

Chapter 4 AMI BIOS Setup

THE BIOS

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

This Chapter includes the following topics :

4-1 About BIOS Setup

4-2 To Run BIOS Setup

4-3 About CMOS

4-4 The POST (Power On Self Test)

4-5 To Update BIOS

4-6 BIOS Setup

Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users to update the onboard BIOS by the latest BIOS version provided in our web site: www.soltek.com.tw

4-1 About BIOS Setup

BIOS setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4-2 To Run BIOS Setup

First access BIOS setup menu by pressing < DEL > key after "POST" is complete (before OS is loaded). BIOS will then display the following message:

```
DEL : SETUP
```

4-3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and check and configure the BIOS Setup for the new start.

4-4 The POST (Power On Self Test)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4-5 To Update BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to update BIOS without replacing an EPROM component.
- The Update BIOS Utility “AMIflash.EXE” is a Flash EPROM Programming utility that can be loaded on a floppy diskette or a hard disk drive for updating BIOS.
- Normally, to update BIOS is unnecessary if the system is working fine. Users should only update BIOS when incompatible problems are encountered or new features have to be added to system.
- AMIflash.exe only works in **DOS environment. It can not be executed in Windows 95/98, ME, NT, 2000 or Windows XP environment.**

• Please follow the steps below for updating the system BIOS:

Step 1. Please visit the board maker's website, download the zip files of the latest BIOS and AMI flash utility “**amiflash.exe**” for your mainboard. After unzipping, the BIOS file format will be *.ROM, of which “*” stands for the specific BIOS file name.

Step 2. Create a bootable diskette. Then copy the BIOS file and AMI flash utility “**amiflash.exe**” into the diskette.

Step 3. Insert the diskette into drive A, boot your system from the diskette.

Step 4. Under “A” prompt, type “**amiflash *.ROM**” and then press <Enter> to run BIOS update program. (*.ROM depends on your mainboard model and version code. Instead of typing “*”, you should type the specific file name for your specific mainboard). For example, you may type “amiflash MP005.rom”.

Step 5. When the message “Flash ROM Update Completed - Pass.” appears, please restart your system.

Step 6. You will see a message “CMOS Memory Size Wrong” during booting the system. Press or <F1> to run CMOS setup utility, then reload “Load Failsafe Defaults” or “**Load Optimal Defaults**” and save this change.

4-6 BIOS SETUP --- CMOS Setup Utility

4-6.1 CMOS Setup Utility

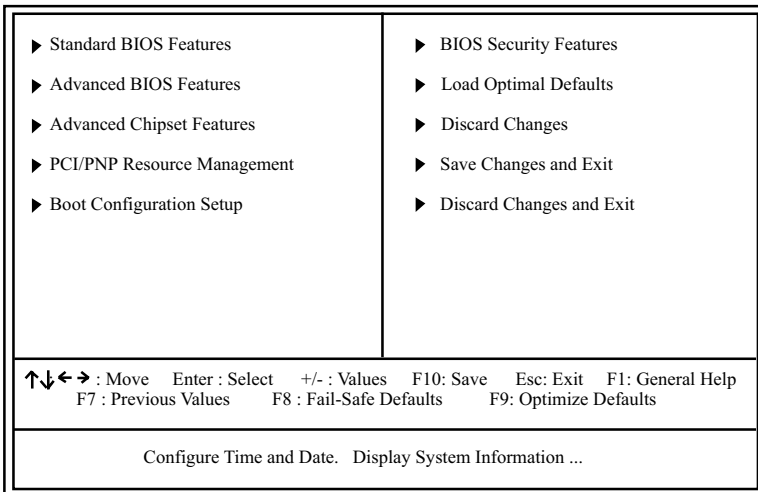
This mainboard comes with the AMI BIOS from American Megatrends Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

PRESS TO RUN SETUP

2. Press the key and the main program screen will appear as follows.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.



3. Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <Esc>.
5. In the Main Menu, "Save Changes and Exit" saves your changes and reboots the system, and "Discard Changes and Exit" ignores your changes and exits the program.

6. In entering the Main option of the Main Menu, please use the functions in the Function List to configure the setting:

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Use [Enter], [Tab] or [Shift-Tab] to select a field.

Use [+] or [-] to choose the options.

<F1>: “General Help” provides explanations of the hot-key functions available.

<F7>: “Previous values” allows user to discard previous values or not.

<F8>: “Fail-safe defaults” allows user to load Fail-safe Defaults or not. Save and Exit Setup.

<F9>: “Optimized Defaults” allows user to load Optimal Defaults or not.

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Frequency BIOS shows the current on-board CPU frequency.

FSB Speed BIOS shows the current Front Side Bus of the on-board CPU.

Cache L1/L2/L3 BIOS shows the actual CPU internal Level 1/2/3 cache size.

Ratio Status BIOS shows the current ratio (multiplier) status of on-board CPU. For P4 CPUs, the ratio is usually locked.

Ratio Actual Value BIOS shows the actual CPU ratio.

Ratio CMOS Setting BIOS shows the CPU Ratio in CMOS. If an invalid ratio is set in CMOS, then actual and setpoint values may differ.

Max CPUID Vaule Limit Choice: Enable / Disable

Hyper Threading Technology BIOS shows the current status of Hyper Threading Technology. If a Hyper Threading CPU is running on board, this item will show "Enabled" status. If a Hyper-threading CPU is not on-board, this item shows "Disabled".

4-6.3.2 IDE Configuration: Press Enter to reveal submenu

IDE Configuration

IDE Configuration	Help Item
IDE Configuration	P/S-ATA (Auto)
S-ATA Running Enhanced Mode	Yes
P-ATA Channel Selection	Both
S-ATA Ports Definition	P0-3rd./P1-4th
▶ Primary IDE Master	Hard Disk
▶ Primary IDE Slave	ATAPI CDROM
▶ Secondary IDE Master	Not Detected
▶ Secondary IDE Slave	Not Detected
▶ Third IDE Master	Not Detected
▶ Fourth IDE Master	Not Detected
Hard Disk Write Protect	Disabled
IDE Detect Time Out (Sec)	35
ATA(P1) 80Pin Cable Detection	Host & Device

4-6.3.2-1 IDE Configuration

<p>IDE Configuration</p>	<p>Allows you to configure IDE device mode. Choices: P/S-ATA(Auto): Parallel/Serial ATA combined mode; S-ATA Only: For S-ATA running on board only; P/S-ATA(Win98/Me): P/S-ATA on Win98/Me only Disabled: IDE Configuration disabled</p>
<p>IDE Configuration</p>	<p>— Choosing “P/S-ATA(Auto)” to configure the following:</p>
<p>S-ATA Running Enhanced Mode (Combined Mode Option)</p>	<p>If P/S-ATA (Auto) is chosen, use this item to choose S-ATA Running Enhanced Mode. Choices: <input checked="" type="checkbox"/> Yes: Choose from the following option: P-ATA (parallel ATA) Channel Selection: Choices: Primary; Secondary; Both S-ATA Ports Definition: Choices: P0-3rd./P1-4th.; P0-4th./P1-3rd. <input type="checkbox"/> No: Choose from the following options: P-ATA (parallel ATA) Channel Selection: Choices: Primary; Secondary; Both</p>
<p>IDE Configuration</p>	<p>— Choosing “S-ATA Only” to configure the following:</p>
<p>S-ATA Ports Definition</p>	<p>Allows you to assign the S-ATA port locations. Choices: P0-3rd./P1-4th.; P0-4th./P1-3rd.;</p>
<p>IDE Configuration</p>	<p>— Choosing “P/S-ATA(Win98/Me)” to configure the following:</p>
<p>Combined Mode Option</p>	<p>Choices: P-ATA 1st Channel; S-ATA 1st Channel;</p>
<p>S-ATA Ports Definition</p>	<p>Choices: P0-Master/P1-Slave; P0-Slave/P1-Master;</p>

4-6.3.2-2 Primary/Secondary IDE Master/Slave and Third/Fourth IDE Master

▶ Primary IDE Master	Hard Disk
▶ Primary IDE Slave	ATAPI CDROM
▶ Secondary IDE Master	Not Detected
▶ Secondary IDE Slave	Not Detected
▶ Third IDE Master	Not Detected
▶ Fourth IDE Master	Not Detected

Primary/Secondary IDE Master/Slave Press <Enter> To show the detected information of Primary / Secondary IDE Master/Slave device(s).

Third/Fourth IDE Master Press <Enter> to show the detected information of third/fourth IDE Master device(s).

If any IDE device is detected in any one of the above items press <Enter> to reveal the IDE information:

Primary/(Secondary/Third/Fourth) IDE Master/(Slave)

Primary/(Secondary/Third/Fourth) IDE Master/(Slave)	Help Item													
Device : Hard Disk Vendor : WDC WD400BB-00DEA0 Size : 40.0GB LBA Mode : Supported Block Mode : 16Sectors PIO Mode : 4 Async DMA : MultiWord DMA-2 Ultra DMA : Ultra DMA-5 S.M.A.R.T. : Supported	Select the type of device connected to the system.													
<table border="0"> <tr> <td>Type</td> <td>Auto</td> </tr> <tr> <td>LBA/Large mode</td> <td>Auto</td> </tr> <tr> <td>Block (Multi-Sector Transfer)</td> <td>Auto</td> </tr> <tr> <td>PIO Mode</td> <td>Auto</td> </tr> <tr> <td>DMA Mode</td> <td>Auto</td> </tr> <tr> <td>S.M.A.R.T.</td> <td>Auto</td> </tr> <tr> <td>32Bit Data Transfer</td> <td>Disabled</td> </tr> </table>		Type	Auto	LBA/Large mode	Auto	Block (Multi-Sector Transfer)	Auto	PIO Mode	Auto	DMA Mode	Auto	S.M.A.R.T.	Auto	32Bit Data Transfer
Type	Auto													
LBA/Large mode	Auto													
Block (Multi-Sector Transfer)	Auto													
PIO Mode	Auto													
DMA Mode	Auto													
S.M.A.R.T.	Auto													
32Bit Data Transfer	Disabled													

Type To select the types of the IDE devices:
 Not Installed; Auto: Setting type automatically
 CD-ROM: ATAPI (Packet Interface) CD-ROM drive
 ARMD: ATAPI Removable Media Device

LBA/Large mode To auto-select (default) or disable LBA/Large mode.

Block (Multi-Sector Transfer) To auto-select (default) or disable Block Mode.

PIO Mode To auto-select (default) or disable PIO Mode.
 Choices: Disabled; 1, 2, 3, 4

DMA Mode To auto-select (default) or disable DMA Mode.
 Choices: SWDMAn, MWDMAAn,UDMAAn

S.M.A.R.T Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk.

32Bit Data Transfer To auto-select (default) or disable 32Bit Data Transfer.

4-6.3.2-3 Hard Disk Write Protect

Hard Disk Write Protect Allows you to Enabled / Disable(default) Hard Disk Write Protection

4-6.3.2-4 IDE Detect Time Out

IDE Detect Time Out Allows you to set time out for IDE Detection.
(Sec) Choices: 0 - 35 seconds in 5 seconds stepping

4-6.3.2-5 ATA(P) 80Pin Cable Detection

ATA(PI) 80Pin Cable Detection Allows you to select ATA(PI) devices for 80Pin Cable Detection. To set Host & Device allows onboard IDE controller and IDE disk drive to detect the type of IDE cable used.
 Choices: Host & Device, Host, Device

4-6.3.3 Floppy Configuration: Press Enter to reveal submenu

Floppy Configuration

Floppy Configuration	Help Item
Floppy A Floppy B	1.44 MB 3.5 in Disabled Select the type of floppy drive connected to the system.

Floppy A/B Press Enter on "Floppy A/B" will let you select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:
 360KB 5.25 in.
 1.2MB, 5.25 in.
 720KB, 3.5 in.
 1.44MB, 3.5 in.
 2.88MB, 3.5 in.
 Disabled

4-6.3.4 Super IO Configuration: Press Enter to reveal submenu

SuperIO Configuration

Configure Win627THF Super IO Chipset	Help Item
OnBoard Floppy Controller Enabled Serial Port1 Address 3F8/IRQ4 Serial port2 Address 2F8/IRQ3 Serial port2 Mode Normal OnBoard CIR Port Disabled Parallel Port Address 378 Parallel Port Mode Normal Parallel Port IRQ IRQ7	Allows BIOS to Enable or Disable Floppy Controller.

OnBoard Floppy Controller Allows you to enable / disable the Onboard Floppy Controller.
 Choices: Enabled; Disabled

Serial Port1 Address Allows you to set the Onboard Serial Port1 Address.
 Choices: Disabled; 3F8/IRQ4; 3E8/IRQ4; 2E8/IRQ3;

<p>Serial Port2 Address Allows you to set the Onboard Serial Port2 Address. Choices: Disabled; 2F8/IRQ3; 3E8/IRQ4; 2E8/IRQ3;</p> <p>Serial Port 2 Mode If Serial Port2 Address is not disabled, it allows you to set the Serial Port 2 Mode. Choices: -- Normal; -- IrDA: Providing 2 items for configuration: IR I/O Pin Select: SINB/SOUTB; IRRX/IRTX IR Duplex Mode: Half Duplex; Full Duplex -- ASK IR: Providing 2 items for configuration: IR I/O Pin Select: SINB/SOUTB; IRRX/IRTX IR Duplex Mode: Half Duplex; Full Duplex</p>
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OnBoard CIR Port Allows you to set the onboard CIR Port.
 Choices: Disabled; 2E0; 3E0

Parallel Port Address Allows you to configure Parallel Port Address.
 Choices: Disabled; 378; 278; 3BC;

OnBoard CIR Port Allows you to set the onboard CIR Port.
Choices: Disabled; 2E0; 3E0

CIR Port IRQ Allows you to set the onboard CIR Port IRQ for 2E0 or 3E0.
Choices: IRQ3; IRQ4; IRQ9; IRQ10; IRQ11

Parallel Port Address Allows you to configure Parallel Port Address.
Choices: Disabled; 378; 278; 3BC;

- Disabled: To disable this function;
- 378: 2 items to configure for address 378:
 - Parallel Port Mode:
 - Normal;
 - Bi-Directional;
 - EPP:
 - EPP Version: 1.9; 1.7
 - ECP:
 - ECP Mode DMA Channel: DMA0; DMA1; DMA3
 - Parallel Port IRQ: IRQ5; IRQ7

4-6.3.5 Hardware Health Configuration

Choose “Hardware Health Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

Hardware Health Configuration		Help Item
System Temperature	: 34°C/93°F	Enables Hardware Health Monitoring Device.
CPU Temperature	: 45°C/113°F	
Fan1 Speed	: 3125 RPM	
Fan2 Speed	: 3169 RPM	
Fan3 Speed	: N/A	
CPU Core	: 1.500 V	
AGP	: 1.516 V	
+3.30V	: 3.258 V	
+5.00V	: 5.094V	
+12.0V	: 12.074 V	
-12.0V	: -12.048 V	
5VSB	: 5.467 V	
Battery	: 3.444 V	

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimize Defaults

System Temperature Shows current system temperature.

CPU Temperature Shows current CPU internal temperature.

Fan1/2/3 Speed Displaying the current speed of Chassis/CPU/Power Fan.

CPU Core Showing CPU core actual voltage value.

1.5V/3.3V/+12V/+5.00V/5VSB/Battery Showing current voltage against the 1.5V/3.3V/+12V/+5V/5VSB/Battery power supply.

4-6.3.6 ACPI Configuration: Press Enter to reveal submenu

ACPI Configuration

ACPI Settings	Help Item
<ul style="list-style-type: none"> ▶ General ACPI Configuration Press Enter ▶ Advanced ACPI Configuration Press Enter 	<p>Enables Hardware ACPI support for Operating System.</p> <p>Enable: If OS supports ACPI.</p> <p>Disable: If OS Does not support ACPI.</p>

▶ General ACPI Configuration:

To press < Enter > on General ACPI Configuration will reveal the following item(s).

Suspend mode This item allows you to select the Suspend mode. You can select S3(STR) for suspending to DRAM if your system supports this mode. Or you can select S1 (POS) for Power on Suspend under ACPI mode. Choices: S1(POS); S3(STR)(Optional); Auto

(Optional) Repost Video at S3 Resume If STR mode or Auto mode is selected, this item allows you to enable / disable this function. Choices: Yes; No

(Optional) USB Device Wakeup From S3/S4 This item allows you to enable / disable the USB device Wakeup function from S3/S4 mode.

▶ **Advanced ACPI Configuration:**

To press < Enter > on Advanced ACPI Configuration will reveal the following item(s).

ACPI 2.0 Support Allows you to enable / disable ACPI (Advanced Configuration and Power Interface) 2.0 Support function.
Choices: Yes; No

ACPI APIC Support Allows you to enable / disable ACPI APIC (Advanced Programmable Interrupt Controller) Support function.

APIC ACPI SCI IRQ If APIC ACPI Support is enabled (Yes), it allows you to enable / disable APIC ACPI SCI IRQ function.

BIOS-->AML ACPI table Allows you to enable / disable BIOS-->AML ACPI table function.

Headless mode Allows you to enable / disable Headless operation mode through ACPI.

4-6.3.7 Clock Generator Configuration

Clock Generator Configuration

Configure ICS ICS952603 Clock Generator		Help Item
CPU Frequency Setting	133	Press “+”/”-” to select.
AGP/PCI Frequency Setting	66.66/33.33 Fixed	
Spread Spectrum	Disable	
Auto PCI Clock	Disable	

CPU Clock If CPU Linear Frequency is set at Enabled, this item allows you to set CPU Clock.

Choices: 100MHz ~350MHz in 1MHz stepping.
 (100MHz~250MHz is for 100MHz CPU;
 133MHz~283MHz is for 133MHz CPU;
 200MHz~350MHz is for 200MHz CPU.)

Fix AGP/PCI Allows you to fix AGP/PCI Frequency.

Frequency Choices: Disabled ; 66.66/33.33 Fixed
 72.73/36.36 Fixed ; 80.00/40.00 Fixed

Spread Spectrum Choices: Enabled; 0.35%, 0.50%, 0.75%, 1.00%

Auto PCI Clock Allow you set PCI Clock Auto

Choices: Enabled; Disabled

4-6.3.8 USB Configuration: Press Enter to reveal submenu

USB Configuration

USB Configuration	Help Item
Module Version - 2.23.2-7.4	Enable USB host controllers.
USB Devices Enabled : None	
USB Function 8 USB Ports	
Legacy USB Support Enabled	
USB 2.0 Controller Enabled	
USB 2.0 Controller Mode FullSpeed	

USB Function Allows you to set the USB Function on the USB port.
Choices: 8 USB Ports; Disabled

Legacy USB Support Allows you to enable / disable the Legacy USB support.

USB 2.0 Controller Allows you to enable/ disable the USB 2.0 Controller.

USB 2.0 Controller Mode Allows you to configure the USB 2.0 Controller Mode.
Choices: FullSpeed; HiSpeed.

4-6.3.9 Voltage Control

Choose “Voltage Control” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

Voltage Control

Voltage Configuration		Help Item
AGP Voltage Control	1.5V	Press “+”/”-” to select.
DIMM Voltage Control	2.6V	
CPU Voltage Control	Auto	

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

AGP Voltage Control Allows you to configure the AGP Voltage.
 Choices: 1.5V; 1.6V; 1.7V; 1.8V

DIMM Voltage Control Allows you to configure the DIMM Voltage.
 Choices: 2.6V; 2.7V; 2.8V; 2.9V

CPU Voltage Control Allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
 Choices: Auto; 0.8375V ~1.8000V in 0.0125V stepping

4-6.3.10 Power Management: Press Enter to reveal submenu

Power Management

APM Configuration		Help Item
Power Management/APM	Enabled	Enable or disable APM.
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Suspend	
Standby Time Out	Disabled	
Suspend Time Out	Disabled	
Power Button Mode	On/Off	
Restore on AC Power Loss	Power Off	
Resume On Ring	Disabled	
Resume On LAN/PME#	Disabled	
Resume On RTC Alarm	Disabled	

- Power Management/ APM** Allows you to enable / disable the Power management / Advanced Power Management function.
- Video Power Down Mode** Allows you to select the Video Power Down Mode.
Choices: Disabled; Standby; Suspend
- Hard Disk Power Down Mode** Allows you to select the Hard Disk Power Down Mode.
Choices: Disabled; Standby; Suspend
- Standby Time Out (Minute)** To set the duration of Standby Time Out.
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Suspend Time Out (Minute)** To set the duration of Suspend Time Out.
Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Power Button Function** Allows you to set power Button function.
Choices: On/Off (default); Suspend
- Restore on AC/Power Loss** Allows you to set the restore state from AC/Power Loss.
Choices: Last State; Power Off (default); Power On
- Resume on Ring** Allows you to enable / disable (default)the Resume on Ring Signal function.
An input signal on the serial Ring Indicator (RI) Line (in other words, an incoming call on the modem) awakens the system from a soft off state.
- Resume on LAN/PME#** Allows you to enable / disable (default)the Resume on LAN/PME# function.
- Resume On RTC Alarm** Allows you to enable / disable (default)the Resume On RTC Alarm function.

RTC Alarm Date / Hour / Minute / Second	<p>If resume On RTC Alarm is enabled, this field allows you to set the Alarm date Hour, Minute and second.</p> <p>Date Choices: Every Day; 01 ~ 31 Hour Choices: 00 ~ 23 Minute Choices: 00 ~ 59 Second Choices: 00 ~ 59</p>
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4-6.4 Advanced Chipset Features

Advanced Chipset Features is used to modify the values of chipset buffers. These buffers control the system options.

Run the Advanced Chipset Features as follows:

Choose "Advanced Chipset Features" from the Main Menu and a list of option will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Advanced Chipset Features

Advanced Chipset Settings	Help Item
<p>Warning: Setting wrong values in below sections may cause system to malfunction.</p> <p>▶ NorthBridge Configuration Press Enter ▶ SouthBridge Configuration Press Enter</p>	Options for NBEnable USB host controllers.

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.4.1 NorthBridge Configuration

Choose "NorthBridge Configuration" in "Advanced Chipset Features" and press <Enter>. The following sub-screen will appear for configuration:

NorthBridge Configuration

		Help Item
DRAM Frequency	Auto	
Configure DRAM Timing by SPD	Enabled	
Memory Hole	Disabled	
Init. Graphic Adapter Priority	AGP/PCI	
Graphics Aperture Size	64MB	

DRAM Frequency Allows you to set the current SDRAM frequency. Choices: Auto; 266MHz; 333MHz; 400MHz

Configure SDRAM Timing by SPD SPD (Serial presence detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, DRAM timing can be configured manually.

- DRAM CAS# Latency** With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode)latency manually.
Choices: 2 Clocks; 2.5 Clocks; 3 Clocks
- DRAM RAS# Precharge** With SDRAM Timing by SPD disabled, you can select the SDRAM RAS# (Row Address Strode) Precharge cycle manually.
Choices: 2 Clocks; 3 Clocks; 4 Clocks
- DRAM RAS# to CAS# Delay** With SDRAM Timing by SPD disabled, you can select the SDRAM RAS# to CAS# delay cycle manually.
Choices: 2 Clocks; 3 Clocks; 4 Clocks
- DRAM Precharge Delay** Allows you to set SDRAM Precharge Delay cycle.
Choices: 5 Clocks; 6 Clocks; 7 Clocks; 8 Clocks
- DRAM Burst Length** With SDRAM Timing by SPD disabled, you can select the SDRAM Burst length manually.
Choices: 8; 4
- Memory Hole** Allows you to enable / disable (default) the support of Memory Hole which is reserved for ISA card.
Choices: Disabled; 15MB-16MB
- Init. Graphics Adapter Priority** Allows you to select the initial Graphics Adapter.
Choices: AGP/PCI(default); PCI/AGP;
- AGP Aperture Size** Series of options are available: 4, 8, 16, 32, 64, 128, 256MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64MB.

4-6.4.2 SouthBridge Configuration

Choose "SouthBridge Configuration" in "Advanced Chipset Features" and press <Enter>. The following sub-screen will appear for configuration:

SouthBridge Configuration

OnBoard AC'97 Audio	Auto	Help Item

- Onboard AC'97 Audio** Allows you to disable AC' 97 Audio.
Choices: Auto (default); Disabled

4-6.5 PCI/PNP Resource Management

PCI/PNP Resource Management allows you to modify the system's power saving functions.

1. Choose "PCI/PNP Resource Management" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
PCI/PNP Resource Management

Advanced PCI/PNP Settings	Help Item
Warning: Setting wrong values in below sections may cause system to malfunction.	
Plug & Play O/S	No
PCI Latency Timer	32
Allocate IRQ to PCI VGA	Yes
Palette Snooping	Disabled
PCI IDE BusMaster	Disabled
OffBoard PCI/ISA IDE Card	Auto
IRQ3	Available
IRQ4	Available
IRQ5	Available
IRQ7	Available
IRQ9	Available
IRQ10	Available
IRQ11	Available
IRQ14	Available
IRQ15	Available
DMA Channel 0	Available
DMA Channel 1	Available
DMA Channel 3	Available
DMA Channel 5	Available
DMA Channel 6	Available
DMA Channel 7	Available
Reserved Memory Size	Disabled

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Plug & Play O/S Allows you to configure the PNP devices by BIOS or O/S.

Choices: No(by BIOS) (default); Yes(by O/S)

PCI Latency Timer (PCI Allows you to set the PCI Latency Time.

Clocks) Choices: 32(default); 64; 96; 192; 128; 160; 192; 224; 248;

Allocate IRQ to PCI Allows you to assign IRQ to PCI VGA card if card

VGA requests IRQ.

Choices: Yes(default); No

- Palette Snooping** This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used a MPEG card.
- PCI IDE BusMaster** Allows you to enable / disable(default) the PCI IDE Bus Master function.
- OffBoard PCI/ISA IDE Card** Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.
Choices: Auto; PCI Slot1; PCI Slot2; PCI Slot3; PCI Slot4; PCI Slot5;
- IRQ 3/4/5/7/9/10/11/14/15** Allows you to specify available IRQs to be used by PCI/PNP devices.
Choices: Available(default); Reserved
- DMA 0/1/3/5/6/7** Allows you to specify available DMAs to be used by PCI/PNP devices.
Choices: Available(default); Reserved
- Reserved Memory Size** Allows you to specify memory size to reserve for legacy ISA devices.
Choices: Disabled(default); 16K; 32K; 64K

4-6.6 Boot Configuration Setup

Boot Configuration Setup allows you to modify the system's boot settings.

Choose "Boot Configuration Setup" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Boot Configuration Setup

Boot Settings	Help Item
▶ Boot Setting Configuration Press Enter ▶ Boot Device Priority Press Enter	Configure Settings during System Boot.

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.6.1 Boot Settings Configuration

Choose "Boot Settings Configuration" in "Boot Configuration Setup" and press <Enter>. The following items will appear for onfiguration:

Boot Configuration Setup

Boot Settings	Help Item
Quick Boot Quiet Boot AddOn ROM Display Mode Bootup Num-Lock PS/2 Mouse Support Wait For 'F1' If Error Hit 'DEL' Message Display Interrupt 19 Capture	Enabled Disabled Force BIOS On Auto Enabled Enabled Disabled Configure Settings during System Boot.

Quick Boot Allows you to enable (default)/ disable quick boot of your system. If enabled, BIOS will skip certain tests while booting. This will decrease the time needed to boot the system.

Quiet Boot The bootup screen displays normal POST messages with Disabled selected; the bootup screen displays OEM Logo instead of POST messages with Enabled selected.
 Choices: Enabled; Disabled

AddOn ROM Display Mode If "Force BIOS" (default) is chosen, the vendor's logo screen will be followed by the "AddOn ROM" initial screen (the screen showing the add-on card BIOS message). If "Keep Current" is chosen, no "Add-On ROM" screen is followed.

Bootup Num-lock Allows you to toggle between On (default) or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

PS/2 Mouse Support Enabled (default), PS/2 mouse is supported. Disabled, PS/2 Mouse is not supported. If "Auto" is set, the system will auto detect the PS/2 Mouse.

Wait For 'F1' If Error Allows you to hit F1 key when errors occur.
 Choices: Enabled(default); Disabled

Hit 'DEL' Message Display The system will show "Press DEL key to run Setup when enabled.
 Choices: Enabled(default); Disabled

Interrupt 19 Capture Allows option ROMs to trap interrupt 19.
 Choices: Enabled; Disabled(default)

4-6.6.2 Boot Device Priority

Choose "Boot Device Priority" in "Boot Configuration Setup" and press <Enter>. The bootable devices installed on board will appear and are allowed to assign the Boot Priority.

Boot Device Priority

Boot Device Priority		Help Item
1st Boot Device	1st FLOPPY DRIVE	Configure Settings during System Boot.
2nd Boot Device	PM-WDC WD400BB-00	

1st/2nd/3rd Boot Device Allows you to set (by pressing <Enter>) floppy or IDE devices already installed to be the 1st/2nd/3rd boot device.
 Choices: Disabled; Device(s) installed

4-6.7 Boot Security Features

Boot Security Features allows you to modify the system's boot security settings.

Choose "Boot Security Features" from the Main Menu and a screen with a list of options will appear:

**CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Boot Security Features**

Security Settings	Help Item
Supervisor Password : Not Installed User Password : Not Installed	Install or Change the password.
Change Supervisor Password Press Enter	
User Access Level Full Access	
Change User Password Press Enter	
Clear User Password Press Enter	
Password Check Setup	
Boot Sector Virus Protection Disabled	

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.7.1 Supervisor Password

To show the status of Supervisor Password. "Installed" is displayed when supervisor password is set up. Otherwise, "Not Installed" is displayed.

4-6.7.2 User Password

To show the status of User Password. "Installed" is displayed when supervisor password is set up. Otherwise, "Not Installed" is displayed.

4-6.7.3 Change Supervisor Password

This option allows you to set a new Supervisor password for the system:

1. Choose "Change Supervisor Password" in the "BIOS Security Features" and press <Enter>. Then the following message appears:

[Enter new supervisor password]

2. The first time you run this option, enter your password up to 6 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears, prompting you to confirm the password:

[Confirm New Password]

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

[Password installed]
[OK]

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press "Save Changes and Exit" and choose "OK" to exit and save setup.
7. If you enter a new password into the box, you will be using this new password after you have finished and saved this new setup. Instead, if you press <Enter> before you enter any new password into the instruction box, another message box appears, telling you that you have disabled the Supervisor Password. That means, no password is set for either entering BIOS Setup or system:

[Password uninstalled]
[OK]

User Access Level Allows you to set four different Access Levels when Supervisor Password has been set.
 Choices: Full Access; Limited; View Only; No Access

Note: "User Access Level" and "Password Check" will appear when "Supervisor Password" has been set.

4-6.7.4 Change User Password

This option allows you to set a new User password for the system:

1. Choose "Change User Password" in the "BIOS Security Features" and press <Enter>. Then the following message appears:

[Enter New Password]

2. The first time you run this option, enter your password up to 6 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears, prompting you to confirm the password:

[Confirm New Password]

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

[Password installed]
[OK]

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press "Save Changes and Exit" and choose "OK" to exit and save setup.

4-6.7.5 Clear User Password

1. To remove the current user password, choose "Clear User Password" and press <Enter>. An instruction box appears on the screen, assuring to clear User Password:

Clear User Password?
[OK] [Cancel]

2. Then choose [OK] and press <Enter>. The User Password is successfully removed.

Password Check Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system. This option will appear when you have set Supervisor Password or User Password. Choices: Setup (default); Always

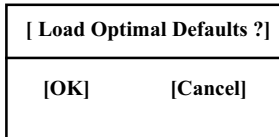
4-6.7.6 Boot Sector Virus Protection

Boot Sector Virus Protection When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an antivirus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.

4-6.8 Load Optimal Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:



Press <Enter> now to load Optimal values for all the Setup options.

4-6.9 Discard Changes

Discard Changes option allows you to cancel the modifications that you have specified in the Setup Utility. Highlight this option on the Main Menu and press <Enter> and the following message appears:

[Discard Changes?]	
[OK]	[Cancel]

Follow the message and press <Enter> key to cancel the modifications that you have specified.

4-6.10 Save Changes and Exit

Save Changes and Exit allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and press <Enter>. The following message appears:

[Saving configuration changes and exit setup?]	
[OK]	[Cancel]

Press <Enter> key to save the configuration changes and exit CMOS Setup to restart your system.

4-6.11 Discard Changes and Exit

Discard Changes option allows you to exit (or not exit) the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and press <Enter> and the following message appears:

[Discard Changes (and exit setup?)]	
[OK]	[Cancel]

Follow the message and press <Enter> key to exit CMOS Setup and restart system.