BIOS Setup

4

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

4.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup:

1. **CrashFree BIOS 3**

    To recover the BIOS using a bootable USB flash disk drive when the BIOS file fails or gets corrupted.

2. **EzFlash**

    Updates the BIOS using a USB flash disk.

3. **BUPDATER**

    Updates the BIOS in DOS mode using a bootable USB flash disk drive.

Refer to the corresponding sections for details on these utilities.

> Save a copy of the original motherboard BIOS file to a bootable USB flash disk drive in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the BUPDATER utility.

4.1.1 CrashFree BIOS 3 utility

The CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using a USB flash drive that contains the updated BIOS file.

> Prepare a USB flash drive containing the updated motherboard BIOS before using this utility.

Recovering the BIOS from a USB flash drive

To recover the BIOS from a USB flash drive:

1. Insert the USB flash drive with the original or updated BIOS file to one USB port on the system.

2. The utility will automatically recover the BIOS. It resets the system when the BIOS recovery finished.

> DO NOT shut down or reset the system while recovering the BIOS! Doing so would cause system boot failure!

> The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the website to download the latest BIOS file.
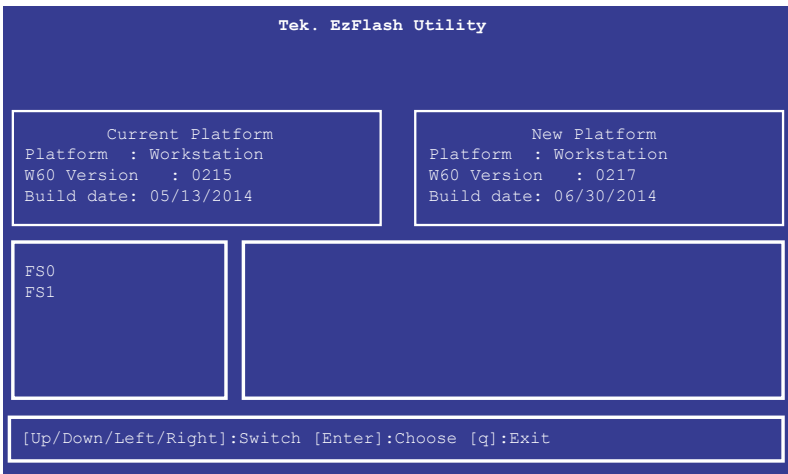
4.1.2   EZ Flash Utility

The EZ Flash Utility feature allows you to update the BIOS without having to use a DOS-based utility.

Before you start using this utility, download the latest BIOS from the website**.**

To update the BIOS using EZ Flash Utility:

1.   Insert the USB flash disk that contains the latest BIOS file into the USB port.

2.   Enter the BIOS setup program. Go to the **Tool** menu then select **EZ Flash Utility**. Press <Enter>.

```
                        Tek. EzFlash Utility



          Current Platform                        New Platform
Platform  : Workstation              Platform  : Workstation
W60 Version   : 0215                 W60 Version   : 0217
Build date: 05/13/2014               Build date: 06/30/2014


FS0
FS1




[Up/Down/Left/Right]:Switch [Enter]:Choose [q]:Exit
```

3.   Press <Tab> to switch to the **Drive** field.

4.   Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, then press <Enter>.

5.   Press <Tab> to switch to the **Folder Info** field.

6.   Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

•   This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.

•   DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

Ensure to load the BIOS default settings to ensure system compatibility and stability. Press <F5> and select **Yes** to load the BIOS default settings.

4.1.3 BUPDATER utility

The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be the same as shown.

The BUPDATER utility allows you to update the BIOS file in the DOS environment using a bootable USB flash disk drive with the updated BIOS file.

Updating the BIOS file

To update the BIOS file using the BUPDATER utility:

1.   Visit the website and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable USB flash disk drive.

2.   Copy the BUPDATER utility (BUPDATER.exe) from the support website to the bootable USB flash disk drive you created earlier.

3.   Boot the system in DOS mode, then at the prompt, type:

      `BUPDATER /i[ ilename].CAP`

      where [filename] is the latest or the original BIOS file on the bootable USB flash disk

      drive, then press <Enter>.

```
A:\>BUPDATER /i[file name].CAP
```

4.	The utility verifies the file, then starts updating the BIOS file.

```
                        Tek. EzFlash Utility



         Current Platform                      New Platform
Platform  : Workstation           Platform  : Workstation
W60 Version   : 0215              W60 Version   : 0217
Build date: 05/13/2014           Build date: 06/30/2014



      Start Programming Flash.  DO NOT SHUTDOWN THE SYSTEM!!!

         Write
         75%


```

DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

5.	The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
The BIOS update is finished! Please restart your system.

C:\>
```

4.2   BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section **4.1 Managing and updating your BIOS**.

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the firmware chip.

The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl>+<Alt>+<Del>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Press <F5> and select **Yes** to load the BIOS default settings.

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

- Visit the website to download the latest BIOS file for this motherboard.

4.2.1   BIOS menu screen

Menu items   **Menu bar**   **Configuration fields**   **General help**

```
                    Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot   ▶

  BIOS Information                                              Choose the system default
  BIOS Vendor                      American Megatrends          language
  Core Version                     5.009
  Compliancy                       UEFI 2.3; PI 1.2
  BIOS Version                     0402 x64
  Build Date                       09/09/2014

  Memory Information
  Total Memory                     8192 MB

  System Language                  [English]

  System Date                      [Monday 10/06/2014]         ↔: Select Screen
  System Time                      [14:40:56]                  ↑↓: Select Item
                                                               Enter: Select
  Access Level                     Administrator               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F5: Optimized Defaults
                                                               F10: Save Changes & Reset
                                                               ESC: Exit
```

Navigation keys

4.2.2   Menu bar

The menu bar on top of the screen has the following main items:

Main   For changing the basic system configuration

AiTweaker   For overclocking and advanced tuning of system settings

Advanced   For changing the advanced system settings

IntelRCSetup   For changing the Intel RC settings

Server Mgmt   For changing the Server Mgmt settings

Event Logs   For changing the event log settings

Monitor   For displaying the system temperature, power status, and changing
                      the fan settings

Security   For changing the security settings

Boot   For changing the system boot configuration

Tool   For configuring options for special functions

Exit   For selecting the exit options

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

Press the key on the upper right section of the menu screen to display the Tool and Exit menus.

4.2.3 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (Event Logs, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

4.2.4 Submenu items

A solid triangle before each item on any menu screen means that the item has a submenu. To display the submenu, select the item then press <Enter>.

4.2.5 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

4.2.6 General help

At the top right corner of the menu screen is a brief description of the selected item.

4.2.7 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

4.2.8 Pop-up window

Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

4.2.9 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> / <Page Down> keys to display the other items on the screen.

4.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time settings.

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot

 BIOS Information                                        Choose the system default
 BIOS Vendor                   American Megatrends       language
 Core Version                  5.009
 Compliancy                    UEFI 2.3; PI 1.2
 BIOS Version                  0402 x64
 Build Date                    09/09/2014

 Memory Information
 Total Memory                  8192 MB

 System Language               [English]

 System Date                   [Monday 10/06/2014]
 System Time                   [14:40:56]                ++: Select Screen
                                                         ↑↓: Select Item
 Access Level                  Administrator             Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F5: Optimized Defaults
                                                         F10: Save Changes & Reset
                                                         ESC: Exit



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```

4.3.1 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

4.3.2 System Time [xx:xx:xx]

Allows you to set the system time.

4.4   AiTweaker menu

The AiTweaker menu allows you to perform overclocking and advance tuning of your memory and CPU settings.

```
             Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
      Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot

                                                              Ai Overclock Tuner
  Ai Overclock Tuner              [Auto]
  Spread Spectrum                 [Auto]                      [Manual]: When Manual mode is
  Xeon Turbo Charger              [Auto]                      enabled, the CPU Core Ratio
▶ External Digi+ Power Control                                and BCLK Frequency will be
                                                              optimized automatically.
  CPU1 Input Voltage              Auto                        [XMP]: When XMP mode is
  CPU2 Input Voltage              Auto                        enabled, the BCLK Frequency
  DRAM Voltage(CHA, CHB)          Auto                        and memory parameters will be
  DRAM Voltage(CHC, CHD)          Auto                        optimized automatically.
  DRAM Voltage(CHE, CHF)          Auto
  DRAM Voltage(CHG, CHH)          Auto
  VCCIO Offset Mode Sign          [+]
  VCCIO Voltage Offset            Auto                        ↔: Select Screen
  PCH 1.05V Offset Mode Sign      [+]                         ↑↓: Select Item
  PCH 1.05V Voltage Offset        Auto                        Enter: Select
  PCH 1.5V Offset Mode Sign       [+]                         +/-: Change Opt.
  PCH 1.5V Voltage Offset         Auto                        F1: General Help
                                                              F2: Previous Values
```
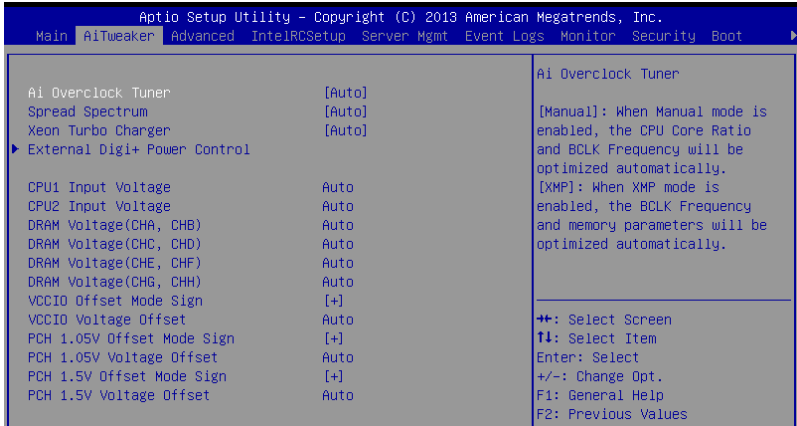
Ai Overclock Tuner [Auto]

Allows you to optimize the CPU Core Ratio, BCLK Freqency, or memory paramaters.
Configuration options: [Auto] [Manual] [OC Tune]

Spread Spectrum [Auto]

Allows you to enable or disable the spread spectrum.
Configuration options: [Auto] [Enabled] [Disabled]

Xeon Turbo Charger [Auto]

Allows you to enable or disable Xeon Turbo Charger feature.
Configuration options: [Auto] [Enabled] [Disabled]

External Digi+ Power Control

CPU1/CPU2 Load-line Calibration [Auto]

Higher levels of the load-line calibration can get a higher voltage and a better overclocking performance but increase the CPU and VRM thermal production. Select from level 1 to 9 to adjust the CPU power voltage from 0% to 125%.
Configuration options: [Auto] [Level 1] [Level 2] [Level 3] [Level 4] [Level 5] [Level 6] [Level 7] [Level 8] [Level 9]

CPU1/CPU2 Current Capability [Auto]

The CPU current capability adjusts the total power range for CPU overclocking. A higher value provides a wider total power range and extends the overclocking frequency range simultaneously.
Configuration options: [Auto] [100%] [110%] [120%] [130%] [140%]

CPU1/CPU2 VRM Switching Frequency [Auto]

The switching frequency will affect the VRM transient response speed and the component thermal production.
Configuration options: [Auto] [Manual]

CPU1/CPU2 Power Phase Control [Auto]

[Auto]	Automatically defines the optimum settings.
[Standard]	The phase control will be based on the CPU command.
[Optimized]	Set to the optimized phase tuning profile.
[Extreme]	Set to the full phase mode.
[Power Phase Response]	The phase number will be adjusted by the current (A) step.

CPU1/CPU2 Power Duty Control [T.Probe]

CPU Power Duty Control adjusts the current and thermal of every phase component.

[T.Probe]   Thermal balance

[Extreme]   Current balance

CPU1/CPU2 Power Thermal Control [130]

A higher temperature provides a wider CPU power thermal range and extends the overclocking tolerance to enlarge the overclocking potential.

DRAM-AB/CD/EF/GH Current Capability [100%]

The DRAM current capability adjusts the total power range for DRAM overclocking. A higher value provides a wider total power range and extends the overclocking frequency range simultaneously.
Configuration options: [100%] [110%] [120%] [130%] [140%]

DRAM-AB/CD/EF/GH Switching Frequency [Auto]

The DRAM switching frequency will affect the overclocking range and the system stability. Configure a higher frequency to increase the overclockin range or a lower frequency to enhance the system stability.
Configuration options: [Auto] [Manual]

DRAM-AB/CD/EF/GH Power Phase Control [Auto]

This is for the power supply.

CPU1/2 Input Voltage [Auto]

This is the input voltage for the processor by the external voltage regulator.

DRAM Voltage (CHA, CHB)/(CHC, CHD)/(CHE, CHF)/(CHG, CHH) [Auto]

Power supply for the DRAM.

VCCIO Offset Mode Sign [+]

[+]   VCCIO Voltage Offset by a positive value.

[-]   VCCIO Voltage Offset by a negative value.

VCCIO Voltage Offset [Auto]

Maximum offset value is 0.65 with an increment of 0.01V. Use +/- to raise or reduce the value.

PCH 1.05V Offset Mode Sign [+]

[+]   PCH 1.05V Voltage Offset by a positive value.

[-]   PCH 1.05V Voltage Offset by a negative value.

PCH 1.05V Voltage Offset [Auto]

Main Power supply for the PCH Chipset. Maximum offset value is 0.15V with an increment of 0.01V. Use +/- to raise or reduce the value.

PCH 1.5V Offset Mode Sign [+]

[+]   PCH 1.5V Voltage Offset by a positive value.

[-]   PCH 1.5V Voltage Offset by a negative value.

PCH 1.5V Voltage Offset [Auto]

Power supply for the PCH Chipset I/O Interface. Maximum offset value is 0.20V with an increment of 0.01V. Use +/- to raise or reduce the value.

4.5 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

⚠️ Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

```
                   Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot        ▶

  Front Panel Type                        [HD Audio]           Front Panel Type
  Dr. Power Policy                        [Standard]
▶ ACPI Settings
▶ SMART Settings
▶ NCT6779D Super IO Configuration
▶ Onboard LAN I210 Configuration
▶ Serial Port Console Redirection
▶ APM
▶ Advanced Power Management Configuration
▶ PCI Subsystem Settings
▶ Network Stack Configuration
▶ CSM Configuration
▶ Trusted Computing                                           →←: Select Screen
▶ USB Configuration                                           ↑↓: Select Item
▶ ASMedia Storage Controller                                  Enter: Select
                                                              +/-: Change Opt.
▶ iSCSI Configuration                                         F1: General Help
                                                              F2: Previous Values
                                                              F5: Optimized Defaults
                                                              F10: Save Changes & Reset
                                                              ESC: Exit


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```

Front Panel Type [HD Audio]

Allows you to select the Front Panel Type audio.
Configuration options: [HD Audio] [AC97]

Dr. Power Policy [Standard]

Allows you select the policy of Dr. Power settings.
Configuration options: [Standard] [Aggressive]

4.5.1 ACPI Settings

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                Advanced

 ACPI Settings                                      Enables or Disables BIOS ACPI
                                                    Auto Configuration.
 Enable ACPI Auto Configuration      [Disabled]

 Enable Hibernation                  [Enabled]
 ACPI Sleep State                    [S3 (Suspend to RAM)]
```
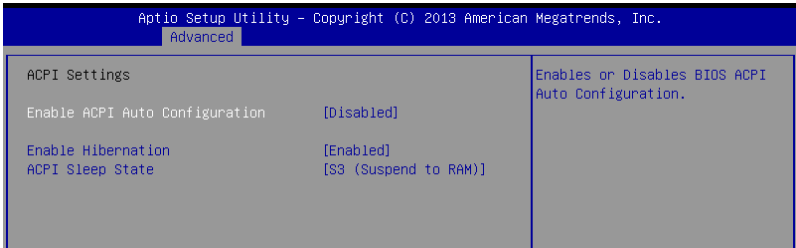
Enable ACPI Auto Configuration [Disabled]

Allows you to enable or disable the BIOS ACPI Auto Configuration.
Configuration options: [Disabled] [Enabled]

Enable Hibernation [Enabled]

Allows you to enable or disable the ability of the system to hibernate (OS/Sleep State).
Configuration options: [Disabled] [Enabled]

This option may be not effective with some OS.

ACPI Sleep State [S3 (Suspend to RAM)]

This item allows you to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Configuration options: [S3 (Suspend to RAM)] [Suspend Disabled]

4.5.2 SMART Settings

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                Advanced

 SMART Settings                                     Run SMART Self Test on all
                                                    HDDs during POST.
 SMART Self Test                     [Enabled]
```
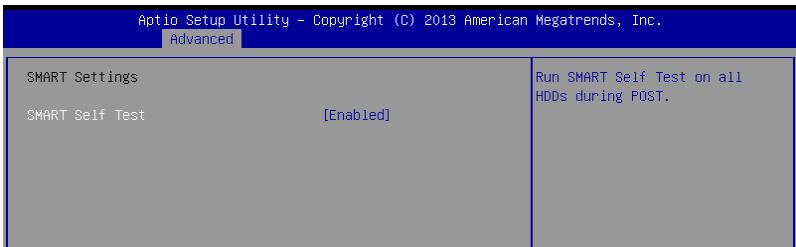
SMART Self Test [Enabled]

Allows you to run SMART Self Test on all HDDs during POST.
Configuration options: [Disabled] [Enabled]

4.5.3 NCT6779D Super IO Configuration

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
          Advanced
   NCT6779D Super IO Configuration                      Set Parameters of Serial Port
                                                        1 (COM1)
   Super IO Chip                         NCT6779D
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
```
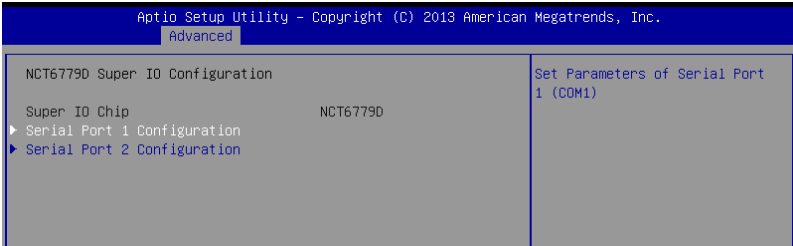
Serial Port 1/2 Configuration

Allows you to set the parameters of Serial Port 1/ Serial Port 2.

Serial Port [Enabled]

Allows you to enable or disable Serial Port.
Configuration options: [Disabled] [Enabled]

Change Settings [Auto]

Allows you to choose the setting for Super IO device.
Configuration options:
[Auto]
[IO=3F8h; IRQ=4;]
[IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;]
[IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;]
[IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;]
[IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;]

4.5.4   Onboard LAN I210 Configuration

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Advanced

 Onboard LAN I210 Configuration                                Intel LAN Enable/Disable

 INTEL I210 LAN1 MAC:            00:E0:18:08:28:10
 INTEL I210 LAN2 MAC:            00:E0:18:08:28:11
 Intel Lan1 Enable              [Enabled]
 Intel LAN ROM Type             [PXE]
 Intel Lan2 Enable              [Enabled]
 Intel LAN ROM Type             [PXE]



                                                              ↔: Select Screen
```
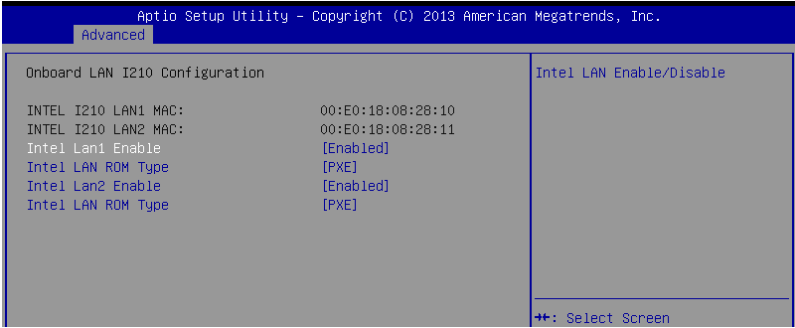
Intel Lan1/Lan2 Enable [Enabled]

Allows you to enable or disable the Intel LAN.
Configuration options: [Disabled] [Enabled]

Intel LAN ROM Type [PXE]

Allows you to select the Intel LAN ROM type.
Configuration options: [PXE] [iSCSI]

4.5.5 Serial Port Console Redirection

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Advanced

   COM1                                                        Console Redirection Enable or
   Console Redirection          [Disabled]                    Disable.
 ▶ Console Redirection Settings

   COM2
   Console Redirection          [Enabled]
 ▶ Console Redirection Settings

   Serial Port for Out-of-Band Management/
   Windows Emergency Management Services (EMS)
   Console Redirection          [Disabled]
 ▶ Console Redirection Settings
                                                              ↔: Select Screen
```

COM1/COM2

Console Redirection [Enabled]

Allows you to enable or disable the console redirection feature.
Configuration options: [Disabled] [Enabled]

The following item appears only when you set **Console Redirection** to [Enabled].

Console Redirection Settings

This item becomes configurable only when you enable the **Console Redirection** item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Advanced

   COM2                                                        Emulation: ANSI: Extended
   Console Redirection Settings                                ASCII char set. VT100: ASCII
                                                               char set. VT100+: Extends
   Terminal Type                [VT-UTF8]                      VT100 to support color,
   Bits per second              [57600]                        function keys, etc. VT-UTF8:
   Data Bits                    [8]                            Uses UTF8 encoding to map
   Parity                       [None]                         Unicode chars onto 1 or more
   Stop Bits                    [1]                            bytes.
   Flow Control                 [Hardware RTS/CTS]
   VT-UTF8 Combo Key Support    [Enabled]
   Recorder Mode                [Disabled]
   Legacy OS Redirection Resolution  [80x24]
   Putty KeyPad                 [VT100]                        ↔: Select Screen
   Redirection After BIOS POST  [Always Enable]                ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F5: Optimized Defaults
                                                               F10: Save Changes & Reset
```
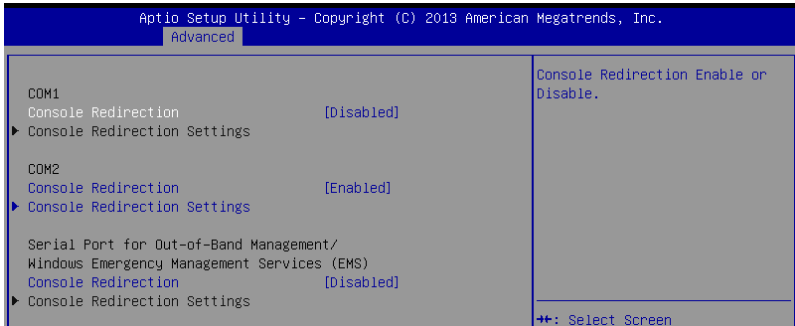
Terminal Type [VT-UTF8]

Allows you to set the terminal type.

[VT100]   ASCII char set.
[VT100+]   Extends VT100 to support color, function keys, etc.
[VT-UTF8]   Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
[ANSI]   Extended ASCII char set.

Bits per second [57600]

Selects serial port transmission speed. The speed must be matched on the other side.
Long or noisy lines may require lower speeds.
Configuration options: [9600] [19200] [38400] [57600] [115200]

Data Bits [8]

Configuration options: [7] [8]

Parity [None]

A parity bit can be sent with the data bits to detect some transmission errors. [Mark]
and [Space] parity do not allow for error detection.

[None]   None
[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

Stop Bits [1]

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.
Configuration options: [1] [2]

Flow Control [Hardware RTS/CTS]

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.
Configuration options: [None] [Hardware RTS/CTS]

VT -UTF8 Combo Key Support [Enabled]
This allows you to enable the VT -UTF8 Combination Key Support for ANSI/VT100
terminals.
Configuration options: [Disabled] [Enabled]

Recorder Mode [Disabled]

With this mode enabled only text will be sent. This is to capture Terminal data.
Configuration options: [Disabled] [Enabled]

Legacy OS Redirection Resolution [80x24]

This allows you to set the number of rows and columns supported on the Legacy OS.
Configuration options: [80x24] [80x25]

Putty Keypad [VT100]
This allows you to select the FunctionKey and Keypad on Putty.
Configuration options: [VT100] [LINUX] [XTERMR6] [SCO] [ESCN] [VT400]

Redirection After BIOS POST [Always Enable]

This setting allows you to specify if Bootloader is selected than Legacy console redirection.
Configuration options: [Always Enable] [Bootloader]

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection [Disabled]

Allows you to enable or disable the console redirection feature.
Configuration options: [Disabled] [Enabled]

The following item appears only when you set **Console Redirection** to [Enabled].

Console Redirection Settings

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Advanced

Out-of-Band Mgmt Port          [COM1]              Microsoft Windows Emergency
Terminal Type                  [VT-UTF8]           Management Services (EMS)
Bits per second                [115200]            allows for remote management
Flow Control                   [None]              of a Windows Server OS through
Data Bits                      8                   a serial port.
Parity                         None
Stop Bits                      1
```

Out-of-Band Mgmt Port [COM1]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port.
Configuration options: [COM1] [COM2]

Terminal Type [VT-UTF8]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port.
Configuration options: [VT100] [VT100+] [VT-UTF8] [ANSI]

Bits per second [115200]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port.
Configuration options: [9600] [19200] [57600] [115200]

Flow Control [None]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port.
Configuration options: [None] [Hardware RTS/CTS] [Software Xon/Xoff]

4.5.6 APM

Allows you to configure the Advance Power Management (APM) settings.

```
                  Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                         Advanced

    Restore AC Power Loss            [Last State]              Specify what state to go to
    Power On By PCIE                 [Disabled]                when power is re-applied after
    Power On By Ring                 [Disabled]                a power failure (G3 state).
    Power On By RTC                  [Disabled]
```
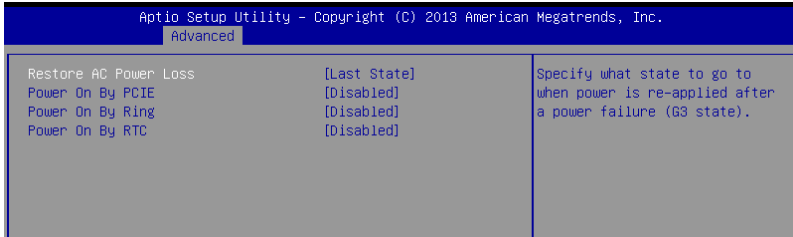
Restore AC Power Loss [Last State]

When set to [Power Off], the system goes into off state after an AC power loss. When set to [Power On], the system will reboot after an AC power loss. When set to [Last State], the system goes into either off or on state, whatever the system state was before the AC power loss.
Configuration options: [Power Off] [Power On] [Last State]

Power On By PCIE [Disabled]

[Disabled]   Disables the PCIE devices to generate a wake event.

[Enabled]   Enables the PCIE devices to generate a wake event.

Power On By Ring [Disabled]

[Disabled]   Disables the PCIE devices to generate a wake event.

[Enabled]   Enables the PCIE devices to generate a wake event.

Power On By RTC [Disabled]

[Disabled]   Disables RTC to generate a wake event.

[Enabled]   When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/Minute/Second** will become user-configurable with set values.

4.5.7 Advance Power Management Configuration

Allows you to configure the Advance Power Management settings.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                   Advanced

Power Boost                             [Normal]              Enable [Power Boost] will
                                                             increase extra power input to
                                                             processor(s) and computing
                                                             performance depending on
                                                             applications. Make sure your
                                                             thermal solution and power
                                                             supply are able to handle this
                                                             circumstance.
```
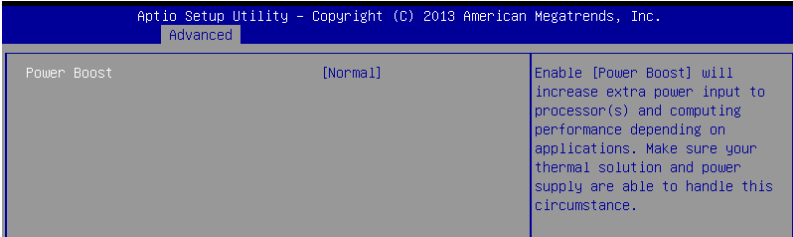
Power Boost [Normal]

Enabling this item allows you to increase extra power input to the processors(s) and coumputing performance depenig on the applications.
Configuration Options: [Normal] [High] [Extreme]

Ensure that your thermal solution and power supply are able to handle this circumstance.

4.5.8   PCI Subsystem Settings

Allows you to configure PCI, PCI-X, and PCI Express Settings.

```
               Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                  Advanced

    PCI Bus Driver Version            A5.01.05                    Enables or Disables RT32 Image
                                                                  Loading.
    PCI Devices Common Settings:
    Load RT32 Image                   [Enabled]
    Above 4G Decoding                 [Disabled]
    SR-IOV Support                    [Disabled]
```

Load RT32 Image [Enabled]

Allows you to enable or disable RT32 Image Loading.
Configuration options: [Disabled] [Enabled]

Above 4G Decoding [Disabled]

Allows you to enable or disable 64-bit capable devices to be decoded in above 4G address space. It only works if the system supports 64-bit PCI decoding.
Configuration options: [Disabled] [Enabled]

SR-IOV Support [Disabled]

This option enables or disables SIngle Root IO Virtualization Support if the system has SR-IOV capable PCIe devices.
Configuration options: [Disabled] [Enabled]

4.5.9 Network Stack Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                    Advanced

Network Stack                    [Disabled]           Enable/Disable UEFI Network
                                                      Stack
```

Network stack [Enabled]

Enables or disables the network stack feature.
Configuration options: [Disable] [Enable]

The following item appears only when **Network stack** is set to [Enabled].

Ipv4 PXE Support [Enabled]

Enables or disables the Ipv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created.
Configuration options: [Disabled] [Enabled].

Ipv6 PXE Support [Enabled]

Enables or disables the Ipv6 PXE Boot Support. If disabled, Ipv6 PXE boot option will not be created.
Configuration options: [Disabled] [Enabled].

PXE boot wait time [0]

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

Media detect time [0]

Wait time (in seconds) to detect media.

4.5.10   CSM Configuration

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Advanced
  ┌──────────────────────────────────────────────────────┬──────────────────────────┐
  │ Compatibility Support Module Configuration            │ Enable/Disable CSM Support.│
  │                                                        │                          │
  │ CSM Support                        [Enabled]           │                          │
  │                                                        │                          │
  │ CSM16 Module Version               07.74               │                          │
  │                                                        │                          │
  │ GateA20 Active                     [Upon Request]      │                          │
  │ Option ROM Messages                [Force BIOS]        │                          │
  │                                                        │                          │
  │ Boot option filter                 [Legacy only]       │                          │
  │                                                        │                          │
  │ Option ROM execution                                   │                          │
  │                                                        ├──────────────────────────┤
  │ Network                            [Legacy]            │ ++: Select Screen        │
  │ Storage                            [Legacy]            │ ↑↓: Select Item          │
  │ Video                              [Legacy]            │ Enter: Select            │
  │ Other PCI devices                  [Legacy]            │ +/-: Change Opt.         │
  │                                                        │ F1: General Help         │
  │                                                        │ F2: Previous Values      │
  └──────────────────────────────────────────────────────┴──────────────────────────┘
```

CSM Support [Enabled]

This option allows you to enable or disable CSM Support.
Configuration options: [Disabled] [Enabled]

GateA20 Active [Upon Request]

This allows you to set the GA20 option.
Configuration options: [Upon Request] [Always]

Option ROM Messages [Force BIOS]

This allows you to set the display mode for option ROM.
Configuration options: [Force BIOS] [Keep Current]

Boot Option filter [Legacy only]

This option allows you to control the Legacy/UEFI ROMs priority.
Configuration options: [UEFI and Legacy] [Legacy only] [UEFI only]

Network / Storage / Video [Legacy]

This option allows you to control the execution of UEFI and Legacy PXE/Storage/Video OpROM.
Configuration options: [UEFI] [Legacy]

Other PCI devices [Legacy]

This item determines the OpROM execution policy for devices other than Network, Storage, or Video.
Configuration options: [UEFI] [Legacy]

4.5.11 Trusted Computing

```
             Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                Advanced

    Configuration                                         Enables or Disables BIOS
       Security Device Support          [Disabled]        support for security device.
                                                          O.S. will not show Security
                                                          Device. TCG EFI protocol and
    Current Status Information                            INT1A interface will not be
      NO Security Device Found                            available.
```

Configuration

Security Device Support [Disabled]

Allows you to enable or disable the BIOS support for security device.
Configuration options: [Disabled] [Enabled]

4.5.12   USB Configuration

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                  Advanced

    USB Configuration                                     Enables Legacy USB support.
                                                          AUTO option disables legacy
    USB Module Version              8.11.02               support if no USB devices are
                                                          connected. DISABLE option will
    USB Devices:                                          keep USB devices available
        1 Drive, 1 Keyboard, 3 Hubs                       only for EFI applications.

    Legacy USB Support              [Enabled]
    XHCI Hand-off                   [Enabled]
    EHCI Hand-off                   [Disabled]
    USB Mass Storage Driver Support [Enabled]
    Port 60/64 Emulation            [Enabled]

    USB hardware delays and time-outs:                    ↔: Select Screen
    USB transfer time-out           [20 sec]              ↑↓: Select Item
    Device reset time-out           [20 sec]              Enter: Select
    Device power-up delay           [Auto]                +/-: Change Opt.
                                                          F1: General Help
    Mass Storage Devices:                                 F2: Previous Values
    Generic 8.07                    [Auto]                F5: Optimized Defaults
                                                          F10: Save Changes & Reset
                                                          ESC: Exit



                Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Legacy USB Support [Enabled]

Allows you to enable or disable Legacy USB device support.
Configuration options: [Enabled] [Disabled] [Auto]

XHCI Hand-off [Enabled]

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change
should be claimed by XHCI driver.
Configuration options: [Disabled] [Enabled]

EHCI Hand-off [Disabled]

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change
should be claimed by EHCI driver.
Configuration options: [Disabled] [Enabled]

USB Mass Storage Driver Support [Enabled]

Allows you to enable or disable the USB Mass Storage drvier support.
Configuration options: [Disabled] [Enabled]

Port 60/64 Emulation [Enabled]

This allows you to enable the I/O port 60h/64h emulation support. This should be enabled for
the complete USB keyboard legacy support for non-USB aware OSes.
Configuration options: [Disabled] [Enabled]

USB hardware delays and time-outs

USB transfer time-out [20 sec]

The time-out value for control, bulk, and interrupt transfer.
Configuration options: [1 sec] [5 sec] [10 sec] [20 sec]

Device reset time-out [20 sec]

USB mass storage device start unit command time-out.
Configuration options: [10 sec] [20 sec] [30 sec] [40 sec]

Device power-up delay [Auto]

This is the maximum time the device will take before it properly reports itself to the host controller.
Configuration options: [Auto] [Manual]

Mass Storage Devices

Generic 8.07 [Auto]

The time-out value for control, bulk, and interrupt transfer.
Configuration options: [Enabled] [Disabled] [Auto]

4.5.13   ASMedia Storage Controller

Allows you to configure the ASMedia Storage parameters.
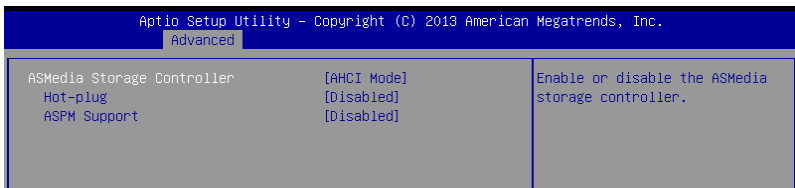
ASMedia Storage Controller [AHCI Mode]

This item allows you to enable or disable the ASMedia Storage Controller.
Configuration options: [AHCI Mode] [IDE Mode]

Hot Plug [Disabled]

Allows you to enable or disable the hot-plug support.
Configuration options: [Disabled] [Enabled]

ASPM Support [Disabled]

Allows you to enable the controller ASMP (active state power management) for energy saving support.
Configuration options: [Disabled] [Enabled]

4.5.14   iSCSI Configuration

Allows you to configure the iSCSi parameters.

```
                  Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                   Advanced
    iSCSI Initiator Name                                       The worldwide unique name of
                                                               iSCSI Initiator. Only IQN
  ▶ Add an Attempt                                             format is accepted.

  ▶ Delete Attempts

  ▶ Change Attempt Order
```
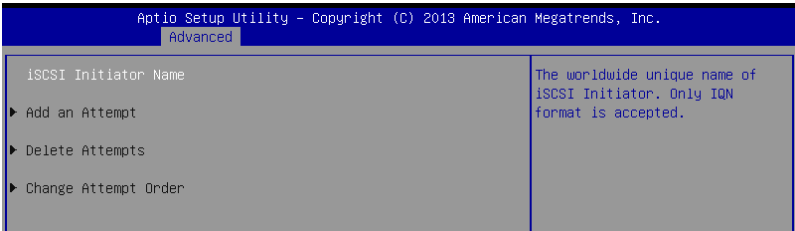
4.6 IntelRCSetup menu

The IntelRCSetup menu items allow you to change the processor and chipset settings.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot          ▶

  ▶ Processor Configuration                           Displays and provides option
  ▶ Advanced Power Management Configuration            to change the Processor
  ▶ Common RefCode Configuration                       Settings
  ▶ QPI Configuration
  ▶ Memory Configuration
  ▶ IIO Configuration
  ▶ PCH Configuration
  ▶ Miscellaneous Configuration
  ▶ Server ME Configuration
  ▶ Runtime Error Logging

                                                     ↔: Select Screen
  ----------------------------------------------      ↑↓: Select Item
  Setup Warning:                                      Enter: Select
  Setting items on this Screen to incorrect values    +/-: Change Opt.
  may cause system to malfunction!                     F1: General Help
                                                       F2: Previous Values
                                                       F5: Optimized Defaults
                                                       F10: Save Changes & Reset
                                                       ESC: Exit



            Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

4.6.1 Processor Configuration

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                    IntelRCSetup

Processor Configuration                                          ▲  Change Per-Socket Settings
------------------------------------------------
▶ Per-Socket Configuration
Processor Socket                  Socket 1    Socket 2
Processor ID                      000306F2  |   N/A   5
Processor Frequency               2.300GHz  |   N/A   5
Processor Max Ratio                    17H  |   N/A   5
Processor Min Ratio                    0CH  |   N/A   5
Microcode Revision                0000001D  |   N/A   5
L1 Cache RAM                         896KB  |   N/A   5
L2 Cache RAM                        3584KB  |   N/A   5
L3 Cache RAM                       35840KB  |   N/A   5
Processor 1 Version               Intel(R) Xeon(R) CPU E5
                                  -2695 v3 @ 2.30GHz       ▶◀: Select Screen
Processor 2 Version               Not Present             ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
Hyper-Threading                   [Enabled]               F1: General Help
Execute Disable Bit               [Enabled]               F2: Previous Values
Enable Intel TXT Support          [Disabled]              F5: Optimized Defaults
VMX                               [Enabled]               F10: Save Changes & Reset
Enable SMX                        [Disabled]              ESC: Exit
Hardware Prefetcher               [Enabled]
Adjacent Cache Prefetch           [Enabled]
DCU Streamer Prefetcher           [Enabled]            ▼

            Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Per Socket Configuration

Allows you to set the number of cores to enable. 0 means all cores. Total of 14 cores available.

Hyper Threading [Enabled]

Allows you to enable or disable the Intel® Hyper-Threading Technology function. When disabled, only one thread per activated core is enabled.
Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enabled]

When disabled, forces the XD feature flag to always return 0.
Configuration options: [Disabled] [Enabled]

Enable Intel TXT Support [Disabled]

This item enables Intel Trusted Execution Technology Configuration.
Configuration options: [Disabled] [Enabled]

> Disable EV DFS Features when TXT is enabled.

VMX [Enabled]

Enables the Vanderpool Technology. Takes effect after reboot.
Configuration options: [Disabled] [Enabled]

Enable SMX [Disabled]

Enables the Safer Mode Extensions

Configuration options: [Disabled] [Enabled]

Hardware Prefetcher [Enabled]

This Item allows you to turn on/off the mid level cache(L2) streamer prefetcher.

Configuration options: [Disabled] [Enabled]

Adjacent Cache Prefetch [Enabled]

This Item allows you to turn on/off prefetching of adjacent cache lines.
Configuration options: [Disabled] [Enabled]

DCU Streamer Prefetcher [Enabled]

This Item allows you to enable or disable prefetcher of next L1 data line.
Configuration options: [Disabled] [Enabled]

DCU IP Prefetcher [Enabled]

This Item allows you to enable or disable prefetch of next L1 line based upon sequential load history.

Configuration options: [Disabled] [Enabled]

DCU Mode [32K 8Way Without ECC]

Configuration options: [32K 8Way Without ECC] [16K 4Way With ECC]

Direct Cache Access (DCA) [Auto]

This Item allows you to enable or disable Direct Cache Access.

Configuration options: [Auto] [Disabled] [Enabled]

DCA Prefetch Delay [32]

This Item allows you to set the time for the DCA Prefetch delay Help.

Configuration options: [Disabled] [8] [16] [24] [32] [40] [48] [56] [64] [72] [80] [88] [96] [104] [112]

X2APIC [Disabled]

This Item allows you to enable or disable the extended APIC support.

Configuration options: [Disabled] [Enabled]

AES-NI [Enabled]

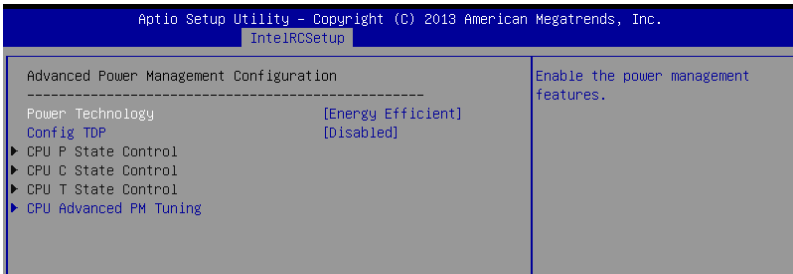This Item allows you to enable or disable the AES-NI support.

Configuration options: [Disabled] [Enabled]

Down Stream PECI [Disabled]

This Item allows you to enable the PCIe Down Stream PECI writer.

Configuration options: [Disabled] [Enabled]

4.6.2 Advanced Power Management Configuration

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup

  Advanced Power Management Configuration                Enable the power management
  ------------------------------------------------       features.
  Power Technology                    [Energy Efficient]
  Config TDP                          [Disabled]
▶ CPU P State Control
▶ CPU C State Control
▶ CPU T State Control
▶ CPU Advanced PM Tuning
```

Power Technology [Energy Efficient]

This item allows you to enable power management features.
Configuration options: [Disabled] [Energy Efficient] [Custom]

Config TDP [Disabled]

This item allows you to enable/disable the Config TDP.
Configuration options: [Disabled] [Enabled]

> **Config TDP Level [Disabled]**
>
> This item appears only when Config TDG is set to [Enabled]. This allows you select the
> Config TDP level.
> Configuration options: [Disabled] [Enabled]

CPU Advanced PM Turning

This item allows you to set additional CPU Power Management settings.

Energy Perf BIAS

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup

  Energy Perf BIAS                                       Selects whether BIOS or
                                                         Operating System chooses
  Energy Performance Tuning           [Disabled]         energy peformance bias tunning.
  Energy Performance BIAS setting.    [Balanced Performance]
  Power/Performance Switch            [Enabled]
  Workload Configuration              [Balanced]
  Averaging Time Window               23
  P0 TotalTimeThreshold Low           35
  P0 TotalTimeThreshold High          58
```

> **Energy Performance Tuning [Disabled]**
>
> Allows your system to select from BIOS or operating system to choose enable energy
> performance bias tuning.
> Configuration options: [Disabled] [Enabled]
>
> **Energy Performance Bias setting. [Balanced Performance]**
>
> Allows you to set the Energy Performance Bias which overrides the OS setting.
> Configuration options: [Performance] [Balanced Performance]
>   [Balanced Power] [Power]

Power/Performance Switch [Enabled]

Allows you to switch between Power or performance.
Configuration options: [Disabled] [Enabled]

Workload Configuration [Balanced]

Optimization for the workload characterization.
Configuration options: [Balanced] [I/O sensitive]

Averaging Time Window [23]

This is used to control the effective window of the average for CO and PO time.

PO TotalTimeThreshold Low [35]

The HW switching mechanism disables the performance setting (0) when the total PO time is less than this threshold.

PO TotalTimeThreshold High [58]

The HW switching mechanism enables the performance setting (0) when the total PO time is greater than this threshold.

4.6.3   Common RefCode Configuration
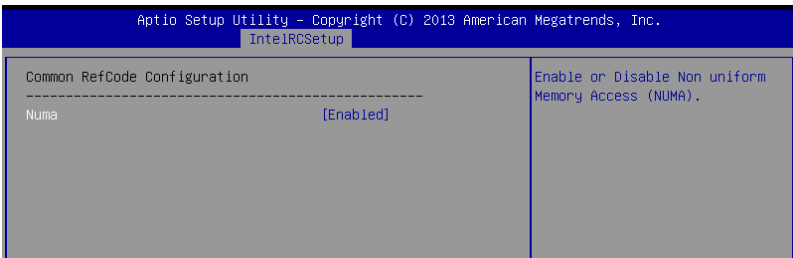
Numa [Enabled]

This item enables or disables the Non uniform Memory Access (NUMA).
Configuration options: [Disabled] [Enabled]

4.6.4   QPI Configuration

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                     IntelRCSetup

    QPI General Configuration                               QPI Status Help

    -------------------------------------------------
  ▶ QPI Status
    Link Speed Mode                    [Fast]
    Link Frequency Select              [Auto]
    Link L0p Enable                    [Enable]
    Link L1 Enable                     [Enable]
    COD Enable                         [Auto]
    Early Snoop                        [Auto]
```
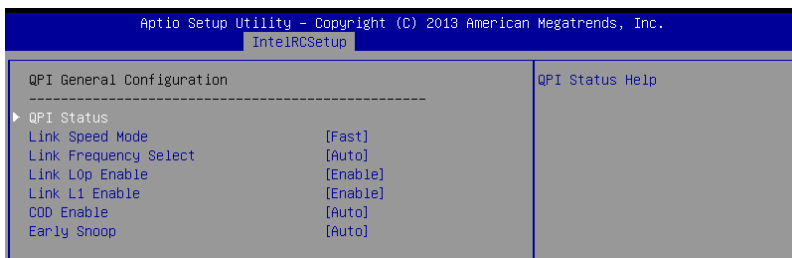
QPI General Configuration

QPI Status

This item displays information about the QPI status.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                     IntelRCSetup

    QPI Status

    -------------------------------------------------
    Number of CPU                      1
    Number of IIO                      1
    Current QPI Link Speed             N/A
    Current QPI Link Frequency         N/A
    QPI Global MMIO Low Base / Limit   90000000 / FBFFFFFF
    QPI Global MMIO High Base / Limit  00000000000 / 000FFFFFFF
    QPI Pci-e Configuration Base / Siz 80000000 / 10000000
```
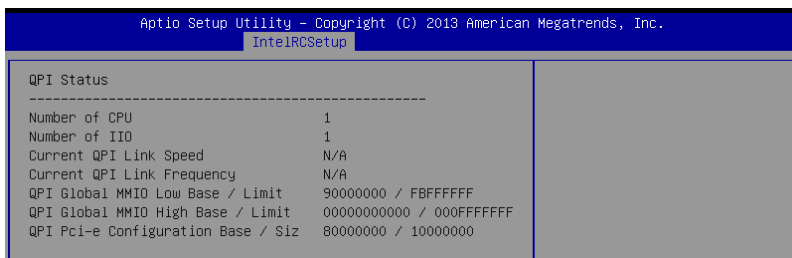
Link Speed Mode [Fast]

This item allows you to select the QPI link speed as either the fast mode or slow mode.
Configuration options: [Slow] [Fast]

Link Frequency Select [Auto]

This item allows you for selecting the QPI link frequency
Configuration options: [Auto] [6.4 GT/s] [8.0 GT/s] [9.6 GT/s]

Link L0p Enable [Enable]

Configuration options: [Disable] [Enable]

Link L1 Enable [Enable]

Configuration options: [Disable] [Enable]

COD Enable [Auto]

Configuration options: [Disabled] [Enabled] [Auto]

Early Snoop [Auto]

Configuration options: [Disabled] [Enabled] [Auto]

4.6.5 Memory Configuration

```
           Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                              IntelRCSetup

                                                          Enable to enforce POR
   ----------------------------------------------         restrictions for DDR4
   Integrated Memory Controller (iMC)                     frequency and voltage
   ----------------------------------------------         programming
   Enforce POR                         [Auto]
   Memory Frequency                    [Auto]
   Halt on mem Training Error          [Enabled]
   ECC Support                         [Auto]
   Enhanced Log Parsing                [Disabled]
   Data Scrambling                     [Auto]
   Enable ADR                          [Disabled]
   C/A Parity Enable                   [Auto]
   ▶ Memory Topology
   ▶ Memory Thermal                                       ↔: Select Screen
   ▶ Memory Map                                           ↑↓: Select Item
   ▶ Memory RAS Configuration                             Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
```

Enforce POR [Auto]

Allows you to enforce POR restrictions for DDR4 frequency adn voltage programming.
Configuration options: [Auto] [Enforce POR] [Disabled] [Enforce Stretch Goals]

Memory Frequency [Auto]

Allows you to select the memory frequency setting.
Configuration options: [Auto] [1333] [1600] [1866] [2133]

Halt on mem Training Error [Enabled]

Allows you to enable or disable halt on mem Training Error.
Configuration options: [Disabled] [Enabled]

ECC Support [Auto]

Allows you to enable or disable the ECC support.
Configuration options: [Auto] [Disabled] [Enabled]

Enhanced Log Parsing [Disabled]

Allows you to enable or disable the Enhanced Log Parsing.
Configuration options: [Auto] [Disabled] [Enabled]

Data Scrambling [Auto]

Allows you to enable/disable data scrambling.
Configuration options: [Auto] [Disabled] [Enabled]

Enable ADR [Disabled]

Allows you to set the detecting and enabling of ADR.
Configuration options: [Disabled] [Enabled]

C/A Parity Enable [Auto]

Allows you to enable or disable the DDR4's command address parity.
Configuration options: [Auto] [Disabled] [Enabled]

Memory Topology

Displays memory topology with DIMM population information.

```
           Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                          IntelRCSetup

                                                          Enable to enforce POR
                                                          restrictions for DDR4
   ---------------------------------------------          frequency and voltage
   Integrated Memory Controller (iMC)                     programming
   ---------------------------------------------

   Enforce POR                          [Auto]
```

Memory Thermal

Allows you to configure thermal settings.

```
           Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                          IntelRCSetup

   Set Throttling Mode               [Disabled]           Configure Thermal Throttling
   OLTT Peak BW %                    50                    Mode.
   DIMM Temp Stat                    92                    Select OLTT or CLTT mode.
   Memory Power Savings Mode         [Auto]
 ▶ Memory Power Savings Advanced Options
   MDLL Off                          [Auto]
   MEMHOT Throttling Mode            [Input-only]
   Mem Electrical Throttling         [Disabled]
```

Set Throttling Mode [Disabled]

Configuration options: [Disabled] [OLTT] [CLTT]

OLLT Peak BW% [xx]

Allows you to set the peak allowed bandwidth for OLTT. This is in percentage and valid offset values is from 25-100.

DIMM Temp Stat [xx]

Allows you to select DIMMTEMPSTAT as temp_mid or tem_hi.

Memory Power Savings Mode [Auto]

Allows you to configure the CKE and other related Memory Power Savings features.
Configuration options: [Auto] [Disabled] [APD On] [User Defined] [Reserve] [Reserved]

Memory Power Savings Advanced Options

CK in SR [Auto]
Configuration options: [Auto] [Driven] [Tri-State] [Pulled Low] Pulled High]

MDLL Off [Auto]

Allows you to shutdown MDLL during SR when enabled.
Configuration options: [Auto] [Disabled] [Enabled]

MEMHOT Throttling Mode [Input-only]

Allows you to shutdown MDLL during SR when enabled.
Configuration options: [Disabled] [Input-only] [Output-only]

Mem Electrical Throttling [Disabled]

Allows you to configure Memory Electical throttling.
Configuration options: [Disabled] [Enabled] [Auto]

Memory Map

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup

 Channel Interleaving                   [Auto]            Select Channel Interleaving
 Rank Interleaving                      [Auto]            setting
```

Channel Interleaving [Auto]

Select different channel interleaving setting.
Configuration options: [Auto] [1-way Interleave] [2-way Interleave]
[3-way Interleave] [4-way Interleave]

Rank Interleaving [Auto]

Select different rank interleaving setting.
Configuration options: [Auto] [1-way Interleave] [2-way Interleave]
[4-way Interleave] [8-way Interleave]

Memory RAS Configuration

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup

                                                         Enable/Disable RAS modes.
                                                         Enabling Sparing and Mirroring
 ------------------------------------------------        is not supported. Incase if
 Memory RAS Configuration Setup                          enabled, Sparing will be
 ------------------------------------------------        selected.
 RAS Mode                               [Disabled]
 Memory Rank Sparing                    [Disabled]
 Correctable Error Threshold            32767
 Patrol Scrub                           [Enabled]
 Demand Scrub                           [Enabled]
```

RAS Mode [Disabled]

Allows you to enable or disable RAS Modes. Enabling Sparing and Mirroring is not
supported. In case enabled, Sparing will be selected.
Configuration options: [Disabled] [Mirror] [Lockstep Mode]

Memory Rank Sparing [Disabled]

Allows you to enable or disable Memory Rank Sparing.
Configuration options: [Disabled] [Enabled]

Correctable Error Threshold [32767]

Allows you to set the Correctable Error Threshold used for sparing, tagging, and leaky
bucket. The range is from 1 to 32767.

Patrol Scrub [Enabled]

Allows you to enable or disable Patrol Scrub.
Configuration options: [Disabled] [Enabled]

Demand Scrub [Enabled]

Allows you to enable or disable Demand Scrub.
Configuration options: [Disabled] [Enabled]

4.6.6   IIO Configuration

```
                 Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                                   IntelRCSetup

  IIO Configuration                                        Set this option to allow DFX
  ------------------------------------------------         Lock Bits to remain clear
  EV DFX Features                        [Disabled]
▶ PCIE Slot Option Rom Configuration
▶ Intel VT for Directed I/O (VT-d)

  PCI Express Global Options
  ================================================
  TX EQ WA                               [Enabled]
  PCI-E ASPM Support (Global)            [L1 Only]
```
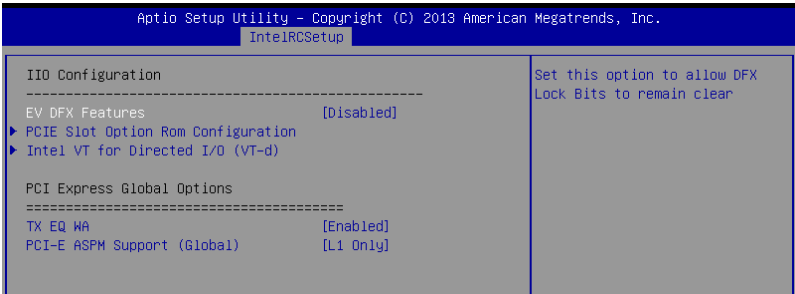
EV DFX Features [Disabled]

Set this option to allow DFX Lock Bits to remain clear.
Configuration options: [Disabled] [Enabled]

PCIE Slot Option ROM Configuration

PCIE1-PCIE7 Option ROM [Enabled]

Allows you to enable or disable the PCIE1-7 Option ROM.
Configuration options: [Disabled] [Enabled]

Intel VT for Directed I/O (VT-d)

Intel VT for Directed I/O (VT-d) [Enabled]

Allows you to enable or disable the Intel Virtualization Technology for Directed I/O.
Configuration options: [Disabled] [Enabled]

PCI Express Global Options

TX EQ WA [Enabled]

Use special table for TX_EQ and vendor specific cards.
Configuration options: [Disabled] [Enabled]

PCI-E ASPM Support (Global) [L1 Only]

This option enables or disables the ASPM support for all downstream devices.
Configuration options: [Disabled] [L1 Only]

4.6.7 PCH Configuration

```
         Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup
┌──────────────────────────────────────────────────┬──────────────────────────┐
│ PCH Configuration                                 │ Enable/Disable Intel(R) IO│
│ -------------------------------------------------- │ Controller Hub devices   │
│ ▶ PCH Devices                                     │                          │
│ ▶ PCI Express Configuration                       │                          │
│ ▶ PCH sSATA Configuration                         │                          │
│ ▶ PCH SATA Configuration                          │                          │
│ ▶ USB Configuration                               │                          │
│ ▶ Azalia Configuration                            │                          │
│ ▶ Platform Thermal Configuration                  │                          │
│                                                   │                          │
└──────────────────────────────────────────────────┴──────────────────────────┘
```

PCH Devices

```
         Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup
┌──────────────────────────────────────────────────┬──────────────────────────┐
│ DeepSx Power Policies              [Disabled]     │ configure the DeepSx Mode │
│                                                   │ configuration.            │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
└──────────────────────────────────────────────────┴──────────────────────────┘
```

DeepSx Power Policies [Disabled]

Allows you to configure the DeepSx Mode configuration.
Configuration options: [Disabled] [Enabled in S5] [Enabled in S4 and S5]

PCI Express Configuration

```
         Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                            IntelRCSetup
┌──────────────────────────────────────────────────┬──────────────────────────┐
│                                                   │ PCH DMI ASPM Setting      │
│ PCH DMI ASPM                       [Enabled]      │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
└──────────────────────────────────────────────────┴──────────────────────────┘
```

PCH DMI ASPM [Enabled]

Allows you to configure the PCH DMI ASPM.
Configuration options: [Disabled] [Enabled]

PCH sSATA Configuration

```
            Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                     IntelRCSetup

 PCH sSATA Configuration                                        Enable or Disable SATA
 ------------------------------------------------              Controller

 sSATA Controller                   [Enabled]
 Configure sSATA as                 [AHCI]
 Support Aggressive Link Power Mana  [Enabled]

 SATA Port 1                        [Not Installed]
   Port 1                           [Enabled]
 SATA Port 2                        [Not Installed]
   Port 2                           [Enabled]
 SATA Port 3                        ASUS   DVD-E8 - ATAPI
   Port 3                           [Enabled]              ➔←: Select Screen
 SATA Port 4                        WDC WD2500AAKS - 250.0 G  ↑↓: Select Item
   Port 4                           [Enabled]              Enter: Select
                                                           +/-: Change Opt.
```

sSATA Controller [Enabled]

Allows you to enable or disable the sSATA Controller.
Configuration options: [Disabled] [Enabled]

Configure sSATA as [AHCI]

Allows you to identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
Configuration options: [IDE] [AHCI] [RAID]

Support Aggressive Link Power Management [Enabled]

Allows you to enable or disable the Suport Aggressive Link Power (SALP) Management.
Configuration options: [Disabled] [Enabled]

SATA Port 1-4

Port 1 / Port 2 / Port 3 / Port 4 [Enabled]

Allows you to enable or disable the SATA port.
Configuration options: [Disabled] [Enabled]

PCH SATA Configuration

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                          IntelRCSetup

  PCH SATA Configuration                                    Enable or Disable SATA
  -----------------------------------------------          Controller

  SATA Controller                  [Enabled]
  Configure SATA as                [AHCI]
  Support Aggressive Link Power Mana  [Enabled]

  SATA Port 1                      [Not Installed]
    Port 1                         [Enabled]
  SATA Port 2                      [Not Installed]
    Port 2                         [Enabled]
  SATA Port 3                      [Not Installed]
    Port 3                         [Enabled]
  SATA Port 4                      [Not Installed]          ↔: Select Screen
    Port 4                         [Enabled]                ↑↓: Select Item
  SATA Port 5                      [Not Installed]          Enter: Select
    Port 5                         [Enabled]                +/-: Change Opt.
  SATA Port 6                      [Not Installed]          F1: General Help
    Port 6                         [Enabled]                F2: Previous Values
                                                            F5: Optimized Defaults
```

SATA Controller [Enabled]
Allows you to enable or disable the SATA Controller.
Configuration options: [Disabled] [Enabled]

Configure SATA as [AHCI]

Allows you to identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
Configuration options: [IDE] [AHCI] [RAID]

Support Aggressive Link Power Management [Enabled]
Allows you to enable or disable the Suport Aggressive Link Power (SALP) Management.
Configuration options: [Disabled] [Enabled]

SATA Port 1-6

Port 1 / Port 2 / Port 3 / Port 4 / Port 5 / Port 6 [Enabled]

Allows you to enable or disable the SATA port.
Configuration options: [Disabled] [Enabled]

USB Configuration

```
                  Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                   IntelRCSetup

                                                                Mode of operation of xHCI
  xHCI Mode                                 [Auto]              controller.
  USB Ports Per-Port Disable Control    [Disabled]
```
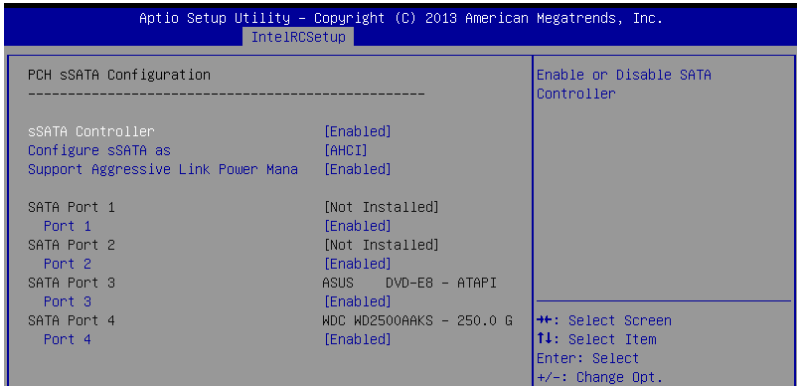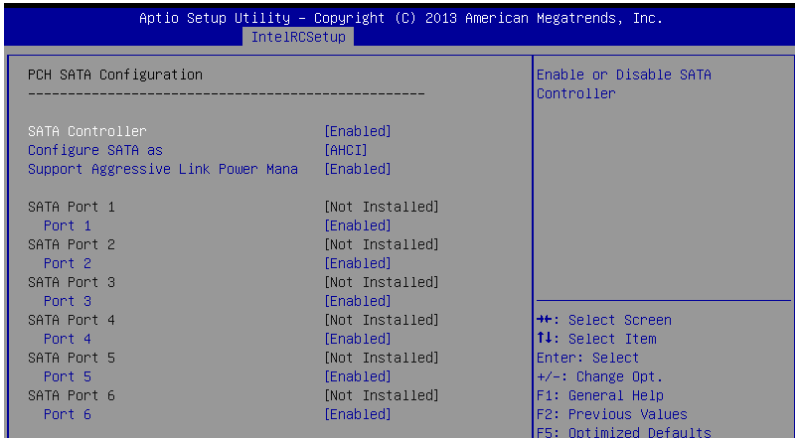
xHCI Mode [Auto]

Allows you to enable or disable the mode of operation of xHCI controller.
Configuration options: [Auto] [Disabled] [Enabled]

USB Ports Per-Port Disable Control [Disabled]

Allows you to control each of the USB ports 1 to 8 disabling.
Configuration options: [Disabled] [Enabled]

> The following items appears only when the USB Ports Per-Port Disable Control is set to [Enabled].

USB Port #1 / #2 / #3 / #4 / #5 / #6 / #7 / #8 [Enabled]

Configuration options: [Disabled] [Enabled]

USB 3.0 Port #1 / #2 / #3 / #4 / #5 / #6 [Enabled]

Configuration options: [Disabled] [Enabled]

Azalia Configuration

```
                  Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                   IntelRCSetup

                                                                Control Detection of the
  Azalia                                    [Auto]              Azalia device.

                                                                Auto = Azalia will be enabled
                                                                if present, disabled otherwise.
```

Azalia [Auto]

Allows you to enable or disable the control detection of the Azalia device.
Configuration options: [Auto] [Disabled] [Enabled]

Platform Thermal Configuration

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                        IntelRCSetup

 PCH Thermal Device              [Auto]          Enable/Disable PCH Thermal
 Alert Enable Lock               [Disabled]      Device(D31:F6)




```

PCH Thermal Device [Auto]

Allows you to enable or disable the PCH Thermal Device (D31:F6).
Configuration options: [Auto] [Disabled] [Enabled]

Alert Enable Lock [Disabled]

Allows you to lock all Alert Enable settings.
Configuration options: [Disabled] [Enabled]

4.6.8   Miscellaneous Configuration

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                        IntelRCSetup

 Miscellaneous Configuration                     Select active Video type
 ------------------------------------------------
 Active Video                    [Offboard Device]



```

Active Video [Offboard Device]

Allows you to select the video type.
Configuration options: [Onboard Device] [Offboard Device]

4.6.9   Server ME Configuration

Displays the Server ME Technology parameters on your system.

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                               IntelRCSetup

    General ME Configuration
    Operational Firmware Version          3.0.6.278
    Recovery Firmware Version             3.0.6.278
    ME Firmware Features                  SiEn+NM+PECIProxy+ICC+PM
    ME Firmware Status #1                 0x000F0345
    ME Firmware Status #2                 0x38006000
      Current State                       Operational
      Error Code                          No Error
```
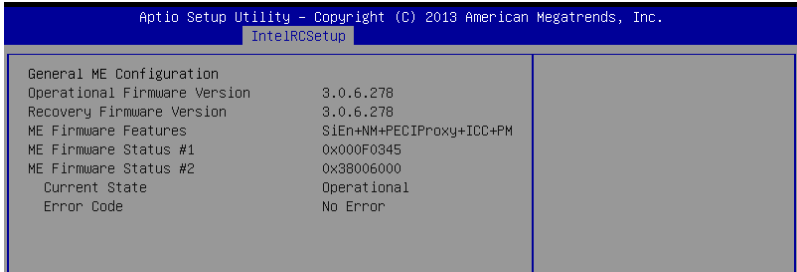
4.6.10   Runtime Error Logging Support

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                               IntelRCSetup

    Runtime Error Logging                                      Press <Enter> to view or
    ------------------------------------------------           change the Memory errors
    S/W Error Injection Support         [Disabled]             enabling options.
  ▶ Whea Settings :
  ▶ Memory Error Enabling :
```
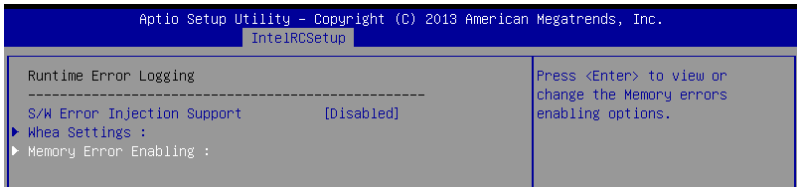
Runtime Error Logging

S/W Error Injection Support [Disabled]
This item allows you to enable or disable the S/W Error Injection support.
Configuration options: [Disabled] [Enabled]

Whea Settings

WHEA Support [Enabled]

This item allows you to enable or disable the WHEA support.
Configuration options: [Disabled] [Enabled]

Memory Error Enabling :

Memory corrected Error enabling [Disabled]

This item allows you to enable or disable Memory corrected Errors.
Configuration options: [Disabled] [Enabled]

4.7   Server Mgmt menu

The Server Management menu displays the server management status and allows you to change the settings.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Main   AiTweaker   Advanced   IntelRCSetup   Server Mgmt   Event Logs   Monitor   Security   Boot

   BMC Self Test Status              FAILED                    If enabled, starts a BIOS
   BMC Device ID                     Unknown                   timer which can only be shut
   BMC Device Revision               Unknown                   off by Intel Management
   BMC Firmware Revision             Unknown                   Software after the OS loads.
   IPMI Version                      Unknown                   Helps determine that the OS
                                                               successfully loaded or follows
   Current Time Zone                 Unspecified               the OS Boot Watchdog Timer
   OS Watchdog Timer                 [Disabled]                policy.
   OS Wtd Timer Timeout              [10 minutes]
   OS Wtd Timer Policy               [Reset]
   Serial Mux                        [Disabled]
 ▶ System Event Log
 ▶ BMC network configuration
 ▶ View System Event Log                                      ➡➡: Select Screen
 ▶ IPv6 BMC Network Configuration                             ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F5: Optimized Defaults
                                                              F10: Save Changes & Reset
                                                              ESC: Exit
```
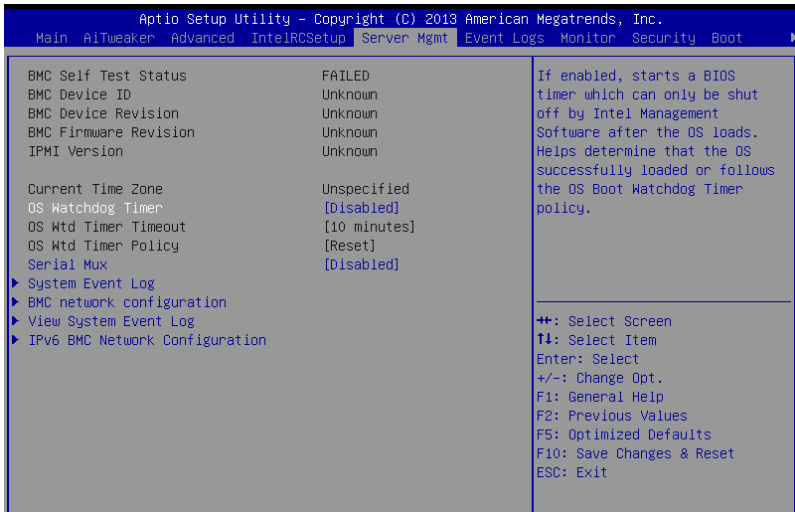
OS Watchdog Timer [Disabled]

This item allows you to start a BIOS timer which can only be shut off by Intel Management Software after the OS loads.

Configuration options: [Disabled] [Enabled]

The following items is configurable only when the OS Watchdog Timer is set to [**Enabled**].

OS Wtd Timer Timeout [10 minutes]

Allows you to configure the length fo the OS Boot Watchdog Timer.

Configuration options: [5 minutes] [10 minutes] [15 minutes] [20 minutes]

OS Wtd Timer Policy [Reset]

This item allows you to configure the how the system should respond if the OS Boot Watch Timer expires.

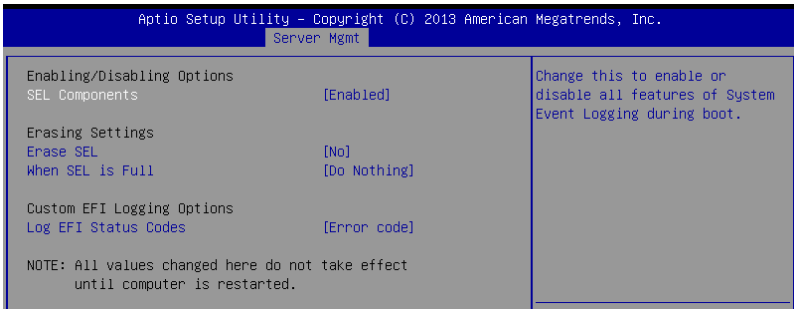Configuration options: [Do Nothing] [Reset] [Power Down]

Serial Mux [Disabled]

This item allows you to enable or disable Serial Mux configuration.

Configuration options: [Disabled] [Enabled]

System Event Log

Allows you to change the SEL event log configuration.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                              Server Mgmt

  Enabling/Disabling Options                              Change this to enable or
  SEL Components                    [Enabled]             disable all features of System
                                                          Event Logging during boot.
  Erasing Settings
  Erase SEL                         [No]
  When SEL is Full                  [Do Nothing]

  Custom EFI Logging Options
  Log EFI Status Codes              [Error code]

  NOTE: All values changed here do not take effect
        until computer is restarted.
```

SEL Components [Enabled]

Allows you to enable or disable all features of system Event Logging during boot.
Configuration options: [Disabled] [Enabled]

- The following items appears only when you set **SEL Components** to [Enabled].
- All values changed here do not take effect until computer is restarted.

Erase SEL [No]

Allows you to choose options for erasing SEL.
Configuration options: [No] [Yes, On next reset] [Yes, On every reset]

When SEL is Full [Do Nothing]

Allows you to choose options for reactions to a full SEL.
Configuration options: [Do Nothing] [Erase Immediately]

Log EFI Status Codes [Error code]

Disable the logging of EFI Status Codes, or log only error code, or only progress code or, both.
Configuration options: [Disabled] [Both] [Error code] [Progress code]

BMC network configuration

The sub-items in this configuration allow you to configure the BMC network parameters. The items are blank if no BMC card is detected by the system.

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                    Server Mgmt

  BMC network configuration                              Select to configure LAN
                                                         channel parameters statically
  LAN1                                                   or dynamically(by BIOS or
  Config Address source           [Unspecified]         BMC). Unspecified option will
  Current Config Address source   -                      not modify any BMC network
  IP Address in BMC :             -                      parameters during BIOS phase
  Subnet Mask in BMC :            -
  Station MAC address             -
  Gateway IP address              -
  Router MAC address              -


                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F5: Optimized Defaults
```

Config Address source [Unspecified]

This item allows you to configure LAN channel parameters statistically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
Configuration options: [Unspecified] [Static] [DynamicBmcDhcp]

View System Event Log
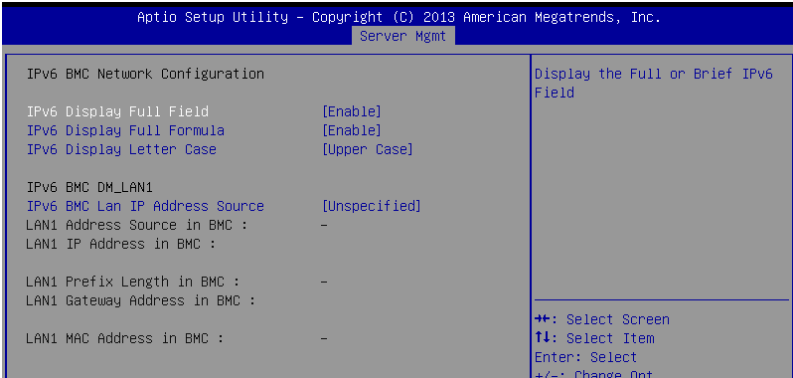
This item allows you to view the system event log records.

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                    Server Mgmt

  Proper components are not found to view the SEL.
```

IPv6 BMC Network Configuration

This item allows you to configure the parameter settings of IPv6 BMC network.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                     Server Mgmt

   IPv6 BMC Network Configuration                              Display the Full or Brief IPv6
                                                               Field
   IPv6 Display Full Field              [Enable]
   IPv6 Display Full Formula            [Enable]
   IPv6 Display Letter Case             [Upper Case]

   IPv6 BMC DM_LAN1
   IPv6 BMC Lan IP Address Source       [Unspecified]
   LAN1 Address Source in BMC :         -
   LAN1 IP Address in BMC :

   LAN1 Prefix Length in BMC :          -
   LAN1 Gateway Address in BMC :                               ↔↔: Select Screen
                                                               ↑↓: Select Item
   LAN1 MAC Address in BMC :            -                      Enter: Select
                                                               +/-: Change Opt.
```

IPv6 Display Full Field [Enable]

Displays the full or brief IPv6 Field.
Configuration options: [Disable] [Enable]

IPv6 Display Full Formula [Enable]

Displays the full or brief IPv6 Formula.
Configuration options: [Disable] [Enable]

IPv6 Display Letter Case [Upper Case]

Displays the uppercase or lowercase letters of the alphabet.
Configuration options: [Lower Case] [Upper Case]

IPv6 BMC Lan IP Address Source [Unspecified]

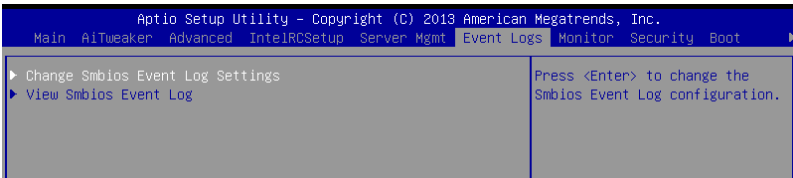This item allows you to select and configure LAN channel parameters statically or dynamically by BIOS or BMC.
Configuration options: [Unspecified] [Static]
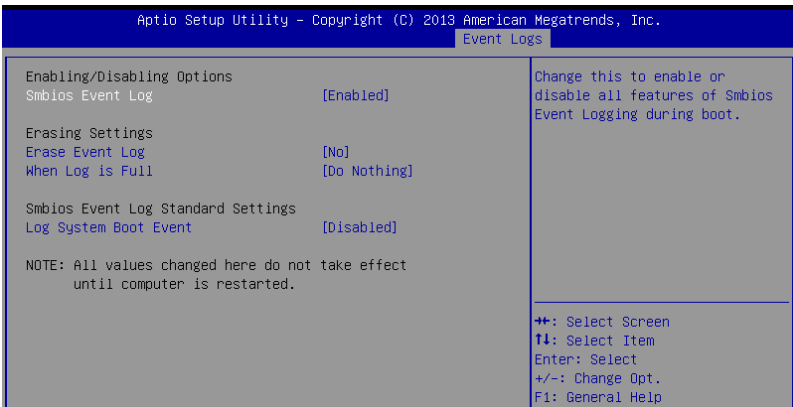[Dynamic-Obtained by BMC running DHCP]

4.8 Event Logs menu

The Event Logs menu items allow you to change the event log settings and view the system event logs.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot

 ▶ Change Smbios Event Log Settings                          Press <Enter> to change the
 ▶ View Smbios Event Log                                     Smbios Event Log configuration.
```

4.8.1 Change Smbios Event Log Settings

Press <Enter> to change the Smbios Event Log configuration.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                                   Event Logs

   Enabling/Disabling Options                               Change this to enable or
   Smbios Event Log                  [Enabled]              disable all features of Smbios
                                                            Event Logging during boot.
   Erasing Settings
   Erase Event Log                   [No]
   When Log is Full                  [Do Nothing]

   Smbios Event Log Standard Settings
   Log System Boot Event             [Disabled]

   NOTE: All values changed here do not take effect
         until computer is restarted.

                                                            ↔: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
```

✎ All values changed here do not take effect until computer is restarted.

Enabling/Disabling Options

Smbios Event Log [Enabled]

Change this to enable or disable all features of Smbios Event Logging during boot.
Configuration options: [Disabled] [Enabled]

Erasing Settings

Erase Event Log [No]

Choose options for erasing Smbios Event Log. Erasing is done prior to any logging activation during reset.
Configuration options: [No] [Yes, Next reset] [Yes, Every reset]

When Log is Full [Do Nothing]

Allows you to choose options for reactions to a full Smbios Event Log.
Configuration options: [Do Nothing] [Erase Immediately]

Smbios Event Log Standard Settings

Log System Boot Event [Disabled]

Allows you to choose options to enable/disable logging of System boot event.
Configuration options: [Enabled] [Disabled]

4.8.2   View Smbios Event Log

Press <Enter> to view all smbios event logs.

```
         Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                                    Server Mgmt

    Proper components are not found to view the SEL.
```
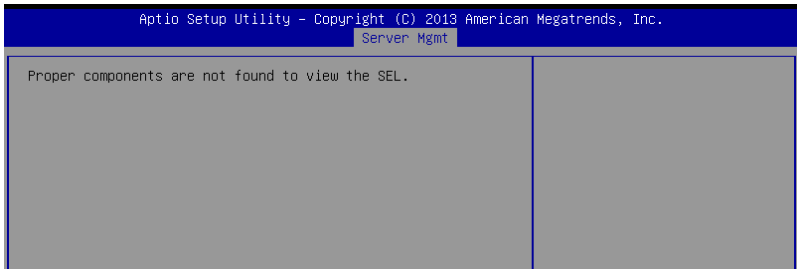
4.9   Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot    ▶

   CPU1 Temperature                   [ 54.3˚C/129.7˚F]    ▲ CPU1 Temperature
   CPU2 Temperature                   [ N/A ]
   CPU FAN1 Speed                     [ 1042 RPM ]
   CPU FAN2 Speed                     [ N/A ]
   FRNT FAN1 Speed                    [ N/A ]
   FRNT FAN2 Speed                    [ N/A ]
   FRNT FAN3 Speed                    [ N/A ]
   FRNT FAN4 Speed                    [ N/A ]
   FRNT FAN5 Speed                    [ N/A ]
   REAR FAN1 Speed                    [ N/A ]
   REAR FAN2 Speed                    [ N/A ]
   +VCCIO                             [ +1.046 V ]
   +VCORE1                            [ +1.796 V ]
   +VCORE2                            [ N/A ]            ↔: Select Screen
   +VDDQ_AB                           [ +1.202 V ]      ↑↓: Select Item
   +VDDQ_CD                           [ +1.200 V ]      Enter: Select
```
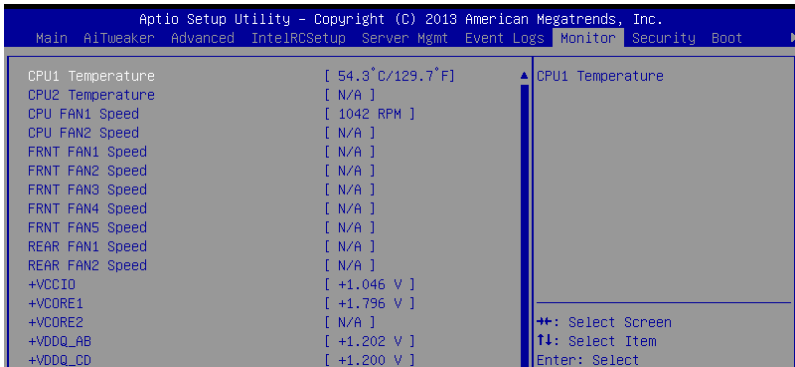
Scroll down to view the other items

CPU1/2 Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the CPU temperatures.

CPU FAN1/2 Speed; FRNT FAN1–5 Speed; REAR FAN1/2 Speed [xxxx RPM] or [N/A]

The onboard hardware monitor automatically detects and displays the speed of CPU fans, front fans, and rear fan in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A.

+VCCIO, VCORE1/2 Voltage, +VDDQ_AB Voltage, +VDDQ_CD Voltage, +VDDQ_EF Voltage, +VDDQ_GH Voltage, +5VSB Voltage, +5V Voltage, +12V Voltage, +3.3V Voltage, VBAT Voltage, +3.3VSB Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

CPU FAN1&2 FRNT FAN1 mode [Generic Speed]

Allows you to configure the Smart Fan feature that smartly adjusts the fan speeds for more efficient system operation.
Configuration options: [Generic Speed] [High Speed] [Full Speed] [Manual Mode]

Duty % [50]

This item appears only when CPU FAN1&2 FRNT FAN1 mode is set to [Manual Mode]. This item allows you to configure the fan duty setting from 10% to 100%.
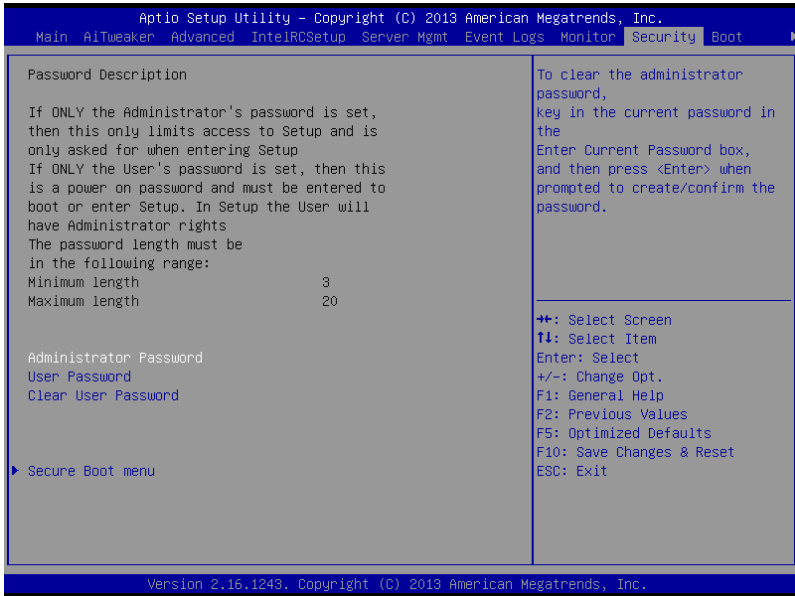
FRNT FAN2&3/4&5 mode; REAR FAN1&2 mode [Generic Speed]

Allows you to configure the Smart Fan feature that smartly adjusts the fan speeds for more efficient system operation.
Configuration options: [Generic Speed] [High Speed] [Full Speed] [Manual Mode]

4.10 Security menu

This menu allows a new password to be created or a current password to be cchanged. The menu also enables or disables the Secure Boot state and lets the user configure the System Mode state.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot
  ┌─────────────────────────────────────────────────────┬──────────────────────────────────┐
  │ Password Description                                 │ To clear the administrator       │
  │                                                      │ password,                        │
  │ If ONLY the Administrator's password is set,         │ key in the current password in   │
  │ then this only limits access to Setup and is         │ the                              │
  │ only asked for when entering Setup                   │ Enter Current Password box,      │
  │ If ONLY the User's password is set, then this        │ and then press <Enter> when      │
  │ is a power on password and must be entered to        │ prompted to create/confirm the   │
  │ boot or enter Setup. In Setup the User will          │ password.                        │
  │ have Administrator rights                            │                                  │
  │ The password length must be                          │                                  │
  │ in the following range:                              │                                  │
  │ Minimum length                    3                  │                                  │
  │ Maximum length                    20                 │                                  │
  │                                                      │ ↔: Select Screen                 │
  │                                                      │ ↑↓: Select Item                  │
  │ Administrator Password                               │ Enter: Select                    │
  │ User Password                                        │ +/-: Change Opt.                 │
  │ Clear User Password                                  │ F1: General Help                 │
  │                                                      │ F2: Previous Values              │
  │                                                      │ F5: Optimized Defaults           │
  │ ▶ Secure Boot menu                                   │ F10: Save Changes & Reset        │
  │                                                      │ ESC: Exit                        │
  │                                                      │                                  │
  │                                                      │                                  │
  └─────────────────────────────────────────────────────┴──────────────────────────────────┘
              Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Administrator Password

To set an administrator password:

1.   Select the Administrator Password item and press <Enter>.

2.   From the Create New Password box, key in a password, then press <Enter>.

3.   Confirm the password when prompted.

To change an administrator password:

1.   Select the Administrator Password item and press <Enter>.

2.   From the Enter Current Password box, key in the current password, then press <Enter>.

3.   From the Create New Password box, key in a new password, then press <Enter>.

4.   Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password.

User Password

To set a user password:

1. Select the User Password item and press <Enter>.

2. From the Create New Password box, key in a password, then press <Enter>.

3. Confirm the password when prompted.

To change a user password:

1. Select the User Password item and press <Enter>.

2. From the Enter Current Password box, key in the current password, then press <Enter>.

3. From the Create New Password box, key in a new password, then press <Enter>.

4. Confirm the password when prompted.
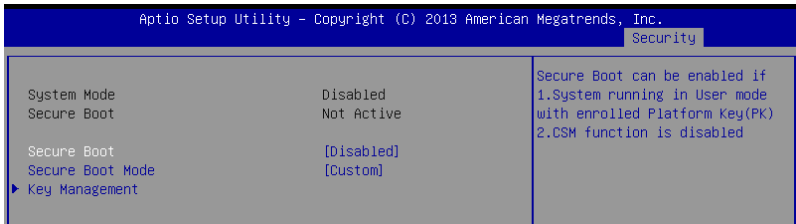
To clear a user password:

1. Select the Clear User Password item and press <Enter>.

2. Select **Yes** from the Warning message window then press <Enter>.

Clear User Password

This item allows you to clear the user password. Use the arrow keys to select **Yes** or **No** then press <Enter> to confirm your choice.

Secure Boot Menu

This item allows you to customize the Secure Boot settings.

Secure Boot [Disabled]

Secure Boot can be enabled if the system is running in User mode with enrolled platform Key (EPK) or if the CSM function is disabled.
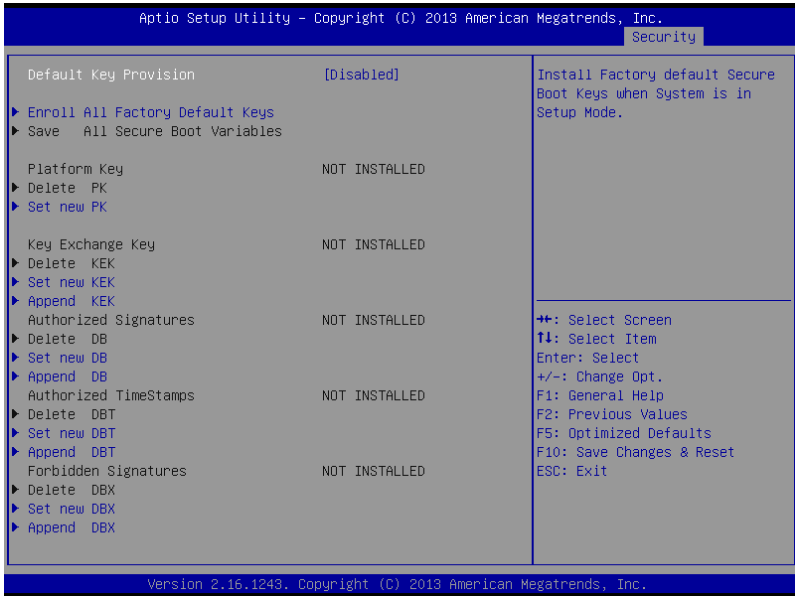Configuration options: [Disabled] [Enabled]

Secure Boot Mode [Custom]

Allows you to set the Secure Boot selector.
Configuration options: [Custom] [Standard]

Key Management

This item only appears when the item Secure Boot Mode is set to [Custom]. The Key Management item allows you to modify Secure Boot variables and set Key Management page.

```
           Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                                                   Security

  Default Key Provision              [Disabled]           Install Factory default Secure
                                                          Boot Keys when System is in
 ▶ Enroll All Factory Default Keys                        Setup Mode.
 ▶ Save   All Secure Boot Variables

  Platform Key                       NOT INSTALLED
 ▶ Delete  PK
 ▶ Set new PK

  Key Exchange Key                   NOT INSTALLED
 ▶ Delete  KEK
 ▶ Set new KEK
 ▶ Append  KEK
  Authorized Signatures              NOT INSTALLED        ←→: Select Screen
 ▶ Delete  DB                                             ↑↓: Select Item
 ▶ Set new DB                                             Enter: Select
 ▶ Append  DB                                             +/-: Change Opt.
  Authorized TimeStamps              NOT INSTALLED        F1: General Help
 ▶ Delete  DBT                                            F2: Previous Values
 ▶ Set new DBT                                            F5: Optimized Defaults
 ▶ Append  DBT                                            F10: Save Changes & Reset
  Forbidden Signatures               NOT INSTALLED        ESC: Exit
 ▶ Delete  DBX
 ▶ Set new DBX
 ▶ Append  DBX


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```

Default Key Provision [Disabled]

Configuration options: [Disabled] [Enabled]

Enroll All Factory Default Keys

This item will ask you if you want to Install Factory Default secure keys. Select Yes if you want to load the default secure keys, otherwise select No.
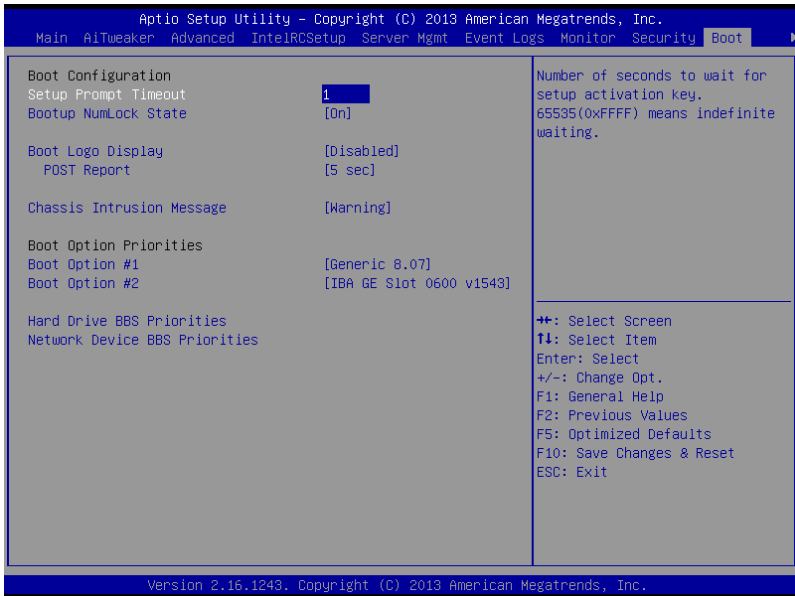
Save All Secure Boot Variables

This item will ask you if you want to save all secure boot variables. Select Yes if you want to save all secure boot variables, otherwise select No.

Platform Key (PK) / Key Exchange Key (KEK) / Authorized Signatures (DB) / Authorized TimeStamps (DBT) / Forbidden Signatures (DBX)

Configuration options: [Delete] [Set New] [Append]

4.11   Boot menu

The Boot menu items allow you to change the system boot options.

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  AiTweaker  Advanced  IntelRCSetup  Server Mgmt  Event Logs  Monitor  Security  Boot    ▶

 Boot Configuration                                      Number of seconds to wait for
 Setup Prompt Timeout                   1                setup activation key.
 Bootup NumLock State                   [On]             65535(0xFFFF) means indefinite
                                                         waiting.
 Boot Logo Display                      [Disabled]
   POST Report                          [5 sec]

 Chassis Intrusion Message              [Warning]

 Boot Option Priorities
 Boot Option #1                         [Generic 8.07]
 Boot Option #2                         [IBA GE Slot 0600 v1543]
                                                         ++: Select Screen
 Hard Drive BBS Priorities                               ↑↓: Select Item
 Network Device BBS Priorities                           Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F5: Optimized Defaults
                                                         F10: Save Changes & Reset
                                                         ESC: Exit

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```

Setup Prompt Timeout [xx]

Use the <+> and <-> keys to adjust the number of seconds to wait for setup activation key.

Bootup NumLock State [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

Boot Logo Display [Disabled]

Allows you to enable or disable the full screen logo display feature.
Configuration options: [Auto] [Full Screen] [Disabled]

POST Report [5 sec]

Allows you to set the desired POST Report waiting time from 1 to 10 seconds.
Configuration options: [1 sec] ~ [10 sec] [Until Press ESC]

Chassis Intrusion Message [Warning]

Allows you to set an action when chassis intrusion has occured.
Configuration options: [Warning] [Halt]

Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The
number of device items that appears on the screen depends on the number of devices
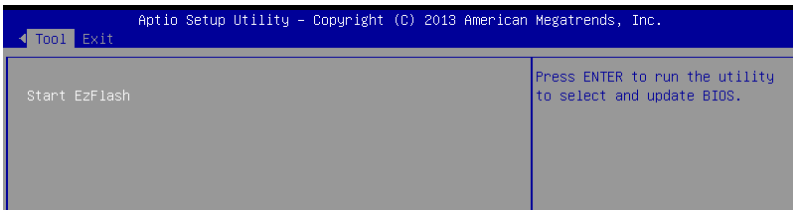installed in the system.

- To select the boot device during system startup, press <F8> when Logo appears.
- To access Windows OS in Safe Mode, please press <F8> after POST.

Hard Drive BBS Priorities / Network Device BBS Priorities

These items appear only when you connect SATA ODD or hard drive to the SATA ports and allow you to set the booting order of the SATA devices.

4.12   Tool menu

The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Tool  Exit

                                                            Press ENTER to run the utility
   Start EzFlash                                            to select and update BIOS.
```
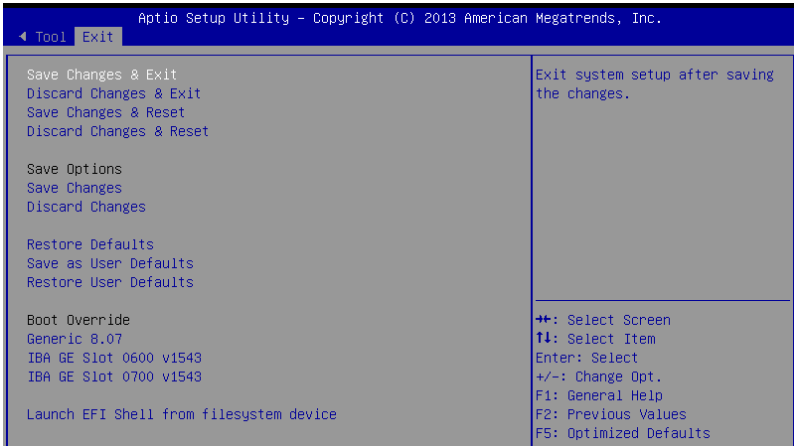
EZ Flash

Allows you to run EZ Flash BIOS ROM Utility when you press <Enter>. Refer to the EZ Flash Utility section for details.

4.13   Exit menu

The Exit menu items allow you to save or discard your changes to the BIOS items.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  ◀ Tool  Exit

   Save Changes & Exit                              Exit system setup after saving
   Discard Changes & Exit                           the changes.
   Save Changes & Reset
   Discard Changes & Reset

   Save Options
   Save Changes
   Discard Changes

   Restore Defaults
   Save as User Defaults
   Restore User Defaults
                                                    ↔: Select Screen
   Boot Override                                    ↑↓: Select Item
   Generic 8.07                                     Enter: Select
   IBA GE Slot 0600 v1543                           +/-: Change Opt.
   IBA GE Slot 0700 v1543                           F1: General Help
                                                    F2: Previous Values
   Launch EFI Shell from filesystem device          F5: Optimized Defaults
```

> Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Save Changes & Exit

Exit System setup after saving the changes.

Discard Changes & Exit

Exit System setup without saving any changes.

Save Changes & Reset

Reset the system setup after saving the changes.

Discard Changes & Reset

Reset system setup without saving any changes.

Save Options

Save Changes

Save changes done so far to any of the setup options.

Discard Changes

Discard changes done so far to any of the setup options.

Restore Defaults

Restore/load default values for all the setup options.

Save as User Defaults

Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.

Boot Override

This items displays the available devices. The items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

Launch EFI Shell from filesystem device

Attempts to launch EFI Shell application (shell.efi) from one of the available filesystem devices.