VMIACC-0424

CompactPCI Rear Transition Utility Board for the VMICPCI-7715 SBC

Installation Guide

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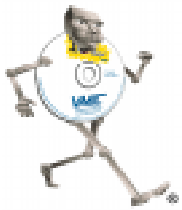

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CHAPTER

1

Installation

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Introduction

The VMIACC-0424 is a passive backplane adapter board, designed for use with VMIC's CompactPCI Pentium III based VMICPCI-7715. The VMIACC-0424 provides an IDE hard drive header, floppy drive header, LVDS header and a PMC I/O connector. There are two serial ports, two USB ports, a VGA connector, an Ethernet port, PS/2 Keyboard/Mouse port and a Smbus connector for external connection to the CPU through the CompactPCI rear I/O. The adapter board uses a standard 40-pin header for the hard drive connector and a 34-pin header for the floppy drive connector. The serial ports are male micro DB9 connectors. The USB ports use a standard USB connector and the PMC I/O uses a 68-pin right angle connector. The VGA connector is a standard 15-pin high-density D-subminiature connector. The LVDS interface is a 20-pin header. The Ethernet port uses a RJ45 connector. The PS/2 Keyboard/Mouse port is a 6-pin DIN type connector. The Smbus connector is a 4-pin SEMCONN connector. See Figure 1 for an illustration of the board and connector layout.

The CompactPCI J4 and J5 connectors carry all associated signals. All signals are routed from the CPU (installed in the front of the chassis) through the backplane to the VMIACC-0424 J4 and J5 connectors. Figure 2 is an illustration of the VMIACC-0424 installed on the CompactPCI rear I/O.

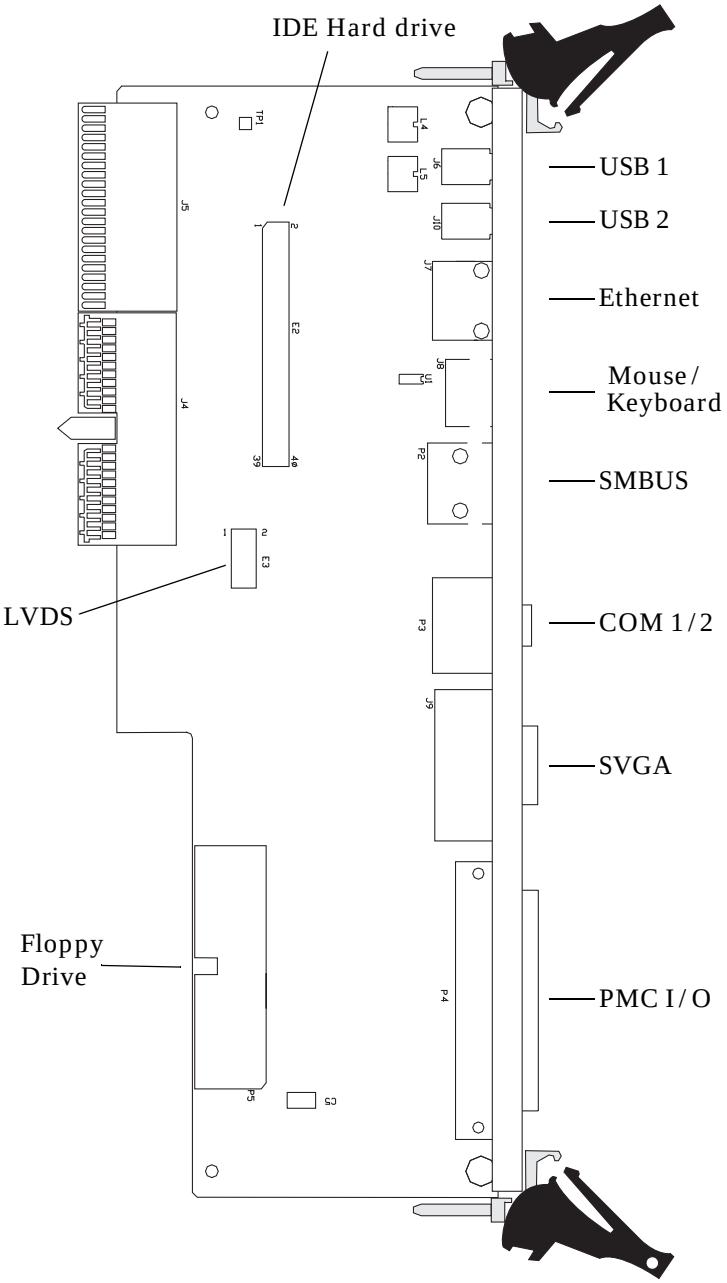


Figure 1-1 VMIACC-0424 CompactPCI Rear Transition Utility Board

Installation of the VMIACC-0424

The VMIACC-0424 adapter board installs onto the rear I/O of the CompactPCI chassis using the J4 and J5 connectors. The board is designed for installation in a CompactPCI chassis that has rear panel I/O connectors. Installation of the VMIACC-0424 is shown in Figure 1-2.

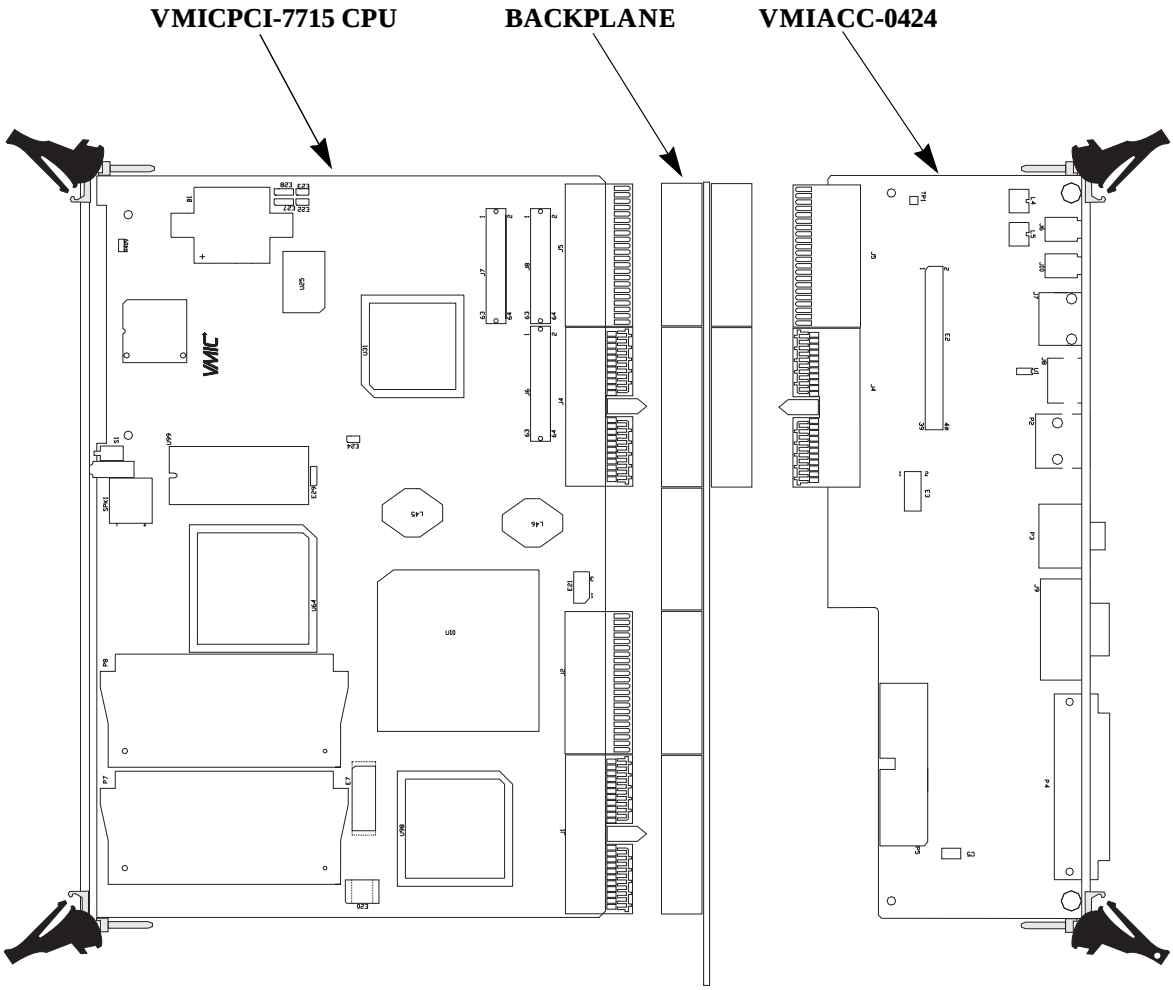


Figure 1-2 Installation of the VMIACC-0424 Adapter Board with a VMICPCI-7715

NOTE: The VMIACC-0424 adapter board is designed to be installed on backplanes with rear I/O connectors. Backplanes without rear I/O connectors cannot be used.

Connectors

There are ten connectors and three headers on the VMIACC-0424 utility board. J4 and J5 connectors are standard CompactPCI connectors. P5 is the 34-pin floppy drive header, and E2 is the 40-pin IDE hard drive header. E3 is the LVDS Video 20-pin header and the VGA connector is J9. There are two DB9 connectors on the front panel that are used for COM1 and COM2 (P3) serial ports. The front panel USB ports (J6, Port 1 and J10, Port 2) are USB connectors. P4 is the PMC I/O connector. J7 is the Ethernet connector and J8 is the Keyboard/Mouse port.

40-Pin IDE Header (E2)

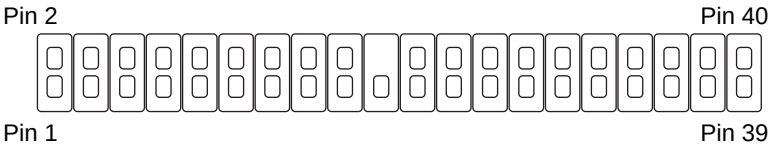


Figure 1-3 E2 40-pin IDE Header

Table 1-1 E2 40-pin IDE Header Pinout

Pin	Signal	Pin	Signal
1	Reset Drive	2	Signal Ground
3	Bidirectional Data (7)	4	Bidirectional Data (8)
5	Bidirectional Data (6)	6	Bidirectional Data (9)
7	Bidirectional Data (5)	8	Bidirectional Data (10)
9	Bidirectional Data (4)	10	Bidirectional Data (11)
11	Bidirectional Data (3)	12	Bidirectional Data (12)
13	Bidirectional Data (2)	14	Bidirectional Data (13)
15	Bidirectional Data (1)	16	Bidirectional Data (14)
17	Bidirectional Data (0)	18	Bidirectional Data (15)
19	Signal Ground	20	Key
21	Reserved	22	Signal Ground
23	Write Strobe	24	Signal Ground
25	Read Strobe	26	Signal Ground
27	Reserved	28	Address Latch Enable
29	Reserved	30	Signal Ground
31	Interrupt request (14)	32	16-bit Data Word Size
33	Address Line (1)	34	Diagnostic Test Passed
35	Address Line (0)	36	Address Line (2)
37	Chip Select (0)	38	Chip Select (1)
39	Store/Activity Status	40	Signal Ground

20-Pin LVDS Header (E3)

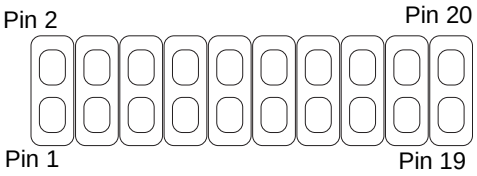


Figure 1-4 E3 20-pin LVDS Header

Table 1-2 E3 20-pin LVDS Pinout

Pin	Signal	Pin	Signal
1	3.3 Volts	2	Gnd
3	Txout 0-	4	Txout 0+
5	Gnd	6	Gnd
7	Txout 1-	8	Txout 1+
9	Gnd	10	Gnd
11	Gnd	12	Gnd
13	Txout 2-	14	Txout 2+
15	Gnd	16	Gnd
17	Txclkout-	18	Txclkout+
19	Gnd	20	3.3 Volts

34-Pin Floppy Drive Header (P5)

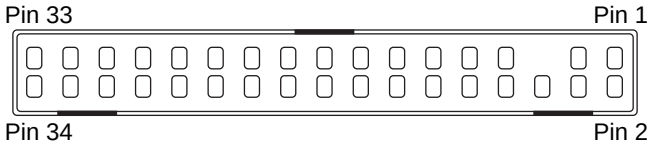


Figure 1-5 P5 34-pin Floppy Drive Header

Table 1-3 P5 34-pin Floppy Drive Pinout

Pin	Signal	Pin	Signal
1	Gnd	2	Drive Density 0
3	Gnd	4	N/C
5	Key	6	Drive Density 1
7	Gnd	8	Index
9	Gnd	10	Floppy Motor Enable (A)
11	Gnd	12	Floppy Drive Select (B)
13	Gnd	14	Floppy Drive Select (A)
15	Gnd	16	Floppy Motor Enable (B)
17	Gnd	18	Floppy Step Motor Direction
19	Gnd	20	Floppy Step Pulse
21	Gnd	22	Floppy Write Data
23	Gnd	24	Floppy Write Enable
25	Gnd	26	Floppy Track (0)
27	Gnd	28	Floppy Write Protect
29	Gnd	30	Floppy Read Data
31	Gnd	32	Floppy Select Head (1)
33	Gnd	34	Floppy Disk Change

CompactPCI Connector (J4)

The CompactPCI connector is labeled as a 5 Row, 25-pin per row connector. The actual physical makeup is 22 pins per row with space for an additional three pins. This space is used as a key. The CompactPCI connector is used to route the VGA and PMC I/O signals to the adapter board.

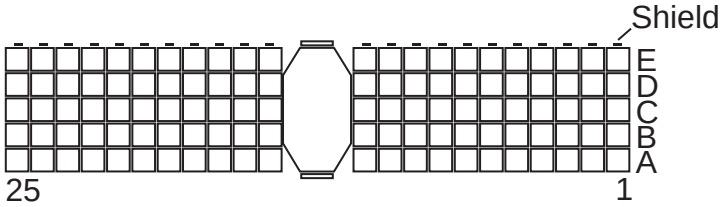


Figure 1-6 CompactPCI Connector (J4)

Table 1-4 CompactPCI Connector (J4) Pinout

Pin No.	Row E	Row D	Row C	Row B	Row A
25	PMC_I/O_1	PMC_I/O_2	PMC_I/O_3	PMC_I/O_4	PMC_I/O_5
24	PMC_I/O_6	PMC_I/O_7	PMC_I/O_8	PMC_I/O_9	PMC_I/O_10
23	PMC_I/O_11	PMC_I/O_12	PMC_I/O_13	PMC_I/O_14	PMC_I/O_15
22	PMC_I/O_16	PMC_I/O_17	PMC_I/O_18	PMC_I/O_19	PMC_I/O_20
21	PMC_I/O_21	PMC_I/O_22	PMC_I/O_23	PMC_I/O_24	PMC_I/O_25
20	PMC_I/O_26	PMC_I/O_27	PMC_I/O_28	PMC_I/O_29	PMC_I/O_30
19	PMC_I/O_31	PMC_I/O_32	PMC_I/O_33	PMC_I/O_34	PMC_I/O_35
18	PMC_I/O_36	PMC_I/O_37	PMC_I/O_38	PMC_I/O_39	PMC_I/O_40
17	PMC_I/O_41	PMC_I/O_42	PMC_I/O_43	PMC_I/O_44	PMC_I/O_45
16	PMC_I/O_46	PMC_I/O_47	PMC_I/O_48	PMC_I/O_49	PMC_I/O_50
15	PMC_I/O_51	PMC_I/O_52	PMC_I/O_53	PMC_I/O_54	PMC_I/O_55
14			Key		
13			Key		
12			Key		
11	PMC_I/O_56	PMC_I/O_57	PMC_I/O_58	PMC_I/O_59	PMC_I/O_60
10	GND	GND	PMC_I/O_61	PMC_I/O_62	PMC_I/O_63
9	Reserved	GND	GND	GND	PMC_I/O_64
8	Reserved	GND	GND	GND	GND
7	Reserved	Reserved	GND	GND	GND
6	Reserved	Reserved	GND	GND	GND
5	Reserved	GND	GND	GND	GND
4	Reserved	GND	VIDEO_GND	VIDEO_GND	VIDEO_GND
3	GND	GND	VGA_VSYNC	VGA_RED	VGA_DDCDATA
2	Reserved	GND	VGA_GREEN	VGA_HSYNC	VGA_DDCCLK
1	Reserved	GND	GND	VGA_BLUE	GND

CompactPCI Connector (J5)

The J5 connector is a 2mm “Hard Metric” CompactPCI connector, with 5 rows of 22 pins each. This connector is used to route Keyboard and Mouse, Smbus, USB1 and 2, Ethernet, Serial ports 0 and 1, Floppy drive and IDE harddrive signals to the adapter board.

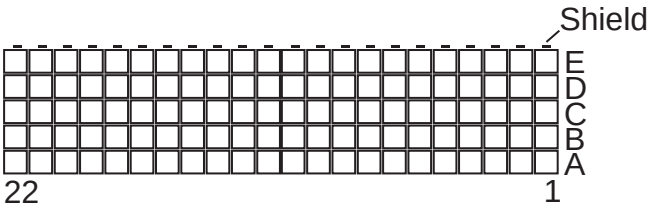


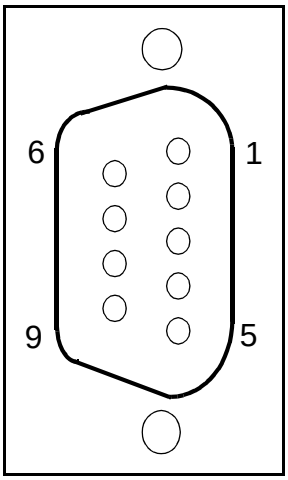
Figure 1-7 CompactPCI Connector (J5)

Table 1-5 CompactPCI Connector (J5) Pinout

Pin No.	Row E	Row D	Row C	Row B	Row A
22	GND	VCC_5.0	GND	GND	GND
21	MSCLK#	MS_DAT#	VCC_5.0	KBCLK#	KBDAT#
20	I/O_SMBCLK	GND	SYS_SMBALERT#	I/O_SMBDAT	GND
19	VCC_5.0	GND	USB_PWR1	GND	GND
18	USB_P0-	USB_P0+	USB_PWR0	USB_P1-	USB_P1+
17	ETHERNET_TERM	ETHERNET_TERM	ETH_ACTLED#	ETHERNET_TERM	ETHERNET_TERM
16	ETH_TX-	ETH_TX+	ETH_100BT	ETH_RX-	ETH_RX+
15	GND	GND	ETH_10BT	GND	GND
14	SERIAL0_DTR#	SERIAL0_RI#	GND	SERIAL0_CTS#	SERIAL0_RTS#
13	SERIAL0_TX	SERIAL0_DSR#	SERIAL0_RX	VCC_5.0	SERIAL0_DCD#
12	SERIAL1_DTR#	VCC_5.0	SERIAL1_RI#	SERIAL1_CTS#	SERIAL1_RTS#
11	SERIAL1_TX	SERIAL1_DSR#	SERIAL1_RX	GND	SERIAL1_DCD#
10	FD_DSKCHG	FD_HDSEL	FD_RDDATA	FD_WP	FD_TR0
9	FD_WE	FD_WRDAT	FD_STEP	FD_DIR	FD_ME1
8	FD_S0	FD_S1	FD_ME0	FD_INDX	FD_DRVDEN1
7	FD_DRVDEN0	IDE_ASP	IDE_A1	IDE_CS3	IDE_CS1
6	IDE_A2	IDE_A0	GND	GND	IDE_IOSC16
5	IDE_IOR	IDE_DAK	IDE_IOW	IDE_IORDY	IDE_DRQ
4	IDE_IRQ	IDE_D15	GND	IDE_D0	IDE_D14
3	IDE_D1	IDE_D13	IDE_D2	IDE_D12	IDE_D3
2	IDE_D11	IDE_D4	IDE_D10	IDE_D5	IDE_D9
1	IDE_D6	IDE_D8	IDE_D7	IDE_RST	GND

COM1 and COM2 (P3) Connector Pinouts

The pinout and diagram for the micro DB9 connectors used for COM1 and COM2 (serial ports) are shown in the following figure.

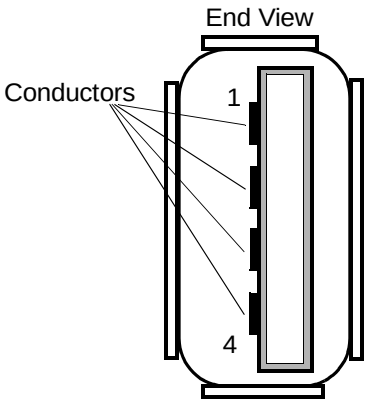


COM 1 and COM 2 SERIAL PORT CONNECTORS			
DB9 PIN	DIR	RS-232 SIGNAL	FUNCTION
1	In	DCD	Data Carrier Detect
2	In	RX	Receive Data
3	Out	TX	Transmit Data
4	Out	DTR	Data Terminal Ready
5		GND	Signal Ground
6	In	DSR	Data Set Ready
7	Out	RTS	Request to Send
8	In	CTS	Clear to Send
9	In	RI	Ring Indicator
Shield			Chassis Ground

Figure 1-8 COM1/COM2 Connector Pinout

USB Connector (J6 and J10)

The Universal Serial Bus (USB) ports use an industry standard 4 pin shielded connector. Figure 1-9 shows the pinout of the USB connectors.

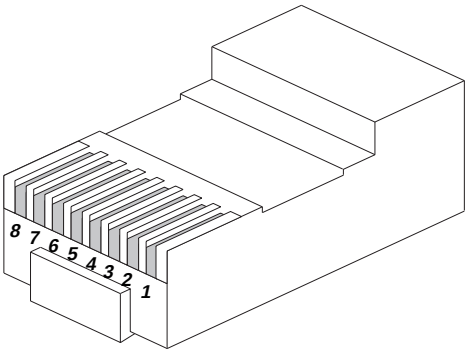


USB CONNECTOR		
PIN	SIGNAL	FUNCTION
1	USBV	USB Power
2	USB-	USB Data -
3	USB+	USB Data +
4	USBG	USB Ground

Figure 1-9 USB Connector Pinout

Ethernet Connector Pinout (J7)

The pinout diagram for the Ethernet 10BaseT / 100BaseTx connector is shown in Figure 1-10.



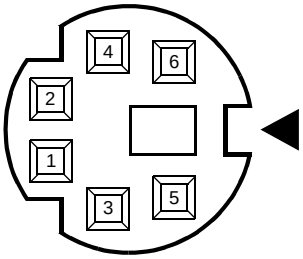
10BaseT/100BaseTx

ETHERNET CONNECTOR 10BaseT/100BaseTx		
PIN	**Signal Name**	
1	TD+	Transmit Data
2	TD-	Transmit Data
3	RD+	Receive Data
4	NC	No Connection
5	NC	No Connection
6	RD-	Receive Data
7	NC	No Connection
8	NC	No Connection

Figure 1-10 Ethernet Connector Pinout (J7)

Keyboard/Mouse Connector Pinout (J8)

The Keyboard / Mouse connector is a standard 6-pin female mini-DIN PS / 2 connector as shown in Figure 1-11. The Keyboard / Mouse Y-cable connects to the Keyboard / Mouse connector on the VMIACC-0424 and provides a separate connector for both Keyboard and Mouse. The pinout of these connectors is shown in Table 1-6.



KEYBOARD/Mouse* CONNECTOR		
PIN	**DIR**	**FUNCTION**
1	In / Out	Mouse Data
2	In / Out	Keyboard Data
3		Ground
4		+5 V
5	Out	Mouse Clock
6	Out	Keyboard Clock
Shield		Chassis Ground

An adapter cable is included with the VMIACC-0424 to separate the Keyboard / Mouse Connector.

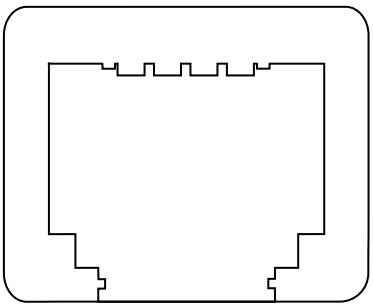
Figure 1-11 Keyboard Connector Pinout

Table 1-6 Keyboard/Mouse Y Splitter Cable

Keyboard			Mouse		
Pin	Dir	Function	Pin	Dir	Function
1	In/Out	Keyboard Data	1	In/Out	Mouse Data
2		Unused	2		Unused
3		Ground	3		Ground
4		+5V	4		+5V
5	Out	Keyboard Clock	5	Out	Mouse Clock
6		Unused	6		Unused
Shield		Chassis Ground	Shield		Chassis Ground

Smbus Connector Pinout (P2)

The Smbus port uses a 4-pin SEMCONN ACCESS bus type connector. Figure 1-12 illustrates the Smbus connector. The table shows the pinout of the Smbus Connector.



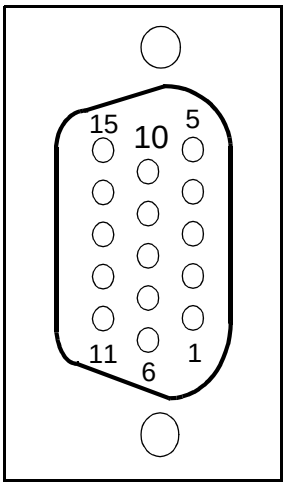
Smbus Connector

Smbus CONNECTOR	
PIN	**Signal Name**
1	GND
2	SmDATA
3	5.0 Volts
4	SmCLK

Figure 1-12 Smbus Connector Pinout (P2)

Video Connector Pinout (J9)

The video port uses a standard high-density D15 SVGA connector. Figure 1-13 illustrates the pinout.



VIDEO CONNECTOR		
PIN	**DIRECTION**	**FUNCTION**
1	Out	Red
2	Out	Green
3	Out	Blue
4		Reserved
5		Ground
6		Ground
7		Ground
8		Ground
9		Reserved
10		Ground
11		Reserved
12		Reserved
13	Out	Horizontal Sync
14	Out	Vertical Sync
15		Reserved
Shield		Chassis Ground

Figure 1-13 Video Connector Pinout

PMC I/O Connector P4

The P4 connector is used to access the I/O pins of the PMC site located on VMIC's VMICPCI-7715 Single Board CPU (J6). P4 is a 64-pin IDC type connector.

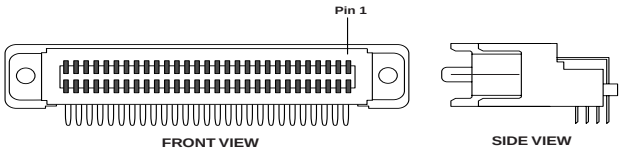


Figure 1-14 P4 PMC I/O Connector

Table 1-7 P4 PMC I/O Connector Pinout

PMC Site Connector			PMC Site Connector		
P4 Pin #		**J6 Pin #**	**P4 Pin #**		**J6 Pin #**
1		1	35		35
2		2	36		36
3		3	37		37
4		4	38		38
5		5	39		39
6		6	40		40
7		7	41		41
8		8	42		42
9		9	43		43
10		10	44		44
11		11	45		45
12		12	46		46
13		13	47		47
14		14	48		48
15		15	49		49
16		16	50		50
17		17	51		51
18		18	52		52
19		19	53		53
20		20	54		54
21		21	55		55
22		22	56		56
23		23	57		57
24		24	58		58
25		25	59		59
26		26	60		60
27		27	61		61
28		28	62		62
29		29	63		63
30		30	64		64
31		31	65	----	
32		32	66	----	
33		33	67	----	
34		34	68	----	

CHAPTER

2

Maintenance

If a VMIC product malfunctions, please verify the following:

1. Software resident on the product
2. System configuration
3. Electrical connections
4. Resister or configuration options
5. Boards are fully inserted into their proper connector location
6. Connector pins are clean and free from contamination
7. No components or adjacent boards were disturbed when inserting or removing the board from the chassis
8. Quality of cables and I/O connections

If products must be returned, obtain a RMA (Return Material Authorization) by contacting VMIC Customer Service. **This RMA must be obtained prior to any return**.

VMIC Customer Service is available at: 1-800-240-7782.
Or E-mail us at customer.service@vmic.com

Maintenance Prints

User level repairs are not recommended. The drawings and diagrams in this manual are for reference purposes only.