When you installing AGP card, please make sure the following notice is fully understood and practiced. If your AGP card has "AGP 4X notch"(show below), please make sure your AGP card is AGP 4X (1.5V).

Do not use AGP 2X card (3.3V) in this motherboard. It will burn and damage the motherboard due to Intel® 845 chipset can't support AGP 2X(3.3V)..

Example 1: Diamond Viper V770 golden finger is compatible with 2X/4X mode AGP slot. It can be switched between AGP 2X (3.3V) or 4X(1.5V) mode by adjusting the jumper. The factory default for this card is 2X(3.3V). If you install this card in GA-8IRM series (or any AGP 4X only) motherboards without switching the jumper to 4X mode (1.5V), it will burn the motherboard.

Example 2: ATi Rage 128 Pro (Power Color)& SiS 305 golden finger is compatible with 2X/4X mode AGP slot, but it supports 2X(3.3V) only. If you install this card in GA-8IRM series (or any AGP 4X only) motherboards, it will burn the motherboard.

- The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to up date 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.
- Due to rapid change in technology, some of the specifications might be out of date before pwblicution of this booklet.

Mise en garde : *Ne faites jamais tourner le processeur sans que le dissipateur de chaleur soit fix correctement et fermement. UN DOMMAGE PERMANENT EN RÉSULTERA !*

Achtung: *Der Prozessor darf nur in Betrieb genommen werden, wenn der W ärmeableiter ordnungsgem äß und fest angebracht ist. DIES HAT EINEN PERMANENTEN SCHADEN ZUR FOLGE!*

Advertencia: *Nunca haga funcionar el procesador sin el disipador de calor instalado correcta y firmemente. ¡SE PRODUCIRÁ UN DAÑO PERMANENTE!*

Aviso: *Nunca execute o processador sem o dissipador de calor estar adequado e firmemente conectado. O RESULTADO SERÁ UM DANO PERMANENTE!*

警告: [illegible]

警告 [illegible]

경고! [illegible]

警告 [illegible]

Declaration of Conformity

We, Manufacturer/Importer
(full address)

[redacted]

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

Mother Board

[redacted]

(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 commercialand light industry
		☞ **EN 50082-1**	Genericimmunity standard Part 1: Residual commercialand 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: Industrialenvironment
✍ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	✍ **EN 55082-2**	Generic emission standard Part 2: Industrialenvironment
☞ **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 powersystems(UPS)
☞ **CEmarking**		(EC conformity marking)	

Themanufactureralso declaresthe conformity of abovementioned product withthe actual requiredsafety standards in accordance with LVD 73/23EEC

✍ **EN 60065**	Safetyrequirements 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/Impoter

[redacted]

Date : Nov. 10, 2001

Signature: Rex Lin
Name: Rex Lin

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-8IRM/GA-8IRML**

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: Nov. 10,2001

GA-8IRM Series

P4 Titan-DDR Motherboard

USER'S MANUAL

Pentium®4 Processor Motherboard

Rev. 2.1 First Edition

12ME-8IRM-2101

Table of Content

Revision History

Revision	Revision Note	Date
2.1	Initial release of the GA-8IRM Series motherboard user's manual.	Nov. 2001

Item Checklist

- The GA-8IRM Series motherboard
- IDE cable x 1/ Floppy cable x 1
- CD for motherboard driver & utility (IUCD)
- I/O Shield
- GA-8IRM Series user's manual
- USB Cable x 1

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

Features Summary

Form Factor	☞ 20.7cm x 24.3cm Micro ATX size form factor, 4 layers PCB.
Motherboard	☞ GA-8IRM Series Motherboard: GA-8IRM and GA-8IRML
CPU	☞ Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor ☞ Intel Pentium®4 400MHz FSB ☞ 2nd cache depend on CPU
Chipset	☞ Chipset 82845 HOST/AGP/Controller ☞ 82801BA(ICH2) I/O Controller Hub
Memory	☞ 2 184-pin DDR DIMM sockets ☞ Supports PC1600 DDR or PC2100 DDR SDRAM ☞ Supports up to 2GB DRAM (Max) ☞ Supports only 2.5V DDR SDRAM ☞ Supports 64bit ECC type DRAM integrity mode
I/O Control	☞ W83627HF
Slots	☞ 1 AGP slot 4X (1.5V) device support ☞ 3 PCI slot supports 33MHz & PCI 2.2 compliant
On-Board IDE	☞ An IDE controller on the Intel 82801BA PCI chipset provides IDE HDD/CD-ROM with PIO, Bus Master (Ultra DMA33/ATA66/ATA100) operation modes. ☞ Can connect up to four IDE devices
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 ☞ 2 Serial ports (COMA&COMB) ☞ 4 USB ports (Rear USB x 2, Front USB x 2) ☞ 1 IrDA connector for IR
Hardware Monitor	☞ CPU/Power/System Fan Revolution detect ☞ CPU/Power/System Fan Control ☞ CPU Overheat Warning ☞ System Voltage Detect

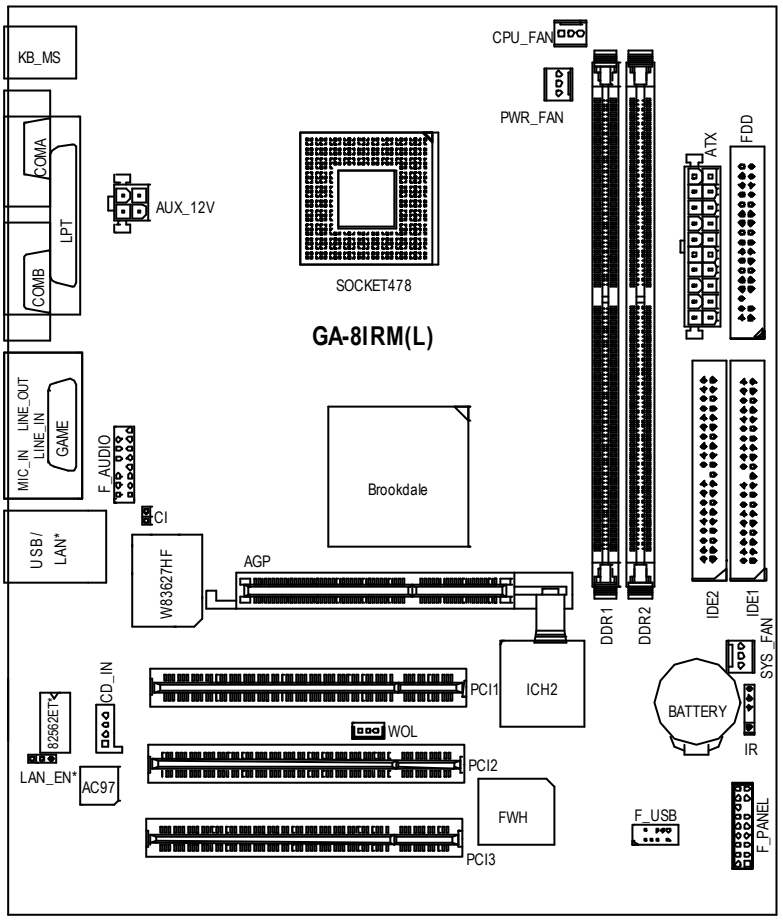
to be continued.....

On-Board Sound	☞ AC97 CODEC (RealTek ALC201A) ☞ Line In/Line Out/AUXIn/CD In/TEL/Mic In/CD In/Game Port
On-Board LAN	☞ Build in 82562ET Chipset *
PS/2 Connector	☞ PS/2 Keyboard interface and PS/2 Mouse interace
BIOS	☞ Licensed AWARD BIOS, 2M bit FWH
Additional Features	☞ Internal / External Modem wake up ☞ PS/2 Keyboard password power on ☞ PS/2 Mouse power on ☞ Wake on LAN ☞ AC Recovery ☞ USB KB/Mouse wake up from S3 ☞ Poly fuse for keyboard,USB,game port over-current protection ☞ Supports @BIOS ☞ Supports EasyTuneIII

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.

*** For GA-8IRML Only.**

GA-8IRM Series Motherboard Layout



*** For GA-8IRML only.**

Chapter 2 Hardware Installation Process

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

Step 1- Install the Central Processing Unit (CPU)

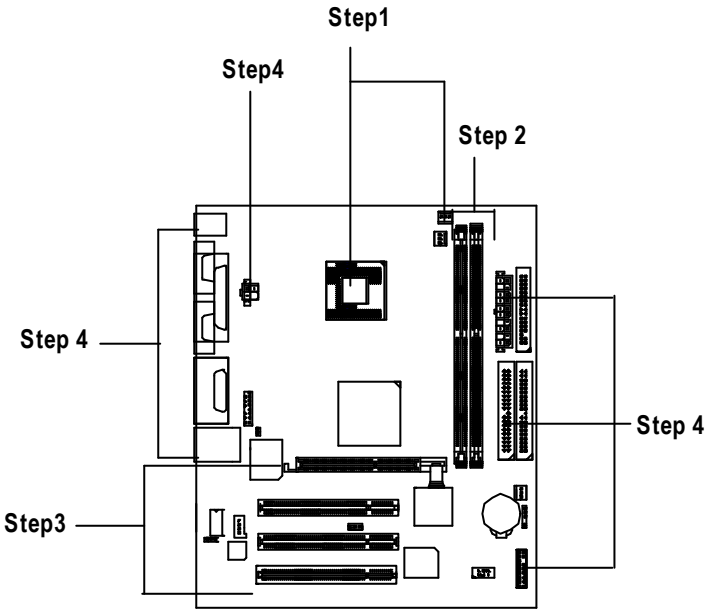
Step 2- Install memory modules

Step 3- Install expansion cards

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

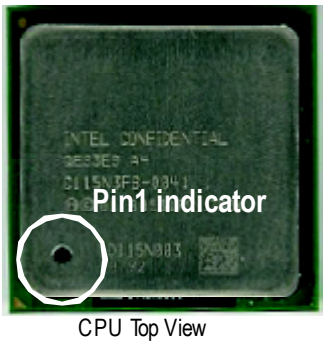
Step 5- Setup BIOS software

Step 6- Install supporting software tools

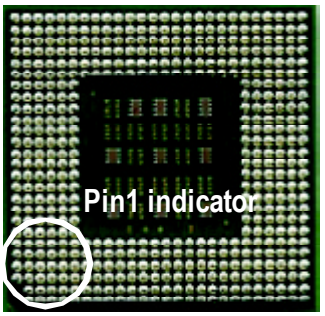


Step 1: Install the Central Processing Unit (CPU)

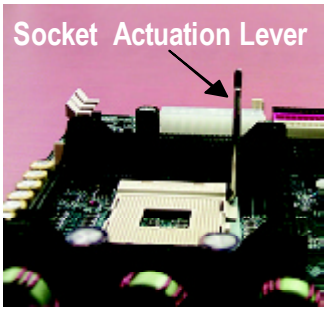
CPU Installation



CPU Top View

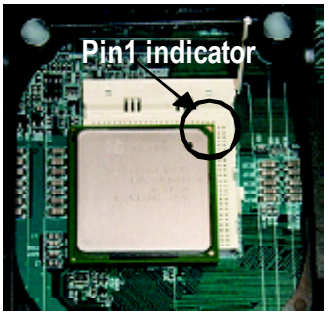


CPU Bottom View



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

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

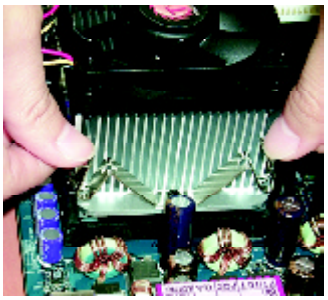


2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

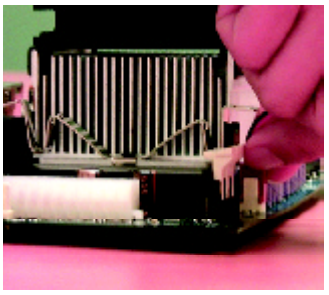
✍ **Please make sure the CPU type is supported by the motherboard.**

✍ **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.**

CPU Heat Sink Installation



1. Hook one end of the cooler bracket to the CPU socket first.



2. Hook the other end of the cooler bracket to the CPU socket.

- **Please use Intel approved cooling fan.**
- **We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink.**
  (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)
- **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.**

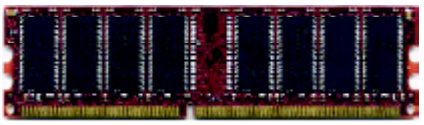
Step 2: Install memory modules

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot .The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

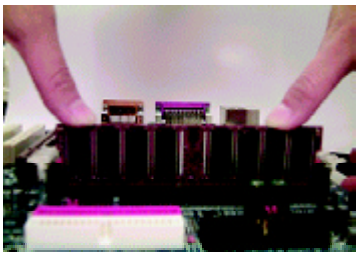
Total Memory Sizes With Unbuffered DDR DIMM

Devices used on DIMM	1 DIMM x 64 / x 72	2 DIMMs x 64 / x 72
64 Mbit (2Mx8x4 banks)	128 MBytes	256 MBytes
64 Mbit (1Mx16x4 banks)	32 MBytes	64 MBytes
128 Mbit(4Mx8x4 banks)	256 MBytes	512 MBytes
128 Mbit(2Mx16x4 banks)	64 MBytes	128 MBytes
256 Mbit(8Mx8x4 banks)	512 MBytes	1 GBytes
256 Mbit(4Mx16x4 banks)	128 MBytes	256 MBytes
512 Mbit(16Mx8x4 banks)	1 GBytes	2 GBytes
512 Mbit(8Mx16x4 banks)	256 MBytes	512 MBytes

Notes: Double-sided x16 DDR memory devices are not support by Intel 845 chipset.



DDR



1. The DIMM slot has a 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, you do not install / remove DDR from socket.**

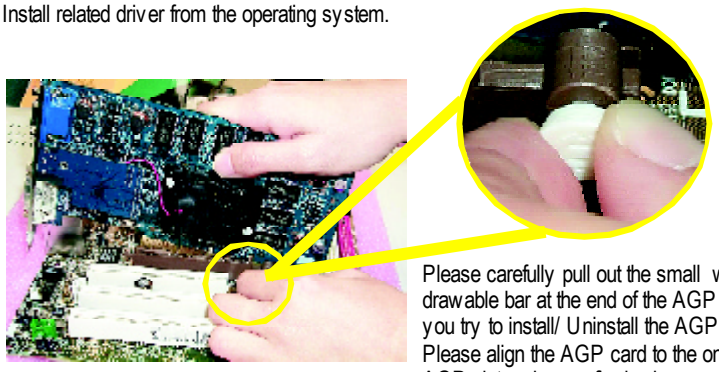
DDR Introduction

Established on the existing SDRAM industry infrastructure, DDR (Double Data Rate) memory is a high performance and cost-effective solution that allows easy adoption for memory vendors, OEMs and system integrators.

DDR memory is a sensible evolutionary solution for the PC industry that builds on the existing SDRAM infrastructure, yet makes awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. DDR SDRAM will offer a superior solution and migration path from existing SDRAM designs due to its availability, pricing and overall market support. PC2100 DDR memory (DDR266) doubles the data rate through reading and writing at both the rising and falling edge of the clock, achieving data bandwidth 2X greater than PC133 when running with the same DRAM clock frequency. With peak bandwidth of 2.1GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

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.

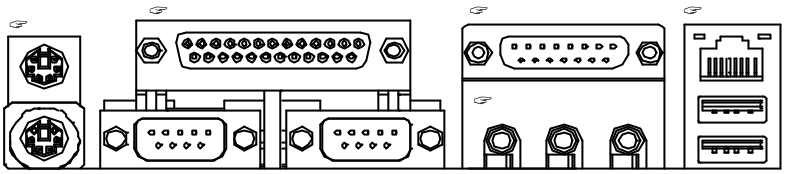


AGP Card

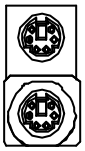
Please carefully pull out the small white-drawable bar at the end of the AGP slot when you try to install/ Uninstall the AGP card. Please align the AGP card to the onboard AGP slot and press firmly down on the slot . Make sure your AGP card is locked by the small white- drawable bar.

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

I/O Back Panel Introduction



☞ **PS/2 Keyboard and PS/2 Mouse Connector**



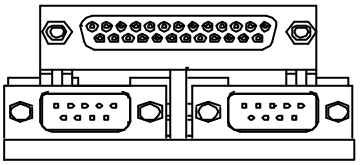
PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

✍This connector supports standard PS/2 keyboard and PS/2 mouse.

☞ **Parallel Port and Serial Ports (COM1/COM2)**

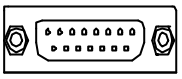
Parallel Port
(25 pin Female)



COMA COMB
Serial Ports (9 pin Male)

✍This connector supports 2 standard COM ports and 1 Parallel port. Device like printer can be connected to Parallel port ; mouse and modem etc can be connected to Serial ports.

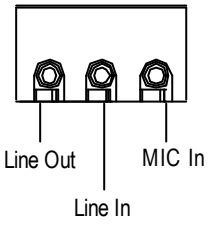
☞ **Game /MIDI Ports**



Joystick/ MIDI (15 pin Female)

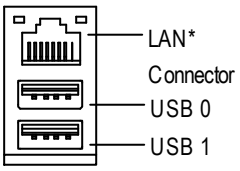
✍This connector supports joystick, MIDI keyboard and other relate audio devices.

☞ **Audio Connectors**



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

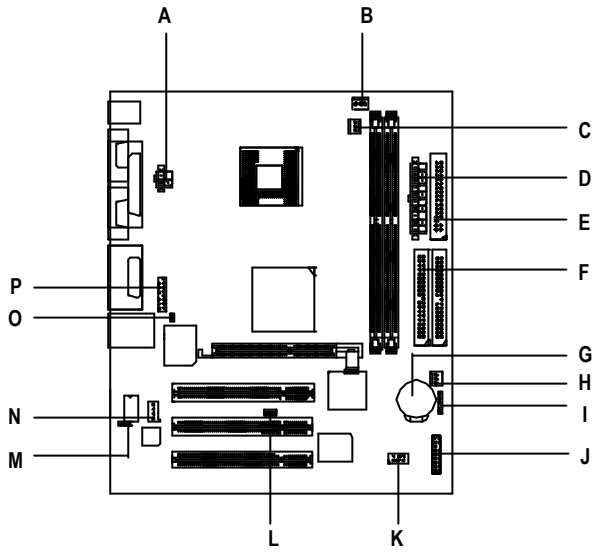
☞ **USB/LAN Connector**



✍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.

*** For GA-8IRML only.**

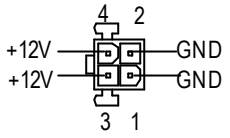
Connectors Introduction



A) AUX_12V	I) IR
B) CPU_FAN	J) F_PANEL
C) PWR_FAN	K) FP_USB
D) ATX	L) WOL
E) FDD	M) LAN_EN*
F) IDE1/IDE2	N) CD_IN
G) BATTERY	O) CI
H) SYS_FAN	P) F_AUDIO

*** For GA-8IRML only.**

A) AUX_12V (+12V Power Connector)

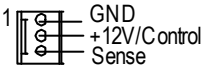


✍This connector (ATX +12V) suppliesthe CPU operation voltage (Vcore).
If this " ATX+ 12V connector" is not connected, system cannot boot.

B) CPU_FAN (CPU FAN Connector)

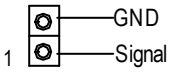
✍ Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 600 mA.

C) PWR_FAN (Power FAN Connector) H) SYS_FAN (System FAN Connector)

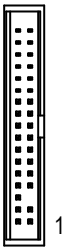


O) CI (CASE OPEN)

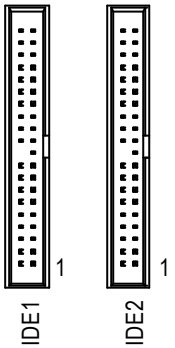
✍ This 2 pin connector allows your system to enable or disable the system alarm if the system case begin remove.



E) FDD (Floppy Connector)

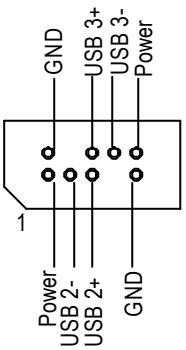


F) IDE1/ IDE2 (IDE1/IDE2 Connector)



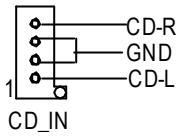
✍ Important Notice:
Please connect first harddisk to IDE1 and connect CDROM to IDE2.

K) F_USB (Front USB Connector)

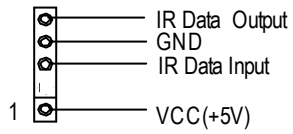


✍ Be careful with the polarity of the front panel USB connector. Check the pin assignment while you connect the front panel USB cable. Please contact your nearest dealer for optional front panel USB cable.

N) CD_IN1 (CD IN)

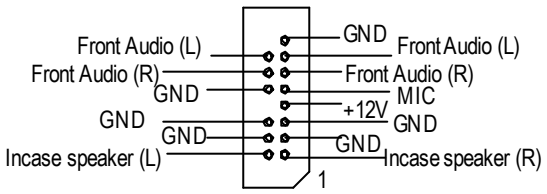


I)IR



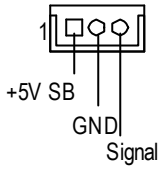
✍ Be careful with the polarity of the IR connectorwhile you connect the IR. Please contact you nearest dealer for optional IR device.

P) F_AUDIO (Front Audio Connector)

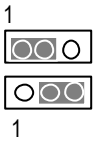


✍ If you want to use "Front Audio" connector, you must move 11-12,13-14 Jumper. In order to utilize thefront audio header, yourchassis must have front audio connector. Also please make sure thepin assigmenton the cable isthe same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

L) WOL (Wake on LAN)

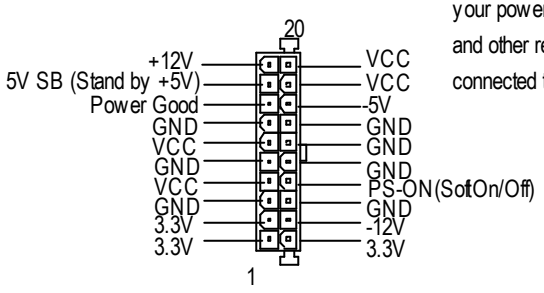


M) LAN_EN (Onboard LAN Function)*



✍This MB supports optional LAN chip.If the MB has optional LAN chip the user can enable the LAN function by setting the "LAN_EN" to 1-2, user can disable the optional LAN function by setting the "LEN_EN" to 2-3. "LEN_EN" will have any effect if the board does not have optioal LAN chip.

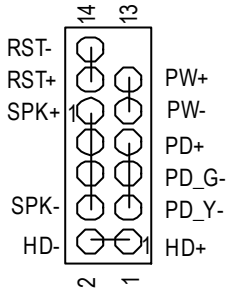
D) ATX (ATX Power)



✍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.

*** For GA-8IRML only.**

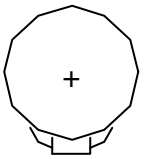
J) F_PANEL (2x7 pins jumper)



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(-)
RST (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
PD+/PD_G-/PD_Y-(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 F_PANEL connector according to the pin assignment above.

G) 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.

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>.

Q-Flash Utility

After power on the computer, pressing <Del> immediately during POST (Power On Self Test) it will allow you to enter Award BIOS CMOS SETUP, then press <F8> to enter Q-Flash utility.

The Main Menu (For example: BIOS Ver. :F3b)

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 Item
F8: Q-Flash	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)	Sun, Jan 7 2001	Item Help
Time(hh:mm:ss)	22:31:24	MenuLevel
↴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"]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
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.

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

Base Memory

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

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

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1 MB in the CPU's memory address map.

Advanced BIOS Features

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Advanced BIOS Features

BIOS Flash Protection	[Auto]	
First Boot Device	[Floppy]	Item Help
Second Boot Device	[HDD-0]	Menu Level
Third Boot Device	[CDROM]	
Boot Up Floppy Seek	[Disabled]	
BootUp Num-Lock	[On]	
Password Check	[Setup]	
✍ Interrupt Mode	[APIC]	
✍ MPS Version Control For OS	[1.4]	
HDD S.M.A.R.T. Capability	[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 3: Advanced BIOS Features

✍ BIOS Flash Protection

This field lets you determine the states that flash BIOS

- Enabled — During POST, DMI/ESCD would not be updated. But flash tools can update BIOS always
- Auto — BIOS enables flash write access automatically when updating BIOS data/ DMI/ESCD. (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.
- LAN Select your boot device priority by LAN.
- USB-CDROM Select your boot device priority by USB-CDROM.
- USB-ZIP Select your boot device priority by USB-ZIP.
- USB-FDD Select your boot device priority by USB-FDD.
- USB-HDD Select your boot device priority by USB-HDD.
- ZIP Select your boot device priority by ZIP.
- Disabled Disabled this function.

✍ 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 user must enter correct password in order to access the system and/or BIOS setup.
- Setup The user must enter correct password in order to access BIOS setup utility. (Default value)

☞ Interrupt Mode

- APIC — Through IOAPIC generate more IRQ for system use. (Default value)
- PIC — Use AT stantard IRQ controlles to generate IRQ.

When you already have IOAPIC enable system and want to upgrade the system please note, since running an IOAPIC enabled OS (like Windows NT,Windows 2000, Windows XP...) system with none IOAPIC HW support will cause the system to hang. Following are some situations users might run into:

1.An IOAPIC enabled OS and change the BIOS setting from IOAPIC to PIC, this will cause your system to hang.

✍ MPS Version Control For OS

(Support Multi Processor Specification revision 1.4)

Note: Some old MPS OS support 1.1 version only

- 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)

Advanced Chipset Features

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Advanced Chipset Features

Configure DRAM Timing	[SPD]	Item Help
☞CAS Latency Time	2.5	Menu Level
☞Active to Precharge Delay	7	
☞DRAM RAS# to CAS# Delay	3	
☞DRAM RAS# Precharge	3	
☞Refresh Mode Select	15.6usec	
DRAM Data Integtity Mode	Non-ECC	
DRAM Read Thermal Mgmt	[Disable]	
Delay Transaction	[Enable]	
AGP Aperture Size(MB)	[64]	
Delay Prior to Thermal	[16Min]	
↑↓→←: 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

✍ Configure DRAM Timing

Warning: Wrong DRAM Timing may make system can't boot. Clear CMOS to overcome wrong Timing issue)

- SPD — Set Configure DRAM Timing Control by SPD. (Default value)
- Manual — Set Configure DRAM Timing Control by Manual.

✍ CAS latency Time

- 2.5 — Set CAS latency Time is 2.5. (Default Value)
- 2 — Set CAS latency Time is 2.
- 1.5 — Set CAS latency Time is 1.5.

✍ Active to Precharge Delay

- 5 — Set active to Precharge delay timing is 5 clk.
- 6 — Set active to Precharge delay timing is 6 clk.

- 7 Set active to Precharge delay timing is 7 clk. (Default value)

✍ DRAM RAS# to CAS# delay

- 3 Set DDR RAM RAS# to CAS# delay 3 SCLKs. (Default value)
- 2 Set DDR RAM RAS# to CAS# delay 2 SCLKs.

✍ DRAM RAS# Precharge

- 3 Set DDR RAM RAS# Precharge Time to 3. (Default value)
- 2 Set DDR RAM RAS# Precharge Time to 2.

✍ Refresh Mode Select

- 7.8usec Set active to Refresh mode timing is 7.8 usec.
- 15.6usec Set active to Refresh mode timing is 15.6 usec. (Default)
- 64 usec Set active to Refresh mode timing is 64 usec.

☞ DRAM Data Integrity Mode

- ECC ³]©wDRAM Data Integrity Mode by ECC.
- Non-ECC ³]©wDRAM Data Integrity Mode by Non-ECC. (¹w³]-È)

✍ DRAM Data Integrity Mode

- ECC Set DRAM Data Integrity Mode by ECC.
- Non-ECC Set DRAM Data Integrity Mode by Non-ECC. (Default value)

✍ DRAM Read Thermal Mgmt

- Disabled Disabled this function. (Default)
- Enabled Enabled can reduce DRAM heat issue.

Note: DRAM heat thermal mangement is always enabled in write cycle.

✍ Delay Transaction

- Disabled — Normal operation.
- Enabled — For slow speed ISA device in system. (Default value)

✍ AGP Graphics Aperture Size

(Driver use selected size of system memory for 3D texturing to increase video performance)

- 4 — AGP Graphics Aperture Size is 4MB.
- 8 — AGP Graphics Aperture Size is 8MB.
- 16 — AGP Graphics Aperture Size is 16MB
- 32 — AGP Graphics Aperture Size is 32MB.
- 64 — AGP Graphics Aperture Size is 64MB.(Default Value)
- 128 — AGP Graphics Aperture Size is 128MB.
- 256 — AGP Graphics Aperture Size is 256MB.

✍ Delay Prior to Thermal

- 4Min — Set active CPU Thermal function after booting 4 Min.
- 8Min — Set active CPU Thermal function after booting 8 Min.
- 16Min — Set active CPU Thermal function after booting 16 Min. (Default Value)
- 32Min — Set active CPU Thermal function after booting 32 Min.

Integrated Peripherals

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Integrated Peripherals

On-Chip Primary PCI IDE	[Enabled]	Item Help
On-Chip Secondary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level
IDE Primary Slave PIO	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
IDE1 Conductor Cable	[Auto]	
IDE2 Conductor Cable	[Auto]	
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
Init Display First	[AGP]	
AC97 Audio	[Auto]	
Mouse Power On	[Disabled]	
Keyboard Power On	[Disabled]	
⇨KB Power ON Password	Enter	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
⇨RxD, TxD Active	Hi, Lo	
⇨IR Transmission Delay	Enabled	
⇨UR2 Duplex Mode	Half	
⇨Use IR Pins	IR-Rx2Tx2	

Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
⇨EPP Mode Select	EPP1.7	
⇨ECP Mode Use DMA	3	
AC BACK Function	[Soft-Off]	
Game Port Address	[201]	
Mdi Port Address	[330]	
Midi Port IRQ	[10]	
↴↴↴↴: 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

✍ On-Chip Primary PCI IDE

- Enabled — Enable onboard 1st channel IDE port. (Default value)
- Disabled — Disable onboard 1st channel IDE port.

✍ On-Chip Secondary PCI IDE

- Enabled — Enable onboard 2nd channel IDE port. (Default value)
- Disabled — Disable onboard 2nd channel IDE port.

✍ IDE Primary Master PIO (for onboard IDE 1st channel)

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Mode0~4 — Manually set the IDE Accessing mode.

✍ IDE Primary Slave PIO (for onboard IDE 1st channel)

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Mode0~4 — Manually set the IDE Accessing mode.

✍ IDE Secondary Master PIO (for onboard IDE 2nd channel)

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Mode0~4 — Manually set the IDE Accessing mode.

✍ IDE Secondary Slave PIO (for onboard IDE 2nd channel)

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Mode0~4 — Manually set the IDE Accessing mode.

✍ IDE Primary Master UDMA

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Disabled — Disable UDMA function.

✍ IDE Primary Slave UDMA

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Disabled — Disable UDMA function.

✍ IDE Secondary Master UDMA

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Disabled — Disable UDMA function.

✍ IDE Secondary Slave UDMA

- Auto — BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- Disabled — Disable UDMA function.

✍ IDE1 Conductor Cable

- Auto — Will be automatically detected by BIOS (Default Value)
- ATA66/100 — Set IDE1 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100)
- ATA33 — Set IDE1 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33)

✍ IDE2 Conductor Cable

- Auto — Will be automatically detected by BIOS (Default Value)
- ATA66/100 — Set IDE2 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100)
- ATA33 — Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

✍ USB Controller

- Enabled — Enabled USB Controller. (Default value)
- Disabled — Disabled USB Controller.

✍ 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)

✍ Init Display First

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

✍ AC97 Audio

- Auto — BIOS will automatically detect onboard AC97 Audio or Creative CT5880 audio. (Default value)
- Disabled — Disabled AC97 Audio.

✍ Mouse Power On

- Disabled — Disabled this function. (Default value)
- Double Right — Set mouse power on by double click mouse right bottom.
- Double Left — Set mouse power on by double click mouse left bottom.

✍ Keyboard Power On

- Password — Enter from 1 to 5 characters to set the Keyboard Power On Password.
- Disabled — Disabled this function. (Default value)
- Keyboard 98 — If your keyboard have "POWER Key" button, you can press the key to power on your system.
- Any Key — Set Keyboard power on by any key

✍ KB Power ON Password

- Enter — Input password (from 1 to 5 characters) and press Enter to set the Keyboard Power On Password..

✍ Onboard FDC Controller

- Enabled — Enable onboard FDC port. (Default value)
- Disabled — Disable onboard FDC port.

✍ Onboard Serial Port 1

- Auto — BIOS will automatically setup the port 1 address.
- 3F8/IRQ4 — Enable onboard Serial port 1 and address is 3F8. (Default value)
- 2F8/IRQ3 — Enable onboard Serial port 1 and address is 2F8.
- 3E8/IRQ4 — Enable onboard Serial port 1 and address is 3E8.
- 2E8/IRQ3 — Enable onboard Serial port 1 and address is 2E8.

- Disabled — Disable onboard Serial port 1.

✍ Onboard Serial Port 2

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

✍ UART Mode Select

(This item allows you to determine which Infra Red(IR) function of Onboard I/O chip)

- ASKIR — Set onboard I/O chip UART to ASKIR Mode.
- IrDA — Set onboard I/O chip UART to IrDA Mode.
- Normal — Set onboard I/O chip UART to Normal Mode. (Default Value)

✍ RxD, TxD Active

- Hi, Hi — Set RxD, TxD Active to Hi, Hi.
- Hi, Lo — Set RxD, TxD Active to Hi, Lo. (Default Value)
- Lo, Hi — Set RxD, TxD Active to Lo, Hi.
- Lo, Lo — Set RxD, TxD Active to Lo, Lo.

✍ IR Transmission Delay

- Enabled — Enabled IR Transmission delay. (Default Value)
- Disabled — Enabled IR Transmission delay.

✍ UR2 Duplex Mode

- Half — IR Function Duplex Half. (Default Value)
- Full — IR Function Duplex Full.

✍ Use IR Pins

- IR-Rx2xTx2 Set IR Pins use IR-Rx2x Tx 2. (Default Value)
- RxD2,TxD2 Set IR Pins use RxD2, TxD2.

✍ OnBoard Parallel port

- 378/IRQ7 Enable On Board LPT port and address is 378.(Default Value)
- 278/IRQ5 Enable On Board LPT port and address is 278.
- 3BC/IRQ7 Enable On Board LPT port and address is 3BC.

✍ Parallel Port Mode

- SPP Using Parallel port as Standard Parallel Port. (Default Value)
- EPP Using Parallel port as Enhanced Parallel Port.
- ECP Using Parallel port as Extended Capabilities Port.
- ECP+EPP Using Parallel port as ECP & EPP mode.

✍ EPP Mode Select

- EPP 1.9 EPP Version is 1.9.
- EPP 1.7 EPP Version is 1.7.(Default value)

✍ ECP Mode Use DMA

- 3 Set ECP mode use DMA 3. (Default value)
- 1 Set ECP mode use DMA 1.

✍ AC Back Function

- Memory System power on depends on the status before AC lost.
- Soft-Off Always in Off state when AC back. (Default value)
- Full-On Always power on the system when AC back.

Game Port Address

- Disabled — Disabled this function.
- 201 — Set Game Port Address to 201. (Default Value)
- 209 — Set Game Port Address to 209.

Midi Port Address

- Disabled — Disabled this function.
- 290 — Set Midi Port Address to 290.
- 300 — Set Midi Port Address to 300.
- 330 — Set Midi Port Address to 300.(Default Value)

Midi Port IRQ

- 5 — Set 5 for Midi Port IRQ.
- 10 — Set 11 for Midi Port IRQ. (Default Value)

Power Management Setup

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

Power Management Setup

ACPI Suspend Type	[S1(POS)]	Item Help
☞USB Device Wake-Up From S3	Disabled	
Power Management	[User Define]	Menu Level
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-off]	
PME Event Wake Up	[Enabled]	
Modem Ring On/Wake On Lan	[Enabled]	
Resume by Alarm	[Disabled]	
☞Date(of Month) Alarm	Everyday	
☞Time(hh:mm:ss) Alarm	0 0 0	
** Reload Global Timer Events **		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD,COM,LPT Port	[Disabled]	
PCI PIRQ[A-H]#	[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: Power Management Setup

✍ ACPI Suspend Type

S1/POS	Set ACPI Suspend Type to S1/POS (Power On Suspend). (Default value)
S3/STR	Set ACPI Suspend Type to S3/STR (Suspend To RAM).

✍ USB Device Wakeup From S3

Enabled	Enable USB Device Wakeup From S3.
Disabled	Disable USB Device Wakeup From S3. (Default value)

✍ Power Management

User Define	For configuring our own power management features (Default Value)
Min Saving	Disabled Green & software APM function.
Max Saving	Enabled Green & software APM function.

✍ Video off Method

V/H SYNC+Blank	BIOS will turn off V/H-SYNC when gets into Green mode for Green monitor power saving.
Blank Screen	BIOS will only black monitor when gets into Green mode.
DPMS	BIOS will use DPMS Standard to control VGA card. (The Green type VGA card will turn off V/H-SYNC automatically.)(Default value)

✍ Video Off In Suspend

Yes	Set Suspend type is stop grant. (Default value)
No	Set Suspend type is Power on Suspend.

✍ Suspend Type

Stop Grant	Set Suspend type is stop grant. (Default value)
PwrOn Suspend	Set Suspend type is Power on Suspend.

✍ MODEM Use IRQ

- N/A — Set MODEM Use IRQ to NA.
- 3 — Set MODEM Use IRQ to 3. (Default value)
- 4 — Set MODEM Use IRQ to 4.
- 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.

✍ Suspend Mode

- Disabled — **Disabled Suspend Mode** (Default value)
- 1 min - 1 Hour — Setup the timer to enter Suspend Mode.

✍ HDD Power Down

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

✍ Soft-off by PWR-BTTN

- Instant-off — Press power button then Power off instantly. (Default value)
- Delay 4 Sec. — Press power button 4 sec to Power off. Enter suspend if button is pressed less than 4 sec.

✍ PME Event Wake up

- Disabled — Disabled PME Event Wake up function.
- Enabled — Enabled PME Event Wake up function. (Default Value)

✍ Modem Ring On/ WakeOnLAN

- Disabled — Disabled Modem Ring On / Wake On LAN function.
- Enabled — Enabled Modem Ring On / Wake On LAN function. (Default Value)

✍ Resume by Alarm

You can set "Resume by Alarm" 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.

Date (of Month) Alarm : Everyday, 1~31

Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

✍ Primary IDE 0/1

- Disabled — Disabled this function. (Default value)
- Enabled — Enabled monitor Primary IDE 0/1 for Green event.

✍ Secondary IDE 0/1

- Disabled — Disabled this function. (Default value)
- Enabled — Enabled monitor Secondary IDE 0/1 for Green event.

✍ FDD,COM,LPT Port

- Disabled — Disabled this function. (Default value)
- Enabled — Enabled monitor FDC, COM, LPT for Green event.

✍ PCI PIRQ[A-H]

- Enabled — Monitor PCI PIRQ[A-H]# IRQ Active.
- Disabled — Ignore PCI PIRQ[A-H]# IRQ Active. (Default value)

PnP/PCI Configurations

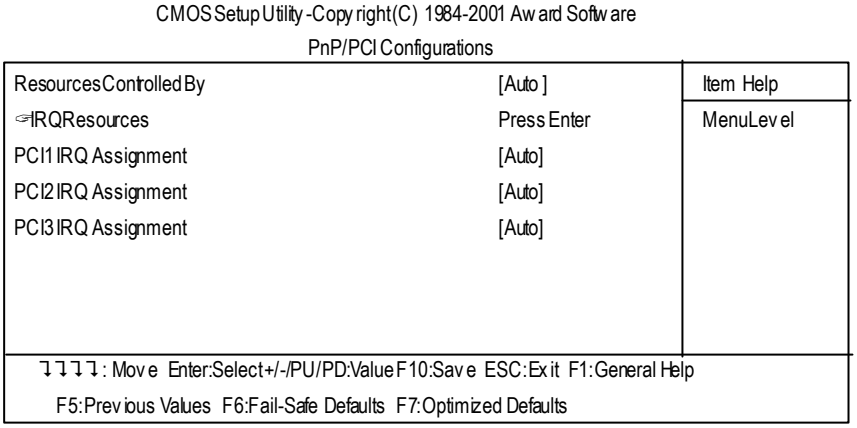

Figure 7: PnP/PCI Configurations

✍ 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 (3,4,5,7,9,10,11,12,15)

- PCI Device — The resource is used by PCI device.
- Reserved — Set the resource to reserved.

✍ PCI1 IRQ Assignment

- Auto — Auto assign IRQ to PCI 1. (Default value)
- 3,4,5,7,9..,10,11,12,15 — Set 3,4,5,7,9,10,11,12,15 to PCI1/ PCI5.

✍ PCI2 IRQ Assignment

- Auto — Auto assign IRQ to PCI 2. (Default value)
- 3,4,5,7,9..,10,11,12,15 — Set 3,4,5,7,9,10,11,12,15 to PCI2/ PCI6.

✍ PCI3 IRQ Assignment

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

PC Health Status

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PC Health Status

Reset Case Open Status	[Disabled]	
Case Opened	No	
VCORE	1.746V	Item Help
+3.3V	3.296V	MenuLevel
+ 5V	5.080 V	
+12V	11.904V	
Current System Temperature	34°C/93°F	
Current CPU Temperature	45°C/113°F	
Current CPU FAN Speed	4821 RPM	
Current POWER FAN Speed	0 RPM	
Current SYSTEM FAN speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
POWER FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	

↑↓→←: 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

☞**Reset Case Open Status**

☞**Case Opened**

If the case is closed, "Case Opened" will show "No".

If the case have been opened, "Case Opened" will show "Yes".

If you want to reset "Case Opened" value, set "Reset Case Open Status" to "Enabled" and save CMOS, your computer will restart.

✍**Current Voltage (V) VCORE/ +3.V / +5V / +12V**

Detect system's voltage status automatically.

✍ Current CPU/ SYSTEM Temperature (°C)

Detect CPU/SYSTEM Temp. automatically.

✍ Current CPU FAN / POWER FAN/ SYSTEM FAN Speed (RPM)

Detect Fan speed status automatically.

✍ 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 Fail Warning (CPU/ POWER / SYSTEM)

- Disabled Fan Fail Alarm Function Disabled. (Default value)
- Enabled Fan Fail Alarm Function Enabled.

Frequency/Voltage Control

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

CPU Clock Ratio	[x 15]	Item Help
CPU Host Clock Control	[Disable]	Menu Level
CPU Host Frequency (MHz)	100	
Host/DRAM Clock ratio	[Auto]	
Memory Frequency (MHz)	266	
PCI/AGP Frequency (MHz)	33/66	
↑↓→←: 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 Clock Ratio

Set CPU Ratio if CPU Ratio is unlocked.

- X8~X 24 — It's depends on CPU Clock Ratio.

✍ CPU Host Clock Control

Note: If system hangs up before enter CMOS setup utility, wait for 10 sec for times out reboot. When time out occur, system will reset and run at CPU default Host clock at next boot.

- Disable — Disable CPU Host Clock Control.(Default value)
- Enable — Enable CPU Host Clock Control.

✍ CPU Host Frequency

- 100MHz ~ 200MHz Set CPU Host Clock from 100MHz to 200MHz.

✍ Host/DRAM Clock Ratio

(Warning: wrong frequency may make system can't boot, clear CMOS to overcome wrong frequency issue)

- 2.0 Memory Frequency = Host clock X 2.0.
- 2.66 Memory Frequency = Host clock X 2.66.
- Auto Set Memory frequency by DRAM SPD data. (Default value)

☞ PCI/AGP Frequency(Mhz)

- The values depend on CPU Host Frequency (Mhz).

☞ Memory Frequency(Mhz)

- The values depend on CPU Host Frequency (Mhz).

Load Fail-Safe Defaults

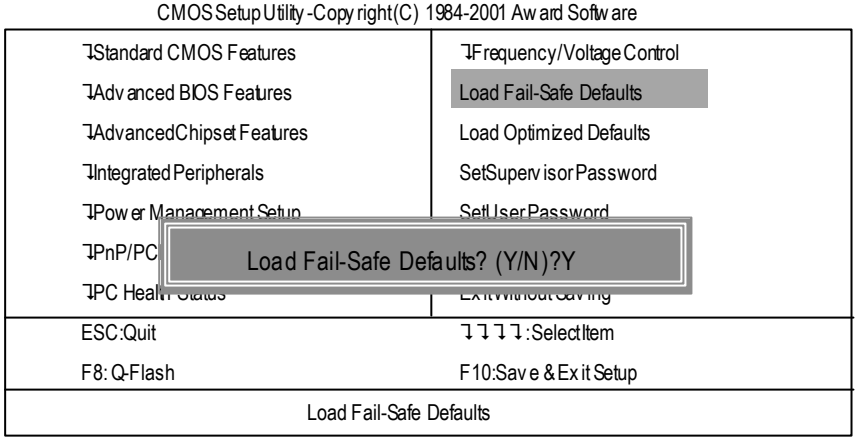


Figure 11: Load Fail-Safe Defaults

✍ Load Fail-Safe Defaults

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

Load Optimized Defaults

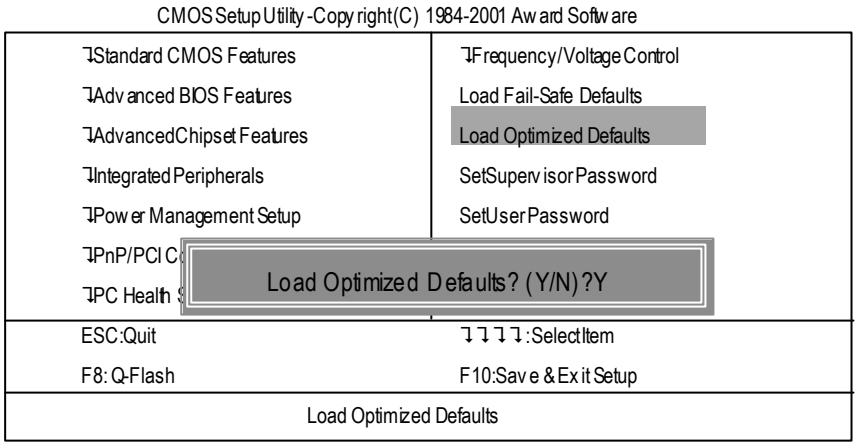


Figure 12: Load Optimized Defaults

✍ Load Optimized Defaults

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

Set Supervisor/User Password

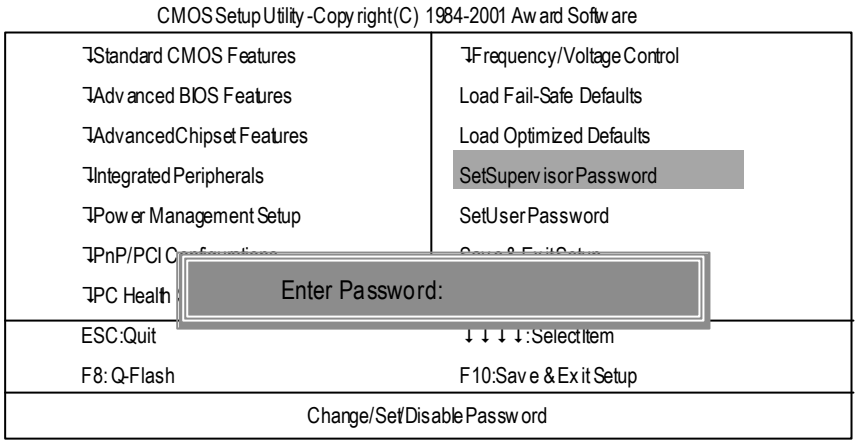


Figure 13: Password Setting

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: a 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

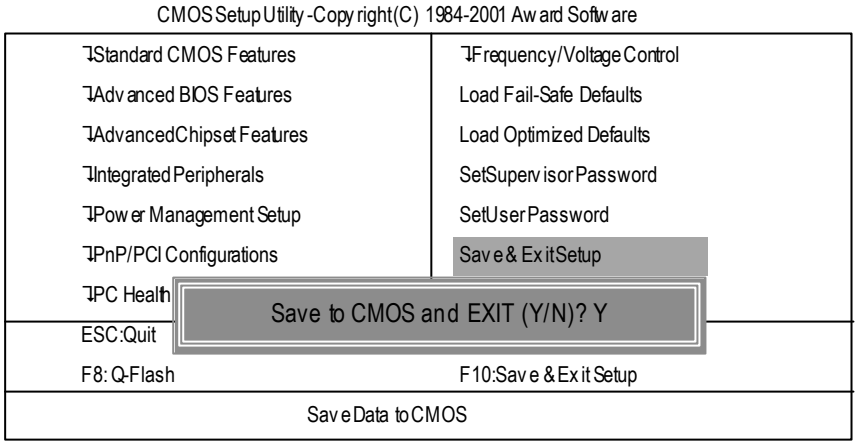


Figure 14: Save & Exit Setup

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

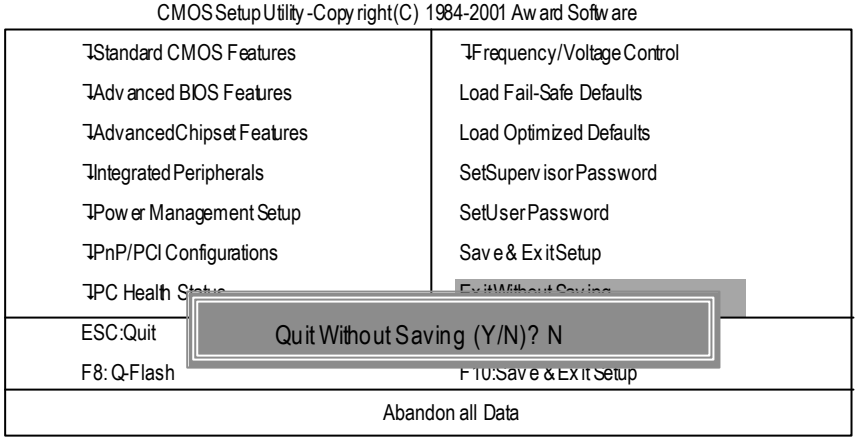


Figure 15: Exit Without Saving

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

Type “N” will return to Setup Utility.

Chapter 4 Technical Reference

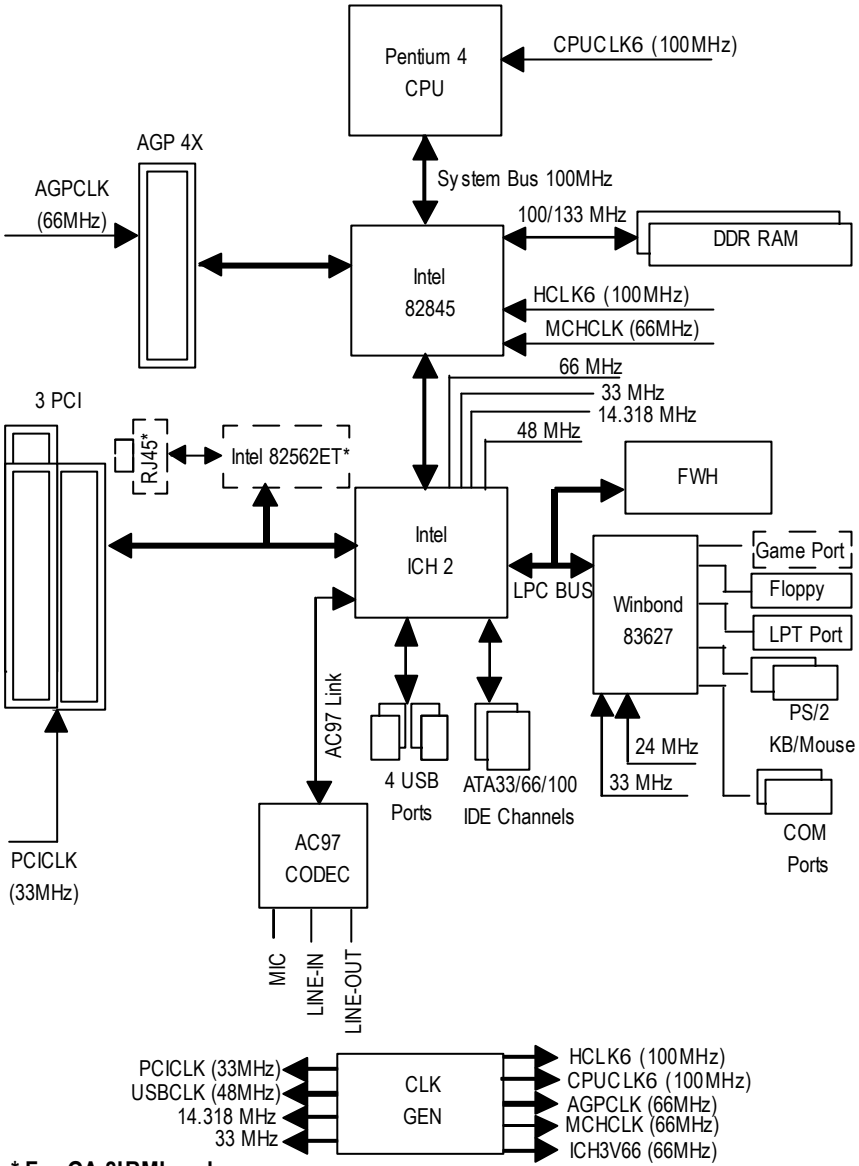
Performance List

The following performance data list is the testing results of some popular benchmark testing programs. These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

CPU	Intel Pentuim® 4 2GHz processor
DDR RAM	(128 x 2) MB RAM (NANYA NT5DS16M8AT-7K S)
CACHE SIZE	256KB included in CPU
DISPLAY	Gigabyte GV-GF3000D (NUCD 1.9)
STORAGE	Onboard IDE (Quantum AS30000AT 30GB)
O.S	Windows 2000+ SP2+DX 8.0a
DRIVER	Display Driver at 1024 x 768 x 64K colors x 75Hz IUCD ver. 1.9 For Intel chipset M.B.

Processor	Intel Pentium® 4 2GHz (100x20)
WCPUID 3.0D Clock Frequency	
Internal MHz	2019.88
External MHz	100.99
SiSoft Sandra 2001	
CPU/FPU Benchmark	3895/2484
CPU Multi-Media Benchmark	8025/9945
Drives Benchmark	20663
Memory Benchmark	1015/1073
SPECviewperf 6.12	
Pro CDRS-03	14.76
MedMCAD-01	30.19
Light-04	8.283
DX-06	27.13
DRV-07	18.18
Awadvs-04	62.11
QUAKE III Arena (without sound)	
640*480*16 Demo1	199.2
1024*768*32 Demo2	181.2
3D Mark 2001 1.0	6852

Block Diagram



*** For GA-8IRML only .**

@ 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 internetand 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 Easy TuneIII, 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 (IUCD driver version 1.9)

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.

A. Installing Intel 845 Chipset Driver

Please install this driver as the first priority. this item installs the chipset driver utility that enableds Plug-n-Plag INF support for Intel chipset component.

B. Installing Sound Driver

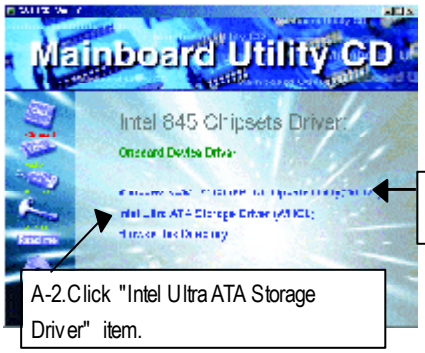
Click this item to install sound driver.

C. Installing LAN Driver*

Click this item to install LAN driver.

Appendix A: Intel 845 Chipset Driver Installation

Follow the setup that showing on the scween to install the Utility.



A-1.Click "Windows 9x/ME/2000/XP INF Update Utility" item.

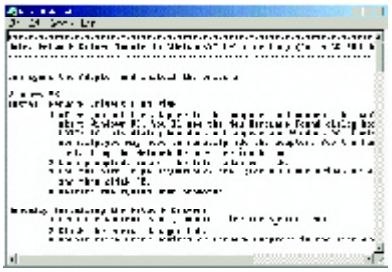
A-2.Click "Intel Ultra ATA Storage Driver" item.

*** For GA-8IRML Only.**

Appendix B: RealTek AC'97 Audio Driver

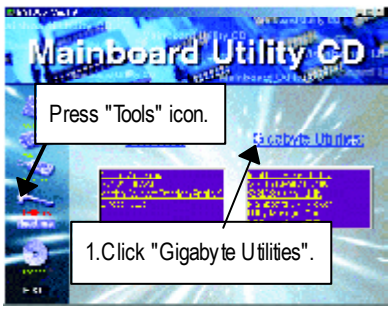
Appendix C: Intel 82562 Network Driver* (*For GA-8IRML Only)

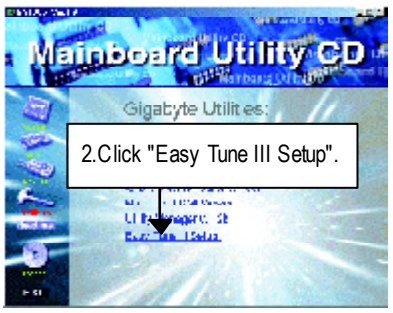
"Intel 82562 Network Driver" under Windows ME will auto install. If you would like to install LAN driver, please refer to attached README.txt file for detail instruction. Please install the driver through CD-ROM by the path D:\Network\Rtl (This manual assumes that your CD-ROM device drive letter is D:).



Appendix D:

1.EasyTuneIII Utilities Installation

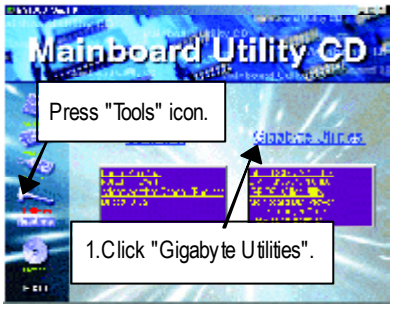




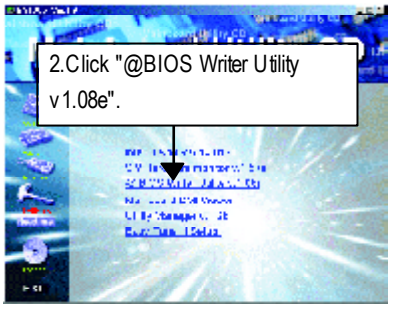
Appendix E: BIOS Flash Procedure

BIOS update procedure:

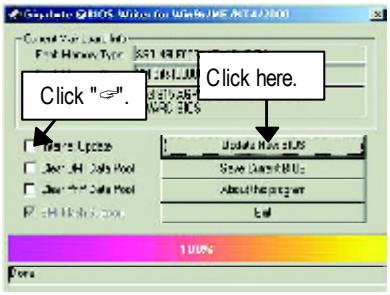
If your OS is Win9X, we recommend that you used Gigabyte @BIOS™ Program to flash BIOS.



(1)



(2)



(3)

Methods and steps:

I. Update BIOS through Internet

a. Click "Internet Update" icon
b. Click "Update New BIOS" icon
c. Select @BIOS™ sever ("Gigabyte @BIOSTM sever 1 in Taiwan" and "Gigabyte @BIOS™ sever 2 in Taiwan" are available for now, the others will be completedsoon)
d. Select the exact model name on your motherboard
e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:

a. Do not click "Internet Update" icon
b. Click "Update New BIOS"
c. Please select "All Files" in dialog box while opening the old file.
d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: 8IRX.F1).
e. Complete update process following the instruction.

III. Save BIOS

In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:

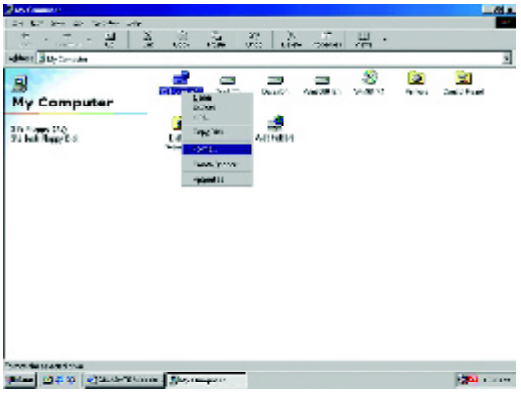
In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.

Note:

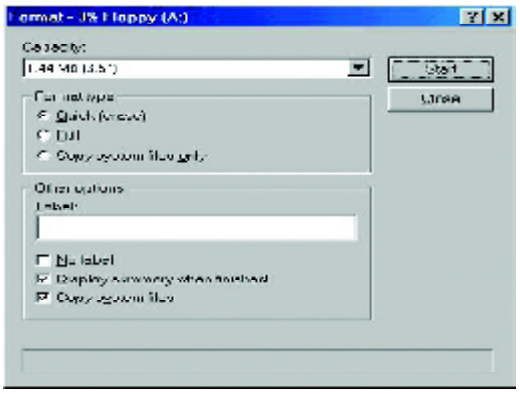
a. In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.
b. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.
c. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's web site for downloading and updating it according to method II.
d. Please note that any interruption during updating will cause system unbooted

We use GA-7VTX motherboard and Flash841 BIOS flash utility as example.
Please flash the BIOS according to the following procedures if you are now under the DOS mode.
Flash BIOS Procedure:
STEP 1:
(1) Please make sure you have set "Auto" for BIOS Feature Setup (BIOS Flash Protection). For more detail please refer to page 32.
(2) Please make sure your system has installed the extraction utility such as winzip or pkunzip. Firstly you have to install the extraction utility such as winzip or pkunzip for unzip the files. Both of these utilities are available on many shareware download pages like http://www.shareware.cnet.com

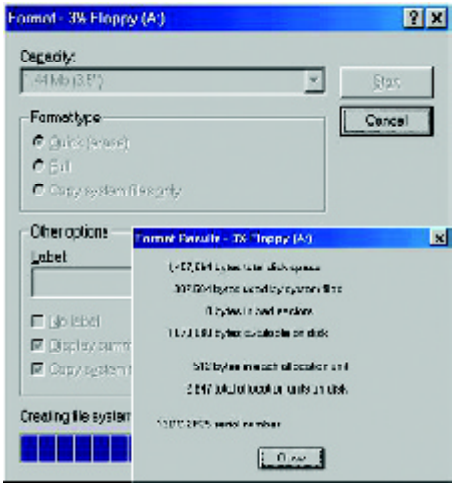
STEP 2: Make a DOS boot diskette. (See example: Windows 98 O.S.)
Beware: Windows ME/2000 are not allowed to make a DOS boot diskette.
(1) With an available floppy disk in the floppy drive. Please leave the diskette "UN-write protected" type. Double click the "My Computer" icon from Desktop, then click "3.5 diskette (A)" and right click to select "Format (M)"



(2) Select the "Quick (erase)" for Format Type, and pick both "Display summary when finished" and "Copy system files", after that press "Start". That will format the floppy and transfer the needed system files to it.
Beware: This procedure will erase all the prior data on that floppy, so please proceed accordingly.



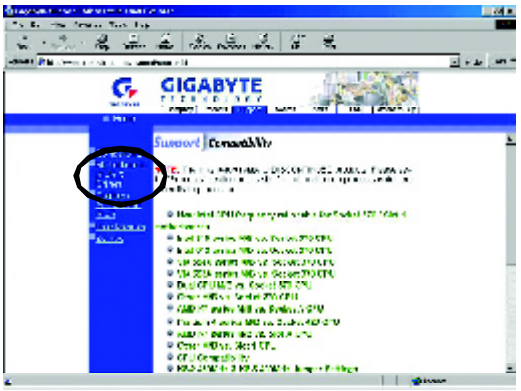
(3) After the floppy has been formatted completely, please press "Close".



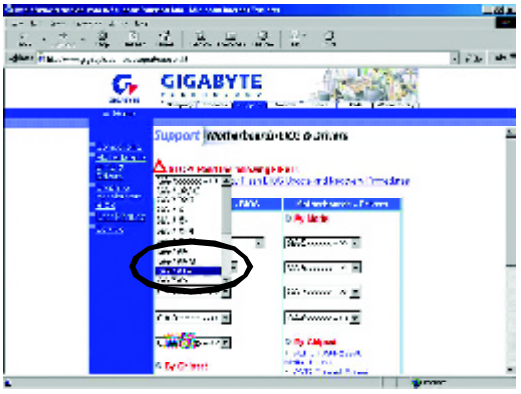
STEP 3: Download BIOS and BIOS utility program.

(1) Please go to Gigabyte website http://www.gigabyte.com.tw/index.html, and click "Support".

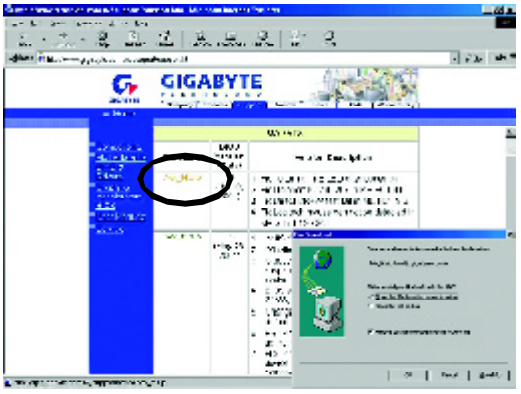
(2) From Support zone, click the "Motherboards BIOS & Drivers".



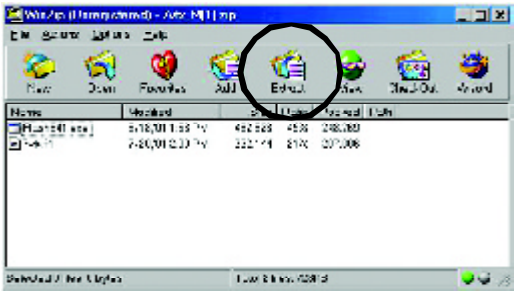
(3) We use GA-7VTX motherboard as example. Please select GA-7VTX by Model or Chipset optional menu to obtain BIOS flash files.



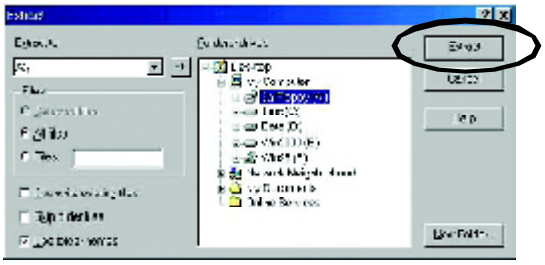
(4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".



(5) At this time the screen shows the following picture, please click "Extract" button to unzip the files.



(6) Please extract the download files into the clean bootable floppy disk A mentioned in STEP 2, and press "Extract".



STEP 4: Make sure the system will boot from the floppy disk.

(1) Insert the floppy disk (contains bootable program and unzip file) into the floppy drive A. Then, restart the system. The system will boot from the floppy disk. Please press <DEL> key to enter BIOS setup main menu when system is boot up.

(2) Once you enter the BIOS setup utility, the main menu will appear on the screen. Use the arrows to highlight the item "BIOS FEATURES SETUP".

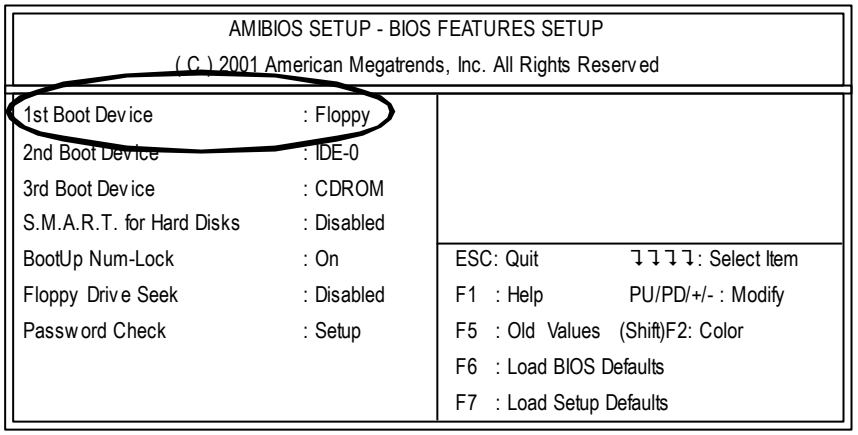
AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b
(C) 1999 American Megatrends, Inc. All Rights Reserved

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

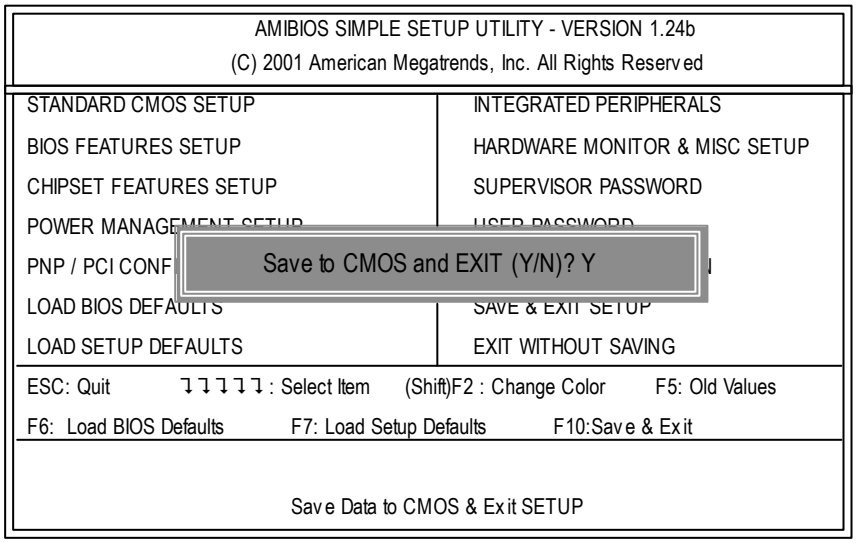
ESC: Quit ↑↓→←: Select Item (Shift)F2 : Change Color F5: Old Values
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit

Time, Date , Hard Disk Type...

(3) Press "Enter" to enter "BIOS FEATURES SETUP" menu. Use the arrows to highlight the item "1st Boot Device", and then use the "Page Up" or "Page Down" keys to select "Floppy".



(4) Press "ESC" to go back to previous screen. Use the arrows to highlight the item "SAVE & EXIT SETUP" then press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

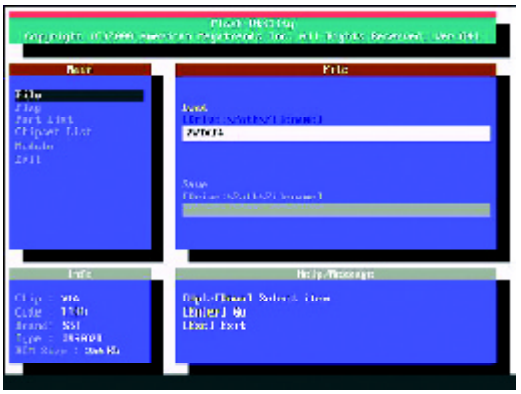


STEP 5: BIOS flashing.

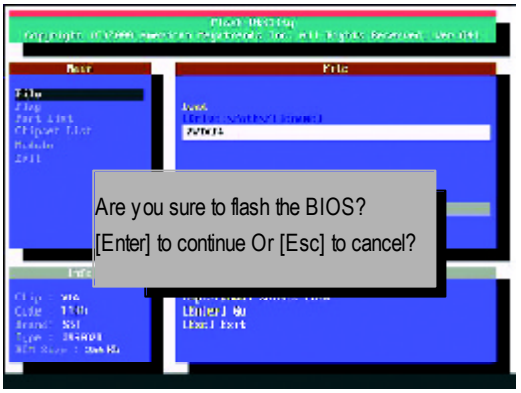
(1) After the system boot from floppy disk, type "A:\> dir/w" and press "Enter" to check the entire files in floppy A. Then type the "BIOS flash utility" and "BIOS file" after A:\>. In this case you have to type "A:\> Flash841 7VTX.F4" and then press "Enter".

```
Starting Windows 98...

Microsoft(R) Windows98
   © Copyright Microsoft Corp 1981-1999

A:\> dir/w
   Volume in drive A has no label
Volume Serial Number is 16EB-353D
Directory of A:\
COMMAND.COM     7VTX.F4    FLASH841.EXE
            3 file(s)       838,954  bytes
            0 dir(s)        324,608  bytes free

A:\> Flash841 7VTX.F4
```

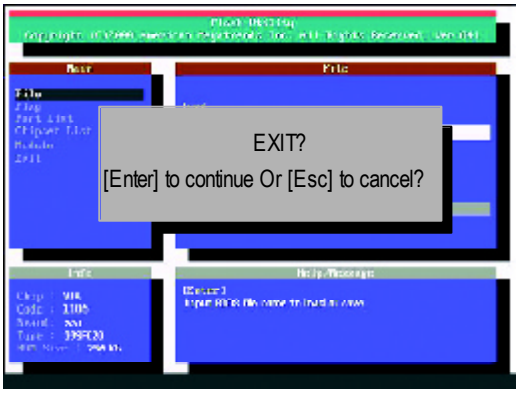
(2) Now screen appears the following Flash Utility main menu. Press "Enter", the highlighted item will locate on the model name of the right-upper screen. Right after that, press "Enter" to start BIOS Flash Utility.



(3) It will pop up a screen and asks "Are you sure to flash the BIOS?" Press [Enter] to continue the procedure, or press [ESC] to quit.
Beware: Please do not turn off the system while you are upgrading BIOS. It will render your BIOS corrupted and system totally inoperative.



(4) The BIOS flash completed. Please press [ESC] to exit Flash Utility.

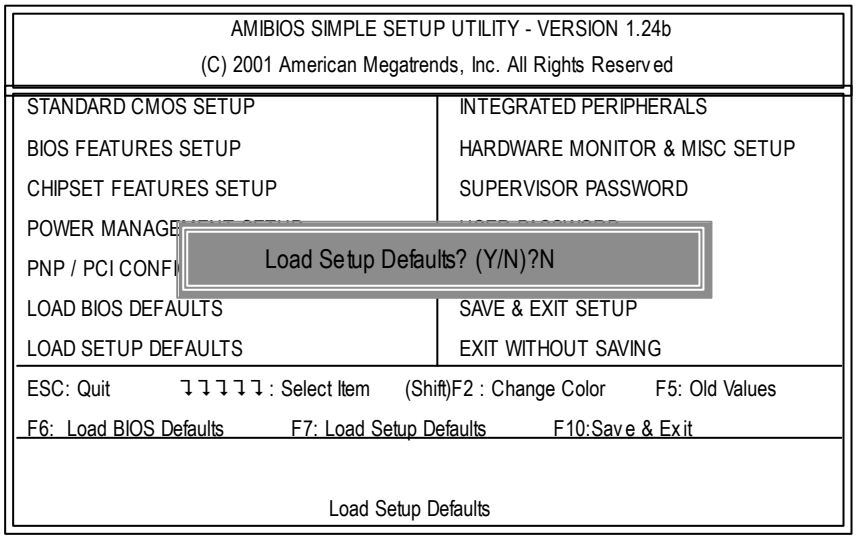


STEP 6: Load BIOS defaults.

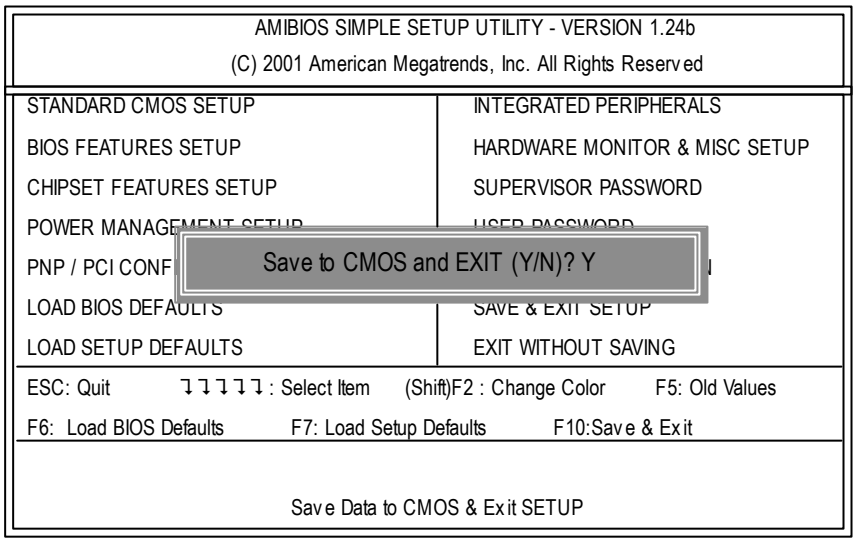
Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded. This important step resets everything after the flash.

(1) Take out the floppy diskette from floppy drive, and then restart the system. The boot up screen will indicate your motherboard model and current BIOS version.

(2) Don't forget to press <DEL> key to enter BIOS setup again when system is boot up. Use the arrows to highlight the item "LOAD SETUP DEFAULTS" then press "Enter". System will ask "Load Setup Defaults (Y/N)?" Press "Y" and "Enter" keys to confirm.



(3) Use the arrows to highlight the item "SAVE & EXIT SETUP" and press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.



(4) Congratulate you have accomplished the BIOS flash procedure.

Appendix G: 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: