

Chapter 3

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.

3.1 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) 1998 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 " message appears, press key to enter the BIOS setup screen.
3. After pressing 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 1.20 (C) 1998 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 3.8 will explain the option in more details.

3.2 Standard CMOS Setup

- 1. Press <ENTER> on “Standard CMOS Setup” of the main menu screen .

AMIBIOS SETUP - STANDARD CMOS SETUP											
(C)1998 American Megatrends, Inc. All Rights Reserved											
Date (mm/dd/yyyy): Fri Dec 14, 1998											
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.

3.3 Advanced CMOS Setup

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

AMIBIOS SETUP - ADVANCED CMOS SETUP		
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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	
Floppy Access Control	Read-Write	
Hard Disk 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	
Internal Cache	Disabled	
Cache Bus ECC	Disabled	
System BIOS Cacheable	Enabled	
C000, 16K Shadow	Cached	
C400, 16K Shadow	Cached	
C800, 16K Shadow	Disabled	
CC00, 16K Shadow	Disabled	
D000, 16K Shadow	Disabled	
D400, 16K Shadow	Disabled	
D800, 16K Shadow	Disabled	
DC00, 16K 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.

Floppy Access Control

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

Hard Disk Access Control

This option sets the HDD to Read-only or Read-Write. During Read-only, if you try to write on the HDD, the system will halt.

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.

Internal Cache

This option can enable or disable the internal cache memory of the CPU (L1 cache memory). Enabling this function on a CPU without L1 cache will likely freeze the system.

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, 16K Shadow/C400, 16k 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.

**C800, 16k Shadow/CC00, 16k Shadow/D000, 16K Shadow/
D400, 16k Shadow/D800, 16k Shadow/DC00, 16K Shadow**

These options specify how the contents of the adaptor ROM named in the option title are handled. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards. The settings are:

- Disabled** - The specified ROM is not copied to RAM.
- Cache** - The contents of the ROM area are not only copied from ROM to RAM for faster execution, it can also be written to or read from cache memory.
- Shadow** - The contents of the ROM area are copied from ROM to RAM for faster execution.

The Optimal and Fail-Safe default settings are Disabled.

3.4 Advanced Chipset Setup

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

AMIBIOS SETUP - ADVANCED CHIPSET SETUP		
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***** SDRAM Timing *****		Available Options:
Configure SDRAM Timing by SPD	Disabled	Disabled
SDRAM RAS# to CAS# Delay	3 Clks	Enabled
SDRAM RAS# Precharge	3 Clks	
SDRAM CAS# Latency	3 Clks	
SDRAM Leadoff Cmd Timing	4 CLKS	
DRAM Integrity Mode	Non-ECC	
DRAM Refresh Rate	15.6 us	
Memory Hole	Disabled	
VGA Frame Buffer USWC	Disabled	
PCI Frame Buffer USWC	Disabled	
USWC Write Post	Disabled	
Graphics Aperture Size	64MB	
Search for MDA Resources	No	
USB Passive Release	Enabled	
PIIX4 Passive Release	Enabled	
PIIX4 Delayed Transaction	Disabled	
ClkGen Spread Spectrum	Disabled	ESC:Exit :Sel
USB Function	Enabled	PgUp/PgDn:Modify
USB Keybd/Mouse Legacy Support	Disabled	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 Chipset Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Configure SDRAM Timing by SPD

Enabling this option will set the SDRAM timing value to the value provided by the DIMM SPD, otherwise, value will be set to the values you set.

Note: It is recommended that under 100MHz, you use DIMM with SPD.

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.

SDRAM 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 Leadoff Cmd Timing

This control the SDRAM command for CPU cycles. When this is set to Auto, timing value is set on the value provided by SPD; 4 to 100MHz; and 3 to 66MHz.

DRAM Integrity Mode

During ECC, this will enable the DRAM ECC mechanism that allows single bit error detection and recovery. During EC mode, it will detect multi-bit errors but cannot perform correction.

DRAM Refresh Rate

This option is for setting the frequency of refreshing the DRAM. Available settings are 15.6, 31.2, 62.4, 124.8, and 249.6 us.

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.

VGA Frame Buffer USWC

The Pentium® II processor supports the Uncacheable Speculatable Write-Combining (USWC) memory type. The processor provides a write-combining with buffering strategy for write operation. This is useful for frame buffering. Writing to USWC memory can be buffered and combined in the processors write-combining buffer (WCB). The WCBs are viewed as a special purpose outgoing write buffers, rather than a cache. The WCBs are written into memory to allocate a different address, or after executing a serializing, locked, or I/O instructions.

During Enabled, this will enable the processor memory location B000 and BFFF segment as USWC memory type.

PCI Frame Buffer USWC

The Pentium® II processor supports the Uncacheable Speculatable Write-Combining (USWC) memory type. The processor provides a write-combining with buffering strategy for write operation. This is useful for frame buffering. Writing to USWC memory can be buffered and combined in the processors write-combining buffer (WCB). The WCBs are viewed as a special purpose outgoing write buffers, rather than a cache. The WCBs are written into memory to allocate a different address, or after executing a serializing, locked, or I/O instructions.

During Enabled, this will enable the processor memory location from main memory to 4GB segment as USWC memory type.

USWC Write Post

Set this option to Enabled to use USWC(Uncacheable, Speculatable, Write-Combined) memory. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Graphics Aperture Size

This option determines the effective size of the graphics aperture used in the particular PAC configuration. The AGP aperture is memory-mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache. Accesses with the aperture range are forwarded to the main memory, then PAC will translate the original issued address via a translation table that is maintained on the main memory. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, and 256MB.

Search for MDA Resources

This option is only used for MDA resources. The default setting is no.

8 Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

16 Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

USB Passive Release

During Enabled, this will allow the PIIX4E® to use passive release(look at PIIX4E® Passive Release) while transferring control information or data for USB transaction. During Disabled, PIIX4E® will perform PCI accesses for USB without using passive release.

PIIX4E® Passive Release

The PIIX4E® ISA bridge support GAT (Guaranteed Access Time) mode, which will now violate the spirit of the PCI specification. The system provides a programmable passive release mechanism to meet the required master latencies. During Enabled, ISA masters may see long delays in accessing PCI memory, including the main DRAM array. The ISA GAT mode is also not supported during enable. ISA masters must honor IOCHRDY.

PIIX4E® Delayed Transaction

During Enabled, the PIIX4E® delay transaction mechanism is enabled when the PIIX4E® is the target of a PCI transaction. A read cycle from Host to PCI is immediately retrived due to any pending PCI to DRAM cycle. During Disabled, a read cycle from Host to PCI is waited until time-out due to any pending PCI to DRAM cycle.

CLKGen Spread Spectrum

This item allows you to select the clock generator Spread Spectrum function. The default setting is enabled. This item should always be set to disabled, if you overclock the processor.

USB Function

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

USB Keybd/Mouse Legacy Support

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

3.5 Power Management Setup

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

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C) 1998 American Megatrends, Inc. All Rights Reserved		
Power Management / APM	Enabled	Available Options:
Green PC LED Status	Blinking	Disabled
Green PC Monitor Power State	Stand By	Enabled
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	50-62.5%	
Modem Use IO Port	N/A	
Modem Use IRQ	N/A	
Display Activity	Ignore	
Device 6(Serial Port 1)	Monitor	
Device 7(Serial Port 2)	Monitor	
Device 8(Parallel Port)	Ignore	
Device 5(Floppy Disk)	Monitor	
Device 0(Primary master IDE)	Monitor	
Device 1(Primary slave IDE)	Ignore	
Device 2(Secondary master IDE)	Monitor	
Device 3(Secondary slave IDE)	Ignore	
System Thermal	Ignore	
Thermal Slow Clock Ratio	50-62.5%	
CPU Critical Temperature	65°C/149°F	
Power Button Function	On/Off	
Restore on AC/Power Loss	Last State	
Ring Resume From Soft Off	Disabled	
LAN Resume From Soft Off	Disabled	
RTC Alarm Resume From Soft-Off	Disabled	
RTC Alarm Date	15	ESC:Exit :Sel
RTC Alarm Hour	12	PgUp/PgDn:Modify
RTC Alarm Minute	50	F2/F3:Color
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:**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 determines which state the Green PC LED will use. The settings are Blinking, Single color, or Dual color.

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 Full power on state. When this length of time expires, the computer enters Standby 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.

Modem Use IO Port

This indicates which I/O port will be used by the Modem(if there is a Modem).

Modem Use IRQ

This indicates which IRQ no. will be used by the Modem(if there is a Modem).

Display Activity/Device 6/Device 7/Device 8/Device 5/Device 0/Device 1/Device 2/Device 3/System Thermal

When set to Monitor, these options enable event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, AMI® BIOS watches for activity on the specified IRQ line. The computer enters the full on power state if any activity occurs.

AMI® BIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

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 J1 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.

3.6 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		
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Plug and Play Aware O/S	No	Available Options: Enabled Disabled
Clear NVRAM	No	
PCI Latency Timer (PCI Clocks)	64	
Primary Graphics Adapter	PCI	
PCI VGA Palette Snoop	Disabled	
Allocate IRQ to PCI VGA	Yes	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	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	
Reserved Memory Size	Disabled	ESC:Exit :Sel
Reserved Memory Address	C8000	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® 95/98 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.

Allocate IRQ to PCI VGA

Set this option to allow user to choose which IRQ to be assign for the PCI VGA card.

PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI local bus includes a bus mastering capability. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Offboard PCI IDE Card

This option specifies if an offboard PCI IDE controller adapter card is installed in the computer. You must specify the PCI expansion slot on the mainboard where the offboard PCI IDE controller is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled. The settings are Auto(AMI® BIOS automatically determines where the offboard PCI IDE controller adapter card is installed), Slot1, Slot2, Slot3 or Slot4. The Optimal and Fail-Safe settings are Auto.

If an offboard PCI IDE controller adapter card is installed in the computer, you must also set the Offboard PCI IDE Primary IRQ and Offboard PCI IDE Secondary IRQ options.

Offboard PCI IDE Primary IRQ/**Offboard PCI IDE Secondary IRQ**

These options specify the PCI interrupt used by the Primary (or Secondary) IDE channel on the offboard PCI IDE controller. The settings are Disabled, Hardwired, INTA, INTB, INTC or INTD. 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.

Reserved Memory Size/Reserved Memory Address

Some ISA cards have ROM at 0C000h~0D000h segments, but in a non-standard format. So Plug & Play BIOS can't detect it. The end user needs to set it up manually. Setting these options under this condition, will inform the BIOS which location and how many location is occupied.

3.7 Peripheral Setup

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

AMIBIOS SETUP - PERIPHERAL SETUP		
(C) 1998 American Megatrends, Inc. All Rights Reserved		
Onboard Network Device	Enabled	Available Options: Auto Disabled Enabled
Onboard SCSI Device	Enabled	
U/2 LVD Terminator Config	Reserved	
U/W Terminator Auto Config	Enabled	
U/W High-Byte Terminator	Enabled	
U/W Low-Byte Terminator	Enabled	
OnBoard FDC	Auto	
OnBoard Serial PortA	Auto	
OnBoard Serial PortB	Auto	
IR I/O Pin Location Select	SINB/SOUTB	
Serial Port Mode	Normal	
IR Duplex Mode	Half	
IrDA Protocol	1.6 us	
OnBoard Parallel Port	Auto	
Parallel Port Mode	Normal	
EPP Version	ECP	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	3	
Onboard IDE	Both	
		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 Peripheral Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:**OnBoard Network Device**

The system had an onboard Intel 82558 10/100M Ethernet LAN controller. During enabled, the system will use the onboard LAN controller for accessing the RJ-45 LAN connector.

OnBoard SCSI Device

The system had an onboard SCSI controller. During enabled, the system will use the onboard SCSI controller.

U/2 LVD Terminator Config

Enabled/Disabled the SCSI Terminator Configuration.

U/W Terminator Auto Config

Enabled/Disabled the SCSI Terminator Auto Configuration.

U/W High-Byte Terminator

Enabled/Disabled the SCSI High-Byte Terminator.

U/W Low-Byte Terminator

Enabled/Disabled the SCSI Low-Byte Terminator .

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.

IR I/O pin Location Select

Choosing SINB/SOUTB allows you to connect an external IR device to COMB. Set this option to IRRX/IRTX when using an internal IR device which is connected to IR1 connector.

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.

IrDA Protocol

This option sets the IrDA protocol to either 1.6 us or 3/16 us.

Onboard Parallel Port

Choose Auto, the BIOS automatically assigned onboard parallel port to the available parallel port or choose disabled if no port is assigned.

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:

Onboard parallel port set at	Parallel Port IRQ
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.

Onboard IDE

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

3.8 Hardware Monitor Setup

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		
(C) 1998 American Megatrends, Inc. All Rights Reserved		
-- System Hardware Monitor ==		Available Options:
Chassis Intrusion	Disabled	Manual
Current CPU1 Temperature	35°c/95°F	Auto
Current CPU2 Temperature	35°c/95°F	
Current System Temperature	31°c/87°F	
Current CPU1 Fan Speed	4560 RPM	
Current CPU2 Fan Speed	4560 RPM	
Current Power Fan Speed	0 RPM	
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	
VBAT	3.008V	
5VSB	4.974V	
		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.