User's Manual

Sapphire Pure Platinum H67
Sapphire Pure Platinum H61

Intel H67/ H61 LGA1155 Mainboard

Manual Revision 1.1

November 03, 2011

Federal Communications Commission (FCC) Statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this product 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 product into 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.

Note1: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception

Note2: The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this product.

Note3: To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables

CE: Radiation of EN 55022 & Immunity of EN 55024

Waste Electrical and Electronic Equipment (WEEE) Statement

To protect the global environment, this product must be sent to separate collection facilities for recovery and recycling.

DISPOSAL

Do not dispose of this product as unsorted municipal waste. Collect such waste separately for special treatment.

Table of Contents

Chapter 1 Introduction

1-1 Mainboard Specifications

CPU

- Supports Intel® Core i7/i5/i3 processor in the LGA1155 package

Chipset

- Intel® H67/H61 Express chipset

Graphics

- Intel® HD graphic
- Shared Memory of max. 1024MB
- Four independent displays supporting concurrent display of either two combination of HDMI, DVI, VGA and Display Port

Port	Supported resolution
VGA	2048x1536@75MHz
DVI-D	1920x1200@60MHz
HDMI	1920x1200@60MHz
Display Port	2560x1600@60MHz

System Memory

- Two 240-pin DDR3 SDRAM DIMM sockets
- Supports 1.5v DDR3-1066/1333 DIMMs with dual channel architecture
- Supports x16 and x8 DIMMs, non-ECC, unbuffered DIMMs
- Supports up to 8GB system memory

USB Ports

- From Intel® H67/H61 chipset:

  Eight USB 2.0 ports (four at rear panel, four onboard headers), supporting transfer speed up to 480Mbps
- From Asmedia USB 3.0 controller:

  Two USB 3.0 ports (at rear panel) backward compatible with USB 2.0, supporting transfer speeds up to 4.8Gbps
- Supports wake-up from S1, S3 and S4 modes

SATA Ports

- On H67 Model:
  - Two SATA3 ports with 6Gb/s data transfer rate
  - Two SATA2 ports with 3Gb/s data transfer rate
  - Supports Intel® Rapid Storage Technology with RAID 0, 1, 10 and 5
  - Supports AHCI (Advanced Host Controller Interface)
- On H61 Model:
  - Four SATA2 ports with 3Gb/s data transfer rate

Onboard LAN

- One Gigabit Ethernet from Marvell 88E8057 Gigabit controller

Bluetooth

- Atheros AR3011 is a highly integrated, all-CMOS, single chip with Bluetooth® 2.1 + EDR supported

Onboard Audio

- Supports 8-channel High-Definition audio from Realtek ALC892 codec
- Supports rear panel Optical S/PDIF output
- Supports Jack-detection function

Expansion Slots

- One PCI-Express 2.0 x16 slot
- One Mini PCI-Express x1 slot

I/O

- Onboard Fintek F71808A LPC bus I/O controller
- Supports Hardware Monitoring for fan speed monitoring, CPU and system temperature

Back Panel I/O Ports

- 1 x Optical S/PDIF Out connector
- 1 x HDMI port
- 1 x Display port
- 1 x RJ45 LAN port
- 2 x USB 3.0 ports
- 1 x VGA port

- 1 x DVI-D port
- 1 x Bluetooth
- 4 x USB 2.0 ports
- 6 audio jacks

Internal I/O Connectors

- 1 x 24-pin ATX power connector
- 1 x 4-pin ATX 12V power connector
- 2 x SATA2 connectors for H67 model or 4 x SATA2 connectors for H61 model
- 2 x SATA3 connectors for H67 model only
- 4 x USB2.0 headers
- 1 x Front Panel header
- 1 x Speaker header
- 1 x Front Audio header
- 1 x CPU Fan and 1 x Power Fan
- 1 x Clear CMOS jumper

BIOS

- 32Mb SPI Flash with AMI based BIOS
- Supports ACPI (Advanced Configuration and Power Interface)

Special Features

- Supports Windows base utility "Trixx"
- Supports Win7 HW monitor gadget tool

Form Factor

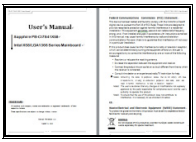
- Mini-ITX form factor of 170mm x 170mm

Operating systems:

- Supports Windows Vista and Windows 7

1-2 Package Contents

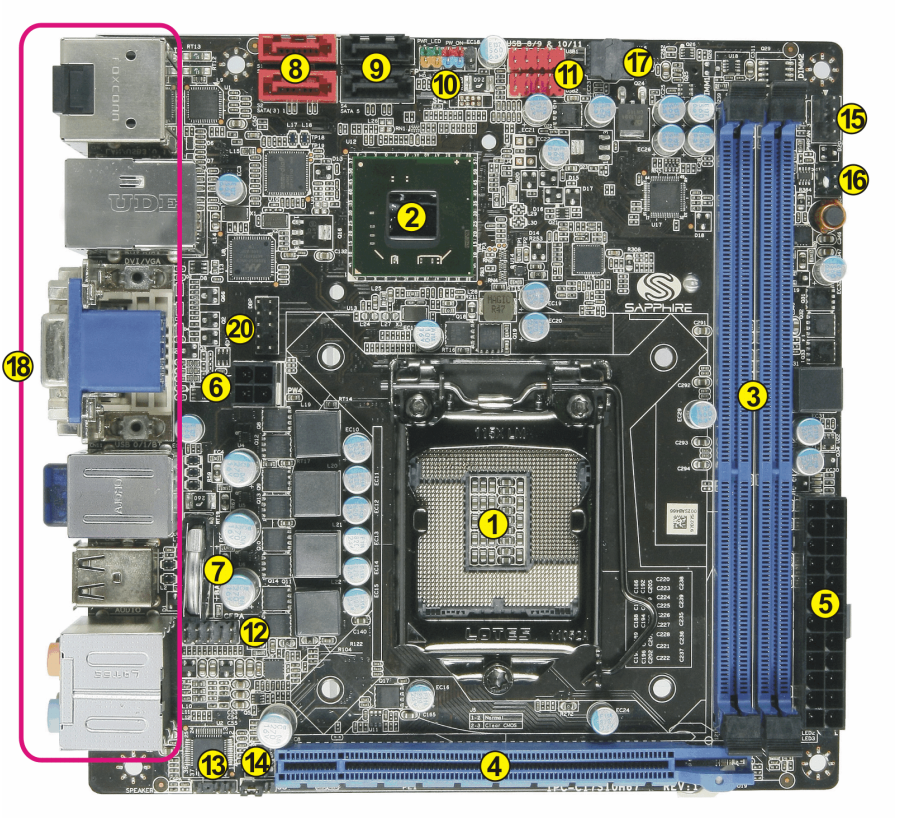
Your Sapphire mainboard comes with the following accessories.

1. Mainboard	
	
2. Quick Installation Guide	**3. Driver DVD**
	
4. I/O Shield	**5. SATA Data Cable *2**
	

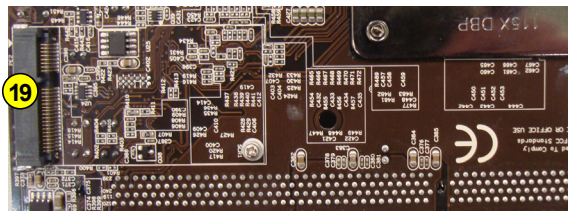
1-3 Mainboard Layout

The following figure shows the location of components on the mainboard. See following page for description.

Component on front of mainboard:



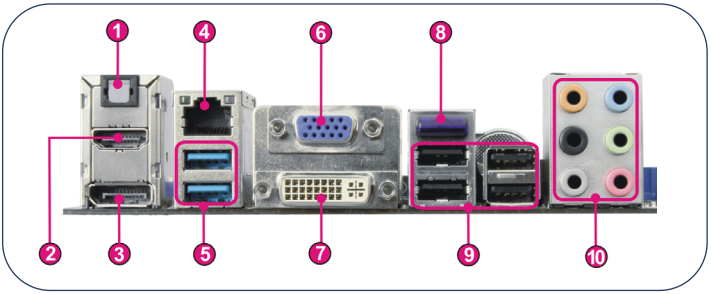
Component on back of mainboard:



Item	Component description
1	CPU Socket 1155
2	Intel H67/H61 single Chip
3	DDR3 DIMM Slots 1-2
4	PCI-E 2.0 x16 Slot
5	24-Pin ATX Power Connector
6	4-pin ATX_12V Power Connector
7	Mainboard Battery
8	SATA3 Connectors *2 (For H67 model) SATA2 Connectors *2 (For H61 model)
9	SATA2 Connectors *2
10	Front Panel Header
11	USB 2.0 Header *4
12	Front Panel Audio Header
13	Speaker Header
14	Clear CMOS Jumper
15	CPU Fan Header
16	Power Fan Header
17	32Mb SPI Flash
18	Back Panel Connectors (see next page for detail)
19	Mini PCI-E x1 Slot
20	Debug Port Connector (for factory test only)

I/O Back Panel

The I/O back panel for this mainboard is shown below. When installing the mainboard into the computer case, use the bundled I/O shield to protect this back panel.



1. Optical S/PDIF-Out
   This SPDIF (Sony & Philips Digital Interconnect Format) connector is used for digital audio transmission to external speakers/amplifier through an optical fiber cable.

2. HDMI Port
   The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port.

3. Display Port
   The DisplayPort is a digital display interface standard. This connector is used to connect a monitor with DisplayPort inputs.

4. LAN Ports with LEDs
   The mainboard provides one standard RJ-45 jack for connecting to a Local Area Network (LAN). Two LEDs are built into the RJ-45 LAN connector. These LEDs indicate the status of the LAN.

LED	LED Color	LED state	Indicates
A	Green	Off	LAN link is not established
		On	LAN link is established
		Blinking	LAN activity is occurring
B	N/A	Off	10 Mb/s data rate
	Green	On	100 Mb/s data rate
	Yellow	On	1000 Mb/s data rate

5. USB 3.0 ports (two)
   USB 3.0 ports are backwardly compatible with USB 2.0 devices. Supports data transfer rates up to 4.8Gb/s (SuperSpeed).

6. VGA Port
   The VGA female port provides connection to analogue VGA monitors.

7. DVI-D Port
   The DVI-D (Digital Visual Interface-Digital) port provides a high-speed digital interconnection between the computer and its display device. Connect a monitor that supports DVI-D connection to this port. The DVI-D port does not support analogue VGA monitors using a passive DVI to VGA adapter.

   Dual Display Configurations:
   This mainboard provides four ports for video output: VGA, DVI-D, HDMI and Display port. It displays combination of either two. Please refer to table below for dual display configurations supported.

Supported configurations
VGA + DVI-D
VGA + Display Port
VGA + HDMI
DVI-D + Display Port
DVI-D + HDMI
Display Port + HDMI

8. Bluetooth
   Bluetooth wireless technology is an interface intended for wireless control/data communication

9. USB 2.0 Ports (Four)
   The mainboard provides an OHCI (Open Host Controller Interface) Universal Serial Bus root for attaching USB devices such as a keyboard, mouse or other USB-compatible devices. Supports data transfer rates up to 480Mb/s.

10. Audio Ports

This mainboard provides 2, 6 or 8 channel audio. It is easy to differentiate between the audio functions by referring to the color of the jacks.

Ports	2 channel	6 channel	8 channel
Blue	Line-In	Line-In	Line-In
Lime	Line-Out	Front Stereo-Out	Front Stereo-Out
Pink	Min-In	Min-In	Min-In
Orange	--	Center/Subwoofer	Center/Subwoofer
Black	--	Rear Stereo-Out	Rear Stereo-Out
Gray	--	--	Side Stereo-Out

Chapter 2 Installation

2-1 Before You Begin

Please take note of all precautions before you install anything on to the mainboard or change any of the mainboard settings.
Turn off the power to your system and discharge your body's static electric charge by touching a grounded surface—for example, the metal surface of the power supply—before performing any hardware procedure.
The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel. If you do not feel comfortable performing the installation, consult a qualified computer technician.
Damage to system components, the mainboard, and injury to you may result if power is applied during installation.

2-2 Installing the I/O Shield

The mainboard comes complete with an I/O shield. When installed in the chassis, the shield blocks radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Install the I/O shield before installing the mainboard in the chassis. Place the shield inside the chassis. Press the shield into place so that it fits tightly and securely. If the shield does not fit, obtain a properly sized shield from the chassis supplier.

2-3 Securing to the Chassis

When installing the mainboard, you have to secure the mainboard into the chassis by fastening with nine screws. Please refer to your chassis manual for instructions on installing.

2-4 Installing the CPU and Fan Heatsink

To install the CPU:

1. Open the socket lever by pushing the lever down and away from the socket. Remove the protective socket cover from the socket. Do not touch the socket contacts.

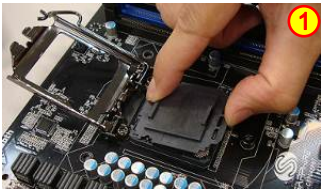
   Note:
   Do not discard the protective socket cover. Be sure to always replace the cover unless the CPU is installed.

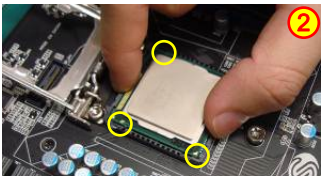
2. Align the CPU notches to the socket protrusions. Place CPU straight down without tilting or sliding it.

3. Close the load plate and engage the socket lever.

4. To install fan heatsink, align the holes on the mainboard. Press the four hooks down to fasten the cooler. You will hear a "click" upon full engagement. Gently rotate the cap clockwise 1/4 turn to fasten the heatsink onto the mainboard

5. Connect the 4-wire fan cable to the 4-pin CPUFAN header on the mainboard.





PS:
Pictures for installation reference only, the board may be different from the actual.

2-5 Installing System Memory

This mainboard has two 240-pin DIMM sockets for DDR3 memory.

- Supports 1GB, 2GB and 4GB DDR3 DIMMs up to max. 8GB
- Supports 1.5v DDR3-1066/1333 DIMMs with dual channel architecture.

Memory configurations

To use 1 DIMM: Install into either DIMM slot 1 or slot 2.

To use 2 DIMMs: Install into DIMM slot 1 and DIMM slot 2.

Memory Installation

DDR3 and DDR2 memory modules are physically different. Please only install DDR3 DIMMs in this mainboard.

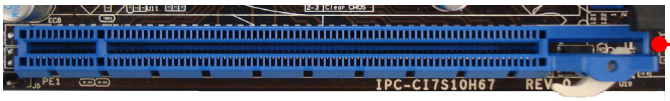
To make sure you have the correct DIMM, check that all the notches line up with the DDR3 DIMM slot.

To install the DIMM, follow these steps:

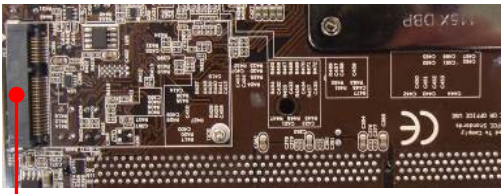
1. Pull clips on the slot outwards. Align the DIMM module with the slot.
2. Press modules straight down until the plastic clips close and the module fits tightly into the DIMM slot. Push clips inwards to make sure they are in place.

2-6 Installing Expansion Cards

The mainboard provides one PCI Express 2.0 x16 slot and one Mini PCI-E slot.



PE1
PCI-E2.0 x16 slot



PE2
Mini PCIE slot (with x1 link)
It's located on the back side of mainboard.

PCI-E Slot

The design of this motherboard supports PCI-E Express x16 card complying with the PCI Express specification.

To install a PCI Express card:

1. Place the card in the PCI Express slot and press down on the card until it is completely seated in the slot. If the card is not seated properly, it could cause a short across the pins.
2. Secure the card's metal bracket to the chassis back panel with a screw.

Mini PCI-E Slot

The Mini PCI-E Slot is used to connect compliant Mini PCI-Express x1 devices such as a wireless network card, USB card or other devices.

To install a Mini PCI-E card:

1. Align the notch on the Mini PCI card edge connector with the tab in the slot.
2. Plug the Mini PCI card firmly into the slot at a 45-degree angle, and until it clicks into place.
3. Fasten Mini PCI-E card onto the nut with accompanied screw.

2-7 Connecting Cables

This section takes you through all the necessary connections on the mainboard.

Connecting Power Supply Cables

- 24-pin ATX Power

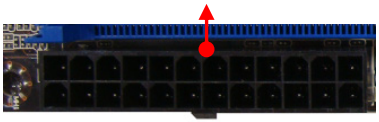
PW1 is the main power supply connector. Make sure that the power supply cable pins are properly aligned with the connector on the mainboard. Firmly plug the power supply cable into the connector and make sure it is secure.

Note: If you'd like to use 20-pin ATX power supply, please plug in your power supply cable aligned with pins 1 & 13. The 24-pin main power connector is backwardly compatible with ATX power supplies with 20-pin connectors.

- 4-pin ATX 12V Power

PW4, a 4-pin ATX 12V power connector, is used to provide power to the CPU. Align the power plug to the connector and press firmly until seated.

24-pin ATX Power connector



4-pin ATX Power connector

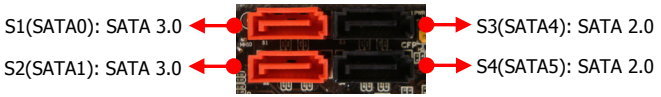
Connecting Serial ATA (SATA) Cables

Use SATA cables support Serial ATA protocol. Each cable can be used to connect one internal SATA drive to the mainboard.

H67 model:

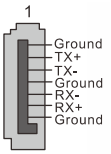
The black coloured connectors (S3 and S4) are SATA 2.0 compliant and operate at speeds up to 3 Gb/s.

The red coloured connectors (S1 and S2) are SATA 3.0 compliant and work at speeds of up to 6 Gb/s.



H61 model:

The black coloured connectors (S1 to S4) are SATA 2.0 compliant and operate at speeds up to 3 Gb/s.



Attach one end of the SATA cable to one of the SATA connectors on the board and attach the other end of the cable to the SATA drive

Connecting to the Internal Headers and Connectors

Front Panel Header

The front panel header on this motherboard is used to connect the front panel switches and LEDs.

▶PWR_LED

Attach the front panel power LED cable to these two pins of the connector. The Power LED indicates the system's status.

System Status	Power LED indicates
On	The LED is on
Off	The LED is off
S1	The LED is on
S3	The LED will blink
S4	The LED is off

▶PW_ON

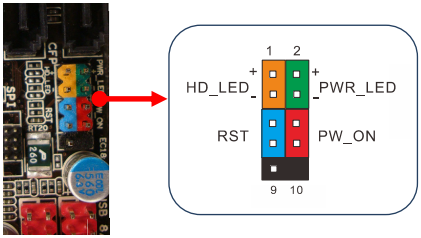
Attach the power button cable from the case to these two pins. Pressing the power button on the front panel turns the system on and off rather than using the onboard button.

▶HD_LED

Attach the hard disk drive indicator LED cable to these two pins. The HDD indicator LED indicates the activity status of the hard disks.

▶RESET

Attach the Reset switch cable from the front panel of the case to these two pins. The system restarts when the RESET switch is pressed.



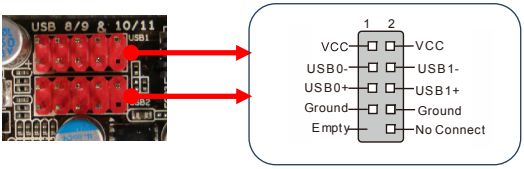
Header	Pin	Signal
HD_LED	1	HD_PWR
	3	HD Active
PWRLED	2	PWR LED+
	4	PWR LED-
RESET	5	Ground
	7	RST BTN
PWRSW	6	PWR BTN
	8	Ground
No Connect	9	+5V
Empty	10	Empty

USB2.0 Headers

This mainboard contains four (4) USB 2.0 ports that are exposed on the rear panel of the chassis. This mainboard also contains two 10-pin onboard header connectors that can be used to connect to four (4) external USB 2.0 devices.

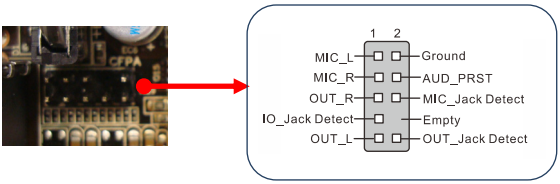
Refer to the following steps:

1. Secure the bracket to either the front or rear panel of your chassis (not all chassis are equipped with the front panel option).
2. Connect the cable(s) to the USB 2.0 header on the mainboard.



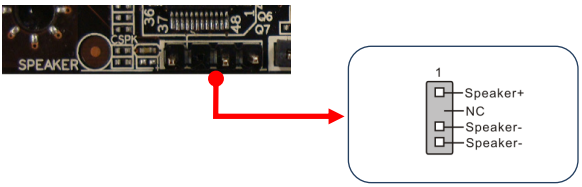
CFPA Header

This header allows you to connect the front panel audio. The audio connector supports HD audio standard.



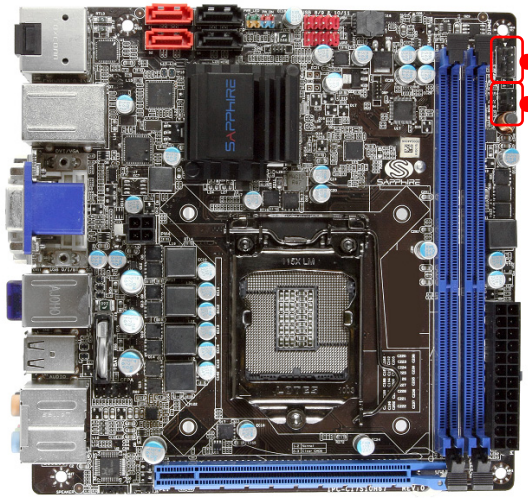
Speaker Header

This header is used to connect the case's speaker for PC beeps.



Fan Headers

There are two fan headers (CPUFAN, PWRFAN) on the motherboard. They can be speed detected/controlled and displayed in the Hardware Monitor Configuration section of the CMOS Setup. The fans are automatically turned off after the system enters S3, S4 or S5 mode



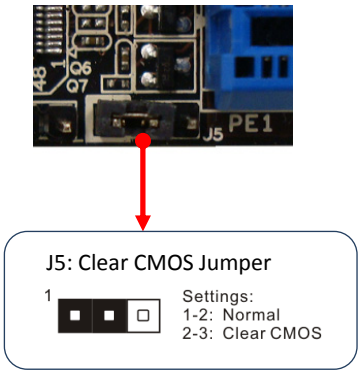
CPUFAN

Note:
The CPU fan cable can be either a 3-pin or a 4-pin connector. Connect a 3-pin connector to pins 1, 2, and 3on the mainboard connector.

PWRFAN

2-8 Jumper Settings

If the CMOS data becomes corrupted or you forgot the supervisor or user password, clear the CMOS data to reconfigure the system back to the default values stored in the ROM BIOS.



To clear CMOS data, please follow the steps below.

1. Turn off the system.
2. Change the jumper from “1-2” to “2-3” position for a few seconds.
3. Replace the jumper back to the “1-2” position.
4. Turn on the system and hold down the <Del> key to enter BIOS Setup.

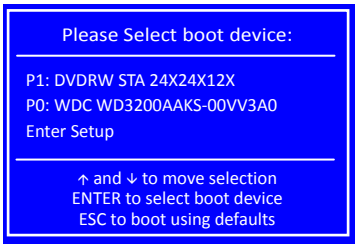
Chapter 3 Configuring the BIOS

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

3-1 Select Boot Device

Select Boot Device Menu allows you to set the first boot device without entering BIOS Setup.

During Power On Self Test (POST), you can press the <**F7**> key to enter select boot device menu. The system will directly boot from the device configured in Boot Menu.



3-2 Enter BIOS Setup

The BIOS is the communication bridge between hardware and software. Correctly setting the BIOS parameters is critical to maintain optimal system performance.

Use the following procedure to change BIOS settings.

1. Power on the computer.
2. Press the <**Del**> or <**F2**> key when the following message briefly shows upon the bottom of the display during Power On Self Test (POST).

   Press F1 to continue, DEL to enter Setup.

Pressing Del takes you to the BIOS Aptio Setup Utility.

Note1: It is strongly recommended that you do not change the default BIOS settings. Changing some settings could damage your computer.

Note2: The BIOS options in this manual are for reference only. BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version from our official website

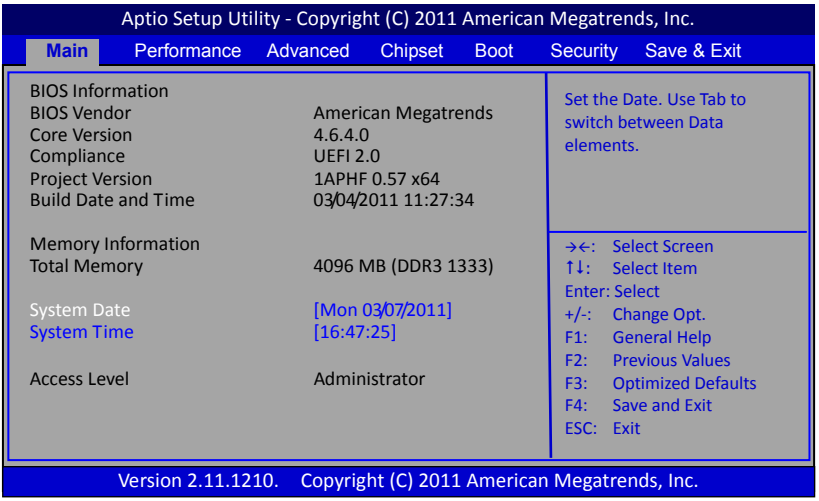
ControlKeys

Please check the following table for the function description of each Controlkey.

Control Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F2>	To load previous values for all the settings
<F3>	To load optimal default values for all the settings
<F4>	To save changes and exit the SETUP UTILITY
<ESC>	To jump to the Exit Screen or exit the current screen

3-3 Main Menu

When entering the Aptio Setup Utility, the main menu screen appears. This main menu includes the system overview and displays the basic system configuration, such as BIOS information, memory size and system date/time.



BIOS Information

This field displays the current BIOS version, build date and ID information etc..

Memory Information

Displays current system memory size.

System Date

Allows you to set the system date.The format is <Day><Month><Date><Year>.

[Day] Weekday from Sun. to Sat., this is automatically displayed by BIOS.
[Month] The month from 1 to 12.
[Date] The date from 1 to 31 can be keyed by numeric function keys.
[Year] The year can be adjusted by users.

System Time

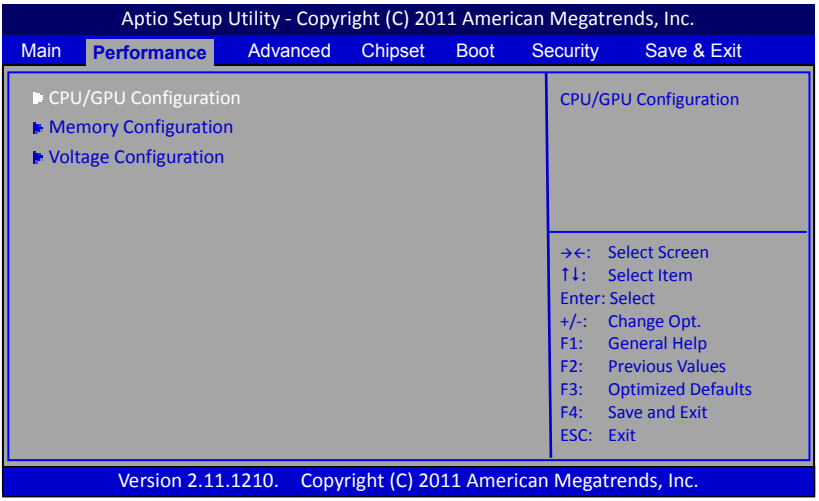
Allows you to set the system time. The time format is <hour>:<minute>:<second>.

Access Level

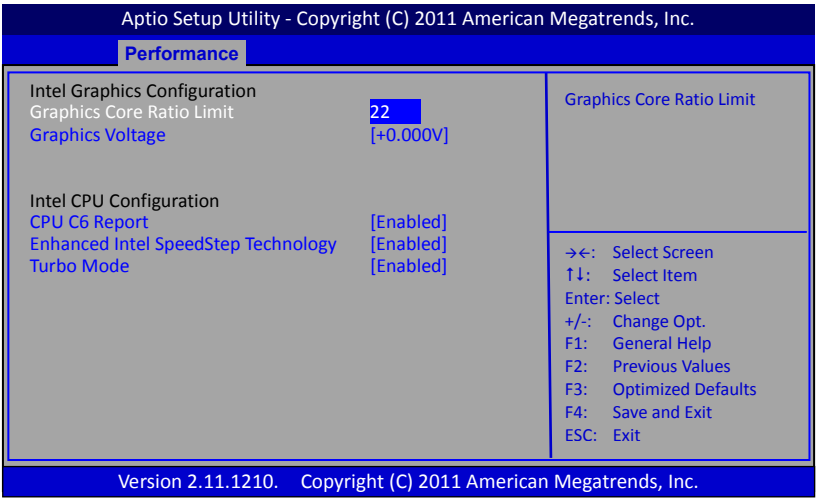
This item is used to limit the user access level.

3-4 Performance Menu

The Performance menu allows you to specify your settings for CPU, memory, voltage control and overclocking. Press <Enter> to display the configuration options.



▶ CPU/GPU Configuration



Graphics Core Ratio Limit
Allows you to set a core ratio limit for graphics.

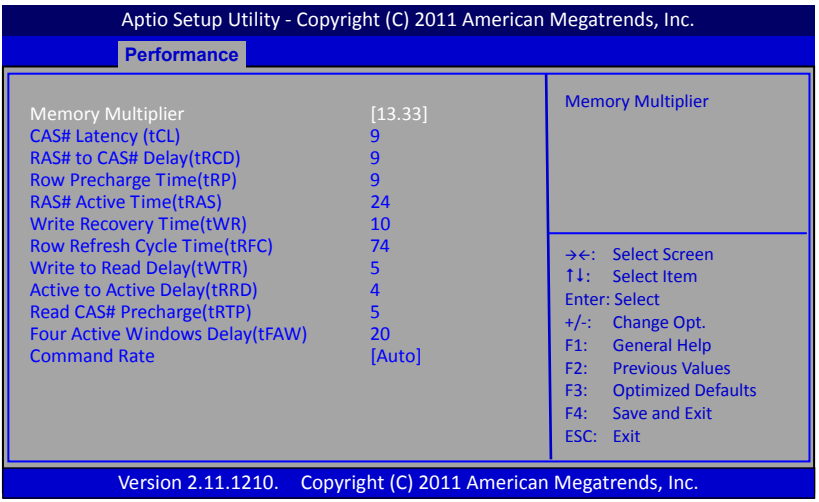
Graphics Voltage
Allows you to adjust the on board graphics voltage.
Options: +0.000V ~+1.000V in 0.004V increments.

CPU C6 Report
Allows you to enable or disable CPU C6(ACPI C3) report to OS.
Options: Enabled, Disabled.

Enhanced Intel SpeedStep Technology
Enables the Intel® SpeedStep technology (EIST).
Options: Enabled, Disabled.

Turbo Mode
Enables the processor cores to run faster than marked frequency in specification condition.
Options: Enabled, Disabled.

▶ Memory Configuration



Memory Multiplier
Allows you to select the system memory multiplier.
Options: Auto, 10.67, 13.33.

CAS# Latency (tCL)
Set the CAS latency time.
Options: 3 ~ 15.

RAS# to CAS# Delay(tRCD)
Set the RAS to CAS Delay time for Read/Write commands to the same bank.
Options: 3 ~ 15.

Row Precharge Time(tRP)
Set the Row Precharge time. This is the Precharge-to-Active or Auto-to-Refresh of the same bank.
Options: 3 ~ 15.

RAS# Active Time(tRAS)
Set the minimum RAS# active time.
Options: 9 ~ 63.

Write Recovery Time(tWR)
Set the internal Write to Read recovery time.
Options: 3 ~ 31.

Row Refresh Cycle Time(tRFC)
Set the minimum refresh recovery time.
Options: 15 ~ 255.

Write to Read Delay(tWTR)
Set the internal Write to Read command delay.
Options: 3 ~ 31.

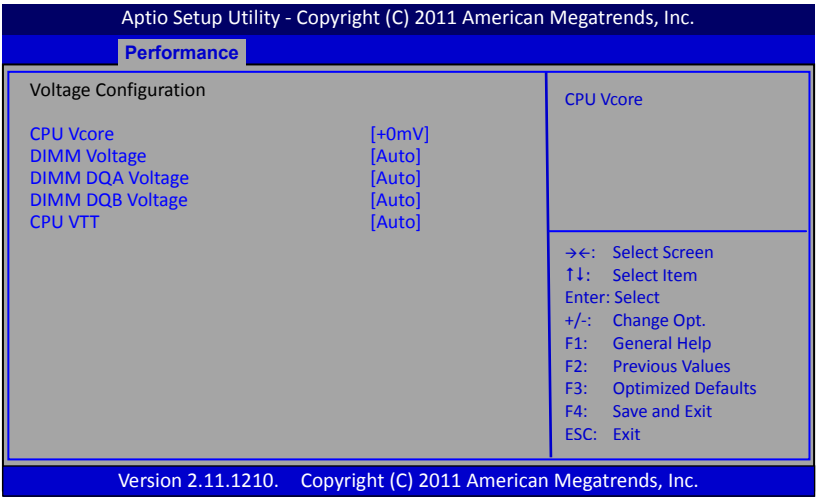
Active to Active Delay(tRRD)
Set the Row Active to Row Active delay.
Options: 4 ~ 15.

Read CAS# Precharge(tRTP)
Set the Read to Precharge delay.
Options: 4 ~ 15.

Four Active Windows Delay(tFAW)
Set the Four Active Windows Delay.
Options: 4 ~ 63.

Command Rate
This setting controls the DRAM command rate.
Options: Auto, 1T, 2T.

Voltage Configuration



CPU Vcore
Allows you to adjust the CPU Vcore voltage.
Options: +0mV ~+1550mV in 25mV increments.

DIMM Voltage
Allows you to adjust the DIMM Slot voltage.
Options: Auto, 1.10V ~1.50V in 0.05V increments and 1.51V ~2.00V in 0.01V increments.

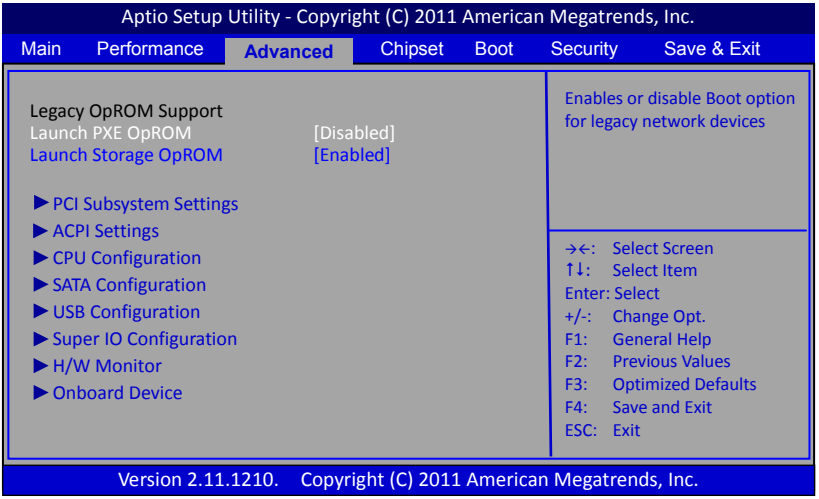
DIMM DQA Voltage
Allows you to adjust the DQA Voltage of DIMM Slot voltage.
Options: Auto, 0.75V ~1.38V in 0.01V increments.

DIMM DQB Voltage
Allows you to adjust the DIMM DQB of DIMM Slot voltage.
Options: Auto, 0.75V ~1.38V in 0.01V increments.

CPU VTT
Allows you to adjust the CPU VTT voltage.
Options: 1.050V ~2.000V in 0.025V increment

3-5 Advanced Menu

The Advanced menu items allow you to change the settings for the CPU, USB and other system devices. Press <Enter> to display the configuration options.



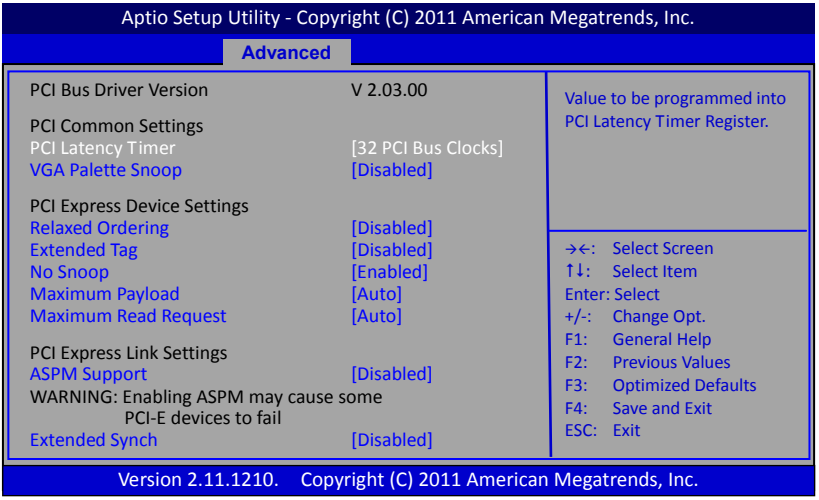
Launch PXE OpROM

Enables the Boot option for legacy network devices.
Options: Enabled, Disabled.

Launch Storage OpROM

Enables the Boot option for mass storage devices with option ROM.
Options: Enabled, Disabled.

PCI Subsystem Settings



PCI Latency Timer
Allows you to select the value in units of PCI clocks for PCI device latency timer.
Options: 32/64/96/128/160/192/224/248 PCI Bus Clocks

VGA Palette Snoop
When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly.
Options: Enabled, Disabled

Relaxed Ordering
Enables the PCI Express device Relaxed Ordering.
Options: Enabled, Disabled.

Extended Tag
Allows device to use 8-bit TAG field as a requester.
Options: Enabled, Disabled

No Snoop
Enables the No Snoop function of PCI Express device.
Options: Enabled, Disabled.

Maximum Payload
Sets the Maximum Payload size of PCI Express Device or allows the system BIOS to select the value.

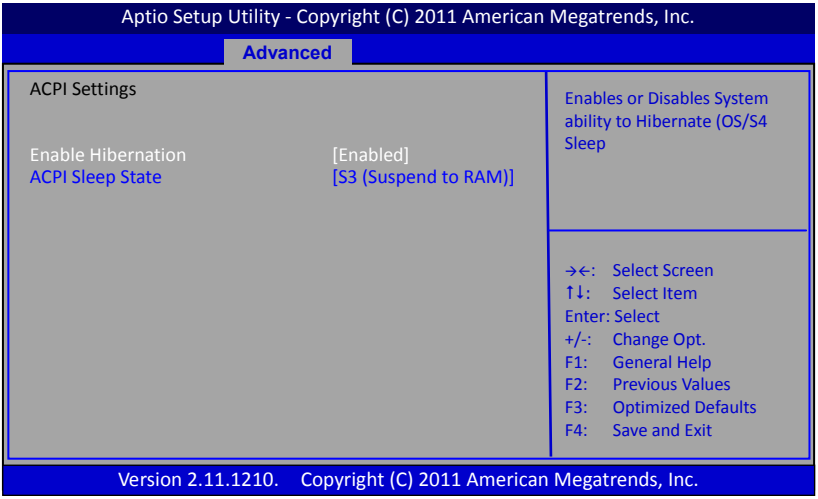
Options: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes.

Maximum Read Request
Sets the Maximum Read Request of PCI Express Device or allows the System BIOS to select the value.
Options: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes.

ASPM Support
Sets the ASPM level, select "Force L0" can force all links to L0 state.
Options: Disabled, Auto, Force L0.

Extended Synch
If select "Enabled", allows generation of Extended Synchronization patterns.
Options: Enabled, Disabled.

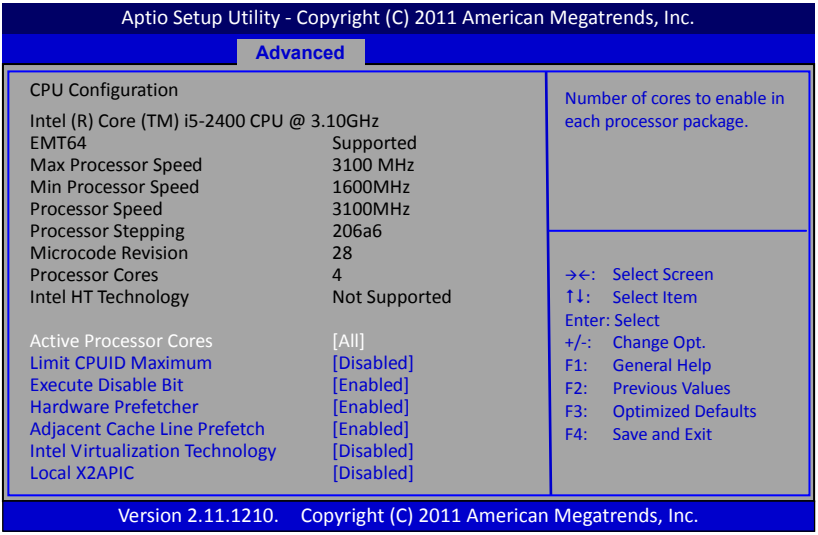
▶ ACPI Settings



Enable Hibernation
Enables system ability to Hibernate (OS/S4 Sleep Sate). This option may be not effective with some OS.
Options: Enabled, Disabled.

ACPI Sleep State
Selects the power saving modes for ACPI function.
Options: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM).

CPU Configuration



Active Processor Cores

Use this item to select the number of cores to enable in each processor package.
Options: All, 1, 2, 3.

Limit CPUID Maximum

We recommend leaving it disabled, unless you are using a very old OS or experiencing problems related to CPU identification/compatibility.
Options: Enabled, Disabled.

Execute Disable Bit

When this function is disabled, it forces the XD feature flag to always return to zero (0).
Options: Enabled, Disabled.

Hardware Prefetcher

This item enables L2 Cache (Mid Level Cache) stream prefetcher for tuning performance of the specific application.
Options: Enabled, Disabled.

Adjacent Cache Line Prefetch

This item enables Adjacent Cache Line Prefetch function.
Options: Enabled, Disabled.

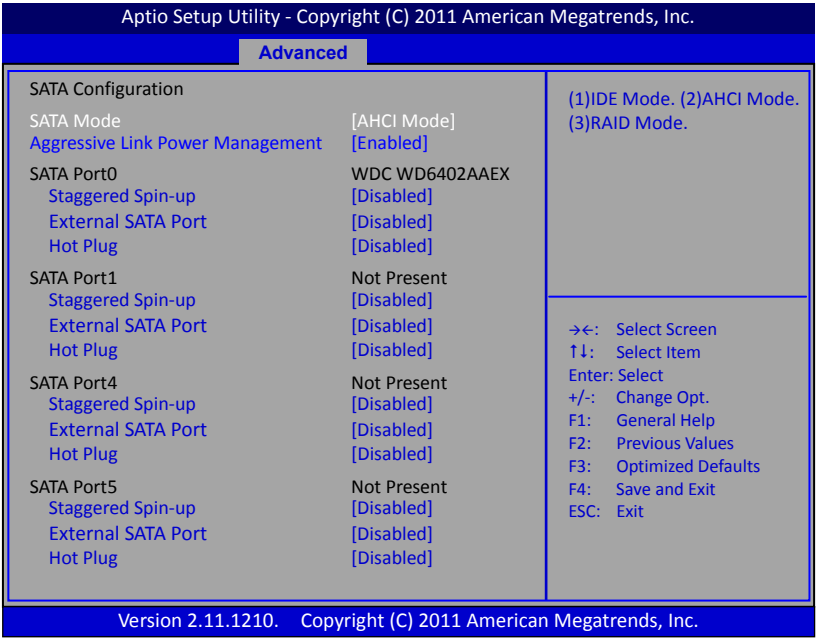
Intel Virtualization Technology

When this function is enabled, it allows a VMM to utilize the additional hardware

capabilities provided by Intel Virtualization Technology.
Options: Enabled, Disabled.

Local X2APIC
This item enables Local X2APIC function. Some OSes do not support this.
Options: Enabled, Disabled.

▶ SATA Configuration



SATA Mode
Allows you to set the onboard Serial SATA mode.

- IDE Mode: Use the SATA hard disk drivers as Parallel ATA storage devices.
- RAID Mode: Create a RAID 0, 1, 10, 5 configuration (for H67 model only)
- AHCI Mode: Use the AHCI (Advanced Host Controller Interface) to enable advanced SATA features for improved performance with NCQ and Hot-plug features.

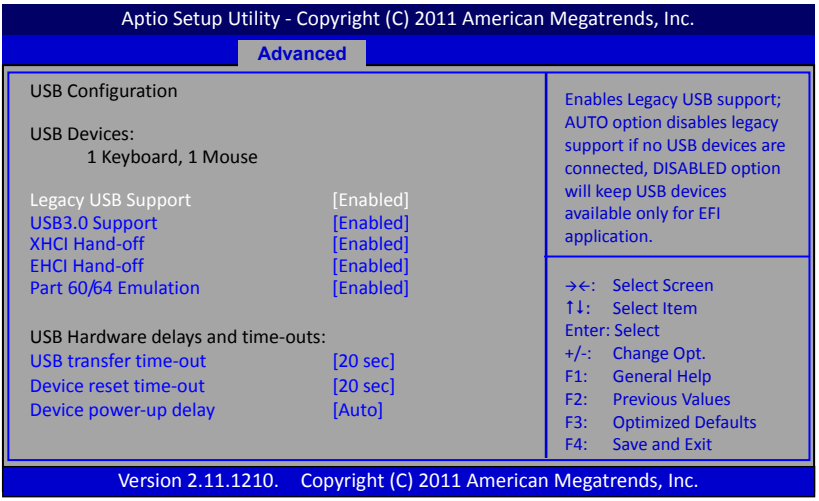
Aggressive Link Power Management
This item enables Aggressive Link Power Management support. For Cougar Point B0 stepping onwards.
Options: Enabled, Disabled.

Staggered Spin-up
Enables the AHCI supports Staggered Spin-up function.
Options: Enabled, Disabled.

External SATA Port
Enables the external SATA port support.
Options: Enabled, Disabled.

Hot Plug
Enables the SATA port hot plug support.
Options: Enabled, Disabled.

▶ USB Configuration



Legacy USB Support
Allows you select legacy support for USB devices.
Enabled: Enables Legacy USB support.
Disabled: Keep USB devices available only for EFI application.
Auto: Disables legacy support if no USB devices are connected.

USB3.0 Support
Enables USB3,0 (XHCI) controller support.
Options: Enabled, Disabled.

XHCI Hand-off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
Options: Enabled, Disabled.

EHCI Hand-off

This is a workaround for OSes without EHCI hand-off support. The XHCI ownership change should be claimed by EHCI driver.
Options: Enabled, Disabled.

Part 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
Options: Enabled, Disabled.

USB transfer time-out

The time-out value for control, bulk, and interrupt transfers.
Options: 1 sec, 5 sec, 10 sec, 20 sec.

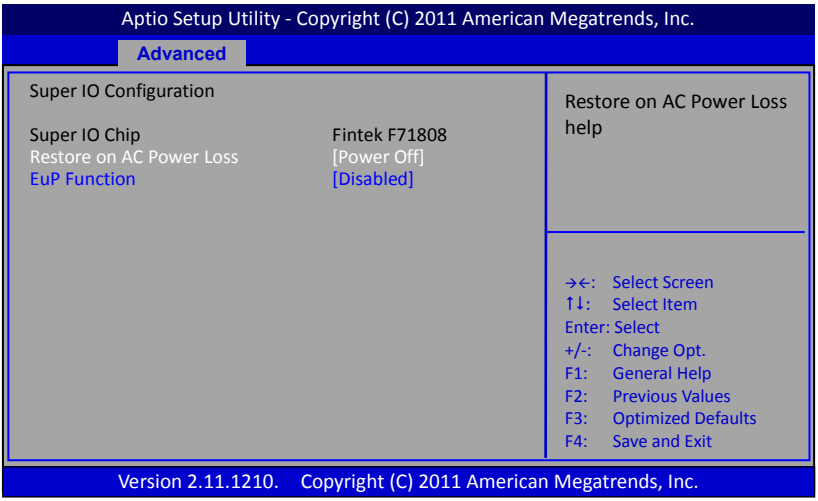
Device reset time-out

Sets USB mass storage devices start unit command time-out.
Options: 10 sec, 20 sec, 30 sec, 40 sec.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host controller. 'Auto' uses default values; for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
Options: Auto, Manual.

▶ Super IO Configuration



Restore on AC Power Loss

Enables your computer to automatically restart or return to its last operating status after power returns from a power failure.

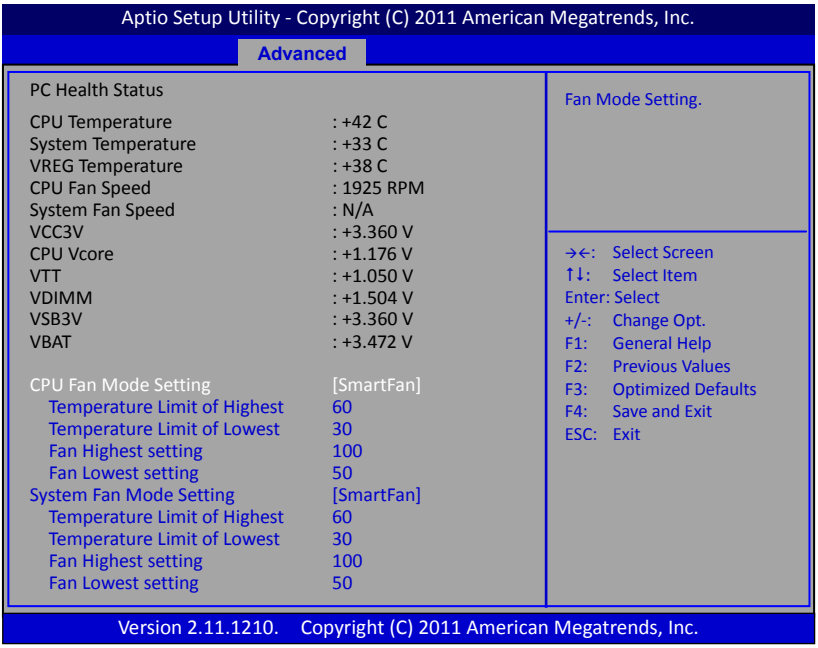
Options: Power off, Power on, Last State.

EuP Function

Enables the EuP (Energy Using Products) function, allows BIOS to switch off some power at S5 state to get system ready for the EuP requirement to reduce power consumption.

Options: Enabled, Disabled.

▶ H/W Monitor



CPU / System / VREG Temperature

Displays the current CPU, System and onboard regulator temperature.

CPU / System Fan Speed

Displays the current CPU and System Fan Speed

VCC3C/CPU VCore/VTT/VDIMM/VSB3V/VBAT

The current voltages are automatically detected and displayed by the system.

CPU Fan Mode Setting

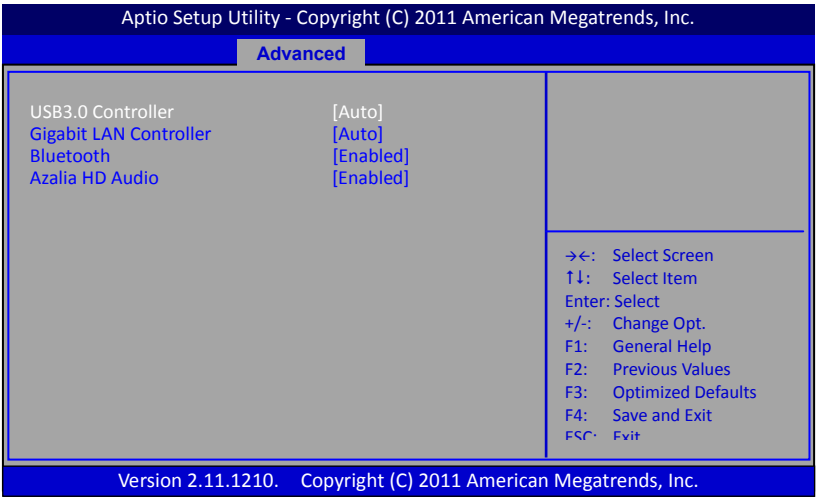
This item controls the speed of the various fans on the motherboard.

SmartFan: When you want the speed of the fans automatically controlled based on temperature.

Manual Mode 1: To set the fan speed to a constant rate, the speed from 0% to 100%.

Manual Mode 2: This item can manual RPM count setting.

▶ Onboard Device



USB3.0 Controller

Enables the onboard USB 3.0 controller.

Options: Auto, Enabled, Disabled.

Gigabit LAN Controller

Enables the onboard Giga Lan function for LAN.

Options: Auto, Enabled, Disabled

Bluetooth

Enables Bluetooth function.

Options: Enabled, Disabled.

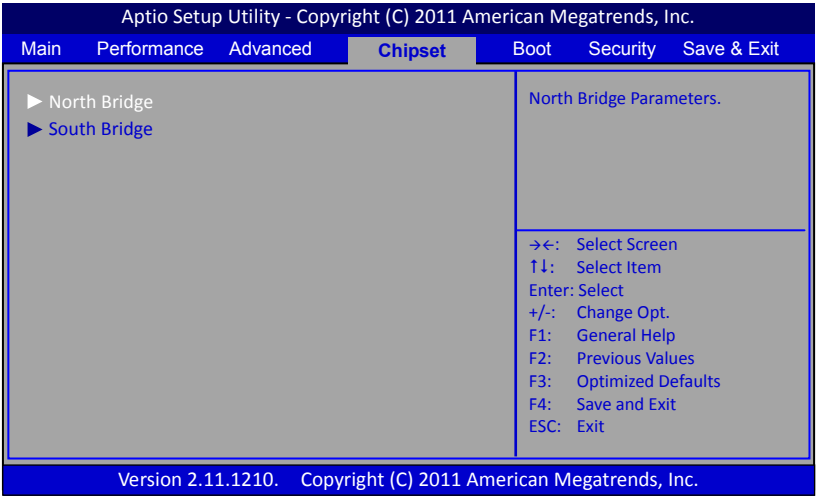
Azalia HD Audio

Enables the onboard High Definition Audio controller.

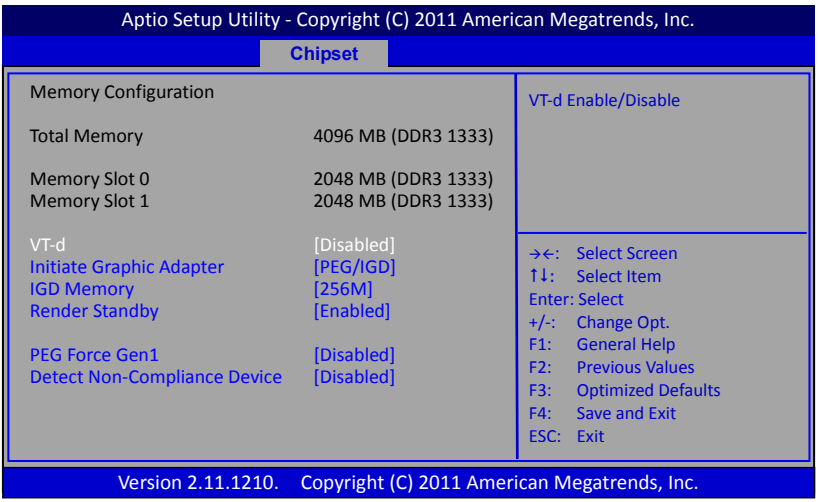
Options: Enabled, Disabled.

3-6 Chipset Menu

The chipset menu items allow you to change the advanced chipset settings. Press <Enter> to display the sub-menu.



▶ North Bridge



Total Memory

Displays current system total memory size.

Memory Slot 0/1
Displays the memory size of each individual slot.

VT-d
Allows you enable the chipset VT-d technology.
Options: Enabled, Disabled.

Initiate Graphic Adapter
Select which graphics controller to use as the primary boot device.
Options: PEG/IGD, IGD/PEG.
Note: to install VIRTU, use IDG/PEG setting.

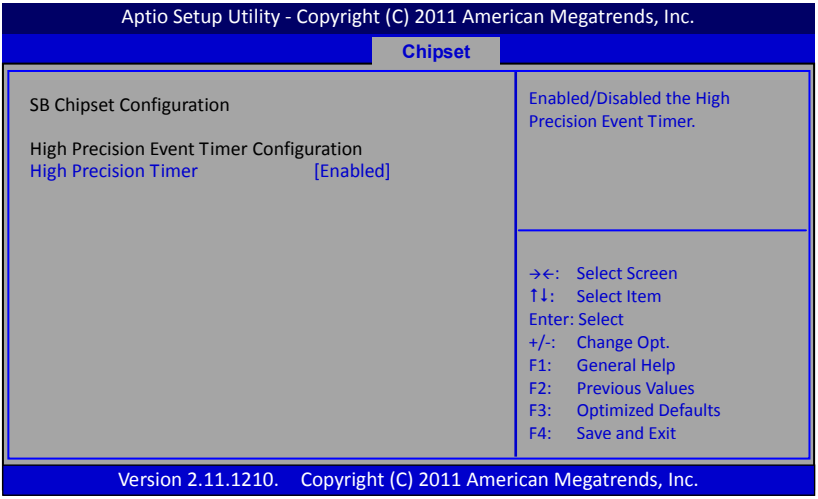
IGD Memory
Allows you select share memory size of internal graphics device.
Options: Disabled, 64M, 128M, 256M, 512M, 1024M.

Render Standby
This item enables the Render Standby technology by internal graphics device.
It Allows the GPU to power down the render unit when idle.
Options: Enabled, Disabled.

PEG Force Gen1
When enabled, the PCI-E x16 slot will be forced to run in the PCI-E x1 mode.
Options: Enabled, Disabled.

Detect Non-Compliance Device
This item enables detect non-compliance device in PCI Express Port.
Options: Enabled, Disabled.

South Bridge

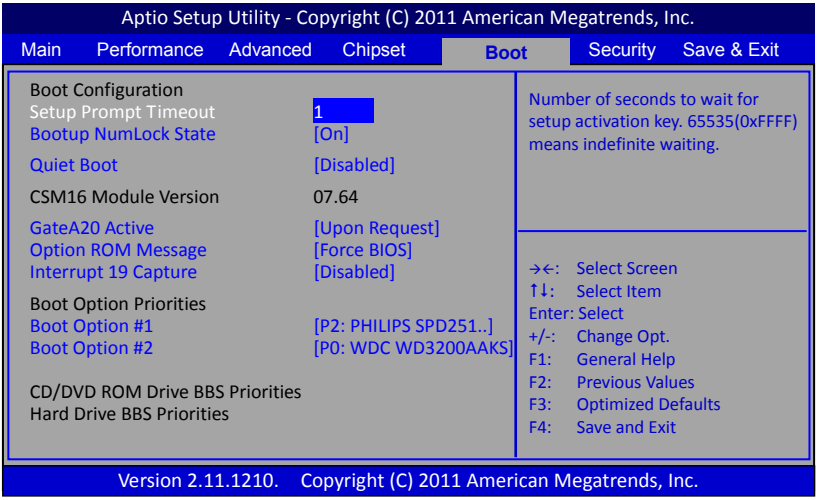


High Precision Timer

Selecting Enabled, allows the operating system and applications to use the High Precision Event Timer (HPET) for higher precision and better performance. Options: Enabled, Disabled.

3-7 Boot Menu

The Boot menu is used to configure the boot settings and the boot priority.



Setup Prompt Timeout

This is used to set an additional time the POST should wait for the operator to press the key to enter setup. The time is entered in seconds.

Bootup NumLock State

Selects the state of the keyboard's numlock function after POST.
Options: On, Off.

Quiet Boot

Displays normal POST message. Select disable to display Logo instead of POST message.
Options: Enabled, Disabled.

GateA20 Active

This feature determines how Gate A20 is used to address memory above 1MB.
Upon Request: GA20 can be disabled using BIOS services.
Always: Do not allow disabling GA20.

Option ROM Message

Sets display mode for Option ROM.
Force BIOS: To force to a BIOS-compatible output. This will show the option ROM messages.

Keep Current: To keep the current video mode. This will suppress option ROM messages. Option ROMs requiring interactive inputs may not work properly in this mode.

Interrupt 19 Capture
Allows specify if legacy PCI option ROMs are allowed to capture software interrupt 19h.
Options: Enabled, Disabled.

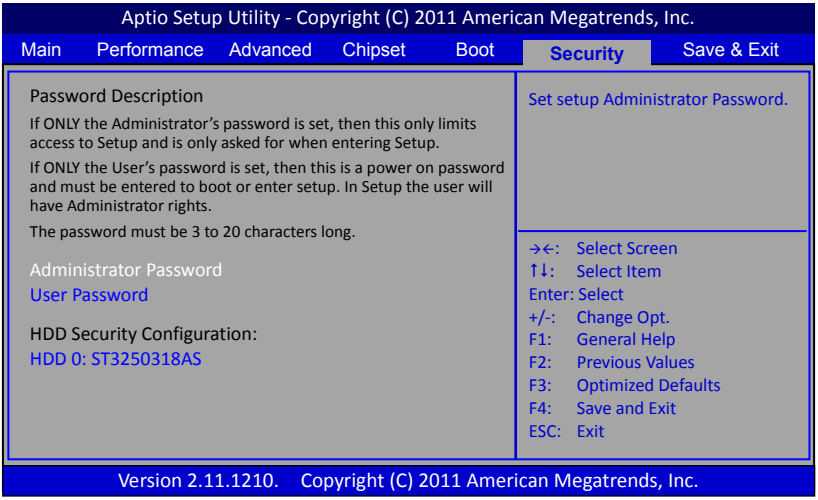
Boot Option #1/#2
These options are used to form the boot order and are dynamically generated.

CD/DVD ROM Drive BBS Priorities
Allows configure the boot order for a specific CD/DVD ROM device class.

Hard Drive BBS Priorities
Allows configure the boot order for a specific Hard Drive device class.

3-8 Security Menu

The Security menu allows you to change the system security settings.



Administrator Password

This function is used to set, change or delete the Administrator password. If there is already a password installed, the system asks for this first. To clear a password, simply enter nothing and acknowledge by pressing Return. To set a password, enter it twice and acknowledge by pressing Return. The password must be 3 to 20 characters long.

User Password

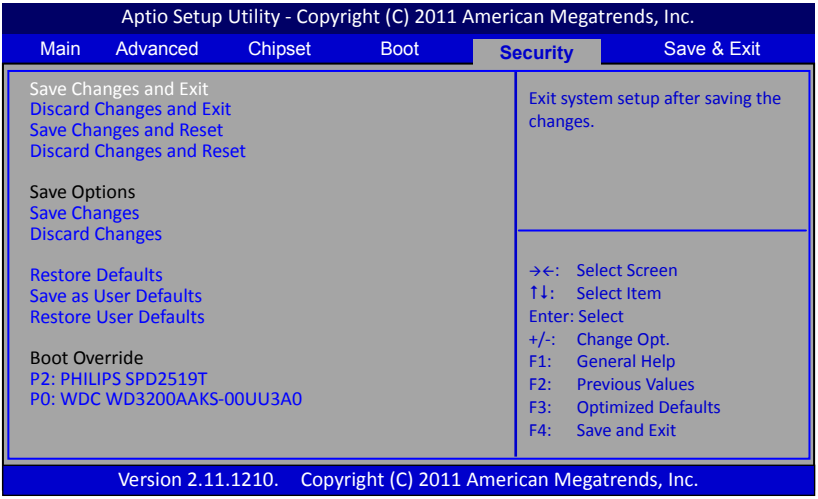
This function is used to set, change or delete the User password. If there is already a password installed, the system asks for this first. To clear a password, simply enter nothing and acknowledge by pressing Return. To set a password, enter it twice and acknowledge by pressing Return. The password must be 3 to 20 characters long.

HDD Security Configuration

Allows you to set password for hard drive security configuration

3-9 Save & Exit Menu

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



Save Changes and Exit

This saves the changes to the CMOS RAM and exits the BIOS Setup program.

Discard Changes and Exit

This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS.

Save Changes and Reset

This resets system after saving the changes.

Discard Changes and Reset

This resets system without saving the changes.

Save Option

Allows you to save the options you made to the CMOS RAM.

Save Change

Allows you to save the changes you made to the CMOS RAM.

Discard Changes

Allows you to discard the selections you made.

Restore Defaults

The restore defaults are the factory settings of this motherboard.

Save as User Defaults
This is used to save all current settings as user default. The current setup state can later be restored using Restore User Defaults.

Restore User Defaults
This is used to restore all tokens to settings previously stored by Save as User Defaults.

Boot Override
This group of functions includes a list, each of them corresponding to one device within the boot order. Select a drive to immediately boot that device regardless of the current boot order.

Chapter 4 Device Driver Installation

After the operating system has been installed, you need to install drivers for this mainboard.

The support DVD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

4-1 Driver Install

Insert the bundled driver DVD into your optical drive and the main menu will be displayed on your PC screen. Click each item button and select the item you want to install.

<Main Page>

The Mainboard Drivers item shows the available device drivers. Install the necessary drivers to use the devices.

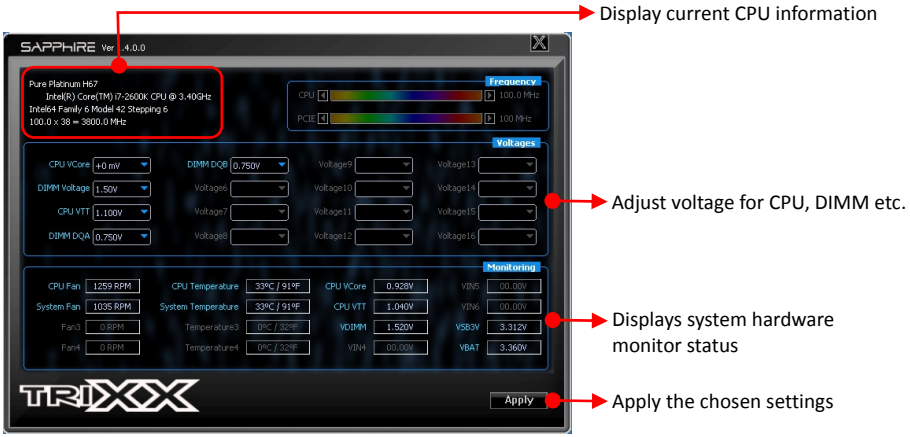
<Mainboard Drivers page>

Note: If Autorun function is not enabled in your computer, browse the contents of the support DVD to locate the file autorun.exe, and click this file to run the DVD.

4-2 TRIXX Utility

TRIXX is a simple and easy-to-use utility that allows users to adjust system settings for overclocking in a Windows environment. The TRIXX utility includes three configurations for frequency, voltage and hardware monitoring.

To install TRIXX Utility, run it from the Sapphire Utility page from the bundled DVD. A TRIXX Utility shortcut will be created on the Desktop.



4-3 Hardware monitor gadget

This Hardware monitor gadget directly appears in windows screen after TriXX installation is completed. It can be used to help keep track of temperatures of CPU, System and fan speed of CPU, System and voltage of system.