# PCM-8200

Intel® Pentium® M and
Celeron® M processors
Compact Board
With LVDS LCD, TV-Out,
Ethernet, Audio, CompactFlash ™,
USB, 4 COMs & Mini PCI

PCM-8200 Rev. A Manual 1st Ed.
Apr. 2004

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# Packing List

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

- 1 CPU Card
- 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-8200 series are powered by the Intel® Pentium® M processor with the Intel®855GME chipset and new Intel® 6300ESB I/O Controller South Bridge integrated. PCM-8200 is delicately designed for working-efficiency with low power consumption and simple voltage input required application. (5V only workable)

**Outstanding Power Efficiency**

The PCM-8200 supports Intel® Pentium® M / Celeron® M processors up to 1.60GHz with 400MHz FSB. System memory holds up to 1GB with fast DDR 333MHz providing high calculate and graphic ability but with extreme low power consumption. This feature is especially suitable for Video, Automation controller, Multimedia application.

Besides the excellent CPU performance, PCM-8200 also provides multiple display functions, it allows user to display different content on CRT/LCD, CRT/DVI, CRT/TV, LCD/DVI or LCD/TV this feature opens a shortcut to multi-display demander with cheaper solution. PCM-8200 does really the most power efficiency board that you can find at this moment.

**Maximum Expansion Interface**

PCM-8200 provides interface capabilities of two ports serial ATA controller; USB 2.0 host controller support up to 4 USB ports (Support Embedded USB DOM); four serial I/O ports support and Watchdog Timer support. In addition, the excellent 48/24/18-bit LVDS supports high quality

LCD display resolution. The TV-out (NTSC & PAL) function extends the display options to CRT, LCD, TV and etc. One Type III mini PCI socket can be used for wireless LAN interface. And onboard Intel® 82541 Ethernet controller stands for fast 1 Gigabyte transferring speed. All featured expansion interfaces have been enhanced in this 8" x 5.75" computer board.

The PCM-8200 is the ideal choice for dust/temperature-sensitive high end Industrial Automation application. For space-constrained environments such automobile, PCM-8200 is also a perfect fit. Even is great for KIOSK and POS implementations with low power consumption and pleasant multimedia presentations.

## 1.2 Features

- Supports Socket 478-based Intel®Pentium® M and Celeron®M processors

  Or onboard Low Voltage Intel® Pentium M processor
- Supports 48-bit Dual channel LVDS TFT panels
- AC-97 3D surround 5.1 channel Audio
- Supports Type II CompactFlash Memory
- Supports Type III Mini PCI and PCI slots
- 4 USB 2.0 / Mini PCI / Digital I/O / TV-Out / SATA

## 1.3 Specifications

### System

- CPU: Socket 478-based Intel® Pentium® M and Celeron M® processor (0.13 μ) up to 1.6GHz with FSB 400 MHz, or onboard Low Voltage Intel® Pentium® M processor up to 1.1GHz
- System: 184-pin DDR SDRAM DIMM x 1, Max. 1GB (PC-266/333)
- Chipset: Intel® 855GME + 6300ESB
- I/O Chipset: ITE IT8712F
- BIOS: Award 512 KB FLASH ROM
- Ethernet: Intel® 82551ER/82541GI (Optional), 10/100/1000Base-T RJ-45 connector x 1
- SSD: Type II CompactFlash slot
- Watchdog Timer: Generate a system reset
- Expansion Interface: Type III Mini PCI x 1, PCI slot x 1
- Battery: Lithium battery
- H/W Status Monitoring: Supports power voltages, fan speed and temperature

monitoring

- Power Supply Voltage: ATX, 5 voltage only
- Board size: 8" (L) x 5.75" (W) (203mm x 146mm)
- Gross Weight: 1.2lb(0.5Kg)

## Display

- Chipset: Intel® 855GME + Chrontel 7009
- Memory Size: Shared memory up to 64MB with Dynamic Video Memory Technology
- Resolution: Up to 1280 X 1024 @ 32bpp colors for CRT; Up to 1280 X 1024 @ 24bpp colors for LCD
- Supports CRT/LCD, CRT/DVI, CRT/TV, LCD/DVI and LCD/TV simultaneous display
- Supports CRT/LCD, CRT/DVI, CRT/TV, LCD/DVI and LCD/TV dual view
- Supports screen image rotation

## I/O

- MIO: EIDE (UDMA 100) x 1, Serial ATA x 2, FDD x 1, KB + Mouse x 1, RS-232 x 3, RS-232/422/485 x 1, Parallel x 1, CRT x 1

- IrDA: One IrDA Tx/Rx header
- Audio: Mic in, Line in, Line out / Speaker Out. 5.1 output.
- USB: One 5 x 2 and one 9 x 2-1 pin headers
  support 4 USB 2.0 ports (One for Embedded USB DOM)
- Digital I/O: Supports 8 in & 8 out, 16 in or 16 out

# Chapter 2

# Quick Installation Guide

***Notice:***

*The Quick Installation Guide is derived 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.*

Part No. 2007820010 Printed in Taiwan Apr. 2004

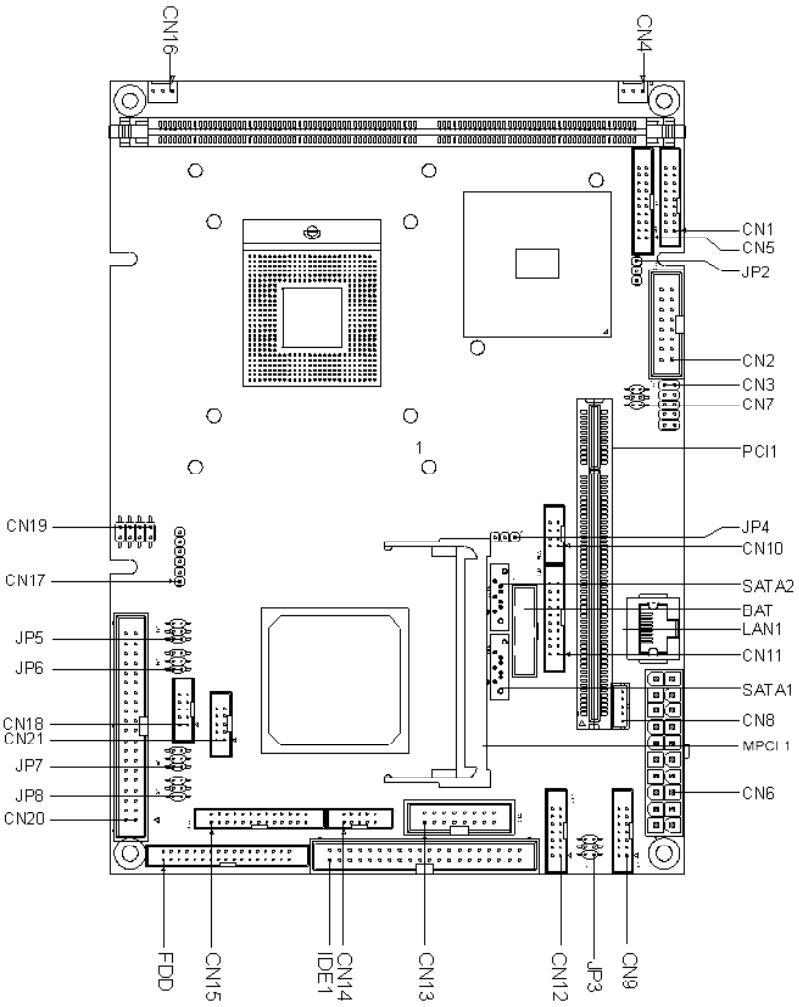
## 2.1 Safety Precautions

*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.*

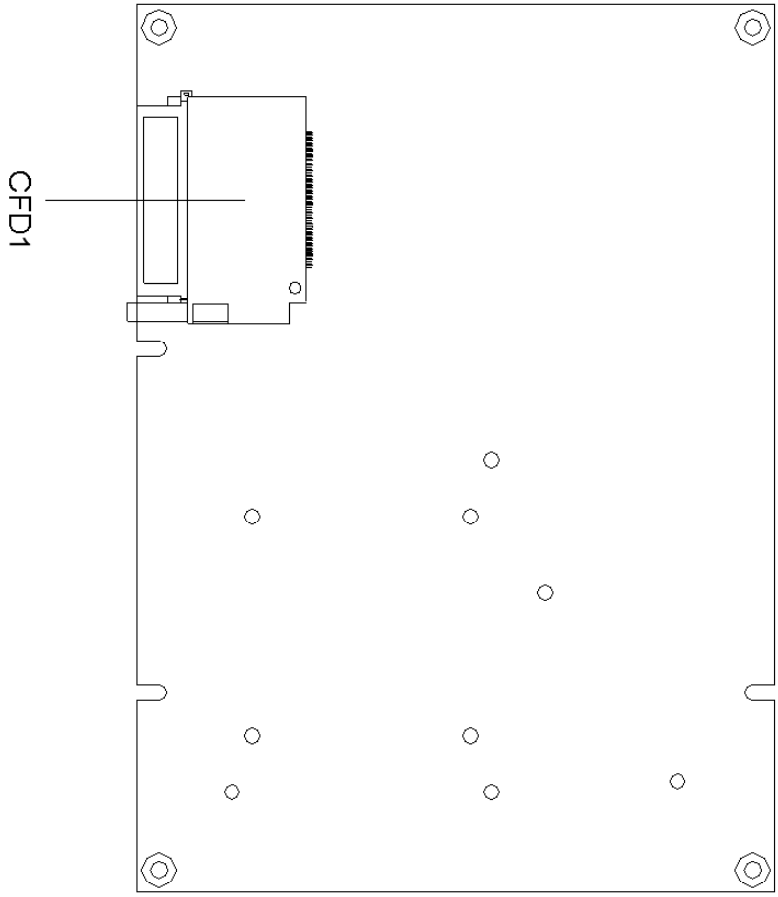
*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

## 2.2 Location of Connectors and Jumpers

### Component Side

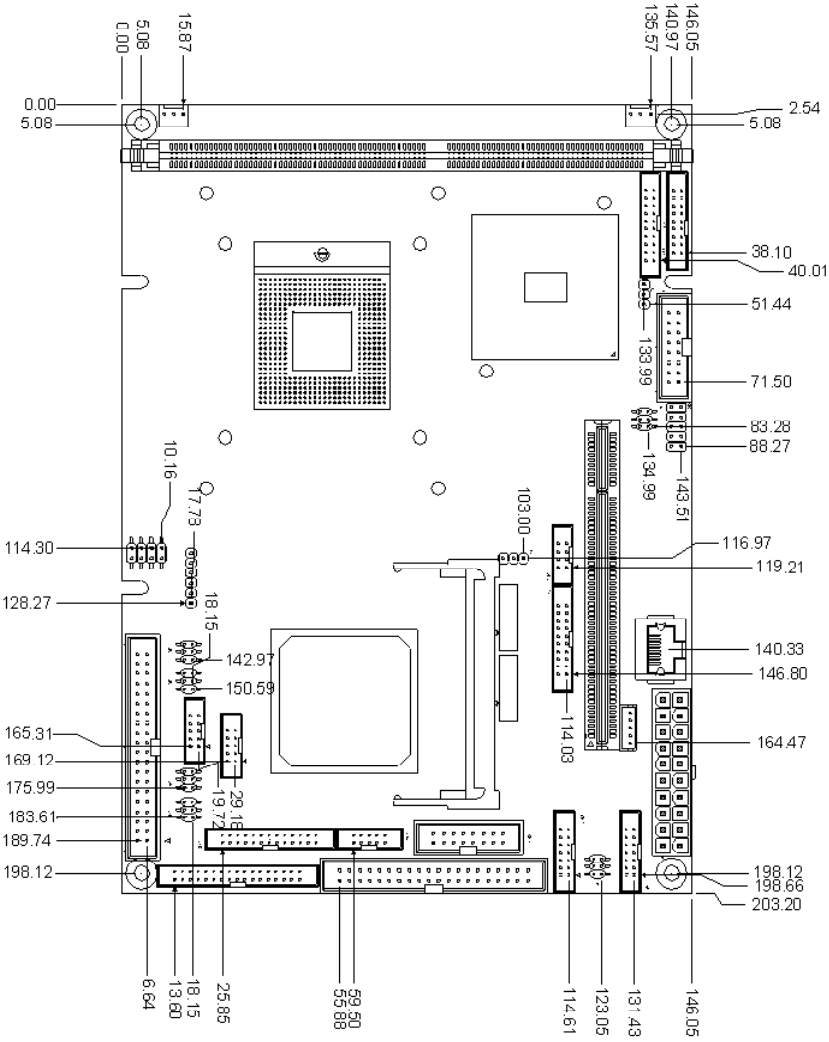


## Solder Side

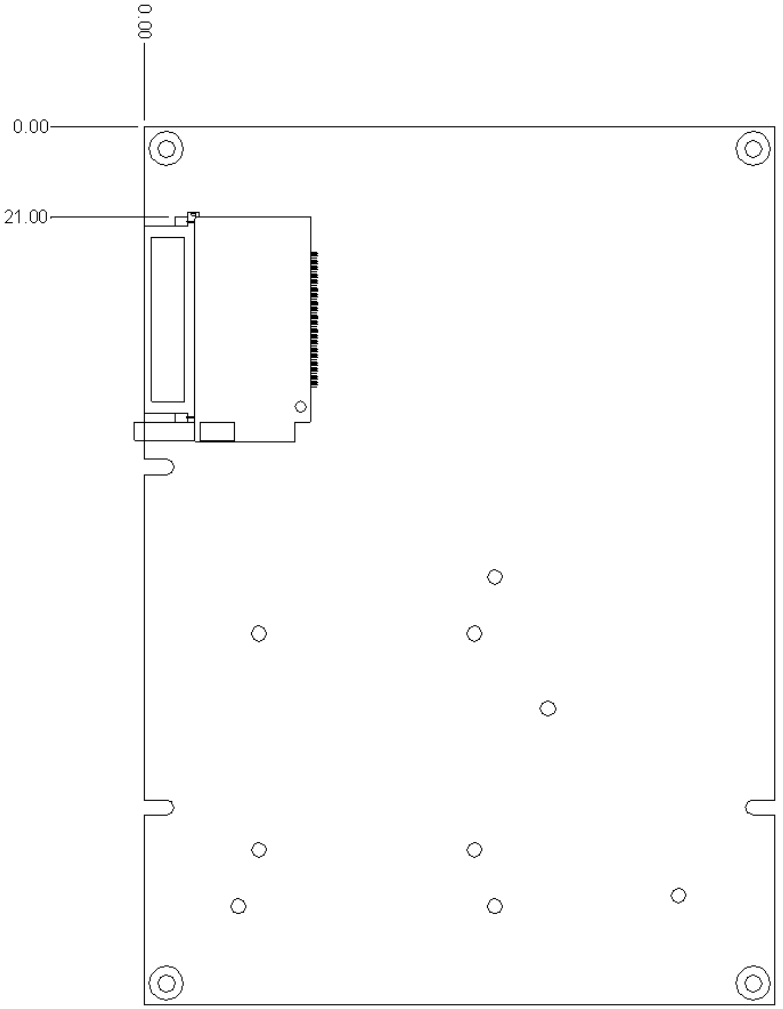


## 2.3 Mechanical Drawing

### Component Side



## Solder Side



## 2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

### Jumpers

| Label | Function |
|---|---|
| JP1 | Reserve |
| JP2 | LCD Voltage Selection |
| JP3 | Audio Out Selection |
| JP4 | Clear CMOS |
| JP5 | COM2 RS-232/422/485 Selection |
| JP6 | COM2 RS-232/422/485 Selection |
| JP7 | COM2 RS-232/422/485 Selection |
| JP8 | COM2 Ring/+5V/+12V Selection |

## 2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

### Connectors

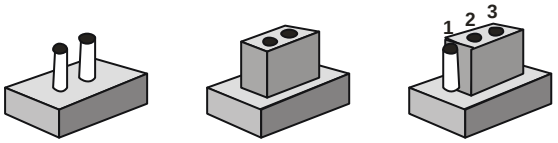
| Label | Function |
|---|---|
| CN1 | Channel2 LVDS Connector |
| CN2 | VGA Display Connector |
| CN3 | Front Panel Connector |
| CN4 | System Fan Connector |
| CN5 | Channel1 LVDS Connector |
| CN6 | ATX Power Connector |
| CN7 | LAN LED Connector |
| CN8 | Option PME Connector |
| CN9 | Audio Connector |
| CN10 | TV-Out Connector |
| CN11 | DVI Connector |
| CN12 | Audio 5.1 Channel / SPDIF Connector |
| CN13 | Embedded USB Connector |
| CN14 | USB Connector |
| CN15 | LPT Port Connector |
| CN16 | CPU Fan Connector |
| CN17 | IrDA Connector |
| CN18 | Digital I/O-2 Connector |
| CN19 | PS2 Keyboard/Mouse Connector |
| CN20 | Serial Port Connector |
| CN21 | Digital I/O-1 Connector |
| FDD1 | Floppy Connector |

| | |
|---|---|
| IDE1 | EIDE Connector |
| LAN1 | Ethernet Connector |
| PCI1 | PCI Slot |
| MPCI1 | Mini PCI Slot |
| CFD1 | CompactFlash Slot |
| DIMM1 | DIMM Slot |
| SATA1 | Master Serial ATA |
| SATA2 | Slave Serial ATA |

## 2.6 Setting Jumpers

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.




Open Closed Closed 2-3

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 LCD Voltage Selection (JP2)

| JP2 | Function |
|---|---|
| 1-2 | +5V |
| 2-3 | +3.3V (Default) |

## 2.8 Audio Out Selection (JP3)

| JP3 | Function |
|---|---|
| 1-3, 2-4 | W/O Amplifier |
| 3-5, 4-6 | W/ Amplifier (Default) |

## 2.9 Clear CMOS (JP4)

**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."*

| JP4 | Function |
|---|---|
| 1-2 | Protected (Default) |
| 2-3 | Clear |

## 2.10 COM2 RS-232/422/485 Selection (JP5, JP6 & JP7)

| JP5 | JP6 | JP7 | Function |
|---|---|---|---|
| 1-3. 2-4 | 1-3. 2-4 | 1-2 | RS-232 (Default) |
| 3-5, 4-6 | 3-5, 4-6 | 3-4 | RS-422 |
| 3-5, 4-6 | 3-5, 4-6 | 5-6 | RS-485 |

## 2.11 COM2 Ring/+5V/+12V Selection (JP8)

| JP8 | Function |
|---|---|
| 1-2 | +12V |
| 3-4 | +5V |
| 5-6 | Ring (Default) |

## 2.12 Channel2 LVDS Connector (CN1)

| 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- |

## 2.13 VGA Display Connector (CN2)

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

## 2.14 Front Panel Connector (CN3)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Power On Button (-) | 2 | Power On Button (+) |
| 2 | IDE LED (-) | 4 | IDE LED (+) |
| 5 | External Buzzer (-) | 6 | External Buzzer (+) |
| 7 | Power LED (-) | 8 | Power LED (+) |
| 9 | Reset Switch (-) | 10 | Reset Switch (+) |

## 2.15 FAN Connector (CN4)

| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | +5V |
| 3 | Speed Sense |

## 2.16 Channel1 LVDS Connector (CN5)

| 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. |

## 2.17 ATX Power Connector (CN6)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | N.C. | 11 | N.C. |
| 2 | N.C. | 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 |

## 2.18 LAN LED Connector (CN7)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Active LED (+) | 2 | Active LED (-) |
| 3 | Speed 100 LED (+) | 4 | Speed 100 LED (-) |
| 5 | Speed 1000 LED (+) | 6 | Speed 1000 LED (-) |

## 2.19 Option PME Connector (CN8)

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

## 2.20 Audio Connector (CN9)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | MIC_IN | 2 | MIC_+2.5V |
| 3 | LINE_IN_GND | 4 | CD_GND |
| 5 | LINE_IN_L | 6 | CD_IN_L |
| 7 | LINE_IN_R | 8 | CD_GND |
| 9 | LINE_IN_GND | 10 | CD_IN_R |
| 11 | LINE_OUT_L | 12 | LINE_OUT_R |
| 13 | LINE_OUT_GND | 14 | LINE_OUT_GND |

## 2.21 TV_Out Connector (CN10)

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

## 2.22 DVI Connector (CN11)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | DVI_TX1+ | 2 | LVDS_TX1- |
| 3 | GND | 4 | GND |
| 5 | DVI_TXCLK+ | 6 | DVI_TXCLK- |
| 7 | GND | 8 | +5V |
| 9 | HotPlug_Detect | 10 | +5V |
| 11 | DVI_TX2+ | 12 | DVI_TX2- |
| 13 | GND | 14 | GND |
| 15 | DVI_TX0+ | 16 | DVI_TX0- |
| 17 | N.C. | 18 | N.C. |
| 19 | I2C_DATA | 20 | I2C_CLK |

## 2.23 Audio 5.1 Channel/SPDIF Connector (CN12)

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

## 2.24 USB Connector (CN13 & CN14)

CN13 (For Embedded USB DOM)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | N.C. | 2 | N.C. |
| 3 | N.C. | 4 | N.C. |
| 5 | +5V | 6 | +5V |
| 7 | USBD3- | 8 | USBD4- |
| 9 | USBD3+ | 10 | USBD4+ |
| 11 | GND | 12 | GND |
| 13 | N.C. | 14 | N.C. |
| 15 | +5V | 16 | N.C. |
| 17 | N.C. | 18 | N.C. |

CN14

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | +5V | 2 | GND |

| | | | |
|---|---|---|---|
| 3 | USBD1- | 4 | GND |
| 5 | USBD1+ | 6 | USBD2+ |
| 7 | GND | 8 | USBD2- |
| 9 | GND | 10 | +5V |

## 2.25 LPT Port Connector (CN15)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | #STROBE | 2 | #AFD |
| 3 | DATA0 | 4 | #ERROR |
| 5 | DATA1 | 6 | #INIT |
| 7 | DATA2 | 8 | #SLIN |
| 9 | DATA3 | 10 | GND |
| 11 | DATA4 | 12 | GND |
| 13 | DATA5 | 14 | GND |
| 15 | DATA6 | 16 | GND |
| 17 | DATA7 | 18 | GND |
| 19 | #ACK | 20 | GND |
| 21 | BUSY | 22 | GND |
| 23 | PE | 24 | GND |
| 25 | SELECT | 26 | N.C. |

## 2.26 FAN Connector (CN16)

| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | +5V |
| 3 | Speed Sense |

## 2.27 IrDA Connector (CN17)

| Pin | Signal |
|---|---|
| 1 | +5V |
| 2 | N.C. |
| 3 | IRRX |
| 4 | GND |
| 5 | IRTX |
| 6 | N.C. |

## 2.28 Digital I/O-2 Connector (CN18)

This connector offers 4-pair of digital I/O functions and address is 801H.

The pin definitions are illustrated below:

| Pin | Signal | 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 |

## 2.29 Keyboard/Mouse Connector (CN19)

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | KB_DATA | 2 | KB_CLK |
| 3 | GND | 4 | +5V |
| 5 | MS-DATA | 6 | MS_CLK |
| 7 | N.C. | | |

## 2.30 RS-232/422/485 Serial Port Connector (CN20)

| 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/+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. |

## 2.31 Digital I/O-1 Connector (CN21)

This connector offers 4-pair of digital I/O functions and address is 800H. The pin definitions are illustrated below:

| Pin | Signal | 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 |

Address=800H

**4 in / 4 out**

| Pin1 | Pin2 | Pin3 | Pin4 | Pin5 | Pin6 | Pin7 | Pin8 |
|---|---|---|---|---|---|---|---|
| GPI 17 | GPI 16 | GPI 15 | GPI 14 | GPO 13 | GPO 12 | GPO 11 | GPO 10 |
| MSB | | | | | | | LSB |

**8 in**

| Pin1 | Pin2 | Pin3 | Pin4 | Pin5 | Pin6 | Pin7 | Pin8 |
|---|---|---|---|---|---|---|---|
| GPI 17 | GPI 16 | GPI 15 | GPI 14 | GPI 13 | GPI 12 | GPI 11 | GPI 10 |
| MSB | | | | | | | LSB |

**8 out**

| Pin1 | Pin2 | Pin3 | Pin4 | Pin5 | Pin6 | Pin7 | Pin8 |
|---|---|---|---|---|---|---|---|
| GPO 17 | GPO 16 | GPO 15 | GPO 14 | GPO 13 | GPO 12 | GPO 11 | GPO 10 |
| MSB | | | | | | | LSB |

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.

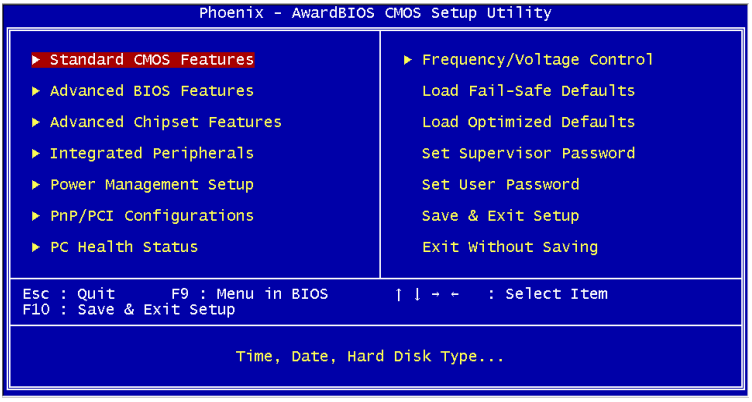
The PCM-8200 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 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 etc.)

## PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

## PC Health Status

This menu shows you the status of PC.

## Frequency/Voltage Control

This menu shows you the display of frequency/voltage Control.

## 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

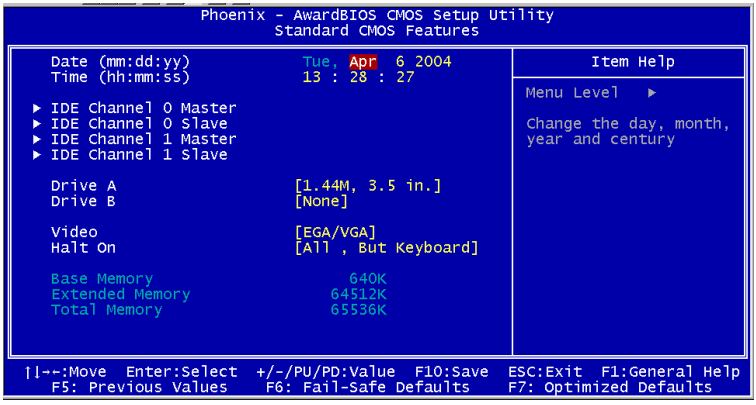
Save CMOS value changes to CMOS and exit setup.

### Exit Without Saving

Abandon all CMOS value changes and exit setup.

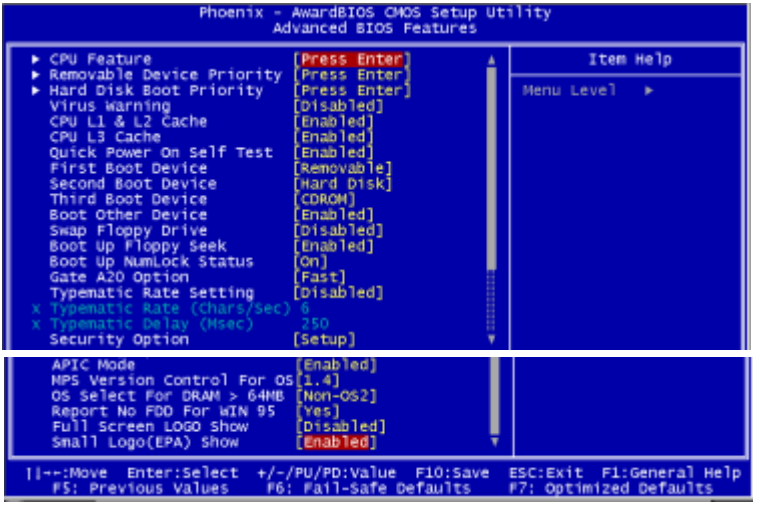
## 3.3 Standard CMOS Features

When you choose the Standard CMOS Features option from the INITIAL SETUP SCREEN menu**,** the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the right box of the Menu screen.



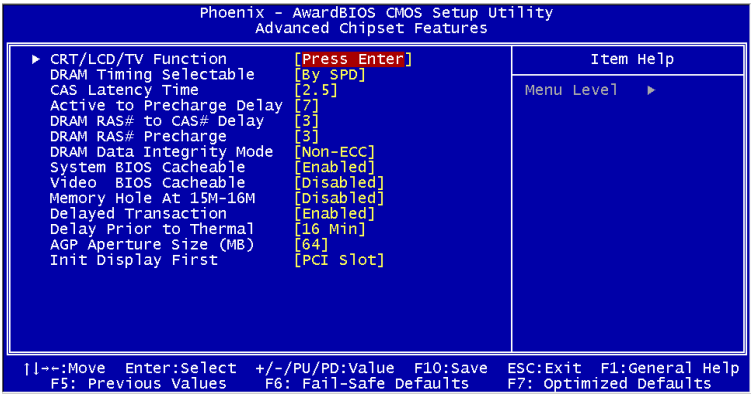
## 3.4 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-8200



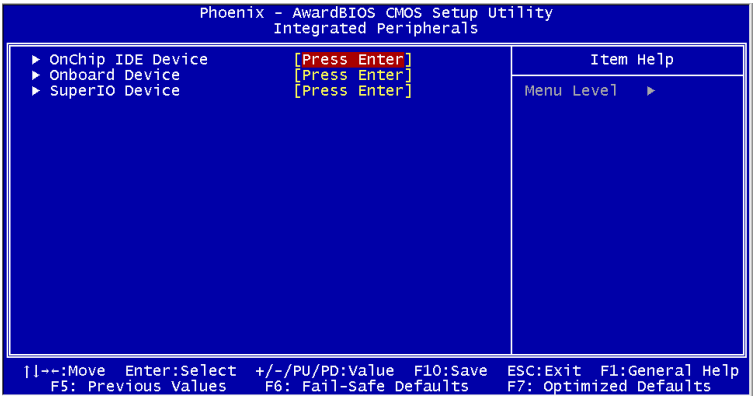
## 3.5 Advanced Chipset Features

By choosing the Advanced Chipset Features option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.



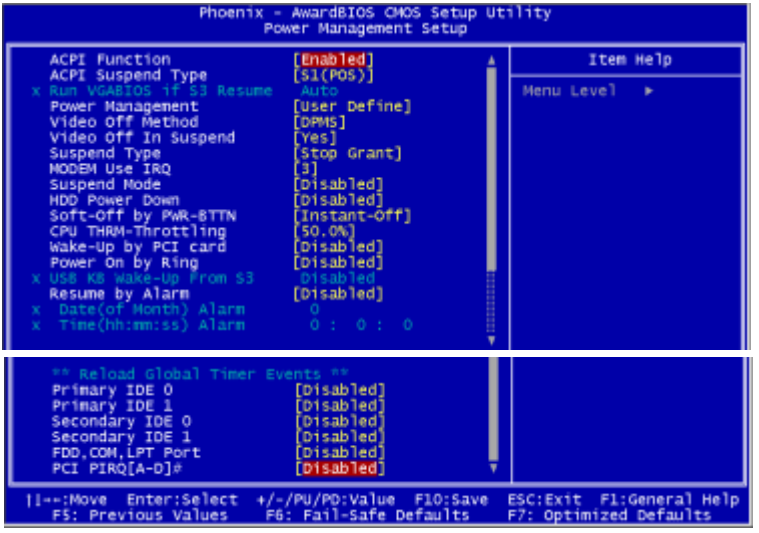
## 3.6 Integrated Peripherals

By choosing the Integrated Peripherals from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.



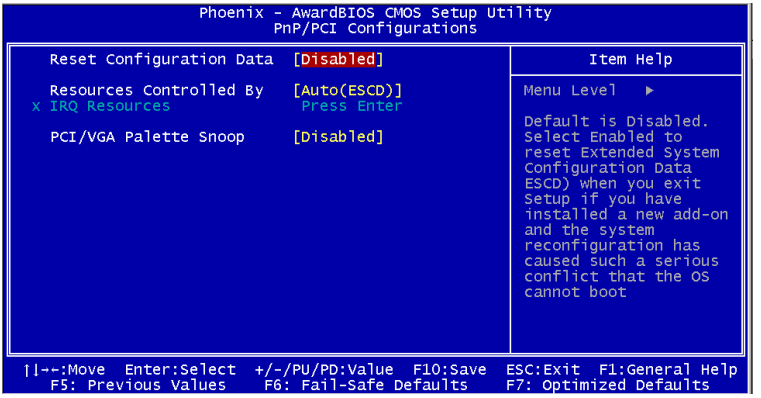
## 3.7 Power management Setup

By choosing the Power Management Setup from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.



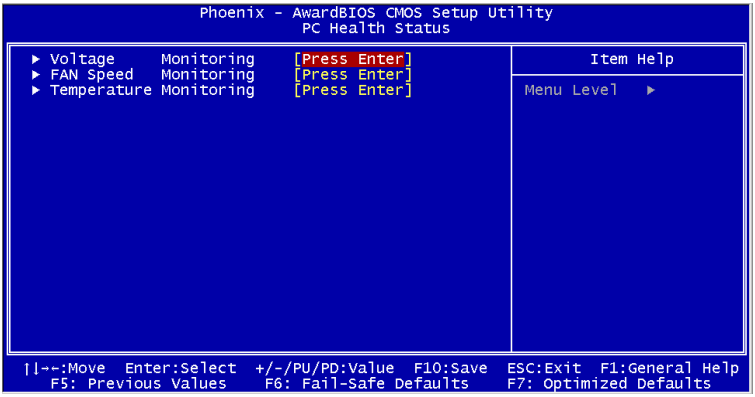
## 3.8 PnP/PCI configuration

By choosing the PnP/PCI configurations from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.



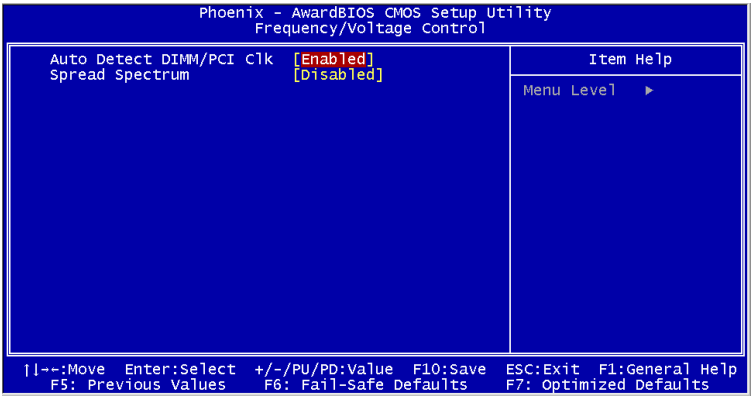
## 3.9 PC Health Status

By choosing the PC Health Status from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.



## 3.10 Frequency/Voltage control

By choosing the Frequency/Voltage Control from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer' s default values for the PCM-8200.

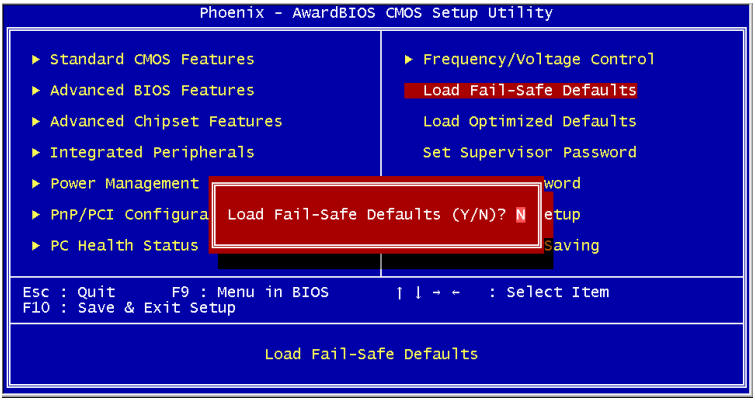


## 3.11 Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Default (Y/N)?

Pressing "Y" loads the BIOS default values for the most stable, minimal performance system operations.

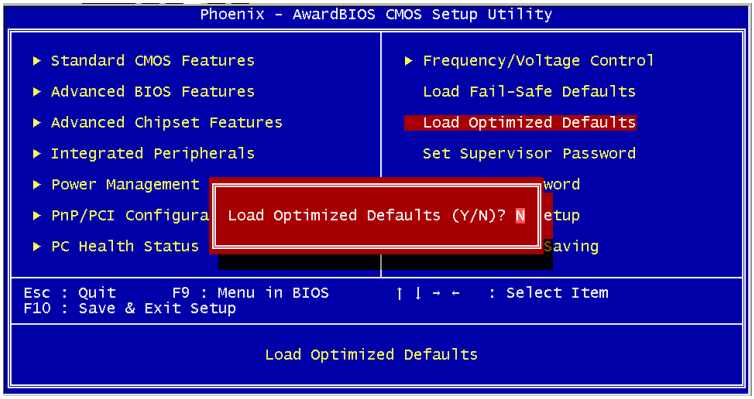


## 3.12 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

Pressing "Y" loads the default values that are manufacturer's settings for optimal performance system operations.



## 3.13 Set Supervisor/User Password

You can set either SUPERVISOR or USER PASSWORD, or both of them. The difference between the two is that the supervisor password allows unrestricted access to enter and change the options of the setup menus, while the user password only allows entry to the program, but not modify options.

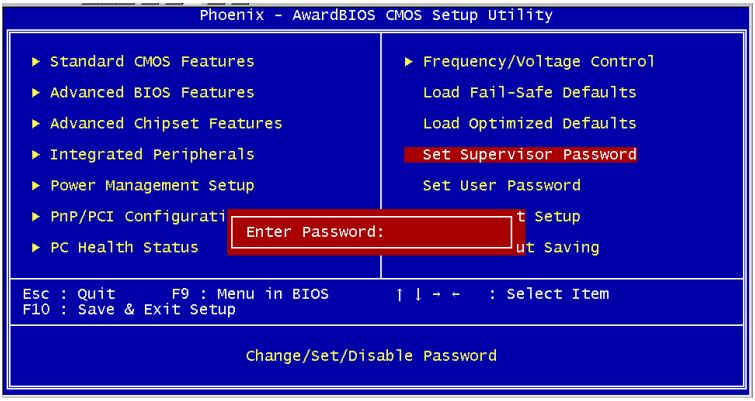
To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

**System** Enter a password each time the system boots and whenever you enter Setup.

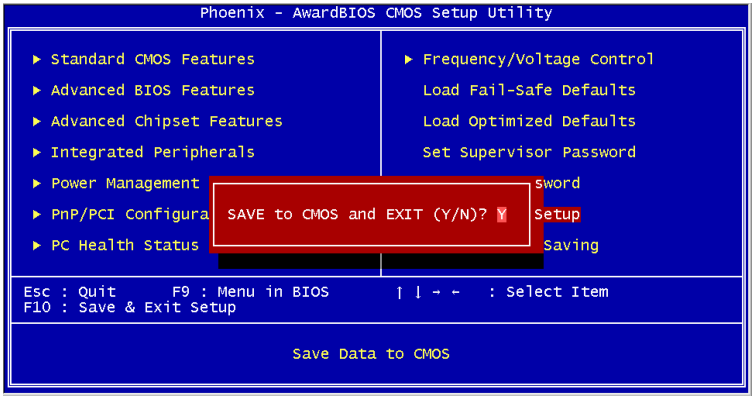
**Setup** Enter a password whenever you enter Setup.

*NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*



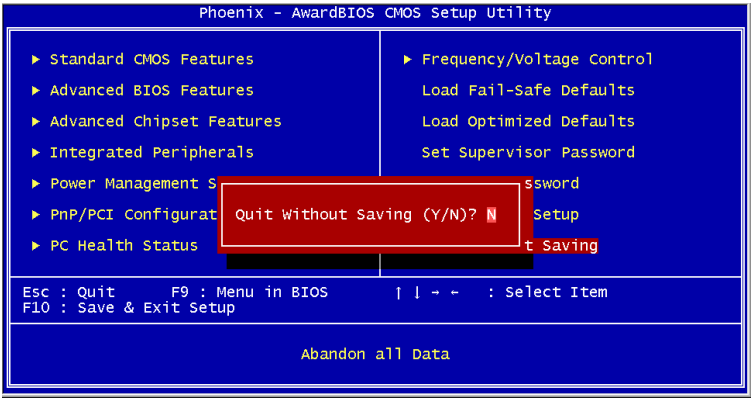
## 3.14 Save & Exit Setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset' s CMOS memory. The microprocessor will check this every time you turnon your system and compare this to what it finds as it checks the system. This record is required for the system to operate.



## 3.15 Exit without saving

Selecting this option and pressing <Enter> allows you to exit the Setup program without recording any new value or changing old one.



# Chapter 4

# Driver Installation

**OS Support For Microsoft Windows 2000, Windows XP only**

The PCM-8200 comes with a CD-ROM that contains most of drivers and utilities of your needs.

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

Step 1 – Install Intel INF Update for Windows 9X-2003

Step 2 – Install Intel Extreme Graphics2 Driver

Step 3 – Install Intel LAN Driver

Step 4 – Install Realtek AC97 codec 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/.

Please read instructions below for further detailed installations.

## 4.1 Installation:

Insert the PCM-8200 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 4 in order.

### Step 1 – Install Intel INF Update for Windows 9X-2003

1. Click on the **Intel INF Update for Windows 9X-2003** folder and then double click on the **infinst_autol.exe.**
2. Follow the instructions that the window will show you.
3. The system will help you install the driver automatically.

### Step 2 – Install Intel Extreme Graphics 2 Driver

1. Click on the **Intel Extreme Graphics 2 Driver** folder and then double click on the **win2k_xp141.exe.**
2. Follow the instructions that the window will show you.
3. The system will help you install the driver automatically.

### Step 3 – Install Intel LAN Driver

There're two folders after you enter the Step 3 folder. Based on the board that you purchase, you can install either **Intel LAN 82551er Driver** or **Intel LAN 825xx Driver V8.3**.

Intel LAN 82551er Driver

1. Double click on the **82551ER exe.** before you key in the path where you want the unzipped files place on and then click on Unzip button.
2. Click on **Start** button → **Settings** → **Control Panel** → **System**

3. Select **Device Manager** under the **Hardware** category.
4. Double click on the **Ethernet controller** and select **reinstall Driver** button under the **General** category.
5. Click **Next** twice and tick the **Specify a location** option.
6. Click **Next** and choose a route where you want place the folders on before you click on **open**.
7. Click **Next** → **Yes** → **Finish** and the window will show you how to finish the installation process.

Intel LAN 825xx Driver V8.3

1. Click on the **Intel LAN 825xx Driver V8.3** folder and then double click on the **pro2kxp.exe.**
2. Follow the instructions that the window will show you.
3. The system will help you install the driver automatically.

## Step 4 – Install Realtek AC97 codec Driver

1. Click on the **Realtek AC97 codec Driver** folder and then double click on the **wdm_a355.exe**
2. Follow the instructions that the window will show you.
3. The system will help you install the driver automatically.

# Appendix A

# I/O Information

## A.1 I/O Address Map

| Address | Description | User Address |
|---|---|---|
| 000-01F | DMA Controller #1 | 000-000F |
| 020-03F | Interrupt Controller #1, Master | 020-021 |
| 040-05F | System Time | 040-043 |
| 060-06F | 8042 (Keyboard Controller) | 060-064 |
| 070-07F | Real time Clock, NMI (non-maskable Interrupt) Mask | 070-073 |
| 080-09F | DMA Page Register | 080-08F |
| 0A0-0BF | Interrupt Controller #2 | 0A0-0A1 |
| 0C0-0DF | DMA Controller #2 | 0C0-0DF |
| 0F0-0FF | Math Coprpcessor | 0F0-0FF |
| 170-177 | Secondary IDE Channel | 170-177 |
| 1F0-1F7 | Primary IDE Channel | 1F0-1F7 |
| 278-27F | Parallel Printer Port 2 (LPT3) | 278-27F |
| 2E8-2EF | Serial Port 4 | 2E8-2EF |
| 2F8-2FF | Serial Port 2 | 2F8-2FF |
| 378-37F | Parallel Printer Port 1 (LPT2) | 378-37F |
| 3B0-3BF | Monochrome Display and Printer Adapter (LPT1) | 3B0-3BF |
| 3D0-3DF | EGA / VGA card | 3D0-3DF |
| 3E8-3EF | Serial Port 3 | 3E8-3EF |
| 3F0-3F7 | Diskette Controller | 3F2-3F7 |
| 3F8-3FF | Serial Port 1 | 3F8-3FF |

## A.2 1st MB Memory Address Map

| Memory Address | Description |
|---|---|
| 00000-9FFFF | System memory |
| A0000-BFFFF | VGA buffer |
| C0000-CFFFF | VGA BIOS |
| E0000-FFFFF | System BIOS |

## A.3 IRQ Mapping Chart

| | | | |
|---|---|---|---|
| IRQ0 | System Timer | IRQ8 | System CMOS / Real time clock |
| IRQ1 | Keyboard | IRQ9 | Microsoft ACPI – Compliant system |
| IRQ2 | Cascade to IRQ Controller | IRQ10 | COM3 |
| IRQ3 | COM2 | IRQ11 | COM4 |
| IRQ4 | COM1 | IRQ12 | PS/2 mouse |
| IRQ5 | Unused | IRQ13 | FPU |
| IRQ6 | Floppy Disk Controller | IRQ14 | Primary IDE |
| IRQ7 | Printer | IRQ15 | Secondary IDE |

## A.4 DMA Channel Assignments

| DMA Channel | Function |
|---|---|
| 0 | Available |
| 1 | Available |
| 2 | Standard Floppy Disk Controller |
| 3 | Available |
| 4 | Direct Memory Access Controller |
| 5 | Available |
| 6 | Available |
| 7 | Available |

# Appendix B

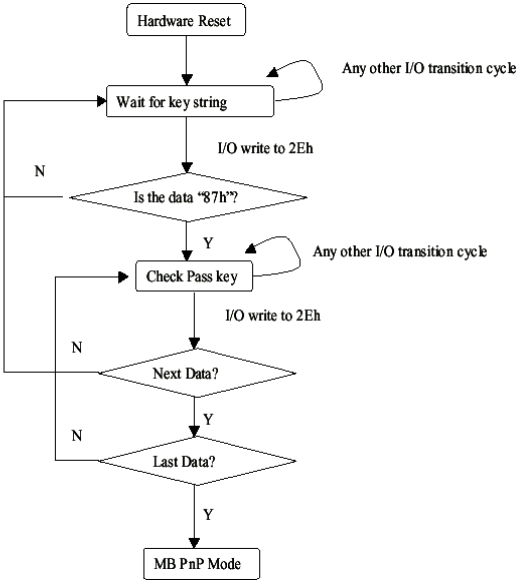
# Programming the Watchdog Timer

## B.1 Programming

PCM-8200 utilizes ITE 8712 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

**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 opera-tions
to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

| | Address Port | Data Port |
|---|---|---|
| 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 |
| | 1: Second |
| | 0: Minute |
| 6 | WDT output through KRST (pulse) enable |
| 5-4 | Reserved |
| 3-0 | Select the interrupt level[Note] for WDT |

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

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

## B.2 IT8712 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
```

```
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