

EC4—1641CLD2NA

**EPIC single board computer with CPU and
LCD/CRT/SSD/2LAN/Audio/4COM interface**

Version: A0

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Your EC3-1641CLD2NA should include the items listed below. If there's any damage or shortage, please contact your dealer as soon as possible.

- One Main Board
- One User Manual
- One *AMI BIOS Setting Direction*
- One Audio Transfer Cable
- Three Serial Port Transfer Cable
- One Floppy Drive Transfer Cable
- One Hard Disk Transfer Cable
- One EVOC CD Including Software and User Manual
- Standby Jumper

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Safety Instructions

1. Before handling your 104-1711CLDN, read the instructions and safety guidelines on the following pages to prevent damage to the product and to ensure your own personal safety;
2. Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them;
3. Before taking board from anti-static packaging, put your hand on grounded metal object for a while (about 10 seconds) to eliminate static on your body;
4. When holding a board, wear a grounded wrist strap against your skin to eliminate static on your body. Hold a board by its edges or by its metal mounting bracket;
5. Before inserting, removing or re-configuring motherboard or expansion card, first disconnect the computer and peripherals from their power sources;
6. Before removing boards or computer , first turn off all power resources and disconnect the power cord from power source;
7. For whole set, when inserting or removing boards, first disconnect the computer and peripherals from their power sources;
8. To connect or disconnect any equipment, first turn off all power resources and disconnect the power cord from power source;
9. To avoid power on/off computer frequently, wait at least 30 seconds after turning off the computer before re-turning on the computer.

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Chapter 1

Products Introduction

Brief Introduction

EC4-1641CLD2NA single board computer uses AMD LX800 chipset design, which have compact structure and high dependability, compatible PC104/PC104 PLUS bus single board computer, the main features are showed as follows:

- ◆ Standard board configured with on board AMD LX800 compatible AMD LX700。
- ◆ Standard board configured with on board DDR DIMM SDRAM slot, up to 1GB.
- ◆ One ATA100 IDE interface, support two sets of IDE devices.
- ◆ One PC/104 and one PC/104-PLUS expansion bus.
- ◆ Integration in LX800: VGA & TTL LCD & LVDS。
- ◆ One TYPE I/II Compact Flash interface
- ◆ Two 10/100Mbps Ethernet controllers
- ◆ Standard AC'97 on board sound card
- ◆ AMI the latest kernel BIOS。

What' s more, EC4-1641CLD2NA supplies GPIO 8bit input and 8bit output digital I/O interfaces, four USB2.0 interfaces, one FDD, one parallel port, four RS-232 (two of them support RS232/422/485), one PS/2 keyboard/mouse interface, CPU temperature monitor, voltage monitor, fan speed monitor and watchdog timer.

Ordering Information

Model	Description
EC4-1641CLD2NA	EPIC single board computer with CPU and LCD/CRT/SSD/2LAN/Audio/4COM interfaces

Environment and Dimension

- Dimension: 175mm x 115mm
- Temperature: -5°C~60°C
- Humidity: 5%~90% (Non-condensing)

CPU

AMD LX800-500MHz (compatible AMD LX700)

Chipset

Select CS5536

System Memory

One on board DDR DIMM slot, the maximum memory up to 1GB

LAN Function

The main board integrates two 10/100Mb Ethernet controllers to support high-speed, stable network selection to you.

Video Function

Integration in LX800: VGA & TTL LCD & LVDS interface

Audio Function

On-board Integrated AC'97 audio chip, offer high-quality audio effect

IDE Function

One ATA 100 IDE interface, support two sets of IDE devices

SSD (solid state disk) Function

One TYPE I/II CompactFlash interface

Digital I/O Function

GPIO 8bit input, 8bit output.

USB Function

Provide four USB2.0 high-speed interfaces that help to achieve the embedded single board mobile mass memory.

Note:

- 1) Please use eligible USB device and make sure the grounding is qualified, or the system will be damaged.
- 2) Any time when touching the USB device, please touch the electrostatic release on the chassis.
- 3) When you need to draw the USB devices in electrification, make sure the USB devices is in standby mode (not work).

Expansion Bus

One PC/104 and one PC/104-PLUS expansion bus

Power Supply Selection

Single 5-30V single power supply

BIOS

AMI the latest kernel BIOS。

Watchdog Function

- 1~255 level, programmable time to interrupts
- 1~255 overtime event reposition system
- 1(second/minute) resolution down-counter

I/O Function

- One high-speed parallel port, in SPP/EPP/ECP method
- Four RS-232 COM interface to meet users' increasing communication need
- Keyboard/Mouse Socket

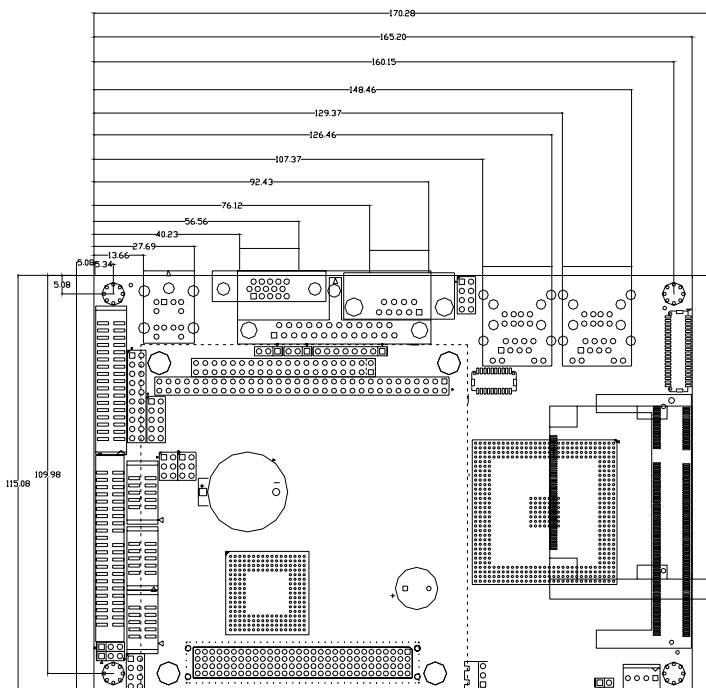
System Monitor

The CPU temperature and system chassis temperature monitor and system working voltage monitor.

Chapter 2

Installation Direction

Board Layout

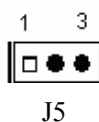


Unit: mm

Jumper Function Setup

1. J5: cleanup/keep CMOS content setup

CMOS get power from the button battery on board. Clear CMOS will lead the elimination of system configuration, which will recover to factory default. The steps: (1) Turn off the computer power supply; (2). Instant short-circuiting J5 pin; (3) turn on the computer ;(4)press DEL to enter BIOS when starting the computer, load optimized defaults; (5) Save and exit the setting system



J5

Setup	Function
Pin1-2 short	Normal
Pin2-3 short	Clear COMS

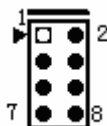
2. JP2/JP3:COM3/COM4 serial port selection



JP2/JP3

Setup	Communication Mode
Pin1-2short	RS232
Pin3-4 short	RS422
Pin5-6 short	RS485

3. J4: front panel (FSP) pin



J4

Setup	Function
Pin1-2 short	POWER LED
Pin3-4 short	IDE LED
Pin5-6 short	PWBOTTOM
Pin7-8 short	RST

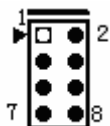
4. **J10: the principal and subordinate selection of CF card**



J10

Setup	Function
Pin1-2 short	Primary Device
Pin2-3 short	Secondary Device

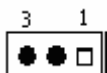
5. **J8:LAN light external pin**



J8

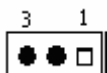
Pin#	Signal Name	Pin#	Signal Name
1	LAN2_LINKLED	2	VCC3
3	LAN2_ACTLED	4	VCC3
5	LAN1_LINKLED	6	VCC3
7	LAN1_ACTLED	8	VCC3

6. **Back light voltage selection: LCD2/LCD3**



LCD2

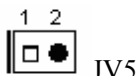
Setup	Function
Pin1-2 short	3.3V
Pin2-3 short	5V



LCD3

Setup	Function
Pin1-2 short	12V
Pin2-3 short	5V

7. **JV5: 5V power supply pin**



JV5

Setup
Short-circuit when use simple 5V power supply

Installation of System Memory

The CPU card is equipped with one DDR (Double Data Rate) DIMM (Dual Inline Memory Modules) 200pin memory slot (DDR).

When installing memory modules, please note:

- Firstly, aim at the gap of memory DIMM module and the DIMM slot. Then insert the DIMM module properly.
- Support Intel 2.5V DDR266 DDR memory, maximum of memory capability reach 1GB.
- It is recommended to use DIMM memory with SPD, in order to guarantee stable operation.

LAN and USB Combinational Interfaces

This CPU card provides a combination interfaces which formed by two network interfaces and four USB interfaces, LAN1/LAN2. LILED and ACTLED are the green and yellow LED beside network interface, which shows the LAN activity and transfer status.

(1) USB interface definition:



Pin#	Signal Name
1	+5V
2	USB Data-
3	USB Data+
4	GND

(2) LAN interface definition:

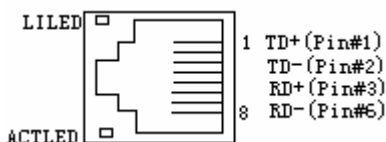
Please consult the following description of LED status:

TD+,TD-: plus/minus TXD signal

RD+,RD-: plus/minus RXD signal

ACTLED: Status light of network activity

LILED: Status light of network links



LILED (Green)	Indication Status	ACTLED (Green)	Indication Status
ON	Available Network links	ON	Data receiving/sending
OFF	Unavailable network links	OFF	No data to receive/send

Note: a network interface and two USB ports share a connector module.

Fan Interface

This CPU card provides a standard fan socket FAN1 (CPUFAN). Please pay attention to the following three problems when using the fan socket:

- The electrical current can't be more than 350M (4.2W, 12V).
- Please confirm fan's wire complies with the socket. Power cord (usually red) is in the middle position. In addition, you shall pay attention to the earth wire (in different colors). Some fans have not function of rotation detection, but its lead has output as high as 12V, which is non-standard lead and may damage CPU card. It is suggested to use a fan with rotation speed detection.
- Adjust the fan's airflow to the direction of heat venting.



FAN1

Pin#	Signal Name
1	GND
2	+5V
3	Rotating pulse

IDE1 and Floppy Disk Interfaces

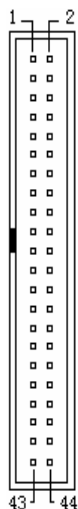
(1) IDE1 interface

This simple board computer supplies a set of 44pin IDE interfaces. Please pay attention to the following two problems during the installation:

1. Every IDE interface can be connected with two sets of IDE equipment: a master one and a slave one.
2. The method to connect the equipment: connect the master to the end of

the cable while connect the slave to the middle of the cable (the IDE cable with red mark is the first pin);

■ IDE1 interface definition



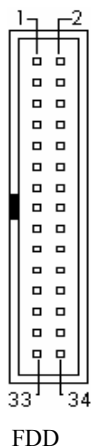
IDE1

Pin#	Signal Name	Pin#	Signal Name
1	Reset IDE	2	GND
3	Host data 7	4	Host data 8
5	Host data 6	6	Host data 9
7	Host data 5	8	Host data 10
9	Host data 4	10	Host data 11
11	Host data 3	12	Host data 12
13	Host data 2	14	Host data 13
15	Host data 1	16	Host data 14
17	Host data 0	18	Host data 15
19	GND	20	Key
21	DRQ0/1	22	GND
23	Host IOW	24	GND
25	Host IOR	26	GND
27	IOCHRDY	28	Host ALE
29	DACK0/1	30	GND
31	IRQ14/15	32	No Connect
33	Address 1	34	ATA/66 detect
35	Address 0	36	Address 2
37	Chip select 0	38	Chip select 1
39	No Connect	40	GND
41	Power	42	Power
43	GND	44	No Connect

(2) Floppy disk interface

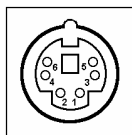
This single board computer provides a set of 34 pin floppy disk drive (FDD), can connect two 3.5 inches or 5.25 inches floppy disk drive at most. Please pay attention to the direction of the cable and socket (the one with red mark is the first pin of floppy disk drive cable).

■ FDD interface definition



Pin#	Signal Name	Pin#	Signal Name
1	GND	2	FD RWC
3	GND	4	NC
5	NC	6	NC
7	GND	8	FD INDEX
9	GND	10	FD MOA
11	GND	12	FD DSB
13	GND	14	FD DSA
15	GND	16	FD MOB
17	GND	18	FD DIR
19	GND	20	FD STEP
21	GND	22	FD WD
23	GND	24	FD WE
25	GND	26	FD TRCK0
27	GND	28	FD WP
29	GND	30	FD RDATA
31	GND	32	FD HEAD
33	NC	34	FD DSKCHG

Keyboard and Mouse Interface



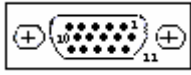
KM1 (KB/MS)

Pin#	Signal Name	Pin#	Signal Name
1	Keyboard data	2	Mouse data
3	GND	4	+5V
5	Keyboard clock	6	Mouse clock

Display Interface

(1) VGA1 Interface

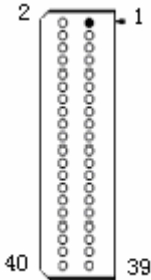
A 15 pin D type VGA display socket, can connect all the standard display with VGA interface



VGA1

Pin#	Signal Name	Pin#	Signal Name
1	Red	2	Green
3	Blue	4	N.C.
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	N.C.	12	DDCDATA
13	HSYNC	14	VSYNC
15	DDCCLK		

(2) LCD1 display TFT output interface



LCD1

Pin#	Signal Name	Pin#	Signal Name
1	LCDVDD	2	LCDVDD
3	GND	4	HSIP_HSYNC
5	GND	6	GND
7	PDATA1	8	PDATA0
9	TFT_B3	10	TFT_B2
11	TFT_B5	12	TFT_B4
13	TFT_B7	14	TFT_B6
15	NC	16	NC
17	TFT_G3	18	TFT_G2
19	TFT_G5	20	TFT_G4
21	TFT_G7	22	TFT_G6
23	NC	24	NC
25	TFT_R3	26	TFT_R2
27	TFT_R5	28	TFT_R4
29	TFT_R7	30	TFT_R6
31	GND	32	GND
33	VSYNC_C	34	TFTCLK
35	HSYNC_C	36	LDEMOD_HSIP_VS
37	DISPEN	38	HSIP_HSYNC
39	GND	40	VCON

(3) LVDS: LVDS1 Output Interface



LVDS1

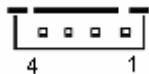
Pin#	Signal Name	Pin#	Signal Name
1	TXOUT0+	2	TXOUT0-
3	GND	4	GND
5	TXOUT1+	6	TXOUT1-
7	GND	8	GND
9	TXOUT2+	10	TXOUT2-
11	GND	12	GND
13	TXCLKOUT	14	TXCLKOUT-
15	GND	16	GND
17	TXOUT3+	18	TXOUT3-
19	LCDVDD	20	LCDVDD

Note: In addition to making the LVDS signaling cable correctly, the LCD which connected with the LVDS interface should be consistent with the LCD of BIOS setting. Or it will not display normally. LVDS interface support 18bit or 24 bit TFT LCD screen.

Power Supply Interface

This is the power supply input interface, which has a fool-proof design so that it won't be inserted reversely. Please pay attention to the direction of the socket and insert it properly to achieve the connection of power supply. (Note: VCCIN is 5V-30V)

Pin#	Signal Name
1	VCCIN
2	GND
3	GND
4	VCCIN



PWR1

PC-104PLUS Interface (PC104P)

Pin#	Signal Name	Pin#	Signal Name	Pin#	Signal Name	Pin#	Signal Name
A1	GND	B1	NC	C1	VCC5	D1	AD0
A2	VCC3	B2	AD2	C2	AD1	D2	VCC5
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	VCC3	C6	AD10	D6	NC
A7	AD14	B7	AD13	C7	GND	D7	AD12
A8	VCC3	B8	C/BE1	C8	AD15	D8	VCC3
A9	SERR	B9	GND	C9	NC	D9	PAR
A10	GND	B10	PERR	C10	VCC3	D10	NC
A11	STOP	B11	VCC3	C11	LOCK	D11	GND
A12	VCC3	B12	TRDY	C12	GND	D12	DEVSEL
A13	FRAME	B13	GND	C13	IRDY	D13	VCC3
A14	GND	B14	AD16	C14	VCC3	D14	C/BE2
A15	AD18	B15	VCC3	C15	AD17	D15	GND
A16	AD21	B16	AD20	C16	GND	D16	AD19
A17	VCC3	B17	AD23	C17	AD22	D17	VCC3
A18	IDSEL0	B18	GND	C18	IDSEL1	D18	IDSEL2
A19	AD24	B19	C/BE3	C19	VCC3	D19	IDSEL3
A20	GND	B20	AD26	C20	AD25	D20	GND
A21	AD29	B21	VCC5	C21	AD28	D21	AD27
A22	VCC5	B22	AD30	C22	GND	D22	AD31
A23	REQ0	B23	GND	C23	REQ1	D23	VCC3
A24	GND	B24	REQ2	C24	VCC5	D24	GNT0
A25	GNT1	B25	VCC3	C25	GNT2	D25	GND
A26	VCC5	B26	CLK0	C26	GND	D26	CLK1
A27	CLK2	B27	VCC5	C27	CLK3	D27	GND
A28	GND	B28	INTD	C28	VCC5	D28	RESET
A29	+12V	B29	INTA	C29	INTB	D29	INTC
A30	-12V	B30	PC3	C30	PC3	D30	GND

CN1 and CN2 are dual In-Line header socket, they support PC-104 module. CN1 has 64 pins, CN2 has 40 pins.

Pin definition is showed as follows:



CN1				CN2			
Pin#	Signal Name	Pin#	Signal Name	Pin#	Signal Name	Pin#	Signal Name
A1	IOCHK	B1	GND	A1	GND	B1	GND
A2	D7	B2	REST	A2	SBHE	B2	MEMCS16
A3	D6	B3	VCC5	A3	LA23	B3	IOCS16
A4	D5	B4	IRQ9	A4	LA22	B4	IRQ10
A5	D4	B5	NC	A5	LA21	B5	IRQ11
A6	D3	B6	DRQ2	A6	LA20	B6	IRQ12
A7	D2	B7	-12V	A7	SA19	B7	IRQ15
A8	D1	B8	NC	A8	SA18	B8	IRQ14
A9	D0	B9	+12V	A9	SA17	B9	DACK0
A10	IOCHRDY	B10	NC	A10	MEMR	B10	DRQ0
A11	AEN	B11	SMEMW	A11	MEMW	B11	DACK5
A12	A19	B12	SMEMR	A12	SD8	B12	DRQ5
A13	A18	B13	IOW	A13	SD9	B13	DACK6
A14	A17	B14	IOR	A14	SD10	B14	DRQ6
ZA15	A16	B15	DACK3	A15	SD11	B15	DACK7
A16	A15	B16	DRQ3	A16	SD12	B16	DRQ7
A17	A14	B17	DACK1	A17	SD13	B17	VCC
A18	A13	B18	DRQ1	A18	SD14	B18	MASTER
A19	A12	B19	REFRESH	A19	SD15	B19	GND
A20	A11	B20	CLK	A20	NC	B20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				

Digital I/O Interface

Pin#	Signal Name	Pin#	Signal Name
1	DI_BO	2	DI_B1
3	DI_B2	4	DI_B3
5	DI_B4	6	DI_B5
7	DI_B6	8	DI_B7
9	VCC5	10	GND
11	DO_B0	12	DO_B1
13	DO_B2	14	DO_B3
15	DO_B4	16	DO_B5
17	DO_B6	18	DO_B7
19	VCC5	20	GND

Digital I/O interface (CN3) description and programmable direction is showed as follows:

The main board provides an 8 bit output and 8 bit input programmable interface which are independent. The pin in the place of CN5 has 16 pins that correspond with 16 digital bits. This interface is based on PCI bus and provided by on board chip NM9845. Its bus number is 0, device number is 14, function number is 0, and the third base address register is used. According to the PCI specification, base address of device is dynamic distributed by BIOS, before programming the interface, base address should be get (the base address is: EE00H when there is not other expansion device on the main board).

The assembly code of getting base address and input/output operation is showed as follows:

I. Get base address to register DX:

```

mov eax, 80007018h
mov dx, 0CF8h
out dx, eax
add dx, 4
in  eax, dx
and ax, 0FFFEh
mov dx, ax

```

II. Read 8bit input value to AL register:

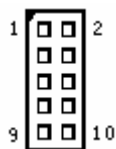
```
in al, dx
```

III. 8bit output the value of AL register:

```
out dx, al
```

Audio Interface

This CPU card provides a set of 2 x 5 pin audio connector pin (AUDIO) . The audio transfer cable which comes with the CPU card is needed to connect the audio device. The 1, 2 and 3pin of AUDIO connect SPK-OUT; the 5, 6 and 7pin connect LINE-IN; while the 8, 9 and 10pin connect MIC-IN.



AUDIO

Pin#	Signal Name	Pin	Signal Name
1	Speaker output right track	2	Speaker output left track
3	Audio signal ground	4	Audio signal ground
5	Line-in right track	6	Line-in left track
7	Audio signal ground	8	Audio signal ground
9	Microphone input	10	Microphone input pull-up

Chapter 3

Overview of BIOS Function

Regarding the BIOS setup of EC4-1641CLD2NA, please refer to the *AMI BIOS Setting Direction* edited by EVOC Company

Appendix

Watchdog Programming Guide

The programming method of WDT, please consult the following demonstrative code (only for reference):

```
#define INDEX 0x2e
#define DATA 0x2f
void WRITEREG(int reg,int val)
{
    outportb(INDEX,reg);
    outportb(DATA,val);
}
/*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%*/
//INPUT : None //

//description: enter SIO configuration, and select logic device 7 (WDT) .
//
/*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%*/
void Start()
{
    outportb(INDEX,0x87);
    outportb(INDEX,0x01);
    outportb(INDEX,0x55);
    outportb(INDEX,0x55);
    outportb(INDEX,0x07);
    outportb(DATA,0x07);
}
/*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%*/
//INPUT : None //
//description:STOP WDT //
/*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%*/
```

```

int SLOWTD_Disable()
{
    outportb(INDEX,0x07);
    outportb(DATA,0x07);
    outportb(INDEX,0x73);
    outportb(DATA,0x00);
    return 0;
}

/*////////////////////////////////////*/
//INPUT :IRQ                                     //
//description: IRQ=255, WDT Rset mode.           //
//          IRQ{3,4,5,7,9,12}WDT IRQ mode      ///
/*////////////////////////////////////*/

int SLOWTD_Setup(int irq)    //irq=0xffh:reset
{
    SLOWTD_Disable();

    if(irq!=0xff)            //watch dog timeout will reset system
    {
        irq=irq & 0x0f;
        WRITEREG(0x72,irq);
    }
    return 0;
}

/*////////////////////////////////////*/
//INPUT :time{1~255}                                     //
//          unit=0,second;unit=1, minutes           //
//description: Set count mode.                       //
//                                                                 //

```

```
/*////////////////////*/
```

```
int SLOWTD_Enable(int time,int unit)
{
//unit=1:second;0:minute
if(time<1 || time>255) return -1;
if(unit<0 || unit>1)    return -1;

outportb(INDEX,0x72);
int val=inportb(DATA);
val |=0x40;

switch(unit)
{
case 0:
val &=0x7f;          //bit7=0,minutes
WRITEREG(0x72,val); break;
case 1:
val |=0x80;          //bit7=1,seconds
WRITEREG(0x72,val); break;
}
WRITEREG(0x73,time);

return 0;
}
```

I/O Interface Address Map

The space of system I/O address is 64K. Each peripheral takes up a section of I/O space (only for consulting).

I/O Address	Function
088h	No Specific Usage
089h	DMA ChamEt 6 Low Page
08Ah	DMA Chamst 7 Low Page
08B	DMA Clwnel S Low Page
08CH-08EH	No Specific Usage
08Fh	DMA C4 Low Pace
090h-09h	No Specific Usage
092h	Port A
093h-09Fh	No Specific Usage
0A0h	PIC Slave - Command/Status
0A1h	PIC Slave - CommandStatus
0A2h-0BFh	No Specific Usage
0C0h	Master DMA Address - Channel 4
0C1h	No Specific Usage
0C2h	Master DMA Counter - Channel 4
0C3h	No Specific Usage
0C4h	Master DMA Address - Channel 5
0C6h	Master DMA Counter - Channel 5
0CTh	No Specific Usage
0C8h	Master DMA Address - Channel 6
0CAh	Master DMA Counter - Channel 6
0CBh	No Specific Usage
0CCh	Master DMA Address - Channel 7
0CCh	No Specific Usage
0CEh	Master DMA Counter - Channel 7
0CFh	No Specific Usage

Appendix

ODOh	Master DMA Commandi/Status- Channels [7:4]
0D1h	No Specific Usage
0D2h	Master DMA Request • Channels [7:4]
0D3h	No Specific Usage
0D4h	Master DMA Mask • Channels [7:4]
0D5h	No Specific Usage
0D6h	Master DMA Mode • Channels [7:4]
0D7h	No Specific Usage
0D8h	Master DMA Clear Pointer • Channels [7:4]
0D9h	No Specific Usage
ODAh	Master DMA Reel • Channels [7:4]
ODBh	No Specific Usage
ODCh	Master DMA Reset Mask • Channels [7:4]
ODCh	No Specific Usage
ODEh	Master DMA General Mask - Channels [7:4]
ODFh	No Specific Usage
OEOh-2E7h	No Specific Usage
2E8h-2EFh	UART/IR - COM4
2F0h-2F7h	No Specific Usage
2F8h-2FFh	UART/IR - COM2
300h-36Fh	No Specific Usage
970h	Floppy Siatus R A
371h	Floppy Status R B
372h	Floppy Digital Out
373h	No Specific Usage
374h	Floppy Cntil Status
375h	Floppy Data
376h	No Specific Usage
377h	Floppy Conf Reg
378h-3E7h	No Specific Usage

Appendix

3E8h-3EFh	UART/IR - COM3
3F0h	Floppy Status R A
3F1h	Floppy Status R B
3F2h	Floppy Digital Out
3F3h	No Specific Usage
3F4h	Floppy Cntrl Status
3F5h	Floppy Data
3F6h	No Specific Usage
3F7h	Floppy Conf Reg
3F8h-3FFh	UART/IR-COM1
400h-47Fh	No Specific Usage
480h	No Specific Usage
481h	DMA Channel 2 High Page
482h	DMA Channel 3 High Page
483h	DMA Channel 1 High Page
484h-486h	No Specific Usage
487h	DMA Channel 0 High Page
488h	No Specific Usage
489h	DMA Channel 6 High Page
48Ah	DMA Channel 7 High Page
48Bh	DMA Channel 5 High Page
48Ch-48Eh	No Specific Usage
48Fh	DMA Channel 4 High Page
490h-4CFh	No Specific Usage
4D0h	PIC Level/Edge
4D1h	PIC Level/Edge
4D2h-4FFh	No Specific Usage

IRQ Assignment Schedule

The system has 15 interrupt sources in total. Some has been occupied by system equipment. Only those unoccupied interrupt sources can be designated to other equipment. ISA equipment requests exclusive use of its interrupt; only PnP ISA equipment can be assigned interrupt by BIOS or operating system. While multiple PCI devices can share the same interrupt, and assigned by BIOS or operating system. The following table shows part of the interrupts assignment of the CPU card, but it doesn't list the interrupts used by 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	Reserved
IRQ6	Standard Floppy Disk Controller
IRQ7	Parallel port#1
IRQ8	System CMOS/Real Time Clock
IRQ9	Software change its course to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE