BIOS Setup

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

ENTERING SETUP

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

CONTROL KEYS

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

GETTING HELP

Main Menu

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

Status Page Setup Menu / Option Page Setup Menu

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

THE MAIN MENU

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 2) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
     CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘

   ▶ 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
   F10:Save & Exit Setup

                   Time, Date, Hard Disk Type…
```
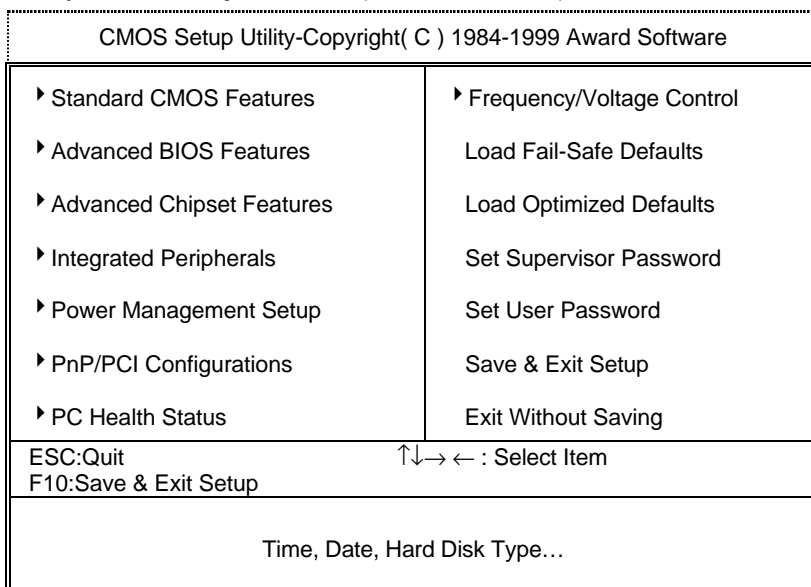
Figure 2: Main Menu

• **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

The items in Standard CMOS Setup Menu (Figure 3) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
┌──────────────────────────────────────────────────────────────────────┐
│          CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software    │
│                         Standard CMOS Features                         │
├─────────────────────────────────────────────────┬──────────────────────┤
│  Date (mm:dd:yy)              Thu , Jan  7 1999  │     Item Help        │
│  Time (hh:mm:ss)               2  :  31  :  24   │                      │
│                                                  │  Menu Level  ▶       │
│  ▶ IDE Primary Master         Press Enter None   │                      │
│  ▶ IDE Primary Slave          Press Enter None   │  Change the          │
│  ▶ IDE Secondary Master       Press Enter None   │  Day, month,         │
│  ▶ IDE Secondary Slave        Press Enter None   │  Year and            │
│                                                  │  century             │
│    Drive A                    1.44M,  3.5 in.    │                      │
│    Drive B                    None               │                      │
│    Floppy 3 Mode Support       Disabled          │                      │
│                                                  │                      │
│    Video                      EGA / VGA          │                      │
│    Halt On                    All, But Keyboard  │                      │
│                                                  │                      │
│    Base Memory                    640K           │                      │
│    Extended Memory              63488K           │                      │
│    Total Memory                 64512K           │                      │
├─────────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→ ←: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: Standard CMOS Features

- **Date**

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

day	The day, from Sun to Sat, determined by the BIOS and is display-only
month	The month, Jan. Through Dec.
date	The date, 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 type / Drive B type**

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

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

- **Floppy 3 Mode Support (for Japan Area)**

Disabled	Normal Floppy Drive.
Drive A	Drive A is 3 mode Floppy Drive.
Drive B	Drive B is 3 mode Floppy Drive.
Both	Drive A & B are 3 mode Floppy Drives.

- **Video**

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

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

- **Halt on**

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

NO Errors	The system boot will not stop for any error that may be detected and you will be prompted
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors
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

```
CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
                   Advanced BIOS Features
```

Virus Warning	Disabled	Item Help
CPU Cache	Enabled	
CPU L2 Cache ECC Checking	Disabled	Menu Level ▸
Quick Power On Self Test	Enabled	Allows you to
First Boot Device	Floppy	choose the VIRUS
Second Boot Device	HDD-0	Warning feature
Third Boot Device	LS/ZIP	For IDE Hard disk
Boot Other Device	Enabled	Boot sector
Swap Floppy Drive	Disabled	Protection. If this
Boot Up Floppy Seek	Enabled	Function is enable
Boot Up NumLock Status	On	And someone
Gate A20 Option	Fast	Attempt to write
Typematic Rate Setting	Disabled	Data into this area
Typematic Rate (Chars/Sec)	6	, BIOS will show
Typematic Delay (Msec)	250	A warning
Security Option	Setup	Message on
OS Select For DRAM >64MB	Non-OS2	Screen and alarm
HDD S.M.A.R.T. Capability	Disabled	beep
Report No FDD For WIN 95	No	

```
↑↓→ ←: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 BIOS Features

• **Virus Warning**

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

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table. **(Default value)**

- **CPU Cache**

  These two categories speed up memory access. However, it depends on CPU / chipset design.

Enabled	Enable cache. **(Default value)**
Disabled	Disable cache.

- **CPU L2 Cache ECC Checking**

Enabled	Enable CPU L2 Cache ECC Checking.
Disabled	Disable CPU L2 Cache ECC Checking. **(Default value)**

- **Quick Power On Self Test**

  This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST. **(Default value)**
Disabled	Normal POST.

- **First / Second / Third Boot device**

Floppy	Select your boot device priority by Floppy.
LS/ZIP	Select your boot device priority by LS/ZIP.
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.
Disable	Disable this function.
LAN	Select your boot device priority by LAN.

- **Boot other device**

Enabled	Enabled select your boot device priority function. **(Default value)**
Disabled	Disabled this function

- **Swap Floppy Drive**

Enabled	Floppy A & B will be swapped under DOS.
Disabled	Floppy A & B will be normal definition. **(Default value)**

- **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. **(Default value)**
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.

- **Boot Up NumLock Status**

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

- **Gate A20 Option**

Normal	Set Gate A20 Option is Normal.
Fast	Set Gate A20 Option is Fast. **(Default value)**

- **Typematic Rate Setting**

Enabled	Enable Keyboard Typematic rate setting.
Disabled	Disable Keyboard Typematic rate setting. **(Default value)**

- **Typematic Rate (Chars / Sec.)**

6-30	Set the maximum Typematic rate from 6 chars. Per second to 30 characters. Per second. **(Default value : 6)**

- **Typematic Delay (Msec.)**

250-1000	Set the time delay from first key to repeat the same key in to computer. **(Default value : 250)**

- **Security Option**

    This category allows you to limit access to the system and Setup, or just to Setup.

System	The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. **(Default value)**

- **OS Select For DRAM>64MB**

Non-OS2	Using non-OS2 operating system. **(Default value)**
OS2	Using OS2 operating system and DRAM>64MB.

- **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)**

- **Report No FDD For WIN 95**

No	Assign IRQ6 For FDD. **(Default value)**
Yes	FDD Detect IRQ6 Automatically.

Advanced Chipset Features

```
      CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
                       Advanced Chipset Features
┌──────────────────────────────────────────────────────┬──────────────────┐
│ SDRAM CAS Latency Time          Auto                   │    Item Help     │
│ SDRAM Cycle Time Tras/Trc        5/7                    │                  │
│ SDRAM RAS-to-CAS Delay           2                      │ Menu Level  ▶    │
│ SDRAM RAS Precharge Time         2                      │ Set the SDRAM    │
│ SDRAM Buffer Strength            Auto                   │ Timing           │
│ DRAM Page Closing Policy         Precharge Bank         │                  │
│ System BIOS Cacheable            Enabled                │                  │
│ Video BIOS Cacheable             Enabled                │                  │
│ Delayed Transaction              Disabled               │                  │
│ On-Chip Video Window Size        64MB                   │                  │
│                                                         │                  │
│                                                         │                  │
│ * Onboard Display Cache Setting *                       │                  │
│   Initial Display Cache          Enabled                │                  │
│    Display Cache Timing          Fast                   │                  │
│     Local Memory Frequency       100MHz                 │                  │
│                                                         │                  │
└──────────────────────────────────────────────────────┴──────────────────┘
  ↑↓→ ←: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: Advanced Chipset Features

- **SDRAM CAS latency Time**

Auto	Set SDRAM CAS Latency Time to Auto. (**Default value**)
3	For 67 / 83 MHz SDRAM DIMM module.
2	For 100 MHz SDRAM DIMM module.

- **SDRAM Cycle Time Tras/Trc**

6/8	Set DRAM Tras/Trc Cycle time is 6/8 SCLKs.
5/7	Set DRAM Tras/Trc Cycle time is 5/7 SCLKs. (**Default value**)

- **SDRAM RAS# to CAS# delay**

3	Set SDRAM RAS# to CAS# delay 3 SCLKs.
2	Set SDRAM RAS# to CAS# delay 2 SCLKs. (**Default value**)

- **SDRAM RAS# Precharge**

3	Set SDRAM RAS# Precharge is 3.
2	Set SDRAM RAS# Precharge is 2. **(Default value)**

- **SDRAM Buffer Strength**

Auto	Set SDRAM Buffer Strength is Auto. **(Default Value)**
Auto+1	Set SDRAM Buffer Strength is Auto+1.
Auto-1	Set SDRAM Buffer Strength is Auto-1.

- **DRAM Page Closing Policy**

Precharge Bank	Closing Policy Precharge Bank**. (Default value)**
Precharge All	Closing Policy Precharge All.

- **System BIOS Cacheable**

Enabled	Enable System BIOS Cacheable. **(Default value)**
Disabled	Disable System BIOS Cacheable.

- **Video BIOS Cacheable**

Enabled	Enable video BIOS Cacheable. **(Default value)**
Disabled	Disable video BIOS Cacheable.

- **Delayed Transaction**

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

- **On-Chip Video Window Size**

32MB	Set Graphics Aperture Size to 32MB.
64MB	Set Graphics Aperture Size to 64MB. **(Default value)**

- **Initialize Display Cache**

Disabled	Disabled Initialize Display Cache.
Enabled	Enabled Initialize Display Cache. **(Default value)**

- **Display Cache Timing**

Fast	Set Display Cache Timing to Fast. **(Default value)**
Normal	Set Display Cache Timing to Normal.

• **Local Memory Frequency**

100MHz	Set Local Memory Frequency to 100MHz. **(Default value)**
133MHz	Set Local Memory Frequency to 133MHz.

Integrated Peripherals

CMOS Setup Utility-Copyright(C) 1984-1999 Award Software		
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	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Auto	
AC97 Modem	Auto	
IDE HDD Block Mode	Enabled	
POWER ON Function	BUTTON ONLY	
*KB Power ON Password	Enter	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
*UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
*ECP Mode Use DMA	3	
Game Port Address	201	
Midi Port Address	330	
Midi Port IRQ	5	
CIR Port Address	Disabled	
*CIR Port IRQ	11	
↑↓→ ←: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: 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.

- **USB Controller**

Enabled	Enable USB Controller. **(Default value)**
Disabled	Disable USB Controller.

- **USB Keyboard Support**

Enabled	Enable USB Keyboard Support.
Disabled	Disable USB Keyboard Support. **(Default value)**

- **Init Display First**

PCI Slot	Set Init Display First to PCI Slot. **(Default value)**
Onboard	Set Init Display First to onboard AGP.

- **AC′97 Audio**

Auto	BIOS will automatically detect onboard AC′97 Audio or YAMAHA 744 audio. **(Default value)**
Enabled	Enabled AC′97 Audio.
Disabled	Disabled AC′97 Audio.

- **AC′97 Modem**

Auto	Bios will automatically detect onboard AC′97 Modem. **(Default value)**
Enabled	Enabled AC′97 Modem.
Disabled	Disabled AC′97 Modem.

- **IDE HDD Block Mode**

Enabled	Enable IDE HDD Block Mode. **(Default value)**
Disabled	Disable IDE HDD Block Mode.

- **POWER ON Function**

Password	Enter from 1 to 5 characters to set the Keyboard Power On Password.
Mouse Move	Move the PS/2 Mouse.
Mouse Click	Double click on PS/2 mouse left button.
BUTTON ONLY	If your keyboard have "POWER Key" button, you can press the key to power on your system. **(Default value)**
Keyboard 98	Windows 98 keyboard "Power" key.

- **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. **(Default value)**
3F8/IRQ4	Enable onboard Serial port 1 and address is 3F8.
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. **(Default value)**
3F8/IRQ4	Enable onboard Serial port 2 and address is 3F8.
2F8/IRQ3	Enable onboard Serial port 2 and address is 2F8.
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	Onboard I/O chip supports ASKIR.
IrDA	Onboard I/O chip supports IrDA.
SCR	Onboard I/O chip supports SCR.
Normal	Onboard I/O chip supports Normal. **(Default value)**

- **UR2 Duplex Mode**

Half	Set UR2 Duplex Mode to Half. **(Default value)**
Full	Set UR2 Duplex Mode to Full.

- **Onboard Parallel port**

378/IRQ7	Enable onboard LPT port and address is 378/IRQ7. **(Default value)**
278/IRQ5	Enable onboard LPT port and address is 278/IRQ5.
Disabled	Disable onboard LPT port.
3BC/IRQ7	Enable onboard LPT port and address is 3BC/IRQ7.

- **Parallel Port Mode**

SPP	Using Parallel port as Standard Printer 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 Use DMA**

1	Set EPP Mode Use DMA is 1.
3	Set EPP Mode Use DMA is 3. **(Default value)**

- **Game Port Address**

Disabled	Disabled this function.
201	Set onboard game port is 201. **(Default value)**
209	Set onboard game port is 209.

- **Midi Port Address**

Disabled	Disabled On Board Midi Port.
300	Set On Board Midi Port is 300.
330	Set On Board Midi Port is 330. **(Default value)**

- **Midi Port IRQ**

5	Set 5 for Midi Port IRQ. **(Default value)**
10	Set 10 for Midi Port IRQ.

- **CIR Port Address**

Disabled	Disabled On Board CIR Port. **(Default value)**
310	Set On Board CIR Port is 310.
320	Set On Board CIR Port is 320.

- **CIR Port IRQ**

5	Set 5 for CIR Port IRQ.
11	Set 11 for CIR Port IRQ. **(Default value)**

Power Management Setup

```
        CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
                        Power Management Setup
```

ACPI Suspend Type	S1(PowerOnSuspend)	Item Help
Power Management	User Define	
Video Off Method	DPMS	Menu Level ▶
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
MODEM Use IRQ	4	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-off	
Power LED in Suspend	Blinking	
AC BACK Function	Memory	
Wake-Up by PCI card	Enabled	
ModemRingOn/WakeOnLan	Enabled	
USB KB Wake From S3	Disabled	
FAN Off In Suspend	Enabled	
CPU Thermal-Throttling	50%	
Resume by Alarm	Disabled	
* Date(of Month) Alarm	0	
* 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	Enabled	
PCI PIRQ[A-D]#	Enabled	

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

Figure 7: Power Management Setup

- **ACPI Suspend Type**

S1(PowerOn Suspend)	Set ACPI Suspend type is S1. **(Default value)**
S3(Suspend to RAM)	Set ACPI Suspend type is S3.

- **Power Management**

User Define	For configuring our own power management features. **(Default value)**
Min Saving	Enable Green function.
Max Saving	Disable Green 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	Enabled video off in suspend. **(Default value)**
No	Disabled video off in 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**

NA	Set MODEM Use IRQ to NA.
3	Set MODEM Use IRQ to 3.
4	Set MODEM Use IRQ to 4. **(Default value)**
5	Set MODEM Use IRQ to 5.
7	Set MODEM Use IRQ to 7.
9	Set MODEM Use IRQ to 9.
10	Set MODEM Use IRQ to 10.
11	Set MODEM Use IRQ to 11.

- **Suspend Mode**

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

- **HDD Power Down**

Disable	Disable HDD Power Down mode function. (**Default value**)
1-15 mins.	Enable HDD Power Down mode between 1 to 15 mins.

- **Soft-off by PWR-BTTN**

Instant-off	Soft switch ON/OFF for POWER ON/OFF. (**Default value**)
Delay 4 Sec.	Soft switch ON 4sec. for POWER OFF.

- **Power LED in Suspend**

Blinking	Set Power LED in Suspend at Blinking mode. (**Default value**)
On	Set Power LED in Suspend at On mode.
Off/Dual	Set Power LED in Suspend at Off/Dual color mode.

- **AC Back Function**

Memory	This function depends on computer status. (**Default value**)
Soft-Off	Set System Soft-Off Status.
Full-On	Set System Full-On Status.

- **Wake-Up by PCI card**

Disabled	Disabled this function.
Enabled	Enabled wake-up by PCI card. (**Default value**)

- **ModemRingOn / WakeOnLan**

Disabled	Disable these functions.
Enabled	Enable these functions. (**Default value**)

- **USB KB Wake From S3**

Disabled	Disabled this function. (**Default value**)
Enabled	Enabled USB KB Wake From S3 function.

- **FAN Off In Suspend**

Disabled	Disable this function.
Enabled	Stop CPU FAN when entering Suspend mode. **(Default value)**

- **CPU Thermal-Throttling**

87.5%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 87.5%.
75.0%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 75.0%.
62.5%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 62.5%.
50.0%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 50.0%. **(Default value)**
37.5%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 37.5%.
25.0%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 25.0%.
12.5%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 12.5%.

- **Resume by Alarm**

Disabled	Disable this function. **(Default value)**
Enabled	Enable alarm function to POWER ON system.

If the default value is Enabled.

Date (of Month) Alarm :	0~31
Time (hh: mm: ss) Alarm :	(0~23) : (0~59) : (0~59)

- **Primary IDE 0/1**

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

- **Secondary IDE 0/1**

Disabled	Disable this function. **(Default value)**
Enabled	Enable monitor Secondary IDE 0/1 for Green event.

- **FDD/COM/LPT Port**

Disabled	Disabled this function.
Enabled	Enabled monitor FDC/COM/LPT for Green event. **(Default value)**

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

Enabled	Monitor PCI PIRQ[A-D] IRQ Active. **(Default value)**
Disabled	Ignore PCI PIRQ[A-D] IRQ Active.

PnP/PCI Configurations

```
............................................................................................
           CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
                          PnP/PCI Configurations
```

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
		Menu Level ▶
Resources Controlled By	Auto (ESCD)	
* IRQ Resources	Press Enter	Select Yes if you
* DMA Resources	Press Enter	Are using a Plug
* Memory Resources	Press Enter	And Play capable
		Operating system
PCI/VGA Palette Snoop	Disabled	Select No if you
Assign IRQ For USB	Enabled	Need the BIOS to
		Configure non-
		Boot devices

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

Figure 8: PnP/PCI Configurations

- **PNP OS Installed**

Yes	Enable PNP OS Installed function.
No	Disable PNP OS Installed function. **(Default value)**

- **Reset Configuration Data**

Disabled	Disable this function. **(Default value)**
ESCD	Clear PnP information in ESCD.
DMI	Update Desktop Management Information data.
Both	Clear PnP information in ESCD & update DMI data.

- **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 (3,4,5,7,9, 10,11,12,14,15),DMA(0,1,3,5,6,7) assigned to (Legacy ISA or "PCI/ISA PnP)**

Legacy ISA	The resource is used by Legacy ISA device.
PCI/ISA PnP	The resource is used by PCI/ISA PnP device (PCI or ISA).

- **Reserved Memory Base**

N/A	Disable the MEM. block using. **(Default value)**
C800 ~ DC00	Select the MEM. block starting address.

- **PCI/VGA Palette Snoop**

Enabled	For having Video Card on ISA Bus and VGA Card on PCI Bus.
Disabled	For VGA Card only. **(Default value)**

- **Assign IRQ For USB**

Enabled	Assign a specific IRQ for USB. **(Default value)**
Disabled	No IRQ is assigned for USB.

PC Health Status

```
        CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
                           PC Health Status
┌──────────────────────────────────────────────┬─────────────────┐
│ Reset Case Open Status          Disabled      │   Item Help     │
│ Case Opened                     Yes           │                 │
│ VCORE                           2.01 V        │ Menu Level  ▶   │
│ VGTL                            1.48 V        │                 │
│ VCC3                            3.39 V        │                 │
│ + 5V                            5.02 V        │                 │
│ +12V                            12.16 V       │                 │
│ - 12V                           -11.70 V      │                 │
│ -5V                             -11.74V       │                 │
│ 5VSB(V)                         5.12 V        │                 │
│ VBAT(V)                         3.04 V        │                 │
│ Current CPU Temperature         41°C          │                 │
│ CPU FAN Speed                   5443 RPM      │                 │
│ Power FAN Speed                 0 RPM         │                 │
│ System FAN Speed                0 RPM         │                 │
│ CPU Temperature Select          75°C/167°F    │                 │
│ CPU FAN Fail Alarm              Disabled      │                 │
│ Power FAN Fail Alarm            Disabled      │                 │
│ System FAN Fail Alarm           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 9: 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 / VGTL/ VCC3 / ±12V / ±5V / 5VSB / VBAT**

    Detect system's voltage status automatically.

- **Current CPU Temperature (°C)**

    Detect CPU Temp. automatically.

- **CPU FAN / Power FAN / System FAN Speed (RPM)**

  Detect Fan speed status automatically.

- **CPU Temperature Select (°C / °F)**

65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F.
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F.
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F. **(Default value)**
80°C / 176°F	Monitor CPU Temp. at 80°C / 176°F.
85°C / 185°F	Monitor CPU Temp. at 85°C / 185°F.
90°C / 194°F	Monitor CPU Temp. at 90°C / 194°F.
95°C / 203°F	Monitor CPU Temp. at 95°C / 203°F.
Disabled	Disabled this function.

- **Fan Fail Alarm**

  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 ) 1984-1999 Award Software
                   Frequency/Voltage Control
```

		Item Help
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	0.25%(Cntr)	
CPU Type INTEL(R) CELERON	200	Menu Level ▶

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

Figure 10: Frequency/Voltage Control

- **Auto Detect DIMM/PCI Clk**

Disabled	Disabled Auto Detect DIMM/PCI Clk.
Enabled	Enabled Auto Detect DIMM/PCI Clk. **(Default value)**

- **Spread Spectrum**

Disabled	Disabled this function. **(Default value)**
0.25% (Cntr)	Set Spread Spectrum to 0.25%(Center spread).
0.50%(Down)	Set Spread Spectrum to 0.50%(Down spread).

- **CPU Type INTEL(R) CELERON**

1. System Bus Speed : 66MHz

200 / 233 / 266 / 300 / 333 / 366 / 400 / 433 / 466 / 500 / 533

2. System Bus Speed : 100MHz

300 / 350 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800

3. System Bus Speed : 133MHz

400 / 466 / 533 / 600 / 666 / 733 / 800 / 866 / 933 / 1000 / 1066

Load Fail-Safe Defaults

```
CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
```

▶ 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 Ma	
▶ PnP/PCI C	Load Fail-Safe Defaults (Y/N)? N
▶ PC Health Status	Exit Without Saving

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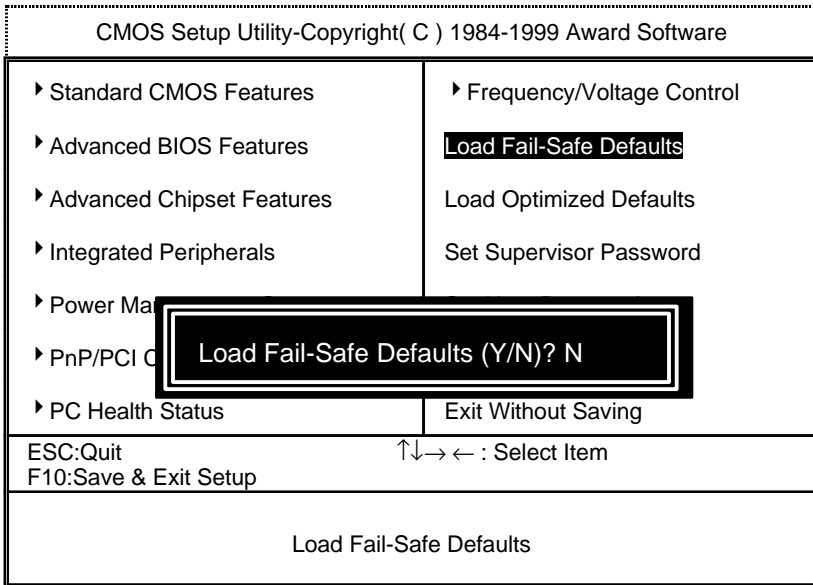F10:Save & Exit Setup

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

```
CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software
```

▸ 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 Man	
▸ PnP/PCI Co	**Load Optimized Defaults (Y/N)? N**
▸ PC Health Status	Exit Without Saving

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

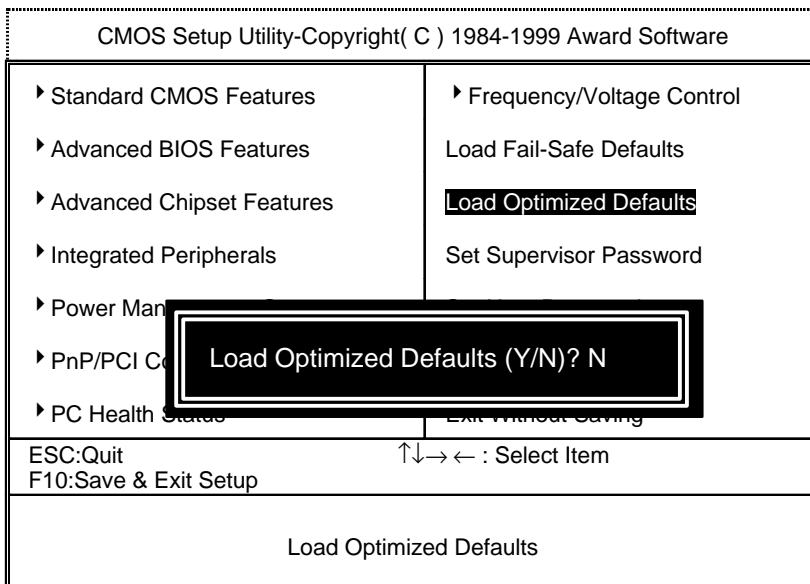Load Optimized Defaults

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

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

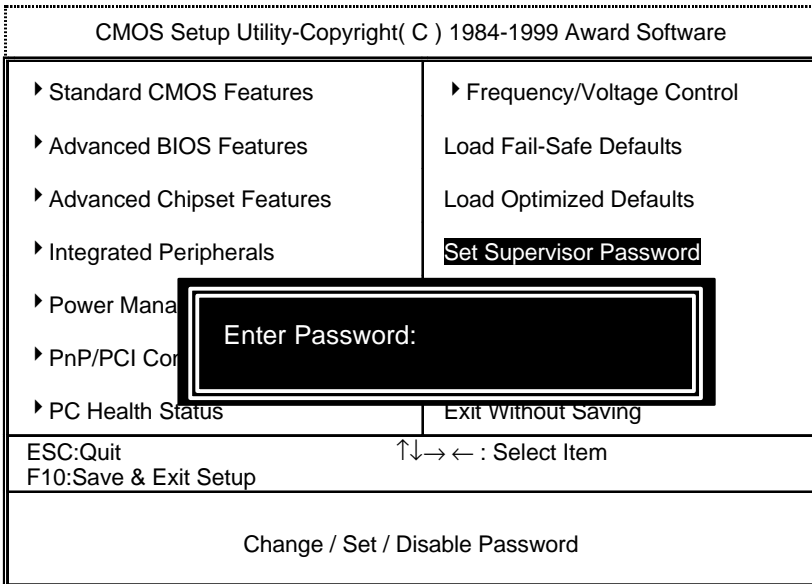| CMOS Setup Utility-Copyright(C) 1984-1999 Award Software	
▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	Load Fail-Safe Defaults
▸ Advanced Chipset Features	Load Optimized Defaults
▸ Integrated Peripherals	Set Supervisor Password
▸ Power Mana **Enter Password:**	
▸ PnP/PCI Cor	
▸ PC Health Status	Exit Without Saving
ESC:Quit ↑↓→ ← : Select Item F10:Save & Exit Setup	
Change / Set / Disable Password	

Figure 13: Password Setting

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

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

If you select System at Security Option in BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu. If you select Setup at Security Option in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.
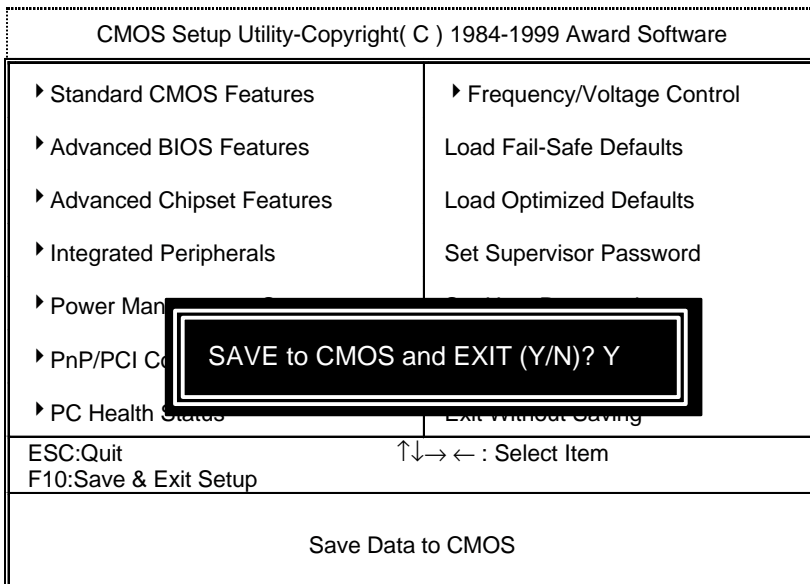
Save & Exit Setup

```
┌─────────────────────────────────────────────────────────────┐
│      CMOS Setup Utility-Copyright( C ) 1984-1999 Award Software │
├─────────────────────────────────────────────────────────────┤
│  ▶ 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 Man                                                  │
│            ┌───────────────────────────────────────┐         │
│  ▶ PnP/PCI C│   SAVE to CMOS and EXIT (Y/N)? Y     │         │
│            └───────────────────────────────────────┘         │
│  ▶ PC Health Status                Exit Without Saving        │
├─────────────────────────────────────────────────────────────┤
│  ESC:Quit                    ↑↓→ ← : Select Item             │
│  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.
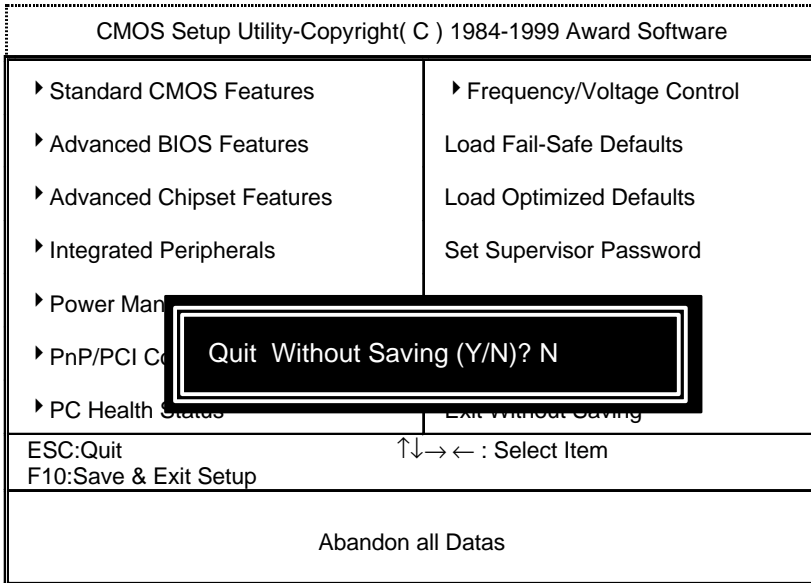
Exit Without Saving

CMOS Setup Utility-Copyright(C) 1984-1999 Award Software	
▶ 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 Man	
▶ PnP/PCI C	Quit Without Saving (Y/N)? N
▶ PC Health Status	Exit Without Saving
ESC:Quit ↑↓→ ← : Select Item F10:Save & Exit Setup	
Abandon all Datas	

Figure 15: Exit Without Saving

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

Type "N" will return to Setup Utility.

Appendix

Appendix A : Onboard Driver Installation Procedure

(In this manual, we assume that your CD-ROM Drive letter to be Drive D:)
Please reference IUCD CD directory D: \ Manual \ Whitney 810.pdf

Appendix B : 810 INF update utility can't find ICHxIDE.cat file automatically

1. After the installation is of Winodws98 is completed, run the "Setup.exe" of INF update utility.

2. System restarts.

3. System starts to recognize every new component.

4. System will stop and prompt users to specify the location of "ICHxIDE.cat" file.

5. The system will not find the location of ICHxIDE.cat automatically.

Resolution:
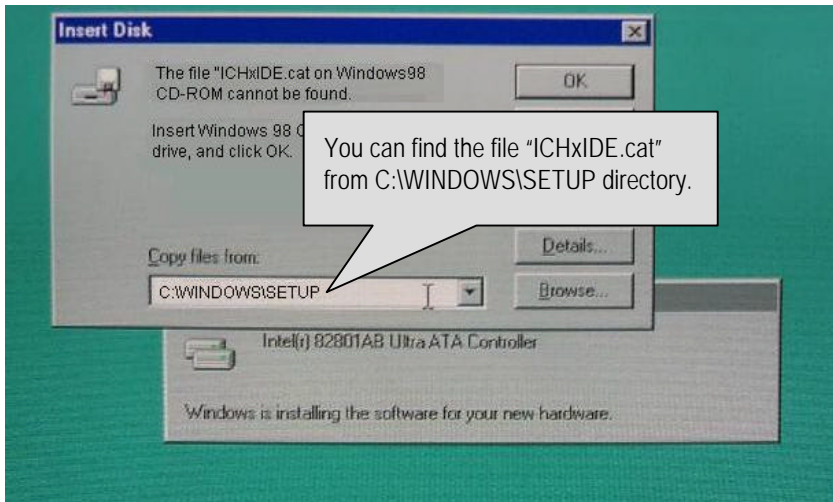
Appendix C : AU8810 Driver Installation

A. DRIVER INSTALLATION

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

1. Power on the system, placing the "Intel chipset Series Mainboard Utility CD" in the CD-ROM drive.

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

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

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

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

Vortex Installation & Driver Disk	\aureal\win9X
Windows 95/98 Installation Disk	\aureal\win9X
Microsoft DirectX 6.0	\Utility\directx\dxsetup
Vortex Application Setup	\aureal\win9X
PCI Multifunction Audio Device	\aureal\win9X

B. UNINSTALLING WINDOWS 95/98 DRIVERS

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

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

2. Open the "Multifunction Adapters" tree and select "Vortex Multifunction PCI Platform".

3. Press the "Remove" button at the bottom of the Device Manager window pane.

4. The drivers are now removed from memory, but are still on the hard disk. To delete the files from the hard disk:

    a.   Open the Windows 95/98 control panel's "Add/Remove Programs" applet.

    b.   To remove the drivers, double-click "Aureal Vortex". A Vortex uninstaller application starts.

    c.   To remove the demo applications, double-click "Aureal Vortex Applications". There is no need to reboot the computer.

For Technical Support please contact your board manufacturer.

Aureal. A3D, A3D-I, A3D-Interactive, and the Aureal logo are trademarks and Vortex is a registered trademark of Aureal Semiconductor Inc.

All other trademarks are owned their respective owners.

Appendix D : BIOS Flash Procedure

BIOS update procedure:

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

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

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

✓ Type the following command once you have enter the directory where all the files are located
   C:\utility\ AWDFlash or AMIFlash <filename of the BIOS binary file intended for flashing>

✓ Once the process is finished, reboot the system

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

Appendix E : Acronyms

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

Acro.	Meaning	Acro.	Meaning	Acro.	Meaning
DRM	Dual retention mechanism	PAC	PCI A.G.P. controller	PCI	Peripheral component interconnect
ISA	Industry standard architecture	AMR	Audio Modem Riser	RIMM	Rambus In-line Memory Midule
CRIMM	Continuity RIMM				