Chapter 4

AMI® BIOS USER 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 need) 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:

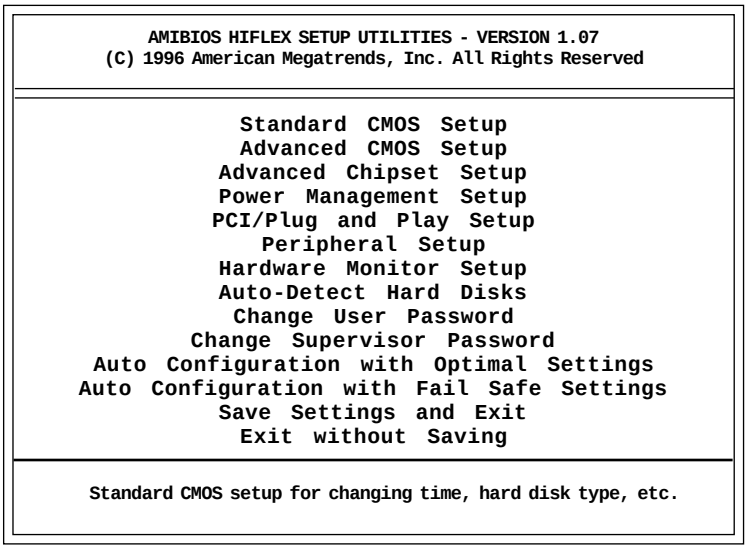
1. Turn on or reboot the system. The following screen appears with a series of diagnostic check.

```
AMIBIOS (C) 1996 American Megatrends Inc.

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.*



4. Use the <UP> and <DOWN> key to move the highlight scroll up or down.

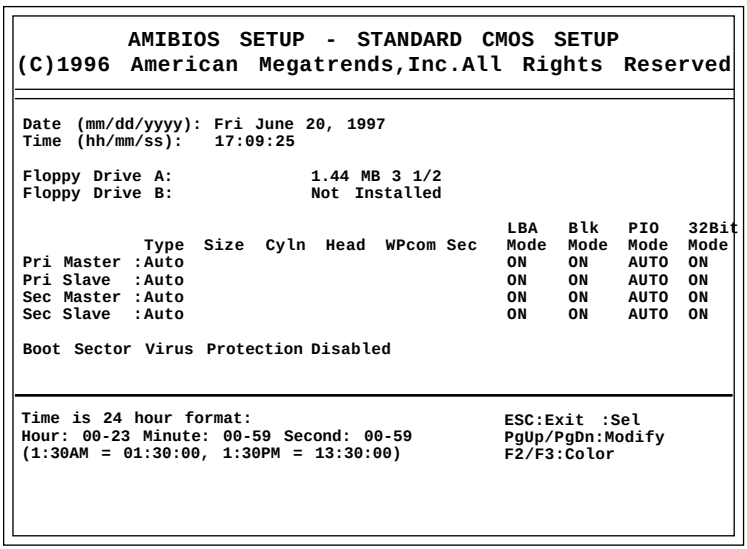
5. Use the <ENTER> key to select the option.

6. To exit, press <ESC>. To save and exit, press <F10>.

7. Section 4.2 to 4.7 will explain the option in more details.

4.2 Standard CMOS Setup

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

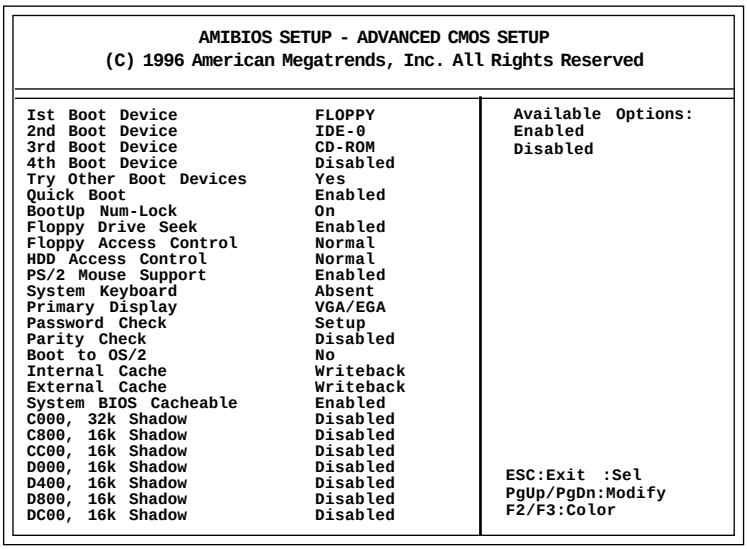


2. Use <UP> and <DOWN> to choose the item and <PGUP> and <PGDN> keys to modify the highlighted item.

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
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Ist Boot Device	FLOPPY	Available Options:
2nd Boot Device	IDE-0	Enabled
3rd Boot Device	CD-ROM	Disabled
4th Boot Device	Disabled	
Try Other Boot Devices	Yes	
Quick Boot	Enabled	
BootUp Num-Lock	On	
Floppy Drive Seek	Enabled	
Floppy Access Control	Normal	
HDD Access Control	Normal	
PS/2 Mouse Support	Enabled	
System Keyboard	Absent	
Primary Display	VGA/EGA	
Password Check	Setup	
Parity Check	Disabled	
Boot to OS/2	No	
Internal Cache	Writeback	
External Cache	Writeback	
System BIOS Cacheable	Enabled	
C000, 32k Shadow	Disabled	
C800, 16k Shadow	Disabled	
CC00, 16k Shadow	Disabled	
D000, 16k Shadow	Disabled	ESC:Exit :Sel
D400, 16k Shadow	Disabled	PgUp/PgDn:Modify
D800, 16k Shadow	Disabled	F2/F3:Color
DC00, 16k Shadow	Disabled	

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:

1st Boot Device/2nd Boot Device/3rd Boot Device/ 4th 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.

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.

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 so the end user can 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 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.

Floppy Access Control

This option sets the Floppy to Read-only or Normal(Full Access).

HDD Access Control

This option sets the HDD to Read-only or Normal(Full Access). During Read-only, if you try to write on the HDD the system will halt.

PS/2® Mouse Support

When this option is set to Enabled, AMI® BIOS will autodetect the present of a PS/2® mouse and reserved an IRQ for the mouse. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Enabled.

System Keyboard (leave on the default setting of Absent)

Primary Display

This option configures the primary display subsytem 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®

Set this option to Enabled only if your using an OS/2® and the memory size is 264MB.

Internal Cache/External Cache

This option Enabled or Disabled the Internal and the External Cache.

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, 32K 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 are 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 are 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.

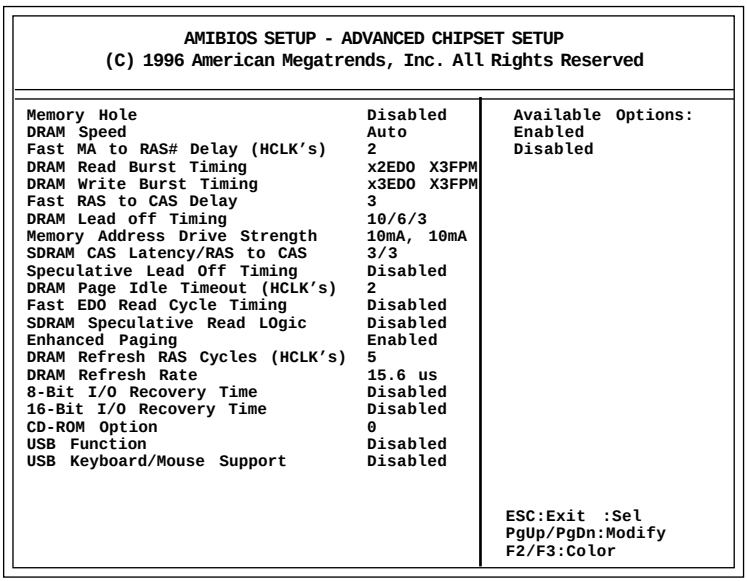
Cache - The contents of the ROM area are not only copied from ROM to RAM for faster execution, it can also be written to or read from cache memory.

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.

4.4 Advanced Chipset Setup

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



```
AMIBIOS SETUP - ADVANCED CHIPSET SETUP
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Memory Hole                          Disabled      Available Options:
DRAM Speed                           Auto          Enabled
Fast MA to RAS# Delay (HCLK's)       2             Disabled
DRAM Read Burst Timing               x2EDO X3FPM
DRAM Write Burst Timing              x3EDO X3FPM
Fast RAS to CAS Delay                3
DRAM Lead off Timing                 10/6/3
Memory Address Drive Strength        10mA, 10mA
SDRAM CAS Latency/RAS to CAS         3/3
Speculative Lead Off Timing          Disabled
DRAM Page Idle Timeout (HCLK's)      2
Fast EDO Read Cycle Timing           Disabled
SDRAM Speculative Read LOgic         Disabled
Enhanced Paging                      Enabled
DRAM Refresh RAS Cycles (HCLK's)     5
DRAM Refresh Rate                    15.6 us
8-Bit I/O Recovery Time              Disabled
16-Bit I/O Recovery Time             Disabled
CD-ROM Option                        0
USB Function                         Disabled
USB Keyboard/Mouse Support           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 Chipset Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Memory Hole

Choosing Enabled, will enable a memory hole in the DRAM space. The CPU cycle matching the enabled hole will be passed on the PCI. PCI cycles matching an Enabled hole are ignored. Disabled(default) will disable this function.

DRAM Speed

This option specifies the speed for the DRAM used in the computer for system memory. The default settings are Disabled.

Fast MA to RAS# Delay (HCLK's)

Leave on the default setting of 2.

DRAM Read Burst Timing

This option chooses the Read Burst time for accessing DRAM.

DRAM Write Burst Timing

This option chooses the Write Burst Timing for accessing DRAM.

Fast RAS to CAS Delay

Leave on the default setting of 3.

DRAM Lead off Timing

Leave on the default setting 10/6/3.

Memory Address Drive Strength

Leave on the default setting of 10mA, 10mA.

SDRAM CAS Latency/RAS to CAS

Leave on the default setting 3/3.

Speculative Lead Off Timing

Leave on the default setting of Disabled.

DRAM Page Idle Timeout (HCLK's)

Leave on the default setting of 2.

Fast EDO Read Cycle Timing

Leave on the default setting of Disabled.

SDRAM Speculative Read Logic

Leave on the default setting of Disabled.

Enhanced Paging

Leave on the default setting of Enabled.

DRAM Refresh RAS Cycles (HCLS's)

Leave on the default setting of 5.

DRAM Refresh Rate

Leave on the default setting of 15.6 us.

8-Bit I/O Recovery Time / 16-Bit I/O Recovery Time

Choose the recovery time for 8-bit and 16-bit I/O cycles respectively.

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/Mouse Support

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

USWC Write Posting

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 Disable.

CPU To PCI Posting

Set this option to Enabled to give priority to posted messages from the CPU to the PCI bus. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Enabled.

PCI to DRAM Pipeline

Set this option to Enabled the pipeline from the PCI bus to system memory. The settings are Enabled or Disabled. The Optimal and Fail-Safe Default settings are Enabled.

PCI Burst Write Combine

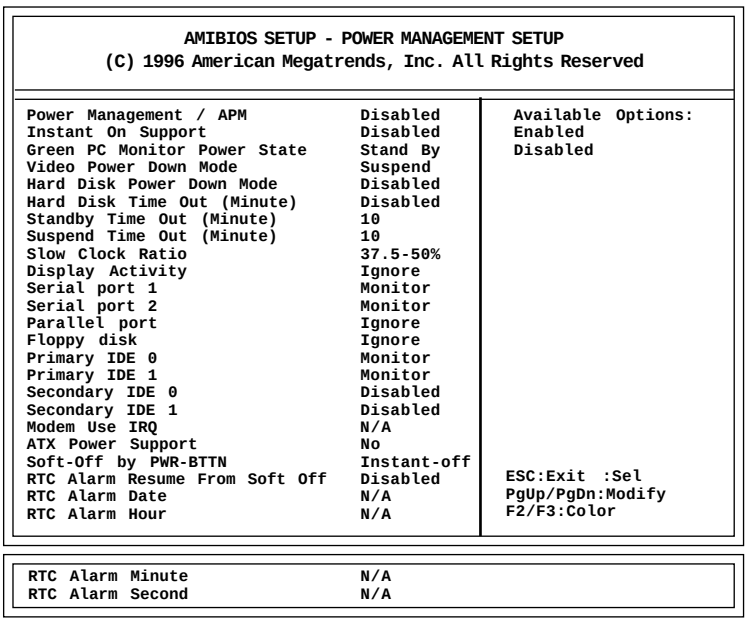
Set this option to Enabled to allow write instructions to be combined in PCI Burst mode. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Enabled.

Read Around Write

Set this option to Enabled to allow read operations to bypass write operations in the memory controller. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Enabled.

4.5 Power Management Setup

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



```
                AMIBIOS SETUP - POWER MANAGEMENT SETUP
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Power Management / APM              Disabled      Available Options:
Instant On Support                  Disabled      Enabled
Green PC Monitor Power State        Stand By      Disabled
Video Power Down Mode               Suspend
Hard Disk Power Down Mode           Disabled
Hard Disk Time Out (Minute)         Disabled
Standby Time Out (Minute)           10
Suspend Time Out (Minute)           10
Slow Clock Ratio                    37.5-50%
Display Activity                    Ignore
Serial port 1                       Monitor
Serial port 2                       Monitor
Parallel port                       Ignore
Floppy disk                         Ignore
Primary IDE 0                       Monitor
Primary IDE 1                       Monitor
Secondary IDE 0                     Disabled
Secondary IDE 1                     Disabled
Modem Use IRQ                       N/A
ATX Power Support                   No
Soft-Off by PWR-BTTN                Instant-off
RTC Alarm Resume From Soft Off      Disabled      ESC:Exit  :Sel
RTC Alarm Date                      N/A           PgUp/PgDn:Modify
RTC Alarm Hour                      N/A           F2/F3:Color

RTC Alarm Minute                    N/A
RTC Alarm Second                    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 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 Intel® 82371AB ISA 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.

Instant On Support (leave on the default setting of Disabled)

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.

Hard Disk Timeout (Minute)

This option specifies the length of a period of hard disk drive inactivity. When this length of time expires, the computer enters power-conserving state specified in the Hard Disk Power Down mode option (see the previous page). 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.

Standby Timeout (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 Timeout (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.

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. The settings are 1:1, 1:2, 1:4, 1:8, 1:16, 1:32, 1:64 or 1:128. The Optimal and Fail-Safe defaults are 1:8.

Display Activity/Serial port 1/Serial port 2/Parallel port/Floppy disk/Primary IDE 0/Primary IDE 1/Secondary IDE 0/ Secondary IDE 1

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.

The settings for each of these options are Monitor or Ignore. The Optimal and Fail-Safe default settings are Disabled for all the above options except IRQ3, IRQ4, IRQ7, IRQ12, IRQ14 or IRQ15. The Optimal default settings for these options is Monitor.

Modem Use IRQ

This indicates which IRQ no. will be used by the MODEM (if there is a MODEM). THe settings are 3, 4, 5 ,7 ,9, 10, or N/A.

Soft-Off by PWR-BTTN

The settings are Delay 4 sec or Instant-off. During Delay 4 sec, if you push the switch one time the system goes into suspend mode and if you push it more than 4 second the system tunr off. And during Instant-off, the system will shut down once you push the switch.

RTC Alarm Resume From Soft Off

This function is for setting Date, Hour, Minute , and Second for your system to boot up. During Disabled, you can not use this function. And during Enabled, Choose the Date, Hour, Minute, and Second:

RTC Alarm Date	You can choose the date, the system will boot up.
RTC Alarm Hour	You can choose the hour of the day, the system will boot up
RTC Alarm Minute	You can choose the Minute, the system will boot up.
RTC Alarm Second	You can choose th Second, the system will boot up.

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
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Plug and Play Aware O/S              No          Available Options:
Clear NVRAM                          Disabled    Enabled
PCI Latency Timer (PCI Clocks)       64          Disabled
PCI VGA Palette Snoop                Disabled
PCI IDE Busmaster                    Disabled
OffBoard PCI IDE Card                Auto
OffBoard PCI IDE Primary IRQ         Disabled
OffBoard PCI IDE Secondary IRQ       Disabled
Assign IRQ to PCI VGA                Yes
PCI Slot1 IRQ Priority               Auto
PCI Slot2 IRQ Priority               Auto
PCI Slot3 IRQ Priority               Auto
PCI Slot4 IRQ Priority               Auto
PCI Slot5 IRQ Priority               Auto
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                                 ISA
IRQ4                                 ISA         ESC:Exit  :Sel
IRQ5                                 PCI/PnP     PgUp/PgDn:Modify
IRQ7                                 ISA         F2/F3:Color
```

```
IRQ9                                 PCI/PnP
IRQ10                                PCI/PnP
IRQ11                                PCI/PnP
IRQ14                                PCI/PnP
IRQ15                                PCI/PnP
```

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

During Enabled, this option will clear the NVRAM 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.

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 dircted to the PCI VGA device's palette registers.

Enabled - Data read and written by the CPU is directed to the 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.

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 adaper 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.

Assign IRQ to PCI VGA

Choose the IRQ to be assigned to the PCI VGA display adapter card. The Optimal and Fail-Safe default settings No.

DMA Channel 0/DMA Channel 1/DMA Channel 3/DMA Channel 5/DMA Channel 6/DMA Channel 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.

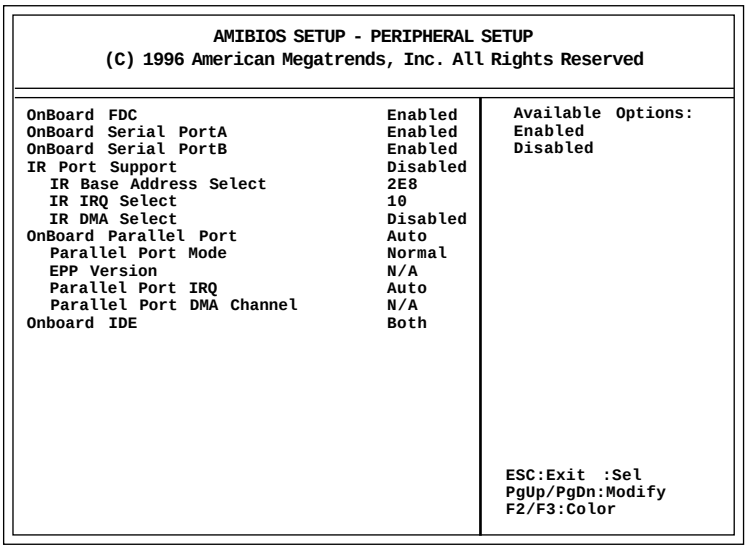
IRQ3/IRQ4/IRQ5/RQ7/IRQ9/IRQ10/IRQ11/IRQ14/IRQ15

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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OnBoard FDC                          Enabled
OnBoard Serial PortA                 Enabled
OnBoard Serial PortB                 Enabled
IR Port Support                      Disabled
  IR Base Address Select             2E8
  IR IRQ Select                      10
  IR DMA Select                      Disabled
OnBoard Parallel Port                Auto
  Parallel Port Mode                 Normal
  EPP Version                        N/A
  Parallel Port IRQ                  Auto
  Parallel Port DMA Channel          N/A
Onboard IDE                          Both

Available Options:
Enabled
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 Peripheral Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

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 Enabled, 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 Port Support(leave on the default setting of Disabled)

Onboard Parallel Port

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

If the ISA add-on card has			Onboard parallel port	
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 onbaord parallel port. The settings are Normal, SPP/EPP or ECP mode.

EPP Version(leave on the default setting of N/A)

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.

4.8 Hardware Monitor Setup

This settings are used by LM78 chipset which is an optional function. To enable the best performance, leave all the setting on the default mode.