P6F127 Mainboard Manual

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Using This Manual

This manual is designed to help you build a reliable Personal Computer based on the P6F127 platform.

Chapter 1—Quick Reference

This chapter is for advanced users who want to quickly assemble a system. The mainboard layout along with jumper and switch settings, and memory configuration are provided.

Chapter 2—Introduction

This chapter includes an introduction, a checklist of the items that ship with this mainboard, and a summary of the principal features and components.

Chapter 3—Hardware Installation

This chapter explains how to prepare your mainboard for use and how to make the various connections to other computer components and peripheral items.

Chapter 4—BIOS Configuration

This chapter explains how to use the system setup utility that is stored in the mainboard's firmware.

Chapter 5—Driver and Utility

This chapter briefly describes the drivers and utility programs that are packaged with the mainboard.

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1. P6F127 Quick Reference

This section is for users to get started using the mainboard straight away.

1.1. Mainboard Layout
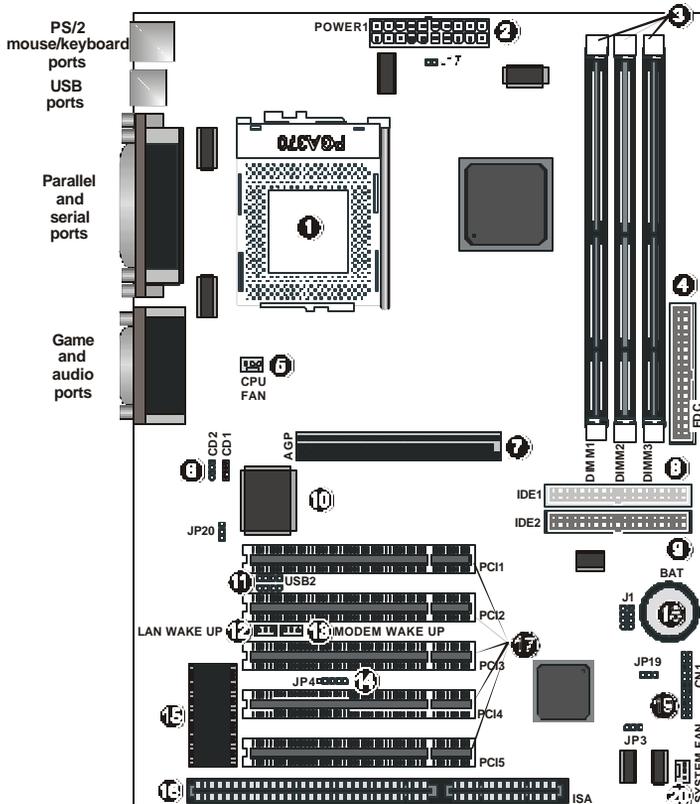
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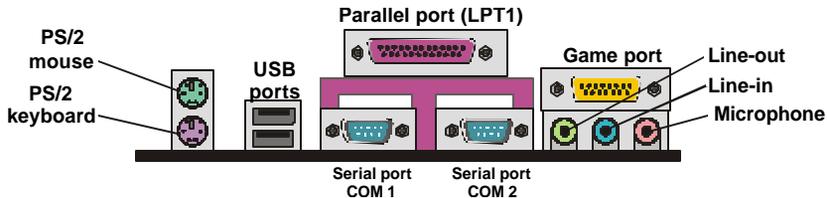
1.3. I/O Ports (Ensoniq CT5880)
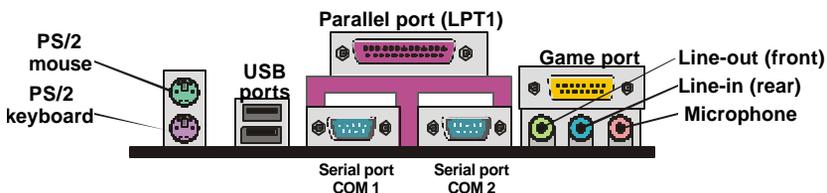
1.4. Panel Connector

The following illustration shows the front panel connector pin assignments:
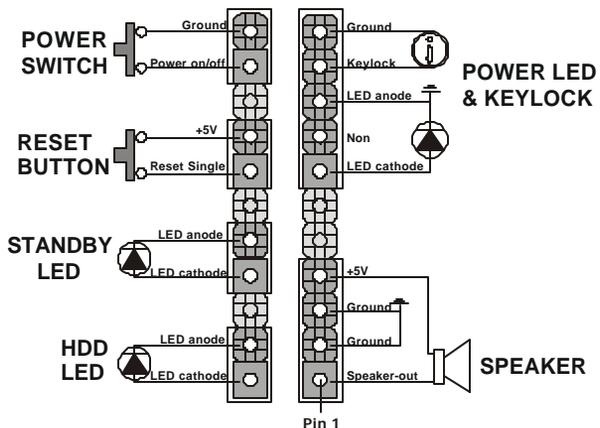
1.5. Jumpers

J1	**1-2, 3-4, 5-6, 7-8:** CPU ratio = 2X
	1-2, 3-4, 7-8: CPU ratio = 2.5X
	1-2, 5-6, 7-8: CPU ratio = 3X
	1-2, 7-8: CPU ratio = 3.5X
	3-4, 5-6, 7-8: CPU ratio = 4X
	3-4, 7-8: CPU ratio = 4.5X
	5-6, 7-8: CPU ratio = 5X
	7-8: CPU ratio = 5.5X
JP3	**1-2:** Normal Mode
	2-3: Clear CMOS RAM
J17	**Short:** System detects FSB speed
	Open: 133 FSB speed only
JP19	**1-2:** Suspend to RAM disabled
	2-3: Suspend to RAM enabled
JP20	**1-2:** OnChip sound enabled
	2-3: OnChip sound disabled

1.6. PCI and AGP Frequency Settings

The PCI and AGP frequency settings are automatically set by the system.

1.7. Connectors

FAN1	**CPU FAN Connector:** This 3-pin header is used for connecting the CPU fan.
CD1/2	**CD Connectors:** These 4-pin headers are used for connecting the CD ROM audio input to the sound card.
USB2	**USB Connector:** This 8-pin.
JP4	**Infrared (IR) Connector:** This 5-pin header is used to connect an infrared (IR) port for use of IR devices.
JP5	**Modem Wake UP Connector:** This 3-pin header is used for remote wake up of the computer through a modem.
JP6	**LAN Wake Up Connector:** This 3-pin header is used for remote wake up of the computer through a network card.
SYSTEM FAN	**System Fan Connector:** This 3-pin header is for connecting the case fan that keeps the system cool.

1.8. Memory Installation

168-Pin DIMM SDRAM Memory Configuration

Bank 0 (DIMM1)	8, 16, 32, 64, 128, 256, 512 MB
Bank 1 (DIMM2)	8, 16, 32, 64, 128, 256, 512 MB
Bank 2 (DIMM3)	8, 16, 32, 64, 128, 256, 512 MB
Total	8 MB to 1.5 GB

This concludes Chapter 1. Chapter 2 covers the mainboard's specifications and features.

2. Introduction

2.1. Overview

The P6F127 is a high quality, high performance, enhanced function mainboard that supports 64-bit Intel Celeron/Cyrix Socket 370 processors. This mainboard is designed around the latest and fastest Apollo Pro133A chipset in a standard ATX form factor.

The mainboard delivers workstation-level performance with an integrated AGP (Accelerated Graphics Port), bus mastering EIDE (Enhanced IDE) controller, concurrent PCI bus, and an Ensoniq digital controller (optional). The mainboard accommodates SDRAM (Synchronous DRAM) memory and supports ATA33/66/100.

The mainboard achieves the highest reliability by supporting ECC (Error Checking and Correction) memory protection, enabling the mainboard to achieve superior data integrity and fault-tolerance in respect to memory errors while running applications.

In addition to superior hardware capabilities, features like bus mastering EIDE driver, Plug and Play, Soft-off, APM (Advanced Power Management), ACPI (Advanced Configuration and Power Interface), Keyboard Turn On, External Modem Ring On, LAN wake up, Watchdog timer wake up, Fan Off in sleeping state and BIOS upgradability are provided with this platform.

2.2. Mainboard Specifications and Features

2.2.1. Hardware

CPU	Celeron/Cyrix Socket 370 processors
VRM	Onboard Voltage Regulator Module Provides 1.3V to 3.5V operating voltage
Coprocessor	CPU has built-in floating point unit
Speed	System bus clock 66/100/133 MHz AGP 1x/2x/4x PCI bus clock 33 MHz ISA bus clock 8.33~9.35 MHz
Chipset	Apollo Pro133A: VT82C694X system controller VT82C686A/VT82C686B PCI to ISA bridge
DRAM	Three 168-pin DIMM sockets Supports 8 MB to 1.5 GB memory Supports FP, EDO, SDRAM, ESDRAM, and VCM SDRAM memory types
EIDE Controller	Supports four IDE devices in two channels Supports PIO mode 0 through mode 4 drives Supports Bus Mastering DMA mode 2 drives Supports Bus Mastering Ultra DMA-66/100 drives Supports Iomega ZIP or LS-120 removable drives
Sound Chip (optional)	CT5880 Ensoniq digital controller
Enhanced I/O	One floppy disk controller One Standard/EPP/ECP parallel port connector Two 16550 compatible serial port connectors Two USB (Universal Serial Bus) ports
I/O Options	One IrDA compatible infrared (IR) connector One connector for front panel USB ports 3/4
Mouse and Keyboard	PS/2 mouse connector PS/2 keyboard connector
Expansion Slots	One AGP-4x (V2.0) slot Five 32-bit PCI slots One 8/16-bit ISA slot

Power Management	Compliant with EPA, APM 1.2 and ACPI ATX soft-off power control Power – on by keyboard and PS/2 mouse Power – on by external modem ring Power – on by alarm Power – on by LAN wake up Fan off in sleep mode
System Management	CPU temperature warning and system temperature detection CPU and system voltage detection CPU and secondary fan RPM detection
Voltage Regulator	Switching regulator CPU voltage auto-detection
Form Factor	ATX form factor 20 cm x 30.5 cm (7.9-inch x 12.0-inch)

2.2.2. Software

BIOS	AWARD AGP/PCI BIOS 2M-bit Flash BIOS with ESCD (Extended System Configuration Data) block Supports APM, Plug and Play, Multi-Boot, DMI and EIDE devices Supports ACPI Supports high-capacity LS-120 and ZIP removable media drive
Driver and Utility	IDE Bus mastering Ultra DMA driver Flash utility for BIOS upgrade System Environment Monitoring Utility CT5880-5V Ensoniq driver
Operating System	Operates with MS_DOS, Windows 3.x/95/98/2000/NT, OS/2, Novell Netware/UnixWare 1.1, and SCO Unix 4.2

2.2.3. Environment

Ambient Temperature	0° C to 50° C (operating)
Relative Humidity	0 to 85% (operating)
Vibration	0 to 500 Hz
DC Voltage	4.9V to 5.2V
DC Voltage	1.3V to 3.50V
DC Voltage	-5V, +12V, -12V, +5V$_{SB}$ 5% tolerance

2.3. Mainboard Layout
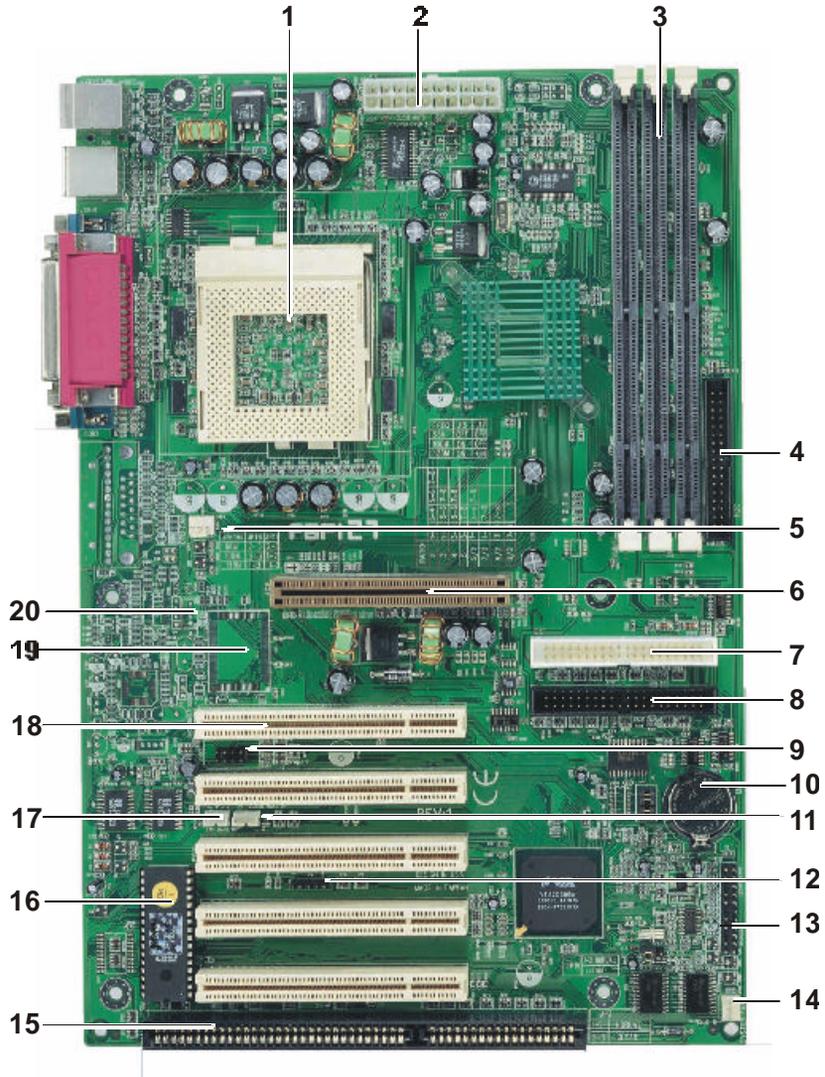
Note: Because of optional items and design changes, your mainboard may not be identical to the one shown in the illustration.

Key to Mainboard Components

No.	Name	Function
1	PGA370	CPU socket
2	POWER1	ATX power connector
3	DIMM1~3	Memory module slots
4	FDC	Floppy drive connector
5	CPU FAN	CPU cooling fan connector (FAN1)
6	AGP	Accelerated Graphics Port (AGP) slot
7	IDE1	IDE1 connector (white)
8	IDE2	IDE2 connector (black)
9	USB2	Front panel USB connector
10	BAT	RTC battery
11	JP5	Modem wake up connector
12	JP4	IrDA compliant Infrared (IR) connector
13	CN1	Front panel connectors
14	SYSTEM FAN	Secondary case fan connector
15	ISA	ISA expansion slot
16	BIOS	BIOS controller
17	JP6	LAN wake up connector
18	PCI1~5	32-bit PCI expansion slots
19	CT5880	Ensoniq digital controller (optional)
20	CD1/2	CD-ROM audio signal input connectors

2.4. Microprocessor

The mainboard is designed to operate with the following processors:

Processor Type	Speed	FSB
Intel Celeron	466 ~ 766+ MHz	66 MHz
Intel Coppermine	500 ~ 850+ MHz	100 MHz
Intel Coppermine	533 ~ 933+ MHz	133 MHz
VIA Cyrix III	500+ MHz	100 MHz
VIA Cyrix III	533+ MHz	133 MHz

An onboard switching voltage regulator provides the required 1.3 to 3.5 volts for the processor. The processor sends five VID (Voltage Identification) signals to the switching voltage regulator. The switching regulator generates the correct voltage for the processor.

2.5. CPU Packaging

PGA370 CPUs are packaged in a FC-PGA or PPGA (Flip Chip or Integrated Circuit-Plastic Pin Grid Array) configuration.

2.6. CT5880 Ensoniq Controller (Optional)

This mainboard offers the option of a built-in CT5880 Ensoniq digital controller. The CT5880 provides the next generation of audio performance to the Sound Blaster AudioPCI product line.

- CD Audio over the PCI Bus
- PCI Bus Master for fast DMA
- AC97 interface/Microsoft PC97/98 compliant
- Multimedia PC Level II/III compliant
- Supports multiple sample rate
- Supports Aureal A3D API for 3D Positional Audio
- CD Audio over the PCI Bus

2.7. Chipset

The P6F127 supports the VIA 82C694X Apollo Pro-133A chipset. The chipset comes in pairs—the North Bridge chip and the South Bridge chip.

North Bridge
- CPU interface controller (66/100/133 MHz FSB)
- AGP interface controller (AGP 1x/2x/4x)
- Integrated DRAM controller (Synchronous 66/100/133 MHz SDRAM)
- Fully synchronous PCI 2.2 bus interface
- Data buffering:
  - CPU-to-AGP
  - CPU-to-DRAM
  - CPU-to-PCI
  - AGP-to-DRAM
  - AGP-to-PCI
  - PCI-to-AGP
  - PCI-to-DRAM

South Bridge
- Interface between the PCI and ISA buses
- Power Management Logic
- USB controller
- EIDE controller (ATA33/66/100)
- Seven DMA channels
- One timer/counter
- Two 8-channel interrupt controllers
- NMI logic and SMI interrupt logic
- PCI/ ISA bus arbitrator
- SMBus interface
- Power management Logic
- Realtime clock (RTC)
- ACPI controller

This concludes Chapter 2. Chapter 3 covers hardware installation.

3. Hardware Installation

This chapter explains how to use your mainboard to build a powerful computer system. At a minimum, you will need the following components in order to build a fully functioning system.

- Computer case with ATX power supply
- PGA370 Processor
- One SDRAM memory module
- One floppy disk drive
- One UDMA-66 IDE hard disk drive
- One CD-ROM drive
- One display monitor
- One PS/2 mouse
- One PS/2 keyboard
- One set of loudspeakers

Of course, you can use the system I/O ports and expansion slots to add many more features and components to your system than the items listed above.

3.1. Unpacking

The P6F127 mainboard package contains the following items:

- ❑ One mainboard
- ❑ One IDE 40-pin ribbon cable
- ❑ One floppy 34-pin ribbon cable
- ❑ Driver and utility CD
- ❑ User's manual

After removing the mainboard from its anti-static bag, place it on a grounded or anti-static surface (component side up). Inspect the mainboard and contact your vendor immediately if it is damaged.

3.2. Installation

The P6F127 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. The chassis comes 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 install the CPU and DIMM memory modules, attach the connectors, and set the correct CPU speed in the CMOS setup.

3.3. Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damaging your computer:

- Always disconnect the mainboard from the ATX power supply, and disconnect the computer from the power outlet whenever you are working inside the computer case.
- If possible, wear a grounded wrist strap when you are installing the mainboard or working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the computer case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave each component inside the static-proof packaging that it ships with until you are ready to use the component for the installation.

3.4. Connector/Jumper Location

POWER1

J17

PGA370

DIMM1 DIMM2 DIMM3

FDC

CPU FAN

CD2 CD1

AGP

IDE1
IDE2

JP20

PCI1

USB2

PCI2

LAN WAKE UP

MODEM WAKE UP

BAT

J1

PCI3

JP4

JP19

CN1

PCI4

PCI5

JP3

SYSTEM FAN

ISA
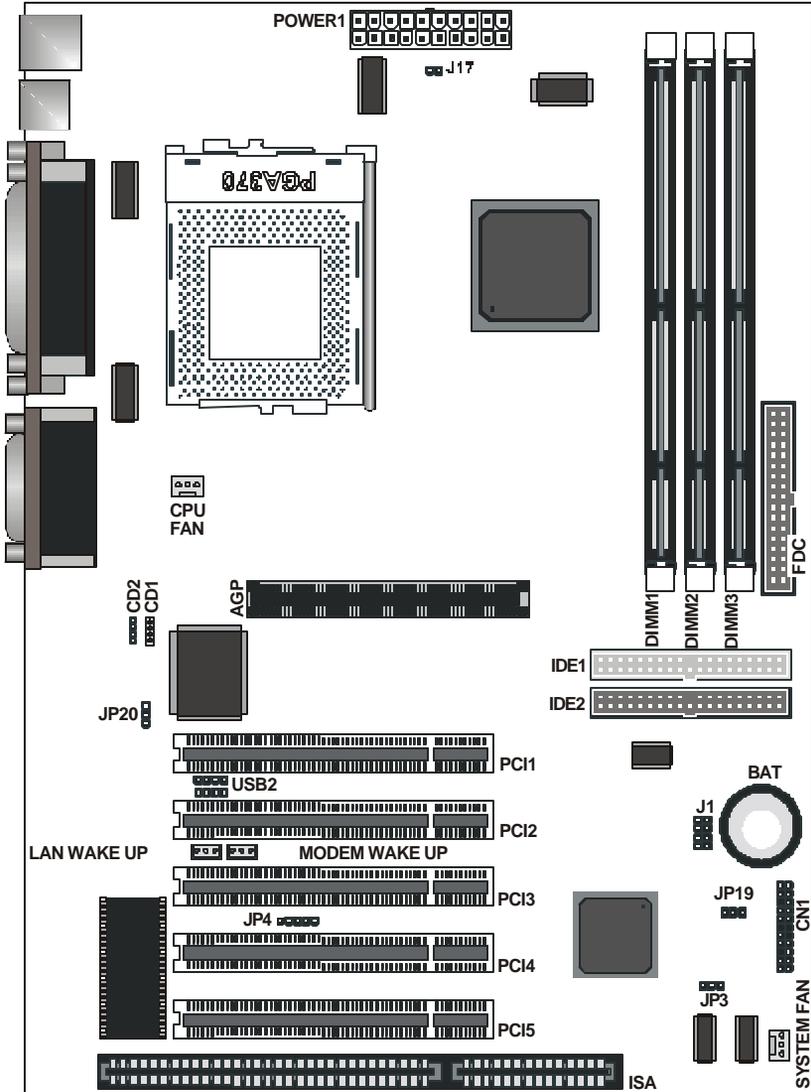
3.5. Attaching Connectors

3.5.1. Front Panel Connectors

There are six connectors on the mainboard for speaker, switches, and indicator lights on the system's front panel.
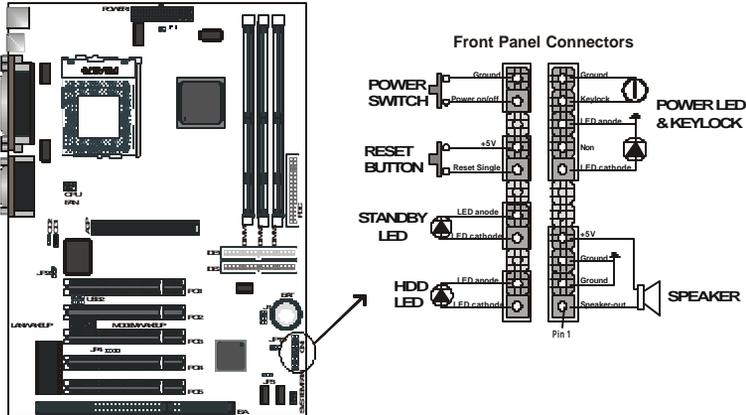
Speaker	This 4-pin connector connects to the case-mounted speaker.
Power LED & Keylock	This 5-pin connector connects to the case-mounted key-lock switch and the power LED. The keylock switch is used to lock the keyboard for security purposes.
HDD LED	This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.
STB LED	This 2-pin connector connects to the case-mounted STB LED to indicate a standby status. The LED remains lit even when the system is off to indicate that AC power is available. When the system enters standby mode, the LED starts blinking.
Reset	This 2-pin connector connects to the case-mounted reset switch and is used to reboot the system.
PW SW	This 2-pin connector connects to the case-mounted Power button.

3.5.2. Infrared (IR) Connectors

This 5-pin connector connects to an optional wireless transmitting and receiving infrared module via a cable and a bracket. Configure BIOS to enable the IrDA port if you attach an infrared module to this connector. Refer to *Integrated Peripherals* in Chapter 4 for details.
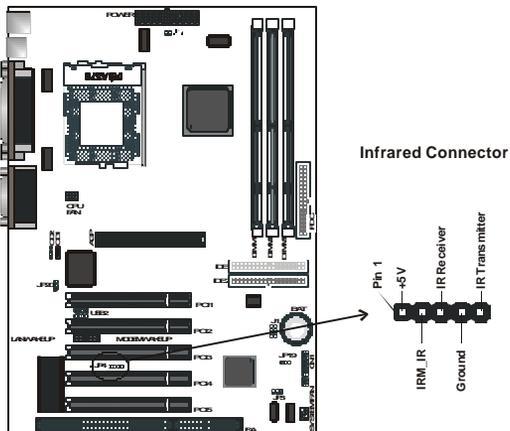
3.5.3. CD-ROM Connectors

These connectors enable you to connect a CD-ROM to the main-board and receive stereo audio input.
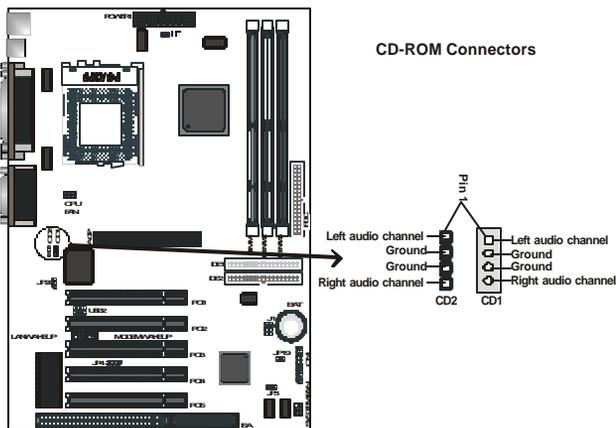
3.5.4.   LAN/Modem Wake Up Connectors

These 3-pin headers are used for remote wake up of the computer through a network or modem signal.
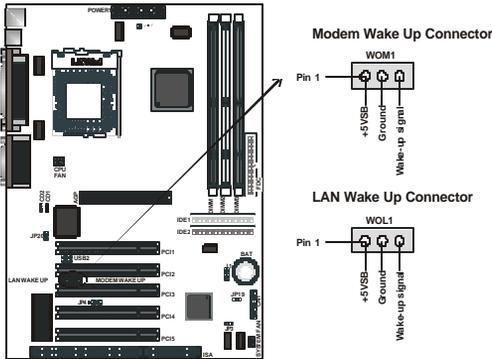
> *Note: You must enable the Wake On LAN/Wake On Modem features in the BIOS setup if you use this feature. Refer to the Power Management section in Chapter 4 for details.*

3.5.5.   Floppy Drive Connector

A floppy disk drive ribbon cable has two connectors to support two floppy disk drives. The connector with twisted wires always connects to drive A; 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 corresponds with pin 1 of the I/O port connector.
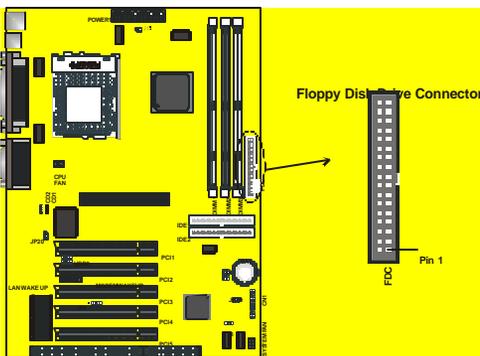
3.5.6.   **IDE Connectors**

An IDE drive ribbon cable has two 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 configured as Slave by setting the drive select jumpers on the drive.

IDE Connectors

IDE1

IDE2
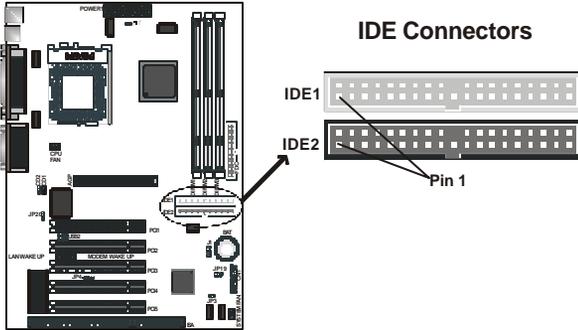
Pin 1

Consult the documentation that came 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 corresponds to pin 1 of the I/O port connector.

3.5.7.   **CPU Speed Settings**

Refer to the following table to set the CPU speed for your processor by shorting (placing a shunt over) the pins indicated.

CPU Ratio Table
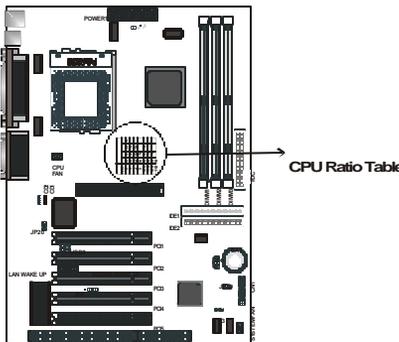
J1 pin settings				CPU ratio
1-2	3-4	5-6	7-8	2X
1-2	3-4		7-8	2.5X
1-2		5-6	7-8	3X
1-2			7-8	3.5X
	3-4	5-6	7-8	4X
	3-4		7-8	4.5X
		5-6	7-8	5X
			7-8	5.5X

Note: 1. The CPU ratio is auto-detected by the system.
2. Jumper J1 is for configuring older Celeron processors.

3.5.8.   Back Panel Connectors

The back panel provides external access to PS/2 style keyboard and mouse connectors, two serial ports, one parallel port, dual USB ports, a game port and audio ports which are integrated on the mainboard. The figures below show the location of the back panel I/O connectors.

PS/2 Mouse and PS/2 Keyboard Ports

Connect a PS/2 mouse to the green 6-pin mini DIN connector. The system will automatically assign IRQ 12 to the PS/2 mouse if one is connected.
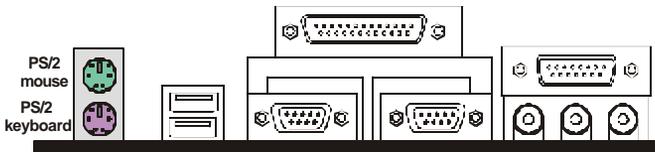
Connect a PS/2 keyboard to the purple 6-pin mini DIN connector. If you want to connect a standard AT size (large DIN) connector, you must use an adapter.

Universal Serial Bus Ports

You can connect two USB devices or USB hubs to the USB ports.
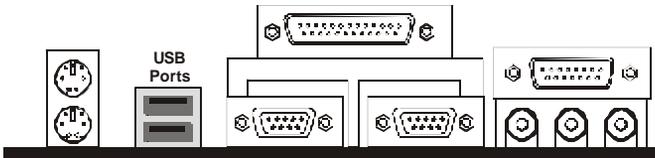
The USB ports provide a hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer and telephony devices, and also support MPEG-1 and MPEG-2 digital video. The USB ports have a maximum bandwidth of 12 Mbits/sec (equivalent to 1.5 Mbytes/sec), and up to 127 devices can be attached. Fast devices can use the full bandwidth, while lower-speed ones can transfer data using a 1.5 Mbits/sec sub-channel.

Parallel Port

Connect a printer or other parallel device to the burgundy-colored 25-pin parallel port. You can set the parallel port IRQ and parallel port mode in BIOS. Refer to *Integrated Peripherals* in Chapter 4 for details.

Parallel Port
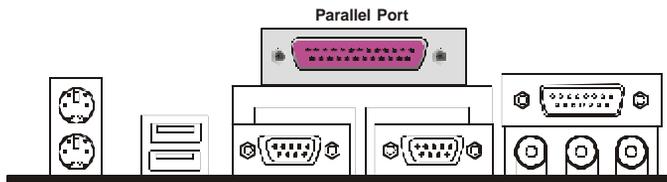
Serial Ports

Connect a serial device such as a mouse or modem to the turquoise 9-pin serial ports. You can set the serial port IRQs in BIOS. Refer to *Integrated Peripherals* in Chapter 4 for details.

Serial Port 1   **Serial Port 2**
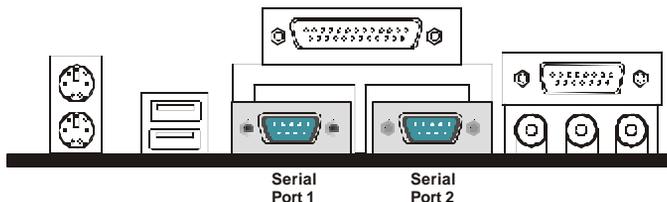
Note: Serial printers must be connected to the serial port.

Game Port

You can connect a joystick, game pad, or other game device to the gold 15-pin game port. You can also connect a MIDI device for playing or editing audio.

Game Port
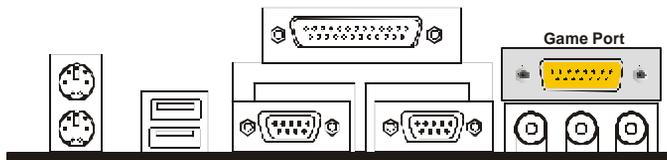
Audio Port Connectors (AC97)

You can connect various audio devices to these audio jacks. Connect headphones or powered speakers to the lime-colored lineout connector. Connect a tape player or another audio source to the light blue Line-in connector to record audio on your computer or to play audio through your computer's sound chip and speakers. Connect a microphone to the pink microphone connector to record audio to your computer.

Line-out
Line-in
Microphone
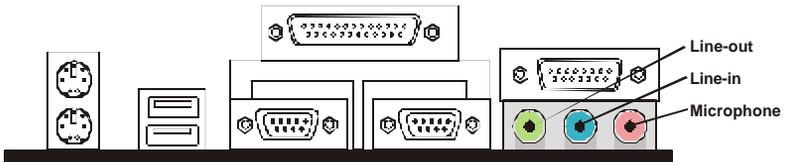
Audio Port Connectors (Ensoniq CT5880)

If your mainboard comes with the Ensoniq CT5880, you are provided with two lime-colored Line-out connectors for connecting additional headphones or powered speakers. Connect a microphone to the pink microphone connector to record audio to your computer. To play or edit audio on your computer or to play audio through your computer's sound chip and speakers use the *Game port* to connect a MIDI device.

Line-out (front)
Line-out (rear)
Microphone
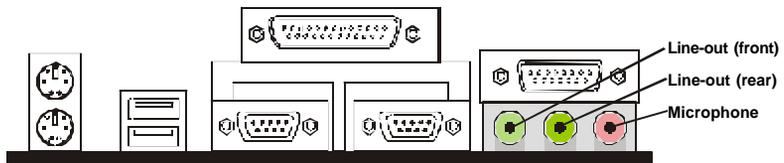
Power Supply Connector

The ATX power supply has a single lead connector 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.

Power connector

+3.3V		+3.3V
-12V		+3.3V
Ground		Ground
Power Supply On		+5V
Ground		Ground
Ground		+5V
Ground		Ground
-5V		Power good
+5V		+5V Standby
+5V		-12V
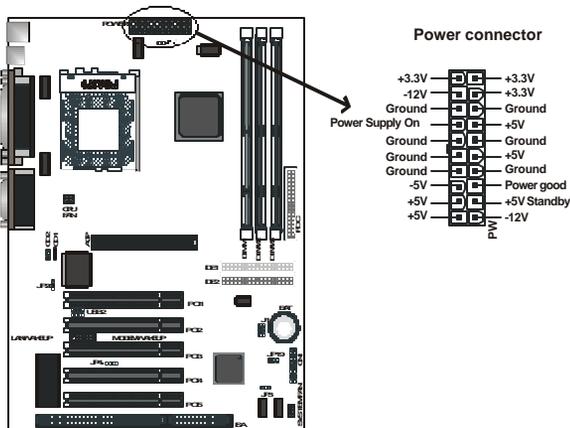
Warning: Incorrect installation of the power supply could result in serious damage to the mainboard and connected peripherals. Make sure the power supply is unplugged from the AC outlet before connecting the leads from the power supply.

CPU/System Fan Power Supplies

There are two fan connectors on the mainboard for the cooling fans. The connectors support fans of 12V DC/500mAMP (six watt) or less. When the system goes into sleep state, fans should be shut down to eliminate audible noise and reduce power consumption. You can monitor the fan speed by way of the VT82C686A chip (providing the fan comes with a tachometer output).

You can monitor the fans' RPM with the Hardware Doctor utility. Refer to *System Environment Monitor* in Chapter 5 for details.
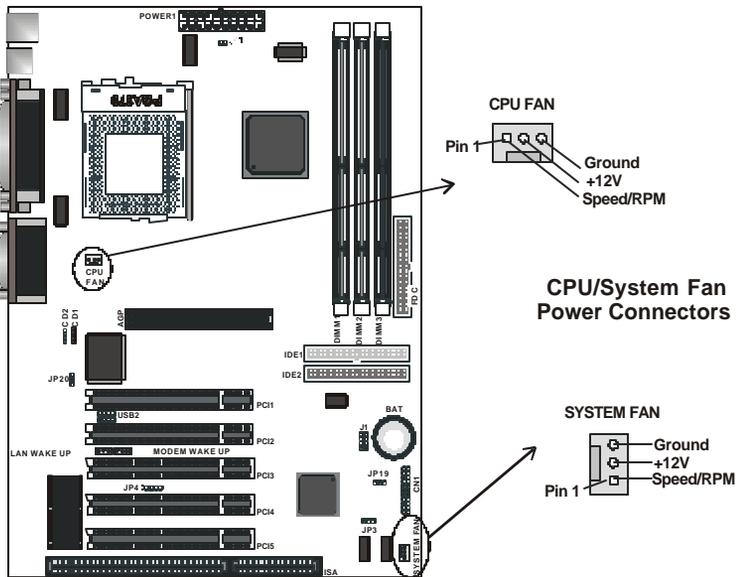
3.6. Installing the CPU

3.6.1.　　Before You Begin

1. Be sure that your processor kit includes the following items:
   - ♦ One processor with the fan or heat sink attached
   - ♦ One power cable (for CPU with cooling fan attached)
2. Place the mainboard on a workbench (not in a chassis). Be sure that the mainboard is empty (that is, no DIMMs, cables, or cards are installed) and that the holes for the fan or heat sink support pegs are empty.

3.6.2.　　Installation Procedure

1. On the motherboard, identify the CPU Socket 370 and the cooling fan power-supply connector CPU FAN.
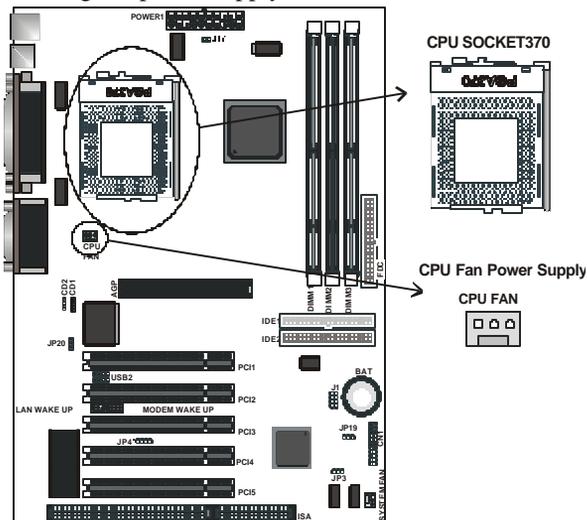
2. Push the CPU socket lever slightly to the side and then raise it as far as it can go.

3. Identify the pin-1 corner of the PGA370. The pin-1 corner is on the same side as the locking lever, as shown in the illustration below.

4. Identify the pin-1 corner of the processor (the pin-1 corner on the processor has a beveled edge).
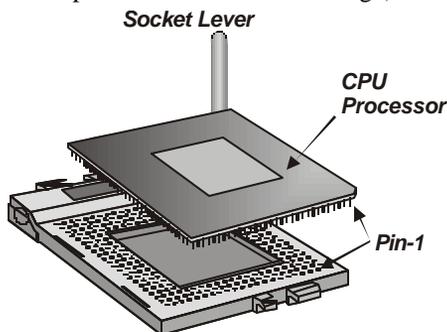
5. Align the pin-1 corners and drop the processor into the PGA370. The processor should drop into place without any force. If it doesn't seat properly, check that you have the pin-1 corner in the correct position.

6. Swing the locking lever down to lock the processor in place and latch the lever under the catch on the side of the socket.

7. Plug the cable from the heat sink/cooling fan assembly into the processor cooling fan power supply CPU FAN.

8. Configuration of the processor is carried out using the system setup utility as described in Chapter 4. Configure the processor the first time you turn on the assembled computer.

3.6.3. Removing the Processor

First, remove the mainboard from the chassis. To remove the processor from the mainboard, follow these steps:

1. Disconnect the fan power cable from the mainboard.

2. Push the CPU socket lever slightly to the side and then raise it as far as it can go. You will feel a resistance as the processor is freed from the socket.

3. Remove the processor.

3.6.4. Installing System Memory

Maximum system memory supported by the mainboard is 1.5 GB.

The mainboard has three DIMM Sockets. Memory can be installed using 168-pin SDRAM DIMM memory modules. There are no jumper settings required for the memory size or type, which is automatically detected by the BIOS.
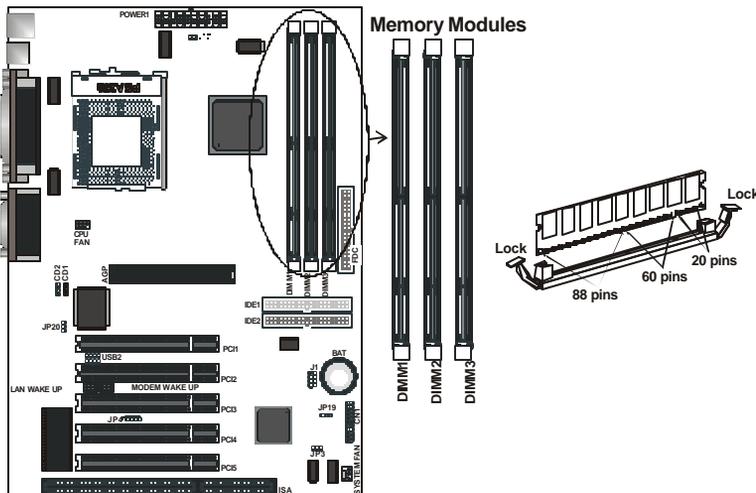
You must use 3.3V unbuffered DIMMs in the mainboard. To determine the DIMM type, check the notches on the DIMMs.

168-pin DIMM
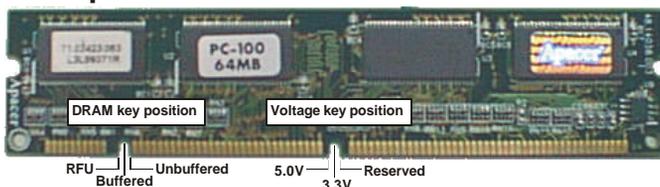
Due to the high-speed design of the mainboard, the memory modules must meet the following requirements:

DRAM TYPE	SDRAM (Synchronous DRAM)	
Module Size	*Single Sided Asymmetric* 1Mx64, 4Mx64, 8Mx64, 16Mx64	
	Double-Sided Asymmetric 2Mx64, 4Mx64, 8Mx64, 16Mx64, 32Mx64	
Requirements	**EDO Extended Data Output**	**SDRAM Synchronous DRAM**
	• *DRAM Speed* 60 ns or faster • *RAS Access Time* 60 ns or faster • *CAS Access Time* 20 ns or faster	• *DIMM module* 3.3V unbuffered • *Speed Grade* 66.6 MHz or faster • *CAS latency* 3 or faster

Install the 168-pin SDRAM modules in any combination as follows:

BANK 0 (DIMM1)	8/16/32/64/128/256/512 MB
BANK 1 (DIMM2)	8/16/32/64/128/256/512 MB
BANK 2 (DIMM3)	8/16/32/64/128/256/512 MB
Total System Memory	8 ~ 1.5 GB

3.6.5.   Setting Jumpers

Refer to the following illustration and instructions to set the jumpers on your mainboard.
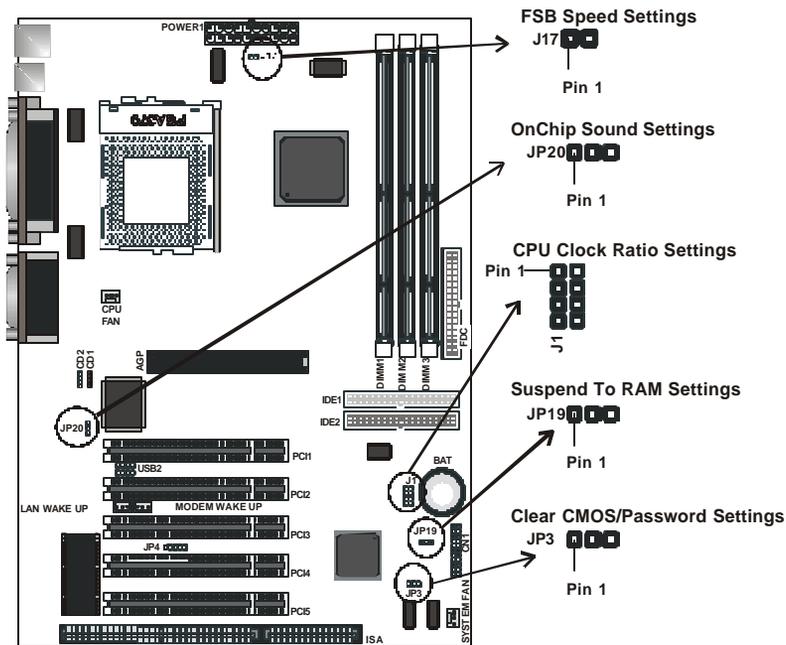
Frontside BUS Speed Jumper

Use this jumper to set the system's frontside bus (FSB) speed.

OnChip Sound Jumper

Use this jumper to select either the onboard audio codec or an add-on audio card to handle your system audio.

Suspend to RAM (STR) Jumper

Use this jumper to enable the system's suspend to RAM function, in which the system shuts down with the exception of a refresh current to the system memory. Open applications are retained in the RAM.

Clear CMOS/Password Jumper

You may need to clear the CMOS if your system cannot boot up because you forgot your password, the CPU clock setup is incorrect, or the CMOS settings need to be reset to default values after the system BIOS has been updated.

Refer to the following solutions to reset your CMOS setting:

Solution A

1. Power off the system and disconnect the power cable.
2. Place a shunt to short pin 2 and pin 3 of JP3 for five seconds.
3. Place the shunt back to pin 1 and pin 2 of JP3.
4. Power on the system.

Solution B

If the CPU clock setup is incorrect, you may not be able to boot up. In this case, follow these instructions:

1. Turn the system off, then on again. The CPU will automatically boot up using standard parameters.
2. As the system boots, enter BIOS and set up the CPU clock.

Note: If you are unable to enter BIOS setup, turn the system on and off a few times, or press <INSERT> when booting up to have the system boot up with standard parameters.

3.6.6.   Auto Power On

After losing AC power, the system will not turn on automatically when the power comes back unless you set the options in BIOS.

This concludes Chapter 3. Chapter 4 covers the BIOS setup program.

4. BIOS Configuration

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

The mainboard employs the latest Award BIOS CMOS chip with support for Windows Plug and Play. This CMOS chip contains the ROM Setup instructions for configuring the mainboard's BIOS. The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. A ROM-based configuration utility displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

Using easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the Setup program intimately affect how the computer performs. It is important, therefore, first to try to understand all the Setup's options, and second, to make settings appropriate for the way you use the computer. This chapter provides clear explanations for all Setup options.

This program should be executed under the following conditions:

- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the Setup program
- When resetting the system clock
- When setting the CPU clock speed so that it automatically runs either fast or slow
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

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.

4.1. 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:

1. If the error occurs before the display device is initialized, a series of beeps will be transmitted.

2. 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 to display the "CMOS SETUP UTILITY" screen:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software

▶Standard CMOS Features	▶Frequency/Voltage Control
▶Advanced BIOS Features	Load Optimized Defaults
▶Advanced Chipset Features	Set Supervisor Password
▶Integrated Peripherals	Set User Password
▶Power Management Setup	Save & Exit Setup
▶PnP/PCI Configurations	Exit Without Saving
▶PC Health Status	

Esc : Quit F9: Menu in BIOS	– ‾ ⊕ ¬	: Select Item
F10 : Save & Exit Setup		

Time, Date, Hard Disk Type . . .

Figure 4-1:   Setup utility main screen

These screens provide access to the utility's various functions.

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

Key	Function
Esc	**Escape key:** Exits the current menu
¬ ‾ ₋ ⊕	**Cursor keys:** Scroll through the items on a menu
+/–/PU/PD	**Plus, minus, Page Up and Page Down keys:** Modify the selected field's values
F10	**F10 key:** Saves the current configuration and exits setup
F1	**F1 key:** Displays a screen that explains all key functions
F5	**F5 key:** Loads previously saved values to CMOS
F6	**F6 key:** Loads a minimum configuration for troubleshooting.
F7	**F7 key:** Loads optimum set of values for peak performance

Entering Setup

4.2. Standard CMOS Setup

Standard CMOS Setup is the same for all three chipsets. Selecting "STANDARD CMOS SETUP "on the main program screen displays the following menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Standard CMOS Features

Date (mm:dd:yy) Time (hh:mm:ss)	Tue, July 8 2000 5 : 8 : 59	Item Help
► IDE Primary Master ► IDE Primary Slave ► IDE Secondary Master ► IDE Secondary Slave		Menu Level ► Change the day, month, year and century.
Drive A Drive B	1.44M, 3.5 in. None	
Video Halt On	EGA/VGA All , But Keyboard	
Base Memory Extended Memory Total Memory	640K 31744K 32768K	

‒ ‾ ⊛ ¬ : Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-2:   **Standard CMOS setup screen**

The Standard CMOS Setup utility is similar for all three chipsets and is used to configure the following features:

Date: Month, Day, Year

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).

IDE Devices: Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel. Press **Enter** to display the IDE sub-menu:

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level ►►
Access Mode	Auto	
Capacity	0 MB	To auto-detect the HDD's size, head . . . on this channel
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

‒ ¯ ⊗ ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

IDE HDD Auto-Detection: Press <Enter> while this item is high-lighted if you want the Setup Utility to automatically detect and configure a hard disk drive on the IDE channel.

If your system has an IDE hard drive, you can use this utility to de-tect 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 in the Standard CMOS Setup screen.

> *Note: If you are setting up a new hard disk drive 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 installed it. Select the mode that was used to format it.

IDE Primary/Secondary Master/Slave: If you leave this item at "Auto," the system will automatically detect and configure any IDE devices it finds. If it fails to find a hard disk, change the value to "Manual" and then manually configure the drive by entering the characteristics of the drive in the items below (Capacity, Cylinder, Head, Precomp, etc.). Refer to your drive's documentation or look on the drive if you need to obtain this information. If no device is installed, change the value to "None."

Access Mode: This item defines some special ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at "Auto" and the system will automatically decide the fastest way to access the hard disk drive.

Press <Esc> to close the IDE device sub-menu and return to the Standard CMOS Features page.

Floppy Drive A and Floppy Drive B: Options for these fields are:

- 360K, 5.25 in.
- 1.2M, 5.25in.
- 720K, 3.5in.
- 1.44M, 3.5in.
- 2.88M, 3.5in.
- None (Not Installed)

The "Not Installed" option could be used as an option for diskless workstations.

Video: Set this field 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
- CGA 80

Halt On: This setting determines which type of errors will cause the system to halt during bootup. The options are:

- All Errors
- No Errors
- All, But Keyboard (default)
- All, But Diskette
- All, But Disk/Key

Base/Extended/Total Memory: These items are automatically detected by the system at start up time. These are display-only fields. You cannot make changes to these fields.

After you have made your selections in the Standard CMOS Setup screen, press <ESC> to go back to the main screen.

4.3. BIOS Features Setup

Selecting "BIOS Features Setup" on the main program screen displays this menu, which allows you to define advanced information about your system. You can make modifications to most of these items without introducing fatal errors to your system. Note that the page has a scroll-bar to scroll down to more items.

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Advanced BIOS Features

		Item Help
Anti-Virus Protection	Disabled	
CPU Internal Cache	Enabled	Menu Level ►
External Cache	Enabled	
CPU L2 Cache ECC Checking	Disabled	Allows you to choose
Processor Number Feature	Disabled	the VIRUS warning
Quick Power On Self Test	Enabled	feature for IDE Hard
First Boot Device	Floppy	Disk boot sector
Second Boot Device	HDD-0	protection. If this
Third Boot Device	LS120	function is enabled
Boot Other Device	Enabled	and someone attempts
Swap Floppy Drive	Disabled	to write data into this
Boot Up Floppy Seek	Enabled	area, BIOS will show a
Boot Up NumLock Status	On	warning message on
Gate A20 Option	Normal	screen and alarm beep
Typematic Rate Setting	Disabled	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	

– ⁻ ® ¬ : MoveEnter : Select +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-3:   BIOS features setup

The following explains the options for each feature:

Anti-Virus Protection: 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. The default setting is "Disabled."

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

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

CPU L2 Cache ECC Checking: This item enables or disables ECC (Error Correction Code) error checking on the CPU cache memory. The default setting is "Disabled."

Processor Number Feature: Some new processors are installed with a unique processor number. This number may be used for verification in Internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number, set this item to Disabled to suppress the processor number. The default setting is "Disabled."

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

1st/2nd/3rd Boot Device: Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time. The default settings are "Floppy," "HDD-0," and "LS120," respectively.

Boot Other Device: If you enable this item, the system will search all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices. The default setting is "Enabled."

Swap Floppy Drive: If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A. The default setting is "Disabled."

Boot Up Floppy Seek: If this item is enabled, it checks the geometry of the floppy disk drives at start-up time. You don't need to enable this item unless you have an old diskette drive with 360K capacity. The default setting is "Enabled."

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

Gate A20 Option: This option accesses memory above 1 MB using the fast gate A20 line when set to "Fast" (default). The other option is "Normal."

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

- **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 in the main program screen.

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

Video BIOS Shadow: When set to "Enabled" (default), copies the VGA BIOS into system DRAM.

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

After you have made your selections in the BIOS Features Setup screen, press <ESC> to go back to the main screen.

4.4. Chipset Features Setup

Selecting "Chipset Features Setup" on the main program screen displays this menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Advanced Chipset Features

		Item Help
Bank 0/1 DRAM Timing	SDRAM 8/10ns	
Bank 2/3 DRAM Timing	SDRAM 8/10ns	
Bank 4/5 DRAM Timing	SDRAM 8/10ns	Menu Level ►
DRAM Clock	Host CLK	
SDRAM Cycle Length	3	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
AGP Aperture Size	64M	
AGP-4x Mode	Enabled	
AGP Driving Control	Auto	
X AGP Driving Value	DA	
AGP Fast Write	Disabled	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
OnChip Sound	Auto	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
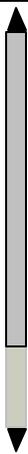
– ⁻ ☻ ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-4:   Chipset features setup

This screen controls the board's chipset settings. All entries related to the DRAM timing on the screen are automatically configured. Do not make any changes 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 DRAMs or EDO (extended data output) DRAMs. The following options are allowed:

- FP/EDO 70ns
- FP/EDO 60ns
- Normal
- Medium
- Fast
- Turbo

DRAM Clock: Enables the user to select the DRAM Clock.

SDRAM Cycle Length: This field enables you to set the 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.

Memory Hole: If Set to "Enabled", 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 a 1 MB hole in your system memory. This option is designed for some OS with special add-in cards which need 15-16 MB memory space. The default setting is "Disabled."

P2C/C2P Concurrency: When disabled, the CPU bus is occupied during the entire PCI operation period. The default is "Enabled."

System BIOS Cacheable: When set to "Enabled" (default), the System BIOS will be cached for faster execution.

Video RAM Cacheable: When enabled, the graphics card's local memory will be cached for faster execution. However, if any program writes to this memory area, a system error may result. The default is "Enabled."

AGP Aperture Size (MB): This option determines the effective size of the AGP Graphic *Aperture*, where memory-mapped graphic data structures are located.

AGP-4X Mode: This item allows you to enable or disable the caching of display data for the video memory of the processor. Enabling can greatly improve the display speed. If your graphics display card does not support this feature, you need to disable this item. The default is "Enabled."

AGP Driving Control: This item can be used to signal driving current on AGP cards to "Auto or "Manual." Some AGP cards need stronger than normal driving current in order to operate. The default is "Auto."

AGP Fast Write: This item allows you to enable or disable the caching of display data for the video memory of the processor. Enabling can greatly improve the display speed. If your graphics display card does not support this feature, you need to disable this item. The default is "Disabled."

OnChip USB: This should be enabled if your system has a USB installed on the system board and you wish to use it. The default is "Enabled."

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

OnChip Sound: When set to "Disable," the onboard audio chip is turned off. The default is "Auto."

CPU to PCI Write Buffer: When enabled, up to four words of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals that it is ready to receive the data. The default is "Enabled."

PCI Dynamic Bursting: When enabled, every write transaction goes to the write buffer. "Burstable" transactions then burst on the PCI bus and "nonburstable" transactions do not. The default is "Enabled."

PCI Master 0 WS Write: When enabled, writes to the PCI bus are executed with zero wait states. The default is "Enabled."

PCI Delay Transaction: The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Enable to support compliance with PCI specification version 2.1. The default is "Enabled."

PCI#2 Access #1 Retry: When enabled, the AGP Bus (PCI#1) access to PCI Bus (PCI#2) is executed with the error retry feature. The default is "Enabled."

AGP Master 1 WS Write: This implements a single delay when writing to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability. The default is "Disabled."

AGP Master 1 WS Read: This implements a single delay when reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability. The default is "Disabled."

Memory Parity/ECC Check: Enable this item to allow BIOS to perform a parity/ECC check to the POST memory tests. Enable only if the system DRAM supports parity/ECC checking. Default is "Disabled".

CPU Vcore Select: Enables you to set the CPU Vcore voltage. Options are:

- Default (default)
- +0.05V
- +0.1V
- +0.2V
- +0.3V
- +0.4V
- -0.05V
- -0.1V

After you have made your selections in the Chipset Features Setup screen, press <ESC> to go back to the main screen.

4.5. Integrated Peripherals

Selecting "Integrated Peripherals" on the main program screen displays this menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Integrated Peripherals

			Item Help
On-Chip IDE Channel0		Enabled	
On-Chip IDE Channel1		Enabled	
IDE Prefetch Mode		Enabled	Menu Level ►
Primary Master	PIO	Auto	
Primary Slave	PIO	Auto	
Secondary Master	PIO	Auto	
Secondary Slave	PIO	Auto	
Primary Master	UDMA	Auto	
Primary Slave	UDMA	Auto	
Secondary Master	UDMA	Auto	
Secondary Slave	UDMA	Auto	
Init Display First		AGP	
IDE HDD Block Mode		Enabled	
Onboard FDD Controller		Enabled	
Onboard Serial Port 1		Auto	
Onboard Serial Port 2		Auto	
UART 2 Mode		Standard	
X IR Function Duplex		Half	
X TX,RX inverting enable		No, Yes	

– ¯ ® ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-5:   Integrated peripherals

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

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 default setting is "Enabled."

IDE Primary/Secondary Master/Slave PIO: When set to "Auto" the BIOS will automatically set the mode to match the transfer rate of the hard disk. If the system won't boot up when set to "Auto" set it

manually to a lower mode, e.g., from Mode 3 to Mode 2. All IDE drives should work with PIO mode 0. There are six options:

- Auto (default)
- Mode 0
- Mode 1
- Mode 2
- Mode 3
- Mode 4

IDE Primary/Secondary Master/Slave UDMA: When set to "Auto" the BIOS will automatically load the Ultra DMA 33 driver to match the transfer rate of IDE hard disk drives that support Ultra DMA 33 mode. The options are "Auto" (default) and "Disabled."

Init Display First: This item sets whether the PCI Slot or AGP is activated first. The options are "PCI Slot" and "AGP" (default).

IDE HDD Block Mode: Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support. The default setting is "Enabled."

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

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

- 3F8/ IRQ4
- 2F8/ IRQ3
- 3E8/ IRQ4
- 2E8/ IRQ3
- Auto (default)
- Disabled (disables the onboard serial port)

UART 2 Mode Select: Enables you to select the infrared communication protocol—Standard (default), IrDA, or ASKIR. IrDA is Hewlett Packard's infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps.

IR Function Duplex: This field is available when UART 2 Mode is set to either ASKIR or HPSIR. This item enables you to determine the infrared (IR) function of the onboard infrared chip. Full-duplex means that you can transmit and send information simultaneously. Half duplex (default) is the transmission of data in both directions, but only one direction at a time.

TX, RX inverting enable: Defines the voltage level for Infrared module RX (receive) mode and TX (transmit) mode. This setting has to match the requirements of the infrared module used in the system. The options are:

- Yes, No
- No, Yes
- No, No
- Yes, Yes (default)

Onboard Parallel Port: This option is used to assign the I/O address for the onboard parallel port. The options are:

- 378/IRQ7 (default)
- 278/IRQ5
- 3BC/IRQ7
- Disabled (disables the onboard parallel port).

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

ECP Mode Use DMA: When the onboard parallel port is set to ECP mode, the parallel port has the option to use DMA "3" (default) or DMA "1."

Parallel Port EPP Type: Sets the EPP specification. There are two options—"EPP1.9" (default) and "EPP1.7."

Onboard Legacy Audio: Enables the onboard legacy audio function. If this item is enabled the following items become available.

Sound Blaster: Enables or disables a Sound Blaster card if installed.

SB I/O Base Address: This item lets you set the I/O base address for the Sound Blaster card. There are four options:

- 220H (default)
- 240H
- 260H
- 280H

SB IRQ Select: This item lets you set the Interrupt Request (IRQ) for the Sound Blaster card. There are four options:

- IRQ 5 (default)
- IRQ 7
- IRQ 9
- IRQ 10

SB DMA Select: This item lets you select the DMA for the Sound Blaster card. There are four options:

- DMA 0
- DMA 1 (default)
- DMA 2
- DMA 3

MPU-401: Use this item to enable or disable the MPU-401 function for the game port. The default is "Disabled."

MPU-401 I/O Address: Use this item to set the I/O address for the game port. There are four options:

- 300-303H
- 310-313H
- 320-323H
- 330-333H (default)

Note: To use the MPU-401 standard on the game port you need to use a MIDI adapter.

Game Port (200-207H): This item shows the I/O address for the game port.

If you make any changes to the onboard FDD controller, serial ports or parallel ports in this setup, save the changes and turn off the system. After powering up the system, ensure that the changes have taken effect.

4.6. Power Management

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

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Power Management Setup

ACPI Function	Enabled	Item Help
► Power Management	Press Enter	
ACPI Suspend Type	S1(POS)	Menu Level ►
PM Control by APM	Yes	
Video Off Option	Suspend --> Off	
Video Off Method	DPMS Support	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	Auto	
CPU Fan Off In Suspend	Off	
► Wake Up Events	Press Enter	

➖ ‾ ✪ ➥ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-6:   Power management setup

ACPI Function: When set to "Enabled," turns on the ACPI Function. The default setting is "Disabled."

> *Note: ACPI (Advanced Configuration and Power Interface) is a power management specification that makes hardware status information available to the operating system. ACPI enables a PC to turn its peripherals on and off for improved power management. It also allows the PC to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.*

Power Management: This item enables you to choose the type of Power Management you want. Selecting Power Management and pressing <Enter> displays the following screen:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Power Management

Power Management	User Define	Item Help
HDD Power Down	Disable	
Doze Mode	Disable	Menu Level ►►
Suspend Mode	Disable	

– ¯ ⊛ ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Power Management: This item acts like a master switch for the power-saving modes and hard disk timeouts. If this item is set to Max Saving, power-saving modes occur after a short timeout. If this item is set to Min Saving, power-saving modes occur after a longer time-out. If the item is set to User Define, you can insert your own timeouts for the power-saving modes.

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

Doze Mode: 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. The default is "Disable."

Suspend Mode: 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. Options are from "1 Min" to "1 Hour" and "Disable." The default is "Disable."

ACPI Suspend Type: Use this item to define how your system suspends. In the default, S1(POS), the suspend mode is equivalent to a software power down. If you select S3 (STR), the suspend mode is a suspend to RAM – the system shuts down with the exception of a refresh current to the system memory.

PM Control by APM: This field allows you to control the PC Monitor's power management features via Intel-Microsoft Advanced Power Management software. Once you have enabled the APM interface, some settings made in the BIOS Setup program may be overridden by APM. The default is "Yes."

Video off Option: This setting controls the video power saving parameters. There are three options:

- Always On
- Suspend –> Off
- All Modes –> Off

Video Off Method: This setting controls the video off method in power saving mode. The default setting is "V/H SYNC+Blank" which disables 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: If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the mainboard Wake On Modem connector for this feature to work. The default is "3."

Soft-Off by PWRBTN: When set to "Instant-Off" (default), pressing the power button will turn off the system power. When set to "Delay 4 Sec." you have to press the power button and hold it for more than 4 seconds to turn off the system power. Otherwise, the system just goes into suspend mode. The options are "Instant-Off" and "Delay 4 Sec."

State After Power Failure: This sets the power state after a power failure. If the value is set to "ON," the system turns back on. If the value is set to "OFF," the system remains turned off. If the value is set to "Auto," the system returns to the last power state.

CPU Fan In Suspend: If set to "On," the CPU fan will be powered off during suspend mode. Options are "On" and "Off" (default).

Wake Up Events: This item opens a submenu that enables you to set events that will resume the system from a power saving mode. Select Wake Up Events and press <Enter> to display the following menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Wake Up Events

		Item Help
VGA	OFF	
LPT & COM	LPT/COM	
HDD & FDD	ON	Menu Level ►►
PCI Master	OFF	
Resume by Ring	Disabled	
Resume by Alarm	Disabled	
x Date (of Month)	0	
x Resume Time (hh:mm:ss)	0 0 6	
Primary INTR	ON	
► IRQs Activity Monitoring	Press Enter	

– ‾ ⊕ ¬ : Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

VGA: When set to "On," the system power will resume the system from a power saving mode if there is any VGA activity. Default is "Off."

LPT & COM: When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the serial ports, or the parallel port.

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

PCI Master: When set to "On," any activity from one of the listed devices wakes up the system.

Resume by Ring: When set to "Enabled," any activity on the Modem port will wake up the system from a power saving mode. The options are "Enabled" and "Disabled" (default).

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

Primary INTR: When set to "On" (default), any event occurring at the specified IRQ will awaken a system which has been powered down.

IRQs Activity Monitoring: This item opens a submenu that enables you to set IRQs that will resume the system from a power saving mode. Select IRQs Activity Monitoring and press <Enter> to display the following menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
IRQs Activity Monitoring

			Item Help
IRQ3	(COM2)	Enabled	
IRQ4	(COM1)	Enabled	Menu Level ►►►
IRQ5	(LPT2)	Enabled	
IRQ6	(Floppy Disk)	Enabled	
IRQ7	(LPT1)	Enabled	
IRQ8	(RTC Alarm)	Disabled	
IRQ9	(IRQ2 Redir)	Disabled	
IRQ10	(Reserved)	Disabled	
IRQ11	(Reserved)	Disabled	
IRQ12	(PS/2 Mouse)	Enabled	
IRQ13	(Coprocessor)	Enabled	
IRQ14	(Hard Disk)	Enabled	
IRQ15	(Reserved)	Disabled	

- ¯ ® ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Set Primary INTR to "ON" to allow you to enable or disable IRQ 3 through IRQ 15 activity monitoring. Set it to "OFF" to disable IRQ activity monitoring.

Set any IRQ to "Enabled" to allow activity at the IRQ to wake up the system from a power saving mode.

Press the <ESC> key to go back to the main program screen after you have made your selections in the Power Management Setup screen.

4.7. PnP/PCI Configuration

Both the ISA and PCI buses on the Mainboard use system IRQs (Interrupt ReQuests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through 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:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
PnP/PCI Configurations

PNP OS Installed	No	**Item Help**
Reset Configuration Data	Disabled	
Resources Controlled by	Manual	Menu Level ►
► IRQ Resources	Press Enter	Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
► DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Disabled	
Assign IRQ For USB	Enabled	

– ¯ ® ¬ : Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-7:   PNP/PCI configuration

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."

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 (Extended System Configuration Data) 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 "Enable," the ESCD will be cleared and updated and then this option will automatically be set to "Disabled."

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.

IRQ and DMA Resources: These fields only become available if the Resources Controlled By field is set to "Manual." 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 this field to "PCI/ISA PnP."

PCI/VGA Palette Snoop: This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Assign IRQ for USB/VGA: Names the interrupt request (IRQ) line assigned to the USA/VGA (if any) on your system. Activity of the selected IRQ always awakens the system.

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

4.8. PC Health Status Option

On mainboards that support hardware monitoring, this item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds.

Selecting "PC Health Status" on the main program screen displays this menu:

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
PC Health Status

Current CPU Temp.	34°C/93°F	**Item Help**
Current System Temp.	33°C/91°F	
Current CPU FAN speed	0 RPM	**Menu Level** ►
Current FAN2 speed	0 RPM	
Vccp	1.51V	
2.5V	2.52V	
Vcc3	3.31V	
5V	5.09V	
12V	11.94V	

– ‾ ® ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 4-8:   PC Health Status configuration

These fields provide you with information about the systems current operating status. You cannot make changes to these fields. The following information is displayed:

- CPU temperature
- System temperature
- CPU FAN speed (in RPMs)
- FAN2 speed (in RPMs)
- Vccp (CPU Core voltage)
- 2.5V (power supply's 2.5 volt)
- Vcc3 (onboard 3.3 volt)
- 5V (power supply's 5 volt)
- 12V (power supply's 12 volt)

After you have made your selections in the PC Health Status Setup, press the <ESC> key to go back to the main program screen.

4.9. Frequency/Voltage Control

This item enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

CMOS Setup Utility – Copyright (C) 1984 – 2000 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI C1K	Disabled	Item Help
Spread Spectrum	Disabled	
CPU Host/PCI Clock	66	Menu Level ►

– ˉ ⊛ ¬ : MoveEnter : Select   +/-/PU/PD:Value: F10: Save ESC: Exit F1:General
Help   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Auto Detect DIMM/PCI C1K: When this item is enabled, BIOS will disable the clock signal of free DIMM and PCI slots.

Spread Spectrum: If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Host/PCI Clock: This item appears if you have set the CPU Internal Core Speed to Manual. Use the CPU/PCI Clock to set the system bus frequency for the installed processor (usually 133 MHz, 100 MHz, or 66 MHz). The minimum value for this field is 66 MHz and the maximum is 166 MHz.

After you have made your selections in the Frequency/Voltage Control Setup, press the <ESC> key to go back to the main program screen.

4.10.   Load Optimized Defaults Option

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the whole Setup Utility. Press the <Y> key and then <Enter> to install the defaults. Press the <N> key and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press the <F7> key.

4.11.   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. You can use up to eight alphanumeric characters. Press <Enter> after entering the password. At the next prompt, confirm the new password by retyping it and pressing <Enter> again.

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

If you have set supervisor and user passwords, only the supervisor password allows you to enter the BIOS Setup Program.

> *Note: If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on jumper JP3 to short pin 2 and pin 3 for five seconds, then putting the shunt back to pin 1 and pin 2 of JP3.*

4.12. Save & Exit Setup

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

4.13. Exit Without Saving

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

This concludes Chapter 4. Chapter 5 describes the drivers and utility programs that are packaged with the mainboard.

5. Driver and Utility

5.1. Flash Utility

The BIOS of the P6F127 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 system BIOS is stored in a 1 M-bit Flash EEPROM that can be erased and reprogrammed by the Flash utility.

There are two files in the FLASH directory:

- FLASH.EXE   Flash utility for AWARD BIOS upgrade
- README.TXT   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 the <F5> function key when the "Starting MS-DOS.." message appears on the screen to by-pass the CONFIG.SYS and AUTOEXEC.BAT.

5.2. VIA 4-in-1 Driver

A 4-in-1 driver has been designed for the VIA Apollo Pro chipset. You can install AGP, IRQ, ACPI and IDE drivers together from the manufacturer's support CD. The installation file is "4-in-1/Setup.exe." You do not need to install the drivers one by one—the VIA 4-in-1 installation program will automatically detect and install the drivers.

Installation is in two steps:

Step 1: Insert the manufacturer's CD-ROM into your PC's CD-ROM drive.

Step 2: Run "4-in-1\Setup.exe" from your operating system to start the installation. Follow the instructions on your screen.

5.3. System Environment Monitor

The System Environment Monitoring utility along with the onboard VT82C686A system monitor chip enables you to monitor your system's operating characteristics such as temperature, fan speed and CPU voltage. Using this utility, you can define the upper and lower limits of these monitored parameters. A pre-warning message will pop up on the screen when the monitored parameters move out of the preset range. This software must be installed under Windows 9x. However, the feature version may run on different operating systems, such as Windows NT.
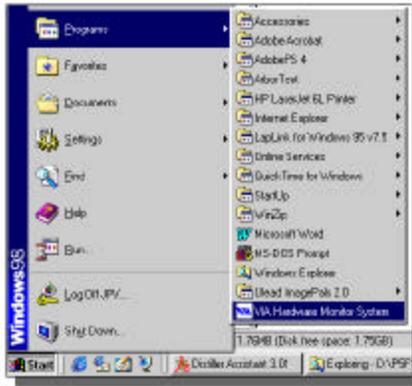
5.3.1. Hardware Monitor System Setup

The Installation Steps:

1. Insert the manufacturer's CD-ROM into your CD-ROM drive.

2. Install Hardware Monitor System from the directory "Monitor\Setup.exe" on the CD-ROM to start the installation.
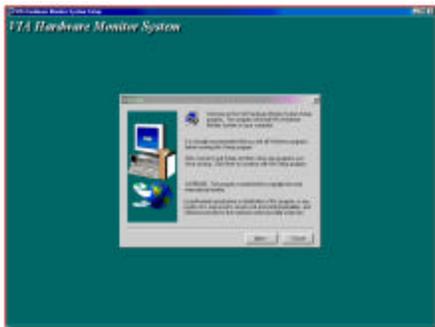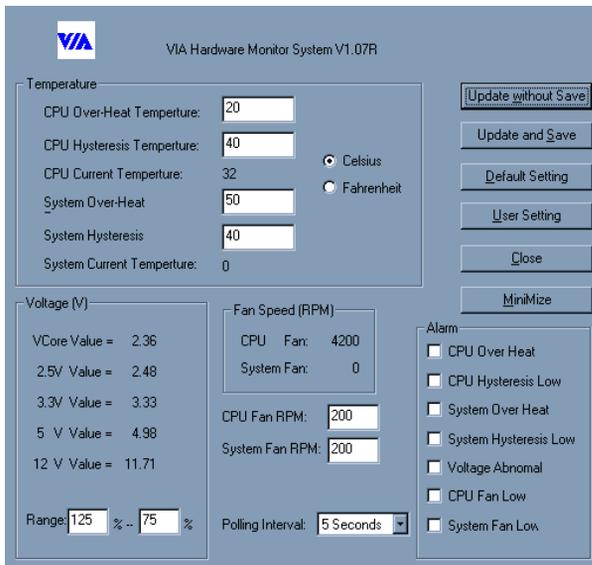

3. Follow the instructions on the screen to complete the installation. After setup is completed, you need to restart the computer before you can activate the program.

4. Click on the "VIA Hardware Monitor System" icon to access the program.

5.3.2. Setting the Threshold

Set the threshold for system temperature, voltages and fan speeds.

5.4. ATA66/100 Controller Options

When using the ATA66/100 controller, the BIOS setting will allow users to "Set Device Mode" and "Select Boot Sequence."

Setting Device Mode: Choose UDMA (0~4), PIO (0~4), and MW DMA (0~2) setting options transfer mode for any hard disks (ATA66/100) controlled by VT82C686A/VT82C686B.

Select Boot Sequence: This option allows users to choose the boot sequence for the hard disk(s). (No options will be shown if there is a bootable disk on default IDE channels.)

5.5. Ensoniq Installation (optional)

This folder has software and drivers for the CT5880 an Ensoniq AC97 digital controller that is integrated on mainboards that have this option. Drivers are provided for DOS and Windows Millennium/2000/98/95/NT.

Windows Installation

1. Insert the CD into your CD ROM drive. The following screen, which contains a menu of available options, will appear:

> *Note: This AutoPlay-enabled installation program won't appear unless your CD ROM drive's autorun feature is enabled. To enable your CD ROM drive's autorun feature refer to Windows help.*

2. Click on the option that you want to install.

3. Follow the on-screen instructions to complete the installation process.

DOS Installation

The DOS drivers are automatically installed during the Windows installation process.

5.6. Online Services

Flexus Computer Technology, under the Freetech brand name, has consistently won recognition for excellence in the design and manufacturing of high quality mainboards!

Our products are globally recognized among the leading cost-performance mainboards in the industry today and we are a certified ISO-9002 manufacturer!

Our customers are our partners! Flexus practices partnership service "not customer service"! Our attention to partnership service is aggressive and proactive, by using our global partnership service system. We create value for our partners in the high-end market and we are always ready to see to our partners' requirements, because at Flexus, we believe our partners' success is our success!

If you need technical support, information on products, or updated versions of the BIOS, drivers and utilities access the Internet and point your browser to:

www.freetech.com