



T h e S o u l O f C o m p u t e r T e c h n o l o g y

**SL-65KIV/65KIV2**

**USER MANUAL v1.2**

# NOTICE

**Product Model** : SL-65KIV/KIV2  
**Manual Revision** : V1.2  
**Release Date** : July 2001

**T**his User's Guide & Technical Reference is to help system manufacturers and end-users set up and install the mainboard.

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## ITEM LIST CHECKUP

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- Mainboard
- Support CD
- User's Manual
- Bundled Bonus Pack CD
- Bundled Bonus Pack Manual
- Temperature Sensor Cable
- ATA66/100 IDE Cable
- RS232 Cable
- FDD Cable

# **CHAPTER 1**

---

## **INTRODUCTION**

- This chapter briefly introduces this characteristics of the mainboard. It includes the information regarding the chipset, CPU types, built-in functions and layout. Users will have more ideas about mainboards after reading this chapter.

**This chapter contains the following topics :**

---

- 1-1 MAINBOARD SPECIFICATION**
- 1-2 MAINBOARD LAYOUT**
- 1-3 MAINBOARD SPECIFICATION TABLE**
- 1-4 CHIPSET DIAGRAM**

## **1-1 MAINBOARD SPECIFICATION**

### **1-1.1 PROCESSOR**

- Supporting Intel® FC-PGA Pentium III™ up to 1GHz.
- Supporting Intel® FC-PGA 370 Celeron & PGA 370 Celeron up to 900MHz.
- Supporting VIA Cyrix III up to 800MHz or above.
- Supporting CPU voltage Auto-Detect circuit.

### **1-1.2 CHIPSET**

- North Bridge - VIA VT82C694X APOLLO PRO133A.
- South Bridge - VIA VT82C686A or VT82C686B.

### **1-1.3 AWARD BIOS V6.0, SUPPORTING**

- Plug & Play V1.0.
- Flash Memory for easy upgrade.
- BIOS writing protection.
- Year 2000 compliant.

### **1-1.4 SOUND CONTROLLER**

- Sound Blaster Pro Hardware and Direct Sound Ready AC'97 Digital Audio Controller with Codec onboard.

### **1-1.5 ADVANCED HIGH-PERFORMANCE DRAM CONTROLLER**

- Supporting FP, SDRAM, and VCM SDRAM memory types up to 3 DIMMS.
- 64-bit data width and 3.3V DRAM interface.
- Supporting up to 1.5 GB memory space.
- Different DRAM types may be used in mixed combinations.
- PCI-2.2 compliant, 32 bit 3.3V PCI interface with 5V tolerant inputs .
- DRAM interface synchronous with host CPU (66/100/133 MHz) or AGP (66MHz) for most flexible configuration.
- DRAM interface may be faster than CPU by 33MHz to allow use of PC100 memory modules with 66MHz Celeron or use of PC133 with 700MHz. Pentium II or Pentium III.
- DRAM interface may be slower than CPU by 33 MHz to allow use of older memory modules with newer CPUs (e.g., PC66 memory modules with 100 MHz Pentium III).

## **1-1.6 FULL FEATURED ACCELERATED GRAPHICS PORT (AGP) CONTROLLER**

- Synchronous and pseudo-synchronous with the host CPU bus with optimal skew control PCI AGP CPU Mode 33/66/100 MHz DDR 3x synchronous.
- Supporting 66MHz 1x/2x/4x modes for AD and SBA signaling.

## **1-1.7 POWER MANAGEMENT**

- ACPI 1.0 compliant (Advanced Configuration and Power Interface).
- APM V1.2 compliant (Legacy power management).
- System event monitoring with two event classes.
- Supporting PS/2 Keyboard & Mouse power on.
- Supporting Wake On LAN (WOL) & Wake On Modem.
- Supporting real time clock (RTC) with date alarm, month alarm, and century field.
- Supporting Keyboard power on & Mouse Power on.

## **1-1.8 MULTI-I/O FUNCTION**

- Two Ultra DMA-33 / 66 Master Mode PCI EIDE ports (for 65KIV only).
- Two Ultra DMA-33 / 66 / 100 Master Mode PCI EIDE ports (for 65KIV2 only).
- Two UART's for Complete Serial Ports.
- Dedicated IR connector:
  - Third serial port dedicated to IR function either through the two complete serial ports or the third dedicated port Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR.
- Multi-mode parallel connector supporting:
  - Standard mode, ECP and EPP.
- Floppy Disk connector supporting:
  - Two FDDs connector with drive swap support .
- Universal Serial Bus connector supporting:
  - USB v1.1 and Intel Universal HCI v1.1 compatible.
  - 2 built-in USB connectors and one USB Header (USB1) which requires an optional USB cable to provide 2 more optional USB ports.
- PS/2 Keyboard connector.
- PS/2 Mouse connector.

### **1-1.9 EXPANSION SLOTS**

- Three PCI bus Master slots.
- One ISA slot.
- One AGP Pro 4x mode slot.
- Three DIMM slots.

### **1-1.10 FORM FACTOR**

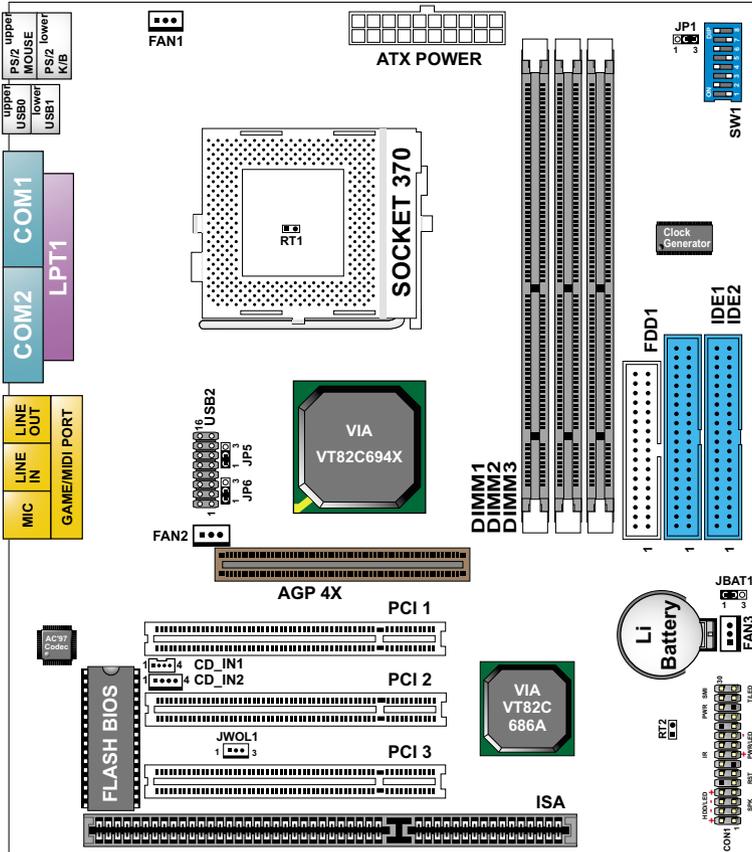
- ATX form factor 4-layer PCB.
- Mainboard size: 20.9cm x 24.3cm.

### **1-1.11 HARDWARE MONITOR**

- Programmable control, status, to provide monitoring and alarm for flexible desktop management of hardware temperature (software provided in support CD).
- 5 positive voltage statuses monitoring.
- 2 temperatures statuses monitoring.
- 3 Fan-speeds statuses monitoring.

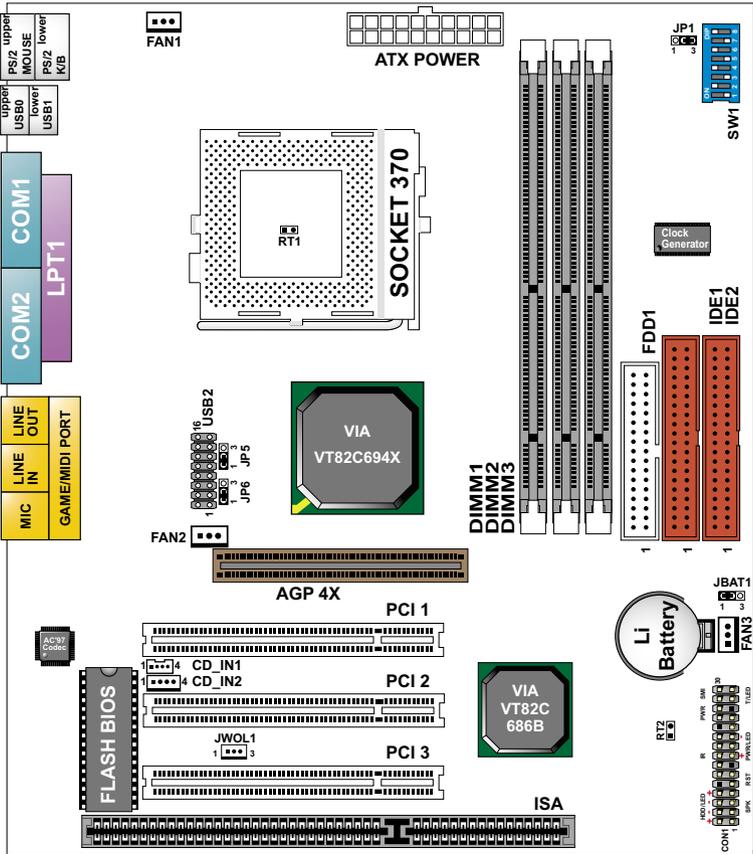
## 1-2 MAINBOARD LAYOUT

### 1-2.1 Mainboard Layout --- 65KIV



Using non-compliant memory with higher bus clock (over-clocking) may severely compromise the reliability of system.

## 1-2.2 Mainboard Layout --- 65KIV2



Using non-compliant memory with higher bus clock (over-clocking) may severely compromise the reliability of system.

### 1-3 MAINBOARD SPECIFICATION TABLE OF 65KIV & 65KIV2

Model	65KIV	65KIV2
North bridge	VIA VT82C694X APOLLO PRO 133A	
South bridge	VIA VT82C686A	VIA VT82C686B
Memory	Supports PC133 and PC100 FP, SDRAM and Virtual Channel Memory (VCM) up to 1.5GB 3 DIMM Slots	
AGP Interface	AGP 4X Mode	
Audio	Build-in AC97 codec	
IDE	2 x Ultra 33/66 IDE ports	2 x Ultra33/66/100 IDE ports
I/O	4 x USB ports, 1 x FDD port, 2 x COM ports, 1 x LPT port, 1 IrDA, 1 PS/2 Mouse, 1 PS/1 K/B	
PCI slot	3 x PCI Master Slots	
ISA slot	1 x ISA slot	
Hardware Monitoring	yes	
BIOS writing Protection	yes	
Remark		

### 1-4 CHIPSET SYSTEM BLOCK DIAGRAM

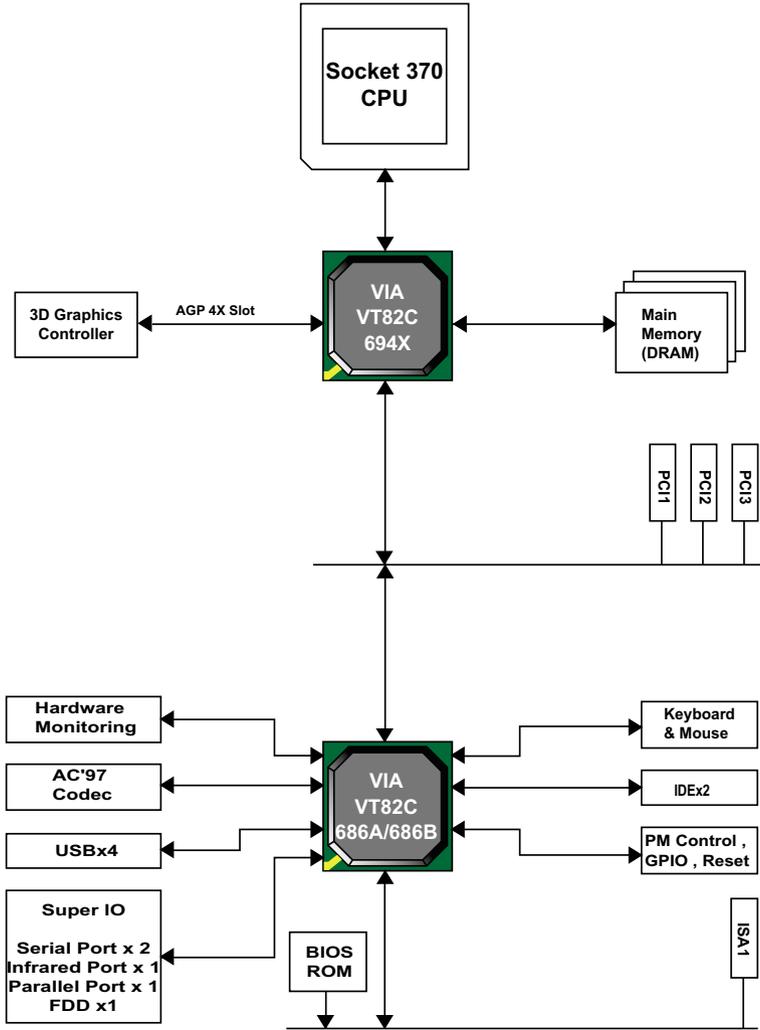


Diagram of VIA VT86C694X System Block with VT82C686A or VT82C686B South Bridge



# **CHAPTER 2**

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## **HARDWARE SETUP**

**ATTENTION !!!**

---

1. Please refer to your processor installation or other documentation attached to your CPU for more detailed installing instruction.
2. Installing a heat sink and cooling fan is necessary for proper heat dissipation from your CPU. Incorrect installation may result in overheating and damage of your CPU.
3. Before changing the setting of CPU Vcore from BIOS program, user **SHOULD** make sure of correct specification both of CPU CLOCK and RATIO. Incorrect setting may cause damage to your CPU.

**This chapter contains the following topics :**

**2-1 CPU INSTALLATION**

**2-2 MEMORY INSTALLATION**

**2-3 AGP PRO INSTALLATION**

**2-4 HDD/FDD INSTALLATION**

**2-5 SWITCH SETTING FOR CPU RATIO AND CLOCK**

**2-6 JUMPER SETTING FOR DEVICES ON BOARD**

**2-7 CONNECTORS CONFIGURATION**

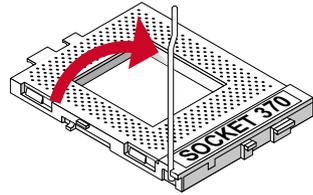
**2-8 IRQ DESCRIPTION**

## 2-1 CPU INSTALLATION

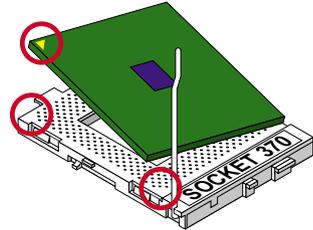
### **WARNING !!!**

- Make sure that +5V DCV and +3.3 DCV of your power supply are suitable for the processor.
- Any attempt to operate the AMD Athlon or Duron processor without a suitable cooling Fan will damage processor and other component.

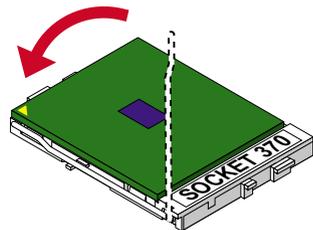
- 1 Pull out the lever from the socket, and then raise the lever up to a 90-degree angle.



- 2 Take notice of the red circles as shown here. While inserting the CPU into the socket, you can find out there is a definite pin orientation for CPU and socket.



- 3 Make sure that the CPU is placed into the socket tightly. Then lower down the lever to complete the CPU installation.



### 2-1.1 CPU Frequency

- The CPU's "**CPU CLOCK RATIO**" and "**CPU HOST/PCI CLOCK**" settings are automatically detected to be default value by BIOS in the "Frequency/ Voltage Control" section.
- We do not suggest and assume the responsibility for any action that changes the CPU default setting such as overclocking. Incorrect **CLOCK RATIO** and **HOST/PCI CLOCK** settings may cause damage to your CPU.

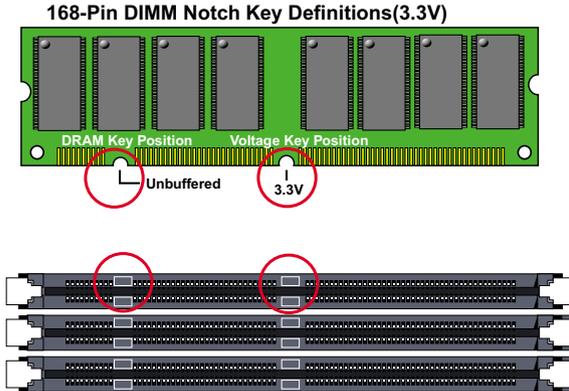
## 2-2 MEMORY INSTALLATION

### **WARNING!!!**

- Make sure to unplug your power supply before adding or removing memory modules or other system components. Failure to do so may cause severe damage to both your mainboard and expansion cards.
- Be careful when inserting or removing DIMM. Forcing a DIMM in or out of a socket improperly may damage the memory module or the socket. Some DIMMs which contain EDO or FPM DRAM are incompatible with the mainboard. The M/B supports 3.3V true SDRAM DIMMs only.

### Installing DIMM

- Make sure you have the correct memory module type for your mainboard.
- Insert the module(s) as shown below, DIMMs have 168-pins and two notches that will be matched by the onboard DIMM socket. Memory modules are installed by inserting them straight into the slot until they “click” in the right place. They only fit in one direction, so do not force them in by a wrong direction.

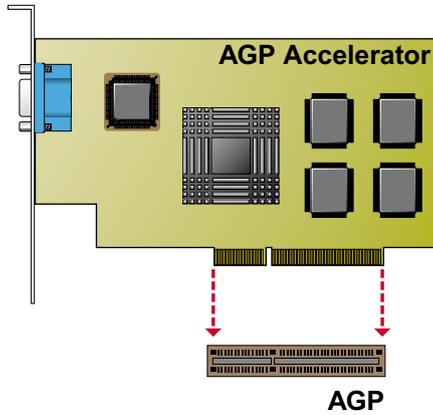


### Removing DIMM

- Press down the holding clips on both sides of a DIMM socket and the module will be released from it.

## 2-3 ACCELERATED GRAPHICS PORT(AGP) PRO INSTALLATION

- The AGP Pro connector is an extension of the existing AGP connector and it is compatible with existing AGP cards.

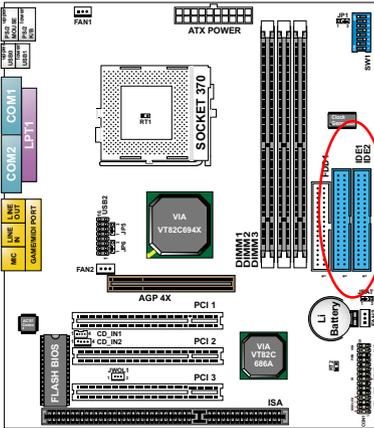


### **CAUTION!!**

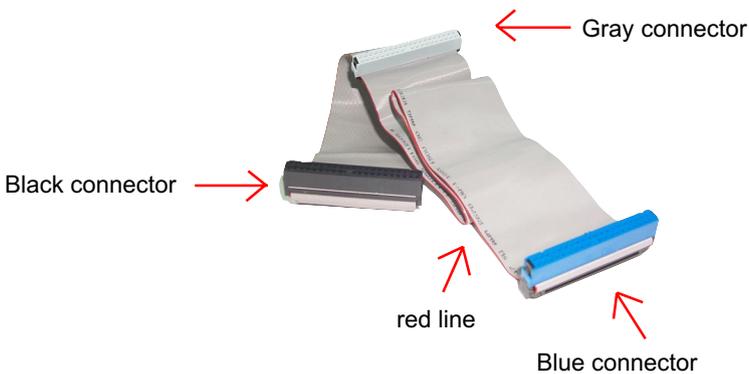
*The AGP Pro slot comes with a warning label over the 20-pin bay. Do not remove this label and the safety tab underneath if you use an AGP card without a retention notch. Without the labels, AGP cards may be placed into the wrong place, which certainly will damage your card, slot, and mainboard. Remove the label ONLY if you will be using an AGP Pro card.*

## 2-4 HDD/FDD INSTALLATION

- To install HDD (Hard Disk Drive), you may connect the cable's blue connector to the mainboard's primary (IDE1) or secondary (IDE2) connector, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Please refer to your hard disk documentation for the jumper settings.

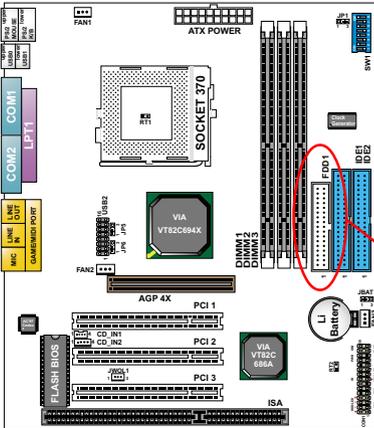


Hard Disk Drive Connector:  
Orient the red line on the  
IDE ribbon cable to Pin1.

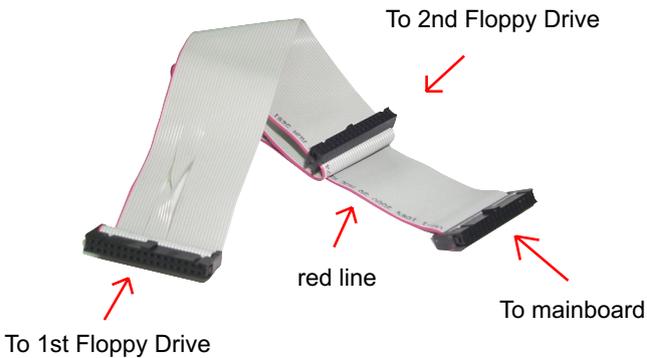


IDE Cable

- To install FDD (Floppy Disk Drive), you may connect the end with single connector to the board , and connect the other end with two plugs to the floppy drives.



Floppy Disk Drive Connector:  
Orient the red line on the floppy ribbon cable to Pin1.

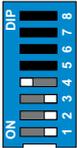
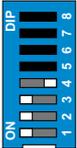
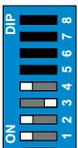


### FDD Cable

## 2-5 SWITCH SETTING FOR CPU RATIO AND CLOCK

### 2-5.1 CPU BUS RATIO SELECT

- Normally, the Bus Ratio (Frequency Multiplier) of your processor is locked by processor's Vendor and setting of the CPU Bus Ratio will have no effect.
- The Bus Ratio Setting is available on unlocked processors only.

SW1 DIP1 ~ DIP4 SETTING					
5.5x (default)		6.0x		6.5x	
7.0x		7.5x		8.0x	
8.5x		9.0x		9.5x	
10.0x		10.5x		11.0x	
11.5x		12.0x		/	

## 2-5.2 BUS CLOCK SELECT

- Over clocking is not recommended, your system may work unstable.
- SW1 DIP5~8 settings for FSB (Front Side Bus) Frequency Select is a redundancy device designed for professional CPU overclocking only. Since this mainboard is designed with CPU clock auto-detection function, you are recommended to use the SW1 DIP5~8 default setting for a stable system performance. In case of CPU overclocking to higher frequency, there exists high possibility of failure due to the high complexity of components adopted on board. On the other hand, selecting a lower frequency setting for a CPU with higher frequency (e.g. select 100MHz setting for a 133MHz CPU) will also cause system failure.

SW1 DIP5 ~ DIP8 SETTING	
	<p>Auto Select 66/100/133 MHz (default)</p>
	<p>66MHz</p>
	<p>100MHz</p>
	<p>133MHz</p>

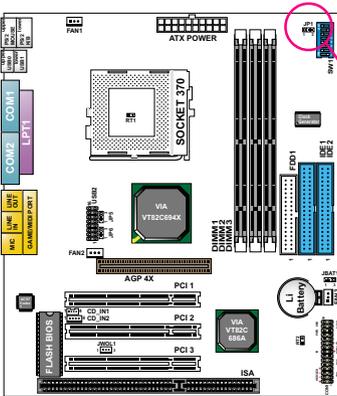
## 2-6 JUMPER SETTING FOR DEVICES ON BOARD

- The following diagrams show the locations of jumper blocks on the mainboard.

**CAUTION**

- Do not remove the jumper when power is on. Always make sure the power is off before changing any jumpers. Otherwise, mainboard could be damaged.
- In diagrams below, all jumper pins covered with black marks stand for closed pins.

### 2-6.1 JP1 Power Lost Resume



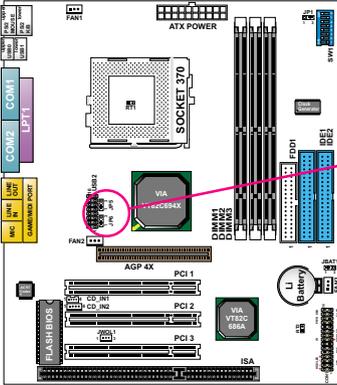
Power Lost Resume:

Normal (default)		JP1
Enabled		JP1

**NOTE:** This jumper allows user to use the switch of ATX power supply to control ON/OFF switch directly instead of using the power switch on the mainboard.

## 2-6.2 JP5/JP6 USB Port Select

JP5/JP6 setting is for future use when there is a need to connect USB2 and to AGP port. Currently USB port to AGP is not connected. Please keep JP5/JP6 default setting at 2-3 closed for enabling USB2. Changing the default setting will disable the USB2.

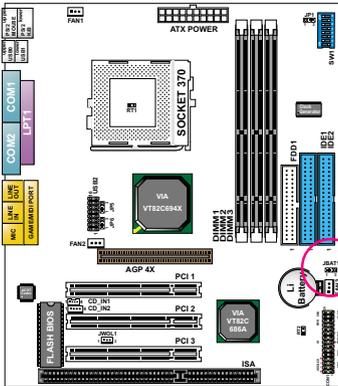


### USB Port Select:

<p><b>Redirect USB port 2 to USB 2 connector (default)</b></p>	<p>3  3 1  1 <b>JP5</b></p>	<p>3  3 1  1 <b>JP6</b></p>
<p><b>Redirect USB2 to AGP port (Not Connected)</b></p>	<p>3  3 1  1 <b>JP5</b></p>	<p>3  3 1  1 <b>JP6</b></p>

### 2-6.3 JBAT1 For Clear CMOS DATA

A battery should be used to supply the power for the CMOS RAM to retain the mainboard configuration.



**JBAT1 For Clear CMOS DATA:**

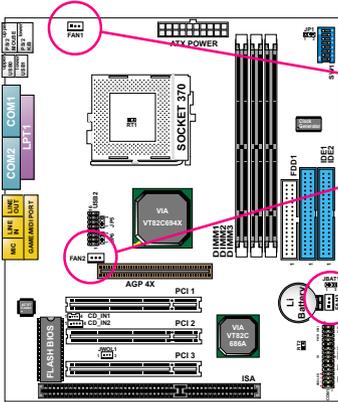
Clear CMOS Data	JBAT1	
Retain Data (default)	JBAT1	

**NOTE:** You can clear CMOS by 2-3 pin when the system is POWER OFF. Then, return to 1-2 pin position (default). It may damage the mainboard if clearing the CMOS with POWER ON. Unplugging the power cord from power supply before clearing CMOS will be a safest bet for user.

## 2-7 CONNECTORS CONFIGURATIONS

- This section list out all connectors configurations for users' reference.

### 2-7.1 On Board FAN Connector (FAN1, FAN2, FAN3)

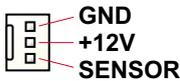


On Board FAN Connector (FAN1):

On Board FAN Connector (FAN2):

On Board FAN Connector (FAN3):

CPU FAN1	FAN1	
SYSTEM FAN	FAN2	
CHASSIS FAN	FAN3	



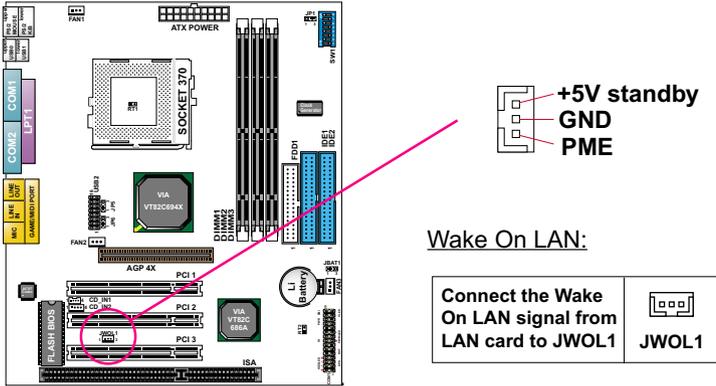
These fan connectors support CPU/System chassis cooling fan with +12V. When connecting wire to FAN connectors, users should pay attention that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. If your mainboard has Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.

For fans with speed sensors, each rotation of the fan blades will send out 2 electric pulses, by which System Hardware Monitor will work out the fan rotation speed by counting the pulses.

**NOTE 1:** Always consult vendor for proper CPU cooling fan.

**NOTE 2:** CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN speed according to the actual CPU temperature.

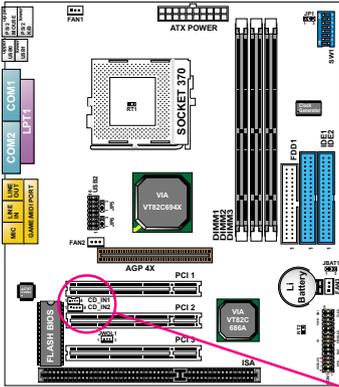
## 2-7.2 WOL1 Wake On LAN



This connector is connected to the LAN card with a Wake On LAN output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.

This feature requires that Wake On LAN feature is enabled in the **“Power Management Setup”** of BIOS setting and that your system must be on an ATX power supply with at least 720mA / +5V standby power.

### 2-7.3 CD-ROM Audio Connector (CD\_IN1/CD\_IN2)

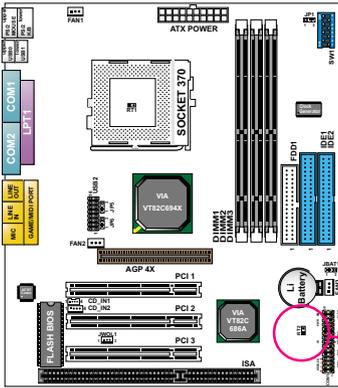


CD-ROM Audio Connector:

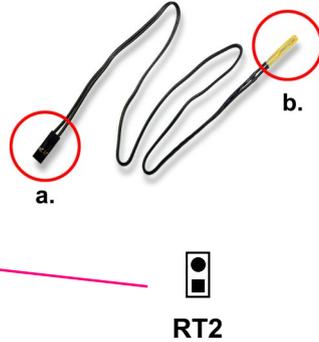
PIN NO.	CD_IN1	CD_IN2
PIN 1	GND	Left Channel
PIN 2	Left Channel	GND
PIN 3	GND	GND
PIN 4	Right Channel	Right Channel



### 2-7.4 Thermal Sensor Connector (RT2)



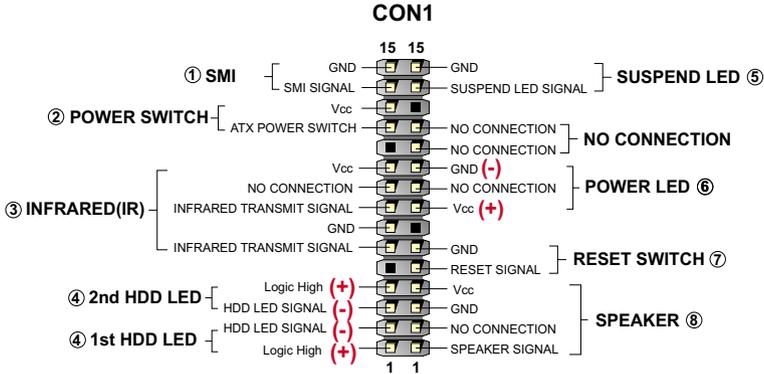
Thermal Sensor Connector (RT2):



We provide a thermal cable in the mainboard package. This thermal cable is to monitor device which will generates a lot of heat, such as HDD, Graphics card etc. Please connect one end of the thermal cable (A) to mainboard RT2 header, and tape another end of thermal cable (B) on to the device which you want to monitor. After you have finish the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware monitor utility.**

## 2-7.5 Complex Header CON1

- This complex Header consists of 9 connectors providing various supports:



### 1. SMI Connector (System Management Interrupt):

**CONNECTION:** This 2-pin connector is connected to the case-mounted Suspend Switch or to the “Turbo Switch”.

**FUNCTION:** Manually placing the system into a Suspend mode or “Green” mode.

### 2. Power Switch Connector:

**CONNECTION:** Connected to a momentary button or switch.

**FUNCTION:** Manually switching the system between “On” and “Soft Off”. Pressing the momentary button for more than 4 seconds will also turn the system off.

### 3. IR Connector (Infrared Connector):

**CONNECTION:** Connected to Connector IR on board.

**FUNCTION:** Supporting wireless transmitting and receiving module on board.

### 4. 1st HDD LED Connector / J2 2nd HDD LED Connector:

**CONNECTION:** Connected to HDD LED.

**FUNCTION:** To supply power to HDD LED.

### 5. Suspend LED Connector:

**CONNECTION:** Connected to Suspend indicator.

**FUNCTION:** To supply power to “Suspend indicator”.

**6. Power LED Connector:**

**CONNECTION:** Connected to System Power LED.

**FUNCTION:** To supply power to “System Power LED”.

**7. Reset Switch Connector:**

**CONNECTION:** Connected to the case-mounted “Reset Switch”.

**FUNCTION:** To supply power to “Reset Switch” and support system re-boot function.

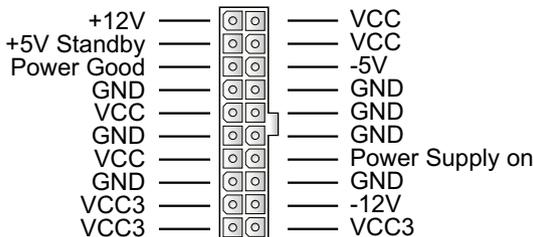
**8. Speaker Connector:**

**CONNECTION:** Connected to the case-mounted Speaker.

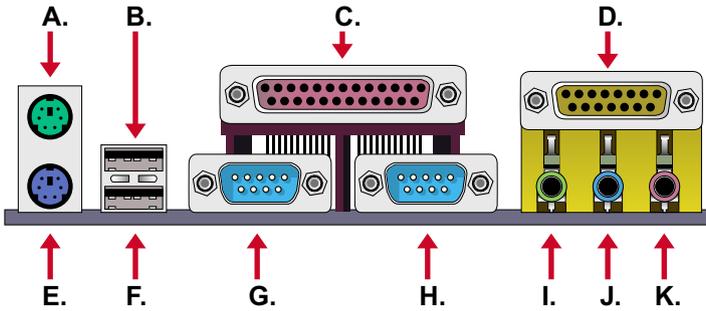
**FUNCTION:** To supply power to the case-mounted Speaker.

**2-7.6 ATX Power Supply Connector**

- This connector connects to an ATX power supply. The plug from the power supply should only be inserted to ATX Power connector in a specific orientation. Find the proper orientation and push it down firmly to make sure that all pins are aligned.
- Your power supply should support at least 10mA on the 5V standby voltage. It may cause difficulty to turn on the system power if the power supply does not support the load.
- **For Wake On LAN function, the power supply should support at least 720mA current.**



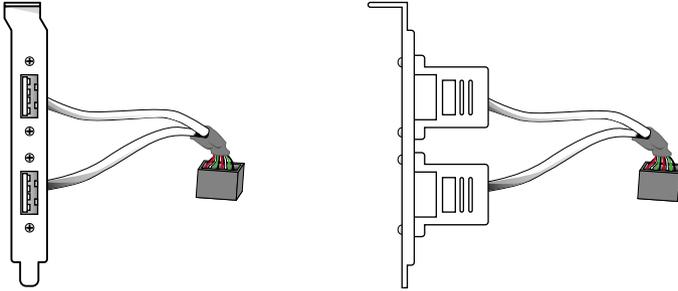
## 2-7.7 Chassis Panel Connector



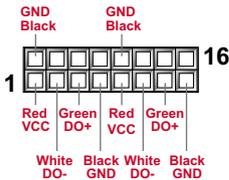
- A : PS/2 MOUSE PORT
- B : USB 0 PORT
- C : LPT1 PORT
- D : GAME/MIDI PORT
- E : PS/2 KEYBOARD PORT
- F : USB 1 PORT
- G : COM1 PORT
- H : COM2 PORT
- I : LINE OUT / SPEAKER OUT PORT
- J : LINE IN
- K : MICROPHONE

### 2-7.8 USB2 Header

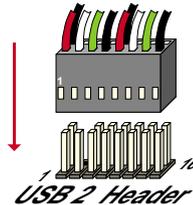
- This header is for connecting the additional USB cable to provides you additional two USB ports. User can order the additional USB cable from your mainboard dealer and vender.



**Additional USB Cable (Optional)**

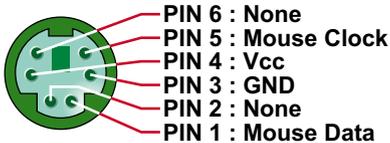


**USB2 Header**



- When plugging the USB cable into USB2 Header, users must make sure the red wire is connected to the first pin.

### 2-7.9 PS/2 Mouse And PS/2 Keyboard



**PS/2 MOUSE**



**PS/2 KEYBOARD**

## 2-8 IRQ DESCRIPTION

IRQ	Function Description	Priority
IRQ 0	System Timer	1
IRQ 1	Keyboard Controller	2
IRQ 2	Programmable Interrupt	N/A
IRQ 3	Serial Port (COM 2)	11
IRQ 4	Serial Port (COM 1)	12
IRQ 5		13
IRQ 6	Floppy Disk Controller	14
IRQ 7	Parallel Port (LPT1)	15
IRQ 8	Real Time Clock (RTC)	3
IRQ 9		4
IRQ 10		5
IRQ 11		6
IRQ 12	PS/2 Mouse Port	7
IRQ 13	Coprocessor	8
IRQ 14	Primary IDE Channel	9
IRQ 15	Secondary IDE Channel	10

- Both ISA and PCI expansion cards may require IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards.
- The original ISA expansion card design, now referred to as “Legacy” ISA card, requires you to configure the card’s jumpers manually and then install it in any available slot on the ISA bus. To see a map of your used and free IRQs in Windows 98, the *Control Panel* in *My Computer*, contains a *System* icon, which gives you a *Device Manager* tab. Double-Clicking on a specific hardware device gives you a *Resources* tab which shows the Interrupt number and address. Double-Clicking *Computers* to see all the interrupts and addresses for your system. Make sure that no more than two devices use the same IRQ or your computer will result problems when those two devices are used at the same time.

**MEMO**

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# **CHAPTER 3**

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## **SOFTWARE SETUP**

### **ABOUT SUPPORT CD**

- In Support CD, it contains most informations for user's requirement, such as Acrobat Reader, BIOS, User's full version Manual, Driver, Hardware Monitor (if mainboard supports this function), Patch, and Utilities etc. User can browse the CD and get further details in regard of our mainboard. Of course, welcome to vendor's website for the newest release.

**This chapter contains the following topics :**

**3-1 VIA CHIPSET DRIVER INSTALLATION (4-IN-1 DRIVER)**

**3-2 AC'97 AUDIO CODEC DRIVER INSTALLATION**

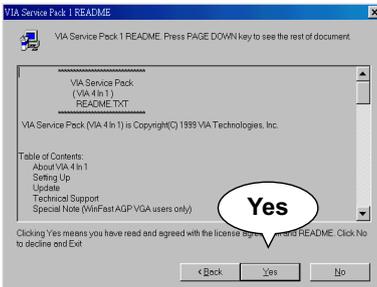
**3-3 HARDWARE MONITOR INSTALLATION**

### 3-1 VIA CHIPSET DRIVER INSTALLATION (4-IN-1 DRIVER)

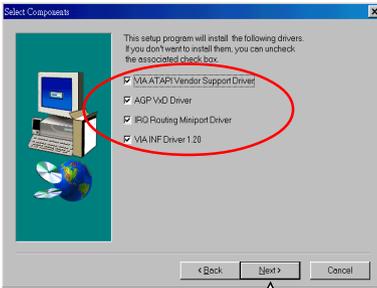
- 1 • Please put the Support CD provided in your mainboard package into the CD-ROM drive.
- 2 • When a welcome window appears on the screen, users should choose “Install Driver”.
- 3 • Click on the “VIA Chipset Driver”.
- 4 • Click on the “4-in-1 driver”.
- 5 • Click on the “Install via 4-in-1 driver” to continue.



- 6 • When the welcome screen appears, press “Next” button to continue.



- 7 • “VIA Service Pack README” screen will appear, please click the “Yes” button to continue.



8

• Press select the checkbox as below:

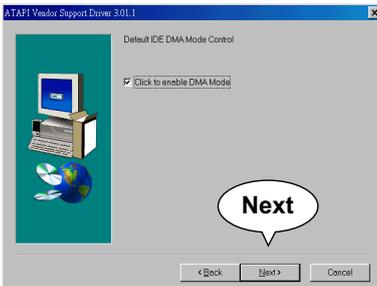
- Bus Master PCI IDE Driver
- AGP VxD Driver
- VIA Chipset Function's Registry
- IRQ Routing Miniport Driver

*Note: For user who is upgrading VIA Drivers, we recommend to install the 4-in-1 as it will automatically detect and update the necessary drivers.*



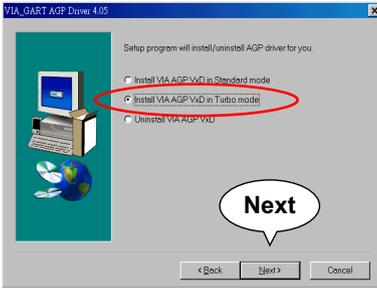
9

• Select “Install VIA ATAPI Vendor Support Driver” checkbox, then click the “Next” button to continue.

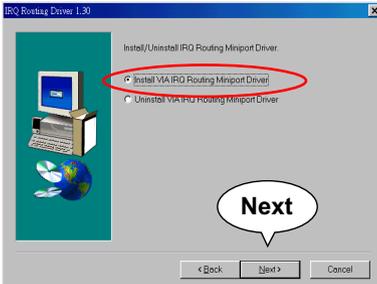


10

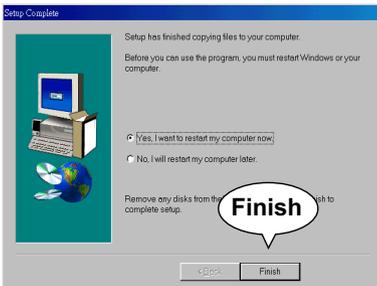
• Click on “Click to enable DMA Mode” checkbox to enable DMA function, then click the “Next” button to continue.



- 11** • Select “**Install VIA AGP VxD**” in turbo mode and press **Next** button to continue.



- 12** • Select “**Install VIA IRQ Routing Miniport Driver**” checkbox, then click the “**Next**” button to continue.



- 13** • After all these setup procedures have finished, please restart your computer by clicking on **Finish**.

## 3-2 AC'97 AUDIO CODEC DRIVER INSTALLATION

1

- Please put the Support CD provided in your mainboard package into the CD-ROM drive.

2

- When a welcome window appears on the screen, users should choose “**Install Driver**”.

3

- Click on the “**VIA Chipset Driver(2)**”.

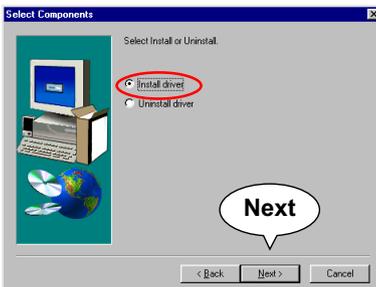
4

- Click on the “**AC'97 driver**”.



5

- Press “**Next**” button to continue.



6

- When asking you install or remove the audio driver, please select “**Install**” and press “**Next**” button to continue.



7

- After all the setup process is finished, please restart your computer by clicking on **Finish**.

### 3-3 HARDWARE MONITOR INSTALLATION

1

• Please put the Support CD provided in your mainboard package into the CD-ROM drive.

2

• When a welcome window appears on the screen, users should choose “Install Driver”.

3

• Click on the “VIA Chipset Driver”.

4

• Click on the “Hardware Monitor Utility”.



5

• Press “Next” button to continue.



6

• The default destination is C:\VIAhm, then press “Next” button to continue.



7

• Press “Next” button to finish the Hardware Monitor setup process.

**MEMO**

---

# **CHAPTER 4**

---

## **BIOS SETUP**

### **THE BIOS**

- BIOS stands for Basic Input and Output System. It is sometimes called ROM BIOS because it is stored in a Read-Only Memory(ROM) chip on the mainboard. BIOS is the first program to run when you turn on your computer.
- BIOS performs the following functions:
  1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
  2. Loading and running your operating system.
  3. Helping your operating system and application programs to manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

---

**This chapter contains the following topics :**

- 4-1 WHAT IS BIOS SETUP**
- 4-2 HOW TO RUN BIOS SETUP**
- 4-3 WHAT IS CMOS**
- 4-4 WHAT IS POST**
- 4-5 BIOS UPGRADE**
- 4-6 BIOS SETUP**

## **4-1 WHAT IS BIOS SETUP**

- BIOS setup is an interactive BIOS program that you need to run when:
  1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
  2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
  3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

## **4-2 HOW TO RUN BIOS SETUP**

- To access BIOS setup menu, press < DEL > key after "POST", and before the OS is loaded. The BIOS usually displays the following message:

Press DEL to enter SETUP

## **4-3 WHAT IS CMOS**

- CMOS is the memory maintained by a battery. The BIOS uses CMOS to store the settings you have selected in SETUP. The CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery is out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and do some proper settings in SETUP.

## **4-4 WHAT IS POST**

- POST is an acronym for Power On Self Test. POST will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

## **4-5 BIOS UPGRADE**

- System BIOS is incorporated into a Flash memory component of the mainboard. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.

- The upgrade utility can be loaded on a floppy diskette and used to provide the capability to save, verify, and update the system BIOS. The upgrade utility can be run from a hard disk drive or a network drive.

### 4-5.1 Before Upgrading BIOS

- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AWDFLASH.EXE) to a bootable floppy disk in case you need to reinstall the BIOS later.

### 4-5.2 Upgrade Process

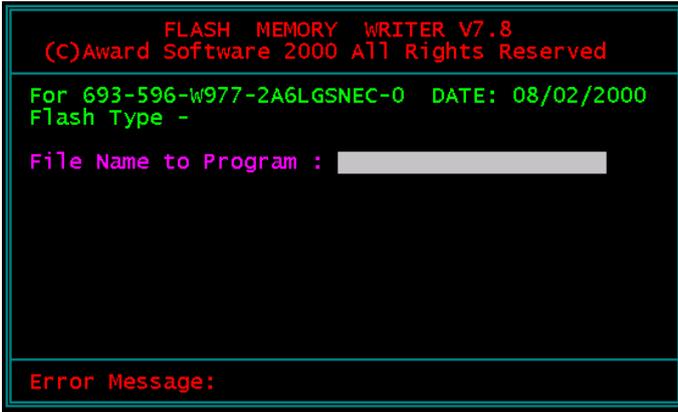
*Note: Normally, to upgrade BIOS is unnecessary if the system is working fine without any problem. Users should not upgrade the BIOS unless you experience incompatible problems or need to create new features. However, please read all information in this section before upgrading.*

“AWDFLASH.EXE” is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in **DOS environment only, the utility can not be executed in win95/98, ME, NT or WINDOWS 2000 environment.**

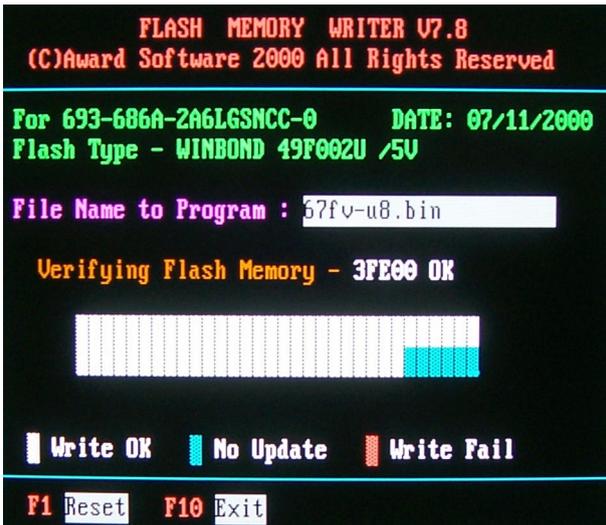
### Upgrading the system BIOS

- Step 1. Please visit the board maker’s website, download latest BIOS file and award flash utility “AWDFLASH.EXE”. The BIOS file format will be \*.bin, of which “\*” stands for the specific file name.
- Step 2. Create a bootable diskette. Then copy the BIOS file and award flash utility “AWDFLASH.EXE” into the diskette.
- Step 3. Insert the diskette into drive A, reboot your system and boot from the diskette.

- Step 4. Type **awdf flash \*.bin /sn/py/cc** and then press <Enter> to run BIOS upgrade program. (\*.bin depends on your mainboard model and version code. Instead of typing “\*”, you should type specific file name for your specific mainboard).
- Step 5. Please press <F1> or <F10> to exit or reset your system, **Warning !** If the message **“Write Fail”** appears while Award “FLASH MEMORY WRITER” is verifying Flash memory, just repeat the process. Please DO NOT reset or turn off the system. If the award memory flash utility is not able to update the BIOS successfully, your system may not be able to boot up.
- Step 6. You will need a message “CMOS checksum error-Default loaded” during booting the system. Press <Del> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or **“Load Optimized Defaults”** and save this change.



Award Flash Memory Writer Start Screen



Award Flash Memory Writer Complete Screen

The parameters of AWDFLASH.EXE

/sn: No original BIOS backup

/py: Program flash memory

/cc: Clear CMOS data (and update data automatically) after programming

***NOTE:*** Users can type AWDFLASH /? to get further details about the parameters. Incorrect usage of the parameter will damage the BIOS information, so we strongly recommend user to leave parameters alone unless you fully understand their function.

## 4-6 BIOS SETUP --- CMOS SETUP UTILITY

### 4-6.1 CMOS SETUP UTILITY

- This mainboard comes with the AWARD BIOS from AWARD Software Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

**PRESS <DEL> TO ENTER SETUP**

2. Press the <DEL> key and the main program screen will appear as follows.

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
▶ SmartDoc Anti-Burn Shield	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

3. Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

## 4-6.2 STANDARD CMOS SETUP

- Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. You only need to modify the configuration values of this option if you want to change your system hardware configuration or when the data stored in the CMOS memory gets lost or damaged.

Run the STANDARD CMOS SETUP as follows:

1. Choose “STANDARD CMOS SETUP” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software  
Standard CMOS Features

Date (mm:dd:yy)	Wed, May 23 2001	Item Help
Time (hh:mm:ss)	9 : 52 : 15	Menu Level ▶
▶ IDE Primary Master	Press Enter 13022 MB	
▶ IDE Primary Slave	Press Enter None	
▶ IDE Secondary Master	Press Enter None	
▶ IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	31744K	
Total Memory	32768K	

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

**Date (mm:dd:yy)** The BIOS determines the day of the week from the other date information. This field is for information only.

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Time (hh:mm:ss)** The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Primary / Secondary  
Master / Slave** This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drives.

**Drive A / Drive B** Select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:

360KB, 5.25in;

1.2MB, 5.25in;

720KB, 3.5in;

1.44MB, 3.5in;

2.88MB, 3.5in;

None.

**Video** Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in setup.

**Halt On** During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

**Base Memory** Typically 640KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

**Extended Memory** Above the 1MB boundary. Early IBM personal computers could not use memory above 1MB, but current PCs and their software can use extended memory.

**Total Memory** This option shows system memory capacity.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.3 ADVANCED BIOS FEATURES

- ADVANCED BIOS FEATURES improves your system performance or sets up system features according to your preference.

Run the ADVANCED BIOS FEATURES as follows:

1. Choose "ADVANCED BIOS FEATURES" from the Main Menu and a screen with a list of options will appear:
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU Internal Cache	Enabled	Menu Level ▶
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Process or Number Feature	Disabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
× Typematic Rate (Chars/Sec)	6	
× Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Video BIOS Shadow	Enabled	
C8000-CBFFF Shadow	Disabled	
CC000-CFFFF Shadow	Disabled	
D0000-D3FFF Shadow	Disabled	
D4000-D7FFF Shadow	Disabled	
D8000-DBFFF Shadow	Disabled	
DC000-DFFFF Shadow	Disabled	

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

**Virus Warning** When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive.  
You should then run an antivirus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

***NOTE:** Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.*

**CPU Internal Cache/ External Cache** Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for faster access by the CPU.

**CPU L2 Cache ECC Checking** When you select *Enabled*, it will speed up memory checking when the external cache contains ECC SRAMs.  
The choices: Enabled; Disabled.

**Processor Number Feature** Choose Disabled or Enabled. When enabled, the processor serial number will display during the boot up screen.

**Quick Power On Self Test** Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally enable quick POST.

**First/Second/Third/  
Other Boot Device** The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy; LS/ZIP; HDD; SCSI; CDROM; Disabled.

**Swap Floppy Drive** When enabled, floppy drives A and B will be exchanging without any physical connection and modification on the cables.

**Boot Up Floppy Seek** When enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 270KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to disabled to save time.

**Boot Up NumLock  
Status** Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

**Gate A20 Option** Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to *Fast*, the system chipset controls Gate A20. When set to *Normal*, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

**Typematic Rate Setting** When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system. When *Enabled*, you can select a typematic rate and typematic delay.

**Typematic Rate (Chars / Sec)** When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.

**Typematic Delay (Msec)** Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.

**Security Option** If you have set a password, select whether the password is required every time the System boots, or only when you enter setup.  
The choices: system; setup.

**OS Select For DRAM > 64MB** Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

**Video BIOS Shadow** Performance will be improved by copying Video BIOS to Shadow RAM.

**C8000-CBFFF to DC000-DFFFF Shadow** These options are used to shadow other expansion card ROMs.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## **4-6.4 ADVANCED CHIPSET FEATURES**

- ADVANCED CHIPSET FEATURES is used to modify the values of chipset buffers. These buffers control the system options.

Run the ADVANCED CHIPSET FEATURES as follows:

1. Choose “ADVANCED CHIPSET FEATURES” from the Main Menu and a list of option will appear:
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

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Advanced Chipset Features

DRAM Timing By SPD	Enabled	Item Help
× DRAM Clock	Host CLK	Menu Level ▶
× SDRAM Cycle Length	3	
× Bank Interleave	Disabled	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
System BIOS Cacheable	Disabled	
Video RAM Cacheabl	Disabled	
× AGP Aperture Size	64M	
AGP-4X Mode	Enabled	
AGP Driving Control	Auto	
AGP Driving Value	DA	
AGP Fast Write	Disabled	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
OnChip Sound	Auto	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Disabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	
PCI#2 Access #1 Retuy	Disabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	
Memory Parity/ECC Check	Disabled	

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

**DRAM Timing By SPD** When this item Enabled, DRAM Timing is set by SPD.

SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

**DRAM Clock** The value represents the performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating.

**SDRAM Cycle Length** Select CAS latency time in HCLKs of 2 or 3. The system designer already set the values. Do not change the default value unless you change specifications of the installed DRAM or the installed CPU.

**Bank Interleave** The choices: Disabled; 2 Bank; 4 Bank.

**Memory Hole** In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB. The choices: 15M-16M; Disabled.

**P2C/C2P Concurrency** This item allows you to enable/disable the PCI to CPU, CPU to PCI concurrency. The choices: Enabled; Disabled.

**System BIOS Cacheable** Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.

**Video RAM Cacheable** Selecting Enabled allows caching of the video memory (RAM) at A0000h-AFFFFh, resulting in better video performance. However, check your AGP manual to find out if any compatibility problem exists.

- AGP Aperture Size** Series of options are available: 4, 8, 16, 32, 64, 128 or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64MB.
- AGP-4X Mode** This item allows user enable/disable the AGP 4X (133MHz clock)mode.  
The choices. Enabled; Disabled(default).
- AGP Driving Control** This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system.  
The choices: Manual; Auto.
- AGP Driving Value** This item allows you to adjust the AGP driving force.  
The choices: Min=0000 ~ Max=00FF.
- AGP Fast Write** This item will enable the AGP model into fast write mode. If your graphics card does not support this function, please do not enable this function.
- OnChip USB** This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.  
The choices: Enabled; Disabled.
- USB Keyboard Support** Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.  
The choices:Enabled; Disabled.
- OnChip Sound** Enabled: Turn on AC'97 codec chip controller.  
Disabled: Turn off AC'97 codec chip controller or user can plug external add-on sound card.

**CPU to PCI Write Buffer** When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.  
The choices: Enabled; Disabled.

**PCI Dynamic Bursting** When Enabled, every write transaction goes to the write buffer. Bursting transactions then burst on the PCI bus and non-bursting transactions don't.  
The choices: Enabled; Disabled.

**PCI Master 0 WS Write** When Enabled, writes to the PCI bus are executed with zero wait states.  
The choices: Enabled; Disabled.

**PCI Delay Transaction** Leave this field at default.

**PCI # 2 Access # 1 Retry** The choices: Enabled; Disabled(default).

**AGP Master 1 WS Write** Leave this field at default.

**AGP Master 1 WS Read** Leave this field at default.

**Memory Parity/ECC Check** This item enabled to detect the memory parity and Error Checking & Correcting.  
The choices: Enabled; Disabled.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.5 INTEGRATED PERIPHERALS

- INTEGRATED PERIPHERALS option allows you to get some information inside your system when it is working.

Run the INTEGRATED PERIPHERALS as follows:

1. Choose "INTEGRATED PERIPHERALS" from the Main Menu and a list of options will appear:
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

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Integrated Peripherals

On-Chip IDE Channel 0	Enabled	Item Help
On-Chip IDE Channel 1	Enabled	Menu Level ▶
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
× IR Function Duplex	Half	
× TX, RX inverting enable	No, Yes	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	Normal	
ECP Mode Use DMA	3	
Parallel Port EPP Type	EPP1.9	
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	
SB I/O Base Address	220H	
SB IRQ Select	IRQ 5	
SB DMA Select	DMA 1	
MPU-401	Disabled	
MPU-401 I/O Address	330-333H	
Game Port (200-207H)	Enabled	

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

**On-Chip IDE channel 0/1** The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to deactivate an interface if you install a primary and/or second add-on IDE interface. The choices: Enabled (default); Disabled.

**IDE Prefetch Mode** The on-board IDE drive supports IDE perfecting for faster drive accesses. If the IDE device doesn't support perfecting, set this field to Disabled. The choices: Enabled; Disabled.

**Primary Master / Slave PIO Secondary Master / Slave PIO** Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable. The choices: Auto; Mode 0; Mode 1; Mode 2; Mode 3; Mode 4.

**Primary Master / Slave UDMA Secondary Master / Slave UDMA** Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software supports Ultra DMA33/66/100. Select "Auto" to enable BIOS support. The choices: Auto; Disabled.

**Init Display First** Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display.

**IDE HDD Block Mode** Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support. The choices: Enabled; Disabled.

**Onboard FDD Controller** Select Enabled if your system has a floppy drive controller (FDC) installing in the system board and you want to use it. If you install add-in FDC or the system has no floppy drive, select Disabled in this field.  
The choices: Enabled; Disabled.

**Onboard Serial Port 1 / Port 2** Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.

**UART 2 Mode** The second serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes. (Click your browser's Back button, or your right mouse button, to return to this page.)

**IR Function Duplex** 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. If no infrared port is present in the system, select Disabled.

**TX, RX inverting enable** This item allows you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.  
The choice: "No, No", "No, Yes"(default), "Yes, No", "Yes, Yes".

**Onboard Parallel Port** This item allows you to determine onboard parallel port controller I/O address setting.  
The choices: 378H/IRQ7; 278H/IRQ5; 3BC/IRQ7; Disabled.

**Parallel Port Mode** Select an operating mode for the on-board parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

**ECP Mode Use DMA** Select a DMA channel for the port.

**Parallel Port EPP Type** Select EPP port type 1.7 or 1.9, as required by your parallel peripheral.

**Onboard Legacy Audio** This field controls the onboard audio.

- Sound Blaster
- SB I/O Base Address
- SB IRQ Select
- SB DMA Select
- MPU-401
- MPU-401 I/O Address
- Game Port (200-207H)

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.6 POWER MANAGEMENT SETUP

- POWER MANAGEMENT SETUP allows you to set the system's power saving functions.

Run the POWER MANAGEMENT SETUP as follows:

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
Power Management Setup

ACPI Function	Enabled	Item Help
▶ Power Management	User Define	Menu Level ▶
PM Control by APM	Yes	
Video Off Method	V/H SYNC+Blank	
Video Off After	Standby	
MODEM Use IRQ	3	
Doze Mode	Disable	
Standby Mode	Disable	
Suspend Mode	Disable	
HDD Power Down	Disable	
Soft-Off by PWRBTN	Instand-Off	
State After Power Failure	Auto	
▶ Wake Up Events	Press Enter	

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

**ACPI Function** Select Enabled only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification. Currently, Windows NT 5.0 supports ACPI.

**POWER MANAGEMENT**

- When this option is chosen, the following item appears for user's configuration.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
Power Management

Power Management	User Define	Item Help
HDD Power Down	Disabled	Menu Level ▶
Doze Moed	Disabled	
Suspend Mode	Disabled	

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

- \* **Power Management** This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.  
This table describes each power management mode:

Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Set each mode individually. Select time-out period in the section for each mode stated below.
Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

**\* 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.

**\* Doze Mode** After the selected period of system inactivity, the CPU clock runs at slower speed while all other devices still operate at full speed.

**\* Suspend Mode** After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.

**PM Control by APM** When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock, If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings. If the Max. Saving is not enabled, this will be present to No.

**Video Off Method** This determines the manner by which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS Supports	Select this option if you monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

**Video Off After** As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

**MODEM Use IRQ** Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.  
The choices: 3; 4; 5; 7; 9; 10; 11; NA.

**Doze Mode** When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

**Standby Mode** After the selected period of system inactivity, the fixed disk drive and the video shut off while all other devices still operate at full speed.

**Suspend Mode** After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.

**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.

**Soft-Off by PWRBTN** When Enabled, turning the system off by pressing the on/off button places the system in a very low-power-usage state.

**State After Power Failure** This field lets you determine the state that your PC returns to after a power failure.  
The choices: On; Off; Auto.

---

WAKE UP EVENTS

- When this option is chosen, the following item appears for user's configuration.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
Wake Up Events

VGA	OFF	Item Help
LPT & COM	LPT/COM	Menu Level ▶
HDD & FDD	ON	
PCI Master	OFF	
Modem Ring Resume	Disabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
× Resume Time (hh:mm:ss)	0 0 0	
× Primary INTR	ON	
IRQS Activity Monitoring	Press Enter	

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

- \* **VGA** When Enabled, you can set the VGA awakens the system
- \* **LPT & COM** When LPT & COM is ON, any activity from one of the listed system peripheral devices or IRQs wakes up the system.
- \* **HDD & FDD** When HDD & FDD is ON, any activity from one of the listed system peripheral devices wakes up the system.
- \* **PCI Master** When PCI Master is ON, any activity from one of the listed system peripheral devices wakes up the system.
- \* **Modem Ring Resume** An input signal on the serial Ring Indicator (RI) Line (in other words, an incoming call on the modem) Awakens the system from a soft off state.

- \* **RTC Alarm Resume** When Enabled, you can set the data and time at which the RTC (Real Time Clock) alarm awakens the system from suspend mode.  
The choices: Disabled (default); Enabled.
  
- \* **Date (of Month)** Set a certain date when RTC Alarm Resume option is Enabled to awaken the system. This option is concurrent with Resume Time option.
  
- \* **Resume Time (hh: mm:ss)** Set a certain time when RTC Alarm Resume option is Enabled to awaken the system. This option is concurrent with Date option.
  
- \* **Primary INTR** When set to on, any event occurring at will awaken a system which has been powered down.  
On(default):The system can not enter the power saving mode when I/O ports or IRQ# is activated.  
Off:The system still can enter the power saving mode when I/O ports or IRQ# is activated.

\* IRQ ACTIVITY MONITORING

- When this option is chosen, the following item appears for user's configuration.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
 IRQ Activity Monitoring

IRQ-3 (COM2)	Enabled	Item Help
IRQ-4 (COM1)	Enabled	Menu Level ▶
IRQ-5 (LPT2)	Enabled	
IRQ-6 (Floppy Disk)	Enabled	
IRQ-7 (LPT1)	Enabled	
IRQ-8 (RTC Alarm)	Disabled	
IRQ-9 (IRQ2 Redir)	Disabled	
IRQ-10 (Reserved)	Disabled	
IRQ-11 (Reserved)	Disabled	
IRQ-12 (PS/2 Mouse)	Enabled	
IRQ 13 (Coprocessor)	Disabled	
IRQ 14 (Hard Disk)	Enabled	
IRQ 15 (Reserved)	Disabled	

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

**IRQ Activity Monitoring** The following is a list of IRQ's (Interrupt Requests), which can be exempted much as the COM ports and LPT ports above can. 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 On, activity will neither prevent the system from going into a power management mode nor awaken it.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.7 PNP / PCI CONFIGURATION

- PNP/PCI CONFIGURATION allows you to modify the system’s power saving functions.

Run the PNP/PCI CONFIGURATION as follows:

1. Choose “PNP/PCI CONFIGURATION” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software  
PnP/PCI Configurations

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	Menu Level ▶
Resources Controlled By	Auto(ESCD)	
× IRQ Resources	Press Enter	
× DMA Resources	Press Enter	
× Memory Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

**PNP OS Installed** Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows95).

**NOTE:** BIOS will automatically disable all PnP resources except the boot device card when you select Yes on Non-PnP operating system.

**Reset Configuration Data** Normally, you leave this Disabled. Select Enabled to reset Extended System Configuration Data (ESCD), when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

**Resource Controlled By** The Plug and Play AwardBIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select *Auto*, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

**IRQ RESOURCES** Press Enter at this item to reveal the following list:

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software  
IRQ Resources

IRQ-3 assigned to	PCI Device	Item Help
IRQ-4 assigned to	PCI Device	Menu Level ▶
IRQ-5 assigned to	PCI Device	
IRQ-7 assigned to	PCI Device	
IRQ-9 assigned to	PCI Device	
IRQ-10 assigned to	PCI Device	
IRQ-11 assigned to	PCI Device	
IRQ-12 assigned to	PCI Device	
IRQ-14 assigned to	PCI Device	
IRQ-15 assigned to	PCI Device	

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

**DMA Resources** Press Enter at this item to reveal the following list:

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software  
DMA Resources

DMA-0 assigned to	PCI/ISA PnP	Item Help
DMA-1 assigned to	PCI/ISA PnP	Menu Level ▶
DMA-3 assigned to	PCI/ISA PnP	
DMA-5 assigned to	PCI/ISA PnP	
DMA-6 assigned to	PCI/ISA PnP	
DMA-7 assigned to	PCI/ISA PnP	

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

**PCI/VGA Palette Snoop** This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used MPEG card.

**Assign IRQ for VGA** Select *Enabled* if you system has a VGA controller and you have one or more VGA devices connected. If you are not using your system's VGA controller, select *Disabled* to free the IRQ resource.

**Assign IRQ for USB** Select *Enabled* if you system has a USB controller and you have one or more USB devices connected. If you are not using your system's USB controller, select *Disabled* to free the IRQ resource.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.8 PC HEALTH STATUS

- This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact your mainboard supplier to get proper values about the setting of the CPU temperature.

Run the “PC Health Status” as follows:

1. Choose “PC Health Status” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
PC Health Status

Current CPU Temp	Item Help
Current System Temp	Menu Level ▶
Current CPUFAN1 Speed	
Current CPUFAN2 Speed	
Vcore	
2.5V	
3.3V	
5V	
12V	

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

<F1>: “Help” gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

**Current CPU Temp.** Shows current CPU temperature.

**Current System Temp.** Shows current system temperature.

**Current CPU FAN1 Speed** Shows current CPU FAN1 speed. The fan must provide rotary pulse. (Normally these types of fan have a three-wire connector)

**Current CPUFAN2 Speed** Shows current CPUFAN2 speed. The fan must provide rotary pulse. (Normally these types of fan have a three-wire connector)

**Vcore** Shows power supply actual voltage value.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.9 FREQUENCY/VOLTAGE CONTROL

Run the "FREQUENCY/VOLTAGE CONTROL" as following:

1. Choose "FREQUENCY/VOLTAGE CONTROL" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
Frequency Control

Auto Detect DIMM/PCI CLK	Disabled	Item Help
Spread Spectrum	Disabled	Menu Level ▶
CPU Host Clock (CPU/PCI)	66	

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

<F1>: "Help" gives options available for each item.

<F5>: Get the previous values. These values are the values with which the user starts the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

**Auto Detect DIMM/PCI CLK** To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and PCI slots and turns off system clock generator pulses to empty slots.

**Spread Spectrum** When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

**CPU Host Clock** Select Default or select a timing combination for the CPU bus. When set to Default, the BIOS uses the actual CPU bus clock values.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## **4-6.10 LOAD OPTIMIZED DEFAULTS**

- When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

```
  " Load Optimized Defaults (Y/N) ? N "
```

"Y" is for "Yes", and "N" is for "No".

Pressing "Y" loads the BIOS default values that are factor settings for optimal performance of system operations.

## 4-6.11 SET SUPERVISOR / USER PASSWORD

- These two options allow you to set your system passwords. Normally, the supervisor has a higher priority to change the CMOS setup option than the users. The way to set up the passwords for both Supervisor and Users are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. Then following message appears:

`Enter Password : `

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears prompting you to confirm the password:

`Confirm Password : `

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you have entered before.
7. Move the cursor to Save & Exit Setup to save the option you have just configured; otherwise the old password will still be there the next time you turn your system on.
8. Press <Enter> to exit to the Main Menu.

**NOTE:** *If you forget or lose the password, the only way to access the system is to clear the CMOS RAM. All setup informations will be lost and you need to run the BIOS setup program again.*

## **4-6.12 SAVE & EXIT SETUP**

- **SAVE & EXIT SETUP** allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

```
  "SAVE to CMOS and EXIT (Y/N) ?  Y  "
```

"Y" is for "Yes", and "N" is for "No".

Press <Enter> key to save the configuration changes.

## **4-6.13 EXIT WITHOUT SAVING**

- **EXIT WITHOUT SAVING** option allows you to exit the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

```
  "Quit Without Saving (Y/N) ?  N  "
```

"Y" is for "Yes", and "N" is for "No".

You may change the prompt to "Y" and press <Enter> key to leave this option .

**MEMO**

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# ***APPENDICES***

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**This chapter contains the following topics :**

**APPENDIX-1 TECHNICAL TERMS  
INTRODUCTION**

**APPENDIX-2 IDENTIFYING BIOS VERSION/  
BIOS PART NUMBER**

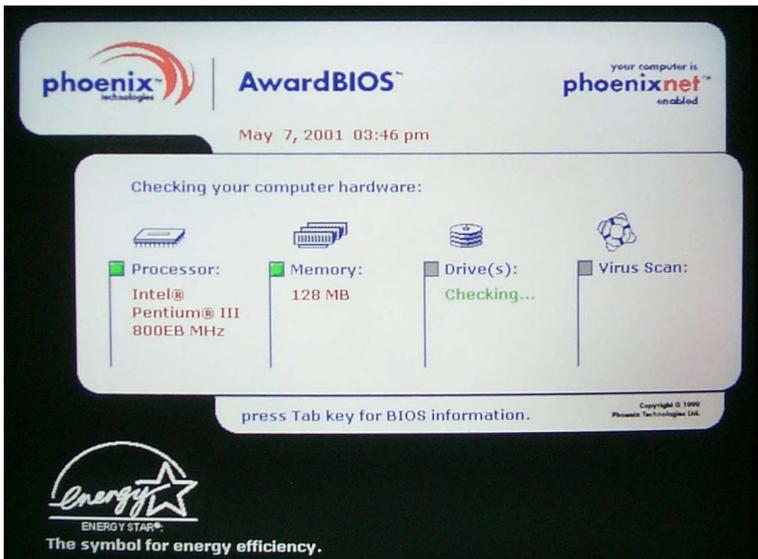
**APPENDIX-3 IDENTIFYING MAINBOARD  
MODEL NUMBER**

## APPENDIX-1 TECHNICAL TERMS INTRODUCTION

<b>Technical Terms Introduction</b>	
<b>Tech Term</b>	<b>Meaning</b>
<b>AGP</b>	<b>Accelerated Graphic Port</b>
<b>AMR</b>	<b>Audio Modem Riser</b>
<b>ACR</b>	<b>Advanced Communication Riser</b>
<b>CPU</b>	<b>Central Processing Unit</b>
<b>CMOS</b>	<b>Complementary Metal Oxide Semiconductor</b>
<b>CRIMM</b>	<b>Continuity RIMM</b>
<b>CNR</b>	<b>Communication and Networking Riser</b>
<b>DMA</b>	<b>Direct Memory Access</b>
<b>DMI</b>	<b>Desktop Management Interface</b>
<b>DIMM</b>	<b>Dual Inline Memory Module</b>
<b>DRAM</b>	<b>Dynamic Random Access Memory</b>
<b>DDR</b>	<b>Double Data Rate</b>
<b>ECP</b>	<b>Extended Capabilities Port</b>
<b>ESCE</b>	<b>Extended System Configuration Data</b>
<b>ECC</b>	<b>Error Check and Correct</b>
<b>EPP</b>	<b>Enhanced Parallel Port</b>
<b>FDD</b>	<b>Floppy Disk Device</b>
<b>IDE</b>	<b>Integrated Dual Channel Enhanced</b>
<b>IRQ</b>	<b>Interrupt ReQuest</b>
<b>I/O</b>	<b>Input/Output</b>
<b>LAN</b>	<b>Local Area Network</b>
<b>LBA</b>	<b>Logical Block Addressing</b>
<b>LED</b>	<b>Local Emitting Diode</b>
<b>MHz</b>	<b>Megahertz</b>
<b>PNP</b>	<b>Plug &amp; Play</b>
<b>USB</b>	<b>Universal Serial Bus</b>
<b>VCM</b>	<b>Virtual Channel Memory</b>

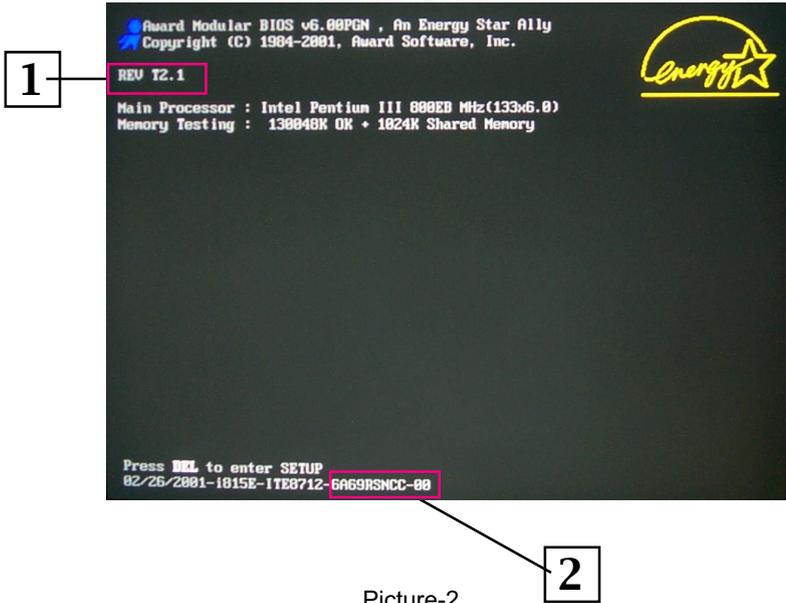
## APPENDIX-2 IDENTIFYING BIOS VERSION AND BIOS PART NUMBER

- When you boot up your computer, you may see a screen which tells your computer is phoenixnet™ enabled. Please see Picture-1 below for an illustration.
- When the screen shows up press “Tab” key for BIOS information.



Picture-1

- See Picture-2 below for BIOS version and BIOS part number identification.

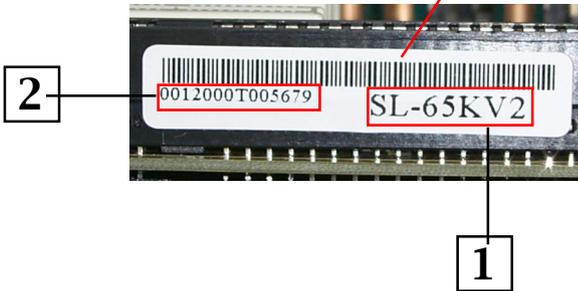
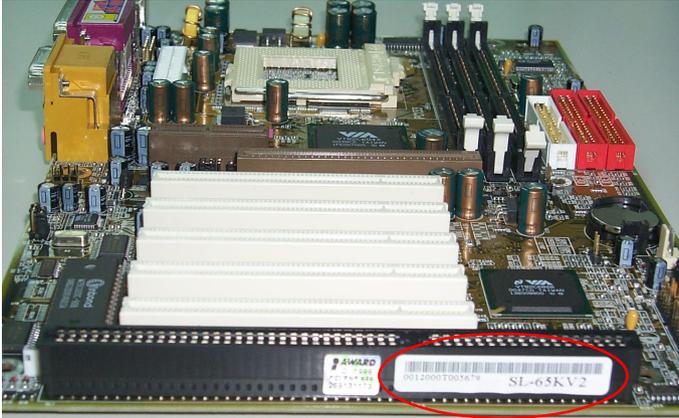


Picture-2

1. BIOS VERSION  
example: REV T2.1
2. BIOS ID STRING  
example: 6A69RSNCC

### APPENDIX-3 IDENTIFYING MAINBOARD MODEL NUMBER

- Usually the mainboard model number is labeled on the ISA side of slot or PCI slot, please see the picture shown below for an illustration.



1. MAINBOARD MODEL NUMBER  
example: SL-65KV2
2. MAINBOARD SERIAL NUMBER  
example: 0012000T005679

**MEMO**

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