

## Chapter 1

### INTRODUCTION

The MS-6178 MICRO ATX WH5 mainboard is a high-performance computer mainboard based on Intel® 810 chipset. The MS-6178 is designed for the Intel® Celeron™ (PPGA) processor for inexpensive business/personal desktop markets.

The Intel® 810 chipset is the first generation Integrated Graphics chipset for the Intel® Celeron™ processor. The graphics accelerator architecture consists of dedicated multi-media engines executing in parallel to deliver high performance 3D, 2D, and motion compensation video capabilities. An integrated centralized memory arbiter allocates memory bandwidth to multiple system agents to optimize system memory utilization. A new chipset component interconnect, the hub interface, is designed into the Intel 810 chipset to provide an efficient communication channel between the memory controller hub and I/O hub controller.

The Intel® 810 chipset contains three core components: the Graphics and Memory Controller Hub (GMCH/GMCH0), the I/O Controller Hub (ICH0/ ICH) and the Firmware Hub (FWH). The GMCH integrates a 66/100MHz, P6 family system bus controller, integrates 2D/3D graphics accelerator, 100MHz SDRAM controller and high-speed hub interface for communication with the ICH0/ICH. The ICH0/ICH integrates an Ultra ATA/33(ICH0) or Ultra ATA/ 66(ICH) controller, USB host controller, LPC interface controller, FWH interface controller, PCI interface controller, AC'97 digital controller and a hub interface for communication with the GMCH/GMCH0.

The Intel® 82802 Firmware Hub (FWH) component is part of the Intel® 810 chipset. The FWH is key to enabling future security and manageability infrastructure for the PC platform.

## **1.1 Mainboard Features**

### **CPU**

- Support Socket370 for Intel® Celeron™ processor.
- Support 300MHz, 333MHz, 366MHz, 400MHz, 433MHz, 466Mhz or higher

### **Chipset**

- Intel® 810 (GMCH/GMCH0) chipset. (421 BGA)
  - Integrated Graphics Controller
  - Intel DDM Architecture
  - SDRAM memory Independent of System Bus
  - Support 4MB Display Cache (only for GMCH)
- Intel® ICH/ICH0 chipset. (241 BGA)
  - AC'97 Controller Integrated
  - 2 full IDE channels, up to ATA66 (only for ICH)
  - Low pin count interface for SIO

### **Front Side Bus (FSB)**

- 66/100MHz clocks are supported.

### **Main Memory**

- Support two 168-pin DIMM sockets.
- Support a maximum memory size of 256MB(64Mbit technology) or 512MB(128Mbit technology) SDRAM.

### **Slots**

- One AMR (Audio Modem Riser) and one PTI (Panellink TV-Out Interface).
- Three 32-bit Master PCI Bus slots.
- Support 3.3v/5v PCI bus Interface.

### **On-Board IDE**

- An IDE controller on the ICH/ICH0 chipset provides IDE HDD/CD-ROM with PIO, Bus Master, Ultra DMA/33 and Ultra DAM/66 operation modes.
- Can connect up to four IDE devices.

**On-Board Peripherals**

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial port (COMA + COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 2 USB ports and 1 USB connector
  - 1 IrDA connector for SIR.
  - 1 VGA port

**Video**

- GMCH chip integrated
- 2D/3D Graphics
- Onboard 4MB Display Cache(SGRAM/SDRAM) optional.

**Audio**

- ICH chip integrated (Software Audio)
  - AC'97 Compliant
- Aureal Vortex 8810. (Hardware Audio -- Optional)
  - DirectSound hardware acceleration
  - Post processing hardware
  - Aureal Soft Wavetable
  - Aureal Soft A3D
  - Full Sound Blaster compatibility
  - Aureal Enhanced Motorola Softmodem with Silicon DAA support.

**BIOS**

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

**Dimension**

- Micro ATX Form Factor

**Mounting**

- 6 mounting holes.
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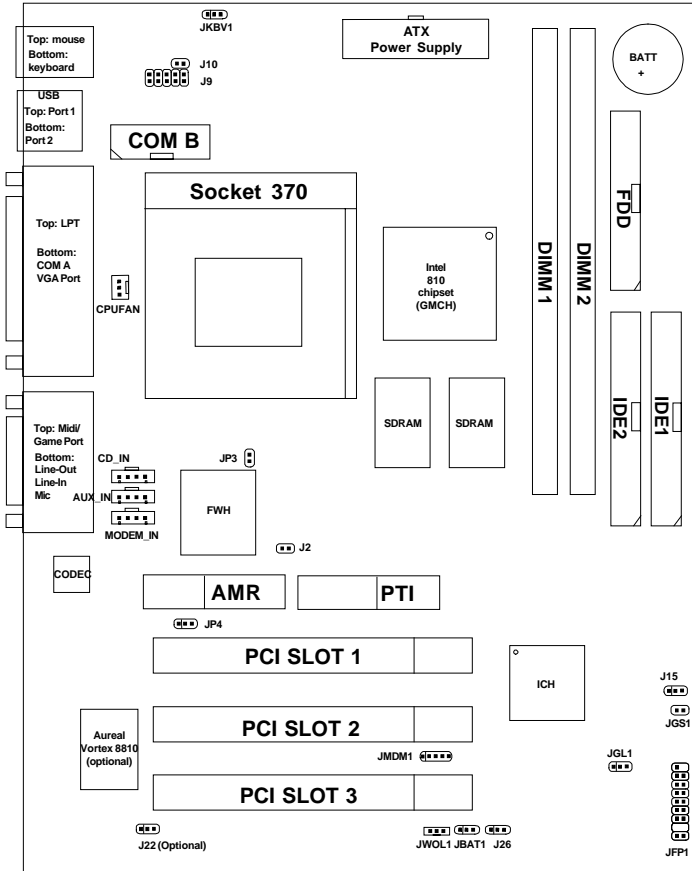
**System Hardware Monitor**

- CPU Fan Revolution Detect
- CPU Fan Control (the fan will automatically stop when the system enters suspend mode)
- System Voltage Detect
- CPU Overheat Warning.
- Display Actual Current Voltage

**Other Features**

- Keyboard Password Wake-Up (reserved)
- LAN Wake-Up
- Internal/External Modem Wake-Up

## 1.2 Mainboard Layout



**MS-6178 MICRO ATX WH5 Mainboard**

## **Chapter 3**

### **AWARD® BIOS SETUP**

Award® BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM), so that it retains the Setup information when the power is turned off.

## **3.1 Entering Setup**

Power on the computer and press <Del> immediately to allow you to enter Setup. The other way to enter Setup is to power on the computer. When the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT, PRESS <CTRL-ALT-ESC>  
OR <DEL> KEY

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” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC>  
OR <DEL> TO ENTER SETUP

## **3.2 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>.

### 3.3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from twelve 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	
STANDARD CMOS Feature	Frequency/Voltage Control
Advanced BIOS Feature	Load Fail-Safe Defaults
Advanced Chipset Feature	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
<hr/>	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
<hr/>	
Time, Date, Hard Disk Type...	

#### Standard CMOS Setup

Use this Menu for basic system configurations.

#### Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

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**Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize your system's performance.

**Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

**Power Management Setup**

Use this menu to specify your settings for power management.

**PnP/PCI Configuration**

This entry appears if your system supports PnP/PCI.

**PC Health Status**

This entry shows your PC health status.

**Frequency/Voltage Control**

Use this menu to specify your settings for frequency/voltage control.

**Load Fail-Safe Defaults**

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

**Load Optimized Defaults**

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

**Supervisor/User Password**

Use this menu to set User and Supervisor Passwords.

**Save & Exit Setup**

Save CMOS value changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all CMOS value changes and exit setup.

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### 3.4 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys 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 Setup

Date(mm:dd:yy):	Fri, Feb 28,1999	Item Help
Time(hh:mm:ss):	00:00:00	
IDE Primary Master	Press Enter 2557MB	Menu Level >
IDE Primary Slave	Press Enter None	
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Based Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓ →← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

**Date**

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

<b>Day</b>	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
<b>month</b>	The month from Jan. through Dec.
<b>date</b>	The date from 1 to 31 can be keyed by numeric function keys.
<b>year</b>	The year, depends on the year of the BIOS

**Time**

The time format is <hour> <minute> <second>.

**PrimaryMaster/PrimarySlave****SecondaryMaster/Secondary Slave**

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto 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 your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be  
“None”.

If the controller of HDD interface is CD-ROM, the selection shall be  
“None”.

<b>Access Mode</b>	Access mode
<b>Cylinder</b>	number of cylinders
<b>Head</b>	number of heads
<b>Precomp</b>	write precom
<b>Landing Zone</b>	landing zone
<b>Sector</b>	number of sectors

### 3.5 Advanced BIOS Features

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

Anti-Virus Protection	Disabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	Menu Level >
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Disabled	
First Boot device	Floppy	
Second Boot device	HDD-0	
Third Boot device	LS/Zip	
Boot other device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	Off	
Gate A20 Option	Fast	
Typeomatic Rate Setting	Disabled	
Typeomatic Rate (Chars/Sec)	6	
Typeomatic Delay (Msec)	250	
Security Option	Setup	
OS Select for DRAM > 64MB	Non-OS2	
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		

#### Anti-Virus Protection

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

**Disable**(default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

**Enable** Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

**CPU Internal Cache**

The default value is Enabled.

**Enabled** (default)    Enable cache

**Disabled**            Disable cache

**Note:** The internal cache is built in the processor.

**External Cache**

Choose Enabled or Disabled. This option enables the level 2 cache memory.

**CPU L2 Cache ECC Checking**

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC(error check correction).

**Quick Power On Self Test**

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

**Enabled**              Enable quick POST

**Disabled** (default)    Normal POST

**First/Second/Third/Other Boot Device**

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

**Swap Floppy Drive**

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

**Boot Up Floppy Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

**Boot Up NumLock Status**

The default value is On.

**On** (default) Keypad is numeric keys.

**Off** Keypad is arrow keys.

**Gate A20 Option**

**Normal** The A20 signal is controlled by keyboard controller or chipset hardware.

**Fast**(default) The A20 signal is controlled by port 92 or chipset specific method.

**Typematic Rate Setting**

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

**Typematic Rate (Chars/Sec)**

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

**Typematic Delay (Msec)**

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are: 250, 500, 750, 1000.

**Security Option**

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

**System** The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

**Setup**(default)The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

**OS Selection for DRAM > 64MB**

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

**Report No FDD For Win 95**

Whether report no FDD for Win 95 or not. The settings are: Yes, No.



### 3.6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Choose the “ADVANCED CHIPSET FEATURES” from the Main Menu and the following screen will appear.

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Advanced Chipset Features

SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	6/8	
SDRAM RAS-to-CAS Delay	1	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	Menu Level >
Video BIOS Cacheable	Disabled	
Memory Hole at 15M-16M	Disabled	
Delayed Transaction	Disabled	
On-Chip Video Window Size	64MB	
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		

**Note:** Change these settings only if you are familiar with the chipset.

**SDRAM CAS latency Time**

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2 and 3.

**SDRAM Cycle Time *Tras*/*Trc***

Select the number of SCLKs for an access cycle. The settings are: 5/7 and 6/8.

**SDRAM RAS-to-CAS Delay**

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

**SDRAM RAS Precharge Time**

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

**System BIOS Cacheable**

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

**Video BIOS Cacheable**

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

**Memory Hole At 15M-16M**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

**Delayed Transaction**

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1. The settings are: Enabled and Disabled.

**On-Chip Video Window Size**

Select the on-chip video window size for VGA driver use. The settings are: 32MB, 64MB, Disabled.

**Local Memory Frequency**

Select the Memory frequency.

### 3.7 Integrated Peripherals

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

OnChip Primary PCI IDE	Enabled	Item Help
OnChip 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	Disabled	
AC97 Modem	Enabled	
Onboard Audio Device	Enabled	
IDE HDD Block Mode	Enabled	
Power On Function		
KB Power On Password		
Hot Key Power On		
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Onboard Serial Port 2	2F8/IRQ3
UART Mode Select	Normal
RxD, TxD Active	Hi, Lo
IR Transmission Delay	Enabled
Onboard Parallel Port	378/IRQ7
Parallel Port Mode	SPP
EPP Mode Select	EPP 1.7
ECP Mode use UDMA	3
PWRON After PWR-Fail	Off
Game Port Address	Disabled
Midi Port Address	Disabled
Midi Port IRQ	5
Power Status LED	Blinking

#### OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

**IDE Primary/Secondary Master/Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**IDE Primary/Secondary Master/Slave UDMA**

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

**USB Controller**

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. The settings are: Enabled, Disabled.

**USB Keyboard Support**

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

**Init Display First**

This item allows you to decide to activate whether PCI Slot or on-chip VGA first. The settings are: PCI Slot, Onboard.

**AC97 Audio/Modem**

This item allows you to decide to enable/disable the 810 chipset family to support AC97 Audio/Modem. The settings are: Enabled, Disabled.

**Onboard Audio Device (For Aureal onboard audio only)**

This item allows you to enable/disable the Onboard Aureal audio chipset. The settings are: Enabled, Disabled.

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### **IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

### **Power On Function**

This function allows you to select the item to power on the system. The settings are : Any Key, Button Only, Mouse Left, Mouse Right, Password, Hotkey, keyboard 98.

### **Onboard FDC Controller**

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

### **Onboard Serial Port 1/Port 2**

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

### **UART Mode Select**

This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

**Onboard Parallel Port**

**Disabled**  
**(3BCH/IRQ7)/**  
**(278H/IRQ5)/**  
**(378H/IRQ7)**

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

**Disable**  
3BCH/IRQ7 Line Printer port 0  
278H/IRQ5 Line Printer port 2  
378H/IRQ7 Line Printer port 1

**Onboard Parallel Mode**

SPP : Standard Parallel Port  
EPP : Enhanced Parallel Port  
ECP : Extended Capability Port

**SPP/EPP/ECP/  
ECP+EPP**

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP + EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" At this time, the user can choose between DMA

channels 3 or 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

**PWRON After PWR-FAIL**

This option will determine how the system will power on after a power failure.

**Game Port Address/Midi Port Address**

This will determine which Address the Game Port/Midi Port will use.

**Power Status LED**

This item determines which state the Power LED will use. The settings are Blinking, Dual, and Single. During blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual, the power LED will change its color. Choose the single and the power LED will always remain lit.



### 3.8 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

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

ACPI Function	Enabled	Item Help
ACPI Suspend Type	SI(POS)	
Power Management	User Define	Menu Level >
Video Off Method	DPMS	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWRBTN	Instant-Off	
Wake-Up by PCI Card	Disabled	
Wake-Up on LAN	Disabled	
CPU Thermal-Throtting	62.57%	
Resume By Alarm		
**Reload Global Timer Events**		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The settings are: Enabled and Disabled.

### **ACPI Suspend Type**

This item will set which ACPI suspend type will be used.

### **Power Management**

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Suspend Mode
2. HDD Power Down

There are three selections for Power Management, two of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined (default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

### **Video Off Method**

This determines the manner in which the monitor is blanked.

V/HSYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS (default)	Initial display power management signaling.

**Video Off In Suspend**

This determines the manner in which the monitor is blanked.  
The settings are: Yes and No.

**Suspend Type**

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

**Modem Use IRQ**

This determines the IRQ in which the MODEM can use.  
The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

**Suspend Mode**

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour, and Disabled.

**HDD Power Down**

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.  
The settings are: 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

**Soft-Off by PWRBTN**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

**Wake-Up by PCI Card**

This will enable the system to wake up through PCI Card peripheral.  
The settings are : Enabled and Disabled.

### Wake-Up on LAN

To use this function, you need a LAN add-on card which support power on functions. It should also support the wake-up on LAN jumper (JWOL1).

<b>Enabled</b>	Wake up on LAN supported.
<b>Disabled</b>	Wake up on LAN not supported.

### CPU Thermal-Throttling

Select the CPU THRM-Throttling rate. The settings are: 25.0%, 37.5%, 50.0%, 62.5%, 75.0%, 87.5%.

### Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

<b>Date(of month) Alarm</b>	You can choose which month the system will boot up. Set to 0, to boot every day.
<b>Time(hh:mm:ss) Alarm</b>	You can choose what hour, minute and second the system will boot up.

**Note:** If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

### Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled*, even when the system is in a power down mode.

**Primary IDE 0**

**Primary IDE 1**

**Secondary IDE 0**

**Secondary IDE 1**

**FDD, COM, LPT Port**

**PCIPIRQ[A-D]#**

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### 3.9 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
PnP/PCI Configuration Setup

Reset Configuration Data	Disabled	Item Help
Resources Controlled By	Auto	
IRQ Resources	Press Enter	
Memory Resources	Press Enter	Menu Level >
PCI/VGA Palette Snoop	Disabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled .

**Resource Controlled By**

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”). The settings are: Auto(ESCD), Manual.

**IRQ Resources**

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

**Memory Resources**

This sub menu can let you control the memory resource.

**PCI/VGA Palette Snoop**

Leave this field at *Disabled*. The settings are Enabled, Disabled.

### 3.10 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
 PC Health Status

CPU Warning Temperature	Disabled	Item Help	
Current System Temp	39°C/102°F		
Current CPU1 Temperature	66°C/150°C	Menu Level >	
Current CUFAN1 Speed	0RPM		
Current CUFAN2 Speed	0RPM		
Current CUFAN3 Speed	5532RPM		
IN0 (V)	1.96V		
IN1 (V)	1.48V		
IN2 (V)	3.24V		
+5V	4.89V		
+12V	11.79V		
-12V	-12.19V		
-5V	-4.53V		
VBAT (V)	3.10V		
5VSB (V)	5.37V		
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults			

#### CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reach a certain temperature.

**Current System Temp/Current CPU1 Temperature/Current  
CPUFAN1/CPUFAN2/CPUFAN3 Speed/IN0/1/3/+5V/+12V/-  
12V/-5V/VBAT(V)/5VSB(V)**

This will show the CPU/FAN/System voltage chart and FAN Speed.



### 3.11 Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
 Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Item Help
CPU Clock/Spread Spectrum	Default	
CPU Ratio	Auto	
		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		

#### Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI Clock. The settings are: Enabled, Disabled.

#### CPU Clock/Spread Spectrum

This item allows you to set the CPU Clock/Spread Spectrum.

#### CPU Ratio

This item allows you to select the CPU ratio.

## **3.12 Load Fail-Safe/Optimized Defaults**

### **Load Fail-Safe Defaults**

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

### **Load Optimized Defaults**

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

### **3.13 Set Supervisor/User Password**

You can set either supervisor or user password, or both of them. The differences are:

**Supervisor password :** can enter and change the options of the setup menus.

**User password :** Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, 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 and not enter a password.

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

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

## **Chapter 4**

### **AMI® BIOS USER'S GUIDE**

The system configuration information and chipset register information is stored in the CMOS RAM. This information is retained by a battery when the power is off. Enter the BIOS setup (if needed) to modify this information.

The following pages will describe how to enter BIOS setup, and all about options.

## 4.1 Enter BIOS Setup

Enter the AMI® setup Program's Main Menu as follows:

1. Turn on or reboot the system. The following screen appears with a series of diagnostic check.

```
AMIBIOS (C) 1999 American Megatrends Inc.  
AGIOMS VXXX XXXXXX
```

```
Hit <DEL> if you want to run setup
```

```
(C) American Megatrends Inc.  
61-XXXX-001169-00111111-071592-i82440FX-H
```

2. When the "Hit <DEL>" message appears, press <DEL> key to enter the BIOS setup screen.
3. After pressing <DEL> key, the BIOS setup screen will appear.

**Note:** *If you don't want to modify CMOS original setting, then don't press any key during the system boot.*

```
AMIBIOS HIFLEX SETUP UTILITIES - VERSION 1.22
(C) 1999 American Megatrends, Inc. All Rights
      Reserved

      Standard CMOS Setup
      Advanced CMOS Setup
      Advanced Chipset Setup
      Power Management Setup
      PCI/Plug and Play Setup
      Peripheral Setup
      Hardware Monitor Setup
      Auto-Detect Hard Disks
      Change User Password
      Change Supervisor Password
      Change Language Setting
      Auto Configuration with Optimal Settings
      Auto Configuration with Fail Safe Settings
      Save Settings and Exit
      Exit without Saving

Standard CMOS setup for changing time, hard disk type, etc.
```

4. Use the <Up> and <Down> key to move the highlight scroll up or down.
5. Use the <ENTER> key to select the option.
6. To exit, press <ESC>. To save and exit, press <F10>.
7. Section 3.2 to 3.7 will explain the option in more details.

## 4.2 Standard CMOS Setup

1. Press <ENTER> on "Standard CMOS Setup" of the main menu screen .

```

AMIBIOS SETUP - STANDARD CMOS SETUP
(C)1999 American Megatrends, Inc. All Rights Reserved

```

---

```

Date (mm/dd/yyyy):   Fri March 20, 1999
Time (hh/mm/ss):    17:09:25

Floppy Drive A:      1.44 MB 3 1/2
Floppy Drive B:      Not Installed

```

	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	:Auto						ON	ON	AUTO	ON
Pri Slave	:Auto						ON	ON	AUTO	ON
Sec Master	:Auto						ON	ON	AUTO	ON
Sec Slave	:Auto						ON	ON	AUTO	ON

```

Boot Sector Virus Protection Disabled

```

---

```

Month   : Jan-Dec           ESC:Exit       :Sel
Day     : 01-31            PgUp/PgDn:Modify
Year    : 1901-2099        F2/F3:Color

```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Standard CMOS Setup, press <ESC> to go back to the main menu.



## 4.3 Advanced CMOS Setup

1. Press <ENTER> on “Advanced CMOS Setup” of the main menu

AMIBIOS SETUP - ADVANCED CMOS SETUP		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	Available Options: Disabled Enabled
1st Boot Device	Floppy	
2nd Boot Device	IDE 0	
3rd Boot Device	CD-ROM	
Try Other Boot Devices	Yes	
Initial Display Mode	BIOS	
Display Mode at Add-On ROM Init	Force-BIOS	
Floppy Access Control	Read-Write	
S.M.A.R.T. For Hard Disk	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot to OS/2 > 64M	No	
CPU Serial Number	Disabled	
Cache Bus ECC	Enabled	
System BIOS Cacheable	Disabled	
C000, 64k Shadow	Disabled	
		ESC:Exit :Sel PgUp/PgDn:Modify F2/F3:Color

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Advanced CMOS Setup, press <ESC> to go back to the main menu.

**Description of the item on screen follows:****Quick Boot**

Set this option to Enabled to permit AMI® BIOS to boot within 5 seconds. This option replaces the old ABOVE 1 MB Memory Test option. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

**1st Boot Device/2nd Boot Device/3rd Boot Device**

This option sets the sequence of boot drives.

The settings are:

IDE0	The system will boot from the first HDD.
IDE1	The system will boot from the Second HDD.
IDE2	The system will boot from the Third HDD.
IDE3	The system will boot from the Fourth HDD.
F(optical)	The system will boot from LS-120(120M Floppy).
SCSI	The system will boot from the SCSI.
Network	The system will boot from the Network drive.
CD-ROM	The system will boot from the CD-ROM.
Disable	Disable this sequence.

**Try other Boot Devices**

This option sets the device boot, if all the Four Boot Devices failed.

**Initial Display Mode**

This option sets the device boot, if all the Four Boot Devices failed.

**Display Mode at Add-On ROM Init**

This option sets the device boot, if all the Four Boot Devices failed.

**Floppy Access Control**

This option sets the Floppy to Read-only or Read-Write.

**S.M.A.R.T. for Hard Disks**

This option sets the SMART Function for the hard disk. The hard disk need to have SMART function for this feature to work.

---

**Boot up Num Lock**

When this option is set to Off, AMI® BIOS turns off the Num Lock key when the system is powered on. The end user can then use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off. The optimal default and Fail-Safe default settings are On.

**Floppy Drive Swap**

Set this option to Enabled to specify that floppy drives A: and B: are swapped. The setting are Enabled and Disabled. The Optimal and Fail-Safe default settings are Disabled.

**Floppy Drive Seek**

When this option is set to Enabled, AMI® BIOS performs a Seek command on floppy drive A: before booting the system. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Disabled.

**PS/2® Mouse Support**

When this option is set to Enabled, AMI® BIOS supports a PS/2® mouse. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Enabled.

**Primary Display**

This option configures the primary display subsystem in the computer. The settings are Mono(monochrome), 40CGA, 80CGA or VGA/EGA. The optimal and Fail-Safe default settings are VGA/EGA.

**Password Check**

This option specifies the type of AMI® BIOS password protection that is implemented. The Optimal and Fail-Safe default settings are Setup.

**Boot To OS/2® > 64MB**

Set this option to Enabled to permit the BIOS to run properly, if OS/2® is to be used with > 64MB of DRAM. The settings are Enabled or Disabled. The Optimal and Fail-safe default settings are Disabled.

### **CPU Serial Number**

This option is for Pentium III processor. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

### **Cache Bus ECC**

This option is for Pentium® II processor. During Enabled, this will affect the system performance. Disabled this option if you don't want to affect the system performance.

### **System BIOS Cacheable**

AMI® BIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to Enabled to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory. The settings are Enabled or Disabled. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

### **C000, 64K Shadow**

These options specify how the contents of the video ROM are handled. The settings are:

**Disabled** - the Video ROM is not copied to RAM.

**Cached** - the contents of the video ROM from C0000h - C7FFFh are not only copied from ROM to RAM; it can also be written to or read from cache memory.

**Shadow** - the Contents of the video ROM from C0000h - C7FFFh are copied(shadowed) from ROM to RAM for faster execution.

The Optimal and Fail-Safe default setting is Cached.

## 4.4 Advanced Chipset Setup

1. Press <ENTER> on “Advanced Chipset Setup” of the main menu screen.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C) 1999 American Megatrends, Inc. All Rights Reserved		
USB Function Enabled USB Keyboard Legacy Support Disabled CPU Latency Timer Disabled DRAM Page Closing Policy Closed CD Hole (DC000h - DFFFh) Disabled Memory Hole Disabled DRAM Tras/Trc Cycle Time(SCLKs) 6/8 Address Setup Time(SCLKs) 1 CAS# Latency(SCLKs) 3 SDRAM RAS# to CAS# Delay(SCLKs) 3 SDRAM RAS# Precharge 3 Graphics Mode Select UMA 1MB Display Cache Window Size 64MB CPU BIST Enable Disabled ICH Delayed Transaction Disabled ICH DCB Enable Disabled ****Display Cache Function**** Initialize Display Cache Memory Enabled Paging Mode Control Closed RAS-to-CAS Default	Available Options: Disabled Enabled	ESC:Exit :Sel PgUp/PgDn:Modify F2/F3:Color
CAS Latency Slow RAS Timing Slow RAS Precharge Timing Slow		

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Advanced Chipset Setup, press <ESC> to go back to the main menu.

**Description of the item on screen follows:****USB Function**

Set this option to Enabled or Disabled the on-chip USB controller. The Optional and Fail-Safe default settings are Disabled.

**USB Keyboard Legacy Support**

Set this option to Enabled or Disabled USB keyboard. The Optional and Fail-Safe default settings are Disabled.

**DRAM Page Closing Policy**

This option controls whether the GMCH will precharge bank or precharge all, during the service of a page miss.

**Memory Hole**

This option allows the end user to specify the location of a memory hole. The cycle matching the selected memory hole will be passed to the ISA bus. If Enabled, the selected hole is not remapped.

**DRAM Tras/Trc Cycle Time (SCLKs)**

This option controls the number of SCLKs for an access cycle.

**CAS# Latency**

This option determines the CAS latency time parameter of SDRAM. The settings are 2 clks or 3 clks. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

**SDRAM RAS# to CAS# Delay**

This operation decide the delay in assertion of CAS#(SCAS#) from assertion of RAS#(SRAS#) in 66MHz. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

**SDRAM RAS Precharge**

This option defines the RAS# precharge requirements for the SDRAM memory type in 66MHz clocks. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

**Graphics Mode Select**

This option is used to enable/Disable the internal graphics device and select the amount of system memory that is used to support the internal graphics device.

**Display Cache Window Size**

This option determines the display cache window size. The settings are 64MB or 32MB.

**Initialize Display Cache Memory**

This option will allow you to initialize the display cache memory.

**Paging Mode Control**

This option decides if the GMCH memory controller tends to leave pages open or closed.

**RAS-to-CAS**

This option determines the display cache RAS#-toCAS# delay.

**CAS# Latency**

This option decides the display cache CAS latency.

**RAS# Timing**

This option controls RAS# active to precharge, and refresh to RAS# active delay.

**RAS# Precharge Timing**

This option controls RAS# precharge clocks.

## 4.5 Power Management Setup

1. Press <ENTER> on “Power Management Setup” of the main menu screen.

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C) 1999 American Megatrends, Inc. All Rights Reserved		
ACPI Standby State	S1	Available Options: Disabled Enabled
Power Management/APM	Enabled	
Green PC LED Status	Blinking	
Green PC Monitor Power State	Stand By	
Video Power Down Mode	Suspend	
Hard Disk power Down Mode	Stand By	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Throttle Slow Clock Ratio	50.0%	
Keyboard & PS/2 Mouse Access	Monitor	
FDC/LPT/COM Ports Access	Monitor	
SB & MSS Audio Ports Access	Ignore	
Midi Ports Access	Ignore	
ADLIB Ports Access	Ignore	
Primary Master IDE Access	Monitor	
Primary Slave IDE Access	Ignore	
Secondary Master IDE Access	Monitor	
Secondary Slave IDE Access	Ignore	
PIRQ[A] IRQ Active	Ignore	
PIRQ[B] IRQ Active	Ignore	
PIRQ[C] IRQ Active	Ignore	
PIRQ[D] IRQ Active	Ignore	
System Thermal	Ignore	
Thermal Slow Clock Ratio	50.0%	
CPU Critical Temperature	650C/1490F	
Power Button Function	On/Off	
Restore on AC/Power Loss	Last State	
Ring Resume from Soft Off	Disabled	ESC:Exit :Sel
LAN Resume from Soft Off	Disabled	PgUp/PgDn:Modify
PME Function Support	Disabled	F2/F3:Color
RTC Alarm Resume from Soft Off	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Power Management Setup, press <ESC> to go back to the main menu.



**Description of the item on screen follows:****ACPI Standby State**

This option sets the ACPI Power Management Standby State.

**Power Management/APM**

Set this option to Enabled to enable the chipset's power management features and APM(Advanced Power Management). The settings are Enabled, Inst-On(instant-on) or Disabled. The Optimal and Fail-Safe default settings are Disabled.

**Green PC LED Status**

This option specifies the power state that the green PC-compliant video monitor enters when AMI® BIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend or Disabled. The Optimal and Fail-Safe default settings are Standby.

**Green PC Monitor Power State**

This option specifies the power state that the green PC-compliant video monitor enters when AMI® BIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend or Disabled. The Optimal and Fail-Safe default settings are Standby.

**Video Power Down Mode**

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are Disabled, Standby or Suspend. The Optimal and Fail-Safe default settings are Standby.

**Hard Disk Power Down Mode**

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Disabled, Standby or Suspend. The Optimal and Fail-Safe default settings are Disabled.

---

**Standby Time Out (Minute)**

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The Optimal and Fail-Safe default settings are Disabled.

**Suspend Time Out (Minute)**

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The Optimal and Fail-Safe default settings are Disabled.

**Throttle Slow Clock Ratio**

This option specifies the speed at which the system clock runs in power saving states. The settings are expressed as a ratio between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state.

**Thermal Slow Clock Ratio**

When set to Monitor, then you can choose the throttle ratio. This option is connected with the **CPU Critical Temperature** Option.

**CPU Critical Temperature**

This option is for setting the CPU temperature that would be critical enough, so that it would use the Thermal Slow Clock Ratio to cool down the CPU.

**Power Button Function**

During Suspend, if you push the switch once, the system goes into suspend mode and if you push it more than 4 seconds, the system will be turned off. During On/Off, the system will turn off once you push the switch.

**Restore on AC/Power Loss**

The settings are power on or last status. During power on, after every AC power loss, the system will be turned on. During last status, after every AC power loss, whatever the system status, it will be the same when the AC power returns.

- Note:**
- a. If you set this option to last status, the Power Button Function must be set to On/Off, or this function will not work.
  - b. Jumper JP1 must always be open, for this function to work properly.

**Ring Resume from Soft-Off**

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

- Note:** If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

**LAN Resume from Soft-Off**

During Disabled, the system will ignore any incoming signal from the LAN network card. During Enabled, the system will boot up if there's an incoming signal from the LAN network card.

- Note:** If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

**RTC Alarm Resume From Soft-Off**

This function is for setting the Date, Hour, Minute, and Second for your computer to boot up. During Disabled, you cannot use this function. During Enabled, Choose the Date, Hour, Minute, and Second:

- RTC Alarm Date**            Choose which day the system will boot up.
- RTC Alarm Hour**           Choose which hour the system will boot up.
- RTC Alarm Minute**        Choose which minute the system will boot up.
- RTC Alarm Second**        Choose which second the system will boot up.

**Note:** If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

## 4.6 PCI/Plug and Play Setup

1. Press <ENTER> on "PCI/Plug and Play Setup" of the main menu screen.

AMIBIOS SETUP - PCI/PLUG AND PLAY SETUP		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options:
Clear NVRAM	No	Enabled
PCI Latency Timer (PCI Clocks)	64	Disabled
Primary Graphics Adapter	Add-On	
PCI VGA Palette Snoop	Disabled	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	
IRQ14	PCI/PnP	
IRQ15	PCI/PnP	
		ESC:Exit :Sel
		PgUp/PgDn:Modify
		F2/F3:Color

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

## **Description of the item on screen follows:**

### **Plug and Play Aware O/S**

Set this option to Yes if the operating system in this computer is aware of and follows the Plug and Play specification. Currently, only Windows® 95 is PnP-aware. The settings are Yes or No. The Optimal and Fail-Safe default settings No.

### **Clear NVRAM on Every Boot**

During Yes, this will clear NVRAM data on every boot.

### **PCI Latency Timer (PCI Clocks)**

This option specifies the latency timings (in PCI clocks) for all PCI devices on the PCI bus. The settings are 32, 64, 96, 128, 160, 192, 224 or 248. The Optimal and Fail-Safe default settings are 64.

### **Primary Graphics Adapter**

This option is for selecting which VGA card is to be your primary display graphics adapter.

### **PCI VGA Palette Snoop**

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and ISA) and the Bit settings are:

**Disabled** - Data read and written by the CPU is only directed to the PCI VGA device's palette registers.

**Enabled** - Data read and written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to Enabled if an ISA adapter card requires VGA palette snooping. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

---

**DMA Channel 0/1/3/5/6/7**

These options specify the bus that the specified DMA channel is used. These options allow you to reserve DMAs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can use these options to reserve the DMA by assigning an ISA/EISA setting to it.

**IRQ3/IRQ4/IRQ5/RQ7/IRQ9/IRQ10/IRQ11/IRQ14/IRQ15**

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMI® BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP. The Optimal and Fail-Safe default settings are IRQ3 through 7 are ISA/EISA. The Optimal and Fail-Safe default settings PCI/PnP.

## 4.7 Peripheral Setup

1. Press <ENTER> on “Peripheral Setup” of the main menu screen.

AMIBIOS SETUP - PERIPHERAL SETUP		
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CLKGEN Spread Spectrum	Enabled	Available Options:
CPU Ratio Selection	3.0x	Auto
CPU Host Clock (Mhz)	Auto	Disabled
Onboard Sound	Enabled	Enabled
Onboard AC'97 Audio	Enabled	
Onboard AC'97 Modem	Disabled	
Onboard IDE	Both	
Onboard FDC	Auto	
Onboard Serial Port A	Auto	
Onboard Serial Port B	Auto	
Serial Port B Mode	Normal	
IR Duplex Mode	Half Duplex	
IR Pin Select	IRRX/IRTX	
Onboard CIR Port	Disabled	
CIR IRQ Select	10	
Onboard Parallel Port	Auto	
Parallel Port Mode	ECP	
EPP Version	N/A	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
Onboard Midi Port	Disabled	
Midi IRQ Select	9	ESC:Exit           :Sel
Onboard Game Port	Disabled	PgUp/PgDn:Modify
Mouse PowerOn Function	Disabled	F2/F3:Color
Keyboard PowerOn Function	Disabled	
Specific Key for Power On	N/A	

2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Peripheral Setup, press <ESC> to go back to the main menu.



**Description of the item on screen follows:****CLKGEN Spread Spectrum**

This item allows you to set the CPU clock generator spread spectrum.

**CPU Ratio Selection**

This item allows you to set the CPU ratio.

**CPU Host Clock (MHz)**

This item allows you to set the CPU host clock.

**Onboard Sound**

This item allows you to enable/disable the onboard Aureal audio chipset. The settings are Enabled, Disabled.

**Onboard AC'97 Audio/Onboard AC'97 Modem**

This item allows you to decide to enable/disable the 810 chipset family to support AC97 Audio/Modem. The settings are Enabled, Disabled.

**Onboard IDE**

Set this option to enable or disable on board IDE controller.

**Onboard FDC**

Choose Auto, for the BIOS to automatically detect the device

If the ISA add-on card has	Onboard FDC to be set at
FDC exist	Disabled
none FDC exist	Enabled

Choose Enabled, Enabling onboard FDC.

Choose Disabled, Disabling onboard FDC.

The Optimal and Fail-Safe default settings are Auto.

**Onboard Serial Port A/Onboard Serial Port B**

Choose 3F8, for the BIOS to automatically detect the device.

If the ISA add-on card has				Onboard Serial port to be set at			
COM1 (I/O:3F8H)	COM2 (I/O:3F8H)	COM3 (I/O:3E8H)	COM4 (I/O:2E8H)	PORT1	IRQ ASSIGNED	PORT2	IRQ ASSIGNED
✓	✓	✓	✓	DISABLED	X	DISABLED	X
✓	✓	X	X	COM3	4	COM4	3
X	X	✓	✓	COM1	4	COM2	3
✓	X	X	✓	COM2	3	COM3	4
X	✓	✓	X	COM1	4	COM4	3
✓	✓	✓	X	COM4	3	DISABLED	X
✓	✓	X	✓	COM3	4	DISABLED	X
✓	X	✓	✓	COM2	3	DISABLED	X
X	✓	✓	✓	COM1	4	DISABLED	X
X	X	X	X	COM1	4	COM2	3
✓	X	X	X	COM2	3	COM3	4
X	✓	X	X	COM1	4	COM3	4
X	X	✓	X	COM1	4	COM2	3
X	X	X	✓	COM1	4	COM2	3

**Note:** If the onboard serial port interrupt and ISA add-on card interrupt are in conflict, the serial port will not work properly. Please disable one of the devices.

### Serial PortB Mode

Choosing Normal will set the Serial Port B for normal use, not for IR device. Choosing IrDA or Ask IR will set it for use with IR device using these protocols.

### IR Duplex Mode

Can be set as either Half or Full duplex.

### IR Pin Select

Set this option to IRRX/IRTX when using an internal IR device which is connected to IR1 connector.

### Onboard Parallel Port

Choose Auto, the BIOS automatically assigned onboard parallel port to the available parallel port or disabled.

If the ISA add-on card has			Onboard parallel port to be set as	
LPT1 I/O:378H	LPT2 I/O:278H	LPT3 I/O:3BCH	PORT ASSIGNED	IRQ ASSIGNED
✓	✓	✓	Disabled	X
✓	✓	X	LPT3	5
✓	X	✓	LPT2	5
X	✓	✓	LPT1	7
✓	X	X	LPT2	5
X	✓	X	LPT1	7
X	X	✓	LPT1	7
X	X	X	LPT1	7

**Note:** *If the onboard parallel port interrupt and ISA add-on card interrupt are in conflict, the parallel port will not work properly. Please disable one of the devices.*

**Parallel Port Mode**

This option allows user to choose the operating mode of the onboard parallel port. The settings are Normal, SPP/EPP or ECP mode.

**EPP Version**

This option is for setting which EPP version will be used. The settings are 1.7 and 1.9.

**Parallel Port IRQ**

If the onboard parallel mode is not on auto mode, the user can select the interrupt line for onboard parallel port. We suggest that the user select the interrupt for the onboard parallel port as shown below:

<b>Onboard parallel port set at</b>	<b>Parallel Port IRQ</b>
LPT1(378H)	7
LPT2(278H)	5
LPT3(3BCH)	5

**Parallel Port DMA Channel**

This option allows user to choose DMA channel 1 to 3 for the onboard parallel port on ECP mode.

## 4.8 Hardware Monitor Setup (optional)

The Hardware Monitor Setup is used to set the CPU speed and monitor the current CPU Temperature, CPU Fan speed, Chassis Fan Speed, Power fan speed, Vcore, etc.

1. Press <ENTER> on “Hardware Monitor Setup” of the main menu screen.

AMIBIOS SETUP - HARDWARE MONITOR SETUP		
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Chassis Intrusion	Disabled	Available Options:
CPU Temperature Detected By	CPU	Manual
CPU Temperature	46°C/114°F	Auto
System Temperature	31°C/87°F	
CPU Fan Speed	4560 RPM	
Chassis Fan Speed	0 RPM	
Power Fan Speed	0 RPM	
CPU VID	2.00V	
Vcore	1.936V	
Vtt	2.480V	
Vio	3.280V	
+5,000V	5.113V	
+12,000V	12.045V	
-12,000V	-11.763V	
-5,000V	-4.932V	
Battery	3.00V	
+5V SB	5.60V	
		ESC:Exit :Sel
		PgUp/PgDn:Modify
		F2/F3:Color

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

## **Chapter 5**

# **INTEL 810 INTEGRATED GRAPHICS CONTROLLER**

## **1. Overview**

The Intel 810 Chipset extends Intel's graphics capabilities into the value PC segment by incorporating 2D and 3D capabilities with the memory controller, to provide the industry with complete graphics offerings for every computing segment.

### **1.1 Intel 810 Chipset**

- Support 4MB Display Cache (optional)
- Support AGP 2X BUS
- 2D & 3D Graphics Accelerator

## 1.2 System Requirements

This section describes system requirements for the VGA Driver installation and Usage.

<b>Computer</b>	Intel® Celeron™ processor or higher
<b>Monitor</b>	VGA Support, minimum 640x480 resolution
<b>Operating system</b>	DOS 5.0 or higher, Windows® 95/98, Windows® NT 3.51 or 4.0, or OS/2®
<b>CD-ROM</b>	Double Speed or Higher
<b>Chipset</b>	Intel® 810 chipset
<b>VGA BIOS</b>	Version 00.23 or Higher

## 2. Intel 810 VGA Driver Setup & Usage Procedures

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for VGA driver and sound driver, Intel 810/820 INF Update (only for Windows 95/98) and Trend PC-cillin 98. Just click the button for automatic installation for VGA driver.

### 2.1 Windows® 95/98

If you start Windows® 95/98, this will automatically detect this hardware onboard “Standard PCI Graphics Adapter (VGA)”. You need to click “Next”, then “Finish”. Do not click on the “Cancel”. The driver need these ID.

---

**Note:** Before installing the Intel 810 VGA Driver, you need to install the Intel 810/820 INF update first.

---

#### 2.1-1 Display Driver Installation Procedure:

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
  - Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
  - Step 3:** Click on “Intel 810 VGA Driver” icon.
  - Step 4:** This will show an installation menu.
  - Step 5:** Click on “Display Drivers”.
  - Step 6:** Click “OK”.
  - Step 7:** This will copy the VGA drivers into the hard drive.
  - Step 8:** A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.
  - Step 9:** After restarting, Windows® 95/98 will show a new display setting.
-



## 2.2 Windows® NT 4.0

**You need to install Windows® NT “Service Pack 3” or higher, before you install Windows® NT driver.**

### 2.2-1 Display Driver Installation Procedure:

- Step 1:** Click **Start** menu and select **Control Panel** from **Settings** group.
- Step 2:** Select **Display** icon.
- Step 3:** Select **Settings** on the Display Properties.
- Step 4:** Select **Display Type**.
- Step 5:** Select **Change** from the **Adapter Type** Area.
- Step 6:** Select **Have Disk** of Change Display.
- Step 7:** Insert the **CD-Title Disk** into CD-ROM Drive.
- Step 8:** When the Install from Disk dialog box appears, look for your CD-ROM drive :**\\SVGA\Intel\810\NT4\WINNT4**
- Step 9:** When the **Change Display** dialog box appears, click **OK**.
- Step 10:** When the Third-party Drivers dialog box appears, click **Yes**.  
A message will appear stating that the drivers were successfully installed. Click **OK**. You must now restart Windows® NT 4.0.

**Note:** You can also use CD autorun to install the VGA NT driver.

**2.2-2 Changing resolution, color depth, and refresh rate:**

- Step 1:** Click **Start** menu and select **Control Panel** from **Settings** group.
- Step 2:** Select **Display** icon.
- Step 3:** Select **Settings**.
- Step 4:** Select Color Palette to change between 256 color, 65536 colors, and 16777216 colors.
- Step 5:** To select desktop resolution size, go to the Desktop area and use the slide bar to change resolution from 640x480, 800x600, 1024x768, 1152x864, 1280x1024, to 1600x1200.
- Step 6:** Select Test to test the resolution. If the display test screen was good, then select Yes when the Testing Mode dialog box appears. If the display test screen was bad, then select No. Windows® NT will give you an error message.
- Step 7:** Click OK. If the display test screen was good and you select Yes, Windows® NT 4.0 will change the mode without restarting the system.

**2.3 AutoCAD, OS/2 and other application. Please refer to “On-Line Manual” in the CD-ROM. You need to install the “Acrobat Reader 3.01” program first.**

## Chapter 6

### ICH AUDIO DRIVER

#### 1. Overview

The ICH AC' 97 digital controller provides the next generation of audio performance to the PC market.

##### 1.1 Features

- PCI Bus Master for fast DMA.
- Fully Compliant with PC97 Power Management Specification.

##### 1.2 System Requirements

This section describes system requirements for the Audio Driver installation and Usage.

<b>Computer</b>	Intel® Celeron™ processor or higher
<b>Operating system</b>	DOS 5.0 or higher, Windows® 95/98, Windows® NT 3.51 or 4.0, or OS/2®
<b>CD-ROM</b>	Double Speed or Higher
<b>Chipset</b>	ICH

## 2. Audio Driver Setup & Usage Procedures

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for VGA driver and sound driver, Intel 810/820 INF Update (only for Windows 95/98) and Trend PC-cillin 98. Just click the button for automatic installation for audio driver.

### 2.1 Windows® 95/98

If you start Windows® 95/98, this will automatically detect this hardware onboard “PCI Multimedia Audio Device” and “Gameport Joystick”. You need to click “Next”, then “Finish”. Do not click on the “Cancel”. The driver need these ID.

#### 2.1-1 Audio Driver Installation Procedure:

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “ADI SoundMax Drivers” icon.
- Step 4:** This will copy the audio drivers into the hard drive.
- Step 5:** A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.

---

**Note:** For Aureal Audio, follow the same procedures except for Step3 “Choose Aureal Sound Drivers”.

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## **2.2 Windows® NT 4.0**

### **2.2-1 Audio Driver Installation Procedure:**

**Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.

**Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.

**Step 3:** Click on “ADI SoundMax Drivers” icon.

**Step 4:** This will copy the audio drivers into the hard drive.

**Step 5:** A message will appear stating you must restart the Windows® NT system, select **yes** to restart.

---

### **2.2-2 Aureal Audio Driver Installation Procedure:**

**Step 1:** Click **Start** menu and select **Control Panel** from **Settings** group.

**Step 2:** Select **Multimedia** icon.

**Step 3:** Click on the **Devices** tab.

**Step 4:** Click **Add**.

**Step 5:** Double click on **Unlisted or Updated Driver** in the list.

**Step 6:** Insert the **CD-ROM Disk** into the CD-ROM Drive.

**Step 7:** When the Install from Disk dialog box appears, look for your CD-ROM drive :**\Sound\Aureal\Au8810\NT4**

**Step 8:** Click **OK**.

**Step 9:** Click **OK**.

**Step 10:** A message will appear stating that the drivers were successfully installed. Click **OK**. You must now restart Windows® NT 4.0.

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