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GA-6VEM Series Motherboard

Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Revision Note</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Initial release of the GA-6VEM Series motherboard user's manual.</td>
<td>Sep. 2001</td>
</tr>
<tr>
<td>1.0</td>
<td>Third release of the GA-6VEM Series motherboard user's manual.</td>
<td>Dec. 2001</td>
</tr>
<tr>
<td>1.0</td>
<td>Fourth release of the GA-6VEM Series motherboard user's manual.</td>
<td>Mar. 2002</td>
</tr>
<tr>
<td>1.0</td>
<td>Fifth release of the GA-6VEM Series motherboard user's manual.</td>
<td>Jul. 2002</td>
</tr>
<tr>
<td>1.0</td>
<td>Sixth release of the GA-6VEM Series motherboard user's manual.</td>
<td>Jun. 2003</td>
</tr>
</tbody>
</table>

Item Checklist

☑️ The GA-6VEM Series motherboard
☑️ IDE cable x 1/ Floppy cable x 1
☑️ CD for motherboard driver & utility (VUCD)
☑️ GA-6VEM Series user’s manual
☑️ I/O Shield (6VEML only)

⚠️ 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. Please do not remove any labels on motherboard, this may void the warranty of this motherboard.
WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis...

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don’t let the screw contact any printed circuit wire or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.
<table>
<thead>
<tr>
<th><strong>Chapter 1 Introduction</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary of Features</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form Factor</th>
<th>24.4cm x 19.5cm Micro-ATX size form factor, 4 layers PCB.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motherboard</td>
<td>GA-6VEM Series Motherboard</td>
</tr>
<tr>
<td></td>
<td>GA-6VEM and GA-6VEML</td>
</tr>
<tr>
<td>CPU</td>
<td>Socket 370 processor</td>
</tr>
<tr>
<td></td>
<td>- supports all new Pentium®III processors (FC-PGA &amp; FC-PGA2 package)</td>
</tr>
<tr>
<td></td>
<td>- supports Celeron processors in FC-PGA package</td>
</tr>
<tr>
<td></td>
<td>- supports 66/100/133MHz system bus frequency</td>
</tr>
<tr>
<td></td>
<td>- 2nd cache depend on CPU</td>
</tr>
<tr>
<td>Chipset</td>
<td>VT8601T HOST/AGP/Controller</td>
</tr>
<tr>
<td></td>
<td>VT82C686B</td>
</tr>
<tr>
<td>Memory</td>
<td>2 168-pin DIMM sockets</td>
</tr>
<tr>
<td></td>
<td>- Supports PC-100/PC-133 SDRAM (Auto)</td>
</tr>
<tr>
<td></td>
<td>- Supports only 3.3V SDRAM DIMM</td>
</tr>
<tr>
<td></td>
<td>- Supports up to 1.0GB SDRAM (Max.)</td>
</tr>
<tr>
<td>I/O Control</td>
<td>VT82C686B</td>
</tr>
<tr>
<td>Slots</td>
<td>1 AMR (Audio Modem Riser) Slot (Only Secondary mode Support)</td>
</tr>
<tr>
<td></td>
<td>3 PCI slot supports 33MHz &amp; PCI 2.2 compliant</td>
</tr>
<tr>
<td></td>
<td>1 ISA slot</td>
</tr>
<tr>
<td>On-Board IDE</td>
<td>2 IDE bus master (DMA33/ATA66/ATA100) IDE ports for up to 4 ATAPI devices</td>
</tr>
<tr>
<td></td>
<td>- Supports PIO mode 3,4 (UDMA33/ATA66/ATA100) IDE &amp; ATAPI CD-ROM</td>
</tr>
<tr>
<td>On-Board Peripherals</td>
<td>1 Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes.</td>
</tr>
<tr>
<td></td>
<td>1 Parallel port supports Normal/EPP/ECP mode</td>
</tr>
<tr>
<td></td>
<td>1 Serial port (COMA)</td>
</tr>
<tr>
<td></td>
<td>4 USB ports (Rear USB x 2, Front USB x 2)</td>
</tr>
<tr>
<td></td>
<td>1 IrDA connector for IR</td>
</tr>
</tbody>
</table>

*to be continued.....*
Please set the CPU host frequency in accordance with your processor’s specifications. We don’t recommend you to set the system bus frequency over the CPU’s specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cards… etc.

*** Only for GA-6VEML.
GA-6VEM Series Motherboard Layout

*** Only for GA-6VEML.
Chapter 2 Hardware Installation Process

To set up your computer, you must complete the following setups:

1. Set Dip Switch
2. Install the Central Processing Unit (CPU)
3. Install memory modules
4. Install expansion cards
5. Connect ribbon cables, cabinet wires, and power supply
6. Setup BIOS software
7. Install supporting software tools
**Step 1: Install the Central Processing Unit (CPU)**

**Step1-1: CPU Speed Setup**

The system bus frequency can be switched at 66/100/133MHz by BIOS.

The clock ratio can be switched by adjusting CLK_RATIO(SW1).

(The external frequency depend on CPU.)

![Diagram of motherboard with CLK_RATIO(SW1) settings](image)

<table>
<thead>
<tr>
<th>CLK_RATIO (SW1)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>x 3</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 3.5</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>x 4</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>x 4.5</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 5</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 5.5 (Default)</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>x 6</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>x 6.5</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 7</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 7.5</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>x 8</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>x 8.5</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 9</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>x 9.5</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 10</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 10.5</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>x 11</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 11.5</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 12</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>x 13</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>x 14</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>x 15</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>x 16</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
</tbody>
</table>
Step1-2: CPU Installation

For example: The newest Pentium III processor (FC-PGA2 package).

1. Pull up the CPU socket level and up to 90-degree angle.

2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

- Please make sure the CPU type is supported by the motherboard.
- If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.
Step1-3: CPU Heat Sink Installation

1. Press down the CPU socket lever and finish CPU installation.

2. Use qualified fan approved by Intel.

3. Fasten the heatsink supporting-base onto the CPU socket on the motherboard.

4. Make sure the CPU fan is plugged to the CPU fan connector, then install complete.

- Please use Intel approved cooling fan.
- We recommend you to apply the thermal paste to provide better heat conduction between your CPU and heatsink.
- Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.
- Please refer to CPU heat sink user's manual for more detail installation procedure.
Step 2: Install memory modules

The motherboard has 2 dual in-line memory module (DIMM) sockets support 4 banks. The BIOS will automatically detect 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 notches. Memory size can vary between sockets.

1. The DIMM slot has two notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.
3. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.

- When STR/DIMM LED is ON, do not install/remove SDRAM from socket.
- Please note that the DIMM module can only fit in one direction due to the two notches. Wrong orientation will cause improper installation. Please change the insert orientation.
Step 3: Install expansion cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, necessary screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.
Step 4: Connect ribbon cables, cabinet wires, and power supply

Step 4-1: I/O Back Panel Introduction

1. PS/2 Keyboard and PS/2 Mouse Connector
   - PS/2 Mouse Connector (6 pin Female)
   - PS/2 Keyboard Connector (6 pin Female)
   - This connector supports standard PS/2 keyboard and PS/2 mouse.

2. USB & LAN Connector
   - Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker, etc. have a standard USB interface. Also make sure your OS (Win 95 with USB supplement, Win98, Windows 2000, Windows ME, Win NT with SP 6) supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

*** Only for GA-6VEML.
GA-6VEM Series Motherboard

3 Parallel Port, Serial Port and VGA Port (LPT/COMA/VGA)

- This connector supports 1 standard COM port, 1 Parallel port, and 1 VGA port. Devices like printers can be connected to Parallel port; mouse and modem can be connected to Serial ports.

4 Game/MIDI Ports

- This connector supports joystick, MIDI keyboard, and other related audio devices.

5 Audio Connectors

- After installing onboard audio drivers, you may connect a speaker to Line Out jack, microphone to MIC In jack. Devices like CD-ROM, walkman can be connected to Line-In jack.
### Step4-2: Connectors Introduction

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>ATXPWR</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>JP10</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>SYS FAN</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Floppy/IDE1/IDE2</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>J7</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>LAN WAKE UP</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>IR</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>USB2</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>BATTERY</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td>CD_IN</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>CPU FAN</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>COMB</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>FRONT AUDIO</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>USB_VS</td>
</tr>
</tbody>
</table>
K) CPU_FAN (CPU_FAN Connector)  

![CPU_FAN Connector Diagram]

- The CPU fan connector supports a maximum current up to 600 mA.

C) SYS_FAN (SYS_FAN Connector)  

![SYS_FAN Connector Diagram]

A) ATX PWR (ATX Power)  

![ATX Power Diagram]

- AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

J) CD_IN  

![CD_IN Diagram]

F) LAN WAKE UP  

![LAN WAKE UP Diagram]

L) COMB  

![COMB Diagram]
D) Floppy / IDE1 / IDE2

There are two types of Front Audio connector, please refer to the tables below before you install.

Type 1

- Front Audio (R) GND
- Front Audio (L) GND
- MIC GND
- 1+12V

Type 2

- Front Audio (R) GND
- Front Audio (L) GND
- MIC GND
- 1+12V

If you want to use type-1 Front Audio connector, you must remove 11-12,13-14 Jumper. If you want to use type-2 Front Audio connector, you must remove 3-4 ,5-6 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

G) IR

- IRTX
- GND
- IRRX
- NC
- VCC

Be careful with the polarity of the IR connector while you connect the IR. Please contact your nearest dealer for optional IR device.

M) Front Audio Connector

There are two types of Front Audio connector, please refer to the tables below before you install.
GA-6VEM Series Motherboard

H) USB2

- Be careful with the polarity of the front panel USB connector. Check the pin assignment while you connect the front panel USB cable. Please contact your nearest dealer for optional front panel USB cable.

B) JP10 (STR LED Connector)

- Do not remove memory modules while DIMM LED is on. It might cause short or other unexpected damages due to the 1.8V stand by voltage. Remove memory modules only when STR function is disabled by jumper and AC Power cord is disconnected.

I) 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.

N) USB_VS (PS/2 USB Wake Up selection)

1-2 close: Enable (USB Wake up)
2-3 close: Normal (Default)
E) J7 (2x11 pins jumper)

<table>
<thead>
<tr>
<th>Connection</th>
<th>Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN (Green Switch)</td>
<td>Open: Normal Operation</td>
</tr>
<tr>
<td></td>
<td>Close: Entering Green Mode</td>
</tr>
<tr>
<td>GD (Green LED)</td>
<td>Pin 1: LED anode(+)</td>
</tr>
<tr>
<td></td>
<td>Pin 2: LED cathode(-)</td>
</tr>
<tr>
<td>HD (IDE Hard Disk Active LED)</td>
<td>Pin 1: LED anode(+)</td>
</tr>
<tr>
<td></td>
<td>Pin 2: LED cathode(-)</td>
</tr>
<tr>
<td>SPK (Speaker Connector)</td>
<td>Pin 1: VCC(+)</td>
</tr>
<tr>
<td></td>
<td>Pin 2- Pin 3: NC</td>
</tr>
<tr>
<td></td>
<td>Pin 4: Data(-)</td>
</tr>
<tr>
<td>RE (Reset Switch)</td>
<td>Open: Normal Operation</td>
</tr>
<tr>
<td></td>
<td>Close: Reset Hardware System</td>
</tr>
<tr>
<td>P+P-P-(Power LED)</td>
<td>Pin 1: LED anode(+)</td>
</tr>
<tr>
<td></td>
<td>Pin 2: LED cathode(-)</td>
</tr>
<tr>
<td></td>
<td>Pin 3: LED cathode(-)</td>
</tr>
<tr>
<td>PW (Soft Power Connector)</td>
<td>Open: Normal Operation</td>
</tr>
<tr>
<td></td>
<td>Close: Power On/Off</td>
</tr>
</tbody>
</table>

- Please connect the power LED, PC speaker, reset switch and power switch etc. of your chassis front panel to the front panel jumper according to the pin assignment above.
Chapter 3  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.

CONTROL KEYS

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;↑&gt;</td>
<td>Move to previous item</td>
</tr>
<tr>
<td>&lt;↓&gt;</td>
<td>Move to next item</td>
</tr>
<tr>
<td>&lt;←&gt;</td>
<td>Move to the item in the left hand</td>
</tr>
<tr>
<td>&lt;→&gt;</td>
<td>Move to the item in the right hand</td>
</tr>
<tr>
<td>&lt;Esc&gt;</td>
<td>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</td>
</tr>
<tr>
<td>&lt;+&gt;PgUp&gt;</td>
<td>Increase the numeric value or make changes</td>
</tr>
<tr>
<td>&lt;-&gt;PgDn&gt;</td>
<td>Decrease the numeric value or make changes</td>
</tr>
<tr>
<td>&lt;F1&gt;</td>
<td>General help, only for Status Page Setup Menu and Option Page Setup Menu</td>
</tr>
<tr>
<td>&lt;F2&gt;</td>
<td>Reserved</td>
</tr>
<tr>
<td>&lt;F3&gt;</td>
<td>Reserved</td>
</tr>
<tr>
<td>&lt;F4&gt;</td>
<td>Reserved</td>
</tr>
<tr>
<td>&lt;F5&gt;</td>
<td>Restore the previous CMOS value from CMOS, only for Option Page Setup Menu</td>
</tr>
<tr>
<td>&lt;F6&gt;</td>
<td>Load the default CMOS value from BIOS default table, only for Option Page Setup Menu</td>
</tr>
<tr>
<td>&lt;F7&gt;</td>
<td>Load the Setup Defaults</td>
</tr>
<tr>
<td>&lt;F8&gt;</td>
<td>Reserved</td>
</tr>
<tr>
<td>&lt;F9&gt;</td>
<td>Reserved</td>
</tr>
<tr>
<td>&lt;F10&gt;</td>
<td>Save all the CMOS changes, only for Main Menu</td>
</tr>
</tbody>
</table>
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 (For example: BIOS Ver. :F1)

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

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<table>
<thead>
<tr>
<th>Standard CMOS Features</th>
<th>Frequency/Voltage Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced BIOS Features</td>
<td>Load Fail-Safe Defaults</td>
</tr>
<tr>
<td>Advanced Chipset Features</td>
<td>Load Optimized Defaults</td>
</tr>
<tr>
<td>Integrated Peripherals</td>
<td>Set Supervisor Password</td>
</tr>
<tr>
<td>Power Management Setup</td>
<td>Set User Password</td>
</tr>
<tr>
<td>PnP/PCI Configurations</td>
<td>Save &amp; Exit Setup</td>
</tr>
<tr>
<td>PC Health Status</td>
<td>Exit Without Saving</td>
</tr>
</tbody>
</table>

ESC: Quit   ↑↓←→: Select flect
F10: Save & Exit Setup

Time, Date, Hard Disk Type...

Figure 1: Main Menu

- **Standard CMOS Features**
  This setup page includes all the items in standard compatible BIOS.

- **Advanced BIOS Features**
  This setup page includes all the items of Award special enhanced features.

- **Advanced Chipset Features**
  This setup page includes all the items of chipset special features.
Integrated Peripherals
This setup page includes all onboard peripherals.

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.

PC Health Status
This setup page is the System auto detect Temperature, voltage, fan, speed.

Frequency/Voltage Control
This setup page is control CPU’s clock and frequency ratio.

Load Fail-Safe Defaults
Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.

Load Optimized Defaults
Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

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

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

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 Features

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<table>
<thead>
<tr>
<th>Standard CMOS Features</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date (mm:dd:yy)</td>
<td>Mon, Feb 21 2000</td>
<td></td>
</tr>
<tr>
<td>Time (hh:mm:ss)</td>
<td>22:31:24</td>
<td></td>
</tr>
<tr>
<td>IDE Primary Master</td>
<td>Press Enter None</td>
<td></td>
</tr>
<tr>
<td>IDE Primary Slave</td>
<td>Press Enter None</td>
<td></td>
</tr>
<tr>
<td>IDE Secondary Master</td>
<td>Press Enter None</td>
<td></td>
</tr>
<tr>
<td>IDE Secondary Slave</td>
<td>Press Enter None</td>
<td></td>
</tr>
<tr>
<td>Drive A</td>
<td>1.44M, 3.5 in.</td>
<td></td>
</tr>
<tr>
<td>Drive B</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Floppy 3 Mode Support</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>EGA / VGA</td>
<td></td>
</tr>
<tr>
<td>Halt On</td>
<td>All, But Keyboard</td>
<td></td>
</tr>
<tr>
<td>Base Memory</td>
<td>640K</td>
<td></td>
</tr>
<tr>
<td>Extended Memory</td>
<td>130048K</td>
<td></td>
</tr>
<tr>
<td>Total Memory</td>
<td>131072K</td>
<td></td>
</tr>
</tbody>
</table>

F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults

Figure 2: Standard CMOS Features

### Date

The date format is `<week>, <month>, <day>, <year>`.

- **Week**: The week, from Sun to Sat, determined by the BIOS and is displayed 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 1994 through 2079
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☞ 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 manual type. Manual 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 / Drive B

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.
Floppy 3 Mode Support (for Japan Area)

- Disabled: Normal Floppy Drive. (Default value)
- Drive A: Drive A is 3 mode Floppy Drive.
- Drive B: Drive B is 3 mode Floppy Drive.
- Both: Drive A & B are 3 mode Floppy Drives.

Video

The category detects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in setup.

- EGA/VGA: Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA, or PGA monitor adapters
- CGA 40: Color Graphics Adapter, power up in 40 column mode
- CGA 80: Color Graphics Adapter, power up in 80 column mode
- MONO: Monochrome adapter; includes high resolution monochrome adapters

Halt on

The category determines whether the computer will stop if an error is detected during power up.

- NO Errors: The system boot will not stop for any error that may be detected and you will be prompted.
- All Errors: Whenever the BIOS detects a non-fatal error the system will be stopped.
- All, But Keyboard: The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
- All, But Diskette: The system boot will not stop for a disk error; it will stop for all other errors.
- All, But Disk/Key: The system boot will not stop for a keyboard or disk error; it will stop for all other errors.
Memory

The category is display-only which is determined by POST (PowerOn 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.
### Advanced BIOS Features

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#### Advanced BIOS Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS Flash Protection</td>
<td>Auto</td>
<td>Auto detect BIOS Flash Protection function. (Default Value)</td>
</tr>
<tr>
<td>Processor Serial Number</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>First Boot Device</td>
<td>Floppy</td>
<td>Floppy</td>
</tr>
<tr>
<td>Second Boot Device</td>
<td>HDD-0</td>
<td>HDD-0</td>
</tr>
<tr>
<td>Third Boot Device</td>
<td>CDROM</td>
<td>CDROM</td>
</tr>
<tr>
<td>Boot Up Floppy Seek</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>Boot Up Num-Lock</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>Password Check</td>
<td>Setup</td>
<td>Setup</td>
</tr>
<tr>
<td>MPS Version Control For OS</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>HDD S.M.A.R.T. Capability</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>Delay For HDD (Secs)</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 3: Advanced BIOS Features

- **BIOS Flash Protection**
  - **Auto**: Auto detect BIOS Flash Protection function. (Default Value)
  - **Enable**: Enabled BIOS Flash Protection.

- **Processor Number Feature**
  - **Enabled**: Pentium III Processor Number Feature.
  - **Disabled**: Disable this function. (Default Value)

- **First / Second / Third Boot device**
  - **Floppy**: Select your boot device priority by Floppy.
  - **LS120**: Select your boot device priority by LS120.
  - **HDD-0~3**: Select your boot device priority by HDD-0~3.
  - **SCSI**: Select your boot device priority by SCSI.
CDROM  Select your boot device priority by CDROM.
ZIP  Select your boot device priority by ZIP.
USB-FDD  Select your boot device priority by USB-FDD.
USB-ZIP  Select your boot device priority by USB-ZIP.
USB-CDROM  Select your boot device priority by USB-CDROM.
USB-HDD  Select your boot device priority by USB-HDD.
LAN  Select your boot device priority by LAN.
Disabled  Select your boot device priority by Disabled.

Boot Up Floppy Seek
During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360 K type is 40 tracks, 720 K, 1.2 M and 1.44 M are all 80 tracks.
Enabled  BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720 K, 1.2 M or 1.44 M 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 K. (Default value)

Boot Up NumLock
On  Keypad is number keys. (Default value)
Off  Keypad is arrow keys.

Password Check
This category allows you to limit access to the system and Setup, or just to Setup.
System  The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.
Setup  The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. (Default value)
MPS Version Control For OS
(Support Multi Processor Specification revision 1.4)

- 1.4 Support MPS Version 1.4. (Default Value)
- 1.1 Support MPS Version 1.1.

HDD S.M.A.R.T. Capability

- Disabled Disabled HDD S.M.A.R.T. Capability. (Default value)

Delay For HDD (Secs)

- 0~15 Set delay for HDD from 0secs to 15 secs.
Advanced Chipset Features

<table>
<thead>
<tr>
<th>Bank 0/1 DRAM Timing</th>
<th>SDRAM 8/10 ns</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank 2/3 DRAM Timing</td>
<td>SDRAM 8/10 ns</td>
<td>Menu Level</td>
</tr>
<tr>
<td>SDRAM Cycle Length</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DRAM Clock</td>
<td>Host CLK</td>
<td></td>
</tr>
<tr>
<td>AGP Aperture Size</td>
<td>64M</td>
<td></td>
</tr>
<tr>
<td>OnChip USB</td>
<td>Enable</td>
<td></td>
</tr>
<tr>
<td>OnChip USB2</td>
<td>Enable</td>
<td></td>
</tr>
<tr>
<td>USB Keyboard Support</td>
<td>Disable</td>
<td></td>
</tr>
<tr>
<td>USB Mouse Support</td>
<td>Disable</td>
<td></td>
</tr>
<tr>
<td>OnChip Sound</td>
<td>Auto</td>
<td></td>
</tr>
<tr>
<td>OnChip Modem</td>
<td>Auto</td>
<td></td>
</tr>
<tr>
<td>PCI Delay</td>
<td>Enable</td>
<td></td>
</tr>
<tr>
<td>Transaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4: Advanced Chipset Features**

- **Bank 0/1 DRAM Timing**
  - **Normal**: Set Bank 0/1 DRAM Timing is Normal.
  - **Medium**: Set Bank 0/1 DRAM Timing is Medium.
  - **Fast**: Set Bank 0/1 DRAM Timing is Fast.
  - **Turbo**: Set Bank 0/1 DRAM Timing is Turbo.
  - **SDRAM 8/10ns**: Set Bank 0/1 DRAM Timing is SDRAM 8/10ns. (Default Value)

- **Bank 2/3 DRAM Timing**
  - **Normal**: Set Bank 2/3 DRAM Timing is Normal.
  - **Medium**: Set Bank 2/3 DRAM Timing is Medium.
  - **Fast**: Set Bank 2/3 DRAM Timing is Fast.
  - **Turbo**: Set Bank 2/3 DRAM Timing is Turbo.
  - **SDRAM 8/10ns**: Set Bank 2/3 DRAM Timing is SDRAM 8/10ns. (Default Value)
SDRAM CAS Latency
- 3 Set SDRAM CAS Latency is 3SCLKS. (Default Value)
- 2 Set SDRAM CAS Latency is 2SCLKS.

DRAM Clock
- Host CLK Set DRAM CLK equal to Host CLK. (Default Value)
- HCLK-33M Set DRAM CLK to HCLK-33M.

AGP Aperture Size
- 4MB Set AGP Aperture Size to 4MB.
- 8MB Set AGP Aperture Size to 8MB.
- 16MB Set AGP Aperture Size to 16MB.
- 32MB Set AGP Aperture Size to 32MB.
- 64MB Set AGP Aperture Size to 64MB. (Default Value)
- 128MB Set AGP Aperture Size to 128MB.

OnChip USB
- Enabled Enabled Onchip USB. (Default Value)
- Disabled Disabled Onchip USB.

OnChip USB2
- Enabled Enabled Onchip USB2. (Default Value)
- Disabled Disabled Onchip USB2.

USB Keyboard Support
- Enabled Enabled USB Keyboard Support
- Disabled Disabled USB Keyboard Support (Default Value)
GA-6VEM Series Motherboard

☞ USB Mouse Support
   ➤ Enabled  Enabled USB Mouse Support
   ➤ Disabled  Disabled USB Mouse Support (Default Value)

☞ OnChip Sound
   ➤ Auto      Enabled Onchip Sound. (Default Value)
   ➤ Disabled  Disabled Onchip Sound.

☞ OnChip Modem
   ➤ Auto      Enabled Onchip Modem. (Default Value)
   ➤ Disabled  Disabled Onchip Modem.

☞ PCI Delay Transaction
   ➤ Disabled  Normal operation.
   ➤ Enabled   For slow speed ISA device in system. (Default Value)
**Integrated Peripherals**

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<table>
<thead>
<tr>
<th>Integrated Peripherals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE1 Conductor Cable</td>
</tr>
<tr>
<td>IDE2 Conductor Cable</td>
</tr>
<tr>
<td>On-Chip IDE Channel 0</td>
</tr>
<tr>
<td>On-Chip IDE Channel 1</td>
</tr>
<tr>
<td>Init Display First</td>
</tr>
<tr>
<td>Enhance ATAPI Performance</td>
</tr>
<tr>
<td>Onboard FDD Controller</td>
</tr>
<tr>
<td>Onboard Serial Port A</td>
</tr>
<tr>
<td>Onboard Serial Port B</td>
</tr>
<tr>
<td>Serial Port B Mode</td>
</tr>
<tr>
<td>× Duplex Mode</td>
</tr>
<tr>
<td>Onboard Parallel Port</td>
</tr>
<tr>
<td>Onboard Parallel Mode</td>
</tr>
<tr>
<td>ECP Mode Use DMA</td>
</tr>
<tr>
<td>× Parallel Port EPP Type</td>
</tr>
<tr>
<td>Onboard Legacy Audio</td>
</tr>
<tr>
<td>Sound Blaster</td>
</tr>
<tr>
<td>×SB I/O Base Address</td>
</tr>
<tr>
<td>×SB IRQ Select</td>
</tr>
<tr>
<td>×SB DMA Select</td>
</tr>
<tr>
<td>MPU-401</td>
</tr>
<tr>
<td>×MPU-401 I/O Address</td>
</tr>
<tr>
<td>Game Port (200-207H)</td>
</tr>
</tbody>
</table>

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

Figure 5: Integrated Peripherals
GA-6VEM Series Motherboard

IDE 1 Conductor Cable
- **Auto**: Set IDE 1 Conductor cable to auto. (Default value)
- **ATA66/100**: Set IDE 1 Conductor cable to ATA66/100.
- **ATA33**: IDE 1 Conductor cable to ATA33.

IDE 2 Conductor Cable
- **Auto**: IDE 2 Conductor cable to auto. (Default value)
- **ATA66/100**: IDE 2 Conductor cable to ATA66/100.
- **ATA33**: IDE 2 Conductor cable to ATA33.

On-Chip IDE Channel 0
- **Disabled**: Disable onboard 1st channel IDE port.
- **Enabled**: Enable onboard 1st channel IDE port. (Default Value)

On-Chip IDE Channel 1
- **Disabled**: Disable onboard 2nd channel IDE port.
- **Enabled**: Enable onboard 2nd channel IDE port. (Default Value)

Init Display First
- **PCI Slot**: Set Init Display First to PCI Slot. (Default value)
- **AGP**: Set Init Display First to AGP.

Enhance ATAPI Performance
- **Disabled**: Disabled enhance ATAPI Performance. (Default value)
- **Enabled**: Enabled enhance ATAPI Performance.

Onboard FDD Controller
- **Enabled**: Enable onboard FDD port. (Default Value)
- **Disabled**: Disable onboard FDD port.
Onboard Serial Port A

- **Auto**
  - BIOS will automatically setup the port A address.
- **3F8/IRQ4**
  - Enable onboard Serial port A and address is 3F8. (Default Value)
- **2F8/IRQ3**
  - Enable onboard Serial port A and address is 2F8.
- **3E8/IRQ4**
  - Enable onboard Serial port A and address is 3E8.
- **2E8/IRQ3**
  - Enable onboard Serial port A and address is 2E8.
- **Disabled**
  - Disable onboard Serial port A.

Onboard Serial Port B

- **Auto**
  - BIOS will automatically setup the port B address.
- **3F8/IRQ4**
  - Enable onboard Serial port B and address is 3F8.
- **2F8/IRQ3**
  - Enable onboard Serial port B and address is 2F8. (Default Value)
- **3E8/IRQ4**
  - Enable onboard Serial port B and address is 3E8.
- **2E8/IRQ3**
  - Enable onboard Serial port B and address is 2E8.
- **Disabled**
  - Disable onboard Serial port B.

Serial Port B Mode

- **Normal**
  - Set Serial Port B Mode to Normal. (Default Value)
- **HPSIR**
  - Set Serial Port B Mode to HPSIR.
- **ASKIR**
  - Set Serial Port B Mode to ASKIR.

Duplex Mode (When you set Serial Port B to HPSIR or ASKIR Mode)

- **Full**
  - Set IR to Full mode.
- **Half**
  - Set IR to Half mode. (Default Value)

Onboard Parallel port

- **378/IRQ7**
  - Enable onboard LPT port and address is 378/IRQ7. (Default Value)
- **278/IRQ5**
  - Enable onboard LPT port and address is 278/IRQ5.
- **3BC/IRQ7**
  - Enable onboard LPT port and address is 3BC/IRQ7.
- **Disabled**
  - Disable onboard LPT port.
Onboard Parallel Mode
- Normal: Using Parallel port as Normal.
- EPP: Using Parallel port as Enhanced Parallel Port.
- ECP: Using Parallel port as Extended Capabilities Port. (Default Value)
- ECP/EPP: Using Parallel port as ECP & EPP mode.

ECP Mode Use DMA
- 3: ECP Mode Use DMA 3 (Default Value)
- 1: ECP Mode Use DMA 1

Parallel Port EPP Type
- EPP 1.9: EPP Version is 1.9. (Default Value)
- EPP 1.7: EPP Version is 1.7.

Onboard Legacy Audio
- Enabled: Enabled onboard legacy audio. (Default Value)
- Disabled: Disabled onboard legacy audio.

Sound Blaster
- Enabled: Enabled Sound Blaster.
- Disabled: Disabled Sound Blaster. (Default Value)

SB I/O Base Address
- 220H: Set SB I/O Base address is 220H. (Default Value)
- 240H: Set SB I/O Base address is 240H.
- 260H: Set SB I/O Base address is 260H.
- 280H: Set SB I/O Base address is 280H.
**SB IRQ Select**

- **IRQ5**: Set SB IRQ is IRQ5. (Default Value)
- **IRQ7**: Set SB IRQ is IRQ7.
- **IRQ9**: Set SB IRQ is IRQ9.
- **IRQ10**: Set SB IRQ is IRQ10.

**SB DMA Select**

- **DMA0**: Set SB DMA is DMA0.
- **DMA1**: Set SB DMA is DMA1. (Default Value)
- **DMA2**: Set SB DMA is DMA2.
- **DMA3**: Set SB DMA is DMA3.

**MPU-401**

- **Enabled**: Enabled MPU-401.
- **Disabled**: Disabled MPU-401. (Default Value)

**MPU-401 I/O Address**

- **330-333H**: Set MPU-401 I/O address is 330-333H. (Default Value)
- **300-303H**: Set MPU-401 I/O address is 300-303H.
- **310-313H**: Set MPU-401 I/O address is 310-313H.
- **320-323H**: Set MPU-401 I/O address is 320-323H.

**GAME Port (200-207H)**

- **Enabled**: Enabled Game Port (200-207H). (Default Value)
- **Disabled**: Disabled Game Port (200-207H).
## Power Management Setup

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### Power Management Setup

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Menu Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Management</td>
<td>Press Enter</td>
<td></td>
</tr>
<tr>
<td>ACPI Suspend Type</td>
<td>S1(POS)</td>
<td></td>
</tr>
<tr>
<td>MODEM Use IRQ</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Soft-Off by PWRBTN</td>
<td>Instant-off</td>
<td></td>
</tr>
<tr>
<td>System After AC Back</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Wake Up Events</td>
<td>Press Enter</td>
<td></td>
</tr>
</tbody>
</table>

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

---

### Power Management

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Menu Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Management</td>
<td>User Define</td>
<td></td>
</tr>
<tr>
<td>HDD Power Down</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Doze Mode</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Suspend Mode</td>
<td>Disabled</td>
<td></td>
</tr>
</tbody>
</table>

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

---

Figure 6: Power Management Setup

Figure 6-1: Power Management Setup
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**Figure 6-2: Power Management Setup**

<table>
<thead>
<tr>
<th>Item Help</th>
<th>Item Help</th>
<th>Item Help</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu Level</td>
<td>Menu Level</td>
<td>Menu Level</td>
<td>Menu Level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item Help</th>
<th>Item Help</th>
<th>Item Help</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Resume from S3/S4/S5</td>
<td>Disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VGA</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPT &amp; COM</td>
<td>LPT/COM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDD &amp; FDD</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI Master</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PME Event Wake Up</td>
<td>Enabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ModemRingOn/WakeOnLan</td>
<td>Enabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTC Alarm by Resume</td>
<td>Disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date (of Month) Alarm</td>
<td>Everyday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time (hh:mm:ss) Alarm</td>
<td>0 0 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

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

**ACPI Suspend Type**

- **S1(POS)**: Set ACPI suspend type is S1. (Default Value)
- **S3(STR)**: Set ACPI suspend type is S3.

**MODEM Use IRQ**

- **NA**: Set MODEM Use IRQ to NA.
- **3**: Set MODEM Use IRQ to 3.
- **4**: Set MODEM Use IRQ to 4. (Default Value)
- **5**: Set MODEM Use IRQ to 5.
- **7**: Set MODEM Use IRQ to 7.
- **9**: Set MODEM Use IRQ to 9.
- **10**: Set MODEM Use IRQ to 10.
- **11**: Set MODEM Use IRQ to 11.
GA-6VEM Series Motherboard

Soft-off by Power Button

- Instant off: Soft switch ON/OFF for Power Button. (Default Value)
- Delay 4Sec: Soft switch ON 4 Sec for Power off.

System After AC Back

- Last State: Set Last state to system after AC back.
- On: Set On to system after AC back.
- Off: Set Off to system after AC back. (Default Value)

Power Management

- User Define: For configuring our own power management features. (Default Value)
- Min Saving: Enable Green function.
- Man Saving: Disable Green function.

HDD Power Down

- Disabled: Disabled HDD Power Down mode function. (Default Value)
- 1-15 mins.: Enabled HDD Power Down mode between 1 to 15 mins.

Doze Mode

- Disabled: Disabled Doze Mode. (Default Value)
- 1 min - 1 Hour: Setup the timer to enter Doze Mode.

Suspend Mode

- Disabled: Disabled Suspend Mode. (Default Value)
- 1 min - 1 Hour: Setup the timer to enter Suspend Mode.

USB Resume from S3/S4/S5

- Disabled: Disabled USB Resume from S3/S4/S5. (Default Value)
**VGA**
- OFF: Disable monitor VGA activity. (Default Value)
- ON: Enable monitor VGA activity.

**LPT & COM**
- LPT/COM: Enabled LPT/COM Ports Activity. (Default Value)
- NONE: Normal Operation.
- LPT: Enabled LPT Ports Activity.
- COM: Enabled COM Ports Activity.

**HDD & FDD**
- ON: Enabled HDD & FDD Ports Activity. (Default Value)
- OFF: Disabled HDD & FDD Ports Activity

**PCI Master**
- ON: Enabled PCI Master.
- OFF: Disabled PCI Master. (Default Value)

**PME Event Wake UP**
- Disabled: Disabled this function.
- Enabled: Enabled PME Event Wake up. (Default Value)

**Modem Ring On/Wake On LAN**
- Disabled: Disabled Modem Ring on/wake on Lan function.
- Enabled: Enabled Modem Ring on/wake on Lan. (Default Value)
RTC Alarm by Resume

You can set "RTC Alarm Resume" item to enabled and key in Data/time to power on system.

- **Disabled**  Disable this function. (Default Value)
- **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

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PnP/PCI Configurations

<table>
<thead>
<tr>
<th>Reset Configuration Data</th>
<th>Disabled</th>
<th>Item Help</th>
<th>Menu Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources Controlled By</td>
<td>Auto (ESCD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>× IRQ Resources</td>
<td>Press Enter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>× DMA Resources</td>
<td>Press Enter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI1 IRQ Assignment</td>
<td>Auto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI2 IRQ Assignment</td>
<td>Auto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI3 IRQ Assignment</td>
<td>Auto</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Figure 7: PnP/PCI Configurations

- **Reset Configuration Data**
  - Disabled: Disabled this function. (Default value)
  - Enabled: Enable clear PnP information in ESCD.

- **Resources Controlled by**
  - Manual: User can set the PnP resource (I/O Address, IRQ & DMA channels) used by legacy ISA DEVICE.
  - Auto (ESCD): BIOS automatically use these PnP rescuers. (Default value)

- **IRQ Resources (3, 4, 5, 7, 9, 10, 11, 12, 14, 15)**
  - PCI/ISA PnP: The resource is used by PCI device.
  - Legacy ISA: Set the resource to reserved.
DMA Resources (0,1,3,5,6,7)

- **PCI/ISA PnP** The resource is used by PCI device.
- **Legacy ISA** Set the resource to reserved.

PCI1 IRQ Assignment

- **Auto** Auto assign IRQ to PCI1. (Default value)
- **3,4,5,7,9,10,11,12,14,15** Set 3,4,5,7,9,10,11,12,14,15 to PCI1.

PCI2 IRQ Assignment

- **Auto** Auto assign IRQ to PCI2. (Default value)
- **3,4,5,7,9,10,11,12,14,15** Set 3,4,5,7,9,10,11,12,14,15 to PCI2.

PCI3 IRQ Assignment

- **Auto** Auto assign IRQ to PCI3. (Default value)
- **3,4,5,7,9,10,11,12,14,15** Set 3,4,5,7,9,10,11,12,14,15 to PCI3.
## PC Health Status

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**PC Health Status**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Warning Temperature</td>
<td>Disabled</td>
</tr>
<tr>
<td>CPU Fan Warning</td>
<td>No</td>
</tr>
<tr>
<td>System Fan Warning</td>
<td>No</td>
</tr>
<tr>
<td>Current CPU Temp.</td>
<td>31°C~89°F</td>
</tr>
<tr>
<td>Current System Temp.</td>
<td>28°C~98°F</td>
</tr>
<tr>
<td>Current CPU Fan Speed</td>
<td>5443 RPM</td>
</tr>
<tr>
<td>Current System Fan speed</td>
<td>0 RPM</td>
</tr>
<tr>
<td>Vcore</td>
<td>1.72V</td>
</tr>
<tr>
<td>3.3V</td>
<td>3.30V</td>
</tr>
<tr>
<td>5V</td>
<td>5.02V</td>
</tr>
<tr>
<td>12V</td>
<td>12.280 V</td>
</tr>
</tbody>
</table>

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

### CPU Warning Temperature

- **60°C / 140°F**: Monitor CPU Temp. at 60°C / 140°F.  
- **70°C / 158°F**: Monitor CPU Temp. at 70°C / 158°F.  
- **80°C / 176°F**: Monitor CPU Temp. at 80°C / 176°F.  
- **90°C / 194°F**: Monitor CPU Temp. at 90°C / 194°F.  
- **Disabled**: Disabled this function. (Default value)

### Fan Warning (CPU / SYSTEM)

- **No**: Fan Warning Function Disabled. (Default value)  
- **Yes**: Fan Warning Function Enabled.

### Current CPU/System Temp. (°C / °F)

- **Detect CPU / System Temp. automatically.**
GA-6VEM Series Motherboard

☻ Current CPU / System Fan Speed (RPM)
  ➤ Detect Fan speed status automatically.

☻ Current Voltage (V) VCORE / 3.3V / 5V / 12V
  ➤ Detect system’s voltage status automatically.
## Frequency/Voltage Control

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### Frequency/Voltage Control

<table>
<thead>
<tr>
<th>CPU Host Clock (CPU/PCI)</th>
<th>Default</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Menu Level</td>
</tr>
</tbody>
</table>


Figure 9: Frequency/Voltage Control

- **CPU Host Clock (CPU/PCI)**
  - Default: Set Default Value, (Default value)
  - 124/31 MHz: Set 124/31 MHz
  - 133/33 MHz: Set 133/33 MHz
  - 140/35 MHz: Set 140/35 MHz
  - 150/37 MHz: Set 150/37 MHz
## Load Fail-Safe Defaults

Load Fail-Safe Defaults? (Y/N)? Y

---

Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.
Load Optimized Defaults

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

Type the password, up to eight characters, and press <Enter>. 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.

The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select “System” at “Security Option” in Advance BIOS Features 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 “Security Option” in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.
**Save & Exit Setup**

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- **Standard CMOS Features**
- **Advanced BIOS Features**
- **Advanced Chipset Features**
- **Integrated Peripherals**
- **Power Management Setup**
- **PnP/PCI Configuration**
- **PC Health Status**

**Save Data to CMOS**

ESC: Quit  ↑↓←→: Select
F10: Save & 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

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- Standard CMOS Features
- Advanced BIOS Features
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PnP/PCI Configurations
- PC Health Status
- Frequency/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Exit Without Saving

ESC: Quit
F10: Save & Exit Setup
↑↓←→: Select
t
Abandon all Data

Quit Without Saving (Y/N)? N

Figure 14: Exit Without Saving

Type “Y” will quit the Setup Utility without saving to RTC CMOS.
Type “N” will return to Setup Utility.
Chapter 4 Technical Reference

Block Diagram

Socket 370 CPU

Host Bus 66/100/133MHz

VIA VT8601T

66/100/133MHz

3.3V SDRAM

VIA VT82C686B

33 MHz

14.318 MHz

48 MHz

PCI BUS

On Chip VGA

3 PCI

PCI CLK (33MHz)

RTL8100(B)L*

RJ45

VIA

AC97 Link

4 USB Ports

ATA33/66/100 IDE Channels

ICS 9248DF-39

Game Port

Floppy

LPT Port

PS/2

KB/Mouse

COM Port

**Only for GA-6VEML.**
@ BIOS Introduction

Gigabyte announces @ BIOS
Windows BIOS live update utility

Have you ever updated BIOS by yourself? Or like many other people, you just know what BIOS is, but always hesitate to update it? Because you think updating newest BIOS is unnecessary and actually you don’t know how to update it.

Maybe not like others, you are very experienced in BIOS updating and spend quite a lot of time to do it. But of course you don’t like to do it too much. First, download different BIOS from website and then switch the operating system to DOS mode. Secondly, use different flash utility to update BIOS. The above process is not a interesting job. Besides, always be carefully to store the BIOS source code correctly in your disks as if you update the wrong BIOS, it will be a nightmare.

Certainly, you wonder why motherboard vendors could not just do something right to save your time and effort and save you from the lousy BIOS updating work? Here it comes! Now Gigabyte announces @BIOS—the first Windows BIOS live update utility. This is a smart BIOS update software. It could help you to download the BIOS from internet and update it. Not like the other BIOS update software, it’s a Windows utility. With the help of “@BIOS’, BIOS updating is no more than a click.

Besides, no matter which mainboard you are using, if it’s a Gigabyte’s product*, @BIOS help you to maintain the BIOS. This utility could detect your correct mainboard model and help you to choose the BIOS accordingly. It then downloads the BIOS from the nearest Gigabyte ftp site automatically. There are several different choices; you could use “Internet Update” to download and update your BIOS directly. Or you may want to keep a backup for your current BIOS, just choose “Save Current BIOS” to save it first. You make a wise choice to use Gigabyte, and @BIOS update your BIOS smartly. You are now worry free from updating wrong BIOS, and capable to maintain and manage your BIOS easily. Again, Gigabyte’s innovative product erects a milestone in mainboard industries.

For such a wonderful software, how much it costs? Impossible! It’s free! Now, if you buy a Gigabyte’s motherboard, you could find this amazing software in the attached driver CD. But please remember, connected to internet at first, then you could have a internet BIOS update from your Gigabyte @BIOS.
Easy TuneIII™ Introduction

Gigabyte announces EasyTuneIII
Windows overdrive utility

“Overdrive” might be one of the most common issues in computer field. But have many users ever tried it? The answer is probably “no”. Because “overdrive” is thought to be very difficult and includes a lot of technical know-how, sometimes “overdrive” is even considered as special skills found only in some enthusiasts.

But as to the experts in “overdrive”, what’s the truth? They may spend quite a lot of time and money to study, try and use many different hardware and software tools to do “overdrive”. And even with these technologies, they still learn that it’s quite a risk because the safety and stability of an “overdrive” system is unknown.

Now everything is different because of a Windows overdrive utility EasyTuneIII—announced by Gigabyte. This utility has totally changed the gaming rule of “overdrive”. This is the first overdrive utility suitable for both normal and power users. Users can choose either “Easy Mode” or “Advanced Mode” to run “overdrive” at their convenience. For users who choose “Easy Mode”, they just need to click “Auto Optimize” to have auto and immediate CPU overclocking. This software will then overdrive CPU speed automatically with the result being shown in the control panel. If someone prefers to “overdrive” by oneself, there is also another choice. Click “Advanced Mode” to enjoy “sport drive” class overclocking. In “Advanced Mode”, one can change the system bus speed in small increments to get ultimate system performance. And no matter which mainboard is used, if it’s a Gigabyte’s product*, EasyTuneIII helps to perform the best of system.

Besides, different from other traditional over-clocking methods, EasyTuneIII doesn’t require users to change neither BIOS nor hardware switch/jumper setting; on the other hand, they can do “overdrive” at only one click. Therefore, this is a safer way for “overdrive” as nothing is changed on software or hardware. If user runs EasyTuneIII over system’s limitation, the biggest lost is only to restart the computer again and the side effects then well controlled. Moreover, if one well-performed system speed been tested in EasyTuneIII, user can “Save” this bus speed and “Load” it in next time. Obviously, Gigabyte EasyTuneIII has already turned the “overdrive” technology toward to a newer generation.

This wonderful software is now free bundled in Gigabyte motherboard attached driver CD. Users may make a test drive of “EasyTuneIII” to find out more amazing features by themselves.
Chapter 5 Appendix

Picture below are shown in Windows ME (VUCD driver version 1.81)
Appendix A: VIA 8601T Chipset Driver Installation
A. Windows 9x/ME/2000/XP INF Update Utility:

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1. Click "VIA 4in1 Service Pack Driver" item.

(1)

2. Click "Next".

(2)

3. Click "Yes".

(3)

4. Click "Next".

(4)
5. Click "Next".

6. Click "Next".

7. Click "Finish" to restart computer.
Appendix B: VGA Utilities Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1. Click “VT8601/8361 VGA Driver” item.

2. Click "Finish" to restart computer.
Appendix C: AC97 Sound Chipset Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1. Click "Realtek AC’97 Audio Driver" item.

2. Click "Finish" to restart computer.

(1) (2) (3)
Appendix D: RealTek 8139/8130/8100 Network Driver  (For GA-6VEML Only)

"RealTek 8139/8130/8100 Network Driver" under Windows ME will auto install. If you would like to install LAN driver, please refer to attached README.txt file for detail instruction. Please install the driver through CD-ROM by the path D:\Network\Rtl (This manual assumes that your CD-ROM device drive letter is D:).

1. Press "Network" icon.

2. Click "Driver Information".
Appendix E: Acronyms

<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPI</td>
<td>Advanced Configuration and Power Interface</td>
</tr>
<tr>
<td>APM</td>
<td>Advanced Power Management</td>
</tr>
<tr>
<td>AGP</td>
<td>Accelerated Graphics Port</td>
</tr>
<tr>
<td>AMR</td>
<td>Audio Modem Riser</td>
</tr>
<tr>
<td>ACR</td>
<td>Advanced Communications Riser</td>
</tr>
<tr>
<td>BIOS</td>
<td>Basic Input / Output System</td>
</tr>
<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
</tr>
<tr>
<td>CMOS</td>
<td>Complementary Metal Oxide Semiconductor</td>
</tr>
<tr>
<td>CRIMM</td>
<td>Continuity RIMM</td>
</tr>
<tr>
<td>CNR</td>
<td>Communication and Networking Riser</td>
</tr>
<tr>
<td>DMA</td>
<td>Direct Memory Access</td>
</tr>
<tr>
<td>DMI</td>
<td>Desktop Management Interface</td>
</tr>
<tr>
<td>DIMM</td>
<td>Dual Inline Memory Module</td>
</tr>
<tr>
<td>DRM</td>
<td>Dual Retention Mechanism</td>
</tr>
<tr>
<td>DRAM</td>
<td>Dynamic Random Access Memory</td>
</tr>
<tr>
<td>DDR</td>
<td>Double Data Rate</td>
</tr>
<tr>
<td>ECP</td>
<td>Extended Capabilities Port</td>
</tr>
<tr>
<td>ESCD</td>
<td>Extended System Configuration Data</td>
</tr>
<tr>
<td>ECC</td>
<td>Error Checking and Correcting</td>
</tr>
<tr>
<td>EMC</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>EPP</td>
<td>Enhanced Parallel Port</td>
</tr>
<tr>
<td>ESD</td>
<td>Electrostatic Discharge</td>
</tr>
<tr>
<td>FDD</td>
<td>Floppy Disk Device</td>
</tr>
<tr>
<td>FSB</td>
<td>Front Side Bus</td>
</tr>
<tr>
<td>HDD</td>
<td>Hard Disk Device</td>
</tr>
<tr>
<td>IDE</td>
<td>Integrated Dual Channel Enhanced</td>
</tr>
<tr>
<td>IRQ</td>
<td>Interrupt Request</td>
</tr>
<tr>
<td>I/O</td>
<td>Input / Output</td>
</tr>
<tr>
<td>IOAPIC</td>
<td>Input Output Advanced Programmable Input Controller</td>
</tr>
<tr>
<td>ISA</td>
<td>Industry Standard Architecture</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
</tbody>
</table>

To be continued......
<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBA</td>
<td>Logical Block Addressing</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>MHz</td>
<td>Megahertz</td>
</tr>
<tr>
<td>MIDI</td>
<td>Musical Interface Digital Interface</td>
</tr>
<tr>
<td>MTH</td>
<td>Memory Translator Hub</td>
</tr>
<tr>
<td>MPT</td>
<td>Memory Protocol Translator</td>
</tr>
<tr>
<td>NIC</td>
<td>Network Interface Card</td>
</tr>
<tr>
<td>OS</td>
<td>Operating System</td>
</tr>
<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<tr>
<td>PAC</td>
<td>PCI A.G.P. Controller</td>
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<tr>
<td>POST</td>
<td>Power-On Self Test</td>
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<td>PCI</td>
<td>Peripheral Component Interconnect</td>
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<tr>
<td>RIMM</td>
<td>Rambus in-line Memory Module</td>
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<tr>
<td>SCI</td>
<td>Special Circumstance Instructions</td>
</tr>
<tr>
<td>SECC</td>
<td>Single Edge Contact Cartridge</td>
</tr>
<tr>
<td>SRAM</td>
<td>Static Random Access Memory</td>
</tr>
<tr>
<td>SMP</td>
<td>Symmetric Multi-Processing</td>
</tr>
<tr>
<td>SMI</td>
<td>System Management Interrupt</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
<tr>
<td>VID</td>
<td>Voltage ID</td>
</tr>
</tbody>
</table>
### Technical Support/RMA Sheet

<table>
<thead>
<tr>
<th>Customer/Country:</th>
<th>Company:</th>
<th>Phone No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person:</td>
<td>E-mail Add.:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model name/Lot Number:</th>
<th>PCB revision:</th>
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<td>BIOS version:</td>
<td>O.S./A.S.:</td>
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<th>Mfg.</th>
<th>Model name</th>
<th>Size:</th>
<th>Driver/Utility:</th>
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<td>Audio Card</td>
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**Problem Description:**

________________________________________________________________________

________________________________________________________________________
DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

[Logo]

Responsible Party Name:  G.B.T.INC.

Address:  18305 Valley Blvd., Suite#A LA
Puent, CA 91744

Phone/FaxNo:  (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name:  Motherboard
Model Number:  GA-6VEM/GA-6VEML

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a),
Class B Digital Device

Supplementary Information:

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 inference received, including that may cause undesired operation.

Representative Person’s Name:  ERIC LU

Signature:  Eric Lu

Date:  Sep. 9, 2001
Declaration of Conformity

We, Manufacturer/Importer

G.B.T. Technology Trading GmbH
Ausschläger Weg 41, 1F, 20537 Hamburg, Germany

declare that the product

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

Mother Board
GA-6VEM/GA-6VEML

is in conformity with

(reference to the specification under which conformity is declared)

in accordance with 89/336 EEC-EMC Directive

- EN 55011
  - Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment
- EN 55013
  - Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment
- EN 55014
  - Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus
- EN 55015
  - Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries
- EN 55020
  - Immunity from radio interference of broadcast receivers and associated equipment
- EN 55022
  - Limits and methods of measurement of radio disturbance characteristics of information technology equipment
- DIN VDE 0855
  - Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals

EC marking

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

- EN 60950
  - Safety requirements for mains operated electronic and related apparatus for household and similar general use
- EN 60335
  - Safety of household and similar electrical appliances

Manufacturer/Importer

[Signature]

Name: Rex Lin

Date: Sep. 9, 2001