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CompactPCI

ZT 6620

Fast/Wide SCSI Interface

Hardware User Manual



ZIATECH CORPORATION

ZT 6620

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MANUAL ORGANIZATION

This manual describes the operation and use of the ZT 6620 Fast/Wide SCSI Interface. The following outline summarizes the focus of each chapter in this manual.

Chapter 1, "Introduction," offers an overview of the ZT 6620. It includes a product definition and a listing of product features. This chapter is most useful to those who wish to compare the features of the ZT 6620 against the needs of a specific application.

Chapter 2, "Getting Started," summarizes the information you need to get your ZT 6620 operational, including system requirements and connector descriptions. This may be all the information you need to begin using the ZT 6620.

Chapter 3, "Theory of Operation," illustrates functional relationships between key components of the board. Some of the topics discussed include compliance levels, software support, features and registers, and board configuration.

Appendix A, "Jumper Configurations," describes the jumpers on the ZT 6620. This chapter details factory default settings as well as information to tailor your board to a specific application.

Appendix B, "Specifications" contains the connector pinouts for the ZT 6620.

Appendix C, "Customer Support," offers technical support information and instructions for returning the ZT 6620 if service is necessary.

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1. INTRODUCTION

This chapter provides a brief introduction to the ZT 6620 Fast/Wide SCSI Interface. It includes a product definition and a listing of product features. Unpacking information and installation instructions are in Chapter 2, "Getting Started."

PRODUCT DEFINITION

The Small Computer System Interface (SCSI) is a bi-directional, intelligent I/O subsystem specification. The SCSI-2 specification is a superset of the original specification and supports high-performance protocols.

The ZT 6620 is a fast SCSI-2 interface for the CompactPCI bus based on the Adaptec® 7880 SCSI-2 chip. The Adaptec AIC-7880 is a high performance SCSI-2 controller that handles all SCSI arbitration and control between SCSI peripheral devices and the CompactPCI backplane.

Since the ZT 6620 meets the requirements of the SCSI-2 specification, throughput of up to 10 Mbytes per second can be achieved. The ZT 6620 connects up to seven 8-bit intelligent SCSI or SCSI-2 single ended devices, or up to fifteen 16-bit (seven of which can be 8-bit devices) single ended devices including CD-ROM drives, printers, hard disks, and scanners.



Warning: Do not connect differential SCSI devices to the ZT 6620. Doing so will cause damage to the devices and the ZT 6620.

The ZT 6620 is an intelligent, self-contained expansion bus. It handles all of the time-consuming SCSI functions, such as background selection and reselection, which increases the bandwidth of the host CPU.

The ZT 6620 includes "connectors for interfacing to application-specific devices. The ZT 6620 provides connection to the SCSI bus through either a shielded, high-density connector, (J6) or an unshielded internal connector (J5). The ZT 6620 supports 8-bit SCSI through one internal 50-pin SCSI connector (J4), or by using a 68-pin to 50-pin adapter on either of the 68-pin connectors.

Software support for the ZT 6620 is available in two different forms: as a BIOS extension and as a DOS installable device driver. Both the BIOS extension and the device driver are licensed from Adaptec.

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Installing a BIOS extension in the PROM socket on board the ZT 6620 enables the system to boot from a SCSI drive connected to the ZT 6620. Booting from a SCSI device limits the device support to two fixed drives with DOS versions lower than 5.0, or up to eight drives with DOS versions 5.0 or greater. This includes any IDE drives in the system. For example, if the system has two IDE drives with DOS version 5.0, then up to six SCSI drives can be used for a total of eight.

The ASPI2DOS Installable Device Driver for the ZT 6620 is fully compatible with the Advanced SCSI Programming Interface (ASPI), an industry standard programming interface for SCSI controllers. The installable device driver supports two or more fixed disks or non-disk devices.

ZT 6620 FEATURES

- Adaptec AHA-2940W software-compatible
- SCSI-2 operation supporting up to 20 Mbytes per second transfer rates (Fast and Wide SCSI)
- Fast SCSI and bus master selection supports transfer rates of up to 133 Mbytes per second across the CompactPCI local bus
- Maximum cable length of 6 meters (19.7 feet)
- Support for operation of 15 separate SCSI devices
- Supports both 8-bit and 16-bit SCSI devices
- 50-contact low density connector for 8-bit SCSI
- 68-contact internal high density connector for 16-bit Wide SCSI
- 68-contact external shielded high density connector for 16-bit Wide SCSI
- BIOS extension socket for boot support
- Active terminators on the SCSI bus for improved noise immunity
- Industry standard software support for Adaptec-7880 SCSI-2 chip
- Burned in at 55° C and tested to guarantee reliability
- Five year warranty

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2. GETTING STARTED

This chapter summarizes the information you need to get your ZT 6620 up and running. You should read this chapter before you attempt to use the board.

Throughout this manual, an asterisk (*) denotes a low-true signal and a lower case "h" denotes a hexadecimal number.

UNPACKING

Please check the shipping carton for damage. If the shipping carton and contents are damaged, notify the carrier and Ziatech for an insurance settlement. Retain the shipping carton and packing material for inspection by the carrier. Do not return any product to Ziatech without a Return Material Authorization (RMA) number. Appendix C explains the procedure you should follow to obtain an "RMA number" from Ziatech.

When the package is opened, you should find:

- The ZT 6620 PC board
- Anti-static packing material
- ZT 97120 software driver diskette
- ZT ME6620 On-Line Help disk for the ZT 6620
- Optional ZT M6620 paper version ZT 6620 Hardware Manual
- Optional ZT 90137 2 ft. (61 cm) low density SCSI cable with 50-pin DIN style connectors
- Optional ZT 90211 68-pin DIN to 68-pin SCSI cable

Save the anti-static packing material for storing or returning the ZT 6620.



Warning: Like all equipment utilizing MOS devices, the ZT 6620 must be protected from static discharge. Never remove any of the socketed parts except at a static-free workstation.

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SYSTEM REQUIREMENTS

The ZT 6620 is designed for CompactPCI applications. The board is therefore mechanically and electrically compatible with the CompactPCI Specification Version 2.1.

The board requires +5 VDC ±5% at 500 mA maximum, 200 mA typical. The relative humidity must be less than 95% at 40° C, non-condensing. Refer to Appendix B, "Specifications," for additional information.

JUMPER CONFIGURATIONS

The ZT 6620 includes two jumper options to tailor the operation of the board to specific application requirements. These options are described in Appendix A, "Jumper Configurations."

CONNECTOR DESCRIPTIONS

As shown in the "Connector Locations" drawing in Appendix B, the ZT 6620 includes several connectors to interface to external devices. A brief description of each connector is given in the "Connector Assignments" table. Refer to the "Connectors" topic in Appendix B for connector pinouts.

INSTALLING THE ZT 6620

The ZT 6620 CompactPCI Fast/Wide SCSI Interface is pre-configured at the factory to operate in CompactPCI computer systems. Most applications do not require the factory default settings to be changed. If a change is necessary, the ZT 6620 can be configured from the keyboard through the "BIOS extension" In the vast majority of cases there is no need to physically configure the ZT 6620.

To install the ZT 6620:

1. Unpack and inspect the ZT 6620 for shipping damage.
2. Prepare the SCSI devices:
    a. Connect power and SCSI cables.
    b. Power up SCSI device before applying power to the ZT 6620.
3. Power off the system.

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4. Insert the ZT 6620 in a CompactPCI-compatible slot.

5. Power up the system.

6. Configure the board using the BIOS extension for proper operation depending on the type of SCSI device(s) being used. Use the **CTRL +A** hotkey combination to enter EZ-SCSI Setup.

SOFTWARE DRIVER PACKAGE

Additional software drivers are required for certain SCSI peripheral devices such as SCSI tape, DAT, CD-ROM, and others. A software driver installation package (ZT 97105) is available for users who do not require the ability to boot from a SCSI drive connected to the ZT 6620.

PROBLEM SOLVING

The ZT 6620 (and all Ziatech products) is fully tested, burned in, and inspected before it is shipped. If the board is kept in its protective antistatic bag until it is installed, and if the installation is performed following normal cautions for electrostatic protection, it is unlikely the board will be physically damaged. However, if the ZT 6620 is not functioning properly, remove it from the system and inspect the board for missing components, broken leads, conductive debris, or other indications of improper handling. If any of these conditions exist, contact Ziatech Technical Support.

If the board does not appear to be physically damaged, reinsert it in the CompactPCI system and check for the following:

1. If the ZT 6620 LED and the SCSI drive LED are always on, check the SCSI cable's pin-1 orientation--it may be reversed between the host adapter and the drive.

2. If the ZT 6620 BIOS message is not displayed on the screen during system boot, the system does not recognize the host adapter BIOS. Be sure that the adapter BIOS PROM is properly installed in the ZT 6620.

3. If the message "Host adapter not found" is displayed, the ZT 6620 may not be properly seated in the card cage. Power-down the system and reseat the ZT 6620.

4. If the message "Host adapter found but not configured" is displayed, run the "SCSI Configuration Utility" to configure the host adapter.

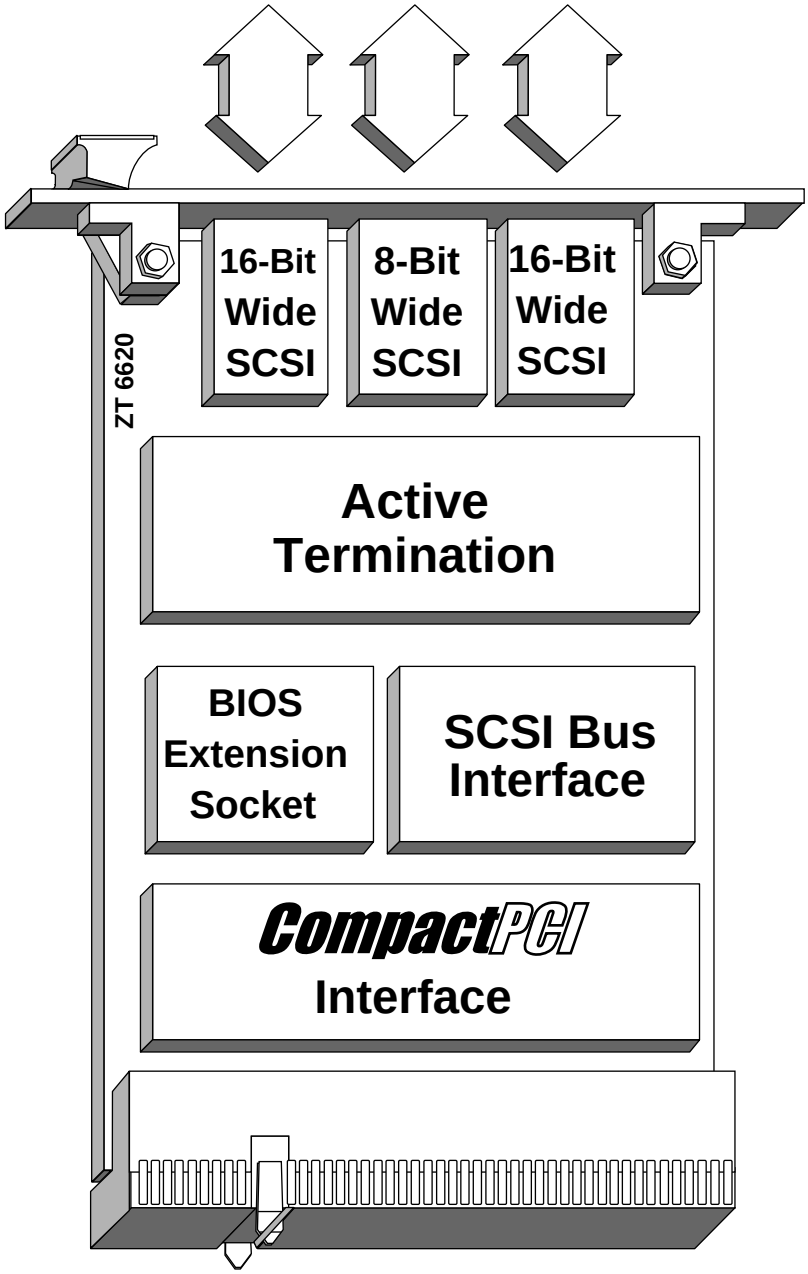
If problems persist, it could be caused by improper SCSI termination. Read the "SCSI Termination" section in Chapter 3 of this manual for a detailed description of how to properly terminate the SCSI bus.

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3. THEORY OF OPERATION

This chapter presents a high-level look at the way the ZT 6620 functions. It is designed to help you become more familiar with the board. The "Functional Block Diagram" illustrates the functional relationship between the key components on the board, and should be referred to as you read this chapter.

Functional Block Diagram



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COMPATIBILITY

The Small Computer System Interface (SCSI) is a bi-directional, intelligent I/O subsystem specification. Wide SCSI implements a 16-bit data path that doubles the data flow. The ZT 6620 is a Fast/Wide SCSI interface for CompactPCI. This interface features the Adaptec AIC-7880, a high performance SCSI controller that handles all SCSI arbitration and control between SCSI peripheral devices and the CompactPCI backplane.

The ZT 6620 interfaces to all peripheral devices that have been designed within the parameters defined by the SCSI-2 specification. Throughput of up to 10 Mbytes per second can be achieved for 8-bit devices and 20 Mbytes per second for Wide SCSI devices. The ZT 6620 connects up to seven intelligent SCSI or SCSI-2 devices, or up to 15 Wide SCSI devices including CD-ROM drives, printers, hard disks, and scanners.

The ZT 6620 is really an intelligent, self-contained expansion bus. It handles all of the time-consuming SCSI functions, such as background selection and reselection, which increases the bandwidth of the host CPU.

COMPLIANCE LEVELS

The ZT 6620 is compliant with the SCSI-2 specification and CompactPCI Specification Version 2.1.

CONNECTIVITY

The ZT 6620 provides connection to the Wide SCSI bus through connector “J6”, a shielded, high-density connector on the front plane, or connector “J5”, an internal, unshielded, high-density, 68-pin connector. “J4” is a 50-pin connector for 8-bit SCSI peripherals.

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SOFTWARE SUPPORT

Software support for the ZT 6620 is available in two different forms: as a BIOS extension and as a DOS installable device driver. Both the BIOS extension and the device driver are licensed from Adaptec. The installable device driver is fully compatible with the Advanced SCSI Programming Interface (ASPI), an industry standard programming interface for SCSI controllers.

Booting from a SCSI device requires a BIOS extension PROM on the ZT 6620. This limits the device support to only two fixed disks for DOS versions below 5.0, or up to eight fixed disks for DOS versions at 5.0 or above. The ASPI8DOS Installable Device Driver for the ZT 6620 supports two or more fixed disks or non-disk devices. The installation software is available from Ziatech on a 1.44 Mbyte, 3.5" floppy diskette (ZT 97120).

SCSI TERMINATION

The SCSI bus must be terminated correctly in order for the host adapter board and SCSI devices to work correctly. The **first** and **last** devices on the SCSI bus must have terminators installed/enabled. All other SCSI devices on the SCSI bus must have terminators removed/disabled. SCSI termination can be implemented either by physically installing/removing terminators on a SCSI device or by enabling/disabling it with a software program. The "SCSISelect" feature of the Adaptec BIOS extension allows for keyboard configuration of SCSI termination ("W2" must not be installed).

The ZT 6620 internal and external connectors are linked to the same SCSI bus, so both internal and external cabling must be considered when determining whether termination should be enabled or disabled on the ZT 6620.

If only one cable (either internal or external) is connected to the ZT 6620, host adapter termination must remain enabled. Termination must be enabled on the device at the farthest end of the cable from the ZT 6620 and must be disabled on all other attached SCSI devices. The instruction manual for each SCSI device indicates how the terminators can be removed or replaced.

If both an internal and external cable are connected to the ZT 6620, enable termination on the devices at the end of each cable. Disable all termination on the ZT 6620 and on all devices except at the end of each cable.

Since the ZT 6620 supports both 16-bit and 8-bit devices, termination must be properly configured to handle the additional 8 bits of data. Data bits 0 through 7 normally represent the low byte and bits 8 through 15 normally represent the high byte. The "ZT 6620 Termination" table describes the possible ZT 6620 termination configurations.

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ZT 6620 Termination

Type of Connectors on SCSI Devices	Low Byte	High Byte
68-pin internal connector only	ON	ON
68-pin external connector only	ON	ON
68-pin internal and 68-pin external	OFF	OFF
50-pin internal connector only	ON	ON
50-pin and 68-pin internal	OFF	ON
50-pin internal and 68-pin external	OFF	ON
50-pin and 68-pin internal, 68-pin external	Invalid	Invalid

SCSI TARGET ADDRESSING (ID)

Each SCSI device (including the ZT 6620) on the SCSI bus must be set to a unique SCSI target address (or SCSI ID). Duplicate SCSI IDs cause errors that are extremely difficult to identify. The address IDs are 0-7 for the standard 8-bit SCSI devices and 0-15 for the 16-bit Wide SCSI devices. The ZT 6620 default SCSI ID is 7, which is the highest priority on the SCSI bus. SCSI 8 has the lowest priority. The SCSI ID of the ZT 6620 is set with the SCSI*Select* BIOS extension utility.

SCSI PARITY CHECKING

If any SCSI device that is to be attached to the SCSI bus does not generate parity then SCSI Parity Checking must be turned off. To use parity checking ALL devices on the bus must have parity capability. Parity on the ZT 6620 can be turned on and off with the SCSI*Select* BIOS extension utility.

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SCSISELECT CONFIGURATION UTILITY

The ZT 6620 BIOS Extension includes a built in, menu-driven SCSI*Select* configuration utility that allows you to change almost all host adapter option settings from the keyboard. Use the SCSI*Select* utility if you need to:

- Change software configured ZT 6620 settings
- Install new SCSI devices
- The "SCSISelect Default Settings" table provides a list of the settings that can be changed with the SCSI*Select* utility and their default values.

When the SCSI Adapter BIOS banner appears on the screen during the boot cycle press **Ctrl+A** to enter the SCSI*Select* menu.

*SCSI*Select *Default Settings*

Description	Default Setting
ZT 6620 SCSI ID	7
SCSI Parity Checking	Enabled
ZT 6620 SCSI Termination	Enabled
SCSI Bus Reset at Host Adapter Initialization	Enabled
ZT 6620 BIOS	Enabled
Support All Removable Disks as Fixed Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 Gbyte	Enabled
BIOS Support for More Than 2 Drives	Enabled
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	20 MHz
Enable Disconnection	Yes
Send Start Unit SCSI Command	No
Include In BIOS Scan	Yes

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FEATURES AND REGISTERS

The AIC-7880 SCSI controller chip used on the ZT 6620 has two important responsibilities. First, it acts as the CompactPCI interface, handling all communication to the host processor. Secondly, it directs control of the SCSI bus and handles all SCSI transfers.

The SCSI sequencer handles all timing and control on the SCSI bus. Through its logic it automatically handles arbitration, selection/reselection, and SCSI data transfers. All SCSI control signals are available to the host CPU for direct control. In addition, interrupts are available for all major SCSI status conditions. For additional information, including register descriptions and addressing refer to the AIC-7880 Data Book published by Adaptec.

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A. JUMPER CONFIGURATIONS

The ZT 6620 includes two jumper options to tailor the operation of the board to specific application requirements. These options are described in this appendix, along with drawings that illustrate various jumper configurations. Five more jumpers reside on the ZT 6620 and are used at the factory for test purposes only.

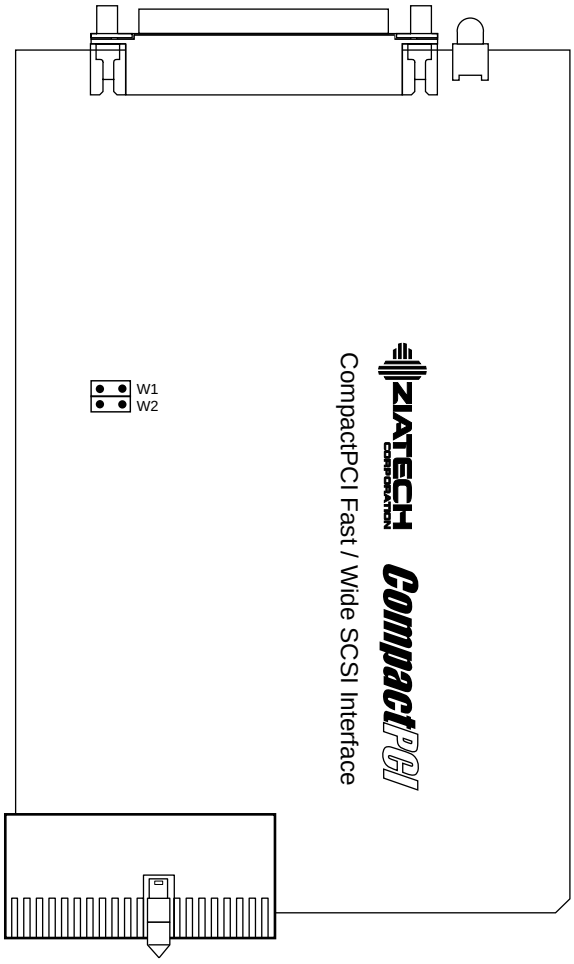
We recommend you document your configuration in the "Customer Jumper Configuration" figure. This allows you to easily restore the configuration if you change it from the factory default configuration shown in the "Factory Default Configuration" figure.

Factory Default Configuration



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Customer Jumper Configuration



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ZT 6620 JUMPER DESCRIPTIONS

The ZT 6620 jumper options are summarized below. A dagger (†) indicates a factory default jumper location shown in the "Factory Default Configuration" figure.

W1 (Termination Power Enable)

	W1	Function
†	In	Supplies termination power to all ZT 6620 SCSI connectors
	Out	Removes termination power from all ZT 6620 SCSI connectors

W2 (Hardware Active Termination Enable)

	W2	Function
	In	Enables all active termination for the ZT 6620. With W2 installed there is no software control of termination. Disabling termination using the SCSI*Select* BIOS extension utility has no effect with W2 installed.
†	Out	Software controls status of active termination. Use the SCSI*Select* BIOS extension utility to control termination.

† Factory default configuration

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B. SPECIFICATIONS

This appendix describes electrical and mechanical specifications of the ZT 6620. It includes an illustration of the board's connector locations and connector pinout tables.

ELECTRICAL SPECIFICATIONS

+5 VDC (without drives): 100 mA Min, 200 mA Typical, 500 mA Max.

+12 VDC: Dependent on drive requirements. The ZT 6620 board itself does not require 12 VDC.

Drive requirements vary. Review drive specifications for power requirements.

CONNECTORS

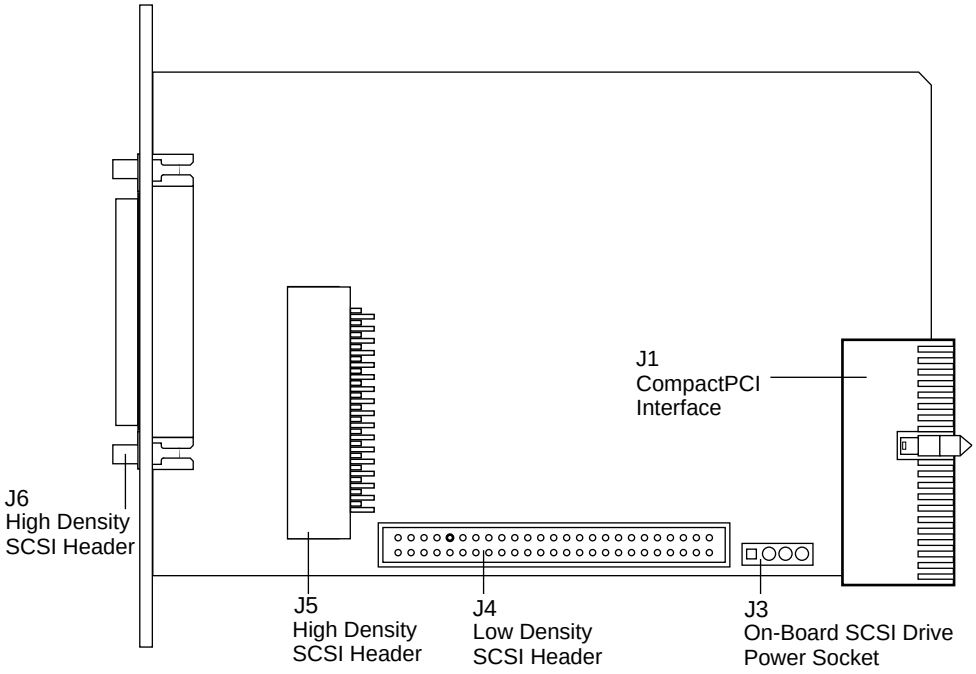
As shown in the "Connector Locations" illustration, the ZT 6620 includes one connector to interface to the PCI local bus and four connectors to interface to application-specific devices. See the "Connector Assignments" table for descriptions of each connector.

Connector Assignments

Connector	Function
J1	CompactPCI backplane connector. See "J1 PCI Interface Pinout" for pin assignments.
J3	A 4-position power connection with +5 VDC, GND, and +12 VDC. "See J3 On-Board SCSI Drive Power Socket Pinout" for pin assignments.
J4	A low density, 50-pin, male header (0.1" pin spacing) for 8-bit SCSI interfaces. When connecting to J4, pay careful attention to the orientation of pin 1. See "J4 Internal Low Density (8-Bit) SCSI Header Pinout" for pin assignments.
J5	Internal, 68-pin connector for 16-bit SCSI. Mating connector is Circuit Assembly CA-68NFS-12G. See "J5 Internal High Density (16-Bit) SCSI Header Pinout" for pin assignments.
J6	External shielded, fine pitch 68-pin "D" connector for 16-bit SCSI. See "J6 Frontplane High Density (16-Bit) SCSI Pinout" for pin assignments.

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Connector Locations



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J1 PCI Interface PinoutJI

Pin	Z	A	B	C	D	E	F
47	GND	RSV	RSV	RSV	RSV	RSV	GND
46	GND	RSV	RSV	RSV	RSV	RSV	GND
45	GND	RSV	RSV	RSV	RSV	RSV	GND
44	GND	RSV	RSV	RSV	RSV	RSV	GND
43	GND	RSV	RSV	RSV	RSV	RSV	GND
42	GND	BRSV	GND	PRST#	BRSV	BRSV	GND
41	GND	BRSV	BRSV	DEG#	GND	BRSV	GND
40	GND	BRSV	GND	FAL#	BRSV	BRSV	GND
39	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND
38	GND	AD[38]	GND	V(I/O)(2)	AD[37]	AD[36]	GND
37	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND
36	GND	AD[45]	GND	V(I/O)(2)	AD[44]	AD[43]	GND
35	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND
34	GND	AD[52]	GND	V(I/O)(2)	AD[51]	AD[50]	GND
33	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
32	GND	AD[59]	GND	V(I/O)(2)	AD[58]	AD[57]	GND
31	GND	AD[63]	AD[62]	AD[61]	GND	AD[60]	GND
30	GND	C/BE[5]#	GND	V(I/O)(2)	C/BE[4]#	PAR64	GND
29	GND	V(I/O)(2)	BRSV	C/BE[7]#	GND	C/BE[6]#	GND
28	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
27	GND	CLK2	CLK3	SYSEN#(4)	GNT2#	REQ3#	GND
26	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND
25	GND	5V	REQ64#	BRSV	3.3V	5V	GND
24	GND	AD[1]	5V	V(I/O)(2)	AD[0]	ACK64#	GND
23	GND	3.3V	AD[4]	AD[3]	5V	AD[2]	GND
22	GND	AD[7]	GND	3.3V	AD[6]	AD[5]	GND
21	GND	3.3V	AD[9]	AD[8]	M66EN(5)	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)(2)	AD[11]	AD[10]	GND
19	GND	3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3V	PAR	C/BE[1]#	GND

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17	GND	3.3V	SDONE	SBO#	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O) (2),(6)	STOP#	LOCK#	GND
15	GND	3.3V	FRAME#	IRDY#	GND	TRDY#	GND
14							
13				KEY AREA			
12							
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3V	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	3.3V	CLK	AD[31]	GND
5	GND	BRSV	BRSV	RST#	GND	GNT#	GND
4	GND	BRSV	GND	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5V	INTD#	GND
2	GND	TCK	5V	TMS	TDO	TDI	GND
1	GND	5V	-12V	TRST#	+12V	5V	GND
Pin	**Z**	**A**	**B**	**C**	**D**	**E**	**F**

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J4 Internal Low Density (8-Bit) SCSI Header Pinout

Pin #	Signal	Pin #	Signal
Pin 1	GND	Pin 26	Termination Power
Pin 2	DB0 (SCSI data bit)	Pin 27	Reserved (Ground)
Pin 3	Ground	Pin 28	Reserved (Ground)
Pin 4	DB1	Pin 29	Ground
Pin 5	Ground	Pin 30	Ground
Pin 6	DB2	Pin 31	Ground
Pin 7	Ground	Pin 32	ATN
Pin 8	DB3	Pin 33	Ground
Pin 9	Ground	Pin 34	Ground
Pin 10	DB4	Pin 35	Ground
Pin 11	Ground	Pin 36	BSY
Pin 12	DB5	Pin 37	Ground
Pin 13	Ground	Pin 38	ACK
Pin 14	DB6	Pin 39	Ground
Pin 15	Ground	Pin 40	RST
Pin 16	DB7	Pin 41	Ground
Pin 17	Ground	Pin 42	MSG
Pin 18	DBP	Pin 43	Ground
Pin 19	Ground	Pin 44	SEL
Pin 20	Ground	Pin 45	Ground
Pin 21	Ground	Pin 46	C/D
Pin 22	Ground	Pin 47	Ground
Pin 23	Reserved (Ground)	Pin 48	REQ
Pin 24	Reserved (Ground)	Pin 49	Ground
Pin 25	No Connect	Pin 50	I/O

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J3 On-Board SCSI Drive Power Socket Pinout

Pin #	Signal
Pin 1	+5 VDC (1 AMP MAX)
Pin 2	Ground
Pin 3	Ground
Pin 4	+12 VDC (1 AMP MAX)

J5 Internal High Density (16-Bit) SCSI Header

Pin #	Signal	Pin #	Signal
Pin 1	Ground	Pin 26	Termpower (Termination power to last device in chain)
Pin 2	DB0* (SCSI Data Bit)	Pin 27	Ground
Pin 3	Ground	Pin 28	Ground
Pin 4	DB1*	Pin 29	Ground
Pin 5	Ground	Pin 30	Ground
Pin 6	DB2*	Pin 31	Ground
Pin 7	Ground	Pin 32	ATN* (Attention)
Pin 8	DB3*	Pin 33	Ground
Pin 9	Ground	Pin 34	Ground
Pin 10	DB4*	Pin 35	Ground
Pin 11	Ground	Pin 36	BSY* (Busy)
Pin 12	DB5*	Pin 37	Ground
Pin 13	Ground	Pin 38	ACK* (Acknowledge)
Pin 14	DB6*	Pin 39	Ground
Pin 15	Ground	Pin 40	RST* (Reset)
Pin 16	DB7*	Pin 41	Ground
Pin 17	Ground	Pin 42	MSG* (Message)
Pin 18	DBP* (Parity Bit)	Pin 43	Ground
Pin 19	Ground	Pin 44	SEL* (Select)
Pin 20	Ground	Pin 45	Ground
Pin 21	Ground	Pin 46	C/D* (Control/Data)
Pin 22	Ground	Pin 47	Ground
Pin 23	Ground	Pin 48	REQ* (Request)
Pin 24	Ground	Pin 49	Ground
Pin 25	Not Connected	Pin 50	I/O* (Input/Output)

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J6 Frontplane High Density (16-Bit) SCSI Pinout

Pin #	Signal	Pin #	Signal
Pin 1	Ground	Pin 26	Termpower (Termination power to last device in chain)
Pin 2	DB0* (SCSI Data Bit)	Pin 27	Ground
Pin 3	Ground	Pin 28	Ground
Pin 4	DB1*	Pin 29	Ground
Pin 5	Ground	Pin 30	Ground
Pin 6	DB2*	Pin 31	Ground
Pin 7	Ground	Pin 32	ATN* (Attention)
Pin 8	DB3*	Pin 33	Ground
Pin 9	Ground	Pin 34	Ground
Pin 10	DB4*	Pin 35	Ground
Pin 11	Ground	Pin 36	BSY* (Busy)
Pin 12	DB5*	Pin 37	Ground
Pin 13	Ground	Pin 38	ACK* (Acknowledge)
Pin 14	DB6*	Pin 39	Ground
Pin 15	Ground	Pin 40	RST* (Reset)
Pin 16	DB7*	Pin 41	Ground
Pin 17	Ground	Pin 42	MSG* (Message)
Pin 18	DBP* (Parity Bit)	Pin 43	Ground
Pin 19	Ground	Pin 44	SEL* (Select)
Pin 20	Ground	Pin 45	Ground
Pin 21	Ground	Pin 46	C/D* (Control/Data)
Pin 22	Ground	Pin 47	Ground
Pin 23	Ground	Pin 48	REQ* (Request)
Pin 24	Ground	Pin 49	Ground
Pin 25	Not Connected	Pin 50	I/O* (Input/Output)

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C. CUSTOMER SUPPORT

This appendix offers technical assistance information for this product and the necessary information should you need to return a Ziatech product.

TECHNICAL/SALES ASSISTANCE

If you have a technical question, please call Ziatech's Customer Support Service at the number below, or e-mail our technical support team at:

tech_support@ziatech.com

Ziatech also maintains an FTP site located at:

ftp://Ziatech.com/Tech_support.

If you have a sales question, please contact your local Ziatech Sales Representative or the Regional Sales Office for your area. Address, telephone, FAX numbers, and additional information is available at Ziatech's website, located at http://www.ziatech.com.

Corporate Headquarters

1050 Southwood Drive

San Luis Obispo, CA 93401 USA

Tel (805) 541-0488FAX (805) 541-5088

RELIABILITY

Ziatech has taken extra care in the design of the product in order to ensure reliability. The product was designed in top-down fashion, using the latest in hardware and software design techniques so that unwanted side effects and unclean interactions between parts of the system are eliminated. Each product has an identification number. Ziatech maintains a lifetime database on each board and the components used. Any negative trends in reliability are spotted and Ziatech's suppliers are informed and/or changed.

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RETURNING FOR SERVICE

Before returning any of Ziatech's products, you must phone Ziatech at (805) 541-0488 and obtain a Returned Material Authorization (RMA) number. The following information is needed to expedite the shipment of a replacement to you:

1. Your company name and address for invoice.
2. Shipping address and phone number.
3. Product I.D. number.
4. If possible, the name of a technically qualified individual at your company familiar with the mode of failure on the board.

If the unit is out of warranty, service is available at a predesignated service charge. Contact Ziatech for pricing and please supply a purchase order number for invoicing the repair.

Pack the board in ***anti-static*** material and ship in a sturdy cardboard box with enough packing material to adequately cushion it. ***Any product returned to Ziatech improperly packed will immediately void the warranty for that particular product!*** Mark the RMA number clearly on the outside of the box before returning.

ZIATECH WARRANTY

Warranty information for Ziatech products is available at Ziatech's website, located at http://www.ziatech.com.

REVISION HISTORY

Revision 0

Revision 0 was the first production release of the ZT 6620.

Revision A

There were no functional changes between Revision 0 and Revision A.

Revision B

Connector labels and locations were changed. J2-->J4, J4-->J5, J5-->J6. Position of J3 changed.

Revision B.1

There were no functional changes between Revision B and Revision B.1.

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