
2. In the OS that supports ACPI, the OS will either shut down automatically by triggering the handle, or by opening the handle for over four seconds on unsaved data status.
3. If the blue LED is on, this would indicated one of two things: the OS was shut down properly by triggering the button with handle still closed; or the operator forced the OS to shut down with the handle still open.
4. Open the handle and the blue led is still on. Operators can extract the board.
5. Extract the board and the BD_SEL# pin disconnects.
6. Medium length CompactPCI pins disengage.
7. Long length CompactPCI pins disengage. And early power goes away.
8. Board leaves the ESD card guide.

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Note:	If the board is fully seated and handle is closed, but the blue LED is still on, it indicates the board installs to the live system fail. And operators must extract the board and insert again. When operators want to hot insert or extract the board, check that all of the backplane's power come from P1. This will ensure all power is isolated and controlled when the card is inserted and extracted in a live system. Please refer to the CompactPCI's pin definition in the user's manual for more information on cPCI-6760D.

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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.

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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 unsuitable storage environments (i.e. 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 shipping costs to transport damaged products to our company or sales office.
5. To ensure the speed and quality of product repair, please download an RMA application form from our company website: http://rma.adlinktech.com/policy. Damaged products with attached RMA forms receive priority.

If you have any further questions, please email our FAE staff: service@adlinktech.com.

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