

EC5-1717CLDNA

**Single board computer with
CRT / LVDS /LAN
/Audio/SSD/CPU**

Version: A2

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Safety Notes

1. Read the instruction manual carefully before using this product;
2. Any board or card not ready to be installed shall be kept in the anti-static packaging;
3. Before taking a board or card from its anti-static packaging, put hands on a grounded metal object for a while (about 10 seconds) to eliminate static on your body;
4. While holding a board or card, it is important to wear anti-static gloves; make a habit of holding a board or card by the edge;
5. When inserting to or removing from or re-configuring boards, it is imperative to turn off the direct current power supply or disconnect the power cord from the power socket, to prevent electric shocks to users or damage to products;
6. When removing the boards or PCs, it is imperative to disconnect the DC power cord from the socket beforehand:
7. It is imperative to switch off the DC power supply, in advance of any addition or removal of boards from the PC;
8. Make sure the power supply is unplugged before connecting or disconnecting any device;
9. Have an interval of at least 30 seconds before restarting the computer, to prevent damage by excessively frequent activation or shutting-down.

Contents

| | |
|---|----|
| Chapter 1 Introduction..... | 1 |
| Overview | 1 |
| Ordering Information | 1 |
| Environment and Dimensions | 2 |
| CPU | 2 |
| Chipset..... | 2 |
| System Memory | 2 |
| Network Function (LAN)..... | 2 |
| IDE Function | 2 |
| Audio Function..... | 3 |
| Expansion Bus..... | 4 |
| BIOS..... | 4 |
| Watchdog Function..... | 4 |
| I/O Function | 4 |
| Display Function | 5 |
| Power Saving Features | 6 |
| Other Features | 6 |
| Chapter 2 Installation Instructions..... | 7 |
| Dimensions Drawing..... | 7 |
| Schematic Diagram of I/O Interfaces | 8 |
| Jumper Setting..... | 9 |
| IDE Port..... | 10 |
| CF Port | 13 |
| USB | 14 |
| Parallel Ports and Serial Ports | 14 |
| Display Port..... | 16 |
| Network port..... | 17 |
| Keyboard and Mouse Interface | 17 |
| Audio Function..... | 18 |
| LCD Backlight Control Port..... | 18 |
| Fan Port | 18 |

| | |
|--------------------------------------|----|
| Panel Port | 19 |
| Power Supply Port | 20 |
| PCI-104PLUS port | 21 |
| Chapter 3 BIOS Function..... | 22 |
| Appendix..... | 23 |
| Watchdog Programming Guideline..... | 23 |
| I/O Port Address Map | 25 |
| IRQ Interrupt Assignment Table | 28 |

Chapter 1

Introduction

Overview

EC5-1717CLDNA (B) a single board computer which adopts high-performance Intel910GMLE.

- onboard high-performance ULV Celeron-M 600MHz processor
- between North Bridge and South Bridge, there is a 10Gb/s-bandwidth direct media port DMI
- Onboard DDR2 400MHz memory
- Intel 3rd generation powerful graphics core technology
- serial ATA port
- dual-channel, multi-display port: VGA, LVDS

Besides, EC5-1717CLDNA (B) delivers rich I/O connectivity and multiple I/O expansion slots. It provides 1 x 33MHz 32-bit PCI-104PLUS slot, 1 x Intel 82562ET 10M/100Mbps network port, AC97 Audio port , 1 x keyboard /mouse interface, 1 x 40-pin standard ATA-100/66/33 IDE port, 4 x serial port, 1 x parallel port, 4 x USB2.0 high-speed port and watchdog timer.

EC5-1717CLDNA (B) features high performance, low power consumption and a variety of expansion slots. With extra addition of parts, it is suitable for embedded applications in media centers and telecommunications.

Ordering Information

| Model | Description |
|-------------------|---|
| EC5-1717CLDNA (B) | single board computer with C-M 600MHz CPU/SSD/CRT/LVDS /LAN/Audio |

| | |
|----------------------|---|
| EC5-1717CLDNA (B) | single board computer with P-M 1.8G CPU/SSD/CRT/LVDS /LAN/Audio |
|----------------------|---|

Environment and Dimensions

- Dimensions: 203.00mm x 146.00mm
- Operating Temperature: 0°C~60°C
- Relative Humidity: 5%~90%

CPU

Onboard powerful ULV Celeron-M 600MHz processor, with optional Pentium-M 1.8G CPU

Chipset

Intel 910GMLE+ICH6-M chipset

System Memory

Onboard DDR2 memory, with a capacity of 512MB

Network Function (LAN)

It is integrated with 1 x Intel82562ET 10/100Mb Ethernet controller, delivering high-speed and stable network connection.

IDE Function

1 x 40-pin ATA100/66/33 channel, supporting 2 x EIDE device

2 x serial ATA port, data transfer rate reaching up to 1.5Gb/s (minimum 150MB/s).

Audio Function

It is integrated with AC'97 sound chip, which delivers excellent sound effects.

USB Function

It offers 4 x USB2.0 high-speed port, delivering the possibility of large mobile storage capacity on embedded motherboards.

Note: 1) it is imperative to use good USB devices and they should be grounded. Poorly-grounded USB devices will damage the system; 2) in any case, touch the chassis with both hands to release the static current from the body before handling USB devices; 3) when disconnecting the USB devices when they are powered on, it is imperative that they should be in standby mode (not working).

Expansion Bus

1 x PCI-104Plus connector, which can be expanded for 3 x PCI slot with expansion boards

BIOS

PnP BIOS with AMI new kernel

Watchdog Function

- Software programmable supports 1-255 sec. /min.
- System reset/interrupt
- Down Counter by the second/minute

I/O Function

- 1 x high-speed parallel port, supporting SPP/EPP/ECP mode

- 4 x RS-232 COM port, meeting the growing need for communications
- keyboard / mouse jack

Display Function

It features Intel GMA900 display chip, which adopts Intel 3rd generation graphics core technology and supports dual-channel and multi-port display: VGA, LVDS.

Graphics core frequency

- ✓ 2D display core frequency: 133 or 190/200MHZ, varying with the configuration of CPU/memory
- ✓ 3D processing core frequency: 133,160/166 or190/200MHZ, varying with the configuration of CPU/memory
- ✓ Intel Smart 2D display technology
- ✓ Intel dual-frequency graphic technology
- ✓ DVMT 3.0

3D graphic engine

- ✓ Supports DirectX 9.0
- ✓ Supports OpenGL 1.5 and 2.0
- ✓ Supports regional processor

Analog CRT digital-analog converter port

- ✓ Highest digital-analog conversion rate of 400MHz
- ✓ 24-bit RAMDAC
- ✓ Maximum resolution: 2048 x 1536

Digital LVDS output port

- ✓ Supports dual-channel LVDS port, in compliance with

ANSI/TIA/EIA –644-2001 standards

- ✓ Supports 25MHz to 112MHZ single/dual-channel LVDS LCD port :
 - Single-channel LVDS 18bpp TFT LCD screen
 - Dual-channel LVDS 2x18bpp TFT LCD screen
- ✓ Supports maximum UXGA screen dimensions
- ✓ Supports maximum WUXGA wide screen dimensions

Power Saving Features

With BIOS, power supply switch signal can be set on ATX power supply switch mode or sleep/operative mode switch function.

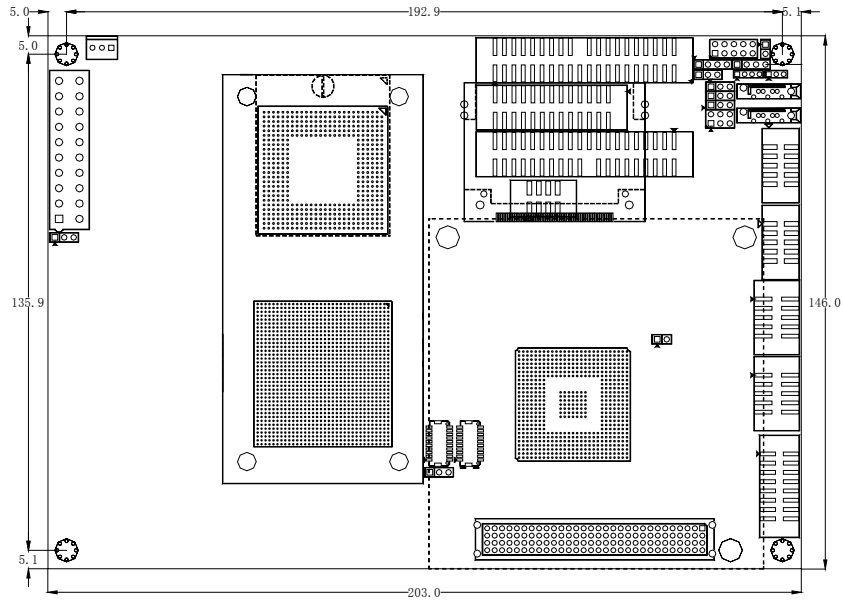
Other Features

- Temperature monitoring: CPU is configured with a sensor to monitor the temperature of CPU.
- ATX power supply
- ACPI (Advanced Configuration and Power Management Interface), supporting more power supply management functions

Chapter 2

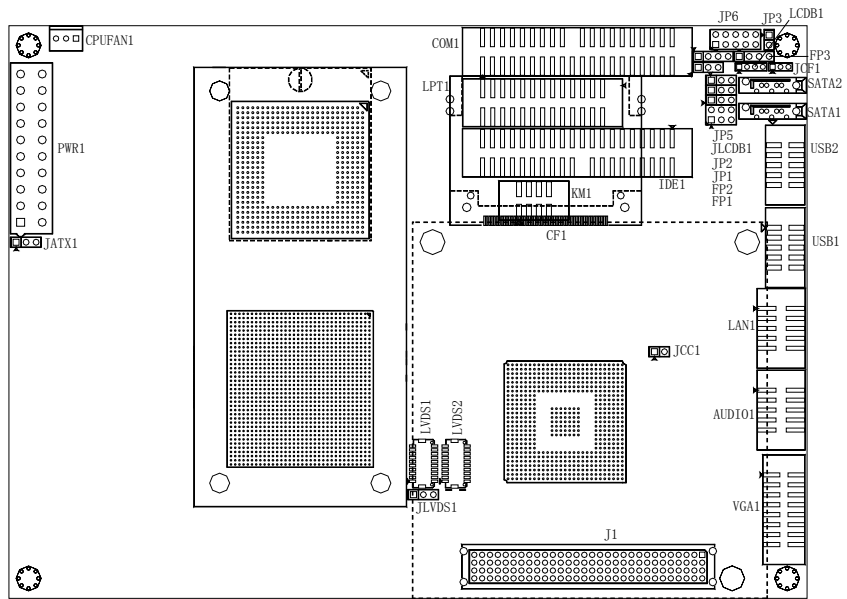
Installation Instructions

Dimensions Drawing



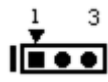
Unit: mm

Schematic Diagram of I/O Interfaces



Jumper Setting

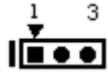
1. JLCDB1: selecting LCD backlight voltage



JLCDB1

| Setting | Function |
|-----------|----------------|
| 1-2 short | +12V (default) |
| 2-3 short | +5V |

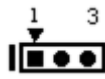
2. JP1, JP2: selecting system bus frequency



JP1/JP2

| JP2 | JP1 | Bus FSB Frequency |
|-----------|-----------|-------------------|
| 2-3 short | all open | 400MHz |
| 2-3 short | 2-3 short | null |
| 1-2 short | 1-2 short | null |
| 1-2 short | 2-3 short | null |

3. JATX1: selecting ATX power supply



JATX1

| Setting | Function |
|-----------|------------------|
| 1-2 short | ATX power supply |
| 2-3 short | AT (standby) |

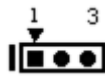
4. JP3: selecting master and slave CF card



JP3

| Setting | Function |
|-----------|----------------|
| 1-2 short | Master |
| 1-2 open | Slave(default) |

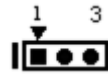
5. JCF1: selecting CF card voltage



JCF1

| Setting | Function |
|-----------|----------------|
| 1-2 short | +3.3V(default) |
| 2-3 short | +5V |

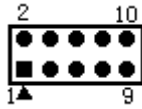
6. JLVDS1: selecting LVDS voltage



JLVD51

| Setting | Function |
|-----------|----------------|
| 1-2 short | +3.3V(default) |
| 2-3 short | +5V |

7. JP6: selecting the mode of serial port 4 (2×5pin)



JP6

| Mode | Pin Status | |
|-----------------|--------------|----------------|
| | ON | OFF |
| RS-232(default) | 1-2,3-4,5-6 | Other pins off |
| RS-485 | 3-5,7-8,9-10 | Other pins off |

8. JCC1: CMOS clear/retain settings

CMOS is powered by onboard button cells. Clearing CMOS will eliminate all the current system configurations and restore to original settings (factory default). The steps are listed as follows: (1) Turn off the computer and unplug the power cable; (2) Instantly short JCC1; (3) Turn on the computer; (4) Follow the hint on screen to enter BIOS setup when starting the computer, load optimized defaults; (5) Save and exit setup mode.



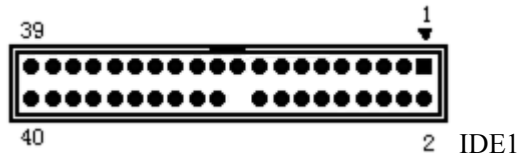
JCC1

| Setting | Function |
|-----------------|---|
| open | [1-2] (Normal operating status, the default setting) |
| transient short | [1-2] (Clear the content of CMOS, all the BIOS setting restore to factory default value.) |

IDE Port

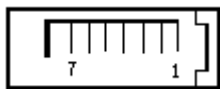
The board delivers one 40-pin IDE connector. When installing the IDE devices, pay attention to the following:

- An IDE port can connect 2 IDE devices. One is the master device, and the other is the slave device. The connecting is done in this way: the master device is connected to the end of the cable while the slave device to the middle.
- When Ultra66/100 hard disks are in use, it is advisable to use special-purpose 800-wire flat cables (the first pin of the IDE cable is marked in red).



| Pin | Signal | Pin | Signal |
|-----|--------|-----|-----------|
| 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 | Key |
| 21 | DREQ | 22 | GND |
| 23 | IOW# | 24 | GND |
| 25 | IOR# | 26 | GND |
| 27 | IORDY | 28 | GND |
| 29 | DACK# | 30 | GND |
| 31 | IRQ | 32 | NC |
| 33 | DA1 | 34 | ATA66_DET |
| 35 | DA0 | 36 | DA2 |
| 37 | CS1# | 38 | CS3# |
| 39 | LED# | 40 | GND |

Besides, this single board computer offers 2 serial ATA ports:



SATA1/SATA2

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | GND | 2 | TX+ |
| 3 | TX- | 4 | GND |
| 5 | RX- | 6 | RX+ |
| 7 | GND | | |

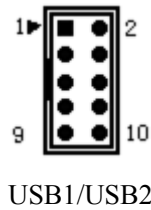
CF Port

CompactFlash card is a kind of high-speed storage device, which is small in size and easy to use. Its storage volume varies on an individual basis, being 1M or 256M for example. CF cards only allow unidirectional insertion (marked with CF1, on the rear side of the board).

| Pin | Signal | Pin | Signal |
|-----|------------|-----|-----------|
| 1 | GND | 26 | CD1# |
| 2 | D3 | 27 | D11 |
| 3 | D4 | 28 | D12 |
| 4 | D5 | 29 | D13 |
| 5 | D6 | 30 | D14 |
| 6 | D7 | 31 | D15 |
| 7 | CS0# | 32 | CS1# |
| 8 | GND | 33 | VS1# |
| 9 | ATASEL# | 34 | IOR# |
| 10 | GND | 35 | IOW# |
| 11 | GND | 36 | WE# |
| 12 | GND | 37 | IRQ |
| 13 | VCC | 38 | VCC |
| 14 | GND | 39 | CSEL# |
| 15 | GND | 40 | VS2# |
| 16 | GND | 41 | RESET# |
| 17 | GND | 42 | IORDY |
| 18 | A2 | 43 | DREQ |
| 19 | A1 | 44 | DACK# |
| 20 | A0 | 45 | DASP# |
| 21 | D0 | 46 | ATA66_DET |
| 22 | D1 | 47 | D8 |
| 23 | D2 | 48 | D9 |
| 24 | WP/IOCS16# | 49 | D10 |
| 25 | CD2# | 50 | GND |

USB

This board offers two 2 x 5-pin USB contact pins (USB1, USB2) and 4 x USB 2.0 port. USB1 includes port 1 and port 2 and USB2 includes port 3 and port 4.

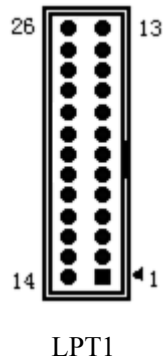


| Pin | Signal | Pin | Signal |
|-----|-----------|-----|--------------|
| 1 | +5V | 2 | +5V |
| 3 | USB Data- | 4 | USB Data- |
| 5 | USB Data+ | 6 | USB Data+ |
| 7 | GND | 8 | GND |
| 9 | null | 10 | Shielded GND |

Parallel Ports and Serial Ports

1. Parallel ports

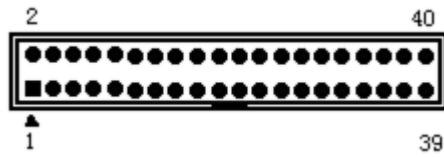
This is a standard 26-pin parallel port, which can connect peripherals with parallel ports.



| Pin | Signal | Pin | Signal |
|-----|----------------------|-----|------------|
| 1 | Line printer strobe | 2 | AutoFeed |
| 3 | PD0, parallel data 0 | 4 | Error |
| 5 | PD1, parallel data 1 | 6 | Initialize |
| 7 | PD2, parallel data 2 | 8 | Select |
| 9 | PD3, parallel data 3 | 10 | Ground |
| 11 | PD4, parallel data 4 | 12 | Ground |
| 13 | PD5, parallel data 5 | 14 | Ground |
| 15 | PD6, parallel data 6 | 16 | Ground |
| 17 | PD7, parallel data 7 | 18 | Ground |
| 19 | ACK, acknowledge | 20 | Ground |
| 21 | Busy | 22 | Ground |
| 23 | Paper empty | 24 | Ground |
| 25 | Select | 26 | NC |

2. Serial port

COM1 is a 2x20-pin port, delivering 4 serial ports for connecting RS-232 devices, such as mice, Modems.

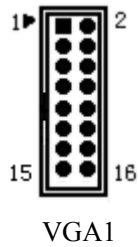


COM1

| Signal | Pin | Pin | Signal |
|-----------|-----|-----|-----------|
| DCD1 | 1 | 2 | RXD1 |
| TXD1 | 3 | 4 | DTR1 |
| GND | 5 | 6 | DSR1 |
| RTS1 | 7 | 8 | CTS1 |
| RI1 | 9 | 10 | NC |
| DCD2 | 11 | 12 | RXD2 |
| TXD2 | 13 | 14 | DTR2 |
| GND | 15 | 16 | DSR2 |
| RTS2 | 17 | 18 | CTS2 |
| RI2 | 19 | 20 | NC |
| DCD3 | 21 | 22 | RXD3 |
| TXD3 | 23 | 24 | DTR3 |
| GND | 25 | 26 | DSR3 |
| RTS3 | 27 | 28 | CTS3 |
| RI3 | 29 | 30 | NC |
| DCD4/485- | 31 | 32 | RXD4/485+ |
| TXD4 | 33 | 34 | DTR4 |
| GND | 35 | 36 | DSR4 |
| RTS4 | 37 | 38 | CTS4 |
| RI4 | 39 | 40 | NC |

Display Port

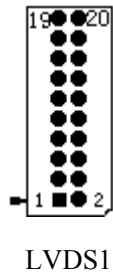
1. CRT: 2*8-pin jack



| Pin | Signal | Pin | Signal |
|-----|--------|-----|---------|
| 1 | RED | 2 | GND |
| 3 | NC | 4 | GREEN |
| 5 | GND | 6 | DDCDATA |
| 7 | BLUE | 8 | GND |
| 9 | HSYNC | 10 | NC |
| 11 | +5V | 12 | VSYNC |
| 13 | GND | 14 | GND |
| 15 | DDCCLK | 16 | NC |

2. LVDS: LVDS output port

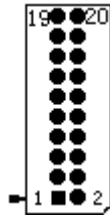
A. LVDS1: LVDS port, channel 1



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DATA0+ | 2 | DATA0- |
| 3 | GND | 4 | GND |
| 5 | DATA1+ | 6 | DATA1- |
| 7 | GND | 8 | GND |
| 9 | DATA2+ | 10 | DATA2- |
| 11 | GND | 12 | GND |
| 13 | CLK+ | 14 | CLK- |
| 15 | GND | 16 | GND |
| 17 | NC | 18 | NC |
| 19 | VDD | 20 | VDD |

Note: The function of LVDS1 and LVDS2 are not identical. LVDS2 can not be used alone and can only expand the bandwidth of LVDS1. The LCD screens that support dual-channel LVDS can use the two ports of LVDS1 and LVDS2 at the same time. The LCD screens with single-channel LVDS ports can only use LVDS1 port.

B. LVDS2: LVDS port , channel 2

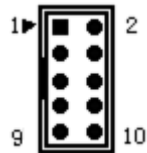


LVDS2

| Pin | Signal | Pin | Signal |
|-----|---------|-----|---------|
| 1 | DATAB0+ | 2 | DATAB0- |
| 3 | GND | 4 | GND |
| 5 | DATAB1+ | 6 | DATAB1- |
| 7 | GND | 8 | GND |
| 9 | DATAB2+ | 10 | DATAB2- |
| 11 | GND | 12 | GND |
| 13 | CLKB+ | 14 | CLKB- |
| 15 | GND | 16 | GND |
| 17 | NC | 18 | NC |
| 19 | VDD | 20 | VDD |

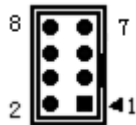
Network port

This port is the 10/100Mbps Ethernet port on the board. LINK_LED and ACT_LED can connect LEDs to display the state of LAN activity and transfer state.



LAN1

| Pin | Signal | Pin | Signal |
|-----|----------|-----|-----------|
| 1 | LED+ | 2 | LINK_LED- |
| 3 | RX+ | 4 | RX- |
| 5 | ACT_LED- | 6 | Terminal |
| 7 | Terminal | 8 | GND |
| 9 | TX+ | 10 | TX- |

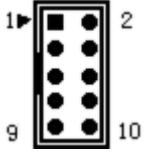
Keyboard and Mouse Interface

| Pin | Signal | Pin | Signal |
|-----|----------------|-----|--------|
| 1 | Keyboard data | 5 | GND |
| 2 | Mouse data | 6 | GND |
| 3 | Keyboard clock | 7 | +5V |

| | | | | |
|-----|---|-------------|---|-----|
| KM1 | 4 | Mouse clock | 8 | +5V |
|-----|---|-------------|---|-----|


Audio Function

With the cable on the board, Audio_Out can be linked to earphones or speakers of suitable power. Line In is used for recording by tape recorder or other audio devices, or is used for Audio_Out playing. Mic is used to link microphone for audio input.



| Pin | Signal | Pin | Signal |
|-----|-----------------|-----|----------------|
| 1 | Audio_Out Right | 2 | Audio_Out Left |
| 3 | GND | 4 | GND |
| 5 | Line_in Right | 6 | Line_in Left |
| 7 | GND | 8 | GND |
| 9 | Mic Phone in | 10 | Mic Phone Ref |

LCD Backlight Control Port



| Pin | Signal |
|-----|-------------|
| 1 | VCC_LCDBKLT |
| 2 | LCD_BKLTCTL |
| 3 | LCD_BKLTEN |
| 4 | GND |

Fan Port

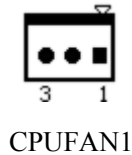
The CPU card offer 1 x standard fan jack CPUFAN.

When using the fan jack, pay attention to the following 3 points:

- The current for fans should not exceed 350mA (4.2W, 12V)
- Please make sure the fan cabling is suitable for the fan jack:

power cable (usually red), ground wire (usually black), fan speed output signal (in other color) and fan speed detecting signal. Some fans do not have speed detecting signal, but this pin will have a 12V output, and will cool the motherboard. It is advisable to use a fan with the speed detecting signal.

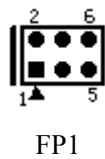
- Adjust the fanning direction to the same as the ventilation direction.



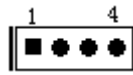
| Pin | Signal |
|-----|-----------|
| 1 | GND |
| 2 | +12V |
| 3 | Rev pulse |

Panel Port

FP1, FP2 and FP3 are used to link the functional keys or indicators of the front panel of chassis.

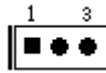


| Pin | Signal | Pin | Signal |
|-----|--------------|-----|----------|
| 1 | Power Button | 2 | GND |
| 3 | GND | 4 | RESET |
| 5 | IDE LED- | 6 | IDE LED+ |



FP3

| Pin | Signal |
|-----|-------------|
| 1 | Speaker out |
| 2 | NC |
| 3 | GND |
| 4 | +5V |

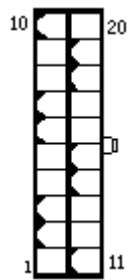


FP2

| Pin | Signal |
|-----|-------------|
| 1 | Power LED + |
| 2 | NC |
| 3 | GND |

Power Supply Port

ATX power supply port



PWR1

| Signal | Pin | Pin | Signal |
|--------|-----|-----|-------------|
| +3.3V | 11 | 1 | +3.3V |
| -12V | 12 | 2 | +3.3V |
| GND | 13 | 3 | GND |
| PS-ON | 14 | 4 | +5V |
| GND | 15 | 5 | GND |
| GND | 16 | 6 | +5V |
| GND | 17 | 7 | GND |
| -5V | 18 | 8 | Power Good |
| +5V | 19 | 9 | +5V Standby |
| +5V | 20 | 10 | +12V |

PCI-104PLUS port

Marked with J1

| Pin | Signal | Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|-----|--------|-----|--------|
| A1 | KEY | B1 | NC | C1 | +5V | D1 | AD0 |
| A2 | NC | B2 | AD2 | C2 | AD1 | D2 | +5V |
| A3 | AD5 | B3 | GND | C3 | AD4 | D3 | AD3 |
| A4 | C/BE0 | B4 | AD7 | C4 | GND | D4 | AD6 |
| A5 | GND | B5 | AD9 | C5 | AD8 | D5 | GND |
| A6 | AD11 | B6 | NC | C6 | AD10 | D6 | NC |
| A7 | AD14 | B7 | AD13 | C7 | GND | D7 | AD12 |
| A8 | +3.3V | B8 | C/BE1 | C8 | AD15 | D8 | +3.3V |
| A9 | SERR | B9 | GND | C9 | NC | D9 | PAR |
| A10 | GND | B10 | PERR | C10 | +3.3V | D10 | NC |
| A11 | STOP | B11 | +3.3V | C11 | LOCK | D11 | GND |
| A12 | +3.3V | B12 | TRDY | C12 | GND | D12 | DEVSEL |
| A13 | FRAME | B13 | GND | C13 | IRDY | D13 | +3.3V |
| A14 | GND | B14 | AD16 | C14 | +3.3V | D14 | C/BE2 |
| A15 | AD18 | B15 | +3.3V | C15 | AD17 | D15 | GND |
| A16 | AD21 | B16 | AD20 | C16 | GND | D16 | AD19 |
| A17 | +3.3V | B17 | AD23 | C17 | AD22 | D17 | +3.3V |
| A18 | IDSEL0 | B18 | GND | C18 | IDSEL1 | D18 | IDSEL2 |
| A19 | AD24 | B19 | C/BE3 | C19 | NC | D19 | IDSEL3 |
| A20 | GND | B20 | AD26 | C20 | AD25 | D20 | GND |
| A21 | AD29 | B21 | +5V | C21 | AD28 | D21 | AD27 |
| A22 | +5V | B22 | AD30 | C22 | GND | D22 | AD31 |
| A23 | REQ0 | B23 | GND | C23 | REQ1 | D23 | NC |
| A24 | GND | B24 | REQ2 | C24 | +5V | D24 | GNT0 |
| A25 | GNT1 | B25 | NC | C25 | GNT2 | D25 | GND |
| A26 | +5V | B26 | CLK0 | C26 | GND | D26 | CLK1 |
| A27 | CLK2 | B27 | +5V | C27 | CLK3 | D27 | GND |
| A28 | GND | B28 | INTD | C28 | +5V | D28 | RESET |
| A29 | +12V | B29 | INTA | C29 | INTB | D29 | INTC |
| A30 | -12V | B30 | REQ3# | C30 | GNT3# | D30 | KEY |

Chapter 3

BIOS Function

For more information about BIOS setup of this motherboard, please refer to our *AMI BIOS Setup Guide*.

Appendix

Watchdog Programming Guideline

EC5-1717CLDNA (B) provides a watchdog timer (WDT) which is programmable supports 1-255 sec. /min. system reset/interrupt. By programming, WDT timeout event can reset the system and generate a maskable interrupt. (Note: the interrupt used here does not support sharing. It should not be the same as any interrupt used by other devices.) The following describes the WDT programming by the C programming language.

```
//Super I/O Watchdog
#define pm_base 0x0a00
#define WRITEREG(reg,val) {tmp_reg=pm_base+reg;
outportb(tmp_reg,val);}
//1.Initial Watchdog device
short SIOWTD_Setup(short irq)
/* irq=3,4,5,6,7,9,12,0:disable interrupt,0xff:reset*/
{
    //check parameters
    //if(irq!=0xff && (irq<3 || irq>7) && irq!=9 && irq!=12 &&
irq!=0)
    //    return -1;
    SIOWTD_Disable();
    //start programming Watchdog

    //Set Watchdog Event
```

```
if(irq==0xff) //WatchDog cause System Reset
{
    WRITEREG(0x47,0x0c)

}
else //Watchdog cause System Interrupt
{
    irq=irq<<4;
    WRITEREG(0x47,0x80)
    WRITEREG(0x67,irq)
}
//end programming watchdog

return 0;
}
//2.start Watchdog to count
short SLOWTD_Enable(short time,short unit)
/*unit=0:second,=1:minutes */
{
    if(time<1 || time>255) return -1;
    if(unit<0 || unit>1) return -1;
    //start programming watchdog

    //select Watchdog Timer clock
    switch(unit)
    {
    case 0:
```

```
WRITEREG(0x65,0x80) //secondes
break;
case 1:
WRITEREG(0x65,0) //minutes
break;
}
WRITEREG(0x66,time) //set timeout value
//end programming watchdog

return 0;
}
//3.Disable the Watchdog
short SLOWTD_Disable()
{
//start programming watchdog

WRITEREG(0x66,0) //set timeout value=0
//end programming watchdog

return 0;
}
```

I/O Port Address Map

The system I/O address space is 64K in total. Each peripheral will occupy

an I/O address space. The following table offers I/O address assignment (for reference) of some devices of this single board computer. Since the addresses of PCI devices (e.g. PCI network card) are configured by software, this table does not contain them.

| Address | Description |
|----------------|-----------------------------------|
| 000h - 01Fh | DMA controller |
| 020h - 021h | Programmable interrupt controller |
| 024h – 025h | Programmable interrupt controller |
| 028h – 029h | Programmable interrupt controller |
| 02Dh – 02Dh | Programmable interrupt controller |
| 02Eh – 02Fh | LPC Super I/O W83627HF |
| 030h – 031h | Programmable interrupt controller |
| 034h – 035h | Programmable interrupt controller |
| 038h – 039h | Programmable interrupt controller |
| 03Ch – 03Dh | Programmable interrupt controller |
| 040h - 043h | Timer/ Counter (8254) |
| 04Eh – 04Fh | LPC Super I/O |
| 050h – 053h | Timer/ Counter |
| 060h | Micro-controller on LPC bus |
| 061h | NMI interrupt controller |
| 062h | Micro-controller on LPC bus |
| 064h | Micro-controller on LPC bus |
| 066h | Micro-controller on LPC bus |
| 070h | NMI and RTC controller reserved |
| 071h | RTC controller |
| 072h | NMI and RTC controller |
| 073h | RTC controller |
| 074h | NMI and RTC controller |
| 075h | RTC controller |

| | |
|-------------|--|
| 076h | NMI and RTC controller |
| 077h | RTC controller |
| 080h | DMA controller, LPC or PCI |
| 081h - 083h | DMA controller |
| 084h - 086h | DMA controller, LPC or PCI |
| 087h | DMA controller |
| 088h | DMA controller, LPC or PCI |
| 089h - 08Bh | DMA controller |
| 08Ch - 08Eh | DMA controller, LPC or PCI |
| 08Fh | DMA controller |
| 090h - 091h | DMA controller |
| 092h | Reset generator |
| 093h - 09Fh | DMA controller |
| 0A0h - 0A1h | Programmable interrupt controller |
| 0A4h - 0A5h | Programmable interrupt controller |
| 0A8h - 0A9h | Programmable interrupt controller |
| 0ACh - 0ADh | Programmable interrupt controller |
| 0B0h - 0B1h | Programmable interrupt controller |
| 0B2h - 0B3h | power supply management |
| 0B4h - 0B5h | Programmable interrupt controller |
| 0B8h - 0B9h | Programmable interrupt controller |
| 0BCh - 0BDh | Programmable interrupt controller |
| 0C0h - 0D1h | DMA controller |
| 0D2h - 0DDh | DMA controller reserved |
| 0DEh - 0DFh | DMA controller |
| 0F0h | PCI and master controller cancelled (FERR#/IGNNE#/ interrupt controller) |
| 170h - 177h | IDE controller, SATA controller or PCI |
| 1F0h - 1F7h | IDE controller, SATA controller or PCI |
| 376h | IDE controller, SATA controller or PCI |
| 4D0h - 4D1h | Interrupt controller |
| CF9h | Reset generator |

IRQ Interrupt Assignment Table

There are 15 interrupts in the system. Some are occupied by the system device. Only the ones which are not occupied can be distributed. ISA devices require the exclusive use of interrupts. The interrupts of PnP ISA devices are distributed by BIOS or operating systems. And several PCI devices share one interrupt through the assignment of BIOS or operating systems. The table below shows parts of the interrupt assignment for CPU card (for your reference only), but it does not show the interrupts occupied by the PCI devices.

| Level | Function |
|-------|---|
| IRQ0 | System timer |
| IRQ1 | Standard 101/102-key or Microsoft keyboard |
| IRQ2 | Programmable interrupt controller |
| IRQ3 | serial port #2 |
| IRQ4 | serial port #1 |
| IRQ5 | Intel(R) 82801FBM USB Universal Host Controller -24C4 |
| IRQ5 | ACPI IRQ Holder for PCI IRQ Steering |
| IRQ6 | Floppy disk drive |
| IRQ7 | parallel port #1 |
| IRQ8 | System CMOS/real-time clock |
| IRQ9 | SCI IRQ used by ACPI bus |
| IRQ1 | Intel(R) 82801FBM USB Universal Host Controller-24C2 |
| IRQ1 | Intel(R) 82915GM Graphics Controller |
| IRQ1 | ACPI IRQ Holder for PCI IRQ Steering |
| IRQ11 | Realtek AC'97 Audio |
| IRQ1 | PS/2 compatible mouse port |
| IRQ1 | Numerical data processor |
| IRQ1 | Intel(R) 82801FBM Ultra ATA Storage Controller-24CB |

| | |
|------|---|
| IRQ1 | Slave IDE |
| IRQ1 | Intel(R) 82801FBM Ultra ATA Storage Controller-24CB |

For more information, please visit our website: <http://www.evoc.com>.