



ZX4300P 10/100 ETHERNET SWITCH USER'S GUIDE

Layer 2 CPSB Switch

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ZX4300P Series User's Guide

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About this Manual

This manual includes the installation, troubleshooting, and reference data for the ZX4300P 10/100 Ethernet Switch. See the ZNYX Networks data sheet for product specifications.

All documentation for ZNYX Networks products, including data sheets, release notes and User's Guides are available for downloading from the ZNYX Networks website (<http://www.znyx.com>). Files are supplied in PDF format so your system requires Adobe Acrobat Reader to open and read the documentation.

Technical Support

If you have difficulty installing your switch or need further assistance after reading this User's Guide, the ZNYX Networks professional technical support team is available to answer your questions. Contact us at:

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Chapter 1 Overview of the ZX4300P Switch

The ZX4300P CompactPCI Ethernet 10/100 Mbps switch is the cost-effective and flexible solution to Embedded Carrier Class Layer 2 switching requirements.

ZNYX Networks' ZX4300P is the first switch designed to support the upcoming PICMG 2.16 specification for a CompactPCI Packet Switching Backplane (CPSB), but it can also be deployed in a standard CompactPCI chassis by using one of three optional Rear Transition Boards (RTB).

When installed in the fabric slot of a CPSB chassis, the ZX4300P includes support for the extended CPSB specification, routing all 24 10/100 ports to the backplane. It also supports the typical 19 node CPSB, and with the addition of the ZXRTB05 RTB, routes the remaining 5 ports to rear panel RJ-45 connectors. This allows the systems architect to easily add another chassis to the switched backplane fabric.

The same ZX4300P may be installed in a standard CompactPCI chassis and configured with rear panel I/O for all 24 10/100 ports. In an extension of PICMG 2.16, ports 20 through 24 are routed to the J4 connector, which cannot be part of an H.110 connection. Options include either the ZXRTB24 dual-slot RTB with 24 RJ-45 connectors or the ZX4024RP single slot RTB with two RJ-21 Telco connectors.

In either chassis, the ZX4300P's Hot Swap and instant reconfiguration features allow rapid installation in a live system and a mean time to repair of mere seconds.

By using the latest switch silicon, the ZX4300P features non-blocking line-rate switching, 802.3x and back-pressure flow control. Like the ZNYX Networks OpenArchitect switches, the ZX4300P is designed for NEBS compliance and may be used with any host operating system or any host CPU including Sun SPARC, Intel x86, and Motorola PowerPC.

Features of the ZX4300PSwitch

The ZX4300P switch best satisfies the demand for high density, low cost, and high performance. It enables system architects to accelerate development of their next-generation CPSB products and achieve first-to-market deployment.

- Designed for use in CompactPCI PICMG 2.16 fabric slots
- Designed for standard CompactPCI chassis slots
- Designed with 3 optional Rear Transition Board (RTB) configurations
- Layer 2 switching
- Non-blocking line-rate performance
- 802.3x and back-pressure flow control
- HotSwap™ and CarrierClass™
- Works with any host OS or CPU
- Minimal power consumption (5V at 2.85A; full traffic rate)

ZX4300P Models

Model	Fast Ethernet Channels
ZX4300P	24 ports to CompactPCI Packet Switched Backplane (CPSB). When installed in a CPSB chassis, the ZX4300P may be used with the ZXRTB05 RTB or without any RTB.

Rear Transition Board (RTB) models for the ZX4300P

Model	Fast Ethernet Channels
ZXRTB05	Single-slot wide RTB with 5 ports egressed through RJ-45 ports. Remaining 19 ports are CPSB. Use this RTB only with CPSB chassis.
ZXRTB24	Two-slot wide RTB with all 24 ports egressed through RJ-45 ports. For use in standard CompactPCI chassis without H.110 bus.
ZXRTB24R	Single-slot wide RTB with all 24 ports egressed through two RJ-21 telco connectors (use with dual RJ-21 cables and 1U RJ-45 patch panel, not included). For use in standard CompactPCI chassis without H.110 bus.

Chapter 2 Installation

The ZX4300P is an unmanaged layer 2 switch requiring no software setup or configuration. Once the switch is installed in a chassis and power applied, it is fully operational as a layer 2 switch.

Be sure to carefully follow the instructions for attaching the ZX4300P switch into an available 6U Compact PCI (cPCI) slot to prevent damage. For CPSB applications, the ZX4300P must be placed in a PICMG 2.16 compliant fabric slot. If you intend to use a Rear Transition Board, a cPCI chassis is required that supports the rear panel I/O for a corresponding Rear Transition Board. Some steps in this procedure may vary depending on the specific system used.

If the ZX4300P is installed in a non-CPSB chassis, i.e. a standard CompactPCI chassis, ensure the slot used does NOT contain an H.110 backplane.

Preparing for the Install

Refer to your specific system documentation for additional installation reference.

1. **Power off** your system.
2. **Discharge any static electricity** from your body by touching the metal chassis, or by using an anti-static wrist strap. If you do not have a ground strap, maintain physical contact with the case to maintain the same electrical potential with the system.

Installing the ZX4300P cPCI Card

1. Select an available slot on your cPCI system and remove the slot cover from the front panel. For CPSB applications, choose a fabric slot.
2. Carefully insert the ZX4300P into the slot. Be sure you push the card straight into the slot. The card and the slot must be properly aligned and the card fully seated. A card is seated properly when it touches the system case up to the extraction levers.
3. Push the extraction levers towards one another to finish seating the switch and secure the retention screws.

Installing the Rear Transition Board (RTB)

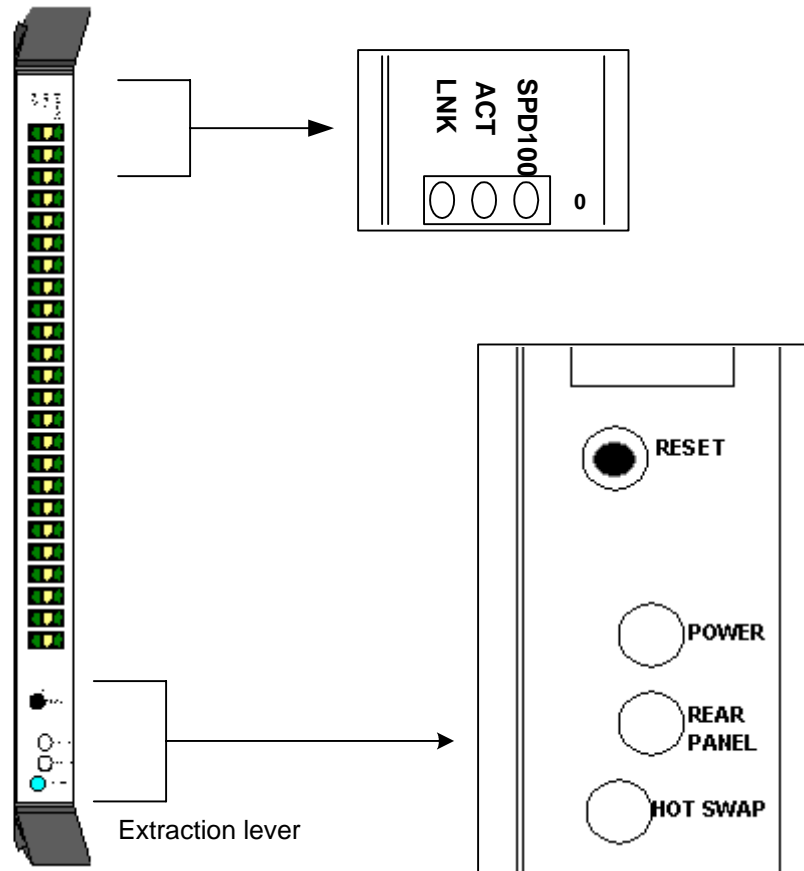
1. Remove the slot cover (or covers) from the corresponding rear panel bracket (slot filler) on your system.
2. Insert the correct Rear Transition Board into the slot.
NOTE: Exercise extreme care when inserting the RTB card into the chassis. Improper alignment of the rear transition card connector with the rear panel connector pins can damage the pins. Your switch includes AB connectors to assist in properly aligning the RTB for insertion. Follow the same insertion precautions as the switch.
3. Push the extraction levers towards one another to finish seating the RTB and secure the retention screws.

Connecting the Cables

The ZX4300P uses Broadcom's proprietary HP-AutoMDI-X technology that senses the cable attachment and adjusts its internal Transmit and receive paths accordingly. The ports of the switch will auto-sense and correct for MDI (straight-through) or MDI-X (crossover) cabling.

LED Reference

The LED lights on the ZX4300P switch and corresponding Rear Transition Board (RTB) provide diagnostic and activity information during power up and normal use of the switch. A definition of each LED is included in this section.



ZX4300P Front Display Panel

ZX4300P Series LED Reference Key

LED	Color	Function	Power up Display
LNK (0-23)	Green	ON indicates a link is established with the corresponding port.	OFF during power up.
ACT (0-23)	Yellow	Flashing indicates activity on the channel.	OFF during power up.
SPD100 (0-23)	Green	ON indicates the ethernet channel is successfully linked at 100 Mb/s	OFF during power up. OFF linked at 10Mb/s
RESET		Pressing RESET runs a lamp test to ensure all switch LEDs are operating and restarts the adapter.	
POWER	Green	ON indicates the power source is active.	ON during power up.
REAR PANEL	Green	ON indicates continuity with the Rear Transition Board	ON during power up, if RTB installed.
HOTSWAP	Blue	<p>After the extraction levers are released (pulled apart), ON indicates the switch unit is ready to remove.</p> <p>During "hot" insertion (system is active), HotSwap LED is ON and turns OFF when the switch is correctly seated.</p>	OFF during power up.

A. Legal Notices and Certification

FCC Class A Notice: ZX4300P SERIES

Pending

THE ZX4300P IS FOR USE ONLY WITH COMPACT PCI BUS COMPATIBLE SYSTEMS THAT HAVE ENCLOSED POWER SUPPLIES WITH SELV OUTPUTS AND INSTALLATION INSTRUCTIONS DETAILING USER INSTALLATION OF CARD CAGE ACCESSORIES.

Manufacturer Name: ZNYX Networks
Manufacturer Address: 48421 Milmont Drive,
Fremont, CA 94538

Warranty

ZNYX Networks warrants to the original purchaser of any ZNYX Networks compact PCI Ethernet Switch product that is to be free from defects in workmanship and materials, under normal use and service, for a period of one year from the date of purchase from ZNYX Networks or its authorized dealer. In order for this warranty to be valid, this hardware product must remain in its original system and be registered with ZNYX Networks within one year of purchase. ZNYX Networks warrants to the original purchaser of this hardware product that it is to be in good working order for a period of twelve (12) months from the date of purchase from ZNYX Networks or an authorized dealer.

Should this product, in ZNYX Network's opinion, malfunction during the applicable warranty period, ZNYX Networks will, at its expense, repair the defective product or part or, at its option, deliver to the Customer an equivalent product or part to replace the defective item. To prevent damage in transport, the Customer must return the product in its original packaging or, if this is not available, other protective packaging approved in advance by ZNYX Networks. All returned products will become the property of ZNYX Networks. At ZNYX Network's option, replacement parts may be new or reconditioned. Any replaced product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer

B. J Connector Pin Assignments

Standard and Extended Board J5 Pin Assignments

22	GND	LP19_DA+	LP19_DA-	GND	LP19_DC+	LP19_DC-	GND	J5 Connector
21	GND	LP19_DB+	LP19_DB-	GND	LP19_DD+	LP19_DD-	GND	
20	GND	LP18_DA+	LP18_DA-	GND	LP18_DC+	LP18_DC-	GND	
19	GND	LP18_DB+	LP18_DB-	GND	LP18_DD+	LP18_DD-	GND	
18	GND	LP17_DA+	LP17_DA-	GND	LP17_DC+	LP17_DC-	GND	
17	GND	LP17_DB+	LP17_DB-	GND	LP17_DD+	LP17_DD-	GND	
16	GND	LP16_DA+	LP16_DA-	GND	LP16_DC+	LP16_DC-	GND	
15	GND	LP16_DB+	LP16_DB-	GND	LP16_DD+	LP16_DD-	GND	
14	GND	LP15_DA+	LP15_DA-	GND	LP15_DC+	LP15_DC-	GND	
13	GND	LP15_DB+	LP15_DB-	GND	LP15_DD+	LP15_DD-	GND	
12	GND	LP14_DA+	LP14_DA-	GND	LP14_DC+	LP14_DC-	GND	
11	GND	LP14_DB+	LP14_DB-	GND	LP14_DD+	LP14_DD-	GND	
10	GND	LP13_DA+	LP13_DA-	GND	LP13_DC+	LP13_DC-	GND	
9	GND	LP13_DB+	LP13_DB-	GND	LP13_DD+	LP13_DD-	GND	
8	GND	LP12_DA+	LP12_DA-	GND	LP12_DC+	LP12_DC-	GND	
7	GND	LP12_DB+	LP12_DB-	GND	LP12_DD+	LP12_DD-	GND	
6	GND	LP11_DA+	LP11_DA-	GND	LP11_DC+	LP11_DC-	GND	
5	GND	LP11_DB+	LP11_DB-	GND	LP11_DD+	LP11_DD-	GND	
4	GND	LP10_DA+	LP10_DA-	GND	LP10_DC+	LP10_DC-	GND	
3	GND	LP10_DB+	LP10_DB-	GND	LP10_DD+	LP10_DD-	GND	
2	GND	LP9_DA+	LP9_DA-	GND	LP9_DC+	LP9_DC-	GND	
1	GND	LP9_DB+	LP9_DB-	GND	LP9_DD+	LP9_DD-	GND	
Pin	Z⁽⁵⁾	A	B	C	D	E	F⁽⁶⁾	

Extended Fabric Board J4 Pin Assignment

25	GND	LP20_DA+	LP20_DA-	GND	LP20_DC+	LP20_DC-	GND	J4 Connector	
24	GND	LP20_DB+	LP20_DB-	GND	LP20_DD+	LP20_DD-	GND		
23	GND	LP21_DA+	LP21_DA-	GND	LP21_DC+	LP21_DC-	GND		
22	GND	LP21_DB+	LP21_DB-	GND	LP21_DD+	LP21_DD-	GND		
21	GND	LP22_DA+	LP22_DA-	GND	LP22_DC+	LP22_DC-	GND		
20	GND	LP22_DB+	LP22_DB-	GND	LP22_DD+	LP22_DD-	GND		
19	GND	LP23_DA+	LP23_DA-	GND	LP23_DC+	LP23_DC-	GND		
18	GND	LP23_DB+	LP23_DB-	GND	LP23_DD+	LP23_DD-	GND		
17	GND	LP24_DA+	LP24_DA-	GND	LP24_DC+	LP24_DC-	GND		
16	GND	LP24_DB+	LP24_DB-	GND	LP24_DD+	LP24_DD-	GND		
15	GND	BP(I/O)(1,3)	BP(I/O)(1,3)	BP(I/O)(1,3)	BP(I/O)(1,3)	BP(I/O)(1,3)	GND		
14	RAL #1024 KEY								
13									
12									
11	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
10	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
9	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
8	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
7	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
6	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
5	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
4	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
3	GND	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	BP(I/O)(1,17)	GND		
2	GND	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	GND		
1	GND	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	BP(I/O)(1,16)	GND		
Pin	Z(5)	A	B	C	D	E	F(6)		

Standard and Extended Fabric Board J3 Pin Assignment



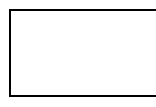
19	GND	SGA4(4)	SGA3(4)	SGA2(4)	SGA1(4)	SGA0(4)	GND	J3 Connector
18	GND	LPf_DA+	LPf_DA-	GND	LPf_DC+	LPf_DC-	GND	
17	GND	LPf_DB+	LPf_DB-	GND	LPf_DD+	LPf_DD-	GND	
16	GND	LP8_DA+	LP8_DA-	GND	LP8_DC+	LP8_DC-	GND	
15	GND	LP8_DB+	LP8_DB-	GND	LP8_DD+	LP8_DD-	GND	
14	GND	LP7_DA+	LP7_DA-	GND	LP7_DC+	LP7_DC-	GND	
13	GND	LP7_DB+	LP7_DB-	GND	LP7_DD+	LP7_DD-	GND	
12	GND	LP6_DA+	LP6_DA-	GND	LP6_DC+	LP6_DC-	GND	
11	(2)	LP6_DB+	LP6_DB-	GND	LP6_DD+	LP6_DD-	(2)	
10	(2)	LP5_DA+	LP5_DA-	GND	LP5_DC+	LP5_DC-	(2)	
9	(2)	LP5_DB+	LP5_DB-	GND	LP5_DD+	LP5_DD-	(2)	
8	GND	LP4_DA+	LP4_DA-	GND	LP4_DC+	LP4_DC-	GND	
7	GND	LP4_DB+	LP4_DB-	GND	LP4_DD+	LP4_DD-	GND	
6	GND	LP3_DA+	LP3_DA-	GND	LP3_DC+	LP3_DC-	GND	
5	GND	LP3_DB+	LP3_DB-	GND	LP3_DD+	LP3_DD-	GND	
4	GND	LP2_DA+	LP2_DA-	GND	LP2_DC+	LP2_DC-	GND	
3	GND	LP2_DB+	LP2_DB-	GND	LP2_DD+	LP2_DD-	GND	
2	GND	LP1_DA+	LP1_DA-	GND	LP1_DC+	LP1_DC-	GND	
1	GND	LP1_DB+	LP1_DB-	GND	LP1_DD+	LP1_DD-	GND	
Pin	Z(5)	A	B	C	D	E	F(6)	

Node & Fabric Board J2 Pin Assignment

22	GND	GA4(3,7)	GA3(3,7)	GA2(3,7)	GA1(3,7)	GA0(3,7)	GND	J2 Connector
21	GND	(7,16)	(7,16)	(7,16)	(7,16)	(7,16)	GND	
20	GND	(7,16)	(7,16)	(7,16)	(7,16)	(7,16)	GND	
19	GND	(7,17)	(7,17)	SMB_SDA ^(7,18)	SMB_SCL ^(7,18)	SMB_ALERT ^(7,18)	GND	
18	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
17	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
16	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
15	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
14	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
13	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
12	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
11	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
10	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
9	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
8	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
7	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
6	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
5	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
4	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
3	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
2	GND	(7,17)	(7,17)	SYSEN# ⁽⁹⁾	(7,17)	(7,17)	GND	
1	GND	(7,17)	(7,17)	(7,17)	(7,17)	(7,17)	GND	
Pin	Z (5)	A	B	C	D	E	F (6)	

Node & Fabric Board J1 Pin Assignment

25	GND	5V(8)	(7)	ENUM#(15)	3.3V(8)	5V(8)	GND	
24	GND	(7)	5V(8)	V(I/O)(8)	(7)	(7)	GND	
23	GND	3.3V(8)	(7)	(7)	5V(8)	(7)	GND	
22	GND	(7)	GND(8)	3.3V(8)	(7)	(7)	GND	
21	GND	3.3V(8)	(7)	(7)	(7)	(7)	GND	
20	GND	(7)	GND(8)	V(I/O)(8)	(7)	(7)	GND	
19	GND	3.3V(8)	(7)	(7)	GND(8)	(7)	GND	
18	GND	(7)	GND(8)	3.3V(8)	(7)	(7)	GND	
17	GND	3.3V(8)	IPMB_ SCL(7)	IPMB_ SDA(7)	GND(8)	(7)	GND	
16	GND	(7)	GND(8)	V(I/O)(8)	(7)	(7)	GND	
15	GND	3.3V(8)	(7)	(7)	BD_SEL#(9)	(7)	GND	
14	KEY AREA							J1 Connector
13								
12								
11	GND	(7)	(7)	(7)	GND(8)	(7)	GND	
10	GND	(7)	GND(8)	3.3V(8)	(7)	(7)	GND	
9	GND	(7)	(7)	(7)	GND(8)	(7)	GND	
8	GND	(7)	GND(8)	V(I/O)(8)	(7)	(7)	GND	
7	GND	(7)	(7)	(7)	GND(8)	(7)	GND	
6	GND	(7)	PCI_ PRESENT#(11)	3.3V	PCI_CLK(13)	(7)	GND	
5	GND	(7)	(7)	PCI_RST#(12)	GND(8)	(7)	GND	
4	GND	IPMB_ PWR(7)	HEALTHY#(14)	V(I/O)(8)	(7)	(7)	GND	
3	GND	(7)	(7)	(7)	5V(8)	(7)	GND	
2	GND	(7)	5V(8)	(7)	(7)	(7)	GND	
1	GND	5V	-12V(8)	(7)	+12V(8)	5V(8)	GND	
Pin	Z(5)	A	B	C	D	E	F(6)	

 = long pins (front only)
  = short pins (front only)
  = medium pins (front only)

Notes for J Connector Pinouts from Previous Tables

Sections referenced below pertain to the CompactPCI Packet Switching Backplane PICMG 2.16 Draft 0.6.5 June 19, 2001

1. BP(I/O) connects Front card to Rear card and does not connect to backplane. Refer to Section 3.1.1.2 for Alternate Node Board Keying Compliance.
2. GND for Type B style J3 connector.
3. Refer to Sections 3.3.2.3, 3.3.3.7, 3.3.5.1, 3.3.6.1, 4.3.5, 4.3.6, 4.4.1, and 4.4.10.
4. Refer to Sections 3.3.3.8, 3.3.6.2, 4.3.7, 4.4.1, 4.4.9, and 4.4.10.
5. Refer to Sections 4.3.6 and 4.4.5.
6. Refer to Section 4.4.6.
7. Refer to the PICMG 2.0 Rev 3.0 CompactPCI Specification.
8. Required as per PICMG 2.0 Rev 3.0 CompactPCI Specification.
9. Refer to Sections 3.3.1.4 and 3.3.4.3.
10. Refer to Section 3.5.1.3.
11. Refer to Sections 3.3.1.1, 3.3.4.1, and 4.4.2.
12. Refer to Sections 3.3.1.3 and 4.3.4.
13. Refer to Sections 3.3.1.5 and 4.3.1.
14. In accordance with PICMG 2.1 R2.0.
15. Refer to Sections 3.5.1.1 and 3.5.2.1.
16. Signal edge rate **shall** not exceed 6.4 V/ns. Refer to Section 4.4.10.
17. Signal edge rate **shall** not exceed 12.8 V/ns. Refer to Section 4.4.10.
18. Refer to Sections 3.3.1.7 and 3.3.4.5.

C. Patch Panel Cable Specifications

The specifications required to build a cable for attaching the ZX4300P Series ZXRTB24R Rear Transition Board to a standard patch panel are on the following page. Contact your ZNYX Networks Sales Representative for assistance, or visit <http://www.panduit.com>.

The diagrams below illustrate the cables when they are properly attached.

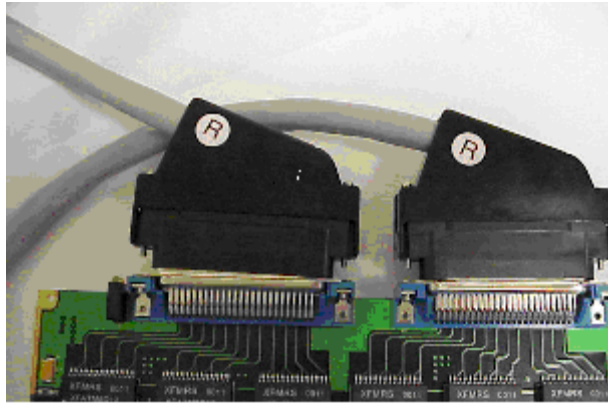


Figure D-1 Cable Attached to the ZXRTB24R



Figure D-2 Cable Attached to the Panel

Ordering Information (from www.panduit.com)

Part Number	Part Description	Depth (in)	Length (ft)	Width (in)	Width (mm)	Height (in)	Height (mm)	No. of Ports
DP24584TV25	19" (482.6mm) W X 1.39" (35.3mm) D X 1.72" (43.7mm) H	1.39		19	482.6	1.72	43.7	24
DP48584TV25	19" (482.6mm) W X 1.39" (25.3mm) D X 3.47" (88.1mm) H	1.39		19	482.6	3.47	88.1	48
UTPCH8SR25 Part Drawing	Straight, 110° , Right orientation		8					
UTPCH8SL25 Part Drawing	Straight, 110° Left orientation		8					
UTPCH8L25 Part Drawing	Both 110° Left orientation		8					
UTPCH8R25 Part Drawing	Both 110° Right orientation		8					
UTPCH8LR25 Part Drawing	110° Left, 110° Right		8					
UTPCH812PP25 Part Drawing	12 Pan-Plug Modular Plugs, Straight		8					

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