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## Table of Contents

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<b>Chapter 1: Introduction</b> .....	<b>2</b>
1.1 Before You Start.....	2
1.2 Package Checklist.....	2
1.3 Mainboard Specification .....	3
1.4 Rear Panel Connectors.....	5
1.5 Motherboard Layout .....	6
<b>Chapter 2: Hardware Installation</b> .....	<b>8</b>
2.1 Installing Central Processing Unit (CPU) .....	8
2.2 FAN Headers .....	10
2.3 Installing System Memory .....	11
2.4 Power Supply .....	13
2.5 Onboard Slot/Connector/Header/Jumper.....	14
<b>Chapter 3: BIOS Setup</b> .....	<b>24</b>
3.1 Main Menu.....	26
3.2 Advanced Menu.....	27
3.3 Chipset Menu .....	47
3.4 Boot Menu .....	58
3.5 Security Menu.....	60
3.6 Exit Menu.....	61
<b>Chapter 4: Useful Help</b> .....	<b>62</b>
4.1 Driver Installation Note .....	62
4.2 AMI BIOS Beep Code.....	63
4.3 Troubleshooting .....	63





## **CHAPTER 1: INTRODUCTION**

### **1.1 BEFORE YOU START**

Thank you for choosing our product. Before you start installing the mainboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the system from power outlet before operation.
- Before you take the mainboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on mainboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the system from dangerous area, such as heat source, humid air, and water.
- Please switch on/off the machine normally. That is, DO NOT pull out power cord directly from the mainboard or the system may damage.

### **1.2 PACKAGE CHECKLIST**

-  microATX Mainboard x 1
-  Fully Setup Driver CD x 1
-  I/O Bracket x 1
-  SATA Cable x 1

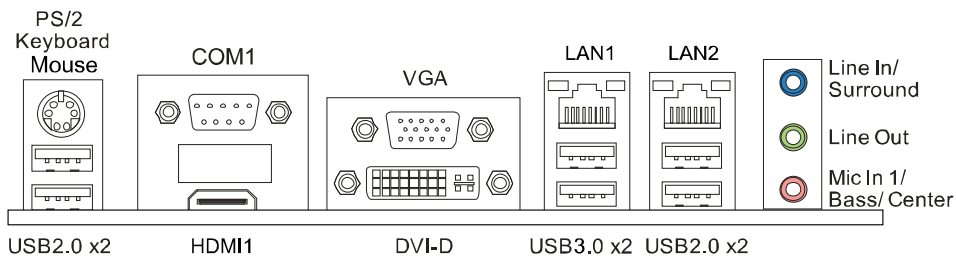
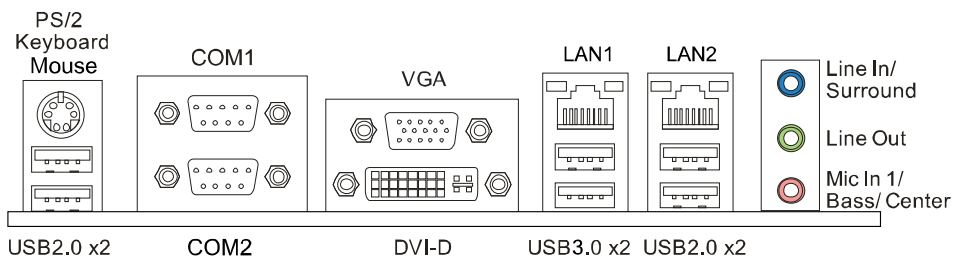
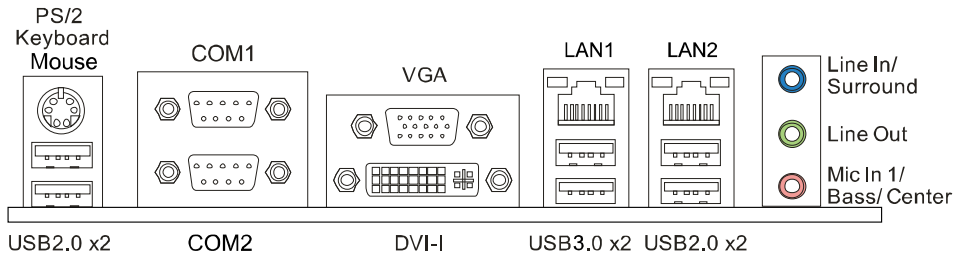
## 1.3 MAINBOARD SPECIFICATION

Specification		
CPU	Support Intel Ivy Bridge CPU (Co-lay support Sandy Bridge CPU/Embedded CPU SKU) Intel® Core™ i7-2600 3.4GHz up to 95W Intel® Core™ i5-2400 3.1GHz up to 95W Intel® Core™ i3-2120 3.3GHz up to 65W	
Chipset	INTEL B75 chipset (co-lay with Q77)	
TPM	Intel Integrated TPM1.2	
BIOS	AMI BIOS	
Graphic	Intel® Integrated Graphic Display Memory: Max. shared system memory up to 1759MB Resolution: VGA: Max. Up to 2048 x 1536 at 75Hz DVI: Max. Up to 1920 x 1200 at 60Hz HDMI: 1920 x1200@60Hz	
Main Memory	4x 240pin DDR3 SDRAM max up to 32GB Each DIMM supports 512MB/ 1GB/2GB/4GB/8GB DDR3 Dual Channel Mode DDR3 memory module Supports DDR3 1066/1333 Registered DIMM and ECC DIMM is not supported	
SATA	Chipset built-in Serial ATA controller Data transfer rates up to 3.0/6.0 Gb/s SATA Version 2.0/3.0 specification compliant RAID 0,1,5,10, SRT support (Supported by Q77 only)	
LAN	2x Gigabit LAN, INTEL 82579V (PHY) + Realtek 8111F (iAMT 7.0 only support by Q77 + INTEL 82579V)	
Sound Codec	Realtek ALC892 5.1 channels audio out, High-Definition Audio support	
LPC I/O	FINTEK 81866 (with RS232/422/485 auto flow control)	
Serial Port	FINTEK F81216D LPC to 4 UARTs	
Expansion Slots	PCI	x2
	PCIe x4	x1
	PCIe x16	x1
Back Panel I/O	PS/2 KB/MS (for PS/2 keyboard & mouse)	x1
	VGA	x1
	DVI-I ( or DVI-D)	x1
	HDMI (optional)	x1
	COM Port (RS-232/422/485 with Auto Flow Control for COM1 only)	x2
	USB2.0 Port	x4
	USB3.0 Port	x2
	RJ-45 Port	x2
Audio Jack	x3	

## User's Manual

On Board Connectors & Headers	2*5 pins, 2.54 pitch front panel header	x1
	2*5 pins, 2.54 pitch front audio for (Line-out & Mic-in)	x1
	2*13 pins, 2.54 pitch Parallel port box-header	x1
	2*5 pins, 2.54 pitch, COM2 connector (optional)	x1
	2*20 pins, COM3~COM10 box-header	x2
	2*3 pins, COM1 Power Selection Jumper	x1
	1*3 pins, JCOM3~6 Power Selection Jumper	x4
	SATA connector support 3.0Gb/s	x5
	SATA connector support 6.0Gb/s	x1
	2*10 pins, 2.0 pitch, 2 x USB 3.0 ports box-header	x1
	2*5 pins, 2.54 pitch, 2 x USB 2.0 ports box-header	x2
	1*4 pins, CPU PWM-FAN header	x1
	1*3 pins, System DC-FAN header	x1
	24 pins, ATX power connector	x1
	4 pins, 12V power connector	x1
	TPM Header	x1
	2*5 pins, 2.54 pitch Digital I/O header (4-in, 4-out)	x1
Buzzer	x1	
Front panel LAN LED	x1	
Board Size	244 mm (W) x 244 mm (L)	microATX
Operation Temperature	0°C ~ 60°C	
Storage Temperature	-20°C ~ 80°C	
Relative Humidity	10% ~ 90% (non-condensing)	
Watchdog Timer	Yes (65536 segments)	
RoHS Compliant	Yes	
OS Support	Windows* XP & XP Embedded, WinCE, Window 7, Linux, Intel® Embedded Graphics Drivers Version 10 (Support by Intel EIA IEGD tools) Biostar reserves the right to add or remove support for any OS with or without notice.	

## 1.4 REAR PANEL CONNECTORS

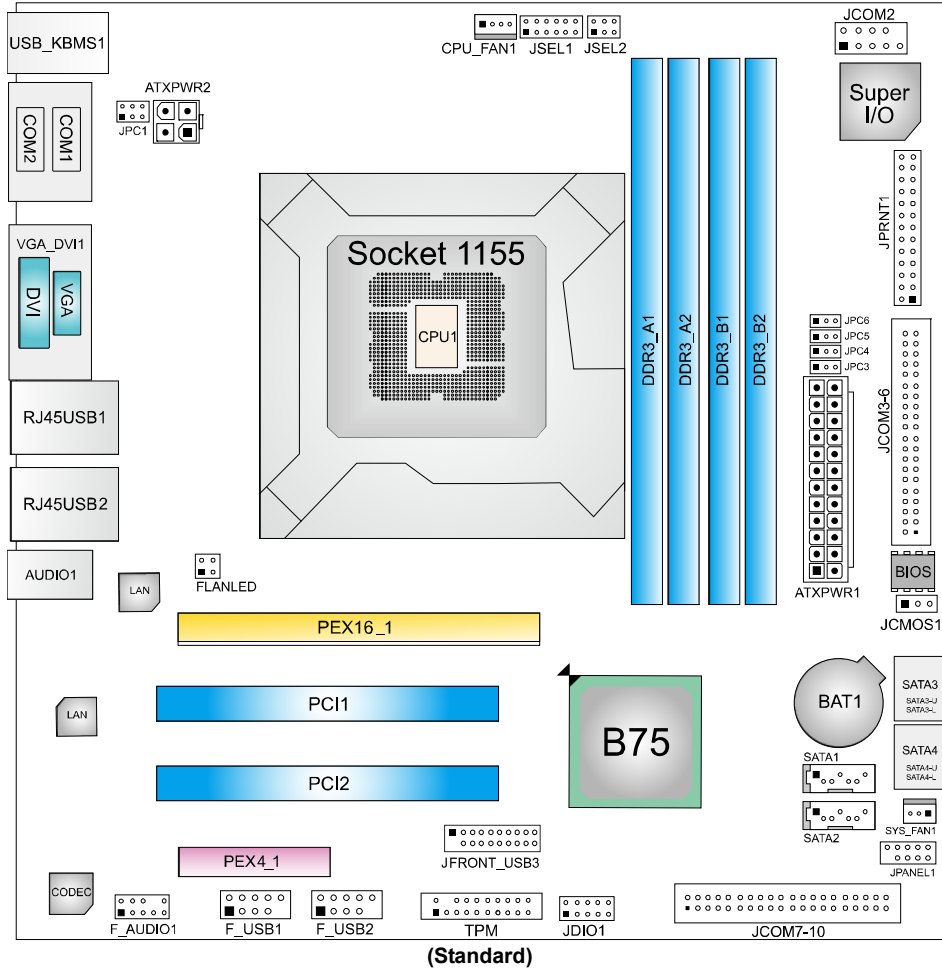


**Note1:** HDMI / DVI-D(I) / VGA Output require an Intel Core family processor with Intel Graphics Technology.

**Note2:** Since the audio chip supports High Definition Audio Specification, the function of each audio jack can be defined by software. The input / output function of each audio jack listed above represents the default setting. However, when connecting external microphone to the audio port, please use the Line In (Blue) and Mic In (Pink) audio jack.

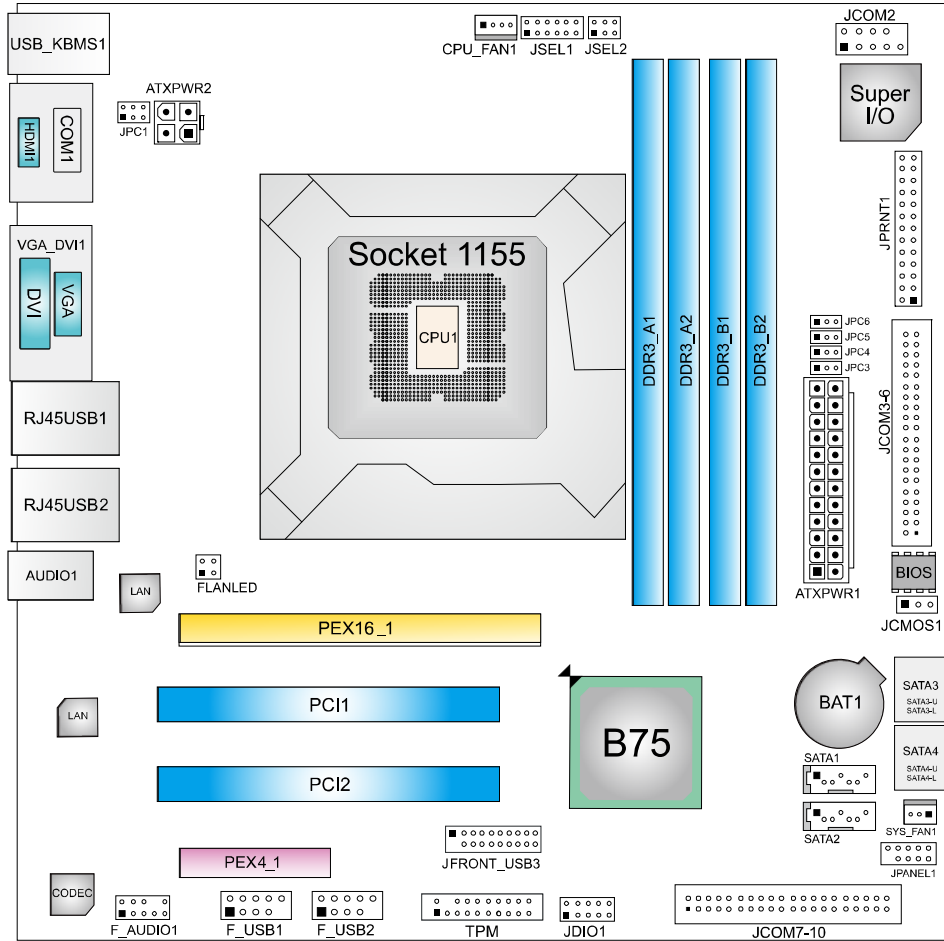
**Note3: Maximum resolution:**  
 VGA: 2048 x 1536 @75Hz  
 DVI: 1920 x 1200 @60Hz  
 HDMI: 1920 x 1200 @60Hz, compliant with HDMI 1.4a

## 1.5 MOTHERBOARD LAYOUT



Note: ■ represents the 1<sup>st</sup> pin.

# BIB75-MHA



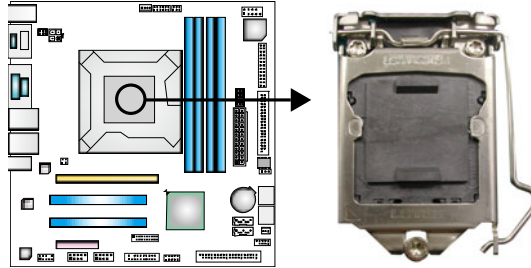
(Optional)

Note: ■ represents the 1<sup>st</sup> pin.



## CHAPTER 2: HARDWARE INSTALLATION

### 2.1 INSTALLING CENTRAL PROCESSING UNIT (CPU)

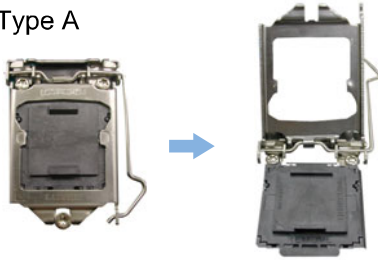


**Notice:**

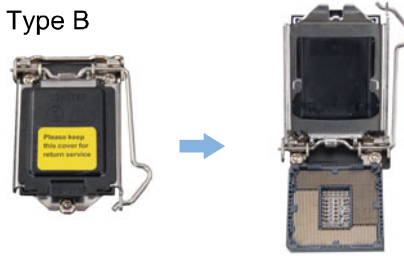
1. Remove Pin Cap before installation, and make good preservation for future use. When the CPU is removed, cover the Pin Cap on the empty socket to ensure pin legs won't be damaged.
2. The motherboard might equip with two different types of pin cap. Please refer below instruction to remove the pin cap.

**Step 1:** Pull the socket locking lever out from the socket then raise the lever and load plate to the fully open position.

Type A

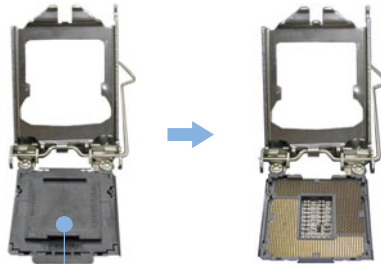


Type B



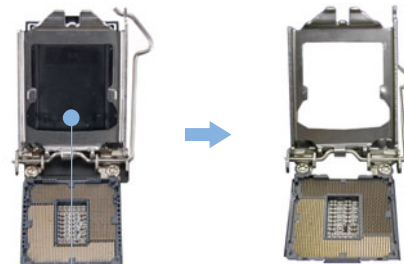
**Step 2:** Remove the Pin Cap.

Type A



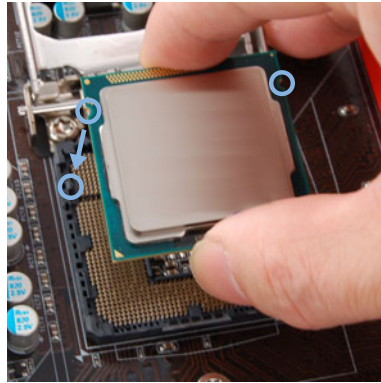
Pin Cap

Type B



Pin Cap

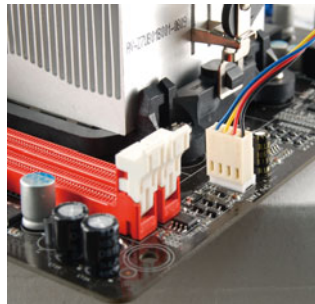
**Step 3:** Hold processor with your thumb and index fingers, oriented as shown. Align the notches with the socket. Lower the processor straight down without tilting or sliding the processor in the socket.



**Step 4:** Close the load plate. Pressing down on the load plate, close and engage the socket lever.



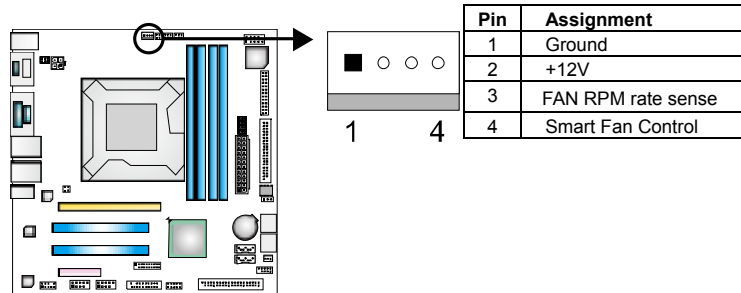
**Step 5:** Put the CPU Fan and heatsink assembly on the CPU and buckle it on the retention frame. Connect the CPU FAN power cable into the CPU\_FAN1 to complete the installation.



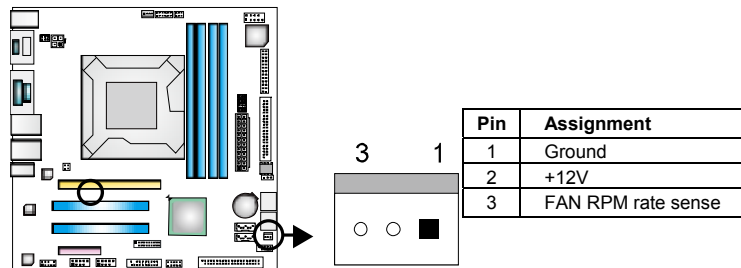
## 2.2 FAN HEADERS

These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

### CPU\_FAN1: CPU Fan Header



### SYS\_FAN1: System Fan Header

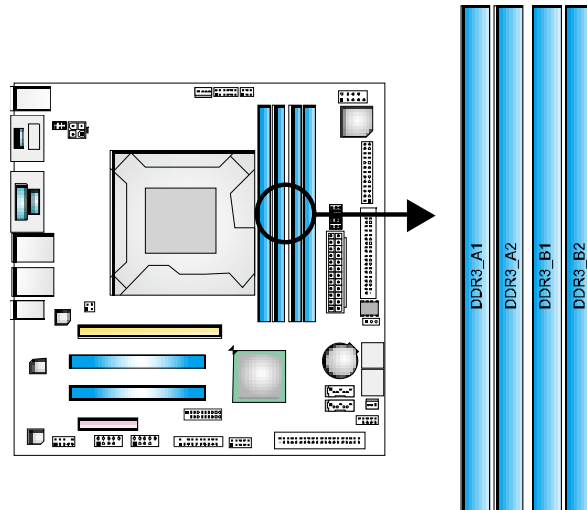


**Note:**

The SYS\_FAN1 supports 3-pin head connector; the CPU\_FAN1 supports 4-pin head connector. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

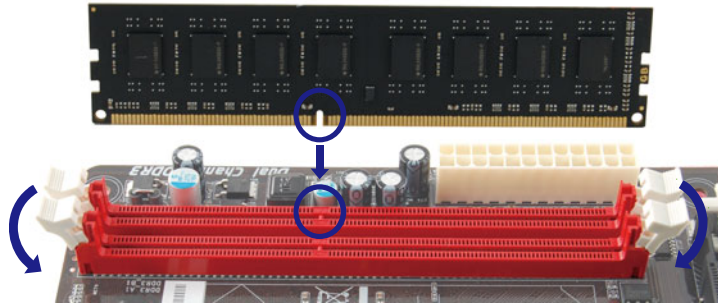
## 2.3 INSTALLING SYSTEM MEMORY

### A. Memory Modules



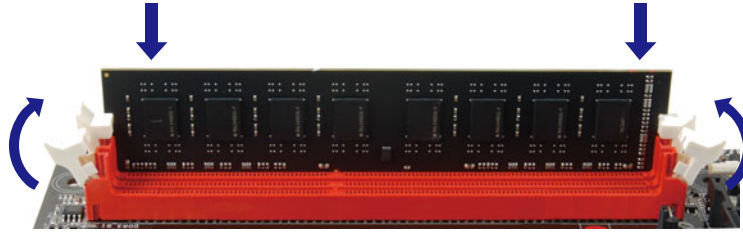
#### Step1:

Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.



**Step2:**

Insert the DIMM vertically and firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.



**Note:**  
If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

**B. Memory Capacity**

DIMM Socket Location	DDR3 Module	Total Memory Size
DDR3_A1	512MB/1GB/2GB/4GB/8GB	Max is 32GB.
DDR3_A2	512MB/1GB/2GB/4GB/8GB	
DDR3_B1	512MB/1GB/2GB/4GB/8GB	
DDR3_B2	512MB/1GB/2GB/4GB/8GB	

**C. Dual Channel Memory Installation**

Please refer to the following requirements to activate Dual Channel function:

Install memory module of the same density in pairs, shown in the table.

Dual Channel Status	DDR3_A1	DDR3_A2	DDR3_B1	DDR3_B2
Enabled	O	X	O	X
Enabled	X	O	X	O
Enabled	O	O	O	O

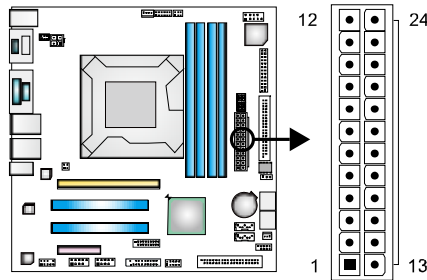
(O means memory installed, X means memory not installed.)

**Note:**  
The DRAM bus width of the memory module must be the same(x8 or x16)

## 2.4 POWER SUPPLY

### ATXPWR1: ATX Power Source Connector (24-pin)

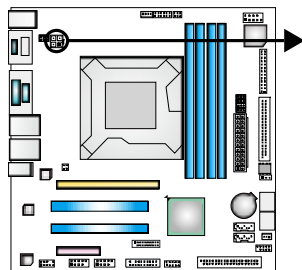
This connector allows user to connect 24-pin power connector.



Pin	Assignment	Pin	Assignment
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	Ground
4	+5V	16	PS_ON
5	Ground	17	Ground
6	+5V	18	Ground
7	Ground	19	Ground
8	PW_OK	20	NC
9	Standby Voltage +5V	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Ground

### ATXPWR2: ATX Power Source Connector (4-pin)

This connector provides +12V to system power circuit.



Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

## 2.5 ONBOARD SLOT/CONNECTOR/HEADER/JUMPER

### PEX16\_1: PCI-Express x16 Slot

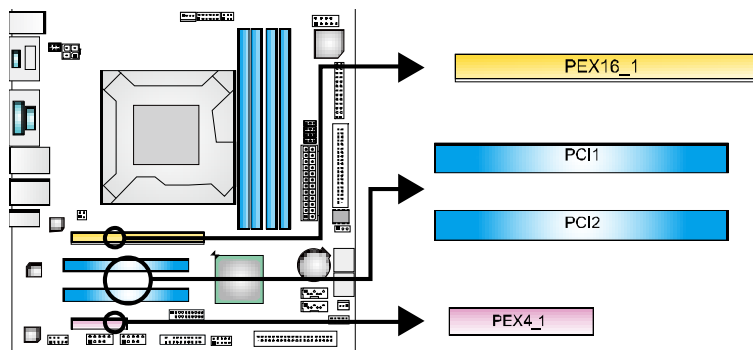
- PCI-Express 3.0 compliant.
- Maximum theoretical realized bandwidth of 16GB/s simultaneously per direction, for an aggregate of 32GB/s totally.
- PCI-Express Gen3 is supported by Core i7-3xxx / i5-3xxx CPUs.

### PCI1/2: Peripheral Component Interconnect Slots

- This motherboard is equipped with 2 standard PCI slots. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.

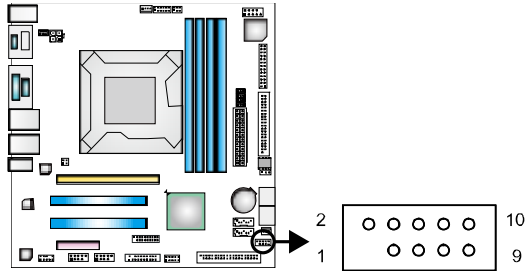
### PEX4\_1: PCI-Express x4 Slot

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 4GB/s per direction; 4GB/s in total.



### JPANEL1: Front Panel Header

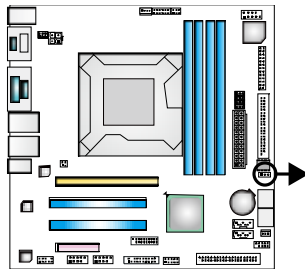
This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	Key	N/A	2	Power LED+(3.3V)	Power LED
3	HD LED+	HDD LED	4	Power LED+(3.3V)	
5	HD LED-		6	Power LED-	
7	Reset	Reset Button	8	Power	Power Button
9	GND		10	Power GND	

### JCMOS1: Clear CMOS Header

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the mainboard.



**Pin 1-2 Close:** (Default)  
Normal Operation.



**Pin 2-3 Close:**  
Clear CMOS data.

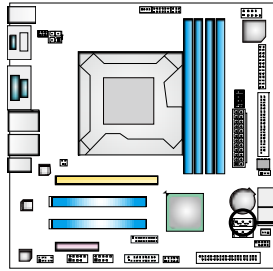
※ **Clear CMOS Procedures:**

1. Remove AC power line.
2. Set the jumper to "Pin 2-3 close".
3. Wait for five seconds.
4. Set the jumper to "Pin 1-2 close".
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.



### SATA1: Serial ATA3 Connector

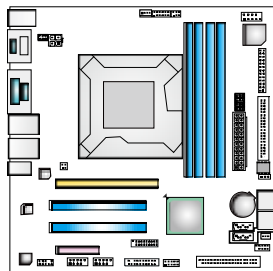
The connector connects to Serial ATA 6.0 Gb/s hard disk drive and optical disc drive.



Pin	Assignment
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

### SATA2/3/4: Serial ATA2 Connectors

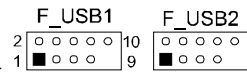
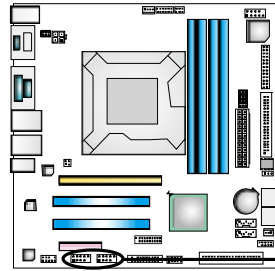
The connectors connect to Serial ATA 3.0 Gb/s hard disk drive and optical disc drive.



Pin	Assignment
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

### F\_USB1/2: USB 2.0 Connectors

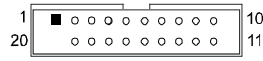
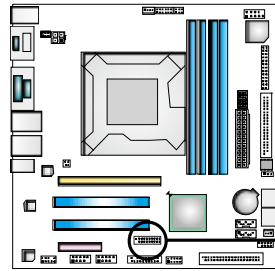
The mainboard provides 3 front USB pin connector, allowing up to 6 additional USB 2.0 ports up to maximum throughput of 480 Mbps. Connect the USB cable into the pin header for using high-speed USB interface peripherals.



Pin	Assignment	Pin	Assignment
1	+5V (fused)	2	+5V (fused)
3	USB-	4	USB-
5	USB+	6	USB+
7	Ground	8	Ground
9	Key	10	NC

### JFRONT\_USB3: Header for USB 3.0 Ports at Front Panel

This header allows user to connect additional USB cable on the PC front panel, and also can be connected with internal USB devices, like USB card reader.

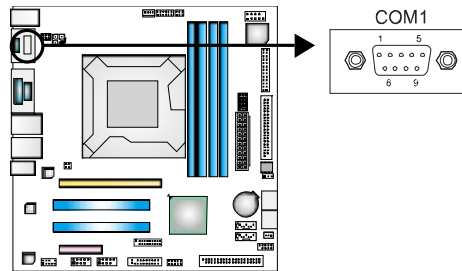


Pin	Assignment	Pin	Assignment
1	VBUS0	11	D2+
2	SSRX1-	12	D2-
3	SSRX1+	13	Ground
4	Ground	14	SSTX2+
5	SSTX1-	15	SSTX2-
6	SSTX1+	16	Ground
7	Ground	17	SSRX2+
8	D1-	18	SSRX2-
9	D1+	19	VBUS1
10	ID	20	Key

**Note:** USB3.0 is only supported by Windows 7 and backward compatible with USB2.0/1.1.

## Serial Port Connectors

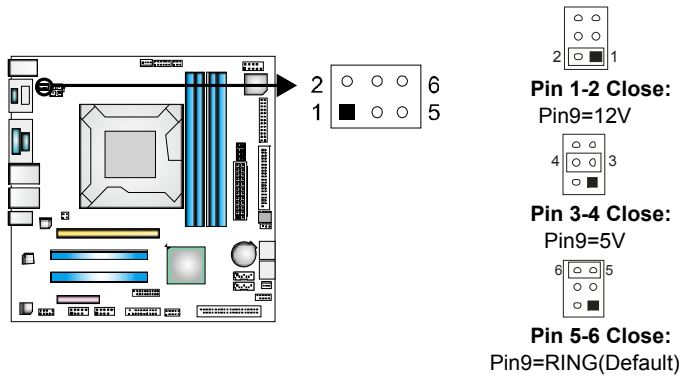
The motherboard has 10 Serial Port Connectors for connecting RS-232 Port.  
**COM1 (RS-232/422/485 can be select by switch headers.)**



Pin	RS-232	RS-422	RS-485
	<b>Assignment</b>		
1	Carrier detect (DCD)	422 TXD-	485 DATA-
2	Received data (RXD)	422 TXD+	485 DATA+
3	Transmitted data (TXD)	422 RXD+	NC
4	Data terminal ready (DTR)	422 RXD-	NC
5	Signal ground (GND)	GND	GND
6	Data set ready (DSR)	NC	NC
7	Request to send (RTS)	NC	NC
8	Clear to send (CTS)	NC	NC
9	Ring/5V/12V*	NC	NC

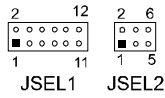
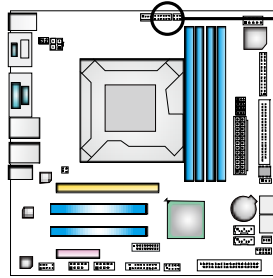
### JPC1\*: Voltage Switch jumpers for COM1 ports

The header is for controlling the Pin9 of COM1 port to switch Ring/5V/12V.



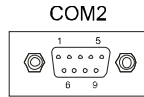
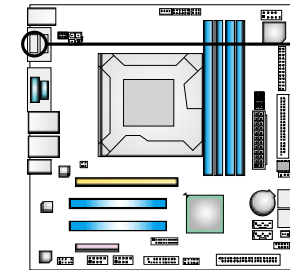
**JSEL1/JSEL2: RS-232/422/485 Switch Headers for COM1**

The headers determine that COM1 belongs to RS-232 (Default), 422, or 485.



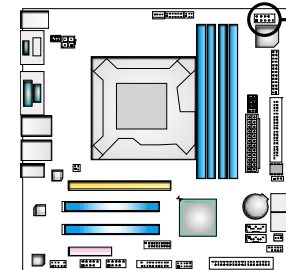
JSEL1		
RS-232	RS-422	RS-485
1-3	3-5	3-5
2-4	4-6	4-6
7-9	9-11	9-11
8-10	10-12	10-12
JSEL2		
1-2	RS-232	
3-4	RS-422	
5-6	RS-485	

**JCOM2: Serial Port Connector**



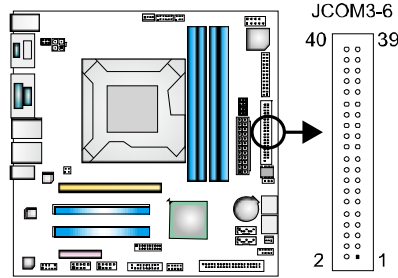
Pin	Assignment
1	Carrier
2	Received
3	Transmitted
4	Data
5	Signal
6	Data set
7	Request to
8	Clear to
9	Ring

**JCOM2: Serial Port Connector**



Pin	Assignment	Pin	Assignment
1	-PDCD	2	PSIN
3	PSOUT data	4	-PDTR
5	GND	6	-PDSR
7	-PRTS	8	-PCTS
9	Ring	10	NC

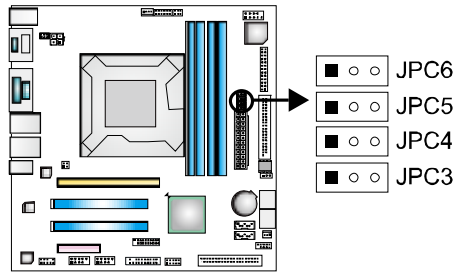
**JCOM3-6: Serial Port Connector**



Pin	Assignment	Pin	Assignment	COM port #
1	C_DCD	2	C_DSR	COM3
3	C_RXD	4	C_RTS	
5	C_TXD	6	C_CTS	
7	C_DTR	8	C_RI	
9	GND	10	5V/12V*	
11	C_DCD	12	C_DSR	COM4
13	C_RXD	14	C_RTS	
15	C_TXD	16	C_CTS	
17	C_DTR	18	C_RI	
19	GND	20	5V/12V*	
21	C_DCD	22	C_DSR	COM5
23	C_RXD	24	C_RTS	
25	C_TXD	26	C_CTS	
27	C_DTR	28	C_RI	
29	GND	30	5V/12V*	
31	C_DCD	32	C_DSR	COM6
33	C_RXD	34	C_RTS	
35	C_TXD	36	C_CTS	
37	C_DTR	38	C_RI	
39	GND	40	5V/12V*	

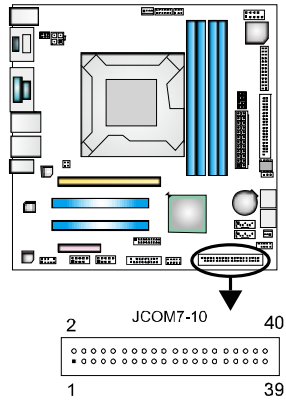
**JPC3-6\*: Voltage Switch jumpers for JCOM3-6 ports**

The header are for controlling the Power Pin of JCOM3-6 ports to switch 5V/12V.



<p><b>Pin 1-2 Close:</b> Pin9=12V</p>	JCOM3 Power Pin: #10
	JCOM4 Power Pin: #20
<p><b>Pin 2-3 Close:</b> Pin9=5V(Default)</p>	JCOM5 Power Pin: #30
	JCOM6 Power Pin: #40

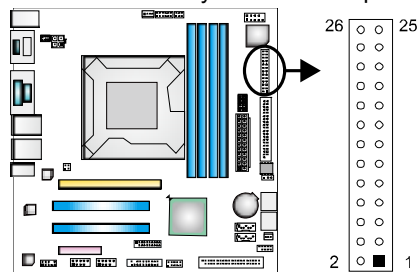
**JCOM7-10: Serial Port Connector**



Pin	Assignment	Pin	Assignment	COM port #
1	C_DCD	2	C_DSR	COM7
3	C_RXD	4	C_RTS	
5	C_TXD	6	C_CTS	
7	C_DTR	8	C_RI	
9	GND	10	GND	
11	C_DCD	12	C_DSR	COM8
13	C_RXD	14	C_RTS	
15	C_TXD	16	C_CTS	
17	C_DTR	18	C_RI	
19	GND	20	GND	COM9
21	C_DCD	22	C_DSR	
23	C_RXD	24	C_RTS	
25	C_TXD	26	C_CTS	
27	C_DTR	28	C_RI	
29	GND	30	GND	COM10
31	C_DCD	32	C_DSR	
33	C_RXD	34	C_RTS	
35	C_TXD	36	C_CTS	
37	C_DTR	38	C_RI	
39	GND	40	GND	

**JPRNT1: Printer Port Connector**

This header allows you to connect printer port on the PC.

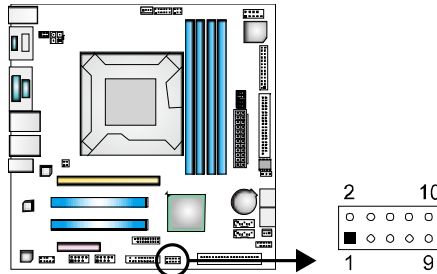


Pin	Assignment	Pin	Assignment
1	-Strobe	2	-ALF
3	Data 0	4	-Error
5	Data 1	6	-Init
7	Data 2	8	-Scltin
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-ACK	20	Ground
21	Busy	22	Ground
23	PE	24	Ground
25	SCLT	26	NA

### JDIO1: Digital I/O Connector

This connector offers 4-pair of digital I/O functions and address is set in BIOS. The default address is:

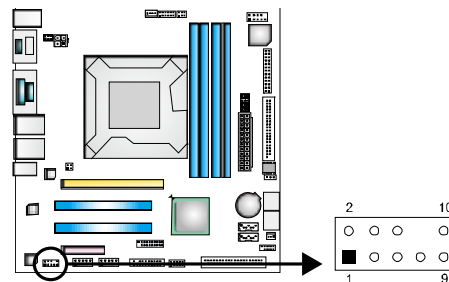
- DI01 -> 548H BIT7-> GPIO71
- DI02 -> 548H BIT6-> GPIO70
- DI03 -> 548H BIT5-> GPIO69
- DI04 -> 548H BIT4-> GPIO68
- DO01 -> 50CH BIT7-> GPIO7
- DO02 -> 50CH BIT6-> GPIO6
- DO03 -> 50CH BIT1-> GPIO1
- DO04 -> 50CH BIT17-> GPIO17



Pin	Assignment	Pin	Assignment
1	5V	2	Digital-In-01
3	Digital-Out-01	4	Digital-In-02
5	Digital-Out-02	6	Digital-In-03
7	Digital-Out-03	8	Digital-In-04
9	Digital-Out-04	10	GND

### F\_AUDIO1: Front Panel Audio Header

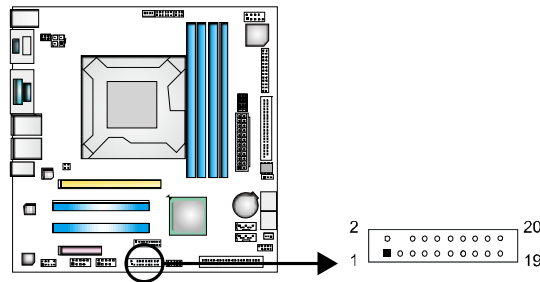
This is an interface for the front panel audio cable that allows convenient connection and control of audio devices. This header allows only HD audio front panel connector; AC'97 connector is not acceptable..



Pin	Assignment	Pin	Assignment
1	Mic Left in	2	Ground
3	Mic Right in	4	Present Sense
5	Right line out	6	GND_AUD
7	Front Sense	8	Key
9	Left line out	10	GND_AUD

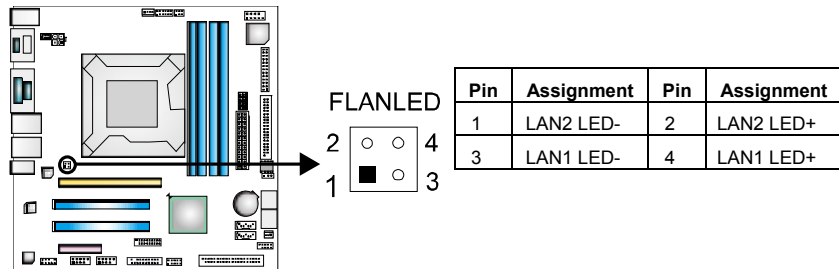
### TPM: Trusted Platform Module Header

This header allows you to store cryptographic keys that protect information



Pin	Assignment	Pin	Assignment
1	CLK_PCI_TPM	2	Ground
3	LFRAME#	4	Key
5	PL_RST2#	6	VCC5
7	FWH3	8	FWH2
9	VCC3_3	10	FWH1
11	FWH0	12	Ground
13	SMBCLK	14	SMBDATA
15	AUX33	16	SERIRQ
17	Ground	18	CLK_RUN#
19	SUS_STAT#	20	LDRQJ1

### FLANLED: Front Panel LAN LED



### \*How to Setup Jumpers

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.





## **CHAPTER 3: BIOS SETUP**

### **Introduction**

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

### **Plug and Play Support**

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

### **EPA Green PC Support**

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

### **ACPI Support**

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

### **PCI Bus Support**

This AMI UEFI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

### **DRAM Support**

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

## Supported CPUs

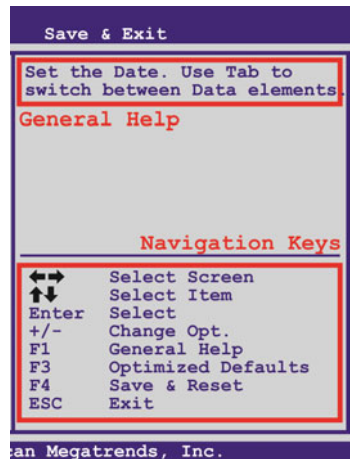
This AMI UEFI BIOS supports the Intel CPU.

## Using Setup

When starting up the computer, press **<Del>** during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item.

**Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

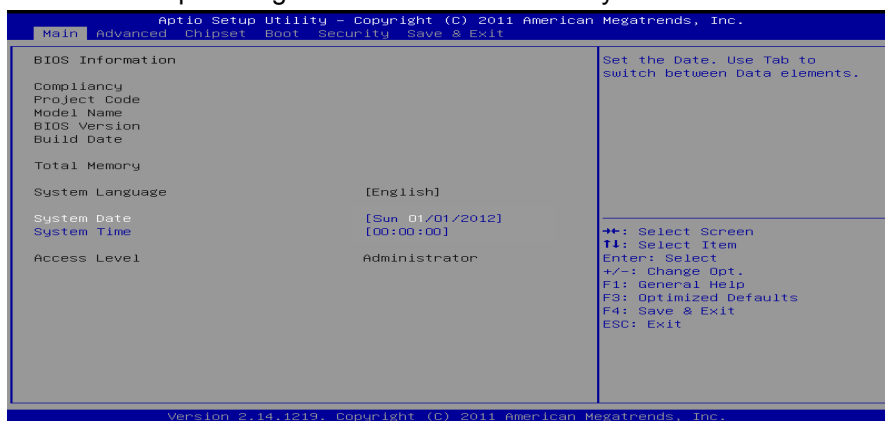


### **Notice:**

- The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

### 3.1 MAIN MENU

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



#### **BIOS Information**

Shows system information including UEFI BIOS version, model name, marketing name, built date, etc.

#### **Total Memory**

Shows system memory size, VGA shard memory will be excluded.

#### **System Date**

Set the system date. Note that the 'Day' automatically changes when you set the date.

#### **System Time**

Set the system internal clock.

#### **Access Level**

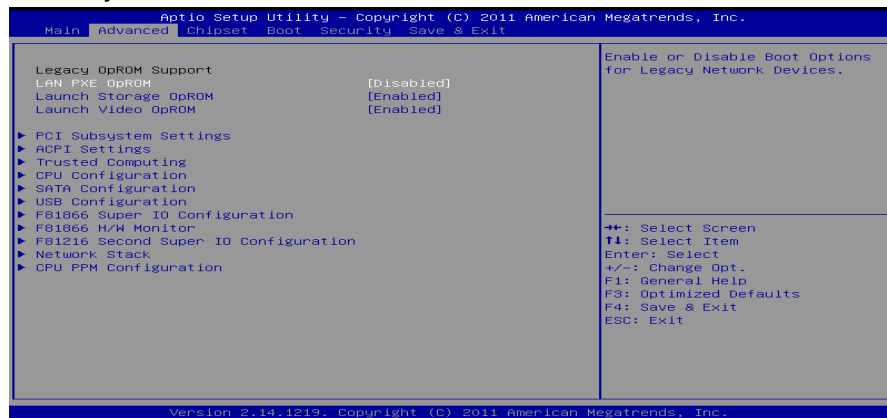
Shows the access level of current user.

## 3.2 ADVANCED MENU

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

### Notice:

Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



### Launch PXE OpROM

This item enables or disables boot Options for legacy network devices with option ROM.

Options:Disabled (Default) / Enabled

### Launch Storage OpROM

This item enables or disables boot Options for legacy mass storage devices with option ROM.

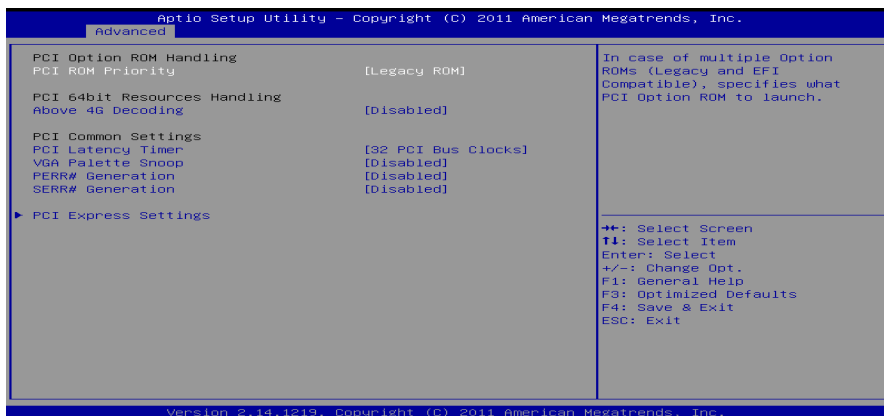
Options:Enabled (Default) / Disabled

### Launch Video OpROM

This item enables or disables execution of the legacy option ROM for video devices.

Options:Enabled (Default) / Disabled / Enabled when no UEFI Driver

## PCI Subsystem Settings



### PCI ROM Priority

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

Options: Legacy ROM (Default) / EFI Compatible ROM

### Above 4G Decoding

Enables or disables 64bit capable device to be decoded in above 4G address space (only if system support 64 bit PCI decoding).

Options: Disabled (Default) / Enabled

### PCI Latency Timer

This item sets the value to be programmed into PCI Latency Timer Register.

Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

### VGA Palette Snoop

Enables or disables VGA palette registers snooping.

Options: Disabled (Default) / Enabled

### PERR# Generation

Enables or disables PCI device to generate SERR#.

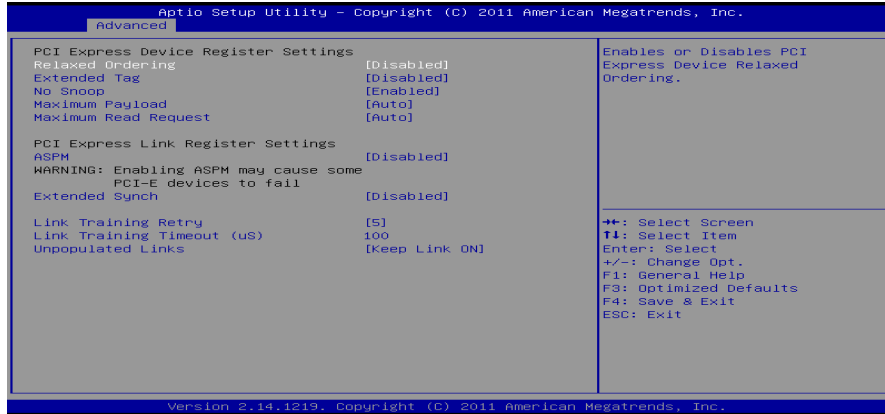
Options: Disabled (Default) / Enabled

### SERR# Generation

Enables or disables PCI device to generate SERR#.

Options: Disabled (Default) / Enabled

## PCI Express Settings



### **Relaxed Ordering**

Enables or disables PCI express device No snoop option.

Options: Disabled (Default) / Enabled

### **Extended Tag**

If enabled allows device to use 8-bit tag field as a requester.

Options: Disabled (Default) / Enabled

### **No Snoop**

This item enables or disables PCI Express Device No Snoop option.

Options: Enabled (Default) / Disabled

### **Maximum Payload**

This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

### **Maximum Read Request**

This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

### **ASPM**

This item sets the ASPM (Active State Power Management Settings)

Level: Force L0 – Force all links to L0 State; Auto – BIOS auto configures; Disabled – Disables ASPM.

Options: Disabled (Default) / Auto / Force L0s

### **Extend Synch**

If enabled allows generation of extended synchronization patterns.

Options: Disabled (Default) / Enabled

**Link Training Retry**

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

Options: 5 (Default) / Disabled / 2 / 3

**Link Training Timeout (uS)**

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

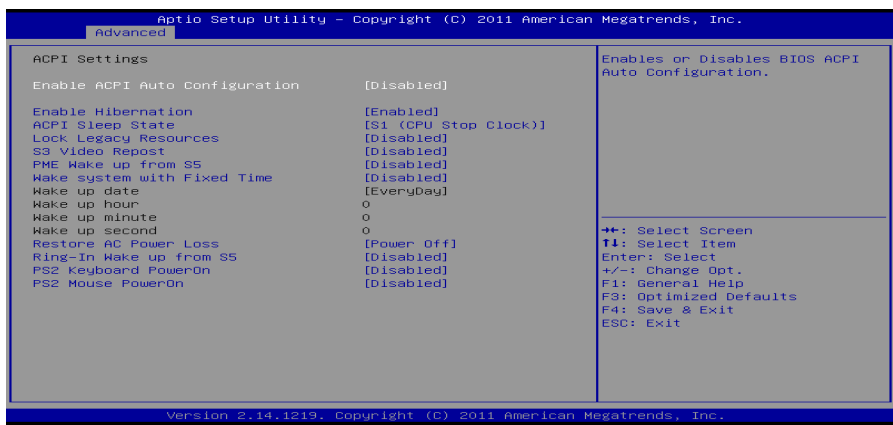
Options: 100 (Default)

**Unpopulated Links**

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

Options: Keep Link ON (Default) / Disable Link

**ACPI Settings**



**Enable ACPI Auto Configuration**

This item enables or disables BIOS ACPI auto configuration.

Options: Disabled (Default) / Enabled

**Enable Hibernation**

This item enables or disables system ability to hibernate (OS/S4 sleep state)/ This option may be not effective with some OS.

Options: Enabled (Default) / Disabled

**ACPI Sleep State**

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: S1 (CPU Stop Clock) (Default) / Suspend Disabled / S3 (Suspend to RAM)

**Lock Legacy Resources**

This item enables or disables lock of legacy resources.

Options: Disabled (Default) / Enabled

**S3 Video Repost**

This item enables or disables S3 Video Repost..

Options: Disabled (Default) / Enabled

**PME Wake up from S5**

This item enables the system to wake from S5 using PEM event.

Options: Disabled (Default) / Enabled

**Wake system with Fixed Time**

This item enables or disables the system to wake on by alarm event.

When this item is enabled, the system will wake on the hr:min:sec specified.

Options: Disabled (Default) / Enabled

**Wake up date**

You can choose which date the system will boot up.

**Wake up hour / Wake up minute / Wake up second**

You can choose the system boot up time, input hour, minute and second to specify.

**Restore AC Power Loss**

This item enables the system to wake from S5 using Ring-In event.

Options: Power Off (Default) / Power On / Last State

**Ring-In Wake up from S5**

This item enables the system to wake from S5 using Ring-In event.

Options: Disabled (Default) / Enabled

**PS2 Keyboard PowerOn**

This item allows you to control the keyboard power on function.

Options: Disabled (Default) / Ctrl + Esc / Ctrl + F1 / Ctrl + Space / Any Key / Wake Key / Power Key / Ctrl + Alt + Space / Space

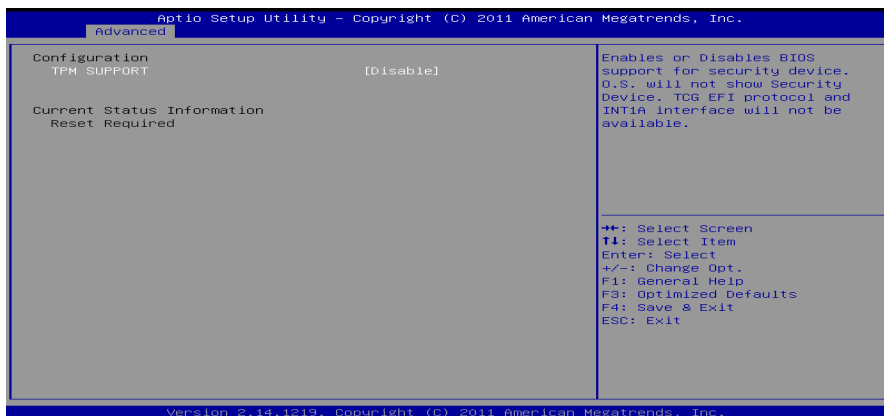
**PS2 Mouse PowerOn**

This item allows you to control the mouse power on function.

Options: Disabled (Default) / Enabled



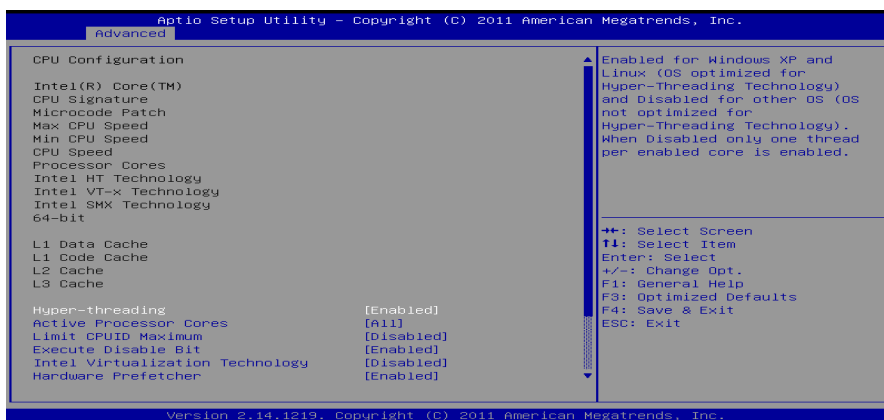
## Trusted Computing



### TPM Support

This item enables or disables BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options: Disabled (Default) / Enabled

## CPU Configuration



### Hyper-threading

This item enables or disables for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When setting this item "Disabled" only one thread per enabled core is enabled.

Options: Enabled (Default) / Disabled

**Active Processor Cores**

This item sets number of cores to enable in each processor package.

Options: All (Default) / 1 / 2 / 3

**Limit CPUID Maximum**

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

**Execute-Disable Bit**

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).

Options: Enabled (Default) / Disabled

**Intel Virtualization Technology**

Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.

Options: Disabled (Default) / Enabled

**Hardware Prefetcher**

The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.

Options: Enabled (Default) / Disabled

**Adjacent Cache Line Prefetch**

The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.

Options: Enabled (Default) / Disabled

**TCC Activation offset**

Offset from the factory TCC activation temperature

Options: 0 (Default)

**Primary Plane Current value**

The maximum instantaneous current allow for primary plane.

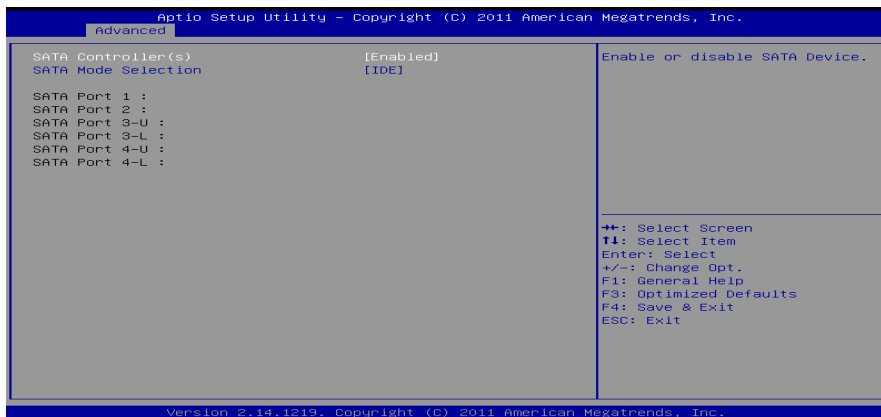
Options: 0 (Default)

### Secondary Plane Current value

The maximum instantaneous current allow for secondary plane.

Options: 0 (Default)

## SATA Configuration



### SATA Controller(s)

This item enables/disables Serial ATA Device.

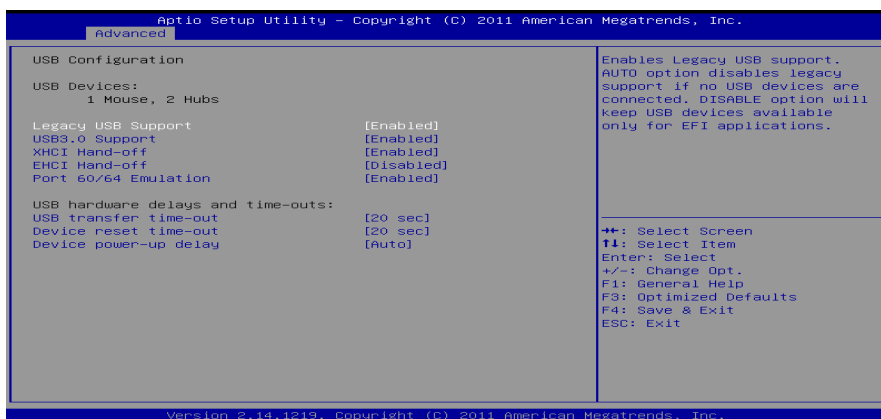
Options: Enabled (Default) / Disabled

### SATA Mode Selection

This item determines how SATA controller(s) operate.

Options: AHCI (Default) / IDE

## USB Configuration



**Legacy USB Support**

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).

Options: Enabled (Default) / Disabled / Auto

**USB3.0 Support**

This item enables or disables USB3.0 (XHCI) controller support.

Options: Enabled (Default) / 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 (Default) / Disabled

**EHCI Hand-Off**

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

Options: Disabled (Default) / Enabled

**Port 60/64 Emulation**

This item enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSES.

Options: Enabled (Default) / Disabled

**USB transfer time-out**

The time-out value for Control, Bulk, and Interrupt transfers.

Options: 20 sec (Default) / 1 sec / 5 sec / 10 sec

**Device reset time-out**

The item sets USB mass storage device Start Unit command time-out.

Options: 20 sec (Default) / 10 sec / 30 sec / 40 sec

**Device power-up delay**

“Auto” uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

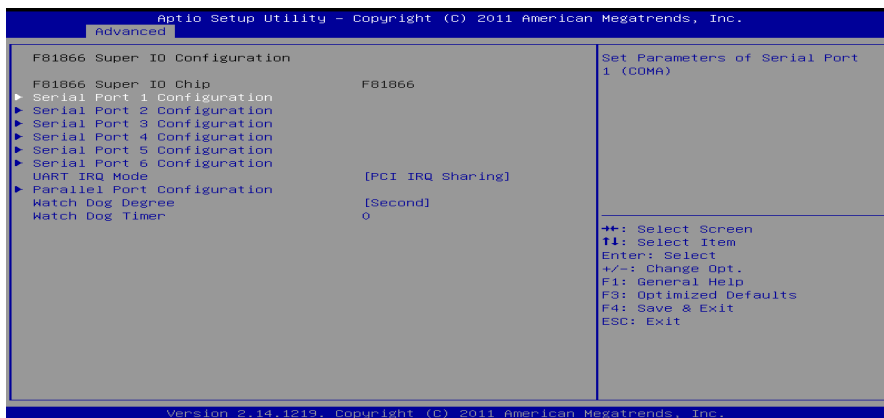
Options: Auto (Default) / Manual

**Device power-up delay in seconds**

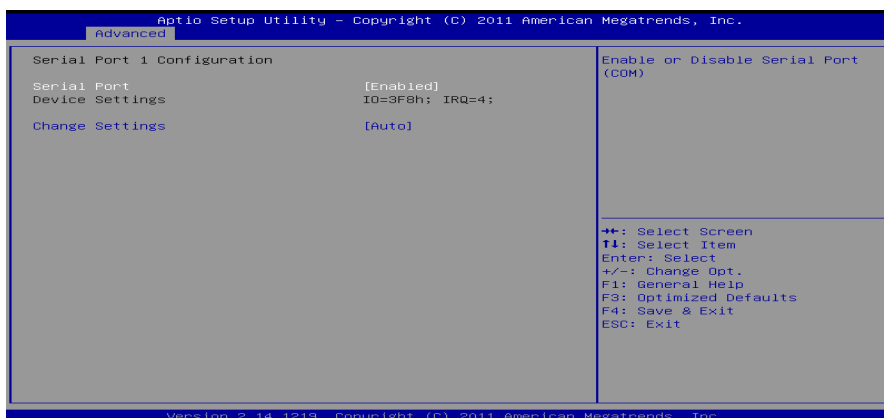
Delay range is 1 ~ 40 seconds, in one second increments.

Options: 5 (Default)

## F81866 Super IO Configuration



### Serial Port 1 Configuration



#### Serial Port

This item enables or disables Serial Port (COM).

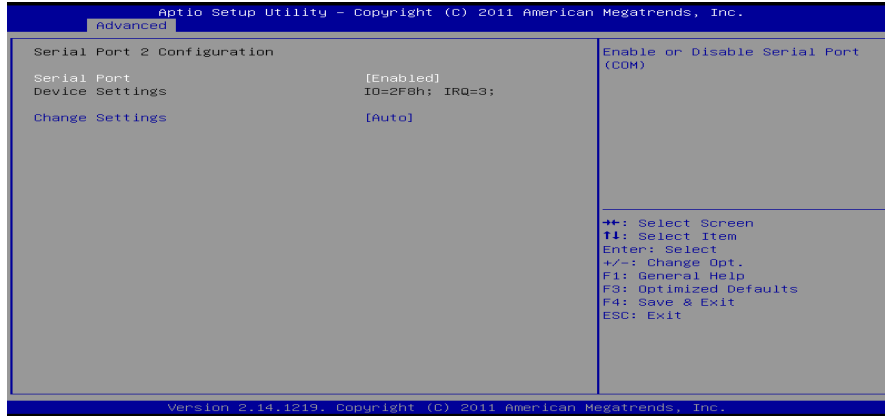
Options: Enabled (Default) / Disabled

#### Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10

## Serial Port 2 Configuration



### Serial Port

This item enables or disables Serial Port (COM).

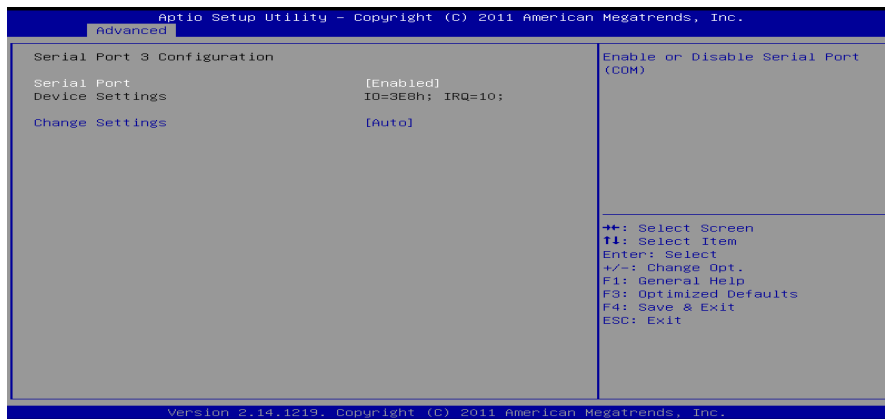
Options: Enabled (Default) / Disabled

### Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F8h; IRQ=3 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10

## Serial Port 3 Configuration



### Serial Port

This item enables or disables Serial Port (COM).

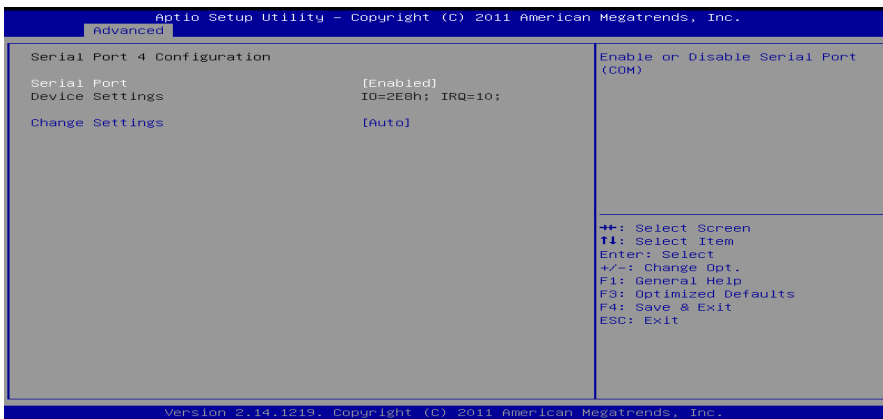
Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3E8h; IRQ=10 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10 / IO=2F0h; IRQ=10 / IO=2E0h; IRQ=10 /

**Serial Port 4 Configuration**



**Serial Port**

This item enables or disables Serial Port (COM).

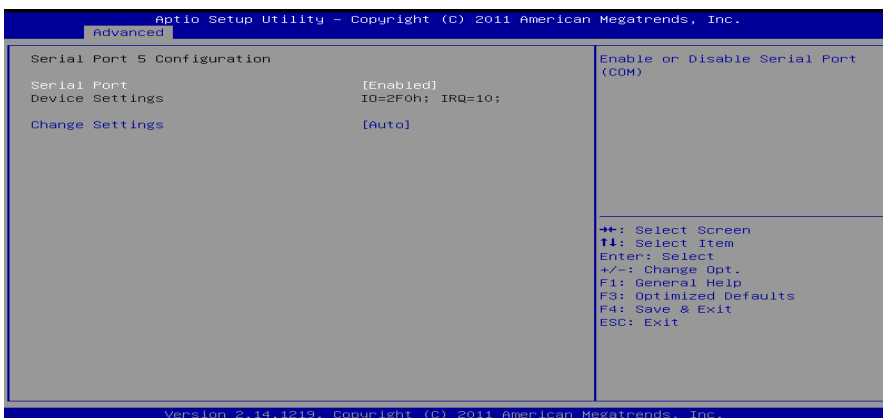
Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2E8h; IRQ=10 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10 / IO=2F0h; IRQ=10 / IO=2E0h; IRQ=10 /

**Serial Port 5 Configuration**



**Serial Port**

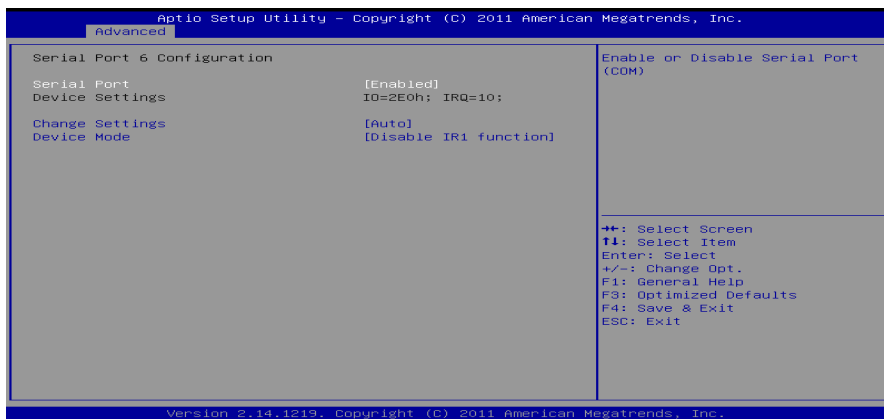
This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F0h; IRQ=10 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10 / IO=2F0h; IRQ=10 / IO=2E0h; IRQ=10 /

**Serial Port 6 Configuration****Serial Port**

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2E0h; IRQ=10 / IO=3F8h; IRQ=10 / IO=2F8h; IRQ=10 / IO=3E8h; IRQ=10 / IO=2E8h; IRQ=10 / IO=2F0h; IRQ=10 / IO=2E0h; IRQ=10 /

**Device Mode**

This item changes the Serial Port mode. Select <High Speed> or <Normal mode> mode.

Options: Disable IR1 function (Default) / Enable IR1 function, active pulse 1.6uS / Enable IR1 function, active pulse 3/16 bit time

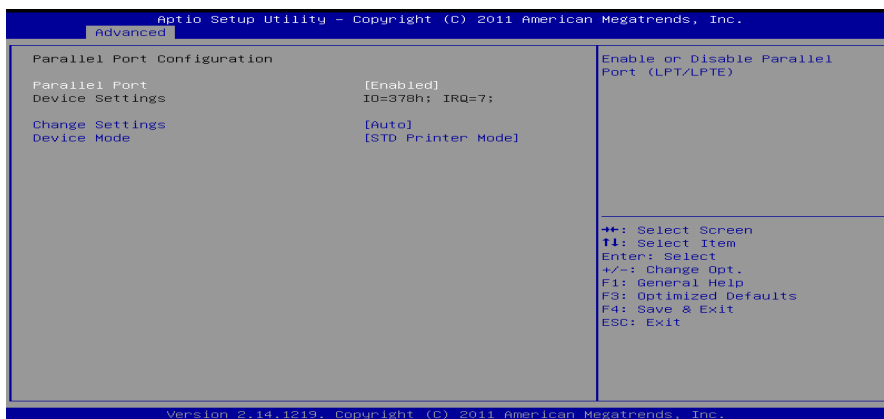
**UART IRQ Mode**

This item allows you to determine PCI IRQ sharing for OS (EX. Windows) ISA IRQ for DOS.

Options: PCI IRQ Sharing (Default) / ISA IRQ



## Parallel Port Configuration



### **Parallel Port**

This item enables or disables Parallel Port (LPT/LPTE).

Options: Enabled (Default) / Disabled

### **Change Settings**

This item allows you to select an optimal setting for Super IO device.

Options: Auto (Default) / IO=378h; IRQ=5 / IO=378h; IRQ=5, 6, 7, 10, 11, 12 / IO=278h; IRQ=5, 6, 7, 10, 11, 12 / IO=3BCh; IRQ=5, 6, 7, 10, 11, 12

### **Device Mode**

This item allows you to determine how the parallel port should function.

Options: STD Printer Mode (Default) / SPP Mode / EPP-1.9 and SPP Mode / EPP-1.7 and SPP Mode / ECP Mode / ECP Mode / ECP and EPP 1.9 Mode / ECP and EPP 1.7 Mode

### **Watch Dog Degree**

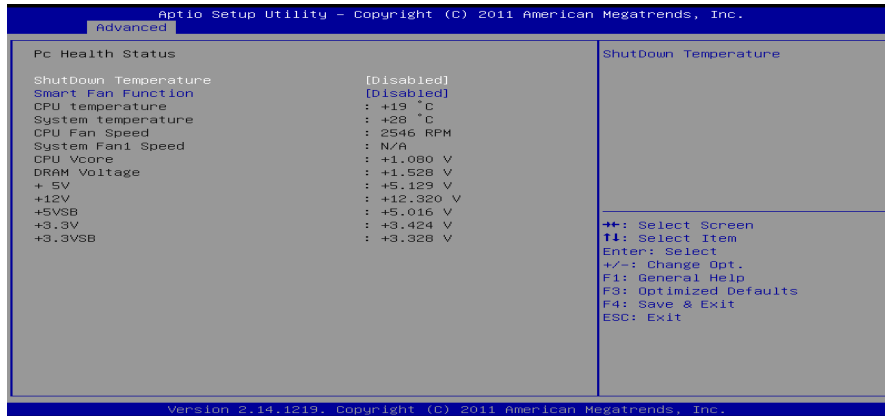
This item allows you to determine the functional degree of Watch Dog.

Options: Second (Default) / Minute

### **Watch Dog Timer**

Options: 0 for disabled (Default) / Min=1, Max=65536

## H/W Monitor



### Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.

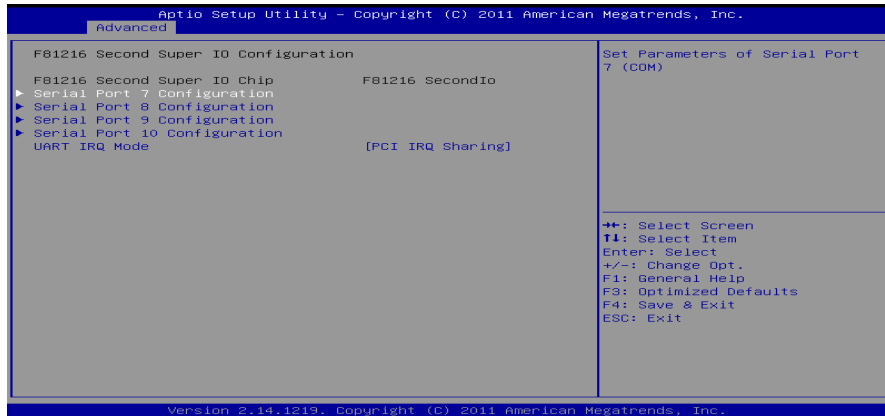
Options: Disabled (Default) / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

### Smart Fan Function

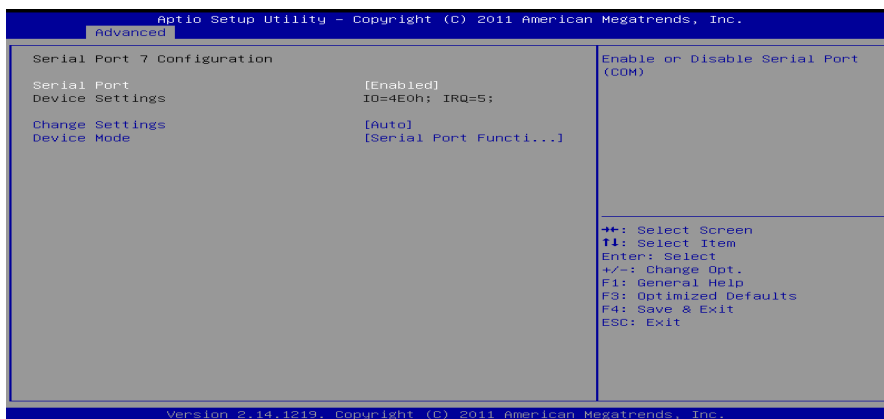
This item allows you to control the CPU Smart Fan function.

Options: Disabled (Default) / Enabled

## F81216 Second Super IO Configuration



## Serial Port 7 Configuration



### Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

### Change Settings

This item selects an optimal setting for Super IO device.

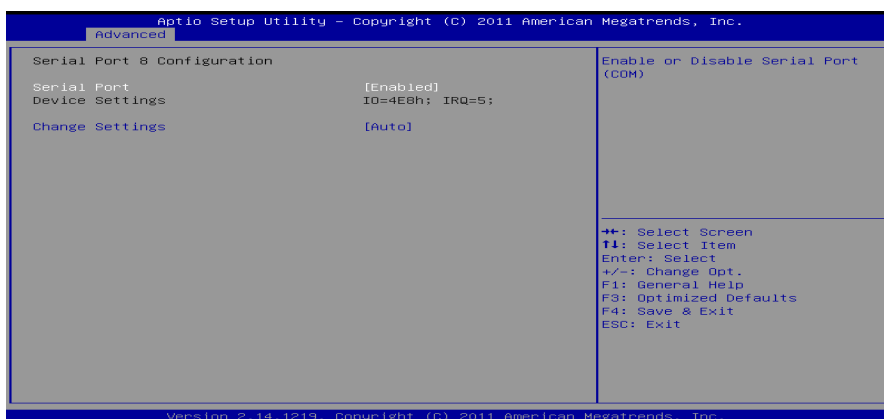
Options: Auto (Default) / IO=4E0h; IRQ=5 / IO=4E0h; IRQ=5 / IO=4E8h; IRQ=5 / IO=4F0h; IRQ=5 / IO=4F8h; IRQ=5

### Device Mode

This item enables or disables serial port (COM).

Options: Serial Port Function Mode(default) / IR Mode, Pusle 1.6us, Full Duplex / IR Mode, Pusle 1.6us, Half Duplex / IR Mode, Pusle 3/16 Bit Time, Full Duplex / IR Mode, Pusle 3/16 Bit Time, Half Duplex

## Serial Port 8 Configuration



**Serial Port**

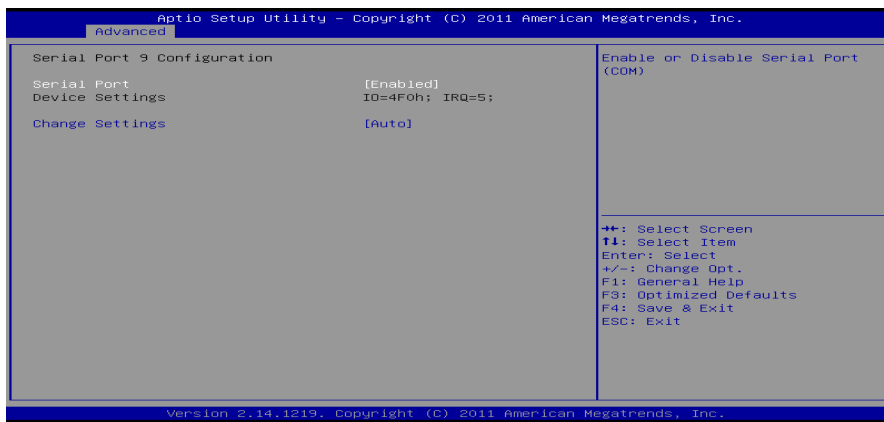
This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=4E8h; IRQ=5 / IO=4E0h; IRQ=5 / IO=4E8h; IRQ=5 / IO=4F0h; IRQ=5 / IO=4F8h; IRQ=5

**Serial Port 9 Configuration****Serial Port**

This item enables or disables Serial Port (COM).

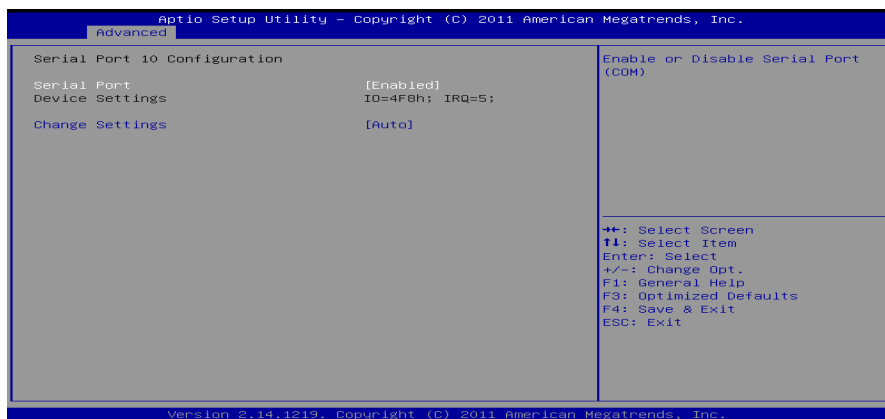
Options: Enabled (Default) / Disabled

**Change Settings**

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=4E0h; IRQ=5 / IO=4E0h; IRQ=5 / IO=4E8h; IRQ=5 / IO=4F0h; IRQ=5 / IO=4F8h; IRQ=5

## Serial Port 10 Configuration



### Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

### Change Settings

This item selects an optimal setting for Super IO device.

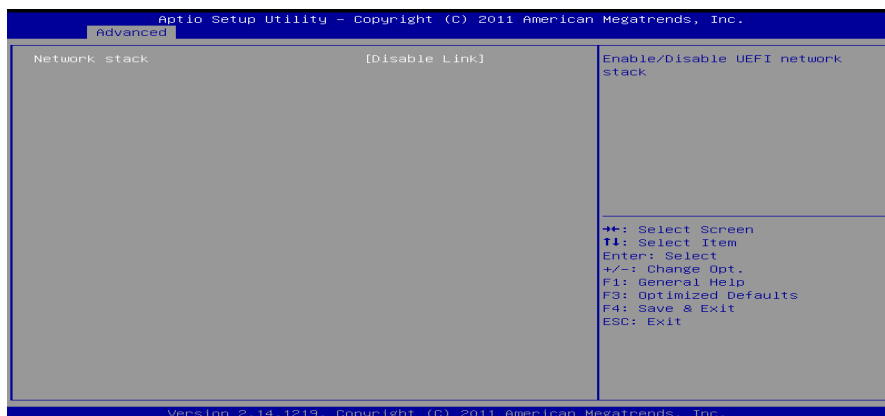
Options: Auto (Default) / IO=4F8h; IRQ=5 / IO=4E0h; IRQ=5 / IO=4E8h; IRQ=5 / IO=4F0h; IRQ=5 / IO=4F8h; IRQ=5

### UART IRQ Mode

This item allows you to determine PCI IRQ sharing for OS (EX. Windows) ISA IRQ for DOS.

Options: PCI IRQ Sharing (Default) / ISA IRQ

## Network Stack



**Network stack**

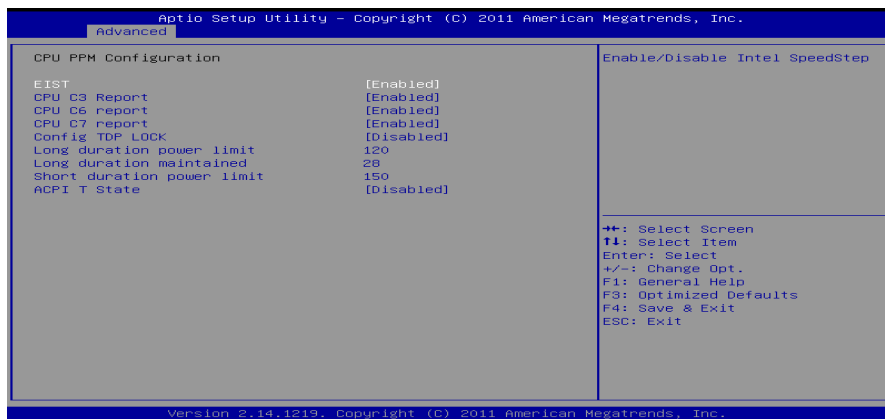
This item allows you enables or disables UEFI network stack

Options: Disabled (Default) / Enabled

**Ipv4/ Ipv6 PEX Support**

This item allows you enables or disables Ipv4/ Ipv6 PEX Support

Options: Enabled (Default) / Disabled

**CPU PPM Configuration****EIST**

This item enables/disables Intel SpeedStep function.

Options: Enabled (Default) / Disabled

**CPU C3/ C6/ C7 report**

This item enables/disables C3 (ACPI C2)/ C6 (ACPI C3)/ C7 (ACPI C3) report to OS.

Options: Enabled (Default) / Disabled

**Config TDP LOCK**

This item allows you lock the config TDP control register..

Options: Disabled (Default) / Enabled

**Long duration power limit**

Long duration power limit in watts, 0 means factory default

Options: 120 (Default)

**Long duration maintained**

Time window which the long duration power is maintained

Options: 28 (Default)

**Short duration power limit**

Short duration power limit in watts, 0 means factory default

Options: 150 (Default)

## User's Manual

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### **ACPI T State**

This item allows you enables/ disables ACPI T state support.

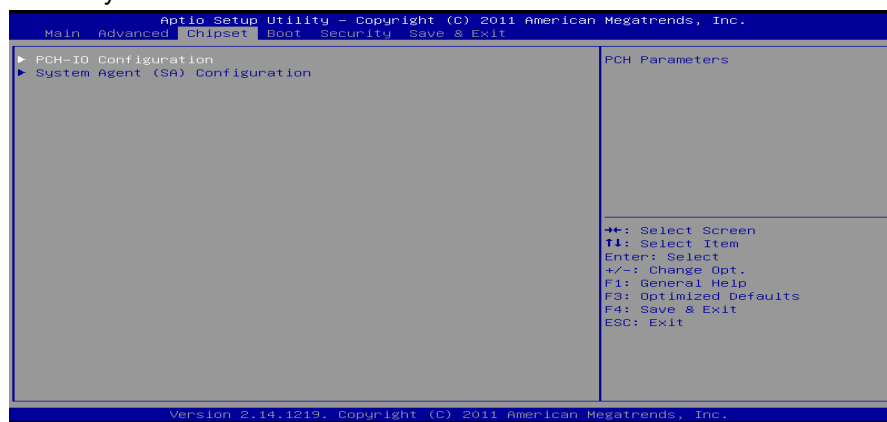
Options: Disabled (Default) / Enabled

### 3.3 CHIPSET MENU

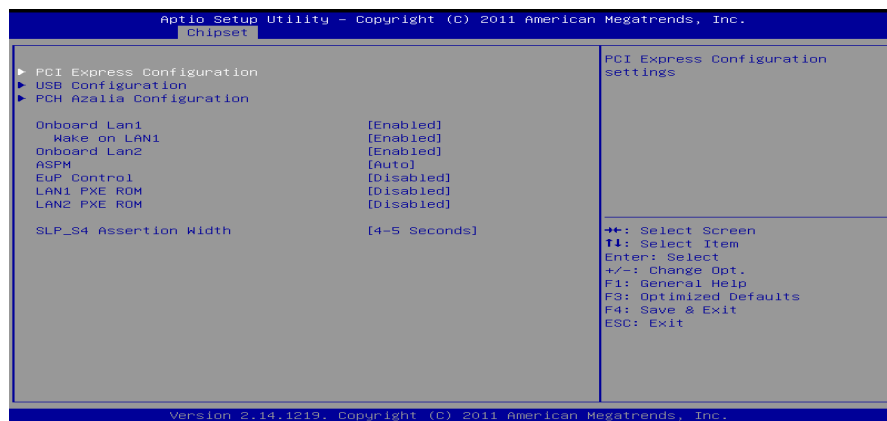
This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

**Notice:**

Beware of that setting inappropriate values in items of this menu may cause system to malfunction.

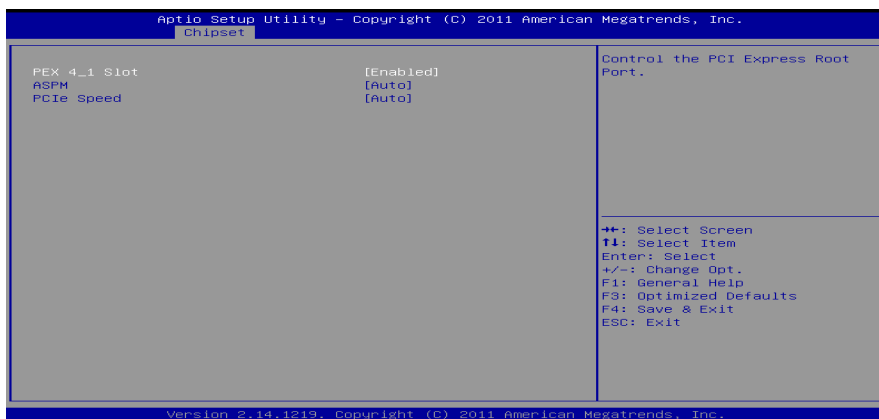


### PCH-IO Configuration





## PCI Express Configuration



### **Onboard PEX 4\_1 Slot**

This item controls the PCI Express Root Port.

Options: Enabled (Default) / Disabled

### **ASPM**

This item sets PCI Express Active State Power Management settings.

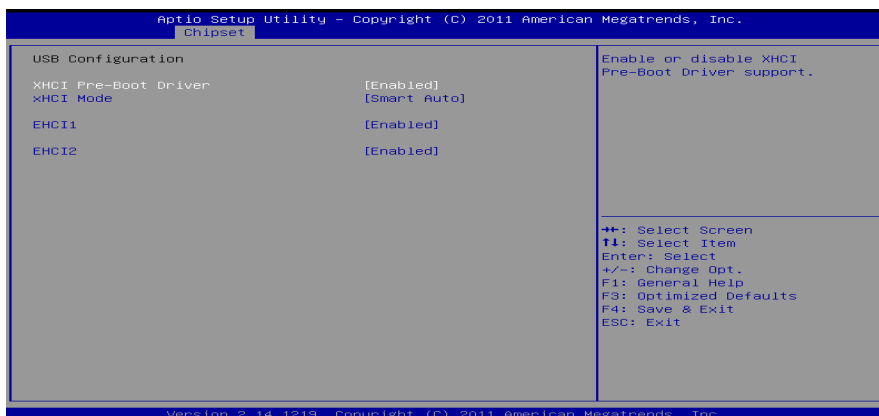
Options: Auto(Default) / Disabled / L0s / L1 / L0sL1

### **PCIe Speed**

This item selects PCI Express port speed.

Options: Auto (Default) / Gen1 / Gen2

## USB Configuration



### **XHCI Pre-Boot Driver**

This item enables or disables XHCI Pre-Boot Driver support.

Options: Enabled (Default) / Disabled

**XHCI Mode**

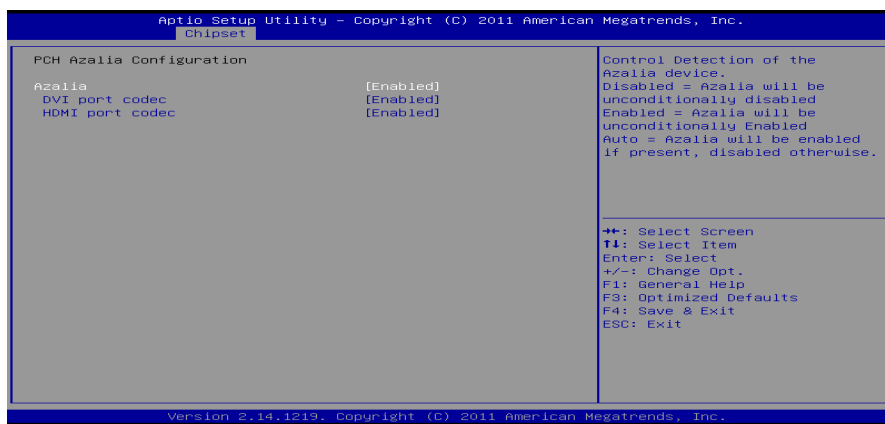
This item sets the mode of operation of XHCI controller.

Options: Smart Auto (Default) / Auto / Enabled / Disabled

**EHCI1/2**

This item controls the USB EHCI (USB2.0) functions. One EHCI controller must always be enabled.

Options: Enabled (Default) / Disabled

**PCI Azalia Configuration****Azalia**

This item controls detection of the Azalia device.

Disabled = Azalia will be unconditionally disabled.

Enabled = Azalia will be unconditionally Enabled.

Auto = Azalia will be enabled if present, disabled otherwise.

Options: Enabled (Default) / Disabled

**DVI port codec**

This item enables or disables internal HDMI codec port for Azalia.

Options: Enabled (Default) / Disabled

**HDMI port codec**

This item enables or disables internal HDMI codec port for Azalia.

Options: Enabled (Default) / Disabled

**Onboard Lan 1/2**

This item allows you to enable or disable the Onboard LAN 1/2.

Options: Enabled (Default) / Disabled

**Wake on LAN1**

This item enables or disables integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on as SX state.)

Options: Enabled (Default) / Disabled

**ASPM**

This item sets the ASPM (Active State Power Management Settings) Level

Options: Auto (Default) / Disabled / L0s / L1 / L0sL1

**EuP Control**

When EuP Enabled, System meets EuP requirement.

Options: Disabled (Default) / Enabled in S5 / Enabled in S4-S5

**LAN1/2 PXE ROM**

This item enables or disables LAN1/2 PEX OPROM.

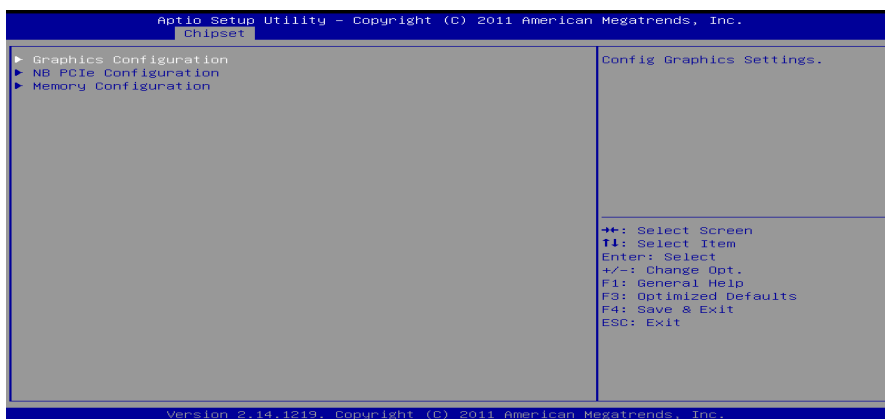
Options: Disabled (Default) / Enabled

**SLP\_S4 Assertion Width**

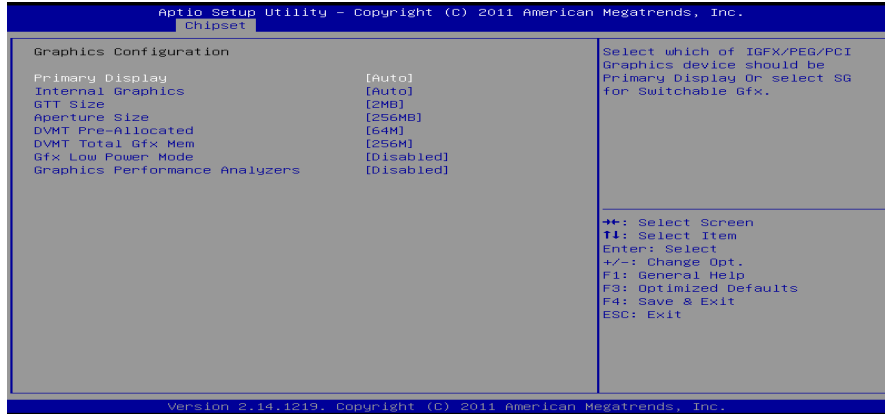
This item sets a minimum assertion width of the SPL\_S4# signal.

Options: 4 to 5 seconds (Default) / 1 to 2 seconds / 3 to 4 seconds / 2 to 3 seconds

**System Agent (SA) Configuration**



## Graphics Configuration



### **Primary Display**

This item selects which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx.

Options: Auto (Default) / IGFX / PEG / PCI

### **Internal Graphics**

This item keeps IGD enabled based on the setup options.

Options: Auto (Default) / Disabled / Enabled

### **GTT Size**

This item selects GTT Size.

Options: 2MB (Default) / 1MB

### **Aperture Size**

This item selects Aperture Size.

Options: 256MB (Default) / 128MB / 512MB

### **DVMT Pre-Allocated**

This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

Options: 64M (Default) / 32M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M

### **DVMT Total Gfx Mem**

This item selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Options: 256MB (Default) / 128MB / MAX

### **Gfx Low Power Mode**

This option is applicable for SFF only

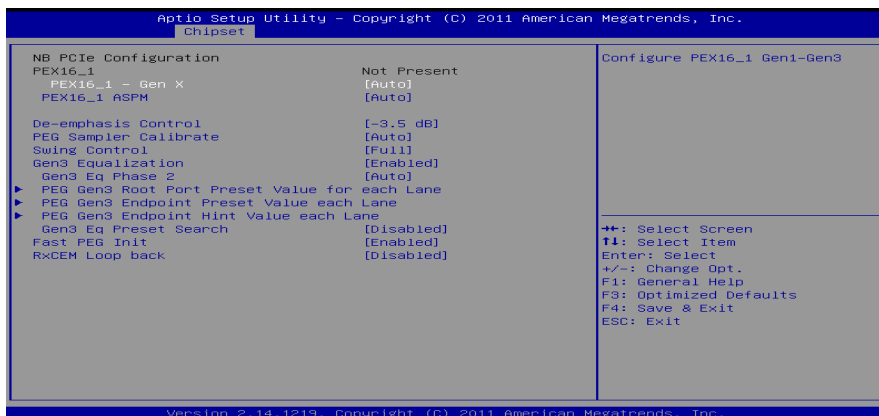
Options: Disabled (Default) / Enabled

**Graphics Performance Analyzers**

This item enables/disables Intel graphics performance analyzers counters.

Options: Disabled (Default) / Enabled

**NB PCIe Configuration**



**PEX16\_1 – Gen X**

This item configures PEX16\_1 Gen1-Gen3.

Options: Auto (Default) / Gen1 / Gen2 / Gen3

**PEG16-1 ASPM**

This item controls ASPM support for the PEG: Device 1 Function 0. This has no effect if PEG is not the currently active device.

Options: Auto (Default) / Disabled / ASPM L0s / ASPM L1 / ASPM L0sL1

**ASPM L0s**

Enable PCIe ASM L0s.

Options: Both Root and Endpoint Ports (Default) / Disabled / Root Port Only / Endpoint Port Only

**De-emphasis Control**

This item configures the De-emphasis control on PEG.

Options: -3.5 dB (Default) / -6 dB

**PEG Sampler Calibrate**

This item enables or disables PEG Sampler Calibrate. Auto means Disabled for SNB MB/DT, Enabled for IVB A0 B0.

Options: Auto (Default) / Enabled / Disabled

**Swing Control**

This item performs PEG Swing Control, on IVB C0 and Later.

Options: Full (Default) / Reduced / Half

**Gen3 Equalization**

This item performs PEG Gen3 Equalization steps.

Options: Enabled (Default) / Disabled

**Gen3 Eq Phase 2**

This item performs PEG Gen3 Equalization Phase 2

Options: Auto (Default) / Enabled / Disabled

**PEG Gen3 Root Port Preset Value for each line**

PEG Gen3 Root Port Preset Value for each Lane		Value for Lane 0.
Lane 0	8	
Lane 1	8	
Lane 2	8	
Lane 3	8	
Lane 4	8	
Lane 5	8	
Lane 6	8	
Lane 7	8	
Lane 8	8	
Lane 9	8	
Lane 10	8	
Lane 11	8	
Lane 12	8	
Lane 13	8	
Lane 14	8	
Lane 15	8	

++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

These items allow you set the value for Lan0-15.

Options: 8 (Default)

**PEG Gen3Endpoint Preset Value each line**

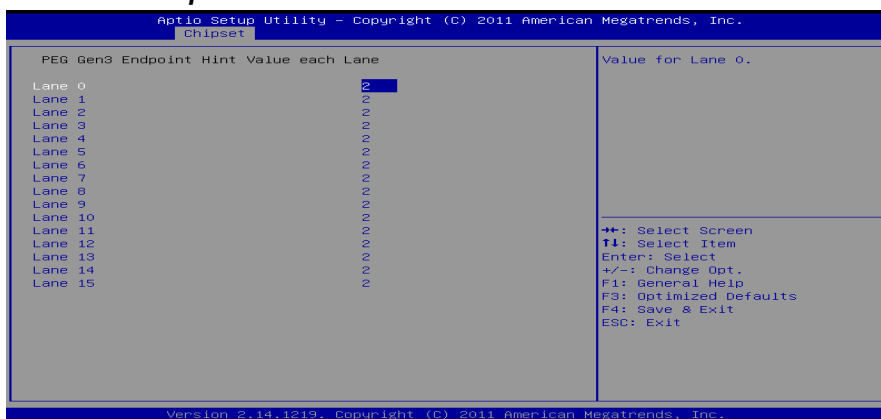
PEG Gen3 Endpoint Preset Value each Lane		Value for Lane 0.
Lane 0	7	
Lane 1	7	
Lane 2	7	
Lane 3	7	
Lane 4	7	
Lane 5	7	
Lane 6	7	
Lane 7	7	
Lane 8	7	
Lane 9	7	
Lane 10	7	
Lane 11	7	
Lane 12	7	
Lane 13	7	
Lane 14	7	
Lane 15	7	

++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

These items allow you set the value for Lan0-15.

Options: 7 (Default)

**PEG Gen3 Endpoint Hint Value each line**



These items allow you set the value for Lan0-15.

Options: 2 (Default)

**Gen3 Eq Present Search**

Perform PEG Gen3 Present Search algorithm, on IVB CO and later

Options: Disabled (Default) / Enabled

**Always re-search Gen3 Eq**

Always re-search Gen3 Eq Preset, even it has been done once.

Options: Disabled (Default) / Enabled

Preset Search Dwell Time

**PED Fen3 Preset Search Dwell Time in [ms]**

Options: 100 (Default)

**Margin Steps**

Number of margin steps during Preset Search, [1-255].

Options: 2 (Default)

**Start Margin**

The starting value for the backward margin search., [4-255].

Options: 15 (Default)

**Fast PEG Init**

This item enables or disables Fast PEF Init, some optimization if no PED devices present in cold boot.

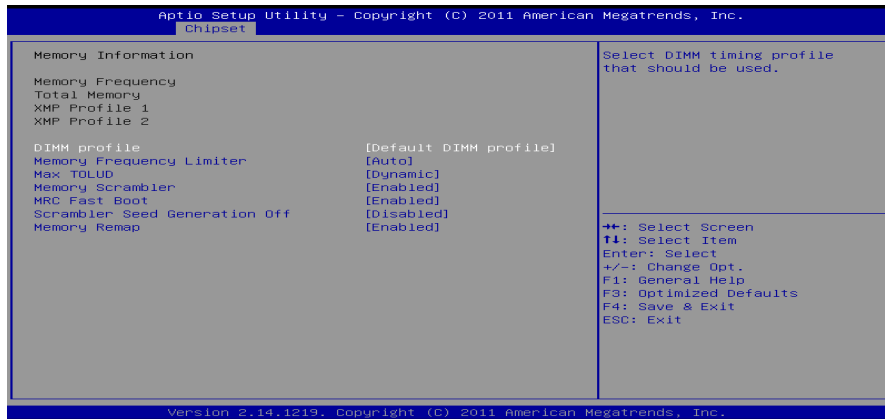
Options: Enabled (Default) / Disabled

**RxCEM Loop back**

This item enables or disables RxCEM Loop back.

Options: Disabled (Default) / Enabled

## Memory Configuration

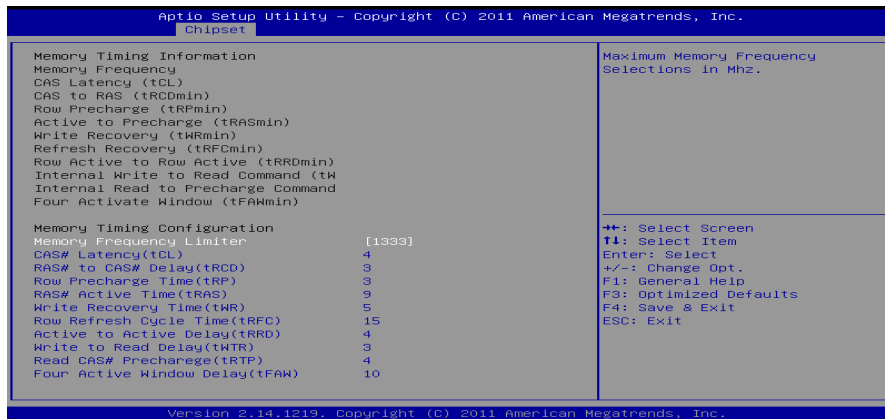


### DIMM Profile

Select DIMM timing profile that should be used.

Options: Default DIMM profile (Default) / Custom Profile

### Custom Profile Control



### Memory Frequency Limiter

Maximum Memory Frequency Selection in Mhz.

Options: 1333 (Default) / 1067 / 1600

### CAS# Latency (tCL)

This item allows you to select CAS Latency of DDR3.

Options: 4 (Default) / 3 ~ 15

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

This item allows you to select Row Address to Column Address Delay of DDR3.

Options: 3 (Default) / 3 ~ 15



**Row Precharge Time (tRP)**

This item allows you to select Row Precharge Time of DDR3.

Options: 3 (Default) / 3 ~ 15

**RAS# Active Time (tRAS)**

This item allows you to select Row Active Time of DDR3.

Options: 9 (Default) / 9 ~ 63

**Write Recovery Time (tWR)**

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 5 (Default) / 3 ~ 31

**Row Refresh Cycle Time (tRFC)**

This item allows you to select Minimum Refresh Recovery Time of DDR3.

Options: 15 (Default) / 15 ~ 255

**Active to Active Delay (tRRD)**

This item allows you to select Row Active to Row Active Delay of DDR3.

Options: 4 (Default) / 4 ~ 15

**Write to Read Delay (tWTR)**

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 3 (Default) / 3 ~ 31

**Read CAS# Precharge (tRTP)**

This item allows you to select Read to Precharge Delay of DDR3.

Options: 4 (Default) / 4 ~ 15

**Four Active Window Delay (tFAW)**

This item allows you to select Four Active Window Delay of DDR3.

Options: 10 (Default) / 4 ~ 63

**Memory Frequency Limiter**

Options: Auto (Default) / 1067 / 1333 / 1600

**Max TOLUD**

This item sets maximum value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

Options: Dynamic (Default) / 1 GB / 1.25 GB / 1.5 GB / 1.75 GB / 2 GB / 2.25 GB / 2.5 GB / 2.75 GB / 3 GB / 3.25 GB

**Memory Scrambler**

This item enables or disables memory scrambler support.

Options: Enabled (Default) / Disabled

**MRC Fast Boot**

*This item enables or disables MRC Fast Boot.*

*Options: Enabled (Default) / Disabled*

**Scrambler Seed Generation Off**

*This item sets control memory scrambler seed generation.*

*Enable – do not generation scrambler seed.*

*Disable – generation scrambler seed always.*

*Options: Disabled (Default) / Enabled*

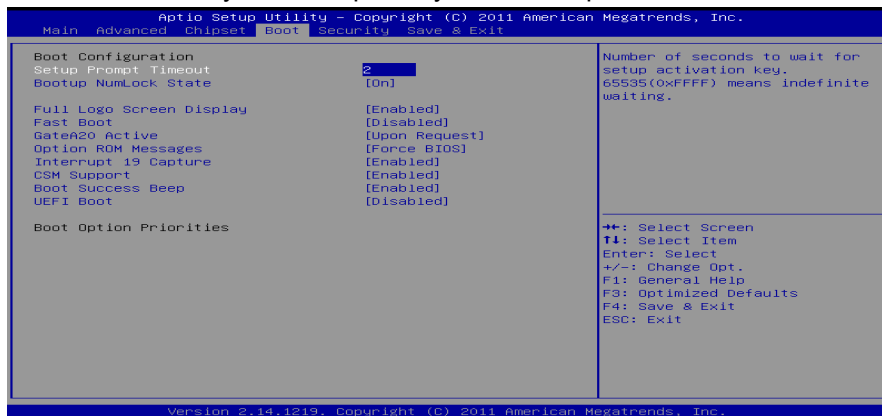
**Memory Remap**

*This item enables or disables memory remap above 4G.*

*Options: Enabled (Default) / Disabled*

### 3.4 BOOT MENU

This menu allows you to setup the system boot options.



#### Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.

Options: 2 (Default)

#### Bootup NumLock State

This item selects the keyboard NumLock state.

Options: On (Default) / Off

#### Full Screen LOGO Display

This item allows you to enable/disable Full Screen LOGO Show function.

Options: Enabled (Default) / Disabled

#### Fast Boot

This item allows you to enable/disable Full Screen LOGO Show function.

Options: Disabled (Default) / Enabled

##### **Skip VGA**

If enabled, BIOS will skip EFI VGA driver.

Options: Disabled (Default) / Enabled

##### **Skip USB**

If enabled, USB devices will not be available until after OD boot. If

disabled, USB device will be available before OS boot.

Options: Disabled (Default) / Enabled

##### **Skip PS2**

If enabled, PS2 devices will be skipped.

Options: Disabled (Default) / Enabled

**GateA20 Active**

Upon Request – GA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB

Options: Upon Request (Default) / Always

**Option ROM Messages**

This item sets the display mode for Option ROM.

Options: Force BIOS (Default) / Keep Current

**Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.

Options: Enabled (Default) / Disabled

**CSM Support**

This item enables / disables CSM Support. If Auto is selected, based on OS, CSM will be enabled / disabled automatically.

Options: Enabled (Default) / Disabled / Auto

**Boot Success Beep**

When this item is set to Enabled, BIOS will let user know boot success with beep.

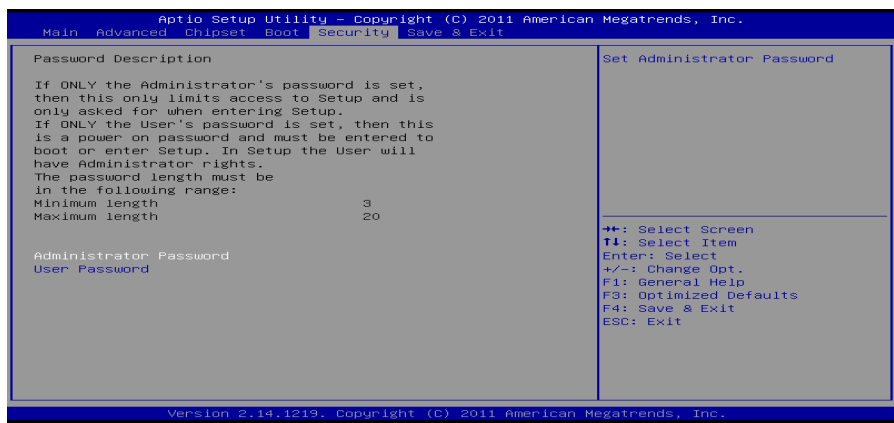
Options: Enabled (Default) / Disabled

**UEFI Boot**

This option enables/disables boot from the UEFI Devices.

Options: Disabled (Default) / Enabled

### 3.5 SECURITY MENU



#### **Administrator Password**

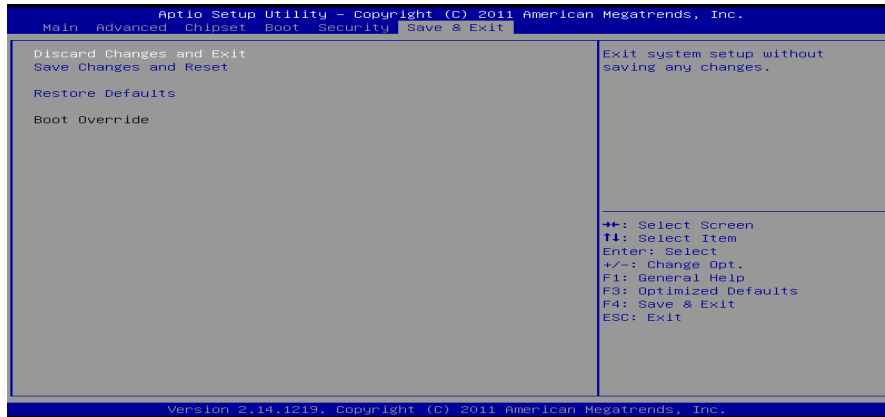
This item sets Administrator Password.

#### **User Password**

This item sets User Password.

### 3.6 EXIT MENU

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



#### **Discard Changes and Exit**

Abandon all changes made during the current session and exit setup.

#### **Save Changes and Reset**

Reset the system after saving the changes.

#### **Restore Defaults**

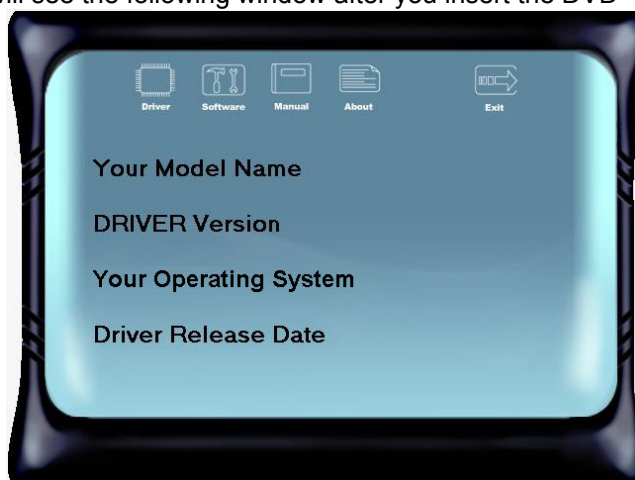
This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

## CHAPTER 4: USEFUL HELP

### 4.1 DRIVER INSTALLATION NOTE

After you installed your operating system, please insert the Fully Setup Driver DVD into your optical drive and install the driver for better system performance.

You will see the following window after you insert the DVD



The setup guide will auto detect your mainboard and operating system.

**Note:**

If this window didn't show up after you insert the Driver DVD, please use file browser to locate and execute the file **SETUP.EXE** under your optical drive.

#### **A. Driver Installation**

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your mainboard and operating system. Click on each device driver to launch the installation program.

#### **B. Software Installation**

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

#### **C. Manual**

Aside from the paperback manual, we also provide manual in the Driver DVD. Click on the Manual icon to browse for available manual.

**Note:**

You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from

<http://www.adobe.com/products/acrobat/readstep2.html>

## 4.2 AMI BIOS BEEP CODE

### Boot Block Beep Codes

Number of Beeps	Description
Continuing	Memory sizing error or Memory module not found

### POST BIOS Beep Codes

Number of Beeps	Description
1	Success booting.
8	Display memory error (system video adapter)

## 4.3 TROUBLESHOOTING

Probable	Solution
<ol style="list-style-type: none"> <li>There is no power in the system. Power LED does not shine; the fan of the power supply does not work</li> <li>Indicator light on keyboard does not shine.</li> </ol>	<ol style="list-style-type: none"> <li>Make sure power cable is securely plugged in.</li> <li>Replace cable.</li> <li>Contact technical support.</li> </ol>
System is inoperative. Keyboard lights are on, power indicator lights are lit, and hard drives are running.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from a hard disk drive, but can be booted from optical drive.	<ol style="list-style-type: none"> <li>Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup.</li> <li>Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.</li> </ol>
System only boots from an optical drive. Hard disks can be read, applications can be used, but system fails to boot from a hard disk.	<ol style="list-style-type: none"> <li>Back up data and applications files.</li> <li>Reformat the hard drive. Re-install applications and data using backup disks.</li> </ol>
Screen message shows "Invalid Configuration" or "CMOS Failure."	Review system's equipment. Make sure correct information is in setup.
System cannot boot after user installs a second hard drive.	<ol style="list-style-type: none"> <li>Set master/slave jumpers correctly.</li> <li>Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.</li> </ol>

2014/04/22