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PCM-3336

386SX-40 PC/104 CPU Module
with LCd & SSD

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Part No. 2047333602 3rd Edition
Printed in Taiwan Nov., 2000

A Message to the Customer

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

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

Technical Support

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

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

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

Product Warranty

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

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

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

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

Packing list

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

- 1 PCM-3336 CPU card
- Quick Installation Guide
- Support CD contains the following:
  - User's Manual
  - VGA drivers and utilities
- 1 8-pin (4 x 2 pin header) for KB & PS/2 mouse
- 1 Hard disk drive (IDE) interface cable (44 pins)
- 1 Floppy disk drive interface cable (34 pins)
- 1 SVGA adapter (16 pins)
- 1 parallel port adapter (26-pins)
- 2 Serial port adapters (10-pins)
- 1 bag of screws and miscellaneous parts

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

Notice

Dear Customer,

Thank you for purchasing the PCM-3336 board. The user manual is designed to help you to get the most out of the PCM-3336, please read it thoroughly before you install and use the board. This product that you have purchased comes with a two years limited warranty; AAEON will not be responsible for any misuse of the product. Therefore, we strongly urge that user first read the manual before using the product.

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

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CHAPTER 1

General Information

This chapter provides background information for the PCM-3336.

Sections include:

- Card specifications
- Board layout

Introduction

The PCM-3336 comes equipped with an embedded microcontroller ALI M6117C which is Intel 386SX-40 compatible. In addition, it comes with two serial ports (RS-232), one bi-directional printer port supporting SPP, ECP and EPP modes, an IDE HDD interface and a floppy disk controller. With its industrial grade reliability, the PCM-3336 can operate continuously at temperatures up to 140º F (60º C).

The PCM-3336 is specially designed as a compact all-in-one CPU card which incorporates a PC/104 connector into its design, making non-passive backplane SBC applications possible. The numerous features provide an ideal price/performance solution for high-end commercial and industrial applications where stability and reliability are essential.

The PCM-3336 features an SVGA interface which supports CRT and Flat Panel (TFT, STN, Mono and EL displays), with 1 MB onboard display memory.

Features

- Onboard ALi M6117C, Intel 386SX-40 compatible CPU
- Onboard 4 Mbytes Fast Page DRAM
- C&T 65545 LCD controller with 1MB display memory

Specifications

General Functions

CPU: ALi M6117C, Intel 80386SX-40 compatible

CPU type: Onboard SQFP

Bus interface: PC/104 bus

BIOS: AMI 128KB FLASH BIOS

Chipset: ALi M6117C

I/O Chipset: ITE8661F

Memory: Onboard 4 Mbytes Fast Page DRAM

Enhanced IDE: Supports up to two IDE devices

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

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

Serial port: One RS-232 and one RS-232/422/485 serial ports. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually. (16C550 equivalent)

KB/Mouse connector: 8-pin (4 x 2, pin header) connector supports PC/AT keyboard and PS/2 mouse

Battery: Lithium battery for data retention

Watchdog timer Can generate a system reset, IRQ15 or NMI. Software selectable time-out interval (30.5 µs ~ 512 sec., 30.5 µs/step)

DMA: 7 DMA channels (8237 equivalent)

Interrupt: 15 interrupt levels (8259 equivalent)

Flat Panel/CRT Interface

Chipset: C&T 65545

Display memory: Onboard 1MB display memory

Display type: Supports non-interlaced CRT and LCD (TFT, DSTN, and MONO) displays. Can display both CRT and Flat Panel simultaneously

Resolution: Up to 800x600@256 colors

SSD Interface

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

Mechanical and Environmental

Power supply voltage: +5V (4.75V to 5.25V)

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

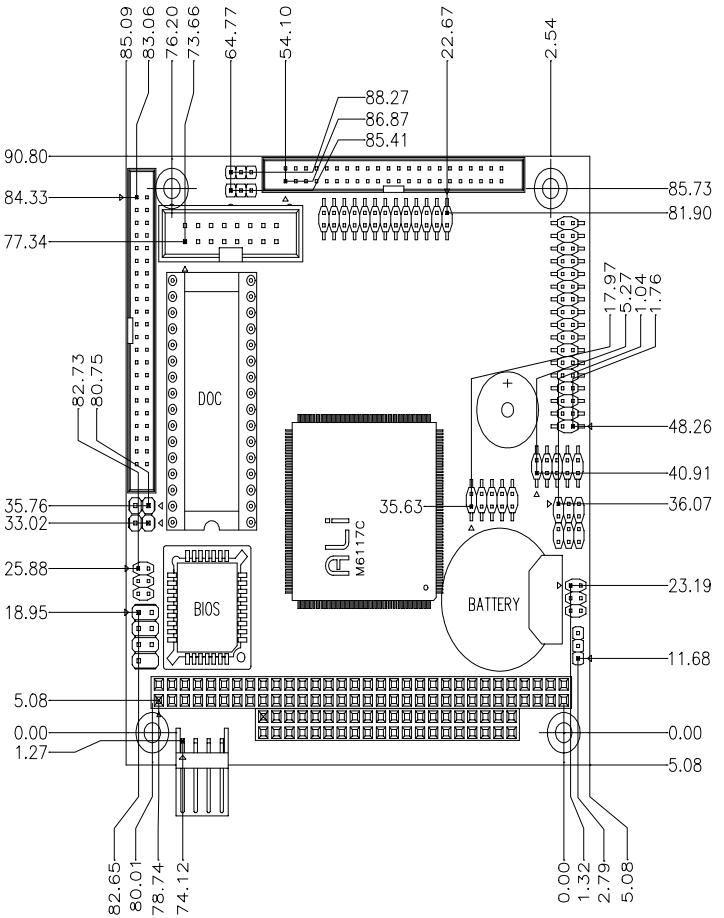
Board size: 3.55"(L) x 3.775"(W) (90mm x 96mm)

Weight: 0.6 lb. (0.25 Kg)

Board layout



Board dimensions



CHAPTER 2

Installation

This chapter explains set up procedures for the PCM-3336 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all 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.

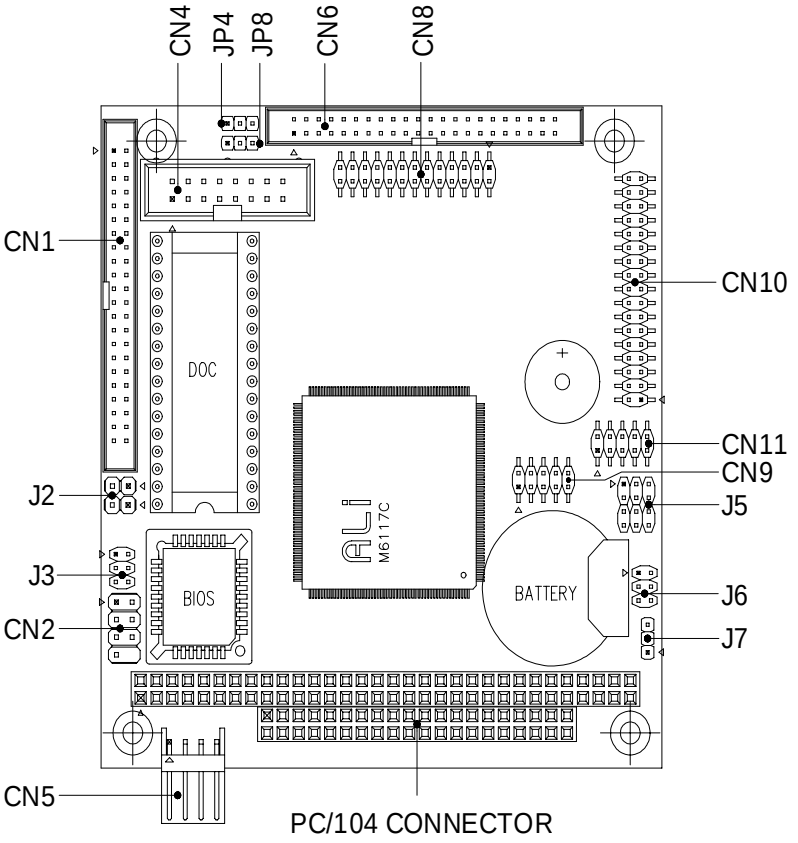
The table below lists the function of each of the board jumpers and connectors:

Jumpers and connectors

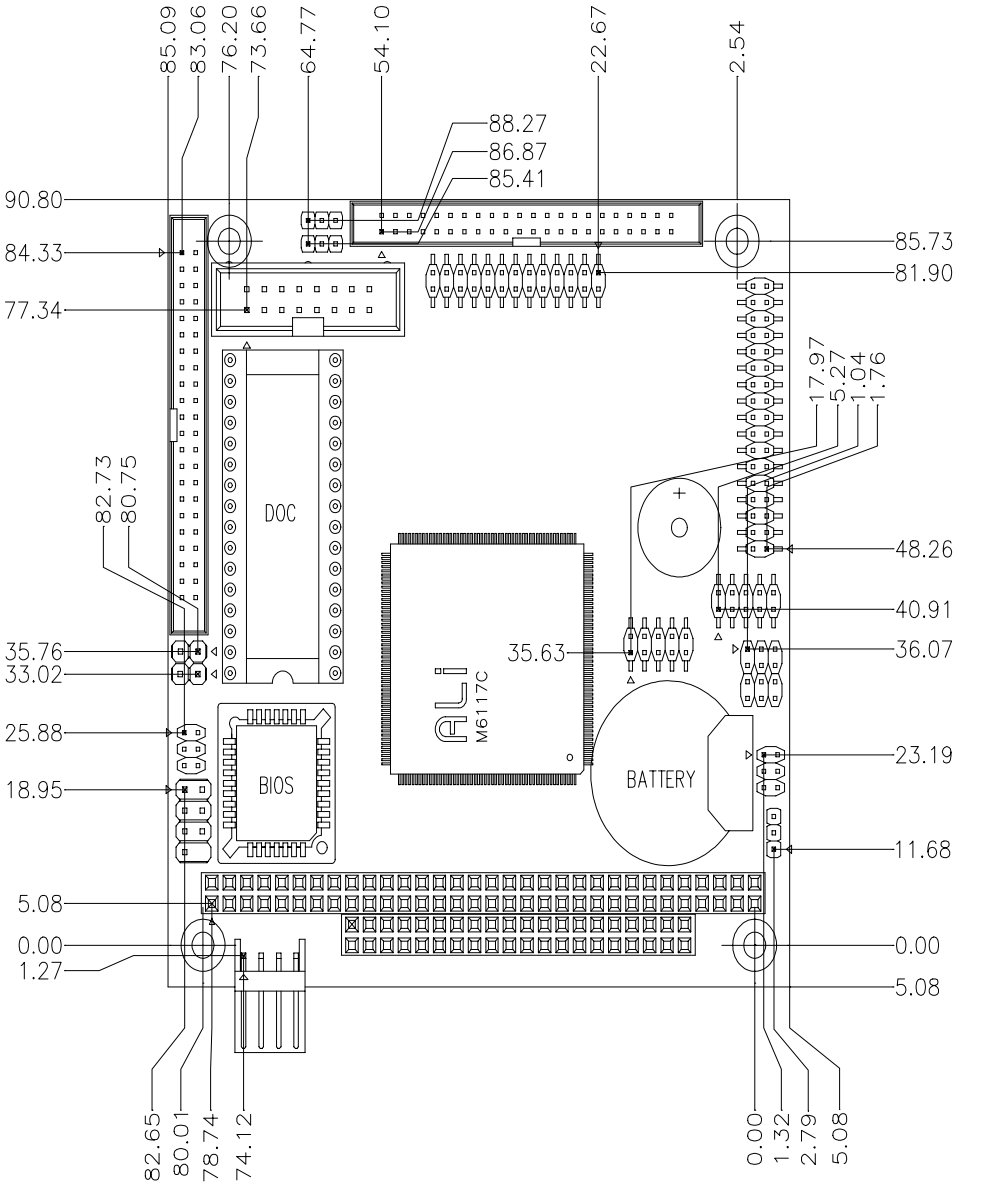
Number	Function
J1	HDD LED
J2	Reset Switch
J3	DOC Address Setting
J4	LCD Power Select
J5	COM2 RS-232/422/485 select
J6	COM2 RS-232/422/485 select for Data In
J7	Clear CMOS
J8	LCD Panel Shift Clock Select

Number	Function
CN1	HDD connector
CN2	KB/PS2 connector
CN3	PC104 connector
CN4	SVGA connector
CN5	Power connector
CN6	LCD connector
CN7	PC104 connector
CN8	Printer connector
CN9	COM1 connector
CN10	Floppy disk connector
CN11	COM2 connector

Board Layout

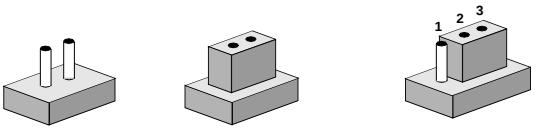


Mechanical Drawing



Setting jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



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

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



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

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

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Generally, you simply need a standard cable to make most connections.

Safety precautions

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



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



IDE hard drive connector (HDD CON.) (CN1)

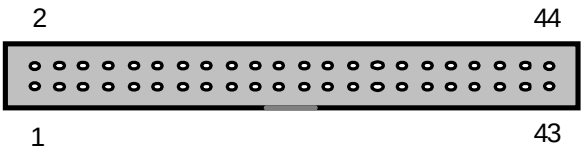
You can attach two Enhanced Integrated Device Electronics hard disk drives to the PCM-3336's internal controller. The card comes with a 40-pin flat cable.

Connecting the hard drive

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

1. Connect one end of the cable to the IDE connector. 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 1 on the cable corresponding to pin 1 on the hard drive. (See your hard drive's documentation for the location of the connector.)

Unlike floppy drives, you can make the connections with any of the connectors on the cable. If you install two drives, you will need to set one as the master and one as the slave. You do this using jumpers on the drives. If you install just one drive, set it as the master.



Pin assignments

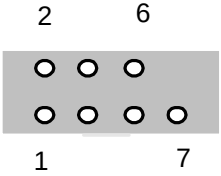
The following table lists the pin numbers and their respective signals:

IDE Connector (HARD DISK Driver CON.)(CN1)

Pin	Signal	Pin	Signal
1	Reset#	2	GND
3	HD7	4	HD8
5	HD6	6	HD9
7	HD5	8	HD10
9	HD4	10	HD11
11	HD3	12	HD12
13	HD2	14	HD13
15	HD1	16	HD14
17	HD0	18	HD15
19	GND	20	NC
21	NC	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IORDY	28	BALE
29	VCC	30	GND
31	IRQ14	32	-I/O 16
33	SA1	34	NC
35	SA0	36	SA2
37	HDCS0	38	HDCS1
39	-ACT	40	GND
41	VCC	42	VCC
43	GND	44	NC

Keyboard connector (PS2 KB.)(CN2)

The PCM-3336 provides a 8 pin header for KB & PS/2 connection.

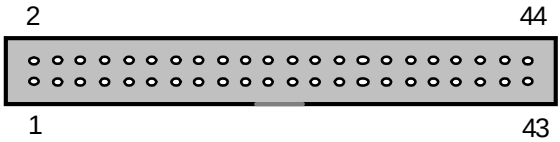


Keyboard connector (PS2 KB.)(CN2)

Pin	Function
1	KBDATA
2	KBCLOCK
3	KGND
4	KVcc
5	MSDATA
6	MSCLOCK
7	GND

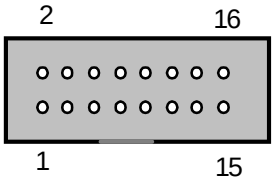
Display connector (VGA CON., FLAT PANEL CON.)(CN4, CN6)

The PCM-3336 CPU card's SVGA connector (VGA CON.) with PCI bus supports monochrome display as well as high resolution color displays. The card also features an LCD connector (FLAT PANEL CON.), which allows you to connect various flat panel displays. The following table lists their pin assignments:



LCD connector (FLAT PANEL CON.)(CN6)

Pin	Function	Pin	Function
1	+12 V_{DC}	2	+12 V_{DC}
3	GND	4	GND
5	LCDV	6	LCDV
7	FPVEE	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	GND	34	GND
35	LCD clock (SHCLK)	36	FLM (V SYS)
37	ACDCLK (M)	38	LP (H SYS)
39	GND	40	ENABKL
41	GND	42	ASHCLK
43	GND	44	GND



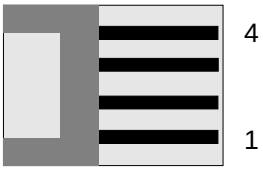
SVGA connector (VGA CON.)(CN4)

Pin	Function	Pin	Function
1	RED	9	NC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	NC
5	GND	13	HSYNC
6	AGND	14	VSYNC
7	AGND	15	NC
8	AGND	16	NC

Power supply connector (CN5)

Power supply connector

In single board computer (non-passive backplane) applications, you will need to connect power directly to the PCM-3336 board using CN5. This connector is fully compatible with the standard PC power supply connectors. See the following table for its pin assignments:



Power connector (CN5)

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

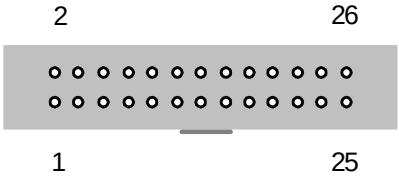
Parallel port (PRINTER PORT)(CN8)

Normally, the parallel port is used to for connection, the PCM-3336 includes an onboard parallel port, accessed through PRINTER PORT for data, a 26-pin flat cable connector. The CPU card comes with an adapter cable, which lets 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, mounted on a retaining bracket.

Installing the retaining bracket

The retaining bracket installs at an empty slot in your system's chassis. It provides an external port that allows your parallel peripheral to access data through the card's parallel port connector.

1. Find an empty slot in your chassis.
2. Unscrew the plate that covers the end of the slot.
3. Screw in the bracket in place of the plate.
4. Next, attach the flat cable connector to PRINTER PORT. Wire 1 of the cable is red or blue, and the other wires are gray. Make sure that Wire 1 connects to Pin 1 of PRINTER PORT. Pin 1 is on the right side of PRINTER PORT.



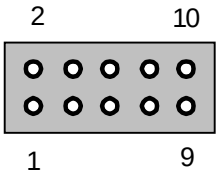
Pin assignments

PRINTER Connector (PRINTER PORT)(CN8)

Pin	Signal	Pin	Signal
1	Strobe	2	RAF
3	PD0	4	PERR
5	PD1	6	PINIT
7	PD2	8	PSLIN
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND
17	PD7	18	GND
19	PACK	20	GND
21	PBUSY	22	GND
23	PPE	24	GND
25	PSEL	26	NC

Serial ports (COM1/CN9, COM2/CN11)

The PCM-3336 offers two serial ports (RS-232). These ports let you connect to serial devices (a mouse, printers, etc.), or a communication network.



COM1 connector (CN9)

Pin	Signal
1	DLSD1
2	SIN1
3	TxD 1
4	DTR1
5	GND
6	DSR 1
7	RTS 1
8	CTS 1
9	RI 1
10	NC

COM2 connector (CN11)

Pin	Signal
1	RLSD2 / 485Tx-
2	SIN2 / 485 TX+
3	TXD2 / 422 Rx+
4	DTR2 / 422 Rx-
5	GND
6	DSR 2
7	RTS 2
8	CTS 2
9	RI 2
10	NC

Reset switch (RST SW.)(J2)

You can connect an external switch to easily reset your computer. This switch restarts your computer as if you had turned off the power then turned it back on. The following table shows the pin assignments for the RST SW.

Reset switch (RST SW.)(J2)

Pin	Function
1	Reset
2	GND

HDD LED (HD-LED)(J1)

You can connect a LED to indicate that an IDE device is in use. The pin assignments for this jumper are as follows.

HDD LED pin assignments (HD-LED)(J1)

Pin	Function
1	-R/W IDE
2	Pull high

Clear CMOS (CLEAR CMOS) (J7)

You can use J7 to clear the CMOS data if necessary, to reset the CMOS data, place a jumper cap on J7 (pin 1-2) for just a few second, and then remove the jumper cap to J7 (pin 2-3).

Clear CMOS (CLEAR CMOS)(J7)

Clear CMOS	Normal
	

LCD Power Select (J4)

You can use J4 jumper to select the voltage setting for the LCD power. To select a certain voltage level close the corresponding pin numbers with a pin cap. Pin 1-2 will provide +5 volt of power and pins 2-3 will provide +3.3 volt of power.

LCD Power Select (J4)

+5 V *	+3.3 V
	

* default

Shift Clock Select (J8)

J8 jumper is designated for the LCD monitor, a specified setting should be provided in your manufacturer manual. Shfclk is the raising edge setting and the falling edge setting is the AShfclk. By using this jumper the enhancement of the monitor can be effected.

Shift Clock Select

Shfclk *	AShfclk
	

* default

Floppy drive connector (CN10)

You can attach up to two floppy disks to the PCM-3336's on-board 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.

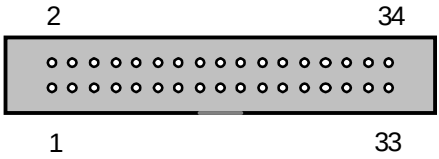
The PCM-3336 CPU card comes with a 34-pin daisy-chain drive connector cable. On one end of the cable is a 34-pin flat-cable connector. There are two sets of floppy disk drive connectors, one in the middle, and one on the other end. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit board connector (usually used for 5.25" drives).

Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into the floppy disk 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: floppy. The set in the middle connects to the B: floppy.

Pin assignments

The following table lists the pin assignments for the floppy disk connector:



FLOPPY DISK Connector (FLOPPY CON.)(CN10)

Pin	Signal	Pin	Signal
1~33 (odd)	GND	2	DENSEL
4, 6	UC	8	INDEX
10	MTRA	12	DRVB
14	DRVA	16	MTRB
18	DIR	20	STEP
22	WDATA	24	WGATE
26	TK 0	28	WPT
30	RDATA	32	SIDE1
34	DSKCHG		

CHAPTER 3

AMIBIOS Setup

This chapter describes how to set the BIOS configuration data.

General information

AMIBIOS Setup configures system information that is stored in CMOS RAM.

Starting AMIBIOS setup

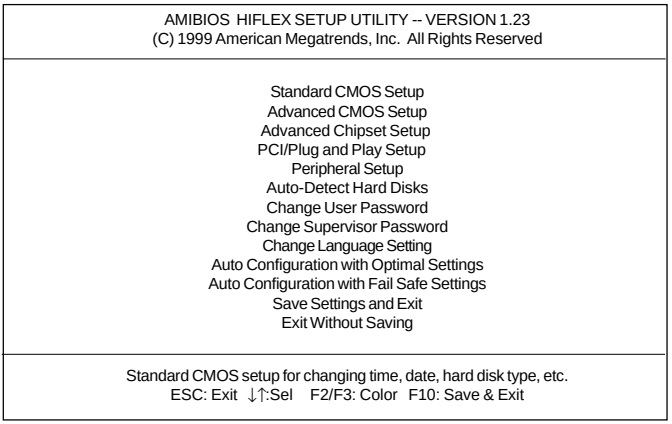
As POST executes, the following appears;

```
Hit <DEL> if you want to run SETUP
```

Press <DEL> to run AMIBIOS setup.

AMIBIOS main menu

The AMIBIOS setup screen appears as follows:



Using a mouse with AMIBIOS setup

AMIBIOS Setup can be accessed via keyboard, mouse. The mouse click functions are:

- single click to change or select both global and current fields
- double click to perform an operation in the selected field

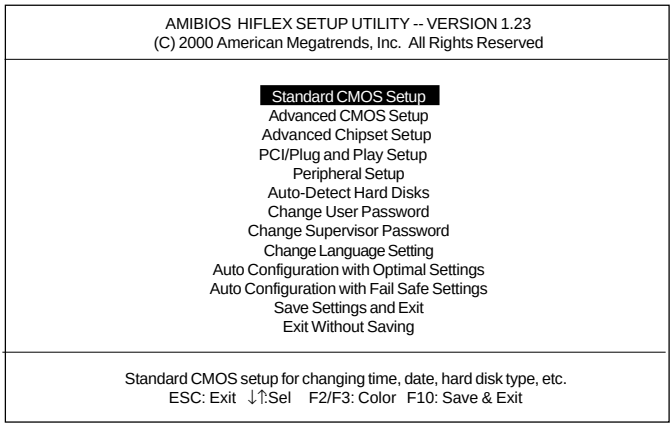
Using the keyboard with AMIBIOS setup

AMIBIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

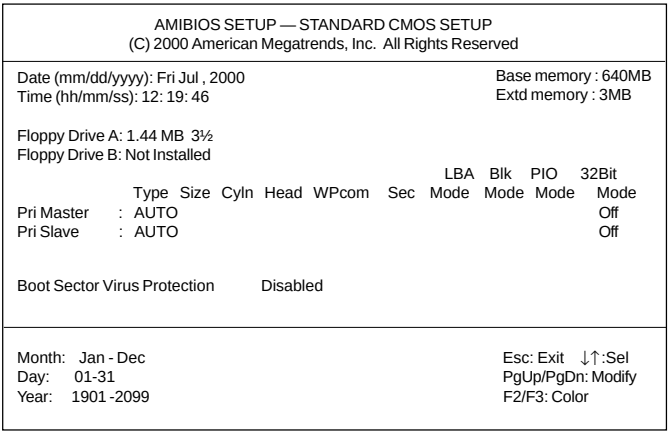
Keystroke	Function
→, ←, ↑, ↓	Move to the next field to the right, left, above, or below.
<ENTER>	Select the current field.
+	Increments a value.
-	Decrements a value.
<ESC>	Close the current operation and return to the previous level.
<PgUp>	Return to the previous page.
<PgDn>	Advance to the next page.
Alphabetic keys	A to Z are used in the Virtual keyboard, and are not case sensitive.
Numeric keys	0 to 9 are in the Virtual keyboard and Numeric keypad.

Standard CMOS setup

The AMIBIOS Setup options described in this section are selected by choosing the Standard CMOS Setup from the AMIBIOS Setup main menu selection screen, as shown below.



Press enter, the Standard CMOS Setup screen appears:



Date and Time Configuration

Select the Date and Time icon in the Standard CMOS setup. The current values for each category are displayed. Enter new values through the keyboard or hit the "+" or "-" key to change values.

Floppy A, Floppy B

Select the appropriate specifications to configure the type of floppy drive that is attached to the system: 360 KB 5¼", 1.2 MB 5¼", 720 KB 3½", and/or 1.44 MB 3½". The settings have not been pre-installed.

Master Disk, Slave Disk

Select the appropriate values to configure the hard disk type you are using for the master and the slave. Available types are *1~46*, *USE*R, *AUTO*, *Not Installed*, and *CDROM*. The settings have not been preinstalled.

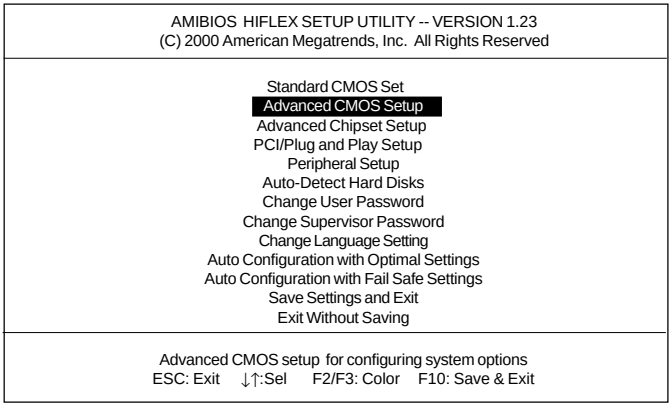
Boot Sector Virus Protection

Enabling this option allows the system to issue a warning when any program (or virus) issues a disk format command or attempts to write to the boot sector of the hard disk drive. Further confirmation is required before accessing this particular section of the hard disk drive.

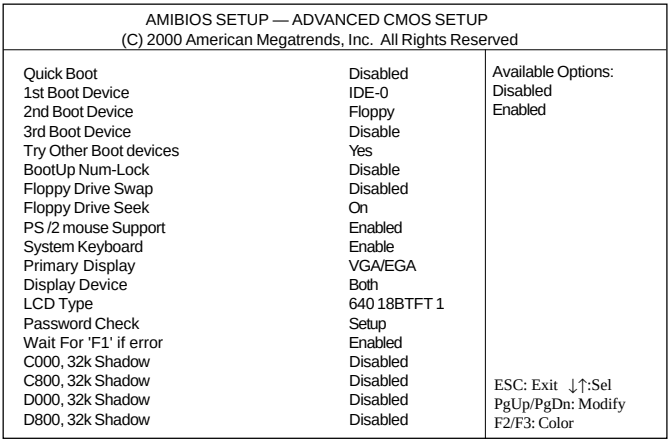
Advanced CMOS setup

Select the Advanced CMOS Setup icon from the AMIBIOS Setup main menu to enter Advanced CMOS setup.

The "Advanced CMOS Setup" options described in this section are the standard options as shown on the following screen.



Press enter, the Advanced CMOS Setup screen appears:



Quick Boot

Set this option to *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old "Above 1 MB Memory Test" Advanced Setup option.

Setting	Description
Disabled	AMIBIOS tests all system memory. AMIBIOS waits up to 40 seconds for a READY signal from the IDE hard disk drive. AMIBIOS waits for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. AMIBIOS checks for a <Del> key press and runs AMIBIOS Setup if the key has been pressed.
Enabled	AMIBIOS does not test system memory above 1 MB. AMIBIOS does not wait up to 40 seconds for a READY signal from the IDE hard disk drive. If a READY signal is not received immediately from the IDE drive, AMIBIOS does not configure that drive. AMIBIOS does not wait for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. You cannot run AMIBIOS Setup at system boot, because there is no delay for the *Hit <Del> to run Setup* message.

Boot Up Num Lock

Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are *On* or *Off*. The default setting is *On*.

Floppy Drive Swap

Set this option to *Enabled* to permit drives A: or B: to be swapped. The settings are *Enabled* or *Disabled*. The default setting is *Disabled*.

PS/2 Mouse Support

When this option is set to *Enabled*, AMIBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled.* The default setting is *Enabled.*

System Keyboard

This option specifies that a keyboard is attached to the computer. The settings are *Present* or *Absent.* The default setting is *Present.*

Primary Display

This option specifies the type of display monitor and adapter in the computer. The settings are *Mono*, *CGA40x25*, *CGA80x25*, *VGA/EGA*, or *Absent.* The default setting is *EGA/VGA.*

Display Device

This option allows user to select the display device. The settings are *CRT*, *LCD*, and *Both*. The default setting is *Both*.

LCD type

This option allows the user to select the LCD type.

The PCM-3336 supports the following LCD types:

Brand name	Model name	Format	PCM-3336
Sharp	640x480 16bit Color DSTN TFT	LM64C08P	YES
Sharp	640x480 8bit Dual-Scan Mono STN	LM64P11	YES
Sharp	640x480 8bit Dual-Scan EL	LJ64H052	YES
Sharp	640x480 18bit Color TFT 1	LQ10D41	YES
NEC	640x480 12bit Color TFT	NL6448AC30-10	YES
NEC	640x480 18bit Color TFT 2	NL6448AC33-18	YES
NEC	800x600 18bit Color TFT	NL8060AC26-11	YES
NEC	640x480 4 bit PLASMA	PG6404SORM16-3	YES

Password Check

This option enables password checking every time the computer is powered on or every time AMIBIOS Setup is executed. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears as AMIBIOS is executed. The default is *Setup*.

Wait for F1 if Error:

AMIBIOS POST error messages are followed by:

```
Press <F1> to continue
```

If this option is set to *Disabled*, AMIBIOS does not wait for you to press the <F1> key after an error message. The setting is *Enabled* or *Disabled.* The default setting is *Enabled.*

ROM Location Setting

C000, 32K Shadow C800, 32K Shadow
D000, 32K Shadow D800, 32K Shadow

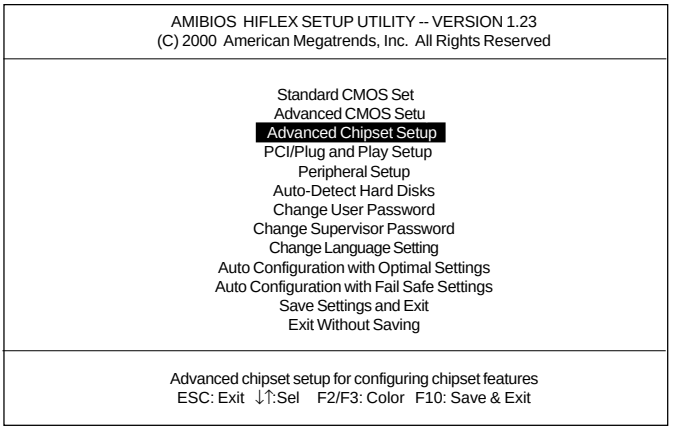
These options control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus. The settings are:

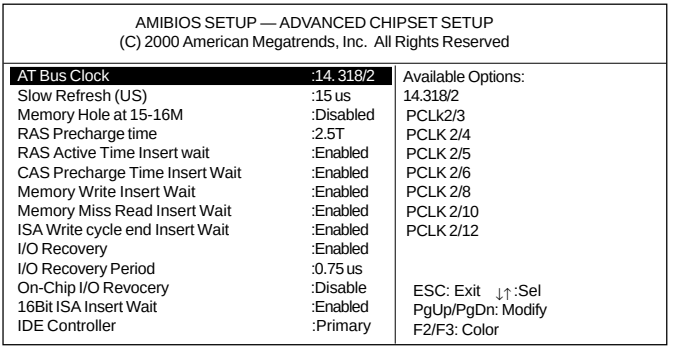
Setting	Description
	The contents of C000h - D800 are written to the same address in system memory (RAM) for faster execution.
Enabled	If an adapter ROM will be using the named ROM area, ROM area are written to the same address in system memory (RAM) for faster execution. Also, the contents of the RAM area can be read from and written to cache memory.
Disabled	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

Advanced chipset setup

Select the Advanced Chipset Setup from the AMIBIOS Setup main menu to enter the Chipset Setup. The following configurations are based on the manufacturer's default settings.

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.





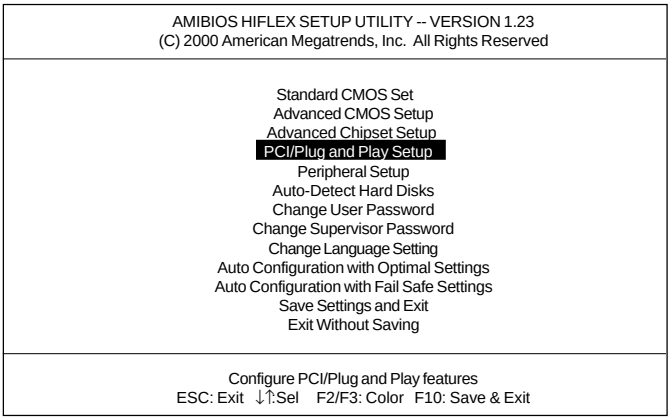
Chipset setup options

Function	option
At Bus Clock	14.318/2
	PCLK 2/3
	PCLK 2/4
	PCLK 2/5
	PCLK 2/6
	PCLK 2/8
	PCLK 2/10
	PCLK 2/12
Slow Refresh	15 µs
	60 µs
	120 µs
Memory Hole At 15-16M	Disabled
	Enabled
RAS Precharge Time	2.5T
	1.5T
	3.5T
RAS Active Time Insert Wait	Disabled
	Enabled
CAS Precharge Time Insert Wait	Disabled
	Enabled
Memory Write Insert Wait	Disabled
	Enabled
Memory Miss Read Insert Wait	Disabled
	Enabled
ISA Write Cycle End Insert wait Enable	Disabled
	Enabled
I/O Recovery	Enabled
	Disabled

I/O Recovery Peried	0 µs 0.25 µs 0.50 µs 0.75 µs 1.00 µs 1.25 µs 1.50 µs 1.75 µs 2.00 µs 2.25 µs 2.50 µs 2.75 µs 3.00 µs 3.25 µs 3.50 µs
On-Chip I/O recovery	Disabled Enabled
16 Bit ISA Insert Wait	Enabled Disabled
IDE controller	Secondary

PCI/Plug and play setup

PCI/PnP setup options are displayed by choosing the PCI/PnP setup icon from the AMIBIOS setup main. All PCI/PnP setup options are described in this section.

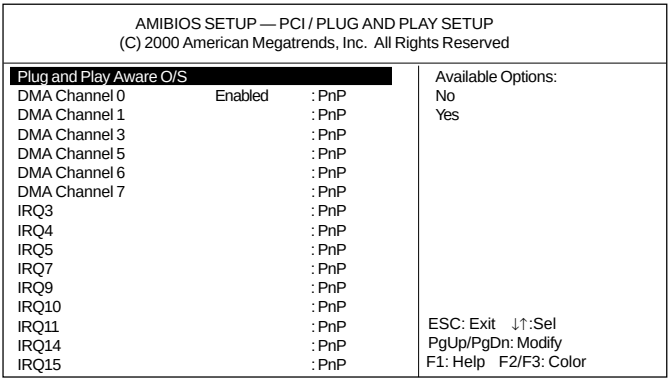


Plug and Play Aware OS

Set this option to *Yes* if the operAZting system installed in the computer is Plug and Play aware. AMIBIOS only detects and enables PnP ISA adapter cards that Are required for system boot. The Windows 95 operating systems detects and enables all other PnP-aware adapter cards. Set this option to *No* if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP.

You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.

The settings are Yes or No default settings is no.



IRQ3
IRQ4
IRQ5
IRQ7
IRQ9
IRQ10
IRQ11
IRQ14
IRQ15

These options specify bus that the named interrupt request lines (IRQs) are sued on. These options allow you to specify IRQs for use by legacy ISA adapter cards.

These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to BIOS configurable devices. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these PnP Setup options to remove the IRQ by assigning the option to the *ISA* setting. Onboard I/O is configurable by AMIBIOS. The IRQs used by onboard I/O are configurable by AMIBIOS. The IRQs used by onboard I/O are configured as *PnP*.

The settings are *PnP* or *ISA*. The default settings are *PnP*.

Standby mode timeout

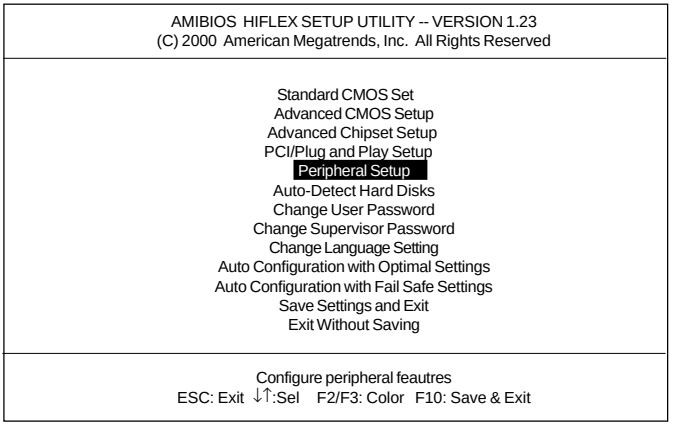
This sets the period of system inactivity after which the system goes into *Standby* mode, the intermediate power saving state. The settings range from 10 seconds to 2 hours and can be set manually when power management is in *SMI*. The default setting is *Disabled*. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

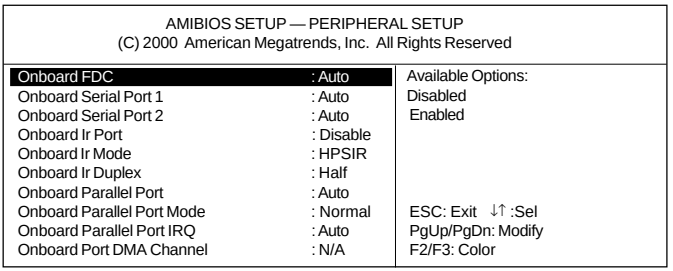
Suspend mode timeout

This sets the period of system inactivity after which the system goes into *Suspend* mode, the maximum power saving state. The settings range from 10 seconds to 2 hours and can be set manually when power management is in *SMI*. 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.

Peripheral Setup

Peripheral Setup options are displayed by choosing the Peripheral Setup icon from the AMIBIOS Setup main menu. All Peripheral Setup options are described in this section:





Onboard Parallel Port

This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address. The settings are *Disabled, 278, 378,* and *3BC.* The default setting is *Enabled.*

Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bidirectional data transfer sechemes that adhere to the IEEE P1284 specification. The settings are:

Setting	Description
Normal	The normal parallel port mode is used. This is the default setting.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve transfer rates of approximately 2.5 Mbs. ECP provides symmetric bidirectional communications.

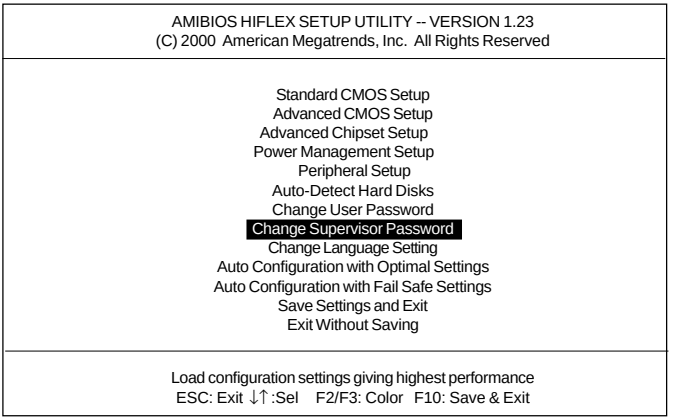
Change supervisor password

1) Select this option from the main menu

2) Enter the Password and Press <Enter>

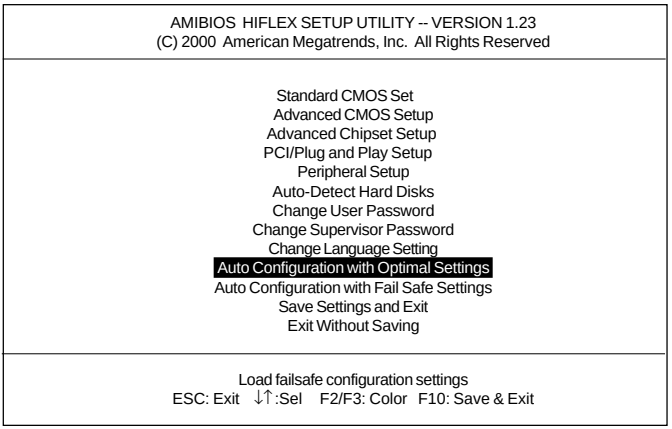
3) Retype the Password and Press <Enter>

If you forget the password, please contact your distributor for another password which you can use to enter the AMIBIOS setup and change your own password.



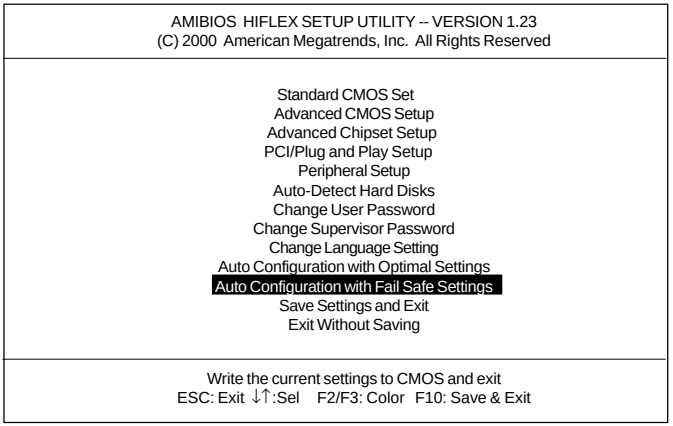
Auto configuration with optimal settings

You can load the optimal default settings for the AMIBOIS setup options by selecting it from the main menu. The optimal default settings are best case values that should optimize system performance. If CMOS RAM is corrupted, the optimal settings are loaded automatically.



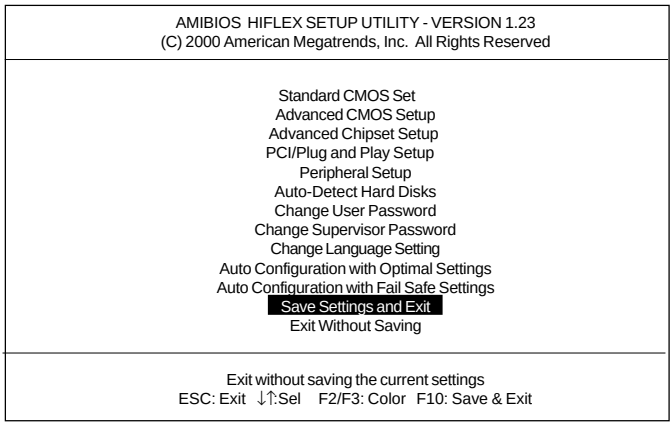
Auto configuration with fail safe settings

You can load the Fail Safe settings for the AMIBOIS setup options by selecting it from the main menu. The Fail Safe settings provide the most stable settings, though they may not provide optimal performance. Use this option as a diagnostic aid if the system is behaving erratically.



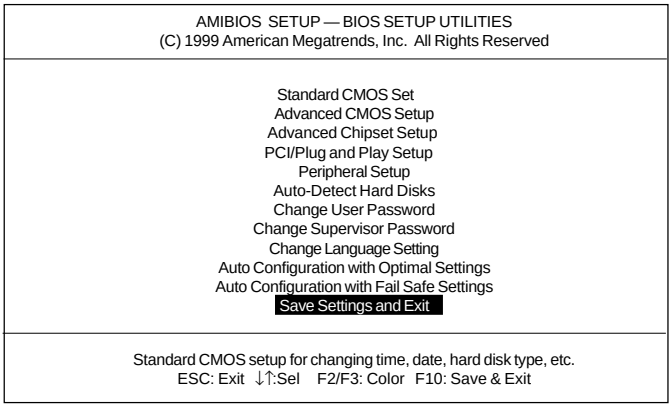
Save settings and exit

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



Exit without saving

Selecting this option and pressing <Enter> lets you exit the Setup program, without recording any new values or changing old ones.



CHAPTER 4

SVGA Setup

The PCM-3336 features an on-board flat panel/VGA interface. This chapter provides instructions for installing and operating the software drivers on the included display driver diskette.

Simultaneous display mode

The 65545 VGA BIOS supports monochrome LCD, EL, color TFT and STN LCD flat panel displays. It also supports interlaced and non-interlaced analog monitors (VGA color and VGA monochrome) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are supported as analog monitors.

Both CRT and panel displays can be used simultaneously. The PCM-3336 can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. In the utility diskette, there are three COM files which can be used to select the display. Simply type the filename at the DOS prompt:

CT.COM Enables CRT display only

FP.COM Enables panel display only

SM.COM Enables both displays at the same time.

Sleep mode

The display driver diskette contains two files that support sleep mode. Simply type the filename at the DOS prompt:

ON.COM switches to normal display mode.

OFF.COM switches to sleep mode.

Software support

The drivers support the following applications using the filenames and resolutions listed:

Application	Filename	Resolution	Colors
Windows 3.1	LINEAR4.DRV	640x480	16
		800x600	16
		1024x768	16
	LINEAR8.DRV	640x480	256
		800x600	256
		1024x768	256
	LINEAR16.DRV	640x480	64K
	LINEAR24.DRV	640x480	16M
AutoCAD R12	RCTURBOC.EXP	640x480	16
		800x600	16
		1024x768	16
		640x480	256
		800x600	256
		1024x768	256
		640x480	32K
		640x480	64K
		640x480	16M
Lotus 1-2-3 2.0 and Lotus Symphony 1.0,1.1			
	V132X25.DRV	132x25 (Text)	16
	V132X50.DRV	132x50 (Text)	16
VESA 1.2	VESA.COM	800x600	16
		1024x768	16
		640x400	256
		640x480	256
		800x600	256
		1024x768	256
		640x480	32K
		640x480	64K

Word 5.0	VGA600.VID	800x600	16
	VGA768.VID	1024x768	16
Word 5.5	VGA55600.VID	800x600	16
	VGA55768.VID	1024x768	16
WordPerfect 5.0	CHIPS600.WPD	800x600	16
	CHIPS768.WPD	1024x768	16
WordPerfect 5.1	VGA600.VRS	800x600	16
	VGA768.VRS	1024x768	16

Driver installation

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 floppy disk to a directory on the hard disk, understand the MS-DOS directory structure, and know how to format a floppy disk. If you are uncertain about any of these concepts, please refer to the DOS or Windows user reference guides for more information before you proceed with the installation.

Before you begin

Before you begin installing software drivers, you should make a backup copy of the display driver diskette and store the original in a safe place. The display driver diskette contains drivers for several versions of certain applications. You must install the correct version in order for the driver to work properly so make sure you know which version of the application you have.

Windows setup

These drivers are designed to work with Microsoft Windows 3.1. You may install these drivers through Windows or in DOS.

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

Step 2: Place the display driver diskette in drive A. In Windows Program Manager, choose ***File*** from the Options Menu. Then from the pull-down menu, choose ***Run . . . .*** At the command line prompt, type **A:\WINSETUP**. Press the <ENTER> key or click ***OK*** to begin the installation. 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. Press <ENTER> to complete the installation. Once completed, the Display Driver Control Panel appears on the screen. This Control Panel allows you to select and load the installed drivers.

Another method of installing these drivers is through the File Manager. Click on ***Drive A:***. Then double-click on ***WINSETUP.EXE*** to begin installation.

Changing Display Drivers in Windows

To change display drivers in Windows, select the ***Windows Setup*** icon from the Main window. You will be shown the current setup configuration. Select ***Change System Settings*** from the Option menu. Click on the arrow at the end of the Display line. You will be shown a list of display drivers. Click on the driver you want. Then click on the ***OK*** button. Follow the directions to complete the setup.

Changing Color Schemes

After you change display drivers, you may notice that the color scheme used by Windows looks strange. This is because different drivers have different default colors. To change the color scheme, select the ***Control Panel*** from the Main window. Select the ***Color*** icon. You will be shown the current color scheme. Choose a new color scheme and click the ***OK*** button.

DOS Setup

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

Step 2: Place the display driver diskette in drive A. Type **A:** <ENTER> to make this the default drive. Type **SETUP** <ENTER> to run the driver SETUP program. Press any key to get to the applications list. Using the arrow keys, select ***Windows Version 3.1*** and press the <ENTER> key. Press the <ENTER> key to select ***All Resolutions***, and then press <END> to begin the installation. At this point you will be asked for the path to your Windows System directory (default C:\WINDOWS). When the installation is complete, press any key to continue. Press <ESC> followed by Y to exit to DOS.

Step 3: Change to the directory where you installed Windows (usually C:\WINDOWS).

Step 4: Type **SETUP** <ENTER> to run the Windows Setup program. It will show the current Windows configuration. Use the up arrow key to move to the Display line and press <ENTER>. A list of display drivers will be shown. Use the arrow keys to select one of the drivers starting with an asterisk (*) and press <ENTER>.

Step 5: Follow the directions on the screen to complete the setup. In most cases, you may press <ENTER> to accept the suggested option. When Setup is done, it will return to DOS. Type **WIN** <ENTER> to start Windows with the new display driver.

Changing Display Drivers in DOS

To change display drivers from DOS, change to the Windows directory and run Setup, repeating steps 4 and 5 from the previous page. Besides the special display drivers marked by an asterisk (*), you should be able to use the following standard drivers:

VGA	640x480, 16 colors
Super VGA	800x600, 16 colors

Panning Drivers

Special panning drivers are provided to allow high-resolution modes to be displayed on a flat panel or CRT. These drivers will show a section of a larger screen and will automatically pan, or scroll, the screen horizontally and vertically when the mouse reaches the edge of the display.

Linear Acceleration Drivers

A special high-performance linear acceleration driver is provided for 256-color modes. This driver may require special hardware and may not be supported on all systems. It is only available for Windows3.1.

AutoCAD R12

These drivers are designed to work with Autodesk AutoCAD R12. They conform to the Autodesk Device Interface (ADI) for Rendering drivers and Display drivers. These display list drivers accelerate redraw, pan, and zoom functions.

Driver installation

Step 1: Place the display driver diskette in drive A. Type **A:** <ENTER> to make this the default drive. Type **SETUP** <ENTER> to run the SETUP program. Press any key to get to the applications list. Using the arrow keys, select ***AutoCAD Release 12*** and press <ENTER>. This will display a list of supported driver resolutions. Using the arrow keys and the <ENTER> key, select the resolutions that are appropriate for your monitor. When all of the desired resolutions have been selected, press <END> to begin the installation. At this point you will be asked for a drive and directory to copy the driver files. Enter the drive and directory that contains the installed AutoCAD R12. If the destination directory does not exist you will be asked for confirmation. When the installation is complete, press any key to continue. Press <ESC> followed by Y to exit to DOS.

Step 2: Go to the AutoCAD directory where the new drivers were installed and run the driver installation program by typing **ACAD12 -r** <ENTER>. This program will configure your AutoCAD R12 to use the new display drivers. Select ***TurboDLD Classic***.

Configuring TurboDLD

Select ***Configure Video Display***. In Display Device Configuration choose ***Select Graphics Board/Resolution***. Then choose ***Select Display Graphics Board***. After choosing a graphics board, go to ***Select Display Resolution***. After selecting the display resolution, save the new configuration, and return to the main menu.

Basic Configuration Menu

This menu allows you to modify:

Number of AutoCAD Command Lines	
Font Size	6x8/8x8/8x14/8x16/12x20/12x24
Dual Screen	Enable/Disable
User Interface Configuration	
Double Click Interval Time	
BP Button	
BP Highlight	Patt Line/Xor Rect/Both
BP Refresh	Enable/Disable
BP Cache	Enable/Disable

Expert Configuration Menu

This menu allows you to modify:

Display List	Enable/Disable
Drawing Cache	Enable/Disable
Use Acad 31 bit space?	Yes/No
Internal Command Echo	Enable/Disable
BP Zoom Mode	Freeze/Float
Regen Mode	Incremental/Fast

If your previously installed driver is not TurboDLD, you will have to reconfigure the RENDER command the first time you use it.

Lotus 1-2-3 and Lotus Symphony

These drivers are designed to work with Lotus 1-2-3 versions 2.0, 2.01 and 2.2, and with Lotus Symphony versions 1.0 and 1.1.

Driver installation

Step 1: Place the display driver diskette into drive A. Make A the default drive by typing **A:** <ENTER>. Run the SETUP program by typing **SETUP** <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select ***Lotus/ Symphony,*** and press <ENTER>. A list of supported screen resolutions will be displayed. Use the arrow keys to select the desired screen resolution and press <ENTER>. (Make sure your monitor is able to display the resolution desired) Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this default and type in the 123 directory. At this point you may be asked to create the target directory if it does not already exist. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS. Copy all the files that were just created in the temporary directory onto a formatted floppy diskette.

Step 2: Go to your 123 directory, and start the installation program. Type the following commands:

C: <ENTER>

INSTALL <ENTER>

Step 3: The Lotus installation program will load and present the installation menu. From this menu, select ***Advanced Options***. From the Advanced Options menu, select ***Add New Drivers To Library***. From the Add New Drivers Menu, select ***Modify Current Driver Set***. From the Modify Driver Set Menu, select ***Text Display***. From the Text Display menu, select one of drivers.

Step 4: After the selection of the appropriate VGA display driver, you will need to exit this menu and return to the Main Lotus Installation Menu. Do this by selecting ***Return To Menu***.

Step 5: At the Lotus Installation Menu, select ***Save Changes***.

Step 6: At this point the Installation Menu will prompt you for the name of your new Lotus configuration file. The Lotus system will prompt you with the default value — 123.SET, but you may want to use a filename that indicates the resolution of its driver. For example, if you installed the 132 column by 25 line driver, you could name this driver 132X25.SET, or if you installed the 80 by 50 driver, you may want to call the file 80X50.SET.

Step 7: The installation of your Lotus 1-2-3 driver is now complete. You will need to exit the Lotus installation program at this point. At the main Lotus Installation Menu, select ***Exit***.

NOTE: If your driver set is not 123.SET, you have to type the filename of your driver set in the command line when you start Lotus 1-2-3. For example, if you named your driver set 132X25.SET, type the following to start Lotus 1-2-3:

123 132X25.SET <ENTER>

VESA

The Video Electronics Standards Association (VESA) has created a standard for a Super VGA BIOS Extension (VBE). This defines a standard software interface to allow application programs to set and control extended video modes, such as 800x600 graphics, on video adapters from different manufacturers.

The VESA driver adds this Super VGA BIOS Extension to the VGA BIOS. Any application program which supports the VESA standard driver interface can be used with this driver. This VESA driver conforms to the VESA Super VGA Standard #VS891001.

Driver installation

Step 1: Place the display driver diskette into drive A. Make A the default drive by typing **A:** <ENTER>. Run the SETUP program by typing **SETUP** <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select VESA Driver ***Version 1.2*** and press <ENTER>. Press the <ENTER> key to select ***All Resolutions***, and press <END> to begin the installation. A default drive and directory path will be displayed. Use the backspace key to erase this and type in a directory that is in the directory path (such as C:\BIN or C:\UTILS). After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS.

Step 2: To install the VESA driver, type either **VESA** <ENTER> or **VESA +** <ENTER> at the DOS prompt. The optional + command line parameter enables all of the available modes. Make sure that your monitor is capable of displaying these high resolution modes before enabling them.

NOTE: If the video BIOS already supports VBE extended video modes, DO NOT use this driver. Run the VTEST.EXE program to see if the video BIOS supports the VBE modes.

Word

These drivers are designed to work with Microsoft Word 5.0 and 5.5.

Driver installation

If you have already installed Word on your computer, go to Step 2 to install the new video driver.

Step 1: Install Word as normal.

Step 2: After you complete the Word installation, place the display driver diskette into drive A. Make A the default drive by typing **A:** <ENTER>. Run the SETUP program by typing **SETUP** <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select ***Word*** and press <ENTER>. Use the arrow keys to select the desired screen resolution and press <ENTER> (make sure your monitor is able to display the resolution desired). Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this and type in your Word directory. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS.

Step 3: Copy the driver file for the desired resolution that was just installed to SCREEN.VID.

WordPerfect

These drivers are designed to work with WordPerfect 5.0 or 5.1. They support 132-column display in editing mode, and high-resolution graphics display in PreView mode.

Driver installation

Step 1: Place the display driver diskette into drive A. Make A the default drive by typing **A:** <ENTER>. Run the SETUP program by typing **SETUP** <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select ***WordPerfect*** and press <ENTER>. A list of supported screen resolutions will be displayed. Use the arrow keys to select the desired screen resolution and press <ENTER> (make sure your monitor is able to display the resolution desired). Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this default and type in the WordPerfect directory. At this point you may be asked to create the target directory if it does not already exist. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS.

Step 2: Start WordPerfect, and press <SHIFT>+<F1> to enter the setup menu. Select ***D*** for Display and ***G*** for Graphics Screen Type, and then choose the desired Chips VGA resolution.

Configuring WordPerfect 5.0 for 132 columns

Follow these instructions to configure WordPerfect 5.0 for 132 column text mode:

Step 1: To use the SETCOL program to set 132 columns and 25 rows, type the following command:

SETCOL 132, 25 <ENTER>

Step 2: Start WordPerfect. The program will detect the number of rows and columns automatically. If for some reason WordPerfect is unable to adapt to 132 columns by 25 rows, start WordPerfect with the following command:

WP /SS=25,132 <ENTER>

Configuring WordPerfect 5.1 for 132 columns

Start WordPerfect and press <SHIFT>+<F1> to enter the setup menu. Select ***D*** for Display and ***T*** for Text Screen Type and then select ***Chips 132 Column Text***.

APPENDIX A

Installing PC/104 Modules

This appendix gives instructions for installing PC/104 modules.

Installing PC/104 modules

The PCM-3336'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-3115B** PCMCIA Module (Two-slot)
- **PCM-3610** Isolated RS-232/422/485 Module
- **PCM-3640** PC/104 4-port RS-232 Module
- **PCM-3660** PC/104 Ethernet Module
- **PCM-3718H** 30 KHz A/D Module
- **PCM-3724** 48-channel DIO Module
- **PCM-3840** DiskOnChip 2000 Flash disk Module
- **PCM-P50** PC/104 Vehicle Power Supply Module

Installing these modules on the PCM-3336 is a quick and simple operation. The following steps indicate how to mount the PC/104 modules:

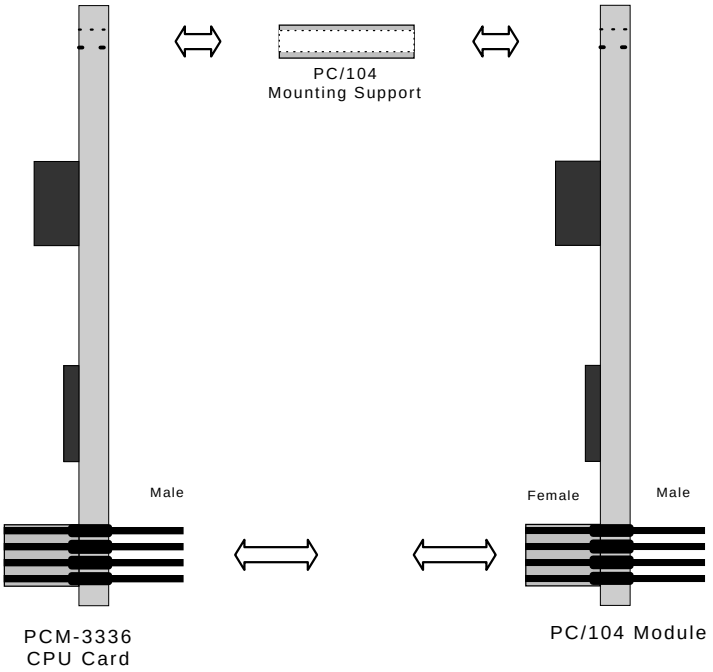
Step1 Remove the PCM-3336 from your system paying particular attention to the safety instructions already mentioned above.

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.

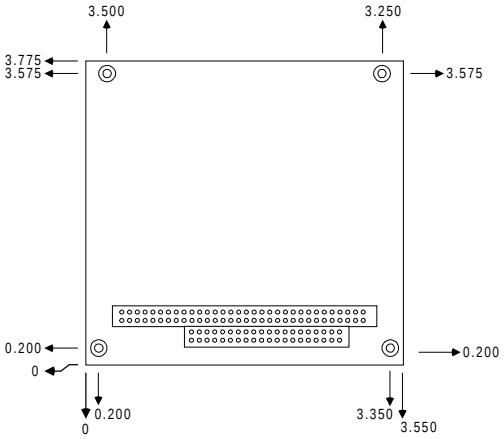
Step3 Normal PC/104 modules have "male" connectors and mount directly onto the main card. Please refer to the PC/104 module mounting diagram on the following page. After this is in place, you have the correct mounting connector to accept your PC/104 module.

Step4 Mount the PC/104 module onto the CPU card. Do this by pressing the module firmly but carefully onto the mounting connectors.

Step5 Secure the PC/104 module onto the CPU card using the four mounting spacers and screws.



PC/104 Module Mounting Diagram



PC/104 module dimensions (inches ±5 %)

APPENDIX B

LCD Display BIOS Configuration

This appendix gives instructions for configuring various LCD displays.

Configuring various LCD display

Follow the instructions below to integrate an LCD VGA BIOS into the PCM-3336 system BIOS.

1. Combine the VGA BIOS with the system BIOS following the instructions at the DOS prompt.

```
DEBUG                                   ; DOS utility program
-N                  SBC-355.ROM         <ENTER>
-L                  4000:0              <ENTER>
-N                  <VGABIOS.DAT>       <ENTER>; Read STN.DAT in BIOS files
                                                 for example
-L                  4000:0              <ENTER>
-R                  CX                  <ENTER>
CX  2000
:0                                      <ENTER>
-R                  BX                  <ENTER>
BX  0000
:2                                      <ENTER>
-N                  <Newfile.ROM>       <ENTER>; Assign new file name to
                                                 new SBC-355V BIOS
-W                  4000:0              <ENTER>; Write the BIOS back to disk
-Q                                      <ENTER>
```

2. Use the utility program AMIFLASH.COM to write the system BIOS file you just created to the BIOS chip on board.

```
AMIFLASH <Newfile.ROM>
```

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