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1 Introduction

The P5F110 is a quality, high performance, function enhanced mainboard based on the powerful Intel P54C/P55C, AMD K5/K6/K6-2/K6-3, Cyrix 6x86/M II and IDE WinChip C6 family processor.

With a built-in VIA AGP graphics Chip, Ultra DMA/33/66 Bus Mastering IDE controller, concurrent PCI bus, USB ports and built-in AC97 Digital Audio Controller. It has 1MB or 2MB (optional) pipelined-burst second-level cache on board and three Dual Inline Memory Modules (DIMMs) allow as much as 768MB of 3V SDRAM/ EDO memory or 768MB of 3V EDO memory.

The board offers outstanding I/O capabilities, with Ultra DMA/33/66 Bus Mastering IDE interfaces, a floppy controller, two serial port connectors, an EPP/ECP-capable parallel port connector, and IrDA-compatible infrared port, two USB connectors, two USB port, and more. The five PCI local bus slots, two ISA bus slots, and one AMR slot provide outstanding expandability for add-on peripheral cards.

In addition, the board features a synchronous switching regulator and advanced power and system management functions. The board's BIOS supports automatic device detection--making setup of hard drives, expansion cards, and other devices virtually automatic.

1.1 Features

This section presents an overview of the board's special features.

VIA Apollo MVP4

The Apollo MVP4 is an advanced System Multimedia Architecture (SMA) PC core logic chipset for Socket 7 PC systems. The VIA Apollo MVP4 is a combination of the widely successful VIA Apollo MVP3 chipset and a high performance 2D/3D AGP graphics with setup engine and DVD hardware acceleration (Tridert Blade 3D 9880). Paired with the new VIA VT82C686A Super South bridge. The MVP4 is a compelling solution for cost-effective, full-feature desktop and mobile PC designs.

AGP VGA

Integrates an AGP 2.0 - Complaint 2D/3D AGP graphics controller into the north bridge of the chipset, 64-bit 2D/3D graphics engine, and video accelerator with advanced DVD video.

AC97 Audio

Integrated AC97 2.0 (meets PC 98$^{(TM)}$ Basic Audio Specification) and Sound Blaster-compatible legacy audio.

ISA and PCI Expansion Slots

Provides two 16-bit ISA expansion slots and five 32-bit PCI expansion slots.

Versatile Memory Configuration

Three DIMM sockets support up to 768MB of 3.3V SDRAM memory. Synchronous Dynamic Random Access Memory (SDRAM) provides optimized performance through increased data transfer rate.

Ultra DMA/33/66 Bus Mastering IDE Controller

Provides an Enhanced Intelligent Drive Electronics (IDE) hard disk controller. Support for Ultra DMA/33/66 speeds up disk drive access.

Flash ROM BIOS and Enhanced ACPI

The programmable Flash ROM BIOS offers Advanced Configuration and Power Interface (ACPI). ACPI enables ACPI-supported operating systems (such as Windows 98) and applications to direct system power management.

Synchronous Switching Regulator

The highly efficient synchronous switching design reduces power consumption and heat generation.

External Modem Wakeup (Remote Ring On) (WOM)

With an optional phone line and modem, the board can turn on automatically to answer a phone call.

Wake on LAN (WOL)

Provides a connector to an optional PCI LAN card (with remote wakeup capabilities) so that a remote server can turn on the system through a network.

RTC Wakeup Timer

The RTC wakeup timer can turn on your system at a predefined date and time.

Dual-Function Power Button (Soft-Off Control)

Use the power button to turn off the system instantly or with "soft-off" control. When soft-off is selected, pressing the power button will cause the system to enter Sleep (Suspend) mode. With soft-off, the system won't turn off unless you continuously hold the power button for 4 seconds or longer. This prevents you from accidentally turning off the system.

System Sleep (Suspend) Mode

To conserve energy, the system employs the following measures when in Sleep (Suspend) mode:

The CPU stops running

The chipset and related circuits go to the lowest power state

The hard disk stops spinning

The monitor goes blank

The CPU cooling fan and system fan are turned off

The Power LED indicator on the front panel dims when the system is in Suspend mode. (If you are using a 3-pin LED, it can display a different color when the system is in Suspend mode).

Desktop Management Interface (DMI)

Supports DMI through the BIOS, which creates a higher level of compatibility by allowing hardware to communicate with a standard protocol.

Super Multi-I/O

Provides two high-speed UART-compatible serial ports and a parallel port with EEP and ECP capabilities. For wireless connections, you can connect an optional infrared module to the IrDA-compatible infrared port.

Automatic Device Detection

Auto-detection support in BIOS makes installation of hard drives, and other devices simple.

1.2 Specifications

Hardware

CPU	Intel® P54C/P55C, AMD K5/K6/K6-2/K6-3, Cyrix 6x86/M II and IDE WinChip C6 Family
VRM	Synchronous switching regulator; provides 1.3V to 3.5V operating voltage
Coprocessor	CPU built-in floating point unit
Speed	System bus clock 66/68/75/83/95/100/112MHz PCI bus clock 27.7/31.75/33.3/34.25/37.5/ 37.75MHz ISA bus clock 8.33MHz
Chipset	VIA MVP4 (VT8501/VT82C686A)
EIDE Controller	Dual-Channel Enhanced Intelligent Drive Electronics (EIDE) interface supports up to 4 IDE hand disk drives or CD drives; Supports PIO mode 0 through mode 4 drives; Supports Bus Mastering DMA mode 2 drives and Bus Mastering Ultra DMA/33/66 drives
Enhanced I/O	Two serial ports (16550-compatible UART) Parallel port with bidirectional lines supports Standard Parallel Port (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) IrDA-compatible infrared port
Mouse/Keyboard	PS/2 mouse connector PS/2 keyboard connector
Expansion Slots	5 X 32-bit PCI slots and 2 X 16-bit ISA slots One AMR Slot

Power Management	Compliant with EPA, APM 1.2 and ACPI
	ATX soft-off power control
	Power - On by Keyboard & PS/2 mouse
	Power - On by Modem Ring
	Power - On by Alarm
	Power - On by Network Card (WOL)
	Sleep state indicator
	Fan off in sleep mode
System Management	VIA 686A include PC Health Monitor
Voltage Regulator	Switching regulator
Form Factor	ATX Form Factor, 30.5cm x 18.5cm (12"x 7.3")

Software

BIOS	AWARD AGP/PCI BIOS
	2M-bit Flash BIOS with ESCD block
	Supports APM, PnP, Multi-Boot, DMI and
	EIDE devices
	Supports Removable Media Drive
Driver Utility	IDE Bus mastering Ultra DMA driver
	Flash utility for BIOS upgrade
	Hardware Doctor Utility
	AGP VxD Driver
	On Chip Trident AGP Driver
	Audio drivers
O.S.	Operates with MS_DOS 6.2x, Windows 3.x,
	Windows 95, Windows 98, Windows NT4.x,
	Window NT5x, OS/2 Warp 4.0, Novell
	Netware, Novell UnixWare 1.1 and SCO Unix
	5.0.x

Environment

Ambient Temperature	0^0C to 50^0 C (Operating)
Relative Humidity	0 to 85% (Operating)
Vibration	0 to 500 Hz
DC Voltage	4.9V to 5.2V
DC Voltage	1.8 V to 3.50V
DC Voltage	-5V, +12V, -12V, +5V$_{SB}$ 5% tolerance.

1.3 What You Have

The P5F110 mainboard comes securely packaged in a sturdy cardboard shipping carton. In addition to this *User's Manual, the shipping carton contains:*

The mainboard

CD with support drivers and utilities OR Diskette with drivers and utilities.

COM2, Floppy disk drive and IDE ribbon cables

If any of these items is missing or damaged, contact the dealer from whom you purchased the mainboard. Save the shipping materials and carton in case you want to ship or store the board in the future.

Inside the carton, the mainboard is sandwiched between sheets of sponge and packed in an anti-static bag. After you unpack the board, inspect it for damage. Press down all the integrated circuits to make sure they are properly seated in their sockets. Do not apply power to the board if it appears to have been damaged.

1.4 Precautions

Electrostatic discharge may damage the mainboard. Make sure you ground yourself before handling the mainboard or other system components.

Do not remove the anti-static packaging until you are ready to install the mainboard.

Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the mainboard by its edges and avoid touching its components.

1.5 Board Layout
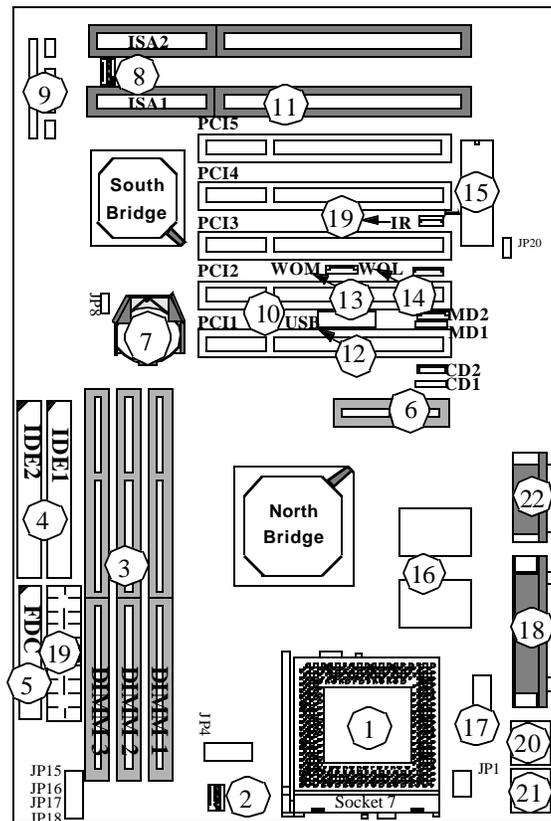
1:CPU Socket
2:CPU FAN Connector
3:DIMM Module Sockets
4:IDE Connectors
5:Floppy Drive Connector
6:AMR Slot
7:Battery (CR2032 Lithium)
8:Secondary FAN Connector
9:Front panel Connectors

10:PCI Expansion Slots
11:ISA Expansion Slots
12:Secondary Dual USB port
13:Wake on Modem
14:Wake on LAN Header
15:Flash BIOS
16: Pipeline cache chip
17: Serial Port Connector
(COM2)

18: Parallel Port Connector (TOP)
Serial Port Connector (COM1)
VGA Connector
19: ATX Power Connector
20: Primary Dual USB Connector
21: PS/2 Mouse Connector (TOP)
PS/2 Keyboard Connector
22: Audio/GAME (TOP) Port
(Optional)

1.5.1 Jumper Switches

The board's jumper switches and their functions are listed in the table below. For the location of the switches on the board, see the layout diagram on the previous page.

Switch	Function
JP1	CPU to BUS Frequency Ratio
JP4	CPU External (BUS) Frequency Selection
JP8	Real-Time Clock
JP15, JP16, JP17, JP18	Vcore Voltage
JP20	Enabled/Disabled Onboard AC97 Audio Codec

1.5.2 Expansion Slots

The bus and memory expansion slots are listed in the table below. For the location of the slots on the board, see the layout diagram earlier in this section.

Slot	Function
Socket 7	CPU socket for Intel P54C/P55C, AMD K5/ K6/K6-2/K6-3, Cyrix 6x86/M II and IDE WinChip C6 family processors
DIMM1, DIMM2, DIMM3	168-pin expansion slots for 3.3V SDRAM or EDO DRAM memory
PCI1, PCI2, PCI3, PCI4, PCI5	32-bit PCI bus expansion slots for optional PCI cards
ISA1, ISA2	16-bit ISA bus expansion slots for optional ISA cards
AMR	For AC97 Modem/Audio Card

1.5.3 Rear Panel Connectors

This section shows and describes the connectors on the board's rear panel.
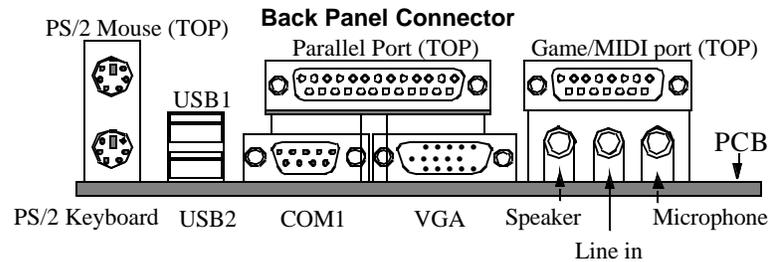
Connector	Description
Mouse	PS/2 Mouse connector (top). Connect a PS/2 mouse to this 6-pin female mini-DIN connector.
Keyboard	PS/2 Keyboard connector (bottom). Connect a PS/2-compatible keyboard to this 6-pin female mini-DIN connector.Flash ROM BIOS Voltage
USB1, USB2	Universal Serial Bus ports. Connect USB devices to these connectors.
LPT	Parallel Printer connector. Connect a parallel printer or EPP/ECP device to this port.
COM1	Serial connectors. Connect serial devices to these 9-pin connectors.
VGA	VGA connectors. Connect CRT monitor to these 15-pin connectors.
Game/MIDI	Game/MIDI Port connector. Connect a MIDI device or joystick to this connector.
SPK	Speaker connector. Plug a set of externally powered speakers into this jack.
LINE IN	Line In connector. Plug an input line into this jack.
MIC	Microphone connector. Plug an optional microphone into this jack.

1.5.4 Onboard Connectors

This section describes the connectors on the mainboard. For the
location of the connectors on the board, see the layout diagram
earlier in this section.

Connector	Description
PW	ATX Power Supply connector. Use this connector to connect the board to an ATX power supply.
FAN1, FAN2	Fan connectors. Connect cooling fans to these connectors.
IR	IrDA connector. Connect an optional wireless transmitting and receiving infrared module to this connector.
FDC	Floppy Disk Drive connector. Connect the single end of a floppy disk drive cable to this 34-pin connector block. Connect the other ends of the cable to one or more floppy disk drives.
CD1, CD2	CD-ROM Audio Input connectors. Depending on the type of installed CD-ROM drive, connect the CD-ROM drive cable to one of these connectors: CD1 is for the Sony CD-Audio interface; CD2 is for the Mitsumi/Panasonic interface. Connect the other end of the cable to the CD-ROM drive.
WOL	Wake on LAN connector. Connect an optional LAN card to this 3-pin connector. This allows the system to power up when a wake up signal is received from the network through the LAN card.
WOM	Wake on Modem connector. Connect an optional Modem card to this 3-pin connector. This allows the system to power up when a wakeup signal is received from the network through the Modem card.

Connector	Description
IDE1	Primary IDE connector. Connect the single end of the included IDE cable to this 40-pin connector block. Connect the other ends of the cable to one or more hard disk drives. Note that if you install two hard disk drives with this connector, you must set the second drive to Slave mode. (For a description of using Master and Slave modes, refer to the documentation that came with your hard disk drive.) (i) *To have two hard disk drives both configured to Master mode, attach one drive to the IDE1 connector and another to the IDE2 connector.*
IDE2	Secondary IDE connector. Connect the single end of an IDE cable to this 40-pin connector block. Connect the other ends of the cable to one or more hard disk drives. Note that if you install two hard disk drives with this connector, you must set the second drive to Slave mode. (For a description of using Master and Slave modes, refer to the documentation that came with you hard disk drive.)
COM2	Serial connector. Connect the 25-pin D-SUB connector with cable to this 10-pin connector block. Connect the other ends of the cable to the secondary serial port.
Front Panel Connector	Connect these connectors to the appropriate features on the front panel: Power LED & Key Lock, internal speaker, HDD LED, Reset button, Power Switch.

2 Mainboard Installation

2.1 Installation Steps

The P5F110 is designed to fit into a standard ATX form factor
chassis. The pattern of the mounting holes and the position of the
back panel connectors meet the ATX system board specification.
Chassis may come with various mounting fasteners which are made
of metal or plastic. It is highly recommended to use as many metal
fasteners as possible to mount the mainboard in the chassis for better
grounding.

To install the mainboard you need to

1.Installing CPU
2.Installing system memory
3.Attach the connectors
4.Set jumpers on the mainboard

2.2 Installing CPU

To avoid being broken by the pressure of CPU insertion, the main-
board must be placed on a flat anti-static surface before the CPU is
installed. Do not touch the CPU pins with your fingers during the
installation.

 1. Push the CPU ZIF socket's lever to the side a little and raise it as
    far as it can go.
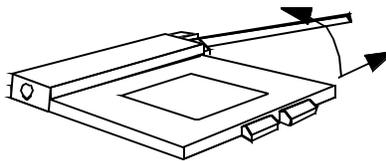
2. Align the CPU with the ZIF Socket 7 so that the pin 1 (cut corner) of CPU is at the pin 1 of the Socket 7 as shown in the figure below, then insert the CPU into the socket.

AMD CPU

Pin 1

Pin 1

Socket 7

CPU Socket 7
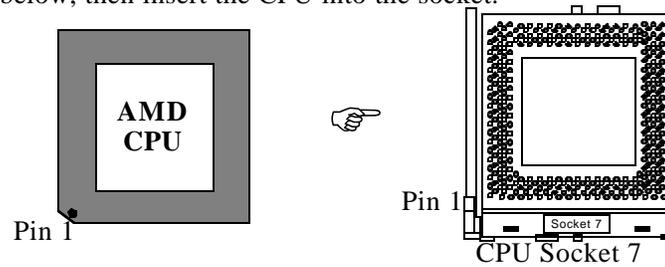
3. Press the lever down to snap it into place at the side of socket. You will feel some resistance as the pressure starts to secure the CPU in the socket.
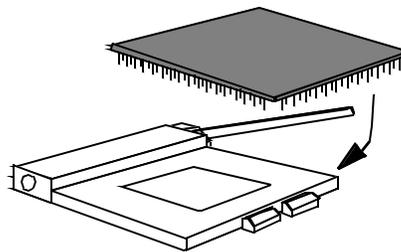
4. Install a heatsink with a cooling fan that is required to protect the CPU from being damaged due to overheat.

2.2.1 Setting the CPU Vcore Voltage (JP15, JP16, JP17, JP18)

The P5F110 supports CPU voltages from 2.1V to 3.5V.

CPU Voltage	JP15	JP16	JP17	JP18
2.1	OFF	OFF	OFF	ON
2.2	OFF	OFF	ON	OFF
2.3	OFF	OFF	ON	ON
2.4	OFF	ON	OFF	OFF
2.5	OFF	ON	OFF	ON
2.6	OFF	ON	ON	OFF
2.7	OFF	ON	ON	ON
2.8	ON	OFF	OFF	OFF
2.9	ON	OFF	OFF	ON
3.0	ON	OFF	ON	OFF
3.1	ON	OFF	ON	ON
3.2	ON	ON	OFF	OFF
3.3	ON	ON	OFF	ON
3.4	ON	ON	ON	OFF
3.5	ON	ON	ON	ON
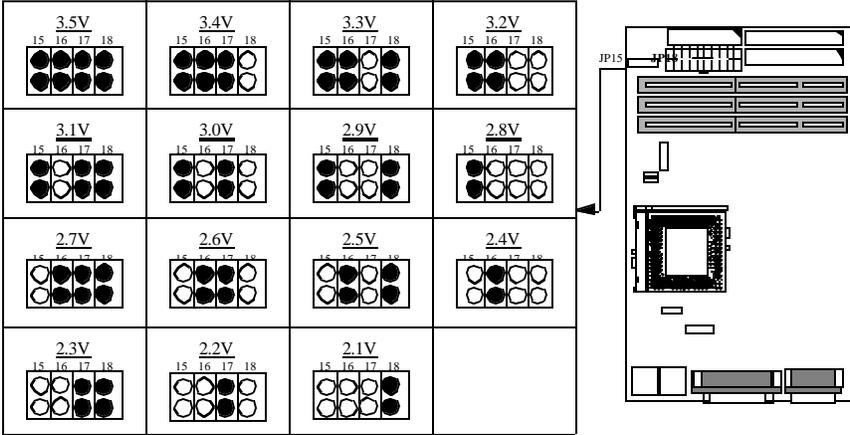
2.2.2 Setting the CPU External Frequency (JP4)

IBM/Cyrix 6x86/MX/MII, IDT C6/WINCHIP2 are designed to have internal and external frequency. The JP4 jumper is the external frequency selector for clock generator and the BUS/PCI clock dividers for the MVP4 chipset. You should set all these jumpers for system running in proper frequency. Please set the CPU external frequency according to following table:

CPU (MHz)	1-2	3-4	5-6	7-8	PCI
60	OFF	OFF	OFF	OFF	30
66.8	ON	OFF	OFF	OFF	33.4
70	OFF	ON	OFF	OFF	35
75	ON	ON	OFF	OFF	25
75	OFF	OFF	OFF	ON	37.5
80	OFF	OFF	ON	OFF	26.67
80	ON	OFF	OFF	ON	40
83.3	ON	OFF	ON	OFF	27.76
83.3	OFF	ON	OFF	ON	41.65
95.25	OFF	ON	ON	OFF	31.75
100	ON	ON	ON	OFF	33.33
105(103)	ON	ON	OFF	ON	35
110(107)	OFF	OFF	ON	ON	36.67
115(112)	ON	OFF	ON	ON	38.33
120(117)	OFF	ON	ON	ON	40
124(122)	ON	ON	ON	ON	41.33

The CPU core frequency = ratio * external bus clock

124(122)MHz | 120(117)MHz | 115(112)MHz | 110(107)MHz

105(103)MHz | 100MHz | 92.25MHz | 83.3MHz(41.65)

JP4

83.3MHz(27.76) | 80MHz(40) | 80MHz(26.67) | 75MHz(37.5)

75MHz(25) | 70MHz | 66.8MHz | 60MHz
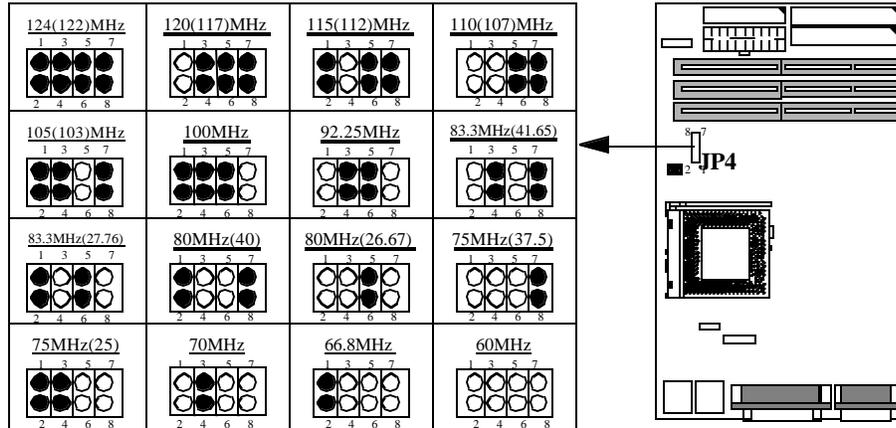
Warning: The VIA MVP4 chipset supports maximum 100MHz external CPU bus clock, if you want your system running at over-frequency 112MHz, you should have faster SDRAM, PCI add on card and good heat dissipation CPU fan. Otherwise, that may cause your system to become unstable. We recommend you to use the standard CPU frequency for normal operation.

2.2.3 Setting the CPU to BUS Frequency Ratio (JP1)

The CPU to BUS frequency ratio is selected by JP1. Please set the ratio as following table:

CPU/HOST Ratio	1-2	3-4	5-6
x1.5	OFF	OFF	OFF
x2.0	OFF	OFF	ON
x2.5	OFF	ON	ON
x3.0	OFF	ON	OFF
x3.5	OFF	OFF	OFF
x4.0	ON	OFF	ON
x4.5	ON	ON	ON
x5.0	ON	ON	OFF
x5.5	ON	OFF	OFF

5.5	5.0	4.5
4.0	3.5	3.0
2.5	2.0	1.5

JP1
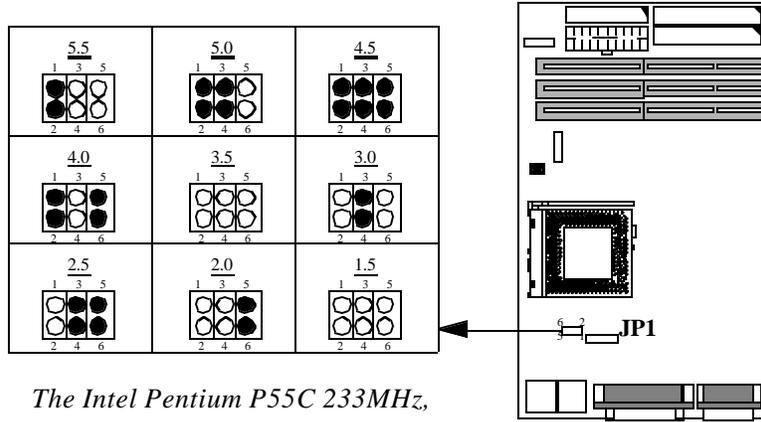
The Intel Pentium P55C 233MHz,
AMD (K6-PR233/K6-2-333/350),
IBM/Cyrix MII-PR300 are using 1.5x
jumper setting for 3.5 x frequency ratio.

2.3 Installing Memory

A Dual In-Line Memory Module (DIMM) is a small circuit board filled with DRAM chips that can be installed in one of the board's DIMM sockets.

The board's three DIMM sockets allow as much as 384MB of 3.3V V EDO DRAM memory. The DIMM socket supports 1Mx64/72 (8MB), 2Mx64/72(16MB), 4Mx64/72(32MB), 8Mx64/72(64MB), 16MBx64/72(128MB), 32Mx64/72(256MB) single or double sided DIMM modules. You can install a DIMM into any DIMM socket. Mixing DRAM type within one system is not supported. There are no jumper settings required for the momory size or type, as there are automatically detected by the BIOS.

In order to create a memory array, the following set of rules allows for optimum configurations.

1.The momory array is 64- or 72-bits wide (with or without ECC).

2.Those modules can be installed in any order.

3.Supports single- and double-density DIMM.

4.EDO momory speed: 60ns or faster (only for 66MHz system clock).

5.SDRAM momory speeds 66.6MHz or faster; CAS latency: 2 or 3.

The following table is the valid momory configuration:

Bank	DIMM Module	Total Momory
Bank 0 (DIMM1)	EDO/SDRAM 4,8,16,32,64,128,256MB	4~256MB
Bank 1 (DIMM2)	EDO/SDRAM 4,8,16,32,64,128,256MB	4~256MB
Bank 2 (DIMM3)	EDO/SDRAM 4,8,16,32,64,128,256MB	4~256MB
Total System Memory		4~768MB

2.4 Attaching Connectors

P5F110 Mainboard Connector/Jumper Location
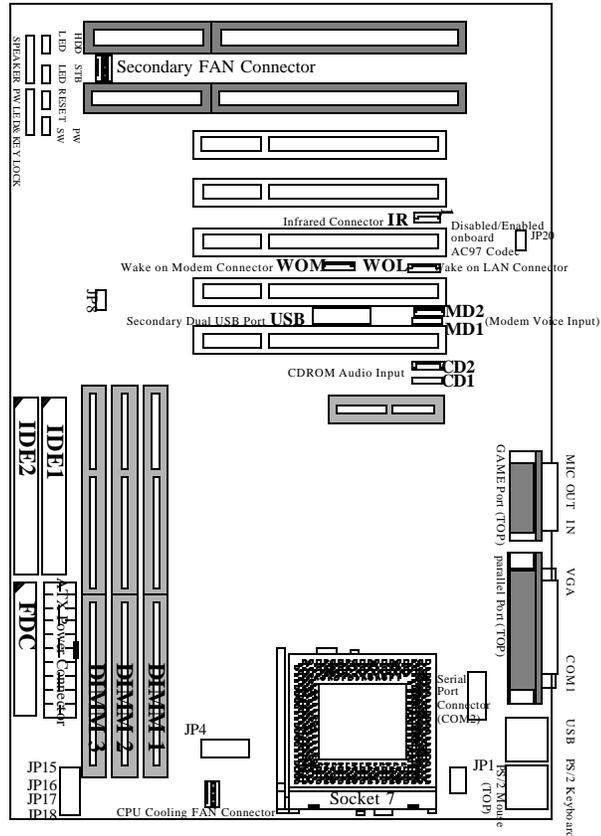
Jumpers:
JP20: 1-2 Disabled onboard AC97 Codec
       2-3 Enabled onboard AC97 Codec
 JP8: 1-2 Normal Mode
       2-3 Clear CMOS RAM

Connector:
WOL: Wake on LAN Connector
WOM: Wake on Modem Connector
SB-LINK: Creative Lab SB-LINK Connector
CD1: CDROM Audio Signal Input (JST Type)
CD2: CDROM Audio Signal Input (MPC2 Type)
MD1: MODEM Voice Signal Input (JST Type)
MD2: MODEM Voice Signal Input (MPC2 Type)

1. Front Panel Connectors

There are 7 connectors on the mainboard for speaker, switches and indicator lights on the system's front panel
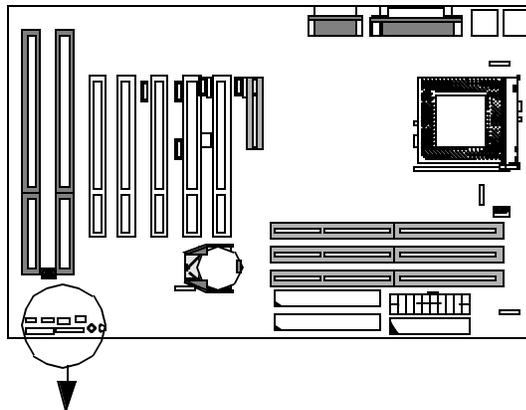
Front Panel Connector

Function	PIN #
HDD LED	1-2
STB LED	4-5
RESET	7-8
POWER SWITCH	10-11
PC SPEAKER	12-15
POWER LED	18-20
KEYLOCK	21-22
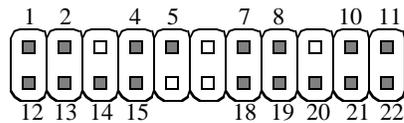
Front Panel Connector
Pin Assignment

PIN	Function
1	HDD LED+
2	HDD LED-
4	STB LED+
5	STB LED-
7	Power Good
8	Ground
10	Power On/Off
11	Ground
12	Speaker out
13	Ground
14	Ground
15	+5V
18	PW LED+
19	N.C.
20	PW LED-
21	Keylock
22	Ground

HDD LED Connector

This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.

STB LED Connector

This 2-pin connector connects to the case-mounted STB LED to indicate standby or power status. The STB LED will still on when system is off to indicate the AC power condition.

Reset Connector

This 2-pin connector connects to the case-mounted reset switch and is used to reboot the system.

Power Switch Connector

This 2-pin connector connects to the case-mounted Power button to turn on/off the system power.

Speaker Connector

This 4-pin connector connects to the case-mounted speaker

Power LED & Keylock Connector

This 5-pin connector connects to the case-mounted keylock switch and the power LED. The keylock switch is used to lock the keyboard for security purposes.

The front panel on your case may have a turbo switch to deactivate the Turbo mode when a slower speed is required for a specific application. P5F110 does not support the hardware deturbo function. An alternative method of using <CTRL><ALT><+/-> keys to change the speed may be used if necessary.

2. Fan Connectors
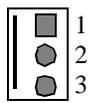
Pin Assignment
1. GND
2. +12V
3. SPEED / RPM

1
2
3

There are two fan connectors on the P5F110 mainboard for the cooling fans. The connectors support fans of 12V DC/ 500mAMP (6 WATT) or less. When the system goes into sleep state, fan should be shut down to eliminate audible noise and reduce power consumption. You can monitor the fan speed, and the fan must come with a tachometer output.

Secondary FAN

IR

CPU FAN
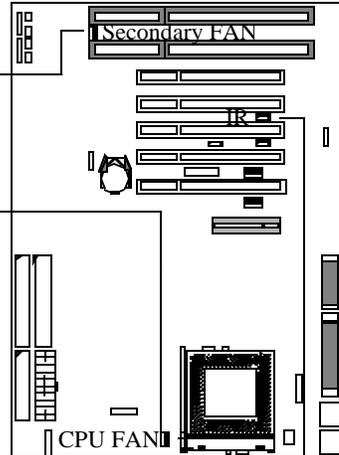
3. IrDA-compliant IR (Infrared) Connector

This 5-pin connector connects to an wireless transmitting and receiving infrared module via a cable and a bracket connect to back panel. This cable and mounting bracket should come with the IrDA modules.

Pin Assignment
1. +5V
2. IRM_IRR
3. IR Receiver
4. Ground
5. IR Transmitter

1

IrDA
Module
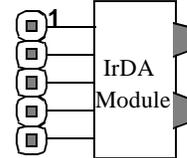
4. Floppy Drive Connector (One 34-pin Block)

A floppy disk drive ribbon cable has 34 wires and 2 connectors to support 2 floppy disk drives. The connector with twisted wires always connects to drive A, and the connector with untwisted wires connects to drive B. You must orient the cable connector so that the pin 1(color) edge of the cable is at the pin 1 of the I/O port connector.

PIN1

Floppy Connector
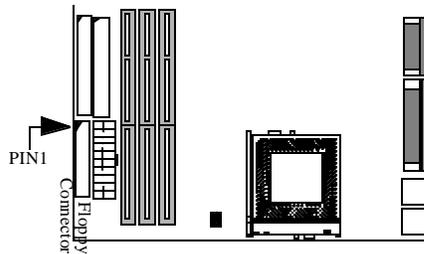
5. IDE Connectors (Two 40-pin Block)

An IDE drive ribbon cable has 40
wires and 2 connectors to support two
IDE drives. If a ribbon cable connects
to two IDE drives at the same time,
one of them has to be configured as
Master and the other has to be config-
ured as Slave by setting the drive
select jumpers on the drive.
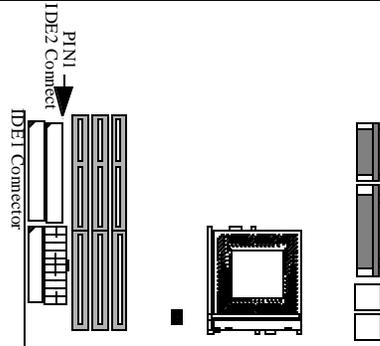
Consult the documentation that comes with your IDE drive for details
on jumper locations and settings. You must orient the cable connector
so that the pin 1(color) edge of the cable is at the pin 1 of the I/O port
connector.

6. Back Panel Connectors

The back panel provides external access to PS/2 keyboard/mouse
connectors, two serial port connectors, one parallel port connector, dual
USB port connectors, game/MIDI port connector and microphone/Line-
in/Line-out connectors which are integrated on the mainboard.

7. Power Supply Connector

+3.3V	+3.3V
-12V	+3.3V
Ground	Ground
Power ON/OFF	+5V
Ground	Ground
Ground	+5V
Ground	Ground
-5V	Power Good
+5V	+5VSB
+5V	+12V
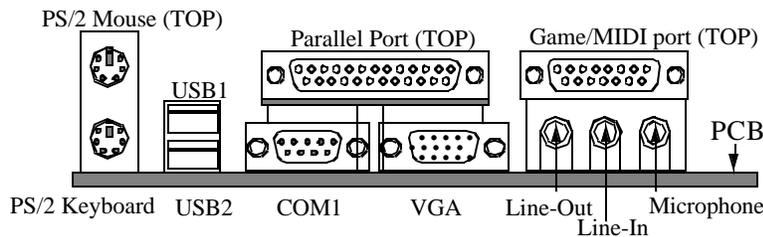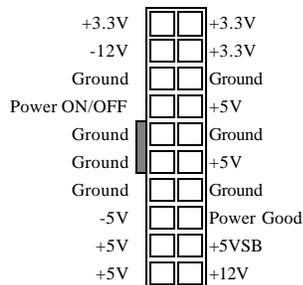
The ATX power supply has a single lead con-
nector with a clip on one side of the plastic
housing. There is only one way to plug the lead
into the ATX power connector. Press the lead
connector down until the clip snaps into place
and secures the lead onto the connector.

8. Wake on LAN Connector:

This 3-pin header is used for remote wake up of the computer through a network.

Pin Assignment
1. $+5V_{SB}$
2. GND
3. Wake-up signal **WOL**
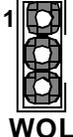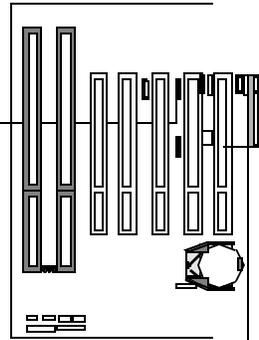
9. USB Connector

This dual-row 10 pin connector connects to an optional dual USB ports cable with a mounting bracket.

USB Device #1

USB Device #0
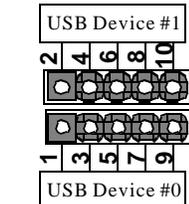
Pin Assignment
1. +5V   2. +5V
3. USB D0- 4. USB D1-
5. USB D0+ 6. USB D1+
7. Ground   8. Ground
9. Ground   10. Ground

10. CD-ROM Audio Input Connector:

This 1x4 header is used for CD-ROM Audio input signal. The pin out and connect type are different between CD1 and CD2. CD2 is MPC2 type connector which is for SONY/ATAPI CD-ROM. CD1 is JST type connector which is for MITSUMI/PANASONIC CD-ROM.

CD2 Pin Assignment   CD1 Pin Assignment

1. L_Input   1. L_Input
2. GND   2. GND
3. R_Input   3. GND
4. GND   4. R_Input
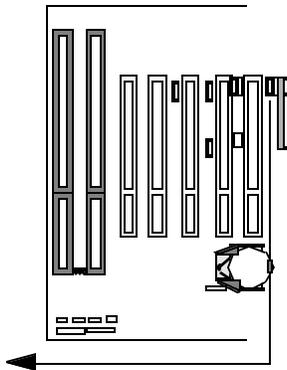
11. **Modem Voice Input Connector:**

This 1x4 header is used for Voice Modem's internal connector. This allows modem's voice can be direct to the onboard sound chip and amplified by speaker.The pin out and connect type are different between MD2 and MD1. MD1 is a JST type connector and MD2MD2 is a MPC2 type connector.

MD1 Pin Assignment

1. PHN
2. GND
3. MIC
4. GND
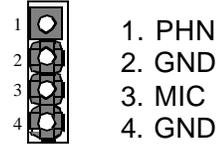
MD2 Pin Assignment

1. MIC
2. GND
3. GND
4. PHN
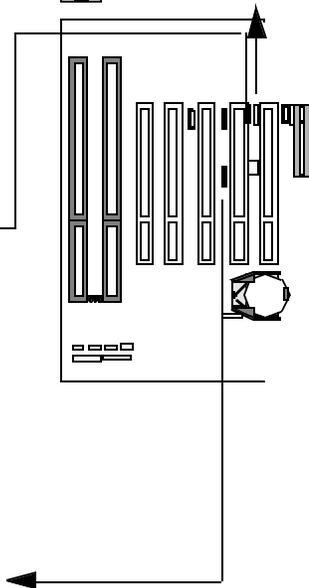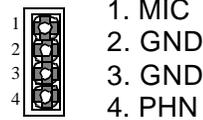
12. **Wake on Modem Connector:**

This 3-pin header is used for remote wake up of the computer through a network.

Pin Assignment
1. $+5V_{SB}$
2. GND
3. Wake-up signal

WOM
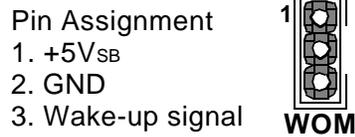
2.5 Set Jumpers on the Mainboard

1. Clear CMOS and Password (JP8)

If your system can not boot up because you forget your password, or the CMOS settings need to be reset to default values after the system BIOS has been updated, the following instructions can be performed to clear the CMOS and password.

1. Power off the system
2. Place a shunt to short pin2 and pin3 of JP8 for 5 seconds
3. Put the shunt back to pin1 and pin2 of JP8
4. Power on the system

2. AC97 Codec Setting (JP20)

This jumper allows you to enable or disable the onboard audio. This is normally set to enable unless you add an audio expansion card in which case you would need to disable the onboard audio to prevent hardware conflict.
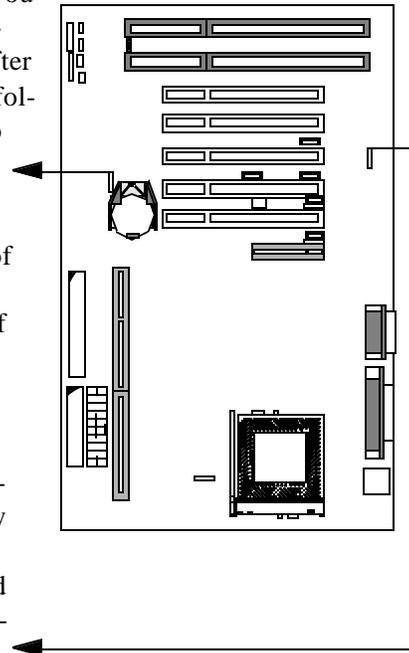
Enabled onboard AC97 Codec
1 □ ○ ○ **JP20**

Disabled onboard AC97 Codec
1 □ ○ ○ **JP20**

3 BIOS Configuration

After hardware configuration of P5F110 Mainboard is completed, and system hardware has been assembled, the completed system may be powered up. At this point, CMOS setup should be run to ensure that system information is correct.

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

3.1 ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways. If the error occurs before the display device is initialized, a series of beeps will be transmitted. If the error occurs after the display device is initialized, the screen will display the error message.

After the POST routines are completed, the following message appears:

"Press DEL to enter SETUP"

To access the AWARD BIOS SETUP program, press the <DEL> key. The "CMOS SETUP UTILITY" screen will be displayed at this time.

3.2 CMOS SETUP UTILITY

Main Program Screen

```
ROM PCI/ISA BIOS (2A5LHF29)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          BIOS FEATURES SETUP

SYSTEM MONITOR               CHIPSET FEATURES SETUP

IDE HDD AUTO DETECTION       POWER MANAGEMENT SETUP

LOAD SETUP DEFAULTS          PNP/PCI CONFIGURATION

SAVE & EXIT SETUP            INTEGRATED PERIPHERALS

EXIT WITHOUT SAVING          SUPERVISOR PASSWORD

                             USER PASSWORD


Esc: Quit                    ↑ ↓ → ←        : Select Item
F10: Save & Exit Setup       <Shift>F2      : Change Color
```

This screen provides access to the utility's various functions.

Listed below are explanations of the keys displayed at the bottom
of the screen:

<ESC>: Exit the utility.

ARROW KEYS: Use arrow keys to move cursor to the desired
selection.

<F10>: Saves all changes made to Setup and exits program.

<Shift> <F2>: Changes background and foreground colors.

3.3 STANDARD CMOS SETUP

Selecting "STANDARD CMOS SETUP "on the main program
screen displays this menu:

Standard CMOS Setup Screen

```
              ROM PCI/ISA BIOS (2A5LHF29)
                  STANDARD CMOS SETUP
                  AWARD SOFTWARE, INC.

 Date (mm:dd:yy): Thr, Apr 30  1999
 Time (hh:mm:ss): 10:10:10

 HARD DISKS        TYPE   SIZE   CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
 Primary Master  :   0      0      0     0       0       0      0    NORMAL
 Primary Slave   :   0      0      0     0       0       0      0    NORMAL
 Secondary Master:   0      0      0     0       0       0      0    NORMAL
 Secondary Slave :   0      0      0     0       0       0      0    NORMAL

 Drive A: None
 Drive B: None
                                          Base Memory:     640K
                                      Extended Memory: 15360K
                                          Other Memory:    384K
 Video:  EGA/VGA
 Halt On: All Errors                      Total Memory:  16384K

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

The Standard CMOS Setup utility is used to configure the following
features:

Set Date: Month, Day, Year.

Set Time: Hour, Minute, and Second. Use 24 Hour clock format (for
PM numbers, add 12 to the hour, you would enter 4:30 p.m. As
16:30).

Hard Disks:
There are four hard disks listed: "Primary Master", "Primary Slave",
"Secondary Master" and "Secondary Slave". For each IDE channel,
the first device is the "Master" and the second device is "Slave". Hard
disk Types from 1 to 45 are standard ones; Type "Auto" is IDE HDD
auto detection; Type "User" is user definable, and Type "None" is not
installed (e.g. SCSI).

There are six categories of information you must enter for a HDD: "CYLS" (number of cylinders), "HEAD" (number of heads), "PRECOMP" (write pre-compensation), "LANDZ" (landing zone), "SECTOR" (number of sectors) and "MODE" (Normal, LBA, LARGE and AUTO). The hard disk vendor's or system manufacturer's documentation should provide you with the information needed. The "MODE" option is for IDE hard disk drives only. The "MODE" has four options: NORMAL, LBA, LARGE and AUTO. Set MODE to NORMAL for IDE hard disk drives smaller than 528MB. Set MODE to LBA for IDE hard disk drives over 528MB which support Logical Block Addressing mode. Set MODE to LARGE for IDE hard disk drives over 528MB which do not support LBA mode. The LARGE type of drive is very uncommon and can only be used under MS-DOS. Currently most IDE hard disk drives over 528MB support LBA mode. Set MODE to AUTO to enable auto detection of your IDE hard disk drive during bootup.

Floppy Drive A and Floppy Drive B: The options are: "360K, 5.25 in.", "1.2M, 5.25in.", "720K, 3.5in.", "1.44M, 3.5in.", "2.88M, 3.5in." and "None (Not Installed)". Not Installed could be used as an option for diskless workstations.

Video: Set it to the type of graphics card installed in your system. If you are using a VGA or higher resolution card, choose the "EGA/ VGA" option. The options are "EGA/VGA" (default), "MONO", "CGA 40" and "CGA 80".

Halt On: The options are "All Errors" (default), "No Errors", "All, But Keyboard", "All, But Diskette" and "All, But Disk/Key". This setting determines which type of errors will cause the system to halt during bootup.

3.4 IDE HDD AUTO DETECTION

If your system has an IDE hard drive, you can use this utility to detect its parameters and enter them into the Standard CMOS Setup automatically.

If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press the <N> key to reject the values and enter the correct ones manually on the Standard CMOS Setup screen.

Note: If you are setting up a new hard disk drive (nothing on it) that supports LBA mode, more than one line will appear in the parameter box, choose the line that lists LBA for an LBA drive. Do not choose Large or Normal if the hard disk drive is already fully formatted when you install it, choose the mode which is used to format it.

3.5 LOAD SETUP DEFAULTS

"LOAD SETUP DEFAULTS" loads optimal settings which are stored in the BIOS ROM.

The defaults loaded only affect the BIOS Features Setup, Chipset Features Setup, Power Management Setup, PnP/PCI configuration setup and Integrated Peripherals Setup.There is no effect on the Standard CMOS Setup. To use this feature, highlight on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Setup default values. Press the <Y> key and then press the <Enter> key if you want to load the Setup defaults. Press <N> if you don't want to proceed.

3.6 SAVE & EXIT SETUP

Selecting this option and pressing the <Enter> key will save the new setting information in the CMOS memory and continue with the booting process.

3.7 EXIT WITHOUT SAVING

Selecting this option and pressing the <Enter> key will exit the Setup Utility without recording any new values or changing old ones.

3.8 BIOS FEATURES SETUP

Selecting "BIOS FEATURES SETUP" on the main program screen displays this menu:

BIOS Features Setup Screen

```
                    ROM PCI/ISA BIOS (2A5LHF29)
                       BIOS FEATURES SETUP
                       AWARD SOFTWARE, INC.

Virus Warning          : Enabled    Video BIOS Shadow      : Enabled
                                    C8000 - CBFFF Shadow   : Disabled
CPU Internal Cache     : Enabled    CC000 - CFFFF Shadow   : Disabled
External Cache         : Enabled    D0000 - D3FFF Shadow   : Disabled
                                    D4000 - D7FFF Shadow   : Disabled
Quick Power On Self Test : Enabled  D8000 - DBFFF Shadow   : Disabled
Boot Sequence          : C, A, SCSI DC000 - DFFFF Shadow   : Disabled
Swap Floppy Drive      : Disabled
Boot Up Floppy Seek    : Disabled   Cyrix 6x68/MII CPUID   : Enabled
OS Select For DRAM > 64MB : Non-OS2
Boot Up NumLock Status : On         PCI/VGA Palette Snoop  : Disabled


Gate A20 Option        : Fast

Typematic Rate Setting : Disabled   ESC: Quit      ↑↓ → ◄ :Select Item
Typematic Rate (Chars/Sec) : 6      F1: Help          PU/PD/+/-:Modify
Typematic Delay (Msec) : 250        F5: Old Values    (Shift) F2: Color
Security Option        : Setup      F7: Load Setup Defaults
```

The following explains the options for each feature:

Virus Warning: The Virus Warning's default setting is "Disabled". When enabled, any attempt to write to the boot sector or partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot and clean your system.

CPU Internal Cache: The default setting is "Enabled". This Setting enables the CPU internal cache.

External Cache: The default setting is "Enabled". This setting enables the Level 2 cache.

Quick Power On Self Test: The default setting is "Enabled". This will skip some diagnostic checks during the Power On Self Test (POST) to speed up the booting process.

Boot Sequence: The default setting is "A, C, SCSI"; the other
options are "CDROM, C, A", "C, CDROM, A", "C, A, SCSI", "D, A,
SCSI", "E, A, SCSI", "F, A, SCSI", "SCSI, A, C", "SCSI, C, A",
"LS/ZIP, C" and "C only". The BIOS will load the operating system
from the disk drives in the sequence selected here. You can bootup
system from an LS-120 or ATAPI ZIP driver, if you set the boot
sequence to "LS/ZIP, C".

Swap Floppy Drive: The default setting is "Disabled". This setting
gives you an option to swap A and B floppy disks. Normally the
floppy drive A is the one at the end of the cable, if you set this option
to "Enabled", the drive at the end of the cable will be swapped to B.

Boot Up Floppy Seek: The default setting is "Disabled". If set to
"Enabled", during bootup the BIOS will check for installed floppy
disk drives.

OS Select For DRAM > 64MB: The default setting is "Non-OS2".
Set to "OS2" if the system memory size is greater than 64MB and the
operating system is OS/2.

Boot Up Numlock Status: The default setting is "On". If set to
"Off", the cursor controls will function on the numeric keypad.

Gate A20 Option: the default setting is "Fast". This is the optimal
setting for the Mainboard. The other option is "Normal".

Typematic Rate Setting: The default setting is "Disabled". If set to
"Enabled", you can set the typematic Rate and typematic Delay.

Typematic Rate (Chars/Sec): This setting controls the speed at
which the system registers repeated keystrokes. The choices range
from 6 to 30 Chars/Sec. The default setting is "6" Chars/Sec.

Typematic Delay (Msec): This setting controls the time between the
display of the first and second characters. There are four delay
choices: 250ms, 500ms, 750ms and 1000ms. The default setting is
"250" ms.

Security Option: This setting controls the password feature. The options are "Setup" and "System". Selecting "Setup" will protect the configuration settings from being tampered with. Select "System" if you want to use the password feature every time the system boots up. The default setting is "Setup". You can create your password by using the "SUPERVISOR/USER PASSWORD" utility on the main program screen.

Video BIOS Shadow: The default setting is "Enabled" which will copy the VGA BIOS into system DRAM.

C8000-CBFFF Shadow to DC000-DFFFF Shadow: The default setting for the shadow feature is "Disabled". When set to enable, the ROM with the specific address is copied into system DRAM. It will also reduce the size of memory available to the system.

PCI/VGA Palette Snoop: If there are two VGA cards in your system (one PCI and one ISA) and this option is set to "Disabled", data read and written by CPU is only directed to the PCI VGA card's palette registers. If set to "Enabled", data read and written by CPU will be directed to both the palette registers of the PCI VGA and ISA VGA cards. This option must be set to "Enabled" if any ISA VGA card installed in your system requires VGA palette snooping to fix improper color problem.

After you have made your selection(s) in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.9 CHIPSET FEATURES SETUP

Selecting "CHIPSET FEATURES SETUP" on the main program screen displays this menu:

Chipset Features Setup Screen

```
ROM PCI/ISA BIOS (2A5LHF29)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Bank 0/1 DRAM Timing    : SDRAM 10ns    OnChip USB              : Enabled
Bank 2/3 DRAM Timing    : SDRAM 10ns    USB Keyboard Support    : Disabled
Bank 4/5 DRAM Timing    : SDRAM 10ns    OnChip Sound            : Enabled
                                        OnChip Modem            : Disabled

SDRAM Cycle Length      : 3             Auto Detect DIMM/PCI Clk : Enabled

DRAM Read Pipeline      : Disabled      Spread Spectrum         : Disabled
Sustained 3T Write      : Enabled
Cache R/CPU W Pipeline   : Enabled
Cache Timing            : Fast

Video BIOS Cacheable    : Enabled
System BIOS Cacheable   : Enabled
Memory Hole             : Disabled

Init Display First      : AGP           ESC: Quit        ↑↓ → ←    :Select Item
                                        F1: Help              PU/PD/+/-:Modify
Frame Buffer Size       : 8M            F5: Old Values      (Shift) F2: Color
AGP Aperture Size       : 64M           F7: Load Setup Defaults
```

This screen controls the settings for the board's chipset. All entries related to the DRAM timing on the screen are automatically configured. Do not make any change unless you are familiar with the chipset.

Bank 0/1 2/3 4/5 DRAM Timing. This item allows you to select the value in the field, depending on whether the board has paged SDRAMs or EDO (extended data output) DRAMs. The choice: SDRAM 10ns, SDRAM 8ns, Normal, Medium, Fast and Turbo.

SDRAM Cycle Length. You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should have set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

Video BIOS Cacheable. Choose Enabled or Disabled (default). When Enabled, the access to the VGA BIOS addressed is cached.

System BIOS Cacheable. Choose Enabled or Disabled (default). When Enabled, the access to the system BIOS ROM addressed at F0000H-FFFFFH is cached.

Memory Hole: The default setting is "Disabled". Set to "Enabled" means that when the system memory size is equal to or greater than 16M bytes, the physical memory address from 15M to 16M will be passed to PCI or ISA and there will be 1MBytes hole in your system memory. This option is designed for some OS with special add-in cards which need 15M-16M memory space.

Init Display First. This item allows you to decide to active whether PCI Slot or AGP first. The choice: PCI Slot, AGP.

Frame Buffer Size: This option selects the size of frame buffer. The size of the buffer should not impinge on local memory. The options are "All", "1M", "2M", "4M", "8M", "16M" and "Disabled".

AGP Aperture Size: This option determines the effective size of the AGP Graphic Aperture, which memory-mapped graphic data structures can reside in. The options are "16M", "32M", "64M", 128M" and "256M". The default is "64M".

OnChip USB. This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, you will need to disable this feature. The choice: Enabled, Disabled.

USB Keyboard Support. *Enabled:* Enables function when the USB keyboard is being used. *Disabled:* (default) When the AT keyboard is being used.

OnChip Sound. *Enabled (default)*: Turn on AC97 chip Controller. *Disabled:* Turn off AC97 chip Controller or User can external add-on sound card.

OnChip Modem. *Enabled:* Turn on MC99 feature. *Disabled (default):* disable AC97 chip controller or User can external add-on modem.

Auto Detect DIMM/PCI Clk: When set to "Enabled", system will automatically turn off PCI and DIMM clock which is not use and reduce electromagnetic interference.

Spread Spectrum: Options are "1.5% CNTR","0.6% CNTR","1.5% DOWN","0.6% DOWN", "Disabled".   System clock frequency will automatically be modulated which helps reducing electromagnetic interference. Default is "Disabled".

After you have made your selections in the CHIPSET FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.10 POWER MANAGEMENT SETUP

The "Power Management Setup" controls the mainboard's "Green" features. Selecting "POWER MANAGEMENT SETUP" on the main program screen displays this menu:

Power Management Setup Screen

```
                    ROM PCI/ISA BIOS (2A5LHF29)
                     POWER MANAGEMENT SETUP
                      AWARD SOFTWARE, INC.
─────────────────────────────────────────────────────────────────
ACPI function           : Disabled      Primary INTR    : ON
                                        IRQ3   (COM2)   : Primary
Power Management        : User Define   IRQ4   (COM1)   : Primary
PM Control by APM       : Yes           IRQ5   (LPT2)   : Primary
Video Off Method        : V/H SYNC + Blank  IRQ6  (FDD)   : Primary
MODEM Use IRQ           : 3             IRQ7   (LPT1)   : Primary
Doze Mode               : Disabled      IRQ8   (Alarm)  :  Disabled
Suspend Mode            : Disabled      IRQ9   (Rsv)    : Secondary
HDD Power Down          : Disabled      IRQ10  (Rsv)    : Secondary
                                        IRQ11  (Rsv)    : Secondary
Soft-Off by PWRBTN      : Instant-Off   IRQ12  (PS/2)   : Primary
                                        IRQ13  (Copro)  : Primary
        * * PM Events * *               IRQ14  (HDD)    : Primary
VGA                     : OFF           IRQ15  (Rsv)    :  Disabled
LPT & COM               : LPT/COM
HDD & FDD               : ON
DMA/master              : OFF
Resume by Alarm         : Disabled      ───────────────────────────
                                        ESC: Quit    ↑↓ → ←  :Select Item
Resume by Ring          : Disabled      F1: Help         PU/PD/+/-:Modify
                                        F5: Old Values    (Shift) F2: Color
                                        F7: Load Setup Defaults
```

ACPI Function. *Enabled:* Turn on ACPI Function. *Disabled (default):* Turn off ACPI Function.

Power Management: This setting controls the System Doze Mode, Standby Mode and Suspend Mode Timer features. There are four options:

User Define: Allows you to customize all power saving timer features.

Optimize: This is the recommended setting for general use.

Test/Demo: This is for test/demonstration purposes.

Disabled: Disables the power management features.

PM Control by APM: The default setting is "Yes". When set to "Yes", system BIOS will wait for APM's prompt before it enters any PM mode. If your system power management is controlled by APM and there is a task running, the APM will not prompt the BIOS to enter any power saving mode after time out. Note: If APM is not installed, this option has no effect.

APM (Advanced Power Management) should be installed to keep the system's time updated when the computer enters suspend mode activated by the BIOS Power Management. For DOS environments, you need to add DEVICE=C:\DOS\POWER.EXE in your CONFIG.SYS. For Windows 3.1x and Windows 95, you need to install Windows with the APM feature. Double-click a battery and power cord icon labeled "Power" in the "Control Panel" and choose "Advanced" in the Power Management field.

Video Off Method: This setting controls the video off method in power saving mode. The default setting is "V/H SYNC+Blank" which will disable V/H SYNC signals and blanks the screen. Other options are "DPMS" and "Blank Screen". The "DPMS" option allows the BIOS to control the video card if it has the DPMS (Display Power Management System) feature. The "Blank Screen" option is used when you do not have a "Green" monitor.

MODEM Use IRQ: This determines the IRQ in which the MODEM can use. The choices: 3, 4, 5, 7, 9, 10, 11, NA.

Doze Mode: Options are from "1 Min" to "1 Hour" and "Disabled". The system speed will change from turbo to slow if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. When system entering DOZE Mode the STB LED will start blinking once a second, indicates your system at DOZE Mode.

Suspend Mode: Options are from "1 Min" to "1 Hour" and "Disabled". The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. When system entering Suspend Mode the STB LED will stop blinking and stay on, indicates your system at Suspend Mode.

HDD Power Down: Options are from "1 Min" to "15 Min" and "Disabled". The IDE hard drive will spin down if it is not accessed within a specified length of time.

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 advice which is configured as On, even which the system is in a power down mode.

   VGA. When Enabled, you can set the LAN awakens the system.

   LPT & COM. When On of LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

   HDD & FDD. When On of HDD & FDD, any activity from one of the listed system peripheral devices wakes up the system.

   DMA/master. When you are On of DMA/ISA Master, any activity from one of the list system peripheral devices wakes up the system.

   Resume by Alarm: If "Enabled", you may set the date (day of the month), hour, minute and second to turn on your system. When you set "0" (zero) for the day of the month, the alarm will power on your system every day at the specified time.

   Resume by Ring: If "Enabled", the system power will be turned on if an FAX/Modem receives an incoming telephone ringing.

Modem Use IRQ: To enable the internal PnP modem ring to
wake up your system from suspend mode, the IRQ assigned to
the modem has to be the same as the setting in this option.

Press the <ESC> key to go back to the main program screen,
after you have made your selections in the POWER MANAGEMENT
SETUP.

3.11 PnP / PCI CONFIGURATION

Both the ISA and PCI buses on the Mainboard use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly thru the PnP/PCI Configuration Setup utility, otherwise the Mainboard will not work properly.

Selecting "PnP / PCI CONFIGURATION" on the main program screen displays this menu:

PnP / PCI Configuration

```
                    ROM PCI/ISA BIOS (2A5LHF29)
                     PNP / PCI CONFIGURATION
                       AWARD SOFTWARE, INC.

 PNP OS Installed          : No        CPU to PCI Write Buffer  : Enabled
 Resources Controlled By   : Manual    PCI Dynamic Bursting     : Enabled
 Reset Configuration Data  : Disabled  PCI Master 0 WS Write    : Enabled
                                       PCI Delay Transaction    : Enabled
 IRQ-3 assigned to  : PCI/ISA PnP      PCI#2 Access #1 Retry    : Disabled
 IRQ-4 assigned to  : PCI/ISA PnP      AGP Master 1 WS Write    : Enabled
 IRQ-5 assigned to  : PCI / ISA PnP    AGP Master 1 WS Read     : Disabled
 IRQ-7 assigned to  : Legacy ISA
 IRQ-9 assigned to  : PCI / ISA PnP    Assign IRQ For USB       : Enabled
 IRQ-10 assigned to : PCI / ISA PnP    Assign IRQ For VGA       : Enabled
 IRQ-11 assigned to : PCI / ISA PnP
 IRQ-12 assigned to : PCI / ISA PnP
 IRQ-14 assigned to : Legacy ISA
 IRQ-15 assigned to : Legacy ISA
 DMA-0 assigned to  : PCI / ISA PnP
 DMA-1 assigned to  : PCI / ISA PnP
 DMA-3 assigned to  : PCI / ISA PnP    ESC: Quit        ↑↓→←    :Select Item
 DMA-5 assigned to  : PCI / ISA PnP    F1: Help             PU/PD/+/-:Modify
 DMA-6 assigned to  : PCI / ISA PnP    F5: Old Values       (Shift) F2: Color
 DMA-7 assigned to  : PCI / ISA PnP    F7: Load Setup Defaults
```

PnP OS Installed: Setting this option to "Yes" allows the PnP OS, instead of BIOS to assign the system resources such as IRQ and I/O address to the ISA PnP device. The default setting is "No"

Resources Controlled By: The default setting is "Manual" which allows you to control IRQs and DMAs individually. The other option is "Auto" which will detect the system resources and automatically assign the relative IRQs and DMAs for each peripheral.

Reset Configuration Data: The system BIOS supports the Plug and Play feature so the resources assigned to each peripheral have to be recorded to prevent them from conflicting. The location to store the assigned resources is called ESCD which is located in the system flash EEPROM. If this option is set to "Disabled" the ESCD will update automatically when the new configuration varies from the last one. If set to "Enabled", the ESCD will be cleared and forced to update and then automatically set this option to "Disabled".

IRQ and DMA Assigned to: If there is a legacy ISA device which uses an IRQ or a DMA, set the corresponding IRQ or DMA to "Legacy ISA", otherwise you should set to PCI/ISA PnP.

PCI IDE IRQ Map To, Primary IDE INT#, Secondary IDE INT#: If you disable onboard PCI IDE controller and install a PCI IDE card on the Mainboard, you need to set this option. If a PCI IDE Card uses ISA IRQ directly thru a paddle card installed on an ISA slot, select "ISA" for the option "PCI IDE IRQ Map To". If a PCI IDE Card uses PCI "INT" and is compliant to PCI Plug and Play specification, select "PCI-AUTO" for the option "PCI IDE IRQ Map To". Otherwise select "PCI-SLOT n" (PCI-SLOT 1, PCI-SLOT 2, PCI-SLOT 3 or PCI-SLOT4) depending on which slot the PCI IDE Card is installed.

Only INT A and INT B are available for a PCI IDE Card, therefore you must set the PCI IDE Card's primary interrupt to INT A and secondary interrupt to INT B. The INT A is routed to IRQ 14 and the INT B is routed to IRQ 15 thru a hardware router in the chipset.

After you have made your selections in the PnP / PCI Configuration SETUP, press the <ESC> key to go back to the main program screen.

3.12 INTEGRATED PERIPHERIALS

Selecting "INTEGRATED PERIPHERIALS" on the main program screen displays this menu:

Integrated Peripherals Screen

```
ROM PCI/ISA BIOS (2A5LHF29)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

OnChip IDE Channel0        : Enabled      Onboard Parallel Port      : 378/IRQ7
OnChip IDE Channel1        : Enabled      Onboard Parallel Mode      : Normal
IDE Prefetch Mode          : Enabled
IDE HDD Block Mode         : Enabled
Primary Master PIO         : Auto
Primary Slave PIO          : Auto
Secondary Master PIO       : Auto         Onboard Legacy Audio       : Enabled
Secondary Slave PIO        : Auto         Sound Blaster              : Enabled
Primary Master UDMA        : Auto         SB I/O Base Address        : 220H
Primary Slave UDMA         : Auto         SB IRQ Select              : IRQ 5
Secondary Master UDMA      : Auto         SB DMA Select              : DMA 1
Secondary Slave UDMA       : Auto         MPU-401                    : Enabled
                                          MPU-401 I/O Address        : 330-333H
Onboard FDD Controller     : Enabled      FM Port (388-38BH)         : Enabled
                                          Game Port (200-207H)       : Enabled

Onboard Serial Port 1      : Auto         ESC: Quit      ↑↓ → ←     :Select Item
Onboard Serial Port 2      : Auto         F1: Help
                                                         PU/PD/+/-:Modify
UART 2 Mode                : Standard      F5: Old Values      (Shift) F2: Color
                                          F7: Load Setup Defaults
```

OnChip IDE Channel 0/1: The default setting is "Enabled". This option enables the onboard IDE controller.

IDE Prefetch Mode: The onboard IDE drive interfaces supports IDE prefetching, for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching. The choice: Enabled, disabled.

IDE HDD Block Mode: The Default setting is "Enabled". This feature enhances hard disk performance by making multi-sector transfers instead of one sector per transfer. Most IDE drives, except very early design, have the Block Mode transfer feature.

Master PIO, Slave PIO, Master UDMA, Slave UDMA: There are six options "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3" and "Mode 4" for PIO Mode HDD. There are two options "Enabled" or "Disabled" for the Ultra DMA Hard Disk. The default setting is "Auto". When set to "Auto" the BIOS will automatically set the PIO or Ultra DMA mode to match the transfer rate of hard disk. If the system won't boot up when set to "Auto", set it manually to the lower mode, e.g, from Mode 3 to Mode 2. All IDE drives should work with PIO mode 0.

Onboard FDD Controller: The default setting is "Enabled". This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1 and Onboard Serial Port 2: These options are used to assign the I/O addresses for two onboard serial ports. They can be assigned as follows:

> 3F8/ IRQ4, 2F8/ IRQ3
> 3E8/ IRQ4, 2E8/ IRQ3
> Auto (default)
> Disabled (Disable the onboard serial port)

UART 2 Mode: The options are "Standard" (default), "HPSIR" and "ASKIR". The HPSIR is Hewlett Packard infrared communication protocol with maximum baud rate up to 115.2K bps, and the ASKIR is Sharp infrared communication protocol with maximum baud rate up to 57.6K bps. The UART mode setting depends on which type of infrared module is used in the system. When set to "ASKIR" or "HPSIR", the UART 2 is used to support the infrared module connected on the mainboard. If this option is not set to "Normal", a device connected to the COM2 port, will no longer work.

Onboard Parallel Port: This option is used to assign the I/O address for the onboard parallel port. The options are "378/IRQ7" (defaults), "278/IRQ5", "3BC/IRQ7" and "Disabled" (disable the onboard parallel port).

Parallel Port Mode: There are four options "Normal" (default), "EPP", "ECP", "ECP+EPP". Change the mode from "Normal" to the enhanced mode only if your peripheral device can support it.

3.13 SUPERVISOR / USER PASSWORD

The "SUPERVISOR/USER PASSWORD" utility sets the password. The Mainboard is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt enter your new password. The password is case sensitive and you can use up to 8 alphanumeric characters, press <Enter> after entering the password. At the next prompt, confirm the new password by typing it and pressing <Enter> again.

To disable the password, press the <Enter> key instead of entering a new password when the "Enter Password" dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

4 Driver and Utility

4.1 Flash Utility

The BIOS of the P5F110 mainboard can be upgraded by using a Flash utility. A new version of the BIOS can be downloaded from the factory's BBS and Web site. The FLASH utility can be extract from the BIOS files that you download or at manufacturer diskette under FLASH directory which comes with the mainboard.

FLASH.EXEThe Flash utility for AWARD BIOS upgrade
README.TXTA text file of instructions

> The Flash utility will not work with any memory manager software running in the system. In order to make sure no memory manager software is running, boot your system from a bootable floppy diskette which does not contain CONFIG.SYS and AUTOEXEC.BAT files. If you are using MS-DOS 6.x, you can press <F5> function key while the "Starting MS-DOS..." message appearing on the screen to bypass the CONFIG.SYS and AUTOEXEC.BAT.

4.2 The Steps to Install the VIA GRAT AGP Driver

There are two methods you can install your VIA GRAT AGP Driver, CD-ROM or diskette.

If you have CD-ROM.
Step 1. Insert the manufacturer CD-ROM to your PC.
Step 2. Click the "Install Driver" option in your installation screen.
Step 3. Click the "VIA_GRAT AGP Driver" option. (It will start the installation.)
Step 4. Follow the instruction shows on the screen to finished the installation. (The system will restart.)

If you have Diskette.
Step 1. Insert the VIA_GRAT AGP Driver into your PC.
Step 2. Make copy of the self-extracting file in the diskette into your hard
        disk and run it.
Step 3. Double click the "Setup" option to install the VIA GRAT AGP
        Driver.
Step 4. Follow the instruction shows on the screen to finished the
        installation. (The system will restart.)

After system back on then you are complete the installation of VIA
GRAT AGP driver and ready to install the driver for AGP VGA card. A
new version of the VIA GRAT AGP drive can be downloaded from the
factory's BBS and Web site

4.3 The Steps to Install the VIA Bus Master PCI IDE
   Driver

The Bus Master PCI IDE logic designed in the VIA MVP4 chipset is
intended to reduce the workload of the CPU and make the CPU running
more efficiently. It will take care the data transfer between IDE drives and
system memory and let CPU handle other tasks.

There are two methods you can install your VIA Bus Master PCI IDE
Driver, CD-ROM or diskette.

If you have CD-ROM.
Step 1. Insert the manufacturer CD-ROM to your PC.
Step 2. Click the "Install Driver" option in your installation screen.
Step 3. Click the "VIA IDE Bus Master Driver" option. (It will start the
        installation.)
Step 4. Follow the instruction shows on the screen to finished the
        installation. (The system will restart.)

If you have Diskette.
Step 1. Insert the VIA IDE Bus Master Driver into your PC.
Step 2. Make copy of the self-extracting file in the diskette into your hard
        disk and run it.
Step 3. Double click the "Setup" option to install the VIA IDE Bus Master
        Driver.
Step 4. Follow the instruction shows on the screen to finished the
        installation. (The system will restart.)

After system back on then you are complete the installation of VIA IDE
Bus Master driver. A new version of the VIA IDE Bus Master drive can be
downloaded from the factory's BBS and Web site.

4.4 The Steps to Install the VGA Driver

There are two methods you can install your VGA Driver, CD-ROM or
diskette.

If you have CD-ROM.
Step 1. Insert the manufacturer CD-ROM to your PC.
Step 2. Click the "Install Driver" option in your installation screen.
Step 3. Click the "VGA" option. (It will start the installation.)
Step 4. Follow the instruction shows on the screen to finished the
        installation. (The system will restart.)

If you have Diskette.
Step 1. Insert the VGA Driver into your PC.
Step 2. Make copy of the self-extracting file in the diskette into your hard
        disk and run it.
Step 3. Double click the "Setup" option to install the VGA Driver.
Step 4. Follow the instruction shows on the screen to finished the
        installation. (The system will restart.)

After system back on then you are complete the installation of VGA
driver. A new version of the VGA drive can be downloaded from the
factory's BBS and Web site.

4.5 The Steps to Install the MVP4 Sound Card Driver

Please follow the steps below to install the MVP4 Sound Card.

Step 1. Insert the MVP4 Sound Card Driver Diskette in your PC.
Step 2. Under the "Control Panel", Choose the "Add New Hardware" to find and instal the new MVP4 Sound Card.
Step 3. Follow the instruction shows on the screen to finished the installation.
Step 4. Restart the PC.

After system back on then you are complete the installation of VIA IDE Bus Master driver. A new version of the VIA GRAT AGP drive can be downloaded from the factory's BBS and Web site.

4.6 USB Driver

Q: How to configure the USB controller on P5F110?
A: USB controller requires the USB supplement install, so please make sure your system install the USB supplement first. You can click at "Control panel" and "Add/Remove Program" icon to check the USB supplement install or not?

For Windows 95 (OSR2.1 or later) users, The USB supplement can be located at the Windows95 OSR2.1 CD's **\others\usb\usb-supp.exe** directory. For Windows95 (OSR2.0 or before) users, you need to update your system to OSR2.1 or contact Microsoft for update information.

After USB supplement installed, system will reboot and find the **"Standard OpenHCD USB Host Controller"** and ask for file **"openhci.sys"**. The "openhci.sys" file is locate at **C:\windows\system** directory. Click on "Browser" icon and give the path for "open-hci.sys". After the file loaded, then you are complete the configure of USB controller and ready to install the USB device driver.

Note: You do not need to install USB supplement or configure the USB controller for Windows98, windows will automatically configure it during the installation.

System Environment Monitor

The System Environment Monitoring utility with the onboard VIA Hardware monitoring system chip allow you to monitor your system's temperature, Fan speed and CPU voltage. Using this utility, you can setup the upper and lower limits of these monitored parameters. A pre-warning message will pop up on the screen when the monitored parameters is out of the preset range.

A.1 The Steps to Install the System Environment Monitor Driver

Step 1. Insert the manufacturer CD-ROM or diskette to your PC to install the system monitor.
Step 2. Follow the instruction shows on the screen to finished the installation. (The system will restart.)
Step 3. The following screen will appear (shown in the next page).
Step 4. Restart the PC.

After system back on then you are complete the installation of VGA driver. A new version of the VGA drive can be downloaded from the factory's BBS and Web site.
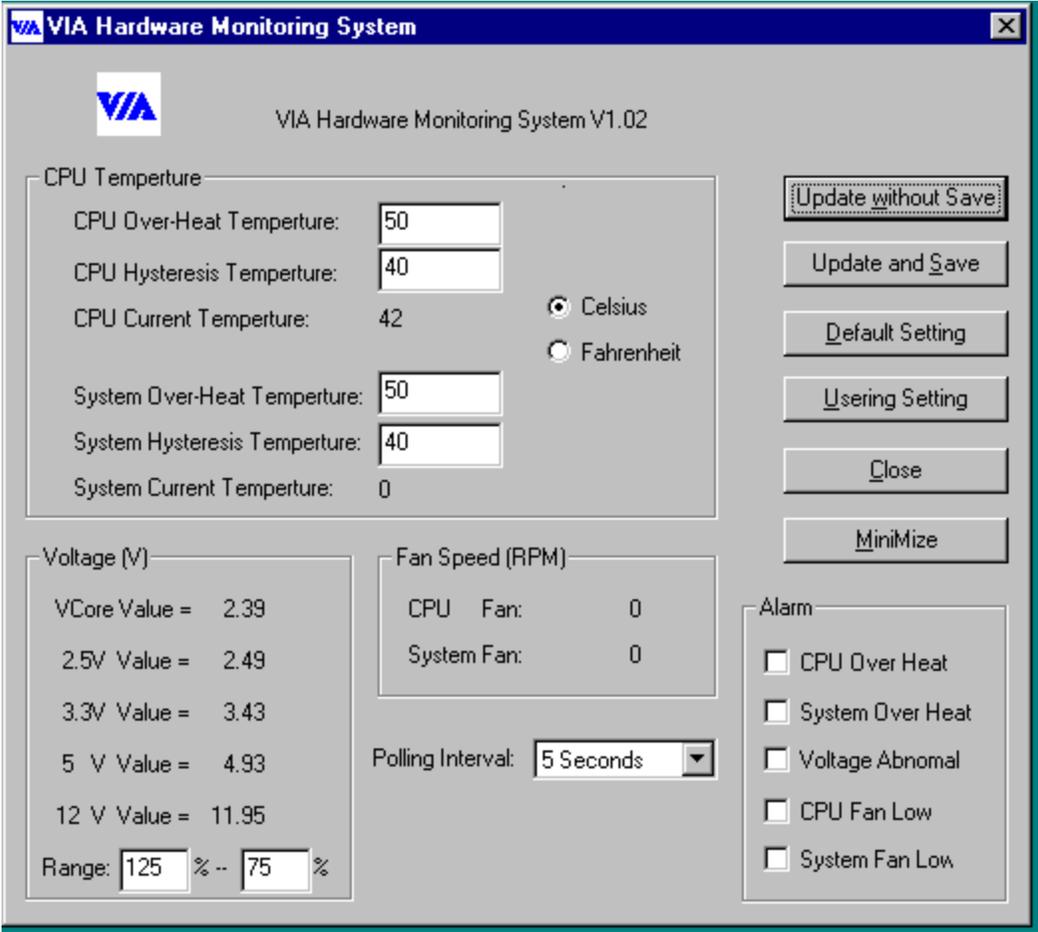
Click "OK" and continue setup procedure.