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CE

Dichiarazione di conformità sintetica
Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002
Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive 2004/108/CE, 2006/95/CE e 1999/05/CE quando ad esso applicabili

Short Declaration of conformity
We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives 2004/108/CE, 2006/95/CE and 1999/05/CE whenever these laws may be applied

Table Of Contents

Chapter 1: Introduction

1.1 Before You Start

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

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard 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 motherboard 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 computer from dangerous area, such as heat source, humid air and water.
- The operating temperatures of the computer should be 0 to 45 degrees Celsius.
- To avoid injury, be careful of:
  Sharp pins on headers and connectors
  Rough edges and sharp corners on the chassis
  Damage to wires that could cause a short circuit

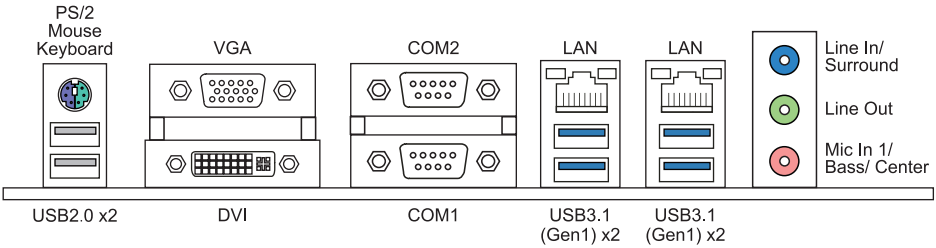
Note

» *The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.*

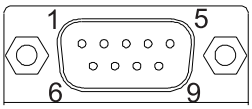
1.2 Specifications

CPU	Intel® Socket LGA1155 Intel® 3rd Generation Ivy Bridge & 2nd Generation Sandy Bridge CPU 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
Graphic	Intel® Integrated graphics engine supports Dual independent displays (Extended mode) : Integrated VGA & DVI
Main Memory	4x LONG-DIMM (240pin) Slot, DDR3 1333/ 1066 MHz, Max 32GB (one slot supports 16GB) Registered DIMM and ECC DIMM is not supported
SATA	Support 6x SATA connector: 5x SATAII connector (3 Gb/s) 1x SATAIII connector (6 Gb/s)
Dual LAN	2x Intel® I211-AT 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability
Sound Codec	Realtek Codec ALC662, Support 5.1 Channels
Expansion Slot	1x PCI-E x16 Slot 1x PCI-E x4 Slot 5x PCI Slot
Back Panel I/O	1x PS2 Keyboard/Mouse 1x VGA 1x DVI-D 2x COM (2x RS232/RS422/RS485 mode switch control by BIOS; with pin9 by jumper select for 0/5V/12V, default 0V) 2x USB2.0 Port 4x USB3.0 Port 2x RJ-45 Port 3x Audio Jacket (Line-in/ Line-out/ MIC-in)
On Board Connectors & Headers	1x 2*10 pins, 2.54pitch TPM 1.2 box-header 1x 2*5 pins, 2.54pitch front panel header 1x 2*5 pins, 2.54pitch Digital I/O header 1x 2*5 pins, 2.54pitch front audio for (Line-out & Mic-in) 5x SATAII connector (3 Gb/s) 1x SATAIII connector (6 Gb/s) 1x 2*13 pins, 2.54pitch Parallel port box-header 2x 2*5 pins, 2.54pitch wafer box, support 4x USB 2.0 1x 1*5 pins, 2.54pitch wafer box, support 1x USB2.0 1x USB2.0 for vertical type A connector 4x 1*3pin header, support 5V/ 5V dual switch for USB function 1x 1*3 pin header, support 5V/ 5V dual switch for PS/2 function 1x 1*2 pin header, support VGA 4x 2*5 pins, COM box-header (4x RS-232 with jumper select for 5V/12V) 1x 1*4 pins, CPU Smart-FAN header 2x 1*3 pins, System DC-FAN header 1x 24 pins, ATX power connector 1x 2*2 pins, 12V power connector 1x 1*3 pins, clear CMOS 1x Buzzer
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)
EMI/ESD	Contact with 4Kv, Air with 8Kv, EMI: Class A
OS Support	Win7, Win10, Ubuntu Biostar reserves the right to add or remove support for any OS with or without notice.

1.3 Rear Panel Connectors



COM1/COM2 Connector



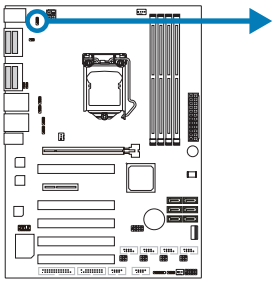
RS-232 (Default)		RS-422	RS-485
Pin	Assignment		
1	Carrier detect (DCD)	TX-	TX-
2	Received data (RXD)	TX	TX
3	Transmitted data (TXD)	RX	NC
4	Data terminal ready (DTR)	RX-	NC
5	Signal ground (GND)	GND	GND
6	Data set ready (DSR)	NC	NC
7	Request to send (RTS)	NC	NC
8	Clear to send (CTS)	NC	NC
9	Ring	NC	NC
10	NC	NC	NC

Note

» *COM1/2 voltage selection is controlled by BIOS setup.*

JKBUSBPWR1: 5V/ 5V_DUAL Power Switch Header for PS/2 Connector

This header is for switching between 5V and 5V dual power.



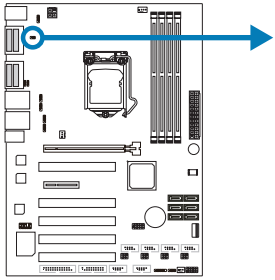
Pin 1-2 Close: 5V (Default)

» *Does not support S3/ S4 state.*

Pin 2-3 Close: 5V_Dual

VGAL: VGA Connector

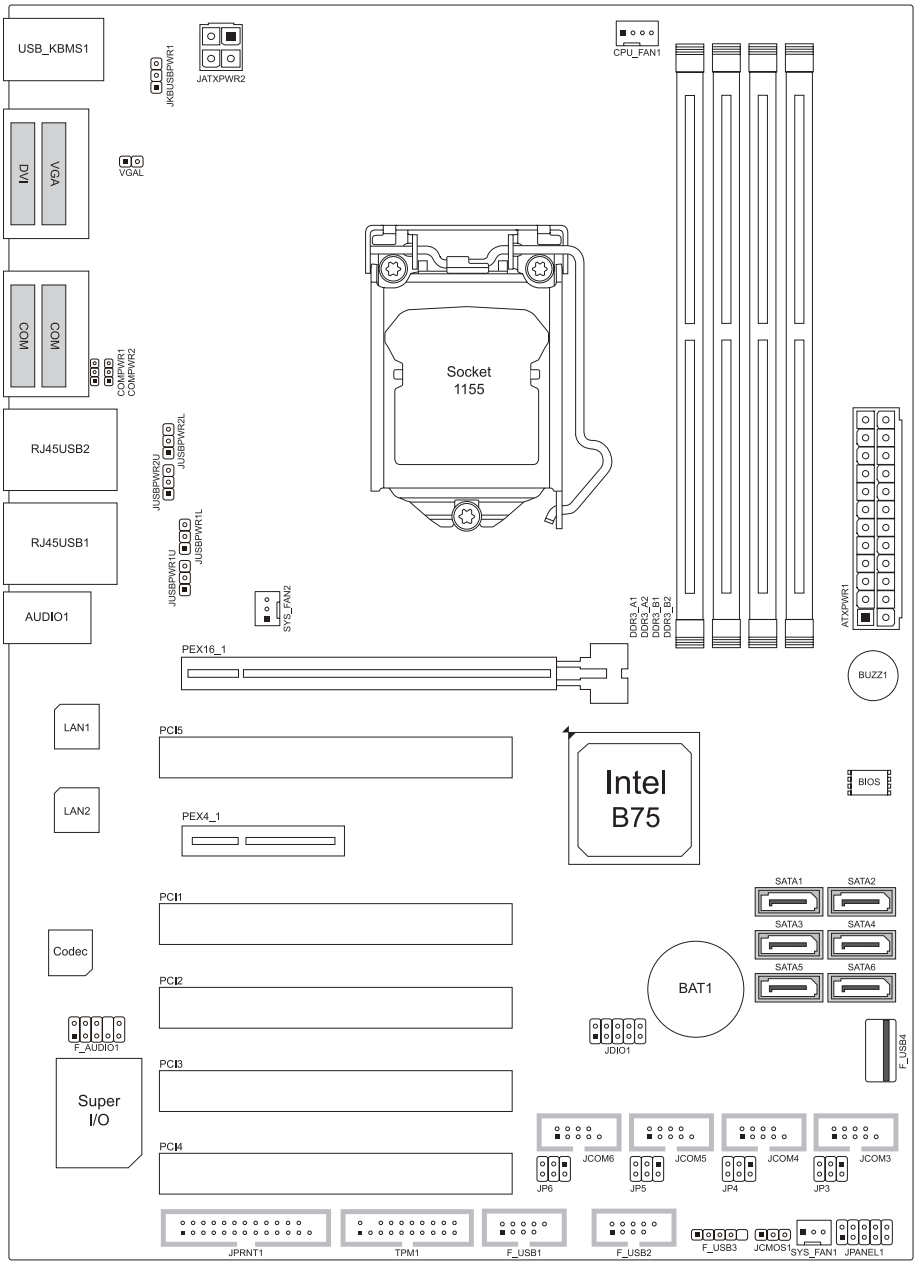
This header is for VGA power.



Pin 1-2 Close: Disabled (NC)

Pin 1-2 Close: Enabled (Dummy Load)

1.4 Motherboard Layout



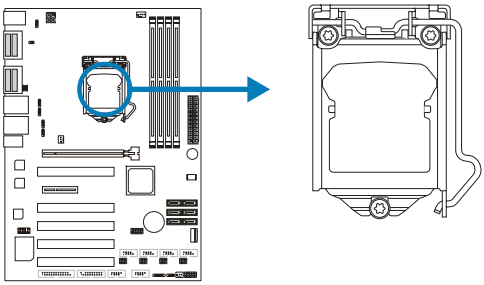
Note

» ■ *represents the 1st pin.*

Chapter 2: Hardware installation

2.1 Install Central Processing Unit (CPU)

Step 1: Locate the CPU socket on the motherboard

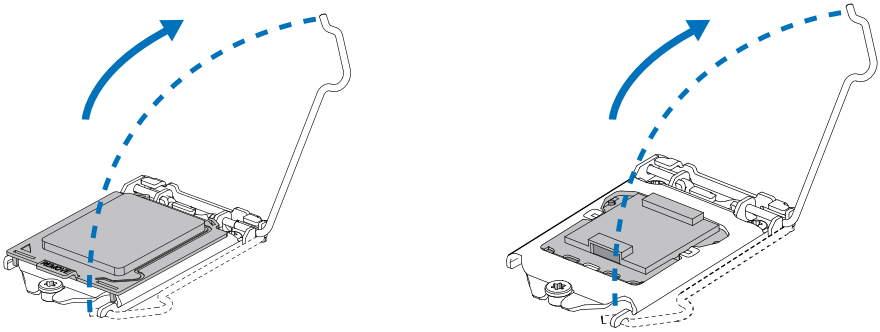


Note

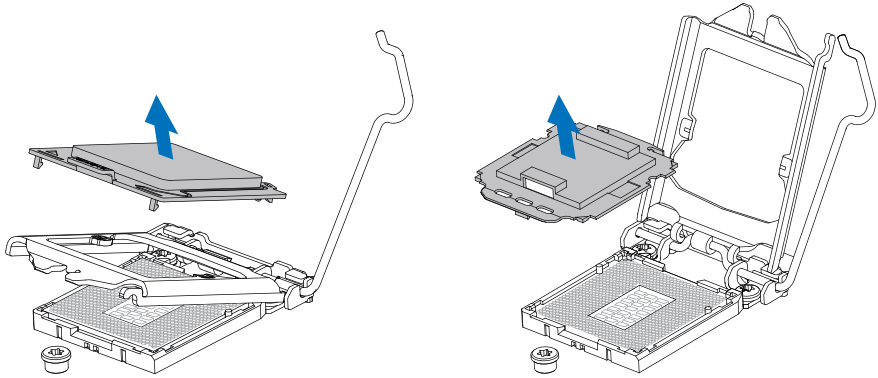
» *Remove pin cap before installation, and make good preservation for future use. When the CPU is removed, cover the pin cap on the empty socket to ensure pin legs won't be damaged.*

» *The motherboard might equip with two different types of pin cap. Please refer below instruction to remove the pin cap.*

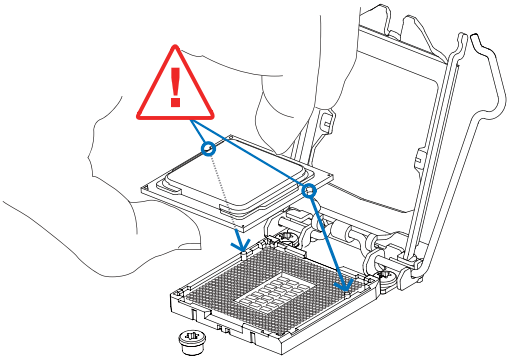
Step 2: Pull the socket locking lever out from the socket and then raise the lever up.



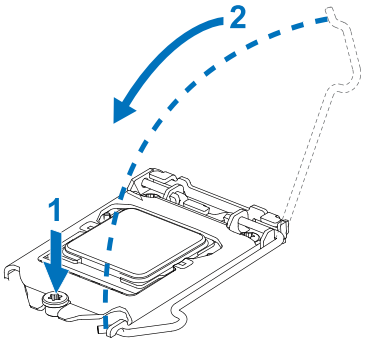
Step 3: Remove the Pin Cap.



Step 4: 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 5: Hold the CPU down firmly, and then lower the lever to locked position to complete the installation.

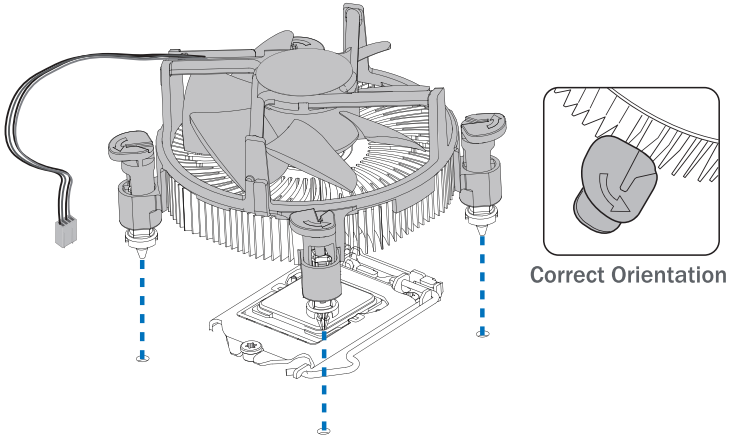


Note

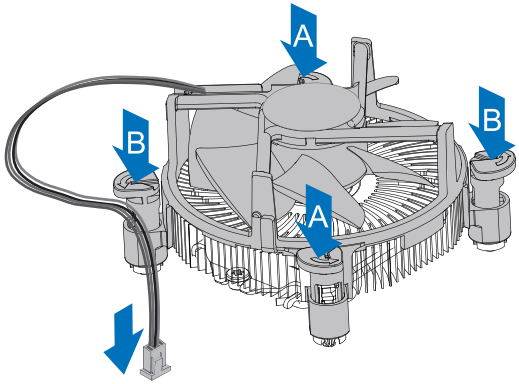
» *Ensure that you install the correct CPU designed for LGA1155 socket.*
» *The CPU fits only in one correct orientation. Do not force the CPU into the socket to prevent damaging the CPU.*

2.2 Install a Heatsink

Step 1: Place the CPU fan assembly on top of the installed CPU and make sure that the four fasteners match the motherboard holes. Orient the assembly and make the fan cable is closest to the CPU fan connector.



Step 2: Press down two fasteners at one time in a diagonal sequence to secure the CPU fan assembly in place. As each fastener locks into position a click should be heard.



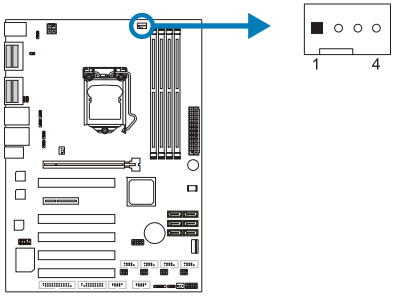
Note

» *Apply the thermal interface material on the CPU before heatsink installation, if necessary.*
» *Do not forget to connect the CPU fan connector.*
» *For proper installation, please kindly refer to the installation manual of your CPU heatsink.*

2.3 Connect Cooling Fans

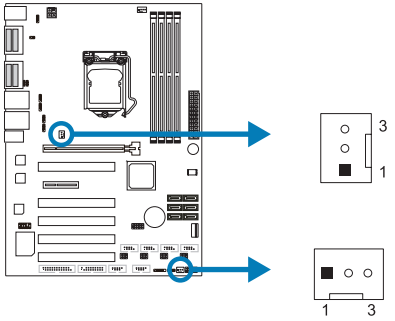
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU fan header



Pin	Assignment
1	Ground
2	VCC12
3	FAN_TACH
4	FAN_CTL

SYS_FAN1: System fan header



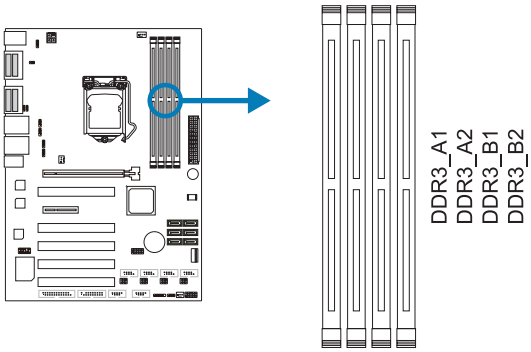
Pin	Assignment
1	Ground
2	VCC12
3	FAN_TACH

Note

» *System Fan Headers support 3-pin head connectors. 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.*

2.4 Installing System Memory

DDR3_A1/ DDR3_A2/ DDR3_B1/ DDR3_B2: Memory Module (240pin LONG-DIMM)



Note

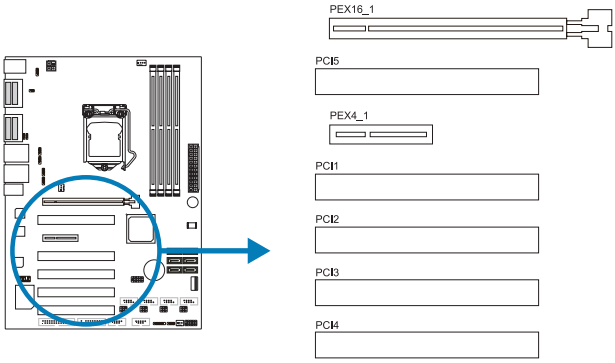
» *If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.*

1. Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.
2. Insert the DIMM firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.

Memory Capacity

DIMM Socket Location	DDR3 Module	Total Memory Size
DDR3_A1	512MB/1GB/2GB/4GB/8GB/16GB	Max is 32GB
DDR3_A2	512MB/1GB/2GB/4GB/8GB/16GB	
DDR3_B1	512MB/1GB/2GB/4GB/8GB/16GB	
DDR3_B2	512MB/1GB/2GB/4GB/8GB/16GB	

2.5 Expansion Slots



PCI1/ 2/ 3/ 4/ 5: Peripheral Component Interconnect Slots

This motherboard is equipped with 1 standard PCI slot. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.

PEX16_1: PCI-Express Gen3 x16 Slots

- PCI-Express 3.0 compliant.
- PCI-E x16 Gen3 Data transfer bandwidth up to16GB/.

PEX4_1: PCI-Express Gen2 x4 Slots

- PCI-Express 2.0 compliant.
- PCI-E x4 Gen2 Data transfer bandwidth up to 2GB/s.

2.6 Jumper & Switch Setting

Jumper Setting

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".

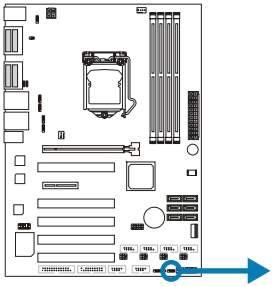
Pin opened

Pin closed

Pin 1-2 closed

JCMOS1: Clear CMOS Jumper

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 motherboard.



Pin 1-2 Close: Normal Operation (Default)

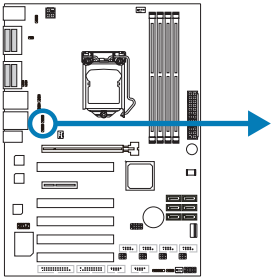
Pin 1-2 Short: Clear CMOS data

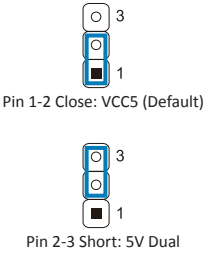
Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to "Pin 2-3 short".
3. Wait for five seconds.
4. Set the jumper to "Pin 1-2 close".
5. Power on the AC.
6. Load Optimal Defaults and save settings in CMOS.

JUSBPWR1U (Upper Layer)/ JUSBPWR1L (Lower Level): 5V/ 5V_DUAL Power Switch Header for USB Connector

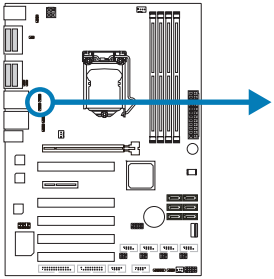
This header is for switching between 5V and 5V dual power.

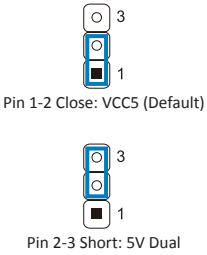




JUSBPWR2U (Upper Layer)/ JUSBPWR2L (Lower Level): 5V/ 5V_DUAL Power Switch Header for USB Connector

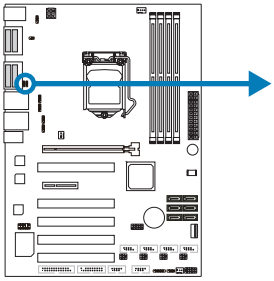
This header is for switching between 5V and 5V dual power.

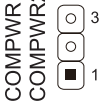


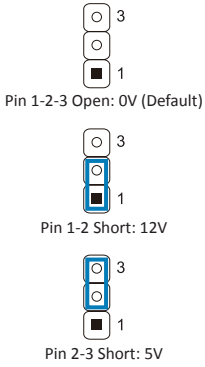


COMPWR1/ COMPWR2: Power Switch Header for COM Port Connector

This header is for COM port power.



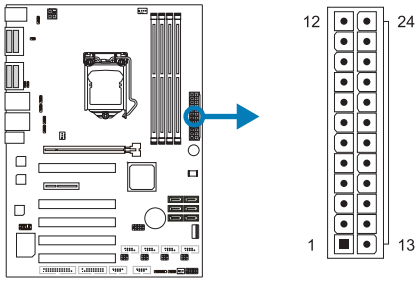




2.7 Headers & Connectors

ATXPWR1: ATX Power Source Connector (24-pin)

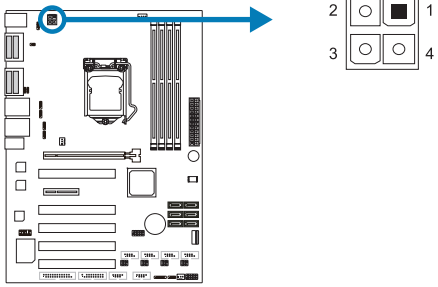
This connector allows user to connect 24-pin power connector.



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

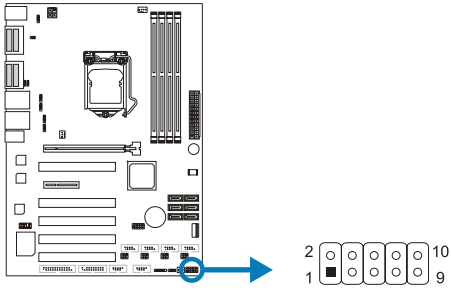
This connector will provide +12V to CPU power circuit.



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

JPANEL1: Front Panel Header

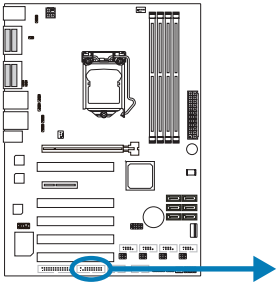
This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.

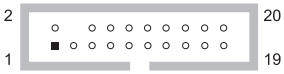


Pin	Assignment	Function	Pin	Assignment	Function
1	NC	N/A	2	Power LED+(3.3V)	Power LED
3	HDD LED+	HDD LED	4	Power LED+(3.3V)	
5	HDD LED-		6	Power LED-	
7	Ground	Reset Button	8	Power Button	Power Button
9	Reset Control		10	Power Ground	

TPM1: Trusted Platform Module Header

This header allows you to store cryptographic keys that protect information.



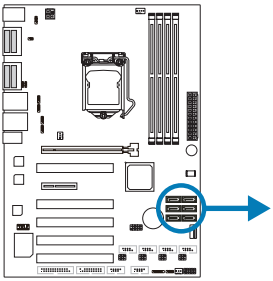


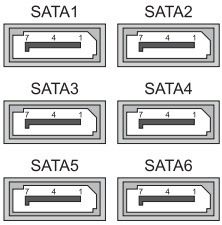
Pin	Assignment	Pin	Assignment
1	PCLK_TPM	2	Ground
3	L_FRAME#	4	NA
5	PCIRST	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	Ground
13	SMB_CLK	14	SMB_DATA
15	3V3_DUAL	16	SER_IRQ
17	Ground	18	CLK_RUN#
19	SUS_STAT	20	LDRQJ1

SATA1: Serial ATA 6.0 Gb/s Connectors

SATA2/ SATA3/ SATA4/ SATA5/ SATA6: Serial ATA 3.0 Gb/s Connectors

These connectors support the thin Serial ATA cable for primary internal storage devices.

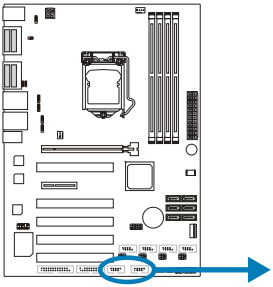


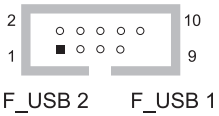


Pin	Assignment
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

F_USB1/ F_USB2: Header for USB 2.0 Ports at Front Panel

This header allows user to add additional USB ports on the PC front panel, and also can be connected with a wide range of external peripherals.

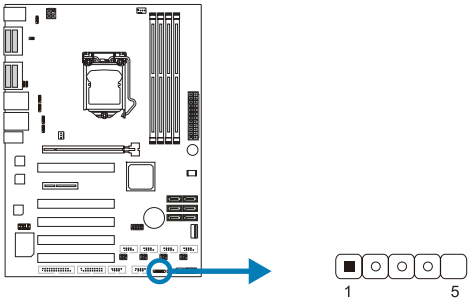




Pin	Assignment
1	+5V (fused)
2	+5V (fused)
3	DN1
4	DN2
5	DP1
6	DP2
7	Ground
8	Ground
9	Ground
10	Ground

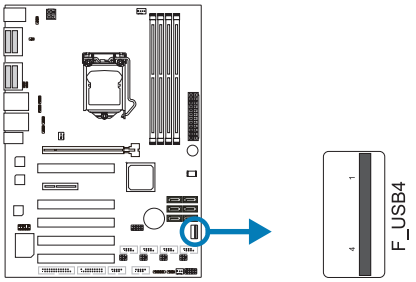
F_USB3: Header for USB 2.0 Ports at Front Panel

This header allows user to add additional USB ports on the PC front panel, and also can be connected with a wide range of external peripherals.



Pin	Assignment
1	+5V
2	DN
3	DP
4	Ground
5	NC

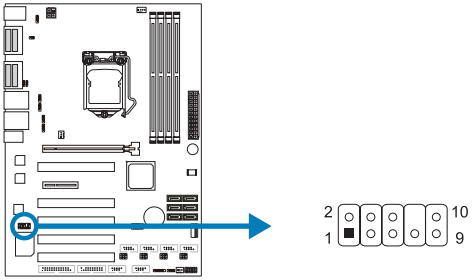
F_USB4: USB 2.0 Header for vertical type A Connector



Pin	Assignment
1	+5V
2	DN
3	DP
4	Ground

F_AUDIO1: Front Panel Audio Header

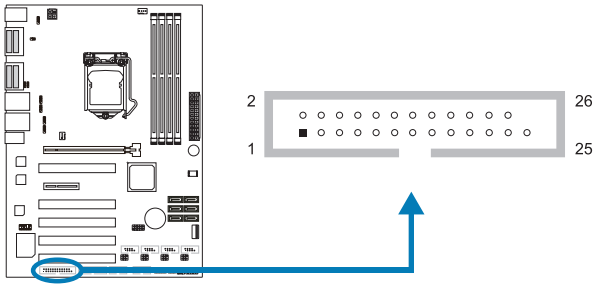
This is an interface for the front panel audio cable that allows convenient connection and control of audio devices.



Pin	Assignment	Pin	Assignment
1	MIC2_L	2	Ground
3	MIC2_R	4	FP_AUD_DETECT
5	LINE2_R	6	Ground
7	NC	8	NA
9	LINE2_L	10	Ground

JPRNT1: Printer Port Connector

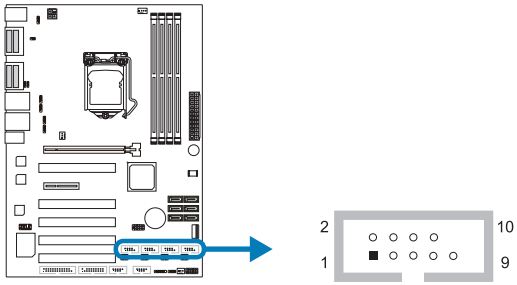
This header allows you to connect printer port on the PC.



Pin	Assignment	Pin	Assignment
1	STB	2	AFD
3	PRD0	4	ERROR#
5	PRD1	6	INIT
7	PRD2	8	SLIN
9	PRD3	10	Ground
11	PRD4	12	Ground
13	PRD5	14	Ground
15	PRD6	16	Ground
17	PRD7	18	Ground
19	ACK#	20	Ground
21	BUSY	22	Ground
23	PE	24	Ground
25	SCLT	26	NA

JDIO1: Digital I/O Connector

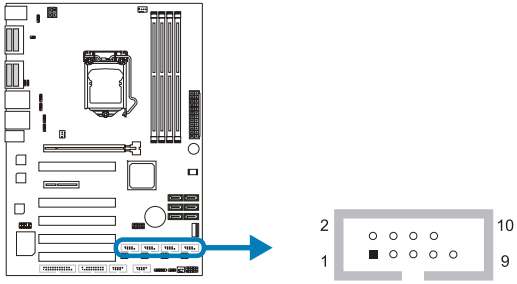
This connector offers digital I/O functions and address is set in BIOS.



Pin	Assignment	Address	GPIO
1	5V	--	--
2	DIO1	548H BIT7	GPIO71
3	DO01	50CH BIT7	GPIO7
4	DI02	548H BIT6	GPIO70
5	DO02	50CH BIT6	GPIO6
6	DI03	548H BIT5	GPIO69
7	DO03	50CH BIT1	GPIO1
8	DI04	548H BIT4-	GPIO68
9	DO04	50CH BIT17	GPI017
10	Ground	--	--

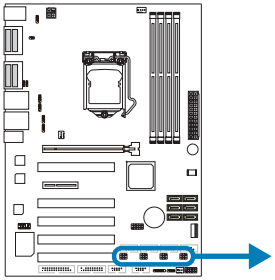
2.8 Serial Port Connectors & Headers

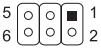
JCOM3/ JCOM4/ JCOM5/ JCOM6: Serial Port Header

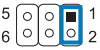


Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

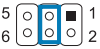
JP3/ JP4/ JP5/ JP6: Pin 9 Switch Headers for COM5/COM6



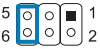




Pin 1-2 Short: Pin9 = RING (Default)



Pin 3-4 Short: Pin9 = 5V



Pin 5-6 Short: Pin9=12V

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.

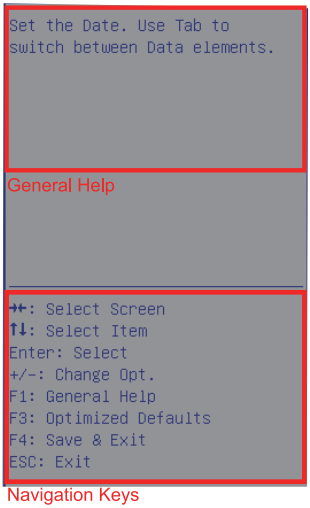
DRAM Support

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

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.



Note

- » *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.

Memory Frequency

Shows the system memory frequency.

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.

Note

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

» *The options and default settings might be different by RAM or CPU models.*

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 is from 10 to 1000 uS.

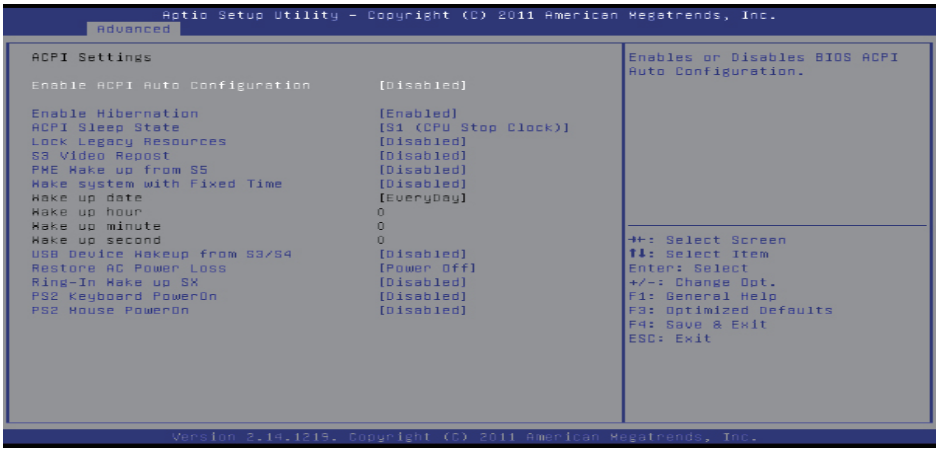
Options: 100 (Default)

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.

USB Device Wakeup from S3/S4

This item sets USB Device Wakeup from S3/S4.

Options: Disabled (Default) / Enabled

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 SX

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

Options: Disabled (Default) / Enabled

PS2 Keyboard PowerOn

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

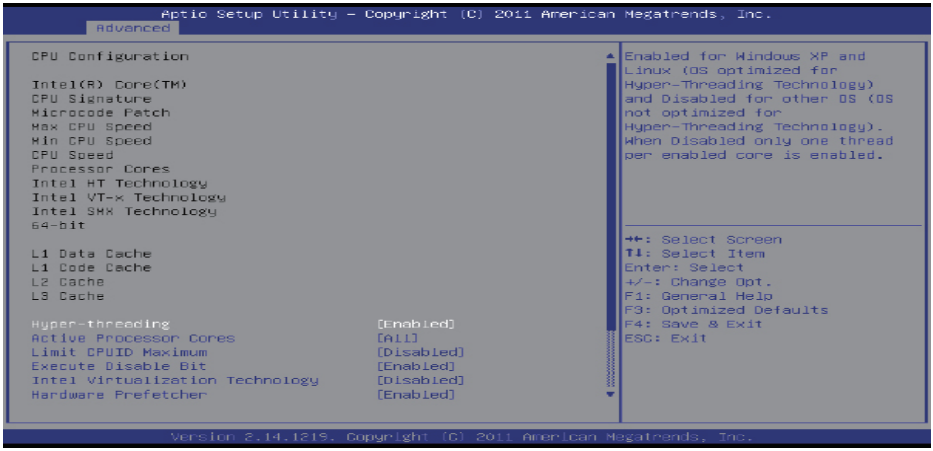
Options: Disabled (Default) / Ctrl + Esc / Ctrl + F1 / Ctrl + Space / Any Key / Wake Key / Power Key / Ctrl + Alt + Space / Space

PS2 Mouse PowerOn

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

Options: Disabled (Default) / Enabled

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

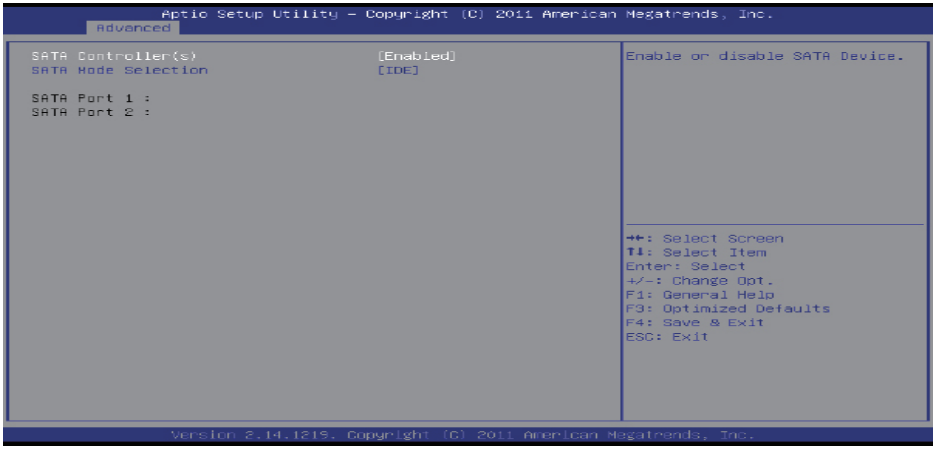
Adjacent Cache Line Prefetch
The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.
Options: Enabled (Default) / Disabled

TCC Activation offset
Offset from the factory TCC activation temperature
Options: 0 (Default)

CPU Max Current limit value (Amp)
The maximum instantaneous current allow for primary plane.
Options: 120 (Default)

IGFX Max Current limit value (Amp)
The maximum instantaneous current allow for secondary plane.
Options: 35 (Default)

SATA Configuration



SATA Controller(s)

This item enables/disables Serial ATA Device.

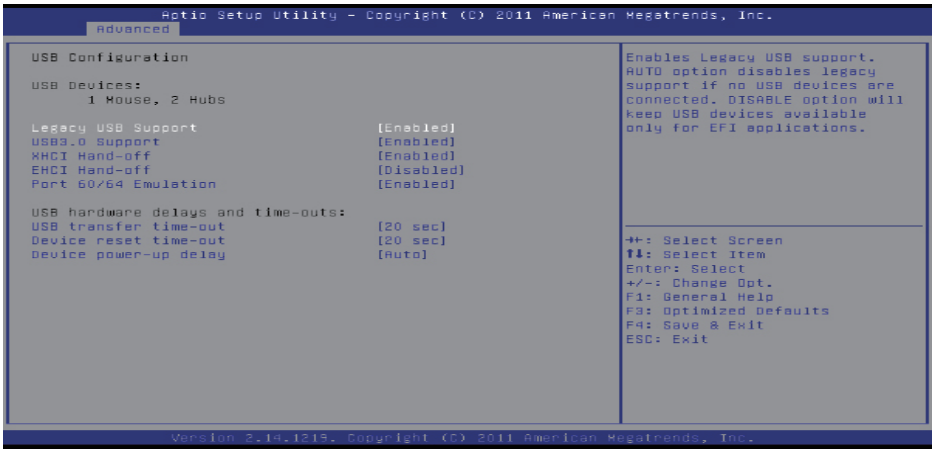
Options: Enabled (Default) / Disabled

SATA Mode Selection

This item determines how SATA controller(s) operate.

Options: IDE (Default) / AHCI

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: Disabled (Default) / Enabled

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

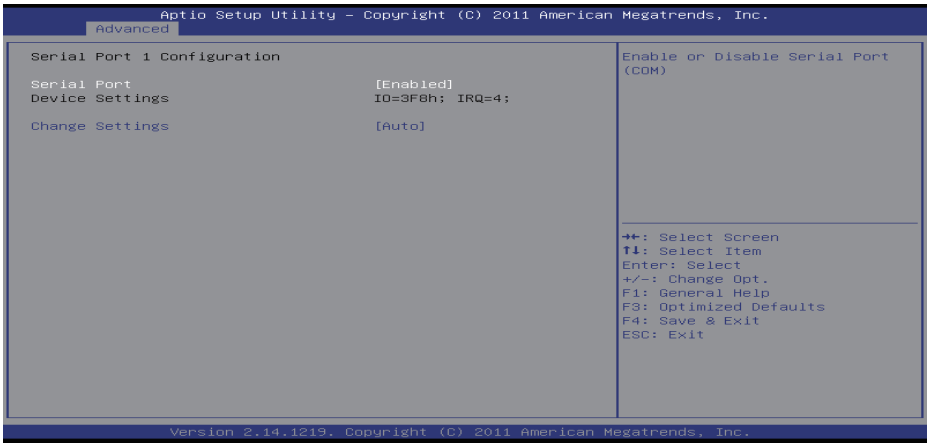
Device power-up delay in seconds

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

Options: 5 (Default)

Super IO Configuration

Serial Port 1 Configuration



Serial Port

This item enables or disables Serial Port (COM).

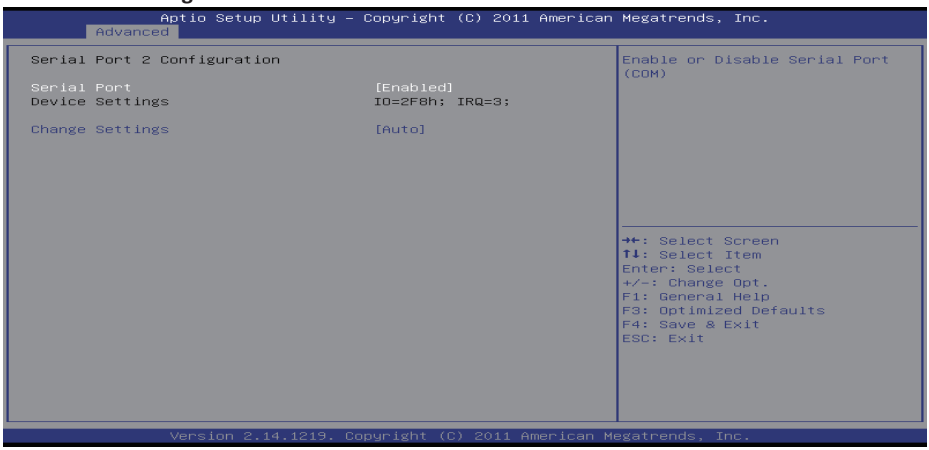
Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

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

Serial Port 2 Configuration



Serial Port

This item enables or disables Serial Port (COM).

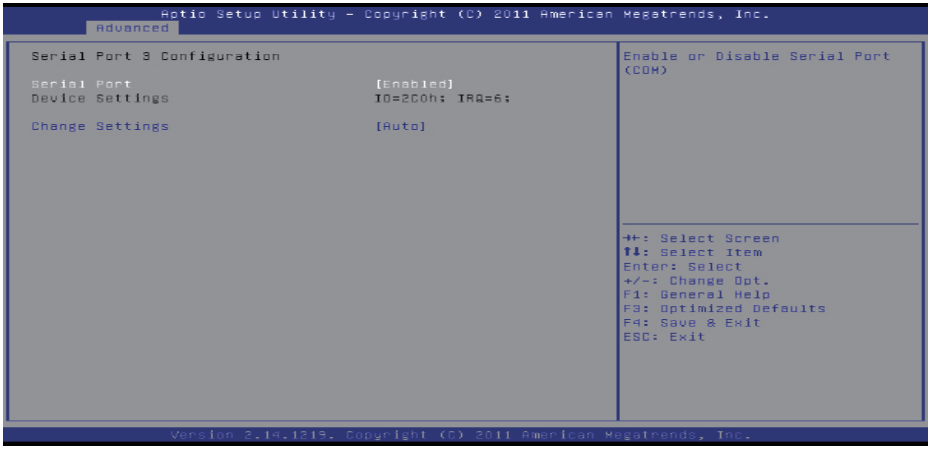
Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

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

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=2C0h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

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=2C8h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

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=2D0h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

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.

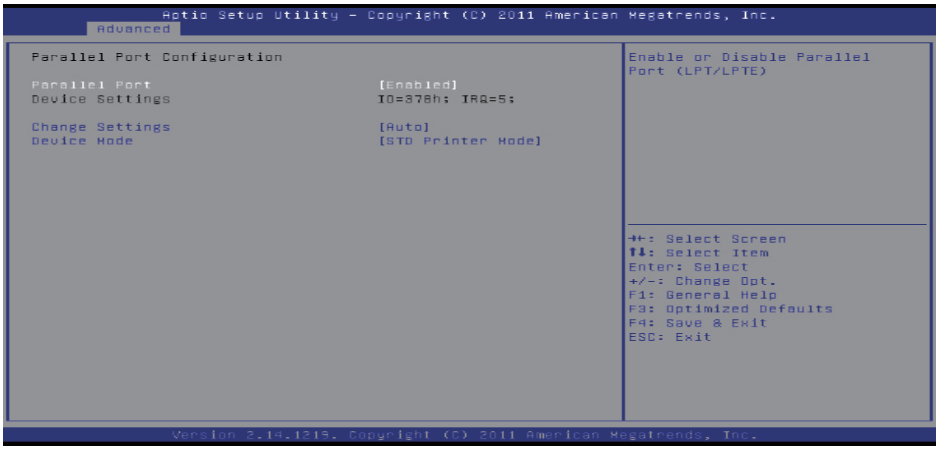
Options: Auto (Default) / IO=2D8h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

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

UART1 RI Function

This item selects COM1 port pin 9 function.

Options: RING (Default) / +12V / +5V

UART2 RI Function

This item selects COM2 port pin 9 function.

Options: RING (Default) / +12V / +5V

Watch Dog Degree

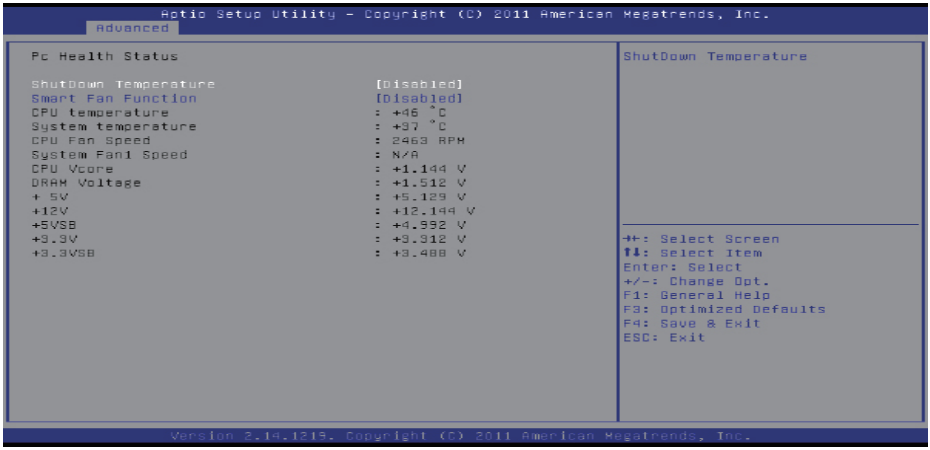
This item allows you to determine the functional degree of Watch Dog.

Options: Second (Default) / Minute

Watch Dog Timer

Options: 0 for disabled (Default) / Min=1, Max=255

H/W Monitor



Shutdown Temperature

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

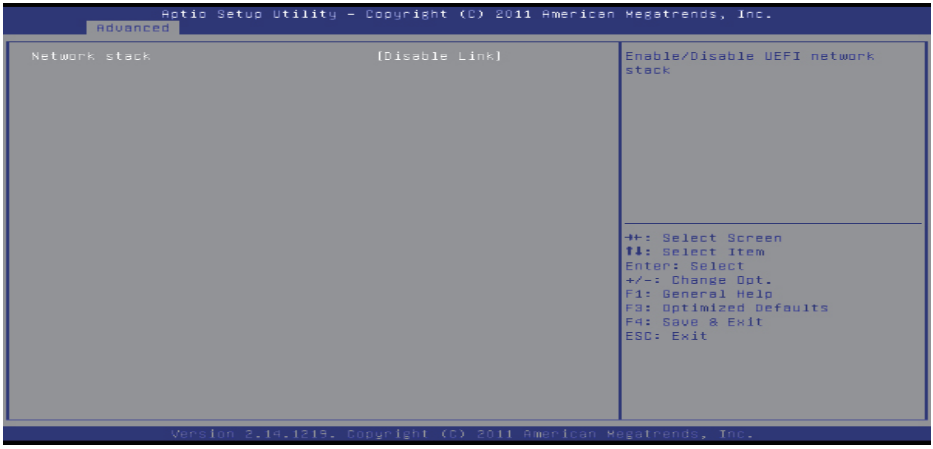
Options: Disabled (Default) / 60°C/140°F / 65°C/149°F / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

Smart Fan Function

This item enables or disables Smart Fan.

Options: Disabled (Default) / Enabled

Network Stack



Network stack

This item allows you enables or disables UEFI network stack

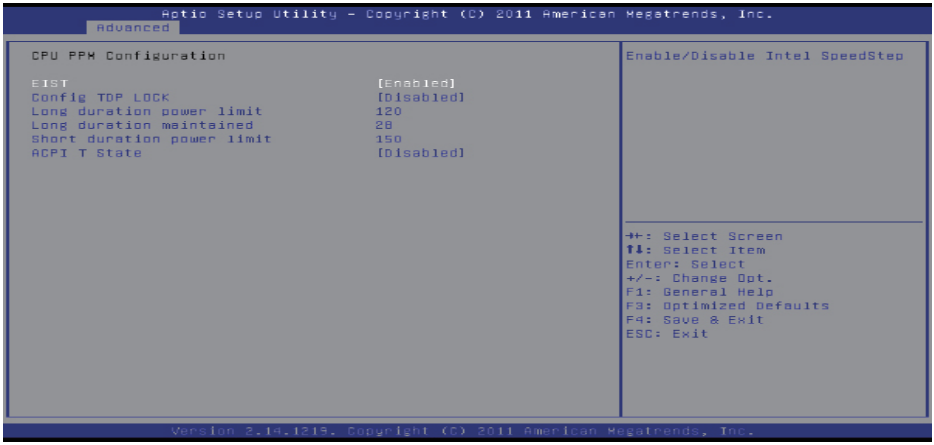
Options: Disabled Link (Default) / Enabled

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

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.

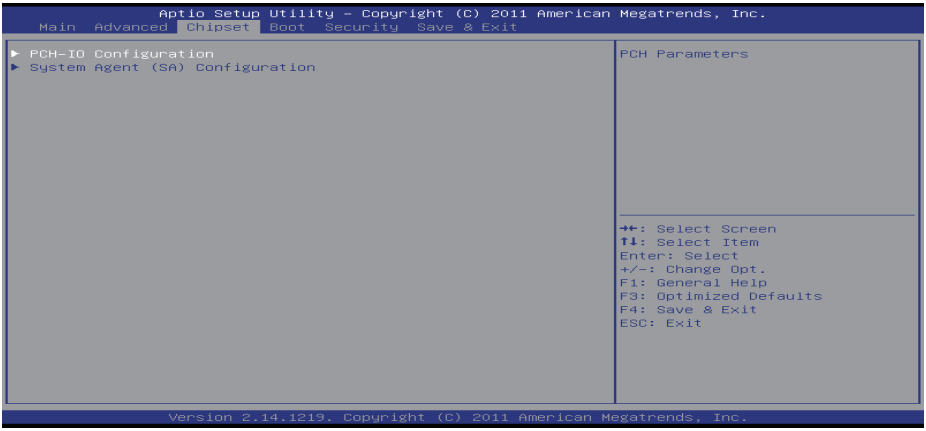
Options: Disabled (Default) / Enabled

3.3 Chipset Menu

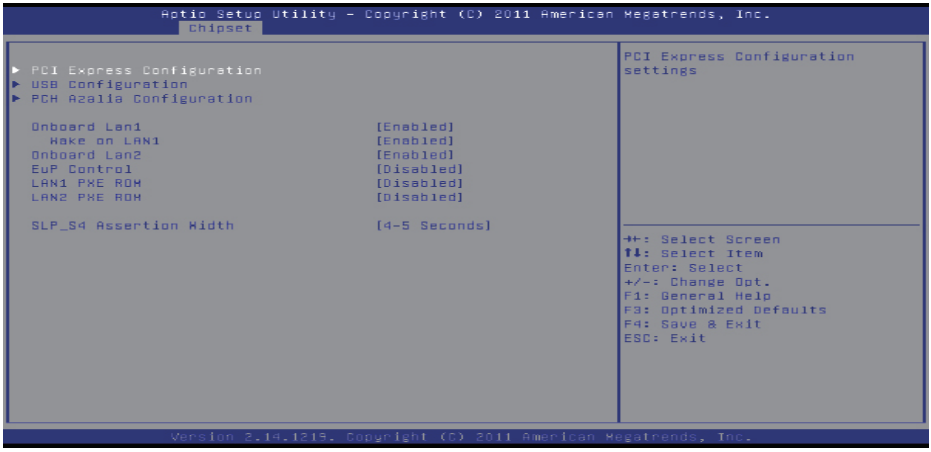
This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Note

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



PCH-IO Configuration



PCI Express Configuration

Mini PCIE Slot

This item controls the PCI Express Root Port.

Options: Enabled (Default) / Disabled

ASPM

This item sets PCI Express Active State Power Management settings.

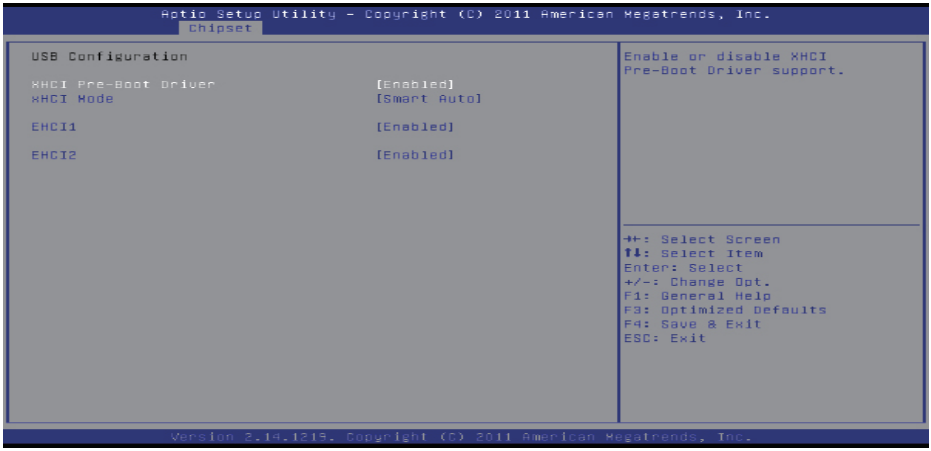
Options: Auto(Default) / Disabled / L0s / L1 / L0sL1

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. If set disabled, “USB 1” & “USB 2” connector (near power adaptor) can’t work.

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-D port codec

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

Options: Enabled (Default) / Disabled

DVI-I port codec

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

Options: Enabled (Default) / Disabled

Onboard Lan1

This item controls the PCI Express Root Port.

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

Onboard Lan2

This item controls the PCI Express Root Port.

Options: Enabled (Default) / Disabled

EuP Control

When EuP Enabled, System meets EuP requirement.

Options: Disabled (Default) / Enabled

LAN1/2 PXE ROM

This item enables or disables LAN1/2 PEX OPROM.

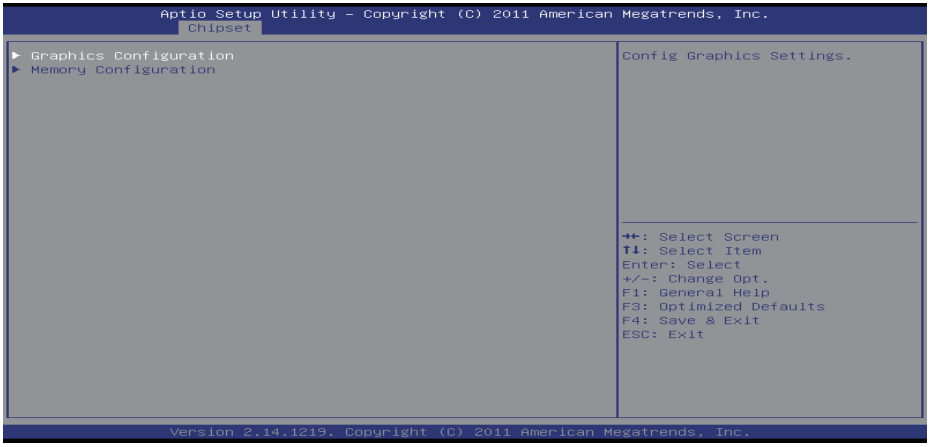
Options: Disabled (Default) / Enabled

SLP_S4 Assertion Width

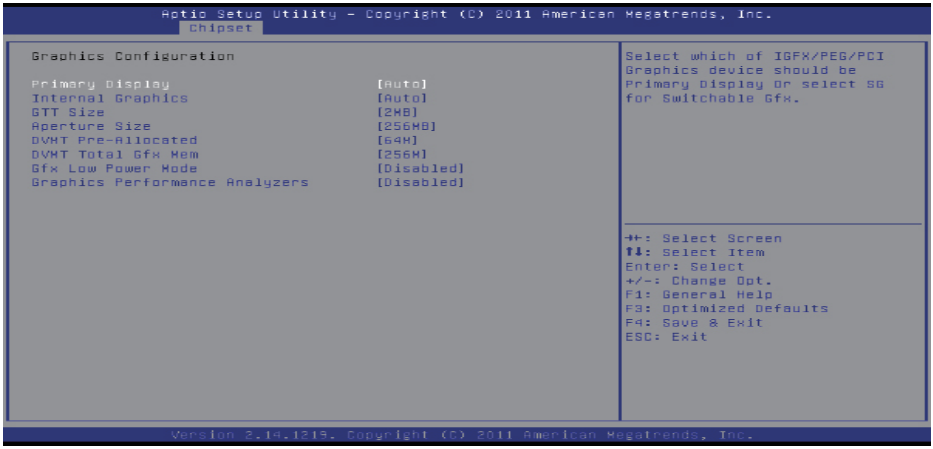
This item sets a minimum assertion width of the SPL_S4# signal.

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 Aperature Size.
Options: 256MB (Default) / 128MB / 512MB

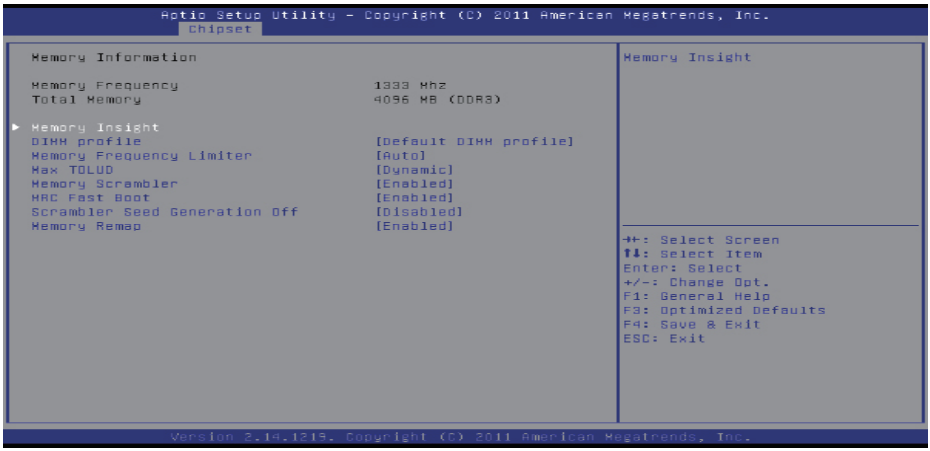
DVMT Pre-Allocated
This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
Options: 64M (Default) / 32M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M

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

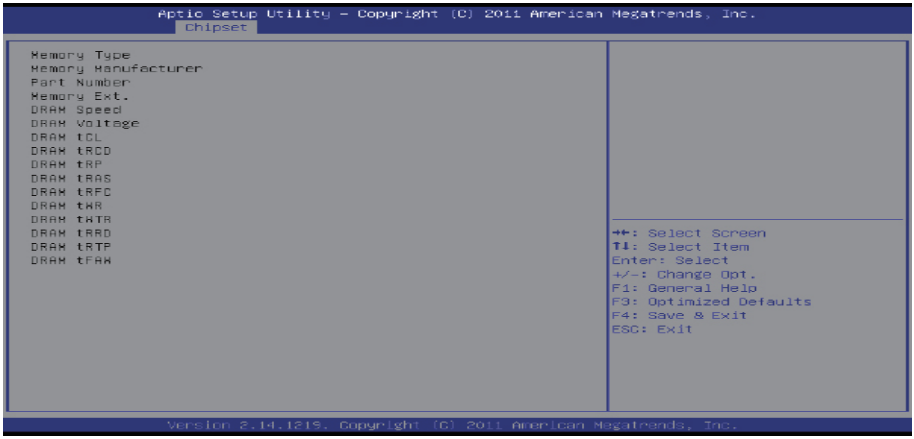
Graphics Performance Analyzers
This item is enables/ disables Intel graphics performance analyzers counters.
Options: Disabled (Default) / Enabled

Memory Configuration



Memory Insight

These items display SPD information of DDR3 memory.



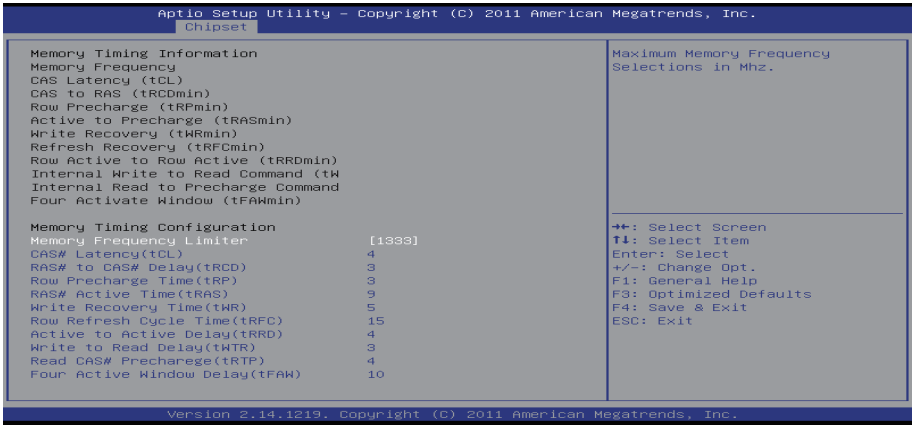
DIMM Profile

Select DIMM timing profile that should be used.

Options: Default DIMM profile (Default) / Custom Profile

» *Note: The following items appear only when you set the DIMM profile item to [Custom Profile]*

Custom Profile Control



Memory Frequency Limiter

Maximum Memory Frequency Selection in Mhz.

Options: 1333 (Default) / 1067 / 1600

» *The options may be different by CPU models.*

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

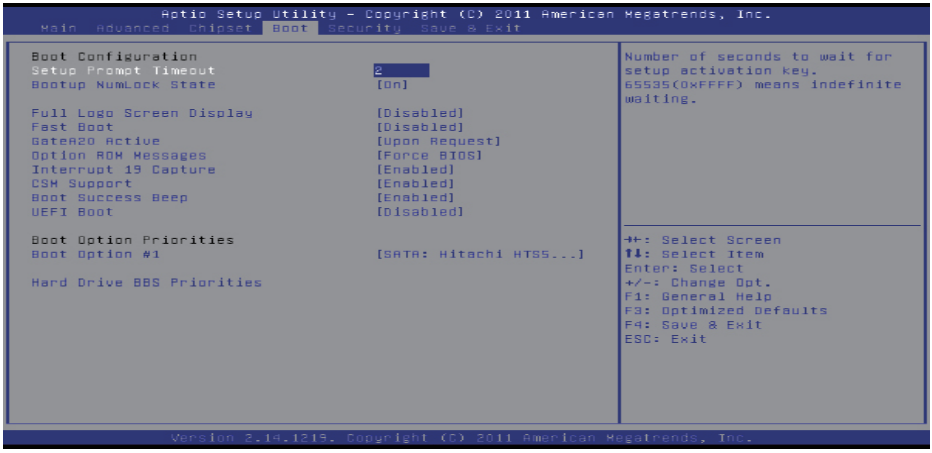
MRC Fast Boot
This item enables or disables MRC Fast Boot.
Options: Enabled (Default) / Disabled

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 Logo Screen Display

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Disabled (Default) / Enabled

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

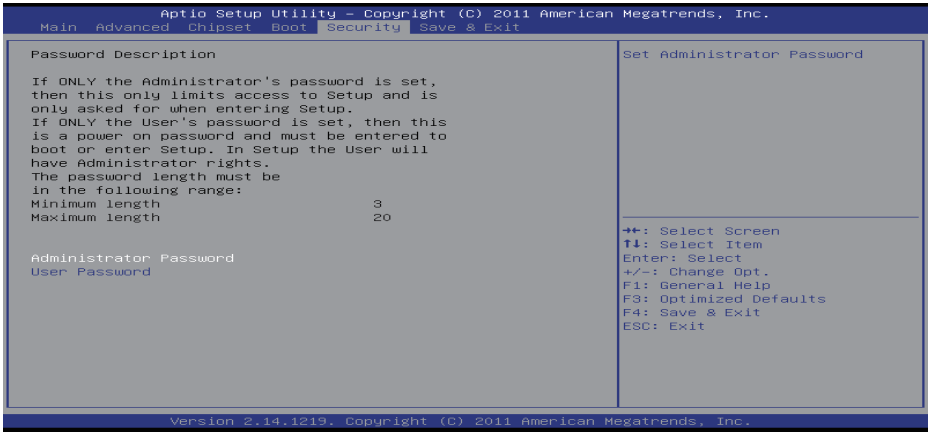
Boot Success Beep

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.