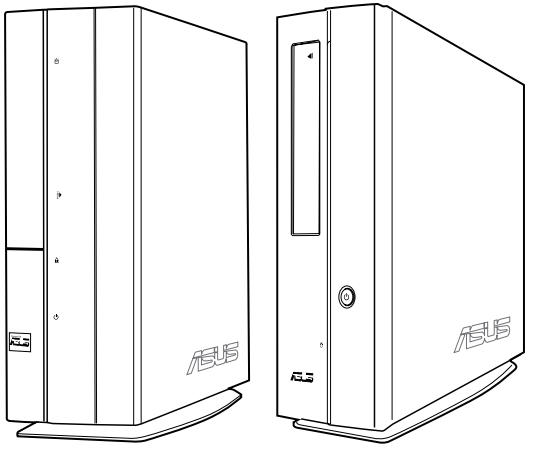
P2-M3A3200/P4-M3A3200

ASUS PC (Desktop Barebone)

User Manual



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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference; and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Macrovision Corporation Product Notice

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

Safety information

Electrical safety

- To prevent electric shock hazard, disconnect the power cable from the electric outlet before relocating the system.
- When adding or removing any devices to or from the system, contact a qualified service technician or your retailer. Ensure that all the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all the power cables from the existing system before you add or remove a device to or from the system.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing devices into the system, carefully read all the documentation that comes with the package.
- Before using the product, ensure that all the cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets, and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet. Place the product on a flat and stable surface.
- Do not block the air vents on the chassis. Always provide proper ventilation for this product.
- We recommend that you use this product in environments with an ambient temperature below 40˚C.
- If you encounter technical problems with this product, contact a qualified service technician or your retailer.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT: Explosionsgetahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnljchen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

About this guide

Audience

This guide provides general information about the ASUS P2-M3A3200/ P4-M3A3200 barebone system. This guide is intended for experienced users and integrators with hardware knowledge of personal computers.

How this guide is organized

This guide contains the following parts:

1. **Chapter 1: System introduction**

   This chapter gives a general description of ASUS P2-M3A3200/P4-M3A3200. The chapter lists the system features, including introduction on the front and rear panel, and internal components.

2. **Chapter 2: Starting up**

   This chapter helps you power up the system and install drivers and utilities from the support CD.

3. **Chapter 3: Motherboard information**

   This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

4. **Chapter 4: BIOS information**

   This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS Websites**

   The ASUS websites provide updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional Documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

System package contents

Check your P2-M3A3200/P4-M3A3200 system package for the following items.

Standard items
1. ASUS P2-M3A3200/P4-M3A3200 barebone system with
• ASUS motherboard
• CPU fan and heatsink assembly
• 3-in-1 storage card reader
• CompactFlash card reader
• PCIE raiser card
• 200W power supply unit
2. Cables
• Power cable
• Serial ATA power cable and signal cable
• IDE cable
3. CD
• Support CD
4. Quick Installation Guide

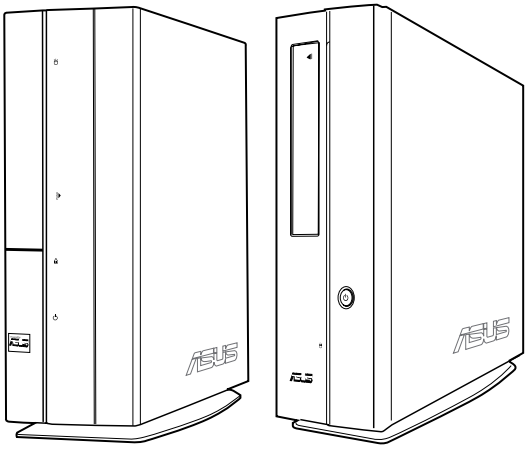
If any of the items is damaged or missing, contact your retailer immediately.

Optional items
1. ASUS VGA card
2. Infrared card (for P4-M3A3200 only)
3. Remote control (for P4-M3A3200 only)

Optional items are not included in the system package. They are purchased separately.

Chapter 1

This chapter gives a general description of ASUS P2-M3A3200/ P4-M3A3200. The chapter lists the system features including introduction on the front and rear panels, and internal components.



System introduction

1.1 Welcome!

Thank you for purchasing the ASUS P2-M3A3200/P4-M3A3200!

The ASUS P2-M3A3200/P4-M3A3200 is an all-in-one barebone system with rich home entertainment features.

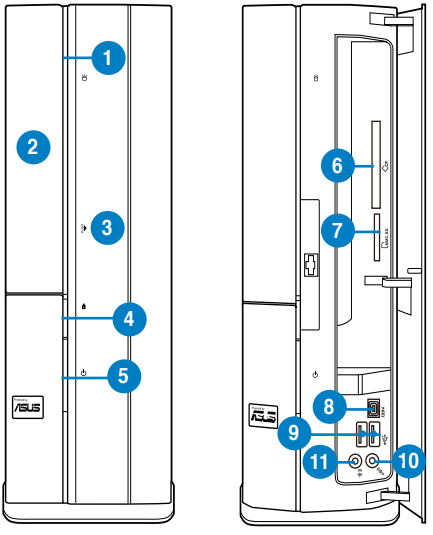
The system comes in a stylish casing and powered by an ASUS motherboard that supports the AMD® Athlon™ 64 X2, Athlon™ 64, and Sempron™ processors.

The system supports up to 4GB system memory using DDR2 800/667/533MHz DIMMs, high-resolution graphics via integrated graphics controller, Serial ATA, USB 2.0, and eight-channel high-definition audio CODEC.

1.2 Front panel

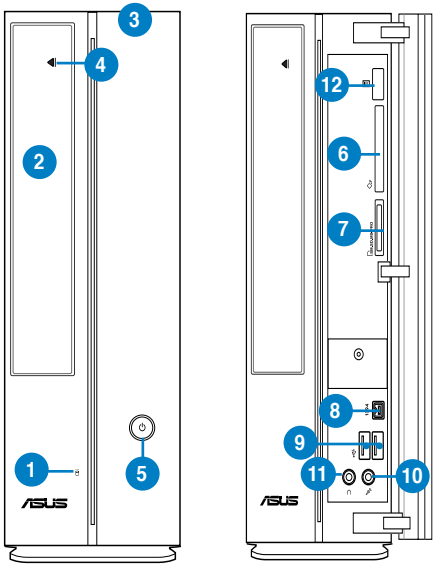
The illustrations below show the front panels of the P2-M3A3200 and P4-M3A3200.

Front panel of the P2-M3A3200



Front panel (close) Front panel (open)

Front panel of the P4-M3A3200

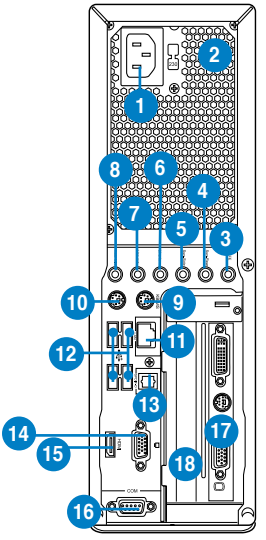


Front panel (close) Front panel (open)

1. **Hard disk drive (HDD) LED.** This LED lights up when data is read from or written to the hard disk drive.
2. **Optical disk drive bay cover.**
3. **Front panel cover.**
4. **Optical disk drive eject button.** Press this button to eject an optical disk.
5. **Power button.** Press this button to turn the system on.
6. **CompactFlash®/Microdrive™ card reader.**
7. **3-in-1 card reader.** This 3-in-1 card reader supports the MultiMediaCard, Secure Digital™ card, and Memory Stick™/Memory Stick PRO™ card.
8. **4-pin IEEE 1394 port.** This port connects to an IEEE 1394 device such as a digital camrecorder.
9. **USB 2.0 ports 5 and 6.** These Universal Serial Bus 2.0 (USB 2.0) ports connect to USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
10. **Microphone port (pink).** This port connects to a microphone.
11. **Headphone port (lime).** This port connects to a headphone or speaker.
12. **IR card (optional).** This IR card supports a remote control.

1.3 Rear panel

The illustration below shows the rear panel of the P2-M3A3200 and P4-M3A3200.



Rear panel

1. **Power connector.**
2. **Voltage selector.** This switch allows you to adjust the system input voltage according to the voltage supply in your area. If the voltage supply in your area is 100-127V, set this switch to 115V. If the voltage supply in your area is 200-240V, set this switch to 230V.

Setting the switch to 115V in a 230V environment or 230V in a 115 environment will seriously damage the system!

3. **Center/Subwoofer port (orange).** This port connects to the center/ subwoofer speakers.
4. **Rear Speaker Out port (black).** This port connects to the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration.
5. **Side Speaker Out port (grey).** This port connects to the side speakers in an 8-channel audio configuration.
6. **Line In port (light blue).** This port connects to the tape, CD, DVD player, or other audio sources.
7. **Line Out port (lime).** This port connects to a headphone or speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.

8. **Microphone port (pink).** This port connects to a microphone.

Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

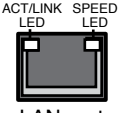
Audio 2, 4, 6, or 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Subwoofer	Center/Subwoofer
Black	–	Rear Speaker Out	Rear Speaker Ou	Rear Speaker Out
Gray	–	–	–	Side Speaker Out

9. **PS/2 mouse port (green).** This port connects to a PS/2 mouse.
10. **PS/2 keyboard port (purple).** This port connects to a PS/2 keyboard**.**
11. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
YELLOW	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection



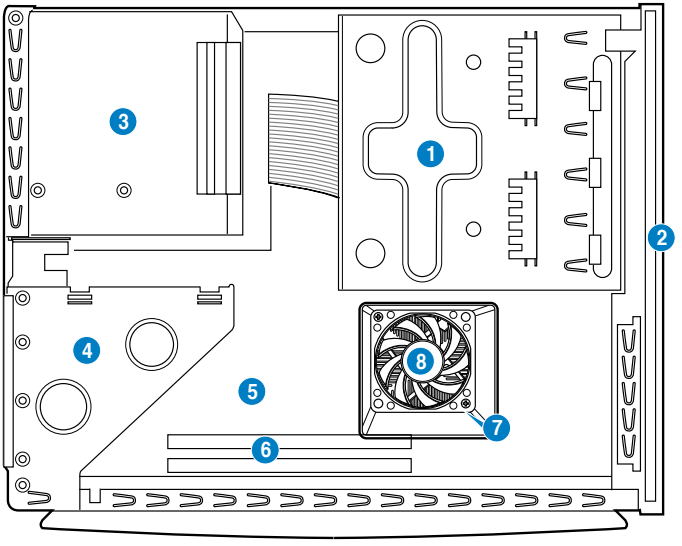
LAN port

12. **USB 2.0 ports 1, 2, 3, and 4.** These 4-pin Universal Serial Bus (USB) ports connect to USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
13. **Optical S/PDIF Out port.** This port connects to an external audio output device via an optical S/PDIF cable.
14. **VGA port.** This port connects to a VGA monitor or other VGA-compatible devices.
15. **HDMI port.** This port is for a High-Definition Multimedia Interface (HDMI) connector, and is HDCP compliant allowing playback of HD DVD, Blu-Ray discs, and other protected content.

16. **Serial port.** This port is for pointing devices or other serial devices.
17. **ASUS VGA card (optional).**
18. **Expansion slot.**

1.4 Internal components

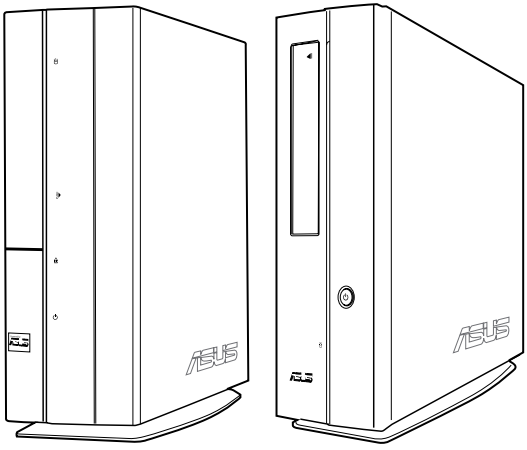
The illustration below is the internal view of the ASUS P2-M3A3200/P4-M3A3200 when you remove the chassis cover. The installed components are labeled for your reference.



1. 5.25 inch optical disk drive and 3.5 inch hard disk drive cage
2. Front panel assembly
3. Power supply unit
4. PCIE raiser bracket (connected to the motherboard PCIE slot)
5. ASUS motherboard
6. DIMM slots
7. AM2+ socket (under the CPU fan and heatsink assembly)
8. CPU fan and heatsink assembly

Chapter 2

This chapter helps you power up the system and install drivers and utilities from the Support CD.



Starting up

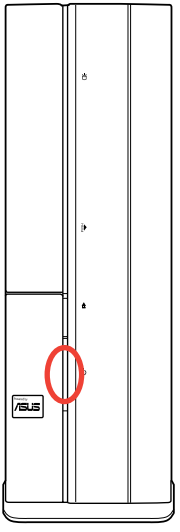
2.1 Installing an operating system

The ASUS P2-M3A3200/P4-M3A3200 supports Windows® XP / Vista Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

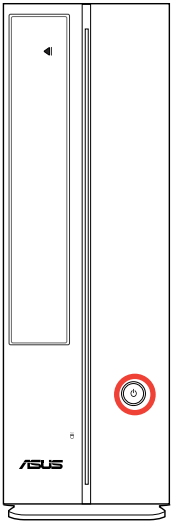
- To ensure that the OS work properly, install the drivers included in the Support CD.
- Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.

2.2 Powering up your system

Press the power button (⏻) to power up the system.



P2-M3A3200



P4-M3A3200

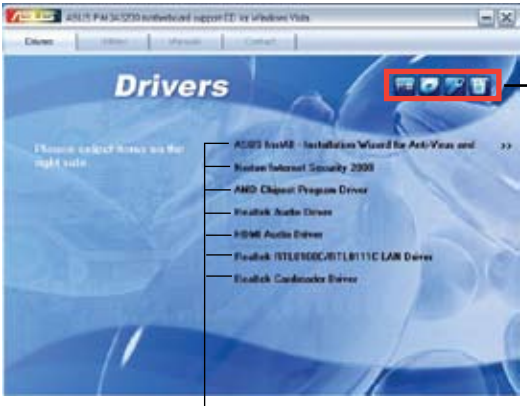
2.3 Support CD information

The support CD that comes with the system package contains the drivers, software applications, and utilities that you can install to get all the system features.

The contents of the Support CD are subject to change at any time without notice. Visit the ASUS website at www.asus.com for updates.

2.3.1 Running the Support CD

Place the Support CD into the optical drive. The CD automatically displays the **Drivers** menu if Autorun is enabled on your computer.



If Autorun is NOT enabled on your computer, browse the contents of the Support CD to locate the **ASSETUP.EXE** file from the BIN folder. Double-click the **ASSETUP.EXE** file to run the CD.

2.3.2 Drivers menu

The **Drivers** menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

ASUS InstALL - Installation Wizard for Anti-Virus and Drivers Utility

Installs all of the drivers.

Norton Internet Security 2008

Installs Norton Internet Security 2008.

AMD Chipset Program Driver

Installs the AMD chipset program driver.

Realtek Audio Driver

Installs the Realtek® audio driver.

HDMI Audio Driver

Installs the HDMI audio driver.

Realtek RTL8168C/RTL8111C LAN Driver

Installs the Realtek® RTL8168C/RTL8111C LAN driver.

Realtek Cardreader Driver

Installs the Realtek® Cardreader driver.

2.3.3 Utilities menu

The **Utilities** menu shows the applications that the motherboard supports.

ASUS InstAll - Installation Wizard for Utilities

Installs all of the utilities.

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

ASUS Cool'n'Quiet Utility

Installs the ASUS Cool'n'Quiet utility.

ASUS AI Manager

Installs the ASUS AI Manager where you can launch AI disk, AI Security, and AI Probe easily.

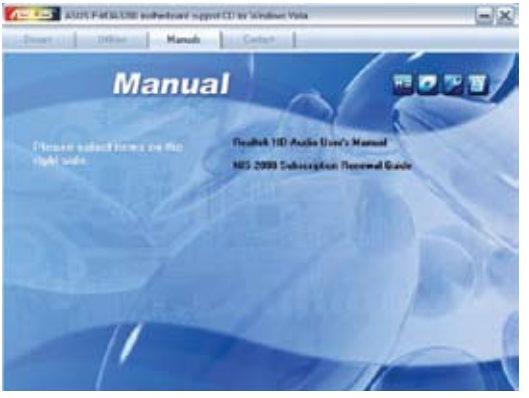
Adobe Acrobat Reader 8

Installs the Adobe® Acrobat® Reader that allows you to open, view, and print documents in Portable Document Format (PDF).

2.3.4 Manual menu

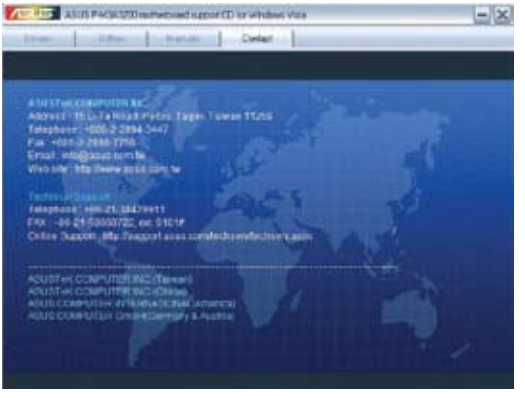
The Support CD contains the Realtek HD Audio User's Manual and NIS 2008 Subscription renewal Guide.

The manuals are in Portable Document Format (PDF) format. Install the Adobe® Acrobat® Reader from the **Utilities** menu before opening a manual.



2.3.5 ASUS Contact information

Click the **Contact** tab to display the ASUS contact information.



2.3.6 Other information

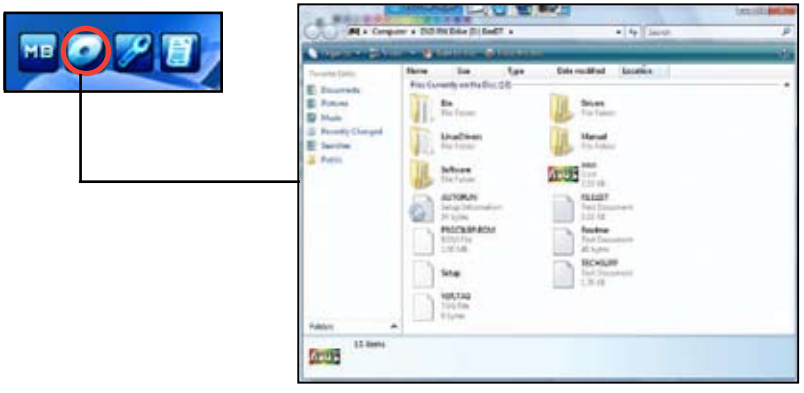
The icons on the top right corner of the screen give additional information on the motherboard and the contents of the Support CD. Click an icon to display the specified information.

Motherboard Info

Displays the general specifications of the motherboard.

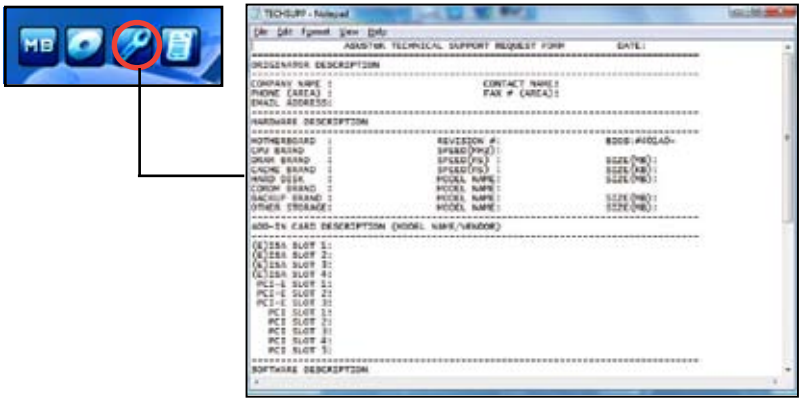
Browse this CD

Displays the Support CD contents in graphical format.



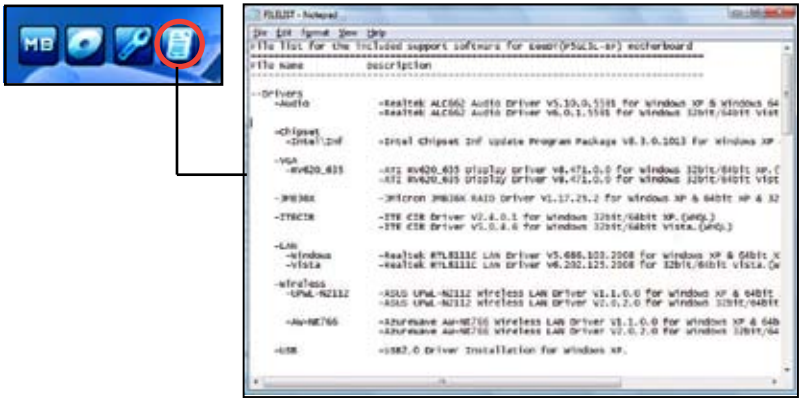
Technical Support Form

Displays the ASUS Technical Support Request Form that you have to fill out when requesting technical support.



Filelist

Displays the contents of the Support CD and a brief description of each item in text format.



2.4 ASUS AI Manager

ASUS AI Manager allows you to launch AI Disk, AI Security, and AI Probe easily.

2.4.1 Installing AI Manager

To install AI Manager on your computer:

1. Place the Support CD into the optical drive. The CD automatically displays the **Drivers** menu if Autorun is enabled on your computer.

If Autorun is NOT enabled on your computer, browse the contents of the Support CD to locate the ASSETUP.EXE file from the BIN folder. Double-click the ASSETUP.EXE to run the CD.

2. Click the **Utilities** tab, then click **ASUS AI Manager**.
3. Follow the onscreen instructions to complete the installation.

2.4.2 Launching AI Manager

You can launch AI Manager right after installation or anytime from the Windows® desktop.

To launch AI Manager from the Windows® desktop, click **Start > All Programs > ASUS > AI Manager > AI Manager v1.xx.xx**. The AI Manager Quick Bar appears.

After launching the application, the AI Manager icon appears in the Windows® taskbar. Right-click this icon for more options.

2.4.3 AI Manager Quick Bar

Click the Main, My favorites, Support, or Information icon from the Quick Bar to show the corresponding menu.

Click to switch between a full-screen AI Manager window and the Quick bar.

Click to keep AI Manager in the taskbar.

Click to close AI Manager.

2.4.4 Main

Launch AI Disk, AI Security, or AI Probe from the Main menu. Click the small triangle to open or close the Main menu.

Click to open/close the Main menu

AI Disk

AI Disk allows you to easily clear the temporary IE files, IE URLs, IE cookies, IE history list, Recycle Bin, and recently opened files list. Select the item that you want to clear, then click **Apply**.

AI Security

AI Security allows you to set passwords to lock your removable storage devices such as a USB flash disk and CD/DVD disk, which ensures more security for your data.

To lock a device:

1. If you are using AI Security for the first time, key in a password that consists of no more than 20 letters, numbers, or symbols.
2 Confirm your password.
3. Key in your password hint (optional).
4. Click **OK**.

5. Select the device you want to lock, then click **Apply**.

6. Key in your password, then click **OK**. The device you selected cannot be accessed without the password.

To unlock a device:

1. Deselect the device you locked, then click **Apply**.
2. Key in your password, then click **OK**.

To change your password, click **Change Password** and follow the onscreen instructions.

AI Probe

AI Probe automatically detects the motherboard and CPU temperatures, CPU fan speed, and CPU voltage. It also allows you to adjust these values manually.

2.4.5 My favorites

Add your favorite applications to the **My Favorites** menu.

To add an application:

1. Click **Add** and then select from the succeeding screen the application you want to add to the **My Favorites** menu.
2. Click **Open**. The application you selected is added and its icon appears.

Right-click an icon in the **My Favorites** menu to open, delete, or rename the corresponding application.

Double-click an icon to open the corresponding application.

2.4.6 Support

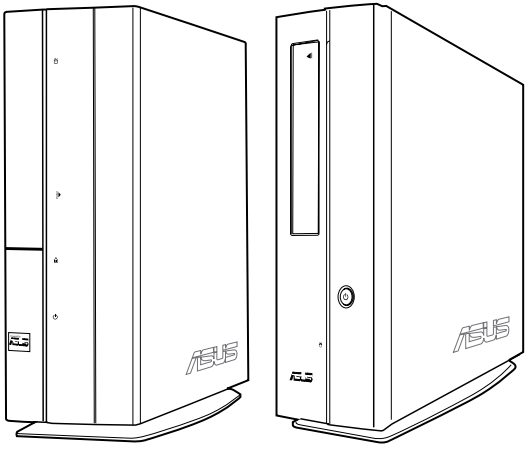
The **Support** menu displays links to the ASUS international website, online technical support website, online download support website, and contact information website.

2.4.7 Information

The **Information** menu displays the general information of your system, motherboard, CPU, BIOS, memory, and other devices installed.

Chapter 3

This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

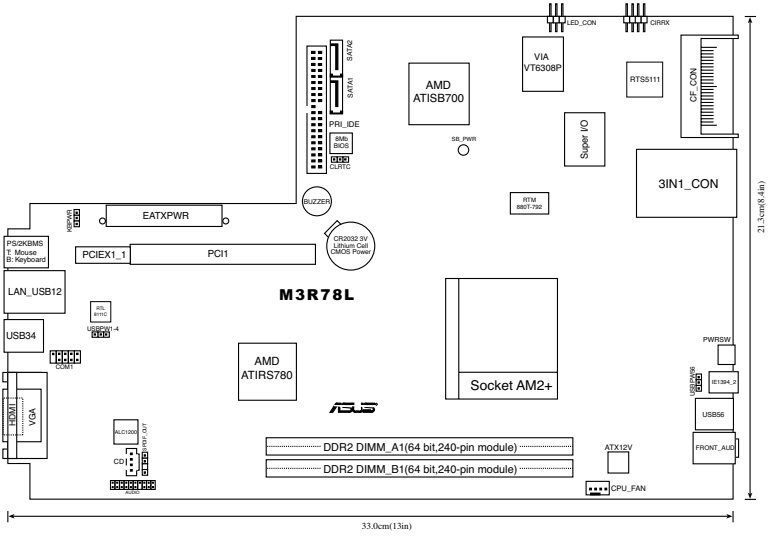


Motherboard info

3.1 Introduction

The P2-M3A3200/P4-M3A3200 barebone system comes with an ASUS motherboard. This chapter provides technical information about the motherboard for future upgrades or system reconfiguration.

3.2 Motherboard layout



3.3 Jumpers

1. Clear RTC RAM (CLRTC)

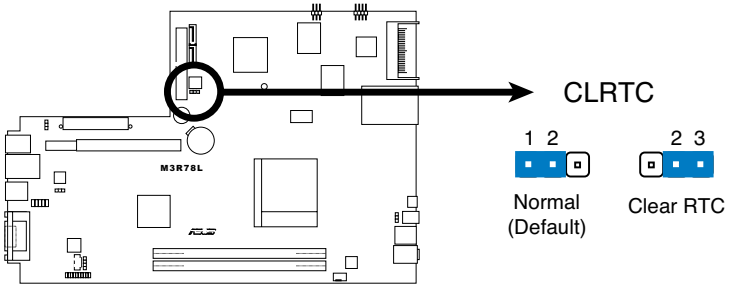
This jumper allows you to clear the Real Time Clock (RTC) RAM in the CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in the CMOS, which includes system setup information such as the system passwords.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
6. Hold down the **<Del>** key during the boot process to enter the BIOS setup program, then reenter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure.

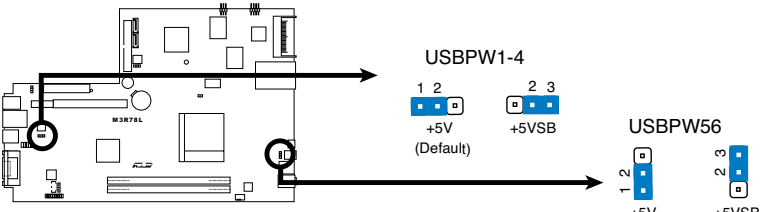
If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.



M3R78L Clear RTC RAM

2. USB device wake-up (3-pin USBPW1-4, USBPW56)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).

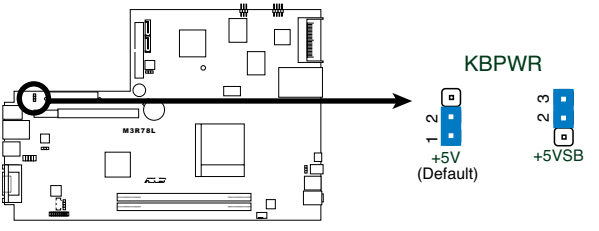


M3R78L USB Device Wake Up

- The USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for each USB port. Otherwise, the system would not power up.
- The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

3. Keyboard power (3-pin KBPWR)

This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default is the Space Bar). This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS.



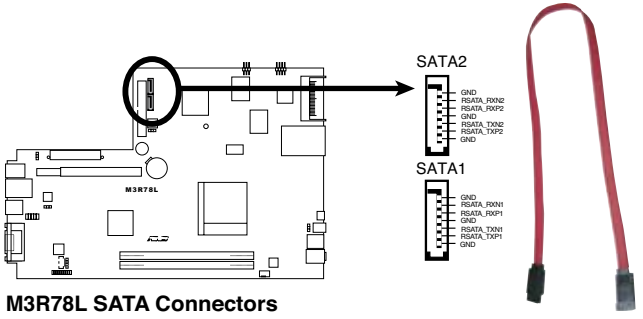
M3R78L Keyboard Power Setting

3.4 Connectors

1. Serial ATA connectors (9-pin SATA1, SATA2)

These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives.

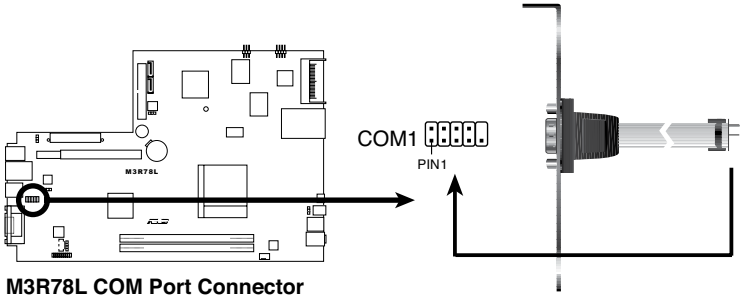
- Install Windows® 2000 Service Pack 4 or Windows® XP Service Pack 1 before using Serial ATA hard disk drives.
- When using the connectors in IDE mode, connect the primary (boot) hard disk drive to the SATA1 or SATA2 connector.



M3R78L SATA Connectors

2. COM port connector (10-1pin COM1)

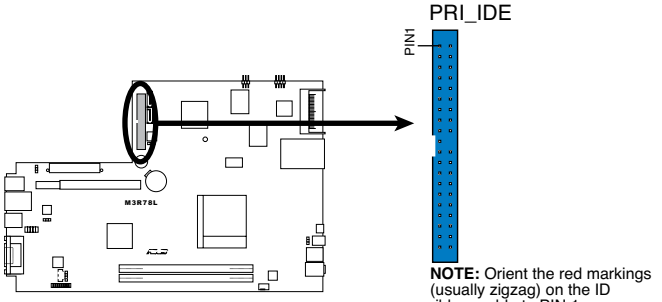
This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.



M3R78L COM Port Connector

3 IDE connector (40-1 pin PRI_IDE)

The onboard IDE connectors are for Ultra DMA 133/100/66 signal cables. There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your devices.



NOTE: Orient the red markings (usually zigzag) on the ID ribbon cable to PIN 1.

M3R78L IDE Connector

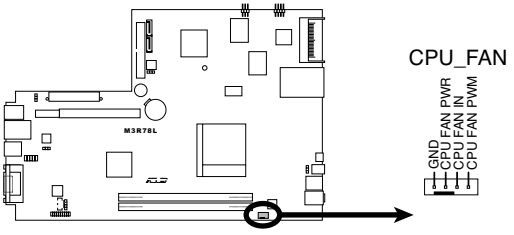
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 133 / 100 / 66 IDE devices.

If any device jumper is set as "Cable-Select", ensure that all other device jumpers have the same setting.

4. CPU Fan connector (3-pin CPU_FAN)

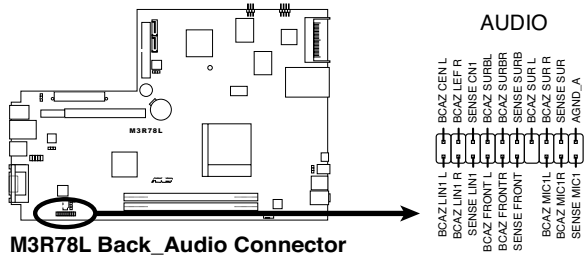
The fan connectors support cooling fans of 350 mA~740 mA (8.88 W max.) or a total of 1 A~2.22 A (26.64 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.



M3R78L CPU Fan Connector

Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

5. Back audio connector (20-1 pin Back_Audio Connector)

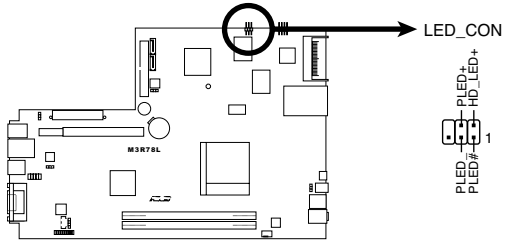


M3R78L Back_Audio Connector

We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

6. LED connector (5-pin LED_CON)

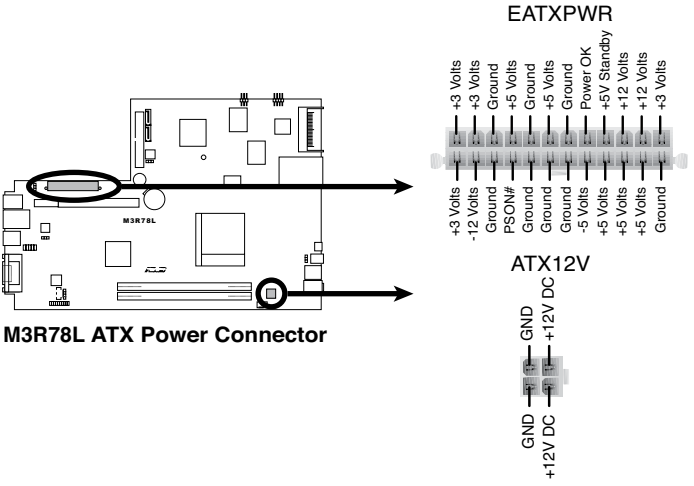
This connector supports the Power and HDD activity LEDs in the system front panel.



M3R78L LED Connector

7. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

These connectors are for ATX power supply plugs. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

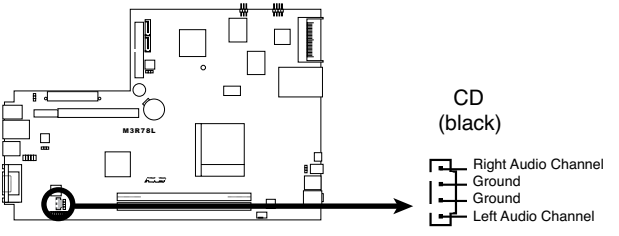


M3R78L ATX Power Connector

- Do not forget to connect the 4-pin ATX +12 V power plug. Otherwise, the system will not boot.
- Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- Ensure that your power supply unit (PSU) can provide at least the minimum power required by your system.

8. Internal audio connectors (4-pin CD)

This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

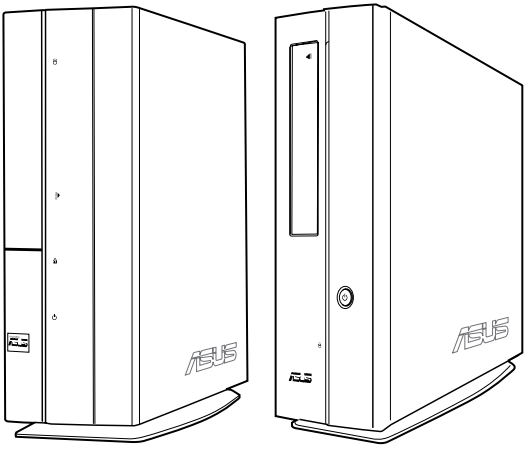


M3R78L Internal Audio Connector

Enable the CD-IN function in the audio utility when using this connector.

Chapter 4

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.



BIOS setup

4.1 Managing and updating you BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup.

1. **ASUS AFUDOS:** Updates the BIOS in DOS mode using a bootable floppy disk.
2. **ASUS CrashFree BIOS 3:** Updates the BIOS using a bootable floppy disk, USB flash disk, or the motherboard Support CD when the BIOS file fails or gets corrupted.
3. **ASUS EZ Flash 2:** Updates the BIOS using a floppy disk or USB flash disk during POST.
4. **ASUS Update:** Updates the BIOS in Windows® environment.

Refer to the corresponding sections for details on these utilities.

- Save a copy of the original motherboard BIOS file to a bootable USB floppy disk or USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS file using the ASUS Update or AFUDOS utilities.
- All the floppy devices mentioned in this chapter are USB floppy devices.

4.1.1 Creating a bootable floppy disk

1. Create a bootable floppy disk:

   DOS environment

   a. Insert a 1.44MB floppy disk into the floppy disk drive.
   b. At the DOS prompt, type `format A:/S` then press **<Enter>**.

   Windows® XP environment

   a. Insert a 1.44MB floppy disk into the floppy disk drive.
   b. Click **Start** from the Windows® desktop, then select **My Computer**.
   c. Right-click the 3 1/2 Floppy Drive icon, then select **Format**.
   d. Select the **Create an MS-DOS startup disk** checkbox.
   e. Click **Start**.

Windows® Vista environment

a. Insert a formatted, high density 1.44MB floppy disk into the floppy disk drive.

b. Click  from the Windows® desktop, then select **Computer**.

c. Right-click **Floppy Disk Drive**, then click **Format**.

d. Select the **Create an MS-DOS startup disk** checkbox.

e. Click **Start**.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

4.1.2 AFUDOS utility

The AFUDOS utility allows you to update the BIOS in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:

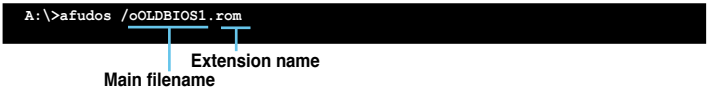
Ensure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.

The BIOS screens in this sections are for reference only. The actual BIOS screens may not be the same as shown.

1. Copy the AFUDOS utility (afudos.exe) from the motherboard Support CD to the bootable floppy disk you created earlier.
2. Boot the system in DOS mode, then at the prompt type:

   afudos /o[filename]

   The [filename] is any user-assigned filename which consists of no more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.



3. Press **<Enter>**. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading flash ..... done
    Write to file..... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS using the AFUDOS utility:

1. Visit the ASUS website at www.asus.com and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable floppy disk.

Write down he BIOS filename on a piece of paper. You need to type the exact BIOS filename at the DOS prompt.

2. Copy the AFUDOS utility (afudos.exe) from the motherboard Support CD to the bootable floppy disk.
3. Boot the system in DOS mode, then at the prompt type:

   afudos /i[filename]

   The [filename] is the latest or the original BIOS file in the bootable floppy disk.

```
A:\>afudos /iM3R78L.ROM
```

4. The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iM3R78L.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... 0x0008CC00 (9%)
```

Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iM3R78L.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... done
    Verifying flash .... done

    Please restart your computer

A:\>
```

4.1.3 ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 utility is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard Support CD, a floppy disk, or USB flash disk that contains the updated BIOS file.

- Prepare the motherboard Support CD, a bootable floppy disk or USB flash disk containing the updated motherboard BIOS file before using this utility.
- Ensure that you rename the original or updated BIOS file in the floppy disk or USB flash disk to **M3R78L.ROM.**

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1. Turn on the system.
2. Insert the floppy disk with the original or updated BIOS file into the floppy disk drive.

   The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

   When the original or updated BIOS file is found, the utility reads it and starts updating the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "M3R78L.ROM". Completed.
Start flashing...
```

DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

3. Restart the system after the utility completes the updating process.

Recovering the BIOS from the Support CD

To recover the BIOS from the Support CD:

1. Remove any floppy disk from the floppy disk drive, then turn on the system.
2. Insert the Support CD into the optical drive.

   The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

   When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for DVD-ROM...
DVD-ROM found!
Reading file "M3R78L.ROM". Completed.
Start flashing...
```

3. Restart the system after the utility completes the updating process.

The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website at www.asus.com to download the latest BIOS file.

Recovering the BIOS from a USB flash disk

To recover the BIOS from a USB flash disk:

1. Insert the USB flash disk that contains the original or updated BIOS file into a USB port.
2. Turn on the system.
3. The utility automatically checks the devices for the original or updated BIOS file. When the BIOS file is found, the utility reads it and starts updating the corrupted BIOS file.
4. Restart the system after the utility completes the updating process.

- Only the USB flash disk with FAT 32/16 format and single partition supports ASUS CrashFree BIOS 3. The device size should be smaller than 8GB.
- **DO NOT** shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

4.1.4 ASUS EZ Flash 2 utility

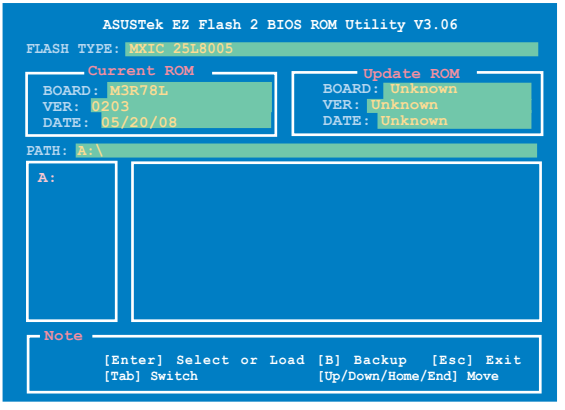
The ASUS EZ Flash 2 feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk or using a DOS-based utility. The EZ Flash 2 utility is built in the BIOS chip so it is accessible by pressing **<Alt> + <F2>** during the Power-On Self-Test (POST).

To update the BIOS using EZ Flash 2:

1. Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.
2. Save the BIOS file to a floppy disk or USB flash disk, then restart the system.
3. Launch EZ Flash 2 using either of the following methods.

   (1) Insert the floppy disk / USB flash disk that contains the BIOS file to the floppy disk drive or a USB port.

   Press **<Alt> + <F2>** during POST to display the following.



   (2) Insert the floppy disk / USB flash disk that contains the BIOS file to the floppy disk drive or a USB port.

   Press **<Del>** during POST to enter the BIOS Setup utility. Go to the **Tools** menu, then select **EZ Flash2** and press **<Enter>**.

   Press **<Tab>** to locate the correct file. Then press **<Enter>**.

4. When the correct BIOS file is found, EZ Flash 2 performs the BIOS update process and automatically reboots the system when done.

- This function supports devices such as USB flash disks and floppy disks with **FAT 32/16** format and single partition only.
- **DO NOT** shut down or reset the system while updating the BIOS to prevent system boot failure!

4.1.5 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file;
- Download the latest BIOS file from the Internet;
- Update the BIOS from an updated BIOS file;
- Update the BIOS directly from the Internet; and
- View the BIOS version information.

This utility is available in the Support CD that comes with the motherboard package.

ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

Installing ASUS Update

To install ASUS Update:

1. Place the Support CD into the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **ASUS Update**.

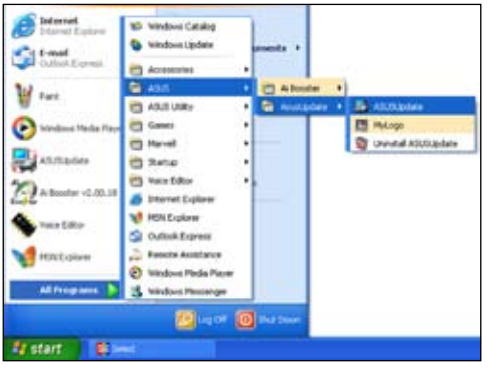
The ASUS Update utility is copied to your system.

Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.



2. Select **Update BIOS from the Internet** option from the dropdown menu, then click **Next**.

3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

4. From the FTP site, select the BIOS version that you want to download. Click **Next.**
5. Follow the onscreen instructions to complete the update process.

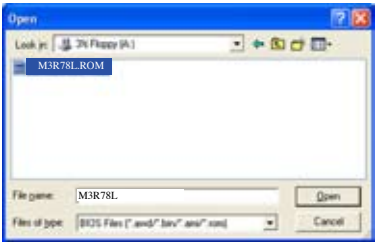
The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to get all its features.

Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.
2. Select **Update BIOS from a file** option from the dropdown menu, then click **Next**.

3. Locate the BIOS file from the **Open** window, then click **Open**.
4. Follow the onscreen instructions to complete the update process.



4.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section **4.1 Managing and updating your BIOS**.

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the SPI chip.

The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press **<Del>** during the Power-On Self-Test (POST) to enter the Setup utility. 0therwise, POST continues with its test routines.

If you wish to enter Setup after POST, reboot the system by doing any of the following procedures:

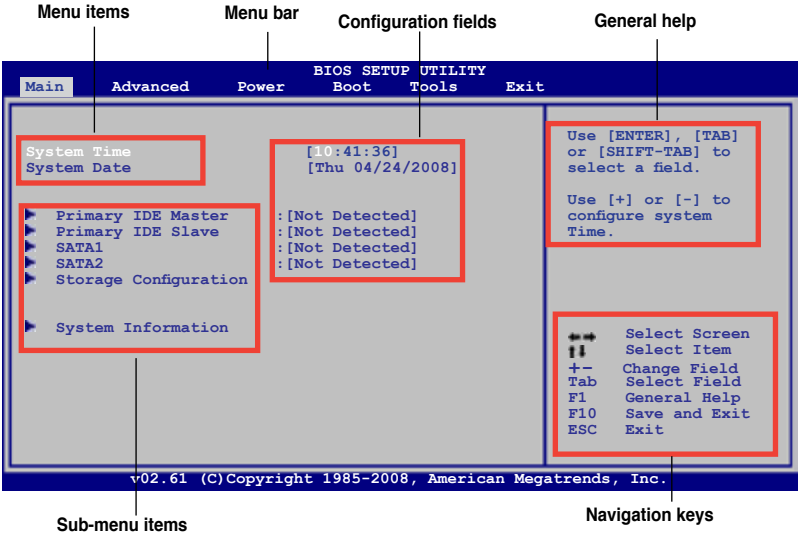
- Restart using the OS standard shut-down procedure.
- Press **<Ctrl>+<Alt>+<Del>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on.

Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Setup Defaults** item under the Exit menu. See section **4.8 Exit menu**.
- The BIOS setup screens shown in this section are for reference only. They may not exactly match what you see on your screen.
- Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.

4.2.1 BIOS menu screen



4.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Advanced	For changing the advanced system settings
Power	For changing the advanced power management (APM) configuration
Boot	For changing the system boot configuration
Tools	For changing the system tools configuration
Exit	For selecting the exit options and loading default settings

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

- The BIOS setup screens shown in this chapter are for reference only. They may not exactly match what you see on your screen.
- Visit the ASUS website at www.asus.com to download the latest BIOS information.

4.2.3 Navigation keys

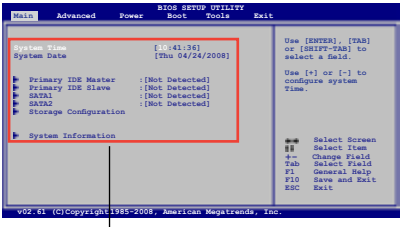
At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

Some of the navigation keys differ from one screen to another.

4.2.4 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items.

The other items (Advanced, Power, Boot, Tools, and Exit) on the menu bar have their respective menu items.



Main menu items

4.2.5 Sub-menu items

A solid triangle before each item on any menu screen means that the iteam has a sub-menu. To display the sub-menu, select the item and press **<Enter>**.

4.2.6 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press **<Enter>** to display a list of options. Refer to **4.2.8 Pop-up window**.

4.2.7 General help

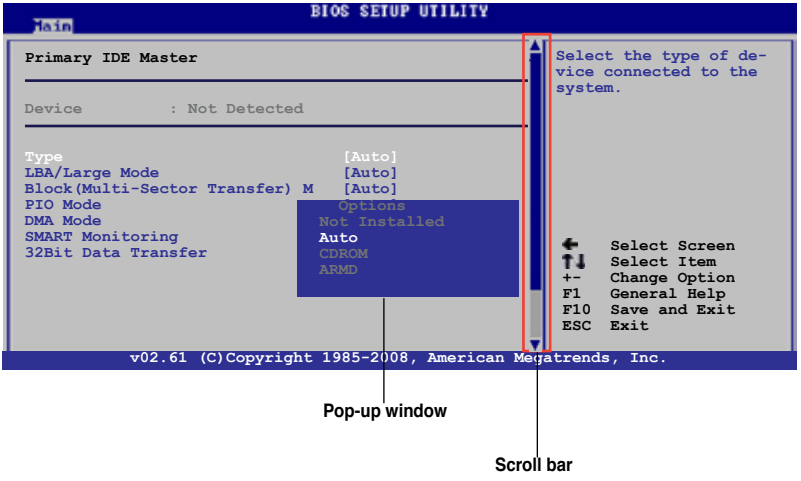
At the top right corner of the menu screen is a brief description of the selected item.

4.2.8 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the **<Up> / <Down>** arrow keys or **<Page Up>** / **<Page Down>** keys to display the other items on the screen.

4.2.9 Pop-up window

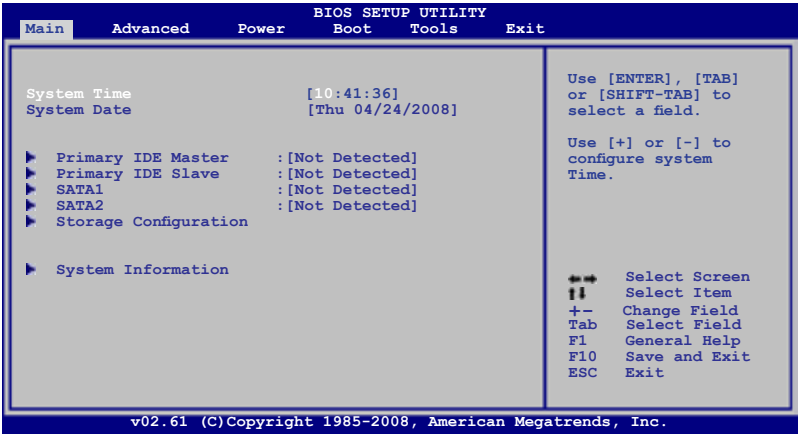
Select a menu item then press **<Enter>** to display a pop-up window with the configuration options for that item.



4.3 Main menu

When you enter the BIOS Setup program, the **Main** menu screen appears, giving you an overview of the basic system information.

Refer to section **4.2.1 BIOS menu screen** for information on the menu screen items and how to navigate through them.



4.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

4.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

4.3.3 Primary IDE Master/Slave

While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press **<Enter>** to display the IDE device information.

The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show **Not Detected** if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. Setting to **[Auto**] allows automatic selection of the appropriate IDE device type. Select **[CDROM]** if you are specifically configuring a CD-ROM drive. Select **[ARMD]** (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to **[Auto]** enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-Sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to **[Auto]**, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to **[Disabled]**, the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto]

SMART Monitoring [Auto]

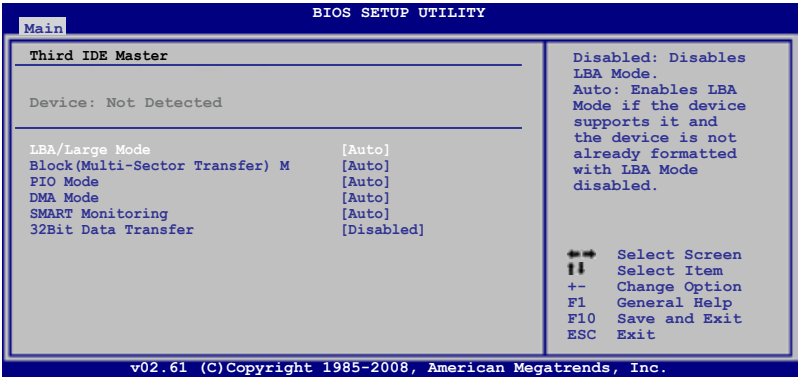
Sets the Smart Monitoring, Analysis, and Reporting Technology. Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Disabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled]

4.3.4 SATA 1-2

While entering Setup, the BIOS automatically detects the presence of Serial ATA devices. There is a separate sub-menu for each SATA device. Select a device item then press **<Enter>** to display the SATA device information.



The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show **N/A** if no IDE device is installed in the system.

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to **[Auto]** enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to **[Auto]**, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to **[Disabled]**, the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto]

SMART Monitoring [Auto]

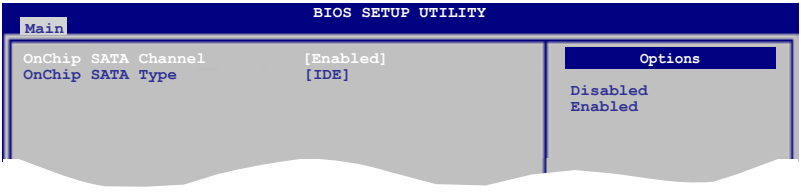
Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Disabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled]

4.3.5 Storage Configuration

The **Storage Configuration** menu allows you to configure your storage device(s). Select an item then press **<Enter>** to display the sub-menu.



OnChip SATA Channel [Enabled]

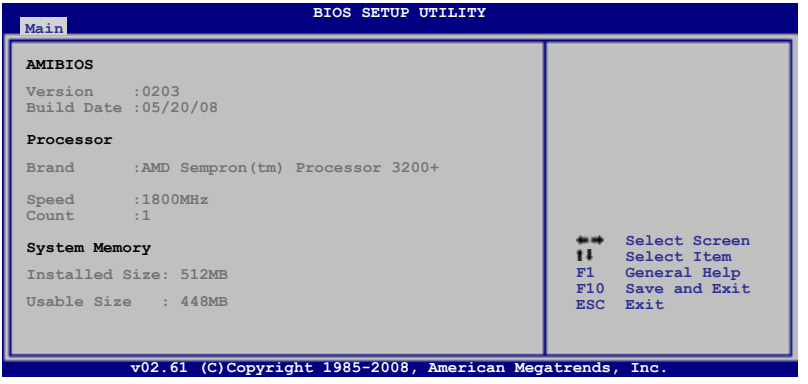
Allows you to disable or enable the OnChip SATA channel.
Configuration options: [Enabled] [Disabled]

OnChip SATA Type [IDE]

Allows you to select the OnChip SATA type. Configuration options: [IDE] [RAID] [AHCI]

4.3.6 System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.



AMI BIOS

Displays the auto-detected BIOS information

Processor

Displays the auto-detected CPU specification

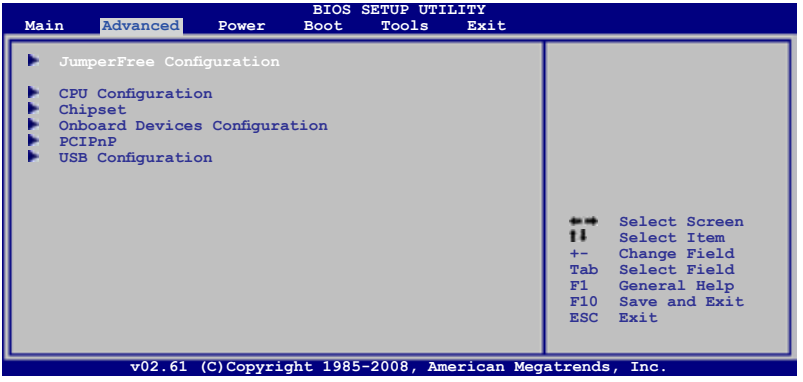
System Memory

Displays the auto-detected system memory

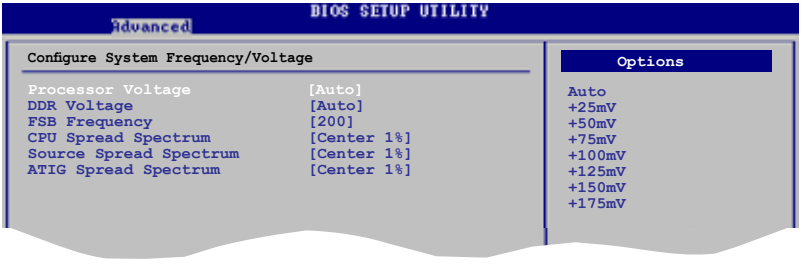
4.4 Advanced menu

The **Advanced** menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.



4.4.1 JumperFree Configuration



Processor Voltage [Auto]

Allows you to set the processor voltage. Configuration options: [Auto] [+25mV] [+50mV] [+75mV] [+100mV] [+125mV] [+150mV] [+175mV]

DDR Voltage [Auto]

Allows you to set the DDR voltage. Configuration options: [Auto] [2.00V] [2.10V] [2.20V]

FSB Frequency [200]

Displays the frequency sent by the clock generator to the system bus and PCI bus. Use the **<+>** and **<->** keys to adjust the FSB frequency. You can also type the desired FSB frequency using the numeric keypad. The values range from 200 to 600. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings.

FSB / CPU External Frequency Synchronization

Front Side Bus	CPU External Frequency
FSB 1600	400 MHz
FSB 1333	333 MHz
FSB 1066	266 MHz
FSB 800	200 MHz

CPU Spread Spectrum [Center 1%]

Allows you to set the CPU spread spectrum. Configuration options: [Disabled] [Center 1%] [Center 0.5%]

Source Spread Spectrum [Center 1%]

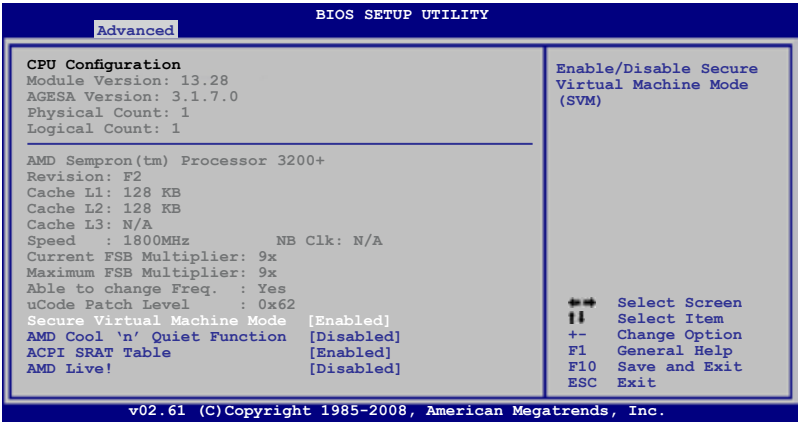
Allows you to set the source spread spectrum. Configuration options: [Disabled] [Center 1%] [Center 0.5%]

ATIG Spread Spectrum [Center 1%]

Allows you to set the ATIG spread spectrum. Configuration options: [Disabled] [Center 1%] [Center 0.5%]

4.4.2 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.



Secure Virtual Machine Mode [Enabled]

Allows you to enable or disable the AMD Secure Virtual Machine mode. Configuration options: [Disabled] [Enabled]

AMD Cool 'n' Quiet Function [Disabled]

Allows you to enable or disable the generation of ACPI_PPC, _PSS, and _PCT objects. Configuration options: [Disabled] [Enabled]

ACPI SRAT Table [Enabled]

Allows you to enable or disable the building of ACPI SRAT table. Configuration options: [Disabled] [Enabled]

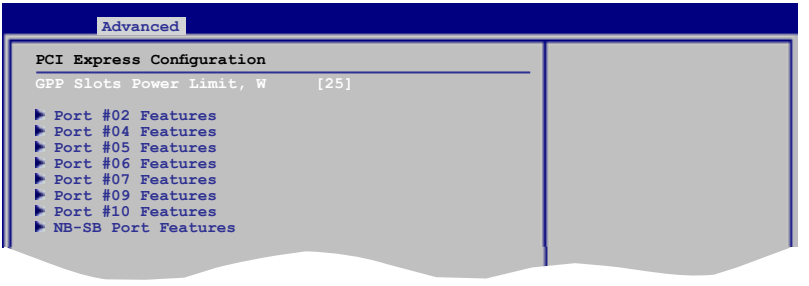
AMD Live! [Disabled]

Allows you to enable or disable AMD Live. Configuration options: [Disabled] [Enabled]

4.4.3 Chipset

The **Chipset** menu allows you to change the advanced chipset settings. Select an item then press **<Enter>** to display the sub-menu.

PCI Express Configuration



GPP Slots Power Limit, W [25]
Configuration options: [25]

Port #02 Features

Gen2 High Speed Mode [Auto]

Allows you to set the Gen2 high speed mode. Configuration options: [Auto] [Disabled] [Software Initiated] [Advertised RC]

Link ASPM [Disabled]

Allows you to set the Link ASPM. Configuration options: [Disabled] [L0s] [L1] [L0s & L1]

Link Width [Auto]

Allows you to set the Link Width. Configuration options: [Auto] [x1] [x2] [x4] [x8] [x16]

Slot Power Limit, W [75]

Configuration options: [75]

Port #04 Features-Port #10 Features

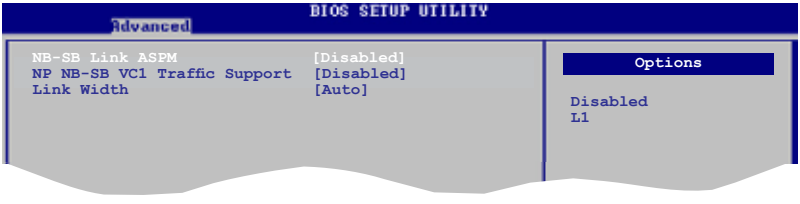
Gen2 High Speed Mode [Disabled]

Allows you to set the Gen2 high speed mode. Configuration options: [Auto] [Disabled] [Software Initiated] [Advertised RC]

Link ASPM [Disabled]

Allows you to set the Link ASPM. Configuration options: [Disabled] [L0s] [L1] [L0s & L1]

NB-SB Port Features



NB-SB Link ASPM [Disabled]

Allows you to enable or disable the NB-SB Link ASPM.
Configuration options: [Disabled] [L1]

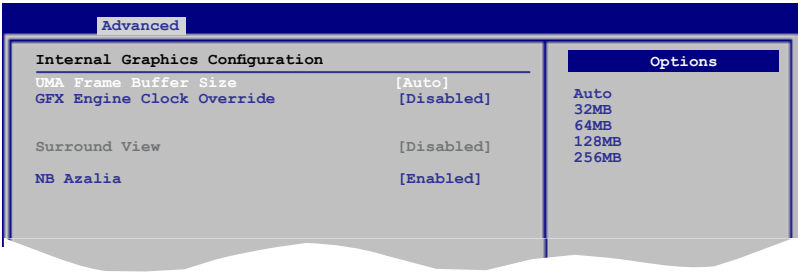
NP NB-SB VC1 Traffic Support [Disabled]

Allows you to enable or disable the NP NB-SB VC1 traffic support.
Configuration options: [Disabled] [Enabled]

Link Width [Auto]

Allows you to set the Link Width. Configuration options: [Auto] [x1] [x2] [x4]

Internal Graphics Configuration



UMA Frame Buffer Size [Auto]

Allows you to select the UMA frame buffer size. Configuration options: [Auto] [32MB] [64MB] [128MB] [256MB]

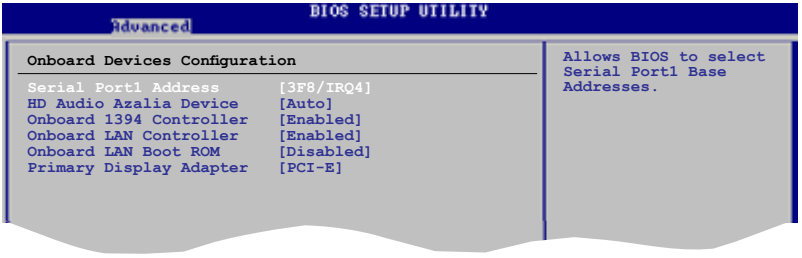
GFX Engine Clock Override [Disabled]

Allows you to enable or disable the GFX engine clock override.
Configuration options: [Disabled] [Enabled]

NB Azalia [Enabled]

Allows you to enable or disable NB Azalia. Configuration options: [Disabled] [Enabled]

4.4.4 Onboard Devices Configuration



Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4][2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

HD Audio Azalia Device [Auto]

Allows you to enable or disable the HD audio Azalia device.
Configuration options: [Auto] [Disabled]

Onboard 1394 Controller [Enabled]

Allows you to enable or disable the onboard 1394 controller.
Configuration options: [Enabled] [Disabled]

Onboard LAN Controller [Enabled]

Allows you to enable or disable the onboard LAN controller.
Configuration options: [Enabled] [Disabled]

Onboard LAN Boot ROM [Disabled]

Allows you to enable or disable the onboard LAN boot ROM.
Configuration options: [Disabled] [Enabled]

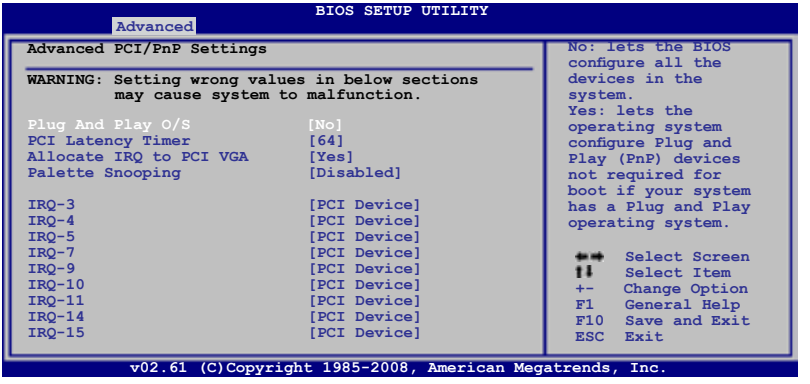
Primary Display Adapter [PCI-E]

Allows you to select the graphics controller used as the primary boot device.
Configuration options: [PCI-E] [Onboard]

4.4.5 PCI PnP

The **PCI PnP** menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.

Take caution when changing the settings of the PCI PnP menu items. Incorrect field values can cause the system to malfunction.



Plug and Play O/S [No]

When set to **[No]**, BIOS configures all the devices in the system. When set to **[Yes]** and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.
Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to **[Yes]**, BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to **[No]**, BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [Yes] [No]

Palette Snooping [Disabled]

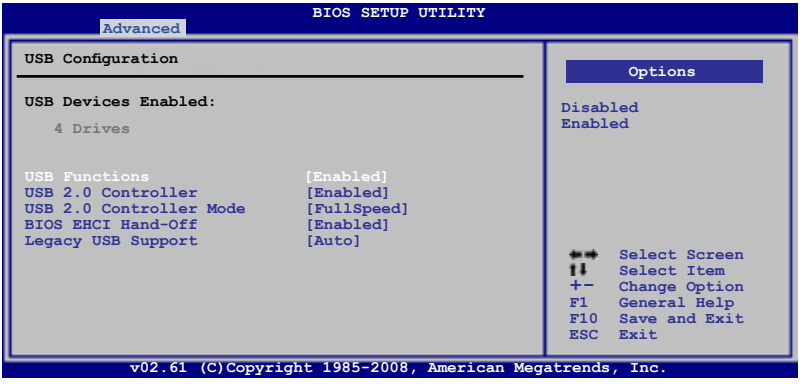
When set to **[Enabled]**, the palete snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

IRQ-xx [PCI Device]

When set to **[PCI Device]**, the specific IRQ is free for use of PCI/PnP devices. When set to **[Reserved]**, the IRQ is reserved for legacy ISA devices. Configuration options: [PCI Device] [Reserved]

4.4.6 USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press **<Enter>** to display the configuration options.



The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

USB Functions [Enabled]

Enables or disables the USB functions. Configuration options: [Enabled] [Disabled]

USB 2.0 Controller [Enabled]

Enables or disables the USB 2.0 Controller. Configuration options: [Enabled] [Disabled]

USB 2.0 Controller Mode [HiSpeed]

Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or FullSpeed (12 Mbps). Configuration options: [FullSpeed] [HiSpeed]

BIOS EHCI Hand-Off [Enabled]

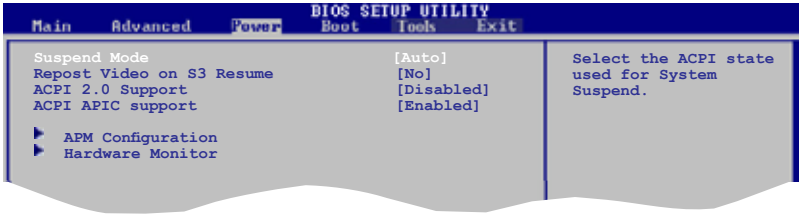
Allows you to enable support for operating systems without an EHCI hand-off feature. Configuration options: [Enabled] [Disabled]

Legacy USB Support [Auto]

Allows you to enable or disable support for Legacy USB storage devices, including USB flash drives and USB hard drives. Setting to **Auto** allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

4.5 Power menu

The Power menu items allow you to change the settings for the Advanced Configuration and Power Interface (ACPI) and the Advanced Power Management (APM). Select an item then press **<Enter>** to display the configuration options.



4.5.1 Suspend Mode [Auto]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Configuration options: [S1 (POS) Only] [S3 Only] [Auto]

[S1(POS) Only] - Enables the system to enter the ACPI S1 (Power on Suspend) sleep state. In S1 sleep state, the system appears suspended and stays in a low power mode. The system can be resumed at any time.

[S3 Only] - Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state (default). In S3 sleep state, the system appears to be off and consumes less power than in the S1 state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

[Auto] - Detected by OS.

4.5.2 Repost Video on S3 Resume [No]

Determines whether to invoke VGA BIOS post on S3/STR resume. Configuration options: [No] [Yes]

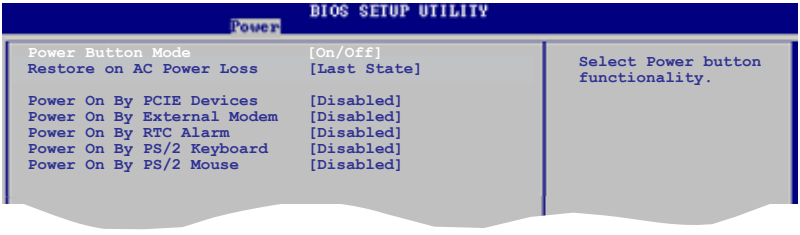
4.5.3 ACPI 2.0 Support [Disabled]

Allows you to add additional tables as per Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [Disabled] [Enabled]

4.5.4 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to **Enabled**, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

4.5.5 APM Configuration



Power Button Mode [On/Off]

Allows you to select the power button mode. Configuration options: [On/Off] [Suspend]

Restore on AC Power Loss [Last State]

When set to **Power Off**, the system goes into off state after an AC power loss. When set to **Power On**, the system goes on after an AC power loss. Configuration options: [Power On] [Power Off] [Last State]

Power On By PCIE Devices [Disabled]

When set to **[Enabled]**, this parameter allows you to turn on the system through a PCI Express card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Power On By External Modem [Disabled]

Enables or disables RI to generate a wake event. Configuration options: [Disabled] [Enabled]

The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that turns the system power on.

Power On By RTC Alarm [Disabled]

Enables or disables RTC to generate a wake event. Configuration options: [Disabled] [Enabled]

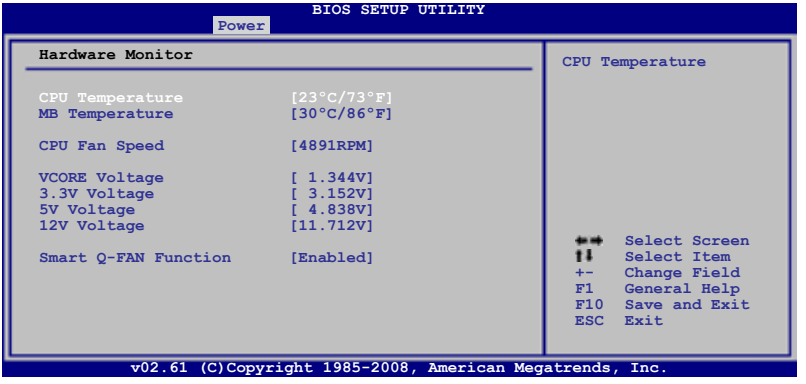
Power On By PS/2 Keyboard [Disabled]

Allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-Esc] [Power Key]

Power On By PS/2 Mouse [Disabled]

When set to **[Enabled]**, this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

4.5.6 Hardware Monitor



CPU Temperature [xxxºC/xxxºF]
MB Temperature [xxxºC/xxxºF]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. Select Ignored if you do not wish to display the detected temperatures.

CPU Fan Speed [xxxxRPM] or [Ignored]

The onboard hardware monitor automatically detects and displays the CPU fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select Ignored if you do not wish to display the detected speed.

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

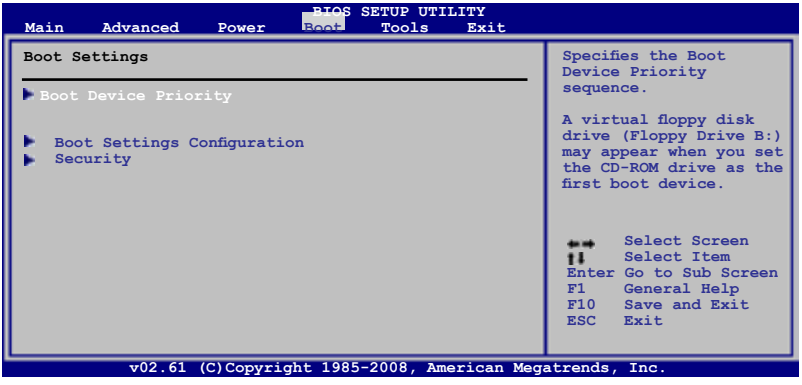
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

Smart Q-FAN Function [Enabled]

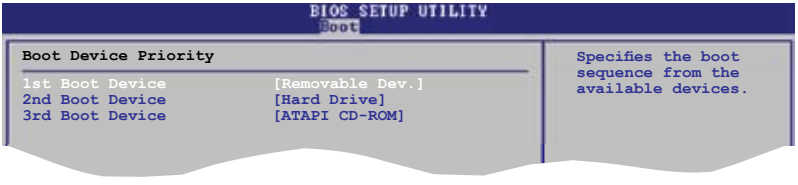
Allows you to enable or disable the ASUS Q-Fan feature that smartly adjusts the fan speeds for more efficient system operation. Configuration options: [Disabled] [Enabled]

4.6 Boot menu

The **Boot** menu items allow you to change the system boot options. Select an item then press **<Enter>** to display the sub-menu.



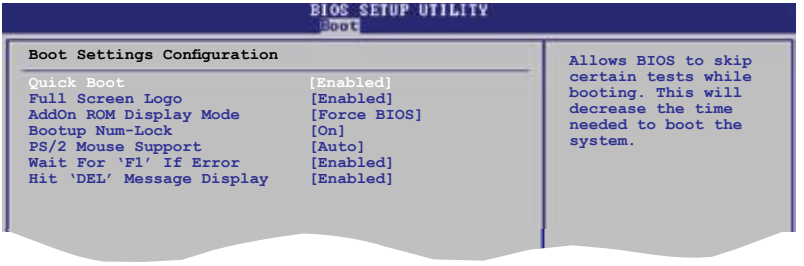
4.6.1 Boot Device Priority



1st ~ xxth Boot Device

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Configuration options: [Removable Dev.] [Hard Drive] [ATAPI CD-ROM] [Disabled]

4.6.2 Boot Settings Configuration



Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some power on self tests (POST) while booting to decrease the time needed to boot the system. When set to **[Disabled]**, BIOS performs all the POST items. Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled]

Set this item to **[Enabled]** to use the ASUS MyLogo 2™ feature.

AddOn ROM Display Mode [Force BIOS]

Sets the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock. Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse. Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

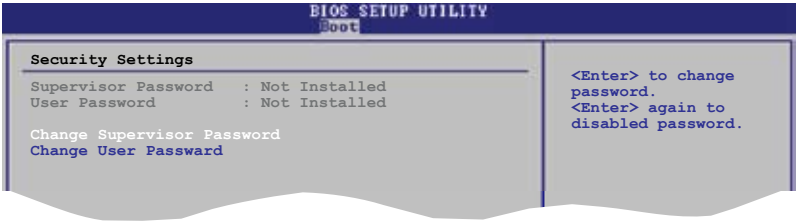
When set to Enabled, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

Hit 'DEL' Message Display [Enabled]

When set to Enabled, the system displays the message **Press DEL to run Setup** during POST. Configuration options: [Disabled] [Enabled]

4.6.3 Security

The Security menu items allow you to change the system security settings. Select an item then press **<Enter>** to display the configuration options.



Change Supervisor Password

Select this item to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default **Not Installed**. After you set a password, this item shows Installed.

To set a Supervisor Password:

1. Select the **Change Supervisor Password** item.
2. From the password box, type a password composed of at least six letters and/or numbers, then press **<Enter>**.
3. Confirm the password when prompted.

The message **Password Installed** appears after you successfully set your password.

To change the supervisor password, follow the same steps as in setting a supervisor password.

To clear the supervisor password, select the **Change Supervisor Password** then press **<Enter>**. The message **Password Uninstalled** appears.

If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.

User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items. Configuration options: [No Access] [View Only] [Limited] [Full Access]

[No Access] - prevents user access to the Setup utility.

[View Only] - allows access but does not allow change to any field.

[Limited] - allows changes only to selected fields, such as Date and Time.

[Full Access] - allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default **Not Installed**. After you set a password, this item shows Installed.

To set a User Password:

1. Select the **Change User Password** item.
2. From the password box, type a password composed of at least six letters and/or numbers, then press **<Enter>**.
3. Confirm the password when prompted.

The message **Password Installed** appears after you set your password successfully.

To change the user password, follow the same steps as in setting a user password.

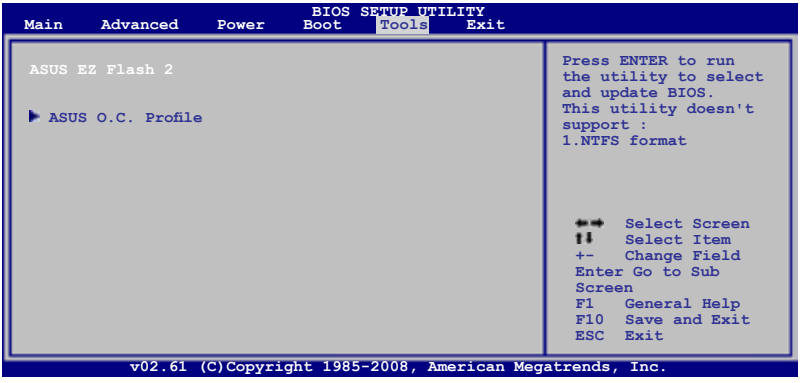
Clear User Password

Select this item to clear the user password.

Password Check [Setup]

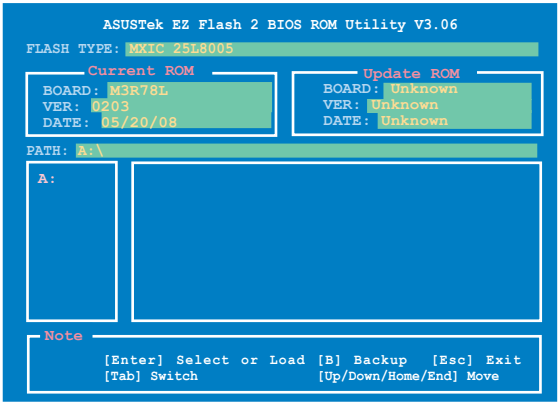
When set to **[Setup]**, BIOS checks for user password when accessing the Setup utility. When set to **[Always]**, BIOS checks for user password both when accessing Setup and booting the system. Configuration options: [Setup] [Always]

4.7 Tools menu



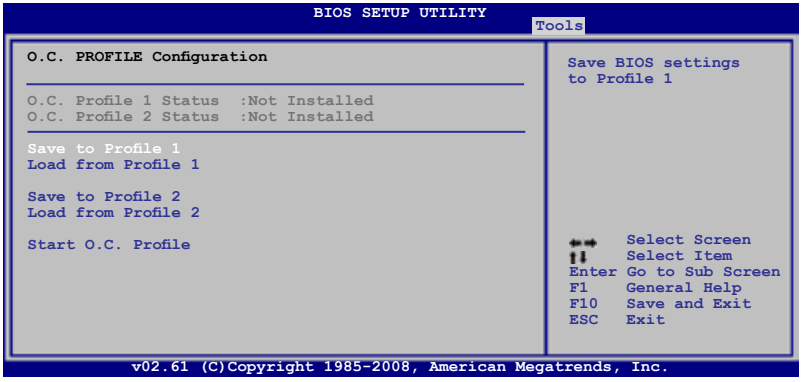
4.7.1 ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press **<OK>**, a confirmation message appears. Use the left/right arrow key to select between **[Yes]** or **[No]**, then press **<OK>** to confirm your choice.



4.7.2 ASUS O.C. Profile

This item allows you to store or load multiple BIOS settings.



Save to Profle 1/2

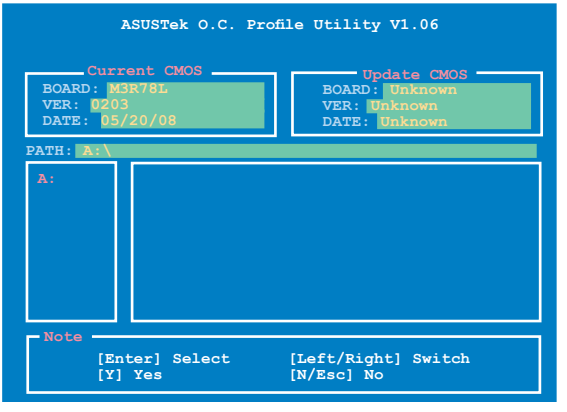
Allows you to save the current BIOS file to the BIOS Flash. Press **<Enter>** to save the file.

Load from Profile 1/2

Allows you to load the previous BIOS settings saved in the BIOS Flash. Press **<Enter>** to load the file.

Start O.C. Profile

Allows you to run the utility to save and load CMOS. Press **<Enter>** to run the utility.



- This function can support devices such as USB flash disks and floppy disk with FAT 32/16 format and single partition only.
- **DO NOT** shut down or reset the system while updating the BIOS to prevent the system boot failure!

4.8 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

Pressing **<Esc>** does not immediately exit this menu. Select one of the options from this menu or **<F10>** from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select **OK** to save changes and exit.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select **OK** to discard any changes and load the previously saved values.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press **<F5>**, a confirmation window appears. Select **OK** to load default values. Select **Exit & Save Changes** or make other changes before saving the values to the non-volatile RAM.