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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 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. :F2)

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	SelectLanguage
↵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
↵Frequency/Voltage Control	
ESC:Quit	F3:ChangeLanguage
F8:Dual BIOS /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.

✍ **Select Language**

This setup page is select multi language.

✍ **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		Item Help
Date (mm:dd:yy)	Mon, Feb 21 2000	MenuLevel
Time (hh:mm:ss)	22:31:24	
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 F3: Language 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. Forex ample, 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.

- ☞ Capacity: The hard disk size. The unit is Mega Bytes.
- ☞ Access Mode: The options are: Auto / Large / LBA / Normal.
- ☞ Cylinder: The cylinder number of hard disk.
- ☞ Head: The read / Write head number of hard disk.
- ☞ Precomp: The cylinder number at which the disk driver changes the write current.
- ☞ Landing Zone: The cylinder number that the disk driver heads (read/write) are seated when the disk drive is parked.
- ☞ SECTORS: The sector number of each track define on the hard disk.

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: Enabled 3 mode function of Drive A.
- ☞ Drive B: Enabled 3 mode function of Drive B.
- ☞ 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 Keyboard** The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
-  **All, But Diskette** The system boot will not stop for a disk error; it will stop for all other errors.
-  **All, But Disk/Key** The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Memory

The category is display-only which is determined by POST (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]	MenuLevel
Third Boot Device	[CDROM]	
Boot Up Floppy Seek	[Disabled]	
Boot Up Num-Lock	[On]	
Password Check	[Setup]	
Interrupt Mode	[APIC]	
MPS Version Control For OS	[1.4]	
HDDS.M.A.R.T. Capability	[Disabled]	
↓↓↓↓ : Move Enter:Select+/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F3:Language F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3: Advanced BIOS Features

BIOS Flash Protection

This feature allows you to 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

This feature allows you to select the boot device priority.

-  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

When set On, allows the BIOS to automatically enable the Num Lock Function when the system boots up.

-  On Keypad is number keys. (Default value)
-  Off Keypad is arrow keys.

Password Check

This feature 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

-  **IOAPIC** Through IOAPIC generate more IRQ for system use. (Default value)
-  **PIC** Use AT standard IRQ controller to generate IRQ.

When you already have IOAPIC enabled 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

[When two CPUs onboard \(not this board\) this feature allows you to select MPS \(Multi Processor Specification\) version control for OS when logo test executes.](#)

(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

[S.M.A.R.T. stands for Self-Monitoring and Analysis Reporting Technology which allows your hard disk drive to report any read/write errors and issue a warning with LDCM installed.](#)

-  **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	[15.6 usec]	
DRAM Data Integrity 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 F3: Language 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

This feature allows you to select the CAS latency Time. When any DDR DIMM installed.

- ☞ 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**

This feature allows you to set Active to Precharge Delay. When any DDR DIMM installed.

- ☞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**

This feature allows you to set the delay time that from the DRAM RAS# active to CAS#.

- ☞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**

This feature allows you to set the DRAM RAS# Precharge Time.

- ☞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.
- ☞64 usec Set active to Refresh mode timing is 64 usec.

☞ **DRAM Data Integrity Mode**

This feature allows you to set the DRAM data Integrity Mode

- ☞Non-ECC Set the DRAM data Integrity Mode is Non-ECC (Default)
- ☞ECC Set the DRAM data Integrity Mode is ECC.

☞ **DRAM Read Thermal Mgmt**

This feature allows you to set the DRAM Read Thermal Management register which in the chip of Intel 845 for the trade-off between system temperature and performance.

- ☞Disabled Disabled this function. (Default)

 Enabled Enabled can reduce DRAM heat issue.

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

Delay Transaction

 Disabled Normal operation.

 Enabled Setting at Enabled will abort the current PCI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master. it will enhance the system performance.

AGP Graphics Aperture Size

(This feature allows you to select the main memory frame size for AGP use)

 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

This feature allows you to select the 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

		Item Help
On-Chip Primary PCI IDE	[Enabled]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	MenuLevel
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]	
AC97 Modem	[Auto]	
Onboard Sound	[Enabled]	
Power On by Mouse	[Disabled]	
Power On by Keyboard	[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]	
⇐UR2 Duplex Mode	Half	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	

⊞ECP Mode Use DMA	3	
AC BACK Function	[Soft-Off]	
CIR Port Address	[Disabled]	
⊞CIR Port IRQ	11	
↓↓↓↓: Move Enter:Select+/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F3:Language F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 5: Integrated Peripherals

⊞ **On-Chip Primary PCI IDE**

When enabled, allows you to use the onboard primary PCI IDE. If a hard disk controller card is used, set at Disabled.

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

⊞ **On-Chip Secondary PCI IDE**

When enabled, allows you to use the onboard secondary PCI IDE. If a hard disk controller card is used, set at Disabled.

- ⊞ 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

Disable this option if you are not using the onboard USB feature.

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

☛ USB Keyboard Support

When a USB keyboard is installed, please set at Enabled.

- ☛ 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

This feature allows you to select the first initiation of the monitor display from which card, when you install an AGP VGA card and a PCI VGA card on board.

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

AC97 Audio

[This feature allows you to enable or disable the AC97 audio function.](#)

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

AC97 Modem

-  Auto BIOS will search MC97 Codec (AMR Modem Card). If found, MC97 function will be enabled. If no MC97 Codec found, MC97 function will be disabled. (Default Value)
-  Disabled Disable this function.

Onboard Sound

-  Enable Enable onboard sound function. (Default value)
-  Disable Disable onboard sound function.

Power On By Mouse

-  Disabled Disabled this function. (Default value)
-  Mouse Click Set mouse double click to power on system.

Power On By Keyboard

[This feature allows you to set the method for powering-on the system.](#)

[The option "Password" allows you to set up to 5 alphanumeric characters to power-on the system.](#)

[The option "Any Key" allows you to touch the keyboard to power on the system.](#)

[The option "Keyboard 98" allows you to use the standard keyboard 98 to power on the system.](#)

-  Password Enter from 1 to 5 characters to set the Keyboard Power On Password.

- Disabled Disabled this function. (Default value)
- Key board 98 If our keyboard have "POWER Key" buton, you can press the key to power on our system.

KB Power ON Password

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

Onboard FDC Controller

When enabled, the floppy diskette drive (FDD) controller is activated.

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

-  ASKIR Using as IR and set to ASKIR Mode.
-  IrDA Using as IR and set to IrDA Mode.
-  Normal Using as standard serial port (Default Value)
-  SCR Using as smart card Interface.

UR2 Duplex Mode

This feature allows you to select the IR modes.

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

OnBoard Parallel port

This feature allows you to select from a given set of parameters if the parallel port uses the onboard I/O controller.

-  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

This feature allows you to connect with an advanced print via the port mode it supports.

-  SPP Using Parallel port as Standard Parallel Port using IRQ7. (Default Value)
-  EPP Using Parallel port as Enhanced Parallel Port IRQ5.
-  ECP Using Parallel port as Extended Capabilities Port using IRQ7.
-  ECP+EPP Using Parallel port as ECP & EPP mode.

ECP Mode Use DMA

This feature allows you to select Direct Memory Access(DMA) channel if the ECP mode selected.

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

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.

CIR Port Address

This feature allows you to select CIR port address or disable it.

- ☛ Disabled Disabled this function. (Default Value)
- ☛ 310 Set CIR Port Address to 310.
- ☛ 320 Set CIR Port Address to 320.

CIR Port IRQ

This feature allows you to select CIR IRQ, if CIR is enabled.

- ☛ 5 Set 5 for CIR Port IRQ.
- ☛ 11 Set 11 for CIR Port IRQ. (Default Value)

Power Management Setup

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Power Management Setup

ACPI Suspend Type	[S1(POS)]	Item Help
☞ USB Device Wake-Up From S3	Disabled	Menu Level
Power Management	[User Define]	
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 F3: Language F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Figure 6: Power Management Setup

ACPI Suspend Type

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

USB Device Wake-up From S3

When set at Enabled, it allows USB Device to activate the system from ACPI S3 power saving mode.

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

Power Management

This feature allows you to adjust the power management item.

-  User Define For configuring our own power management features (Default Value)
-  Min Saving Minimum power savings in suspend mode.
-  Max Saving Maximum power savings in suspend mode.

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

This feature allows you to select VGA status when system goes to suspend mode.

-  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)

 PwrOnSuspend SetSuspend type is Power on Suspend.

MODEM Use IRQ

This feature allows you to select the IRQ# to meet your modem's IRQ#.

-  N/A SetMODEM Use IRQ to NA.
-  3 Set MODEM Use IRQ to 3.(Default value)
-  4 SetMODEM Use IRQ to 4.
-  5 SetMODEM Use IRQ to 5.
-  7 SetMODEM Use IRQ to 7.
-  9 SetMODEM Use IRQ to 9.
-  10 SetMODEM Use IRQ to 10.
-  11 SetMODEM Use IRQ to 11.

Suspend Mode

When disabled, the system will not enter suspend mode. The specified time option defines the idle time the system takes before it enters suspend mode.

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

HDD Power Down

The option lets the BIOS turn the HDD motor off when system is in suspend mode. Selecting 1 Min..15Min allows you define the HDD idle time before the HDD enters the Power saving Mode. The options 1Min..15Min will not work concurrently. When HDD is in the Power Saving Mode, any access to the HDD will wake the HDD up.

-  Disabled Disabled HDD Power Down mode function. (Default value)
-  1-15mins. Enabled HDD PowerDown 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**

When set at Enabled, any PCI-PM event awakes the system from a PCI-PM controlled state.

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

✎ **Modem Ring On/ WakeOnLAN**

An incoming call via modem awakes the system from its soft-off mode./When set at Enabled, an input signal comes from the other client/server on the LAN awarks the system from a soft off state if connected over LAN.

-  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 Date/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**

When the primary master/slave HDD is working, the system timer will be reloaded and the system will not be into the system will not be into suspend mode.

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

✎ **Secondary IDE 0/1**

When the secondary master/slave HDD is working, the system timer will be reloaded and the system will not be into the system will not be into suspend mode.

-  Disabled Disabled this function. (Default value)

 Enabled Enabled monitor Secondary IDE 0/1 for Green event.

 **FDD,COM,LPT Port**

When FDD, COM, or LPT is working, the system timer will be reloaded and the system will not be into the system will not be into suspend mode.

 Disabled Disabled this function. (Default value)

 Enabled Enabled monitor FDC,COM,LPT for Green event.

 **PCI PIRQ[A-H] #**

When the PCI PIRQ[A-H]# has been alerted, the system timer will be reloaded and the system will not be into the system will not be into suspend mode.

 Enabled Monitor PCI PIRQ[A-H]# IRQ Active.

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

PnP/PCI Configurations

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PnP/PCI Configurations

Resources Controlled By	[Auto]	Item Help
IRQ Resources	Press Enter	Menu Level
PCI1/PCI5 IRQ Assignment	[Auto]	
PCI2/PCI6 IRQ Assignment	[Auto]	
PCI3 IRQ Assignment	[Auto]	
PCI4 IRQ Assignment	[Auto]	
↑↓↓↓: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F3: Language F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

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 BIOS automatically use these PnP resources. (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/PCI5 IRQ Assignment

- Auto Auto assign IRQ to PCI 1/ PCI 5. (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/PCI6 IRQ Assignment

- Auto Auto assign IRQ to PCI 2/ PCI 6. (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 Set3,4,5,7,9,10,11,12,15 to PCI3.

PCI4 IRQ Assignment

- Auto Auto assign IRQ to PCI 4. (Default value)
- 3,4,5,7,9,10,11,12,15 Set3,4,5,7,9,10,11,12,15 to PCI4.

PC Health Status

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PC Health Status		
Reset Case Open Status	[Disabled]	
Case Opened	No	
VCORE	1.746V	Item Help
VCC18	1.792V	
+3.3V	3.296V	MenuLevel
+5V	5.080V	
+12V	11.904V	
Current CPU Temperature	39°C	
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 F3: Language 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 /VCC18/ +5V / +12V

Detect system's voltage status automatically.

⚙ **Current CPU Temperature (°C)**

Detect CPU Temp. automatically.

⚙ **Current CPU FAN / POWER / SYSTEM FAN Speed (RPM)**

Detect Fan speed status automatically.

⚙ **CPU Warning Temperature**

- 🔇 60°C / 140°F Monitr CPU Temp. at60°C / 140°F.
- 🔇 70°C / 158°F Monibr CPU Temp. at70°C / 158°F.
- 🔇 80°C / 176°F Monibr CPU Temp. at80°C / 176°F.
- 🔇 90°C / 194°F Monibr CPU Temp. at90°C / 194°F.
- 🔇 Disabled Don'tmonitor current temperature.(Default v alue)

⚙ **Fan Fail Warning (CPU/ POWER / SYSTEM)**

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

Frequency/Voltage Control

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Frequency/Voltage Control

CPUClock Ratio	[x 15]	Item Help
CPUHost Clock Control	[Disable]	MenuLevel
CPUHostFrequency (MHz)	[100]	
HostDRAM Clock ratio	[Auto]	
Memory Frequency (MHz)	[266]	
PCIAGPFrequency (MHz)	[33/66]	
DIMM OverVoltage Control	[Normal]	
APG OverVoltage Control	[Normal]	
↑↑↑↑: Move Enter:Select+/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F3:Language 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~X24

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.

☞ **PCI/AGP Frequency(Mhz)**

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

☞ **Memory Frequency(Mhz)**

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

☞ **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 SetMemory frequency by DRAM SPD data. (Default value)

☞ **DIMM OverVoltage Control**

- ☞ Normal The default AGP voltage is 1.5V. (Default value)
- ☞ 1.6V~1.8V SetAGP voltage from 1.6V~1.8V.

☞ **AGP OverVoltage Control**

- ☞ Normal Auto detect CPU voltage . (Default value)
- ☞ 1.050V~1.825V SetCPU voltage from 1.050V~1.825V.

Select Language

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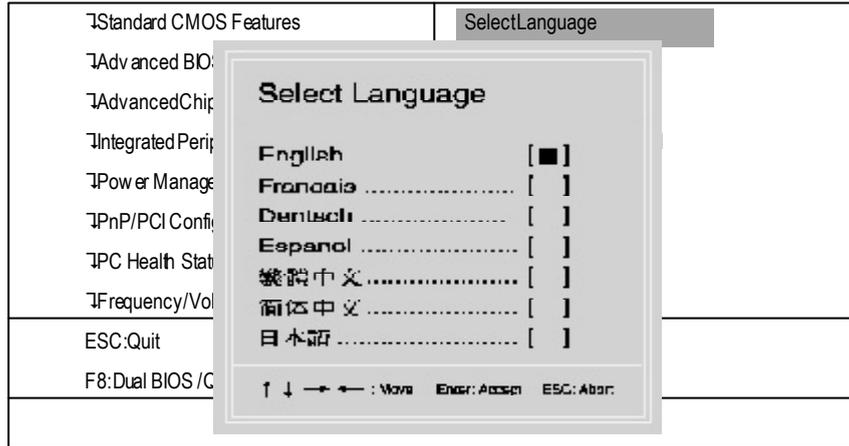


Figure 10: Select Language

Select Language

Multi Language is supports 7 languages. There are English, Japanese, French, Spanish, Germany, Simplified Chinese, Traditional Chinese.

Load Fail-Safe Defaults

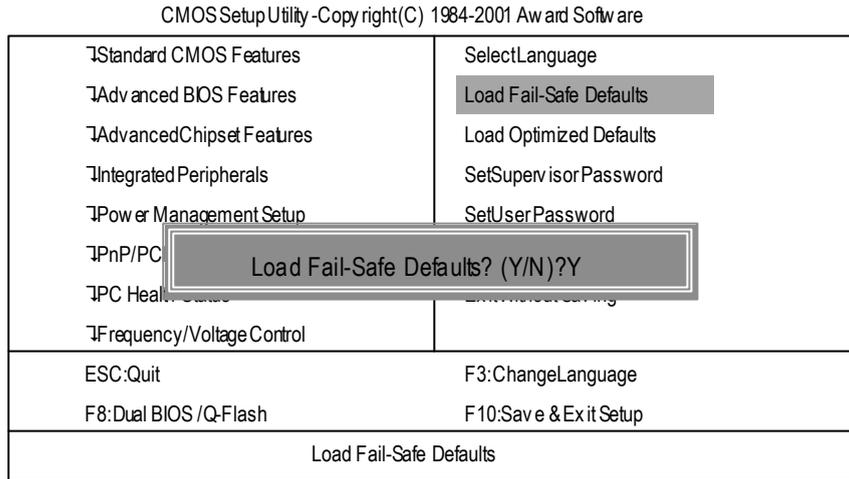


Figure 11: Load Fail-Safe Defaults

Load Fail-Safe Defaults

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

Set Supervisor/User Password

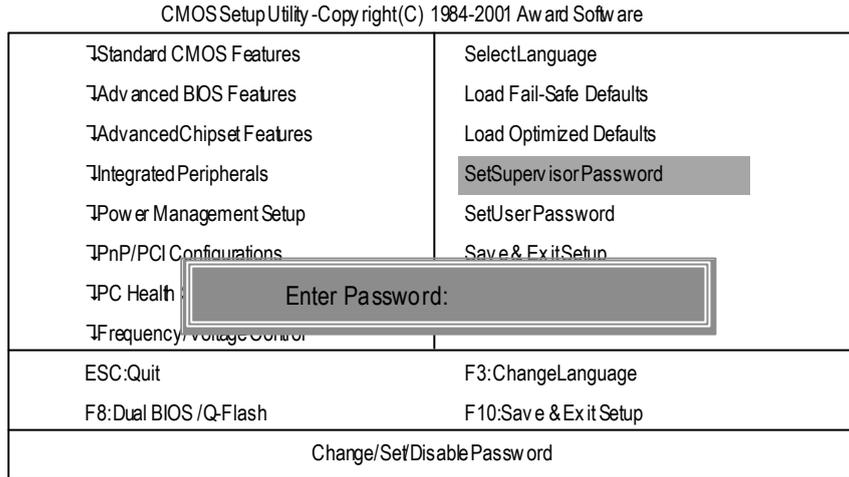


Figure 13: Password Setting

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

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<ul style="list-style-type: none"> ↵Standard CMOS Features ↵Advanced BIOS Features ↵Advanced Chipset Features ↵Integrated Peripherals ↵Power Management Setup ↵PnP/PCI Configurations ↵PC Health ↵Frequency 	<ul style="list-style-type: none"> Select Language Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Save to CMOS and EXIT (Y/N)? Y</div>	
ESC: Quit	F3: Change Language
F8: Dual BIOS / Q-Flash	F10: Save & Exit Setup
Save Data to CMOS	

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

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

↵Standard CMOS Features	Select Language
↵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	
↵Frequency/Voltage Control	
Quit Without Saving (Y/N)? N	
ESC: Quit	F3: Change Language
F8: Dual BIOS / Q-Flash	F10: Save & Exit Setup
Abandon all Data	

Figure 15: Exit Without Saving

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

Type "N" will return to Setup Utility.

Performance

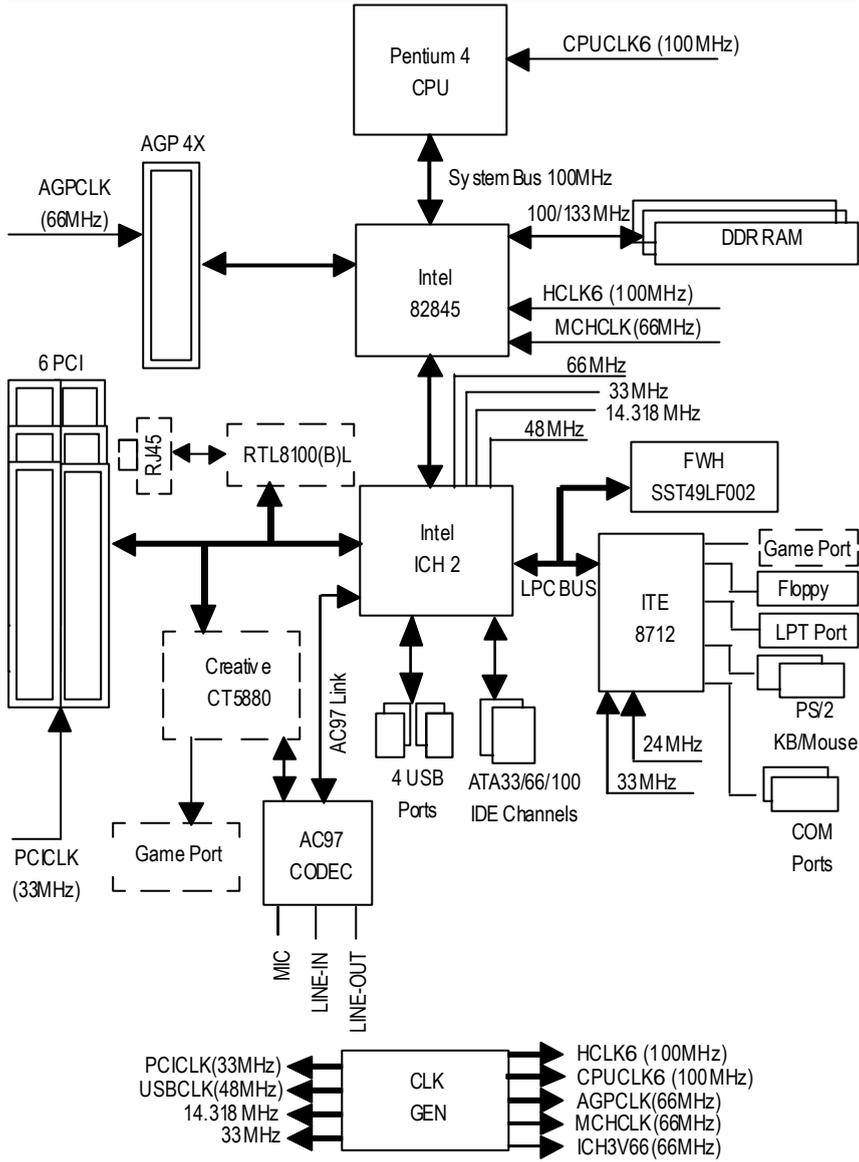
The following performance data list is the testing results of some popular benchmark testing programs.

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 Pentium® 4 2GHz processor
DRAM	(128 x 2) MB SDRAM (PQI PC166)
CACHE SIZE	256KB included in CPU
DISPLAY	Gigabyte GV-GF3000D
STORAGE	Onboard IDE (Quantum AS30000AT 30GB)
O.S	Windows 2000+ SP1
DRIVER	Display Driver at 1024 x 768 x 64K colors x 75Hz IUCD ver. 1.8 For Intel chipset M.B.

Processor	Intel Pentium® 4 2GHz (100x20)
WCPUID 2.8 Clock Frequency	Internal MHz 2000.03
SiSoft Sandra 2001	CPU/FPU Benchmark 3754/1046/2446 CPU Multi-Media Benchmark 7939/9738 Drives Benchmark 23362 Memory Benchmark 596/614
SPECviewperf 6.12	Pro CDRS-03 13.12 MedMCAD-01 18.09 Light-04 4.952 DX-06 13.50 DRV-07 14.06 Advanced-04 39.80
QUAKE III Arena (without sound)	640*480*16 Demo1 184.5 1024*768*32 Demo2 138.2

Block Diagram



Dual BIOS / Q-Flash Introduction

A. What is Dual BIOS Technology?

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

B. How to use Dual BIOS and Q-Flash Utility?

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

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

<ul style="list-style-type: none"> ↵Standard CMOS Features ↵Advanced BIOS Features ↵Advanced Chipset Features ↵Integrated Peripherals ↵Power Management Setup ↵PnP/PCI Configurations ↵PC Health Status ↵Frequency/Voltage 	<ul style="list-style-type: none"> Select Language Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup
<div style="border: 2px solid gray; padding: 5px; display: inline-block;"> Enter Dual BIOS / Q-Flash Utility (Y/N)? Y </div>	
ESC:Quit	F3:Change Language
F8:Dual BIOS /Q-Flash	F10:Save & Exit Setup

b. Dual BIOS / Q-Flash Utility

Dual BIOS / Q-Flash Utility V845.4MF3 (C) 2001, GIGA-BYTE Technology Co., LTD.	
Wide Range Protection	:Disabled
Halt On BIOS Defects	:Disabled
Auto Recovery	:Enabled
Boot From	:MainBIOS
BIOS Recovery	:Main to Backup
F3: Load Default	F5:StartBIOS Recovery
F7: Save And Restart	F9:Exit Without Saving
F8: Update BIOS from disk	F10:Recovery from Disk
Use <Space> key to toggle setup	

c. Dual BIOS Item explanation:

Wide Range Protection: Disabled(Default), Enabled

Status 1:

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

Status 2:

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

Halt On BIOS Defects : Disabled(Default), Enabled

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

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

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

Auto Recovery : Enabled(Default), Disabled

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

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

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

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

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

Status 2:

If one of the main BIOS or the Backup BIOS fails, this item "Boot From : Main BIOS(Default)" will become gray and will not be changed by user.

BIOS Recovery : Main to Backup

Auto recovery message:

BIOS Recovery: Main to Backup

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

BIOS Recovery: Backup to Main

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

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

C. What is Q-Flash Utility?

Q-Flash utility is a pre-O.S. BIOS flash utility enables users to update its BIOS within BIOS mode, no more fooling around any OS.

D. How to use Q-Flash Flash?

F3: Load Default Load current BIOS default value.	F5: Start BIOS Recovery Press F5 to recovery new BIOS version.
F7: Save and Restart Save revised setting and restart the computer.	F9: Exit Without Saving Exit without changing.
F8: Update BIOS from Disk Update boot-up BIOS.	F10: Recovery from Disk Update another BIOS (different from boot-up BIOS)



Dual BIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newest "Value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-60XET Series motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What's DualBIOS™?

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

I. Q: What is DualBIOS™ technology?

Answer:

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

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

Answer:

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

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

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

III. Q: How does DualBIOS™ technology work?

Answer:

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

IV. Q: Who Needs DualBIOS™ technology?

Answer:

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

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

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

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

Case III.) A user may override booting from the main system BIOS. The DualBIOS™

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

Four Speaker & SPDIF Introduction

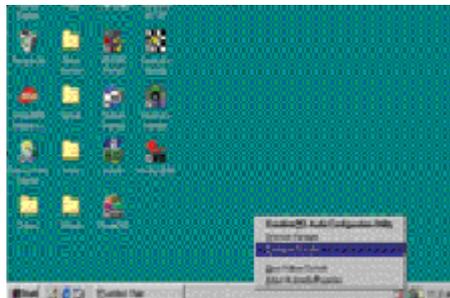
Four Speaker Introduction

A. What is Four Speaker?

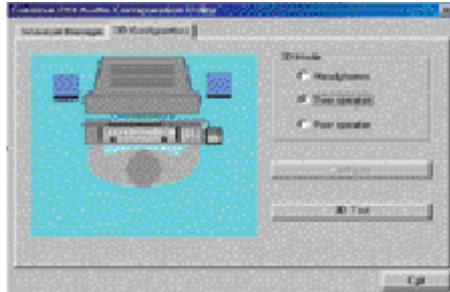
The Creative CT5880 audio chip can support up to 4 speaker output. If you select “Four speaker out”, Line In will be reconfigured as another line out to support a second pair of speakers.

B. How to use Four Speaker?

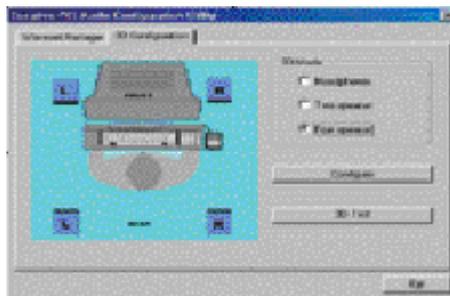
Microsoft Windows 98 Second Edition setup procedure:



Click the audio icon along the task bar and select “Configure 3D Audio”



Select two speaker (Default)

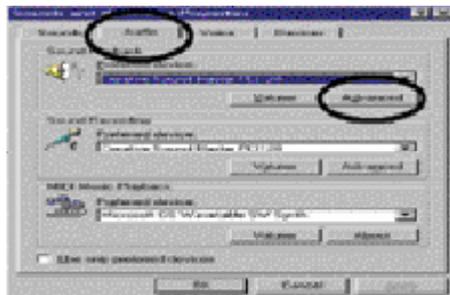


Select “Four speaker” item.

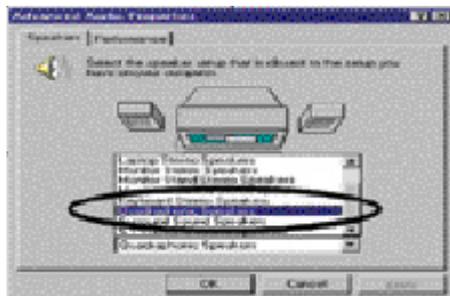
Microsoft Windows Me setup procedure:



Go to "Control Panel" and double click "Sounds and Multimedia".



Select "Audio" Page, and click "Advanced" button.



Select "Quadraphonic Speakers" and click ok.

C. Four Speaker Application

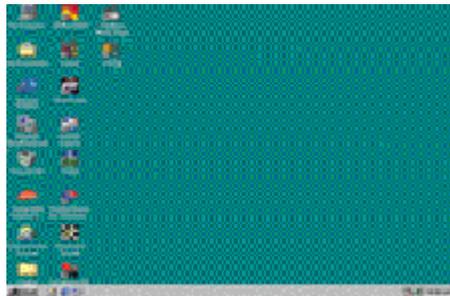
The four speaker function will only be supported in application softwares that use Microsoft DirectX and Creative EAX, for example, the game titles, software DVD player and MP3 player.

SPDIF Introduction

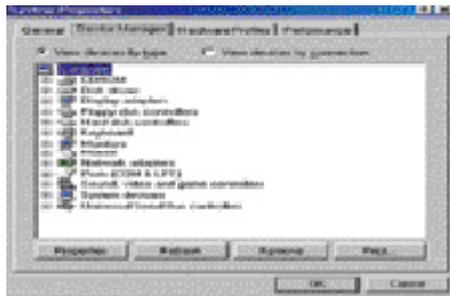
A. What is SPDIF?

The SPDIF output is capable of providing digital signal to AC3 decoder which can support upto 5.1 speakers.

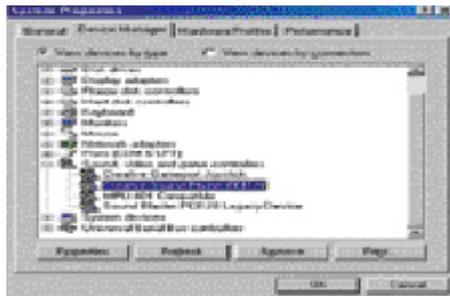
B. How to use SPDIF?



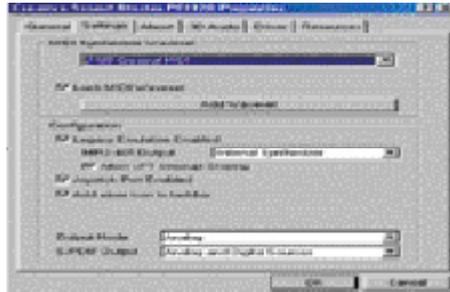
Click your mouse right button in "My Computer" and select the "Properties" item.



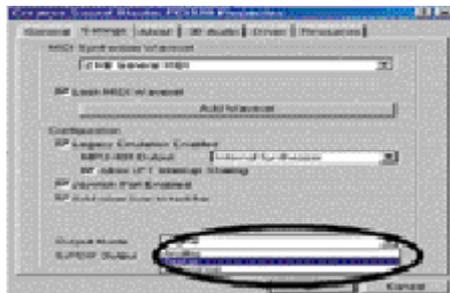
Click "Device Manager" item.



Click "Sound, video and game controllers" item and select the "Creative Sound Blaster PC1128" item.



Click "Settings" item and select the "Output Mode" item.



Click "Digital" item, Line Out will be reconfigure to SPDIF Out.

Recommend you to select "Autosense", It will automatically detect the type (mono or stereo) of the audio connector that you plug into Line Out audio jack, then configure Line Out to either SPDIF or Speaker accordingly.

@ BIOS Introduction

Gigabyte announces @ BIOS

Windows BIOS live update utility



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

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

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

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

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

Easy TuneIII™ Introduction

Gigabyte announces EasyTuneIII Windows overdrive utility



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

times “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.

Driver Installing

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 enables Plug-n-Plug INF support for Intel chipset component.

B. Installing Sound Driver

Doubleclick this item to install sound driver.

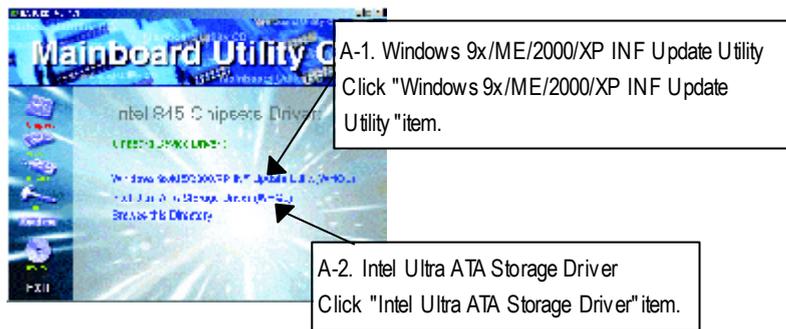
C. Installing Tool

- Norton: This item installs the Norton anti-virus 2001 software.
- Direct X: This item installs the Microsoft v 8.0a driver.
- Adobe Acrobat Reader: This item installs the Adobe Acrobat Reader v5.0.
- @BIOS Writer Utility: This is a smart BIOS update software. It could help you to download the BIOS from internet and update it.
- Intel LDCM:
- SIV(Hardware Monitor):
- Easy TuneIII Setup: This software will then overdrive CPU speed automatically with the result being shown in the control panel.
- Mainboard DMI Viewer:
- Utility Manager Tools:

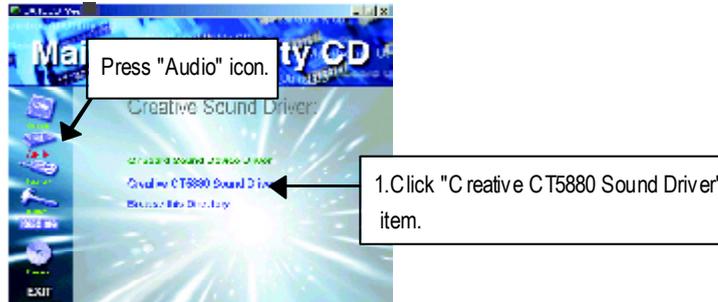


A: Intel 845 Chipset Driver Installation

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

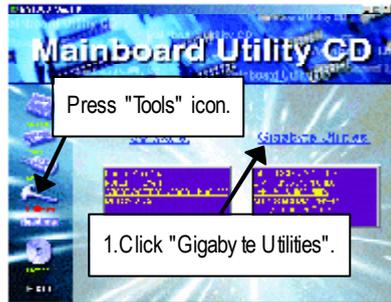


B: Sound Driver Installation



Appendix C: EasyTuneIII 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)



(5)



(6)



(7)

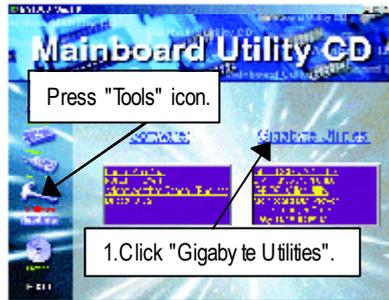


(8)

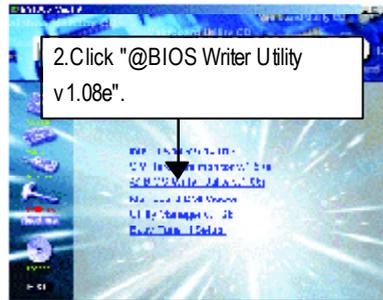
BIOS Flash Procedure

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 @BIOS™ sever 1 in Taiwan" and "Gigabyte @BIOS™ sever 2 in Taiwan" are available for now, the others will be completed soon)
 - 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:

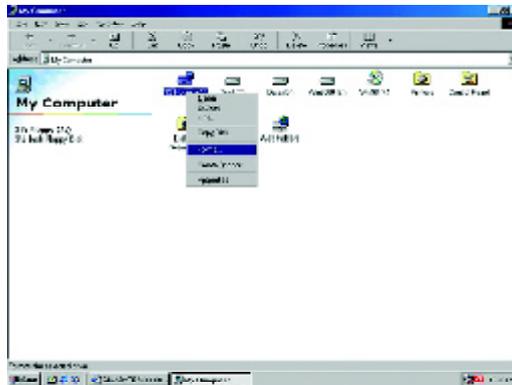
STEP 1:

- (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.)

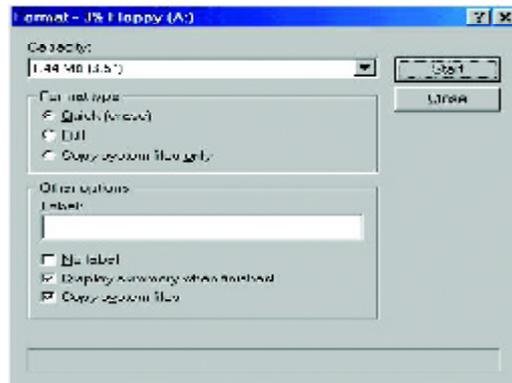
Beware: Windows ME/2000 are not allowed to make a DOS boot diskette.

- (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".

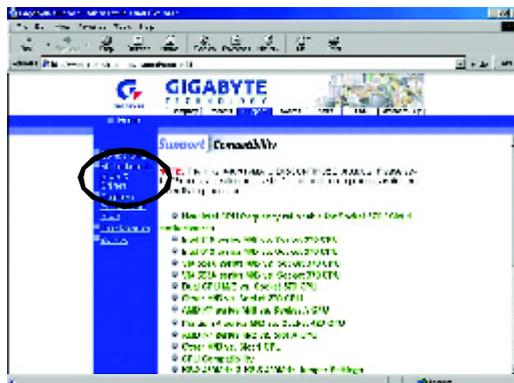


STEP 3: Download BIOS and BIOS utility program.

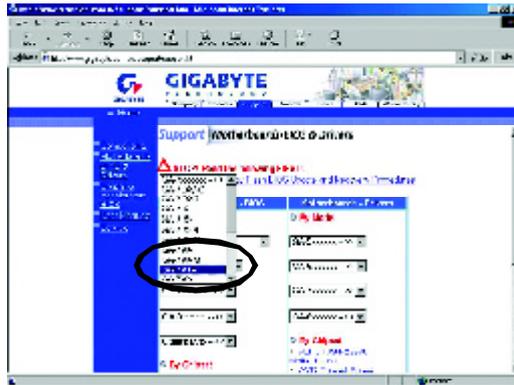
(1) Please go to Gigabyte website <http://www.gigabyte.com.tw/index.html>, and click "Support".



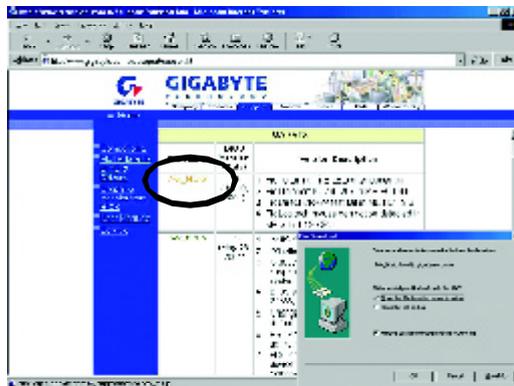
(2) From Support zone, click the "Motherboards BIOS & Drivers".



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



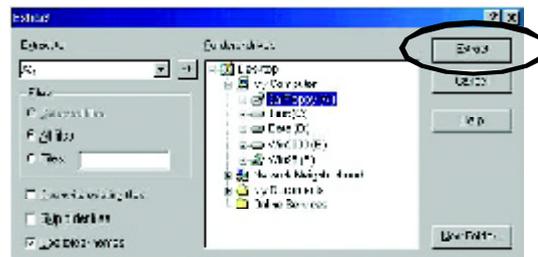
- (4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".



- (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 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 / PC 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".

AMIBIOS SETUP - BIOS FEATURES SETUP	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
1st Boot Device : Floppy	ESC: Quit ↑↑↑↑: Select Item F1 : Help PU/PD/+/-: Modify F5 : Old Values (Shift) F2: Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
2nd Boot Device : IDE-0	
3rd Boot Device : CDROM	
S.M.A.R.T. for Hard Disks : Disabled	
BootUpNum-Lock : On	
Floppy Drive Seek : Disabled	
PasswordCheck : Setup	

- (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.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 2001 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/PCICONFIG	Save to CMOS and EXIT (Y/N)? Y
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	
Save Data to CMOS & Exit SETUP	

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".

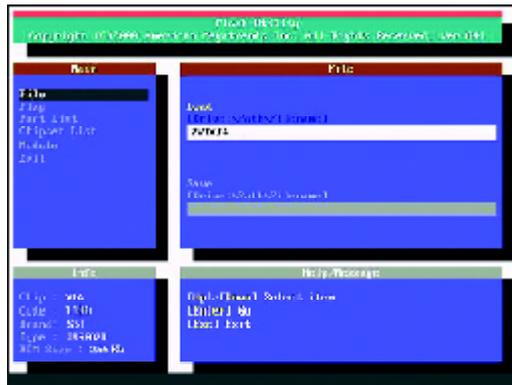
```
Starting Windows 98...

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

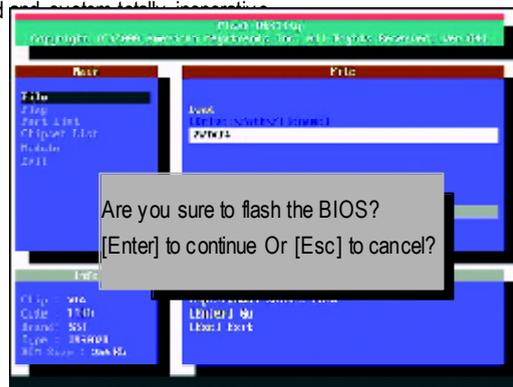
A:\> dir/w
  Volume in drive A has no label
Volume Serial Number is 16EB-353D
Directory of A:\
COMMAND.COM  7VTX.F4  FLASH841.EXE
              3 file(s)  838,954 bytes
              0 dir(s)   324,608 bytes free

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.



- (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 key to enter BIOS setup again when system is boot up. Use the arrows to highlight the item "LOAD SETUP DE FAULTS" then press "Enter". System will ask "Load Setup Defaults (Y/N)?" Press "Y" and "Enter" keys to confirm.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b (C)2001 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	USB BIOS SETUP
PNP/PCICONFIG	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Load Setup Defaults? (Y/N)?N </div>
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	
Load Setup Defaults	

- (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.

AMIBOS SIMPLE SETUP UTILITY - VERSION 1.24b (C)2001 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/PC CONFIG	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC: Quit ↑ ↓ ← →: Select Item (Shift)F2: Change Color F5: Old Values F6: Load BIOS Defaults F7: Load Setup Defaults F10: Save & Exit	
Save Data to CMOS & Exit SETUP	

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

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

to be continued.....

Acronyms	Meaning
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
I/O	Input / Output
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

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:
