

PCM-6896

Intel 815E compact board with PCI slot, Audio, LAN, compact flash, 4 COM ports, PC/104 & PC/104 Plus

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Packing List

Before you begin installing your card, please make sure that the following materials are included:

- 1 PCM-6896 Intel 815E all in one CPU Card
- 1 Quick Installation Guide
- 1 Supporting CD-ROM that contains the following:
 - User's Manual (this manual in PDF file)
 - VGA drivers and utilities
 - Audio drivers and utilities
 - Latest BIOS (as of the CD-ROM was made)

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

FCC STATEMENT

This device complies with part 15 FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received including interference that may cause undesired operations.

This equipment has been tested and found to comply with the limits for a class "A" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

A Message to the Customer

AAEON Customer Services

Each and every AAEON product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new AAEON equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name AAEON has come to be known.

Your satisfaction is our primary concern. Here is a guide to AAEON's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally more detailed than the ones we can give over the phone.

So please consult this manual first. If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your AAEON products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from AAEON engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Product Warranty

AAEON warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of shipment.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by AAEON, or which have been subject to misuse, abuse, accident or improper installation. AAEON assumes no liability under the terms of this warranty as a consequence of such events.

Because of AAEON's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an AAEON product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, AAEON products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Notice

Dear Customer,

Thank you for purchasing the PCM-6896 board. This user's manual is designed to help you to get the most out of the PCM-6896, please read it thoroughly before you install and use the board. The product that you have purchased comes with an two-year limited warranty, but AAEON will not be responsible for misuse of the product. Therefore, we strongly urge you to first read the manual before using the product.

To receive the latest version of the user manual, please visit our Web site at:

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General Information

This chapter gives background information on the PCM-6896.

Sections include:

- Card specifications
- Card layout and dimensions

Introduction

AAEON's new compact size board PCM-6896 targets high-end multimedia and networking applications. This board is supported by Intel Celeron and Pentium III CPUs, easy Upgrading allows you to take full advantage of Intel's Development of even-higher speed Celeron and Pentium III 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-6896 also adopts the 10/100MB Intel 815E Ethernet controller that offers higher network performance and reliability. In addition, the PCM-6896 also 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's watchdog timer automatically resets the system or generates an interrupt in case the system stops due to a program bug or EMI.

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.

The onboard 10/100BaseTx Ethernet interface and Sound Blaster?-compatible audio opens up worlds of possibilities for kiosks, gaming systems, POS systems, medical and educational products.

The Fast Ethernet controller provides a tenfold increase in Network capability; and is fully compatible with traditional 10Mbps network facilities.

PCM-6896 also includes four high-speed serial ports (three RS-232, one RS-232/422/485), one multimode (ECP/EPP/SPP) parallel port, 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 PC/104 and PC/104 Plus will allow a wide selection of accessory cards to be added to the PCM-6896. Such accessories as Ultra Wide 2 SCSI, fax modem, vehicle power supply, extra DiskOnChip,

Features

- Supports both Intel FC-PGA Pentium III and Celeron CPU's
- High Speed Micro AGP 2X for VGA function onboard
- One 10/100 Base-T Fast Ethernet
- Supports H/W status monitoring
- Integrated AC-97 2.1 SoundBlaster compatible PCI 3D Audio
- Onboard Intel 815E controller supports 18/36-bit TFT panels
- Supports DiskOnChip (SSD) and Compact flash memory
- Four USB ports onboard
- DVI Interface onboard

Specifications

CPU: Intel FC-PGA 370-pin Pentium III and Celeron CPU's (with system bus frequencies of 66/100/133MHz)

CPU Socket: Intel socket 370

BIOS: Award 2MB Flash BIOS

Chipset: Intel 815E

I/O Chipset: ITE-8712. Fully 16-bit I/O decoded. Winbond 83977EF as 2nd SIO for COM3, COM4 port.

ISA bus interface: Winbond W83626 LPC to ISA bridge.

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

Enhanced IDE: Supports two IDE devices. Supports Ultra DMA/100 mode with transfer rate up to 100MB/sec.

Connector: One 40-pin (2.54mm) pin header with box

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

Connector: One 34-pin (2.54mm) pin header with box

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

Connector: One 26-pin (2.00mm) pin header

Serial Port: Three RS-232 serial ports, can be configured as COM1, COM2, COM3, COM4, or disabled individually and one RS-232/422/485(COM2). Either COM1, COM2 can be S/W configurable to support Ring wake up function and COM3, COM4 provide the option to select 12V/ Ring function by jumper setting (16C550 equivalent)

Connector: One 40-pin (2.54mm) pin header

IrDA port: Support SIR and CIR

Connector: One 6-pin (2.54mm) pin header

KB/PS2 Mouse connector: A 7-pin (4*2-1) header supports PC/AT Keyboard and PS/2 mouse and Wake on KBD function.

USB connectors: Two 10-pin header onboard supports four USB ports

Connector: Two 10-pin (2.00mm) pin header

Front Panel Connector: Provide the signals of RSTIN, HDD LED, Buzzer and Intrude Alarm input.

Connector: 8-pin (2.54mm) pin header

GPIO port: Support 4 general purpose I/O each with TTL level interface

Connector: 10-pin (2.0mm) pin header

Battery: Lithium battery for data retention

Watchdog Timer: Can generate a system reset, IRQ 15 or NMI. Supports Win95, Win3.1. Software selectable time-out interval (1 sec.~255 min., 1 min./step)

DMA: 7 DMA channels (8237 equivalent)

Interrupt: 15 interrupt levels (8259 equivalent)

Power management: Supports ATX power supply. I/O peripheral device support power saving and doze/standby/suspend modes. APM 1.2 compliant

H/W status monitoring: Embedded in ITE 8712 supports power supply voltages and temperatures monitoring

Audio Interface:**Chipset:** 815E**Codec:** ALC200 or compatible**Interface:** One 14-pin (2.00mm) pin header for MIC in, line in, line out, speaker out, CD-in. One 4 pin wafer for Speaker output of 1W + 1W. One 4 pin wafer for CD audio input**Flat Panel/CRT Interface****VGA:** Onboard 815E**Chipset output AGP port:** AGP 2X (Default from Intel 815E built-in)**Display memory:** Share memory max to 4MB (Max)**Display Type:** Supports non-interlaced CRT and up to 18/36-bit LCD (TFT LCD only), can display both CRT and flat panel simultaneously**Connector:** 16 pin (2.54mm) for CRT, 50-pin (2.00mm) pin header for LCD**Resolution:** Up to 1024 X 768 @ 256K colors**Expansion Interface****PC/104 and PC/104 Plus Connector**

One 16-bit 104-pin and one 32-bit 120-pin connector onboard for expansion.

PCI Slot: One 32-bit PCI slot onboard**Ethernet Interface****Chipset:** Intel 815E**Ethernet interface:** One 10/100Base-T RJ45 connector, LAN LED support (Link, RX, TX) Support WOL and optional support for AOL

SDD Interface

One 32-pin DIP socket supports M-Systems DiskOnChip 2000 series up to 288MB.

Mechanical and Environmental

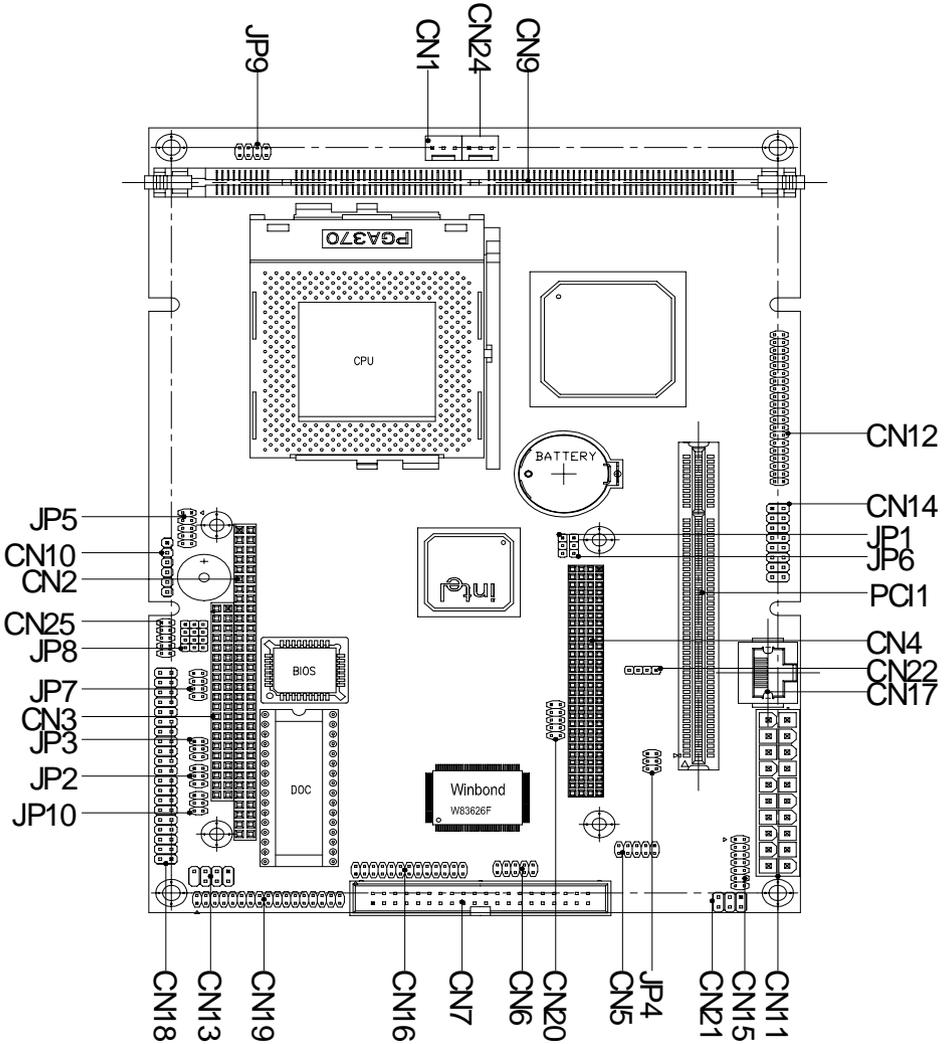
Power Supply voltage: +5V, +12V, +3.3V, -5V, -12V, -3.3V

Operating temperature: 32 to 140 degrees F (0-60 degrees C)

Board Size: 8" (L) x 5.75" (W) (203mm x 146mm)

Weight: 1.2 lb. (0.5Kg)

Board Layout



Installation

This chapter provides information regarding PCM-6896 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

Safety precautions

Warning! Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on because sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.



Caution! Always ground yourself to remove any static charge before touching the CPU card. 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.



Removing the CPU

The PCM-6896 all-in-one CPU module supports most 486 CPUs. The system's performance depends on the CPU you choose. You can install or upgrade the CPU in the board's PGA socket by following the procedures outlined below. If your system has an existing CPU, you need to remove it before installing the new CPU.

Removing a CPU

1. Disconnect power from the chassis, and unplug all connections to the CPU card. Then, remove the CPU card from the chassis by following the instructions in the user's manual for your chassis.
2. Lift the CPU out of the PGA socket. The old chip may be difficult to remove. You may find spray chip lubricant, designed for pin-grid-array (PGA) devices, and a chip puller helpful. These are available at electronics hobbyists' supply stores.

Installing A CPU

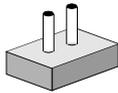
To install the CPU, follow the instructions that came with it. If no documentation was provided, the general procedures for installing a CPU are outlined below:

1. Lubricate the pins on the CPU with lubricant for PGA devices. This makes the CPU slide in much easier and greatly reduces the chance of damaging the pins and other components.
2. Carefully align the CPU so that it is parallel to the socket. Make sure that the notch on the corner of the CPU matches the notch on the inside of the socket.
3. Gently push the CPU into the socket. There will probably be a small gap between the CPU and the socket even when it is fully seated. **DO NOT USE EXCESSIVE FORCE!**

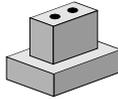
When you install a new CPU, you may have to adjust other settings on the board, such as CPU type, CPU clock, and PCI speed, to accommodate it. Make sure that the settings are correct for your CPU. **Improper settings may damage the CPU.**

Setting jumpers

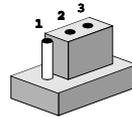
You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the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

The jumper settings are schematically depicted in this manual as follows:



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 changes.

Generally, you simply need a jumper to make most connections.

Installing DRAM (DIMMs)

System Memory

PCM-6896 contains one socket for 168-pin dual in-line memory module (DIMM). The socket uses 3.3 V unbuffered synchronous DRAM (SDRAM). DIMM is available in capacities of 16, 32, 64, 128, 256, or 512 MB.

Supplementary information about DIMM

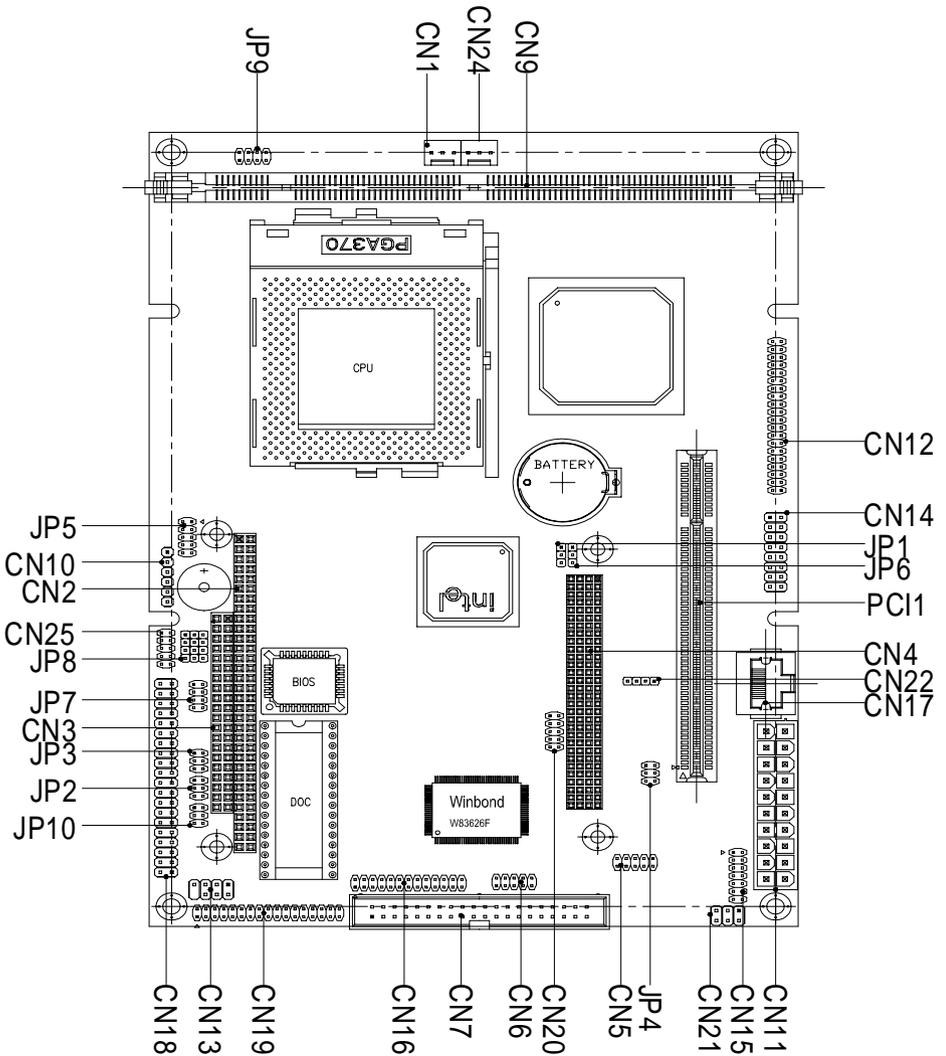
Your PCM-6896 can accept both regular and PC-100/133 SDRAM Module(with or without parity).

Single-sided modules are typically 16 or 128MB; double-sided modules are usually 32 or 256 MB.

Memory Installation Procedures

Installing the SDRAM is simple and may be performed quickly. First, line up the card to the bracket. Making sure the teeth on the card lines up to the bracket inserts. Hold the card at a 90 degree angle in your hand, push the card into the bracket. The card will click into place, by itself. To remove the card push outwards on the two handles on the sides of the bracket. The card will eject by itself.

Location of Jumpers & Connectors



List of Jumpers

Jumpers allow users to manually customize system configurations to their suitable application needs.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function
JP1	Clear CMOS Setting
JP2, JP3	COM3, COM4 Pin 9 Selection
JP4	Speaker Out/Line Out
JP5	Front Panel Connectors
JP6	PC/104 Plus Voltage Select
JP7	COM2 Selection
JP8	COM2 Select for RS-232/422/484
JP9	CPU/SDRAM Speed Select
JP10	DOC Address Select

List of Connectors

Connectors on board access link to external devices such as hard disk drives, a keyboard, VGA, or floppy drives.

The following consist the list of each connector function:

Connectors	
Label	Function
CN1 & CN24	CPU Fan Connector
CN2, CN3	PC/104 Connector
CN4	PC/104 Plus Connector
CN5, CN6	USB Port
CN7	IDE Connector
CN9	DIMM Connector
CN10	IR Connector
CN11	ATX Power Connector
CN12	Digital Video Interface Connector
CN13	Keyboard & Mouse Connector
CN14	VGA Connector
CN15	Audio Connector
CN16	Parallel Port
CN17	100Base-TX Ethernet Connector
CN18	COM1/COM2/COM3/COM4 Connector
CN19	Floppy Disk Drive Connector
CN20	Digital I/O
CN21	LAN LED Connector
CN22	Speaker Out (1 WATT)
CN25	AT/AX Power Select (Pins 6-7)
CN25	Wake On Lan (Pins 1-5)

Clear CMOS Selection (JP1)

Safety precautions in setting up clear CMOS must be taken, always place jumper on *protect mode*. In clearing CMOS, place jumper for just a second (*follow clear CMOS illustration*) then, immediately return jumper to *protect mode*.

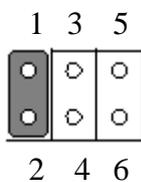
Clear CMOS Selection (JP1)

* Protect			Clear CMOS		
1	2	3	1	2	3
■	●	○	□	●	●

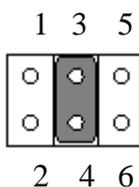
* Default

(JP2) & (JP3) For COM3 & COM4 Selection

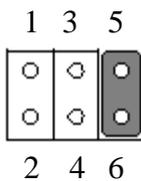
+12V



+5V

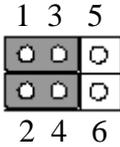


RI (default)

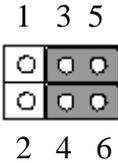


Speaker Out and Line out (JP4)

Line Out



Speaker Out (default)



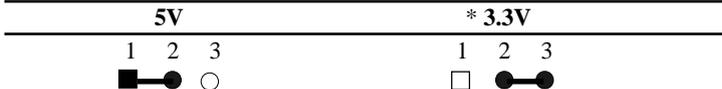
Front Panel Connectors (JP5)

Front Panel Connectors (JP5)

Pin	Signal	Pin	Signal
1	GND	2	Power on Button
3	IDE LED	4	VCC
5	Speaker	6	VCC
7	Case Open	8	GND
9	HWRST #	10	GND

PC/104 Plus Voltage Select (JP6)

PC/105 Plus Voltage Select (JP6)



* Default

RS-232/422/485 COM 2 (JP8), (JP7)

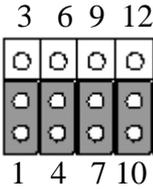
Setting

The COM2 serial port can be selected as RS-232, RS-422, or RS-485 by setting JP8.

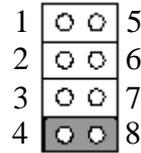
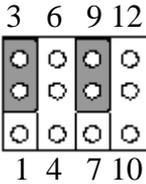
JP8

JP7

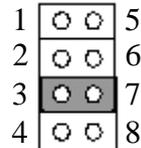
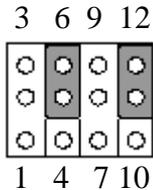
*RS-232 (default)



RS-485



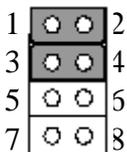
RS-422



CPU/SDRAM Speed Select (JP9)

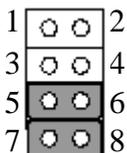
Auto Detect

Auto Detect



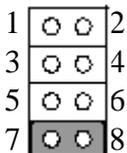
CPU/66MHz

SDRAM100MHz



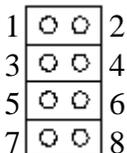
CPU/100MHz

SDRAM/100MHz



CPU/133MHz

SDRAM/133MHz



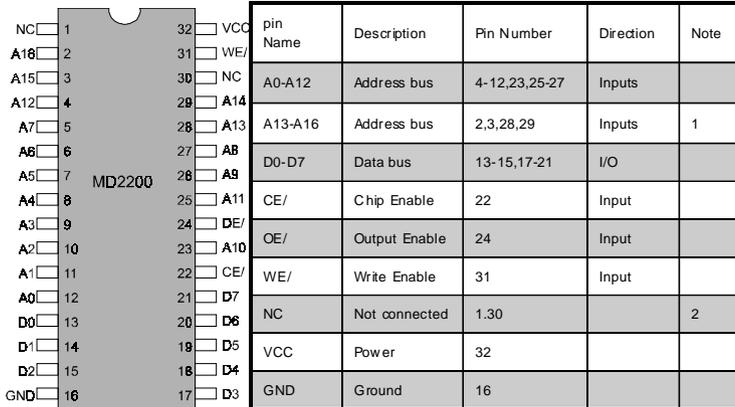
DiskOnChip socket

The DiskOnChip 2000 family of products provides a single chip solid-state flash disk in a standard 32-pin DIP package. The DiskOnChip 2000 is a solid-state disk with no moving parts, resulting in a significant reduction in power consumption and an increase in reliability. The DiskOnChip is a small plug and play Flash disk. It is easy to use, and it saves integration overhead.

The DiskOnChip 2000 family of products is available in capacities ranging from 2MB up to 144MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the True FFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.

Note 1: Pins A13 through A16 are not used by the MD2200. They are kept for socket backward compatibility with ED 1100 (DiskOnChip 1000)

Note 2: Pins 1 and 30 are not used by MD2200



DiskOnChip (DOC) 2000 Installation

When the DOC is installed correctly, a DOC will work like an HDD or an FDD. To install the DOC on the mainboard, follow the instructions below:

1. Plug the DOC into the socket. Make sure pin 1 of the DOC is aligned with pin 1 of the socket.
2. Push the DOC into the socket until it is firmly seated in the socket.

Caution: the DOC may be permanently damage if it is installed incorrectly.

3. Set the jumper for the memory address of the DOC.

Note:

The memory shadow function sometimes will create conflicts with the memory window. You should disable the memory shadow from the BIOS SETUP if the DOC cannot be accessed.

Configure DOC as a boot device

To configure a DOC as a boot drive, you should copy the operating system files onto the DOC. The following procedure is an example of the initialization process.

1. Install a DOC into your system.
2. Insert a bootable floppy disk in drive A: and boot the system.
3. At the DOS prompt, type **SYS C:** to transfer the DOS system files to the DOC (assuming the DiskOnChip is installed as drive C:). Reboot the system.
4. Go to the BIOS Setup Utility by hitting the key. Set the type of Primary Master or C: Drive as *Not Installed*.
5. Remove the floppy disk from the drive A: and leave the BIOS Setup Utility. The system should boot from the DOC.

DiskOnChip Address Selection (JP10)

The DiskOnChip 2000 family of products provides a single chip solid-state flash disk in a standard 32-pin DIP package. The DiskOnChip 2000 is a solid-state disk with no moving parts, resulting in a significant reduction in power consumption and an increase in reliability. The DiskOnChip is a small plug and play Flash disk. It is easy to use and it saves integration overhead.

The DiskOnChip 2000 family of products is available in capacities ranging from 16MB up to 288MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the True FFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.

DiskOnChip Address Selection (JP10)

D400	D800*	DC00	Disable
			
			
2 4	2 4	2 4	2 4

* Default

Note:

These addresses might conflict with the ROM BIOS of other peripheral boards. Please select the appropriate memory address to avoid memory conflicts.

CPU and System Fan Power Connector (CN1 & CN24)

One 3-pin plug in and error free onboard connectors are located accessibly for trouble-free connection and disconnection. For CPU fan it is labeled **CN1** for system fan. Pin definitions are listed below:

CPU Fan Power Connector (CN1)

Pin	Signal
1	GND
2	+12V
3	Fan Speed Sensor

Fan Power Connector (CN24)

Pin	Signal
1	GND
2	+12V
3	NC

USB Connector (CN5) & (CN6)

PCM-6896 is equipped with four USB ports onboard .

It acquires the new generation of plug and play (*Hot Plugging*) feature, for both low speed and high speed devices. It could also be expanded up to 127 connections through USB hub. Refer pin definitions as follows:

USB Connector (CN5)

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

USB Connector (CN6)

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

IDE Hard Drive Connectors (CN7)

If customers have (Necessity) to use ATA-100 HDD and ATA-33 CABLE you must alter two settings in the Award BIOS. The two settings are IDE Primary Master UDMA and IDE Primary Slave UDMA. Set these two functions as disabled.

Primary IDE Hard Drive Connector (CN7)

You can attach up to three Enhanced Integrated Device Electronics hard disk drives to the mainboard's internal controller. The mainboard's IDE controller uses a PCI local-bus interface. This advance interface supports faster data transfer and allows the IDE hard drive to exceed 528 MB.

Connecting the hard drive

Connecting drives, their done in a daisy-chain fashion and requires one of the three cables, depending on the drive size. 1.8" and 2.5" drives need one 44-pin to two 44-pin flat cable connector. 3.5" drives use one 44-pin to two 40-pin connector.

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

1. Connect one end of the cable to CN7. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is marked and connectors are slotted.
2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drives. (see your hard drive's documentation for the location of the connector).

Connect a second drive as described above.

Unlike floppy drives, IDE hard drives can be connected to either end of the cable. The pin definitions for this section are listed on the next page.

IDE Hard Drive Connector (CN7)

If customers have (Necessity) to use ATA-100 HDD and ATA-33 CABLE you must alter two settings in the Award BIOS. The two settings are IDE Primary Master UDMA and IDE Primary Slave UDMA. Set these two functions as disabled.

IDE Hard Drive Connector (CN7)

Pin	Signal	Pin	Signal
1	IDERESET	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IOREADY	28	GND
29	DACK	30	GND
31	IRQ14	32	N.C.
33	ADDR 1	34	ATA66 DETECT
35	ADDR 0	36	ADDR 2
37	CS#1	38	CS#3
39	IDEACTP	40	GND

IR Connector (CN10)

The IrDA connector (CN10) can be configured to support wireless infrared module, with this module and application software such as laplink or Win95 Direct Cable connection, user can transfer files to or from laptops, notebooks, PDA and printers. Install infrared module onto IrDA connector and enable infrared function from BIOS setup. Make sure to have correct orientation when you plug onto IrDA connector CN10.

IrDA connector (CN10) pin definitions:

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

ATX Power Connector (CN11)

For ease and reliability, a standard 20-pin ATX power supply connector is onboard. Which also provide positive plugging through it's guided and locking mechanism. Pin definitions as follows:

ATX Power Connector (CN11)

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

Digital Visual Interface Connector (CN12)

Digital Visual Interface Connector (CN12)			
Pin	Signal	Pin	Signal
A1	FTCLK0	B1	FTD0
A2	FTCLK1	B2	FTD1
A3	CRT HSYNC	B3	FTD2
A4	FTBLNK#	B4	GND
A5	FTHSYNC	B5	FTD3
A6	FTVSYNC	B6	FTD4
A7	SL_STALL	B7	FTD5
A8	GND	B8	CRT VSYNC
A9	3VFTSCL	B9	FTD6
A10	3VFTSDA	B10	FTD7
A11	3VHTPLG	B11	FTD8
A12	VCC(5V)	B12	VEE_OK
A13	PCIRST#	B13	FTD9
A14	VCC(12V)	B14	FTD10
A15	FPVDDEN	B15	FTD11
A16	GND	B16	VCC(3.3V)
A17	PGMSEL	B17	VCC(3.3V)
A18	SMBSDA	B18	GND
A19	SMBSCL	B19	VCC(3.3V)
A20	VCC(5V)	B20	FPBLEN

Keyboard and Mouse Connector (CN13)

The PCM-6896 provides a keyboard connector which supports 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 mainboard BIOS Advanced setup menu allows you to select "Present" or "Absent" under the "System Keyboard" section. This allows no-keyboard operation in embedded system applications without the system halting under POST (power-on-self-test).

Keyboard and Mouse Connector (CN13), Dual mini-din connector

Pin	Signal
1	MS CLK
2	KB CLK
3	+5V
4	GND
5	KB DATA
6	MS DATA
7	N/C
8	N/C

VGA Display Connector (CN14)

The PCM-6896 PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD, and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

A standard conventional D-sub connector is equipped to interface with conventional CRT displays. Refer to pin definitions as follows:

VGA Display Connector (CN14)

Pin	Signal
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	Vcc
10	GND
11	N/C
12	DDCSDA
13	H-SYNC
14	V-SYNC
15	DDCSCL
16	N/C

Audio Connector (CN15)

Audio Connector (CN 15)

Pin	Signal	Pin	Signal
1	MIC IN	2	MIC VCC
3	GND	4	CD-GND
5	LINE-INL	6	CD-INL
7	LINE-INR	8	CD-GND
9	GND	10	CD-INR
11	LINE-OUTL	12	LINE-OUTR
13	GND	14	GND

Parallel Port Connector (CN16)

The mainboard is designed to support one parallel port. Port 1 connector (CN16) also designated as LPT1 is a standard 25-pin D-sub connector specially prepared for external interface. The interfaces can be enabled and disabled in the BIOS system setup. For example if LPT1 is disabled, LPT2 or LPT3 is enabled and if LPT2 is disabled, LPT1 or LPT3 is enabled.

The pin definitions for **CN16** are listed as follows:

Parallel Port Connector (CN 16)

Pin	Signal	Pin	Signal
1	STROBE	14	AFD
2	PTD0	15	ERROR
3	PTD1	16	INIT
4	PTD2	17	SLIN
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	N.C.

100 Base-Tx Ethernet Connector (CN17)

PCM-6896 is outfitted with a standard RJ-45 LAN connector. With support from Intel 815E chipset using either 10Mbps or 100Mbps are possible through it's N-way auto-negotiation featured operation. Refer to the pin definitions listed below:

RJ-45 Ethernet Connector (CN17)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	GND
5	GND	6	RX-
7	GND	8	GND

Floppy drive connector (CN19)

You can attach up to two floppy drives to the mainboard controller. You can use any combination of 5¼" (360 KB and 1.2 MB) and/or 3½" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy chain drive connector cable for (CN19) is required for a dual-drive system. On one end of the cable is a 34-pin flat cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3½" drives) and a printed-circuit board connector (usually used for 5¼" drives). Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into **CN19**. Make sure that the red or blue wire corresponds to pin 1 on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number 1. Look for a number printed on the circuit board indicating pin number 1. Also, the connector on the floppy drive connector may have a slot. When the slot is up, pin number 1 should be on the right. Check the documentation that came with the drive for more information. If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

Please refer to the pin definitions on the next page.

Floppy Drive Connector (CN19)

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT
3	GND	4	N.C.
5	GND	6	N.C.
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	DIRECTION
19	GND	20	STEP
21	GND	22	WRITE DATA
23	GND	24	WRITE GATE
25	GND	26	TRACK 0
27	GND	28	WRITE PROTECT
29	N.C.	30	READ DATA
31	GND	32	SIDE 1
33	N.C.	34	DISK CHANGE

Digital I/O Connector (CN20)

PCM-6896 offers 4-pair of digital I/O functions. With the input and output consisting of the following: Input 801H; GPI20 [bit0], GPI21 [bit1], GPI22 [bit2], GPI23 [bit3] and Output 801H; GPO24 [bit4], GPO25 [bit5], GPO26 [bit6], GPO27 [bit7]. The pin definitions are illustrated below:

Digital I/O Connector (CN20)

Pin	Signal	Pin	Signal
1	IN1	2	IN2
3	IN3	4	IN4
5	OUT1	6	OUT2
7	OUT3	8	OUT4
9	+5V	10	GND

Audio Out Connector 1 Watt (CN22)

Audio Out Connector 1 Watt (CN22)

Pin	Signal
1	OUTL+
2	OUTL-
3	OUTR+
4	OUTR-

CN25 Wake On Lan (Pins 1-5)

(CN25) Wake On Lan (Pins 1-5)

Pin	Signal
1	VCC5SBY
2	GND
3	PCI_PME#
4	SMBDATA
5	SMBLOCK
6	VCC5SBY
7	VCC
8	VCC
9	GND
10	NC

CN25 AT/ATX Power Select (Pins 6-7)

(CN25) AT/ATX Power Select (Pins 6-7)

CN25	Power select
Pins 6-7 (On)	AT
Pins 6-7 (Off)	ATX

Compact Flash Connector

Compact Flash Connector			
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	IOREAD
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	IDERESET
17	GND	42	IOREADY
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

Award BIOS Setup

This chapter describes how to configure the BIOS for the PCM-6896 board.

Starting setup

The Award BIOS is started immediately when you first turn on the computer. The BIOS reads, system configuration information in CMOS RAM and begins the process of checking out the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches and hands controls over to the operating system.

During POST, you can start the Setup program in one of two ways:

1. By pressing Del immediately after switching the system on.
2. By pressing Del or pressing Ctrl-Alt-Esc when the following message appears briefly at the bottom of the screen during POST:

TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

If the message disappears before response and still wishing to enter Setup. Restart the system again by turning it OFF then ON or press the RESET button on the system case. You may also restart by simultaneously pressing Ctr-Alt-Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Getting help

Press F1 to pop up a small help window. On screen information describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press Esc or the F1 key again.

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot. **Award BIOS** supports an override to the CMOS settings that resets your system to its default configuration.

You can invoke this override by immediately pressing Insert; when you restart your computer. You can restart by either using the ON/OFF switch, the RESET button or by pressing Ctrl-Alt-Delete.

The best advice is to alter only settings that you thoroughly understand. In particular, do not change settings in the Chipset screen without a good reason. The Chipset defaults have been carefully chosen by Award Software or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup may cause the system to become unstable.

Setup keys

These keys help you navigate in Setup:

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc	Main Menu: Quit and not save changes into CMOS RAM Other pages: Exit current page and return to Main Menu
PgDn/+	Increase the numeric value or make changes
PgDn/-	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Change color from total 16 colors. F2 to select color forward, Shift-F2 to select color backward
F3	Calendar, only for Status Page Setup Menu
F4	Reserved
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS RAM value from BIOS default table, only for Option Page Setup Menu
F7	Load the default
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

Main Setup Menu



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's 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 Configuration

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 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 User and Supervisor Passwords.

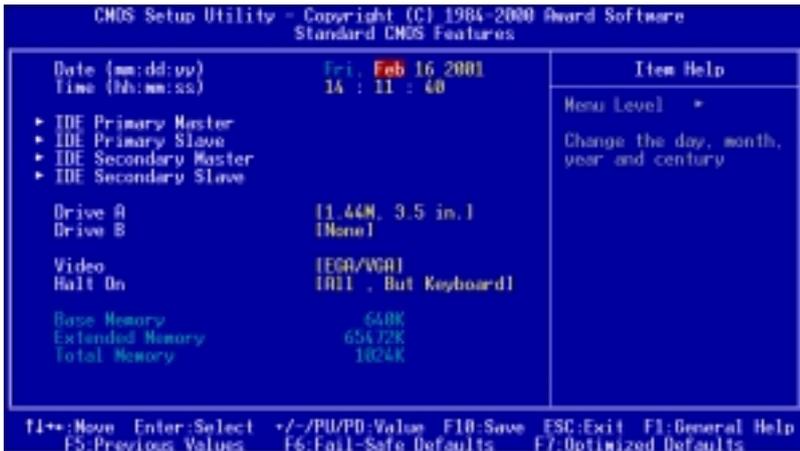
Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Features



This standard setup menu allows users to configure system components such as the date, time, hard disk drive, floppy drive, display, and memory. Online help for each field can be accessed by pressing F1.

Date and Time Configuration

The BIOS determines the day of the week from the other date information. This field is for information only.

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00 hours. Press the left or right arrow key to move to the desired field. Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

HARD DISKS

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

NOTE: We recommend that you select type AUTO for all drives.

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications

If you do not want to select drive type AUTO, other methods of selecting the drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any pre-defined type are classified as type USER.

Size: Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

Cyls: Number of cylinders

Head: Number of heads

Precomp: Write precompensation cylinder

Landz: Landing zone

Sector: Number of sectors

Mode: Auto, Normal, Large, or LBA

- **Auto:** The BIOS automatically determines the optimal mode.
- **Normal:** Maximum number of cylinders, heads, and sectors supported are 1024, 16, and 63.
- **Large:** For drives that do not support LBA and have more than 1024 cylinders.

- **LBA** (Logical Block Addressing): During drive access, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

Drive A

Drive B

Select the correct specifications for the diskette drive(s) installed in the computer.

None	No diskette drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 mega byte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 mega byte capacity

Halt On

During the power-on-self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors: POST does not stop for any errors.

All errors If: the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.

All, But Keyboard: POST does not stop for a keyboard error, but stops for all other errors

All, But Diskette: POST does not stop for diskette drive errors, but stops for all other errors.

All, But Disk/Key: POST does not stop for a keyboard or disk error, but stops for all other errors.

Memory

You cannot change any values in the Memory fields; they are only for your information. The fields show the total installed random access memory (RAM) and amounts allocated to base memory, extended memory, and other (high) memory. RAM is counted in kilobytes (KB: approximately one thousand bytes) and megabytes (MB: approximately one million bytes).

RAM is the computer's working memory, where the computer stores programs and data currently being used, so they are accessible to the CPU. Modern personal computers may contain up to 64 MB, 128 MB, or more.

Base Memory

Typically 640 KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory

Above the 1-MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

Other Memory

Between 640 KB and 1 MB; often called High memory. DOS may load, terminate-and-stay-resident (TSR) programs, such as device drivers, in this area, to free as much conventional memory as possible for applications. Lines in your CONFIG.SYS file that start with LOADHIGH, load programs into high memory.

Advanced BIOS Features



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

Virus Warning

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

CPU Internal Cache/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

The External Cache field may not appear if your system does not have external cache memory.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enable when the external cache contains ECC SRAMs.

Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

First/Second/Third/Fourth Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The choices: Floppy, LS/ZIP, HDD, SCSI, CDROM, Disable.

Boot Up from LAN

When enabled, the BIOS attempts to boot from a LAN boot image before it attempts to boot from a local storage device.

The Choice: Disabled, Enabled

First/Second/Third/Fourth Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3/, SCSI, CDROM, LAN and disable.

Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to Disabled to save time.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Boot Up System Speed

Select High to boot at the default CPU speed; select Low to boot at the speed of the AT bus. Some add-in peripherals or old software (such as old games) may require a slow CPU speed. The default setting is High.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting- Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled

Typematic Rate (Chars/Sec)- Sets the number of times a second to repeat a key stroke when you hold the key down.

The choice: 6, 8, 10, 12, 15, 20, 24, 30

Typematic Dealy (Msec)- Sets the delay time after the key is held down before it begins to repeat the keystroke.

The choice: 250, 500, 750, 1000

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

OS Select For DRAM>64MB-Select the operating system that is running with greater than 64MB or RAM on the system.

The choice: Non-OS2, OS2

HDD S.M.A.R.T Capability

Hard disk drives have built in problem detection capability. If a foreseen problem is about to take place, the computer will give a you a warning signal. The choice:

Enable, Disable

Report No FDD For WIN 95- Wheather report no FDD for Win 95 or not. The choice: Yes, no

Advanced Chipset Features



SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle.
The choices: 5/7, 6/8, 7/9.

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The choices:

Enabled, Disabled

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result. The choices:

Enabled, Disabled

Memory Hole At 15-16m

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory. The choices:

15-16 M, disabled

CPU Latency Timer

During enable, a deferrable CPU cycle will only be Deferred after it has been in Snoop Stall for 31 clocks and another ADS# has arrived. During disable, a deferrable CPU cycle will be deferred immediately after the GMCH receives another ADS#.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

AGP Graphics Aperture Size

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The choices: **32MB, 64MB**

Display Cache Frequency

Select the Onboard display cache frequency. The settings are 100 MHz, 133MHz, or Auto.

System Memory Frequency

Select the Onboard system memory frequency. The settings are 100 MHz, 133MHz, or Auto. Default is set as Auto we recommend leaving the setting at default.

On-Chip Video Window Size

Select the on-chip video window size for VGA drive use. The choices: **32MB, 64MB, Disabled**

Initial Display Cache

Cas# Latency

Select the local memory clock period. The number of clock cycles of CAS# Latency depends on the Onboard

Display Cache timing. The choice: **2,3**

Paging Mode Control

Select the paging mode control. The choice: **open, close**

RAS-to-CAS Override

This item allows you to insert a timing delay between the CAS and RAS strobe signals, used when Onboard display cache is written to, read from, or refreshed.

During by CAS#LT, this will depend on the Onboard Display Cache CAS# Latency setting. During Override

(2), RAS-to-CAS time = 2

Ras# Timing

This item controls RAS# active to Precharge, and refresh to RAS# active delay (in local memory clock). The

choices: **Fast, Slow**

Ras# Precharge Timing

This item controls RAS# precharge (in local memory clocks). The choices: **Fast, slow**

Integrated Peripherals



On-Chip Primary PCI IDE

The system chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

On-Chip Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.

The choices: Enable, Disable

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmable Input/Output) fields let you set a PIO mode (0-1) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

The choices: Auto, disable

USB Controller

Select Enabled if your system contains a Universal Serial Bus controller and you have USB peripherals.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus controller and you have a USB keyboard.

USB Mouse Support

Select Enabled if your system contains a Universal Serial Bus controller and you have a USB mouse

Init Display First

This item allows you to active PCI slot or onboard first.

The choice: PCI slot, onboard

AC97 Audio

The default setting of Auto enables the AC97 audio if it is detected onboard

IDE HDD Block Mode

Select Enabled only if your hard drives support block mode.

Power on Function

Select the different manners for powering on the system.

The choices: **Keyboard 98, password, any key, hot key, button only, mouse click, mouse move.**

KB Power on Password

The system will ask for a password, after entering the correct password the keyboard can then be used.

Hot Key Power On

Simply pressing on the preselected keyboard key the system will power on.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

UART Mode Select

Select an operating mode for the second serial port:

Normal	RS-232C serial port
Standard	RS-232C serial port
IrDA 1.0	Infrared port compliant with IrDA 1.0 specification
IrDA SIR	IrDA-compliant serial infrared port
IrDA MIR	1 MB/sec infrared port
IrDA FIR	Fast infrared standard
FIR	Fast infrared standard
MIR 0.57M	0.57-MB/sec infrared port
MIR 1.15M	1.15-MB/sec infrared port
Sharp IR	4-MB/sec data transmission
HPSIR	IrDA-compliant serial infrared port
ASK IR	Amplitude shift keyed infrared port

UART2 Duplex Mode

In an infrared port mode, this field appears. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. Select the value required by the IR device connected to the IR port.

Onboard Serial Ports (1, 2,3,4)

Normally, the main board's I/O chips will occupy a certain portion of memory space. For each I/O device the computer provides an I/O address. The more devices attached the more address needed to organize the memory storage areas. If all the I/O devices were run through the same address, your devices would come to a near halt. By providing the end user with four serial ports this allows devices to run more efficiently if needed. Also the corresponding interrupt needs to be selected.

Selections of logical COM port addresses are as follows. (3F8/IRQ4, 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3)

Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port

The Choice: 278H, 378, disabled

Parallel Port Mode

Two bi-directional parallel ports. Supports SPP, ECP, EPP, ECP + EPP.

ECP Mode Use DMA

Select a DMA channel for the port.

PWRON After PWR-Fail

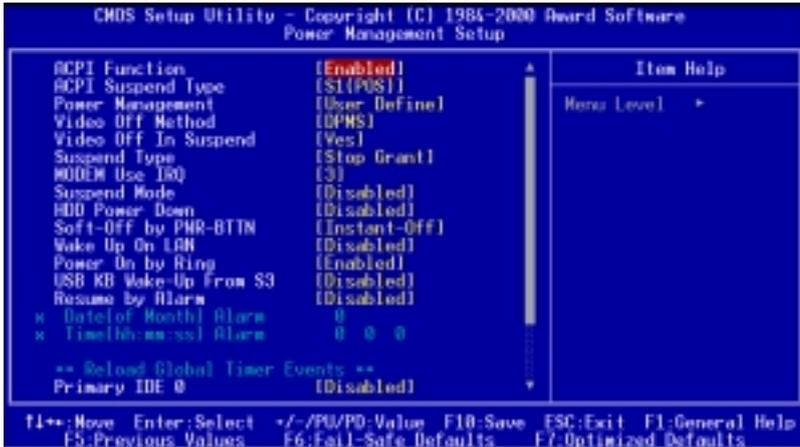
This option will determine how the system will power on after a power failure.

The choice: **off, on , former status**

Watch Dog Timer

You can enable the system watch-dog timer, a hardware timer that generates either an NMI or a reset when the software that it monitors does not respond as expected each time the watch dog polls it (select the time period in a separate field) The choice: **10 sec, 20 sec, 40 sec, 1 min, 2 min, 4 min.**

Power Management Setup



ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). **The Choices: Enable/Disable**

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

Disable (Default)	No power management. Disable all four modes.
Min. Power Saving	Minimum power management. Doze mode = 1 hour. Standby mode = 1 hour. Suspend mode = 1 hour. HDD Power Down = 15 minutes.
Max. Power Saving	Maximum power management--ONLY AVAILABLE FOR SL CPU'S. Doze mode = 1 min., Standby mode = 1 min., Suspend mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the tanges are from 1 min. to 1 hour except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer
Blank Screen	This option only writes blanks to the video buffer
DPMS	Initial display power management signaling

Video Off In Suspend

After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes. In this case the video hardware can be selected to shut off after a period of system inactivity. This determines the manner in which the monitor is blanked.

Suspend Type

Select the suspend type. The choice: **PWRON suspend, Stop Grant**

MODEM use IRQ

This determines the IRQ in which the MODEM can use.

The choices: **3, 4, 5, 7, 9, 10, 11, NA**

Suspend Mode

After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.

HDD Power Down

After the selected period of drive inactivity, the HDD powers down while all other devices remain active.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has hung. The choice: **Delay 4 seconds, Instant-Off.**

Wake Up On Lan

The board enabled or disabled will execute a wake up process whenever LAN (Intel 815E) receives a wake up event such as a magic packet.

The Choice: Disabled, Enabled

Power On By Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) boots the system from a soft off state.

Resume By Alarm

This option is used to Enable/Disable USB keyboard wake up with suspend to RAM.

The choices: **Enable, disable**

<Reload Global Timer Events>

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as Enabled, even when the system is in a power down mode.

Primary IDE 0

Primary IDE 1

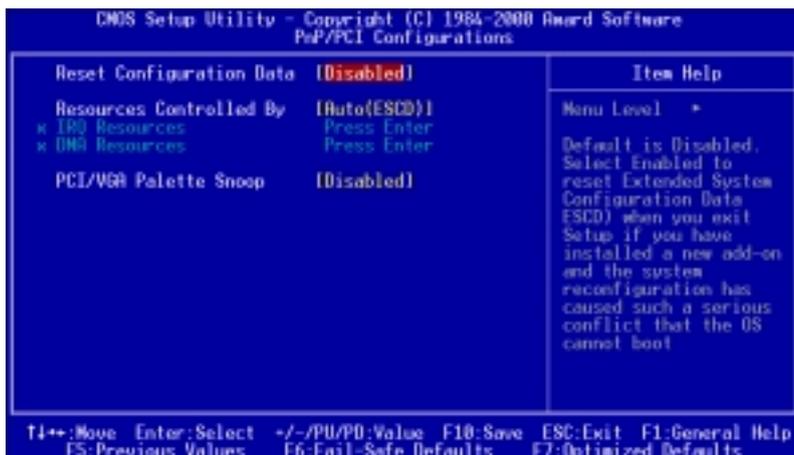
Secondary IDE 0

Secondary IDE 1

FDD, COM, LPT Port

PCI PIRQ (A-D)#

PnP/PCI Configurations



PnP OS Installed

This item allows you to determine whether that PnP OS is installed or not. The choice: Yes or No

Reset Configuration Data

Normally, you leave this field disabled. Select enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. **The choices: Enabled, Disabled**

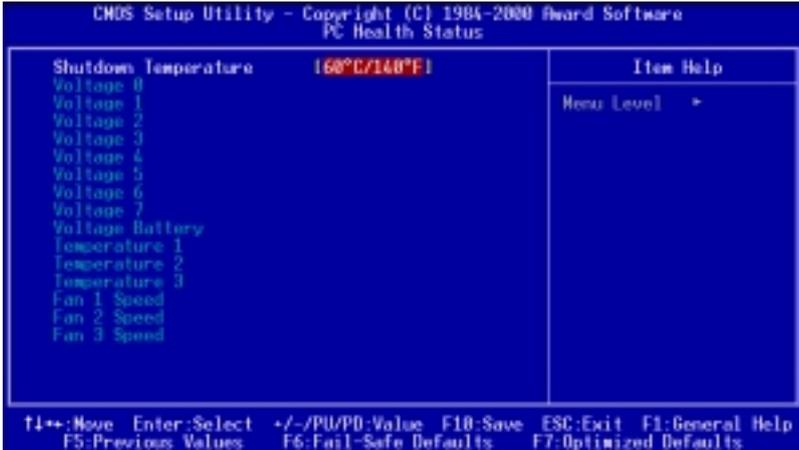
Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows ® 95. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”. **The choices: Auto, Manual.**

PCI/VGA Palette Snoop

Leave this field at Disabled. **Choices: Enabled, Disabled.**

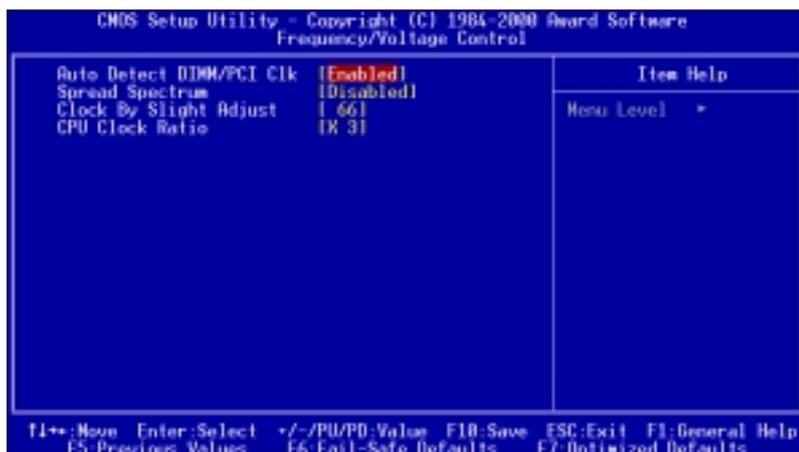
PC Health Status



Shutdown Temperature

Your system can be configured to shutdown once reaching a certain temperature. To protect your system from overheating or damage, select a certain temperature level in the PC Health Status menu.

Frequency/Voltage Control



Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI clock. **The choices: Enable/Disable**

Spread Spectrum

This allows you to enable/disable the spread spectrum modulate. When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme pulse spikes to flat curves thus reducing EMI.

The choices: Enable, Disable

Clock By Slight Adjust

This item allows you to select the CPU clock from 133 MHz to 166 MHz or 100 MHz to 133 MHz depending on the CPU host clock.

CPU Clock Ratio

This item allows you to select the CPU ratio.

Load Fail-Safe Defaults



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.

Load Optimized Default



Load Optimized Default

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 factory settings for optimal performance system operations

Set Supervisor Password



When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter.

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.*

Set User Password



When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

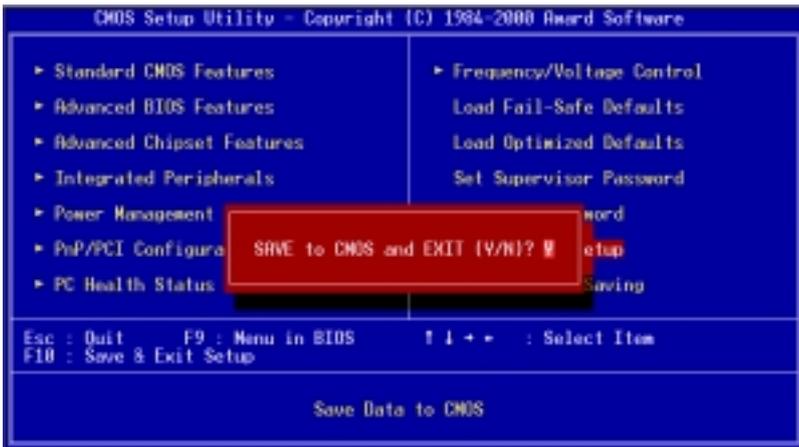
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

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.

Save to CMOS and EXIT



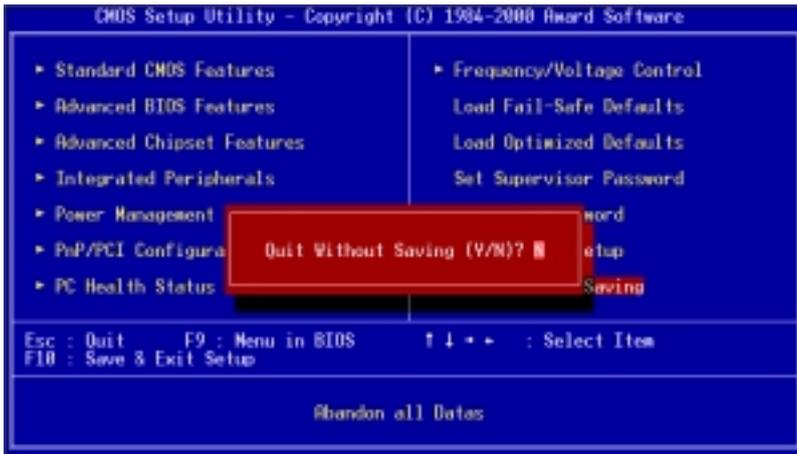
Save to CMOS and EXIT

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and Exit (Y/N)?

Pressing “Y” stores the selections made in the menus in CMOS, a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Quit without Saving



Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)?

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

CHAPTER 4

DRIVERS INSTALLATION

This PCM-6896 is equipped with an audio VGA and LAN interface. This chapter provides instructions for installing the software drivers on these peripherals.

Installing Drivers

Notice: Attention

First if using operating systems such as Windows 98/2000 ® a INF driver must be installed before VGA, LAN or Audio drivers are installed.

Second if using Windows 98/2000® operating systems an Ultra ATA storage driver must also be installed after the chipset driver.

Notice: Attention

Installing INF Driver for Windows 95/98/2000®

The INF must be installed in order to proceed to LAN, VGA and AUDIO drivers.

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen.

==>Find the **INF** folder, click on it

==>Find the **Intel** folder, click on it

==>Find the **InfUpdate** folder, click on it

==>Find the **InfInst** folder, click on it

==>Find the **Win9X & Win2K** folder, click on it

==>Find the **Setup** ICON, and double click

==>Click on **Next**

==>Click on **Yes**

==>Click on **Next**

==>Now the shut down computer for restart should be visible, follow the command and the chipset driver has be installed.

Installing Ultra ATA Storage Driver for Windows 95/98/ 2000®

The Ultra ATA Storage Driver must be installed in order to use Windows 98/2000 ® operating systems.

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen.

==>Find the **MB** folder, click on it

==>Find the **intel ATA 603_Multi** folder, click on it

==>Click on **Next**

==>Click on **Yes**

==>Select the optional: Select storage folder where to store Ultra ATA

==>Click on **Next**

==>Click on **Next**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing LAN for Windows 95/98®

- ==>Place the Driver CDROM into your CDROM drive.
- ==>Click on **Start** button
- ==>Click on **Settings** button
- ==>Click on **Control Panel** button
- ==>Click on **System** button
- ==>Click on **Device Manager** button
- ==>Click on **PCI Ethernet Controller**
- ==>Click on **Remove**
- ==>Click on **OK**
- ==>Click on **Refresh**
- ==>Click on **Next**
- ==>Select the Optional: **Search for best Lan driver.....**
- ==>Click on **Next**
- ==>Select **CDROM file**
- ==>Select **LAN**
- ==>Click on **OK**
- ==>Click on **Next**
- ==>Net82557.inf will appear
- ==>Click on **Next**
- ==>Click on **Finish**
- ==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing VGA for Windows 95/98®

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **Intel** folder

==>Click on **810_815** folder

==>Click on **Win9X** folder

==>Click on **Graphics** folder

==>Click on **Set Up** folder

==>Click on **Next**

==>Click on **yes**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing Audio for Windows 95/98®

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **Sound** folder

==>Click on **Alc 200** folder

==>Click on **Win98** folder

==>Click on **V1.80** folder

==>Click on **WDM_1** folder

==>Next you will be asked to **save this WDM file** in a certain location. C drive, D drive, My documents etc.

==>Click on **Unzip**

==>Click on **OK**

==>Now **find the WDM file** that you have just saved. C drive, D drive etc.

==>Click on **WDM** file in the save location

==>Click on the **Setup ICON**

==>You will see an optional language window

==>Click on **OK**

==>Click on **Next**

==>Click on **OK**

==>Click on **GO**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing Security Driver for Windows NT®

Please perform this procedure first

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **Chipset** folder

==>Click on **Intel** folder

==>Click on **Security** folder

==>Click on **Setup** folder

==>Click on **Next**

==>Click on **Yes**

==>Click on **Next**

==>Click on **Next**

==>Now the shut down computer for restart Window should be visible, follow the command and the Security driver has be installed.

Installing Ultra ATA Storage Driver for Windows NT®

The Ultra ATA Storage Driver must be installed in order to use Windows NT® operating systems.

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen.

==>Find the **MB** folder, click on it

==>Find the **intel ATA 603_Multi** folder, click on it

==>Click on **Next**

==>Click on **Yes**

==>Select the optional: Select storage folder where to store Ultra ATA

==>Click on **Next**

==>Click on **Next**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing VGA for Windows NT®

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **VGA** folder

==>Click on **Intel** folder

==>Click on **810_815** folder

==>Click on **NT4** folder

==>Click on **Graphics** folder

==>Click on **Set Up** folder

==>Click on **Next**

==>Click on **yes**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing Audio for Windows NT®

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **Sound** folder

==>Click on **Alc 200** folder

==>Click on **WinNT** folder

==>Click on **V1.80** folder

==>Click on **WDM_1**

==>Next you will be asked to **save this WDM file** in a certain location. C drive, D drive, My documents etc.

==>Click on **Unzip**

==>Click on **OK**

==>Now **find the WDM file** that you have just saved. C drive, D drive etc.

==>Click on **WDM** file in the save location

==>Click on the **Setup ICON**

==>You will see an optional language window select **English**

==>Click on **OK**

==>Click on **Next**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing LAN for Windows NT®

- ==>Place the Driver CDROM into your CDROM drive.
- ==>Click on **Start** button
- ==>Click on **Settings** button
- ==>Click on **Control Panel** button
- ==>Click on **Network**
- ==>Click on **yes**
- ==>Click on **next**
- ==>Click on **Select from list.....**
- ==>Click on **have disk**
- ==>Type in file location: (CD Disk drive) **E:\pcm-6896\Lan**
- ==>Click on **OK**
- ==>**Intel Pro Adapter will appear**
- ==>Click on **OK**
- ==>Click on **Next**
- ==>Click on **Next**
- ==>Click on **OK**
- ==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing VGA for Windows 2000®

==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..

==>Click on **VGA** folder

==>Click on **Intel** folder

==>Click on **810_815** folder

==>Click on **Win2000** folder

==>Click on **815** folder

==>Click on **Set Up** folder

==>Click on **Next**

==>Click on **yes**

==>Click on **Next**

==>Click on **yes**

==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing Audio for Windows 2000®

- ==>Place the Driver CDROM into your CDROM drive. Pull up the CDROM file on your screen..
- ==>Click on **Sound** folder
- ==>Click on **Alc 200** folder
- ==>Click on **Win2000** folder
- ==>Click on **V1.80** folder
- ==>Click on **WDM_1** folder
- ==>Click on **Unzip**
- ==>Next you will be asked to **save this WDM file** in a certain location. C drive, D drive, My documents etc.
- ==>Now **find the WDM file** that you have just saved. C drive, D drive etc.
- ==>Click on **WDM** file in the save location
- ==>Click on the **Setup ICON**
- ==>You will see an optional language window select **English**
- ==>Click on **Next**
- ==>Click on **GO**
- ==>Click on **Yes**
- ==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.

Installing LAN for Windows 2000®

- ==>Place the Driver CDROM into your CDROM drive.
- ==>Click on **Start** button
- ==>Click on **Settings** button
- ==>Click on **Control Panel** button
- ==>Click on **System** button
- ==>Click on **Hardware** button
- ==>Click on **Device Manager** button
- ==>Click on **Ethernet Controller**
- ==>Click on **Driver**
- ==>Click on **Update Driver**
- ==>Click on **Next**
- ==>Click on **Uninstall**
- ==>Click on **OK**
- ==>Click on **Action**
- ==>Click on **Scan Hardware**
- ==>Click on **Ethernet Controller**
- ==>Click on **Driver**
- ==>Click on **Update Driver**
- ==>Click on **Next**
- ==>Click on **Search for a suitable driver for my device.....**
- ==>Click on **Next**
- ==>Remove the floppy disk option setting and engage the specific location setting
- ==>Then Net 82557 (will be auto detected)
- ==>Click on **Finish**
- ==>Now the shut down computer for restart Window should be visible, follow the command and the chipset driver has be installed.