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## UEFI BIOS Setup

### **Introduction**

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

### **Plug and Play Support**

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

### **EPA Green PC Support**

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

### **ACPI Support**

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

### **PCI Bus Support**

This AMI UEFI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

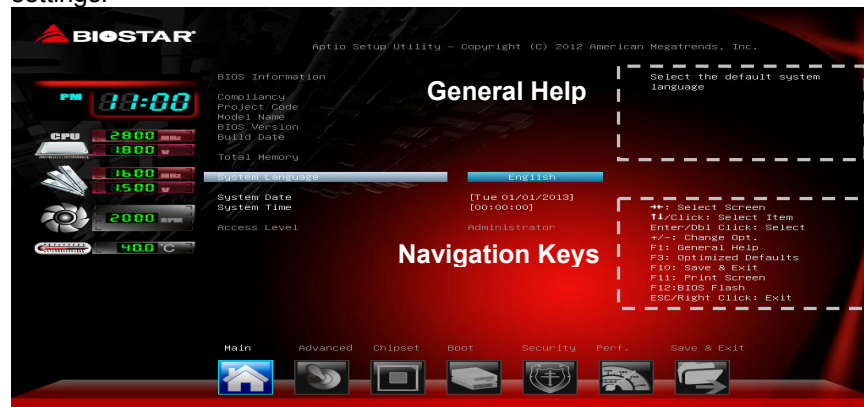
### **DRAM Support**

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

### Using Setup

When starting up the computer, press <Del> during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

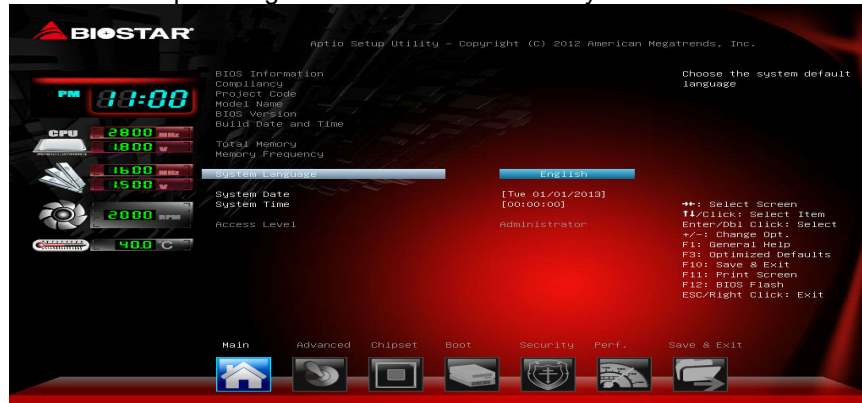


### Notice

- The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

# 1 Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



## BIOS Information

It shows system information including UEFI BIOS version, Project Code, Model Name, Build Date and etc.

## Total Memory

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

## System Language

Choose the system default language.

## System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

## System Time

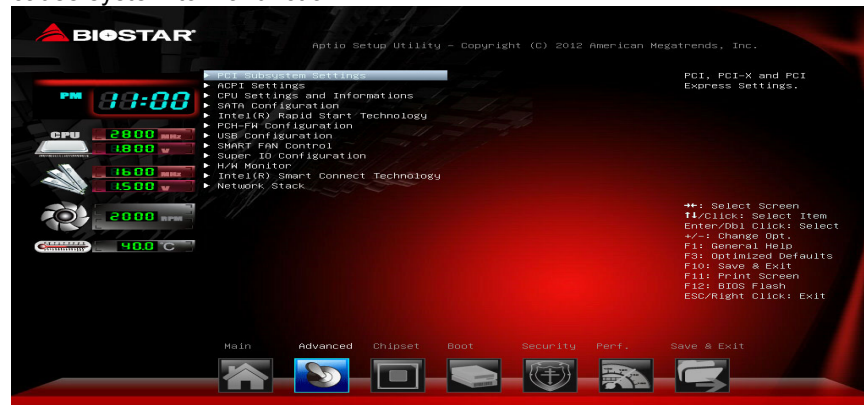
Set the system internal clock.

## 2 Advanced Menu

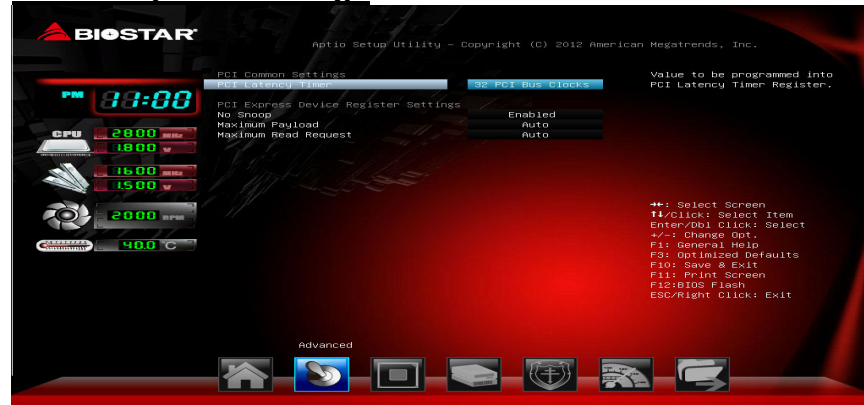
The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

### Notice

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



### PCI Subsystem Settings



**PCI Latency Timer**

This item sets the value to be programmed into PCI Latency Timer Register.

Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

**No Snoop**

This item enables or disables PCI Express Device No Snoop option.

Options: Enabled (Default) / Disabled

**Maximum Payload**

This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

**Maximum Read Request**

This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

### ACPI Settings



#### Enable ACPI Auto Configuration

This item enables or disables BIOS ACPI Auto Configuration.

Options: Disabled (Default) / Enabled

#### Enable Hibernation

This item enables or disables system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OSes.

Options: Enabled (Default) / Disabled

#### ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: Options: S1 only (CPU Stop Clock) (Default) / Suspend  
Disabled / S3 only (Suspend to RAM) / Both S1 and S3 available for OS to choose from

#### PME Wake up from S5

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

Options: Disabled (Default) / Enabled

### **Wake system with Fixed Time**

This item enables or disables the system to wake on by alarm event. When this item is enabled, the system will wake on the hr::min::sec specified.

Options: Disabled (Default) / Enabled

#### **Wake up date**

You can choose which date the system will boot up.

#### **Wake up hour / Wake up minute / Wake up second**

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

### **Ring-In Wake up from S5**

This item enables the system to wake from S5 using Ring-In event.

Options: Disabled (Default) / Enabled

### **PS2 Keyboard PowerOn**

This item allows you to control the keyboard power on function.

Options: Disabled (Default) / Any Key / Stroke Key / Specific Key

#### **Stroke Keys**

This item will show only when Keyboard PowerOn is set "Stroke Key."

Options: Wake Key (Default) / Power Key / Ctrl+F1 / Ctrl+F2 / Ctrl+F3 / Ctrl+F4 / Ctrl+F5 / Ctrl+F6

#### **Specific Key**

This item will show only when Keyboard PowerOn is set "Specific Key." Press Enter to set Specific key.

### **PS2 Mouse PowerOn**

This item allows you to control the mouse power on function.

Options: Disabled (Default) / Enabled

### **USB Device Wakeup from S3/S4**

This item allows you to enable or disabled the USB resume from S3/S4 function.

Options: Disabled (Default) / Enabled



### CPU Setting and Information

This item shows CPU Information



#### Limit CPUID Maximum

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

#### Execute-Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).

Options: Enabled (Default) / Disabled

#### Intel Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

Options: Enabled (Default) / Disabled

#### Hardware Prefetcher

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

Options: Enabled (Default) / Disabled

### Adjacent Cache Line Prefetch

This item enables or disables the Mid Level Cache (L2) prefetching of adjacent cache lines.

Options: Enabled (Default) / Disabled

### SATA Configuration

The BIOS will automatically detect the presence of SATA devices. There is a sub-menu for each SATA device. Select a device and press <Enter> to enter the sub-menu for detailed options.



### SATA Controller(s)

This item enables/disables Serial ATA Device.

Options: Enabled (Default) / Disabled

### SATA Mode Selection

This item determines how SATA controller(s) operate.

Options: AHCI (Default) / IDE

### SATA Self Test

This item runs SMART Self Test on all HDDs during POST.

Options: Disabled (Default) / Enabled

### Hot Plug

This item enables/disables Hot Plug function.

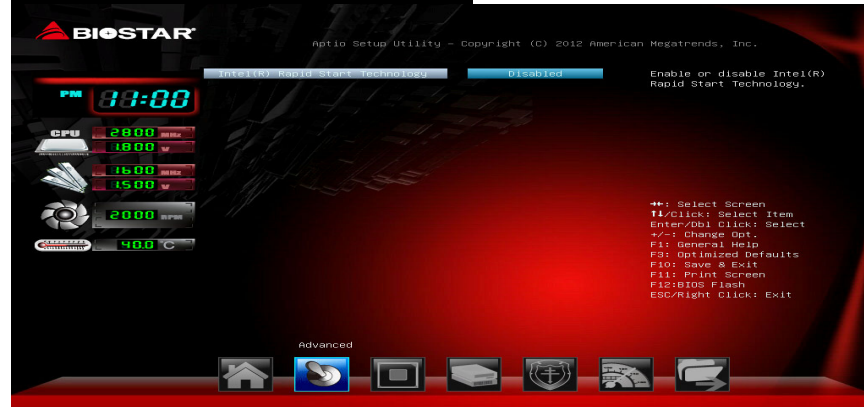
Options: Enabled (Default) / Disabled

### External SATA

This item enables/disables External SATA support.

Options: Disabled (Default) / Enabled

### Intel(R) Rapid Start Technology



### Intel(R) Rapid Start Technology

This item enables/disables Intel(R) Rapid Start Technology.

Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the iRST function to [Enabled]Entry on S3 RTC Wake*

This item sets iFFS invocation upon S3 RTC wake.

Options: Enabled (Default) / Disabled

#### Entry After

This item enables RTC wake timer at S3 entry. The value range is from 0(Immediately) to 120 minutes.

### Active Page Threshold Support

This item allows system to support RST with small partition.

Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the Active Page Threshold Support function to [Enabled]*

#### Active Memory Threshold

This item allows system to try to support RST when partition size > Active Page Threshold size in MB. When set to zero, the item will be in AUTO mode and check if partition size is enough at S3 entry.

Options: 0 (Default)

### Hybrid Hard Disk Support

This item enables/disables Hybrid Hard Disk Support.

Options: Disabled (Default) / Enabled

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### RapidStart Display Save/Restore

This item enables/disables RapidStart Display Save/Restore.

Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the **RapidStart Display Save/Restore** function to [Enabled]*

### RapidStart Display Type

This item selects RapidStart Display type.

Options: BIOS Save/Restore (Default) / Desktop Save/Restore

### PCH-FW Configuration

It shows FCH-FW configuration.



### USB Configuration



### **Legacy USB Support**

The item allows you to enable Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

Options: Enabled (Default) / Disabled / Auto

### **USB3.0 Support**

This item enables or disables USB3.0 (XHCI) Controller support.

Options: Enabled (Default) / Disabled

### **XHCI Hand-Off**

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

Options: Enabled (Default) / Disabled

### **XHCI Mode**

The item selects Mode of operation of xHCI controller.

Options: Smart Auto (Default) / Auto / Enabled / Disabled / Manual

*Note: The following items appear only when you set the **XHCI Mode** to [Manual]*

### **XHCI Pre-Boot Driver**

The item allows you to enable or disable XHCI Pre-Boot Driver support.

Options: Enabled (Default) / Disabled

### **EHCI Hand-Off**

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Options: Disabled (Default) / Enabled

### **USB Mass Storage Driver Support**

The item allows you to enable or disable USB Mass Storage Driver Support.

Options: Enabled (Default) / Disabled

### **USB transfer time-out**

The time-out value for Control, Bulk, and Interrupt transfers.

Options: 20 sec (Default) / 1 sec / 5 sec / 10 sec

### **Device reset time-out**

The item sets USB mass storage device Start Unit command time-out.

Options: 20 sec (Default) / 10 sec / 30 sec / 40 sec

### Device power-up delay

“Auto” uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

Options: Auto (Default) / Manual

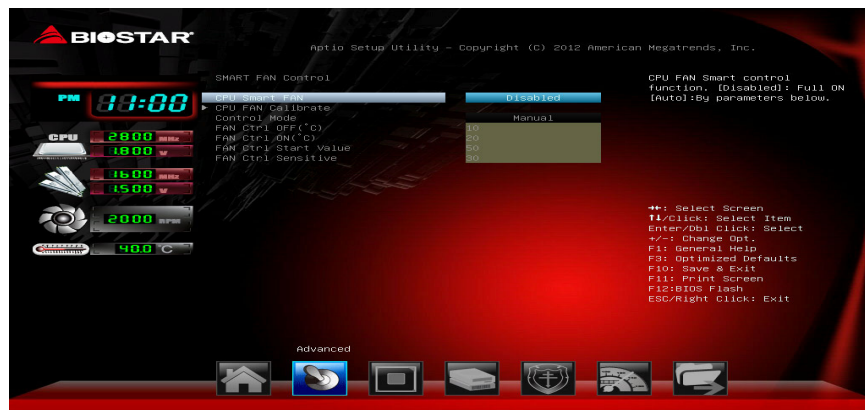
*Note: The following items appear only when you set the **Device power-up delay** function to [Manual]*

### Device power-up delay in seconds

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

Options: 5 (Default)

## SMART FAN Control



### CPU Smart FAN

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

Options: Disabled (Default) / Auto

### CPU FAN Calibrate

Press [ENTER] to calibrate CPU FAN.

### Control Mode

This item provides several operation modes of the fan.

Options: Quiet / Aggressive / Manual

### Fan Ctrl OFF(°C)

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

Options: 10 (°C) (default)

### Fan Ctrl On(°C)

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

Options: 20 (°C) (Default)

### Fan Ctrl Start Value

This item sets CPU FAN Start Speed Value.

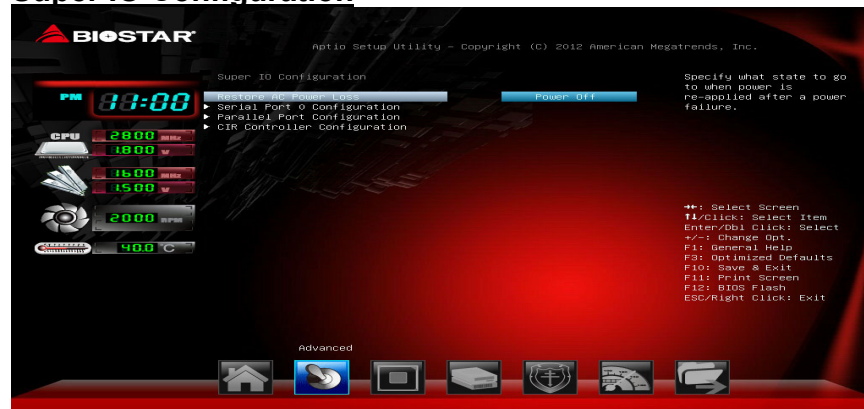
Options: 50 (Default)

### Fan Ctrl Sensitive

The bigger the numeral is, the higher the FAN speed is.

Options: 30 (Default)

### Super IO Configuration



### Restore AC Power Loss

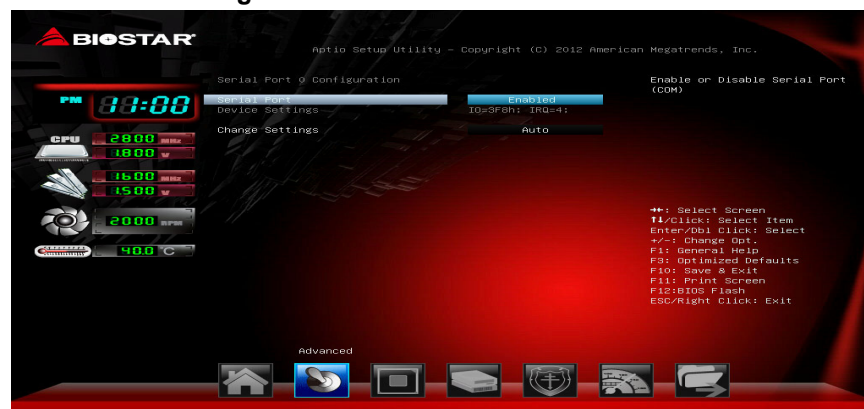
This setting specifies how your system should behave after a power fail or interrupts occurs. Power Off: Leaving the system in power-off status after power recovers. Power ON: Powering on the system immediately when power returns. Last State: 1. Leaving the system in power-off if the system shuts down at DC off status; 2. Powering on the system immediately if the system shuts down at DC on status.

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



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### Serial Port 0 Configuration



#### Serial Port

This item enables or disables Serial Port (COM).

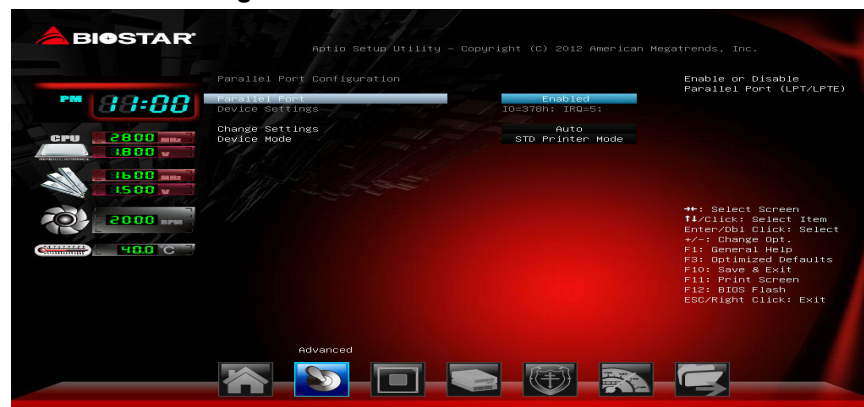
Options: Enabled (Default) / Disabled

#### Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12 / IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12 / IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12 / IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12

### Parallel Port Configuration



#### Parallel Port

This item enables or disables Parallel Port (LPT/LPTE).

Options: Enabled (Default) / Disabled



### Change Settings

This item allows you to select an optimal setting for Super IO device.

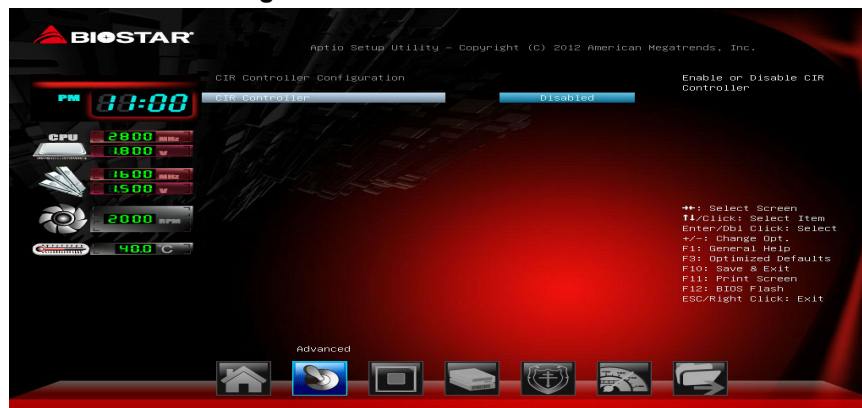
Options: Auto (Default) / IO=378h; IRQ=5 / IO=378h; IRQ=5, 6, 7, 9, 10, 11, 12 / IO=278h; IRQ=5, 6, 7, 9, 10, 11, 12 / IO=3BCh; IRQ=5, 6, 7, 9, 10, 11, 12

### Device Mode

This item allows you to change the Printer Port mode.

Options: STD Printer Mode (Default) / SPP Mode / EPP-1.9 and SPP Mode / EPP-1.7 and SPP Mode

### CIR Controller Configuration



### CIR Controller

This item enables or disables CIR Controller.

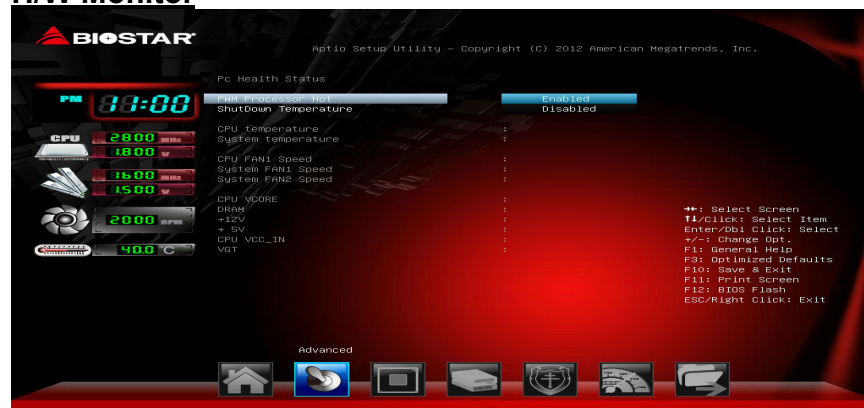
Options: Disabled (Default) / Enabled

### Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3E0h; IRQ=10 / IO=3E0h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12 / IO=298h; IRQ=3,4,5,6,7,9,10,11,12

### H/W Monitor



#### PWM Processor Hot

This item enables or disables PWM Processor Hot.

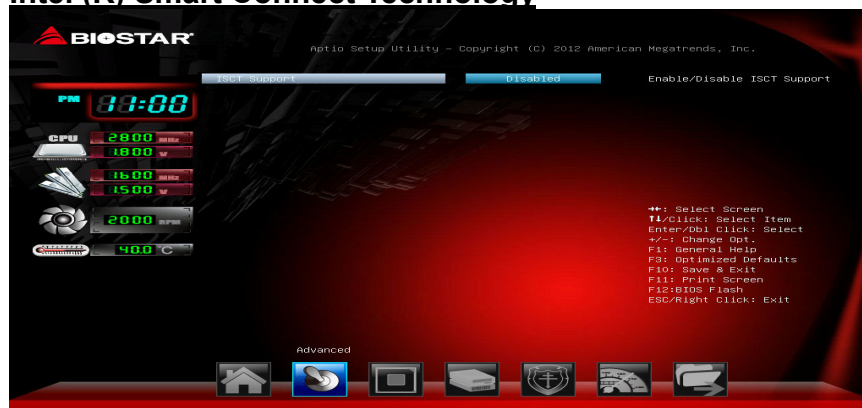
Options: Enabled (Default) / Disabled

#### Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.

Options: Disabled (Default) / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

### Intel (R) Smart Connect Technology



#### ISCT Support

This item enables/disables ISCT Support.

Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the **ISCT Support** function to [Enabled]*

#### ISCT Notification Control

Options: Enabled (Default) / Disabled

#### ISCT WLAN Power Control

Options: Enabled (Default) / Disabled

#### ISCT WWAN Power Control

Options: Enabled (Default) / Disabled

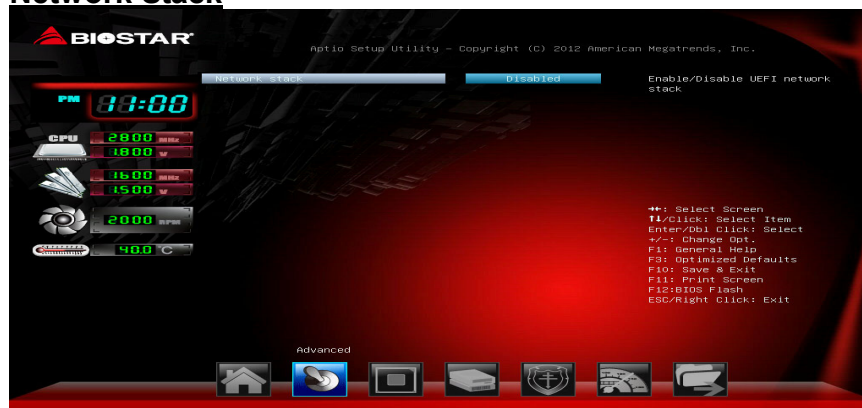
#### ISCT RF Kill Switch Type

Options: Software (Default) / Hardware

#### ISCT Timer Selection

Options: EC Timer (Default) / RTC Timer

### Network Stack



### Network Stack

This item enables or disables UEFI network stack

Options: Disabled (Default) / Enabled

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

### IPv4 PXE Support

This item enables or disables IPv4 PXE Boot Support. If disabled IPv4 boot option will not be created.

Options: Enabled (Default) / Disabled

### IPv6 PXE Support

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

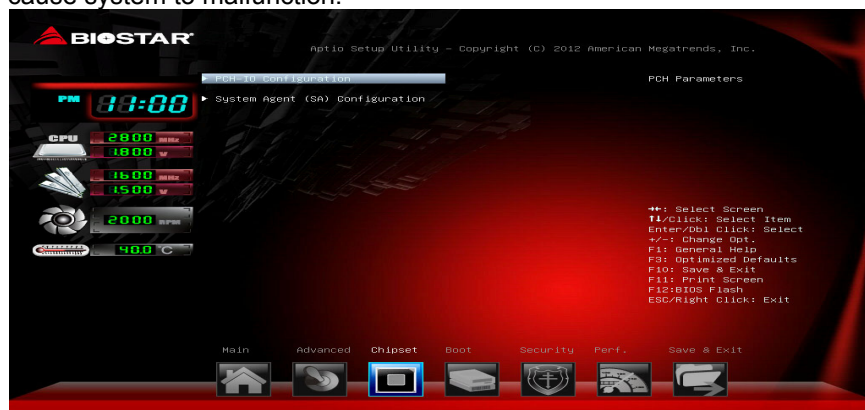
Options: Enabled (Default) / Disabled

### 3 Chipset Menu

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

#### Notice

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



#### PCH-IO Configuration



**PEX1\_1 / PEX1\_2 / PEX1\_3 / PEX1\_4 / PEX1\_5**

These items control the PCI Express Root Port.

Options: Enabled (Default) / Disabled

**ASPM**

This item sets PCI Express Active State Power Management settings.

Options: Disabled (Default) / L0s / L1 / L0sL1 / Auto

**PCIe Speed**

This item selects PCI Express port speed.

Options: Auto (Default) / Gen1 / Gen2

**Onboard GigaLan**

This item enables/disables the PCI Express Root.

Options: Enabled (Default) / Disabled

**Onboard LAN Option ROM**

This item enables/disables Onboard LAN Option ROM.

Options: Disabled (Default) / Enabled

**Azalia Audio Codec**

This item controls detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled.

Options: Auto (Default) / Enabled / Disabled

**EuP Control**

When EuP is enabled, the system will meet EuP requirement.

Options: Disabled (Default) / Enabled in S5 / Enabled in S4-S5

### System Agent (SA) Configuration



#### VT-d

This item enables/disables VT-d function on MCH.

Options: Enabled (Default) / Disabled

#### Primary Display

This item selects which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx.

Options: Auto (Default) / IGFX / PEG / PCIE

#### Primary PEG

This item selects AUTO/PEG11/PEG12 Graphics device should be Primary PEG

Options: Auto (Default) / PEG11/ PEG12

#### Primary PCIE

This item selects AUTO / PCIE1 / PCIE2 / PCIE3 / PCIE4 / PCIE5 / PCIE6 / PCIE7 Graphics device should be Primary PCIE

Options: Auto (Default) / PCIE1 / PCIE2 / PCIE3 / PCIE4 / PCIE5 / PCIE6 / PCIE7

#### Internal Graphics

This item keeps IGD enabled based on the setup options.

Options: Auto (Default) / Disabled / Enabled

#### GTT Size

This item selects the GTT Size.

Options: 2MB (Default) / 1MB

**Aperture Size**

This item selects the Aperture Size.

Options: 256MB (Default) / 128MB / 512MB

**DVMT Pre-Allocated**

This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

Options: 32M (Default) / 64M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M

**DVMT Total Gfx Mem**

This item selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Options: 256MB (Default) / 128MB / MAX

**PEX16\_1 Slot**

**PCIe16\_1 - Gen X**

This item selects PCI Express port speed.

Options: Auto (Default) / Gen1 / Gen2

**PCIe16\_1 - ASPM**

This item sets PCI Express Active State Power Management settings.

Options: Disabled (Default) / L0s / L1 / L0sL1 / Auto

**RC6 (Render Standby)**

This item enables or disables render standby support.

Options: Enabled (Default) / Disabled



# 4 Boot Menu

This menu allows you to setup the system boot options.



### Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.

Options: 2 (Default)

### Bootup NumLock State

This item selects the keyboard NumLock state.

Options: On (Default) / Off

### Full Screen Logo Display

This item allows you to enable/disable Full Screen Logo Show function.

Options: Enabled (Default) / Disabled

### Boot Success Beep

When this item is set to Enabled, BIOS will let user know boot success with beep.

Options: Enabled (Default) / Disabled

### BIOS Flash protection

While enabled, it can't flash write and flash erase by SMI.

Options: Enabled (Default) / Disabled

### GateA20 Active

Upon Request – FA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB

Options: Upon Request (Default) / Always

**Option ROM Messages**

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

**INT19 Trap Response**

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

Options: Postponed (Default) / Immediate

**Launch CSM**

This option controls if CSM will be launched

Options: Enabled (Default) / Disabled

**Boot option filter**

This option controls what devices system can boot to.

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

**Launch PXE OpROM policy**

This option controls the execution of UEFI and Legacy PXE OpROM

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

**Launch Storage OpROM policy**

This option controls the execution of UEFI and Legacy Storage OpROM

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

**Launch Video OpROM policy**

This option controls the execution of UEFI and Legacy Video OpROM

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

**Other PCI device ROM priority**

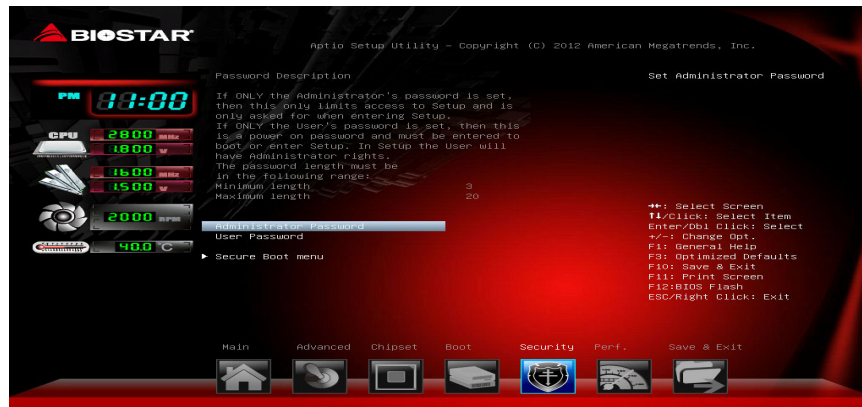
For PCI devices other than Network, Mass storage or video defines which OpROM to launch.

Options: UEFI OpROM (Default) / Legacy OpROM

**Boot Option Priorities**

The 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.

## 5 Security Menu



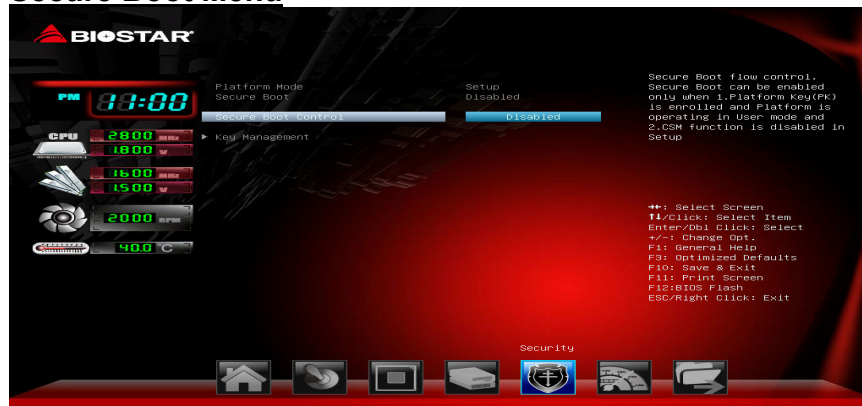
### Administrator Password

This item sets Administrator Password.

### User Password

This item sets User Password.

### Secure Boot Menu



### Secure Boot Control

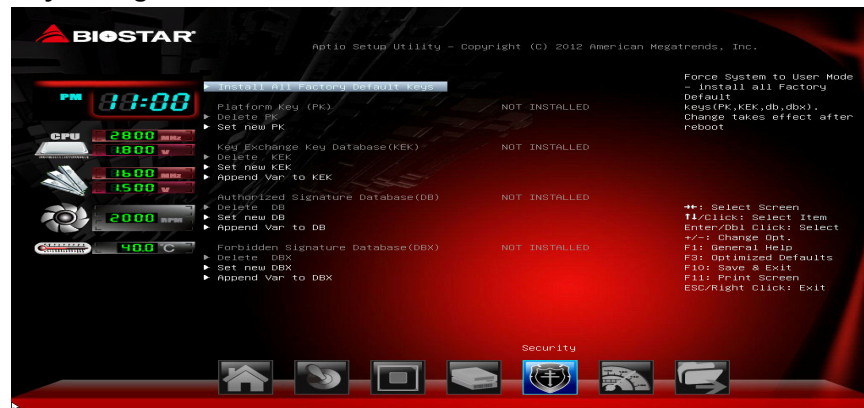
Secure Boot flow control. Secure Boot can be enabled only when 1. Platform Key (PK) is enrolled and Platform is operating in user mode and 2. CSM function is disabled in Setup.

Options: Disabled (Default) / Enabled

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Note: The following items appear only when you set the **Secure Boot Control** function to [Enabled]

### Key Management



#### **Install or Delete All Factory Default Keys**

It allows you to immediately load/clear the default Security Boot keys, Platform key (PK), Key-exchange Key (KEK), Signature database (db), and Revoked Signatures (dbx). The Platform Key (PK) state will change from Unloaded mode to Loaded mode. The settings are applied after reboot or at the next reboot.

#### **Platform Key (PK)**

Delete PK – Allows you to delete the PK file from your system.

Set new PK – Allows you set new PK file.

#### **Key Exchange Key Database (KEK)**

Delete KEK – Allows you to delete the KEK file from your system.

Set new KEK – Allows you set new KEK file.

Append Var to KEK – Allows you append Var to KEK.

#### **Authorized Signature Database (DB)**

Delete DB – Allows you to delete the DB file from your system.

Set new DB – Allows you set new DB file.

Append Var to DB – Allows you append Var to DB.

#### **Forbidden Signature Database (DBX)**

Delete DBX – Allows you to delete the DBX file from your system.

Set new DBX – Allows you set new DBK file.

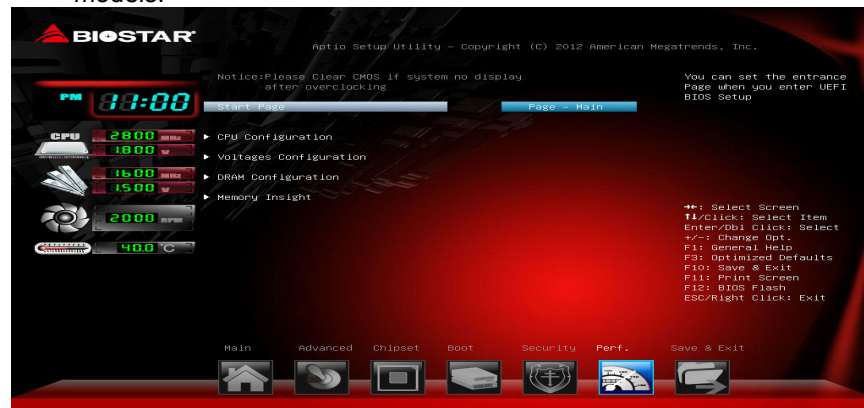
Append Var to DBX – Allows you append Var to DBX.

## 6 Performance Menu

This submenu allows you to change voltage and clock of various devices. (However, we suggest you use the default setting. Changing the voltage and clock improperly may damage the device.)

### Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.
- The options and default settings might be different by RAM or CPU models.



### Start Page

You can set the entrance page when you enter UEFI BIOS Setup.

Options: Page – Main (Default) / Page – Advanced / Page – Chipset / Page – Boot / Page – Security / Page – Performance / Page – Save & Exit

### CPU Configuration



#### CPU Ratio Mode

This item sets CPU Ratio Mode.

Options: Auto (Default) / ALL Cores / Per Core / Fixed

#### CPU Core Current Max (AMP)

This item sets CPU Core Current Max.

Options: 256 (Default)

#### Enhanced Intel SpeedStep Technology

This item enables/disables Enhanced Intel SpeedStep Technology.

Options: Enabled (Default) / Disabled

#### Turbo Mode

This item enables/disables CPU Turbo Mode.

Options: Enabled (Default) / Disabled

#### Power Limit 1 Value (Watt)

This item sets the power limit 1 value (Watt).

Options: 125 (Default)

#### Power Limit 1 Time (Second)

This item sets the power limit 1 time (Second).

Options: 8 (Default)

#### Power Limit 2 Switch

This item sets the power limit Switch

Options: Enabled (Default) / Disabled

### **Power Limit 2 Value (Watt)**

This item sets the power limit 2 value (Watt).

Options: 150 (Default)

### **Active Processor Cores**

Number of cores to enable in each processor package

Options: All (Default) / 1 / 2 / 3

### **CPU C states**

This item enables or disables CPU C states.

Options: Enabled (Default) / Disabled

### **Enhanced C1 states**

This item enables or disables Enhanced C1 states.

Options: Enabled (Default) / Disabled

### **CPU C3 Report**

This item enables or disables CPU C3 report.

Options: Enabled (Default) / Disabled

### **CPU C6 Report**

This item enables or disables CPU C6 report.

Options: Disabled (Default) / Enabled

### **CPU C7 Report**

This item enables or disables CPU C7 report.

Options: Disabled (Default) / CPU C7 / CPU C7s

### **Intel Graphics Configuration**

#### **Graphics Core (GT) Frequency**

This item sets Graphics Core (GT) Frequency.

### Voltages Configuration



#### CPU Override Voltage Target (mV)

This item sets CPU Override Voltage Target, 0mV – 2000mV.

#### Offset Prefix

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

#### RING Override Voltage Target (mV)

This item sets RING Override Voltage Target, 0mV – 1850mV.

#### Offset Prefix

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

#### FIVR OVP/OCF Enable

This item enables or disables FIVR OVP/OCF function control.

Options: Enabled (Default) / Disabled

#### FIVR Efficiency Enable

FIVR Efficiency Enable. If this function be disabled, will not be change until CPU powers down.

Options: Enabled (Default) / Disabled

#### GT Voltage Mode

This item sets GT Voltage Mode.

Options: Adaptive (Default) / Override

#### GT Adaptive Voltage Target (mV)

This item sets GT Adaptive Voltage Target, 0mV – 2000mV.



**GT Override Voltage Target (mV)**

This item sets GT Override Voltage Target, 0mV – 2000mV. *(This item appears only when you set the **GT Voltage Mode** function to [Override])*

**GT Voltage Offset (mV)**

This item sets GT Voltage Offset, -1000mV – 998mV.

**Offset Prefix**

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

**VSA Voltage Offset (mV)**

This item sets SA Voltage Offset, -1000mV – 998mV.

**Offset Prefix**

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

**IOA Voltage Offset (mV)**

This item sets IOA Voltage Offset, -1000mV – 998mV.

**Offset Prefix**

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

**IOD Voltage Offset (mV)**

This item sets IOD Voltage Offset, -1000mV – 998mV.

**Offset Prefix**

This item selects the offset value as positive (+) or negative (-).

Options: + (Default) / -

**CPU Vcc Mode**

This item sets CPU over Voltage Mode.

Options: SPEC Voltage / Auto / Offset Mode / Fixed Mode

**CPU Vcc Offset**

This item sets CPU Vcc offset, Voltage (0.1V-0.52V).

Options: Auto (Default)

**CPU Vcc Fixed**

This item sets CPU Vcc fixed, Voltage (1.5V-2.65V).

Options: Auto (Default)

**CPU Vcc LoadLine**

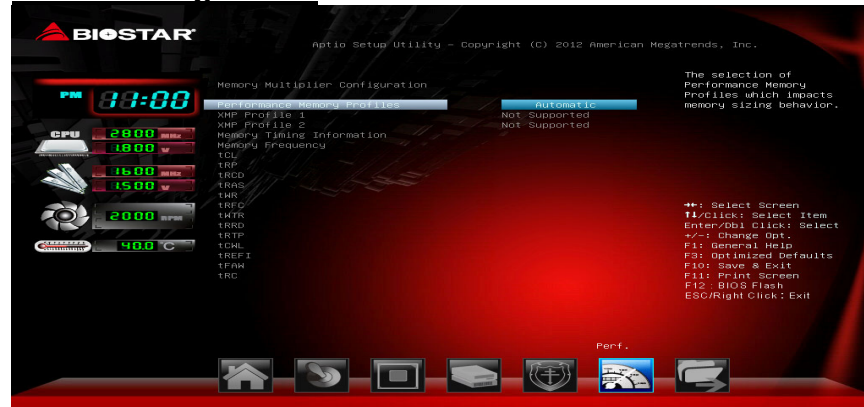
This item enables or disables CPU Vcc LoadLine control.

Options: Auto (Default) / Enabled / Disabled

### DDR Voltage

This item sets DDR(V\_SM) Voltage configuration.

### DRAM Configuration



### Performance Memory Profiles

This selection of Performance Memory Profiles impacts memory sizing behavior.

Options: Automatic (Default) / Manual / XMP Profile 1 / XMP Profile 2

*Note: The following items appear only when you set the **Performance Memory Profiles** function to [Manual]*

### Memory Clock Multiplier

This item allows you to set Memory Clock Multiplier.

Options: 1.33 (Default) / 1.00

### Memory Frequency

This item allows you to set Memory Frequency

Options: DDR3 1333Mhz (Default) / DDR3 1066Mhz / DDR3 1600Mhz

### tCL

This item allows you to select CAS Latency Range 4-18

Options: 11 (Default)

### tRP

This item allows you to select Ras Precharge Range 1-38

Options: 11 (Default)

### tRCD

This item allows you to select Row to Col Delay Range 1-38

Options: 11 (Default)

**tRAS**

This item allows you to select Ras Active Time 1-586  
Options: 28 (Default)

**tWR**

This item allows you to select Min Write Recovery Time Range 1-38  
Options: 12 (Default)

**tRFC**

This item allows you to select Min Refresh Recovery Delay Time  
1-9363  
Options: 208 (Default)

**tWTR**

This item allows you to select Min Internal Write to Read Command  
Delay Time 1-38  
Options: 6 (Default)

**tRRD**

This item allows you to select Min Row Active to Row Active Delay  
Time 1-38  
Options: 5 (Default)

**tRTP**

This item allows you to select Min Internal Read to Precharge  
Command Delay Time 1-38  
Options: 6 (Default)

**tCWL**

Minimum CAS Write Latency Time (tCWLmin)  
Options: 8 (Default)

**tREFI**

Maximum tREFI Time (Average Periodic Refresh Interval).  
Options: 6240 (Default)

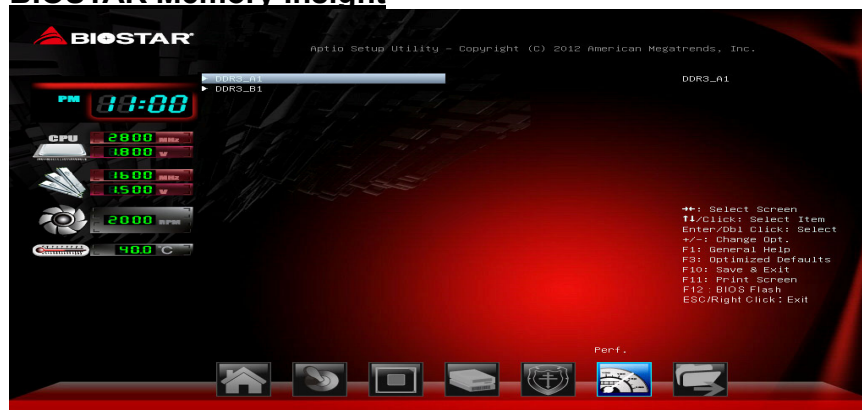
**tFAW**

This item allows you to select Min Four Active Window Delay Time  
1-586  
Options: 24 (Default)

**tRC**

This item allows you to select Min Active to Active/Refresh Delay Time  
(tRCmin) 1-586  
Options: 39 (Default)

### BIOSTAR Memory Insight



### DDR3 Information

These items display SPD information of DDR3 memory.



