BIOS Setup

(For Skylake-W Platform)

User's Guide

Rev.1.1

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 <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.)
- **Chipset**
  This setup page includes all the submenu options for configuring the function of processor, network, North Bridge, South Bridge, and System event logs.
- **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.
- **Save & 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.

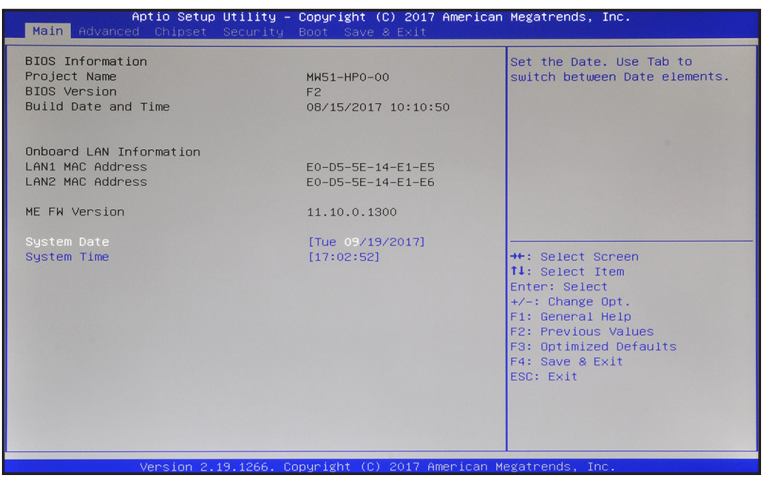
Main Menu Help

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**

☞ **Project Name**

Displays the project name information.

☞ **BIOS Version**

Displays version number of the BIOS setup utility.

☞ **Build Date and Time**

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

☞ **Onboard LAN Information**

☞ **LAN1 MAC Address**(Note)

Displays LAN1 MAC address information.

☞ **LAN2 MAC Address**(Note)

Displays LAN2 MAC address information.

☞ **ME FW Version**(Note)

Displays ME firmware version information.

☞ **System Date**

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

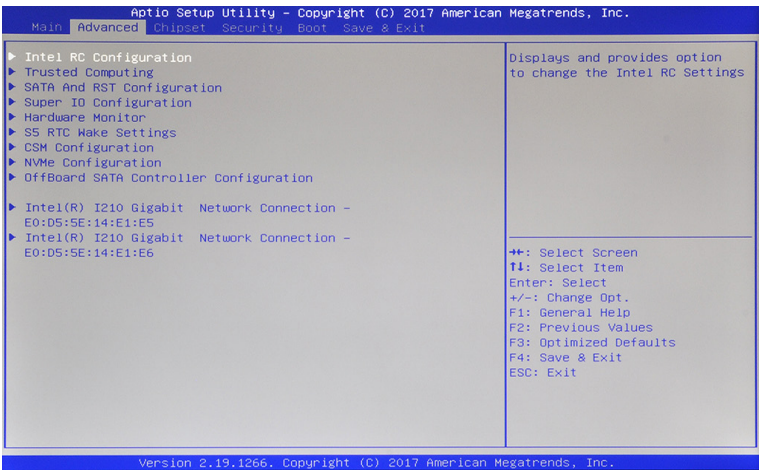
☞ **System Time**

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

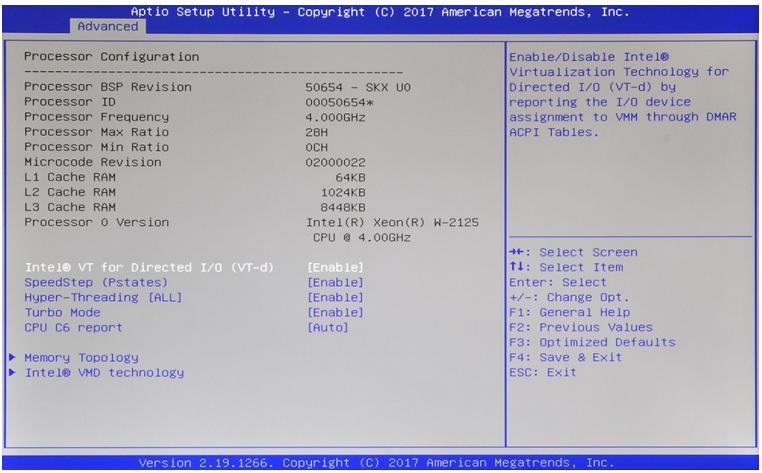
(Note) Functions available on selected models.

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 Intel RC Configuration



☞ Processor Configuration

Displays the processor configurations.

☞ Intel® VT for Directed I/O (VT-d)

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

Options available: Enable/Disable. Default setting is **Enable**.

☞ SpeedStep (Pstates)

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

Options available: Enable/Disable. Default setting is **Enable**.

☞ 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: Enable/Disable. Default setting is **Enable**.

☞ 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: Enable/Disable. Default setting is **Enable**.

☞ CPU C6 report

Allows you to determine whether to let the CPU enter 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 C6 state is a more enhanced power-saving state than C1.

Options available: Enable/Disable/Auto. Default setting is **Auto**.

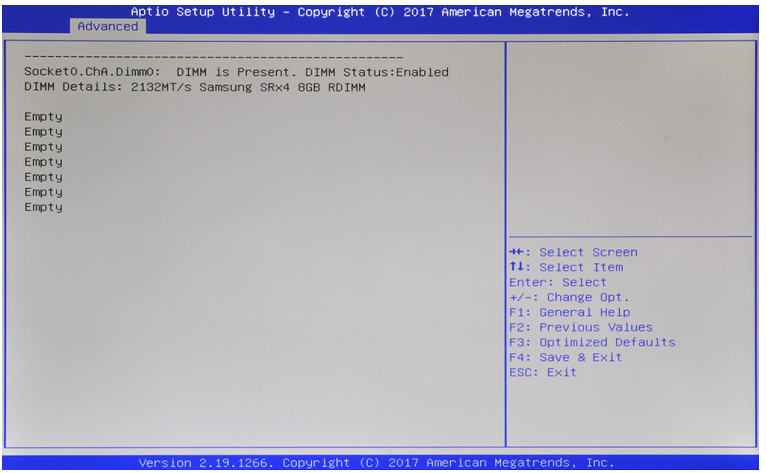
☞ **Memory Topology**

Press [Enter] for configuration of advanced items.

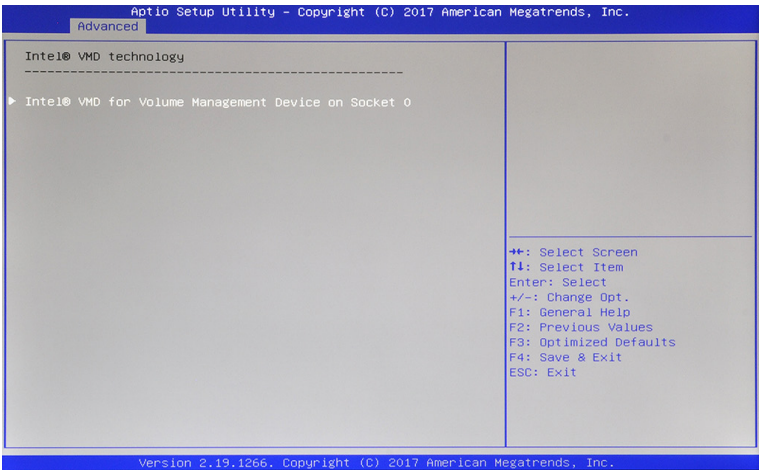
☞ **Intel® VMD technology**

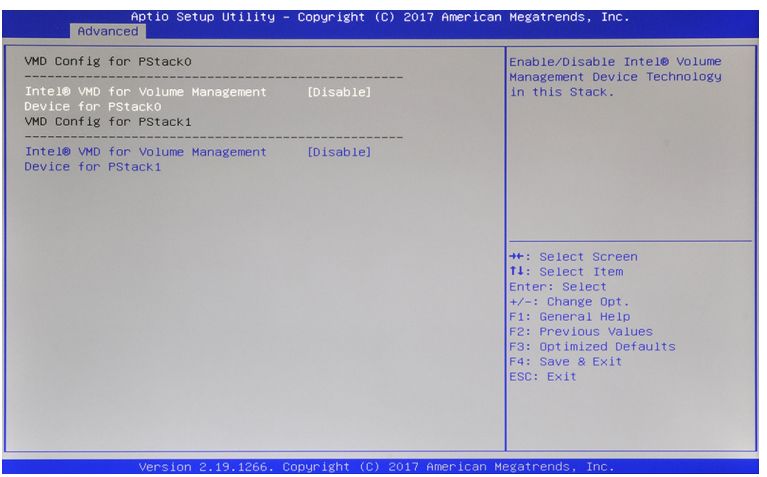
Press [Enter] for configuration of advanced items.

1-2-1-1 Memory Topology



1-2-1-2 Intel® VMD technology





☞ **Intel® VMD technology**

☞ **Intel® VMD for volume Management Device on Socket 0**

Press [Enter] to enable/disable the Intel VMD support function.

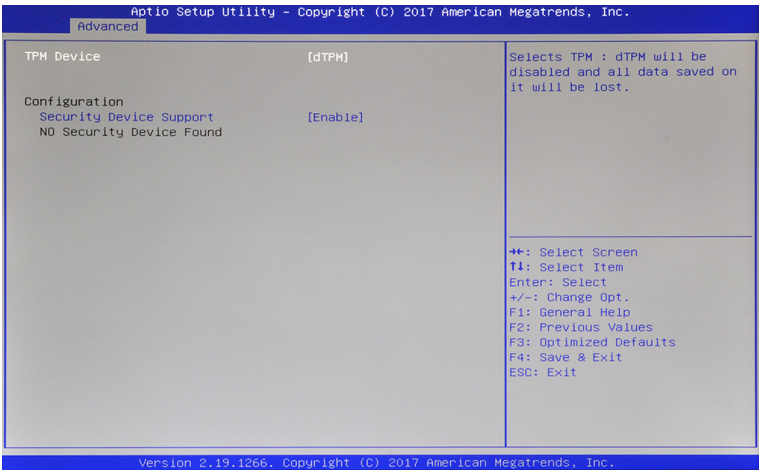
☞ **VMD Config for PStack0/PStack1**

☞ **Intel® VMD for volume Management Device for PStack0/PStack1**

Enable/Disable the Intel VMD technology in this stack.

Options available: Enable/Disable. Default setting is **Disable**.

1-2-2 Trusted Computing



☞ TPM Device

Selects the TPM. Once selected, the dTPM will be disabled and all data saved on it will be lost.

Default setting is **dTPM**.

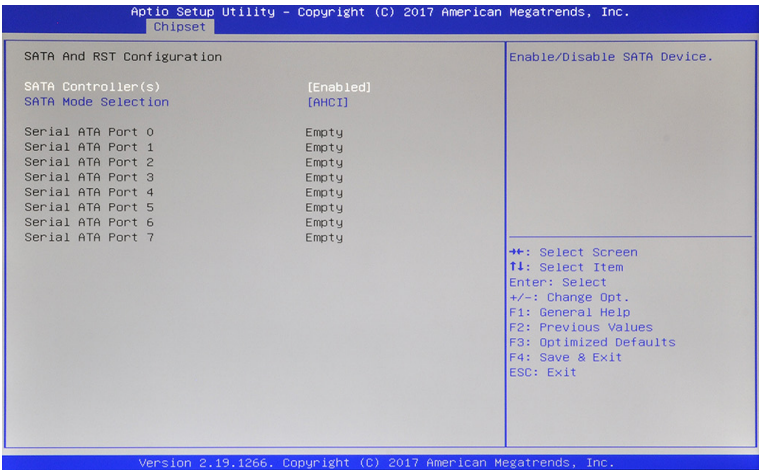
☞ Configuration

☞ Security Device Support

Enable/Disable BIOS support for security device. When enabled, OS will not show Security Device. TCG EFI protocol and INT-1A interface will not be available.

Options available: Enable/Disable. Default setting is **Enable**.

1-2-3 SATA and RST Configuration



☞ **SATA And RST Configuration**

☞ **SATA Controller(s)**

Enable/Disable SATA controller.

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

☞ **SATA Mode Selection**

Determines how SATA controller(s) operate.

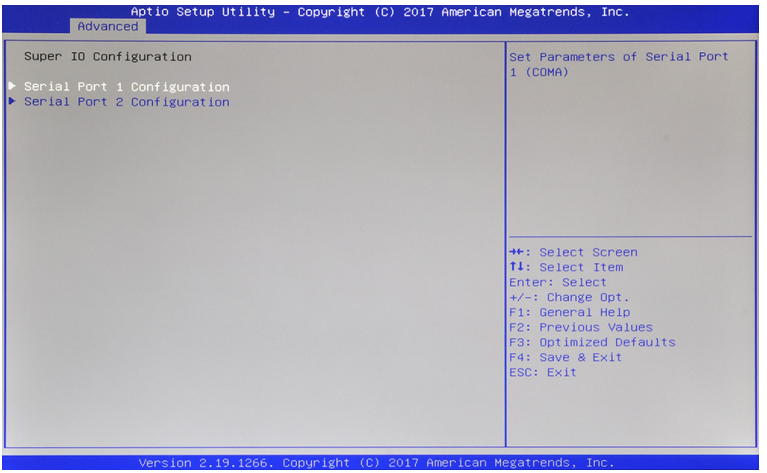
Options available: AHCI/Intel RST Premium. Default setting is **AHCI**.

☞ **Serial ATA Port 0/1/2/3/4/5/6/7**

The category identifies SATA hard drives that are installed in the computer.

System will automatically detect HDD type.

1-2-4 Super IO Configuration

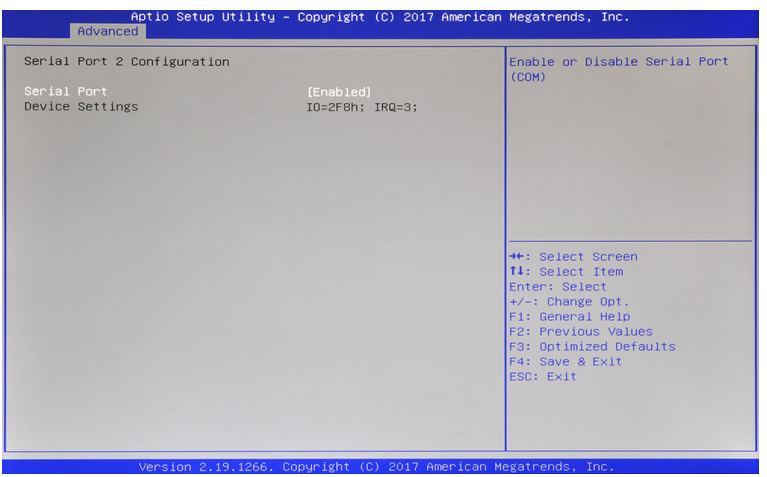


☞ **Super IO Configuration**

☞ **Serial Port 1/2 Configuration**

Press [Enter] for configuration of advanced items.

1-2-4-1 Serial Port 1/2 Configuration



☞ **Serial Port 1/2 Configuration**

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

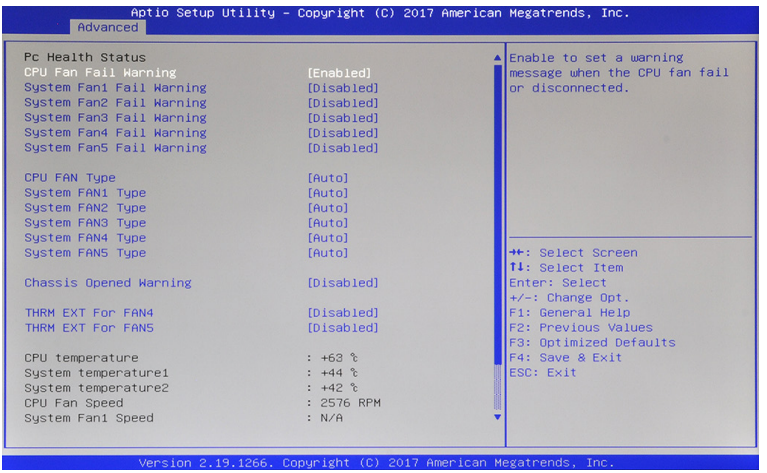
Options available: Enabled/Disabled. Default setting is **Enabled**.

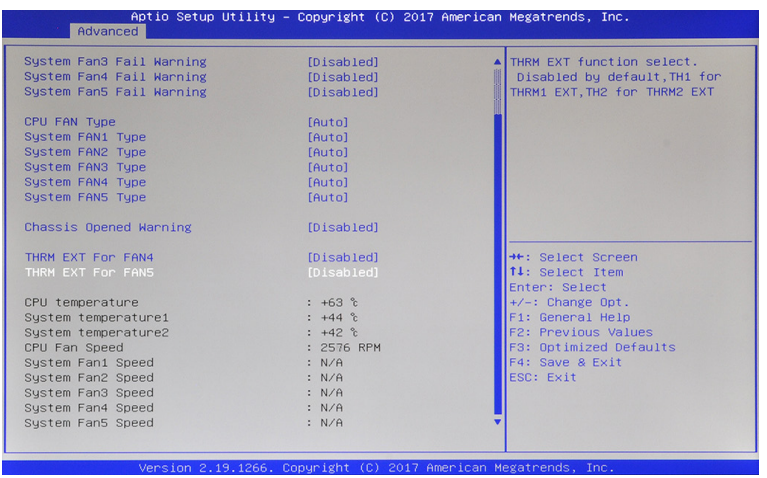
☞ **Device Settings**

Displays the specified Serial Port base I/O address and and IRQ.

1-2-5 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





☞ PC Health Status

☞ CPU FAN Fail Warning

Enable/Disable a warning message when the CPU fan failure or disconnected.

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

☞ System FAN 1/2/3/4/5 Fail Warning

Enable/Disable a warning message when the system fan failure or disconnected.

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

☞ CPU FAN Type

Selects the CPU fan type.

Options available: 3 Pins/4 Pins/Auto. Default setting is **Auto**.

☞ System FAN 1/2/3/4/5 Type

Selects the system fan type.

Options available: 3 Pins/4 Pins/Auto. Default setting is **Auto**.

☞ Chassis Opened Warning

Enable/Disable a warning message when the system chassis is opened.

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

☞ THRM EXT For FAN 4/5

Selects the THRM EXT function.

This option is disabled by default. For Fan 4, selects TH1 for THRM1 EXT. For Fan 5, selects TH2 for THRM2 EXT.

Options available: Disabled/THRM1/THRM2. Default setting is **Disabled**.

☞ CPU Temperature

Displays the current CPU fan temperature.

☞ System Temperature

Displays the current system fan temperature.

☞ CPU Fan Speed

Displays the current CPU fan speed (RPM).

☞ System Fan 1/2/3/4/5 Speed

Displays the current system fan speed (RPM).

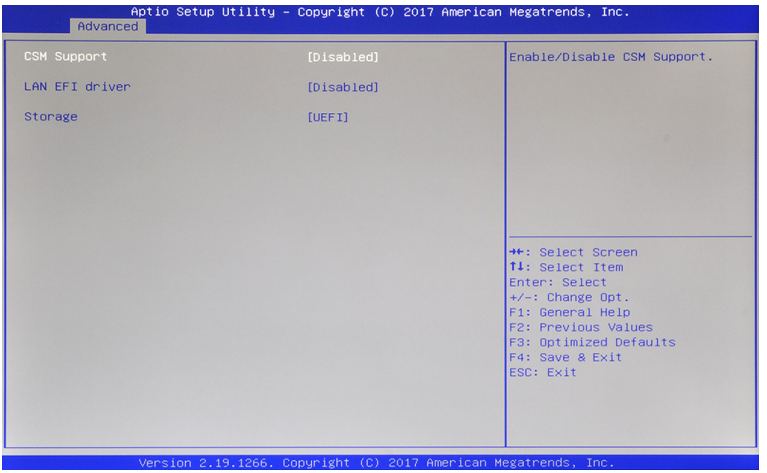
1-2-6 S5 RTC Wake Settings

☞ **Wake system from S5**

Enable/Disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified.

Options available: Disabled/Fixed Time. Default setting is **Disabled**.

1-2-7 CSM Configuration



☞ CSM Support

Enable/Disable the Compatibility Support Module (CSM) support function

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

- Advanced items prompt and configurable when this item is set to **Enabled**.
- If the **CSM Support** is set to **Disabled**, the following five items will not be able to support Legacy mode.

☞ LAN EFI driver

Enable/Disable LAN EFI driver.

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

Please note that this item is visible when CSM Support is set to Disabled.

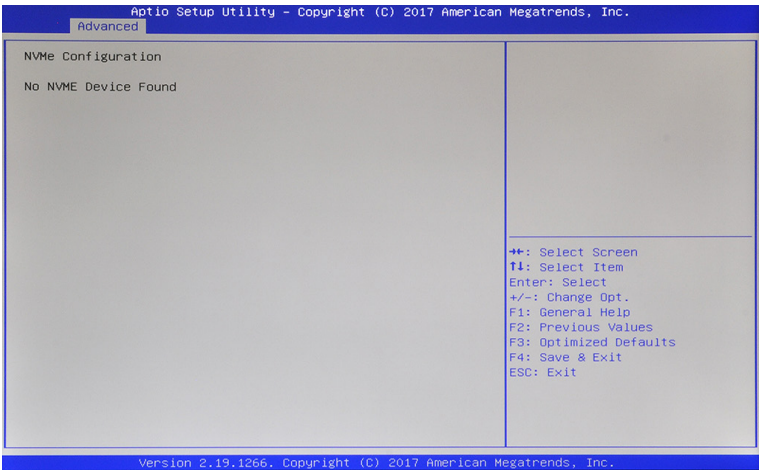
☞ Storage

Controls the execution of UEFI and Legacy Storage Option ROM.

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

Please note that this item is visible when CSM Support is set to Disabled.

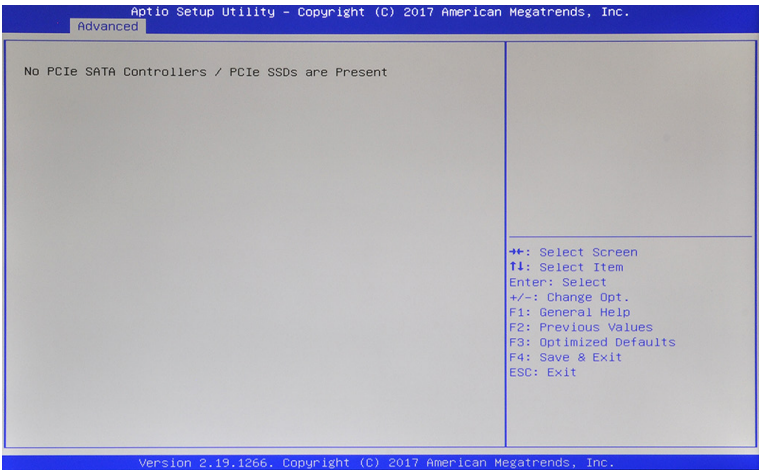
1-2-8 NVMe Configuration



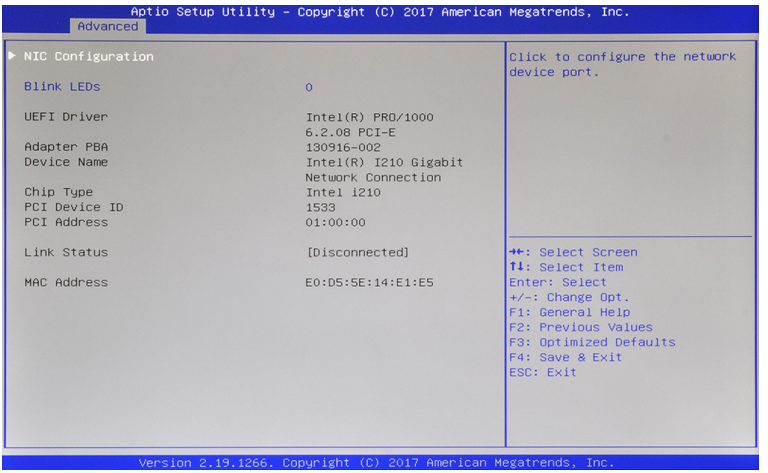
☞ **NVMe Configuration**

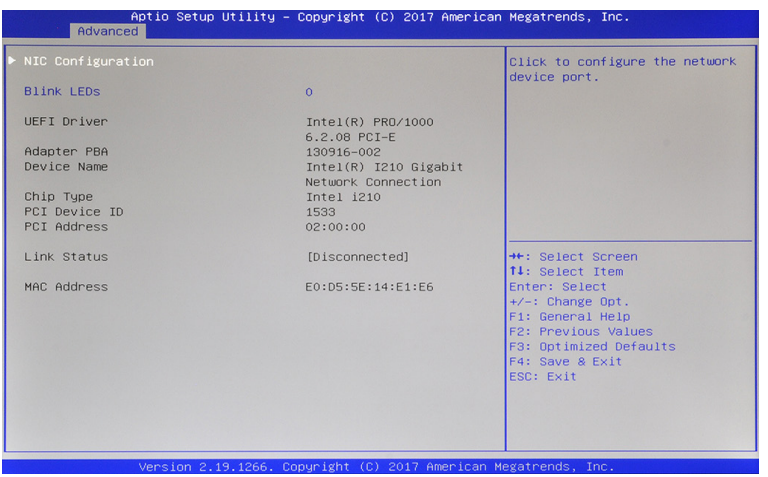
Displays the NVMe devices connected to the system.

1-2-9 OffBoard SATA Controller



1-2-10 Intel(R) I210 Gigabit Network Connection





☞ **NIC Configuration**

Press [Enter] for configuration of advanced items of the selected network device port.

☞ **Blink LEDs**

Identifies the physical network port by blinking the associated LED.
Press the numeric keys to adjust desired values.

☞ **UEFI Driver**

Displays the technical specifications for the Network Interface Controller.

☞ **Adapter PBA**

Displays the technical specifications for the Network Interface Controller

☞ **Device Name**

Displays the technical specifications for the Network Interface Controller..

☞ **Chip Type**

Displays the technical specifications for the Network Interface Controller.

☞ **PCI Device ID**

Displays the technical specifications for the Network Interface Controller.

☞ **PCI Address**

Displays the technical specifications for the Network Interface Controller..

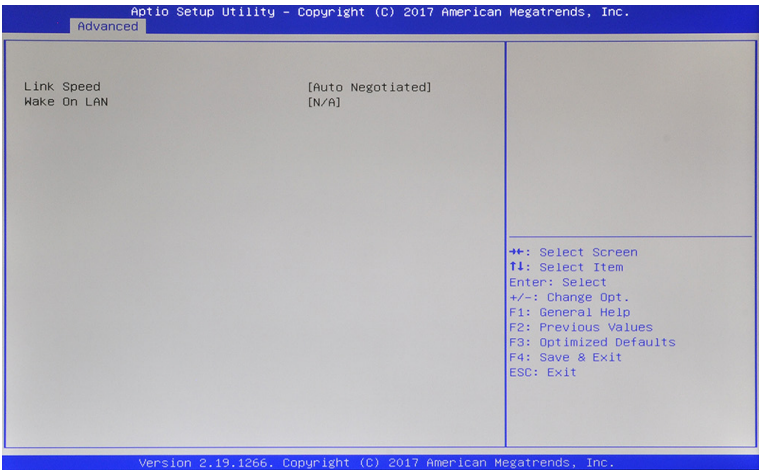
☞ **Link Status**

Displays the technical specifications for the Network Interface Controller

☞ **MAC Address**

Displays the technical specifications for the Network Interface Controller..

1-2-10-1 NIC Configuration



Link Speed

Allows for automatic link speed adjustment. Default setting is **Auto Negotiated**.

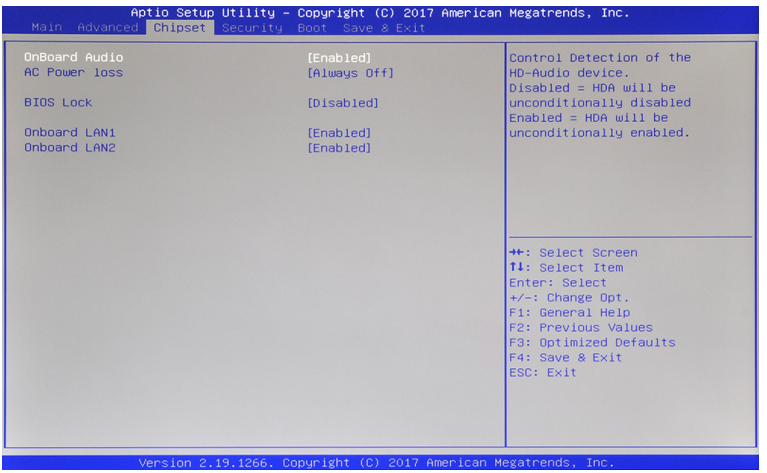
Wake On LAN

Enable/Disable the Wake On LAN feature. Note that configuring Wake on LAN in the operating system does not change the value of this setting, but does override the behavior of Wake on LAN in OS controlled power states.

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

1-3 Chipset Setup Menu

Chipset Setup menu displays submenu options for configuring the function of the North Bridge. Select a submenu item, then press [Enter] to access the related submenu screen.



☞ OnBoard Audio

Enable/Disable the onboard audio controller. When enabled, HD audio will be unconditionally enabled. When disabled, HD audio will be unconditionally disabled

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

☞ AC Power Loss

Specifies what state to go to when the power is re-applied after a power failure.

Options available: Always On/Always Off/Last State. Default setting is **Always Off**.

☞ BIOS Lock

Enable/Disable the PCH BIOS Lock Enable feature.

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

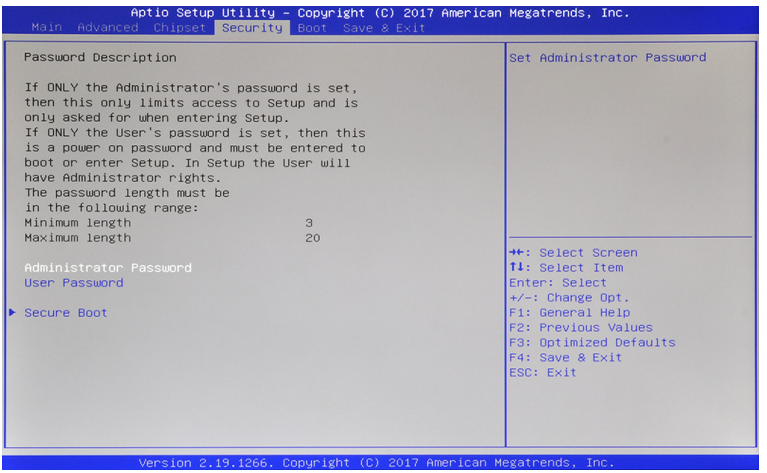
☞ Onboard LAN 1/2

Enable/Disable the onboard LAN 1/2 controller.

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

1-4 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.

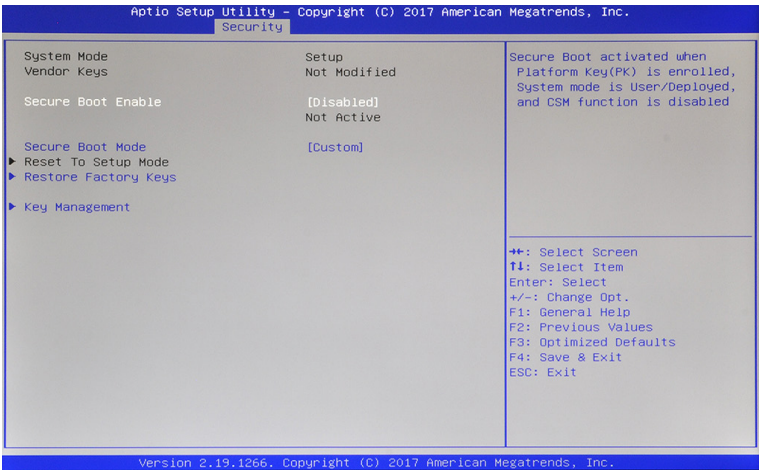
☞ **User Password**

Press [Enter] to configure the user password.

☞ **Secure Boot**

Press [Enter] for configuration of advanced items.

1-4-1 Secure Boot



☞ System Mode

Displays the system is in User mode or Setup mode.

☞ Vendor Keys

Displays the Vendor Keys function is actived or not actived.

☞ Secure Boot Enable

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

When this option is set to **Enabled**, an "Platform in Setup Mode!" message will prompt to request re-enroll Platform Key (PK).

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

☞ Secure Boot Mode(Note)

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 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 **Custom**.

☞ Reset to Setup Mode

Press [Enter] to reset the system mode to Setup mode.

Please note that this item is configurable when System Mode is set to User Mode.

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

☞ Restore Factory Keys

Press [Enter] to restore all secure boot database to factory default keys.

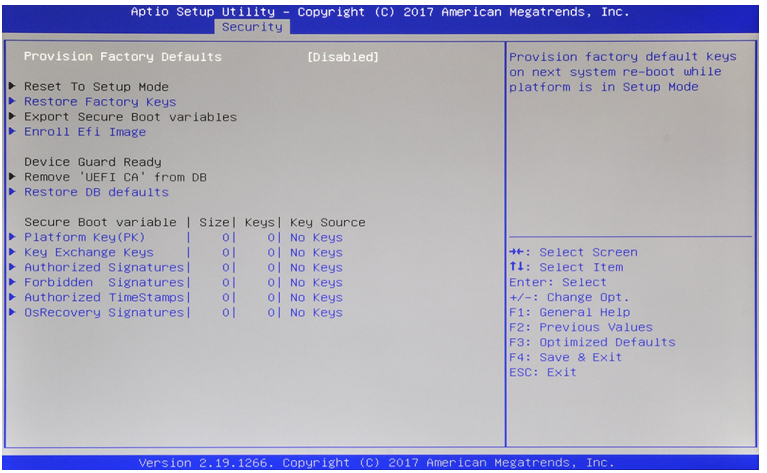
Please note that this item is configurable when Secure Boot Mode is set to Custom.

☞ Key Management

Press [Enter] for configuration of advanced items.

Please note that this item is configurable when Secure Boot Mode is set to Custom.

1-4-1-1 Key Management



Provision Factory Defaults

Allows to provision factory default Secure Boot keys when system is in Setup Mode.
Options available: Enabled/Disabled. Default setting is **Disabled**.

Reset To Setup mode

Press [Enter] to reset the system to Setup mode.
Please note that this item is configurable when System Mode is in User Mode.

Restore Factory Keys

Press [Enter] to restore all Secure Boot Keys and key variables to factory defaults.

Export Secure Boot variables

Press [Enter] to export all Secure Boot Keys and key variables.

Enroll Efi Image

Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (DB).

Device Guard Ready

Remove 'UEFI CA' from DB

Press [Enter] to remove Microsoft UEFI CA from Secure Boot DB.
Please note that this item is configurable when the system is not in Device Guard Ready state.

Restore DB defaults

Press [Enter] to restore all DB variables to factory defaults.

Secure Boot variable

Displays the current status of the variables used for secure boot.

Platform Key (PK)

Displays the current status of the Platform Key (PK).
Press [Enter] to enroll the PK.
Options available: Update.

☞ **Key Exchange Keys (KEK)**

Displays the current status of the Key Exchange Key Database (KEK).

Press [Enter] to enroll a new KEK or load additional KEK from storage devices.

Options available: Update/Append.

☞ **Authorized Signatures (DB)**

Displays the current status of the Authorized Signature Database.

Press [Enter] to enroll a new DB or load additional DB from storage devices.

Options available: Update/Append.

☞ **Forbidden Signatures (DBX)**

Displays the current status of the Forbidden Signature Database.

Press [Enter] to enroll a new dbx or load additional dbx from storage devices.

Options available: Update/Append.

☞ **Authorized TimeStamps (DBT)**

Displays the current status of the Authorized TimeStamps Database.

Press [Enter] to enroll a new DBT or load additional DBT from storage devices.

Options available: Update/Append.

☞ **OsRecovery Signatures**

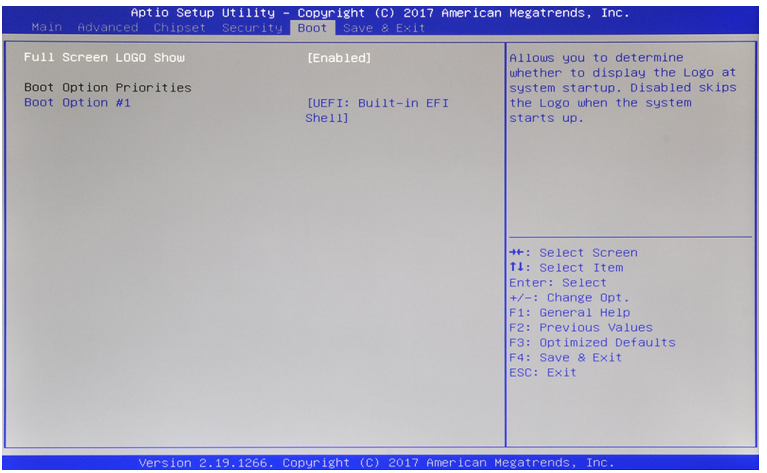
Displays the current status of the OsRecovery Signature Database.

Press [Enter] to enroll a new OsRecovery Signature or load additional OsRecovery Signature from storage devices.

Options available: Update/Append.

1-5 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.



☞ **Full Screen LOGO Show**

Enable/Disable whether the Logo displays on the full screen when the system starts up.

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

☞ **Boot Option Priorities**

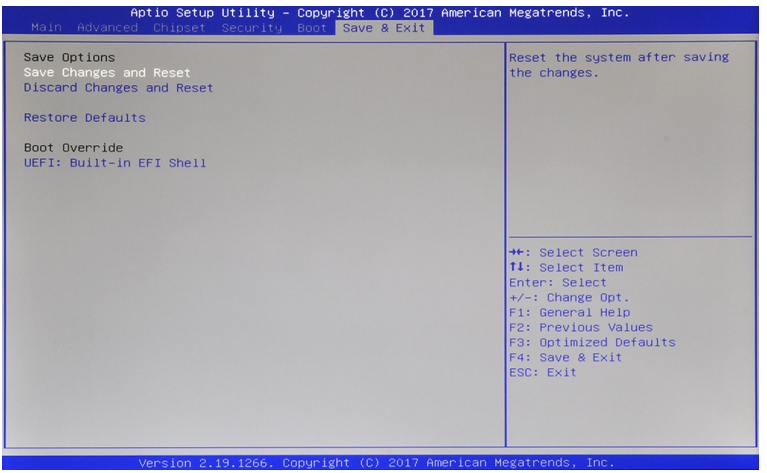
☞ **Boot Option #1**

Press [Enter] to configure the boot priority. It allows you to specify the boot device priority from the available UEFI applications during system boot-up.

Options available: UEFI: Built-in EFI Shell/Disabled. Default setting is **UEFI: Built-in EFI Shell**.

1-6 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 Options**

☞ **Save Changes and Reset**

Restarts the system after saving the changes made.

Options available: Yes/No.

☞ **Discard Changes and Reset**

Restarts the system without saving any changes.

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.

1-7 BIOS POST Beep code (AMI standard)

1-7-1 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

1-7-2 DXE 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
8	Platform PCI resource requirements cannot be met

1-8 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 1AUCR009.rom.
2. Copy 1AUCR009.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.