

P8F151
MOTHER BOARD
USER'S MANUAL

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Using This Manual

This manual is designed to help you build a reliable Personal Computer based on the P8F148 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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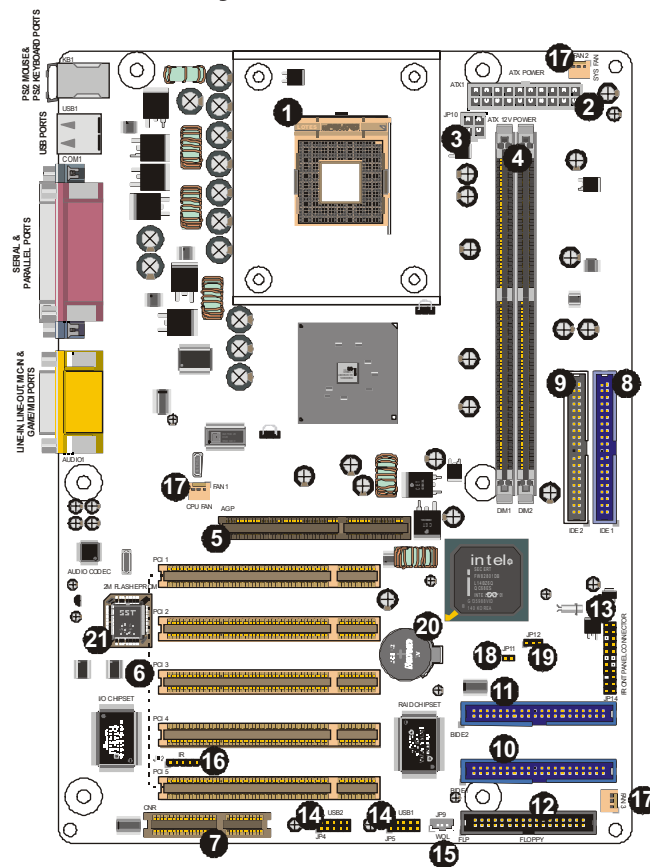
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1. P8F151 Quick Reference

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

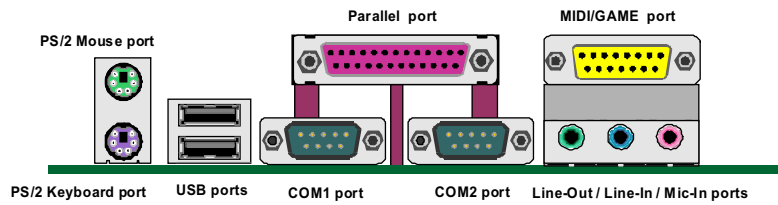
1.1. Mainboard Layout



- | | |
|--|--|
| 1. mPGA478 CPU socket (mPGA478) | 12. Floppy drive connector (FLP) |
| 2. ATX power connector (ATX1) | 13. Front Panel connectors (JP14) |
| 3. ATX 12V power connector (JP10) | 14. Front USB ports connectors (JP4/JP5) |
| 4. 184-pin DIMM DDR module sockets (DIMM1~2) | 15. Wake on LAN connector (JP9) |
| 5. Accelerated Graphics Port slot (AGP1) | 16. IR connector (JP2) |
| 6. PCI expansion connector (PCI 1 ~ PCI 5) | 17. FAN connectors (FAN1/FAN2/FAN3) |
| 7. CNR connector (CNR) | 18. EMI-SMI (JP11) |
| 8. IDE connector (IDE1) | 19. Clear CMOS (JP12) |
| 9. IDE connector (IDE2) | 20. RTC battery |
| 10. RAID connector (BIDE1) | 21. Flash BIOS |
| 11. RAID connector (BIDE2) | |

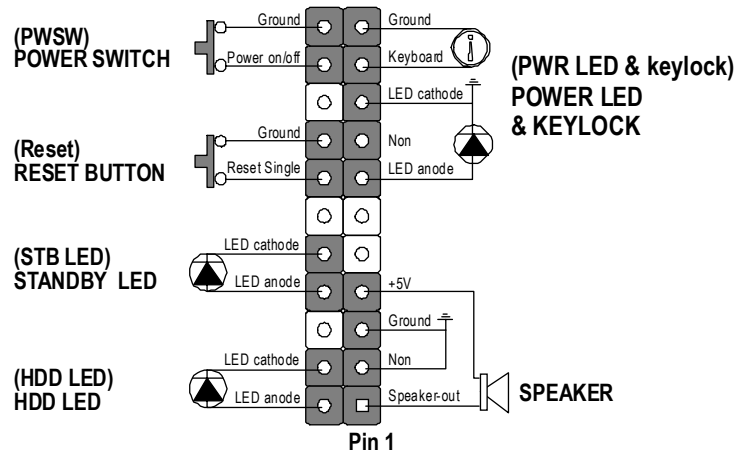
Mainboard Layout

1.2. I/O Ports



1.3. Front Panel Connector

The following illustration shows the front panel connector pin assignments:



1.4 Jumpers

JP12	1-2	Normal Mode
	2-3	Clear CMOS
JP11	Open	Enable EXT-SMI
	Close	Disable EXT-SMI

1.5. PCI and AGP Frequency Setting

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

1.6. Memory Installation

Note: The Intel 845 chipset family used in this mainboard supports up to two double-sided or two single-sided DIMMs when the DDR DRAM interface is operating at 133 MHz. Installing DDR DIMM modules that exceed these specifications requires that the BIOS down-shifts the DRAM clocks to 100 MHz through a two-wire interface of the system clock generator.

184-Pin DIMM DDR SDRAM Memory Configuration.

Each **184-pin** DIMM bank can install from 64MB up to 1GB of PC1600/PC2100 compliant 2.5V single or double side unbuffered with or without ECC DDR SDRAM modules.

Bank 0 (DIMM1)	64MB,128MB,256MB, 512MB, 1GB
Bank 1 (DIMM2)	64MB,128MB,256MB, 512MB, 1GB
Total	64 MB to 2 GB

1.7. Connectors

FAN1	CPU/Chipset FAN Connector: This 3-pin header is used for connecting a CPU chipset fan.
FAN2	System Fan Connector: This 3-pin header is for connecting the case fan that keeps the system cool.
JP4	Front USB Connector: This 10-pin headers is used for connecting front panel USB ports 3 and 4.
JP5	Front USB Connector: This 10-pin headers is used for connecting front panel USB ports 5 and 6.
JP2	IR Connector: This 5-pin header is used to connect an IR port for use of IR device.
JP9	Wake On LAN Connector: This 3-pin header is used for remote wake up of the computer through a network card.
ATX1	ATX Power Connector: This 20-pin header is conn the power supply plug to ATX power connector to provide Pentium 4 standard power for devices.
JP10	ATX 12V Power Connector: This 4-pin header is connect the power supply 12V plug to ATX power connector to provide 12V power for devices.

2. Introduction

2.1. Overview

The high quality P8F151 is a high performance, enhanced function mainboard that supports Socket 478 Intel® Pentium® 4 processors that support a 533 MHz front side bus (FSB). This mainboard is designed around the latest and fastest Intel® 845 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, and concurrent PCI bus. The mainboard accommodates DDR 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, provided with this platform are these features:

- ▶ Supports Intel® Pentium® 4 processors in a 478-pin package
- ▶ Supports a 66/100/133 memory bus
- ▶ Support for 4xAGP
- ▶ Supports up to 2 GB of PC1600/PC2100 DDR SDRAM
- ▶ Bus mastering EIDE driver
- ▶ Supports six USB ports accommodating Plug and Play devices
- ▶ Soft-off APM (Advanced Power Management)
- ▶ ACPI (Advanced Configuration and Power Interface)
- ▶ Keyboard power on
- ▶ External modem ring on
- ▶ LAN wake up
- ▶ BIOS upgradability

2.2. Mainboard Specifications and Features

2.2.1. Hardware

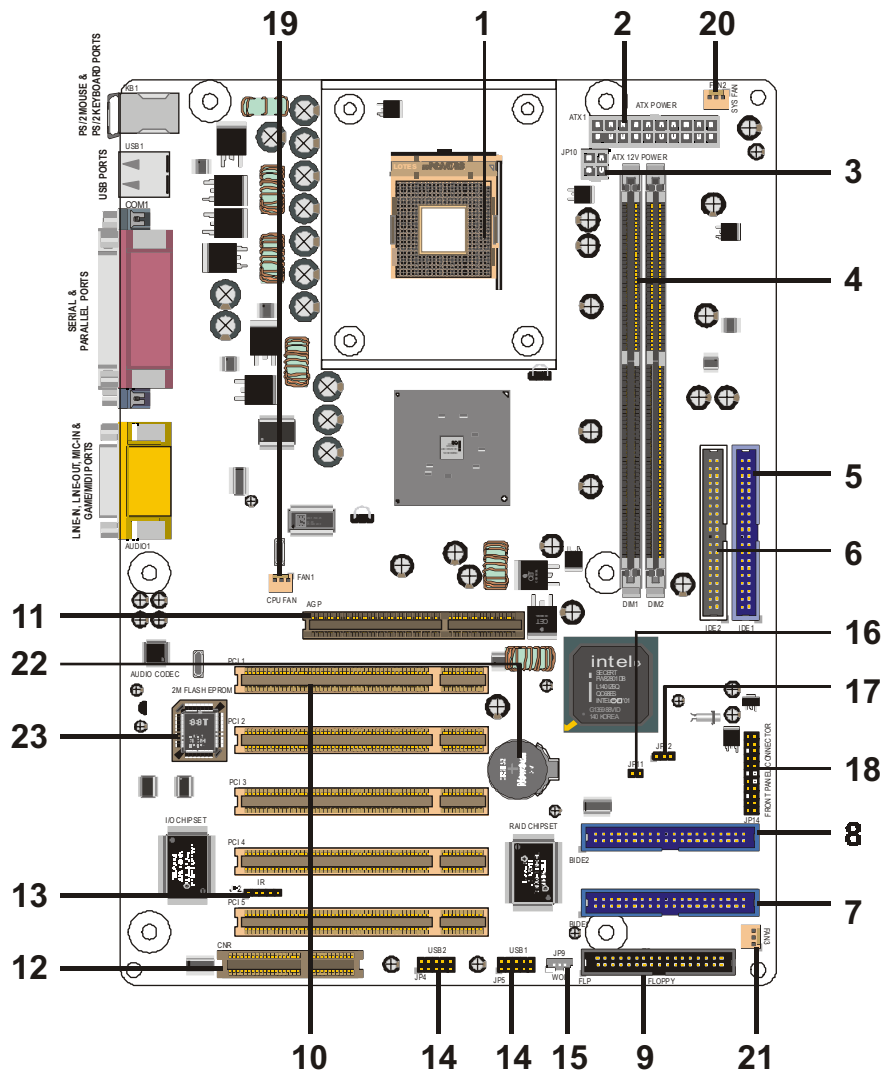
CPU	Intel® Pentium® 4 processors in a 478-pin package, compatible Auto-detection CPU
VRM	Onboard Voltage Regulator Module Provides 1.05V to 1.825V operating voltage
Coprocessor	CPU has built-in floating point unit
Speed	System bus clock 100 MHz AGP 4X PCI bus clock 33 MHz
Chipset	Intel 845 chipset supporting: 4x AGP mode PC1600/PC2100 memory Intel 82801BA super-I/O integrated peripheral controller support Ultra ATA100
DRAM	Two 184-pin DIMM sockets, up to 2GB Supports 64 MB to 1GB DDR 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 two Bus Mastering Ultra DMA-ATA 33/66/100 drives Supports Iomega ZIP or LS-120 removable drives
Sound Chip	Chip integrated direct Sound AC97 ALC-201A (2 Channels) ALC-650 (5.1 Channel, optional)

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 One audio port connectors, include line-out, line-in, mic-in, and midi/game ports
I/O Options	Two connector for front panel USB ports 3/4, 5/6 One IrDA compatible infrared (IR) connector
Mouse	PS/2 mouse connector
Keyboard	PS/2 keyboard connector
Expansion Slots	One 32-bit 4xAGP (2.0) slot Five 32-bit PCI slots
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
Board Size	22 cm x 305 cm (8.7 x 12-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 AC97 codec audio driver Flash utility for BIOS upgrade System Environment Monitoring Utility
Operating System	Operates with MS_DOS, Windows 3.x/9x/ME/XP/2000/NT, OS/2, Novell NetWare/UnixWare 1.1, and SCO Unix 4.2

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	mPGA478	CPU socket
2	ATX1	ATX Pentium 4 standard power connector
3	JP10	ATX 12V power connector
4	DIM1~2	DDR SDRAM Memory module slots
5	IDE1	IDE 1 connector
6	IDE2	IDE 2 connector
7	BIDE1	RAID 1 connector
8	BIDE2	RAID 2 connector
9	FLP	Floppy drive connector
10	PCI1~5	32-bit PCI slots
11	AGP	Accelerated Graphics Port (AGP) slot
12	CNR	Communications Networking Riser
13	JP12	IrDA compliant Infrared (IR) connector
14	JP4~5	Front USB port
15	JP9	Wake on LAN connector
16	JP11	EXT-SMI Switch
17	JP12	Clear CMOS
18	JP14	Front Panel connector
19	FAN1	CPU fan connector
20	FAN2	System fan connector
21	FAN3	AGP/chipset fan connector
22	BTY	RTC battery
23		Flash BIOS

2.4. Microprocessor

The mainboard is designed to operate with the following processor:

Processor Type	Speed	FSB
Intel Pentium 4	1.4~2.4GHz	400/ 533MHz

An onboard switching voltage regulator provides the required 1.05 to 1.825 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

The mainboard's CPU socket is a surface mount, mPGA478B type ZIF (Zero Insertion Force) socket. The socket has 478 pins with 50 mil pin pitch.

Note: ZIF sockets are sockets designed for easy insertion of pin grid array (PGA) chips. The chip is dropped into the socket, and a lever is used to secure the chip in place.

2.6. AC 97 Codec

This mainboard features the AC 97 codec. The AC 97 Audio codec is compliant with the AC 97 2.1 specification, and supports 18-bit ADC (Analog Digital Converter) and DAC (Digital Analog Converter) resolution as well as 18-bit stereo full-duplex codec with independent and variable sampling rates. Further features include support for four analog line-level stereo inputs.

2.7. Chipset

The P8F151 supports the Intel 845 chipset. The Intel 845 chipset is optimized for the Pentium 4 processor, and incorporates NetBurst micro-architecture.

NetBurst architecture doubles the instruction pipeline to 20 stages, runs the ALU (Arithmetic Logic Unit) at twice the core frequency and improves performance in the Level 1 and 2 caches.

The 845 chipset consists of two controller hubs, the 82845 Memory Controller Hub (MCH) and the 82801DB I/O Controller Hub (ICH2):

- ▶ The 82845 Memory Controller Hub supports a 266 MHz bus clock, PC1600/PC2100 SDRAM memory, and the 4xAGP interface.
- ▶ The 82801DB I/O Controller Hub provides direct connection to graphics and memory components for faster access to peripherals and provides the features and bandwidth required for high performance PCs.

In addition to future application support, the 845 chipset was designed with the following features:

- ▶ Advanced packaging technology and industry leading electrical design innovations ensure long-term system reliability over wide operating conditions.
- ▶ The AGP4X interface providing the most advanced graphics support available, enabling graphics bandwidth of over 1 GB/s.
- ▶ Two USB controllers provide high performance peripherals with 480 Mbps of bandwidth, while enabling support for up to four USB ports.
- ▶ AC 97 implementation delivers six channels of audio for enhanced sound quality and full surround sound capability.
- ▶ Dual Ultra ATA/100 controllers support faster IDE transfers to storage devices.

2.8. RAID (Optional)

Bus mastering design allows utilization of a RAID (Redundant Array of Independent Disks). A RAID is a set of two or more hard disks and a specialized disk controller, which controls the RAID function. Using a RAID, the user can write and read to more than one disk at the same time, that is, complete data duplication can be achieved, or, excess data can be transferred to another disk. The problems of disk failure are minimized with the use of a RAID.

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 P4 standard ATX power supply
- △ mPGA478B Processor
- △ One DDR SDRAM memory module
- △ One floppy disk drive
- △ One UDMA-66/100 IDE hard disk drive
- △ One CD-ROM drive
- △ One display monitor
- △ One 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 P8F151 mainboard package contains the following items:

- ▶ One mainboard
- ▶ One IDE 66/100 40-pin ribbon cable
- ▶ One floppy 34-pin ribbon cable
- ▶ Driver and utility CD
- ▶ User's manual reference

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 P8F151 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.

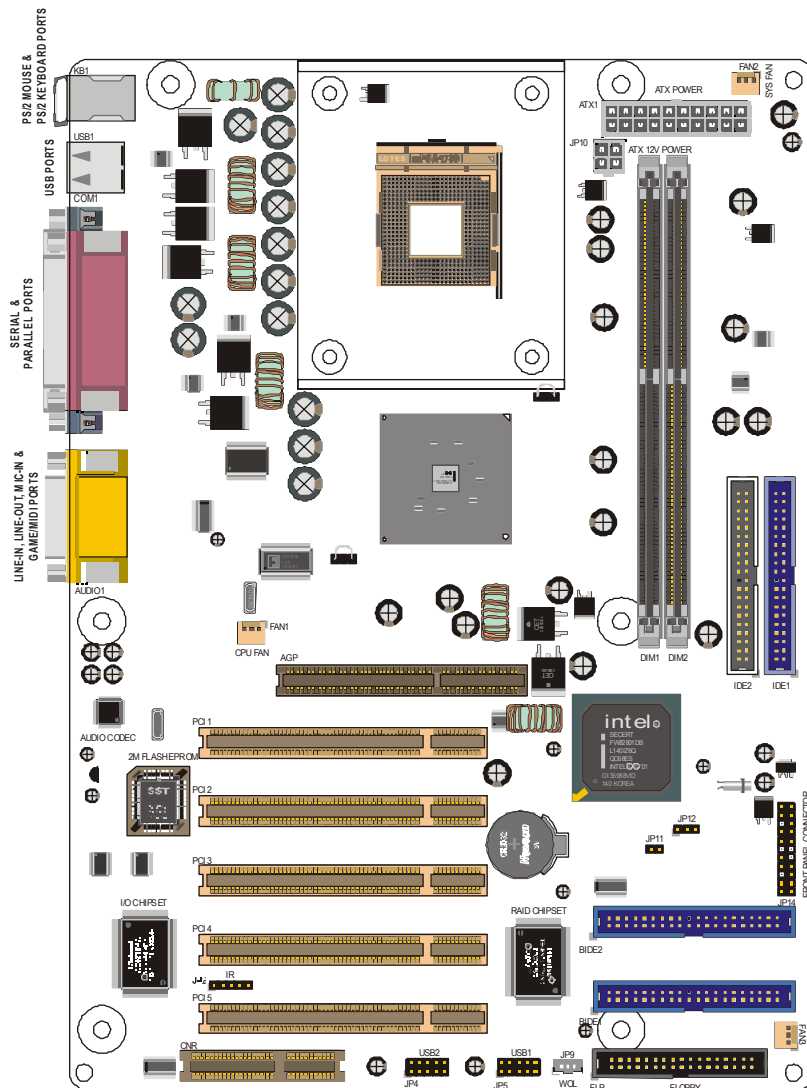
To install the mainboard you need to install the CPU and DIMM memory modules, attach the connectors, and set the correct CPU speed in the CMOS setup.

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.

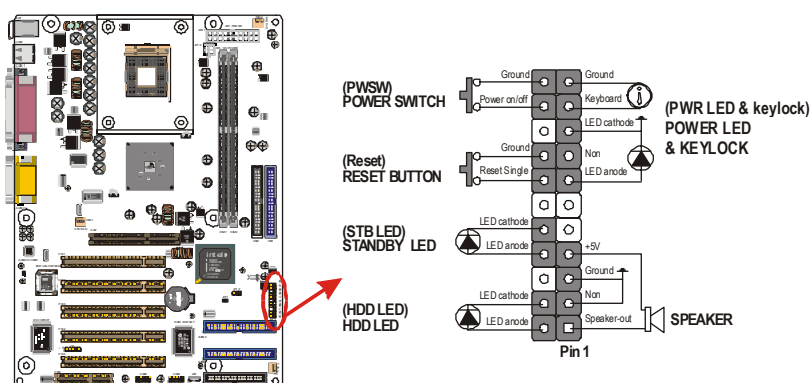
3.4. Connector/Jumper Location



3.5. Attaching Connectors

3.5.1. Front Panel Connectors (JP14)

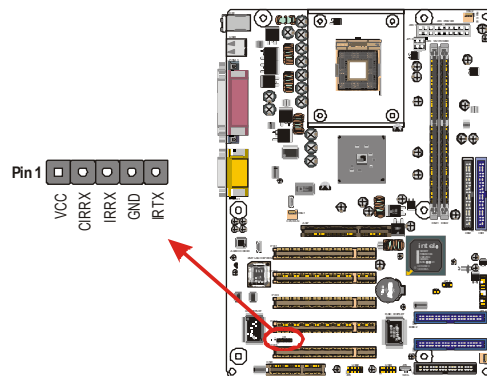
There are seven connectors on the mainboard for speaker, switches, and indicator lights on the system's front panel.



PWSW	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.
STBLED	This 2-pin connector connects to the case-mounted Standby 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.
HDDLED	This 2-pin connector connects to the case-mounted HDD LED to indicate hard disk activity.
PWRLED & keylock	This 5-pin connector connects to the case-mounted keylock switch and the power LED. The keylock switch is used to lock the keyboard for security purposes.
SPEAKER	This 4-pin connector connects to the case-mounted speaker.

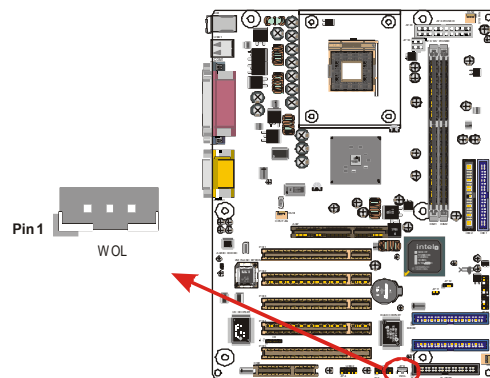
3.5.2. Infrared (IR) Connector (JP2)

This 5-pin headers 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.



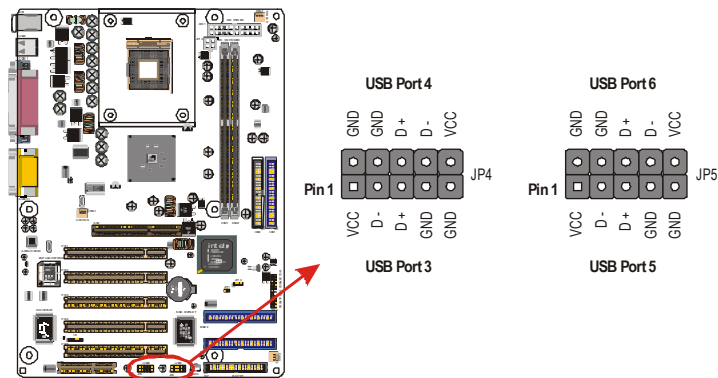
3.5.3. LAN/Modem Wake up Connectors (JP9)

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



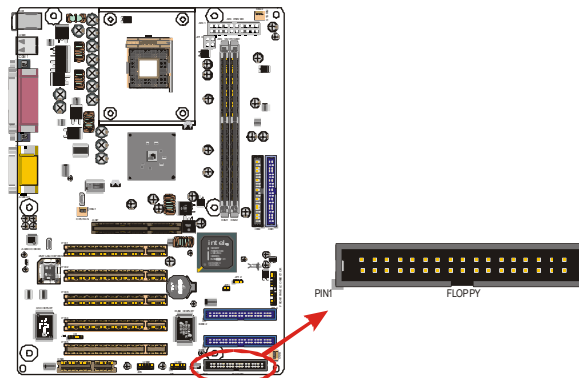
3.5.4. Front USB Header (JP4,JP5)

The mainboard provides oen onboard 10-pin of dual USB port (port 3 and port 4) headers. The headers on the same signal with USB port 1 and port 2 on the back panel.



3.5.5. Floppy Drive Connector (FLOPPY)

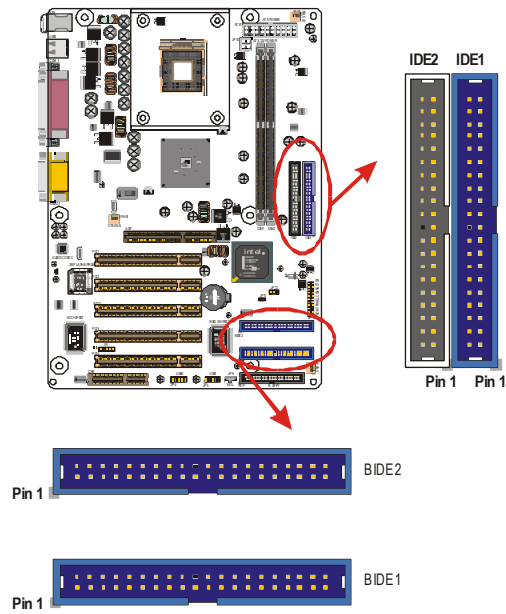
A floppy disk drive ribbon cable has two connectors to support two floppy disk drives. The connector with twisted wires always connects to drive A; the connector with untwisted wires connects to drive B. You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds with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



3.5.6. IDE Connectors (IDE1,IDE2,BIDE1,BIDE2)

An IDE drive ribbon cable has two connectors to support four 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.

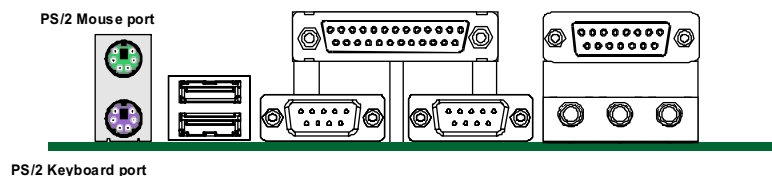


3.5.7. Back Panel Connectors

The back panel provides external access to PS/2 style keyboard and mouse connectors, two serial ports, one parallel port, dual USB ports, and audio Line-out, Line-in, Mic-in, game/midi 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

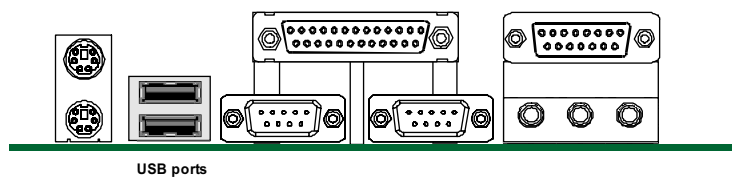
Connect a PS/2 mouse to the green 6-pin mini DIN connector. The system will automatically assign IRQ 12 to the PS/2 mouse if one is connected.



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

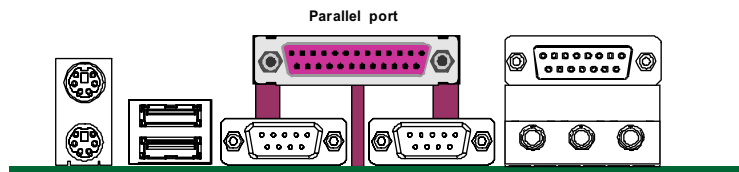
You can connect two USB devices or USB hubs to the USB ports.



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 480 Mbits/sec (equivalent to 60 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 60 Mbytes/sec sub-channel.

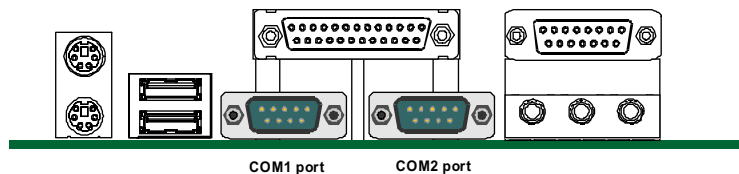
Parallel Port

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 Port

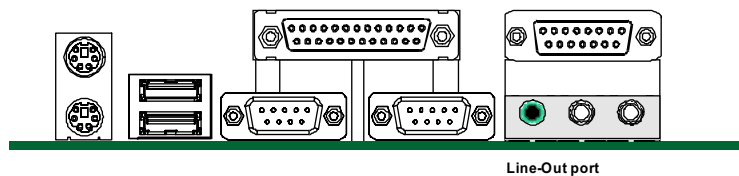
Connect a serial device such as a mouse or modem to the turquoise 9-pin serial port. You can set the serial port IRQs in BIOS. Refer to Integrated Peripherals in Chapter 4 for details.



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

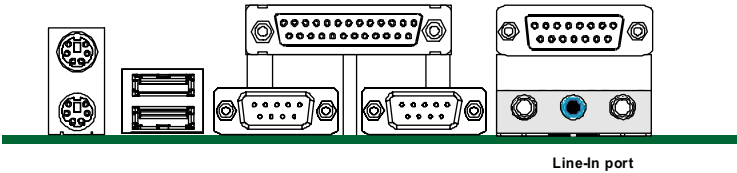
Audio Line-Out Port

You can connect various audio devices to this audio jacks. Connect headphones or powered speakers to the lime-colored lineout connector.



Audio Line-In Port

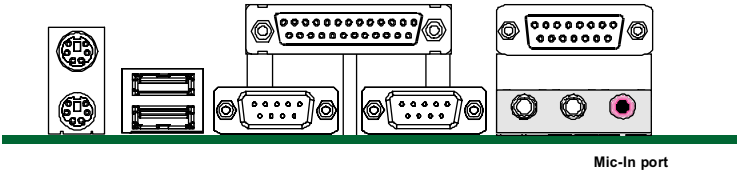
You can connect a tape player or another audio source to the light blue Line-in connector to record audio on your computer or to play audio through your computer’s sound chip and speakers.



Line-In port

Audio Mic-In Port

You can connect a microphone to the pink microphone connector to record audio to your computer.

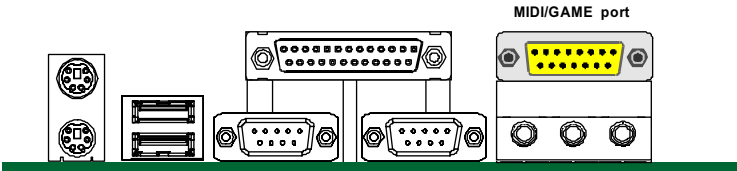


Mic-In port

You can also connect to the pink microphone, blue and green Line-out connector to connect ALC-650 (optional) chip. The software by ALC in driver controls Mic-in, Line-in or 5.1channel audio.

Audio MIDI/GAME Port

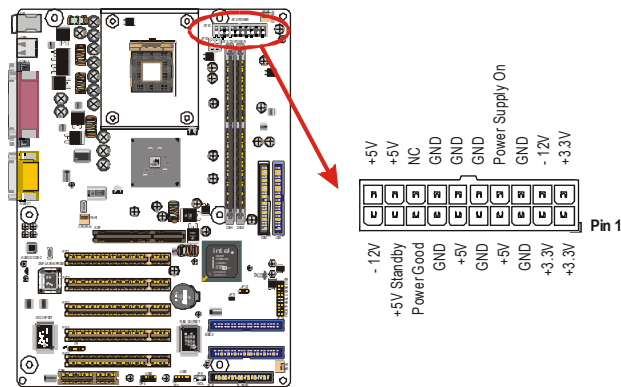
You can connect a joystick, game pad, or other game device to the gold 15-pin game port. You can also connect a MIDI device for playing or editing audio.



MIDI/GAME port

3.5.8. Power Supply Connector (ATX1)

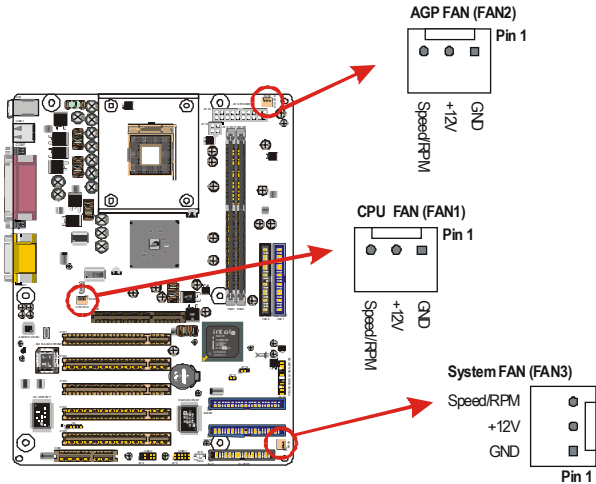
The ATX power supply has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into the ATX power connector. Press the lead connector down until the clip snaps into place and secures the lead onto the connector.



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.

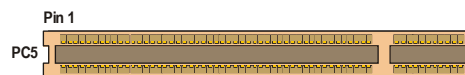
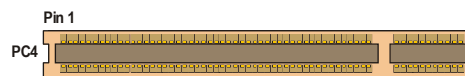
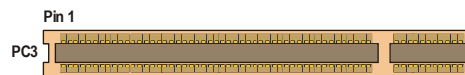
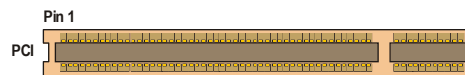
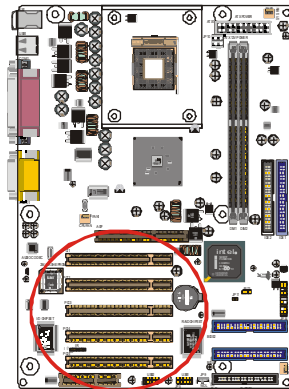
3.5.9. CPU/AGP/System Fan Power Supplies FAN1/ FAN2/FAN3

There are three 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 82845E chip (providing the fan comes with a tachometer output).



3.5.10. PCI Connector (PCI1~PCI5)

PCI connector is one of equipment interfaces that connects peripheral equipment and motherboard. Its transfer speed is faster than traditional ISA. PCI is the mainstream transfer interface for extra adopter.



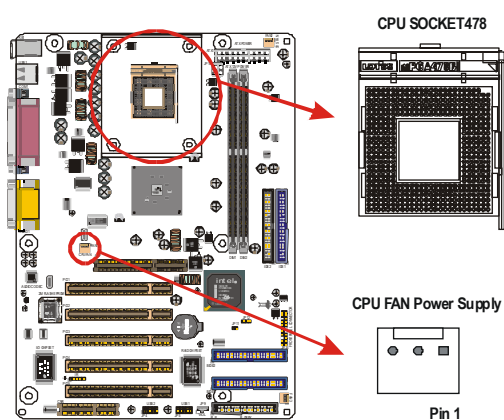
3.6. Installing the CPU

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.

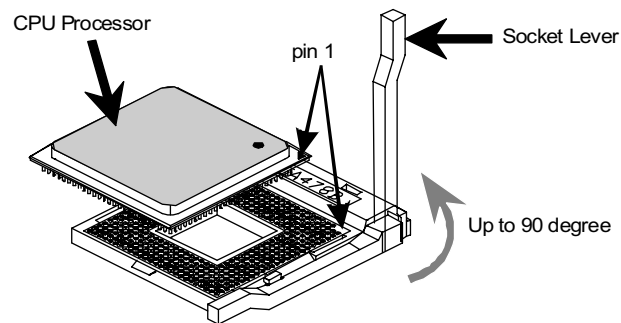
3.6.2. Installation Procedure

1. On the motherboard, identify the CPU Socket 478 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 PGA478. 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 PGA478. 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

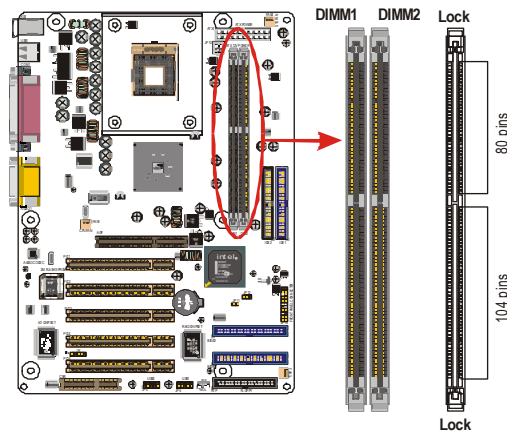
First, remove the mainboard from the chassis. To remove the processor from the mainboard, follow these steps:

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.

3.7. Installing System Memory

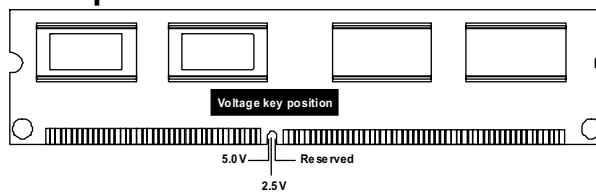
Maximum system memory supported by the mainboard is 2 GB.

The mainboard has two DIMM Sockets. Memory can be installed using 184-pin DDR 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 2.5V unbuffered DIMMs in the mainboard. To determine the DIMM type, check the notches on the DIMMs.

184-pin DIMM

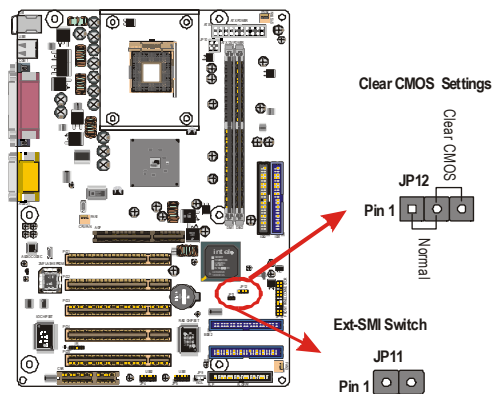


Install the 184-pin DDR SDRAM modules in any combination as follows:

Bank 0 (DIMM1)	64MB/128MB/512MB/1GB
Bank 1 (DIMM2)	64MB/128MB/512MB/1GB
Total System Memory	64MB ~ 2GB

3.8. Setting Jumpers

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



Clear CMOS Jumper (JP12)

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 JP12 for five seconds.
3. Place the shunt back to pin 1 and pin 2 of JP12.
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.*

Ext-SMISwitch (JP11)

When you press the button, then the system enter SMI.

3.9. 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:

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 Features

Standard CMOS Features is the same for all three chipsets. Selecting “**Standard CMOS Features**” on the main program screen displays the following menu:



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:

- ▶ **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 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 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.

Drive A and Drive B: Select the type of floppy disk drive installed in your system. The options are:

- ▶ 360K, 5.25 in
- ▶ 1.2M, 5.25in
- ▶ 720K, 3.5in

- ▶ 1.44M, 3.5in (Driver A default)
- ▶ 2.88M, 3.5in
- ▶ None (Not Installed) (Drive B default).

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:

- ▶ MONO
- ▶ CGA 40
- ▶ CGA 80
- ▶ EGA/VGA (default).

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

- ▶ All Errors (default)
- ▶ No Errors
- ▶ All
- ▶ But Keyboard
- ▶ 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.



The following explains the options for each feature:

Virus Warning: 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 L1 & L2 Cache: These settings enable the CPU internal (L1) and external (L2) cache. Enabling these items provides better performance. The default setting is “Enabled”.

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”.

First/Second/Third 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”, or “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.

APIC Mode: Enables or disables APIC (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multiprocessing (SMP) for systems, allowing support for up to 60 processors.

MPS Version Control For OS: Selects the operating system multiprocessor support version. The default setting is "1.4".

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".

Report No FDD For WIN 95: If you are running a system with no floppy drive and using Windows 95, select "Yes" for this item to ensure compatibility with the Windows 95 logo certification. Otherwise, select "No". The default setting is "No".

Small Logo (EPA) Show: Enables and disables the EPA logo when booting up. The default setting 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. Advanced Chipset Features

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



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.

DRAM Timing Selectable: Enables you to set the DRAM timing manually, or automatically using SPD (Serial Presence Detect). SPD is an EEPROM chip on the memory module that stores information about the memory chips it contains, including size, speed, voltage, row and column addresses, and manufacturer. We recommend setting this field to By SPD.

CAS Latency Time: This item enables you to optimize the speed at which data is accessed in a column by defining CAS latency time. The CAS latency defines the time delay (in CLKs) before SDRAM starts a read command after receiving it. Because reading data in a row is twice as fast, reducing this number can increase performance at the expense of stability. We recommend that you leave this item at the default value. The default setting is “1.5”.

Active to Precharge Delay: This item enables you to set the number of DRAM clocks for TRAS. TRAS indicates the time required for the memory to restore data and come to a full charge. The default setting is “7”.

DRAM RAS# to CAS# Delay: Enables you to select the RAS to CAS delay 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 have changed the specifications of the installed DRAM or the installed CPU. The default setting is “3”.

DRAM RAS# Precharge: 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. The default setting is “3”.

DRAM Data Integrity Mode: Set this to “ECC” (error correcting code default) or “Non-ECC”, according to the type of installed DRAM. The default setting is “Non-ECC”.

Memory Frequency For: Enables you to set the memory frequency for the installed memory. Select “Auto” (default) to enable the system to set the memory frequency automatically according to the installed DRAM. The options are “PC100”, or “PC133”.

DRAM Read Thermal Mgmt: Enables and disables the DRAM read thermal management function. The default setting is “Disabled”.

System/Video BIOS Cacheable: When set to “Enabled”, the System and Video BIOS will be cached for faster execution. The default setting is “Enabled” or “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”.

Delayed Transaction: The chipset has an embedded 32-bit posted write buffer to support delayed transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The default setting is “Enabled”.

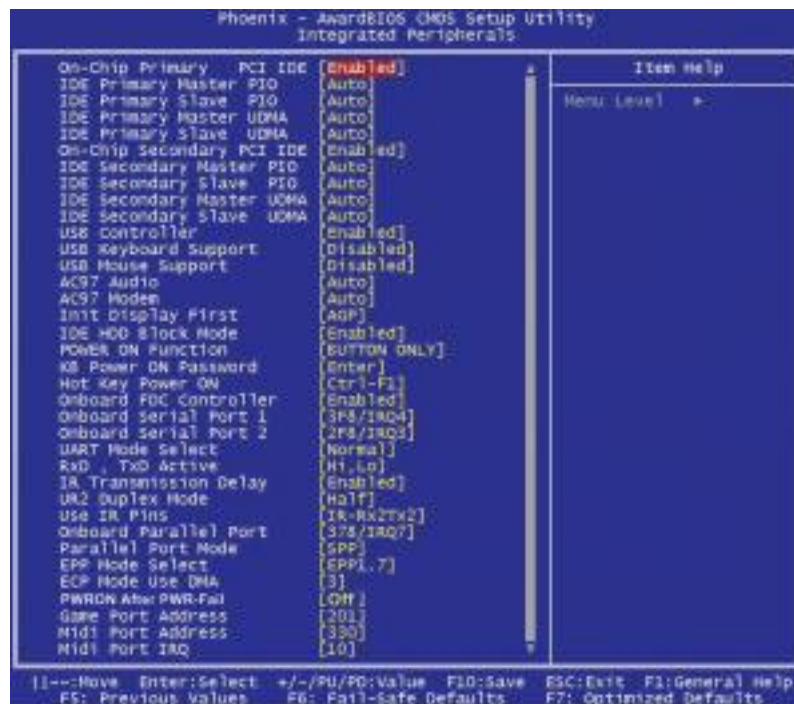
Delay Prior To Thermal: This item allows you to select the delay time to enable the Pentium 4 CPU Thermal feature. Enable this feature when using Windows NT 4.0 to prevent the system from hanging. The default setting is “16Min”, and other options are “4Min”, “8Min”, or “32Min”.

AGP Aperture Size (MB): This option determines the effective size of the AGP Graphic *Aperture*, where memory-mapped graphic data structures are located. The default setting is “64”, and other options are “4”, “8”, “16”, “32”, “128”, or “256”.

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:



OnChip Primary/Secondary PCI IDE: This option enables or disables the onboard IDE controller. 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”, or “Mode 4”.

IDE Primary/Secondary Master/Slave UDMA: When set to “Auto” the BIOS will automatically load the Ultra DMA 33/66/100 driver to match the transfer rate of IDE hard disk drives that support Ultra DMA 33/66/100 mode. The options are “Auto” (default) or “Disabled”.

USB Controller: Enables the USB controller. Leave this at the default “Enabled” if you want to connect USB devices to your computer.

USB Keyboard Support: Enables USB keyboard support for legacy operating systems. The default setting is “Disabled”.

USB Mouse Support: Enables USB Mouse support for legacy operating systems. The default setting is “Disabled”.

AC97 Audio/Modem: Enables or disables the onboard AC 97 audio and modem chips. The default setting is “Auto”.

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

POWER ON Function: Enables you to define actions that will power on the computer. When set to “Button Only” (default), the system power can be turned on by the power button. You can set the mouse and keyboard activity, and a password to power on the computer from this field.

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 and key or the power button.

Hot Key Power On: Enables you to set the key combination that will power on the computer. You must enable “Hot Key” in the Power On Function field for this item to work.

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. The options are: “3F8/ IRQ4” (Port 1 default), “2F8/ IRQ3” (Port 2 default), “3E8/ IRQ4 “, “2E8/ IRQ3”, “Auto “, or “Disabled” (disables the onboard serial port).

UART Mode Select: Enables you to select the infrared communication protocol - Normal (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 option are “Enabled” (default), or “Disabled”.

UR2 Duplex Mode: This field is available when UART 2 Mode is set to either ASKIR or SCR. 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.

Use IR Pins: Use this item to set the IR pins. The options are “IRRx2Tx2” (default) or “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”, or “Disabled” (disables the onboard parallel port).

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

EPP Mode Select: Sets the EPP specification. The options are “EPP1.7” (default) or “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”.

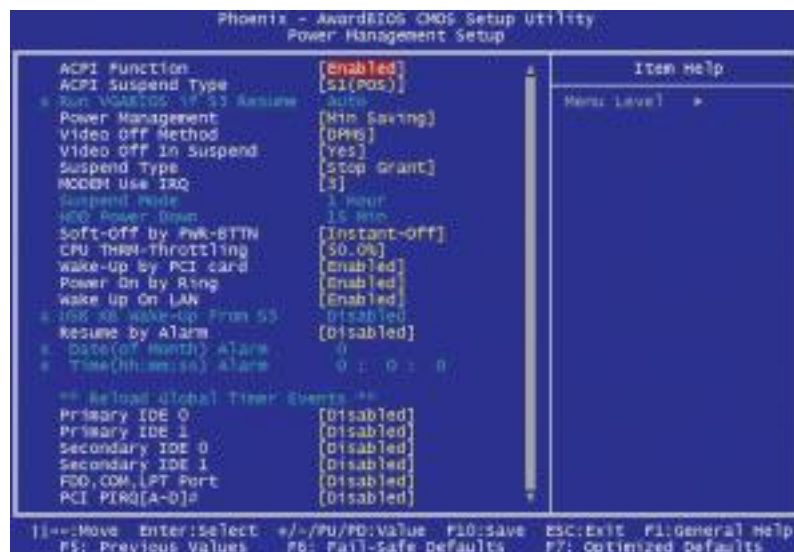
Game Port Address: This item enables you to set the I/O address for the game port. The default setting is “201”.

Midi Port Address: This item enables you to set the I/O address for the Midi port. The default setting is “330”.

Midi Port IRQ: This item enables you to set the I/O IRQ for the Midi port. The default setting is “10”.

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:



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

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) (default), the suspend mode is equivalent to a software power down. If set to 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.

Run VGABIOS if S3 Resume: This item to set run VGABIOS when S3 resume. The default setting is “Auto”, other options are “Yes”, or “No”.

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. 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 “DPMS” (default) option allows the BIOS to control the video card if it has the DPMS (Display Power Management System) feature. Other options are “V/H SYNC+Blank” and “Blank Screen.” The “V/H SYNC+Blank” which disables V/H SYNC signals and blanks the screen. The “Blank Screen” option is used when you do not have a “Green” monitor.

Video Off In Suspend: This item determines the manner in which the monitor is blanked. The default setting is “Yes”.

Suspend Type: If this item is set to the default “Stop Grant,” the CPU will go into the Idle Mode during suspend mode.

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”, or “NA”.

Suspend Mode: Enables you to set the idle time before the system goes into suspend mode. Options are from “Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, or 1 Hour”. The default is “Disabled”.

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 “Disabled”.

Soft-Off by PWR-BTTN: 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” or “Delay 4 Sec.”

CPU THRM-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%

Wake-Up by PCI card: Enables PCI card activity wake the system from suspend mode. The default is “Enabled”.

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 “Enabled”(default) and “Disabled” .

Wake Up on LAN: Enables LAN activity wake the system from suspend mode. The default is “Enabled”.

USB KB Wake-Up From S3: If the ACPI Suspend Type is set to S3(STR) or S1&S3, you can enable this field to allow USB keyboard activity to wake the system from suspend mode. The default is “Disabled”.

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. The default is “Disabled”.

Reload Global Timer Events

These fields determine which events waken the system from power saving mode.

Primary/Secondary IDE 0/1: When enabled, the system power will resume the system from a power saving mode if there is any activity on primary or secondary IDE channels 0 or 1. The default is “Disabled”.

FDD, COM, LPT Port: When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the floppy disk drive, serial ports, or the parallel port. The default is “Disabled”.

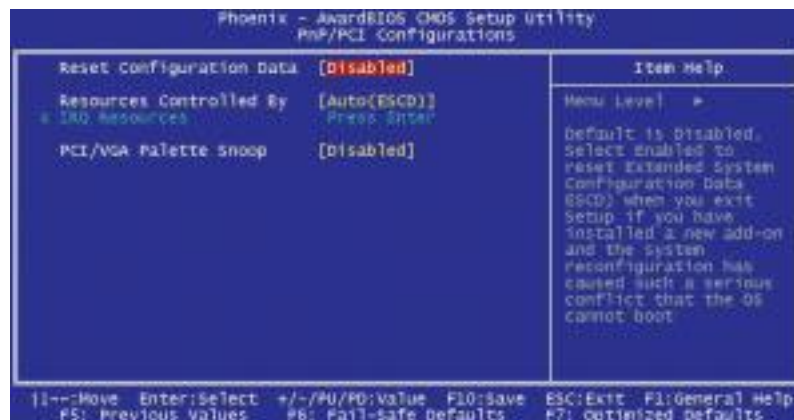
PCI PIRQ[A-D]#: When set to “Enabled”, any activity from one of the listed devices wakes up the system. The default is “Disabled”.

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 Configurations

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:



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 setting is “Manual” which allows you to control IRQs and DMAs individually. The other option is “Auto(ESCD)” (default) which will detect the system resources and automatically assign the relative IRQs and DMAs for each peripheral.

IRQ Resources: When resources are controlled manually, assign each

system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to: This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP (default) for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

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. The default setting is "Disabled".

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

4.8. PC Health Status

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:



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:

- ▶ Current System Temp.
- ▶ Current CPU Temperature
- ▶ Current FAN2 speed
- ▶ Current FAN3 speed
- ▶ Current CPU FAN Speed
- ▶ Vcore (CPU Vcore Voltage)

- ▶ 1.5V
- ▶ Vcc3 (Onboard 3.3V)
- ▶ 5V (Power Supply Voltage)
- ▶ 12V (Power Supply Voltage)
- ▶ -12V (Power Supply Voltage)
- ▶ -5V (Power Supply Voltage)
- ▶ VBAT (V) (CMOS Battery Voltage)
- ▶ 5VSB (V) (Standby 5V)

Shutdown Temperature: Enables you to set the maximum temperature the system can reach before powering down. The default settings is “60°C/140”.

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.



CPU Clock Ratio: This item allows the user to adjust CPU Ratio. The values for this field range from 8 to 50.

Auto Detect PCI Clk: When set to “Enabled” (default), the system will automatically turn off the PCI 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. The default setting is “Disabled”.

CPU 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. The values for this field range from 100MHz to 165MHz.

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**” utilities set the passwords.

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 1 and pin 2 for five seconds, then putting the shunt back to pin 2 and pin 3 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 P8F151 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 2 M-bit Flash EEPROM that can be erased and reprogrammed by the Flash utility.

There are two files in the D:\DRIVER\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. CD Driver Overview

The mainboard has drivers and utilities designed for the Intel 845 chipset. You can install AGP, IRQ, ACPI and IDE drivers together from the manufacturer's support CD. The support CD has an easy to use menu that enables you to automatically install the drivers and software that you want.

To start your mainboard CD disc, insert into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

The P8F151 CD include

1. Install Mainboard Software (Intel 845)
2. Install Audio Device Software (ALC)
3. Install RAID driver (Promise)
4. Install Intel USB2 driver (Intel USB2)



Click the links to install the listed software, read the online manual, read a list of the mainboard's features, or browse to the Freetech homepage.

You can also browse the CD and install the software manually from Windows Explorer We recommend that you install all of the supplied software and drivers items for maximum performance.

5.2.1. Intel chipset 845 INF driver

This folder has chipset 845 INF drivers for Windows Millennium/2000/98/95/XP.

The Installation Steps:

1. Insert the manufacturer CD-ROM into your CD-ROM drive.
2. Click **Driver** Install.
3. Select the folder **Driver\Intel\Inf** driver for WIN2000/9X/ME or XP 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.

5.2.2 . Intel chipset 845 Busmater IDE driver

This folder has chipset 845 Busmater IDE drivers for Windows Millennium/2000/98/95/NT.

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 **Driver\Intel\IAA\Disk1** driver for WIN2000/9X/NT40/ME 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.

5.2.3. ALC201 Audio Driver

Software and drivers are provided for the 82801DB codec sound system that is integrated on this mainboard. The 82801DB codec allows the system to generate optimal sound effects. Drivers are provided for Windows NT/2000/98SE/95/ME/XP.

The manual Installation Steps:

1. Insert the manufacturer's CD-ROM into your PC's CD-ROM drive.
2. Click **Driver** Install.
3. Select the folder **Driver\Sound\ALC** driver for WIN98SE, WIN2000/WIN95/WINNT/WINME/WINXP 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. 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