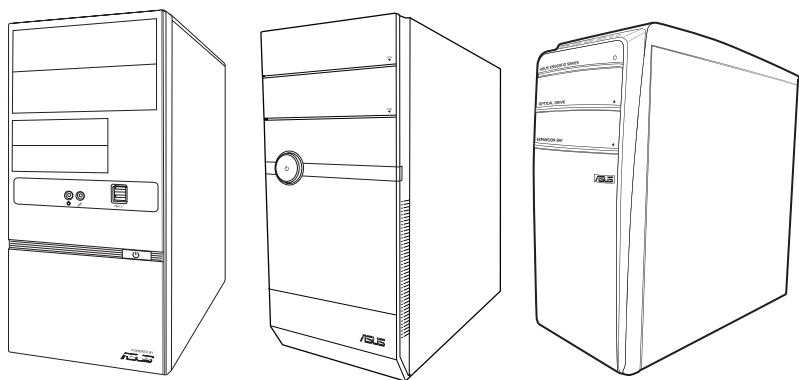


ASUS[®]

V-Series P8H67E

ASUS PC (Desktop Barebone)

User's Manual



E6147

First Edition V1

October 2010

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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.



WARNING! 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.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at <http://csr.asus.com/english/index.aspx>.

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 devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- 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 the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, ensure that all 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 stable surface.
- If you encounter technical problems with the 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: Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

About this guide

Audience

This guide provides general information and installation instructions about the ASUS Vintage V-Series P8H67E 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 the ASUS V-Series P8H67E. 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 DVD.

3. Chapter 3: Motherboard info

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 setup

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

Conventions used in this guide



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 aid in completing 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 worldwide 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 V-Series P8H67E system package for the following items.

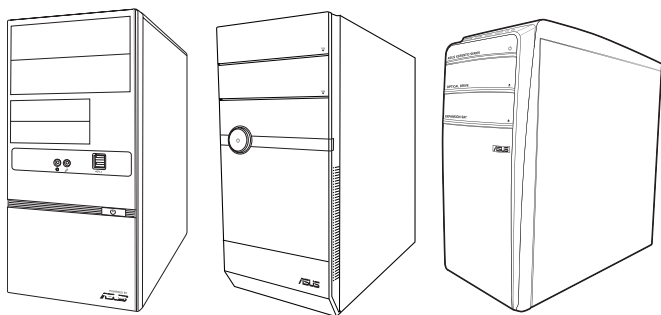


If any of the items is damaged or missing, contact your retailer immediately.

Item	description
1.	ASUS V-Series P8H67E barebone system with • ASUS motherboard • Power supply unit • ASUS chassis
2.	Cable • AC power cable
3.	Support DVD
4.	Quick Installation Guide
5.	Telecom Adapter Card (Optional)

Chapter 1

This chapter gives a general description of the ASUS V-Series P8H67E. The chapter lists the system features including introduction on the front and rear panel, and internal components.



System introduction

1.1 Welcome!

Thank you for choosing the ASUS V-Series P8H67E!

The ASUS V-Series P8H67E is an all-in-one barebone system with a versatile home entertainment feature.

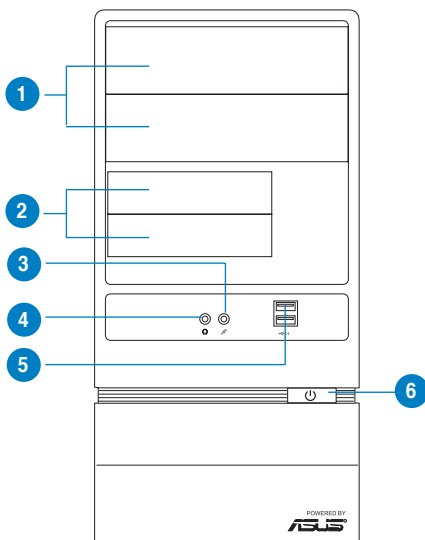
The system comes in a stylish casing and powered by the ASUS motherboard that supports the Second Generation Intel® Core™ i7 / Core™ i5 / Core™ i3 processors in the 1155-land package.

The system supports up to 16 GB of system memory using DDR3-1333/1066 DIMMs. High-resolution graphics via integrated graphics controller or PCI Express x16 slot, Serial ATA, USB 2.0/3.0, and 8-channel audio features take you ahead in the world of power computing.

1.2 Front panel

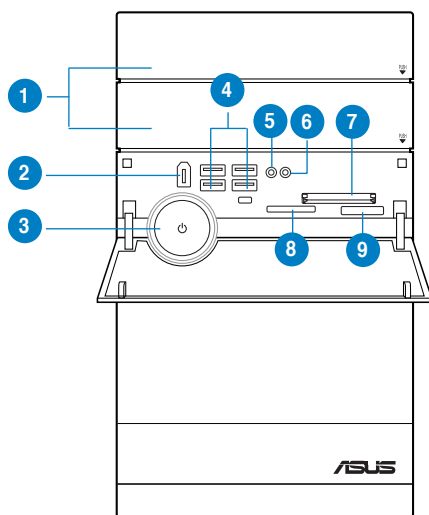
The front panel includes the optical drive bays, power button, and several I/O ports.

1.2.1 V6-P8H67E front panel



1. **Two empty 5.25-inch drive bays.** These bays are for 5.25-inch IDE/SATA optical drives.
2. **Two empty 3.5-inch drive bays.** These bays are for 3.5-inch hard disk drives.
3. **Microphone port.** This Mic (pink) port connects a microphone.
4. **Headphone port.** This Line In (lime) port connects a headphone with a stereo mini-plug.
5. **USB 2.0 ports.** These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
6. **Power button.** Press this button to turn the system on.

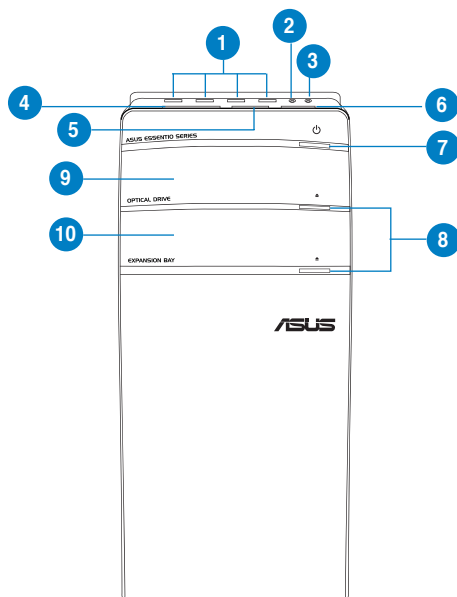
1.2.2 V7-P8H67E front panel



1. **Two empty 5.25-inch drive bays.** These bays are for 5.25-inch IDE/SATA optical drives.
2. **IEEE1394a port (optional).**
3. **Power button.** Press this button to turn the system on.
4. **USB 2.0 ports.** These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.

5. **Microphone port.** This Mic (pink) port connects a microphone.
6. **Headphone port.** This Line In (lime) port connects a headphone with a stereo mini-plug.
7. **CompactFlash® / Microdrive™ card slot**
8. **Secure Digital™ / Multimedia Card slot**
9. **MemoryStick® / Memory Stick Pro™ card slot**

1.2.3 V9-P8H67E front panel

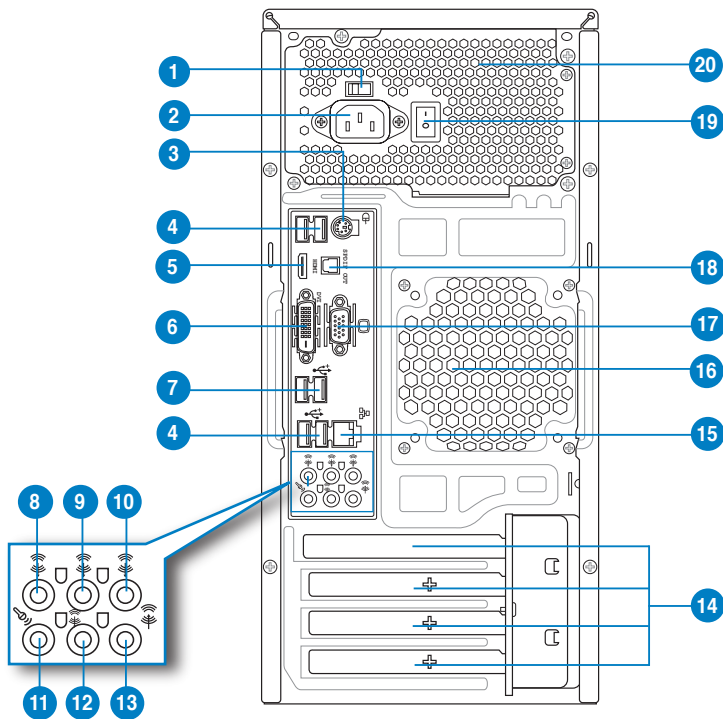


1. **USB 2.0 ports.** These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others. **Two empty 5.25-inch drive bays.** These bays are for 5.25-inch IDE/SATA optical drives.
2. **Microphone port.** This Mic (pink) port connects a microphone.
3. **Headphone port.** This Line In (lime) port connects a headphone with a stereo mini-plug.
4. **CompactFlash® / Microdrive™ card slot**
5. **Secure Digital™ / Multimedia Card slot**
6. **MemoryStick® / Memory Stick Pro™ card slot**

7. **Power button.** Press this button to turn the system on.
8. **Optical disk drive eject button.** Press this button to eject the optical disk drive tray.
9. **Optical disk drive bay.** There is an optical disk drive in this bay.
10. **Optical disk drive bay (empty).** Allows you to install an additional optical disk drive in this bay.

1.3 Rear panel

The system rear panel includes the power connector and several I/O ports that allow convenient connection of devices.



Do NOT cover the rear vent, and the ambient temperature is limited up to 35°C to prevent the system from overheating.

1. **Voltage selector.** This switch allows you to adjust the system input voltage according to the voltage supply in your area. See the section **Voltage selector** on page 1-8 before adjusting this switch.
2. **Power connector.** This connector is for the power cable and plug.
3. **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.
4. **USB 2.0 ports 1 ~ 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
5. **HDMI port.** This port is for a High-Definition Multimedia Interface (HDMI) connector, and is HDCP compliant allowing playback of HD DVD, Blu-Ray and other protected content.
6. **DVI-D Out port.** This port is for any DVI-D compatible device and is HDCP compliant allowing playback of HD DVD, Blu-Ray and other protected content.
7. **USB 3.0 ports 1 ~ 2.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 3.0/2.0 devices.



-
- Due to USB 3.0 controller limitation, USB 3.0 devices can only be used under Windows® OS environment and after the USB 3.0 driver installation.
 - USB 3.0 devices can only be used as data storage only.
 - We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance for your USB 3.0 devices.
-

8. **Side Speaker Out port (gray).** This port connects the side speakers in an 8-channel audio configuration.
9. **Rear Speaker Out port (black).** This port connects the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration.
10. **Center/Subwoofer port (orange).** This port connects the center/subwoofer speakers.
11. **Microphone port (pink).** This port connects a microphone.
12. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configurations, the function of this port becomes Front Speaker Out.
13. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.



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

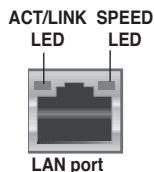
Audio 2, 4, 6, or 8-channel configuration

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 Out	Rear Speaker Out
Gray	–	–	–	Side Speaker Out

- Expansion slot covers.** Remove these covers when installing expansion cards.
- LAN (RJ-45) port.** This port allows gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

Activity/Link		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection



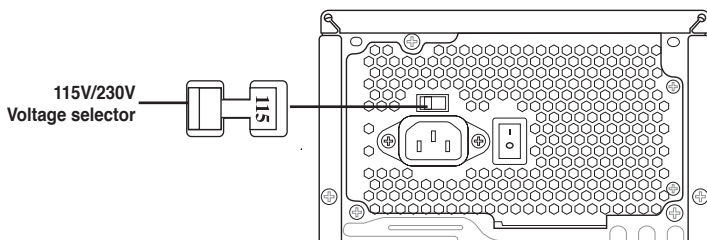
- Chassis fan vent.** This vent is for the fan that provides ventilation inside the system chassis.
- Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
- Optical S/PDIF Out port.** This port connects an external audio output device via an optical S/PDIF cable.
- Power Switch.** This switch is for switching on/off the power supply unit.
- Power supply unit fan vent.** This vent is for the PSU fan that provides ventilation inside the power supply unit.

Voltage selector

The PSU has a 115 V/230 V voltage selector switch located beside the power connector. Use this switch to select the appropriate system input voltage according to the voltage supply in your area.

If the voltage supply in your area is 100-127 V, set this switch to 115 V.

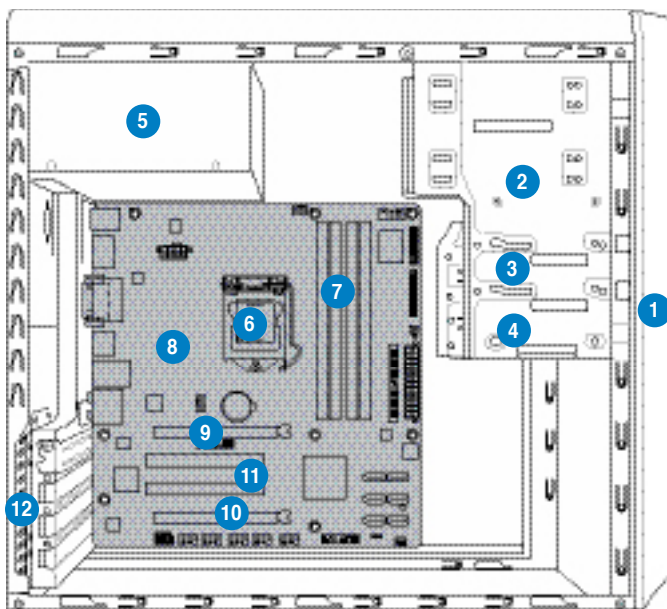
If the voltage supply in your area is 200-240 V, set this switch to 230 V.



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

1.4 Internal components

The illustration below is the internal view of the system when you remove the chassis cover and the power supply unit. The installed components are labeled for your reference.



- | | |
|---------------------------------|------------------------------------|
| 1. Front panel cover | 8. ASUS motherboard |
| 2. 5.25-inch optical drive bays | 9. PCI Express x16 slot (x16 mode) |
| 3. 3.5-inch drive bay | 10. PCI Express x16 slot (x4 mode) |
| 4. Hard disk drive bay | 11. PCI slots |
| 5. Power supply unit | 12. Metal bracket lock |
| 6. CPU socket | |
| 7. DIMM sockets | |



Refer to the bundled Quick Installation Guide for installing additional system components and get assistance from professionals when you disassemble or assemble the system.

1.5 Qualified Vendors Lists (QVL)

DDR3-1333 MHz capability

continued on the next page

DDR3-1333 MHz capability

DDR3-1066MHz capability



SS: Single-sided / DS: Double-sided

DIMM support:

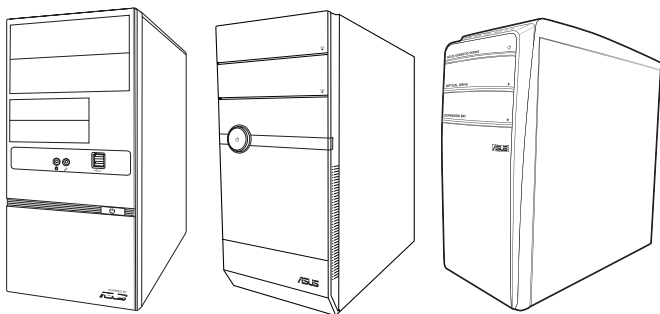
- **A***: one (1) module inserted into any slot as single-channel memory configuration. We suggest that you install the module into A2 slot.
 - **B***: two (2) modules inserted into either the blue slots or the black slots as one pair of dual-channel memory configuration. We suggest that you install the modules into slots A2 and B2 for better compatibility.
 - **C***: four (4) modules inserted into both the blue slots and the black slots as two pairs of dual-channel memory configuration.
-



Visit the ASUS website at www.asus.com for the latest QVLs.

Chapter 2

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



Starting up

2.1 Installing an operating system

The barebone system supports Windows® XP/Vista/7 operating systems (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.



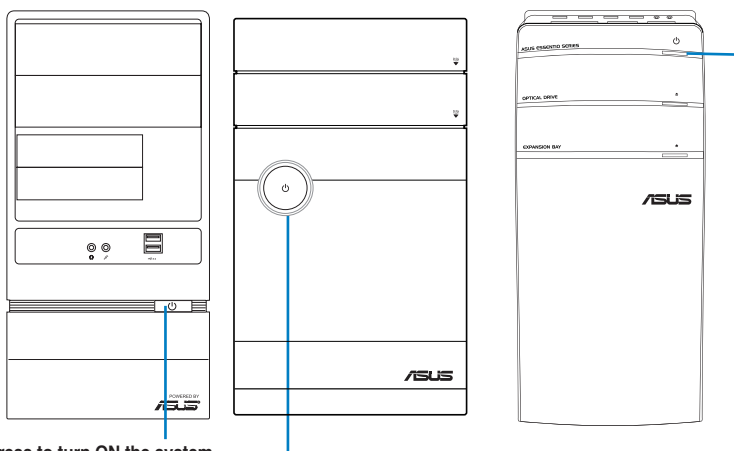
Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for general reference only. Refer to your OS documentation for more information.



- Windows XP OS setup cannot recognize Serial ATA hard drives in a RAID set without the necessary drivers. Use a RAID driver disk when installing Windows XP OS to a Serial ATA hard drive included in a RAID set.
- From the Windows XP setup screen, press F6 when prompted then follow succeeding screen instructions to install the SATA drivers.

2.2 Powering up

Press the system power button (⏻) to enter the OS.



2.3 Support DVD information

The support DVD that came with the system contains useful software and several utility drivers that enhance the system features.



- Screen display and driver options may not be the same for different operating system versions.
- The contents of the support DVD 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 DVD

To begin using the support DVD, place the DVD in your optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.



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

ASUS InstAll

Launches the ASUS InstAll driver installation wizard.

Intel Chipset Driver

Installs the Intel Chipset driver.

Realtek Audio Driver

Installs the Realtek audio driver and application.

Intel Graphics Accelerator Driver

Installs the Intel® Graphics Accelerator Driver.

Realtek LAN Driver

Installs the Realtek® LAN driver.

Browser Configuration Utility

Installs the Browser Configuration Utility.

Management Engine Interface

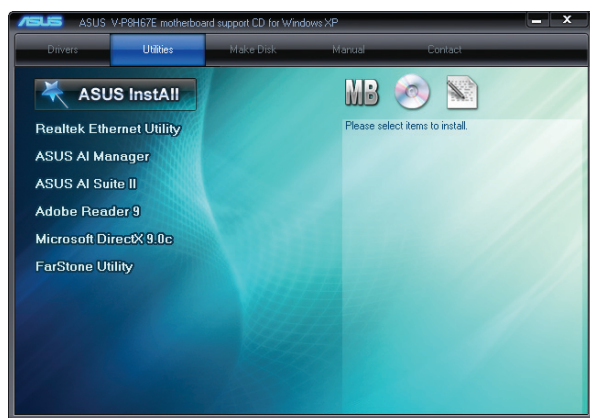
Installs the Management Engine Interface.

USB 3.0 Driver

Installs the USB 3.0 driver.

2.3.2 Utilities menu

The Utilities menu shows the applications that the motherboard supports.



ASUS InstAll

Installs all the utilities through the Installation Wizard.

Realtek Ethernet Utility

Installs the Realtek Ethernet Utility.

ASUS AI Manager

Installs ASUS AI Manager.

ASUS AI Suite II

Installs the ASUS AI Suite II.

Adobe Reader 9

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

Microsoft DirectX 9.0c

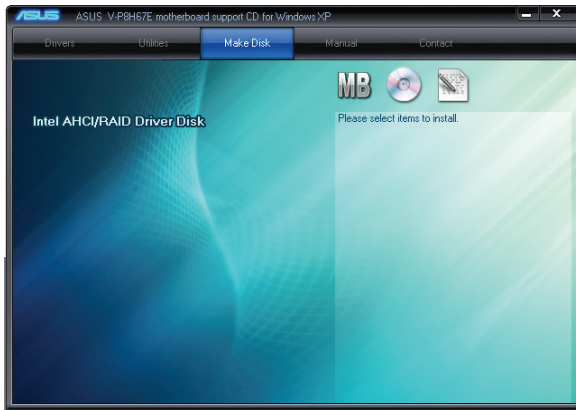
Installs the Microsoft® DirectX 9.0c.

FarStone Utility

Installs the FarStone Utility.

2.3.3 Make Disk menu

The Make disk menu allows you to make a AHCI driver disk.



2.3.4 Manual menu

The Manual menu contains the list of supplementary user manuals. Click an item to open the folder of the user manual.

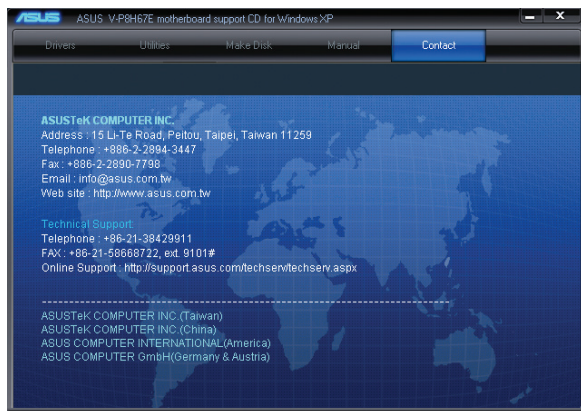


Most user manuals are in Portable Document Format (PDF). Install the Adobe® Reader from the Utilities menu before opening a user manual.



2.3.5 ASUS Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.

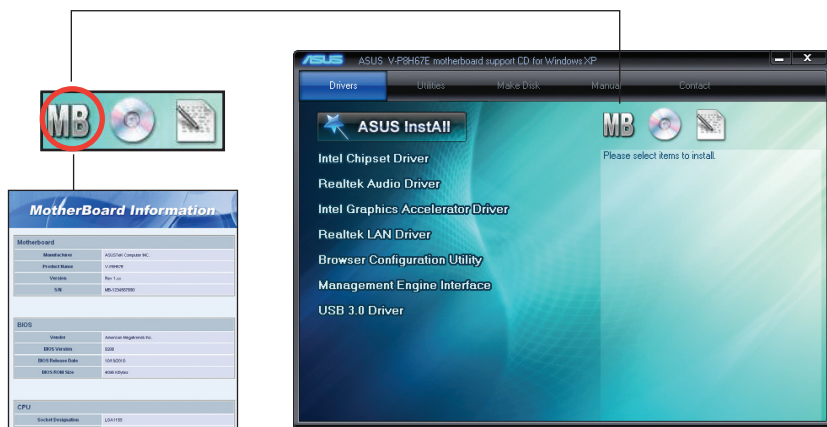


2.3.6 Other information

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

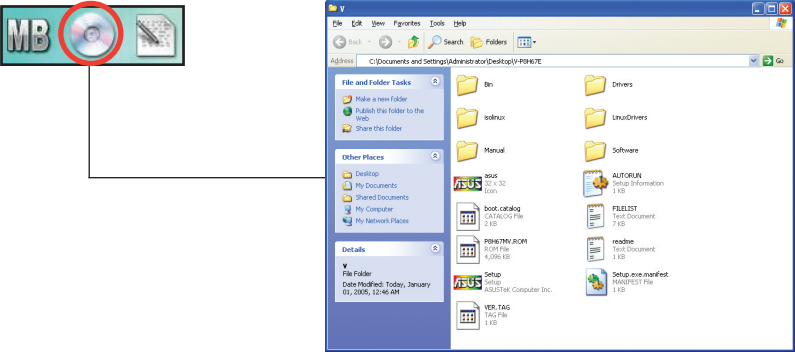
Motherboard Info

Displays the general specifications of the motherboard.



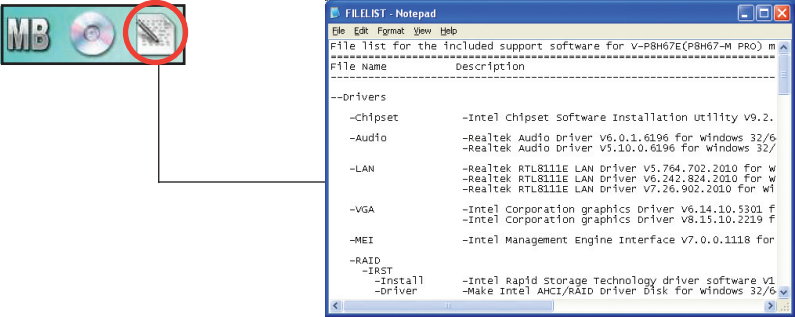
Browse this DVD

Displays the support DVD contents in graphical format.



Filelist

Displays the contents of the support DVD and a brief description of each in text format.



2.4 Software information

Most of the applications in the support DVD have wizards that will conveniently guide you through the installation. View the online help or readme file that came with the software for more information.

2.4.1 AI Suite II

ASUS AI Suite II is an all-in-one interface that integrates several ASUS utilities and allows users to launch and operate these utilities simultaneously.

Installing AI Suite II

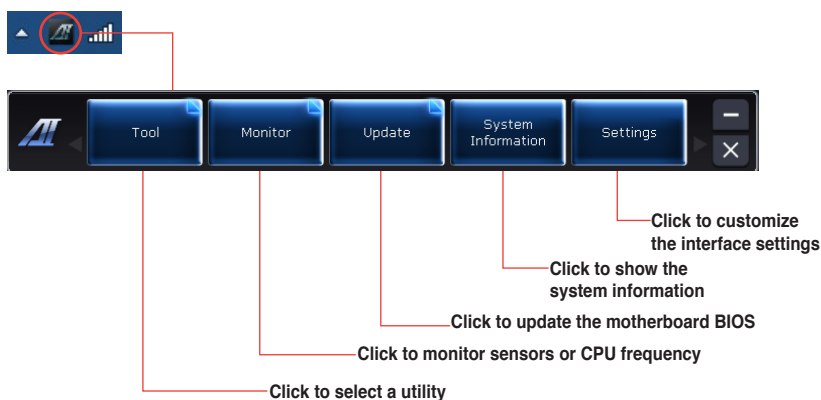
To install AI Suite II:

1. Place the support DVD in the optical drive. The Drivers installation tab appears if your computer has enabled the Autorun feature.
2. Click the **Utilities** tab, then click **ASUS AI Suite II**.
3. Follow the onscreen instructions to complete the installation.

Using AI Suite II

AI Suite II automatically starts when you enter the Windows® operating system (OS). The AI Suite II icon appears in the Windows® notification area. Click the icon to open the AI Suite II main menu bar.

Click each button to select and launch a utility, to monitor the system, to update the motherboard BIOS, to display the system information, and to customize the settings of AI Suite II.



EPU

EPU is an energy-efficient tool that satisfies different computing needs. This utility provides several modes that you can select to save system power. Selecting Auto mode will have the system shift modes automatically according to current system status. You can also customize each mode by configuring settings like CPU frequency, GPU frequency, vCore Voltage, and Fan Control.

Launching EPU

After installing AI Suite II from the support DVD, launch EPU by clicking **Tool > EPU** on the AI Suite II main menu bar.

The screenshot shows the ASUS EPU Control Panel. On the left, there are three mode buttons: 'Auto' (selected), 'High performance', and 'Max. power saving'. The main area displays a central pentagon with five points labeled 'Tranquility', 'Performance', 'Convenience', 'Reliability', and 'Energy Saved'. Below this is a 'Configurations' button. On the right, the 'EPU Status' window is open, showing 'Mode: Auto:Max. power saving', a list of components (CPU, HDD, RAM, Chipset, Memory, VGA) with icons, and CO2 emission statistics. At the bottom of the main panel are buttons for 'Tool', 'Monitor', 'Update', 'System Information', and 'Settings'. A 'Warning' dialog box is also shown at the top right.

Warning
No VGA detected. Please install a compatible VGA card in order to enable the EPU's functionality. For the list of compatible VGA cards, refer to: http://www.asus.com/motherboards_engage/
OK

Displays the following message if no VGA power saving engine is detected.

Displays current mode

The items lighting up means power saving engine is activated

Displays the amount of CO2 reduced

***Shifts between the display of Total and Current CO2 reduced**

Displays the current CPU power

Advanced settings for each mode

Displays the system properties of each mode

Multiple system operating modes



- * Select **From EPU Installation** to show the CO2 that has been reduced since you installed EPU.
- * Select **From the Last Reset** to show the total CO2 that has been reduced since you click the Clear button .

Probe II

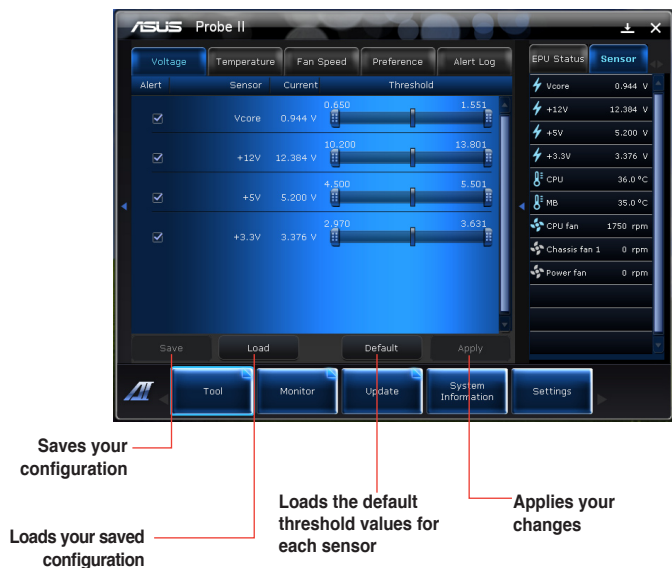
Probe II is a utility that monitors the computer's vital components, and detects and alerts you of any problem with these components. Probe II senses fan rotations, CPU temperature, and system voltages, among others. With this utility, you are assured that your computer is always at a healthy operating condition.

Launching Probe II

After installing AI Suite II from the support DVD, launch Probe II by clicking **Tool > Probe II** on the AI Suite II main menu bar.

Configuring Probe II

Click the **Voltage/Temperature/Fan Speed** tabs to activate the sensors or to adjust the sensor threshold values. The **Preference** tab allows you to customize the time interval of sensor alerts, or change the temperature unit.



Sensor Recorder

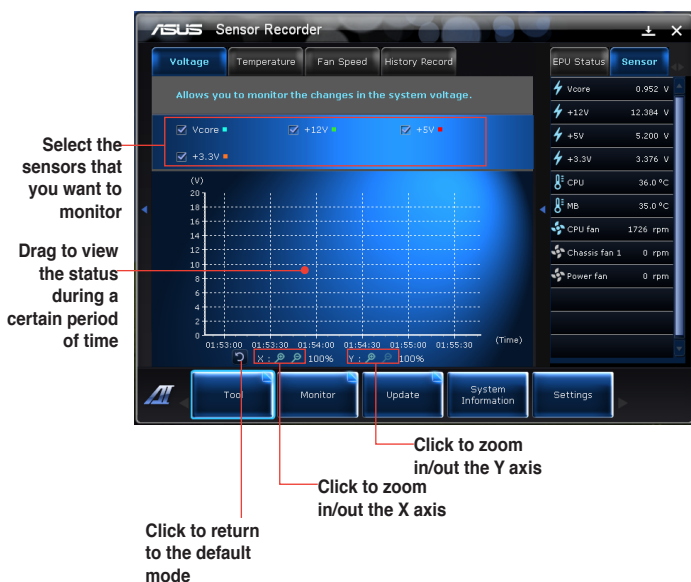
Sensor Recorder allows you to monitor the changes in the system voltage, temperature, and fan speed, as well as recording the changes.

Launching Sensor Recorder

After installing AI Suite II from the support DVD, click **Tool > Sensor Recorder** on the AI Suite II main menu bar to launch PC Probe .

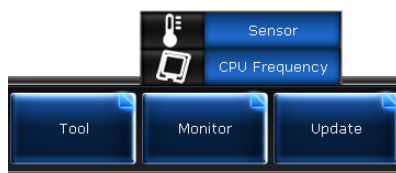
Configuring Sensor Recorder

Click the **Voltage/Temperature/Fan Speed** tabs and select the sensors that you want to monitor. The **History Record** tab allows you to record the changes in the sensors that you enable.



Monitor

The Monitor section includes the Sensor and CPU Frequency panels.



Sensor

The Sensor panel displays the current value of a system sensor such as fan rotation, CPU temperature, and voltages. Click **Monitor > Sensor** on the AI Suite II main menu bar to launch the Sensor panel.

CPU Frequency

The CPU Frequency panel displays the current CPU frequency and CPU usage. Click **Monitor > CPU Frequency** on the AI Suite II main menu bar to open the CPU Frequency panel.

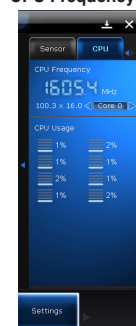
Resident in the right pane (system information area)



Sensor panel



CPU Frequency panel



Update

The Update section allows you to update the motherboard BIOS and the BIOS boot logo with the ASUS designed update utilities.

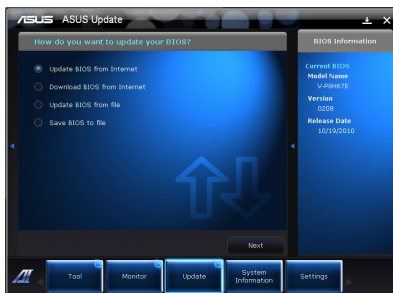
ASUS Update

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® OS. The ASUS Update utility allows you to **update the BIOS directly** from the Internet, **download the latest BIOS file from the Internet**, **update the BIOS from an updated BIOS file**, save the current BIOS file or view the BIOS version information.

Updating the BIOS through the Internet

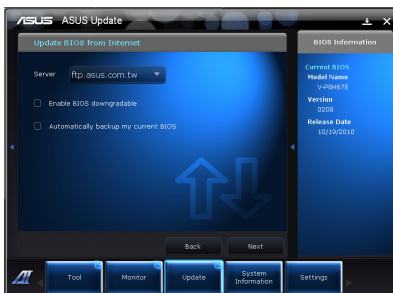
To update the BIOS through the Internet:

1. From the ASUS Update screen, select **Update BIOS from Internet**, and then click **Next**.



2. Select the ASUS FTP site nearest you to avoid network traffic.

If you want to enable the BIOS downgradable function and auto BIOS backup function, check the checkboxes before the two items on the screen.



3. Select the BIOS version that you want to download. Click **Next**.

When there is not updated version detected, it is shown as the screen on the right side.



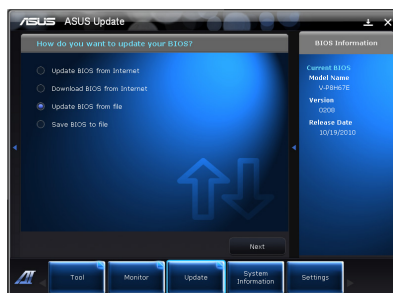
4. You can decide whether to change the BIOS boot logo, which is the image appearing on screen during the Power-On Self-Tests (POST). Click **Yes** if you want to change the boot logo or **No** to continue.
5. Follow the onscreen instructions to



Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

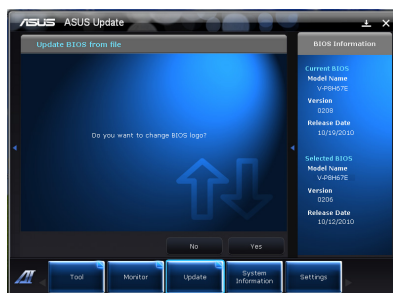
1. From the ASUS Update screen, select **Update BIOS from file**, and then click **Next**.



2. Locate the BIOS file from the Open window, click **Open**, and click **Next**.



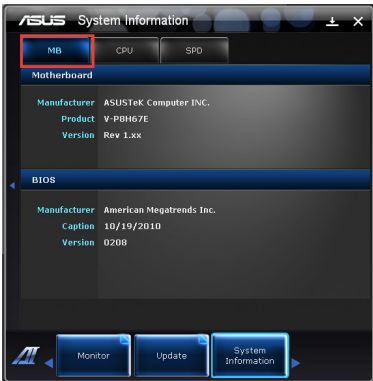
3. You can decide whether to change the BIOS boot logo. Click **Yes** if you want to change the boot logo or **No** to continue.
4. Follow the onscreen instructions to complete the update process.



System Information

The System Information section displays the information about the motherboard, CPU, and memory slots.

- Click the **MB** tab to see the details on the motherboard manufacturer, product name, version, and BIOS.



- Click the **CPU** tab to see the details on the processor and the Cache.

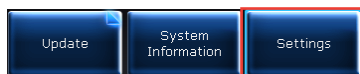


- Click the **SPD** tab and then select the memory slot to see the details on the memory module installed on the corresponding slot.

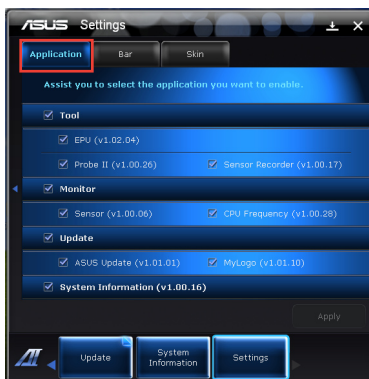


Settings

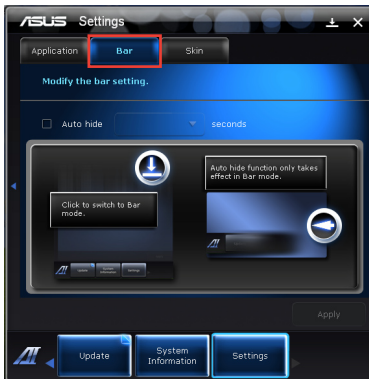
The Settings section allows you to customize the main menu bar settings and the interface's skin.



- Application allows you to select the application that you want to enable.



- Bar allows you to modify the bar setting,



- Skin allows you to customize the interface's contrast, brightness, saturation, hue, and gamma.



2.4.2 ASUS AI Manager

ASUS AI Manager is a utility that gives you quick and easy access to frequently-used applications.

Installing AI Manager

To install AI Manager on your computer:

1. Place the support CD in the optical drive. If Autorun is enabled, the Drivers installation wizard appears.



If Autorun is not enabled in your computer, locate the setup.exe file from the ASUS AI Manager folder in the support CD. Double-click the setup.exe file to start installation.

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

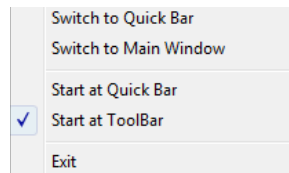
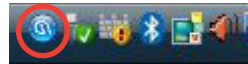
Launching AI Manager

To launch the AI Manager from the Windows® desktop, click **Start > All Programs > ASUS > AI Manager 1.xx.xx > AI Manager**. The AI Manager quick bar appears on the desktop.

After launching the application, the AI Manager icon appears in the Windows® taskbar.



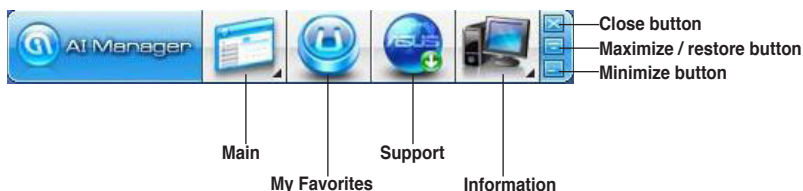
Right-click this icon to switch between quick bar and main window, and to launch the AI Manager either from the quick bar or taskbar.



AI Manager quick bar

The AI Manager quick bar saves the desktop space and allows you to launch the ASUS utilities or display system information easily. Click the **Main**, **My Favorites**, **Support** or **Information** tab to display the menu's contents.

Click the Maximize/restore button  to switch between full window and quick bar. Click the



Minimize button  to keep the AI Manager on the taskbar. Click the Close button  to quit the AI Manager.

Main

The Main menu contains five utilities: **AI Disk**, **AI Security**, and **AI Booting**. Click the arrow on the Main menu icon to browse through the utilities in the main menu.



Click to extend or restore _____

AI Disk

AI Disk allows you to easily clear temporary IE files, IE cookies, IE URLs, IE history, or the Recycle Bin. Click the AI Disk icon on the quick bar to display the full AI Disk window and select the items you want to clear. Click **Apply** when done.



AI Security

AI Security enables you to set a password to secure your devices, such as USB flash disks and CD/DVD disks, from unauthorized access.



To lock a device:

1. When using AI Security for the first time, you are asked to set a password. Enter a password with at most 20 alphanumeric characters.
2. Confirm the password.
3. Key in the password hint (recommended).
4. When done, click **Ok**.
5. Select the device you want to lock, then click **Apply**.
6. Key in the password you have set previously, then click **Ok**. The selected device is locked and not accessible.



To unlock the selected device:

1. Uncheck the checkbox of the selected device, then click **Apply**.
2. Key in the password you have set previously, then click **Ok**. The selected device is unlocked.

To change password:

Click **Change Password**, then follow the on-screen instructions to change password.

AI Booting

AI Booting allows you to specify the boot device priority sequence.

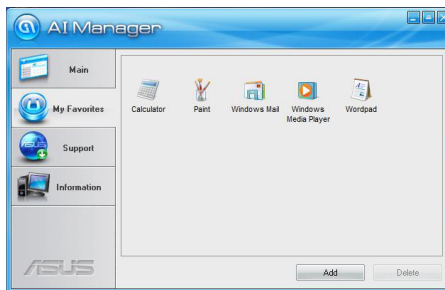


To specify the boot sequence:

1. Select a device, then click on the left/right button to specify the boot sequence.
2. When done, press **Apply**.

My Favorites

My Favorites allows you to add applications that you frequently use, saving you from searching for the applications throughout your computer.



To add an application:

1. Click **Add**, then locate the application you want to add to **My Favorites**.
2. Click **Open** on the file location window. The application is added to **My Favorites** list.

Right click on the application icon to launch, delete, or rename the selected application. You can also double click to launch the selected application.

Support

Click any links on the **Support** window to go to the ASUS website, technical support website, download support website, or contact information.



Information

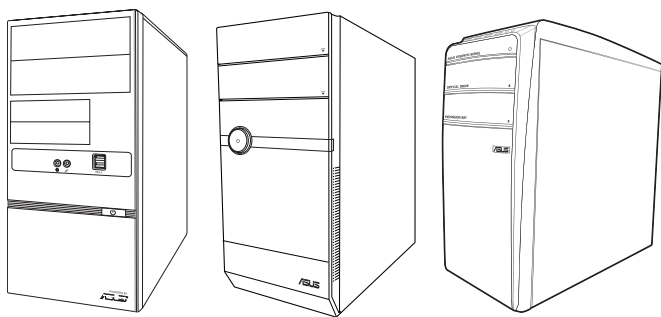
Click the tab on the **Information** window to see the detailed information about your system, motherboard, CPU, BIOS, installed devices, and memory.



[illegible]

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.

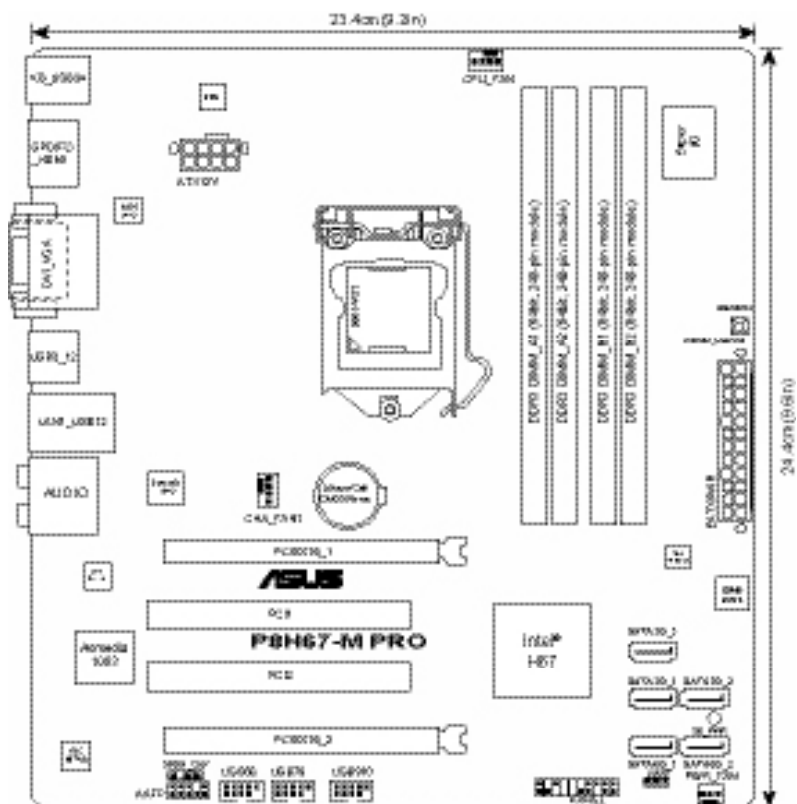


Motherboard info

3.1 Introduction

The Vintage V-series P8H67E 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 Jumper

Clear RTC RAM (3-pin CLRTC)

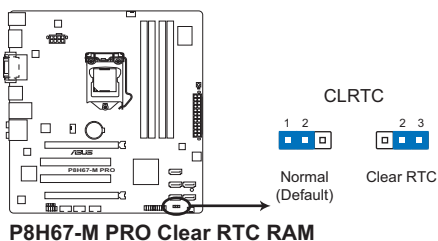
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

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.
4. Hold down the **** key during the boot process and enter BIOS setup to re-enter data.



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



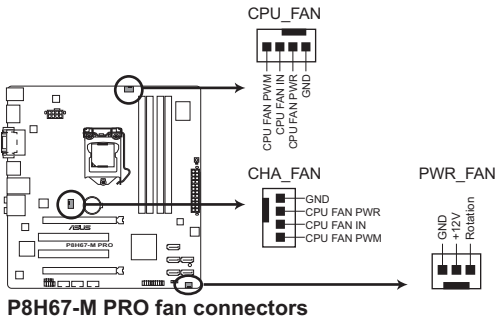
- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.
- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R.) feature. Shut down and reboot the system, then the BIOS automatically resets parameter settings to default values.

**3. CPU, chassis and power fan connectors
(4-pin CPU_FAN, 3-pin CHA_FAN, 3-pin PWR_FAN)**

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.



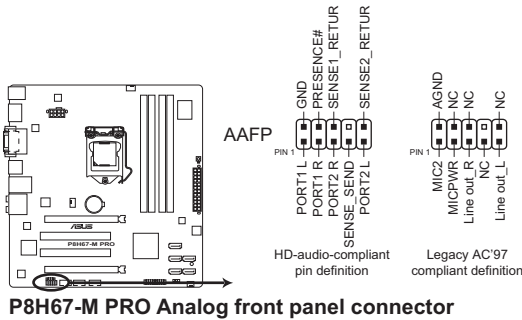
DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! **DO NOT** place jumper caps on the fan connectors!



Only the 4-pin CPU fan supports the ASUS Q-Fan2 feature.

4. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard.



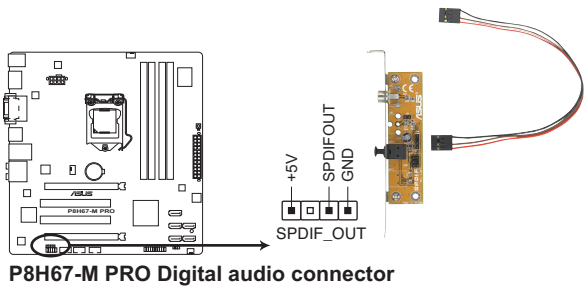
P8H67-M PRO Analog front panel connector



- 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.
- By default, this connector is set to HD Audio. If you want to connect a High Definition front panel audio module to this connector, set the HD Audio Controller item in the BIOS to [Enabled]. See section "4.4.6 Onboard Devices Configuration" for details.

5. Digital Audio connector (4-1 pin SPDIF_OUT)

This connector is for the S/PDIF audio module to allow digital sound output. Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module.



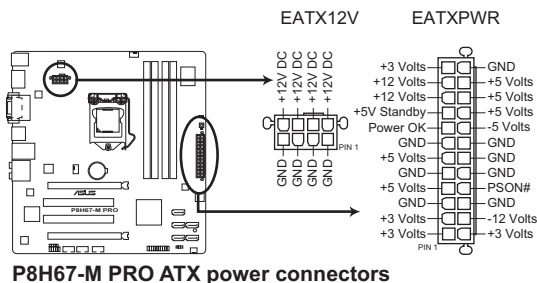
P8H67-M PRO Digital audio connector



The S/PDIF out module is purchased separately.

6. ATX power connectors (24-pin EATXPWR, 8-pin ATX12V)

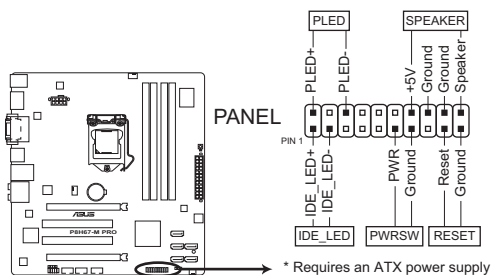
These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



- We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 300W power rating. This PSU type has 24-pin and 4-pin power plugs.
- If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15 A on +12 V and that the PSU has a minimum power rating of 300 W. The system may become unstable or may not boot up if the power is inadequate.
- **DO NOT** forget to connect the 4-pin ATX12V power plug; otherwise, the system will not boot.
- We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate.
- If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at <http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us> for details.

7. System panel connector (20-8 pin PANEL)

This connector supports several chassis-mounted functions.



P8H67-M PRO System panel connector

- **System power LED (2-pin PLED)**

This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin +IDE_LED)**

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker (4-pin SPEAKER)**

This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **ATX power button/soft-off button (2-pin PWRSW)**

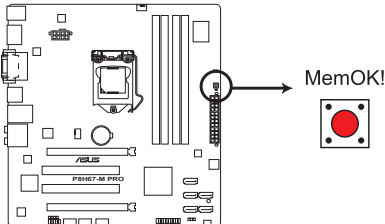
This connector is for the system power button.

- **Reset button (2-pin RESET)**

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

3.4 MemOK! Switch

Installing DIMMs that are incompatible with the motherboard may cause system boot failure, and the DRAM_LED near the MemOK! switch lights continuously. Press and hold the MemOK! switch until the DRAM_LED starts blinking to begin automatic memory compatibility tuning for successful boot.



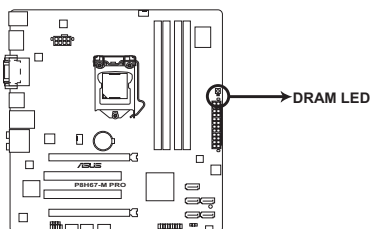
P8H67-M PRO MemOK! Switch



- Refer to section **3.5 DRAM LED** for the exact location of the DRAM_LED.
- The DRAM_LED also lights when the DIMM is not properly installed. Turn off the system and reinstall the DIMM before using the MemOK! function.
- The MemOK! switch does not function under Windows® OS environment.
- During the tuning process, the system loads and tests failsafe memory settings. It takes about 30 seconds for the system to test one set of failsafe settings. If the test fails, the system reboots and test the next set of failsafe settings. The blinking speed of the DRAM_LED increases, indicating different test processes.
- Due to memory tuning requirement, the system automatically reboots when each timing set is tested. If the installed DIMMs still fail to boot after the whole tuning process, the DRAM_LED lights continuously. Replace the DIMMs with ones recommended in the Memory QVL (Qualified Vendors Lists) in this user manual or on the ASUS website at www.asus.com.
- If you turn off the computer and replace DIMMs during the tuning process, the system continues memory tuning after turning on the computer. To stop memory tuning, turn off the computer and unplug the power cord for about 5–10 seconds.
- If your system fail to boot due to BIOS overlocking, press the MemOK! switch to boot and load BIOS default settings. A message will appear during POST reminding you that the BIOS has been restored to its default settings.
- We recommend that you download and update to the latest BIOS version from the ASUS website at www.asus.com after using the MemOK! function.

3.5 DRAM LED

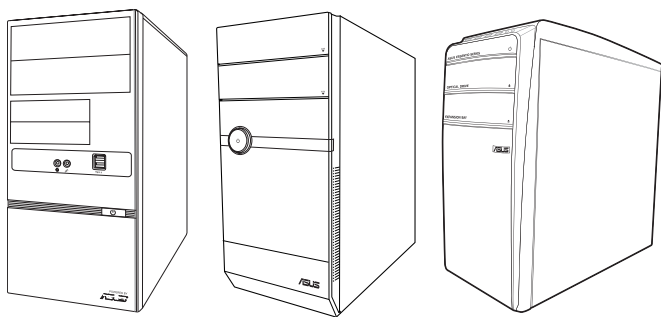
DRAM LED checks the DRAM in sequence during motherboard booting process. If an error is found , the LED next to the error device will continue lighting until the problem is solved. This user-friendly design provides an intuitional way to locate the root problem within a second.



P8H67-M PRO DRAM LED

Chapter 4

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



BIOS setup

4.1 Managing and updating your BIOS

BIOS (Basic Input and Output System) stores system settings such as storage device configuration, overclocking settings, advanced power management, and boot device configuration that are needed for system startup in the motherboard CMOS. In normal circumstances, the default BIOS settings apply to most conditions to ensure optimum performance. DO NOT change the default BIOS settings except in the following circumstances:

- An error message appears on the screen during the system startup and requests you to run the BIOS setup.
- You have installed a new system component that requires further BIOS settings or update.



-
- Inappropriate BIOS settings may result to system instability or boot failure. We strongly recommend that you change the BIOS settings with the help of a trained service personnel.
 - BIOS updating is potentially risky. If there is no problem in using the current BIOS version, DO NOT manually update the BIOS. Inappropriate BIOS updating may result to system boot failure.
-



-
- Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.
 - Download the latest BIOS file from the ASUS website at www.asus.com.
-

4.1.1 ASUS Update utility

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



- ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).
- This utility is available in the support DVD that comes with the motherboard package.

Installing ASUS Update

To install ASUS Update:

1. Place the support DVD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **ASUS Update**.
3. Follow the onscreen instructions to complete the installation.



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

Updating the BIOS

To update the BIOS:

1. From the Windows® desktop, click **Start > Programs > ASUS > AI Suite II > AI Suite II X.XX.XX** to launch the AI Suite II utility. The AI Suite II Quick Bar appears.
2. Click **Update** button from the Quick Bar, and then click **ASUS Update** from the popup menu. The **ASUS Update** main screen appears. From the list, select either of the following methods:
 - Updating from the Internet*
 - a. Select **Update BIOS from the Internet**, then click **Next**.
 - b. Select the ASUS FTP site nearest you to avoid network traffic, then click **Next**.
 - c. From the FTP site, select the BIOS version that you wish to download then click



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

Updating from a BIOS file

- a. Select **Update BIOS from file**, then click **Next**.
 - b. Locate the BIOS file from the **Open** window, then click **Open**.
3. Follow the onscreen instructions to complete the updating process.

4.1.2 ASUS EZ Flash 2

The ASUS EZ Flash 2 feature allows you to update the BIOS without using an OS-based utility.

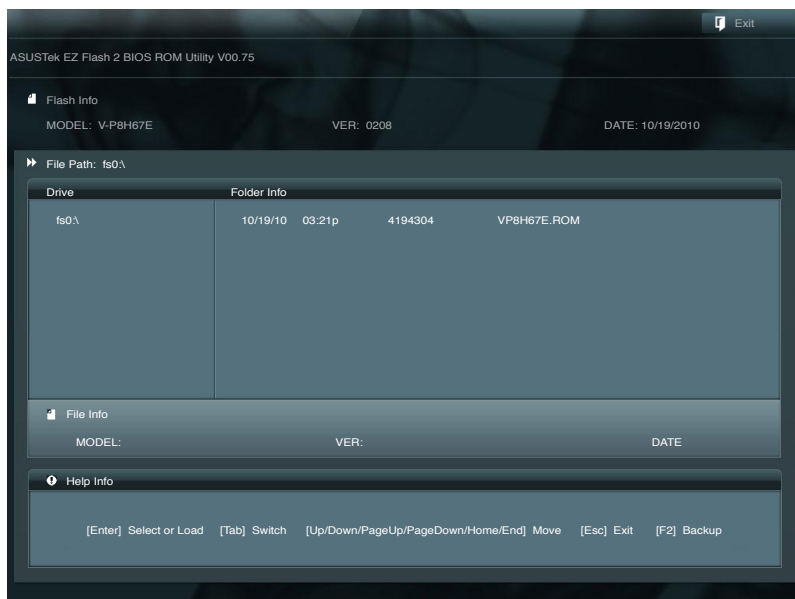


Before you start using this utility, download the latest BIOS file from the ASUS website at www.asus.com.

To update the BIOS using EZ Flash 2:

1. Insert the USB flash disk that contains the latest BIOS file to the USB port, then launch EZ Flash 2 in any of these two ways:
 - Press **<Alt> + <F2>** during POST.
 - Enter the BIOS setup. Go to the **Tools** menu, select **EZ Flash 2**, and press **<Enter>** to enable it.

Press **<Tab>** to switch between drives until the correct BIOS file is found.



2. 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 USB flash 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!

4.1.3 ASUS CrashFree BIOS 3

The ASUS CrashFree BIOS 3 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 DVD or a USB flash disk that contains the updated BIOS file.



-
- Before using this utility, rename the BIOS file in the removable device into **VP8H67E.ROM**.
 - The BIOS file in the support DVD may not be the latest version. Download the latest BIOS file from the ASUS website at www.asus.com.
 - The removable devices that ASUS CrashFree BIOS support vary with motherboard models. For motherboards without the floppy connector, prepare a USB flash disk before using this utility.
-

Recovering the BIOS

To recover the BIOS:

1. Turn on the system.
2. Insert the support DVD or USB flash disk with the BIOS file to the optical drive or USB port.
3. The utility automatically checks the devices for the BIOS file. When the BIOS file is found, the utility reads and starts flashing the corrupt BIOS file.
4. Turn off the system after the utility completes the updating process and turn it on again.



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



Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu. Refer to section **4.8 Exit menu** for details.

4.1.4 ASUS BIOS Updater

The ASUS BIOS Updater allows you to update BIOS in DOS environment. This utility also allows you to copy the current BIOS file that you can use as a backup when the BIOS fails or gets corrupted during the updating process.



The succeeding utility screens are for reference only. The actual utility screen displays may not be same as shown.

Before updating BIOS

1. Prepare the motherboard support DVD and a USB flash drive in FAT32/16 format and single partition.
2. Download the latest BIOS file and BIOS Updater from the ASUS website at <http://support.asus.com> and save them on the USB flash drive.

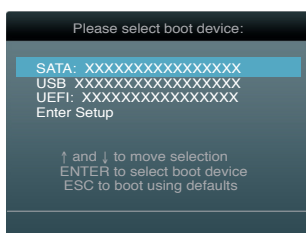


- NTFS is not supported under DOS environment. Do not save the BIOS file and BIOS Updater to a hard disk drive or USB flash drive in NTFS format.
- Do not save the BIOS file to a floppy disk due to low disk capacity.

3. Turn off the computer and disconnect all SATA hard disk drives (optional).

Bootting the system in DOS environment

1. Insert the USB flash drive with the latest BIOS file and BIOS Updater to the USB port.
2. Boot your computer. When the ASUS Logo appears, press <F8> to show the **BIOS Boot Device Select Menu**. Insert the support DVD into the optical drive and select the optical drive as the boot device.



3. When the **Make Disk** menu appears, select the **FreeDOS command prompt** item by pressing the item number.
4. At the FreeDOS prompt, type `d:` and press <Enter> to switch the disk from Drive C (optical drive) to Drive D (USB flash drive).

```
Welcome to FreeDOS (http://www.freedos.org)!
C:\>d:
D:\>
```

Backing up the current BIOS

To backup the current BIOS file using the BIOS Updater



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

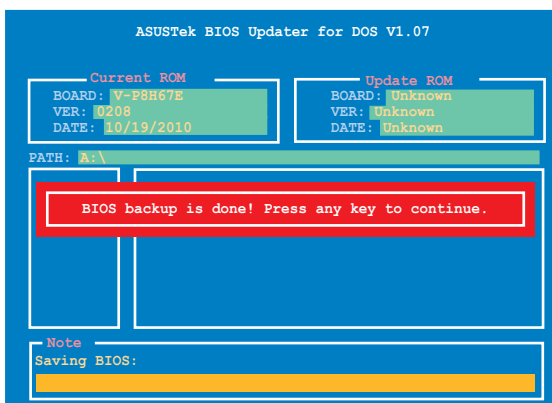
1. At the FreeDOS prompt, type **bupdater /o [filename]** and press <Enter>.

```
D:\>bupdater /oOLDBIOS1.rom
```

Filename Extension

The [filename] is any user-assigned filename with no more than eight alphanumeric characters for the filename and three alphanumeric characters for the extension.

2. The BIOS Updater backup screen appears indicating the BIOS backup process. When BIOS backup is done, press any key to return to the DOS prompt.



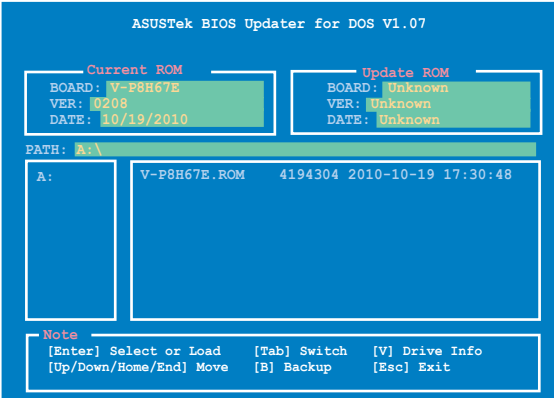
Updating the BIOS file

To update the BIOS file using BIOS Updater

1. At the FreeDOS prompt, type `bupdater /pc /g` and press <Enter>.

```
D:\>bupdater /pc /g
```

2. The BIOS Updater screen appears as below.



ASUSTek BIOS Updater for DOS V1.07

Current ROM	Update ROM
BOARD: V-P8H67E	BOARD: Unknown
VER: 0208	VER: Unknown
DATE: 10/19/2010	DATE: Unknown

PATH: A:\

A:	V-P8H67E.ROM	4194304	2010-10-19	17:30:48

Note

[Enter] Select or Load	[Tab] Switch	[V] Drive Info
[Up/Down/Home/End] Move	[B] Backup	[Esc] Exit

3. Press <Tab> to switch between screen fields and use the <Up/Down/Home/End> keys to select the BIOS file and press <Enter>. BIOS Updater checks the selected BIOS file and prompts you to confirm BIOS update.



Are you sure to update BIOS?

Yes No

4. Select Yes and press <Enter>. When BIOS update is done, press <ESC> to exit BIOS Updater. Restart your computer.



DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!



- For BIOS Updater version 1.04 or later, the utility automatically exits to the DOS prompt after updating BIOS.
- Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu. Refer to section 4.8 **Exit menu** for details.
- Ensure to connect all SATA hard disk drives after updating the BIOS file if you have disconnected them.

4.2 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

- Press **<Delete>** during the Power-On Self-Test (POST). If you do not press **<Delete>**, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST, do any of the following:

- Press **<Ctrl> + <Alt> + <Delete>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then turn it back on. Do this option only if you failed to enter BIOS Setup using the first two options.



Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+** 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 BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
 - Ensure that a USB mouse is connected to your motherboard if you want to use the mouse to control the BIOS setup program.
 - 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 Default Settings** item under the Exit Menu. See section **4.8 Exit Menu**.
 - If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. Refer to section **3.4 MemOK! Switch** on how to erase the RTC RAM.
 - The BIOS setup program does not support the bluetooth devices.
-

BIOS menu screen

The BIOS setup program can be used under two modes: EZ Mode and Advanced Mode. You can change modes from the Exit menu or from the Exit/Advanced Mode button in the EZ Mode/Advanced Mode screen.

EZ Mode

By default, the EZ Mode screen appears when you enter the BIOS setup program. The EZ Mode provides you an overview of the basic system information, and allows you to select the display language, system performance mode and boot device priority. To access the Advanced Mode, click Exit/Advanced Mode, then select Advanced Mode.



The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item in **section 4.6 Boot menu** for details.

The screenshot shows the ASUS EFI BIOS Utility - EZ Mode interface. Red lines and boxes highlight specific features with the following annotations:

- Exit/Advanced Mode**: Exits the BIOS setup program without saving the changes, saves the changes and resets the system, or enters the Advanced Mode.
- Language Selection**: Selects the display language of the BIOS setup program (currently set to English).
- System Information**: Displays the CPU/motherboard temperature, CPU/5V/3.3V/12V voltage output, CPU/chassis/power fan speed, and system properties (V-PBH67E, BIOS Version: 0208, CPU Type: Genuine Intel(R) CPU 0 @ 3.10GHz, Total Memory: 1024 MB (DDR3 1333MHz), Build Date: 10/19/2010, Speed: 3100 MHz).
- Temperature**: Shows CPU temperature at +113.0°F/+45.0°C and MB temperature at +75.2°F/+40.0°C.
- Voltage**: Shows CPU voltage at 1.248V, 5V at 5.160V, 3.3V at 3.344V, and 12V at 12.248V.
- Fan Speed**: Shows CPU_FAN at 4485RPM, PWR_FAN at N/A, and CHA_FAN1 at N/A.
- System Performance**: Includes a box for selecting between Quiet, Performance, and Energy Saving modes.
- Power Saving mode**: A section with three gauges for Normal, Normal mode, and ASUS Optimal mode.
- Boot Priority**: A section with a box for selecting boot device priority (Hard Drive and CD/DVD Drive icons).
- Boot Menu(F8)**: Selects the boot device priority.
- Default(F5)**: Loads optimized default.



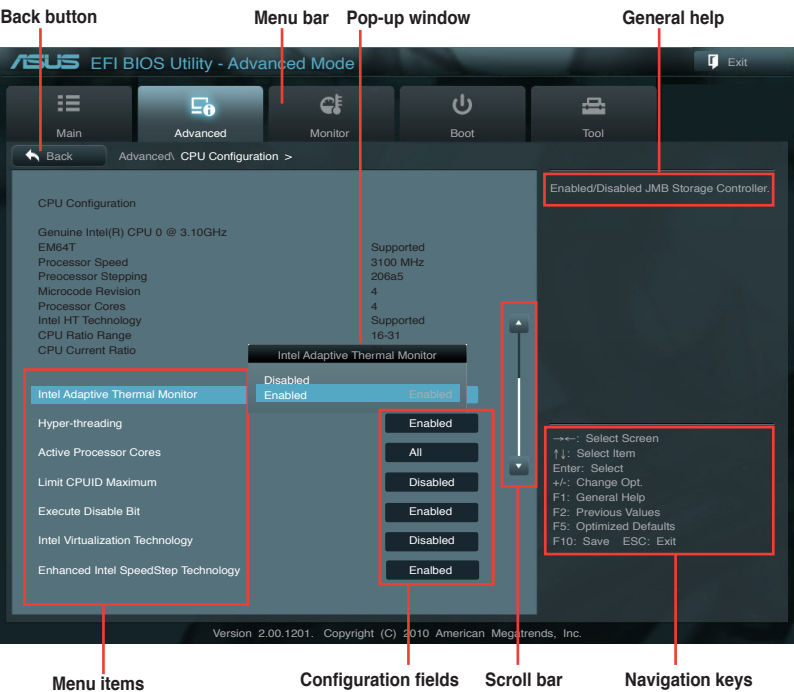
- The boot device options vary depending on the devices you installed to the system.
- The **Boot Menu(F8)** button is available only when the boot device is installed to the system.

Advanced Mode

The Advanced Mode provides advanced options for experienced end-users to configure the BIOS settings. The figure below shows an example of the Advanced Mode. Refer to the following sections for the detailed configurations.



To access the EZ Mode, click **Exit**, then select **ASUS EZ Mode**.



Menu bar

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

Main	For changing the basic system configuration
Ai Tweaker	For changing the overclocking settings
Advanced	For changing the advanced system settings
Monitor	For displaying the system temperature, power status, and changing the fan settings
Boot	For changing the system boot configuration
Tool	For configuring options for special functions
Exit	For selecting the exit options and loading default settings

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 (Ai Tweaker, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

Back button

This button appears when entering a submenu. Press <Esc> or use the USB mouse to click this button to return to the previous menu screen.

Submenu items

A greater than sign (>) before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter> or double-click the item.

Pop-up window

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

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.

Navigation keys

At the bottom right corner of the menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

General help

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

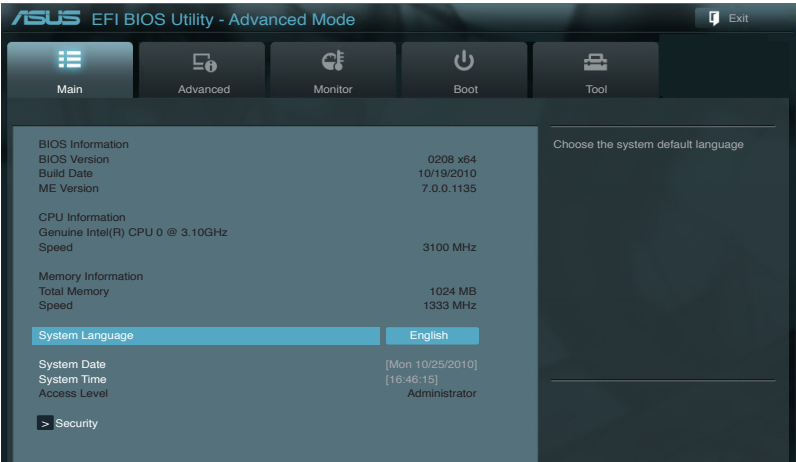
Configuration fields

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 highlighted when selected. To change the value of a field, select it and press <Enter> or click on it to display a list of options.

4.3 Main menu

The Main menu screen appears when you enter the Advanced Mode of the BIOS Setup program. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.



4.3.1 System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English] [Français] [Deutsch] [简体中文] [繁體中文] [日本語]

4.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

4.3.3 System Time [xx:xx:xx]

Allows you to set the system time.

4.3.4 Security

The Security menu items allow you to change the system security settings.



- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section 3.3 Jumpers for information on how to erase the RTC RAM.
- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. 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 **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

4.4 Advanced menu

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



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



4.4.1 CPU Configuration

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



The items shown in submenu may be different due to the CPU you installed.

CPU Ratio [Auto]

Allows you to set the ratio between the CPU Core Clock and the BCLK Frequency. Use <+> and <-> keys or the numeric keypad to adjust the ratio. The valid value ranges vary according to your CPU model.

Intel Adaptive Thermal Monitor [Enabled]

- | | |
|------------|--|
| [Enabled] | Enables the overheated CPU to throttle its clock speed to cool down. |
| [Disabled] | Disables the CPU thermal monitor function. |

Hyper-threading [Enabled]

The Intel Hyper-Threading Technology allows a hyper-threading processor to appear as two logical processors to the operating system, allowing the operating system to schedule two threads or processes simultaneously.

[Enabled] Two threads per activated core are enabled.

[Disabled] Only one thread per activated core is enabled.

Active Processor Cores [All]

Allows you to choose the number of CPU cores to activate in each processor package.

Configuration options: [All] [1] [2] [3]

Limit CPUID Maximum [Disabled]

[Enabled] Allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

[Disabled] Disables this function.

Execute Disable Bit [Enabled]

[Enabled] Enables the No-Execution Page Protection Technology.

[Disabled] Forces the XD feature flag to always return to zero (0).

Intel(R) Virtualization Technology [Disabled]

[Enabled] Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

[Disabled] Disables this function.

Enhanced Intel SpeedStep Technology [Enabled]

Allows you to enable or disable the Enhanced Intel® SpeedStep Technology (EIST).

[Disabled] The CPU runs at its default speed.

[Enabled] The operating system controls the CPU speed.

Turbo Mode [Enabled]

This item appears only when you set the **EIST** item to [Enabled] and allows you to enable or disable the Intel® Turbo Mode Technology.

[Enabled] Allows processor cores to run faster than marked frequency in specific condition.

[Disabled] Disables this function.

CPU C1E [Enabled]

[Enabled] Enables the C1E support function. This item should be enabled in order to enable the Enhanced Halt State.

[Disabled] Disables this function.

CPU C3 Report [Disabled]

Allows you to disable or enable the CPU C3 report to OS.
Configuration options: [Disabled] [ACPI C-2] [ACPI C-3]

CPU C6 Report [Enabled]

Allows you to disable or enable the CPU C6 report to OS.
Configuration options: [Enabled] [Disabled]

4.4.2 System Agent Configuration

The System Agent Configuration menu allows you to change the System Agent settings.

Initiate Graphic Adapter [PEG/PCI]

Allows you to decide which graphics controller to use as the primary boot device.
Configuration options: [PCI/PEG] [PEG/PCI]

iGPU Memory [64M]

Allows you to set the Internal Graphics Device share memory size.
Configuration options: [32M] [64M] [96M] [128M]

Render Standby [Enabled]

Allows you to enable or disable Render Standby by Internal Graphics Device.
Configuration options: [Disabled] [Enabled]

iGPU Multi-Monitor [Disabled]

Allows you enable or disable Internal Graphics Device Multi-Monitor Support for add-on VGA devices. Configuration options: [Enabled] [Disabled]

4.4.3 PCH Configuration

The South Bridge menu allows you to change the PCH settings.

High Precision Timer [Enabled]

Allows you to enable or disable the High Precision Event Timer.
Configuration options: [Enabled] [Disabled]

4.4.4 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

SATA Mode [IDE Mode]

Allows you to set the SATA configuration.

- | | |
|-------------|---|
| [Disabled] | Disables the SATA function. |
| [IDE Mode] | Set to [IDE Mode] when you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices. |
| [AHCI Mode] | Set to [AHCI Mode] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands. |
| [RAID Mode] | Set to [RAID Mode] when you want to create a RAID configuration from the SATA hard disk drives. |

Serial-ATA Controller 0 [Enhanced]

Allows you to enable or disable the SATA Controller 0. Configuration options: [Disabled] [Enhanced] [Compatible]

Serial-ATA Controller 1 [Enhanced]

Allows you to enable or disable the SATA Controller 1. Configuration options: [Disabled] [Enhanced]

S.M.A.R.T. Status Check [Enabled]

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a monitor system. When read/write of your hard disk errors occur, this feature allows the hard disk to report warning messages during the POST. Configuration options: [Enabled] [Disabled]

4.4.5 USB Configuration

The items in this menu allow you to change the USB-related features.



The **USB Devices** item shows the auto-detected values. If no USB device is detected, the item shows None.

Legacy USB Support [Enabled]

[Enabled] Enables the support for USB devices.

[Disabled] The USB devices can be used only for the BIOS setup program.

XHCI Hand-off [Enabled]

[Enabled] Enables the support for operating systems without an XHCI hand-off feature.

[Disabled] Disables the function.

EHCI Hand-off [Disabled]

[Enabled] Enables the support for operating systems without an EHCI hand-off feature.

[Disabled] Disables the function.

4.4.6 Onboard Devices Configuration

HD Audio Controller [Enabled]

[Enabled] Enables the High Definition Audio Controller.

[Disabled] Disables the controller.

Realtek LAN Controller [Enabled]

[Enabled] Enables the Realtek LAN controller.

[Disabled] Disables the controller.

Realtek PXE OPROM [Disabled]

This item appears only when you set the **Realtek LAN Controller** item to [Enabled] and allows you to enable or disable the Rom Help of the Realtek LAN controller.

Configuration options: [Enabled] [Disabled]

Asmedia USB 3.0 Controller [Enabled]

[Enabled] Enables the onboard USB 3.0 controller.

[Disabled] Disables the controller.



The following item appears only when the **Asmedia USB 3.0 Controller** item is set to **[Enabled]**.

Asmedia USB 3.0 Battery Charging Support [Enabled]

[Enabled] Enables the Asmedia USB 3.0 battery charging function.

[Disabled] Disables this function

4.4.7 APM

Restore AC Power Loss [Power Off]

[Power On] The system goes into on state after an AC power loss.

[Power Off] The system goes into off state after an AC power loss.

[Last State] The system goes into either off or on state, whatever the system state was before the AC power loss.

WOL (include AC Power Loss) [Disabled]

[Enabled] Enables Wake-On LAN after a power failure. **This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.**

[Disabled] Disables this function.

Power On By PS/2 Keyboard [Disabled]

[Disabled] Disables the Power On by a PS/2 keyboard.

[Space Bar] Sets the Space Bar on the PS/2 keyboard to turn on the system.

[Ctrl-Esc] Sets the Ctrl+Esc key on the PS/2 keyboard to turn on the system.

[Power Key] Sets Power key on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PS/2 Mouse [Disabled]

[Disabled] Disables the Power On by a PS/2 mouse.

[Enabled] Enables the Power On by a PS/2 mouse. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PCI [Disabled]

[Disabled] Disables the PME to wake up from S5 by PCI devices.

[Enabled] Allows you to turn on the system through a PCI LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PCIE [Disabled]

[Disabled] Disables the PCIE devices to generate a wake event.

[Enabled] Enables the PCIE devices to generate a wake event.

Power On By RTC [Disabled]

[Disabled] Disables RTC to generate a wake event.

[Enabled] When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/Minute/Second** will become user-configurable with set values.

4.5 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.



4.5.1 CPU Temperature / MB Temperature [xxx°C/xxx°F]

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

4.5.2 CPU / Chassis / Power Fan Speed [xxxx RPM] or [Ignore] / [N/A]

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

4.5.3 CPU Q-Fan Control [Enabled]

[Disabled] Disables the CPU Q-Fan control feature.

[Enabled] Enables the CPU Q-Fan control feature.

4.5.4 Chassis Q-Fan Control [Enabled]

[Disabled] Disables the Chassis Q-Fan control feature.

[Enabled] Enables the Chassis Q-Fan control feature.

4.5.5 CPU Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **Ignore** if you do not want to detect this item.

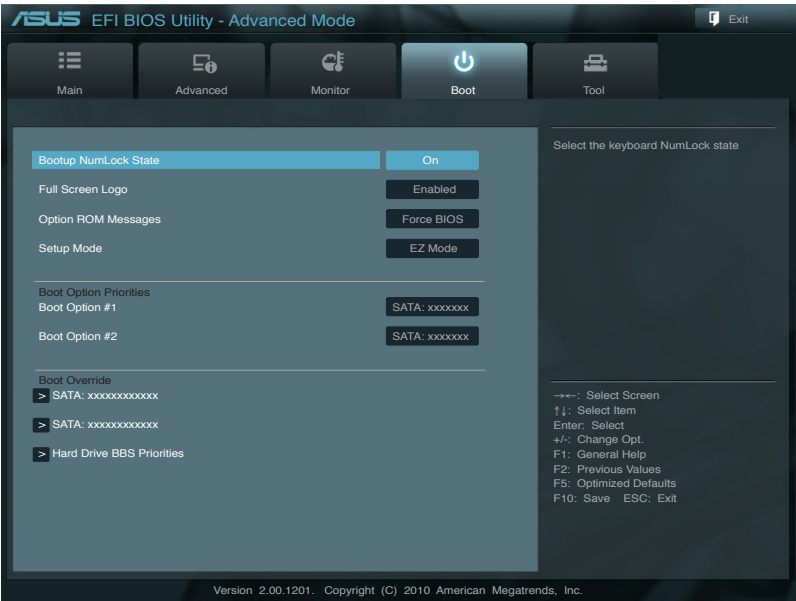
4.5.6 Anti Surge Support [Enabled]

This item allows you to enable or disable the Anti Surge function.

Configuration options: [Disabled] [Enabled]

4.6 Boot menu

The Boot menu items allow you to change the system boot options.



4.6.1 Bootup NumLock State [On]

[On] Sets the power-on state of the NumLock to [On].

[Off] Sets the power-on state of the NumLock to [Off].

4.6.2 Full Screen Logo [Enabled]

[Enabled] Enables the full screen logo display feature.

[Disabled] Disables the full screen logo display feature.



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

4.6.3 Option ROM Messages [Force BIOS]

[Force BIOS] The third-party ROM messages will be forced to display during the boot sequence.

[Keep Current] The third-party ROM messages will be displayed only if the third-party manufacturer had set the add-on device to do so.

4.6.4 Setup Mode [EZ Mode]

[Advanced Mode] Sets Advanced Mode as the default screen for entering the BIOS setup program.

[EZ Mode] Sets EZ Mode as the default screen for entering the BIOS setup program.

4.6.5 Boot Option Priorities

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.



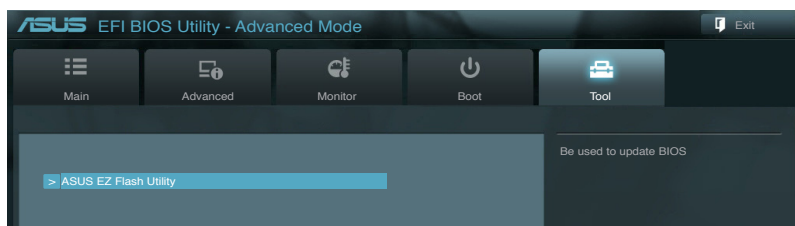
- To select the boot device during system startup, press <F8> when ASUS Logo appears.
- To access Windows OS in Safe Mode, do any of the following:
 - Press <F5> when ASUS Logo appears.
 - Press <F8> after POST.

4.6.6 Boot Override

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.

4.7 Tools menu

The Tools menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.



4.7.1 ASUS EZ Flash 2

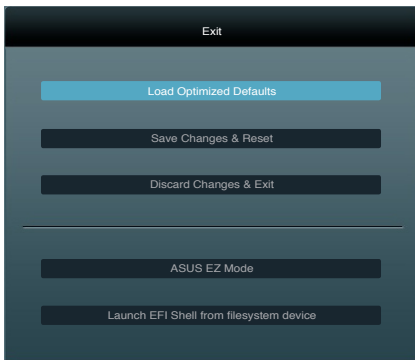
Allows you to run ASUS EZ Flash 2. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.



For more details, refer to **section 4.1.2 ASUS EZ Flash 2 utility**.

4.8 Exit menu

The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. You can access the **EZ Mode** from the Exit menu.



Load Optimized 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 **Yes** to load the default values.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **Yes** to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

ASUS EZ Mode

This option allows you to enter the EZ Mode screen.

Launch EFI Shell from filesystem device

This option allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices.