GA-6VEM Series

Socket 370 Processor Motherboard

USER'S MANUAL

Socket 370 Processor Motherboard
Rev. 1006
12ME-6VEM-1006

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Revision History

Revision	Revision Note	Date
1.0	Initial release of the GA-6VEM Series motherboard user's manual.	Sep.2001
1.0	Second release of the GA-6VEM Series motherboard user's manual.	Oct .2001
1.0	Third release of the GA-6VEM Series motherboard user's manual.	Dec .2001
1.0	Fourth release of the GA-6VEM Series motherboard user's manual.	Mar .2002
1.0	Fifth release of the GA-6VEM Series motherboard user's manual.	Jul . 2002
1.0	Sixth release of the GA-6VEM Series motherboard user's manual.	Jun . 2003

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 write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1 Introduction

Summary of Features

Form Factor	• 24.4cm x 19.5cm Micro ATX size form factor, 4 layers PCB.
Motherboard	• GA-6VEM Series Motherboard GA-6VEM and GA-6VEML
CPU	• Socket 370 processor supports all new Pentium®III processors (FC-PGA & FC-PGA2 package) supports Celeron processors in FC-PGA package supports 66/100/133MHz system bus frequency • 2nd cache depend on CPU
Chipset	• VT8601T HOST/AGP/Controller • VT82C686B
Memory	• 2 168-pin DIMM sockets • Supports PC-100/PC-133 SDRAM (Auto) • Supports only 3.3V SDRAM DIMM • Supports up to 1.0GB SDRAM (Max)
I/O Control	• VT82C686B
Slots	• 1 AMR(Audio Modem Riser) Slot (Only Secondary mode Support) • 3 PCI slot supports 33MHz & PCI 2.2 compliant • 1 ISA slot
On-Board IDE	• 2 IDE bus master (DMA33/ATA66/ATA100) IDE ports for up to 4 ATAPI devices • Supports PIO mode3,4 (UDMA33/ATA66/ATA100) IDE & ATAPI CD-ROM
On-Board Peripherals	• 1 Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes. • 1 Parallel port supports Normal/EPP/ECP mode • 1 Serial port (COMA) • 4 USB ports (Rear USB x 2, Front USB x 2) • 1 IrDA connector for IR

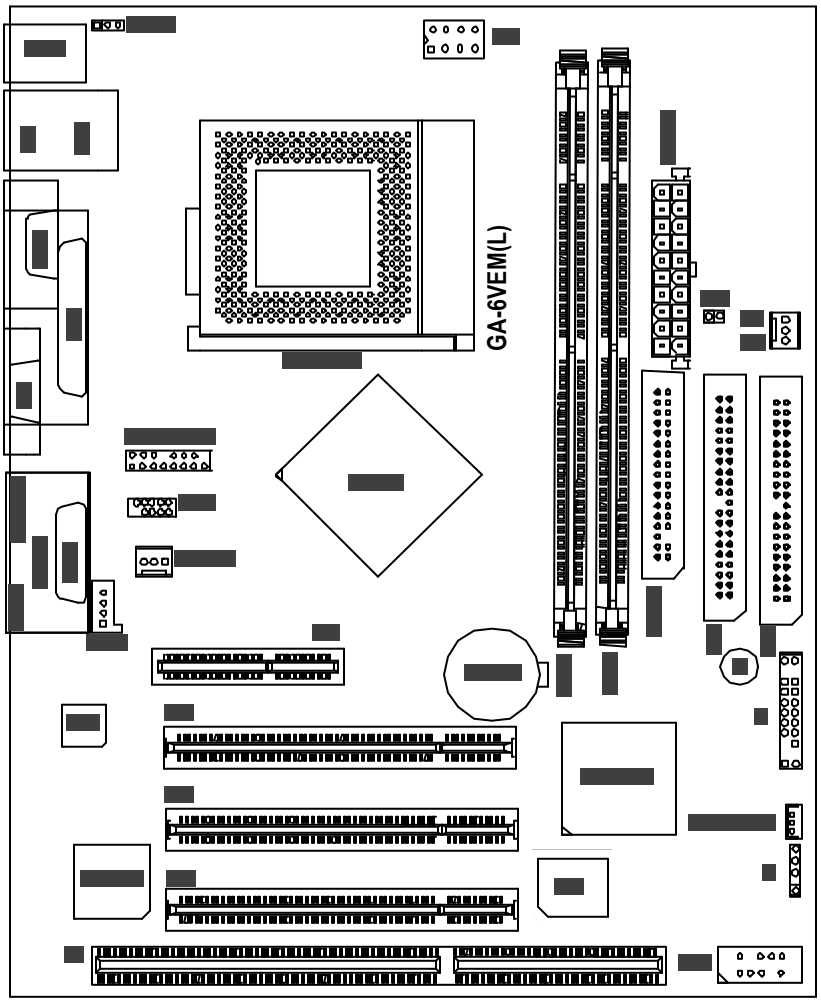
to be continued.....

Hardware Monitor	• CPU/System Fan Revolution detect • CPU/System temperature detect • System Voltage Detect
On-Board Sound	• AC97 CODEC • Line In/Line Out/Mic In/CD In/Game Port
On-Board LAN	• Build in RTL8100L Chipset*
On-Board VGA	• Build in Trident Blade 3D/Pro Media in VT8601T
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interace
BIOS	• Licensed AWARD BIOS, 2M bit Flash ROM
Additional Features	• STR(Suspend-To-RAM) • Wake on LAN • AC Recovery • USB KB/Mouse wake up from S3 • Supports @BIOS™ • Supports Easy TuneIII™

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:

Step 1- Set Dip Switch

Step 2- Install the Central Processing Unit (CPU)

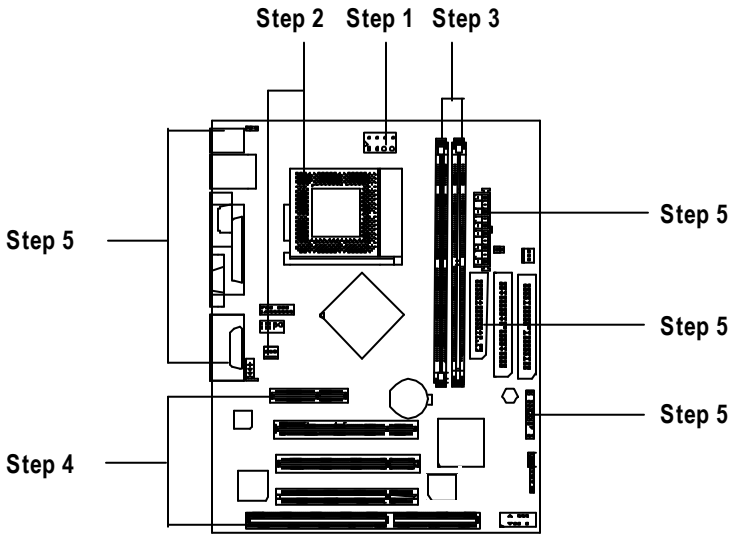
Step 3- Install memory modules

Step 4- Install expansion cards

Step 5- Connect ribbon cables, cabinet wires, and power supply

Step 6- Setup BIOS software

Step 7- Install supporting software tools



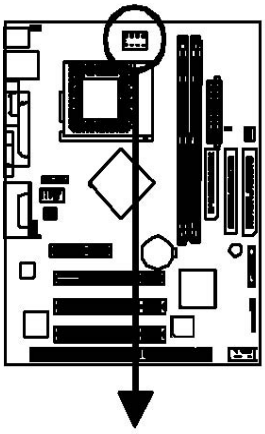
Step 1: Install the Central Processing Unit (CPU)

Step1-1: CPU Speed Setup

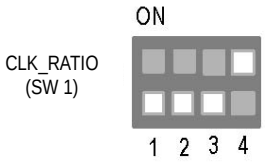
The system bus frequency can be switched at 66/100/133MHz by BIOS.

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

(The external frequency depend on CPU .)



Default: x 5.5



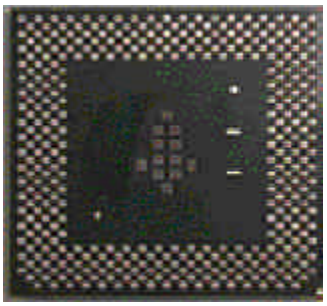
O: ON / X :OFF

CLK_RATIO (SW 1)	4	3	2	1
x 3	O	O	X	O
x 3.5	O	O	X	X
x 4	O	X	O	O
x 4.5	O	X	O	X
x 5	O	X	X	O
x 5.5(Default)	O	X	X	X
x 6	X	O	O	O
x 6.5	X	O	O	X
x 7	X	O	X	O
x 7.5	X	O	X	X
x 8	X	X	O	O
x 8.5	O	O	X	O
x 9	O	O	X	X
x 9.5	O	O	O	X
x 10	X	X	O	X
x 10.5	O	X	O	O
x 11	X	X	X	O
x 11.5	O	X	O	X
x 12	O	X	X	O
x 13	O	X	X	X
x 14	X	O	O	O
x 15	X	O	O	X
x 16	X	O	X	O

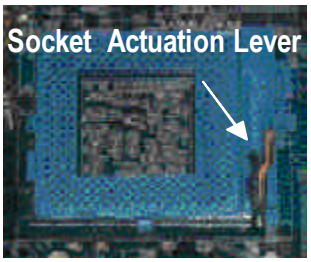
Step1-2: CPU Installation

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

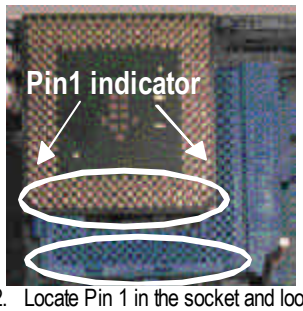
CPU Top View



CPU Bottom View



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



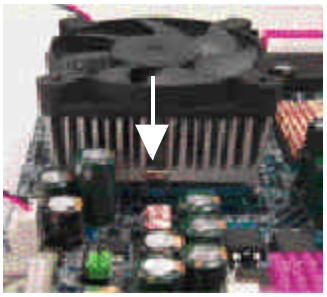
2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

- **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.**

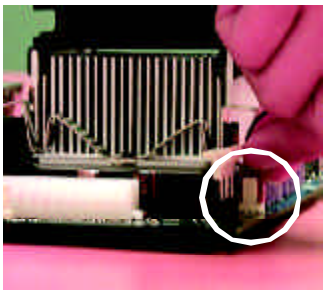
Step1-3:CPU Heat Sink Installation

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 main-board.

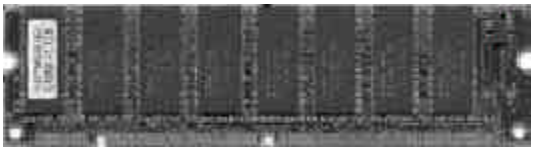


4. Make sure the CPU fan is plugged to the CPU fan connector, than install complete.

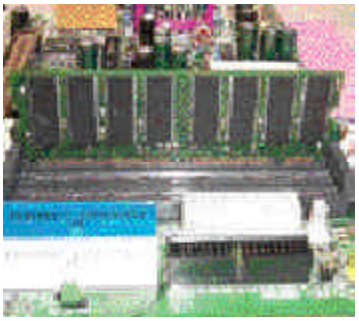
- **Please use Intel approved cooling fan.**
- **We recommend you to apply the thermal paste to provide better heat conduction between your CPU and heatsink.**
- **Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.**
- **Please refer to CPU heat 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 detects memory type and size. To install the memory module, justpush it vertically into the DIMM Slot. The DIMM module can only fit in one direction due to the two notch. Memory sizecan vary between sockets.



SDRAM



1. The DIMM slot has two notch, so the DIMM memory module can only fit in one direction.

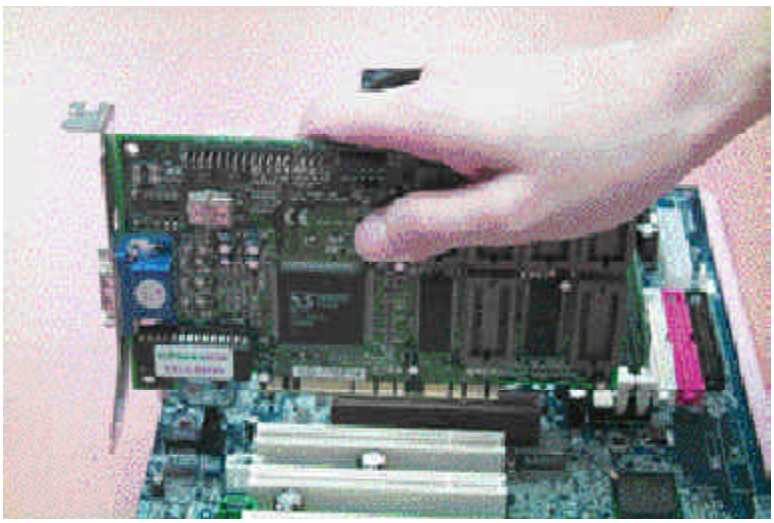
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.

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.**

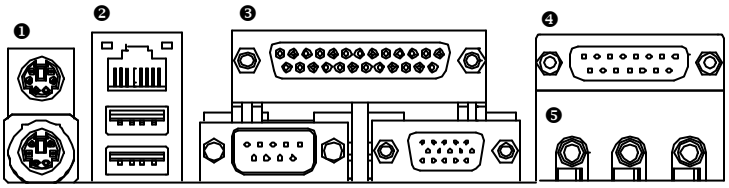
Step 3: Install expansion cards

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.

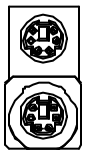


Step 4: Connect ribbon cables, cabinet wires, and power supply

Step4-1:I/O Back Panel Introduction



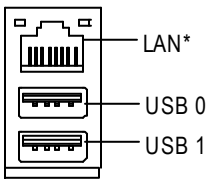
❶ PS/2 Keyboard and PS/2 Mouse Connector



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.

❷ USB & LAN Connector

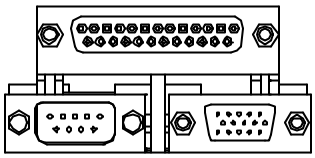


➢ Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard,mouse, scanner, zip, speaker..etc. Have a standard USB interface. Also make sure your OS (Win 95 with USB supplement, Win98, Windows 2000, Windows ME, Win NT with SP 6) supports USB controller. 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.

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

Parallel Port
(25 pin Female)

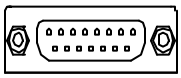


COMA
Serial Port
(9 pin Male)

VGA
VGA Port
(15 pin Female)

➢ This connector supports 1 standard COM port ,1 Parallel port and 1 VGA port. Device like printercan be connected to Parallel port ; mouse and modem etc can be connected to Serial ports.

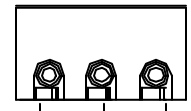
❹ Game /MIDI Ports



Joystick/ MIDI (15 pin Female)

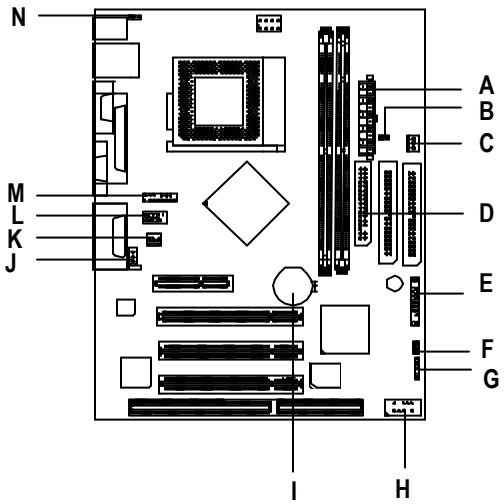
➢ This connector supports joystick, MIDI keyboard and other relate audio devices.

❺ Audio Connectors



➢ After install onboard audio driver, you may connect speaker to Line Out jack, micro phone to MIC Injack. Device like CD-ROM , walkman etc can be connected to Line-In jack.

Step4-2: Connectors Introduction



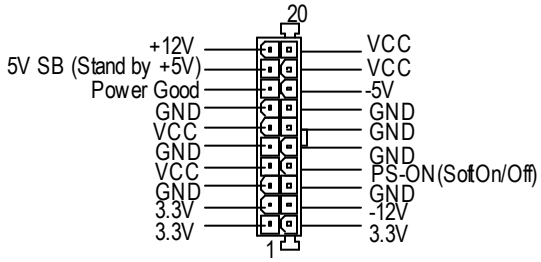
A) ATXPWR	H) USB2
B) JP10	I) BATTERY
C) SYS FAN	J) CD_IN
D) Floppy/IDE1/IDE2	K) CPU FAN
E) J7	L) COMB
F) LAN WAKE UP	M) FRONT AUDIO
G) IR	N) USB_VS

K) CPU_FAN (CPU_FAN Connector)

C) SYS_FAN (SYS_FAN Connector)

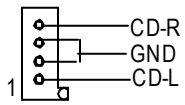
- The CPU fan connector supports Max. current up to 600 mA .

A) ATX PWR (ATX Power)

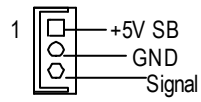


- AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

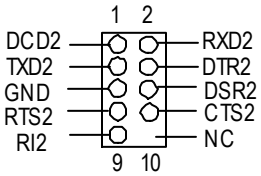
J) CD_IN



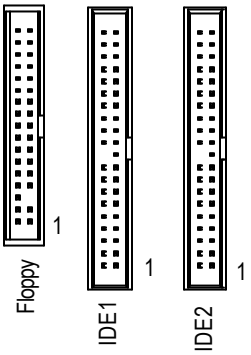
F) LAN WAKE UP



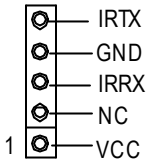
L) COMB



D) Floppy / IDE1 / IDE2



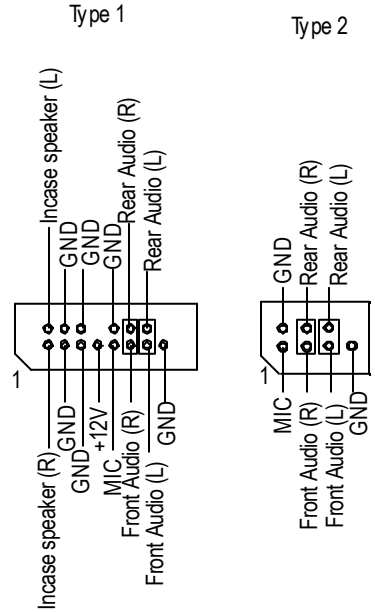
G) IR



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

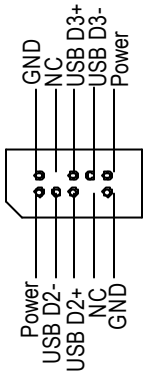
M) Front Audio Connector

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



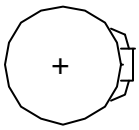
- If you want to use type-1 Front Audio connector, you must remove 11-12,13-14 Jumper. If you want to use type-2 Front Audio connector, you must remove 3-4 ,5-6 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on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

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.

I) Battery



CAUTION

- 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.

B) JP10 (STR LED Connector)

STR LED Connector

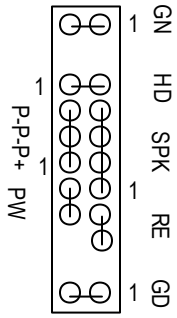
- Do not remove memory modules while DIMM LED is on. It might cause short or other unexpected damages due to the 1.8V stand by voltage. Remove memory modules only when STR function is disabled by jumper and AC Power cord is disconnected.

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

1  1-2 close: Enable (USB Wake up)

1  2-3 close: Normal (Default)

E) J7 (2x11 pins jumper)



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

- 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

<↑>	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 Setup 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 (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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▸Standard CMOS Features	▸Frequency/Voltage Control
▸Advanced BIOS Features	Load Fail-Safe Defaults
▸Advanced Chipset Features	Load Optimized Defaults
▸Integrated Peripherals	Set Supervisor Password
▸Power Management Setup	Set User Password
▸PnP/PCI Configurations	Save & Exit Setup
▸PC Health Status	Exit Without Saving
ESC:Quit	↑↓→←:Select Itect
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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Standard CMOS Features

Date (mm:dd:yy)	Mon, Feb 21 2000	Item Help
Time (hh:mm:ss)	22:31:24	Menu Level
▶IDE Primary Master	Press Enter None	
▶IDE Primary Slave	Press Enter None	
▶IDE Secondary Master	Press Enter None	
▶IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Floppy 3 Mode Support	Disabled	
Video	EGA / VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	130048K	
Total Memory	131072K	

↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit 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 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 1994 through 2079

☞ 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 Keyboar	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 categpry is display-only which is determined by POST (PowerOn Self Test) ofthe 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

BIOS Flash Protection	Auto	Item Help
Processor Serial Number	Disabled	Menu Level
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Up Floppy Seek	Disabled	
Boot Up Num-Lock	On	
Password Check	Setup	
MPS Version Control For OS	1.4	
HDD S.M.A.R.T. Capability	Disabled	
Delay For HDD (Secs)	3	

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

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 80tracks.
⏩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

- ⏩Enabled Enabled 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

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Advanced Chipset Features

Bank 0/1 DRAM Timing	SDRAM 8/10 ns	Item Help
Bank 2/3 DRAM Timing	SDRAM 8/10 ns	Menu Level
SDRAM Cycle Length	3	
DRAM Clock	Host CLK	
AGP Aperture Size	64M	
OnChip USB	Enable	
OnChip USB2	Enable	
USB Keyboard Support	Disable	
USB Mouse Support	Disable	
OnChip Sound	Auto	
OnChip Modem	Auto	
PCI Delay Transaction	Enable	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

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 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. (Default Value)
- ⏩128MB Set AGP Aperture Size to 128 MB.

☞ 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)

☞ 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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Integrated Peripherals

IDE1 Conductor Cable	Auto	
IDE2 Conductor Cable	Auto	
On-Chip IDE Channel 0	Enabled	Item Help
On-Chip IDE Channel 1	Enabled	
Init Display First	PCI Slot	Menu Level
Enhance ATAPI Performance	Disabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port A	Auto	
Onboard Serial Port B	Auto	
Serial Port B Mode	Normal	
※ Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	ECP	
ECP Mode Use DMA	3	
※Parallel Port EPP Type	EPP 1.9	
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	
※SB I/O Base Address	220H	
※SB IRQ Select	IRQ5	
※SB DMA Select	DMA1	
MPU-401	Disabled	
※MPU-401 I/O Address	330-333H	
Game Port (200-207H)	Enabled	

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

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

Figure 5: Integrated Peripherals

☞ 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

▸ Power Management	Press Enter	Item Help
ACPI Suspend Type	S1(POS)	Menu Level
MODEM Use IRQ	4	
Soft-Off by PWRBTN	Instant-off	
System After AC Back	Off	
▸ Wake Up Events	Press Enter	

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

Figure 6: Power Management Setup

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Power Management

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

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

Figure 6-1: Power Management Setup

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Wake Up Events

USB Resume from S3/S4/S5	Disabled	Item Help
VGA	OFF	Menu Level
LPT & COM	LPT/COM	
HDD & FDD	ON	
PCI Master	OFF	
PME Event Wake Up	Enabled	
ModemRingOn/WakeOnLan	Enabled	
RTC Alarm by Resume	Disabled	
※ Date(of Month) Alarm	Everyday	
※ Time(hh:mm:ss) Alarm	0 0 0	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 6-2: Power Management Setup

☞ 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.

☞ 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)
- ⏩ Enabled — Enabled USB Resume from S3/S4/S5.

☞ 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

Reset Configuration Data	Disabled	Item Help
		Menu Level
Resources Controlled By	Auto (ESCD)	
※IRQ Resources	Press Enter	
※DMA Resources	Press Enter	
PCI1 IRQ Assignment	Auto	
PCI2 IRQ Assignment	Auto	
PCI3 IRQ Assignment	Auto	

↑↓→←: 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 PCI 1. (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 PCI 2. (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 PCI 3. (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

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

PC Health Status

CPU Warning Temperature	Disabled	
CPU Fan Warning	No	
System Fan Warning	No	
Current CPU Temp.	31°C~89°F	
Current System Temp.	28°C~98°F	
Current CPU Fan Speed	5443 RPM	
Current System Fan speed	0 RPM	
Vcore	1.72V	
3.3V	3.30V	
5V	5.02V	
12V	12.280 V	

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

Figure8: PC Health Status

☞ 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.

☞ 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

CPU Host Clock (CPU/PCI)	Default	Item Help
		Menu Level
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

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

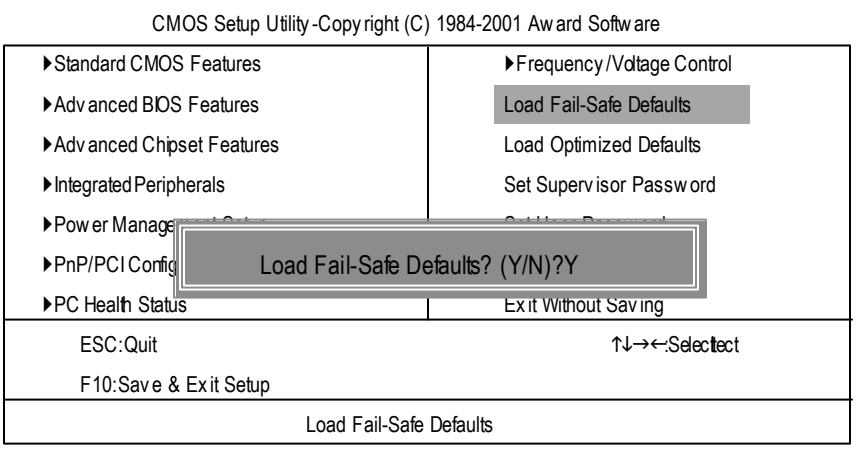


Figure 10: Load Fail-Safe Defaults

Load Fail-Safe Defaults

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

Load Optimized Defaults

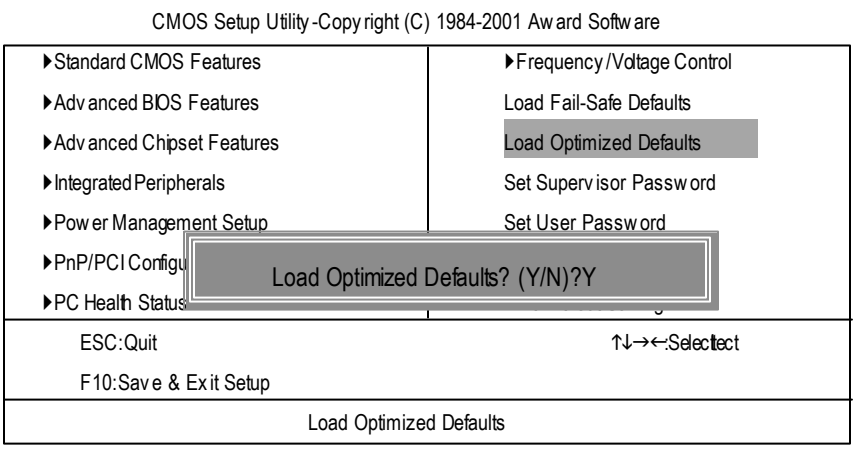


Figure 11: Load Optimized Defaults

Load Optimized Defaults

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

Set Supervisor/User Password

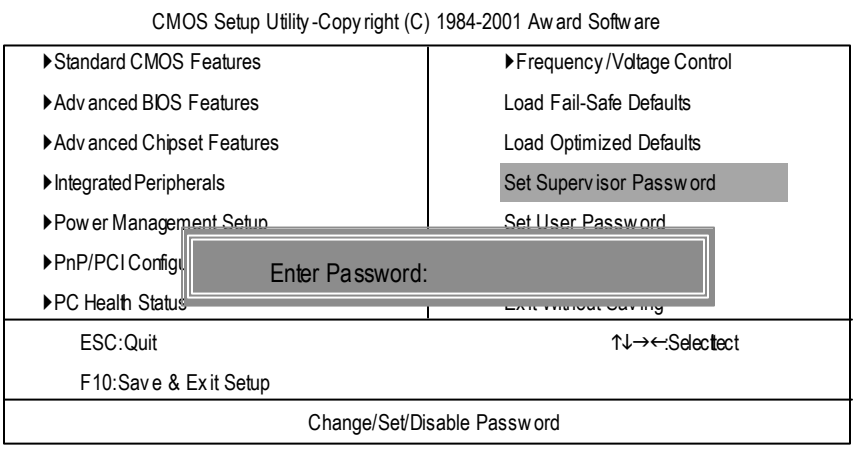


Figure 12: Password Setting

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

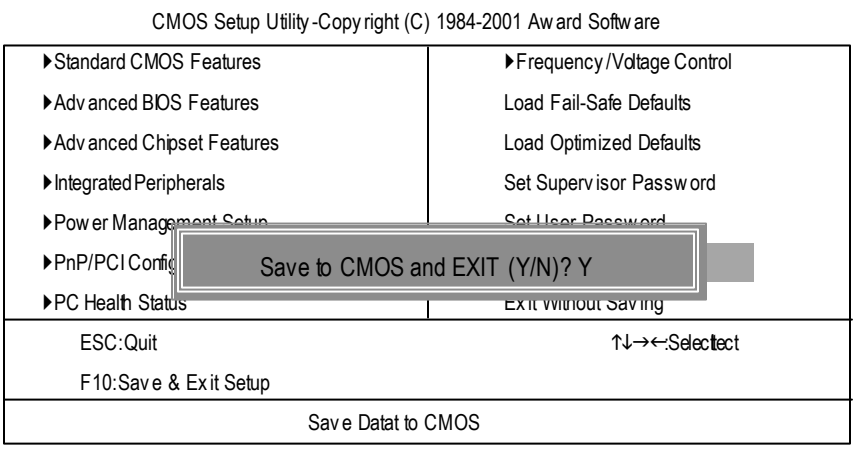


Figure 13: Save & Exit Setup

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

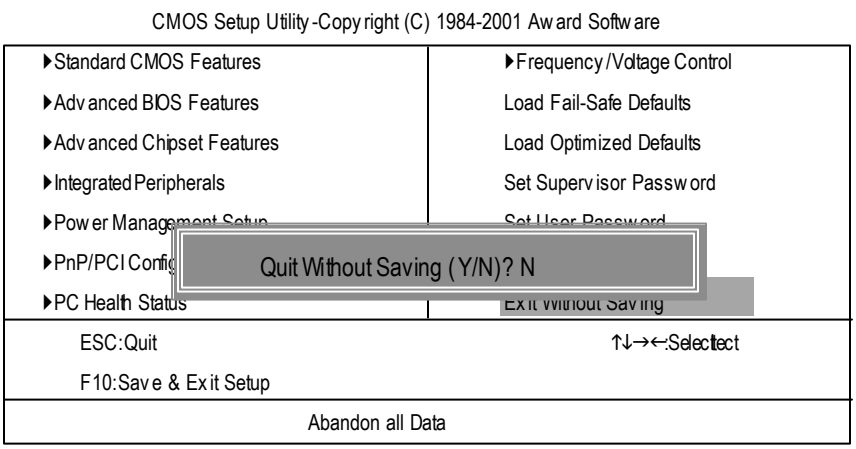


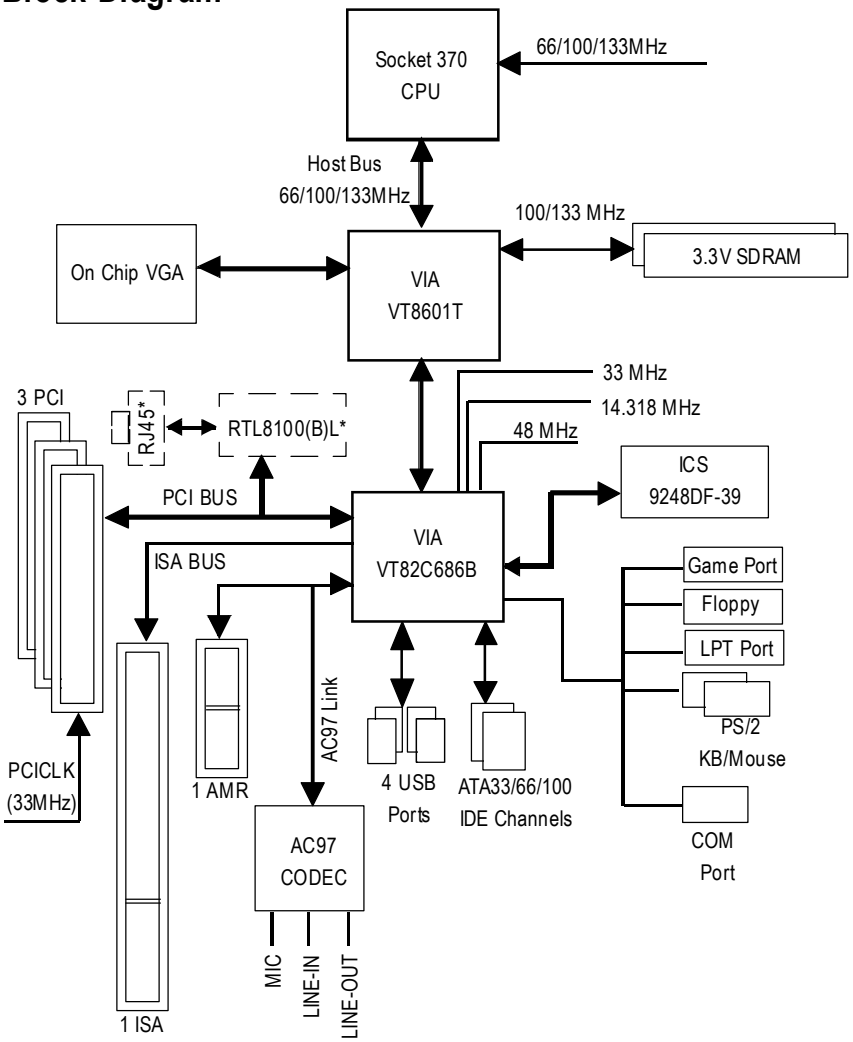
Figure 14: Exit Without Saving

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

Type “N” will return to Setup Utility.

Chapter 4 Technical Reference

Block Diagram



"*" 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 *EasyTune*III 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 effect is 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.

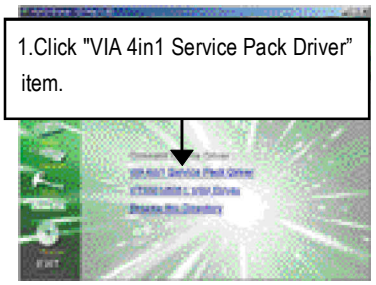
Chapter 5 Appendix

Picture below are shown in Windows ME (VUCD driver version 1.81)

Appendix A: VIA 8601T Chipset Driver Installation

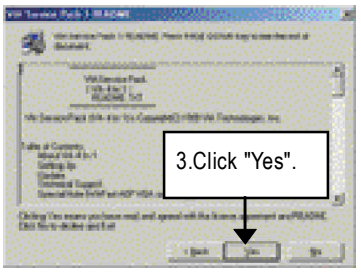
A. Windows 9x/ME/2000/XP INF Update Utility:

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)

(2)



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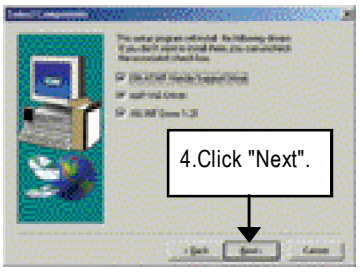
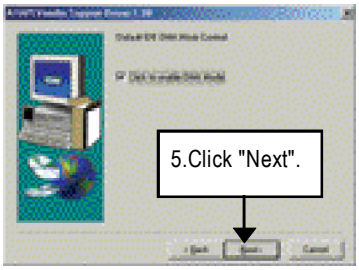
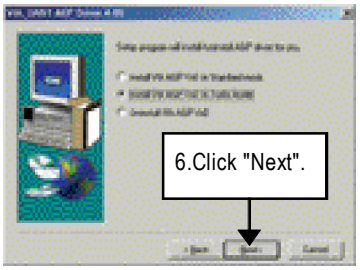


(4)



(5)

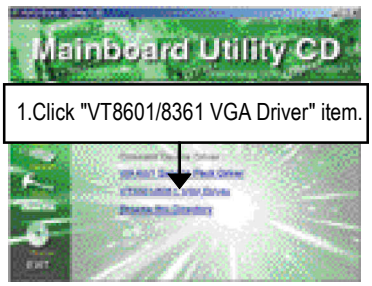


(6)

(7)

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)

(2)

(3)

(4)

Appendix C: AC97 Sound Chipset Drvier 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)

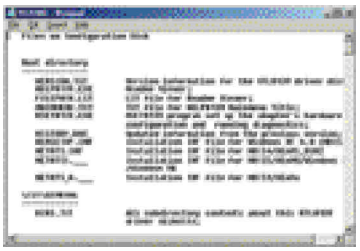
(2)

(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)



(2)

Appendix E: Acronyms

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

to be continued.....

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

Technical Support/RMA Sheet

Customer/Country:	Company:	Phone No.:
Contact Person:	E-mail Add. :	

Model name/Lot Number:	PCB revision:
BIOS version:	O.S./A.S.:

Hardware Configuration	Mfs.	Model name	Size:	Driver/Utility:
CPU				
Memory Brand				
Video Card				
Audio Card				
HDD				
CD-ROM / DVD-ROM				
Modem				
Network				
AMR / CNR				
Keyboard				
Mouse				
Power supply				
Other Device				

Problem Description:

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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

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

Phone/Fax No: **(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
(full address)

G.B.T. Technology Träding GMbH
Ausschlager 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 61000-3-2*** ☒ **EN 60555-2**	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
☐ **EN 55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ **EN 61000-3-3*** ☒ **EN 60555-3**	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55014**	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ **EN 50081-1**	Generic emission standard Part 1: Residual commercial and light industry
		☒ **EN 50082-1**	Generic immunity standard Part 1: Residual commercial and light industry
☐ **EN 55015**	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ **EN 55081-2**	Generic emission standard Part 2: Industrial environment
☐ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	☐ **EN 55082-2**	Generic emission standard Part 2: Industrial environment
☒ **EN 55022**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ **ENV 55104**	Immunity requirements for household appliances tools and similar apparatus
☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12**	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	☐ **EN50091-2**	EMC requirements for uninterruptible power systems (UPS)

☒ **CE marking** CE (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

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ **EN 60950**	
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	

Manufacturer/Importer

(Stamp)

Date : Sep. 9, 2001

Signature: Rex Lin
Name: Rex Lin