

2804030

# User Manual

Version 1.0



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## **About this User Manual**

This User Manual provides general information and installation instructions about the SBC. 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.

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# 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

## 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 (BR2032).

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

## Technical Support

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

<http://www.globalamericaninc.com>

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## Warranty

This product is warranted to be in good working order for a period of two year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

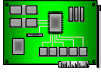
Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

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## PACKING LIST



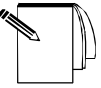
2804030 Mini ITX Embedded board



1 x CPU cooler  
1 x ATX Power Cable 300mm



1 x CD-ROM (System Driver)



2804030 User Manual  
Warranty card

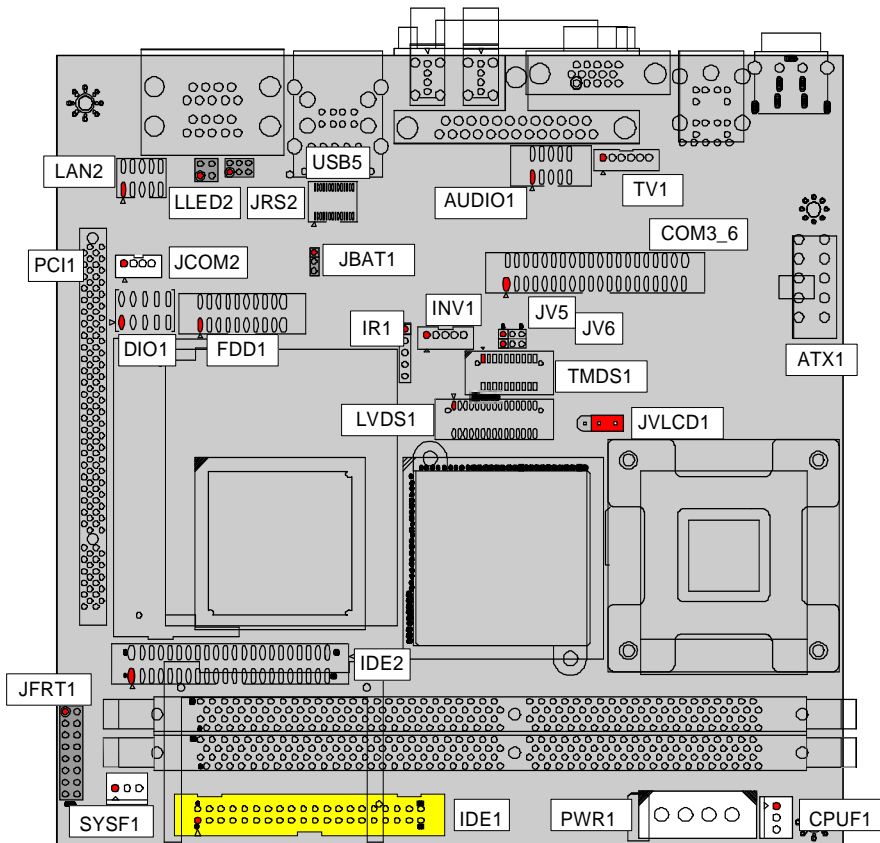
Before up and running, please make sure the package contains all of above accessories.

If any of the above items is damaged or missing, contact your vendor immediately.

## Specification

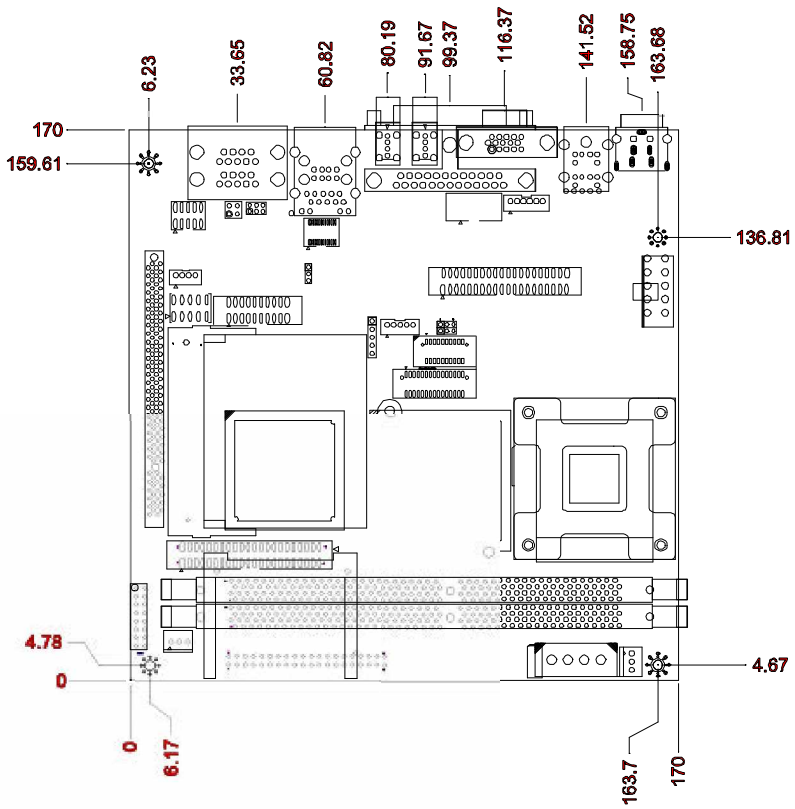
<b>Product Name</b>	<b>2804030</b>
<b>Form Factor</b>	Mini-ITX Embedded Board Size (170mm x 170mm)
<b>Processor</b>	µFC-PGA478 pin Pentium-M Dothan Up to 2.0Ghz(400Mhz FSB) Optional: µFC-BGA479 pin Celeron-M 600Mhz Zero Cache(400Mhz FSB)
<b>Chipset</b>	NB : Intel 852GM / 855GME) SB: Intel ICH4
<b>System Memory</b>	Support Two 184Pin DDR SDRAM DIMM Socket Up to 2GB
<b>VGA/LCD Controller</b>	UMA 852GM AGP Video Controller with DVI, LVDS, TV-out and CRT support (Support Dual Display, Independent display)
<b>Ethernet</b>	<b>2804030A:</b> 1 x onboard 10/100 Mbps Fast Ethernet (Intel 82562 EZ PHY) <b>2804030C:</b> 1 x onboard 10/100Mbps Fast Ethernet (Intel 82551QM) 1 x onboard Gigabit Ethernet (Intel 82541PZ)
<b>I/O Chips</b>	WINBOND W83627HF x 1 and Fintek F81216D
<b>BIOS</b>	Phoenix-Award BIOS version 6.0PG, Support 4MB Flash ROM
<b>Audio</b>	AC97 Codec Version:2.3 supports MIC-In/ Line-In/ Line-out
<b>IDE Interface</b>	ATA-100 x 1 channel and ATA-33 x 1 channel(Support 4 ATAPI devices) Compact Flash Socket x 1 (Support up to 4GB)
<b>Six Serial Port</b>	6 x COM ports COM 1,3,4, 5, 6 : RS-232 (5V,12V power pin support) COM 2: RS232/422/485 Select
<b>Parallel Port</b>	Parallel Port Supports SPP/ EPP/ ECP mode
<b>K/B and Mouse</b>	Support Standard PS/2 K/B and Mouse
<b>Universal Serial Bus</b>	6 x USB 2.0 Ports ( 2 ports Stack connectors & 4 ports pin header.)
<b>Expansion Interface</b>	Mini PCI Socket & PCI Slot
<b>Watchdog Timer Chipset</b>	1~255 Level (sec or min)
<b>Hardware Monitor Chip</b>	Integrated in W83627HF
<b>RTC</b>	Support Real Time Clock
<b>Power Input Connector</b>	10 x 2 Pin ATX Power Connector and Big 4P Power Connector DC-in 12V / 5A (AT power can be used)
<b>Operation Temp.</b>	0°C ~ 60°C
<b>Dimension (L x W)</b>	170 x 170 mm (6.7" x 6.7")

## Board Layout



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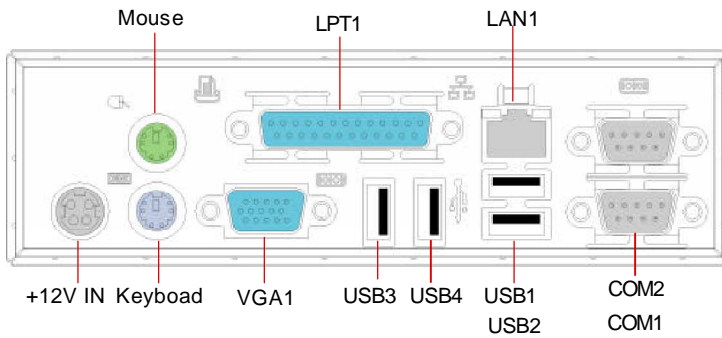
## Board Dimension



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## Jumper/Connector Quick Reference

Label	Function
VGA1	CRT SVGA Connector
DCIN1	DC +12V power input Connector
KBM1	PS/2 Keyboard and Mouse
LAN1(CN2)	10/100/1000M LAN1 Connector (82562EZ /82541PI)
LPT1	Parallel Port Connector
USB1(CN2)	USB Port 1,2
USB3	USB Port 3
USB4	USB Port 4
COM1	RS232 Serial Port: COM1
COM2	RS232 Serial Port: COM2



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## Jumper/Connector Quick Reference

Label	Function
JBAT1	Clear CMOS
JRS2	COM2 RS-232/422/485 Select
JVLCD1	LVDS1 LCD Voltage selected
JFRT1	Switchs and Indicators
JV5-6	COM3 Power Source Special Support

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## Jumper/Connector Quick Reference

Label	Function
ATX1	10Pin ATX Power Connector
PWR1	4P Power Output Connector
AUDIO1	Audio interface Port
CFD1	COMPACT FLASH DISK(Share IDE2)
COM3_6	RS232 Serial Port: COM3 ~ COM6
JCOM2	RS422/RS485 Serial Port: COM2
CPUF1	CPU FAN Connector
SYSF1	System FAN Connector
DIMM1/ 2	DDRAM DIMM (up to 2GB DDR SDRAM)
DIO1	8 bit GPIO Connector
FDD1	Floppy Disk Driver Connector (20 pin)
IDE1	Primary IDE Connector (ATA100)
IDE2	Secondary IDE Connector (ATA33)
PCI1	PCI Slot (SCDB-1290 3 Slots PCI Riser Card )
MPCI1	Mini PCI Connector
USB5	USB Port 5,6
LAN2	10/100 LAN2 Connector (82551QM)
LLED2	LAN2 LED Connector
TMDS1	DVI Connector
LVDS1	LVDS Panel Connector (DF13 30 pin)
INV1	LVDS1 LCD Inverter Connector
IR1	Infrared (IR) Connector
TV1	TV out Connector

## CMOS Jumper Settings

CMOS Setup (JBAT1)



**JBAT1**

Type : JBAT1: Onboard 3-pin header

**CMOS Setup (JBAT1)**

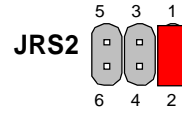
**JBAT1**

Keep CMOS	1-2	ON
Clear CMOS	2-3	ON
default setting	1-2	

## Serial Port Selection (RS232C/422/485)

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

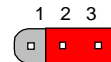
The onboard COM2 port can be configured to operate in RS-422 mode or in different RS-422/485 modes.



**JRS2**

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

## LCD Voltage Selection



**JVLCD1**

Type : JVLCD1: Onboard 3-pin header

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

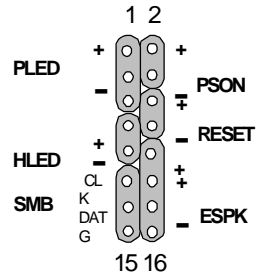
Mode	JVLCD1
3.3V	2-3
5V	1-2
default setting	3.3V

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## Switches and Indicators

Connector : **JFRT1**

Type : Onboard 16-pin header



### Power LED

Connector : **PLED**

Power LED can be indicated when the CPU card is on or off. And keyboard lock can be used to disable the keyboard function so the PC will not respond by any input.

Pin	Description
1	Power LED+
3	Power LED-
5	Power LED-

### External Speaker Connector

Connector : **ESPK1**

Pin	Description
10	+5V
12	+5v
14	Speak out
16	Speak out

---

SM Bus Connector

Connector : **SMB**

Pin	Description
11	SMBUS Clock
13	SMBUS DATA
15	GND

Hard Disk LED Connector

Connector : **HLED**

Pin	Description
7	Hard Disk LED+
9	Hard Disk LED-

Power button

Connector : **PSON**

Pin	Description
2	PSON+
4	PSON-

Reset Button

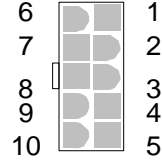
Connector : **RESET**

Pin	Description
6	RESET
8	GND

## Power Connector

ATX Power Connector:ATX1

Type : Onboard 10-pin connector

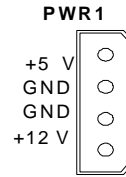


Pin	Description	Pin	Description
1	+5V	2	+5VSB
3	-12V	4	+5V
5	PS_ON	6	GND
7	GND	8	GND
9	+3.3V	10	+12V

### 4P Auxiliary Power

Connector : PWR1

Type : Onboard 4-pin Wafer connector

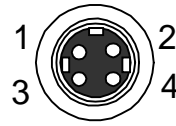


Pin	Description
1	+12V
2	GND
3	GND
4	+5V

### DC Power Input

Connector : DCIN1

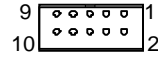
Type : Mini DIN



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

## Audio Interface Port

Connector : AUDIO1  
Type : Onboard 10-pin header

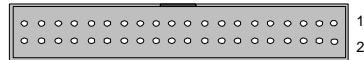


Audio

Pin	Description	Pin	Description
1	Line Left in	2	Line Right in
3	GND	4	GND
5	MIC	6	N/C
7	GND	8	GND
9	Speaker LEFT	10	Speaker Right

## RS232 Serial Port

Connector: COM3\_6  
Type: Onboard 40-pin 2.0mm box connector

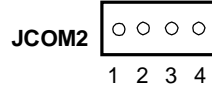


Pin	Description	Pin	Description
1	DCD3(+5V)	2	RXD3
3	TXD3	4	DTR3
5	GND	6	DSR3
7	RTS3	8	CTS3
9	RI(+12V)	10	NC
11	DCD4	12	RXD4
13	TXD4	14	DTR4
15	GND	16	DSR4
17	RTS4	18	CTS4
19	RI3	20	NC
21	DCD5	22	RXD5
23	TXD5	24	DTR5
25	GND	26	DSR5
27	RTS5	28	CTS5
29	RI5	30	NC
31	DCD6	32	RXD6
33	TXD6	34	DTR6
35	GND	36	DSR6
37	RTS6	38	CTS6
39	RI6	40	NC

## RS422/485 Connector

Connector: JCOM2

Type: Onboard 4-pin box connector



Pin Defined	Pin1	Pin2	Pin3	Pin4
*RS-232C	X	X	X	X (Default Setting)
RS-422	TX-	TX+	RX+	RX-
RS-485	RTX-	RTX+	X	X

## CPU / System Fan Connector

Connector : CPUF1 / SYSF1

Type : Onboard 3-pin wafer connector

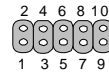


Pin	Description
1	GND
2	+12V
3	FAN_CTL

## 8 bit GPIO Connector

DIO1: 8 bit GPIO Connector (F75111R )

Type Onboard 10-pin header connector

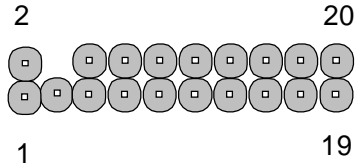


Pin	Description	Pin	Description
1	DIO0	2	DIO1
3	DIO2	4	DIO3
5	DIO4	6	DIO5
7	DIO6	8	DIO6
9	+5V	10	GND

## FDD Connector

Connector: FDD1

Type : Onboard 20-pin header

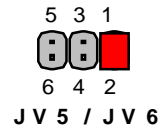


Pin	Description	Pin	Description
1	GND	2	Drive density select 0
3	GND	4	NC (Key)
5	GND	6	Drive density select 1
7	#Write data	8	#Index
9	#Write gate	10	#Motor enable A
11	#Track 0	12	#Driver select B
13	#Write protect	14	#Driver select A
15	#Read data	16	#Motor enable B
17	#Head select	18	#Direction
19	#Disk change	20	#Step

## COM3 Power Source Special Support

Jumper: JV5 & JV6

Type: Onboard 2\*3pin 2.0mm header



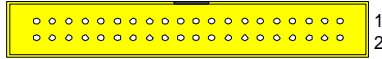
COM3 Power Source Special Support	JV5	JV6
Standard	1-2	1-2 (Default Setting)
POS:12V on pin 9	2-3	1-2
POS:5V on pin 1	1-2	2-3
POS:5V on pin 1 and 12V on pin 9	2-3	2-3

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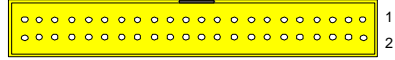
## IDE Connector

Connector : **IDE1**

Type : Onboard 40-pin box headers



Pin	Description	Pin	Description
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N/C
21	REQ	22	GND
23	IO RWITE	24	GND
25	IO READ	26	GND
27	IO READY	28	IDESEL
29	DACK	30	GND
31	IRQ14	32	N/C
33	ADDR1	34	ATA66 DETECT
35	ADDR0	36	ADDR2
37	CS#0	38	CS#1
39	IDEACTP	40	GND



Connector : **IDE2**

Type : One onboard 44-pin box headers

Pin	Description	Pin	Description
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N/C
21	REQ	22	GND
23	IO RWITE	24	GND
25	IO READ	26	GND
27	IO READY	28	IDESEL
29	DACK	30	GND
31	IRQ14	32	N/C
33	ADDR1	34	ATA66 DETECT
35	ADDR0	36	ADDR2
37	CS#2	38	CS#3
39	IDEACTP	40	GND
41	VCC(+5V)	42	VCC(+5V)
43	GND	44	NC

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## USB Ports

Connector: **USB5**

Type: Onboard Two 10-pin headers for four USB ports



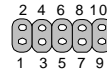
**USB5**

Pin	Description	Pin	Description
1	+5V	2	+5V
3	USBD5-	4	USBD6-
5	USBD5+	6	USBD6+
7	GND	8	GND
9	GND	10	N/C

## Fast Ethernet Connector

Connector : **LAN2**

Type : Onboard 10-pin header

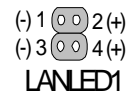


Pin	Description	Pin	Description
1	TX+	2	TX-
3	RX+	4	NC
5	NC	6	RX-
7	NC	8	NC
9	GND	10	N/C

## LAN2 LED Indicator on

Connector : LLED2

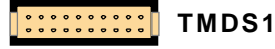
TYPE : Onboard 4-pin connector



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

## TMDS Connector

Connector : TMDS1

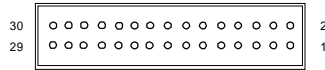


Type: Onboard DF-13 20-pin header

Pin	Description	Pin	Description
1	+5V	2	+5V
3	TX0+	4	TXC+
5	TX0-	6	TXC-
7	GND	8	GND
9	TX1+	10	DCC CLK
11	TX1-	12	DDC DATA
13	GND	14	GND
15	TX2+	16	HTPLG
17	TX2-	18	N/C
19	GND	20	N/C

## LVDS LCD Connector

Connector : LVDS1



Type : Onboard DF-13 30-pin header

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

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## LCD Inverter Connector

Connector : INV1

Type : Onboard 5-pin mini boxheader

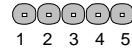


Pin	Description	Pin	Description
1	+12 V	2	GND
3	on/off	4	brightness control
5	GND		

## Infrared Connector

Connector : IR1

Type : Onboard 5-pin header (2.54mm)



Pin	Description
1	+5v
2	NC
3	IRRX
4	GND
5	IRTX

## TV-out Connector

Connector : TV1

Type: Onboard 6-pin mini boxheader



1	TV-CVBS
2	GND
3	TV_Y
4	GND
5	TV_C
6	GND