G41D3 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.

PCI Bus Support

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

DRAM Support

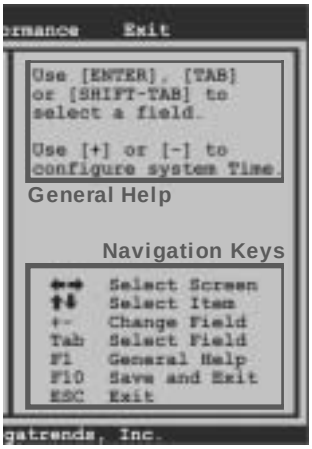
DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

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.

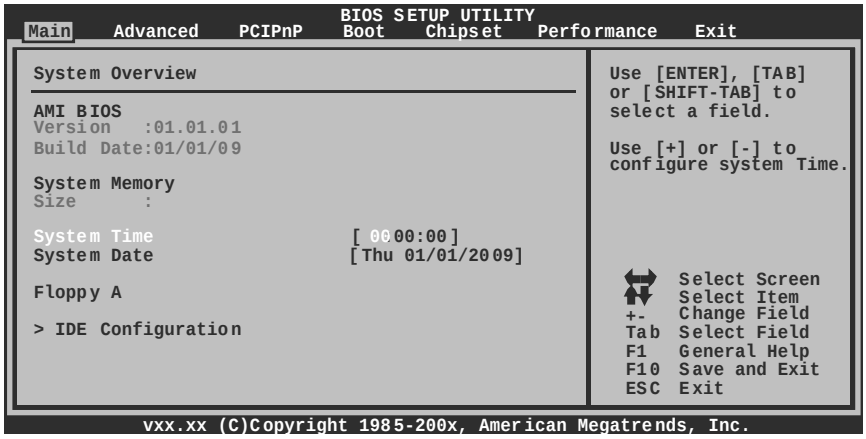


Notice

- 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.

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

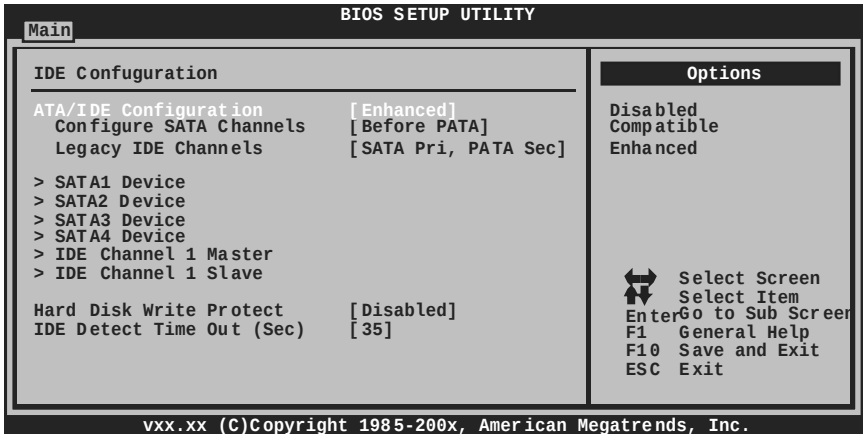
Set the system date. Note that the 'Day' automatically changes when you set the date.

Floppy A

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

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

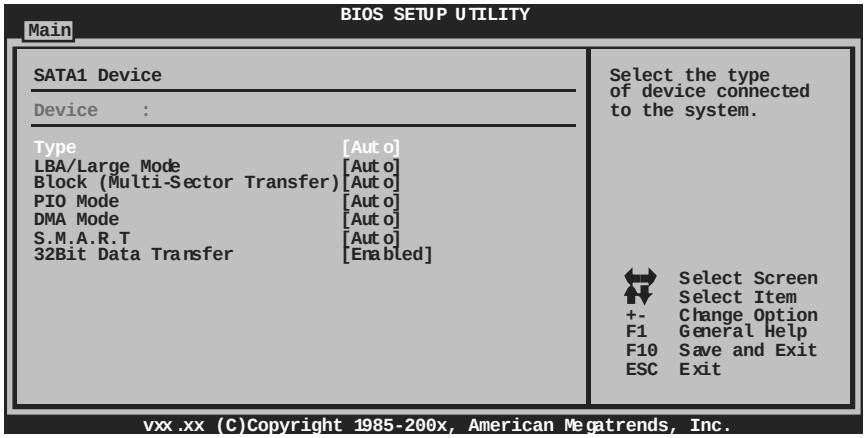
Configure SATA Channels

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

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

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)

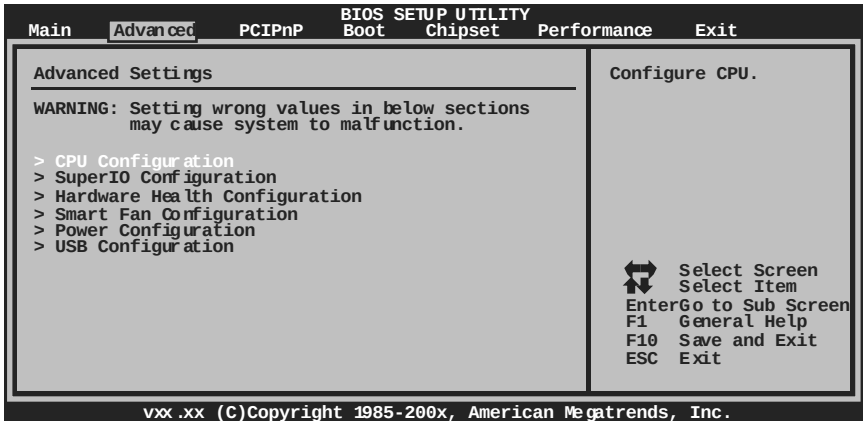
Select the time out value for detecting IDE/SATA devices.
Options: 35 (Default) / 30 / 25 / 20 / 15 / 10 / 5 / 0

2 Advanced Menu

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

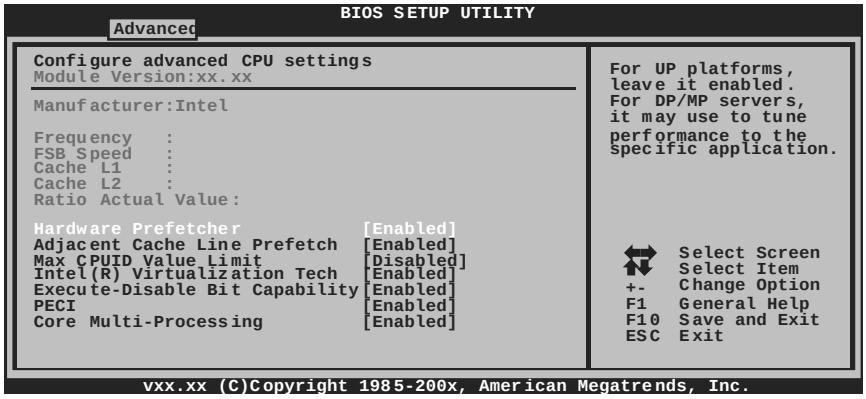
Notice

- 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.



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

Intel(R) Virtualization Tech

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

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

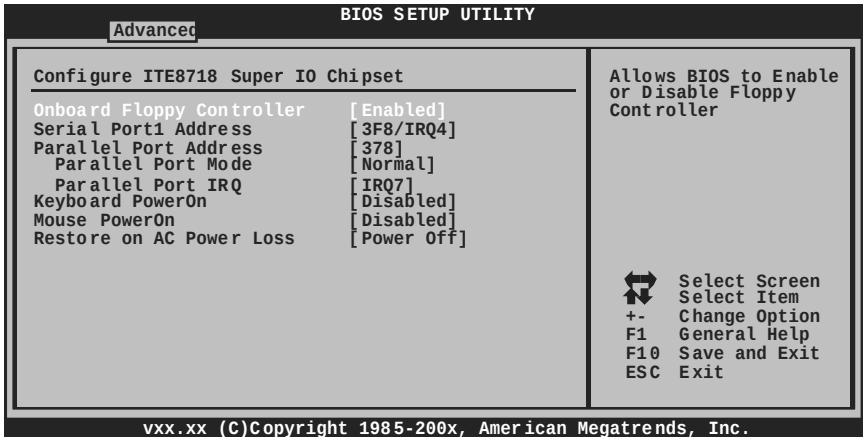
PECI

This item allows you to control the PECI 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

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

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."

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

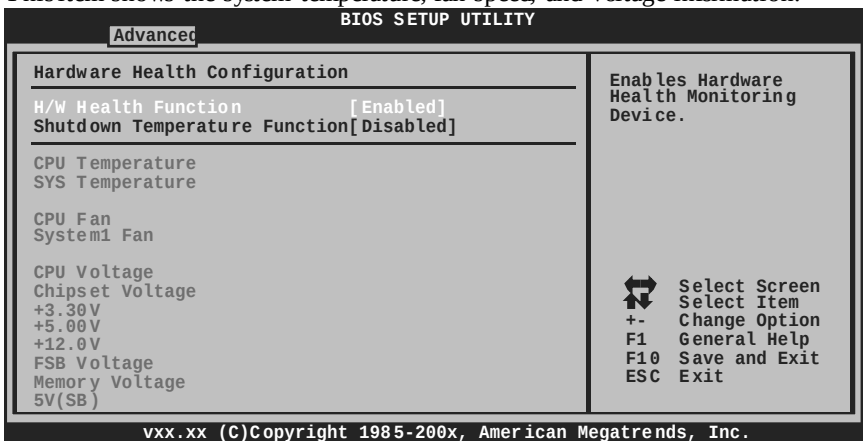
This item allows you to control the mouse power on function.
Options: Disabled (Default) / Enabled

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.



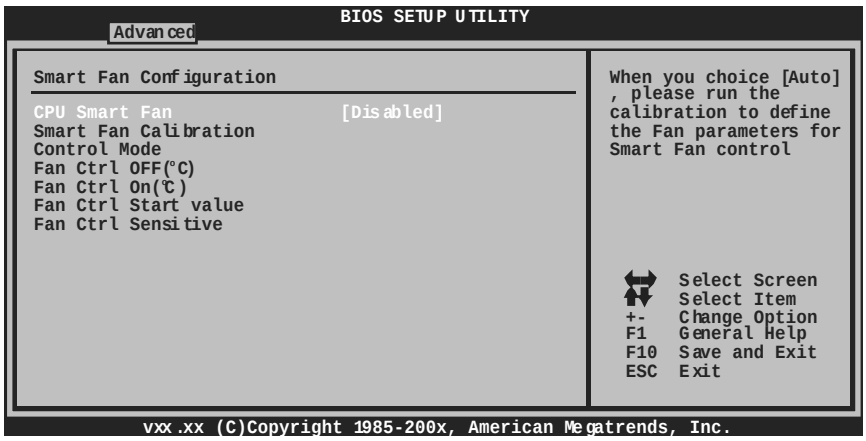
H/W Health Function

If with a monitoring system, the system will show PC health status during POST stage.
Options: Enabled (Default) / Disabled

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℃/140℉ / 65℃/149℉ / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ / 85℃/185℉ / 90℃/194℉

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

Fan Ctrl OFF(℃)

If the CPU/System Temperature is lower than the set value, FAN will turn off.
Options: 0~127 (℃) (Interval: 1℃)

Fan Ctrl On(℃)

CPU/System fan starts to work under smart fan function when arrive this set value.
Options: 0~127 (℃) (Interval: 1℃)

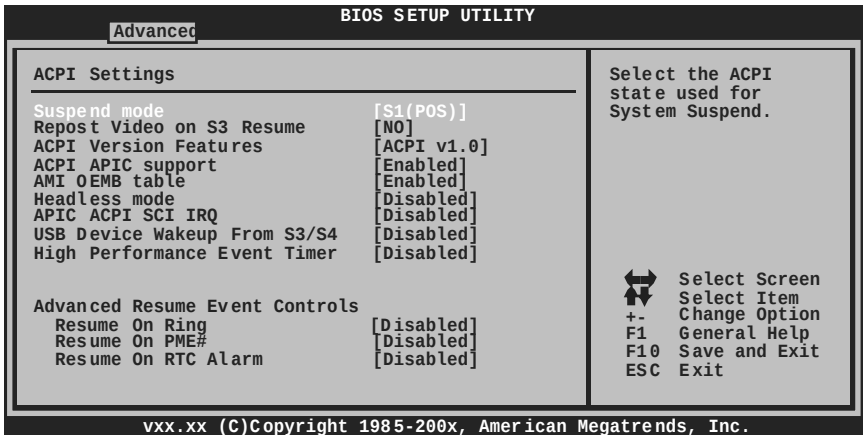
Fan Ctrl Start Value

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



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

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)

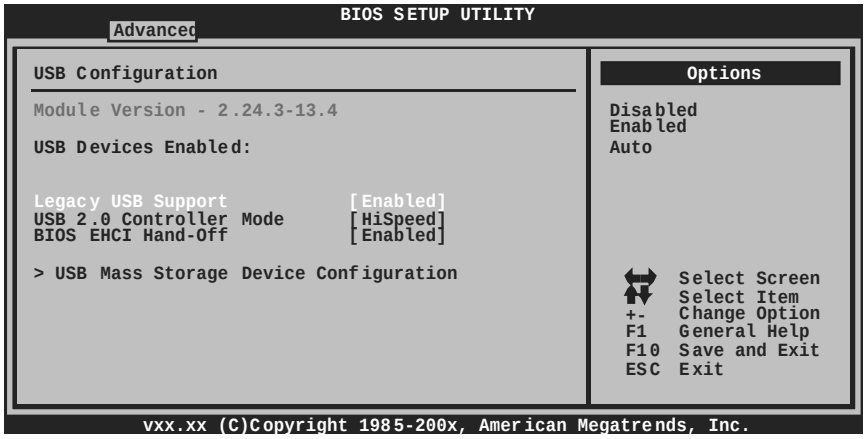
You can choose which date the system will boot up.

RTC Alarm Time

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

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.

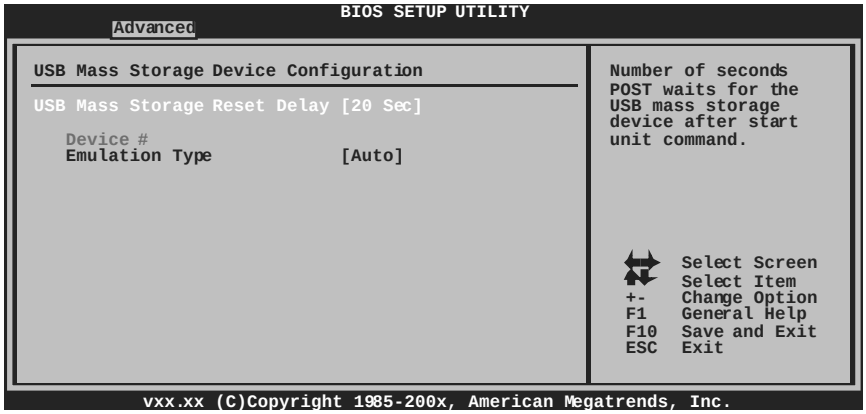
Options: HiSpeed (Default) USB 2.0-480Mbps
FullSpeed USB 1.1-12Mbps

BIOS EHCI Hand-Off

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

Options: Enabled (Default) / Disabled

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

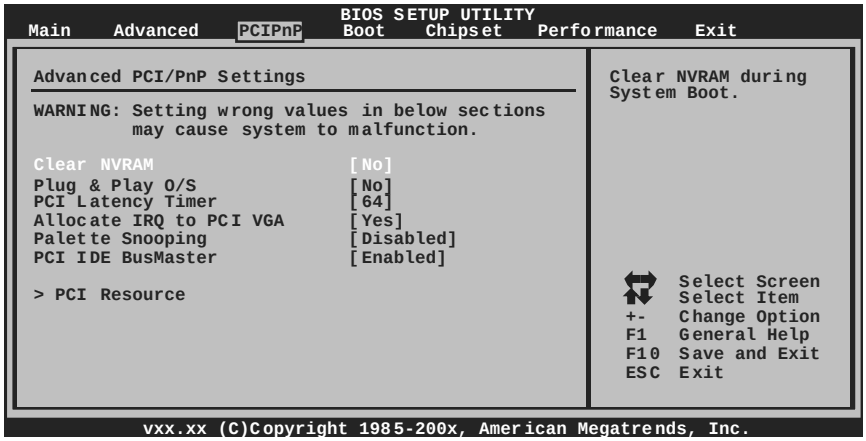
Emulation Type
This item allows you to select the emulation type of the USB mass storage device.
Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CDROM

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

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

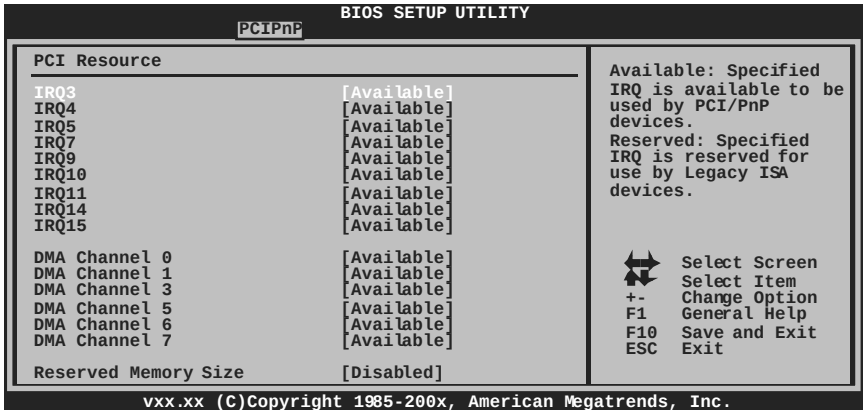
Palette Snooping

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



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

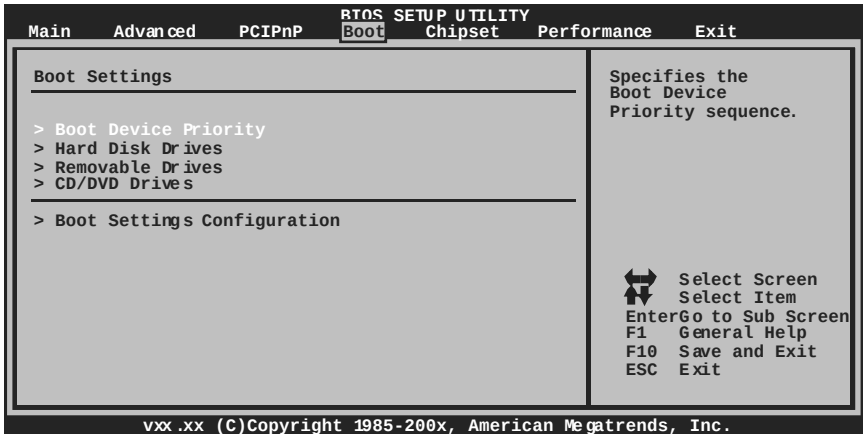
These items will allow you to assign each DMA channel a type, depending on the type of device using the channel. The option "Available" means the channel is going to assign automatically.
Options: Available (Default) / Reserved

Reserved Memory Size

This item allows BIOS to reserve certain memory size for specific PCI device.
Options: Disabled (Default) / 16K / 32K / 64K

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.

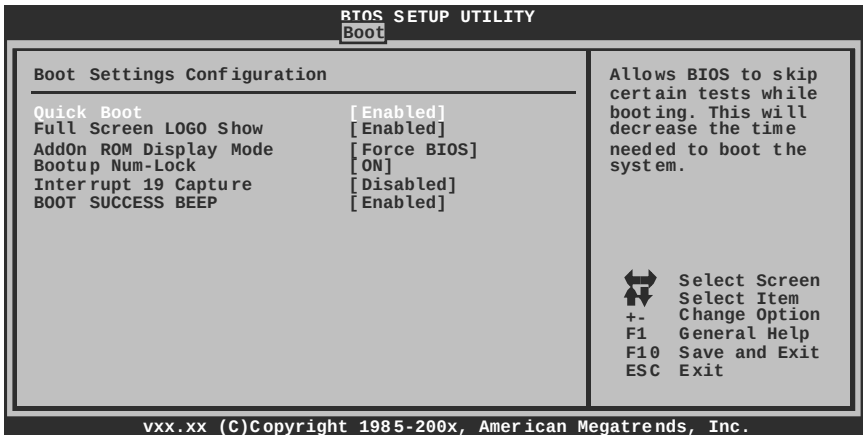
Removable Drives

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.

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

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

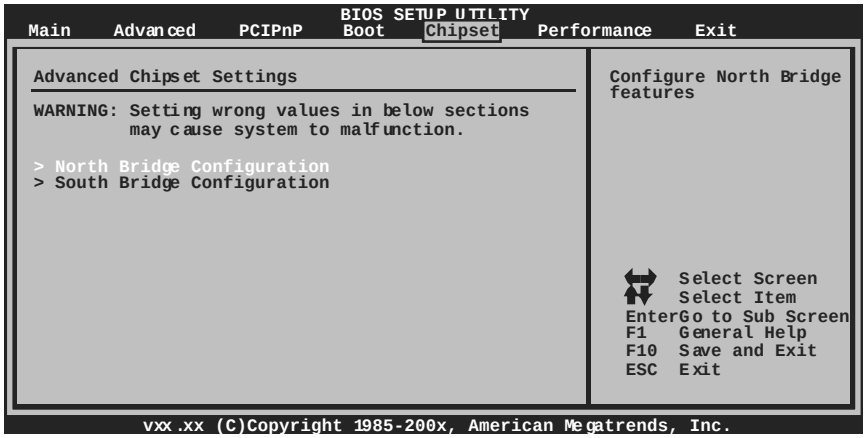
When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

5 Chipset Menu

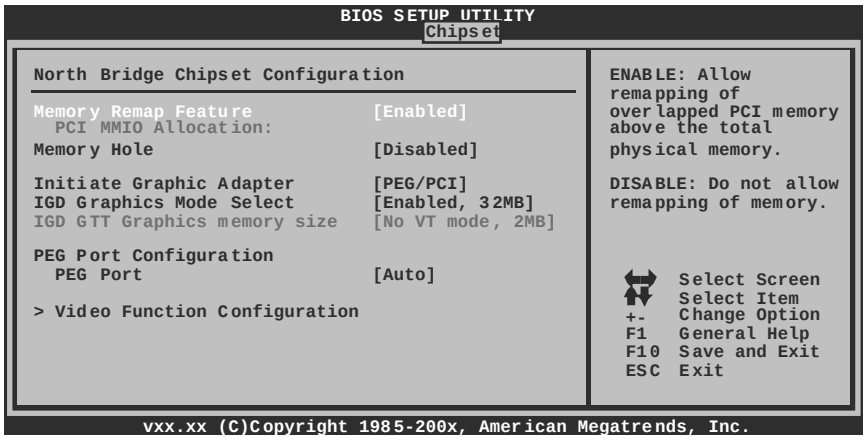
This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.

Notice

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



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

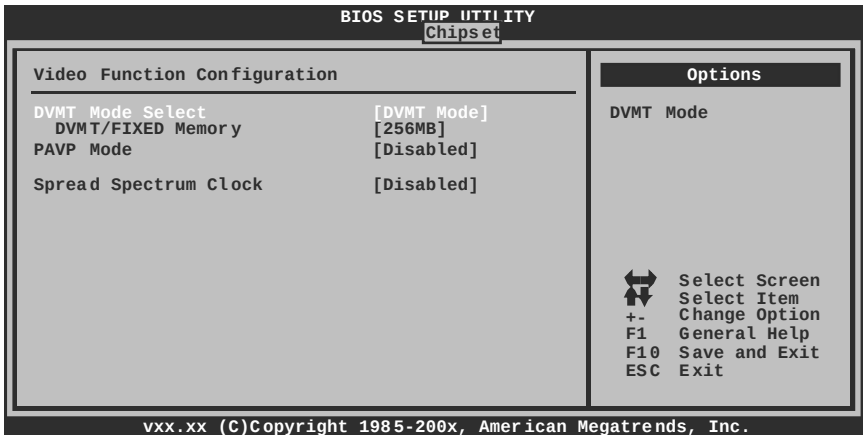
IGD Graphics Mode Select

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

PEG Port

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

Video Function Configuration



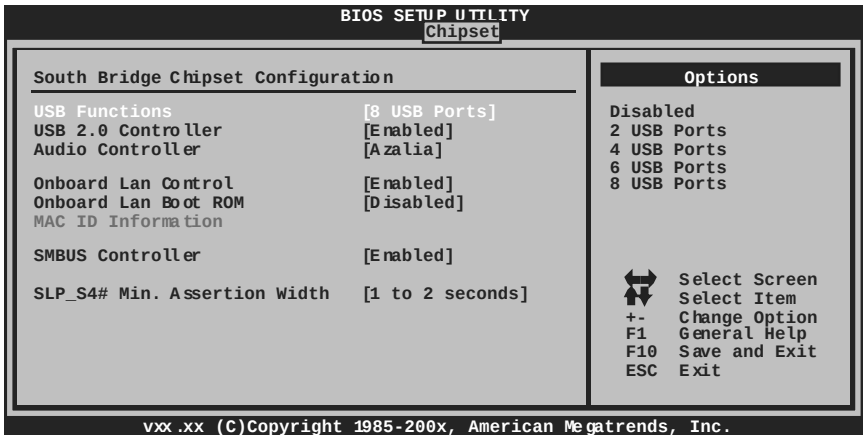
DVMT Mode Select
This item allows you to select the DVMT mode.
Options: DVMT Mode (Default)

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

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

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

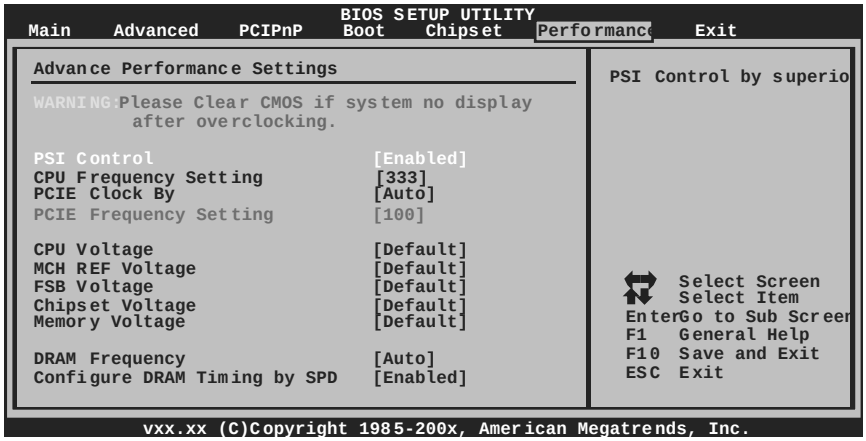
Options: 1 to 2 seconds (Default) / 4 to 5 seconds / 3 to 4 seconds / 2 to 3 seconds

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

PCIE Clock By

This item allows you to select the PCIE clock control
Options: Auto (Default) / Manual

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.
Options: Default (Default) / +5% / +10% / +15%

MCH REF Voltage

This item allows you to select MCH REF Voltage Control.
Options: Default (Default) / 0.63*VTT / 0.61*VTT / 0.58*VTT

FSB Voltage

This item allows you to select FSB Voltage Control.
Options: Default (Default) / +0.1V / +0.2V / +0.3V

Chipset Voltage

This item allows you to select Chipset Voltage Control.
Options: Default (Default) / +0.1V / +0.2V / +0.3V

Memory Voltage

This item allows you to select Memory Voltage Control.
Options: Default (Default) / +0.05V / +0.10V / +0.15V / +0.20V / +0.25V / +0.30V / +0.35V

DRAM Frequency

This item allows you to control the Memory Clock.
Options: Auto (Default) / DDR3-800 / DDR3-1066

Configure DRAM Timing by SPD

Options: Enabled (Default) / Disabled

DRAM tCL

Options: 3 (Default) / 3 ~ 10

DRAM tRAS

Options: 9 (Default) / 9 ~ 24

DRAM tRP

Options: 3 (Default) / 3 ~ 10

DRAM tRCD

Options: 3 (Default) / 3 ~ 10

DRAM tWR

Options: 3 (Default) / 3 ~ 15

DRAM tRFC

Options: 15 (Default) / 15 ~ 78

DRAM tWTR

Options: 2 (Default) / 2 ~ 15

DRAM tRRD

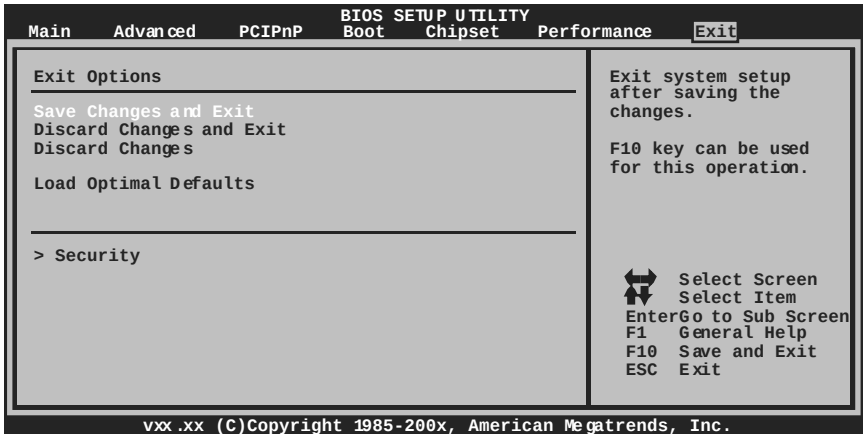
Options: 2 (Default) / 2 ~ 15

DRAM tRTP

Options: 2 (Default) / 2 ~ 15

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

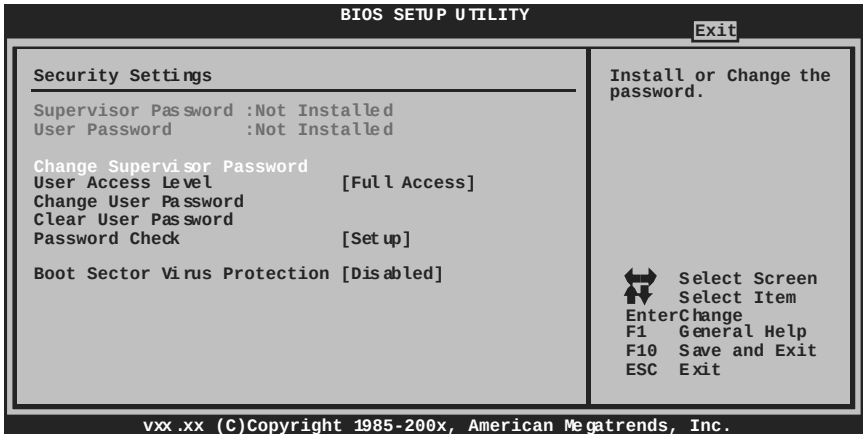
Abandon all changes made during the current session and restore the previously saved values.

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.

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 Acess 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.

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