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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

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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.*
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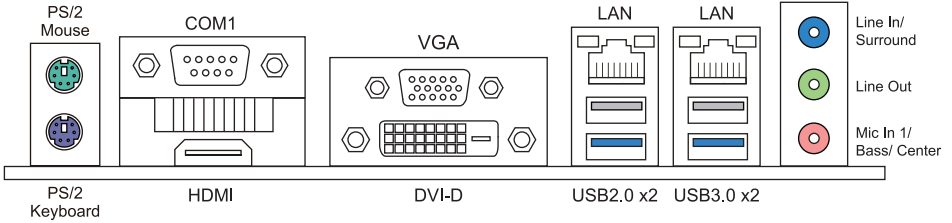
1.2 Specifications

Specifications	
CPU	Socket 1151 for 6th & 7th Gen Intel® Core™ i7/i5/i3 / Pentium / Celeron processor Maximum CPU TDP (Thermal Design Power): 65Watt
Chipset	Intel® H110
Graphic	LAN Controller: 2x RTL8111H Audio Codec: ALC662 Audio Amplifier: ALC105 DDI to VGA transmitter: RTD2168-CG EDP to LVDS: RTD2136R Super IO: IT8786 (ITE)
Main Memory	2x 260 pins socket support DDR4 2133 SO-DIMM , up to 32GB
SATA	3x SATAIII 6Gb/s connector 1x Full Size MiniPCIE, Support mSATA
Ethernet	2x Realtek RTL8111H 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability
Sound Codec	Realtek ALC662+ALC105
Expansion Slots	1x PCI-E x16 Slot 1x mini PCI-E slot half size, support PCIe + USB interface
Graphic	Intel® Integrated Graphics
Rear I/O	1x PS/2 - Keyboard Port 1x PS/2 - Mouse Port 1x DB9 connector 1x HDMI connector (4096 x 2160@24Hz) 1x VGA connector 1x DVI connector (1920 x 1200 @60Hz max) 2x LAN Port 2x USB3.1(Gen1) connector 2x USB2.0 connector 3x Audio jacks, support Line In/Line out/Mic
On Board Connectors & Headers	Expansion slots: 2x 260 pins socket support DDR4 2133 SO-DIMM 3x 1* 7 pins SATA connector 1x Half size miniPCIE slot for PCIe+USB 1x Full size connector, support mSATA Display: 1x 2* 20 pins(1.0) - header for LVDS colay with eDP 1x 1* 3 pins - header for backlight mode select (18/24bits) 1x 1* 3 pins(2.0) header for LCD panel power (3.3/5V) 1x 1* 3 pins(2.0) header for LCD backlight power (5V/12V) 1x 1* 6 pins header for LED driver 1x 2* 8 pins VGA header Speaker: 2x 1* 2 pins(2.0) pitch wafer box pin-header for Speaker 1x Buzzer Serial Ports: 5x 2* 3 pins header for 5V/12V/RI, default RI 5x 2* 5 pins 2.0 pitch pin header for RS232 1x 2* 3 pins 2.0 pitch pin header for COM1 RS232/422/485 change mode Jumper 1x 2* 6 pins 2.0 pitch pin header for COM1 RS232/422/485 change single Jumper USB: 1x 2* 5 pins(2.0) USB2.0 header 1x 2* 10 pins USB3.0 header 1x 1* 4 pins USB2.0 header for Touch Power: 1x 2* 10 pins ATX power connector 1x 2* 2 pins ATX power connector 2x 1* 4 pins(2.0) header for 5V/12V output (HDD Power) for open frame PSU 1x 1* 3 pins header for AT/ATX power select jumper

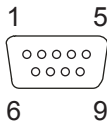
» Continued on Next Page

Specifications	
On Board Connectors & Headers	Fan: 2x 1* 4pins(2.54) header for CPU/System fan (Smart Fan) Others: 1x 2* 7pins header for TPM module 1x 2* 5pins (2.0) DIO header (by BIOS setting) 1x 1* 3pins(2.0) header clear CMOS 1x 2* 5pins header for power button, Reset button, HDD Led, power LED, Reset LED
Dimensions	Mini-ITX Form Factor, 170 mm (W) x 170 mm (L)
Operation Temperature	0°C ~ 60°C
Storage Temperature	-10°C ~ 70°C
Relative Humidity	5% ~ 90% (non-condensing)
ESD	Contact with 4Kv, Air with 8Kv, Class A
Watchdog Timer	Yes (65536 segments), Reset; 1 sec.~255 min. and 1 sec. or 1 min. /step
RoHS Compliant	Yes
OS Support	Windows 7, Windows 8.1, Windows 10 We reserve the right to add or remove support for any OS with or without notice.

1.3 Rear Panel Connectors



COM1: Serial port Connectors (RS-232/RS422/RS485)

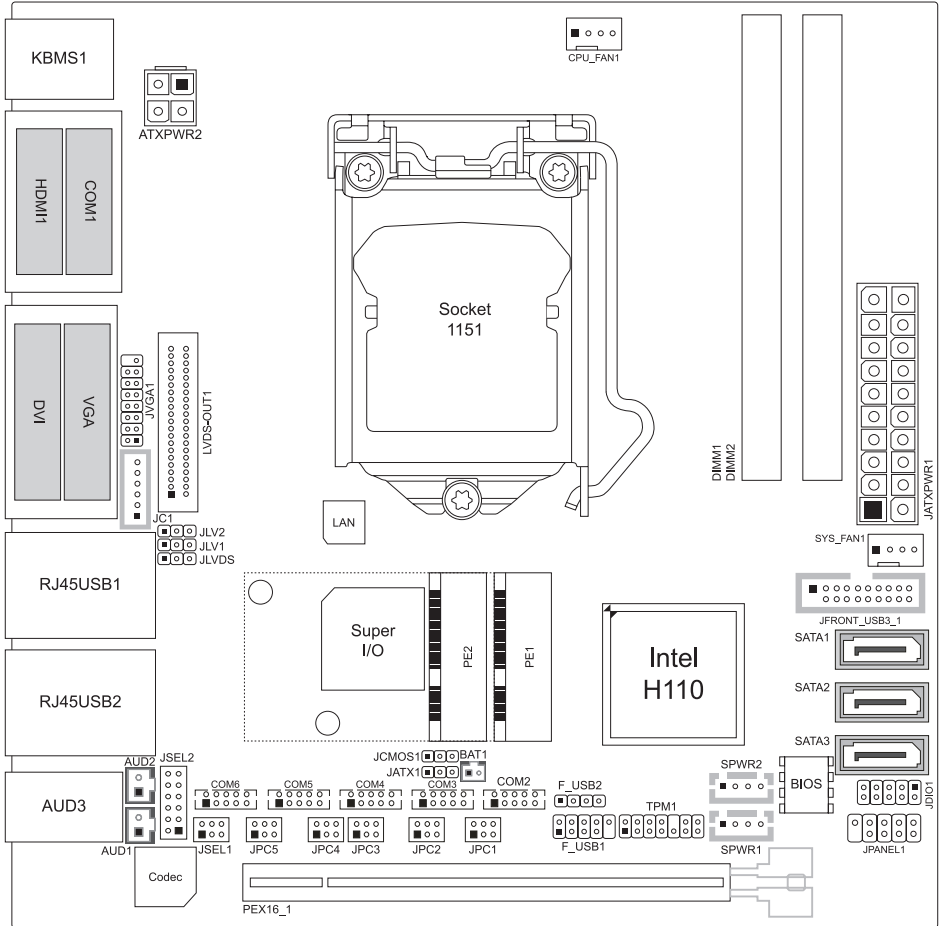


RS-232 (Default)		RS-422*	RS-485*
Pin	Assignment		
1	Carrier detect (DCD)	422 TXD-	485 DATA-
2	Received data (RXD)	422 TXD+	485 DATA+
3	Transmitted data (TXD)	422 RXD+	NC
4	Data terminal ready (DTR)	422 RXD-	NC
5	Signal ground (GND)	GND	GND
6	Data set ready (DSR)	NC	NC
7	Request to send (RTS)	NC	NC
8	Clear to send (CTS)	NC	NC
9	*RI, 5V, 12V selected by (selected by JP1 setting)	NC	NC

Note

» COM1 (RS-232/422/485) & COM2 (RS-232) selection is controlled by JSEL1/ JSEL2.

1.4 Motherboard Layout



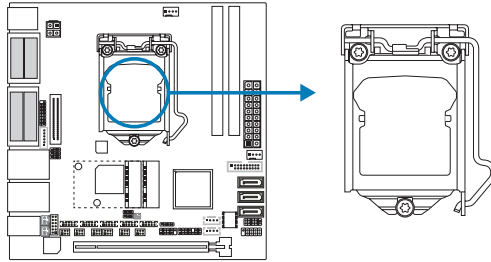
Note

» ■ represents the 1st pin.

Chapter 2: Hardware installation

2.1 Central Processing Unit (CPU)

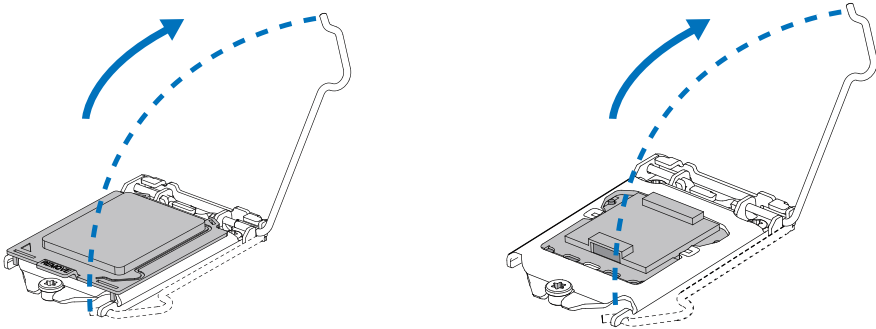
Step 1: Locate the CPU socket on the motherboard



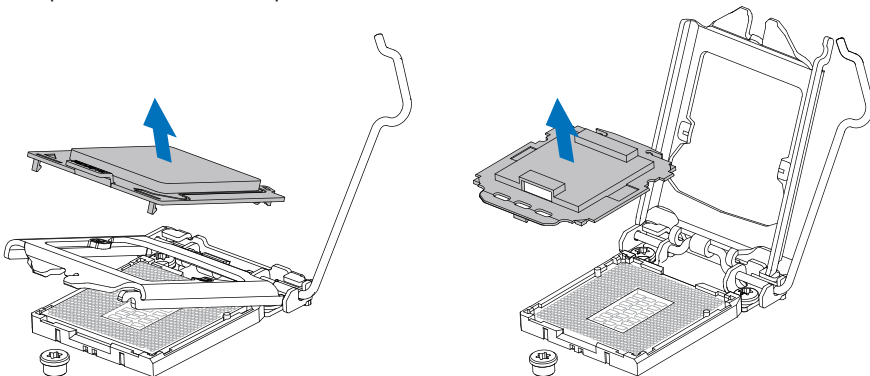
Note

- » 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.

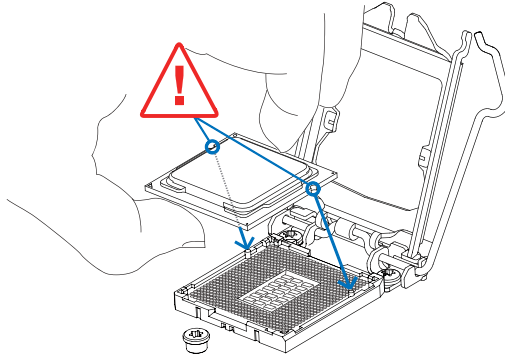
Step 2: Pull the socket locking lever out from the socket and then raise the lever up.



Step 3: Remove the Pin Cap.



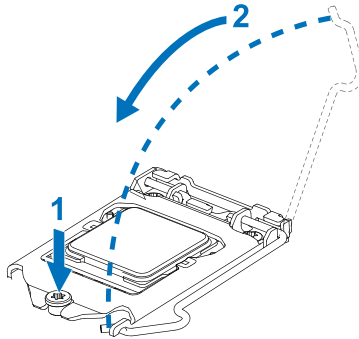
Step 4: Hold processor with your thumb and index fingers, oriented as shown. Align the notches with the socket. Lower the processor straight down without tilting or sliding the processor in the socket.



Note

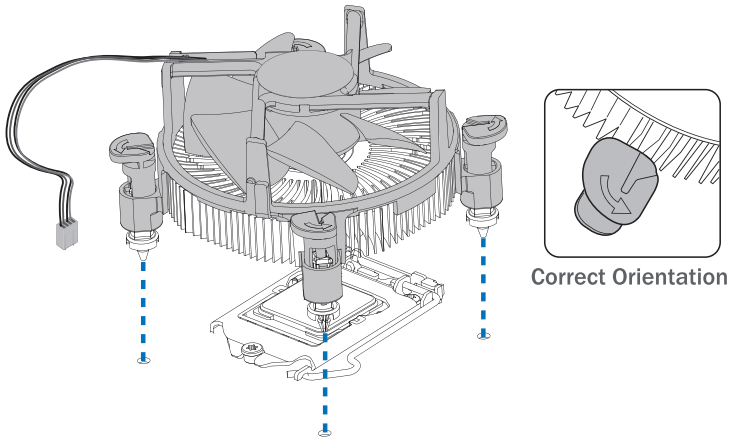
- » Ensure that you install the correct CPU designed for LGA1151 socket.
- » The CPU fits only in one correct orientation. Do not force the CPU into the socket to prevent damaging the CPU.

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

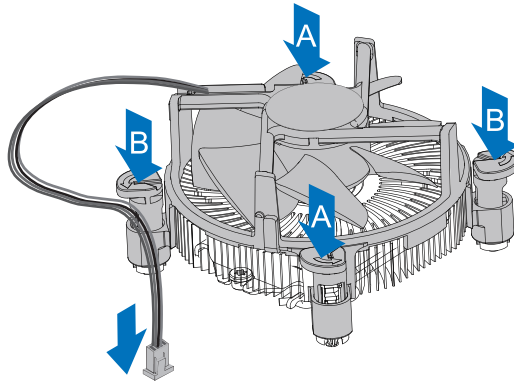


2.2 Install a Heatsink

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. Ensure that all four fasteners are secured.



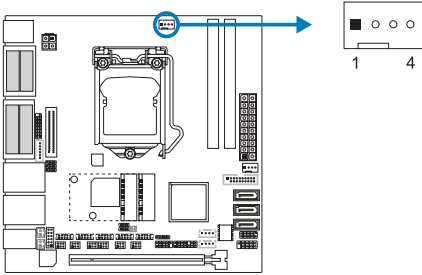
Note

- » 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

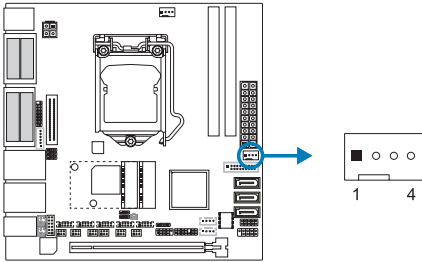
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU fan header



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

SYS_FAN1: System fan header



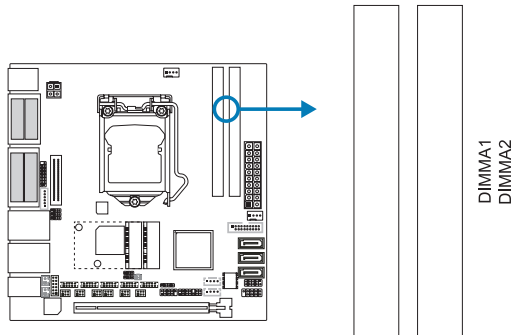
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control (By Fan)

Note

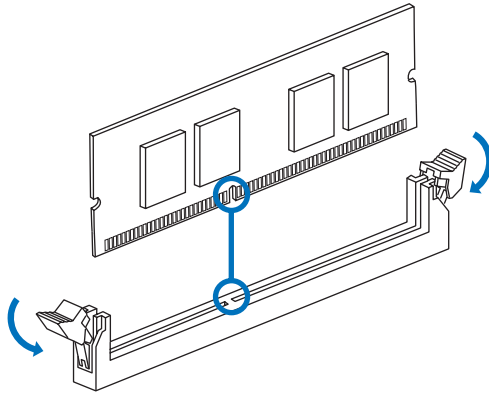
» System Fan Headers support 4-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

2.4 Installing System Memory

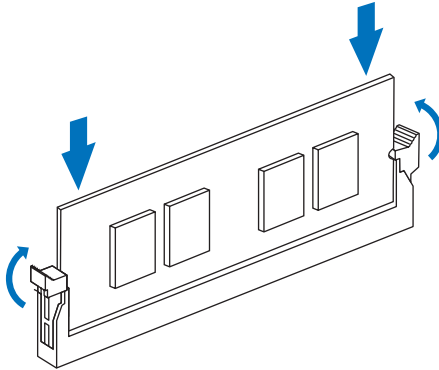
DDR4 Modules



Step 1: 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.



Step 2: Insert the DIMM vertically and firmly into the slot until the retaining clips 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.

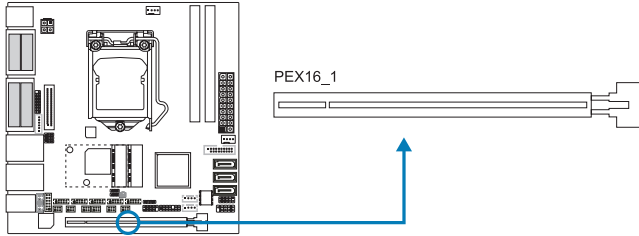
Memory Capacity

DIMM Socket Location	DDR4 Module	Total Memory Size
DIMMA1	4GB/8GB/16GB	Max is 32GB.
DIMMA2	4GB/8GB/16GB	

Note

» When installing more than one memory module, we recommend to use the same brand and capacity memory on this motherboard.

2.5 Expansion Slots



PEX16_1: PCI-Express x16 Slot (x16 speed)

- PCI-Express 3.0 compliant.
- Theoretical maximum bandwidth using two slots simultaneously is 16GB/s for each slot, a total of 32GB/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

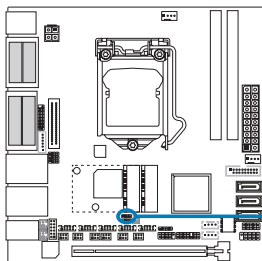


Pin 1-2 closed



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 2-3 Close: Clear CMOS data

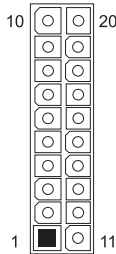
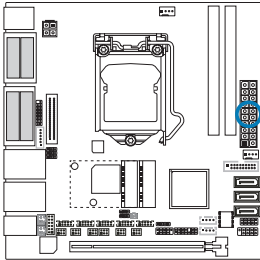
Clear CMOS Procedures:

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.

2.7 Headers & Connectors

JATXPWR1: ATX Power Source Connector

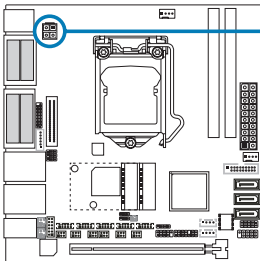
For better compatibility, we recommend to use a standard ATX 20-pin power supply for this connector. Make sure to find the correct orientation before plugging the connector.



Pin	Assignment	Pin	Assignment
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	5V	14	PS_ON
5	Ground	15	Ground
6	5V	16	Ground
7	Ground	17	Ground
8	PW_OK	18	-5V
9	5VSB	19	5V
10	12V	20	5V

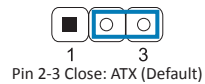
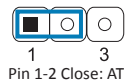
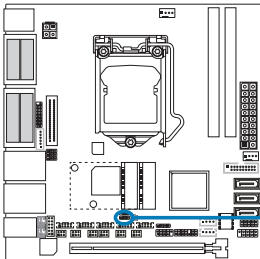
DC2: ATX Power Source Connector

The connector provides +12V to the CPU power circuit.



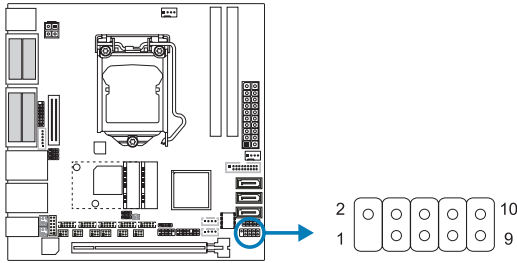
Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

JATX1: AT/ATX Power Switch Header



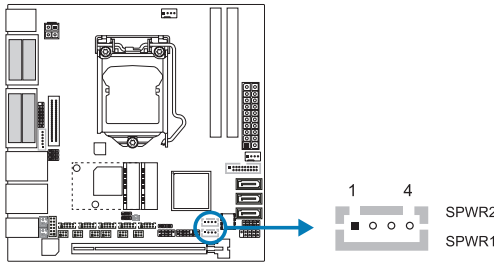
JPANEL1: Front Panel Header

This connector includes Power-on, Reset, HDD LED and Power LED connections. It allows user to connect the PC case's front panel switch functions.



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

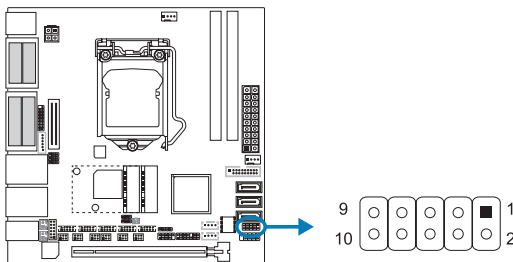
SPWR1/2: HDD Power Connector



Pin	Assignment
1	+5V
2	Ground
3	Ground
4	12V

JDIO1: Digital I/O Connector

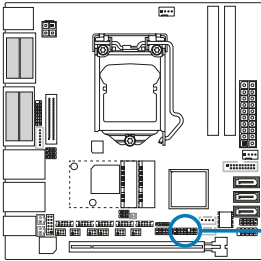
This connector offers digital I/O functions and address is set in BIOS.



Pin	Assignment
1	VCC3_3
2	DI01
3	DO01
4	DI02
5	DO02
6	DI03
7	DO03
8	DI04
9	DO04
10	Ground

TPM1: Trusted Platform Module Header (SLB9665)

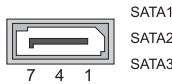
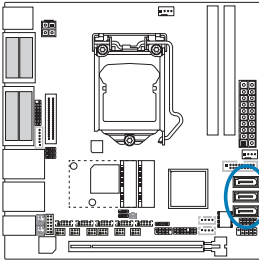
This header allows you to store cryptographic keys that protect information.



Pin	Assignment	Pin	Assignment
1	LAD0	2	VCC3_3
3	LAD1	4	VCC3_3
5	LAD2	6	PCLK_TPM
7	LAD3	8	Ground
9	L_FRAME_N	10	NA
11	SER_IRQ	12	TPM_RST
13	CLK_RUN#	14	+3V3_DUAL

SATA1/2/3: Serial ATA 3.0 Gb/s Connectors (1*7 Pin)

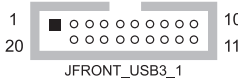
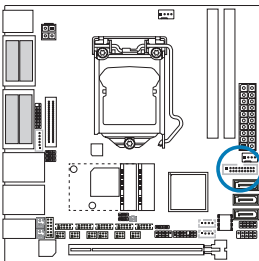
The connector supports the thin Serial ATA cable for primary internal storage devices.



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

JFRONT_USB3_1: Header for USB 3.1(Gen1) Ports at Front Panel

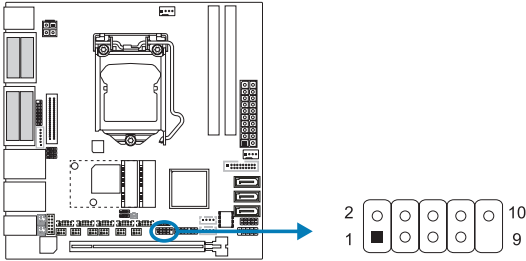
This header allows user to add additional USB ports on the PC front panel, and also can be connected with a wide range of external peripherals.



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

F_USB1: Header for USB 2.0 Header

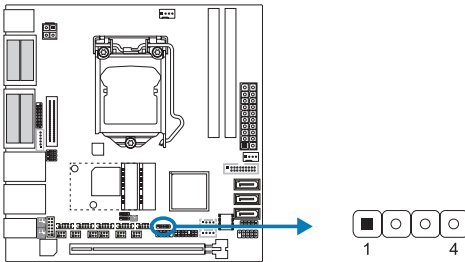
The mainboard provides USB 2.0 pin header. Each header allows you to connect 2 additional USB 2.0 ports.



Pin	Assignment	Pin	Assignment
1	Power	2	Power
3	USB1 -	4	USB2 -
5	USB1 +	6	USB2 +
7	Ground	8	Ground
9	X	10	NC

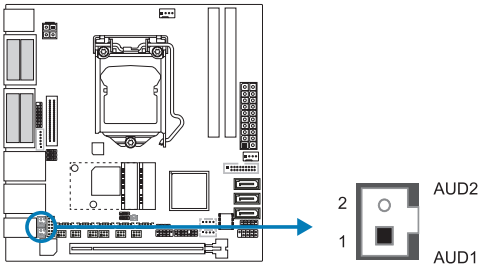
F_USB2: Header for USB 2.0 Header

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	USB -
3	USB +
4	Ground

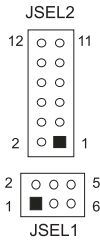
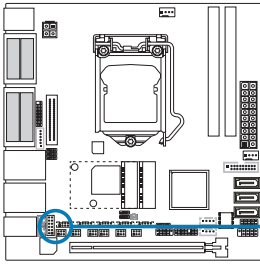
AUD1/2: Audio Connector



Pin	Assignment
1	SPKRP/SPKLP
2	SPKRN/SPKLN

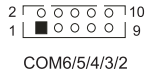
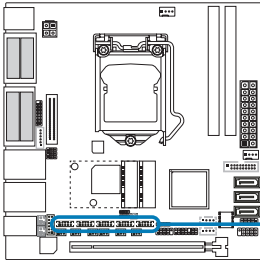
JSEL1/JSEL2: RS-232/422/485 Switch Headers for COM1

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



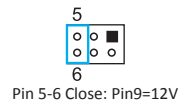
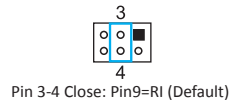
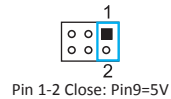
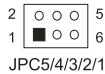
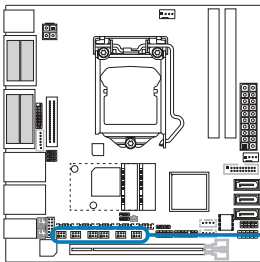
JSEL1(JCOM1)		
1-2 (Default)	RS-232	
3-4	RS-422	
5-6	RS-485	
JSEL2(JCOM1)		
RS-232	RS-422	RS-485
1-3 (Default)	3-5	3-5
2-4 (Default)	4-6	4-6
7-9 (Default)	9-11	9-11
8-10 (Default)	10-12	10-12

COM2/3/4/5/6: Serial Port Headers



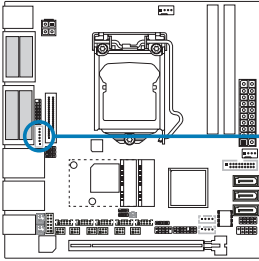
Pin	Assignment	Pin	Assignment
1	DCD	2	SIN
3	SOUT	4	DTR
5	Ground	6	DSR
7	RTS	8	CTS
9	RI	10	NC

JPC1/2/3/4/5: Serial Port Voltage Switch Jumper for JCOM2/3/4/5/6



JC1: LCD Backlight Inverter Connector

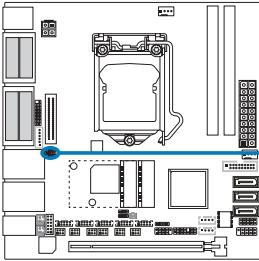
This connector is for connecting to LCD for providing backlight control function.



Pin	Assignment
1	BL_POWER
2	BL_POWER
3	BL_EN
4	BL_CTL
5	Ground
6	Ground

JLV1: LCD Panel Power Select Jumper

This jumper is for selecting LCD Power.



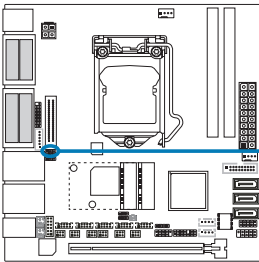
Pin 1-2 Close: 3.3V (Default)



Pin 2-3 Close: 5V

JLV2: LCD Backlight Inverter Power Select Jumper

This jumper is for selecting LCD Backlight Inverter Power.

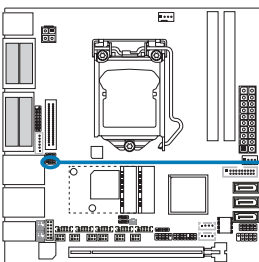


Pin 1-2 Close: Inverter Power=5V



Pin 2-3 Close: Inverter Power=12V (Default)

JLVDS: LVDS for Backlight Mode Select Header



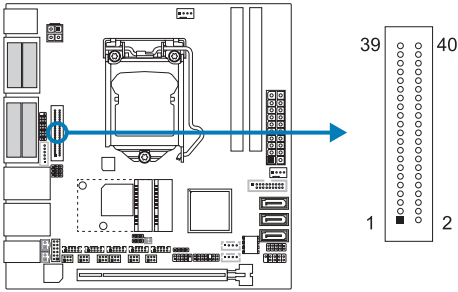
Pin 1-2 Close: 3.3V



Pin 2-3 Close: GND (Default)

LVDS-OUT1: LVDS Connector

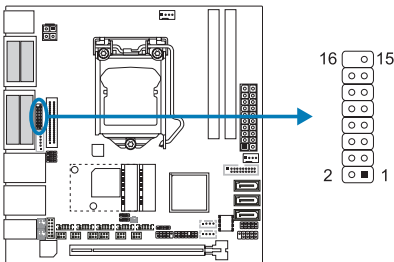
This connector supports 18/24 bit single-channel panels.



Pin	Assignment	Pin	Assignment
2	PVDD2, 3.3V*/5V (selected by JLV1)	1	LVDSB_DATA0_N
4	PVDD2, 3.3V*/5V (selected by JLV1)	3	LVDSB_DATA0_P
6	Ground	5	Ground
8	Ground	7	LVDSB_DATA1_N
10	LVDSA_DATA0_N	9	LVDSB_DATA1_P
12	LVDSA_DATA0_P	11	Ground
14	Ground	13	LVDSB_DATA2_N
16	LVDSA_DATA1_N	15	LVDSB_DATA2_P
18	LVDSA_DATA1_P	17	Ground
20	Ground	19	LVDSB_CLK_N
22	LVDSA_DATA2_N	21	LVDSB_CLK_P
24	LVDSA_DATA2_P	23	Ground
26	Ground	25	LVDSB_DATA3_N
28	LVDSA_CLK_N	27	LVDSB_DATA3_P
30	LVDSA_CLK_P	29	VCC5
32	Ground	31	LVDSA_EDID_SCL
34	LVDSA_DATA3_N	33	VCC3_3
36	LVDSA_DATA3_P	35	SEL88
38	Ground	37	PVDD2
40	LVDS_EDID_SDA	39	PVDD2

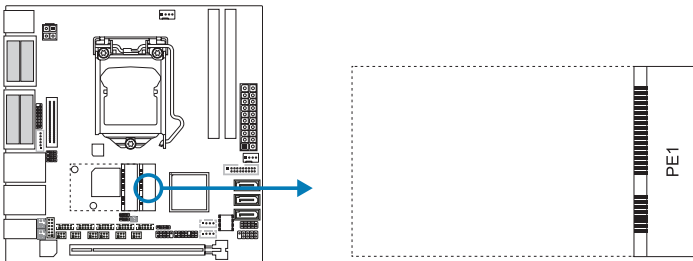
JVGA1: VGA Connector

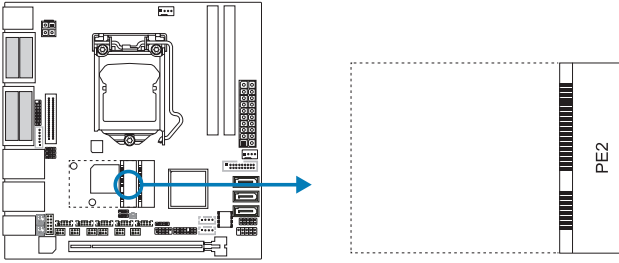
This signal of internal VGA header shares with IO VGA connector. When it is in use, you can not use the IO VGA connector.



Pin	Assignment	Pin	Assignment
2	5V	1	RED
4	Ground	3	GREEN
6	NC	5	NC
8	DDA	7	NC
10	HSYNC	9	Ground
12	VSYSNC	11	Ground
14	DDCLK	13	Ground
16	NC	15	Ground

PE1: mSATA Slot



PE2: mSATA Slot

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 latest CPU.

Using Setup

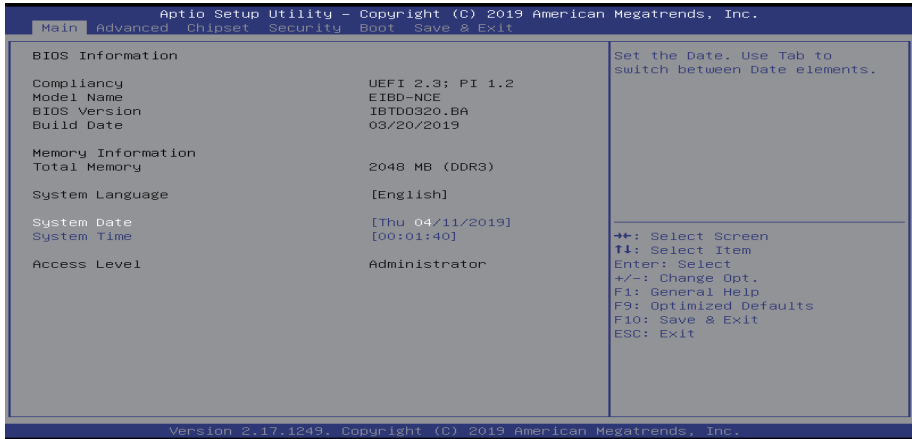
When starting up the computer, press during the Power-On Self-Test (POST) to enter the UEFI BIOS setup utility. In the UEFI BIOS setup utility, you will see General Help description at the top right corner, and this is providing a brief description of the selected item. Navigation Keys for that particular 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.

Total Memory

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

System Language

Choose the system default language.

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

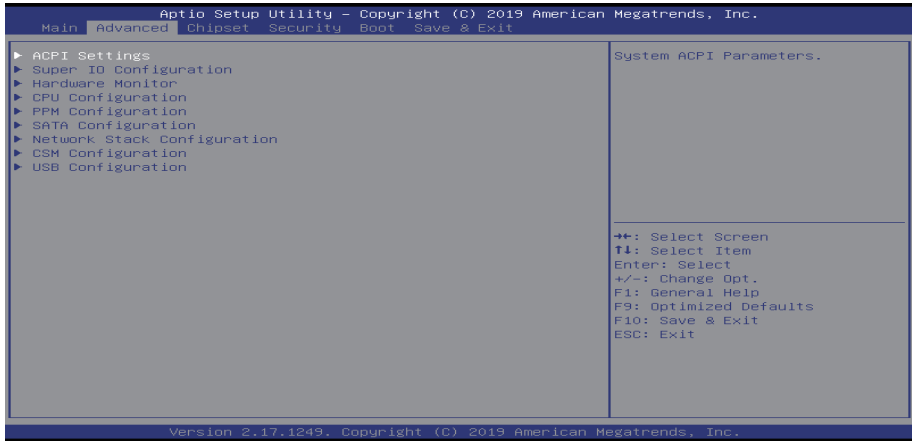
Shows the access level of current user.

3.2 Advanced Menu

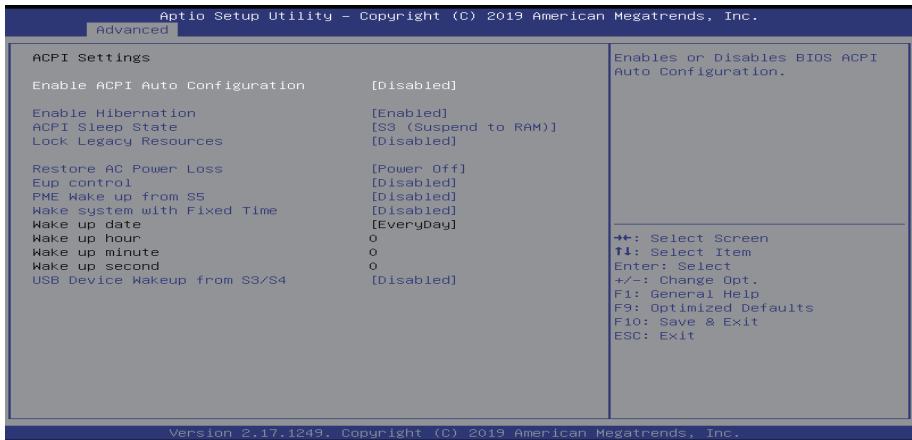
The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

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.



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 allows you to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: S3 (Suspend to RAM) (Default) / Suspend Disabled

Lock Legacy Resources

The item enables or disables Lock of Legacy Resources.

Options: Disabled (Default) / Enabled

Restore AC Power Loss

The item specify what state to go to when power is re-applied after a power failure.

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

Eup control

The item allows you to configure the Erp control.

Options: Disabled (Default) / Enabled

PME Wake up from S5

The item enables the system to wake from S5 using PME 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.

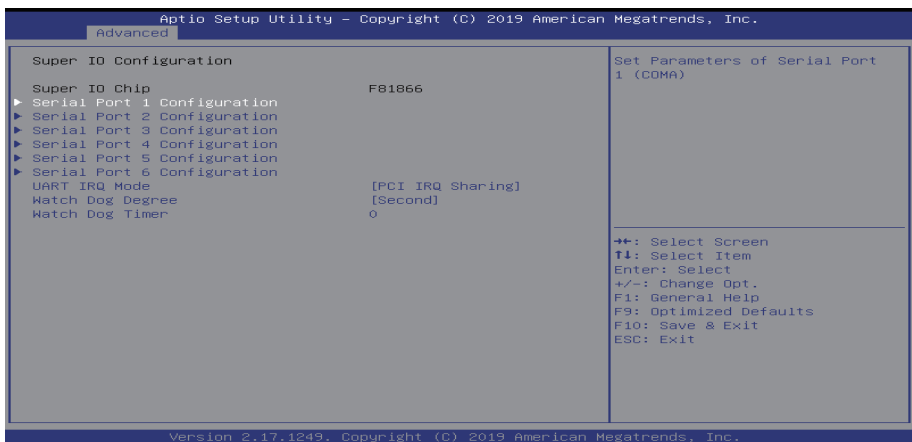
Wake up hour / Wake up minute / Wake up second

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

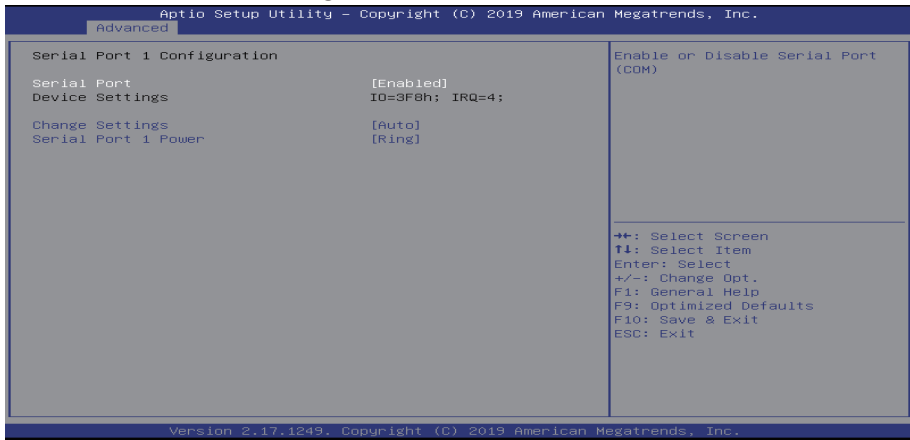
USB Device Wakeup from S3/S4

This item enables or disables the USB Device Wakeup from S3/S4.

Options: Disabled (Default) / Enabled

Super IO Configuration

Serial Port 1/ 2/ 3/ 4/ 5/ 6 Configuration



Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item allows you to select 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/ 2/ 3/ 4 Power (only for serial port 1/ 2 / 3/ 4 Configuration)

This item select Serial port power is Ring or 5V or 12V.

Options: Ring (Default) / 5V / 12V

UART IRQ Mode

This item PCI IRQ Sharing for OS (EX. Windows) ISA IRQ for DOS.

Options: PCI IRQ Sharing (Default) / ISA IRQ

Watch Dog Degree

This item allows you to select Watch Dog defree is minute or second.

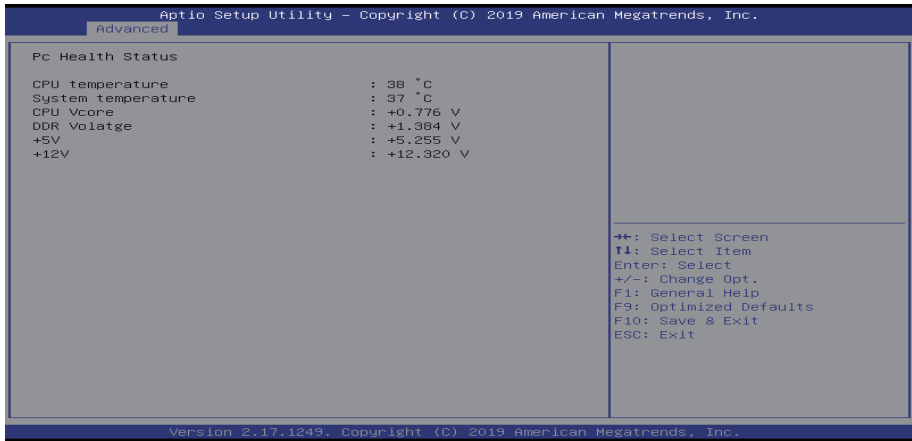
Options: Second (Default) / Minute

Watch Dog Timer

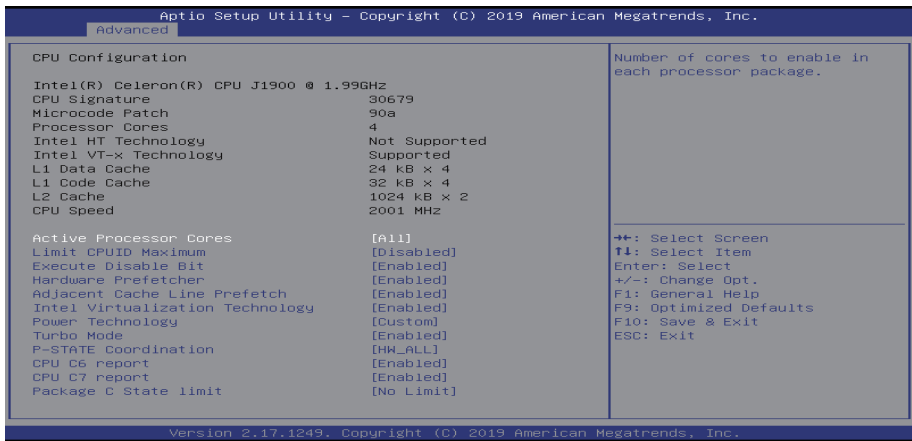
This item allows you to set 0 will disabled Minimu 1 Maximum 255.

Options: 0 (Default)

H/W Monitor



CPU Configuration



Active Processor Cores

This item enables or disables number of cores to enable in each processor package.

Options: All (Default) / 1

Limit CPUID Maximum

This item enables or disables Windows XP.

Options: Disabled (Default) / Enabled

Execute Disable Bit

This item can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS.

Options: Enabled (Default) / Disabled

Hardware Prefetcher

This item enables or disables the Mid Level Cache (L2) streamer prefetcher.

Options: Enabled (Default) / Disabled

Adjacent Cache Line Prefetch

This item enables or disables the Mid Level Cache (L2) streamer prefetcher.

Options: Enabled (Default) / Disabled

Intel Virtualization Technology

This item enables or disables Intel Virtualization Technology. When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Options: Enabled (Default) / Disabled

Power Technology

This item allows you to enable the power management features.

Options: Custom (Default) / Disabled / Energy Efficient

Turbo Mode

This item enables or disables Turbo Mode.

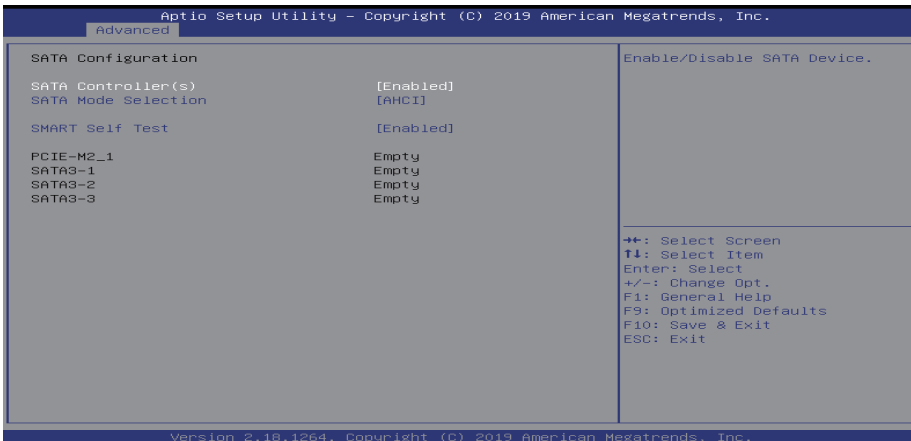
Options: Enabled (Default) / Disabled

P-STATE Coordination

This item Change P-STATE Coordination type.

Options: Enabled (Default) / Disabled

SATA Configuration



SATA Controller(s)

This item enables or disables SATA Device.

Options: Enabled (Default) / Disabled

SATA Mode Selection

This item allows you to determines how SATA controller(s) operate. This PCH SKU dosen’t support RST feature.

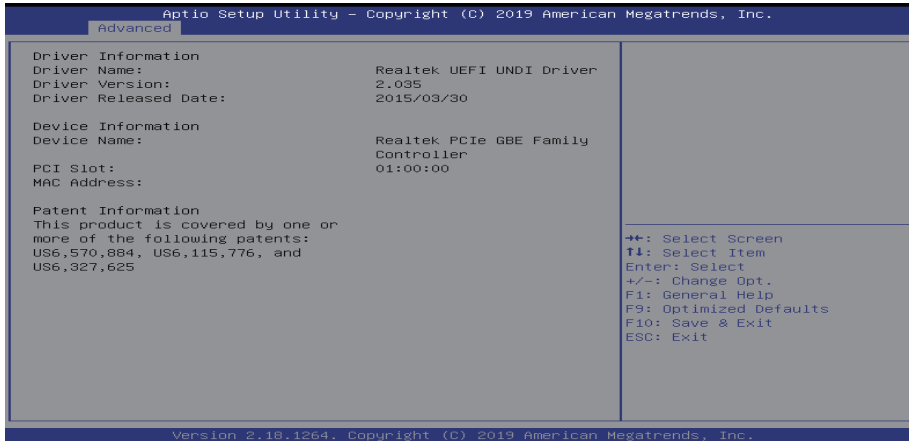
Options: AHCI (Default)

SMART Self Test

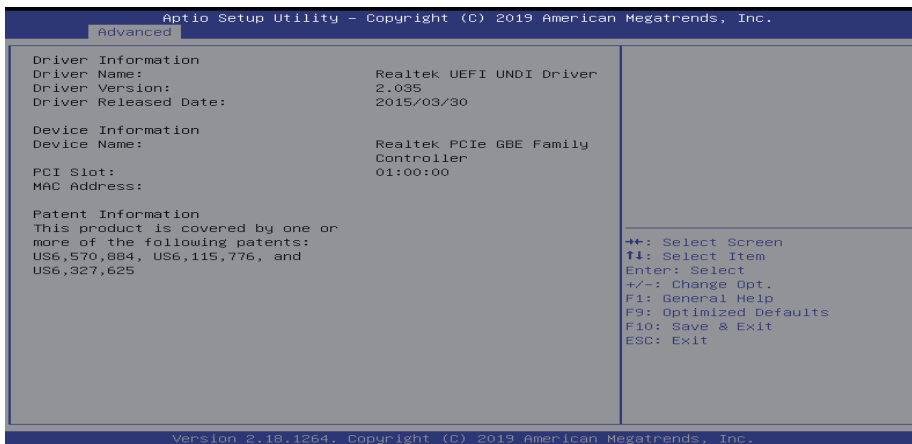
This item run SMART Self test on all HDDs during post.

Options: Enabled (Default) / Disabled

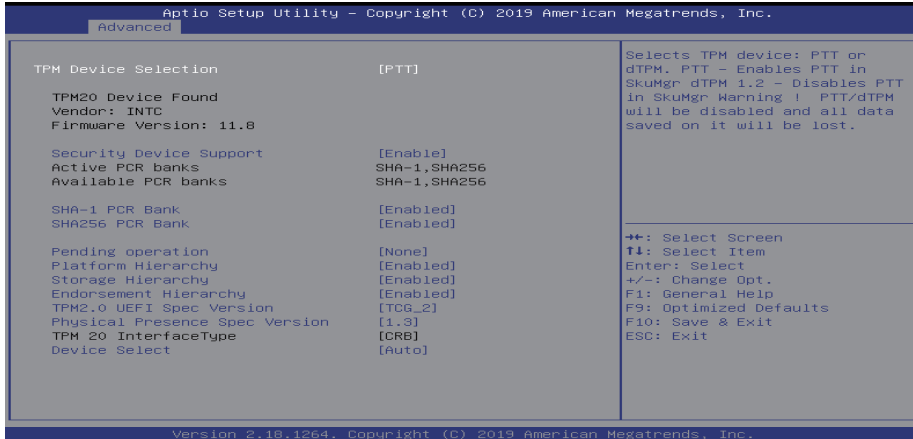
Realtek PCIe GBE Family Controller



Realtek PCIe GBE Family Controller



Trusted Computing



TPM Device Selection

This item allows you to select TPM device: PTT or dTPM. PTT - Enables PTT in SkuMgr dTPM 1.2 - Disables PTT in SkuMgr Warning! PTT / dTPM will be disabled and all data saved on it will be lost.

Options: PTT (Default) / dTPM

Security Device Support

This item enables or disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Options: Enable (Default) / Disable

SHA-1 PCR Bank

This item enables or disables SHA-1 PCR Bank.

Options: Enable (Default) / Disable

SHA256 PCR Bank

This item enables or disables SHA256 PCR Bank.

Options: Enable (Default) / Disable

Pending operation

This item schedule an operation for the security device. Note: your computer will reboot during restart in order to change state of security device.

Options: None (Default) / TPM Clear

Platform Hierarchy

This item enables or disables Platform Hierarchy.

Options: Enable (Default) / Disable

Storage Hierarchy

This item enables or disables Storage Hierarchy.

Options: Enable (Default) / Disable

Endorsement Hierarchy

This item enables or disables Endorsement Hierarchy.

Options: Enable (Default) / Disable

TPM2.0 UEFI Spec Version

This item select the TCG2 Spec version support. TCG_1_2: the Compatible mode for Win8/ Win10 ; TCG_2: Support new TCG2 protocol and event format for Win10 or later.

Options: TCG_2 (Default) / TCG_1_2

Physical Presence Spec Version

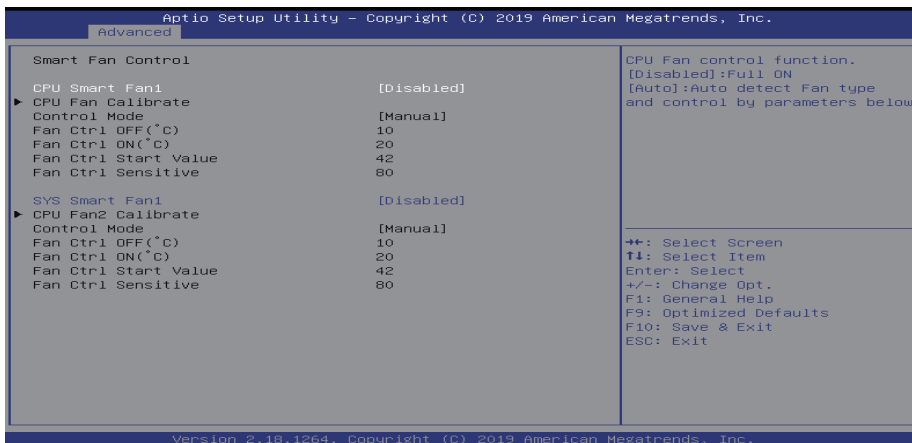
This item select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.

Options: 1.3 (Default) / 1.2

Device Select

This item TPM 1.2 will restrict support to TPM 1.2 devices, TPM2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM2.0 devices if not found, TPM 1.2 devices will be enumerated.

Options: Auto (Default) / TPM 1.2 / TPM 2.0

Smart Fan Control**CPU Smart FAN1 & System Smart FAN1**

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

Options: Disabled (Default) / Auto

» *Note: The following items appear only when you set the Smart Fan function to [Auto]*

CPU Fan Calibrate

Press [ENTER] to calibrate CPU Fan speed.

Control Mode

This item provides several operation modes of the fan.

Options: Manual / Quiet / Aggressive

Fan Ctrl OFF(°C)

When CPU temperature is lower than this value, the CPU fan will keep lowest RPM.

Options: 10 (°C) (default)

Fan Ctrl On(°C)

When CPU temperature is higher than this value, the CPU fan controller will turn on.

Options: 20 (°C) (Default)

Fan Ctrl Start Value

This item sets CPU FAN Start Speed Value.

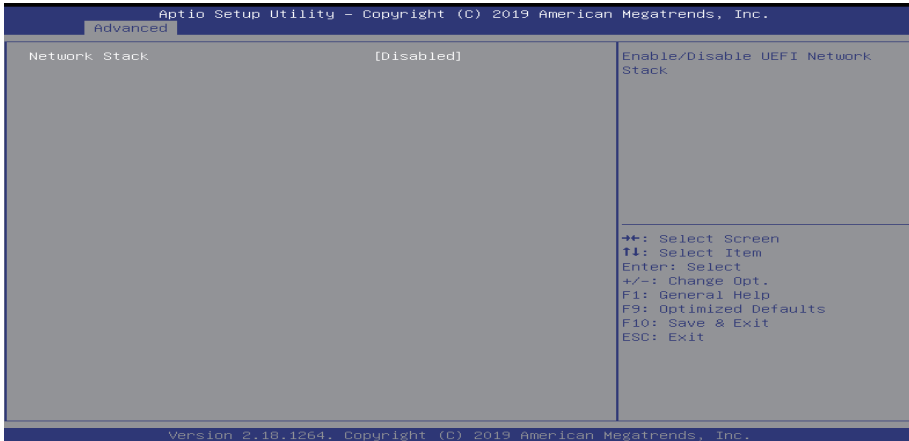
Options: 42 (Default)

Fan Ctrl Sensitive

The numeral is bigger, the Fan speed is higher.

Options: 80 (Default)

Network Stack Configuration



Network Stack

This item enables or disables UEFI network stack

Options: Disabled (Default) / Enabled

» *Note: The following items appear only when you set the Network Stack to [Enabled]*

IPv4 PXE Support

This item enables or disables IPv4 PXE Boot Support. If disabled, IPv4 PXE boot support will not be available.

Options: Disabled (Default) / Enabled

IPv4 HTTP Support

This item enables or disables IPv4 HTTP Boot Support. If disabled IPv4 HTTP boot support will not be available.

Options: Disabled (Default) / Enabled

IPv6 PXE Support

This item enables or disables IPv6 PXE Boot Support. If disabled IPv6 PXE boot support will not be available.

Options: Disabled (Default) / Enabled

IPv6 HTTP Support

This item enables or disables IPv6 HTTP Boot Support. If disabled IPv6 HTTP boot support will not be available.

Options: Disabled (Default) / Enabled

IP6 Configuration Policy

This item allows you to set IP6 Configuration Policy.

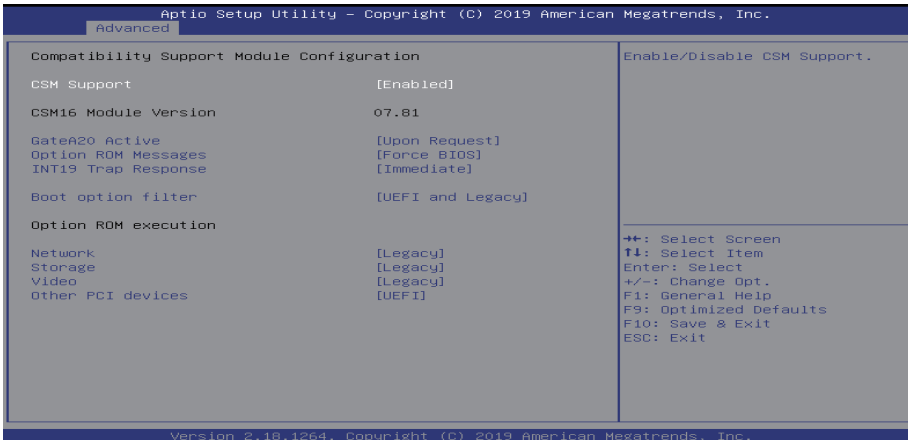
Options: Automatic (Default) / Manual

PXE boot wait time

Wait time to press ESC key to abort the PXE boot.

Media detect count

Number of times presence of media will be checked.

CSM Configuration**CSM Support**

This item enables or disables CSM Support

Options: Enabled (Default) / Disabled

GateA20 Active

Upon Request – FA20 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

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.

Options: Immediate (Default) / Postponed

Boot option filter

This option controls Legacy/UEFI ROMs priority.

Options: UEFI and Legacy (Default) / Legacy only / UEFI only

Network

This option controls the execution of UEFI and Legacy PXE OpROM

Options: Legacy (Default) / Do not launch / UEFI

Storage

This option controls the execution of UEFI and Legacy Storage OpROM

Options: Legacy (Default) / Do not launch / UEFI

Video

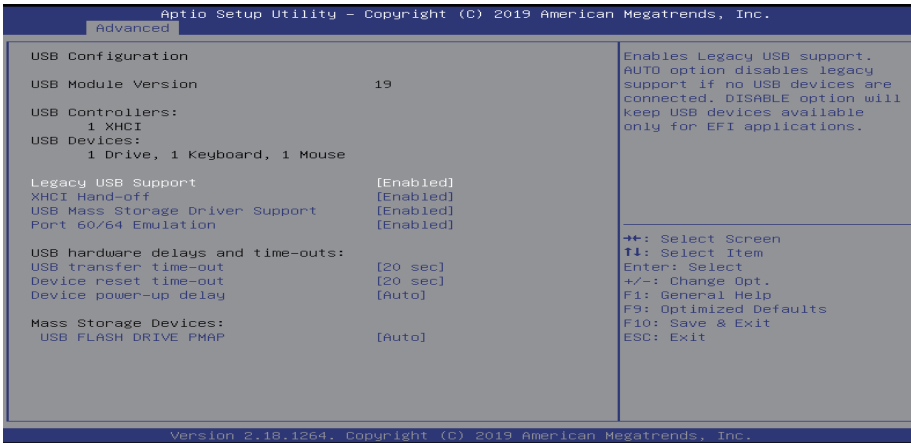
This option controls the execution of UEFI and Legacy Video OpROM

Options: Legacy (Default) / Do not launch / UEFI

Other PCI devices

For PCI devices other than Network, Mass storage or video defines which OpROM to launch.
Options: UEFI (Default) / Do not launch / Legacy

USB Configuration



Legacy USB Support

This item enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.
Options: Enabled (Default) / Disabled / Auto

XHCI Hand-Off

This is a workaround for Oses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
Options: Enabled (Default) / Disabled

USB Mass Storage Driver Support

The item allows you to enable or disable USB Mass Storage Driver Support.
Options: Enabled (Default) / Disabled

Port 60/64 Emulation

The 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

This item maximum time the device will take before it properly reports itself to the Host controller. “Auto” uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
Options: Auto (Default) / Manual

» *Note: The following items appear only when you set the Device power-up delay function to [Manual].*

Device power-up delay in seconds

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

Options: 5 (Default)

USB FLASH DRIVE PMAP

Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CD-ROM

3.3 Chipset Menu

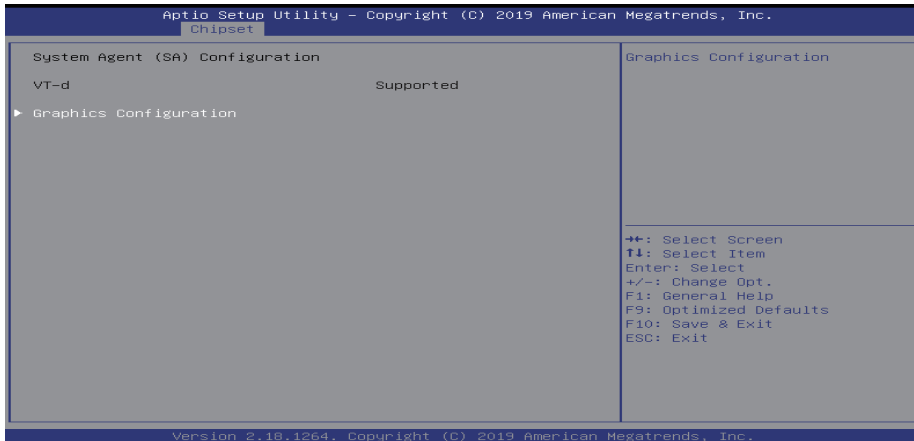
This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Note

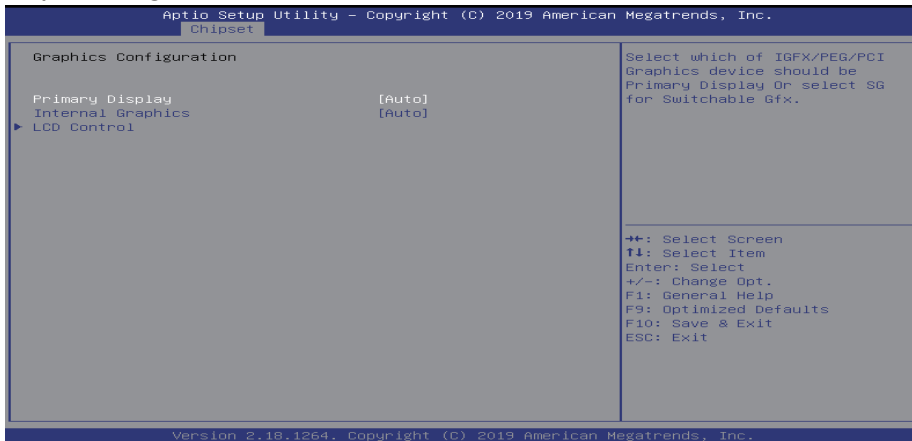
» Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



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.

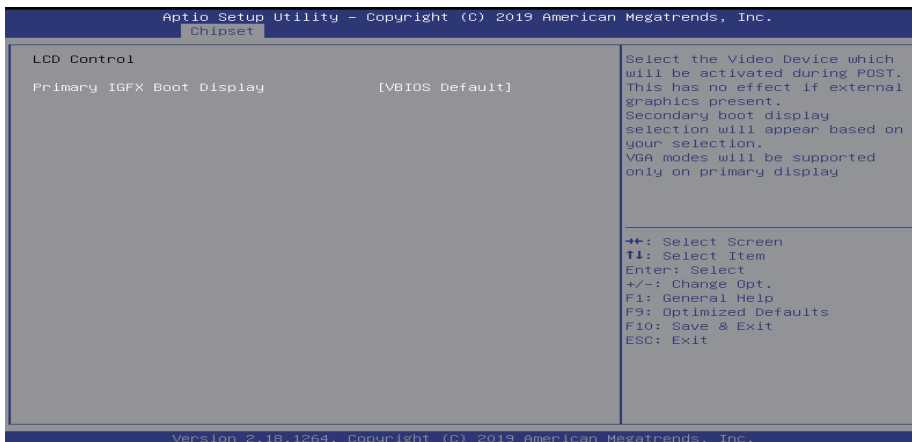
Options: Auto (Default) / IGFX / PEG / PCI / SG

Internal Graphics

This item keep IGFX enabled based on the setup options.

Options: Auto (Default) / Disabled / Enabled

LCD Control



Primary IGFX Boot Display

This item allows you to select the video device which will be activated during POST. This has no effect if external graphics present. Selection will appear based on your selection. VGA modes will be supported only on primary display.

Options: VBIOS (Default) / DVI / LFP/eDP / HDMI / VGA

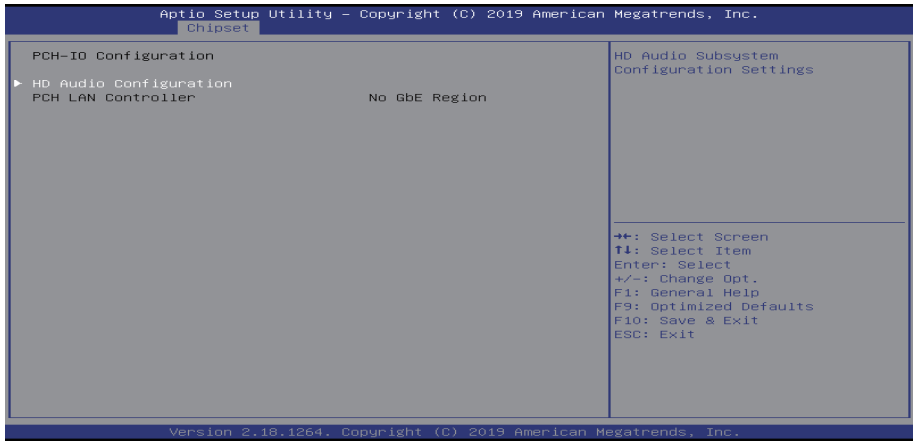
» *Note: The following items appear only when you set the Primary IFGX Boot Display function to [DVI]/[LFP/eDP]/[HDMI]/[VGA].*

Secondary IGFX Boot Display

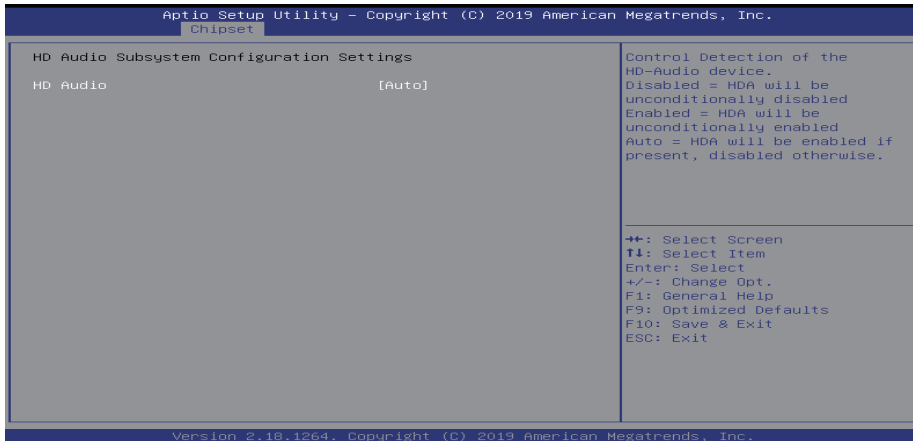
This item allows you to select Secondary Display device.

Options: Disabled (Default) / DVI / HDMI / VGA

PCH-IO Configuration



HD Audio Configuration

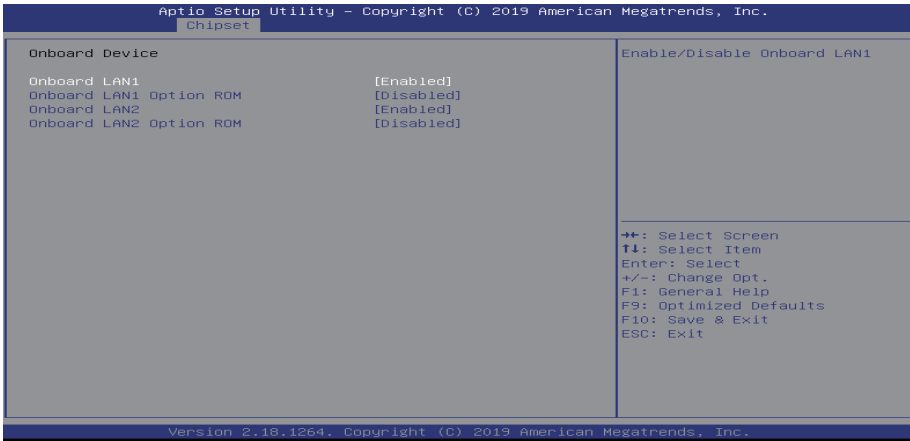


HD Audio

This item control detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled ; Enabled = HDA will be unconditionally enabled ; Auto = HDA will be enabled if present, disabled otherwise.

Options: Auto (Default) / Disabled / Enabled

Onboard Device



Onboard LAN1/2

This item enables or disables Onboard LAN1/2.

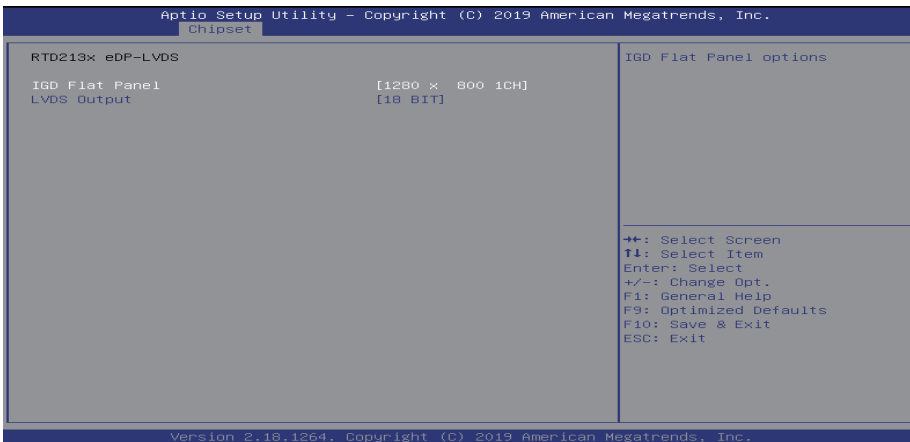
Options: Enabled (Default) / Disabled

Onboard LAN1/2 Option ROM

This item enables or disable Onboard LAN1/2 option ROM.

Options: Disabled (Default) / Enabled

RTD213x eDP-LVDS



IGD Flat Panel

This item allows you to set IGD Flat Panel options.

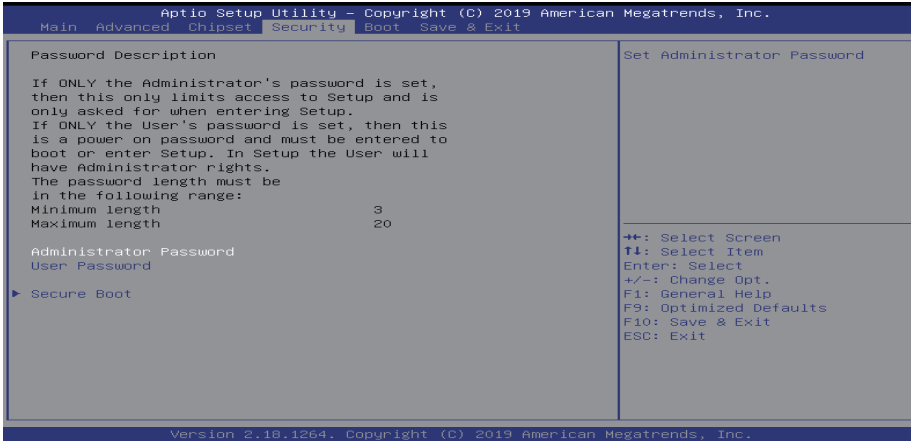
Options: 1280 x 800 1CH (Default) / 800 x 600 1CH / 1024 x 768 1CH / 1280 x 1024 2CH / 1366 x 768 1CH / 1440 x 900 2CH / 1600 x 900 2CH / 1600 x 1200 2CH / 1920 x 1080 2CH / 1920 x 1200 2CH

LVDS Output

This item allows you to select LVDS Output is 18 or 24 Bit.

Options: 18BIT (Default) / 24BIT

3.4 Security



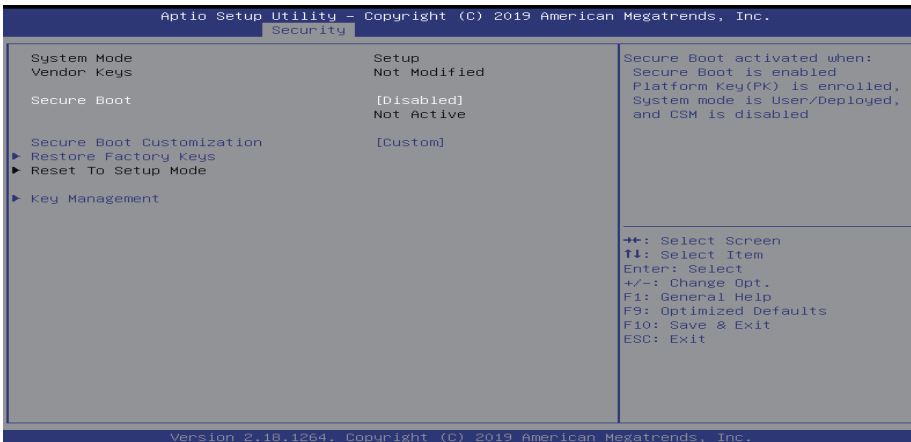
Administrator Password

This item sets Administrator Password.

User Password

This item sets User Password.

Secure Boot



Secure Boot

Secure Boot activated when: Secure Boot is enabled Platform Key (PK) is enrolled, System mode is User/Deployed, and CSM is disabled.

Options: Disable (Default) / Enabled

Secure Boot Customization

Customizable Secure Boot mode: In Custom mode Secure Boot Policy variables can be configured by a physically present user without full authentication.

Options: Custom (Default) / Standard

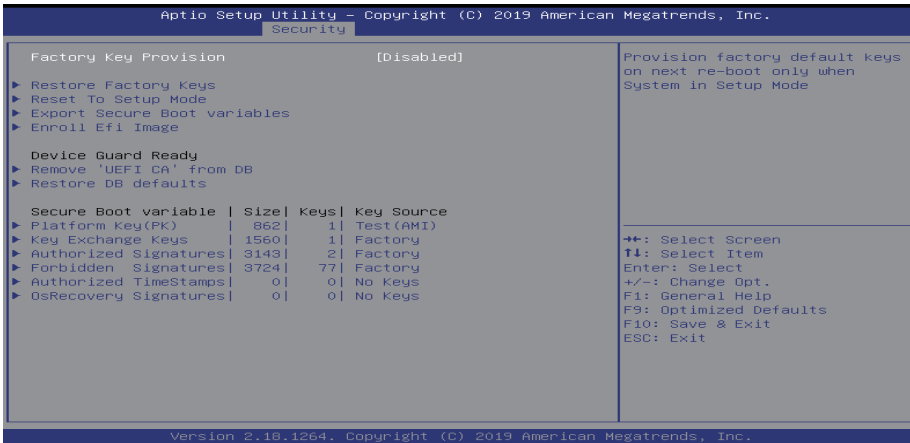
Restore Factory Keys

Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.

Restore To Setup Mode

Delete NVRAM content of all UEFI Secure Boot key databases.

Key Management



Factory Key Provision

This item Provision factory default keys on next re-boot only when System in Setup Mode.
Options: Disabled (Default) / Enabled

Restore Factory keys

This item Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.

Restore To Setup Mode

This item Delete NVRAM content of all UEFI Secure Boot key databases.

Export Secure Boot variables

It allows you to copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

Enroll Efi Image

It allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

Remove 'UEFI CA' from DB

This item device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db).

Restore DB defaults

This item restore DB variable to factory defaults.

Platform Key (PK)

Options: Details / Export / Update / Delete

Key Exchanges Keys

Options: Details / Export / Update / Append / Delete

Authorized Signatures

Options: Details / Export / Update / Append / Delete

Forbidden Signatures

Options: Details / Export / Update / Append / Delete

Authorized TimeStamps

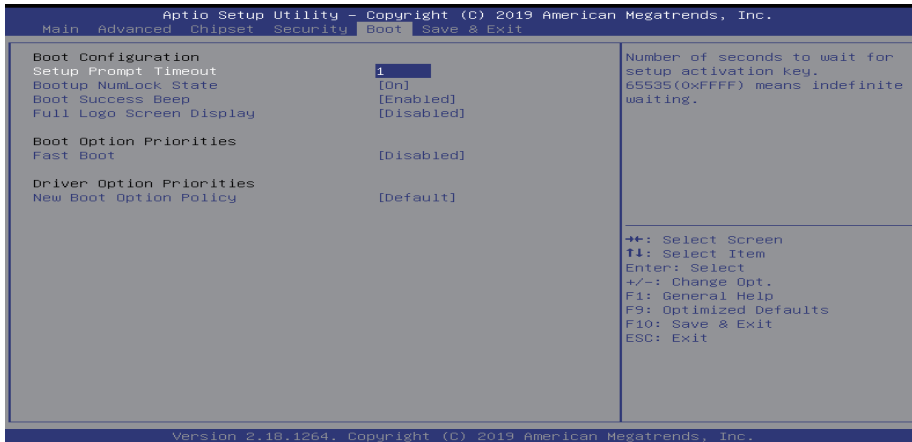
Options: Details / Export / Update / Append / Delete

OsRecovery Signatures

Options: Update / Append

3.5 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: 1 (Default)

Bootup NumLock State

This item selects the keyboard NumLock state.

Options: On (Default) / Off

Boot Success Beep

This item BIOS boot post beep message.

Options: Enabled (Default) / Disabled

Full Logo Screen Display

This item enables or disables Quiet Boot option.

Options: Disabled (Default) / Enabled

Fast Boot

This item enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Options: Disabled (Default) / Enabled

SATA Support

If Last Boot HDD Only, Only last boot HDD device will be available in post. If all SATA devices, all SATA devices will be available in OS and post.

Options: All Sata Devices (Default) / Last Boot HDD Only

VGA Support

If Auto, only install Legacy OpRom with Legacy OS and logo would NOT be shown during post. EFI driver will still be installed with EFI OS.

Options: EFI Driver (Default) / Auto

USB Support

If Disabled, all USB devices will NOT be available until after OS boot. If Partial Initial, USB Mass Storage and specific USB port/device will NOT be available before OS boot. If Enabled, all USB devices will be available in OS and Post.

Options: Partial Initial (Default) / Disabled / Full Initial

PS2 Devices Support

If Disabled, PS2 devices will be skipped.

Options: Enabled (Default) / Disabled

Network Stack Driver Support

If Disabled, Network Stack Drivers will be skipped.

Options: Disabled (Default) / Enabled

Redirection Support

If disable, Redirection function will be disabled.

Options: Disabled (Default) / Enabled

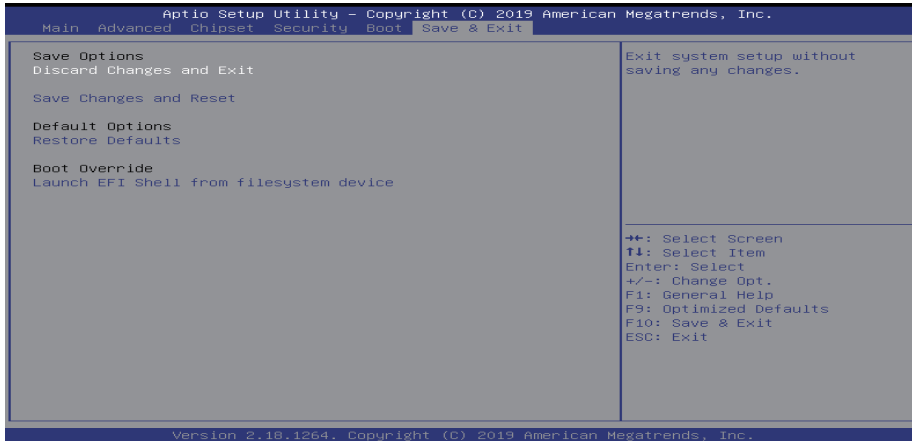
New Boot Option Policy

This item controls the placement of newly detected UEFI boot options.

Options: Default (Default) / Place First / Place Last

3.6 Save & 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

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Restore Defaults

Restore/Load Default values for all the setup options.

Boot Override

This item attempts to launch EFI shell application (She.efi) from one of the available filesystem devices.