

AmazePc® Inc.,

**AM-K7A
ATX Form Factor
Main Board
User's Manual
Ver. 1.1**

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Chapter 1 Introduction

1-1 Main Board Overview

AmazePc[®] AMD series

Inside this manual you will find adequate explanations to solve most problems. In order to this reference material to be of greatest use, refer to the “expanded table of contents” to find relevant topics.

AM-K7A board incorporates the system board, ISA I/O, and PCI IDE into one board that provides a total PC solution. The mainboard, a AMD-Athlon processor based PC/ATX system, supports single processors with PCI Local Bus, and AGP Bus to support upgrades to your system performance.

It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT, Windows 2000, Novell, OS/2, Windows95/98, UNIX, SCO UNIX etc. This manual also explains how to install the mainboard for operation, and how to setup your CMOS configuration with the BIOS setup program.

1-2 Specification

- **Dimensions (ATX form-factor)**

- 30.48 cm X 24.3 cm (W x L)

- **CPU**

- Single Slot-A for AMD-Athlon processor Module-500MHz and faster.
- 200MHz System Interface speed.
- CPU Auto-Detected.

- **Speed**

- Supports 33MHz PCI Bus speed.
- Supports 66MHz / 133MHz AGP Bus.

- **DRAM Memory**

- Supports 8/16/32/64.....MB DIMM module socket.
- Supports Synchronous DRAM (3.3V).
- Supports a maximum memory size of 768MB with SDRAM.

- **Shadow RAM**

- A memory controller provides shadow RAM and supports 8-bit ROM BIOS.

- **Green Function**

- Supports power management operation via BIOS.
- Power down timer from 1 to 15 mins.
- Wakes from power saving sleep mode at the press of any key or any mouse activity.

- **BUS Slots**

- Provides five PCI Bus slots, and one AGP Bus slot.

- **Flash Memory**

- Supports flash memory.
- Supports ESCD Function.

● **PCI Enhanced IDE Built-in On Board**

- Supports four IDE hard disk drives.
- Supports PIO Mode 4, Master Mode, high performance hard disk drives.
- Supports Ultra DMA/66, Bus Master Mode.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Supports LBA mode.

● **ISA I/O Built-in On Board**

- Supports one multi-mode Parallel Port.
 - (1) Standard & Bidirection Parallel Port.
 - (2) Enhanced Parallel Port (EPP).
 - (3) Extended Capabilities Port (ECP).
- Supports two serial ports, 16550 UART.
- Supports one Infrared transmission (IR). (optional)
- Supports PS/2 Mouse.
- Supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drivers.

● **Universal Serial Bus**

- Supports two back Universal Serial Bus (U.S.B.) Ports and two front Universal serial Bus (U.S.B) Ports.
- Supports 48 MHz USB.

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:

- the main board
- manual
- cables
- driver & utility / CD
- retention mechanism

B. Make sure power is off.

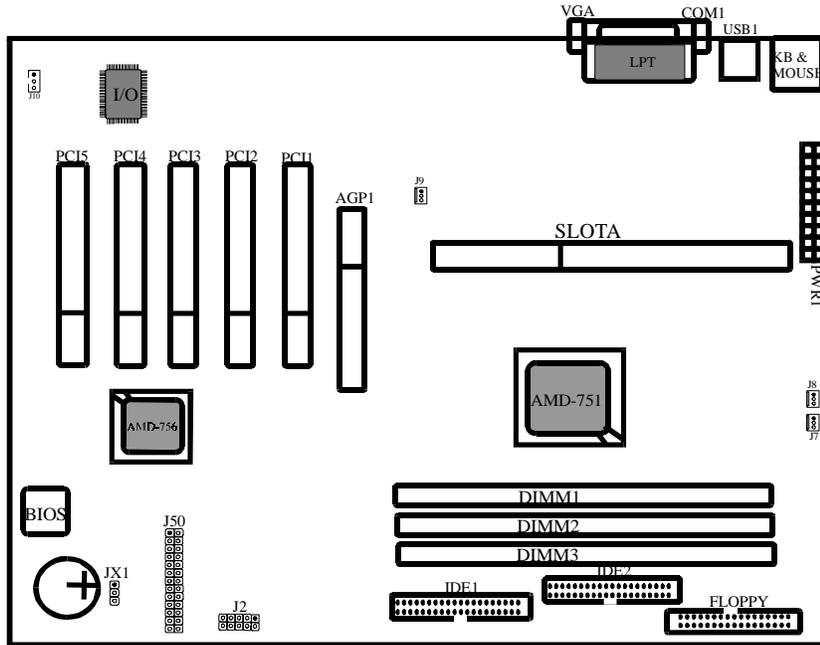
During hardware installation, be sure that there is no power connected at this period.

C. Avoid ESD (Electrical Static Discharge)

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

Chapter 2 Installation

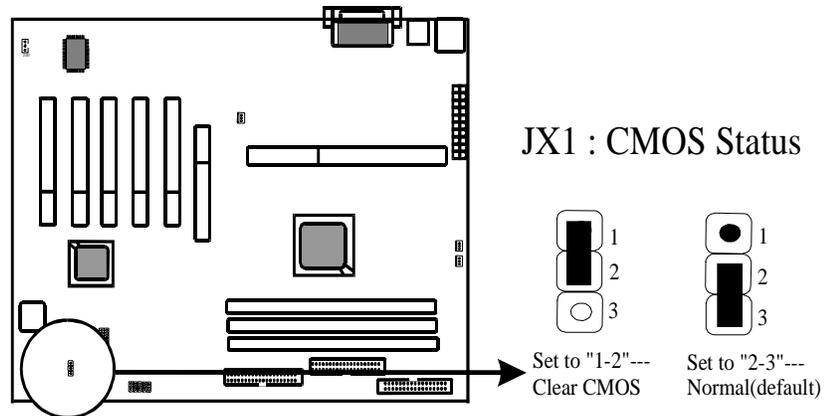
2-1 Layout Reference



2-2 Jumper Setting

2-2-1 JX1 : CMOS Status

JX1 is a 3-pin connector. Please clear CMOS if system password is forgotten. Below is detail to show how to clear CMOS.



Procedure to clear CMOS:

- Step 1: Shut down the system and disconnect the power supply from AC power.
- Step 2: Pull out the ATX cable from ATX connector "PWR1".
- Step 3: Short the CMOS jumper by putting jumper cap on Pin 1-2 for a few seconds.
- Step 4: Return to pin 2-3 for normal setup.
- Step 5: Link ATX power cable to ATX connector & connect AC power to power supply.
- Step 6: Turn on system power.

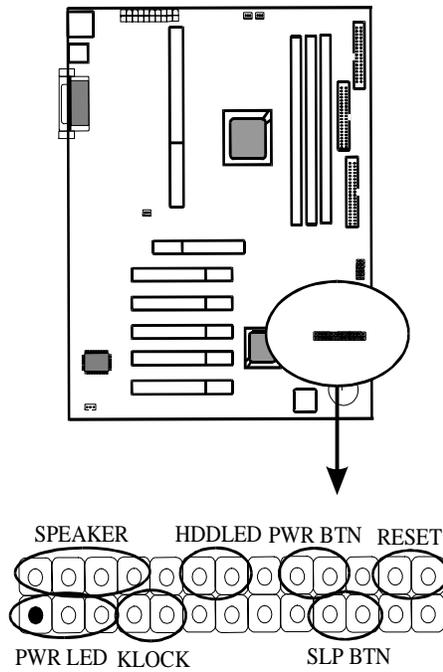


If you'd like to set password, press "Del" Key during system bootup to enter CMOS setup and establish a new password.

2-3 Connectors

2-3-1 Front Panel

Front panel has connectors as “PWR-LED,” “KEYLOCK,” “SLP-BTN,” “SPEAKER,” “HDD-LED,” “PWR-BTN,” “RESET”. Please refer to details as below.



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

KEYLOCK is a 2-pin connector. It is used to connect the key lock on the case front panel (if there is). Keyboard may be disconnected with the system through this function. Set to “on” to disconnect the connector with the system and “off” for normal status.

SLP BTN is a 2-pin Berg strip which is also called “**green**” or “**sleep**” connector. When SLP BTN is turned from open to close and back to open, the system will enter sleep mode immediately. This function is to make sure power saving is working well. In PC system, it is used to connect to the push button SLP BTN switch located on the case front panel (if there is). The system can be forced to power saving mode by pressing the SLP BTN switch.

Speaker (SPK) connector is a 4-pin keyed Berg strip. It is used to connect to the case speaker to the main board for sound purpose.

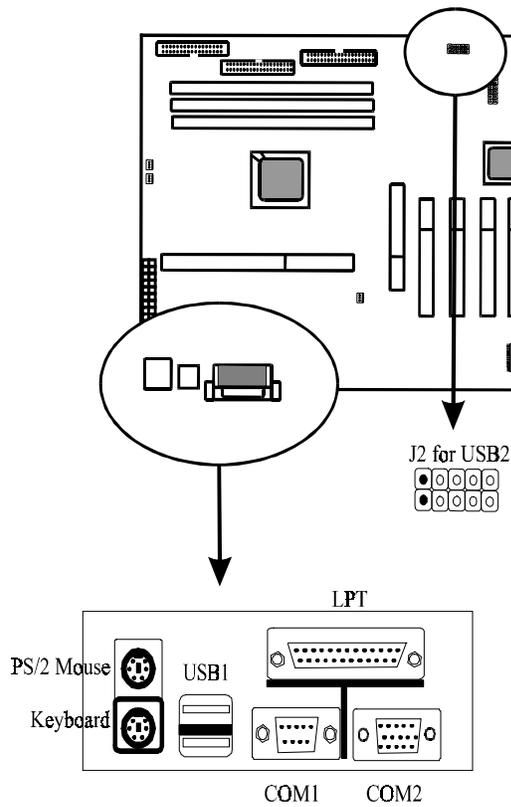
Marked as “HDD-LED,” Hard Disk activity LED connector is a 2-pin keyed Berg strip. It is used to connect to Hard Disk LED of the front panel.

PWR BTN 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).

RESET 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.

2-3-2 Back Panel

There are COM1, COM2, USB and keyboard/mouse on the case back panel. Please refer to more details as below.



KBD/PS2 Mouse

The onboard PS/2 keyboard and mouse are 6-pin Mini-Din connectors.

USB1/USB2(Universal Serial Bus)

Universal Serial Bus connector, marked as “**USB,**” is used to connect USB devices. There are 4 USB connectors on this main board.

USB2			
Pin	Signal Name	Pin	Signal Name
1	+5V	1	+5V
2	USBP2-	2	USBP3-
3	USBP2+	3	USBP3+
4	Ground	4	Ground
5	Ground	5	Ground

COM1/COM2

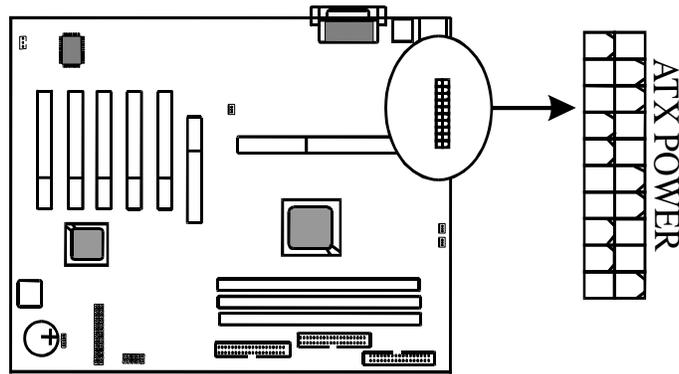
The onboard serial port 1 and port 2 are the 9-pin D-subminiature male connector COM1 and COM2. COM1 and COM2 can be disabled in BIOS setup. Please refer to Chapter 3 “Integrated Peripherals” for more information.

LPT(Parallel Port)

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).

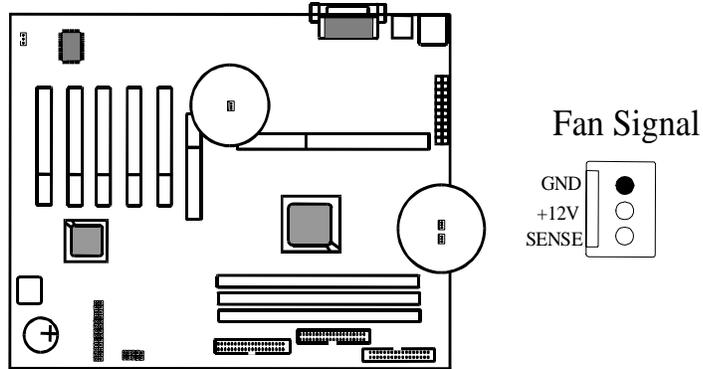
2-3-3 ATX Power Supply Connector

ATX power supply connector has 20 pins, which is designed for ATX case especially. The ATX power supply supports the function of the “**Soft Power On Momentary switch**” which connects the front panel switch to the 2-pin **PW-BT** 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.



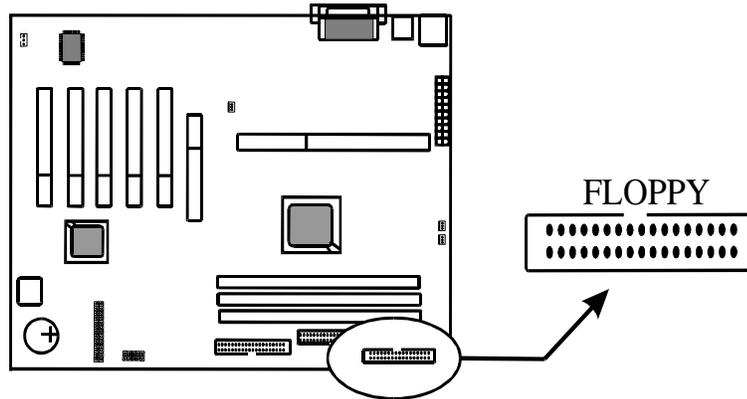
2-3-4 CPU Fan Connectors

There are 3 fan connectors on this system board, and they are marked “PROCESSOR FAN,” and “SYSTEM FAN”. Each fan connector has three pins.



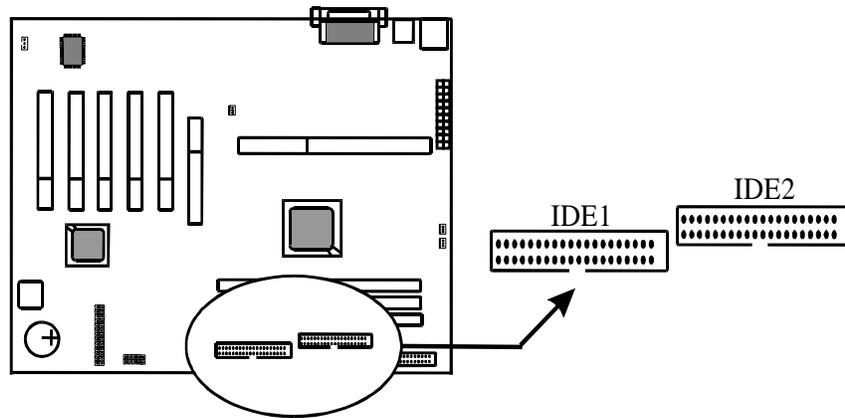
2-3-5 Floppy Disk Connector

Floppy Disk Connector with 34 pins is used to attach the floppy drive cable.



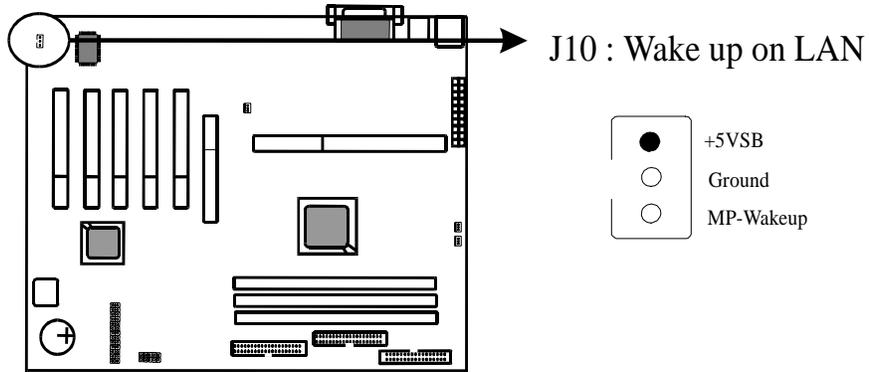
2-3-6 IDE1 and IDE2

IDE 1/ IDE 2 both have 40 pins. There are 2 IDE connectors supported on this system board. IDE1 is secondary channel, and IDE2 is primary channel. Each channel supports 2 IDE devices, and 4 devices in total for this main board.



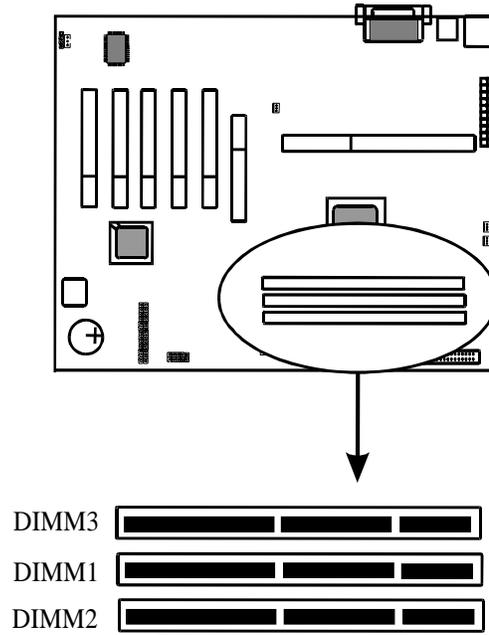
2-3-7 J10 : Wake up on LAN

Wake up on LAN, marked as “WOL,” 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.

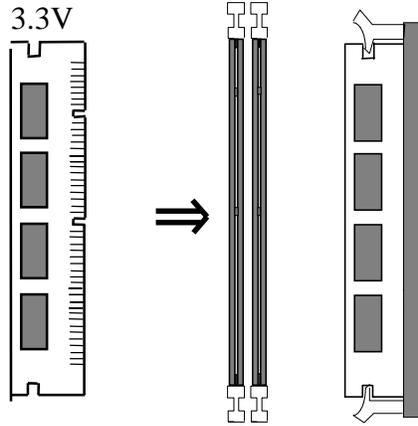


2-4 DIMM Memory Installation

The main board has 3 DIMMs on board. Either DIMM1, DIMM2 or DIMM3 support 8 MB, 16 MB, 32 MB, 64 MB. Maximum memory for **SDRAM** is up to **768 MB**.



Insert the module as shown. Due to different number of pins on either side of the breaks, the module will only fit in the direction as shown. There is no jumper setting for memory configuration.

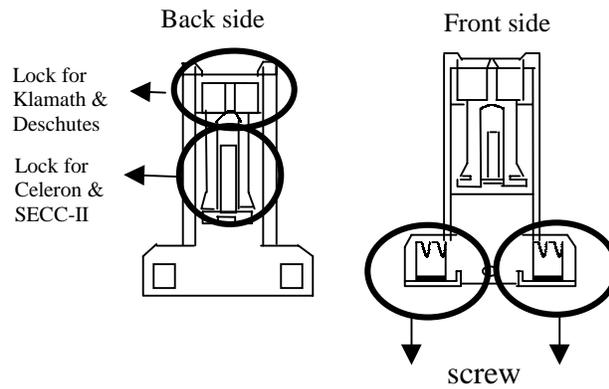


2-5 CPU RM Kit Assembling Procedure

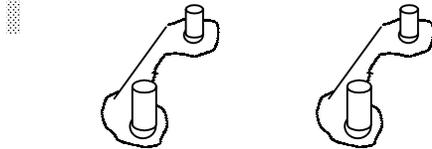
The enclosed RM Kit accommodates AMD Athlon™ processors. User may refer to the attached page enclosed with the RM kit to install the processors.

1. Check if the following set of piece parts are included in your package.
4 separate piece parts in total.

Retention Mechanism (R.M.): 2 pcs

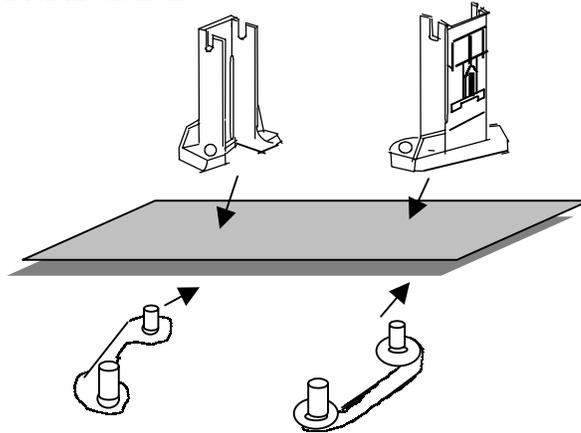


RM. Attach Mount (RMAM): 2 pcs



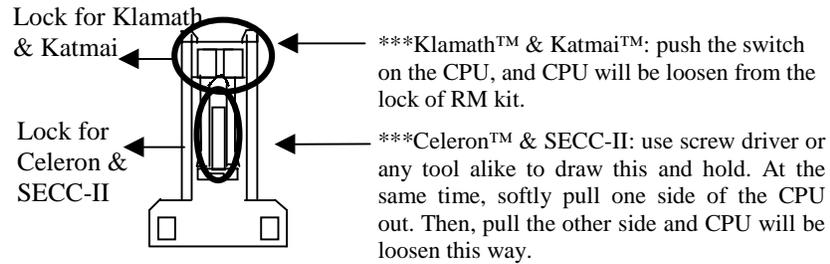
2. Make sure power is off during assembly.

-
3. Insert the RMAMs through the bottom of the motherboard and attach them to the retention mechanism.



4. Fasten up the screws on the retention mechanism to tighten up retention mechanism and RMAM. Check if all the piece parts are fastened tightly.
5. Put the CPU in the RM kit. (Push the CPU horizontally into the RM kit.)

 **Due to different packages of “Katmai™, Celeron™, SECC-II, Klamath™ and Deschutes™, there are 2 positions to lock them in the RM kit. Below is notice to unlock those CPUs.**



Chapter 3 BIOS Setup

3-1 Award® BIOS CMOS Setup



The menu displays all the major selection items and allows user to select any of the shown item. The selection is made by moving cursor (press any direction key) to the item and press <Enter> key. An on-line help message is displayed at the bottom of the screen as cursor is moves to various items which provides user better understanding of each function. When a selection is made, the menu of the selected item will appear. So the user can modify associated configuration parameters.

3-1-1 Standard CMOS Features



The "Standard CMOS Features" allows user to configure system setting such as **current date** and **time**, **type of hard disk drive** installed in the system, **floppy drive type**, and the type of **display monitor**. Memory size is auto detected by the BIOS and displayed for your reference. When a field is highlighted (direction keys to move cursor and **<Enter>** key to select). The entries in the field will be changed by pressing **<PageDown>** or **<PageUp>** key or user can enter new data directly from the keyboard.

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software		
IDE Primary Master		
IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level →
Access Mode	Auto	To auto-detect the HDD's size, head... on this channel
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	
↑↓:Move Enter:Select +/-/PG/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Hard Disk Configurations

1.IDE HDD Auto-Detection : press this item to Auto Detect the HDD type.

2.IDE Primary Master : select "AUTO" to detect the mode type automatically. Select "NORMAL" users have to redefine the following 4-8 items according to HDD. "NONE" means this item disabled.

3.ACCESS MODE : select "AUTO" to detect the mode type automatically. If your hard disk supports the **LBA** mode, select "**LBA**" or "**LARGE**". However, if your hard disk cylinder is more than 1024 and does not support the LBA function, you have to set at "**LARGE.**" Select "**NORMAL**" if your hard disk supporting cylinder is below 1024.

4. CYLS : the cylinder number of the hard disk.

5. HEAD : the read/write head number of hard disk. The range is from "**1**" to "**16**".

6.PRECOMP: the cylinder number at which the disk drive changes the write timing.

7.LANDZ : the cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.

8.SECTOR : the sector number of each track defined on the hard disk. The range is from "**1**" to "**64**".



Note1: if hard disk primary master/slave and secondary master/slave were set to "**auto**", the hard disk size and model will be auto detected on display during POST.



Note2: "**halt on**" is to determine when to halt the system by the BIOS if error occurred during POST.

The Award® BIOS supports 3 HDD modes: **NORMAL, LBA & LARGE.**

1. Normal mode

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for normal mode are **1024, 16 & 63.**

No. Cylinder	(1024)
X No. Head	(16)
X No. Sector	(63)
<u>X No. Per Sector</u>	<u>(512)</u>
	528 MB

If user set this HDD to normal mode, the maximum accessible HDD size will be 528 MB even though its physical size may be greater than that!

2. LBA (Logical Block Addressing) Mode

A new HDD accessing method to overcome the 528 MB bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD. During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 GB which is obtained by the following formula:

$$\begin{array}{r} \text{No. Cylinder} \quad (1024) \\ \text{X No. Head} \quad (255) \\ \text{X No. Sector} \quad (63) \\ \hline \text{X No. Bytes Per Sector} \quad (512) \\ \hline 8.4 \text{ GB} \end{array}$$

3. Large Mode

Extended HDD access mode supported by Award® software. Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, users do not want LBA). The Award® BIOS provides another alternative to support these kinds of large mode:

<u>Cyls.</u>	<u>Head</u>	<u>Sector</u>	<u>Mode</u>
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside int 12h in order to access the right HDD address the right HDD address!

4. Maximum HDD Size:

$$\begin{array}{r} \text{No. Cylinder} \quad (1024) \\ \text{X No. Head} \quad (32) \\ \text{X No. Sector} \quad (63) \\ \hline \text{X No. Bytes Per Sector} \quad (512) \\ \hline 1 \text{ GB} \end{array}$$



To support LBA or large mode of HDDs, there must be some softwares involved. All these softwares are located in the Award® HDD service routine (int 13h). It may be failed to access a HDD with LBA (large) mode selected if you are running under an operating system which replaces the whole int 13h. Unix operating systems do not support either LBA or large and must utility the standard mode. Unix can support drives larger than 528MB.

3-1-2 Advanced BIOS Features

Menu below shows all of the manufacturer's default values of this main board. Move the cursor by pressing <PageDown>/- or <PageUp>/+ key to modify the parameters, press [F1] key to display help message of the selected item. This setup program also provide 2 convenient ways to load the default parameter data from BIOS [F6] and [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.



Virus Warning

:Enabled

:Disabled (default)

CPU Internal Cache

Enabled : enable L1 cache (default)

Disabled: disable L1 cache

External Cache

Enabled (default): enable L2 cache

Disabled: disable L2 cache

Quick Power On Self Test

This category speeds up power on self test.

Enabled (default) : BIOS will shorten or skip some check items.

Disabled: normal speed

First Boot Device

This category determines which drive the system searches first. System will search in turn for floppy disk drive; second is hard disk drive, and finally Floppy drive. Default value is “**FLOPPY**”. Options are as below:

FLOPPY; LS/ZIP; HDD-0; SCSI; CDROM; HDD-1; HDD-2; HDD-3; LAN;

Disable

Second Boot Device

This category determines which drive the system searches first. System will search in turn for floppy disk drive; second is hard disk drive, and finally Floppy drive. Default value is “**HDD-0**”. Options are as below:

FLOPPY; LS/ZIP; HDD-0; SCSI; CDROM; HDD-1; HDD-2; HDD-3; LAN;

Disable

Third Boot Device

This category determines which drive the system searches first. System will search in turn for floppy disk drive; second is hard disk drive, and finally Floppy drive. Default value is “**LS/ZIP**”. Options are as below:

FLOPPY; LS/ZIP; HDD-0; SCSI; CDROM; HDD-1; HDD-2; HDD-3; LAN;

Disable

Boot Other Device

:Enabled (default)

:Disabled

Swap Floppy Drive

Enabled: floppy A&B will be swapped.

Disabled(default): floppy A&B will not be swapped.

Boot Up Floppy Seek

BIOS will determine if the floppy disk drive is 40 or 80 tracks. 360k type is 40 tracks while 720K/ 1.2M and 1.44M are all 80 tracks. Default value is **Enabled**.

Boot Up Numlock Status

:On (default)

:Off

Gate A20 Speed

:Normal

:Fast (default)

Typematic Rate Setting

This determines the typematic rate.

Enabled: enable typematic rate and typematic delay programming.

Disabled(default) : disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard.

Typematic Rate(Chars/Sec)

6 : 6 Characters Per Second (default)

8 : 8 Characters Per Second

10 :10 Characters Per Second

12 : 12 Characters Per Second

15 : 15 Characters Per Second

20 : 20 Characters Per Second

24 : 24 Characters Per Second

30 : 30 Characters Per Second

Typematic Delay (Msec)

This is the interval between the first and second character displayed.

250 : 250 msec (default)

500 : 500 msec

750 : 750 msec

1000 :1000 msec

Security Option

Item	Function	Note
Setup (default)	Security protection in CMOS setup menu	After setting password in BIOS CMOS “ Supervisor Password ” or User Password, ” it protects BIOS CMOS setup.
System	Security protection in system boot-up & BIOS setup	This function secures the system under system boot-up and BIOS setup after setting password.

OS Select For DRAM> 64MB

This option is especially set for OS2 operating system. Set “**Non-OS2**” for RAM memory over 64MB and set “**Non-OS2**” for other operating systems like Windows[®] 95/98 or NT.

:**Non-OS2** (default)

:**OS2**



3-1-3 Chipset Features Setup



System BIOS Cacheable

It defines whether system BIOS area cacheable or not.

:Enabled (default)

:Disabled

Video RAM Cacheable

It defines whether video RAM area cacheable or not.

:Enabled (default)

:Disabled

Memory Hole at 15M-16M : this field enables a memory hole in main memory space. CPU cycles matching an enabled hold are passed on to PCI note that a selection can not be changed while the L2 cache is enabled.

:Enabled

:Disabled (default)

AGP Aperture Size(MB)

:128MB (default)

:256MB, 4MB, 8MB, 16MB, 32MB, 64MB

AGP ISA Aliasing

:Enabled (default)

:Disabled

K7 CLK_CTL Select

Set K7 clock ramp rate according to system clock Multiplier and the System bus speed.

:Default

:Optimal (default)

SDRAM ECC Setting

When SDRAM ECC Setting Enabled, the system allows a detection of single-bit and multiple-bit errors and recovery of single-bit errors.

:Enabled

:Disabled (default)

Post Memory Write Enable

:Enabled

:Disabled (default)

SDRAM Timing setting by

:Manual(default) --- the user is allowed to modify "SDRAM PH Limit", "SDRAM Idle Limit", "SDRAM Trc Timing Value", "SDRAM Trp Timing Value", "SDRAM Tras Timing Value", "SDRAM CAS Latency", "SDRAM Trcd Timing Value".

:Auto --- the user is allowed to modify "SDRAM PH Limit", "SDRAM Idle Limit", "SDRAM Trc Timing Value".

3-1-4 Integrated Peripherals



IDE Read/Write Prefetch

:Enabled (default)

:Disabled

IDE Primary / Secondary Master / Slave PIO

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

:Auto (default)

:Mode0, Mode1, Mode2, Mode3, Mode4

IDE Primary / Secondary Master / Slave UDMA

Ultra DMA /33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA drive (Windows 95 OSR2 or a third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

:Auto (default)

:Disabled

On-Chip Primary /Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

:Enabled (default)

:Disabled

USB Host Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

:Enabled (default)

:Disabled.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

:Enabled

:Disabled (default)

Init Display First

This item allows you decide to active whether PCI Slot or AGP Slot.

:PCI Slot

:AGP (default)

IDE HDD Block Mode

:Enabled (default)

:Disabled

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller(FDC) installed on the system board and if you wish to use it.

:Enabled (default)

:Disabled

Onboard Serial Port 1

Select an address and corresponding interrupt for the first serial port.

:3F8/IRQ4 (default)

:2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto, Disabled

UR2 Duplex Mode

Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.

:Full

:Half (default)

RxD, TxD Active

This item allows you to determine the active of RxD, TxD.

: “Hi, HI”, Hi, Lo”, “Lo, Hi”

: “Lo, Lo” (default)

IR Transmittion delay

This item allows you to decide to active IR transmission delay.

:Enabled (default)

:Disabled.

Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Normal EPP (Extended Parallel Port) ECP (Extended Capabilities Port) ECP+EPP PC AT parallel port Bidirectional Port Fast, buffered port Fast, buffered, Bidirectional Port. Select Normal unless you are certain your hardware and software both support EPP or ECP mode.

ECP Mode Use DMA

Select a DMA channel for the parallel port for using during ECP mode.

:3 (default)

:1

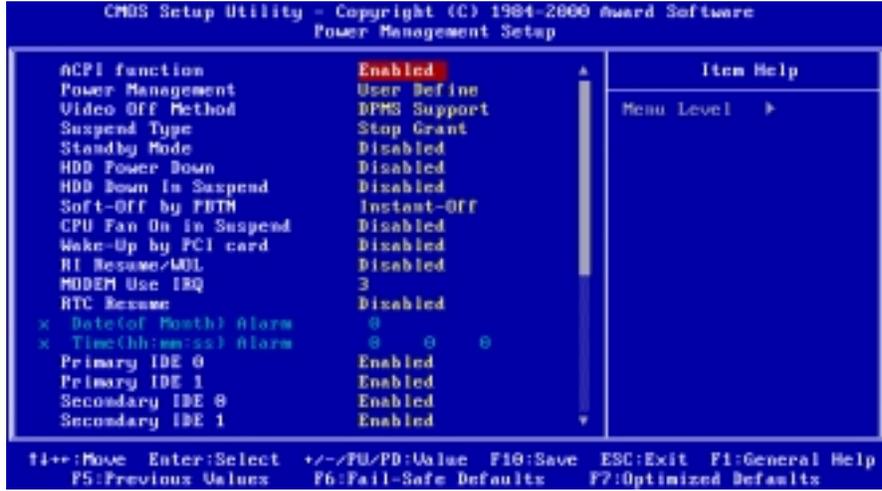
EPP Mode Select

This item allows you to determine the IR transfer mode of onboard I/O chip.

:EPP1.9

:EPP1.7 (default)

3-1-5 Power Management Setup



When using the function of Suspend to RAM, please follow the below procedures.

1. Choose "Power Management Setup" from the main menu, then press <Enter>.
2. Set the item of "ACPI Function" to "Enabled."
3. Choose "S3(STR)" on "ACPI Suspend Type."
4. Press <Esc> at anytime to return to the main menu.
5. Choose "Save & Exit Setup" then press <Enter>, type <Y> then press <Enter>.
6. Before installing Windows® 98, please key in below parameters:
[drive]:>setup /p j

If you had installed Windows®98 already, you have to update your system to support ACPI. About updating information, please contact with Microsoft technical support.

7. Setup Windows® 98, click "start" on the Windows® 98 screen, please move cursor to "Settings", then to click "Control Panel".
8. On "Control Panel" screen, click "Power Management".
9. Click "Advanced", then choose "stand by" in "When I press the power button on my computer".
10. After completing above procedures, if you want to shut down system, please ignore the procedure of shut down file, application software. To press power button shut down system immediately or choose "stand by" on Windows® 98 system.

Note : If you want to start system, please press power button then your preserve properties will appear within 8 second. But if you had set "keyboard password" on "KB Power On Password", you have to start system by keying password.

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management(ACPI).

:Enabled (default)

:Disabled

Power Management

--- users can configure their own power management

:User Define (default)

:Min Saving

:Max Saving

:Disabled

Video Off Method

:DPMS Support (default)

:Blank Screen

:V/H Sync+Blank

Suspend Type

Select the Suspend Type.

:PwrOn Suspend

:Stop Grant (default)

Standby Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

:Disabled (default)

:Enabled

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

:Disabled (default)

:Enabled

HDD Down In Suspend

This item allows you to decide to Power down in suspend.

:Disabled (default)

:Enabled

Soft-Off by PBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung.”

:Delay 4 Sec

:Instant-Off (default)

CPU Fan On in Suspend

:Enabled

:Disabled (default)

Wake-up by PCI card

:Enabled

:Disabled (default)

RI Resume/WOL

To use this function, you need a LAN add-on card which supports power on functions. It also support the wake-up LAN jumper.

:Enabled

:Disabled (default)

MODEM Use IRQ

This determines the IRQ, which can be applied in MODEM use.

:3 (default)

:4 / 5 / 7 / 9 / 10 / 11 / NA

RTC Resume

When Enabled, you can set the date and time at which the RTC (real-time clock) alarm awakes a system which has been powered down.

:Enabled

:Disabled (default)

Date (of Month) /Time (hh:mm:ss)

You could set the date (of month) and timer (hh:mm:ss), any event occurring at will awakes a system which has been powered down.

Primary IDE 0/1

The default value is Enabled.

Disabled : Disable this function.

Enabled (default) : Enable monitor Primary IDE 0/1 for Green event.

Secondary IDE 0/1

The default value is Enabled.

Disabled : Disable this function.

Enabled (default) :Enable monitor Secondary IDE 0/1 for Green event.

Parallel Port

The default value is Disabled.

Disabled (default) :Disable this function.

Enabled : Enable monitor Parallel Port for Green event.

Serial Port

The default value is Disabled.

Disabled (default) :Disable this function.

Enabled :Enable monitor Serial Port for Green event.

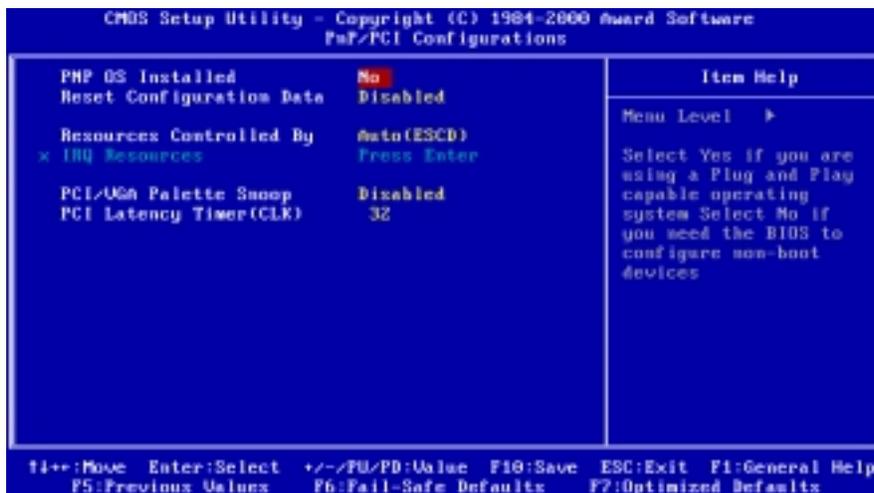
IRQ3 – IRQ15

The following is a list of IRQ, Interrupt ReQuests, which can be exempted much as the COM ports and LPT ports above. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When set Disable, activity will neither prevent the system from going into a power management mode nor awaken it.

**IRQ3 (COM 2), IRQ4 (COM 1), IRQ5 (LPT 2), IRQ6 (Floppy Disk),
IRQ7(LPT 1), IRQ8 (RTC Alarm), IRQ9 (IRQ2 Redir), IRQ10 (Reserved)
IRQ11 (Reserved), IRQ12 (PS/2 Mouse), IRQ13 (Coprocessor),
IRQ14 (Hard Disk), IRQ15 (Reserved)**

3-1-6 PNP/PCI Configuration Setup



PNP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. Therefore for non-PnP operating system (DOS, Netware™), this option must set to NO.

Reset Configuration Data

:Disabled(default)

:Enabled--- to reset “**Extended System Configuration Data(ESCD)**” when you exit setup if you have installed a new add-on card and the system reconfiguration has caused such a serious conflict that the operating system can not boot up.

Resources Controlled By

:Manual

The table will show the below items: “**IRQ Resources.**” The user can adjust the shown items as required.

:Auto(ESCD) (default)

The table will not show the above items, and the system will automatically assign the above setup.

PCI/VGA Palette Snoop

:Enabled

:Disabled (default)

3-1-7 Load Fail-Safe Defaults



"**Load Fail-Safe Defaults**" loads optimized settings which are stored in the BIOS ROM. The auto-configured settings only affect "**BIOS Features Setup**" and "**Chipset Features Setup**" screens. There is no effect on the standard CMOS setup. To use this feature, highlight it on the main screen and press the <Enter> key. A line will appear on screen asking if you want to load the setup default values. Press the <Y> key and then press the <Enter> key. The setup defaults will then load. If not, enter <N>.

3-1-8 Load Optimized Defaults



"**Load Optimized Defaults**" loads optimized settings which are stored in the BIOS ROM. The auto-configured settings only affect "**BIOS Features Setup**" and "**Chipset Features Setup**" screens. There is no effect on the standard CMOS setup. To use this feature, highlight it on the main screen and press the <Enter> key. A line will appear on screen asking if you want to load the setup default values. Press the <Y> key and then press the <Enter> key. The setup defaults will then load. If not, enter <N>.

3-1-9 Supervisor/User Password

The "Supervisor/User Password setting" utility sets the security protection. There are two kinds of password functions in the setup menu : one is "Supervisor Password," and the other is "User Password." Their difference is:

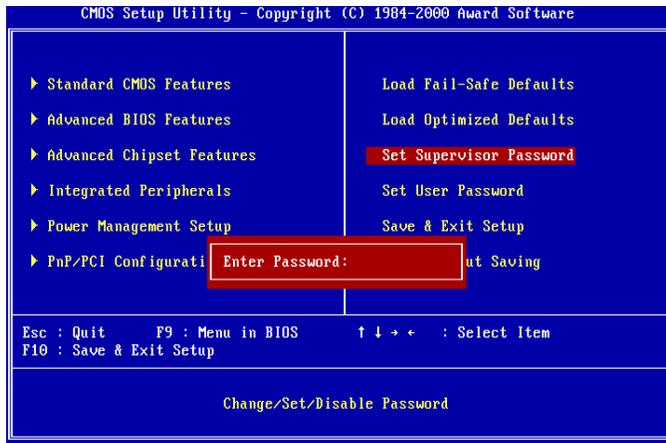
Supervisor Password : this function allows you the right to change the options of setup menu.

User Password : this function allows you to enter the setup menu but not to change the options of the setup menu except "USER PASSWORD," "SAVE & EXIT SETUP," and "EXIT WITHOUT SAVING."

1. How to set "Supervisor Password" & "User Password".

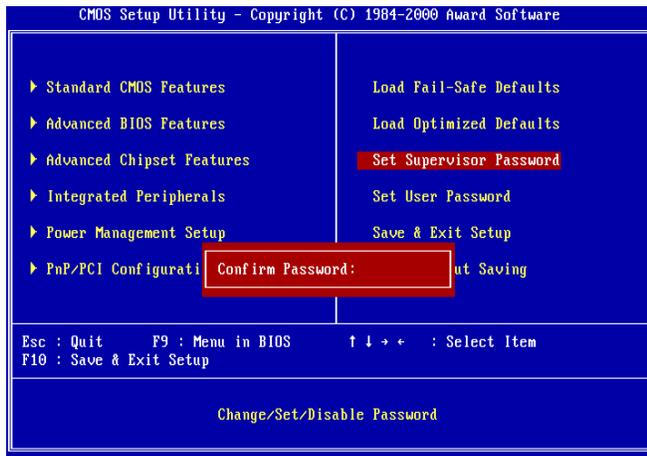
The setup of "Supervisor Password" and "User Password" has the same steps.

Step 1: Enter Password --Press <Enter> after appointing the password.



Step 2: Confirm Password

Type the password again and press <Enter>.



If you forget password, please clear CMOS.

Step 3: Set "Security Option" in "BIOS Features Setup"

After setting password, enter "Security Option" in "BIOS Features Setup." There are 2 options "Setup" & "System." "Setup" will only secure CMOS setup through password. "System" is to secure PC system and password is required during system boot-up in addition to CMOS setup.

2. How to Disable “Supervisor Password” & “User Password”

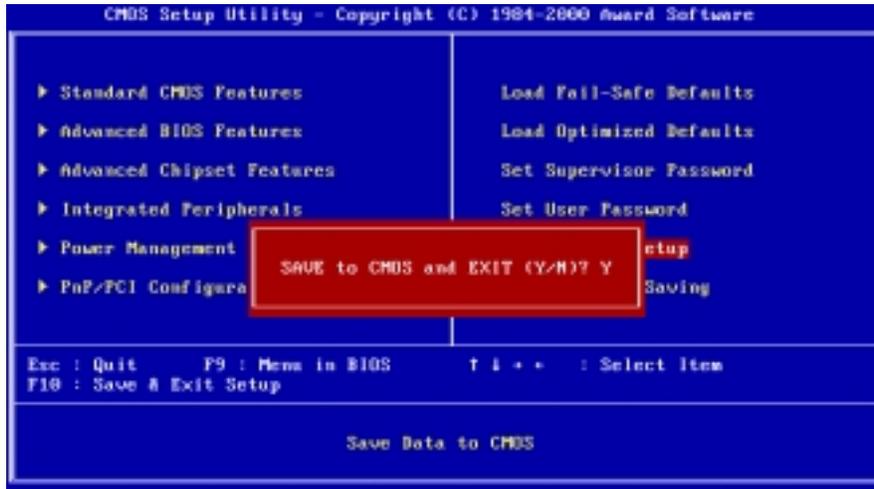
Step 1: Go to CMOS Setup Menu (need to key in password first)

Step 2: Enter “Supervisor Password” or “User Password”

When it shows “Enter Password.” Press the <Enter> key instead of entering a new password when "ENTER PASSWORD" appears. It will inform “PASSWORD DISABLED PRESS ANY KEY TO CONTINUE.” Thus, press any key as instructed to disable the password.



3-1-10 Save & Exit Setup



The "Save & Exit Setup" option will bring you back to boot up procedure with all the changes you have made which are recorded in the CMOS RAM.

3-1-11 Quit Without Saving



The "Quit Without Saving" option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All of the old data in the CMOS will not be destroyed.

Chapter 4 Appendix

4-1 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)

4-2 I/O Map

000-01F	DMA controller (master)
020-021	Interrupt controller (master)
022-023	Chipset control registers. I/o posts
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

4-3 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

4-4 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

4-5 RTC & CMOS RAM Map

RTC & CMOS :

00 seconds
01 second 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

4-6 Award BIOS Hard Disk Type

Type	Cylinder	Heads	Write Pre-comp	Landing Zone	Sectors	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	21MB
3	615	6	300	615	17	32MB
4	940	8	512	940	17	65MB
5	940	6	512	940	17	49MB
6	615	4	65535	615	17	21MB
7	462	8	256	511	17	32MB
8	733	5	65535	733	17	31MB
9	900	15	65535	901	17	117MB
10	820	3	65535	820	17	21MB
11	855	5	65535	855	17	37MB
12	855	7	65535	855	17	52MB
13	306	8	128	319	17	21MB
14	733	7	65535	733	17	44MB
16	612	4	0	663	17	21MB
17	977	5	300	977	17	42MB
18	977	7	65535	977	17	59MB
19	1024	7	512	1023	17	62MB
20	733	5	300	732	17	31MB
21	733	7	300	732	17	44MB
22	733	5	300	733	17	31MB
23	306	4	0	336	17	10MB
24	977	5	0	925	17	42MB
25	1024	9	65535	925	17	80MB
26	1224	7	65535	754	17	74MB
27	1224	11	65535	754	17	117MB
28	1224	15	65535	699	17	159MB
29	1024	8	65535	823	17	71MB
30	1024	11	65535	1023	17	98MB

Type	Cylinder	Heads	Write Pre-comp	Landing Zone	Sectors	Size
31	918	11	65535	1023	17	87MB
32	925	9	65535	926	17	72MB
33	1024	10	65535	1023	17	89MB
34	1024	12	65535	1023	17	106MB
35	1024	13	65535	1023	17	115MB
36	1024	14	65535	1023	17	124MB
37	1024	2	65535	1023	17	17MB
38	1024	16	65535	1023	17	142MB
39	918	15	65535	1023	17	119MB
40	820	6	65535	820	17	42MB
41	1024	5	65535	1023	17	44MB
42	1024	8	65535	1023	17	68MB
43	809	6	65535	852	17	42MB
44	809	9	65535	852	17	64MB
45	776	8	65535	775	17	104MB
46	AUTO	0	0	0	0	
47	USER'S	TYPE				

4-7 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	8742 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
390 - 393	Cluster
3A0 - 3AF	Bisynchronous 1

I/O Address (HEX)	I/O device
3B0 - 3BF	Monochrome Display and Printer Adapter
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 5 Q & A

5-1 Errors 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 may always ask. The user may press “**Esc**” key to skip the full memory test.

1. Beep sound

On power on, the system makes beep sound to offer different messages. If the system is configured correctly, it prompts a short beep to show correct the devices 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 fail

It indicates the CMOS battery does not work. Contact the dealer to exchange a new BIOS.

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 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 initiate 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*

Normally 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 find 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.

5-2 Frequently Asked Questions

Below are question users always come out with. **Q** is for the question. **A** is for the answer.

Q: Why can't my AGP card work under Win 95?

A: Windows 95 OSR2.0 does not support AGP function. You must install "USB support" file to enable this function. After installing, choose "enable for **"ASSIGN IRQ FOR USB"** in BIOS PNP/PCI configuration setup.

Q: Why can't the CPU frequency be adjusted to 100 MHz?

A: The BIOS will automatically detect the CPU frequency (66MHz or 100 MHz). Therefore, if your CPU frequency cannot be adjusted to 100 MHz, then your CPU may be 66 MHz. In BIOS "speed setup," there are other frequencies, like 75 MHz, 83 MHz, 103 MHz, 102 MHz, 112 MHz, 133MHz. These are for internal test only. No guarantee is provided since this is not included in chipset specification.

Q: Why is my system not stable with 100 MHz CPU?

A: There are many reasons for this condition. The commonest one is SDRAM does not match PC-100 specification. When system is operated under 100 MHz, in addition to 100 MHz CPU, SDRAM must be PC-100 DIMM too.

Version 2, June 1991

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Zmak Linux vision 6.0/Auto installation

January 2000

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