

**PCM-8500**

Socket 478 based Pentium® 4  
/ Pentium® 4 Processor-M  
/ Celeron® Processors  
Compact Board  
With LCD, Ethernet, USB &  
PCMCIA / Mini PCI

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## Packing List

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

- 1 PCM-8500 Compact Board
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers
- 1 Jumper Cap

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Chapter

1

**General  
Information**



## 1.1 Introduction

---

PCM-8500 is first Pentium® 4 industrial board in AAEON Compact Board product line. It features a PGA478 socket that can accommodate Pentium® 4 / Pentium® 4 Processors-M and Celeron® Processor, supporting FSB up to 400/533MHz.

### **Best performance for multimedia solution**

AAEON's PCM-8500 also supports DDR DRAM up to 1GB, 4X AGP, and 6 channels audio output. It can provide the strong multimedia functions. Therefore PCM-8500 can be broadly implemented in several markets, such as Point of sale, point of information (Kiosk), and gaming markets.

### **Multi-Function Pentium4 Platform**

If you are looking for powerful multi-media applications, PCM-8500 is the one. PCM-8500 successfully integrates VGA, Audio and Ethernet function into 5.75" size board; meanwhile it also supports 6 USB2.0, mini PCI, and PCMCIA (optional item) slots. PCM-8500 promises you the greatest expansion possibilities with the most cost-effective expansion standards, PCMCIA or Mini PCI. With numerous off-the-shelf PCMCIA/Mini PCI modules, you get easy access to solutions ranging from IEEE 1394, Modem, Storage, Sound Card, SCSI card, Audio/Video capture card,

Wireless LAN module, to Bluetooth module. Especially for customers whom application is various or changing, PCM-8500 reserves more than enough flexibility for future expansion.

**More**

PCM-8500 provides more CPU options for different applications. You can choose Pentium® 4 processor up to 3.06G for high performance application or choose Pentium® 4 processor-M for thermal concerned operative environment. Low-cost Socket 478 Celeron processors are also supported by PCM-8500 for cost-intensive projects. Most of all Pentium® 4 Level processors are suitable for PCM-8500. Talking about the display signal transmission, PCM-8500 integrated 48-bit dual channel LVDS interface onboard, which allows long distance display signal transmission. Besides LCD supports, PCM-8500 also allows customer to show same contents on CRT and LCD at same time. It meets multi-display demand at most cost-efficient way.

## 1.2 Features

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- Support Intel Socket 478 Pentium® 4 / 4 Processor-M / Celeron Processors
- Support Intel Hyper-Threading Technology
- Support 266/333MHz DDR SDRAM
- High Speed AGP 4X for VGA display
- Support 48bit Dual Channel LVDS
- Support TV-Out Function
- Integrated AC-97 5.1 3D Audio
- One 10/100Base-T Fast Ethernet
- Support CompactFlash memory storage
- Six USB 2.0 Ports
- Digital I/O ( 8 in, 8 out as Default, up to 16 in or 16 out )

### 1.3 Specifications

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#### System

- CPU Intel® Socket 478 Pentium® 4 / Processor-M / Celeron® Processor, Hyper-Threading Technology supported (Standard Cooler Supported )
- Memory 184pin DIMM × 1, Support DDR 266/333MHz up to 1GB
- Chipset Intel® 845GV / 82801DB (ICH4)
- I/O Chipset ITE IT8712F
- BIOS AWARD 512 KB FLASH ROM
- Audio ALC 650 CODEC 6 Channel, AC97
- SSD One Type II CompactFlash Card
- Watchdog timer Generate a system reset
- DMA 7DMA channels (8237 equivalent)
- Interrupt 15 interrupt levels (8259 equivalent)
- Ethernet Intel 82562 10/100 PHY chip
- Expansion Interface PCI slot × 1, Mini PCI slot × 1, PCMCIA Type II × 2. (Optional)

- H/W status monitoring  
Power supply voltages and temperatures monitoring functions
- Battery  
Lithium battery for data retention

### **Display**

- Memory size  
Share Memory, Dynamically Adjusts by OS.
- Resolution  
Up to 1600 X 1200 for CRT  
Up to 1280 X 1024 for TFT
- LCD Interface  
Up to 48-bit Dual Channel LVDS  
TFT LCD (Chrontel 7017)
- TV Out  
Support NTSC/PAL standard  
1024 × 768 ( Chrontel 7017 )
- Dual Display  
Simultaneous Scan: CRT+ LCD

### **I/O**

- MIO  
1 × EIDE (Ultra DMA100),  
1 × FDD,  
1 × K/B,  
1 × Mouse,  
1 × RS-232/422/485,  
3× RS-232,

- Digital I/O port      1 × LPT,  
1 × CRT
- IR interface      Support 8 in, 8 out as default, up to 16 in or 16 out.
- Ethernet      Support one IrDA Tx/Rx header
- Audio      1 × RJ45 Connector
- USB      Mic in, Line in, Line out / Speak out, CD Audio in, with special connector for 5.1 channel audio
- TV-Out      USB 2.0 × 3sets. Total 6 ports
- Support S-terminal and RCA type

**Notice:**

*The Quick Installation Guide is derive from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.*

## Chapter

## 2

# Quick Installation Guide

**Attention:**

1. There are two different models of PCM-8500 for supporting Desktop or Mobile type of Pentium® 4 Processors, please make sure appropriated processor is installed on PCM-8500 before you turn on the power.
2. The setting of " Advanced Chipset Features \ Speed Step Mode (Pentium® 4 Mobile) " in BIOS should be disabled when desktop version Pentium® 4 or Celeron® are adopted, otherwise the system cannot boot. Clear CMOS will be required to rescue your PC from this situation. For Mobile Pentium® 4, this item can be disabled or enabled to get the best performance or maximum power saving of the processor.



## 2.1 Safety Precautions

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**Warning!**

*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

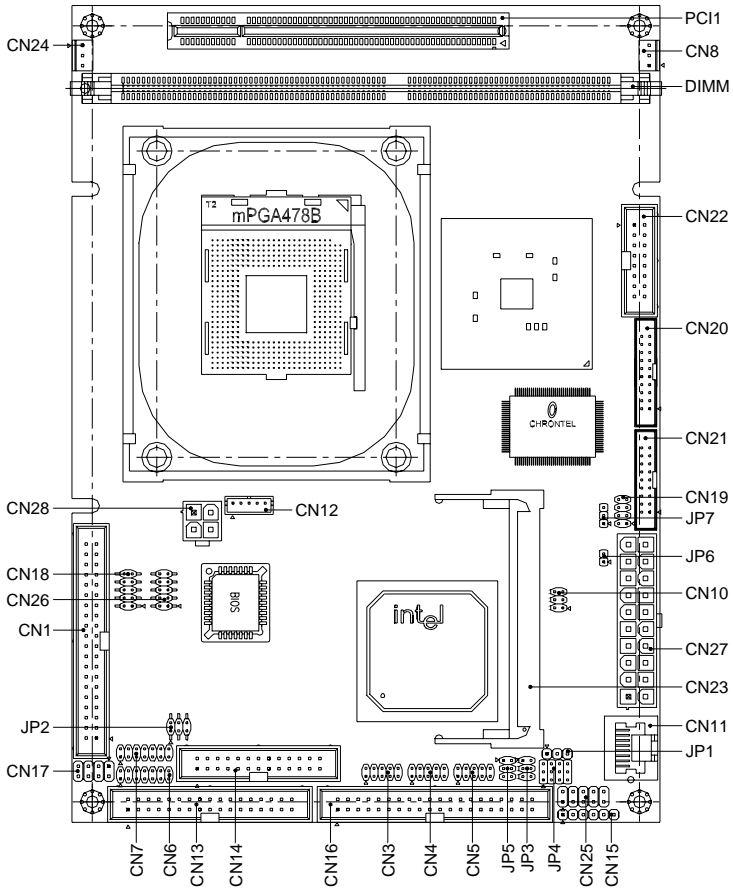
**Caution!**

*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis*

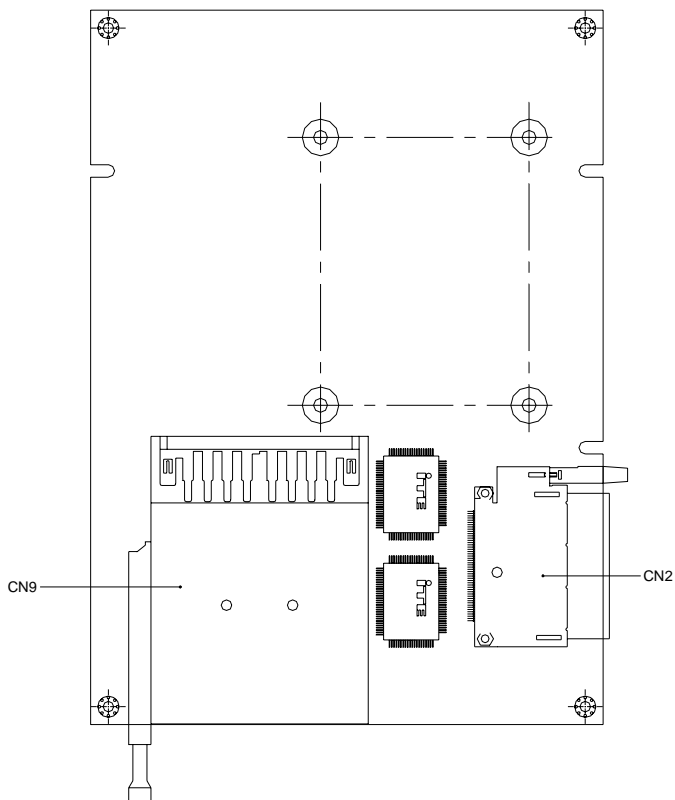


## 2.2 Location of Connectors and Jumpers

### Component Side

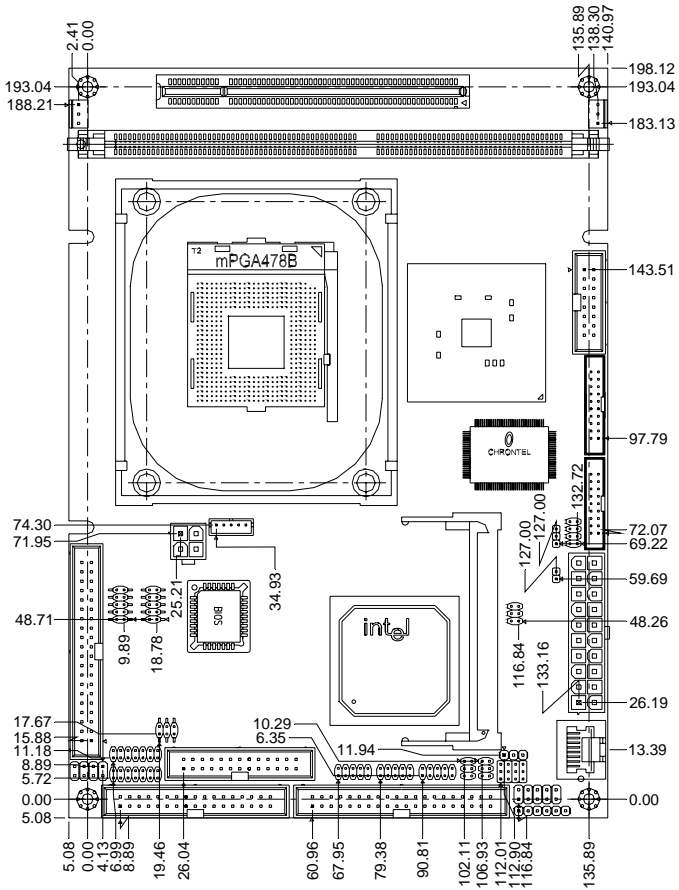


Solder Side

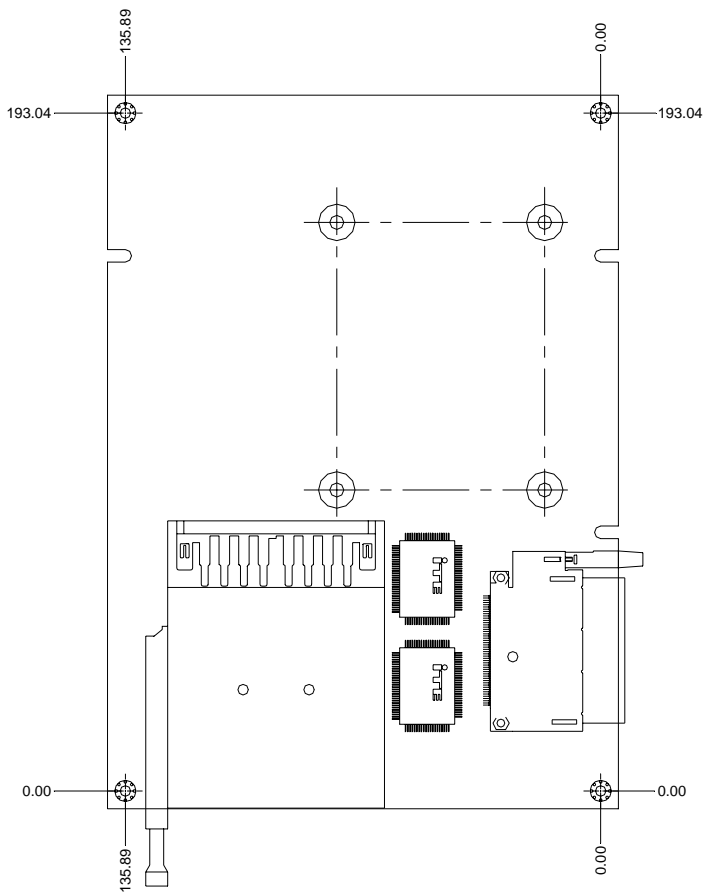


### 2.3 Mechanical Drawing

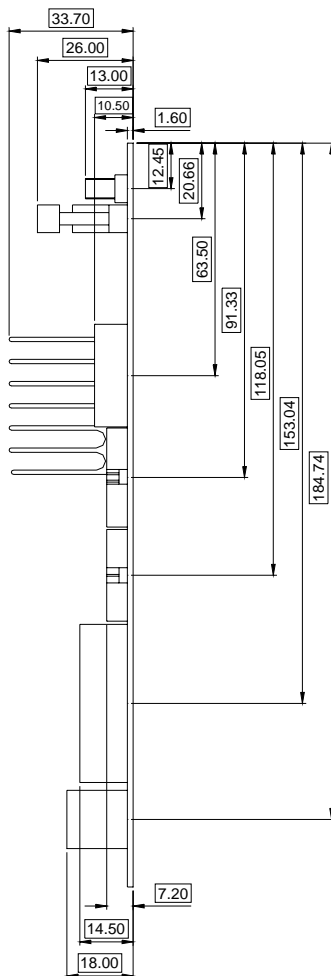
#### Component Side



Solder Side



Bracket Side



## 2.4 List of Jumpers

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There are a number of jumpers in the board that allow you to configure your system to suit your application.

The table below shows the function of each jumper in the board:

### Jumpers

Label	Function
JP1	Clear CMOS
JP2	Audio Out Select
JP3	COM2 Ring/+5V/+12V Selection
JP4	COM2 RS-232/422/485 Selection
JP5	COM2 RS-232/422/485 Selection
JP6	ATX Power simulate AT Power
JP7	LCD Voltage Selection

## 2.5 List of Connectors

---

There are a number of connectors in the board that allow you to configure your system to suit your application. The table below shows the function of each connector in the board:

### Connectors

Label	Function
CN1	EIDE HDD Connector
CN2	CompactFlash Connector / CompactFlash Socket
CN3/CN4/CN5	USB1/2/3 Connector
CN6	Audio 5.1 Channel / SPDIF Connector
CN7	Audio Connector
CN8,CN24	Fan Connector
CN9	PCMCIA Slot
CN10	LAN LED Connector
CN11	RJ-45 Connector
CN12	Option PME Connector
CN13	Floppy Connector
CN14	LPT Port Connector
CN15	IrDA Connector
CN16	RS-232 Serial Port (COM1~COM4) Connector
CN17	PS/2 Keyboard/Mouse Connector
CN18,CN26	Digital I/O 16bit Connector
CN19	TV Out Connector
CN20	Channel1 LVDS Connector
CN21	Channel2 LVDS Connector
CN22	VGA Display Connector
CN23	MINI PCI SLOT
CN25	Front Panel

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CN27	ATX Power Connector
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CN28	ATX Power 12V Connector
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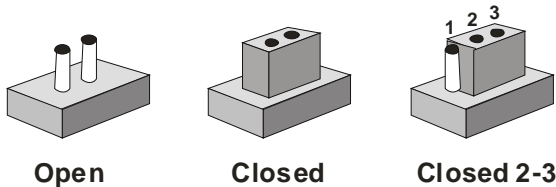


## 2.6 Setting Jumpers

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You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

## 2.7 Clear CMOS (JP1)

---

**Warning:**

To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS." Before turning on the power supply, set the jumper back to "Normal."

JP1	Function
1-2	Active (Default)
2-3	Clear

## 2.8 Audio Out Select (JP2)

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JP2	Function
1-3, 2-4	W/O Amplifier
3-5, 4-6	W/ Amplifier (Default)

## 2.9 COM2 Ring/+5V/+12V Selection (JP3)

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JP3	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

## 2.10 COM2 RS-232/422/485 Select (JP4&JP5)

---

JP4	JP5	Function
1-2, 4-5, 7-8, 10-11	1-2	RS-232 (Default)
2-3, 5-6, 8-9, 11-12	3-4	RS-422
2-3, 5-6, 8-9, 11-12	5-6	RS-485

## 2.11 ATX Power simulate AT Power (JP6)

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JP6	Function
1-2 CLOSE	ATX Power Simulate AT Power
1-2 OPEN	ATX Standard (Default)

## 2.12 LCD Voltage Selection (JP7)

---

JP7	Function
1-2	+5V
2-3	+3.3V (Default)

## 2.13 IDE Connector (CN1)

---

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

## 2.14 CompactFlash Connector (CN2)

Pin	Signal	Pin	Signal
1	GND	26	GND
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#1	32	CS#3
8	GND	33	GND
9	GND	34	IO READ
10	GND	35	IO WRITE
11	GND	36	+5V
12	GND	37	IRQ15
13	+5V	38	+5V
14	GND	39	CSEL
15	GND	40	N.C
16	GND	41	IDE RESET
17	GND	42	IO READY
18	ADDR2	43	N.C
19	ADDR1	44	+5V
20	ADDR0	45	DASP
21	DATA0	46	DIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	N.C	49	DATA10
25	GND	50	GND

## 2.15 USB1 Connector (CN3)

---

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

## 2.16 USB2 Connector (CN4)

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Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD2-	4	GND
5	USBD2+	6	USBD3+
7	GND	8	USBD3-
9	GND	10	+5V

## 2.17 USB3 Connector (CN5)

---

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD4-	4	GND
5	USBD4+	6	USBD5+
7	GND	8	USBD5-
9	GND	10	+5V

## 2.18 Audio 5.1 Channel/SPDIF Connector (CN6)

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Pin	Signal	Pin	Signal
1	Front-OUT-R	2	GND
3	Front-OUT-L	4	GND
5	Surr-OUT-R	6	GND
7	Surr-OUT-L	8	GND
9	LFE-OUT	10	GND
11	CNE-OUT	12	GND
13	SPDIF-OUT	14	SPDIF-IN

## 2.19 Audio Connector (CN7)

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Pin	Signal	Pin	Signal
1	MIC IN	2	MIC VCC
3	GND	4	CD-GND
5	LINE-IN L	6	CD-IN L
7	LINE-IN R	8	CD-GND
9	GND	10	CD-IN R
11	LINE-OUT L	12	LINE-OUT R
13	GND	14	GND

## 2.20 Fan Connector (CN8&CN24)

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Pin	Signal
1	GND
2	+12V
3	FAN SPEED SENSE

## 2.21 LAN LED Connector (CN10)

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Pin	Signal	Pin	Signal
1	Link LED	2	+3.3V
3	Active LED	4	+3.3V
5	Speed LED	6	+3.3V

## 2.22 10/100Base-Tx Ethernet Connector (CN11)

---

Pin	Signal	Pin	Signal
1	TX+	9	N.C
2	TX-	10	N.C
3	RX+	11	GND
4	N.C	12	GND
5	N.C	13	N.C
6	RX-	14	N.C
7	N.C	15	N.C
8	N.C	16	N.C



## 2.23 Option PME Connector (CN12)

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Pin	Signal	Pin	Signal
1	+5VSB	2	GND
3	#PME	4	SMB_DATA
5	SMB_CLK		

## 2.24 Floppy Connector (CN13)

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Pin	Signal	Pin	Signal
1	GND	2	REDWC
3	GND	4	N.C
5	GND	6	DS1
7	GND	8	INDEX
9	GND	10	MOTOR A
11	GND	12	DRIVE SELECT B
13	GND	14	DRIVE SELECT A
15	GND	16	MOTOR B
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WRITE DATA
23	GND	24	WRITE GATE
25	GND	26	TRACK
27	GND	28	WRITE PROTECT
29	GND	30	READ DATA
31	GND	32	SIDE1
33	GND	34	DISK CHANGE

## 2.25 LPT Port Connector (CN14)

---

Pin	Signal	Pin	Signal
1	STROBE	2	AFD
3	PTD0	4	ERROR
5	PTD1	6	INIT
7	PTD2	8	SLIN
9	PTD3	10	GND
11	PTD4	12	GND
13	PTD5	14	GND
15	PTD6	16	GND
17	PTD7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C

## 2.26 IrDA Connector (CN15)

---

Pin	Signal
1	+5V
2	CIRTX
3	IRRX
4	GND
5	IRTX
6	CIRRX

## 2.27 COM1~4 RS-232/422/485 Serial Port Connector (CN16)

COM1 and COM2 support “Wake on Ring” function.

Pin	Signal	Pin	Signal
1	DCD1	2	DSR1
3	RXD1	4	RTS1
5	TXD1	6	CTS1
7	DTR1	8	RI1
9	GND	10	N.C
11	DCD2(422TXD-/485DATA-)	12	DSR2
13	RXD2(422RXD+)	14	RTS2
15	TXD2(422TXD+/485DATA+)	16	CTS2
17	DTR2 (422RXD-)	18	RI2 (+5V/+12V)
19	GND	20	N.C
21	DCD3	22	DSR3
23	RXD3	24	RTS3
25	TXD3	26	CTS3
27	DTR3	28	RI3
29	GND	30	N.C
31	DCD4	32	DSR4
33	RXD4	34	RTS4
35	TXD4	36	CTS4
37	DTR4	38	RI4
39	GND	40	N.C

## 2.28 PS/2 Keyboard/Mouse Connector (CN17)

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Pin	Signal
1	KB_DATA
2	KB_CLK
3	GND
4	+5V
5	MS_DATA
6	MS_CLK

## 2.29 Digital I/O-1 Connector (CN18)

This connector offers 4-pair of digital I/O functions and address is 801H. The pin definitions are illustrated below: Please refer to Page 3-9 for digital I/O BIOS setting.

Pin	Signal		
1	Digital-IN/ OUT	2	Digital-IN/ OUT
3	Digital-IN/ OUT	4	Digital-IN/ OUT
5	Digital-IN/ OUT	6	Digital-IN/ OUT
7	Digital-IN/ OUT	8	Digital-IN/ OUT
9	+5V	10	GND

The pin definitions and registers mapping are illustrated below:

Address: 801H

### 4 in / 4 out

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB						LSB	

### 8 in

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPI 23	GPI 22	GPI 21	GPI 20
MSB						LSB	

### 8 out

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPO 27	GPO 26	GPO 25	GPO 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB						LSB	

### 2.30 Digital I/O-2 Connector (CN26)

This connector offers 4-pair of digital I/O functions and address is 841H. The pin definitions are illustrated below: Please refer to Page 3-9 for digital I/O BIOS setting.

Pin	Signal		
1	Digital-IN/ OUT	2	Digital-IN/OUT
3	Digital-IN/ OUT	4	Digital-IN/ OUT
5	Digital-IN/ OUT	6	Digital-IN/ OUT
7	Digital-IN/ OUT	8	Digital-IN/ OUT
9	+5V	10	GND

The pin definitions and registers mapping are illustrated below:

Address: 841H

#### 4 in / 4 out

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB							LSB

#### 8 in

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPI 27	GPI 26	GPI 25	GPI 24	GPI 23	GPI 22	GPI 21	GPI 20
MSB							LSB

#### 8 out

Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GPO 27	GPO 26	GPO 25	GPO 24	GPO 23	GPO 22	GPO 21	GPO 20
MSB							LSB

### 2.31 TV Out Connector (CN19)

---

Pin	Signal	Pin	Signal
1	Y	2	CVBS
3	GND	4	GND
5	C	6	N.C
7	GND	8	N.C

### 2.32 Channel1 LVDS Connector (CN20)

---

Pin	Signal	Pin	Signal
1	LVDS_TX1+	2	LVDS_TX1-
3	GND	4	GND
5	LVDS_TXCLK+	6	LVDS_TXCLK-
7	GND	8	PPVCC
9	PPVCC	10	PPVCC
11	LVDS_TX2+	12	LVDS_TX2-
13	GND	14	GND
15	LVDS_TX0+	16	LVDS_TX0-
17	LVDS_TX3+	18	LVDS_TX3-
19	ENBKL	20	N.C

### 2.33 Channel2 LVDS Connector (CN21)

---

Pin	Signal	Pin	Signal
1	LVDS_TX1+	2	LVDS_TX1-
3	GND	4	GND
5	LVDS_TXCLK+	6	LVDS_TXCLK-
7	GND	8	PPVCC
9	PPVCC	10	PPVCC
11	LVDS_TX2+	12	LVDS_TX2-
13	GND	14	GND
15	LVDS_TX0+	16	LVDS_TX0-
17	LVDS_TX3+	18	LVDS_TX3-

### 2.34 VGA Display Connector (CN22)

---

Pin	Signal	Pin	Signal
1	Red	9	GND
2	VCC	10	HSYNC
3	Green	11	GND
4	GND	12	VSYNC
5	Blue	13	GND
6	N.C	14	DDCCLK
7	N.C	15	GND
8	DDCDAT	16	N.C



### 2.35 Front Panel (CN25)

Pin	Signal	Pin	Signal
1	Power On Button (-)	2	Power On Button (+)
3	IDE LED (-)	4	IDE LED (+)
5	BUZZER (-)	6	+5V
7	EXTSMI (-)	8	EXTSMI (+)
9	Reset Switch (-)	10	Reset Switch (+)

### 2.36 ATX Power Connector (CN27)

Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	POWER OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

### 2.37 ATX Power 12V Connector (CN28)

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

Chapter

3

**Award  
BIOS Setup**

### 3.1 System Test and Initialization

---

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

#### **System configuration verification**

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The PCM-8500 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

### Entering Setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.



### Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

### Advanced BIOS Features

Use this menu to set the advanced features available on your system.

## **Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize your system performance.

## **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

## **Power Management Setup**

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

## **PnP/PCI Configurations**

This entry appears if your system supports PnP/PCI.

## **PC Health Status**

This menu allows you to set the shutdown temperature for your system.

## **Frequency/Voltage Control**

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

## **Load Fail-Safe Defaults**

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

## **Load Optimized Defaults**

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

### **Set Supervisor/User Password**

Use this menu to set Supervisor/User Passwords.

### **Save and Exit Setup**

Save CMOS value changes to CMOS and exit setup.

### **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

**You can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.**

Chapter

4

**Driver  
Installation**

The PCM-8500 comes with a CD-ROM which contains most of drivers and utilities of your needs.

There are several installation ways depending on the driver package under different Operating System application.

***Please follow the sequence below to install the drivers:***

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install IAA Driver

Step 4 – Install LAN Driver

Step 5 – Install Audio Driver

USB 2.0 Drivers are available for download using Windows Update for both Windows XP and Windows 2000. For additional information regarding USB 2.0 support in Windows XP and Windows 2000, please visit

[www.microsoft.com/hwdev/usb/](http://www.microsoft.com/hwdev/usb/).

For installation procedures of each driver, you may refer to section 4.1.



## 4.1 Installation :

### Applicable for Windows 2000/XP/98SE

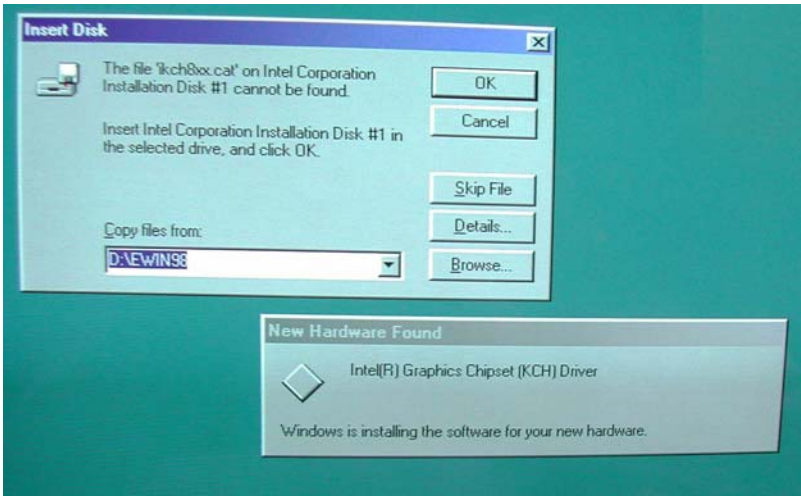
1. Insert the PCM-8500 CD-ROM into the CD-ROM Drive.
2. From the CD-ROM, select the desired component Driver folder, and then select the desired Operation System folder to double click on the Setup.exe icon. A driver installation screen will appear.

#### Notice:

- I. Take VGA driver installation under Windows 98 for example, choose the corresponding folder depending on your OS
- II. When installing the VGA driver under Windows 98, the system will ask you to reboot the computer. During the installation process, it will appear the pop up window as following.



- III. Please press ok and it will appear the pop up window as following.








































- IV. Please change the path to the installation folder and search for the two files named as ikch8xx.cat and isb8xx.cat.
- V. The LCD signal may be turned off automatically after the VGA driver is installed, please press “Ctrl + Alt + F3” to enable LCD signal again.
3. A driver installation screen will appear, please follow the onscreen instructions to install the driver in sequence and click on the Next button.  
**(Notice: In some cases the system will ask you to insert Windows 98 CD ROM and key in its path. Then click on the OK button to key in path.)**
4. Click on the **Finish** button to finish installation process. And allow the system to reboot.































Appendix

**A**

**I/O Information**

## A.1 I/O Address Map

Input/output (IO)		
	[00000000 - 0000000F]	Direct memory access controller
	[00000000 - 00000CF7]	PCI bus
	[00000010 - 0000001F]	Motherboard resources
	[00000020 - 00000021]	Programmable interrupt controller
	[00000022 - 0000003F]	Motherboard resources
	[00000040 - 00000043]	System timer
	[00000044 - 0000005F]	Motherboard resources
	[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	[00000061 - 00000061]	System speaker
	[00000062 - 00000063]	Motherboard resources
	[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	[00000065 - 0000006F]	Motherboard resources
	[00000070 - 00000073]	System CMOS/real time clock
	[00000074 - 0000007F]	Motherboard resources
	[00000080 - 00000090]	Direct memory access controller
	[00000091 - 00000093]	Motherboard resources
	[00000094 - 0000009F]	Direct memory access controller
	[000000A0 - 000000A1]	Programmable interrupt controller
	[000000A2 - 000000BF]	Motherboard resources
	[000000C0 - 000000DF]	Direct memory access controller
	[000000E0 - 000000EF]	Motherboard resources
	[000000F0 - 000000FF]	Numeric data processor
	[00000170 - 00000177]	Secondary IDE Channel
	[000001F0 - 000001F7]	Primary IDE Channel
	[00000274 - 00000277]	ISAPNP Read Data Port
	[00000279 - 00000279]	ISAPNP Read Data Port
	[00000290 - 0000029F]	Motherboard resources
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000376 - 00000376]	Secondary IDE Channel
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
	[000003C0 - 000003DF]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
	[000000F0 - 000000FF]	Numeric data processor
	[00000170 - 00000177]	Secondary IDE Channel
	[000001F0 - 000001F7]	Primary IDE Channel
	[00000274 - 00000277]	ISAPNP Read Data Port






















	[00000279 - 00000279]	ISAPNP Read Data Port
	[00000290 - 0000029F]	Motherboard resources
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000376 - 00000376]	Secondary IDE Channel
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
	[000003C0 - 000003DF]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F0 - 000003F5]	Standard floppy disk controller
	[000003F6 - 000003F6]	Primary IDE Channel
	[000003F7 - 000003F7]	Standard floppy disk controller
	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 000004BF]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[00000500 - 0000051F]	Intel(R) 82801DB/DBM SMBus Controller - 24C3
	[00000800 - 00000805]	Motherboard resources
	[00000A79 - 00000A79]	ISAPNP Read Data Port
	[00000D00 - 0000FFFF]	PCI bus
	[0000D800 - 0000D83F]	Intel(R) PRO/100 VE Network Connection
	[0000E000 - 0000E01F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
	[0000E100 - 0000E11F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
	[0000E200 - 0000E21F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
	[0000E400 - 0000E4FF]	Realtek AC'97 Audio
	[0000E500 - 0000E53F]	Realtek AC'97 Audio
	[0000F000 - 0000F00F]	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
	[0000FC00 - 0000FCFF]	Texas Instruments PCI-1420 CardBus Controller
	[0000FD00 - 0000FDFF]	Texas Instruments PCI-1420 CardBus Controller
	[0000FE00 - 0000FEFF]	Texas Instruments PCI-1420 CardBus Controller
	[0000FF00 - 0000FFFF]	Texas Instruments PCI-1420 CardBus Controller

## A.2 Memory Address Map

Memory	
[00000000 - 0009FFFF]	System board
[000A0000 - 000BFFFF]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000DE000 - 000DEFFF]	Texas Instruments PCI-1420 CardBus Controller
[000DF000 - 000DFFFF]	Texas Instruments PCI-1420 CardBus Controller
[000E0000 - 000EFFFF]	System board
[000F0000 - 000F3FFF]	System board
[000F4000 - 000F7FFF]	System board
[000F8000 - 000FBFFF]	System board
[000FC000 - 000FFFFF]	System board
[00100000 - 0F7EFFFF]	System board
[0F7F0000 - 0F7FFFFF]	System board
[0F800000 - FEBFFFFF]	PCI bus
[E0000000 - E7FFFFFF]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
[EC000000 - EC000FFF]	Texas Instruments PCI-1420 CardBus Controller
[EC005000 - EC005FFF]	Texas Instruments PCI-1420 CardBus Controller
[EC00A000 - EC00AFFF]	Intel(R) PRO/100 VE Network Connection
[EC100000 - EC17FFFF]	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
[EC180000 - EC1803FF]	Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD
[EC181000 - EC1811FF]	Realtek AC'97 Audio
[EC182000 - EC1820FF]	Realtek AC'97 Audio
[F6BFD000 - FABFCFFF]	Texas Instruments PCI-1420 CardBus Controller
[FABFD000 - FABDFFFF]	Texas Instruments PCI-1420 CardBus Controller
[FABFE000 - FEBDFFFF]	Texas Instruments PCI-1420 CardBus Controller
[FEBFE000 - FEBFEFFF]	Texas Instruments PCI-1420 CardBus Controller
[FEBFFC00 - FEBFFFFF]	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
[FEC00000 - FEC00FFF]	System board
[FEE00000 - FEE00FFF]	System board


### A.3 IRQ Mapping Chart

---

	Interrupt request (IRQ)
	(ISA) 0 System timer
	(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	(ISA) 3 Communications Port (COM2)
	(ISA) 4 Communications Port (COM1)
	(ISA) 6 Standard floppy disk controller
	(ISA) 8 System CMOS/real time clock
	(ISA) 9 Microsoft ACPI-Compliant System
	(ISA) 10 Communications Port (COM3)
	(ISA) 11 Communications Port (COM4)
	(ISA) 12 PS/2 Compatible Mouse
	(ISA) 13 Numeric data processor
	(ISA) 14 Primary IDE Channel
	(ISA) 15 Secondary IDE Channel
	(PCI) 5 Intel(R) 82801DB/DBM SMBus Controller - 24C3
	(PCI) 16 Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
	(PCI) 16 Intel(R) 82845G/GL/GE/PE/GV Graphics Controller
	(PCI) 16 Texas Instruments PCI-1420 CardBus Controller
	(PCI) 17 Realtek AC'97 Audio
	(PCI) 17 Texas Instruments PCI-1420 CardBus Controller
	(PCI) 18 Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
	(PCI) 19 Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
	(PCI) 20 Intel(R) PRO/100 VE Network Connection
	(PCI) 23 Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD

### A.4 DMA Channel Assignments

---

	Direct memory access (DMA)
	2 Standard floppy disk controller
	4 Direct memory access controller

Appendix

**B**

# Programming the Watchdog Timer

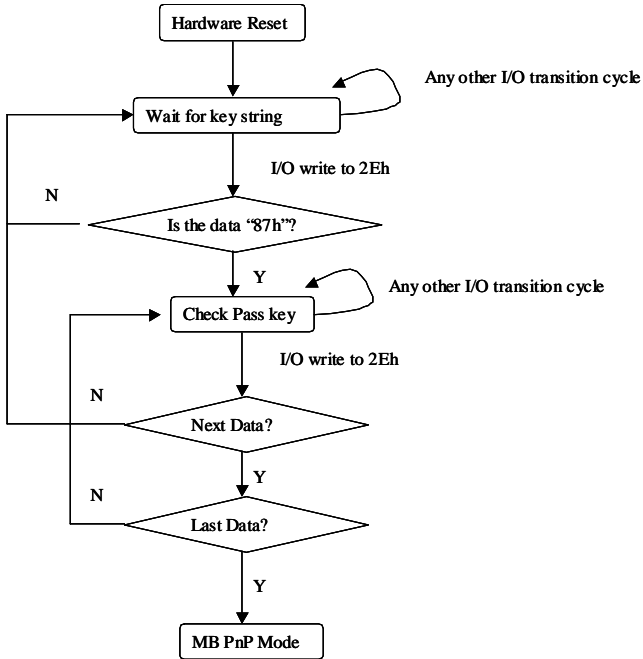


## B.1 Watchdog timer of PCM-8500

PCM-8500 utilizes ITE 8712 chipset as its watchdog timer controller. Here are the procedures below to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

## B.2 Configuring sequence description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit ) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup:

1. **Enter the MB PnP Mode;**
2. **Modify the data of configuration registers;**
3. **Exit the MB PnP Mode.**

Undesired result may occur if the MB PnP Mode is not exited normally.

### **(1) Enter the MB PnP Mode**

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

<b>Address Port</b>	<b>Data Port</b>
87h, 01h, 55h, 55h: 2Eh	2Fh

### **(2) Modify the Data of the Registers**

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

### **(3) Exit the MB PnP Mode**

Set bit 1 of the configure control register (Index=02h) to **1** to exit the MB PnP Mode.

## WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

### Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

#### Bit Description

7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

### WatchDog Timer Control Register (Index=71h, Default=00h)

#### Bit Description

7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing

- 0 WDT Status  
1: WDT value reaches 0.  
0: WDT value is not 0

### WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
-----	-------------

- |     |   |
|-----|---|
| 7   | WDT Time-out value select<br>1: Second<br>0: Minute |
| 6   | WDT output through KRST (pulse) enable              |
| 5-4 | Reserved  |
| 3-0 | Select the interrupt level <sup>Note</sup> for WDT  |

### WatchDog Timer Time-out Value Register (Index=73h, Default=00h)

Bit	Description
-----	-------------

- |     |                        |
|-----|------------------------|
| 7-0 | WDT Time-out value 7-0 |
|-----|------------------------|

### B.3 ITE8712 WatchDog timer initial program

---

```
MODEL SMALL
```

```
.CODE
```

Main:

```
CALL Enter_Configuration_mode
```

```
CALL Check_Chip
```

```
mov cl, 7
```

```
call Set_Logic_Device
```

```
;time setting
```

```
mov cl, 10 ; 10 Sec
```

```
dec al
```

Watch\_Dog\_Setting:

```
;Timer setting
```

```
mov al, cl
```

```
mov cl, 73h
```

```
call Superio_Set_Reg
```

```
;Clear by keyboard or mouse interrupt
```

```
mov al, 0f0h
```

```
mov cl, 71h
```

```
call Superio_Set_Reg
```

```
;unit is second.
```

```
mov al, 0C0H
mov cl, 72h
call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device
```

```
Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh
MOV CX,04h
```

```
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
```

```
Enter_Configuration_Mode ENDP
Exit_Configuration_Mode PROC NEAR
MOV     AX,0202h
CALL    Write_Configuration_Data
RET
Exit_Configuration_Mode ENDP
```

```
Check_Chip PROC NEAR
```

```
MOV     AL,20h
CALL    Read_Configuration_Data
CMP     AL,87h
JNE     Not_Initial
```

```
MOV     AL,21h
CALL    Read_Configuration_Data
CMP     AL,12h
JNE     Not_Initial
```

Need\_Initial:

```
STC
RET
```

Not\_Initial:

```
CLC
RET
Check_Chip ENDP
Read_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP

Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
```



```
pop    ax
inc    dx
out    dx,al
ret

Superio_Set_Reg endp

Set_Logic_Device      proc      near
push   ax
push   cx
xchg   al,cl
mov    cl,07h
call   Superio_Set_Reg
pop    cx
pop    ax
ret

Set_Logic_Device      endp

;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h

DW 02Eh,02Fh

END      Main
```

**Note:** *Interrupt level mapping*

0Fh-Dh: not valid

0Ch: IRQ12

.

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected