

# ***G41D3+/G41D3G+ 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 to 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**

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

## **Supported CPUs**

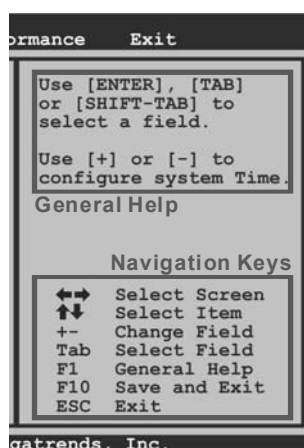
This AMI BIOS supports the Intel CPU.

## **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**

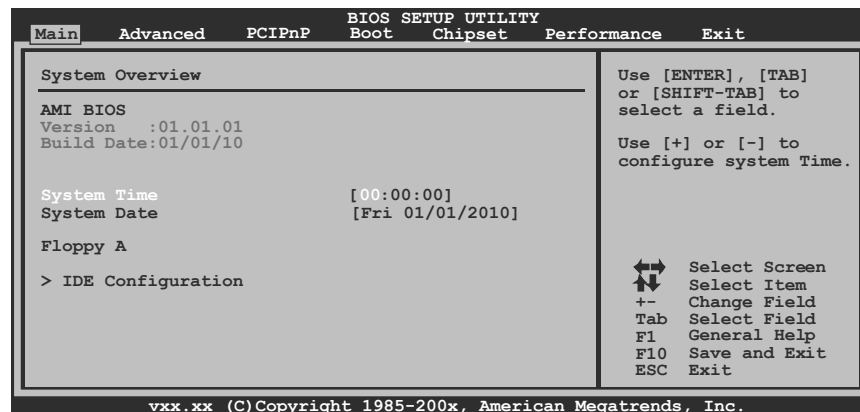
- The default BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better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

### **Floppy A (Only for G41D3+ V6.0/6.1)**

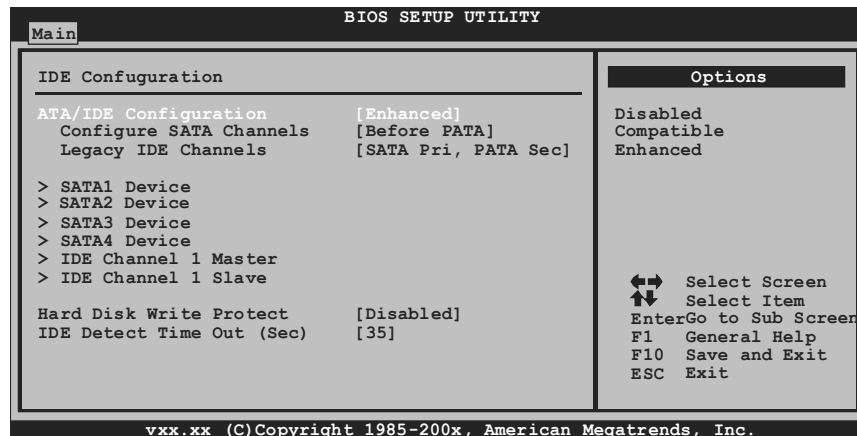
Select the type of floppy disk drive installed in your system.

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

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## 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.



## ATA/IDE Configuration

This item allows you to control the onboard IDE controller.

Options: Enhanced (Default) / Compatible / Disabled

## Configure SATA Channels

This item allows you to control the SATA channel configuration sequence.

Options: Before PATA (Default) / Behind PATA

## Legacy IDE Channels

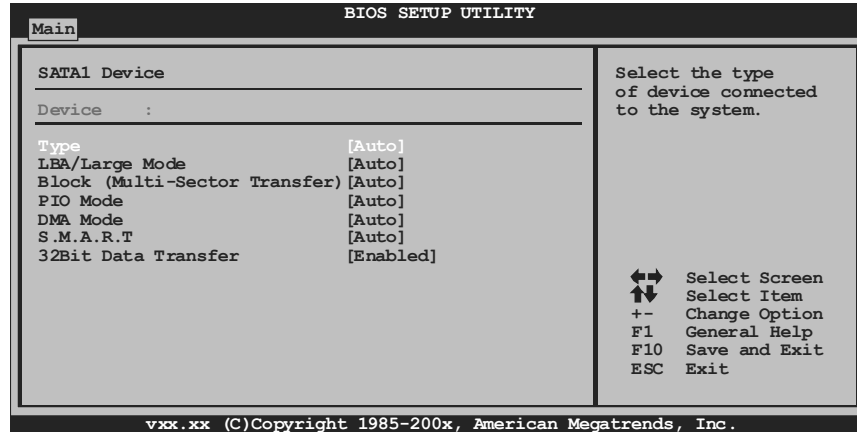
This item appears only when “ATA/IDE Configuration” is set to “Compatible”.

Options: SATA Pri, PATA Sec (Default) / SATA Only / PATA Pri, SATA Sec / PATA Only

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## SATA1/2/3/4 Device; IDE Channel 1 Master/Slave



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) / CD/DVD / ARMD / Not Installed

### **LBA/Large Mode**

Enable or disable the LBA mode.

Options: Auto (Default) / Disabled

### **Block (Multi-Sector 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

### **DMA Mode**

Select the DMA mode.

Options: Auto (Default) / Disabled

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## ***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

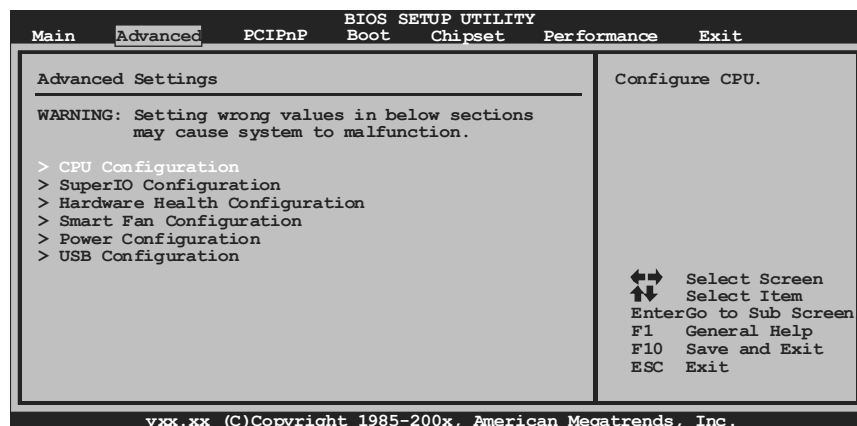
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## 2 Advanced Menu

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

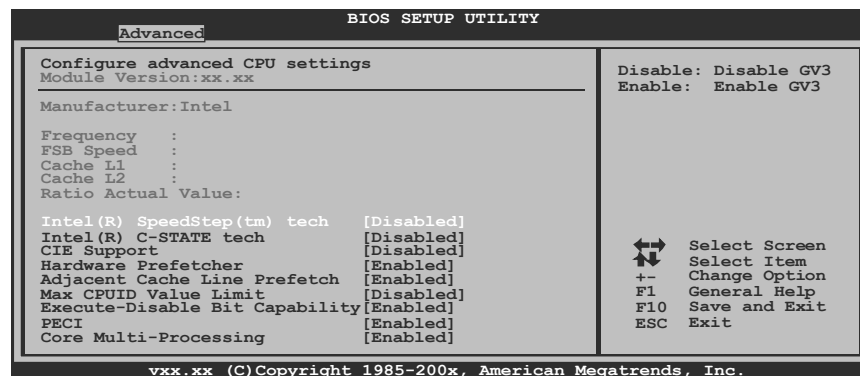
### Notice

- 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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## **Intel(R) SpeedStep(tm) Tech**

This item allows you to enable SpeedStep technology for better power saving. SpeedStep is a technology built into some Intel processors that allows the clock speed of the processor to be dynamically changed by software.

Options: Disabled (Default) / Enabled

## **Intel(R) C-STATE Tech**

This item allows you to control the C-State power management functions of the processor.

Options: Disabled (Default) / Enabled

## **C1E Support**

C1E is “Enhanced Halt State” function, this function helps to save power and decrease heat by lowering CPU frequency while the processor is not working.

Options: Disabled (Default) / Enabled

## **Hardware Prefetcher**

The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.

Options: Enabled (Default) / Disabled

## **Adjacent Cache Line Prefetch**

The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.

Options: Enabled (Default) / Disabled

## **Max CPUID Value Limit**

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

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## Execute-Disable Bit Capability

This item allows you to configure the Execute Disabled Bit function, which protects your system from buffer overflow attacks.

Options: Enabled (Default) / Disabled

## PECI

This item allows you to control the PEFI function for the processor which supports Platform Environment Control Interface for better thermal management.

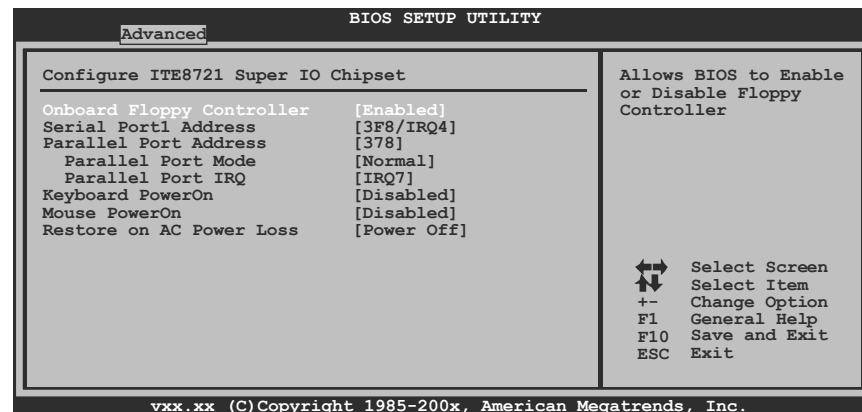
Options: Enabled (Default) / Disabled

## Core Multi-Processing

This item allows multi-processing function for multi-core processors.

Options: Enabled (Default) / Disabled

## SuperIO Configuration



### Onboard Floppy Controller (Only for G41D3+ V6.0/6.1)

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.

## **ECP Mode DMA Channel**

This item allows you to select parallel port ECP DMA.

Options: DMA3 (Default) / DMA0 / DMA1

## **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.”

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## Stroke Keys Selected

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

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

## Mouse PowerOn

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

Options: Disabled (Default) / Enabled

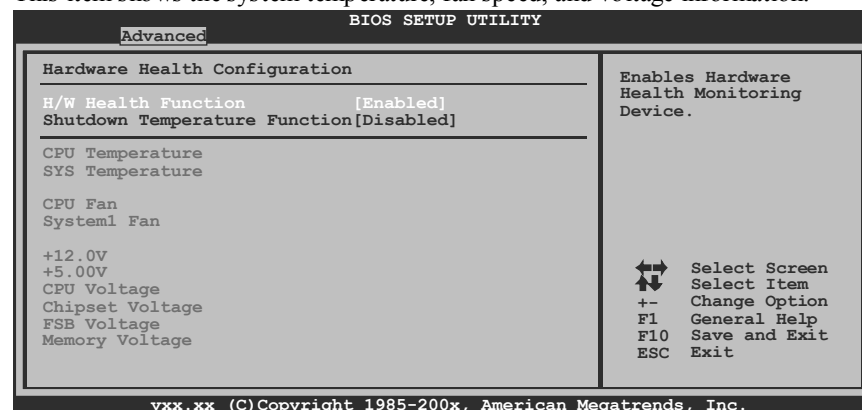
## Restore on AC Power Loss

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.



## H/W Health Function

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

Options: Enabled (Default) / Disabled

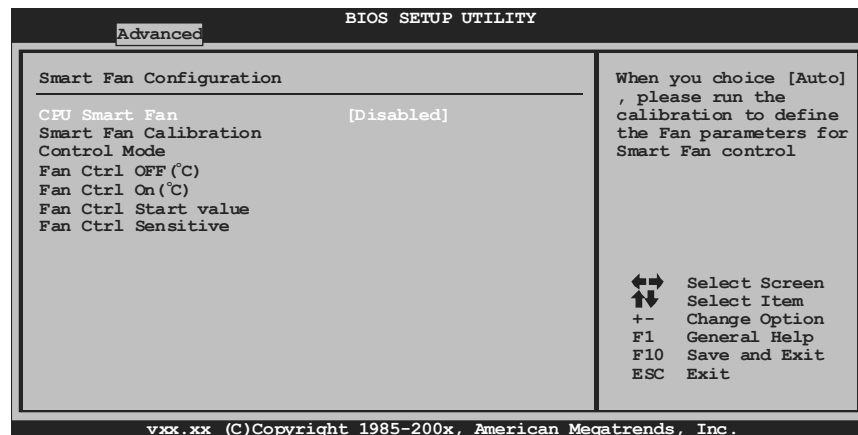
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## Shutdown Temperature Function

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows 98 ACPI mode.

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

## Smart Fan Configuration



## CPU Smart Fan

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

Options: Disabled (Default) / Auto

## 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

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## Fan Ctrl OFF(°C)

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

Options: 0~127 (°C) (Interval: 1°C)

## Fan Ctrl On(°C)

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

Options: 0~127 (°C) (Interval: 1°C)

## Fan Ctrl Start Value

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

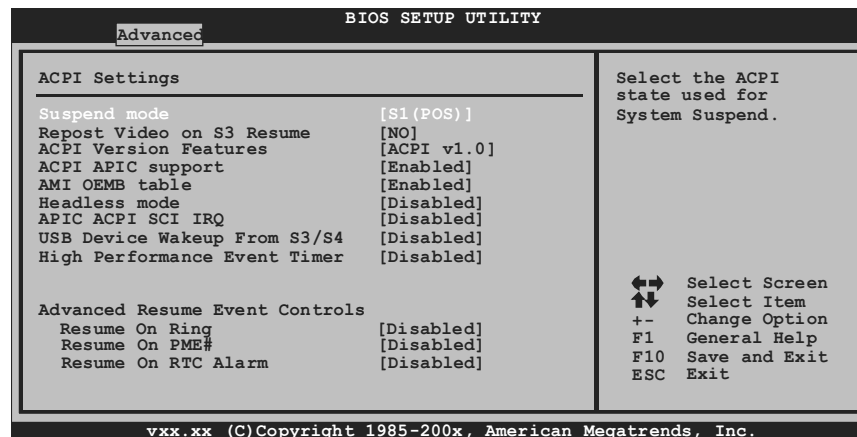
Options: 0~127 (Interval: 1)

## Fan Ctrl Sensitive

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

Options: 1~127 (Interval: 1)

## Power Configuration



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## **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**

The item allows you to determine whether to invoke VGA BIOS post on S3/STR 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

## **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

## **APIC ACPI SCI IRQ**

Options: Disabled (Default) / Enabled

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## **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

## **High Performance Event Timer**

This item allows you to enable or disabled the HPET.  
Options: Disabled (Default) / Enabled

## **HPET Memory Address**

This item allows you to set the memory address of HPET.  
Options: FED00000h (Default) / FED01000h / FED02000h / FED03000h

## **Resume On Ring**

This item allows you to control the wake on ring function.  
Options: Disabled (Default) / Enabled

## **Resume On PME#**

When you select Enabled, a PME signal from PCI card returns the system to Full ON state. For this function to work, you may need a LAN add-on card which supports the Wake on LAN function. Set the Wake on LAN (WOL) jumper on motherboard to enable if applicable.  
Options: Disabled (Default) / Enabled

## **Resume On 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

## **RTC Alarm Date (Days)**

You can choose which date the system will boot up.

## **RTC Alarm Time**

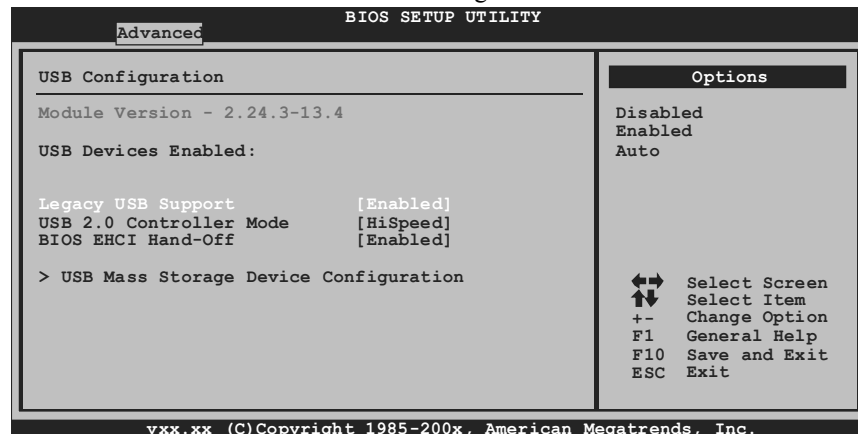
You can choose the system boot up time, input hour, minute and second to specify.



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## USB Configuration

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



### 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

### 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

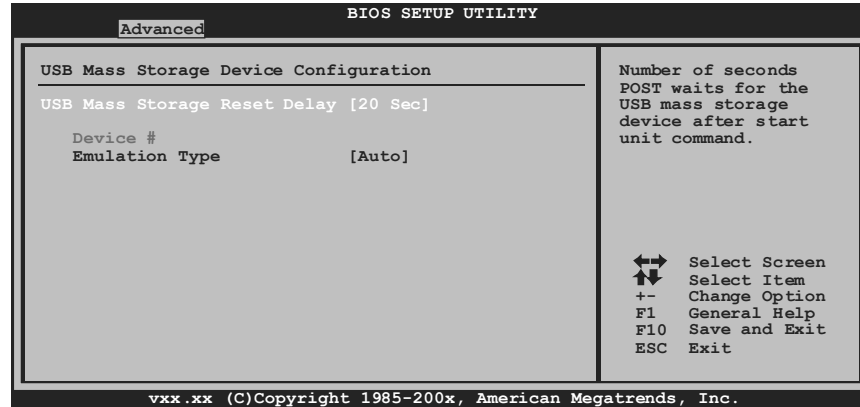
### BIOS EHCI Hand-Off

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

Options: Enabled (Default) / Disabled

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## 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

### ***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

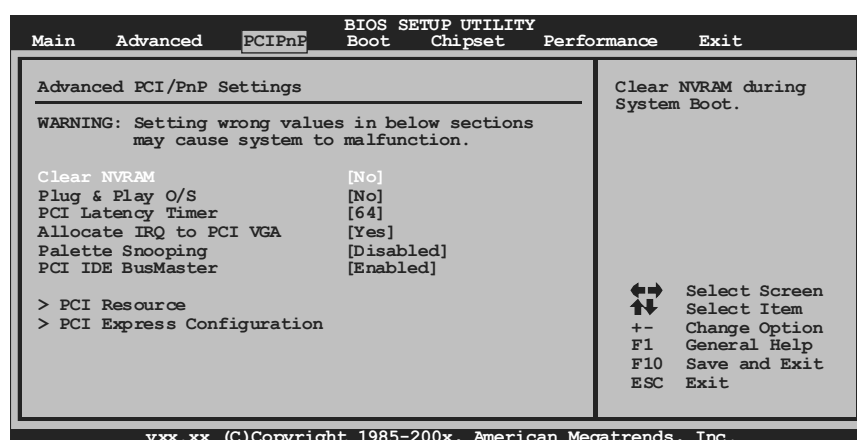
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## 3 PCIPnP Menu

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 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.



### 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: 64 (Default) / 32 / 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

PCI Resource	
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.

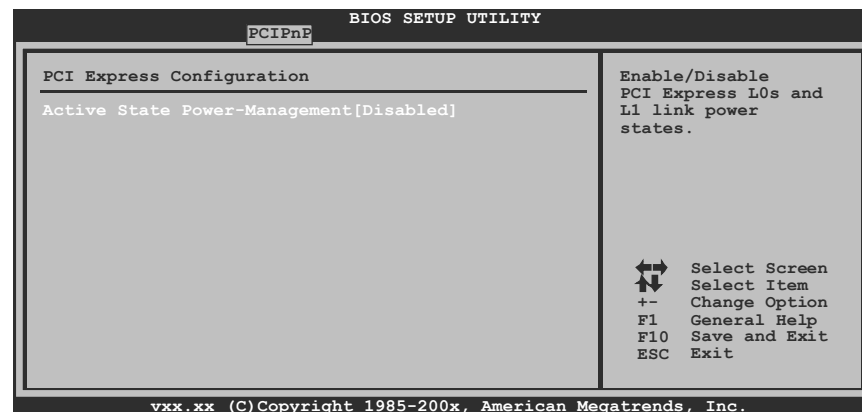
Options: Available (Default) / Reserved

## **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.

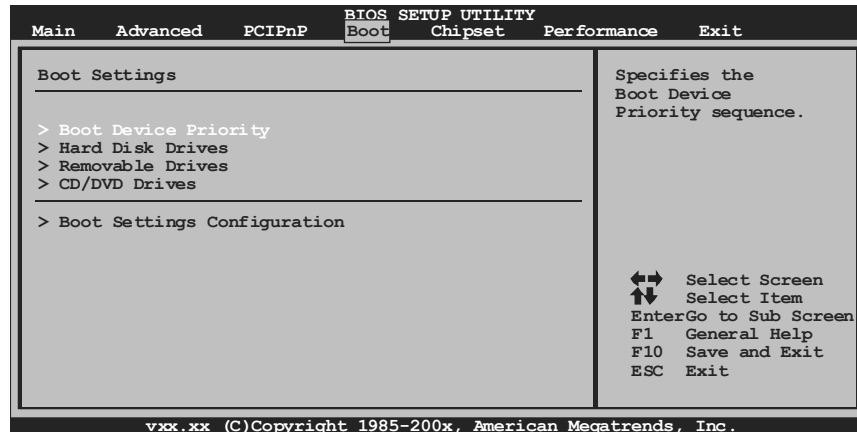
Options: Disabled (Default) / Enabled

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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.

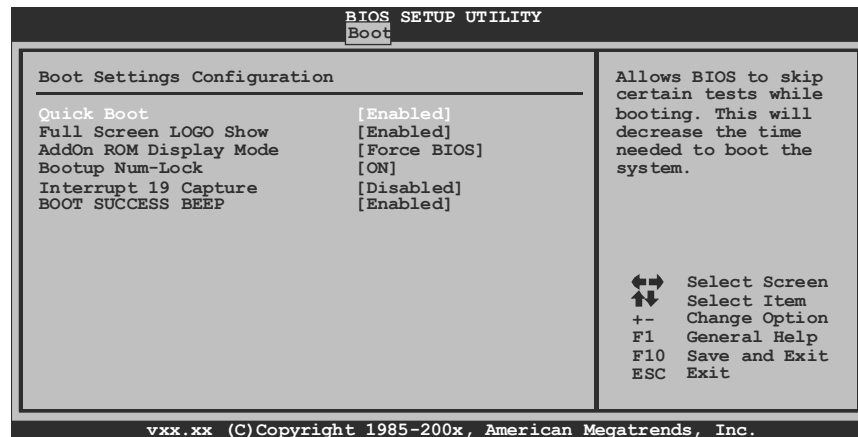
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## **CD/DVD Drives**

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 Settings Configuration**



### **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

### **Full Screen LOGO Show**

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

Options: Enabled (Default) / Disabled

### **AddOn ROM Display Mode**

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

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## **Bootup Num-Lock**

Selects the NumLock State after the system switched on.

Options: ON (Default) / OFF

## **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

## **BOOT SUCCESS BEEP**

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

Options: Enabled (Default) / Disabled



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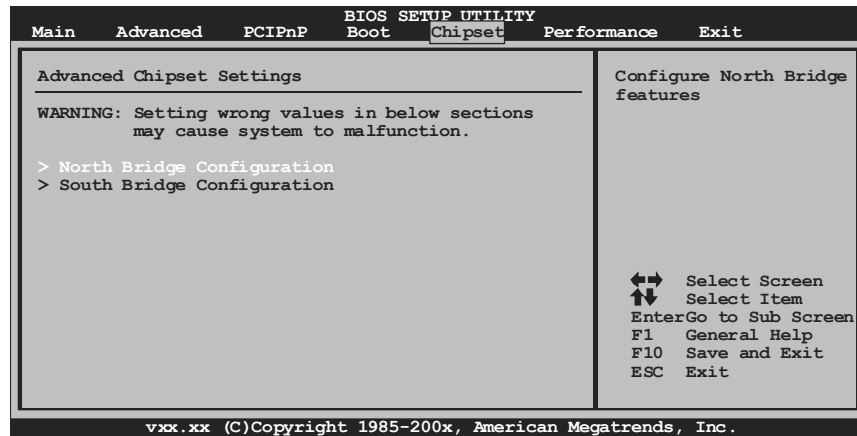
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## 5 Chipset Menu

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.

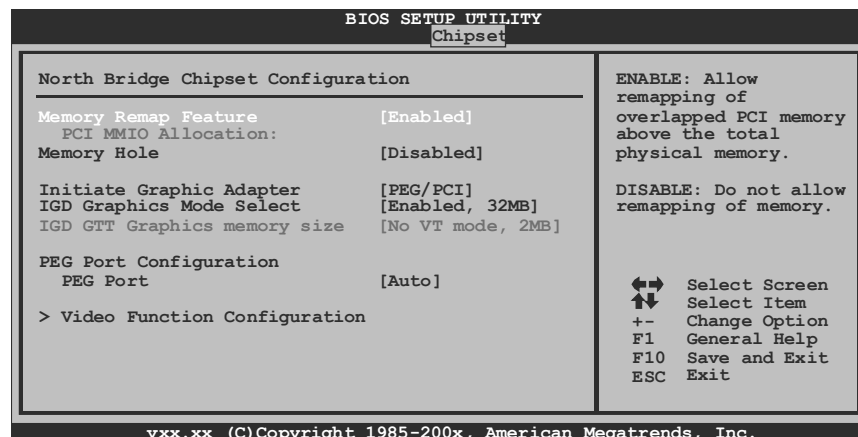
### Notice

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



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## North Bridge Configuration



### Memory Remap Feature

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

### Memory Hole

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved it cannot be cached. Check the user information of peripherals that need to use this area of system memory for the memory requirements.

Options: Disabled (Default) / 15MB – 16MB

### Initiate Graphic Adapter

This item allows you to enable or disable VGA controller.

Options: PEG/PCI (Default) / IGD / PCI/IGD / PCI/PEG / PEG/IGD

### IGD Graphics Mode Select

This item will be different as your memory modules. When the memory size is decided, this frame buffer size will also be fixed.

Options: Enabled, 32MB (Default) / Enabled, 64MB / Enabled, 128MB / Disabled

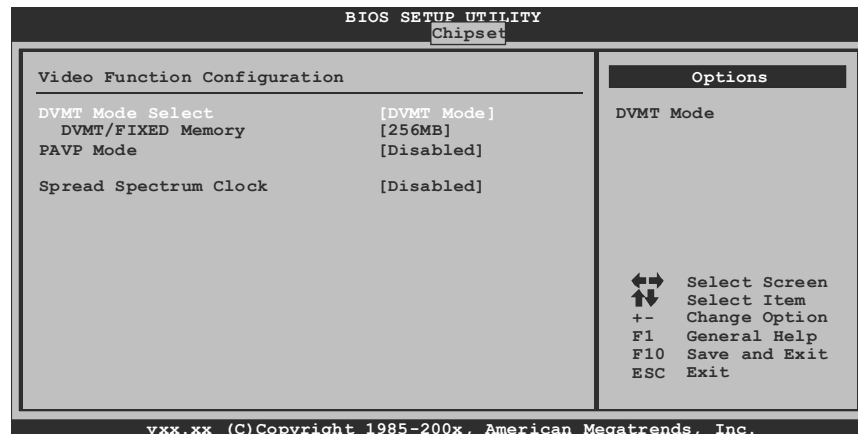
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## PEG Port

This BIOS feature is a toggle that enables or disables the PCI Express port.  
Options: Auto (Default) / Disabled

## Video Function Configuration



### ***DVMT Mode Select***

This item allows you to select the DVMT mode.  
Options: DVMT Mode (Default)

### ***DVMT/FIXED Memory***

DVMT stands for “Dynamic Video Memory Technology”. This is an enhancement of the unified memory architecture (UMA) concept. DVMT will set the optimum amount of memory to be allocated for a balance between graphics and system performance. DVMT dynamically respond to system requirements and applications demands, by allocating the proper amount of display, texturing and buffer memory after the operating system has booted.

Options: 256MB (Default) / 128MB / Maximum DVMT

### ***PAVP Mode***

GMCH Protected Audio Video Path (PAVP) BIOS support.

Options: Disabled (Default) / Lite / High

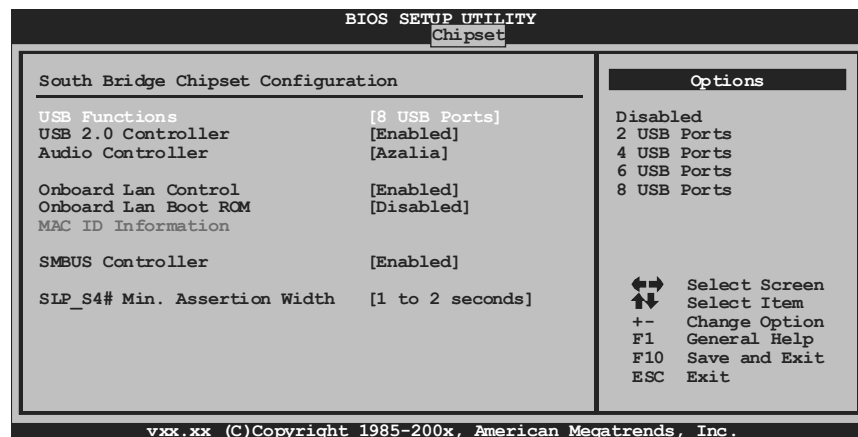
### ***Spread Spectrum Clock***

This item allows you to control the spread spectrum clock.

Options: Disabled (Default) / Enabled

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## South Bridge Configuration



### USB Functions

The item determines the number of functional USB port.

Options: 8 USB Ports (Default) / 6 USB Ports / 4 USB Ports / 2 USB Ports / Disabled

### USB 2.0 Controller

This entry is to enabled/ disabled EHCI controller only. This Bios itself may/may not have high speed USB support. If the BIOS has high speed USB support built in, the support will be automatically turn on when high speed device were attached.

Options: Enabled (Default) / Disabled

### Audio Controller

This item allows you to select the Audio support.

Options: Azalia (Default) / All Disabled

### Onboard Lan Control

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

Options: Enabled (Default) / Disabled

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## **Onboard Lan Boot Rom**

This item allows you to select the status of Onboard LAN Boot ROM.

Options: Disabled (Default) / Enabled

## **MAC ID Information**

This item shows the LAN MAC ID.

## **SMBUS Controller**

This BIOS feature controls the I/O buffers for the SMBus.

Options: Enabled (Default) / Disabled

## **SLP\_S4# Min. Assertion Width**

Options: 1 to 2 seconds (Default) / 4 to 5 seconds / 3 to 4 seconds / 2 to 3 seconds

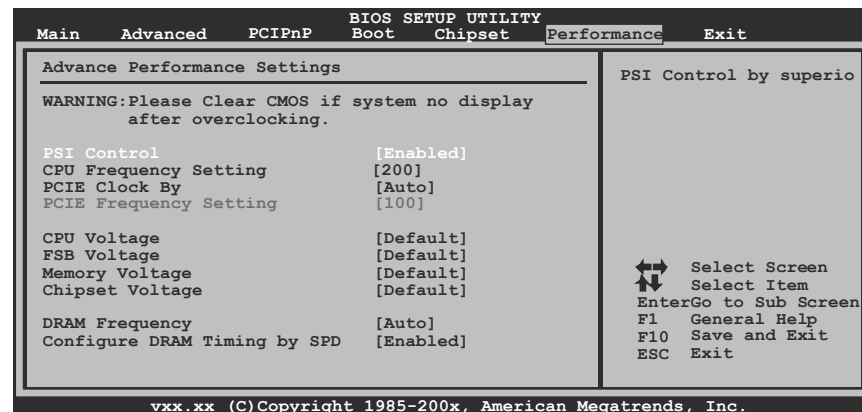
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## 6 Performance Menu

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.



### PSI Control

This item allows you to control power supply of CPU for the purpose of saving energy.

Options: Enabled (Default) / Disabled

### CPU Frequency Setting

This item allows you to select the CPU Frequency.

Options: 200 (Default) / Min= 100MHz; Max= 600MHz

### PCIE Clock By

This item allows you to select the PCIE clock control

Options: Auto (Default) / Manual

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## **PCIe Frequency Setting**

This item allows you to select the PCIe clock control  
Options: 100 (Default) / Min=100; Max=150

## **CPU Voltage**

This item allows you to select CPU Voltage Control.

## **FSB Voltage**

This item allows you to select FSB Voltage Control.

## **Memory Voltage**

This item allows you to select Memory Voltage Control.

## **Chipset Voltage**

This item allows you to select Chipset Voltage Control.

## **DRAM Frequency**

This item allows you to control the Memory Clock.  
Options: Auto (Default) / DDR3 800

## **Configure DRAM Timing by SPD**

Options: Enabled (Default) / Disabled

## **DRAM tCL**

Options: 6 (Default) / 3 ~ 10

## **DRAM tRAS**

Options: 15 (Default) / 9 ~ 24

## **DRAM tRP**

Options: 6 (Default) / 3 ~ 10

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### **DRAM tRCD**

Options: 6 (Default) / 3 ~ 10

### **DRAM tWR**

Options: 6 (Default) / 3 ~ 15

### **DRAM tRFC**

Options: 44 (Default) / 15 ~ 78

### **DRAM tWTR**

Options: 4 (Default) / 2 ~ 15

### **DRAM tRRD**

Options: 3 (Default) / 2 ~ 15

### **DRAM tRTP**

Options: 4 (Default) / 2 ~ 15

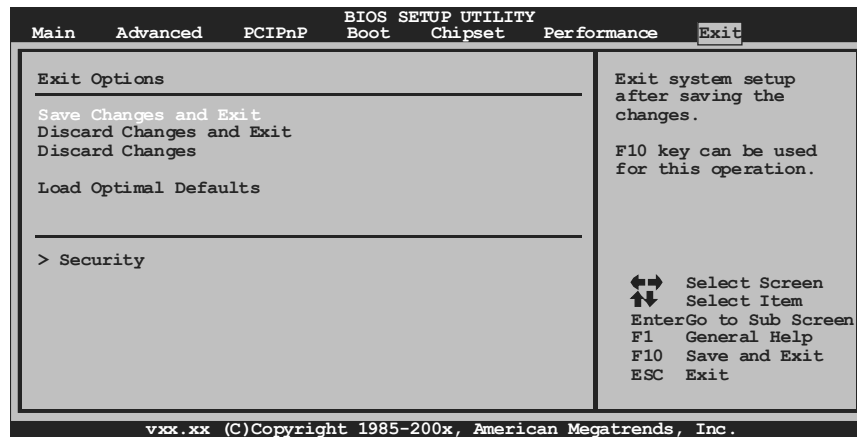


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## **7 Exit Menu**

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.

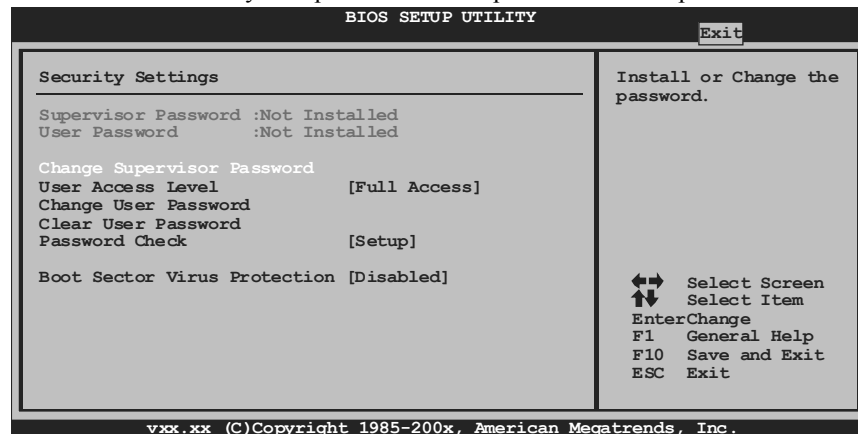
### **Load Optimal Defaults**

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