

BIOS Setup

(For Grantely Platform)

User's Guide

Rev.1.0

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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 <F2> 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.)

■ **Intel RC Setup**

This setup page includes all the submenu options for configuring the function of processor, network, North Bridge, South Bridge, and System event logs.

■ **Server Management**

Server additional features enabled/disabled setup menus.

■ **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.

■ **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.

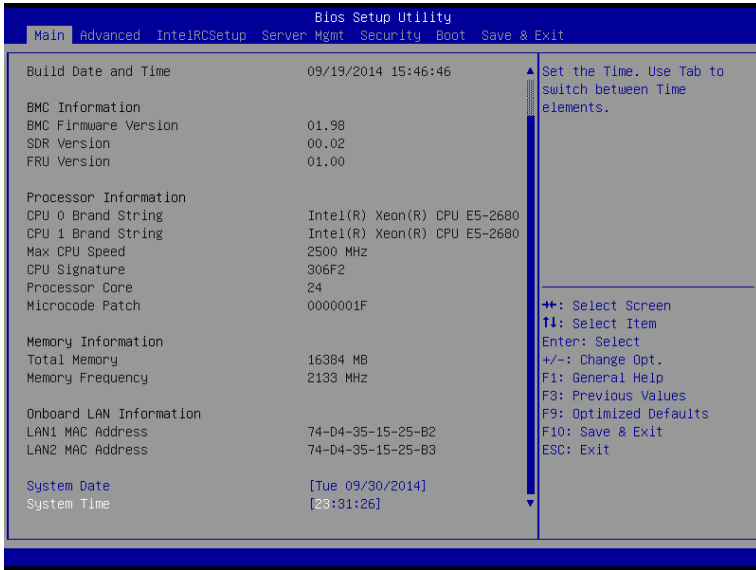


- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

Bios Setup Utility	
Main Advanced IntelRCSSetup Server Mgmt Security Boot Save & Exit	
BIOS Information	
Project Name	MD90-FS0
Project Version	F01
Build Date and Time	09/19/2014 15:46:46
BMC Information	
BMC Firmware Version	01.98
SDR Version	00.02
FRU Version	01.00
Processor Information	
CPU 0 Brand String	Intel(R) Xeon(R) CPU E5-2680
CPU 1 Brand String	Intel(R) Xeon(R) CPU E5-2680
Max CPU Speed	2500 MHz
CPU Signature	306F2
Processor Core	24
Microcode Patch	0000001F
Memory Information	
Total Memory	16384 MB
Memory Frequency	2133 MHz
Onboard LAN Information	
LAN1 MAC Address	74-D4-35-15-25-B2
LAN2 MAC Address	74-D4-35-15-25-B3

▲ Set the Date. Use Tab to switch between Date elements.

▲+/-: Select Screen
Tab: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit



☞ **BIOS Information**

☞ **Project Name**

Display the project name information.

☞ **Project 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.

☞ **BMC Information^(Note)**

☞ **BMC Firmware Version^(Note)**

Display BMC firmware version information.

☞ **SDR Version^(Note)**

Display the SDR version information.

☞ **FRU Version^(Note)**

Display the FRU version information.

☞ **Processor Information**

☞ **CPU Brand String/Max CPU Speed/CPU Signature/Processors Core/Microcode Patch**

Displays the technical specifications for the installed processor.

☞ **Memory Information**

☞ **Total Memory^(Note)**

Display the total memory size of the installed memory.

☞ **Memory Frequency^(Note)**

Display the frequency information of the installed memory.

☞ **Onboard LAN Information**

☞ **LAN MAC Address^(Note)**

Display LAN MAC address information.

☞ **System Date**

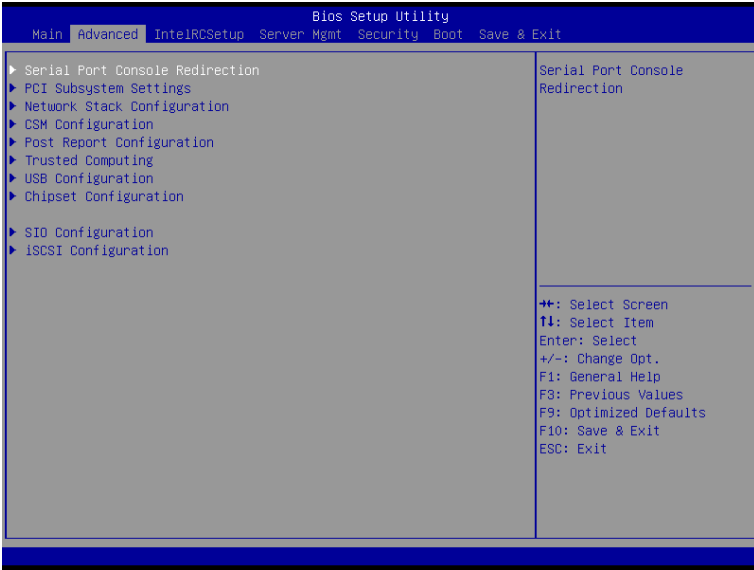
Set the date following the weekday-month-day- year format.

☞ **System Time**

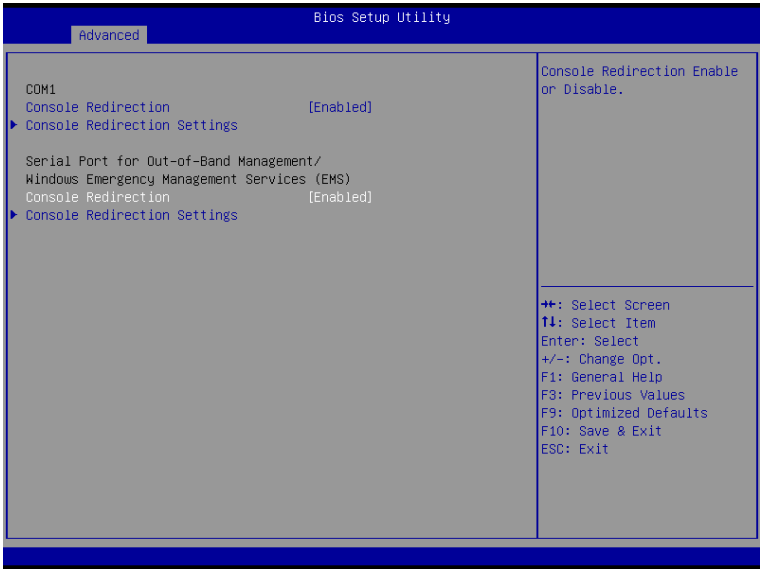
Set the system time following the hour-minute- second format.

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 Serial Port Console Redirection





☞ **COM1/Serial Port for Out-of-Band Management EMS Console Redirection Settings**

☞ **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**.

☞ **Console Redirection Settings**

☞ **Terminal Type**

Select a terminal type to be used for console redirection.

Options available: VT100/VT100+/ANSI /VT-UTF8. Default setting is **ANSI**.

☞ **Bits per second**

Select the baud rate for console redirection.

Options available: 9600/19200/38400/57600/115200. Default setting is **115200**.

☞ **Data Bits**

Select the data bits for console redirection.

Options available: 7/8. Default setting is **8**.

☞ **Parity**

A parity bit can be sent with the data bits to detect some transmission errors.

Even: parity bit is 0 if the num of 1's in the data bits is even.

Odd: parity bit is 0 if num of 1's in 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.

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

Options available: None/Even/Odd/Mark/Space. Default setting is **None**.

☞ **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. Default setting is **1**.

☞ **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. Default setting is **None**.

☞ **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.

Default setting is **Disabled**.

☞ **Resolution 100x31** ^(Note)

Enables or disables extended terminal resolution. Default setting is **Enabled**.

Options available: Enabled/Disabled.

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

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

Options available: 80x24/80X25. Default setting is **80x24**.

☞ **Putty KeyPad** ^(Note)

Select function FunctionKey and KeyPad on Putty.

Options available: VT100/LINUX/XTERMR6/SCO/ESCN/VT400. Default setting is **VT100**.

☞ **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**.

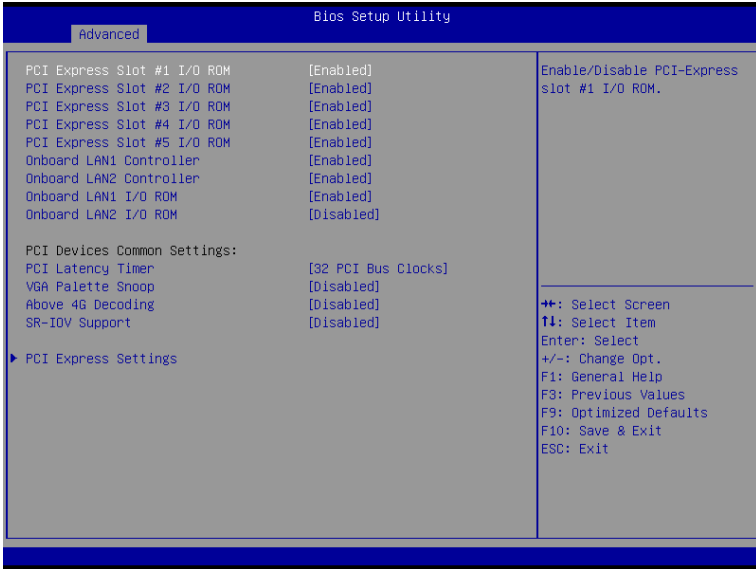
☞ **Out-of-Bnad Mgmt Port**

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

Options available: COM1/COM2. Default setting is **COM1**.

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

1-2-2 PCI Subsystem Settings



⌘ PCI Express Slot #1/#2/#3/#4/#5 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#1/#2Controller^(Note)

Enable/Disable onboard LAN devices.
Options available: Enabled/Disabled. Default setting is **Enabled**.

⌘ Onboard LAN #1/#2 I/O ROM^(Note)

Enable/Disable onboard LAN devices and initialize device expansion ROM.
Options available: Enabled/Disabled. Default setting is **Enabled**.

⌘ PCI Devices 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 Registers Snooping.
Options available: Enabled/Disabled. Default setting is **Disabled**.

⌘ Above 4G Decoding

Enable/Disable Above 4G Decoding.
Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) Functions available on selected models.

☞ **SR-IOV Support**

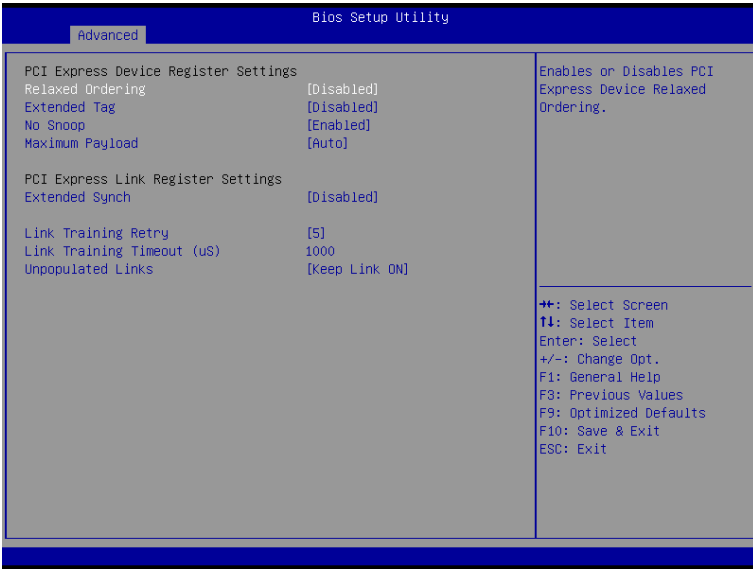
If system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO Virtualization Support.

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

☞ **PCI Express Settings**

Press [Enter] for configuration of advanced items.

1-2-2-1 PCI Express Settings



☞ PCI Express Device Register Settings

☞ Relaxed Ordering

Enable/Disable PCI Express Device Relaxed Ordering feature.

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

☞ Extended Tag

When this feature is enabled, the system will allow device to use 8-bit Tag field as a requester.

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

☞ No Snoop

Enable/Disable PCI Express Device No Snoop option.

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

☞ Maximum Payload

Set maximum payload for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

☞ PCI Express Link Register Settings

☞ Extended Synch

When this feature is enabled, the system will allow generation of Extended Synchronization patterns.

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

☞ Link Training Retry

Define the number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.

Options available: Disabled/2/3/5. Default setting is **5**.

☞ **Link Training Timeout (us)**

Define the number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Press <+> / <-> keys to increase or decrease the desired values. Value rang is from 10 to 10000 us.

☞ **Unpopulated Links**

When this item is set to 'Disable Link', the system will operate power save feature for those unpopulated PCI Express links.

Options available: Keep Link ON/ Disable Link. Default setting is **Keep Link ON**.

1-2-3 Network Stack



☞ Network stack

Enable/Disable UEFI network stack.

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

☞ Ipv4 PXE Support^(Note)

Enable/Disable Ipv4 PXE feature.

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

☞ Ipv6 PXE Support^(Note)

Enable/Disable Ipv6 PXE feature.

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

☞ PXE boot wait time^(Note)

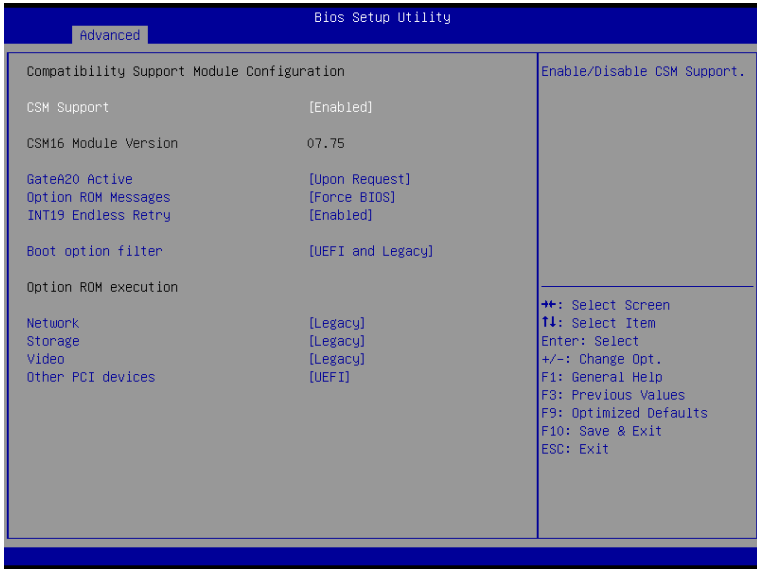
Press <+> / <-> keys to increase or decrease the desired values.

☞ Media detect time^(Note)

Press <+> / <-> keys to increase or decrease the desired values.

(Note) This item appears when **Network Stack** is set to **Enabled**.

1-2-4 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 **Enabled**.

☞ 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/Legacy. Default setting is **Legacy**.

☞ **Storage**

Controls the execution UEFI and Legacy Storage OpROM.

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

☞ **Video**

Controls the execution UEFI and Legacy Video OpROM.

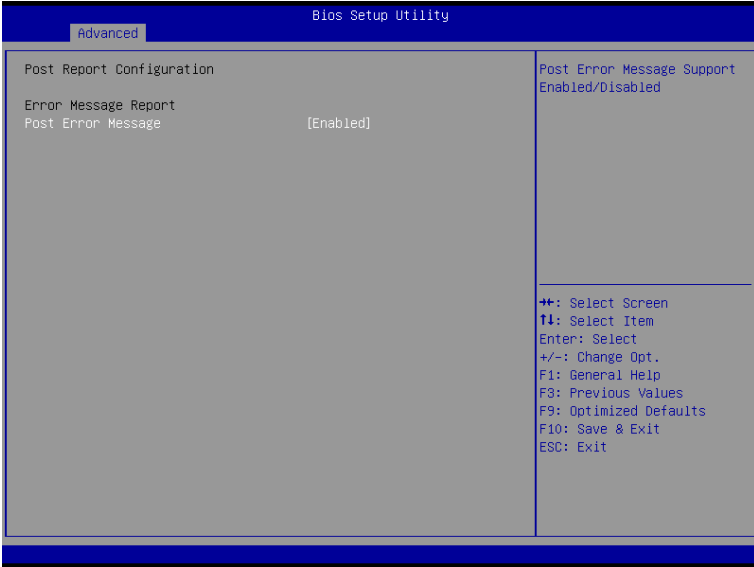
Options available: Do not launch/UEFI/Legacy. Default setting is **Legacy**.

☞ **Other PCI devices**

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

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

1-2-5 Post Report Configuration



☞ **Post Report Configuration**

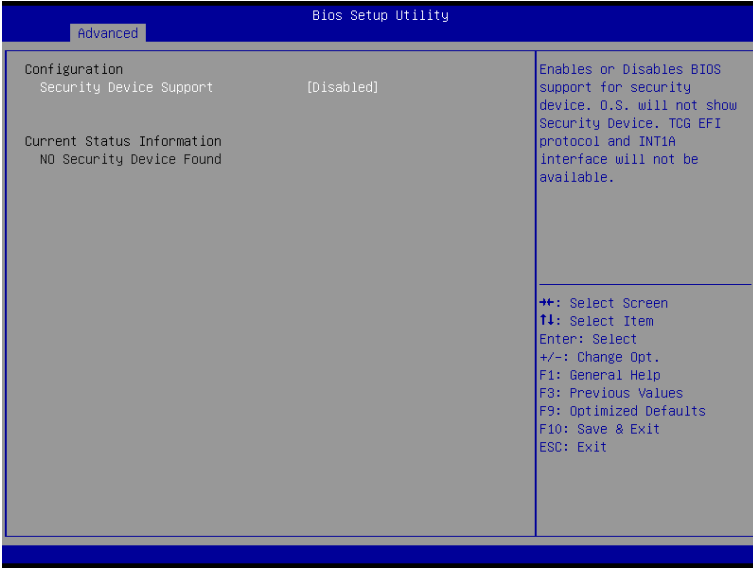
☞ **Error Message Report**

☞ **Post Error Message**

Enable/Disable Info Error Message support.

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

1-2-6 Trusted Computing



⌂ **Configuration**

⌂ **Security Device Support**

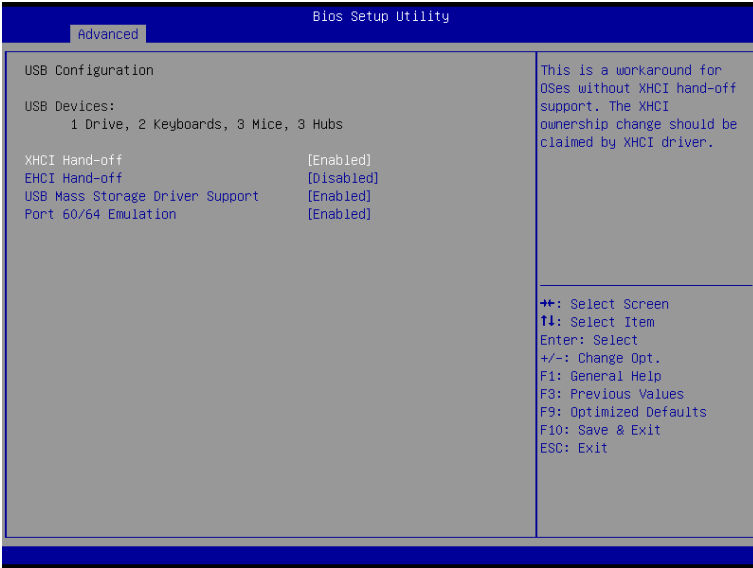
Select Enabled to activate TPM support feature.

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

⌂ **Current Status Information**

Display current TPM status information.

1-2-7 USB Configuration



☞ USB Configuration

☞ USB Devices:

Display the USB devices connected to the system.

☞ XHCI Hand-off

Enable/Disable XHCI (USB 3.0) Hand-off support.

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

☞ EHCI Hand-off

Enable/Disable EHCI (USB 2.0) Hand-off function.

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

☞ USB Mass Storage Driver Support^(Note)

Enable/Disable USB Mass Storage Driver Support.

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

☞ Port 60/64 Emulation

Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non-USB aware OS.

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

(Note) This item is present only if you attach USB types of device.

1-2-8 Chipset Configuration



☞ **Restore on AC Power Loss** ^(Note)

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.

☞ **Deep Sleep (EuP)**

Enable/Disable Deep Sleep mode.

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

☞ **Chassis Opened Warning**

Enable/Disable Chassis intrusion alert function.

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

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

1-2-9 SIO Configuration

Bios Setup Utility	
Advanced	
AMI SIO Driver Version : GSI0010A5.03.04 Super IO Chip Logical Device(s) Configuration ▶ [*Active*] Serial Port WARNING: Logical Devices state showing at the left side of the controll, reflects current Logical Device state. Cahnges made during Setup Session will be shown after you restart the system.	View and Set Basic properties of the SIO Logical device. Like IO Base, IRQ Range, DMA Channel and Device Mode. ++: 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	
Serial Port Configuration Use This DeviceGSI0011 [Enabled] Logical Device Settings: Current : IO=3F8h; IRQ=4; Possible: [Use Automatic Settings] WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.	Enable or Disable this Logical Devcie. ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

☞ **AMI SIO Driver Version**

Display the AMI SIO driver version information.

☞ **Super IO Chip Logical Device(s) Configuration**

☞ **[*Active*] Serial Port 1**

Press [Enter] for configuration of advanced items.

☞ **Serial Port 1 Configuration**

☞ **Use This Device**

When enabled allows you to configure the serial port 1 settings. When set to Disabled, displays no configuration for the serial port.

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

☞ **Logical Device Settings:**

☞ **Current:**

Display the Serial Port 1 base I/O address and IRQ.

☞ **Possible:**

Configure Serial Port 1 base I/O address and IRQ.

Option available:

Use Automatic Settings

IO=3F8h; IRQ=4; DMA;/

IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/

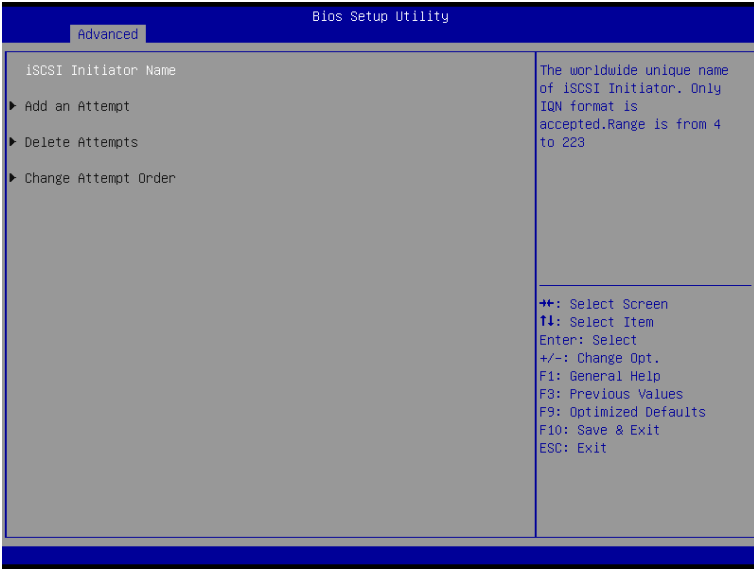
IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/

IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/

IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;

Default setting is **Use Automatic Settings**.

1-2-10 iSCSI Configuration



☞ **iSCSI Initiator Name**

☞ **Add an Attempts**

Press [Enter] for configuration of advanced items.

☞ **Delete Attempts**

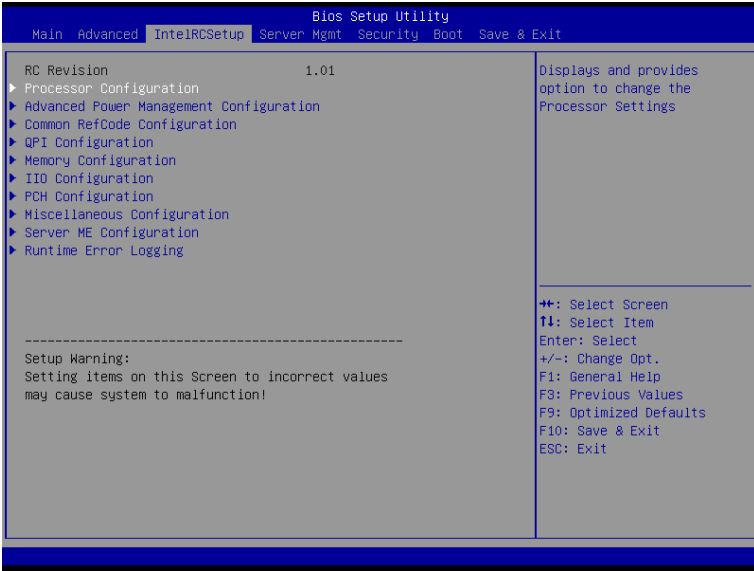
Press [Enter] for configuration of advanced items.

☞ **Change Attempt Order**

Press [Enter] for configuration of advanced items.

1-3 Intel RC Setup Menu

Intel RC Setup menu displays submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen.



🔗 RC Revision

Display Intel RC version information.

1-3-1 Processor Configuration

IntelRCSetup Bios Setup Utility

Processor Configuration

► Per-Socket Configuration

	Socket 0	Socket 1
Processor Socket		
Processor ID	000306F2*	000306F2
Processor Frequency	2.500GHz	2.500GHz
Processor Max Ratio	19H	19H
Processor Min Ratio	0CH	0CH
Microcode Revision	0000001F	0000001F
L1 Cache RAM	768KB	768KB
L2 Cache RAM	3072KB	3072KB
L3 Cache RAM	30720KB	30720KB
Processor 0 Version	Intel(R) Xeon(R) CPU E5 -2680 v3 @ 2.50GHz	
Processor 1 Version	Intel(R) Xeon(R) CPU E5 -2680 v3 @ 2.50GHz	
Hyper-Threading [ALL]	[Enable]	
Execute Disable Bit	[Enable]	
Enable Intel TXT Support	[Disable]	
VMX	[Enable]	
Enable SMX	[Disable]	
Hardware Prefetcher	[Enable]	
Adjacent Cache Prefetch	[Enable]	
DCU Streamer Prefetcher	[Enable]	

Change Per-Socket Settings

++: Select Screen
 T1: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F3: Previous Values
 F9: Optimized Defaults
 F10: Save & Exit
 ESC: Exit

IntelRCSetup Bios Setup Utility

Processor Max Ratio	19H	19H
Processor Min Ratio	0CH	0CH
Microcode Revision	0000001F	0000001F
L1 Cache RAM	768KB	768KB
L2 Cache RAM	3072KB	3072KB
L3 Cache RAM	30720KB	30720KB
Processor 0 Version	Intel(R) Xeon(R) CPU E5 -2680 v3 @ 2.50GHz	
Processor 1 Version	Intel(R) Xeon(R) CPU E5 -2680 v3 @ 2.50GHz	
Hyper-Threading [ALL]	[Enable]	
Execute Disable Bit	[Enable]	
Enable Intel TXT Support	[Disable]	
VMX	[Enable]	
Enable SMX	[Disable]	
Hardware Prefetcher	[Enable]	
Adjacent Cache Prefetch	[Enable]	
DCU Streamer Prefetcher	[Enable]	
DCU IP Prefetcher	[Enable]	
DCU Mode	[32KB 8Way Without ECC]	
Direct Cache Access (DCA)	[Auto]	
DCA Prefetch Delay	[32]	
X2APIC	[Disable]	
AES-NI	[Enable]	

Enable/disable AES-NI support

++: Select Screen
 T1: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F3: Previous Values
 F9: Optimized Defaults
 F10: Save & Exit
 ESC: Exit

☞ **Processor Configuration**

☞ **Pre-Socket Configuration**

Press [Enter] for configuration of advanced items.

☞ **Processor Socket/Processor ID/Processor Frequency/Processor Max Raito/
Processor Min Raio/Microcode Revision/L1 Cache RAM/L2 Cache RAM/L3 Cache RAM/
Processor 0/1Version**

Displays the technical specifications for the installed processor.

☞ **Hyper-Threading [All]**

The 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**.

☞ **Execute Disable Bit**

When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.

When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.

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

☞ **Enable Intel TXT Support**

Enable/Disable Intel Trusted Execution Technology support function.

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

☞ **VMX (Vanderpool Technology)**

Enable/Disable Vanderpool Technology. This will take effect after rebooting the system.

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

☞ **Enable SMX (Intel Safer Mode Extensions Technology)**

Enable/Disable Intel Safer Mode Extensions (SMX) support function.

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

☞ **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**.

☞ **DCU Streamer Prefetch**

Enable prefetch of next L1 Data line based upon multiple loads in same cache line.

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

☞ **DCU IP Prefetch**

Enable prefetch of next L1 Data line based upon sequential load history.

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

☞ **DCU Mode**

Configure DCU mode.

Options available: 32KB 8Way Without ECC/16KB 4Way With ECC. Default setting is **32KB 8Way Without ECC**.

☞ **Direct Cache Access (DCA)**

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

☞ **DCA Prefetch Delay**

Options available: Disabled/8/16/24/32/40/48/56/64/72/80/88/96/104/112. Default setting is **32**.

☞ **X2APIC**

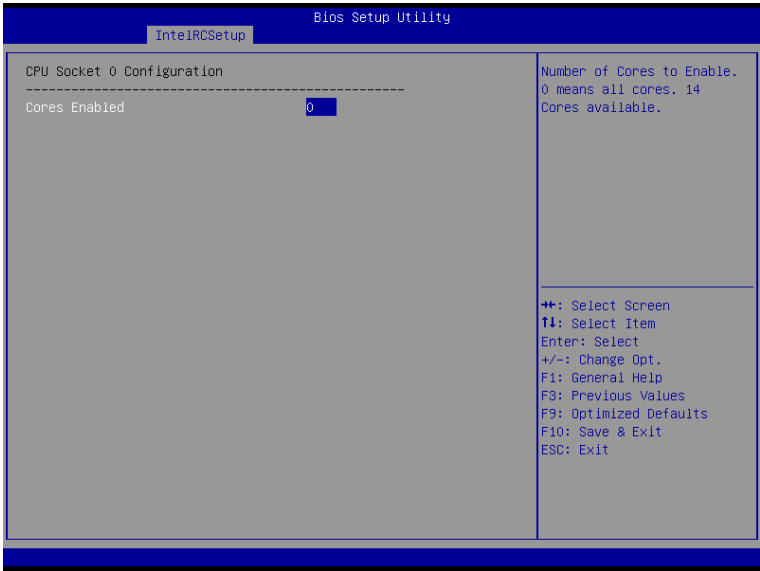
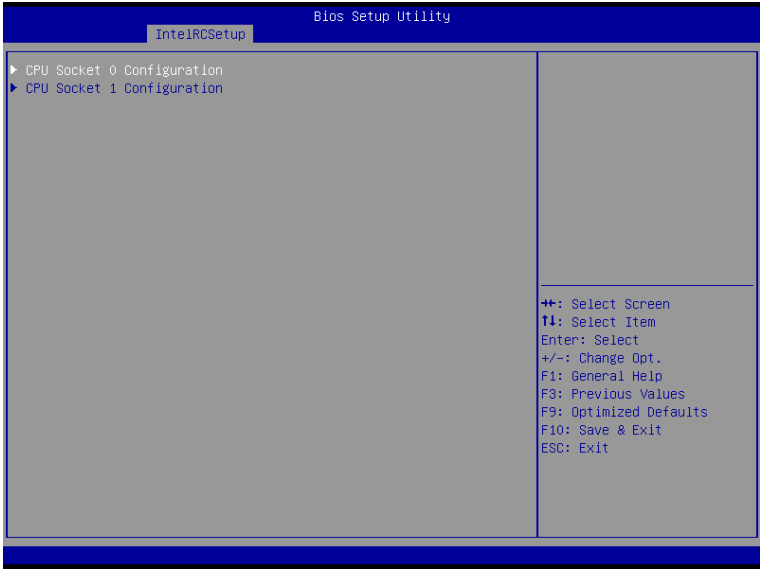
Options available: Enabled/Disabled. Default setting is **Disabled**.

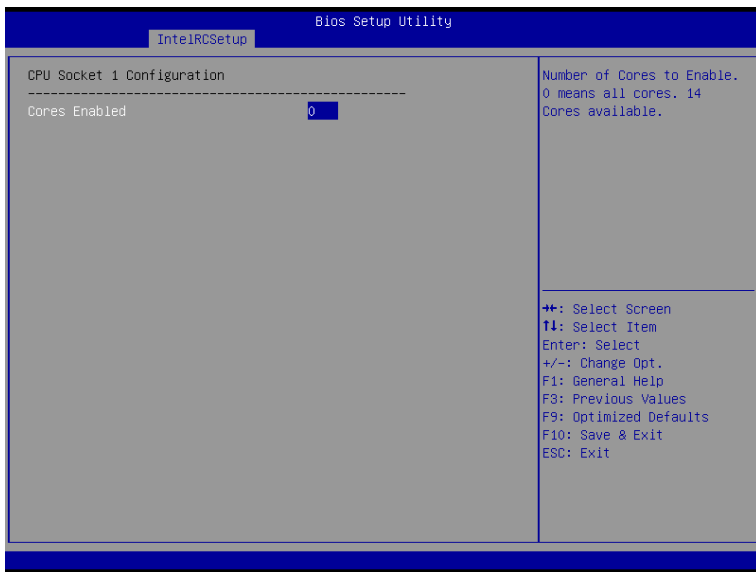
☞ **AES-NI**

Enable/Disable AES-NI (Intel Advanced Encryption Standard New Instructions) support function.

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

1-3-1-1 Pre-Socket Configuration





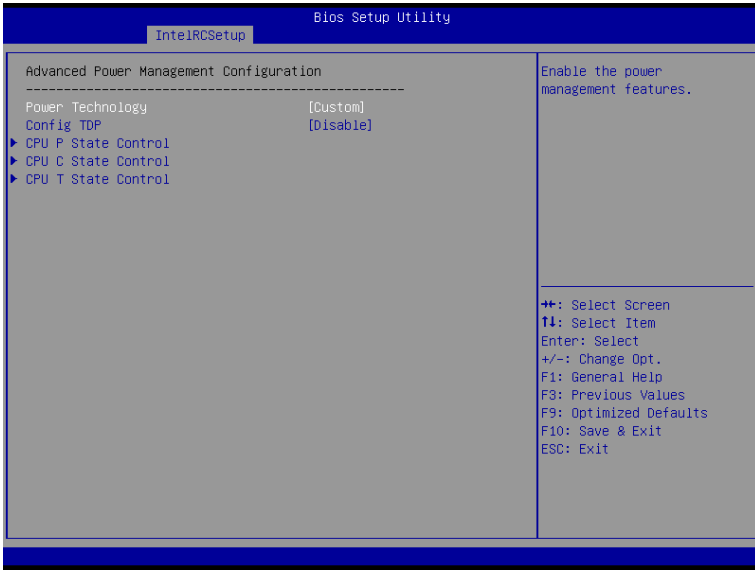
☞ **CPU Socket 0/1 Configuration**

Press [Enter] for configuration of advanced items.

☞ **Cores Enabled (for CPU socket 0/1)**

Number of Cores to enable. 0 means all cores. 14 Cores is available. Press the numeric keys to adjust desired values.

1-3-2 Advanced Power Management Configuration



☞ **Advanced Power Management Configuration**

☞ **Power Technology**

Option available: Disable/Energy Efficient/Custom. Default setting is **Energy Efficient**.

☞ **Config TDP**

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

☞ **CPU P State Control**

Press [Enter] for configuration of advanced items.

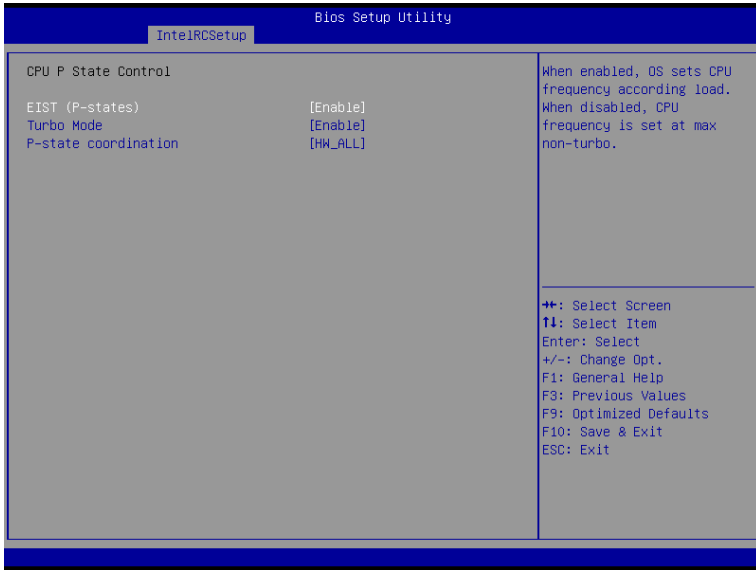
☞ **CPU C State Control**

Press [Enter] for configuration of advanced items.

☞ **CPU T State Control**

Press [Enter] for configuration of advanced items.

1-3-2-1 CPU P State Control



☞ EIST (P-State)

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, the 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**.

☞ P-state coordination

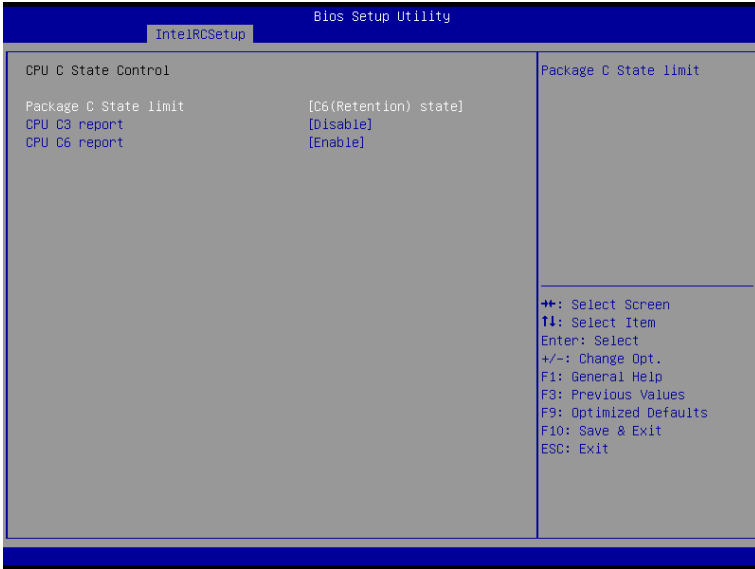
In HW_ALL mode, the processor hardware is responsible for coordinating the P-state among logical processors dependencies. The OS is responsible for keeping the P-state request up to date on all logical processors.

In SW_ALL mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and must initiate the transition on all of those Logical Processors.

In SW_ANY mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and may initiate the transition on any of those Logical Processors.

Options available: HW_ALL/SW_ALL/SW_ANY. Default setting is **HW_ALL**.

1-3-2-2 CPU C State Control



☞ Package C State Limit

Configure state for the C-State package limit.

Options available: C0/C1 state/C2 state/C6(non Retention) state/C6(Retention) state.

Default setting is **C6(non Retention) state**.

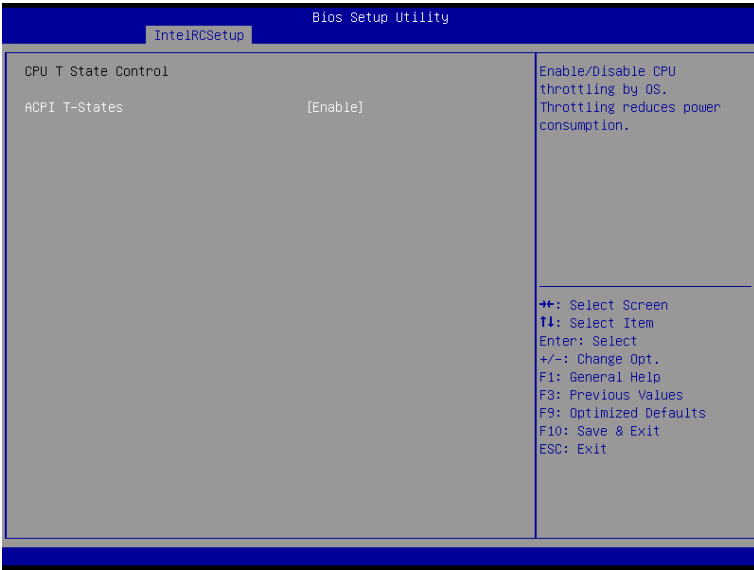
☞ CPU C3/C6 Report

Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1.

Options available: Enabled/Disabled.

Default setting for C3 is **Disabled**; default setting for C6 is **Enabled**.

1-3-2-3 CPU T State Control

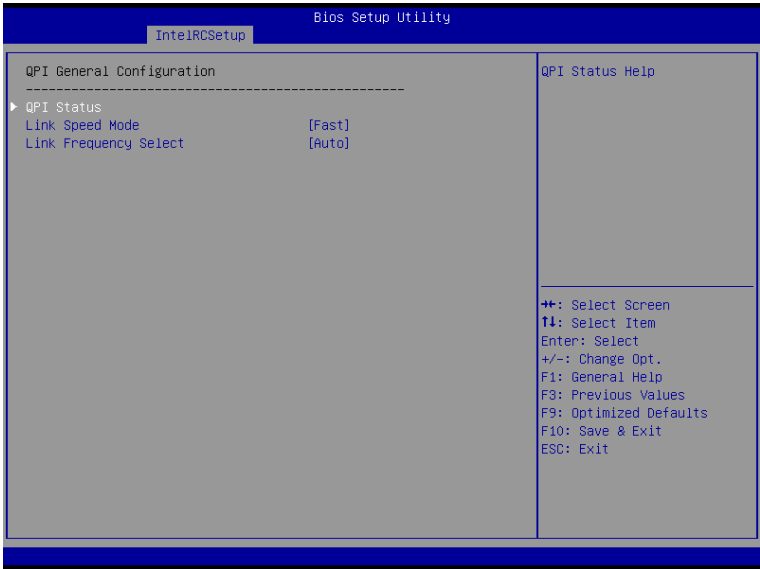
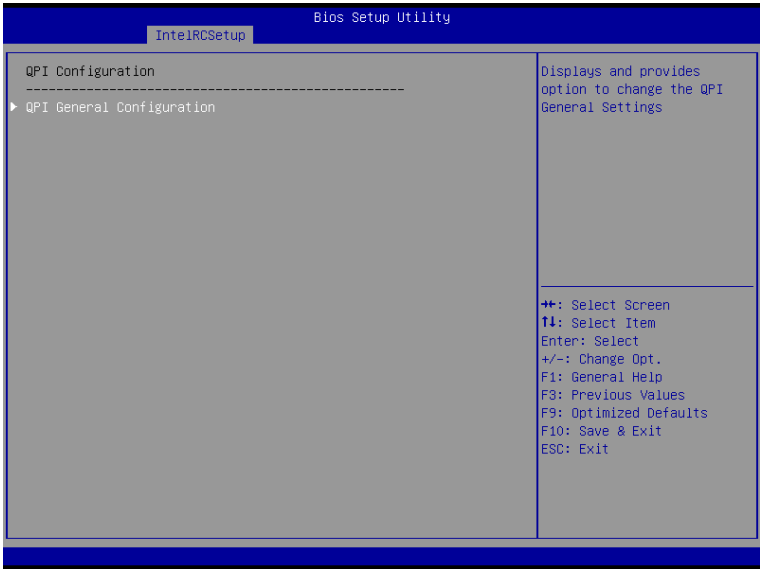


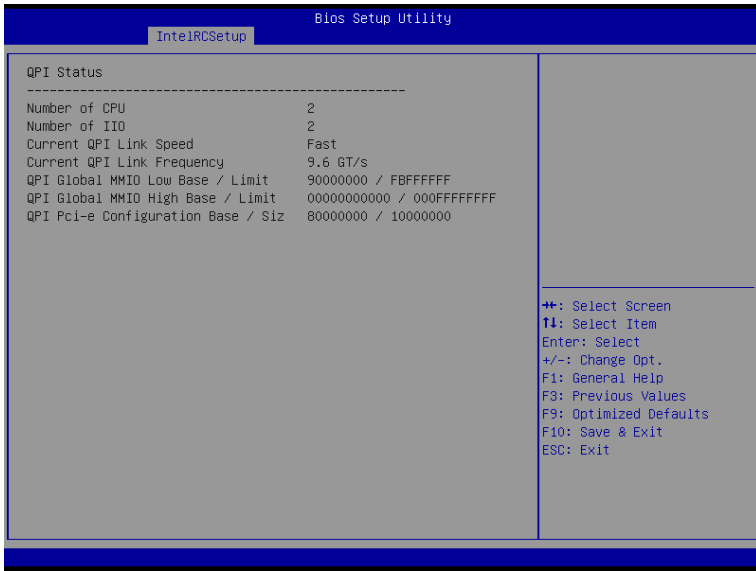
☞ ACPI T-States

Enable/Disable CPU throttling by OS. Throttling reduces power consumption.

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

1-3-4 QPI Configuration





☞ QPI General Configuration

Press [Enter] for configuration of advanced items.

☞ QPI Status

Press [Enter] to view QPI status.

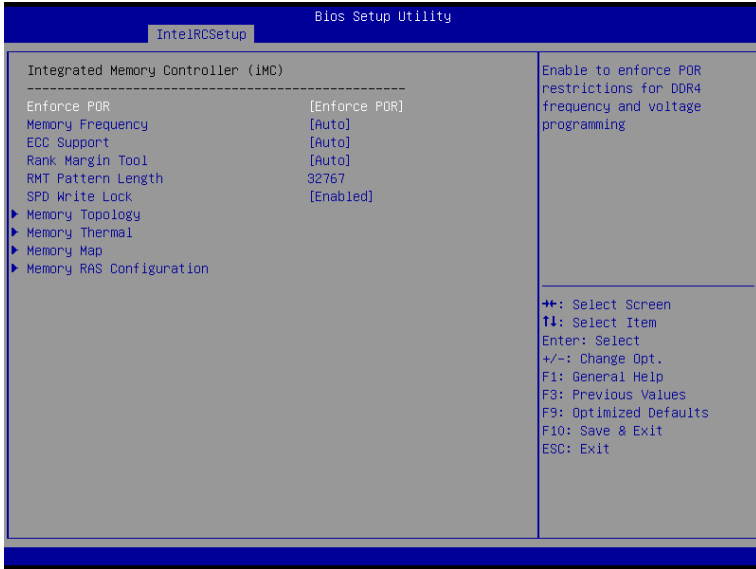
☞ Link Speed Mode

Options available: Slow/Fast. Default setting is **Fast**.

☞ Link Frequency Select

Options available: 6.4GB/s/8.0GB/s/9.6GB/s/Auto/Auto Limited. Default setting is **Auto**.

1-3-5 Memory Configuration



☞ Integrated Memory Controller (iMC)

☞ Enforce POR

Enable to enforce POR restrictions for DDR4 frequency and voltage programming.

Options available: Enforce POR/Disabled/Enforce Stretch Goals. Default setting is **Enforce POR**.

☞ Memory Frequency

Configure memory frequency.

Options available: Auto/1333/1400/1600/1800/1867/2000/2133.

Default setting is **Auto**.

☞ ECC Support

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

☞ Rank Margin Tool

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

☞ RMT Pattern Length

Display RMT Pattern Length.

☞ SPD Write Lock

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

☞ Memory Topology

Press [Enter] for configuration of advanced items.

☞ Memory Thermal

Press [Enter] for configuration of advanced items.

☞ **Memory Map**

Press [Enter] for configuration of advanced items.

☞ **Memory RAS Configuration**

Press [Enter] for configuration of advanced items.

1-3-5-1 Memory Topology

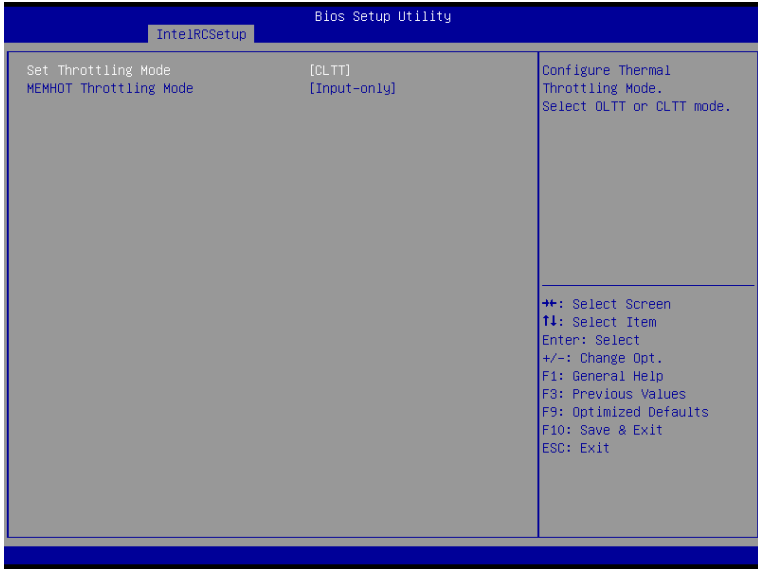
Bios Setup Utility

IntelIRCSetup

DIMM_P0_A0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_A1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_A2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H2: 2133MT/s Samsung DRx4 16GB RDIMM	

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

1-3-5-2 Memory Thermal



☞ **Set Throttling Mode**

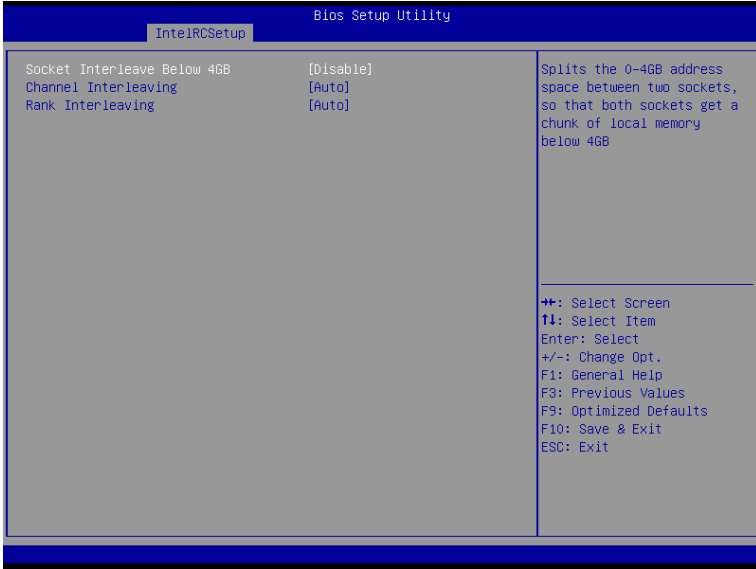
Configure Thermal Throttling Mode. Select OLTT or CLTT mode.

Options available: Disabled/CLTT Mode. Default setting is **CLTT Mode**.

☞ **MEMHOT Throttling Mode**

Options available: Disabled/Output-only/Input-only. Default setting is **Input-only**.

1-3-5-3 Memory Map



☞ **Socket Interleave Below 4GB**

Splits the 0-4GB address space between two sockets, so that both sockets get a chunk of local memory below 4GB.

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

☞ **Channel Interleaving**

Options available: Auto/1-way Interleave/2-way Interleave/3-way Interleave/4-way Interleave.

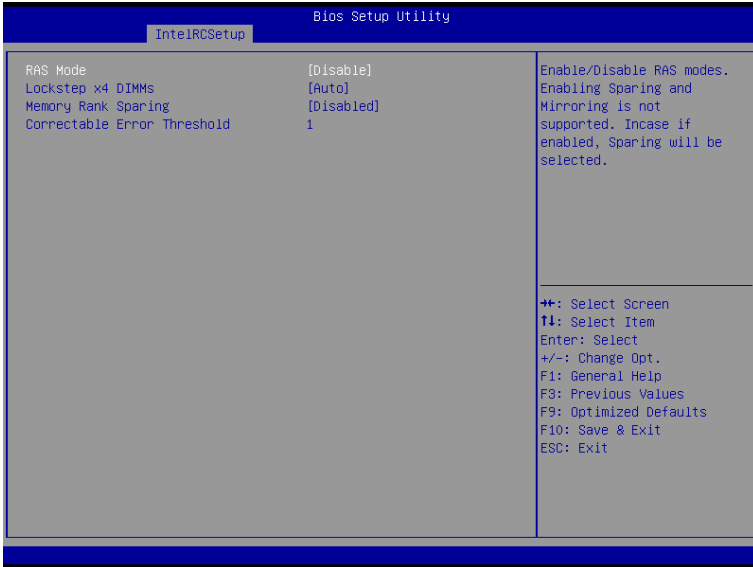
Default setting is **Auto**.

☞ **Rank Interleaving**

Options available: Auto/1-way Interleave/2-way Interleave/4-way Interleave/8-way Interleave.

Default setting is **Auto**.

1-3-5-4 Memory RAS Configuration



☞ RAS Mode

Enable/Disable RAS modes. Enabling Sparing and Mirroring is not supported. When this item is set to enabled, Sparing will be selected.

Options available: Disable/Mirror/Lockstep Mode. Default setting is **Disabled**.

☞ Lockstep x4 DIMMs

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

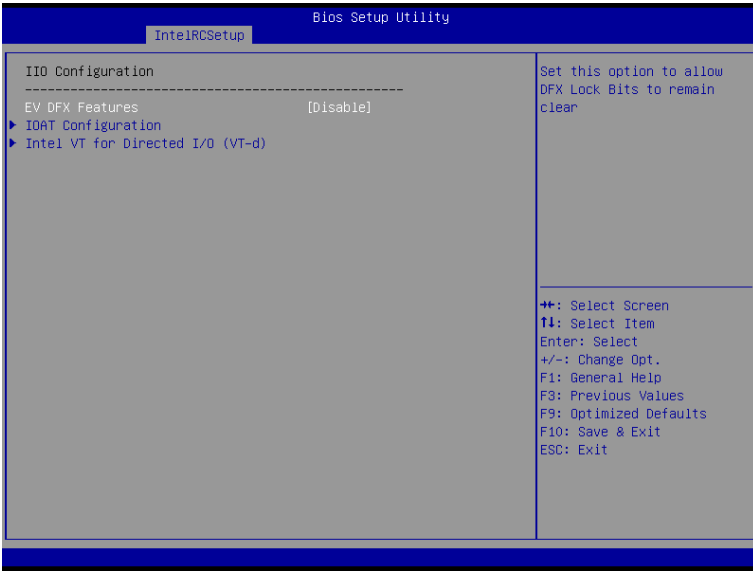
☞ Memory Rank Sparing

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

☞ Correctable Error Threshold

Press <+> / <-> keys to increase or decrease the desired values.

1-3-6 I/O Configuration



⌵ I/O Configuration

⌵ EV DFX Features

Set this option to allow DFX Lock Bits to remain clear.

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

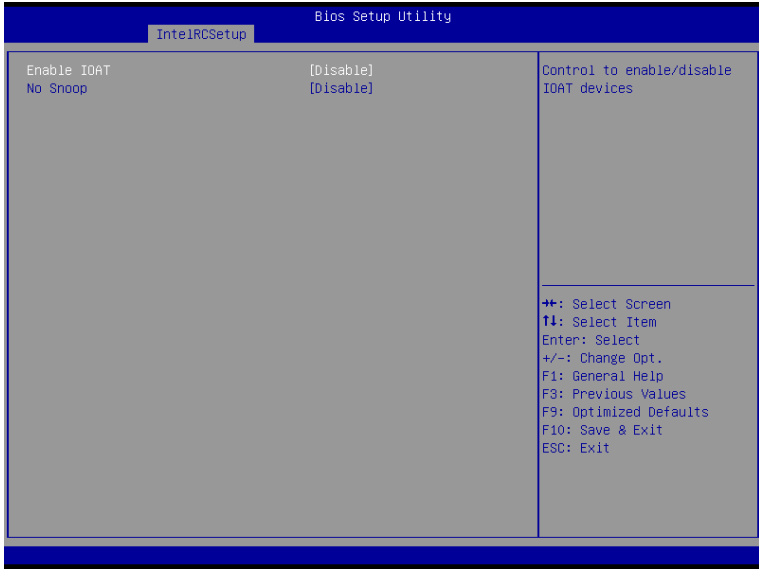
⌵ IOAT Configuration

Press [Enter] for configuration of advanced items.

⌵ Intel VT for Directed I/O (VT-d)

Press [Enter] for configuration of advanced items.

1-3-6-1 IOAT Configuration



IOAT Configuration

Enable IOAT

Control to enable/disable IOAT (Intel I/O Acceleration Technology) device.
Options available: Enabled/Disabled. Default setting is **Disabled**.

No Snoop

Enable/Disable PCI Express Device No Snoop option.
Options available: Enabled/Disabled. Default setting is **Disabled**.

1-3-6-2 Intel VT for Directed I/O (VT-d)



- ☞ **Intel VT for Directed I/O (VT-d)**
- ☞ **VT-d Azalea VcP Optimizations**
Enable/Disable Azalea VcP optimizations.
Options available: Enabled/Disabled. Default setting is **Disabled**.
- ☞ **Intel VT for Directed I/O (VT-d)**
Enable/Disable Intel VT for Directed I/O (VT-d) support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Interrupt Remapping**
Enable/Disable interrupt remapping support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Coherency Suuport (Non-Isoch)**
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Coherency Suuport (Isoch)**
Options available: Enabled/Disabled. Default setting is **Enabled**.

1-3-7 PCH Configuration



☞ PCH Configuration

☞ PCH Devices

Press [Enter] for configuration of advanced items.

☞ PCH sSATA Configuration

Press [Enter] for configuration of advanced items.

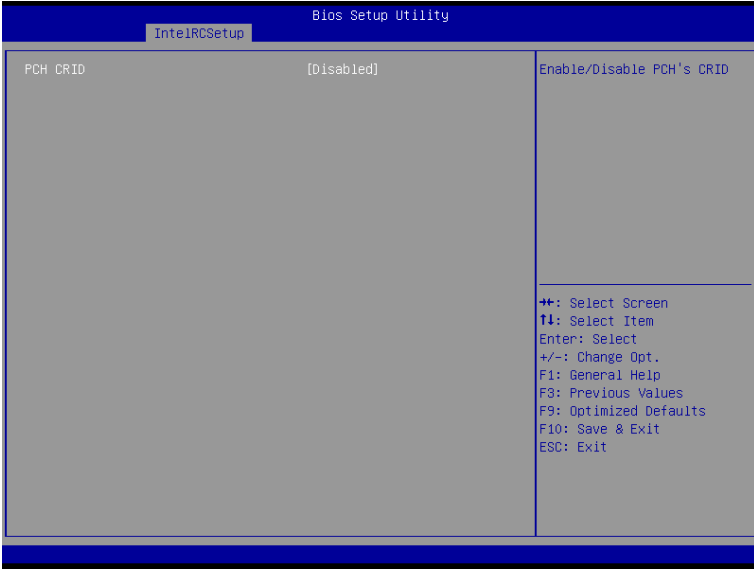
☞ PCH SATA Configuration

Press [Enter] for configuration of advanced items.

☞ USB Configuration

Press [Enter] for configuration of advanced items.

1-3-7-1 PCH Devices



PCH CRID

Enable/Disable Intel Compatible Revision ID.

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

1-3-7-2 PCH sSATA Configuration

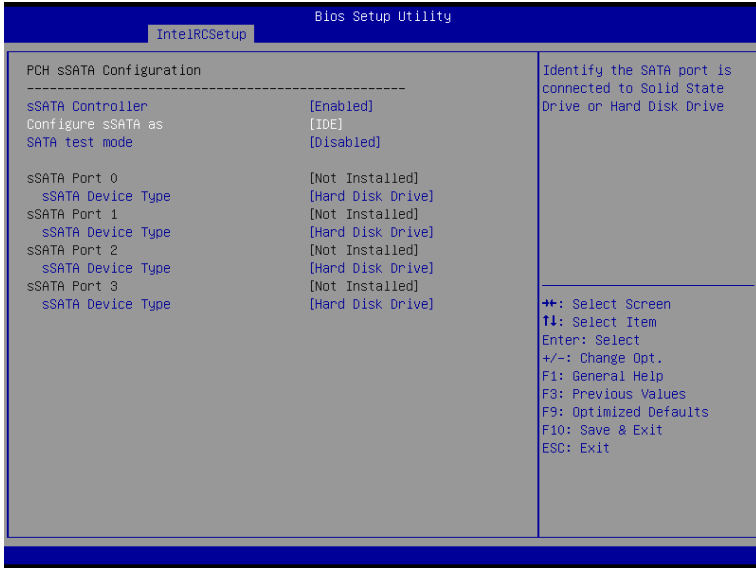
IntelRCSetup Bios Setup Utility

<p>PCH sSATA Configuration</p> <hr style="border-top: 1px dashed black;"/> <p>SSATA Controller [Enabled] Configure sSATA as [AHCI] SATA test mode [Disabled] ▶ SATA Mode options Support Aggressive Link Power Mana [Enabled]</p> <p>SSATA Port 0 [Not Installed] Port 0 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p> <p>SSATA Port 1 [Not Installed] Port 1 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p> <p>SSATA Port 2 [Not Installed] Port 2 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled]</p>	<p>Enable or Disable SATA Controller</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit </p>
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IntelRCSetup Bios Setup Utility

<p>SSATA Port 0 [Not Installed] Port 0 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p> <p>SSATA Port 1 [Not Installed] Port 1 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p> <p>SSATA Port 2 [Not Installed] Port 2 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p> <p>SSATA Port 3 [Not Installed] Port 3 [Enabled] Hot Plug [Disabled] Configured as eSATA Hot Plug supported Spin Up Device [Disabled] SSATA Device Type [Hard Disk Drive]</p>	<p>Identify the SATA port is connected to Solid State Drive or Hard Disk Drive</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit </p>
---	---

When SATA Type is set to IDE



☞ PCH sSATA Configuration

☞ sSATA Controller(s)

Enable/Disable sSATA controller.

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

☞ Configure sSATA as

Configure on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

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

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

☞ SATA Test Mode

Enable/Disable SATA Test Mode.

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

☞ SATA Mode options^(Note)

Press [Enter] for configuration of advanced items.

☞ Support Aggressive Link Power Mana^(Note)

Enable PCH to aggressively enter link power state.

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

(Note) Only Supported When HDD is in **AHCI** or **RAID** Mode.

☞ **Alternate Device ID on RAID**

Enable /Disable Alternate Device ID on RAID mode.

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

Please note that this option appears when HDD is in RAID Mode.

☞ **sSATA Port 0/1/2/3**

The category identifies sSATA type of hard disk that are installed in the computer.

System will automatically detect HDD type.

☞ **Port 0/1/2/3**

Enable/Disable Port 0/1/2/3 device.

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

☞ **Hot Plug (for Port 0/1/2/3)^(Note)**

Enable/Disable HDD Hot-Plug function.

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

☞ **Configured as eSATA^(Note)**

Display Hot-Plug supported information.

☞ **Spin Up Device (for Port 0/1/2/3)^(Note)**

On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device.

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

☞ **sSATA Device Type**

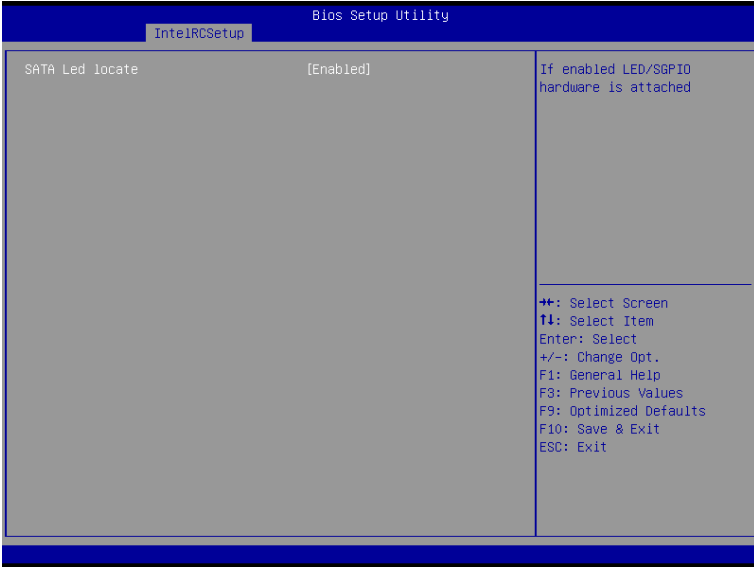
Select sSATA device type.

Options available: Hard Disk Drive/Solid State Drive. Default setting is **Hard Disk Drive**.

(Note) Only Supported When HDD is in **AHCI** or **RAID** Mode.

1-3-7-2-1 SATA Mode Options

When SATA Type is set to IDE/AHCI Mode

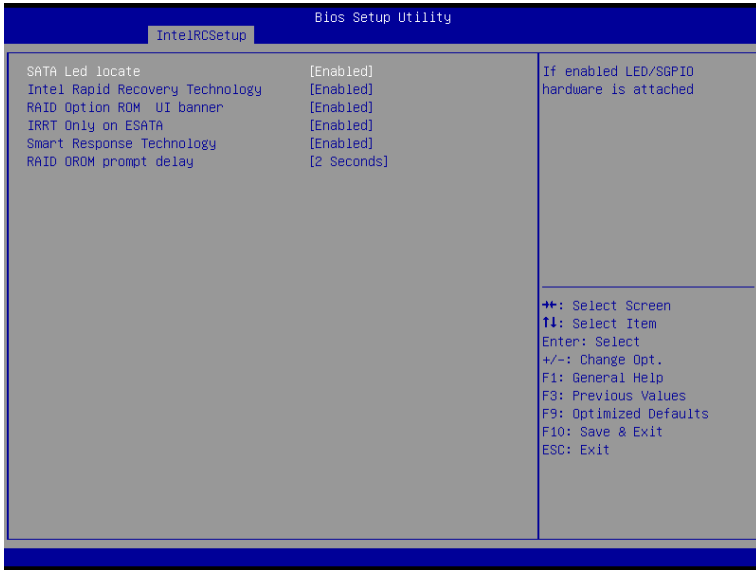


SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.

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

When SATA Type is set to RAID Mode



☞ SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.

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

☞ Intel Rapid Recovery Technology

Enable/Disable Intel Rapid Recovery Technology support function.

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

☞ RAID Option ROM UI banner

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

☞ IRRT Only on ESATA

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

☞ Smart Response Technology

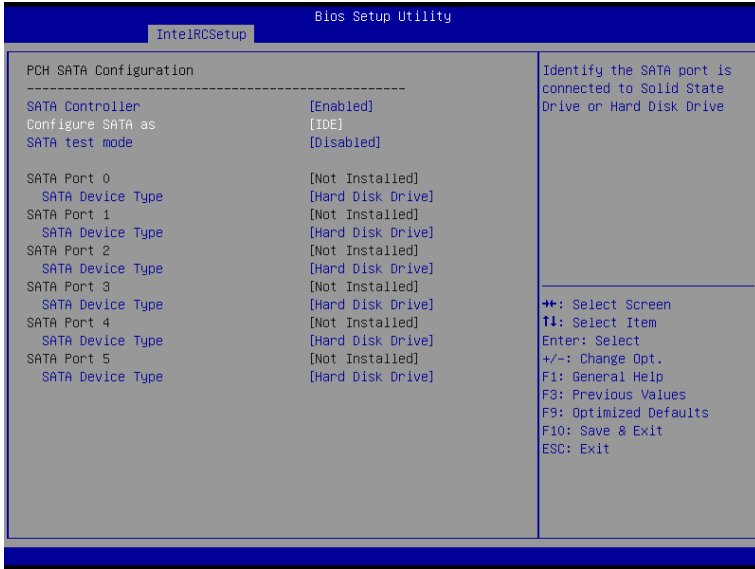
Enable/Disable Intel Smart Response Technology support function.

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

☞ RAID OROM prompt delay

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

When SATA Type is set to IDE



☞ PCH SATA Configuration

☞ SATA Controller(s)

Enable/Disable sSATA controller.

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

☞ Configure sSATA as

Configure on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

RAID Mode: When set to RAID, the SATA controller enables both its RAID and AHCI functions. You will be allowed access to 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 accessed in the RAID setup utility at boot time.

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

☞ SATA Test Mode

Enable/Disable SATA Test Mode.

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

☞ SATA RSTe Boot Info^(Note 1)

Enable/Disable SATA RSTe Boot Information.

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

☞ SATA Mode options^(Note 2)

Press [Enter] for configuration of advanced items.

(Note 1) Only Supported When HDD is in **RAID** Mode.

(Note 2) Only Supported When HDD is in **AHCI** or **RAID** Mode.

- ☞ **Support Aggressive Link Power Mana^(Note)**
Enable PCH to aggressively enter link power state.
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Alternate Device ID on RAID**
Enable /Disable Alternate Device ID on RAID mode.
Options available: Enabled/Disabled. Default setting is **Disabled**.
Please note that this option appears when HDD is in RAID Mode.
- ☞ **sSATA Port 0/1/2/3/4/5**
The category identifies sSATA type of hard disk that are installed in the computer.
System will automatically detect HDD type.
- ☞ **Port 0/1/2/3/4/5**
Enable/Disable Port 0/1/2/3 device.
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Hot Plug (for Port 0/1/2/3/4/5)^(Note)**
Enable/Disable HDD Hot-Plug function.
Options available: Enabled/Disabled. Default setting is **Disabled**.
- ☞ **Configured as eSATA^(Note)**
Display Hot-Plug supported information.
- ☞ **Spin Up Device (for Port 0/1/2/3/4/5)^(Note)**
On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device.
Options available: Enabled/Disabled. Default setting is **Disabled**.
- ☞ **sSATA Device Type**
Select sSATA device type.
Options available: Hard Disk Drive/Solid State Drive. Default setting is **Hard Disk Drive**.

(Note) Only Supported When HDD is in **AHCI** or **RAID** Mode.

1-3-7-3-1 SATA Mode Options

When SATA Type is set to IDE/AHCI Mode

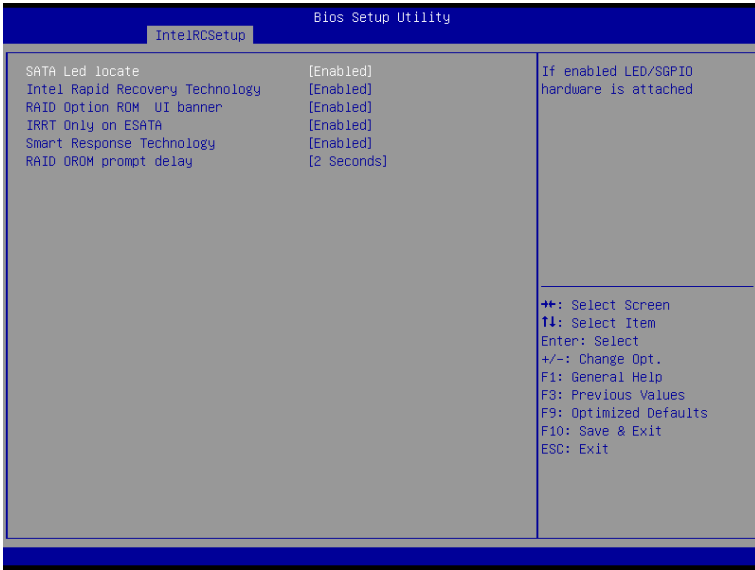


🔑 SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.

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

When SATA Type is set to RAID Mode



☞ **SATA LED locate**

When this option is enabled, LED/SGPIO hardware is attached.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Intel Rapid Recovery Technology**

Enable/Disable Intel Rapid Recovery Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **RAID Option ROM UI banner**

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

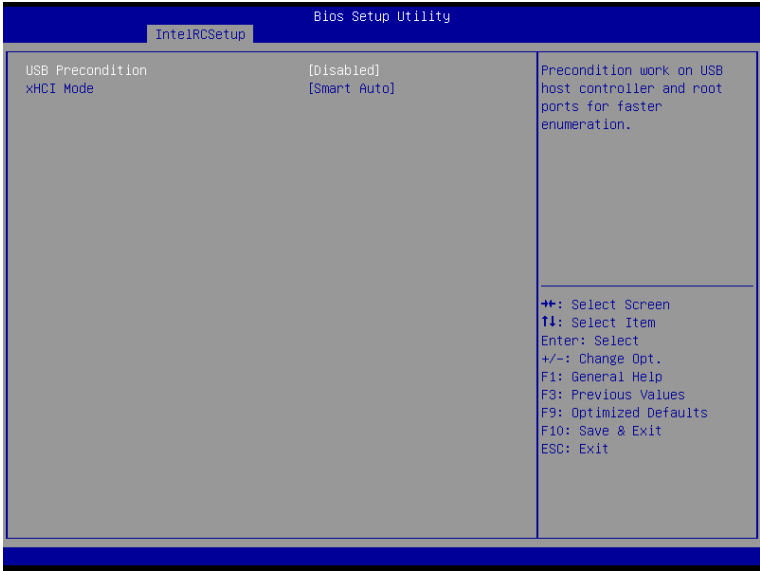
☞ **Smart Response Technology**

Enable/Disable Intel Smart Response Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **RAID OROM prompt delay**

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

1-3-7-4 USB Configuration



☞ **USB Precondition**

Precondition work on USB host controller and root ports for faster enumeration.

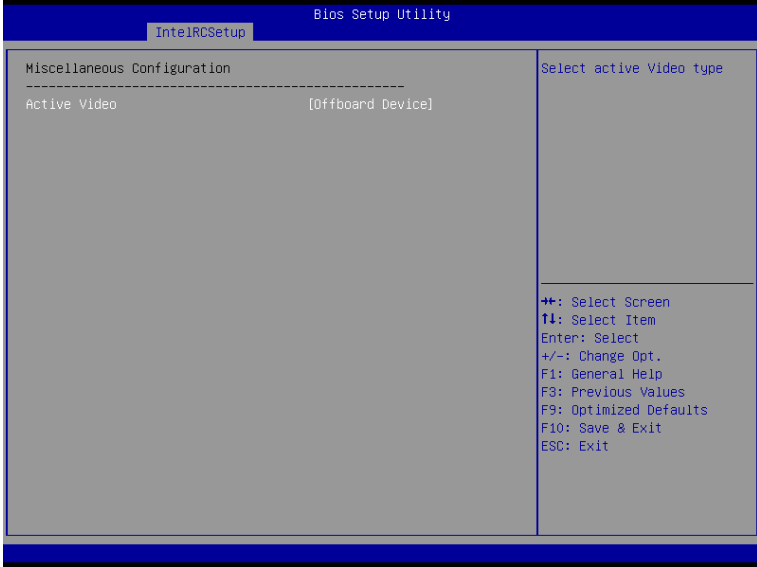
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **xHCI Mode**

Enable/Disable xHCI (USB 3.0) support function.

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

1-3-8 Miscellaneous Configuration



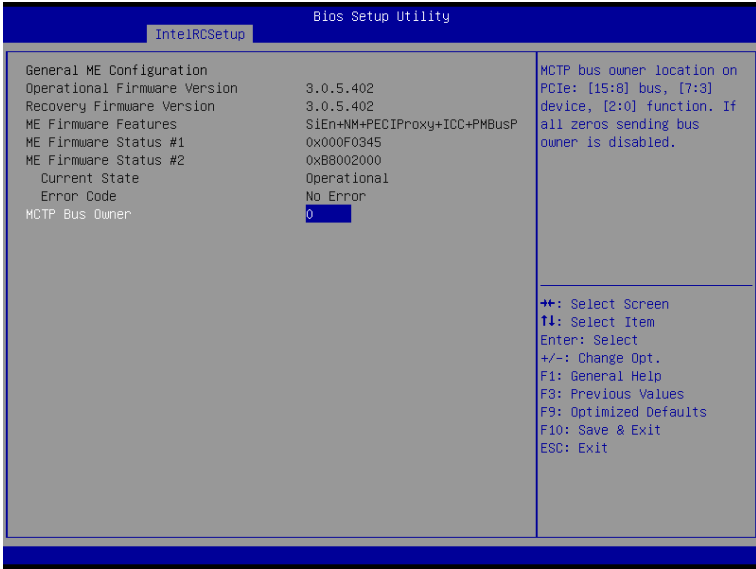
☞ Miscellaneous Configuration

☞ Active Video

Select active Video type.

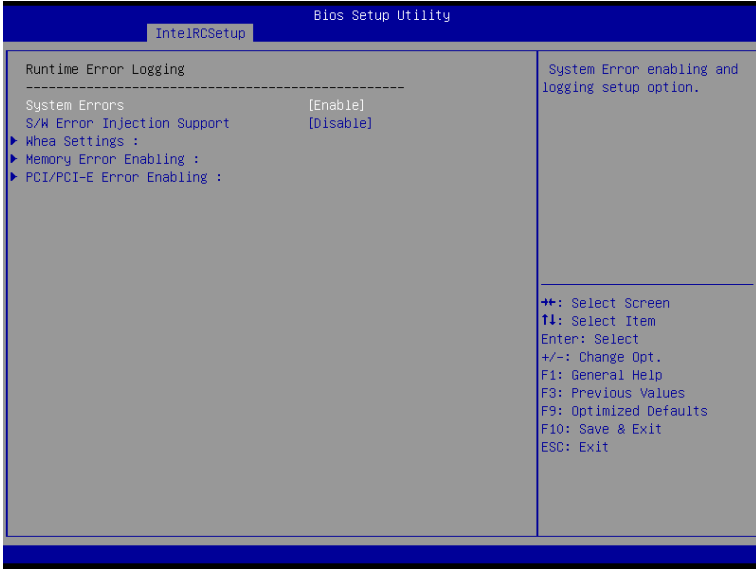
Options available: Onboard Device/Offboard Device. Default setting is **Offboard Device**.

1-3-9 Server ME Configuration



- ☞ **General ME Configuration**
- ☞ **Operational Firmware Version**
Display Operational Firmware Version information.
- ☞ **Recovery Firmware Version**
Display Recovery Firmware Version information.
- ☞ **ME Firmware Features**
Display ME Firmware features information.
- ☞ **ME Firmware Status #1/#2**
Display ME Firmware status information.
- ☞ **Current State (for ME Firmware)**
Display ME Firmware current status information.
- ☞ **Error Code (for ME Firmware)**
Display ME Firmware status error code.
- ☞ **MCTP Bus Owner**
Configure MCTP Bus Owner.

1-3-10 Runtime Error Logging



☞ Runtime Error Logging

☞ System Errors

Enable/Disable system error logging function.

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

☞ S/W Error Injection Support

Enable/Disable software injection error logging function.

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

☞ Whea Settings

Press [Enter] for configuration of advanced items.

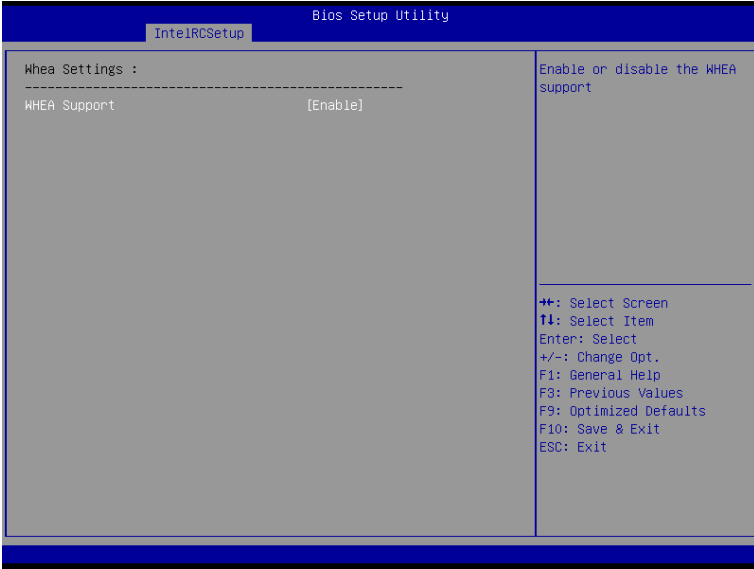
☞ Memory Error Enabling

Press [Enter] for configuration of advanced items.

☞ PCI/PCI-E Error Enabling

Press [Enter] for configuration of advanced items.

1-3-10-1 Whea Setting

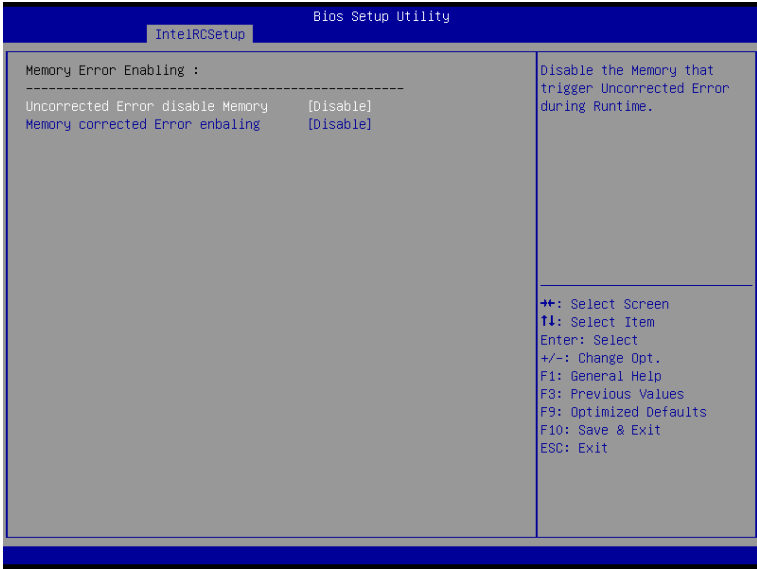


☞ **WHEA Support (Windows Hardware Error Architecture)**

Enable/Disable WHEA Support.

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

1-3-10-2 Memory Error Enabling



☞ **Memory Error Enabling**

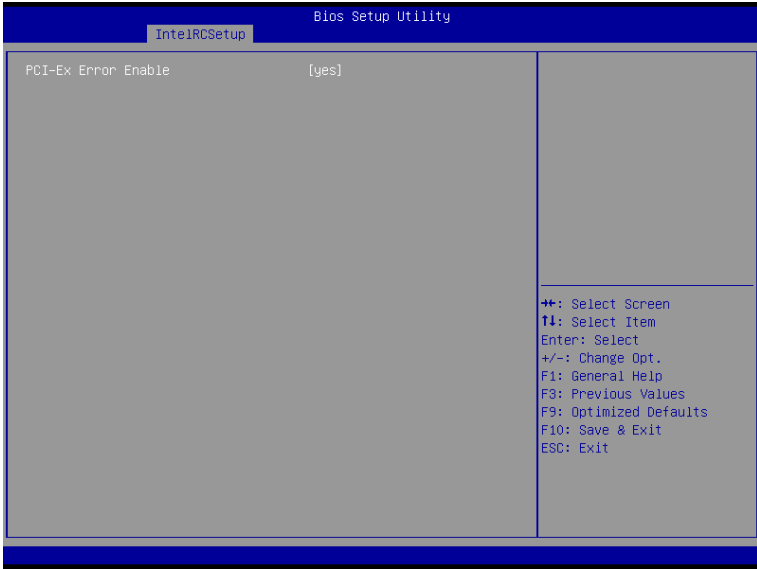
☞ **Un-Correctable Errors disable Memory**

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

☞ **Memory corrected Errors enabling**

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

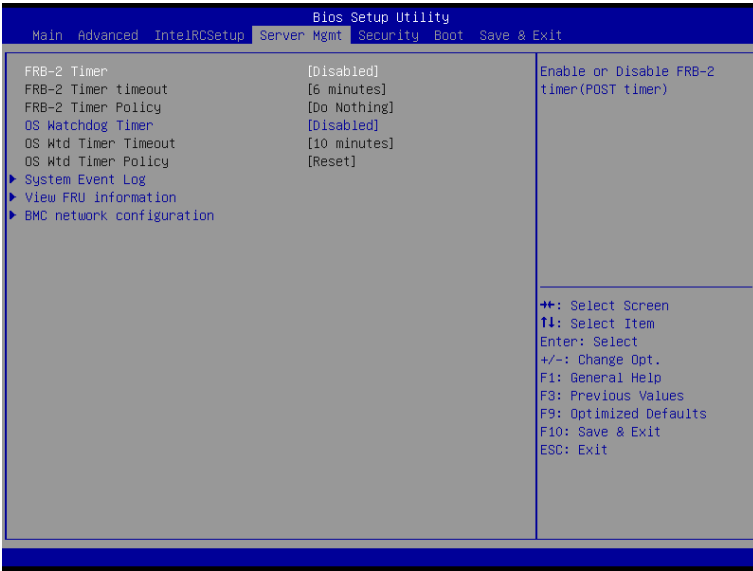
1-3-10-3 PCI/PCI Error Enabling



☞ PCI-Ex Error Enable

Options available: Yes/No. Default setting is **No**.

1-4 Server Management Menu



☞ FRB-2 Timer

Enable/Disable FRB-2 timer (POST timer).

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

☞ FRB2 Timer timeout

Configure the FRB2 Timer timeout.

Options available: 3 minutes/4 minutes/5 minutes/6 minutes. Default setting is **6 minutes**.

Please note that this item is configurable when FRB-2 Timer is set to Enabled.

☞ FRB2 Timer Policy

Configure the FRB2 Timer policy.

Options available: Do Nothing/Reset/Power Down. Default setting is **Do Nothing**.

Please note that this item is configurable when FRB-2 Timer is set to Enabled.

☞ OS Watchdog Timer

Enable/Disable OS Watchdog Timer function.

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

☞ OS Wtd Timer Timeout

Configure OS Watchdog Timer.

Options available: 5 minutes/10 minutes/15 minutes/20 minutes. Default setting is **10 minutes**.

Please note that this item is configurable when OS Watchdog Timer is set to Enabled.

☞ OS Wtd Timer Policy

Configure OS Watchdog Timer Policy.

Options available: Reset/Do Nothing/Power Down. Default setting is **Reset**.

Please note that this item is configurable when OS Watchdog Timer is set to Enabled.

☞ **System Event Log**

Press [Enter] for configuration of advanced items.

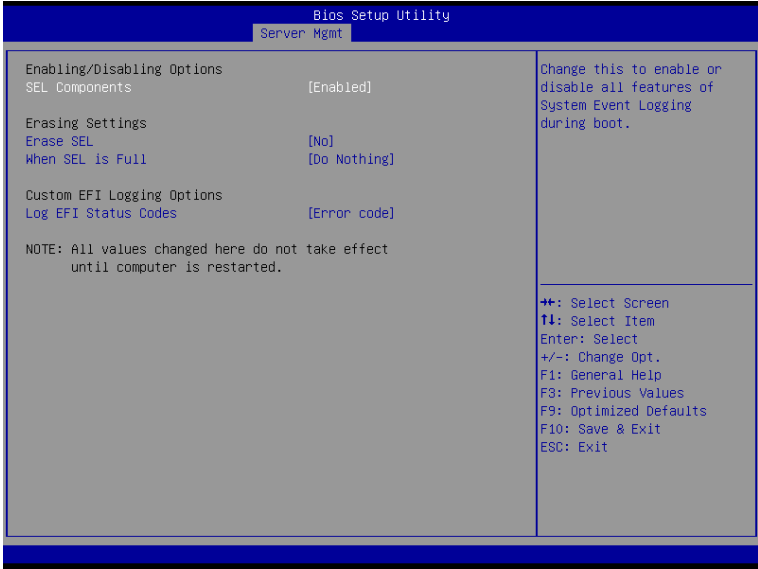
☞ **View FRU Information**

Press [Enter] to view the advanced items.

☞ **BMC network configuration**

Press [Enter] for configuration of advanced items.

1-4-1 System Event Log



☞ Enabling/Disabling Options

☞ SEL Components

Change this to enable or disable all features of System Event Logging during boot.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Erasing Settings

☞ Erasing SEL

Choose options for erasing SEL.
Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

☞ When SEL is Full

Choose options for reactions to a full SEL.
Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

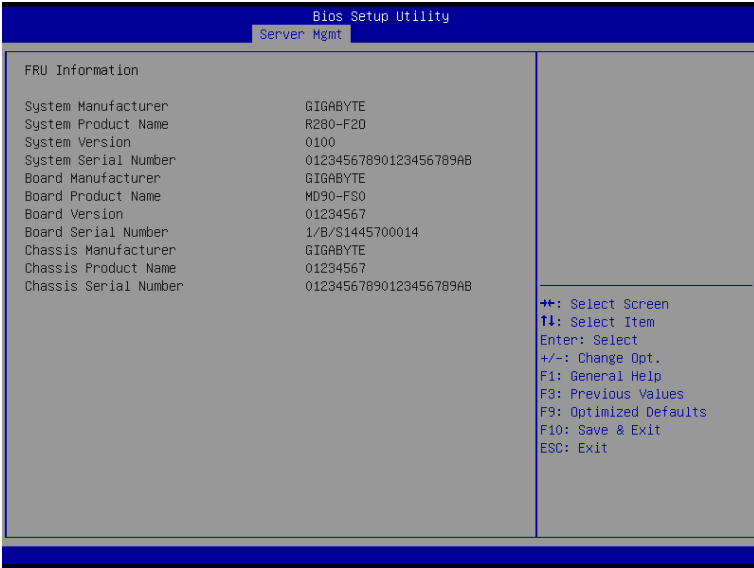
☞ Custom EFI Logging Options

☞ Log EFI Status Codes

Enable/Disable the logging of EFI Status Codes (if not already converted to legacy).
Options available: Disabled/Both/Error code/Progress code. Default setting is **Error code**.

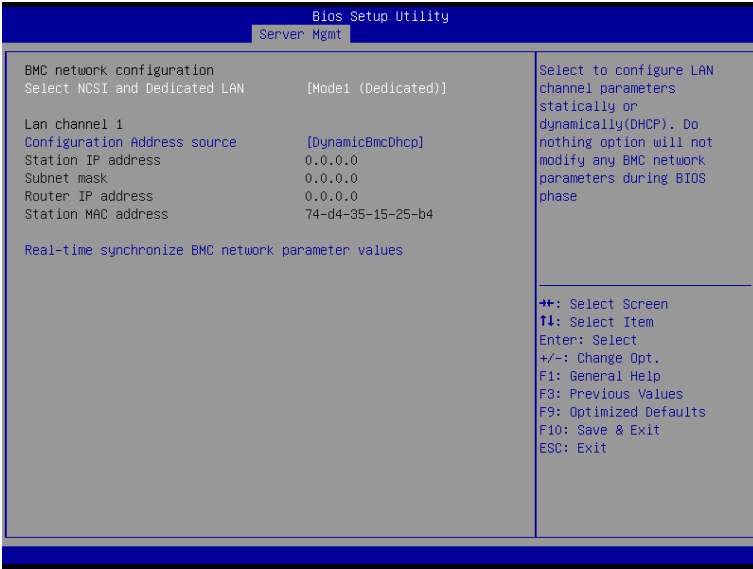
1-4-2 View FRU Information

The FRU page is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.



(Note) The model name will vary depends on the product you purchased

1-4-3 BMC network configuration



☞ BMC network configuration

☞ Select NCSI and Dedicated LAN

Switch NCSI and dedicated LAN and send KCS command.

Options available: Mode2(NSCI)/ Mode1 (Dedicated)/Do Nothing. Default setting is **Do Nothing**.

☞ Lan Channel 1

☞ Configuration Address source

Select to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase.

Options available: Unspecified/Static/DynamicBmcDhcp. Default setting is **Unspecified/Static**.

☞ Station IP Address

Display IP Address information.

☞ Subnet mask

Display Subnet Mask information.

Please note that the IP address must be in three digitals, for example, 192.168.000.001.

☞ Router IP address

Display the Router IP Address information.

☞ Station MAC Address

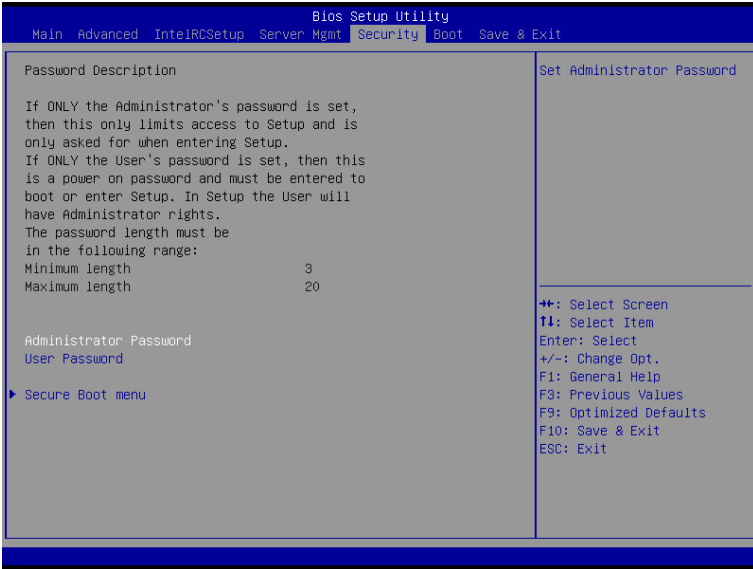
Display the MAC Address information.

☞ Real-time synchronize BMC network parameter values

Press [Enter] to synchronize BMC network parameter values.

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.
- **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. A user can only access and modify the System Time, System Date, and Set User Password fields.

⌂ **Administrator Password**

Press Enter to configure the Administrator password.

⌂ **User Password**

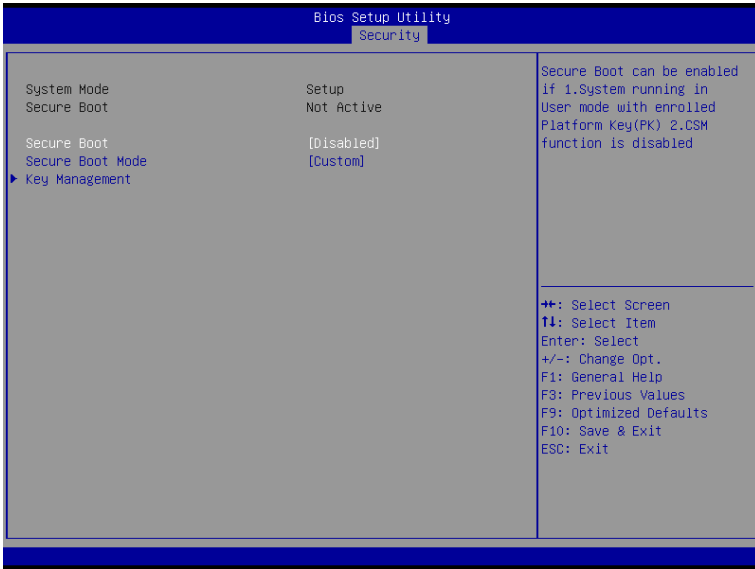
Press Enter to configure the user password.

⌂ **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.



☞ **Secure Mode**

Display the System secure mode state.

☞ **Secure Boot**

Display the status of Secure Boot.

☞ **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 from the BIOS databases.

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

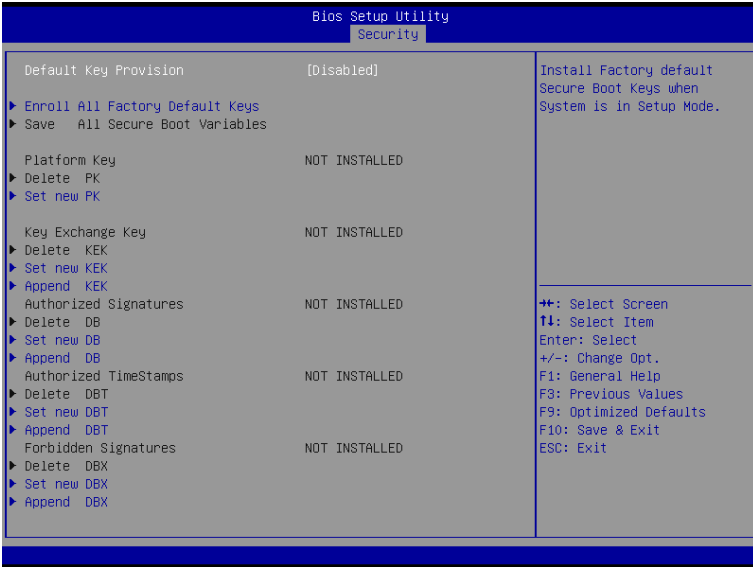
Options available: Standard/Custom. Default setting is **Custom**.

☞ **Key Management^(Note)**

Press [Enter] for configuration of advanced items.

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

1-5-1-1 Key Management



☞ Default Key Provisioning

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 Signatures 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)

Display the status of Platform Key.

☞ Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

☞ Set new PK File

Press [Enter] to configure a new PK.

☞ Key Exchange Key Database (KEK)

Display the status of Platform Key.

☞ Delete KEK

Press [Enter] to delete the KEK from your system.

☞ Set new KEK

Press [Enter] to configure a new KEK.

☞ **Append Var to KEK**

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

☞ **Authorized Signature Database (DB)**

Display the status of Authorized Signature Database.

☞ **Delete DB**

Press [Enter] to delete the db from your system.

☞ **Set new DB**

Press [Enter] to configure a new db.

☞ **Append aVar to DB**

Press [Enter] to load additional db from a storage devices.

☞ **Forbidden Signature Database (DBX)**

Display the status of Forbidden Signature Database.

☞ **Delete the DBX**

Press [Enter] to delete the dbx from your system.

☞ **Set DBX from File**

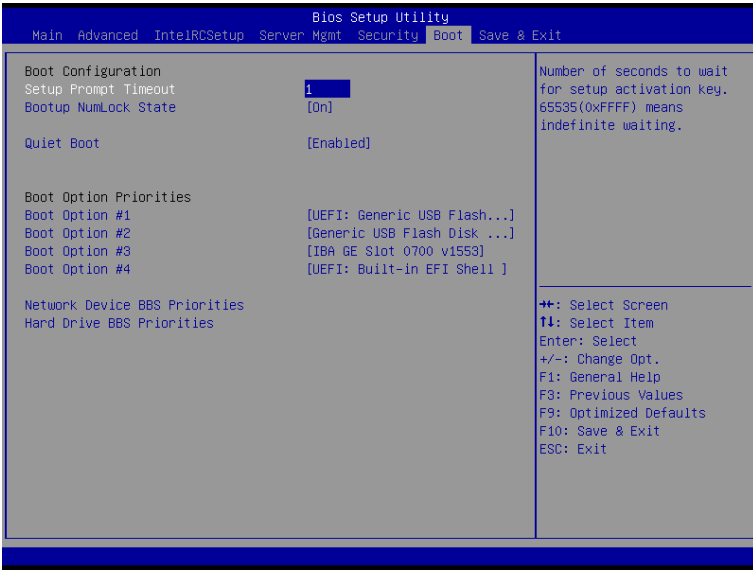
Press [Enter] to configure a new dbx.

☞ **Append Var to DBX**

Press [Enter] to load additional db from a storage devices.

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

Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting." Press the numeric keys to input the desired value.

Bootup NumLock State

Enable or Disable Bootup NumLock function. Options available: On/Off. Default setting is **On**.

Quiet Boot

Enables or disables showing the logo during POST. Options available: Enabled/Disabled. Default setting is **Enabled**.

Boot Option Priorities

Boot Option #1/#2/#3#4

Press Enter to configure the boot priority. By default, the server searches for boot devices in the following sequence:

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

☞ **Network Device BBS Priorities**

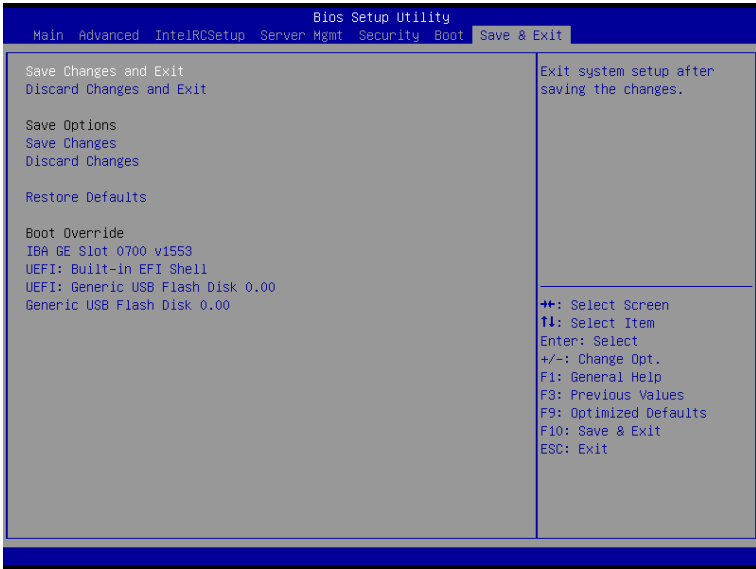
Press Enter to configure the boot priority.

☞ **Hard Drive BBS Priorities**

Press Enter to configure the boot priority.

1-7 Save & 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 Changes and Exit

Saves changes made and close the BIOS setup.

Options available: Yes/No.

☞ Discard Changes and Exit

Discards changes made and exit the BIOS setup.

Options available: Yes/No.

☞ Save Options

☞ Save Changes

Saves changes made in the BIOS setup.

Options available: Yes/No.

☞ Discard Changes

Discards changes made and close the BIOS setup.

Options available: Yes/No.

☞ 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 in EFI Shell**

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

1-8 BIOS POST Codes

PEI_CORE_STARTED	0x10
PEI_CAR_CPU_INIT	0x11
// reserved for CPU 0x12 - 0x14	
PEI_CAR_NB_INIT	0x15
// reserved for NB 0x16 - 0x18	
PEI_CAR_SB_INIT	0x19
// reserved for SB 0x1A - 0x1C	
PEI_MEMORY_SPD_READ	0x1D
PEI_MEMORY_PRESENCE_DETECT	0x1E
PEI_MEMORY_TIMING	0x1F
PEI_MEMORY_CONFIGURING	0x20
PEI_MEMORY_INIT	0x21
// reserved for OEM use: 0x22 - 0x2F	
// reserved for AML use: 0x30	
PEI_MEMORY_INSTALLED	0x31
PEI_CPU_INIT	0x32
PEI_CPU_CACHE_INIT	0x33
PEI_CPU_BSP_SELECT	0x34
PEI_CPU_AP_INIT	0x35
PEI_CPU_SMM_INIT	0x36
PEI_MEM_NB_INIT	0x37
// reserved for NB 0x38 - 0x3A	
PEI_MEM_SB_INIT	0x3B
// reserved for SB 0x3C - 0x3E	
// reserved for OEM use: 0x3F - 0x4E	
PEI_DXE_IPL_STARTED	0x4F
//Recovery	
PEI_RECOVERY_AUTO	0xF0
PEI_RECOVERY_USER	0xF1
PEI_RECOVERY_STARTED	0xF2
PEI_RECOVERY_CAPSULE_FOUND	0xF3
PEI_RECOVERY_CAPSULE_LOADED	0xF4
//S3	
PEI_S3_STARTED	0xE0
PEI_S3_BOOT_SCRIPT	0xE1
PEI_S3_VIDEO_REPOST	0xE2
PEI_S3_OS_WAKE	0xE3
//DXE_STATUS_CODE	
DXE_CORE_STARTED	0x60
DXE_NVRAM_INIT	0x61

DXE_SBRUN_INIT	0x62
DXE_CPU_INIT	0x63
//reserved for CPU 0x64 - 0x67	
DXE_NB_HB_INIT	0x68
DXE_NB_INIT	0x69
DXE_NB_SMM_INIT	0x6A
//reserved for NB 0x6B - 0x6F	
DXE_SB_INIT	0x70
DXE_SB_SMM_INIT	0x71
DXE_SB_DEVICES_INIT	0x72
//reserved for SB 0x73 - 0x77	
DXE_ACPI_INIT	0x78
DXE_CSM_INIT	0x79
//reserved for AMI use: 0x7A - 0x7F	
//reserved for OEM use: 0x80 - 0x8F	
DXE_BDS_STARTED	0x90
DXE_BDS_CONNECT_DRIVERS	0x91
DXE_PCI_BUS_BEGIN	0x92
DXE_PCI_BUS_HPC_INIT	0x93
DXE_PCI_BUS_ENUM	0x94
DXE_PCI_BUS_REQUEST_RESOURCES	0x95
DXE_PCI_BUS_ASSIGN_RESOURCES	0x96
DXE_CON_OUT_CONNECT	0x97
DXE_CON_IN_CONNECT	0x98
DXE_SIO_INIT	0x99
DXE_USB_BEGIN	0x9A
DXE_USB_RESET	0x9B
DXE_USB_DETECT	0x9C
DXE_USB_ENABLE	0x9D
//reserved for AMI use: 0x9E - 0x9F	
//reserved for AML use: 0xA0	
DXE_IDE_BEGIN	0xA1
DXE_IDE_RESET	0xA2
DXE_IDE_DETECT	0xA3
DXE_IDE_ENABLE	0xA4
DXE_SCSI_BEGIN	0xA5
DXE_SCSI_RESET	0xA6
DXE_SCSI_DETECT	0xA7
DXE_SCSI_ENABLE	0xA8
DXE_SETUP_VERIFYING_PASSWORD	0xA9
//reserved for AML use: 0xAA	
DXE_SETUP_START	0xAB

DXE_SETUP_INPUT_WAIT	0xAC
DXE_READY_TO_BOOT	0xAD
DXE_LEGACY_BOOT	0xAE
DXE_EXIT_BOOT_SERVICES	0xAF
RT_SET_VIRTUAL_ADDRESS_MAP_BEGIN	0xB0
RT_SET_VIRTUAL_ADDRESS_MAP_END	0xB1
DXE_LEGACY_OPROM_INIT	0xB2
DXE_RESET_SYSTEM	0xB3
DXE_USB_HOTPLUG	0xB4
DXE_PCI_BUS_HOTPLUG	0xB5
DXE_NVRAM_CLEANUP	0xB6
DXE_CONFIGURATION_RESET	0xB7
//reserved for AMI use: 0xB8 - 0xBF	
//reserved for OEM use: 0xC0 - 0xCF	
//PEI_STATUS_CODE	
//Errors	
//Regular boot	
PEI_MEMORY_INVALID_TYPE	0x50
PEI_MEMORY_INVALID_SPEED	0x50
PEI_MEMORY_SPD_FAIL	0x51
PEI_MEMORY_INVALID_SIZE	0x52
PEI_MEMORY_MISMATCH	0x52
PEI_MEMORY_NOT_DETECTED	0x53
PEI_MEMORY_NONE_USEFUL	0x53
PEI_MEMORY_ERROR	0x54
PEI_MEMORY_NOT_INSTALLED	0x55
PEI_CPU_INVALID_TYPE	0x56
PEI_CPU_INVALID_SPEED	0x56
PEI_CPU_MISMATCH	0x57
PEI_CPU_SELF_TEST_FAILED	0x58
PEI_CPU_CACHE_ERROR	0x58
PEI_CPU_MICROCODE_UPDATE_FAILED	0x59
PEI_CPU_NO_MICROCODE	0x59
PEI_CPU_INTERNAL_ERROR	0x5A
PEI_CPU_ERROR	0x5A
PEI_RESET_NOT_AVAILABLE	x5B
//reserved for AMI use: 0x5C - 0x5F	
//Recovery	
PEI_RECOVERY_PPI_NOT_FOUND	0xF8
PEI_RECOVERY_NO_CAPSULE	0xF9
PEI_RECOVERY_INVALID_CAPSULE	0xFA
//reserved for AMI use: 0xFB - 0xFF	

//S3 Resume	
PEI_MEMORY_S3_RESUME_FAILED	0xE8
PEI_S3_RESUME_PPI_NOT_FOUND	0xE9
PEI_S3_BOOT_SCRIPT_ERROR	0xEA
PEI_S3_OS_WAKE_ERROR	0xEB
//reserved for AMI use: 0xEC - 0xEF	
// DXE_STATUS_CODE	
DXE_CPU_ERROR	0xD0
DXE_NB_ERROR	0xD1
DXE_SB_ERROR	0xD2
DXE_ARCH_PROTOCOL_NOT_AVAILABLE	0xD3
DXE_PCI_BUS_OUT_OF_RESOURCES	0xD4
DXE_LEGACY_OPROM_NO_SPACE	0xD5
DXE_NO_CON_OUT	0xD6
DXE_NO_CON_IN	0xD7
DXE_INVALID_PASSWORD	0xD8
DXE_BOOT_OPTION_LOAD_ERROR	0xD9
DXE_BOOT_OPTION_FAILED	0xDA
DXE_FLASH_UPDATE_FAILED	0xDB
DXE_RESET_NOT_AVAILABLE	0xDC
//reserved for AMI use: 0xDE - 0xDF	

1-9 BIOS POST Beep code

1-9-1 PEI Beep Codes

# of Beeps	Description
1	Memory not Installed.
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

1-9-2 DEX Beep Codes

# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available

1-10 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.

