User's Manual

Version 1.0

3001120

4.5” X 3.7" (114mm X 95mm) Ultra Low Voltage Fan Less Celeron 400MHz PC104+ Board with VIA Twister-T Chipset, UMA Savage4 AGP with TTL / LVDS / TV-out SVGA, Dual LAN, Audio, Compact Flash, PC/104 and PC/104plus Interfaces

www.globalamericaninc.com

Warning

ETX Carrier Board 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 ETX Carrier Board 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 ETX Carrier Board, whenever components are separated from the system
5. The Compact Flash Card is not hot-swappable.

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 (CR2032).

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at:

www.globalamericaninc.com

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

Packing list

Before you begin installing your single board, please make sure that the following materials have been shipped:

> 1 x 3301120

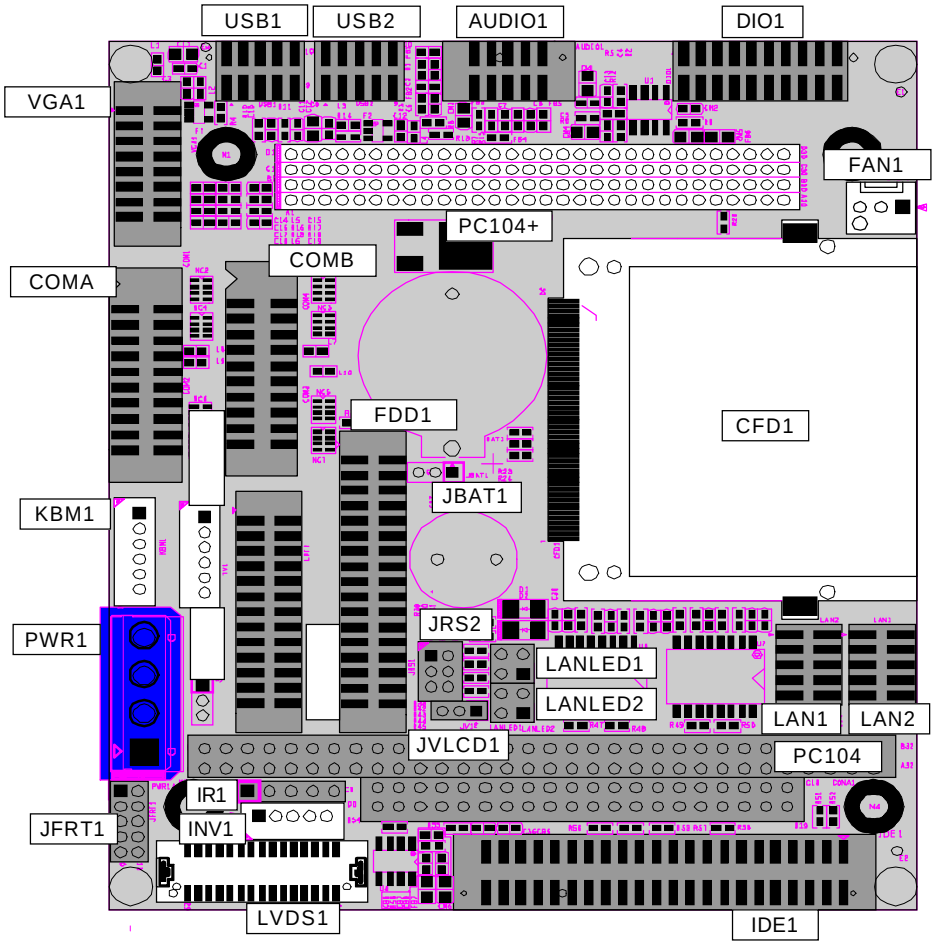
> 1 x Warranty Card

> 1 x Quick Installation Guide

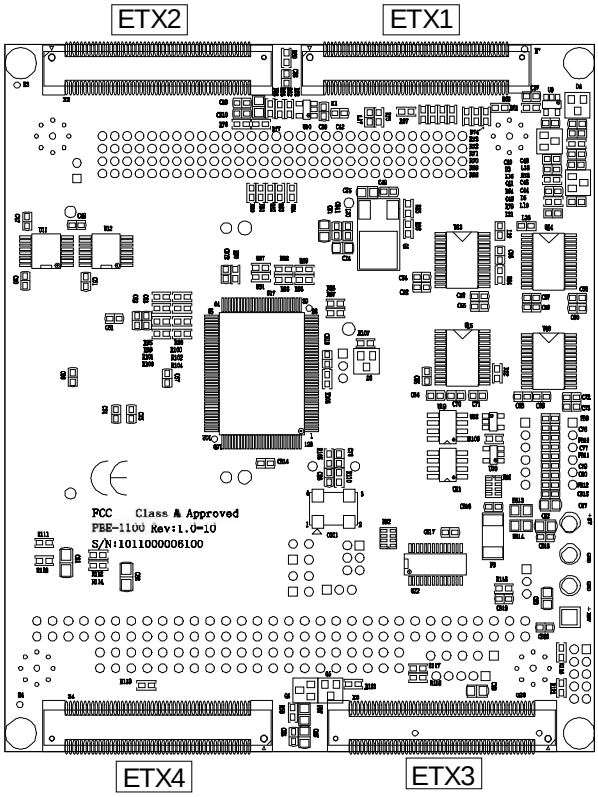
Ordering Codes

3301120	PC104&PC104 Plus, ETX Carrier Board with CRT/LCD/TV-Out, Fast Ethernet x 2, DIO (8-bit In/Out)

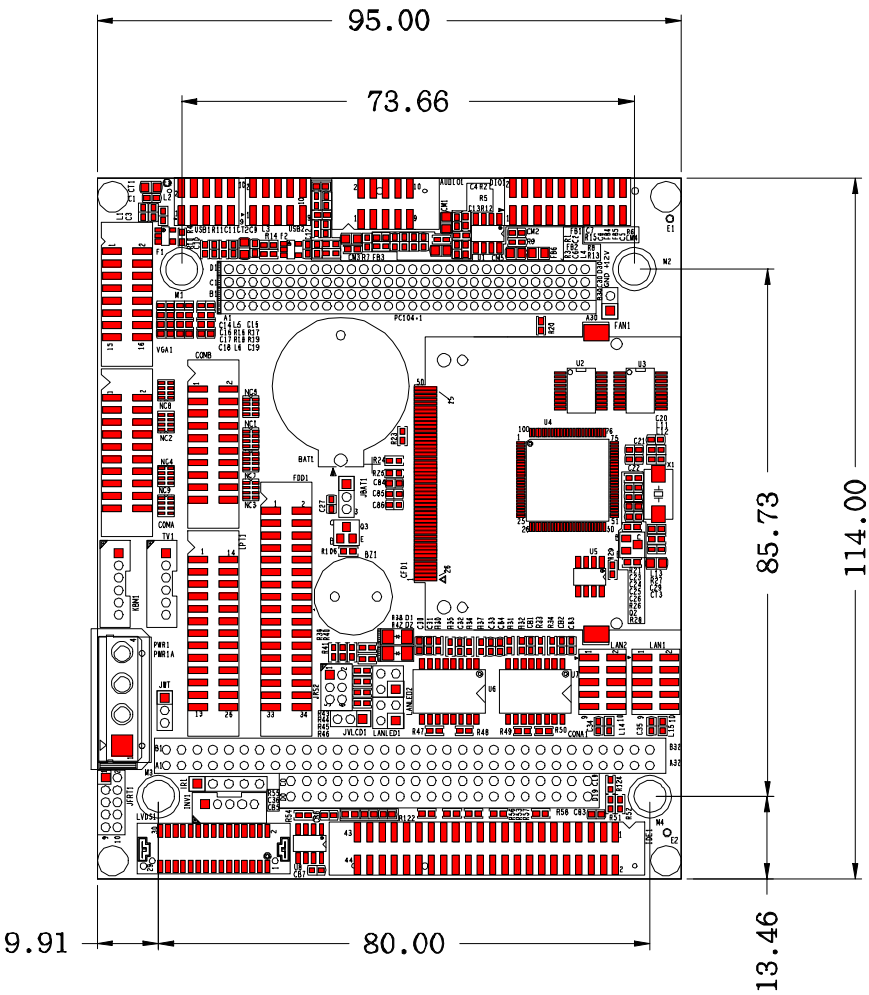
Board Layout (Front)



Board Layout (Back)



Board Dimension



Specifications

Form Factor

ETX form factor (ETX carrier board) 3.7" X 4.5"(95 mm X 114 mm)

ETX Carrier Board Specifications

IDE Interface

„ Ï IDE interface support 1 IDE port (44pins pitch 2.0mm) and up to two devices , Ultra DMA 33

Compact Flash Socket

„ Ï Compact Flash Socket support Type I/II and up to 1GB (IDE interface)

FDD Interface

„ Ï FDD interface support 1 FDD port (34pins pitch 2.0mm) and up to two devices

Serial Ports

„ Ï Three RS-232C port (COM1, 3, 4)
One RS-232C/422/485 port (COM2)

„ Ï COM A : 2x10 pin Box header , COM B : 2x10 pin Box header.

Parallel Port

„ Ï One parallel port supports SPP/EPP/ECP Mode 2x13 pin Box header

USB Port

„ Ï Two 2x5 Pin header supports up to 4 USB devices (Ver1.1 or 2.0, depends on ETX module)

Keyboard & Mouse Port

„ Ï One 1x6 pin wafer connector

LAN Port(One on the carrier board)

„ Ï Two 10/100Mbps 2x5 Pin header LAN ports

VGA Port

„ Ï One 2x8 Box header VGA port support

„ Ï One 2x15 Pin DF13 connector support LVDS (18~48bits)

„ Ï One 1x6 Pin Wafer support TV-out

AUDIO Port

„ Ï Microphone in/Line in/Speaker out/2x5-pin box header

IR

„ Ï Support SIR IrDA 1.1 compliant

„ Ï 1x5-pin header

Real Time Clock

Lithium Battery

Environment & Power consumption

„ Ï Power Requirement : +5V (depends on ETX CPU module)

„ Ï Operating Temperature : 0C~60 degree C

„ Ï Storage Temperature : -30~85 degree C

„ Ï Operating Humidity : 10%~90%

„ Ï Storage Humidity : 5%~95%(non condensing)

Mechanical

„ Ï Board Size : 95mm x 114mm

Jumper/Connector Quick Reference

Jumpers

Label	Function
JBAT1	Clear CMOS
JRS2	COM2 RS-232/422/485 Selection
JWT	Watchdog Output
JVLCD1	LVDS Voltage selection

Jumper/Connector Quick Reference

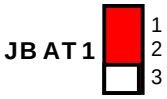
Connectors

Label	Function
INV1	LCD Inverter connector
LVDS1	LVDS Connector (30 pin)
TV1	TV-Out
PWR1	Power terminator/4P Power Connector
IDE1	Primary IDE Connector
CFD1	Compact Flash socket
VGA1	VGA Display Connector
IR1	Infrared (IR) Connector
USB1	USB 0/1 Connector
USB2	USB 2/3 Connector
COMA	COM1 / COM2 (RS422/485)
COMB	COM3 / COM4
LPT1	Parallel Port
LAN1	10/100 Base Ethernet Connector
LAN2	10/100 Base Ethernet Connector
LANLED1	LAN LINK / ACTIVE LED status
LANLED2	LAN LINK / ACTIVE LED status
AUDIO1	Audio Connector
FDD1	Floppy Disk Drive Connector
KBM1	PS/2 Keyboard & Mouse
FAN1	Fan Power Source
JFRT1	Switches & Indicators
DIO1	Digital Input/Output
PC104	PC104 ISA Connector
PC104+	PC104+ PCI Connector

CMOS Jumper Settings

CMOS Setup (JBAT1)

Type : JBAT1: onboard 3-pin header



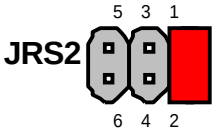
CMOS Setup (JBAT1)	JBAT1	
Keep CMOS	1-2	ON
Clear CMOS	2-3	ON

default setting : Keep CMOS

Serial Port Selection (RS232C/422/485)

RS-232C/422/485 Mode on COM2 (JRS2)

The onboard COM2 port can be configured to operate in RS-232C mode or in different RS-422/485 modes.

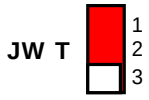


Mode Selection	1-2	3-4	5-6
RS-232C	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

Default setting RS-232

Watchdog Timer

Watchdog Output (JWT)



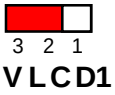
Mode Setting

Watchdog Mode	JWT
Enabled for Active NMI(I/O Channel Check)	1-2
Enabled for System Reset	2-3
Disable Watchdog Timer	None

default setting Enabled

LVDS Voltage Seletion

LVDS Operation (JVLCD1)
Type : onboard 3-pin dip switch

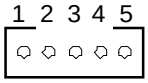


LVDS VOLTAGE SELECT	JVLCD1
5V	1-2
3.3V	2-3

default setting 3.3V

LCD Inverter Connector

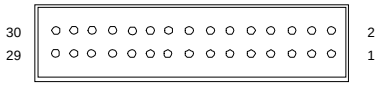
Connector : INV1



Type : Onboard 5-pin mini boxheader

Pin	Description	Pin	Description
1	+12 V	2	GND
3	ENVEE	4	VCC5
5	GND		

LVDS LCD Connector



Connector : LVDS1

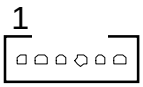
Type : onboard DF-13 30-pin header

1	LCD_VCC	16	LVDS_TXU1+
2	LCD_VCC	17	LVDS_TXL1-
3	LVDS_TXLC+	18	LVDS_TXU1-
4	LVDS_TXUC+	19	GND
5	LVDS_TXLC-	20	GND
6	LVDS_TXUC-	21	LVDS_TXL2+
7	GND	22	LVDS_TXU2+
8	GND	23	LVDS_TXL2-
9	LVDS_TXL0+	24	LVDS_TXU2-
10	LVDS_TXU0+	25	GND
11	LVDS_TXL0-	26	GND
12	LVDS_TXU0-	27	LVDS_TXL3+
13	GND	28	LVDS_TXU3+
14	GND	29	LVDS_TXL3-
15	LVDS TXL1+	30	LVDS TXU3+

TV-out Connector

Connector : TV1

Type: Onboard 6-pin mini box

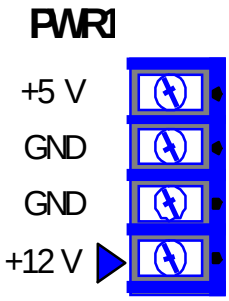


PIN	Description
1	TV_COMP
2	GND
3	TV_Y
4	GND
5	TV_C
6	GND

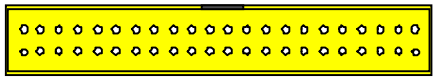
Power Connector

Connector : **PWR1**
Type : onboard 4-pin Terminator

Pin	Description
1	+12V
2	GND
3	GND
4	+5V



Enhanced IDE Connector



Connector : **IDE1**
Type : One onboard 44-pin box headers, primary IDE

Pin	Description	Pin	Description
1	#RESET	2	GND
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	GND	20	NC
21	REQ	22	GND
23	#IOW	24	GND
25	#IOR	26	GND
27	#IORDY	28	IDESEL
29	#DACK	30	GND
31	IRQ	32	NC (-IOCS16)
33	ADDR1	34	CBLID
35	ADDR0	36	ADDR2
37	#CS1	38	#CS3(#HD SELECT1)
39	#ACT	40	GND
41	Vcc	42	Vcc
43	GND	44	NC

Compact Flash Connector

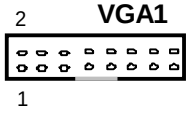
Connector : **CFD1**
Type : 50-pin compact flash type I/II (IDE Interface)

Pin	Description	Pin	Description	Pin	Description
1	GND	18	ADDR2	35	IO WRITE
2	DATA3	19	ADDR1	36	+5V
3	DATA4	20	ADDR0	37	IRQ15
4	DATA5	21	DATA0	38	+5V
5	DATA6	22	DATA1	39	CSEL
6	DATA7	23	DATA2	40	N/C
7	CS#1	24	N/C (-IOCS16)	41	IDE RESET
8	GND	25	GND	42	IO READY
9	GND	26	GND	43	N/C
10	GND	27	DATA11	44	+5V
11	GND	28	DATA12	45	DASP
12	GND	29	DATA13	46	DIAG
13	+5V	30	DATA14	47	DATA8
14	GND	31	DATA15	48	DATA9
15	GND	32	CS#3	49	DATA10
16	GND	33	GND	50	GND
17	GND	34	IO READ		

VGA Connector

Connector : VGA1

Type: Onboard 16-pin mini box

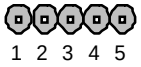


Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	VDDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	Vcc	14	VSYNC
5	GND	10	GND	15	VDCLK
16	NC				

IrDA Connector

Connector : **IR1**

Type : Onboard 5-pin header

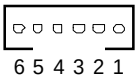


Pin	Signal	Pin	Signal
1	+5V	2	NC
3	IRRX	4	GND
5	IRTX		

Keyboard & PS/2 Mouse

Connector : **KBMS**

Type : onboard wafer 1x6-pin



Pin	Description	Pin	Description
1	KB_DATA	2	GND
3	MS_DATA	4	KB_CLK
5	+5V	6	MS_CLK

COMA & COMB Connector

Connector : **COMA RS232 Serial Port Connector (COM1,COM2)**
Type : onboard 2x10-pin box header

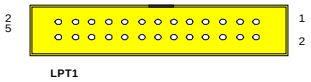
Pin	Description	Pin	Description
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI	10	N/C
11	DCD2(422TXD+/485DATA+)	12	RXD2(422TXD-/485DATA-)
13	TXD2	14	DTR2
15	GND	16	DSR2
17	RTS2	18	CTS2(422RXD+)
19	RI(422RXD-)	20	N/C

Connector : **COMB RS232 Serial Port Connector (COM3,COM4)**
Type : onboard 2x10-pin box header

Pin	Description	Pin	Description
1	DCD3	2	RXD3
3	TXD3	4	DTR3
5	GND	6	DSR3
7	RTS3	8	CTS3
9	RI	10	N/C
11	DCD4	12	RXD4
13	TXD4	14	DTR4
15	GND	16	DSR4
17	RTS4	18	CTS4
19	RI4	20	N/C

Parallel Port

Connector : **LPT1**
Type : onboard 26-pin box header



LPT1

Pin	Description	Pin	Description
1	#STROBE	14	#AUTO FEED
2	DATA0	15	#ERROR
3	DATA1	16	#INITIALIZE
4	DATA2	17	#SELECT INPUT
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	#ACKNOWLEDGE	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	SELECT	26	GND

USB Connector

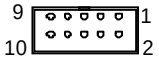
Connector: **USB1, USB2**
Type:onboard Two 10-pin headers for four USB ports

USB1

Pin	Description	Pin	Description
1	5V	2	5V
3	USBD0-	4	USBD1-
5	USBD0+	6	USBD1+
7	GND	8	GND
9	GND	10	Key

Audio Interface

Connector : **Audio1**
Type : Onboard 10-pin box header



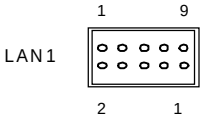
Audio1

Pin	Description	Pin	Description
1	LINE IN LEFT	2	LINE IN RIGHT
3	GND	4	GND
5	MIC	6	NC
7	GND	8	GND
9	SPEAKER LEFT	10	SPEAKER RIGHT

Fast Ethernet Connectors

LAN Port (10/100Mbps)

Connector : **LAN1 & LAN2**
Type : Two 2x5 pin header for LAN ports



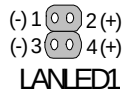
Pin	1	2	3	4	5
Desciption	TX+	TX-	RX+	NC	NC
Pin	6	7	8	9	10
Description	RX-	NC	NC	NC	Key

LAN LED Indicator

LAN LED Indicator on RJ-45 connector

Connector : LANLED1 & LANLED2

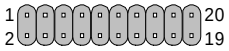
TYPE : Onborad 4-pin connector



Pin	Description
1-2	Activity (Yellow)
3-4	Link (Green)

8-bit Digital I/O

Connector : **DIO1**
Type : Onboard 20-pin header



Pin	Description	Pin	Description
1	DO0	2	DO1
3	DO2	4	DO3
5	DO4	6	DO5
7	DO6	8	DO7
9	GND	10	GND
11	DI0	12	DI1
13	DI2	14	DI3
15	DI4	16	DI5
17	DI6	18	DI7
19	+5V	20	+12V

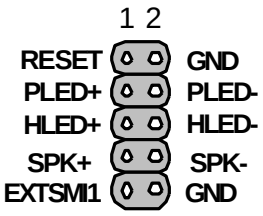
System Fan Connector

Connector : **FAN1**
Type : onboard 2-pin header

FAN1

Pin	**Description**
1	GND
2	+12V

Switches and Indicators



Connector : **JFRT1**
Type : onboard 10-pin header

Pin	Jumper	Description
1-2	RES	reset
3-4	PLED	Power LED
5-6	HDLED	HDD LED
7-8	SPK	external speaker
9-10	ESMI	external SMI

Thank you for purchasing our fine Products. Please do not hesitate a bit to contact us if we could be of any further help to you in enhancing your design.

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