

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 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) 1996 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 1.07
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      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 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 .

```

AMIBIOS SETUP - STANDARD CMOS SETUP
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```

```

Date (mm/dd/yyyy): Sat Jan 17, 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.

4.3 Advanced CMOS Setup

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

AMIBIOS SETUP - ADVANCED CMOS SETUP		
(C) 1996 American Megatrends, Inc. All Rights Reserved		
Ist Boot Device	Floppy	Available Options: Enabled Disabled
2nd Boot Device	IDE 0	
3rd Boot Device	CD-ROM	
4th Boot Device	Disabled	
Boot From Card BIOS	Yes	
Try Other Boot Devices	Yes	
Quick Boot	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot to OS/2, DRAM 64MB or Above	No	
Internal Cache	WriteBack	
External Cache	Enabled	
System BIOS Cacheable	Enabled	
C000, 16k Shadow	Enabled	
C400, 16k 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	
		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:

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.

Boot From Card BIOS

This option support boot ROM under DOS mode.

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. 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.

PS/2® Mouse Support

When this option is set to Enabled, AMI® BIOS supports a PS/2®-type 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®, DRAM 64MB or Above

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/External Cache

This option selects the type of caching algorithm used by AMI® BIOS and the CPU for L1 cache memory(internal/external to the CPU). The settings are Writeback - a writeback algorithm is used, Write-through - a write-through algorithm is used or Disabled - AMI® BIOS does not specify the type of caching algorithm. The algorithm is set by the CPU. The Optimal and Fail-Safe default settings are Writeback.

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.

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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Automatic Configuration	Disabled	Available Options:
**** DRAM Setting ****		Enabled
RAS Pulse Width for EDO/FP/SDRAM	6T/5T	Disabled
Refresh Queue Depth	12	
Read Lead-off Time Delay	Normal	
Back-Back Read Timing Delay	Normal	
**** SDRAM Timing ****		
Fast Read	Disabled	
Back-Back Read Timing	51112111	
Write Retire Rate	x-1-1-1	
CAS Latency	2T	
Read Delay 1T After W-Cycle	Disabled	
RAS#/CAS# Assert Time	1T Pulse	
Wait State	1 Wait	
****CACHE Setting****		
**** ISA & Control Setting ****		
ISA Bus Clock	PCICLK/4	
16Bit I/O Cycle Recovery Time	5 BUSCLK	
8BIT I/O Cycle Recovery Time	8 BUSCLK	
Memory Hole	Disabled	
Graphic Window Control	64Mbyte	
***** USB Setting *****		
USB Function	Enabled	ESC:Exit :Sel
USB Keyboard Legacy Support	Enabled	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:**Automatic Configuration**

Choose Enabled(default) will automatically configure the DRAM timing depending on the “DRAM Speed” selection. Choose Disabled to customize setup.

DRAM Setting**RAS Pulse Width For EDO/FP/SDRAM**

Select the number of CPU clock cycles for RAS DRAM refresh. Fewer clock cycles give faster performance, and more cycles give more stable performance. The settings are 6T/5T, 5T/4T, 7T/6T, or 8T/7T.

Refresh Queue Depth

This option is for minimizing the performance penalty caused by refresh cycles. Refresh request is arbitrated with other DRAM request. If a refresh request does not get served, it enters refresh queue. The priority of refresh request is highest when the refresh request is full.

Read Lead-off Time Delay/Back-Back Read Timing

This option controls whether to delay the Read command or not.

SDRAM Setting

Fast Read

Leave on the default setting of Disabled.

Back-Back Read Timing

This is for non-cache system. If this is a page-hit cycle, it can return data 1T earlier than normal case.

Write Retire Rate

The chipset has a post write buffer. The buffer will store the data of all CPU write cycle first, and then forward the data to DRAM. "Retire Rate" is the speed of the buffer to DRAM. The settings are X-1-1-1 or X-2-2-2.

CAS Latency

This item allows you to select the SDRAM Latency Time. The settings are 2T or 3T.

Read Delay 1T After W-Cycle

This option read command timing control, when Read Cycle follows after Write Cycle. The setting is 0 wait and 1 wait state.

RAS#/CAS# Assert Time

This option is for SDRAM CAS Latency Time and RAS# to CAS# delay time. The Settings are 1T pulse and 2T pulse.

Wait State

This item allows you to select SDRAM wait state control function during Precharge command. The settings are 1 wait or 0 wait.

Cache Setting

ISA Bus Clock

This option is for selecting ISA Bus Clock 8MHz when PCI bus clock/3/4/5. For example: 33MHz/4 = 8.33 ISA Bus Clock
30MHz/3 = 10 ISA Bus Clock

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

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

Memory Hole

You can reserve this area of the system memory for ISA adapter ROM. When this area is reserved, it can be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

Enabled	Memory hole supported.
Disabled	Memory hole not supported.

Graphic Window Control

This option determines the effective size of the graphics aperture used in the particular PAC configuration. This is a memory-mapped, while graphics data structure can reside in a graphics aperture. The option allows the selection of 4, 8, 16, 32, 64, 128, and 256 Mbytes.

USB Function

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

USB KB/Mouse Legacy Support

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

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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Keyboard Power ON	Disabled	Available Options: Enabled Disabled
Power Management/APM	Enabled	
GPC Monitor Power State	Standby	
Video Power Down Mode	Standby	
Hard Disk Power Down Mode	Standby	
HardDisk Time Out(minute)	Disabled	
Standby Time Out	10 Min	
Suspend Time Out	15 Min	
Slow Clock Ratio	50%	
Primary IDE	Both	
Secondary IDE	Both	
Floppy Port	Both	
Serial Port 1	Both	
Serial Port 2	Both	
Parallel Port	Both	
DMA/USB Master	WakeUp	
IRQ 0,1,3-15/NMI	WakeUp	
Ring In	Ignore	
Display Activity	Ignore	
PCI/AGP/IDE Master	Ignore	
Power Off By Power Button	InstantOff	
Curren CPUFAN1 Speed	0 RPM	ESC:Exit :Sel
IN0 (V)	3.376	PgUp/PgDn:Modify
IN1 (V)	3.088	F2/F3:Color
IN2 (V)	5.053	
IN3 (V)	12.416	

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:

Keyboard Power ON

During Enabled, if there is any activity on the keyboard, the system will change from OFF to ON. During Disabled, this function will not work.

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.

GPC 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.

HardDisk 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.

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.

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.

Primary IDE/Secondary IDE/Floppy Port/Serial Port 1/Serial Port 2/Parallel Port/DMA/USB Master/IRQ 0,1,3-15/NMI/Ring/Display Activity/PCI/AGP/IDE Master

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.

Power Off By Power Button

The settings are Delay 4 sec or Instant Off. During Delay 4 sec, if you push the switch once, the system goes into suspend mode and if you push it more than 4 seconds, the system turns off. During Instant Off, the system will turn off once you push the switch.

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) 1996 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options:
Clear NVRAM on Every Boot	No	Enabled
PCI Latency Timer (PCI Clocks)	64	Disabled
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 Card	Yes	
PCI IDE Busmaster	Disabled	
PCI Slot1 IRQ Priority	Auto	
PCI Slot2 IRQ Priority	Auto	
PCI Slot3 IRQ Priority	Auto	
PCI Slot4 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	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	ESC:Exit :Sel
IRQ7	PCI/PnP	PgUp/PgDn:Modify
IRQ8	PCI/PnP	F2/F3:Color
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	
IRQ12	PCI/PnP	
IRQ14	PCI/PnP	
IRQ15	PCI/PnP	
Reserved Memory Size	Disabled	
Reserved Memory Address	C8000	

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 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 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 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 Card

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

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.

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	Auto	Available Options: Enabled Disabled
OnBoard Serial Port1	Auto	
OnBoard Serial Port2	Auto	
Serial Port2 Mode	Normal	
IR Duplex Mode	Full	
IrDA Protocol	1.6us	
OnBoard Parallel Port	Auto	
Parallel Port Mode	Normal	
EPP Version	N/A	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	N/A	
Onboard PCI IDE	Both	
Primary Master Prefetch	Enable	
Primary Slave Prefetch	Enable	
Secondary Master Prefetch	Enable	
Secondary Slave Prefetch	Enable	
		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 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 Port2 Mode

Choose onboard Serial Port2 operation mode as standard UART or as IR/Infrared. The default setting is Normal.

IR Duplex Mode

Choose full duplex or half duplex operation mode when the onboard Serial Port2 operation mode is selected as IR.

IrDA Protocol

If onboard Serial Port2 is selected as IrDA mode, the user has to set the IR transmit active pulse time according to the specification of IR module. Based on different IR module, the user can select active pulse time as 1.6us or 3/16 bit.

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.*

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:

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.