User's Manual

3301613

Table of Content

Chapter 1.   Introduction

1.1   Product Overview

Global Americans 3301613 SBC (Single Board Computer) is an all-in-one industrial full-size PICMG (PCI/ISA) bus CPU card based on Intel mPGA478 Pentium 4 architecture. With Intel Brookdale-E chipset, 3301613 offers the advanced computing capacity with 533/400 MHz of FSB and 2 GB PC1600/2100 DDR SDRAM for the high-end industrial computing platform.

The onboard 4xAGP VGA controller with 256-bit 3D engine and 64 MB DDR SGRAM independent frame buffer makes 3301613 be the most advanced solution for digital video processing. The PC/104-plus interface offers the flexible expansive solution with add-in SCSI, multiple LAN, Gigabit LAN, RAID, IDE adapter and other PCI-based embedded peripheral modules.

With advanced Intel 845E Pentium 4 chipset, the 3301613 the features advantages of high computing capacity, advanced VGA performance and integrated interfaces to be the ideal computing solution as below.

Advanced 533 MHz FSB and DDR Memory Capacity: Intel 845E MCH with 533 MHz FSB and PC2100 DDR (DDR266) SDRAM interfaces, offers the advanced computing capacity for the high-end industrial applications such as CT server, VoIP server and high-end industrial DA&C server and workstation.

Onboard 64 MB DDR SGRAM and 256-bit 3D Engine: integrated powerful 4xAGP VGA controller with 256-bit 3D engine, provides the advanced video and image processing performance. The onboard 64 MB DDR SGRAM offers the outstanding frame buffer capacity for the high VGA loading application such as VoD (video on demand), DVR (Digital Video Recorder), DVB (Digital Video Broadcasting, streaming, surveillance, compression (MPEG), interaction server and workstation.

Dual Intel PRO/100+ Networking Solution: dual Intel PRO/100+ 10/100 Mbps Fast Ethernet interfaces for redundant LAN (high reliability), or dual direction external / internal networking applications.

PC/104-plus Expansive Interface: flexible expansibility with PC/104-plus interface, supports 32-bit PCI-based embedded peripheral modules including Ultra160 SCSI, UltraATA100/133 IDE RAID, UltraATA100/133 IDE adapter, Multiple 1000/100/10 LAN, IEEE 1394 and other PCI-based peripheral.

1.2 Specification

General Specification

Form Factor	Full-size PICMG-bus CPU Card / Slot PC PICMG version 1.0 (Rev. 2.0), PCI version 2.0 compliant
CPU	Intel mPGA478 Pentium 4, Celeron @ 533/400 MHz FSB Support Northwood / Willamette Pentium 4 / Celeron
Memory	2 GB PC1600/2100 DDR (DDR200/266) SDRAM on 2 x 184-pin DIMM sockets, ECC, unbuffer SDRAM supported. (No register DIMM support)
Chipset	Intel 82845E MCH and 82801BA ICH2
BIOS	Phoenix-Award PnP flash BIOS
Green Function	Power saving mode supported in BIOS with DOZE, STANDBY and SUSPEND modes. ACPI version 1.0 and APM version 1.2 compliant
Watchdog Timer	256-level generates NMI or system reset programmable watchdog timer
Real Time Clock	Intel ICH2 built-in RTC with lithium battery
Enhanced IDE	PCI enhanced IDE interface supports dual ports up to 4 ATAPI devices with UltraATA/100 supported
ISA High Drive	ISA 64mA high Drive capacity with TI 245 buffer on address and data bus

Multi-I/O Port

Chipset	Intel 82801BA ICH2 and Winbond W83627HF-AW LPC super-I/O controller
Serial Port	One RS-232 and one jumper selectable RS-232/422/485 serial ports. Both with 16C550 compatible UART and 16 bytes FIFO
USB Port	Dual USB 1.1 ports
Parallel Port	One bi-direction parallel port with SPP/ECP/EPP mode
FDD	One FDD port supports up to two FDD
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	PS/2 keyboard and mouse ports, AT keyboard port

Solid State Disk Interface

Flash Type	M-systems DiskOnChip 2000, DiskOnChip Millennium, IDE Pro and DiskOnModule (DOM) solid state flash disk
Package	32-pin DIP JEDEC (DiskOnChip)
	40-pin IDE port (IDE Pro, DiskOnModule)
Capacity	576 MB of DiskOnChip and 512 MB of DiskOnModule

VGA Display Interface

Chipset	4xAGP SiS 315 SVGA controller with 256-bit 3D engine
Video Memory	Onboard 64 MB DDR SGRAM for frame buffer
Display Type	CRT, LCD monitor and analog display
Connector	External DB15 female connector on bracket for CRT
	Internal 16-pin header for analog VGA display

Ethernet Interface

Chipset	Dual Intel PRO/100+ LAN interface
	Primary LAN (LAN1): Intel ICH2 and Intel 82562ET
	Optional secondary LAN (LAN2): Intel 82559ER
Type	10Base-T / 100Base-TX, auto-switching Fast Ethernet
	Full duplex, IEEE802.3U compliant
Connector	External (dual) RJ45 with LED on bracket

PC/104-plus Interface

Type	Industrial standard PC/104-plus interface with 120-pin embedded connector
Bus Interface	32-bit / 33 MHz PCI bus interface
	3 bus master PCI for multiple add-on modules
PCI Bridge	HINT PCI-to-PCI bridge for PC/104-plus expansibility

Power and Environment

Power Req.	+5V, +12V, -12V DC input from PICMG backplane Additional +12V on 4-pin connector for Pentium 4 PSU (Globals 3301613 features the additional +12V power free for the systems based on the AT/ATX power supply without the additional 4-pin +12V power line)
ATX Function	3-pin ATX interface with 5V standby and power-on
Dimension	338 (L) x 122 (H) mm, standard PICMG form factor
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within −20 ~ 85°C (-4 ~ 185°F)
EMI	CE/FCC class A certified

Ordering Code

3301613A	Full-size PICMG mPGA478 DDR Pentium 4 CPU Card with 533/400 MHz FSB, 4xAGP VGA / 64 MB DDR SGRAM, Intel PRO/100+ LAN, DiskOnChip Interfaces and ISA 64mA High Drive Capacity
3301613B	Same as 3301613VL but with Dual Intel PRO/100+ LAN and PC/104-plus Interface

Online product information detail and updates are available on
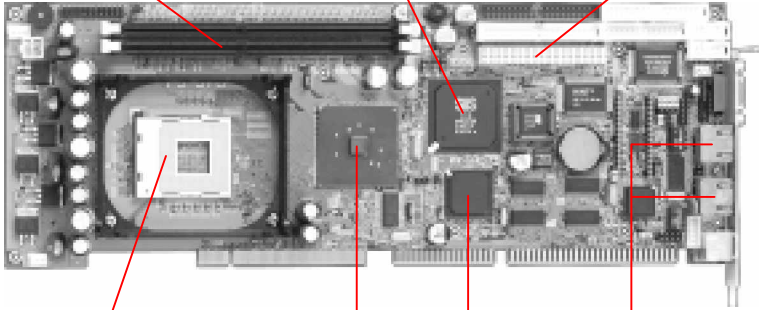http://www.globalamericaninc.com

1.3 Component Placement

System Memory
2 x 184-pin DIMM Socket
2 GB DDR200/266 SDRAM

4xAGP SiS 315 SVGA
256-bit 3D Engine
64 MB DDR SGRAM

PC/104-plus Interface
3 Expansive Bus Master
32-bit / 33 MHz PCI

mPGA478 CPU Socket
Intel Pentium 4 / Celeron
533/400 MHz FSB

Intel 845E MCH
Intel 82801BA ICH2

Dual Intel PRO/100+ LAN
Intel ICH2 + 82562ET
and Intel 82559ER

Notes (This page left blank intentionally)

Chapter 2. Hardware Setup

This chapter contains the information for installation of hardware. The install procedure includes jumper settings, CPU and memory installation, fan, I/O and panel connections.

2.1 Jumper and Connector Location
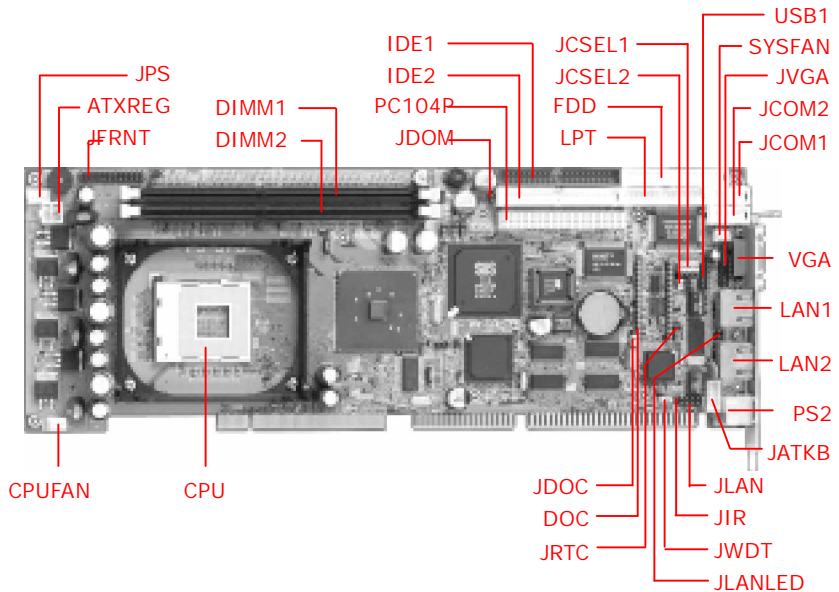

```
Color Definition of Jumper Hat
-  Red : Power or Important Setting
-  Yellow : Function Enable / Disable Setting
-  Green : CPU Speed Setting (Not Available)
```

2.1.1 Jumpers Reference

Jumper	Function	Section
JRTC	COMS Operate / Clear Setting	2.3
JWDT	Watchdog Timer NMI / Reset Setting	2.4
JDOC	DiskOnChip SSD Address Setting	2.5
JDOM	DiskOnModule SSD Power Setting	2.5
JLAN	Secondary LAN Enable/Disable Setting	2.8

2.1.2 Connectors Reference

Internal Onboard Connector

Connector	Function	Remark
CPU	MicroPGA478 478 CPU Socket	Standard
DIMM1/2	184-pin DIMM Socket	Standard
IDE1/2	40-pin Primary / Secondary IDE Port	Standard
FDD	34-pin FDD Port	Standard
LPT	26-pin Parallel Port	Standard
JCOM1	10-pin COM1 Serial Port	Standard
JCOM2	10-pin COM2 Serial Port	Standard
USB1	10-pin 1st / 2nd USB Port	Standard
JIR	5-pin SIR IrDA Port	Standard
DOC	32-pin DIP DiskOnChip Socket	Standard
JATKB	5-pin AT Keyboard Connector	Standard
ATXREG	4-pin Additional +12V Power Connector	Standard
JPS	3-pin ATX Signal Connector	Standard
JFRNT	14-pin Switch and Indicator Connector	Standard
CPUFAN	3-pin +12V CPU Fan Connector	Standard
SYSFAN	3-pin +12V System Fan Connector	Standard
JVGA	16-pin Internal VGA Port	Standard
JLANLED	4-pin LAN1 / LAN2 Status LED Connector	Standard
PC104P	120-pin PC/104-plus Connector	VL2 only

External Connector on Bracket

Connector	Function	Remark
VGA	DB15 Female VGA Connector	Standard
LAN1	RJ45 LAN1 Connector	Standard
LAN2	RJ45 LAN2 Connector	VL2 only
COM1	DB9 Male COM1 Connector	VL only
PS2	6-pin MiniDIN PS/2 Keyboard & Mouse	Standard

2.2 CPU and DRAM Setting

The board is based on Intel Socket 478 architecture with Intel Brookdale-E 845E chipset, supports Intel mPGA478 Pentium 4 / Celeron CPU at 533/400 MHz FSB.

System memory of this board supports up to 2 GB PC1600/2100 DDR (DDR200/266) SDRAM on 2 184-pin DIMM sockets for ECC / un-buffer DIMM. Please notices that Intel 845E MCH doesn't support register DIMM.
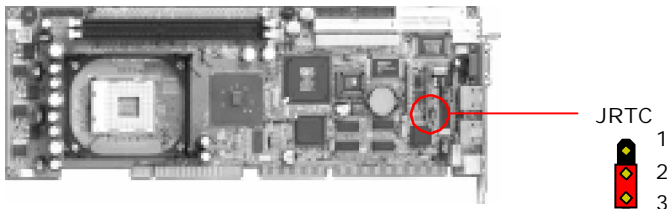
2.3 CMOS Setting

The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRTC
Type: onboard 3-pin header

JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operation

Default setting
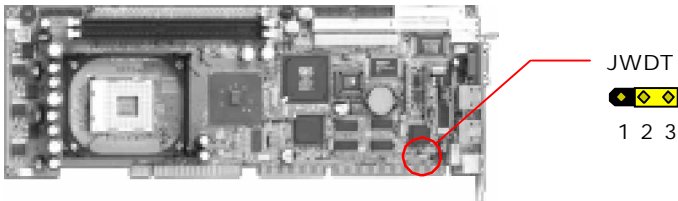
2.4 Watchdog Timer Setting

The watchdog timer makes the systems auto-reset while it stop to work for a period. The onboard watchdog timer can be setup as system reset or active NMI mode by jumper JWDT.

Jumper: JWDT
Type: onboard 3-pin header

JWDT	Watchdog Timer
1-2	Active NMI
2-3	Reset

Default setting

JWDT

1 2 3

Program Sample

Watchdog timer setup as system reset with 5 second of timeout

2E, 87	
2E, 87	
2E, 07	
2F, 08	Logical Device 8
2E, 30	Activate
2F, 01	
2E, F5	Set as Second*
2F, 00	
2E, F6	Set as 5
2F, 05	

* Minute: bit 3 = 0; Second: bit 3 = 1

2.5   Embedded Solid State Disk

The board supports both 32-pin M-systems DiskOnChip 2000 and IDE-based DiskOnChip IDE Pro and DiskOnModule (DOM) embedded flash disk. The onboard 32-pin socket, DOC, supports DiskOnChip 2000 single chip flash disk in 32-pin DIP JEDEC with jumper selectable address on jumper JDOC; onboard 40-pin IDE2 box header supports normal DOM (DiskOnModule) or M-systems DiskOnChip IDE Pro flash disk with jumper selectable +5V Vcc power for cable free applications on jumper JDOM.
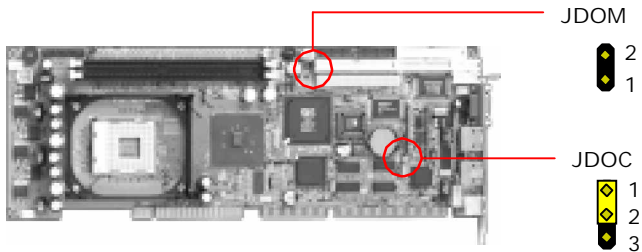
DiskOnChip 2000 Address Setting

Jumper: JDOC
Type: onboard 3-pin header

JDOC	DiskOnChip Address
1-2	D000h
2-3	D800h

Default setting

DOM or DiskOnChip 2000 IDE Pro Power Setting
Jumper: JDOM
Type: onboard 2-pin header

JDOM	+5V on Pin-20 of IDE2
OFF	Disable
ON	Enable

Default setting

2.6 Power and Fan Connector
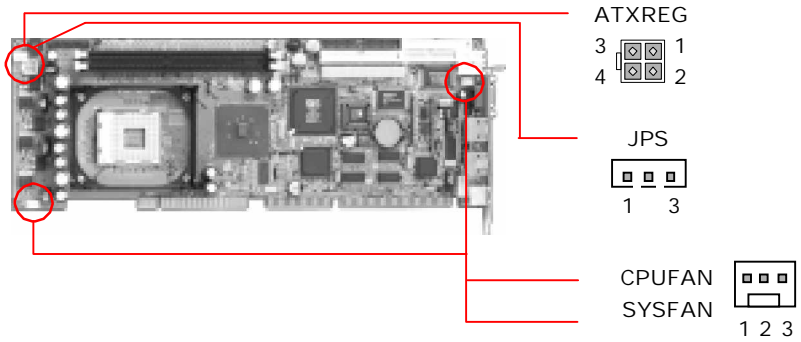
Connector: ATXREG

Type: 4-pin Standard Pentium 4 Additional +12V Power Connector

Pin	Description	Pin	Description
1	Ground	2	Ground
3	+12V	4	+12V

Connector: JPS

Type: 3-pin ATX Function Connector

Pin	Description	Pin	Description	Pin	Description
1	5V Standby	2	Ground	3	Power On

Connector: CPUFAN, SYSFAN

Type: 3-pin Fan Power Wafer Connector

Pin	Description	Pin	Description	Pin	Description
1	Ground	2	+12V	3	Fan Control

2.7 VGA Interface

The board is integrated with 4xAGP SiS315 VGA controller with 256-bit 3D engine. The video memory is onboard 64 MB DDR SGRAM for frame buffer. The CRT / analog VGA interface includes one external DB15 female connector on bracket and one internal 16-pin header on board.
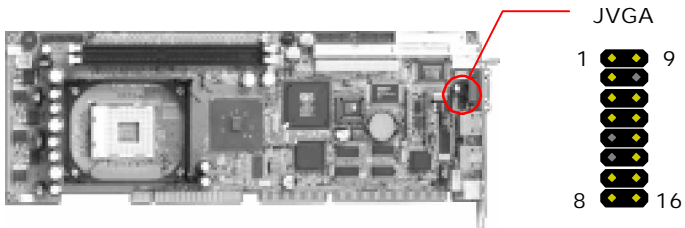
Connector: JVGA
Type: 16-pin header

Pin	Description	Pin	Description
1	Red	9	Green
2	Blue	10	N/C
3	Ground	11	Ground
4	Ground	12	Ground
5	N/C	13	Ground
6	N/C	14	Data
7	HSYNC	15	VSYNC
8	Clock	16	N/C

2.8   Ethernet Interface

The board integrated with dual Intel PRO/100+ Fast Ethernet interfaces at the type of 10Base-T/100Base-TX auto-switching Fast Ethernet with full duplex and IEEE 802.3U compliant. Both of them connect via RJ45 connectors on bracket. The LAN2 can enable or disable by jumper JLAN.

The primary LAN interface is controlled by Intel ICH2 with Intel 82562ET and setting as LAN1. It provides the same performance as Intel 82559 LAN with the same driver. The **OPTIONAL** secondary LAN interface is controlled by Intel 82559ER chipset and setting as LAN2.

Jumper: JLAN
Type: onboard 3-pin header

JLAN	LAN2 Enable / Disable Setting
1-2	Enable
2-3	Disable

Default setting

JLANLED

1 ◆◆ 2
3 ◆◆ 4

JLAN

1   3
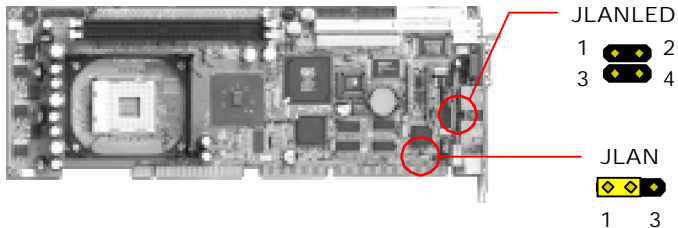
Connector: JLANLED
Type: onboard 4-pin header

Function	Signal	PIN		Signal
LAN1 LED	Vcc (+)	1	2	Active
LAN2 LED	Vcc (+)	3	4	Active

2.9   Multiple I/O Port Configuration

The board offers the jumper selectable RS-232/422/485 mode on COM2 for long distance of industrial application by full / half duplex serial signal interface. The onboard COM2 RS-422/485 mode setting is done by the jumper JCSEL1 / JCSEL2, and actives at the connector JCOM2.
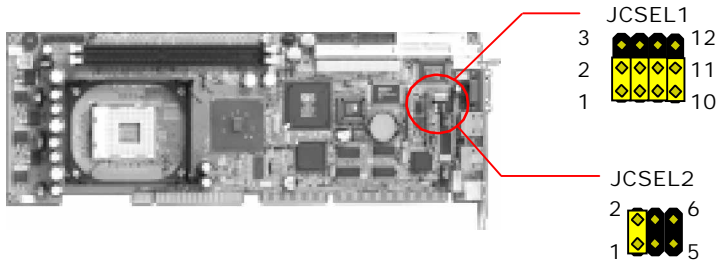
Jumper: JCSEL1, JCSEL2
Type: onboard 12-, 6-pin header

COM2 Mode	JCSEL1	JCESL2
RS-232	1-2/4-5/7-8/10-11	1-2
RS-422	2-3/5-6/8-9/11-12	5-6
RS-485	2-3/5-6/8-9/11-12	3-4

Default setting

Connector: JCOM2
Type: 10-pin box header

Pin	RS232	RS422	RS485	Pin	RS232	RS422	RS485
1	DCD	TX-	485-	2	RXD	TX+	485+
3	TXD	RX+	N/C	4	DTR	RX-	N/C
5	Ground	N/C	N/C	6	DSR	N/C	N/C
7	RTS	N/C	N/C	8	CTS	N/C	N/C
9	RI	N/C	N/C	10	N/C	N/C	N/C

2.10 PC/104-plus Interface

The onboard PC/104-plus interface offers the embedded 32-bit / 33 MHz PCI expansive bus interfaces including three bus master PCI signal.

To emhance the performance for add-on PC/104-plus PCI-based modules and keep the standard interconnection with PICMG backplane, the single board computer integrated with PCI-to-PCI bridge to do it. The PCI-to-PCI bridge is the PCI adapter for PCI bus interface expansion, rather than a GAL, offers the similar performance as the chipset built-in multiple PCI bus.
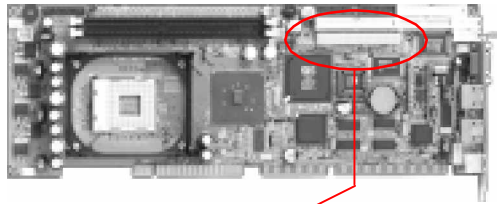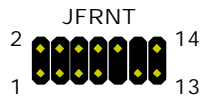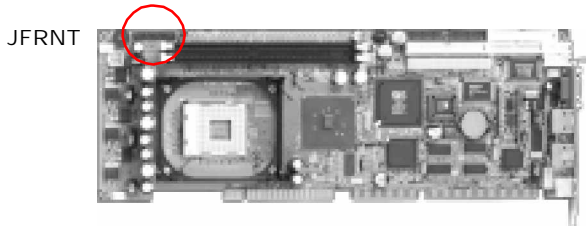

PC104P

The onboard PC/104-plus interface is an industrial standard self-stacking modules interface to allow multiple modules to be added to the system above the single board computer. For more information about PC/104-plus interface please visit the website of the PC/104 consortium at:
http://www.pc104.org/

2.11 Switch and Indicator

JFRNT

JFRNT

2 ▢▢▢▢▢▢▢ 14

1 ▢▢▢▢▢▢▢ 13

Connector: JFRNT
Type: onboard 14-pin header

Function	Signal	PIN		Signal	Function
IDE LED	Vcc (+)	1	2	(+) Vcc	Power LED
	Active	3	4	N/C	
Reset	Reset	5	6	GND	
	GND	7	8	Vcc	Speaker
	N/C	9	10	N/C	
Power Button	PWRBT	11	12	N/C	
	GND	13	14	SPKIN	

Chapter 3.   BIOS Setup

The single board computer uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting. The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press   DEL key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as Figure 3-1. You can use arrow keys to select your function, press   Enter key to accept the selection and enter the sub-menu.

Figure 3-1. CMOS Setup Utility Main Screen

Phoenix − Award BIOS CMOS Setup Utility

>Standard CMOS Features	>Frequency/Voltage Control
>Advanced BIOS Features	Load Fail-Safe Defaults
>Advanced Chipset Features	Load Optimized Defaults
>Integrated Peripherals	Set Supervisor Password
>Power Management Setup	Set User Password
>PnP / PCI Configurations	Save & Exit Setup
>PC Health Status	Exit Without Saving
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

Notes (This page left blank intentionally)

Chapter 4.   Driver Installation

The driver CD offers auto-run menu. It will detect and select the type of single board computer and helps you install the drivers automatically.

Install Board's Software

The selection helps you install the drivers of chipset. It will detect your version of OS automatically.

Install Ultra ATA IDE Driver

The selection helps you to install the driver of IDE interface.

Install VGA Driver

The selection helps you to install the driver of onboard VGA interface.

Install LAN Driver

The selection helps you to install the driver of onboard LAN interface.

Install Audio Driver

The selection helps you to install the driver of onboard audio interface.

Link to < *Website* > Homepage

The selection help you to link to the website to find the updated technical documents and download directly.

Browse this CD

The selection helps you to find the drivers in this CD directly.

Any more information detail and update please visit the website at:
http://www.globalamericaninc.com

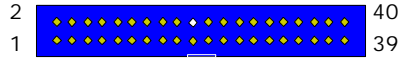## Notes (This page left blank intentionally)

Appendix. A I/O Port Pin Assignment

A.1   IDE Port

Connector: IDE1, IDE2
Type: 40-pin (2 x 20) box header

Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C (Vcc)
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	IDESEL
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	CBLID
35	A0	36	A2
37	CS0 (MASTER CS)	38	CS1 (SLAVE CS)
39	LED ACT-	40	Ground

A.2   FDD Port

Connector: FDD
Type: 34-pin (2 x 17) header
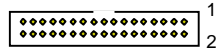
Pin	Description	Pin	Description
1	Ground	2	DRIVE DENSITY SELECT 0
3	Ground	4	DRIVE DENSITY SELECT 1
5	Ground	6	N/C
7	Ground	8	INDEX-
9	Ground	10	MOTOR ENABLE A-
11	Ground	12	DRIVER SELECT B-
13	Ground	14	DRIVER SELECT A-
15	Ground	16	MOTOR ENABLE B-
17	Ground	18	DIRECTION-
19	Ground	20	STEP-
21	Ground	22	WRITE DATA-
23	Ground	24	WRITE GATE-
25	Ground	26	TRACK 0-
27	Ground	28	WRITE PROTECT-
29	Ground	30	READ DATA-
31	Ground	32	HEAD SELECT-
33	Ground	34	DISK CHANGE-

A.3   Parallel Port

Connector: LPT
Type: 26-pin box header
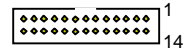
Pin	Description	Pin	Description
1	STROBE-	14	AUTO FEED-
2	D0	15	ERROR-
3	D1	16	INITIALIZE-
4	D2	17	SELECT INPUT-
5	D3	18	Ground
6	D4	19	Ground
7	D5	20	Ground
8	D6	21	Ground
9	D7	22	Ground
10	ACKNOWLEDGE-	23	Ground
11	BUSY	24	Ground
12	PAPER EMPTY	25	Ground
13	SELECT+	26	N/C

A.4   Serial Port

A.4.1   Onboard RS-232C Serial Port

Connector: JCOM1, JCOM2
Type: 10-pin header

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	Ground	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

A.4.2   On Bracket RS-232C Serial Port

Connector: COM1 (VL only)
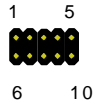Type: 9-pin D-sub male connector on bracket
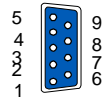
Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	Ground	6	DSR
7	RTS	8	CTS
9	RI		

A.5   USB Port

Connector: USB1

Type: 10-pin (2 x 5) header for dual USB Ports

Pin	Description	Pin	Description
1	Vcc	6	Vcc
2	Data0-	7	Data1-
3	Data0+	8	Data2+
4	Ground	9	Ground
5	Ground	10	Ground

A.6   IrDA Port

Connector: JIR

Type: 5-pin (1 x 5) header for SIR Port

Pin	Description
1	Vcc
2	N/C
3	IRRX
4	Ground
5	IRTX

A.7 VGA Port

Connector: VGA
Type: 15-pin D-sub female connector on bracket
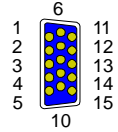
Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	VDDAT
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	Vcc	14	VSYNC
5	Ground	10	Ground	15	VDCLK

A.8 LAN Port

Connector: LAN1, LAN2
Type: RJ45 connector on bracket
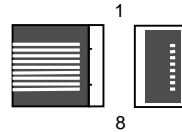
Pin	1	2	3	4	5	6	7	8
Description	TX+	TX-	RX+	N/C	N/C	RX-	N/C	N/C

A.9   AT Keyboard Port

Connector: JATKB
Type: 5-pin box header

Pin	1	2	3	4	5
Description	CLK	DATA	N/C	Ground	Vcc

A.10   PS/2 Keyboard and Mouse Port

Connector: PS2
Type: 6-pin MiniDIN connector on bracket
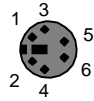
Pin	1	2	3	4	5	6
Description	KBD	MSD	Ground	N/C	KBC	MSC

Note: The PS/2 connector supports standard PS/2 keyboard directly or both PS/2 keyboard and mouse through the PS/2 Y-type cable. The cable is the standard on packing list.

Appendix B. Flash the BIOS

B.1 BIOS Auto Flash Tool

The board is based on Award BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

http://www.award.com

File name of the tool is "awdflash.exe", it's the utility that can write the data into the BIOS flash ship and update the BIOS.

B.2 Flash Method

1. Get the ".bin" file including the image of new BIOS you want to update.
2. Power on the system and flash the BIOS.
3. Re-star the system.

Any question about the BIOS re-flash please contact your distributors or visit the web-site at below:

http://www.globalamericaninc.com

Appendix C.   System Resources

C.1   I/O Port Address Map

Address Range	Device
0060-0060	i8042prt
0064-0064	i8042prt
0170-0177	atapi
01CE-01cF	VgaSave
01F0-01F7	atapi
02F8-02FE	serial
0376-0376	atapi
0378-037A	parport
03B0-03BB	VgaSave

C.2 Memory Address Map

Device	Physical Address Length
x00000000 - x0009FFFF	System board extension for ACPI BIOS
x000A0000 - x000AFFFF	SiS315
x000B0000 - x000BFFFF	SiS315
x000C0000 - x000CFFFF	SiS315
x000E0000 - x000EFFFF	System board extension for ACPI BIOS
x000F0000 - x000F3FFF	System board extension for ACPI BIOS
x000F4000 - x000F7FFF	System board extension for ACPI BIOS
x000F8000 - x000FBFFF	System board extension for ACPI BIOS
x000FC000 - x000FFFFF	System board extension for ACPI BIOS
x00100000 - x1FFEFFFF	System board extension for ACPI BIOS
x1FFF0000 - x1FFFFFFF	System board extension for ACPI BIOS
xD0000000 - xDFFFFFFF	Intel(R) 845 Chipset Processor to AGP Controller - 1A31
xD0000000 - xDFFFFFFF	SiS315
xE0000000 - xE3FFFFFF	Intel(R) 845 Chipset Processor to I/O Controller - 1A30
xE4000000 - xE403FFFF	SiS315
xE4000000 - xE40FFFFF	Intel(R) 845 Chipset Processor to AGP Controller - 1A31
xE4040000 - xE404FFFF	SiS315
xE4100000 - xE42FFFFF	PCI standard PCI-to-PCI bridge
xE4100000 - xE43FFFFF	Intel(R) 82801BA PCI Bridge - 244E
xE4200000 - xE421FFFF	Intel(R) GD82559ER PCI Adapter
xE4220000 - xE4220FFF	Intel(R) GD82559ER PCI Adapter
xE4300000 - xE4300FFF	Intel(R) PRO/100 VE Desktop Adapter
xFEC00000 - xFEC00FFF	System board extension for ACPI BIOS
xFEE00000 - xFEE00FFF	System board extension for ACPI BIOS
xFFB00000 - xFFBFFFFF	System board extension for ACPI BIOS
xFFF00000 - xFFFFFFFF	System board extension for ACPI BIOS

C.3   System IRQ and DMA Resource

C.3.1 IRQ

IRQ	Device
0	System timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable interrupt controller
3	Infrared PnP Serial Port (*PNP0510)
4	Communications Port (COM1)
5	Intel(R) 82801BA/BAM USB Universal Host Controller - 2444
5	ACPI IRQ Holder for PCI IRQ Steering
6	Standard Floppy Disk Controller
7	Printer Port (LPT1)
8	System CMOS/real time clock
9	Intel(R) 82801BA/BAM SMBus Controller - 2443
9	ACPI IRQ Holder for PCI IRQ Steering
9	SCI IRQ used by ACPI bus
10	Intel(R) PRO/100 VE Desktop Adapter
10	ACPI IRQ Holder for PCI IRQ Steering
11	Intel(R) 82801BA/BAM USB Universal Host Controller - 2442
11	Intel(R) GD82559ER PCI Adapter
11	ACPI IRQ Holder for PCI IRQ Steering
12	PS/2 Compatible Mouse Port
13	Numeric data processor
14	Primary IDE controller (dual fifo)
14	Intel(R) 82801BA Ultra ATA Storage Controller - 244B
15	Secondary IDE controller (dual fifo)
15	Intel(R) 82801BA Ultra ATA Storage Controller - 244B

C.3.2 DMA

Channel	Device
0	(free)
1	(free)
2	Standard Floppy Disk Controller
3	(free)
4	Direct Memory Access Controller
5	(free)
6	(free)
7	(free)

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