

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) 1999 American Megatrends Inc.  
AR5191MS 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 " 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
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Reserved

Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
Peripheral Setup
Auto-Detect Hard Disks
Change User Password
Change Supervisor Password
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 3.6 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		
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1st Boot Device	FLOPPY	Available Options:
2nd Boot Device	IDE-0	Disabled
3rd Boot Device	LS120/ZIP	IDE0
4th Boot Device	Disabled	IDE1
Boot Num-lock	On	IDE2
Floppy Drive Swap	Disabled	IDE3
Floppy Drive Seek	Enabled	Floppy
Floppy Access Control	Normal	ARMD-FDD
Typematic Control	Normal	ARMD-HDD
Password Check	Setup	CDROM
External Cache	Enabled	SCSI
System BIOS Cacheable	Disabled	Network
Video BIOS Shadow	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 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.

Boot 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 settings are Enabled and Disabled. The Optimal and Fail-Safe default setting is Disabled.

Floppy Drive Seek

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 setting is Enabled.

Floppy Access Control

This option sets the Floppy to Read-only or Normal. The default value is Normal.

Typematic Control

Key strokes repeat at a rate determined by the keyboard controller. When in normal mode, the typematic rate and typematic delay can be selected. The default setting is Normal.

Password Check

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

External Cache

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

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

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 Legacy Support	Disabled	
DRAM Timing	Normal	
SDRAM CAS Latency	Auto	
SDRAM Burst X-1-1-1-1-1-1	Enabled	
Graphics Aperture Size	64	
Primary Frame Buffer	Enabled	
VGA Frame Buffer	Enabled	
Data Merge	Disabled	
Passive Release	Disabled	
ISA Line Buffer	Enabled	
Delay Transaction	Disabled	
AT Bus Clock	Auto	
AMD K6 Write Allocation	Disabled	
Memory Hole	Disabled	
Onboard Sound Chip	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 setting is Enabled.

USB Keyboard Legacy Support

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

DRAM Timing

Choose DRAM timing for customize setup.

SDRAM CAS Latency

This option determines the CAS latency time parameter of SDRAM. The settings are 2 clks or 3 clks.

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.

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

Data Merge

During Enabled, this will use the Burst Cycle for Data Transfer. The default setting is Disabled.

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 setting is Enabled.

Delay Transaction

During Enabled, the chipset delay transaction mechanism is enabled when the chipset is the target of a 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 the 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.

AMD K6 Write Allocation

During Enable, this item will affect the L1 Cache Hit Rate, which will change the performance of some application software.

Memory Hole

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

Onboard Sound Chip

Choosing Enabled will allow the system to use the 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	
Power Button Function	Soft Off	
Ring/LAN Resume	Disabled	
MODEM Use IRQ	4	
RTC Alarm Resume	Disabled	
RTC Alarm Date	Disabled	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	00	
		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 specify 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 specify the length of a period 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 is Disabled.

Suspend Time Out

This option specifies the length of a period 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 is Disabled.

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.

Ring/LAN Resume

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

Modem Use IRQ

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

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:

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.

3.6 Peripheral Setup

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

AMIBIOS SETUP - PERIPHERAL SETUP		
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OnBoard FDC	Enabled	Available Options:
OnBoard Serial Port1	3F8/COM1	Enabled
OnBoard Serial Port2	2F8/COM2	Disabled
OnBoard Serial Port3	Disabled	
OnBoard Parallel Port	378H	
Serial Port3 Mode	N/A	
Serial Port3 IRQ	N/A	
Serial Port3 DMA	N/A	
IR Transceiver Module Type	N/A	
IR Half-Duplex Mode	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 PowerOn	Enabled	
Poweron Select	Power	
Onboard IDE	Both	
CDROM Dual Mode	Normal	
		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:

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.

Keyboard Power On

This function allows you to Enabled or Disabled the Keyboard Power On.

PowerOn Select

This function allows you to select the item to power on the system.

Onboard IDE

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

CDROM Dual Mode

Set this option to Normal or Turbo.