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i

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 tumed 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

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

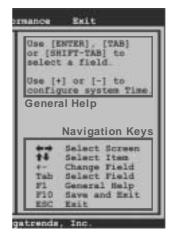
Supported CPUs

This AMI BIOS supports the Intel CPU.

Using Setup

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

Main Advanced PCIPnP	BIOS SETUP UTILITY Boot Chipset	O.N.E Exit
System Overview		Use [ENTER], [TAB] or [SHIFT-TAB] to
AMI BIOS Version :01.01.01 Build Date:01/01/08 System Memory Size :		select a field. Use [+] or [-] to configure system Time.
System Time System Date	[00:00:00] [Tue 01/01/2008]	
Floppy A		Select Screen Select Item
> SATA Configuration		+- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
vzerxx (C)Copyri	ght 1985-200x, American M	ecatrends, Inc.

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, 35 in / 1.44M, 3.5 in / 2.88M, 3.5 in / None

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.

<pre>> SATA 5 Device > SATA 6 Device Hot Plug [Disabled]</pre> Select Item EnterGo to Sub So F1 General Help	Main	BIOS SETUP UTILITY	
SATA#1 Configuration [Compatible] Configure SATA#1 as [IDE] SATA#2 Configuration [Enhanced] Max Ports on SATA#1 [6 Ports] > AHCI Configuration [6 Ports] > SATA 1 Device SATA 2 Device > SATA 2 Device SATA 4 Device > SATA 5 Device SATA 6 Device Hot Plug [Disabled]	SATA Confuguration		Options
<pre>> SATA 1 Device > SATA 2 Device > SATA 3 Device > SATA 4 Device > SATA 5 Device > SATA 5 Device > SATA 6 Device Hot Plug [Disabled]</pre>	Configure SATA#1 as SATA#2 Configuration	[IDE] [Enhanced]	Disabled Compatible
	<pre>> SATA 1 Devic e > SATA 2 Devic e > SATA 2 Devic e > SATA 3 Devic e > SATA 4 Devic e > SATA 5 Devic e</pre>	[Disabled]	EnterGo to Sub Screen F1 General Help
Hard Disk Write Protect [Disabled] F10 Save and Exi IDE Detect Time Out (Sec) [35]	Hard Disk Write Protect	• ··· ··· •	F10 Save and Exit ESC Exit

SATA#1 Configuration

This item allows you to control the onboard SATA controller. Options: Compatible (Default) / Disabled / Enhanced

Configure SATA#1 as

This item allows you to choose the SATA operation mode. Options: IDE (Default) / RAID / AHCI

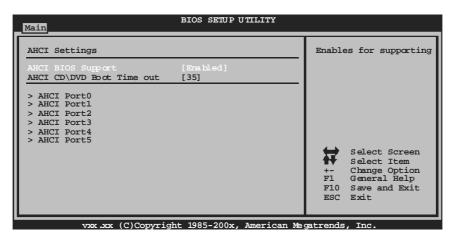
SATA#2 Configuration

This item allows you to control the onboard SATA controller. Options: Enhanced (Default) / Disabled

Max Ports on SATA#1

This item appears only when SATA mode is set to AHCI/RAID. Options: 6 Ports (Default) / 4 Ports

AHCI Configuration



AHCI BIOS Support

This BIOS feature controls the AHCI function of the SATA controller. Options: Enabled (Default) / Diabled

AHCI CD/DVD Boot Time Out

This BIOS feature allows you to set the AHCI CD/DVD boot time out. Options: 35 (Default) / 0 / 5 / 10 / 15 / 20 / 25 / 30

AHCI Port0/Port1/Port2/Port3/Port4/Port5

Main		
AHCI Port0 Device :		Select the type of device connected to the system.
AHCI Port0 Device : SATA Port0 S.M.A.R.T.	[Auto] [Enabled]	Select Screen Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
(0)0	ight 1985-200x Amorigan Mo	mtronda Ina

Devic e

This area shows the detected connected device.

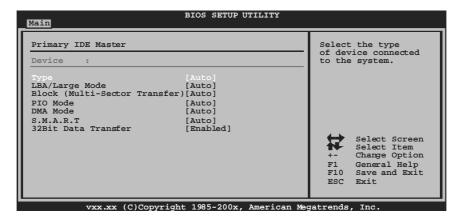
SATA Port0/1/2/3/4/5

This item allows you to select the connected device type. Options: Auto (Default)

S.M.A.R.T.

This item allows you to control the device S.M.A.R.T function. Options: Enabled (Default) / Disabled

SATA 1/2/3/4/5/6 Device



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.

Туре

Select the type of the IDE/SATA drive. Options: Auto (Default) / CDROM / ARMD / Not Installed

LBA/Large Mode

Enable or disable the LBA mode. Options: Auto (Default) / Disabled

Block (MultiSector Transfer)

Enable or disable multi-sector transfer. Options: Auto (Default) / Disabled

PIO Mode

Select the PIO mode. Options: Auto (Default) / 0 / 1 / 2 / 3 / 4

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

Hot Plug

This item allows you to control the hot-plug function under RAID or AHCI mode. Options: Disabled (Default) / Enabled

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.

BIOS SETUP UTILITY Main Advanced PCIPnP Boot Chipset O	.N.E Exit
Advanced Settings	Configure CPU.
WARNING: Setting wrong values in below sections may cause system to malfunction.	
<pre>> CPU Configuration > SuperIO Configuration > Hardware Health Configuration > Smart Fan Onfiguration > PM/ACPI Configuration > USB Configuration > Config Onboard PCI/PCI-E Devices</pre>	Select Screen Select Item EnterGo to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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CPU Configuration

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

Advanced	
Configure advanced CPU settings Module Versicn:3F.09	This should be enabled in order to enable or
Manufacturer:Intel	disable the Enhanced Halt State.
Frequency : FSB Speed : Cache L1 : Cache L2 : Ratio Status: Ratio Actual Value:	
ClE Support[Enabled]Hardware Prefetcher[Enabled]Adjacent Cache Line Prefetch[Enabled]Max CPUID Value Limit[Di sabled]CPU TM Function[Enabled]Execute-Disable Bit Capability[Enabled]Core Multi-Processing[Enabled]Intel(R) C-state Tech[Enabled]	Select Screen Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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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: Enabled (Default) / Disabled

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

CPUTM Function

The CPU TM Function is to throttle the clock speed of higher speed Prescott's to help keep them cool. 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

Core Multi-Processing

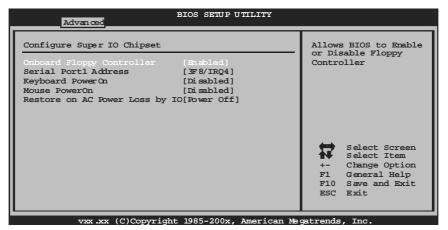
This item allows multi-processing function for multi-core processors. Options: Enabled (Default) / Disabled

Intel(R) C-State Tech

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

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

Keyboard PowerOn

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

Mouse PowerOn

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

Restore on AC Power Loss by IO

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.

 $Options: \quad Power \ Off (Default) / \ Power \ ON \ / \ Last \ State$

Hardware Health Configuration

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

Advan œd	BIOS SEIOF O HEHIT	
Hardware Health Configura H/W Health Function	[Enabled]	Enables Hardware Health Monitoring
Shutdown Temperature CPU Temperature SYS Temperature	[Disabled]	Device.
CPU Fan Speed JSFAN1 Speed JNFAN1 Speed		
CPU Voltage NB/SB Voltage +12.0V DDR2 Voltage FSB Voltage +3.30V +3.3VSB VBAT		Select Screen Select Item - Change Option F1 General Help F10 Save and Exit ESC Exit
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H/W Health Function

If you computer contains a monitoring system, it will show PC health status during POST stage.

Options: Enabled (Default) / Disabled

Shutdown Temperature

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

Smart Fan Configuration CPU Smart Fan Smart Fan Calibration	When you choice [Auto] please run the calibration to define the Fan parameters for
Smart Fan Calibration	calibration to define
JSFAN1 Smart Fan [Disabled] Fan Ctrl OFF(°C) Fan Ctrl On(°C) Fan Ctrl Full On(°C) JSFAN1 Start Speed(RPM) JSFAN1 Max Speed(RPM) Auto detect Max FAN Speed	Smart Fan control
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	Select Screen select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit

CPU Smart Fan

This item allows you to control the CPUS mart Fan function. Options: Disabled (default) / Auto

Smart Fan Calibration

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

JSFAN1/JNFAN1 Smart Fan

This item allows you to control the system Smart Fan function. Options: Disabled (default) / Auto



Fan Ctrl OFF(℃)

If the System Temperature is lower than the set value, FAN will turn off. Options: $0\sim127$ (°C)

Fan Ctrl On(°C)

System fan starts to work under smart fan function when arrive this set value. Options: $0 \sim 127$ (°C)

Fan Ctrl Full On(℃)

If the System Temperature reaches the set value, FAN will run in full speed. Options: $0\sim127$ (°C)

JSFAN1/JNFAN1 Start Speed (RPM)

This item allows you to set the start speed of the FAN. Options: 1000~3000

JSFAN1/JNFAN1 Max Speed(RPM)

This item allows you to set the max speed of the FAN. Options: 1000~3000

Auto Detect Max FAN Speed

This item will help you find out the max workable speed of the FAN.

PM/ACPI Configuration

Advan œd	BIOS SETUP UTILITY	
PM/ACPI Configuration		Enable/Disable APIC ACPI SCI IRQ.
USB Device Wakeup From S3/S4 High Performance Event Timer	[Dis abled] [Dis abled] [Dis abled]	
	[S1(FOS)] [NO] [ACPI v1.0] [Enabled] [Enabled] [Disabled]	Select Screen Select Item EnterGo to Sub Screen Fl General Help FlO Save and Exit ESC Exit
vax.ax (C)Copyrigh	t 1985-200x, American Me	catrends, Inc.

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

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 awak ens 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.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

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

Suspend mode

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

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

Power on Suspend Suspend to RAM POS+STR

Repost Video on S3 Resume

Options: NO (Default) / YES

ACPI Version Features

The item allows you to select the version of ACPI. Options: ACPI v1.0 (Default) / ACPI v2.0 / ACPI v3.0

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

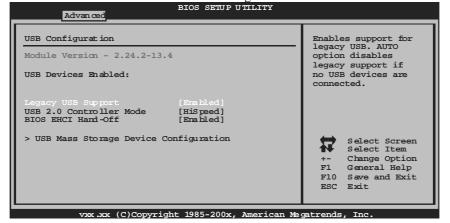
Set this value to allow the ACPIBIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table. Options: Enabled (Default) / Disabled

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

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

USB 2.0 Controller Mode

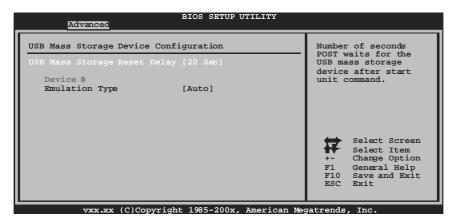
This item allows you to select the operation mode of the USB 2.0 controller.Options:HiSpeed (Default)FullSpeedUSB 2.0480MbpsUSB 1.1-12Mbps

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

Config Onboard PCI/PCI-E Devices

Advan ced	SIOS SETUP UTILITY	
Onboard PCI/PCI-E Devices Conf	iguration	Options
Onboard PCIE PATA/SATA Cntlr Onboard PCIE Giga LAN Onboard LAN Boot ROM MAC ID Information	[Auto]	Disabled Enabled
		Select Screen Select Item +- Change Option FI General Help F10 Save and Exit ESC Exit
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Onboard PCIE PATA/SATA Cntlr

This item allows you to control the onboard PATA/SATA controller. Options: Disabled (Default) / Enabled

Onboard PCIE Giga LAN

This item allows you to control the onboard LAN. Options: Auto (Default) / Enabled / Disabled

Onboard LAN Boot Rom

This item allows you to select the Onboard LAN Boot ROM. Options: Disabled (Default) / Enabled

MACID Information

This item shows the LAN MACID.

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 itselfuses when communicating with its own special components.

Notice

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

Advanced PCI/PnP Settings Clear NVRAM during WARNING: Setting wrong values in below sections may cause system to malfunction. System Boot. Clear NVRAM [NO] Plug & Play O/S [No] PCI Latency Timer [64] Allocate IRQ to PCI VGA [Yes] Palette Snooping [Disabled] PCI IDE BusMaster [Enabled] OffBoard PCI/ISA IDE Card [Auto] IRQ3 [Available] IRQ4 [Available] IRQ5 [Available] IRQ9 [Available]	Main Advanced PCIPnP	BIOS SETUP UTILITY Boot Chipset O	.N.E Exit
Plug & Play O/S [No] PCI Latency Timer [64] Allocate IRQ to PCI VGA [Yes] Palette Snooping [Dis abled] PCI IDE BusMaster [Ena bled] OffBoard PCI/ISA IDE Card [Auto] IRQ3 [Available] IRQ4 [Available] F1 General Help IRQ5 [Available] IRQ7 [Available]	WARNING: Setting wrong value		
IRQ5[Available]F10 S ave and ExitIRQ7[Available]ESC Exit	Plug & Play O/S PCI Latency Timer Allocate IRQ to PCI VGA Palette Snooping PCI IDE BusMaster OffBoard PCI/ISA IDE Card IRQ3	[No] [64] [Yes] [Disabled] [Enabled] [Auto] [Available]	Select Item +- Change Option
	IRQ5 IRQ7	[Available] [Available]	F10 Save and Exit

Clear NV RAM

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 WindowTM 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, NetwareTM), 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 Bus Master

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

OffBoard PCI/ISA IDE Card

This item is for any other non-onboard PCI/ISA IDE controller adapter. Options: Auto (Default) / Disabled

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.

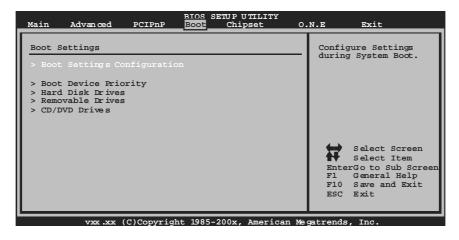
Options: Available (Default) / Reserved

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 Settings Configuration

BIOS SETUP UTILITY	
Boot Settings Configuration Quick Boot [Fnabled] Full screen logo display [Enabled] AddOn ROM Display Mode [Force BIOS] Bootup Num-Lock [Cn] PS/2 Mouse Support [Auto] Wait For F1 If Error [Enabled] Hit DEL Message Display [Enabled] Interrupt 19 Capture [Di sabled] Initiate Graphic Adapter [Auto]	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system. Select Screen Select Item Fi General Help Fi0 Save and Exit ESC Exit
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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 Disaply

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

PS/2 Mouse Support

This BIOS feature determines if the BIOS should reserve IRQ12 for the PS/2 mouse or allow other devices to make use of this IRQ. Options: Auto (Default) / Enabled

Wait for 'F1' If Error

This BIOS feature controls the system's response when an error is detected during the boot sequence. Options: Enabled (Default) / Disabled

Hit 'DEL' Message Display

This BIOS feature allows you to control the display of the Hit "DEL" to enter Setup message during memory initialization. Options: Enabled (Default) / Disabled

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

Initiate Graphic Adapter

This item allows you to set the initiate graphic adapter. Options: Auto (Default)

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

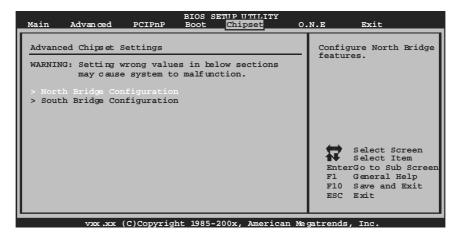
The BIOS will attempt to arrange the CD/DVD drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

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

BIOS SETUP UTILITY Chipset			
North Bridge Chipset Confi	guration	ENABLE: Allow remapping of	
Memory Remap Feature PCI MMIO Allocation: Memory Hole	[Enabled]	above the total phisical memory.	
PEG Port Configuration PEG Port	[Auto]	DISABLE: Do not allow remapping of memory.	
	[111.00]	Select Screen	
		Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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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) / Enabled

PEG Port

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

South Bridge Configuration

BIOS SETUP UTILITY Chipset			
South Bridge Chipset Configura	tion	Options	
USB Functions USB Port Configuration USB 2.0 Controller HDA Controller SMBUS Controll er SLP_S4# Min. Assertion Width	<pre>[12 USB Ports] [6 X6 USB Ports] [Enabled] [Enabled] [Enabled] [4 to 5 seconds]</pre>	Disabled 2 USB Ports 4 USB Ports 6 USB Ports 10 USB Ports 12 USB Ports 12 USB Ports Select Screen 5 select Item +- Fingeneral Help Fingeneral Help	
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USB Functions

The item determines the number of functional USB port. Options: 12 USB Ports (Default) / 10 USB Ports / 8 USB Ports / 6 USB Ports / 4 USB Ports / 2 USB Ports / Disabled

USB Port Configuration

Options: 6X6 USB Ports (Default)

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 automately turn on when high speed device were attached. Options: Enabled (Default) / Disabled

HDA Controller

This item allows you to control the HD Audio support. Options: Enabled (Default) / Disabled



SMBUS Controller

This BIOS feature controls the I/O buffers for the SMBus. Options: Enabled (Default) / Disabled

SLP_S4# Min. Assertion Width

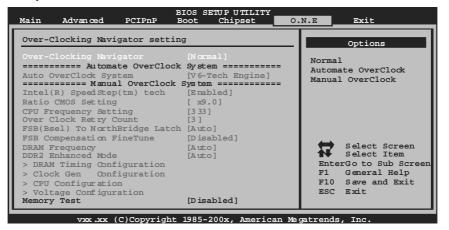
Options: 4 to 5 seconds (Default)

6 O.N.E Menu

This submenu allows you to change voltage and dock of various devices. (However, we suggest you to 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.



OverClock Navigator

OverClock .Navigator is designed for beginners in overclock field.

Based on many test and experiments from Biostar Engineer Team, OverClock Navigator provides 3 default overclock configurations that are able to raise the system performance.

Options: Normal (Default) / Automate OverClock / Manual OverClock

Auto OverClock System

	IOS SETUP UTILITY oot Chipset 0.	N.E Exit
Over-Clocking Navigator setting	3	Options
Over-Clocking Navigator ============ Automate OverClock Auto OverClock System =========== Manual OverClock S	System ========== [V6-Tech Engine]	Normal Automate OverClock Manual OverClock
Intel(R) Speed Step(tm) tech Ratio CMOS Setting CPU Frequency Setting Over Clock Retry Count FSB(Bsel) To NorthBridge Latch FSB Compensation FineTune DRAM Frequency	[Enabled] [x9.0] [3 33] [3] [Auto]	Select Screen Select Item EnterGo to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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The Overclock Navig ator provides 3 different engines helping you to overclock your system. These engines will boost your system performance to different level. Options:

V6 Tech Engine This engine will make a good over-clock performance.

V8 Tech Engine This engine will make a better over-clock performance.

V12 Tech Engine This engine will make a best over-clock performance.



Manual Overclock System (M.O.S.)

BIOS SETUP UTILITY Main Advanced PCIPnP Boot Chipset	0.N.B	Exit
Over-Clocking Navigator setting		Options
Over-Clocking NavigatorManual OverClock]======== Automate OverClockSystemAuto OverClockSystem[V 6-Tech Engine]======== Manual OverClockSystemIntel(R)Speed Step(tm) tech[Enabled]Ratio CMOS Setting[333]Over Clock Retry Count[3]FSB(Bsel) To NorthBridge Latch[Auto]FSB (Bsel) To NorthBridge Latch[Auto]DRAM Frequency[Auto]DDR2 Enhanced Mode[Auto]> DRAM Timing Configuration> CPU Configuration> Voltage ConfigurationMemory Test[Disabled]	. A	Select Screen Select Item EnterGo to Sub Screen F1 General Help F10 Save and Exit ESC Exit

MOS is designed for experienced overclock users. It allows users to customize personal overclock setting.

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: Enabled (Default) / Disabled

Ratio CMOS Setting

This item allows you to set the CPU ratio frequency. This item is adjustable only when SpeedStep Tech is set to Disabled. Options: x6.0 / x7.0 / x8.0 / x90 / x10.0 / x11.0 / x12.0

CPU Frequency Setting

This item allows you to select the CPU Frequency. Options: Min= 100MHz; Max= 800MHz

Over Clock Retry Count

This item allows you to set the overclock fail retry times. Options: 3 (Default) / Min= 1; Max= 8

FSB(Bsel) To NorthBridge Latch

This item allows you to select the FSB Frequency. Options: Auto (Default) / FSB 800 / FSB 1066 / FSB 1333

FSB Compensation FineTune

This item allows you to control the FSB compensation finetune function. Options: DIsabled (Default) / Enabled

DRAM Frequency

This item allows you to control the Memory Clock. Options: Auto (Default) / DDR2 400Mhz / DDR2 480Mhz / DDR2 500Mhz / DDR2 600Mhz / DDR2 660Mhz / DDR2 800Mhz

DDR2 Enhanced Mode

This item allows you to control the DDR2 ram enhanced mode. Options: Auto (Default) / Enabled / Disabled

DRAM Timing Configuration

E	IOS SETUP UTILITY	0.1	N.E	
DRAM Timing Configuration			DDR2	RCOMP Configurati
Static tREAD Value(PL)	[Auto]			
Configure DRAM Timing by SPD	[Enabled]			
DRAM tCL	[5]			
DRAM tRP	[5]			
DRAM tRCD	[5]			
DRAM tRAS	[1 5]			
DRAM tWR	[6]			
DRAM tRFC	[42]			
DRAM tWTR	[3]		4	Select Screen
	[3]			Select Item
	[3]		+-	Change Option
Write ro Precharge Delay	[1 4]		F1	General Help
Read ro Precharge Delay			F10	Save and Exit
PrechargeAll to Act Delay	[5]			
PrechargeAll ->Refresh Delay	[5]		250	
PrechargeAll to Act Delay	[5]		ESC	Exit

DDR2 RCOMP Configuration

Options: Auto Config (Default) / Configuration 1-4

Static tREAD Value

This item allows you to select the tREAD control. Options: Auto (Default) / 1T-15T

Configure DRAM Timing by SPD

Options: Enabled (Default) / Disabled

DRAM tCL

Options: 5 (Default)

DRAM tRP

Options: 5 (Default)

DRAM tRCD

Options: 5 (Default)

DRAM tRAS

Options: 15 (Default)

DRAM tWR

Options: 6 (Default)

DRAM tRFC

Options: 42 (Default)

DRAM tWTR

Options: 3 (Default)

DRAM tRRD

Options: 3 (Default)

DRAM tRTP

Options: 3 (Default)

Write to Precharge Delay

Options: 14 (Default)

Read to Precharge Delay

Options: 5 (Default)

Precharge All to Act Delay

Options: 5 (Default)

PrechargeAll->Refresh Delay

Options: 5 (Default)

R-to-W Delay

Options: 8 (Default)

R-to-R Delay (Same Rank)

Options: 4 (Default)

W-to-W Delay (Same Rank)

Options: 4 (Default)

W-to-R Delay (Same Rank)

Options: 11 (Default)

Refresh Counter

Options: Auto (Default) / 2600T / 3120T / 4171T / 5200T

Clock Gen Configuration

	BIOS SETUP UTILITY	0.	N.E
Clock Gen Configuration	[1 00]		Allows BIOS to Select PCI-E Over Clock. Note:
CPU Clock Skew Control (G)MCH Clock Skew Control CPU Clock Driving Control	[Auto] [Auto]		MIN = 100 Mhz MAX = 150 Mhz
			Select Screen select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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PCIE Frequency Setting

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

CPU Clock Skew Control

This item allows you to select the CPU dock skew. Options: Auto (Default) / 100ps ~ 1500ps with an interval of 100ps

(G)MCH Clock Skew Control

This item allows you to select the northbridge clock skew. Options: Auto (Default) / 100ps ~ 1500ps with an interval of 100ps

CPU Clock Driving Control

This item allows you to select the CPU dock driving. Options: Auto (Default) / 700mV / 800mV / 900mV / 1000mV



CPU Configuration

	BIOS SETUP UTILITY	0.	N.E
C1E Support CPU TM function Intel(R) C-STATE tech Core Multi-Processing	[Enabled] [Enabled] [Enabled] [Enabled]		This should be enabled in order to enable or disable the Enhanced Halt State.
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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: Enabled (Default) / Disabled

CPU TM Function

The CPU TM Function is to throttle the clock speed of higher speed Prescott's to help keep them cool. Options: Enabled (Default) / Disabled

Intel(R) C-State Tech

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

Options: Enabled (Default) / Disabled

Core Multi-Processing

This item allows multi-processing function for multi-core processors. Options: Enabled (Default) / Disabled

Voltage Configuration

CPU Voltage [Auto] DDR Voltage [Auto] Chipset Voltage [Auto] F5B Voltage [Auto] CPU Corel GTL Ref voltage [0.63*VTT] CPU Core2 GTL Ref voltage [0.67*VTT] MCH GTL Ref voltage [Auto] CPU PLL Voltage [1.5 V]	BIOS SETUP UTILITY
NB/SB Voltage DDR2 Voltage FSB Voltage F1	Voltage Configuration CPU Voltage Control CPU Voltage [Auto] DDR Voltage [Auto] Chipset Voltage [Auto] CPU Corel GTL Ref voltage [0.63*VTT] CPU Corel GTL Ref voltage [0.67*VTT] MCH GTL Ref voltage [1.5 V] CPU Voltage [auto] CPU Voltage [1.5 V] CPU Voltage [1.5 V] CPU Voltage [1.5 V]

CPU Voltage

This item allows you to select CPU Voltage Control. Options: Auto (Default) / $-0.050V \sim +1.300V$

DDR Voltage

This item allows you to select DDR Voltage Control. Options: Auto (Default) / $+0.050V \sim +1.850V$

Chipset Voltage

This item allows you to select NB/SB Voltage Control. Options: Auto (Default) / $+0.025V \sim +0.700V$

FSB Voltage

This item allows you to select FSB Voltage Control. Options: Auto (Default) / $+0.025V \sim +0.750V$

CPU Core1 GTL Ref Voltage

Options: 0.63*VTT (Default) / 0.67*VTT / 0.61*VTT / 0.58*VTT

CPU Core2 GTL Ref Voltage

Options: 0.67*VTT (Default) / 0.69*VTT / 0.63*VTT / 0.61*VTT

MCH GTL Ref Voltage

Options: Auto (Default) / 0.61*VTT / 0.64*VTT / 0.59*VTT / 0.56*VTT

CPU PLL Voltage

Options: 1.5V (Default) / 1.6V / 1.7V / 1.8V

Integrated Memory Test

Integrated Memory Test allows users to test memory module compatibilities without additional device or software.

Step 1:

This item is disabled on default; change it to "Enable" to precede memory test.

	JPUTILITY Chipset O.N.E Exit
Over-Clocking Navigator setting	Options
Over-Clocking Navigator [Normal] ======== Autonate OverClock System [V6-Tec Auto OverClock System [Infel(R) Speed Step(tm) tech [Enable] Intel(R) Speed Step(tm) tech [Enable] Ratio CMOS Setting [333] Over Clock Retry Count [3] FSB(Bsel) To NorthBridge Latch [Auto] PSB Compensation FineTune DRAM Frequency [Auto] DDR2 Enhanced Mode [Auto] > Clock Gen Configuration > CPU Configuration > Voltage Configuration	Disabled Enabled d]
Memory Test [Enable	ed]
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Step 2:

When the process is done, change the setting back from "Enabled" to "Disabled" to complete the test.

BIOS SETUP UTILITY Main Advanced PCIPnP Boot Chipset 0.	N.E Exit
Over-Clocking Navigator setting	Options
Over-Clocking Navigator [N crmal] ====================================	Disabled Enabled Select Screen Select Item EnterGo to Sub Screen F1 General Help F10 Save and Exit ESC Exit
Memory Test [Disabled]	

7 Exit Menu

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

Main Advanced PCIPnP	BIOS SETUP UTILITY Boot Chipset	O.N.E Exit
Exit Options Save Changes and Exit Discard Changes and Exit Discard Changes Load Optimal Defaults Security Settings > Security CMOS Backup Function		Exit system setup after saving the changes. F10 key can be used for this operation. Select Screen Select Item EnterGo to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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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.

BIOS SETUP UTILITY	Exit						
Security Settings	Install or Change the						
Supervisor Password :Not Installed User Password :Not Installed	password.						
Change Supervisor Password User Access Level [Full Access] Change User Password Clear User Password Password Check [Set up]							
Boot Sector Virus Protection [Disabled]	Select Screen Select Item EnterChange F1 General Help F10 Save and Exit ESC Exit						
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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

CMOS Backup Function

It allows users to save different CMOS settings into BIOS-ROM and reload any saved CMOS setting for customizing system configurations.

Moreover, users are able to save an ideal overclock setting during overclock operation.

There are 10 sets of record address es in total, and users are able to name the CMOS data according to personal preference.

Main	Advan ced	PCIPnP	BIOS Boot	SETUP UTILITY Chipset	о.	.N.E	Exit	
Exit	Options							
Disca	Changes and H rd Changes ar rd Changes							
Load	Optimal Defau	lts		5 Backup Func-				
Secur	ity Settings			Data Reload Data Save				
	urity Backup Functi	lon				F1 F10	Select Screen Select Item rGo to Sub Screen General Help Save and Exit Exit	
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