

## FCC Compliance Statement:

|   |
|---|
| <p align="center"><b>DECLARATION OF CONFORMITY</b><br/>Per FCC Part 2 Section 2.107(a)</p> <p align="center"><b>FC</b></p> <p>Responsible Party Name: G.B.T. INC.</p> <p align="center">Address: 18365 Valley Blvd., Suite#A<br/>LA Puente, CA 91744</p> <p align="center">Phone/Fax No: (818) 854-9338/ (818) 854-9339</p> <p>hereby declares that the product</p> <p align="center">Product Name: Mother Board</p> <p align="center">Model Number: GA-6VX-4X</p> <p>Conforms to the following specifications:</p> <p align="center">FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a),<br/>Class B Digital Device.</p> <p><b>Supplementary Information:</b></p> <p><small>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undesired operation.</small></p> <p>Representative Person's Name: <u>ERIC LU</u></p> <p>Signature: <u>Eric Lu</u></p> <p>Date: <u>Dec. 01, 1999</u></p> |
|---|

This equipment has been tested and found to comply with limits for a Class B digital device , pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment

reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

# Declaration of Conformity

We, Manufacturer/Importer  
(full address)

**G.B.T. Technology Trädung GmbH**  
**Ausschlagler Weg 41, 1F, 20537 Hamburg, Germany**

declare that the product  
( description of the apparatus, system, installation to which it refers)

**Mother Board**  
GA-6VX-4X

is in conformity with  
(reference to the specification under which conformity is declared)  
in accordance with 89/336 EEC-EMC Directive

- |   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> EN 55011   | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM high frequency equipment                 | <input type="checkbox"/> EN 61000-3-2*<br><input checked="" type="checkbox"/> EN60555-2          | Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"   |
| <input type="checkbox"/> EN55013  | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment                                     | <input type="checkbox"/> EN61000-3-3*<br><input checked="" type="checkbox"/> EN60555-3           | Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"                                  |
| <input type="checkbox"/> EN 55014   | Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus | <input checked="" type="checkbox"/> EN 50081-1<br><input checked="" type="checkbox"/> EN 50082-1 | Generic emission standard Part 1: Residual, commercial and light industry<br>Generic immunity standard Part 1: Residual, commercial and light industry |
| <input type="checkbox"/> EN 55015   | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries   | <input type="checkbox"/> EN 55081-2  | Generic emission standard Part 2: Industrial environment   |
| <input type="checkbox"/> EN 55020   | Immunity from radio interference of broadcast receivers and associated equipment   | <input type="checkbox"/> EN 55082-2  | Generic immunity standard Part 2: Industrial environment   |
| <input checked="" type="checkbox"/> EN 55022  | Limits and methods of measurement of radio disturbance characteristics of information technology equipment   | <input type="checkbox"/> ENV 55104   | Immunity requirements for household appliances tools and similar apparatus   |
| <input type="checkbox"/> DIN VDE 0855<br><input type="checkbox"/> part 10<br><input type="checkbox"/> part 12 | Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals   | <input type="checkbox"/> EN 50091- 2   | EMC requirements for uninterruptible power systems (UPS)   |

CE marking



(EC conformity marking)

**The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC**

- |                                   |   |                                     |   |
|-----------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> EN 60065 | Safety requirements for mains operated electronic and related apparatus for household and similar general use | <input type="checkbox"/> EN 60950   | Safety for information technology equipment including electrical business equipment |
| <input type="checkbox"/> EN 60335 | Safety of household and similar electrical appliances   | <input type="checkbox"/> EN 50091-1 | General and Safety requirements for uninterruptible power systems (UPS)             |

Manufacturer/Importer

Signature : Rex Lin

(Stamp)

Date : Dec. 01, 1999 Name : Rex Lin

**6VX-4X**  
**Pentium® II / III / Celeron™ Processor**  
**Motherboard**

**USER'S MANUAL**

Pentium® II/III/Celeron™ Processor MAINBOARD  
REV. 1.1 First Edition  
R-11-01-091220



## How This Manual Is Organized

This manual is divided into the following sections:

|   |  |
|---|--|
| <b>1) Revision History</b>                | Manual revision information                  |
| <b>2) Item Checklist</b>                  | Product item list                            |
| <b>3) Features</b>                        | Product information & specification          |
| <b>4) Hardware Setup</b>                  | Instructions on setting up the motherboard   |
| <b>5) Performance &amp; Block Diagram</b> | Product performance & block diagram          |
| <b>6) Suspend to RAM &amp; Dual BIOS</b>  | Instructions STR installation & Dual BIOS    |
| <b>7) BIOS Setup</b>                      | Instructions on setting up the BIOS software |
| <b>8) Appendix</b>                        | General reference                            |



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## Revision History

| Revision | Revision Note  | Date     |
|----------|--|----------|
| 1.1      | Initial release of the 6VX-4X motherboard user's manual. | Dec.1999 |

The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update the information contained herein. Third-party brands and names are the property of their respective owners.



## Item Checklist

- The 6VX-4X motherboard
  - Cable for IDE / floppy device
  - Diskettes or CD (TUCD) for motherboard driver & utility
  - Internal COMB Cable (Optional for VGA/AGP on-board motherboard)
  - Internal USB Cable (Optional for Baby AT motherboard)
  - Cable for SCSI device
  - 6VX-4X user's manual
-

## Summary Of Features

|                      |  |
|----------------------|--|
| Form Factor          | 30.6 cm x 20.4 cm ATX size form factor, 4 layers PCB.  |
| CPU                  | <ul style="list-style-type: none"> <li>• Pentium® II/III/Celeron™ processor</li> <li>• 2<sup>nd</sup> cache depend on CPU</li> </ul>   |
| Chipset              | <ul style="list-style-type: none"> <li>• VT82C694X (VIA Apollo Pro 133A)</li> <li>• VT82C686A</li> </ul>   |
| Clock Generator      | <ul style="list-style-type: none"> <li>• ICS 9248AF-63/9279BF-01</li> <li>• 66/100/133 MHz system bus speeds (PCI 33MHz)</li> <li>• 112/124/142/152 MHz system bus speeds (PCI 44MHz) (reserved)</li> </ul>  |
| Memory               | <ul style="list-style-type: none"> <li>• 4 168-pin DIMM sockets support 6 banks.</li> <li>• Supports PC-100 / PC-133 SDRAM and VCM SDRAM</li> <li>• Supports 6 banks up to 1.5GB DRAM(256 MB DRAM)</li> <li>• Supports only 3.3V SDRAM DIMM</li> <li>• Supports 72bit ECC type DRAM integrity mode.</li> </ul> |
| I/O Control          | <ul style="list-style-type: none"> <li>• VT82C686A</li> </ul>  |
| Slots                | <ul style="list-style-type: none"> <li>• 1 AGP Slot Supports 4X mode &amp; AGP 2.0 compliant</li> <li>• 5 PCI Slot Supports 33MHz &amp; PCI 2.2 compliant</li> <li>• 1 ISA Slot</li> <li>• 1 AMR(Audio Modem Riser)Slot</li> </ul>   |
| On-Board IDE         | <ul style="list-style-type: none"> <li>• 2 IDE bus master, DMA 33/ ATA 66 IDE ports for up to 4 ATAPI devices</li> <li>• Supports PIO mode 3, 4, UDMA33/ATA66 IDE &amp; ATAPI CD-ROM</li> </ul>  |
| On-Board Peripherals | <ul style="list-style-type: none"> <li>• 1 floppy port supports 2 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes</li> <li>• 1 parallel ports supports SPP/EPP/ECP mode</li> <li>• 2 serial ports (COMA &amp; COMB)</li> <li>• 4 USB ports</li> <li>• 1 IrDA connector for IR</li> </ul>                       |
| Hardware Monitor     | <ul style="list-style-type: none"> <li>• CPU/System fan revolution detect</li> <li>• CPU /System temperature detect</li> <li>• System voltage detect (Vcore,Vcc3,Vcc,+12V)</li> <li>• CPU overheat shutdown detect</li> </ul>  |
| PS/2 Connector       | <ul style="list-style-type: none"> <li>• PS/2 keyboard interface and PS/2 mouse interface</li> </ul>   |

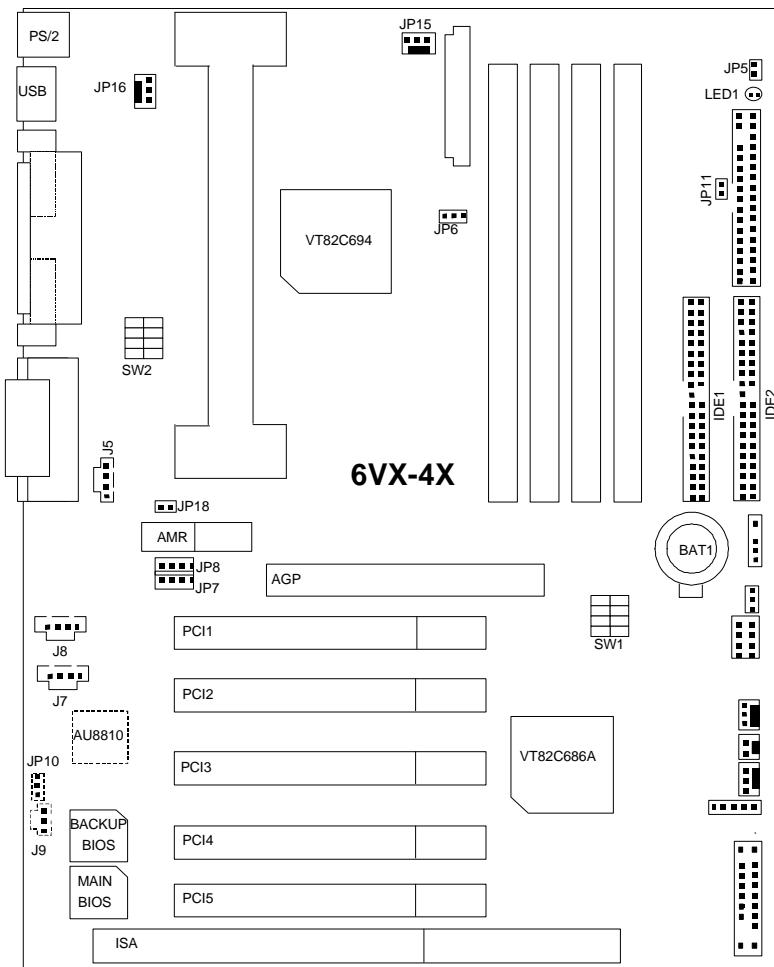
To be continued...


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## Summary Of Features

|                     |   |
|---------------------|---|
| BIOS                | <ul style="list-style-type: none"><li>• Licensed AMI BIOS, 4M bit flash ROM</li><li>• Support dual BIOS</li></ul>   |
| On-Board Sound      | <ul style="list-style-type: none"><li>• Build –in VIA sound (VIA VT82C686A)</li><li>• Aureal AU8810 sound (Optional)</li></ul>  |
| Additional Features | <ul style="list-style-type: none"><li>• Supports Wake-on-LAN (WOL)</li><li>• Supports Internal / External modem wake up</li><li>• Includes 3 fan power connectors.</li><li>• Poly fuse for keyboard over-current protection</li></ul> |

# 6VX-4X Motherboard Layout



|  Page Index for CPU Speed Setup / Connectors / Panel and Jumper Definition | Page |
|---|------|
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## CPU Speed Setup

The system bus speed is selectable at 66,100,133MHz and Auto. The user can select the system bus speed (**SW1**)&**JP6** and change the DIP switch (**SW2**) selection to set up the CPU speed for 233 - 733MHz processor.

### Set System Bus Speed

SW1:

O : ON, X : OFF

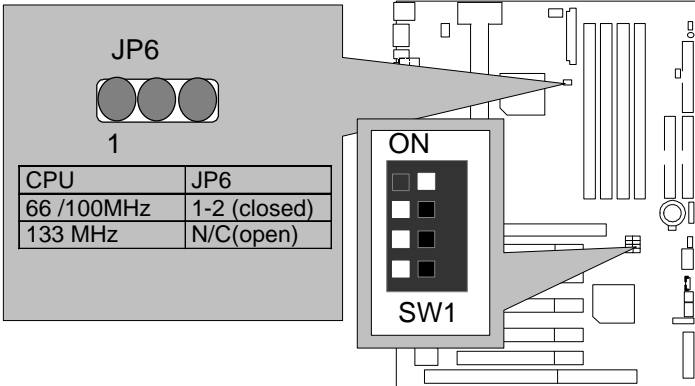
| CPU (MHz) | PCI(MHz) | JP6 | 1 | 2 | 3 | 4 |
|-----------|----------|-----|---|---|---|---|
| 66        | 33       | 1-2 | X | X | O | O |
| 100       | 33       | 1-2 | X | X | X | X |
| 112       | 37       | 1-2 | O | X | X | X |
| 124       | 41       | 1-2 | O | O | X | X |
| 133       | 33       | N/C | O | O | O | X |
| 142       | 35       | N/C | X | O | O | X |
| 152       | 38       | N/C | O | X | O | X |

The CPU speed must match with the frequency ratio. It will cause system hanging up if the frequency ratio is higher than that of CPU.

SW2:

| FREQ. RATIO | DIP SWITCH |   |   |   |
|-------------|------------|---|---|---|
|             | 1          | 2 | 3 | 4 |
| X 3         | O          | X | O | O |
| X 3.5       | X          | X | O | O |
| X 4         | O          | O | X | O |
| X 4.5       | X          | O | X | O |
| X 5         | O          | X | X | O |
| X 5.5       | X          | X | X | O |
| X 6         | O          | O | O | X |
| X 6.5       | X          | O | O | X |
| X 7         | O          | X | O | X |
| X 7.5       | X          | X | O | X |
| X 8         | O          | O | X | X |
| X 8.5       | X          | O | X | X |
| X 9         | O          | X | X | X |
| X 9.5       | X          | X | X | X |

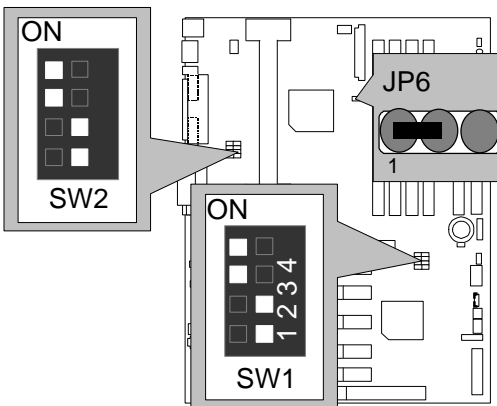
**For 133MHz Jumper Setting:**



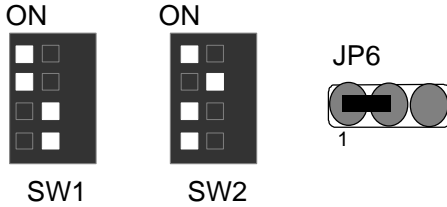
Note: We don't recommend you to set up your system speed to 112, 124, 142,152 MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 112, 124, 142,152 MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.

☞ The black part in the picture is the white extruding piece of the DIP switch.

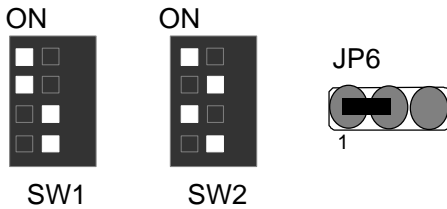
1. Pentium® II /Celeron 233 / 66 MHz FSB



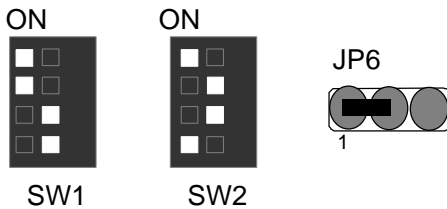
2. Pentium II/Celeron 266/66 MHz FSB



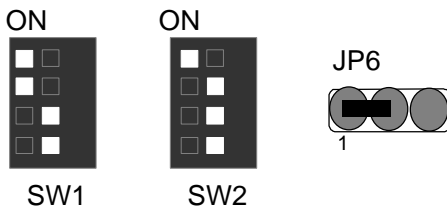
3. Pentium II/Celeron 300/66 MHz FSB



4. Pentium II/Celeron 333/66 MHz FSB

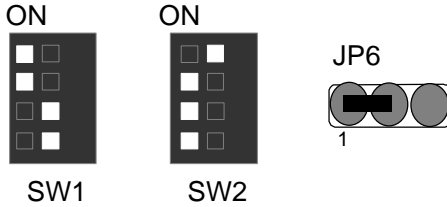


5. Pentium II/Celeron 366/66 MHz FSB

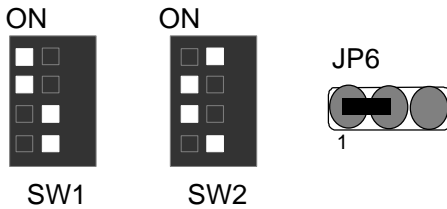




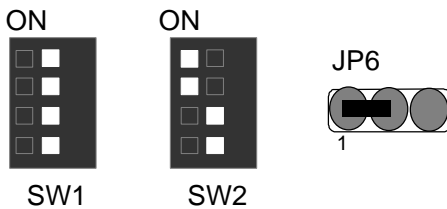
6. Pentium II/Celeron 400/66 MHz FSB



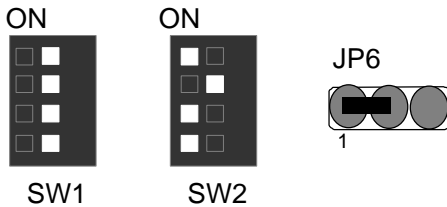
7. Pentium II/Celeron 433/66 MHz FSB



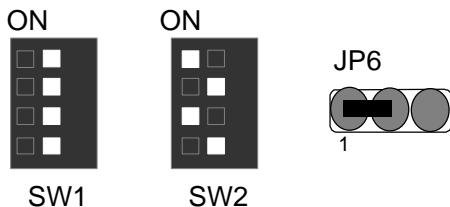
8. Pentium II 350/100 MHz FSB



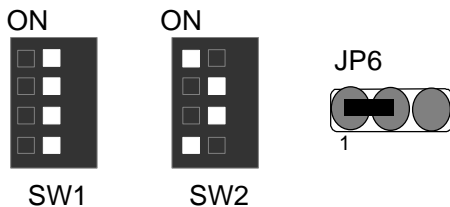
9. Pentium II 400/100 MHz FSB



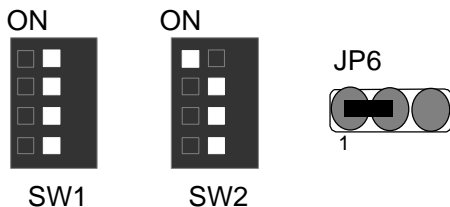
10. Pentium II /III 450/100 MHz FSB



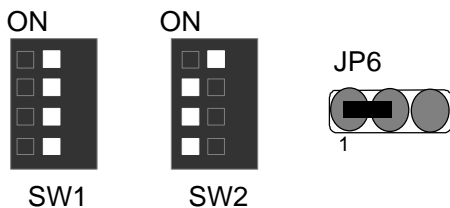
11. Pentium II /III 500/100 MHz FSB



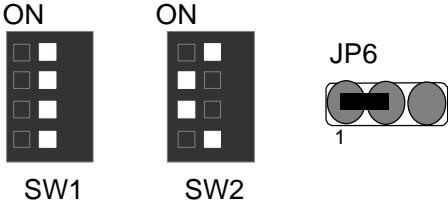
12. Pentium II /III 550/100 MHz FSB



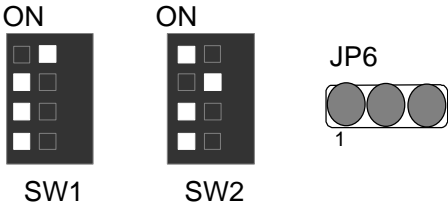
13. Pentium II /III 600/100 MHz FSB



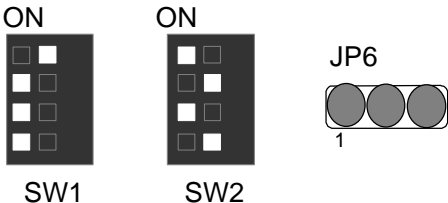
14. Pentium II /III 650/100 MHz FSB



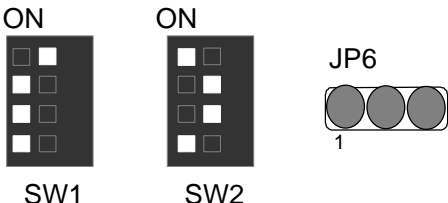
15. Coppermine 533/133 MHz FSB



16. Coppermine 600/133 MHz FSB



17. Coppermine 667/133 MHz FSB



18. Coppermine 733/133 MHz FSB

ON



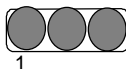
SW1

ON



SW2

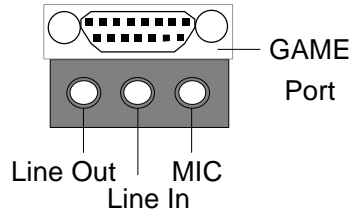
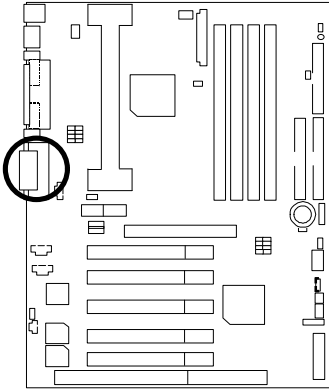
JP6



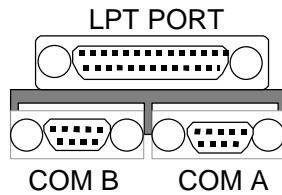
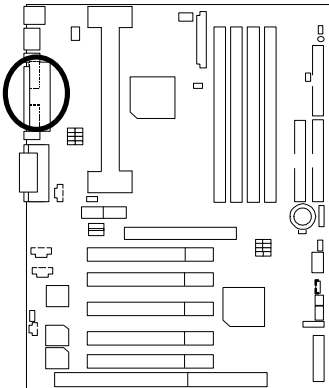
1

# Connectors

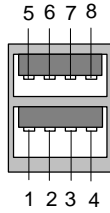
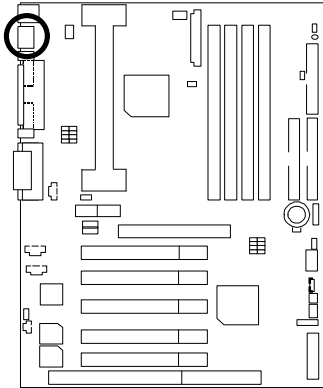
## Game & Audio Port



## COM A / COM B / LPT Port

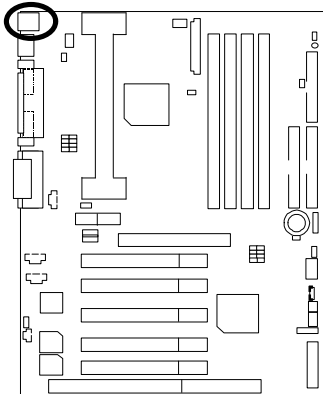


USB Connector

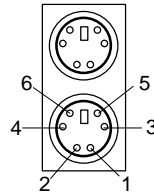


| Pin No. | Definition |
|---------|------------|
| 1       | USB V0     |
| 2       | USB D0-    |
| 3       | USB D0+    |
| 4       | GND        |
| 5       | USB V1     |
| 6       | USB D1-    |
| 7       | USB D1+    |
| 8       | GND        |

PS/2 Keyboard & PS/2 Mouse Connector



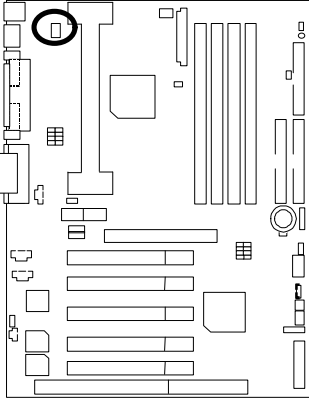
PS/2 Mouse



PS/2 Keyboard

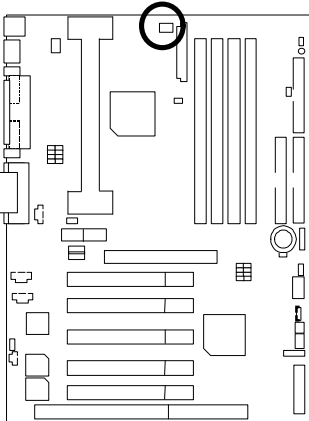
| PS/2 Mouse/<br>Keyboard |            |
|-------------------------|------------|
| Pin No.                 | Definition |
| 1                       | Data       |
| 2                       | NC         |
| 3                       | GND        |
| 4                       | VCC(+5V)   |
| 5                       | Clock      |
| 6                       | NC         |

## CPU Cooling Fan Power Connector



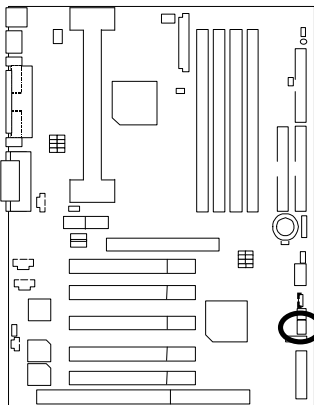
| Pin No. | Definition |
|---------|------------|
| 1       | GND        |
| 2       | +12V       |
| 3       | SENSE      |

## Power Cooling Fan Power Connector



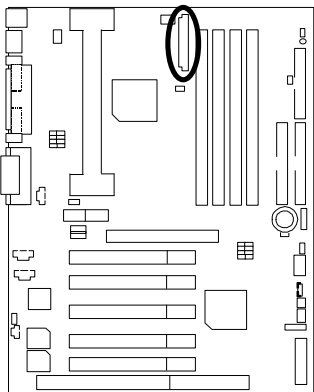
| Pin No. | Definition |
|---------|------------|
| 1       | GND        |
| 2       | +12V       |
| 3       | NC         |

## System Cooling Fan Power Connector



| Pin No. | Definition |
|---------|------------|
| 1       | GND        |
| 2       | +12V       |
| 3       | SENSE      |

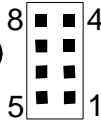
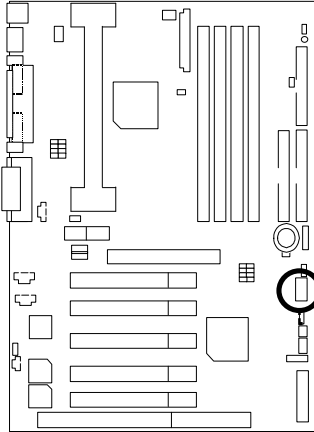
## ATX Power



| Pin No.         | Definition         |
|-----------------|--------------------|
| 3,5,7,13, 15-17 | GND                |
| 1,2,11          | 3.3V               |
| 4,6,19,20       | VCC                |
| 10              | +12V               |
| 12              | -12V               |
| 18              | -5V                |
| 8               | Power Good         |
| 9               | 5V SB stand by+5V  |
| 14              | PS-ON(Soft On/Off) |

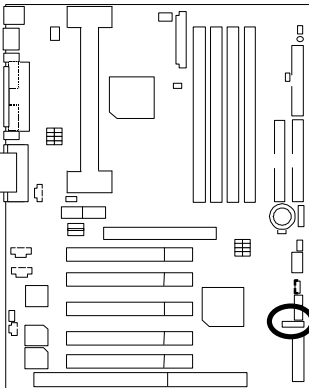


## USB 2 Connector



| Pin No. | Definition |
|---------|------------|
| 1       | VCC        |
| 2       | USB D0-    |
| 3       | USB D0+    |
| 4       | GND        |
| 5       | VCC        |
| 6       | USB D1-    |
| 7       | USB D1+    |
| 8       | GND        |

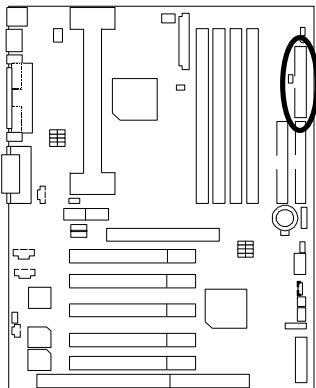
## IR Connector



| PIN No. | Definition     |
|---------|----------------|
| 1       | VCC(+5V)       |
| 2       | NC             |
| 3       | IR data input  |
| 4       | GND            |
| 5       | IR data output |



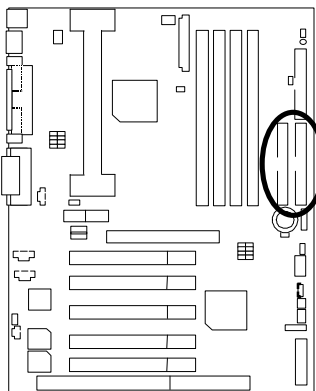
### Floppy Port



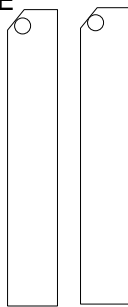
RED LINE



### IDE1(Primary), IDE2(Secondary) Port

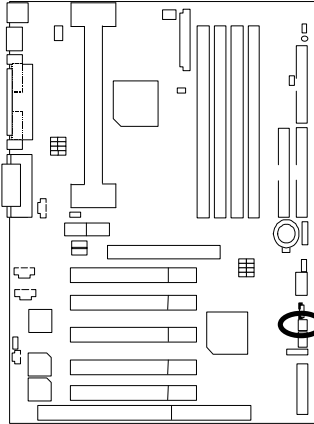


RED LINE



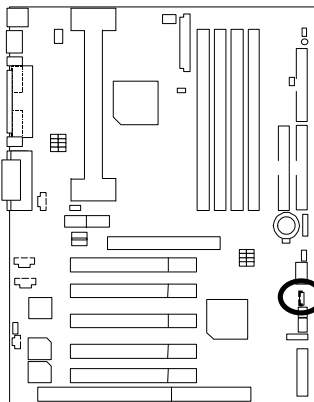
IDE 1 IDE 2

### J3 : Ring Power On (Internal Modem Card Wake Up)



| Pin No. | Definition |
|---------|------------|
| 1       | Signal     |
| 2       | GND        |

### J1 : Wake On LAN



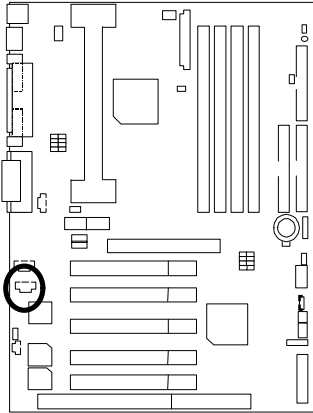
| Pin No. | Definition |
|---------|------------|
| 1       | +5V SB     |
| 2       | GND        |
| 3       | Signal     |

6VX-4X Motherboard

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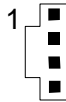
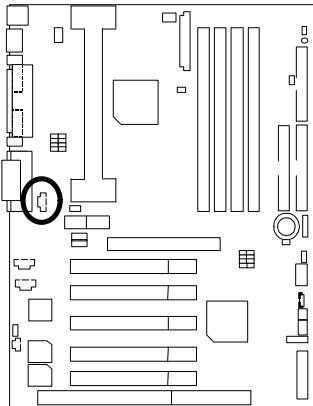
---

J7 : TEL: The connector is for Modem with internal voice connector



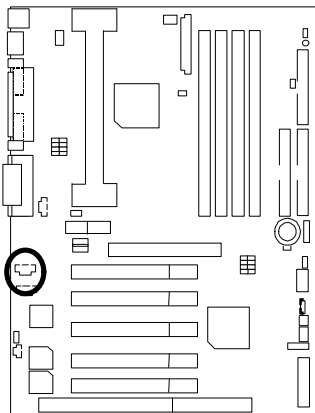
| Pin No. | Definition |
|---------|------------|
| 1       | Signal-In  |
| 2       | GND        |
| 3       | GND        |
| 4       | Signal-Out |

J5:AUX\_IN



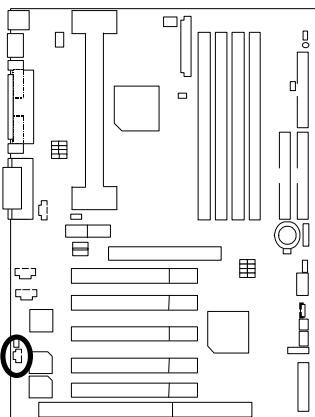
| Pin No. | Definition |
|---------|------------|
| 1       | AUX-L      |
| 2       | GND        |
| 3       | GND        |
| 4       | AUX-R      |

### J8 : CD Audio Line In



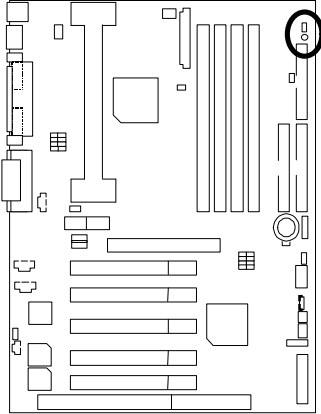
| Pin No. | Definition |
|---------|------------|
| 1       | CD-L       |
| 2       | GND        |
| 3       | GND        |
| 4       | CD-R       |

J9 : SPDIF(The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dobby Digital decoder.)(Optional)



| Pin No. | Definition |
|---------|------------|
| 1       | VCC        |
| 2       | SPDIF OUT  |
| 3       | GND        |

JP5 : STR LED Connector & DIMM LED



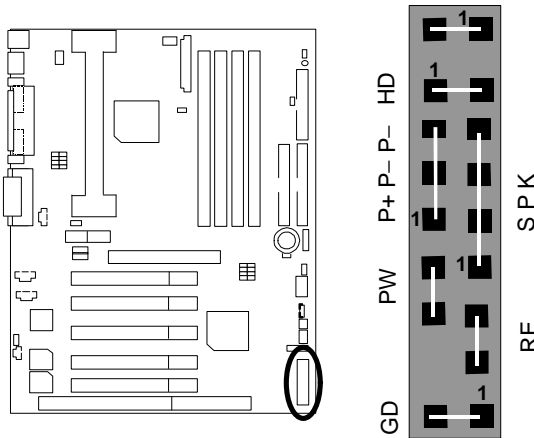
STR LED Connector External.



DIMM LED

## Panel and Jumper Definition

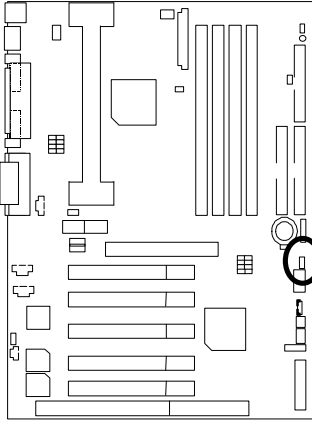
J2 : Panel Jumper



|                               |   |
|-------------------------------|---|
| GN (Green Switch)             | Open: Normal Operation<br>Close: Entering Green Mode                  |
| GD (Green LED)                | Pin 1: LED anode(+)<br>Pin 2: LED cathode(-)                          |
| HD (IDE Hard Disk Active LED) | Pin 1: LED anode(+)<br>Pin 2: LED cathode(-)                          |
| SPKR (Speaker Connector)      | Pin 1: VCC(+)<br>Pin 2- Pin 3: NC<br>Pin 4: Data(-)                   |
| RE (Reset Switch)             | Open: Normal Operation<br>Close: Reset Hardware System                |
| P+P-P-(Power LED)             | Pin 1: LED anode(+)<br>Pin 2: LED cathode(-)<br>Pin 3: LED cathode(-) |
| PW (Soft Power Connector)     | Open: Normal Operation<br>Close: Power On/Off                         |

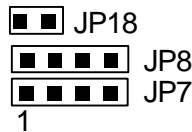
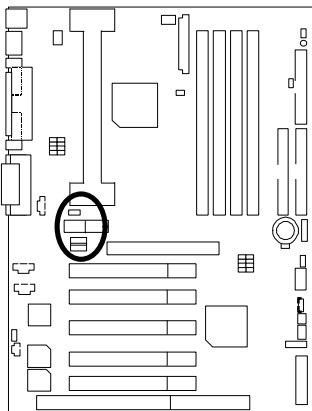


JP1 : Clear CMOS Function



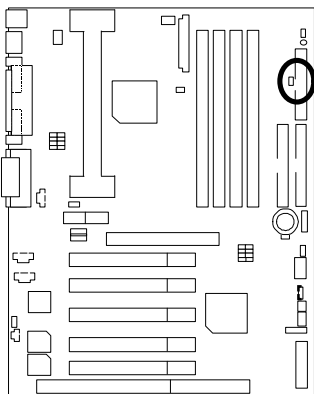
| Pin No.   | Definition       |
|-----------|------------------|
| 1-2 close | Normal (Default) |
| 2-3 close | Clear CMOS       |

JP7/JP8/JP18 : Onboard AC97& AMR (Primary or Secondary ) Select  
(AMR Audio Modem Riser)



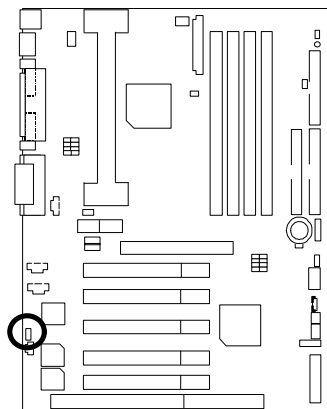
| Jumper<br>Function     | JP7          | JP8                    | JP18  |
|------------------------|--------------|------------------------|-------|
| AC97<br>(Default)      | 1-2<br>Close | 1-2 Close              | Open  |
| Only AMR<br>(Primary)  | 3-4<br>Close | 3-4 Close              | Open  |
| AC97+MR<br>(Secondary) | 1-2<br>Close | 1-2 Close<br>3-4 Close | Close |

### JP11:STR Enable



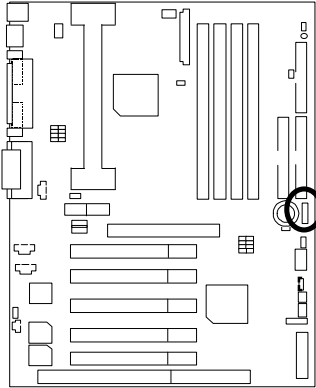
| Pin No. | Definition                |
|---------|---------------------------|
| Open    | STR Disabled<br>(Default) |
| Close   | STR Enabled               |

### JP10 : Onboard Sound Function Selection (Optional)



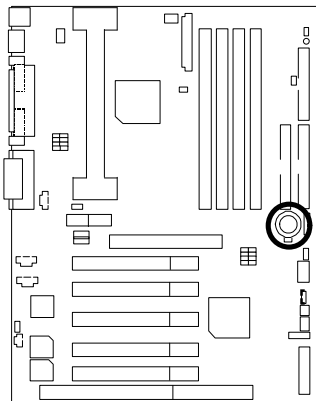
| Pin No.   | Definition                           |
|-----------|--------------------------------------|
| 1-2 close | Enable<br>Onboard sound<br>(Default) |
| 2-3 close | Disable<br>Onboard sound             |

J11:SM BUS



| Pin No. | Definition |
|---------|------------|
| 1       | SMBCLK     |
| 2       | NC         |
| 3       | GND        |
| 4       | SMB DATA   |
| 5       | +5V        |

BAT1 : Battery



- ⚠ Danger of explosion if battery is incorrectly replaced.
- ⚠ Replace only with the same or equivalent type recommended by the manufacturer.
- ⚠ Dispose of used batteries according to the manufacturer's instructions.

## Performance List

The following performance data list is the testing results of some popular benchmark testing programs.

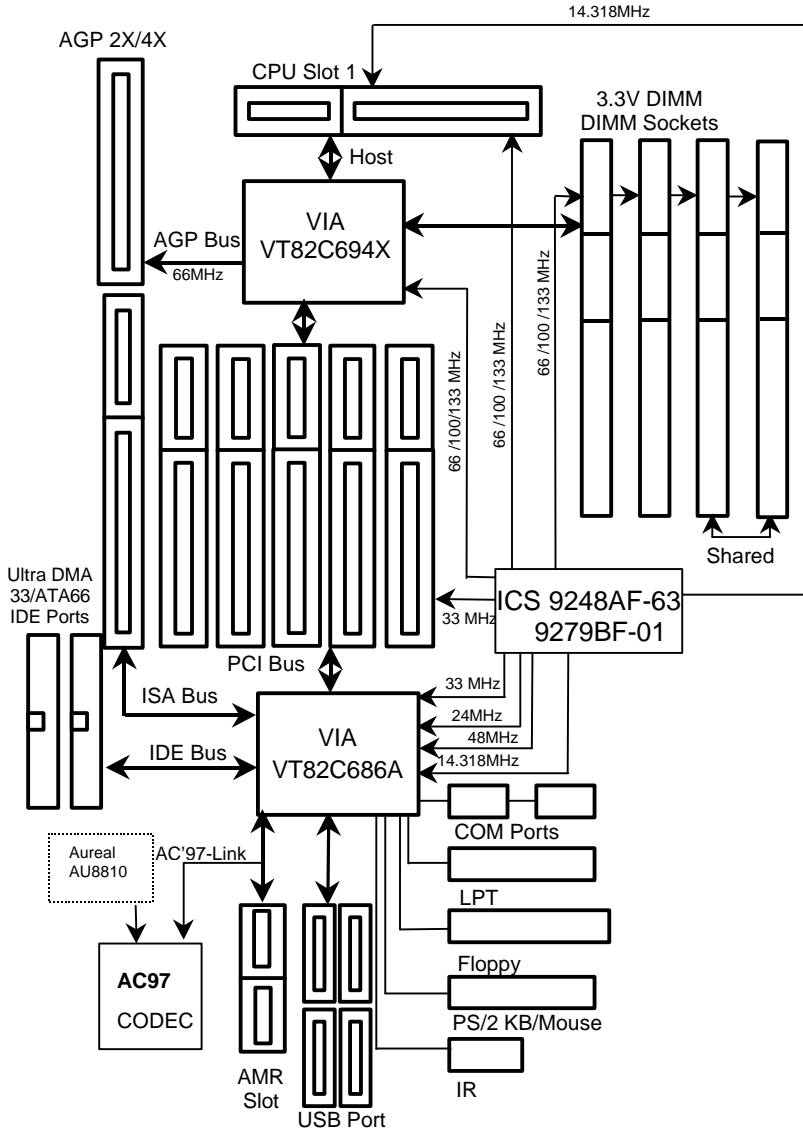
These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU Pentium® III 733MHz processor (Coppermine)
- DRAM (128MBx1) SDRAM (BUFFALO SEC KM48s8030CT-GA)
- CACHE SIZE 256 KB included in CPU
- DISPLAY Gigabyte GA-660 Plus Rev1.4 (Driver 4.00.1381.0208.4.00)
- STORAGE Onboard IDE (IBM DTTA-371800)
- O.S. Windows NT™ 4.0 SPK5
- DRIVER Display Driver at 1024 x 768 x 16bit colors x 75Hz.

| Processor                    | Intel Pentium® III |
|------------------------------|--------------------|
|                              | 733MHz(133x5.5)    |
| <b>Winbench99</b>            |                    |
| CPU mark99                   | 65.1               |
| FPU Winmark 99               | 3920               |
| Business Disk Winmark 99     | 4780               |
| Hi-End Disk Winmark 99       | 10400              |
| Business Graphics Winmark 99 | 351                |
| Hi-End Graphics Winmark 99   | 659                |
| <b>Winstone99</b>            |                    |
| Business Winstone99          | 39.9               |
| Hi-End Winstone99            | 35.6               |



# Block Diagram



## Suspend to RAM Installation

### Suspend to RAM Installation

#### A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last "state" of the system before it went to sleep and recover to that state. The "state" is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various "wake up" triggers or signals, respectively.

#### A.2 STR function Installation

Please use the following steps to complete the STR function installation.

##### Step-By-Step Setup

##### Step 1:

To utilize the STR function, the system must be in Windows 98 ACPI mode.

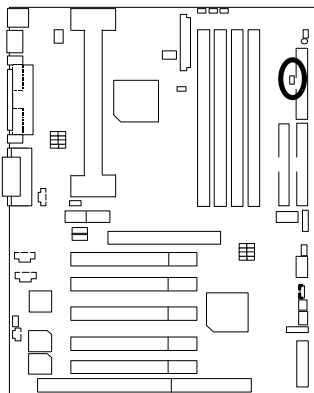
Putting Windows 98 into ACPI mode is fairly easy.

##### Setup with Windows 98 CD:

- A. Insert the Windows 98 CD into your CD-ROM drive, select Start, and then Run.
- B. Type (without quotes) "**D:\setup /p j**" in the window provided. Hit the enter key or click OK. In Windows 98 second edition version, all the bios version dated 12/01/99 or later are ACPI compatible. Just type "D:\Setup", the operating system will be installed as ACPI mode.
- C. After setup completes, remove the CD, and reboot your system  
(This manual assumes that your CD-ROM device drive letter is D:).

**Step 2:**

(If you want to use STR Function, please set jumper JP11 Closed.)



| Pin No. | Definition   |
|---------|--------------|
| Open    | STR Disabled |
| Close   | STR Enabled  |

**Step 3:**

Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item **"POWER MANAGEMENT SETUP"**, then select **"ACPI Sleep Type : S3 / STR"**. Remember to save the settings by pressing "ESC" and choose the **"SAVE & EXIT SETUP"** option.

Congratulation! You have completed the installation and now can use the STR function.



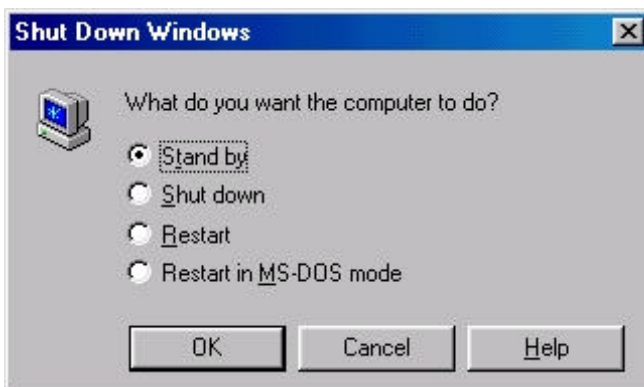
### A.3 How to put your system into STR mode?

There are two ways to accomplish this:

1. Choose the "Stand by" item in the "Shut Down Windows" area.
  - A. Press the "Start" button and then select "Shut Down"



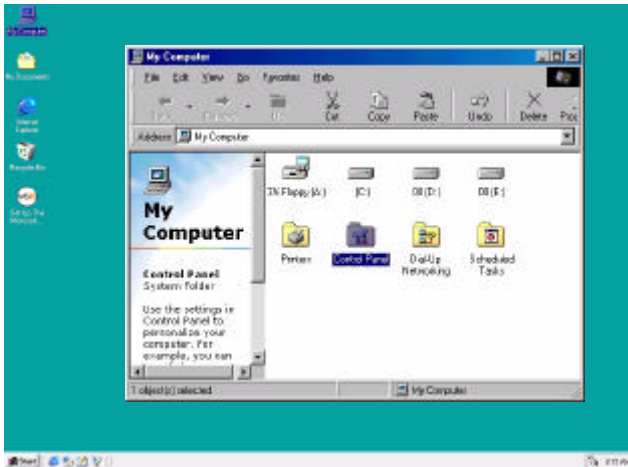
- B. Choose the "Stand by" item and press "OK"



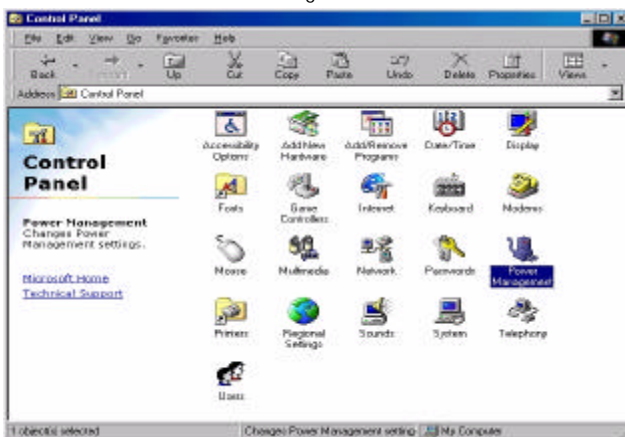
## 6VX-4X Motherboard

2. Define the system "power on" button to initiate STR sleep mode:

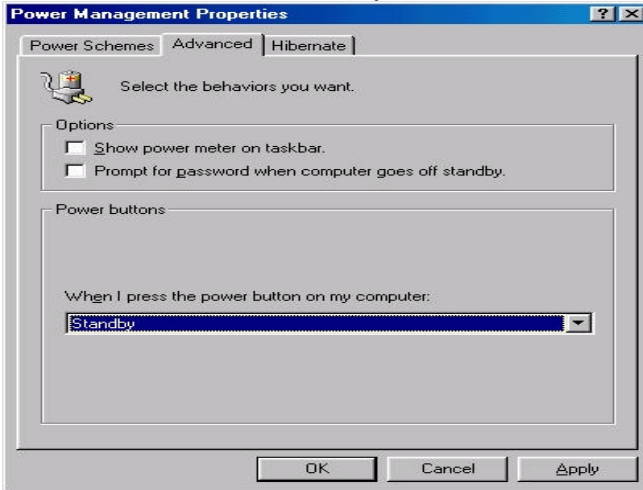
A. Double click "My Computer" and then "Control Panel"



B. Double click the " Power Management" item.



C. Select the "Advanced" tab and "Standby" mode in Power Buttons.



**Step 4:**

Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the "Power on" button..

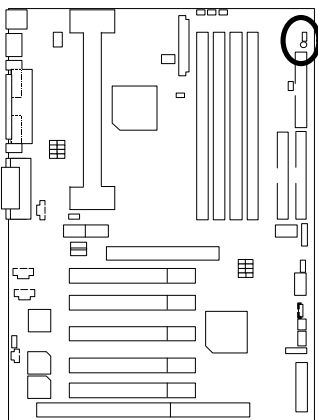
**A.4 How to recover from the STR sleep mode?**

There are five ways to "wake up" the system:

1. Press the "Power On" button.
2. Use the "Mouse Power On" function.
3. Use the "Resume by Alarm" function.
4. Use the "Modem Ring On" function.
5. Use the "Wake On LAN" function.

### A.5 Notices :

1. In order for STR to function properly, several hardware and software requirements must be satisfied:
  - A. Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).
  - B. Your SDRAM must be PC-100 compliant.
2. Jumper JP5 is provided to connect to the STR LED in your system chassis. [Your chassis may not provide this feature.] The STR LED will be illuminated when your system is in STR sleep mode.



STR LED Connector External.



DIMM LED

## Dual BIOS Introduction

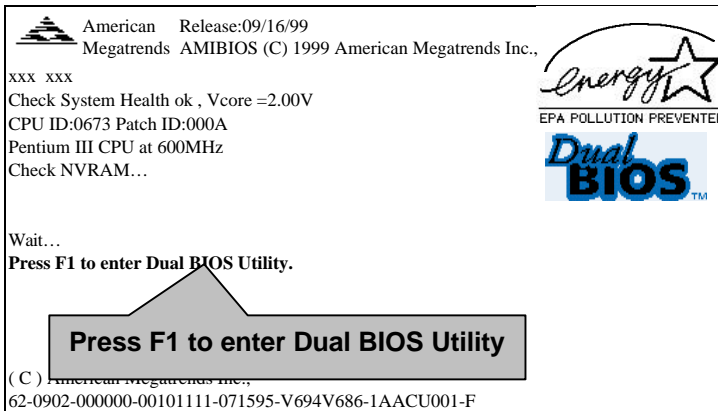
### Introduce Dual BIOS

#### A. What is Dual BIOS Technology?

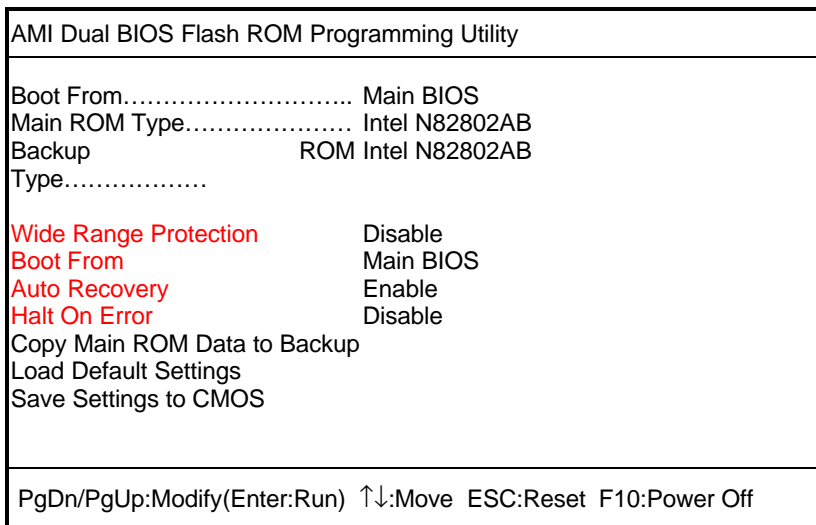
Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

#### B. How to use Dual BIOS?

##### a. Boot Screen



b. AMI Dual BIOS Flash ROM Programming Utility



c. Dual BIOS Item explanation:

**BIOS will auto detect:**

**Boot From :** Main BIOS

**Main ROM Type :** Intel N82802AB

**Backup ROM Type :** Intel N82802AB

**Wide Range Protection: Disable(Default), Enable**

*Status 1:*

If any failure (ex. Update ESCD failure, checksum error or reset...) occurs in the Main BIOS , just before the Operating System is loaded and after the power is on, and that the Wide Range Protection is set to "Enable", the PC will boot from Backup BIOS automatically.

*Status 2:*

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..) emits signals to request restart of the system after the user make any alteration on it, the boot up BIOS will not be changed to the Backup BIOS.

### **Boot From : Main BIOS (Default), Backup BIOS**

#### *Status 1:*

The user can set to boot from main BIOS or Backup BIOS.

### **Auto Recovery : Enabled(Default), Disabled**

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure.

(In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)

(If you want to enter the BIOS setting, please press “**Del**” key when the boot screen appears.)

### **Halt On Error : Disable(Default), Enable**

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On BIOS Defects set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user's instruction.

If Auto Recovery :**Disable**, it will show *<or the other key to continue.>*

If Auto Recovery :**Enable**, it will show *<or the other key to Auto Recover.>*

### **Copy Main ROM Data to Backup**

Backup message:

***Are you sure to copy BIOS?***

***[Enter] to continue or [Esc] to abort ...***

The means that the Main BIOS works normally and could automatically recover the Backup BIOS. Or the means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can't be changed by user.)



## DualBIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newness "Value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-6VX-4X motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

### **What's DualBIOS™?**

On GIGABYTE motherboards with DualBIOS there are physically two BIOS chips. For simplicity we'll call one your "Main BIOS" and the other we'll call your "Backup" BIOS (your "hot spare"). If your Main BIOS fails, the Backup BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the Main BIOS chip, the result is the same - the Backup BIOS backs you up, almost automatically.



## **I. Q: What is DualBIOS™ technology?**

### **Answer:**

DualBIOS technology is a patented technology from Giga-Byte Technology. The concept of this technology is based on the redundancy and fault tolerance theory. DualBIOS™ technology simply means there are two system BIOSes (ROM) integrated onto the motherboard. One is a main BIOS, and the other is a backup BIOS. The mainboard will operate normally with the main BIOS, however, if the main BIOS is corrupt or damaged for various reasons, the backup BIOS will be automatically used when the system powered-On. Your PC will operate as before the main BIOS was damaged, and is completely transparent to the user.

## **II. Q: Why does anyone need a motherboard with DualBIOS™ technology?**

### **Answer:**

In today's systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.

1. New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.
2. BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.
3. If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.
4. A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

With Giga-Byte Technology's patented DualBIOS™ technology you can reduce the possibility of hangs during system boot up, and/or loss BIOS data due to above reasons. This new technology will eliminate valuable system down time and costly repair bills cause by BIOS failures.

### III. Q: How does DualBIOS™ technology work?

#### Answer:

1. DualBIOS™ technology provides a wide range of protection during the boot up procedure. It protects your BIOS during system POST, ESCD update, and even all the way to PNP detection/assignment.
2. DualBIOS™ provides automatic recovery for the BIOS. When the first BIOS used during boot up does not complete or if a BIOS checksum error occurs, boot-up is still possible. In the DualBIOS™ utility, the "Auto Recovery" option will guarantee that if either the main BIOS or backup BIOS is corrupted, the DualBIOS™ technology will use the good BIOS and correct the wrong BIOS automatically.
3. DualBIOS™ provides manual recovery for the BIOS. DualBIOS™ technology contains a built-in flash utility, which can flash your system BIOS from backup to main and/or visa versa. There is no need for an OS-dependent flash utility program.
4. DualBIOS™ contains a one-way flash utility. The built-in one-way flash utility will ensure that the corrupt BIOS is not mistaken as the good BIOS during recovery and that the correct BIOS (main vs. backup) will be flashed. This will prevent the good BIOS from being flashed.

### IV. Q: Who Needs DualBIOS™ technology?

#### Answer:

1. Every user should have DualBIOS™ technology due to the advancement of computer viruses.

Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS™ technology will provide a state-of-the-art solution to protect your PC:

Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.

Case II.) If the "Auto Recovery" option is enabled in the DualBIOS™ utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.

Case III.) A user may override booting from the main system BIOS. The DualBIOS™ utility may be entered to manually change the boot sequence to boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS™ detects that the main BIOS is corrupt, the backup BIOS will take over the boot-up process automatically. Moreover, it will verify the main and backup BIOS checksums when booting-up. DualBIOS™ technology examines the checksum of the main and backup BIOS while the system is powered on to guarantee your BIOS operates properly.
3. Power Users will have the advantage of having two BIOS versions on their mainboard. The benefit is being able to select either version BIOS to suit the performance system needs.
4. Flexibility for high-end desktop PCs and workstation/servers. In the DualBIOS™ utility, the option can be set, "Halt On When BIOS Defects," to be enabled to halt your system with a warning message that the main BIOS has been corrupted. Most workstation/servers require constant operation to guarantee services have not been interrupted. In this situation, the "Halt On When BIOS Defects" message may be disabled to avoid system pauses during normal booting. Another advantage you gain from Giga-Byte's DualBIOS™ technology is the ability to upgrade from dual 2 Mbit BIOS to dual 4 Mbit BIOS in the future if extra BIOS storage is need.


## Memory Installation

The motherboard has 4 dual inline memory module (DIMM) sockets support 6 banks. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot .The DIMM module can only fit in one direction due to the two notch. Memory size can vary between sockets.

Install memory in any combination table:

| Location                        | 168-pin SDRAM DIMM Modules | Note                         |
|---------------------------------|----------------------------|------------------------------|
| DIMM1<br>(Bank 0,1)             | Single – Sided             |                              |
|                                 | Double – Sided             |                              |
| DIMM2<br>(Bank 2,3)             | Single – Sided             |                              |
|                                 | Double – Sided             |                              |
| DIMM3<br>(Bank 4,5)             | Single – Sided             | DIMM4 have only single-sided |
|                                 | Double – Sided             | DIMM4 must be empty          |
| DIMM4<br>(Bank 4,5)             | Single – Sided             | DIMM3 have only single-sided |
|                                 | Double – Sided             | DIMM3 must be empty          |
| Total System Memory (Max 1.5GB) |                            |                              |

Supports 16 / 32 / 64 / 128 / 256/ 512 MB SDRAM DIMM Modules.

|   |      |
|---|------|
|  Page Index for BIOS Setup | Page |
| The Main Menu   | P.46 |
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| BIOS Features Setup   | P.51 |
| Chipset Features Setup  | P.54 |
| Power Management Setup  | P.59 |
| PNP/ PCI Configuration  | P.62 |
| Load BIOS Defaults  | P.64 |
| Load Setup Defaults   | P.65 |
| Integrated Peripherals  | P.66 |
| Hardware Monitor Setup  | P.70 |
| Supervisor Password / User Password   | P.72 |
| IDE HDD Auto Detection  | P.73 |
| Save to CMOS and Exit   | P.74 |
| Exit Without Saving   | P.75 |

## BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

### ENTERING SETUP

Power ON the computer and press <Del> immediately will allow you to enter Setup. If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the system case. You may also restart by simultaneously press <Ctrl> – <Alt>– <Del> keys.

### CONTROL KEYS

|          |   |
|----------|---|
| <↑>      | Move to previous item   |
| <↓>      | Move to next item   |
| <<←>     | Move to the item in the left hand   |
| <→>      | Move to the item in the right hand  |
| <Esc>    | Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu |
| <+/PgUp> | Increase the numeric value or make changes  |
| <-/PgDn> | Decrease the numeric value or make changes  |
| <F1>     | General help, only for Status Page Setup Menu and Option Page Setup Menu  |
| <F2>     | Reserved  |
| <F3>     | Reserved  |
| <F4>     | Reserved  |
| <F5>     | Restore the previous CMOS value from CMOS, only for Option Page Setup Menu  |
| <F6>     | Load the default CMOS value from BIOS default table, only for Option Page Setup Menu  |
| <F7>     | Load the Optimized Defaults.  |
| <F8>     | Reserved  |
| <F9>     | Reserved  |
| <F10>    | Save all the CMOS changes, only for Main Menu   |

## GETTING HELP

### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

## The Main Menu

Once you enter AMI BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

| AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.20<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved   |                        |
|---|------------------------|
| STANDARD CMOS SETUP   | INTEGRATED PERIPHERALS |
| BIOS FEATURES SETUP   | HARDWARE MONITOR SETUP |
| CHIPSET FEATURES SETUP  | SUPERVISOR PASSWORD    |
| POWER MANAGEMENT SETUP  | USER PASSWORD          |
| PNP/PCI CONFIGURATION   | IDE HDD AUTO DETECTION |
| LOAD BIOS DEFAULTS  | SAVE & EXIT SETUP      |
| LOAD SETUP DEFAULTS   | EXIT WITHOUT SAVING    |
| ESC : Quit   ↑↓←→ : Select Item (Shift) F2 : Change Color   F5 : Old Values<br>F6 : Load BIOS Defaults   F7: Load Setup Defaults   F10: Save 7 Exit |                        |
| Time, Date, Hard Disk Type, ...   |                        |

Figure 1: Main Menu

- **Standard CMOS Setup**

This setup page includes all the items in standard compatible BIOS.

- **BIOS Features Setup**

This setup page includes all the items of AMI special enhanced features.

- **Chipset Features Setup**

This setup page includes all the items of chipset special features.

- **Power Management Setup**

This setup page includes all the items of Green function features.

- **PnP/PCI Configurations**

This setup page includes all the configurations of PCI & PnP ISA resources.

- **Load BIOS Defaults**

Bios Defaults indicates the value of the system parameter which the system would be in the safe configuration.

- **Load Setup Defaults**

Setup Defaults indicates the value of the system parameter which the system would be in the most appropriate configuration.

- **Integrated Peripherals**

This setup page includes all onboard peripherals.

- **Hardware Monitor Setup**

This setup page is auto detect fan and temperature status.

- **Supervisor password**

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- **User password**

Change, set, or disable password. It allows you to limit access to the system.

- **IDE HDD auto detection**

Automatically configure hard disk parameters.

- **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

Abandon all CMOS value changes and exit setup.



## Standard CMOS Setup

The items in Standard CMOS Features Menu (Figure 2) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

|   |   |
|---|---|
| AMIBIOS SETUP – STANDARD CMOS SETUP<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved                     |   |
| Date (mm/dd/yyyy) : Web Oct 27, 1999<br>Time (hh/mm/ss) : 10:36:24<br>TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE |   |
| Pri Master : Auto<br>Pri Slave : Auto<br>Sec Master : Auto<br>Sec Slave : Auto                                      |   |
| Floppy Drive A: 1.44 MB 3 ½<br>Floppy Driver B: Not Installed   | Base Memory : 640 Kb<br>Other Memory: 384 Kb<br>Extended Memory: 30Mb<br>Total Memory: 31Mb |
| Boot Sector Virus Protection : Disabled   |   |
| Month: Jan – Dec<br>Day: 01 – 31<br>Year: 1980– 2099  | ESC : Exit<br>↑↓ : Select Item<br>PU/PD/+/- : Modify<br>(Shift)F2 : Color                   |

Figure 2: Standard CMOS Setup

- **Date**

The date format is <Week>, <Month>, <Day>, <Year>.

|       |   |
|-------|---|
| Week  | The week, from Sun to Sat, determined by the BIOS and is display-only |
| Month | The month, Jan. Through Dec.  |
| Day   | The day, from 1 to 31 (or the maximum allowed in the month)           |
| Year  | The year, from 1980 through 2099                                      |

- **Time**

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Primary Master, Slave / Secondary Master, Slave**

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and user definable type. User type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

|          |                     |
|----------|---------------------|
| CYLS.    | Number of cylinders |
| HEADS    | number of heads     |
| PRECOMP  | write precomp       |
| LANDZONE | Landing zone        |
| SECTORS  | number of sectors   |

If a hard disk has not been installed select NONE and press <Enter>.

- **Drive A type / Drive B type**

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

|                |   |
|----------------|---|
| None           | No floppy drive installed   |
| 360K, 5.25 in. | 5.25 inch PC-type standard drive; 360K byte capacity.                                       |
| 1.2M, 5.25 in. | 5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled). |
| 720K, 3.5 in.  | 3.5 inch double-sided drive; 720K byte capacity   |
| 1.44M, 3.5 in. | 3.5 inch double-sided drive; 1.44M byte capacity.   |
| 2.88M, 3.5 in. | 3.5 inch double-sided drive; 2.88M byte capacity.   |

- **Boot Sector Virus Protection**

If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

|          |   |
|----------|---|
| Enabled  | Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table |
| Disabled | No warning message to appear when anything attempts to access the boot sector or hard disk partition table <b>(Default Value)</b>                                 |

- **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

**Base Memory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

**Extended Memory**

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

**Other Memory**

This refers to the memory located in the 640 K to 1024 K address space. This is memory that can be used for different applications.

DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM

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## BIOS Features Setup

| AMIBIOS SETUP – BIOS FEATURES CMOS SETUP<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved |             |                          |                    |
|--|-------------|--------------------------|--------------------|
| Quick Boot   | :Enabled    | D000, 16K Shadow         | :Disabled          |
| 1st Boot Device  | :Floppy     | D400, 16K Shadow         | :Disabled          |
| 2nd Boot Device  | :IDE-0      | D800, 16K Shadow         | :Disabled          |
| 3rd Boot Device  | :CDROM      | DC00, 16K Shadow         | :Disabled          |
| Try Other Boot Device  | :Yes        |                          |                    |
| Floppy Access Control  | :Read-Write |                          |                    |
| Hard Disk Access Control   | :Read-Write |                          |                    |
| S.M.A.R.T for Hard Disks   | :Disabled   |                          |                    |
| BootUp Num-Lock  | :On         |                          |                    |
| Floppy Drive Swap  | :Disabled   |                          |                    |
| Floppy Drive Seek  | :Disabled   |                          |                    |
| Password Check   | :Setup      |                          |                    |
| Boot To OS/2 > 64MB  | :No         |                          |                    |
| CPU Serial Number  | :Enabled    |                          |                    |
| L1/L2 Cache  | :WriteBack  |                          |                    |
| Cache Bus ECC  | :Disabled   | ESC : Quit               | ↑↓←→: Select Item  |
| System BIOS Cacheable  | :Enabled    | F1 : Help                | PU/PD/+/- : Modify |
| C000, 32K Shadow   | :Cached     | F5 : Old Values          | (Shift)F2 :Color   |
| C800, 16K Shadow   | :Disabled   | F6 : Load BIOS Defaults  |                    |
| CC00, 16K Shadow   | :Disabled   | F7 : Load Setup Defaults |                    |

Figure 3: BIOS Features Setup

- **Quick Boot**

|          |   |
|----------|---|
| Enabled  | Enabled Quick Boot Function ( <b>Default Value</b> ). |
| Disabled | Disabled Quick Boot Function.                         |

- **1st / 2nd / 3rd Boot Device**

The default value is Floppy or LS-120 / ZIP or ATAPI ZIP or CDROM or SCSI or NETWORK / I20 or IDE-0~IDE-3 or Disabled.

|              |                              |
|--------------|------------------------------|
| Floppy       | Boot Device by Floppy.       |
| LS-120 / ZIP | Boot Device by LS-120 / ZIP. |
| CDROM        | Boot Device by CDROM.        |
| SCSI         | Boot Device by SCSI.         |
| NETWORK      | Boot Device by NETWORK.      |
| IDE-0~IDE-3  | Boot Device by IDE-0~IDE-3.  |
| Disabled     | Boot Device by Disabled.     |
| ATAPI ZIP    | Boot Device by ATAPI ZIP.    |

- **Try Other Boot Device**

|     |   |
|-----|---|
| Yes | Enabled other device to boot system <b>(Default Value)</b> .. |
| No  | Disabled other device to boot system.                         |

- **Floppy Access Control**

|            |  |
|------------|--|
| Read-Write | Set Floppy Access Control : Read-Write <b>(Default Value)</b> .. |
| Read-Only  | Set Floppy Access Control : Read Only.                           |

- **Hard Disk Access Control**

|            |   |
|------------|---|
| Read-Write | Set Hard Disk Access Control : Read-Write <b>(Default Value)</b> .. |
| Read-Only  | Set Hard Disk Access Control : Read Only.                           |

- **S.M.A.R.T. for Hard Disks**

|         |  |
|---------|--|
| Enable  | Enable S.M.A.R.T. Hard for Disks                           |
| Disable | Disable S.M.A.R.T. Hard for Disks <b>(Default Value)</b> . |

- **Boot Up Num-Lock**

|     |  |
|-----|--|
| On  | Keypad is number keys <b>(Default Value)</b> . |
| Off | Keypad is arrow keys                           |

- **Floppy Drive Swap**

|          |   |
|----------|---|
| Enabled  | Floppy A & B will be swapped under DOS                          |
| Disabled | Floppy A & B will be normal definition <b>(Default Value)</b> . |

- **Floppy Drive Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360 type is 40 tracks while 720 , 1.2 and 1.44 are all 80 tracks.

|          |   |
|----------|---|
| Enabled  | BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720, 1.2 or 1.44 drive type as they are all 80 tracks.              |
| Disabled | BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360. <b>(Default Value)</b> . |

- **Password Check**

|        |   |
|--------|---|
| Setup  | Set Password Check to Setup. <b>(Default Value)</b> . |
| Always | Set Password Check to Always.                         |

- **Boot To OS/2 > 64MB**

|     |   |
|-----|---|
| Yes | Enabled Boot To OS/2.                           |
| No  | Disabled Boot To OS/2. <b>(Default Value)</b> . |

- **CPU Serial Number**

|          |  |
|----------|--|
| Disabled | Disabled CPU Serial Number                         |
| Enabled  | Enabled CPU Serial Number <b>(Default Value)</b> . |

- **L1 /L2 Cache**

|           |   |
|-----------|---|
| WriteBack | Set L1 Cache is WriteBack. <b>(Default Value)</b> |
| Disabled  | Disabled this Function.                           |

- **Cache Bus ECC**

|          |  |
|----------|--|
| Enabled  | Enable Cache Bus ECC                           |
| Disabled | Disable Cache Bus ECC <b>(Default Value)</b> . |

- **System BIOS Cacheable**

|          |   |
|----------|---|
| Enabled  | Enabled System BIOS Cacheable. <b>(Default Value)</b> . |
| Disabled | Disabled System BIOS Cacheable.                         |

- **C000 32K Shadow- DC00 16K Shadow**

These categories determine whether optional ROM will be copied to RAM by 16 byte.

|          |   |
|----------|---|
| Enabled  | Optional shadow is enabled.                         |
| Disabled | Optional shadow is disabled.                        |
| Cached   | Optional shadow is cached. <b>(Default Value)</b> . |

| AMIBIOS SETUP –CHIPSET FEATURE CMOS SETUP<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved |  |
|---|--|
| *** DRAM Timing ***   | PCI Dynamic Bursting :Enabled          |
| SDRAM Timing by SPD :Disabled   | PCI Master 0 W/S Write :Enabled        |
| DRAM Frequency :100Mhz  | PCI Delay Transaction :Disabled        |
| Bank 0/1 DRAM Timing :Normal  | AGP Master 1 W/S Write :Disabled       |
| Bank 2/3 DRAM Timing :Normal  | AGP Master 1 W/S Read :Disabled        |
| Bank 4/5 DRAM Timing :Normal  | ISA Bus Clock :PCICLK/4                |
| SDRAM CAS# Latency :3   | VGA Frame Buffer USWC :Disabled        |
|   | PCI Frame Buffer USWC :Disabled        |
| C2P Concurrency & Master :Enabled   | ClkGen Speed Spectrum :Enabled         |
| DRAM Integrity Mode :Disabled   | ClkGen for DIMM Slot :Enabled          |
| Memory Hole :Disabled   | USB Controller :USB Port 0&1           |
| AGP Mode :4X  | USB Legacy Support :Disabled           |
| AGP Comp. Driving :Auto   |  |
| Manual AGP Comp. Driving :CB  |  |
| AGP Aperture Size :64MB   |  |
| Peer Concurrency :Disabled  | ESC : Quit           ↑↓←→: Select Item |
| Delay Transaction :Disabled   | F1 : Help           PU/PD/+/- : Modify |
| PCI Master Access PMRDY :Enabled  | F5 : Old Values (Shift)F2 :Color       |
| PCI Read Caching :Disabled  | F6 : Load BIOS Defaults                |
| CPU TO PCI Write Buffer :Disabled   | F7 : Load Setup Defaults               |

## Chipset Features Setup

Figure 4: Chipset Features Setup

- SDRAM Timing by SPD

|          |  |
|----------|--|
| Disabled | SDRAM Timing by SPD Function Disabled <b>(Default Value)</b> . |
| Enabled  | SDRAM Timing by SPD Function Enabled                           |

- DRAM Frequency

|        |   |
|--------|---|
| 100MHz | Set DRAM Frequency is 100MHz <b>(Default Value)</b> . |
| 66MHz  | Set DRAM Frequency is 66MHz                           |
| 133MHz | Set DRAM Frequency is 133MHz                          |

- Bank 0/1 DRAM Timing

|        |  |
|--------|--|
| Fast   | Set Bank 0/1 DRAM Timing to Fast                             |
| Normal | Set Bank 0/1 DRAM Timing to Normal. <b>(Default Value)</b> . |
| Turbo  | Set Bank 0/1 DRAM Timing to Turbo                            |

- Bank 2/3 DRAM Timing

## 6VX-4X Motherboard

|        |  |
|--------|--|
| Fast   | Set Bank 2/3 DRAM Timing to Fast                             |
| Normal | Set Bank 2/3 DRAM Timing to Normal. <b>(Default Value)</b> . |
| Turbo  | Set Bank 2/3 DRAM Timing to Turbo                            |



- **Bank 4/5 DRAM Timing**

|        |  |
|--------|--|
| Fast   | Set Bank 4/5 DRAM Timing to Fast                             |
| Normal | Set Bank 4/5 DRAM Timing to Normal. <b>(Default Value)</b> . |
| Turbo  | Set Bank 4/5 DRAM Timing to Turbo                            |

- **SDRAM CAS# Latency**

|   |  |
|---|--|
| 3 | For Slower SDRAM DIMM module. <b>(Default Value)</b> . |
| 2 | For Fastest SDRAM DIMM module.                         |

- **C2P Concurrency & Master**

|          |  |
|----------|--|
| Enabled  | Enabled C2P Concurrency & Master. <b>(Default Value)</b> . |
| Disabled | Disabled C2P Concurrency & Master.                         |

- **DRAM Integrity Mode**

|          |   |
|----------|---|
| ECC      | For 72 bit ECC type DIMM Modle.         |
| Disabled | Normal Setting <b>(Default Value)</b> . |

- **Memory Hole**

|             |  |
|-------------|--|
| 512KB-640KB | Set Address=512KB-640KB relocate to ISA BUS. |
| 14M-16M     | Set Address=14-16MB relocate to ISA BUS.     |
| 15M-16M     | Set Address=15-16MB relocate to ISA BUS.     |
| Disabled    | Normal Setting. <b>(Default Value)</b>       |

- **AGP Mode**

|    |  |
|----|--|
| 4X | Set AGP Mode is 4X. <b>(Default Value)</b> |
| 1X | Set AGP Mode is 1X.                        |
| 2X | Set AGP Mode is 2X.                        |

- **AGP Comp. Driving**

|        |   |
|--------|---|
| Auto   | Set AGP Comp. Driving is Auto. <b>(Default Value)</b> . |
| Manual | Set AGP Comp. Driving is Manual.                        |

If AGP Comp. Driving is Manual.

|                            |       |
|----------------------------|-------|
| Manual AGP Comp. Driving : | 00~FF |
|----------------------------|-------|

- **AGP Aperture Size**

|       |   |
|-------|---|
| 4MB   | Set AGP Aperture Size to 4MB                            |
| 8MB   | Set AGP Aperture Size to 8 MB                           |
| 16MB  | Set AGP Aperture Size to 16 MB                          |
| 32MB  | Set AGP Aperture Size to 32 MB                          |
| 64MB  | Set AGP Aperture Size to 64 MB <b>(Default Value)</b> . |
| 128MB | Set AGP Aperture Size to 128 MB                         |
| 256MB | Set AGP Aperture Size to 256 MB                         |

- **Peer Concurrency**

|          |   |
|----------|---|
| Enabled  | Enabled Peer Concurrency function.                          |
| Disabled | Disabled Peer Concurrency function <b>(Default Value)</b> . |

- **Delay Transaction**

|          |   |
|----------|---|
| Disabled | Normal operation <b>(Default Value)</b> . |
| Enabled  | For slow speed ISA device in system.      |

- **PCI Master Access PMRDY**

|          |  |
|----------|--|
| Enabled  | Enabled PCI Master Access PMROY function. <b>(Default Value)</b> . |
| Disabled | Disabled PCI Master Access PMROY function                          |

- **PCI Read Caching**

|          |  |
|----------|--|
| Enabled  | Enabled PCI Read Caching function.                           |
| Disabled | Disabled PCI Read Caching function. <b>(Default Value)</b> . |

- **CPU TO PCI Write Buffer**

|          |  |
|----------|--|
| Enabled  | Enabled CPU to PCI Write Buffer.                           |
| Disabled | Disabled CPU to PCI Write Buffer. <b>(Default Value)</b> . |

- **PCI Dynamic Bursting**

|          |   |
|----------|---|
| Enabled  | Enabled Dynamic Bursting function. <b>(Default Value)</b> . |
| Disabled | Disabled Dynamic Bursting function.                         |

- **PCI Master 0 W/S Write**

|          |  |
|----------|--|
| Enabled  | Enabled PCI Master 0 W/s Write. <b>(Default Value)</b> . |
| Disabled | Disabled PCI Master 0 W/s Write.                         |

- **PCI Delay Transaction**

|          |  |
|----------|--|
| Enabled  | Enabled Delay Transaction.                           |
| Disabled | Disabled Delay Transaction. <b>(Default Value)</b> . |

- **AGP Master 1 W/S Write**

|          |  |
|----------|--|
| Enabled  | Enabled AGP Master 1 W/S Write.                          |
| Disabled | Disabled AGP Master 1 W/S Write <b>(Default Value)</b> . |

- **AGP Master 1 W/S Read**

|          |  |
|----------|--|
| Enabled  | Enabled AGP Master 1 W/S Read.                           |
| Disabled | Disabled AGP Master 1 W/S Read. <b>(Default Value)</b> . |

- **ISA Bus Clock**

|          |  |
|----------|--|
| PCICLK/4 | Set ISA Bus Clock is PCICLK/4 <b>(Default Value)</b> . |
| PCICLK/2 | Set ISA Bus Clock is PCICLK/2.                         |
| PCICLK/3 | Set ISA Bus Clock is PCICLK/3.                         |
| PCICLK/5 | Set ISA Bus Clock is PCICLK/5.                         |
| PCICLK/6 | Set ISA Bus Clock is PCICLK/6.                         |

- **VGA Frame Buffer USWC**

|          |   |
|----------|---|
| Enabled  | Enabled VGA Frame Buffer USWC.                          |
| Disabled | Disabled VGA Frame Buffer USWC <b>(Default Value)</b> . |

- **PCI Frame Buffer USWC**

|          |   |
|----------|---|
| Enabled  | Enabled PCI Frame Buffer USWC.                          |
| Disabled | Disabled PCI Frame Buffer USWC <b>(Default Value)</b> . |

- **ClkGen Spread Spectrum**

|          |   |
|----------|---|
| Disabled | Disabled ClkGen Spread Spectrum.                        |
| Enabled  | Enabled ClkGen Spread Spectrum <b>(Default Value)</b> . |

- **ClkGen for DIMM Slot**

|          |   |
|----------|---|
| Enabled  | ClkGen for DIMM Slot Enabled <b>(Default Value)</b> . |
| Disabled | ClkGen for DIMM Slot Disabled.                        |

- **USB Controller**

|              |  |
|--------------|--|
| USB Port 0&1 | USB Controller for USB Port 0&1. <b>(Default Value).</b> |
| USB Port 2&3 | USB Controller for USB Port 2&3.                         |
| All USB Port | USB Controller for All USB Port .                        |
| Disabled     | USB Controller Function Disabled.                        |

- **USB Legacy Support**

|            |   |
|------------|---|
| Keyboard   | Set USB Legacy Support Keyboard                               |
| Keyb+Mouse | Set USB Legacy Support Keyboard +Mouse                        |
| Disabled   | Disabled USB Legacy Support Function. <b>(Default Value).</b> |

## Power Management Setup

| AMIBIOS SETUP –POWER MANAGEMENT SETUP<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved |              |                                  |                    |
|---|--------------|----------------------------------|--------------------|
| ACPI Sleep type   | :S1/POS      | Modem Use IRQ                    | :4                 |
| Power Management/APM  | :Enabled     | Modem Ring On/Wake On Lan        | :Enabled           |
| Video Power Down Mode   | :Suspend     | PME Event Wake up                | :Disabled          |
| Hard Disk Power Down Mode   | :Suspend     | RTC Alarm Power On               | :Disabled          |
| Standby Time Out (Minute)   | :Disabled    | RTC Alarm Date                   | :15                |
| Suspend Time Out(Minute)  | :Disabled    | RTC Alarm Hour                   | :12                |
| Display Activity  | :Ignore      | RTC Alarm Minute                 | :30                |
| IRQ3  | :Monitor     | RTC Alarm Second                 | :30                |
| IRQ 4   | :Monitor     |                                  |                    |
| IRQ 5   | :Ignore      |                                  |                    |
| IRQ 7   | :Monitor     |                                  |                    |
| IRQ 9   | :Ignore      |                                  |                    |
| IRQ 10  | :Ignore      |                                  |                    |
| IRQ 11  | :Ignore      |                                  |                    |
| IRQ 13  | :Ignore      |                                  |                    |
| IRQ 14  | :Monitor     |                                  |                    |
| IRQ 15  | :Ignore      |                                  |                    |
| System Thermal  | :Ignore      | ESC : Quit                       | ↑↓←→: Select Item  |
| Soft-off by Power Button  | :Instant off | F1 : Help                        | PU/PD/+/- : Modify |
| AC Back Function  | :Last        | F5 : Old Values (Shift)F2 :Color |                    |
| Stats   |              | F6 : Load BIOS Defaults          |                    |
|   |              | F7 : Load Setup Defaults         |                    |

Figure 5: Power Management Setup

- **ACPI Sleep type**

|        |   |
|--------|---|
| S1/POS | Set ACPI Sleep type is S1 ( <b>Default Value</b> ). |
| S3/STR | Set ACPI Sleep type is S3.                          |

- **Power Management / APM**

|          |  |
|----------|--|
| Enabled  | Enable Green & software APM function ( <b>Default Value</b> ). |
| Disabled | Disable Green & software APM function.                         |

- **Video Power Down Mode**

|          |   |
|----------|---|
| Disabled | Disabled Video Power Down Mode Function.                        |
| Suspend  | Set Video Power Down Mode to Suspend. ( <b>Default Value</b> ). |
| Stand By | Set Video Power Down Mode to Stand By.                          |

- **Hard Disk Power Down Mode**

|          |  |
|----------|--|
| Disabled | Disabled Hard Disk Power Down Mode Function .                      |
| Suspend  | Set Hard Disk Power Down Mode to Suspend ( <b>Default Value</b> ). |
| Stand By | Set Hard Disk Power Down Mode to Stand By.                         |

- **Standby Time Out (Minute.)**

|          |  |
|----------|--|
| Disabled | Disabled Standby Time Out Function. <b>(Default Value)</b> . |
| 1        | Enabled Standby Time Out after 1min.                         |
| 2        | Enabled Standby Time Out after 2min.                         |
| 4        | Enabled Standby Time Out after 4min.                         |
| 8        | Enabled Standby Time Out after 8min.                         |
| 10       | Enabled Standby Time Out after 10min.                        |
| 20       | Enabled Standby Time Out after 20min.                        |
| 30       | Enabled Standby Time Out after 30min.                        |
| 40       | Enabled Standby Time Out after 40min.                        |
| 50       | Enabled Standby Time Out after 50min.                        |
| 60       | Enabled Standby Time Out after 60min.                        |

- **Suspend Time Out (Minute.)**

|          |  |
|----------|--|
| Disabled | Disabled Suspend Time Out Function. <b>(Default Value)</b> . |
| 1        | Enabled Suspend Time Out after 1min.                         |
| 2        | Enabled Suspend Time Out after 2min.                         |
| 4        | Enabled Suspend Time Out after 4min.                         |
| 8        | Enabled Suspend Time Out after 8min.                         |
| 10       | Enabled Suspend Time Out after 10min.                        |
| 20       | Enabled Suspend Time Out after 20min.                        |
| 30       | Enabled Suspend Time Out after 30min.                        |
| 40       | Enabled Suspend Time Out after 40min.                        |
| 50       | Enabled Suspend Time Out after 50min.                        |
| 60       | Enabled Suspend Time Out after 60min.                        |

- **Display Activity**

|         |   |
|---------|---|
| Ignore  | Ignore Display Activity. <b>(Default Value)</b> . |
| Monitor | Monitor Display Activity.                         |

- **IRQ 3~IRQ15**

|         |                     |
|---------|---------------------|
| Ignore  | Ignore IRQ3 ~IRQ15. |
| Monitor | Monitor IRQ3~IRQ15. |

- **System Thermal**

|         |   |
|---------|---|
| Ignore  | Ignore System Thermal. <b>(Default Value)</b> . |
| Monitor | Monitor System Thermal.                         |

---

● **Soft-off by Power Button**

|             |   |
|-------------|---|
| Instant off | Soft switch ON/OFF for Power Button. <b>(Default Value)</b> . |
| Delay-4Sec  | Soft switch ON 4 Sec for Power off.                           |

● **AC Back Function**

|            |  |
|------------|--|
| Power Off  | Set Restore on AC/Power Loss is Power off.                               |
| Power On   | Set Restore on AC/Power Loss is Power on.                                |
| Last stats | Set Restore on AC/Power Loss is Last state mode <b>(Default Value)</b> . |

● **MODEM Use IRQ**

|    |   |
|----|---|
| NA | Set MODEM Use IRQ to NA.                        |
| 3  | Set MODEM Use IRQ to 3.                         |
| 4  | Set MODEM Use IRQ to 4 <b>(Default Value)</b> . |
| 5  | Set MODEM Use IRQ to 5.                         |
| 7  | Set MODEM Use IRQ to 7.                         |

● **Modem Ring on/Wake on LAN**

The default value is Enabled

|          |  |
|----------|--|
| Disabled | Disabled Modem Ring on/Wake on LAN                         |
| Enabled  | Enabled Modem Ring on/Wake on LAN <b>(Default Value)</b> . |

● **PME Event Wake up**

|          |  |
|----------|--|
| Disabled | Disabled PME Event Wake up function <b>(Default Value)</b> . |
| Enabled  | Enabled PME Event Wake up function.                          |

● **RTC Alarm Power On**

|          |   |
|----------|---|
| Disabled | Disable this function. <b>(Default Value)</b> |
| Enabled  | Enable alarm function to POWER ON system.     |

If RTC Alarm Lead To Power On is Enabled.

|                    |                |
|--------------------|----------------|
| RTC Alarm Date :   | Every Day,1~31 |
| RTC Alarm Hour:    | 0~23           |
| RTC Alarm Minute : | 0~59           |
| RTC Alarm Second : | 0~59           |

## PnP/PCI Configurations

| AMIBIOS SETUP –PNP/PCI CONFIGURATION SETUP<br>(C) 1998 American Megatrends, Inc. All Rights Reserved  |           |
|---|-----------|
| Plug and Play Aware O/S   | :No       |
| Clear NVRAM   | :No       |
| Primary Graphics Adapter  | :AGP      |
| PCI VGA Palette Snoop   | :Disabled |
| DMA Channel 0   | :PnP      |
| DMA Channel 1   | :PnP      |
| DMA Channel 3   | :PnP      |
| DMA Channel 5   | :PnP      |
| DMA Channel 6   | :PnP      |
| DMA Channel 7   | :PnP      |
| IRQ 3   | :PCI/PnP  |
| IRQ 4   | :PCI/PnP  |
| IRQ 5   | :PCI/PnP  |
| IRQ 7   | :PCI/PnP  |
| IRQ 9   | :PCI/PnP  |
| IRQ 10  | :PCI/PnP  |
| IRQ 11  | :PCI/PnP  |
| IRQ 14  | :PCI/PnP  |
| IRQ 15  | :PCI/PnP  |
| ESC : Quit      ↑↓←→: Select Item<br>F1 : Help      PU/PD/+/- : Modify<br>F5 : Old Values (Shift)F2 :Color<br>F6 : Load BIOS Defaults<br>F7 : Load Setup Defaults |           |

Figure 6: PnP/PCI Configuration

- **Plug and Play Aware O/S**

|     |  |
|-----|--|
| Yes | Enable Plug and Play Aware O/S function.                           |
| No  | Disable Plug and Play Aware O/S function ( <b>Default Value</b> ). |

- **Clear NVRAM**

|     |   |
|-----|---|
| Yes | Set Clear NVRAM.                                |
| No  | Set don't clear NVRAM. ( <b>Default Value</b> ) |

- **Primary Graphics Adapter**

|     |  |
|-----|--|
| AGP | Primary Graphics Adapter From Add-on AGP( <b>Default Value</b> ) |
| PCI | Primary Graphics Adapter From OnBoard PCI.                       |

- **PCI VGA Palette Snoop**

|          |   |
|----------|---|
| Enabled  | For having Video Card on ISA Bus and VGA Card on PCI Bus. |
| Disabled | For VGA Card only ( <b>Default Value</b> ).               |



- DMA Channel (0,1,3,5,6,7) , IRQ (3,4,5,7, 9,10,11,14,15) assigned to (Legacy "PnP" or "ISA / EISA").

|            |   |
|------------|---|
| PnP        | The resource is used by PnP device.                     |
| ISA / EISA | The resource is used by ISA / EISA device (PCI or ISA). |

## Load BIOS Defaults

|   |                             |
|---|-----------------------------|
| AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.20<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved                                       |                             |
| STANDARD CMOS SETUP   | INTEGRATED PERIPHERALS      |
| BIOS FEATURES SETUP   | HARDWARE MONITOR SETUP      |
| CHIPSET FEATURES SETUP  | SUPERVISOR PASSWORD         |
| POWER MANAGE  | Load BIOS Defaults (Y/N)? N |
| PNP/PCI CONFIGURATION   |                             |
| LOAD BIOS DEFAULTS  | SAVE & EXIT SETUP           |
| LOAD SETUP DEFAULTS   | EXIT WITHOUT SAVING         |
| ESC : Quit ↑↓→← : Select Item (Shift) F2 : Change Color F5 : Old Values<br>F6 : Load BIOS Defaults F7: Load Setup Defaults F10: Save 7 Exit |                             |
| Load BIOS Default except Standard CMOS Setup  |                             |

Figure 7: Load BIOS Defaults

- **Load BIOS Defaults**

BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance.

## Load Setup Defaults

|   |                              |
|---|------------------------------|
| AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.20<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved   |                              |
| STANDARD CMOS SETUP   | INTEGRATED PERIPHERALS       |
| BIOS FEATURES SETUP   | HARDWARE MONITOR SETUP       |
| CHIPSET FEATURES SETUP  | SUPERVISOR PASSWORD          |
| POWER MANAGEMENT SETUP  | USER PASSWORD                |
| PNP/PCI CONFIGURATION   | IDE HDD AUTO DETECTION       |
| LOAD BIOS DEFAULTS  | LOAD SETUP Defaults (Y/N)? N |
| LOAD SETUP DEFAULTS   | EXIT WITHOUT SAVING          |
| ESC : Quit   ↑↓→← : Select Item   (Shift) F2 : Change Color   F5 : Old Values<br>F6 : Load BIOS Defaults   F7: Load Setup Defaults   F10: Save & Exit |                              |
| Load Setup Default except Standard CMOS Setup   |                              |

Figure 8: Load Setup Defaults

- **Load Setup Defaults**

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

## Integrated Peripherals

| AMBIOS SETUP –INTEGRATED PERIPHERAL<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved |            |                                   |
|---|------------|-----------------------------------|
| OnBoard IDE   | :Both      | Game Port(200h-207h) :Enabled     |
| OnBoard FDC   | :Auto      |                                   |
| OnBoard Serial Port 1   | :Auto      |                                   |
| OnBoard Serial Port 2   | :Auto      |                                   |
| Serial Port 2 Mode  | :Normal    |                                   |
| Duplex Mode   | :N/A       |                                   |
| OnBoard Parallel Port   | :Auto      |                                   |
| Parallel Port Mode  | :ECP       |                                   |
| Parallel Port DMA   | :Auto      |                                   |
| Parallel Port IRQ   | :Auto      |                                   |
| OnBoard AC'97 Audio   | :Auto      |                                   |
| OnBoard AC'97 Modem   | :Auto      |                                   |
| Onboard Legacy Audio  | :Enabled   |                                   |
| Sound Blaster   | :Enabled   |                                   |
| SB I/O Base Address   | :220h-22Fh |                                   |
| SB IRQ Select   | :IRQ5      | ESC : Quit      ↑↓←→: Select Item |
| SB DMA Select   | :DMA 1     | F1 : Help      PU/PD/+/- : Modify |
| MPU-401   | :Enabled   | F5 : Old Values (Shift)F2 :Color  |
| MPU-401 I/O Address   | :330h-333h | F6 : Load BIOS Defaults           |
| FM Port(388h-38Bh)  | Enabled    | F7 : Load Setup Defaults          |

Figure 9: Integrated Peripherals

- **OnBoard IDE**

|           |  |
|-----------|--|
| Disabled  | Disabled OnBoard IDE                             |
| Both      | Set OnBoard IDE is Both <b>(Default Value)</b> . |
| Primary   | Set OnBoard IDE is Primary                       |
| Secondary | Set OnBoard IDE is Secondary                     |

- **On Board FDC**

|          |   |
|----------|---|
| Auto     | Set On Board FDC is Auto <b>(Default Value)</b> . |
| Disabled | Disabled On Board FDC                             |
| Enabled  | Enabled On Board FDC                              |

- **Onboard Serial Port 1**

|          |   |
|----------|---|
| Auto     | BIOS will automatically setup the port 1 address <b>(Default Value)</b> . |
| 3F8/COM1 | Enable onboard Serial port 1 and address is 3F8.                          |
| 2F8/COM2 | Enable onboard Serial port 1 and address is 2F8.                          |
| 3E8/COM3 | Enable onboard Serial port 1 and address is 3E8.                          |
| 2E8/COM4 | Enable onboard Serial port 1 and address is 2E8.                          |
| Disabled | Disable onboard Serial port 1.  |

- **Onboard Serial Port 2**

|          |   |
|----------|---|
| Auto     | BIOS will automatically setup the port 2 address <b>(Default Value)</b> . |
| 3F8/COM1 | Enable onboard Serial port 2 and address is 3F8.                          |
| 2F8/COM2 | Enable onboard Serial port 2 and address is 2F8.                          |
| 3E8/COM3 | Enable onboard Serial port 2 and address is 3E8.                          |
| 2E8/COM4 | Enable onboard Serial port 2 and address is 2E8.                          |
| Disabled | Disable onboard Serial port 2.  |

- **Serial Port 2 Mode**

|        |   |
|--------|---|
| ASKIR  | Onboard I/O chip supports ASKIR.                          |
| IrDA   | Onboard I/O chip supports IrDA.                           |
| Normal | Onboard I/O chip supports Normal <b>(Default Value)</b> . |

- **Duplex Mode**

|             |   |
|-------------|---|
| Half Duplex | IR Function Duplex Half.                        |
| N/A         | Disabled this function <b>(Default Value)</b> . |
| Full Duplex | IR Function Duplex Full.                        |

- **On Board Parallel port**

|          |   |
|----------|---|
| 378      | Enable On Board LPT port and address is 378.            |
| 278      | Enable On Board LPT port and address is 278.            |
| 3BC      | Enable On Board LPT port and address is 3BC.            |
| Auto     | Set On Board LPT port is Auto. <b>(Default Value)</b> . |
| Disabled | Disable On Board LPT port.                              |

- **Parallel Port Mode**

|        |   |
|--------|---|
| EPP    | Using Parallel port as Enhanced Parallel Port.                              |
| ECP    | Using Parallel port as Extended Capabilities Port. <b>(Default Value)</b> . |
| Normal | Normal Operation.   |

- **Parallel Port DMA**

|      |  |
|------|--|
| Auto | Set Auto to parallel port mode DMA Channel. . <b>(Default Value)</b> . |
| 3    | Set Parallel Port DMA is 3.  |
| 1    | Set Parallel Port DMA is 1.  |
| 0    | Set Parallel Port DMA is 0.  |

- **Parallel Port IRQ**

|      |   |
|------|---|
| 7    | Set Parallel Port IRQ is 7.   |
| Auto | Set Auto to parallel Port IRQ DMA Channel. . <b>(Default Value)</b> . |
| 5    | Set Parallel Port IRQ is 5.   |

- **OnBoard AC'97 Audio**

|          |  |
|----------|--|
| Auto     | Set AC'97 Audio to Auto <b>(Default Value)</b> . |
| Disabled | Disabled AC'97 Audio.                            |

- **OnBoard AC'97 Modem**

|          |  |
|----------|--|
| Auto     | Set AC'97 Modem to Auto <b>(Default Value)</b> . |
| Disabled | Disabled AC'97 Modem.                            |

- **OnBoard Legacy Audio**

|          |  |
|----------|--|
| Enabled  | Enabled OnBoard Legacy Audio. <b>(Default Value)</b> |
| Disabled | Disabled OnBoard Legacy Audio.                       |

- **Sound Blaster**

|          |   |
|----------|---|
| Enabled  | Enabled Sound Blaster. <b>(Default Value)</b> |
| Disabled | Disabled Sound Blaster.                       |

**SB I/O Base Address**

|           |  |
|-----------|--|
| 220h-22Fh | Set SB I/O Base Address is 220h-22Fh. <b>(Default Value)</b> . |
| 280h-28Fh | Set SB I/O Base Address is 280h-28Fh.                          |
| 260h-26Fh | Set SB I/O Base Address is 260h-26Fh.                          |
| 240h-24Fh | Set SB I/O Base Address is 240h-24Fh.                          |

- **SB IRQ Select**

|  |
|--|
| IRQ 9 / 5 / 7 / 10 <b>(Default Value: 5)</b> . |
|--|

- **SB DMA Select**

|   |
|---|
| DMA 0 / 1 / 2 / 3 <b>(Default Value: 1)</b> . |
|---|

- **MPU-401**

|          |   |
|----------|---|
| Enabled  | Enabled MPU-401. <b>(Default Value)</b> . |
| Disabled | Disabled MPU-401.                         |

- **MUP-401 I/O Address**

|           |  |
|-----------|--|
| 330h-333h | Set MUP-401 I/O Address is 330h-333h. <b>(Default Value)</b> . |
| 300h-303h | Set MUP-401 I/O Address is 300h-303h.                          |
| 310h-313h | Set MUP-401 I/O Address is 310h-313h.                          |
| 320h-323h | Set MUP-401 I/O Address is 320h-323h.                          |

---

- **FM Port (388h-38Bh)**

|          |  |
|----------|--|
| Disabled | Disabled FM Port (388h-38Bh)                         |
| Enabled  | Enabled FM Port (388h-38Bh) <b>(Default Value)</b> . |

- **Game Port (200h-207h)**

|          |  |
|----------|--|
| Disabled | Disabled Game Port (200h-207h)                         |
| Enabled  | Enabled Game Port (200h-207h) <b>(Default Value)</b> . |

## Hardware Monitor

| AMIBIOS SETUP –HARDWARE MONITOR<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved   |             |
|---|-------------|
| ACPI Shut Down Temperature  | :65°C/149°F |
| Current CPU Temp.   | :36°C/96°F  |
| Current System Temp.  | :28°C/82°F  |
| Current CPU Fan Speed   | :5487 RPM   |
| Current System Fan Speed  | :0 RPM      |
| Vcore   | :2.075V     |
| +3.300V   | :3.590V     |
| +5.000V   | :5.119V     |
| +12.000V  | :11.926V    |
| ESC : Quit      ↑↓←→: Select Item<br>F1 : Help      PU/PD/+/- : Modify<br>F5 : Old Values (Shift)F2 :Color<br>F6 : Load BIOS Defaults<br>F7 : Load Setup Defaults |             |

Figure 10: Hardware Monitor

- **ACPI Shutdown Temp. (°C / °F)**

(This function will be effective only for the operating systems that support ACPI Function.)

|              |  |
|--------------|--|
| Disabled     | Disable ACPI Shutdown function.  |
| 60°C / 140°F | Monitor CPU Temp. at 60°C / 140°F, if Temp. > 60°C / 140°F system will automatically power off.                          |
| 65°C / 149°F | Monitor CPU Temp. at 65°C / 149°F, if Temp. > 65°C / 149°F system will automatically power off. <b>(Default Value)</b> . |
| 70°C / 158°F | Monitor CPU Temp. at 70°C / 158°F, if Temp. > 70°C / 158°F system will automatically power off.                          |
| 75°C / 167°F | Monitor CPU Temp. at 75°C / 167°F, if Temp. > 75°C / 167°F system will automatically power off.                          |



- **Current CPU Temp. (°C / °F)**  
Detect CPU Temperature automatically.
- **Current System Tem. (°C / °F)**  
Detect System Temperature automatically.
- **Current CPU FAN Speed**  
Detect CPU Fan speed status automatically .
- **Current System FAN Speed**  
Detect System Fan speed status automatically .
- **Current Voltage (V) VCORE / +3.3V / +12V / +5V**  
Detect system's voltage status automatically.

## Set Supervisor / User Password

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

|   |                                |
|---|--------------------------------|
| AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.20<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved   |                                |
| STANDARD CMOS SETUP   | INTEGRATED PERIPHERALS         |
| BIOS FEATURES SETUP   | HARDWARE MONITOR SETUP         |
| CHIPSET FEATURES SETUP  | SUPERVISOR PASSWORD            |
| POWER MANAGEMENT SETUP  | USER PASSWORD                  |
| PNP/PCI CONFIGURATION   | IDE HDD AUTO DETECTION         |
| LOAD BIOS DEFAULTS  | Enter new supervisor password: |
| LOAD SETUP DEFAULTS   | EXIT WITHOUT SAVING            |
| ESC : Quit   ↑↓→← : Select Item (Shift) F2 : Change Color   F5 : Old Values<br>F6 : Load BIOS Defaults   F7: Load Setup Defaults   F10: Save & Exit |                                |
| Chang /Set /Disabled Password   |                                |

Figure 11: Password Setting

Type the password, up to eight characters, and press <Enter>. The password typed now will clear the previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

If you select always at "Password Check" Option in BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu. If you select Setup at "Password Check" Option in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

## IDE HDD AUTO Detection

| AMIBIOS SETUP – STANDARD CMOS SETUP<br>(C) 1998 American Megatrends, Inc. All Rights Reserved                      |      |      |   |   |       |             |
|--|------|------|---|---|-------|-------------|
| Date (mm/dd/yyyy) : Fri Dec 25, 1998<br>Time (hh/mm/ss) : 10:36:24   |      |      |   |   |       |             |
| TYPE   | SIZE | CYLS | HEAD  | PRECOMP   | LANDZ | SECTOR MODE |
| Pri Master : Not Installed<br>Pri Slave : Not Installed<br>Sec Master : Not Installed<br>Sec Slave : Not Installed |      |      |   |   |       |             |
| Floppy Drive A: 1.44 MB 3 ½<br>Floppy Driver B: Not Installed  |      |      |   | Base Memory : 640 Kb<br>Other Memory: 384 Kb<br>Extended Memory: 31Mb<br>Total Memory: 32Mb |       |             |
| Boot Sector Virus Protection : Disabled  |      |      |   |   |       |             |
| Month: Jan – Dec<br>Day: 01 – 31<br>Year: 1980– 2099   |      |      | ESC : Exit<br>↑↓ : Select Item<br>PU/PD/+/- : Modify<br>(Shift)F2 : Color |   |       |             |

Figure 12: IDE HDD Auto Detection

Type "Y" will accept the H.D.D. parameter reported by BIOS.

Type "N" will keep the old H.D.D. parameter setup. If the hard disk cylinder number is over 1024, then the user can select LBA mode or LARGER mode for DOS partition larger than 528 MB.

## Save & Exit Setup

|   |                        |
|---|------------------------|
| AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.20<br>( C ) 1998 American Megatrends, Inc. All Rights Reserved                                       |                        |
| STANDARD CMOS SETUP   | INTEGRATED PERIPHERALS |
| BIOS FEATURES SETUP   | HARDWARE MONITOR SETUP |
| CHIPSET FEATURES SETUP  | SUPERVISOR PASSWORD    |
| POWER MANAGEMENT SETUP  | USER PASSWORD          |
| PNP/PCI CONFIGURATION   |                        |
| LOAD BIOS DEFAULTS  | LOAD SETUP DEFAULTS    |
| LOAD SETUP DEFAULTS   | EXIT WITHOUT SAVING    |
| ESC : Quit ↑↓→← : Select Item (Shift) F2 : Change Color F5 : Old Values<br>F6 : Load BIOS Defaults F7: Load Setup Defaults F10: Save & Exit |                        |
| Save Data to CMOS & Exit Setup  |                        |

Figure 13: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

## Exit Without Saving

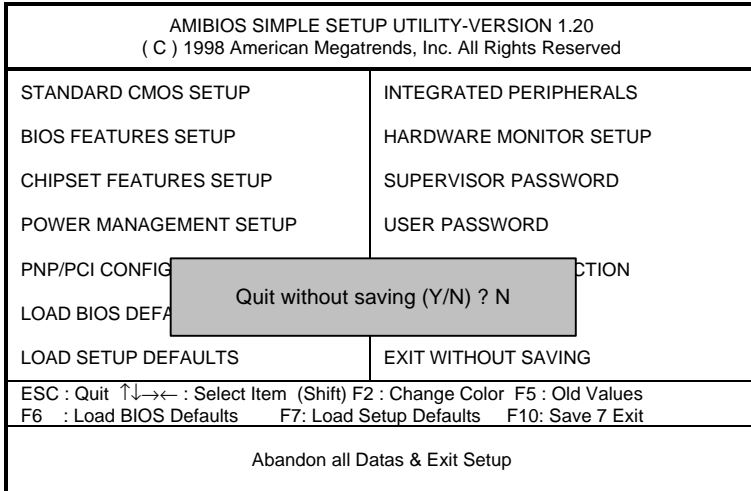


Figure 14: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS .

Type "N" will return to Setup Utility.

## Appendix

### **Appendix A : Onboard Chipset and IDE Driver Installation Procedure**

(In this manual, we assume that your CD-ROM Drive letter to be Drive D: )

Please reference TUCD CD directory D: \ Manual \ VIA.pdf

## Appendix B : AU8810 Driver Installation

### A. DRIVER INSTALLATION

If you have older drivers in your system, please uninstall them first as described in Section C below.

1. Power on the system, placing the "Intel chipset Series Mainboard Utility CD" in the CD-ROM drive.
2. During the load process, Windows 95/98 should detect the Vortex PCI board and display a message such as "New Hardware Found". If Windows prompts you for the drivers of the "PCI Multimedia Audio Device", then select "Driver Disk Provided by Manufacturer" Select the Vortex CD-ROM's directory.

Note: Some Windows 95 versions (OSR2) do not show this prompt. Instead, they ask whether to search the diskette and CD-ROM drives for the appropriate drivers.

Installed drivers may include Vortex PCI audio, Vortex wavetable, Vortex mixer, DOS modem port, Vortex gameport interface, Vortex MPU401 interface, and Vortex Sound Blaster emulation.

Depending on the version of Windows 95 and the configuration of the system, you may be prompted to provide several file locations. Here are the CD-ROMs and directory locations for which you may be prompted:

|                                   |                           |
|-----------------------------------|---------------------------|
| Vortex Installation & Driver Disk | \aureal\win9X             |
| Windows 95/98 Installation Disk   | \aureal\win9X             |
| Microsoft DirectX                 | \\Utility\directx\dxsetup |
| Vortex Application Setup          | \aureal\win9X             |
| PCI Multifunction Audio Device    | \aureal\win9X             |

### B. UNINSTALLING WINDOWS 95/98 DRIVERS

To uninstall the Vortex software, you can use the following procedure:

1. Open to the Windows 95/98 Device Manager (right-click on "My Computer" and select "Properties").

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2. Open the "Multifunction Adapters" tree and select "Vortex Multifunction PCI Platform"
3. Press the "Remove" button at the bottom of the Device Manager window pane.
4. The drivers are now removed from memory, but are still on the hard disk. To delete the files from the hard disk:
  - a. Open the Windows 95/98 control panel's "Add/Remove Programs" applet.
  - b. To remove the drivers, double-click "Aureal Vortex". A Vortex uninstaller application starts.
  - c. To remove the demo applications, double-click "Aureal Vortex Applications". There is no need to reboot the computer.

For Technical Support please contact your board manufacturer. Aureal, A3D, A3D-I, A3D-Interactive, and the Aureal logo are trademarks and Vortex is a registered trademark of Aureal Semiconductor Inc.

All other trademarks are owned their respective owners.



## Appendix C : BIOS Flash Procedure

BIOS update procedure:

Please check your BIOS vendor (AMI or AWARD) on the motherboard.

It is recommended you copy the AWDFlash.exe or AMIFlash.exe in driver CD (D:\>Utility\BIOSFlash) and the BIOS binary files into the directory you made in your hard disk. i.e:C:\>Utility\ (C:\>Utility : denotes the driver and the directory where you put the flash utilities and BIOS file in.)

Restart your computer into MS-DOS mode or command prompt only for Win95/98, go into the directory where the new BIOS file are located use the utility AWDFlash.exe or AMIFlash.exe to update the BIOS.

Type the following command once you have enter the directory where all the files are located

C:\utility\ AWDFlash or AMIFlash <filename of the BIOS binary file intended for flashing>

Once the process is finished, reboot the system

**Note: Please download the newest BIOS from our website ([www.gigabyte.com.tw](http://www.gigabyte.com.tw)) or contact your local dealer for the file.**

**Appendix D : Acronyms**

| Acor.    | Meaning   |
|----------|---|
| ACPI     | Advanced configuration and power interface          |
| POST     | Power-on self test                                  |
| LAN      | Local area network                                  |
| ECP      | Extended capabilities port                          |
| APM      | Advanced power management                           |
| DMA      | Direct memory access                                |
| MHz      | Megahertz   |
| ESCD     | Extended system configuration data                  |
| CPU      | Central processing unit                             |
| SMP      | Symmetric multi-processing                          |
| USB      | Universal serial bus                                |
| OS       | Operating System                                    |
| ECC      | Error checking and correcting                       |
| IDE      | Integrated dual channel enhanced                    |
| SCI      | Special circumstance instructions                   |
| LBA      | Logical block addressing                            |
| EMC      | Electromagnetic compatibility                       |
| BIOS     | Basic input / output system                         |
| SMI      | System management interrupt                         |
| I/O      | Interrupt request                                   |
| NIC      | Network interface card                              |
| A.G.P.   | Accelerated graphics port                           |
| S.E.C.C. | Single edge contact cartridge                       |
| LED      | Light emitting diode                                |
| EPP      | Enhanced parallel port                              |
| CMOS     | Complementary metal oxide semiconductor             |
| I/O      | Input / Output                                      |
| ESD      | Electrostatic DISCHARGE                             |
| OEM      | Original equipment manufacturer                     |
| SRAM     | Static random access memory                         |
| VID      | Voltage ID  |
| DMI      | Desktop Management Interface                        |
| MIDI     | Musical interface digital interface                 |
| IOAPIC   | Input Output Advanced Programmable Input Controller |
| DIMM     | Dual inline memory module                           |
| DRAM     | Dynamic random access memory                        |
| PAC      | PCI A.G.P. controller                               |
| AMR      | Audio Modem Riser                                   |
| PCI      | Peripheral component interconnect                   |

To be continued

| Acor. | Meaning                        |
|-------|--------------------------------|
| RIMM  | Rambus In-line Memory Module   |
| DRM   | Dual retention mechanism       |
| ISA   | Industry standard architecture |
| CRIMM | Continuity RIMM                |