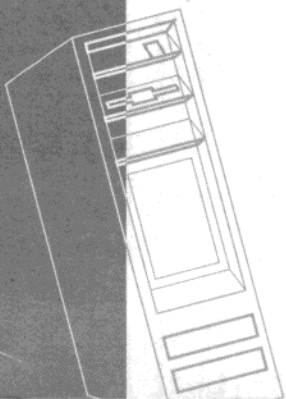
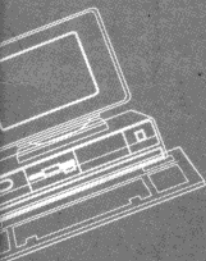
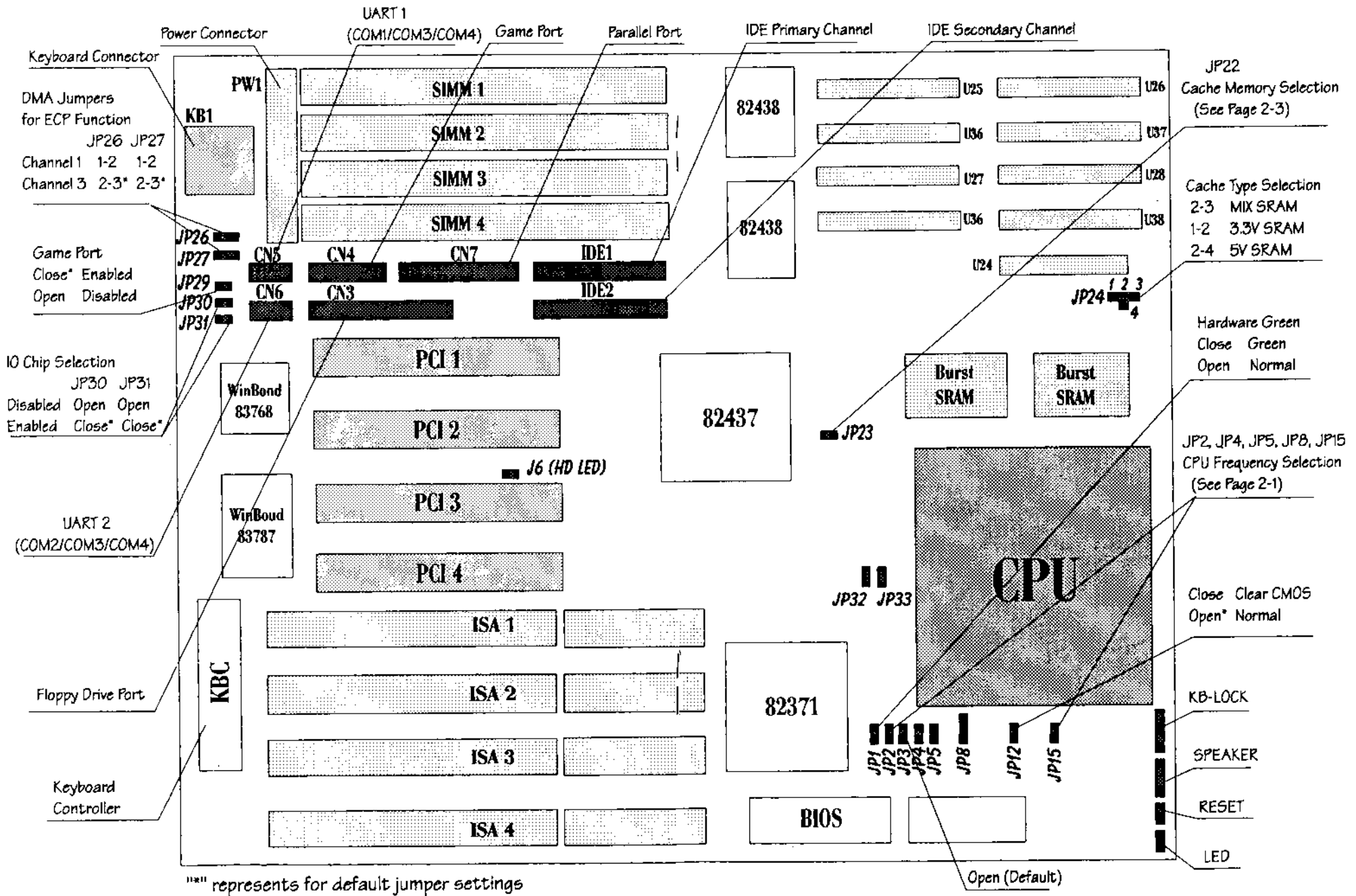


Pentium
P5I437P4/FMB



User Manual
PC Main Board





Keyboard Connector

DMA Jumpers for ECP Function

JP26 JP27

Channel 1 1-2 1-2

Channel 3 2-3* 2-3*

Game Port

Close* Enabled

Open Disabled

IO Chip Selection

JP30 JP31

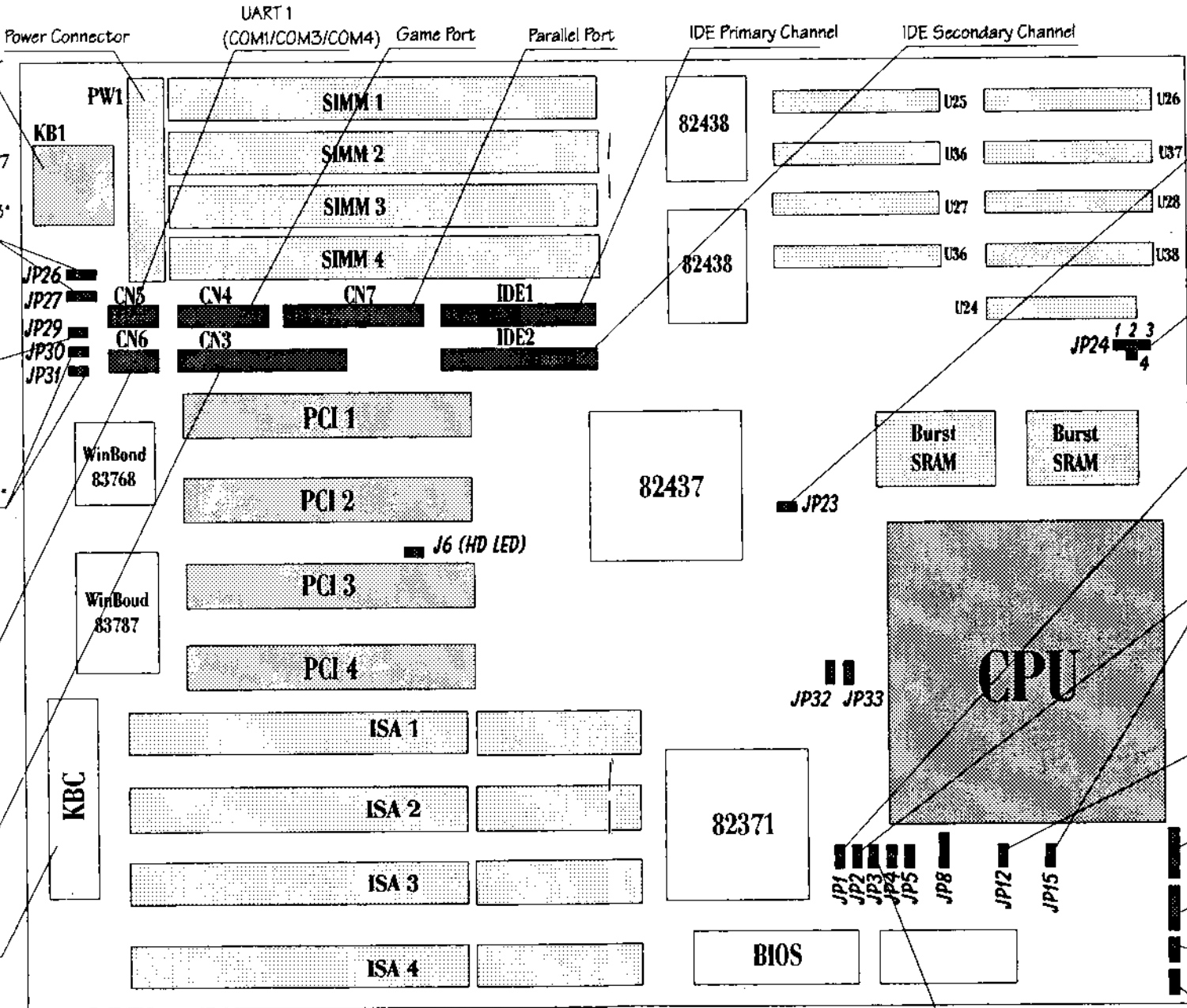
Disabled Open Open

Enabled Close* Close*

UART 2 (COM2/COM3/COM4)

Floppy Drive Port

Keyboard Controller



*** represents for default jumper settings

Open (Default)

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Chapter 1

Introduction

Overview

P5I437P4/FMB Green main board provides a highly integrated solution for fully compatible, high performance PC/AT platforms, and supports Intel's Pentium microprocessor. It features Write-Back Secondary Cache memory for 256KB/512KB in size. Flexible main memory size can be installed from 8MB up to 128MB DRAMs, so as to give full play to the advantages of the Pentium CPU. The main board offers a wide range of interface to support integrated on-board IDE and on-board IO function.

The current Green function is divided into two phases : Standby and Suspend.

Key Features

- | | |
|----------------|--|
| CPU | <ul style="list-style-type: none">- Supports Intel Pentium 75, 90, 100, 120, 133, 150, 166, 180, 200MHz CPUs- Supports P54C, P54CTB, P55C in specification- 2.5V circuit on board, ready for future P55C support |
| Chipset | <ul style="list-style-type: none">- Intel's F437 chipset |
| Main memory | <ul style="list-style-type: none">- Supports 4x72pin SIMMs module- 64-bit data path for flexible memory size expanded from 8MB up to 128M DRAMs on board- Supports EDO/Hyper Page mode DRAM (High speed) and also supports Standard Page mode DRAM |
| Cache memory | <ul style="list-style-type: none">- Supports Write-Back Cache policy for 256KB /512KB L2 Cache- Supports Burst, Pipelined Burst or Asynchronous cache. |
| On-board IDE | <ul style="list-style-type: none">- Supports PIO and Bus Master IDE- Supports up to Mode 4 Timings- Supports transfer rates up to 22 MBytes/s- Supports 2 Fast IDE interface for up to 4 IDE devices including IDE hard disks and CD ROMs |
| Green function | <ul style="list-style-type: none">- Supports 2 Green modes: standby and suspend |
| On-board I/O | <ul style="list-style-type: none">- 4 x ISA Slots and 4 x PCI Slots |

Introduction

- Use Winbond IO chip W83787
 - Supports up to two 3.5" or 5.25" floppy drives 360K/720K/1.2M/1.44 format
 - One game port
 - All IO ports can be enabled or disabled
 - Two high speed 16550 compatible UARTs (COM1/COM3 & COM2/COM4 selectable) with 16-byte send/receive FIFOs and support MIDI mode
 - One parallel port at I/O address 378H/278H/3BCH with additional bi-direction I/O capability and multi-mode selection (SPP/EPP/ECP) (IEEE1284 compliant)
- BIOS
- Licensed advanced AMI WinBIOS. Supports Flash ROM BIOS, Plug and Play ready. Built-in NCR810 and Adaptec 7850 SCSI drivers.
- Board size
- 220mm x 300mm

Hardware Settings

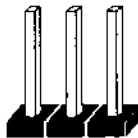
There are a number of hardware settings on the board. They specify configuration options for various features. The settings are made using something called a 'jumper'. Jumpers on the system board provide information to your operation about installed options and system settings. A jumper is a set of two or more metal pins in a plastic base attached to the mainboard. A plastic jumper 'cap' with a metal plate inside fits over two pins to create an electrical contact between them. The contact establishes a hardware settings such as installing the CPU, selecting cache size.

Note: When you open a jumper, leave the plastic jumper cap attached to one of the pins so you don't lose it.

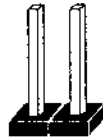
Jumpers and Caps



Jumper cap



3-pin jumper



2-pin jumper

Chapter 2

Jumper Configuration

CPU Frequency Selection

The main board offers a set of jumper settings to facilitate clock frequency adjustment. The tables are shown below to list selected frequency.

Table for CPU clock multiple setting:

CPU CLOCK	JP2	JP15
1.5 x SC	Open	Open
2 x SC	Close	Open
2.5 x SC	Close	Close
3 x SC	Open	Close

Note: SC – System Clock

Table for system clock setting:

SYSTEM CLOCK	JP4	JP5	JP8
50MHz	Close	Close	1-2
60MHz	Close	Open	2-3
66MHz	Open	Close	2-3

For 75~200MHz CPU, you should set jumpers as follows:

CPU CLOCK	JP2	JP15	JP4	JP5	JP8
75 = 1.5 x 50MHz	Open	Open	Close	Close	1-2
90 = 1.5 x 60MHz	Open	Open	Close	Open	2-3
100 = 1.5 x 66MHz	Open	Open	Open	Close	2-3
120 = 2 x 60MHz	Close	Open	Close	Open	2-3
133 = 2 x 66MHz	Close	Open	Open	Close	2-3
150 = 2.5 x 60MHz	Close	Close	Close	Open	2-3
166 = 2.5 x 66MHz	Close	Close	Open	Close	2-3
180 = 3 x 60MHz	Open	Close	Close	Open	2-3
200 = 3 x 66MHz	Open	Close	Open	Close	2-3

*Note: JP8 for AT bus clock : set 1-2 for PCICLK/3,
set 2-3 for PCICLK/4.*

Jumper Configuration

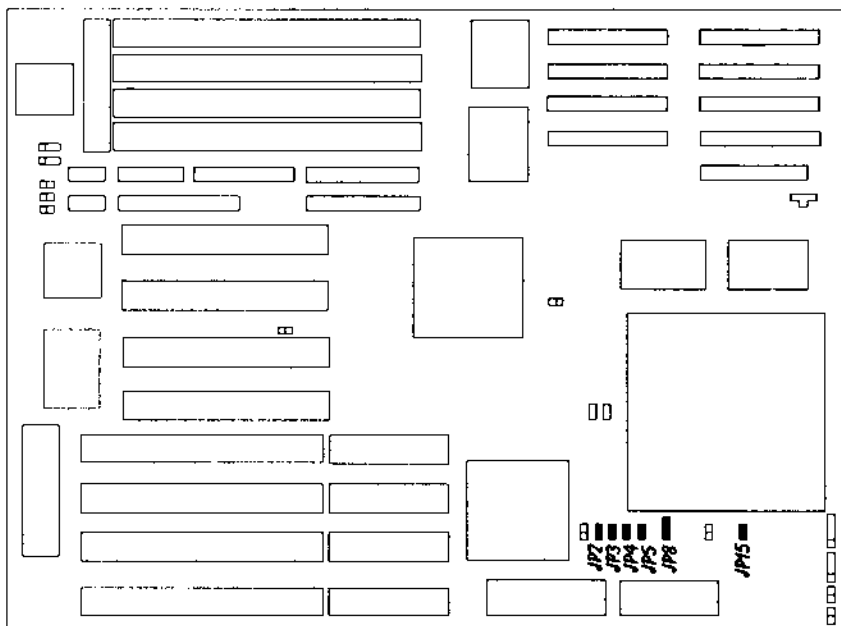


Figure 2-1 The illustration of jumper settings related to CPU

Note: The small black block in the diagram means pin 1 of jumpers.

Cache Memory Selection

CACHE SIZE	CACHE RAM	Minimum TAG RAM	JP22
Asyn. 256K	32K x 8	8K x 8	2-3
Asyn. 512K	64K x 8	16K x 8	1-2
No Cache	---	---	2-3
256K PB Cache	32K x 32	8K x 8	2-3

Cache Type Selection

OPTION	JP24
MIX SRAM	2-3
3.3V SRAM	1-2
5V SRAM	2-4

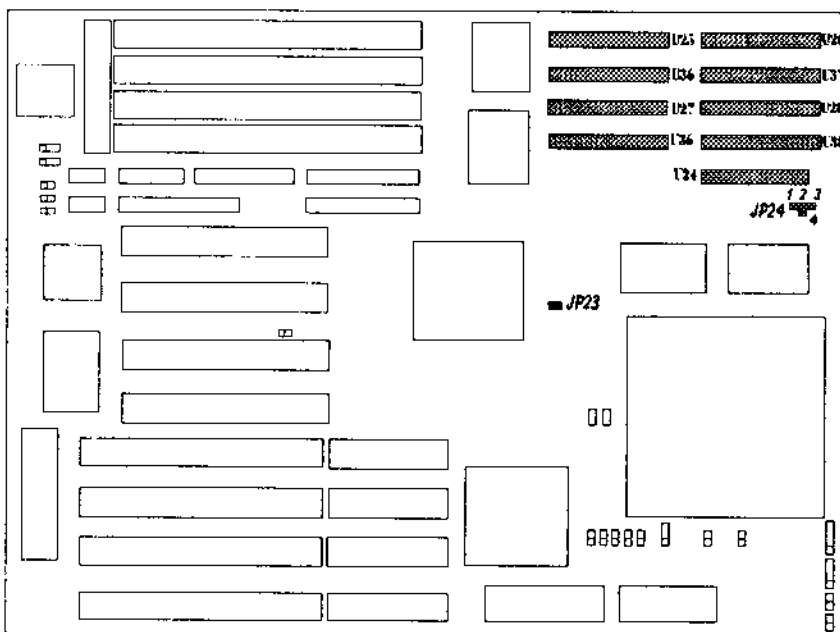


Figure 2-2 The illustration of jumper settings related to cache memory

"":** Represent for default jumper settings.

Jumper Configuration

Game Port

FUNCTION	JP29
Enabled	Close *
Disabled	Open

DMA Jumpers for ECP Function

	JP26	JP27
Channel 1	1-2 (DREQ 1)	1-2 (DACK-1)
Channel 3	2-3 (DREQ 3)*	2-3 (DACK-3)*

IO Chip Selection

FUNCTION	JP30	JP31
Enabled	Close *	Close *
Disabled	Open	Open

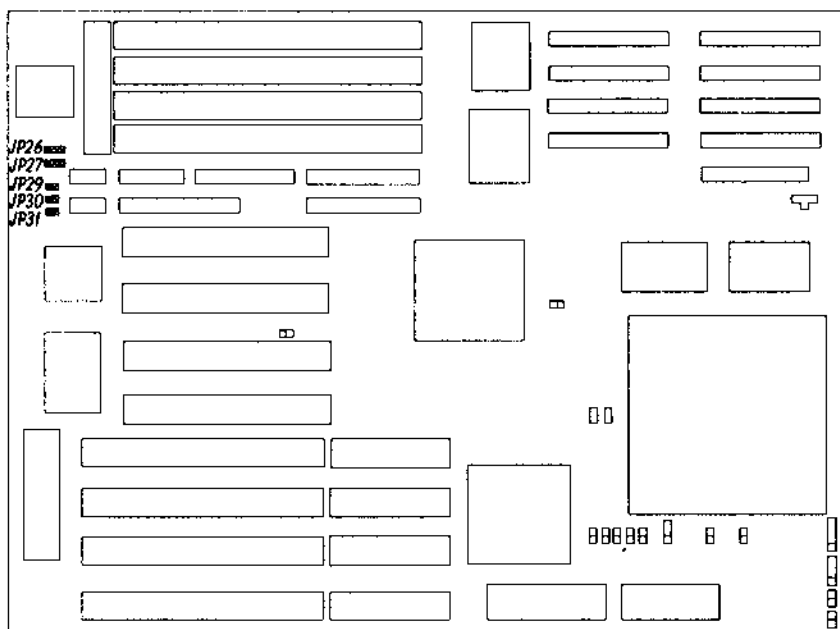


Figure 2-3 The illustration of jumper settings related to on-board IO

Clear CMOS

JUMPER	SETTING	FUNCTION
JP12	Close once	Clear CMOS
	Open *	Normal

Reserved Jumper Setting

JUMPER	SETTING
JP3	Open *

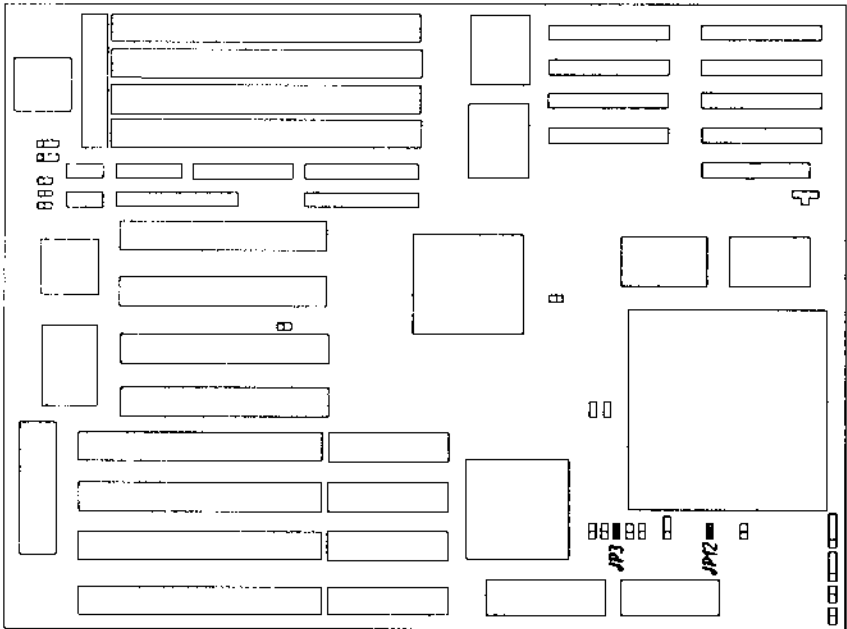
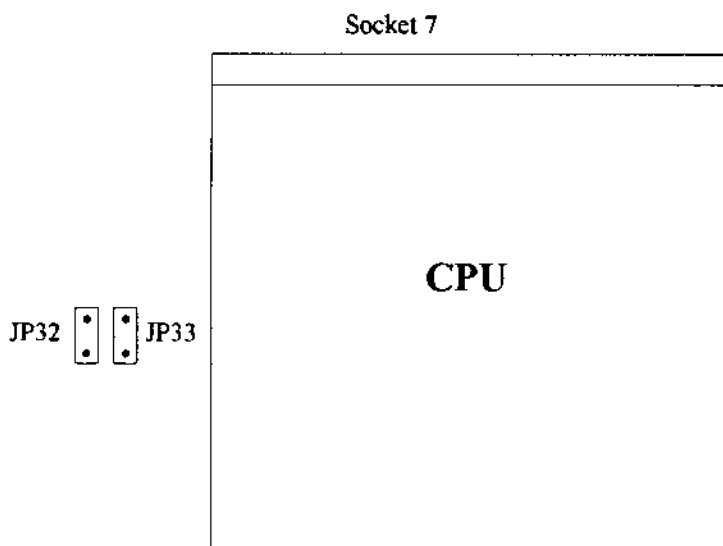


Figure 2-4 The illustration of other jumper settings

Jumper Configuration

CPU Selection



Setting	JP32 & JP33
Close	For P54C or P54CTB CPU
Open	For future P55C with 2.5V core

This main board is ready to support 2.5V CPU (P55C) by adding 2.5V circuit on board, but users need consult your local technical support before using future P55C CPU, which is not available when this manual being written.

Chapter 3

Connector Configuration

This section lists all connector pin assignments and port descriptions on the main board. The situations of the connectors and ports are illustrated in the following figures. Before inserting these connectors, please pay attention to their directions.

Power Connector (PW1)

PIN NUMBER	FUNCTION
1	POWER GOOD
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V

Keyboard Connector (KB1)

PIN NUMBER	FUNCTION
1	CLOCK
2	DATA
3	NC
4	GND
5	+5V

Reset Switch (RESET)

SETTING	FUNCTION
CLOSE ONCE	RESET THE SYSTEM
OPEN	NORMAL

Connector Configuration

Keylock Connector (KB-LOCK)

PIN NUMBER	FUNCTION
1	+5V
2	NC
3	GND
4	KEYLOCK
5	GND

Speaker Connector (SPEAKER)

PIN NUMBER	FUNCTION
1	SPKDATA
2	GND
3	GND
4	VCC

Hard Disk LED (HD LED(J6))

PIN NUMBER	FUNCTION
1	LED ANODE
2	LED CATHODE

Turbo LED (LED)

PIN NUMBER	FUNCTION
1	LED ANODE
2	LED CATHODE

Hardware Green (JP1)

SETTING	FUNCTION
CLOSE	HARDWARE GREEN (STOP CLOCK)
OPEN	NORMAL

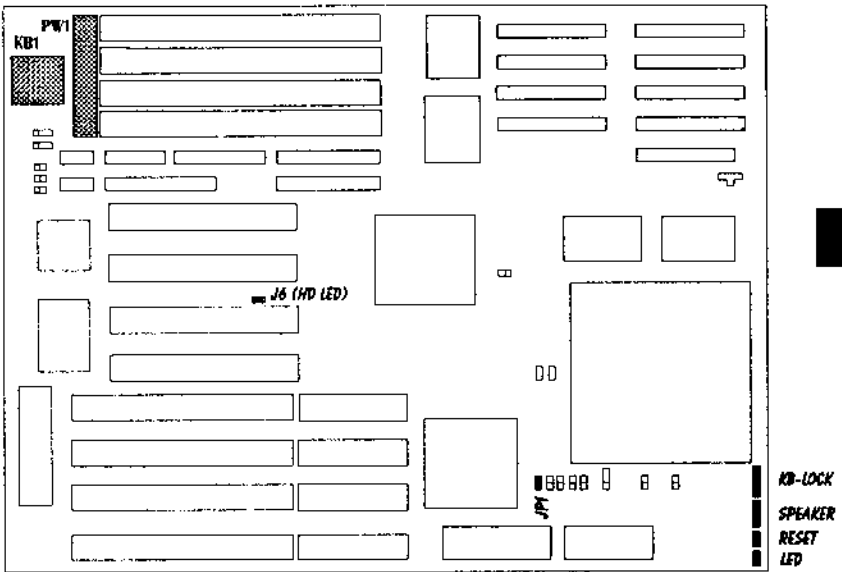


Figure 3-1 The illustration of connector configuration

Connector Configuration

IO Port Description

CONNECTOR	FUNCTION
IDE1	Primary IDE Port
IDE2	Secondary IDE Port
CN3	Floppy Drive Port
CN4	Game Port
CN5	UART1 (COM1/COM3/COM4)
CN6	UART2 (COM2/COM3/COM4)
CN7	Parallel Port

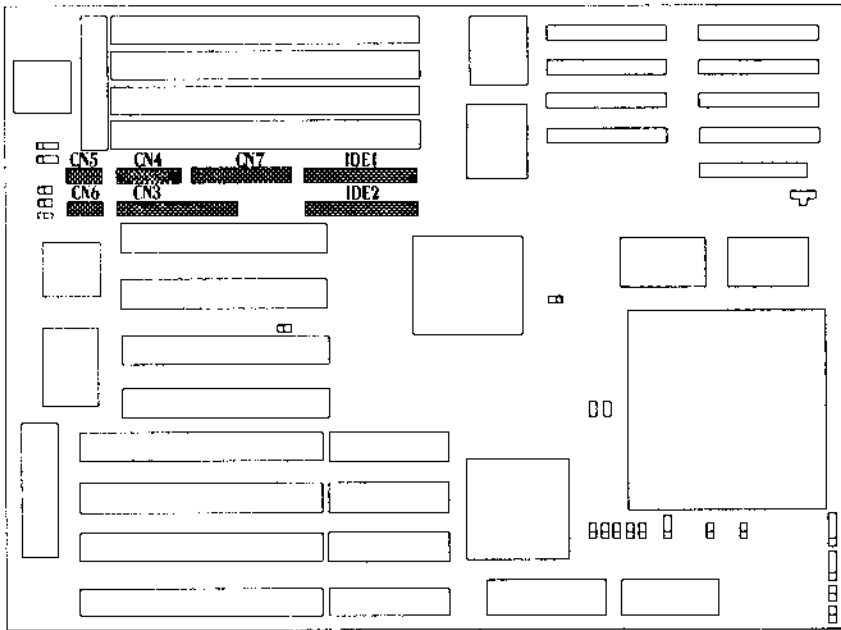


Figure 3-2 The illustration of on-board IO port configuration

Chapter 4

Memory Configuration

The P51437P4/FMB main board supports single-bank 72Pin SIMMs or double-bank 72Pin SIMMs providing a flexible size from 8MB up to 128MB main memory. The DRAM SIMMs can be installed into either/both SIMM1 & 2 or/and SIMM3 & 4. Please do not plug in two different brands of SIMMs on a bank simultaneously.

RAM SIZE	72-pin SIMM #1	72-pin SIMM #2	72-pin SIMM #3	72-pin SIMM #4
8 MB	4 MB x 1	4MB x 1	---	---
16 MB	4 MB x 1	4 MB x 1	4 MB x 1	4 MB x 1
16 MB	8 MB x 1	8 MB x 1	---	---
24 MB	8 MB x 1	8 MB x 1	4 MB x 1	4 MB x 1
32 MB	8 MB x 1	8 MB x 1	8 MB x 1	8 MB x 1
32 MB	16 MB x 1	16 MB x 1	---	---
40 MB	16 MB x 1	16 MB x 1	4 MB x 1	4 MB x 1
48 MB	16 MB x 1	16 MB x 1	8 MB x 1	8 MB x 1
64 MB	16 MB x 1	16 MB x 1	16 MB x 1	16MB x 1
64 MB	32 MB x 1	32 MB x 1	---	---
72 MB	32 MB x 1	32 MB x 1	4 MB x 1	4 MB x 1
80 MB	32 MB x 1	32 MB x 1	8 MB x 1	8 MB x 1
96 MB	32 MB x 1	32 MB x 1	16 MB x 1	16 MB x 1
128 MB	32 MB x 1	32 MB x 1	32 MB x 1	32 MB x 1
128 MB	64 MB x 1	64 MB x 1	---	---

*Note: Bank 0: SIMM 1, SIMM 2
Bank 1: SIMM 3, SIMM 4*

Memory Configuration

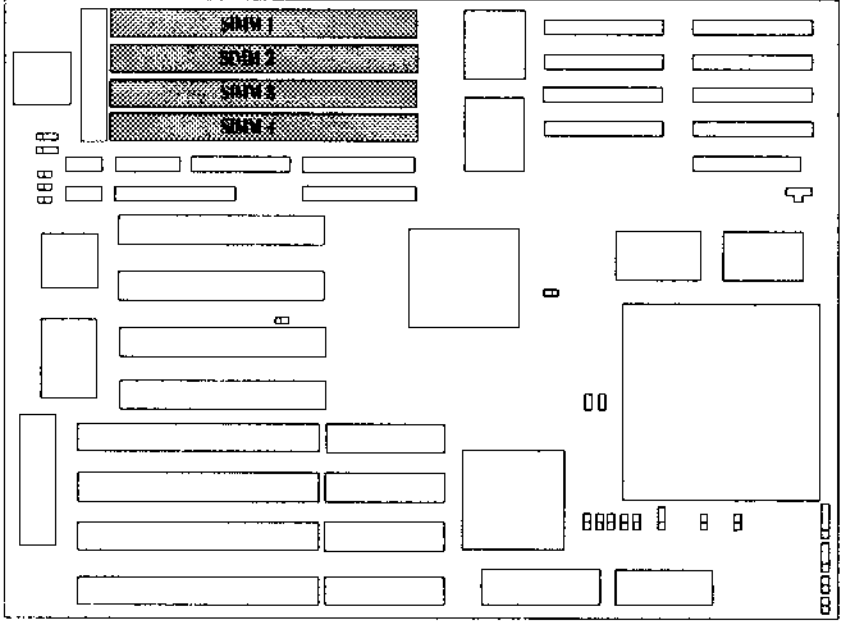


Figure 4-1 The illustration of main memory configuration

Chapter 5

BIOS Configuration

Enter AMI WinBIOS Configuration Program

During power-on memory test, pressing the key will bring the SETUP main menu to the screen. You can use the <Tab> Key to move over to the next window and use the arrow and the <Enter> keys to make selection in the current window. Pressing <Alt>+<H> will bring up the help menu.

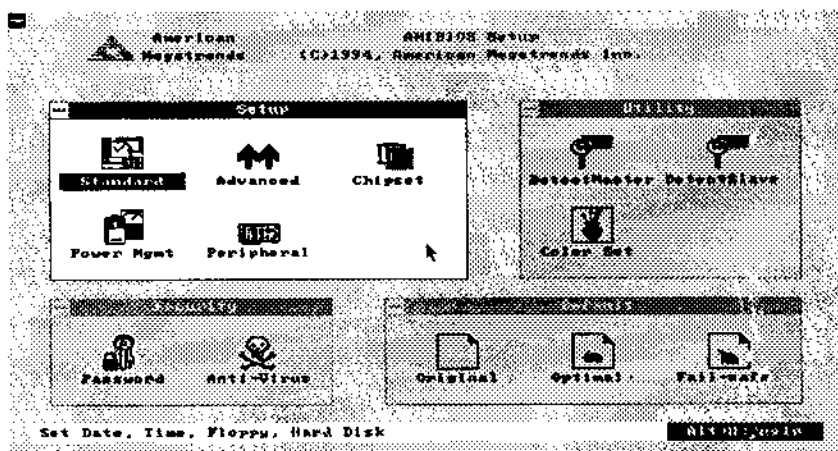


Figure 5-1 The screen of WinBIOS SETUP Program

NOTE : Use arrow keys to select a desired option. After highlighting the option, press the <Enter> key to enter its menu. Or you can use the mouse to double-click the icon to enter its menu directly.

BIOS Configuration

Standard Setup

The WinBIOS setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu selection screen. The selected window is as follows.

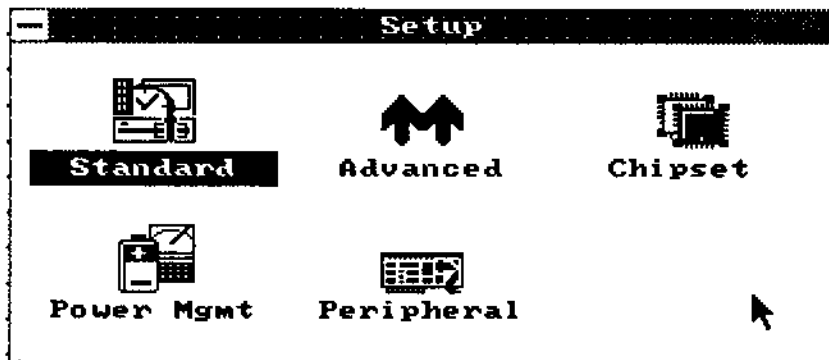


Figure 5-2 The screen of STANDARD SETUP

You can move the cursor to select the “Date/Time”, “Floppy A”, “Floppy B”, “Master Disk” or “Slave Disk” icons, then press the <Enter> key to set them up.

The STANDARD SETUP screen is as follows.

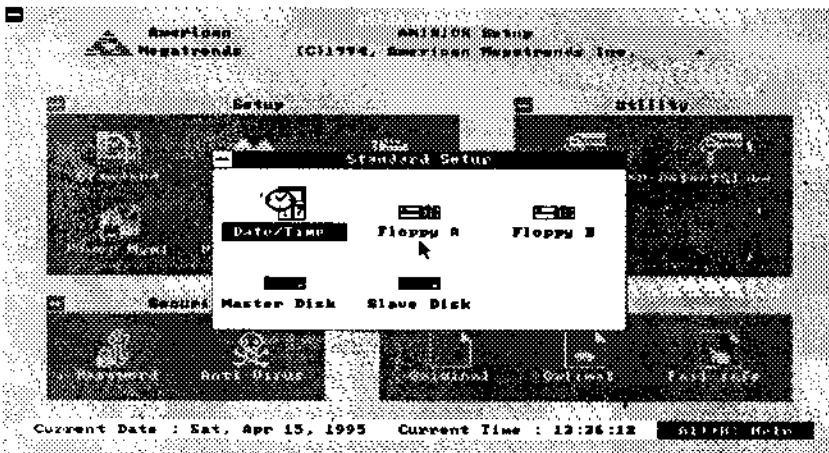


Figure 5-3 The screen of STANDARD SETUP

Date and Time Configuration

Select the Standard option. Select the Date/Time icon. The current values for each category are displayed. Enter new values through the keyboard.

Floppy Drive A:

Floppy Drive B:

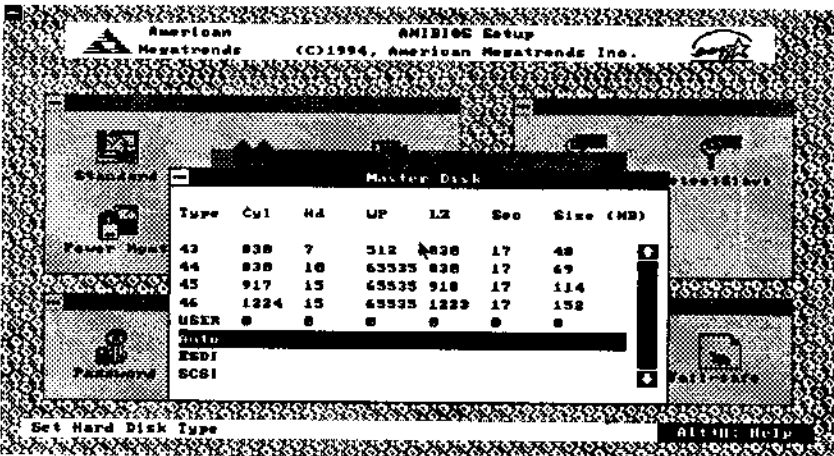
Move the cursor to these field and select the floppy type. The setting are 360 KB 5¹/₄ inch, 1.2 MB 5¹/₄ inch, 720 KB 3¹/₂ inch, 1.44 MB 3¹/₂ inch, or 2.88 MB 3¹/₂ inch.

Master Disk

Slave Disk

Select one of these hard disk drive icons to configure the drive named in the option. A scrollable screen that lists all old disk drive types is displayed. Select the correct type and press <Enter>. If the hard disk drive is an IDE drive, select Detect Master or Detect Slave (only for primary IDE) from the Utility section of the WinBIOS Setup main menu to allow WinBIOS to automatically detect the IDE drive parameters and report them whose types are defined as "USER" on this screen.

You can also select "AUTO" from hard disk type list. BIOS can detect hard disk parameters or prompt hard disk uninstalled automatically while each booting time. So you need not modify hard disk type when you add, remove or change a hard disk in your system.



Note: For an old type hard disk without autodetect function, it is necessary to enter "Master Disk" (or "Slave Disk") to set its type, and this type of hard disk can't connect to the Secondary channel.

BIOS Configuration

Advanced Setup

<i>Advanced Setup</i>	
System Keyboard	: Present
Primary Display	: VGA/EGA
Floppy Drive Seek At Boot	: Disabled
System Boot Up Sequence	: C:, A:
Password Checking	: Setup
Cache Memory	: Both
System BIOS Shadow Cacheable	: Enabled
Video ROM C000, 32K	: Cache
Adapter ROM C800, 16K	: Disabled
Adapter ROM CC00, 16K	: Disabled
Adapter ROM D000, 16K	: Disabled
Adapter ROM D400, 16K	: Disabled
Adapter ROM D800, 16K	: Disabled
Adapter ROM DC00, 16K	: Disabled
Boot To PnP Operating System	: No
OS/2 Compatible Memory Mode	: Disabled
IDE Block Mode	: Auto
On board PCI IDE	: Auto
On board PCI IDE Prim. PIO Mode	: Auto
On board PCI IDE Sec. PIO Mode	: Auto
On board PCI IDE 32bit Mode	: Enabled
Primary Master LBA Mode	: Disabled
Primary Slave LBA Mode	: Disabled
Secondary Ctrl Drives Present	: None
Secondary Master LBA Mode	: Disabled
Secondary Slave LBA Mode	: Disabled

NOTE:

- *Your BIOS can support up to 4 Hard Disks by changing "None" to "2" of Number of HDDs in Secondary Controller.*
- *Block Mode : Disabled. If your hard disk drive supports IDE block transfer mode, enable this option for faster IDE hard disk drive transfer rate.*
- *IDE Prim(Sec) Master (Slave) LBA Mode : Disabled. LBA (Logical Block Addressing) mode is for a new HDD accessing method to overcome the 528 Megabyte bottleneck.*
- *Boot to PnP Operating System: "No", BIOS will allocate resource to all*

PnP devices. "Yes", BIOS only allocate resource to bootable PnP devices.

- *OS/2 Compatible Memory Mode: Enabled, OS/2 can use memory over 64MB.*

Chipset Setup

<i>Chipset Setup</i>	
PCI Bursting	: Disabled
Memory Hole	: Disabled
DRAM Speed	: 70ns
8 bit I/O Recovery Time	: 8 Sysclk
16 bit I/O Recovery Time	: 4 Sysclk
PCI VGA Palette Snooping	: Disabled
PCI IDE Card Selection	: Absent
PCI Primary IDE INT# Line	: (N/A)
PCI Secondary IDE INT# Line	: (N/A)
IRQ3 Available to	: ISA
IRQ4 Available to	: ISA
IRQ5 Available to	: ISA
IRQ7 Available to	: ISA
IRQ9 Available to	: PCI/PnP
IRQ10 Available to	: PCI/PnP
IRQ11 Available to	: PCI/PnP
IRQ12 Available to	: PCI/PnP
IRQ14 Available to	: PCI/PnP
IRQ15 Available to	: PCI/PnP

Note:

- *PCI Bursting is the strong function of F437 chipset to improve the performance of PCI. It is possible that some PCI VGA cards can't support this function.*

BIOS Configuration

Power Management Setup

<i>Power Management Setup</i>	
Advanced Power Management	: Disabled
Full-on to Standby Timeout Value	: 3 Min
Standby to Suspend Timeout Value	: 3 Min
IDE Drive Power Down in	: Suspend
VESA Video Power Down in	: Suspend
VESA Power Down Mode	: Off
Slow Clock Ratio	: 1:4
IRQ 1 Break Event	: Enabled
IRQ 3 Break Event	: Enabled
IRQ 4 Break Event	: Enabled
IRQ 5 Break Event	: Disabled
IRQ 6 Break Event	: Enabled
IRQ 7 Break Event	: Enabled
IRQ 8 Break Event	: Disabled
IRQ 9 Break Event	: Disabled
IRQ 10 Break Event	: Disabled
IRQ 11 Break Event	: Disabled
IRQ 12 Break Event	: Disabled
IRQ 13 Break Event	: Disabled
IRQ 14 Break Event	: Enabled
IRQ 15 Break Event	: Enabled

Peripheral Setup

<i>Peripheral Setup</i>	
Programming Mode	: Auto
OnBoard IO	: Enabled
Onboard FDC	: Disabled
Serial Port1	: 3E8H
Serial Port2	: 2F8H
Parallel Port	: 278H
Serial Port1 MIDI Support	: Disabled
Serial Port2 MIDI Support	: Disabled
FDD A/B Exchange Function	: Disabled
Parallel Port Mode	: Normal
Parallel Extended Mode	: Disabled

Utility

ICON	FUNCTION
Detect Master	Automatically detect & configure Master Disk
Detect Slave	Automatically detect & configure Slave Disk
Color Set	Set the color of WinBIOS Setup screen

Default

The icons in this section allow you to select a group of settings for all WinBIOS Setup options. You can use these icons to configure system parameters quickly for preferable settings.

Original

Choose the Original icon to return to the system configuration values present in WinBIOS Setup.

Optimal

You can load the *optimal* default settings for the WinBIOS Setup options by selecting the Optimal icon. The Optimal default settings are best-case values that should optimize system performance. If CMOS RAM is corrupted, the Optimal settings are loaded automatically.

Fail-Safe

You can load the *Fail-Safe* WinBIOS Setup option settings by selecting the Fail-Safe icon from the Default section of the WinBIOS Setup main menu.

The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

Chapter 6

BIOS Upgrade Diskette

You can use this diskette to update your BIOS. You can insert this diskette into floppy drive A, then press <Ctrl> + <Home> and turn on the power. The system will update the BIOS automatically.

For the most update and additional information about BIOS upgrade, please refer to "README" in the "BIOS Upgrade Diskette".



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Manual of P5I437P4/FMB Ver 1.3