



# User's Manual

## Sapphire Pure Platinum A75

AMD A75 Chipset for FM1 Socket  
Mainboard

### **TRADEMARK**

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These specifications are subject to change without notice.

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August 18, 2011

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## 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.



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# **Chapter 1 Introduction**

## ***1-1 Mainboard Specifications***

### **APU**

- Supports AMD® Llano APU with FM1 socket
  - \*Please refer to Appendix for supporting APU and Dual Graphics configuration

### **Chipset**

- AMD A75 (Hudson D3) chipset

### **Graphics**

- On-die AMD Radeon HD 6xxx series graphic
- Three independent display and supporting dual display with HDMI/DVI and HDMI/Display Port

| Port         | Supported resolution |
|--------------|----------------------|
| DVI-D        | 1920x1200@60MHz      |
| HDMI         | 1920x1200@60MHz      |
| Display Port | 2560x1600@60MHz      |

\*Please refer to Appendix for supporting APU and Dual Graphics configuration

### **System Memory**

- Four 240-pin DDR3 SDRAM DIMM sockets
- Supports 1.5v DDR3-1066/ 1333/ 1600/ 1866(OC) DIMMs with dual channel architecture
- Supports x16 and x8 DIMMs, non-ECC, unbuffered DIMMs
- Supports up to 16GB system memory

### **USB Ports**

- Six USB 2.0 ports (four at rear panel, two onboard headers), supporting transfer speed up to 480Mbps
- Four USB 3.0 ports (two at rear panel, two onboard headers) backward compatible with USB 2.0, supporting transfer speeds up to 4.8Gbps
- Supports wake-up from S1, S3 and S4 modes

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## **SATA Ports**

- Five SATA3 ports with 6Gb/s data transfer rate
- One E-SATA port at real panel
- Supports RAID 0, RAID 1 and RAID 10
- Supports AHCI (Advanced Host Controller Interface)

## **Onboard LAN**

- One Gigabit Ethernet from Marvell 88E8059 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 S/PDIF header
- Supports Jack-detection, Multi-Streaming and Front Panel Jack-retasking function

## **Expansion Slots**

- One PCI-Express 2.0 x16 slot
- Two PCI-Express 2.0 x1 slots
- One PCI-Express 2.0 x4 slot
- One Mini PCI-E slot
- Two PCI Slots

## **I/O**

- Onboard Fintek F71889A LPC bus I/O controller
- Supports Hardware Monitoring for fan speed monitoring, CPU and system temperature

## **Back Panel I/O Ports**

- 1 x PS/2 Keyboard/Mouse port
- 4 x USB 2.0 ports
- 1 x Bluetooth
- 1 x E-SATA port

- 
- 1 x Display port
  - 1 x DVI-D port
  - 1 x HDMI port
  - 1 x RJ45 LAN port
  - 2 x USB 3.0 ports
  - 6 audio jacks

### **Internal I/O Connectors**

- 1 x 24-pin ATX power connector
- 1 x 8-pin ATX 12V power connector
- 5 x SATA3 connectors
- 4 x USB2.0 headers
- 2 x USB3.0 headers
- 1 x Front Panel header
- 1 x S/PDIF header
- 1 x Front Audio header
- 1 x CPU Fan and 5 x DC Fan connectors

### **BIOS**

- 16Mb SPI Flash with AMI based BIOS
- Supports ACPI (Advanced Configuration and Power Interface)
- Supports dual BIOS switch

### **Special Features**

- Onboard diagnostic 7-Segment LED with CPU temperature display
- Onboard buttons include Clear CMOS, RESET and POWER
- Supports Windows based OC utility "Trixx" and Win7 HW monitor gadget tool

### **Form Factor**

- ATX form factor of 305mm x 245mm

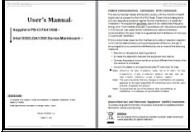
### **Operating systems:**

- Supports Windows Vista and Windows 7

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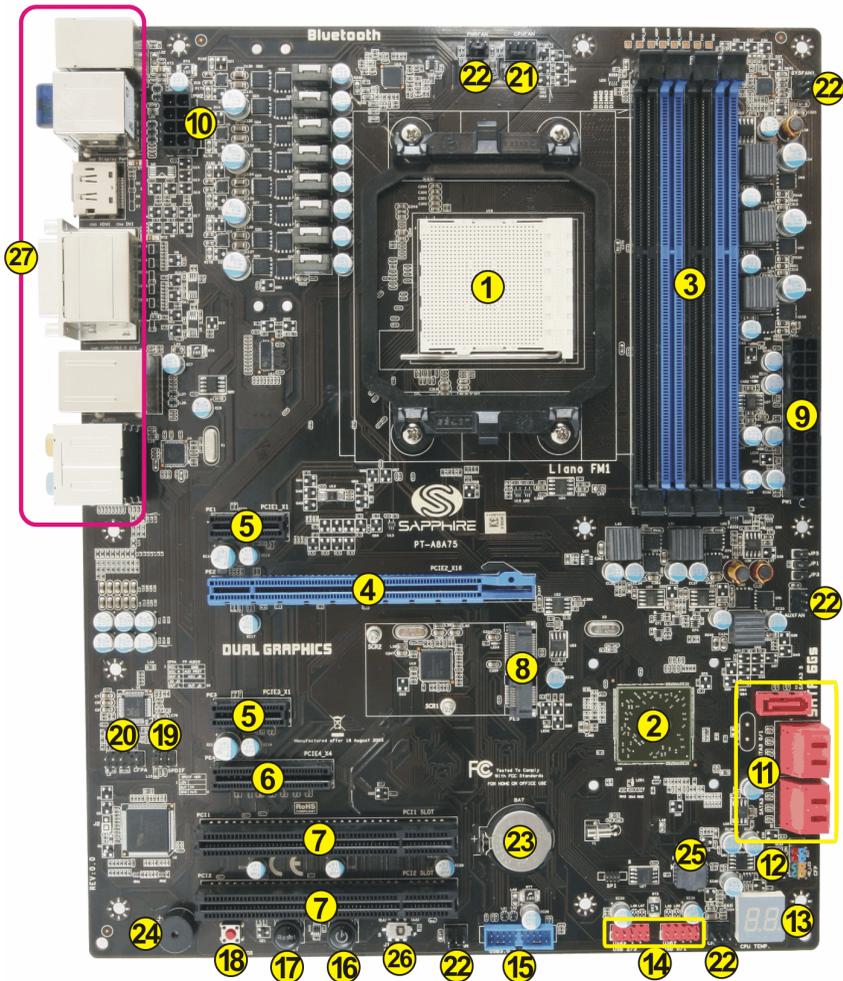
## 1-2 Package Contents

Your Sapphire mainboard comes with the following accessories.

| 1. Mainboard  | 2. I/O Shield  |
|---|--|
|  A photograph of a black ATX motherboard with various components like RAM slots, SATA ports, and a CPU socket. |  A rectangular metal shield with various ports and cutouts for I/O.           |
| 3. Quick Installation Guide   | 4. Driver CD   |
|  A photograph of a printed manual with text and diagrams.  |  A photograph of a standard CD-ROM disc.                                      |
| 5. USB3.0 Front Panel Cable   | 6. SATA Data Cable *4  |
|  A photograph showing a USB 3.0 front panel cable, a SATA-to-USB adapter, and other small components.         |  A photograph of a single SATA data cable with SATA connectors on both ends. |

### 1-3 Mainboard Layout

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



See next page for details

| Item | Component description                        |
|------|--|
| 1    | AMD CPU Socket FM1                           |
| 2    | AMD A75 (Hudson D3) Chip                     |
| 3    | DDR3 DIMM Slots 1-4                          |
| 4    | PCI-E 2.0 x16 Slot *1                        |
| 5    | PCI-E 2.0 x1 Slot *2                         |
| 6    | PCI-E 2.0 x4 Slot *1                         |
| 7    | PCI Slot *2                                  |
| 8    | Mini PCI-E Slot                              |
| 9    | 24-Pin ATX Power Connector                   |
| 10   | 8-pin ATX_12V Power Connector                |
| 11   | SATA3 Connectors *5                          |
| 12   | Front Panel Header                           |
| 13   | Debug LED Display                            |
| 14   | USB 2.0 Header *4                            |
| 15   | USB 3.0 Header *2                            |
| 16   | Power Button                                 |
| 17   | Reset Button                                 |
| 18   | Clear CMOS Button                            |
| 19   | S/PDIF Header                                |
| 20   | Front Panel Audio Header                     |
| 21   | CPU Fan Header                               |
| 22   | 3-pin Fan Header *5                          |
| 23   | Mainboard Battery                            |
| 24   | PC Speaker                                   |
| 25   | 16Mb SPI Flash                               |
| 26   | Dual BIOS Switch                             |
| 27   | Back Panel Connectors (see below for detail) |

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## 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. PS/2 Keyboard/Mouse Port

This connector is used for a keyboard or mouse. You can plug a PS/2 keyboard or mouse directly into this connector.

2. 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.

3. Bluetooth

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

4. ESATA Port

The ESATA (External SATA) port provides connection to ESATA hard drives.

5. Display Port

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

6. 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.

## 7. 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.

### Dual Display Configurations:

This mainboard provides three ports for video output: DVI-D, HDMI and Display port. Please refer to table below for dual display configurations supported.

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

Note: If you use both DVI-D and Display Port, only Display Port can output.

## 8. 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         |

## 9. 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).

## 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  |

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## **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.

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## 2-4 Installing the CPU and Fan Heatsink

Follow the steps below to install the CPU & cooler correctly.

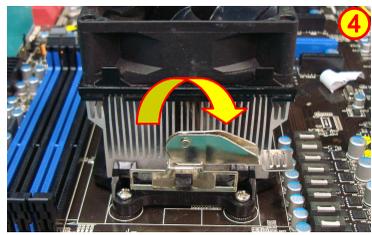
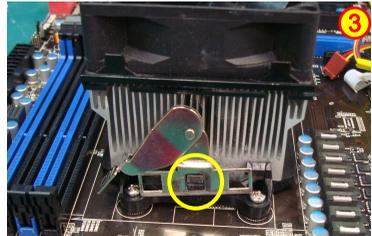
1. Open the socket lever and rise to a 90 degree angle.
2. Align the CPU pin one (small triangle marking) and gently insert the CPU into the socket then close the socket lever.



Note:

Apply some thermal paste on surface of CPU for better heat dispersion.

3. Place the cooler on the CPU. Engage one side of the clip onto the CPU mount first then press down the other side of the clip.
4. Turn the lever from left to right to fasten the CPU cooler. If in doubt, refer to your CPU cooler manual for installing the cooler.
5. Connect the 4-wire fan cable to the 4-pin CPUFAN header on the mainboard.



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PS:

Pictures for installation reference only, the actual board may be slightly different.

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## 2-5 Installing System Memory

This mainboard has four 240-pin DIMM sockets for DDR3 memory. These slots support 1GB, 2GB and 4GB DDR3 DIMMs up to max. 16GB

Make sure that you install memory modules of the same type and density in different channel DIMM slots for Dual-Channel mode.

There must be at least one memory bank populated to ensure normal operation and always insert the memory module into the DIMM slot 2 first.

### Memory configurations

Use the following the recommendations for installing memory.

| DIMM Quantity<br>Location | 1 DIMM<br>(Single Channel) | 2 DIMMs<br>(Dual Channel) | 3 DIMMs<br>(Dual Channel) | 4 DIMMs<br>(Dual Channel) |
|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| DIMM#1 (Black)            | --                         | --                        | V                         | V                         |
| DIMM#2 (Blue)             | V                          | V                         | V                         | V                         |
| DIMM#3 (Black)            | --                         | --                        | --                        | V                         |
| DIMM#4 (Blue)             | --                         | V                         | V                         | V                         |

(" V " = Memory installed, "--" = No memory installed)



### Memory Installation

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

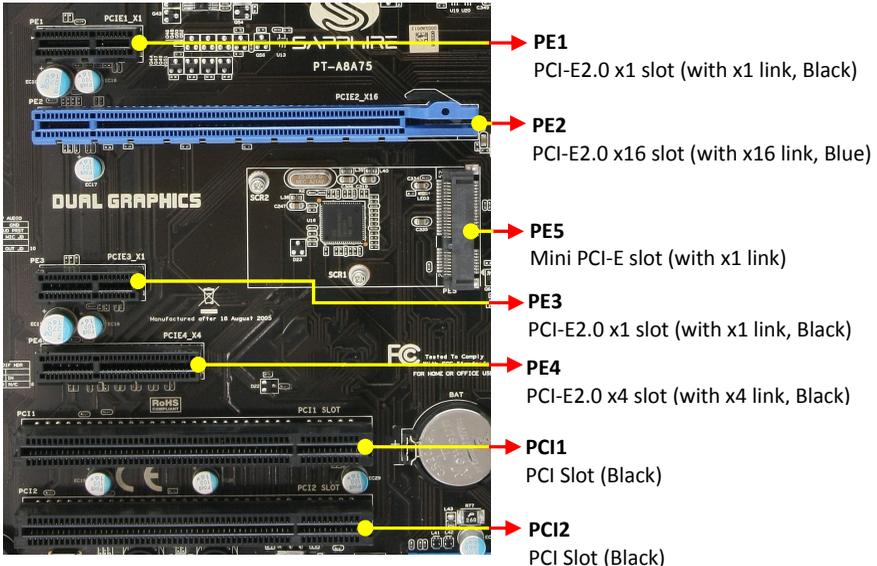
To install the DIMM, follow these steps:

1. Pull both clips on either side of the slot outwards. Align the DIMM module with the slot.
2. Press straight down until the plastic clips close and the module fits tightly into the DIMM slot.

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## 2-6 Installing Expansion Cards

The mainboard provides one PCI Express 2.0 x16 slot, one PCI Express 2.0 x4 slot, two PCI Express 2.0 x1 slots, one Mini PCI x1 slot and two PCI slots.



### PCI-E Slots

The design of this motherboard supports PCI-E interface expansion cards complying with the PCI Express specification.

To install a PCI Express card:

1. Place the card in an available 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. Remove screws and 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 until it clicks into place.
  3. Secure the Mini PCI-E card with accompanied screws.

## PCI Slots

The two PCI slots provided supports a variety of expansion cards such as a LAN card, USB card, SCSI card and other cards that comply with PCI specifications. When installing a card into the PCI slot, be sure that it is fully seated. Secure the card's metal bracket to the chassis back panel.

## 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 the 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.

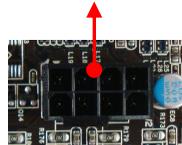
- 8-pin ATX 12V Power

PW2, the 8-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



8-pin ATX Power connector

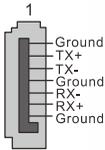
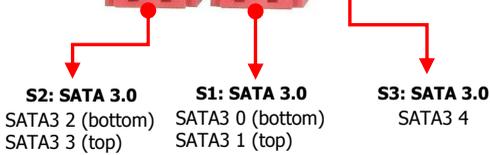
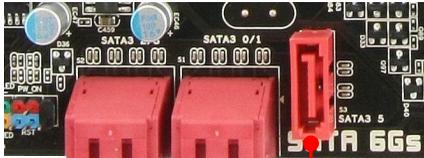


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## Connecting Serial ATA (SATA) Cables

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

The S1 to S3 connectors are SATA3 compliant and work at speeds of up to 6 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

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## 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

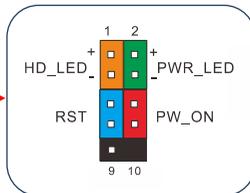
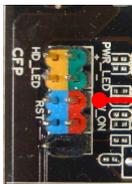
Attach the power button cable from the case to these two pins. Pressing the power button on the front panel turns the system on and off rather than using the onboard button.

#### ▶ 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     |

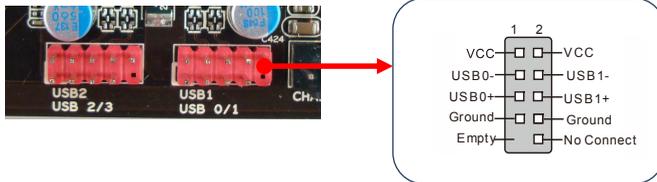
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## USB2.0 Headers

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.



## USB3.0 Headers

This mainboard contains Two (2) USB 3.0 ports that are exposed on the rear panel of the chassis. This mainboard also contains one onboard header connectors that can be used to connect to two (2) external USB 3.0 devices.



For rear panel, refer to the following steps:

1. Secure the bracket to rear panel of your chassis.
2. Connect the cable(s) to the USB 3.0 header on the mainboard.

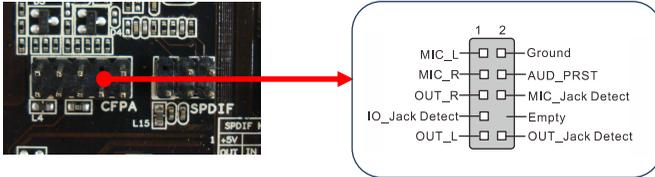
For front panel, refer to the following steps:

1. Remove the cover plate from the selected drive bay.
2. Push the USB3.0 cable into the drive bay. Align the screw holes with the appropriate holes in the drive bay and tighten the mounting screws.
3. Connect the USB3.0 connector of cable to the USB3.0 header on the mainboard.

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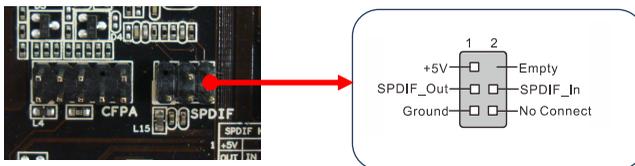
## CFPA Header

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



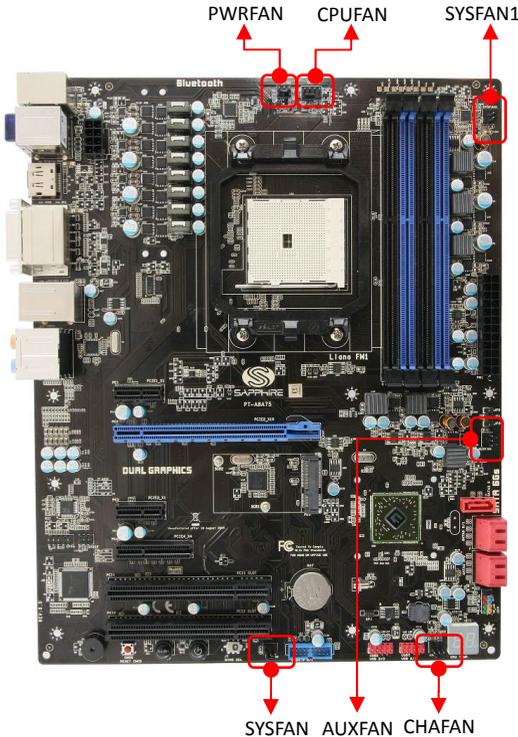
## S/PDIF Header

This header is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



## Fan Headers

There are six fan headers (CPUFAN, SYSFAN, SYSFAN1, PWRFAN, CHAFAN, AUXFAN) on the motherboard. Three of these fans (CPUFAN, PWRFAN, CHAFAN) can be speed detected/controlled and displayed in the Hardware Health Configuration section of the CMOS Setup. The fans are automatically turned off after the system enters S3, S4 or S5 mode.

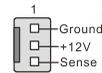


### CPUFAN

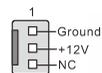


Note:  
The CPU fan cable can be either a 3-pin or a 4-pin connector. Connect a 3-pin connector to pins 1, 2, and 3 on the mainboard connector.

### PWRFAN / CHAFAN



### SYSFAN / SYSFAN1 / AUXFAN





---

## 2-10 Onboard Buttons

These onboard buttons include Clear CMOS, RESET and POWER, which allow you to easily clear the CMOS, reset the system and turn on/off the system.

### Clear CMOS Button

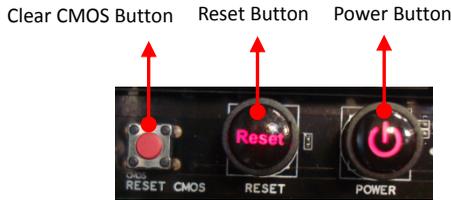
The mainboard uses the CMOS RAM to store some of the system configuration. The CMOS can be cleared by pressing the Clear CMOS button.

### Reset and Power Button

These onboard buttons allow you to easily turn on/off the system and allow for easy debugging and testing of the system during troubleshooting situations.

The Reset button with LED indicates the activity status of the hard disk drives and will blink accordingly.

The Power button with LED indicates the system's status. When the system is powered on, the LED blinks red.



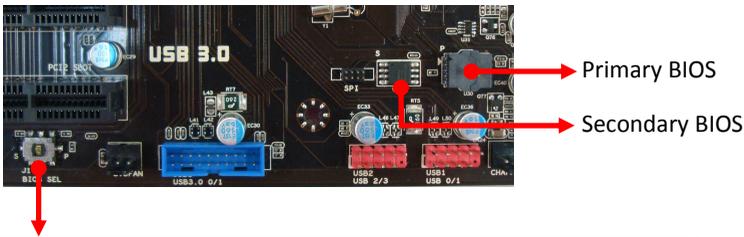
---

## 2-11 Dual BIOS Switch

This mainboard includes dual onboard BIOS, (Primary and Secondary BIOS), When the primary BIOS is corrupted or has failed, you can use the secondary BIOS to take over on the next system boot to ensure normal system operation.

To enable the secondary BIOS, please refer to the following steps:

1. Turn off the system power.
2. Change the BIOS Select jumper from "P" to "S" position.
3. Turn on the system power.



**BIOS Select Switch**  
(When the Secondary BIOS is in operation, the LED indicator is on.)

---

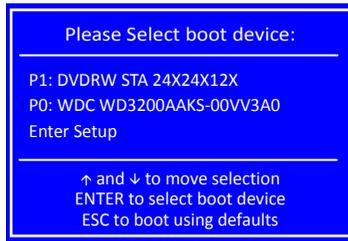
# **Chapter 3 Configuring the BIOS**

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

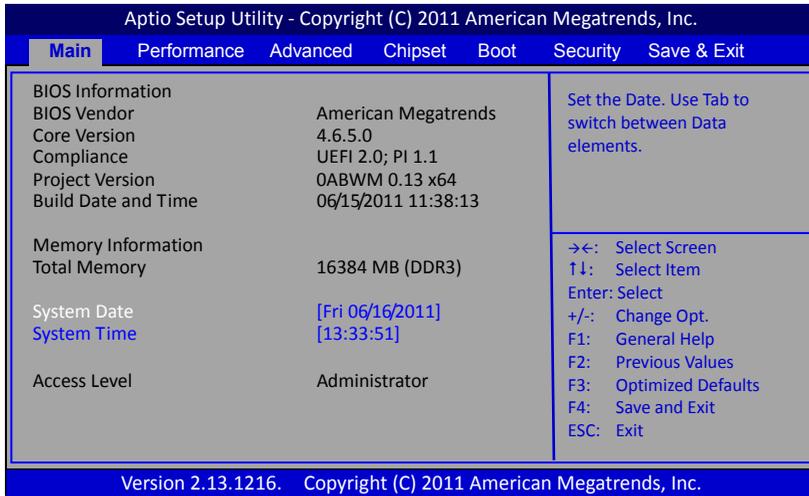
Please check the following table for the function description of each Controlkey.

| 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>.

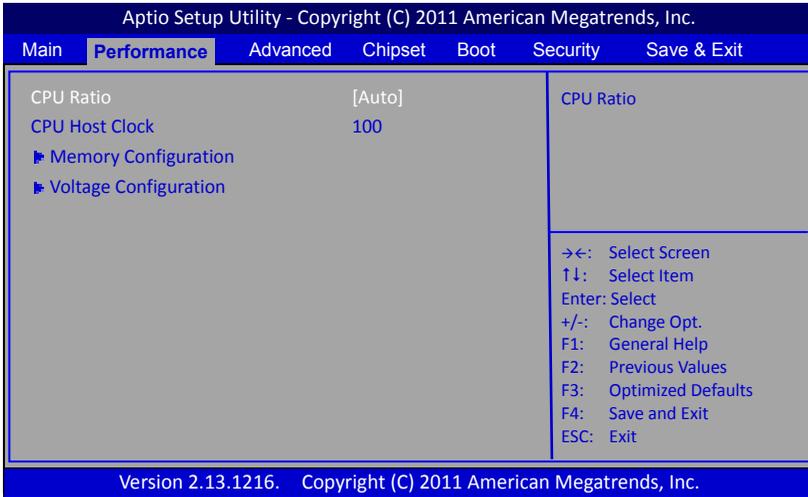
### Access Level

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 Ratio**

Allows the select the CPU Ratio.

Options: Auto, 8X ~ 31X.

### **CPU Host Clock**

Allows you to select the CPU Host Clock.

## ► Memory Configuration

| Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc. |          |  |
|--|----------|--|
| Performance  |          |  |
| Memory Multiplier Configuration                                    |          | Allows you to select the memory multiplier.  |
| Current Multiplier Frequency:<br>Memory Frequency                  | [Auto]   |  |
| Current tCL:   | 9        |  |
| CAS# Latency (tCL)   | [Auto]   |  |
| Current tRCD:  | 9        |  |
| RAS# to CAS# Delay(tRCD)   | [Auto]   |  |
| Current tRP:   | 9        |  |
| Row Precharge Time(tRP)  | [Auto]   |  |
| Current tRAS:  | 24       |  |
| RAS# Active Time(tRAS)   | [Auto]   |  |
| Current tRC:   | 28       |  |
| Active to Active/Refresh Delay(tRC)                                | [Auto]   |  |
| Current tWR:   | 10       |  |
| Write Recovery Time(tWR)   | [Auto]   |  |
| Current tRFC:  | 160 ns   |  |
| Row Refresh Cycle Time(tRFC)                                       | [Auto]   |  |
| Current tWTR:  | 5        |  |
| Write to Read Delay(tWTR)  | [Auto]   |  |
| Current tRRD:  | 4        |  |
| Active to Active Delay(tRRD)                                       | [Auto]   |  |
| Current tRTP:  | 5        |  |
| Read CAS# Precharge(tRTP)  | [Auto]   |  |
| Current tFAW:  | 20       |  |
| Four Active Windows Delay(tFAW)                                    | [Auto]   |  |
| Current tFAW:  | 7.8 us   |  |
| tREF   | [7.8 us] |  |
|  |          | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save and Exit<br>ESC: Exit |
| Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.    |          |  |

### Memory Frequency

Allows you to select the system memory Frequency.

Options: Auto, 800Mhz, 1066Mhz, 1333Mhz, 1600Mhz, 1866Mhz.

### CAS# Latency (tCL)

Set the CAS latency time.

Options: Auto, 4 ~ 12.

### RAS# to CAS# Delay(tRCD)

Set the RAS to CAS Delay time for Read/Write commands to the same bank.

Options: Auto, 5 ~ 12.

### Row Precharge Time(tRP)

Set the Row Precharge time. This is the Precharge-to-Active or Auto-to-Refresh of the same bank.

Options: Auto, 5 ~ 12.

---

**RAS# Active Time(tRAS)**

Set the minimum RAS# active time.

Options: Auto, 15 ~ 30.

**Write Recovery Time(tWR)**

Set the internal Write to Read recovery time.

Options: Auto, 5 ~ 12.

**Row Refresh Cycle Time(tRFC)**

Set the minimum refresh recovery time.

Options: Auto, 15 ~ 255.

**Write to Read Delay(tWTR)**

Set the internal Write to Read command delay.

Options: Auto, 4 ~ 7.

**Active to Active Delay(tRRD)**

Set the Row Active to Row Active delay.

Options: Auto, 4 ~ 7.

**Read CAS# Precharge(tRTP)**

Set the Read to Precharge delay.

Options: Auto, 4 ~ 7.

**Four Active Windows Delay(tFAW)**

Set the Four Active Windows Delay.

Options: Auto, 16 ~ 32.

**tREF**

Set the clock cycles between RAM refreshes.

Options: 7.8us, 3.9us.

## ► Voltage Configuration

| Voltage Configuration |          |
|-----------------------|----------|
| APU                   | [+000mV] |
| APU_NB                | [+000mV] |
| FCH                   | [1.10V]  |
| DIMM DQ Voltage       | [Auto]   |
| DIMM CA Voltage       | [Auto]   |
| VDDR                  | [1.20V]  |
| VDDP                  | [1.20V]  |
| VDDA                  | [2.50V]  |
| DIMM Voltage          | [1.50V]  |
| DIMM VTT              | [Auto]   |

→←: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F2: Previous Values  
F3: Optimized Defaults  
F4: Save and Exit  
F5: Fvit

### **APU**

Allows you to adjust the APU voltage.

Options: +000mV ~ +1200mV in 10mV increments.

### **APU\_NB**

Allows you to adjust the APU\_NB voltage.

Options: +000mV ~ +630mV in 10mV increments.

### **FCH**

Allows you to adjust the AMD FCH voltage.

Options: 1.10V ~2.30V in 0.01V increments.

### **DIMM DQ Voltage**

Allows you to adjust the DQ Voltage of DIMM Slot voltage.

Options: Auto, 0.75V ~1.38V in 0.01V increments.

### **DIMM CA Voltage**

Allows you to adjust the DIMM CA of DIMM Slot voltage.

Options: Auto, 0.75V ~1.38V in 0.01V increments.

### **VDDR**

Allows you to adjust the VDDR voltage.

Options: 1.20V ~1.83V in 0.01V increments.

### **VDDP**

Allows you to adjust the PCI Express I/O ring voltage.

---

Options: 1.20V ~1.83V in 0.01V increments.

**VDDA**

Allows you to adjust the filtered PLL voltage.

Options: 2.50V ~3.31V in 0.01V increments.

**DIMM Voltage**

Allows you to adjust the DIMM Slot voltage.

Options: Auto, 1.50V ~2.30V in 0.01V increments.

**DIMM VTT**

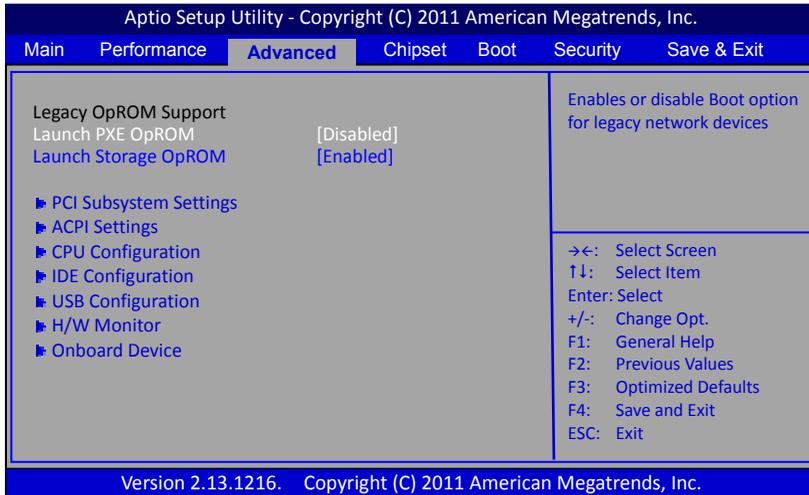
Allows you to adjust the DIMM VTT voltage.

Options: 0.75V ~1.38V in 0.01V 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.

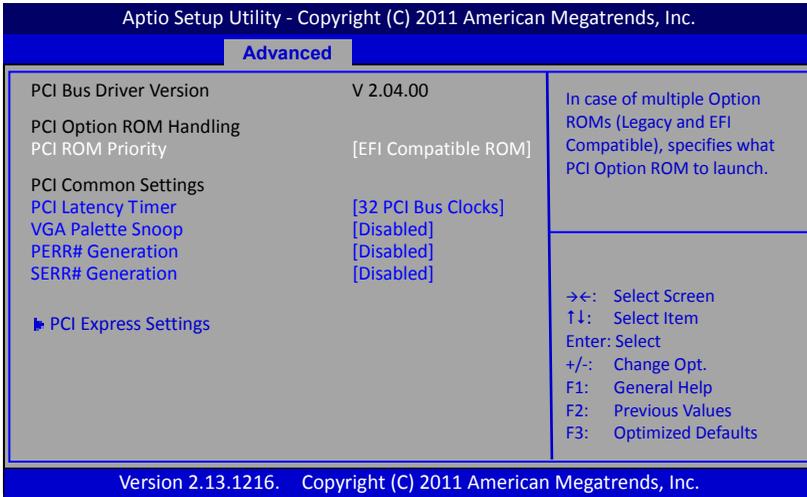
Options: Enabled, Disabled.

### Launch Storage OpROM

Enables the Boot option for mass storage devices with option ROM.

Options: Enabled, Disabled.

## ► PCI Subsystem Settings



### **PCI ROM Priority**

In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.

Options: Legacy ROM, EFI Compatible ROM.

### **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

### **PERR# Generation**

Allows you to enable or disable PCI device to Generate PERR#.

Options: Enabled, Disabled

### **SERR# Generation**

Allows you to enable or disable PCI device to Generate SERR#.

Options: Enabled, Disabled

## ► PCI Express Settings

| Advanced  |  |   |
|---|--|---|
| <b>PCI Express Device Register Settings</b><br>Relaxed Ordering [Disabled]<br>Extended Tag [Disabled]<br>No Snoop [Enabled]<br>Maximum Payload [Auto]<br>Maximum Read Request [Auto]  |  | Enables or disables PCI Express Device Relaxed Ordering.  |
| <b>PCI Express Link Register Settings</b><br>ASPM Support [Disabled]<br>WARNING: Enabling ASPM may cause some PCI-E devices to fail<br>Extended Synch [Disabled]<br>Link Training Retry [5]<br>Link Training Timeout (us) 100<br>Unpopulated Links [Keep Link ON] |  | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save and Exit |

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### **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.

**Link Training Retry**

Defines number of Retry attempts software will take to retrain the link if previous training attempt was unsuccessful.

Options: Disabled, 2, 3, 5.

**Link Training Time out (us)**

Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register.

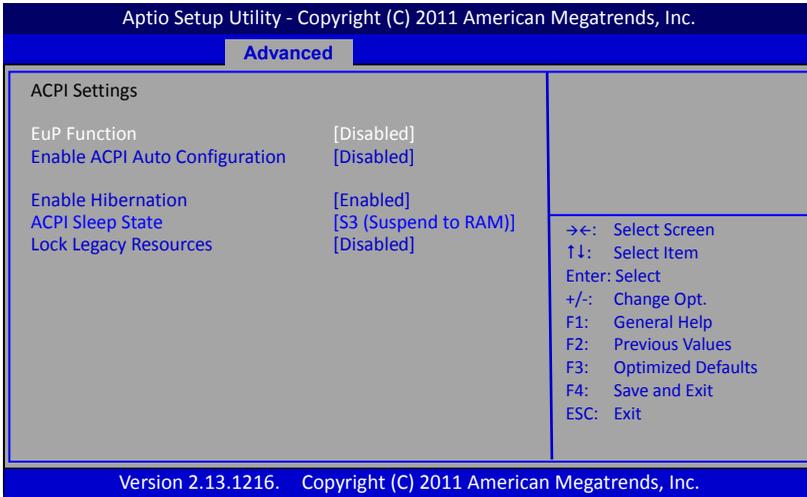
Options: 10 to 1000 us.

**Unpopulated Links**

In order to save power, software will disable unpopulated PCI Express links, if this option set to disabled link.

Options: Keep Link ON, Disabled.

## ▶ ACPI Settings



### **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.

### **Enable ACPI Auto Configuration**

Enables BIOS ACPI auto configuration.

Options: Enabled, Disabled.

### **Enable Hibernation**

Enables system ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

Options: Enabled, Disabled.

### **ACPI Sleep State**

Selects the power saving modes for ACPI function.

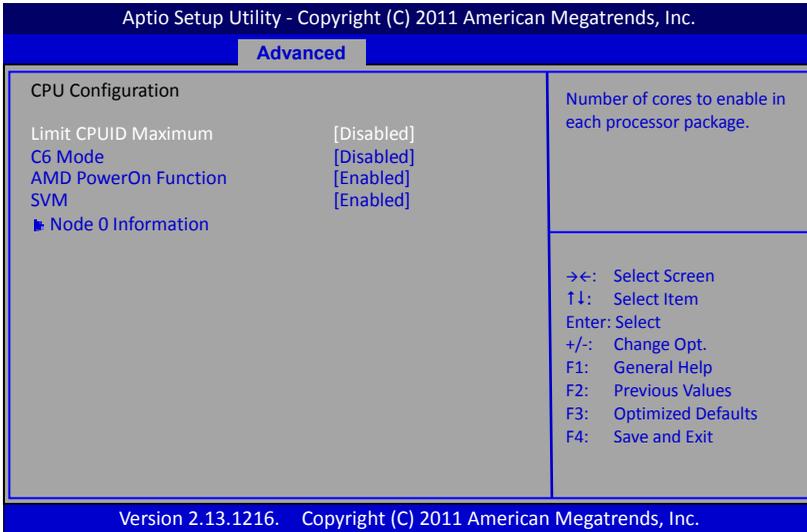
Options: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM).

### **Lock Legacy Resources**

When enabled (locked), this option prevents the operating system from modifying assignments for legacy resources.

Options: Enabled, Disabled.

## ► CPU Configuration



### **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.

### **C6 Mode**

Allows you to select C6 State for Nehalem processor.

Options: Enabled, Disabled.

### **AMD PowerOn Function**

Enables the AMD PowerOn function.

Options: Enabled, Disabled.

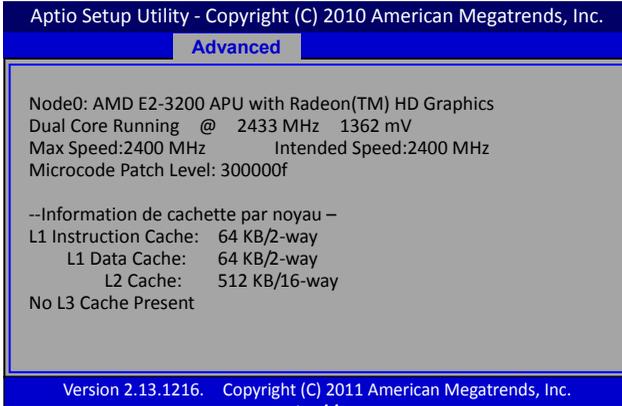
### **SVM Mode**

Enables the CPU SVM( Secure Virtual Machine) function.

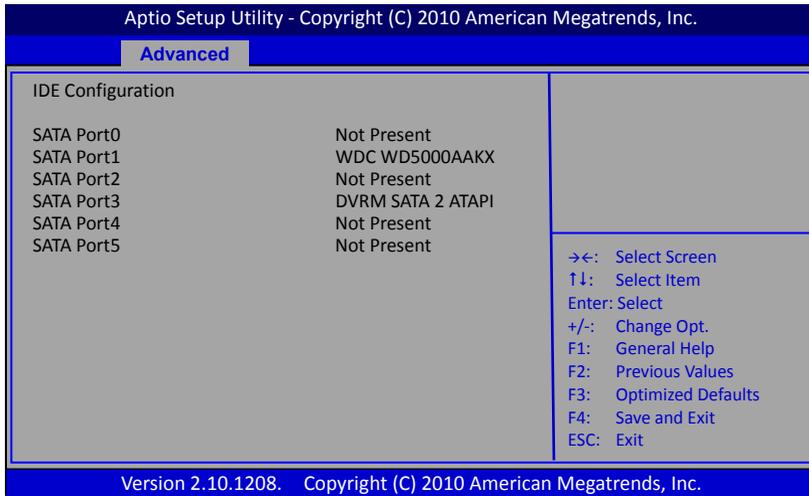
Options: Enabled, Disabled.

► **Node 0 Information**

Displays current processor information.



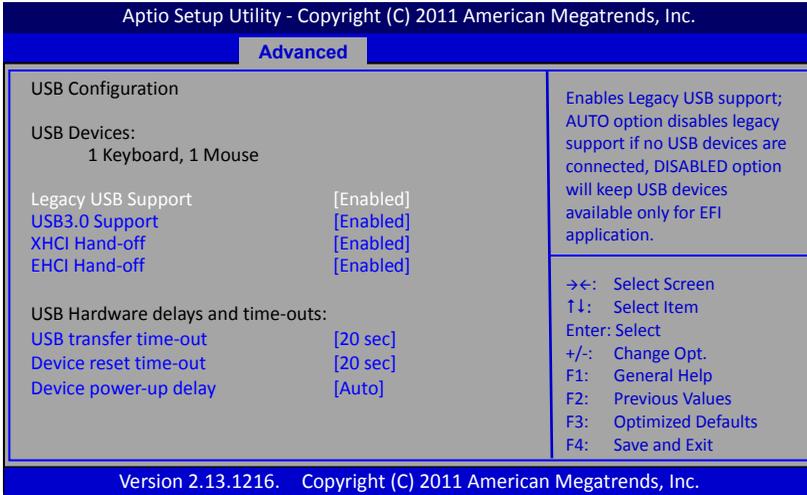
► **IDE Configuration**



**IDE Configuration**

This field shows SATA ports connection state.

## ► 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.

### **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.

## ► H/W Monitor

The screenshot shows the 'Advanced' tab of the Aptio Setup Utility. The main display area is divided into two columns. The left column lists various system health metrics and fan settings, while the right column provides navigation instructions.

| PC Health Status   |             |
|--------------------|-------------|
| CPU Temperature    | : +48 C     |
| VREG Temperature   | : +37 C     |
| System Temperature | : +25 C     |
| CPU Fan Speed      | : 3080 RPM  |
| Power Fan Speed    | : 1067 RPM  |
| Chassis Fan Speed  | : 1012 RPM  |
| VCC3V              | : +3.360 V  |
| APU                | : +1.176 V  |
| APU_NB             | : +1.168 V  |
| FCH                | : +1.096 V  |
| DIMM               | : +1.512 V  |
| APU_VDDR           | : +12.184 V |
| APU_VDDP           | : +1.208 V  |
| USB3V              | : +3.296 V  |
| VBAT               | : +3.344 V  |

| Fan Mode Settings            |                   |
|------------------------------|-------------------|
| CPU Fan Type                 | [PWM FAN (4 pin)] |
| CPU Fan Mode Setting         | [SmartFan]        |
| Temperature Limit of Highest | 060               |
| Temperature Limit of Lowest  | 030               |
| Fan Highest setting          | 100               |
| Fan Lowest setting           | 050               |
| Power Fan Mode Setting       | [SmartFan]        |
| Temperature Limit of Highest | 060               |
| Temperature Limit of Lowest  | 030               |
| Fan Highest setting          | 100               |
| Fan Lowest setting           | 050               |
| Chassis Fan Mode Setting     | [SmartFan]        |
| Temperature Limit of Highest | 060               |
| Temperature Limit of Lowest  | 030               |
| Fan Highest setting          | 100               |
| Fan Lowest setting           | 050               |

Navigation instructions on the right side of the screen:

- ←: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save and Exit
- ESC: Exit

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### **CPU / VREG / System**

Displays the current CPU, onboard regulator and system temperature.

### **CPU /Power /Chassis Fan Speed**

Displays the current CPU, Power and Chassis Fan Speed

### **VCC3V/APU/APU\_NB/FCH/DIMM/APU\_VDDR/APU\_VDDP/VSB3V/VBAT**

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

### **CPU Fan Type**

Allows you to select the CPU Fan type.

Options: PWM FAN (4 pin), Linear FAN (3 pin)

### **CPU Fan Mode Setting**

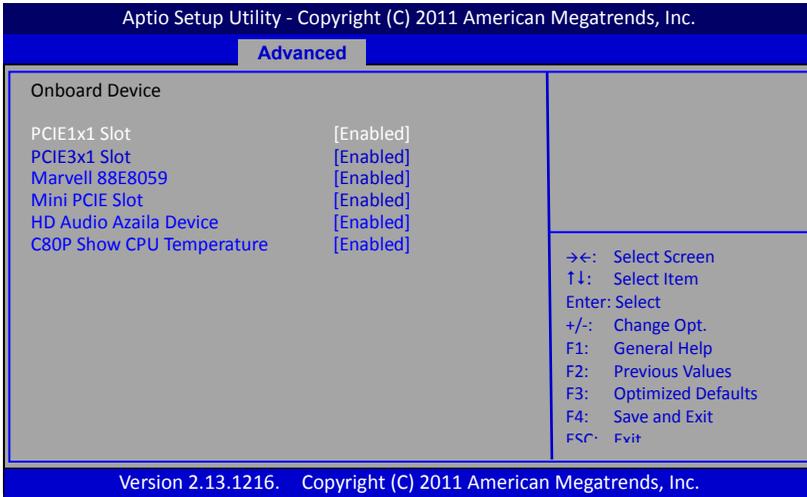
This item controls the speed of the various fans on the motherboard.

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

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

Manual By RPM: This item can manual RPM count setting.

## ► Onboard Device



### **PCIE1x1 Slot**

Enables PCIE1x1 Slot.

Options: Enabled, Disabled.

### **PCIE3x1 Slot**

Enables PCIE3x1 Slot.

Options: Enabled, Disabled.

### **Marvell 88E8059**

Enables the onboard Giga Lan function for LAN.

Options: Auto, Enabled, Disabled

### **Mini PCIE Slot**

Enables Mini PCIE Slot.

Options: Enabled, Disabled.

### **HD Audio Azaila Device**

Enables the onboard High Definition Audio controller.

Options: Enabled, Disabled.

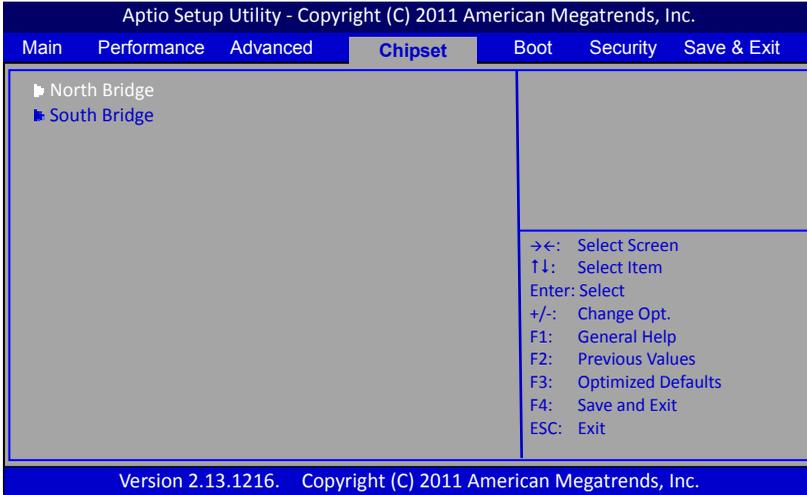
### **C80P Show CPU Temperature**

Enables the onboard POST Port LED to display CPU temperature.

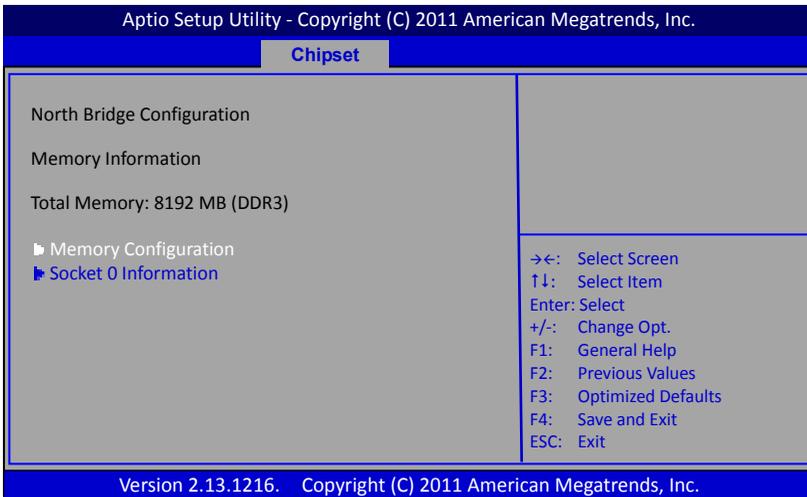
Options: Enabled, Disabled.

## 3-6 Chipset Menu

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



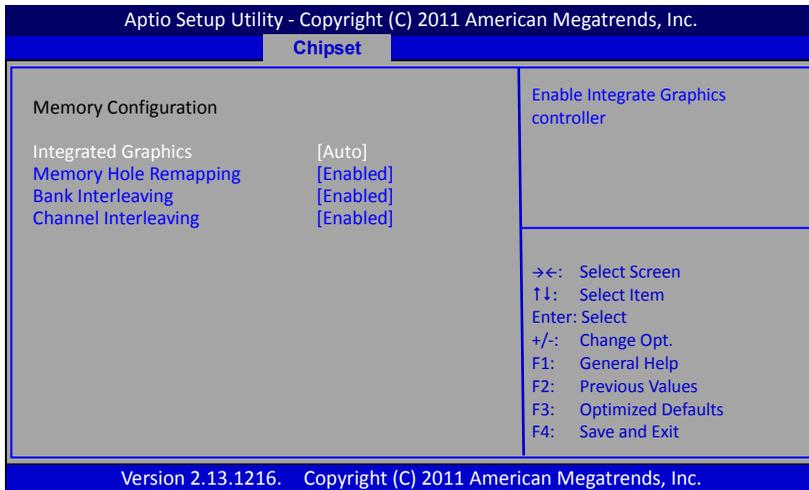
### ▶ North Bridge



### Total Memory

Displays current system total memory size.

## ► Memory Configuration



### **Integrated Graphics**

Enables integrated graphics controller.

Options: Disabled, Auto, Force.

### **UMA Frame buffer Size**

This item will only appear when “Integrated Graphics” item is set to “Force” option. It controls the amount of system memory that is allocated to the integrated graphics processor.

Options: 32M, 64M, 128M, 256M, 384M, 512M, 1G, 2G, 4G.

### **Memory Hole Remapping**

Enables Memory Hole Remapping function.

Options: Enabled, Disabled.

### **Bank Interleaving**

Bank Interleaving is an important parameter for improving overclocking capability of memory. It allows system to access multiple banks simultaneously.

Options: Enabled, Disabled.

### **Channel Interleaving**

Enables or disables memory channel interleaving. Enabled allows the system to simultaneously access different channels of the memory to increase memory performance and stability.

Options: Auto, Disabled.

► **Node 0 Information**

This field displays the memory information related to Mode 0.

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**Chipset**

Socket 0 Information

Starting Address: 0 KB  
Ending Address: 167777215 KB

Dimm0: size=4906 MB, Speed=1333 MHz  
Dimm0: size=4906 MB, Speed=1333 MHz  
Dimm0: size=4906 MB, Speed=1333 MHz  
Dimm0: size=4906 MB, Speed=1333 MHz

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► **South Bridge**

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**Chipset**

SB CIM Version: 1.0.0.2

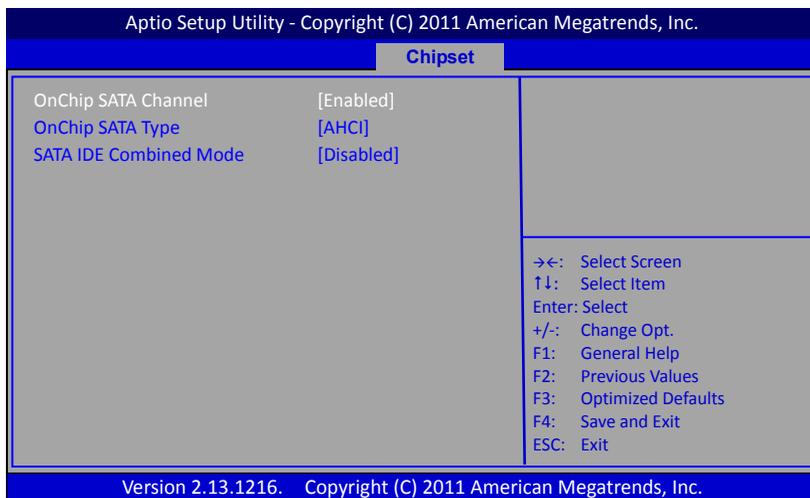
► SB SATA Configuration  
■ SB USB Configuration

Options for SATA configuration.

→←: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F2: Previous Values  
F3: Optimized Defaults  
F4: Save and Exit  
ESC: Exit

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## ► SB SATA Configuration



### **OnChip SATA Channel**

Enables onboard SATA Channel.

Options: Enabled, Disabled.

### **OnChip SATA Type**

Allows you to set the onboard Serial SATA type.

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

### **SATA IDE Combined Mode**

Enables SATA and IDE Combined mode.

► SB USB Configuration

This filed for USB ports Configuration.

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| Chipset                    |           |
|----------------------------|-----------|
| XHCI Switch                | [Enabled] |
| OHCI HC(Bus 0 Dec 18 Fn 0) | [Enabled] |
| EHCI HC(Bus 0 Dec 18 Fn 2) | [Enabled] |
| OHCI HC(Bus 0 Dec 19 Fn 0) | [Enabled] |
| EHCI HC(Bus 0 Dec 19 Fn 2) | [Enabled] |
| OHCI HC(Bus 0 Dec 20 Fn 5) | [Enabled] |
| USB PORT 0                 | [Enabled] |
| USB PORT 1                 | [Enabled] |
| USB PORT 2                 | [Enabled] |
| USB PORT 3                 | [Enabled] |
| USB PORT 4                 | [Enabled] |
| USB PORT 5                 | [Enabled] |
| USB PORT 6                 | [Enabled] |
| USB PORT 7                 | [Enabled] |
| USB PORT 8                 | [Enabled] |
| USB PORT 9                 | [Enabled] |
| XHCI0 PORT 0               | [Enabled] |
| XHCI0 PORT 1               | [Enabled] |
| XHCI1 PORT 0               | [Enabled] |
| XHCI1 PORT 1               | [Enabled] |

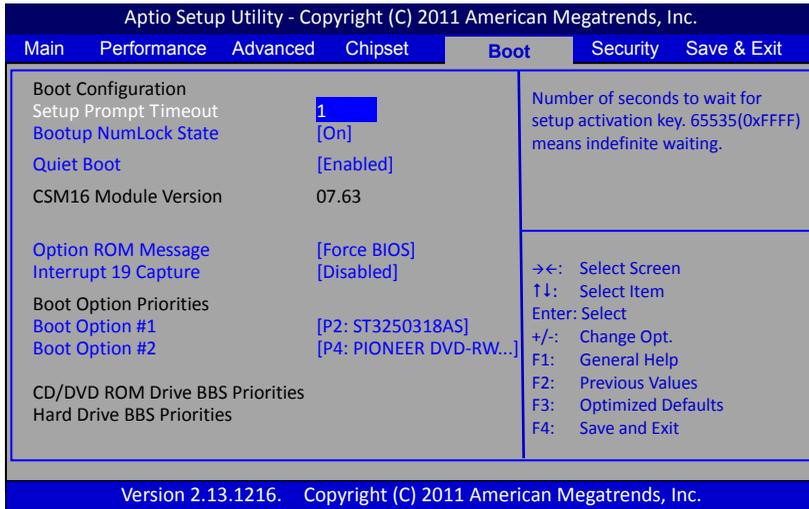
→←: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F2: Previous Values  
F3: Optimized Defaults  
F4: Save and Exit  
ESC: Exit

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---

## 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.

### 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.

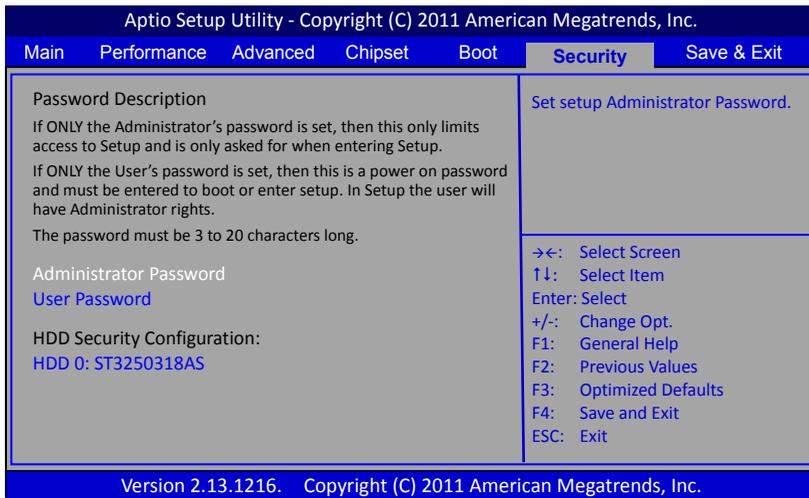
**Hard Drive BBS Priorities**

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.

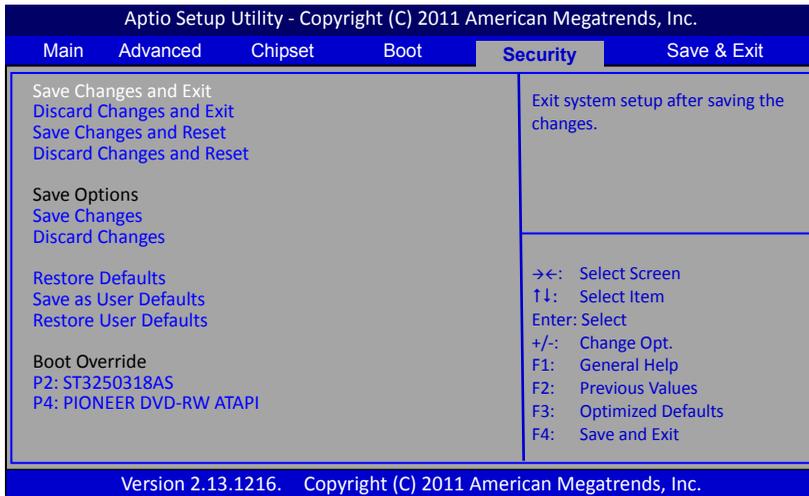
### HDD Security Configuration

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 Driver Installation

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

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

### ***4-1 Driver Install***

Insert the bundled driver CD 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.



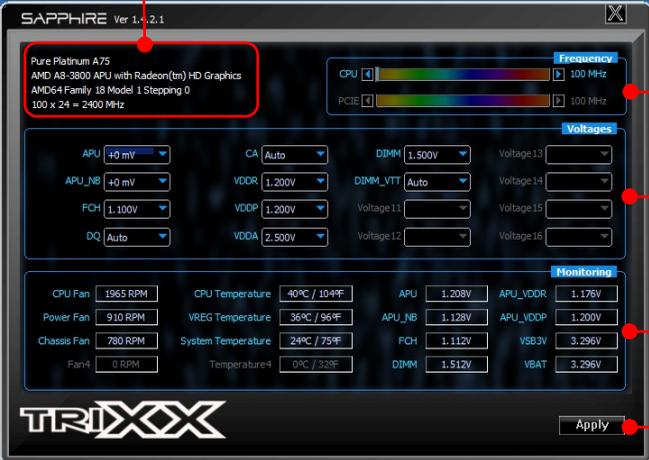
<Mainboard Drivers page>

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

## 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.



The screenshot shows the TRIXX Utility interface with the following sections and annotations:

- System Information:** Pures Platinum A75, AMD A8-3800 APU with Radeon(tm) HD Graphics, AMD64 Family 18 Model 1 Stepping 0, 100 x 24 = 2400 MHz. (Annotation: Display current CPU information)
- Frequency:** CPU [4] 100 MHz, PCI-E [1] 100 MHz. (Annotation: Adjust frequency for CPU and PCI-E.)
- Voltages:** APU [0 mV], APU\_NB [40 mV], FCH [1.100V], DQ [Auto], CA [Auto], VDDR [1.200V], VDDP [1.200V], YDDA [2.500V], DIMM [1.500V], DIMM\_VTT [Auto], Voltage 13, Voltage 14, Voltage 15, Voltage 16. (Annotation: Adjust voltage for CPU, DIMM etc.)
- Monitoring:** CPU Fan [1965 RPM], Power Fan [910 RPM], Chassis Fan [780 RPM], Fan4 [0 RPM], CPU Temperature [40°C / 104°F], VREG Temperature [36°C / 96°F], System Temperature [24°C / 75°F], Temperature4 [0°C / 32°F], APU [1.208V], APU\_NB [1.128V], FCH [1.112V], DIMM [1.512V], APU\_VDDP [1.176V], APU\_VDDP [1.200V], VSB3V [3.296V], VBAT [3.296V]. (Annotation: Displays system hardware monitor status)
- Apply:** [Apply] button. (Annotation: Apply the chosen settings.)

---

## 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 voltages of CPU, System.



The screenshot shows a hardware monitor gadget for a Pure Platinum A75. It is divided into three sections: Temperatures, Fans, and Voltages. Each section has a red dot with an arrow pointing to a descriptive text.

| Section          | Item     | Value         |
|------------------|----------|---------------|
| [ Temperatures ] | CPU      | 40°C / 104°F  |
|                  | VREG     | 36°C / 96.8°F |
|                  | System   | 24°C / 75.2°F |
| [ Fans ]         | CPU      | 1965 RPM      |
|                  | Power    | 910 RPM       |
|                  | Chassis  | 781 RPM       |
| [ Voltages ]     | APU      | 1.216 V       |
|                  | APU_NB   | 1.128 V       |
|                  | FCH      | 1.096 V       |
|                  | DIMM     | 1.528 V       |
|                  | APU_VDDR | 1.176 V       |
|                  | APU_VDDP | 1.2 V         |
|                  | VSB3V    | 3.296 V       |
|                  | VBAT     | 3.296 V       |

The gadget also features the SAPPHIRE logo at the bottom.

Displays hardware monitor temperature.

Displays fan speeds.

Displays voltages of system.

---

# **Chapter 5 POST Code**

This chapter provides the Aptio POST Codes List for the mainboard during the BIOS pre-boot process.

The POST Codes are displayed on the Debug LED readout located directly onboard the mainboard.

Please refer to following “boot phases”, which may apply to various status code & checkpoint descriptions:

- ◆ Security (SEC) – initial low-level initialization
- ◆ Pre-EFI Initialization (PEI) – memory initialization
- ◆ Driver Execution Environment (DXE) – main hardware initialization
- ◆ Boot Device Selection (BDS) – system setup, pre-OS user interface & selecting a bootable device (CD/DVD, HDD, USB, Network, Shell,...)

## **Checkpoint Ranges**

| <b>Status Code Range</b> | <b>Description</b>                                 |
|--------------------------|--|
| 01 – 0B                  | SEC execution                                      |
| 0C – 0F                  | SEC errors   |
| 10 – 2F                  | PEI execution up to and including memory detection |
| 30 – 4F                  | PEI execution after memory detection               |
| 50 – 5F                  | PEI errors   |
| 60 – 8F                  | DXE execution up to BDS                            |
| 90 – CF                  | BDS execution                                      |
| D0 – DF                  | DXE errors   |
| E0 – E8                  | S3 Resume (PEI)                                    |
| E9 – EF                  | S3 Resume errors (PEI)                             |
| F0 – F8                  | Recovery (PEI)                                     |
| F9 – FF                  | Recovery errors (PEI)                              |

## **Standard Checkpoints**

### **◆ SEC Phase**

| <b>Status Code</b>    | <b>Description</b>                                   |
|-----------------------|--|
| 00                    | Not used   |
| <b>Progress Codes</b> |  |
| 01                    | Power on. Reset type detection (soft/hard).          |
| 02                    | AP initialization before microcode loading           |
| 03                    | North Bridge initialization before microcode loading |
| 04                    | South Bridge initialization before microcode loading |
| 05                    | OEM initialization before microcode loading          |

|                        |   |
|------------------------|---|
| 06                     | Microcode loading                                   |
| 07                     | AP initialization after microcode loading           |
| 08                     | North Bridge initialization after microcode loading |
| 09                     | South Bridge initialization after microcode loading |
| 0A                     | OEM initialization after microcode loading          |
| 0B                     | Cache initialization                                |
| <b>SEC Error Codes</b> |   |
| 0C – 0D                | Reserved for future AMI SEC error codes             |
| 0E                     | Microcode not found                                 |
| 0F                     | Microcode not loaded                                |

#### ◆ PEI Phase

| Status Code           | Description  |
|-----------------------|--|
| <b>Progress Codes</b> |  |
| 10                    | PEI Core is started  |
| 11                    | Pre-memory CPU initialization is started                                     |
| 12– 14                | Pre-memory CPU initialization (CPU module specific)                          |
| 15                    | Pre-memory North Bridge initialization is started                            |
| 16                    | Pre-Memory North Bridge initialization (North Bridge module specific)        |
| 17                    | Pre-Memory North Bridge initialization (North Bridge module specific)        |
| 18                    | Pre-Memory North Bridge initialization (North Bridge module specific)        |
| 19                    | Pre-memory South Bridge initialization is started                            |
| 1A                    | Pre-memory South Bridge initialization (South Bridge module specific)        |
| 1B                    | Pre-memory South Bridge initialization (South Bridge module specific)        |
| 1C                    | Pre-memory South Bridge initialization (South Bridge module specific)        |
| 1D – 2A               | OEM pre-memory initialization codes  |
| 2B                    | Memory initialization. Serial Presence Detect (SPD) data reading             |
| 2C                    | Memory initialization. Memory presence detection                             |
| 2D                    | Memory initialization. Programming memory timing information                 |
| 2E                    | Memory initialization. Configuring memory                                    |
| 2F                    | Memory initialization (other).   |
| 30                    | Reserved for ASL (see ASL Status Codes section below)                        |
| 31                    | Memory Installed   |
| 32                    | CPU post-memory initialization is started                                    |
| 33                    | CPU post-memory initialization. Cache initialization                         |
| 34                    | CPU post-memory initialization. Application Processor(s) (AP) initialization |
| 35                    | CPU post-memory initialization. Boot Strap Processor (BSP) selection         |
| 36                    | CPU post-memory initialization. System Management Mode (SMM) initialization  |
| 37                    | Post-Memory North Bridge initialization is started                           |
| 38                    | Post-Memory North Bridge initialization (North Bridge module specific)       |
| 39                    | Post-Memory North Bridge initialization (North Bridge module specific)       |
| 3A                    | Post-Memory North Bridge initialization (North Bridge module specific)       |
| 3B                    | Post-Memory South Bridge initialization is started                           |
| 3C                    | Post-Memory South Bridge initialization (South Bridge module specific)       |

|                                 |  |
|---------------------------------|--|
| 3D                              | Post-Memory South Bridge initialization (South Bridge module specific)           |
| 3E                              | Post-Memory South Bridge initialization (South Bridge module specific)           |
| 3F-4E                           | OEM post memory initialization codes   |
| 4F                              | DXE IPL is started   |
| <b>PEI Error Codes</b>          |  |
| 50                              | Memory initialization error. Invalid memory type or incompatible memory speed    |
| 51                              | Memory initialization error. SPD reading has failed                              |
| 52                              | Memory initialization error. Invalid memory size or memory modules do not match. |
| 53                              | Memory initialization error. No usable memory detected                           |
| 54                              | Unspecified memory initialization error.   |
| 55                              | Memory not installed   |
| 56                              | Invalid CPU type or Speed  |
| 57                              | CPU mismatch   |
| 58                              | CPU self test failed or possible CPU cache error                                 |
| 59                              | CPU micro-code is not found or micro-code update is failed                       |
| 5A                              | Internal CPU error   |
| 5B                              | reset PPI is not available   |
| 5C-5F                           | Reserved for future AMI error codes  |
| <b>S3 Resume Progress Codes</b> |  |
| E0                              | S3 Resume is started (S3 Resume PPI is called by the DXE IPL)                    |
| E1                              | S3 Boot Script execution   |
| E2                              | Video repost   |
| E3                              | OS S3 wake vector call   |
| E4-E7                           | Reserved for future AMI progress codes   |
| <b>S3 Resume Error Codes</b>    |  |
| E8                              | S3 Resume Failed   |
| E9                              | S3 Resume PPI not Found  |
| EA                              | S3 Resume Boot Script Error  |
| EB                              | S3 OS Wake Error   |
| EC-EF                           | Reserved for future AMI error codes  |
| <b>Recovery Progress Codes</b>  |  |
| F0                              | Recovery condition triggered by firmware (Auto recovery)                         |
| F1                              | Recovery condition triggered by user (Forced recovery)                           |
| F2                              | Recovery process started   |
| F3                              | Recovery firmware image is found   |
| F4                              | Recovery firmware image is loaded  |
| F5-F7                           | Reserved for future AMI progress codes   |
| <b>Recovery Error Codes</b>     |  |
| F8                              | Recovery PPI is not available  |
| F9                              | Recovery capsule is not found  |
| FA                              | Invalid recovery capsule   |
| FB – FF                         | Reserved for future AMI error codes  |

## ◆ DXE Phase

| Status Code | Description  |
|-------------|--|
| 60          | DXE Core is started  |
| 61          | NVRAM initialization   |
| 62          | Installation of the South Bridge Runtime Services              |
| 63          | CPU DXE initialization is started                              |
| 64          | CPU DXE initialization (CPU module specific)                   |
| 65          | CPU DXE initialization (CPU module specific)                   |
| 66          | CPU DXE initialization (CPU module specific)                   |
| 67          | CPU DXE initialization (CPU module specific)                   |
| 68          | PCI host bridge initialization                                 |
| 69          | North Bridge DXE initialization is started                     |
| 6A          | North Bridge DXE SMM initialization is started                 |
| 6B          | North Bridge DXE initialization (North Bridge module specific) |
| 6C          | North Bridge DXE initialization (North Bridge module specific) |
| 6D          | North Bridge DXE initialization (North Bridge module specific) |
| 6E          | North Bridge DXE initialization (North Bridge module specific) |
| 6F          | North Bridge DXE initialization (North Bridge module specific) |
| 70          | South Bridge DXE initialization is started                     |
| 71          | South Bridge DXE SMM initialization is started                 |
| 72          | South Bridge devices initialization                            |
| 73          | South Bridge DXE Initialization (South Bridge module specific) |
| 74          | South Bridge DXE Initialization (South Bridge module specific) |
| 75          | South Bridge DXE Initialization (South Bridge module specific) |
| 76          | South Bridge DXE Initialization (South Bridge module specific) |
| 77          | South Bridge DXE Initialization (South Bridge module specific) |
| 78          | ACPI module initialization                                     |
| 79          | CSM initialization   |
| 7A – 7F     | Reserved for future AMI DXE codes                              |
| 80 – 8F     | OEM DXE initialization codes                                   |
| 90          | Boot Device Selection (BDS) phase is started                   |
| 91          | Driver connecting is started                                   |
| 92          | PCI Bus initialization is started                              |
| 93          | PCI Bus Hot Plug Controller Initialization                     |
| 94          | PCI Bus Enumeration  |
| 95          | PCI Bus Request Resources                                      |
| 96          | PCI Bus Assign Resources                                       |
| 97          | Console Output devices connect                                 |
| 98          | Console input devices connect                                  |
| 99          | Super IO Initialization  |
| 9A          | USB initialization is started                                  |
| 9B          | USB Reset  |
| 9C          | USB Detect   |
| 9D          | USB Enable   |
| 9E – 9F     | Reserved for future AMI codes                                  |
| A0          | IDE initialization is started                                  |

|                        |   |
|------------------------|---|
| A1                     | IDE Reset   |
| A2                     | IDE Detect  |
| A3                     | IDE Enable  |
| A4                     | SCSI initialization is started                        |
| A5                     | SCSI Reset  |
| A6                     | SCSI Detect   |
| A7                     | SCSI Enable   |
| A8                     | Setup Verifying Password                              |
| A9                     | Start of Setup  |
| AA                     | Reserved for ASL (see ASL Status Codes section below) |
| AB                     | Setup Input Wait                                      |
| AC                     | Reserved for ASL (see ASL Status Codes section below) |
| AD                     | Ready To Boot event                                   |
| AE                     | Legacy Boot event                                     |
| AF                     | Exit Boot Services event                              |
| B0                     | Runtime Set Virtual Address MAP Begin                 |
| B1                     | Runtime Set Virtual Address MAP End                   |
| B2                     | Legacy Option ROM Initialization                      |
| B3                     | System Reset  |
| B4                     | USB hot plug  |
| B5                     | PCI bus hot plug                                      |
| B6                     | Clean-up of NVRAM                                     |
| B7                     | Configuration Reset (reset of NVRAM settings)         |
| B8 – BF                | Reserved for future AMI codes                         |
| C0 – CF                | OEM BDS initialization codes                          |
| <b>DXE Error Codes</b> |   |
| D0                     | CPU initialization error                              |
| D1                     | North Bridge initialization error                     |
| D2                     | South Bridge initialization error                     |
| D3                     | Some of the Architectural Protocols are not available |
| D4                     | PCI resource allocation error. Out of Resources       |
| D5                     | No Space for Legacy Option ROM                        |
| D6                     | No Console Output Devices are found                   |
| D7                     | No Console Input Devices are found                    |
| D8                     | Invalid password                                      |
| D9                     | Error loading Boot Option (Load Image returned error) |
| DA                     | Boot Option is failed (Start Image returned error)    |
| DB                     | Flash update is failed                                |
| DC                     | Reset protocol is not available                       |

# Chapter 6 Appendix

## APU and Dual Graphics configuration:

Supporting APU Specification:

| Model                        | Radeon Brand | TDP       | CPU cores | Radeon Cores | GPU Clock | DDR3 freq. | Dual Graphics | MMV  | Turbo Core |
|------------------------------|--------------|-----------|-----------|--------------|-----------|------------|---------------|------|------------|
| AMD A-series Processors      |              |           |           |              |           |            |               |      |            |
| A8                           | HD65xx       | 65, 100 W | 4         | 400          | 594MHz    | 1866       | Yes           | UVD3 | Yes        |
| A6                           | HD65xx       | 65, 100 W | 4         | 320          | 443MHz    | 1866       | Yes           | UVD3 | Yes        |
| A4                           | HD64xx       | 65 W      | 2         | 160          | 594 MHz   | 1600       | Yes           | UVD3 |            |
| AMD E-series Processors 1600 |              |           |           |              |           |            |               |      |            |
| E2                           | HD63xx       | 65 W      | 2         | 160          | 443 MHz   | 1600       | No            | UVD3 |            |

Supporting Dual Graphics configuration:

| DISCRETE GPU                  |               |              | DESKTOP APU                   |                               |                                |                                |
|-------------------------------|---------------|--------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|
| Discrete Graphics Product     | Radeon™ Brand | Frame Buffer | E2-Series "WinterPark" HD63XX | A4-Series "WinterPark" HD6410 | A6-Series "BeaverCreek" HD6530 | A8-Series "BeaverCreek" HD6550 |
| <b>Desktop Configurations</b> |               |              |                               |                               |                                |                                |
| Turks XT                      | HD6670        | GDDR5        | Not Supported                 | Not Supported                 | HD6690                         | HD6690**                       |
| Turks Pro                     | HD6570        | DDR3         | Not Supported                 | Not Supported                 | HD6610**                       | HD6630**                       |
| Caicos                        | HD6450        | DDR3         | Not Supported                 | HD6510**                      | HD6550                         | Not Supported                  |
| Cedar                         | HD5450        | DDR3         | Not Supported                 | HD6430                        | Not Supported                  | Not Supported                  |
| <b>AIO configurations</b>     |               |              |                               |                               |                                |                                |
| Omega                         | HD6670A       | GDDR5        | Not Supported                 | Not Supported                 | HD66xx                         | HD66xx**                       |
| Omega LP                      | HD6650A       | DDR3         | Not Supported                 | Not Supported                 | HD66xx**                       | HD66xx**                       |
| Caspian                       | HD6450A       | DDR3         | Not Supported                 | HD65xx**                      | HD65xx                         | Not Supported                  |

\* Recommended discrete graphics combinations.

## Dual Simultaneous Display:

| Display one     | Resolution           | Extended Display | Resolution           |
|-----------------|----------------------|------------------|----------------------|
| Display Port    | 2560 x 1600 at 60MHz | HDMI             | 1920 x 1200 at 60MHz |
| Single-link DVI | 1920 x 1200 at 60MHz | HDMI             | 1920 x 1200 at 60MHz |
| HDMI            | 1920 x 1200 at 60MHz | Single-link DVI  | 1920 x 1200 at 60MHz |
|                 |                      | Display Port     | 2560 x 1600 at 60MHz |