



integration with integrity

3001000 Quick Installation Guide

PC/104 Plus ETX CPU

Version 1.2

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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
5. It possibly needs BIOS support in the case of using special backplane, otherwise, it might be not able to function completely.

Technical Support

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

<http://www.globalamericaninc.com>

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

Specifications

System

- **CPU:** 3001000: Intel Pentium M Micro-FCBGA Package CPU
- **BIOS:** Award BIOS
- **Chipset:** Intel 852GM, 400MHz FSB, graphics integrated
- **Super I/O:** Winbond W83627HF
- **Display Controller:**
 - Intel Extreme Graphics 2 Controller, LVDS Flat panel and CRT output
 - Up to 64Mbyte of dynamic Video RAM
 - Support 2D/3D graphics
 - Support dual display
 - Improved hardware motion compensation for MPEG2
- **LCD Support:**
 - Max. CRT QXGA 2048 x 1536
 - Max. LCD UXGA 1600 x 1200
 - 18bits Dual Channel LVDS
- **Memory:** DDR SODIMM Support DDR 200/266, 1GB Max.
- **LAN Chipset:**
 - Chipset: Intel 82562EZ
 - Chipset: Realtech 8100
 - Interface: IEEE 802.3U compatible 10 Base-T / 100 Base-TX
- **Audio Function:**
 - AC97 controller v.2.2 compliant interface
 - Audio interface: Microphone in; Line in; Speaker out
- **Watchdog Timer:** 0 ~ 255sec/min, (W83627HF)

Multiple I/O

- **IDE Interface:** Intel 82801DB (ICH4) builtin IDE interface support support
One Compact Flash Socket support (IDE Interface)
- **Serial:** Three RS-232C port (COM1, 3, 4) One RS-232C/422/485 port (COM2)
One RS-232C/422/485 port (COM2)
COM A : 2x10 pin Box header , COM B : 2x10 pin Box header, JCOM1
1x4 wafer; shared with COM2 resource.
- **Parallel:** 1 x parallel port supports SPP/EPP/ECP mode share with floppy
- **USB:** Two 2x5 Pin header supports up to 4 USB 2.0 devices
- **K/B & Mouse:** One 1x6 pin wafer connector support
- **IrDA:** One IrDA port support (shares with COM2 resource)

Environment & Power Consumption

- **Power Requirement:** +5V/3.6A
- **Power Consumption:** Typical: 18W @ 5V (ULV Pentium M 1.1GHz CPU)
- **Operating Temperature:** 0 ~ 60°C
- **Storage Temperature:** -30 ~ 85°C
- **Operative Humidity:** 5% ~ 95% (non condensing)

Mechanical

- **Dimension (L x W):** 114 x 95 mm (4.5" x 3.7")

Packing list

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

- > 1 x 3001000
- > 1 x Quick Installation Guide
- > 1 x CD driver
- > 1 x Warranty Card

Ordering Codes

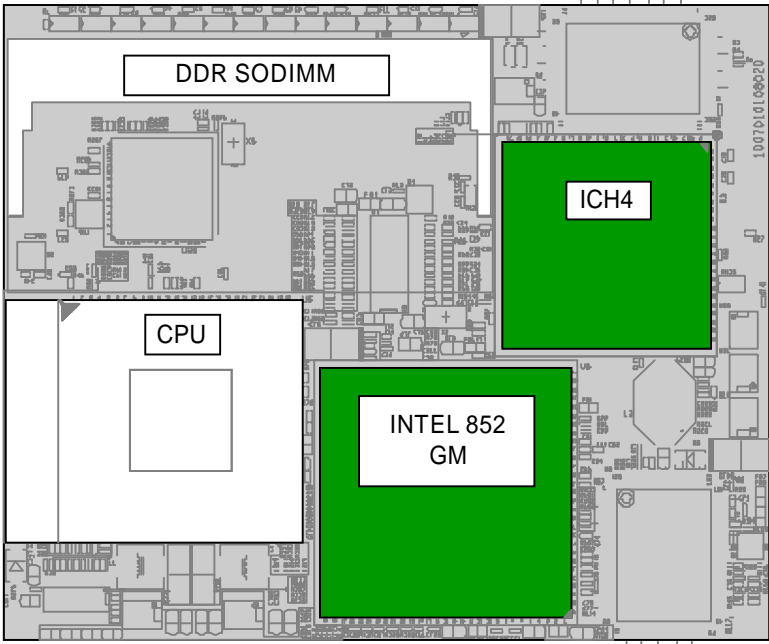
3001000A PC104+ ETX CPU Module with Intel ULV Celeron-M 600 MHz Processor

3001000B Same as 3001000A with Intel ULV Celeron-M 1.0 GHz Processor

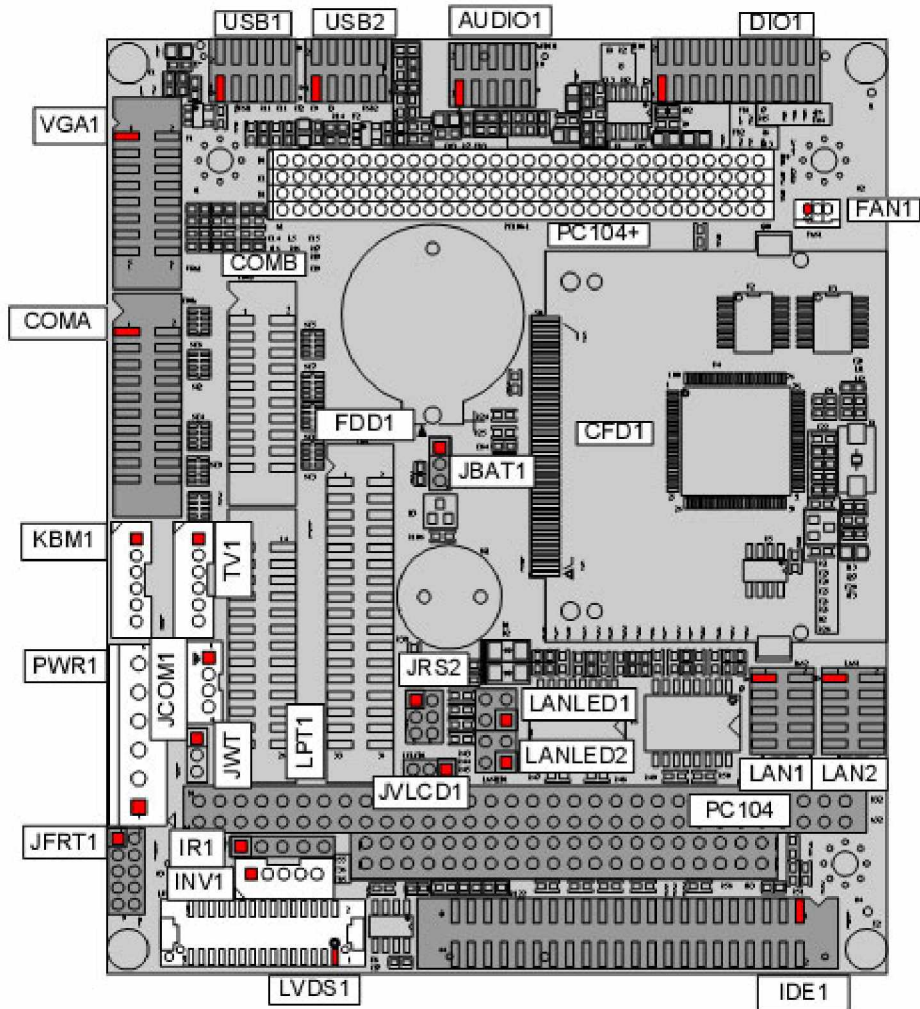
3001000C Not Available

3001000D Same as 3001000A with Intel LV Pentium-M Dothan 1.4 GHz Processor

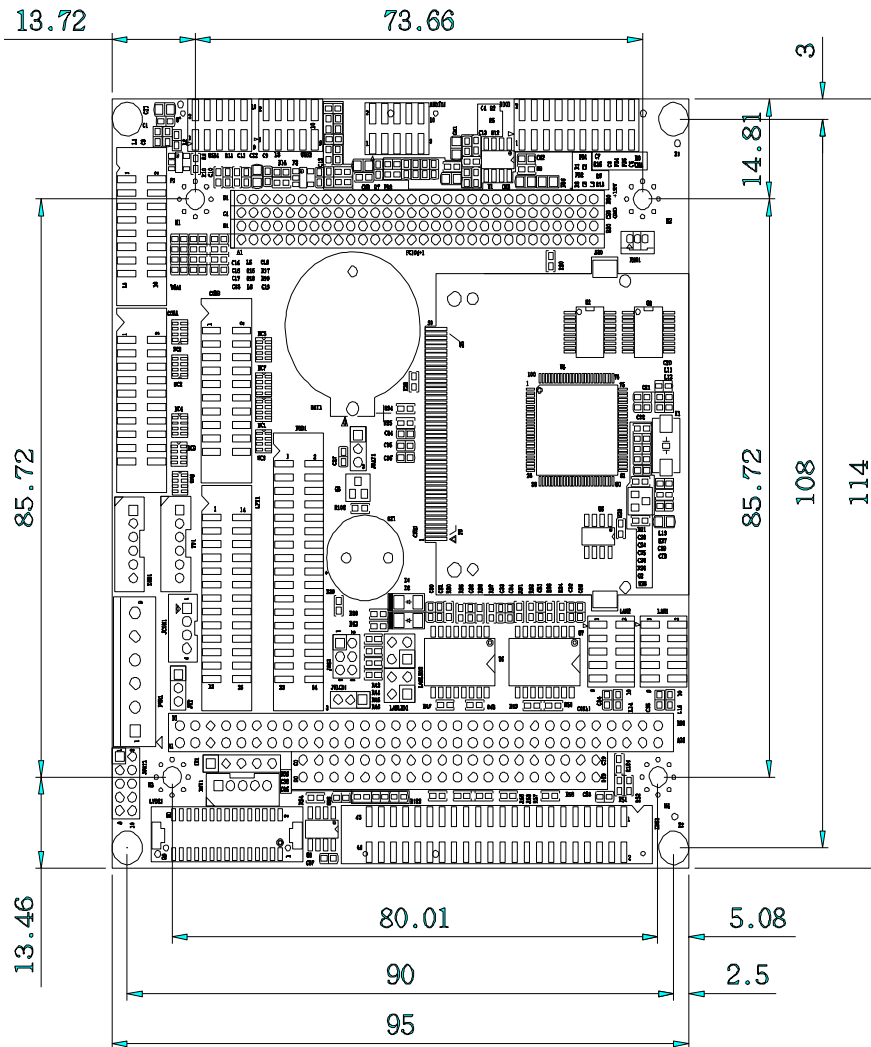
Board Layout (Front)



Board Layout (Back)



Board Dimension



ETX Connector

ETX1

ETX2

1	GND	GND	2	1	GND	GND	2
3	PCICLK3	PCICLK4	4	3	SD14	SD15	4
5	GND	GND	6	5	SD13	MASTER#	6
7	PCICLK1	PCICLK2	8	7	SD12	DREQ7	8
9	REQ#3	GNT#3	10	9	SD11	DACK#7	10
11	GNT#2	VCC3	12	11	SD10	DREQ6	12
13	REQ#2	GNT#1	14	13	SD9	DACK#6	14
15	REQ#1	VCC3	16	15	SD8	DREQ5	16
17	GNT#0	N.C	18	17	MEMW#	DACK#5	18
19	VCC	VCC	20	19	MEMR#	DREQ0	20
21	SERIRQ	REQ#0	22	21	LA17	DACK#0	22
23	AD0	VCC3	24	23	LA18	IRQ14	24
25	AD1	AD2	26	25	LA19	IRQ15	26
27	AD4	AD3	28	27	LA20	IRQ12	28
29	AD6	AD5	30	29	LA21	IRQ11	30
31	CBE#0	AD7	32	31	LA22	IRQ10	32
33	AD8	AD9	34	33	LA23	IO16#	34
35	GND	GND	36	35	GND	GND	36
37	AD10	AUXAL	38	37	SBHE#	M16#	38
39	AD11	MIC	40	39	SA0	OSC	40
41	AD12	AUXAR	42	41	SA1	BALE	42
43	AD13	ASVCC	44	43	SA2	TC	44
45	AD14	SNDL	46	45	SA3	DACK#2	46
47	AD15	ASGND	48	47	SA4	IRQ3	48
49	CBE#1	SNDR	50	49	SA5	IRQ4	50
51	VCC	VCC	52	51	VCC	VCC	52
53	PAR	SERR#	54	53	SA6	IRQ5	54
55	PERR#	N.C	56	55	SA7	IRQ6	56
57	PME#	USB2-	58	57	SA8	IRQ7	58
59	LOCK#	DEVSEL#	60	59	SA9	SYSCLK	60
61	TRDY#	USB3-	62	61	SA10	REFCH#	62
63	IRDY#	STOP#	64	63	SA11	DREQ1	64
65	FRAME#	USB2+	66	65	SA12	DACK#1	66
67	GND	GND	68	67	GND	GND	68
69	AD16	CBE#2	70	69	SA13	DREQ3	70
71	AD17	USB3+	72	71	SA14	DACK#3	72
73	AD19	AD18	74	73	SA15	IOR#	74
75	AD20	USB0-	76	75	SA16	IOW#	76
77	AD22	AD21	78	77	SA18	SA17	78
79	AD23	USB1-	80	79	SA19	SMEMR#	80
81	AD24	CBE#3	82	81	IOCHRDY	AEN	82
83	VCC	VCC	84	83	VCC	VCC	84
85	AD25	AD26	86	85	SD0	SMEMW#	86
87	AD28	USB0+	88	87	SD2	SD1	88
89	AD27	AD29	90	89	SD3	NOWS#	90
91	AD30	USB1+	92	91	DREQ2	SD4	92
93	PCIRST#	AD31	94	93	SD5	IRQ9	94
95	INTR#C	INTR#D	96	95	SD6	SD7	96
97	INTR#A	INTR#B	98	97	IOCHK#	RSTDRV	98
99	GND	GND	100	99	GND	GND	100

ETX Connector

ETX3

1	GND	GND	2
3	R	B	4
5	HSY	G	6
7	VSY	DDCK	8
9	N.C	DDDA	10
11	TX2CLK#	TX2D3#	12
13	TX2CLK+	TX2D3+	14
15	GND	GND	16
17	TX2D1+	TX2D2+	18
19	TX2D1#	TX2D2#	20
21	GND	GND	22
23	TX1D3#	TX2D0+	24
25	TX1D3+	TX2D0#	26
27	GND	GND	28
29	TX1D2#	TX1CLK+	30
31	TX1D2+	TX1CLK#	32
33	GND	GND	34
35	TX1D0+	TX1D1+	36
37	TX1D0#	TX1D1#	38
39	VCC	VCC	40
41	N.C	N.C	42
43	N.C	BLON	44
45	BIASON	ENVDD	46
47	N.C	N.C	48
49	N.C	N.C	50
51	N.C	N.C	52
53	VCC	GND	54
55	STB#	AFD#	56
57	N.C	PD7	58
59	IRRX	ERR#	60
61	IRTX	PD6	62
63	RXD2	INIT#	64
65	GND	GND	66
67	RTS#2	PD5	68
69	DTR#2	SLIN#	70
71	DCD#2	PD4	72
73	DSR#2	PD3	74
75	CTS#2	PD2	76
77	TXD#2	PD1	78
79	RI#2	PD0	80
81	VCC	VCC	82
83	RXD1	ACK#	84
85	RTS#1	BUSY#	86
87	DTR#1	PE	88
89	DCD#1	SLCT#	90
91	DSR#1	MSCLK	92
93	CTS#1	MSDAT	94
95	TXD#1	KBCLK	96
97	RI#1	KBDAT	98
99	GND	GND	100

ETX4

1	GND	GND	2
3	SV_SB	PWGIN	4
5	PS_ON	SPEAKER	6
7	PWRBTN#	BATT	8
9	N.C	LILED	10
11	WDTOUT	ACTLED	12
13	ROMKBCS#	SPEEDLED	14
15	N.C	SMBCLK	16
17	VCC	VCC	18
19	OVCR#	N.C	20
21	N.C	SMBDAT	22
23	N.C	N.C	24
25	SIDE_CS3#	CPUFAN	26
27	SIDE_CS1#	N.C	28
29	SIDE_A2	PIDE_CS3#	30
31	SIDE_A0	PIDE_CS1#	32
33	GND	GND	34
35	P66DET	PIDE_A2	36
37	SIDE_A1	PIDE_A0	38
39	SIDE_INTRQ	PIDE_A1	40
41	S66DET	N.C	42
43	SIDE_ACK#	PIDE_INTRQ	44
45	SIDE_RDY	PIDE_ACK#	46
47	SIDE_IOR#	PIDE_RDY	48
49	VCC	VCC	50
51	SIDE_IOW#	PIDE_IOR#	52
53	SIDE_DRQ	PIDE_IOW#	54
55	SIDE_D15	PIDE_DRQ	56
57	SIDE_D0	PIDE_D15	58
59	SIDE_D14	PIDE_D0	60
61	SIDE_D1	PIDE_D14	62
63	SIDE_D13	PIDE_D1	64
65	GND	GND	66
67	SIDE_D2	PIDE_D13	68
69	SIDE_D12	PIDE_D2	70
71	SIDE_D3	PIDE_D12	72
73	SIDE_D11	PIDE_D3	74
75	SIDE_D4	PIDE_D11	76
77	SIDE_D10	PIDE_D4	78
79	SIDE_D5	PIDE_D10	80
81	VCC	VCC	82
83	SIDE_D9	PIDE_D5	84
85	SIDE_D6	PIDE_D9	86
87	SIDE_D8	PIDE_D6	88
89	RING IN	N.C	90
91	RXD-	PIDE_D8	92
93	RXD+	SIDE_D7	94
95	TXD-	PIDE_D7	96
97	TXD+	HDRST#	98
99	GND	GND	100

Note:

1. ETX3 Pin 44 (BLON) : LCD Backlight Enable Pin is "High Active"
2. Parallel Port and Floppy are alternative. Please change the setting from BIOS.

Jumper/Connector Quick Reference

Label	Function
INV1	LCD Inverter connector
LVDS1	LVDS Connector (30 pin)
TV1	TV-Out
PWR1	Power terminator/6P Power Connector
IDE1	Primary IDE Connector
CFD1	Compact Flash socket (shared with 2nd IDE Master)
VGA1	VGA Display Connector
IR1	Infrared (IR) Connector
USB1	USB 0/1 Connector
USB2	USB 2/3 Connector
COMA	COM1 / COM2
COMB	COM3 / COM4
LPT1	Parallel Port
LAN1	10/100 Base-T Ethernet Connector from ETX core module
LAN2	10/100 Base-T Ethernet Connector from carrier board
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	+5V DC power source for FAN
JFRT1	Switches & Indicators
DIO1	Digital Input/Output
PC104	PC104 ISA Connector
PC104+	PC104+ PCI Connector
JCOM1	RS-422/485 Connector

CMOS Jumper Settings

CMOS Setup (JBAT1)

Type : JBAT1: onboard 3-pin header



CMOS Setup (JBAT1)

JBAT1

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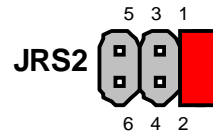
Clear CMOS	2-3	ON
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default setting : Keep CMOS

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
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RS-232C	ON	OFF	OFF
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RS-422	OFF	ON	OFF
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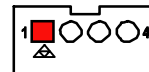
RS-485	OFF	OFF	ON
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Default setting RS-232

RS422/485 Connector

Connector : JCOM1

Type : Onboard 4-pin boxheader



JCOM1

Pin	Description	Pin	Description
1	RS485 RTX+/RS422 TX+	2	RS485 RTX-/RS422 TX-
3	RS422 RX+	4	RS422 RX-

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 Selection

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

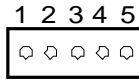


LVDS VOLTAGE SELECT	JVLCD1
5V	1-2
3.3V	2-3
default setting	3.3V

LCD Inverter Connector

Connector : INV1

Type : Onboard 5-pin mini boxheader

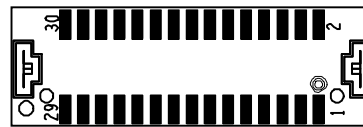


Pin	Description	Pin	Description
1	+12 V	2	GND
3	BLON	4	NA
5	GND		

LVDS LCD Connector

Connector : LVDS1

Type : onboard



LVDS1

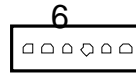
1	VDD	2	VDD
3	TX1CLK+	4	TX2CLK+
5	TX1CLK-	6	TX2CLK-
7	GND	8	GND
9	TX1D0+	10	TX2D0+
11	TX1D0-	12	TX2D0-
13	GND	14	GND
15	TX1D1+	16	TX2D1+
17	TX1D1-	18	TX2D1-
19	GND	20	GND
21	TX1D2+	22	TX2D2+
23	TX1D2-	24	TX2D2-
25	GND	26	GND
27	TX1D3+	28	TX2D3+
29	TX1D3-	30	TX2D3-

VDD could be selected by JVLCD1 +5V or +3.3V

TV-out Connector

Connector : TV1 (Function not available in 3001000) 1

Type: Onboard 6-pin mini boxheader



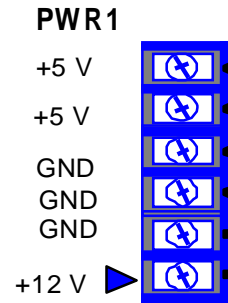
PN	Description
1	TV_COMP
2	GND
3	TV_Y
4	GND
5	TV_C
6	GND

Power Connector

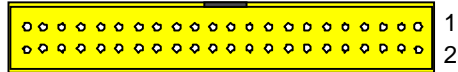
Connector : **PWR1**

Type : onboard 6-pin Terminator

Pin	Description
1	+12V
2	GND
3	GND
4	GND
5	+5V
6	+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 (Share 2nd IDE Master)

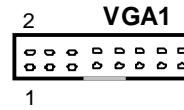
Pin	Description	Pin	Description	Pin	Description
1	GND	18	ADDR2	35	IO WRITE
2	DATA3	19	ADDR1	36	+5V
3	DATA4	20	ADDR0	37	IRQ15
4	DATA5	21	DATA0	38	+5V
5	DATA6	22	DATA1	39	CSEL
6	DATA7	23	DATA2	40	N/C
7	CS#1	24	N/C (-IOCS16)	41	IDE RESET
8	GND	25	GND	42	IO READY
9	GND	26	GND	43	N/C
10	GND	27	DATA11	44	+5V
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		

Note: CFD1 does not support hot swap

VGA Connector

Connector : VGA1

Type: Onboard 16-pin mini boxheader

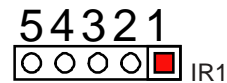


Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	VDDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	NC	14	VSYNC
5	GND	10	GND	15	VDCLK
16	NC				

IrDA Connector

Connector : IR1

Type : Onboard 5-pin header

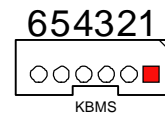


Pin	Signal	Pin	Signal
1	+5V	2	NC
3	IRRX	4	GND
5	IRTX		

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	12	RXD2
13	TXD2	14	DTR2
15	GND	16	DSR2
17	RTS2	18	CTS2
19	RI	20	N/C

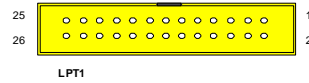
Connector : **COMB RS232 Serial Port Connector (COM3,COM4)**

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



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

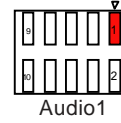
Connector: **USB1, USB2**
 Type: onboard Two 10-pin headers for four USB ports



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

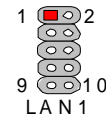


Pin	Description	Pin	Description
1	LINE IN LEFT	2	LINE IN RIGHT
3	GND	4	GND
5	MIC	6	NC
7	GND	8	GND
9	SPEAKER LEFT	10	SPEAKER RIGHT

Fast Ethernet Connectors

LAN Port (10/100Mbps)

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

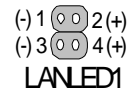


Pin	1	2	3	4	5
Description	TX+	TX-	RX+	NC	NC
Pin	6	7	8	9	10
Description	RX-	NC	NC	NC	Key

LAN LED Indicator

LAN LED Indicator on RJ-45 connector

Connector : LANLED1 & LANLED2
 TYPE : Onboard 4-pin connector



Pin	Description
1-2	Activity
3-4	Link

8-bit Digital I/O

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



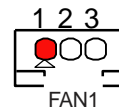
Pin	Description	Pin	Description
1	DO0	2	DO1
3	DO2	4	DO3
5	DO4	6	DO5
7	DO6	8	DO7
9	GND	10	GND
11	DI0	12	DI1
13	DI2	14	DI3
15	DI4	16	DI5
17	DI6	18	DI7
19	+5V	20	+12V

Output I/O Address :208H

Input I/O Address:200H

System Fan Connector

Connector : **FAN1**
Type : onboard 3-pin header

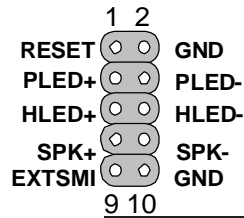


Pin	Description
1	N/A
2	+5V
3	GND

Switches and Indicators

Connector : JFRT1
Type : onboard 10-pin header

Pin	Description
1-2	Reset
3-4	Power LED
5-6	HDD LED
7-8	External speaker
9-10	External SMI



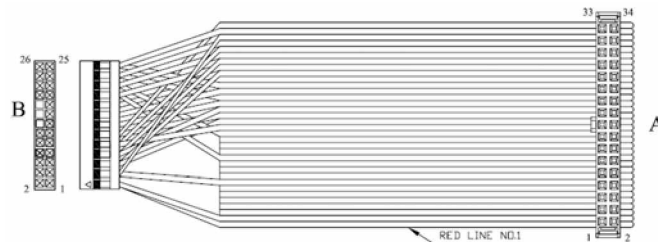
FDD Setting (For 3001000/7023 model)

After connect "LPT to FDD cable" into LPT1 and floppy drive, do below BIOS Setting to active FDD:

- "Standard CMOS Features \ Drive A \ 1.44M, 3.5 in"
- "Integrated Peripherals \ Super IO device \ External FDD controller \ Enabled"
- "Integrated Peripherals \ Super IO device \ Onboard Parallel port \ Disabled"

Note:

1. When FDD active, LPT is not able to use, vice versa.
2. Floppy drive LED always light on when LPT to FDD cable connected.
3. "LPT to FDD cable" is included in optional PBE-1100 cable kit.



LPT to FDD cable
A: connect to floppy drive
B: connect to Parallel port (LPT1)

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 your products, projects and business.



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