

# ***TA970 UEFI BIOS Manual***

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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 PCI (Peripheral Component Interconnect) local bus specification.

### **DRAM Support**

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

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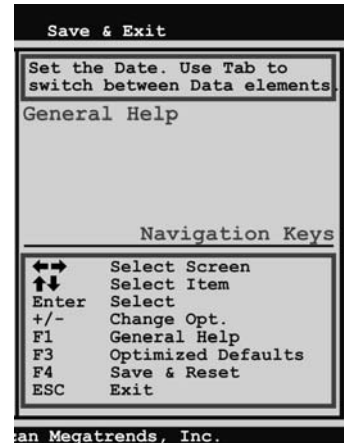
## Supported CPUs

This AMI UEFI BIOS supports the AMD CPU.

## 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

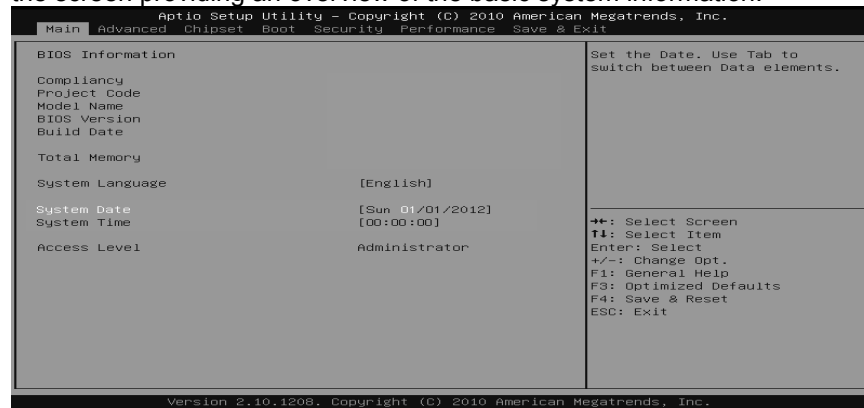
- The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better 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.

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## 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, etc.

### **Total Memory**

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

### **System Date**

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

### **System Time**

Set the system internal clock.

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## 2 Advanced Menu

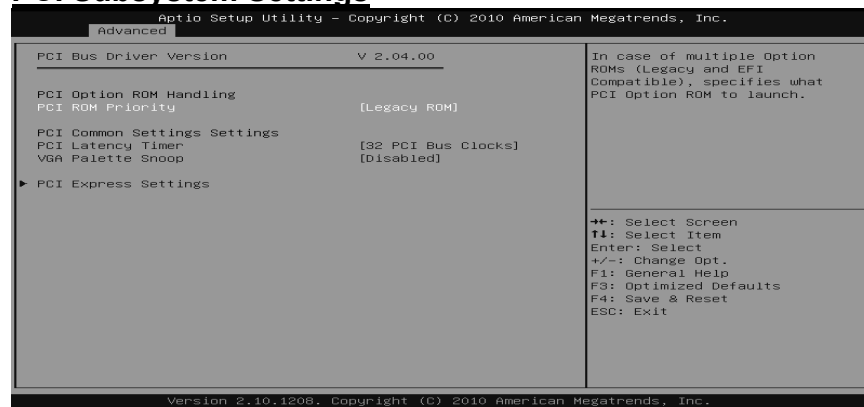
The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

### Notice

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



### PCI Subsystem Settings



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## PCI ROM Priority

In case of multiple option ROMs (Legacy and EFI Compatible), this item specifies what PCI Option ROM to launch  
Options: Legacy ROM (Default) / EFI Compatible ROM

## 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

## VGA Palette Snoop

This item enables or disables VGA Palette Registers Snooping.  
Options: Disabled (Default) / Enabled

## PCI Express Settings



## 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

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## Maximum Read Request

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

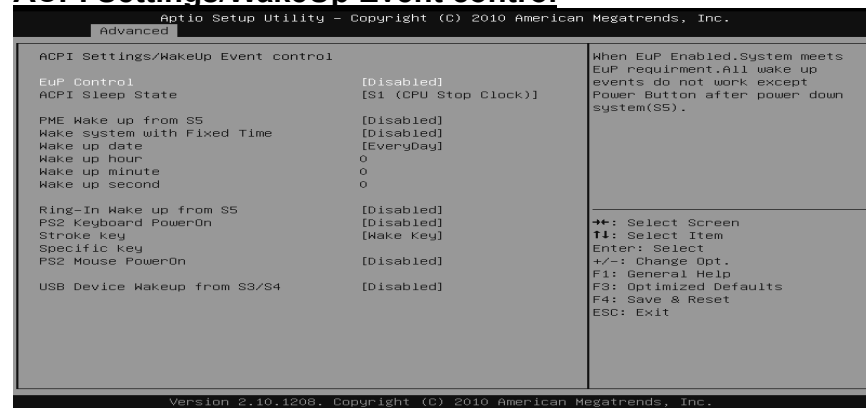
Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

## ASPM Support

This item sets the ASPM Level: Force LO – Force all links to LO State; Auto – BIOS auto configures; Disabled – Disables ASPM.

Options: Disabled (Default) / Auto / Force L0s

## ACPI Settings/WakeUp Event control



## EuP Control

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

Options: Disabled (Default) / Enabled

## ACPI Sleep State

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

Options: S1 (CPU Stop Clock) (Default) / Suspend Disabled / S3 (Suspend to RAM)

## PME Wake up from S5

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

Options: Disabled (Default) / Enabled

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## **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 Selected**

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 Enter**

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**

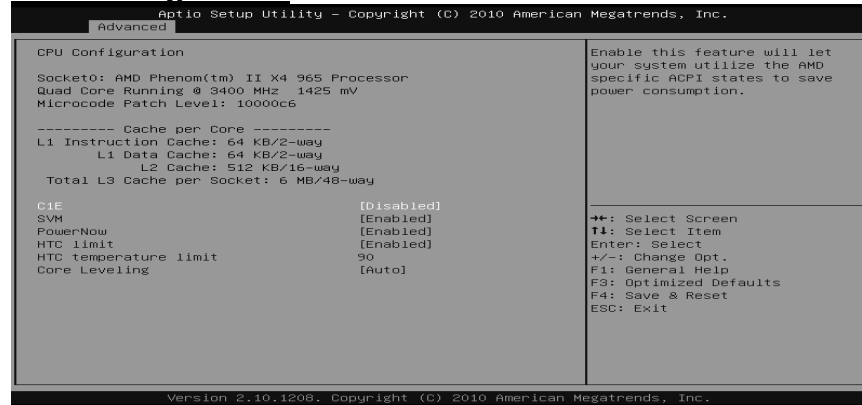
This item allows you to enable or disabled the USB resume from S3/S4 function.

Options: Disabled (Default) / Enabled



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## CPU Configuration



### C1E

This item allows you to configure the Enhanced Halt State (C1E) function, which may reduce the power consumption of your system when the system is idle.

Options: Disabled (Default) / Enabled

### SVM

This item allows you to enable AMD virtualization in CPU. This secure virtual mode will let your run multiple OS (guest) on the same physical hardware by decoupling OS and physical hardware with the hypervisor layer.

Options: Enabled (Default) / Disabled

### PowerNow

This item allows you to enable or disable the generation of ACPI\_PPC, \_PSS, and \_PCT objects.

Options: Enabled (Default) / Disabled

### HTC limit

This item allows you to enable / disable HTC limit.  
(This item is only for AM3 CPU)

Options: Enabled (Default) / Disabled

### HTC temperature limit

This item allows you to set HTC temperature limit. Range: 70°C - 95°C

Options: 90 (Default)

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## Core Leveling

This item allows you to set CPU Downcoring

Options: Auto (Default) / Manual

## HPC Mode

This item allows you to set High Performance Computing Mode.

(This item is only for AM3+ CPU)

Options: Disabled (Default) / Enabled

## CPB Mode

This item allows you to set core performance boost enablement.

(This item is only for AM3+ & AM3 revision E CPU)

Options: Disabled (Default) / Enabled

## 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.



## OnChip SATA Channel

This option allows you to enable the on-chip Serial ATA.

Options: Enabled (Default) / Disabled

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## OnChip SATA Type

This option allows you to select the on-chip Serial ATA operation mode.

Options: Native IDE (Default) / RAID / AHCI / Legacy IDE

## SATA IDE Combined Mode

This option controls the SATA/PATA combined mode.

Options: Enabled (Default) / Disabled

## SMART FAN Control



## CPU Smart FAN

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

Options: Disabled (Default) / Auto / 4Pin / 3Pin

## 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)

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## 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)

## USB Configuration



## Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).

Options: Enabled (Default) / Disabled / Auto

## Legacy USB3.0 Support

This item enables/disables legacy USB3.0 support.

Options: Enabled (Default) / Disabled / Auto

## EHCI Hand-Off

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

Options: Disabled (Default) / Enabled

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## Super IO Configuration

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.	
Advanced	
Super IO Configuration	
Super IO Chip	ITE IT8728F
Restore AC Power Loss	[Power Off]
► Serial Port 1 Configuration	
► Parallel Port Configuration	
► CIR Controller Configuration	
Specify what state to go to when power is re-applied after a power failure.	
++: Select Screen T: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F4: Save & Reset ESC: Exit	
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.	

### 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

### Serial Port 1 Configuration

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.	
Advanced	
Serial Port 1 Configuration	
Serial Port	[Enabled]
Device Settings	I0=3F8h; IRQ=4;
Change Settings	[Auto]
Enable or Disable Serial Port (COM)	
++: Select Screen T: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F4: Save & Reset ESC: Exit	
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.	

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## Serial Port

This item enables or disables Serial Port (COM).

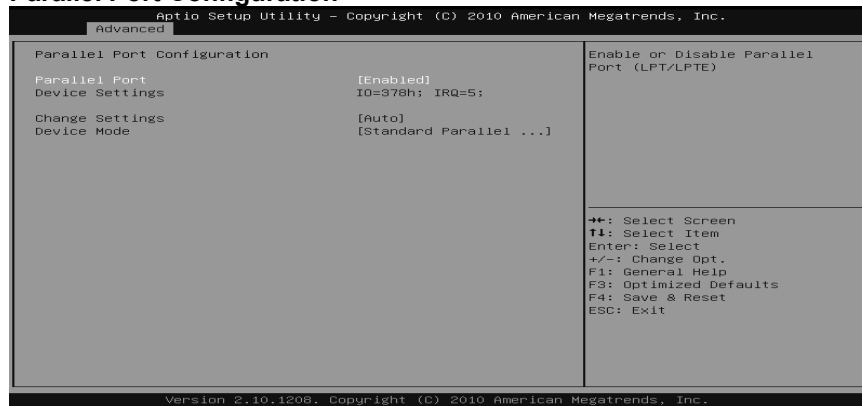
Options: Enabled (Default) / Disabled

## Change Settings

This item selects an optimal setting for Super IO device.

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

## 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, 10, 11, 12 / IO=278h; IRQ=5, 6, 7, 10, 11, 12 / IO=3BCh; IRQ=5, 6, 7, 10, 11, 12 / IO=378h / IO=278h / IO=3BCh

## Device Mode

This item allows you to determine how the parallel port should function.

Options: Standard Parallel Port Mode (Default) / EPP Mode / ECP Mode / ECP Mode & EPP Mode

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## CIR Controller Configuration

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.	
Advanced	
CIR Controller Configuration	
CIR Controller	[Disabled]
Enable or Disable CIR Controller	
++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F4: Save & Reset ESC: Exit	
Version 2.10.1208, Copyright (C) 2010 American Megatrends, Inc.	

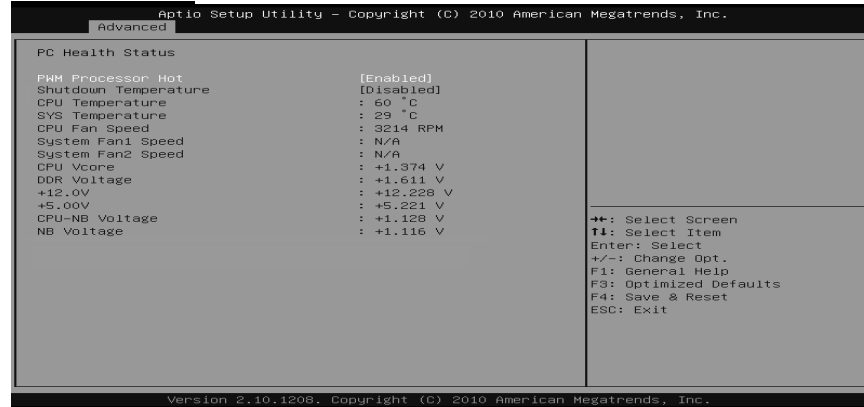
### **CIR Controller**

This item enables or disables CIR Controller.

Options: Disabled (Default) / Enabled

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## H/W Monitor



### PWM Processor Hot

This item enables/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



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## 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.



### North Bridge



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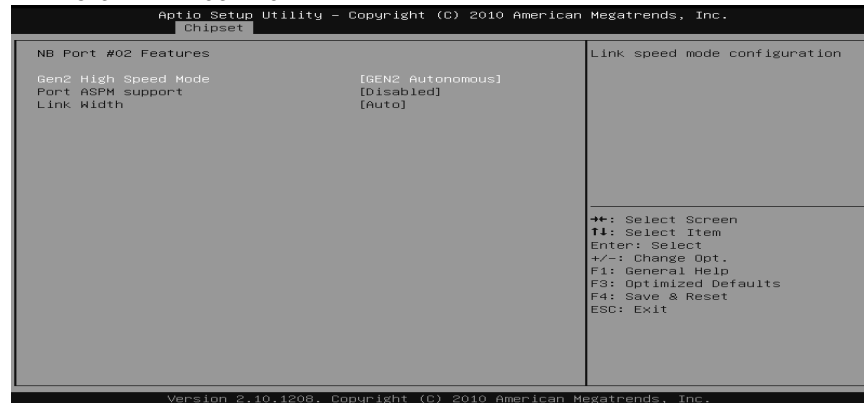
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## IOMMU

This item allows you to enable/disable NB IOMMU.

Options: Disabled (Default) / Enabled

## NB Port #2/#4/#09/#10



### **Gen2 High Speed Mode**

Options: GEN2 Autonomous (Default) / GEN1 / GEN2 Software Initiated / GEN2 Advertize RC

### **Port ASPM support**

Options: Disabled (Default) / L0s enable / L1 enable / L0s + L1 enable / L0s Downstream Only / L0s Downstream Only + L1

### **Link Width (Only for Port #02/#04/#09)**

Options: Auto (Default) / x1 / x2 / x4 / x8 / x16

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## South Bridge Configuration

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.	
Chipset	
SB CIM Version : 1.1.1.0	Options for SB USB Configuration
► SB USB Configuration	
► SB HD Azalia Configuration	
++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F4: Save & Reset ESC: Exit	
Version 2.10.1208, Copyright (C) 2010 American Megatrends, Inc.	

## SB USB Configuration

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.	
Chipset	
OHCI HC (Bus 0 Dev 18 Fn 0) [Enabled]	
OHCI HC (Bus 0 Dev 19 Fn 0) [Enabled]	
OHCI HC (Bus 0 Dev 22 Fn 0) [Enabled]	
OHCI HC (Bus 0 Dev 20 Fn 5) [Enabled]	
++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F4: Save & Reset ESC: Exit	
Version 2.10.1208, Copyright (C) 2010 American Megatrends, Inc.	

### OHCI HC (Bus 0 Dev 18/19/20/22 Fn 0/5)

This item allows you to control OHCI host controller. (USB 1.1 Device)  
Options: Enabled (Default) / Disabled

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## SB Azalia Audio Configuration



### HD Audio Azalia Device

This item allows you to control the HD audio device.

Options: Enabled (Default) / Auto / Disabled

## Onboard Devices



### Launch Storage OpROM

This item enables/disables Boot Option for Legacy Mass Storage Devices with Option ROM.

Options: Enabled (Default) / Disabled

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## **Realtek PCIE NIC**

This item enables/disables Realtek PCIE NIC.

Options: Enabled (Default) / Disabled

## **Onboard LAN Option ROM**

This item enables/disables Onboard LAN Option ROM.

Options: Disabled (Default) / Enabled

## **Onboard USB3.0**

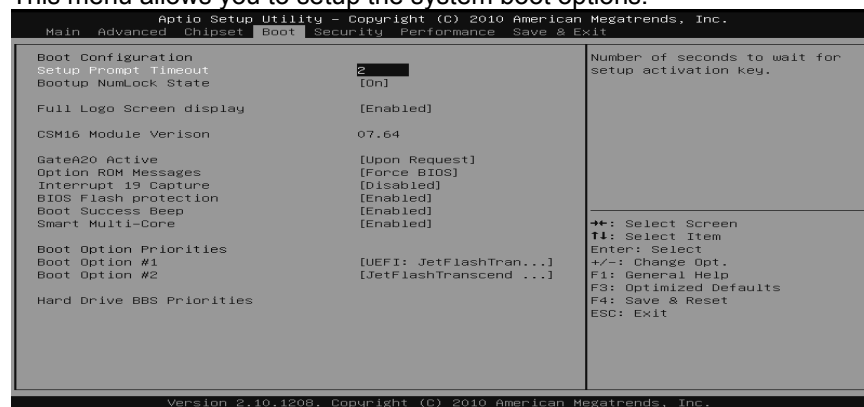
This item enables/disables Onboard USB3.0 Controller.

Options: Enabled (Default) / Disabled

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## 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 LOGO Screen Display

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

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

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## **Option ROM Messages**

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

## **Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function.

When set to Enabled, this item allows the option ROMs to trap interrupt 19.

Options: Disabled (Default) / Enabled

## **BIOS Flash protection**

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

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

## **Smart Multi-Core**

This item sets the smart multi-core. (This item is only for AM3 CPU.)

Options: Enabled (Default) / Disabled

## **Boot Option #1/#2/#3**

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.

## **CD/DVD ROM Drive BBS Priorities**

This item sets the order of the legacy devices in this group.

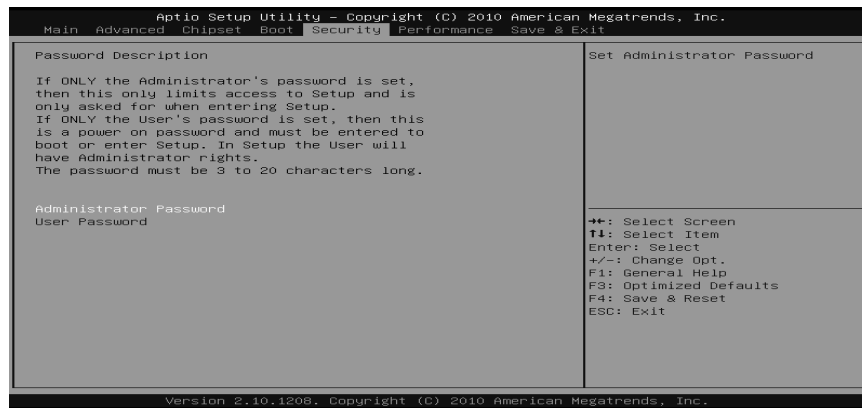
## **Hard Drive BBS Priorities**

This item sets the order of the legacy devices in this group.

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## 5 Security Menu



### Administrator Password

This item sets Administrator Password.

### User Password

This item sets User Password.



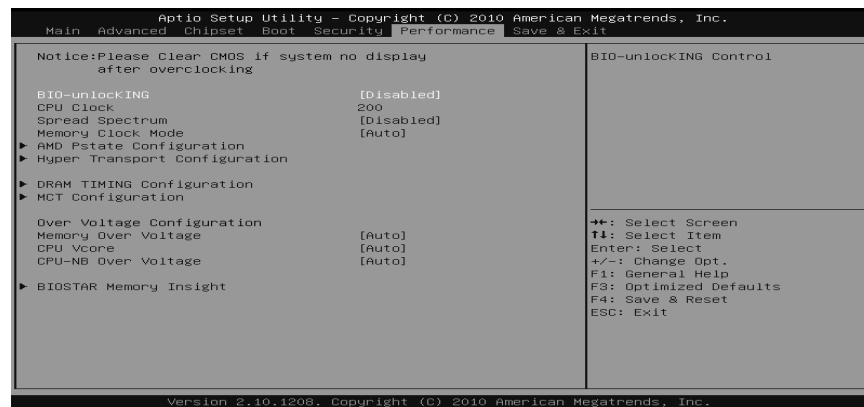
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## 6 Performance Menu

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.



### BIO-unlockING

This item allows you to activate BIO-unlockING function.

(This item is only for AM3 CPU.)

Options: Disabled (Default) / Enabled

### CPU Clock

This item allows BIOS to select CPU Clock (MHz).

Options: 200 (Default) / 200~600

### Spread Spectrum

This item allows you to enable or disable spread spectrum for CPU/ATIG/SRC clock.

Options: Disabled (Default) / Enabled

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## Memory Clock Mode

This item allows user to select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Manual, the DRAM speed specified will be programmed regardless of SPD. If AMP/XMP/XMP2, the DRAM speed specified will be refer memory profile.

Options: Auto (Default) / Manual / AMP / XMP1 / XMP2

(AMP/XMP is only for AM3+ CPU)

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

**Memory Frequency:** DDR 800 / DDR3 1066 / DDR3 1333 / DDR3 1600 / DDR3 1866

## AMD Pstate Configuration



## Custom P-States

This item will tell BIOS whether to use the step option below this configure the P-State, or whether to configure the P-States automatically.

Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the Custom P-State item to [Enabled]*

## Core FID

This item sets the frequency to use for Core P-State selected. Value is saved in the \_PSS object.

Options: x8 1600MHz ~ x31.5 6300MHz

## Core VID

This function allows you to adjust the voltage of CPU Core.

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## Core DID

This is the Core Divider.

Options: Divided by 1 (Default) / Divided by 2 / Divided by 4 / Divided by 8 / Divided by 16

## NB FID

This item sets the frequency to use for Core P-State selected. Value is saved in the \_PSS object.

Options: 800MHz ~ 6800MHz

## NB VID

This function allows you to adjust the voltage of NB Core.

## HT Configuration



## HT Frequency

The Hyper Transport link will run at this speed if it is slower than or equal to the system clock and the board is capable.

Options: Auto (Default) / 200 MHZ / 400 MHZ / 600 MHZ / 800 MHZ / 1000 MHZ / 1200 MHZ / 1400 MHZ / 1600 MHZ / 1800 MHZ / 2000 MHZ / 2200 MHZ / 2400 MHZ / 2600 MHZ / 2800 MHZ / 3000 MHZ / 3200 MHZ /

## HT width

The Hyper Transport link will run at this width.

Options: Auto (Default) / 8 BIT / 16 BIT

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## DRAM Timing Configuration



### DRAM Timing Mode

This item selects DRAM Timing Mode.

Options: Auto (Default) / DCT0 / DCT1 / Both

*Note: The following items appear only when you set the DRAM Timing Mode item to [DCT0 / DCT1 / Both]*

### 2TCMD

Options: Auto (Default) / 1T / 2T

### CL

Options: Auto (Default) / 4~12 CLK

### TRCD

Options: Auto (Default) / 5~12 CLK

### TRP

Options: Auto (Default) / 5~12 CLK

### TRAS

Options: Auto (Default) / 15~30 CLK

### TRC

Options: Auto (Default) / 11~42 CLK

### TWR

Options: Auto (Default) / 5~8 / 10 / 12 CLK

### TWTR

Options: Auto (Default) / 4~7 CLK

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## TRRD

Options: Auto (Default) / 4~7 CLK

## TRTP

Options: Auto (Default) / 4~7 CLK

## MCT Configuration



### **Bank Interleaving**

This item allows you to enable or disable Memory Bank interleaving.

Options: Auto (Default) / Disabled

### **Channel Interleaving**

This item allows you to control the Memory Channel interleaving.

Options: Auto (Default) / Disabled

### **Memory Hole Remapping**

This item allows you to enable or disable the Memory Remapping Around Memory Hole

Options: Enabled (Default) / Disabled

### **Unganged Mode support**

This item allows you to enable or disable Unganged Mode.

Options: Enabled (Default) / Disabled

### **Power Down Enable**

This item allows you to enable or disable DDR3 power down mode.

Options: Disabled (Default) / Enabled

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## **Memory Over Voltage**

This item allows you to control Memory Over Voltage

## **CPU Vcore**

This item allows you to control CPU Vcore.

## **CPU-NB Over Voltage**

This item allows you to control CPU-NB Over Voltage.

## **BIOSTAR Memory Insight**



## **DDR3\_A1/A2/B1/B2**

These items display SPD information of DDR3 memory.

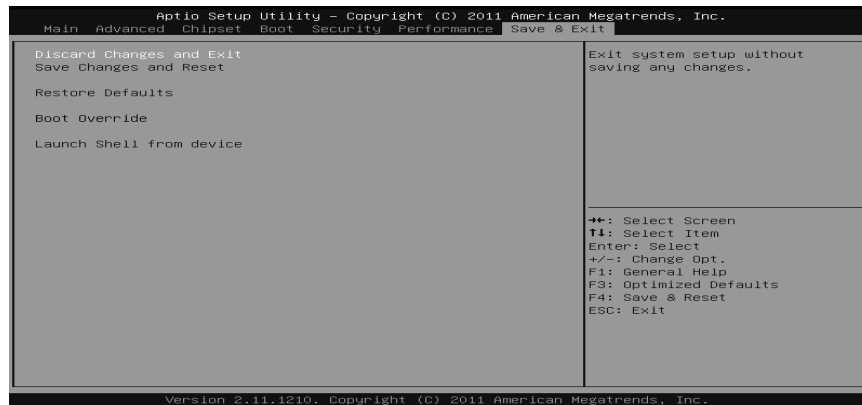


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## 7 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



### **Discard Changes and Exit**

Abandon all changes made during the current session and exit setup.

### **Save Changes and Reset**

Reset the system after saving the changes.

### **Restore Defaults**

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

### **Launch Shell from device**

This item attempts to EFI Shell application (Shellx64.efi) from one of the available devices.