BIOS Setup

User's Guide

Rev.1.0

Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

- For detailed product information, carefully read the User's Manual.

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Chapter 1 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the DEL> key during the POST when the power is turned on.

- BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the **Exit** section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<←><→>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

- **Main**
  This setup page includes all the items in standard compatible BIOS.
- **Advanced**
  This setup page includes all the items of AMI BIOS special enhanced features.
  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)
- **Chipset**
  This setup page includes all the submenu options for configuring the function of North Bridge and South Bridge.
  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)
- **Security**
  Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.
  A supervisor password allows you to make changes in BIOS Setup.
  A user password only allows you to view the BIOS settings but not to make changes.
- **Event Log**
  This setup page provides provides items to view the BIOS event log and the BMC system event log.
- **Boot**
  This setup page provides items for configuration of boot sequence.
- **Exit**
  Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)
  Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

1-1 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

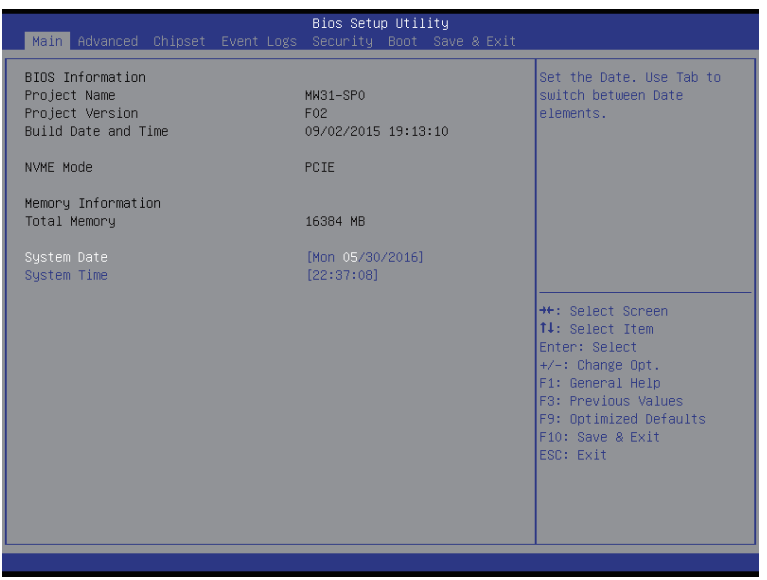
Main Menu Help

The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.



☞ **BIOS Information**

☞ **Porject Name** (Note)

Display the project name information.

☞ **Porject Version**

Display version number of the BIOS setup utility.

☞ **BIOS Build Date and Time**

Displays the date and time when the BIOS setup utility was created.

☞ **NVMe Mode**(Note)

Displays the NVMe mode information

☞ **Onboard LAN Information**

☞ **LAN MAC Address**(Note)

Displays the LAN MAC address information.

☞ **Memory Information**

☞ **Total Memory**

Display the total memory size of the installed memory.

☞ **System Date**

Set the date following the weekday-month-day- year format.

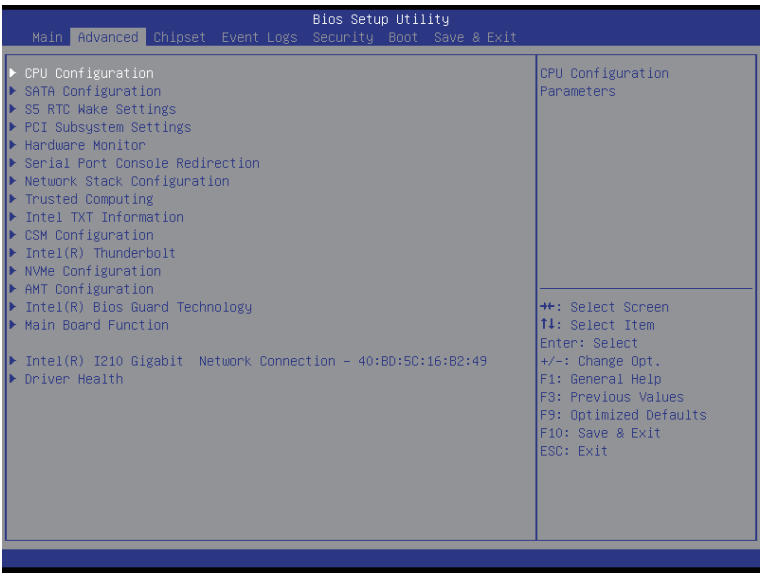
☞ **System Time**

Set the system time following the hour-minute- second format.

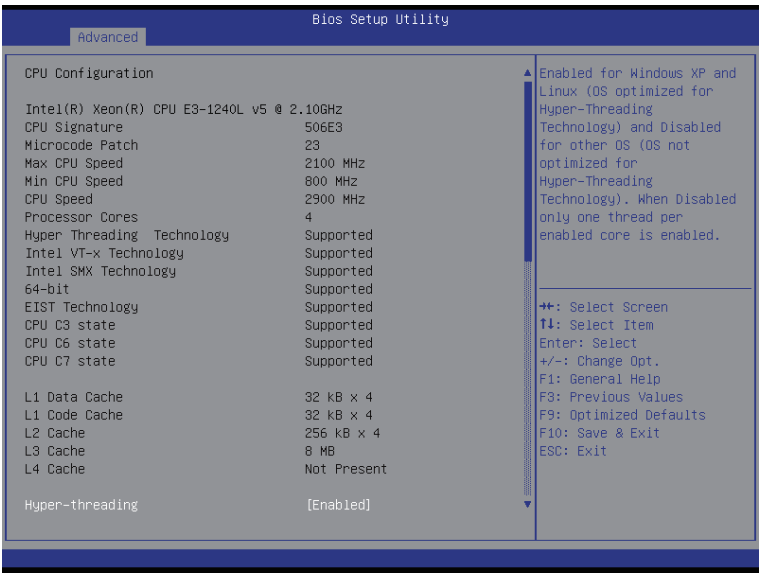
(Note) This parameter will be differ base on the product which you purchased.

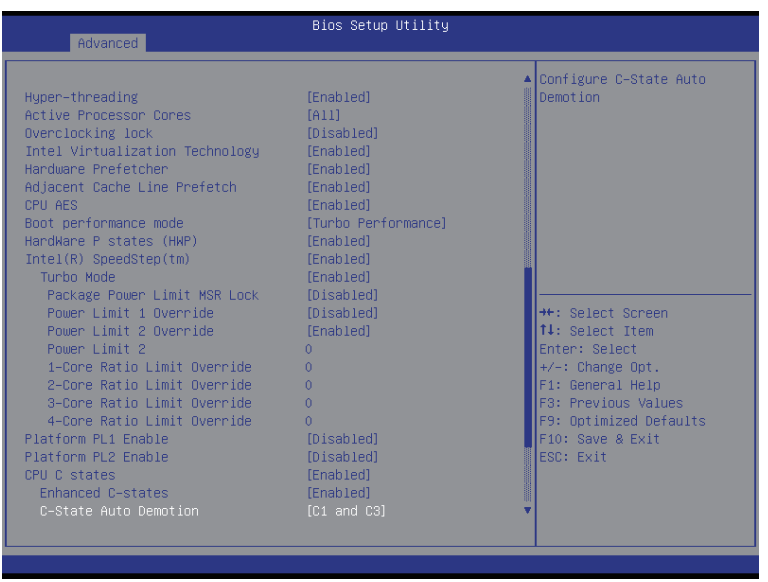
1-2 Advanced Menu

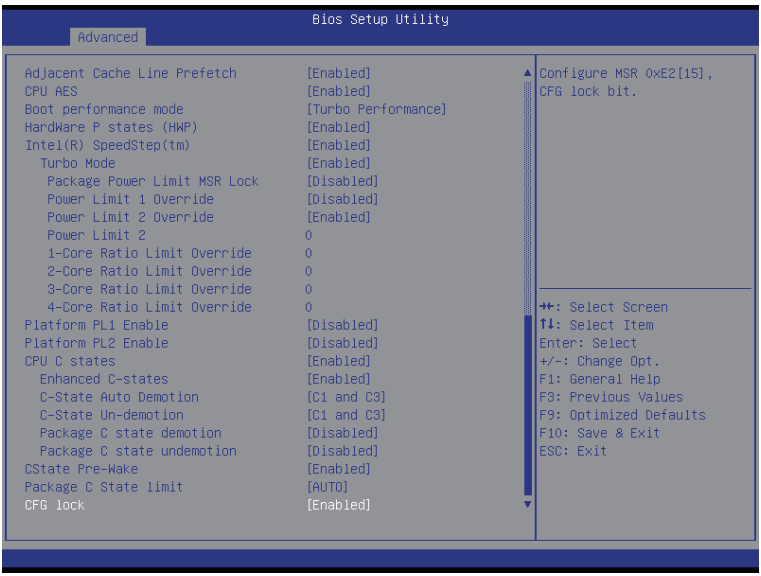
The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen.



1-2-1 CPU Configuration







- **CPU Configuration**
- **CPU Type/Signature/Microcode Patch/Max CPU Speed/ Min CPU Speed/CPU Speed/ Processor Cores/Intel HT Technology/Intel VT-x Technology/Intel SMX Technology**

  Displays the technical specifications for the installed processor.
- **64-bit**

  Display the supported information of installed CPU.
- **EIST Technology**

  Display Intel EIST Technology function support information.
- **CPU C3 state**

  Display the support information of CPU C3 state feature.
- **CPU C6 state**

  Display the support information of CPU C6 state feature.
- **CPU C7 state**

  Display the support information of CPU C7 state feature.
- **Cache Information**
- **L1 Data Cache/L1 Code Cache/L2 Cache/L3 Cache/L4 Cache**

  Displays the technical specifications for the installed processor.
- **Hyper-threading**

  The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.

  Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Active Processor Cores** (Note)

Allows you to determine whether to enable all CPU cores.
Options available: All/1/2/3. Default setting is **All**.

☞ **Overclocking lock**

Enable/Disable Overclocking lock.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Intel Virtualization Technology**

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Hardware Prefetcher**

Select whether to enable the speculative prefetch unit of the processor.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Adjacent Cache Line Prefetch**

When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **CPU AES**

Enable/Disable CPU Advanced Encryption Standard instructions.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Boot performance mode**

Configure the Boot performance mode.
Options available: Turbo Performance/Max Non-Turbo Performance/Max bettery/Turbo Performance. Default setting is **Turbo Performance**.

☞ **Hardware P State**

Enable/Disable Hardware P State feature.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Intel (R) SpeedStep(tm) (Enhanced Intel SpeedStep Technology)**

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Turbo Mode**

When this item is enabled, tje processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.
When this item is disabled, the processor will not overclock any of its core.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Package Power Limit MSR Lock**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Power Limit 1 Lock Override**

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Power Limit 2 Lock Override**

Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ **Power Limit 2**

Press numeric keys to define the desired values.

☞ **1-Core/2-Core/3-Core/4-Core Ratio Limit Override** (Note)

Press numeric keys to define the desired values.

☞ **Platform PL1 Enable**

Enable/Disable Platform power limit 1 programming. If this option is disabled, it activates the Platform Power Limit 1 value to be used by the processor to limit the average power of given time window.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Platform PL2 Enable**

Enable/Disable Platform power limit 2 programming. If this option is disabled, BIOS will program the default values for Platform Power Limit 2.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **CPU C State**

Enable/Disable CPU C State feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Enhanced C-state**

Enable/Disable C1E State feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **C-State Auto Demotion**

Configure state for the C-State auto demotion.

Options available: Disabled/C1/C3/C1 and C3. Default setting is **C1 and C3**.

☞ **C-State Un-demotion**

Configure state for the C-State undemotion.

Options available: Disabled/C1/C3/C1 and C3. Default setting is **C1 and C3**.

☞ **Package C state demotion**

Configure state for the C-State package demotion.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Package C state undemotion**

Configure state for the C-State package undemotion.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **CFG lock**

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Package C State Limit**

Configure state for the C-State package limit.

Options available: C0/C1/C3/C6/C7/C7s/C8/C9/C10/Auto. Default setting is **Auto**.

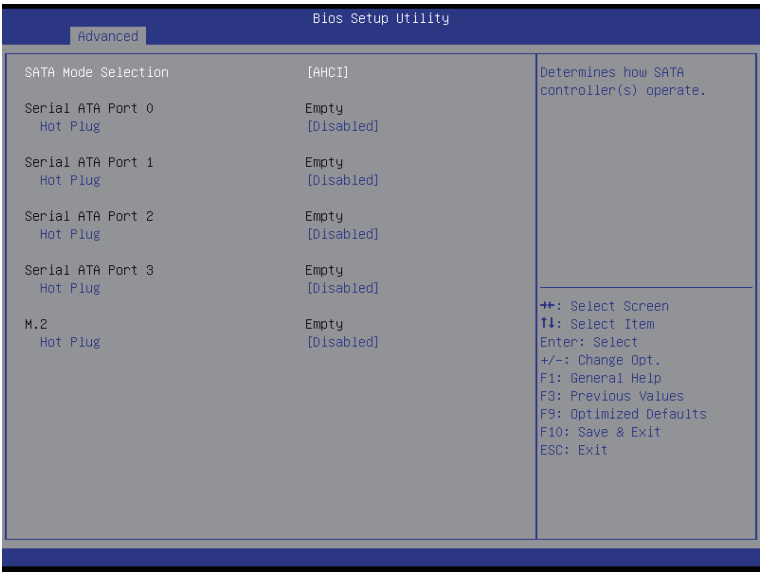
☞ **CFG**

Enable/Disable CFG lock function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

1-2-2 SATA Configuration



☞ **SATA Mode Selection**

RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time.

ACHI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time.

Options available: RAID/ACHI/Disabled. Default setting is **ACHI Mode**.

☞ **Serial Port/M.2 Port**(Note)

Enable/Disable Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Hot Plug (for Serial SATA Port/M.2 Port)**(Note)

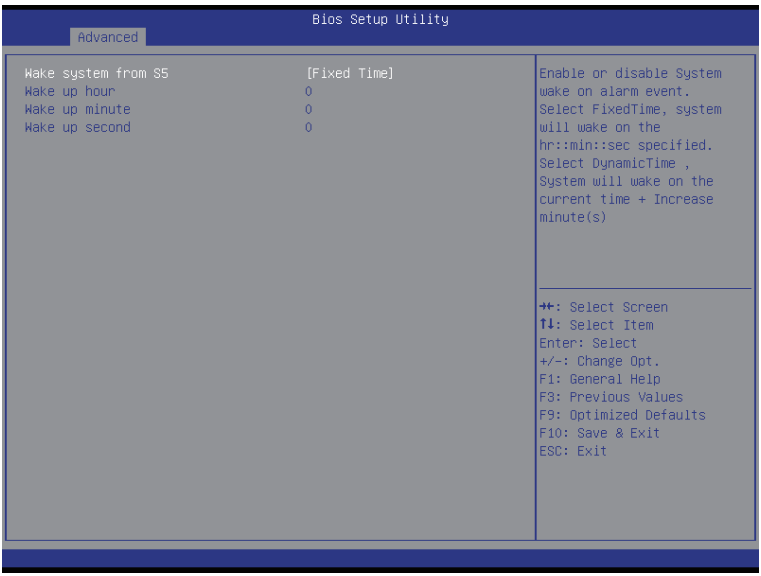
Enable/Disable Hot Plug support for Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Disabled**.

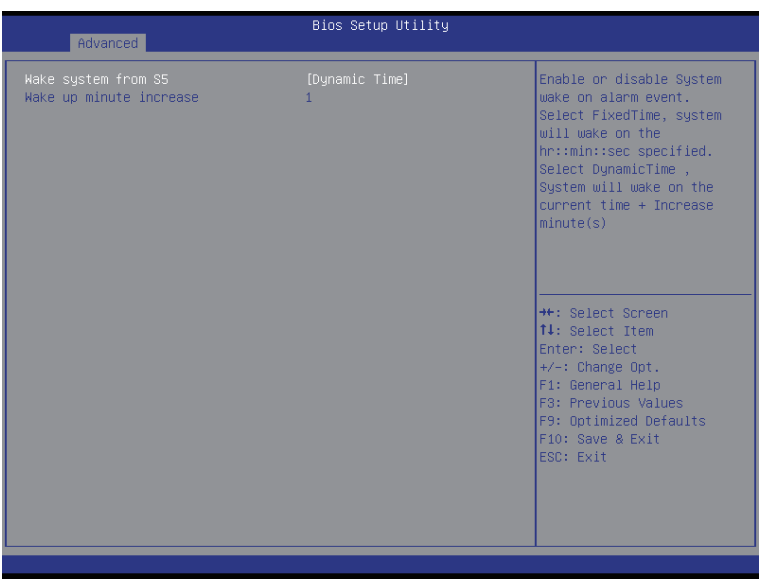
(Note) This parameter will be differ base on the product which you purchased.

1-2-3 S5 RTC Wake Settings

Wake system from S5 is set to Fixed time



Wake system from S5 is set to Dynamic time



☞ **Wake system from S5**

Enable or disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified. Default setting is **Disabled**.

☞ **Wake up hour**(Note1)

Press <+> and <-> to define the wake up hour.

☞ **Wake up minute**(Note1)

Press <+> and <-> to define the wake up minute.

☞ **Wake up second**(Note1)

Press <+> and <-> to define the wake up second.

☞ **Wake up minute**(Note2)

Press the numeric key to define the wake up minute.

(Note1) This item appears when **Wake system from S5** is set to **Fixed time**.

(Note2) This item appears when **Wake system from S5** is set to **Dynamic time**.

1-2-4 PCI Subsystem Settings

☞ Slot configuration

Press [Enter] for configuration of advanced items.

☞ PCI Device Common Settings:

☞ PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

Options available: 32 PCI Bus Clocks/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/.

Default setting is **32 PCI Bus Clocks**.

☞ VGA Palette Snoop

Enable/Disable VGA Palette Tegisters Snooping.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Above 4G MMIO

Enable/Disable Above 4G Memory Mapped Input/Output.

Options available: Enabled/Disabled. Default setting is **Disabled**.

1-2-4-1 Slot Configuration

☞ **PCI Express Slot I/O ROM(Note)**

When enabled, This setting will initialize the device expansion ROM for the related PCI-E slot.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Onboard LAN Controller**

Configure onboard LAN devices.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Onboard LAN I/O ROM**

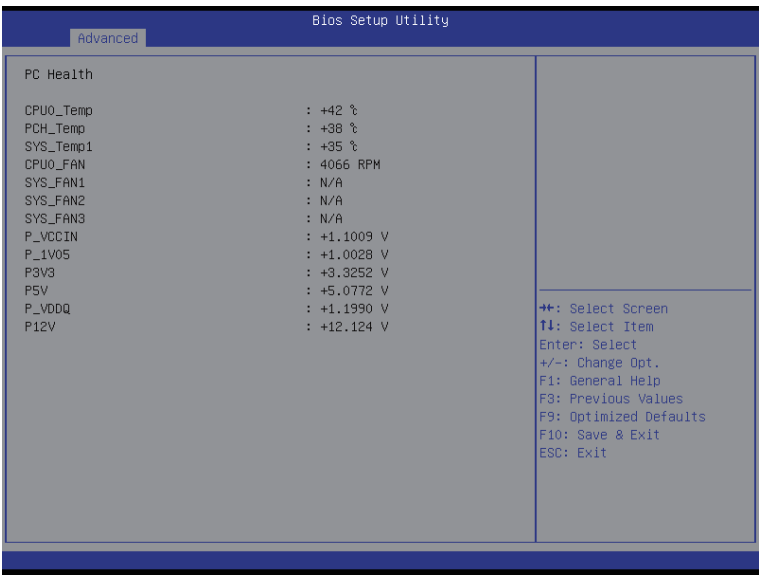
Enable/Disable onboard LAN devices and initialize device expansion ROM.

Options available: Enabled/Disabled. Default setting is **Enabled**.

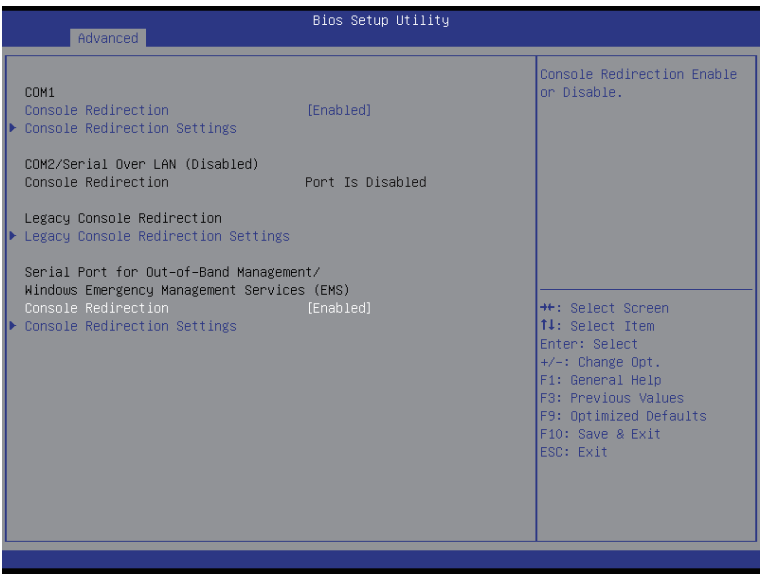
(Note) This parameter will be differ base on the product which you purchased.

2-2-5 Hardware Monitor

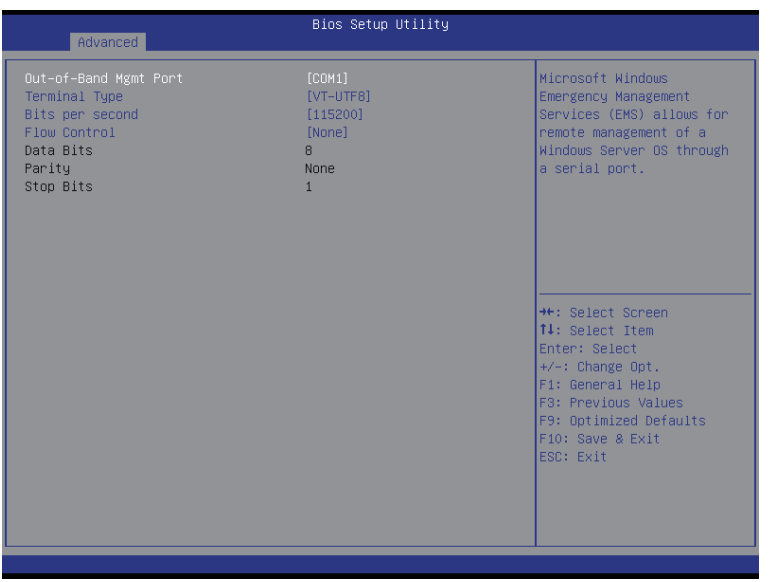
Press Enter to view the Hardware Monitor screen which displays a real-time record of the CPU/system temperature, and fan speed, Items on this window are non-configurable.



1-2-6 Serial Port Console Redirection




Bios Setup Utility
Advanced
Legacy Serial Redirection Port [COM1]
Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit


Bios Setup Utility
Advanced
Out-of-Band Mgmt Port [COM1]
Terminal Type [VT-UTF8]
Bits per second [115200]
Flow Control [None]
Data Bits 8
Parity None
Stop Bits 1
Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

☞ **COM1/COM2/Serial Port for Out-of Band Management/Windows Emergency Management Service (EMS)**

☞ **Console Redirection** (Note)

Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Legacy Console Redirection Settings**

Press [Enter] for configuration of advanced items.

☞ **Legacy Serial Redirection Port**

Options available: COM1/COM2/Serial Over LAN.

☞ **Console Redirection Settings (for COM1/COM2 & serial Over LAN)**

☞ **Terminal Type**

Select a terminal type to be used for console redirection.
Options available: VT100/VT100+/ANSI /VT-UTF8.

☞ **Bits per second**

Select the baud rate for console redirection.
Options available: 9600/19200/57600/115200.

☞ **Data Bits**

Select the data bits for console redirection.
Options available: 7/8

☞ **Parity**

A parity bit can be sent with the data bits to detect some transmission errors.
Even: parity bi is 0 if the num of 1's in the data bits is even.
Odd: parity bit is0if num of 1's the data bits is odd.
Mark: parity bit is always 1. Space: Parity bit is always 0.
Mark and Space Parity do not allow for error detection.
Options available: None/Even/Odd/Mark/Space.

☞ **Stop Bits**

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
Options available: 1/2.

☞ **Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
Options available: None/Hardware RTS/CTS.

☞ **VT-UTF8 Combo Key Support** (Note)

Enable/Disable VT-UTF8 Combo Key Support.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Recorder Mode** (Note)

When this mode enabled, only text will be send. This is to capture Terminal data.
Options available: Enabled/Disabled.

(Note) Advanced items prompt when this item is defined.

☞ **Resolution 100x31** (Note)

Enables or disables extended terminal resolution.

Options available: Enabled/Disabled.

☞ **Legacy OS Redirection Resolution** (Note)

On Legacy OS, the number of Rows and Columns supported redirection.

Options available: 80x24/80X25.

☞ **Putty KeyPad** (Note)

Select function FunctionKey and KeyPad on Putty.

Options available: VT100/LINUX/XTERMR6/SCO/ESCN/VT400.

☞ **Redirection After BIOS POST** (Note)

This option allows user to enable console redirection after O.S has loaded.

Options available: Always Enable/Boot Loader. Default setting is **Always Enable**.

☞ **Out-of-Bnad Mgmt Port**

Microsoft Windows Emerency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.

Options available: COM1/COM2.

(Note) Advanced items prompt when this item is defined.

1-2-7 Network Stack

☞ **Network stack**

Enable/Disable UEFI network stack.

Options available: Enabled/DIsabled. Default setting is **Enabled**.

☞ **Ipv4 PXE Suppor**

Enable/Disable Ipv4 PXE feature.

Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **Ipv6 PXE Support**

Enable/Disable Ipv6 PXE feature.

Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **PXE boot wait time**

Press numeric keys to define the desired values.

☞ **Media detect count**

Press numeric keys to define the desired values.

1-2-8 Trusted Computing

☞ **Configuration**

☞ **Security Device Support**

Select Enabled to activate TPM support feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Current Status Information**

Display current TPM status information.

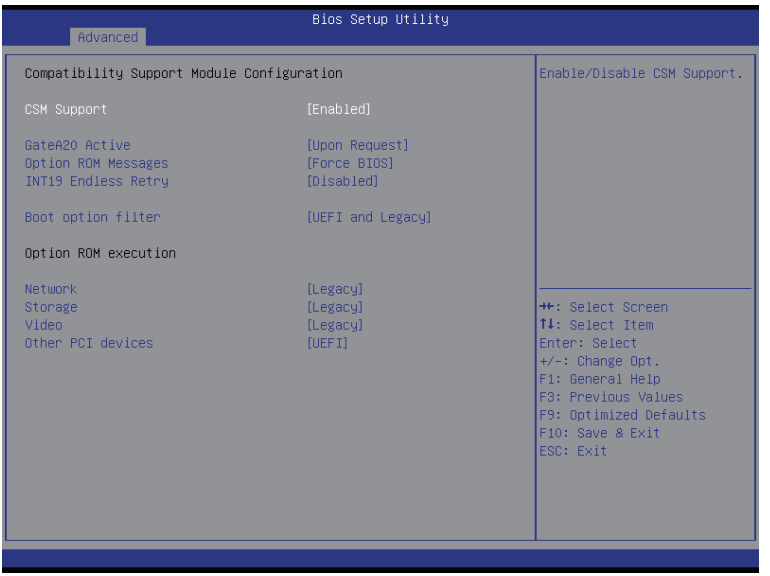
1-2-9 Intel TXT Information

☞ **Intel TXT Configuration**

☞ **Chipset/BiosAcm/Chipset Txt/ Cpu Txt/Error Code/Clasee Code/Major Code/ Minor Code**

Displays the technical specifications for the Intel TXT information.

1-2-10 CSM Configuration



☞ **Compatibility Support Module Configuration**

☞ **CSM Support**

Enable/Disable Compatibility Support Module (CSM) support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **CSM16 Module Version**

Display CSM Module version information.

☞ **Gate20 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 available: Upon Request/Always. Default setting is **Upon Request**.

☞ **Option ROM Messages**

Option ROM Messages.

Options available: Force BIOS/Keep Current. Default setting is **Force BIOS**.

☞ **INT19 Endless Retry**

Enabled: Allowed headless retry boot

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Boot option filter**

Determines which devices system will boot to.

Options available: UEFI and Legacy/Legacy only/UEFI only. Default setting is **UEFI and Legacy**.

☞ **Option ROM execution**

☞ **Network**

Controls the execution UEFI and Legacy PXE OpROM.

Options available: Do not launch/UEFI only/Legacy. Default setting is **Legacy**.

☞ **Storage**

Controls the execution UEFI and Legacy Storage OpROM.

Options available: Do not launch/UEFI only/Legacy. Default setting is **Legacy**.

☞ **Video**

Controls the execution UEFI and Legacy Video OpROM.

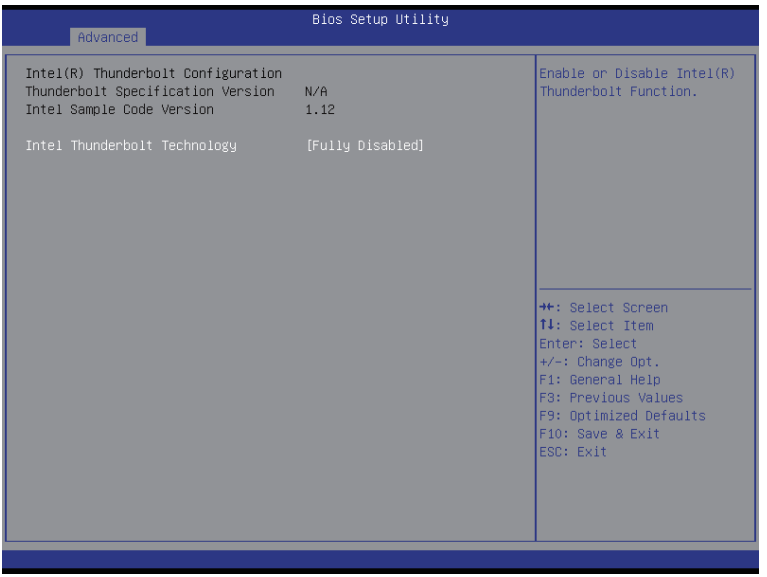
Options available: Do not launch/UEFI only/Legacy. Default setting is **Legacy**.

☞ **Other PCI devices**

Determines OpROM execution policy for devices other than network, Storage, or Video.

Options available: UEFI/Legacy. Default setting is **Legacy**.

1-2-11 Intel (R) Thunderbolt



☞ **Intel (R) Thunderbolt Configuration**

Displays the technical specifications for the thunderbolt.

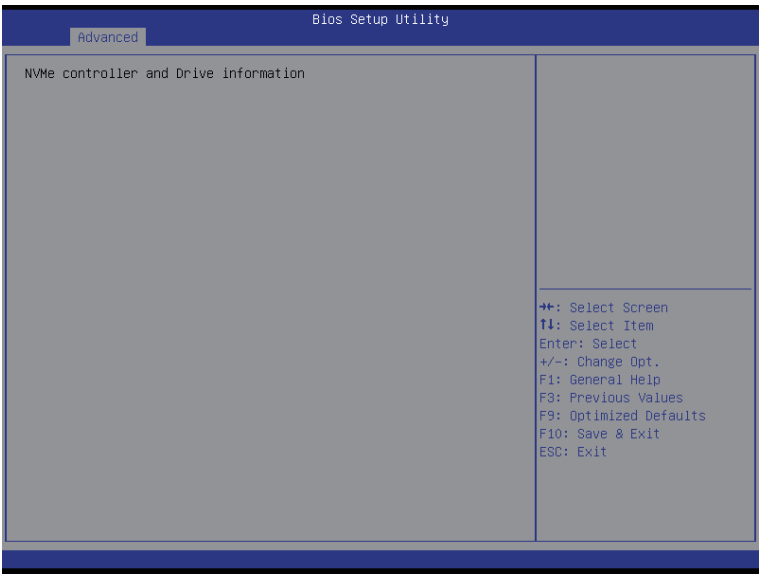
☞ **Intel Thunderbolt Technology**(Note)

Enable/DIsable Thunderbolt function.

Options available: Fully Disabled/Enabled/Disabled. Default setting is **Fully Disabled**.

(Note) This parameter will be differ base on the product which you purchased.

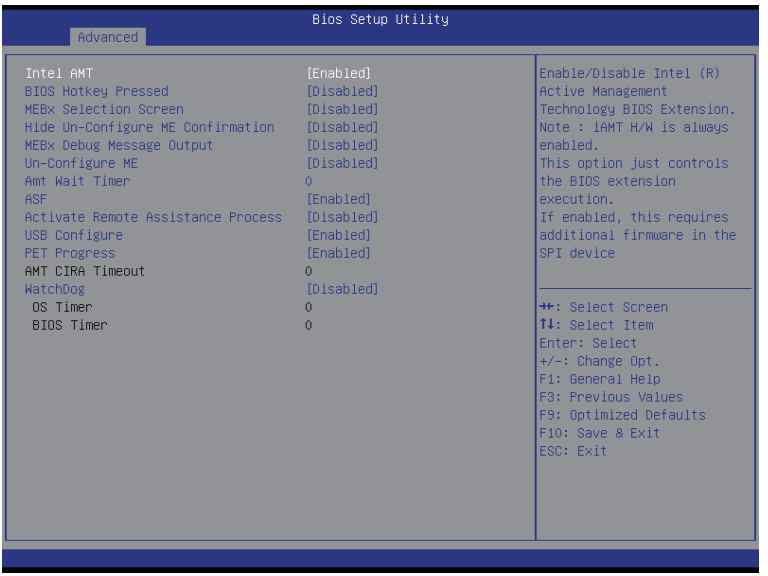
1-2-12 NVMe Configuration



☞ **NVMe controller and Drive information**

Displays NVMe controller and Drive information.

1-2-13 AMT Configuration



☞ **Intel AMT**

Enable/Disable Intel Active Managment Technology BIOS Extension.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **BIOS Hotkey Pressed**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **MEBx Selection Screen**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Hide Un-Configure ME Configuration**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **MEBx Debug Message**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Un-Configure ME**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Amt Wait Timer**

Press the numeric key to define the wait time.

☞ **ASF**

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Active Remote Assistance Process**

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **USB Configure**

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **PET Progress**

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **AMT CIRA Timeout**

Press the numeric key to define the timer.

☞ **WatchDog**

Enable/Disable Watch Dog function.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **OS Timer/BIOS Timer**

Press the numeric key to define the timer.

Please note that this item is configurable when WatchDog is set to Enabled.

1-2-14 Intel(R) BIOS Guard Technology

☞ Intel BIOS Guard Support

Enable/Disable Intel BIOS Guard Support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

1-2-15 Main Board Function

☞ PCIE Runtime Error

Enable/Disable Runtime Error settings.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Chassis Opened Warning

Configure chassis opening intrusion alert function.

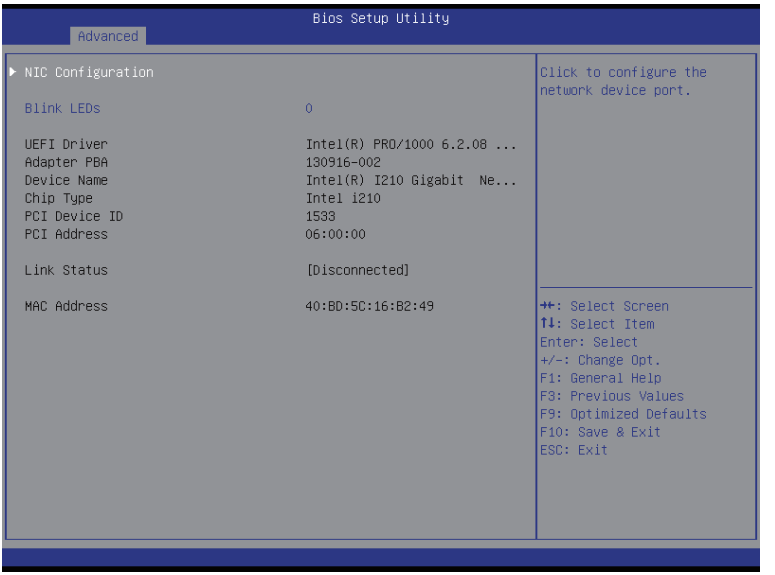
Options available: Enabled/Disabled/Clear. Default setting is **Disabled**.

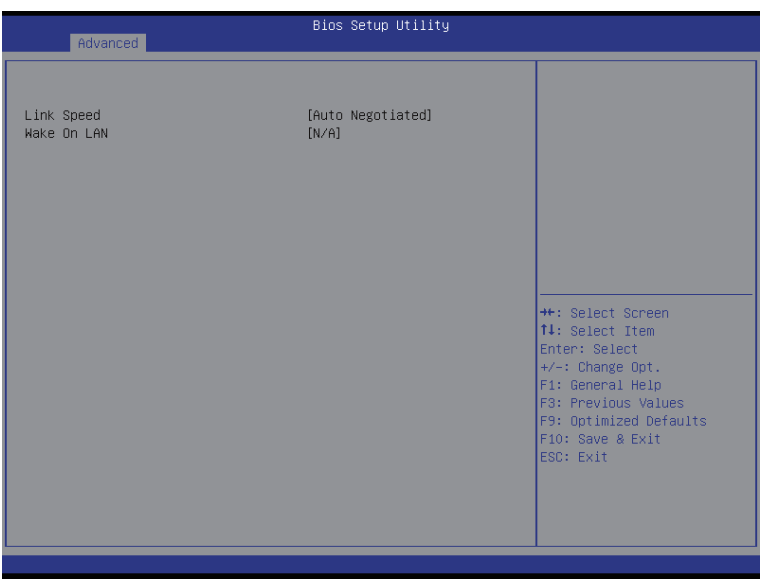
☞ SATA Signal Mode

Select SATA Rx/iEMT.

Options available: iEMT Mode/Rx Mode. Default setting is **iEMT Mode**.

1-2-16 Intel (R) I210 Gigabit Network Connection





☞ **PORT CONFIGURATION MENU**

☞ **NIC Configuration**

Press [Enter] for configuration of advanced items.

☞ **Blink LEDs (range 0-15 seconds)**

Blink LEDs for the specified duration (up to 15 seconds).
Press the numberic keys to input the desired value.

☞ **PORT CONFIGURATION INFORMATION**

☞ **UEFI Driver**

Display the UEFI driver information.

☞ **Adapter PBA**

Display the Adapter PBA information.

☞ **Chip Type**

Display the Chip type.

☞ **PCI Device ID**

Display the PCI device ID.

☞ **Bus:Device:Function**

Display the number of Bus/Device/Function

☞ **Link Status**

Display the link status.

☞ **MAC Address**

Display the Factory MAC address information.

☞ **Virtual MAC Address**

Display the virtual MAC address information.

☞ **NIC Configuration**

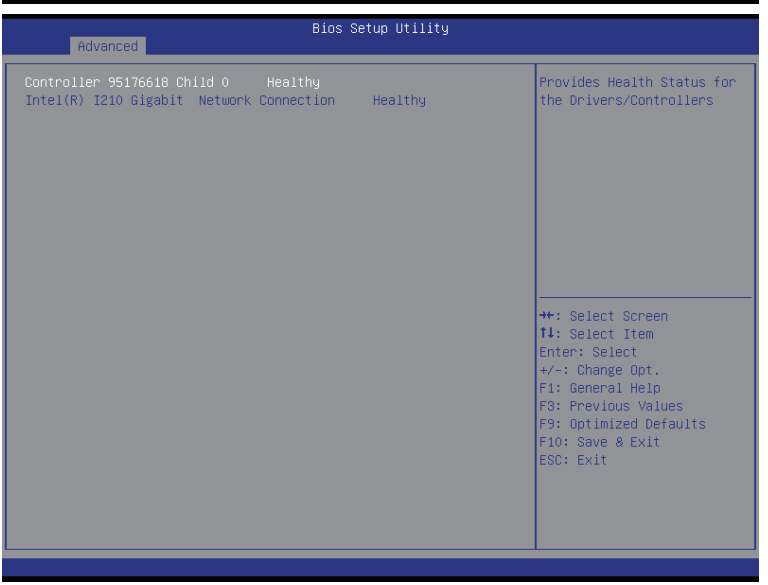
☞ **Link Speed**

Change link speed duplex for current port.
Options available: AutoNeg/10Mbps Half/10Mbps Half/10Mbps Half/100Mbps Full.
Default setting is **AutoNeg**.

☞ **Wake On LAN**

Enable/Disable Wake On LAN feature.
Options available: Enabled/DIsabled. Default setting is **Enabled**.

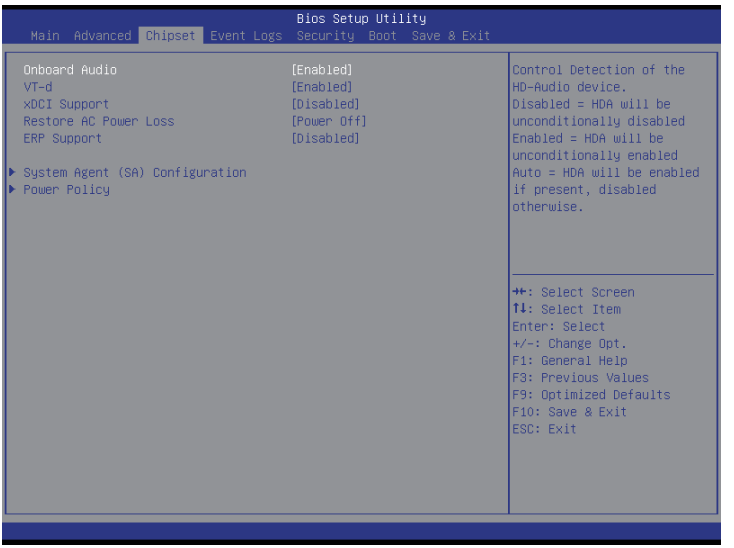
1-2-17 Driver Health



☞ **Driver Health**

Display the driver health status. Press [Enter] to view the advanced items.

1-3 Chipset Menu



☞ **Onboard Audio**(Note1)

Enable/Disable onboard audio device.

Options available: Enabled/DIsabled. Default setting is **Enabled**.

☞ **VT-d**

Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) feature.

Options available: Enabled/DIsabled. Default setting is **Enabled**.

☞ **xDCI Support**

Enable/Disable xDCI (USB OTG Device)

Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **Restore on AC Power Loss** (Note2)

Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Stay Off, the system remains off after power shutdown.

Options available: Last State/Stay Off/Power On. The default setting depends on the BMC setting.

☞ **ERR Support**

Enable/Disable Deep Sleep function.

Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **System Agent (SA) Name**

Press [Enter] for configuration of advanced items.

☞ **Power Policy**

Press [Enter] for configuration of advanced items.

(Note1) This parameter will be differ base on the product which you purchased.

(Note2) When the power policy is controlled by BMC, please wait for 15-20 seconds for BMC to save the last power state.

1-3-1 System Agent (SA)Configuration

☞ **CRID Support**

Enable/Disable CRID support.

Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **Graphics Configuration**

Press [Enter] for configuration of advanced items.

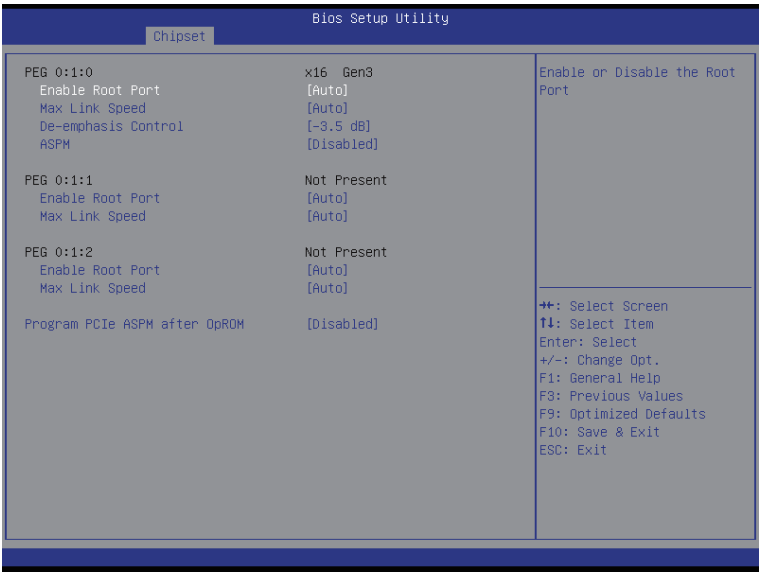
☞ **PEG Port Configuration**

Press [Enter] for configuration of advanced items.

☞ **Memory Configuration**

Press [Enter] for configuration of advanced items.

1-3-1-1 Graphic Configuration



☞ **Graphic Configuration**

☞ **Skip Scanning External Gfx Card**

Options available:Enabled/Disabled.

Default setting is **Disabled**.

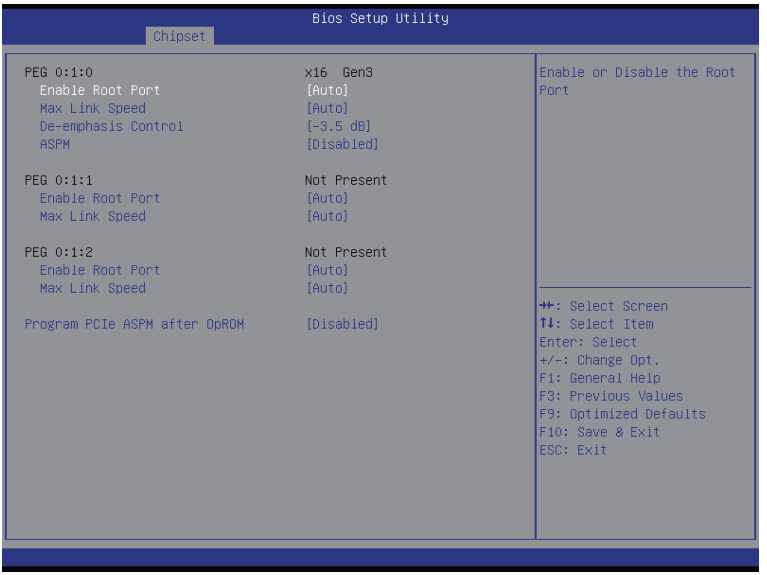
☞ **Primary PEG**

Configure the Primary display device.

Options available: Auto.

Default setting is **Auto**.

1-3-1-2 PEG Port Configuration



☞ **PEG 0:1:0**

Display the configuration information.

☞ **Enable Root Port**

Options available: Auto/Enabled/Disabled. Default setting is **Auto**.

☞ **Max Link Speed**

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ **De-emphasis Control**

Configure the De-emphasis control on PEG.

Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ **ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG 0:1:1**

Display the configuration information.

☞ **Enable Root Port**

Options available: Auto/Enabled/Disabled. Default setting is **Auto**.

☞ **Max Link Speed**

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ **De-emphasis Control**

Configure the De-emphasis control on PEG.

Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ **ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG 0:1:2**

Display the configuration information.

☞ **Enable Root Port**

Options available: Auto/Enabled/Disabled. Default setting is **Auto**.

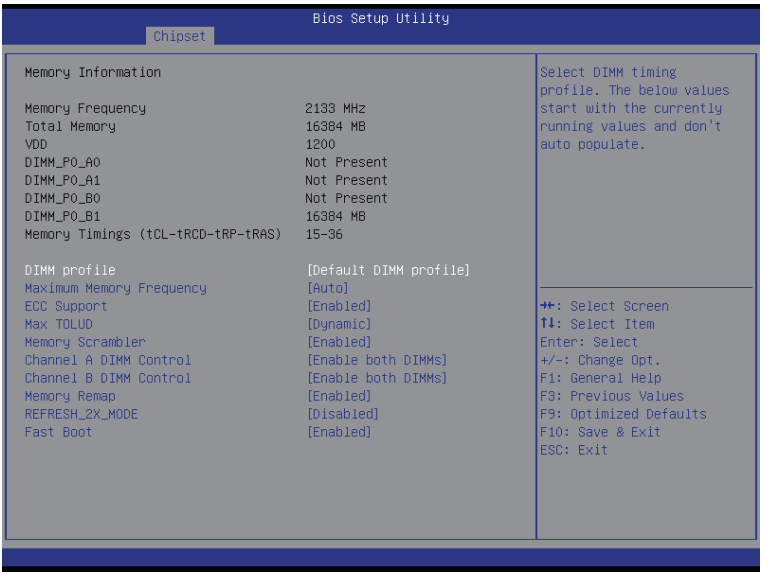
☞ **Max Link Speed**

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ **Program PCIe ASPM after OpROM**

Enable/Disable Program PCIe ASPM after OpROM.
Options available: Enabled/Disabled. Default setting is **Disabled**.

1-3-2-3 Memory Configuration



☞ **Memory Information**

☞ **Memory Frequency**

Display the frequency information of installed memory.

☞ **Total Memory**

Determines how much total memory is present during the POST.

☞ **DIMM Profile**

Options available: Default DIMM profile. Default setting is **Default DIMM profile**.

☞ **DIMM Information**(Note)

☞ **Install DIMMs Status**

The size of memory installed on each of the DDR4 slots.

☞ **Maximum Memory Frequency**

Configure memory frequency.
Default setting is **Auto**.

☞ **ECC Support**

Options available: Auto/Disabled/Enabled. Default setting is **Enabled**.

☞ **Max TOLUD**

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.
Options available: Dynamic/3.5 GB/3.25 GB/3 GB/2.75 GB/2.5 GB/2.25 GB/2 GB/1.75 GB/1.5 GB/1.25 GB/1 GB. Default setting is **Dynamic**.

(Note) This parameter will be differ base on the product which you purchased.

☞ Memory Scrambler

Enable/Disable Memory Scrambler support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Channel A DIMM Control

Enable/Disable DIMMs on Channel A.

Options available: Enable both DIMMs/Disable DIMM0/Disable DIMM1/ Disable both DIMMs.

Default setting is **Enable both DIMMs**.

☞ Channel B DIMM Control

Enable/Disable DIMMs on Channel B.

Options available: Enable both DIMMs/Disable DIMM0/Disable DIMM1/ Disable both DIMMs.

Default setting is **Enable both DIMMs**.

☞ Memory Remap

Enable/Disable memory remap above 4GB.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ REFRESH_2X_MODE

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Fast Boot

Enable/Disable fast boot function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

1-3-2 Power Policy

☞ **Power Policy**

☞ **Power Policy Quick Settings**

Options available: Standard/Best Performance/Energy Efficient. Default setting is **Standard**.

☞ **Intel (R) SpeedStep(tm) (Enhanced Intel SpeedStep Technology)**

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Package C State Limit**

Configure state for the C-State package limit.

Options available: C0/C1/C2/C3/C6/C7/C7s/Auto. Default setting is **Auto**.

☞ **Hyper-threading**

The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Hardware Prefetcher**

Select whether to enable the speculative prefetch unit of the processor.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Adjacent Cache Line Prefetch**

When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Turbo Mode

When this item is enabled, tje processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.

When this item is disabled, the processor will not overclock any of its core.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Closed Loop Therm Manage

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ VT-d

Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) feature.

Options available: Enabled/DIsabled. Default setting is **Enabled**.

1-4 Event Logs Menu

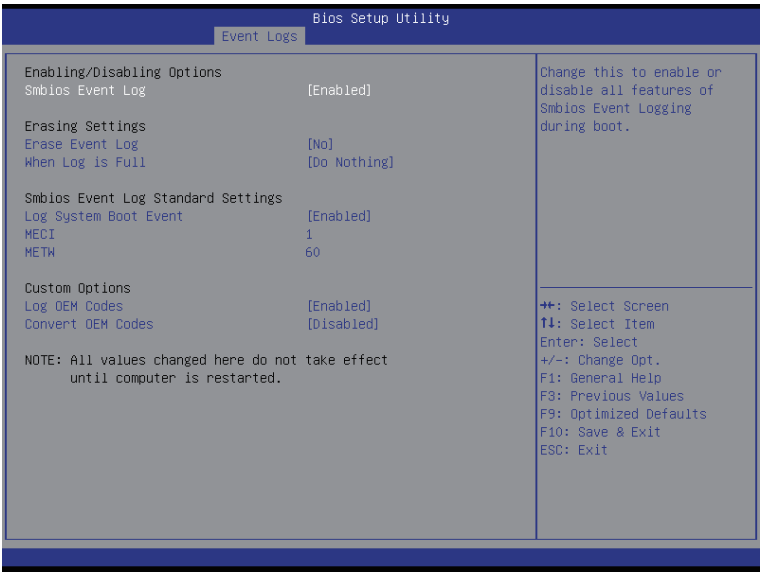
☞ **Change Smbios Event Log Settings**

Press [Enter] for configuration of advanced items.

☞ **View Smbios Event Log**

Press [Enter] for configuration of advanced items.

1-4-1 Change Smbios Event Log Settings



☞ **Enabling/Disabling Options**

☞ **Smbios Event Log**

Choose options to Enable/Disable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Erasing Settings**

☞ **Erasing Event Log**

Choose options for erasing Smbios Event Log Erasing is done prior to any logging activation during reset.

Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

☞ **When Log is Full**

Choose options for reactions to a full Smbios Event Log.

Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

☞ **Smbios Event Log Standard Settings**

☞ **Log System Boot Event**

Choose options to Enable/Dsiable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **MECI**

Multiple Event Count Increment: The number of occurrences of a duplicate event that must paass before the multi-event counter associated with the log entry is updated, specified as numberic value in the range 1 to 33. Press <+> / <-> keys to increase or decrease the desired values.

☞ **METW**

Multiple Event Time Window: The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes. Press <+> / <-> keys to increase or decrease the desired values.

☞ **Custom Options**

☞ **Log OEM Codes**

Enable/Disable the logging of EFI Status Codes as OEM Codes.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Convert OEM Codes**

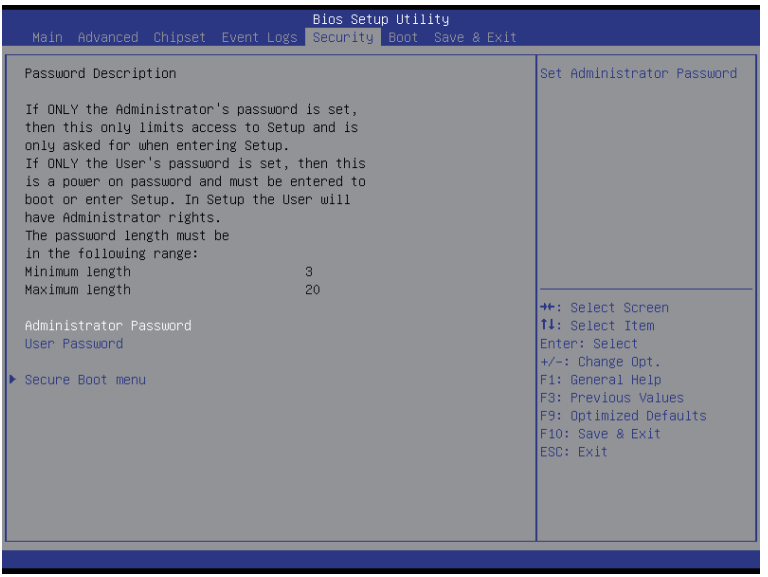
Enable/Disable the converting of EFI Status Codes to Standard Smbios Type.
Options available: Enabled/Disabled. Default setting is **Disabled**.

1-4-2 View Smbios Event Log

The Smbios Event Log is a display page of Smbios Event Log information. Items on this window are non-configurable. Press Enter to View Smbios Event Log

1-5 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



There are two types of passwords that you can set:

- Administrator Password

  Entering this password will allow the user to access and change all settings in the Setup Utility and enter the operating system.

- User Password

  Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set.

☞ **Administrator Password**

Press Enter to configure the Administrator password.

☞ **User Password**

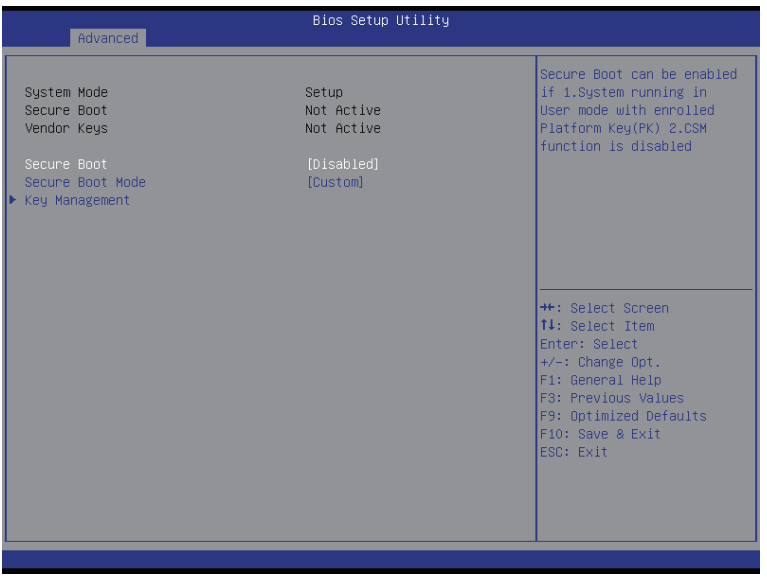
Press Enter to configure the user password.

☞ **Secure Boot menu**

Press [Enter] for configuration of advanced items.

1-5-1 Secure Boot menu

The Secure Boot Menu is applicable when your device is installed the Windows® 8 operatin system.



☞ System Mode

Display the System Mode State.

☞ Secure Boot

Display the status of Secure Boot.

☞ Vendor Keys

Displays the installed vendor key information.

☞ Secure Boot

Enable/Disable Secure Boot function.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Secure Boot Mode

Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows 8 loads and gets to the login screen have not been tampered with.

When set to Standard, it will automatically load the Secure Boot keys form the BIOS databases.

When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database.

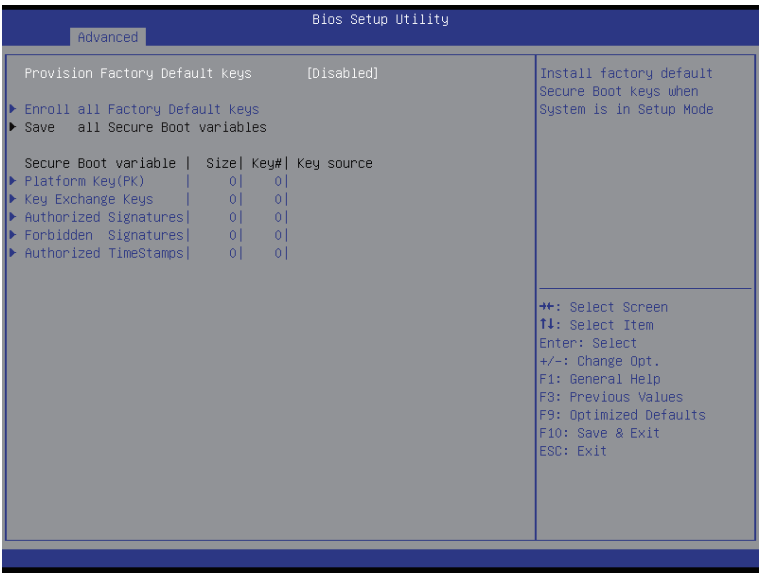
Options available: Standard/Custom. Default setting is **Standard**.

☞ Key Management(Note)

Press [Enter] for configuration of advanced items.

(Note) Advanced items prompt when this item is set to **Cutom**.

1-5-1-1 Key Management



☞ Provision Factory Default Keys

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signaures Database (dbx).

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Enroll All Factory Default Keys

Press [Enter] to install all factory default keys.

☞ Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

☞ Platform Key (PK)

Press Enter to configure the advanced items.

☞ Key Exchange Key

Press Enter to configure the advanced items.

☞ Authorized Signature

Press Enter to configure the advanced items.

☞ Forbidden Signature

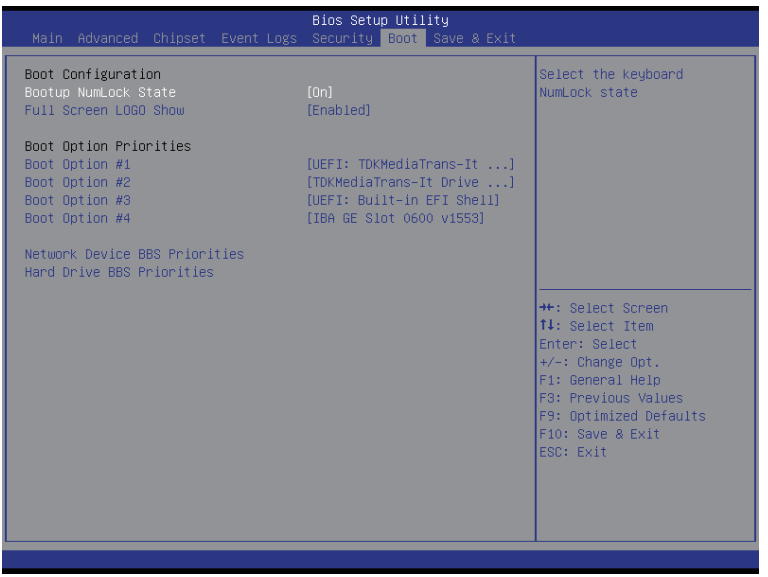
Press Enter to configure the advanced items.

☞ Authorized TimeStamps

Press Enter to configure the advanced items.

1-6 Boot Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.



☞ **Boot Configuration**

☞ **Bootup NumLock State**

Enable or Disable Bootup NumLock function.

Options available: On/Off. Default setting is **On**.

☞ **Full Screen LOGO Show**

Enables or disables showing the logo during POST.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Boot Priority Order**

☞ **Boot Option #1/#2/#3/#4/#5/#6**

Press Enter to configure the boot priority.

By default, the server searches for boot devices in the following secquence:

1. UEFI device.
2. Removable device.
3. Hard drive.
4. Network device.

☞ **Network Device BBS Priorities**

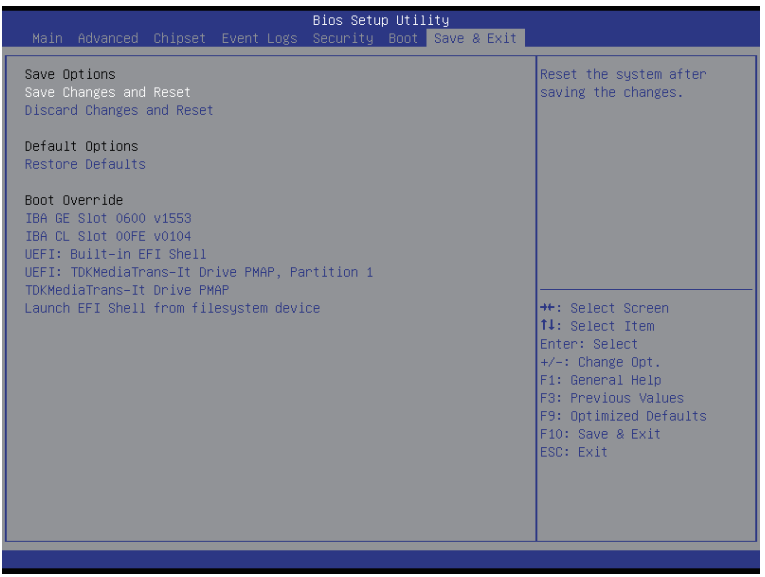
Press Enter to configure the boot priority.

☞ **Hard Drive BBS Priorities**

Press Enter to configure the boot priority.

1-7 Exit Menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.



☞ **Save Options**

☞ **Save Changes and Reset**

Saves changes made and reset the system.

Options available: Yes/No.

☞ **Discard Changes and Reset**

Discards changes made and reset the system.

Options available: Yes/No.

☞ **Default Options**

☞ **Restore Defaults**

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.

Options available: Yes/No.

☞ **Boot Override**

Press Enter to configure the device as the boot-up drive.

☞ **UEFI: Built-in EFI Shell**

Press <Enter> on this item to Launch EFI Shell from filesystem device.

1-8 BIOS Beep Codes

# of Beeps	Description
1	Invalid password
2	Recovery started
4	S3 Resume failed
4	DXEIPL was not found
5	No Console Input/Output Devices are found
6	Flash update is failed

1-9 BIOS Recovery Instruction

The system has an embedded recovery technique. In the event that the BIOS becomes corrupt the boot block can be used to restore the BIOS to a working state. To restore your BIOS, please follow the instructions listed below:

Recovery Instruction:

1. Change xxx.ROM to amiboot.rom.
2. Copy amiboot.rom and AFUDOS.exe to USB diskette.
3. Setting BIOS Recovery jump to enabled status.
4. Boot into BIOS recovery.
5. Run Proceed with flash update.
6. BIOS update.