

A960D+ 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

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

Supported CPUs

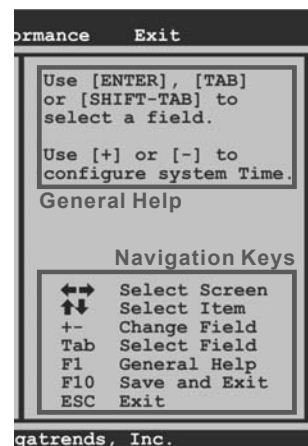
This AMI BIOS supports the AMD CPU.

Using Setup

When starting up the computer, press **** 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.



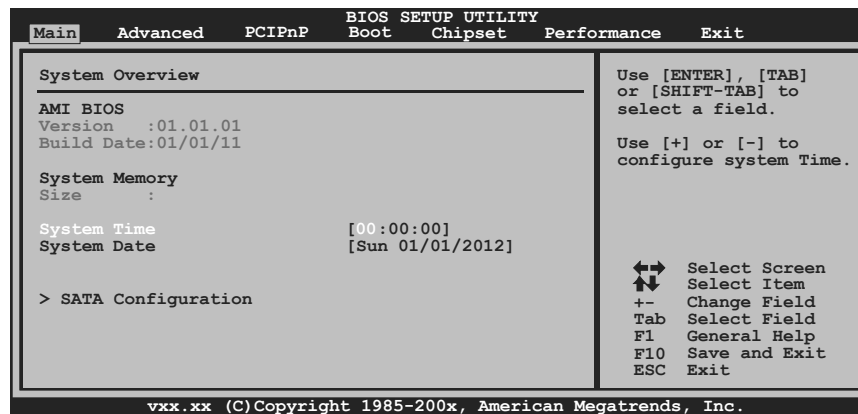
Notice

- 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 and built date.

System Memory

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

System Time

Set the system internal clock.

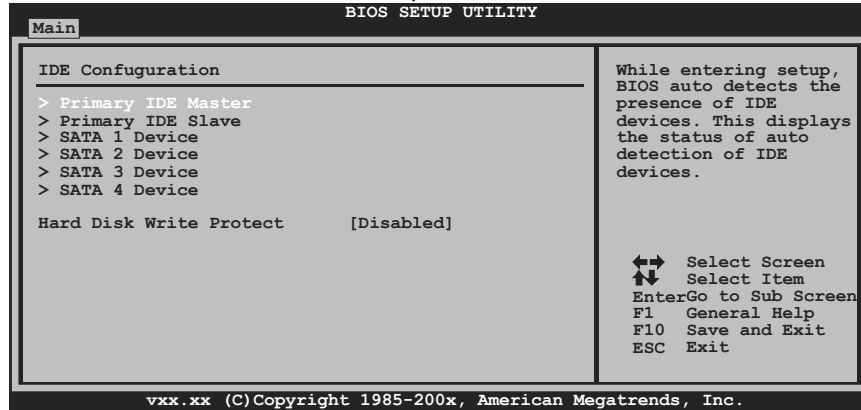
System Date

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

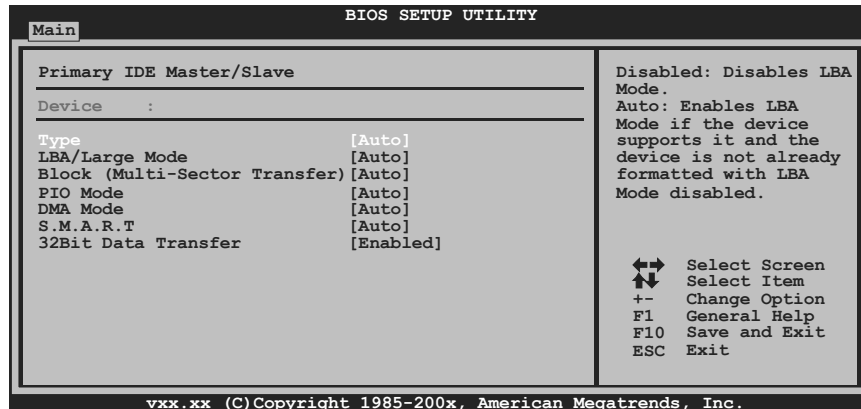
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SATA Configuration

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.



Primary IDE 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.

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Type

Select the type of device connected to the system.

Options: Auto (Default) / Not Installed / CD/DVD/ ARMD

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) / 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.

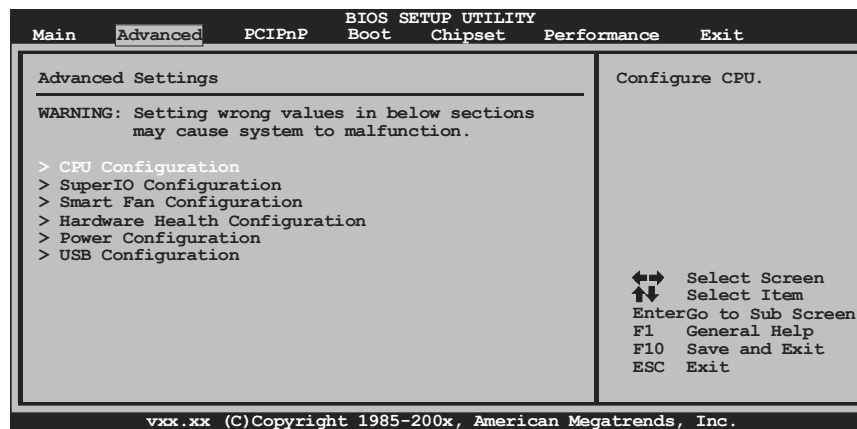
Options: Disabled (Default) / Enabled

2 Advanced Menu

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

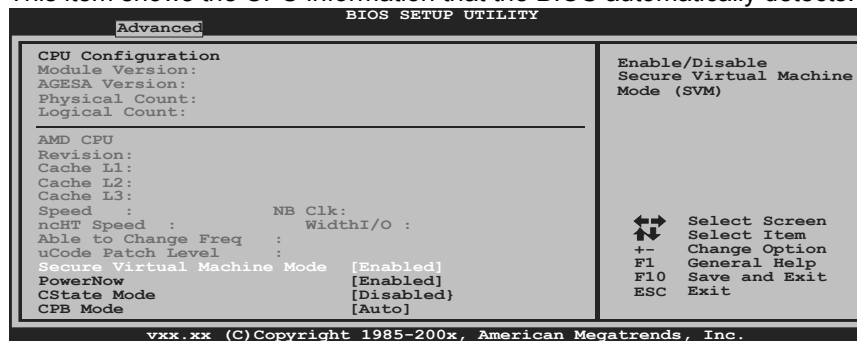
Notice

- 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

CState Mode

Specifies the method of C-State enablement.

Options: Disabled (Default) / C6

CPB Mode

If this item is enabled, Revision E CPU automatically transition to pop-down p-state

Options: Auto (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

C1E Support

Configures C1E type. Auto will use Message-Triggered if supported by hardware.

Options: Disabled (Default) / Auto / Message-Triggered / Hardware

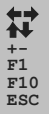
HTC temperature limit

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

Options: 70°C (Default)

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SuperIO Configuration

Advanced		BIOS SETUP UTILITY	
Configure ITE8728 Super IO Chipset		Allows BIOS to Select Parallel Port1 Base Addresses.	
Parallel Port Address	[378]	 Select Screen Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
Parallel Port Mode	[Normal]		
Parallel Port IRQ	[IRQ7]		
Keyboard PowerOn	[Disabled]		
Mouse PowerOn	[Disabled]		
Restore on AC Power Loss	[Power Off]		
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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

PS2 Keyboard PowerOn

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

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

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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

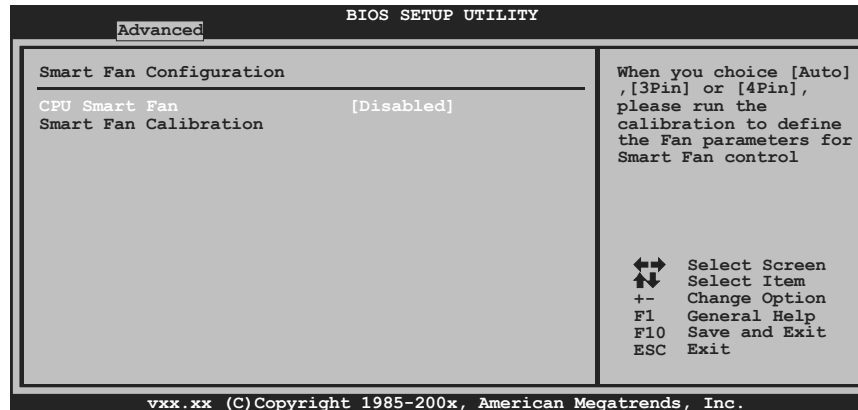
Restore on AC Power Loss

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

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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 / 4Pin / 3Pin

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) (With the interval of 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) (With the interval of 1°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 (With the interval of 1)

Fan Ctrl Sensitive

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

Options: 1~127 (With the interval of 1)

Hardware Health Configuration

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

Advanced	
Hardware Health Configuration	
PWM Processor Hot	[Auto]
H/W Health Function	[Enabled]
Shutdown Temperature	[Disabled]
CPU Temperature	
SYS Temperature	
CPU Fan	
Syteml Fan	
CPU Voltage	
DDR Voltage	
+12.0V	
+5.00V	
Chip Voltage	
Options	
Enabled	
Disabled	
↔ Select Screen	
↔ Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	

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PWM Processor Hot

This item allows you to set up the PWM processor hot function.

Options: Auto (Default) / Disabled

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

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

Power Configuration

BIOS SETUP UTILITY	
Advanced	
ACPI Settings	
EuP Control	[Disabled]
Suspend mode	[S1(POS)]
ACPI Version Features	[ACPI v1.0]
ACPI APIC support	[Enabled]
AMI OEMB table	[Enabled]
Headless mode	[Disabled]
RTC Resume	[Disabled]
USB Wakeup From S3/S4	[Disabled]
Power On by PCIE/Onboard LAN	[Disabled]
Wake Up by PCI	[Disabled]

When EuP Enabled,
System meets EuP
requirement.
All wake up events
do not work except
Power Button after
power down system(S5).

↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

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EuP Control

This item is used to enable or disable EuP Control (Energy Using Products).

Options: Disabled (Default) / Enabled

Suspend mode

Select the ACPI state used for System Suspend.

Options: S1(POS) (Default) / S3(STR) / Auto

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

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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

RTC Resume

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

USB Wakeup From S3/S4

Enabled/Disabled USB Device Wakeup from S3/S4

Options: Disabled (Default) / Enabled

Power On by PCIE/Onboard LAN

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

Options: Disabled (Default) / Enabled

Wake Up by PCI

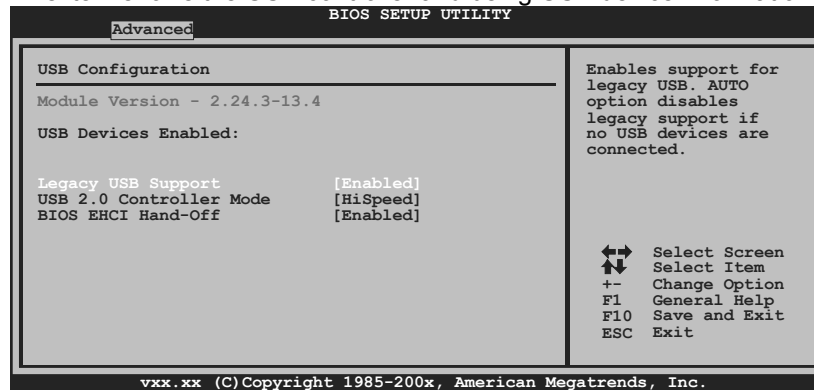
Enable / Disable PCI to generate a wake event.

Options: Disabled (Default) / Enabled

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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.

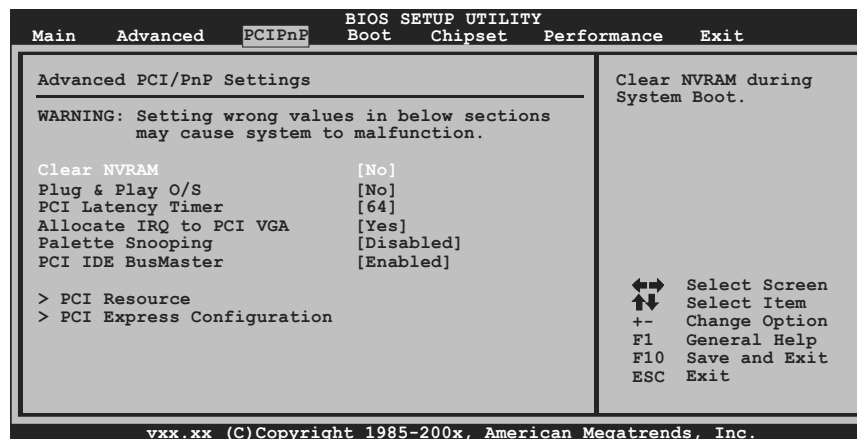
Options: Enabled (Default) / Disabled

3 PCI/PnP 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

BIOS SETUP UTILITY	
PCIPnP	
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]
<div>Available: Specified IRQ is available to be used by PCI/PnP devices. Reserved: Specified IRQ is reserved for use by Legacy ISA devices.</div> <div> Select Screen  Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit</div>	

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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.

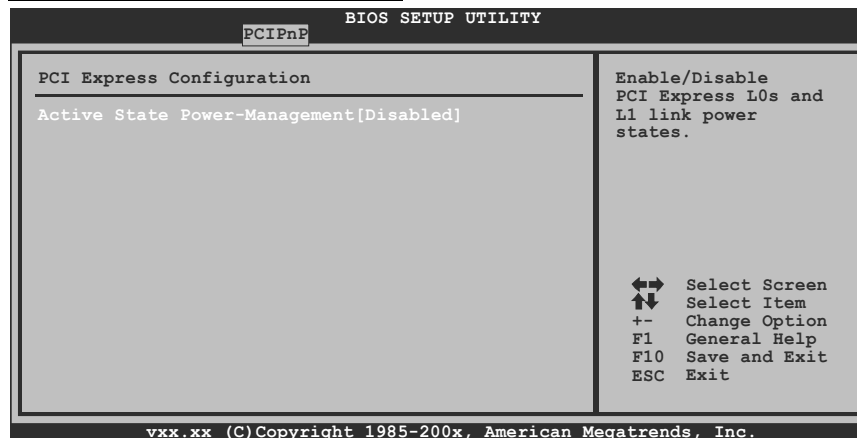
Options: Available (Default) / Reserved

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



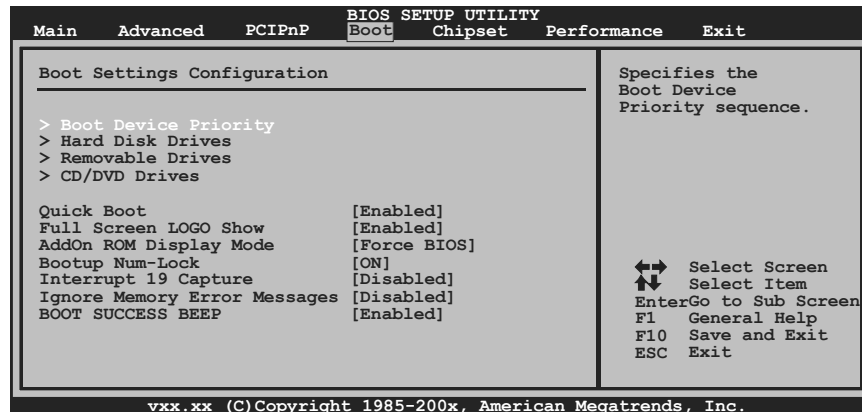
Active State Power-Management

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

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.

Options: Removable / Hard Disk / CDROM / Legacy LAN / Disabled

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.

Options: Pri. Master / Pri. Slave / Sec. Master / Sec. Slave / USB HDD0 / USB HDD1 / USB HDD2 / Bootable Add-in Cards

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.

Options: Floppy Disks / Zip100 / USB-FDD0 / USB-FDD1 / USB-ZIP0 / USB-ZIP1 / LS120

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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.

Options: Pri. Master / Pri. Slave / Sec. Master / Sec. Slave / USB CDROM0 / USB CDROM 1

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

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: Disabled (Default) / Enabled

Ignore Memory Error Messages

When set to Enabled, the POST will ignore memory error messages.

Options: Disabled (Default) / Enabled

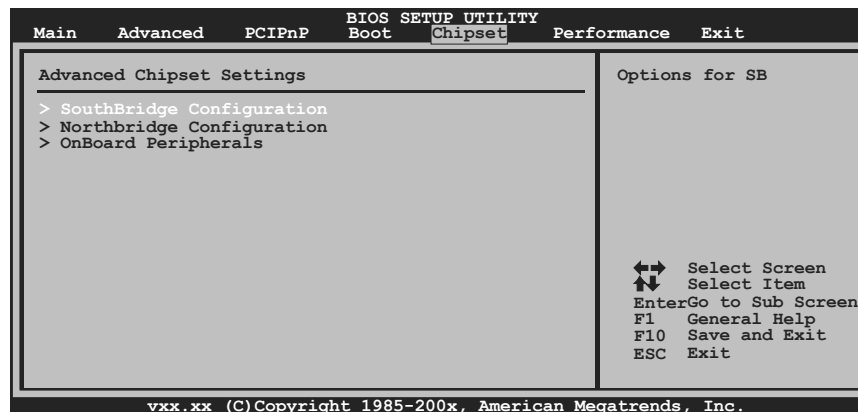
BOOT SUCCESS BEEP

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

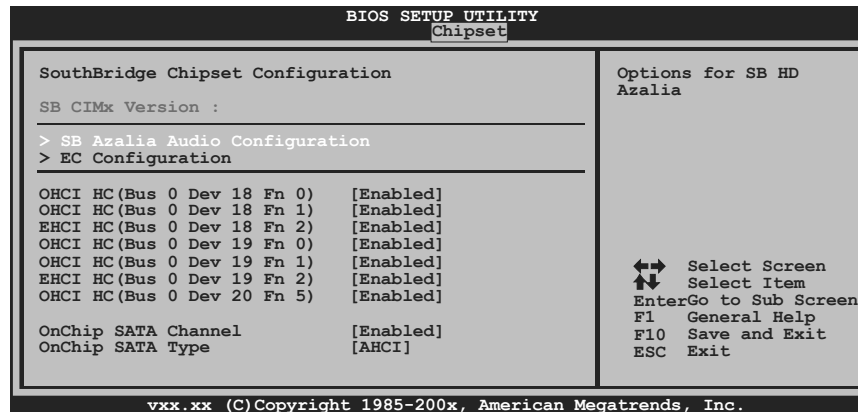
Options: Enabled (Default) / Disabled

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.



SouthBridge Configuration



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SB Azalia Audio Configuration

BIOS SETUP UTILITY	
Chipset	
HD Audio Azalia Device	[Enabled]
Azalia Clock Gating	[Disabled]
Options	
Auto	
Disabled	
Enabled	
↔ Select Screen	
↕ Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	
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HD Audio Azalia Device

This item allows you to control the HD audio device.

Options: Enabled (Default) / Auto / Disabled

Azalia Clock Gating

Options: Disabled (Default) / Enabled

EC Configuration

BIOS SETUP UTILITY	
Chipset	
SureBoot Feature	[Enabled]
SureBoot Timeout	[4 Seconds]
Options	
Disabled	
Enabled	
↔ Select Screen	
↕ Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	
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SureBoot Feature

This item allows you to control the SureBoot function. SureBoot is a technology that ensures a complete Windows environment will be available disaster recovery situations.

Options: Enabled (Default) / Disabled

SureBoot Timeout

This item allows you to control the SureBoot timeout.

Options: 4 Seconds (Default) / 1 Second / 2 Seconds / 3 Seconds

OHCI HC(Bus 0 Dev 18/19/20 Fn 0/1/5)

Options: Enabled (Default) / Disabled

EHCI HC(Bus 0 Dev 18/19 Fn 2)

Options: Enabled (Default) / Disabled

OnChip SATA Channel

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

Options: Enabled (Default) / Disabled

OnChip SATA Type

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

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

Option ROM POST Delay

Options: Disabled (Default) / 1 Second / 2 ~ 7 Seconds

Power Saving Features

This item allows you to enable or disable power saving features.

Options: Disabled (Default) / Enabled

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NorthBridge Configuration

BIOS SETUP UTILITY	
Chipset	
NB Chipset Configuration	Internal Graphics Configuration
NB CIMx Version :	
<hr/>	
> Internal Graphics	
> PCI Express Configuration	
<hr/>	
Primary Video Controller	[GFX0-GPP-IGFX-PCI]
NB Power Management Features	[Auto]
<hr/>	
↔ Select Screen ↕ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit	
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Internal Graphics

BIOS SETUP UTILITY	
Chipset	
Internal Graphics Configuration	Options
Internal Graphics Mode	[UMA]
UMA Frame Buffer Size	[Auto]
<hr/>	
Surround View	[Auto]
FB Location	[Above 4G]
<hr/>	
↔ Select Screen ↕ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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Internal Graphics Mode

This item allows you to select the memory mode used for internal graphics device.

Options: UMA (Default) / Disable

UMA Frame Buffer Size

This item allows you to choose the UMA frame buffer size for internal graphics.

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

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FB Location

This item allows you to set the FB-DIMM location.
Options: Above 4G (Default) / Under 4G

PCI Express Configuration

BIOS SETUP UTILITY	
Chipset	
PCI Express Configuration	
GPP Slots Power Limit, W [25]	
> Port #02 Features	
> NB-SB Port Features	
↔ Select Screen ↑↓ Select Item Enter Update F1 General Help F10 Save and Exit ESC Exit	
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GPP Slots Power Limit, W

Options: 25 (Default) / 0-255

Port #02 Features

BIOS SETUP UTILITY	
Chipset	
Gen2 High Speed Mode [Disabled]	
Link ASPM [Disabled]	
Link Width [Auto]	
Slot Power Limit, W [75]	
Auto - RC only advertize Gen2 capability.	
↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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Gen2 High Speed Mode

Options: Auto (Default) / Disabled / Software Initiated / Advertised RC

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Link ASPM

Options: Disabled (Default) / L0s / L1 / L0x & L1

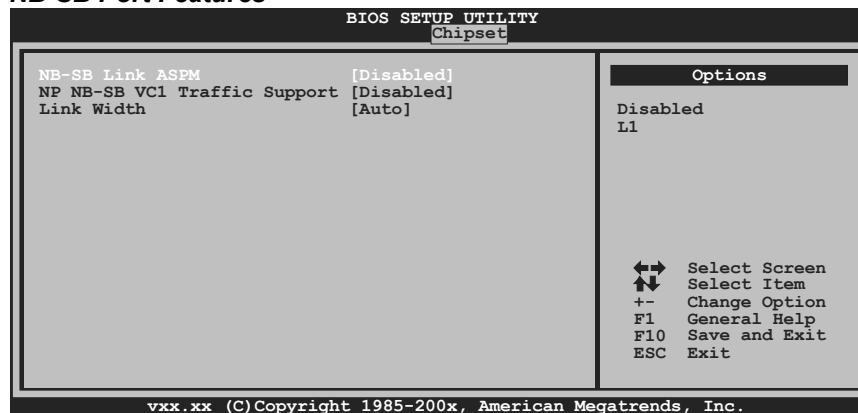
Link Width

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

Slot Power Limit, W

Options: 75 (Default) / 0-255

NB-SB Port Features



NB-SB Link ASPM

Options: Disabled (Default) / L1

NP NB-SB VC1 Traffic Support

Options: Disabled (Default) / Enabled

Link Width

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

Primary Video Controller

Options: GFX0-GPP-IGFX-PCI (Default) / GPP-GFX0-IGFX-PCI /
PCI -GFX0-GPP-IGFX/ IGFX-GFX0-GPP-PCI

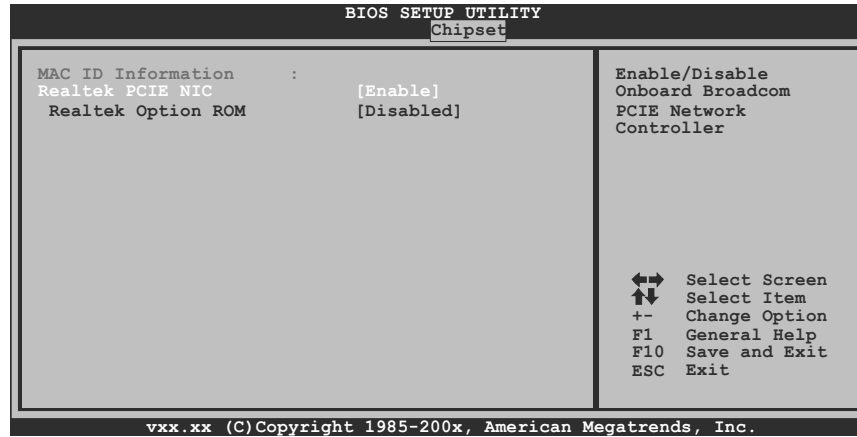
NB Power Management Features

This option controls the NB power management function.

Options: Auto (Default) / Disabled

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OnBoard Peripherals



MAC ID Information

This item shows the MAC ID.

Realtek PCIE NIC

This option allows you to control the onboard LAN controller.

Options: Enable (Default) / Disable

Realtek Option ROM

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

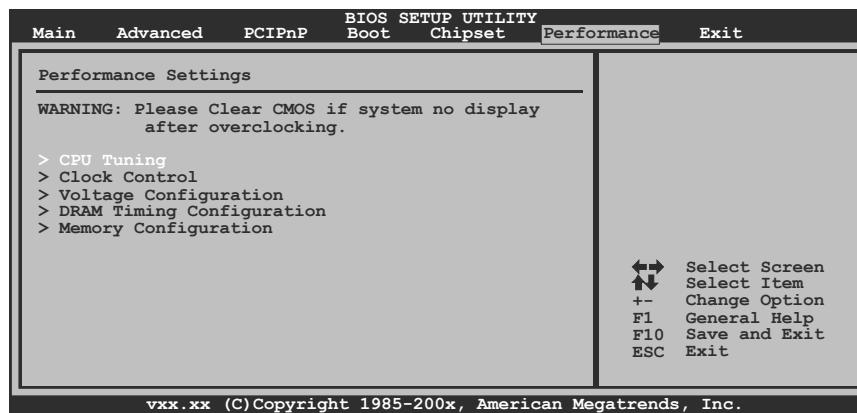
Options: Disabled (Default) / Enabled

6 Performance Menu

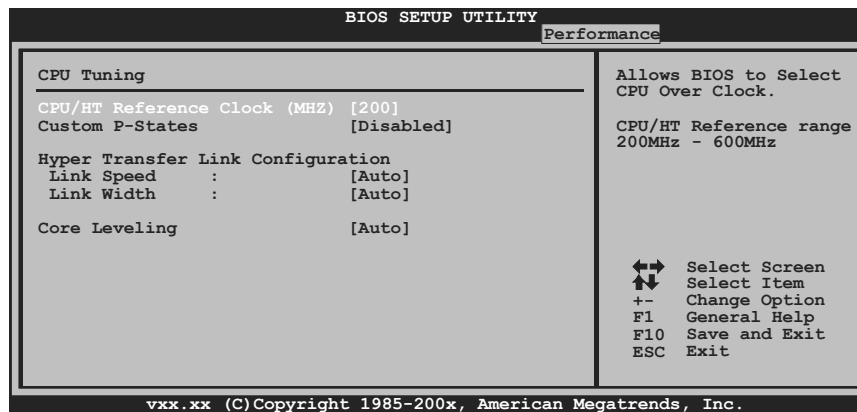
This submenu allows you to change voltage and clock of various devices. (However, we suggest you use the default setting. Changing the voltage and clock improperly may damage the device.)

Notice

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



CPU Tuning



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CPU/HT Reference Clock (MHz)

This item allows BIOS to select CPU Over Clock.

Options: 200 (Default) / 200~600

Custom P-States

This item tells BIOS whether to use the setup options below this to configure the P-States, or whether to configure the P-States automatically.

Options: Disabled (Default) / Enabled

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

Core FID

This item allows you to select the Ratio/Frequency of AM3 CPU.

Options: x8.0 1600MHz ~ x131.5 6300MHz (Differed by CPU)

Core VID

This function allows you to adjust the voltage of AM3+ CPU.

Core DID

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

NB VID

Set the voltage to use for NB PState selected value is saved in the _PSS object.

NB FID

This item allows you to select the Frequency of NB chip.

Options: 800MHz ~ 7000MHz (Differed by CPU)

NB DID

Options: Divided by 1 (Default) / Divided by 2

Link Speed

The HyperTransport 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) / 200MHz / 400MHz / 600MHz / 800MHz / 1GHz / 1.2GHz / 1.4GHz / 1.6GHz / 1.8GHz / 2.0GHz / 2.2GHz / 2.4GHz / 2.6GHz / 2.8GHz / 3.0GHz

Link Width

The HyperTransport link will run at this width.

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

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Core Leveling

Change the number of compute unit in the system

Options: Auto (Default) / Manual

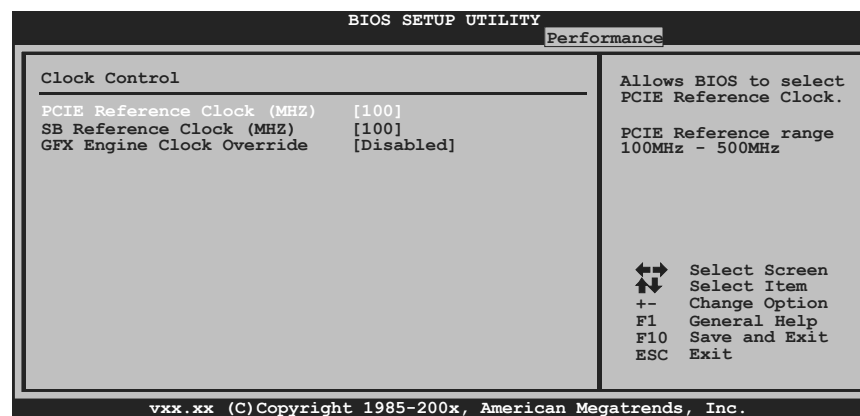
Note: The following items appear only when you set the Core Leveling item to [Manual]

Compute Unit0/1

The item allows you to enable or disable CPU Computer Unit0/1.

Options: Enabled (Default) / Disabled

Clock Control



PCIE Reference Clock (MHz)

This item allows you to select PCIE Reference Clock.

Options: 100 (Default) / 101~500

SB Reference Clock (MHz)

This item allows you to select SB Reference Clock.

Options: 100 (Default) / 101~500

GFX Engine Clock Override

This item allows you to control the internal GFX engine clock override function.

Options: Disabled (Default) / Enabled

GFX Engine Clock

This item allows you to set the internal GFX engine clock.

Options: 350 (Default) / Min: 150, Max: 1000

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Voltage Configuration

BIOS SETUP UTILITY	
Performance	
Voltage Configuration	Change memory voltage value.
Memory Over Voltage [1.60V]	
<div>↔ Select Screen ↕ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit</div>	
vxx.xx (C) Copyright 1985-200x, American Megatrends, Inc.	

Memory Over Voltage

This item allows you to select DDR Over Voltage Control.

DRAM Timing Configuration

BIOS SETUP UTILITY	
Performance	
DRAM Timing Configuration	Options
DRAM Timing Config [Auto]	Auto
Memory CLK :	Manual
CAS Latency(Tcl) :	
RAS/CAS Delay (Trcd) :	
Row Precharge Time(Trp) :	
Min Active RAS(Tras) :	
RAS/RAS Delay(Trrd) :	
Row Cycle (Trc) :	
<div>↔ Select Screen ↕ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit</div>	
vxx.xx (C) Copyright 1985-200x, American Megatrends, Inc.	

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DRAM Timing Config

This item allows you to control the Dram timing config.

Options: Auto (Default) / Limit / Manual

Note: The following items appear only when you set the DRAM Timing Config item to [Manual]

Memory Clock Speed

This item allows you to set the Memory Clock.

Options: DDR3-800 (Default) / DDR3-1066 / DDR3-1333 / DDR3-1600 /
DDR3-1866

CAS Latency (CL)

Options: Auto (Default) / 5~13 CLK

2T Command

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

TRCD

Options: Auto (Default) / 2~10 CLK

TRP

Options: Auto (Default) / 2~10 CLK

TRAS

Options: Auto (Default) / 8~16 CLK

TRRD

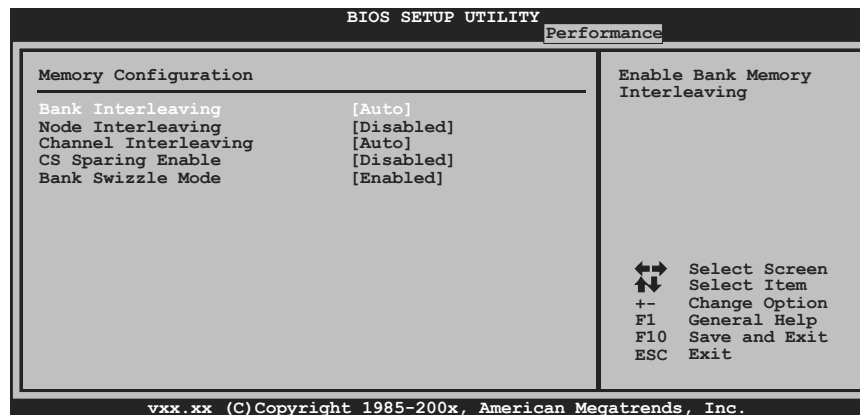
Options: Auto (Default) / 1~9 CLK

TRC

Options: Auto (Default) / 10~18 CLK

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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

Node Interleaving

This item allows you to enable node memory interleaving.

Options: Disabled (Default) / Auto

Channel Interleaving

This item allows you to control the DDR2 dual-channel function.

Options: Auto (Default) / Disabled

CS Sparing Enable

This item allows you to reserve a spare memory rank in each node.

Options: Disabled (Default) / Enabled

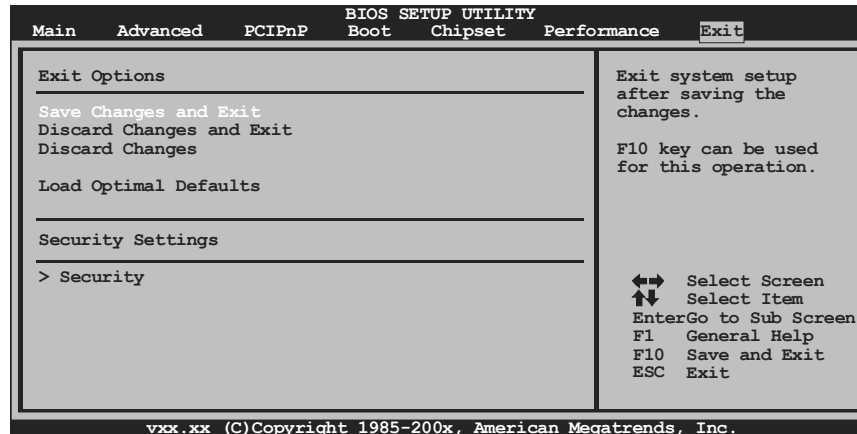
Bank Swizzle Mode

This item enables or disables the bank swizzle mode.

Options: Enabled (Default) / Disabled

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.

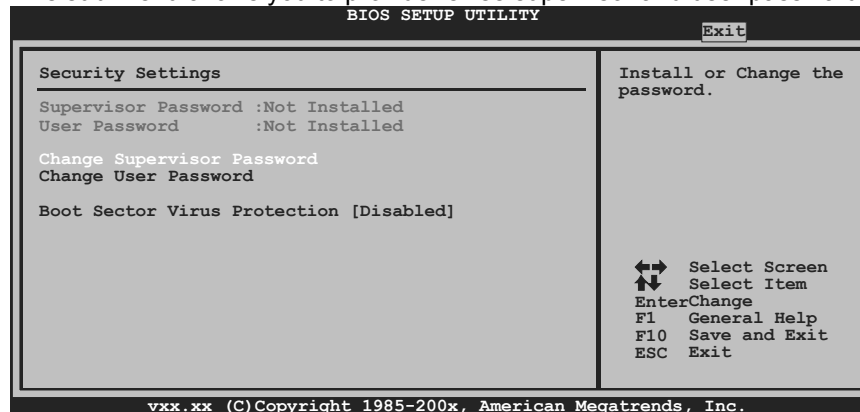
Load Optimal Defaults

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.

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.

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