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AM-845
(INTEL i845 Chipset, S-478)
Main Board
User's Manual

Document number:AM-845-E-022LS

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Table of Contents

Chapter 1 Introduction

Introduction

The introduction contains information on the main specifications for the AM-845 motherboard, the package contents and cautionary notes..

Hardware Installationptt

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 operate 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.

Trouble Shooting

In the case you run into trouble using your motherboard, this section will provide you with much information and practical tips to help you solve your problem. Some of the tips are also given in the Hardware and Software Installation Sections where relevant.

1-1 Main Specifications

- **PCB board size and form factor: 23.0cm 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 five 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. Over 300W P4 type power supply is needed, meanwhile over 250W PIII type power supply is acceptable but not guaranteed for proper function.

B. Provides CPU over-clocking up to 133MHz by BIOS setting but not guaranteed for this function. Vendor is not Responsible for any damage on CPU or main board due to the over-clocking failure (Jump cap to "2-3" of JP6 to reset BIOS if over-clocking fails).

C. Suspend to memory (S3 mode) is an optional function.

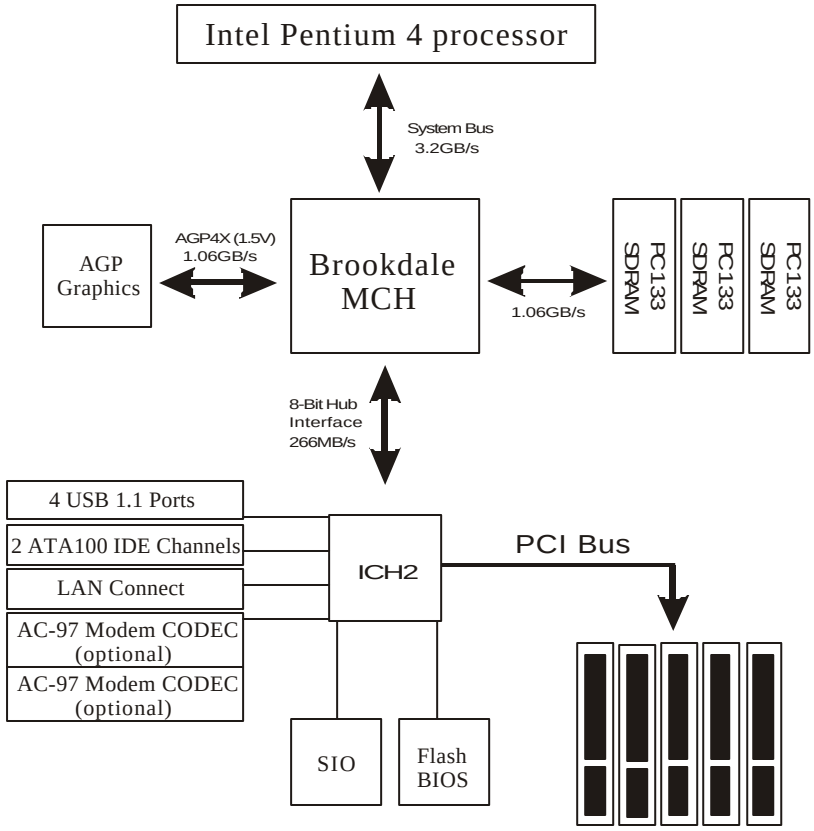
D. AC-97 Sound Codec chip provides " amplifier" function.

E. Optional IDE 0/1 RAID function by using "PROMISE" PDC 20265R chipset.

Only 4X AGP is acceptable.

1-2 System Configurations

Below is the i845 chipset based system configuration:


Intel Pentium 4 processor
System Bus
3.2GB/s
AGP
Graphics
AGP4X (1.5V)
1.06GB/s
Brookdale
MCH
1.06GB/s
PC133
SDRAM
PC133
SDRAM
PC133
SDRAM
8-Bit Hub
Interface
266MB/s
4 USB 1.1 Ports
2 ATA100 IDE Channels
LAN Connect
AC-97 Modem CODEC
(optional)
AC-97 Modem CODEC
(optional)
ICH2
PCI Bus
SIO
Flash
BIOS

1-3 Notice of Hardware Installation

Before installing the main board hardware, please note the following things.

A. Check the package
If any of the below 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:

- **The AM-845 Motherboard**

- **AM-845 User's Manual**

- **Driver Installation CD-ROM**

- **IDE ATA 66/100 Flat-Cable**

- **Floppy Disk Drive Flat-Cable**

B. Make sure power is off.
During hardware installation, be sure that there is no power connected in this period.

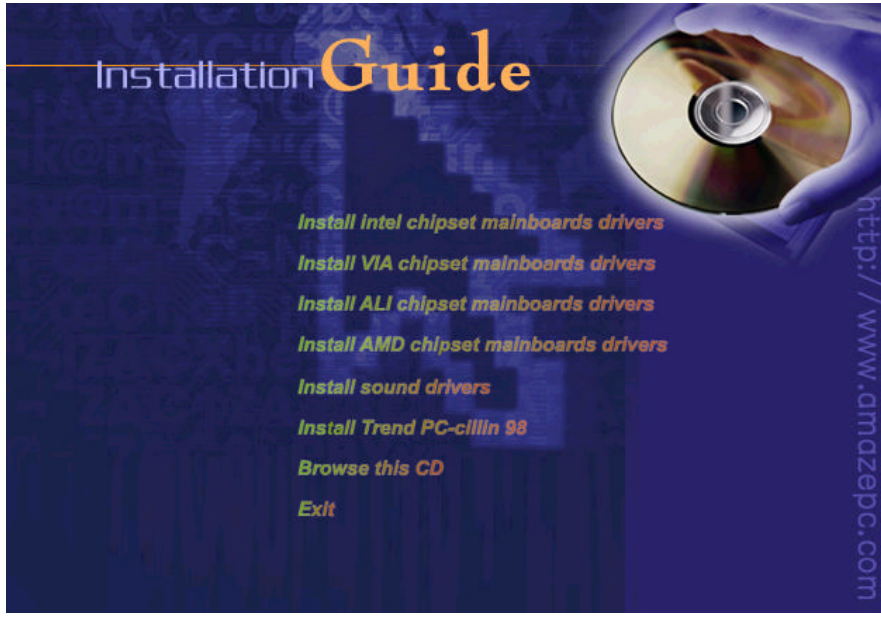
C. Avoid ESD (Electrical Static Discharge)
While working with this main board, always wear a grounded wristband or ankle strap to avoid ESD (Electrical Static Discharge).While installing the main board, wear a grounded wristband or ankle strap to avoid ESD (Electrical Static Discharge).

1-4 Notice of CD Driver Installation

This CD contains the following drivers.

CD driver is always updated with the latest version, and thus the actual CD content may be different from the above picture.

1. **Main boards:** INTEL 845 815E,815EP ,VIA KLE-133,694V100 etc. .



Insert the Support CD that Came with motherboard into your CD-ROM drive. If the menu does not appear, double-click the CD drive icon in MY Computer or run E:\SETUP.EXE (assuming that your CD-ROM driver E:) to bring up the setup screen.

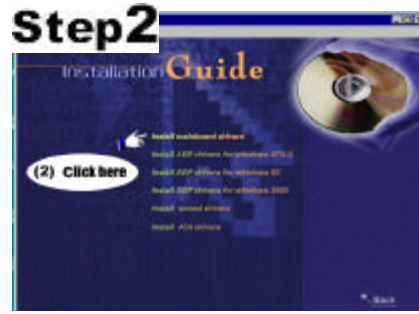
1-5 Software Driver Installation

Notice of the setup screen :

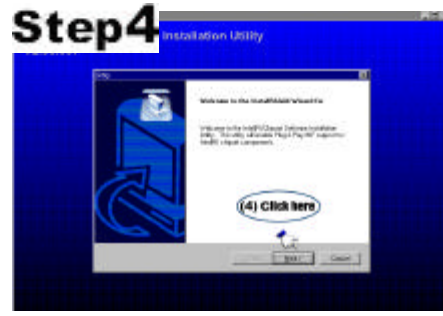
- **"Install intel chipset mainboard drivers"**
- **"Install VIA chipset mainboard drivers"**
- **"Install ALI chipset mainboards drivers"**
- **"Install AMD chipset mainboards drivers"**
- **"Install sound drivers"**
- **"Install Trend PC-cillin 98"**
- **"Browse this CD"**
- **"Exit"**

1-6 Motherboard Driver Installation

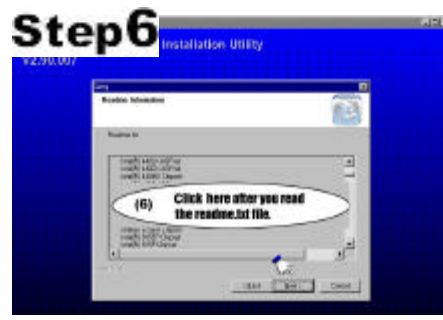
Insert the Support CD that Came with motherboard into your CD-ROM drive or double-click the CD drive icon in MY Computer or run E:\SETUP.EXE (assuming that your CD-ROM driver E:)



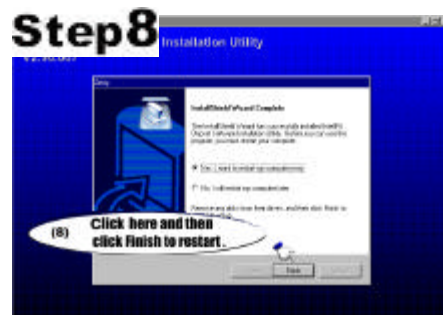

Step3
Installation Guide
(3) Waiting..


Step4
Installation Utility
(4) Click here


Step5
Installation Utility
(5) Click here only after you have read the License Agreement.


Step6
Installation Utility
(6) Click here after you read the readme.txt file.


Step7
Installation Utility
(7) Waiting..

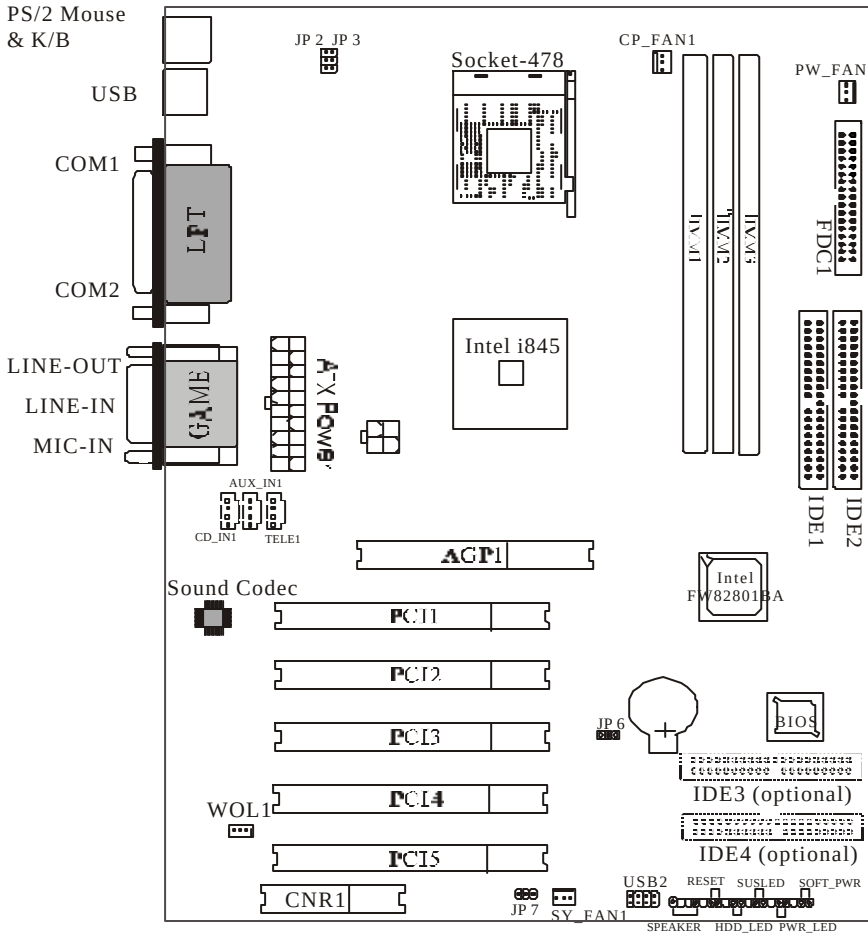

Step8
Installation Utility
(8) Click here and then click Finish to restart.

1-7 Installation Sound Drivers

Insert the Support CD that Came with motherboard into your CD-ROM drive or double-click the CD drive icon in MY Computer or run E:\SETUP.EXE (assuming that your CD-ROM driver E:)

Chapter 2 Installation

2-1 Layout Reference

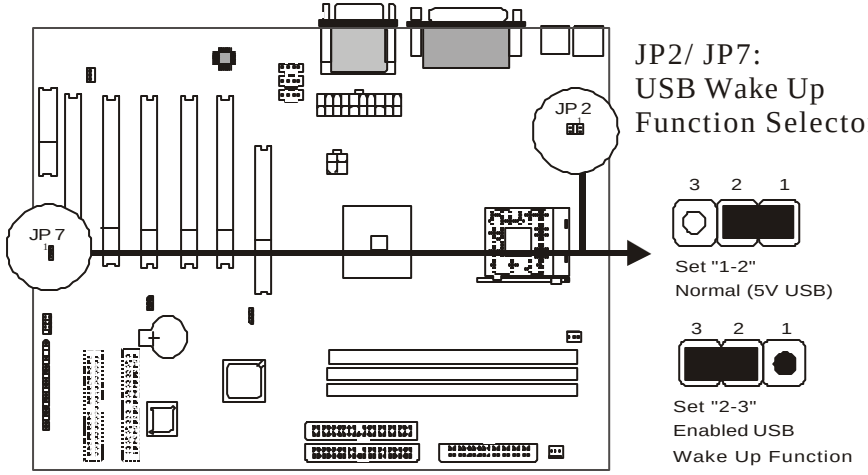


2-2 Jumper Setting

There is no Hardward jumper setting when install CPU, meanwhile user needs to set correct “CPU clock ration” under “Frequency/ Voltage Control” in the BIOS, e.g. the ratio for 1.5G CPU is “x15”, 20G CPU is “x20” …(Please refer to page 58).

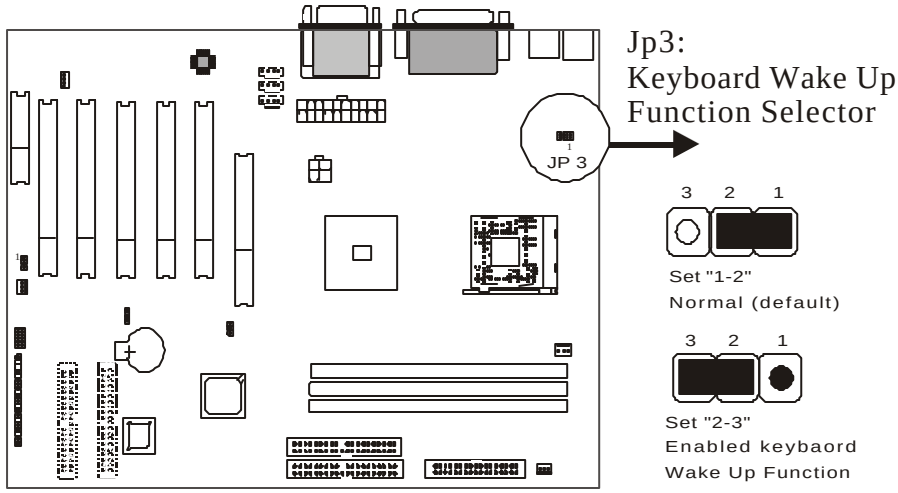
2-3-1 JP2/ JP7: USB Wake Up Function

JP2/ JP7 are 3-pin selector which provides USB wake up function. Set “1-2” to disable and set “2-3” to enable USB wake up function.



2-3-2 JP3: Keyboard Wake Up Function

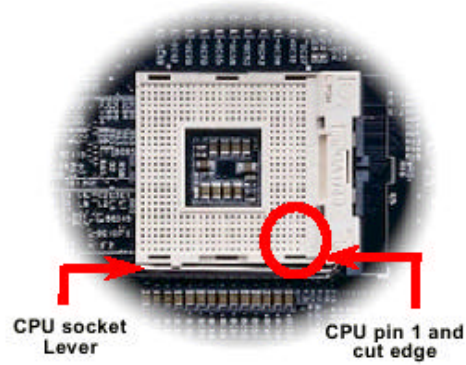
JP3 is a 3-pin selector that provides keyboard wake up function. Set “1-2” to disable and set “2-3” to enable keyboard wake up function.



2-4 CPU Installation

The motherboard provides a ZIF Socket for the P4 Socket 478 CPU. The CPU that came with the motherboard should have a fan attached to it to prevent overheating.If not, then parchase a fan before turning on the system.

- Locate the P4 Socket 478 and open it by pulling the lever gently sideways away from the socket. Then lift the lever upwards. The socket lever must be fully opened (90 to 100 degrees).
- Locate Pin 1 in socket and lock for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.
- Once completely inserted,press the CPU firmly and close the socket lever until it snaps into its locked position.

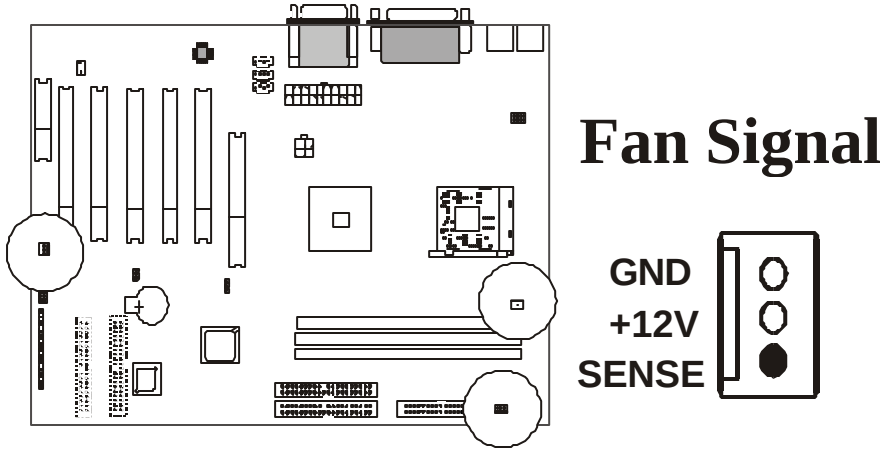


2-4-1 CPU and System Cooling

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:



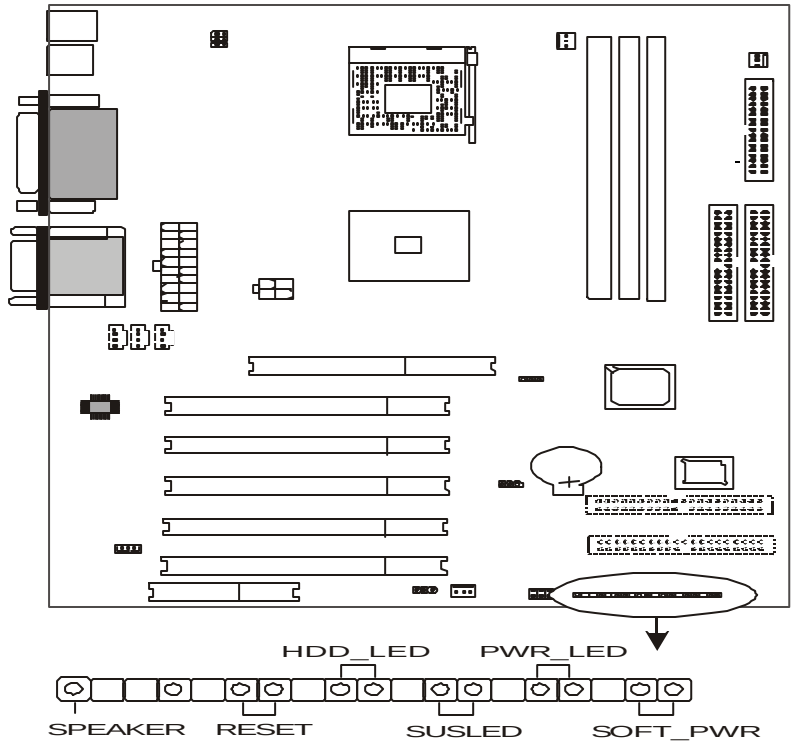
No jumper is needed for CPU installation. But need to set "CPU clock ration" under Frequency/ Voltage Control in BIOS, e.g. 1.5G is "x15", 1.7G is "x17"…..

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 "SPEAKER," "RESET," "HDD_LED," "SUSLED," "PWR_LED," "SOFT-PWR." Please refer the details as below.



SPEAKER 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.

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.

HDD-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.

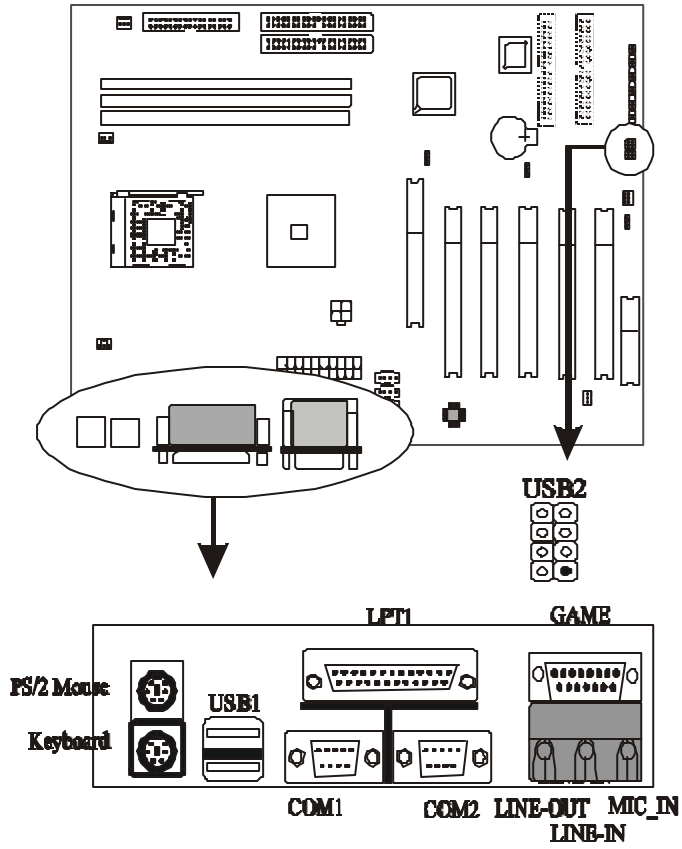
SUSLED

PWR-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.

SOFT_PWR 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).

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

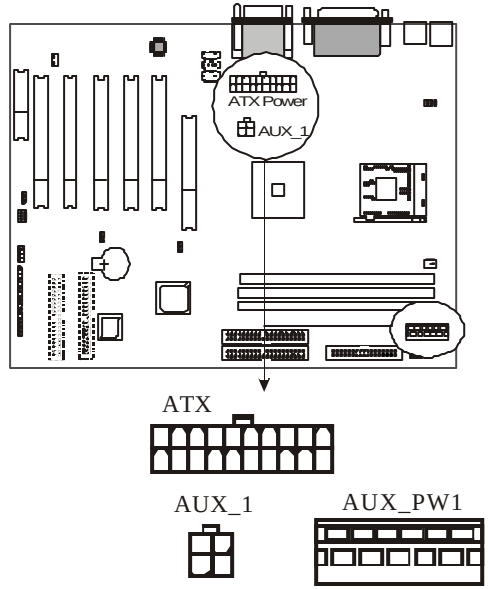
Universal Serial Bus connector, marked as "USB,"is used to connect USB devices. There are 2 USB connectors on this main board.

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

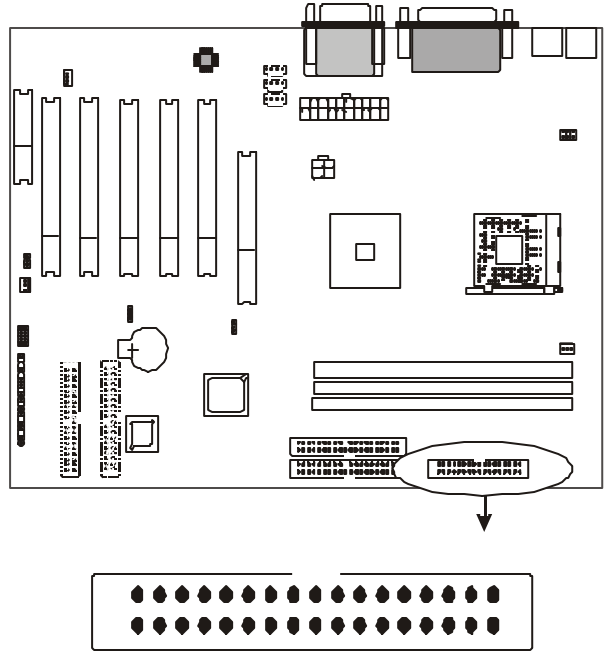
This main board needs P4 power supply which contains ATX, AUX_1 & AUX_PW1 3 power connectors, ***ATX power supply connector*** has 20 pins, which is especially designed for ATX case. **AUX_1 power supply connector** has 4 pins. The ATX power supply supports the function of the **"Soft Power On Momentary 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.



Traditional PIII power supply over 300W also acceptable but not been guaranteed for proper function.

2-5-4 Floppy Disk Connector

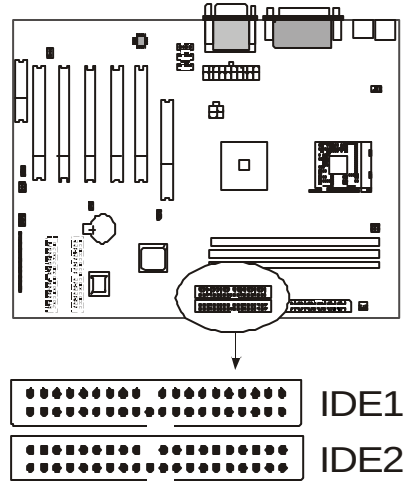
Floppy Disk Connector has 34 pins and allows connection of a floppy drive. In all two floppy drives can be connected to the mother board, known as floppy A and B. The BIOS allows you to disable the floppy controller if you do not use any floppy driver, that will free an Interrupt. The BIOS also allows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



2-5-5 IDE1 and IDE2

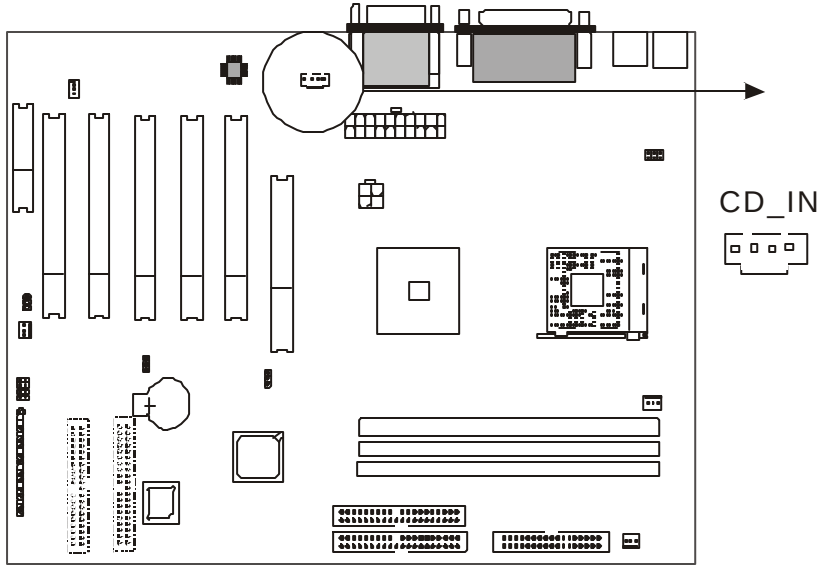
The IDE connectors are used to connect IDE devices such as Harddisks and CD-ROM drives to the motherboard. Each connector constitutes an IDE channel, each channel accepts 2 IDE devices, one Master and one Slave. The IDE 1 connector is also known as the primary channel, IDE 2 is the secondary channel. 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.



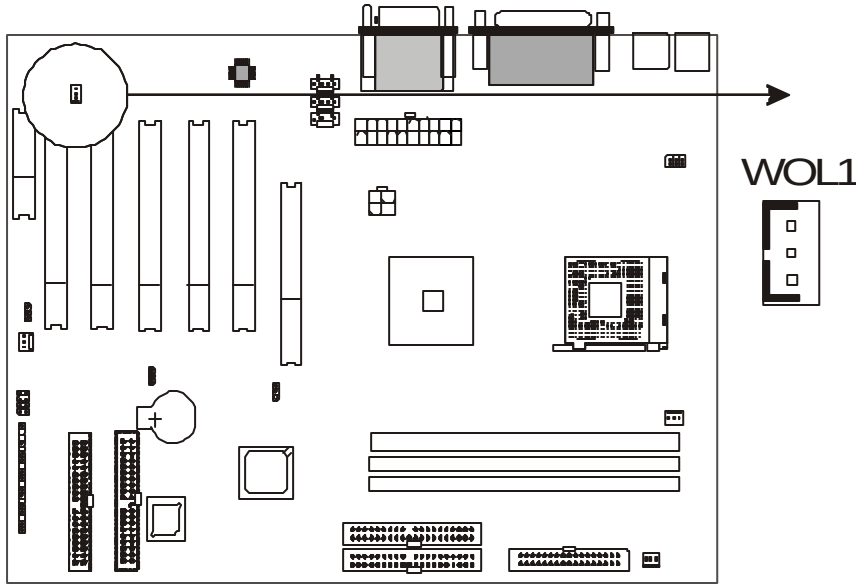
2-5-6 Internal Audio Connectors

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



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

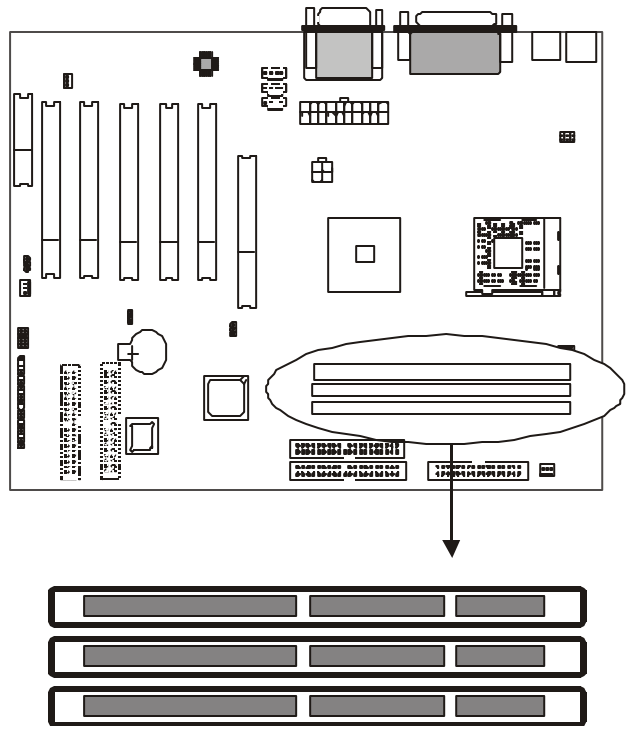
Wake up on LAN marked as "WOL1," is a 3-pin connector. To support this feature, a network card is required for the system and network management software must be installed, too.



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 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. picture below for the position of the DIMM slots:

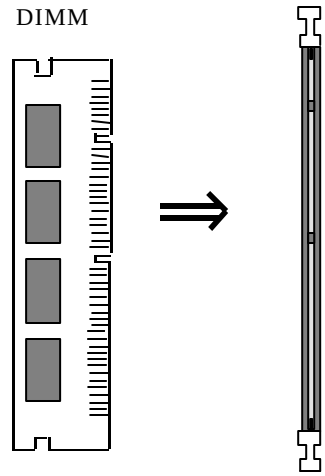


WARNING:

- *DIMM modules that have more than 18 chips are not supported on this motherboard. (Due to signal integrity)*
- *If the system CPU bus operates at 100MHz/133MHz, use only PC100-/PC133-compliant DIMMs. (System won't boot otherwise)*

2-6-1 Memory Installation

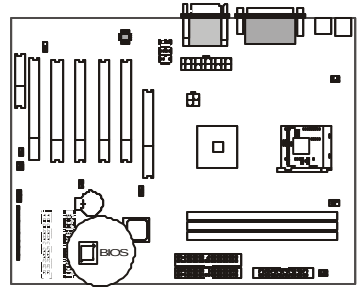
The DIMM modules can be inserted in DIMM slots 1 to 2. Because of the two notches in the DIMM module it can be inserted in only one way. Please refer to the picture below for information on how to insert the DIMM modules.



WARNING::
Make sure that you unplug your power supply when adding or removing memory modules or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards

Chapter 3 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

3-1 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)

A **WDFLASH.EXE** utility file. (This utility can be downloaded from our website)

- Create a directory on your **C:** harddisk drive: and name is **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.
- Enter **C:\FLASH** (**cd c:\flash**) directory.
- At a DOS prompt type " **AWDFLASH mybios.bin backup.bin ",(NOTES** : The **"mybios.bin"** is the filename you want to write into the BIOS Chipset**.** And the "**backup.ini**" is the filename you backuped for the old BIOS , Press **[Enter]** to begin , During the operating, , the computer will ask you whether to backup (Y/N).You had better press **"Y"** (**NOTES: DO BACKUP**) , After backuping,the computer will ask whether you need to write into the BIOS with the file "**mybios.bin"** , Please press"**Y**" to continue.
-

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 .

3-2 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 Optimized Defaults***
Advanced Chipset Features	***Set Supervisor Password***
Integrated Peripherals	***Set User Password***
Power Management Setup	***Save & Exit Setup***
PnP/PCI Configurations	***Exit Without Saving***
PC Health Status	
Esc : Quit F9: Menu in BIOS - ¯ ® ¬ : Select Item	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type . . .	

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 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.

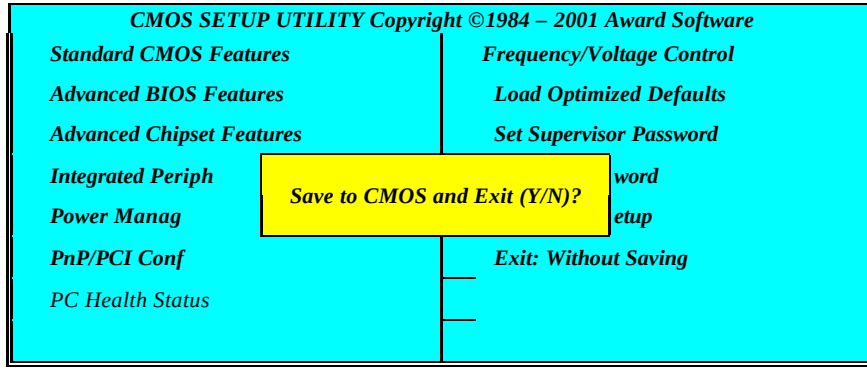
Hot Keys

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

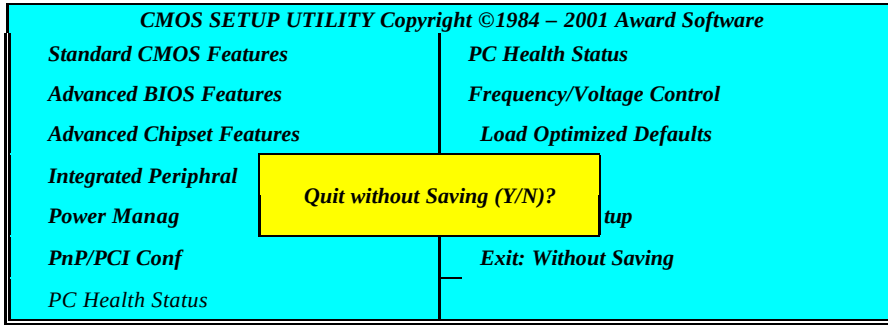
When you select the **[SAVE & EXIT SETUP]** option from the Main Menu, all changes that you made will be saved to the CMOS memory and the setup utility will exit, rebooting your system.



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

Exit Without Saving

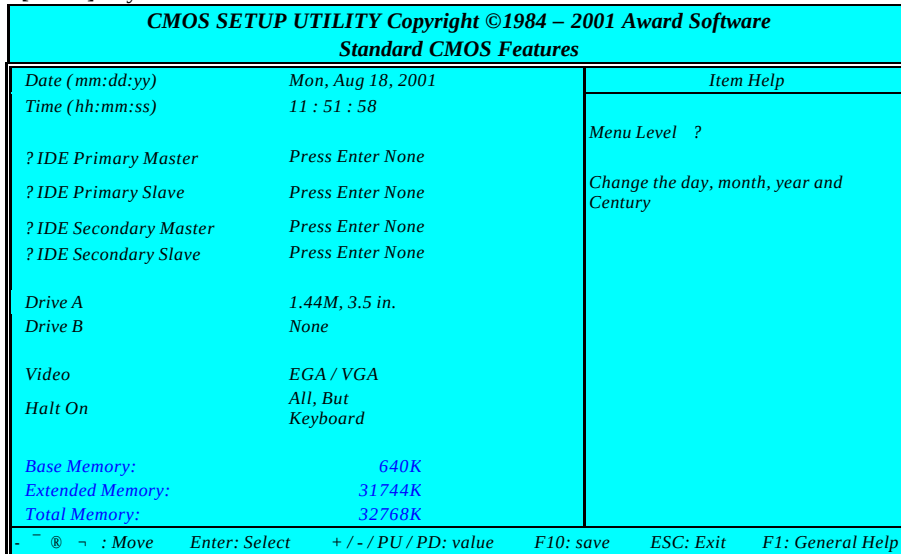
Selecting '**Exit Without Saving**' will exit Setup without saving changes to CMOS.



Pressing **[Y]** and **[Enter]** will Exit without saving, pressing **[N]** and **[Enter]** will not Exit.

3-3 Standard CMOS Setup

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



F5 : Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults

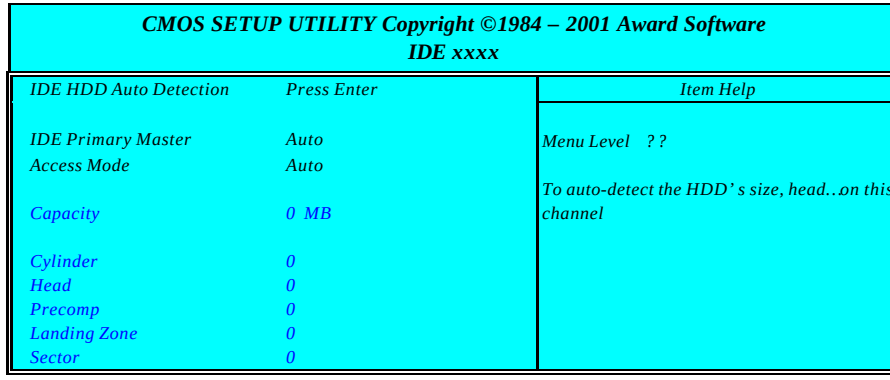
This screen allows you to change the basic CMOS Settings such as date and time, harddisk type etc. After you have made the changes you need to make press **[ESC]** to return to the main menu.

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.



This Menu is the same for all 4 IDE devices:

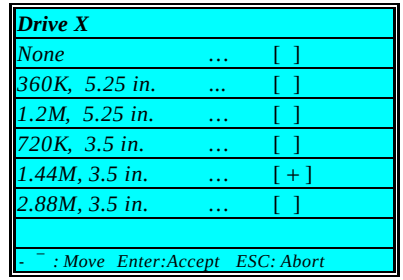
- Primary Master IDE 1 first device
- Primary Slave IDE 1 second device
- Secondary Master IDE 2 first device
- Secondary Slave IDE 2 second device

	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 Mode	CHS	Selects the CHS access 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:



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**
Halt On	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.
	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.

3-4 BIOS Features Setup

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

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Advanced BIOS Features

			Item Help
	Virus Warning	*Disabled*	
	CPU L1 & L2 Cache	*Enabled*	
	Quick Power On Self Test	*Enabled*	*Menu Level ?*
	ATA100 Chip Boot Device	*ATA100*	*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*	
	Small Logo (EPA) Show	*Enabled*	

- ¯ ® ¬ : 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.

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	

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

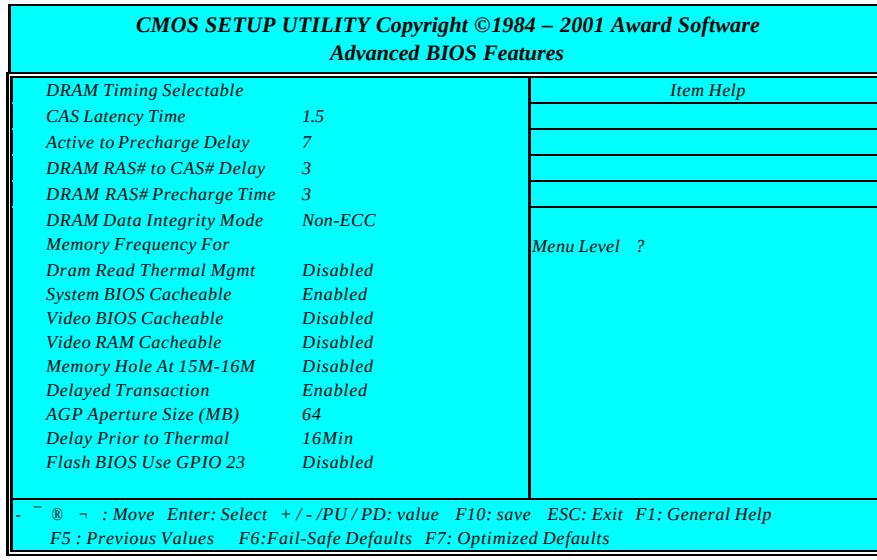
	Values	**Meaning**
OS select for DRAM > 64MB	Non-OS2	If your OS is not OS2, always select this setting.
	OS2	Select this setting only if your OS is OS2

Report No FDD For WIN 95

	Values	**Meaning**
Report No FDD For WIN 95	Yes	
	No	

3-5 Chipset Features Setup

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



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.

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	
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 Integrity Mode	Non-ECC	
	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	

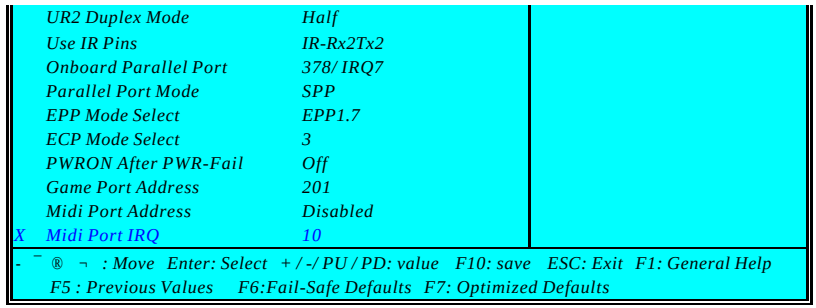
AGPAperture Size (MB)

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

3-6 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*
IDE Primary Master PIO	*Enabled*	
IDE Primary Slave PIO	*Auto*	
IDE Primary Master UDMA	*Auto*	
IDE Primary Slave UDMA	*Auto*	*Menu Level ?*
Onchip Secondary PCIIDE	*Enabled*	
IDE Secondary Master PIO	*Auto*	
IDE Secondary Slave PIO	*Auto*	
IDE Secondary Master UDMA	*Auto*	
IDE Secondary Slave UDMA	*Auto*	
USB Controller	*Enabled*	
USB Keyboard Support	*Disabled*	
USB Mouse Support	*Disabled*	
AC97 Audio	*Auto*	
AC97 Modem	*Disabled*	
Init Display First	*PCI Slot*	
GPIO 28 Set	*Enabled*	
IDE HDD Block Mode	*Enabled*	
POWER ON Function	*Any KEY*	
KB Power ON Password	*Enter*	
Hot Key Power ON	*Ctrl-F1*	
Onboard FDD Controller	*Enabled*	
Onboard Serial Port 1	*Auto*	
Onboard Serial Port 2	*Auto*	
UART Mode Select	*Normal*	
RxD , TxD Active	*Hi, Lo*	
IR Transmission Delay	*Enabled*	



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.
USB Mouse Support	Enabled	This will allow use of a USB mouse.
	Disabled	If you do not need a USB mouse, 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.

3-7 Power Management Setup

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

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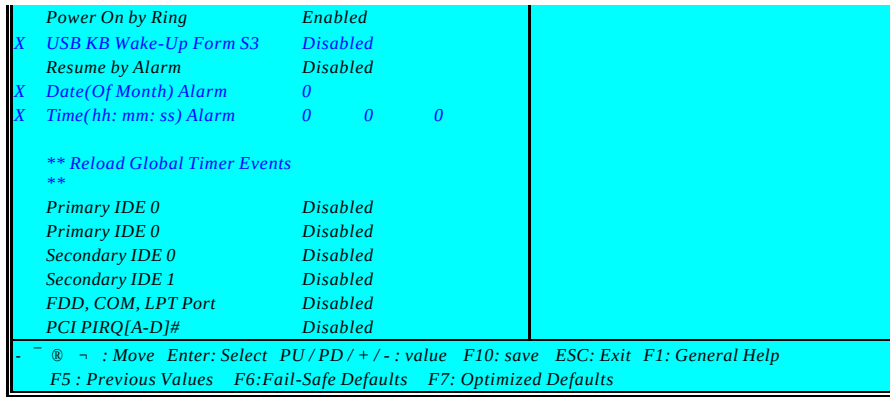
Power Management Setup

		Item Help
ACPI Function	*Enabled*	*Menu Level ?*
ACPI Suspend Type	*S1 (POS)*	
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*	
CPU THRM-Throttling	*50.0%*	



	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

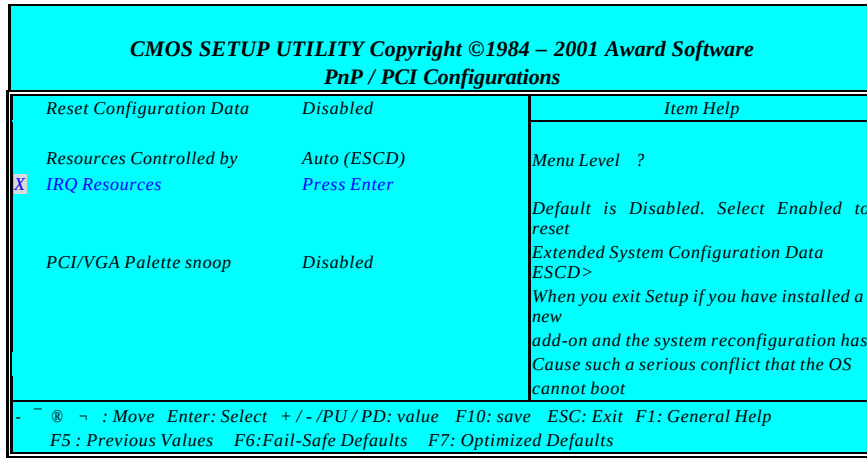
	Values	Meaning
FDD, COM, LPT Port	Enabled	
	Disabled	

Wake Events

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

3-8 PnP / PCI Configurations

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



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.

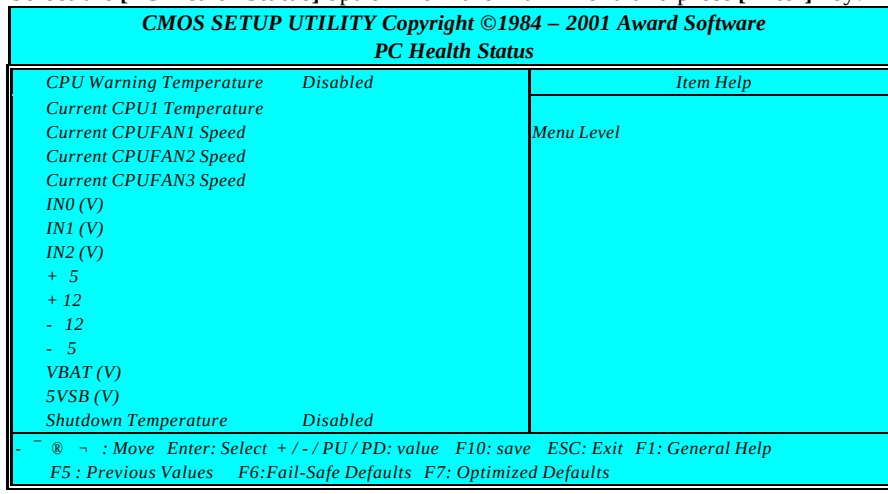
	Values	Meaning
IRQ-x assigned to (x = 3 to 15)	PCI/ISA PnP	This setting means the BIOS will assign the interrupt as needed. This means that it is not fixed to a device
	Legacy ISA	If you need to make sure that a certain interrupt is assigned to an ISA device, set that interrupt to legacy ISA.
DMA-x assigned 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
PCI / VGA Palette Snoop	Disabled	Default setting.
	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.

3-9 PC Health Status

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



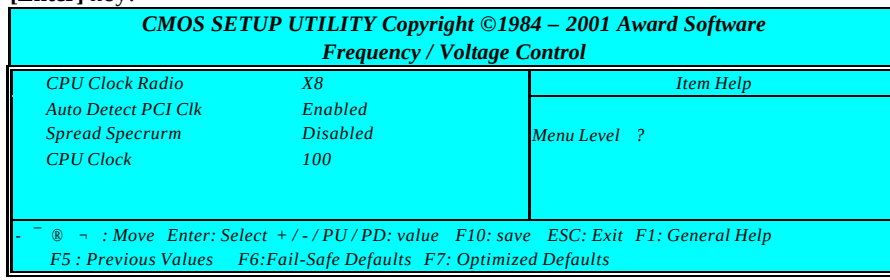
CPU Warning Temperature

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

	Values	Meaning
Shutdown Temperature	Disabled	
	60°C/ 140°F, 65°C/ 149°F, 70°C/ 158°F, 75°C/ 167°F,	

3-10 Frequency/ Voltage Control

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



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	0.25%	
	0.50%	
	Disabled	

CPU Clock

	Values	Meaning

CPU Clock	Min = 100 *Max = 132*	

3-11 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.

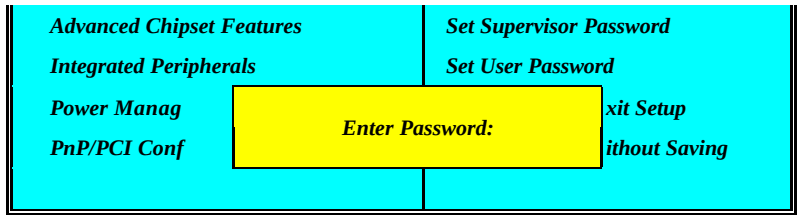
The user password has the same functionality, with the only difference that anybody logging in with the user password may only change the user password when entering the BIOS Setup page. All other items in the BIOS Setup will be disabled (unchangeable).

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.

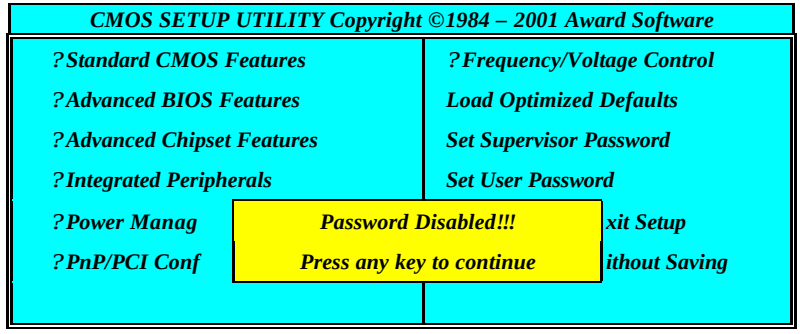
CMOS SETUP UTILITY Copyright ©1984 – 2001 Award Software	
Standard CMOS Features	***Frequency/Voltage Control***
Advanced BIOS Features	***Load Optimized Defaults***



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:



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 4 Q & A

4-1 Error Messages During Power on Self Test

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

1. Beep sound

While power on, the system makes 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 errorr

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 fail

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 weak BIOS, so replace new BIOS if necessary.

5. Hard disk initiation

Please wait a moment…

Some hard drives require more time to initiate.

6. Hard disk install failure

The system can not find or initiate 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 POST.

8. Keyboard is lock out - Unlock the key

When this message comes out, check if there is anything mis-placed on the keyboard. Be sure nothing touches the keys.

9. Memory test fails

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

10 Primary master hard disk fail

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

11 Primary slave hard disk fail

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

12 Secondary master hard disk fail

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

13 Secondary slave hard disk fail

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