

PFM-336I

386SX-40

PC/104 CPU Card

With LCD & DiskOnChip®

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Packing List

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

- 1 PFM-336I PC/104 CPU Card
- 1 Manual
- 1 Jumper Cap
- 1 8-pin (4 x 2 pin header) for Keyboard & PS/2 mouse
- 1 FDD Cable
- 1 IDE Cable
- 1 SVGA Adapter
- 1 Parallel Port Adapter
- 2 Serial Ports Adapter

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

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Chapter

1

**General
Information**

1.1 Introduction

The PFM-336I 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, and IDE HDD interface and a floppy disk controller. With its industrial grade reliability, the PFM-336I can operate continuously at temperature up to 140°F (60°C).

The PFM-336I 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 PFM-336I features an SVGA interface which supports CRT and Flat Panel (TFT, STN and Mono displays), with 512KB onboard display memory.

1.2 Features

- Onboard ALi M6117C, Intel® 386SX-40 compatible CPU
- Onboard 8Mbytes EDO DRAM
- C&T 65545 LCD controller with 512KB display memory

1.3 Specifications

System

- CPU ALi M6117C, Intel[®] 80386SX-40 compatible
- Chipset ALi M6117C
- IO Chipset ITE-8661
- BIOS AMI 128KB Flash BIOS.
- System Memory Onboard 8MB EDO DRAM

- Enhanced IDE Interface 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)
- Serial Ports One RS-232 and one RS-232.422/485 serial port. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually (16C550 equivalent)
- Parallel port One bi-directional parallel port. Supports SPP, ECP, and EPP modes.
- Keyboard/ PS2 Mouse connector 8-pin (4x2, pin header) connector supports PC/AT keyboard and PS/2 mouse
- Watchdog Timer Can generate a system reset, IRQ15 or NMI. Software selectable time-out interval (30.5us~512sec, 30.5us/step)

- SSD Support DiskOnChip® up to 1GB
- DMA 7 DMA channels (8237 equivalent)
- Interrupt 15 interrupt levels (8259 equivalent)

Display

- Chipset C&T 65545
- Display Memory 512KB
- Display Type Supports non-interlaced CRT and LCD (TFT, DSTN and Mono).
- Resolution Up to 800 x 600 @ 256 colors

Expansion Interface

- PC/104 One 16-bit 104-pin connector onboard for PC/104 module expansion

Mechanical and Environment

- Dimension 3.77"(L) x 3.54"(W)
- Weight 0.61b (0.25kg)
- Operating Temperature 0~60°C (32~140°F)
- Power Supply Voltage +5V(4.75V to 5.25V)

Chapter

2

**Quick
Installation
Guide**



2.1 Safety Precautions

Warning!



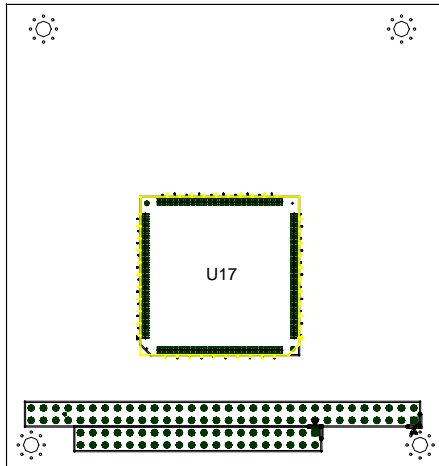
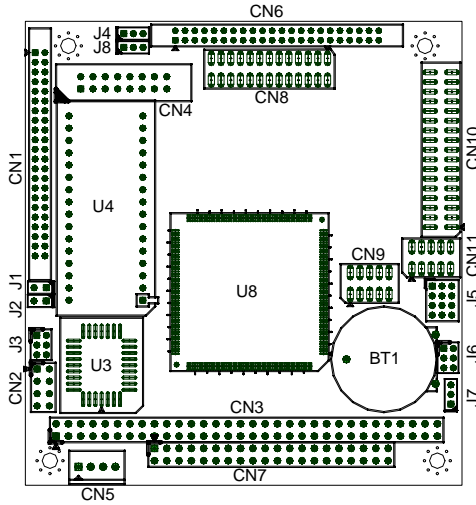
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

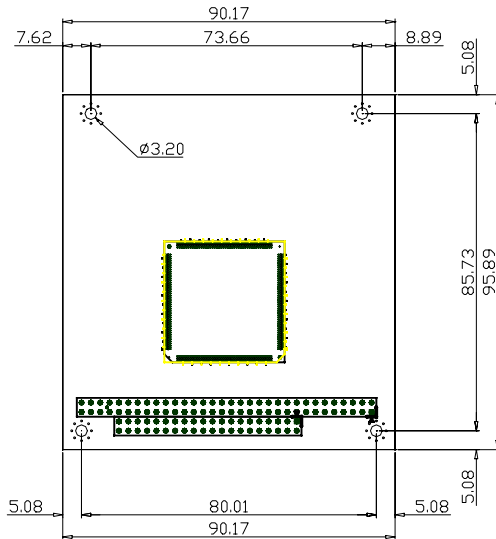
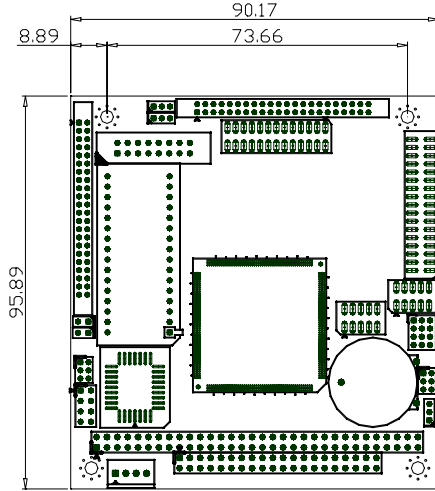


Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Board Layout



2.3 Board Dimension



2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
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	Shift Clock Select

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each of the board's connectors:

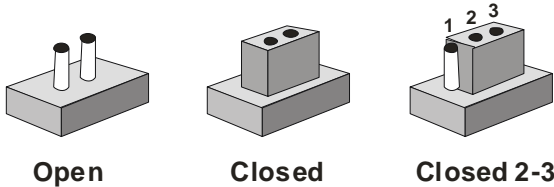
Connectors

Label	Function
CN1	HDD Connector
CN2	KB/PS2 Connector
CN3	PC/104 Connector
CN4	SVGA Connector
CN5	Power Connector
CN6	LCD Connector
CN7	PC/104 Connector
CN8	Printer Connector
CN9	COM1 Connector
CN10	Floppy Disk Connector
CN11	COM2 Connector

2.6 Setting Jumpers

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

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



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

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

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

2.7 HDD LED (J1)

You can connect a LED to indicate that an IDE device is in use.

J1	Function
1	-R/W IDE (LED Cathode)
2	Pull high (LED Anode)

2.8 Reset Switch (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.

J2	Function
1	Reset
2	GND

2.9 DiskOnChip (DOC) 2000 Installation (J3)

1-2	3-4	5-6	DOC Address
Off	Off	On	D000
Off	On	Off	D400
Off	On	On	D800
On	Off	Off	DC00
Off	Off	Off	Disable

2.10 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 +5V of power and pin 2-3 will provide +3.3V of power.

J4	Function
2-3	+3.3V
1-2	+5V (Default)

2.11 Clear CMOS (J7)

Warning:

To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS." Before turning on the power supply, set the jumper back to "Normal."

J7	Function
1-2	Clear CMOS
2-3	Normal (Default)

2.12 Shift Clock Select (J8)

J8	Function
2-3	Ashclk
1-2	Shclk

2.13 RS-232/422/485 COM2 Setting (J5 & J6)

J5	J6	Function
1-2, 4-5, 7-8, 10-11	1-2	RS-232 (Default)
2-3, 5-6, 8-9, 11-12	3-4	RS-422
2-3, 5-6, 8-9, 11-12	5-6	RS-485

2.14 IDE Hard Drive Connector (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

2.15 Keyboard Connector (CN2)

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

2.16 Display Connector (CN4 & CN6)

CN4

Pin	Signal	Pin	Signal
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

CN6

Pin	Signal	Pin	Signal
1	+12 V _{DC}	2	+12 V _{DC}
3	GND	4	GND
5	LCDV	6	LCDV
7	FPV _{EE}	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

2.17 Power Supply Connector (CN5)

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

2.18 Parallel Port (CN8)

Pin	Signal	Pin	Signal
1	Strobe	2	PAF
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

2.19 Serial Port (CN9 & CN11)

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	SIN1 / 485 Tx+
3	TxD 2 / 422 Rx+
4	DRT 2 / 422 Rx-
5	GND
6	DSR 2
7	RTS 2
8	CTS 2
9	RI 1
10	NC

2.20 Floppy Drive Connector (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

**AMI
BIOS Setup**

3.1 System Test and Initialization

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

Press <F1> to RESUME

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

System configuration verification

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

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

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

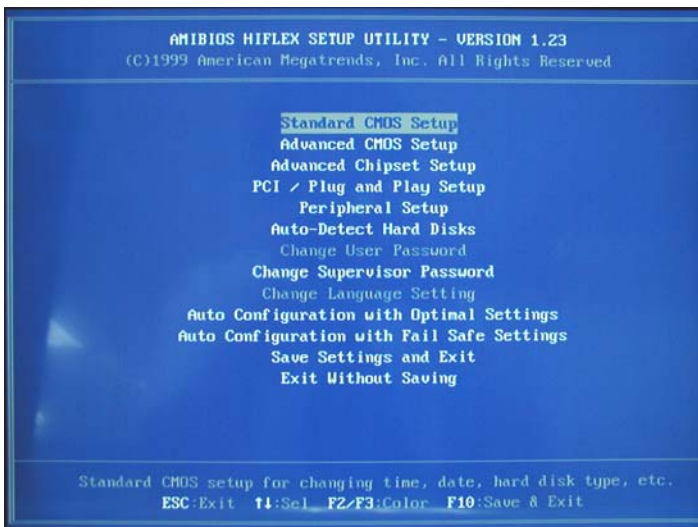
The PFM-336I CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 AMI BIOS setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering setup

Power on the computer and press immediately. This will allow you to enter Setup.



Standard CMOS Setup

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced CMOS Setup

Use this menu to set the advanced features available on your system.

Advanced Chipset Setup

Use this menu to change the values in the chipset registers and optimize your system performance.

PCI/Plug and Play Configurations

This entry appears if your system supports PnP/PCI.

Peripheral Setup

Use this menu for peripherals configuration. (serial port, Ir Port etc.)

Auto-Detect Hard Disks

Change Supervisor Password

Auto Configuration with Optimal Settings

Auto Configuration with Fail Safe Settings

Save Settings and Exit

Exit Without Saving

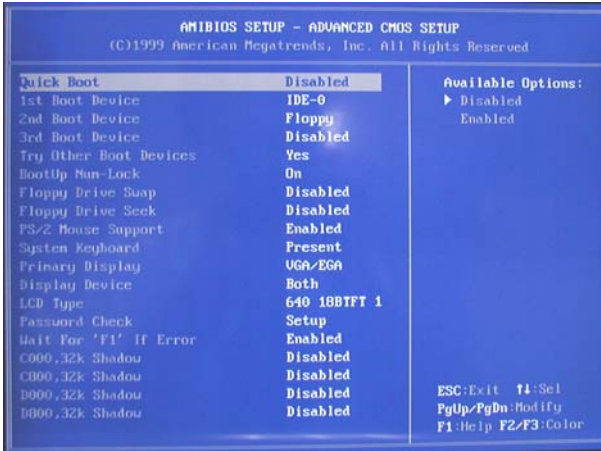
3.3 Standard CMOS Setup

When you choose the Standard CMOS Setup option from the INITIAL SETUP SCREEN menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display.



3.4 Advanced CMOS Setup

By choosing the Advanced CMOS Setup option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



3.5 Advanced Chipset Setup

By choosing the Advanced Chipset Setup option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



3.6 PCI/Plug and Play Setup

By choosing the PCI/Plug and Play Setup from the INITIAL SETUP SCREEN menu, the screen below is displayed.



3.7 Peripheral Setup

By choosing the Peripheral Setup from the INITIAL SETUP SCREEN menu, the screen below is displayed.

