Chapter   3

Award BIOS

This chapter tells how to configure the system parameters. You may update your BIOS via AWARD Flash Utility.

Important: *Because the BIOS code is the most often changed part of the mainboard design, the BIOS information contained in this chapter (especially the Chipset Setup parameters) may be a little different compared to the actual BIOS that came with your mainboard.*

3.1   Entering the Award BIOS Setup Menu

The BIOS setup utility is a segment of codes/routines residing in the BIOS Flash ROM. This routine allows you to configure the system parameters and save the configuration into the 128 byte CMOS area, (normally in the RTC chip or directly in the main chipset). To enter the BIOS Setup, press [DEL] during POST (Power-On Self Test). The BIOS Setup Main Menu appears as follows.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                        CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.

┌─────────────────────────────────────────────────────────────────┐
│  STANDARD CMOS SETUP          │   INTEGRATED PERIPHRALS           │
│  BIOS FEATURES SETUP          │   PASSWORD SETTING                │
│  CHIPSET FEATURES SETUP       │   IDE HDD AUTO DETECTION          │
│  POWER MANAGEMENT SETUP       │   SAVE & EXIT SETUP               │
│  PNP/PCI CONFIGURATION SETUP  │   EXIT WITHOUT SAVING             │
│  LOAD SETUP DEFAULTS          │                                   │
│  LOAD TURBO DEFAULTS          │                                   │
├───────────────────────────────┴───────────────────────────────────┤
│   ESC  :  Quit              ↑ ↓ → ←  :  Select Item               │
│   F10  :  Save & Exit Setup  (Shift) F2  :  Change Color          │
├───────────────────────────────────────────────────────────────────┤
│  Description of each function                                      │
└───────────────────────────────────────────────────────────────────┘
```

> *Tip*: Choose "Load Setup Defaults" for recommended optimal performance. Choose "Load Turbo Defaults" for best performance with light system loading. Refer to section 3.7.

The section at the bottom of the screen tells how to control the screen. Use the arrow keys to move between items, SHIFT F2 to color scheme of the display, ESC to exit, and F10 to save the changes before exit. Another section at the bottom of the screen displays a brief description of the highlighted item.

After selecting an item, press ENTER to select or enter a submenu.

3.2   Standard CMOS Setup

The "Standard CMOS Setup" sets the basic system parameters such as the date, time, and the hard disk type. Use the arrow keys to highlight an item and PGUP or PGDN to select the value for each item.

```
ROM PCI/ISA BIOS (XXXXXXXX)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.
```

```
Date (mm:dd:yy)  :  Wed.  Mar  6  1996
Time (hh:mm:ss)  :  00:00:00


HARD DISK        TYPE   SIZE   CYLS   HEAD   PRECOMP   LANDZ   SECTORS   MODE
Primary Master  : Auto    0      0      0         0       0         0   AUTO
Primary Slave   : Auto    0      0      0         0       0         0   AUTO
Secondary Master: Auto    0      0      0         0       0         0   AUTO
Secondary Slave : Auto    0      0      0         0       0         0   AUTO


Drive A :  1.44M, 3.5 in
Drive B :  None                      Base Memory :     640 K
                               Extended Memory:   15360 K
Video   :  EGA/VGA               Other Memory :     384 K
Halt On :  All Errors           Total Memory :   16384 K

 ESC  :  Quit              ↑ ↓ → ← :  Select Item
 F10  :  Save & Exit Setup    (Shift) F2  :  Change Color
```

Standard CMOS→ Date

To set the date, highlight the Date parameter. Press [PGUP] or [PGDN] to set the current date. The date format is month, date, and year.

Standard CMOS→ Time

To set the time, highlight the Time parameter. Press [PGUP] or [PGDN] to set the current time in hour, minute, and second format. The time is based on the 24 hour military clock.

AWARD BIOS

Standard CMOS→ Primary Master→ Type
Standard CMOS→ Primary Slave→ Type
Standard CMOS→ Secondary Master→ Type
Standard CMOS→ Secondary Slave→ Type

Type
Auto
User
None
1
2
...
45

This item lets you select the IDE hard disk parameters that your system supports. These parameters are Size, Number of Cylinder, Number of Head, Start Cylinder for Pre-compensation, Cylinder number of Head Landing Zone and Number of Sector per Track. The default setting is **Auto**, which enables BIOS to automatically detect the parameters of installed HDD at POST (Power-On Self Test). If you prefer to enter HDD parameters manually, select User. Select None if no HDD is connected to the system.

The IDE CDROM is always automatically detected.

> *Tip: For an IDE hard disk, we recommend that you use the "IDE HDD Auto Detection" to enter the drive specifications automatically. See the section "IDE HDD Auto Detection".*

Standard CMOS→ Primary Master→ Mode
Standard CMOS→ Primary Slave→ Mode
Standard CMOS→ Secondary Master→ Mode
Standard CMOS→ Secondary Slave→ Mode

Mode
Auto
Normal
LBA
Large

The enhanced IDE feature allows the system to use a hard disk with a capacity of more than 528MB. This is made possible through the Logical Block Address (LBA) mode translation. The LBA is now considered as a standard feature of current IDE hard disk on the market because of its capability to support capacity larger than 528MB. Note that if HDD is formatted with LBA On, it will not be able to boot with LBA Off.

Standard CMOS→ Drive A
Standard CMOS→ Drive B

Drive A
None
360KB 5.25"
1.2MB 5.25"
720KB 3.5"
1.44MB 3.5"
2.88MB 3.5"

These items select floppy drive type. The available settings and types supported by the mainboard are listed on the left.

Standard CMOS→ Video

Video
EGA/VGA
CGA40
CGA80
Mono

This item specifies the type of video card in use. The default setting is VGA/EGA. Since current PCs use VGA only, this function is almost useless and may be disregarded in the future.

Standard CMOS→ Halt On

Halt On
No Errors
All Errors
All, But Keyboard
All, But Diskette
All, But Disk/Key

This parameter enables you to control the system stops in case of Power-On Self Test (POST) error.

3.3   BIOS Features Setup

This screen appears when you select the option "BIOS Features Setup" from the main menu.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                        BIOS FEATURES SETUP
                        AWARD SOFTWARE, INC.

 ┌─────────────────────────────────────┬─────────────────────────────────────┐
 │ Virus Warning            : Disabled │ Video BIOS Shadow  :  Enabled       │
 │ External Cache           : Enabled  │ C8000-CBFFF Shadow :  Disabled      │
 │ Quick Power On Self Test : Enabled  │ CC000-CFFFF Shadow :  Disabled      │
 │ Boot Sequence            : A,C,SCSI │ D0000-D3FFF Shadow :  Disabled      │
 │ Swap Floppy Drive        : Disabled │ D4000-D7FFF Shadow :  Disabled      │
 │ Boot Up Floppy Seek      : Disabled │ D8000-DBFFF Shadow :  Disabled      │
 │ Boot Up NumLock Status   : ON       │ DC000-DFFFF Shadow :  Disabled      │
 │ Boot Up System Speed     : High     │                                     │
 │ Typematic Rate Setting   : Disabled ├─────────────────────────────────────┤
 │ Typematic Rate (Chars/Sec) : 6      │ ESC: Quit         ↑↓→← : Select Item│
 │ Typematic Delay (Msec)   : 250      │ F1 : Help         PU/PD/+/-  : Modify│
 │ Security Option          : Setup    │ F5 : Old Values   (Shift) F2 : Color │
 │ PCI/VGA Palette Snoop    : Disabled │ F6 : Load Setup Defaults            │
 │ OS Select for DRAM > 64MB : Non-OS/2│ F7 : Load Turbo Defaults           │
 └─────────────────────────────────────┴─────────────────────────────────────┘
```

BIOS Features→ Virus Warning

Virus Warning	Set this parameter to Enabled to activate the warning message. This feature protects the boot sector and partition table of your hard disk from virus intrusion.
Enabled Disabled	Any attempt during boot up to write to the boot sector of the hard disk drive stops the system and the following warning message appears on the screen. Run an anti-virus program to locate the problem.

```
 ┌───────────────────────────────────────────────┐
 │                  ! WARNING !                   │
 │        Disk Boot Sector is to be modified      │
 │ Type "Y" to accept write, or "N" to abort write│
 │             Award Software, Inc.               │
 └───────────────────────────────────────────────┘
```

BIOS Features→ External Cache

External Cache	Enabling this parameter activates the secondary cache (currently, PBSRAM cache). Disabling the parameter slows down the system. Therefore, we recommend that you leave it enabled unless you are troubleshooting a problem.
Enabled	
Disabled	

BIOS Features→ Power-On Self-Test

Quick Power-on Self-test	This parameter speeds up POST by skipping some items that are normally checked.
Enable	
Disabled	

BIOS Features→ Boot Sequence

Boot Sequence	This parameter allows you to specify the system boot up search sequence. The hard disk ID are listed below:
A,C,SCSI	
C,A,SCSI	C: Primary master
C,CDROM,A	D: Primary slave
CDROM,C,A	E: Secondary master
D,A,SCSI	F: Secondary slave
E,A,SCSI	
F,A,SCSI	
SCSI,A,C	
SCSI,C,A	
C only	

BIOS Features→ Swap Floppy Drive

Swap Floppy Drive	This item allows you to swap floppy drives. For example, if you have two floppy drives (A and B), you can assign the first drive as drive B and the second drive as drive A or vice-versa.
Enabled	
Disabled	

BIOS Features→ Boot-up Floppy Seek

AWARD BIOS

Boot-up Floppy Seek
Enabled
Disabled

When enabled, the BIOS issues the seek command to the floppy drive during POST to move floppy drive head forward and backward.

BIOS Features→ Boot-up NumLock Status

Boot-up NumLock Status
On
Off

Setting this parameter to On enables the numeric function of the numeric keypad. Set this parameter to Off to disregard the function. Disabling the numeric function allows you to use the numeric keypad for cursor control.

BIOS Features→ Boot-up System Speed

Boot-up System Speed
High
Low

Select High or Low system speed after boot.

BIOS Features→ Typematic Rate Setting

Typematic Rate Setting
Enabled
Disabled

Set this parameter to Enable/Disable the keyboard repeat function. When enabled, continually holding down a key on the keyboard will generate repeatedly keystrokes.

BIOS Features→ Typematic Rate

Typematic Rate
6
8
10
12
15
20
24
30

This item allows you to control the speed of repeated keystrokes. The default is 30 characters/sec .

BIOS Features→ Typematic Delay

Typematic Delay
250
500
750
1000

This parameter allows you to control the delay time between the first and the second keystroke (where the repeated keystrokes begin). The typematic delay settings are 250, 500, 750, and 1000 msec.

BIOS Features→ Security Option

Security Option
Setup
System

The **System** option limits access to both the System boot and BIOS setup. A prompt asking you to enter your password appears on the screen every time you boot the system.

The **Setup** option limits access only to BIOS setup.

To disable the security option, select Password Setting from the main menu, don't type anything and just press <Enter>.

BIOS Features→ PCI/VGA Palette Snoop

PCI/VGA Palette Snoop
Enabled
Disabled

Enabling this item informs the PCI VGA card to keep silent (and to prevent conflict) when palette register is updated (i.e., accepts data without responding any communication signals). This is useful only when two display cards use the same palette address and plugged in the PCI bus at the same time (such as MPEQ or Video capture). In such case, PCI VGA is silent while MPEQ/Video capture is set to function normally.

BIOS Features→ OS Select for DRAM > 64MB

OS Select for DRAM > 64MB
OS/2
Non-OS/2

Set to OS/2 if your system is utilizing an OS/2 operating system and has a memory size of more than 64 MB.

AWARD BIOS

BIOS Features→ Video BIOS Shadow

Video BIOS Shadow
Enabled
Disabled

VGA BIOS Shadowing means to copy video display card BIOS into the DRAM area. This enhances system performance because DRAM access time is faster than ROM.

BIOS Features→ C800-CBFF Shadow
BIOS Features→ CC00-CFFF Shadow
BIOS Features→ D000-D3FF Shadow
BIOS Features→ D400-D7FF Shadow
BIOS Features→ D800-DBFF Shadow
BIOS Features→ DC00-DFFF Shadow

C8000-CBFFF Shadow
Enabled
Disabled

These six items are for shadowing ROM code on other expansion cards. Before you set these parameters, you need to know the specific addresses of that ROM code. If you do not know this information, enable all the ROM shadow settings.

> **Note:** The F000 and E000 segments are always shadowed because BIOS code occupies these areas.

3.4 Chipset Features Setup

The "Chipset Features Setup" includes settings for the chipset dependent features. These features are related to system performance.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                       CHIPSET FEATURES SETUP
                        AWARD SOFTWARE, INC.

┌─────────────────────────────────────────┬──────────────────────────────────┐
│ Auto Configuration: Enabled              │ 8-bit I/O Recovery Time :4       │
│                                          │ 16-bit I/O Recovery Time:1       │
│ DRAM Speed Selection     :70 ns          │ Memory Hole At 15M-16M  :Disabled│
│ DRAM Read Burst (EDO/FP) :X333/x444      │ PCI Passive Release     :Disabled│
│ DRAM Write Burst (EDO/FP):X222/x333      │ PCI Delayed Transaction :Disabled│
│ DRAM Fast Leadoff        :Disabled       │                                  │
│ DRAM RAS# Precharge Time :3              │                                  │
│ MA Additional Wait State :Disabled       │                                  │
│ RAS# to CAS# Delay       :Disabled       │                                  │
│ DRAM Refresh Queue       :Enabled        │                                  │
│ DRAM RAS Only Refresh    :Disabled       │                                  │
│ Fast DRAM Refresh        :Disabled       │                                  │
│ DRAM ECC/Parity Selection:Disabled       │                                  │
│ ISA Bus Clock            :PCICLK/4       │                                  │
│                                          ├──────────────────────────────────┤
│ PCI Burst Write Combine  :Enabled        │ ESC: Quit      ↑↓→←   : Select Item│
│ PCI-to-DRAM Pipeline     :Enabled        │ F1 : Help      PU/PD/+/- : Modify │
│ CPU-to-PCI Write POST    :Enabled        │ F5 : Old Values (Shift) F2 : Color│
│ CPU-to-PCI IDE Posting   :Enabled        │ F6 : Load Setup Defaults          │
│ Read-Around-Write        :Enabled        │ F7 : Load Turbo Defaults          │
│ System BIOS Cacheable    :Enabled        │                                  │
│ Video BIOS Cacheable     :Disabled       │                                  │
└─────────────────────────────────────────┴──────────────────────────────────┘
```

> ⚠ **Caution:** *Make sure you fully understand the items contained in this menu before you try to change anything. You may change the parameter settings to improve system performance . However, it may cause system unstable if the setting are not correct for your system configuration.*

AWARD BIOS

Chipset Features→ Auto Configuration

Auto Configuration
Enabled
Disabled

When **Enabled**, the DRAM and cache related timing are set to pre-defined value according to CPU type and clock. Select **Disable** if you want to specify your own DRAM timing.

Chipset Features→ DRAM Timing

DRAM Timing
60 ns
70 ns

There are two sets of DRAM timing parameters can be automatically set by BIOS, 60ns and 70ns.

Warning: The default memory timing setting is 60ns to get the optimal performance. Because the specification limitation of chipset, 70ns SIMM can only be used with CPU external clock 60MHz. To use 70ns SIMM with 66MHz CPU external clock may result in unstable system behavior.

Chipset Features→ DRAM Read Burst (EDO/FP)

DRAM Read Burst (EDO/FP)
x444/x444
x333/x444
x222/x333

Read Burst means to read four continuous memory cycles on four predefined addresses from the DRAM. The default value is **x222/x333** for 60ns EDO or FPM (Fast Page Mode) DRAM. Which means the 2nd,3rd and 4th memory cycles are 2 CPU clocks for EDO and 3 clocks for FPM. The value of x is the timing of first memory cycle and depends on the "DRAM Fast Leadoff" setting.

Chipset Features→ DRAM Write Burst (EDO/FP)

DRAM Write Burst (EDO/FP)	Write Burst means to write four continuous memory cycles on four predefined addresses to the DRAM.
x444/x444	The default value is **x222/x333** for 60ns EDO or FPM (Fast Page Mode) DRAM. Which means the 2nd,3rd and 4th memory cycles are 2 CPU clocks for EDO and 3 clocks for FPM. The value of x is the timing of first memory cycle and depends on the "DRAM Fast Leadoff" setting.

Chipset Features→ **DRAM Fast Leadoff**

DRAM Fast Leadoff	This item enable or disable the DRAM Fast Leadoff Timing. If enabled, the first cycle is 7 clocks. If disabled, the first cycle is 8 clocks. The default must be **Disabled**.
Enabled	
Disabled	

Chipset Features→ **DRAM RAS#Precharge Time**

DRAM RAS Prechatge Time	The RAS Precharge means the timing to inactive RAS and the timing for DRAM to do precharge before next RAS can be issued. RAS is the address latch control signal of DRAM row address. The default is **3 clocks** for 60ns EDO.
3	
4	

Chipset Features→ **MA Additional Wait State**

MA Additional Wait State	To enable or disable one additional MA (DRAM memory address) wait state. The default is **Disabled**. Enable it if you have heavy loading (many chip count) or lower speed DRAM.
Disabled	
Enabled	

Chipset Features→ **RAS# to CAS# Delay**

RAS# to CAS# Delay	To enable or disable additional RAS# to CAS# delay. The default is **Disabled** for 60ns DRAM. Enable it if you have heavy loading (many chip count) or 70ns DRAM.
Disabled	
Enabled	

AWARD BIOS

Chipset Features→ DRAM Refresh Queue

DRAM Refresh Queue
Disabled
Enabled

This item enable or disable the 4-deep refresh queue of refresh request. If **Enabled**, all refresh requests are queued.

Chipset Features→ DRAM RAS Only Refresh

DRAM RAS Only Refresh
Disabled
Enabled

This item determines the DRAM refresh type. There are RAS-Only and CAS-before-RAS. The default is Disabled, that is, **CAS-before-RAS** refresh.

Chipset Features→ Fast DRAM Refresh

Fast DRAM Refresh
Disabled
Enabled

This item determines the DRAM refresh rate, it should be default **Disabled**, a faster DRAM refresh rate may slightly reduce performance. If you find your old DRAM is unstable, set this item to Enabled.

Chipset Features→ DRAM ECC/Parity Selection

DRAM ECC/Parity Selection
Parity
ECC
Disabled

There are three modes of memory error detection or correction, Parity mode, ECC mode and Disable. For detail, please refer to section "Configuring the System memory" in chapter 2.

Chipset Features→ ISA Bus Clock

ISA Bus Clock
PCICLK/4
PCICLK/3

This item selects the ISA bus clock. The PCI bus clock is the CPU bus (external) clock divided by 2, PCICLK= CPUCLK/2. For example, CPUCLK=66MHz, PCICLK= 66/2=33MHz, ISA bus CLK=33/4=8.25MHz.

Chipset Features→ PCI Burst Write Combine

PCI Burst Write Combine Enabled Disabled	If **Enabled**, the back-to-back sequential CPU to PCI rite cycles are combined together as a single burst write. Disable it, if you find any PCI card compatibility problem.

Chipset Features→ PCI-to-DRAM Pipeline

PCI-to-DRAM Pipeline Enabled Disabled	To enable or disable PCI to DRAM pipeline cycle. The write cycles will be queued in the FIFO or buffer, and CPU can be released to do next job.

Chipset Features→ CPU-to-PCI Write Post

CPU-to-PCI Write Post Enabled Disabled	To enable or disable CPU to PCI bus post write cycle. The write cycles will be queued in the FIFO or buffer, and CPU can be released to do next job.

Chipset Features→ CPU-to-PCI IDE Posting

CPU-to-PCI IDE Posting Enabled Disabled	To enable or disable CPU to PCI IDE post write cycle. The IDE write cycles will be queued in the FIFO or buffer, and CPU can be released to do next job. Disable it, if you find any IDE compatibility problem.

Chipset Features→ Read-Around-Write

Read-Around-Write Enabled Disabled	If Disabled, all posted write are retired before a CPU or PCI read access can be serviced. Disable it, if you find any PCI card compatibility problem.

AWARD BIOS

Chipset Features→ System BIOS Cacheable

System BIOS Cacheable
Enabled
Disabled

Enabling this item allows you to cache the system BIOS to further enhance system performance.

Chipset Features→ Video BIOS Cacheable

Video BIOS Cacheable
Enabled
Disabled

Allows the video BIOS to be cached to allow faster video performance.

Chipset Features→ 8 Bit I/O Recovery Time

8 Bit I/O Recovery Time
1
2
3
4
5
6
7
8
NA

For some old I/O chips, after the execution of an I/O command, the device requires a certain amount of time (recovery time) before the execution of the next I/O command. Because of new generation CPU and mainboard chipset, the assertion of I/O command is faster, and sometimes shorter than specified I/O recovery time of old I/O devices. This item lets you specify the delay of 8-bit I/O command by count of ISA bus clock. If you find any unstable 8-bit I/O card, you may try to extend the I/O recovery time via this item. The BIOS default value is **4 ISA clock.** If set to NA, the chipset will insert 3.5 system clocks.

Chipset Features→ 16 Bit I/O Recovery Time

16 Bit I/O Recovery Time
1
2
3
4
NA

The same as 16-bit I/O recovery time. This item lets you specify the recovery time for the execution of 16-bit I/O commands by count of ISA bus clock. If you find any of the installed 16-bit I/O cards unstable, try extending the I/O recovery time via this item. The BIOS default value is **1 ISA clocks**. If set to NA, the chipset will automatically insert 3.5 system clocks.

Chipset Features→ Memory Hole At 15M-16M

Memory Hole At 15M-16M	This option lets you reserve system memory area for special ISA cards. The chipset accesses code/data of these areas from the ISA bus directly. Normally, these areas are reserved for memory mapped I/O card.
Enabled Disabled	

Chipset Features→ PCI Passive Release

PCI Passive Release	This item lets you control the Passive Release function of the PIIX3 chipset (Intel PCI to ISA bridge). This function is used to meet latency of ISA bus master. Try to enable or disable it, if you have ISA card compatibility problem.
Enabled Disabled	

Chipset Features→ PCI Delayed Transaction

PCI Delayed Transaction	This item lets you control the Delayed Transaction function of the PIIX3 chipset (Intel PCI to ISA bridge). This function is used to meet latency of PCI cycles to or from ISA bus. Try to enable or disable it, if you have ISA card compatibility problem.
Enabled Disabled	

3.5 Power Management Setup

The Power Management Setup screen enables you to control the mainboard green features. See the following screen.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                      POWER MANAGEMENT SETUP
                      AWARD SOFTWARE, INC.

  Power Management   : Disabled     ** Power Down & Resume from Suspend **
  PM Control by APM  : Yes          IRQ3  (COM2)       :  Enabled
  Video Off Method   : V/H SYNC+Blank IRQ4  (COM1)      :  Enabled
  Video Off After    : Suspend      IRQ5  (LPT2)       :  Enabled
                                    IRQ6  (Floppy Disk):  Enabled
  Doze Mode          : Disabled     IRQ7  (LPT1)       :  Enabled
  Standby Mode       : Disabled     IRQ8  (RTC Alarm)  :  Disabled
  Suspend Mode       : Disabled     IRQ9  (IRQ2 Redir) :  Enabled
  HDD Power Down     : Disabled     IRQ10 (Reserved)   :  Enabled
                                    IRQ11 (Reserved)   :  Enabled
                                    IRQ12 (PS/2 Mouse) :  Enabled
                                    IRQ13 (Coprocessor):  Enabled
                                    IRQ14 (IDE1)       :  Enabled
                                    IRQ15 (IDE2)       :  Enabled
  ** Wake Up Events of Doze/Standby **
  IRQ3  (COM2)       :  Enabled     ESC: Quit      ↑↓→←   : Select Item
  IRQ4  (COM1)       :  Enabled     F1 : Help      PU/PD/+/- : Modify
  IRQ8  (RTC Alarm)  :  Disabled    F5 : Old Values  (Shift) F2 : Color
  IRQ12 (PS/2 Mouse) :  Enabled     F6 : Load Setup Defaults
                                    F7 : Load Turbo Defaults
```

Power Management→ Power Management

Power Management
Max Saving
Mix Saving
User Defined
Disabled

This function allows you to set the default parameters of power-saving modes. Set to **Disable** to turn off power management function. Set to User Defined to choose your own parameters.

Mode	Doze	Standby	Suspend	HDD Power Down
Min Saving	1 hour	1 hour	1 hour	15 min
Max Saving	1 min	1 min	1 min	1 min

Power Management→ PM Controlled by APM

PM Controlled by APM
Yes
No

If "Max Saving" is selected, you can turn on this item, transfer power management control to APM (Advanced Power Management) and enhance power saving function. For example, stop CPU internal clock.

Power Management→ Video Off Method

Video Off Method
Blank Screen
V/H SYNC+Blank
DPMS

This determines the way that monitor is off. Blank Screen writes blanks to video buffer. V/H SYNC+Blank allows BIOS to control VSYNC and HSYNC signals. This function applies only for DPMS (Display Power Management Standard) monitor. The DPMS mode uses DPMS function provided by VGA card.

Power Management→ Video Off After

Video Off After
N/A
Doze
Standby
Suspend

To turn off video monitor at which power down mode.

Power Management→ Doze Mode

Doze Mode
Disabled
1 Min
2 Min
4 Min
8 Min
12 Min
20 Min
30 Min
40 Min
1 Hour

This item lets you set the period of time after which the system enters into Doze mode. In this mode, the CPU clock slows down. The ratio is specified in the "Throttle Duty Cycle". Any activity detected returns the system to full power. The system activity (or event) is detected by monitoring the IRQ signals.

Power Management→ Standby Mode

Standby Mode
Disabled
1 Min
2 Min
4 Min
8 Min
12 Min
20 Min
30 Min
40 Min
1 Hour

This item lets you set the period of time after which the system enters into Standby mode. In this mode, CPU clock slows down, hard disk will be shut off and the monitor power-saving feature activates. Any activity detected returns the system to full power. The system activity (or event) is detected by monitoring the IRQ signals.

Power Management→ Suspend Mode

Suspend Mode
Disabled
1 Min
2 Min
4 Min
8 Min
12 Min
20 Min
30 Min
40 Min
1 Hour

This item lets you set the period of time after which the system enters into Suspend mode. The Suspend mode can be Power On Suspend or Suspend to Hard Drive, selected by "Suspend Mode Option".

Power Management→ HDD Power Down

HDD Power Down
Disabled
1 Min
.....
15 Min

This option lets you specify the IDE HDD idle time before the device enters the power down state. This item is independent from the power states previously described in this section (Standby and Suspend).

** Wake Up Events of Doze and Standby **
Power Management→ IRQ3 (COM2)WakeUp
Power Management→ IRQ4 (COM1)WakeUp
Power Management→ IRQ8 (RTC Alarm)WakeUp
Power Management→ IRQ12 (PS/2 Mouse)WakeUp

IRQ3 (COM2) WakeUp
Enabled
Disabled

To enable or disable the detection of COM port, RTC and PS/2 mouse activities for system to wake up during Doze and Standby. Note that OS2 has periodically IRQ8 (RTC) interruptions, If IRQ8 is not set to **Disabled**, OS/2 may fail to go into Doze/Standby/Suspend mode

AWARD BIOS

** Power Down and Resume from Suspend **
Power Management→ IRQ3 (COM2)
Power Management→ IRQ4 (COM1)
Power Management→ IRQ5 (LPT2)
Power Management→ IRQ6 (Floppy Disk)
Power Management→ IRQ8 (RTC Alarm)
Power Management→ IRQ9 (IRQ2 Redir)
Power Management→ IRQ10 (Reserved)
Power Management→ IRQ11 (Reserved)
Power Management→ IRQ12 (PS/2 Mouse)
Power Management→ IRQ13 (Coprocessor)
Power Management→ IRQ14 (IDE1)
Power Management→ IRQ15 (IDE2)

IRQ3 (COM2)	To enable or disable the detection of IRQ event for power down state transition and for resume from Suspend mode. Note that OS2 has periodically IRQ8 (RTC) interruptions, If IRQ8 is not set to **Disabled**, OS/2 may fail to go into Doze/Standby/Suspend mode.
Enabled	
Disabled	

3.6   PNP/PCI Configuration Setup

The PNP/PCI Configuration Setup allows you to configure the ISA and PCI devices installed in your system. The following screen appears if you select the option "PNP/PCI Configuration Setup" from the main menu.

```
                     ROM PCI/ISA BIOS (XXXXXXXX)
                     PNP/PCI CONFIGURATION SETUP
                         AWARD SOFTWARE, INC.

┌─────────────────────────────────────┬─────────────────────────────────────┐
│ PnP OS Installed       :  No         │ PCI IDE IRQ Map To     :  PCI-Auto   │
│ Resources Controlled By :  Manual    │ Primary IDE INT#       :  A          │
│ Reset Configuration Data :  Disabled │ Secondary IDE INT#     :  B          │
│                                      │ Used MEM base addr     :  N/A        │
│ IRQ 3 assigned to    :  PCI/ISA PnP  │ Used MEM Length        :  8K         │
│ IRQ 4 assigned to    :  PCI/ISA PnP  │                                      │
│ IRQ 5 assigned to    :  PCI/ISA PnP  │                                      │
│ IRQ 7 assigned to    :  PCI/ISA PnP  │                                      │
│ IRQ 9 assigned to    :  PCI/ISA PnP  │                                      │
│ IRQ 10 assigned to   :  PCI/ISA PnP  │                                      │
│ IRQ 11 assigned to   :  PCI/ISA PnP  │                                      │
│ IRQ 12 assigned to   :  PCI/ISA PnP  │                                      │
│ IRQ 14 assigned to   :  PCI/ISA PnP  │                                      │
│ IRQ 15 assigned to   :  PCI/ISA PnP  │                                      │
│ DMA 0 assigned to    :  PCI/ISA PnP  ├─────────────────────────────────────┤
│ DMA 1 assigned to    :  PCI/ISA PnP  │ ESC: Quit       ↑↓→← : Select Item   │
│ DMA 3 assigned to    :  PCI/ISA PnP  │ F1 : Help     PU/PD/+/- : Modify     │
│ DMA 5 assigned to    :  PCI/ISA PnP  │ F5 : Old Values   (Shift) F2 : Color │
│ DMA 6 assigned to    :  PCI/ISA PnP  │ F6 : Load Setup Defaults             │
│ DMA 7 assigned to    :  PCI/ISA PnP  │ F7 : Load Turbo Defaults             │
└─────────────────────────────────────┴─────────────────────────────────────┘
```

PNP/PCI Configuration→ PnP OS Installed

PnP OS Installed	Normally, the PnP resources are allocated by BIOS during POST (Power-On Self Test). If you are using a PnP operating system (such as Windows 95), set this item to Yes to inform BIOS to configure only the resources needed for booting (VGA/IDE or SCSI). The rest of system resources will be allocated by PnP operating system.
Yes	
No	

AWARD BIOS

PNP/PCI Configuration→ Resources Controlled By

Resources Controlled by Auto Manual

Setting this option to Manual allows you to individually assign the IRQs and DMAs to the ISA and PCI devices. Set this to **Auto** to enable the auto-configuration function.

PNP/PCI Configuration→ Reset Configuration Data

Reset Configuration Data Enabled Disabled

In case conflict occurs after you assign the IRQs or after you configure your system, you can enable this function, allow your system to automatically reset your configuration and reassign the IRQs.

PNP/PCI Configuration→ IRQ3 (COM2)
PNP/PCI Configuration→ IRQ4 (COM1)
PNP/PCI Configuration→ IRQ5 (Network/Sound or Others)
PNP/PCI Configuration→ IRQ7 (Printer or Others)
PNP/PCI Configuration→ IRQ9 (Video or Others)
PNP/PCI Configuration→ IRQ10 (SCSI or Others)
PNP/PCI Configuration→ IRQ11 (SCSI or Others)
PNP/PCI Configuration→ IRQ12 (PS/2 Mouse)
PNP/PCI Configuration→ IRQ14 (IDE1)
PNP/PCI Configuration→ IRQ15 (IDE2)

IRQ 3 Legacy ISA PCI/ISA PnP

If your ISA card is not PnP compatible and requires a special IRQ to support its function, set the selected IRQ to **Legacy ISA**. This setting informs the PnP BIOS to reserve the selected IRQ for the installed legacy ISA card. The default is **PCI/ISA PnP**. Take note that PCI cards are always PnP compatible (except old PCI IDE card).

PNP/PCI Configuration→ DMA 0
PNP/PCI Configuration→ DMA 1
PNP/PCI Configuration→ DMA 3
PNP/PCI Configuration→ DMA 5
PNP/PCI Configuration→ DMA 6
PNP/PCI Configuration→ DMA 7

DMA 0
Legacy ISA
PCI/ISA PnP

If your ISA card is not PnP compatible and requires a special DMA channel to support its function, set the selected DMA channel to **Legacy ISA**. This setting informs the PnP BIOS to reserve the selected DMA channel for the installed legacy ISA card. The default is **PCI/ISA PnP**. Take note that PCI card does not require DMA channel.

PNP/PCI Configuration→ PCI IDE IRQ Map To

PCI IDE IRQ Map To
ISA
PCI-Slot1
PCI-Slot2
PCI-Slot3
PCI-Slot4
PCI-Auto

Some old PCI IDE add-on cards are not fully PnP compatible. These cards require you to specify the slot in use to enable BIOS to properly configure the PnP resources. This function allows you to select the PCI slot for any PCI IDE add-on card present in your system. Set this item to **Auto** to allow BIOS to automatically configure the installed PCI IDE card(s).

PNP/PCI Configuration→ Primary IDE INT#
PNP/PCI Configuration→ Secondary IDE INT#

Primary IDE INT#
A
B
C
D

These two items, in conjunction with item "PCI IDE IRQ Map To", specify the IRQ routing of the primary or secondary channel of the PCI IDE add-on card (not the onboard IDE). Each PCI slot has four PCI interrupts aligned as listed in the table below. You must specify the slot in the "PCI IDE IRQ Map To", and set the PCI interrupt (INTx) here according to the interrupt connection on the card.

PCI Slot	Location 1 (pin A6)	Location 2 (pin B7)	Location 3 (pin A7)	Location 4 (pin B8)
Slot 1	INTA	INTB	INTC	INTD
Slot 2	INTB	INTC	INTD	INTA
Slot 3	INTC	INTD	INTA	INTB
Slot 4	INTD	INTA	INTB	INTC
Slot 5 (if any)	INTD	INTA	INTB	INTC

PNP/PCI Configuration→ Used MEM BaseAddr

Used MEM base addr
N/A
C800
CC00
D000
D400
D800
DC00

This item, in conjunction with the "Used MEM Length", lets you set a memory space for non-PnP compatible ISA card. This item specifies the memory base (start address) of the reserved memory space. The memory size is specified in the "Used MEM Length".

PNP/PCI Configuration→ Used MEM Length

Used MEM Length
8K
16K
32K
64K

If your ISA card is not PnP compatible and requires special memory space to support its function, specify the memory size in this parameter to inform the PnP BIOS to reserve the specified memory space for installed legacy ISA card.

3.7   Load Setup Defaults

The "Load Setup Defaults" option loads optimized settings for optimum system performance. Optimal settings are relatively safer than the Turbo settings. We recommend you to use the Optimal settings if your system has large memory size and fully loaded with add-on card (for example, a file server using double-sided 8MB SIMM x4 and SCSI plus Network card occupying the PCI and ISA slots).

Optimal is not the slowest setting for this mainboard. If you need to verify a unstable problem, you may manually set the parameter in the "BIOS Features Setup" and "Chipset Features Setup" to get slowest and safer setting.

3.8   Load Turbo Defaults

The "Load Turbo Defaults" option gives better performance than Optimal values. However, Turbo values may not be the best setting of this mainboard but these values are qualified by the AOpen RD and QA department as the reliable settings especially if you have limited loading of add-on card and memory size (for example, a system that contains only a VGA/Sound card and two SIMMs).

To attain the best system performance, you may manually set the parameters in the "Chipset Features Setup" to get proprietary setting. Make sure that you know and understand the functions of every item in Chipset Setup menu. The performance difference of Turbo from Optimal is normally around 3% to 10%, depending on the chipset and the application.

3.9   Integrated Peripherals

The following screen appears if you select the option "Integrated Peripherals" from the main menu. This option allows you to configure the I/O features.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                       INTEGRATED PERIPHERALS
                        AWARD SOFTWARE, INC.

 ┌──────────────────────────────────────────────────────────────────────┐
 │ IDE HDD Block Mode:        : Enabled   ECP Mode Use DMA      : 3       │
 │ IDE Primary Master PIO     : Auto                                      │
 │ IDE Primary Slave PIO      : Auto                                      │
 │ IDE Secondary Master PIO   : Auto                                      │
 │ IDE Secondary Slave PIO    : Auto                                      │
 │ On-Chip Primary   PCI-IDE  : Enabled                                   │
 │ On-Chip Secondary PCI-IDE  : Enabled                                   │
 │ USB Host Controller        : Disabled                                  │
 │ USB Legacy Support         : Disabled                                  │
 │ Onboard FDC Controller     : Enabled                                   │
 │ Onboard Serial Port 1      : AUTO      ESC: Quit      ↑↓→←  : Select Item│
 │ Onboard Serial Port 2      : AUTO      F1 : Help     PU/PD/+/- : Modify │
 │ Onboard IR Controller      : Enabled   F5 : Old Values  (Shift) F2 : Color│
 │ IR Mode                    : HPSIR     F6 : Load Setup Defaults         │
 │ IR Address Selection       : 2E8H      F7 : Load Turbo Defaults         │
 │ IR IRQ Selection           : IRQ10                                     │
 │ FIR Mode Use DMA           : Disabled                                  │
 │ Modem Wake Up              : Disabled                                  │
 │ Onboard Parallel Port      : 378/IRQ7                                  │
 │ Parallel Port Mode         : SPP                                       │
 └──────────────────────────────────────────────────────────────────────┘
```

Integrated Peripherals→ IDE HDD Block Mode

IDE HDD Block Mode	This feature enhances disk performance by allowing multisector data transfers and eliminates the interrupt handling time for each sector. Most IDE drives, except with old designs, can support this feature.
Enabled	
Disabled	

Integrated Peripherals→ IDE Primary Master PIO
Integrated Peripherals→ IDE Primary Slave PIO
Integrated Peripherals→ IDE Secondary Master PIO
Integrated Peripherals→ IDE Secondary Slave PIO

IDE Primary Master PIO
Auto
Mode 1
Mode 2
Mode 3
Mode 4

Setting this item to **Auto** activates the HDD speed auto-detect function. The PIO mode specifies the data transfer rate of HDD. For example: mode 0 data transfer rate is 3.3MB/s, mode 1 is 5.2MB/s, mode 2 is 8.3MB/s, mode 3 is 11.1MB/s and mode 4 is 16.6MB/s. If your hard disk performance becomes unstable, you may manually try the slower mode.

Caution: It is recommended that you connect the first IDE device of each channel to the endmost connector of the IDE cable. Refer to section "Connectors" for details on how to connect IDE device(s).

Integrated Peripherals→ On-Chip Primary PCI IDE
Integrated Peripherals→ On-Chip Secondary PCI IDE

On-Chip Primary PCI IDE
Enabled
Disabled

This parameter lets you enable or disable the IDE device connected to the primary IDE connector.

Integrated Peripherals→ USB Host Controller

USB Host Controller
Enabled
Disabled

This item lets you enable or disable the USB controller within the chipset.

Integrated Peripherals→ USB Legacy Support

USB Legacy Support	This item lets you enable or disable the USB keyboard driver within the onboard BIOS. The keyboard driver simulates legacy keyboard command and let you use USB keyboard during POST or after boot if you don't have USB driver in the operating system.
Enabled	
Disabled	

Caution: *You can not use both USB driver and USB legacy keyboard at the same time. Disable "USB Legacy Support" if you have USB driver in the operating system.*

Integrated Peripherals→ Onboard FDC Controller

Onboard FDC Controller	Setting this parameter to **Enabled** allows you to connect your floppy disk drives to the onboard floppy disk connector instead of a separate controller card. Change the setting to Disabled if you want to use a separate controller card.
Enabled	
Disabled	

Integrated Peripherals→ Onboard Serial Port 1
Integrated Peripherals→ Onboard Serial Port 2

Onboard Serial Port 1	This item allow you to assign address and interrupt for the board serial port. Default is **Auto**.
Auto	
3F8/IRQ4	
2F8/IRQ3	
3E8/IRQ4	
2E8/IRQ3	
Disabled	

Note: *If you are using an network card, make sure that the interrupt does not conflict.*

Integrated Peripherals→ Onboard IR Controller

Onboard IR Controller
Enabled
Disabled

To enable or disable onboard wireless Infrared controller.

Integrated Peripherals→ IR Mode

IR Mode
ASKIR
IrDA

This item selects the mode of onboard wireless Infrared controller. The IrDA standard includes both HPSIR and FIR, the driver in the Win95 will automatically change to different mode according to different chip.

- ASKIR – Select this setting if you installed an Infrared module via IrDA connector (refer to section 2.3 "Connectors "). This ASKIR setting allows infrared serial communication at a maximum baud rate of 19.2K baud.

- HPSIR – Select this setting if you installed an Infrared module in your system via IrDA connector (refer to section 2.3 "Connectors"). The HPSIR setting allows infrared serial communication at a maximum baud rate of 115K baud.

- FIR – Select this setting if you installed an Infrared module via IrDA connector (refer to section 2.3 "Connectors "). This FIR (Fast IR) setting allows infrared serial communication at a maximum baud rate of 4M baud.

Integrated Peripherals→ IR Address Selection

IR Address Selection
2E0H
2E8H
2F8H
3E0H
3E8H
3F8H

This item selects the address of IR controller.

Integrated Peripherals→ IR IRQ Selection

AWARD BIOS

IR IRQ Selection
3
4
10
11

This item selects the IRQ of IR port.

Note: *If you are using a network card, make sure that the interrupt does not conflict.*

Integrated Peripherals→ FIR Mode Use DMA

FIR Mode Use DMA
Disabled
0
1
3

This item selects the DMA channel of Fast IR port.

Note: *If you are using a sound card, make sure that the interrupt does not conflict.*

Integrated Peripherals→ Modem Wake Up

Modem Wake Up
Enabled
Disabled

To enable or disable Modem Wake Up function.

Note: *This function is only for internal test only.*

Integrated Peripherals→ Onboard Parallel Port

Onboard Parallel Port	This item controls the onboard parallel port address and interrupt.
3BC/IRQ7	
378/IRQ7	
278/IRQ7	
Disabled	

Note: If you are using an I/O card with a parallel port, make sure that the addresses and IRQ do not conflict.

Integrated Peripherals→ Parallel Port Mode

Parallel Port Mode	This item lets you set the parallel port mode. The mode options are **SPP** (Standard Parallel Port), EPP (Enhanced Parallel Port) and ECP (Extended Parallel Port). SPP is the IBM AT and PS/2 compatible mode. EPP enhances the parallel port throughput by directly writing/reading data to/from parallel port without latch. ECP supports DMA and RLE (Run Length Encoded) compression and decompression.
SPP	
EPP	
ECP	
ECP + EPP	

Integrated Peripherals→ ECP Mode Use DMA

ECP Mode Use DMA	This item lets you set the DMA channel of ECP mode.
3	
1	

3.10 Password Setting

Password prevents unauthorized use of your computer. If you set a password, the system prompts for the correct password before boot or access to Setup.

To set a password:

1.   At the prompt, type your password.   Your password can be up to 8 alphanumeric characters. When you type the characters, they appear as asterisks on the password screen box.

2.   After typing the password, press.

3.   At the next prompt, re-type your password and press again to confirm the new password. After the password entry, the screen automatically reverts to the main screen.

To disable the password, press when prompted to enter the password. The screen displays a message confirming that the password has been disabled.

3.11 IDE HDD Auto Detection

If your system has an IDE hard drive, you can use this function to detect its parameters and enter them into the "Standard CMOS Setup" automatically.

This routine only detects one set of parameters for your IDE hard drive. Some IDE drives can use more than one set of parameters. If your hard disk is formatted using different parameters than those detected, you have to enter the parameters manually.   If the parameters listed do not match the ones used to format the disk, the information on that disk will not be accessible. If the auto-detected parameters displayed do not match those that used for your drive, ignore them.   Type N to reject the values and enter the correct ones manually from the Standard CMOS Setup screen.

3.12 Save & Exit Setup

This function automatically saves all CMOS values before leaving Setup.

3.13 Exit without Saving

Use this function to exit Setup without saving the CMOS value changes. Do not use this option if you want to save the new configuration.

3.14 NCR SCSI BIOS and Drivers

The NCR 53C810 SCSI BIOS resides in the same flash memory chip as the system BIOS. The onboard NCR SCSI BIOS is used to support NCR 53C810 SCSI control card without BIOS code.

The NCR SCSI BIOS directly supports DOS, Windows 3.1 and OS/2. For better system performance, you may use the drivers that come with the NCR SCSI card or with your operating system. For details, refer to the installation manual of your NCR 53C810 SCSI card.

3.15 AWARD BIOS Flash Utility

The AWARD Flash utility allows you to upgrade the system BIOS. To get the AWARD Flash utility and the upgrade BIOS file, contact your local distributor or visit our homepage at **http://www.aopen.com.tw** . Please make sure that you have the correct BIOS ready, the BIOS filename is normally like AX6FR100.BIN, which means model AX6F BIOS revision 1.00.

There are three useful programs, Onboard IO chip check utility, Checksum utility CHECKSUM.EXE and AWARD Flash utility AWDFLASH.EXE. Follow the procedures below to upgrade your BIOS.

[CHECKSUM.EXE]

This utility will help you to determine if the BIOS has been downloaded correctly or not.

1. Execute
    C:> CHECKSUM Biosfile.bin
    Biosfile.bin is the filename of the BIOS code.
2. The utility will show "Checksum is ssss".
3. Compare the "ssss" with original checksum posted on Web or BBS. If they are different, please do not proceed any further and try to download the BIOS again.

[IO.EXE]

This utility will help you to determine the model of onboard IO chip, as well as BIOS version. Make sure the BIOS you download supports the onboard IO chip and the BIOS version is later than the current onboard BIOS.

AWARD BIOS

1. Execute

    C:> IO

[AWDFLASH.EXE]

This utility will try to reprogram your system BIOS by using flash memory technology. It will permanently replace your original BIOS content after flashing.

1. Bootup the system from DOS prompt without loading any memory manager (HIMEM, EMM386, QEMM386, ...).
2. Execute

    C:> AWDFLASH Biosfile.bin

    Biosfile.bin is the filename of the BIOS code.
3. After loading the new BIOS code, the utility will prompt you to save original BIOS code into your HDD or floppy. Please press "Y" to store it as "BIOS.OLD".
4. After the old BIOS has been successfully saved, press "Y" to replace BIOS.
5. DO NOT turn off the power during "FLASHING".
6. Reboot the system by turn off the power after "FLASHING".
7. Press "DEL" key to enter BIOS setup during POST.
8. Reload the "BIOS SETUP DEFAULT" and reconfigure other items as previous set.
9. Save & Exit. Done!

Warning: DO NOT turn off the power during "FLASHING". If the BIOS programming is not successfully finished, the system will not be boot again, and you may need to physically replace the BIOS chip.

Tip: You may load back original BIOS "BIOS.OLD" by the same procedure.