Global AMERICAN

integration with integrity

User's Manual

Single Board Computer 3301070

Version 1.0, 2005

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. Compact Flash Card is not hot-plug since it uses IDE interface.

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 teh manufacturer (BR2335).

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

Warranty

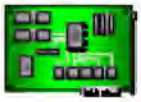
This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. 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 merchantibility 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.

PACKING LIST



3301070

1xPRINT Cable
2xCOM Flat Cable
1xFDD Cable
1xUSB V2.0 Cable
1xAUDIO Cable
1xIDE Cable
1xUltraDMA 100 IDE Flat Cable
1xY Cable
1xCooler

1 x CD-ROM (driver)

3301070 Quick Installation

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.

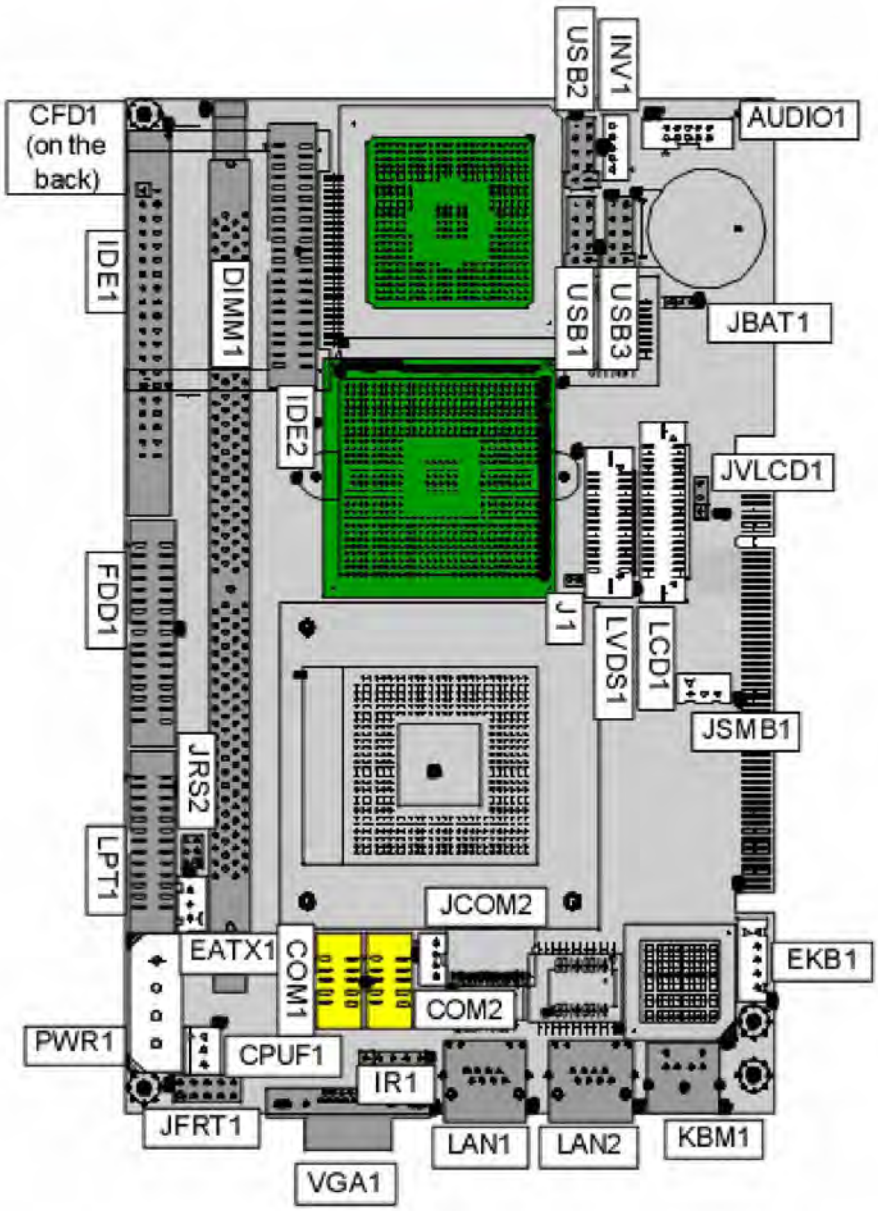
Ordering Codes

3301070A
Low power Intel Pentium-M Half size PCI BUS SBC with CRT/LCD & LAN

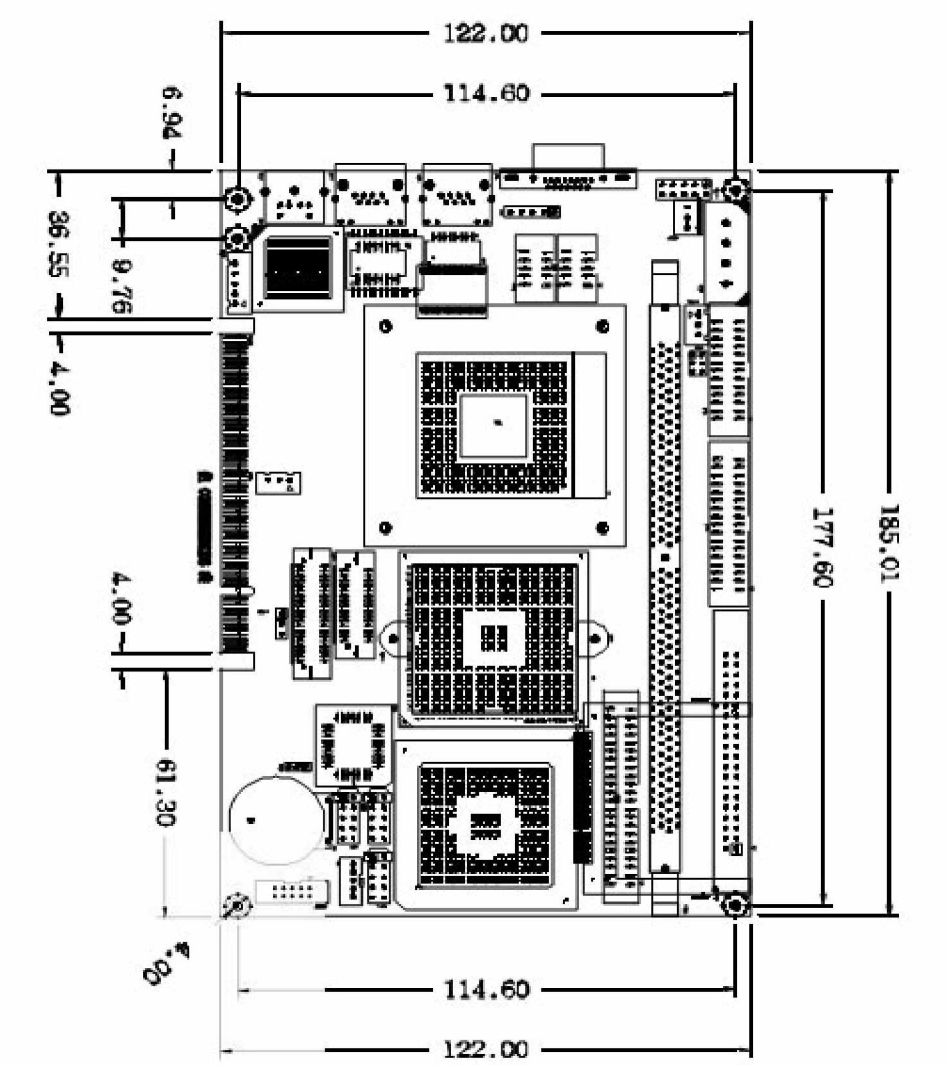
3301070B
Low power Intel Pentium-M Half size PCI BUS SBC with CRT/LCD & Dual LAN (2nd LAN is Gagabit LAN)

Specification			
MODEL		3301070	
System Board	SYSTEM	3301070A	3301070B
	CPU	mPGA478M socket support: Pentium-M with FSB 400 up to 2.0 GHz	
	CPU Cache	CPU Integrated	
	Chipset	Southbridge: ICH4; Northbridge: Intel 855GME	
	Memory	One 184-pin DIMM sockets support up to 1GB DDR SDRAM (266MHz/333MHz) ECC	
	Display	Chipset: 855GME integrated graphic, 4 x AGP Display Memory: Memory shared up to 64MB (DVMT) Display Type: CRT/ LCD LVDS panel supported 2 channel 48 bit resolution up to 1600x1200 at 85Hz & 2048x1536 at 75Hz TTL 24 bit supported	
	Fast Ethernet	1x Onboard 10/100 Mbps Fast Ethernet (Intel 82562ET PHY)	1x Onboard 10/100 Mbps Fast Ethernet (Intel 82562ET PHY) 1x Gigabit Ethernet Intel 82541GI
	Audio	ICH4 integrated audio with AC97 Codec Audio Interactive (MIC in, Line-in, Speaker out, AC'97 ver. 2.3)	
	Flash Disk	CompactFlash Type II	
Multiple I/O	Serial Port	1 x RS-232C & 1 x RS-232C/422/485	
	Parallel Port	1 x Parallel prot supports SPP, EPP and ECP mode	
	Enhanced IDE	2 ports and up to 4 ATAPI devices, Ultra DMA transfer rates 33/66/100MB/sec (IDE1: 40 Pin DMA 100; IDE2: 44 Pin DMA 33)	
	Floppy	2 floppy disk drives	
	IrDA	1 x IrDA	
	USB	6 x USB 2.0 Ports	
	K/B & Mouse	1 x PS/2 connector for keyboard & mouse	
	Watchdog Timer	256 level generates RESET	
Mechanical and Environment		Power Requirement: +5V@4.25A, +12V@0.27A (Pentium M 1.7Ghz + 1GB DDR SDRAM) Power Consumption: TBD Typical: 18W@5V (1.1GHz LV CPU) Operating Temperature: 0 ~ 60° C (32 ~ 140° F) Storage Temperature: -20 ~ 80° C (-68 ~ 176° F) Relative Humidity: 0% ~ 90% Dimension (Lx W): 185 x 122 mm (7.3" x 4.8") Weight: 0.6Kg (1.32 lb)	

BOARD LAYOUT



BOARD DIMENSIONS



Jumper/Connector Quick Reference

Jumpers

Lable	Function
JBAT1	Clear CMOS
JRS2	COM2 RS-232C / 422 / 485 Selection
JVLCD1	LVDS voltage selection
JSMB1	External SMB
JFRT1	Switches & Indicators
J1	CPU Type selection

Jumper/Connector Quick Reference

Connectors

Lable	Function
AUDIO1	Audio Interface Port
CFD1	Compact Flash Disk
COM1	RS-232C Serial Port
COM2	Serial Port (RS-232C/422/485)
CPUF1	CPU Fan connector
DIMM	DDR bank 184 pin DIMM Socket
EATX1	ATX feature connector
EKB1	External Keyboard Connector
FDD1	Floppy Disk Drive Connector
IDE1	Primary IDE Connector
IDE2	Secondary IDE Connector
INV1	LCD Inverter Connector
KBM1	Keyboard and PS/2 Mouse
LAN1	10/100 LAN1 Connector
LAN2	10/100/1000 M Connector
LCD1	18bit/24bit TTL Flat Panel Connector (DF13 40 pin)
LVDS1	24bit LVDS Panel Connector (DF13 30 pin)
LPT1	Parallel Port
PWR1	4P Auxiliary Power Connector
IR1	Infrared (IR) Connector
USB1	USB Port 0,1
USB2	USB Port 2,3
USB3	USB Port 4,5
VGA1	VGA Display Connector

CMOS Jumper Settings

CMOS Operation (JBAT1)

Type : JBAT1: onboard 3-pin header

JBAT1

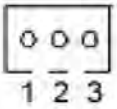
If the 3301070 refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

CMOS Setup (JBAT1)	JBAT1	Status
Normal Operation	1-2	ON
Clear CMOS	2-3	ON

default setting 1-2 ON

External SMB

Type : JSMB1: onboard 3-pin header

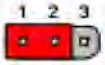


Pin	Description
1	SMB DATA
2	SMB CLK
3	GND

LVDS LCD Power Selection

Type : JVLCD1: onboard 3-pin header

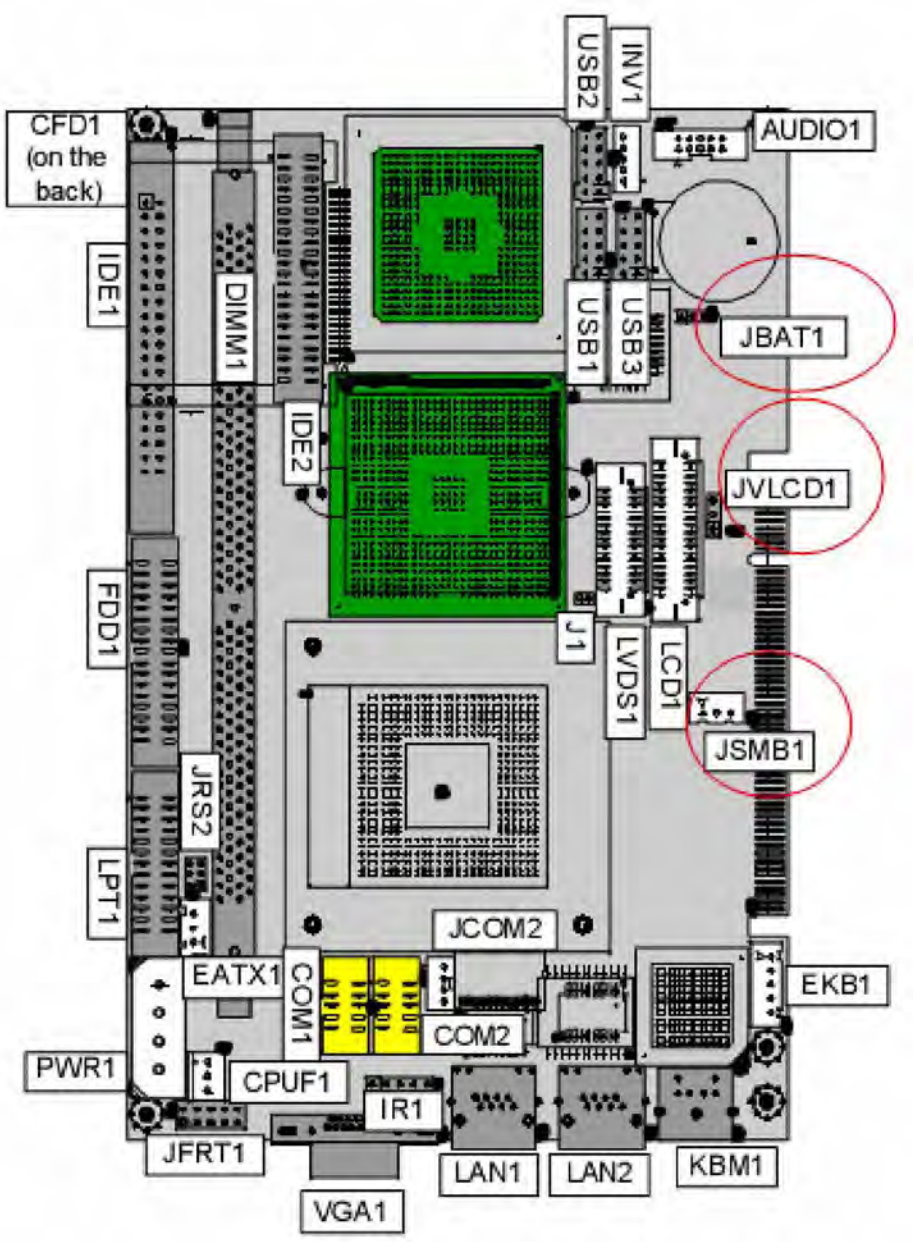
The voltage of LCD panel could be selected by JV9 in 5V or 3.3V .



JVLCD1

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

default setting 3.3V


CFD1
(on the
back)
IDE1
DIMM1
IDE2
FDD1
JRS2
LPT1
EATX1
COM1
PWR1
CPUF1
JFRT1
IR1
VGA1
JCOM2
COM2
LAN1
LAN2
KBM1
EKB1
USB2
INV1
AUDIO1
USB1
USB3
JBAT1
JVLCD1
J1
LVDS1
LCD1
JSMB1

Serial Port Selection (RS232C/422/485)

RS-232C/422/485 Mode select (JRS2)

Type : JRS2: onboard 6-pin(2*3) header

JRS2 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-232C

CPU Type Selection

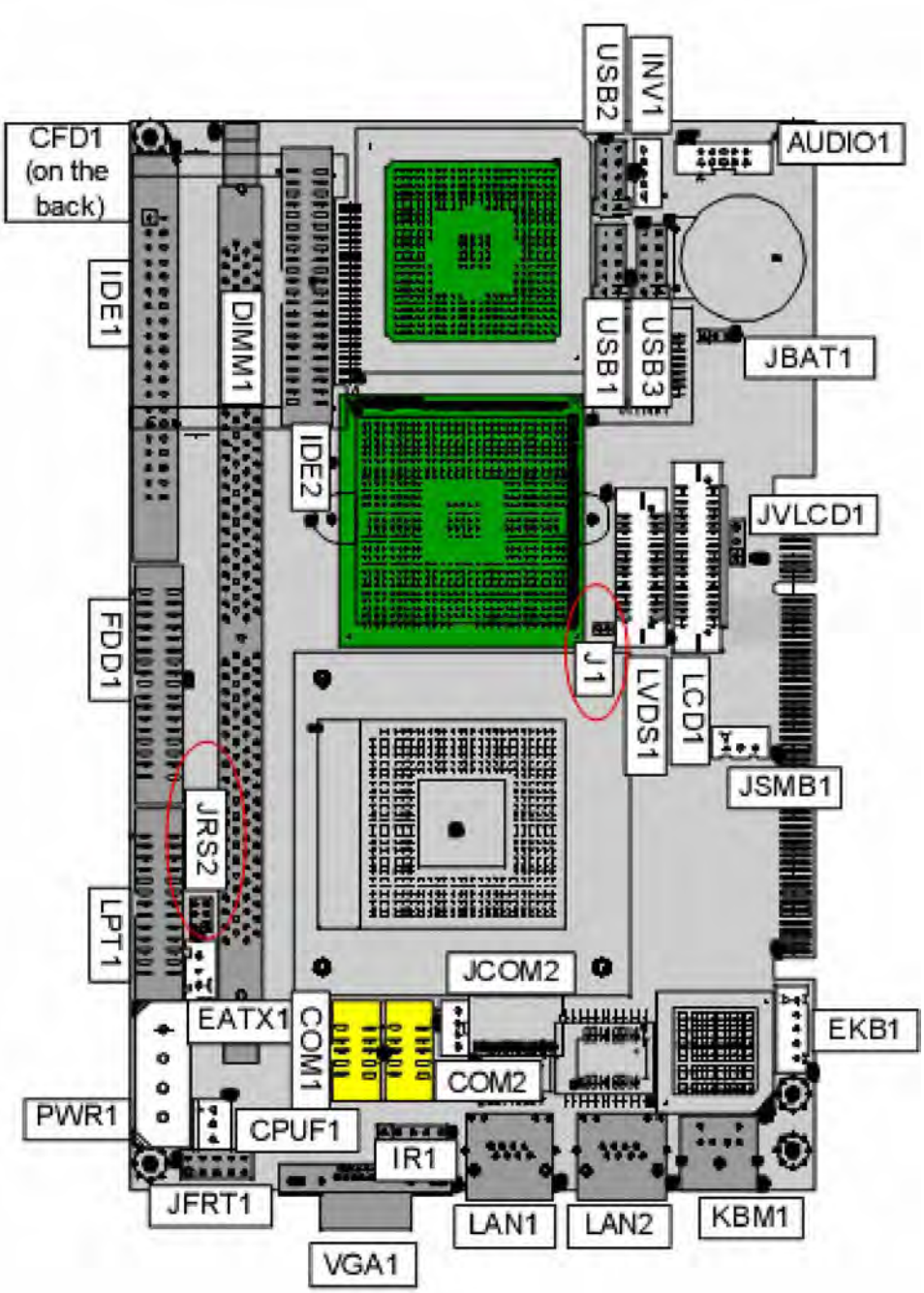
Type : J1: onboard 2-pin header

The CPU VccA (PLL supply voltage) could be selected by J1 in 1.5 V or 1.8 V.

Mode	J1
CPU VccA : 1.8V	ON
CPU VccA : 1.5V	OFF

default setting VccA : 1.8 V

Note: Please make sure the correct setting of CPU VccA before up and running.


CFD1
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IDE1
DIMM1
IDE2
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JRS2
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COM1
PWR1
CPUF1
JFRT1
IR1
VGA1
LAN1
LAN2
KBM1
COM2
JCOM2
EKB1
J1
LVDS1
LCD1
JVLCD1
JSMB1
JBAT1
USB1
USB3
USB2
INV1
AUDIO1

Switches and Indicators

Reset Button

Connector : **RESET**

Pin	Description
1	RESET
2	GND

Power LED Connector

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
3	Power LED+
4	Power LED-

Power LED status description

Power Type	AT Power	ATX Power
Power On	On	On
Power Suspend	Fast Glittering	Fast Glittering
Power Off	Off	Slow Glittering

Hard Disk LED Connector

Connector : **HLED**

Pin	Description
5	Hard Disk LED+
6	Hard Disk LED-

External Speaker Connector

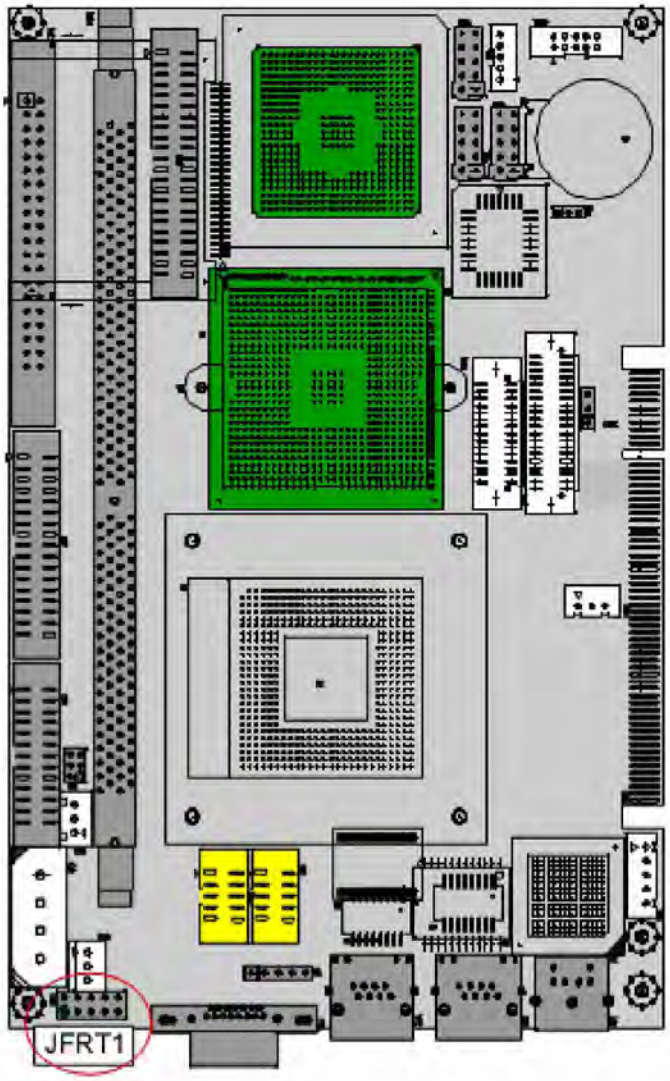
Connector : **ESPK1**

Pin	Description
7	+5V
8	Speak out

ATX Soft Power Switch

Connector : **PSON**

Pin	Description
9	5VSB
10	PWR_BTN



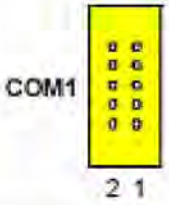
Audio Interface

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

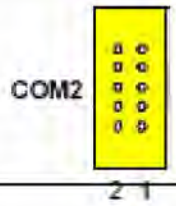
COM Port Connector

Connector : COM1
Type : onboard 10-pin box header



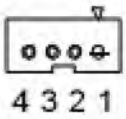
Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Connector : **COM2**
Type : onboard 10-pin box header

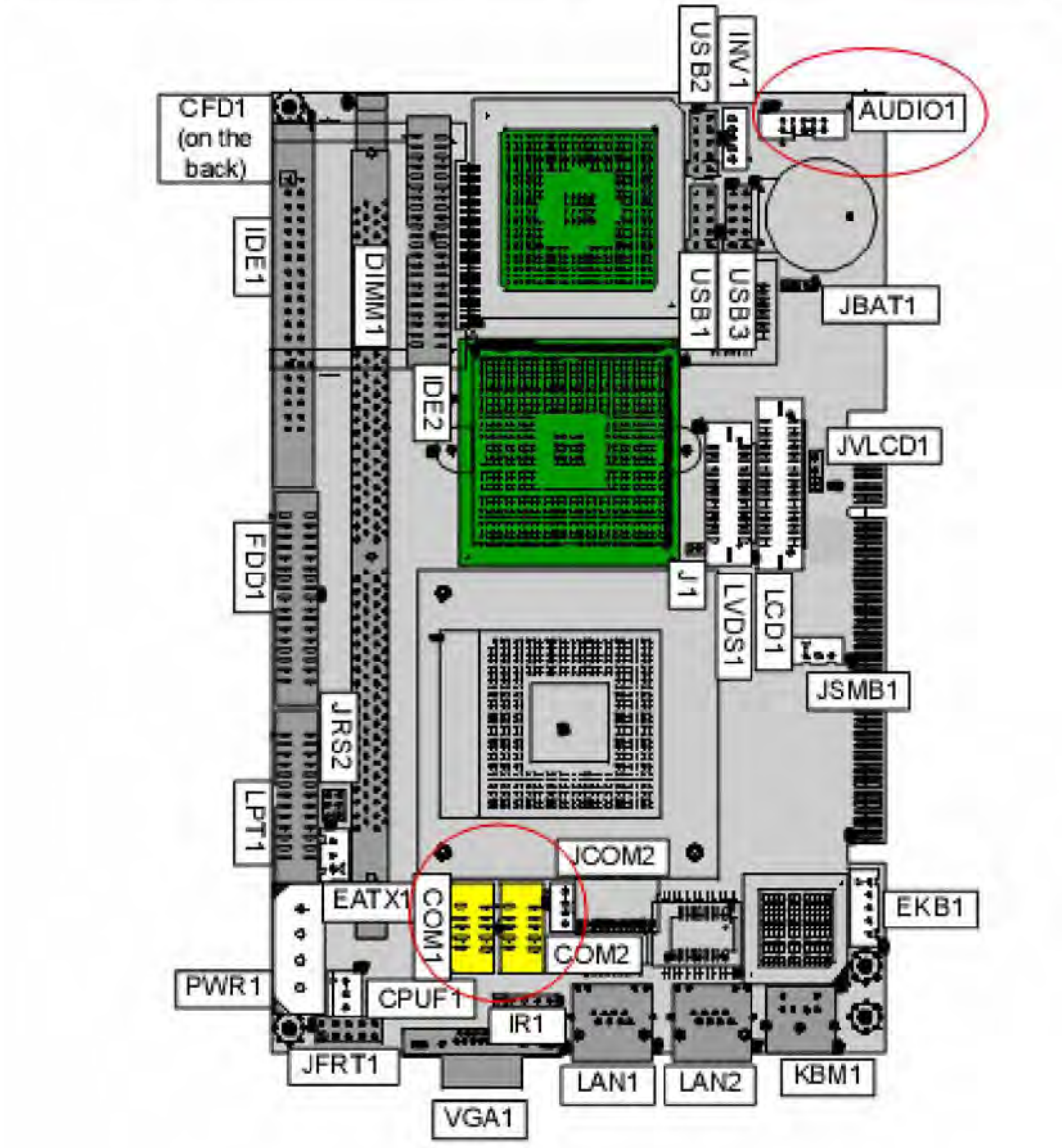


Pin	Description	Pin	Description
1	DCD2	2	RXD2
3	TXD2	4	DTR2
5	GND	6	DSR2
7	RTS2	8	CTS2
9	RI	10	NC

Connector : JCOM2
Type : onboard 4-pin box header



Pin	Description	Pin	Description
1	485DATA+(422TXD+)	2	485DATA-(422TXD-)
3	422RXD+	4	422RXD-



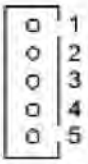
CPU Fan Connector

Connector : **CPUF1**
Type : onboard 3-pin wafer connector

Pin	Description
1	GND
2	+12V
3	FAN Dectect

Keyboard & Mouse Connector

AT Keyboard



Connector : **EKB1**
Type : Onboard 5-pin header

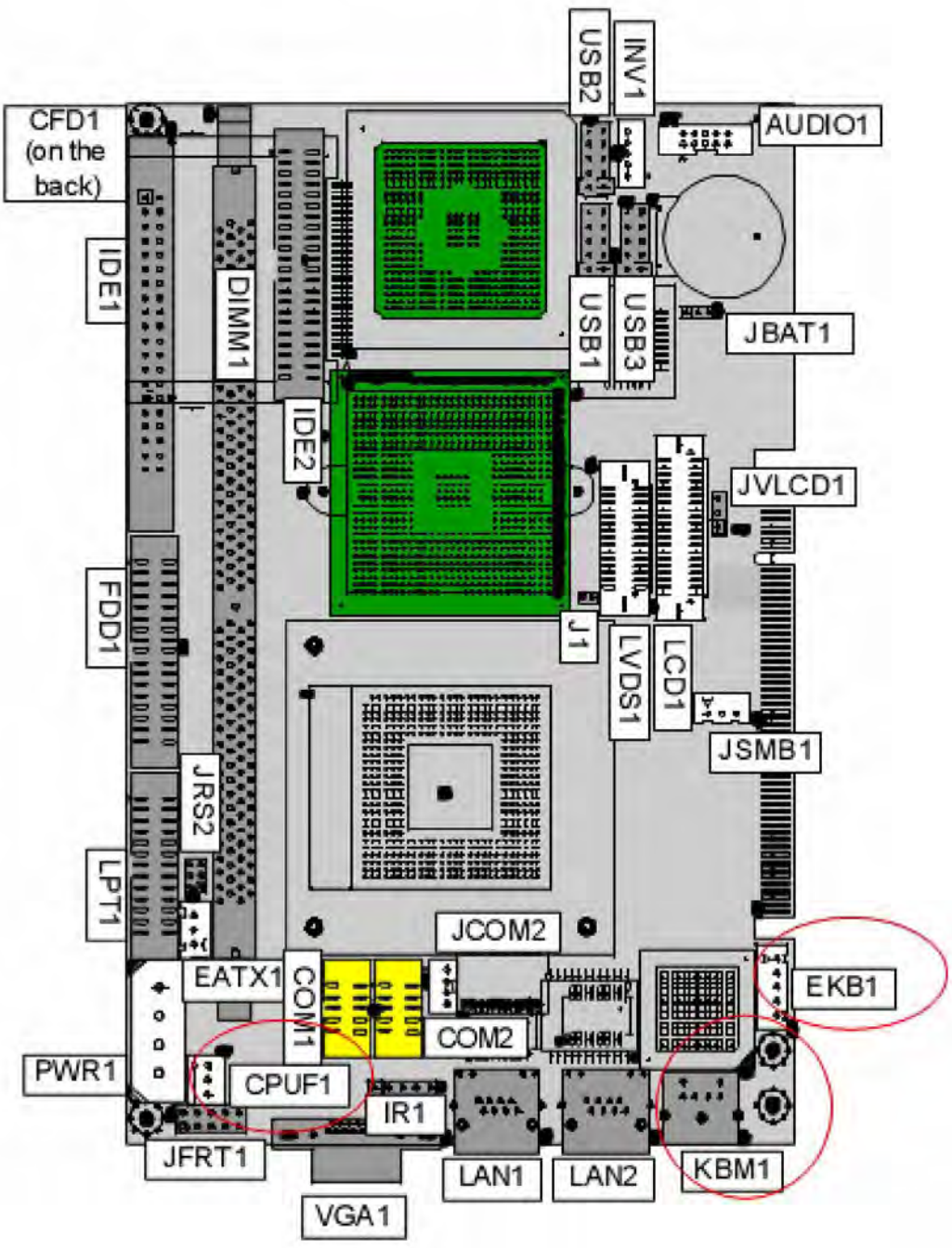
Pin	Description	Pin	Description
1	CLK	2	DATA
3	NC	4	GND
5	Vcc		

PS/2 Keyboard & Mouse

Connector: **KBM1**
Type: 6-pin Mini DIN connector on bracket

Pin	Description	Pin	Description
1	KB-DATA	2	MS-DATA
3	GND	4	VCC
5	KB-CLK	6	MS-CLK

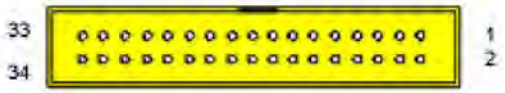
Note: KBM1 supports PS/2 keyboard directly, and PS/2 mouse suppoted with the additional PS2 1-to-2 cable in the standard packing.


CFD1
(on the
back)
IDE1
DIMM1
IDE2
FDD1
JRS2
LPT1
EATX1
COM1
PWR1
CPUF1
JFRT1
IR1
VGA1
LAN1
LAN2
KBM1
COM2
JCOM2
EKB1
J1
LVDS1
LCD1
JSMB1
JVLCD1
USB1
USB3
USB2
INV1
AUDIO1
JBAT1

Interface Connectors HDD, FDD

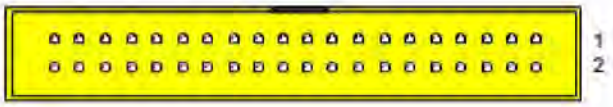
Floppy Disk Drive Connector

Connector : **FDD1**
Type : onboard 34-pin box header



Pin	Description	Pin	Description
1	GND	2	DRIVE DENSITY SELECT 0
3	GND	4	NC
5	GND	6	DRIVE DENSITY SELECT 1
7	GND	8	#INDEX
9	GND	10	#MOTOR ENABLE A
11	GND	12	#DRIVER SELECT B
13	GND	14	#DRIVER SELECT A
15	GND	16	#MOTOR ENABLE B
17	GND	18	#DIRECTION
19	GND	20	#STEP
21	GND	22	#WRITE DATA
23	GND	24	#WRITE GATE
25	GND	26	#TRACK 0
27	GND	28	#WRITE PROTECT
29	GND	30	#READ DATA
31	GND	32	#HEAD SELECT
33	GND	34	#DISK CHANGE

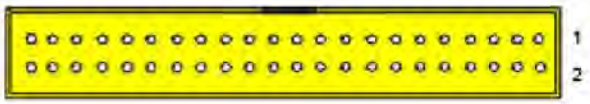
Enhanced IDE Connector



Connector : **IDE1**
Type : Two onboard 40-pin box headers

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/(Vcc)
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

Enhanced IDE Connector

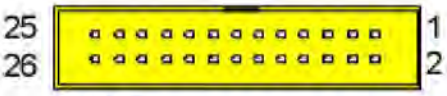


Connector : **IDE2**
Type : One onboard 44-pin box headers

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

Peripheral Port

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



LPT1

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

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		

LAN Connector

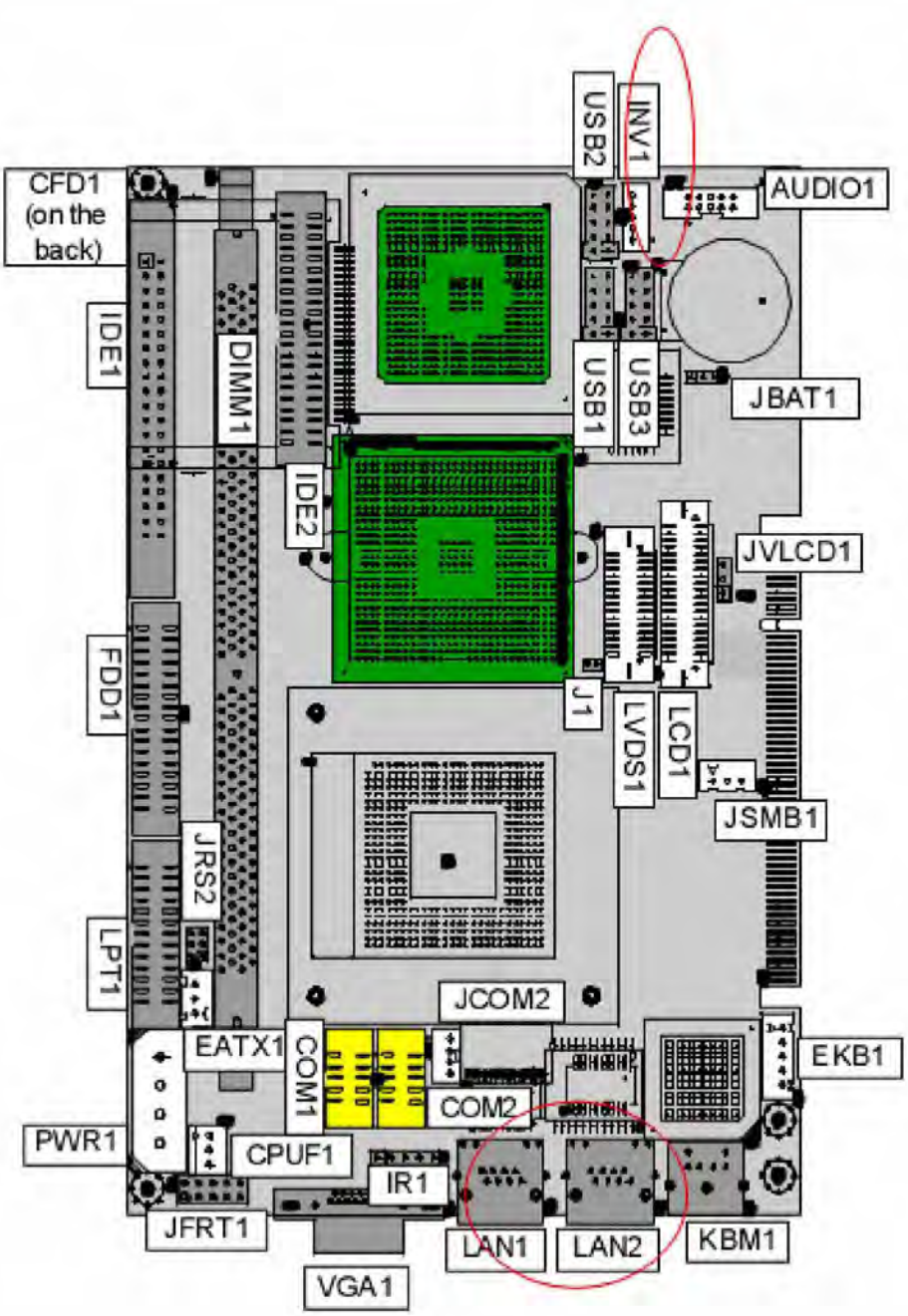
LAN Port

Connector : **LAN1(10/100Mbps)**
Type : external RJ-45 on bracket

Pin	1	2	3	4	5	6	7	8
Desciption	TX+	TX-	RX+	NC	NC	RX-	NC	NC

Connector : **LAN2(1000Mbps)** Type :
external RJ-45 on bracket

Pin	1	2	3	4	5	6	7	8
Desciption	MDX0+	MDX0-	MDX1+	MDX2+	MDX2-	MDX1-	MDX3+	MDX3-


CFD1
(on the
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IDE1
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JCOM2
COM2
LAN1
LAN2
USB2
INV1
AUDIO1
USB1
USB3
JBAT1
JVLCD1
J1
LVDS1
LCD1
JSMB1
EKB1
KBM1

18/24bit TTL Flat Panel Connector

Connector : LCD1
Type : Onboard DF13 40-pin

LCD1 pin Assignment

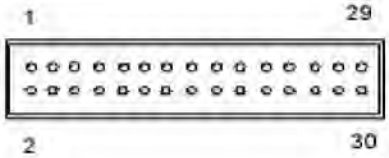
Pin	Description	Pin	Description
1	VDD	2	VDD
3	Ground	4	Ground
5	VDD	6	VDD
7	NA	8	Ground
9	R0	10	R1
11	R2	12	R3
13	R4	14	R5
15	R6	16	R7
17	G0	18	G1
19	G2	20	G3
21	G4	22	G5
23	G6	24	G7
25	B0	26	B1
27	B2	28	B3
29	B4	30	B5
31	B6	32	B7
33	Ground	34	Ground
35	FPSCLK	36	VS
37	DTMG	38	HS
39	NA	40	NA

Note: VDD Voltage selected by JVLCD1 in 5V or 3.3V.

LVDS LCD Connector

Connector: LVDS1

Type : onboard 30-pin DF-13 Connector



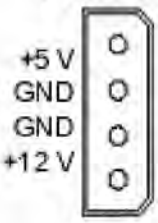
Pin	Signal	Pin	Signal
1	VDD	2	VDD
3	TX1CLK+	4	TX2CLK+
5	TX1CLK-	6	TX2CLK-
7	GND	8	GND
9	TX1D0+	10	TX2D0+
11	TX1D0-	12	TX2D0-
13	GND	14	GND
15	TX1D1+	16	TX2D1+
17	TX1D1-	18	TX2D1-
19	GND	20	GND
21	TX1D2+	22	TX2D2+
23	TX1D2-	24	TX2D2-
25	GND	26	GND
27	TX1D3+	28	TX2D3+
29	TX1D3-	30	TX2D3-

Note: VDD Voltage selected by JVLCD1 in 5V or 3.3V.

Power Connector

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

PWR1



Infrared (IR) Connector

Connector : IR1

Type : onboard 5-pin header

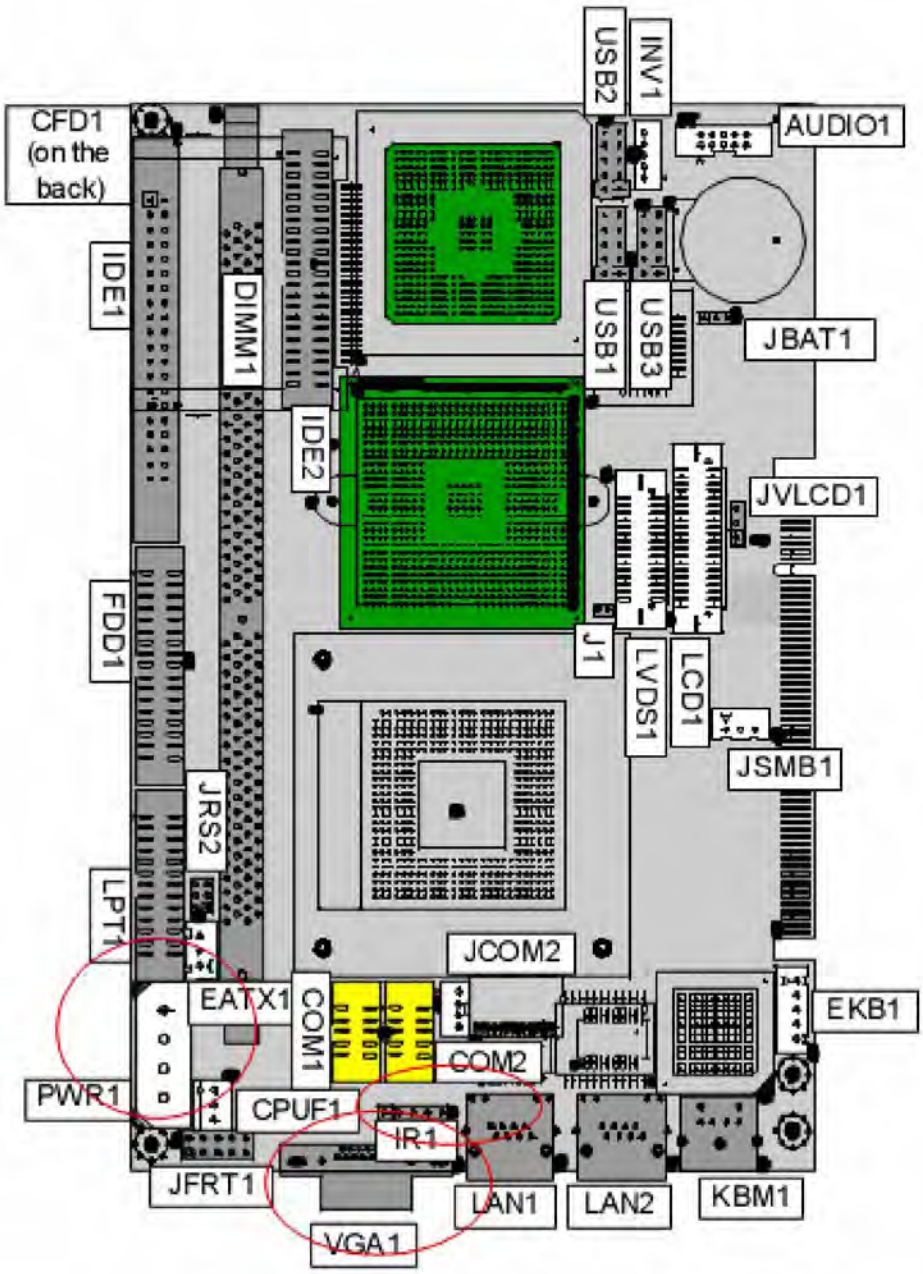
Pin	Description	Pin	Description
1	Vcc	2	NC
3	IRRX	4	GND
5	IRTX		

VGA Connector

Connector : VGA1
Type : external 15-pin D-sub female connector

VGA1

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


CFD1
(on the
back)
IDE1
DIMM1
IDE2
FDD1
JRS2
LPT1
EATX1
PWR1
CPUF1
JFRT1
VGA1
COM1
COM2
JCOM2
IR1
LAN1
LAN2
KBM1
EKB1
J1
LVDS1
LCD1
JVLCD1
JSMB1
JBAT1
USB1
USB3
USB2
INV1
AUDIO1

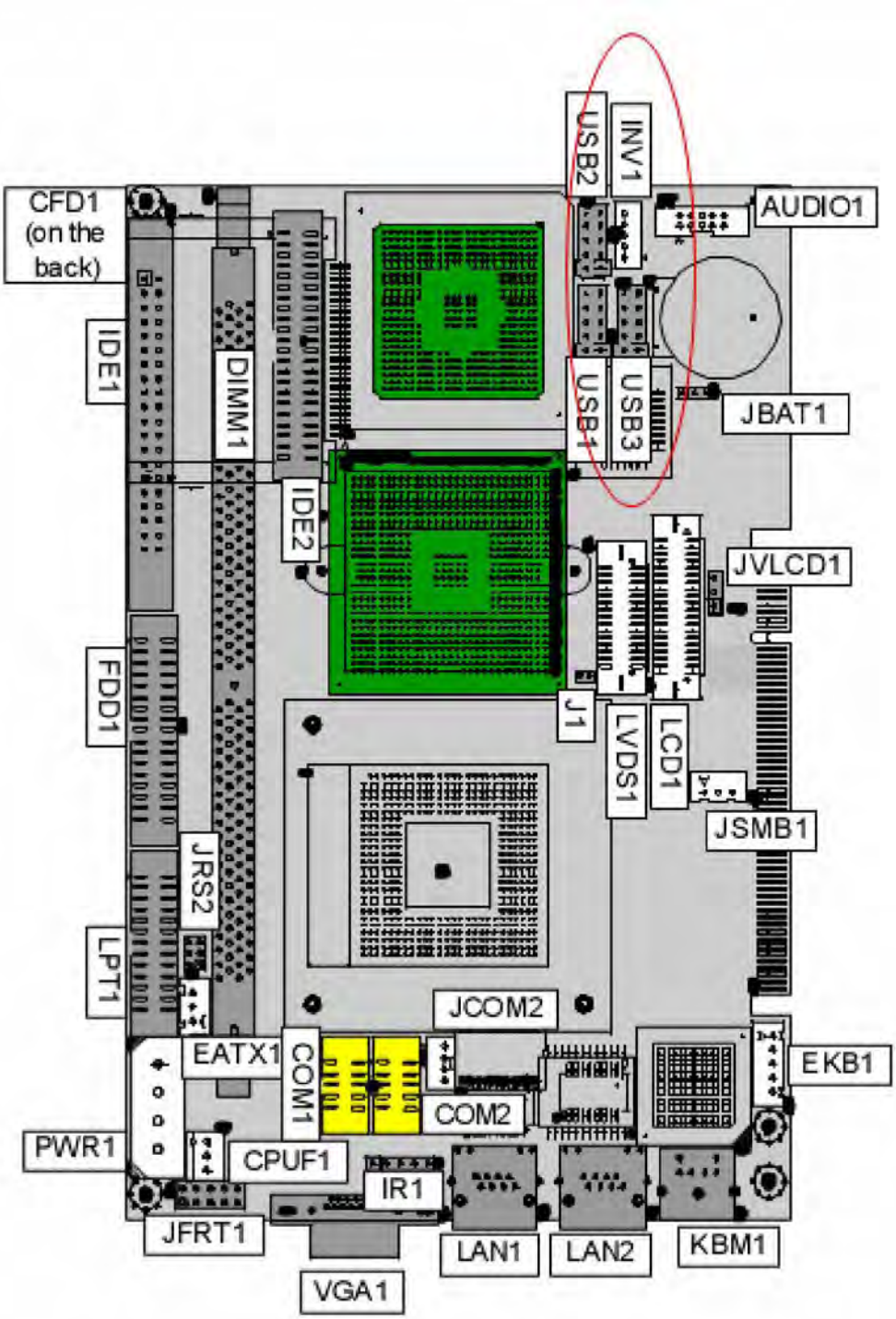
USB Connector

USB Ports

Connector: **USB1, USB2, USB3**
Type:onboard 2*5pin 2.0mm pitch header

USB

Pin	Description	Pin	Description
1	Vcc	2	Vcc
3	DATA-	4	DATA-
5	DATA+	6	DATA+
7	GND	8	GND
9	GND	10	Key


CFD1
(on the
back)
IDE1
DIMM1
IDE2
FDD1
JRS2
LPT1
EATX1
COM1
PWR1
CPUF1
IR1
JFRT1
VGA1
LAN1
LAN2
KBM1
COM2
JCOM2
EKB1
J1
LVDS1
LCD1
JSMB1
JVLCD1
JBAT1
USB2
INV1
AUDIO1
USB1
USB3

System Resources

Resource	Share	Device Description
DMA 02	Undetermined	Standard Floppy Disk Controller
DMA 04	Undetermined	Direct memory access controller
IRQ 00	Undetermined	System timer
IRQ 01	Undetermined	Standard 101/102-Key or Microsoft Natural Keyboard
IRQ 02	Undetermined	Programmable interrupt controller
IRQ 03	Exclusive	Communications Port (COM2)
IRQ 04	Exclusive	Communications Port (COM1)
IRQ 05	Shared	Realtek AC? 7 Audio
IRQ 05	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 05	Shared	Intel(R) 82801DB/DBM SMBus Controller - 24C3
IRQ 06	Undetermined	Standard Floppy Disk Controller
IRQ 07	Undetermined	Printer Port (LPT1)
IRQ 08	Undetermined	System CMOS/real time clock
IRQ 09	Shared	Intel(R) PRO/1000 MT Network Connection
IRQ 09	Shared	Intel USB 2.0 Enhanced Host Controller
IRQ 09	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 09	Shared	SCI IRQ used by ACPI bus
IRQ 0A	Shared	Intel(R) PRO/100 VE Network Connection
IRQ 0A	Shared	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
IRQ 0A	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 0A	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 0B	Shared	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
IRQ 0B	Shared	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
IRQ 0B	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 0B	Shared	ACPI IRQ Holder for PCI IRQ Steering
IRQ 0B	Shared	Intel(R) 82852/82855 GM/GME Graphics Controller
IRQ 0C	Undetermined	PS/2 Compatible Mouse Port
IRQ 0D	Undetermined	Numeric data processor
IRQ 0E	Exclusive	Primary Ultra ATA Controller
IRQ 0E	Undetermined	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
IRQ 0F	Exclusive	Secondary Ultra ATA Controller
IRQ 0F	Undetermined	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Memory 00000000-0009FFFF	Undetermined	System board extension for ACPI BIOS
Memory 00000000-FFFFFFFF	Exclusive	Intel(R) 82801DB PCI Bridge - 244E
Memory 000A0000-000AFFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory 000B0000-000BFFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory 000C0000-000CC7FF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory 000D0000-000D17FF	Exclusive	Intel(R) PRO/100 VE Network Connection
Memory 000D1800-000D3FFF	Undetermined	System board extension for ACPI BIOS

Memory 000E0000-000EFFFF	Undetermined	System board extension for ACPI BIOS
Memory 000F0000-000F7FFF	Undetermined	System board extension for ACPI BIOS
Memory 000F8000-000FBFFF	Undetermined	System board extension for ACPI BIOS
Memory 000FC000-000FFFFF	Undetermined	System board extension for ACPI BIOS
Memory 00100000-1DFEFFFF	Undetermined	System board extension for ACPI BIOS
Memory 1DFF0000-1DFFFFFF	Undetermined	System board extension for ACPI BIOS
Memory D0000000-D7FFFFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory D8000000-DFFFFFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory E0000000-E1FFFFFF	Exclusive	Intel(R) 82801DB PCI Bridge - 244E
Memory E1000000-E101FFFF	Exclusive	Intel(R) PRO/1000 MT Network Connection
Memory E1020000-E102FFFF	Exclusive	Intel(R) PRO/1000 MT Network Connection
Memory E1030000-E1030FFF	Exclusive	Intel(R) PRO/100 VE Network Connection
Memory E2000000-E207FFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory E2080000-E20FFFFF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Memory E2100000-E21003FF	Exclusive	Intel USB 2.0 Enhanced Host Controller
Memory E2101000-E21011FF	Exclusive	Realtek AC? 7 Audio
Memory E2102000-E21020FF	Exclusive	Realtek AC? 7 Audio
Memory FEC00000-FECFFFFF	Undetermined	System board extension for ACPI BIOS
Memory FEE00000-FEEFFFFF	Undetermined	System board extension for ACPI BIOS
Memory FFB00000-FFB7FFFF	Undetermined	System board extension for ACPI BIOS
Memory FFB80000-FFBFFFFF	Undetermined	Intel(r) 82802 Firmware Hub Device
Memory FFF00000-FFFFFFFF	Undetermined	System board extension for ACPI BIOS
Port 0000-000F	Undetermined	Direct memory access controller
Port 0010-001F	Undetermined	Motherboard resources
Port 0020-0021	Undetermined	Programmable interrupt controller
Port 0022-003F	Undetermined	Motherboard resources
Port 0040-0043	Undetermined	System timer
Port 0044-005F	Undetermined	Motherboard resources
Port 0060-0060	Undetermined	Standard 101/102-Key or Microsoft Natural Keyboard
Port 0061-0061	Undetermined	System speaker
Port 0062-0063	Undetermined	Motherboard resources
Port 0064-0064	Undetermined	Standard 101/102-Key or Microsoft Natural Keyboard
Port 0065-006F	Undetermined	Motherboard resources
Port 0070-0073	Undetermined	System CMOS/real time clock
Port 0074-007F	Undetermined	Motherboard resources
Port 0080-0090	Undetermined	Direct memory access controller
Port 0091-0093	Undetermined	Motherboard resources
Port 0094-009F	Undetermined	Direct memory access controller
Port 00A0-00A1	Undetermined	Programmable interrupt controller
Port 00A2-00BF	Undetermined	Motherboard resources

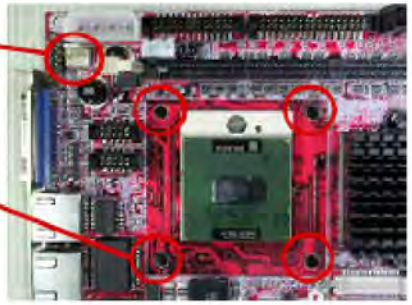
Port 00C0-00DF	Undetermined	Direct memory access controller
Port 00E0-00EF	Undetermined	Motherboard resources
Port 00F0-00FF	Undetermined	Numeric data processor
Port 0170-0177	Exclusive	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Port 0170-0177	Exclusive	Secondary Ultra ATA Controller
Port 01F0-01F7	Exclusive	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Port 01F0-01F7	Exclusive	Primary Ultra ATA Controller
Port 02F8-02FF	Undetermined	Communications Port (COM2)
Port 0376-0376	Exclusive	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Port 0376-0376	Exclusive	Secondary Ultra ATA Controller
Port 0378-037F	Undetermined	Printer Port (LPT1)
Port 03B0-03BB	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Port 03C0-03DF	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Port 03F0-03F5	Undetermined	Standard Floppy Disk Controller
Port 03F6-03F6	Exclusive	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Port 03F6-03F6	Exclusive	Primary Ultra ATA Controller
Port 03F7-03F7	Undetermined	Standard Floppy Disk Controller
Port 03F8-03FF	Undetermined	Communications Port (COM1)
Port 0400-04BF	Undetermined	Motherboard resources
Port 04D0-04D1	Undetermined	Motherboard resources
Port 0500-051F	Exclusive	Intel(R) 82801DB/DBM SMBus Controller - 24C3
Port 0778-077B	Undetermined	Printer Port (LPT1)
Port 0A78-0A7B	Undetermined	Motherboard resources
Port 0B78-0B7B	Undetermined	Motherboard resources
Port 0BBC-0BBF	Undetermined	Motherboard resources
Port 0CF8-0CFF	Undetermined	PCI bus
Port 0E78-0E7B	Undetermined	Motherboard resources
Port 0F78-0F7B	Undetermined	Motherboard resources
Port 0FBC-0FBF	Undetermined	Motherboard resources
Port 9000-903F	Exclusive	Intel(R) PRO/1000 MT Network Connection
Port 9000-9FFF	Exclusive	Intel(R) 82801DB PCI Bridge - 244E
Port 9400-943F	Exclusive	Intel(R) PRO/100 VE Network Connection
Port A000-A01F	Exclusive	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
Port A400-A41F	Exclusive	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
Port A800-A81F	Exclusive	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
Port AC00-AC07	Exclusive	Intel(R) 82852/82855 GM/GME Graphics Controller
Port B400-B4FF	Exclusive	Realtek AC? 7 Audio
Port B800-B83F	Exclusive	Realtek AC? 7 Audio
Port F000-F007	Undetermined	Primary Ultra ATA Controller
Port F000-F00F	Exclusive	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
Port F008-F00F	Undetermined	Secondary Ultra ATA Controller

CPU Heatsink Installation

To install CPU heatsink, please be aware of the orientation of it. Align the end of CPU Fan power cable to the top-left in order to mount it easily.

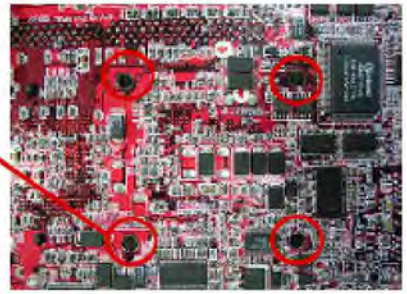
CPU Fan power socket

The holes that secure the heatsink

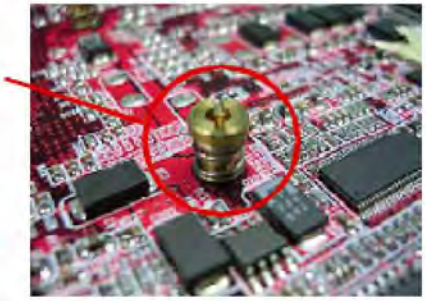


Insert the CPU fan powe cable into the socket and place the heatsink into position.

The solided side of heatsink that to be secured by screws



Use tool-free screws to secure heatsink



Warning:
Screw them to half-way at the same time, then screw each of them until heatsink snaps into mainboard gently.

Warranty

This product is warranted to be in good working order for a period of one 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.

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.

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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