

# ***GF8200 M2G+ BIOS Manual***

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## **BIOS Setup**

### **Introduction**

The purpose of this manual is to describe the settings in the AMI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to CMOS RAM. The power of CMOS RAM is supplied by a battery so that it retains the Setup information when the power is turned off.

Basic Input-Output System (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 BIOS.

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

### **Plug and Play Support**

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

### **EPA Green PC Support**

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

### **APM Support**

This AMI BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can also be managed by this AMI BIOS.

### **ACPI Support**

AMI ACPI 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.

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## PCI Bus Support

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

## DRAM Support

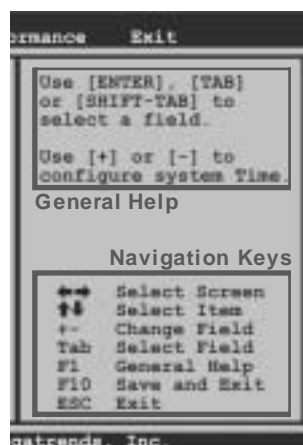
DDR2 SDRAM (Double Data Rate II Synchronous DRAM) is supported.

## Supported CPUs

This AMI BIOS supports the AMD CPU.

## Using Setup

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

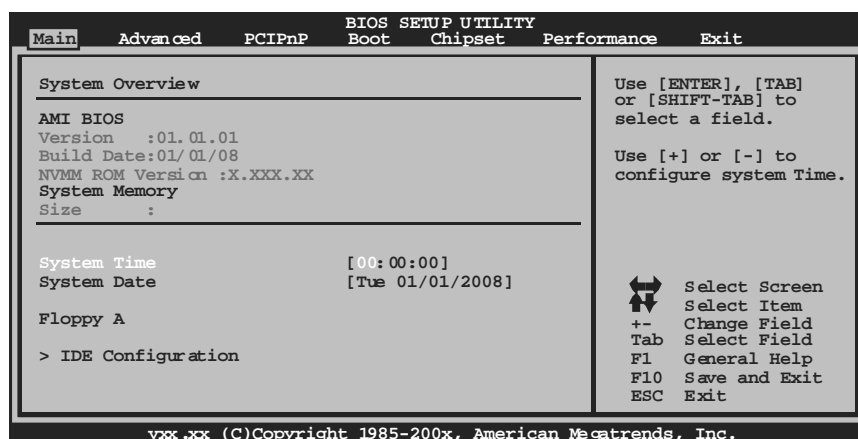
- The default BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the BIOS firmware is being continuously updated. The BIOS information described in this manual is for your reference only. The actual 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 BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



### AMI BIOS

Shows system information including BIOS version, built date, etc.

### System Memory

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

### System Time

Set the system internal clock.

### System Date

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

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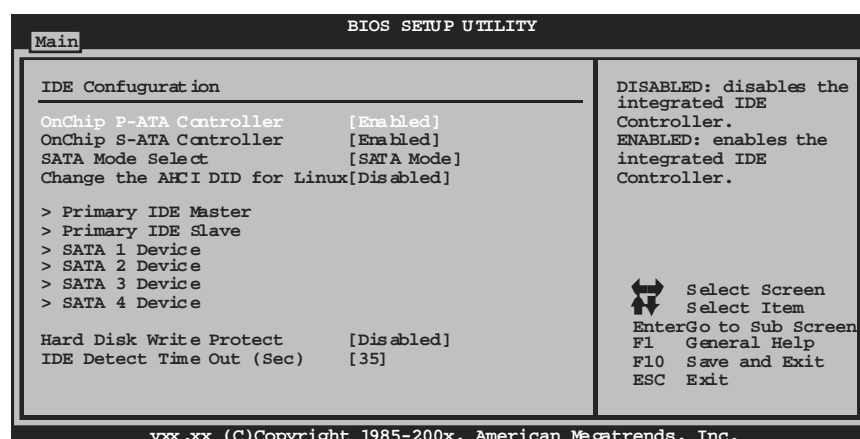
## **Floppy A**

Select the type of floppy disk drive installed in your system.

Options: 1.44M, 3.5 in (Default) / 360K, 5.25 in / 1.2M, 5.25 in / 720K, 3.5 in / 2.88M, 3.5 in / None

## **IDE Configuration**

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



### **OnChip P-ATA Controller**

This item allows you to control the onboard IDE controller.

Options: Enabled (Default) / Disabled

### **OnChip S-ATA Controller**

This item allows you to control the onboard SATA controller.

Options: Enabled (Default) / Disabled

### **SATA Mode Select**

This item allows you to choose the SATA operation mode. To enable SATA5/ SATA6 device, please choose RAID or AHCI.

Options: SATA Mode (Default) / RAID Mode/ AHCI Mode

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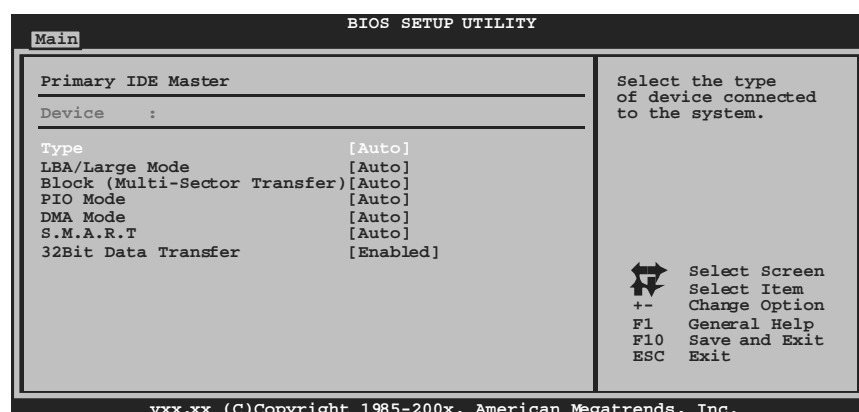
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## Change the AHCI DID for Linux

This item appears only when SATA mode is set to AHCI.

Options: Disabled (Default) / Enabled

## Primary IDE Master/Slave ; SATA 1/2/3/4 Device (SATA 5/6 will be enabled only when SATA Mode is set to RAID/AHCI)



The BIOS detects the information and values of respective devices, and these information and values are shown below to the name of the sub-menu.

### Type

Select the type of the IDE/SATA drive.

Options: Auto (Default) / CDROM / ARMD / Not Installed

### LBA/Large Mode

Enable or disable the LBA mode.

Options: Auto (Default) / Disabled

### Block (MultiSector Transfer)

Enable or disable multi-sector transfer.

Options: Auto (Default) / Disabled

### PIO Mode

Select the PIO mode.

Options: Auto (Default) / 0 / 1 / 2 / 3 / 4

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## ***DMA Mode***

Select the DMA mode.

Options: Auto (Default) / SWDMA0 ~ 2 / MWDMA0 ~ 2 / UDMA0 ~ 5

## ***S.M.A.R.T***

Set the Smart Monitoring, Analysis, and Reporting Technology.

Options: Auto (Default) / Disabled / Enabled

## ***32Bit Data Transfer***

Enable or disable 32-bit data transfer.

Options: Enabled (Default) / Disabled

## **Hard Disk Write Protect**

Disable or enable device write protection. This will be effective only if the device is accessed through BIOS.

Options: Disabled (Default) / Enabled

## **IDE Detect Time Out (Sec)**

Select the time out value for detecting IDE/SATA devices.

Options: 35 (Default) / 30 / 25 / 20 / 15 / 10 / 5 / 0

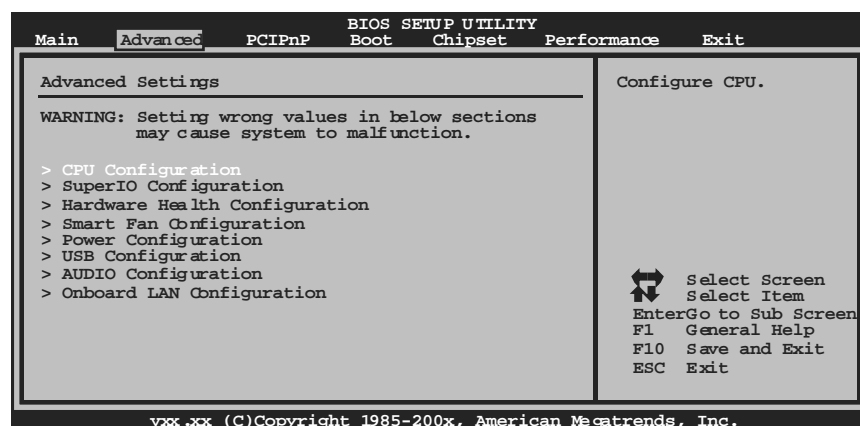
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## 2 Advanced Menu

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

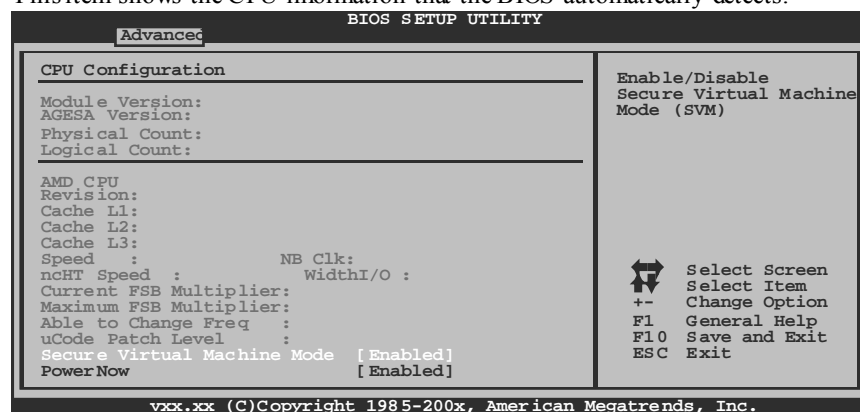
### Notice

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



### CPU Configuration

This item shows the CPU information that the BIOS automatically detects.





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## Secure Virtual Machine Mode

Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.

Options: Enabled (Default) / Disabled

## PowerNow

This item allows you to enable or disable the PowerNow power saving technology.

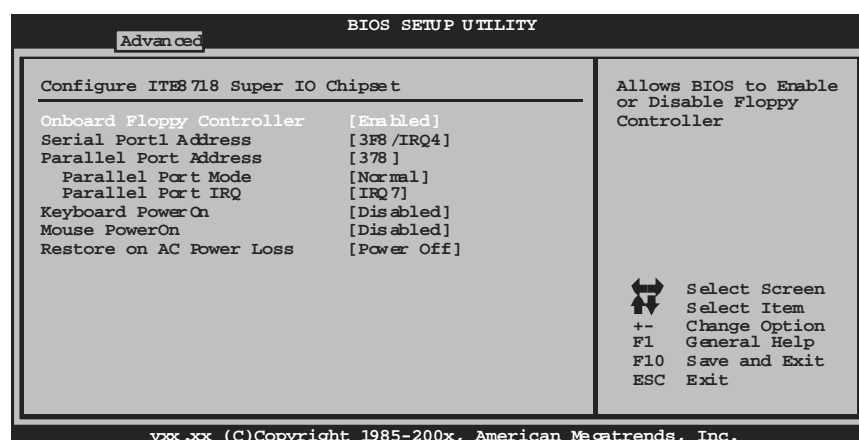
Options: Enabled (Default) / Disabled

## ACPI SRAT Table

The operating system scans the ACPI SRAT at boot time and uses the information to better allocate memory and schedule software threads for maximum performance. This item controls whether the SRAT is made available to the operating system at boot up, or not.

Options: Enabled (Default) / Disabled

## SuperIO Configuration



## Onboard Floppy Controller

Select enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you installed another FDC or the system uses no floppy drive, select disabled in this field.

Options: Enabled (Default) / Disabled

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## **Serial Port1 Address**

Select an address and corresponding interrupt for the first and second serial ports.

Options: 3F8/IRQ4 (Default) / 2F8/IRQ3 / 3E8/IRQ4 / 2E8/IRQ3 / Auto / Disabled

## **Parallel Port Address**

This item allows you to determine access onboard parallel port controller with which I/O Address.

Options: 378 (Default) / 278 / 3BC / Disabled

## **Parallel Port Mode**

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

Options: Normal (Default)	Using Parallel port as Standard Printer Port.
EPP	Using Parallel Port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port.
ECP+EPP	Using Parallel port as ECP & EPP mode.

## **Parallel Port IRQ**

This item allows you to select the IRQ for the onboard parallel port.

Options: IRQ7 (Default) / IRQ5 / Disabled

## **Keyboard PowerOn**

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

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

## **Specific Key Enter**

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

## **Stroke Keys Selected**

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

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

## **Mouse PowerOn**

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

Options: Disabled (Default) / Enabled

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## Restore on AC Power Loss

This setting specifies how your system should behave after a power fail or interrupts occurs. By choosing Disabled will leave the computer in the power off state. Choosing Enabled will restore the system to the status before power failure or interrupt occurs.

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

## Hardware Health Configuration

This item shows the system temperature, fan speed, and voltage information.

BIOS SETUP UTILITY	
Advanced	
<b>Hardware Health Configuration</b>	
H/W Health Function	[ Enabled ]
Shutdown Temperature	[ Disabled ]
Low Speed CPU Fan Warning	[ Enabled ]
Low Speed SUS Fan Warning	[ Disabled ]
CPU Temperature	
CPU FAN Speed(JCFAN)	
SYS FAN Speed(JSFAN)	
CPU Voltage	
Chip Voltage	
+3.30V	
+5.00V	
+12.0V	
HT Voltage	
DDR Voltage	
5VSB	
Enables Hardware Health Monitoring Device.	
	
Select Screen	
Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	

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## H/W Health Function

If with a monitoring system, system will show PC health status during POST stage.

Options: Enabled (Default) / Disabled

## Shutdown Temperature

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

Options: Disabled (Default) / 60°C/140°F / 65°C/149°F / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

## Low Speed CPU/SYS Fan Warning

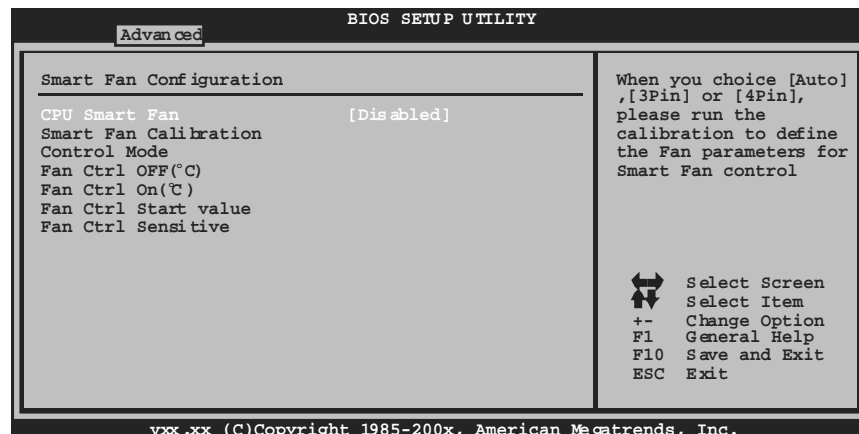
This item allows you to enable or disable low speed CPU/SYS fan warning.

Options: Enabled / Disabled

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## Smart Fan Configuration



### CPU Smart Fan

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

Options: Disabled (default) / Auto / 4-pin / 3-pin

### Smart Fan Calibration

Choose this item and then the BIOS will auto test and detect the CPU/System fan functions and show CPU/System fan speed.

### Control Mode

This item provides several operation modes of the fan.

Options: Quiet / Performance / Manual

### Fan Ctrl OFF(°C)

If the CPU/System Temperature is lower than the set value, FAN will turn off.

Options: 0~127 (°C)

### Fan Ctrl On(°C)

CPU/System fan starts to work under smart fan function when arrive this set value.

Options: 0~127 (°C)

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## Fan Ctrl Start Value

When CPU/System temperature arrives to the set value, the CPU/System fan will work under Smart Fan Function mode.

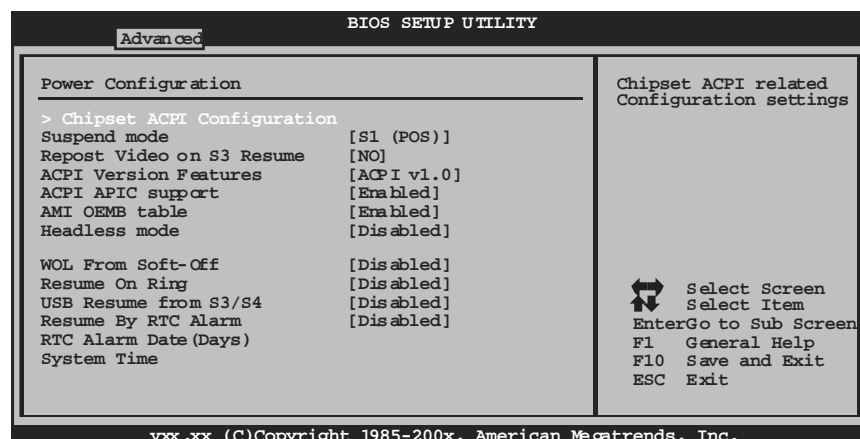
Options: 0~127 (°C)

## Fan Ctrl Sensitive

Increasing the value will raise the speed of CPU/System fan.

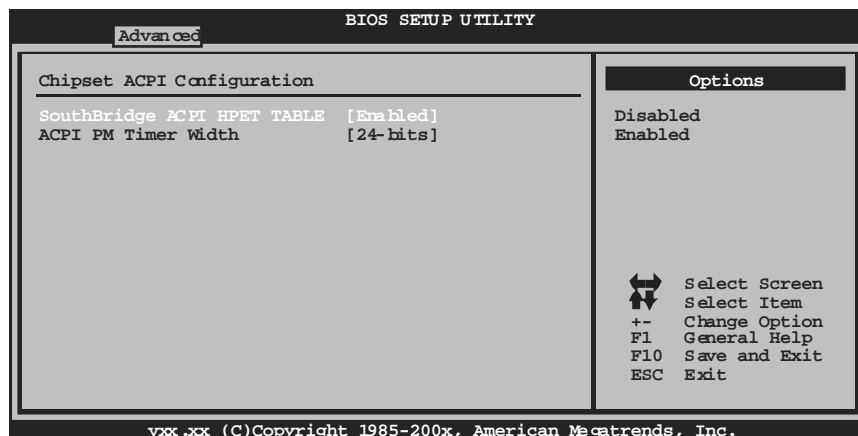
Options: 1~127

## Power Configuration



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## Chipset ACPI Configuration



### ***SouthBridge ACPI HPET TABLE***

Options: Enabled (Default) / Disabled

### ***ACPI PM Timer Width***

Options: 24-bits (Default) / 32-bits

## **Suspend mode**

The item allows you to select the suspend type under the ACPI operating system.

Options: S1 (POS) (Default)      Power on Suspend  
          S3 (STR)                Suspend to RAM  
          Auto                    POS+STR

## **Repost Video on S3 Resume**

Options: NO (Default) / YES

## **ACPI Version Features**

The item allows you to select the version of ACPI

Options: ACPI v1.0 (Default) / ACPI v2.0 / ACPI v3.0

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## **ACPI APIC support**

This item is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). The APIC provides multiprocessor support, more IRQs and faster interrupt handling.

Options: Enabled (Default) / Disabled

## **AMI OEMB table**

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.

Options: Enabled (Default) / Disabled

## **Headless mode**

This is a server-specific feature. A headless server is one that operates without a keyboard, monitor or mouse. To run in headless mode, both BIOS and operating system (e.g. Windows Server 2003) must support headless operation.

Options: Disabled (Default) / Enabled

## **WOL From Soft-Off**

This item allows you control the wake on LAN (WOL) function.

Options: Disabled (Default) / Enabled

## **Resume On Ring**

This item allows you control the wake on ring function.

Options: Disabled (Default) / Enabled

## **USB Resume from S3/S4**

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

Options: Disabled (Default) / Enabled

## **Resume By RTC Alarm**

When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Options: Disabled (Default) / Enabled

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## RTC Alarm Date (Days)

You can choose which date the system will boot up.

## System Time

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

## USB Configuration

This item shows the USB controller and using USB device information.



## USB 1.1 Controller

This item allows you to control the USB 1.1 mode of the USB controller..

Options: Enabled (Default) / Disabled

## USB 2.0 Controller

This item allows you to control the USB 2.0 mode of the USB controller..

Options: Enabled (Default) / Disabled



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## 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

## USB 2.0 Controller Mode

This item allows you to select the operation mode of the USB 2.0 controller.

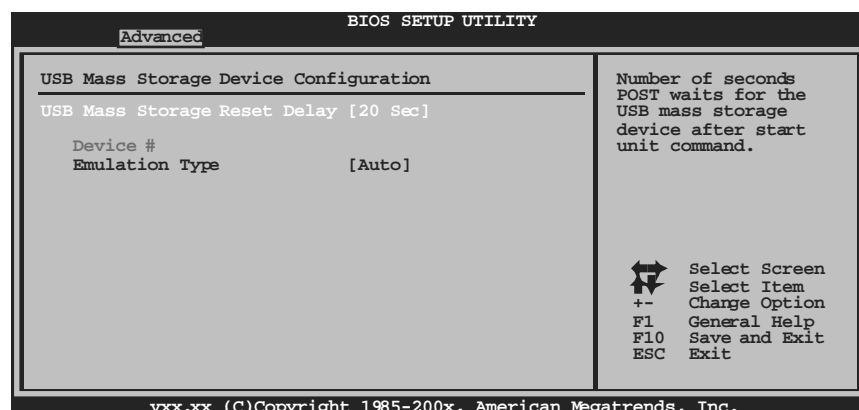
Options: HiSpeed (Default)    USB 2.0-480Mbps  
FullSpeed                    USB 1.1-12Mbps

## BIOS EHCI Hand-Off

This item allows you to enable support for operating systems without an EHCI hand-off feature.

Options: Enabled (Default) / Disabled

## USB Mass Storage Device Configuration



## USB Mass Storage Reset Delay

This item allows you to set the reset delay for USB mass storage device.

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

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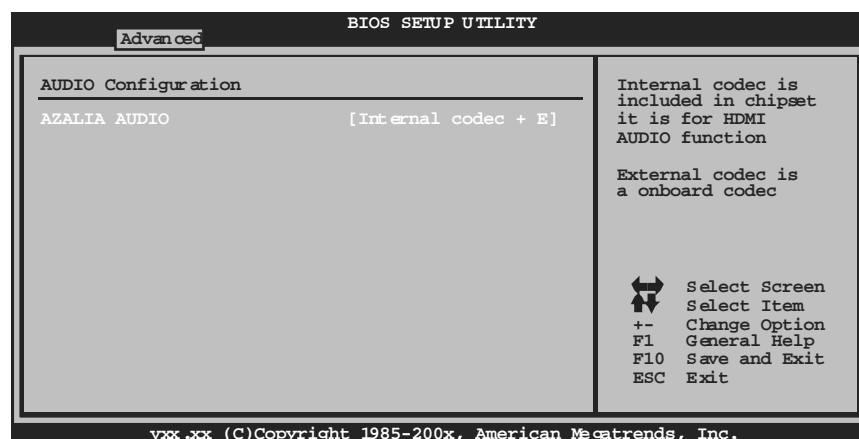
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## *Emulation Type*

This item allows you to select the emulation type of the USB mass storage device.

Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CDROM

## **AUDIO Configuration**



## **AZALIA AUDIO**

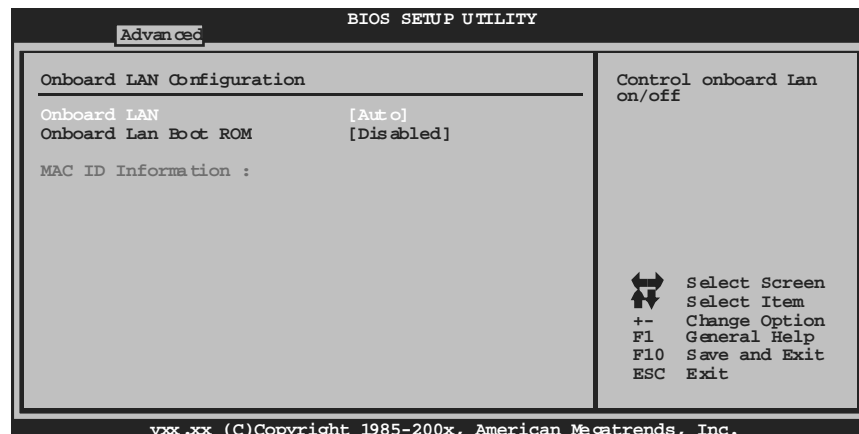
This item allows you to control the onboard codec and on-chip codec.

Options: Internal codec+E (Default) / Internal codec / External codec / Disabled

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## Onboard LAN Configuration



### **Onboard LAN**

This option allows you to control the onboard LAN controller.

Options: Auto (Default) / Disabled

### **Onbaord Lan Boot ROM**

This item allows you to enable or disable the Onboard LAN Boot ROM.

Options: Disabled (Default) / Enabled

### **MAC ID Information**

This item shows the LAN MAC ID information.

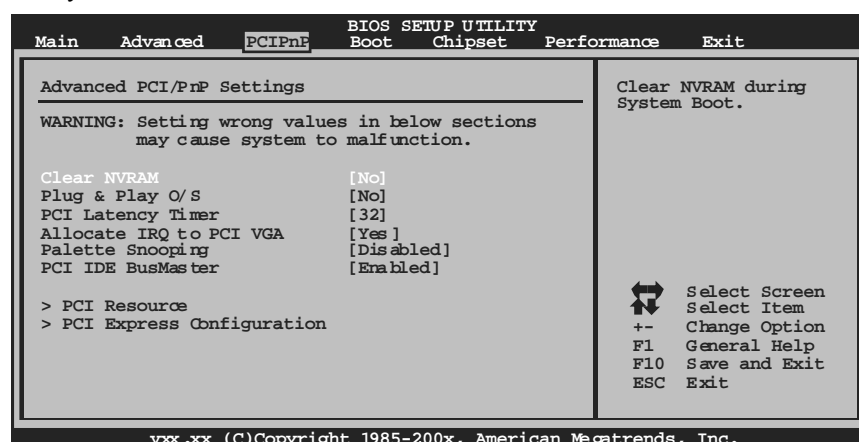
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## 3 PCIPnP Menu

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 when communicating with its own special components.

### Notice

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



### Clear NVRAM

This item allows you to clear the data in the NVRAM (CMOS) by selecting "Yes".

Options: No (Default) / Yes

### Plug & Play OS

When set to YES, BIOS will only initialize the PnP cards used for the boot sequence (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, Netware™), this option must set to NO.

Options: No (Default) / Yes

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## PCI Latency Timer

This item controls how long a PCI device can hold the PCI bus before another takes over. The longer the latency, the longer the PCI device can retain control of the bus before handing it over to another PCI device.

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

## Allocate IRQ to PCI VGA

This item allows BIOS to choose a IRQ to assign for the PCI VGA card.

Options: Yes (Default) / No

## Palette Snooping

Some old graphic controllers need to “snoop” on the VGA palette and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place.


Options: Disabled (Default) / Enabled

## PCI IDE BusMaster

This item is a toggle for the built-in driver that allows the onboard IDE controller to perform DMA (Direct Memory Access) transfers.

Options: Enabled (Default) / Disabled

## PCI Resource

BIOS SETUP UTILITY	
PCI/PnP	
<b>PCI Resource</b>	
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]
IRQ11	[Available]
IRQ14	[Available]
IRQ15	[Available]
DMA Channel 0	[Available]
DMA Channel 1	[Available]
DMA Channel 3	[Available]
DMA Channel 5	[Available]
DMA Channel 6	[Available]
DMA Channel 7	[Available]
Reserved Memory Size	[Disabled]
Available: Specified IRQ is available to be used by PCI/PnP devices.	
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.	
	
Select Screen	
Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	

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## IRQ3/4/5/7/9/10/11/14/15

These items will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. The option “Available” means the IRQ is going to assign automatically.

Options: Available (Default) / Reserved

## DMA Channel 0/1/3/5/6/7

These items will allow you to assign each DMA channel a type, depending on the type of device using the channel. The option “Available” means the channel is going to assign automatically.

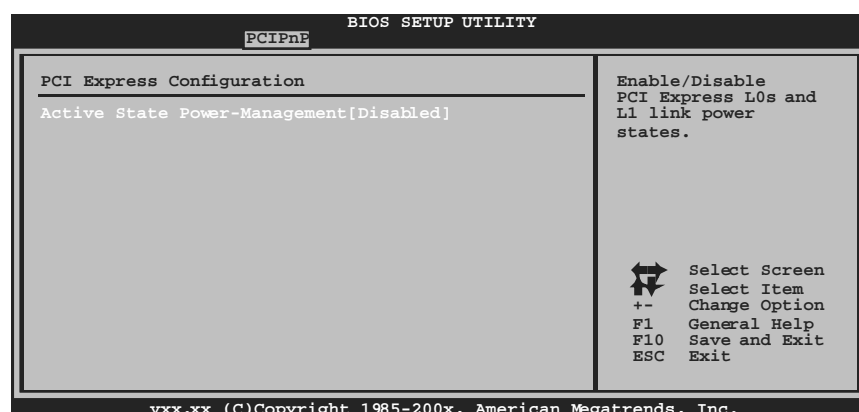
Options: Available (Default) / Reserved

## Reserved Memory Size

This item allows BIOS to reserve certain memory size for specific PCI device.

Options: Disabled (Default) / 16K / 32K / 64K

## PCI Express Configuration



## Active State Power-Management

This item sets the ASPM configuration for the PCI Express devices before the operating system boots. This function is for OS which does not support ASPM.

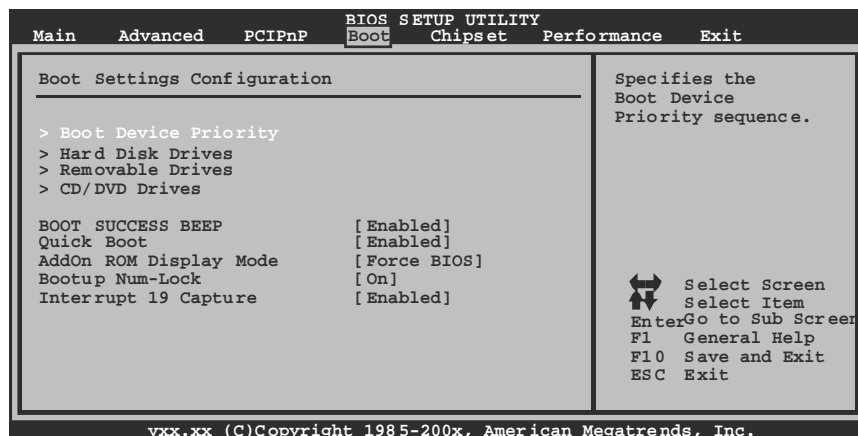
Options: Disabled (Default) / Enabled

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## 4 Boot Menu

This menu allows you to setup the system boot options.



### Boot Device Priority

Items in this sub-menu 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.

### Hard Disk Drives

The BIOS will attempt to arrange the hard disk boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

### Removable Drives

The BIOS will attempt to arrange the removable drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

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## **CD/DVD Drives**

The BIOS will attempt to arrange the CD/DVD drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

## **BOOT SUCCESS BEEP**

When this item is set to Enabled, BIOS will let user know boot success with beep.  
Options: Enabled (Default) / Disabled

## **Quick Boot**

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.  
Options: Enabled (Default) / Disabled

## **AddOn ROM Display Mode**

This item sets the display mode for option ROM.  
Options: Force BIOS (Default) / Keep Current

## **Bootup Num-Lock**

Selects the NumLock State after the system switched on.  
Options: ON (Default) / OFF

## **Interrupt 19 Capture**

When set to Enabled, this item allows the option ROMs to trap interrupt 19.  
Options: Enabled (Default) / Disabled



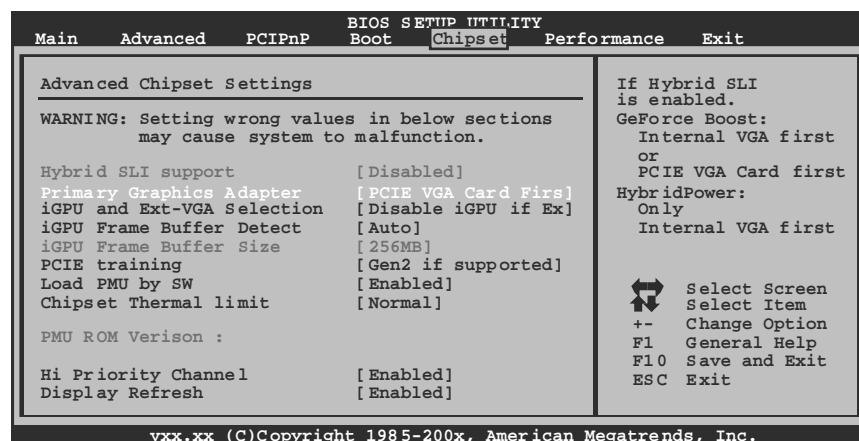
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## 5 Chipset Menu

This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.

### Notice

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



### Hybrid SLI Support

This item allows you to control the Hybrid SLI function.

Options: Disabled (Default) / Enabled

### Primary Graphics Adapter

This item allows you to choose the primary graphics device.

Options: PCIE VGA Card First (Default) / Internal VGA First / PCI VGA Card First

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## **iGPU and Ext-VGA Selection**

This item determines the working VGA device when there are two VGA devices installed at the same time.

Options: Disable iGPU if Ext-VGA Exist (Default) / Both Exist and iGPU by Frame Buffer Detect

## **iGPU Frame Buffer Detect**

This item allows you to control the iGPU frame buffer.

Options: Auto (Default) / Disabled

## **iGPU Frame Buffer Size**

This item allows you to choose the frame buffer size of on-chip VGA.

Options: 256MB (Default) / 32MB / 64MB / 128MB / 512MB / Disabled

## **PCIe Training**

Options: Gen2 if supported (Default) / Only Gen1

## **Load PMU by SW**

Options: Enabled (Default) / Disabled

## **Chipset Thermal limit**

Options: Normal (Default) / Minimum / Maximum

## **Hi Priority Channel**

Enable or disable High Priority virtual Channel. It is only applied to Rev B Griffin CPU.

Options: Enabled (Default) / Disabled

## **Display Refresh**

Enable or disable display refresh virtual channel

Options: Enabled (Default) / Disabled

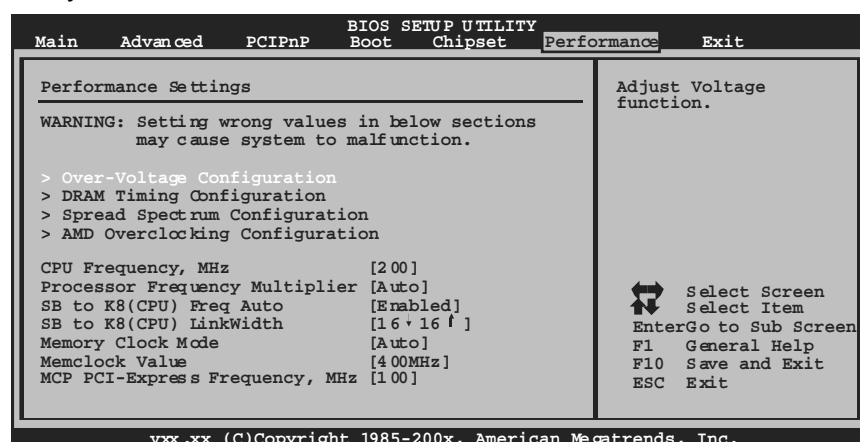
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## 6 Performance Menu

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.)

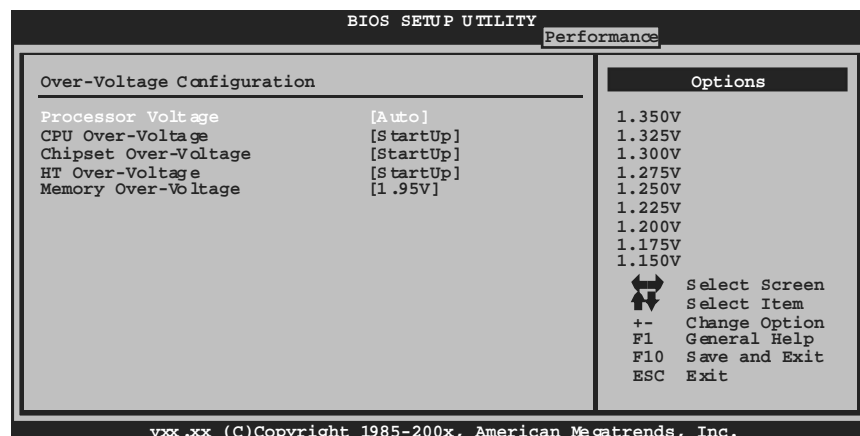
### Notice

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



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## Over-Voltage Configuration



### Processor Voltage

This item allows you to set the CPU voltage

Options: Auto (Default) / 0.80V ~ 1.55V (Differed by CPU)

### CPU Over-Voltage

This item allows you to select CPU Voltage Control.

Options: StartUp (Default) / +3.3% / +6.6% / +10.0%

### Chipset Over-Voltage

This item allows you to select NB/SB Voltage Control.

Options: StartUp (Default) / +0.050V / +0.100V / +0.150V

### HT Over-Voltage

This item allows you to select HT Voltage Control.

Options: StartUp (Default) / +0.100V / +0.200V / +0.300V

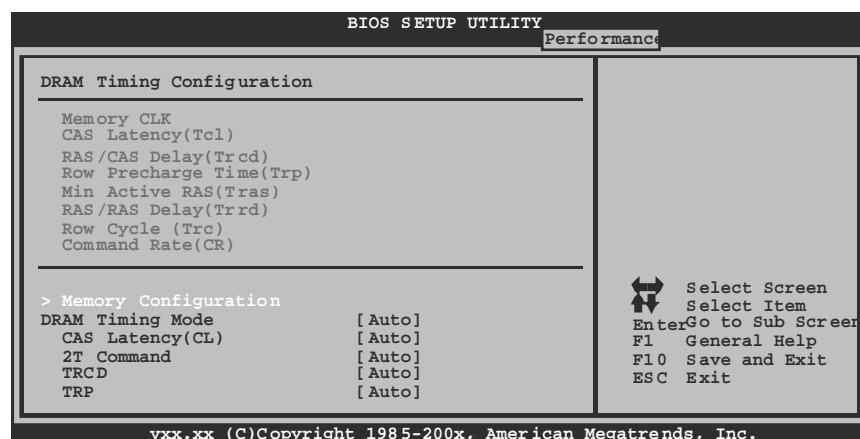
### Memory Over-Voltage

This item allows you to select DDR Voltage Control.

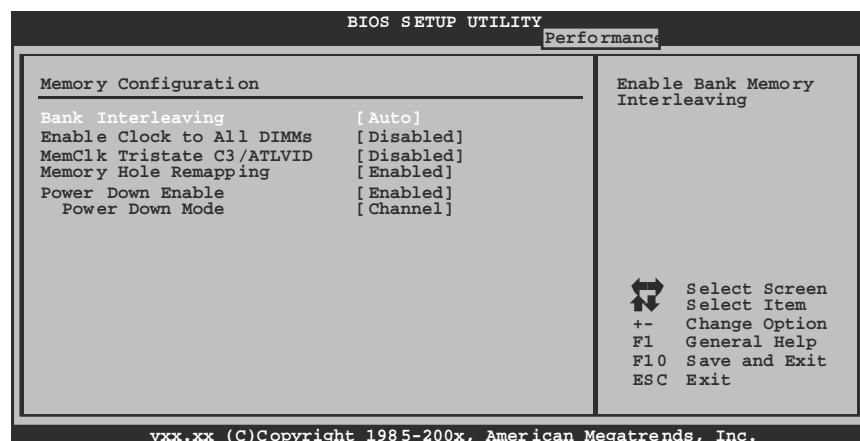
Options: StartUp (Default) / +0.050V / +0.100V / +0.150V

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## DRAM Timing Configuration



## Memory Configuration



### **Bank Interleaving**

Bank Interleaving is an advanced chipset technique used to improve memory performance. Memory interleaving increases bandwidth by allowing simultaneous access to more than one piece of memory.

Options: Auto (Default) / Disabled

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## ***Enable Clock to All DIMMs***

This item determines whether the BIOS should actively reduce EMI (Electromagnetic Interference) and reduce power consumption by turning off unoccupied or inactive DIMM slots.

Options: Disabled (Default) / Enabled

## ***MemClk Tristate C3/ATLVID***

This item enables or disables the MemClk Tri-Stating during C3 and Alt VID.

Options: Disabled (Default) / Enabled

## ***Memory Hole Remapping***

This item allows you to enable or disable the remapping of the overlapped PCI memory above the total physical memory. Only 64-bit OS supports this function.

Options: Enabled (Default) / Disabled

## ***Power Down Enable***

This item controls the DRAM power down function.

Options: Disabled (Default) / Enabled

## ***Power Down Mode***

This item allows you to select the DRAM power down mode.

Options: Channel (Default) / Chip Select

## **DRAM Timing Mode**

This item allows you to choose to manually or automatically regulate the DRAM Timing.

Options: Auto (Default) / DCT0 / DCT1(for AM2+ CPU) / Both(for AM2+ CPU)

## **CAS Latency (CL)**

Options: Auto (Default) / 3~6 CLK / 7CLK DH\_Only

## **2T Command**

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

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### **TRCD**

Options: Auto (Default) / 3~6 CLK

### **TRP**

Options: Auto (Default) / 3~6 CLK

### **tRTP**

Options: Auto (Default) / 2~4 CLK / 3~5 CLK

### **TRAS**

Options: Auto (Default) / 5~18 CLK

### **TRC**

Options: Auto (Default)

### **tWR**

Options: Auto (Default) / 3~6 CLK

### **TRRD**

Options: Auto (Default) / 2~5 CLK

### **tRWTTO**

Options: Auto (Default) / 2~9 CLK

### **tWRRD**

Options: Auto (Default) / 0~3 CLK

### **tWTR**

Options: Auto (Default) / 1~3 CLK

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## tWRWR

Options: Auto (Default) / 1~3 CLK

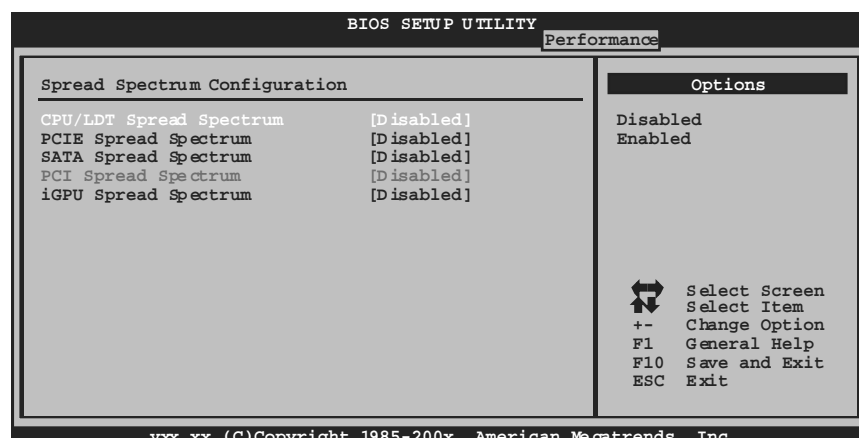
## tRDRD

Options: Auto (Default) / 2~5 CLK

## tRFC0 / tRFC1 / tRFC2 / tRFC3

Options: Auto (Default) / 75ns / 105ns / 127.5ns / 195ns / 327.5ns

## Spread Spectrum Configuration



## CPU/LDT Spread Spectrum

This item allows you to control the CPU/LDT spread spectrum.

Options: Disabled (Default) / Enabled

## PCIE Spread Spectrum

This item allows you to control the PCI-Express spread spectrum.

Options: Disabled (Default) / Linear Down

## SATA Spread Spectrum

This item allows you to control the SATA spread spectrum.

Options: Disabled (Default) / Linear Down



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## PCI Spread Spectrum

This item allows you to control the PCI spread spectrum.

Options: Disabled (Default) / Linear Down

## iGPU Spread Spectrum

This item allows you to control the on-chip GPU spread spectrum.

Options: Disabled (Default) / 1.00% Tri-Center / 2.00% Tri-Center / 3.00% Tri-Center / 5.00% Tri-Center

## AMD Overclocking Configuration

This item appears only when using AM2+ CPUs.



## Custom P-States

This item allows you to select the P-States controlling.

Options: Disabled (Default) / Enabled

## Core FID

This item allows you to select the Ratio/Frequency of AM2+ CPU.

Options: x8.0 1600MHz ~ x31.5 6300MHz (Differed by CPU)

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## **CPU Frequency, MHz**

This item allows you to select the CPU Frequency.

Options: 200 (MHz) (Default) / 100 ~ 500

## **Processor Frequency Multiplier**

This item allows you to control the CPU multiplier.

Options: Auto (Default) / x4 800MHz ~ x13.5 2700MHz (Differed by CPU)

## **SB to K8(CPU) Freq Auto**

Options: Enabled (Default) / Disabled

## **SB to K8(CPU) Frequency**

Options: 1000 MHz (Default) / 200 MHz / 400 MHz / 600 MHz / 800 MHz

## **SB to K8(CPU) LinkWidth**

Options: 16↓16↑ (Default) / 8↓8↑ / 4↓4↑

## **Memory Clock Mode**

This item allows you to control the Memory Clock.

Options: Auto (Default) / Limit / Manual

## **MemClock Value**

Options: DDR2-400MHz (Default) / DDR2-533 MHz / DDR2-667 MHz /  
DDR2-800 MHz / DDR2-1066 (with AM2+ CPU)

## **MCP PCI-Express Frequency, MHz**

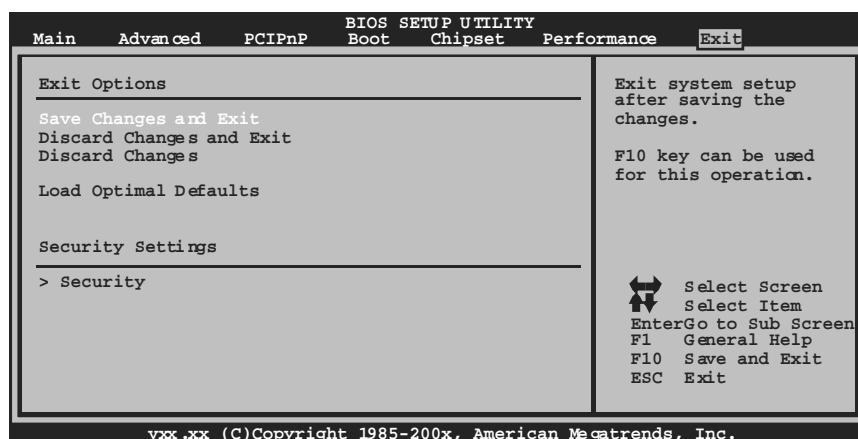
Options: 100 (MHz) (Default) / 100 ~ 200

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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.



### Save Changes and Exit

Save all configuration changes to CMOS RAM and exit setup.

### Discard Changes and Exit

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

### Discard Changes

Abandon all changes made during the current session and restore the previously saved values.

### Load Optimal Defaults

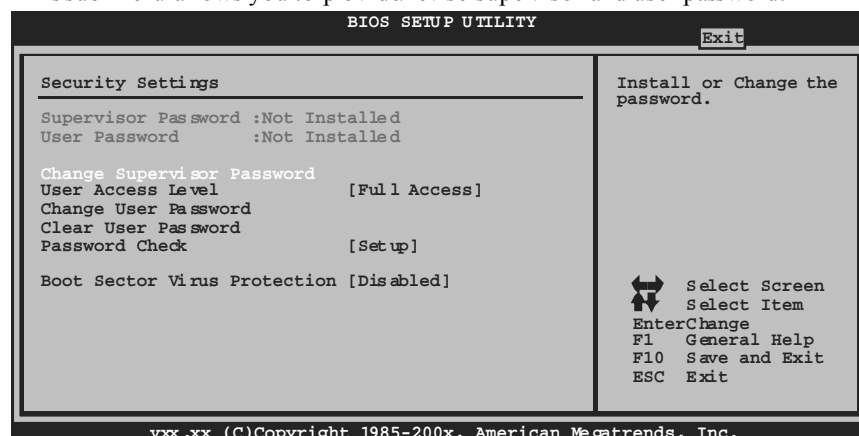
This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

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## Security

This sub-menu allows you to provide/revise supervisor and user password.



### **Change Supervisor Password**

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.

### **User Access Level**

This item allows supervisor to set the user level.

Options: Full Access (Default) / No Access / View Only / Limited

### **Change User Password**

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.

### **Clear User Password**

This item is for clearing user password.

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## **Password Check**

This item is for setting the timing that checking password.

Options: Setup (Default) / Always

## **Boot Sector Virus Protection**

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Options: Disabled (Default) / Enabled