AEMH61-920

Intel® H61 Express Chipset

ATX Motherboard

User's Manual

Rev: 1.0

Release date: 2014.04.09

Nematron®

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Table of Contents

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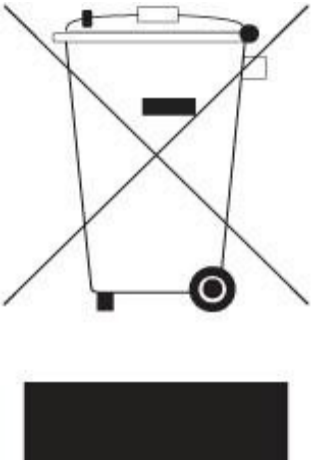
Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 40 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)
- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.
- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	April 9, 2014

Item Checklist

- ✓ Motherboard
- ✓ DVD for motherboard Drivers and User's Manual
- ✓ Cable(s)
- ✓ I/O Back panel shield

Chapter 1 Introduction of the Motherboard

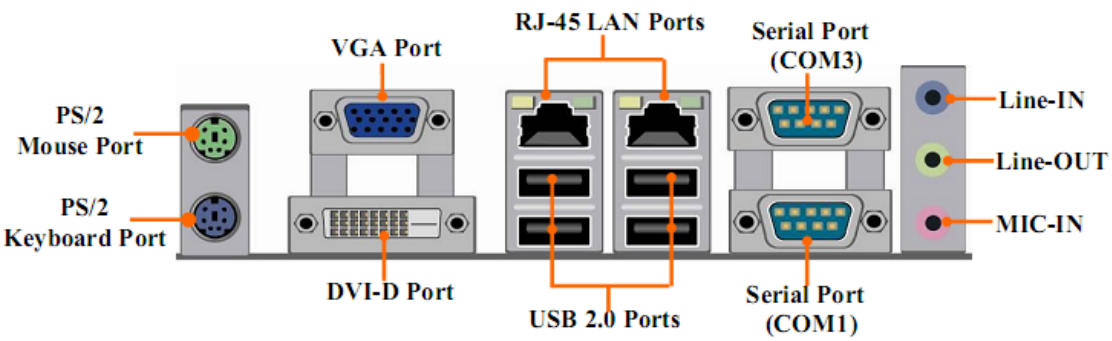
1-1 Specification

Spec	Description
Design	● ATX form factor; PCB size: 305mm×220mm
Chipset	● Intel® H61 Express Chipset
CPU Socket	● Support Intel® Core™ i7 Processor, Intel® Core™ i5 Processor, Intel® Core™ i3 Processor in the LGA 1155 Socket * for detailed CPU support information please visit our website
Memory Slot	● DDRIII RAM module slot×2 ● Supporting four DDRIII 1066/1333MHz RAM Module expandable to ● 16 GB (Maximum) ● Support dual-channel function
Expansion Slots	● 1 pcs×PCI-Express x16 slot (PE1) ● 1 pcs×PCI-Express x1 slot (PE2) ● 5 pcs×32-bit PCI slot (PCI1/2/3/4/5) ● 1 pcs×Full-size Mini-PCIE slot (PE4)
Storage	● 4×SATAII port
LAN Chips	● Integrated dual RTL8111G-CG PCI-E Gigabit LAN chips ● Supports Fast Ethernet LAN function provide 10/100/1000Mbps data transfer rate
HD Audio Chip	● Realtek ALC887-GR 6-channel Audio Codec integrated ● Audio driver and utility included
BIOS	● 32M Bit DIP Flash ROM

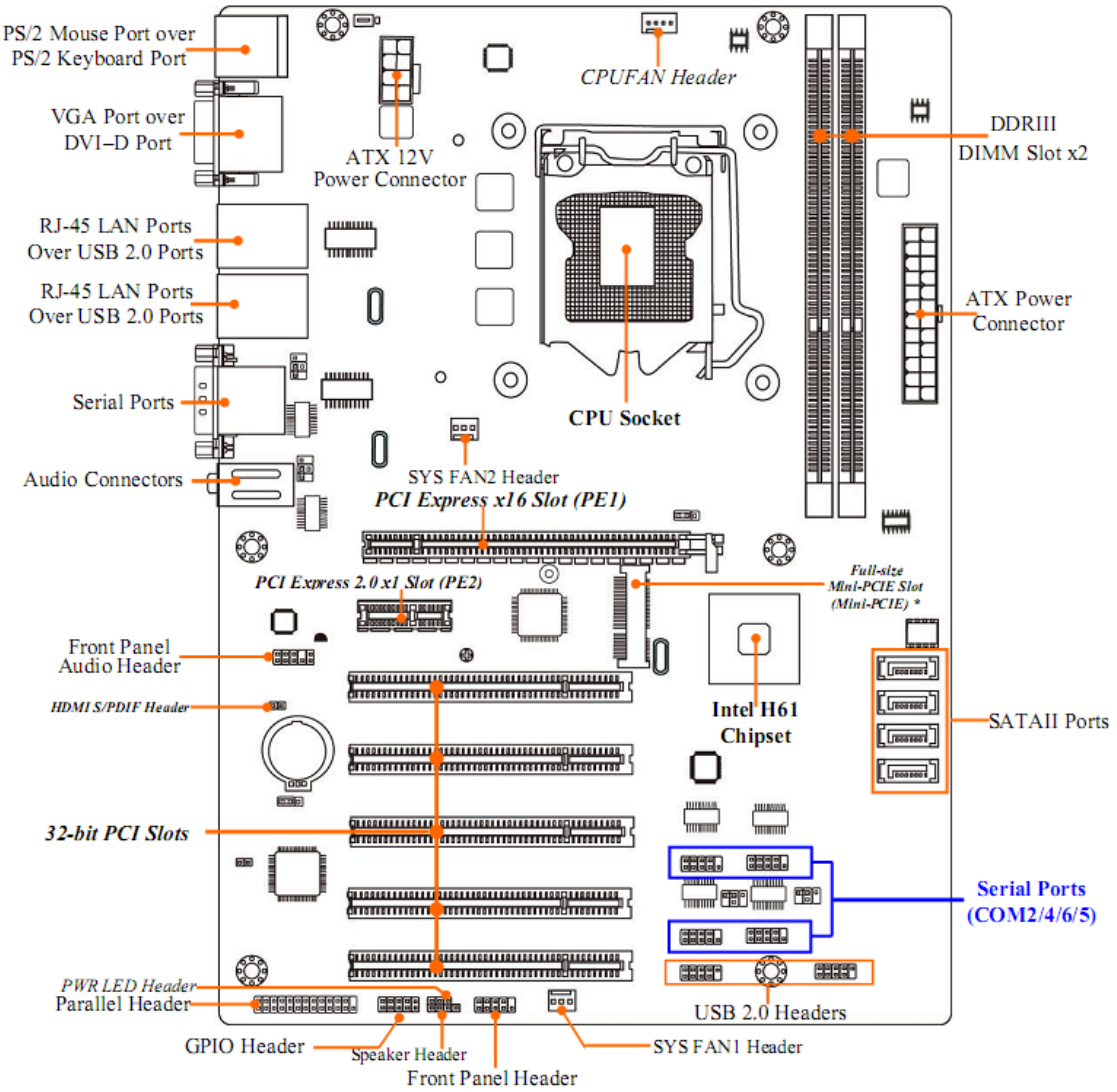
Multi I/O	Rear Panel I/O: ● PS/2 keyboard connector ● PS/2 mouse connector ● VGA port connector×1 ● DVI-D port connector×1 ● USB 2.0 port connector×4 ● RJ-45 LAN connector×2 ● Serial port connector×2 ● Audio connector×3 (Line-in, Line-out, MIC) Internal I/O Connectors& Headers: ● 1×24-pin main power connector ● 1×8-pin 12V Power connector ● Front panel audio header×1 ● HDMI-SPDIF header×1 ● Parallel port header×1 ● GPIO header×1 ● 9-pin USB 2.0 header×2 ● Front panel header×1 ● POWER LED1+Speaker header×1 ● COM port header×4 (COM3/4 support RS485/422 function) ● Fan header×3

1-2 Layout Diagram

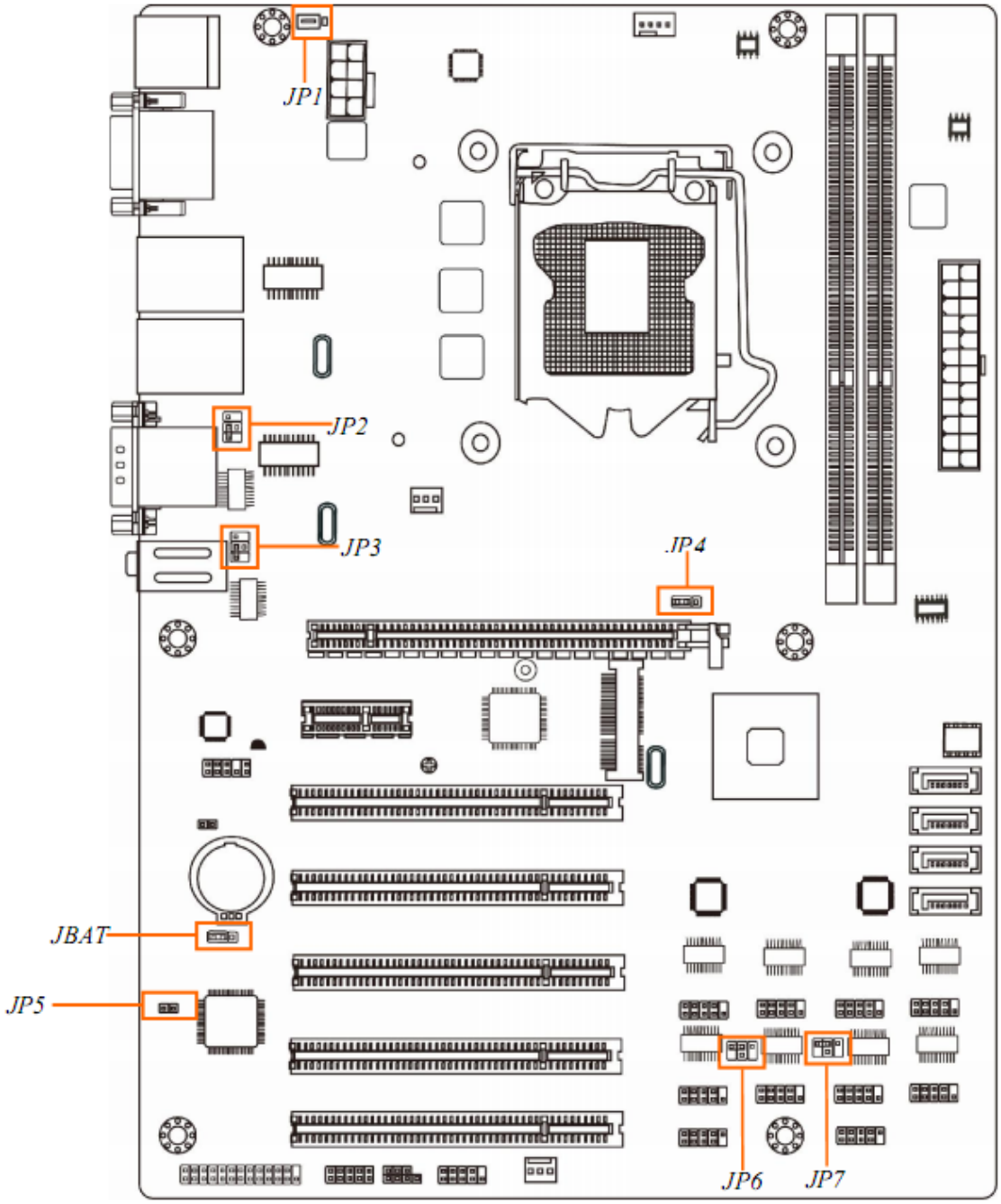
Rear IO Diagram



Motherboard Internal Diagram



Motherboard Jumper Position



Jumper	Name	Description
JBAT	CMOS RAM Clear Function Setting	3-pin Block
JP1	KB/MS Power on Function Setting	3-pin Block
JP2	COM3 Port Pin9 Function Select	4-pin Block
JP3	COM1 Port Pin9 Function Select	4-pin Block
JP4	Mini PCI-E Slot VCC3.3V/3.3VSB Select	3-pin Block

JP6	COM2 Header Pin9 Function Select	4-pin Block
JP7	COM4 Header Pin9 Function Select	4-pin Block

Connectors

Connector	Name
ATXPWR1	ATX Power Connector
ATX12V1	ATX 12V Power Connector
SATA1/2/3/4	SATAII Connector×4
VGA	Video Graphic Attach Connector
DVI	DVI-D Port Connector
COM1	Serial Port COM Connector
COM3	Serial Port COM Connector
UL1(Top)/UL2(Top)	RJ-45 LAN Connector×2
UL1(Middle & Bottom) /UL2(Middle & Bottom)	USB 2.0 Port Connector×4
AUDIO	Line Out / Line In / MIC Audio Connector

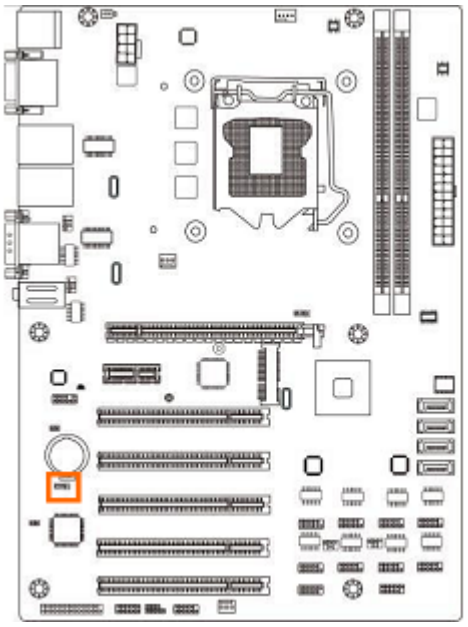
Headers

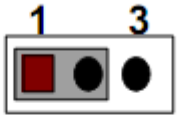
Header	Name	Description
FP_AUDIO	Front Panel Audio Header	9-pin Block
HDMI_SPDIF	HDMI_SPDIF Out Header	2-pin Block
GPIO_CON	GPIO Header	10-pin Block
PARALLEL	Parallel Port Header	25-pin Block
JW_FP (Front Panel Header)	PWR LED/ HD LED/ Power Button /Reset	9-pin Block
PWRLED1	Power LED Header	3-pin Block
SPEAK1	Speaker Header	4-pin Block
USB2	USB 2.0 Header	9-pin Block
USB3	USB 2.0 Header	9-pin Block
COM 2/4/5/6	Serial Port Header	9-pin Block
CPUFAN1	CPUFAN Header	4-pin Block
SYSFAN1/SYSFAN2	System FAN Header	3-pin Block

Chapter 2 Hardware Installation

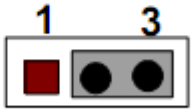
2-1 Jumper Setting

JBAT (3-pin): Clear CMOS Function Settings



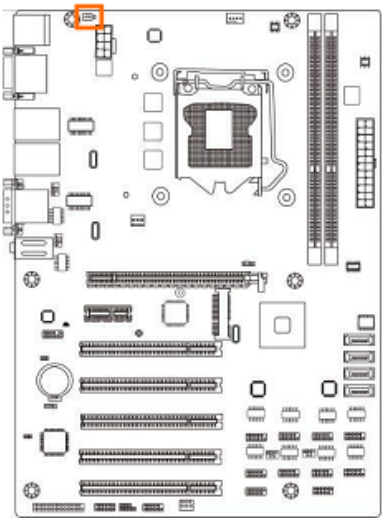


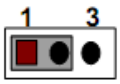
1-2 Closed: Normal;



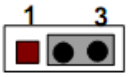
2-3 Closed:Clear CMOS.

JP1 (4-pin): KB/MS Power on Function Setting



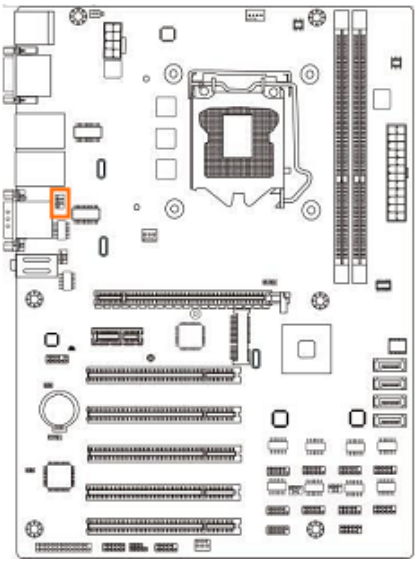


1-2 Closed: KB/MS Power on Function Disabled(default);

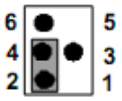


2-3 Closed: KB/MS Power on Function Enabled.

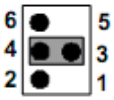
JP2 (4-pin): COM1 Port Pin9 Function Select



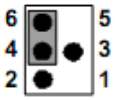
JP2→COM3 Port



2-4 Closed:
RI=RS232;

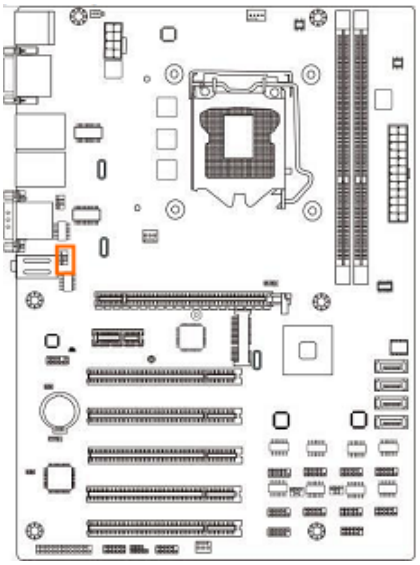


3-4 Closed:
RI= 5V;

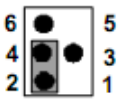


4-6 Closed:
RI= 12V.

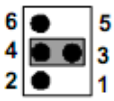
JP3 (4-pin): COM3 Port Pin9 Function Select



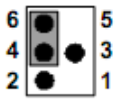
JP3→COM1 Port



2-4 Closed:
RI=RS232;

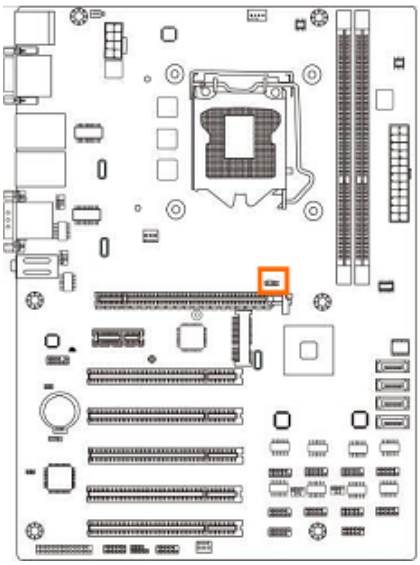


3-4 Closed:
RI= 5V;

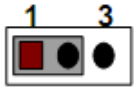


4-6 Closed:
RI= 12V.

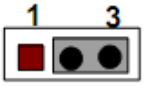
JP4 (3-pin): Mini PCI-E Slot VCC 3.3V/3.3 VSB Select



JP4→Mini-PCIE Slot

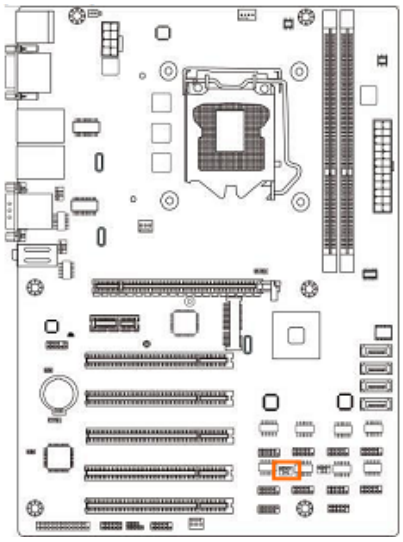


1-2 Closed ： MINI PCI-E VCC= 3.3V;

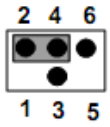


2-3 Closed ： MINI PCI-E VCC= 3.3VSB

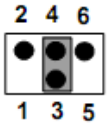
JP6 (4-pin): COM2 Header Pin9 Function Select



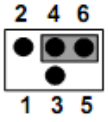
JP6→COM2 Header



2-4 Closed:
RI=RS232

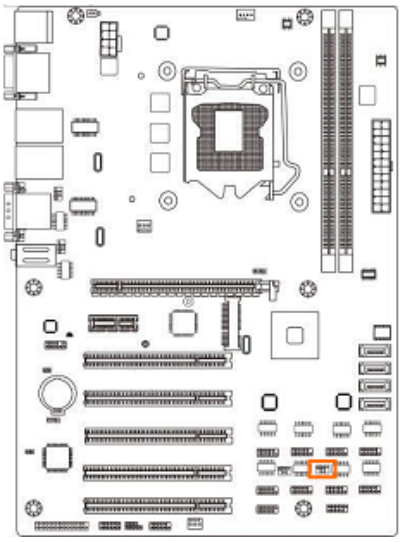


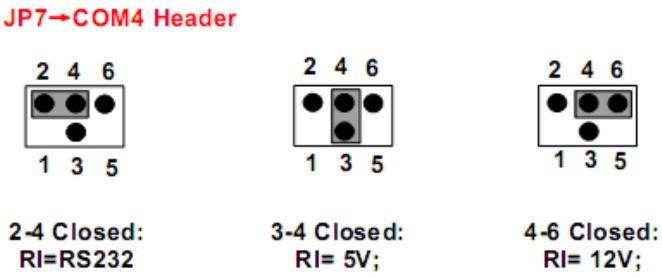
3-4 Closed:
RI= 5V;



4-6 Closed:
RI= 12V;

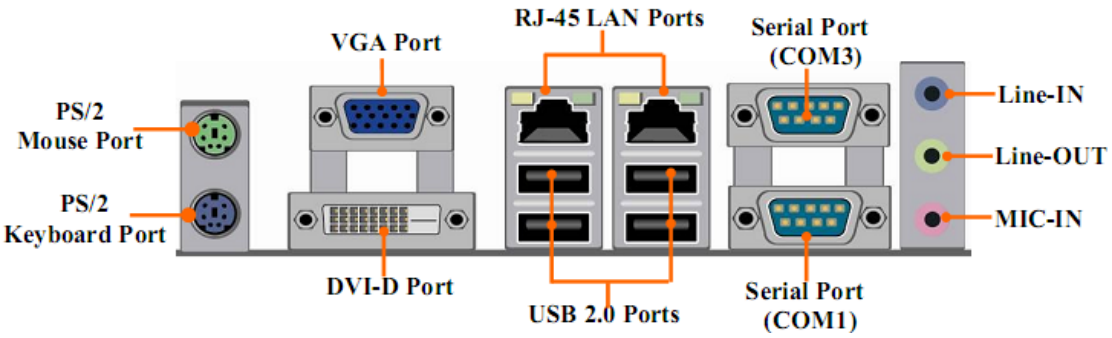
JP7 (4-pin): COM4 Header Pin9 Function Select





2-2 Connectors and Headers

2-2-1 Rear I/O Back Panel Connectors



(1) PS/2 Mouse & PS/2 Keyboard Connector: KB/MS

The connectors are for PS/2 keyboard port (Purple) and PS/2 Mouse port (Green).

(2) D-Sub 15-pin VGA Connector: VGA

VGA connector is the 15-pin D-subminiature female connector; it is for the display devices, such as the CRT monitor, LCD monitor and so on.

(3) Digital Visual Interface: DVI

This interface standard designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors.

(4) RJ-45 LAN Port Connectors: UL1 (Top)/UL2 (Top)

The connectors are standard RJ-45 connectors for Network.

(5) USB 2.0 Port Connector: UL1 (Middle & Bottom)/ UL2 (Middle & Bottom)

The connectors are 4-pin connector that connects USB devices to the system board.

(6) Serial port Connector: COM3 /COM1

These two serial ports are for user to connect compatible mouse, modern or other peripherals.

(7) Line-In, Lin-Out, MIC Audio connectors: AUDIO1

These Connectors are 3 Phone-Jack for LINE-OUT, LINE-IN, MIC audio connections.

Color	Name	Function
Blue	Line-in	Audio input to sound chip
Green	Line-out	Audio output to speaker
Pink	MIC	Microphone Connector

2-2-2 Motherboard Internal Connectors

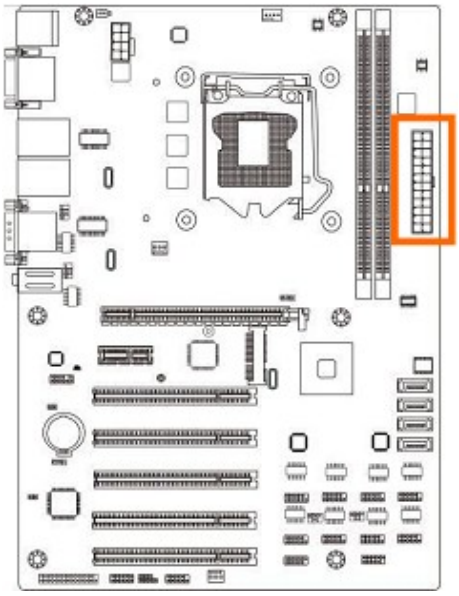
(1) ATXPWR (24-pin block): Main Power Connector

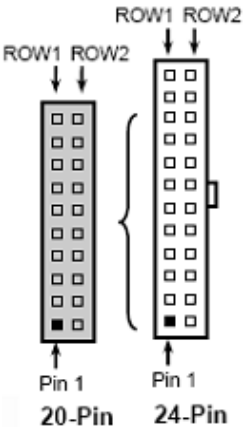
ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

** We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 300W power rating. This type has 24-pin and 4-pin power plugs.

** If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 300W. The system may become unstable or may not boot up if the power is inadequate.

** If you are using a 20-pin power plug, please refer to Figure1 for power supply connection. Power plug form power supply and power connectors from motherboard both adopt key design to avoid mistake installation. You can insert the power plug into the connector with ease only in the right direction. If the direction is wrong it is hard to fit in and if you make the connection by force if is possible.





PIN	RO W1	RO W2
1	+3.3V	+3.3V
2	+3.3V	-12V
3	GND	GND
4	+5V	Soft Power on
5	GND	GND
6	+5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V St and by	+5V
10	+12V	+5V
11	+12V	+5V
12	+3.3V	GND

24-pin Main Power Connector

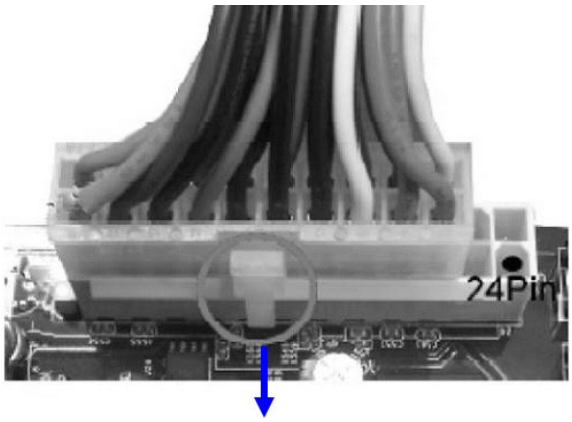


Figure 1：20-pin power plug

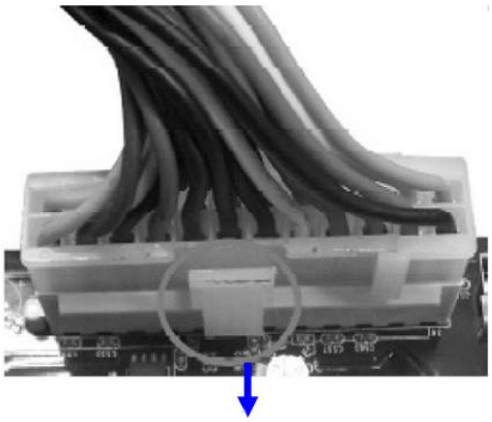
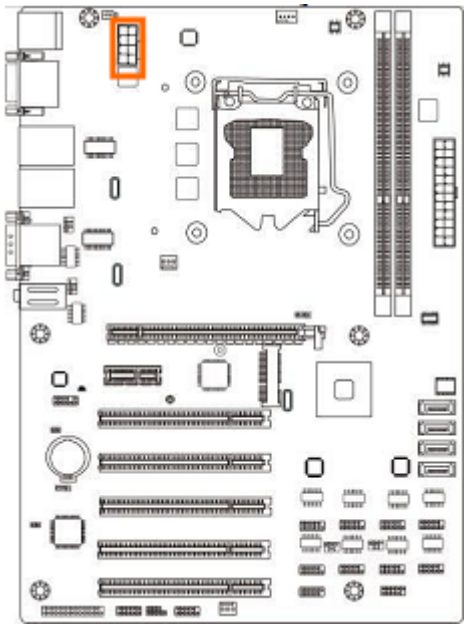
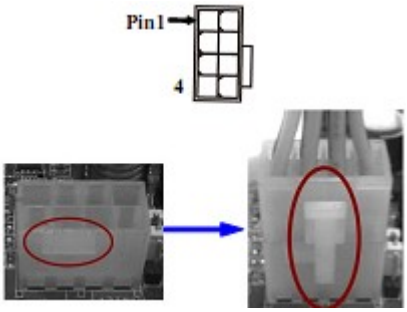


Figure 2：24-pin power plug

(2) ATX12V (8-pin block): 12V Power Connector

This is a new defined 8-pin connector that usually comes with ATX Power Supply that supports extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.

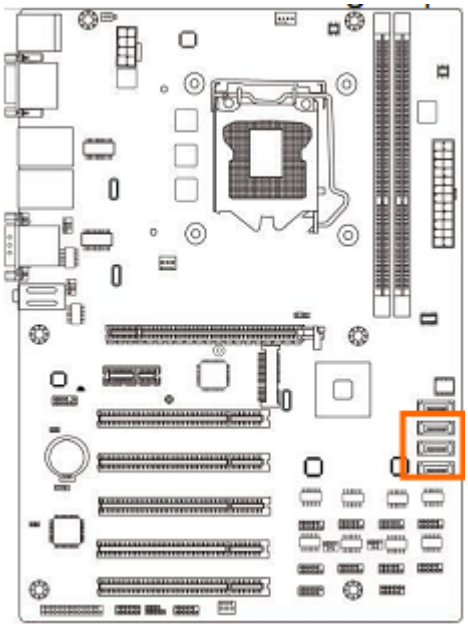


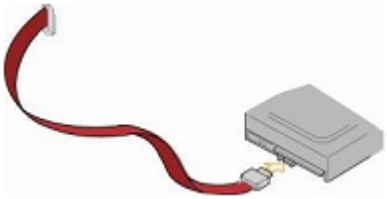


Pin	Definition	No.	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

(3) SATA1/2/3/4 (7-pin block): SATAIII Port connector

These connectors are high-speed SATAII ports that support 3GB/s transfer rate.



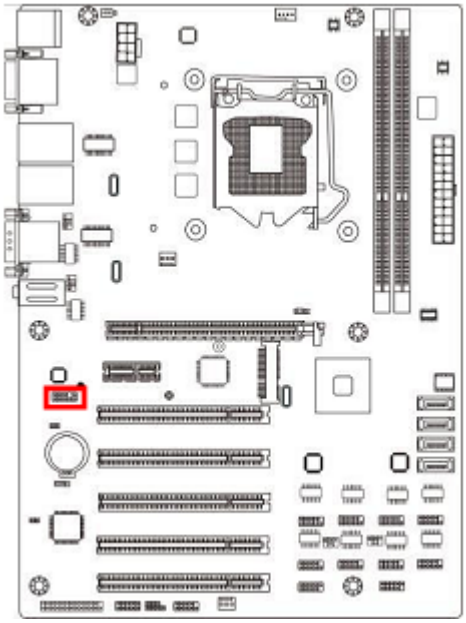


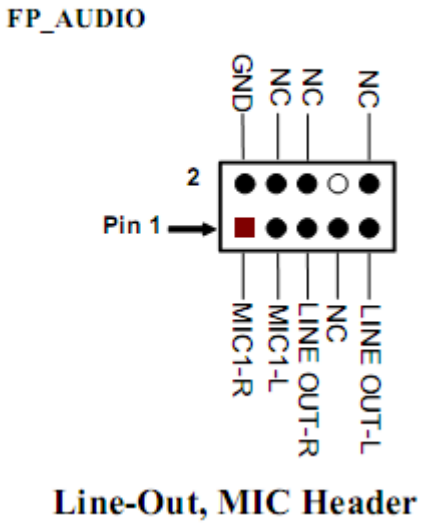
Pin No.	Defnition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

2-2-3 Header Pin Definition

(1) FP_AUDIO (9-pin): Line-Out, MIC-In Header

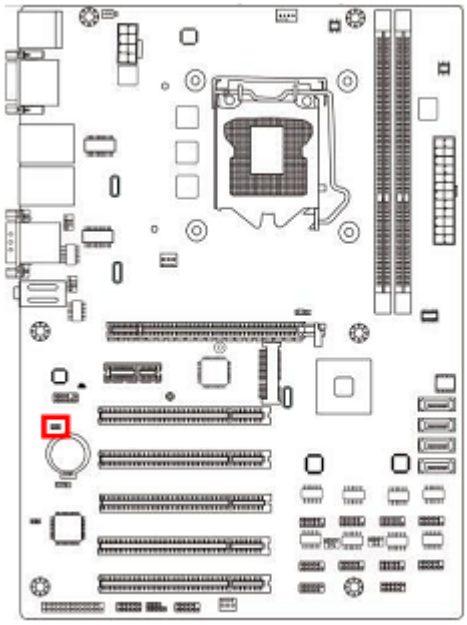
This header is connected to Front Panel Line-out, MIC connector with cable.

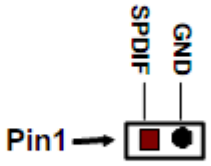




Line-Out, MIC Header

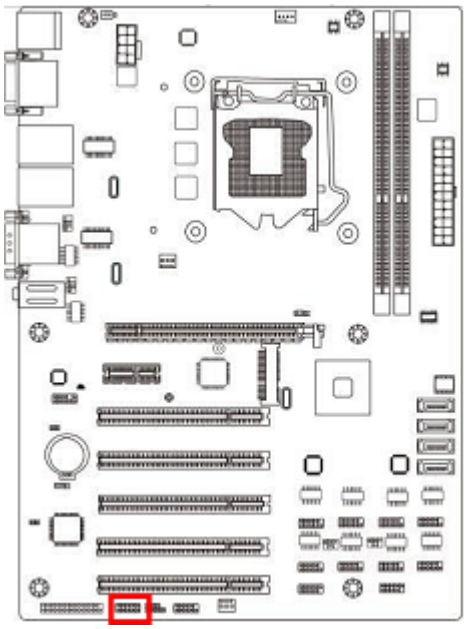
(2) HDMI_SPDIF (2-pin): HDMI-SPDIF Out header

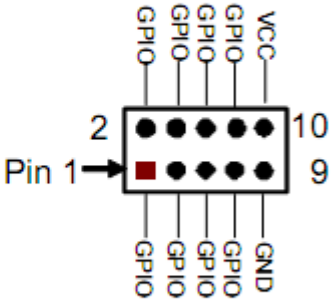




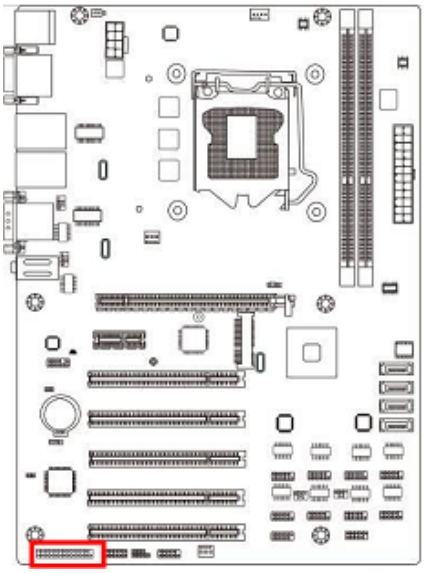
HDMI_SPDIF Header

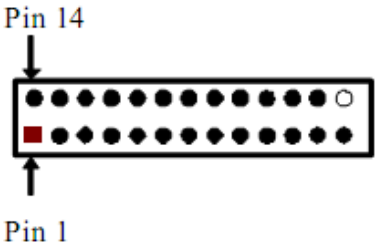
(3) GPIO_CON (10-pin): GPIO Header





(4) PARALLEL (25-pin): Parallel Port Header



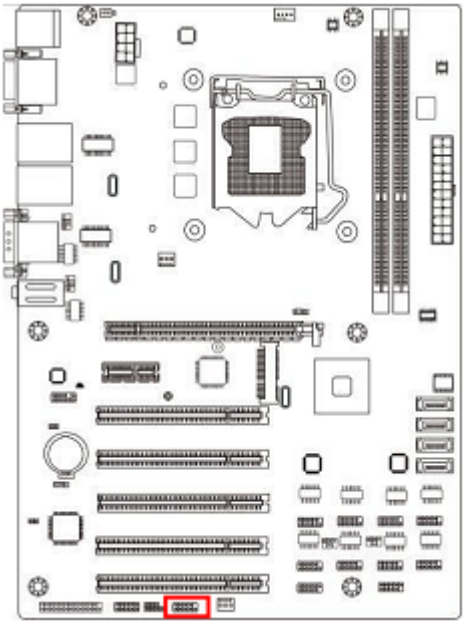


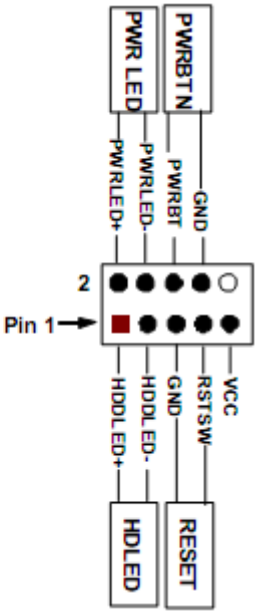
Parallel Port Header

Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	STB-	Pin 14	AFD-
Pin 2	PRD0	Pin 15	ERR-
Pin 3	PRD1	Pin 16	INIT-
Pin 4	PRD2	Pin 17	SLIN-
Pin 5	PRD3	Pin 18	GND

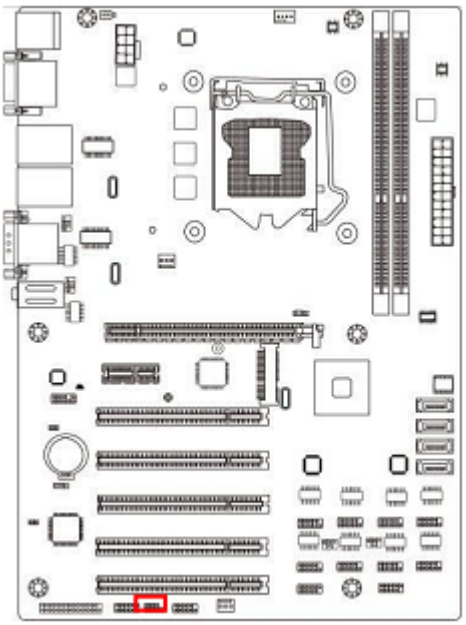
Pin 6	PRD4	Pin 19	GND
Pin 7	PRD5	Pin 20	GND
Pin 8	PRD6	Pin 21	GND
Pin 9	PRD7	Pin 22	GND
Pin 10	ACK-	Pin 23	GND
Pin 11	BUSY	Pin 24	GND
Pin 12	PE	Pin 25	GND
Pin 13	SLCT		

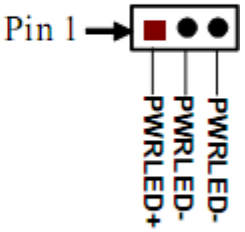
(5) JW-FP (9-pin): Front Panel Header



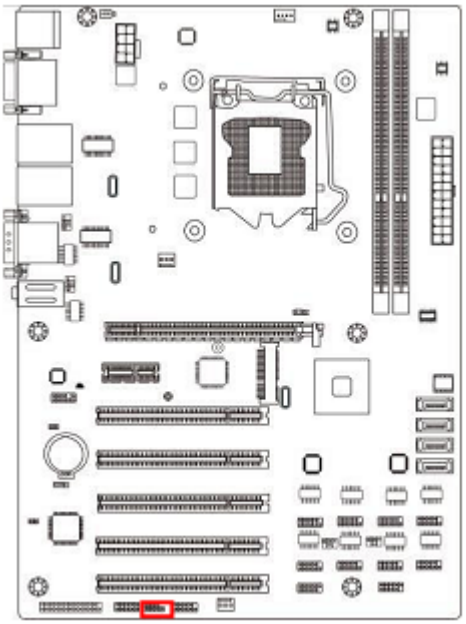


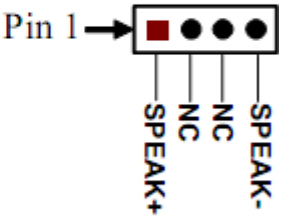
(6) PWRLED1 (3-pin): PWR LED Header



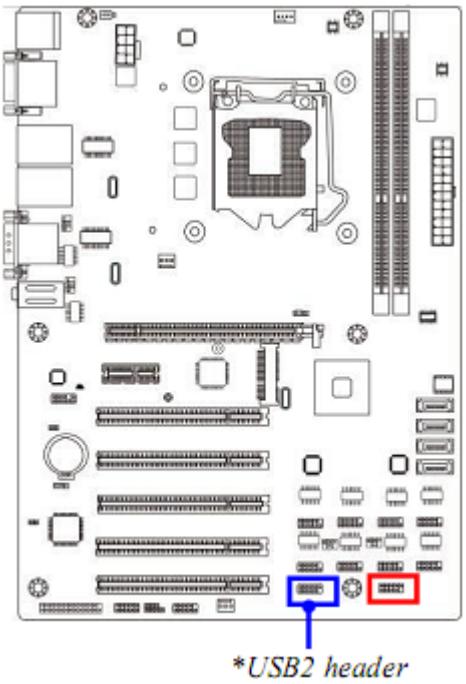


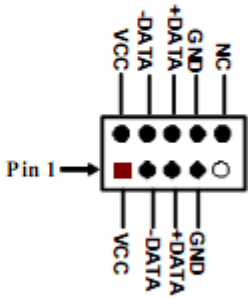
(7) SPEAK1 (4-pin): Speaker Header



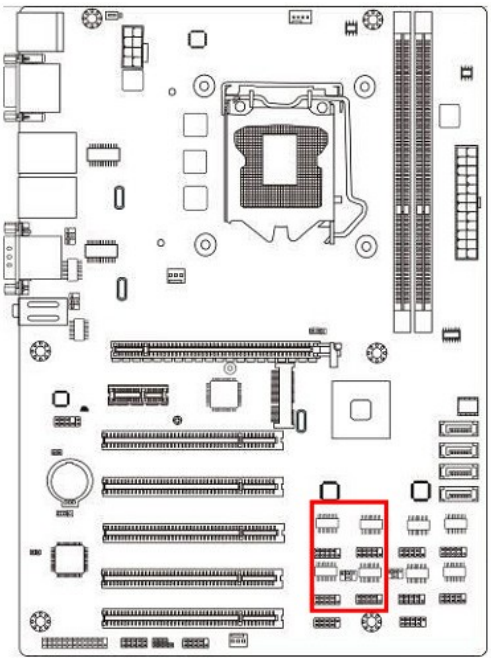


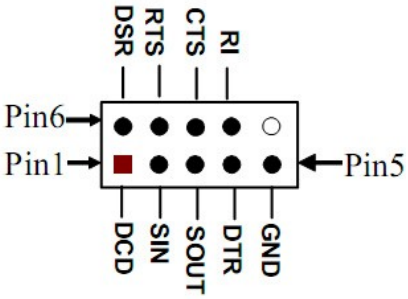
(8) USB 2.0 Port Headers (9-pin): USB2/USB3



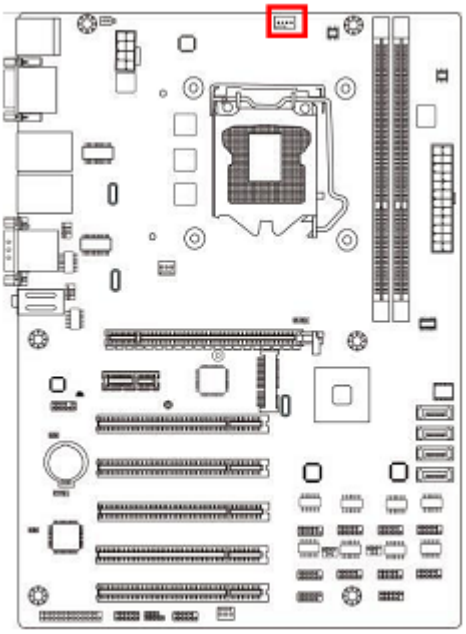


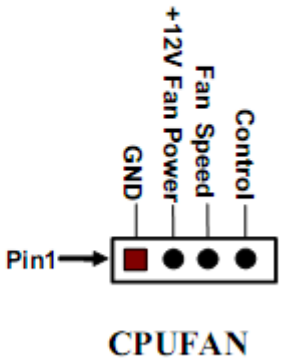
(9) COM2/4/6/5 (9-Pin): Serial Port Header



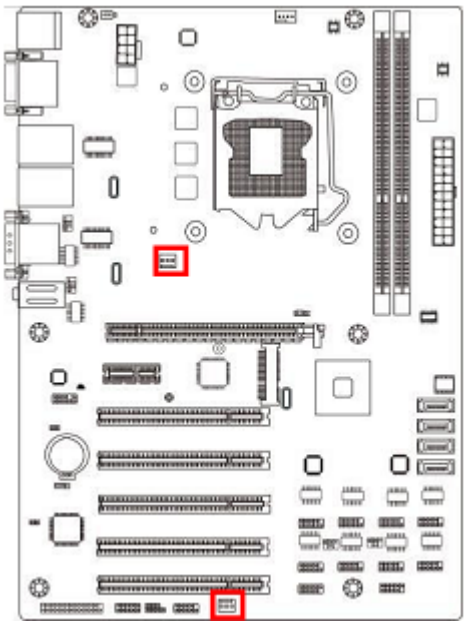


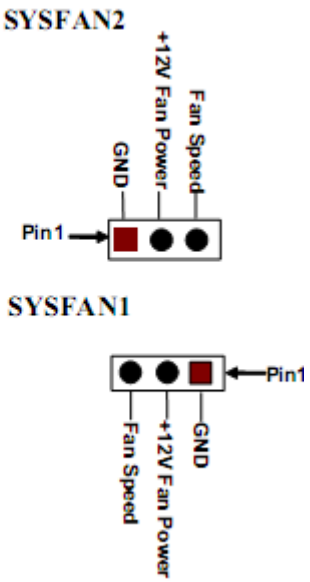
(10) CPUFAN1 (4-pin): CPUFAN Header





(11) SYSFAN1/SYSFAN2 (3-pin): SYSFAN Headers





Chapter 3 Introducing BIOS

Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

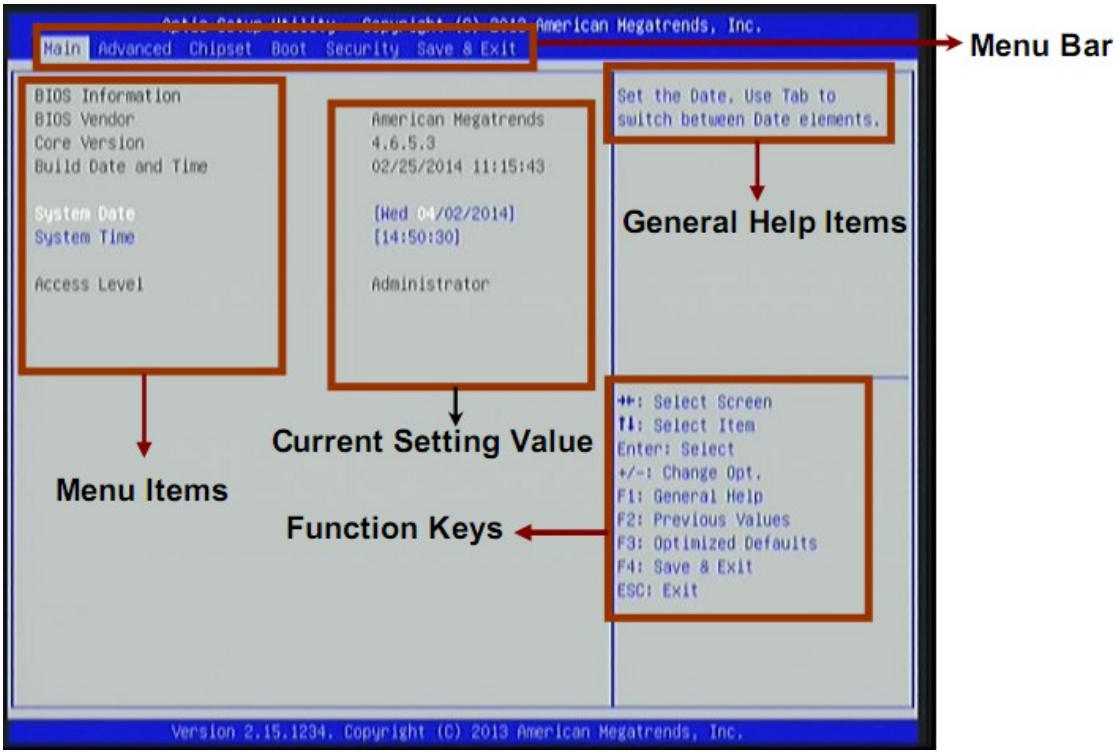
3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <Del> to enter Setup

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



BIOS Menu Screen

3-3 Function Key

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press ←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous value.
- [F3]: Optimized defaults.
- [F4]: Save & Reset.
- Press <Esc> to quit the BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press [F1] to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

3-5 Menu Bar

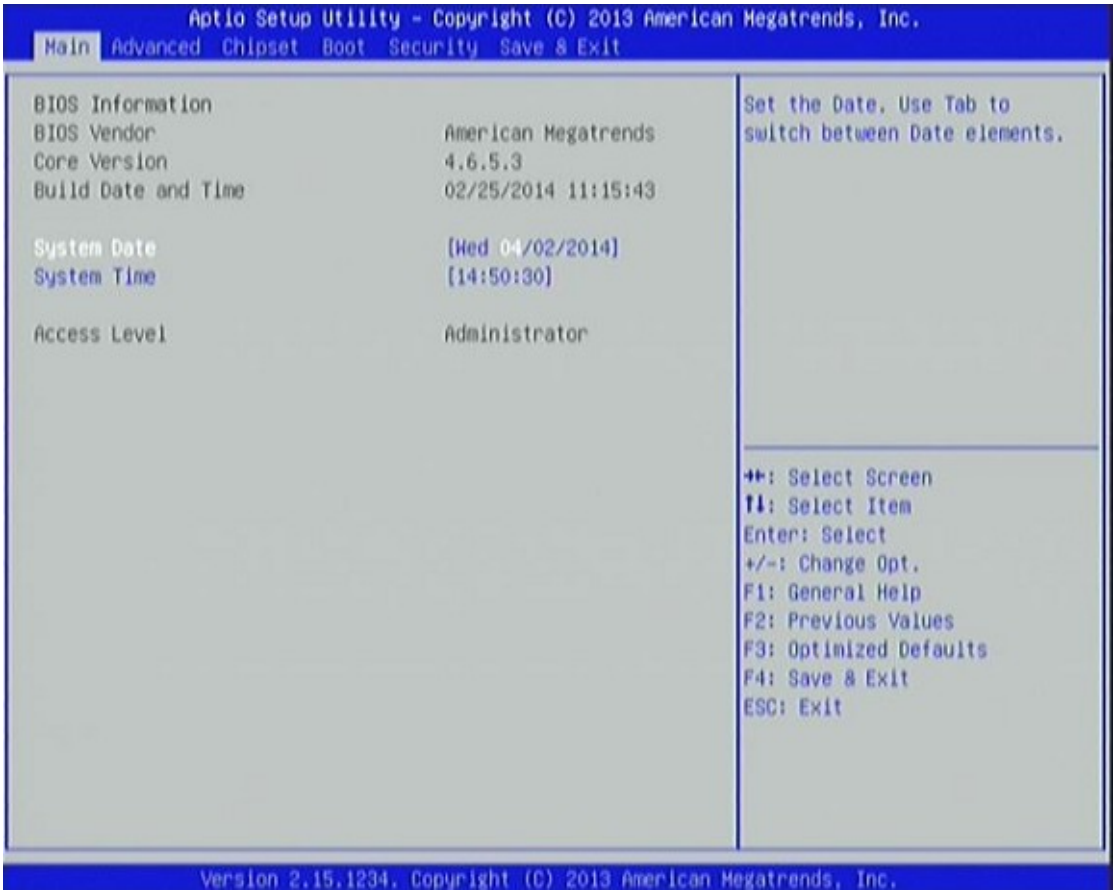
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Boot	To change boot settings
Security	Password settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



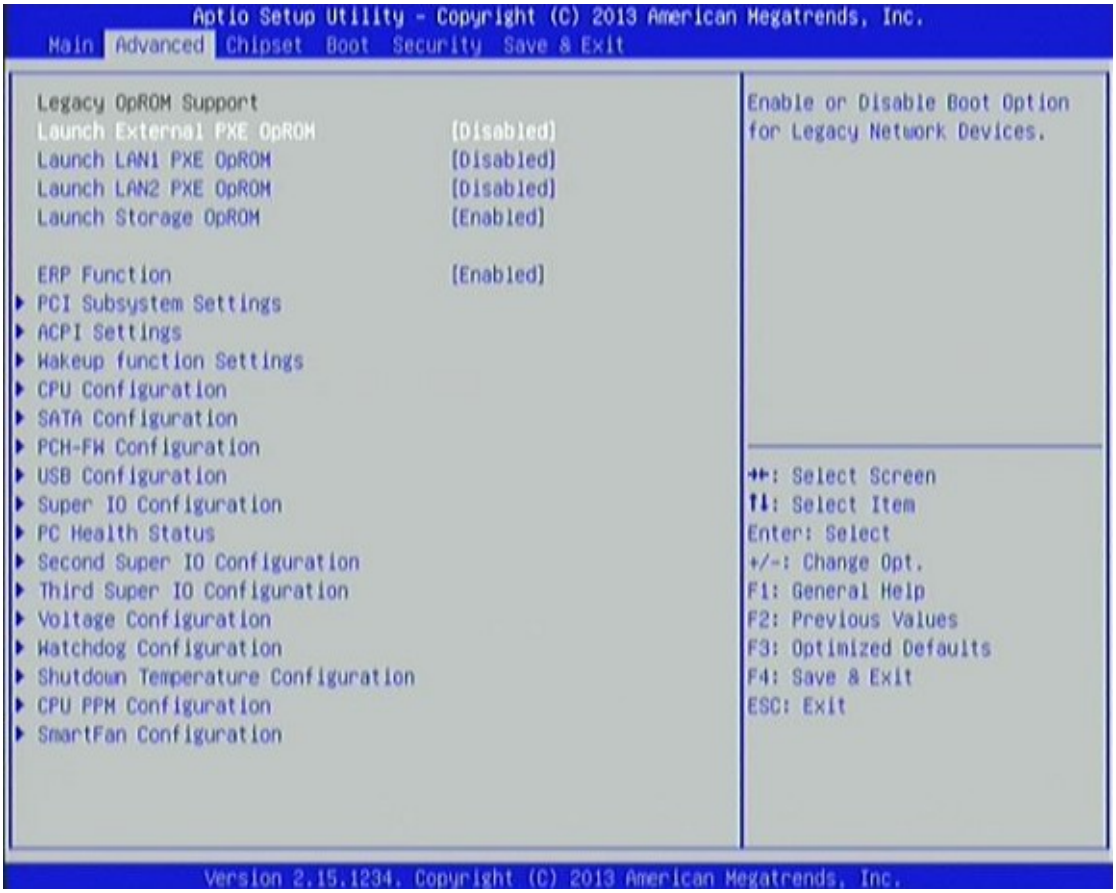
System Date

Set the date. Please use [Tab] key to switch between data elements.

System Time

Set the time. Please use [Tab] key to switch between time elements.

3-7 Advanced Menu



Launch OpROM Support

Launch External PXE OpROM/Launch LAN1 PXE OpROM//Launch LAN2 PXE OpROM

Use this item to enable or disable boot option for legacy network devices.

Launch Storage OpROM

Use this item to enable or disable boot option for legacy mass storage devices with option ROM.

ERP Function

The optional settings: [Disabled]; [Enabled].

Use this item to enable or disable ERP function for this board. This item should be set as [Disabled] if you wish to have Active All Wakeup Function.

- **PCI Subsystem Settings**

Press [Enter] to enter and make settings for PCI Express Settings and PCI Express GEN2 Settings.

- **PCI Express Settings**

  Press [Enter] to make settings for the following PCI Express Device Register Settings:

PCI Express Device Register Settings

Relaxed Ordering

Use this item to enable or disable PCI express device relaxed ordering.

Extended Tag

The optional settings: [Disabled]; [Enabled].

If set as [Enabled] it will allow device to use 8-bit tag field as a requester.

No Snoop

Use this item to enable or disable PCI Express device No Snoop option.

Maximum Payload

Use this item to set maximum payload of PCI Express device or allow system BIOS to select the value.

The optional settings are: [Auto]; [128 Bytes]; [256 Bytes]; [512 Bytes]; [1024 Bytes]; [2048 Bytes]; [4096 Bytes].

Maximum Read Request

Use this item to set maximum read request size of PCI Express device or allow system BIOS to select the value.

The optional settings are: [Auto]; [128 Bytes]; [256 Bytes]; [512 Bytes]; [1024Bytes]; [2048 Bytes]; [4096 Bytes].

PCI Express Link Register Settings

ASPM Support

Use this item to set ASPM level.

The optional settings: [Disabled]; [Auto]; [Force L0s].

Extended Synch

The optional settings: [Disabled]; [Enabled].

[If set as [Enabled] it will allow generation of extended synchronization patterns.

Link Training Retry

Use this item to define number of retry attempts software will take to restrain the link if previous training attempt was unsuccessful.

The optional settings are: [Disable]; [2]; [3]; [5].

Link Training Timeout(uS)

Use this item to define number of microseconds software will wait before polling 'Link Training' bit in link status register. Value range from 10 to 1000 uS.

Unpopulated Links

In order to save power, software will disable unpopulated PCI Express links if this option set as [Disable Link].

The optional settings are: [Keep Link ON]; [Disable Link].

- **PCI Express GEN2 Settings**

Press [Enter] to make settings for the following PCI Express GEN2 Devices Settings:

PCI Express GEN2 Device Register Settings

Completion Timeout

The optional settings are: [Default]; [Shorter]; [Longer]; [Disabled].

ARI Forwarding

The optional settings are: [Disabled]; [Enabled].

AtomicOp Register Enable

The optional settings are: [Disabled]; [Enabled].

AtomicOp Egress Blocking

The optional settings are: [Disabled]; [Enabled].

IDO Request Enable

The optional settings are: [Disabled]; [Enabled].

IDO Completion Enable

The optional settings are: [Disabled]; [Enabled].

LTR Mechanism Enable

The optional settings are: [Disabled]; [Enabled].

End-End TLP Prefix Blocking

The optional settings are: [Disabled]; [Enabled].

PCI Express GEN2 Link Register Settings:

Target Link Speed

The optional settings are: [Auto]; [Force to 2.5GT/s]; [Force to 5.0GT/s].

Clock Power Management

The optional settings are: [Disabled]; [Enabled].

Compliance SOS

The optional settings are: [Disabled]; [Enabled].

Hardware Autonomous Width

The optional settings are: [Disabled]; [Enabled].

Hardware Autonomous Speed

The optional settings are: [Disabled]; [Enabled].

- **ACPI Settings**

Press [Enter] to make settings for system SCPI parameters.

ACPI Settings:

ACPI Sleep State

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

The optional settings are: [S1(CPU Stop Clock)]; [S3(Suspend to RAM)].

S3 Video Repost

The optional settings are: [Disabled]; [Enabled].

Wakeup Function Settings

Wake System with Fixed Time

Use this item to enable or disable system wake on alarm event. When set as [Enabled], system will wake on the hour/min/sec specified.

PS2 KB/MS Wakeup

Use this item to enable or disable PS2 KB/MS wakeup function. This function is only supported when ERP Function is set as [Disabled].

PCI PME Wakeup

Use this item to enable or disable S3/S4/S5 PCI PME wakeup function. This function is only supported when ERP Function is set as [Disabled].

CPU Configuration

Press [Enter] to view detailed CPU information and make settings for the following sub-items:

Hyper-Threading

The optional settings: [Disabled]; [Enabled].

[Enabled]: for Windows XP and Linux (OS optimized for Hyper-Threading Technology).

[Disabled]: for other OS (OS optimized not for Hyper-Threading Technology).

* *This item might not be available depending on configuration.*

Active Processor Cores

Use this item to select number of cores to enable in each processor package.

Limit CPUID Maximum

The optional settings are: [Disabled]; [Enabled].

This item should be set as [Disabled] for Windows XP.

Execute Disable Bit

The optional settings are: [Disabled]; [Enabled].

Intel Virtualization Technology

The optional settings: [Enabled]; [Disabled].

When set as [Enabled], a VHM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hardware Prefetcher

The optional settings: [Enabled]; [Disabled].

Use this item to turn on/off the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

The optional settings: [Enabled]; [Disabled].

Use this item to turn on/off prefetching of adjacent cache lines.

- **SATA Configuration**

Serial-ATA Controller (s)

The optional settings are: [Disabled]; [Enabled]. Use this item to enable or disable SATA device.

SATA Mode Selection

The optional settings are: [IDE]; [AHCI].

* *When the SATA Mode selection is set as [AHCI] mode, user can make further settings to enable or disable Port1/2/3/4.*

Port 1/ Port 2/ Port 3/ Port 4

The optional settings: [Disabled]; [Enabled].

Use this item to enable or disable each SATA port.

- **PCH-FW Configuration**

Press [Enter] to see ME information and make settings for Firmware Update Configuration.

- **Firmware Update Configuration**

Press [Enter] to make settings for ME FW Image RE-Flash.

ME FW Image RE-Flash

Use this item to enable or disable ME FW Image Re-Flash function.

* *In the case that user needs to update ME firmware, user should set '**ME FW Image Re-Flash**' as [**Enabled**], save the settings and exit. The system will turn off and reboot after 4 seconds. If the user goes to BIOS screen again will find this item is set again as [**Disabled**], but user can still re-flash to update firmware next time.*

- **USB Configuration**

USB Configuration:

Legacy USB Support

The optional settings are: [Enabled]; [Disabled]; [Auto].

[**Enabled**]: To enable legacy USB support.

[**Disabled]**: to keep USB devices available only for EFI specification.

[**Auto**]: To disable legacy support if no USB devices are connected.

EHCI Hand-off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

The optional settings are: [Disabled]; [Enabled].

USB hardware delays and time-out:

USB Transfer time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.

The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].

Device reset time-out

Use this item to set USB mass storage device start unit command time-out.

The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].

Device power-up delay

Use this item to set maximum time the device will take before it properly reports itself to the host controller. 'Auto' uses default value: for a root port it is 100ms, for a hub port the delay is taken from hub descriptor.

The optional settings: [Auto]; [Manual].

Select [Manual] you can set value for the following sub-item: '***Device Power-up delay in seconds***'.

Device Power-up delay in seconds

The delay range is from 1 to 40 seconds, in one second increments.

- **Super IO Configuration**

Super IO Configuration

- **COM1 Port Configuration/ COM2 Port Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port.

Change Settings

Use this item to select an optimal setting for super IO device.

- **Parallel Port Configuration**

Press [Enter] to make settings for the following items:

Parallel Port Configuration

Parallel Port

Use this item to enable or disable parallel port (LPT/LPTE).

Change Settings

Use this item to select an optimal setting for super IO device.

Device Mode

The optional settings are: [Standard and Bi-Direction (SPP) Mode]; [EPP Mode]; [ECP and EPP 1.9 Mode]; [Printer Mode].

- **PC Health Status**

Press [Enter] to view hardware health status.

- **Second Super I/O Configuration**

Second Super IO Configuration

- **COM3 Port Configuration / COM4 Port Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

Change Settings

Use this item to select an optimal setting for super IO device.

Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485].

Mode Speed Select

The optional settings are: [RS232/RS422/RS485=250kbsp]; [RS232=1Mbsp, RS422/RS485=10Mbsp].

- **COM5 Port Configuration / COM6 Port Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

Change Settings

Use this item to select an optimal setting for super IO device.

- **Third Super I/O Configuration**

* *'Third Super I/O Configuration' is only optional*

- **COM7 Port Configuration / COM8 Port Configuration / COM9 Port Configuration / COM10 Port Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

Change Settings

Use this item to select an optimal setting for super IO device.

- **Voltage Configuration**

DIMM Voltage

The optional settings are: [1.60V]; [1.65V]; [1.70V]; [1.75V].

- **WatchDog Configuration**

WatchDog Timer Control

Use this item to enable or disable WatchDog Timer Control. When set as [Enabled], the following sub-items shall appear:

WatchDog Timer Value

User can set a value in the range of [4] to [255].

WatchDog Timer Unit

The optional settings are: [Second]; [Minute].

Shutdown Temperature Configuration

Use this item to select system shutdown temperature.

The optional settings are: [Disabled]; [60C/140F]; [65C/149F]; [70C/158F]; [75C/167F].

CPU PPM Configuration

Press [Enter] to make settings for CPU PPM Configuration:

CPU PPM Configuration

EIST

Use this item to enable or disable Intel SpeedStep.

Turbo Mode

Use this item to enable or disable Turbo mode.

CPU C3 Report

Use this item to enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 Report

Use this item to enable or disable CPU C6 (ACPI C3) report to OS.

SmartFan Configuration

SmartFan Configuration

CPUFAN SmartFan Mode

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following sub-items shall appear:

CPUFAN Full Speed Temp

Use this item to set a degree for CPUFAN. FAN will run at full speed when above the specific temperature set.

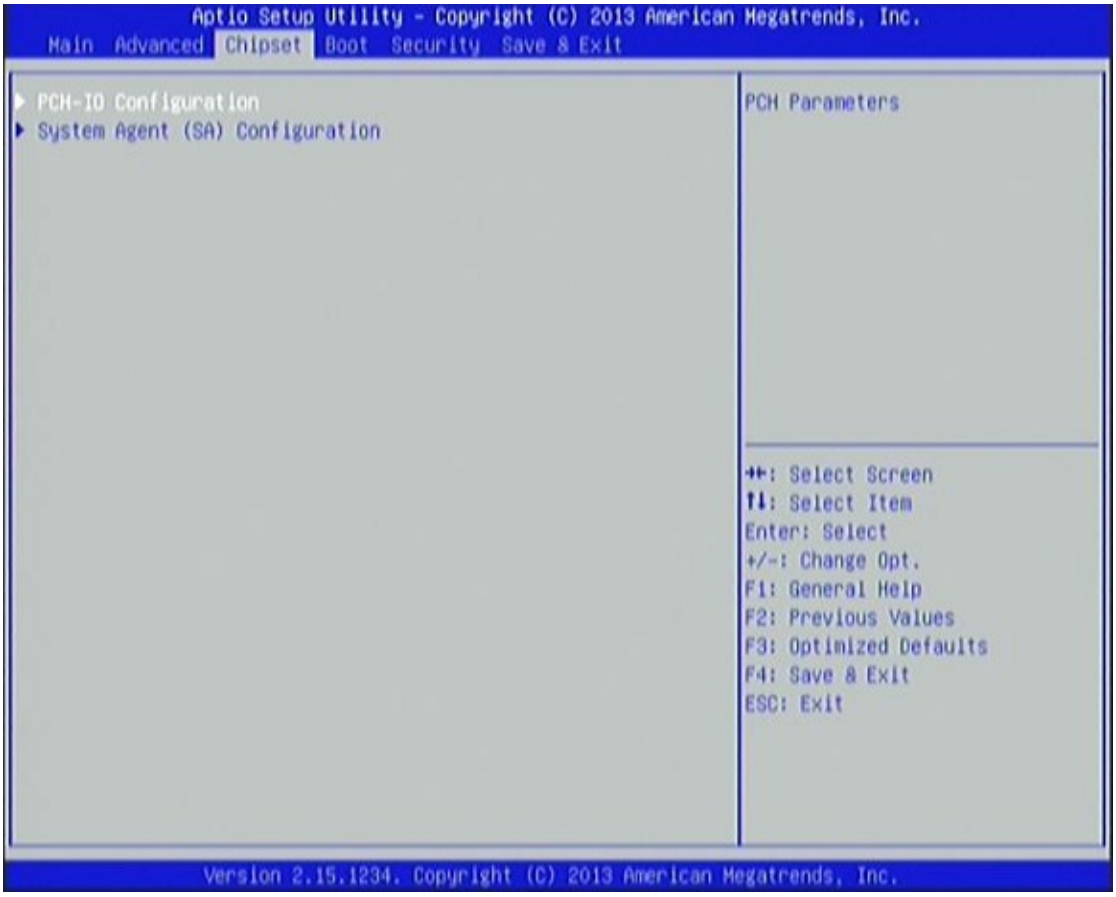
CPUFAN Idle Temp

Use this item to set a degree for CPUFAN. FAN will idle speed when below this temperature.

CPUFAN Stop Temp

Use this item to set a degree for CPUFAN. CPU FAN will stop when below this temperature.

3-8 Chipset Menu



▶ **PCH-IO Configuration**

Press [Enter] to make settings for the following sub-items:

▶ **USB Devices Configuration**

Press [Enter] to further setting USB device configuration.

EHCI1/ EHCI2

Use this item to enable or disable USB EHCI (USB 2.0) support. One EHCI controller must always be enabled.

The optional settings are: [Enabled]; [Disabled].

USB Port Pre-Port Disable Control

Use this item to control each of the USB ports (0~13) disabling.

Azalia HD Audio

The optional settings are: [Disabled]; [Enabled]; [Auto].

Azalia Internal HDMI Codec

The optional settings are: [Disabled]; [Enabled].

Onboard LAN1 Device

Use this item to enable or disable onboard LAN controller.

The optional settings are: [Enabled]; [Disabled].

Onboard LAN2 Device

Use this item to enable or disable onboard LAN controller.
The optional settings are: [Enabled]; [Disabled].

High Precision Event Timer Configuration

High Precision Timer

Use this item to enable or disable the high precision event timer.
The optional settings are: [Enabled]; [Disabled].

Restore AC Power Loss

Use this item to select AC power state when power is re-applied after a power failure.
The optional settings are: [Power Off]; [Power On]; [Last State].

- **System Agent (SA) Configuration**

Press [Enter] to make settings for the following sub-items:

VT-d

The optional settings are: [Enabled]; [Disabled].

* *This item might not be available depending on configuration.*

Enable NB CRID

Use this item to enable or disable NB CRID workaround.

- **Graphics Configuration**

Press [Enter] to make further settings for Graphics Configuration.

Graphics Configuration

Primary Display

The optional settings are: [Auto]; [IGFX]; [PEG]; [PCI].

Internal Graphics

The optional settings are: [Auto]; [Disabled]; [Enabled].

GTT Size

The optional settings are: [1MB]; [2MB].

Aperture Size

The optional settings are: [128MB]; [256MB]; [512MB].

DVMT Pre-Allocated

Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.
The optional settings are: [32M]; [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M]; [1024M].

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device.
The optional settings are: [128M]; [256M]; [MAX].

Gfx Low Power Mode

The optional settings are: [Enabled]; [Disabled]. This option is applicable for SFF only.

Primary IGFX Boot Display

The optional settings are: [VBIOS default]; [CRT]; [DVI/HDMI].

- **NB PCIe Configuration**

Press [Enter] to make settings for the following sub-items:

NB PCIe Configuration:

PEG0-Gen X

The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

PEG0 ASPM

The optional settings are: [Disabled]; [Auto]; [ASPM L0s]; [ASPM L1]; [ASPM L0sL1].

Enable PEG

The optional settings are: [Auto];[Enabled]; [Disabled].

De-emphasis Control

The optional settings are: [-6 dB]; [-3.5 dB].

- **Memory Configuration**

Press [Enter] to view current memory configuration and make settings for the following sub-items:

DIMM profile

Use this item to select DIMM timing profile that should be used.

The optional settings are: [Default DIMM Profile]; [Custom Profile]; [XMP Profile1]; [XMP Profile 2].

Memory Frequency Limiter

Use this item to set maximum memory frequency selection in Mhz.

The optional settings are [Auto]; [1067]; [1333]; [1600].

NMode Support

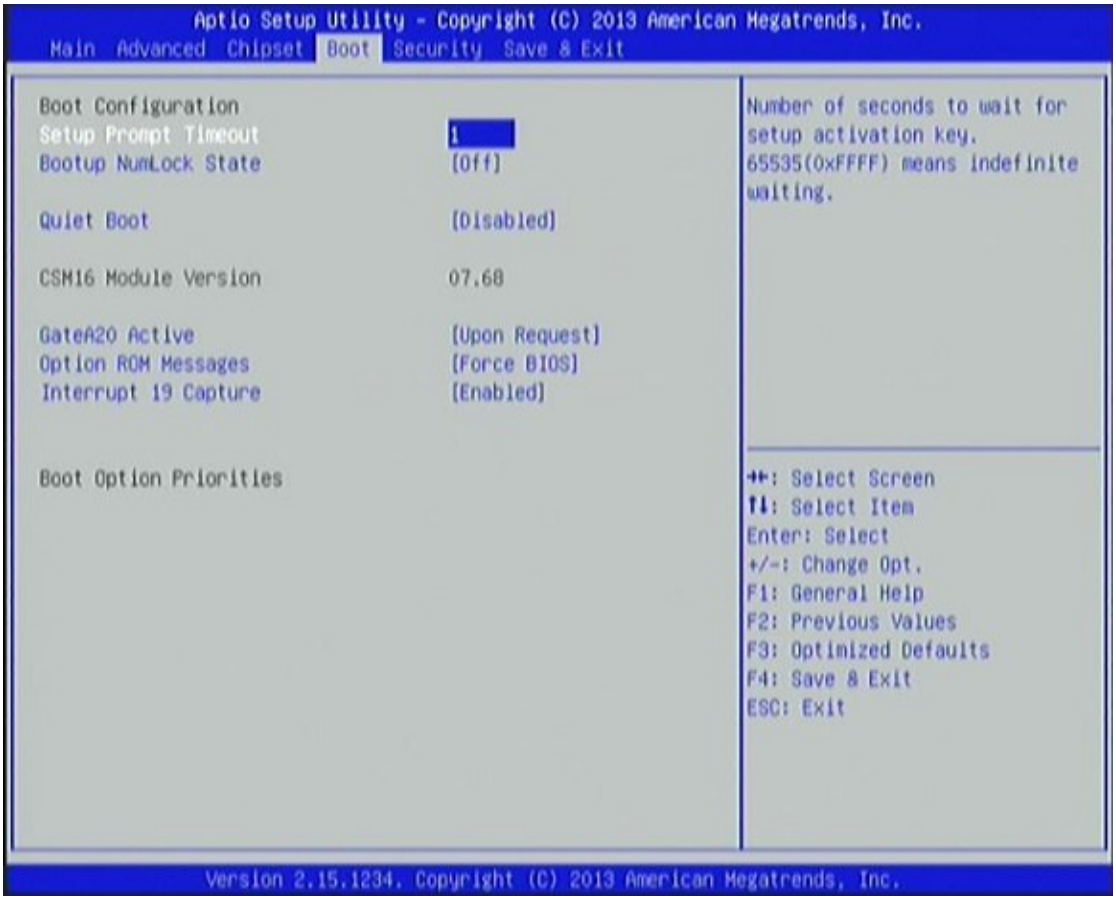
The optional settings are: [Auto]; [1N Mode]; [2N Mode].

Memory Remap

The optional settings are: [Enabled]; [Disabled].

Use this item to enable or disable memory remap above 4G.

3-9 Boot Menu



Boot Configuration:

Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key.

Bootup Numlock State

Use this item to select keyboard numlock state.

The optional settings are: [On]; [Off].

Quiet Boot

The optional settings are: [Enabled]; [Disabled].

Gate A20 Active

The optional settings are: [Upon Request]; [Always].

Option ROM Message

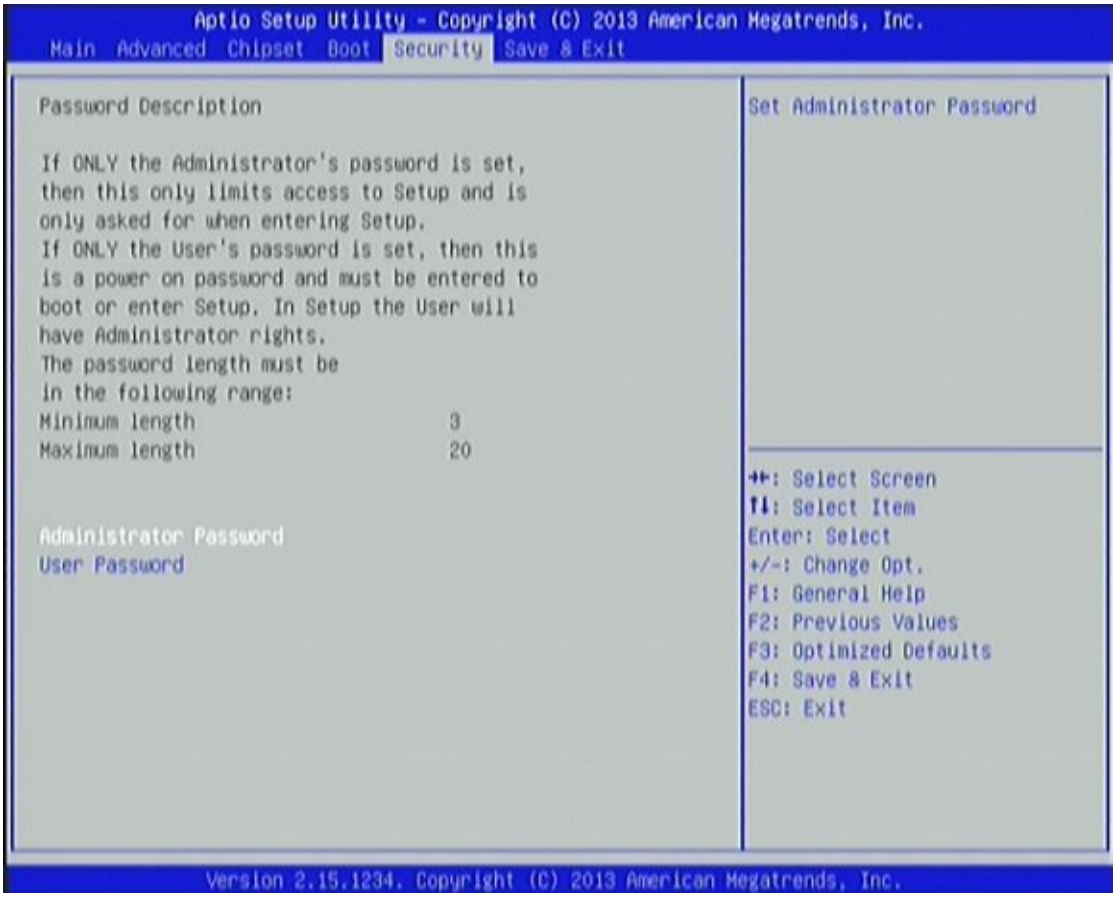
Use this item to set display mode for option ROM.

The optional settings are: [Force BIOS]; [Keep Current].

Interrupt 19 Capture

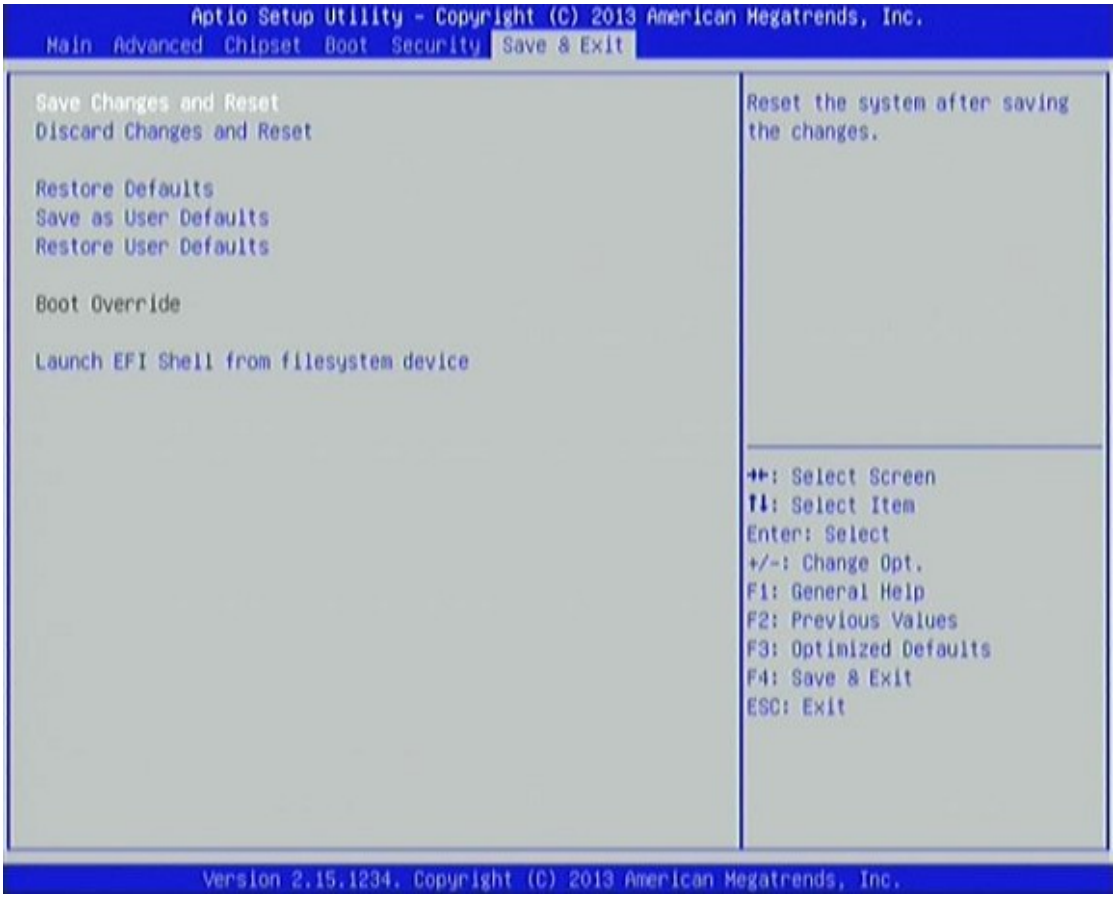
The optional settings are: [Enabled]; [Disabled].

3-10Security Menu



Security menu allow users to change administrator password and user password settings.

3-11 Save & Exit Menu



Save Changes and Reset

This item allows user to reset the system after saving the changes.

Discard changes and Reset

This item allows user to reset the system without saving any changes.

Restore Defaults

Use this item to restore /Load default values for all the setup options.

Save as User Defaults

Use this item to save the changes done so far as user defaults.

Restore User Defaults

Use this item to restore defaults to all the setup options.

Launch EFI Shell from filesystem device

This item is used for attempts to launch EFI shell application from one of the available file system devices.