6VMPLE1

(VIA PLE-133 Chipset For
INTEL PIII/ VIA CyrixIII CPUs)
Micro-ATX Form Factor
Main Board

User's Manual

(Ver.:1.0)

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Revision History

Revision	Date	Release Notes

1.0	June-2001	First Official Release

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Important Warnings:

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

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

Chapter 1 Introduction

Thank you for purchasing this high quality Mother board, we are confident that you will be able to use this mother board to your full satisfaction. This manual is divided into 6 main sections, as described below:

.

Introduction

The introduction contains information on the main specifications for the 6VMPLE1 mother board, the package contents and cautionary notes.

Hardware Installation

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

Software Installation

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

BIOS Setup

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

Appendix

Provides useful information

Q & A

1-1 Main Specifications

- **PCB board size: 21cm x 24.5cm**

- **PCB layer: 4 layers**

- **Supported CPUs**

The following Socket 370-based Intel® Pentium III™/ Celeron™ or VIA Cyrix® III CPUs are supported:
Intel PIII (800, 866, 933, 1000 MHz)
Celeron (700, 733, 766, 800 MHz)
VIA Cyrix (500, 600MHz)

Note: The frequencies listed were those known at time of publication.

- **Chipset Northbridge**

The VIA™ VT8601A (VIA PLE-133) system controller supports a 66/100/133 MHz Front Side Bus (FSB); up to 1GB of PC133/ PC100 SDRAM. It was designed especially to deliver enhanced Intel Pentium™ III / Celeron™ or VIA Cyrix® III processors system performance. The on-die 3D VGA core logic is TRIDENT 9880 chipset which allows this main board to run any 3D graphics program without adding any Extra VGA card.

- **Chipset Southbridge**

The VIA VT8231 PCI Super-I/O Integrated Peripheral Controller (PSIPC) supports UltraDMA/100, which allows burst mode data transfer rates of up to 100MB/sec; AC97 audio (Using the on-board VIA 1611A Audio Codec); USB controller with root hub and four function ports. It also allows user to use ACR card which provides 10/100M LAN, Modem & optional Home PNA functions.

- **Memory**

The 6VMPLE1 comes equipped with two Dual Inline Memory Module (DIMM) sockets to support Intel PC133/ PC100-compliant (8, 16, 32, 64, 128, 256, or 512MB) DIMM modules up to 1GB.

- **PCI Expansion Slots**

With two 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), the 6VMPLE1 motherboard is ready for the most demanding applications.

■ **ACR Expansion Slots (+ optional ACR card)**

ACR slot is a new architure defined by AMD & VIA which allows ACR card for 10/100 LAN/ Modem & optional Home PNA functions.

10/100M LAN/ Modem/ Home PNA

10/100M LAN/ Modem

■ **USB interface**

With support for up to 4 USB ports, two on the back panel and two on-board, the 6VMPLE1 provides ample USB expansion room.

■ **IDE interface**

The 6VMPLE1 comes with an onboard PCI Bus Master IDE controller with two connectors that support four ATA100/ 66/ 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.

■ **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.

1-2 Other Features

- **Wake-On-LAN and Wake-On-Modem**

These 3 pin connectors allow the motherboard to wake up on network (WOL) or Modem (WOM) activity.

- **PC Status Monitoring**

This functionality provides a reliable way to examine and manage system status information, such as CPU and system voltages, temperatures, and fan speed. This information is available in the BIOS or through the VIA Hardware Monitor Software.

- **System BIOS**

The 6VMPLE1 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.

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 6VMPLE1 Motherboard

- 1 Manual

- 1 Driver Installation CD-ROM

- 1 IDE ATA 66/100 Flat-Cable

- 1 Floppy Disk Drive Flat-Cable

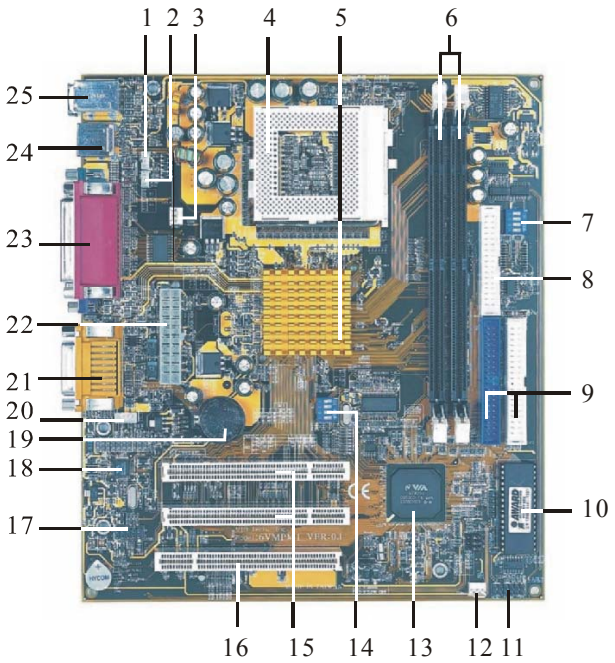
B. Make sure power is off.
During hardware installation, be sure that there is no power connected during this period.

C. Avoid ESD (Electrical Static Discharge.)

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

Chapter 2 Installation

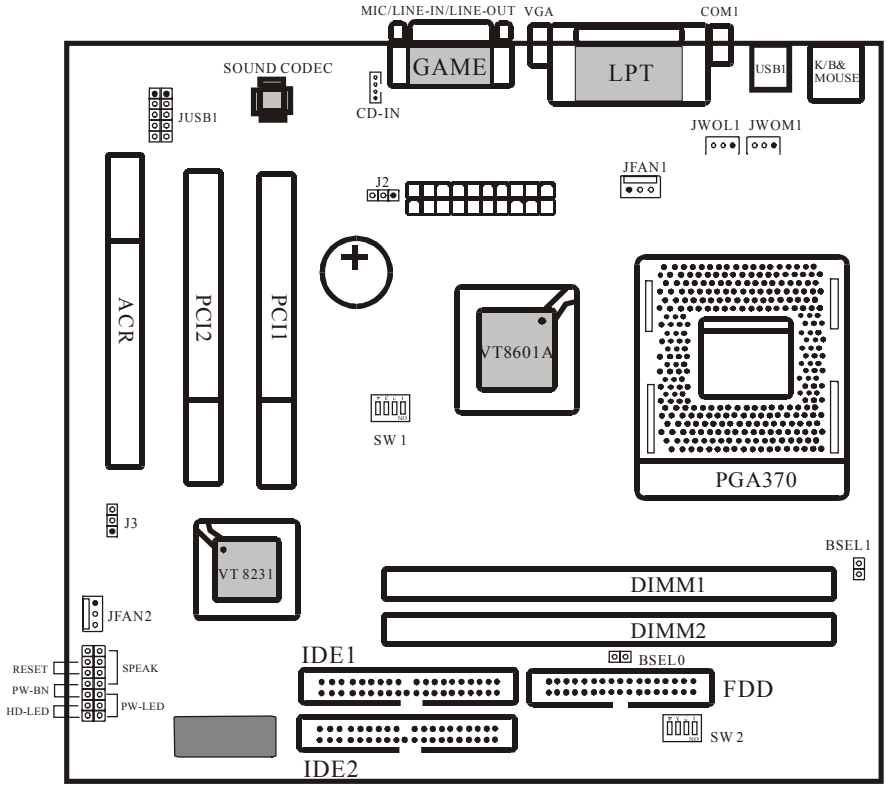
2-1 Component Locations



1. **JWOM1**
2. **JWOL1**
3. **JFAN1**
4. **CPU Socket**
5. **VIA VT8601A**
6. **DIMM**
7. **SW2**
8. **FDD**
9. **IDE**
10. **BIOS**
11. **Front Panel Connectors**
12. **JFAN2**
13. **VIA VT8231**
14. **SW1**
15. **PCI Slot**
16. **ACR Slot**
17. **JUSB1**
18. **SOUND CODEC**
19. **BATTERY**
20. **CD_IN**
21. **GAME Port**
    Line-In ; Line-Out
    Mic-In
22. **ATX Power**
23. **LPT Port**
    COM1; VGA1
24. **USB**

25. Kyboard & Mouse

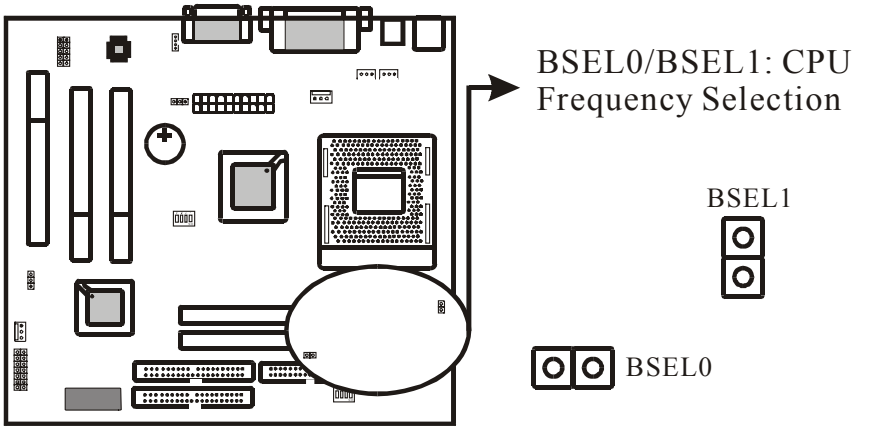
2-2 Layout Reference



2-3 Jumper Setting

2-3-1 BSEL0/BSEL1: CPU Frequency Selector

BSEL0/BSEL1 is a 2-pin connector which provides CPU Frequency selection, and allows over-clocking (but it is not recommended).

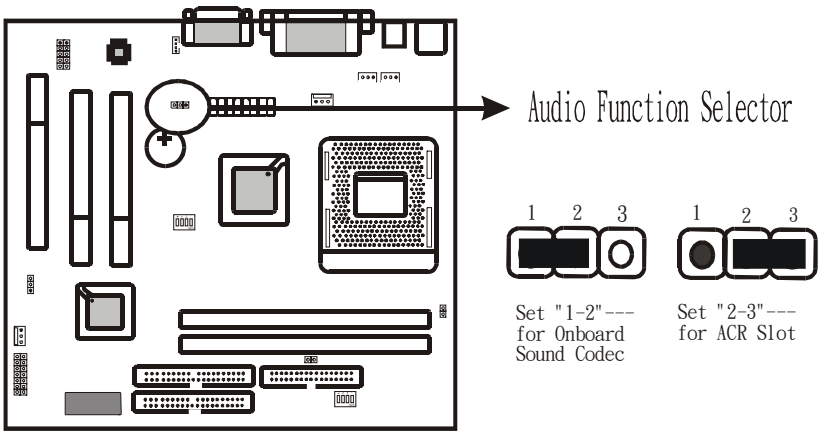


BSEL0	BSEL1	CPU Frequency Settings	
ON	ON	Bus Freq Auto Detected By CPU	(default)
OFF	ON	66/100 MHz Over Clocking	
ON	OFF	100 MHz Over-Clock to 133MHz	

1. ***The frequency is auto detected, no need to set jumpers unless you need to adjust them for special purposes.(Over-clocking)***
2. ***The manufacturer shall have neither liability nor responsibility to any person or entity with responsibility to any person or entity with respect to any loss or damages arising by users' over-clocking or over-voltage.***

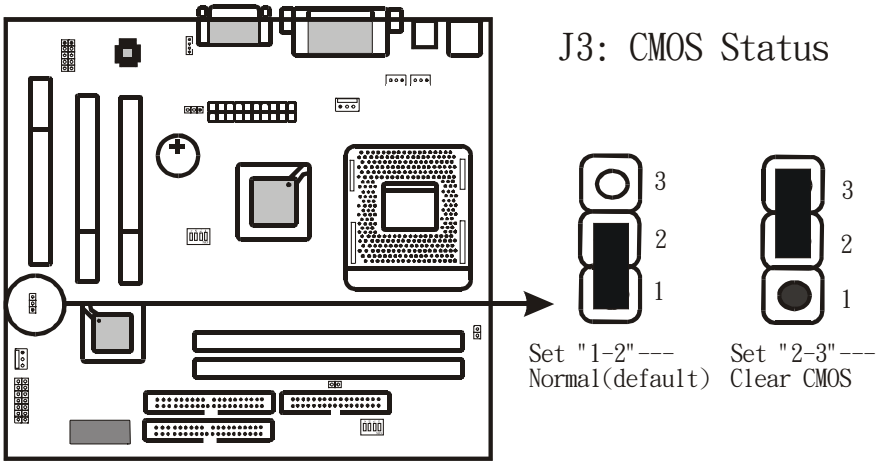
2-3-2 J2: Audio Function Selector

J2 is a 3-pin selector which provides Audio function. The on board codec is configured as the primary codec. A secondary AC'97 codec can be added to the mother board through the ACR slot.



2-3-3 J3: CMOS Status

J3 is a 3-pin connector. Clear CMOS if system password is forgotten. Below are details 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 power cable from ATX connector "POWER1".
Step 3: Short the CMOS jumper by putting jumper cap on Pin 2-3 for a few seconds.
Step 4: Return to pin 1-2 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.

2-4 CPU Installation

The first step in the installation of your CPU is the insertion of the CPU into the 370 pins CPU socket. Please follow the steps as outlined below carefully to avoid damage to the CPU.

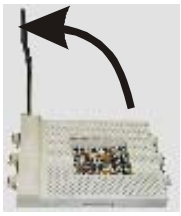
Avoid Static Electricity
The Intel PIII and Celeron processors and your motherboard contain sensitive electronic components that can be easily damaged by static electricity. We recommend that you leave the processor in its original packaging until you are ready to install it. You should only touch the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

First take a moment to inspect your CPU for obvious damage due to shipping or handling. Be sure that no noticeable damage exists before proceeding. You should have the following items:

- ☐ 1 Intel PIII or Celeron processor.
- ☐ 1 good heatsink and fan assembly.

Step 1

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



Step 2

The processor pin array at the top two corners is angled and has no pins in the corners. Notice that at the top of the socket on the motherboard (near where it says "Socket 370") the corners also do not have positions for pins. The processor must be positioned so the pins match up properly. When you do that, the corner of processor that is cut off will be positioned next to the release pivot.

It should take no force to install the processor, this is a zero insertion force (ZIF) socket. If it takes any force you are doing something wrong. Check the pin alignment and also make sure the release lever is raised up completely.
After placing the CPU lower the release lever to lock the processor in place.

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

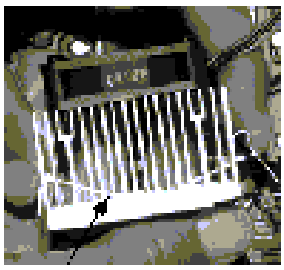
WARNING: *Never run the processor without the heatsink properly and firmly attached.*

Step3

The picture below shows the bottom of the heatsink. Notice the step in the heatsink surface, this portion fits over the top of the socket, where the legend "Socket 370" is molded into the plastic. The heatsink must be mounted with this step above the top of the socket or the heatsink will not be touching the processor properly.

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

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



trying to install it.

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

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

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

Now connect the wire from the heatsink fan to the CPU FAN connector on the motherboard. This connector is keyed and can only be installed one way. If you use a heatsink assembly that has two cooling fans, connect one to CPU FAN and the other to FAN1 . For more information on the FAN connectors, refer to the FAN connector section later in this section.

2-4-1 CPU Frequency settings

The frequency the CPU runs at internally depends on the FSB (Front Side Bus) Frequency that is provided to it and the multiplier setting. As example, a 800MHz CPU would run at 100MHz with a multiplier setting of 8x.

Frequency

The 6VMPLE1 motherboard allows for setting of the frequency through the BIOS. To change the CPU frequency, go to the *Voltage / Frequency Control* page in the BIOS setup, the *CPU Host / PCI Clock* item will allow you select the CPU frequency. This is explained in more detail in the BIOS section.

SW2: CPU Ratio Selector

SW2	Ratio	SW2	Ratio	SW2	Ratio
	3X		5X		7X
	3.5X		5.5X		7.5X
	4X		6X		8
	4.5X		6.5X		

SW1: External Frequency Selection

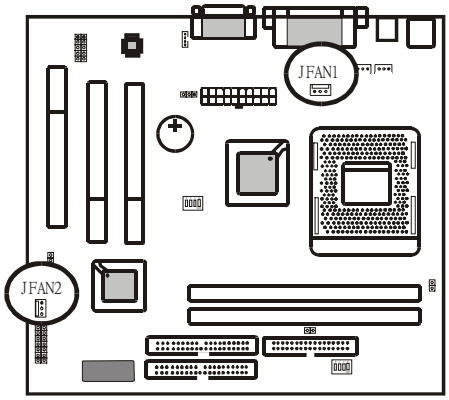
CPU	PCI	1	2	3	4	
133MHz	33	OFF	OFF	OFF	OFF	
100MHz	33	OFF	OFF	OFF	ON	
66MHz	33	OFF	OFF	ON	ON	

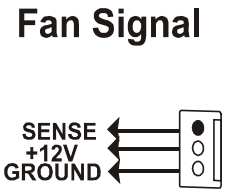
This potion tells the clock generator what frequency to send to the CPU, DRAM and the PCI bus. This allows the selection of the CPU's External Frequency(or Bus Clock). The Bus Clock multiplied by the Frequency Multiple equals the CPU's Intemal frequency (the advertifed cpu speed).

WARNING: Frequencies other them the recommended CPU bus frequencies are not guaranteed to be stable!

2-4-2 CPU and System Cooling

CPU fan is a 3-pin connector, and the main board supports 2 FAN connectors. As the main board supports hardware monitoring, the system can detect fan speed automatically. The user may refer to Chapter 4 "4-10 PC Health Status" to see the CPU fan speed.



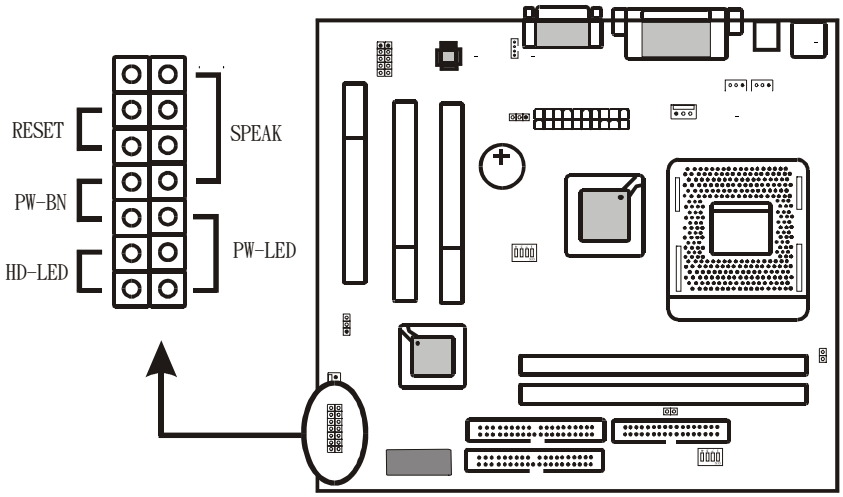


2-5 Connectors

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 “RESET,” “PW-BN,” “HD-LED,” “SPEAK,” and “PW-LED.” Please refer the details as below.



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.

PW-BT 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).

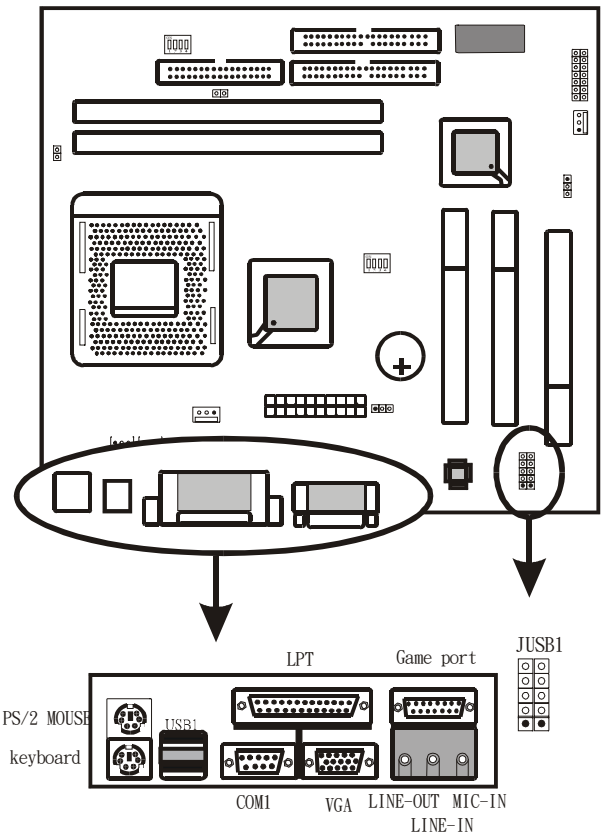
HD-LED (Hard Disk activity LED connector) is a 2-pin keyed Berg strip. It is used to connect to front panel Hard Disk LED.

SPEAK is a 4-pin keyed Berg strip. It is used to connect to the case speaker to the main board for sound purpose.

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

2-5-2 Back Panel Connectors

Back Panel Connectors are GAME Port, MIC, LINE-IN, LINE-OUT, COM1/ COM2, LPT, VGA, USB, PS/2 Keyboard, and PS/2 mouse on case back panel. Refer to below details.



COM1

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

KB/PS2 MOUSE

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

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

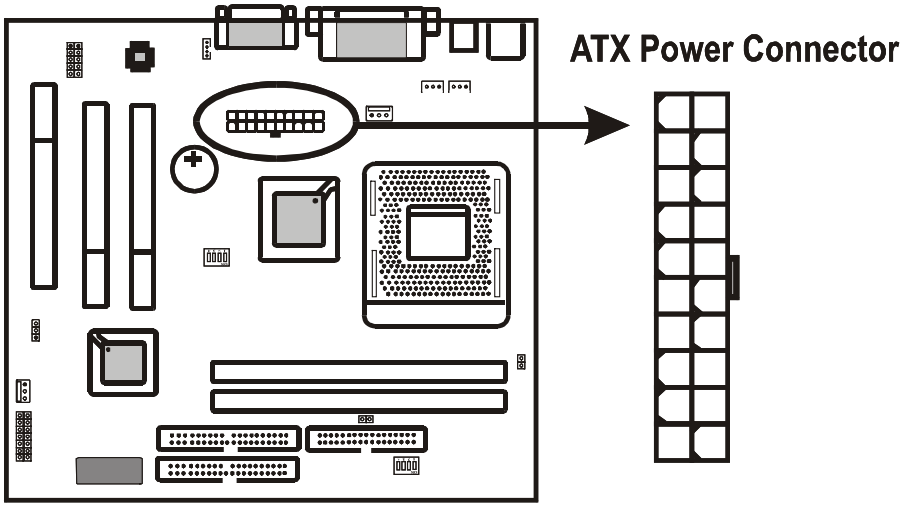
Midi/Game port has 15 pins connecting to the game joystick. External Audio connectors are ”LINE-OUT,LINE-IN, MIC-IN ” for audio functions.

VGA Connector

VGA Connector has 15 pins connecting to the monitor cable.

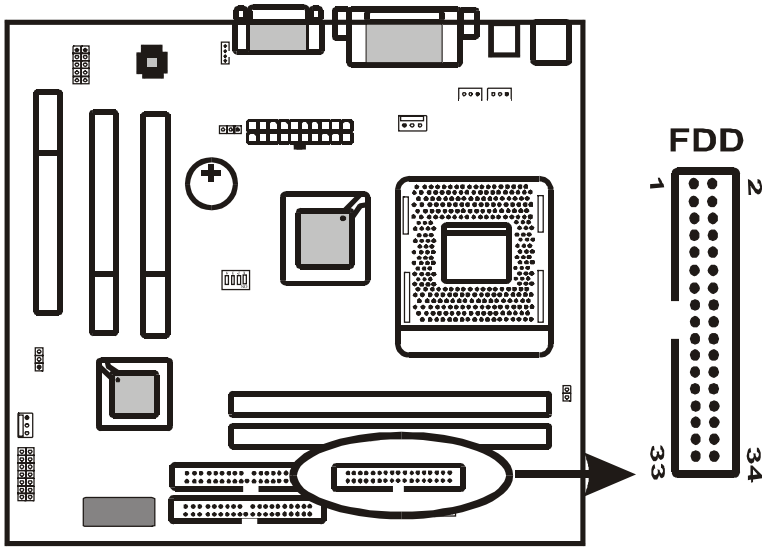
2-5-3 ATX Power Supply Connector

The main board supports standard AT and ATX power supply. ***ATX power supply connector*** has 20 pins, which is especially designed for ATX case. The ATX power supply supports the function of the **"Soft Power On Momentary switch"** which connects the front panel switch to the 2-pin **SOFT-PWR** on the system board**.** While the power switch on the back of ATX power is turned on, the full power will not go into the system board until the front panel switch is momentarily pressed. Push the switch again to turn off the power to the system board.



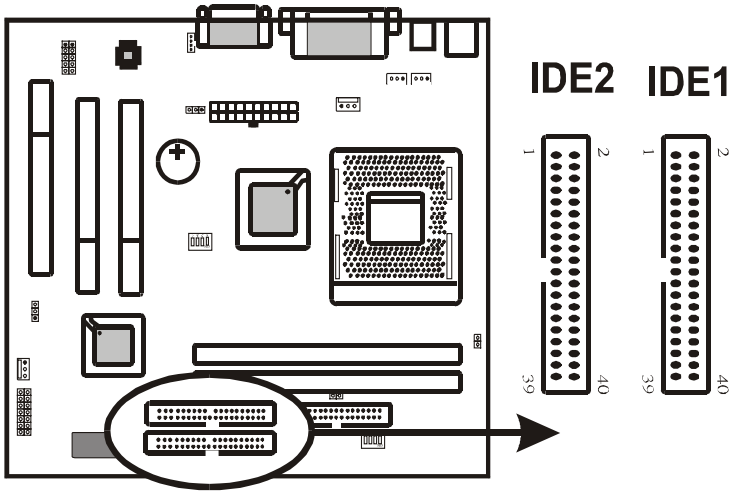
2-3-1 Floppy Disk Connector

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



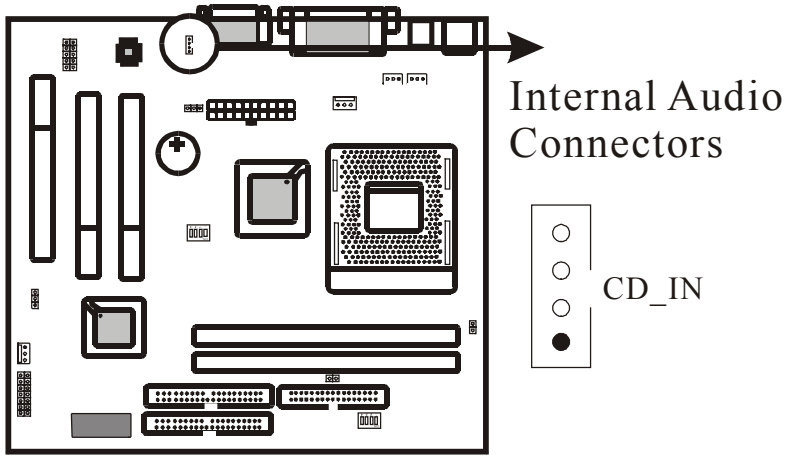
2-3-2 IDE1 and IDE2

The main board supports 2 IDE connectors: IDE1 and IDE2. IDE connectors have 40 pins. IDE1 is the primary channel, and IDE2 is the secondary. Each channel supports 2 IDE devices, and 4 channels in total for this main board. It also supports Ultra DMA 33/66/100 Function.



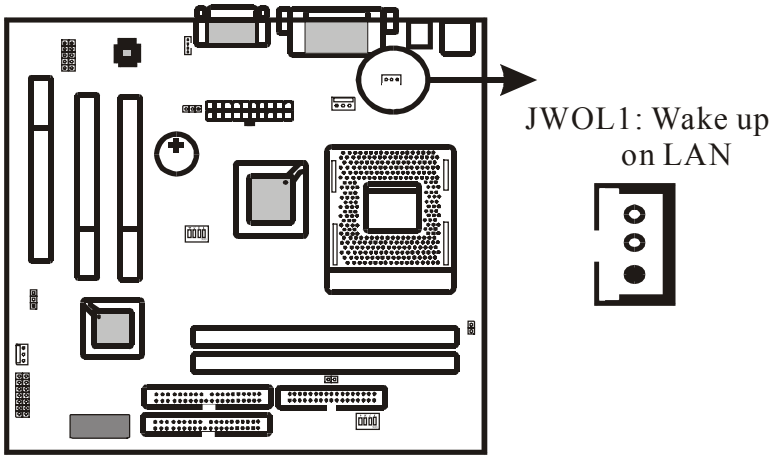
2-3-3 Internal Audio Connectors

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



2-3-4 JWOL1: Wake up on LAN

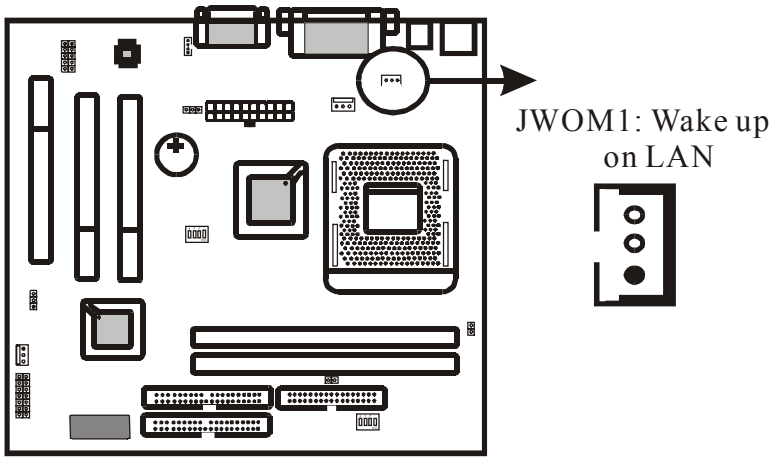
Wake up on LAN marked as "JWOL1," is a 3-pin connector. To support this feature, a network card is required for the system and network management software must be installed, too.



JWOL1 (Wake up on LAN) function requirement:
Power supply should be able to offer at least 1A driving ability to the signal "5V trickle voltage."

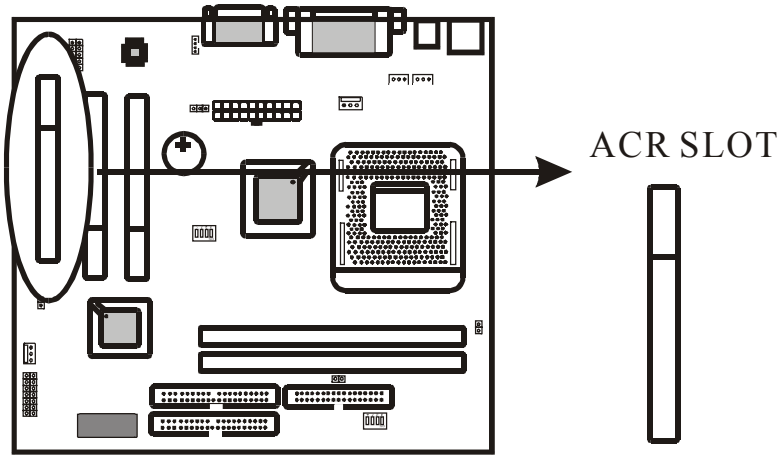
2-3-5 JWOM1: Wake up on Modem

Wake up on Modem marked as "JWOM1," is a 3-pin connector.



2-3-6 ACR Slot

ACR is an open standard PC communications riser card specification. ACR simplifies today's PC communications functions into a single riser card that can be customized to include modem, Ethernet, optional Home PNA (phoneline networking) funications.

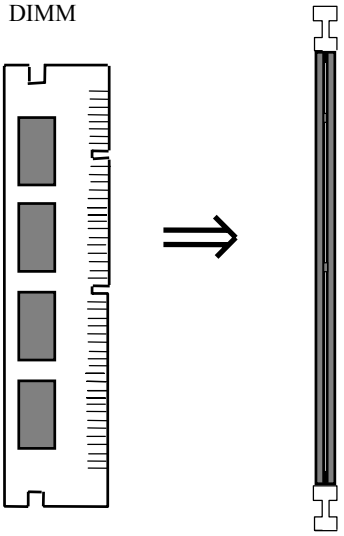


10/100M LAN/ Modem

10/100M LAN/ Modem/ Home PNA

2-4 DIMM Memory Installation

The main board has 2 DIMMs on board. Chipset can support maximum memory up to 512M Bytes. Insert the module as shown. Due to different number of pins on either side of the breaks, the module will only fit in the orientation as shown.



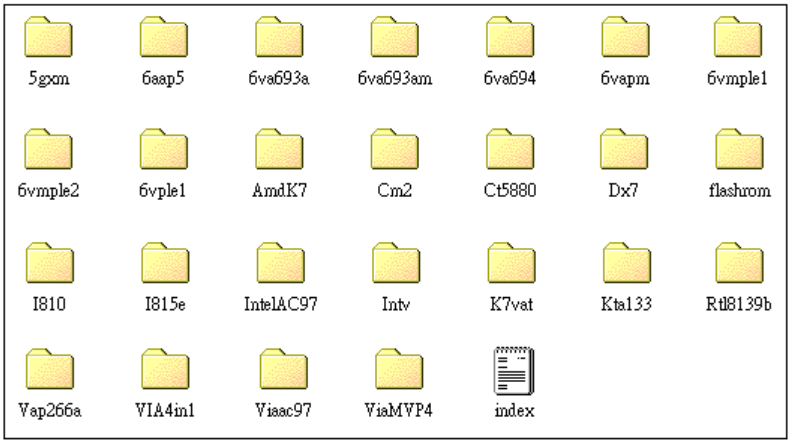
Chipset SUPPORTS SDRAM.

With 100 MHz CPUs like PII/PIII, Cyrix III, the system MUST be installed with PC-100, 100MHz SDRAM module.

Chapter3 Software Install

3-1 Notice of CD Driver Installation

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



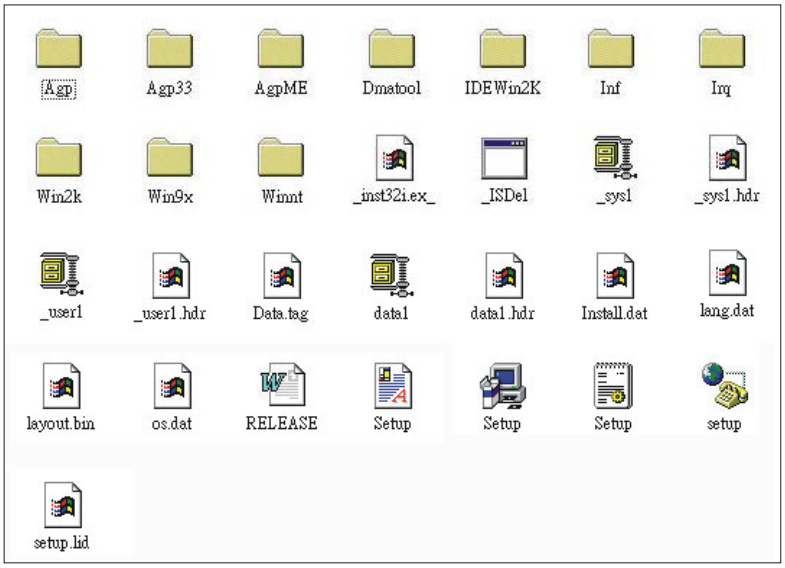
CD driver is always updated with the latest version, so the actual CD content may be somewhat different from the above picture.

1. **Main boards:** 5gxm, 6aap5, 6va693a, 6va693am, 6va694, 6vapm, 6vmpl, 6vmple1, 6vmple2, 6vple1, Amdk7, I810, I815e, Intv, K7vat, Kta133, Vap266a (**please select 6vmple1 directory for this main board)**
2. **DX7:** Windows DirectX7 driver.
3. **Flashrom**: BIOS flash upgrade utility .

3-2 How to Install Software Driver

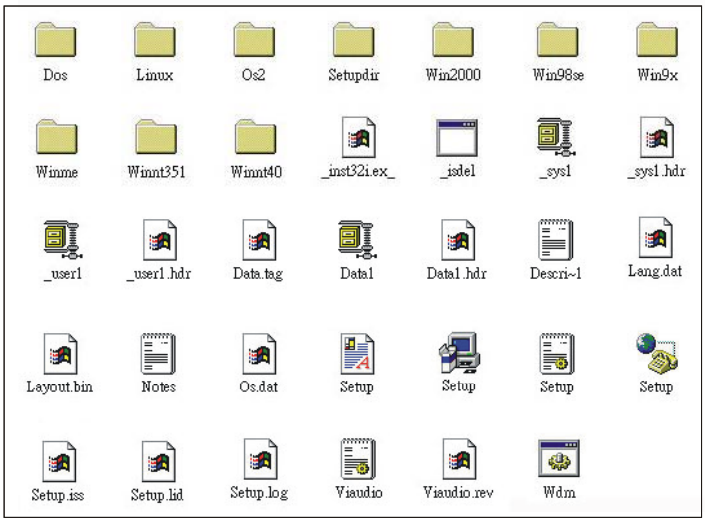
1. Install "Via 4 in 1"：

Select "**VIA 4 in 1**" directory from attached CD, then click "**setup**" to complete the installation; the "**Via 4 in 1**" drive provides O.S. Like windows 98/ ME to recognize VIA Chipset. Path root: \Via4in1\ Setup.exe

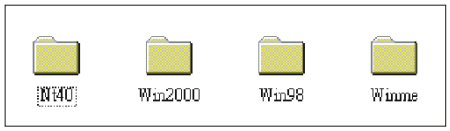


2. Install sound drive:

Select "**Viaac97**" from attached CD, the chick "**setup**" to complete the installation. This driver provides AC-97 Sound driver for O.S. Like windows 9X, for windows-ME & win-2000 can detect by themselves. Path root: \VIAAC97\ Setup.exe



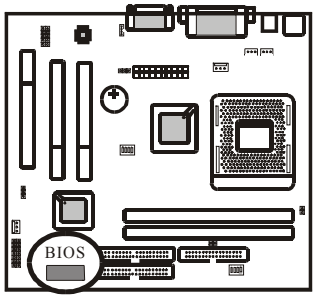
3. Install VGA display driver:
Select "**6vmple1**" to specify your O.S. like windows9X/ ME/ 2000 to complete it.
Windows98 Path root: \6vmple1\ VGA\ Win98\ Setup.exe;
Windows 2000 Path root: \6vmple1\ VGA\ Win2000\ Setup.exe;
WindowsNT Path root:\6vmple1 \VGA \Nt40 \Setup.exe and
WindowsME Path root: \6vmple1 \VGA \Winme \Setup.exe



4. If user wants to update BIOS, please choose "**Flashrom**" utility.

Chapter4 The BIOS

The BIOS is a piece of software (Basic Input Output System) that performs most low level tasks. When you start up your system, the BIOS is the first code that gets to run. The BIOS resides in a FLASH ROM, and the code in the FLASH ROM can be updated through a special utility called AWDFLASH. (Award Flash). This is generally not necessary, but in some cases updating the BIOS is necessary to support new devices that were not on the market at the time the motherboard was released. For the physical location of the BIOS FLASH ROM IC on your 6VMPLE1 motherboard, refer to the picture below:



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

Is updating my BIOS necessary?

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

Finding the latest official BIOS revision

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

4-1 Updating the BIOS

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

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

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

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

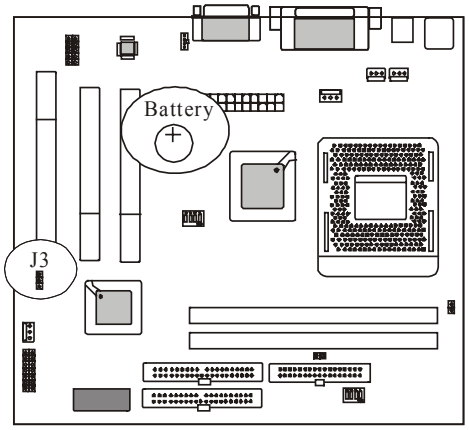
- After the upgrading has ended press F1 to reset, press DEL to go into BIOS and make the following changes:
  Load Setup Defaults.
  Go into the Frequency/Voltage Control page to adjust your CPU speed and voltage (please make sure the CPU voltage matches your CPU specs, in case of doubts leave it to 'default').
  Save your settings and you are done.

4-2 The CMOS memory

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

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

Restoring default settings
You can load default values into the CMOS memory by selecting 'Load Optimized Defaults' in the BIOS Setup. If you need to force the CMOS settings to default without entering the BIOS Setup page you can use the JBAT1 jumper. For the location of the jumper and the battery, refer to the following picture:



Normally J3 will be in the 1-2 position, this will connect the battery to the southbridge of the chipset which contains the CMOS memory. If J3 is temporarily set to 2-3 this will interrupt the battery electricity flow, and the CMOS memory will be erased, this will

however only work if the power supply is not switched on. Now at the next reboot the BIOS will automatically load the CMOS default values.

Take the following steps to clear CMOS memory:

- Take the power cord from the power supply.
- Temporarily set J3 to 2 – 3, and set it back to 1 – 2.
- Put the power cord back and restart the system, the default values will be loaded.

J3 Setting:

	Retain CMOS settings	Clear CMOS Settings
J3		

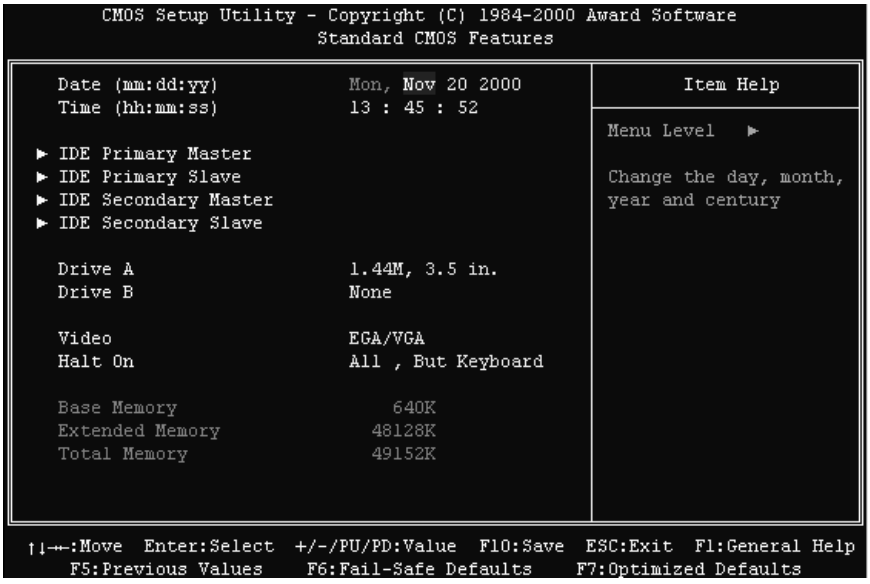
The following part of this chapter will describe the individual BIOS Setup pages and all the items that can be adjusted to fine tune your system.

4-3 Award BIOS CMOS Setup

The menu displays all the major selection items and allows user to select any of 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 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.

4-4 Standard CMOS Setup

The **"Standard CMOS Setup"** 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.



4-5 BIOS Features Setup

Menu below shows all of the manufacturer's default values of this main board. Move the cursor by pressing direction keys and **<PageDown>** or **<PageUp>** key to modify the parameters, pressing **[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]** or CMOS **[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 (default): enable L1 cache
:Disabled: disable L1 cache

External Cache
:Enabled(default)
:Disabled

CPU L2 Cache ECC Checking
:Enabled(default)
:Disabled

Processor Number Feature
:Enabled(default)
:Disabled

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/ Second Boot Device/Third Boot Device
This category determines which drive the system searches first. Take **"Floppy"** for example. System will search in turn for floppy disk drive; then hard disk drive, and finally SCSI drive. Default value is **"Floppy".** Options are as below:
Floppy; LS120; HDD-0; SCSI; CDROM; HDD-1; HDD-2; HDD-3; ZIP100; LAN; Disabled.

Boot Other Device
:Disabled
:Enabled(default)

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 option
: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

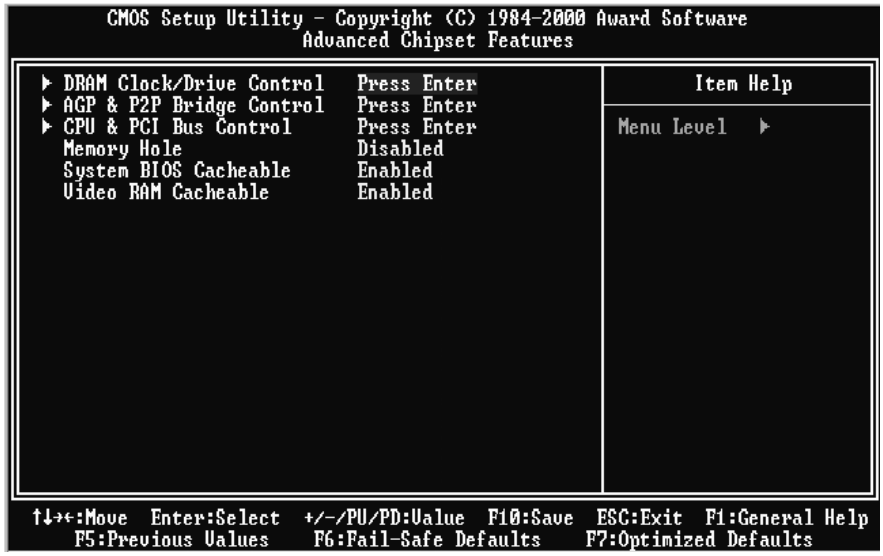
Security Option
:Setup (default)--- security protection in CMOS setup menu
It sets password in BIOS CMOS **"Supervisor Password" or User Password,**" the user needs to key in password to enter BIOS CMOS setup.
:System---security protection in system boot-up & BIOS setup
This function secures the system under system boot-up and BIOS setup.

OS Select For DRAM> 64MB
This option is especially set for OS2 operating system. Set **"OS2"** for RAM memory over 64MB and set **"Non-OS2"** for other operating systems like Windows® 95/98 or Windows NT.
:Non-OS2 (default)
:OS2

Video BIOS Shadow
It determines whether video BIOS will be copied to RAM. However, it is optional from chipset design. Video shadow will increase the video speed.
Enabled : Video Shadow is enabled (default)
Disabled: Video Shadow is disabled

C8000-CBFFF Shadow, CC000-CFFF Shadow, D0000-D3FFF Shadow: D4000-D7FFF Shadow, D8000-DBFFF Shadow, DC000-DFFF Shadow
These are categories determining whether optional ROM will be copied to RAM by 16KB or 32KB per unit and the size depends on chipset.
:Enabled
:Disabled(default)

4-6 Chipset Features Setup



***DRAM Clock*: If your DIMM modules are PC-100 compliant, select this setting.**
: Host CLK (default)
: HCLK - 33M
: HCLK + 33M
: By Auto

DRAM Timing By SPD
: Disabled
: Enabled (default)

SDRAM Cycle Length: control the DRAM page missing and row miss leadoff timing.
: 2
: 3 (default)

Bank Interleare
: Disabled (default)
: Enabled

AGP Aperture Size
It selects the size of the Accelerated Graphics Port (AGP) aperture which is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.
: 64MB (default)
: 256MB, 128MB, 64MB, 32MB, 16MB, 8MB, 4MB

AGP Master 1 WS Write
: Disabled (default)
: Enabled

AGP Master 1 WS Read
:Disabled (default)
:Enabled

P2C/C2P Concurrency: The CPU Host is free for other transactions while a PCI transaction takes place.
:Disabled
:Enabled (default)

Fast R-W Turn Around: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM.
:Disabled
:Enabled (default)

CPU TO PCI Write Buffer
:Disabled
:Enabled(default)

PCI Dynamic Bursting
:Disabled
:Enabled(default)

PCI Master 0 WS Write
:Disabled
:Enabled(default)

PCI Delay Transaction
:Disabled (default)
:Enabled

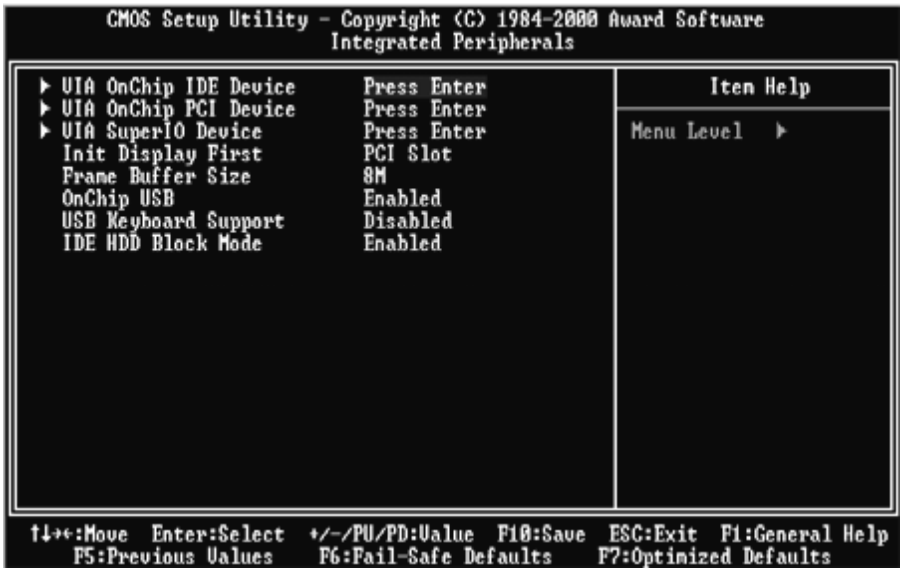
PCI #2 Access #1 Retry
:Disabled (default)
:Enabled

Memory Hole: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.
:Disabled (default)
:15M – 16M

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

4-7 Integrated Peripherals



Onchip IDE Channel 0
:Disabled---Disable Primary Master PIO/Primary Slave PIO/Primary Master UDMA/Primary Slave UDMA
:Enabled---(default) Enable Primary Master PIO/Primary Slave PIO/Primary Master UDMA/Primary Slave UDMA

Onchip IDE Channel 1
:Disabled---Disable Secondary Master PIO/Secondary Slave PIO/Secondary Master UDMA/Secondary Slave UDMA
:Enabled---(default) Enable Secondary Master PIO/Secondary Slave PIO/Secondary Master UDMA/Secondary Slave UDMA

IDE Prefetch Mode
:Disabled
:Enabled (default)

Primary Master PIO
: Auto (default)
: Mode 0
: Mode 1
: Mode 2
: Mode 3
: Mode 4

Primary Slave PIO
: Auto (default)
: Mode 0
: Mode 1
: Mode 2
: Mode 3
: Mode 4

Secondary Master PIO
: Auto (default)
: Mode 0
: Mode 1
: Mode 2
: Mode 3
: Mode 4

Secondary Slave PIO
: Auto (default)
: Mode 0
: Mode 1
: Mode 2
: Mode 3
: Mode 4

Primary Master UltraDMA
: Auto (default)
: Disable

Primary Slave UltraDMA
: Auto (default)
: Disable

Secondary Master UltraDMA
: Auto (default)
: Disable

Secondary Slave UltraDMA
: Auto (default)
: Disable

VIA –3058 AC97 Audio
: Auto (default)
: Disabled

VIA-3068 AC97 Modem
: Auto
: Disabled (default)

VIA-3043 OnChip LAN
: Enabled
: Disabled (default)

Onboard Legacy Audio
: Disabled
: Enabled (default)

Sound Blaster
: Disabled (default)
: Enabled

SB I/O Bast Address
:220H(default)
:240H
:260H
:280H

SB IRQ Select
:IRQ5(default)
:IRQ7
:IRQ9
:IRQ10

SB DMA Select
:DMA0
:DMA1 (default)
:DMA2
:DMA3

MPU-401
:Enabled
:Disabled(default)

MPU-401 I/O Address
:300-303H
:310-313H
:320-323H
:330-333H (default)

Game Port (200-207H)
:Enabled (default)
:Disabled

Onboard FDD Controller
: Enabled (default)
: Disabled

Onboard Serial Port 1
: Disabled
: 3F8/IRQ4 (default)
: 2F8/IRQ3
: 3E8/IRQ4
: 2E8/IRQ3
: Auto

Onboard Parallel Port
: Disabled
: 3BC/IRQ7
: 278H/IRQ5
: 378/IRQ7 (default)

Onboard Parallel Port Mode

Normal (Default)	
EPP	Choosing this item, another line is shown: **Parallel Port EPP Type:EPP1.9**
ECP	Choosing this item, there is another line shown: **ECP Mode Use DMA: 3**(default) **/ 1**
ECP/EPP	Choosing this item, another line is shown: **ECP Mode Use DMA: 3**(default) **/ 1** **Parallel Port EPP Type:EPP1.9**

ECP Mode Use DMA
:3 (default)
:1

Parallel Port EPP TYPE
:EPP1.9
:EPP1.7

Init Display First
: PCI Slot (default)
: AGP

Frame Baffer Size
: 2M
: 4M
: 8M (default)

OnChip USB
: Enabled (default)
: Disabled

USB Keyboard Support
: Disabled (default)
: Enabled

IDE HDD Block Mode
: Enabled (default)
: Disabled

4-8 Power Management Setup

ACPI Function
:Disabled
:Enabled (default)

Power Management
Choosing "User Define," users can configure their own power management

Item	Doze Mode	Suspend Mode
User Define	Disable	Disable
Max Saving	1 Min	1 Min
Min Saving	1 Hour	1 Hour

HDD Power Down
;Disabled (default)
:1 Min-15 Min

Doze Mode
:Disabled (default)
:1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20Min, 30 Min, 40 Min, 1 Hour

Suspend Mode
:Disabled (default)
:1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20Min, 30 Min, 40 Min, 1 Hour

ACPI Supend Type
:S1 (POS) (default)

PM Control by APM
:Yes (default)
:No

Video Off Option
: Suspend-off (default)
: Always on
: All modes-off

Video Off Method
: Blank Screen
: V/H Sync+Blank (default)
: DPMS Supported

MODEM Use IRQ
: 3 (default)
: NA, 4, 5, 7, 9,10,11

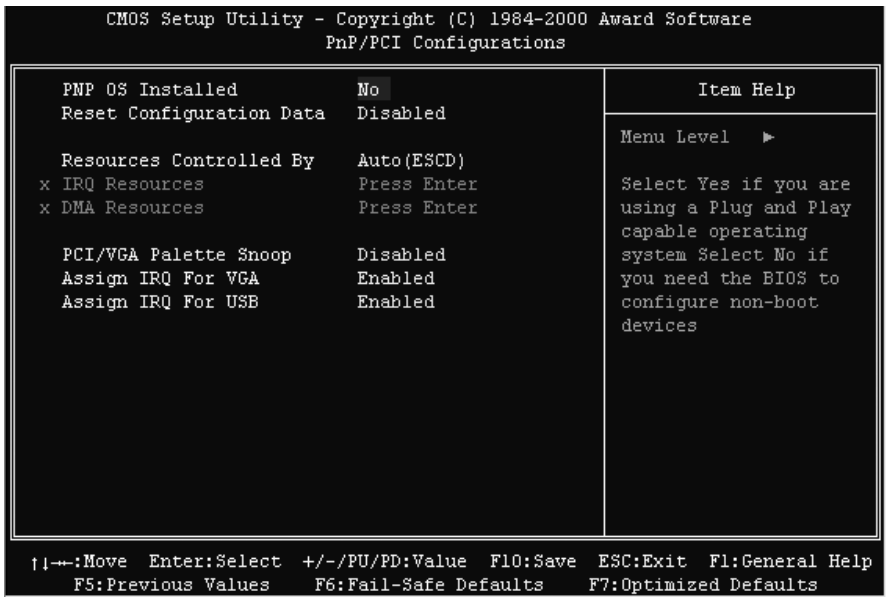
Soft-off by PWRBTN
:Delay 4 sec
:Instant-off(default)

Wake Up Events

ITEM	Default	
PS/2 KB Wake up from S1-S5	Disabled	Enabled
USB Resume from S3/S4/S5	Disabled	Enabled
VGA	OFF	ON
LPT & COM	LPT/COM	None; LPT; COM
HDD & FDD	ON	OFF
PCI Master	OFF	ON
Modem Ring Resume	Disabled	Enabled
RTC Alarm Resume	Disabled	Enabled
Date (of Month)	1 - 31	
Resume time	xx:xx:xx	
Primary INTR	ON (Select "on" in adds the following functions, "IRQ3 (COM2) – IRQ15 (Reserved).")(default)	OFF (Select "off" IRQ3 (COM2) – IRQ15 (Reserved) will not show.)

Note: This function only works when the system is turned off from Windows mode, and Doze mode will not function.

4-9 PNP / PCI Configuration Setup



PnP OS Installed
:No(default) -- OS will not recognize PnP devices
:Yes -- OS will arrange the setup of PnP devices

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: **"Reset Configuration Data, IRQ-3 assigned to, DMA-0 assigned to."** 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)

Assigned IRQ for VGA
: Enabled (default)
: Disabled

Assigned IRQ for USB
: Enabled (default)
: Disabled

4-10 PC Health Status

Current system Temp.

This item reflects the system temperature as measured by RT2, the thermistor located close to the BIOS IC. Temperatures over 45 degrees are too high and a better cooling solution must be found for the computer case (like adding a case FAN)

Current CPU FAN 1 Speed

The speed of the CPU FAN connected to FAN 1 is displayed here. If you have problems with this item, please refer to the FAQ chapter boot section.

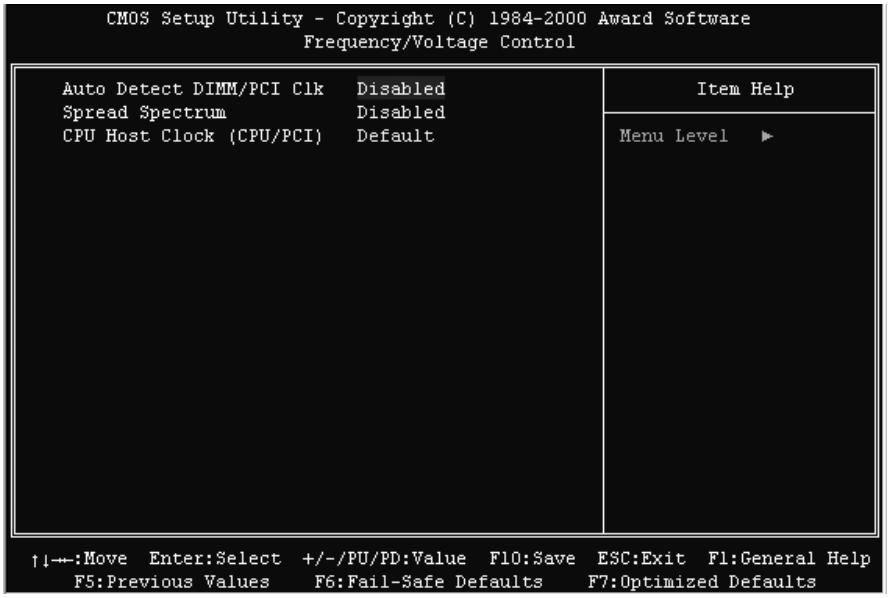
Current CPU FAN 2 Speed

The speed of the CPU FAN connected to FAN 2 is displayed here

Voltage X

The Voltage for the voltage line (Vcore, 3.3V, 5V, 12V) are displayed here. A small deviation of the ideal value is not a problem because voltages always fluctuate.

4-11 Frequency/Voltage Control



Auto Detect DIMM/PCI Clk
: Enabled
: Disabled(default)

Spread Spectrum
: Enabled
: Disabled(default)

CPU Host Clock (CPU/PCI)
: Default
133/33MHz, 140/35MHz, 150/37MHz

4-12 Password Setting

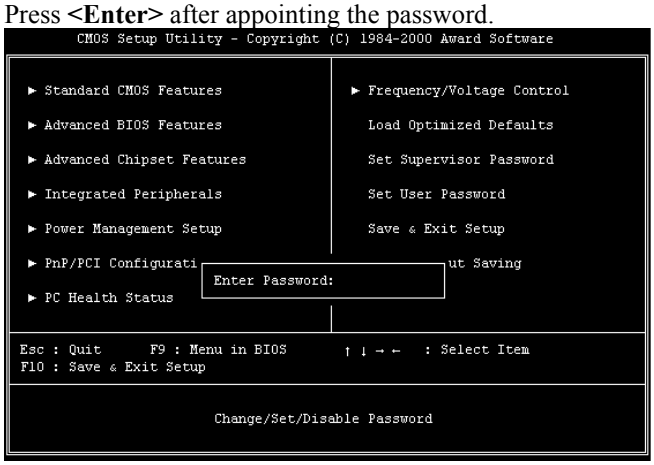
The "Supervisor/User Password setting" utility sets the security protection. There are two kinds of password functions in the setup menu : one is “Supervisor Password,” and the other is “User Password.” Their difference is:

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

User Password: this function only 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.”

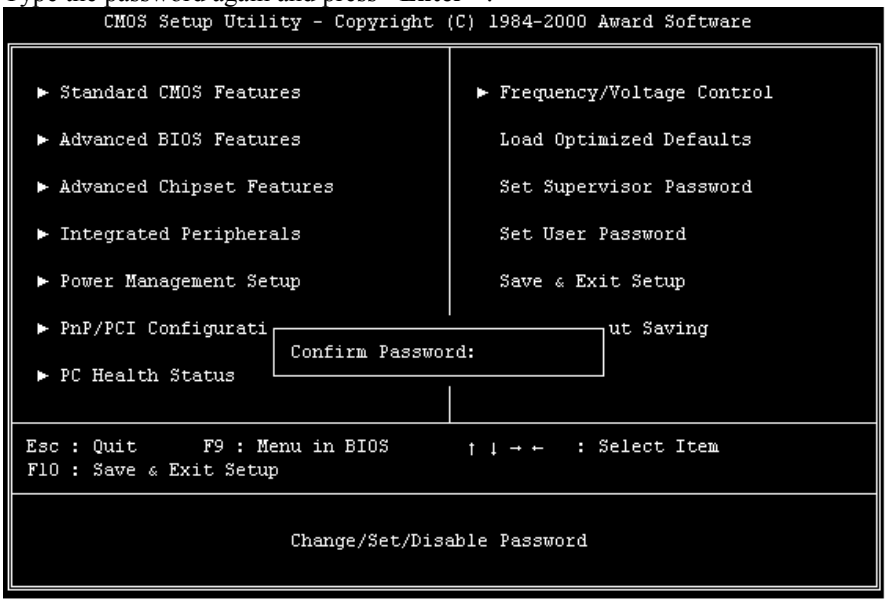
1. How to set “Supervisor Password” & “User Password”

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



Step 2: Confirm Password

Type the password again and press **<Enter>** .



Note: If you forget password, please clear CMOS.
(refer to JBAT1 CMOS status)

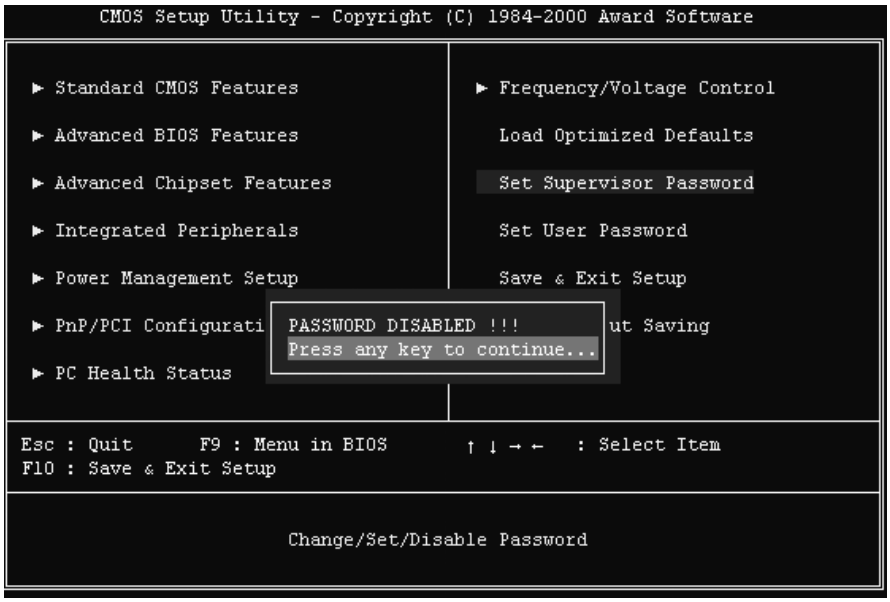
Step 3: Set "Security Option" in "BIOS Features Setup"

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

2. How to disable Password Setting

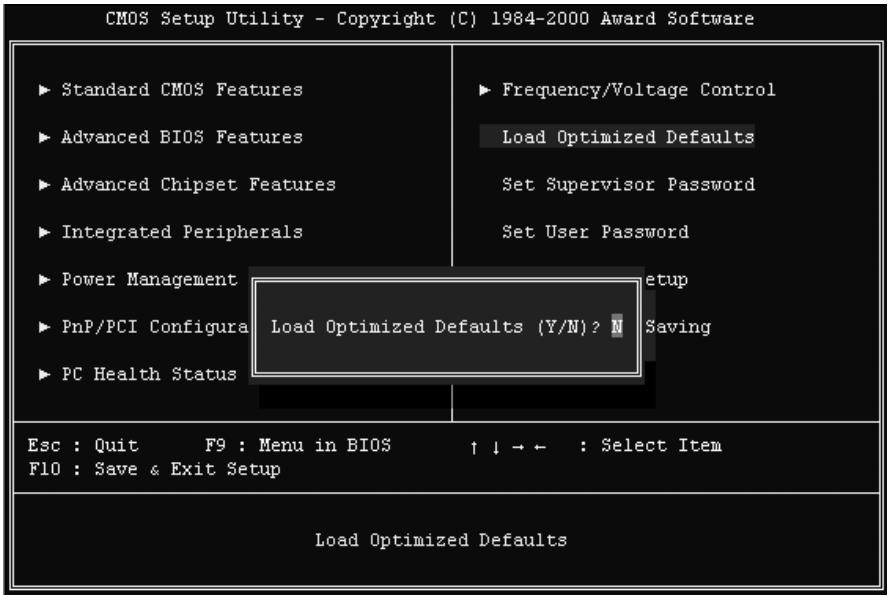
Step 1: **Go to CMOS Setup Menu** (need to key in password first)

Step 2: **Enter Password Setting**
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 CONTINUNE."** Pess any key as instructed to disable password.



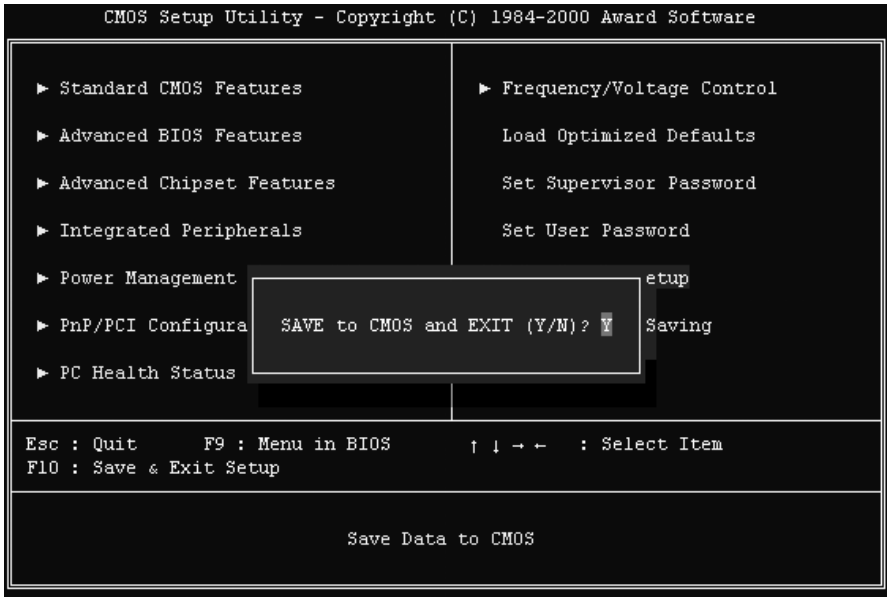
4-13 Load Optimized Defaults

"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. Press **<N>** if you don't want to



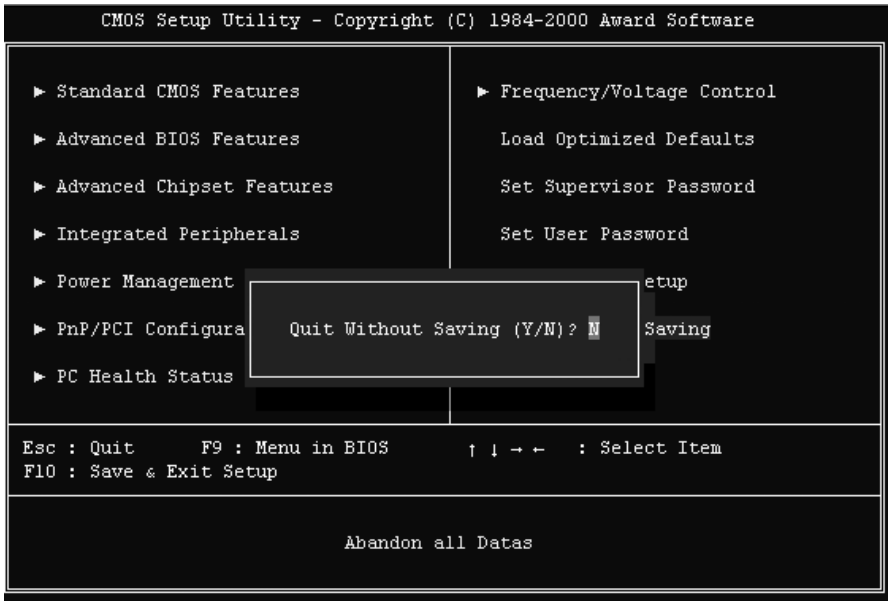
4-14 Save & Exit Setup

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.



4-15 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 5 Appendix

5-1 Memory Map

Address range	Size	Description
00000-7FFFF	512K	Conventional memory
80000-9FBFF	127K	Extended conventional memory
9FC00-9FFFF	1K	Extended BIOS data area if PS/2 mouse is installed
A0000-C7FFF	160K	Available for hi DOS memory
C8000-DFFFF	96K	Available for hi DOS memory and adapter ROMs
E0000-EEFFF	60K	Available for UMB
EF000-EFFFF	4K	Video service routine for monochrome & CGA adapter
F0000-F7FFF	32K	BIOS CMOS setup utility
F8000-FCFFF	20K	BIOS runtime service routine (2)
FD000-FDFFF	4K	Plug and play ESCD data area
FE000-FFFFF	8K	BIOS runtime service routine (1)

5-2 I/O Map

000-01F	DMA controller (master)
020-021	Interrupt controller (master)
022-023	Chipset control registers. I/O ports
040-05F	Timer control registers
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (slave)
0C0-0DF	DMA controller (slave)
0F0-0FF	Math coprocessor
1F0-1FB	Hard disk controller
278-27F	Parallel port 2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port 2
360-36F	Network ports
378-37F	Parallel port 1
3B0-3BF	Monochrome & parallel port adapter
3C0-3CF	EGA adapter
3D0-CDF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1

5-3 Time & DMA Channels Map

Time map:

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

DMA channels:

DMA channel 0 available
DMA channel 1 onboard ECP (option)
DMA channel 2 floppy disk (SMC chip)
DMA channel 3 onboard ECP (default)
DMA channel 4 cascade for DMA controller 1
DMA channel 5 available
DMA channel 6 available
DMA channel 7 available

5-4 Interrupt Map

NMI: non-maskable interrupt

IRQ(H/W):
0 system timer interrupt from timer 0
1 keyboard output buffer full
2 cascade for IRQ 8-15
3 serial port2
4 serial port1
5 parallel port 2
6 floppy disk (SMC chip)
7 parallel port 1
8 RTC clock
9 available
10 available
11 available
12 PS/2 mouse
13 math coprocessor
14 onboard hard disk (IDE1) channel
15 onboard hard disk (IDE2) channel

5-5 RTC & CMOS RAM Map

RTC & CMOS :
00 seconds
01 seconds alarm
02 minutes
03 minutes alarm
04 hours
05 hours alarm
06 day of week
07 day of month
08 month
09 year
0a status register a
0b status register b
0c status register c
0d status register d
0e diagnostic status byte
0f shutdown byte
10 floppy disk drive type byte
12 hard disk type byte
13 reserve
14 equipment type
15 base memory low byte
16 base memory high byte
17 extension memory low byte
18 extension memory high byte
19-2d
2e-2f
30 Reserved for extension memory low byte
31 reserved for extension memory high byte
32 date century byte
33 information flag
34-3f reserve
40-7f reserved for chipset setting data

5-6 ISA I/O Address Map

I/O Address (HEX)	I/O device
000 - 01F	DMA Controller 1, 8237A-5
020 - 03F	Interrupt Controller 1, 8259A
040 - 05F	System Timer, 8254-2
060 - 06F	8042 Keyboard Controller
070 - 07F	real-time Clock/CMOS and NMI Mask
080 - 09F	DMA Page Register, 74LS612
0A0 - 0BF	Interrupt Controller 2, 8259A
0C0 - 0DF	DMA Controller 2, 8237A-5
0F0 - 0FF	i486 Math Coprocessor
1F0 - 1F8	Fixed Disk Drive Adapter
200 - 207	Game I/O
20C - 20D	Reserved
21F	Reserved
278 - 27F	Parallel Printer Port 2
2B0 - 2DF	Alternate Enhanced Graphic Adapter
2E1	GPIB Adapter 0
2E2 - 2E3	Data Acquisition Adapter 0
2F8 - 2FF	Serial Port 2 (RS-232-C)
300 - 31F	Prototype Card
360 - 363	PC Network (Low Address)
364 - 367	Reserved
368 - 36B	PC Network (High Address)
36C - 36F	Reserved
378 - 37F	Parallel Printer Port 1
380 - 38F	SDLC, Bisynchronous 2
3B0 - 3BF	Monochrome Display and Printer Adapter

I/O A dress (HEX)	I/O device
390 - 393	Cluster
3A0 - 3AF	Bisynchronous 1
3C0 - 3CF	Enhanced Graphics Adapter
3D0 - 3DF	Color/Graphics Monitor Adapter
3F0 - 3F7	Diskette Drive Controller
3F8 - 3FF	Serial Port 1 (RS-232-C)
6E2 - 6E3	Data Acquisition Adapter 1
790 - 793	Cluster Adapter 1
AE2 - AE3	Data Acquisition Adapter 2
B90 - B93	Cluster Adapter 2
EE2 - EE3	Data Acquisition Adapter 3
1390 - 1393	Cluster Adapter 3
22E1	GPIB Adapter 1
2390 - 2393	Cluster Adapter 4
42E1	GPIB Adapter 2
62E1	GPIB Adapter 3
82E1	GPIB Adapter 4
A2E1	GPIB Adapter 5
C2E1	GPIB Adapter 6
E2E1	GPIB Adapter 7

Chapter 6 Q & A

6-1 Errors Messages During Power On Self Test

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

1. Beep sound

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

2. BIOS ROM checksum error

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

3. CMOS battery fails

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

4. CMOS checksum error

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

5. Hard disk initialize

Please wait a moment…

Some hard drives require more time to initialize.

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

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

8. Memory test fails
There will be more information to specify the type and location of the memory error.

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

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

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

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