



# XCP2040-TRN I/O Transition Card Manual

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For Netra™ CP2040 and Netra CP2140 CompactPCI  
Boards

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Adobe PostScript

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# Preface

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The XCP2040-TRN I/O Transition Card (P/N 806-6743-11) is a fully compatible, carrier-grade CompactPCI I/O card designed for the Netra™ CP2040/CP2140 CompactPCI boards. This manual describes the functions of the XCP2040-TRN I/O Transition Card, its specifications, connectors, and installation process.

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## Who Should Use This Book

The *XCP2040-TRN I/O Transition Card Manual for Netra CP2040 and Netra CP2140 CompactPCI Boards* is written for computer hardware engineers, system programmers, computer technicians, and others involved in the integration of the Netra CP2040/CP2140 boards. References are provided for further details.

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## Related References

This section provides a list of related references.

## Specifications and Standards

- *CompactPCI Core Specification, Release Note for PICMG 2.0 Revision 3.0, October 1999, PCI Industrial Computers Manufacturers Group*
- *IEEE Standard 1101.11-1998, Standard For Mechanical Rear Plug-in Units Specifications for Microcomputers Using IEEE 1101.1 and IEEE 1101.10 Equipment Practice*

- *VITA 36, PMC I/O Module Draft Standard*
- *Ethernet IEEE 802.3 Standard*
- *Universal Serial Bus Specification Rev. 1.1*
- *I<sup>2</sup>C-Bus Specification Version 2.1*

## Related Documents

- *Netra CP2040 Technical Reference and Installation Manual*  
(P/N 806-4994-xx)
- *Netra CP2140 Technical Reference and Installation Manual*  
(P/N 816-4908-xx)

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# Using UNIX Commands

This document might not contain information on basic UNIX<sup>®</sup> commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2<sup>™</sup> online documentation for the Solaris<sup>™</sup> operating environment
- Other software documentation that you received with your system

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# Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	% <b>su</b> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

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# Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

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# XCP2040-TRN I/O Transition Card Manual for Netra CP2040/CP2140 CompactPCI Boards

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The XCP2040-TRN I/O Transition Card (806-6743-11) is designed to be used with the Netra CP2040/CP2140 CompactPCI boards and is fully compliant with the *CompactPCI Core Specification, Release Note for PICMG 2.0 Revision 3.0* (October 1999, PCI Industrial Computers Manufacturers Group).

The 6U form factor, single slot transition card supplies rear I/O connection to support additional peripherals with simplified system cabling for use with the compatible CompactPCI system host boards. The rear I/O access also enables the complementary system host boards to be replaced without disconnecting cables. The XCP2040-TRN I/O Transition Card enables the creation of high-density systems by enabling easy access to I/O.

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**Note** – It is the responsibility of the system designer to integrate peripheral devices to the connectors on the backplane in a CP2040/CP2140 chassis configuration. A designer can either connect directly to the backplane signals or use a XCP2040-TRN I/O Transition Card.

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This document contains the following sections:

- “Features” on page 2
- “Determining Part Number, Serial Number, and Revision Number” on page 9
- “Connectors” on page 10
- “PIM Card Interface” on page 28
- “Installing the Transition Card in a CompactPCI Chassis” on page 30

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# Features

The XCP2040-TRN I/O Transition Card requires a CompactPCI chassis with a backplane that accommodates front and rear board installation. The primary purpose of this card is to provide the connections to the CP2040/CP2140 board I/O ports. This section lists the important features of the transition card.

These features include:

- Provides access to the I/Os available on cPCI J3, J4, and J5 connectors including two Ethernet ports, two SCSI ports, a parallel port, a floppy header connector, two serial ports, PS2 keyboard/mouse connectors, and two USB ports

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**Note** – Some I/O connections are available through the rear panel; others are available through on-board headers.

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- Meets CompactPCI 6U transition card form factor specifications of 3.1 in. (78.74mm) x 9.2 in. (233.68mm)
- Meets NEBS Level 3 compliance (see the NEBS statement in “Installing the Transition Card in a CompactPCI Chassis” on page 30), FCC Class B, CE, UL, and TUV
- Provides miscellaneous feature headers (I<sup>2</sup>C, backplane Reset IN/OUT, Tx/Rx) for the System Management Controller (SMC) on the host CP2040/CP2140 board
- Supports I<sup>2</sup>C EEPROM (64 Kbits) for ID and local environmental monitoring by the SMC for temperature
- Supports A/B cPCI connectors as described in the *CompactPCI Core Specification, Release Note for PICMG 2.0 Revision 3.0*, "Connectors 2mm Type AB Connector System" section

# I/O Interfaces

The XCP2040-TRN I/O Transition Card provides additional I/O features (through the J3, J4, and J5 CompactPCI connector interfaces) to the CP2040/CP2140 board. Many I/O functions are provided on the transition card rear panel, and the rest of the I/O functions are provided from headers mounted on the card.

These functions include:

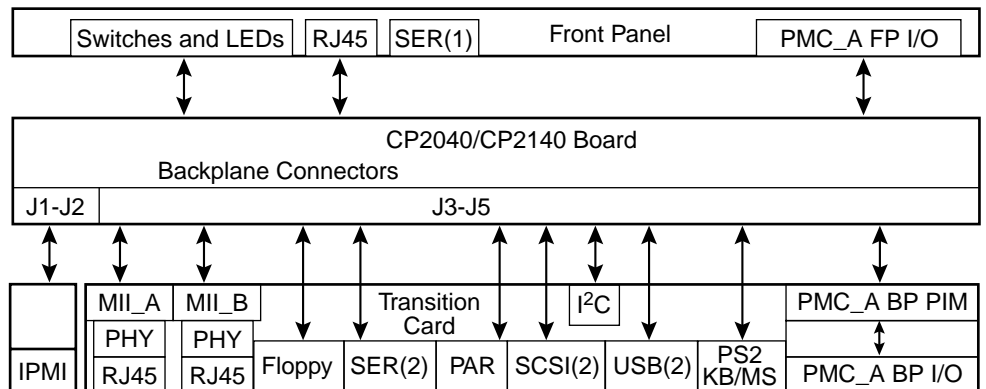
- One PMC Interface Module (PIM) I/O connector (with user-defined I/O)
- Two 10/100 Fast Ethernet (RJ45) ports available (channel A and channel B)
- Two serial (mini-DB9) ports
- Two Universal Serial Bus ports. Both are accessible directly on the I/O panel.
- One parallel port
- One floppy connector
- One floppy connector
- Dual SCSI ports
- PS2 keyboard/mouse connector

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**Note** – The use of all shielded cables on the transition card is recommended.

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The diagram in Figure 1 shows the I/O interface between the CP2040/CP2140 board, the backplane, and the transition card.



**FIGURE 1** Netra CP2040/CP2140 Board I/O Interface

# PIM Card Support

FIGURE 2 shows an optional customer-supplied PIM card installed on the XCP2040-TRN I/O Transition Card.

Features are listed below.

- Supports one single-sized PIM (PMC I/O module) carrier (74mm x 69mm)
- Complies with *VITA 36 - PMC I/O Module Standard*  
See [www.vita.com](http://www.vita.com) for information on this Web site.
- Allows rear access of PMC I/O
- Leverages IEEE P1386 standard
- Uses 2 x 64 pins connectors (one for PMC I/O, the other power/ground)
- Provides 3.3/5/+ 12/- 12V through the Netra CP2040/CP2140 board

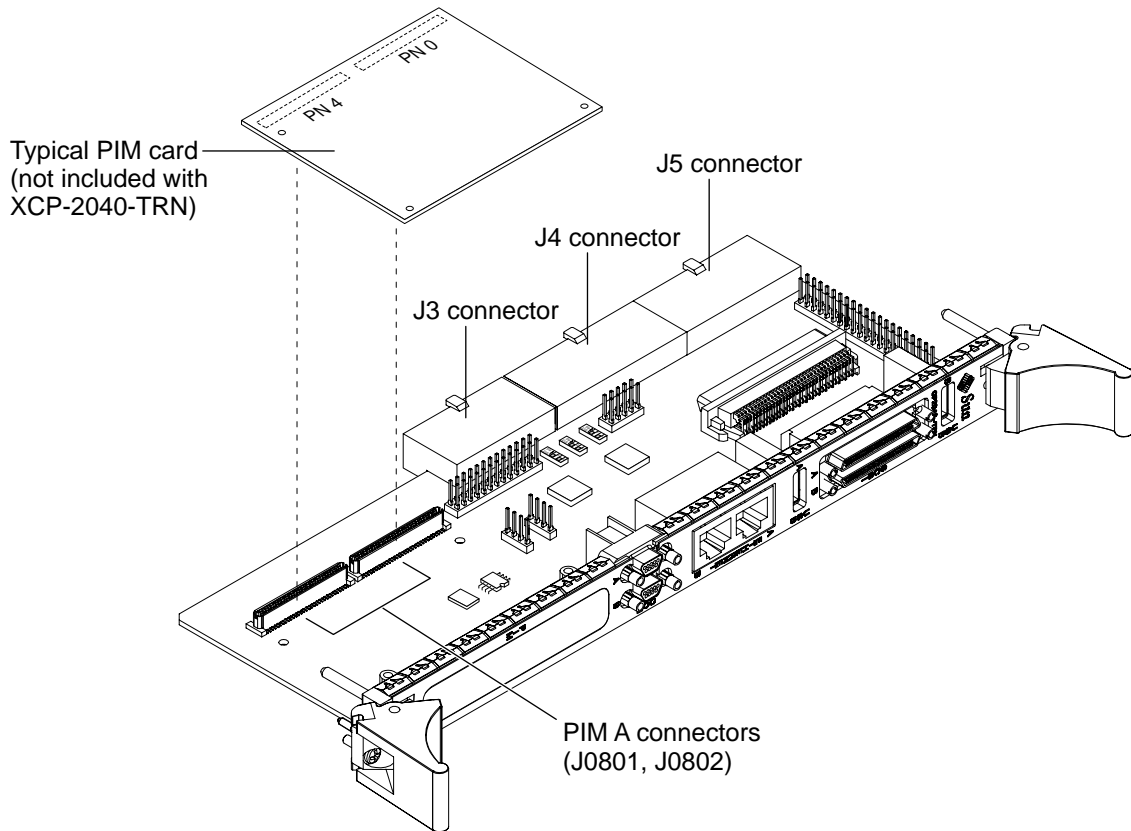
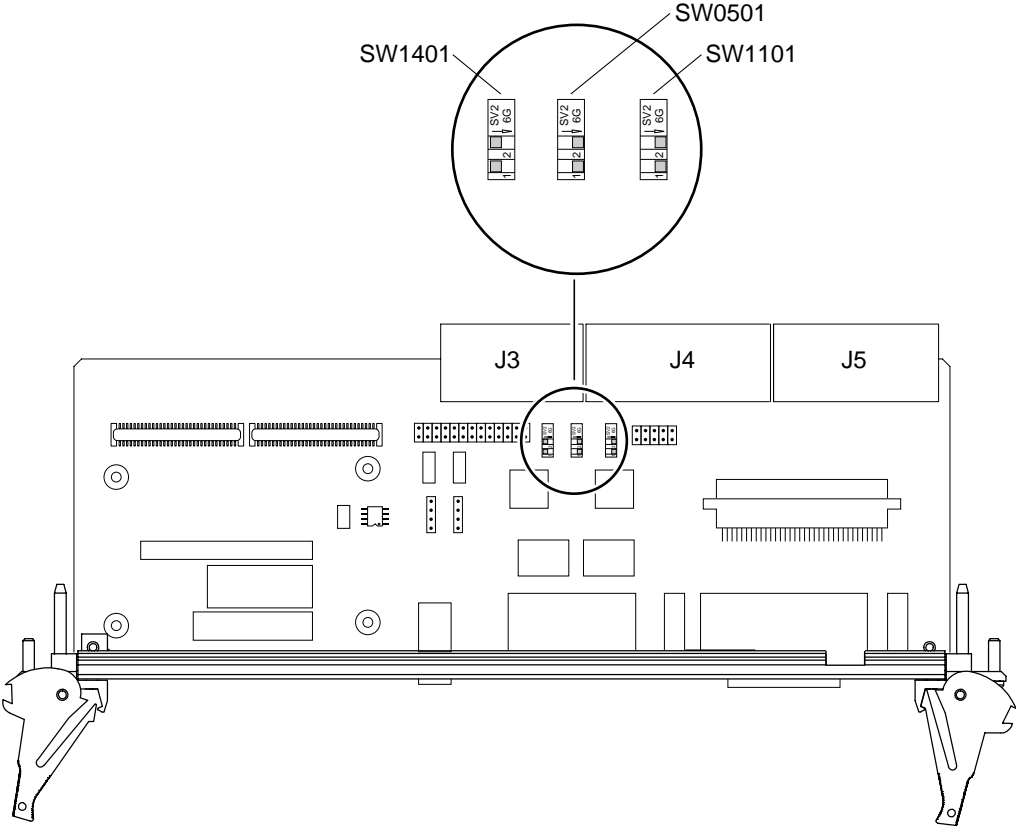


FIGURE 2 Optional PIM Card Placement on XCP2040-TRN I/O Transition Card

# SIP Switch Settings

FIGURE 3 shows the default single in-line package (SIP) switch settings on the XCP2040-TRN I/O Transition Card.



**FIGURE 3** Default SIP Switch Settings on XCP2040-TRN I/O Transition Card

## Switch SW1101—SCSI Termination

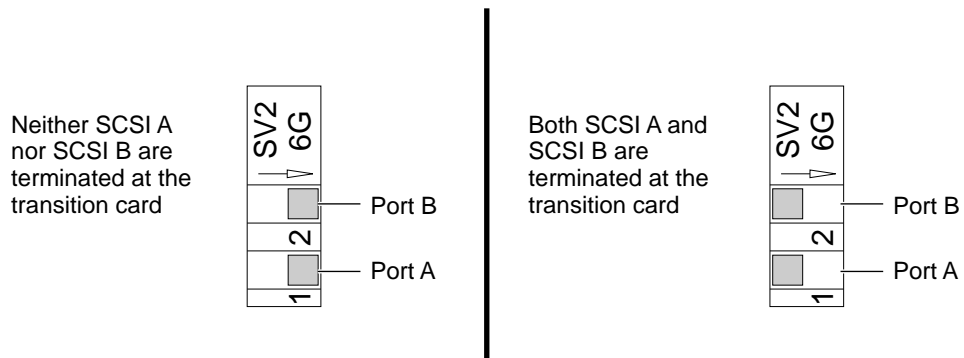
Switch SW1101 allows the XCP2040-TRN I/O Transition Card to directly terminate the SCSI bus when the CP2040/CP2140 host board is not present in the system. When the CP2040/CP2140 host board is present, the host board provides termination, overriding the transition card switch settings.

When the host board is not present in the system, the transition card can provide termination if the switches are set correctly. TABLE 1 shows the termination settings for the transition card when the host board is not present.

**TABLE 1** SCSI Termination Settings for Transition Card

Switch Setting	Termination
1 open	SCSI A terminated
1 closed	SCSI A not terminated
2 open	SCSI B terminated
2 closed	SCSI B not terminated

FIGURE 4 shows possible settings for the SW1101. These switch settings do not affect the termination if the host board is in the system.



**FIGURE 4** SW1101 Switch Settings (Example)

## Switch SW1401—I<sup>2</sup>C Write Protect

Switch SW1401 prevents accidental overwriting of the I<sup>2</sup>C FRU-ID device once it has been programmed.

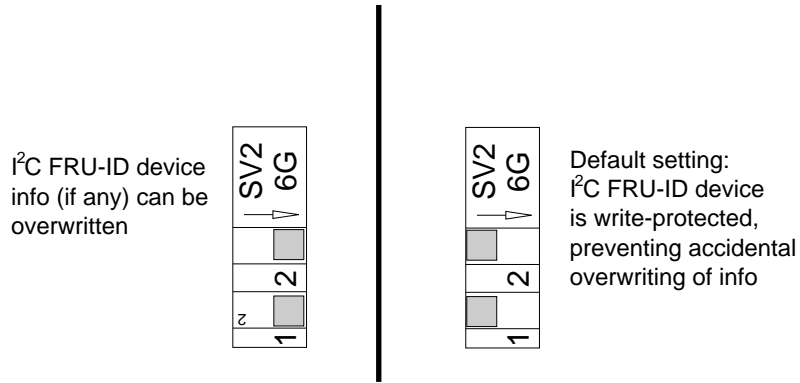


FIGURE 5 SW1401 Switch Settings (Example)

## Switch SW0501—Ethernet Boot Selection

The transition card is configured to boot through its own Ethernet port instead of the port on the host CP2040/CP2140 board. You can change this setting with the SW0501 switch. SW0501 selects either the host board RJ45 connector or the transition card RJ45 connector as I/O for Ethernet channel A. There is no RJ45 port B on the host board, so do not move Switch 1, which corresponds to RJ45 port B.

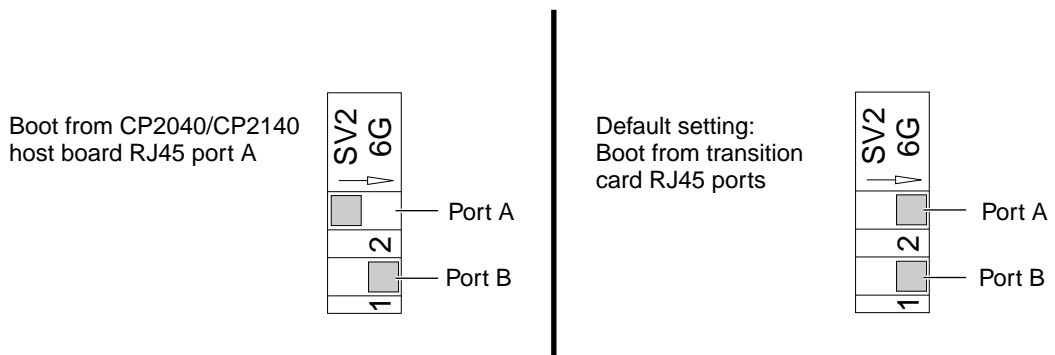


FIGURE 6 SW0501 Switch Settings (Example)



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**Caution** – The SW0501 Switch 1 should always be in the closed position.

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## Software Support

The XCP2040-TRN I/O Transition Card is designed to support the CP2040/CP2140 host board. It therefore supports the software supported by the host boards. Please see the *Netra CP2040 Technical Reference and Installation Manual* (P/N 806-4994-xx) or the *Netra CP2140 Technical Reference and Installation Manual* (P/N 816-4908-xx) for host board software support.

## Specifications

This section provides mechanical, electrical, environmental and other relevant specifications for the XCP2040-TRN I/O Transition Card.

### Mechanical Dimensions

TABLE 2 provides physical dimensions for the XCP2040-TRN I/O Transition Card.

**TABLE 2** Physical Dimensions

Board Specifications	Dimensions
Form Factor	6U
Length	9.2 inches (233.68 mm)
Width	3.1 inches (78.74 mm)
Height	0.54 inches (13.716 mm)

### Power Requirements

The XCP2040-TRN I/O Transition Card is powered through the CP2040/CP2140 board, which provides the following voltage: 5V/3.3V/12V/-12V (maximum 2.5 W). For more information, see the *Netra CP2040 Technical Reference and Installation Manual* (P/N 806-4994-xx) or the *Netra CP2140 Technical Reference and Installation Manual* (P/N 816-4908-xx).



The XCP2040-TRN I/O Transition Card has mainly passive components. However, some power from the backplane is provided to the PIM carrier, the I<sup>2</sup>C EEPROM, the PHY ICs, and the SCSI terminators.

For information on PIM allowable dissipation and limits on PIM power consumption, see *VITA 36, PMC I/O Module Standard*.

## Environmental Specifications, Compliance, Reliability, and Availability

For details on the environmental specifications, compliance, reliability, and availability, please see the Specifications chapter of the *Netra CP2040 Technical Reference and Installation Manual* (P/N 806-4994-xx) or the *Netra CP2140 Technical Reference and Installation Manual* (P/N 816-4908-xx).

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# Determining Part Number, Serial Number, and Revision Number

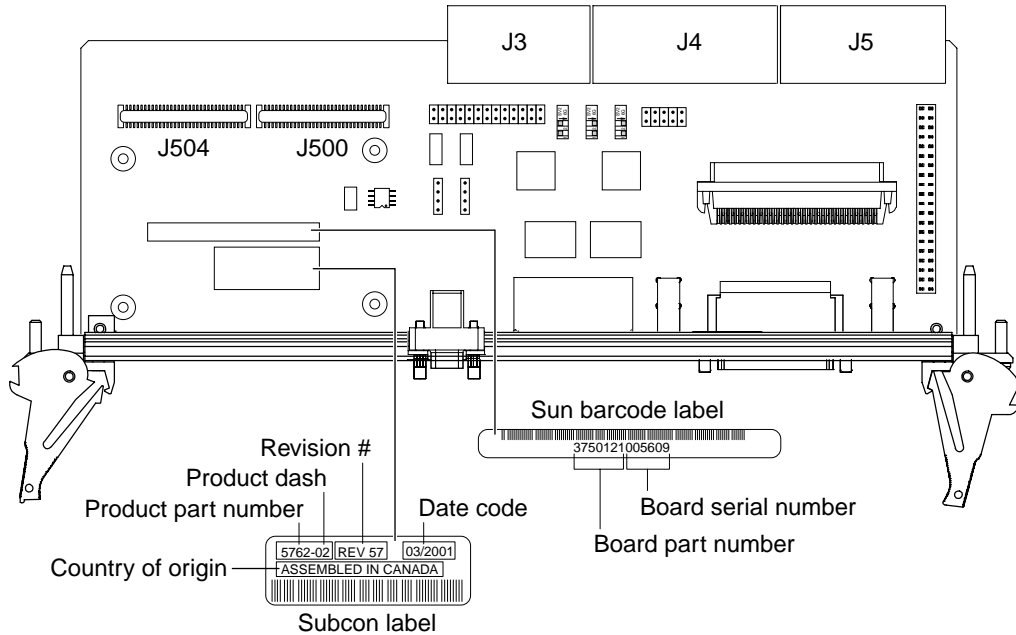
The XCP2040-TRN I/O Transition Card part number, serial number, and revision can be found on stickers located on the card labels. For proper identification of the card, please see the list below and FIGURE 7. The barcode labels provide the following information:

The Sun Microsystems barcode label provides the following information:

- Card part number (for example, 3750120), which is the first seven digits on the barcode label
- Card serial number (for example, 005609), which is the next six digits on the barcode label

The Subcon barcode label provides the following information:

- Product part number (for example, 5762), product dash (for example, 02) and revision number (for example REV 57)
- Card date code (for example, 03/2001), which represents the third week of year 2001
- Country of origin (for example, ASSEMBLED IN CANADA)



**FIGURE 7** Identification Labels on the XCP2040-TRN I/O Transition Card

## Connectors

This section provides connector pinouts for both the external rear-panel connectors and on-board connectors for the XCP2040-TRN I/O Transition Card.

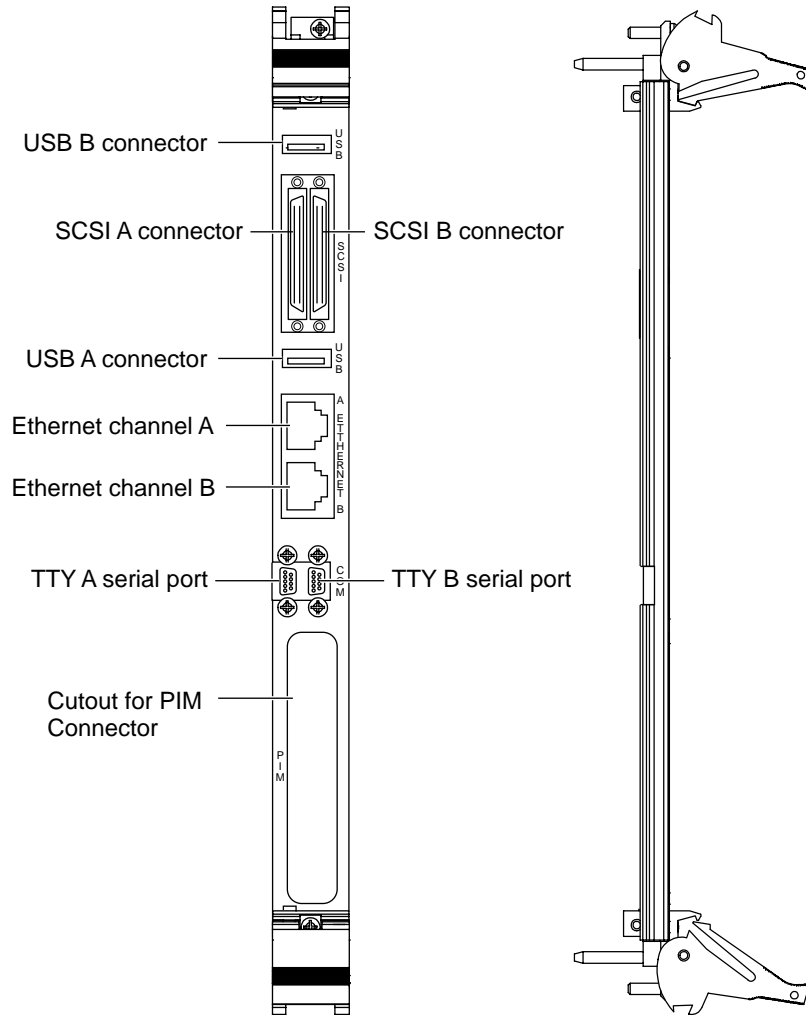
## Upgrading Backplanes for PICMG Compliance

The system that you are installing the XCP2040-TRN I/O Transition Card into must have connectors that meet the PICMG 2.0 Revision 3.0 specification. You can upgrade the backplane connectors by using a shroud removal tool, such as provided by the Erni Companies. For additional information on the Erni company products, visit the following Web page:

<http://connect.erni.com/>

# Transition Card I/O Rear Panel Connectors

This section lists the pins and signal names of the I/O rear panel connectors on the transition card.



**FIGURE 8** XCP2040-TRN I/O Transition Card Rear Panel Connectors

## USB Ports

TABLE 3 and TABLE 4 provide signal descriptions for USB connectors, Port A and Port B.

**TABLE 3** Universal Serial Bus Port A (J1003) Signal Descriptions

Pin	Signal
1	USB1VDD (PWR)
2	USB1D-(N_CON)
3	USB1D+ (P_CON)
4	USB1_GND

**TABLE 4** Universal Serial Bus Port B (J1005) Signal Descriptions

Pin	Signal
1	USB2VDD (PWR)
2	USB2D-(N_CON)
3	USB2D+ (P_CON)
4	USB2_GND

## Serial Ports

Two serial ports from the CP2040/CP2140 board Super I/O PC97307 are available through the rear panel with two stacked mini 9-pin connectors. One connector is assigned to Port A and the other connector to Port B. The signal interface of the connector is as follows:

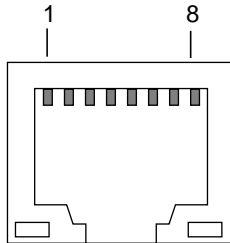
**TABLE 5** Dual 16550 Compatible UARTs for Serial Ports (J1006) Signal Descriptions

Serial A of Dual Connector		Serial B of Dual Connector	
Pin	Signal	Pin	Signal
P1A	DCDA	P1B	DCDB
P2A	RXDA	P2B	RXDB
P3A	TXDA	P3B	TXDB
P4A	DTRA	P4B	DTRB
P5A	DGNDA	P5B	DGNDB
P6A	DSRA	P6B	DSRB
P7A	RTSA	P7B	RTSB
P8A	CTSA	P8B	CTSB
P9A	RIA	P9B	RIB

**Note** – The two serial ports require the use of specific adapter cables. Use the Serial Cable Adapter, MDSM-9F to DB9M, (6 inch 9 wires), P/N C-CEL-10110-10. The manufacturer is Computer Cable Makers Inc. and can be ordered directly through them.

## Fast Ethernet

The dual jack RJ45 Ethernet (J701) AMP1116353-8 pin locations are shown FIGURE 9 and the signal descriptions are listed in TABLE 6.



**FIGURE 9** RJ45 Standard Ethernet Connector

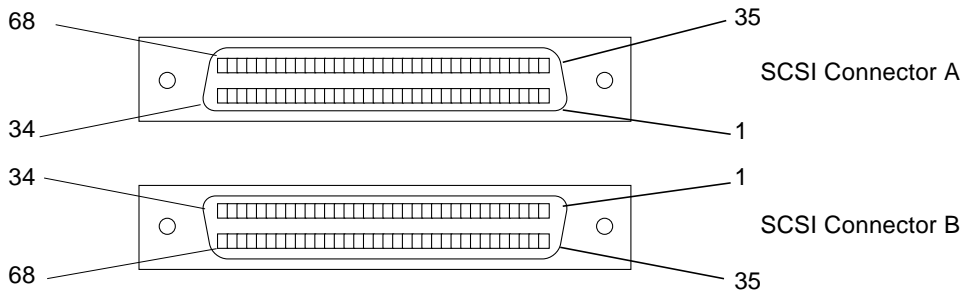
**TABLE 6** Fast Ethernet Ports A and B Signal Descriptions

Ethernet Port A		Ethernet Port B	
Pin	Signal	Pin	Signal
1	TP_B_T_POS_C	1	TP_A_TX_POS_C
2	TP_B_T_NEG_C	2	TP_A_TX_NEG_C
3	TP_B_R_POS_C	3	TP_A_RX_POS_C
4	CH_GND	4	CH_GND
5	CH_GND	5	CH_GND
6	TP_B_R_NEG_C	6	TP_A_RX_NEG_C
7	CH_GND	7	CH_GND
8	CH_GND	8	CH_GND

## SCSI Connectors

Two 68-pin Ultra Wide SCSI connectors (A and B) are provided on the rear panel for external device interface through an external, mini dual SCSI connector at J0901. The SCSI connectors have a direct wire from CP2040/CP2140 backplane signal.

FIGURE 10 shows the SCSI connector pin locations and TABLE 7 shows the signal descriptions for the SCSI connector pins.



**FIGURE 10** External Ultra Wide SCSI Connector

**TABLE 7** Rear Panel and Internal Ultra Wide SCSI Connector (J2001) Signal Descriptions

Pin #	Signal Name	Pin #	Signal Name	Pin #	Signal Name
1	DGND	24	DGND	47	DB7
2	DGND	25	DGND	48	DBP
3	DGND	26	DGND	49	DGND
4	DGND	27	DGND	50	DGND
5	DGND	28	DGND	51	TermP
6	DGND	29	DGND	52	TermP
7	DGND	30	DGND	53	N/C
8	DGND	31	DGND	54	DGND
9	DGND	32	DGND	55	ATN
10	DGND	33	DGND	56	DGND
11	DGND	34	DGND	57	BSY
12	DGND	35	DB12	58	ACK
13	DGND	36	DB13	59	RST
14	DGND	37	DB14	60	MSG
15	DGND	38	DB15	61	SEL
16	DGND	39	DBP1	62	C/D
17	TermP	40	DB0	63	REQ
18	TermP	41	DB1	64	I/O
19	N/C	42	DB2	65	DB8
20	DGND	43	DB3	66	DB9
21	DGND	44	DB4	67	DB10
22	DGND	45	DB5	68	DB11
23	DGND	46	DB6		

# On-Board Interfaces/Connectors on XCP2040-TRN I/O Transition Card

FIGURE 11 shows the on-board connectors for the XCP2040-TRN I/O Transition Card.

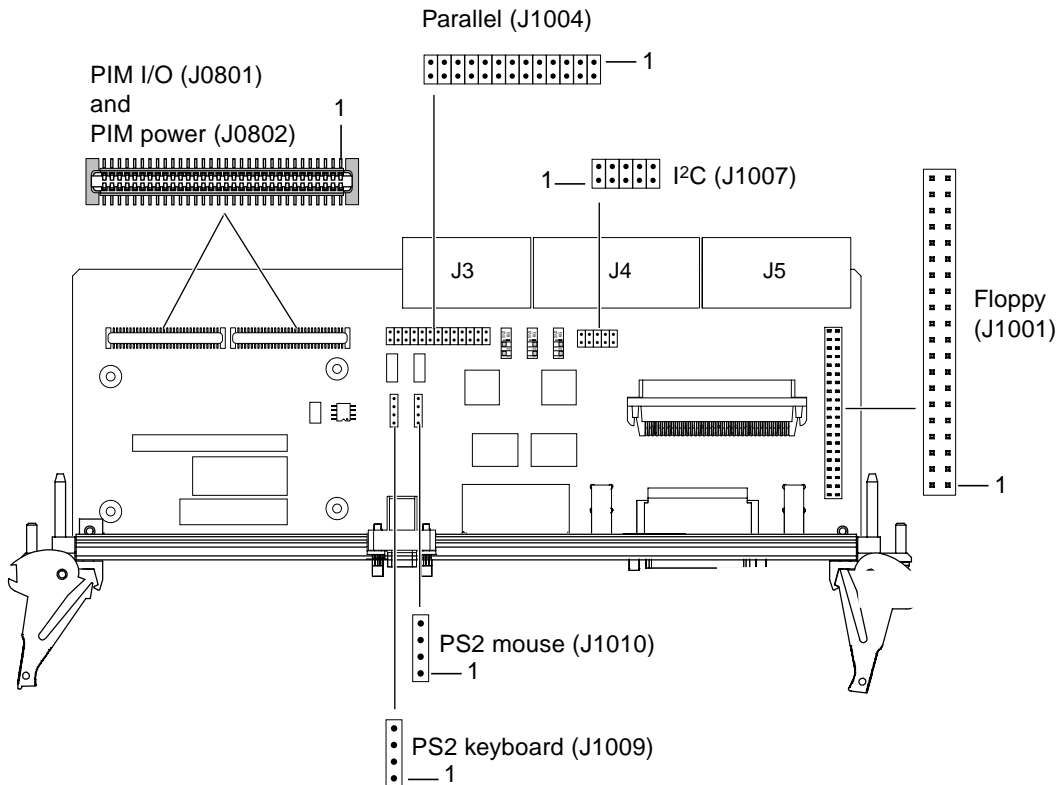
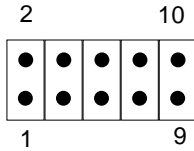


FIGURE 11 XCP2040-TRN I/O Transition Card On-Board Connectors and Interfaces



## I<sup>2</sup>C Bus Access Header

The I<sup>2</sup>C bus access header pin locations are shown in . The signal descriptions are listed in TABLE 8.



**FIGURE 12** I<sup>2</sup>C Bus Access Header Pin Locations

**TABLE 8** I<sup>2</sup>C Bus Access Header (J1007) Signal Descriptions

Pin	Signal
1	I2C_BP_J4_SDA
2	GND
3	I2C_BP_J4_SCL
4	XIR_L
5	I2C_PWR
6	DIAG_L_OC
7	I2C_PWR
8	BP_BKRST_OUT_L
9	GND
10	BP_BKRST_IN_L

## PIM Connectors

The PIM has two 64 pin connectors at J0800 and J0804. The pin locations for both connectors are shown in FIGURE 13. The signal descriptions are listed in TABLE 9 and TABLE 10.

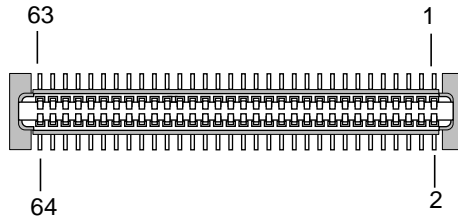


FIGURE 13 PIM Connector Pin Locations

TABLE 9 PIM Connector (J4/J0804) Signal Descriptions

Pin	Signal	Pin	Signal	Pin	Signal
1	PMC_A_IO1	23	PMC_A_IO23	45	PMC_A_IO45
2	PMC_A_IO2	24	PMC_A_IO24	46	PMC_A_IO46
3	PMC_A_IO3	25	PMC_A_IO25	47	PMC_A_IO47
4	PMC_A_IO4	26	PMC_A_IO26	48	PMC_A_IO48
5	PMC_A_IO5	27	PMC_A_IO27	49	PMC_A_IO49
6	PMC_A_IO6	28	PMC_A_IO28	50	PMC_A_IO50
7	PMC_A_IO7	29	PMC_A_IO29	51	PMC_A_IO51
8	PMC_A_IO8	30	PMC_A_IO30	52	PMC_A_IO52
9	PMC_A_IO9	31	PMC_A_IO31	53	PMC_A_IO53
10	PMC_A_IO10	32	PMC_A_IO32	54	PMC_A_IO54
11	PMC_A_IO11	33	PMC_A_IO33	55	PMC_A_IO55
12	PMC_A_IO12	34	PMC_A_IO34	56	PMC_A_IO56
13	PMC_A_IO13	35	PMC_A_IO35	57	PMC_A_IO57
14	PMC_A_IO14	36	PMC_A_IO36	58	PMC_A_IO58
15	PMC_A_IO15	37	PMC_A_IO37	59	PMC_A_IO59
16	PMC_A_IO16	38	PMC_A_IO38	60	PMC_A_IO60
17	PMC_A_IO17	39	PMC_A_IO39	61	PMC_A_IO61
18	PMC_A_IO18	40	PMC_A_IO40	62	PMC_A_IO62
19	PMC_A_IO19	41	PMC_A_IO41	63	PMC_A_IO63
20	PMC_A_IO20	42	PMC_A_IO42	64	PMC_A_IO64
21	PMC_A_IO21	43	PMC_A_IO43		
22	PMC_A_IO22	44	PMC_A_IO44		

**TABLE 10** PIM Connector (J0/J0800) Signal Descriptions

Pin	Signal	Pin	Signal	Pin	Signal
1	BP_SMC_TX	23	NC	45	SIG_GND
2	BP_12V_POS	24	NC	46	NC
3	BP_SMC_RX	25	NC	47	NC
4	NC	26	BP_3.3V	48	NC
5	BP_5V	27	NC	49	NC
6	NC	28	NC	50	SIG_GND
7	I2C_BP_JS_SDA	29	SIG_GND	51	NC
8	NC	30	NC	52	NC
9	I2C_BP_JS_SCL	31	NC	53	BP_5V
10	BP_3.3V	32	NC	54	NC
11	I2C_PWR	33	NC	55	NC
12	NC	34	SIG_GND	56	NC
13	SIG_GND	35	NC	57	NC
14	NC	36	NC	58	BP_3.3V
15	USB_NEG	37	BP_5V	59	NC
16	NC	38	NC	60	NC
17	USB_POS	39	NC	61	BP_12V_NEG
18	SIG_GND	40	NC	62	NC
19	NC	41	NC	63	NC
20	NC	42	BP_3.3V	64	NC
21	BP_5V	43	NC		
22	NC	44	NC		

## On-board SCSI Connector

An on-board 1 x 68-pin Ultra Wide internal right-angled (SCSI A) connector at J0902 is provided for internal devices. This is an electrically redundant connector to the SCSI A port on the rear panel. *Only one of these SCSI A connectors* should be used at a time to avoid long unterminated stubs on the SCSI chain.

See FIGURE 10 for SCSI connector pin locations and TABLE 7 for signal descriptions for the internal SCSI connector.

## Parallel Port

An internal parallel port connection is available through the XCP2040-TRN I/O Transition Card through an on-board header at J1004. The parallel interface is not brought to the rear panel on a single-slot rear panel. shows the internal parallel port header connector.

The parallel port has the following features:

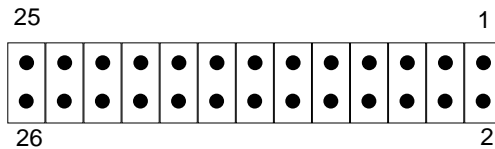
- Direct wire from CP2040/CP2140 backplane signal
- IEEE 1284-compatible interface standard

---

**Note** – The IEEE1284-compatible printer interconnect cable should not exceed 9 feet.

---

The pin locations for the parallel port are shown in and the signal descriptions are listed in TABLE 11.



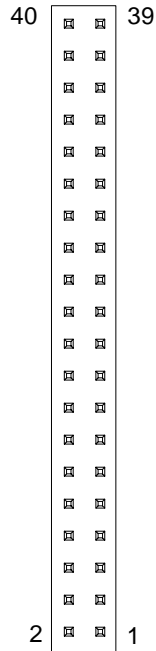
**FIGURE 14** Internal Parallel Port Header Connector (J1004) Pin Locations

**TABLE 11** Parallel Port Signal Descriptions

Pin #	Signal Name	Pin #	Signal Name
1	PAR_STB_F	2	PAR_AFD_F
3	PAR_D0_F	4	PAR_ERR_F
5	PAR_D1_F	6	PAR_INIT_F
7	PAR_D2_F	8	PAR_SLIN_F
9	PAR_D3_F	10	GND
11	PAR_D4_F	12	GND
13	PAR_D5_F	14	GND
15	PAR_D6_F	16	GND
17	PAR_D7_F	18	GND
19	PAR_ACK_F	20	GND
21	PAR_BUSY_F	22	GND
23	PAR_PE_F	24	GND
25	PAR_SLCT_F	26	GND

# Floppy Header Connector

The pin locations for the floppy header connector are shown in FIGURE 15 and the signal descriptions are listed in TABLE 12.



**FIGURE 15** Floppy Connector Pin Locations

**TABLE 12** Floppy Connector Signal Descriptions

Pin #	Signal Name	Pin #	Signal Name
1	DGND	2	DENSEL
3	DGND	4	N/C
5	DGND	6	DRATE0_MSEN0
7	DGND	8	INDEX
9	DGND	10	DS0
11	DGND	12	DS1
13	DGND	14	DS0
15	DGND	16	MTR0
17	DRATE1_MSEN1	18	DIR
19	DGND	20	STEP
21	DGND	22	WDATA

**TABLE 12** Floppy Connector Signal Descriptions (Continued)

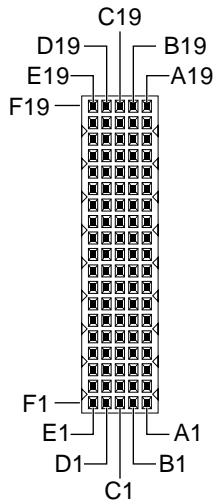
Pin #	Signal Name	Pin #	Signal Name
23	DGND	24	WGATE
25	DGND	26	TR0
27	DRATE0_MSEN0	28	WPROT
29	DGND	30	RDATA
31	DGND	32	HDSEL
33	DGND	34	DSKCHG
35	DGND	36	DGND
37	DGND	38	VCC
39	DGND	40	VCC

## Backplane Interface

The XCP2040-TRN I/O transition card interfaces to the CompactPCI bus through J3, J4, and J5 connectors. The pin assignments for these three sets of connectors are provided in this section.

### J3 Connector

The pin locations for the J3 connector are shown in FIGURE 16.



**FIGURE 16** J3 Connector Pin Location

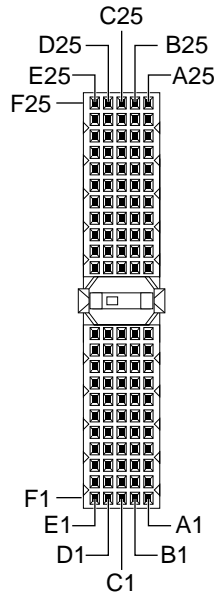
The signal descriptions for the J3 connector are shown in TABLE 13.

**TABLE 13 J3/P3 Connector Signal Descriptions**

Pin #	Row Z	Row A	Row B	Row C	Row D	Row E	Row F
19	GND	PMC-1	PMC-2	PMC-3	PMC-4	PMC-5	GND
18	GND	PMC-6	PMC-7	PMC-8	PMC-9	PMC-10	GND
17	GND	PMC-11	PMC-12	PMC-13	PMC-14	PMC-15	GND
16	GND	PMC-16	PMC-17	PMC-18	PMC-19	PMC-20	GND
15	GND	PMC-21	PMC-22	PMC-23	PMC-24	PMC-25	GND
14	GND	PMC-26	PMC-27	PMC-28	PMC-29	PMC-30	GND
13	GND	PMC-31	PMC-32	PMC-33	PMC-34	PMC-35	GND
12	GND	PMC-36	PMC-37	PMC-38	PMC-39	PMC-40	GND
11	GND	PMC-41	PMC-42	PMC-43	PMC-44	PMC-45	GND
10	GND	PMC-46	PMC-47	PMC-48	PMC-49	PMC-50	GND
9	GND	PMC-51	PMC-52	PMC-53	PMC-54	PMC-55	GND
8	GND	PMC-56	PMC-57	PMC-58	PMC-59	PMC-60	GND
7	GND	PMC-61	PMC-62	PMC-63	PMC-64	VI/O	GND
6	GND	BD_SEL_5#	HEALTHY_5#	PCI_RST_5#			GND
5	GND	BD_SEL_4#	HEALTHY_4#	PCI_RST_4#			GND
4	GND	BD_SEL_3#	HEALTHY_3#	PCI_RST_3#			GND
3	GND	BD_SEL_2#	HEALTHY_2#	PCI_RST_2#	PCIB_RST_L	PCI_RST_6#	GND
2	GND	BD_SEL_1#	HEALTHY_1#	PCI_RST_1#	EP_5V	HEALTHY_6#	GND
1	GND	BD_SEL_0#	HEALTHY_0#	PCI_RST_0#		BD_SEL_6#	GND

## J4 Connector

The pin assignments for the J4 connector are shown in FIGURE 17.



**FIGURE 17** J4 Connector Pin Locations

The signal descriptions for the J4 connector are shown in TABLE 14.

**TABLE 14** J4/P4 Connector Signal Descriptions

Pin #	Row Z	Row A	Row B	Row C	Row D	Row E	Row F
25	GND	MIIA_CRS	MIIA_COL	MIIA_MDIO_L	MIIA_TX_ERS	+5V	GND
24	GND	MIIA_RX_DV	MIIA_RX_ER	MIIA_TX_CLKI	GND	BP_MCA_INT_L	GND
23	GND	MIIA_RXD1	MIIA_RXD2	GND	MIIA_RXD3	MIIA_RX_CLK	GND
22	GND	GND	MIIA_TXD0	MIIA_TX_EN	MIIA_MDC	MIIA_RXD0	GND
21	GND	MIIA_TXD3	GND	MIIA_TXD2	GND	MIIA_TXD1	GND
20	GND			I2C_INT_L	GND	FR/BK_SEL	GND
19	GND	MIIB_COL	MIIB_MDIO_L	MIIB_TX_ER			GND
18	GND	MIIB_RX_CLK	MIIB_RX_DV	MIIB_RX_ER	MIIB_TX_CLKI	MIIB_CRS	GND
17	GND	MIIB_RXD0	GND	MIIB_RXD1	MIIB_RXD2	MIIB_RXD3	GND
16	GND	MIIB_TXD1	MIIB_TXD0	MIIB_TX_EN	MIIB_MDC	GND	GND
15	GND	GND	+5V	+5V	MIIB_TXD3	MIIB_TXD2	GND
14	KEY						KEY
13	KEY						KEY
12	KEY						KEY

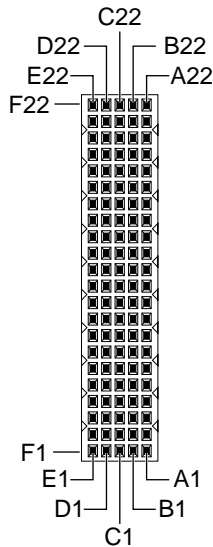


**TABLE 14 J4/P4 Connector Signal Descriptions (Continued)**

Pin #	Row Z	Row A	Row B	Row C	Row D	Row E	Row F
11	GND	BP_TYPE0	BP_TYPE1	I2C_SDA	GND	GND	GND
10	GND	SMC_TX	SMC_RX	BP_PWROFF	I2C_PWR	+12V	GND
9	GND	GND	GND	I2C_SCL	TRM_PWR	TRM2_PWR	GND
8	GND	SCDPH_L	SCD<15>_L	SCD<14>_L	SCD<13>_L	SCD<12>_L	GND
7	GND	SCD<4>_L	SCD<3>_L	SCD<2>_L	SCD<1>_L	SCD<0>_L	GND
6	GND	GND	SCDPL_L	SCD<7>_L	SCD<6>_L	SCD<5>_L	GND
5	GND	GND	RSV_MCU-use	+5V	+5V	RSV_MCU-use	GND
4	GND	SRST_L	ACK_L	BSY_L	GND	ATN_L	GND
3	GND	I/O_L	REQ_L	C/D_L	SEL_L	MSG_L	GND
2	GND	RESERVED	SCD<11>_L	SCD<10>_L	SCD<9>_L	SCD<8>_L	GND
1	GND	RSV-MCU-use	RSV-MCU-use	+3.3V	-12V	GPIOI-RSV-MCU-use	GND

## J5 Connector

The pin locations for the J5 connector are shown in FIGURE 18.



**FIGURE 18 J5 Connector Pin Locations**

The signal descriptions for the J5 connector and are listed in TABLE 15.

**TABLE 15** J5/P5 Connector Signal Descriptions

Pin #	Row Z	Row A	Row B	Row C	Row D	Row E	Row F
22	GND	BKRST_IN_L	GND	DIAG_L_OC	+5V	BP_XIR_L	GND
21	GND	KBDDAT	KBDCLK	KBDVCC	AUXDATA	AUXCLK	GND
20	GND	+5V	UBS1_P	USB1_N	KBDGND	INT_2#	GND
19	GND	PAR_DS_L	GND	+5V	INT_0#	INT_1#	GND
18	GND	AFD_L	USB2_P	USB2_N	GND	+5V	GND
17	GND	PD<2>	INIT_L	PD<1>	ERR	PD<0>	GND
16	GND	PD<6>	PD<5>	PD<4>	PD<3>	SLIN_L	GND
15	GND	SLCT	PE	BUSY_L	ACK_L	PD<7>	GND
14	GND	RTSA	CTSA	RIA	GND	DTRA	GND
13	GND	DCDA	+5V	RXDA	DSRA	TXDA	GND
12	GND	RTSB	CTSB	RIB	+5V	DTRB	GND
11	GND	DCDB	GND	RXDB	DSRB	TXDB	GND
10	GND	TR0_L	WPROT_L	RDATA_L	HDSEL_L	DSKCHG_L	GND
9	GND	MTR1_L	DIR_L	STEP_L	WDATA_L	WGATE_L	GND
8	GND	DRVDENS1	INDEX_L	MTR0_L	DS1_L	DRV0_SEL_L	GND
7	GND	DRATE0	SC2D<2>_L	SC2D<1>_L	SC2D<0>_L	DENSELO	GND
6	GND	SC2D<6>_L	GND	SC2D<5>_L	SC2D<4>_L	SC2D<3>_L	GND
5	GND	SC2D<10>_L	SC2D<9>_L	SC2D<8>_L	SC2DPL_L	SC2D<7>_L	GND
4	GND	SC2D<13>_L	SC2D<12>_L	GND	MSEN0	SC2D<11>_L	GND
3	GND	Term2_Disable	SC2DPH_L	SC2D<15>_L	MSEN1	SC2D<14>_L	GND
2	GND	I/O2_L	REQ2_L	C/D2_L	SEL2_L	MSG2_L	GND
1	GND	BKRST_OUT_L	SRST2_L	ACK2_L	BUSY2_L	ATN2_L	GND

TABLE 16 and TABLE 17 list some of the signal definitions for the J4 and J5 connectors.

**TABLE 16** Signal Definitions

Signal Abbreviation	Signal Description
MII_RXD<0:3>	Receive data
MII_TXD<0:3>	Transmit data
MII_RX_CLK	Receive clock
MII_TX_CLKI	Transmit clock
MII_TX_EN	Transmit enable
MII_CRS	Carrier sense
MII_COL	Collision detect
MII_RX_ER	Receive error
MII_TX_ER	Transmit error
MII_RX_DV	Receive frame detect
MII_MDIO	Transceiver management data (external)

**TABLE 17** SCSI, X3T10 SPI/Single-ended Levels

Signal Abbreviation	Signal Description
ATN	Attention - Active low
BSY	Busy - Active low
C/D	Command or Data - Active low
I/O	Input or output data direction
MSG	Message phase indicator - Active low
ACK	Acknowledge - Active low
SCD<0:15>	SCSI data lines - Active low
SCDPH	SCSI parity high byte; provides parity for SCD[8:15] - Active low
SCDPL	SCSI parity low byte; provides parity for SCD[0:7] - Active low
SEL	Select - Active low
REQ	Request - Active low
SRST	SCSI bus reset - Active low
TRM_PWR	Termination power for external SCSI terminator

---

## PIM Card Interface

The XCP2040-TRN I/O transition card supports a PMC I/O module (PIM). A PIM is generally located on a transition card to enable rear I/O from the CompactPCI bus chassis. Custom PIMs provide additional I/Os that do not fit on the standard transition card rear panel. (For more information on PIM slot mechanics, electrical and logical information, see *VITA 36 - PMC I/O Module Standard* available <http://www.vita.com> and the *IEEE P1386 Standard*). The single-sized PIM measures 2.92 inches (74 mm) wide and 2.72 inches (69 mm) deep.

The J3 I/O on the host board, through the PIM card on the transition card, provides matching I/O on the enclosure backpanel. The signals are routed through the CompactPCI J3 connector.

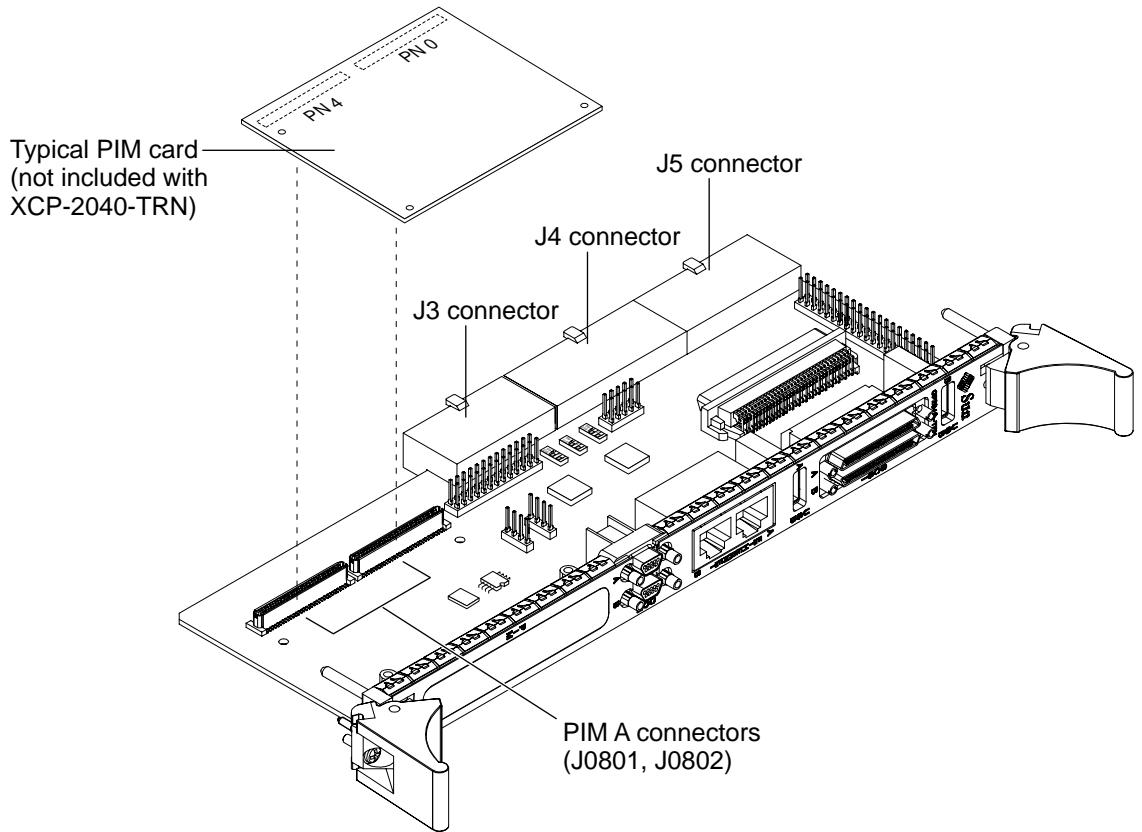
The PIM card must be mounted on the transition card *before* the XCP2040-TRN is inserted in a CompactPCI system.



---

**Caution** – A PIM card must be used with its matching PMC. Any other combination could lead to damage of the PIM or PMC.

---



**FIGURE 19** Typical PIM Card and Connectors on XCP2040-TRN I/O Transition Card

---

**Note** – The PIM cards shown in FIGURE 2 and FIGURE 19 are examples only and are not included with the XCP2040-TRN I/O transition card shipment.

---

---

# Installing the Transition Card in a CompactPCI Chassis

Please keep the following in mind before installing the XCP2040-TRN I/O Transition Card into a system chassis:

- The XCP2040-TRN I/O Transition Card installs into a CompactPCI chassis with a backplane made for front and rear board installation. The CompactPCI backplane must be PICMG 2.0 Rev 3.0 compliant and must have the latest type A/B connectors.
- The transition card must be installed in the slot directly behind the Netra CP2040/CP2140 board. These back-to-back slots have common pins to enable passing of signals between them.
- Ensure that you are installing an XCP2040-TRN I/O Transition Card by checking to see that its part number is 3750120, as described in “Determining Part Number, Serial Number, and Revision Number” on page 9.
- To be in compliance with the NEBS Level 3 Intrabuilding Lightning Surge Tests, (Telecommunications Port) the intrabuilding cabling must be shielded and the shield must be grounded at both ends. Please refer to *GR-1089-CORE*, Section 4.5.9.
- Refer to Important *Safety Information for Sun Hardware Systems* (816-7190-xx) and *XCP2040-TRN I/O Transition Card Product Note* (816-0898-xx) included in the transition card ship kit for important safety information.



---

**Caution** – Transition cards built for use with other CompactPCI host boards are not compatible with these Netra boards and might cause damage to themselves, the host, and the backplane if installed.

---

## ▼ To Install the Transition Card in a CompactPCI Chassis

Please read the following instructions before installing the XCP2040-TRN I/O transition card into the CompactPCI system:

**1. Ensure that power is disconnected from the chassis.**

The transition card and the corresponding Netra board *can* be installed while the chassis is powered—however *only start with a powered chassis if you must do so*.

**2. Ensure that no host board is installed in front of the rear backplane slot.**

When a CompactPCI system is on and running, the transition card must be inserted first, followed by the mating CP2040/CP2140 board. If the CP2040/CP2140 board is already inserted and the system is on, *do not* insert the transition card into the CompactPCI system.



---

**Caution** – The XCP2040-TRN I/O transition card is not hot-swappable. Its entire power supply comes from the mating CP2040/CP2140 board (also see “Power Requirements” on page 8).

---

**3. Check the positioning of the XCP2040-TRN I/O transition card ejection levers.**

Ensure that the XCP2040-TRN I/O transition card ejection levers are aligned perpendicular to the card flange.

**4. Connect cables to the following headers before the transition card is inserted into the chassis:**

Parallel port header, floppy header, internal SCSI A connector, PS/2 keyboard header and PS/2 mouse header.

---

**Note** – Cables connecting to the rear panel can be installed after the transition card is in the chassis. These include USB A and B connectors, SCSI A and B connectors, ethernet A and B connectors and serial port A and B connectors.

---

**5. Install the XCP2040-TRN I/O transition card into the chassis rear connector slot, as described in the following steps:**

- a. Position the card such that its J5 connector and the USB B connector on the front panel are on top, as shown in FIGURE 20.

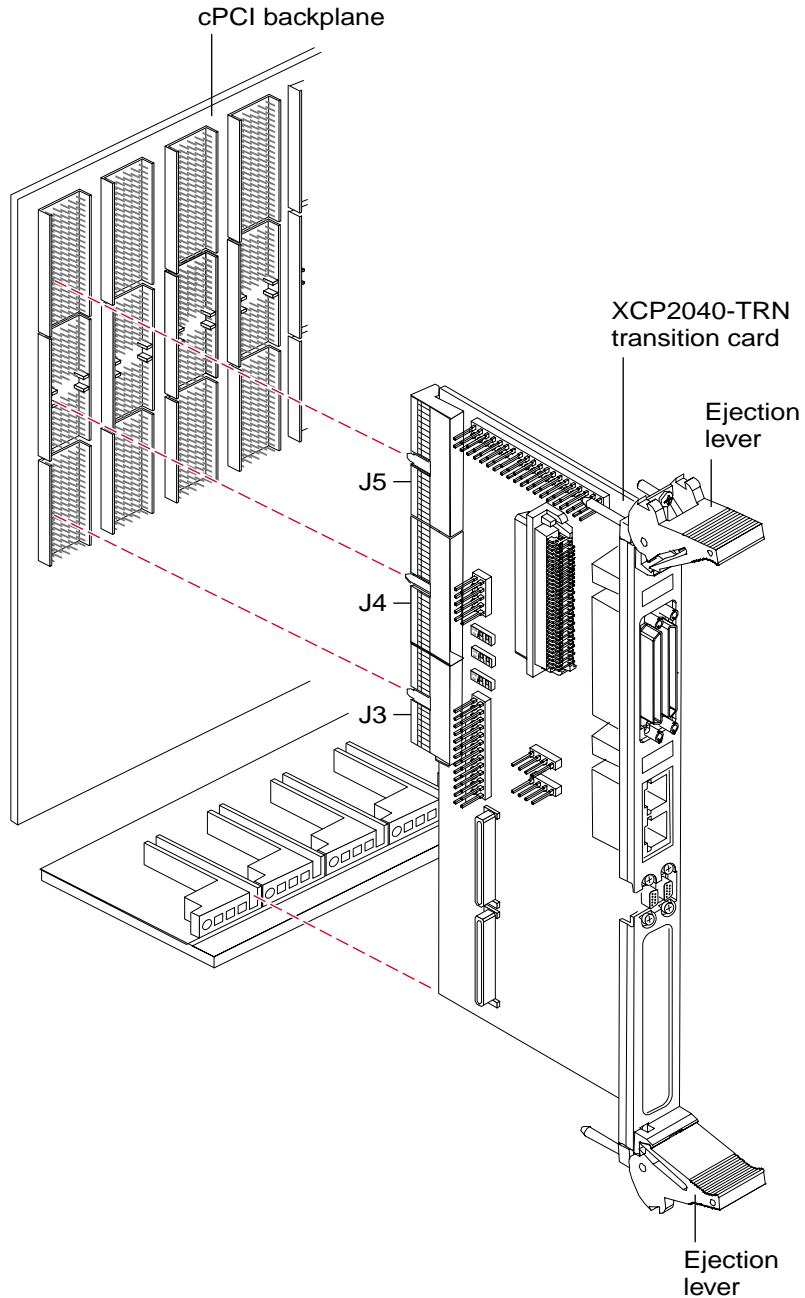
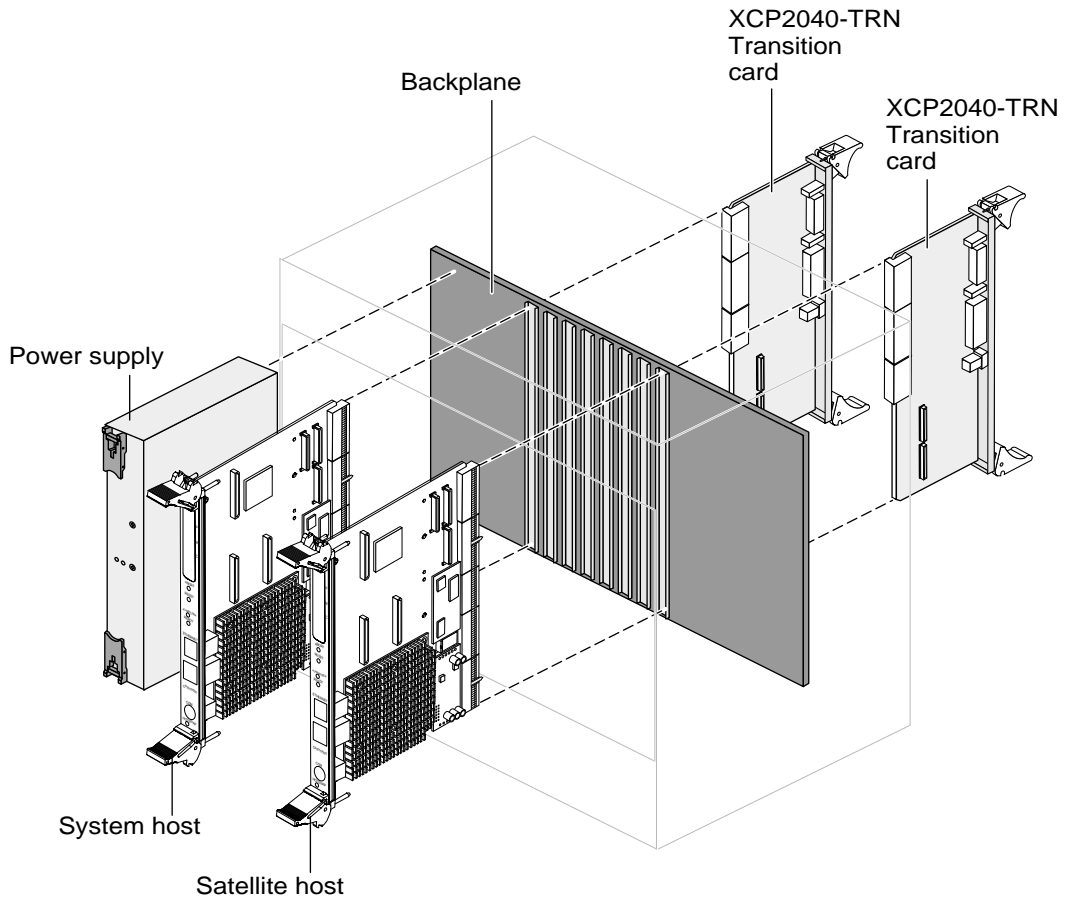


FIGURE 20 Transition Card Alignment During Installation in Backplane



**b. Insert the card into the rear slot that aligns directly behind the slot into which you want to install the Netra CP2040/CP2140 board as shown in FIGURE 21.**



**FIGURE 21** Typical Assembly of the CP2040/CP2140 Board System with Transition Cards

**c. Engage the card edges with the chassis card guides and slide the transition card into the chassis, while pushing up on the upper ejection lever, and down on the lower ejection lever. See FIGURE 20.**

**d. Using the ejection levers, gently maneuver the card toward the backplane, without engaging the card socket with the backplane pins.**

At this point, the card rear flange should project approximately 1/4 in. (6 mm) back from the fully home position.



---

**Caution** – During the next step, ensure that the transition card is perpendicular to the backplane when connecting to the backplane pins. Incorrect vertical or angular positioning during card insertion can result in damage to the backplane and subsequent electrical destruction of the transition card and the corresponding Netra host board.

---

**e. Apply pressure to engage the pins and seat the card.**

When the card is fully installed, the notches in the ejection levers will be engaged with the ejection lever slots on the chassis.

**6. Install the Netra CP2040/CP2140 board into the front of the chassis and push the board towards the backplane to make sure it is seated properly and the connectors make good contact with the transition card.**

For further details on installation of the Netra board see the *Netra CP2040 Technical Reference and Installation Manual* (P/N 806-4994-xx) or the *Netra CP2140 Technical Reference and Installation Manual* (P/N 816-4908-xx).

**7. Install the supported peripheral devices at the transition card connector ports as required.**

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