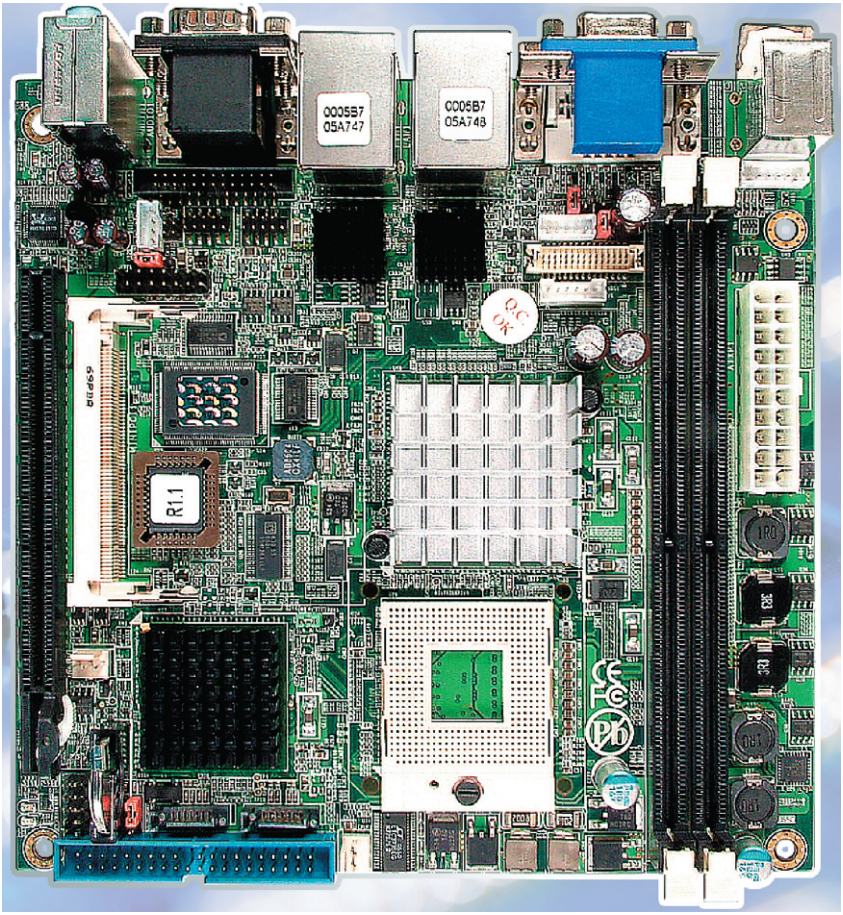
User's Manual

Mini ITX Industrial Motherboard V1.0

2807620



2007.05

Table of Contents

Chapter 1

Introduction

1.1 Copyright Notice

Please see page 2

1.2 About this User's Manual

This User's Manual is intended for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this User's Manual, please consult your vendor before further handling.

1.3 Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system

1.4 Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion. The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.
Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local requlations concerning special waste.

1.5 Technical Support

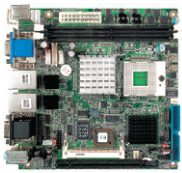
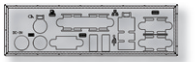
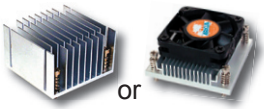
If you have any technical difficulites, please consult the user's manual first.

Please do not hesitate to call or e-mail our support service when you still can not find out the answer.

E-mail: support@globalamericaninc.com
www.globalamericaninc.com

This page left blank intentionally.

1.7 Packing List

	One 2807620 Mini ITX Industrial MB
	1x I/O Bracket
 or	1x CPU Heat Sink or Cooler
	1x CD-ROM (For Driver used)

If any of the above items is damaged or missing, contact Global American, Inc. immediately.

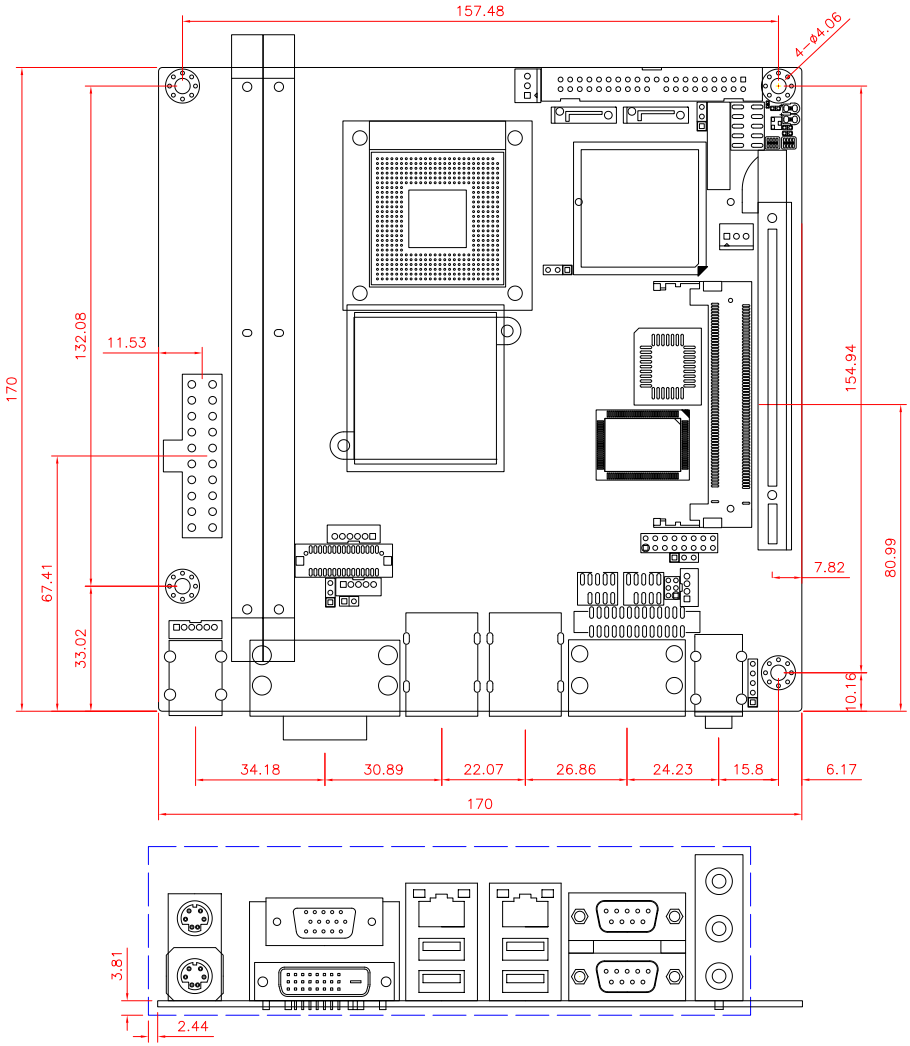
1.8 Ordering Information

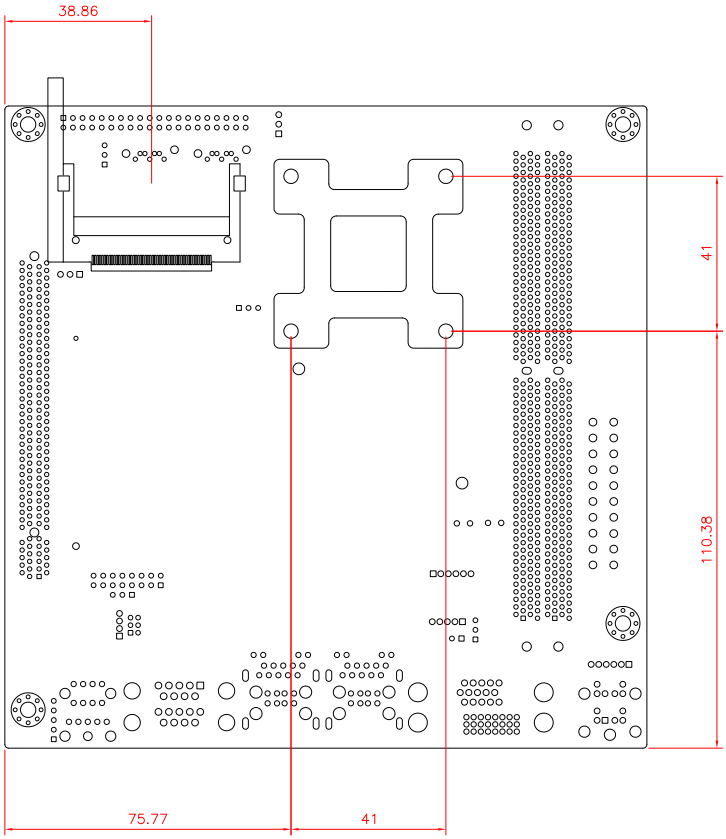
2807620	Pentium M Socket 478 Mini-ITX M/B with CRT/ LCD/ Audio/ SATA/ CF/ Dual PCIe Gb LAN and PCI ExpressX16 slot
Cable Kit	For 2807620

1.9 Specification

Form Factor	Mini ITX Industrial MB
Processor	µFC-PGA478 pin Pentium-M Up to 2.0GHz (FSB533MHz)
Chipset	Intel 915GM/GME + Intel ICH6M (82801FBM)
System Memory	2 x 240-pin DIMM Socket Up to 2GB DDRII SDRAM
VGA/ LCD Controller	Intel® Graphics Media Accelerator (GMA) 900 graphics core w/ DVI, LVDS and CRT (Dual independent display)
Ethernet	Dual Realtek RTL8111B Gigabit Ethernet
I/O Chips	WINBOND W83627HG
BIOS	Phoenix-Award BIOS
Audio	ALC655 AC'97 Codec, MIC-in/Line-in/Line-out
Serial ATA	2 x Serial ATA with 150MB/s
IDE Interface	1 x Ultra DMA 100, support 2 IDE drives
Flash Disk	1 x Type II CompactFlash (Share IDE resource)
Serial Port	2 x COM port (COM 1: RS-232, COM2: RS-232/422/485)
Parallel Port	SPP/EPP/ECP mode
KBMS	Standard PS/2 KBMS
Universal Serial Bus	8 x USB 2.0 (4 ports by pin header.)
DIO	8 bit programmable Digital I/O
LCD	18/36 bit LVDS
Expansion Interface	1 x PCI Express x16 and 1 x MiniPCI
Hardware Monitor Chip	Integrated in W83627HG
RTC	Real Time Clock
Power Input Connector	ATX Power Connector
Operation Temp.	0ºC - 60ºC
Watchdog Timer	255-level Reset
Dimension (L x W)	170 x 170 mm (6.7" x 6.7")

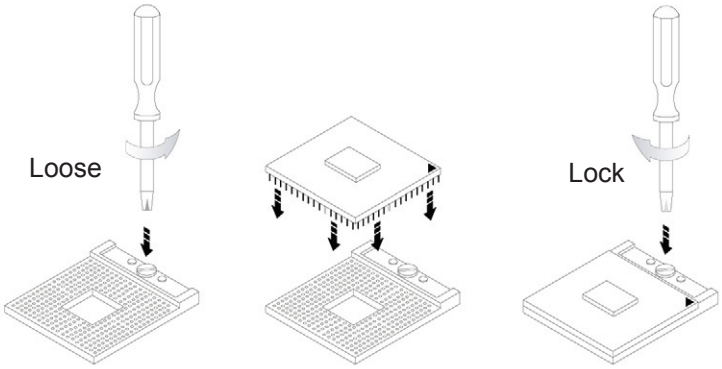
1.10 Board Dimensions




38.86
41
110.38
75.77
41

1.11 Installing the CPU

The processor socket comes with a screw to secure the CPU. As showing in the picture as below, loose the screw first before inserting the CPU.
Place the CPU into the socket by making sure the notch on the corner of the CPU corresponding with the notch on the inside of the socket. Once the CPU has slide into the socket, lock the screw.

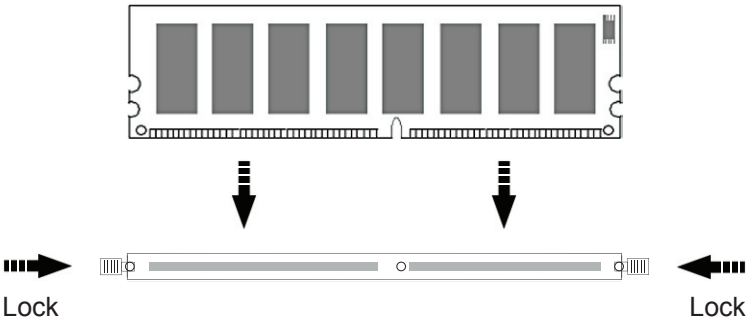


Make sure that heat sink of the CPU top surface is in complete contact to avoid the CPU overheating problem.
If not, it would cause your system or CPU to be hanged, unstable, damaged.

1.12 Installing the Memory

To install the Memory module, locate the Memory DIMM slot on the board and perform as below:

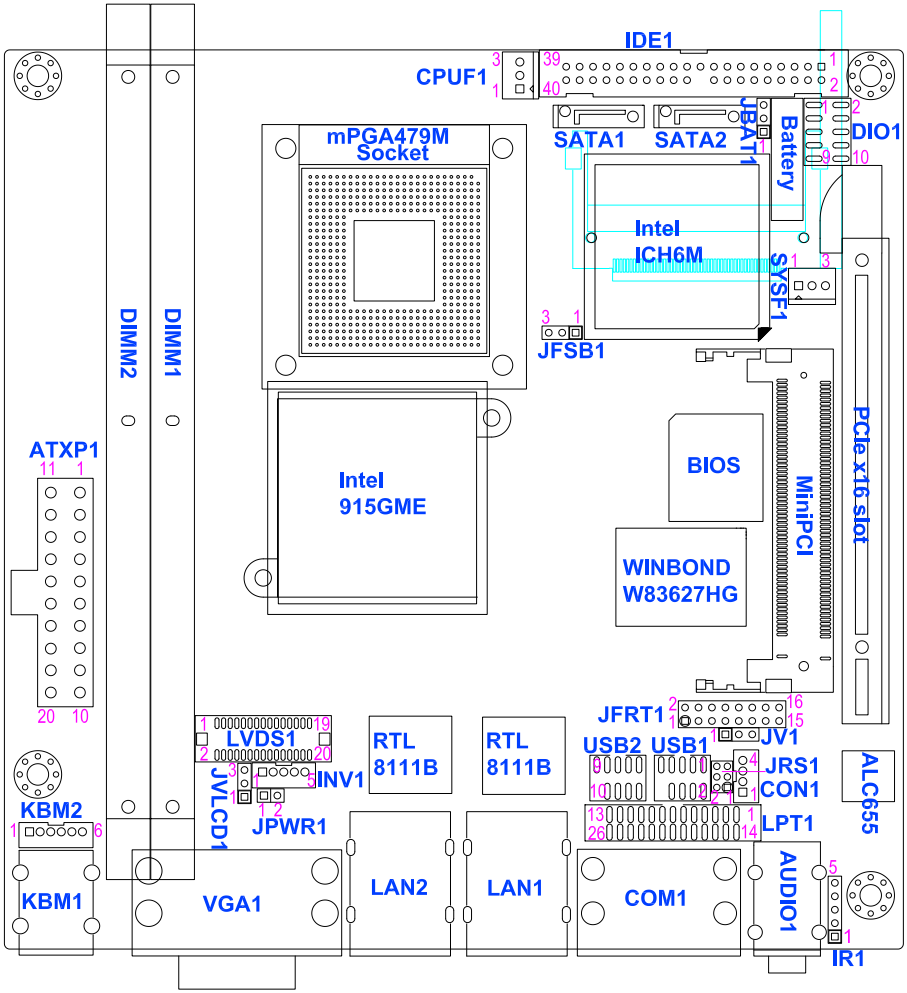
1. Hold the Memory module so that the key of the Memory module align with those on the Memory DIMM slot.
2. Gently push the Memory module in an upright position and a right way until the clips of the DIMM slot close to lock the Memory module in place, when the Memory module touches the bottom of the DIMM slot.
3. To remove the Memory module, just pressing the clips of DIMM slot with both hands.



Chapter 2

Installation

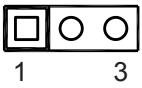
2.1 Jumpers and Connectors



Jumpers

2.2 JBAT1: CMOS Setup

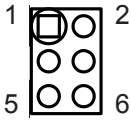
Pin	Mode
1-2	Keep CMOS (Default)
2-3	Clear CMOS



2.3 JRS1: COM 2 RS-232/422/485 Select

It can be configured COM 2 to operate in RS-232, RS-422 or RS-485 mode

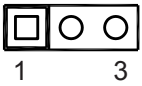
Pin	Mode
1-2 (Short)	RS-232 (Default)
3-4 (Short)	RS-422
5-6 (Short)	RS-485



2.4 JVLCD1: LCD Panel Voltage Select

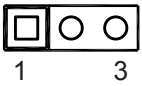
The voltage of LCD panel could be selected by JVLCD1 in 5V or 3.3V.

Pin	Voltage
1-2	5V
2-3	3.3V (Default)



2.5 JFSB1: Front Side Bus Clock Select

Pin	FSB
1-2	400MHz (Default)
2-3	533MHz

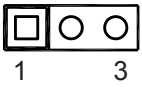


2.6 JPWR1: AT/ATX Power Mode Select

Pin	AT mode	ATX mode
1-2	Short	Open (Default)

2.7 JV1: COM1 Power Source Special Support

Pin	Mode
1-2	POS: 5V on Pin1
2-3	Standard (Default)

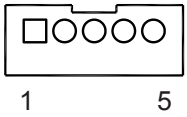


Connectors

2.8 INV1: LCD Inverter Connector

Onboard 5-pin mini boxheader

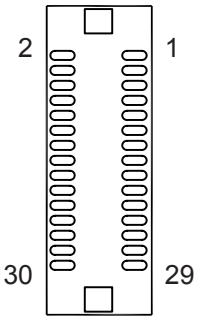
Pin	Description
1	+12V
2	GND
3	Backlight on/off
4	Brightness control
5	GND



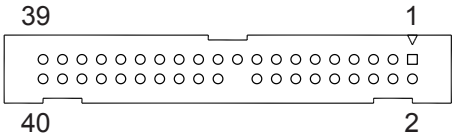
2.9 LVDS1: LVDS LCD Connector

The LVDS connector on board DF-13 30-pin header and supports 18-bit or 36-bit.

Pin	Description	Pin	Description
2	VDD	1	VDD
4	TX2CLK+	3	TX1CLK+
6	TX2CLK-	5	TX1CLK-
8	GND	7	GND
10	TX2D0+	9	TX1D0+
12	TX2D0-	11	TX1D0-
14	GND	13	GND
16	TX2D1+	15	TX1D1+
18	TX2D1-	17	TX1D1-
20	GND	19	GND
22	TX2D2+	21	TX1D2+
24	TX2D2-	23	TX1D2-
26	GND	25	GND
28	TX2D3+	27	TX1D3+
30	TX2D3-	29	TX1D3-

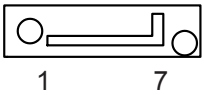


2.10 IDE1: Primary 40-pin IDE Connector



2.11 SATA 1/ SATA 2: Serial ATA 1, 2 Connector

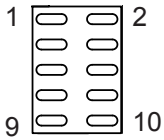
High speed transfer rates (150MB/sec)



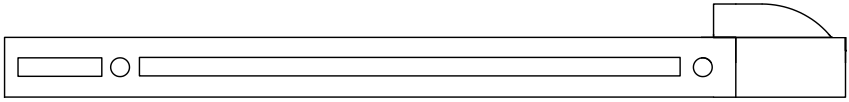
2.12 DIO1: Digital I/O Connector

DIO1 is a 8 bit GPIO connector w/ Onboard10-pin 2.0mm BOX header connector, supports 4 bit In/ 4 bit Out

Pin	Description	Pin	Description
1	DIO0	2	DIO1
3	DIO2	4	DIO3
5	DIO4	6	DIO5
7	DIO6	8	DIO7
9	+5V	10	GND



2.13 PCIE1: PCI Express x16 Interface Slot

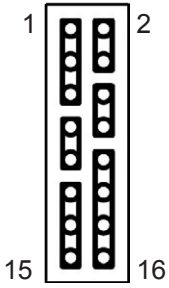


2.14 MPCI1: MiniPCI slot

2.15 JFRT1: Switches and Indicators

It provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status.

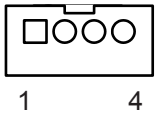
Pin	Description	Pin	Description
1	Power LED+	2	PWRBTN+
3	GND	4	PWRBTN-
5	GND	6	RESET+
7	HDD LED+	8	RESET-
9	HDD LED-	10	SPEAKER+
11	SMBCLK	12	SPEAKER+
13	SMBDATA	14	SPEAKER-
15	GND	16	SPEAKER-



2.16 CON1: RS-422/ 485 Connector

2.0 mm 4-pin wafer connector

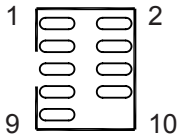
Pin	RS-422	RS-485
1	TX+	Data+
2	TX-	Data-
3	RX+	N/C
4	RX-	N/C



2.17 USB1/ USB2: USB Connector

USB1/ USB2 supports two USB 2.0 w/ 480MB/s by pin header

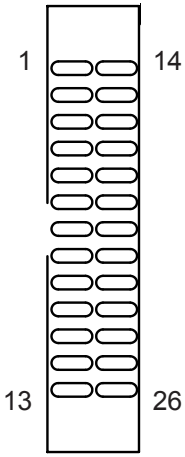
Pin	Description	Pin	Description
1	+5V	2	+5V
3	USBD-	4	USBD-
5	USBD+	6	USBD+
7	GND	8	GND
9	GND	10	N/C



2.18 LPT1: Parallel Port or FDD Connector

It can be selected by LPT or FDD mode via BIOS

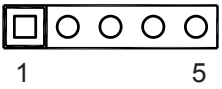
Pin	Description	Pin	Description
1	STROBE	14	AFD
2	PTD0	15	ERROR
3	PTD1	16	INIT
4	PTD2	17	SLIN
5	PTD3	18	GND
6	PTD4	19	GND
7	PTD5	20	GND
8	PTD6	21	GND
9	PTD7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT	26	N/C



2.19 IR1: Infrared Connector

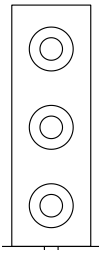
Onboard 2.54mm 5-pin header

Pin	Description
1	+5v
2	N/C
3	IRRX
4	GND
5	IRTX



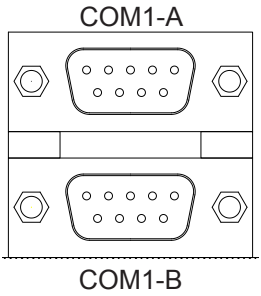
2.20 AUDIO1: Audio Interface Port

AUDIO1, ALC655 AC'97 Codec, is composed of Line in, Line out and Microphone jacks.



2.21 COM1: Two D-SUB 9 Connector

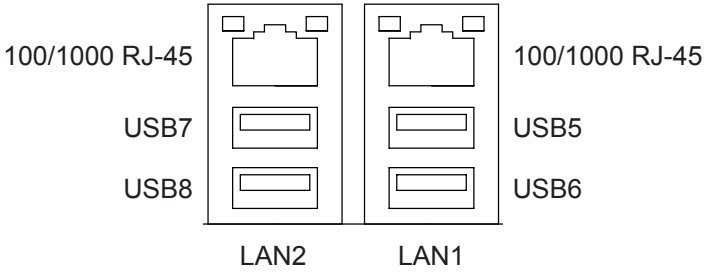
Pin	Description	Pin	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		



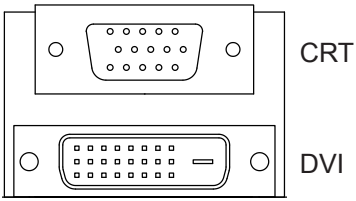
2.22 LAN1/ LAN2: 2 x 100/1000 RJ-45 + 4 x USB 2.0

LAN1/ LAN2 each one supports one 100/1000 Mbps Gigabit Fast Ethernet (Realtek RTL8111B) and two USB 2.0 connectors w/ 480MB/s.

LAN1: 1 x 100/1000 RJ-45 + 2 x USB 2.0
LAN2: 1 x 100/1000 RJ-45 + 2 x USB 2.0

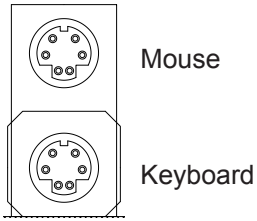


2.23 VGA1: CRT/DVI Connector



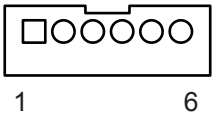
2.24 KBM1: PS/2 Keyboard & Mouse

Standard Mini-Din PS/2 Keyboard & Mouse connector

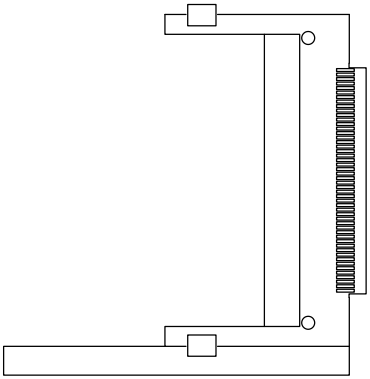


2.25 KBM2: Keyboard & Mouse (Optional)

6-pin Keyboard & Mouse wafer connector

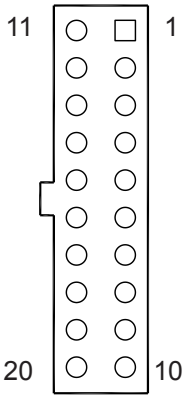


2.26 CFD1: CompactFlash II Socket



2.27 ATXP1: ATX Power Supply Connector

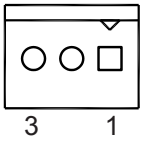
Pin	Description	Pin	Description
11	3.3V	1	3.3V
12	-12V	2	3.3V
13	GND	3	GND
14	PS-ON	4	5V
15	GND	5	GND
16	GND	6	5V
17	GND	7	GND
18	-5V	8	PW-OK
19	5V	9	5VSB
20	5V	10	+12V



2.28 CPUF1: CPU Fan Power Connector

CPUF1 is a 3-pin header for the CPU fan. The fan must be a 12V fan.

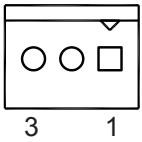
Pin	Description
1	GND
2	+12V
3	FAN_CTL



2.29 SYSF1: System Fan Power Connector

SYSF1 is a 3-pin header for the system fan. The fan must be a 12V fan.

Pin	Description
1	GND
2	+12V
3	FAN_CTL



Chapter 3

Appendix

3.1 I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device.
The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278h - 27Fh	Parallel Port #2 (LPT2)
2F8h - 2FFh	Serial Port #2 (COM2)
2B0h - 2DFh	Graphics adapter Controller
378h - 3FFh	Parallel Port #1 (LPT1)
360h - 36Fh	Network Ports
3B0h - 3BFh	Monochrome & Printer adapter
3C0h - 3CFh	EGA adapter
3D0h - 3DFh	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1 (COM1)

3.2 Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ 0	System Timer
IRQ 1	Keyboard
IRQ 2	Cascaded with IRQ 9
IRQ 3	COM2
IRQ 4	COM1
IRQ 5	AC'97
IRQ 6	Floppy Drive Controller
IRQ 7	LPT1
IRQ 8	Real Time Clock
IRQ 9	USB, ACPI
IRQ 10	USB, VGA
IRQ 11	USB, LAN
IRQ 12	PS/2 mouse or Open
IRQ 13	Math Coprocessor
IRQ 14	Primary Hard Drive controller
IRQ 15	Secondary Hard Drive controller

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

Global American Inc.

Address:	17 Hampshire Drive Hudson, NH 03051
TEL:	Toll Free (U.S. Only) 800-833-8999 (603)886-3900
FAX:	(603)886-4545
Website:	http://www.globalamericaninc.com
E-Mail:	salesinfo@globalamericaninc.com