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ZT 5980

System Utility Board



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WHAT'S IN THIS MANUAL?

This manual describes the operation and use of the ZT 5980 System Utility Board. The following outline summarizes the focus of each chapter in this manual.

Chapter 1, "Introduction," offers an introduction to the ZT 5980. It includes a product definition and a listing of product features.

Chapter 2, "Getting Started," summarizes the information you need to get your ZT 5980 operational, including system requirements and installation instructions.

Chapter 3, "Functional Blocks," illustrates functional relationships between key components of the board.

Appendix A, "Specifications," contains the electrical, mechanical, and environmental specifications for the ZT 5980.

Appendix B, "Customer Support," offers technical support information and instructions for returning the ZT 5980 if service is necessary.

CHAPTER 1. INTRODUCTION

This chapter provides a brief introduction to the ZT 5980 System Utility Board. It includes a product definition and a listing of product features. You will find unpacking information and installation instructions in Chapter 2, "[Getting Started](#)."

PRODUCT DEFINITION

The ZT 5980 is a single slot, 6U format board, providing multiple I/O functions. This product is designed to function only in the system utility slot of a 6U CompactPCI® system. The I/O functions provided are hard drive (IDE device), floppy drive, parallel port, serial ports, PS/2 mouse port, and Universal Serial Bus (USB).

FEATURES OF THE ZT 5980

- Compatible with Ziatech 6U CPU boards (ZT 5510 Single Board Computer with Pentium® Processor and ZT 5520 Single Board Computer with Dual Pentium® Pro Processors) in ZT 5200 enclosures.
- Integrated hard and floppy drive options.
- Connectors for Primary and Secondary IDE channels add flexibility and provide the option of using additional IDE devices.
- Occupies one enclosure slot, no bus slots.
- Printer and PS/2 Mouse support provided for the ZT 5520. These functions duplicate those provided on the ZT 5510.
- LEDs indicate hard drive and floppy drive activity.

CHAPTER 2. GETTING STARTED

This chapter summarizes the information you need to get the ZT 5980 running. You should read this chapter in its entirety before you attempt to use the board.

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. A Return Material Authorization (RMA) number is required to return any product to Ziatech. The topic "[Returning For Service](#)," in Appendix B, explains the procedure you should follow to obtain an RMA number from Ziatech.

WHAT'S IN THE BOX?

After opening the shipping container, check for the following contents:

- The ZT 5980 System Utility Board
- Anti-static packing material

If any of the above items are missing, contact Ziatech for assistance. Be sure to save the anti-static packing material for storing or shipping.

WARNING!

When loaded with a floppy or hard drive, the ZT 5980 should be handled with care to avoid both mechanical shock and electrical static discharge.

SYSTEM REQUIREMENTS

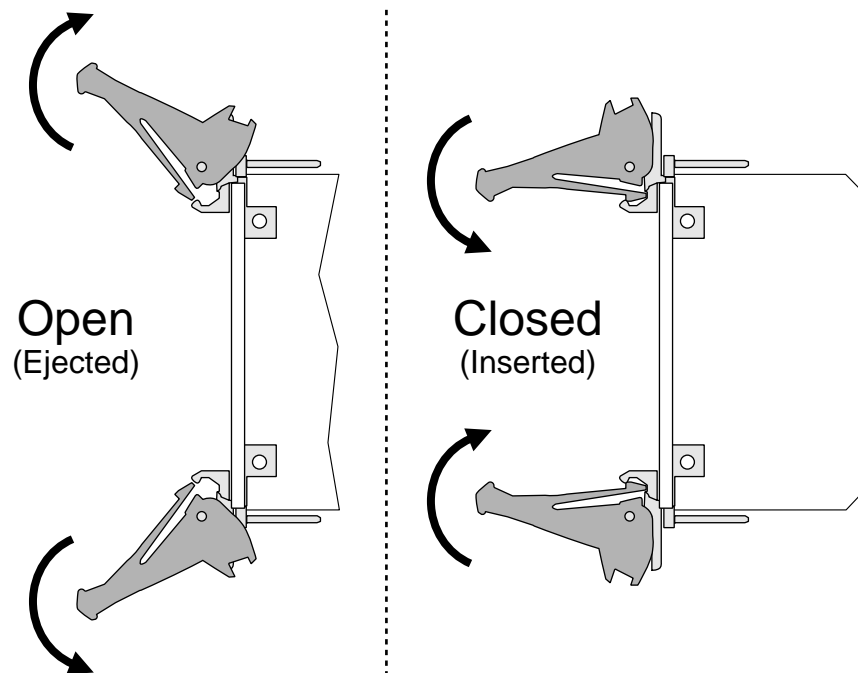
The ZT 5980 is designed for use only in the system utility slot of a CompactPCI system, such as a ZT 5200 enclosure running a ZT 5510 or ZT 5520 CPU board.

The ZT 5980 requires +5 VDC $\pm 5\%$ at 900 mA maximum, 500 mA typical. These requirements change with hard drive and/or floppy drive loading options. +12VDC is not required for the ZT 5980 unless the J9 power connector is used. In this case +12V and +5V power from J9 can be *no greater than 1 Amp each*. Relative humidity must be less than 95% at 40° C, non-condensing. Refer to Appendix A, "[Specifications](#)" for additional information.

HARDWARE INSTALLATION

The ZT 5980 is designed to plug into the system slot of a CompactPCI card cage (far left slot on the ZT 5200). Steps for installing the ZT 5980 board are as follows:

1. Turn off the power to the card cage.
2. Locate the system utility slot (the far left slot in a ZT 5200 system). Insert the ZT 5980 into the card cage up to the extraction levers. Pull the extraction levers in towards each other to insert the ZT 5980 fully into the system. See the "Open/Close Extraction Levers" illustration for more information on extraction lever operation.
3. Connect PS/2 Mouse, parallel port, and serial port cables as required for your system.
4. Power up the system.



Open/Close Extraction Levers

INSTALLING AN IDE CD ROM

The ZT 5980 supports up to four IDE devices on the two IDE channels including IDE CD ROM drives. To install an IDE CD ROM drive with the ZT 5980 you'll need:

- IDE CD ROM drive
- 40-pin IDE cable
- Power source for the CD ROM drive
- MS-DOS® driver (if an operating system is being loaded from the CD ROM drive)

The ZT 5980 does not supply a power cable to run a CD ROM drive or other desktop style IDE device. A desktop computer may supply the power, however, the two systems must be plugged into the same power strip or wall outlet and the card cage must be powered-on with, or before, the CD ROM drive.

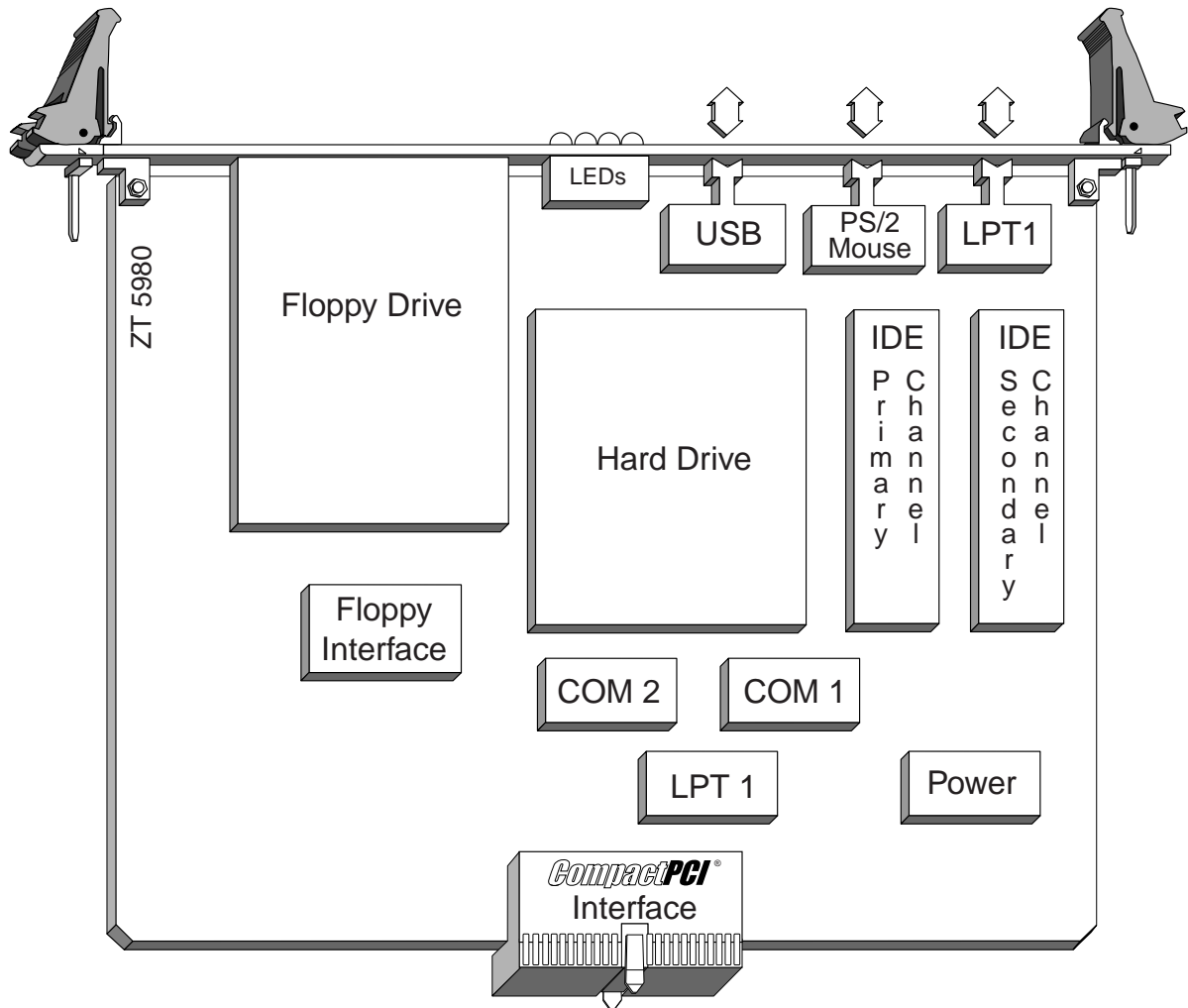
Ziatech recommends that IDE CD ROM drives be installed on the secondary IDE channel as an IDE Master device for higher performance. This is because IDE CD ROM drives operate in 16-bit data transfer mode while hard disks use 32-bit data transfer mode. The IDE channel will operate all of its devices at the lowest data transfer mode of any one device.

Steps for installing an IDE CD ROM drive with the ZT 5980 are as follows:

1. Turn the power off to the card cage and remove the ZT 5980.
2. Attach a 40-pin IDE cable to the secondary channel IDE connector J11.
3. Re-insert the ZT 5980 into the card cage.
4. Attach a CD ROM to the IDE cable and a power cable to the CD ROM.
5. Power up the card cage and the CD ROM.
6. Install appropriate CD ROM drivers (see CD ROM and operating system documentation).

CHAPTER 3. FUNCTIONAL BLOCKS

The following section gives a detailed description of the hardware components found on ZT 5980. A block diagram of the ZT 5980 is shown below.



ZT 5980 Functional Block Diagram

CompactPCI INTERFACE

The ZT 5980 interfaces to a compatible CompactPCI system through the J1, 110-pin, 2mm x 2mm, CompactPCI Interface.

IDE INTERFACE

The ZT 5980 supplies a mounting location for a 2.5" form factor hard drive that mates to the board through the J5 connector. This mounting location fits the majority of 2.5" drives but will not currently accommodate drives that conform to standard SFF 8201. Call Ziatech for details if required.

Connector J10 is provided for adding a slave drive to the master drive on the primary channel. In this configuration, the primary master cannot be connected through J5. Both master and slave must be connected through J10.

Connector J11 is provided for operating a master device or master and slave devices from the secondary channel. Ziatech's Embedded BIOS supports secondary channel IDE devices. While Ziatech's Industrial BIOS does not, many devices can be configured to use the secondary channel with drivers supplied from the device manufacturer.

FLOPPY DRIVE INTERFACE

The ZT 5980 provides mounting for an on board, low profile, 3.5", 1.44 Mbyte floppy drive through J2. Connectors J3 and J4 carry the same signals as J2 and provide flexibility for optional floppy drive configurations.

PARALLEL PORT LPT1

J12 provides access to LPT1 from the front plate of the ZT 5980. A second connector, J7, is mounted near the backplane edge of the board providing an optional means of connecting LPT1. The signals provided on J7 and J12 are the same, and when used with a ZT 5510, duplicate the LPT1 port on the CPU.

SERIAL PORTS COM1 AND COM2

Serial port connectors J6 (COM2) and J8 (COM1) are 10-pin headers providing an alternate means of accessing the serial channels that are available on the ZT 5510 and ZT 5520 CPU boards.

PS/2 MOUSE PORT

J13 provides a PS/2 style mouse port. This port is the only PS/2 Mouse connector available when the ZT 5200 system is loaded with the ZT 5520 CPU board. When loaded with the ZT 5510 CPU board the J13 connector duplicates the mouse connector on the ZT 5510 and either (but not both) may be used.

USB

J14 is a standard Universal Serial Bus (USB) connector that provides an additional USB port to those provided on the CPU board. Both USB ports may be used simultaneously.

POWER CONNECTOR

J9 provides a location for installing a 4-pin power connector to supply power to additional drives. Caution should be observed to ensure that the current limitations of 1 Amp for the +5V power and 1 Amp for the +12V power are not exceeded. Exceeding these current limitations may cause damage to the board and void the warranty.

APPENDIX A. SPECIFICATIONS

This appendix describes the electrical, environmental, and mechanical specifications of the ZT 5980, including board dimensions, connector locations, and connector pinouts.

ELECTRICAL SPECIFICATIONS

Power requirements for the ZT 5980 are shown in the table below.

Power Requirements	Minimum	Typical	Maximum
Supply Voltage, Vcc	4.75 V	5.00 V	5.25 V
Supply Current, Vcc = 5.0 V	0 mA	500 mA*	800 mA*
Supply Voltage, AUX	11.50 V	12.00 V	12.50 V
Supply Current, AUX = 12. V	0 mA	500 mA**	1 A**

*These values are based on manufacturer's specifications for typical drives shipped by Ziatech Corporation and are subject to change.

**+12V values are dependent on the use of the J9 power connector. If J9 is not used, the ZT 5980 has no +12V requirement.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature:	0° to +65° Celsius
Storage Temperature:	40° to +85° Celsius
Relative Humidity:	< 95% at 40° Celsius, non-condensing

MECHANICAL SPECIFICATIONS

The following topics provide specifications for ZT 5980 dimensions and weight, connector locations, connector descriptions, and connector pinouts.

Board Dimensions and Weight

Mechanical dimensions for the base board are shown in the "Base Board Dimensions" illustration and are outlined below.

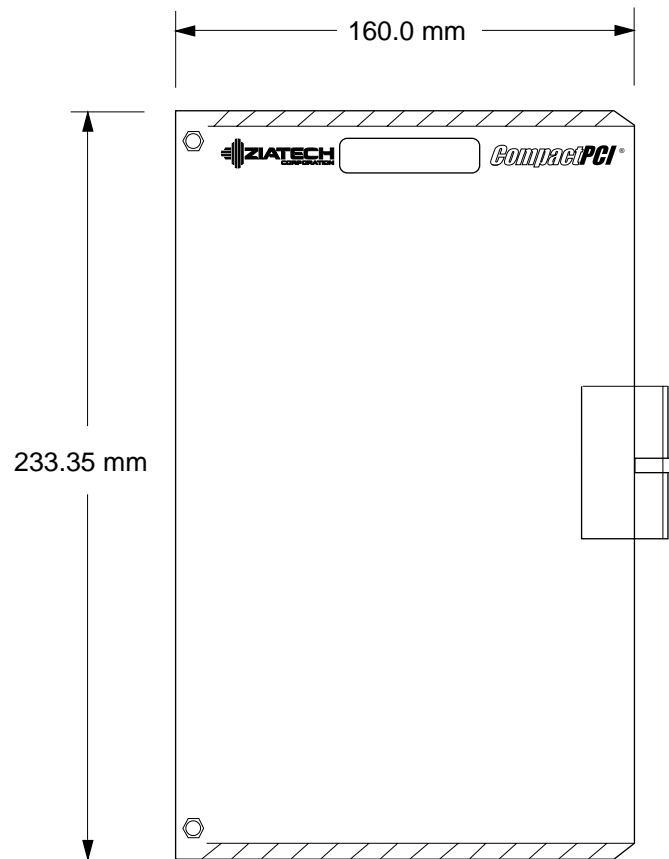
Dimensions: 9.187" x 6.299" (233.35 mm x 160 mm)

Height: Occupies the left system slot

Weight: 13.5 oz. (378 g) with floppy drive only

18.9 oz. (529 g) with floppy & hard drive

These values are subject to variation with drive manufacturer.



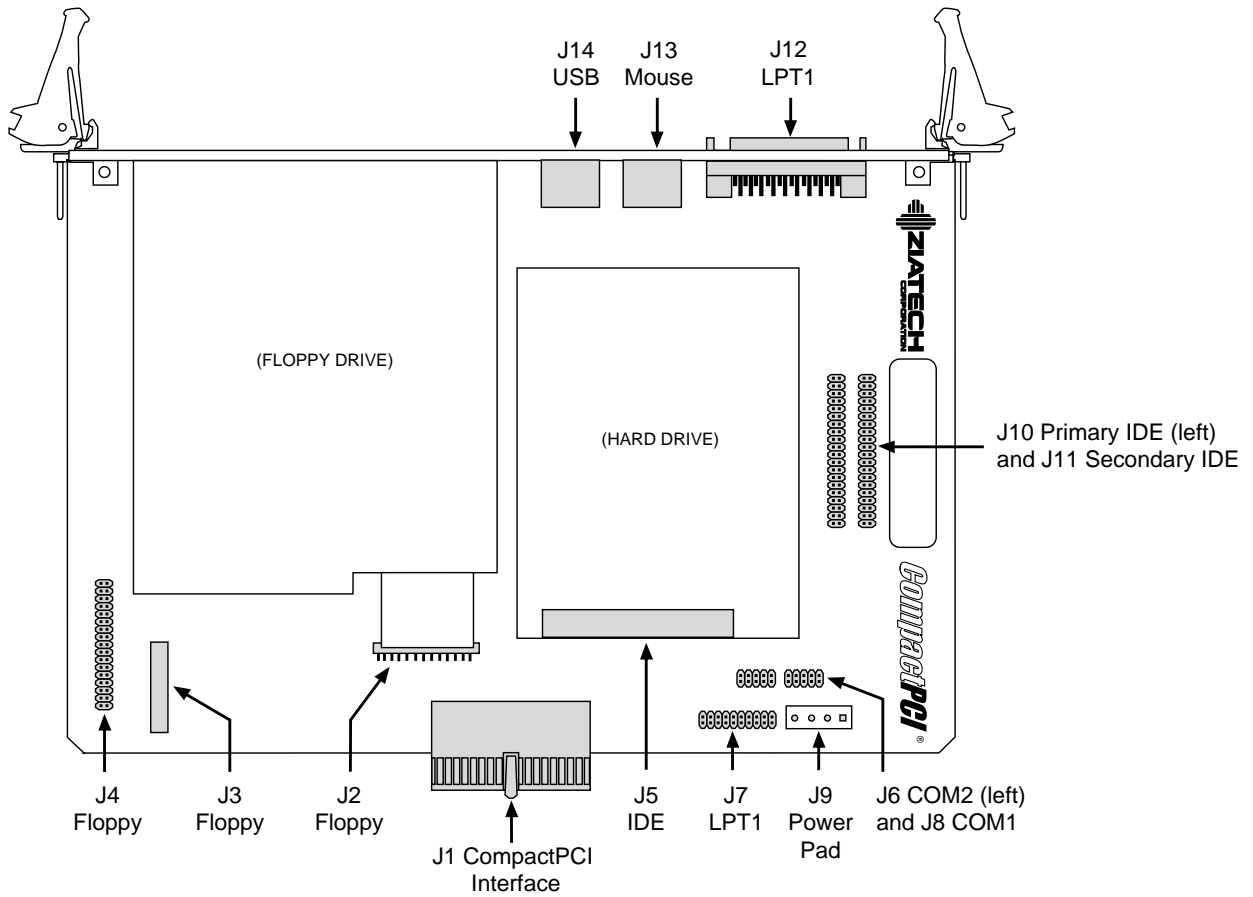
Base Board Dimensions

Connectors

As shown in the "[ZT 5980 Connector Locations](#)" drawing, the ZT 5980 includes fourteen connectors to interface with application-specific devices. The following topics provide complete descriptions and pinouts for the connectors.

Connector Assignments

Connector	Function
J1	CompactPCI bus interface connector
J2	26-Pin vertical floppy drive connector
J3	26-Pin right angle floppy drive connector
J4	34-Pin 0.1" DIN style floppy connector
J5	44-Pin IDE connector for 2.5" mounted drive
J6	10-Pin COM2 serial port connector
J7	20-Pin LPT1 parallel port connector
J8	10-Pin COM1 serial port connector
J9	Location for a 4-pin power connector
J10	40-Pin IDE primary channel connector
J11	40-Pin IDE secondary channel connector
J12	36-Pin LPT1 front plate connector
J13	6-Pin PS/2 mouse port connector
J14	4-Pin USB connector



ZT 5980 Connector Locations

J1 CompactPCI Interface

J1 is a 110-pin, 2mm x 2mm, right-angle, female connector providing the PCI local bus interface. See the "[J1 CompactPCI Interface Pinout](#)" table for pin definitions.

J1 CompactPCI Interface Pinout

Pin #	Z	A	B	C	D	E	F
25	GND	+12V	GND	VCC	NC	GND	GND
24	GND	+12 V	GND	VCC	NC	GND	GND
23	GND	+12 V	GND	VCC	NC	GND	GND
22	GND	PWR GD	ISAIO16-	IORDY	MIRQ0	IRQ14	GND
21	GND	CS3S-	CS1S-	CS3P-	CS1P-	DDAK1-	GND
20	GND	DD15	DD14	DD13	DD12	DDRQ1	GND
19	GND	DD11	DD10	DD9	DD8	DDAK0-	GND
18	GND	DA0	DA1	VCC	DA2	DDRQ0	GND
17	GND	DD7	DD6	DD5	DD4	DI0W-	GND
16	GND	DD3	DD2	DD1	DD0	DIOR-	GND
15	GND	DR0-	MSEN0	MTR0-	INDEX-	WDATA-	GND
14							
13			KEY	AREA			
12							
11	GND	DR1-	DSKCHG-	MTR1-	DENSL	RDATA-	GND
10	GND	WP-	HDSEL-	DIR-	TRK0-	STEP-	GND
9	GND	WGATE	ERR-	AFD-	BUSY	USB+	GND
8	GND	PE	SLIN-	VCC	STB-	USB-	GND
7	GND	PPD7	PPD6	PPD5	PPD4	INIT-	GND
6	GND	PPD3	PPD2	PPD1	PPD0	ACK-	GND
5	GND	ABORT-	MSDAT	SPKR	KBDAT	SLCT	GND
4	GND	PBRST-	MSCLK	VCC	KBCLK	S1RXD	GND
3	GND	S1CTS	S1RTS	S1DSR	S1DCD	S1TXD	GND
2	GND	S2RIN	S2DTR	S1RIN	S1DTR	S2RXD	GND
1	GND	S2CTS	S2RTS	S2DSR	S2DCD	S2TXD	GND

J2, J3, and J4 Floppy Drive Connectors

J2, J3, and J4 provide floppy drive interfacing. J2 is a 26-pin vertical connector for the on-board floppy. Connectors J3 (26-pin right angle connector) and J4 (34-pin 0.1" DIN style connector) carry the same signals as J2 and provide flexibility for optional floppy drive configurations. See the "J2, J3, and J4 Floppy Drive Connector Pinouts" table for pin definitions.

J2, J3, and J4 Floppy Drive Connector Pinouts

Pin #	Connectors	Connector
	J2 & J3	J4
1	VCC	GND
2	INDEX-	DENSL
3	VCC	GND
4	DRO-	NC
5	VCC	GND
6	DSKCHG-	MSEN0
7	DR1-	GND
8	NC	INDEX-
9	MSEN0	GND
10	MTR0-	MTR0-
11	DENSL	GND
12	DIR-	DR1-
13	GND	GND
14	STEP-	DR0-
15	GND	GND
16	WDATA-	MTR1-
17	GND	GND
18	WGATE-	DIR-
19	GND	GND
20	TRK0-	STEP-
21	GND	GND
22	WP-	WDATA-
23	GND	GND
24	RDATA-	WGATE
25	GND	GND
26	HDSEL-	TRK0-
27	NA	GND
28	NA	WP-
29	NA	GND
30	NA	RDATA-
31	NA	GND
32	NA	HDSEL-
33	NA	GND
34	NA	DSKCHG-

J5, J10, and J11 IDE Connectors

J5 is a 44-pin IDE connector for a 2.5" mounted hard drive. J10 is a 40-pin IDE connector for adding a slave drive to the master drive on the primary channel. J11 is a 40-pin IDE connector for operating a device from the secondary channel. Ziatech's BIOS does not support secondary channel IDE devices. However, many devices can be configured to use the secondary channel with drivers supplied from the drive manufacturer. See the "J5, J10, and J11 IDE Connector Pinouts" table for pin definitions.

J5, J10, and J11 IDE Connector Pinouts

Pin #	Primary J5 Signal	Primary J10 Signal	Secondary J11 Signal
1	BRSTP-	BRSTP-	BRSTP-
2	GND	GND	GND
3	DD7	DD7	DD7
4	DD8	DD8	DD8
5	DD6	DD6	DD6
6	DD9	DD9	DD9
7	DD5	DD5	DD5
8	DD10	DD10	DD10
9	DD4	DD4	DD4
10	DD11	DD11	DD11
11	DD3	DD3	DD3
12	DD12	DD12	DD12
13	DD2	DD2	DD2
14	DD13	DD13	DD13
15	DD1	DD1	DD1
16	DD14	DD14	DD14
17	DD0	DD0	DD0
18	DD15	DD15	DD15
19	GND	GND	GND
20	NC	NC	NC
21	DDRQ0	DDRQ0	DDRQ0
22	GND	GND	GND
23	DIOW-	DIOW-	DIOW-
24	GND	GND	GND
25	DIOR-	DIOR-	DIOR-
26	GND	GND	GND

J5, J10, and J11 IDE Connector Pinouts (Continued)

Pin #	Primary J5 Signal	Primary J10 Signal	Secondary J11 Signal
27	IORDY	IORDY	IORDY
28	10K PULL UP	10K PULL UP	10K PULL UP
29	DDAK0-	DDAK0-	DDAK0-
30	GND	GND	GND
31	IRQ14	IRQ14	MIRQ0
32	ISAIO16-	ISAIO16-	ISAIO16-
33	DA1	DA1	DA1
34	NC	NC	NC
35	DA0	DA0	DA0
36	DA2	DA2	DA2
37	CS1P-	CS1P-	CS1S-
38	CS3P-	CS3P-	CS3S-
39	LED	LED	10K PULL UP
40	GND	GND	GND
41	VCC		
42	VCC		
43	GND		
44	10K PULL UP		

J6 (COM2) and J8 (COM1) Serial Ports

J6 (COM2) and J8 (COM1) are 10-pin serial port connectors. J6 and J8 provide an alternate means of accessing the serial channels available on the ZT 5510 and ZT 5520 CPU boards. See the "J6 and J8 Serial Port Pinouts" table for pin definitions.

J6 and J8 Serial Port Pinouts

Pin #	COM2 J6 Signals	COM1 J8 Signals
1	DCD2	DCD1
2	DSR2	DSR1
3	RXD2	RXD1
4	RTS2	RTS1
5	TXD2	TXD1
6	CTS2	CTS1
7	DTR2	DTR1
8	RIN2	RIN1
9	GND	GND
10	VCC (optional by loading CT2*)	VCC (optional by loading CT1*)

*CT1 and CT2 are cuttable traces designed for loading 0603 size 0Ω resistors. CT1 and CT2 are not loaded from the factory and are not normally required for serial port operation. Contact Ziatech for details if needed.

J7 and J12 Parallel Ports

J12 is a 36-pin LPT1 parallel port connector accessible through the front plate of the ZT 5980. J7 is a 20-pin parallel port connector, mounted near the backplane edge of the board, providing an optional means of connecting LPT1. The signals provided on J7 and J12 are the same, and when used with a ZT 5510, duplicate the LPT1 port on the CPU. See the "J7 and J12 Parallel Port Pinouts" table for pin definitions.

J7 and J12 Parallel Port Pinouts

J7		J7		J12		J12	
Pin #	Signal	Pin #	Signal	Pin #	Signal	Pin #	Signal
1	STB	11	PD4	1	BUSY	11	PD5
2	AFD	12	GND	2	SLCT	12	PD6
3	PD0	13	PD5	3	ACK-	13	PD7
4	ERR	14	GND	4	ERR	14	INIT
5	PD1	15	PD6	5	PE	15	STB
6	INIT	16	BUSY	6	PD0	16	SLIN
7	PD2	17	PD7	7	PD1	17	AFD
8	SLIN	18	PE	8	PD2	18	LED
9	PD3	19	ACK-	9	PD3	19-36	GND
10	GND	20	SLCT	10	PD4		

J13 PS/2 Mouse Connector

J13 is a 6-pin PS/2 mouse port connector. This port is the only PS/2 Mouse connector available when the ZT 5200 system is loaded with the ZT 5520 CPU board. When loaded with the ZT 5510 CPU, the J13 connector duplicates the mouse connector on the ZT 5510 and either (but not both) may be used. See the "J13 PS/2 Mouse Connector Pinout" table for pin definitions.

J13 PS/2 Mouse Connector Pinout

Pin #	Signal
--------------	---------------

1	DATA
2	NC
3	GND
4	VCC
5	CLOCK
6	NC

J14 USB Connector

J14 is a standard 4-pin Universal Serial Bus (USB) connector that provides an additional USB port to those provided on the CPU board. Both USB ports may be used simultaneously. See the "J14 USB Connector Pinout" table for pin definitions.

J14 USB Connector Pinout

Pin #	Signal
--------------	---------------

1	VCC
2	DATA-
3	DATA+
4	GND

J9 Power Connector

J9 provides a location for installing a 4-pin power connector to supply power to additional drives. Caution should be observed to ensure that the current limitations of 1 Amp for the +5V power and 1 Amp for the +12V power are not exceeded. Exceeding these current limitations may cause damage to the board and void the warranty. See the "J9 Power Connector Pinout" table for pin definitions.

J9 Power Connector Pinout

Pin #	Signal
1	+5 V (1 AMP MAX.)
2	GND
3	GND
4	+12 V (1 AMP MAX.)

APPENDIX B. CUSTOMER SUPPORT

This appendix offers technical and sales assistance information for this product, and also 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://ftp.ziatech.com>.

If you have a sales question, please contact your local Ziatech Sales Representative or the Regional Sales Office for your area. Address, telephone and 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) 541-0488
FAX (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 unclear interactions between parts of the system are eliminated. Each product has an identification number. Ziatech maintains a lifetime data base on each board and the components used. Any negative trends in reliability are spotted and Ziatech's suppliers are informed and/or changed.

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

Ziatech provides a five-year limited warranty to its customers with a special extended warranty option. Ziatech also has an explicit policy regarding the use of Ziatech products in life support systems. These topics are covered in the following sections.

Five-Year Limited Warranty

Products manufactured by Ziatech Corporation are covered from the date of purchase by a five-year warranty against defects in materials, workmanship, and published specifications applicable to the date of manufacture. During the warranty period, Ziatech will repair or replace, solely at its option, defective units provided they are returned at customer expense to an authorized Ziatech repair facility. Products which have been subjected to misuse, abuse, neglect, alteration, or unauthorized repair, determined at the sole discretion of Ziatech, whether by accident or otherwise, are excluded from warranty. The warranty on fans and disk drives is limited to two years and the warranty on flat panel displays is limited to nine months from date of purchase. Other products and accessories not manufactured by Ziatech are limited to the warranty provided by the original manufacturer. Consumable items (fuses, batteries, etc.) and software are not covered by this warranty.

Ziatech Corporation warrants that for a period of ninety (90) days from the date of purchase; the media on which software is furnished will be free of defects in materials and workmanship under normal use; and the software contains the features described in the Ziatech price list. Otherwise, the software is provided "AS IS". This limited warranty extends only to Customer as the original licensee. Customer's exclusive remedy and Ziatech's entire liability under this limited warranty will be, at Ziatech's option, to repair or replace the software, or refund the license fee paid therefore.

Ziatech may offer, where applicable and available, replacement products; otherwise, repairs requiring components, assemblies, and other purchased materials may be limited by market availability.

Ziatech assumes no liability resulting from changes to government regulations affecting use of materials, equipment, safety, and methods of repair. Ziatech may, at its discretion, offer replacement products.

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