
P6F128 Mainboard Manual

Thursday, April 12, 2001

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Using This Manual

This manual is designed to help you build a reliable Personal Computer based on the P6F128 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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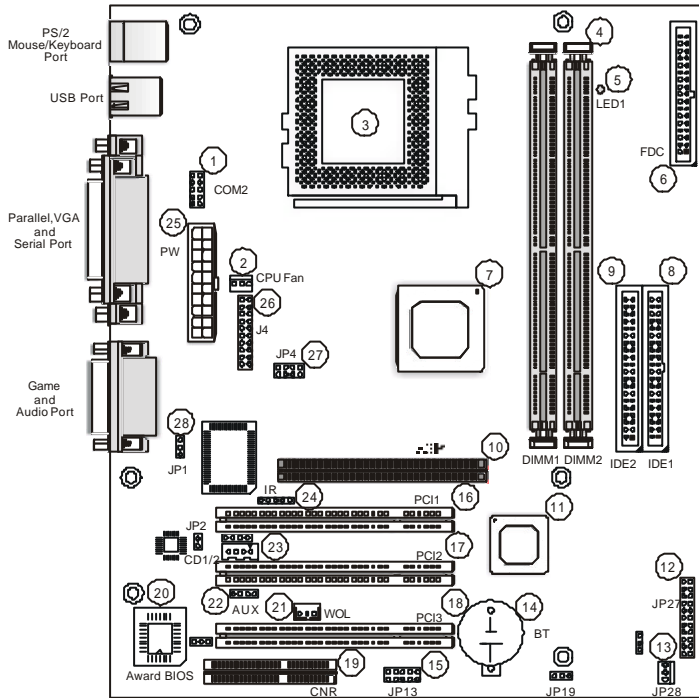
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1. P6F128 Quick Reference

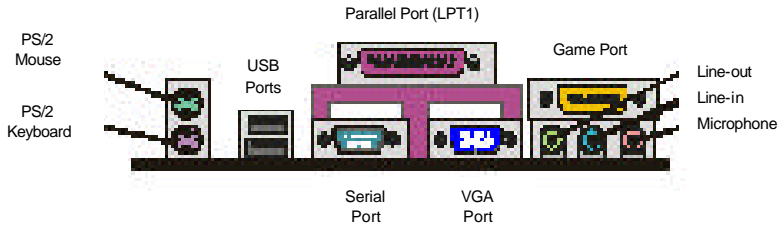
This section is for users to get started using the mainboard straight away.

1.1. Mainboard Layout



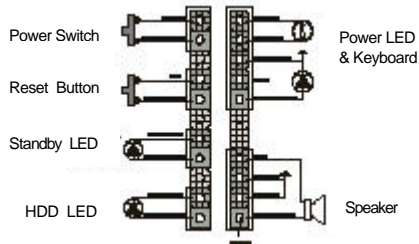
1. Auxiliary COM port connector (COM2)
2. CPU fan connector (CPU FAN)
3. PGA370 CPU socket (PGA370)
4. DIMM module sockets (DIMM1~2)
5. Suspend to RAM LED (LED1)
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20. Award BIOS
21. Wake on LAN connector (WOL)
22. Auxiliary connector (AUX)
23. CD-ROM audio connectors (CD1/2)
24. Infrared connector (IR)
25. ATX power connector (PW)
26. LCD/DVI connector J4 (optional)
27. TV-out connector JP4 (optional)
28. TV audio-out connector JP1 (optional)

1.2. I/O Ports



1.3. Panel Connector

The following illustration shows the front panel connector pin assignments:



1.4. Jumpers

JP2	Short: Disable Codec (AD1881)
	Open: Enable Codec (AD1881)
JP17	1-2: Enable BIOS flash protect
	2-3: Disable BIOS flash protect
JP19	1-2: Normal Mode
	2-3: Clear CMOS RAM
JP24	1-2: Disable onboard speaker
	2-3: Enable onboard speaker

1.5. PCI and AGP Frequency Settings

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

1.6. Connectors

COM2	Serial Port Connector: This 10-pin header is used to connect a serial port extension bracket for adding a second serial port to your system.
CPU FAN	CPU FAN Connector: This 3-pin header is used for connecting the CPU fan.
J4	LCD/DVI Connector: This 20-pin header is used for attaching a flat panel DVI or LCD monitor. (Optional)
JP1	TV Audio-out Connector: This 3-pin header is used for connecting TV audio. (Optional)
JP4	TV out Connector: This 8-pin header is used to connect a TV lineout. (Optional)
IR	Infrared (IR) Connector: This 5-pin header is used to connect an infrared (IR) port for use of IR devices.
CD1/2	CD Connectors: These 4-pin headers are used for connecting the CD ROM audio input to the sound card.
AUX	Auxiliary Connector: This 4-pin header is an auxiliary input connector.
WOL	Wake On LAN Connector: This 3-pin header is used for remote wake up of the computer through a network card.
USB (2)	USB Connector: This 8-pin header is used for connecting front panel USB ports 3 and 4.
SYS FAN	System Fan Connector: This 3-pin header is for connecting the case fan that keeps the system cool.

1.7. LEDs

Red	The red indicator LED1 lights up when the system enters suspend to DRAM mode.
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1.8. Memory Installation

Note: The Intel® 815E/815EP chipset family used in this main-board supports up to two double-sided or three single-sided DIMMs when the SDRAM interface is operating at 133 MHz.

Installing DIMM modules that exceed these specifications requires that the BIOS down-shifts the SDRAM clocks to 100 MHz through a two-wire interface of the system clock generator.

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
Total	8 MB to 512 MB

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

2. Introduction

2.1. Overview

The P6F128 is a high quality, high performance and enhanced function mainboard that supports 64-bit Intel® FC-PGA Pentium® III/Cyrix Socket 370 processors. This mainboard is designed around the latest and fastest Intel® 815E/815EP chipset in a standard ATX form factor.

The mainboard delivers comprehensive multimedia capabilities and high-performance with an integrated AGP (Accelerated Graphics Port), bus mastering EIDE (Enhanced IDE) controller, and concurrent PCI bus. 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.

The Chronitel Ch7009 DVI/TV Combo Chip is available as an option for the P6F128. The Ch7009 is a display controller device that accepts a digital graphics input signal, and encodes and transmits data through a TMDS link or TV Output.

In addition to superior hardware capabilities, features like bus mastering EIDE driver, Plug and Play, Soft-off, APM (Advanced Power Management), Keyboard Turn On, External Modem Ring On, Wake On LAN (WOL), 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	FC-PGA Pentium® !!!/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	Intel® 815E/815EP 82802 Firmware Hub 82801BA I/O Controller Hub (ICH2)
DVI/TV Combo Chip	TMDS Link with Pixel Rate to 165 MHz Supports DVI 1.0 TV-Out Non Interlace Encoder to NTSC, PAL Composite S-Video RGB out Supports scaling in TV output
DRAM	Two 168-pin DIMM sockets Supports 8 MB to 512 MB 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
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 Three 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 Wake On LAN (WOL) 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 21 cm x 24 cm (8.3-inch x 9.4-inch)

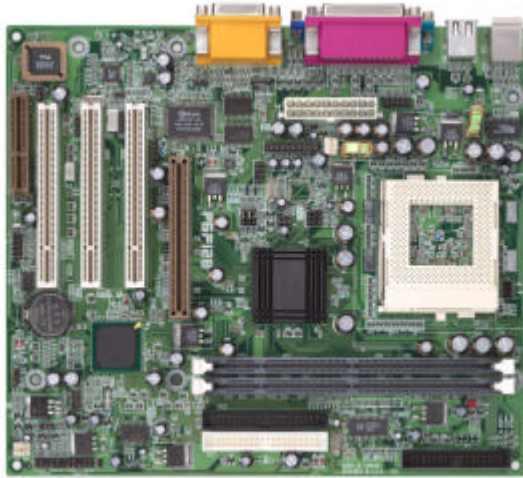
2.2.2. Software

BIOS	AWARD AGP/PCI BIOS 4M-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 Optional ES1373 audio drivers
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, +5VSB 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	COM2	Auxiliary COM port connector
2	CPU FAN	CPU cooling fan connector
3	PGA370	CPU socket
4	DIMM1~2	Memory module slots
5	LED1	Suspend to RAM LED
6	FDC	Floppy drive connector
7	Intel® 815E/815EP	Intel® 815E/815EP chipset
8	IDE1	IDE 1 connector (white)
9	IDE2	IDE 2 connector (black)
10	AGP	Accelerated Graphics Port (AGP) slot
11	82801BA	82801BA I/O controller
12	JP27	Front-case panel connectors
13	JP28	Secondary case fan connector
14	BT	RTC battery
15	USB	Front panel USB connectors
16	PCI1	32-bit PCI expansion slots
17	PCI2	32-bit PCI expansion slots
18	PCI3	32-bit PCI expansion slots
19	CNR	Communications Networking Riser
20	Award BIOS	Award BIOS controller
21	WOL	Wake On LAN (WOL) connector
22	AUX	Auxiliary connector
23	CD1/2	CD-ROM audio signal input connectors
24	IR	IrDA compliant Infrared (IR) connector
25	PW	ATX power connector
26	J4 (Optional)	LCD/DVI connector
27	JP4 (Optional)	TV-out connector
28	JP1 (Optional)	TV-out audio connector

2.4. Microprocessor

The mainboard is designed to operate with the following processors:

Processor Type	Speed	FSB
Intel® Celeron	533 ~ 800+ MHz	66 MHz
Intel® Coppermine	550 ~ 850+ MHz	100 MHz
Intel® Coppermine	533 ~ 1+ GHz	133 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 PPGA (Integrated Circuit-Plastic Pin Grid Array) configuration.

2.6. Chipset

The P6F128 supports the Intel® 815E/815EP chipset. The 815E/815EP chipset is designed for desktops and workstations that provide internal or external graphics, and provides ATA-100, 4xAGP and SDRAM support.

The 82801BA I/O controller hub makes a direct connection between the graphics system, the IDE controller, and the PCI bus. It uses accelerated hub architecture to effectively double the bandwidth between these components enabling more lifelike audio and video. The 82801BA I/O controller hub includes an integrated audio-codec controller that lets the processor more effectively decode sound generated by the integrated audio system.

The 82802 Firmware Hub allows the system and video BIOS to be stored (eliminating the need for non-volatile CMOS memory) for faster execution, and provides a random number generator to enable strong encryption routines.

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-66/100 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 P6F128 mainboard package contains the following items:

- One mainboard
- One IDE 40-pin ribbon cable
- One floppy 34-pin ribbon cable
- Driver and utility CD
- One dual port USB bracket
- User's manual

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

3.2. Installation

The P6F128 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.

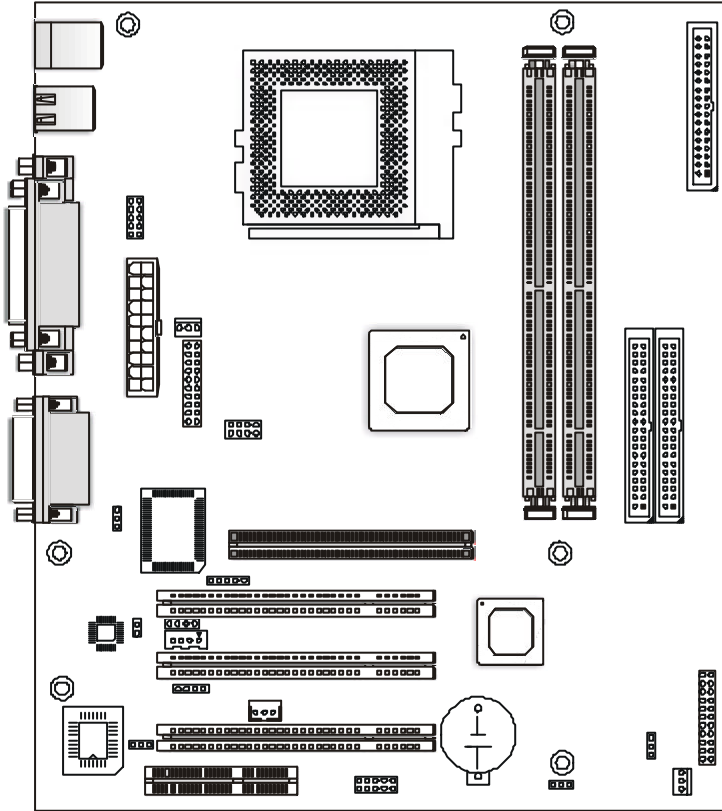
To install the mainboard you need to install the CPU and DIMM memory modules, attach the connectors, and set the correct CPU speed in the CMOS setup.

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.

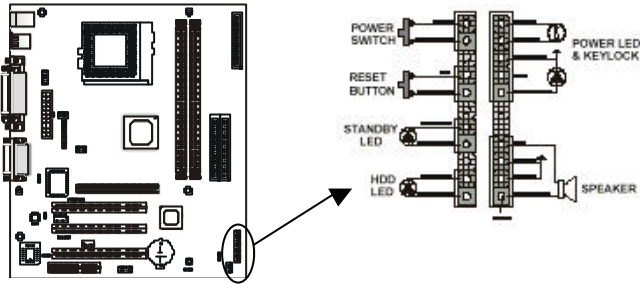
3.4. Connector/Jumper Location



3.5. Attaching Connectors

3.5.1. Front Panel Connectors

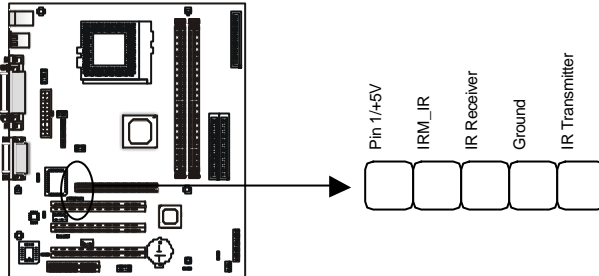
There are six connectors on the mainboard for speaker, switches, and indicator lights on the system's front panel.



PW SW	This 2-pin connector connects to the case-mounted Power button.
Reset	This 2-pin connector connects to the case-mounted reset switch and is used to reboot the system.
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.
HDD LED	This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.
Power LED & Keylock	This 5-pin connector connects to the case-mounted key-lock switch and the power LED. The key-lock switch is used to lock the keyboard for security purposes.
Speaker	This 4-pin connector connects to the case-mounted speaker.

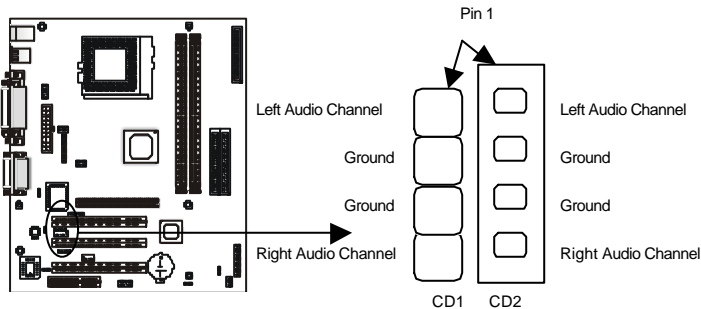
3.5.2. Infrared (IR) Connectors

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.



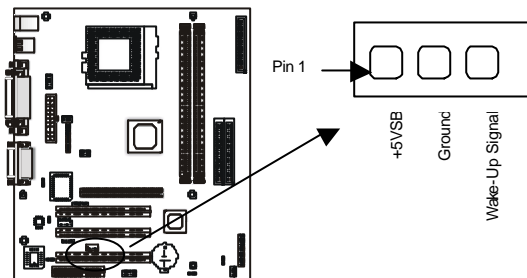
3.5.3. CD-ROM Connectors

These connectors enable you to connect a CD-ROM to the mainboard and receive stereo audio input.



3.5.4. Wake on LAN

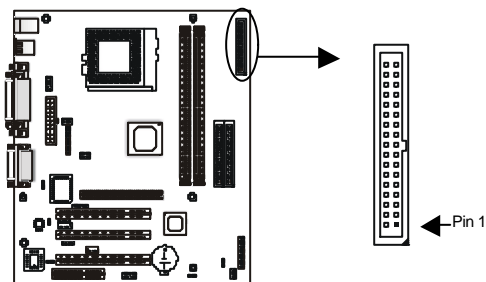
These 3-pin headers are used for remote wake up of the computer through a network signal.



Note: You must enable the Wake On LAN features in the BIOS setup if you use this feature. Refer to the Power Management section in Chapter 4 for details.

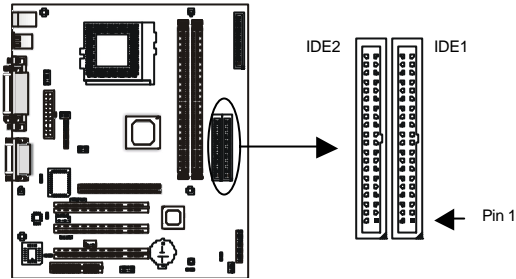
3.5.5. Floppy Drive Connector

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.



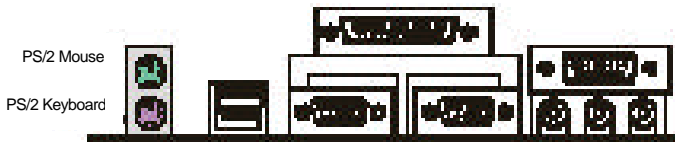
Consult the documentation that came with your IDE drive for details on jumper locations and settings. You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to pin 1 of the I/O port connector.

3.5.7. 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

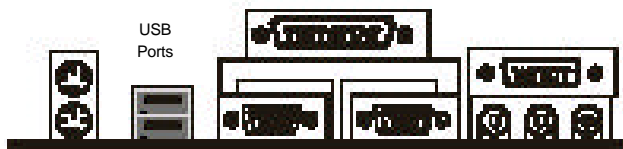
Connect a PS/2 mouse to the green 6-pin mini DIN connector. The system will automatically assign IRQ 12 to the PS/2 mouse if one is connected.



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

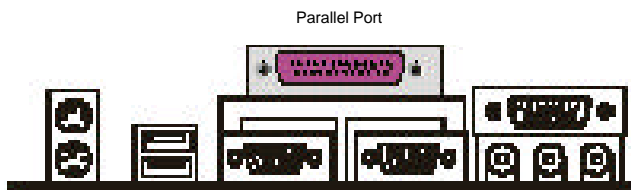
You can connect two USB devices or USB hubs to the USB ports.



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.

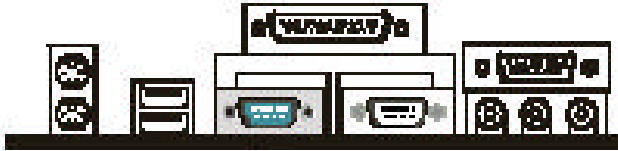
Parallel Port

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.



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

Note: Serial printers must be connected to the serial port.

VGA Port

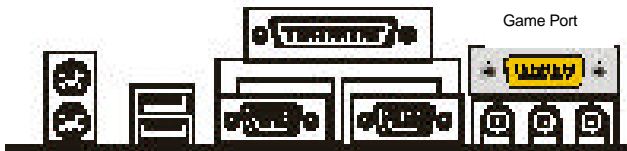
Connect an external monitor to the blue 15-pin VGA port. You can set the VGA port IRQs in BIOS. Refer to *Integrated Peripherals* in Chapter 4 for details.



VGA 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

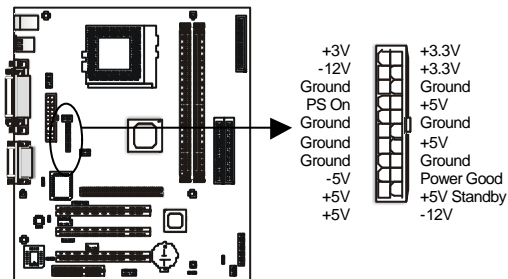
Audio Port Connectors

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.



Power Supply Connector

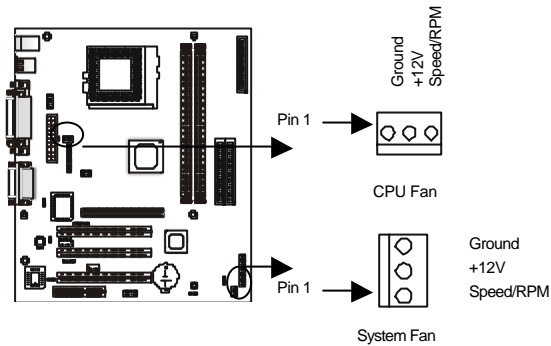
The ATX power supply has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into the ATX power connector. Press the lead connector down until the clip snaps into place and secures the lead onto the connector.



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).



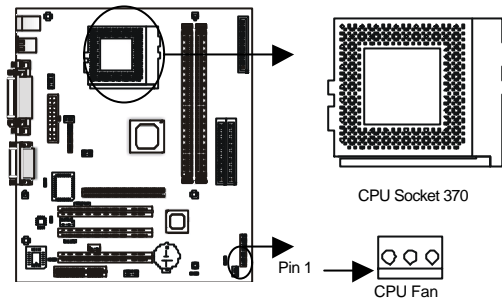
3.6. Installing the CPU

3.6.1. Before You Begin

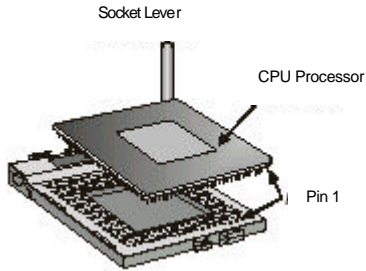
1. Be sure that your processor kit includes the following items:
 - ◆ One processor with the fan or heat sink attached
 - ◆ One power cable (for CPU with cooling fan attached)
2. Place the mainboard on a workbench (not in a chassis). Be sure that the mainboard is empty (that is, no DIMMs, cables, or 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 PGA370 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

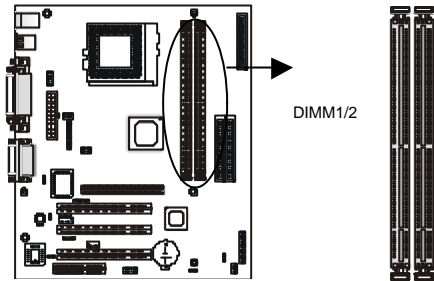
First, remove the mainboard from the chassis. To remove the processor from the mainboard, follow these steps:

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

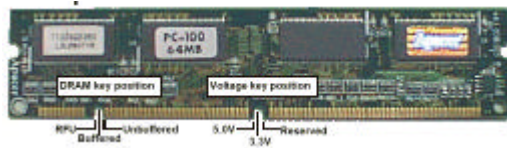
Maximum system memory supported by the mainboard is 512 MB.

The mainboard has two 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:

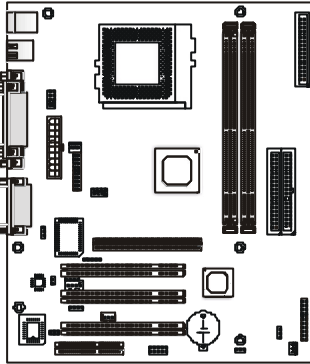
DRAM TYPE	SDRAM (Synchronous DRAM)	
Module Size	<i>Single Sided Asymmetric</i> 1Mx64, 4Mx64, 8Mx64, 16Mx64	
	<i>Double-Sided Asymmetric</i> 2Mx64, 4Mx64, 8Mx64, 16Mx64, 32Mx64	
Requirements	EDO Extended Data Output	SDRAM Synchronous DRAM
	<ul style="list-style-type: none"> • <i>DRAM Speed:</i> 60 ns or faster • <i>RAS Access Time:</i> 60 ns or faster • <i>CAS Access Time:</i> 20 ns or faster 	<ul style="list-style-type: none"> • <i>DIMM module:</i> 3.3V unbuffered • <i>Speed Grade:</i> 66.6 MHz or faster • <i>CAS latency:</i> 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
Total System Memory	8 ~ 512 MB

3.6.5. Setting Jumpers

Refer to the following illustration and instructions to set the jumpers on your mainboard.



Codec (AD1881) Jumper

Use this jumper to select either the onboard Codec (AD1881) or an add-on audio card to handle your system audio.

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.

BIOS Flash Protect Jumper

Use this jumper to protect the system BIOS from being accidentally flashed (updated).

Onboard Speaker Jumper

Use this jumper to enable or disable an onboard.

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. It is a ROM-based configuration utility that 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 key to display the “CMOS SETUP UTILITY” screen:

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

<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
<p>Esc : Quit F9: Menu in BIOS ↑↓→←: Select Item F10 : Save & Exit Setup</p>	
<p>Time, Date, Hard Disk Type . . .</p>	

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

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)	Tue, Dec 11 2000	Item Help
Time (hh:mm:ss)	12 : 8 : 59	
▶ IDE Primary Master		Menu Level ▶
▶ IDE Primary Slave		Change the day, month, year and century.
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓→←: 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]	To auto-detect the HDD size, head . . . on this channel
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save Esc : Exit F1: General Help F5: Previous Values F6 : Fail-Safe Defaults F7: Optimized Defaults		

IDD 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 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 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 in-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. Advanced BIOS Features

Selecting “Advanced BIOS Features” 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


Anti-Virus Protection	[Disabled]		Item Help
CPU Internal Cache	[Enabled]		Menu Level ►
External Cache	[Enabled]		
CPU L2 Cache ECC Checking	[Enabled]		
Quick Power On Self Test	[Enabled]		
First Boot Device	[Floppy]		
Second Boot Device	[HDD-0]		
Third Boot Device	[LS120]		
Fourth Boot Device	[Disabled]		
Swap Floppy Drive	[Disabled]		
Boot Up Floppy Seek	[Enabled]		
Boot Up NumLock Status	[On]		
Gate A20 Option	[Fast]		
Typematic Rate Setting	[Disabled]		
× Typematic Rate (Chars/Sec)	6		
× Typematic Delay (Msec)	250		
Security Option	[Setup]		
OS Select For DRAM > 64MB	[Non-OS2]		
HDD S.M.A.R.T. Capability	[Disabled]		
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save Esc : Exit F1: General Help F5: Previous Values F6 : Fail-Safe Defaults F7: Optimized Defaults			

Figure 4-3: Advanced BIOS features

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."

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 /4th 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," "LS120" and "Disable" respectively.

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."

HDD S.M.A.R.T. Capability: SMART is an industry acronym for Self-monitoring, Analysis and Reporting Technology. If the documentation of your hard disk states that SMART is supported, you can enable this item.

Report No FDD For WIN 95: If you are running a system with no floppy drive and using the Windows[®] 95 OS, select Yes for this item to ensure compatibility with the Windows[®] 95 logo certification. After you have made your selections in the BIOS Features Setup screen, press <ESC> to go back to the main screen.

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

4.4. Advanced Chipset Features

Selecting “Advanced Chipset Features” on the main program screen displays this menu:

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


SDRAM CAS Latency Time	[3]		Item Help	
SDRAM Cycle Time Tras/Trc	[7/9]		Menu Level ▶	
SDRAM RAS-to-CAS Delay	[3]			
SDRAM RAS Precharge Time	[3]			
System BIOS Cacheable	[Enabled]			
Video RAM Cacheable	[Enabled]			
Memory Hole At 15M - 16M	[Disabled]			
CPU Latency Timer	[Enabled]			
Delayed Transaction	[Enabled]			
AGP Graphics Aperture Size	[64MB]			
Display Cache Frequency	[100MHz]			
System Memory Frequency	[Auto]			
On-Chip Video Window Size	[64MB]			
× USB Keyboard Support ×				
CAS# Latency	[3]			
Paging Mode Control	[Open]			
RAS-to CAS Override	[by CAS# LT]			
RAS# Timing	[Fast]			
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save Esc : Exit F1: General Help F5: Previous Values F6 : Fail-Safe Defaults F7: Optimized Defaults				

Figure 4-4: Advanced Chipset features

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 changes unless you are familiar with the chipset.

SDRAM CAS Latency Time: Enables you to select the CAS latency time in HCLKs of 2/2 or 3/3. The value is set at the factory 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. The options are “2” and “3” default.

SDRAM Cycle Time Tras/Trc: This field enables you to set the CAS latency time in HCLKs of 7/9 or 5/7. 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.

SDRAM RAS-to-CAS Delay: This sets the relative delay between the Row Address Strobe (RAS) and the Column Address Strobe (CAS). Options are “2” and “3” (default).

SDRAM RAS Precharge Time: Defines the length of time that the Row Address Strobe (RAS) is allowed to pre-charge. Options are “2” and “3” (default).

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

Video BIOS Cacheable: When set to “Enabled,” the graphics card's local memory will be cached for faster execution. The default setting is “Disabled.”

Memory Hole At 15M-16M: 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.”

CPU Latency Timer: This item sets a timing parameter for CPU access. Since the CPU timing is determined by the system hardware, leave this item at the default value.

Delayed 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.”

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

Display Cache Frequency: This item sets the frequency for the system memory bus. If you have installed 133 MHz memory, you can change the frequency to 133 MHz.

System Memory Frequency: This item sets the main memory frequency. When you use an external graphics card, you can adjust this to enable the best performance for your system.

On-Chip Video Window Size: This item defines the size of the aperture if you use an AGP graphics adapter. It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

Onboard Display Cache Setting

The items under this heading are used to set the parameters for display cache memory that may be optionally installed on your mainboard. If you have display cache memory, we recommend that you leave these items at the default settings.

CAS# Latency: This item sets a timing parameter for the Column Address Strobe memory access. Leave this item at the default setting “Auto” so that the system auto-detects the correct timing.

Paging Mode Control: This item allows you to enable and disable page open mode. If set to “Enabled”, the GMCH memory controller tends to leave the page open.

RAS-to-CAS Override: This item sets the timing parameters for the system memory such as the CAS (Column Address Strobe) and RAS (Row Address Strobe). We recommend that you set RAS-to-CAS to “byCAS# LT” (default) so that the memory timing is automatically detected.

RAS# Timing: Sets the Row Address Strobe (RAS) timing. Leave this at the default setting “Fast.”

RAS# Precharge Timing: DRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for the Row Address Strobe (RAS) to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost. Options are “2” and “3” (default).

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

Options are:

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

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


On-Chip Primary PCI IDE	[Enabled]		Item Help
On-Chip Secondary PCI IDE	[Enabled]		Menu Level ▶
IDE Primary Master PIO	[Auto]		
IDE Primary Slave PIO	[Auto]		
IDE Secondary Master PIO	[Auto]		
IDE Secondary Slave PIO	[Auto]		
IDE Primary Master UDMA	[Auto]		
IDE Primary Slave UDMA	[Auto]		
IDE Secondary Master UDMA	[Auto]		
IDE Secondary Slave UDMA	[Auto]		
USB Controller	[Enabled]		
USB Keyboard Support	[Enabled]		
Init Display First	[PCI Slot]		
AC97 Audio	[Auto]		
IDE HDD Block Mode	[Enabled]		
POWER ON Function	[BUTTON ONLY]		
KB Power ON Password	[Enter]		
Hot Key Power ON	[Ctrl-F1]		
Onboard FDD Controller	[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 4-5: Integrated peripherals

On-Chip Primary/Secondary PCI IDE: These options enable or disable the primary and secondary onboard IDE controllers. The default settings are "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.”

USB Controller: This should be enabled if your system has a USB installed on the system board and you wish to use it. Options are “Disabled” and “Enabled” (default).

USB Keyboard Support: Disable this function when an AT keyboard is being used. Set to “Enabled” (default) when a USB keyboard is used.

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

AC97 Audio: Set these items to “Auto” when you are using the onboard AC’97 audio chip. If you are using an audio add-in card, you should disable this item.

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.”

POWER ON Function: Enables you to set keyboard or mouse events, or a password to power on the computer. When set to “Password,” you must key in your password before pressing any keyboard key to start the computer. The password is set in the “KB Power ON Password” field. If you set this field to “Hot KEY,” you can press a hot key combination to power on the computer. The hot key is set in the “Hot Key Power ON” field. Options are:

- BUTTON ONLY (default)
- Keyboard 98
- Password
- Hot KEY
- Mouse Left
- Mouse Right
- Any KEY

KB Power ON Password: This field becomes available when you select "Password" in the POWER ON Function field. Select this field and press **ENTER**. You are prompted to input a password. Type in your password and press **ENTER**. You are prompted to confirm your password. Retype your password and press **ENTER**. Your password is saved. The next time you power on your computer, you must type in your password before you can power the computer on. After you type your password, press any key or the power button.

Hot Key Power ON: This field becomes available when you select "Hot Key" in the POWER ON Function field. Options for this field are "Ctrl-F1"-"Ctrl-F12."

Onboard FDC 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 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.

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

- Hi, Lo (default)
- Lo, Hi
- Lo, Lo
- Hi, Hi

IR Transmission Delay: When set to “Enabled,” utilizes the capability of the mainboard to allow faster infrared transmission rates. The options are “Enabled” and “Disabled.”

UR2 Duplex Mode: This field is available when UART Mode Select is set to either ASKIR or IrDA. This item enables you to determine the infrared (IR) function of the onboard infrared chip. The options are “Full” and “Half” (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.

Use IR Pins: Use this item to set the IR pins. The options are “IR-Rx2Tx2” (default) and “RxD2,TxD2”.

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).

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

EPP Mode Select: Sets the EPP specification. There are two options—“EPP1.7” (default) and “EPP1.9.”

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.”

PWRON After PWR-Fail: When enabled this item enables your computer to automatically restart or return to its last operating status after power returns from a power failure. The default setting is “Off.”

Game Port Address: Enables you to specify the I/O address of the game port. Options are “Disabled,” “201” (default), and “209.”

MIDI Port Address: Enables you to specify the I/O address of the MIDI port if installed. Options are “Disabled,” 330” (default), “300”, and “290”.

MIDI Port IRQ: Enables you to specify the IRQ of the MIDI port if installed. Options are “5” and “10” (default).

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 Setup

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
ACPI Suspend Type	[S3(STR)]	
Power Management	[User Define]	Menu Level ►
Video Off Method	[DPMS]	
Video Off Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	15 Min	
Soft-Off by PWR- BTTN	[Instant-off]	
Wake-Up by LAN	[Disabled]	
Power On by Ring	[Enabled]	
USB KB Wake-Up From S3	[Disabled]	
CPU Thermal-Throttling	[50.0%]	
Resume by Alarm	[Disabled]	
× Date (of Month) Alarm	0	
× Time (hh : mm : ss) Alarm	0 : 0 : 0	
Reload Global Time Events		
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save Esc : Exit F1: General Help F5: Previous Values F6 : Fail-Safe Defaults F7: Optimized Defaults		

Figure 4-6: 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.

ACPI Suspend Type: Use this item to define how your system suspends. If set to S1(POS), the suspend mode is equivalent to a software power down. When set to the default setting, 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.

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
- Max Saving: recommended setting for general use
- Min Saving: sets power saving at minimum values

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.

Video Off In Suspend: Set this to “Yes” if you want the Video display to turn off during suspend mode.

Suspend Type: Enables you to select the Suspend type. Options are “Stop Grant” and “PwrOn Suspend.”

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 a mainboard Wake On Modem connector for this feature to work. Options are:

- 3 (default)
- 4
- 5
- 7
- 9
- 10
- 11
- NA

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.”

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.”

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.”

Wake-Up by LAN: When set to “Enabled”, the system power will be turned on if the LAN port receives an incoming signal. Default setting is “Disabled.”

Power On 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 “Disabled” and “Enabled” (default).

USB KB Wake-Up From S3: Use this item to enable USB activity to wakeup the system from a power saving mode. The default setting is “Disabled.”

CPU Thermal-Throttling: This item sets the percentage of time that the CPU is idled if CPU throttling is initiated by excess heat. The options are:

- 50.0% (default)
- 37.5%
- 25.0%
- 12.5%
- 87.5%
- 75.0%
- 62.5%

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.

****Reload Global Timer Events****

Global Timer (power management) 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 that occurs to a device that is configured as *Enabled*, even when the system is in a power down mode.

Primary/Secondary IDE 0/1: When enabled, any activity on the primary or secondary IDE channels will wake up the system from a power saving mode.

FDD, COM, LPT Port: When enabled, any activity on the floppy disk drive (FDD), serial ports (COM), or parallel ports (LPT) will wake up the system from a power saving mode.

PCI PIRQ[A-D]#: When enabled, any activity on the PCI card channels will wake up the system from a power saving mode. Press **ESC** to return to the main menu.

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 Configurations" on the main program screen displays this menu:

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

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled by IRQ Resources	[Auto (ESCD)] Press Enter	Menu Level ► Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.
PCI/VGA Palette Snoop	Disabled	
INT Pin1 Assignment	[Auto]	
INT Pin2 Assignment	[Auto]	
INT Pin3 Assignment	[Auto]	
INT Pin4 Assignment	[Auto]	
↑↓→←: 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

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 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.

INT Pin 1/2/3/4 Assignment: Names the interrupt request (IRQ) line assigned to PCI 1 to PCI 4 on your system. Activity of the selected PCI slot 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

CPU Warning Temperature [Disabled] Current System Temp. Current CPU Temp. CPU FAN speed System FAN speed Vccp Vcc3 +5V +12V -12V -5V VBAT (V) 5VSB (V) Shutdown Temperature [Disabled]	Item Help Menu Level ►
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save Esc : Exit F1: General Help F5: Previous Values F6 : Fail-Safe Defaults F7: Optimized Defaults	

Figure 4-8: PC Health Status configuration

CPU Warning Temperature: This feature enables you to set the warning temperature for CPU overheating. When the CPU temperature exceeds the set temperature, the PC speaker will beep. The beep sound will not turn off unless you power down the computer and allow your CPU to cool down.

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

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

- VBAT (V)
- 5VSB (V)

Shutdown Temperature: Enables you to set the maximum temperature the system can reach before powering down. Options are:

- Disabled (default)
- 60°C/140°F
- 65°C/149°F
- 70°C/158°F
- 75°C/167°F

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 Clk	[Enabled]	Item Help Menu Level ►
Spread Spectrum	[Disabled]	
CPU Host/PCI Clock	[Default]	
CPU Clock Ratio	[X 3]	
↑↓→←: Move Enter: 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 Clk: When set to “Enabled”, the system will automatically turn off the PCI and DIMM clock when not in use to reduce electromagnetic interference.

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 can be used to set the system bus frequency for the installed processor. The options are:

- Default (default)
- 66/33 MHz
- 68/34 MHz
- 72/36 MHz
- 75/38 MHz
- 100/33 MHz
- 103/34 MHz
- 112/37 MHz
- 115/38 MHz
- 120/40 MHz
- 125/42 MHz
- 133/33 MHz
- 137/34 MHz
- 140/35 MHz
- 145/36 MHz
- 150/38 MHz

CPU Clock Ratio: Use this item to select a multiplier for the system frontside bus (FSB) frequency. The value of the multiplier must be set so that:

$$\text{Multiplier} \times \text{Front Side Bus Frequency} = \text{CPU Clock Speed}$$

For example, if you have a processor that is rated to run at 450 MHz and the system is running a front side bus frequency of 100 MHz, you should select a multiplier of 4.5 so that:

$$4.5 \text{ (Multiplier)} \times 100 \text{ MHz (front side bus)} = 450 \text{ MHz (CPU clock)}$$

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. Set Supervisor/User Password

The “Set 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 JP12 to short pin 2 and pin 3 for five seconds, then putting the shunt back to pin 1 and pin 2 of JP12.

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 P6F128 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 bypass the CONFIG.SYS and AUTOEXEC.BAT.

5.2. Intel® 81x Installation Utility

This folder has IDE drivers for Windows® Millennium/2000/98/95/NT.

The Installation Steps:

1. Insert the manufacturer's CD-ROM into your CD-ROM drive.
2. Click Driver Install:



3. Scroll to and click the Install Intel® 81x Installation utility to start the installation:



4. Follow the instructions on the screen to complete the installation. After setup is completed, you need to restart the computer.

5.3. Intel® 81x AGP Installation

This folder has the software and drivers for the graphics system built into the 81x chipset.

The Installation Steps:

1. Insert the manufacturer's CD-ROM into your PC's CD-ROM drive.
2. Click Driver Install.
3. Select the folder 81x AGP driver for WIN2000/9X/NT40 or OS2 to start the installation:



4. Follow the instructions on the screen to complete the installation. After setup is completed, you need to restart the computer.

5.4. AD1881 Audio Driver

Software and drivers are provided for the AD1881 codec sound system that is integrated on this mainboard. The AD1881 codec allows the system to generate optimal sound effects. Drivers are provided for Windows® NT/2000/98/95.

The Installation Steps:

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

2. Click Driver Install.
3. Select the folder 815 AGP driver for WIN98, WIN2000/WIN95/WINNT to start the installation:



4. Follow the instructions on the screen to complete the installation. After setup is completed, you need to restart the computer.

5.5. 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