

## **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.

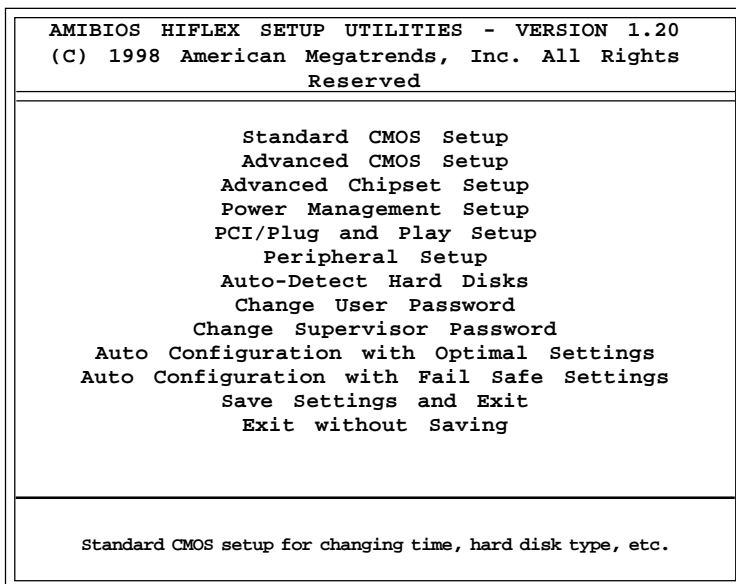
```
AMIBIOS (C) 1998 American Megatrends Inc.  
A5179MS VXXX XXXXXX  
Main Processor: XXXXX  
Processor Clock: XXXMHz
```

```
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 3.2 to 3.7 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 Feb 27, 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	
Pri Slave	:Auto									ON	
Sec Master	:Auto									ON	
Sec Slave	: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		
(C) 1998 American Megatrends, Inc. All Rights Reserved		
1st Boot Device	FLOPPY	Available Options: Disabled IDE0 IDE1 IDE2 IDE3 Floppy ARMD-FDD ARMD-HDD CDROM SCSI Network
2nd Boot Device	IDE-0	
3rd Boot Device	CD-ROM	
4th Boot Device	Disabled	
Try Other Boot Devices	Yes	
Quick Boot	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Enabled	
Floppy Access Control	Normal	
HDD Access Control	Normal	ESC:Exit :Sel PgUp/PgDn:Modify F2/F3:Color
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot to OS/2	No	
External Cache	Enabled	
System BIOS Cacheable	Enabled	
Video BIOS Shadow	Enabled	
C800, 16k Shadow	Disabled	
CC00, 16k Shadow	Disabled	
D000, 16k Shadow	Disabled	
D400, 16k Shadow	Disabled	
D800, 16k Shadow	Disabled	
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.
Floppy	The system will boot from Floppy drive.
ARMD-FDD	The system will boot from IOMEGA drive.
ARMD-HDD	The system will boot from LS-120 drive.
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 boot device, if all the Four Boot Devices failed.

### **Quick Boot**

Set this option to Enabled to permit AMI® BIOS to boot within 8 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. 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, this will 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.

### **Floppy Access Control**

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

### **HDD 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.

### **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**

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.

### **External Cache**

This option Enabled or Disabled 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.

### **Video BIOS Shadow**

Determines whether video BIOS will be copied to RAM for faster execution. Video shadow will increase the video performance.

**Enabled**(default)      Video shadow is enabled

**Disabled**              Video shadow is disabled

### **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 adaptor cards will be allocated to PCI adaptor 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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USB Function	Enabled	Available Options: Disabled Enabled
USB Keyboard Legacy Support	Disabled	
Ext. Tag SRAM Width	Auto	
SDRAM Burst X-1-1-1-1-1-1-1	Enabled	
DRAM Timing	Normal	
Pipe Function	Enabled	
Gated Clock	Disabled	
Graphics Aperture Size	64	
Primary Frame Buffer	Enabled	
VGA Frame Buffer	Enabled	
Data Merge	Disabled	
Passive Release	Enabled	
ISA Line Buffer	Enabled	
Delay Transaction	Disabled	
AT Bus Clock	Auto	
System Hardware Control	Enabled	
Onboard AGP	Enabled	
Onboard Audio	Enabled	
		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 are as follows:**

### **USB Function**

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

### **USB Keyboard Legacy Support**

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

### **Ext. Tag SRAM Width**

During 8 bits, the cacheable range is 128MB. During 10 bits, the cacheable range is 512MB.

**Note:** You can only choose 8 bits since an external TAG RAM is used. 10 bits is used for internal TAG RAM which is reserved for future use.

### **SDRAM Burst X-1-1-1-1-1-1**

During Enabled, this will improve the SDRAM module burst function. Some SDRAM module doesn't support this function, so this must be set to Disabled.

### **DRAM Timing**

Choose DRAM timing for customized setup.

### **Pipe Function**

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

### **Gated Clock**

Set to Enable, if there's no PCI Interface cycle. The PCI Interface will be automatically shutdown.

### **Graphics Aperture Size**

This option determines the effective size of the graphics aperture used in the particular configuration. The AGP aperture is memory-mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as non cacheable in the processor cache, access with the aperture range are forwarded to the main memory, then translated to 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.

### **Primary Frame Buffer**

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 processor's 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 C000 and DFFF segment as USWC memory type.

### **VGA Frame Buffer**

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 set the processor memory location A000 and B000 segment as USWC memory type.

### **Data Merge**

During Enabled, this will use Burst Cycle for Data Transfer.

**Passive Release**

During Enabled, this will allow the chipset to use passive release while transferring control information or data for transaction. During Disabled, chipset will perform PCI accesses without using passive release.

**ISA Line Buffer**

When an ISA/DMA master reads from the PCI memory, the M1543 chipset prefetches 8 bytes of data into the line buffer. Default settings is Enabled.

**Delay Transaction**

During Enabled, the chipset delay transaction mechanism will enable the chipset to target the PCI transaction. A read cycle from Host to PCI is immediately retrieved 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.

**AT Bus Clock**

This is used to set the ISA Bus Clock Frequencies.

**System Hardware Control**

Choosing Enabled will allow you to select the Onboard AGP and Onboard Audio.

**Onboard AGP**

Choosing Enabled will allow the system to use the onboard AGP VGA controller. Choose Disabled, when using add-on PCI VGA card.

**Onboard Audio**

Choosing Enabled will allow the system to use onboard sound. Choose Disabled, when using add-on sound card.

## 3.5 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	Enabled	Available Options:
Green Monitor Power State	Off	Disabled
Video Power Down Mode	Stand By	Enabled
Hard Disk Power Down Mode	Disabled	
Standby Time Out	Disabled	
Suspend Time Out	Disabled	
Monitor Pri-HDD	Yes	
Monitor Sec-HDD	No	
Power Button Function	Soft Off	
Ring/LAN Resume From Soft-Off	Disabled	
RTC Alarm Resume	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	50	
RTC Alarm Second	30	
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 Power Management Setup, press <ESC> to go back to the main menu.

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

### **Power Management/APM**

Set this option to Enabled to enable the 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 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 will 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**

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**

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.

### **Monitor Parallel Port/Monitor Serial Port/Monitor Floppy/ Monitor VGA/Monitor Audio/Monitor Pri-HDD/Monitor Sec- HDD**

When set to Yes, these options enable event monitoring on the specified hardware interrupt request line. If set to Yes 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.

### **Power Button Function**

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

### **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.

### **RTC Alarm Resume**

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:

- |                         |  |
|-------------------------|--|
| <b>RTC Alarm Date</b>   | Choose which day the system will boot up.    |
| <b>RTC Alarm Hour</b>   | Choose which hour the system will boot up.   |
| <b>RTC Alarm Minute</b> | Choose which minute the system will boot up. |
| <b>RTC Alarm Second</b> | 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		
(C) 1998 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options: No Yes
Clear NVRAM on Every Boot	No	
PCI Latency Timer (PCI Clocks)	64	
Primary Graphics Adapter	PCI	
PCI VGA Palette Snoop	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	
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	ESC:Exit :Sel
IRQ4	PCI/PnP	PgUp/PgDn:Modify
		F2/F3:Color

IRQ5	PCI/PnP
IRQ7	PCI/PnP
IRQ9	PCI/PnP
IRQ10	PCI/PnP
IRQ11	PCI/PnP
IRQ12	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 are as 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 and Windows® 98 are PnP-aware. The settings are Yes or No. The Optimal and Fail-Safe default settings is No.

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

During Enabled, this option will reset 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 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.

### **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 which 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.

### **Assign IRQ to PCI VGA**

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

### **PCI Slot1 IRQ Priority/PCI Slot2 IRQ Priority/PCI Slot3 IRQ Priority/PCI Slot4 IRQ Priority**

These options specify the priority IRQ to be used for any PCI devices installed in the PCI expansion slots 1 through 4. The settings are Auto(AMI® BIOS which automatically determines the priority IRQ), (IRQ) 3, 4, 5, 7, 9, 10, or 11. The Optimal and Fail-Safe default settings are Auto.

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

These options specify the bus that the specified DMA channel is using. 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/IRQ7/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 setting is PCI/PnP.

## 3.7 Peripheral Setup

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

AMIBIOS SETUP - PERIPHERAL SETUP		
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OnBoard FDC	Auto	Available Options:
OnBoard Serial Port1	3F8H/COM1	Enabled
OnBoard Serial Port2	Disabled	Disabled
Serial Port2 Mode	N/A	
Serial Port2 DMA	N/A	
IR Transceiver Module Type	N/A	
IR Half-Duplex Time-Out	N/A	
OnBoard Parallel Port	378H	
Parallel Port Mode	Normal	
EPP Version	N/A	
Parallel Port IRQ	7	
Parallel Port DMA Channel	N/A	
Keyboard Power ON	Disabled	
Hotkey Select	N/A	
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 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 1/Onboard Serial Port 2

Choose Auto, 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.

### Onboard Parallel Port

Choose Auto, for the BIOS to automatically assign the 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.

### EPP Version

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

### 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.

### **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.

### **Onboard IDE**

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