



integration with integrity

User's Manual

Full Size PICMG 3308130

Version 1.0,



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Introduction

Product Description

The 3308130 Intel Xeon full size CPU card is based on the Intel ET7500/ET7501 chipset. With two 184-pin DDR memory sockets, up to 4GB of memory is supported. A dual-channel DDR-200/266 memory interface provides a maximum memory bandwidth of 3.2 GB/s through a 144-bit wide, 200/266 MHz Double Data Rate SDRAM memory interface with densities up to 512 megabits is supported.

The Intel® Xeon™ Processor provides exceptional performance for applications running on advanced operating systems and delivers unparalleled computing power for powerful workstations, internet infrastructure, and departmental server applications. The Intel® NetBurst™ micro-architecture and Hyper-Threading Technology deliver outstanding performance and headroom for peak internet server workloads, resulting in faster response times, support for more users, and improved scalability.

The on board Intel® E7501 Chipset Memory Controller Hub (MCH) is the central hub for all data passing through core system elements such as the dual Intel Xeon processors with 512 KB L2 cache via the system bus interface, the memory via memory interface, and both the 64-bit PCI/PCI-X and I/O controller hubs via Intel® Hub Interfaces.

3308130's Intel® 82870P2 64-bit PCI/PCI-X Controller Hub 2 (P64H2) connects to the MCH through a point-to-point Hub Interface 2.0 connection. P64H2 devices can be attached to the MCH with each providing an I/O bandwidth greater than 1 GB/s.

Through the Intel® 82801CA I/O Controller Hub 3-S (ICH3-S) that connects to the MCH through a point-to-point Hub Interface 1.5 connection, 3308130 features two-channel Ultra ATA/100 bus master IDE interface and four USB ports. It also supports System Manageability Bus 2.0 (SMBus 2.0) and PCI 2.2-compliant interfaces.

This CPU card represents the perfect choice for those who want superior performance for rugged and demanding applications in industrial automation, telecommunications and data-intensive applications.

Checklist

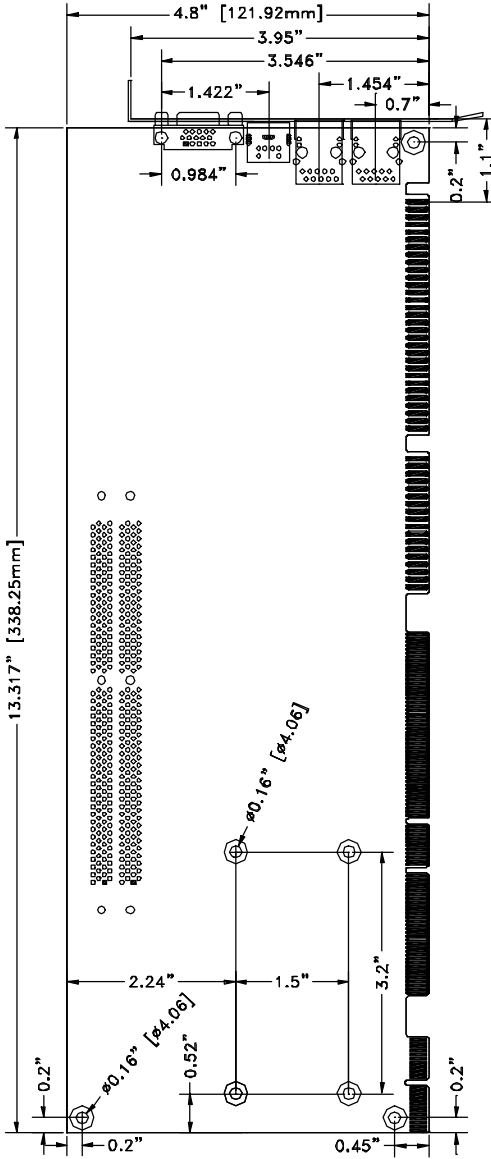
Your 3308130 package should include the items listed below.

- The 3308130 Industrial CPU Card
- This User's Manual
- 2 IDE Ribbon Cable
- 1 Floppy Ribbon Connector
- 2 Serial Port Ribbon Cable and 1 Parallel Port Attached to a Mounting Bracket
- 1 Y-Cable supporting a PS/2 Keyboard and a PS/2 Mouse
- 1 CD containing the following:
 - Chipset Drivers
 - Flash Memory Utility
- Optional USB cable with bracket

Specifications

CPU Socket	mPGA604 ZIF socket
CPU	Intel Xeon Processor, 1.8GHz~2.8GHz+ Supports Hyper-Threading technology
Chipset	Intel E7501 chipset E7501 Memory Controller Hub (MCH) 82801CA Integrated Controller Hub (ICH3-S) 82870P2 64-bit PCI/PCI-X Controller (P64H2)
Bus Frequency	System Bus: 533Mhz (E7501 chipset) Hub Link 2.0 : 1GB/s PCI-X (on board): 64-bit/133MHz PCI : 32-bit/33MHz/66MHz or 64-bit/33MHz/66MHz ISA : 16-bit/8MHz Remarks: PCI 66Mhz/64-bit requires 3.3V voltage.
L2 Cache	512K, CPU integrated
BIOS	Award BIOS, 4M FWH
System Memory	Two 184-pin DDR memory slots Up to 4GB memory capacity PC266 (E7501) support One 144-bit wide DDR memory port Supports x72 ECC registered DIMMs
VGA	ATI M6 VGA controller 8MB embedded VGA memory Supports CRT, LVDS (24-bit) interface
LAN	Intel 82546EB Dual Port Gigabit Ethernet Controller PCI-X 1.0a compliant bus supports 133 MHz
LPC I/O	Winbond 83627HF supports parallel port, COM1 (RS232), COM2 (RS232/422/485) serial ports, FDD controller, hardware monitor
IDE Interface	Chipset built-in; two enhanced IDE supports 4 IDE devices including UDMA33/66/100, PIO mode 4 and bus master
FDD Interface	Supports up to two floppy disk drives: 3.5" and/or 5.25" drives; 3 Mode support
Parallel Port	One parallel port supports SPP/EPP/ECP modes
Serial Ports	One RS-232/422/485 and one RS-232 port
Watchdog Timer	Generates system reset; 256 levels
USB	Four USB ports USB 1.1 compliant
Keyboard and Mouse	PS/2 type connectors
ISA High Drive	Winbond W83628, W83629 PCI to ISA Bridge Chip
Power Connector	ATX 12V power connector
Form Factor	Full Size CPU Card
Dimensions	338mm x 122mm (13.3" x 4.8")

Board Dimensions



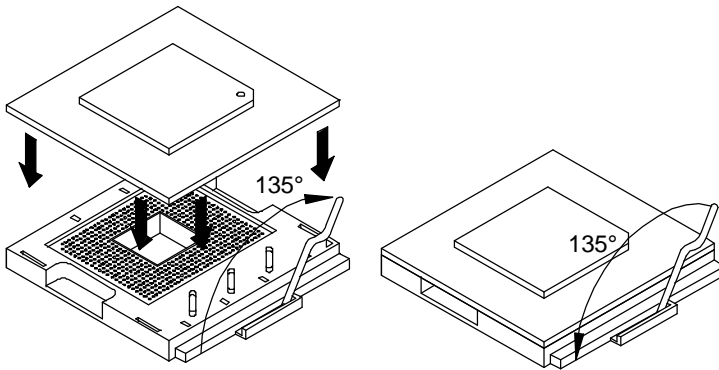
Installations

This section provides information on how to use the jumpers and connectors on the 3308130 in order to set up a workable system. The topics covered are:

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Installing the CPU

The 3308130 CPU Card supports a CPU socket for Intel Xeon processors. This socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. Refer to the figures below.



After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

NOTE: *Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

ATX Power Installation

The system power is provided to the 3308130 CPU card with the J2 and J15 ATX power connectors. Please note that the J15 external ATX power connector should be connected to the backplane for 3308130 to function. J15 is a 3-pin power connector. J2 is a 4-pin 12V power connector. J2 is to be connected to the ATX power supply.

Installing the Memory

The 3308130 CPU Card supports two DDR memory sockets for a maximum total memory of 4GB in DDR memory type.

**Note: DIMM modules must be DDR/ECC/Reg Only.
Modules “in pairs” must be the same type and size.**

The memory module capacities supported are 64MB, 128MB, 256MB, 512MB, 1GB and 2GB. The following table lists the supported SDR DIMM configurations.

Supported DDR DIMM Configurations.

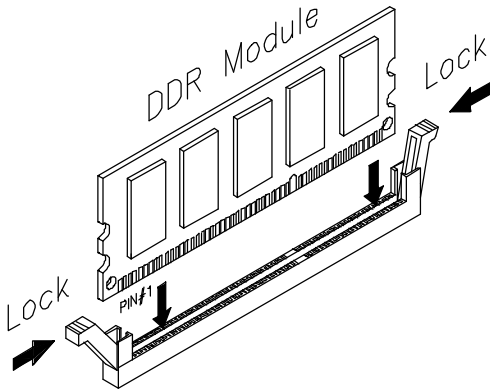
Density	64 Mbit		128Mbit		256Mbit		512Mbit	
Device Width	X4	X8	X4	X8	X4	X8	X4	X8
Single/Double	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS
184-pin DDR	128/256M B	64/128MB	256/512M B	128/256M B	512MB /1GB	256/512M B	1GB/2GB	512MB /1GB

Installing and Removing Memory Modules

To install the DDR modules, locate the memory slot on the CPU card and perform the following steps:

1. Hold the DDR module so that the key of the DDR module align with those on the memory slot.
2. Gently push the DDR module in an upright position until the clips of the slot close to hold the DDR module in place when the DDR module touches the bottom of the slot.

3. To remove the DDR module, press the clips with both hands.

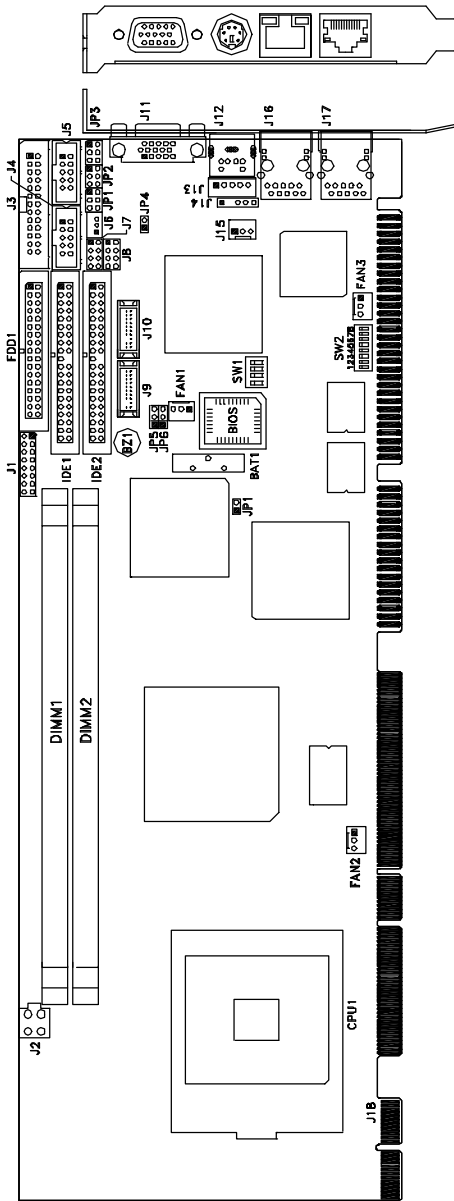


Setting the Jumpers

Jumpers are used on 3308130 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on 3308130 and their respective functions.

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Jumper Locations on 3308130





Configuring the CPU Frequency



The 3308130 CPU card does not provide DIP switches to configure the processor speed (CPU frequency).

SW1: LVDS Resolution Select






The table below shows the switch settings for the LVDS resolution.

Resolution	SW1(1-4)	Resolution	SW1(1-4)
800x600x18bit		1024x768x18bit	

SW2 (1-4): PCI (PICMG) Bus Setting

PCI Setting	SW2(1-4)
PCI-33 (default)	
PCI-66	

SW2 (5-8): For 82546EB Gigabit LAN (J15/J17)

PCI-33	
PCI-66	
PCI-X-66	
PCI-X-100	
PCI-X-133 (default)	

JP1, JP2, JP3: RS232/422/485 (COM2) Selection

COM1 is fixed for RS-232 use only.

COM2 is selectable for RS232, RS-422 and RS-485.

The following table describes the jumper settings for COM2 selection.

	COM2 Function	RS-232	RS-422	RS-485
	Jumper Setting (pin closed)	JP1: 1-2	JP1: 3-4	JP1: 5-6
		JP2: 3-5 & 4-6	JP2: 1-3 & 2-4	JP2: 1-3 & 2-4
		JP3: 3-5 & 4-6	JP3: 1-3 & 2-4	JP3: 1-3 & 2-4

JP6: LVDS Panel Power Select

JP6	LVD Panel Power
	3.3V (default)
	5V

JP5: Clear CMOS Contents

Use JP5, a 3-pin header, to clear the CMOS contents. *Note that the ATX-power connector should be disconnected from the CPU card before clearing CMOS.*

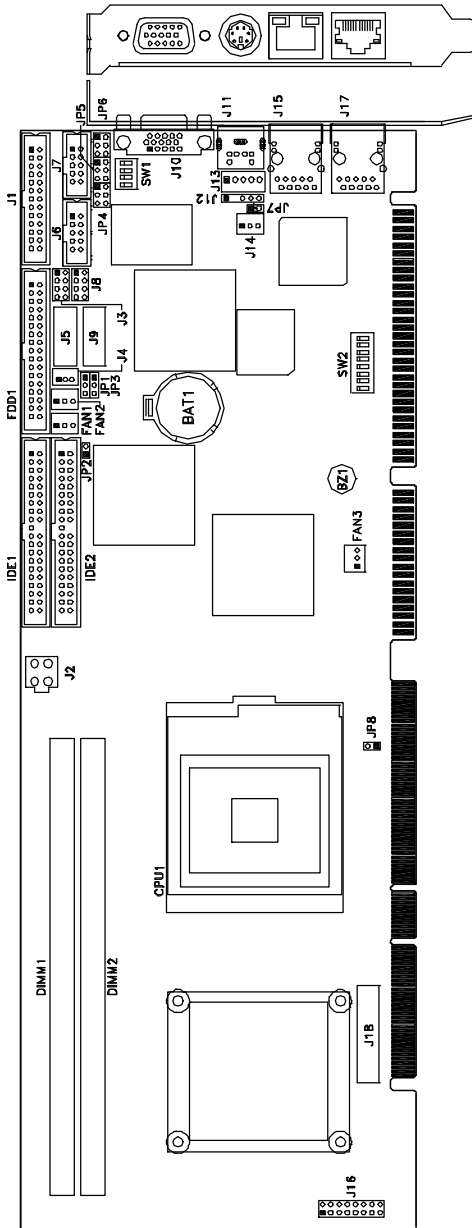
JP5	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

Connectors on 3308130

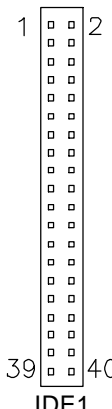
The connectors on 3308130 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on 3308130 and their respective functions.

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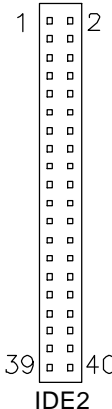
Connector Locations on 3308130



IDE1, IDE2: EIDE Connectors



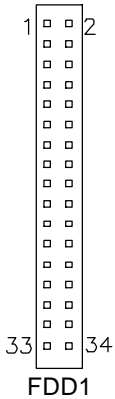
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ1	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
IRQ15	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

FDD1: Floppy Drive Connector

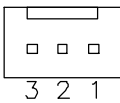
FDD1 is a 34-pin header and will support up to 2.88MB floppy drives.



Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

FAN2 CPU Fan Power Connector

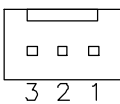
FAN2 is a 3-pin header for the CPU fan. The fan must be a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN3: System Fan Power Connector

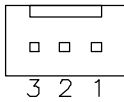
FAN3 is a 3-pin header for the system fan. The fan must be a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN1: Auxiliary Fan Power Connector

FAN1 is a 3-pin header for a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

J1: System Function Connector

J1 provides connectors for system indicators that provide light indication of the computer activities and switches to change the computer status. J1 is a 16-pin header that provides interfaces for the following functions.

Speaker: Pins 1-4 (Speaker out, NC, GND, 5V)

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.

Power LED: Pins 9-11 (Power LED, NC, GND)

The power LED indicates the status of the main power switch.

ATX Power On Switch: Pins 5, 13 (PS_ON, GND)

This 2-pin connector is an “ATX Power Supply On/Off Switch” on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

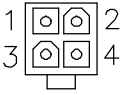
Reset Switch: Pins 7, 15 (Reset #, GND)

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.

HDD LED: Pins 8, 16 (HDD Active, 5V)

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

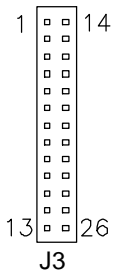
J2: ATX 12V/+12V Power Connector



Pin #	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

J3: Parallel Port Connector

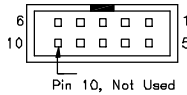
The following table describes the pin out assignments of this connector.



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

J4, J5: COM1 and COM2 Serial Ports Connector

J4 and J5 both 10-pin headers, are the onboard serial port connectors.

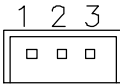


J4
Fixed as
RS-232

J5
Configurable
as RS-232/
RS-422/485
with jumper
JP1, JP2, JP3

Pin #	Signal Name		
	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

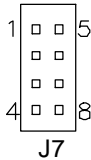
J6: Wake On LAN Connector



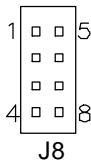
Pin #	Signal Name
1	+5VSB
2	Ground
3	Wake On LAN

J7, J8: USB Connectors

The following table shows the pin outs of the USB pin headers connectors. Overall, the two pin headers support four USB ports.



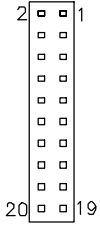
Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
USB0-	2	6	USB1+
USB0+	3	7	USB1-
Ground	4	8	Vcc



Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
USB2-	2	6	USB3+
USB2+	3	7	USB3-
Ground	4	8	Vcc

J10, J9: LVDS Connectors (1st channel, 2nd channel)

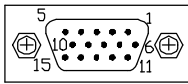
The LVDS connectors are composed of the first channel (J10) and second channel (J9) to support 24-bit or 48-bit.



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

J11: VGA CRT Connector

The pin assignments of the J11 VGA CRT connector are as follows:

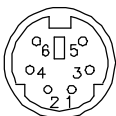


J11

Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

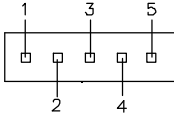
J12: PS/2 Keyboard and Mouse Connector

J12 uses a Y-cable with for a PS/2 keyboard and a PS/2 mouse.



J12

Pin #	Signal Name
1	Mouse data
2	Keyboard data
3	Ground
4	Vcc
5	Mouse Clock
6	Keyboard Clock

J13, J14: External PS/2 Keyboard and Mouse Connector

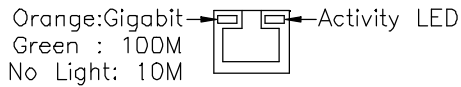
Pin #	J14	J13
1	Mouse data	KB clock
2	N.C.	KB data
3	Ground	N.C.
4	Vcc	Ground
5	Mouse clock	Vcc

J15: External ATX Power Connector

Pin #	Signal Name
1	Ground
2	PS-ON (soft on/off)
3	5VSB (Standby +5V)

J16, J17: Gigabit LAN RJ45 Connectors

J16 and J17 are the Gigabit LAN RJ45 connectors.



Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact us. We will do our best to support your products, projects and business.



Address: Global American, Inc.
17 Hampshire Drive
Hudson, NH 03051

Telephone: Toll Free (U.S. Only) 800-833-8999
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FAX: (603)886-4545

Website: <http://www.globalamericaninc.com>

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