# P4A845
## (INTEL i845 Chipset, S-478)
## ATX Form Factor
## Main Board
### User's Manual
(Ver.:1.0)

## Copyright

Revision History

| Revision | Date | Release Notes |
|---|---|---|
| 1.0 | Sep. -2001 | First Official Release |

**Warning and disclaimer**

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# Table of Contents

*Important Warnings:*

**WARNING:** NEVER run the processor without the heatsink properly and firmly attached. This will damage the processor within SECONDS. Also do NOT try to use Pentium Heatsinks, these will NOT fit and do NOT provide adequate cooling.

*WARNING: Make sure your power supply can deliver the power your system needs. We recommend AT LEAST a 250W power supply. Even better, get a 300W power supply, especially when using many peripherals.*

# Chapter 1    Introduction

Thank you for purchasing this high quality motherboard, we are confident that you will be able to use this motherboard to your full satisfaction. This manual is divided into 6 main sections, as described below:
.
## Introduction
The introduction contains information on the main specifications for this motherboard, the package contents and cautionary notes.

## Hardware Installation
The Hardware Installation section is the most important in the manual. It describes in detail how to set the motherboard up for operation. Read all information and follow all steps, especially if you are a new user.

## Software Installation
The software section describes the drivers that need be installed to make your OS operates properly. The drivers are provided on the driver CD.

## BIOS Setup
Information on how to enter the BIOS setup and change settings is given here. In addition all individual BIOS items are described. Although some BIOS setting information is given in the hardware installation section where appropriate, refer to the BIOS Setup Section for details.

## Appendix
Provides useful information

## Q & A

# 1-1 Main Specifications

■ **PCB board size and form factor: 20.0cm x 30.5cm, ATX type.**

■ **PCB layer: 4 layers**

■ **Supported CPUs**
Can support the latest 400MHz system bus Socket-478 Intel P4 CPUs up to 2GHz.

■ **Intel i845 Chipset (Called MCH)**
The Intel® i845 chipset consists of the following main components: Intel® Memory Controller Hub (MCH) and the Intel I/O Controller Hub 2 (ICH2). All these components are interconneted via and Intel proproetary interface called Hub Interface. The Hub Interface is designed into the Intel 845 Chipset to provide efficient communication between components.
Additional hardware platform features include AGP 4x mode, PC 133 System memory, Ultra ATA/100, and Universal Serial Bus (USB). The platform is also ACPI compliant and supports Full-on , Suspend to Disk, and Soft-off power management states.

■ **Memory**
This motherboard comes equipped with three Dual Inline Memory Module (DIMM) sockets to support Intel PC100/ PC133 -compliant (8, 16, 32, 64, 128, or 256MB) DIMM modules up to 768MB.

■ **AGP (Accelerated Graphics Port)**
**Allows only AGP 2.0 including 4X AGP VGA cards.**

■ **PCI Expansion Slots**
With six 32-bit PCI (Rev. 2.2) expansion slots, which can support Bus Master PCI cards, such as LAN or Video-grabber cards (PCI supports up to 133MB/s maximum throughput), this motherboard is ready for the most demanding applications.

■ **CNR Slot**
A Communication Networking Riser (C.N.R.) slot can be fitted with CNR MODEM, or MODEM/ LAN 10/100M card.

■ **USB interface**
With support for up to 4 USB ports, two on-board, this motherboard provides ample USB expansion room.

■ **IDE interface**

This motherboard comes with an onboard PCI Bus Master IDE controller with two connectors that support four ATA66/ 33 devices on two channels. Supports UDMA/66, UDMA/33, PIO Modes 3 & 4 and Bus Master IDE DMA Mode 2, and Enhanced IDE devices, such as CD-R/ RW, DVD-ROM, CD-ROM, Tape Backup and LS-120 drives. An IDE-3/4 RAID function is optional.

■ **Super Multi-I/O**

This functionality is integrated into the southbridge of the chipset. It provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities.

■ **Infrared (IrDA) Connector**

This functionality is also integrated into the southbridge of the chipset. The IrDA connector supports an optional IR remote control device for wireless interfacing with external peripherals, personal gadgets, or an optional remote controller.

■ **System BIOS**

This motherboard comes with a 2MB BIOS that provides CPU/ SDRAM frequency, boot block write protection, and HD/ SCSI/ CD/ Floppy boot selection. DMI is also supported through BIOS, which allows hardware to communicate within a standard protocol creating a higher level of compatibility.

■ **Special Function**
A. **Suspend to memory (S3 mode) is an optional function.**
B. **AC-97 Sound Codec chip provides " amplifier" function.**

① *Only 4X AGP is acceptable.*
② *Must use P4 power supply.*

## 1-2 System Configurations

Below is the i845 chipset based system configuration:
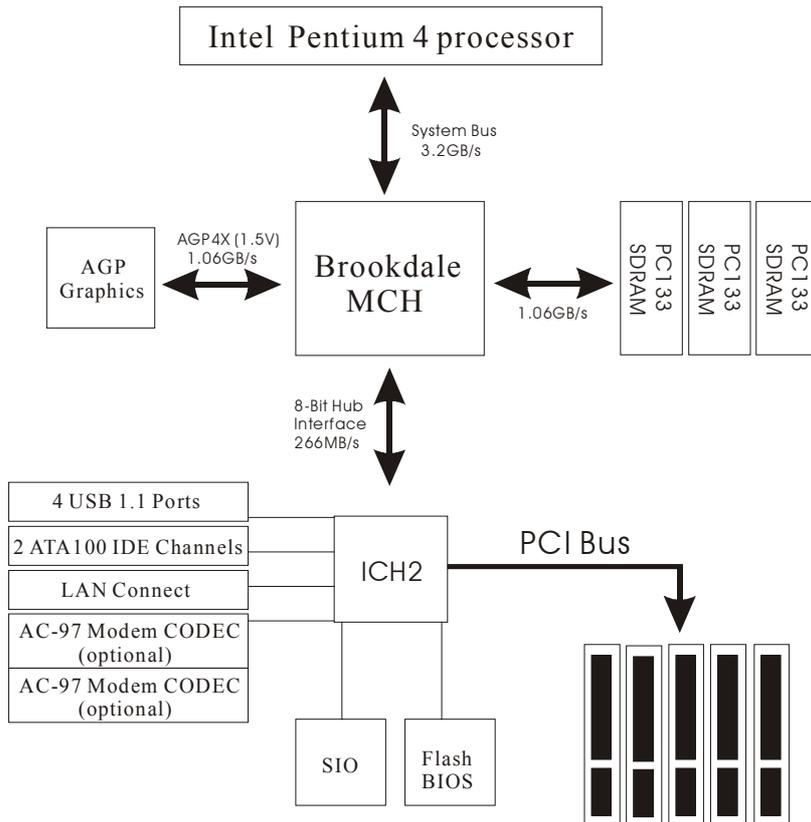
## 1-3  Notice of Hardware Installation

Before hardware installation, make sure you have checked the following things.

**A. Check the package**
If any of these items is missing or damaged, contact the dealer from whom you purchase. Leave this main board in its original package until you are ready to install it. In the package, there are:

➡ This motherboard

➡ 1 Manual

➡ 1 Driver Installation CD-ROM

➡ 1 IDE ATA 66/100 Flat-Cable

➡ 1 Floppy Disk Drive Flat-Cable
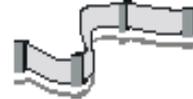
**B. Make sure power is off.**
During hardware installation, be sure that there is no power connected during this period.

**C. Avoid ESD (Electrical Static Discharge.)**
While installing the main board, wear a grounded wristband or ankle strap to avoid ESD (Electrical Static Discharge).

# Chapter 2  Installation

## 2-1   Component Locations



1   ATX Power Supply
2   AUX_1 Power Supply
3   CPU Socket-478
4   FAN2 & FAN3
5   DIMM
6   Intel i845 Chipset
7   IDE
8   FW82801BA
9   FDD
10  BIOS
11  AUX_PW1 Power Supply
12  FAN1
13  BATTERY
14  CNR Slot
15  WOL1
16  PCI slot
17  Sound Codec
18  CD1
19  AGP slot
20  GAME PORT
    LINE-IN
    LINE-OUT
    MIC-IN
21  LPT, COM
22  USB
23  PS/2 Mouse
   & K/B
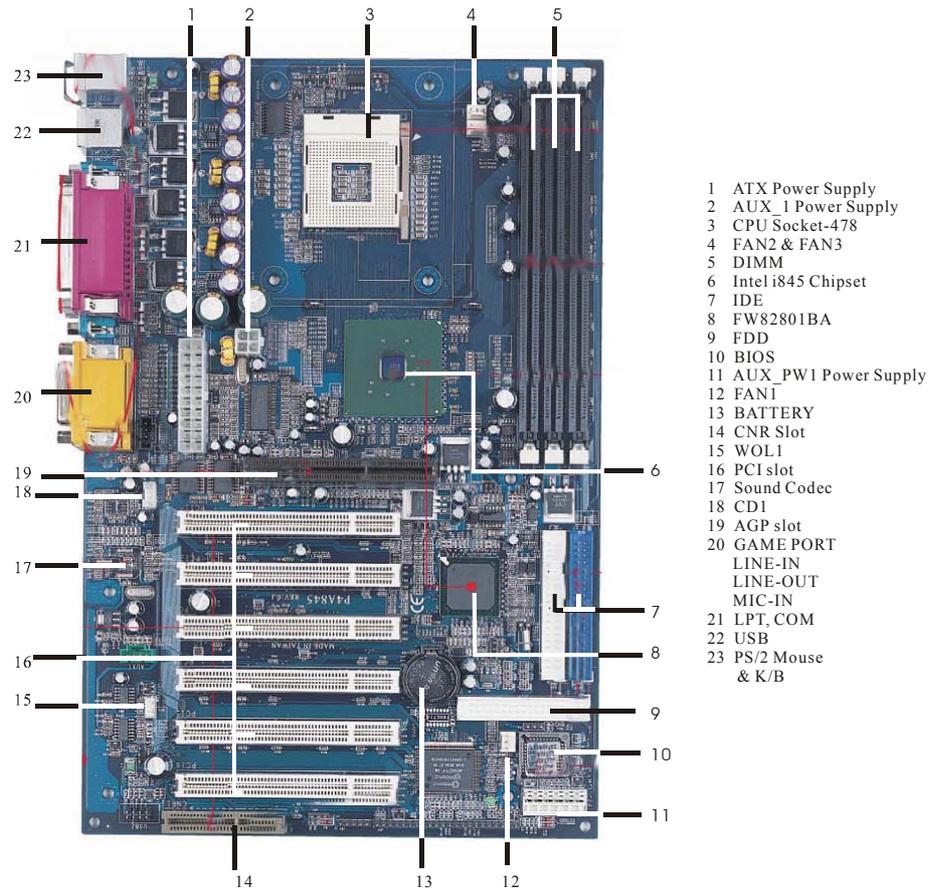
## 2-2 Layout Reference
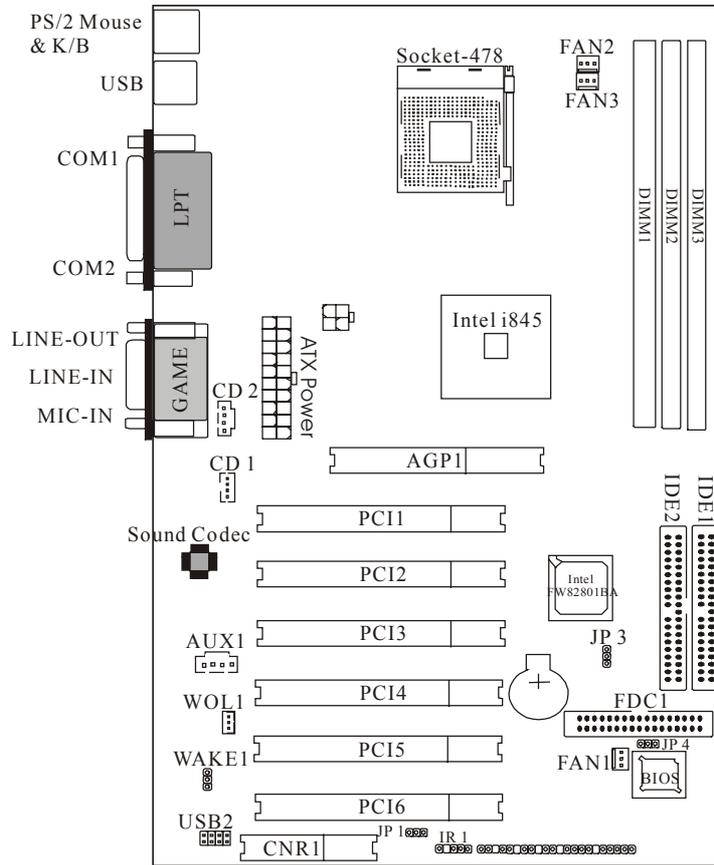
## 2-3  Jumper Setting

### 2-3-1  WAKE1:
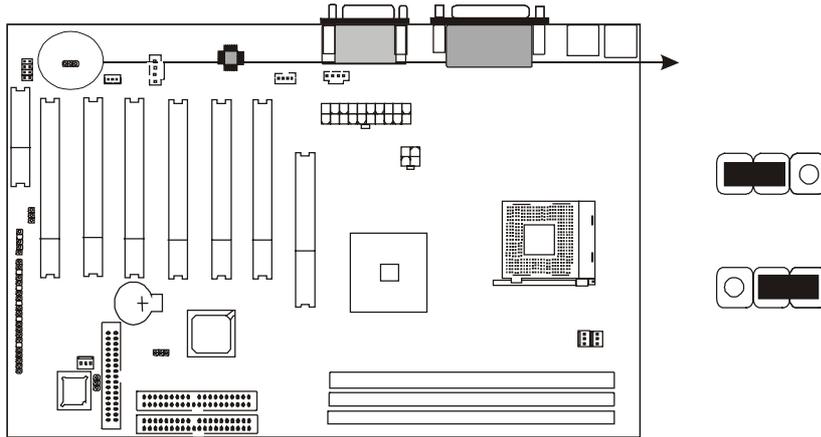


☞ JP1 & JP3 are reserved for vendor only.

## 2-4  CPU Installation

The first step in the installation of your CPU is the insertion of the CPU into the 478 pins CPU socket. Please follow the steps as outlined below carefully to avoid damage to the CPU.

**Avoid Static Electricity**
The Intel P4 processors and your motherboard contain sensitive electronic components that can be easily damaged by static electricity. We recommend that you leave the processor in its original packaging until you are ready to install it. You should only touch the edges of the processor, NEVER touch the processor pins to avoid static discharge.

First take a moment to inspect your CPU for obvious damage due to shipping or handling. Be sure that no noticeable damage exists before proceeding. You should have the following items:
☐    1 Intel P4 processor.
☐    1 good heatsink and fan assembly.

## Step 1
The following figure shows the processor socket. Note that the release lever on the right side of the socket is down and latched. This position is used to lock the processor in place. The lever must be raised to install the processor. To do this, first push the lever sideways to unlatch it, then raise it all the way up (approximately 90 degrees).



Step 2
The processor pin array at the top two corners is angled and has no pins in the corners. Notice that at the top of the socket on the motherboard (near where it says "Socket 478") the corners also do not have positions for pins. The processor must be positioned so the pins match up properly. When you do that, the corner of processor that is cut off will be positioned next to the release pivot.
It should take no force to install the processor, this is a zero insertion force (ZIF) socket. If it takes any force you are doing something wrong. Check the pin alignment and also make sure the release lever is raised up completely.

After placing the CPU lower the release lever to lock the processor in place.
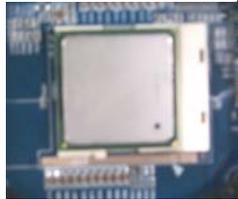


Now with the processor properly installed, you can proceed to install the heatsink. It is important to note that If you have never installed a heatsink on an Intel PIII or Celeron processor before it may be difficult. We recommend you do a dry run a few times before doing the final installation. To allow you to do this read the following instructions. Do not remove the film on the thermally conductive compound until you are ready to do the final installation.

**STOP** **WARNING:** *Never run the processor without the heatsink properly and firmly attached.*

## Step3

The picture below shows the bottom of the heatsink. Notice the step in the heatsink surface, this portion fits over the top of the socket, where the legend "Socket 478" is molded into the plastic. The heatsink must be mounted with this step above the top of the socket or the heatsink will not be touching the processor properly.



The next picture shows the removal of the plastic film from the thermally conductive compound. The thermal compound is a thin layer of material that increases the efficiency of the heatsink by filling microscopic surface voids in the processor or heatsink surface with a thermally conductive material. Please do not remove the plastic film until you have practiced installing the heatsink and mounting the clips on the socket. It can take a few tries to get used to doing this.

The following picture shows a side view of the heatsink with the retaining clip at the bottom of the heatsink. Make sure this retaining clip is at the bottom of the heatsink before trying to install it.



The following picture shows the non-moveable end of the heatsink retaining clip installed on the lug at the bottom of the processor socket. This end of the clip simply slides over the lug when you tilt the heatsink / fan assembly towards the lug.

Now lock the locking clip for the retaining strap over the lug at the other (pivot end) of the processor socket. This is an easy procedure after you do it a few times, but initially it will require you to use a finger on one hand to push the latch down and use your other hand to push the latch in. This is the part you need to practice to install the clip properly. When you are holding the heatsink, make sure you do apply pressure to the fan. You could damage it and cause thermal failure of the processor.


*WARNING:* Be careful not to scrape the motherboard during the mounting of the fan or else damage may occur to the motherboard.

Now connect the wire from the heatsink fan to the CP_FAN1 connector on the motherboard. This connector is keyed and can only be installed one way. If you use a heatsink assembly that has two cooling fans, connect one to CP_FAN and the other PW_FAN1. For more information on the FAN connectors, refer to the FAN connector section later in this section.

## 2-4-1  CPU and System Cooling

**There is no any jumper setting headed for CPU clock & Ratio set up for this motherboard.**

Any attempt to operate the Intel P4 Processor without a suitable cooling solution will result in permanent damage to the processor and potentially other components within the system.

**FAN Headers**

Your motherboard allows the use of in all 3 FANs. Of these 3 FANs, 1 can be used by the CPU Heatsink assembly. The other 2 FAN Headers allow connection of a Chassis Fan and a Power Supply FAN respectively. For a the location of the FAN connectors, refer to the following picture:
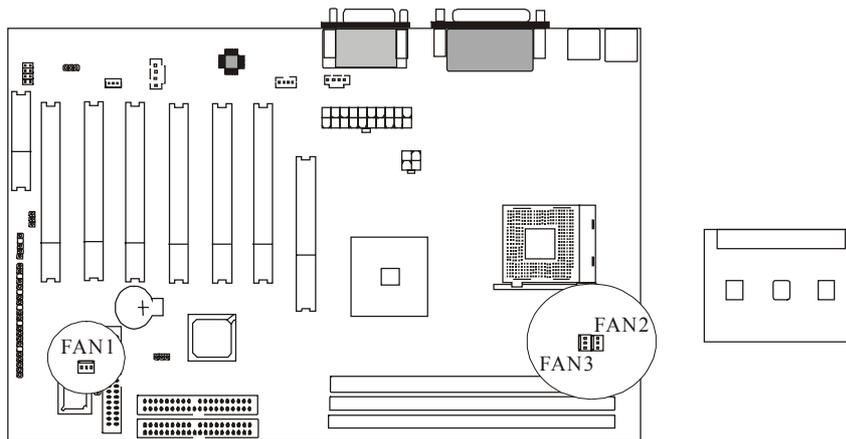
## 2-5  Connectors

There are many connectors on this main board. Refer to the following pages for details.

### 2-5-1   Front Panel

*Front panel* has connectors as "PW_SW," "SUS_LED," "HD_LED," "RESET," "SPKR.," "KEYLOCK," "PW_LED." Please refer the details as below.
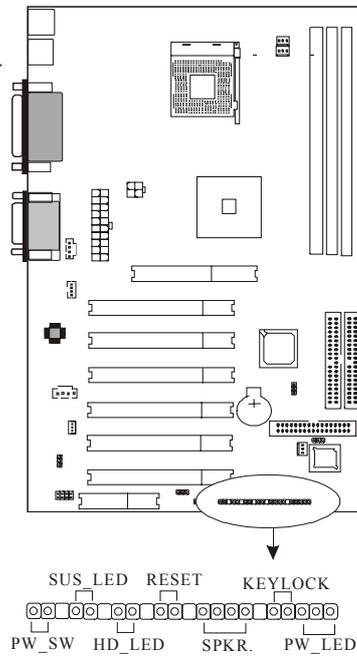
*PW_SW* with a 2-pin Berg strip on case front panel indicates the current power status of system. It is used to connect to the Power Button on the front panel of the case (if there is).

*SUS_LED*

*HD-LED* (Hard Disk activity LED connector) is a 2-pin keyed Berg strip. It is used to connect to front panel Hard Disk LED. This LED will light up whenever one of your IDE devices is being accessed.

*RESET connector* is a 2 -pin keyed Berg strip, connected to the push button reset switch on the case front panel. Shorting both pin 1 & pin 2 can reset the system, which is similar to the power off and then on again.

*SPKR.* is a 4-pin keyed Berg strip. This speaker connector is for the internal case speaker. This speaker will enable the BIOS to give spoken messages in case of boot up trouble. The BIOS been codes also use this speaker. For Games and Music this speaker will not be used, but rather the back panel line-out connector.

*PW-LED* is a 3-pin connector. It is used to connect to the LED on the case front panel. The LED shows the status of the power.

## 2-5-2   Back Panel Connectors

There are PS/2 keyboard/ mouse, USB, COM1/2, LPT1, MIC, LINE-IN, LINE-OUT and GAME Port on case back panel. Please refer to more details as below.
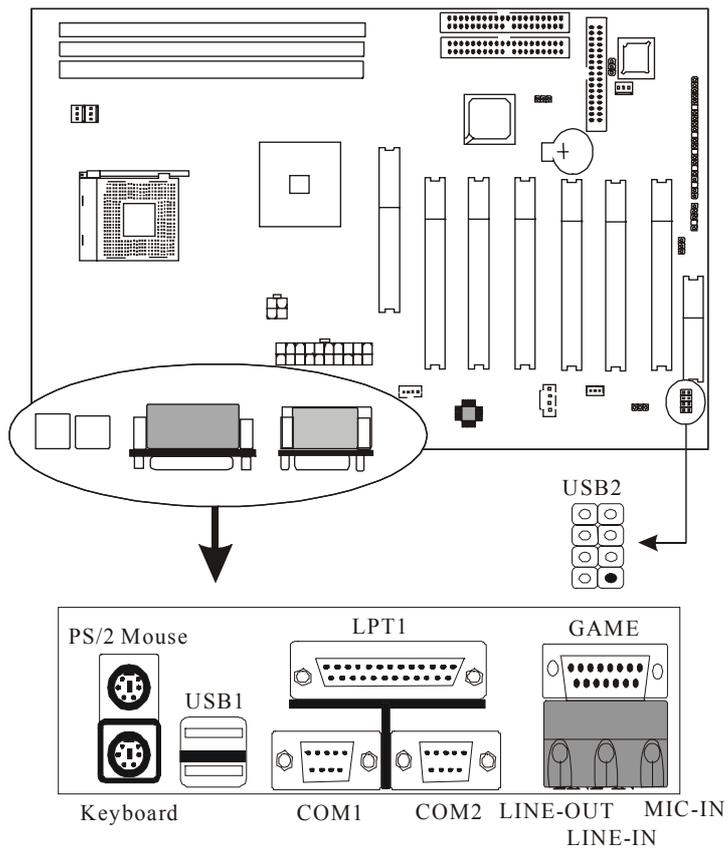
## COM1/COM2

*The onboard serial port 1 and port 2* are the 9-pin D-subminiature male connector **COM1 and COM2.** COM1 and COM2 can be disabled in BIOS setup. Please refer to Chapter 3 "Integrated Peripherals" for more information.

## PS2 Keyboard/ Mouse

*The Keyboard* can be plugged in in only one way. Please do nor force the connector in, it may get damaged by use of excessive force. It is easy to make the mistake of reversing the PS/2 keyboard and mouse connectors. If your keyboard does not work, check this first. The keyboard must be inserted into the lower connector.

*The Mouse* can be plugged in in only one way, too. Please do not force the connector in, it may get damaged by use of excessive force.

## LPT

*The onboard parallel port* is a 25-pin female connector. It supports standard printer port, Enhanced Parallel Port (EPP), Extended Capabilities Port (ECP), Standard Parallel Port (SPP).

## USB:USB (Universal Serial Bus) Connector

*Universal Serial Bus connector,* marked as "USB,"is used to connect USB devices. There are 2 USB connectors on this main board.

## Midi/Game Port & External Audio Connectors

Midi/Game port has 15 pins connecting to the game joystick. External Audio connectors are "LINE-OUT,LINE-IN, MIC-IN " for audio functions.

## 2-5-3   Power Supply Connector

This main board needs P4 power supply which contains ATX, AUX_1 & AUX_PW1 3 power connectors, *ATX power supply connector* has 20 pins, which is especially designed for ATX case. **AUX_1 power supply connector** has 4 pins. The ATX power supply supports the function of the **"Soft Power On Momentary switch"** which connects the front panel switch to the 2-pin **SOFT-PWR** on the system board**.** While the power switch on the back of ATX power is turned on, the full power will not go into the system board until the front panel switch is momentarily pressed. Push the switch again to turn off the power to the system board.
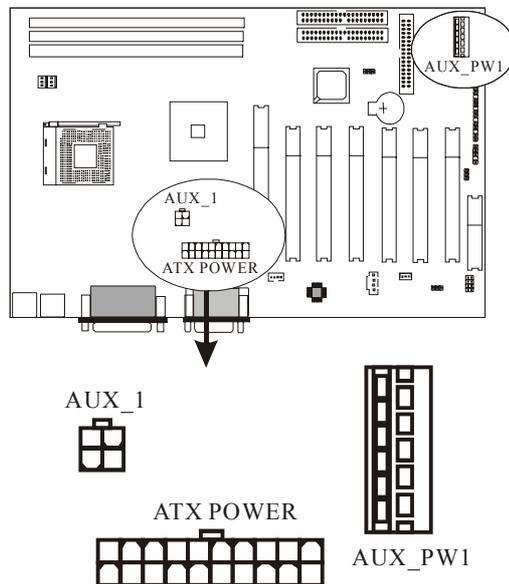
## 2-5-4  Floppy Disk Connector

*Floppy Disk Connector* has 34 pins and allows connection of a floppy drive. In all two floppy drives can be connected to the mother board, known as floppy A and B. The BIOS allows you to disable the floppy controller if you do not use any floppy driver, that will free an Interrupt. The BIOS also allows swapping of floppy A and B although this will not be useful to most users.
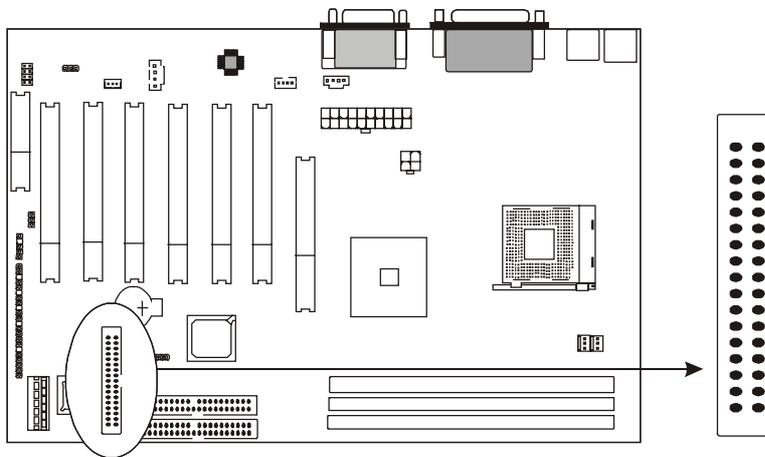
## 2-5-5  IDE1 and IDE2

The IDE connectors are used to connect IDE devices such as Harddisks and CD-ROM drives to the motherboard. Each connector constitutes an IDE channel, each channel accepts 2 IDE devices, one Master and one Slave. The IDE 1 connector is also known as the primary channel, IDE 2 is the secondary channel. Therefore the primary Master is the IDE device connected to IDE1 as Master, the primary Slave is the IDE device conneced to IDE 1 as Slave. Jumpers on the IDE device determine Master and Slave settings. Your harddisk or CD-ROM should have a sticker with jumper settings. Make sure that you set these jumpers correct. Please use the following advice as reference:

● If you have only device connected to an IDE connector, always set it as Master.
● If you have one HDD and CD-ROM in your system, then connect the HDD to IDE1 as Master, and the CD-ROM to IDE 2 as Master
● If you have one Harddisk and one CD-ROM connected to the same IDE connector set the HDD to Master and the CD-RAM to Slave.
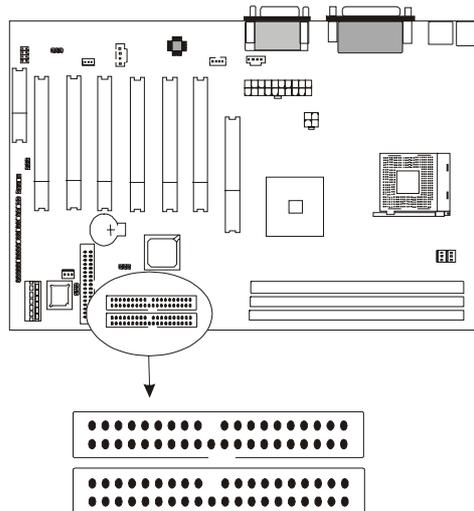
## 2-5-6  Internal Audio Connectors

Internal Audio Connectors are "CD_IN." It is a CD ROM external audio input signal to line-out (speaker) of the main board.

CD 1          CD 2
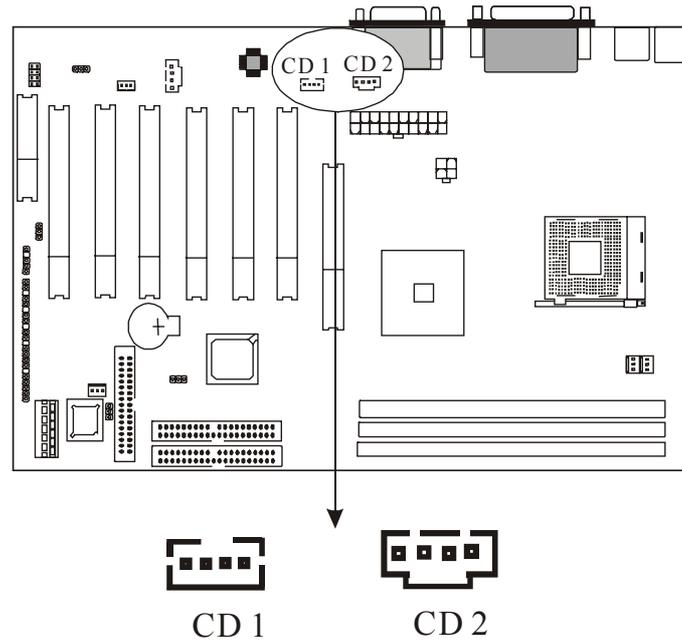
## 2-5-7  WOL1: Wake up on LAN (Optional)

**Wake up on LAN** marked as "WOL1," is a 3-pin connector. To support this feature, a network card is required for the system and network management software must be installed, too.
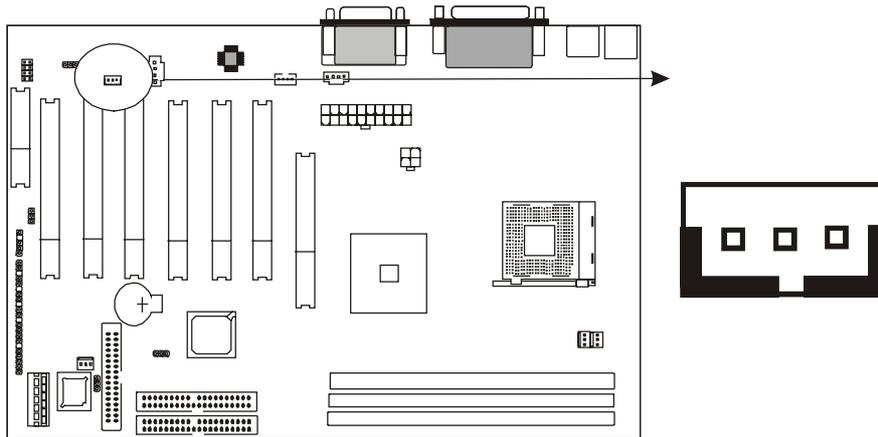


☞ **WOL1 (Wake up on LAN) function requirement:**
Power supply should be able to offer at least 1A current driving ability to the signal "5V trickle voltage."

## 2-6  Memory

This motherboard supports only Dual Inline Memory Modules (DIMMs). Two sockets are available for 3.3 Volt unbuttered SDRAM (Synchronous Dynamic Random Access Memory). The sizes that are supported are:8, 16, 32, 64, 128, or 256 , memory sizes between 8MB to 256MB can be formed this way. Refer to the picture below for the position of the DIMM slots:
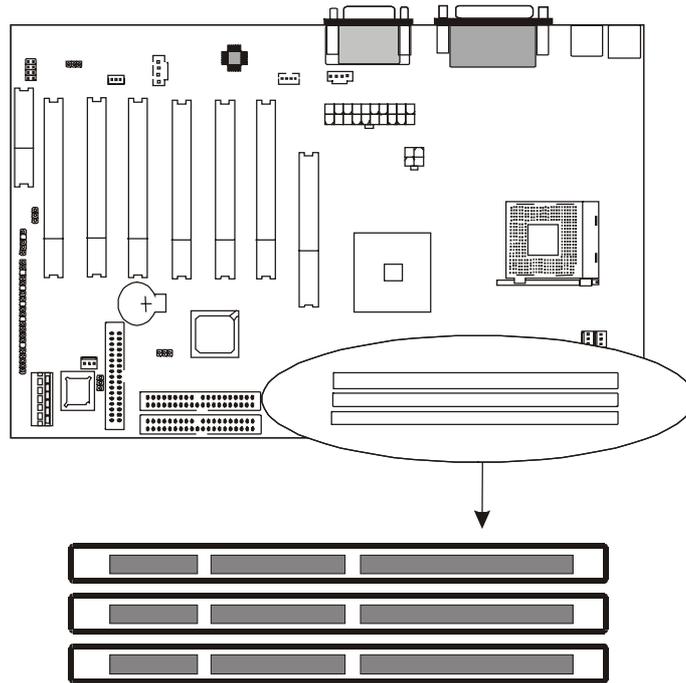


Memory speed is controlled through the BIOS, on the Advanced Chipset Features Setup page you will find several items related to SDRAM speed. Refer to the BIOS section for more details.

## 2-6-1 Memory Installation

The DIMM modules can be inserted in DIMM slots 1 to 2. Because of the two notches in the DIMM module it can be inserted in only one way. Please refer to the picture below for information on how to insert the DIMM modules.
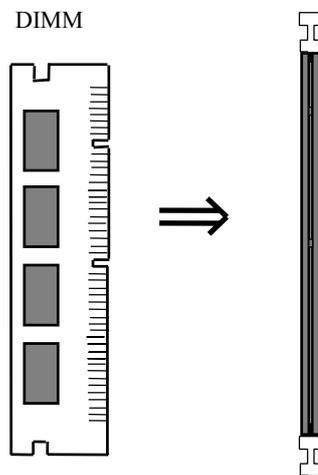
DIMM

# Chapter3    Software Install

## 3-1    Notice of CD Driver Installation

This CD contains below drivers. The user must read "Index" before installing required drivers.  Index offers all the information on all the drivers.
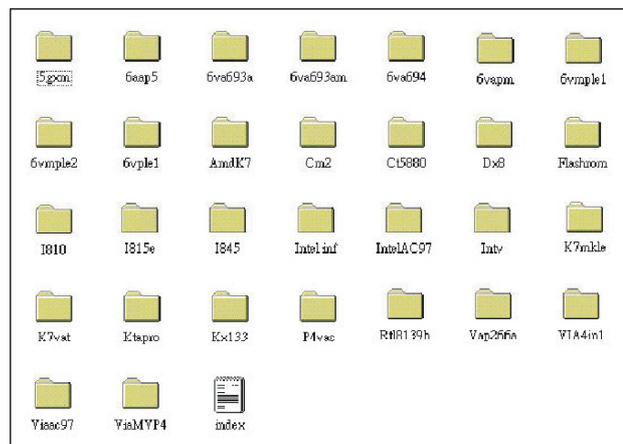


 *CD driver is always updated with the latest version, so the actual CD content may be somewhat different from the above picture.*

1.  **Main boards:** 5gxm, 6aap5, 6va693a, 6va693am, 6va694, 6vapm, 6vmpl, 6vmple1, 6vmple2, 6vple1, Amdk7, I810, I815e, I845, Intv, K7mkle, K7vat, Ktapro, Kx133, P4vas, Vap266a (**please select I845 directory for this main board)**
2.  **DX8:** Windows DirectX8 driver.
3.  **Flashrom**: BIOS flash upgrade utility .

## 3-2    How to Install Software Driver

**Installation Procedure:**
**1. Setup 1: Install 845 INF** (Path: root: \ Intel inf\ Setup.exe)
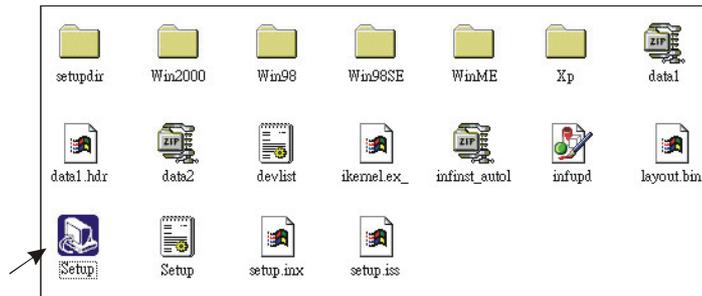


**2. Setup3: Install Sound Driver**
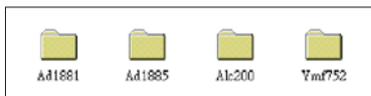


For Windows95: (Path: root: \ IntelAC97\ Alc\ Win95\ Setup.exe)
For Windows98: (Path: root: \ IntelAC97\ Alc\ Win98\ Setup.exe)
For Windows2000: (Path: root: \ IntelAC97\ Alc\ Win2000\ Setup.exe)
For WindowsNT: (Path: root: \ IntelAC97\ Alc\ Winnt\ Setup.exe)
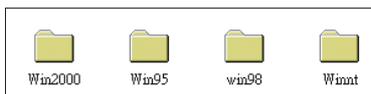
# Chapter4   The BIOS

The BIOS is a piece of software (Basic Input Output System) that performs most low level tasks. When you start up your system, the BIOS is the first code that gets to run. The BIOS resides in a FLASH ROM, and the code in the FLASH ROM can be updated through a special utility called AWDFLASH. (Award Flash). This is generally not necessary, but in some cases updating the BIOS is necessary to support new devices that were not on the market at the time the motherboard was released. For the physical location of the BIOS FLASH ROM IC on your motherboard, refer to the picture below:
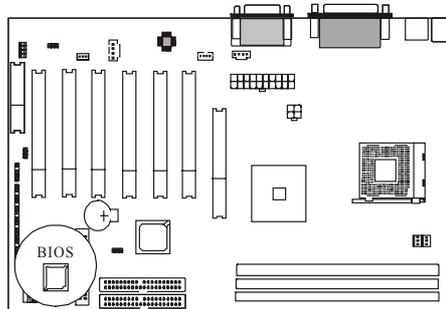


The BIOS IC is inserted in an IC socket, which means that it can be removed and exchanged for another IC if necessary.

## Is updating my BIOS necessary?

As a general rule if your system is functioning properly and you are not an experienced user, do not try to update the BIOS. Only if you have specific problems that a BIOS update may solve may it be advisable to update the BIOS.
The update process is pretty complex, and you should bear in mind that if updating the BIOS goes wrong you may render your system unbootable. Therefore, do not update unless you know what you are doing.

## Finding the latest official BIOS revision

For the latest official BIOS revision, please go to our website at www.lucky-star.com.tw. On the support page you can find the latest BIOS files for our motherboards.

## 4-1    Updating the BIOS

As said, this procedure is complicated, only update your BIOS when you experience

problems with your system. Because each BIOS release completely overwrites the previous version and there is no need to update to intermediate BIOS releases when updating the BIOS. Therefore always use the latest BIOS revision when doing a BIOS update. The BIOS update procedure is as follows:

- In order to flash update the BIOS, you will need 2 files:
  The BIOS binary file (.bin file from the website)
  AWDFLASH.EXE utility file. (This utility can be downloaded from our website)
- Create a directory on your C harddisk drive: and name it FLASH
- Put the BIOS .bin file and the AWDFLASH utility in the FLASH directory.
  **You may want to jot the BIOS .bin file name down on a piece of paper.**
- Restart the computer, press DEL to go into the BIOS, then please disable the following:
  System BIOS Cacheable (in Advanced Chipset Features)
  Video BIOS Shadow (in Advanced BIOS Features)
  Save the changes by selecting 'save and exit', and restart the computer.
- Press Ctrl + F5 just before Windows is starting up (right after the second BIOS screen) for a DOS boot, you will see the message "Windows is bypassing all your startup files". You end up at a DOS prompt.
- Now type *cd FLASH* to change to the newly created directory.
- Here type *AWDFLASH mybios.bin /py /cc /sn /cd*, where mybios.bin is the file name for the BIOS binary file you want your BIOS to upgrade to. Now the upgrading will begin.

> **WARNING:**
> *Do NOT in any way disturb the system during upgrading. If for any reason the system is stalled your system may not be able to boot again.*

- After the upgrading has ended press F1 to reset, press DEL to go into BIOS and make the following changes:
  Load Setup Defaults.

Go into the Frequency/Voltage Control page to adjust your CPU speed and voltage (please make sure the CPU voltage matches your CPU specs, in case of doubts leave it to 'default').

Save your settings and you are done.

## 4-2     The CMOS memory

The BIOS uses the CMOS memory to store all the settings that have been made through the BIOS Setup pages.

**Battery**
The CMOS memory remembers all settings, even when the system is switched off, by use of a 3V Lithium battery. If this battery runs low CMOS is unable to keep its settings and you will need to replace the battery. The BIOS will give you an error message when it detects a low battery voltage. The error message 'CMOS checksum error' may also point to a low battery problem.

**Restoring default settings**
You can load default values into the CMOS memory by selecting 'Load Optimized Defaults' in the BIOS Setup. If you need to force the CMOS settings to default without entering the BIOS Setup page you can use the JP6 jumper. For the location of the jumper and the battery, refer to the following picture:
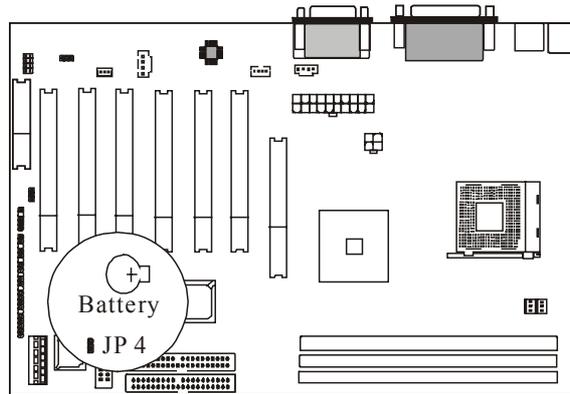


Normally JP4 will be in the 1-2 position, this will connect the battery to the southbridge of the chipset which contains the CMOS memory. If JP4 is temporarily set to 2-3 this will

interrupt the battery electricity flow, and the CMOS memory will be erased, this will however only work if the power supply is not switched on. Now at the next reboot the BIOS will automatically load the CMOS default values.

Take the following steps to clear CMOS memory:

- Take the power cord from the power supply.
- Temporarily set JP6 to 2 – 3, and set it back to 1 – 2.
- Put the power cord back and restart the system, the default values will be loaded.

**CMOS Status**

| JP4 | Retain CMOS settings | Clear CMOS Settings |
|---|---|---|
| **CMOS** | <br>1 2 3 | <br>1 2 3 |

The following part of this chapter will describe the individual BIOS Setup pages and all the items that can be adjusted to fine tune your system.

## 4-3 The BIOS Setup Pages

To enter the BIOS Setup pages, thke the following steps:
- Start up the system.
- After memory counting has finished, press [DEL] to enter the BIOS Setup pages.

Now the following menu will appear:

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | |
|---|---|
| ► Standard CMOS Features | ► Frequency/Voltage Control |
| ► Advanced BIOS Features | Load Fail-Safe Default |
| ► Advanced Chipset Features | Load Optimized Defaults |
| ► Integrated Peripherals | Set Supervisor Password |
| ► Power Management Setup | Set User Password |
| ► PnP/PCI Configurations | Save & Exit Setup |
| ►PC Health Status | Exit Without Saving |
| Esc : Quit        F9: Menu in BIOS | ↑↓→← : Select Item |
| F10 : Save & Exit Setup | |
| Time, Date, Hard Disk Type . . . | |

**Selecting items**

To Select items, use the following method:
- Use the arrow keys to move between items and select fields.
- Press [enter] to enter the selected submenu.

**Submenus**

All items that start with a ► are submenus. Pressing [enter] when a submenu is selected will enter that submenu.

## Modifying selected items

The [Up]/[Down] keys can be used to modify values within the selected fields. Note that some fields also let you enter values directly.

## Hot Keys

Throughout the BIOS Setup Pages the hot keys will give you access to a group of commands. Refer to the following table for the hot keys and their function:

| Key | Command | Description |
|---|---|---|
| F10 | Save & Exit Setup | Saves the changes made and reboots the system. |
| [Esc] | Quit | Returns to the previous menu |
| F1 | Help | General Help |
| F2 | Help | Help for specific item |
| F5 | Previous values | Restores the previous values. These are the values that the user started the current session with. |
| F7 | Optimized Defaults | Loads all options with the Optimized Default values. |

## Save & Exit Setup

When you select the [SAVE & EXIT SETUP] option from the Main Menu, all changes that you made will be saved to the CMOS memory and the setup utility will exit, rebooting your system.
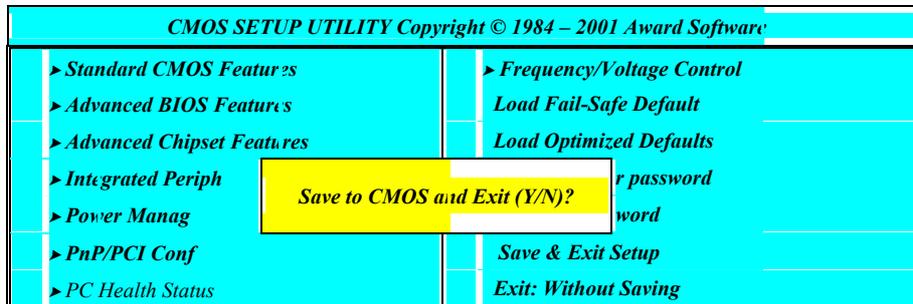


Pressing [Y] and [enter] will save the changes, pressing [N] and [enter] will keep the old settings.

**Exit Without Saving**

Selecting 'Exit Without Saving' will exit Setup without saving changes to CMOS.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | |
|---|---|
| ► Standard CMOS Features | ► Frequency/Voltage Control |
| ► Advanced BIOS Features | Load Fail-Safe Default |
| ► Advanced Chipset Features | Load Optimized Default |
| ► Integrated Periphral | r Password |
| ► Power Manag | *Quit without Saving (Y/N)?* sword |
| ► PnP/PCI Conf | Save & Exit Setup |
| ► PC Health Status | Exit: Without Saving |
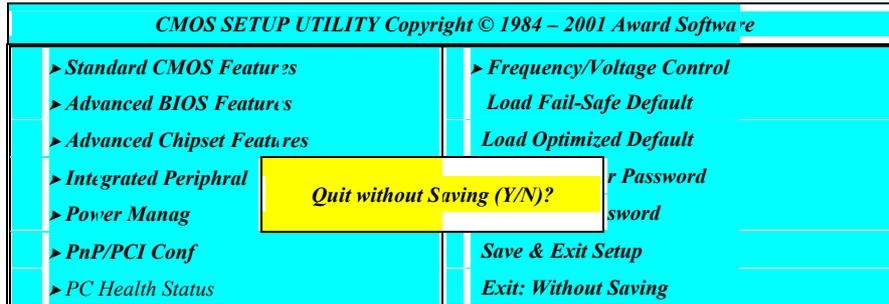
Pressing [Y] and [enter] will Exit without saving, pressing [N] and [enter] will not Exit.

## 4-3-1  Standard CMOS Setup

Select the [STANDARD CMOS SETUP] option from the Main Menu and press [Enter] key.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | | |
|---|---|---|
| **Standard CMOS Features** | | |
| Date (mm:dd:yy) | Mon, Aug 18, 2001 | Item Help |
| Time (hh:mm:ss) | 11 : 51 : 58 | |
| | | Menu Level ► |
| ► IDE Primary Master | Press Enter None | |
| ► IDE Primary Slave | Press Enter None | Change the day, month, year and Century |
| ► IDE Secondary Master | Press Enter None | |
| ► IDE Secondary Slave | Press Enter None | |
| Drive A | 1.44M, 3.5 in. | |
| Drive B | None | |
| Video | EGA / VGA | |
| Halt On | All,Errorsd | |
| Base Memory: | 640K | |
| Extended Memory: | 31744K | |
| Total Memory: | 32768K | |
| ↑↓→←: Move    Enter: Select    + / - / PU / PD: value    F10: save    ESC: Exit    F1: General Help | | |
| F5 : Previous Values    F6:Fail-Safe Defaults    F7: Optimized Defaults | | |

This screen allows you to change the basic CMOS Settings such as date and time, harddisk type etc. After you have made the changes you need to make press [ESC] to return to the main menu.

**Date and Time**

| | Default | Possible Settings | Notes |
|---|---|---|---|
| **Date** | Weekday, month, day ,year | Type the current date. (weekday auto changes) | Using the P-Up / P-Dn keys to toggle is possible |

| Time | hh:mm:ss | Type the current time | 24-hour clock format. (15:15:00 = 3:15:00) |
|------|----------|----------------------|---------------------------------------------|

**IDE Devices**

When you select one of the IDE devices, a submenu will pop up. Refer to the picture below.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software IDE xxxx | | |
|---|---|---|
| **IDE HDD Auto Detection** | Press Enter | **Item Help** |
| IDE Primary Master | Auto | Menu Level ►► |
| Access Mode | Auto | |
| | | To auto-detect the HDD's size, head… on this channel |
| Capacity | 0 MB | |
| Cylinder | 0 | |
| Head | 0 | |
| Precomp | 0 | |
| Landing Zone | 0 | |
| Sector | 0 | |

This Menu is the same for all 4 IDE devices:
- Primary Master IDE 1 first device
- Primary Slave   IDE 1 second device
- Secondary Master IDE 2 first device
- Secondary Slave   IDE 2 second device

| | Values | Meaning |
|---|---|---|
| IDE HDD Auto Detection | Press Enter | Pressing Enter will make the BIOS auto detect the IDE device on this channel. The result will be displayed below, starting with the 'capacity' item. (These items are read only) |
| IDE xxx | Auto | This will auto detect the device at each boot up. |
| | Manual | This will use the setting set by the user. No auto detection at start up will take place. |
| | None | This setting means no device is present. This will prevent the BIOS from looking for a device and speed up booting. |
| Access | CHS | Selects the CHS access mode. |

| Mode | LBA | Logical Block Addressing, for HDD drives larger than 504MB (All modern HDDs) |
|------|------|------|
| | Large | For very large HDDs. |
| | Auto | The BIOS will automatically detect the best access mode. |

**Drive A and Drive B**

The Drive A / B items allow you select the type of device that you have attached to the Floppy (FDD1) connector on the motherboard. You can select between different floppy disk drive types by using the Page-Up and Page-Down keys. If you press [enter] while Drive A or B is selected the following menu will pop up that will allow to choose a device as well:

| Drive X | | |
|---------|-----|-----|
| None | ... | [ ] |
| 360K, 5.25 in. | ... | [ ] |
| 1.2M, 5.25 in. | ... | [ ] |
| 720K, 3.5 in. | ... | [ ] |
| 1.44M, 3.5 in. | ... | [■] |
| 2.88M, 3.5 in. | ... | [ ] |
| | | |
| ↑↓ : Move   Enter:Accept   ESC: Abort | | |

**Video**

The Video item allows you to select a video mode. Since most modes are outdated we advise you to always select EGA/VGA. You can select between different video modes by using the Page-Up and Page-Down keys. If you press [enter] a menu pops up.

(Mono is for a monochrome screen that can only display one color)

| Video | | |
|-------|-----|-----|
| EGA/VGA | ... | [■] |
| CGA 40 | ... | [ ] |
| CGA 80 | ... | [ ] |
| MONO | ... | [ ] |
| | | |
| ↑↓ : Move   Enter:Accept   ESC: Abort | | |

**Halt On**

The BIOS will stop booting when an error is detected. You can set through this item what errors will stop the system booting. You can select between different error modes by using the Page-Up and Page-Down keys.

| | Values | Meaning |
|---|---|---|
| | All Errors | Stop booting on all errors. |
| | No Errors | Always Boot, no matter what error is detected. |
| | ALL, BUT KEYBOARD | Stop booting on all errors, but not on a keyboard error. |
| *Halt On* | All, but diskette | Stop booting on all errors, but a diskette error. |
| | All, but disk/key | Stop booting on all errors, but keyboard and diskette errors. |

## 4-3-2 BIOS Features Setup

Select the [Advanced BIOS Features] option from the Main Menu and press [Enter] key.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | | |
|---|---|---|
| Advanced BIOS Features | | |
| Virus Warning | Disabled | Item Help |
| CPU L1 & L2 Cache | Enabled | |
| CPU Fast-Strings | Enabled | Menu Level ► |
| Quick Power On Self Test | Enabled | Allows you to choose the VIRUS warning |
| First Boot Device | Floppy | feature for IDE Hard Disk boot sector |
| Second Boot Device | HDD 0 | protection. If this function is enabled and |
| Third Boot Device | LS 120 | someone attempt to write data into this area, |
| Boot Other Device | Enabled | BIOS will show a warning message on |
| Swap Floppy Drive | Disabled | screen and clarm beep. |
| Boot Up Floppy Seek | Disabled | |
| Boot Up NumLock Status | On | |
| Gate A20 Option | Fast | |
| Typematic Rate Setting | Disabled | |
| X Typematic Rate (Chars/Sec) | 6 | |
| X Typematic Delay (Msec) | 250 | |
| Security Option | Setup | |
| APIC Mode | | |
| MPS Version Control For OS | 1.4 | |
| OS Select For DRAM > 64 MB | Non-OS2 | |
| Report No FDD For WIN 95 | No | |
| ↑↓ → ← : Move    Enter: Select    + / -  /PU / PD: value    F10: save    ESC: Exit    F1: General Help | | |
| F5 : Previous Values    F6:Fail-Safe Defaults    F7: Optimized Defaults | | |

The screen is not as long on your monitor. You can use the arrow keys to scroll down and up the page. The following explains all individual items and their meaning.

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## Virus protection

| | Values | Meaning |
|---|---|---|
| *Virus Warning* | Enabled | The BIOS will give a beep and a warning whenever an attempt is made to write to the boot sector of the HDD. |
| | Disabled | The BIOS will allow write attempts to the boot sector |

## CPU Cache settings

| | Values | Meaning |
|---|---|---|
| *CPU L1 & L2 Cache* | Disabled | |
| | Enabled | |
| CPU Fast-Strings | Enabled | |
| | Disabled | |

## Quick Power On Self Test

| | Values | Meaning |
|---|---|---|
| *Quick Power On Self Test* | Enabled | The BIOS will execute test routines that test most parts of the motherboard during boot up. |
| | Disabled | The BIOS will skip the tests, speeding up the boot process. Errors will on the other hand not be detected. |

## Floppy Drive Settings

| | Values | Meaning |
|---|---|---|
| *Swap Floppy Drive* | Enabled | This will swap floppy A and B. Most systems not even have 2 floppy drives, so this item is irrelevant . |
| | Disabled | Floppy A and B are not swapped |
| *Boot-up Floppy Seek* | Enabled | The BIOS will test whether the floppy has 40 or 80 tracks during boot up. All new floppy drives are 80 tracks. |
| | Disabled | The BIOS will not test the amount of tracks. |

## Boot Devices

The first to third boot device items allow you to select what device the system should boot from. If the BIOS fails to boot from the first boot device, it will attempt to boot from the second boot device, if that fails too, the third boot device is tried. If you set the *boot other device* item to enabled, the BIOS will try to boot from other devices if the first to third choices all fail. If you set this item to disabled, the BIOS will not boot if the first to third devices all fail to boot.

| | Values | Meaning |
|---|---|---|
| *First ~ Third boot device* | Floppy | The system attempt to boot from diskette. (first boot device default) |
| | LS 120 | The system will attempt to boot from an attached LS 120 drive. (Third boot device default) |
| | HDD 0 | The system will attempt to boot from the first HDD. (Second boot device default) |
| | SCSI | The system will attempt to boot from the first device attached to the first SCSI interface. |
| | CD-ROM | The system will attempt to boot from the first CD-ROM found. |
| | HDD1 | The system will attempt to boot from the second HDD. |
| | HDD2 | The system will attempt to boot from the third HDD. |
| | HDD3 | The system will attempt to boot from the fourth HDD. |
| | ZIP100 | The system will attempt to boot from an attached ZIP 100 drive |
| | LAN | The system will attempt to boot over the network. You will require a LAN card with boot BIOS for this option to function. |
| | Disabled | This disables booting from this device. |

**Keyboard Typematic Rate and Delay Settings**
If you set the *typematic rate setting* item to disabled, the system will use the defaults of 6 and 250 for the rate and delay items. If you set it to enabled you can select the values yourself. Refer to the table below:

| | Values | Meaning |
|---|---|---|
| *Typematic Rate* | 6 ~ 30 | This value sets the amount of time a character is repeated per second if it is kept down on the keyboard. Choose from the following values: 6, 8, 10, 12, 15, 20, 24, 30. |
| *Typematic Delay* | 250 ~ 1000 | This value sets the amount of time in ms before a character starts repeating after it was pressed on the keyboard. Choose from 250, 500, 750 and 1000 ms. |

### Security Option

The security option item allows you to select when the password needs to be entered. Refer to the table below:

|  | Values | Meaning |
|---|---|---|
| *Security Option* | Setup | Password must be entered only when the user wants to enter the BIOS setup. |
|  | System | The password must always be entered at boot. |

### OS Select for DRAM > 64MB

|  | Values | Meaning |
|---|---|---|
| *OS select for DRAM > 64MB* | Non-OS2 | If your OS is not OS2, always select this setting. |
|  | OS2 | Select this setting only if your OS is OS2 |

### Report No FDD For WIN 95

|  | Values | Meaning |
|---|---|---|
| Report No FDD For WIN 95 | Yes |  |
|  | No |  |

# 4-3-3   Chipset Features Setup

Select the [Advanced BIOS Features] option from the Main Menu and press [Enter] key.

```
          CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software
                          Advanced BIOS Features
   ┌──────────────────────────────────┬─────────────┬─────────────────────────┐
   │  DRAM Timing Selectable          │  By SPD     │        Item Help        │
 X │  CAS Latency Time                │  3          │                         │
 X │  Active to Precharge Delay       │  6          │  Menu Level   ►         │
 X │  DRAM RAS# to CAS# Delay         │  3          │                         │
 X │  DRAM RAS# Precharge Time        │  3          │                         │
   │  DRAM Data Integrity Mode        │  Non-ECC    │                         │
   │  Memory Frequency For            │  Auto       │                         │
   │  System BIOS Cacheable           │  Enabled    │                         │
   │  Video BIOS Cacheable            │  Disabled   │                         │
   │  Video RAM Cacheable             │  Disabled   │                         │
   │  Memory Hole At 15M-16M          │  Disabled   │                         │
   │  Delayed Transaction             │  Enabled    │                         │
   │  AGP Aperture Size (MB)          │  64         │                         │
   │  Delay Prior to Thermal          │  16Min      │                         │
   └──────────────────────────────────┴─────────────┴─────────────────────────┘
    ↑↓→←: Move  Enter: Select  +/-/PU/PD: value  F10: save  ESC: Exit  F1: General Help
      F5 : Previous Values     F6:Fail-Safe Defaults   F7: Optimized Defaults
```

**SDRAM Timing**

If the DRAM Timing by SPD item is set to Enabled, the three items below will automatically be set be the BIOS. To do this the BIOS will read information out of the SPD EPROM that is located on the DIMM module, this information will tell the BIOS how to best accesses the memory. If you set this item to disabled, you can set the memory access items yourself. A word of warning though, if you are not familiar with DRAM settings does NOT make any changes (for the sake of system stability). Refer to the table below for the meaning of the individual DRAM items:

| | Values | Meaning |
|---|---|---|
| DRAM Timing Selectable | Normal | |
| | By SPD | |
| CAS Latency Time | 1.5 | |
| | 2 | |
| | 2.5 | |
| | 3 | |
| Active to Precharge Delay | 6 | |
| | 7 | |
| SDRAM RAS# to CAS# Delay | 2 | These controls the DRAM page miss and row miss lead off timing. |
| | 3 | |
| SDRAM RAS Precharge Time | 2 | SDRAM precharge time by RAS. |
| | 3 | |
| DARM Data | Non-ECC | |

| | | |
|---|---|---|
| Integrity Mode | ECC | |

## BIOS Cacheable

| | Values | Meaning |
|---|---|---|
| System BIOS Cacheable | Enabled | Define whether system BIOS area cacheable or not. |
| | Disabled | |
| Video BIOS Cacheable | Enabled | To define whether video BIOS area cacheable or not. |
| | Disabled | |

## Memory Hole

Some old devices need a memory hole to be present between 15M and 16M. CPU Cycles matching the hole will be passed on to the PCI bus instead of accessing the memory. Normally you can disable this setting, but if one of your devices needs it set it to enabled.

| | Values | Meaning |
|---|---|---|
| *Memory Hole at 15M-16M* | Disabled | There is no memory hole. |
| | Enabled | A memory hole exists between 15 and 16MB. |

## Delay Transaction

| | Values | Meaning |
|---|---|---|
| Delay Transaction | Enabled | |
| | Disabled | |

## AGPAperture Size (MB)

| | Values | Meaning |
|---|---|---|
| On-Chip Video Window Size | 4, 8, 16, 32, 64, 128, 256 | |

## 4-3-4 Integrated Peripherals

Select the [Integrated Peripherals] option from the Main Menu and press [Enter] key.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | | |
|---|---|---|
| **Integrated Peripherals** | | |
| Onchip Primary PCI IDE | Enabled | Item Help |
| Onchip Secondary PCIIDE | Enabled | |
| IDE Primary Master PIO | Enabled | |
| IDE Primary Slave PIO | Auto | Menu Level ➤ |
| 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 | Disabled | |
| Init Display First | PCI Slot | |
| AC97 Audio | Auto | |
| AC97 Modem | Auto | |
| IDE HDD Block Mode | Enabled | |
| POWER ON Function | BUTTON ONLY | |
| X   KB Power ON Password | Enter | |
| X   Hot Key Power ON | Ctrl-F1 | |
| Onboard FDD Controller | Enabled | |

```
    Onboard Serial Port 1        3F8/ERC4
    Onboard Serial Port 2        2F8/IRQ.
    UART Mode Select             Normal
X   RxD , TxD Active             Hi, Lo
X   IR Transmission Delay        Enabled
X   UR2 Duplex Mode              Half
X   Use IR Pins                  IR-Rx2Tx2
    Onboard Parallel Port        378/ IRQ7
    Parallel Port Mode           SPP
X   EPP Mode Select              EPP1.7
X   ECP Mode Select              3
    PWRON After PWR-Fail         Off
    Game Port Address            201
    Midi Port Address            Disabled
X   Midi Port IRQ                10

↑↓→←: Move   Enter: Select   + / -/ PU / PD: value   F10: save   ESC: Exit   F1: General Help
     F5 : Previous Values     F6:Fail-Safe Defaults   F7: Optimized Defaults
```

The screen is not as long on your monitor. You can use the arrow keys to scroll up and down the page.

### IDE Channel Settings

The following table explains IDE channel settings and what they mean:

|                | Values   | Meaning                                                                 |
|----------------|----------|-------------------------------------------------------------------------|
| Onchip Primary PCI IDE | Enabled  | Enables the use of the first (primary) IDE channel. |
|                | Disabled | This will disable the use of the first (primary) IDE channel. |
| Onchip Secondary PCI IDE | Enabled  | Enables the use of the secondary IDE channel. |
|                | Disabled | This will disable the use of the secondary IDE channel. |
| xxx PIO        | Auto     | The BIOS will assign a PIO mode to this device automatically when appropriate |
|                | Mode 0   | Select a PIO Mode here. PIO mode 0 is slowest, PIO mode 4 is fastest, check your HDD to see what PIO mode it supports.If your IDE device supports UDMA mode, then it best to enable that mode since it is considerably faster than PIO mode. (Set to auto for auto-detection) |
|                | Mode 1   | |
|                | Mode 2   | |
|                | Mode 3   | |
|                | Mode 4   | |
| xxx - UDMA     | Auto     | The BIOS will automatically use Ultra DMA Mode if the IDE device supports it. |
|                | Disabled | This will disable the use of Ultra DMA for this device. |
| IDE HDD Block Mode | Enabled  | Block mode allows faster transfer of data between the system and the HDD. Most modern HDDs support it. |

| | Disabled | Block Mode is not used. |
|---|---|---|

## USB Setting

| | Values | Meaning |
|---|---|---|
| *USB Controller* | Enabled | This will allow use of a USB drive. |
| | Disabled | If you do not need a USB drive, set this item to disabled. |
| USB Keyboard Support | Enabled | This will allow use of a USB keybaord. |
| | Disabled | If you do not need a USB keyboard, set this item to disabled. |

## Display Initialization

| | Values | Meaning |
|---|---|---|
| *Inie Display First* | PCI Slot | The BIOS will first search for a VGA adapter on the PCI bus, if one is found it will be used as primary display. |
| | Onboard | The onboard AGP is first scanned. |

## Floppy Drive

| | Values | Meaning |
|---|---|---|
| *Onboard FDD Controller* | Enabled | This will allow use of a floppy drive. |
| | Disabled | If you do not need a floppy drive, set this item to disabled. |

## AC97 Setting

| | Values | Meaning |
|---|---|---|
| *AC97 Audio* | Enabled | This will allow use of a onboard AC97 sound codec. |
| | Disabled | If you do not need a onboard AC97 sound codec, set this item to disabled. |
| AC97 Modem | Enabled | |
| | Disabled | |

## Power On Function

| | Values | Meaning |
|---|---|---|
| Power On Function | Any Key | Turn on power by click and key. |
| | Button Only | Only push power-on button. |
| | Keyboard 98 | Click with muti-media keyboard power-on |
| | Password | Power-on after key-in password (Must key-in password first). |
| | Hot Key | Power-on by not key (must set hot-key first). |

| | Mouse Lelt | Power-on when mouse left key click |
|---|---|---|
| | Mouse Right | Power-on when mouse right key dick. |
| *KB Power On Password* | Enter | |
| *Hot Key Power On* | Ctrl-F1~ Ctrl-F12 | |

## COM ports (Serial Ports)

| | Values | Meaning |
|---|---|---|
| *Onboard serial port 1 / 2* | Auto | The bios will automatically use serial ports. |
| | Disabled | If you do not need the serial port in question, set this item to disabled. |
| | 3F8/IRQ4 | Set an IO address and an IRQ to be used by serial ports. |
| | 2F8/IRQ3 | |
| | 3E8/IRQ4 | |
| | 2E8/IRQ3 | |

## IR Control

| | Values | Meaning |
|---|---|---|
| *UART Mode Select* | Normal | |
| | IrDA | Allows use of the IR port in IrDA mode. |
| | ASKIR | Allows use of the IR port in ASKIR mode. |
| | SCR | Allows use of the IR port in SCR mode. |
| *UR2 Duplex Mode* | Half | Select if your IR device supports Half duplex only. |
| | Full | For IR devices that support full duplex. |

## Parallel Port (Printer Port)

| | Values | Meaning |
|---|---|---|
| *On board Parallel Port* | Disable | Disables use of the parallel port. |
| | 3BC / IRQ7 | Select an IO Address and an IRQ to be used by the parallel port. |
| | 378 / IRQ7 | |
| | 278 / IRQ5 | |
| *Parallel Port Mode* | SPP | Enables use of SPP devices. |
| | EPP | Enables use of EPP devices. |
| | ECP | Enables use of EPP devices. |
| | ECP + EPP | Enables use of ECP + EPP devices. |
| *ECP mode use DMA* | 1 or 3 | Select either DMA channel 1 or 3 (This is only relevant if ECP was selected above). Default is channel 3. |

**PWRON After PWR-Fail**

|  | Values | Meaning |
|---|---|---|
| *PWRON After PWR-Fail* | Off | Default |
| | On | Power-on when power-fail |
| | Former-Sts | If before power-fail is power-on (off) then turn on (off) PC |

**MIDI**

|  | Values | Meaning |
|---|---|---|
| *Midi Port Address* | 300 | Set mpu401 port address at 300. |
| | 330 | Set mpu401 port address at 330. |
| | Disabled | Without midi port or none AC97 m/b |
| *Midi Port IRQ* | 5 | Set mpu-40 port IRQ address at 5. |
| | 10 | Set mpu-40 port IRQ address at 5. |

**Game Port**

|  | Values | Meaning |
|---|---|---|
| *Game Port* | 201 | Setting game port address at 201 |
| | 209 | Setting game port address at 209. |
| | Disabled | Disabled game port. |

## 4-3-5 Power Management Setup

Select the [Power Management Setup] option from the Main Menu and press [Enter] key.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | | |
|---|---|---|
| Power Management Setup | | |
| ACPI Function | Enabled | Item Help |
| ACPI Suspend Type | S1 (POS) | Menu Level ➤ |
| Power Management | User Define | |
| Video Off Method | DPMS | |
| Video Off In Suspend | Yes | |
| Suspend Type | Disabled | |
| MODEM Use IRQ | 3 | |
| Suspend Mode | Disabled | |
| HDD Power Down | Disabled | |
| Soft-Off by PWRBTN | Instant-Off | |
| Wake-Up by PCI & LAN | Disabled | |
| Power On by Ring | Enabled | |
| USB KB Wake-Up Form S3 | Disabled | |
| Resume by Alarm | Disabled | |
| X Date(Of Month) Alarm | 0 | |
| X Time(hh: mn : ss) Alarm | 0      0      0 | |

| ** Reload Global Timer Events ** | | |
|---|---|---|
| Primary IDE 0 | Disabled | |
| Primary IDE 0 | Disabled | |
| Secondary IDE 0 | Disabled | |
| Secondary IDE 1 | Disabled | |
| FDD, COM, LPT Port | Disabled | |
| PCI PIRQ[A-D]# | Disabled | |

↑↓ → ← : Move   Enter: Select   PU / PD / + / - : value   F10: save   ESC: Exit   F1: General Help
F5 : Previous Values     F6:Fail-Safe Defaults     F7: Optimized Defaults

| | Values | Meaning |
|---|---|---|
| ACPI Function | Enabled | |
| | Disabled | |
| Power Management | User Define | The three items below can be set by the user |
| | Min Saving | The three items below are set to: disabled, 1 hour, 1hour respectively. |
| | Max Saving | The three items below are set to: disabled, 1 min, 1min respectively. |
| HDD Power Down | 1 – 15 Min | Will power down the HDD if it is idle for the amount of minutes selected here. |
| | Disabled | Will not power down the HDD. |
| Suspend Mode | 1 Min to 1 Hour | Selecting a time will force the system into suspend mode after being idle for that time. Choose from the following time intervals: 1, 2, 4, 6, 8, 10, 20, 30, 40 min and 1 Hour |
| | Disabled | The system will never enter suspend mode. |

**Video Options**

| | Values | Meaning |
|---|---|---|
| Video Off Method | Blank Screen | The screen will be blank (black) only. |

| | | |
|---|---|---|
| | V/H sync + blank | The vertical and horizontal sync pulses will be stopped, and the screen will be blank. |
| | DPMS support | If your monitor supports DPMS, it can be switched off through that. |
| *Video Off In Suspend* | Yes | |
| | No | |
| *Suspend Type* | Stop Grant | |
| | PwrOn Suspend | |

## Modem IRQ

| | Values | Meaning |
|---|---|---|
| *Modem Use IRQ* | NA | This disables the modem IRQ |
| | 3 - 11 | Select an IRQ line that will be assigned to your modem here. Choose from: 3 (default), 4, 5, 7, 9, 10, 11. |

## Power Button

| | Values | Meaning |
|---|---|---|
| *Soft off by power button* | Instant-off | Switches the system off immediately when pressing the power button. |
| | Delay 4 Sec | This requires you to press the power button for at least 4 seconds before the system switches off. |

## Wake Events

| | Values | Meaning |
|---|---|---|
| *Wake-Up By PCI Card* | Enabled | Allow the system to wake up on a PCI card IRQ. |
| | Disabled | Will not allow the system to wake up on a IRQ form a PCI card. |

## Resume By Alarm

| | Values | Meaning |
|---|---|---|
| *Resume By Alarm* | Enabled | You can set the date and time on RTC (real-time clock) alarm awaken a system which has been powered down. |
| | Disabled | Disabled this function. |

## Date Setting

|  | **Values** | **Meaning** |
|---|---|---|
| *Date (of Month) Alarm/ Time (HH:MM:SS)* |  | You can set the date (of month) and timer (hh:mm:ss), any event occurring will awaken a system which has been powered down. |

**IDE**

|  | **Values** | **Meaning** |
|---|---|---|
| *Primary (Secondary ) IDE 0/1* | Enabled | Enabled monitor Primary (Secondary) IDE 0/1 for Green event/ |
|  | Disablec | Disabled this function. |

**FDD, COM, LPT Port**

|  | **Values** | **Meaning** |
|---|---|---|
| *FDD, COM, LPT Port* | Enabled |  |
|  | Disabled |  |

**Wake Events**

|  | **Values** | **Meaning** |
|---|---|---|
| *PCI PIRQ {A-D}#* | Enabled |  |
|  | Disabled |  |

# 4-3-6   PnP / PCI Configurations

Select the [PnP / PCI Configurations] option from the Main Menu and press [Enter] key.

| *CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software* |
|---|
| *PnP / PCI Configurations* |

| | Reset Configuration Data | Disabled | Item Help |
|---|---|---|---|
| | | | |
| | Resources Controlled by | Auto (ESCD) | Menu Level ➤ |
| X | IRQ Resources | Press Enter | |
| | | | Default is Disabled. Select Enabled to reset |
| | PCI/VGA Palette snoop | Disabled | Extended System Configuration Data ESCD> |
| | | | When you exit Setup if you have installed a new |
| | | | add-on and the system reconfiguration has |
| | | | Cause such a serious conflict that the OS |
| | | | cannot boot |

↑↓→←: Move   Enter: Select   + / - /PU / PD: value   F10: save   ESC: Exit   F1: General Help

## Reset Configuration Data

| | Values | Meaning |
|---|---|---|
| *Reset Configuration Data* | Disabled | This will not reset the system configuration data (IRQs, DMAs) on reboot. |
| | Enabled | This will reset the configuration data. Remember to enable this item every time you make a change to your system (such as switching PCI cards etc). |

## Resources Controlled by

| | Values | Meaning |
|---|---|---|
| *Resources Controlled By* | Manual | The table will show the below items: **"Reset Configuration Data, IRQ-3 assigned to, DMA-0 assigned to."** The user can adjust the shown items as required. |
| | Auto | The table will not show the above items, and the system will automatically assign the above setup. |

## Resources

If you set the Resources Controlled by item to Auto (ESCD), the BIOS will manage all resources for you. If you set it to manual to two items below will allow you to assign the resources manually.

| | Values | Meaning |
|---|---|---|
| *IRQ-x assigned to (x = 3 to 15)* | PCI/ISA PnP | This setting means the BIOS will assign the interrupt as needed. This means that it is not fixed to a device |
| | Legacy ISA | If you need to make sure that a certain interrupt is assigned to an ISA device, set that interrupt to legacy ISA. |
| *DMA-x assigned to (x = 0, 1, 3, 5, 6, 7)* | PCI/ISA PnP | This setting means the BIOS will assign the DMA Channel as needed, it is not fixed to a device |
| | Legacy ISA | If you need to make sure that a certain DMA channel is assigned to an ISA device, set that channel to legacy ISA. |

## PCI / VGA Palette Snoop

| | Values | Meaning |
|---|---|---|

| | Disabled | Default setting. |
|---|---|---|
| PCI / VGA Palette Snoop | Enabled | This will allow the system to look at the palette the VGA uses to display. Some applications speed up with this setting but it is mostly obsolete. |

# 4-3-7  PC Health Status

Select the [PC Health Status] option from the Main Menu and press [Enter] key.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | | |
|---|---|---|
| **PC Health Status** | | |
| CPU Warning Temperature | Disabled | Item Help |
| System Temperature | | |
| CPU Temperature | | Menu Level ➤ |
| FAN 1 Speed | | |
| FAN 2 Speed | | |
| FAN 3 Speed | | |
| Vcore | | |
| Vcc.   +3.3V | | |
| Vcc.   +5.0V | | |
| Vcc.  + 12.0V | | |
| Vcc.  - 12.0V | | |

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| | | |
|---|---|---|
| *Vcc.    -  5.0V* | | |
| *VBAT 3.0V* | | |
| *5VSB 5.0V* | | |
| *Shutdown Temperature* | *Disabled* | |

↑↓→←: Move   Enter: Select  + / - / PU / PD: value   F10: save    ESC: Exit   F1: General Help
  F5 : Previous Values     F6:Fail-Safe Defaults   F7: Optimized Defaults

**CPU Warning Temperature**

| | Values | Meaning |
|---|---|---|
| *CPU Warning Temperature* | Disabled | |
| | 50℃/ 122°F, 53℃/ 127°F, 56℃/ 133°F, 60℃/ 140°F, 63℃/ 145°F, 66℃/ 151°F, 70℃/ 158°F, | |

| | Values | Meaning |
|---|---|---|
| *Shutdown Temperature* | Disabled | |
| | 60℃/ 140°F, 65℃/ 149°F, 70℃/ 158°F, 75℃/ 167°F, | |

# 4-3-8    Frequency/ Voltage Control

Select the [Frequency / Voltage Control] option from the Main Menu and press [Enter] key.

| *CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software* | | |
|---|---|---|
| *Frequency / Voltage Control* | | |
| *CPU Clock Radio* | *X8* | *Item Help* |
| *Auto Detect PCI Clk* | *Enabled* | |
| *Spread Spectrum* | *Disabled* | *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

CPU Clock Ratio

| | Values | Meaning |
|---|---|---|

| CPU Clock Ratio | X8 ~ X23 | |
|---|---|---|

**Auto Detect PCI Clk**

| | Values | Meaning |
|---|---|---|
| *Auto Detec DIMM/ PCI Clk* | Enabled | If set to enabled the BIOS will detect the values for the PCI clock. |
| | Disabled | If disabled, the BIOS will use the values set on this page and on the Advanced Chipset Features page. |

**Spread Spectrum**

| | Values | Meaning |
|---|---|---|
| *Spread Spectrum* | Enabled | |
| | Disabled | |

# 4-3-9  Passwords

The BIOS Setup program allows you to specify passwords in the Main menu. The passwords control access to the BIOS during system startup. The passwords are not case sensitive. In other words, it makes no difference whether you enter a password using upper or lowercase letters. The BIOS Setup program allows you to specify two separate passwords:

- Supervisor password
- User password.

The function of the supervisor password depends on the setting for the Security Option item on the Advanced BIOS Features page. If set to System, the supervisor password must
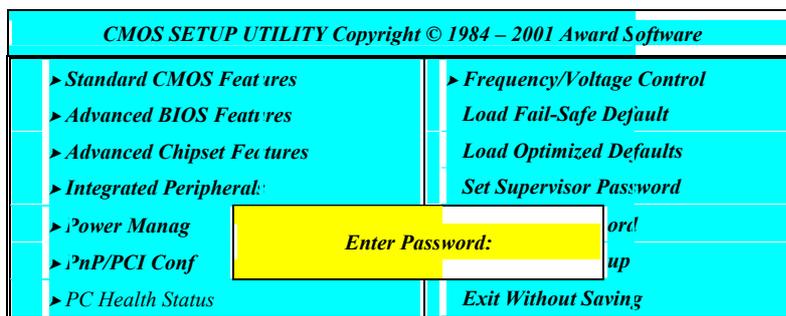
be given every time the system boots, if set to setup, the password must be given only when you want to enter the BIOS Setup.

The user password has the same functionality, with the only difference that anybody logging in with the user password may only change the user password when entering the BIOS Setup page. All other items in the BIOS Setup will be disabled (unchangeable).

When both passwords are disabled, anyone may access all BIOS Setup program functions.

### Setting the password
To set the Supervisor password, select the Set Supervisor Password item in the main BIOS Setup Menu. Now a dialog will pop up asking you to enter a password.

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | |
| --- | --- |
| ► Standard CMOS Features | ► Frequency/Voltage Control |
| ► Advanced BIOS Features | Load Fail-Safe Default |
| ► Advanced Chipset Features | Load Optimized Defaults |
| ► Integrated Peripherals | Set Supervisor Password |
| ► Power Manag | Enter Password: | ord |
| ► PnP/PCI Conf | | up |
| ► PC Health Status | Exit Without Saving |

Now you can enter your password, after entering the password the menu will pop up again and will ask you to reconfirm the password. After entering and pressing [enter] the password will be stored to CMOS RAM and the password will be enabled.

### Disabling the password
To disable the password, simply press [enter] without entering any other letters or numbers. This will disable the password, the BIOS will tell you by displaying the following dialog:

| CMOS SETUP UTILITY Copyright © 1984 – 2001 Award Software | |
| --- | --- |
| ► Standard CMOS Features | ► Frequency/Voltage Control |
| ► Advanced BIOS Features | Load Fail-Safe Default |
| ► Advanced Chipset Features | Load Optimized Defaults |
| ► Integrated Peripherals | Set Supervisor Password |
| ► Power Manag | Password Disabled!!! | ord |
| ► PnP/PCI Conf | Press any key to continue | up |

| ▶ PC Health Status | Exit Without Saving |
|---|---|

**Password Unknown**

If you forgot the password, you can clear the password by erasing the CMOS RAM. The RAM data containing the password information is powered by the onboard button cell battery. Please refer to the CMOS RAM section earlier in this chapter. After clearing the CMOS memory, hold down <Delete> during bootup and enter BIOS setup to re-enter user preferences.

# Chapter 5    Appendix

## 5-1   Memory Map

| Address range | Size | Description |
|---|---|---|
| 00000-7FFFF | 512K | Conventional memory |
| 80000-9FBFF | 127K | Extended conventional memory |
| 9FC00-9FFFF | 1K | Extended BIOS data area if PS/2 mouse is installed |
| A0000-C7FFF | 160K | Available for hi DOS memory |

| C8000-DFFFF | 96K | Available for hi DOS memory and adapter ROMs |
|---|---|---|
| E0000-EEFFF | 60K | Available for UMB |
| EF000-EFFFF | 4K | Video service routine for monochrome & CGA adapter |
| F0000-F7FFF | 32K | BIOS CMOS setup utility |
| F8000-FCFFF | 20K | BIOS runtime service routine (2) |
| FD000-FDFFF | 4K | Plug and play ESCD data area |
| FE000-FFFFF | 8K | BIOS runtime service routine (1) |

## 5-2  I/O Map

| 000-01F | DMA controller (master) |
|---|---|
| 020-021 | Interrupt controller (master) |
| 022-023 | Chipset control registers. I/O ports |
| 040-05F | Timer control registers |
| 060-06F | Keyboard interface controller (8042) |
| 070-07F | RTC ports & CMOS I/O ports |
| 080-09F | DMA register |
| 0A0-0BF | Interrupt controller (slave) |
| 0C0-0DF | DMA controller (slave) |
| 0F0-0FF | Math coprocessor |

| | | |
|---|---|---|
| 1F0-1FB | Hard disk controller | |
| 278-27F | Parallel port 2 | |
| 2B0-2DF | Graphics adapter controller | |
| 2F8-2FF | Serial port 2 | |
| 360-36F | Network ports | |
| 378-37F | Parallel port 1 | |
| 3B0-3BF | Monochrome & parallel port adapter | |
| 3C0-3CF | EGA adapter | |
| 3D0-CDF | CGA adapter | |
| 3F0-3F7 | Floppy disk controller | |
| 3F8-3FF | Serial port-1 | |

## 5-3  Time & DMA Channels Map

**Time map:**

   Timer channel 0 system timer interrupt
   Timer channel 1 DRAM refresh request
   Timer channel 2 speaker tone generator

**DMA channels:**

   DMA channel 0 available

DMA channel 1 onboard ECP (option)
DMA channel 2 floppy disk (SMC chip)
DMA channel 3 onboard ECP (default)
DMA channel 4 cascade for DMA controller 1
DMA channel 5 available
DMA channel 6 available
DMA channel 7 available

## 5-4  Interrupt Map

**NMI:**   non-maskable interrupt

**IRQ(H/W):**
0 system timer interrupt from timer 0
1 keyboard output buffer full
2 cascade for IRQ 8-15
3 serial port2
4 serial port1
5 parallel port 2

6 floppy disk (SMC chip)
7 parallel port 1
8 RTC clock
9 available
10 available
11 available
12 PS/2 mouse
13 math coprocessor
14 onboard hard disk (IDE1) channel
15 onboard hard disk (IDE2) channel

## 5-5  RTC & CMOS RAM Map

RTC & CMOS :
00    seconds
01    seconds alarm
02    minutes
03    minutes alarm
04    hours
05    hours alarm
06    day of week
07    day of month

08    month
09    year
0a    status register a
0b    status register b
0c    status register c
0d    status register d
0e    diagnostic status byte
0f    shutdown byte
10    floppy disk drive type byte
12    hard disk type byte
13    reserve
14    equipment type
15    base memory low byte
16    base memory high byte
17    extension memory low byte
18    extension memory high byte
19-2d
2e-2f
30   Reserved for extension memory low byte
31   reserved for extension memory high byte
32   date century byte
33   information flag
34-3f  reserve
40-7f  reserved for chipset setting data

## 5-6  ISA I/O Address Map

| I/O Address (HEX) | I/O device |
|---|---|
| 000 - 01F | DMA Controller 1, 8237A-5 |
| 020 - 03F | Interrupt Controller 1, 8259A |
| 040 - 05F | System Timer, 8254-2 |
| 060 - 06F | 8042 Keyboard Controller |
| 070 - 07F | real-time Clock/CMOS and NMI Mask |
| 080 - 09F | DMA Page Register, 74LS612 |

| | |
|---|---|
| 0A0 - 0BF | Interrupt Controller 2, 8259A |
| 0C0 - 0DF | DMA Controller 2, 8237A-5 |
| 0F0 - 0FF | i486 Math Coprocessor |
| 1F0 - 1F8 | Fixed Disk Drive Adapter |
| 200 - 207 | Game I/O |
| 20C - 20D | Reserved |
| 21F | Reserved |
| 278 - 27F | Parallel Printer Port 2 |
| 2B0 - 2DF | Alternate Enhanced Graphic Adapter |
| 2E1 | GPIB Adapter 0 |
| 2E2 - 2E3 | Data Acquisition Adapter 0 |
| 2F8 - 2FF | Serial Port 2 (RS-232-C) |
| 300 - 31F | Prototype Card |
| 360 - 363 | PC Network (Low Address) |
| 364 - 367 | Reserved |
| 368 - 36B | PC Network (High Address) |
| 36C - 36F | Reserved |
| 378 - 37F | Parallel Printer Port 1 |
| 380 - 38F | SDLC, Bisynchronous 2 |
| 3B0 - 3BF | Monochrome Display and Printer Adapter |

| I/O Address (HEX) | I/O device |
|---|---|
| 390 - 393 | Cluster |
| 3A0 - 3AF | Bisynchronous 1 |
| 3C0 - 3CF | Enhanced Graphics Adapter |
| 3D0 - 3DF | Color/Graphics Monitor Adapter |
| 3F0 - 3F7 | Diskette Drive Controller |
| 3F8 - 3FF | Serial Port 1 (RS-232-C) |
| 6E2 - 6E3 | Data Acquisition Adapter 1 |
| 790 - 793 | Cluster Adapter 1 |

| | |
|---|---|
| AE2 - AE3 | Data Acquisition Adapter 2 |
| B90 - B93 | Cluster Adapter 2 |
| EE2 - EE3 | Data Acquisition Adapter 3 |
| 1390 - 1393 | Cluster Adapter 3 |
| 22E1 | GPIB Adapter 1 |
| 2390 - 2393 | Cluster Adapter 4 |
| 42E1 | GPIB Adapter 2 |
| 62E1 | GPIB Adapter 3 |
| 82E1 | GPIB Adapter 4 |
| A2E1 | GPIB Adapter 5 |
| C2E1 | GPIB Adapter 6 |
| E2E1 | GPIB Adapter 7 |

# Chapter 6   Q & A

## 6-1   Errors Messages During Power On Self Test

During **power on self test (post)**, BIOS will automatically detect the system devices. Below is the question that users most often meet. The user may press **"Esc"** key to skip the full memory test.

### 1.  *Beep sound*
On power on, the system make beep sound to offer different messages.  If the system is configured correctly, it prompts a short beep to show device configuration is done correctly.  When VGA card and DIMM modules are not plugged well, the system makes longer and constant beep sounds.

### 2.  *BIOS ROM checksum error*
It indicates the checksum of the BIOS code is not right and system will always halt on power on screen.   Contact the dealer to exchange a new BIOS.

### 3.  *CMOS battery fails*
It indicates the CMOS battery does not work. Contact the dealer to exchange a new battery.

### 4.  *CMOS checksum error*
It indicates the CMOS checksum is incorrect.  Load the default values in BIOS to solve this problem. This error may result from a weak BIOS, so exchange a new BIOS if necessary.

### 5.  *Hard disk initialize*
**Please wait a moment…**
Some hard drives require more time to initialize.

*6. Hard disk install failure*

The system can not find or initialize the hard drive controller or the drive. Check if the controller is set correctly. If no hard disk is installed, **"Hard drive selection"** must be set to **"none."**

*7. Keyboard error or no keyboard present*

This means the system can not initialize the keyboard. Check if the keyboard is plugged well and be sure no keys are pressed during power on self test.

*8. Memory test fails*

There will be more information to specify the type and location of the memory error.

*9. Primary master hard disk fail*

The BIOS find an error in the primary master hard disk drive.

*10. Primary slave hard disk fail*

The BIOS finds an error in the primary slave hard disk drive.

*11. Secondary master hard disk fail*

The BIOS finds an error in the secondary slave master hard disk drive.

*12. Secondary slave hard disk fail*

The BIOS finds an error in the secondary slave IDE hard disk drive.