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Table of Contents

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

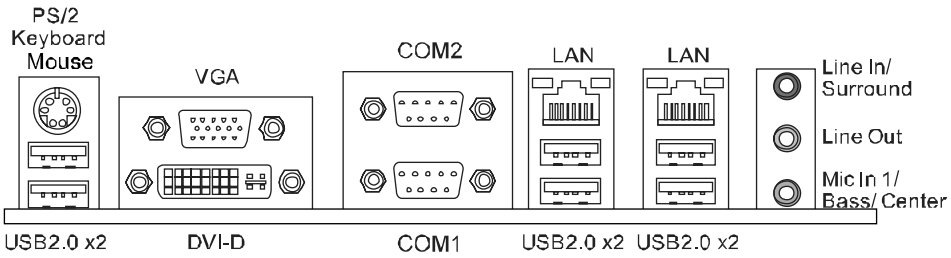
- ATX Mainboard x 1
- Fully Setup Driver CD x 1
- I/O Bracket x 1
- SATA Cable x 1

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 3.3HHz up to 65W		
Chipset	INTEL B75 chipset (Q77 by Option)		
Graphic	Intel® Integrated Graphic Display Memory: Max. shared system memory up to 1759MB Resolution: VGA: Max. upto 2048 x 1536 at 75Hz DVI-D: Max. upto 1920 x 1200 at 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, DDR3 1600 (Depending on CPU) 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 with RAID 0/1/5/10 support SATA Version 2.0/3.0 specification compliant		
LAN	1x INTEL 82574L for PCIe Gigabit LAN 1x INTEL 82579 PHY with Intel® AMT 7.0 support (by Q77 option)		
Sound Codec	Realtek ALC892 5.1 channels audio out, High-Definition Audio support		
LPC I/O	ITE IT8728 (Support PECI 3.0)		
Expansion Slots	PCI	x4	
	PCIe x1	x1	
	PCIe x4	x1	
	PCIe x16	x1	
On Board Connectors & Headers	SATA3 Connector	x1	
	SATA2 Connector	x5	
	System Fan Header	x2	
	CPU Fan Header	x1	
	Clear CMOS Header	x1	
	USB 2.0 Connector	x3	(Each connector supports x2 USB2.0 ports)
	Front Panel Header	x1	
	Front Audio Connector	x1	
	Parallel Connector	x1	
	Digital I/O Connector	x1	(4 input, 4 output)
	Serial Connectors (RS-232)	x4	(Max: 500mA output for each port)
	Power Connector (24pin)	x1	
	Power Connector (4pin)	x1	
	TPM Header	x1	
Back Panel I/O	PS/2 KB/MS	x1	(for PS/2 keyboard & mouse)
	VGA	x1	
	DVI-D	x1	

Specification			
	COM Port	x2	(Max : 500mA output for each port)
	USB2.0 Port	x6	
	RJ-45 (Gigabit LAN) Port	x2	
	Audio Jack	x3	
Board Size	220 mm (W) x 305 mm (L)		ATX
Operation Temperature	0°C ~ 60°C		
Storage Temperature	-20°C ~ 80°C		
Relative Humidity	10% ~ 90% (non-condensing)		
OS Support	Win7, WinXP 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

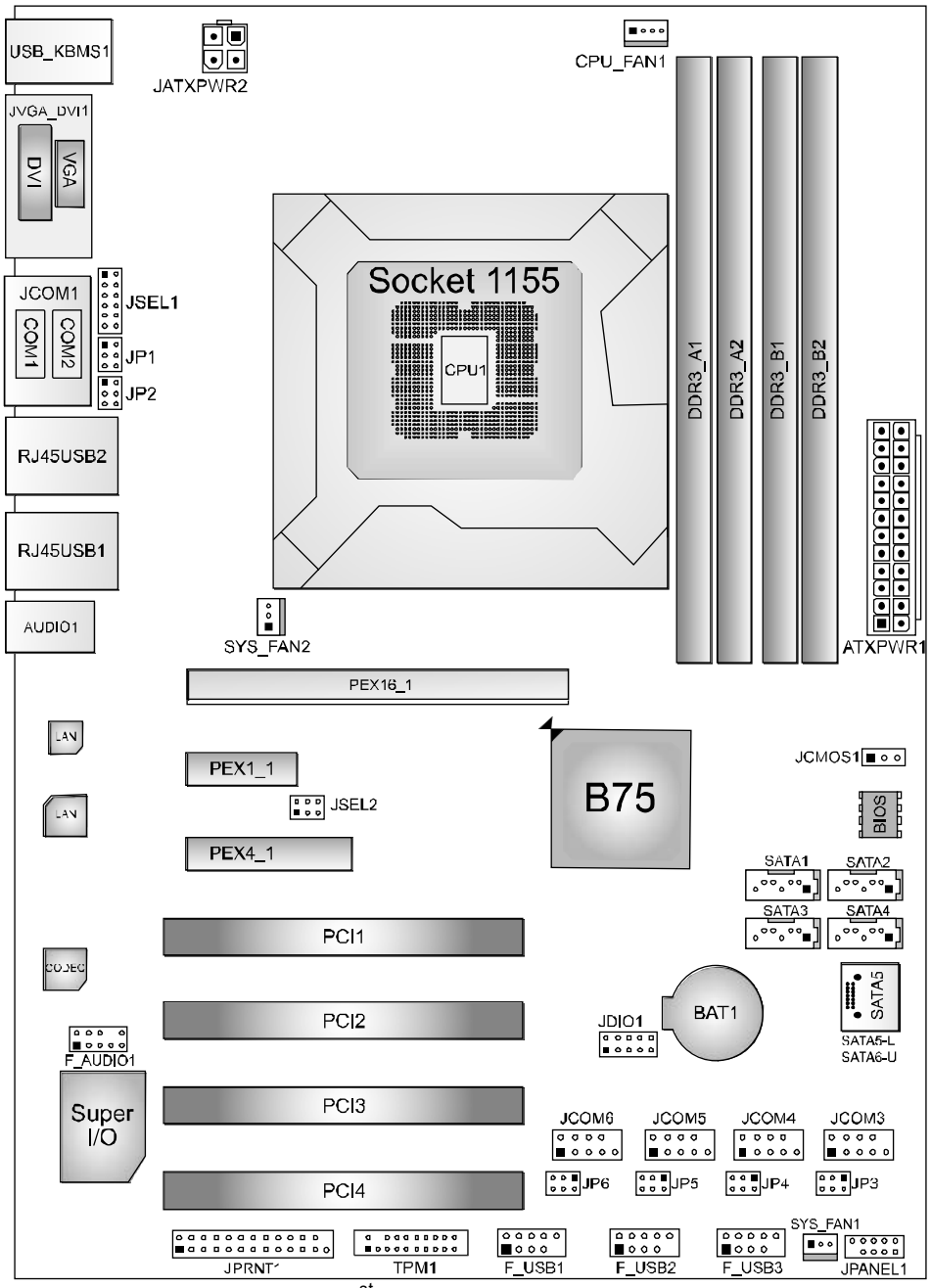


Note1: DVI-D / VGA Output require an Intel Core family processor with Intel Graphics Technology.

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:**
DVI: 1920 x 1200 @60Hz
VGA: 2048 x 1536 @75Hz

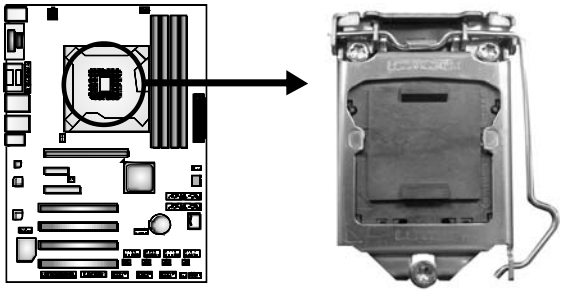
1.5 MOTHERBOARD LAYOUT



Note: ■ represents the 1st pin.

CHAPTER 2: HARDWARE INSTALLATION

2.1 INSTALLING CENTRAL PROCESSING UNIT (CPU)

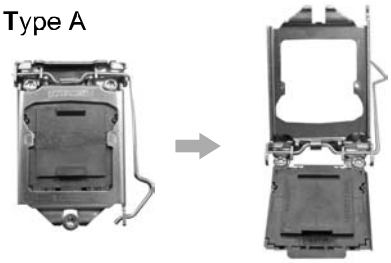


Notice:

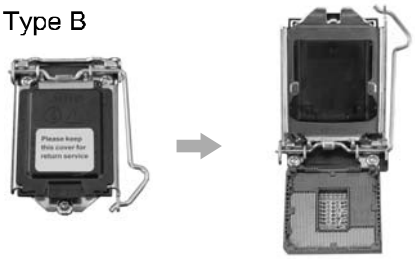
1. Remove Pin Cap before installation, and make good preservation for future use. When the CPU is removed, cover the Pin Cap on the empty socket to ensure pin legs won't be damaged.
2. The motherboard might equip with two different types of pin cap. Please refer below instruction to remove the pin cap.

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

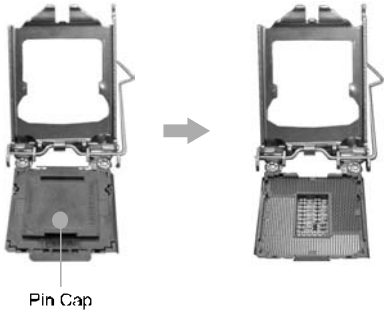


Type B

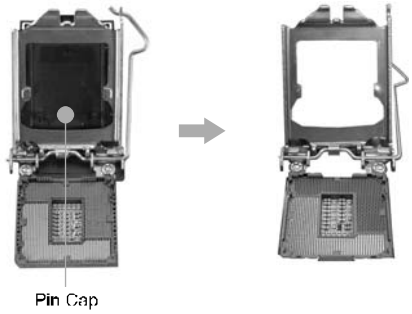


Step 2: Remove the Pin Cap.

Type A



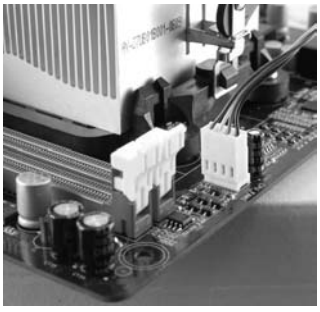
Type B



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.

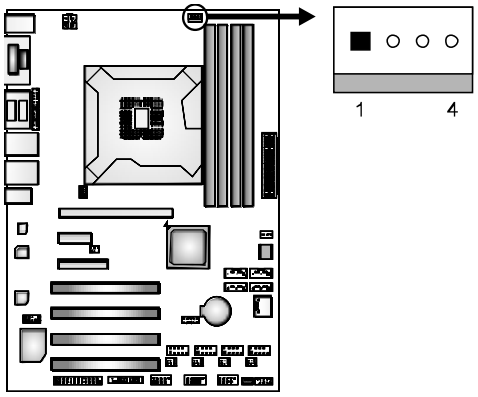
Step 5: Put the CPU Fan and heatsink assembly on the CPU and buckle it on the retention frame. Connect the CPU FAN power cable into the CPU_FAN1 to complete the installation.



2.2 FAN HEADERS

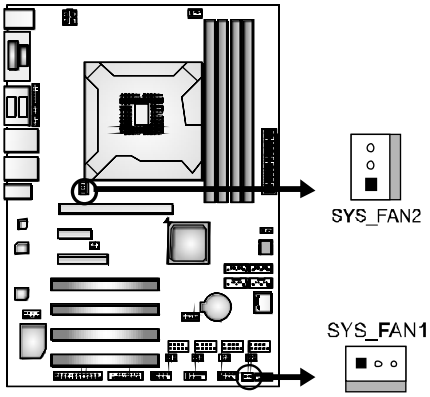
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU Fan Header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control

SYS_FAN1/2: System Fan Header



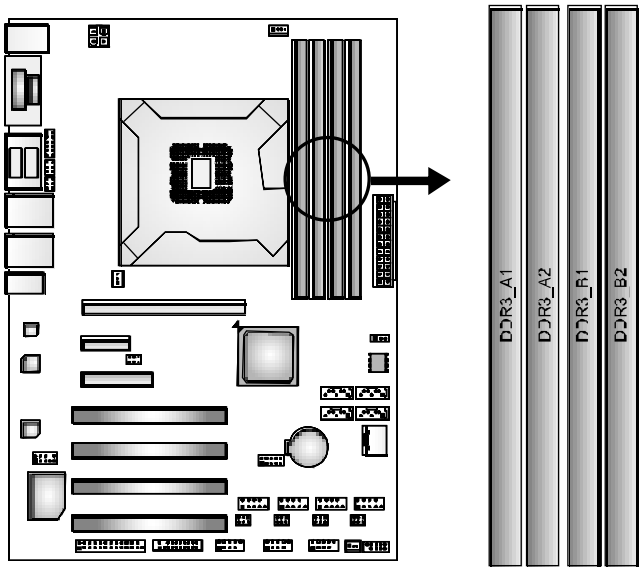
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

Note:

The SYS_FAN1/2 support 3-pin head connectors; 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.

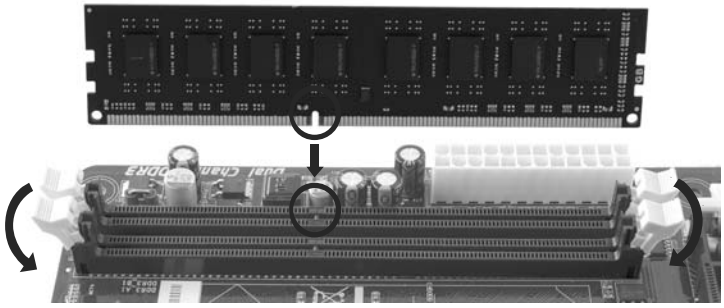
2.3 INSTALLING SYSTEM MEMORY

A. Memory Modules



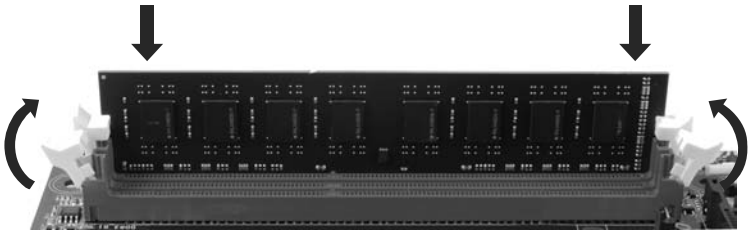
Step1:

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

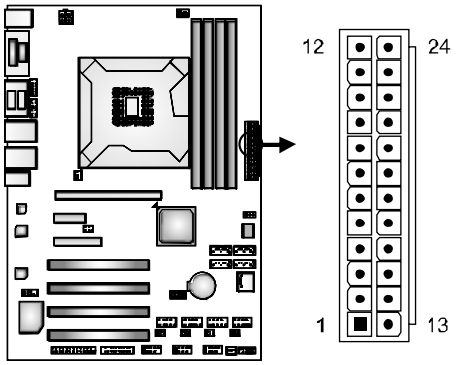
(O means memory installed, X means memory not installed.)

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)

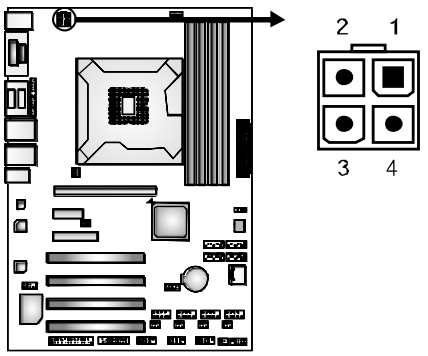
This connector allows user to connect 24-pin power connector.



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

JATXPWR2: 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

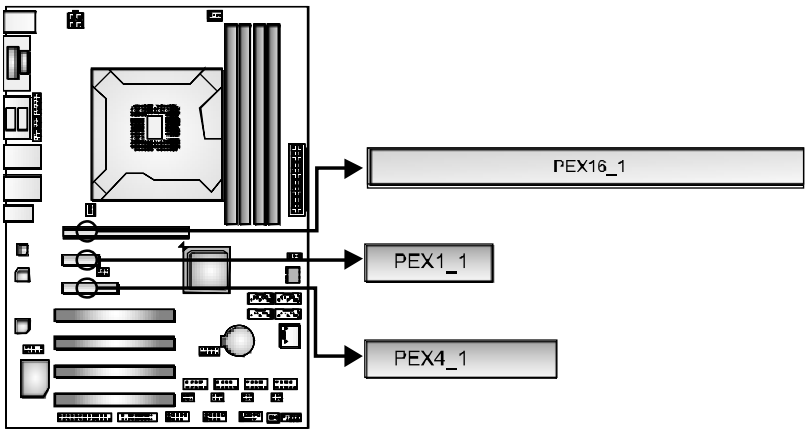
- PCI-Express 3.0 compliant.
- Maximum theoretical realized bandwidth of 16GB/s simultaneously per direction, for an aggregate of 32GB/s totally.
- PCI-Express Gen3 is supported by Core i7-3xxx / i5-3xxx CPUs.

PEX1_1: PCI-Express x1 Slot

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total.

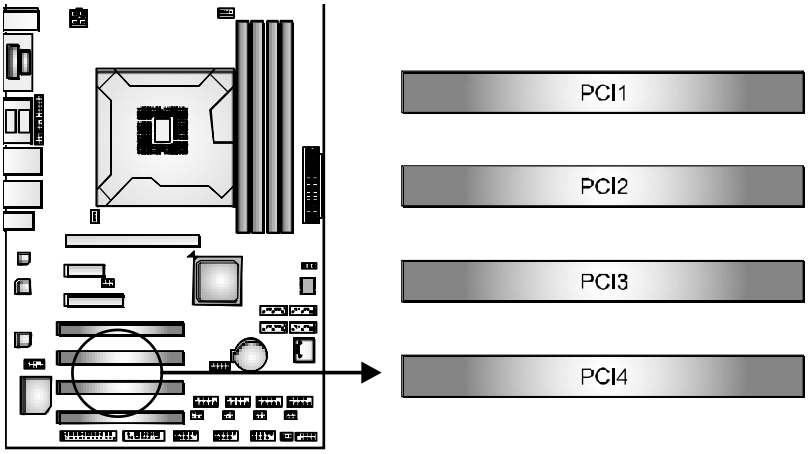
PEX4_1: PCI-Express x4 Slot

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 2GB/s per direction; 4GB/s in total.



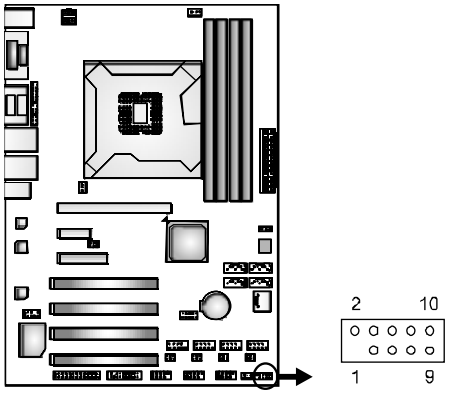
PCI1 ~ PCI4: Peripheral Component Interconnect Slots

This motherboard is equipped with 4 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.



JPANEL1: Front Panel Header

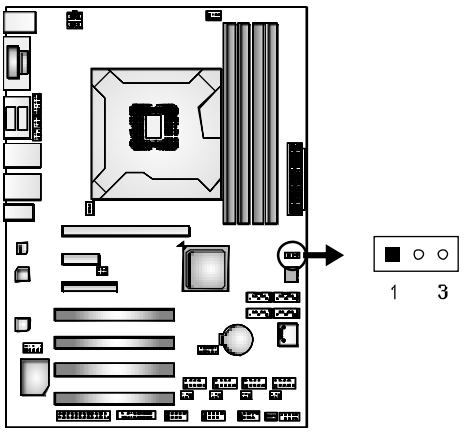
This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	Key	N/A	2	Power LED+(5V)	Power LED
3	HD LED+	HDD LED	4	Power LED+(5V)	
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.

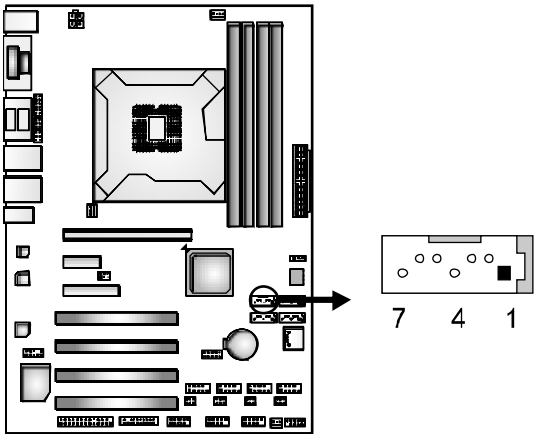
Pin 2-3 Close:
Clear CMOS data.

※ 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

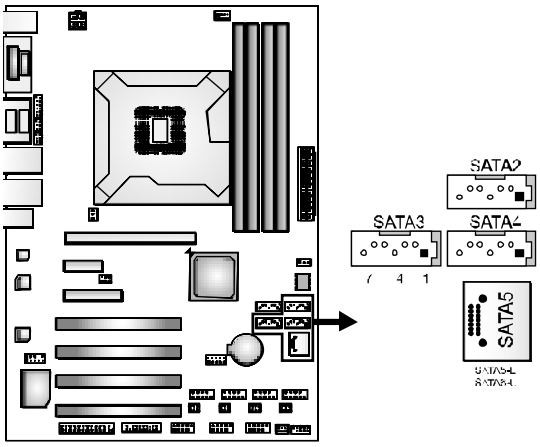
The connector connects to Serial ATA 6.0Gb/s hard disk drive and optical disc drive.



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

SATA2/3/4/5: Serial ATA2 Connectors

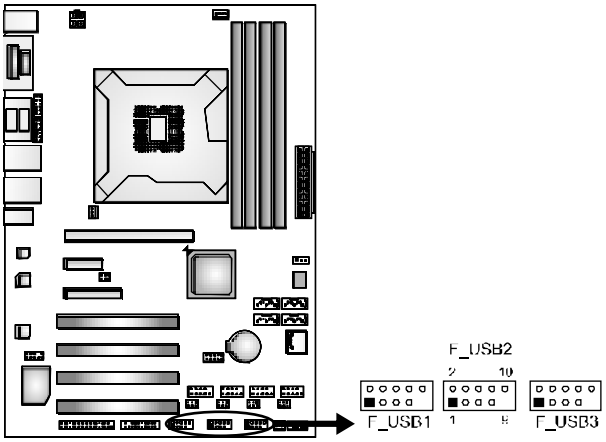
The connectors connect to Serial ATA 3.0Gb/s hard disk drive and optical disc drive.



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

F_USB1/2/3: 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.

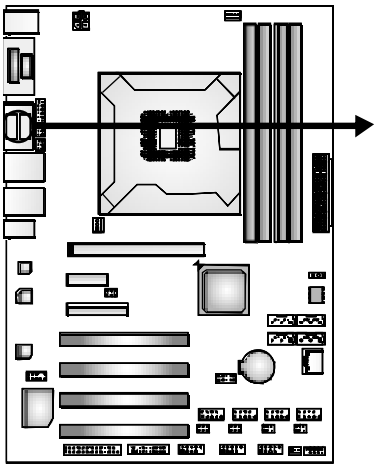


Pin	Assignment	Pin	Assignment
1	+5V (fused)	2	+5V (fused)
3	USB-	4	USB-
5	USB+	6	USB+
7	Ground	8	Ground
9	Key	10	NC

Serial Port Connectors:

The motherboard has 6 Serial Port Connectors for connecting RS-232 Port.

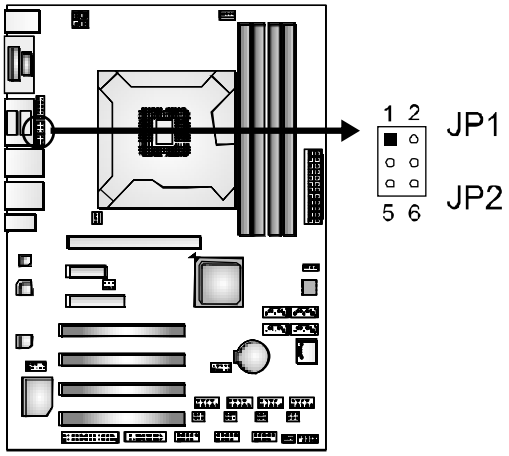
JCOM1/2: Serial Port Connectors



Pin	Assignment
1	Carrier detect (DCD)
2	Received data (RXD)
3	Transmitted data (TXD)
4	Data terminal ready (DTR)
5	Signal ground (GND)
6	Data set ready (DSR)
7	Request to send (RTS)
8	Clear to send (CTS)
9	Ring / 5V / 12V

JP1/2: Voltage Switch jumpers for JCOM1/2 ports

The headers are for controlling the Pin9 of JCOM1/2 ports to switch Ring/5V/12V.



Pin 1-2 Close:
Pin9=5V

Pin 3-4 Close:
Pin9=Ring
(Default)

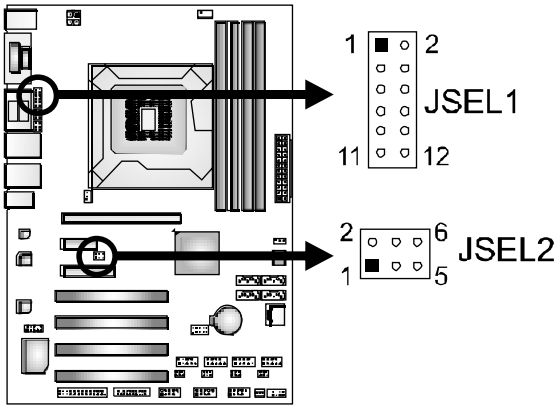
Pin 5-6 Close:
Pin9=12V

mark:

Max output: 12V@500mA for each COM port

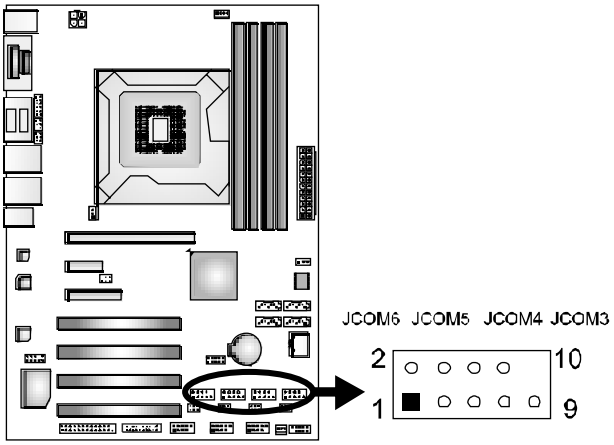
JSEL1/JSEL2: RS-232/422/485 Switch Headers for JCOM1

The headers determine that JCOM1 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	

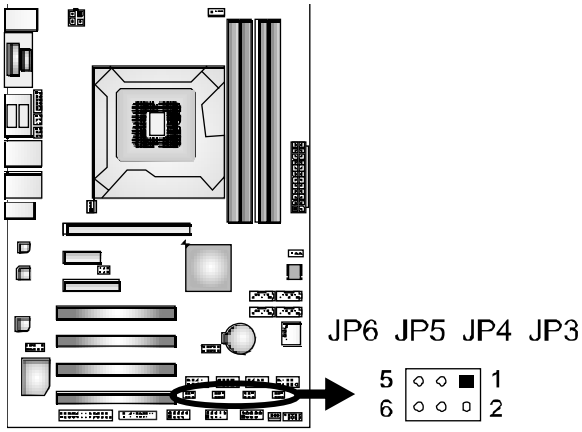
JCOM3/4/5/6: Serial Port Connectors



Pin	Assignment	Pin	Assignment
1	-PDCD	2	PSIN
3	PSOUT data	4	-PDTR
5	GND	6	-PDSR
7	-PRTS	8	-PCTS
9	Ring/5V/12V	10	NC

JP3/4/5/6: Voltage Switch jumpers for JCOM3/4/5/6 ports

The headers are for controlling the Pin9 of JCOM3/4/5/6 ports to switch Ring/5V/12V.



Pin 1-2 Close:
Pin9=5V

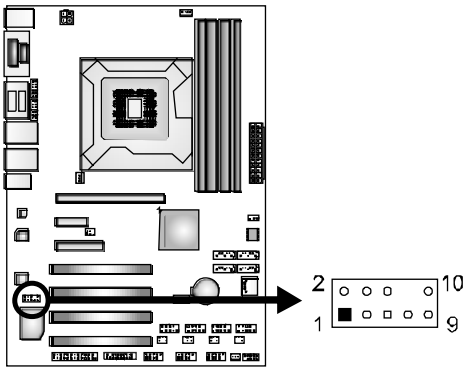
Pin 3-4 Close:
Pin9=Ring
(Default)

Pin 5-6 Close:
Pin9=12V

Remark:
Max output: 12V@500mA for each COM port

F_AUDIO1: Front Panel Audio Header

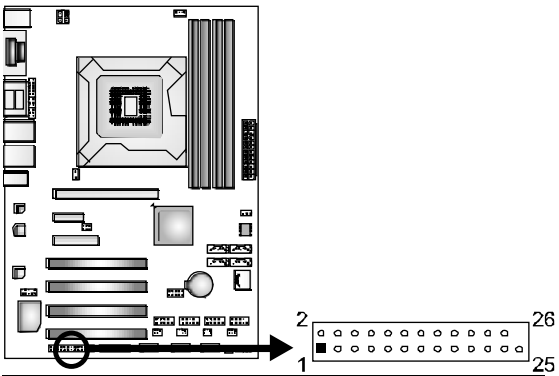
This is an interface for the front panel audio cable that allows convenient connection and control of audio devices. This header allows only HD audio front panel connector; AC'97 connector is not acceptable..



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

JPRNT1: Printer Port Connector

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

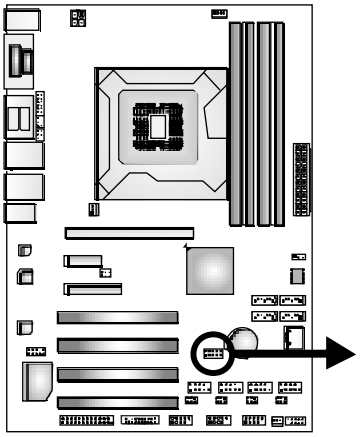


Pin	Assignment	Pin	Assignment
1	-Strobe	2	-ALF
3	Data 0	4	-Error
5	Data 1	6	-Init
7	Data 2	8	-Scltin
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-ACK	20	Ground
21	Busy	22	Ground
23	PE	24	Ground
25	SCLT	26	Key

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:

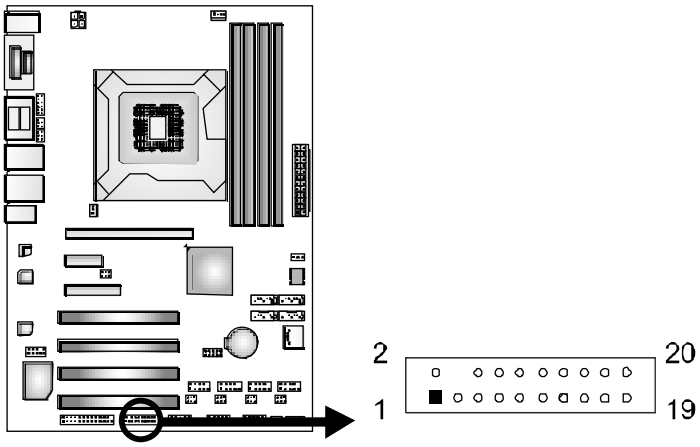
- DI01 -> A22H BIT5-> GPIO35
- DI02 -> A22H BIT4> GPIO34
- DI03 -> A20H BIT4-> GPIO14
- DI04 -> A24H BIT0-> GPIO50
- DO01 -> A25H BIT4-> GPIO64
- DO02 -> A25H BIT5-> GPIO65
- DO03 -> A25H BIT6-> GPIO66
- DO04 -> A25H BIT7-> GPIO67



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

TPM1: 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

*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”.

Pin opened

Pin closed

Pin1-2 closed

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

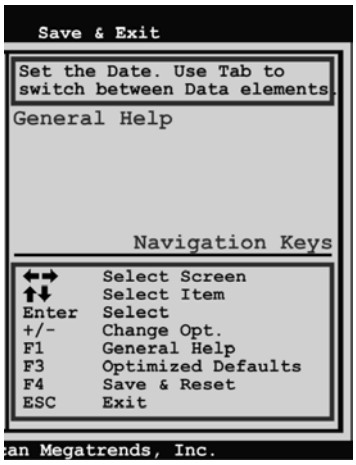
DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

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.

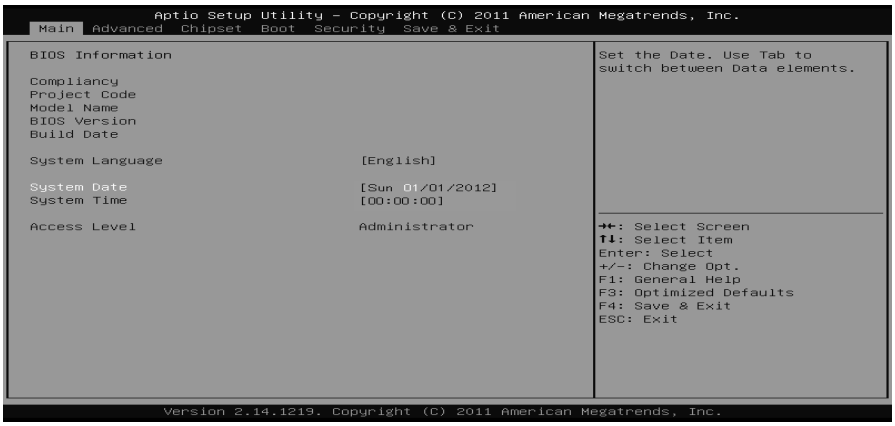


Notice

- 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

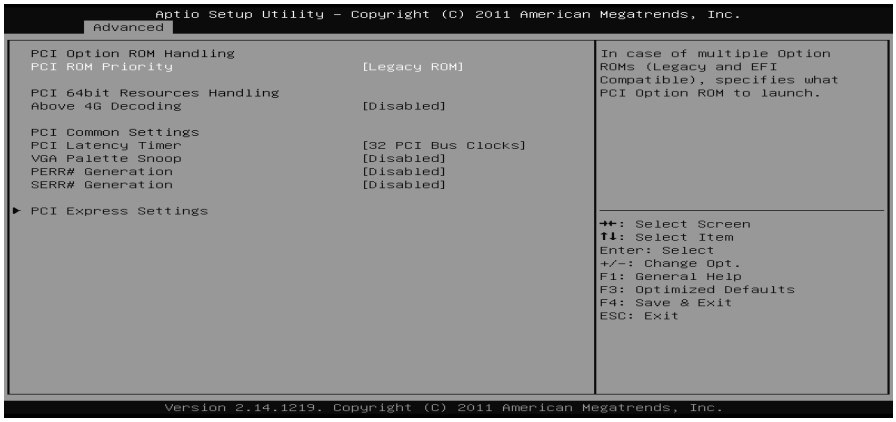
Launch Storage OpROM

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

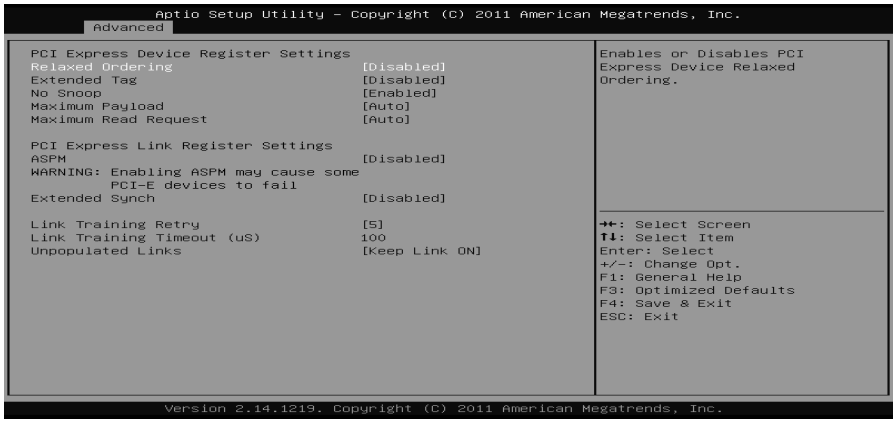
PERR# Generation

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 tab 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 LO 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 from 10 to 1000 uS.

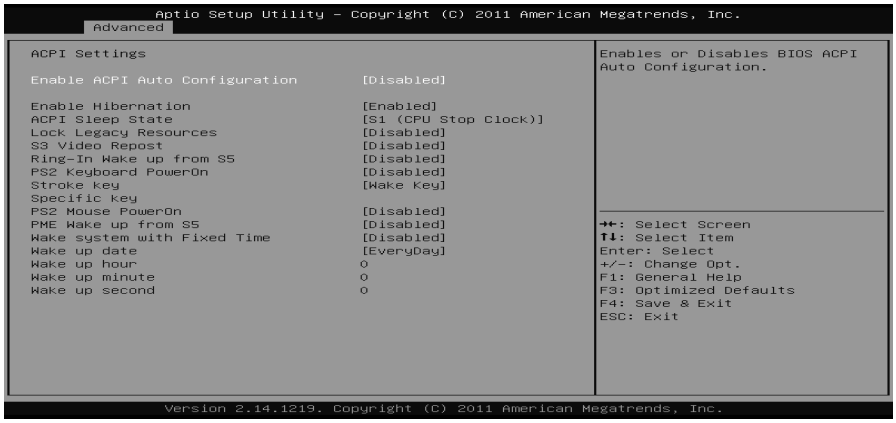
Options: 100 (Default)

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

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) / Any Key / Stroke Key / Specific Key

Stroke Keys Selected

This item will show only when Keyboard PowerOn is set "Stroke Key."
Options: Wake Key (Default) / Power Key / Ctrl+F1 / Ctrl+F2 / Ctrl+F3 / Ctrl +F4 / Ctrl+F5 / Ctrl+F6

Specific Key Enter

This item will show only when Keyboard PowerOn is set "Specific Key." Press Enter to set Specific key.

PS2 Mouse PowerOn

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

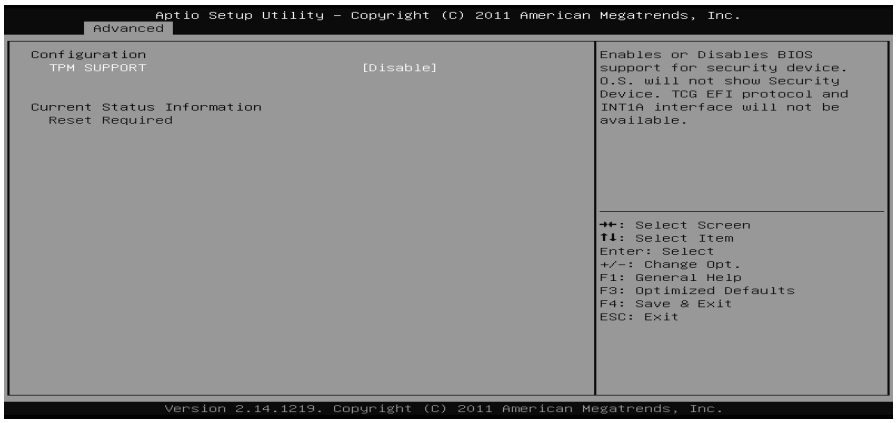
Wake up date

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.

Trusted Computing

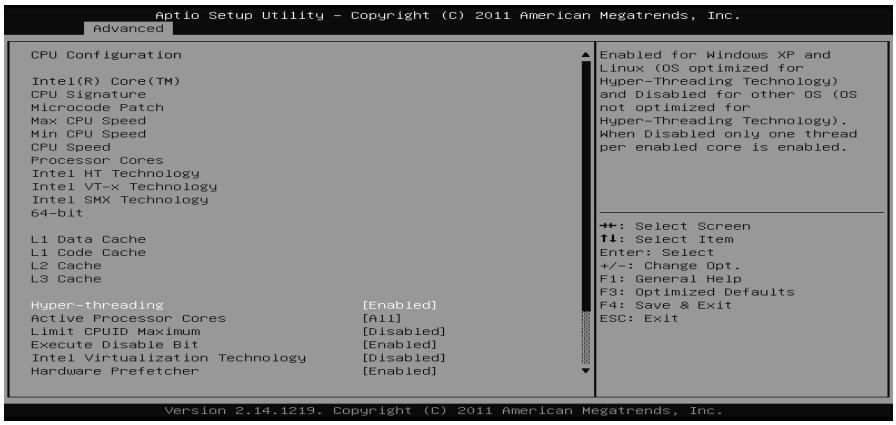


TPM Support

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)

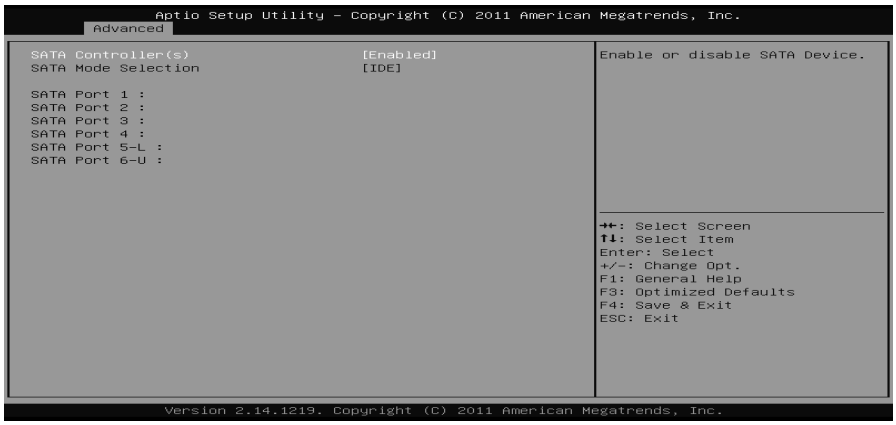
Primary Plane Current value

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

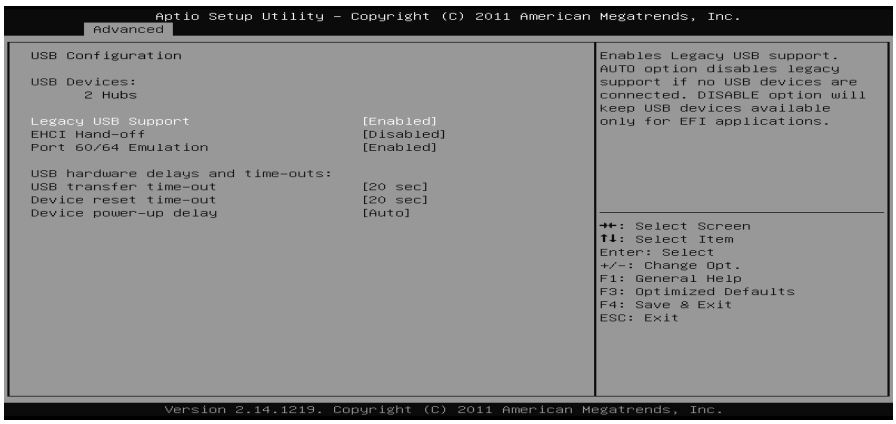
This item determines how SATA controller(s) operate.
Options: AHCI (Default) / IDE

Intel(R) Rapid Start Technology

Intel(R) Rapid Start Technology

This item enables/disables Intel(R) Rapid Start Technology.
Options: Disabled (Default) / Enabled

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

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 items 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

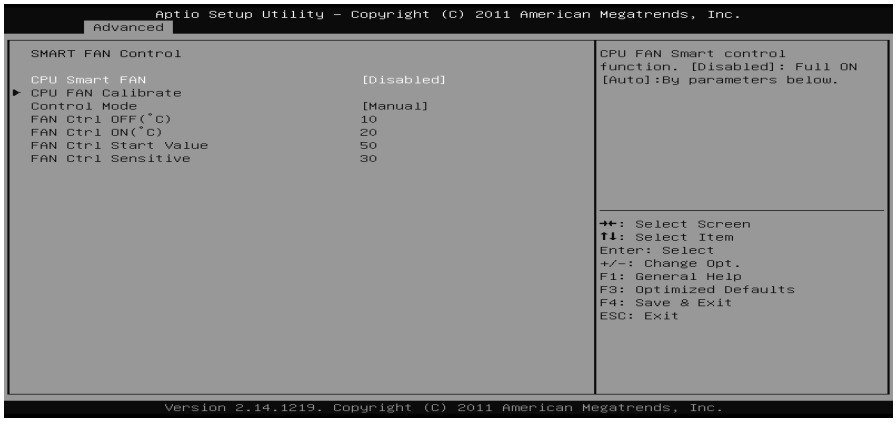
USB transfer time-out
The time-out value for Control, Bulk, and Interrupt transfers.
Options: 20 sec (Default) / 1 sec / 5 sec / 10 sec

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)

SMART FAN Control



CPU Smart FAN
This item allows you to control the CPU Smart Fan function.
Options: Disabled (Default) / Auto

CPU FAN Calibrate
Press [ENTER] to calibrate CPU FAN.

Control Mode
This item provides several operation modes of the fan.
Options: Quiet / Aggressive / Manual

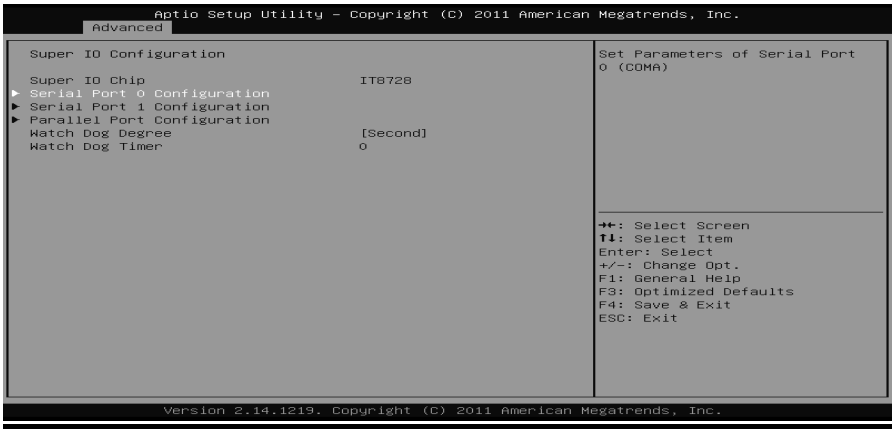
Fan Ctrl OFF(℃)
When CPU temperature is lower than this value, the CPU fan will keep lowest RPM.
Options: 10 (℃) (default)

Fan Ctrl On(℃)
When CPU temperature is higher than this value, the CPU fan controller will turn on.
Options: 20 (℃) (Default)

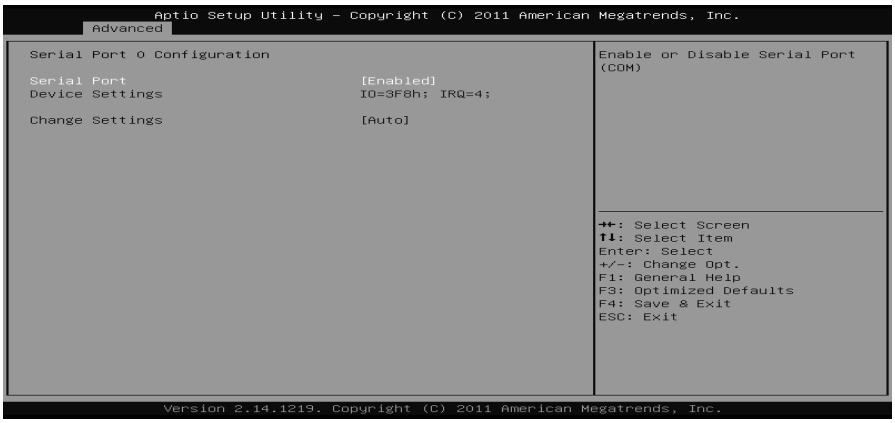
Fan Ctrl Start Value
This item sets CPU FAN Start Speed Value.
Options: 50 (Default)

Fan Ctrl Sensitive
The bigger the numeral is, the higher the FAN speed is.
Options: 30 (Default)

Super IO Configuration



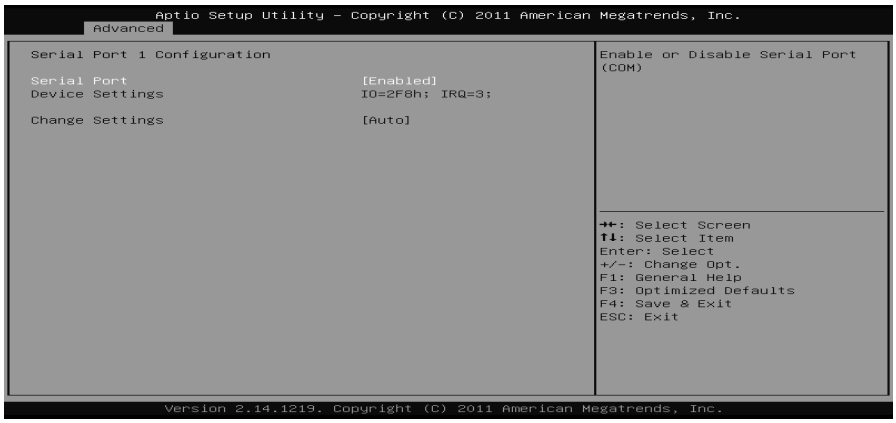
Serial Port 0 Configuration



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=3,4,5,6,7,9,10,11,12 / IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12

Serial Port 1 Configuration



Serial Port

This item enables or disables Serial Port (COM).

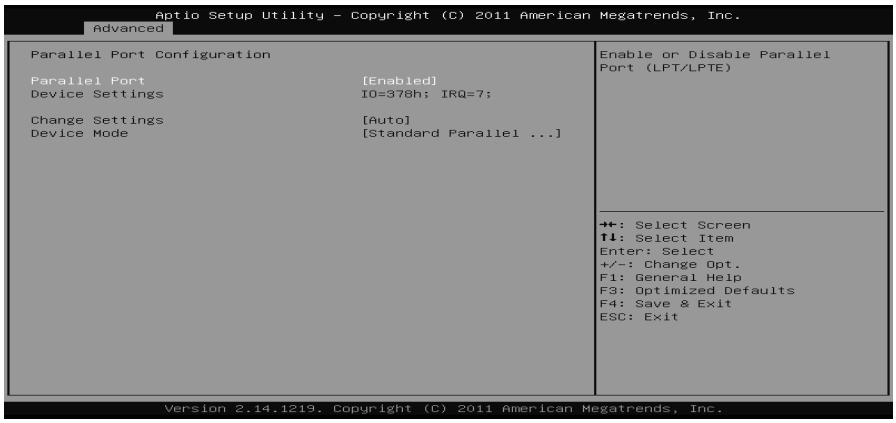
Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F8h; IRQ=3 / IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12

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=7 / IO=378h; IRQ=6, 7, 9, 10, 11, 12 / IO=278h; IRQ=6, 7, 9, 10, 11, 12 / IO=3BCh; IRQ=6, 7, 9, 10, 11, 12

Device Mode

This item allows you to determine how the parallel port should function.
Options: Standard Parallel Port Mode (Default) (Using Parallel port as Standard Printer Port) /
EPP Mode (Using Parallel Port as Enhanced Parallel Port) /
ECP Mode (Using Parallel port as Extended Capabilities Port) /
ECP Mode & EPP Mode (Using Parallel port as ECP & EPP mode)

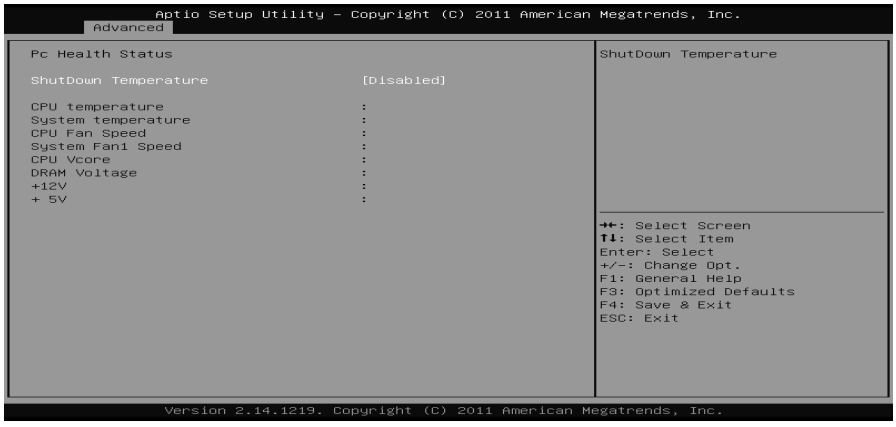
Watch Dog Degree

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

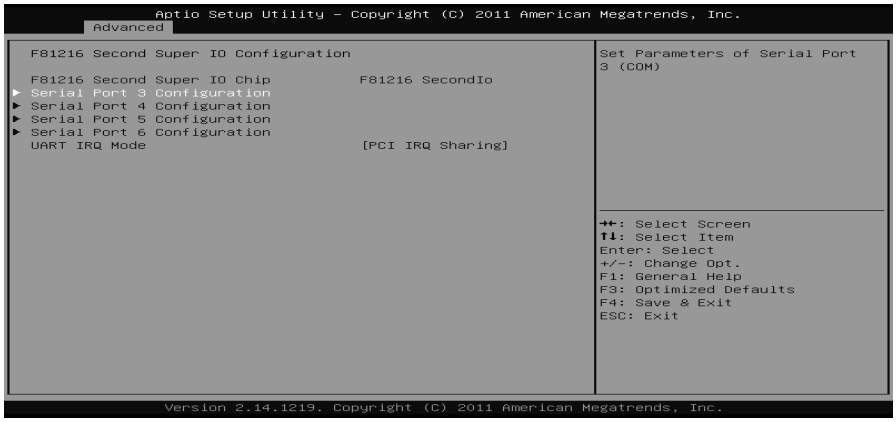
H/W Monitor



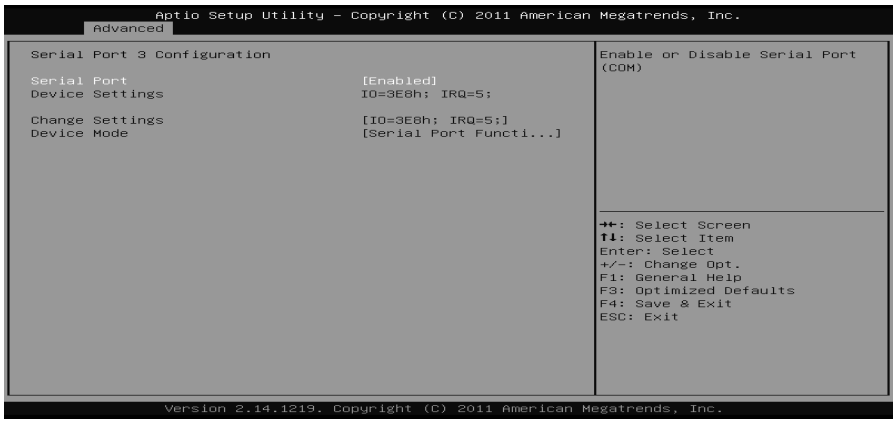
Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.
Options: Disabled (Default) / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ / 85℃/185℉ / 90℃/194℉

F81216 Second Super IO Configuration



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: IO=3E8h; IRQ=5 (Deault)/ IO=2E8h; IRQ=5 / IO=2F0h; IRQ=5 / IO=2E0h; IRQ=5

Device Mode

This item enables or disables serial port(COM).

Options: Serial Port Function Mode(default)

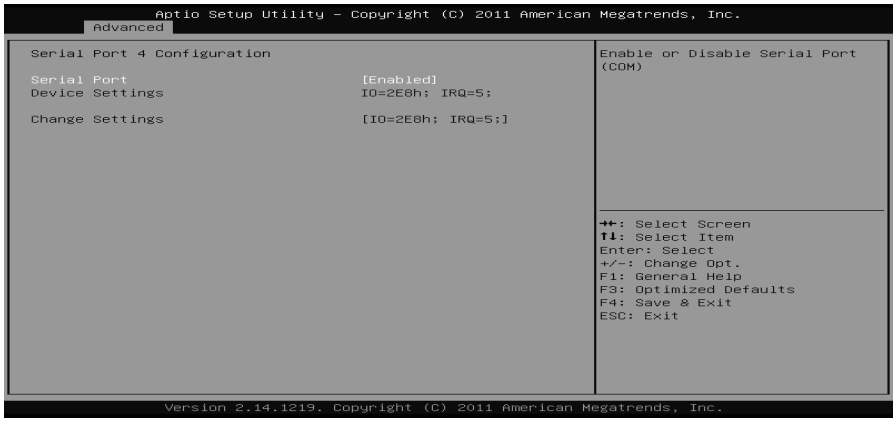
IR Mode, Pusle 1.6us, Full Duplex

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 4 Configuration



Serial Port

This item enables or disables Serial Port (COM).

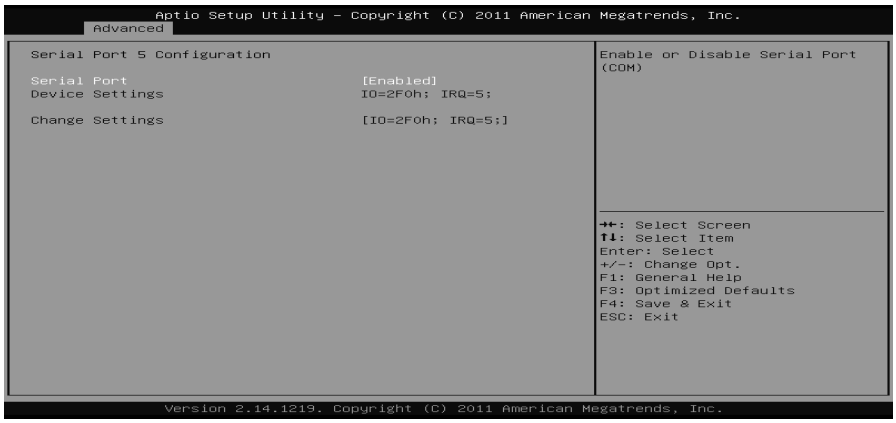
Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: IO=3E8h; IRQ=5 / IO=2E8h; IRQ=5 (Deault)/ IO=2F0h; IRQ=5 / IO=2E0h; IRQ=5

Serial Port 5 Configuration



Serial Port

This item enables or disables Serial Port (COM).

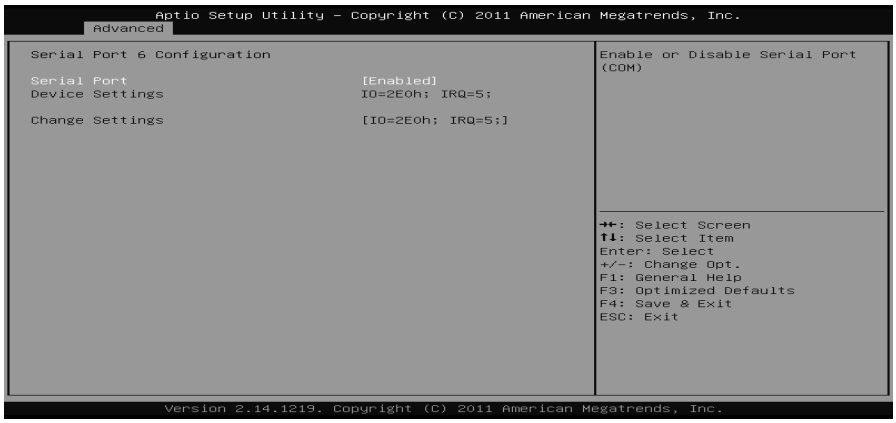
Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: IO=3E8h; IRQ=5 / IO=2E8h; IRQ=5 / IO=2F0h; IRQ=5 (Deault) / IO=2E0h; IRQ=5

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: IO=3E8h; IRQ=5 / IO=2E8h; IRQ=5 / IO=2F0h; IRQ=5 / IO=2E0h; IRQ=5(Deault)

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

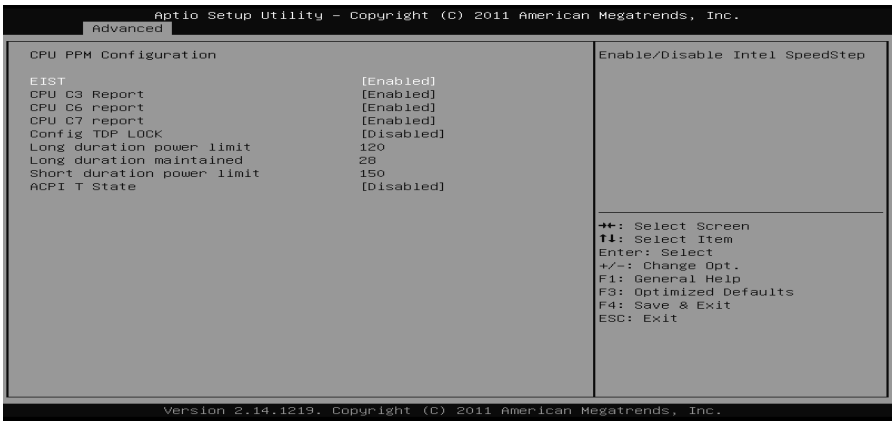
Options: Disabled (Default) / Enabled

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)

ACPI T State

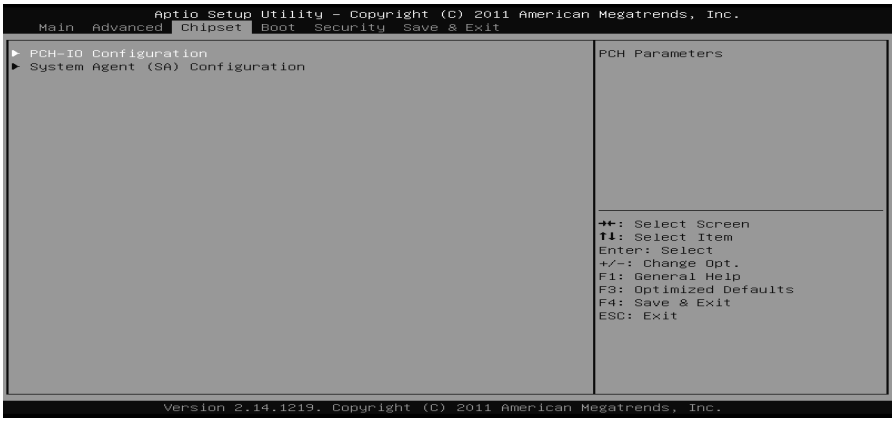
This item allows you enables/ disables ACPI T state support.
Options: Disabled (Default) / Enabled

3.3 CHIPSET MENU

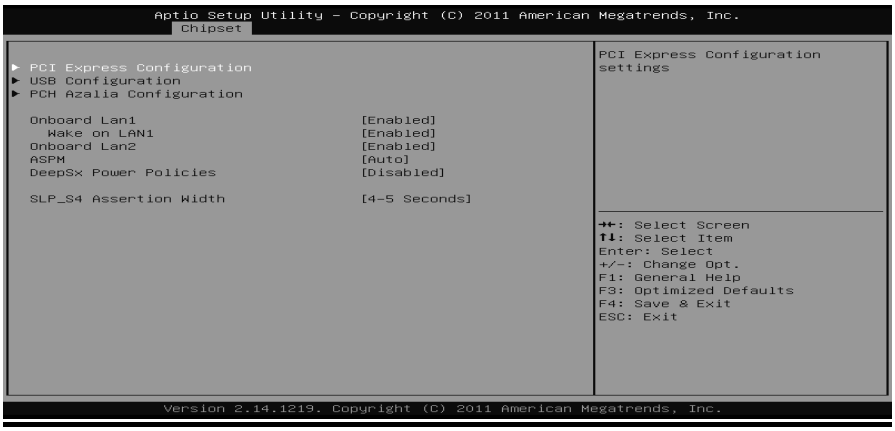
This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Notice

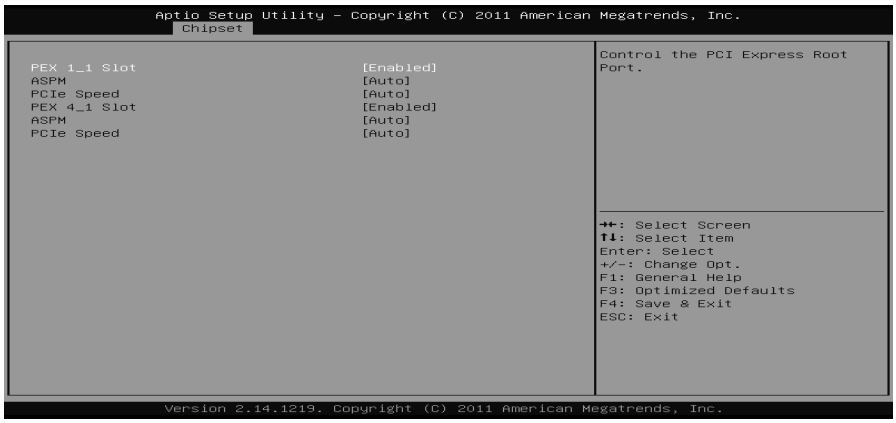
Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



PCH-IO Configuration



PCI Express Configuration

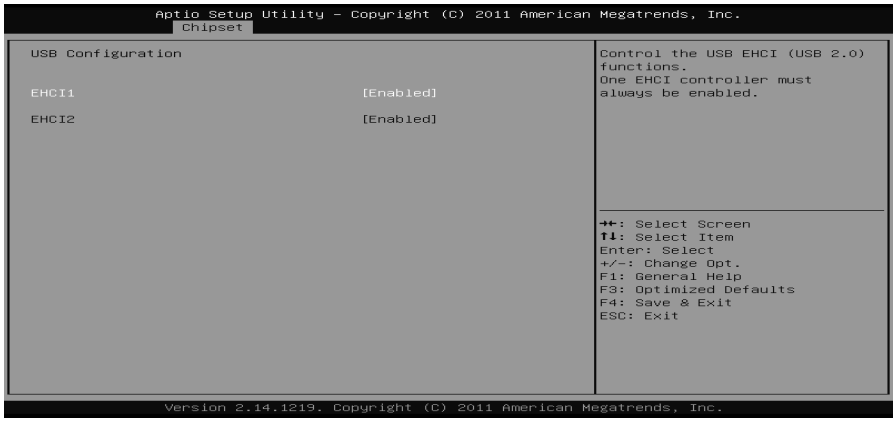


Onboard PEX 1_1/ PEX 4_1 Slot
This item controls the PCI Express Root Port.
Options: Enabled (Default) / Disabled

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

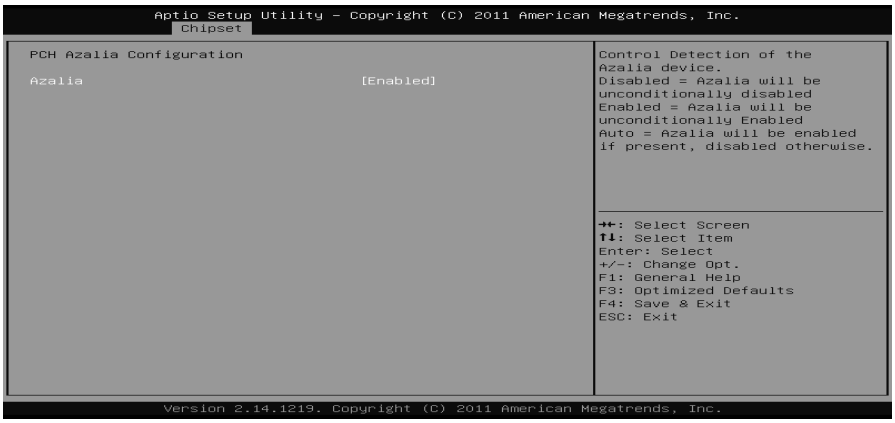


EHCI1/2

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

Onboard Lan 1/2

This item allows you to enables or disables the Onboard LAN 1/2.

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

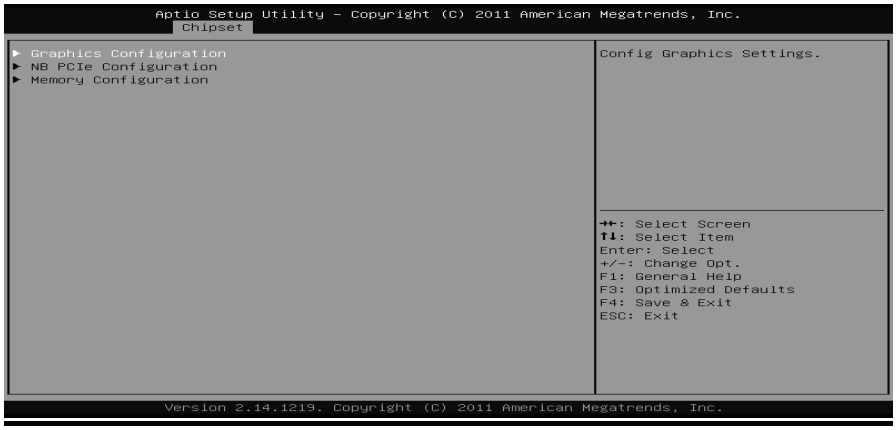
When EuP Enabled, System meets EuP requirement.

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

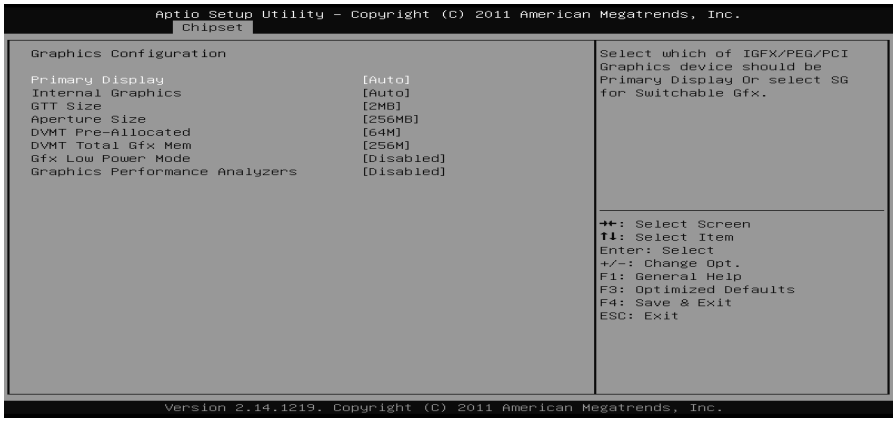
SLP_S4# Min. Assertion Width

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 select 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 select GTT Size.

Options: 2MB (Default) / 1MB

Aperture Size

This item select Aperature Size.

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

DVMT Pre-Allocated

This item select 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 select 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

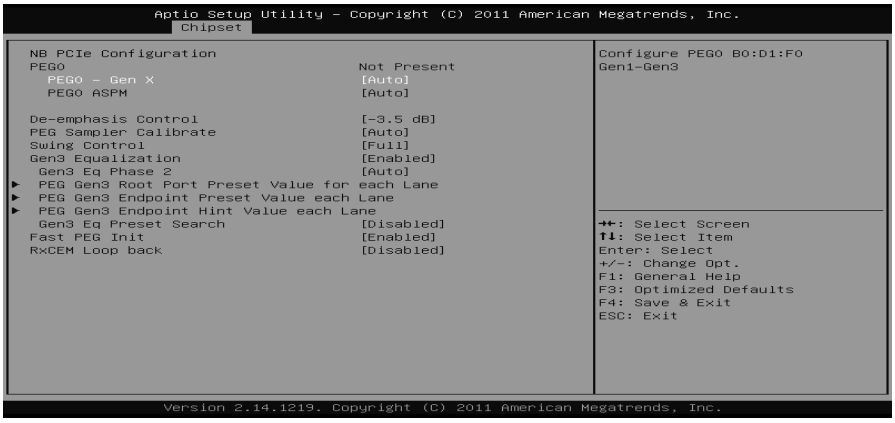
Options: Disabled (Default) / Enabled

Graphics Performance Analyzers

This item is enables/ disables Intel graphics performance analyzers counters.

Options: Disabled (Default) / Enabled

NB PCIe Configuration



PEX0 – Gen X

This item configures PEG0 B0:D1:F0 Gen1-Gen3.

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

PEG0 ASPM
This item controls ASPM support for the PEG: Device 1 Funtion0. 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

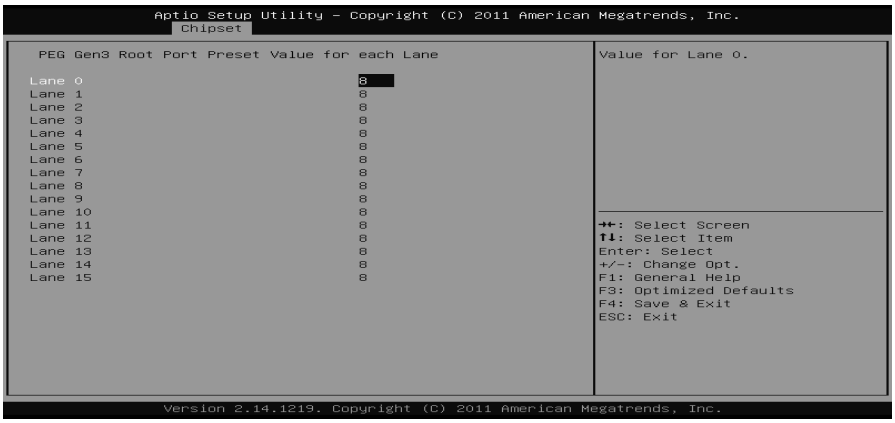
PEG Sampler Calibrate
This item enables or disables PEG Sampler Calibrate. Auto means Disabled for SNB MB/DT, Enabled for IVB A0 B0.
Options: Auto (Default) / Enabled / Disabled

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

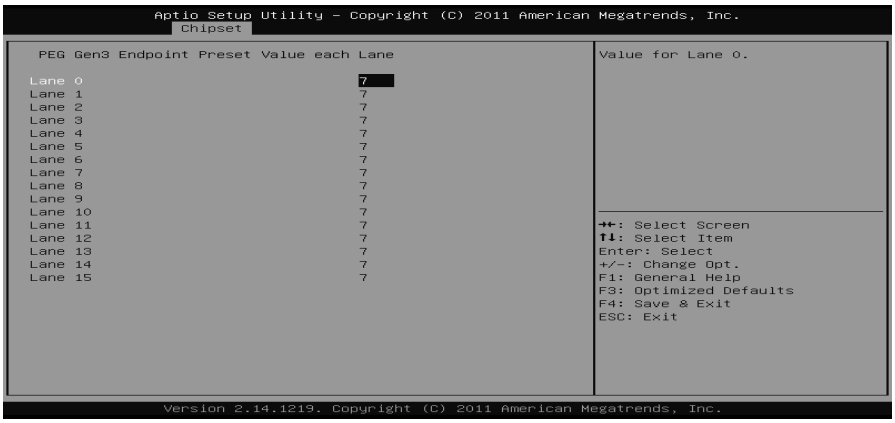
Gen3 Eq Phase 2
This item performs PEG Gen3 Equalization Phase 2
Options: Auto (Default)/ Enabled / Disabled

PEG Gen3 Root Port Preset Value for each line



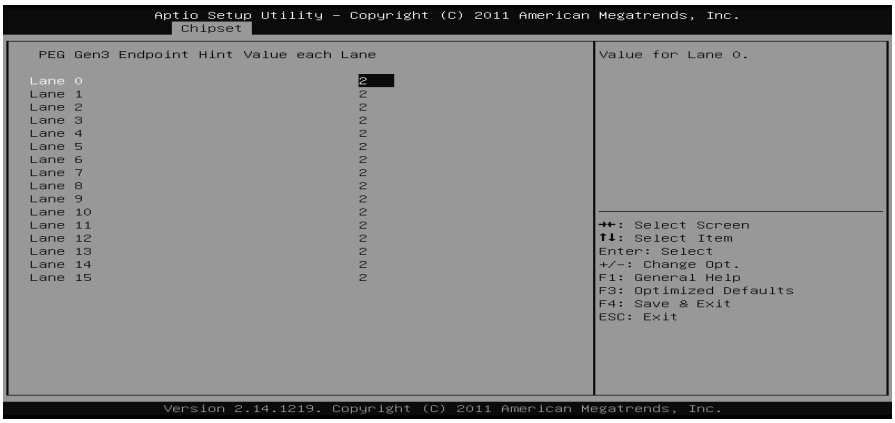
These items allow you set the value for Lan0-15.
Options: 8 (Default)

PEG Gen3Endpoint Preset Value each line



These items allow you set the value for Lan0-15.
Options: 7 (Default)

PEG Gen3Endpoint 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.

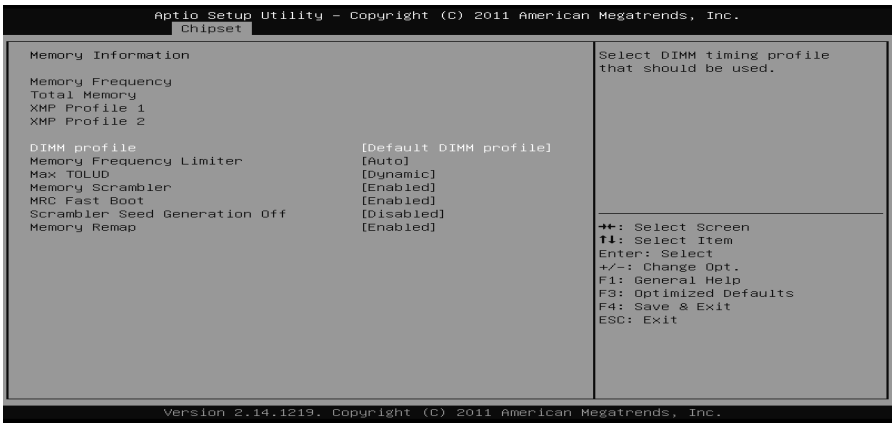
Options: Disabled (Default) / Enabled

RxCEM Loop back lane

Selections RxCEM Loop back lane, [0-15]

Options: Lane 0 (Default)

Memory Configuration



DIMM Profile

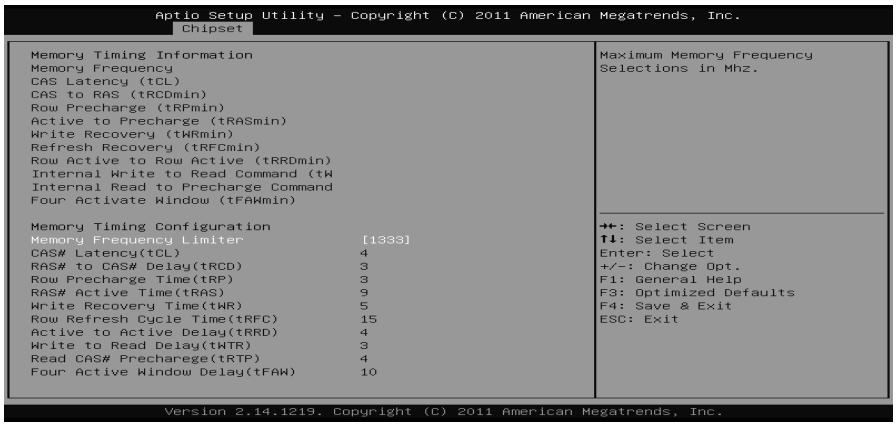
Select DIMM timing profile that should be used.

Options: Default DIMM profile (Default) / Custom Profile / XMP Profile 1 / XMP Profile 2

Memory Frequency Limiter

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

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

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

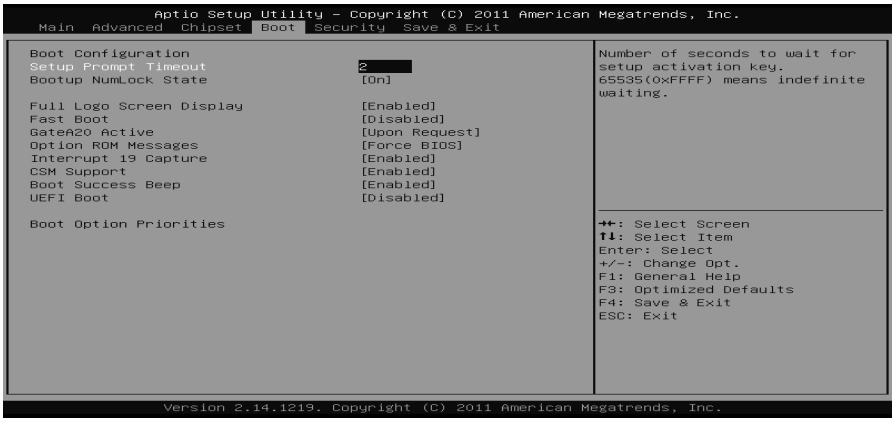
MRC Fast Boot
This item enables or disables MRC Fast Boot.
Options: Enabled (Default) / Disabled

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

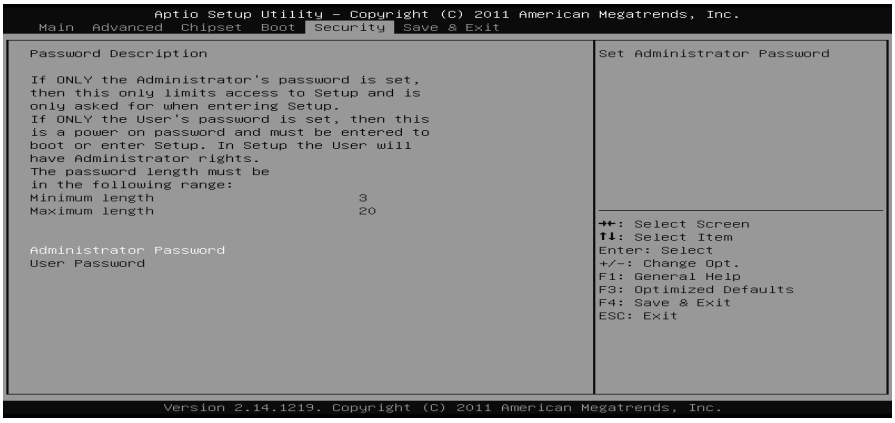
Boot Success Beep

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

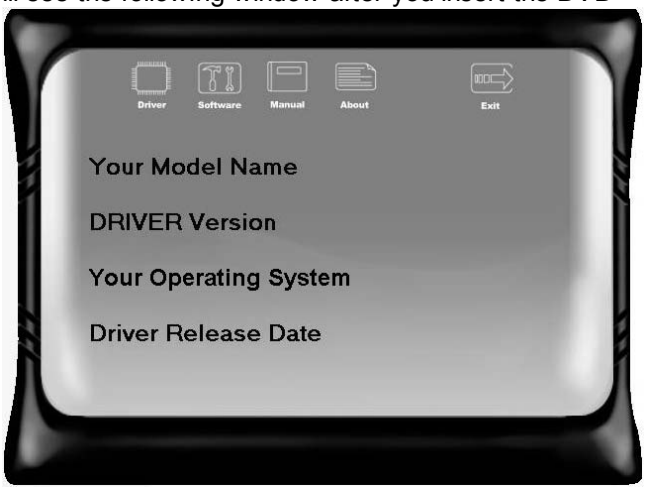
This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

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
1	No media present. (Insert diskette in floppy drive A:)
2	"AMIBOOT.ROM" file not found in root directory of diskette in A:
3	Insert next diskette if multiple diskettes are used for recovery
4	Flash Programming successful
5	File read error
7	No Flash EPROM detected
10	Flash Erase error
11	Flash Program error
12	"AMIBOOT.ROM" file size error
13	BIOS ROM image mismatch (file layout does not match image present in flash device)

POST BIOS Beep Codes

Number of Beeps	Description
1	Memory refresh timer error
3	Base memory read/write test error
6	Keyboard controller BAT command failed
7	General exception error (processor exception interrupt error)
8	Display memory error (system video adapter)

Troubleshooting POST BIOS Beep Codes

Number of Beeps	Troubleshooting Action
1, 3	Reseat the memory, or replace with known good modules.
6, 7	Fatal error indicating a serious problem with the system. Consult your system manufacturer. Before declaring the motherboard beyond all hope, eliminate the possibility of interference by a malfunctioning add-in card. Remove all expansion cards except the video adapter. ● If beep codes are generated when all other expansion cards are absent, consult your system manufacturer's technical support. ● If beep codes are not generated when all other expansion cards are absent, one of the add-in cards is causing the malfunction. Insert the cards back into the system one at a time until the problem happens again. This will reveal the malfunctioning card.
8	If the system video adapter is an add-in card, replace or reseat the video adapter. If the video adapter is an integrated part of the system board, the board may be faulty.

4.3 TROUBLESHOOTING

Probable	Solution
1. There is no power in the system. Power LED does not shine; the fan of the power supply does not work 2. Indicator light on keyboard does not shine.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
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.	1. 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. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
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.	1. Back up data and applications files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
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.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

2012/04/09