PCM-5894
PCM-5892

All-in-One Single Board Pentium
Computer with SVGA, Ethernet,
and 4 serial ports

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 OPERATION.

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 AGAINTST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND , IF NOT INSTATLLED 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.

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Packing list

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

• 1 PCM-5894/PCM-5892 All-in-One Single Board Computer

• 1 Quick Installation Guide

• 1 CD-ROM contains the followings:

— User's Manual (this manual in PDF file)

— Ethernet drivers and utilities

— VGA drivers and utilities

— Latest BIOS (as of this product was shipped)

• PC/104 module mounting support kit

The PCM-5894/5892 require several cables for operation. You can make them yourself or pruchase an optioanl cable kit, PCM-10489-3 (P/N : 9979048900).

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

Notice

Dear Customer,

Thank you for purchasing the PCM-5894/5892 board. This user's manual is designed to help you get the most out of the PCM-5894/5892, please read it thoroughly before you install and use the board. The product that you have purchased comes with a one-year limited warranty, but AAEON will not be responsible for misuse of the product. Therefore, we strongly urge that you first read the manual before using the product.

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

http://www.aaeon.com

WARNING

The PCM-5894/5892 adopts a "P9" type power connector for operation.

Please be advised that the PCM-5894/5892 Rev.A3 or higher revision requires a "P9" power connector for proper operation. On the standard PS/2 power supplies, there are usually two similar 6-pin power plugs. P8 has one +5V output while P9 has three. +5V is normally indicated by red color so you should be able to distinguish P9 from P8 by counting the number of red wire. Many times, there are also markings on these two plugs indicating which is which.

P9 CONNECTOR						
PIN NO.	PIN-1	PIN-2	PIN-3	PIN-4	PIN-5	PIN-6
Signal	GND	GND	- 5V	+ 5V	+ 5V	+5V
Color	Black	Black	White	Red	Red	Red

NOTE : Without any aditional devices, PCM-5894/5892 alone is +5V operational. -5V of P9 power connector is not required.

** PLEASE be absolutely certain that you are using the correct plug before continuing.

AAEON will not be responsible for any damages caused by improper power input.

Contents

General Information

This chapter gives background information on the mainboard.

Sections include:

- Board specifications

- Layout and dimensions

Introduction

The PCM-5894/5892 is a Pentium single board computer with one onboard PCI SVGA controller, one PCI Ethernet interface and one PCI expansion slot. Equipped with a 64-bits local bus architecture, the PCM-5894/5892 releases Pentium's full potential and provides unprecedented performance compared to current 32-bit processor boards. The PCM-5894/5892 offers all the functions of an industrial computer on a single board, but fits in the space of a 5¼" floppy drive (only 5.75" x 8"). For maximum performance, the PCM-5894/5892 also supports a 512 KB. L2 cache onboard. An SSD interface supports one 32-pin DIP socket for the M-Systems DiskOnChip 2000 series, memory capacity from 2MB to 72MB.

Onboard features include four serial ports (three RS-232 and one RS-232/422/485), one multi-mode parallel (ECP/EPP/SPP) port, one floppy drive controller and one keyboard/PS-2 mouse interface. The built-in high speed PCI IDE controller supports both PIO and bus master modes. Up to two IDE devices can be connected, including large hard disks, CD-ROM drives, tape backup drives, and other IDE devices.

The PCM-5894/5892 also features power management to minimize power consumption. It complies with the "Green Function" standard and supports three types of power saving features: Doze mode, Standby mode, and Suspend mode. In addition, the board's watchdog timer can automatically reset the system or generate an interrupt in case the system stops due to a program bug or EMI.

Onboard peripherals with true PCI performance

The PCM-5894/5892 is a highly integrated, all-in-one single board computer. All onboard peripherals (including PCI flat panel/VGA interface, PCI Ethernet, and PCI IDE) adopt PCI technology and operate through an internal PCI bus. Integrating a Pentium board with a PCI architecture has unleashed a revolutionary level of performance. *The PCM-5894/5892 is one of the smallest and most powerful all-in-one Pentium boards available.*

Features

- Accepts Intel Pentium MMX 166~233MHz, AMD-K6/200~300AFR, Cyrix /IBM/6x86MX-PR166~266GP and IDT winchip C6 180~225MHz

- DiskOnChip (SSD) up to 72MB

- C&T 65554 LCD controller supports 36-bit TFT panels

- 10Base-T/100Base-TX Ethernet, supports remote boot ROM function

- Bus Master IDE and Ultra DMA/33 supported

- Three RS-232 and one RS-232/422/485 serial port

Specifications

Standard SBC functions

- **CPU:** Intel Pentium MMX 166~233MHz, AMD-K6/200~266AFR, Cyrix /IBM/6x86MX-PR166~266GP and IDT winchip C6 180~225MHz

- **BIOS:** Award FLASH BIOS

- **Chipset:** SiS5582 (PCM-5892)/SiS5598(PCM-5894)

- **Level 2 cache:** Onboard 512KB pipeline burst L2 cache.

- **System memory:** 8MB to 128MB. Two 72-pin SIMM sockets onboard. Supports BEDO, EDO, and FP DRAM.

- **DMA channels:** 7

- **Interrupt levels:** 15

- **Enhanced IDE hard disk drive interface:** Supports up to two IDE drives. Supports PIO mode 4 and Bus Master. Also supports Multi-word DMA and Ultra DMA/33.

- **FDD interface:** Supports up to two floppy disk drives.

- **Multi-mode parallel port:** Configured to LPT1, LPT2, LPT3, or disabled. Supports SPP, ECP, and EPP.

- **Serial ports:** Three RS-232 and one RS-232/422/485 serial ports. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually. Four 16C550 serial UARTs. IR connector reserved for future use.

- **Keyboard/mouse connector:** 8-pin connector supports standard PC/AT keyboard and PS/2 mouse.

- **USB connectors:** Two USB connectors on-board

- **Watchdog timer:** Can generate a system reset, IRQ15 or NMI. Selectable timeout interval. (2sec~128min, 1sec/step).

- **Power management:** I/O peripheral devices support power saving and doze/standby/suspend modes and is APM 1.2 compliant

- **VGA controller:** C&T 65554(PCM-5894)/SiS 5598(PCM-5892)

- **Display memory:** 2MB onboard/UMA structure for PCM-5892

- **Display type:** Supports CRT and flat panel (TFT, DSTN, Mono, and EL) display. Can display both CRT and flat panel simultaneously (PCM-5892 supports CRT displays only)

- **Resolution:** Supports up to 1024 x 768 @ 64K colors.

- **Ethernet controller:** Realtek RTL8139 10Base-T/100Base-TX Ethernet controller

- **SSD interface:** One 32-pin DIP socket for M-Systems DiskOnChip 2000 series, memory capacity from 2MB to 72MB.

- **PC/104 connector:** 104-pin connector for a 16-bit bus.

- **Power supply voltage:** +5V (4.75V to 5.25V)
  +12V (11.4V to 12.6V)

- **Power requirements:**
Bare Board:	+5V @ 1.5A
Pentium MMX-233 onboard:	+5V @ 6A
AMD K6-233 onboard:	+5V @ 10A

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

- **Board size:** 8"(L) x 5.75"(W) (203 mm x 146 mm)

- **Weight:** 0.3 kg

Board layout
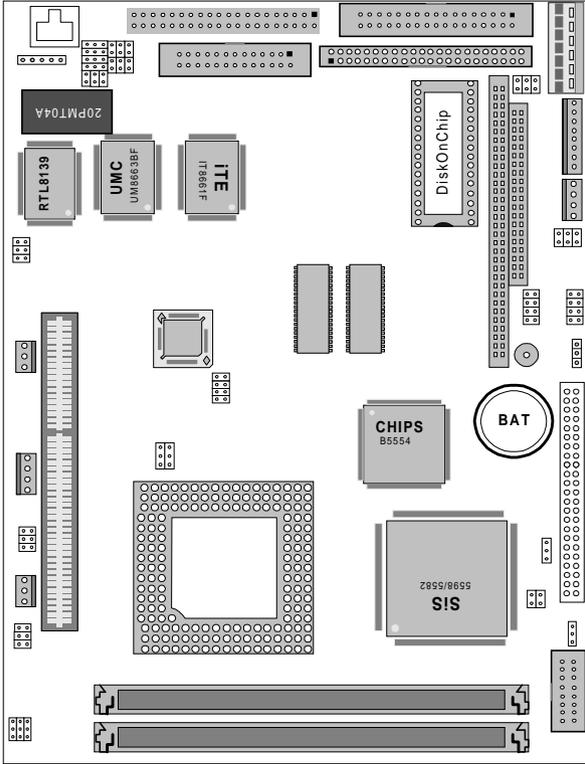
Board dimensions
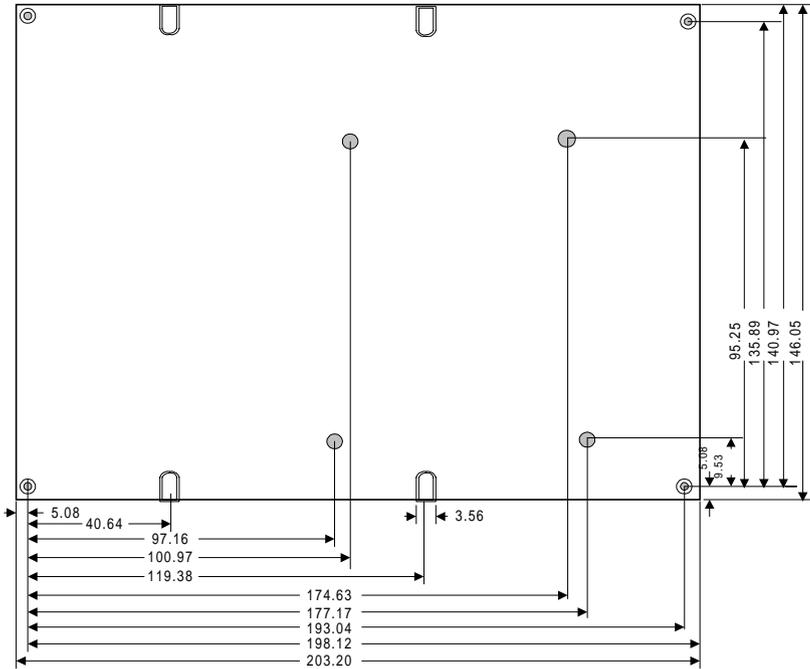
Dimensions in mm

PCM-5894/5892 dimensions

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.

Jumpers and connectors

Connectors on the board link it to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The table below lists the function of each of the board's jumpers and connectors.

Jumpers	
Label	**Function**
J1	Internal VGA setting
J2	System clock setting
J3	LCD driving voltage select
J5	LCD SHF clock setting
J6	LCD ASHF clock setting
J7	Clear CMOS
J8	CPU frequency ratio
J10	CPU type select
J11	LCD driving voltage select
J12	CPU voltage setting
J13	DOC address select
J14	Ethernet transmitting LED
J15	Ethernet receiving LED
J16	Ethernet link signal LED
J17	COM2 selection
J18	COM2 selection
J19	IRQ selection (COM3, COM4)
J20	COM4 RI Pin voltage select
J21	COM3 RI Pin voltage select

Connectors	
Label	**Function**
CN1	VGA display connector
CN2	Fan power connector
CN3	LCD display connector
CN5	USB connector
CN6	Front panel connector
CN8	Auxilliary power connector (+5V, +12V)
CN9	Keyboard and mouse connector
CN10	IrDA connector
CN11	IDE hard drive connector
CN12	Main power connector
CN13	Printer port connector
CN14	Ethernet 100/10Base-T connector
CN15	Serial port (RS-232/422/485) connectors
CN16	Floppy drive connector
CN17	Fan power connector
CN19	Auxilliary power connector (-5V, -12V)
U16	DiskOnChip socket

Locating jumpers
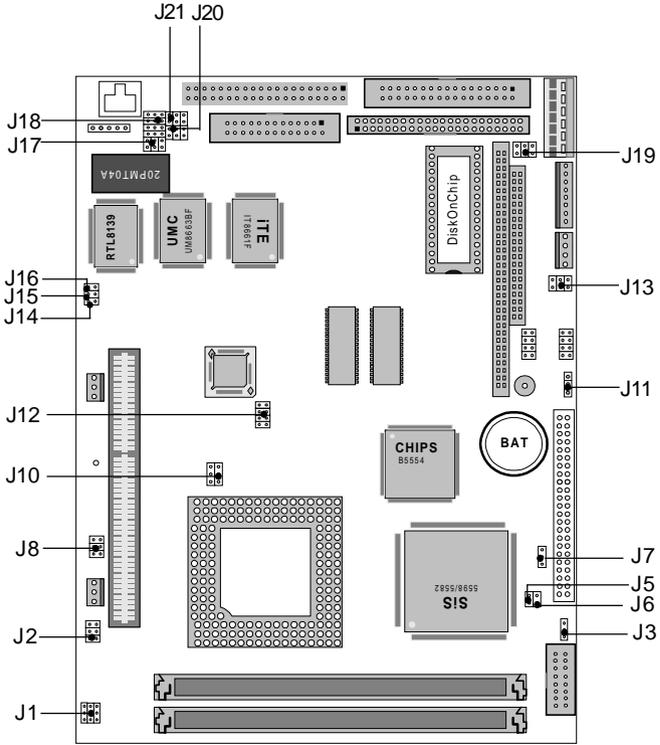
Locating connectors
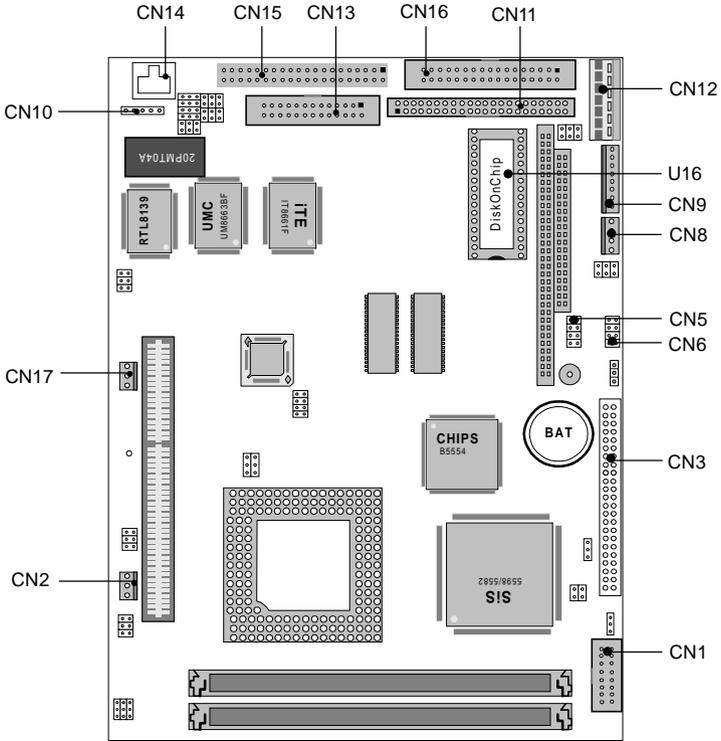
Setting jumpers

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.
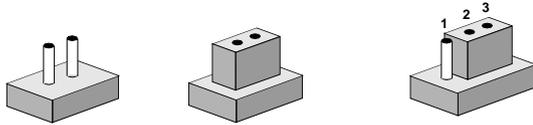
Open   **Closed**   **Closed 2-3**

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.

CPU installing and upgrading

You can upgrade to a more powerful Pentium CPU or compatible at any time. Simply remove the old CPU, install the new one, and set the jumpers for the new CPU type and speed.

Warning! *Always disconnect the power cord from your chassis when you are working on it. Do not make connections while the power is on as 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 PC board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

When you install a new CPU, be sure to adjust the board settings, such as CPU type and CPU clock. **Improper settings may damage the CPU.**

Installing DRAM (SIMMs)

The PCM-5894/5892 provides two 72-pin SIMM (Single In-line Memory Module) sockets. The SIMM supports either Fast Page Mode (FPM) or Extended Data Output (EDO) DRAM with a speed of at least 70 ns. Depending on the combinations of the modules you use, you can install from 4 MB to 128 MB of RAM.

Installing SIMMs

NOTE 1: Pentium or compatible processors adopt 64 bit data bus. Since 72-pin SIMM can only provide 32 bit data bus width, two SIMM modules are required as one memory bank, and both SIMMs must be the same size and type.

1. Ensure that all power sources are disconnected.

2. Slip the memory module into the socket at a 45 degree angle.

3. Push the module toward the vertical posts at both ends of the socket until the module is upright and the retaining clips at both ends of the module click into place. When positioned correctly, the pins on top of the vertical posts should correspond to the circular holes on the ends of the module.

4. Repeat steps 2 and 3 for each module you install.

NOTE 2: Do not insert any SIMM module that contains more than 24 memory chips. SIMMs contain more than 24 chips exceed the driving capability of new generation chipsets.

Internal VGA setting (J1)
(for PCM-5892 chipset only)

This jumpers is reserved for factory use. The PCM-5894 & PCM-5892 use different VGA chipset, this jumper is used to select the relative onboard VGA chipset.

Internal VGA setting (J1)

	PCM-5894(SiS5582)	PCM-5892(SiS5598)
JP1		

System clock setting (J2)

J2 is used to sychronize the system clock with the CPU clock and PCI clock. You may need to adjust the CPU clock according to the base CPU speed.

CPU clock setting

PCI	J2	CPU
27.5MHz	1 3 5 / 2 4 6 (1-2, 3-4, 5-6 closed)	55MHz
32MHz	1 3 5 / 2 4 6 (1,2 open; 3-4, 5-6 closed)	75MHz
33.3MHz	1 3 5 / 2 4 6 (1-2, 3-4 closed; 5,6 open)	50MHz
25MHZ	1 3 5 / 2 4 6 (3-4 closed; others open)	50MHz
30MHz	1 3 5 / 2 4 6 (1-2 closed; others open)	60MHz
33MHz	* 1 3 5 / 2 4 6 (all open)	66MHz
32MHz	1 3 5 / 2 4 6 (1-2, 5-6 closed; 3,4 open)	40MHz

* default setting

LCD driving voltage select (J3 and J11)

You can select the LCD connector CN3 (pin 5 and pin 6) driving voltage by setting J3 and J11. The configuration as follows:

LCD driving voltage select (J3 and J11)

	5V	**3.3V***
J3	●━● ○ 1 2 3	○ ●━● 1 2 3
J11	●━● ○ 1 2 3	○ ●━● 1 2 3

*default

LCD singal select (J5)(J6)

You can select the LCD control signal by setting (J5) & (J6). The following charts show the available option.

LCD Signal select (J5)(J6)

	SHF CLK	**ASHF CLK**
J5	●━●	○ ○
J6	○ ○	●━●

Clear CMOS (J7)

You can use J7 to clear the CMOS data if necessary. To reset the CMOS data, set J7 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed.

Clear CMOS (J7)

Protect (default)	**Clear CMOS**
●━● ○ 1 2 3	○ ●━● 1 2 3

CPU frequency ratio (J8)

J8	P54C	P55C	AMD-K6
1 3 5 ○ ○ ○ / ○ ○ ○ 2 4 6	1.5	3.5	3.5
1 3 5 (1-2) / 2 4 6	2.0	2.0	2.0
1 3 5 (1-2, 3-4) / 2 4 6	2.5	2.5	2.5
1 3 5 (3-4) / 2 4 6	3.0	3.0	3.0 (default setting)
1 3 5 (1-2, 5-6) / 2 4 6			4.0
1 3 5 (1-2, 3-4, 5-6) / 2 4 6			4.5
1 3 5 (5-6) / 2 4 6			5.5
1 3 5 (3-4, 5-6) / 2 4 6			5.0

CPU type select (J10)

J10 must be set to match the CPU type between Dual-Voltage (e.g., P55C) and Single-Voltage (e.g., P54C) type CPU. The chart below shows the proper jumper setting for their respective CPU type.

CPU type select (J10)		
	Dual-Voltage*	**Single-Voltage**
J10	2 4 6 ○ ●—● ○ ●—● 1 3 5	2 4 6 ●—● ○ ●—● ○ 1 3 5

* default setting

CPU voltage setting (J12)

J12 must be set to match the CPU type. The chart below shows the proper jumper settings for the respective V_{cc}.

CPU voltage setting

3.6v	3.5v	3.4v

3.3v	3.2v	3.1v

3.0v	2.9v	2.8v*

2.7v	2.6v	2.5v

2.4v	2.3v	2.2V

2.1v		

*default setting

DOC address selection (J13)

The DiskOnChip 2000 occupies an 8 Kbyte window in the upper memory address range of C800 to E000. You should ensure this does not conflict with any other device's memory address. J13 controls the memory address of the Flash disk.

DiskOnChip 2000 memory address (J13)	
Memory address (HEX)	**J13**
DISABLE	5 ●—● 6 3 ●—● 4 1 ●—● 2
DC00*	5 ●—● 6 3 ○ ○ 4 1 ○ ○ 2
D400	5 ○ ○ 6 3 ●—● 4 1 ○ ○ 2
D000	5 ○ ○ 6 3 ○ ○ 4 1 ●—● 2
CC00	5 ○ ○ 6 3 ○ ○ 4 1 ○ ○ 2
D800	5 ○ ○ 6 3 ●—● 4 1 ●—● 2

* default setting

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

Ethernet LED signal connectors (J14, J15, J16)

The PCM-5894/5892 supports three sets of LED connectors for external LEDs.

Ethernet active signal LED (J14)(J15)

Flashing LEDs indicate that the PCM-5894/5892 is transmitting (J14) or receiving (J15) data.

Ethernet link signal LED (J16)

A continuously lit LED indicates good linkage between the PCM-5894/5892 and its supporting hub.

COM2 RS-232/422/485 select

COM2 Select (J17, J18)

	*RS-232	RS-422	RS-485
J17	* 5 ○ ○ 6 3 ○ ○ 4 1 ▣ 2	5 ○ ○ 6 3 ▣ 4 1 ○ ○ 2	5 ●━● 6 3 ○ ○ 4 1 ○ ○ 2
J18	3 ○ ○ ○ ○ 2 ▮ ▮ ▮ ▮ 1 ▮ ▮ ▮ ▮	3 ▮ ▮ ▮ ▮ 2 ▮ ▮ ▮ ▮ 1 ○ ○ ○ ○	3 ▮ ▮ ▮ ▮ 2 ▮ ▮ ▮ ▮ 1 ○ ○ ○ ○

*default

COM3/COM4 IRQ select

IRQ Selection (J19)

*COM3:IRQ5 and COM4:IRQ10	COM3:IRQ10 and COM4:IRQ5
* 5 ▮ ○ 6 3 ▮ ▮ 4 1 ○ ▮ 2	5 ○ ▮ 6 3 ▮ ▮ 4 1 ▮ ○ 2

* default

COM4/COM3 RI pin voltage select (J20, J21)

COM4 RI pin setting (J20)

	RI*	+5V	+12V
J20	5 ●—● 6 3 ○ ○ 4 1 ○ ○ 2	5 ○ ○ 6 3 ●—● 4 1 ○ ○ 2	5 ○ ○ 6 3 ○ ○ 4 1 ●—● 2

COM3 RI pin setting (J21)

	RI*	+5V	+12V
J21	5 ●—● 6 3 ○ ○ 4 1 ○ ○ 2	5 ○ ○ 6 3 ●—● 4 1 ○ ○ 2	5 ○ ○ 6 3 ○ ○ 4 1 ●—● 2

* default

Display connectors (CN1, CN3)

The mainboard's 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 card has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

VGA display connector (CN1)

CN1 is a 16-pin, dual-in-line header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN1 to a standard 15-pin D-SUB connector commonly used for VGA.

VGA display connector (CN1)

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

When the mainboard's power is applied, the control signal is low until just after the relevant flat panel signals are present.

Configuration of the VGA interface is done completely via the software utility. You don't have to set any jumpers.

LCD connector (CN3)

Pin	Signal	Pin	Signal
1	+12 V$_{DC}$	2	+12 V$_{DC}$
3	GND	4	GND
5	+5 V$_{DC}$	6	+5 V$_{DC}$
7	ENAVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHF CLK	36	FLM (V SYS)
37	M	38	LP (H SYS)
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

USB Connector (CN5)

The PCM-5894/5892 provides two USB (Universal Serial Bus) interfaces, which give complete plug and play, hot affach/detach for up to 127 external devices. The USB interfaces comply with USB specification Rev. 1.0, and can be disabled in the system BIOS setup.

USB connector (CN5)

Pin	Function	Pin	Function
1	Vcc	5	Vcc
2	UD1-	6	UD0-
3	UD1+	7	UD0+
4	GND	8	GND

Front panel connector (CN6)

Next you may want to install external switches to monitor and control the mainboard. These features are completely optional — install them only if you need them. The front panel connector (CN6) is an 8-pin male, dual in-line header and provides connections for a speaker, hard disk access indicator and an input switch for resetting the card.

Front panel connector (CN6)

Pin	Signal
1	HDD LED- (Hard disk active)
2	HDD LED+ (V_{CC})
3	Speaker+
4	Speaker- (GND)
5	GND
6	NC
7	Reset switch- (GND)
8	Reset switch+

Speaker

The mainboard can drive an 8W external speaker at 0.5 watts. If there is no external speaker, the PCM-5894/5892 provides an on-board buzzer as an alternative.

LED interface

The front panel LED indicator for hard disk access is an active low signal (24 mA sink rate).

Power connectors (CN8, CN12, CN2, CN17, and CN19)

Auxilliary power connector (CN8)

CN8 supplies additional power to devices which require +5V and +12V power.

Pin	Function
Auxilliary power connector (CN8)	
Pin	**Function**
1	+12V
2	GND
3	GND
4	+5 V

Main power connector (CN12)

Pin	Signal
Main power connector (CN12)	
Pin	**Signal**
1	GND
2	GND
3	N/C
4	+5 V
5	+5 V
6	+5 V

Fan power connector (CN2 and CN17)

Provides power supply to an optional CPU cooling fan. Only present when +5 V and +12 V power is supplied to the board.

Pin	Signal
Fan power connector (CN2 & CN7)	
Pin	**Signal**
1	+5 V
2	GND
3	+12 V

Auxilliary power connector (CN19)

CN19 supplies additional power to devices which require -5V and -12V power.

Auxilliary power connector (CN19)

Pin	Function
1	GND
2	-5V
3	GND
4	-12V

Keyboard and mouse connector (CN9)

The mainboard 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 "System Keyboard" under the "Present" or "Absent" selection. This allows no-keyboard operation in embedded system applications without the system halting under POST (power-on-self-test).

Keyboard and mouse connector (CN9)

Pin	Signal
1	GND
2	MS V_{CC}
3	MS DATA
4	MS CLOCK
5	GND
6	KB V_{CC}
7	KB DATA
8	KB CLOCK

IDE hard drive connector (CN11)

You can attach one or two 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 advanced interface supports faster data transfer and allows the IDE hard drive to exceed 528 MB.

Connecting the hard drive

Connecting drives is done in a daisy-chain fashion and requires one of two cables, depending on the drive size. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives use a 1 x 44-pin to 2 x 40-pin connect.

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

1. Connect one end of the cable to CN11. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is labeled on the board (on the right side).

2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1on 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 connect to either end of the cable. If you install two drives, you will need to set one as the master and one as the slave by using jumpers on the drives. If you install just one drive, set it as the master.

IDE hard drive connector (CN11)

Pin	Signal	Pin	Signal
IDE hard drive connector (CN11)			
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	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	ALE
29	N/C	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND
41	VCC	42	MVCC
43	GND	44	N/C

Parallel port connector (CN13)

Normally, the parallel port is used to connect the card to a printer. The mainboard includes an onboard parallel port, accessed through CN13, a 26-pin flat-cable connector. You need an adapter cable if you use a traditional DB-25 connector. The cable has a 26-pin connector on one end and a DB-25 connector on the other.

Parallel port IRQ

The mainbaord supports one parallel port. The port is designated as LPT1 and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup.

Parallel port connector table (CN13)

Parallel port connector (CN13)			
Pin	**Signal**	**Pin**	**Signal**
1	/STROBE	2	\AUTOFD
3	DO	4	ERR
5	D1	6	\INIT
7	D2	8	\SLCTINI
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	\ACK	20	GND
21	BUST	22	GND
23	PE	24	GND
25	SLCT	26	N/C

Serial ports (CN15)

The mainboard offers four serial ports: three RS-232 and one RS-232/422/485. These ports allow you to connect them to serial devices (mouse, printers, etc.).

COM 1-4 RS-232/422/485 serial ports (CN15)

COM1, COM2, COM3, COM4 RS-232/422/485 serial port				
PIN	**SIGNAL**		**PIN**	**SIGNAL**
COM1 1	DCDA		2	DSRA
3	RXDA		4	RTSA
5	TXDA		6	CTSA
7	DTRA		8	RIA
9	GND		10	N.C.
COM2 11	DCDB (422TXD-/485DATA-)		12	DSRB
13	RXDB (422TXD+/485DATA+)		14	RTSB
15	TXDB (422RXD+)		16	CTSB
17	DTRB (422RXD-)		18	RIB
19	GND		20	N.C.
COM3 21	DCDC		22	DSRC
23	RXDC		24	RTSC
25	TXDC		26	CTSC
27	DTRC		28	RIC/+5V/+12V
29	GND		30	N.C.
COM4 31	DCDD		32	RSRD
33	RXDD		34	RTSD
35	TXDD		36	CTSD
37	DTRD		38	RID/+5V/+12V
39	GND		40	N.C.

Floppy drive connector (CN16)

You can attach up to two floppy disks 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 is required for a dual-drive system. On 1 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).

Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN16. Make sure that the red 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.

Floppy drive connector (CN16)

Floppy drive connector (CN16)

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX
9	GND	10	MOTOR 0
11	GND	12	DRIVE SELECT 1
13	GND	14	DRIVE SELECT 2
15	GND	16	MOTOR 1
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 DELECT
33	GND	34	DISK CHANGE

DiskOnChip socket (U16)

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 72MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the TrueFFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.
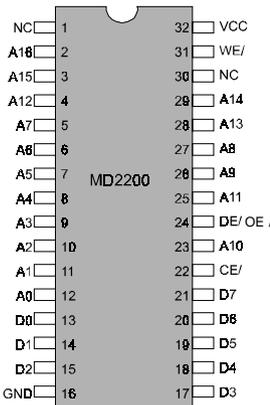
pin Name	Description	Pin Number	Direction	Note
A0-A12	Address bus	4-12,23,25-27	Inputs	
A13-A16	Address bus	2,3,28,29	Inputs	1
D0-D7	Data bus	13-15,17-21	I/O	
CE/	Chip Enable	22	Input	
OE/	Output Enable	24	Input	
WE/	Write Enable	31	Input	
NC	Not connected	1.30		2
VCC	Power	32		
GND	Ground	16		

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 <DEL> 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.

CPU jumper setting example

CPU	Internal Clock	J2 Clock	J8 Ratio	J10 Dual/single-Voltage	J12 Vcore
Intel Pentium P54C(75)	75MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(90)	91MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(100)	100MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(120)	120MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(133)	133MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(150)	150MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(166)	166MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Intel Pentium P54C(200)	200MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1

CPU jumper setting example

CPU	Internal Clock	J2 Clock	J8 Ratio	J10 Dual/single-Voltage	J12 Vcore
Intel Pentium P55C PP/MT (150)	150MHz				
Intel Pentium P55C PP/MT (166)	166MHz				
Intel Pentium P55C PP/MT (200)	200MHz				
Intel Pentium P55C PP/MT (233)	233MHz				

CPU jumper setting example

CPU	Internal Clock	J2 Clock	J8 Ratio	J10 Dual/single-Voltage	J12 Vcore
Cyrix MX-PR-166	133MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix MX-PR166	150MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix MX-PR200	150MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix M2-PR200	166MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix M2-PR233	188MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix M2-PR233	200MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix M2-PR266	225MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
Cyrix M2-PR266	233MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1

CPU jumper setting example

CPU	Internal Clock	J2 Clock	J8 Ratio	J10 Dual/single-Voltage	J12 Vcore
AMD K5 PR75	75MHz				
AMD K5 PR90	90MHz				
AMD K5 PR100	100MHz				
AMD K5 PR120	90MHz				
AMD K5 PR133	100MHz				

CPU jumper setting example

CPU	Internal Clock	J2 Clock	J8 Ratio	J10 Dual/single-Voltage	J12 Vcore
AMD K6 PR2-166	166MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
AMD K6 PR2-200	200MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
AMD K6 PR2-233	233MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
AMD K6 PR2-266	266MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1
AMD K6 PR2-300	233MHz	1 3 5 / 2 4 6	1 3 5 / 2 4 6	2 4 6 / 1 3 5	8 6 4 2 / 7 5 3 1

Award BIOS Setup

This chapter describes how to configure the BIOS for the PCM-5894/5892.

System test and initialization

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

```
press <F1> to RESUME
```

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

System configuration verification

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

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

1. You are starting your system for the first time.

2. You have changed the hardware attached to your system.

3. The CMOS memory has lost power and the configuration information has been erased.

The PCM-5894/5892's CMOS memory has a lithium battery backup.

Award BIOS setup

Entering setup

Power on the computer and press <DEL> immediately. This will allow you to enter the utility and the utility screen should appear (below).

```
ROM PCI/ISA BIOS (2A5IIAK9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          INTEGRATED PERIPHERALS

BIOS FEATURES SETUP          SUPERVISER PASSWORD

CHIPSET FEATURES SETUP       USER PASSWORD

POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION        HDD LOW LEVEL FORMAT

LOAD BIOS DEFAULTS           SAVE & EXIT SETUP

LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING

    ESC: Quit                ↑↓→←: Select Item

    F10:Save & Exit Setup    (Shift)F2:Change Color

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

Setup Utility Initial Screen

Award's BIOS ROM has a built-in setup utility that allows users to modify the basic system configuration. This type of information is stored in a battery-backed CMOS RAM so that the information is retained when the power is turned off.

Many fields in the setup screens have on-line help descriptions available: press F1 to access this help.

Standard CMOS setup

When you choose the STANDARD CMOS SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. 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.

```
ROM PCI/ISA BIOS (2A5IIAK9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          INTEGRATED PERIPHERALS

BIOS FEATURES SETUP          SUPERVISER PASSWORD

CHIPSET FEATURES SETUP       USER PASSSWORD

POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION        HDD LOW LEVEL FORMAT

LOAD BIOS DEFAULTS           SAVE & EXIT SETUP

LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING

ESC: Quit                    ↑↓→←: Select Item

F10:Save & Exit Setup        (Shift)F2:Change Color

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

CMOS setup screen

```
    R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
          S T A N D A R D   C M O S   S E T U P
          A W A R D   S O F T W A R E ,   I N C .


Date (mm:dd:yy) : Fri, April 16, 1998
Time (hh:mm:ss) : 8:20:23

HARD DISKS            CYLS    HEAD    PRECOMP   LANDZ   SECTOR   MODE

Drive C: Auto (0b)      :    0      0       0        0       0     AUTO
Drive D: Auto (0b)      :    0      0       0        0       0     AUTO


Drive A : 1.44M, 3.5 in.          Base Memory        :  640K
Drive B : None                 Extended Memory       :  27648K
LCD & CRT : Both                  Other Memory        :  384K
Panel : 640x480 18BIT TFT         Total Memory        :  28672K

  ESC: Quit          ↑↓→← :Select Item        PU/PD/+/-:Modify
  F1:Help            (Shift)F2:Change Color
```

Date and Time Configuration

Select the Date and Time in the Standard setup. The current values for each category are displayed. Enter new values through the keyboard.

Floppy A, Floppy B

Select these icons to configure the type of floppy drive that is attached to the system: 360 KB 5 1/4", 1.2 MB 5 1/4", 720 KB 3 1/2", 1.44 MB 3 1/2", and/or 2.88 MB 3 1/2". The settings have not been pre-installed.

LCD & CRT

In the display selection item, you can use PageUp/PageDown key to select Both , LCD, CRT or Auto.

Pannel:

This selection item allow user to select LCD BIOS to match the LCD types. There are eight LCD types available for users to select as their LCD display modes as below:

Brand name	Model name	Format	PCM-5894	PCM-5892
Sharp	LX 15X80	1024 x 768 DSTN	Yes	Yes
Sharp	LM 64183P	640 x 480 MONO	Yes	Yes
Sharp	LM 64C35P	640 x 480 DSTN	Yes	Yes
Sharp	LM 12S40	800 x 600 DSTN	Yes	Yes
NEC	NL 6448AC33-10	640 x 480 TFT (12 bits)	Yes	Yes
Toshiba	LTM 10C209A	640 x 480 (18 bits)TFT	Yes	Yes
NEC	NL 8060AC26-04	800 x 600 TFT	Yes	Yes
Sharp	14x03	1024x768 TFT (36 bits)	Yes	Yes

BIOS features setup

By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

```
ROM PCI/ISA BIOS (2A5IIAK9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP            INTEGRATED PERIPHERALS

BIOS FEATURES SETUP            SUPERVISER PASSWORD

CHIPSET FEATURES SETUP         USER PASSSWORD

POWER MANAGEMENT SETUP         IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION          HDD LOW LEVEL FORMAT

LOAD BIOS DEFAULTS             SAVE & EXIT SETUP

LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING


ESC: Quit                      ↑↓→←: Select Item

F10:Save & Exit Setup          (Shift)F2:Change Color

Virus Protection, Boot Sequence ....
```

```
          R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                B I O S   F E A T U R E S   S E T U P
               A W A R D   S O F T W A R E ,   I N C .

 Virus  Warning           : Enabled      Video BIOS Shadow        : Enbaled
 CPU  Internal  Cache     : Enabled      C8000-CBFFF   Shadow     : Disabled
 External  Cache          : Enabled      CC000-CFFFF  Shadow      : Disabled
 Quick Power On Self Test : Disabled     D0000-D3FFF  Shadow      : Disabled
 Boot  Sequence           : C, A         D4000-D7FFF  Shadow      : Disabled
 Swap  Floppy  Drive      : Disabled     D8000-DBFFF  Shadow      : Disabled
 Boot Up Floppy Seek      : Enabled      DC000-DFFFF  Shadow      : Disabled
 Boot Up NumLock Status   : On
 Boot  Up  System  Speed  : High
 Gate A20 Option          : Fast
 Memory  Parity  Check    : Enabled     Esc:Quit         ↑↓→←: Select Item
 Security  Option         : Setup       F1 : Help        PU/PD/+/- : Modify
                                        F5 : Old Values  (Shift)F2 : Color
                                        F6 : Load  BIOS  Defaults
                                        F7 : Load  Setup  Defaults
```

BIOS features setup

Virus Warning

When this item is enabled, the Award BIOS will monitor the boot
sector and partition table of the hard disk drive for any modification
attempts. If an attempt is made, the BIOS will halt the system and
the following error message will appear. Afterwards, you can run
an anti-virus program to locate and remove the problem before any
damage is done.

```
                     ! WARNING !

            Disk boot sector is to be modified

        Type "Y" to accept write or "N" to abort write

                  Award Software, Inc.
```

CPU Internal Cache/External Cache
These two categories, if enabled, can speed up memory access. However, it depends on the CPU/chipset design.

Quick Power On Self Test
This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to *Enabled*, BIOS will shorten or skip some check items during POST.

Boot Sequence
This category determines which drive to search first for the operating system.

Swap Floppy Drive
This item allows you to swap the floppy drive assignments so that drive A is treated as drive B and drive B is treated as drive A under DOS. The default setting is *Disabled*.

Boot Up Floppy Seek
During POST, the BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360KB type is 40 tracks while 760KB, 1.2MB, and 1.44MB are all 80 tracks.

Boot Up NumLock Status
This allows you to determine the default state of the numeric keypad on an IBM-compatible extended keyboard.

Boot Up System Speed
This allows you to determine the Boot Up Speed. The choices are *High/Low*.

Gate A20 Option
This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 MB. Initially, gate A20 was handled via a pin on the keyboard. Today keyboards still provide this support, however it is more common and much faster for the system chipset to provide support for gate A20. The choices are thus: *Normal* and *Fast.*

Security Option
This category allows you to limit access to the system. The choices are *System*: which requires a password at boot up and *Setup*: which only requires a password to access the setup utility.

Video BIOS Shadow
Determines whether the video display card BIOS will be copied into system DRAM in order to increase display speed and is required for system performance. However, it is optional depending on the chipset design. The default setting is *Enabled.*

Shadowing Address Ranges
The next six lines, from C8000-CBFFF Shadow to DC000-DFFFF Shadow are address ranges for shadowing other expansion card ROMs. If there are any expansion cards with ROMs installed in your system, you have to know the address range they use in order to shadow them specifically. The default setting for all of these is *Disabled*.

CHIPSET features setup

By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

```
                  ROM PCI/ISA BIOS (2A5IIAK9)
                     CMOS SETUP UTILITY
                    AWARD SOFTWARE, INC.

   STANDARD CMOS SETUP              INTEGRATED PERIPHERALS

   BIOS FEATURES SETUP             SUPERVISER PASSWORD

   CHIPSET FEATURES SETUP          USER PASSSWORD

   POWER MANAGEMENT SETUP          IDE HDD AUTO DETECTION

   PNP/PCI CONFIGURATION           HDD LOW LEVEL FORMAT

   LOAD BIOS DEFAULTS              SAVE & EXIT SETUP

   LOAD SETUP DEFAULTS             EXIT WITHOUT SAVING

   ESC: Quit                  ↑↓→←:  Select Item

   F10:Save & Exit Setup      (Shift)F2:Change Color

                AT clock, DRAM timings ....
```

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Because of the complexity and technical nature of some of the options, not all of the options are described here.

```
ROM PCI/ISA BIOS (2A5IIAK9)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration        : Enabled    System BIOS Cacheable    : Enabled
                                       Video BIOS Cacheable     : Enabled
L2 (WB) Tag Bit Length    : 8bits      Memory Hole at 15M-16M   : Disabled
SRAM Back-to-BACK         : Disabled
NA# Enable                : Disabled   Boot ROM Function        : Disabled
Starting Point of Paging  : 1T
Refresh Cycle Time (us)   : 187.2
RAS Pulse Width Refresh   : 6T
RAS Precharge Time        : 4T
RAS to CAS Delay          : 4T
CAS# Pulse Width (FP)     : 2T
CAS# Pulse Width (EDO)    : 1T
RAMW# Assertion Timing    : 3T
CAS Precharge Time (FP)   : 1T/2T
CAS Precharge Time (EDO)  : 1T/2T
Enhanced Memory Write     : Disabled   Esc:Quit          ↑↓→←: Select Item
Read Prefetch Memory RD   : Disabled   F1 : Help         PU/PD/+/- : Modify
CPU to PCI Post Write     : 3T         F5 : Old Values   (Shift)F2 : Color
CPU to PCI Burst Mem.WR:  Disabled     F6 : Load BIOS Defaults
ISA Bus Clock Frequency   : PCICLK/4   F7 : Load Setup Defaults
```

CHIPSET features setup

Auto Configuration
Set this item to *Enabled* to pre-defined values for DRAM, cache
timing according to CPU type & system clock. Thus, each item
value may display differently depending on your system configura-
tions.

When this item is enabled, the pre-defined items will become
SHOW-ONLY.

NA# Enable

This item allows you to select between two methods of chipset NA# asserted during CPU write cycle/CPU line fills, Enabled and Disabled.

RAS Precharge Time

DRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for the Row Address Strobe to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

RAS to CAS Delay

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from Row Address Strobe (RAS) to Column Address Strobe (CAS).

CPU to PCI Post Write

Set this option to Enabled to give priority to posted messages from the CPU to PCI bus.

CPU to PCI Burst Men_WR

Set this option to Enabled to allow write instructions to be combined in PCI burst mode. The settings are Enabled or Disabled.

ISA Bus Clock Frequency

This item allows you to select the ISA bus clock PCICLK/3 OR PCICLK/4.

System BIOS Cacheable

When enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled.

Video BIOS Cacheable

As with caching the System BIOS above, enabling the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled.

Memory Hole at 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. The memory must be mapped into the memory space below 16 MB.

Boot ROM Function

This item allows you to set the Enabled or Disabled Ethernet Boot ROM function.

Power management setup

By choosing the POWER MANAGEMENT SETUP option from the initial SETUP SCREEN menu. The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

```
┌─────────────────────────────────────────────────────────────┐
│           R O M  P C I / I S A  B I O S  ( 2 A 5 I I A K 9 )  │
│                  C M O S  S E T U P  U T I L I T Y           │
│               A W A R D  S O F T W A R E ,  I N C .          │
├─────────────────────────────────────────────────────────────┤
│                                                             │
│  STANDARD CMOS SETUP          INTEGRATED PERIPHERALS        │
│                                                             │
│  BIOS FEATURES SETUP          SUPERVISER PASSWORD           │
│                                                             │
│  CHIPSET FEATURES SETUP       USER PASSSWORD                │
│                                                             │
│  POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION        │
│                                                             │
│  PNP/PCI CONFIGURATION        HDD LOW LEVEL FORMAT          │
│                                                             │
│  LOAD BIOS DEFAULTS           SAVE & EXIT SETUP             │
│                                                             │
│  LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING           │
│                                                             │
├─────────────────────────────────────────────────────────────┤
│    ESC: Quit                  ↑↓→←:  Select Item           │
│                                                             │
│    F10:Save & Exit Setup      (Shift)F2:Change Color        │
├─────────────────────────────────────────────────────────────┤
│              Sleep timer, Suspend timer ....                │
└─────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────────────┐
│           R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )   │
│              P O W E R   M A N A G E M E N T   S E T U P          │
│                 A W A R D   S O F T W A R E ,   I N C .           │
├─────────────────────────────────┬───────────────────────────────┤
│ Power Management    : Disable    │ IRQ3  (COM 2)       :Enabled   │
│ PM Control by APM   : Yes        │ IRQ4  (COM 1)       :Enabled   │
│ Video Off Option    : Always on  │ IRQ5  (LPT 2)       :Enabled   │
│ Video Off Method    : DPMS Supported │ IRQ6 (Floppy Disk) :Enabled│
│ Doze Speed (div by) : 2          │ IRQ7  (LPT 1)       :Enabled   │
│ Stdby  Speed (div by) : 3        │ IRQ8  (RTC Alarm)   :Disabled  │
│ MODEM Use IRQ       : 3          │ IRQ9  (IRQ2 Redir)  :Enabled   │
│ Hot Key SMI         :Disabled    │ IRQ10 (Reserved)    :Enabled   │
│                                  │ IRQ11 (Reserved)    :Enabled   │
│          **PM Timers**           │ IRQ12 (PS/2 Mouse)  :Enabled   │
│ HDD Off After       :Disable     │ IRQ13 (Coprocessor) :Enabled   │
│ Doze Mode           :Disable     │ IRQ14 (Hard Disk)   :Enabled   │
│ Standby Mode        :Disable     │ IRQ15 (Reserved)    :Enabled   │
│ Suspend Mode        :Disable     ├───────────────────────────────┤
│                                  │ Esc:Quit        ↑↓→←: Select Item │
│          **PM Events**           │ F1 : Help       PU/PD/+/-: Modify │
│ COM Ports Activity  :Enabled     │ F5 : Old Values  (Shift)F2 : Color│
│ LPT Ports Activity  :Enabled     │ F6 : Load BIOS Defaults        │
│ HDD Ports Activity  :Enabled     │ F7 : Load Setup Defaults       │
│ VGA Activity        :Disabled    │                               │
└─────────────────────────────────┴───────────────────────────────┘
```

Power Management

Power management lets you set up your computer to save electricity when it is not actively in use by putting the system into progressively greater power saving modes. In the power management scheme there are four system states which proceed in the following sequence:

Normal → *Doze* → *Standby* → *Suspend*

There are four selections for Power Management (PM):

Disabled	Turns off PM
Max Saving	Maximized power saving by activating maximum power saving settings after one minute of system inactivity.
Min Saving	Produces less power saving by activating moderate power saving settings after one hour of system inactivity.
User Defined	You set the power saving options manually.

With the exception of *Disabled*, three of the above selections have "fixed-mode" settings. Therefore, when PM is set to *Disabled*, some items which are predefined will become unmodifiable.

PM Control by APM
When this is set to *Yes*, the Advanced Power Management feature in Microsoft Windows controls power management operation. The default setting is *No.*

Video Off Option
User can select 4 different modes for turning off the video. The modes are a function of the PM mode of the computer. The choices are *All Modes→Off*, *Always On*, *Suspend→Off*, and *Susp, Stby→Off.*

The table below summarizes the behavior of the monitor in relation to the four PM modes.

PM Mode	Monitor Behavior
All Modes	*Off*
-	*Always On*
Suspend	*Off*
Susp, Stby	*Off*

For example, if you choose *Suspend→Off,* then the monitor will turn off if the computer is in the *Suspend* PM mode.

Video Off Method

This governs monitor power saving by controlling how power
management blanks the monitor screen. The default setting blanks
the screen and turns off vertical and horizontal scanning and
requires a monitor with "green" features. If you don't have this
type of monitor, use the *Blank* option. DPMS (Display Power
Management System) allows the BIOS to control the video display
card if the card has the DPMS feature.

V/H SYNC+Blank	(Default)
BLANK	(non-green monitor, less saving)
DPMS	(Display card must support DPMS)

Modem Use IRQ

If you have a modem installed in your system, you can enter which
IRQ it is using so that APM can control it.

Hot Key SMI

This allows the user to use the <CTL-ALT-BACK SPACE> hot key
to enter the Suspend mode. Press any key to wake up the comput-
er. The default setting is *Disabled*.

HDD Off After

When enabled and after the selected time of system inactivity, the hard disk drive will be powered down while all other devices will remain active.

Doze Mode

This sets the period of system inactivity after which the system goes into *Doze* mode, the most limited power saving state. The settings range from 20 seconds to 40 minutes and can be set manually when power management is in *User Define* mode. The default setting is *Disabled*. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

Standby Mode

This sets the period of system inactivity after which the system goes into *Standby* mode, the intermediate power saving state. The settings range from 20 seconds to 40 minutes and can be set manually when power management is in *User Define* mode. The default setting is *Disabled*. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

Suspend Mode

This sets the period of system inactivity after which the system goes into *Suspend* mode, the maximum power saving state. The settings range from 20 seconds to 40 minutes and can be set manually when power management is in *User Define* mode. The default setting is *Disabled*. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

PM 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.

When an I/O device wants to gain the attention of the operating
system, it signals this by causing an IRQ (Interrupt ReQuest) to
occur. When the operating system is ready to respond to the
request, it interrupts itself and performs the service. The following
is a list of IRQs, which can be disabled:

- COM Ports Activity
- LPT Ports Activity
- HDD Ports Activity
- VGA Activity
- IRQ3 (COM 2)
- IRQ4 (COM 1)
- IRQ5 (LPT 2)
- IRQ6 (Floppy Disk)
- IRQ7 (LPT 1)
- IRQ8 (RTC Alarm)
- IRQ9 (IRQ2 Redir)
- IRQ10 (Reserved)
- IRQ11 (Reserved)
- IRQ12 (PS/2 Mouse)
- IRQ13 (Coprocessor)
- IRQ14 (Hard Disk)
- IRQ15 (Reserved)

PNP/PCI configuration setup

By choosing the PNP/PCI CONFIGURATION SETUP option from the initial SETUP SCREEN menu, the screen below is displayed. The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

```
        R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                    C M O S   S E T U P   U T I L I T Y
                  A W A R D   S O F T W A R E ,   I N C .

    STANDARD CMOS SETUP            INTEGRATED PERIPHERALS

    BIOS FEATURES SETUP            SUPERVISER PASSWORD

    CHIPSET FEATURES SETUP         USER PASSSWORD

    POWER MANAGEMENT SETUP         IDE HDD AUTO DETECTION

    PNP/PCI CONFIGURATION          HDD LOW LEVEL FORMAT

    LOAD BIOS DEFAULTS             SAVE & EXIT SETUP

    LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING


        ESC: Quit              ↑↓→←:  Select Item

        F10:Save & Exit Setup      (Shift)F2:Change Color

              TIRQ Setting, Latency Timers ....
```

```
                ROM PCI/ISA BIOS (2A5IIAK9)
                   PCI CONFIGURATION SETUP
                    AWARD SOFTWARE, INC.

 PnP BIOS Auto-Config   : Disabled
 1st Available IRQ      : NA
 2nd Available IRQ      : NA
 3rd Available IRQ      : NA
 4th Available IRQ      : NA
 PCI IRQ Actived By     : Edge
 PCI IDE IRQ Map To     : PCI-AUTO
  Primary   IDE INT#    : A


                                    ESC : Quit        ↑↓→← : Select Item
                                    F1  : Help         PU/PD/+/- : Modify
                                    F5  : Old Values   (Shift)F2 : Color
                                    F6  : Load BIOS  Defaults
                                    F7  : Load Setup Defaults
```
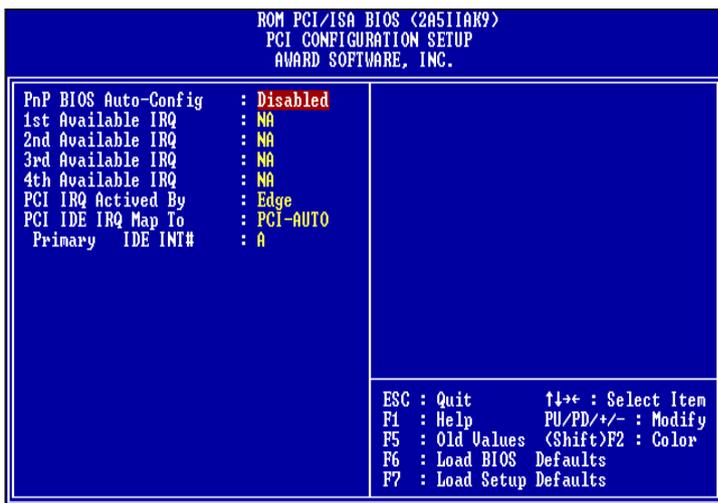
PNP/PCI Configuration setup

This section describes configuring the Peripheral Component
Interconnect (PCI) bus system which allows I/O devices to operate
at speeds nearing the speed of the CPU when communicating with
its own special components. This section covers some very
technical items and it is strongly recommended that only experi-
enced users make any changes to the default settings.

PnP BIOS Auto-Config
The Award Plug and Play BIOS has the capacity to automatically
configure all of the boot and Plug and Play compatible devices.

However, this will only work if you are running a Plug and Play operating system such as Windows™ 95.

1st/2nd/3rd/4th Available IRQ
These items allow you to determine the IRQ assigned to the PCI slots.

PCI IRQ Activated By
This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised by your system manufacturer. The choices are *Level/Edge*.

PCI IDE IRQ Map To
This allows you to configure your system to the type of IDE disk controller in use. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B, C, D) is associated with the connected hard drives.

This setting refers to the hard disk drive itself, rather than individual partitions.

Selecting *PCI Auto* allows the system to automatically determine how your IDE disk system is configured.

Primary IDE INT#
Refer to the above discription of PCI IDE IRQ.

Load BIOS defaults/Load setup defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. The BIOS DEFAULTS provides the most stable settings, though they do not provide optimal performance. LOAD SETUP DEFAULTS, on the other hand, provides for maximum system performance. If the stored record created by the setup utility becomes corrupted (and therefore unusable), BIOS defaults will load automatically when you turn the PCM-5894/5892 on.

```
          ROM PCI/ISA BIOS (2A5IIAK9)
              CMOS SETUP UTILITY
            AWARD SOFTWARE, INC.

  STANDARD CMOS SETUP           INTEGRATED PERIPHERALS

  BIOS FEATURES SETUP           SUPERVISER PASSWORD

  CHIPSET FEATURES SETUP        USER PASSSWORD

  POWER MANAGEMENT SETUP        IDE HDD AUTO DETECTION

  PNP/PCI CONFIGURATION         HDD LOW LEVEL FORMAT

  LOAD BIOS DEFAULTS            SAVE & EXIT SETUP

  LOAD SETUP DEFAULTS           EXIT WITHOUT SAVING

    ESC: Quit              ↑↓→←: Select Item

    F10:Save & Exit Setup   (Shift)F2:Change Color

       Load BIOS Defaults except Standard CMOS SETUP
```

Integrated peripherals setup

```
ROM PCI/ISA BIOS (2A5IIAK9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISER PASSWORD
CHIPSET FEATURES SETUP	USER PASSSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC: Quit	↑↓→←: Select Item
F10:Save & Exit Setup	(Shift)F2:Change Color

Onboard I.O, IRQ, DMA Assignment ....

Integrated Peripherals Setup

Internal PCI/IDE
You can choose *Disable* to terminate the onboard PCI/IDE controller and then support external HDD devices. When the setting is *Primary*, users can setup IDE Mode or UltraDMA mode depending on the HDD device.

```
┌──────────────────────────────────────────────────────────────┐
│           R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )     │
│           P N P / P C I   C O N F I G U R A T I O N   S E T U P     │
│                A W A R D   S O F T W A R E ,   I N C .             │
└──────────────────────────────────────────────────────────────┘

┌────────────────────────────────────┬──────────────────────────────┐
│ Internal PCI/IDE        : Primary   │ Parallel Port Mode     : IRQ7  │
│ IDE Primary Master PIO  : Auto      │ Parallel Port Mode     : SPP   │
│ IDE Primary Slave PIO   : Auto      │                                │
│ Primary Master Ultra DMA : Auto     │ PS/2 mouse function    : Enabled│
│ Primary Slave Ultra DMA  : Auto     │ USB Controller         : Enabled│
│ IDE Burst Mode          : Disabled  │ USB Keyboard Support   : Disabled│
│ IDE Data Port Post Write : Enabled  │                                │
│ IDE HDD Block Mode      : Enabled   │                                │
│                                     │                                │
│ Onboard Serial Port 1   : 3F8H      │                                │
│ Serial Port 1 Use IRQ   : IRQ4      │                                │
│ Onboard Serial Port2    : 2F8H      ├──────────────────────────────┤
│ Serial Port 2 Use IRQ   : IRQ3      │ Esc:Quit        ↑↓→← : Select Item│
│ IR Address Select       : Disable   │ F1 : Help      PU/PD/+/-: Modify│
│ Onboard Serial Port 3   : 3E8H      │ F5 : Old Values  (Shift)F2 : Color│
│ Onboard Serial Port 4   : 2E8H      │ F6 : Load BIOS Defaults         │
│ Onboard Parallel Port   : 378       │ F7 : Load Setup Defaults        │
└────────────────────────────────────┴──────────────────────────────┘
```

IDE Primary/Master/Slave PIO

This sets the hard disk PIO transfer mode, which affects the hard
disk data transfer rate. The system will auto-detect the PIO mode
of a device in any of these positions when they are set to *Auto*, the
recommended setting. Alternatively, you can set the mode
manually. Modes 0 to 2 are supported.

Primary/Master/Slave UltraDMA

This sets the transfer mode of the UltraDMA hard disk, which
requires a drive that supports this data transfer method. The
system will auto-detect an UltraDMA device in any of these two
positions when they are set to *Auto* without effect if there are no
UltraDMA devices installed.

IDE Burst Mode

When this item is *Enabled*, the system will support burst data
transfer mode to increase HDD transfer speed.

IDE Data Port Post Write
This item allows users to select *Enabled* to use data port post write for IDE drive.

IDE HDD Block Mode
Set this item to *Enable* to use HDD block transfer mode.

Onboard FDD Controller
Enables or *Disables* the onboard Floppy Drive controllers.

Onboard Serial Port 1 & 2 & 3 & 4
You can set the I/O address for serial ports 1/2. The system will auto-detect the COM port address when this item set to *Auto*.

3F8/IRQ4 (default for port 1)
2F8/IRQ3 (default for port 2)
3E8/IRQ4 (default for port 3)
2E8/IRQ3 (default for port 4)

IR Address Select
The address of the IR port can be changed from *Disabled, 2E8H, 3E8H, 2F8H,* to *3F8H*.

IR Mode
The IR mode can be either set to *HPSIR* or *ASKSIR*.

IR IRQ Select
The user can manually set the IRQ of the IR port.

Onboard Parallel Port

Sets the I/O address for the onboard parallel port. The setting options are:

378/IRQ7 (default)
Disabled
278/IRQ5
3BC/IRQ7

Parallel Port Mode

Selects the parallel port mode. The setting options are:

SPP
ECP+EPP
EPP
ECP

If you set this option to *SPP* or *EPP*, the "ECP Mode Use DMA" option will not appear on the screen. If you set this option to *SPP* or *ECP*, the "Parallel Port EPP Type" option will not appear on the screen.PS/2 Mouse Function

The user can disable the PS/2 Mouse if desired.

USB Controller/Keyboard Support

Enable or *Disable* the onboard USB port controller, as well as USB Keyboard support.

Supervisor/User password setting

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

```
ROM PCI/ISA BIOS (2A5IIAK9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP           INTEGRATED PERIPHERALS

BIOS FEATURES SETUP           SUPERVISER PASSWORD

CHIPSET FEATURES SETUP        USER PASSSWORD

POWER MANAGEMENT SETUP        IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION         HDD LOW LEVEL FORMAT

LOAD BIOS DEFAULTS            SAVE & EXIT SETUP

LOAD SETUP DEFAULTS           EXIT WITHOUT SAVING

ESC: Quit                     ↑↓→←: Select Item

F10:Save & Exit Setup         (Shift)F2:Change Color

Change / Set / Disable Password
```

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters in length, and press <ENTER>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <ENTER>. You may also press <ESC> to abort the selection and not enter a password.

```
        ROM PCI/ISA BIOS (2A5IIAK9)
           CMOS SETUP UTILITY
         AWARD SOFTWARE, INC.

   STANDARD CMOS SETUP          INTEGRATED PERIPHERALS

   BIOS FEATURES SETUP          SUPERVISER PASSWORD

   CHIPSET FEATURES SETUP       USER PASSSWORD

   POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION

   PNP/PCI CONFI  Enter Password:        FORMAT

   LOAD BIOS DEFAULTS           SAVE & EXIT SETUP

   LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING

       ESC: Quit              ↑↓→←: Select Item
 F10:Save & Exit Setup        (Shift)F2:Change Color

            Change / Set / disable Password ....
```

When a password has been enabled, you will be prompted to enter it every time you try to enter the setup utility. This prevents unauthorized use of the utility on your computer.

To disable a password, just press <ENTER> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter the utility freely.

IDE HDD Auto Detection

The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system. You can use it to self-detect and/or correct the hard disk type configuration. You need to repeat the setup for each of the IDE combinations:

```
          R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                    C M O S   S E T U P   U T I L I T Y
              A W A R D   S O F T W A R E ,   I N C .


   STANDARD CMOS SETUP            INTEGRATED PERIPHERALS

   BIOS FEATURES SETUP            SUPERVISER PASSWORD

   CHIPSET FEATURES SETUP         USER PASSSWORD

   POWER MANAGEMENT SETUP         IDE HDD AUTO DETECTION

   PNP/PCI CONFIGURATION          HDD LOW LEVEL FORMAT

   LOAD BIOS DEFAULTS             SAVE & EXIT SETUP

   LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING


   ESC: Quit                    ↑↓→←:  Select Item

   F10:Save & Exit Setup        (Shift)F2:Change Color

       Auto-Configure HDD : Sector, Cylinder, Head....
```

```
          R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                    C M O S   S E T U P   U T I L I T Y
              A W A R D   S O F T W A R E ,   I N C .


Hard Disks      SIZE   CYLS.   HEAD   PRECOMP   LANDZ   SECTOR   MODE
 Drive  C:  ( Mb)

          Select Drive C Option (N=Skip) : N
OPTIONS       SIZE  CYLS  HEAD   PRECOMP  LANDZ  SECTOR  MODE
        1(Y)   0     0     0        0       0       0   Normal

                     ESC = SKIP
    Some OS (like SCO-UNIX) must use "NORMAL" for installation
                     ESC : Skip
```

IDE HDD Auto Detection Screen

HDD low level format utility

```
         R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                  C M O S   S E T U P   U T I L I T Y
                  A W A R D   S O F T W A R E ,   I N C .
```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISER PASSWORD
CHIPSET FEATURES SETUP	USER PASSSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC: Quit	↑↓→←: Select Item
F10:Save & Exit Setup	(Shift)F2:Change Color

Hard Disk Low level format Utility ....

Selecting this utility allows you to execute HDD low level formatting. This low level format utility is designed as a tool to save your time formatting your hard disk. The utility automatically looks for the necessary information of the drive you selected. The utility also searches for bad tracks and lists them for your reference.

Shown below is the menu appears after you enter into the utility.

HARD DISK INSTALL FAILURE

PRESS ANY KEY TO CONTINUE

	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTOR	MODE
Drive C : (ob)	0	0	0	0	0	0	AUTO
Drive D : (ob)	0	0	0	0	0	0	AUTO
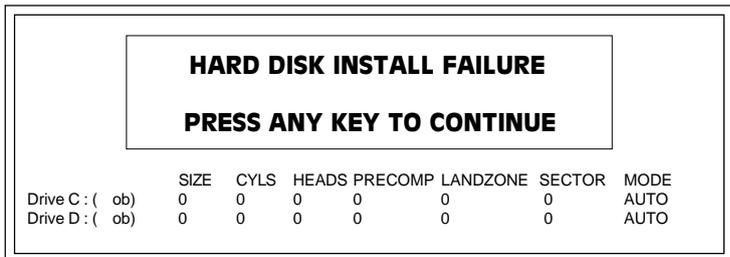
Save & exit setup

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

```
        ROM PCI/ISA BIOS (2A5IIAK9)
            CMOS SETUP UTILITY

 STANDARD CMOS SETUP        INTEGRATED PERIPHERALS

 BIOS FEATURES SETUP        SUPERVISER PASSWORD

 CHIPSET FEATURES SETUP     USER PASSSWORD

 POWER MANAGEMENT SETUP     IDE HDD AUTO DETECTION

 PNP/PCI CONFIGURATION      HDD LOW LEVEL FORMAT

 LOAD BIOS DEFAULTS         SAVE & EXIT SETUP

 LOAD SETUP DEFAULTS        EXIT WITHOUT SAVING

    ESC: Quit               ↑↓→←: Select Item

    F10:Save & Exit Setup   (Shift)F2:Change Color

        Save Data to CMOS & Exit SETUP....
```

Exit without saving

Selecting this option and pressing <ENTER> lets you exit the setup utility without recording any new values or changing old ones.

```
        R O M   P C I / I S A   B I O S   ( 2 A 5 I I A K 9 )
                 C M O S   S E T U P   U T I L I T Y
                 A W A R D   S O F T W A R E ,   I N C .

    STANDARD CMOS SETUP          INTEGRATED PERIPHERALS

    BIOS FEATURES SETUP          SUPERVISER PASSWORD

    CHIPSET FEATURES SETUP       USER PASSSWORD

    POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION

    PNP/PCI CONFIGURATION        HDD LOW LEVEL FORMAT

    LOAD BIOS DEFAULTS           SAVE & EXIT SETUP

    LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING

       ESC: Quit                 ↑↓→←:  Select Item

       F10:Save & Exit Setup     (Shift)F2:Change Color

              Abandon all dates & Exit SETUP ....
```

4

C&T 6555x Flat Panel/CRT Controller Display Drivers and Utilities (For PCM-5894 only)

This chapter provides information about:

• Driver types and installation

Software drivers

This chapter describes the operation and installation of the software drivers supplied on the *Display Driver Diskettes* that are shipped with your VGA adapter.

Your VGA adapter is based on the CHIPS VGA Flat Panel/CRT controller and is fully IBM VGA compatible. This controller offers a large set of extended functions and higher resolutions. If you intend to use your VGA adapter in standard VGA mode only, you do not need to install any of these drivers. Since your VGA adapter is fully compatible, it does not require any special drivers to operate in standard modes.

The purpose of the enclosed software drivers is to take advantage of the extended features of the CHIPS VGA Flat Panel/CRT controller.

Hardware configuration

Some of the high-resolution drivers provided in this package will work only in certain system configurations. If a driver does not display correctly, try the following:

1. Change the display controller to CRT-only mode, rather than flat panel or simultaneous display mode. Some high-resolution drivers will display correctly only in CRT mode.

2. If a high-resolution mode is not supported on your system, try using a lower-resolution mode. For example, 1024 x 768 mode will not work on some systems, but 800 x 600 mode is supported on most.

Necessary prerequisites

The instructions in this manual assume that you understand elementary concepts of MS-DOS and the IBM Personal Computer. Before you attempt to install any driver or utility, you should:

- Know how to copy files from a CD-ROM to a directory on the hard disk

- Understand the MS-DOS directory structure

If you are uncertain about any of these concepts, please refer to the **DOS or OS/2 user reference guides for more information** *before* you proceed with the installation.

Before you begin

Make sure you know the version of the application for which you are installing drivers. The *Supporting CD-ROM* contain drivers for several versions of certain applications. For your driver to operate properly, you must install the driver for your version of the application program.

Windows⊚ 95

These drivers are designed to work with Microsoft⚬ Windows⚬. You just install these drivers through the Windows⚬ operating system.

Driver installation

1. Install Window⚬ 95 as you normally would for a VGA display. Click the **Start** button, go to **Settings** and click on **Control Panel**. Choose the **Display** icon and double-click on the icon. In the *Display Properties* window, click on **Change Display type**. In the *Change Display Type* window, click on the **Change** button under *Adapter Type*. This will bring up the *Select Device* window.

2. Place the *Supporting CD-ROM* into your CD-ROM drive. In the *Select Device* window, click on **Have Disk**, select **Browse**, and find the Win95 driver "chips95.inf" in the following directory, and then click OK.

    cd-rom: \CD-ROM*model name*\driver\vga driver\win95 nt\win95

    "cd-rom:": the drive letter of your CD-ROM drive

    "*model name*": the model number of your product

    The name of the *Chips And Technologies Inc. Video Controller* driver will appear highlighted in the *Models* list box. Select Chips and Tech. 65554 PCI (new) and click OK. Click OK to start the driver installation.

3. Once the installation is complete, the *Change Display Type* window will reappear. Click on *Close* to close the window. Then the *Display Properties* window will reappear. Click on **Apply**. Restart the system for new settings to take effect.

Windows ᵒ 3.1

These drivers are designed to work with Microsoft Windows Version 3.1. You should install these drivers through Windows.

Driver installation

1. Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly.

2. **Place the** *Supporting CD-ROM* into your CD-ROM drive. In Windows Program Manager, choose *File* from the Options Menu. Then from the pull-down menu, choose *Run*. At the Command Line prompt, type.

   cd-rom: \CD ROM***model name**\driver\vga driver\win31\setup.exe

   Press the <ENTER> key or click OK to begin the installation.

   "***cd-rom:***": the drive letter of your CD-ROM drive

   "***model name***": the model number of your product

At this point the setup program locates the directory where Windows is installed. **For proper operation, the drivers must be installed in the Windows subdirectory**.

3. Press <ENTER> to complete the installation. Once completed, you can find the icon Chips CPL under the Control Panel. The icon allows you to select and load the installed drivers.

OS/2

These drivers are designed to function with OS/2 Versions 4.0, 3.0, and 2.11 operating systems.

To install this driver, do the following steps:

1. Open an OS/2 full screen or windowed session.

2. Place the 65554 Display Driver diskette in drive A.

3. At the OS/2 command prompt, type the following commands to copy the files to the OS/2 drive:

> Type A:<ENTER> to make this default drive.

> Type SETUP A: C:<ENTER>

>> Where A: is the floppy disk drive and

>> C: is hard disk partition containing OS/2

When the Setup Program is completed, you will need to perform a shutdown and then restart the system in order for changes to take effect.

A log of the information output during the install can be found

in <root>:\OS2\INSTALL\DISPLAY.LOG

4. After restarting the system, perform the following steps:

    1. Open the OS/2 System folder.

    2. Open the System Setup folder.

    3. Open the Display Driver Install Object.

This step will execute the Display Driver Installation (DSPINSTL) utility program to finish installation of the new drivers.

    4. When the Display Driver Install window appears, select Primary Display and then select OK.

    5. When the Primary Display Driver List window appears, select "Chips and Technologies 65554" from the list of adapter types, then select OK or install the video driver.

    6. When the installation is complete, you will need to shut down and then restart the system for the changes to take effect. Make sure to remove the installed diskette before restarting the system.

Windowsô NT 3.51

These drivers are designed to work with Microsoft Õ Windows Õ .

Driver installation

1. Install Windows Ò NT 3.51 as you normally would for a VGA
    display. Click the **Star** button, go to **Settings** and click on **Control
    Panel** icon. Then choose the **Display** and double click on the ion.
    In the **Display Properties** window, click the **Setting** buttom, then
    click the **Display Type** buttom into the **Display Type** windows, then
    click on **Change** buttom from the **Adapter Type** icon. And click on
    Have Disk buttom in the change display window.

2. Place the *Supporting CD-ROM* into your CD-ROM drive. and
    type:

    cd-rom: \CD ROM***model name**\drive\vga drive\
    win98nt\windows.nt\nt35\Oemsetup.inf

    "***cd-rom:***": the drive letter of your CD-ROM drive

    "***model name***": the model number of your product

Select the adapter "Chips and Tech 69000PCI" and click OK. Click on
Install to install the selected driver. Once the installation is complete,
shut down and restart the system.

Windows® NT 4.0

Driver installation

1. Install Windows Ò NT 4.0 as you normally would for a **VGA** display. Click the **Star** button, go to **Settings** and click on **Control Panel** icon. Then choose the **Display** and double click on the ion. In the **Display Properties** window, click the **Setting** button, then click the **Display Type** buttom into the **Display Type** windows, then click on **Change** buttom from the **Adapter Type** icon. And click on **Have Disk** buttom in the change display window.

2. Place the *Supporting CD-ROM* into your CD-ROM dirve. In the *Select Device* window, click on **Have Disk**, select "**Browse**" and find the NT 4.0 driver from:

   cd-rom : \CD ROM***model name**\dirver\vga driver\
           win98 nt\windows.nt\nt40\Oemsetup.inf

   "***cd-rom:***": the drive letter of your CD-ROM drive

   "***model name***": the model number of your product

   and then click OK. The name of the ***Chips and Technologies, Inc***. ***Video Controller*** driver will appear highlighted in the Modules list box. Select Chips and Tech. 69000 and Click **OK**. Click **OK** to start the driver installation.

3. Once the installation is complete, the ***Change Display Type*** window will reappear. Click on close to close the window. Then the ***Display Properties*** window will reappear. Click on **Apply**. Restart the system for the new settings to take effect.

SiS 5598 VGA Drivers
For PCM-5892 only

The content of this chapter includes
SiS 5598 VGA Driver installation
instructions for the PCM-5892.

System Requirements

This section describes system requirements for the SiS 5598 VGA Driver and how to install the drivers.

1. The hardware system must contain a 5598 chipset.

2. A mouse is optional.

3. Set the *VGA Shared Memory Size* in the BIOS CHIPSET Features Setup. Please refer to Chapter 3 for more information on how to set the *VGA Shared Memory Size* in the BIOS CHIPSET FEATURES SETUP section.

Windows 95

Windows 95 (Display Driver Installation)

1. Click on the "Start" button and select "Control Panel" from the *Settings* menu.

2. Double-click on the Display icon.

3. Select the *Settings* tab in the Display Properties window.

4. Click on the "Change Display Type" or the "Advanced Properties" button.

5. Click on "Change..." in the *Adapter* tab.

6. Click on "Have Disk..."

7. Place the *Supporting CD-ROM* into your CD-ROM drive.

8. When the Install from Disk dialog box appears, type the directory storing the drivers and click "OK" or click the "Browse..." button to manually locate the drivers.

   The directory is "*cd-rom*: \CD-ROM\PCM-5892\Driver\vga driver\win95" and the file is called "*SiS5597.INF"*

   "cd-rom:" : the drive letter of you CD-ROM drive

9. The name of the VGA driver (SiS 5597/5598) will appear in the Models list box of the Select Device dialog.

10. When the Change Display dialog box appears, click on "Close".

11. Select the "OK" or the "Apply" button.

12. A message will appear stating you must restart Windows 95, click on "Yes" to restart.

13. After restarting, Windows 95 will run on 640 x 480 @ 256 colors.

Selecting resolution, color depth, and re-fresh

1. Click on the "Start" button and select "Control Panel" from the *Settings* menu.

2. Double-click on the Display icon.

3. Select the *Settings* tab in the Display Properties window.

4. In the *Color Palette* area, change between *16*, *256*, *High*, and *True* color.

5. To select a new desktop resolution size, go to the *Desktop Area* section and use the slider to change resolution from *640 x 480*, *800 x 600*, *1024 x 768*, to *1280 x 1024*.

6. Select the *Refresh Rate* list box to change the screen refresh rate.

7. Click "OK" or "Apply."

Windows 3.x

Installation

1. Click on the *File* menu and select the "Run..." menu item.

2. In the Run dialog, type the source execution file then press "OK".

   The execution file in the *Supporting CD-ROM* is *"cd-rom:\CD-ROM\PCM-5892\Driver\vga driver\win31\setup.exe "*.

   "cd-rom:" : the drive letter of you CD-ROM drive

3. Follow the setup program's on-screen instructions.

4. The setup procedure will create a *"SiS Multimedia Vx.xx"* program group and there are 5 items in the program group:

   — Multimedia Manager

   — SiS MMPlayer

   — SVGA Setup

   — Center Screen

   — Uninstall

5. A setup successful dialog will apear when setup is completed, and the user can choose to restart the system now or later.

Graphics Setup

1. In the "*SiS Multimedia Vx.xx*" program group, double-click on the SVGA Setup icon to enter the *SiS VGA Configuration System* screen.

2. In the *SiS VGA Configuration System* screen, choose which options you would like to use.

3. After completing your selections, choose "OK" to make all your selections effective.

4. Choose "Restart Windows" to reboot Windows using the new settings. Or, choose "Continue" to not reboot now.

Power Saving Setup in Windows 3.x

1. In the *SiS VGA Configuration System* screen, choose the *power saver* item to enter the Power Saver screen.

2. In the Power Saver screen, choose which options you would like to use.

3. After completing the selections, choose "OK" to make all your selections effective.

4. After a complete setup, the power saver mode should take effect.

NT 3.5x

Windows NT 3.5x display drivers Installation:

1. Double-click on "Control Panel" in the *Main* group.

2. Double-click on the Display icon.

3. Select *Change Display Type* from *Display* Settings.

4. Select "Change" from *Display Type*.

5. Select "Other" from *Select Device*.

6. Insert the *Supporting CD-ROM* into your CD-ROM drive.

7. When the Install from Disk dialog box appears, type the directory storing the drivers and click "OK"

   The Win NT 3.5x directory is "*cd-rom*: \CD-ROM\PCM-5892\Driver\vga driver\dos nt\winnt35".

   "cd-rom:" : the drive letter of you CD-ROM drive

8. Select "Install" and click "Yes" when the Installing Driver dialog box appears.

9. Select "New" when the Windows NT Setup dialog box appears.

10. Click "Continue".

A message will appear stating that the drivers were successfully installed; click "OK". You must now restart Windows NT 3.51.

Selecting resolution and color depth:

1. Click on the "Start" button and select "Control Panel" from the *Settings* group.

2. Select "Control Panel" from the *Main* group.

3. Select the Display icon.

4. Select the *Color Palette* to change between *16*, *256*, *32768*, *65536*, and *16777216* colors.

5. To select a new desktop resolution size, go to the *Desktop Area* and use the slider to change resolution from *640 x 480*, *800 x 600*, *1024 x 768*, and *1280 x 1024*.

6. Select "Test" to test the resolution.

    If the display test screen was good then select "Yes" when the Testing Mode dialog box appears. If the display test screen was bad then select "No". Windows NT 3.5 will give you an error message.

7. If the display test screen was good and you selected "Yes", Windows NT 3.5 will prompt you to restart.

NT 4.0

Windows NT 4.0 display drivers installation:

1. Click on the "Start" button and select "Control Panel" from the *Settings* group.

2. Double-click on the Display icon.

3. Select the *Settings* tab in the Display Properties window.

4. Select *Display Type*.

5. Select "Change" in the *Adapter Type* tab.

6. Select "Have Disk..."

7. Place the *Supporting CD-ROM* into your CD-ROM drive.

8. When the Install from Disk dialog box appears, type the directory storing the drivers and click "OK."

   The WIN NT 4.0 directory is located in "***cd-rom***: \CD-ROM\PCM-5892\driver\vga driver\dos nt\winnt40".

   "cd-rom:" : the drive letter of you CD-ROM drive

9. When the Change Display dialog box appears, click "OK."

10. When the Third-party Drivers dialog box appears, click "Yes."

    A message will appear stating that the drivers were successfully installed, click "OK." You must now restart Windows NT 4.0.

Selecting resolution and color depth

1. Click on the "Start" button and select "Control Panel" from the *Settings* group.

2. Double-click on the Display icon.

3. Select *Settings* tab in the Display Properties window.

4. In the *Color Palette* area, change between *16*, *256*, *32768*, *65536*, and *16777216* colors.

5. To select a new desktop resolution size, go to the Desktop Area and use the slider to change resolution from *640 x 480*, *800 x 600*, *1024 x 768*, to *1280 x 1024*.

6. Select "Test" to test the resolution. If the display test screen was good then select "Yes" when the Testing Mode dialog box appears. If the display test screen was bad then select "No." Windows NT 4.0 will give you an error message.

7. Click "OK." If the display test screen was good and you selected "Yes", Windows NT 4.0 will change the mode without restarting.

DOS

VGA drivers do not have to be installed when operating in DOS.
Changing the VGA settings requires running the program
"SVGAUTIL.EXE."

VGA Utility

1. Insert the disk which contains the SiS 5598 DOS VGA Utilily
   installation program

2. Run the setup program called *"SVGAUTIL.EXE"*

   You should now see the screen for setting various VGA options:

   a) Video Mode Setting,

   b) Frame Rate Setting, and

   c) Power Saving Setting.

3) Once you have made your changes, you can choose to save the
   changes to the *"AUTOEXEC.BAT"* file or not.

Video Mode Setting

A list of the different video modes that can be supported is displayed.
Be sure to first test the video mode, by highlighting the mode and then
by pressing <F1>, before making a final selection.

Frame Rate Setting

Much like the Video Mode Setting, a list of valid frame rate modes will
be displayed which includes the monitor display resolution and the
corresponding frame rate. Again, first press <F1> to test if the monitor
can support the frame rate before finalizing your frame rate selection.

Power Saving Setting

Here you can set the timers for the Standby and Suspend power
saving modes. Highlight the "Standby Timer" or "Suspend Timer"
option to change the timer values.

Ethernet Software configuration

This chapter details the Ethernet software configuration information. It shows you how to configure the card to match your application requirements.

Ethernet software configuration

The mainboard onboard Ethernet interface supports all major network operating systems. I/O addresses and interrupts are easily configured via the BIOS Setup. To configure the medium type, to view the current configuration, or to run diagnostics, do the following:

1. Power the mainboard on. Ensure that the RSET8139.EXE file is located in the working drive.

2. At the prompt type RSET8139.EXE and press <Enter>. The Ethernet configuration program will then be displayed.

3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and Down keys. To change a selected item, press <Enter>, and a screen will appear with the available options. Highlight your option and press <Enter>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.

4. After you have made your selections and you are sure that this is the configuration you want, press ESC. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

1. Run EEPROM test

2. Run Diagnostics on Board

3. Run Diagnostics on Network

Each option has its own display screen which shows the format and result of any diagnostic tests undertaken.

Programming the Watchdog Timer

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

Programming the watchdog timer

How to program the WATCHDOG TIMER

1. To set the time-out interval of watchdog timer:

   -- output the desired value to port **0x443**. Since the data is of 1 byte, the maximum value will be 255. In our design 1 ~ 127 will denote 1sec ~ 127sec, though 129 ~ 255 will denote lmin ~ 127min. e.g.

   outportb(0x443, 30);   // set interval to 30 seconds
   outportb(0x443, 0x85);   // set interval to 5 minutes

2. To set the time-out event:

   -- output data to **prot 0x444,**

   • 0: reset system
   • 1, 2, 3: IRQ 10, 15, 11 respectively
   • 4: NMI
   e.g.
   outportb(0x444, 0);   // set time-out event to reset-system

3. To disable watchdog timer:

   -- output any value to port 0x80, e.g.
   outportb(0x80, data);   // disable watchdog timer

4. To ebable or refresh watchdog timer(the watchdog timer will return to its initial value, then count down):

   -- access the I/O port ***0x443***, e.g.
   outportb(0x80, 0);   // disable watchdog timer
   inportb(0x443);   // refresh watchdog timer

   * note: if you want to refresh the watchdog timer, you have to disable it first.

Demo program

outportb(0x444, 0):	// set time-out event to reset-system
outportb(0x443x 10);	// set time-out interval to 10 seconds
iutportb(0x443);	// enable watchdog timer
customer_job();	// execute your job here, be sure your job will finished within 10 seconds
outportb(0x80, 0);	// refresh watchdog timer, otherwise the system will reset after time-out
outputb(0x443, 20);	// set time-out interval to 20 seconds
inportb(0x443);	// enable watchdog timer
another_job();	// another job finished in 20 seconds
outportb(0x80, 0)	// disable watchdog timer

...

...

B

Installing PC/104 Modules

This appendix provides instructions for installing PC/104 modules.

Installing PC/104 modules

The PCM-5892/5894's PC/104 connectors give you the flexibility to attach PC/104 expansion modules. These modules perform the functions of traditional plug-in expansion cards, but save space and valuable slots. Modules include:

- **PCM-3110B** PCMCIA Module (one-slot)
- **PCM-3115B** PCMCIA Module (two-slot)
- **PCM-3200** PC/104 Sound Module
- **PCM-3420** PC/104 Fast SCSI Module
- **PCM-3521** Advanced Flat-Panel/CRT VGA Module
- **PCM-3522** LCD Panel Adapter
- **PCM-3600** PC/104 Fax/Modem Module
- **PCM-3610** Isolated RS-232 and RS-422/485 Module
- **PCM-3640** PC/104 4-port RS-232 Module
- **PCM-P50** PC/104 Vehicle Power Supply
- **PCM-3660** Ethernet Module
- **PCM-3718** 30 KHz A/D Module
- **PCM-3724** 48-channel DIO Module
- **PCM-3910** Breadboard Module
- **PCM-3810** Solid State Disk Module
- **PCM-3820** High Density Flash Solid State Disk Module

Installing these modules on the PCM-5894/5892 is a quick and simple operation. The following steps show how to mount the PC/104 modules:

Step1   Remove the PCM-5894/5892 from your system, paying particular attention to the safety instructions already mentioned above.

Step2   Make any jumper or link changes required to the CPU card now. Once the PC/104 module is mounted, you may have difficulty in accessing these.

Step3   Mount the PC/104 module onto the CPU card. Do this by pressing the module firmly but carefully onto the mounting connectors.

Step4   Secure the PC/104 module onto the CPU card using the four mounting spacers and srews.

PC/104
Mounting Support

Female   Male

Main board   PC/104 Module
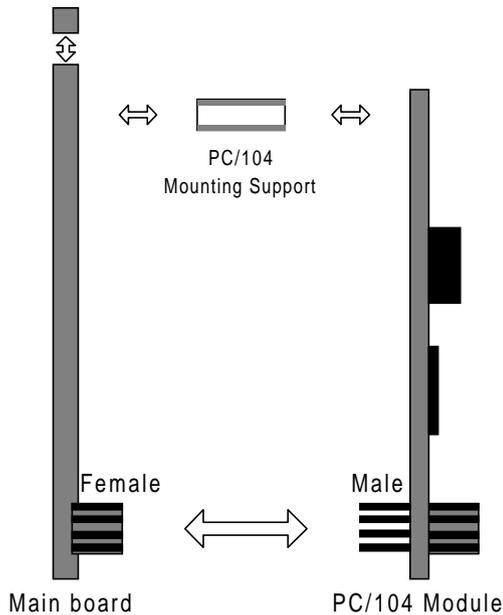
PC/104 Module Mounting Diagram
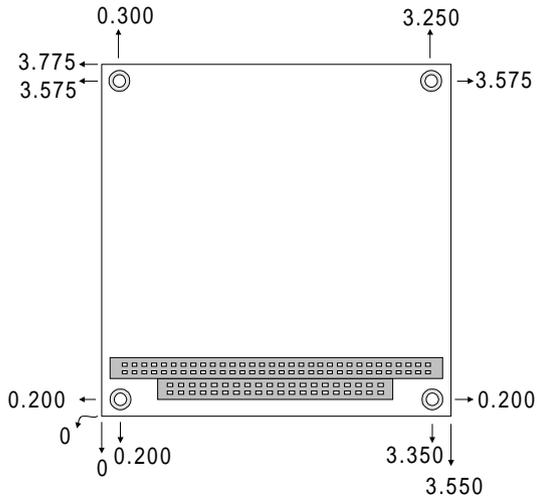
PC/104 module dimenstions (inches ± 5%)

Optional Extras

PCM-10489-3 Cable kit for PCM-5894/5892 (P/N : 9979048900)

The mainboard requires several cables for normal operation. You can make them yourself or purchase an optional cable kit assembly which includes the following:

Part No.	Cable description	Termination connector
1701440350	2.5" and 1.8" IDE	44-pin, 2 mm, female IDC (350 mm)
1701440500	3.5" IDE (40P)	40-pin, 2.54 mm, female IDC (500 mm)
1701340700	Dual floppy, 3.5" and 5.25" (34P)	34-pin dual floppy
1701260301	Parallel port	25-pin female DSUB
1701080160	Network 10/100BASE-T	RJ-45 extend cable
1701150150	VGA CRT	15-pin DSUB
1700060200	Keyboard and PS/2 mouse	5-pin circular DIN 6-pin circular DIN
1703040301	Peripheral power (-5V and -12V)	4 conductor
1701080300	Front panel	8-conductor pigtail
1701400220	RS-232 Serial Port, 4 COM Port	40 pin, 2.54 mm