Chapter 3
BIOS Description

Utility Support:

AWDFLASH.EXE

This is a flash memory write/read utility used for the purpose of upgrading your BIOS when necessary. Before doing so, please note:

- **We strongly recommend you only upgrade BIOS when encounter problems.**
- **Before upgrading your BIOS, review the description below to avoid making mistakes, destroying the BIOS and resulting in a non-working system.**

When you encounter problems, for example, you find your system does not support the latest CPU released after our current mainboard, you may therefore upgrade the BIOS, please don't forget to set JAV as close and disable the "Flash Write Protect" item in AWARD BIOS CMOS Setup first (refer to page 26).

Follow the steps exactly for a successful upgrade.

1. Create a bootable system floppy diskette by typing Format A:/s from the DOS prompt under DOS6.xx or Windows 9x environment.
2. Copy AWDFLASH.EXE (version>7.07) from the directory \Utility located on QDI Mainboard Utility CD onto your new bootable diskette.
3. Download the updated BIOS file from the Website (http://www.qdigrp.com). Please be sure to download the suitable BIOS file for your mainboard.
4. Uncompress the file download, copy the BIOS file (xx.bin) onto the bootable diskette, and note the checksum of this BIOS which is located in readme file.
5. Reboot the system from the bootable diskette created.
6. Then run the AWDFLASH utility at the **A:** prompt as shown below:

   A:\AWDFLASH xxxx.bin

   Follow the instruction through the process. Don't turn off power or reset the system until the BIOS upgrade has been completed.

If you require more detailed information concerning AWDFLASH Utility, for example, the different usage of parameters, please type A:\>AWDFLASH /?

AWARD BIOS Description

Entering Setup

Power on the computer, when the following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press the <Ctrl> + <Alt> + <Esc> keys, to enter the AWARD BIOS CMOS Setup Utility.

Press <Del> to enter SETUP

Once you have entered, the Main Menu (Figure 1) appears on the screen. The main menu allows you to select from twelve setup functions and two exit choices. Use the arrow keys to select among the items and press the <Enter> key to accept or enter the sub-menu.

Figure-1 Main Menu

Note:The "System Monitor" item will not be displayed if there is no system monitor hardware on the mainboard.

Load Setup Defaults

The Setup Defaults are common and efficient. It is recommended that users load the setup defaults first, then modify the needed configuration settings.

Standard CMOS Setup

The basic CMOS settings included in "Standard CMOS Setup" are Date, Time, Hard Disk Drive Types, Floppy Disk Drive Types, and VGA etc. Use the arrow keys to highlight the item, then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure-2 Standard CMOS Setup Menu

Hard Disk

Primary Master/Primary Slave/Secondary Master/Secondary Slave

These categories identify the HDD types of 2 IDE channels installed in the computer system. There are three choices provided for the Enhanced IDE BIOS: None, Auto, and User."None" means no HDD is installed or set; "Auto" means the system can auto-detect the hard disk when booting up; by choosing "User", the related information should be entered regarding the following items. Enter the information directly from the keyboard and press < Enter>:

CYLS	number of cylinders	HEAD	number of heads
PRECOMP	write pre-compensation	LANDZ	landing zone
SECTOR	number of sectors	MODE	HDD access mode

Video

Set this field to the type of video display card installed in your system.

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

Halt On

This category determines whether or not the computer will stop if an error is detected during powering up.

No errors	The system boot will not stop for any errors that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; but it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, but it will stop for all other errors.

Memory

This is a Display-Only Category, 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.
Extended Memory	The BIOS determines how much extended memory is presented during the POST.
Other Memory	This is the memory that can be used for different applications. Shadow RAM is most used in this area.
Total Memory	Total memory of the system equals the sum of the above memory.

SpeedEasy CPU Setup

Figure-3 SpeedEasy CPU Setup

The following indicates the options for each item and describes their meanings .

Item	Option	Description
● CPU Model		BIOS automatically detects the CPU model, therefore this item is shown only. It could be Pentium(R)II, Intel (R) Celeron(TM) or Pentium III(R) depending on the processor chosen.
● CPU Speed	*SpeedEasy*	CPU frequency should be set according to the CPU type. For Celeron™ or Pentium®II (66MHz front-side bus) processors, you can choose from 200MHz (66X3)~533MHz (66x8), For Pentium®II or Pentium®III processors with 100 or 133/150MHz front-side bus, you can select from 300MHz(100X3)~800MHz(100x8), 400MHz(133x3) ~ 800MHz(133x6).
	Jumper Emulation	This item is only for users who understand all the CPU parameters, i.e. System Bus Frequency ‘ 155 /133/ 66 MHz’ and multiplication of Processor Core Frequency to System Bus frequency “x2, x2.5, x3, x3.5, x4, x4.5, x5, x5.5, x6, x6.5, x7, x7.5, x8”.
● DRAM frequency	*Bus clock*	DRAM frequency same as CPU FSB. (the default is suggested to choose)
	Bus clock+33MHz	DRAM frequency is faster than CPU FSB by 33MHz.
	Bus clock-33MHz	DRAM frequency is slower than CPU FSB by 33MHz.
● Clock Spread Spectrum	*Enabled*	Enables Clock Spread Spectrum to reduce EMI. you can choose 133/140/150MHz host bus speed.
	Disabled	Disables Clock Spread Specturm.

Note:

Dot not set CPU frequency higher than its working frequency. If you do, we will not be responsible for any damages caused.

BIOS Features Setup

Figure-4 BIOS Features Setup Menu

The following indicates the options for each item and describes their meaning.

Item	Option	Description
● ChipAway Virus On Guard	*Enabled*	Guards against boot Virus threats early in the boot cycle, before they have a chance to load into your system, ensuring your computer boots to a clean operating system.
	Disabled	Invalidates this function.
● CPU L1/L2 Cache	*Enabled*	Enables CPU internal Level1/Level2 cache.
	Disabled	Disables CPU internal Level1/Level2 cache.
● CPU L2 Cache ECC	*Enabled*	Enables CPU L2 Cache ECC (Error Checking and Correction) function.
	Disabled	Disables CPU L2 Cache ECC function.
● Processor Number Feature	*Enabled*	Pentium®III Processor Number can be readable.
	Disabled	Pentium®III Processor Number can be unreadable.
● Quick Power On Self Test	*Enabled*	Enables quick POST. BIOS will shorten or skip some check items during POST to speed up POST after you power on the computer.
	Disabled	Normal POST.
● Boot from LAN first	*Enabled*	Boot from LAN is ahead of any boot sequence selection (LAN adapter must support this function).
	Disabled	Does not boot from LAN first.
● Boot Sequence	*C,A,SCSI,... C,CDROM,A LS/ZIP, C*	Any search sequency can be chosen for booting.
● Swap Floppy Drive	*Enabled*	Exchanges the assignment of A&B floppy drives.
	Disabled	The assignment of A&B floppy drives are normal.

● Boot Up Numlock Status	*On*	Keypad is used as number keys.
	Off	Keypad is used as arrow keys.
● Gate A20 Option	*Normal*	The A20 signal is controlled by the keyboard controller or chipset hardware.
	Fast	Default setting. The A20 signal is controlled by Port 92 or the chipset specific method.
● Memory Parity/ ECC Check	*Enabled*	Enables the Error Checking & Correction if ECC memory is used.
	Disabled	Disables the ECC function.
● Password Setting	*System*	The system will not boot and access to BIOS Setup will be denied if the correct password is not entered when prompted.
	Setup	The system will boot up, but access to BIOS Setup will be denied if the correct password is not entered when prompted.
● IDE Second Channel Control	*Enabled*	Enables the second IDE channel.
	Disabled	Disables the second IDE channel and releases the IRQ.
● OS Select For DRAM>64MB	*Non-OS2*	If your operating system is not OS/2, please select this item.
	OS2	If system DRAM is more than 64MB and the operating system is OS/2, please select this item.
● HDD S.M.A.R.T Capability	*Enabled*	Enables S.M.A.R.T hard disk support.
	Disabled	Invalidates this feature.
● Video BIOS Shadow	*Enabled*	Video BIOS will be copied to RAM. Video Shadow will increase the video speed.
	Disabled	Video shadow is disabled.
● C8000~CBFFF Shadow: DC000-DFFFF Shadow:	*Enabled*	Optional ROM will be copied to RAM by 16K bytes per unit.
	Disabled	The shadow function is disabled.
● Delay For HDD 0~15 (Secs):	*0~15*	Sets the pre-delay time for hard disk to be accessed by the system.
● Show Bootup Logo	*Disabled*	Enables the logo when system boots up.
	Enabled	Logo will not be shown when system boots up.
● Flash Write Protect	*Enabled*	Does not allow you to upgrade the BIOS. **Note: Enabling this item can protect the system BIOS from being attacked by severe virus such as CIH. Therefore disable this item only when wanting to flash BIOS, afterwards set this item as Enabled (default).**
	Disabled	Disabling this item allows you to upgrade the BIOS.

Chipset Features Setup

Figure-5 Chipset Features Setup Menu

The following indicates the options for each item and describes their meaning.

Item	Option	Description
● Bank 0/1, 2/3, 4/5 DRAM Timing	*EDO 50ns* *EDO 60ns* *Normal* *Medium* *Fast* *Turbo*	These items are of selected EDO DRAM read/ write timing. Ensure your DIMMs are as fast as 50ns, otherwise select 60ns. The faster you choose, the higher performance you receive.
● SDRAM Cycle Length	*2/3*	Define the CLT timing parameter of SDRAM expressed in 66MHz clocks. Latency Time = 2 clocks Latency Time = 3 clocks
● Memory Hole	*Enabled*	Memory Hole at 15-16M is reserved for expanded ISA card.
	Disabled	Do not set this memory hole.
● Read Around Write	*Enabled*	Enables read around Write.
	Disabled	Disables read around write.
● Concurrent PCI/ HOST	*Enabled*	Enables concurrent PCI/Host.
	Disabled	Disables concurrent PCI/Host.
● System BIOS Cacheable	*Enabled*	Beside conventioal memory, system BIOS area is also cacheable.
	Disabled	System BIOS area is not cacheable.
● Video RAM Cacheable	*Enabled*	Besides conventional memory, video RAM is also cacheable.
	Disabled	Video RAM area is not cacheable.
● AGP Aperture Size (MB)	*4~256*	Sets the effective size of the Graphics Aperture to be used in the particular PAC Configuration.

● AGP-2X Mode	*Enabled*	Supports 133MHz 2X mode.
	Disabled	Does not support 133MHz 2X mode.
● Onchip USB	*Enabled*	Enables the onchip USB controller.
	Disabled	Disables the onchip USB controller.
● USB Keyboard Support	*Enabled*	USB keyboard support is enabled.
	Disabled	USB keyboard support is disabled.
● Close Empty DIMM/PCI Clk	*Enabled*	Closes empty DIMM or PCI clock to reduce EMI.
	Disabled	Does not close empty DIMM or PCI clock.

Power Management Setup

Figure-6 Power Management Setup Menu

The following indicates the options for each item and describes their meaning.

Item	Option	Description
● ACPI function	*Enabled*	Validates ACPI function.
	Disabled	Invalidates ACPI function.
● Power Management	*User Define*	Users can configure their own Power Management Timer.
	Min Saving	Pre - defined timer values are used. All timers are in their MAX values.
	Max Saving	Pre - defined timer values are used. All timers are in their MIN values.
● PM Control by APM	No	System BIOS will ignore APM when Power Management is enabled.
	Yes	System BIOS will wait for APM' s prompt before entering any PM mode e.g. Standby or Suspend.
● Video off after	*N/A*	System BIOS will never turn off the screen.
	Suspend	screen off after system enters into Suspend mode.
	standby	Screen off after system enters into Standby mode.
	Doze	Screen off after system enters into Doze mode.
● Video Off Method	*Blank Screen*	The system BIOS will only blank off the screen when disabling video.
	V / H SYNC + Blank	In addition to Blank Screen, BIOS will also turn off the V-SYNC & H - SYNC signals from VGA cards to monitor.
	DPMS Support	This function is enabled only for the VGA card supporting DPMS.
● Soft-off by PWRBTN	*Instant-off*	The system will power off immediately once the power button is pressed.
	Delay 4 Sec	The system will not power off until the power button has been pressed continuously for more than 4 seconds.

● CPU Fan In Suspend	*On*	CPU fan remains on when the system enters suspend mode.
	Off	CPU fan will be automatically turned off when the system enters suspend mode.
● HDD Power Down	*Disabled*	Disables HDD Power Down Timer.
	1 ~15 Min	Defines the continuous HDD idle time before the HDD enters power saving mode (motor off).
● Doze mode	*Disabled*	The system never enters Doze mode.
	10Sec ~ 1 Hr	Defines the continuous idle time before the system enters Doze mode. If any items defined in "PM Events" are on and activated, the system will be woken up.
● Suspend Mode	*Disabled*	The system never enters Suspend mode.
	10Sec~ 1Hr	Defines the continuous idle time before the system enters Suspend mode. If any items defined in "PM Events" are on and activated, the system will be woken up.
● Wake up on LAN	*Enabled*	Allows the system to be powered on when a remote waker-up signal comes up to the WOL headerfrom LAN adapter.
	Disabled	Does not allow wake-up on LAN.
● VGA	*On*	VGA active reloads global timer.
	Off	VGA active has no influence to global timer.
● LPT&COM	*LPT/COM*	Set the options of these items to reload global timer.
HDD&FDD	*OFF/ON*	
DMA/master	*ON/OFF*	
● Wake Up On LAN	*Enabled*	Allows the system to be powered on when a remote wake up signal comes up to the WOL header from LAN adapter, or when a ring indicator signal comes up to UART1/UART2 from an external modem or comes up to WOM header from an internal modem card.
	Disabled	Does not allow wake up on LAN.
● Modem Ring Resume	*Enabled*	Allows the system to be powered up when a ring indicator singal comes up to UART1 or UART2 from an external modem or comes up to WOM header from an internal modem card.
	Disabled	Does not allow Ring Power-on.
● RTC Alarm Resume	*Enabled*	RTC alarm can be used to generate a wake event to power up the system which is in soft power-down status. You can set any date or any time to power up the system.
	Disabled	RTC has no alarm function.
● Primary INTR	*Primary*	Reload global timer.
IRQ (3-15)	*Secondary*	No influence to global timer, except finishing an operation that IRQ "X" requests.
	Disabled	No influence to global timer.
● HDD Down In Suspend	*Enabled*	HDD's motor will be off when the system enters suspend mode.

PNP/PCI Configuration Setup

Figure-7 PNP/PCI Configuration Setup Menu

The following indicates the options for each item and describes their meaning.

Item	Option	Description
● PNP OS Installed	*Yes*	Device resources assigned by PnP OS.
	No	Device resources assigned by BIOS.
● Resources Controlled By	*Manual*	Assigns the system resources (IRQ and DMA) manually .
	Auto	Assigns system resources (IRQ and DMA) automatically by BIOS.
● Reset Configuration Data	*Enabled*	The system BIOS will reset configuration data once then automatically set this item as disabled.
	Disabled	Disables the configuration data function.
● IRQ-3~IRQ-15 assigned to	*Legacy ISA*	The specified IRQ-x will be assigned to ISA only.
	PCI/ISA PnP	The specified IRQ-x will be assigned to ISA or PCI.
● DMA-0~DMA-7 assigned to	*Legacy ISA*	The specified DMA-x will be assigned to ISA only.
	PCI/ISA PnP	The specified DMA-x will be assigned to ISA or PCI.
● CPU to PCI Write Buffer	*Enabled*	Enables CPU to PCI Write Buffer.
	Disabled	Disables CPU to PCI Write Buffer.
● PCI Dynamic Bursting	*Enabled*	Enables PCI Dynamic Bursting.
	Disabled	Disables PCI Dynamic Bursting.
● PCI Master 0 ws Write	*Enabled*	Enables PCI Master ws Write.
	Disabled	Disables PCI Master ws Write.
● PCI Delay Transaction	*Enabled*	Enables PCI Delay Transaction.
	Disabled	Disables PCI Delay Transaction.

● PCI #2 Access #1 Retry	*Enabled*	Enables PCI #2 Access #1 Retry.
	Disabled	Disables PCI #2 Access #1 Retry.
● AGP Master 1 ws Write	*Enabled*	Enables AGP Master 1 ws Write.
	Disabled	Disables AGP Master 1 ws Write.
● AGP Master 1 ws Read	*Enabled*	Enables AGP Master 1 ws Read.
	Disabled	Disables AGP Master 1 ws Read.
● PCI IRQ Actived By	*Level*	Select PCI IRQ Active mode.
	Edge	
● Assign IRQ for USB	*Enabled*	Assigns an IRQ for USB. If an USB device is used, enables this item.
	Disabled	Does not assign an IRQ for USB. If no USB device is used, disabling this item can release the IRQ.
● Assign IRQ for VGA	*Enabled*	Assigns the needed IRQ for the VGA Card.
	Disabled	Does not assign an IRQ for the VGA card, in order to release the IRQ.

Integrated Peripherals

Figure-8 Integrated Peripherals Menu

The following indicates the options for each item and describes their meaning.

Item	Option	Description
● OnChip IDE channel 0/1	*Enabled*	Enables OnChip IDE First/Second Channel.
	Disabled	Disables OnChip IDE First/Second Channel.
● IDE Prefetch/Mode	*Enabled*	Enables IDE Prefetch Mode.
	Disabled	Disables IDE Prefetch Mode.
● IDE HDD Block Mode	*Enabled*	Allows IDE HDD to read/write several sectors at once.
	Disabled	IDE HDD only read/write a sector once.
● IDE Primary/ Secondary Master/Slave PIO	*Mode 0 - 4*	Defines the IDE primary/secondary master/ slave PIO mode.
	Auto	The IDE PIO mode is defined by auto -detection.
● IDE Primary/ Secondary Master/Slave UDMA	*Auto*	Ultra DMA mode will be enabled if an ultra DMA device is detected.
	Disabled	Disables this function.
● Init Display First	*PCI SLOT*	Initializes the PCI VGA first. If a PCI VGA card and an AGP card are installed together in the system, the one initialized first functions.
	AGP	Initializes the AGP first.
●POWER ON FUNCTION	*Password* /Button	Either the power button or the keybboard password can be used to power up the system. Other than choosing this option, the password should be set to implement the keyboard pass-word power-on function.
	Button Only	Disables the keyboard password power-on function. The system can be powered on only by the power switch.

	Password	Enables the keyboard password power-on function and disables the power button' s power-on function. Other than choosing this option, the password should be set to implement this function. **Note: 1. If the option(Password) is chosen, the jumper JKB must be set as pin1&pin2 closed, or you will be unable to power up the system.** **2. The keyboard password must be set no more than 5 characters and can only use the numbers and alphabetic letters. The password will always remain unless you clear CMOS or reset it.**
● Onboard FDC Controller	*Enabled*	Onboard floppy disk controller is enabled.
	Disabled	Onboard floppy disk controller is disabled.
● Onboard Serial Port 1/2	*3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3,*	Defines the onboard serial port address and required interrupt number.
	Auto	Onboard serial port address and IRQ are automatically assigned
	Disabled	Onboard serial port is disabled.
● Serial Port 2 Mode	*Standard*	Defines Serial Port 2 as standard serial port.
	Sharp IR	Supports SHARP ASK-IR protocol with maximum baud rate up to 57600bps.
	IrDA SIR	Supports IrDA version1.0 SIR protocol with maxiumum baud rate up to 115.2Kbps.
● Onboard Parallel Port	*378/IRQ7, 278/IRQ5, 3BC/IRQ7*	Defines onboard parallel port address and IRQ channel.
	Disabled	Onboard parallel port is disabled.
● Parallel Port Mode	*SPP*	Defines the parallel port mode as
	EPP	Standard Parallel Port (SPP), Enhanced
	ECP,	Parallel Port (EPP), or Extended
	ECP+EPP	Capabilities Port (ECP).

System Monitor

Figure-9 System Monitor Menu

The following describes the meaning of each item.

Item	Current Data Shown	Description
● Current System Temp.	*30°C/ 86°F*	The temperature inside the chassis.
● Current CHSFAN Speed	*2010RPM*	connected to the fan header CPUFAN/ CHSFAN/BAKFAN.
Current CPUFAN Speed	*4320RPM*	RPM(Revolution Per Minute) speed of fan. Fan speed value is based on an assumption that tachometer signal is two pulses per revolution; In other cases, you should regard it relatively.
● +3.3V Voltage VTT(+1.5V) Voltage, + 5V VCCVID(CPU) Voltage +12V -12V	*3.32V* *1.37V* *4.84V* *1.98V* *11.79V* *-12.03V*	Displays current Voltage values including all significant voltages of the mainboard. +3.3V, +5V, +12V, -12V, are voltages from the ATX power supply, VTT (+1.5) Voltage is GTL Termination Voltage from the on-board regulator, and VCCVID (CPU) Voltage is the CPU core voltage from the on board switching power supply.
● Chassis Status Closed	*Closed* *Opened*	Indicates status of chassis is closed. Indicates status of chassis is opened.

Supervisor/ User Password setting

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any 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.

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

PASSWORD DISABLED

If you have selected "**System**" in "Password Setting" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or any time you try to enter BIOS Setup.

If you have selected "**Setup**" at "Password Setting" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter BIOS Setup.

Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering "CMOS Setup" to modify all settings. Also you can use User Password when booting the system or entering "CMOS Setup" but can not modify any setting if Supervisor Password is enabled.

IDE HDD Auto Detection

The Enhanced IDE features are included in all Award BIOS. Below is a brief description of these features.

ROM PCI/ISA BIOS (2A69KQ10)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:								

Select Primary Master Option (N=Skip): N

OPTION	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2(Y)	541	525	32	0	1049	67	LBA
1	541	1050	16	65535	1049	63	NORMAL
3	541	525	32	65535	1049	63	LARG

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

ESC: Skip

Figure-11 IDE HDD Auto Detection Menu

1. Setup Changes

With auto-detection

- BIOS setup will display all possible modes supported by the HDD including NORMAL, LBA and LARGE.
- If HDD does not support LBA modes, no "LBA" option will be shown.
- If number of physical cylinder is less than or equal to 1024, "LARGE" option may not be shown.
- Users can select their appropriate mode .

With Standard CMOS Setup

	CYLS	HEADS	PRECOMP	LAND ZONE	SECTOR	MODE
Drive C: User(516MB)	1120	16	65535	1119	59	Normal
Drive D: None(203MB)	684	16	65535	685	38	--------

When HDD type is set as "user", the "MODE" option will be available for users to select their own HDD mode.

2. **HDD Modes**

The Award BIOS supports 3 HDD modes: NORMAL, LBA and LARGE.

NORMAL

Generic access mode in which neither the BIOS nor the IDE controller will make any transformation during accessing. The maximum number of cylinders, heads and sectors for NORMAL mode are 1024,16 and 63.

If the user sets his HDD to NORMAL mode, the maximum accessible HDD size will be 528 megabytes even though its physical size may be greater than that.

LBA (Logical Block Addressing) mode

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads and sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head and cylinder number into its own physical address inside the HDD. The maximum HDD size supported by LBA mode is 8.4 Gigabytes.

LARGE mode

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, users do not want LBA). The Award BIOS provides another alternative to support these kinds of HDD.

BIOS tricks DOS (or other OS) into recognizing the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT13h in order to access the right HDD address.

If using Auto detect, the BIOS will automatically detect the IDE hard disk mode and set it as one of the three modes.

3. **Remark**

To support LBA or LARGE mode of HDDs, there must be some softwares involved which are located in Award HDD Service Routine(INT13h).It may fail to access a HDD with LBA (LARGE) mode selected if you are running under an Operating System which replaces the whole INT 13h.

Boot with BIOS defaults

If you have made all the changes to CMOS values and the system can not boot with the CMOS values selected in setup, clear CMOS after power-down, then power on again. System will boot with BIOS default settings.

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