PCM-6894

Tualatin / Pentium III / Celeron
Compact Board
With LCD, LVDS, TV-out, Audio,
Dual Ethernet, CFD &
PC/104 Connector

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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

The PCM-6894 requires several cables for operation. You can make them yourself or purchase an optional cable kit, PCM-10489-7.

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

AAEON new compact size board PCM-6894 targets high-end multimedia and networking applications. This board is supported by Intel Celeron , Pentium III and Tualatin CPUs. Easy upgrading allows full utilization of Intel Development of even-higher speed CPUs. This is a perfect choice for embedded applications that require cost-effective high computing power communications Products whether video, voice, or data convergence over Internet Protocol network infrastructures.

The PCM-6894 features power management to minimize power consumption. It complies with the ACPI standard and supports three types of power-saving features: Doze mode, Standby and Suspend modes. The board watchdog timer automatically resets the system or generates an interrupt in case the system stops due to a program bug or EMI.

Onboard SMI Lynx3DM+ 722 display chip with embedded 4 or 8MB SGRAM comes with 128-bit 2D/3D Graphics Engine, built-in TV encoder for NTSC/PAL support, enhanced multi-display and hardware accelerated MPEG2/DVD playback. For advanced panel display, SMI Lynx3DM+ adds an integrated LVDS transmitter

Dual RTL 8139C PCI-bus 10/100Base-Tx Ethernet controllers onboard provide superior networking access ability. The Ethernet interface and Sound Blaster-compatible audio opens up worlds of possibilities for kiosks, gaming systems, POS systems, medical and education markets.

The onboard compact flash will offer a larger memory bank for data storage

of all types. Compact Flash requires a fraction of power used to drive floppy disk or CD-ROMs, also no battery is required to save the data when the computer powers down.

PCM-6894 also includes four high-speed serial ports (three RS-232, one RS-232/422/485), one multimode (ECP/EPP/SPP) parallel port, dual USB ports, 2 floppy drives, an Ultra DMA/100 Enhanced IDE controller supporting up to two devices with data transfer rate up to 100MB per second, and a keyboard/PS/2 mouse interface. This AAEON embedded PC includes almost everything you need for fast, worry-free embedded PC performance.

The addition of PCI slot and PC/104 connector will allow a wide selection of accessory cards to be added to the PCM-6894 such as Ultra Wide 2 SCSI, fax modem, vehicle power supply, extra DiskOnChip, PCMCIA module, etc.

1.2 Features

- Supports Intel Tualatin/ Pentium III/ Celeron and compatible processors

- Onboard VT82C694T/VT82C686B chipset

- SMI Lynx3DM+ SM 722 LCD controller with built-in 4 or 8 MB SGRAM supports 24-bit TFT Panels

- SM 722 integrated single channel LVDS/TTL function

- Two 10/100Base-T Fast Ethernet

- Integrated AC-97 2.2 Compatible 3D Audio

- Supports TV-Out function with RCA and S terminal header on board

- Supports Type II CompactFlash Memory

1.3 Specifications

System

- CPU   Intel FC-370 Pentium III/Celeron CPU
                    (with system bus frequencies of
                    66/100/133MHz)

- CPU Socket   Intel socket 370

- BIOS   Award 256KB Flash BIOS

- Chipset   VIA Apollo Pro 133T, VT82C694T

- I/O Chipset   VT82C686B. Winbond
                    83977EF(TF)-AW as 2nd SIO for
                    COM3, COM4 port.

- Memory   Onboard One 168-pin DIMM socket
                    supports up to 512 MBbytes SDRAM
                    (PC 100/133 support)

- Enhanced IDE   Supports four IDE devices. Two devices
                    supports Ultra DMA100 mode with
                    transfer rate up to 100MB/ sec.

- FDD interface   Supports up to two floppy disk drives,
                    5.25 inch (360KB and 1.2 MB) and/or
                    3.5inch (720KB, 1.44MB and 2.88MB)

- Parellel Port   One bi-directional parallel port.
                    Supports SPP, ECP, and EPP modes

- Serial Port   Three RS-232 serial ports and one
                    RS-232/422/485(COM2) can be

---

configured as COM1, COM2,

COM3, COM4, or disabled individually.

(16C550 equivalent)

- IrDA port   Supports one IrDA Tx/Rx header

- KB/Mouse connector   A 7(4*2-1)-pin header supports

PS/2 Keyboard and PS/2 mouse.

- USB connectors   One 5x2-pin header onboard supports

dual USB ports

- Battery   Lithium battery for data retention

- Watchdog Timer   Generate a system reset. Software

selectable time-out interval.

- Power management   Supports ATX or AT power supply.

Supports PC97, LAN wake up and

modem ring-in functions. I/O

peripheral device support power

saving and doze/standby/suspend

modes. APM 1.2 compliant

Audio Interface

- Chipset   VIA VT82C686B, ALC65x codec

- Audio Controller   AC97 ver. 2.0 compliant interface,

Multi-stream Direct Sound and

Direct Sound 3D acceleration.

- Audio Interface   MIC in, line in, line out, CD audio

in.

Flat Panel/CRT Interface

- Chipset   SMI Lynx3DM+ SM 722, high performance 128-bit GUI, 3D engine
- Display memory   4 or 8 MB frame buffer on Lynx3DM+ SM 722 Chip
- Display Type   Supports non-interlaced CRT and 24bit LVDS/TTL TFT LCD, can display both CRT and flat panel (DF-13 1.25V) simultaneously
- Resolution   Up to 1024 X 768 @ 24bpp colors
- Supports CRT and LCD simultaneous display / LCDs dual view
- TV output interface   Onboard header supports both RCA jack and S terminal

Ethernet Interface

- Chipset   Dual RTL 8139C PCI-bus Ethernet controllers onboard
- Ethernet interface   Onboard dual 10/100Base-T RJ-45 Connector

Expansion Interface

- PC/104 Connector   One 16-bit 104-pin connector

onboard

- PCI Slot   One 32-bit PCI slot onboard
- SDD Interface   One type II Compact Flash Socket

Mechanical and Environmental

- Power Supply voltage   +5V, +12V, AT or ATX type
- Operating temperature 32 to 140 degrees F (0 to 60 degrees C)
- Board Size   8 (L) x 5.75 (W)   (203mm x 146mm)
- Weight   1.2 lb.   (0.5Kg)

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.

OZONE SAFE

RECYCLABLE

2.1 Safety Precautions

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
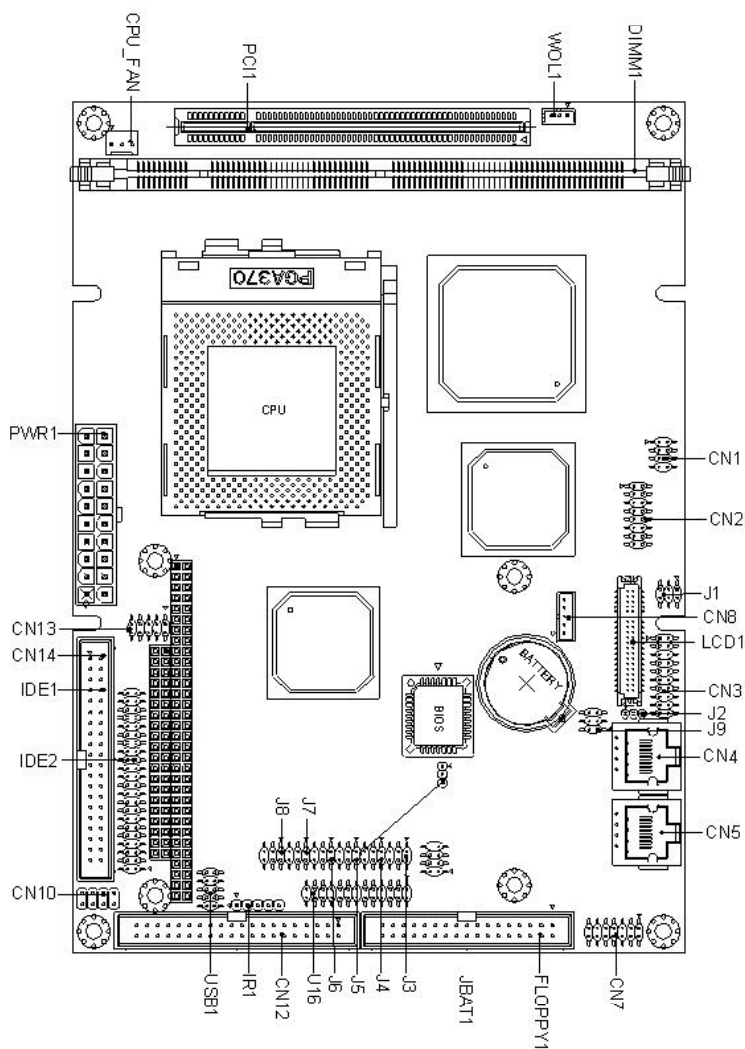
Solder Side
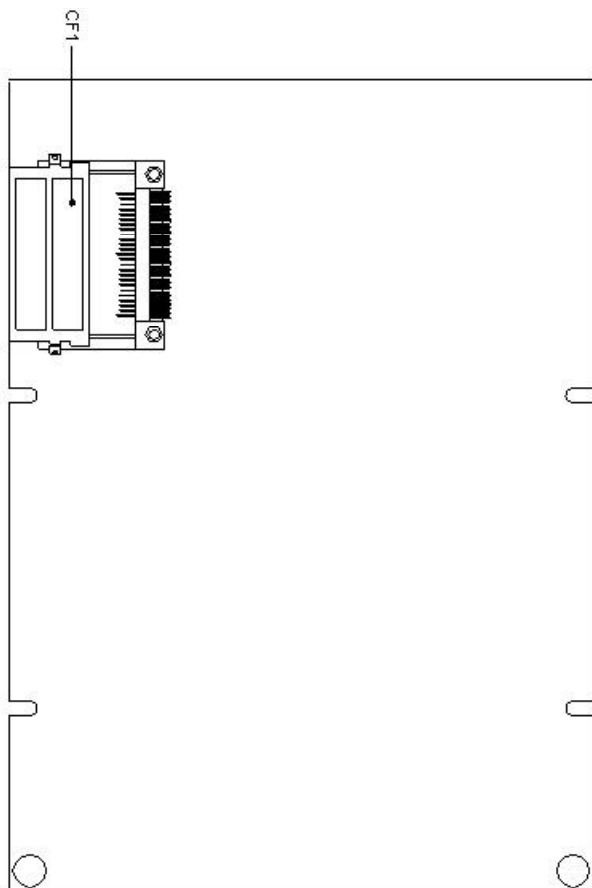
2.3 Mechanical Drawing

Component Side
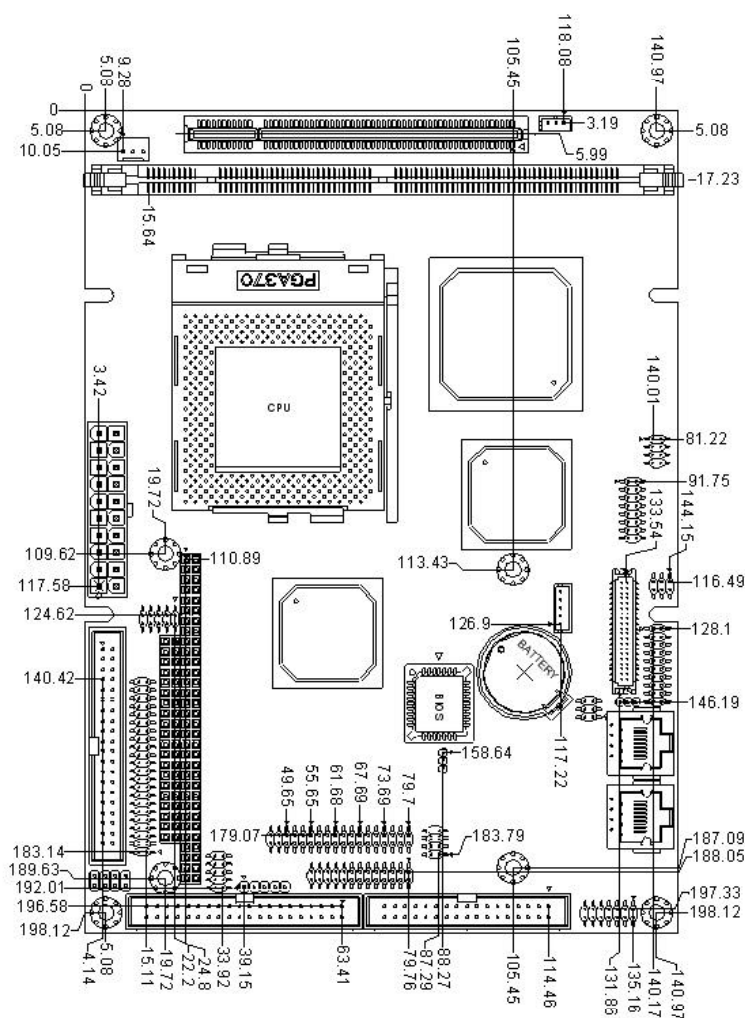
Solder Side
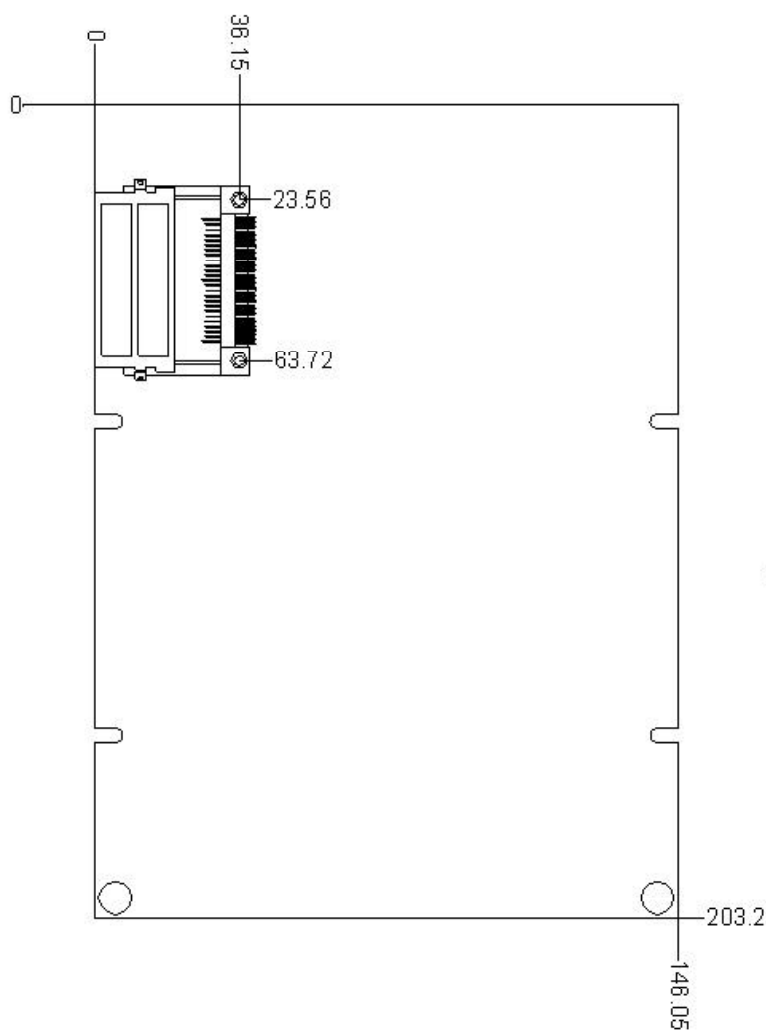
2.4 List of Jumpers

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
JBAT1	CMOS Status Setup
J1	Reserved
J2	LVDS Voltage Select
J3, J4 & J5	Serial Port 2 Status Setup
J6	Serial Port 3 RING Status Setup
J7	Serial Port 4 RING Status Setup
J8	Watchdog Timer Status Setup
J9	LAN Status Setup

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	TV Output Connector
CN2	CRT Connector
CN3	LVDS Connector
CN4	10/100 Base-Tx Ethernet 2 Connector (LAN2)
CN5	10/100 Base-Tx Ethernet 1 Connector (LAN1)
CN6	Reserved
CN7	Audio Output Connector
CN8	Inverter Power Supply Connector for LCD
CN9	LAN 1 & LAN 2 Status Connector
CN10	Keyboard & PS/2 Mouse Connector
CN12	Serial Port 1/2/3/4 Connector
CN13	Front Panel Connector
IDE1	Primary Device Connector
IDE2	Secondary Device Connector
CF1	CompactFlash Connector
PWR1A	ATX Power Connector
PWR1B	AT Power Connector
CPU_FAN	CPU Fan Connector
LPT1	Printer Port Connector
PCI1	PCI Connector
DIMM1	168-pin DIMM Connector
WOL1	Wake On LAN Connector

USB1	USB Connector
IR1	IrDA Connector
LCD1	Primary LCD Connector

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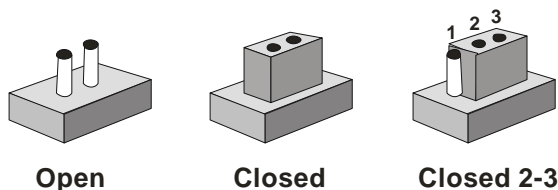
A pair of needle-nose pliers may be helpful when working with jumpers.

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 CMOS Status Setup (JBAT1)

You can use JBAT1 to clear the CMOS data if necessary. To reset the CMOS data, set JP2 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed.

JBAT1	Function
1-2	Protect (Default)
2-3	Clear CMOS

2.8 LVDS Voltage Select (J2)

J2	Function
1-2	+3.3V (Default)
2-3	+5V

2.9 Serial Port 2 Status Setup (J3, J4 & J5)

J3	J4	J5	Function
1-2	1-3, 2-4	1-3, 2-4	RS-232 (Default)
3-4	3-5, 4-6	3-5, 4-6	RS-422
5-6	3-5, 4-6	3-5, 4-6	RS-485

2.10 Serial Port 3 Ring Status Setup (J6)

J6	Function
1-2	+5V
3-4	+12V
5-6	Ring (Default)

2.11 Serial Port 4 Ring Status Setup (J7)

J7	Function
1-2	+5V
3-4	+12V
5-6	Ring (Default)

2.12 Watchdog Timer Status Setup (J8)

The PCM-6894 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial standalone, or unmanned environments.

J8	Function
1-2	Reset (Default)
3-4	NMI
5-6	IRQ15

2.13 LAN Status Setup (J9)

Pin 1 to Pin 3 of J9 can set up the status for LAN1, while Pin 4 to Pin 6 can enable or disable LAN2. Please check the following table for J9 jumper setting.

J9	Function
1-3	Enabled (Default)
3-5	Disabled

J9	Function
2-4	Enabled (Default)
4-6	Disabled

2.14 TV Output Connector (CN1)

PCM-6894 has an 8-pin connector to support TV output function. The definition is listed as below.

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

2.15 CRT Connector (CN2)

PCM-6894 can simultaneously support CRT and flat panel display. And the pin assignment of CRT connector is listed as below.

Pin	Signal	Pin	Signal
1	RED	9	N.C.
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	DAT
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DCLK
8	GND	16	GND

2.16 LVDS Connector (CN3)

When PCM-6894 power is applied, the control signal is low until the relevant flat panel signals are present. The configuration is done completely via the software utility. You don't need to set any jumper.

Pin	Signal	Pin	Signal
1	TX1+	2	TX-
3	GND	4	N.C.
5	TXCLK+	6	RX-
7	GND	8	N.C.
9	VCC	10	VCC
11	TX2+	12	TX2-
13	GND	14	GND
15	TX0+	16	TX0-
17	TX3+	18	TX3-
19	ENBKL	20	GND

2.17 10/100 Base-Tx Ethernet 2/1 Connector (CN4, CN5)

PCM-6894 is outfitted with 2 standard RJ-45 LAN connectors. With support from Realtek 8139C chipset using either 10Mbs or 100Mbs are possible through its N-way auto-negotiation featured operation. Please refer to the pin definition listed below.

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	N.C.
5	N.C.	6	RX-
7	N.C.	8	N.C.

2.18 Audio Output Connector (CN7)

PCM-6894 comes with an integrated 14-pin flat audio cable connector that provides major audio signal connections with the board. Below is the pin definition for CN7.

Pin	Signal	Pin	Signal
1	MIC IN	2	MIC BIAS
3	GND	4	GND
5	LINE IN LEFT	6	CD IN LEFT
7	LINE IN RIGHT	8	CD IN GND
9	GND	10	CD IN RIGHT
11	LINE PUT RIGHT	12	LINE PUT LEFT
13	GND	14	GND

2.19 Inverter Power Supply Connector for LCD (CN8)

With an integrated 5-pin inverter power supply connector on board, PCM-6894 can provide CD +12V or +5V for LCD backlight module and the following is its pin assignment.

Pin	Signal
1	+12V
2	GND
3	ENBKL
4	VR
5	+5V

2.20 LAN1 & LAN2 Status Connector (CN9)

The LED can indicate whether LAN1 or LAN2 is active or not and the following is its pin assignment.

Pin	Signal	Pin	Signal
1	5VSB	2	5VSB
3	LAN1 ACTIVE LED	4	LAN2 ACTIVE LED
5	5VSB	6	5VSB
7	LAN1 LINK LED	8	LAN2 LINK LED

1-3PIN LAN1 ACTIVE LED

5-7PIN LAN1 LINK LED

2-4PIN LAN2 ACTIVE LED

6-8PIN LAN2 LINK LED

2.21 Keyboard & PS/2 Mouse Connector (CN10)

PCM-6894 provides a connector to support both a keyboard and a PS/2 style mouse. In most cases, especially in embedded applications, a keyboard is not used. The standard PC/AT BIOS will report an error or fail during power-on-self-test (POST) after a reset if the keyboard is not present. The Advanced setup menu in BIOS allows you to select "Present" or "Absent" under the "System Keyboard" section. This allows no-keyboard operating in embedded system applications without the system halting under POST.

Pin	Signal
1	KB DATA
2	KB CLK
3	GND
4	5VSB
5	MS DATA
6	MS CLK
7	N.C.
8	N.C.

2.22 Serial Port 1/2/3/4 Connector (CN12)

The PCM-6894 offers three RS-232 serial ports and one RS-232/422/485 serial port to connect serial devices. Using the BIOS Peripheral Setup program, you can select the address for each port or disable it. Please check the following table for the pin assignment.

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	12	DSR2
13	RXD2	14	RTS2
15	TXD2	16	CTS2
17	DTR2	18	RI2
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.

2.23 Front Panel Connector (CN13)

Front Panel Connector (CN13)

1 □ ○ 2   **GND / Power On**

3 ○ ○ 4   **HDD LED / +5V**

5 ○ ○ 6   **SPEAKER / +5V**

7 ○ ○ 8   **PWR LED / GND**

9 ○ ○ 10   **RST-SW / GND**

2.24 ATX Power Connector (PWR1A)

If the version of your PCM-6894 supports ATX power supplies function, you will have one ATX power connector (PWR1) on board. Please check the following table for its pin assignment.

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

2.25 AT Power Connector (PWR18)

If the version of your PCM-6894 supports AT power supply function, you will have one AT power connector (PWR1B) on board. Please check the following table for its pin assignment.

Pin	Signal	Pin	Signal
1	PWR-OK	2	+5V
3	+12V	4	-12V
5	GND	6	GND
7	GND	8	GND
9	-5V	10	+5V
11	+5V	12	+5V

2.26 CPU Fan Connector (CPU_FAN)

One 3-pin plug in and error free onboard connector is located accessibly for trouble-free connection and disconnection. And the pin definition is listed as below.

Pin	Signal
1	GND
2	+12V
3	SENSOR

2.27 Printer Port Connector (LPT1)

Normally, the printer port is used to connect the card to a printer. The PCM-6894 includes an onboard parallel port, accessed through the LPT1 connector, a 26-pin flat-cable connector.

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

2.28 Wake On LAN Connector (WOL1)

PCM-6894 have a 3-pin Wake-on-LAN connector near the PCI slot and you can check the Power Management Setup in the BIOS for this option. Below is its pin assignment.

Pin	Signal
1	5VSB
2	GND
3	WAKE UP

2.29 USB Connector (USB1)

USB (Universal Serial Bus) ports can provide complete function of "plug and play", "hot attach/detach" for up to 127 external devices. Morever, the USB interface on PCM-6894 complies with USB specification Rev. 1.1 and can be disabled in the system BIOS setup.

Pin	Signal	Pin	Signal
1	5VSB	2	GND
3	USBDT0-	4	GND
5	USBDT0+	6	USBDT1+
7	GND	8	USBDT1-
9	GND	10	5VSB

2.30 IrDA Connector (IR1)

The IrDA connector (IR1) can be configured to support wireless infrared module. With this module and application software, such as laplink or Win95/98 Direct Cable connection, user can transfer files to or from laptops, notebooks, PDA, and printers. This connector supports HPSIR (115.2Kbps, 2 meters), ASK-IR (56Kbps) and Fast.

Please install infrared module onto IrDA connector, enable infrared function from BIOS setup, and make sure to have correct orientation when you plug onto IrDA connector.

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

2.31 LCD Connector (LCD1)

LCD1 is 40-pin, dual-in-line header used for flat panel displays.
When the power is applied, the control signal is low until the relevant
flat panel signals are present. And the following is its pin assignment.

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	ENBKL	8	GND
9	BLUE0	10	BLUE1
11	BLUE2	12	BLUE3
13	BLUE4	14	BLUE5
15	BLUE6	16	BLUE7
17	GREEN0	18	GREEN1
19	GREEN2	20	GREEN3
21	GREEN4	22	GREEN5
23	GREEN6	24	GREEN7
25	RED0	26	RED1
27	RED2	28	RED3
29	RED4	30	RED5
31	RED6	32	RED7
33	GND	34	GND
35	CLOCK	36	VSYNC
37	DE	38	HSYNC
39	N.C.	40	ENAVEE

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-6894 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.

```
              Phoenix - AwardBIOS CMOS Setup Utility

    ▶ Standard CMOS Features          Load Fail-Safe Defaults

    ▶ Advanced BIOS Features          Load Optimized Defaults

    ▶ Advanced Chipset Features       Set Supervisor Password

    ▶ Integrated Peripherals          Set User Password

    ▶ Power Management Setup          Save & Exit Setup

    ▶ PnP/PCI Configurations          Exit Without Saving

    ▶ PC Health Status

   Esc : Quit    F9 : Menu in BIOS      ↑ ↓ → ←  : Select Item
   F10 : Save & Exit Setup

                    Time, Date, Hard Disk Type...
```

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

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.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Standard CMOS Features

     Date (mm:dd:yy)         Thu, Feb 12 2004      |    Item Help
     Time (hh:mm:ss)         11 : 28 : 41          |
                                                   | Menu Level  ▶
  ▶ IDE Primary Master                             |
  ▶ IDE Primary Slave                              | Change the day, month,
  ▶ IDE Secondary Master                           | year and century
  ▶ IDE Secondary Slave                            |
                                                   |
     Drive A                 [1.44M, 3.5 in.]      |
     Drive B                 [None]                |
     TV Mode                 [NTSC]                |
                                                   |
     Select Display Device   [CRT+LCD]             |
     Panel Type              [640x480      TFT]    |
     Halt On                 [All , But Keyboard]  |
                                                   |
     Base Memory                 640K              |
     Extended Memory           64512K              |
     Total Memory              65536K              |

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

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-6894.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                     Advanced BIOS Features
┌─────────────────────────────────────────────┬──────────────────────┐
│  Virus Warning              [Disabled]       │      Item Help       │
│  CPU Internal Cache         [Enabled]        │                      │
│  External Cache             [Enabled]        │  Menu Level    ►     │
│  CPU L2 Cache ECC Checking  [Enabled]        │                      │
│  Processor Number Feature   [Enabled]        │  Allows you to choose│
│  Quick Power On Self Test   [Enabled]        │  the VIRUS warning   │
│  First Boot Device          [Floppy]         │  feature for IDE Hard│
│  Second Boot Device         [HDD-0]          │  Disk boot sector    │
│  Third Boot Device          [LS120]          │  protection. If this │
│  Boot Other Device          [Enabled]        │  function is enabled │
│  Swap Floppy Drive          [Disabled]       │  and someone attempt to│
│  Boot Up Floppy Seek        [Enabled]        │  write data into this│
│  Boot Up NumLock Status     [On]             │  area ,  BIOS will show│
│  Gate A20 Option            [Fast]           │  a warning message on│
│  Typematic Rate Setting     [Disabled]       │  screen and alarm beep│
│ x Typematic Rate (Chars/Sec) 6               │                      │
│ x Typematic Delay (Msec)     250             │                      │
│  Security Option            [Setup]          │                      │
│  OS Select For DRAM > 64MB  [Non-OS2]        │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
└─────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────┬──────────────────────┐
│  Report No FDD For WIN 95   [Yes]            │                      │
│  Video BIOS Shadow          [Enabled]        │                      │
│  C8000-CBFFF Shadow         [Disabled]       │                      │
│  CC000-CFFFF Shadow         [Disabled]       │                      │
│  D0000-D3FFF Shadow         [Disabled]       │                      │
│  D4000-D7FFF Shadow         [Disabled]       │                      │
│  D8000-DBFFF Shadow         [Disabled]       │                      │
│  DC000-DFFFF Shadow         [Disabled]       │                      │
│  Small Logo(EPA) Show       [Enabled]        │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
└─────────────────────────────────────────────────────────────────────┘
```

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-6894.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Advanced Chipset Features
    DRAM Timing By SPD        [Enabled]          ▲        Item Help
  x DRAM Clock                 Host CLK
  x SDRAM Cycle Length         3                      Menu Level    ▶
  x Bank Interleave            Disabled
    Memory Hole               [Disabled]
    P2C/C2P Concurrency       [Enabled]
    System BIOS Cacheable     [Disabled]
    Video RAM Cacheable       [Disabled]
    AGP Aperture Size         [64M]
    AGP-4X Mode               [Enabled]
    AGP Fast Write            [Disabled]
    OnChip USB                [Enabled]
    USB Keyboard Support      [Disabled]
    OnChip Sound              [Auto]
    CPU to PCI Write Buffer   [Enabled]
    PCI Dynamic Bursting      [Enabled]
    PCI Master 0 WS Write     [Enabled]
    PCI Delay Transaction     [Enabled]      ▒
    PCI#2 Access #1 Retry     [Enabled]      ▼
    AGP Master 1 WS Write     [Disabled]
    AGP Master 1 WS Read      [Disabled]
    Memory Parity/ECC Check   [Disabled]     ▼

  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5: Previous Values     F6: Fail-Safe Defaults   F7: Optimized Defaults
```

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-6894.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Integrated Peripherals

    OnChip IDE Channel0        [Enabled]    ▲  │     Item Help
    OnChip IDE Channel1        [Enabled]       │
    IDE Prefetch Mode          [Enabled]       │  Menu Level   ►
    Primary Master    PIO      [Auto]          │
    Primary Slave     PIO      [Auto]          │
    Secondary Master  PIO      [Auto]          │
    Secondary Slave   PIO      [Auto]          │
    Primary Master    UDMA     [Auto]          │
    Primary Slave     UDMA     [Auto]          │
    Secondary Master  UDMA     [Auto]          │
    Secondary Slave   UDMA     [Auto]          │
    IDE HDD Block Mode         [Enabled]       │
    Onboard FDD Controller     [Enabled]       │
    Onboard Serial Port 1      [3F8/IRQ4]      │
    Onboard Serial Port 2      [2F8/IRQ3]      │
    UART 2 Mode                [Standard]      │
  x IR Function Duplex          Half           │
  x TX,RX inverting enable      No, Yes        │
    Onboard Parallel Port      [378/IRQ7]   ▼  │
    Onboard Parallel Mode      [Normal]        │
    ECP Mode Use DMA           [3]             │
    Parallel Port EPP Type     [EPP1.9]        │
    Onboard Serial Port 3      [Disabled]      │
  x Serial Port 3 Use IRQ       IRQ9           │
    Onboard Serial Port 4      [Disabled]      │
  x Serial Port 4 Use IRQ       IRQ10          │
    Watch Dog Timer Select     [Enabled]       │
    Onboard Legacy Audio       [Enabled]       │
    Sound Blaster              [Disabled]      │
    SB I/O Base Address        [220H]          │
    SB IRQ Select              [IRQ 5]         │
    SB DMA Select              [DMA 1]         │
    MPU-401                    [Disabled]      │
    MPU-401 I/O Address        [330-333H]   ▼  │

 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5: Previous Values    F6: Fail-Safe Defaults  F7: Optimized Defaults
```

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-6894.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       Power Management Setup
 ┌─────────────────────────────────────────────────┬──────────────────────┐
 │  Power-Supply Type        [ATX]                  │      Item Help       │
 │  ACPI function            [Enabled]              ├──────────────────────┤
 │▶ Power Management         [Press Enter]          │  Menu Level    ▶     │
 │  PM Control by APM        [Yes]                  │                      │
 │  Video Off Option         [Suspend -> Off]       │                      │
 │  Video Off Method         [V/H SYNC+Blank]       │                      │
 │  MODEM Use IRQ            [3]                     │                      │
 │  Soft-Off by PWRBTN       [Instant-Off]          │                      │
 │▶ Wake Up Events           [Press Enter]          │                      │
 │                                                  │                      │
 │                                                  │                      │
 │                                                  │                      │
 │                                                  │                      │
 │                                                  │                      │
 │                                                  │                      │
 ├─────────────────────────────────────────────────┴──────────────────────┤
 │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
 │    F5: Previous Values     F6: Fail-Safe Defaults    F7: Optimized Defaults  │
 └─────────────────────────────────────────────────────────────────────────┘
```
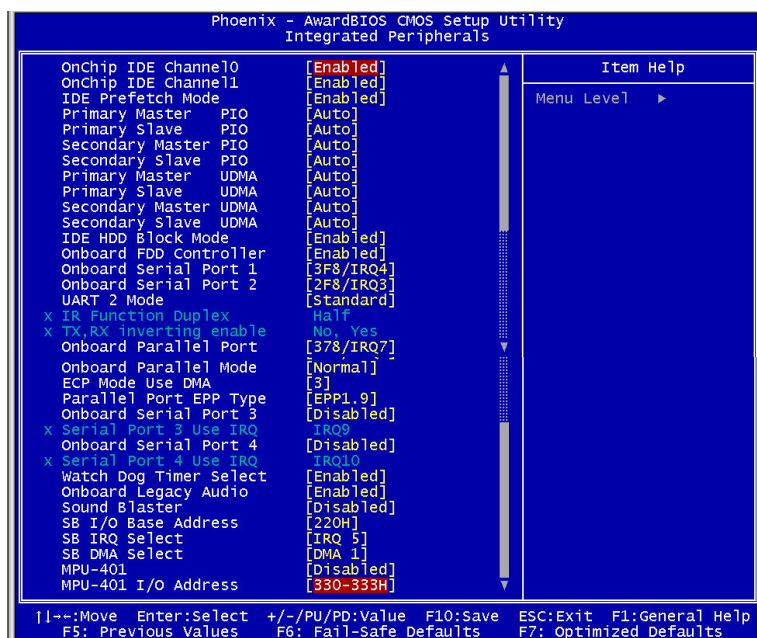
3.8 PnP/PCI configuration

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-6894.
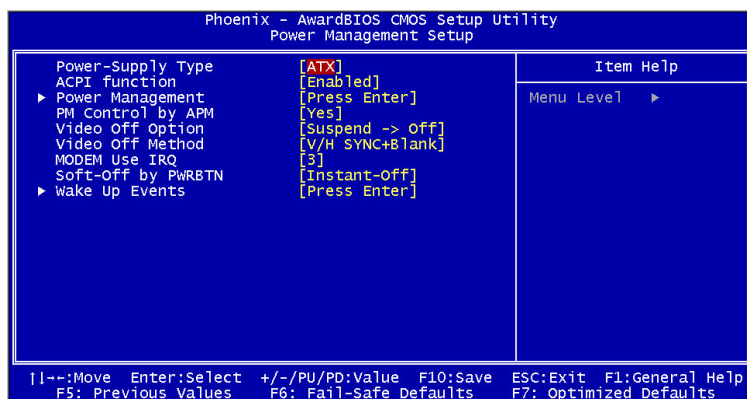
```
          Phoenix - AwardBIOS CMOS Setup Utility
                   PnP/PCI Configurations
┌─────────────────────────────────────────────┬───────────────────────┐
│  PNP OS Installed         [No]               │      Item Help        │
│  Reset Configuration Data [Disabled]         │                       │
│                                              │ Menu Level   ▶        │
│  Resources Controlled By  [Auto(ESCD)]       │                       │
│ x IRQ Resources            Press Enter       │ Select Yes if you are │
│ x DMA Resources            Press Enter       │ using a Plug and Play │
│                                              │ capable operating     │
│  PCI/VGA Palette Snoop     [Disabled]        │ system Select No if   │
│  Assign IRQ For VGA        [Enabled]         │ you need the BIOS to  │
│  Assign IRQ For USB        [Enabled]         │ configure non-boot    │
│                                              │ devices               │
│                                              │                       │
│                                              │                       │
│                                              │                       │
│                                              │                       │
│                                              │                       │
│                                              │                       │
├──────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults     │
└─────────────────────────────────────────────────────────────────────┘
```

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-6894.
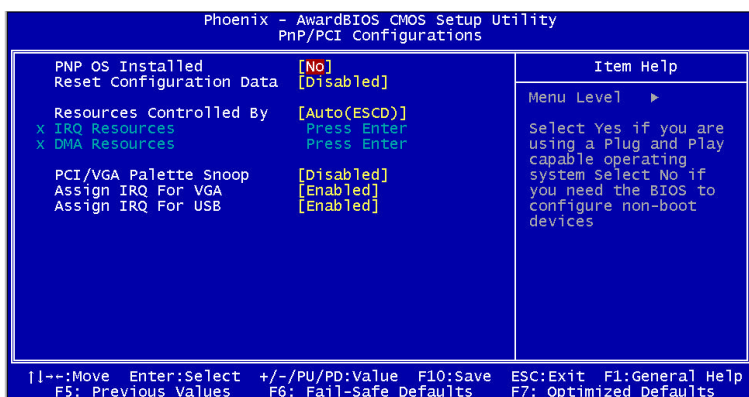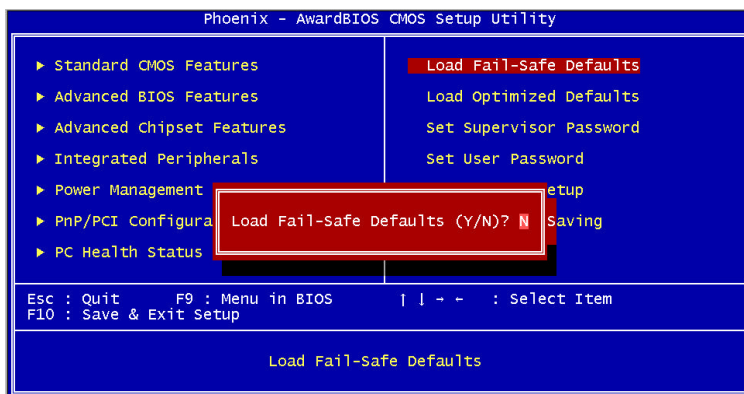
```
          Phoenix - AwardBIOS CMOS Setup Utility
                    PC Health Status

  Current CPU Temp.                        Item Help
  Current CPUFAN1 Speed
  Vcore                             Menu Level    ▶
   2.5V
   3.3V
    5V
   12V








 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

3.10 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.

```
          Phoenix - AwardBIOS CMOS Setup Utility

 ▶ Standard CMOS Features          Load Fail-Safe Defaults
 ▶ Advanced BIOS Features          Load Optimized Defaults
 ▶ Advanced Chipset Features       Set Supervisor Password
 ▶ Integrated Peripherals          Set User Password
 ▶ Power Management                                 etup
 ▶ PnP/PCI Configura  Load Fail-Safe Defaults (Y/N)? N   Saving
 ▶ PC Health Status

 Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
 F10 : Save & Exit Setup

                   Load Fail-Safe Defaults
```
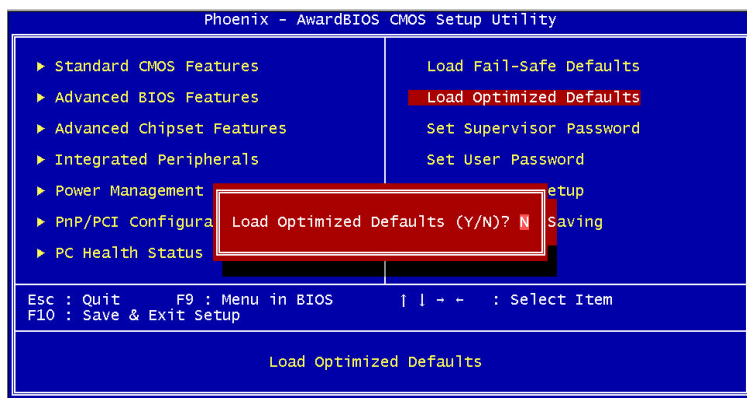
3.11 Load Optimized Defaults

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.

```
              Phoenix - AwardBIOS CMOS Setup Utility

    ▶ Standard CMOS Features          Load Fail-Safe Defaults
    ▶ Advanced BIOS Features          Load Optimized Defaults
    ▶ Advanced Chipset Features       Set Supervisor Password
    ▶ Integrated Peripherals          Set User Password
    ▶ Power Management                              etup
    ▶ PnP/PCI Configura  Load Optimized Defaults (Y/N)? N  Saving
    ▶ PC Health Status

    Esc : Quit     F9 : Menu in BIOS     ↑ ↓ → ←   : Select Item
    F10 : Save & Exit Setup

                    Load Optimized Defaults
```

3.12 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.
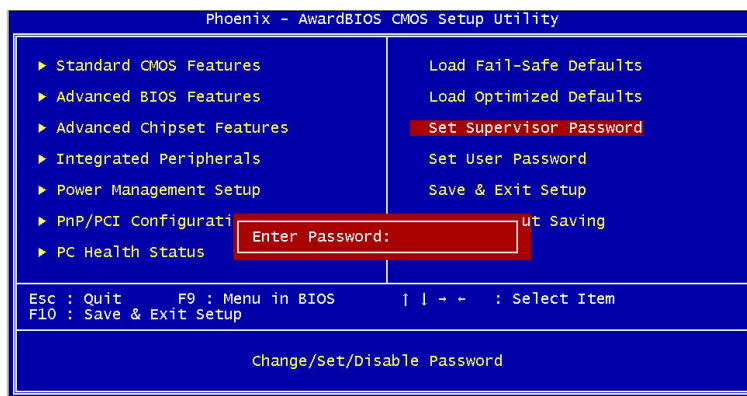
To abort the process at any time, press Esc.

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 when-
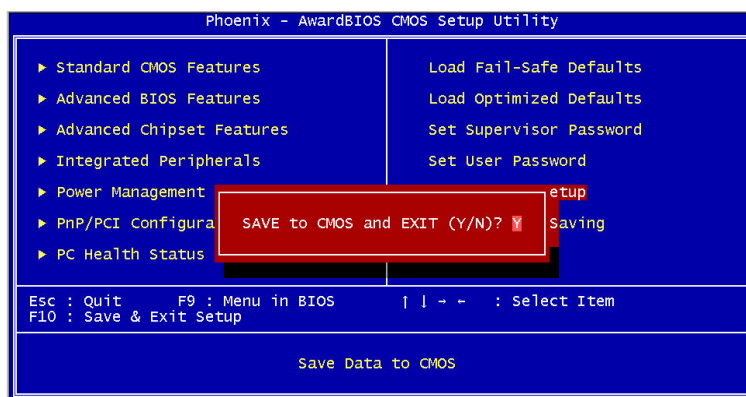   ever you enter Setup.

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.

```
            Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          Load Fail-Safe Defaults

  ▶ Advanced BIOS Features          Load Optimized Defaults

  ▶ Advanced Chipset Features       Set Supervisor Password

  ▶ Integrated Peripherals          Set User Password

  ▶ Power Management Setup           Save & Exit Setup

  ▶ PnP/PCI Configurati                          ut Saving
                          Enter Password:
  ▶ PC Health Status

  Esc : Quit    F9 : Menu in BIOS      ↑ ↓ → ←  : Select Item
  F10 : Save & Exit Setup

                  Change/Set/Disable Password
```
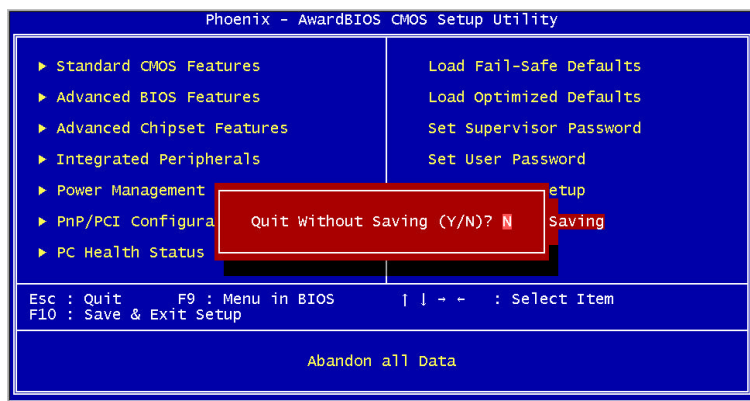
3.13 Save & Exit Setup

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 turn on your system and compare this to what it finds as it checks the system. This record is required for the system to operate.

```
             Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features          Load Fail-Safe Defaults
   ▶ Advanced BIOS Features          Load Optimized Defaults
   ▶ Advanced Chipset Features       Set Supervisor Password
   ▶ Integrated Peripherals          Set User Password
   ▶ Power Management                                    etup
   ▶ PnP/PCI Configura    SAVE to CMOS and EXIT (Y/N)? Y   Saving
   ▶ PC Health Status

   Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←  : Select Item
   F10 : Save & Exit Setup

                       Save Data to CMOS
```

3.14 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.

```
              Phoenix - AwardBIOS CMOS Setup Utility
  ▶ Standard CMOS Features          Load Fail-Safe Defaults
  ▶ Advanced BIOS Features          Load Optimized Defaults
  ▶ Advanced Chipset Features       Set Supervisor Password
  ▶ Integrated Peripherals          Set User Password
  ▶ Power Management                                etup
  ▶ PnP/PCI Configura   Quit Without Saving (Y/N)? N    Saving
  ▶ PC Health Status

  Esc : Quit      F9 : Menu in BIOS     ↑ ↓ → ←  : Select Item
  F10 : Save & Exit Setup

                        Abandon all Data
```

Chapter

4

Driver
Installation

The PCM-6894 comes with a CD-ROM that contains most of drivers and utilities of your needs.

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

If you utilize Windows NT series OS, you are strongly recommended to download the latest version Windows NT Service Pack from Microsoft website and install it before installing any driver.

Please follow the sequence below to install the drivers:

Step 1 – Install Intel INF Update for Windows 98-XP

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

For installation procedures of each driver, you may refer to section 4.1-4.3.

4.1 Installation 1:

Applicable for Windows 2000/98/ME/NT 4.0

1. Insert the PCM-6894 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: take VGA driver installation under Windows 98 for example, choose the corresponding folder depending on your OS)

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.

4.2 Installation 2:

Applicable for Windows 2000/ 98/ME

1. Insert the **PCM-6894 CD-ROM** into the CD-ROM Drive.

2. Click on **Start** button, select the **Settings**, and then click on the **Control Panel** icon.

3. Double click on the **Add/Remove Hardware** icon and **Add New Hardware Wizard** will appear. Click on the **Next** button.

4. Select **Search for the best driver for your device (Recommended)** and click on the **Next** button.

5. Select **Specify a location,** click on **Have Disk** button then key in the CD-ROM path and specify component drivers and OS folders. Then click on the **Next** button.

6. The Wizard shows that Windows driver file search for the device. Click on the **Next** button.

7. The system will ask you to insert Windows 98 CD ROM. Click on the **OK** button to insert CD-ROM and key in path.

8. Click on the **OK** button.

9. Click on the **Finish** button to finish installation process. And allow the system to reboot.

4.3 Installation 3:

Applicable for Windows NT 4.0

1. Insert the **PCM-6894 CD ROM** into the CD-ROM Drive.

2. Start system with Windows NT 4.0 installed.
   IMPORTANT: When the "Please select the operating system to start..." message is displayed, select "Windows NT Workstation Version 4.00 [VGA mode]".

3. From **Start**, select the **Settings group** and then click on the

   Control Panel icon.

4. In the **Control Panel**, select the desired device and click on the icon.

5. Follow the step-by-step instruction and click on **OK** button.

6. Click on the **Have Disk...** button.

7. Key in CD-ROM path and specify component drivers, then click on the **OK** button.

8. From the list of displayed devices, select your desired device.

9. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the **New** button.

10. If prompted for the driver diskette a second time, click on the **Continue** button.
    (Notice: In some cases the system will ask you to insert Windows NT CD ROM. Follow its instructions to complete the setup procedures.)

11. When the message **"The drivers were successfully installed"** is displayed, click on the **OK** button.

12. Reboot the system.

Appendix

A

Programming the Watchdog Timer

A.1 How to program watchdog timer

PCM-6894 contains a watchdog timer reset pin. (GP13)

All reference material can be found on the following pages.

```
===================================================**
**    Title    : WatchDog Timer Setup Utility (for W83977 GP13)    **
** Company   : AAEON Technology Inc.                    **
** Compiler : Borland C ++ Version 3.0                **
**=================================================*/


#include <dos.h>
#include <io.h>
#include <bios.h>
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>


/* Set I/O Address : 370/371 or 3F0/3F1 */
#define IO_INDEX_PORT       0x370
#define IO_DATA_PORT        0x371


/* Set Watchdog reset pin : 12/13/16 */
#define watch_dog_output_GP 13


#define UNLOCK_DATA         0x87
#define LOCK_DATA           0xAA
#define DEVICE_REGISTER     0x07


void EnterConfigMode()
```

```
{
           outportb(IO_INDEX_PORT, UNLOCK_DATA);
           outportb(IO_INDEX_PORT, UNLOCK_DATA);
}


void ExitConfigMode()
{
           outportb(IO_INDEX_PORT, LOCK_DATA);
}
void SelectDevice(unsigned char device)
{
           outportb(IO_INDEX_PORT, DEVICE_REGISTER);
           outportb(IO_DATA_PORT, device);
}


unsigned char ReadAData(short int reg)
{
           outportb(IO_INDEX_PORT, reg);
           return (inportb(IO_DATA_PORT));
}


void WriteAData(unsigned char reg, unsigned char data)
{
           outportb(IO_INDEX_PORT, reg);
                       outportb(IO_DATA_PORT, data);
```

```
}
void SetWatchDogTime(unsigned char time_val)
{
            EnterConfigMode();
            SelectDevice(8);
            //Set Register F2
            //Set Watch-Dog Timer 1~ 256
            WriteAData(0xF2, time_val);
            // set counter counts in second (or minute)
            // Register F4 Bit 6 = 0/1 (minutes/seconds)
            // For w83977EF only
            WriteAData(0xF4, 0x40);
            ExitConfigMode();
}
void init_w83977tf_aw_watchdog()
{
            short int value;

            //Enter W83977 Configure Mode
            EnterConfigMode();

            //Select Device 7
            SelectDevice(7);
            //Set Device Active
            WriteAData(0x30, 0x01);
```

```
//caution:skip this step will be a mistake!!
if (watch_dog_output_GP==12)
{
          //Set Register E2 to define GP12
          WriteAData(0xE2, 0x0A);
}
else if(watch_dog_output_GP==13)
{
          //Set Register E3 to define GP13
          WriteAData(0xE3, 0x0A);
}
else if(watch_dog_output_GP==16)
{
          //Set Register E6 to define GP16
          WriteAData(0xE6, 0x0A);
}


//Select Device 8
SelectDevice(8);
//Set Register F3
//keyboard and mouse interrupt reset Enable
//When Watch-Dog Time-out occurs,Enable POWER LED
output
WriteAData(0xF3, 0x0E);
```

```
//caution:skip this step will be a mistake!!

if (watch_dog_output_GP==12)

{

//Set Register 2A (PIN 57) Bit 7 = 0/1 (KBLOCK/GP12)

//set to GP12 for WD Rst

WriteAData(0x2A,ReadAData(0x2A)|0x80);

}

else if(watch_dog_output_GP==13)

{

//Set Register 2B (PIN 58) Bit 0 = 0/1 (KBLOCK/GP13)

//set to GP13 for WD Rst

WriteAData(0x2B,ReadAData(0x2B)|0x01);

}

else if(watch_dog_output_GP==16)

{

//Set Register 2C (PIN 119) Bit 5-4 = 01 (GP16)

//set to GP16 for WD Rst

WriteAData(0x2C,ReadAData(0x2C)|0x10);

}


//Exit W83977 Configure mode

ExitConfigMode();

}

void main(int argc, char* argv[])

{
```

```
int time_value=0;
char *ptr;
printf("winBond 83977 WatchDog Timer Setup Utility
Version 1.0 \n");
printf("Copyright (c) 2000 AAEON Technology Inc.\n");
printf("This version only for W83977 that using GP%d to
Reset System.\n",watch_dog_output_GP);
if (argc == 1)
{
        printf("\n Syntax: WATCHDOG    [time] \n");
        printf(" time range : 1 ~ 256 \n\n");
        return ;
}
if (argc > 1)
{
        ptr = argv[1];
        time_value = atoi(ptr);
}
if (time_value > 0 && time_value < 256)
{
SetWatchDogTime((unsigned char) time_value);
init_w83977tf_aw_watchdog();
printf("Watch Dog Timer set up : %d \n",time_value);
}
}
```

Appendix

B

Optional Extras

B.1 PCM-10489-7 Wiring Kit

The cable kit PCM-10489-7 includes the following cables:

Part Number	Cable Description	Termination Connector
1701400453	IDE Cable 3.5" UDMA-100	40 pin, 2.54mm, Female (45cm)
1701440350	IDE Cable 2.5"	44 pin, 2.0mm, Female (35cm)
1701340601	FDD Cable	34 pin, 2.54mm, Female (60cm)
1701150150	CRT Cable	15 pin, 2.54mm, DSUB (15cm)
1700080180	TV-Out Cable	RCA + S terminal Connector
1700140510	Audio Cable	CD In, Line In/Out, Mic in
1700080204	K/B & Mouse Cable	8 pin, 2.54mm, Female (20cm)
1701260308	Parallel Port Cable	26 pin, 2.0mm, Female (30cm)
1701400180	Serial Port Cable	40 pin, 2.54mm, Female (18cm)
1701080160	RJ-45 Extend Cable	RJ-45 10/100-BASE-T (16cm)
1709100201	USB Cable	10 pin, 2.0mm, Female