

PCM-6898

FC/Socket 370 Media PC with LCD,
Ethernet, Audio, AGP 4X, TV-Out,
SSD/Compact Flash, 4 USB & 4 COM
Ports

Onboard PCM-6898 you will find a single PCI/ISA slot. AAEON has designed a riser card for this expansion interface, PCM-10560-5.

Due to industry discrepancies we advise our customers to only use PCM-10560-5 with PCM-6898.

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A Message to the Customer

AAEON Customer Services

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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 a lot 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.

Packing list

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

- 1 PCM-6898 Media Sized Single Board Computer Card
- 1 Quick Installation Guide
- 1 Support CD contains the followings:
 - User's Manual (this manual in PDF file)
 - Ethernet driver and utilities
 - VGA driver and utilities
 - Audio driver and utilities
 - 4 In 1 driver
- 1 floppy disk drive interface cable (34-pin, pitch 2.0mm)
- 1 IDE hard disk drive cable (40-pin, pitch 2.54mm)
- 2 serial port (10-9 pin, pitch 2.0mm) adapter kit.
- 1 bag of screws and miscellaneous parts

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

Notice

Dear Customer,

Thank you for purchasing the PCM-6898 board. This user's manual is designed to help you to get the most out of the PCM-6898, 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:

[Http:\\WWW.AAEON.COM](http://WWW.AAEON.COM)

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General Information

This chapter gives background information on PCM-6898.

Sections Include:

- Board Specifications
- Layout and Dimensions

Introduction

AAEON debuts our newest compact media single board computer offering AGP 4X, TV-Output and VIA quality chipset. This compact sized single board computer features a new level of multimedia performance.

This single board computer incorporates the AGP 4X VGA interface. Our first compact board that supports up to 32MB of shared display memory. Throughout our R&D goal was to offer our customers a higher quality visual displays platform.

The Ethernet interface 100Base-Tx is controlled by the Realtek 8139C chipset. The TV-Output encoder utilizes the Chrontel 7006 chipset. Our surround sound quality audio interface is controlled by the VIA 1611 chipset, compatible with SoundBlaster, SoundBlaster Pro and Windows Sound System.

Central processing units used on this single board computer may vary, however to acquire the full potential of this embedded computer we suggest Intel Celeron 300~766MHz (With system bus frequencies of 66 MHz) or Pentium III 500-850 MHz (With system bus frequencies of 100MHz) and Pentium III 600-1 GHz (With system bus frequencies of 133MHz).

This compact sized board features built in audio interface, supporting microphone in, line in/out, speaker out and CD in capabilities. The VGA has a resolution up to 1024 X 768 @ 16.7M colors, supporting non-interlaced CRT and up to 18/24/36/48-bit LCD through DVO module.

As for onboard memory we offer a 168-pin SDRAM socket providing a maximum of 256MB of memory. PCM-6898 can support up to four IDE hard disk drives and dual floppy disk drives. Other features include four USB ports onboard, three RS-232 serial ports and one RS-232/422/485 serial port. The single bi-directional parallel ports can support SPP, ECP and EPP modes. The standard ATX power connector is utilized on this compact sized SBC.

Features

- Supports FC-PGA Pentium III and Celeron CPU's
- High Speed AGP 4X for VGA Display
- One 10/100 Base-T Fast Ethernet
- Supports H/W status monitoring
- Integrated AC-97 2.1 SoundBlaster compatible PCI 3D Audio
- Supports CRT and 18/24/36/48-bits TFT panels Through DVO Module
- Supports NTSC/PAL TV output
- Supports both DiskOnChip (SSD) and Compact flash memory storage

Specifications

Standard SBC functions

- **CPU:** FC-370 Pentium III (Coppermine), Celeron, and compatible CPUs (With system bus frequencies of 66/100/133MHz).
- **CPU socket:** 370 pins Socket
- **BIOS:** Award 256 KB Flash BIOS
- **Chipset:** VT 82C8604 / VT 82C686B
- **I/O chipset:** VT 82C686B
- **Memory :** Up to 256MB. One 168-pin SDRAM socket on board.
- **Enhanced IDE:** Supports up to four hard disk drives. BIOS auto detect. Supports PIO mode 5 and Bus Maser. Also supports multi-word DMA and Ultra DMA/100 (and one CFD socket on board)
- **FDD interface:** Supports two floppy disk drives, 5.25" (360KB and 1.2MB) and/or 3.5" (720KB, 1.44MB, and 2.88MB).
- **Parallel port:** Configured to LPT1, LPT2, LPT3 or disabled. Supports SPP, ECP, and EPP modes.
- **Serial port:** Three RS-232 serial ports can be configured as COM1, COM2, COM3, COM4, or disabled individually and of which one and be configured as RS-232/422/485 (COM2). (16C550 equivalent).
- **IRDA interface:** Supports one IrDA Tx / Rx header
- **KB/Mouse connector :** 6-pin mini-DIN connector supports PC/AT keyboard and PS/2 mouse.
- **USB connectors:** Supports four USB ports.
- **Battery:** Lithium battery for data retention
- **Watchdog timer:** Can generate a system reset, IRQ15, or NMI. Software selectable time-out interval (4 sec. ~ 4 min., 1 sec./step). Supports Win 98 and Win31.

- **DMA:** 7 DMA channels (8237 equivalent)
- **Interrupt:** 15 interrupt levels (8259 equivalent)
- **Power management:** Supports ATX power supply. Supports PC97, modem ring in and LAN/KBC wake up functions. I/O peripheral support power saving and doze/standby/suspend modes. APM 1.2 compliant.

Flat Panel/CRT Interface

- **Chipset:** VT82C8604
- **Display memory:** Share system memory up to 32MB (Max)
- **Display type:** Supports non-interlaced CRT and up to 18/24/36/48 bit LCD (TFT only). Can display both CRT and Flat Panel simultaneously.
- **Resolution:** Up to 1024 x 768 @ 16.7M colors

Tv-Output

- **Chipset:** Chromtel 7006 digital TV encoder, supports both PAL & NTSC.
- **Interface:** Onboard RCA jack & S-Video connector supports NTSC/PAL composite output.

NOTICE: TV-OUTPUT ONLY FUNCTIONS UNDER WINDOWS 95/98/SE/ME OPERATING SYSTEM

Audio Interface

- **Chipset:** VIA 1611 Compatible with Sound Blaster, Sound Blaster Pro, and Windows Sound System

Ethernet Interface

- **Chipset:** RTL 8139C
- **Ethernet interface :** On board 100Base-Tx RJ-45 connector

SSD Interface

One 32-pin DIP socket supports M-systems DiskOnChip 2000 series, memory capacity ranges from 4MB to 288MB. One compact flash socket on board for storage.

Digital I/O Interface

On board 8-pin 2.00 header supports 4-bit output individually

Expansion Slots

One PISA slot and One PC/104 and PC/104 Plus


Mechanical and environmental


- **Power supply voltage:** +5V, -5V, +12V, -12V, +3.3V
- **Operating temperature:** 32 to 140°F (0 to 60°C)
- **Board size:** (200mm length x 162mm width)
- **Weight:** 1.2 lb. (0.3 Kg)

Installation

This chapter describes how to set up the main board 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-6898 all-in-one CPU module supports most Pentium III/ Celeron or 586 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

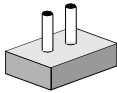
To install the CPU, follow the instructions that came with it. If no documentation was provided, the general procedures for installing a CPU are outlined below:

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!**

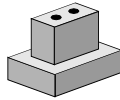
When you install a new CPU, you may have to adjust other settings on the board, such as CPU type, CPU clock, and PCI speed, to accommodate it. Make sure that the settings are correct for your CPU. **Improper settings may damage the CPU.**

Setting jumpers

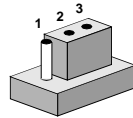
You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the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

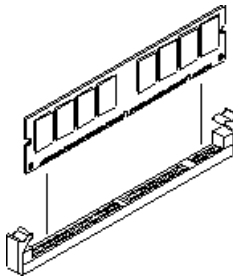
Supplementary information about SDRAM

Your PCM-6898 can accept both regular and PC-100/133 SDRAM SDRAM Module. Onboard one 168-pin SDRAM socket supports up to 256MB of memory.

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

Memory Installation Procedures

To install SDRAM, slowly slide the SDRAM module along the plastic guides on both ends of the socket. Then press the module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the SDRAM socket. To remove the memory module, just push both handles outward, and the memory module will be ejected by the mechanism in the socket.



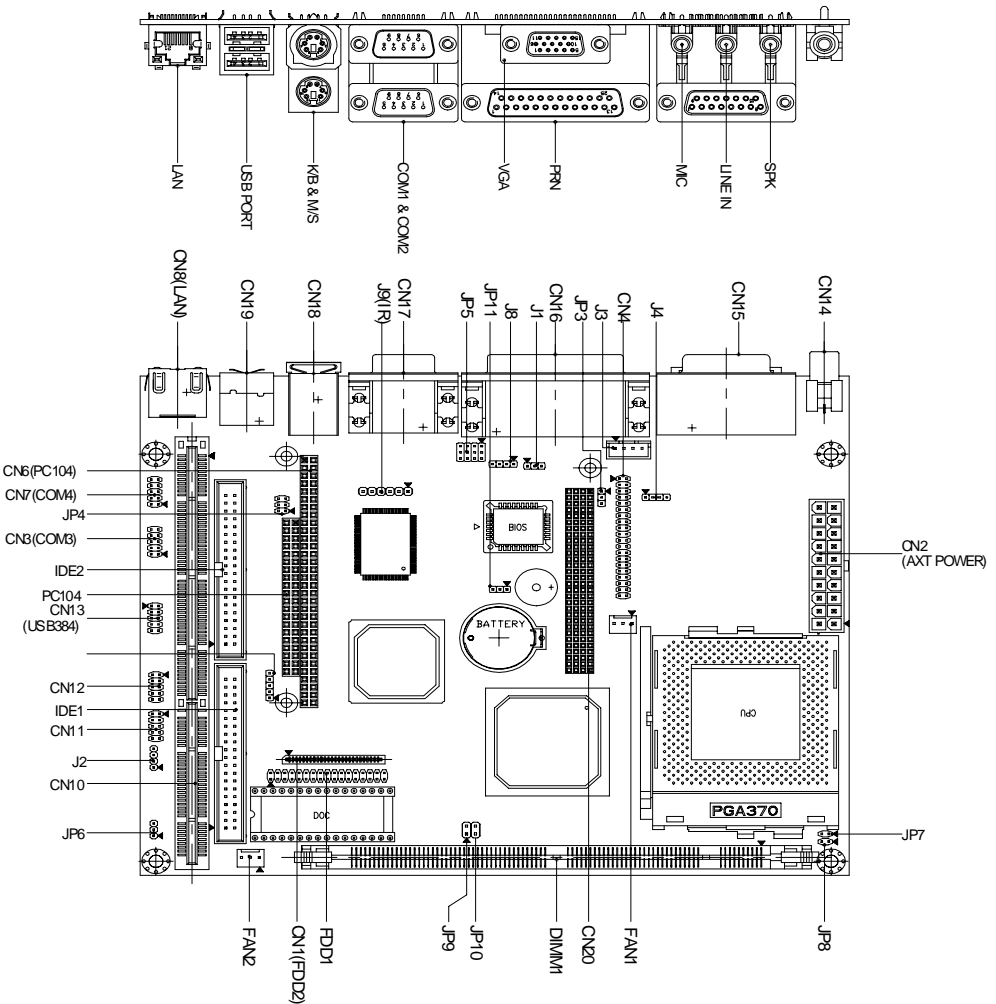
Jumpers

Jumpers	Function
J2(1-2)	DOC Address Select (D800 default)
J3/J4	CD_IN (2.54mm)/CD_IN (2.00mm)
J5	For PCM-3730 LAN Card Wake Up
J9	IrDA Connector
J8	TV_Out (S-Video)
JP3	VIO Select
JP4 & JP5	COM2 RS-232/422/485 Select
JP6(1-2)	Wake on LAN
JP7 & JP8 (On)	Autodetect CPU Frequency
JP9/JP10	CPU Frequency Select
JP11 (2-3)	Clear CMOS

Connectors

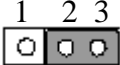
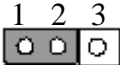
Connector	Function
CN1	FDD Connector (26 pin)
CN2	ATX Power Connector
CN3	COM3 RS-232 Serial Port Connector
CN4	Digital Video Interface Connector
CN5 & CN6	PC/104 Connector
CN7	COM4 RS-232 Serial Port Connector
CN8	10/100 Base-Tx Ethernet Connector
CN9	Compact Flash Connector
CN10	PISA Connector
CN11	Front Panel
CN12	Digital I/O Connector
CN13	USB2-3 Connector
CN14	TV-Out Composite
CN15	Game/MIC/Line_in/Line_Out/SPK. Port Con.
CN16	VGA Display Connector
CN16	Parallel Port Connector
CN17	COM1 RS-232 Serial Port Connector
CN17	COM2 Rs-232/422/485 Serial PortConnector
CN18	Keyboard and PS/2 Mouse Connector
CN19	USB0-1 Connector
CN20	PC/104+ Connector
Fan1 & Fan2	CPU Fan Power Connector
DIMM1	DIMM Connector
FDD1	FDD Connector (34 pin)
IDE1 & IDE2	IDE Hard Drive Connector

Locating Jumpers and Connectors

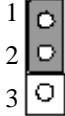
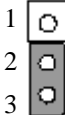


VIO Select (JP3)

You can use JP3 to set the voltage input/output at 5 volts or 3.3 volts.

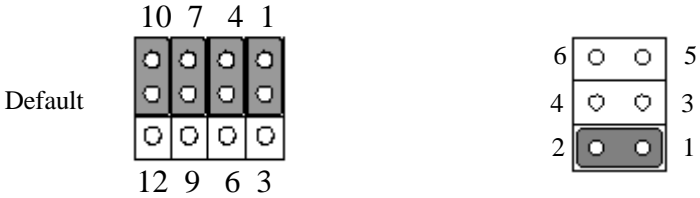
Voltage Input/Output (JP3)	Default
3.3V	5V
	

Wake On LAN (JP6)

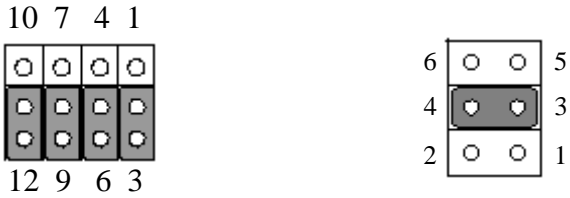
Wake On LAN (JP6)	WOL
	Enable
	Disable

RS-232/422/485 COM2(JP4,JP5) Setting

RS-232 **JP5** **JP4**



RS-422 **JP5** **JP4**



RS-485 **JP5** **JP4**



Autodetect CPU Frequency (JP7/JP8)

Autodetect CPU Frequency

JP7	JP8	CPU
ON	ON	AUTO

System Frequency (JP9 & JP10)

System Frequency

System Frequency

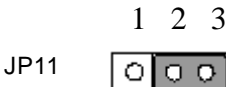
JP9	JP10	CPU
ON	ON	66MHz
OFF	ON	100MHz
OFF	OFF	133MHz or AUTO

Clear CMOS (JP11)

You can use JP11 to clear the CMOS data if necessary. To reset the CMOS data, place a jumper on JP11 (Clear CMOS) for just a few seconds, and then remove the jumper to the (Protect) position.

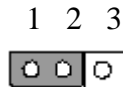
Clear CMOS (JP11)

Clear CMOS



Default

Protect



DOC Address Setting (J2)

DOC Address Setting (J2)

DOC Address Setting (J2)

Setting	PIN
Disabled	1-2, 3-4
DC00	3-4
D400	OFF
D800	1-2 (default)

Audio Port CD_IN (J3 & J4)

J3-2.54mm

J4-2.00mm

CD_IN

Pin	Signal
1	CD_L
2	GND
3	GND
4	CD_R

For PCM-3730 (J5)

(J5)

Pin	Signal
1	5V_SB
2	GND
3	-RI
4	SMBDT
5	SMBCK

IrDA Connector (J9)

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

Floppy Drive Connector (CN1)

Floppy drive connector			
Pin	Signal	Pin	Signal
1	VCC	14	STEP
2	INDEX	15	GND
3	VCC	16	WRITE DATA
4	DRIVE SELECT A	17	GND
5	VCC	18	WRITE DATA
6	DISK CHANGE	19	GND
7	NC	20	TRACK0
8	NC	21	GND
9	NC	22	WRITE PROTECT
10	MOTOR A	23	GND
11	NC	24	READ DATA
12	DIR	25	GND
13	DENSITY SELECT	26	HEAD

Power connector (CN2)

ATX power connector (CN2)

The ATX power supply uses 20-pin connector shown below. Make sure you plug in the right direction.

ATX power connector (CN2)

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	+5 V	16	GND
7	GND	17	GND
8	POWER OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

COM3 RS-232 (CN3)

COM3 RS-232 (CN3)

Pin	Signal	Pin	Signal
1	NDCD3	2	NRXD3
3	NTXD3	4	NDTR3
5	GND	6	NDSR3
7	NRTS3	8	NCTS3
9	NRT3	10	N/C

Digital Video Interface Connector (CN4)

Digital Video Interface Connector (CN4)			
Pin	Signal	Pin	Signal
A1	NC	B1	FTD0
A2	FTCLK1	B2	FTD1
A3	NC	B3	FTD2
A4	FTBLNK	B4	GND
A5	FTHSYNC	B5	FTD3
A6	FTVSYNC	B6	FTD4
A7	SL_STALL	B7	FTD5
A8	GND	B8	NC
A9	SPCLK1	B9	FTD6
A10	SPD1	B10	FTD7
A11	FPDET	B11	FTD8
A12	+5V	B12	VEE_OK
A13	PCIRST	B13	FTD9
A14	+12V	B14	FTD10
A15	FPVDDEN	B15	FTD11
A16	GND	B16	+3.3V
A17	PGMSEL	B17	+3.3V
A18	SMBDT	B18	GND
A19	SMBCLK	B19	+3.3V
A20	+5V	B20	FPBKLENR

COM4 RS-232 (CN7)

COM4 RS-232 (CN7)

Pin	Signal	Pin	Signal
1	NDCD4	2	NRXD4
3	NTXD4	4	NDTR4
5	GND	6	NDSR4
7	NRTS4	8	NCTS4
9	NRT4	10	N/C

10/100Base-Tx Ethernet connector (CN8)

100Base-Tx Ethernet connector (CN8)

Pin	Signal	Pin	Signal
1	TX1+	9	LED1-
2	TX1-	10	+3.3V
3	RX1+	11	LED2-
4	N.C.	12	+3.3V
5	N.C.	13	NC
6	RX1-	14	NC
7	N.C.	15	GND
8	N.C.	16	GND

Compact Flash Connector (CN9)

Compact Flash Connector (CN9)			
Pin	Signal	Pin	Signal
1	GND	26	GND
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#1	32	CS#3
8	GND	33	GND
9	GND	34	IO READ
10	GND	35	IO WRITE
11	GND	36	+5V
12	GND	37	IRQ15
13	+5V	38	+5V
14	GND	39	CSEL
15	GND	40	N.C.
16	GND	41	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

PCI/ISA Connector (CN10)

PIN	SIGNAL	PIN	SIGNAL
1	-IOCHCK	50	GND
2	SD7	51	RSTDRV
3	SD6	52	VCC
4	SD5	53	IRQ9
5	SD4	54	-5V
6	SD3	55	DREQ2
7	SD2	56	-12V
8	SD1	57	-OWS
9	SD0	58	+12V
10	IOCHRDY	59	GND
11	AEN	60	-SMEMW
12	SA19	61	-SMEMR
13	SA18	62	-IOW
14	SA17	63	-IOR
15	SA16	64	-DACK3
16	SA15	65	DREQ3
17	SA14	66	-DACK1
18	SA13	67	DREQ1
19	SA12	68	-REFRESH
20	SA11	69	SYSCLK
21	SA10	70	IRQ7
22	SA9	71	IRQ6
23	SA8	72	IRQ5
24	SA7	73	IRQ4

PCI/ISA Connector (CN10)

PIN	SIGNAL	PIN	SIGNAL
25	SA6	74	IRQ3
26	SA5	75	NC
27	SA4	76	TC
28	SA3	77	BALE
29	SA2	78	VCC
30	SA1	79	SIO OSC
31	SA0	80	GND
32	-SBHE	81	-MEMCS16
33	SA23	82	-IOCS16
34	SA22	83	IRQ10
35	SA21	84	IRQ11
36	SA20	85	IRQ12
37	SA19	86	IRQ15
38	SA18	87	IRQ14
39	SA17	88	-DACK0
40	-MEMR	89	DREQ0
41	-MEMW	90	-DACK5
42	SD8	91	DREQ5
43	SD9	92	-DACK6
44	SD10	93	DREQ6
45	SD11	94	-DACK7
46	SD12	95	DREQ7
47	SD13	96	VCC
48	SD14	97	-MASTER
49	SD15	98	GND

PCI/ISA Connector (CN10)

PIN	SIGNAL	PIN	SIGNAL
99	GND	144	GND
100	GND	145	GND
101	-INTR B	146	-INTR C
102	-INTR A	147	-INTR D
103	VCC	148	VCC
104	VCC	149	VCC
105	-PCIRST2	150	PC104CLK
106	-GNT1	151	GND
107	-REQ1	152	-GNT0
108	GND	153	GND
109	R276 PISACLK	154	-REQ0
110	GND	155	A D31
111	A D30	156	A D29
112	-REQ2	157	NC
113	-GNT2	158	NC
114	A D28	159	A D27
115	A D26	160	A D25
116	A D24	161	C-BE3
117	A D22	162	A D23
118	A D20	163	A D21
119	A D18	164	A D19
120	NC	165	NC
121	NC	166	NC
122	A D16	167	A D17

PCI/ISA Connector (CN10)

PIN	SIGNAL	PIN	SIGNAL
123	-FRAME	168	-IRDY
124	C-BE2	169	-DEVSEL
125	-TRDY	170	-PLOCK
126	-STOP	171	-PERR
127	GND	172	-SERR
128	NC	173	A D15
129	C-BE1	174	A D14
130	PAR	175	A D12
131	GND	176	GND
132	GND	177	GND
133	A D13	178	A D10
134	A D11	179	A D8
135	A D9	180	A D7
136	C-BE0	181	A D5
137	A D6	182	A D3
138	A D4	183	A D1
139	A D2	184	A D0
140	VCC	185	VCC
141	NC	186	VCC
142	NC	187	GND
143	GND	188	GND

Front Panel (CN11)

Front Panel (CN11)

1	□	○	2	GND/Power on Button
3	○	○	4	IDE LED- / IDE LED +
5	○	○	6	Speaker - / Speaker +
7	○	○	8	EXTSMI / GND
9	○	○	10	Reset Switch- / GND

TV Output (CN14 & J8)

TV output

TV Output (J8) S-Video Connector

PIN	Signal
1	Y
2	GND
3	C
4	GND

Digital I/O Connector (CN12)

The PCM-6898 provides 4 pair Digital I/O functions.
Input address 294H. Output address 294H.

Digital I/O Connector (CN12)

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

USB connectors (CN13 & CN19)

USB 0-1 connector (CN19)

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

USB 2-3 connector (CN13)

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

LINE_IN (CN15)

LINE_IN

Pin	Signal
1	LINE_R
2	GND
3	GND
4	LINE_L
5	GND

MIC_IN (CN15)

MIC_IN

Pin	Signal
1	MIC
2	NC
3	NC
4	VCC
5	GND

VGA connector (CN16)

VGA display connector (CN16)

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

SPK_OUT (CN15)

SPK_OUT (CN15)

Pin	Signal
1	LINE OUT_R
2	NC
3	NC
4	LINE OUT_L
5	GND

Parallel port connector (CN16)

Parallel port connector

Parallel port connector

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.

COM 1 RS-232 Serial Port (CN17)

COM 1 RS-232 (CN17)

Pin	Signal	Pin	Signal
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	N.C.

COM 2 RS-232/422/485 (CN17)

Pin	Signal	Pin	Signal
1	DCD2(485TXD-)	2	RXD2 (422RXD+)
3	TXD2(485TXD+)	4	DTR2 (422RXD-)
5	GND	6	DSR2
7	RTS2	8	CTS2
9	RI2	10	N.C.

PS/2 Keyboard and Mouse Connector (CN18)

Keyboard and mouse connector

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

CPU Fan power connectors (Fan 1 & Fan 2)

CPU fan power connector

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked Fan 1 and Fan 2.

CPU fan power connector

Pin	Signal
1	Fan speed sensor
2	+12V
3	GND

Floppy Drive Connector (FDD1)

Floppy drive connector

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT0
3	GND	4	N.C.
5	GND	6	DENSITY SELECT1
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	GND	30	READ DATA
31	GND	32	HEAD
33	GND	34	DISK CHANGE

IDE Hard Drive Connector (IDE1 & IDE2)

IDE hard drive connector (IDE1 & IDE2)

Pin	Signal	Pin	Signal
1	IDE RESET	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	SIGNAL GND	20	N/C
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ14/IRQ15	32	N.C.
33	ADDR 1	34	ATA66DETECT
35	ADDR 0	36	ADDR 2
37	CS#1	38	CS#3
39	IDEACTP	40	GND

CHAPTER 3

Award BIOS Setup

This chapter describes how to configure the BIOS for the system.

Starting setup

The Award BIOS is immediately activated 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 the operating system and hands control of system operations to it.

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

1. By pressing Del immediately after switching the system on, or
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 you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing 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

Setup keys

These keys help you navigate in Award BIOS:

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
PgUP/+	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	Item Help
F3	Reserved
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

Getting help

Press F1 to pop up a small help window that 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, the **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.

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

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		Standard CMOS Features
Date (mm:dd:yy)	Wed, Jul 11 2001	Item Help
Time (hh:mm:ss)	11 : 21 : 45	
▶ IDE Primary Master	[Y+0x]	Menu Level ▶
▶ IDE Primary Slave	[Y+0x]	Change the day, month, year and century
▶ IDE Secondary Master	[Y+0x]	
▶ IDE Secondary Slave	[Y+0x]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
TV Mode	[Disabled]	
Halt On	[All , But Keyboard]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

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. **NONE**- No drive type to be selected
2. **Manual**-This will allow you to manually set the drive type you are using in your system. (See Below)

ACCESS Mode: Auto, Large, CHS or LBA

- **Auto:** The BIOS automatically determines the optimal mode.
- **CHS:** This allows the user to enter their own hardware values
- **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.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of predefined 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 predefined 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

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

TV Output

Phase Alternation Line (PAL) is the [analog](#) television display standard that is used in Europe and certain other parts of the world. PAL is one of the three major TV standards together with the American National Television Systems Committee ([NTSC](#)) color television system and the French Sequential Couleur avec Memoire (SECAM). NTSC is also used in Japan. SECAM is used in countries of the former Soviet Union.

The choices: NTSC, PAL, Disable

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 nonfatal 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.

Advanced BIOS Features

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		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]		
Quick Power On Self Test	[Disabled]		
First Boot Device	[Floppy]		Allows you to choose
Second Boot Device	[HDD-0]		the VIRUS warning
Third Boot Device	[LS120]		feature for IDE Hard
Boot Other Device	[Enabled]		Disk boot sector
Swap Floppy Drive	[Disabled]		protection. If this
Boot Up Floppy Seek	[Enabled]		function is enabled
Boot Up NumLock Status	[On]		and someone attempt
Gate A20 Option	[Fast]		to write data into this
Typeomatic Rate Setting	[Disabled]		area , BIOS will show
x Typeomatic Rate (Chars/Sec)	6		a warning message on
x Typeomatic Delay (Msec)	250		screen and alarm beep
Security Option	[Setup]		
OS Select For DRAM > 64MB	[Non-OS2]	▼	

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.

Processor Number Feature

This option is for Pentium III processor. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the serial number.

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 Boot Device

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

The choices: Floppy, LS120, HDD0, HDD1, HDD2, HDD3, SCSI, CDROM, LAN, Disabled.

Boot Other Device

If your boot device is not included in the following choices Floppy, LS120, HDD0, HDD1, HDD2, HDD3, SCSI, CDROM, LAN, you may set **First/Second/Third Boot devices to Disable** and **enable the BOOT Other Device function**. The system will automatically boot the other device.

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.

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

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 (Self-Monitoring Analysis and Reporting Technology). 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- Report no FDD for Win 95 or not. The choice: Yes, no

Shadow

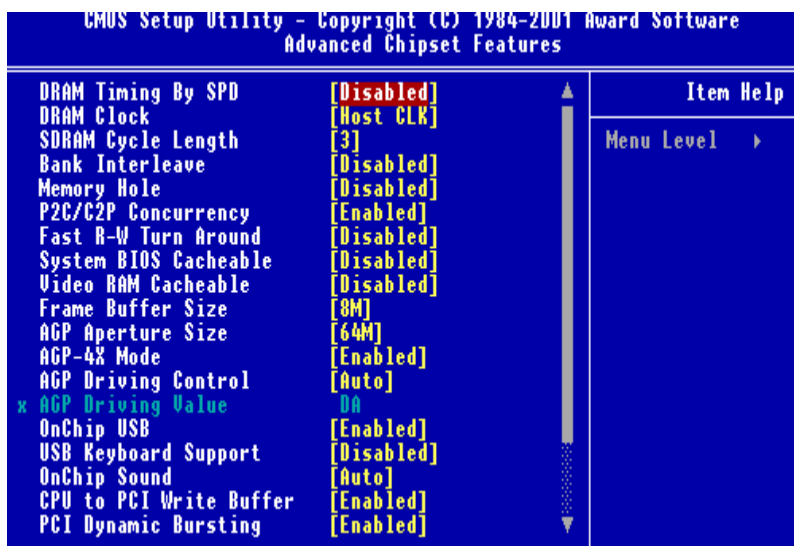
Software that resides in a read only memory (ROM) chip on a device is called firmware. The Award BIOS permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals such as, for example, a SCSI adaptor.

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus. Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory are C0000-C7FFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

Advanced Chipset Features



DRAM Timing By SPD

This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.

The choices: **Enabled, Disabled**

DRAM Clock

This item allows you to control the DRAM speed.

The choice: **Host Clock, HCLK-33M, HCLK+33M.**

SDRAM Cycle Length

This field sets the CAS latency timing.

The choices: **3, 2**

Bank Interleave

The choices: 2 Bank, 4 Bank, Disable

Memory Hole

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**

P2C/C2P Concurrency

This item allows you to enable/disable the PCI to CPU, CPU to PCI concurrency.

The choices: enabled, disabled

Fast R-W Turn Around

The choices: Enable, disable

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 RAM Cacheable

The choices: Enable, disable

Frame Buffer Size

The choices: 2M, 4M, 8M, 16M, 32M

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: **4M, 8M, 16M, 32M, 64M, 128M.**

AGP-4X Mode

Enable 4X mode will enhance your system performance.

AGP Driving Control

The choices: Auto, Manual

On-Chip USB

Select enabled if your system contains a Universal Serial Bus controller and you have a USB keyboard. If you disable this function you will not be able to access the USB Keyboard Support below.

USB Keyboard Support

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

OnChip Sound

This item allows you to control the onboard VIA 1611 audio.

The choices: Auto, disabled

CPU to PCI Write Buffer

When this field is enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and PCI bus. When disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

PCI Dynamic Bursting

When enabled, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and nonburstable transactions do not.

PCI Master 0 WS Write

When enabled, writes to the PCI bus are executed with zero wait states.

PCI Delay 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.

PCI#2 Access #1 Retry

When disabled, PCI#2 will be connected until access finishes (default). When enabled, PCI#2 will be disconnected if max retries are attempted without success.

AGP Master 1 WS Write

System will run single wait state delay before write data from buffer, if user set to disable system will run twice wait states so system can stable.

AGP Master 1 WS Read

System will run single wait state delay before read data from buffer, if user set to disable system will run twice wait states so system can stable.

Integrated Peripherals

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		
Integrated Peripherals		
OnChip IDE Channel0	[Enabled]	▲
OnChip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Enabled]	
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]	
Init Display First	[PCI Slot]	
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	▼
		Item Help
		Menu Level ▶

On-Chip IDE Channel 0

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 IDE Channel 1

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 Prefetch Mode

The onboard IDE drive interfaces supports IDE prefetching, ofr faster drive accesses. If you install a primary and or secondary add in IDE interface, set this field to Disabled if the interface does not support prefetching.

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 33/66/100 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 IDE cable both support Ultra DMA33/66/100, select Auto to enable BIOS support.

The choices: Auto, disable

Init Display First

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

The choice: PCI slot, onboard

IDE HDD Block Mode

Select Enabled only if your hard drives support block mode.

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 2 Mode

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

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, 3E8, 2F8, 2E8)

Onboard Parallel Port

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

The Choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, disabled

Parallel Port EPP Type

Select EPP port type 1.7 or 1.9.

Parallel Port Mode

Two bidirectional parallel ports. Supports SPP, ECP, EPP, ECP + EPP.

ECP Mode Use DMA

Select a DMA channel for the port.

Watch Dog Timer

You can enable the system watchdog 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: **Disabled, 10 sec, 20 sec, 30 sec, 40 sec, 1 min, 2 min, 4 min.**

Onboard Legacy Audio

Onboard Legacy Audio can be set as enabled or disabled. However disabling the Legacy Audio will render the functions listed below useless.

Sound Blaster

The on board Sound Blaster can be configured as enable or disable.

SB I/O Base Address

Select a base I/O address for the Sound Blaster interface.

The choices: 220H, 240H, 260H, 280H

SB IRQ Select

Select a IRQ to use for the on board sound blaster.

The choices: IRQ 5, IRQ 7, IRQ 9, IRQ 10

SB DMA Select

Select a DMA address to use for the on board sound blaster.

The choices: DMA0, DMA1, DMA2, DMA3

MPU-401

Select enabled to configure the MPU-401 interface.

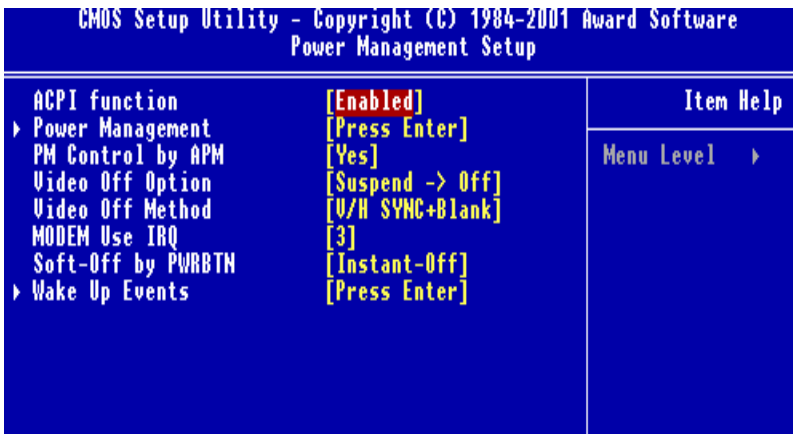
MPU-401 I/O Address

Select a base I/O address for the MPU-401 interface.

Game Port (200-207H)

PCM-6898 offers a gaming port for joy stick or other types of connection you may enable or disable this function.

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

Maximum Saving

1. HDD - 1~15 minutes or Disable
2. Doze Mode - 1 Minute
3. Suspend Mode - 1 Minute

Minimum Saving

1. HDD - 1~15 minutes or Disable
2. Doze Mode - 1 Hour
3. Suspend Mode - 1 Hour

User Define

1. HDD - 1~15 minutes or Disable
2. Doze Mode - 1 min, 2 min, 4 min, 6 min, 8 min, 10 min, 20 min, 30 min, 40 min, 1 hour.
3. Suspend Mode - 1 min, 2 min, 4 min, 6 min, 8 min, 10 min, 20 min, 30 min, 40 min, 1 hour.

PM Control by APM

If advanced power management is installed on your system, selecting Yes gives better power savings.

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 Option

Select the power saving modes during which the monitor goes blank.

Always on	Monitor remains on during power saving modes.
Suspend--Off	Monitor blanked when system enters suspension mode.
Suspend, standby--Off	Off monitor blanked when system enters either suspend or standby mode.
All Modes--Off	Monitor blanked when system enters any power saving mode.

MODEM use IRQ

This determines the IRQ in which the MODEM can use.

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

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 Events-

VGA

When enabled, you can set the VGA to awaken the system

LPT & COM

When LPT & COM is set to ON, any activity from one of the system peripheral devices or IRQs, wakes up the system.

HDD & FDD

When HDD & FDD is set as ON, any activity from one of the listed system peripheral devices wakes up the system.

PCI Master

When PCI Master is set as ON, any activity from one of the listed system peripheral devices wakes up the system.

Modem Ring Resume

The system can be started by the modem. If a incoming signal is received the system will power on.

RTC Alarm Resume

This function acts like an alarm clock. If it is enabled the system will power on at the predetermined time and date.

Date- Set the date for system to awake.

Resume Time-Set the time for system to awake.

Primary INTR

When set ON, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQs Activity Monitoring

The list of IRQ can either have their activity monitored or not monitored.

PnP/PCI Configurations

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software PnP/PCI Configurations		
PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level →
x IRQ Resources	Press Enter	Select Yes if you are using a Plug and Play capable operating system. Select No if you need the BIOS to configure non-boot devices.
x DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	

PNP OS installed

Select Yes if the system operating environment is Plug and Play aware, for example Windows 95.

Select No if you need the BIOS to configure non-boot devices.

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 proceeded by a “>”. **The choices: Auto, Manual.**

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

DMA Resources

This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop

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

Assign IRQ of VGA

The choices: Enable, disable

Assign IRQ for USB

The choices: Enable, disable

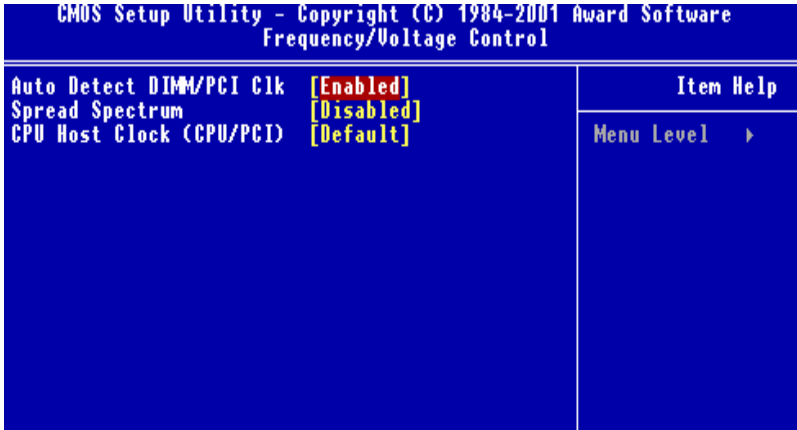
PC Health Status

CMOS Setup Utility - Copyright (C) 1984-2004 Award Software PC Health Status	
Current CPU Temp.	Item Help
Current System Temp.	
Current CPUFAN1 Speed	Menu Level ▶
Current CPUFAN2 Speed	
Vcore	
2.50	
3.30	
50	
120	

PC Health Status

Your system does not allow you to alter any of the setting in this menu. The system engineer has already designated the correct setting for PCM-6898.

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

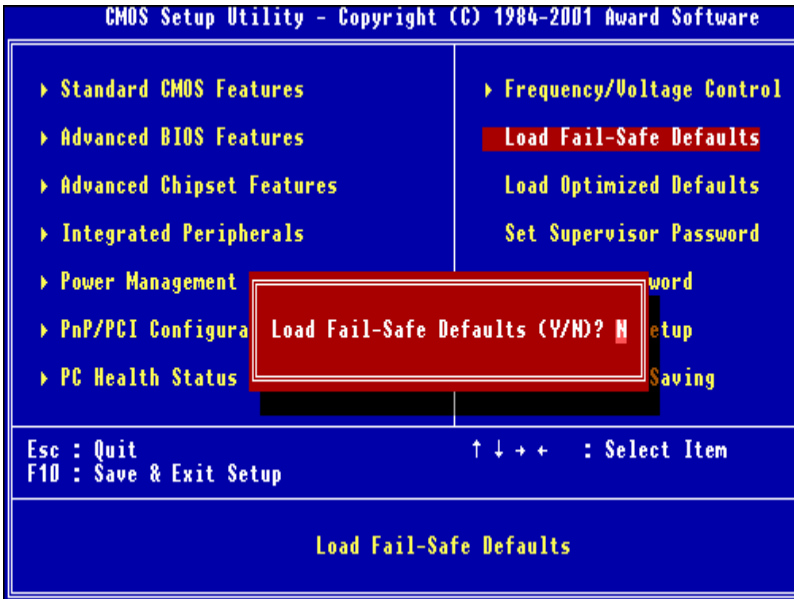
This allows you to enable/disable the spread spectrum modulate. When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme pulse spikes to flat curves thus reducing EMI.

The choices: Enable, Disable

CPU Host Clock (CPU/PCI)

Select Default or select a timing combination for the CPU and the PCI bus. When set to default, the bios uses the actual CPU and PCI bus clock values.

Load Fail-Safe Defaults



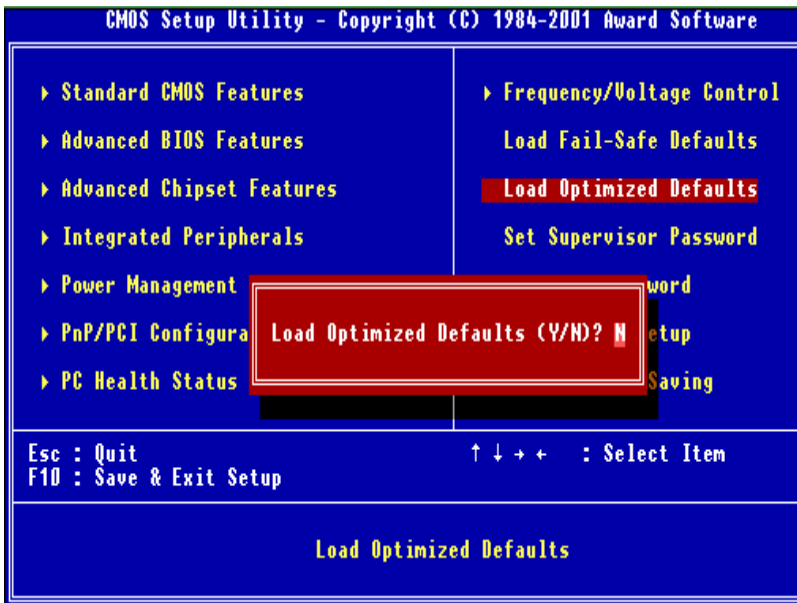
Load Fail-Safe Defaults

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



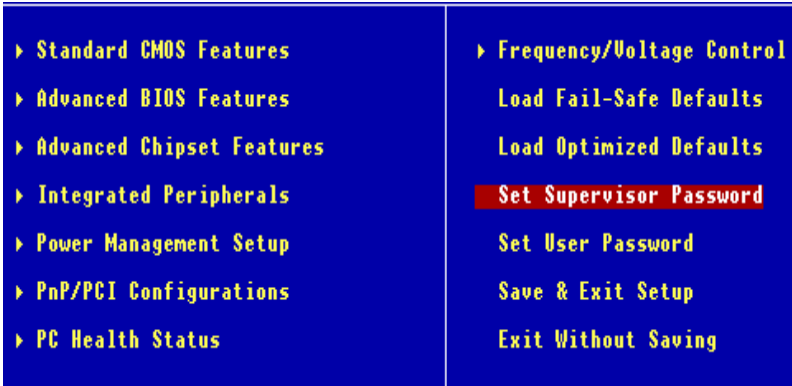
Load Optimized Default

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 when ever you enter Setup.

Setup Enter a password when ever 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.

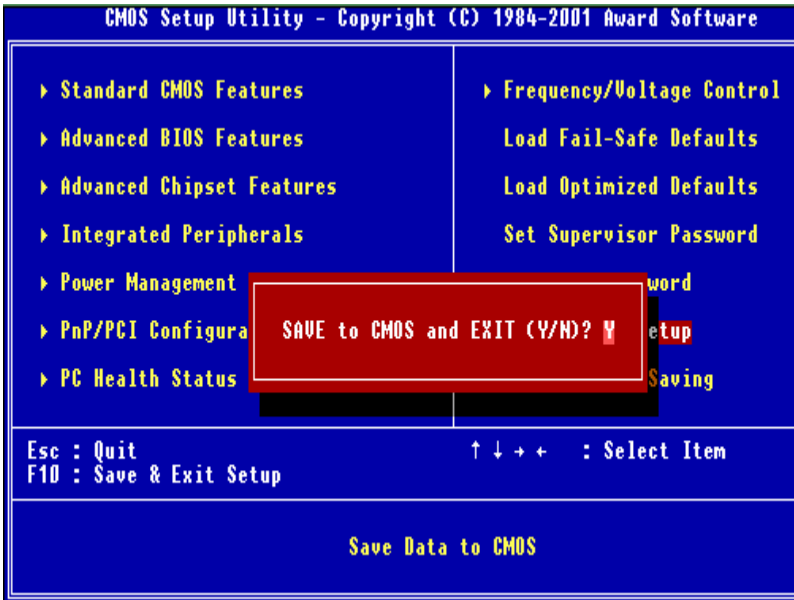
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever 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



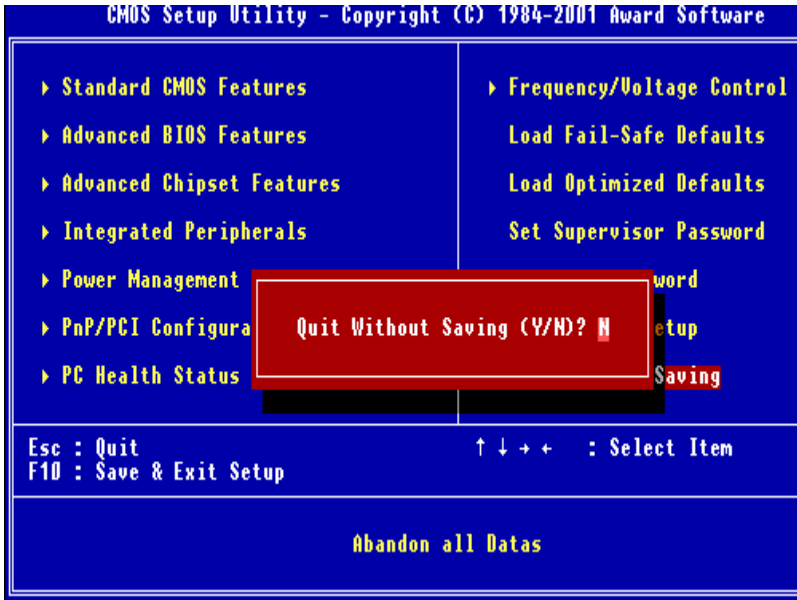
Save to CMOS and EXIT

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.

Exit 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-6898 is equipped with an audio, VGA and LAN interface. This chapter provides instructions for installing the software drivers on these peripherals.

!NOTICE!

For the board to function properly it is critical that you follow the installation direction for PCM-6898 drivers.

YOU MUST INSTALL THE DRIVERS IN THE FOLLOWING ORDER:

1. VGA
2. Ethernet (LAN)
3. AUDIO (AC 97)
4. 4 IN 1

To begin installing PCM-6898 drivers, insert the CD diskette provided with your SBC into your CD-ROM drive. On the CD diskette you will locate files containing all four drivers (VGA, Audio, Ethernet and 4 In 1). Simply select the corresponding files and begin installing the drivers.

Windows 9X/2000/Me/NT VGA Installation

- =>Place the PCM-6898 CD diskette into the CD ROM drive, and pull up the CD ROM file on your screen
- =>Locate the VGA File, click on it
- =>Select the Windows operating system you are using
- =>Find the setup ICON, click on it
- =>Click on Next
- =>Click on Next
- =>Click on Finish
- =>Shut down your computer and reboot your system

Win 9X/2000/Me/NT Ethernet Installation

- =>Place the Driver CDROM into your CDROM drive and pull up the CD ROM file on your screen
- =>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 **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**
- =>Realtek 8139C.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

Windows 9X/2000/Me Audio Driver Installation

The audio driver will automatically detect the type of operating system you are using.

=>Place the PCM-6898 CD diskette into the CD ROM drive, and pull up the CD ROM file on your screen

=>Locate the Audio folder and click on it

=>Locate the setup ICON and click on it

=>Click on Next

=>Click on Install Driver

=>Click on Next

=>Click on Finish

=>Shut down your computer and reboot the system

Win 9X/2000/Me/NT 4in1 Driver Installation

- =>Place the PCM-6898 CD diskette into the CD ROM drive, and pull up the CD ROM file on your screen
- =>Locate the 4 in 1 Folder and click on it
- =>Locate the setup ICON and click on it
- =>Click on Next
- =>Click on Install Driver
- =>Click on Next
- =>Click on Finish
- =>Shut down your computer and reboot the system

Simultaneous VGA Display

PCM-6898 offers simultaneous VGA display methods:

1. CRT & TV display simultaneous
2. CRT & LCD Panel display simultaneous
3. CRT display only
4. Panel display only
5. TV display only

The instructions are as follows:

==>Select **Start** button

==>Select **Setting**

==>Select **Control Panel**

==>Select **Display** ICON

==>Select **Setting** Tab

==>Select **Advanced** ICON

==>Select **S3 Display** Tab

==>Select or Check the **Expand** Box when using the LCD panel

==>Select **Yes** Option

==>Select the display methods of your choice

==>Select **Yes** to initiate

Note when you choose to incorporate the CRT and TV display simultaneously the image appearing on the CRT monitor will seem to be distorted. This is not a glitch or bug. The resolution for the TV monitor is set as 640x480 and the CRT resolution will also be conformed to 640x480

Note when using the LCD panel you must check the Expand “BOX” or MS-DOS Prompt and MS-DOS Mode will not function properly. Also the information found under the PANEL TYPE is irrelevant, ignore it.

APPENDIX

A

Watchdog Timer

Watchdog Timer

PCM-6898 contains a watchdog timer reset pin. (GP12)

All reference material can be found on the following pages.

```

=====**
** Title : WatchDog Timer Setup Utility (for W83977 GP12) **
** 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 12

```

```

#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_w83977f_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);
}
}

```