
G8 Basic

Modular CompactPCI®
Chassis

User's Guide



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Chapter 1 - Introduction

Welcome to the I-Bus/Phoenix family of CompactPCI® system enclosures. This manual provides information necessary to set up and maintain the G8 Basic Modular CompactPCI® Chassis

The G8 Basic Modular CompactPCI® Chassis is a flexible entry level platform allowing up to 8 slots expansion. A 2U fan tray with 2 fans is an option along with a 1U top mounted air extraction tray depending upon systems needs. The front-access drive bay module mounts one 3.5 inch, and three 5 1/4 inch drives. The G8Basic Chassis can be supplied with a standard ATX P.S.U. format or an ATX redundant P.S.U.

Because of the variety of available options, your system may not contain all of the features described in this manual.

This chapter is divided into three sections:

- **About this manual**

Explains how this manual is laid out and what to find in it.

- **Preparing the system**

Defines the items included with your system and describes the procedure for unpacking and setting up the G8 Basic Modular CompactPCI® Chassis.

- **Features**

Provides a brief overview of the major components of the G8 Basic Modular CompactPCI® Chassis.

About this Manual

This manual contains five chapters pertaining to the G8 Basic Modular CompactPCI® Chassis. The appendices contain technical reference material, a glossary of terms, and illustrations of the G8 Basic Modular CompactPCI® Chassis.

- **Chapter 1 Introduction**

Introduces this manual and the G8 Basic Modular CompactPCI® Chassis. It contains an illustration of the system and a brief description of its features.

- **Chapter 2 Hardware**

Details hardware removal and installation for the rear I/O panel.

Chapter 1 - Introduction

- **Chapter 3 Power Distribution**

Contains removal and installation instructions for the power supply and backplane.

- **Chapter 4 Drive Bay**

Describes drive orientations and how to remove and install drives.

- **Chapter 5 Specifications**

Provides physical, electrical, and environmental specifications.

- **Appendix 1 Technical Reference**

Lists CompactPCI[®] connector pin assignments.

- **Appendix 2 Glossary of Terms**

- **Appendix 3 Limited Warranty**

Preparing the System

CAUTION!

Electrostatic discharge (ESD) may damage memory chips, programmed devices, and other electrical components. ESD can be prevented by wearing a wrist strap attached to a ground post on a static mat.

Unpacking your system

- Unpack the system at a static-free workstation while observing proper Electrostatic Discharge (ESD) practices.
- I-Bus reserves the right to refuse warranty service on units improperly unpacked to protect against ESD damage.

Included with your G8 Basic Modular CompactPCI[®] Chassis:

- User Manual
- Power cord
- Rack mounting brackets and hardware

If any of the items have been damaged in shipping, notify the transit company and initiate an insurance claim. Refer to the Limited Warranty in the back of this manual for further instructions.

Chapter 1 - Introduction

Features

• Backplane

The G8Basic CompactPCI[®] Modular Chassis equipped with an 8-slot CompactPCI[®] passive backplane, with room for a 3 slot wide (12HP) processor.

• Power supply (optional)

- a standard PS2 P.S.U. format
- a PS2 redundant P.S.U.

• Drive module

The front-access drive bay module mounts one 3.5 inch, and three 5 1/4 inch drives.

• Fan Tray (optional)

2U - 2 fans (80mm x 80mm x35CFM) with adjustable air flow deflector plates and air filler(s).

• Air Extraction Tray (optional)

1U allows air being forced up through unit to exit at top rear.

Chapter 1 - Introduction



Figure 1-1. G8 Basic Modular CompactPCI® Chassis Enclosure

Chapter 2 - Hardware

This chapter discusses removal and installation of the CPU board module, add-in board modules, rear I/O modules (for systems with rear I/O), backplane, fan tray, system fans, and air filter.

CAUTION!

Unless working on hot-swap components, always turn OFF all power and disconnect the power cord before working on the system.

CAUTION!

Electrostatic discharge (ESD) may damage memory chips, programmed devices, and other electrical components. ESD can be prevented by wearing a wrist strap attached to a ground post on a static mat.

CPU board

This is mounted vertically into the appropriate slot on the front face of the G8 Basic Modular CompactPCI Chassis with the board mounted in the upper and lower guide slots and the rear connectors fully engaged into the mating sockets on the backplane. The CPU board is held in place with two injector/ejector handles that stabilize the board when they are engaged. It is also secured by two captive screws located on the CPU board module's front panel.

Removal and installation of the CPU board module

1. Turn off the main system power.
2. Loosen the two screws on the CPU board module's front panel.
3. Completely retract the injector/ejector handles
Note: Some force may be required.
4. Slide the CPU board module out of the chassis and place on an ESD safe surface.
5. Using the module guides, slide the new CPU board into the chassis, making sure to align the two guide pins with their card guides inside the chassis.
6. Engage the injector/ejector handles by pressing them towards each other.
7. Secure the CPU board module by tightening the two captive screws.
8. Check for proper assembly.
9. Turn on the main system power.

Chapter 2 - Hardware

Add-in boards

All add-in board modules are mounted through the front of the enclosure. They are held in place with two injector/ejector handles that stabilize the boards when they are engaged.

Removal and installation of add-in boards

1. Turn off the main system power.

Note: Some hot-swap Add-in Boards may be inserted and removed with the power on.

2. Retract the injector/ejector handles of the add-in board module being removed.
3. Slide the add-in board module out of the chassis.
4. Using the module guides, slide the new add-in board into the chassis, making sure to align the two guide pins with their card guides inside the chassis.
5. Engage the injector/ejector handles by pressing them towards each other.

Note: If not planning on immediately replacing a removed add-in board, close the space left open with a filler panel in order to maintain EMI specifications.

6. Turn on the main power system.



Figure 2-1: G8 Basic Modular CompactPCI Chassis (Rear)

Rear I/O Modules

The G8 Basic Modular CompactPCI Chassis can be configured to support rear I/O transition modules.

Removal and installation of the rear I/O modules

For modules with captive front panel screws:

1. Turn off the main system power.

Note: Some rear I/O modules can be inserted and removed with the power on.

2. Loosen the two screws on the rear I/O module's front panel as much as possible.

Note: The screws are captive to the front panel and cannot be completely removed.

3. Completely retract the injector/ejector handles

Note: This may require some force.

Chapter 2 - Hardware

4. Slide the rear I/O module out of the chassis.
5. Using the module guides, slide the new rear I/O module into the chassis, making sure to align the two guide pins with their card guides inside the chassis.
6. Engage the injector/ejector handles by pressing them towards each other.
7. Secure the rear I/O module by tightening the two front panel screws.
8. Turn on the main power system.

For modules without captive front panel screws:

1. Turn off the main system power.

Note: Some rear I/O modules can be inserted and removed with the power on.

2. Completely retract the injector/ejector handles of the rear I/O module being removed.

Note: This may require some force.

3. Slide the rear I/O module out of the chassis.
4. Using the module guides, slide the new rear I/O module into the chassis.

Note: Make sure to align the two guide pins with their card guides inside the chassis.

5. Engage the injector/ejector handles by pressing them towards each other.

Note: If not planning on immediately replacing a removed I/O module, close the space left open with a filler panel in order to maintain EMI specifications.

6. Turn on the main system power.

Backplane

The G8 Basic Modular CompactPCI Chassis supports an 8-slot CompactPCI backplane. See the back of this manual, or the backplane manual, for charts providing connector information for the CompactPCI backplane.

Chapter 3 - Power Distribution

This chapter discusses the power supply, and power switch.

CAUTION!

Always turn OFF all power and disconnect the power cords before working on the system.

Power Supplies

The user selectable power supplies are available in 350W ATX, 400W ATX, or dual redundant 250W ATX. The 250W redundant PSU are hot swappable from the rear of the chassis.

Input Power Switch

The input power switch is a 16Amp rocker switch located on the front panel.

Chapter 3 - Power Distribution

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Chapter 4 - Drive Bay

This chapter describes the removal and installation of the drive module, hard drive, floppy drive, and CD-ROM drive.

CAUTION!

Before performing any of the following instructions, the operator should be equipped with proper ESD safety equipment and clothing

Removing/installing the drive module

1. Turn off the main system power.
2. Remove front panel.
3. Remove the drives retaining screws.
4. Pulling drive out, remove the power and logic cables.
5. Remove metal slides from drive (supplied with chassis).
6. Install metal slides on replacement drive.
7. Attach power and logic cables.
8. Slide drive into chassis.
9. Replace retaining screws.
10. Replace front panel.
11. Turn on main system power.

Chapter 4 - Drive Bay

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Chapter 5 - Specifications

Specifications

- **Number of backplane slots**
 - 7 application slots
 - 1 SBC location, 3 slots wide
- **Cooling (optional)**
 - 2 fans @ 35 CFM each
- **Dimensions**
 - Height 15.69" (with fan option)
10.44" (without fan)
 - Width 17.1"
 - Depth 11.6"
- **Input voltage**
 - 105-126 VAC or 210-252 VAC, auto ranging
- **Output voltage/loads**
 - 32A @ +5VDC
 - 20A @ +3.3VDC } 160W Max combined
 - 11A @ +12VDC
 - 1A @ -12VDC
 - 350W total

(Optional)

- 18A @ +5VDC
- 15A @ +3.3VDC
- 10A @ +12VDC
- 0.5A @ -12VDC
- 250W total

Chapter 5 - Specifications

Environmental Specifications

| Environmental | Operating | Non-operating |
|---------------|------------------------------------|------------------------------------|
| Temperature | 0°C to +50°C | -40°C to +65°C |
| Humidity | 5% to 95% @ 40°C non-condensing | 5% to 95% @ 40°C non-condensing |
| Shock | 2.5 g @ 10 ms | 10 g @ 10 ms |
| Vibration | 0.25 G @ 5-100 Hz | 1.5 g @ 5-100 Hz |
| Altitude | 0-15,000 ft | 0-15,000 ft |

Table 5-1: Environmental Specifications

Appendix 1 - Technical Reference

P1 Connector Pin Assignments (System Slot)

| Pin # | Z | A | B | C | D | E | F |
|--------------|----------|--------------|----------|----------|----------|--------------|----------|
| 25 | GND | VCC | REQ 64 | ENUM | VCC3 | VCC | GND |
| 24 | GND | AD[1] | VCC | V(I/O) | AD[0] | ACK64_ | GND |
| 23 | GND | VCC3 | AD[4] | AD[3] | VCC | AD[2] | GND |
| 22 | GND | AD[7] | GND | VCC3 | AD[6] | AD[5] | GND |
| 21 | GND | VCC3 | AD[9] | AD[8] | M66EN | C/BE[0] - | GND |
| 20 | GND | AD[12] | GND | V(I/O) | AD[11] | AD[10] | GND |
| 19 | GND | VCC3 | AD[15] | AD[14] | GND | AD[13] | GND |
| 18 | GND | SERR_ | GND | VCC3 | PAR | C/BE[1] | GND |
| 17 | GND | VCC3 | IPMB_SCL | IPMB_SDA | GND | PERR | GND |
| 16 | GND | DEVSEL_ | GND | V(I/O) | STOP_ | LOCK_ | GND |
| 15 | GND | VCC3 | FRAME_ | IRDY_ | GND | TRDY_ | GND |
| Key 12-14 | | | | | | | |
| 11 | GND | AD[18] | AD[17] | AD[16] | GND | C/BE[2] - | GND |
| 10 | GND | AD[21] | GND | VCC3 | AD[20] | AD[19] | GND |
| 9 | GND | C/BE[3] | GND | AD[23] | GND | AD[22] | GND |
| 8 | GND | AD[26] | GND | V(I/O) | AD[25] | AD[24] | GND |
| 7 | GND | AD[30] | AD[29] | AD[28] | GND | AD[27] | GND |
| 6 | GND | REQ_ | GND | VCC3 | CLK0 | AX[31] | GND |
| 5 | GND | BRSVP1A5 | BRSVP1B5 | PCI_RST_ | GND | GNT0 | GND |
| 4 | GND | IPMB_PW R | HEALTHY | V(I/O) | INTP | INTS | GND |
| 3 | GND | INTA_ | INTB_ | INTC_ | VCC | INTD_ | GND |
| 2 | GND | TCK | VCC | TMS | TDO | TDI | GND |
| 1 | GND | VCC | -12V | TRST_ | +12V | VCC | GND |

Table A1-1: P1 Connector Pin Assignments (System Slot)

Appendix 1 - Technical Reference

P1 Connector Pin Assignments (I/O Slot)

| Pin # | Z | A | B | C | D | E | F |
|--------------|-----|--------------|----------|----------|---------|--------------|-----|
| 25 | GND | VCC | REQ 64 | ENUM | VCC3 | VCC | GND |
| 24 | GND | AD[1] | VCC | V(I/O) | AD[0] | ACK64_ | GND |
| 23 | GND | VCC3 | AD[4] | AD[3] | VCC | AD[2] | GND |
| 22 | GND | AD[7] | GND | VCC3 | AD[6] | AD[5] | GND |
| 21 | GND | VCC3 | AD[9] | AD[8] | M66EN | C/BE[0] - | GND |
| 20 | GND | AD[12] | GND | V(I/O) | AD[11] | AD[10] | GND |
| 19 | GND | VCC3 | AD[15] | AD[14] | GND | AD[13] | GND |
| 18 | GND | SERR_ | GND | VCC3 | PAR | C/BE[1] | GND |
| 17 | GND | VCC3 | IPMB_SCL | IPMB_SDA | GND | PERR | GND |
| 16 | GND | DEVSEL_ | GND | V(I/O) | STOP_ | LOCK_ | GND |
| 15 | GND | VCC3 | FRAME_ | IRDY_ | BD_SEL_ | TRDY_ | GND |
| Key 12-14 | | | | | | | |
| 11 | GND | AD[18] | AD[17] | AD[16] | GND | C/BE[2] - | GND |
| 10 | GND | AD[21] | GND | VCC3 | AD[20] | AD[19] | GND |
| 9 | GND | C/BE[3] | IDSEL | AD[23] | GND | AD[22] | GND |
| 8 | GND | AD[26] | GND | V(I/O) | AD[25] | AD[24] | GND |
| 7 | GND | AD[30] | AD[29] | AD[28] | GND | AD[27] | GND |
| 6 | GND | REQ_ | GND | VCC3 | CLK | AX[31] | GND |
| 5 | GND | BRSVP1A5 | BRSVP1B5 | PCI_RST_ | GND | GNT | GND |
| 4 | GND | IPMB_PW R | HEALTHY | V(I/O) | INTP | INTS | GND |
| 3 | GND | INTA_ | INTB_ | INTC_ | VCC | INTD_ | GND |
| 2 | GND | TCK | VCC | TMS | TDO | TDI | GND |
| 1 | GND | VCC | -12V | TRST_ | +12V | VCC | GND |

Table A1-2: P1 Connector Pin Assignments (I/O Slot)

Appendix 1 - Technical Reference

P1 Signal Descriptions

| | | |
|--|----------------------------|---------------------------------------|
| General | VCC | 5V power |
| | VCC3 | 3.3V power |
| | +12V | 12V power |
| | -12V | -12V power |
| | V(I/O) | 5V or 3.3V power |
| | GND | To digital signal ground plane |
| | PCI_RST_ | Master reset |
| PCI Bus Signals | AD(31:0) | 32 bit Address/Data bus |
| | C/BE(3:0)_ | Command/Byte Enable bus |
| | PAR | Bus parity |
| | BRSVPxxx | PCI bus reserved signals |
| PCIbus arbitration signals | GNT0_ | Bus grant 0 |
| | REQ0_ | Bus request 0 |
| Interrupt Request Signals | INTA_, INTB_, INTC_, INTD_ | |
| PCI Bus transaction control signals | FRAME_ | Cycle Frame |
| | TRDY_ | Target Ready |
| | IRDY_ | Initiator Ready |
| | STOP_ | Target/Initiator transaction stop bit |
| | IDSEL | Initialization Device Select |
| | LOCK_ | Resource Lock bit |
| | DEVSEL_ | Device Select |
| PCI bus error reporting signals | PERR_ | Data Parity Error |
| | SERR_ | System Error |
| PCI bus speed signals | M66EN | 66MHz bus enable |
| PCI bus clock | CLK0 | |
| System Management Bus | IPMB_SCL | |
| | IPMB_SDA | |
| | IPMB_PWR | |
| 64-bit Extension Signals | REQ64_ | Request 64-bit Transfer |
| | ACK 64_ | Acknowledge 64-bit Transfer |

Appendix 1 - Technical Reference

| | | |
|--|----------|--------------------------|
| JTAG/Boundary Scan Signals | TCK | Test Clock |
| | TDI | Test Input |
| | TDO | Test Output |
| | TMS | Test Mode Select |
| | TRST_ | Test Reset |
| IDE Interrupts | INTP | Primary Interrupt |
| | (IRQ14) | INTS Secondary Interrupt |
| | IRQ15) | |
| Hot Swap compatible signals | ENUM_ | System Enumeration |
| | BD_SEL_ | Board Slot Control |
| | HEALTHY_ | Board Healthy |

Appendix 1 - Technical Reference

P2 Connector Pin Assignments (System Slot)

| Pin # | Z | A | B | C | D | E | F |
|-------|-----|-----------|-----------|-----------|---------|-----------|-----|
| 22 | GND | GA4 | GA3 | GA2 | GA1 | GA0 | GND |
| 21 | GND | CLK6 | GND | RSV | RSV | RSV | GND |
| 20 | GND | CLK5 | GND | RSV | GND | RSV | GND |
| 19 | GND | GND | GND | RSV | RSV | RSV | GND |
| 18 | GND | BRSVP2A18 | BRSVP2B18 | BRSVP2C18 | GND | BRSVP2E18 | GND |
| 17 | GND | BRSVP2A17 | GND | PRST | REQ6 | GNT6_ | GND |
| 16 | GND | BRSVP2A16 | BRSVP2B16 | DEG_ | GND | BRSVP2E16 | GND |
| 15 | GND | BRSVP2A15 | GND | FAL_ | REQ5 | GNT5 | GND |
| 14 | GND | AD[35] | AD[34] | AD[33] | GND | AD[32] | GND |
| 13 | GND | AD[38] | GND | V(I/O) | AD[37] | AD[36] | GND |
| 12 | GND | AD[42] | AD[41] | AD[40] | GND | AD[39] | GND |
| 11 | GND | AD[45] | GND | V(I/O) | AD[44] | AD[43] | GND |
| 10 | GND | AD[49] | AD[48] | AD[47] | GND | AD[46] | GND |
| 9 | GND | AD[52] | GND | V(I/O) | AD[51] | AD[50] | GND |
| 8 | GND | AD[56] | AD[55] | AD[54] | GND | AD[53] | GND |
| 7 | GND | AD[59] | GND | V(I/O) | AD[58] | AD[57] | GND |
| 6 | GND | AD[63] | AD[62] | AD[61] | GND | AD[60] | GND |
| 5 | GND | C/BE[5] | GND | V(I/O) | C/BE[4] | PAR64 | GND |
| 4 | GND | V(I/O) | BRSVP2B4 | C/BE[7] | GND | C/BE[6] | GND |
| 3 | GND | CLK4 | GND | GNT3_ | REQ4_ | GNT4_ | GND |
| 2 | GND | CLK2 | CLK3 | SYSEN_ | GNT2_ | REQ3_ | GND |
| 1 | GND | CLK1 | GND | REQ1_ | GNT1_ | REQ2_ | GND |

_ = signal is active low

“ = signal is not currently used

Table A1-3: P2 Connector Pin Assignments (System Slot)

Appendix 1 - Technical Reference

P2 Connector Pin Assignments (I/O Slot)

| Pin # | Z | A | B | C | D | E | Z |
|-------|-----|-----------|-----------|-----------|---------|-----------|-----|
| 22 | GND | GA4 | GA3 | GA2 | GA1 | GA0 | GND |
| 21 | GND | RSV" | RSV" | RSV" | RSV | RSV | GND |
| 20 | GND | RSV" | RSV" | RSV" | GND | RSV | GND |
| 19 | GND | RSV" | RSV" | RSV" | RSV | RSV | GND |
| 18 | GND | BRSVP2A18 | BRSVP2B18 | BRSVP2C18 | GND | BRSVP2E18 | GND |
| 17 | GND | BRSVP2A17 | GND | RSV" | RSV | RSV | GND |
| 16 | GND | BRSVP2A16 | BRSVP2B16 | RSV" | GND | BRSVP2E16 | GND |
| 15 | GND | BRSVP2A15 | GND | RSV" | RSV | RSV | GND |
| 14 | GND | AD[35] | AD[34] | AD[33] | GND | AD[32] | GND |
| 13 | GND | AD[38] | GND | V(I/O) | AD[37] | AD[36] | GND |
| 12 | GND | AD[42] | AD[41] | AD[40] | GND | AD[39] | GND |
| 11 | GND | AD[45] | GND | V(I/O) | AD[44] | AD[43] | GND |
| 10 | GND | AD[49] | AD[48] | AD[47] | GND | AD[46] | GND |
| 9 | GND | AD[52] | GND | V(I/O) | AD[51] | AD[50] | GND |
| 8 | GND | AD[56] | AD[55] | AD[54] | GND | AD[53] | GND |
| 7 | GND | AD[59] | GND | V(I/O) | AD[58] | AD[57] | GND |
| 6 | GND | AD[63] | AD[62] | AD[61] | GND | AD[60] | GND |
| 5 | GND | C/BE[5] | GND | V(I/O) | C/BE[4] | PAR64 | GND |
| 4 | GND | V(I/O) | BRSVP2B4 | C/BE[7] | GND | C/BE[6] | GND |
| 3 | GND | RSV" | GND | RSV" | RSV | RSV | GND |
| 2 | GND | RSV" | RSV" | UNC | RSV | RSV | GND |
| 1 | GND | RSV" | GND | RSV" | RSV | RSV | GND |

_ = signal is active low

" = signal is not currently used

Table A1-4: P2 Connector Pin Assignments (I/O Slot)

Appendix 1 - Technical Reference

P2 Signal Descriptions

| | | |
|---|---|---|
| General | V(I/O) GND | 5V or 3.3V power To digital ground plane |
| PCI Bus Signals (64-bit extension) | AD(32:63) C/BE(4:7)_ PAR64 BRSVPxxx | Address/Data bus Command/Byte Enable bus 64-bit Bus parity PCI bus reserved signals |
| PCI bus arbitration signals | GNT(6:1)_ REQ(6:1)_ | Bus grants Bus requests |
| PCI bus clocks | CLK(6:1) | |
| Miscellaneous signals | PRST_ DEG_ FAL_ GA(4:0) SYSEN_ 64EN_ | Push Button Reset Degrade signal (Power Supply) Supply Fail Signal (Power Supply) Geographic Addressing System slot identification (Grounded at the system slot) 64-bit bus enable |

P3, P4, P5 Connectors Pin Assignments (System Slot)

P3, P4, and P5 are used for the purpose of providing access to the rear I/O. There is no connection on the backplane to these connectors at the system slot. The P3, P4, and P5 connector pinouts are unique to the CP1500 Sparc CPU board and described in the SPARCengine CP1500 360MHz/440MHz Technical Reference and Manual, located at the Sparc web site: <http://www.sun.com/microelectronics/SPARCengineCP/1500>

Appendix 1 - Technical Reference

P4 Connector Pin Assignments (Computer Telephony Bus) (I/O Slot)

| Pin # | Z | A | B | C | D | E | F |
|--------------|----|----------|-----------|--------|--------|-----------------|-----|
| 25 | NP | SGA4 | SGA3 | SGA2 | SGA1 | SGA0 | FG |
| 24 | NP | GA4 | GA3 | GA2 | GA1 | GA0 | FG |
| 23 | NP | +12V | CT_Reset_ | CT_EN_ | -12V | CT_MC | FG |
| 22 | NP | RSV | RSV | RSV | RSV | RSV | FG |
| 21 | NP | -SELVbat | RSV | RSV | RSV | SELVBatRtn | FG |
| 20 | NP | NP | NP | NP | NP | NP | NP |
| 19 | NP | NP | NP | NP | NP | NP | NP |
| 18 | NP | VRG | NP | NP | NP | VRGRtn | NP |
| 17 | NP | NP | NP | NP | NP | NP | NP |
| 16 | NP | NP | NP | NP | NP | NP | NP |
| 15 | NP | -Vbat | NP | NP | NP | VBatRtn | NP |
| Key 12-14 | | | | | | | |
| 11 | NP | CT_D29 | CT_D30 | CT_D31 | V(I/O) | CT_FRAME_A - | GND |
| 10 | NP | CT_D27 | VCC3 | CT_D28 | VCC | CT_FRAME_B - | GND |
| 9 | NP | CT_D24 | CT_D25 | CT_D25 | GND | FR_COMP_ | GND |
| 8 | NP | CT_D21 | CT_D22 | CT_D23 | VCC | CT_C8_A | GND |
| 7 | NP | CT_D19 | VCC | CT_D20 | GND | CT_C8_B | GND |
| 6 | NP | CT_D16 | CT_D17 | CT_D18 | GND | CT_NETREF_1 | GND |
| 5 | NP | CT_D13 | CT_D14 | CT_D15 | VCC3 | CT_NETREF_2 | GND |
| 4 | NP | CT_D11 | VCC | CT_D12 | VCC3 | SCLK | GND |
| 3 | NP | CT_D8 | CT_D9 | CT_D10 | GND | SCLKx2 | GND |
| 2 | NP | CT_D4 | CT_D5 | CT_D6 | CT_D7 | GND | GND |
| 1 | NP | CT_D0 | VCC3 | CT_D1 | CT_D2 | CT_D3 | GND |

_ = signal is active low

Table A1-5: P4 Connector Pin Assignments (Computer Telephony Bus)
(I/O Slot)

Appendix 1 - Technical Reference

P4 Signal Descriptions (Computer Telephony Bus)(I/O Slot)

| | | |
|----------------|---|---|
| General | VCC | 5V power |
| | VCC3 | 3.3V power |
| | V(I/O) | 5V or 3.3V power |
| | +12V | 12V power |
| | -12V | -12V power |
| | GND | To digital signal ground plane |
| | FG | To chassis (frame) ground |
| | SGA(4:0) | Shelf enumeration bus signals |
| | GA(4:0) | Slot ID signals; not bussed |
| | RSV | Reserved pin |
| | NP | Pin and pad to Not be Populated |
| | H.110 TDM Bus (Computer Telephony) | CT_Dxx |
| CT_C8A | | 8.192 MHz data clock |
| CT_C8_B | | Redundant 8.192 MHz data clock |
| CT_FRAME_A_8 | | 8 kHz frame clock |
| CT_FRAME_B_ | | Redundant 8kHz frame clock |
| CT_NETREF_1 | | 8kHz, 1.544MHz or 2.048MHz telecom network timing reference |
| CT_NETREF_2 | | Secondary 8kHz, 1.544MHz or 2.048MHz telecom network timing reference |
| CT_MC | | 2Mbps message channel |
| FR_COMP_ | | 8kHz SCbus compatibility frame clock |
| SCLK | | 8.192MHz SCbus compatibility data clock |
| SCLKx2 | | Skewed 8.192MHz SCbus compatibility data clock |
| CT_EN_ | | Logical equivalent of the CPCI signal BD_SEL_ on P1 |
| CT_Reset | Reset for use by CT Front Cards that do not populate P1 | |

Appendix 1 - Technical Reference

| | | |
|----------------------------|------------|--|
| Telecom Power Bus | -Vbat | Telecom power source |
| | VbatRtn | Telecom power source return |
| | -SELVbat | Short loop battery (voltage within SELV limits) |
| | SELVbatRtn | Short loop battery return (voltage within SELV limits) |
| Telecom Ringing Bus | VRG | Bussed ringing voltage |
| | VRGRtn | Bussed ringing voltage return for VRG |

Appendix 2 - Glossary of Terms

B

backplane: A device inside the chassis that contains slots, or sockets, for plugging in I/O cards or cables.

bidirectional parallel port: An eight-bit port that can be used for an input as well as an output device.

bus: One or more electrical conductors that transmit power or binary data to the various sections of a computer or any common pathway between hardware devices. A computer bus connects the CPU to its main memory and the memory banks that reside on the control units of the peripheral devices. It is made up of two parts. Addresses are sent over the address bus to signal a memory location, and the data is transferred over the data bus to that location.

C

card cage: A cabinet or metal frame that holds printed circuit cards.

CMOS (Complementary Metal Oxide Semiconductor): A technique of arranging transistors which uses very low power.

D

disk access LED: The LED located on the front control panel that indicates when the hard disk drive is active.

DRAM (Dynamic Random Access Memory): The main memory in your computer. It needs to be refreshed by a memory controller or it loses its information.

drive bay: Area in the chassis where drives are mounted.

Appendix 2 - Glossary of Terms

E

electrostatic discharge (ESD): Stationary electrical charges in which no current flows. ESD can be prevented by wearing a wrist strap attached to a ground post on a static mat.

EMI (ElectroMagnetic Interference): Noise generated by the switching action of the power supply and other system components. Conducted EMI is interference generally conducted into the power line, and is normally controlled with a line filter. Radiated EMI is that portion that radiates into free space, one way to suppress it is by enclosing circuitry in a metal case.

EPROM (Erasable Programmable Read Only Memory): A programmable device which stores information regardless of power.

expansion card: A printed circuit board that plugs into an expansion slot.

F

floppy drive: A device for reading the information contained on external, portable computer disks called floppy disks.

front control panel: The small panel on the front of the computer that contains the power switch, reset switch, Power ON LED, the disk access LED, and the keyboard connector.

H

hard drive: Data storage devices. Hard drives magnetically store computer data on spinning internal disks.

hold-down bar: A metal bar located in the I/O bay of the chassis. It is used to keep I/O cards firmly seated in their slots.

Appendix 2 - Glossary of Terms

I

IDE (Integrated Drive Electronics): A standard of signalling an communicating with a device.

I/O card: A printed circuit board that plugs into an I/O slot.

I/O slot: A slot for plugging in additional I/O cards to expand the capability of a computer.

ISA: The original IBM/PC clone plug-in board standard.

K

keyboard connector: The five-pin connector located on the front control panel.

kilobyte (KB): 1,024 bytes.

L

LED: Light Emitting Diode. Long-lasting light emitters usually used as indicators.

load board: A board having specific resistance to current flow.

P

parallel port: I/O connector used to hook up a printer or other parallel interface device. The parallel port is usually a 25-pin female DB25 connector.

PCI(Peripheral Component Interconnect): An optional slot standard for plug-in boards

port: Ports are used to connect peripheral devices such as external drives and printers to your computer.

Appendix 2 - Glossary of Terms

power good: Signal used to prevent the computer from starting until the power has stabilized. The power good line switches from 0 to +5 volts within one tenth to one half second after the power supply reaches normal voltage levels. Whenever low input voltage causes the output voltage to fall below operating levels, the power good signal goes back to zero.

power ON/diagnostic LED: The LED located on the front control panel that indicates that power is present in the computer.

power supply: Electrical system that converts AC current from the wall outlet into the DC currents required by the computer circuitry. In a personal computer, +5, -5, +12 and -12 voltages are generated.

power switch: Located on the front control panel, the power switch turns power ON to the computer.

R

RAID (Redundant Arrays of Independent Disks): A storage technology using an array of two or more disks to redundantly store information. If one disk fails in a RAID array, the unit continues to function without loss of data.

RAM (Random Access Memory):The memory used to execute applications while your computer is turned ON. When you turn your computer OFF, all data stored in RAM is lost.

real-time clock (RTC): A periodic interrupt used to derive local time.

reset switch: Button or key that reboots the computer. All current activities are stopped cold and any data in memory is lost.

retaining bracket: The bracket on the back of the chassis that holds connectors from the board, usually a DB9 for serial port, a DB25 for parallel port, and mini-DIN connectors for keyboard and mouse.

Appendix 2 - Glossary of Terms

S

SCSI (Small Computer System Interface): A high speed, general purpose interface to storage devices.

serial port: A two-channel port, one channel used for "In" transmissions and one for "Out" transmissions.

W

watchdog timer: A device that watches for CPU inactivity and then resets the CPU after a specified duration of inactivity.

Appendix 2 - Glossary of Terms

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Appendix 3 - Limited Warranty

LIMITED WARRANTY

I-Bus/Phoenix warrants this product to be free of defects in material and workmanship for an initial period of two (2) years from date of delivery to the original purchaser from I-Bus/Phoenix.

During this period, I-Bus/Phoenix will, at its option, repair or replace this product at no additional charge to the purchaser, except as set forth in this warranty agreement.

I-Bus/Phoenix will, at its option, repair or replace this product at no additional charge to the purchaser, if the defect is related to the I-Bus/Phoenix manufactured product, such as power supply, backplanes, other chassis components, or CPUs. I-Bus/Phoenix is not liable for any defects in material or workmanship of any peripherals, products or parts which I-Bus/Phoenix does not design or manufacture. However, I-Bus/Phoenix will honor the original manufacturer's warranty for these products.

I-Bus/Phoenix will analyze the defective component and the customer will be charged in the following instances:

- No problem found: \$75 (U.S. dollars).
- Damage: parts and labor at \$75 per hour with a \$100 minimum charge (U.S. dollars). Receipt of damaged goods voids the I-Bus/Phoenix warranty.

Repair parts and replacement products will be furnished on an exchange basis and will be either new or reconditioned. All replacement parts and products shall become the property of I-Bus/Phoenix, if such parts or products are provided under this warranty agreement. In the event a defect is not related to the I-Bus/Phoenix manufactured product, I-Bus/Phoenix shall repair or replace the defective parts at purchaser's cost and deliver the defective parts to the purchaser.

This Limited Warranty shall not apply if the product has been misused, carelessly handled, defaced, modified or altered, or if unauthorized repairs have been attempted by others.

The above warranty is the only warranty authorized by I-Bus/Phoenix and is in lieu of any implied warranties, including implied warranty of merchantability and fitness for a particular purpose.

In no event will I-Bus/Phoenix be liable for any such damage as lost business, lost profits, lost savings, downtime or delay, labor, repair or material cost, injury to person or property or any similar or dissimilar consequential loss or damage incurred by purchaser, even if I-Bus/Phoenix has been advised of the possibility of such losses or damages.

In order to obtain warranty service, the product must be delivered to the I-Bus/Phoenix facility, or to an authorized I-Bus/Phoenix service representative, with all included parts and accessories as originally shipped, along with proof of purchase and a Returned Merchandise Authorization (RMA) number.

The RMA number is obtained, in advance, from I-Bus/Phoenix Customer Service Department and is valid for 30 days. The RMA number must be clearly marked on the exterior of the original shipping container or equivalent. Purchaser will be responsible and liable for any missing or damaged parts. Purchaser agrees to pay shipping charges one way, and to either insure the product or assume the liability for loss or damage during transit. Ship to:

I-Bus/Phoenix
ATTENTION: RMA REPAIR DEPT.
RMA #####
8888 Balboa Avenue
San Diego, CA 92123

Appendix 3 - Limited Warranty

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Appendix 4 - FCC Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class "A" digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This product was FCC verified under test conditions that included the use of shielded I/O cables and connectors between system components. To be in compliance with FCC regulations, the user must use shielded cables and connectors and install them properly.

Appendix 4 - FCC Information

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