



**User Guide
XFX X58i
Motherboard**

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Chapter 1 Introduction

1.1 Package Checklist

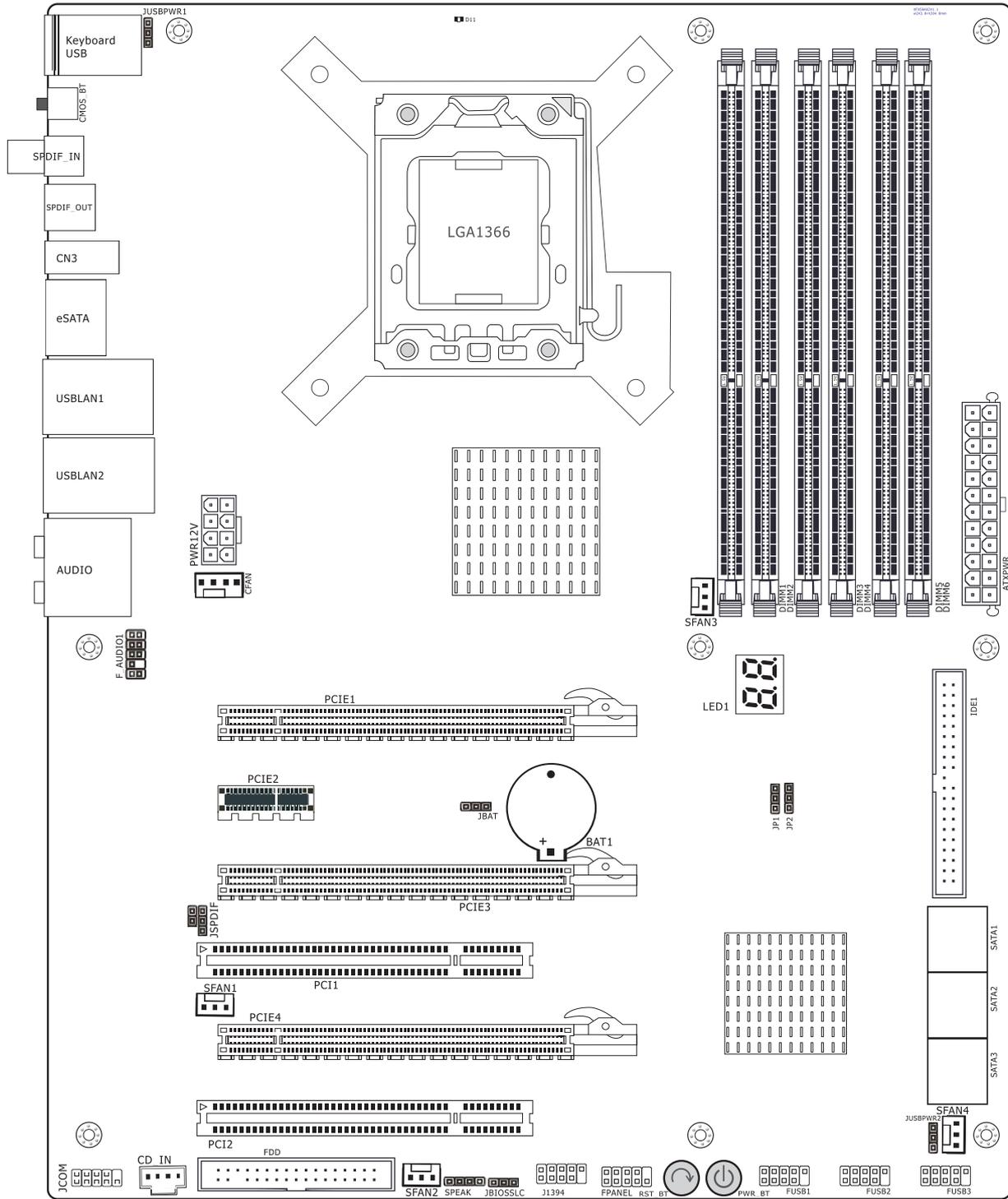
- Rear I/O Panel X 1
- Quick Installation Guide X 1
- Driver/Utility CD X 1
- Serial ATA Power Cable X 2
- Serial ATA Signal Cable X 4
- HDD Cable X 1
- FDD Cable X 1
- 3-Way SLI Bridge x 1
- 2-Way SLI Bridge x 1

The items listed above are for reference only, and are subject to change without notice.

1.2 Specifications

CPU	<ul style="list-style-type: none"> - LGA1366 socket for Intel® Core™ i7 Processor Extreme Edition/Core™ i7 Processors - Supports Intel® Dynamic Speed Technology - Supports Intel® Hyper-Threading Technology
System Bus	- Up to 6.4GT/s, Intel® Quick Path Interconnect
Chipset	- Intel® X58+Intel® ICH10R
Main Memory	<ul style="list-style-type: none"> - 6 x DIMM, max. 12GB, DDR3 1333/1066MHz, non-ECC, unbuffered memory (For a list of compatible memory, please visit www.xfxforce.com) - Triple channel memory architecture
BIOS	<ul style="list-style-type: none"> - AMI BIOS, Supports Plug&Play - Supports Advanced Power Management ACPI,STR
Rear Panel I/O	<ul style="list-style-type: none"> - 1 x PS/2 Keyboard port - 1 x Easy Clear CMOS button - 1 x S/PDIF IN port - 1 x S/PDIF OUT port - 1 x 1394a port - 2 x eSATA ports - 2 x RJ45 ports - 6 x USB 2.0 ports, USB 1.1 is compliant - 6 x Audio ports (Line In / Line Out / MIC In / Rear Speaker Out / Center-Subwoofer Speaker Out / Side Speaker Out)
Internal I/O Connectors	<ul style="list-style-type: none"> - 1 x 24-pin ATX main power connector - 1 x 8-pin ATX 12V power connector - 1 x Floppy disk drive connector - 1 x IDE connector - 6 x SATA 3Gb/s connectors(ICH10R chipset supports SATA RAID 0, RAID 1, RAID 5, and RAID 10) - 1 x CPU fan header - 4 x System fan headers - 1 x CD audio in header - 1 x Front panel header - 1 x Front panel audio header - 1 x S/PDIF In header - 1 x S/PDIF Out header - 1 x Serial port header - 1 x IEEE 1394a header - 1 x Onboard easy power switch - 1 x Onboard easy reset switch - 1 x Debug LED (Please also refer to appendix 1) - 3 x USB 2.0 headers for additional 6 USB 2.0 ports (by cables)
Sound	<ul style="list-style-type: none"> - Onboard 8-channel HD Audio Codec - Front Panel Jumper, provides stereo MIC port on front panel
Onboard LAN	- Dual PCIE 10/100/1000Mbps compatible LAN
Expansion Slots	<ul style="list-style-type: none"> - 3 x PCI Express 2.0 x16 slots, at x16(PCIE1)/x16(PCIE4) mode or x16(PCIE1)/x8(PCIE3)/x8(PCIE4) - 1 x PCI Express X1 slot - 2 x PCI slots
Form Factor	- ATX form factor: 243.8 mm x 304.8 mm

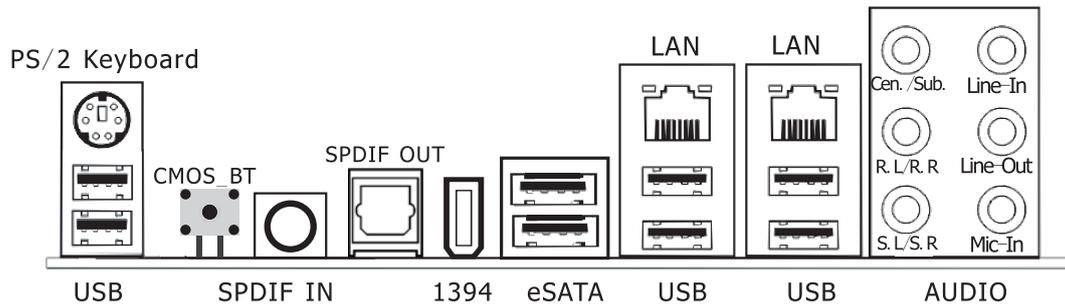
1.3 Motherboard Layout



(This picture is only for reference)

1.4 Connecting Rear Panel I/O Devices

The rear I/O of the motherboard provides the following I/O ports:



(This picture is only for reference)

- PS/2 Keyboard: Connect to PS/2 keyboard.
- CMOS_BT: Easy Clear CMOS switch. To clear the CMOS, press and hold this button for a few seconds and then release.
- SPDIF IN: This connector allows the S/PDIF In connection through coaxial S/PDIF cable.
- SPDIF OUT: This connector transmits digital audio signal out through optical S/PDIF cable.
- 1394: The IEEE 1394a port provides high-speed connectivity for video devices, music equipment, storage peripherals or other portable devices.
- eSATA: Connect to peripheral SATA devices.
- USB: Connect to USB devices such as scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc.
- LAN: Connect to Local Area Network.
- AUDIO:
 - Cen./Sub. (Center / Subwoofer): Connect to the center and subwoofer channel in the 7.1 channel audio system.
 - R.L./R.R. (Rear Left / Rear Right): Connect to the rear left and rear right channel in the 7.1 channel audio system.
 - S.L./S.R. (Surround Left / Surround Right): Connect to the surround left and surround right channel in the 7.1 channel audio system.
 - Line-In: Connect to the line out from external audio sources.
 - Line-Out: Connect to the front left and front right channel in the 7.1-channel or regular 2-channel audio system.
 - Mic-In: Connect to the plug from external microphone.

Chapter 2 Hardware Setup

2.1 Choosing a Computer Chassis

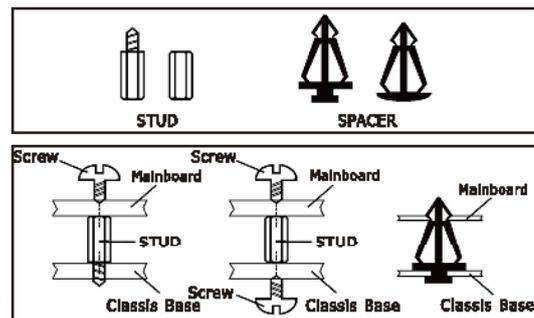


The motherboard and its component layouts illustrated in this chapter were based mainly on model "MB-X58I-CH19", unless specifically stated.

- Choose a chassis big enough to install this motherboard.
- As some features for this motherboard are implemented by cabling connectors on the motherboard to indicators and switches or buttons on the chassis, make sure your chassis supports all the features required.
- Make sure your chassis has sufficient power and space for additional peripherals or components.
- Most chassis have alternatives for I/O shield located at the rear panel. Make sure the I/O shield of the chassis matches the I/O port configuration of this mainboard. You can find an I/O shield specifically designed for this motherboard in its package.

2.2 Installing the Motherboard

Most computer chassis have a base with many mounting holes to allow the motherboard to be securely attached, and at the same time, prevent the system from short circuits. There are two ways to attach the motherboard to the chassis base: (1) with studs, or (2) with spacers. Basically, the best way to attach the board is with studs. Only if you are unable to do this should you attach the board with spacers. Line up the holes on the board with the mounting holes on the chassis. If the holes line up and there are screw holes, you can attach the board with studs. If the holes line up and there are only slots, you can only attach with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the board into position aligned with slots. After the board has been positioned, check to make sure everything is OK before putting the chassis back on.



Always power off the computer and unplug the AC power cord before adding or removing any peripheral or component. Failing to do so may cause severe damage to your motherboard and/or peripherals. Plug in the AC power cord only after you have carefully checked everything.

To install this motherboard:

1. Locate all the screw holes on the motherboard and the chassis base.
2. Place all the studs or spacers needed on the chassis base and have them tightened.
3. Face the motherboard's I/O ports toward the chassis's rear panel.
4. Line up all the motherboard's screw holes with those studs or spacers on the chassis.
5. Install the motherboard with screws and have them tightened.



To prevent shorting the PCB circuit, please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the motherboard to

2.3 Installation of the CPU and CPU Cooler

Before installing the CPU, please comply with the following conditions:

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and CPU cooler.
4. Please make sure the CPU cooler is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

2.3.1 Installation of the CPU

1. Release the load lever away from the retention tab by pressing it down and move it horizontally away from the direction of the socket base. Please leave the socket protection cap in position until you are going to install the CPU.

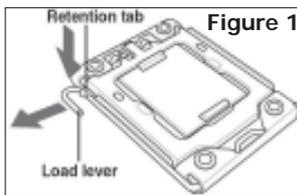


Figure 1

2. After releasing the load lever from the retention cap, move it up and clockwise and let it rest gently to the resting position. Now you are ready to lift the load plate to its resting position by your thumb.

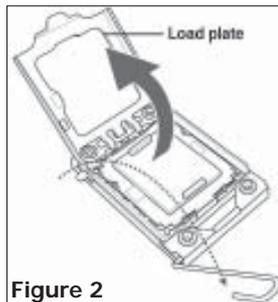


Figure 2

3. Remove the socket protection cap with your thumb and forefinger by pulling it vertically upwards. Please be reminded to keep this socket protection cap and put it back to the socket whenever the CPU is not installed.

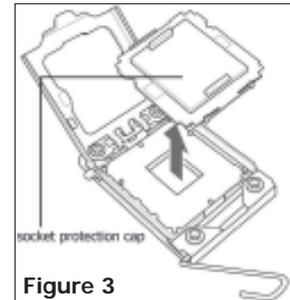


Figure 3

4. Remove the processor from its protective cover. You may hold only the edges of the processor, and be reminded not to touch the bottom part of it (Figure 4). Again, please keep this protective cover and put your processor back to it whenever it is removed from the motherboard.

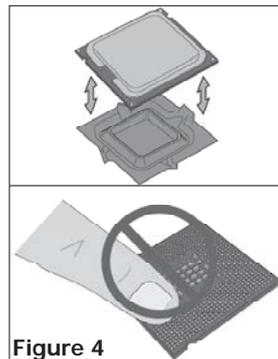


Figure 4

6. Apply a thin layer of thermal grease evenly over the processor's integrated heat spreader (IHS) before closing the load plate back onto the socket. Then you may lock the processor in place by pushing the load lever back into its original position, which is beneath the retention tab.

5. Hold the processor above the socket. Before you put it into the socket, please check carefully to make sure that the identification notch of the processor matches the same direction with the alignment key on the socket. And the golden triangular mark on the processor should be pointing towards the direction of the lifted load lever.

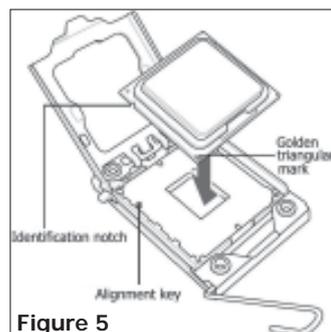


Figure 5

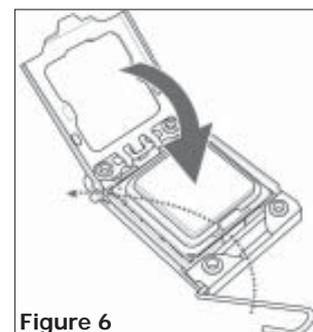


Figure 6

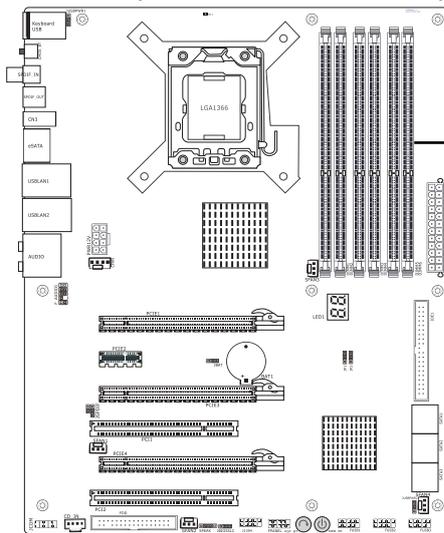
2.3.2 Installation of the CPU Cooler

For proper installation, please kindly refer to the instruction manuals of your CPU Cooler.

2.4 Installation of Memory Modules

This motherboard comes with six Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket and vice versa. DDR3 modules are developed for better performance with less power consumption.



Channel configurations:
 Channel A: DIMM 1 and DIMM 2
 Channel B: DIMM 3 and DIMM 4
 Channel C: DIMM 5 and DIMM 6

Recommended memory installation configurations for optimal performance:

- 2 DIMMs: DIMM 2, DIMM 4
- 3 DIMMs: DIMM 2, DIMM 4, DIMM 6
- 4 DIMMs: DIMM 1, DIMM 2, DIMM 4, DIMM 6
- 6 DIMMs: DIMM 1, DIMM 2, DIMM 3, DIMM 4, DIMM 5, DIMM 6

Attention: Due to the Intel® CPU specification, the motherboard will fail to boot if only one DIMM is installed into either DIMM 1, DIMM 3 or DIMM 5. Please refer to the above recommendations for proper installation.

Note: According to the Intel® specification, X.M.P. and DDR3-1600 modules are supported for one DIMM per channel ONLY.

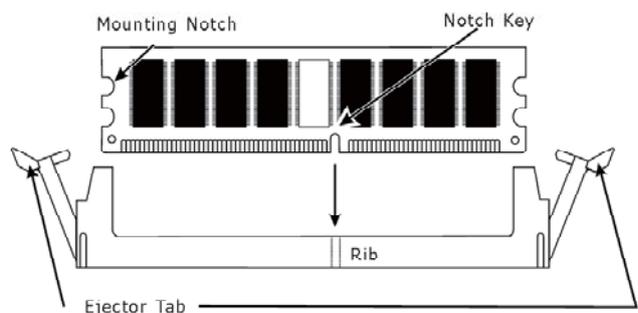
Note: According to the Intel® specification, DIMMs running at over 1.65v may damage the processor permanently. We strongly recommend you to avoid doing this. (For a list of compatible memory please visit www.xfxforce.com)



Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

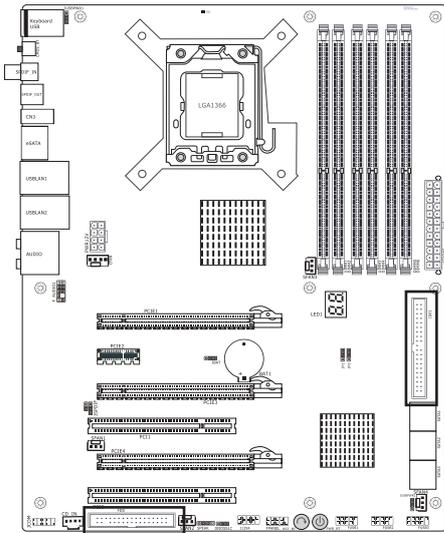
To install system memory:

1. Power off the computer and unplug the AC power cord before installing or removing memory modules.
2. Locate the DIMM slot on the board.
3. Hold two edges of the DIMM module carefully, keep away from touching its connectors.
4. Align the notch key on the module with the rib on the slot.
5. Firmly press the module into the slots until the ejector tabs at both sides of the slot automatically snap into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fits in one direction.
6. To remove the DIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.



2.5 Connecting Peripheral Devices

2.5.1 Floppy and IDE Disk Drive Connectors



The IDE port connects up to two IDE drives at Ultra ATA 100/66/33 mode by one 40-pin, 80-conductor, and 3-connector Ultra ATA/66 ribbon cables.

Connect the single end (blue connector) at the longer length of ribbon cable to the IDE port of this board, the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors of your hard drives.

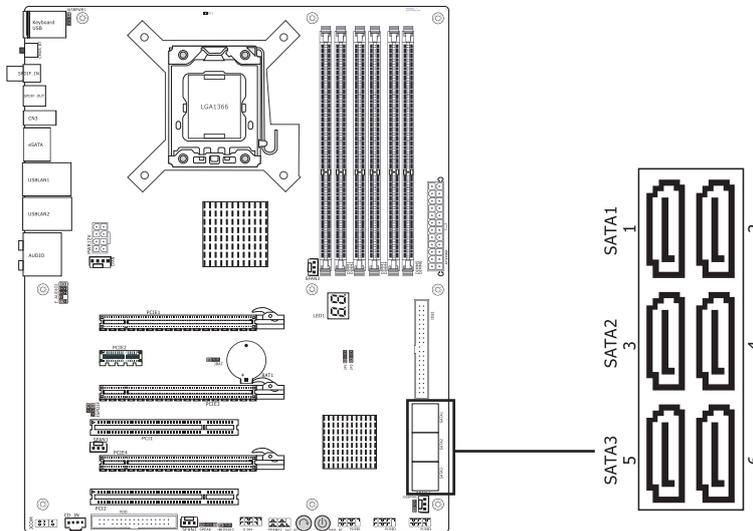
! Make sure to configure the "Master" and "Slave" relation before connecting two drives by one single ribbon cable. The red line on the ribbon cable must be aligned with pin-1 on both the IDE port and the hard-drive connector.

The FDD connector connects up to two floppy drives with a 34-wire, 2-connector floppy cable. Connect the single end at the longer length of ribbon cable to the FDD on the board, the two connectors on the other end to the floppy disk drives connector. Generally you need only one floppy disk drive in your system.

! The red line on the ribbon cable must be aligned with pin-1 on both the FDD port and the floppy connector.

2.5.2 Serial ATA Connectors

Each SATA connector serves as one single channel to connect one SATA device by SATA cable.



2.5.3 PCI and PCI Express slots

Install PCI Express X16 graphics card into slots "PCIE1", "PCIE3" or "PCIE4".

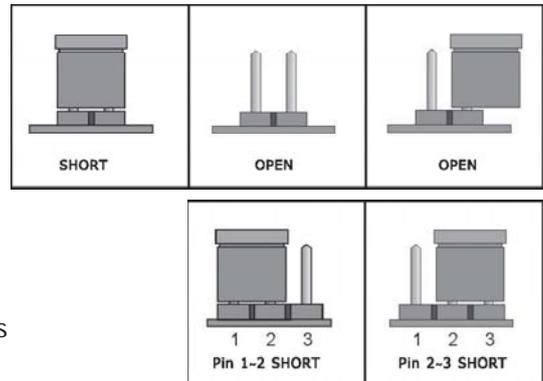
Install PCI Express X1 card into slot "PCIE2".

Install PCI card into slots "PCI1" or "PCI2" .

Chapter 3 Jumpers & Headers Setup

3.1 Checking Jumper Settings

- For a 2-pin jumper, plug the jumper cap on both pins will make it CLOSE (SHORT). Remove the jumper cap, or plug it on either pin (reserved for future use) will leave it at OPEN position.
- For 3-pin jumper, pin 1-2 or pin 2-3 can be shorted by plugging the jumper cap in.



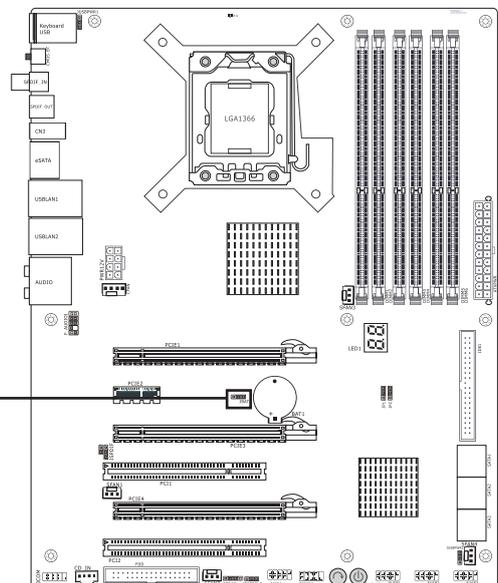
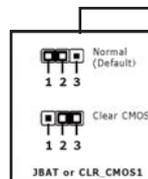
How to identify the PIN1 jumpers?
Please check the motherboard carefully, the PIN1 is always marked with a character "1" or a thick white line.

3.2 CMOS Memory Clearing Header

The time to clear the CMOS memory occurs when (a) the CMOS data becomes corrupted, (b) you forgot the supervisor or user password preset in the BIOS menu, (c) you are unable to boot-up the system because the CPU ratio/clock was incorrectly set in the BIOS menu, or (d) whenever there is modification on the CPU or memory modules.

This header uses a jumper cap to clear the CMOS memory and have it reconfigured to the default values stored in BIOS.

- Pins 1 and 2 shorted (Default): Normal operation.
- Pins 2 and 3 shorted: Clear CMOS memory.



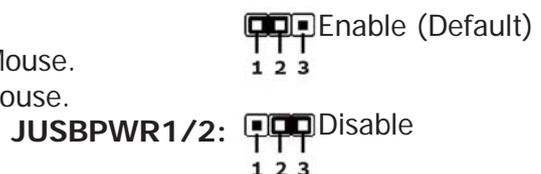
To clear the CMOS memory and load in the default values:

1. Power off the system.
2. Set pin 2 and pin 3 shorted by the jumper cap. Wait for a few seconds. Set the jumper cap back to its default settings --- pin 1 and pin 2 shorted.
3. Power on the system.
4. For incorrect CPU ratio/clock settings in the BIOS, press key to enter the BIOS setup menu right after powering on system.
5. Set the CPU operating speed back to its default or an appropriate value.
6. Save and exit the BIOS setup menu.

Note: There is a CMOS_BT switch on back panel, continues to hold down for several seconds to be clear CMOS the setup.

3.3 KB/USB Wakeup

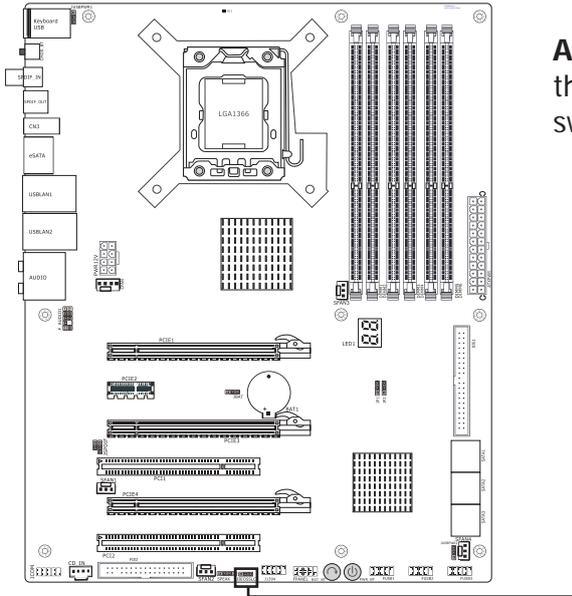
- Pin 1-2 short: Support power on by keyboard/USB Mouse.
- Pin 2-3 short: Disable power on by keyboard/USB Mouse.



3.4 Dual BIOS Function

If the USR_BIOS fails to boot, you may boot the system by the BAK_BIOS and then restore the USR_BIOS by flashing tool.

Detail steps as following introduction. First at all, open your case and remove JBIOSLC jumper to post, the blue led will be ON by the BIOS at this time, after a moment, red led will be ON and blue led will be OFF. Afterwards, the board will automatically restart, after startup, please set to pin 1-2 for JBIOSLC jumper(USR_BIOS status) and use the BIOS file to flash which can download from our website. You can save the BAK_BIOS to a disk after startup from BAK_BIOS by setting jumper to pin 2-3, and use above steps to flash USR_BIOS.



Attention: After updating the bios, please keep the jumper on pin 1-2, and any sudden jumper switching will destroy BAK_BIOS.

JBIOSLC

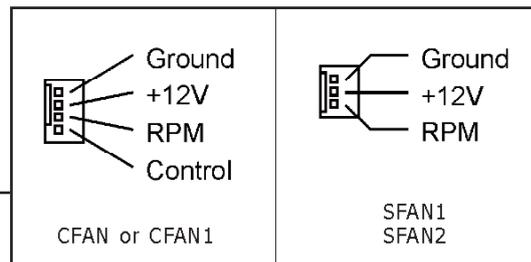
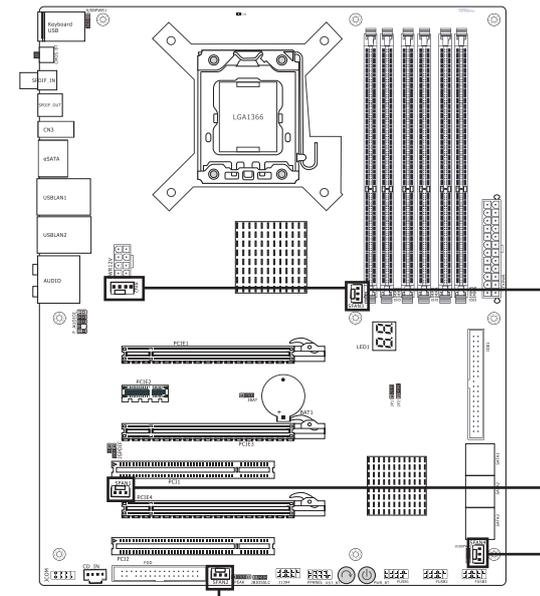
1-2	USR_BIOS
2-3	BAK_BIOS
NC	AUTO

3.5 FAN Power Connectors

These connectors each provide power to the cooling fans installed in your system.

CFAN: CPU Fan Power Connector

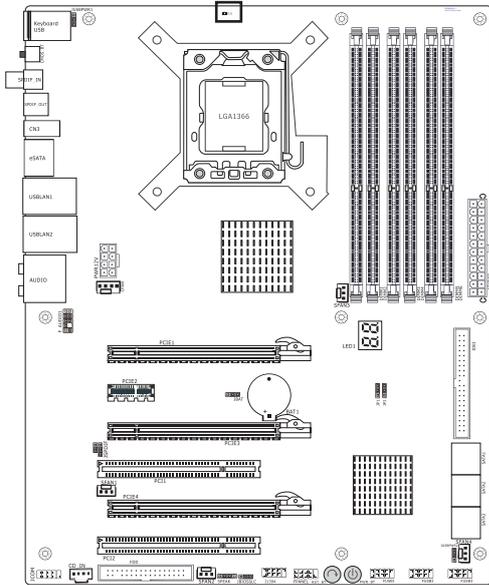
SFAN1/2/3/4: System Fan Power Connector



! These fan connectors are not jumpers. DO NOT place jumper caps on these connectors.

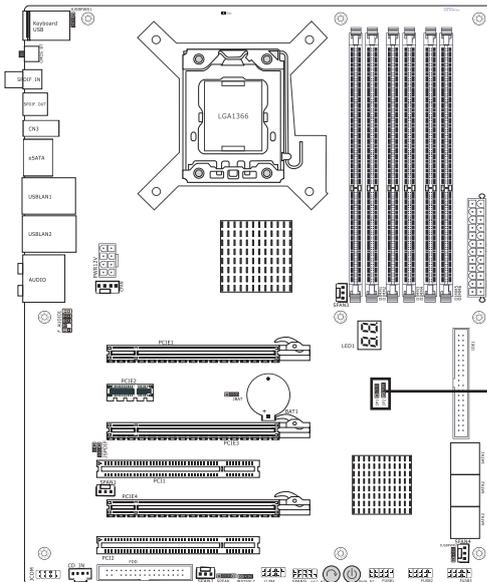
3.6 PSI Status (Energy-saving Status) LED (D11)

This status LED will remain ON when the CPU is working under load, and will automatically turn OFF when the CPU loading is low and the PWM enters the energy-saving mode.



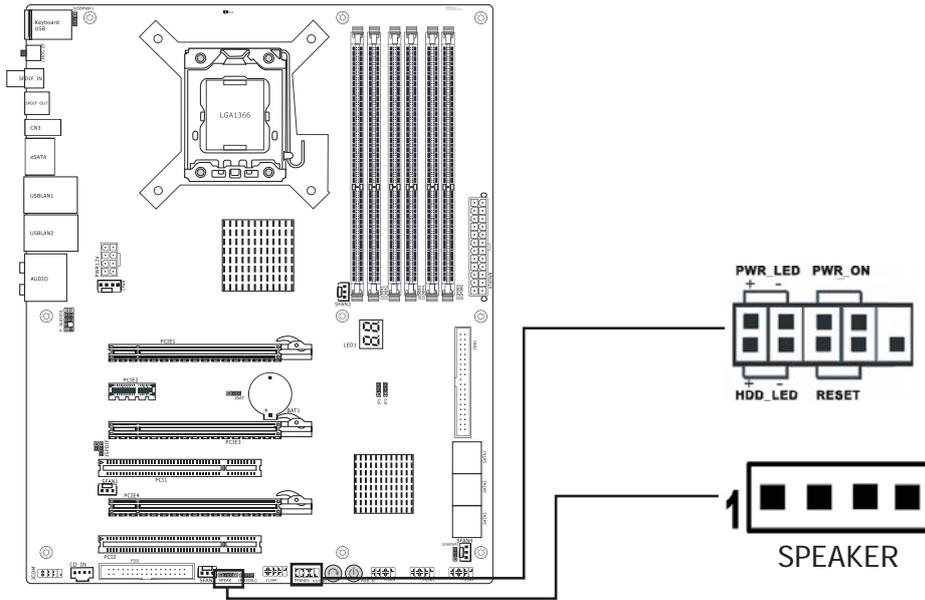
3.7 QPI Speed jumper (JP1, JP2)

This set of jumper is for manually overriding the Quick Path Interconnect (QPI) bandwidth. By default it is set to AUTO.



JP1	JP2	QPI SPEED(GT/s)
2-3	2-3	AUTO (Default)
1-2	OPEN	6.4
OPEN	1-2	5.9
OPEN	OPEN	4.8

3.8 Front Panel Switches & Indicators Headers (FPANEL)



HDD_LED (Hard Driver LED Header)

Connect the HDD LED cable to these PINs, in order to see the HDD status.

RESET (On the board right bottom, the RST_BT is reset switch)

This connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

PWR_ON (On the board right bottom, the PWR_BT is power switch)

This connector connects to the case-mounted power switch to power ON/OFF the system.

PWR_LED (Power LED)

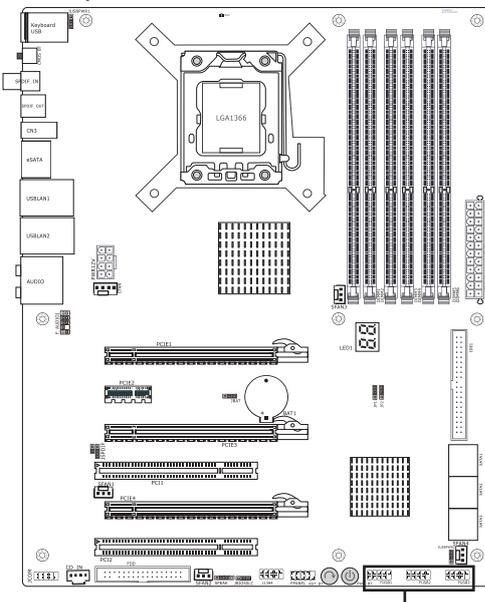
Connect power led cable of front panel on the case.

SPEAKER (Speaker)

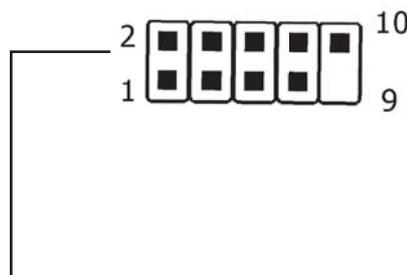
This 4-pin connector connects to the case-mounted speaker. You should follow the instruction of the speaker cable.

3.9 Additional USB Port Headers (FUSB1, FUSB2, FUSB3)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket.

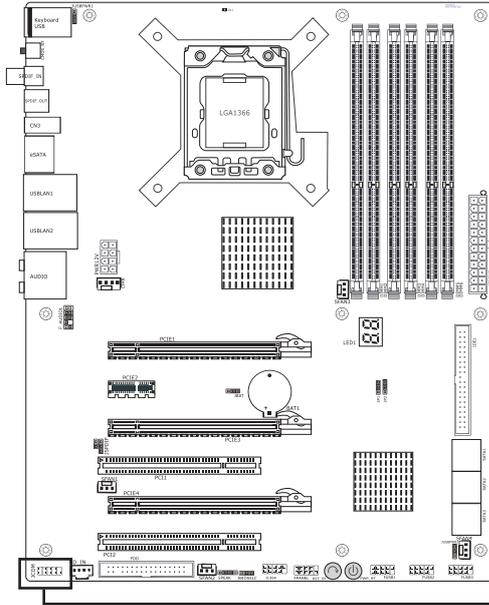


Pin	Pin Assignment	Pin	Pin Assignment
1	VCC	2	VCC
3	Data 0-	4	Data 0-
5	Data 0+	6	Data 0+
7	Ground	8	Ground
9	No Pin	10	NC

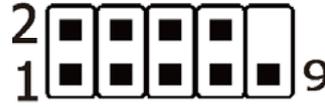


3.10 Serial Port Header (JCOM)

This JCOM header supports a serial port module.

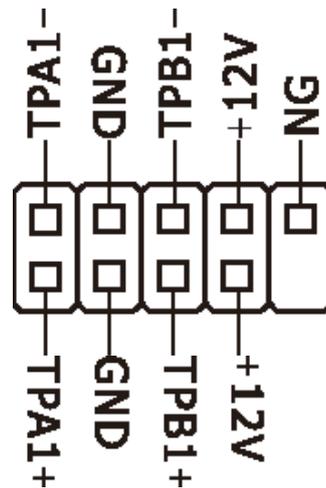
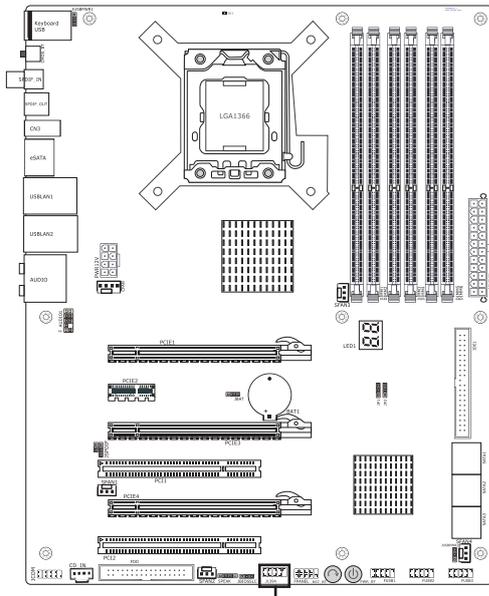


Pin	Pin Assignment	Pin	Pin Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	CTS	8	RTS
9	RI		



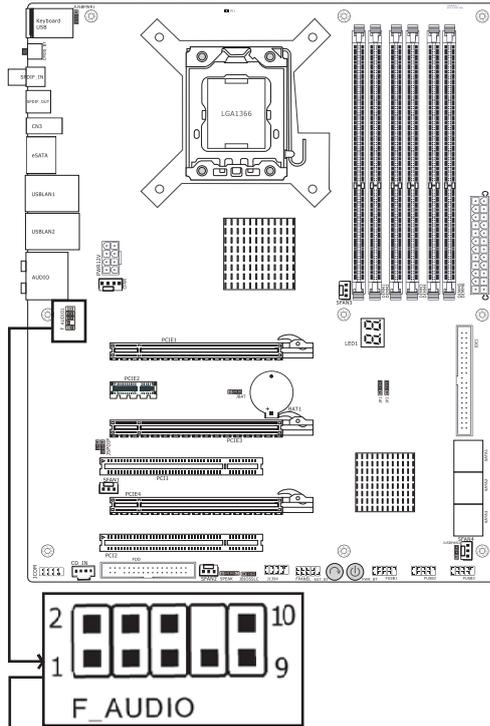
3.11 IEEE 1394a header (J1394)

This header conforms to the IEEE 1394a specification. It supports a IEEE 1394a port to be extended via an optional IEEE 1394a I/O bracket.



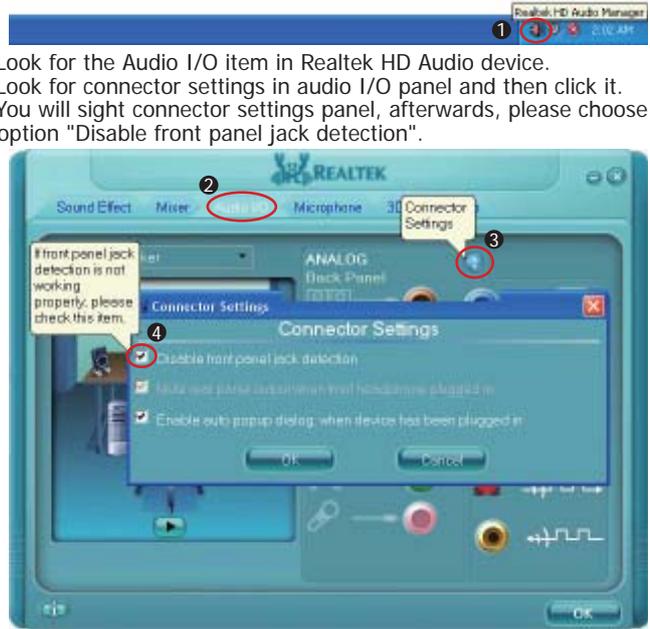
- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB headers (Blue).

3.12 Front Panel Audio



If it's AC97 front connector and then you need to set the panel to support in the Realtek HD manager.

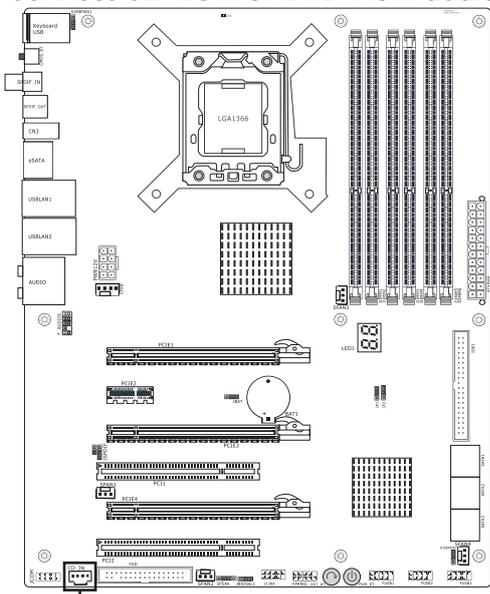
1. First at all, click the Realtek HD Audio Manager where is at the right status bar.
2. Look for the Audio I/O item in Realtek HD Audio device.
3. Look for connector settings in audio I/O panel and then click it.
4. You will sight connector settings panel, afterwards, please choose the option "Disable front panel jack detection".



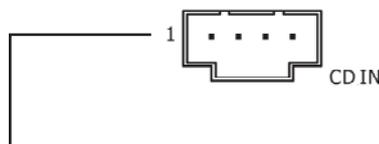
Pin No.	Header	HD Audio Definition	AC97 Audio Definition
1	PORT1L	Microphone	Microphone
2	AGND	Ground	Ground
3	PORT1R	Microphone	N/A
4	PRESENCE#	Detection sense line from front HD audio.	N/A
5	PORT2R	Right Channel	Right Channel
6	SENSE1_RETURN	To detect Microphone sense.	N/A
7	SENSE_SEND	Send Jack detection sense from the high definition audio codec.	N/A
8	No Pin	N/A	N/A
9	PORT2L	Left Channel	Left Channel
10	SENSE2_RETURN	To detect Right and Left channel	N/A

3.13 Internal Audio Connectors

Connect CD-ROM or DVD-ROM audio out to the connector.

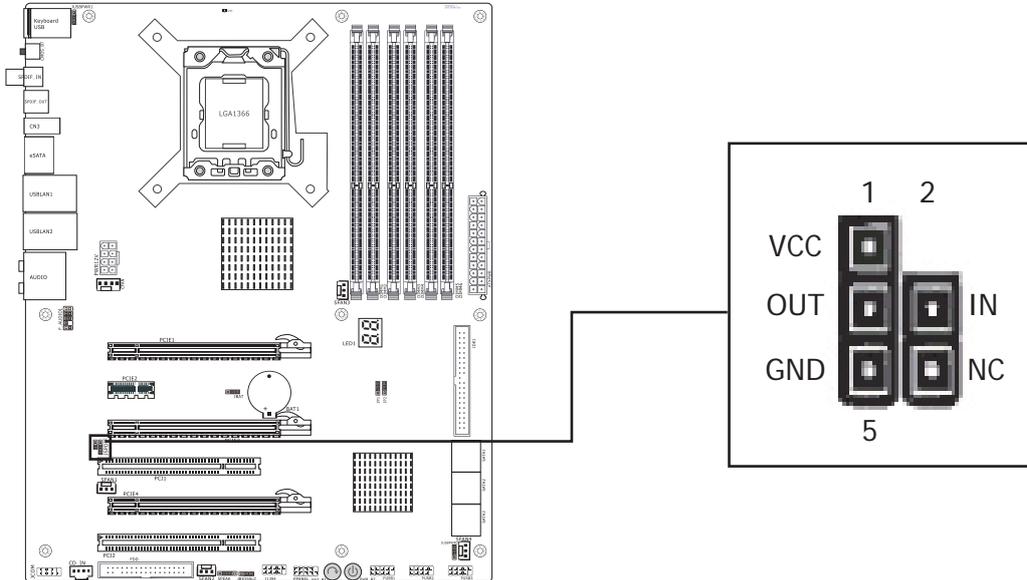


Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R



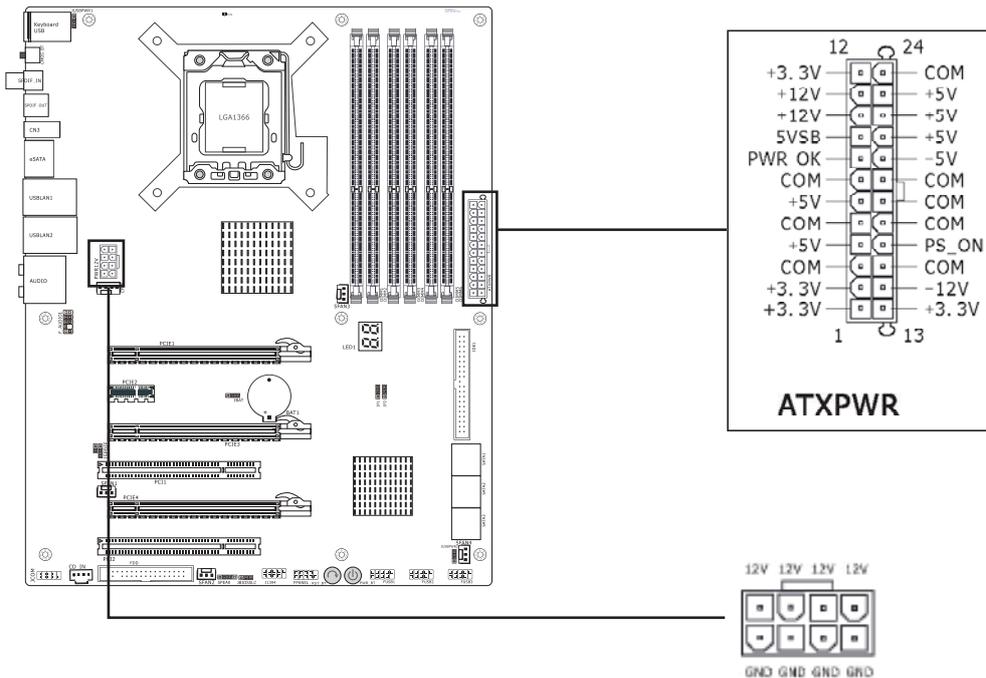
3.14 S/PDIF Input/ Output headers

S/PDIF (Sony/Philips Digital Interface) is a standard audio transfer file format. It is usually found on digital audio equipment such as a DAT (Digital Audio Tape) machine or audio processing device. It allows the transfer of audio from one file to another without the conversion to and from an analog format, which could degrade the signal quality.



3.15 ATX Power Input Connectors

This mainboard provides two power connectors to connect power supplier. This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13.



Chapter 4 BIOS Setup Utility

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of motherboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

4.1 About BIOS Setup

BIOS Setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4.2 To Run BIOS Setup

First access BIOS setup menu by pressing <F1> key after "POST" is complete (before OS is loaded). After the first BIOS be setupped(or loaded default values) and save, the key will be pressed if you will enter BIOS setup menu.

4.3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and check and configure the BIOS Setup for the new start.

4.4 The POST (Power On Self Test)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4.5 BIOS Setup — CMOS Setup Utility



- **The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match with what you see on your screen.**
- **Do not change the BIOS parameters unless you fully understand its function.**

4.5.1 CMOS Setup Utility

After powering up the system, the BIOS message appears on the screen, when the first time or when CMOS setting wrong, there is following message appears on the screen, but if the first BIOS be setuped (or loaded default values) and save, the key will be pressed if you will enter BIOS setup menu.

Press F1 to Run SETUP

If this message disappears before you respond, restart the system by pressing <Ctrl> + <Alt> + keys, or by pressing the reset button on computer chassis. Only when these two methods should be fail that you restart the system by powering it off and then back on. After pressing <F1> or key, the main menu appears.

BIOS SETUP UTILITY	
Main	Advanced
▶ System Information	
System Time	[21:50:32]
System Date	[Tue 10/21/2008]
Floppy A	[1.44 MB 3 1/2"]
Language	[English]
▶ SATA Port 1	: [ST380215AS]
▶ SATA Port 2	: [Not Detected]
▶ SATA Port 3	: [Not Detected]
▶ SATA Port 4	: [Not Detected]
▶ SATA Port 5	: [Not Detected]
▶ SATA Port 6	: [Not Detected]
▶ IDE Master	: [Not Detected]
▶ IDE Slave	: [Not Detected]
▶ AHCI Device	
▶ USB Device	
	← Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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The menu bar on top of the screen has the following main items:

- Main** For changing the basic system configuration.
- Advanced** For changing the advanced system settings.
- Boot** For changing the system boot configuration.
- Security** For changing the system security settings.
- Power** For changing the advanced power management (APM) configuration.
- JustWoot!** For changing the overclocking settings.
- Exit** For selecting the exit options and loading default settings.

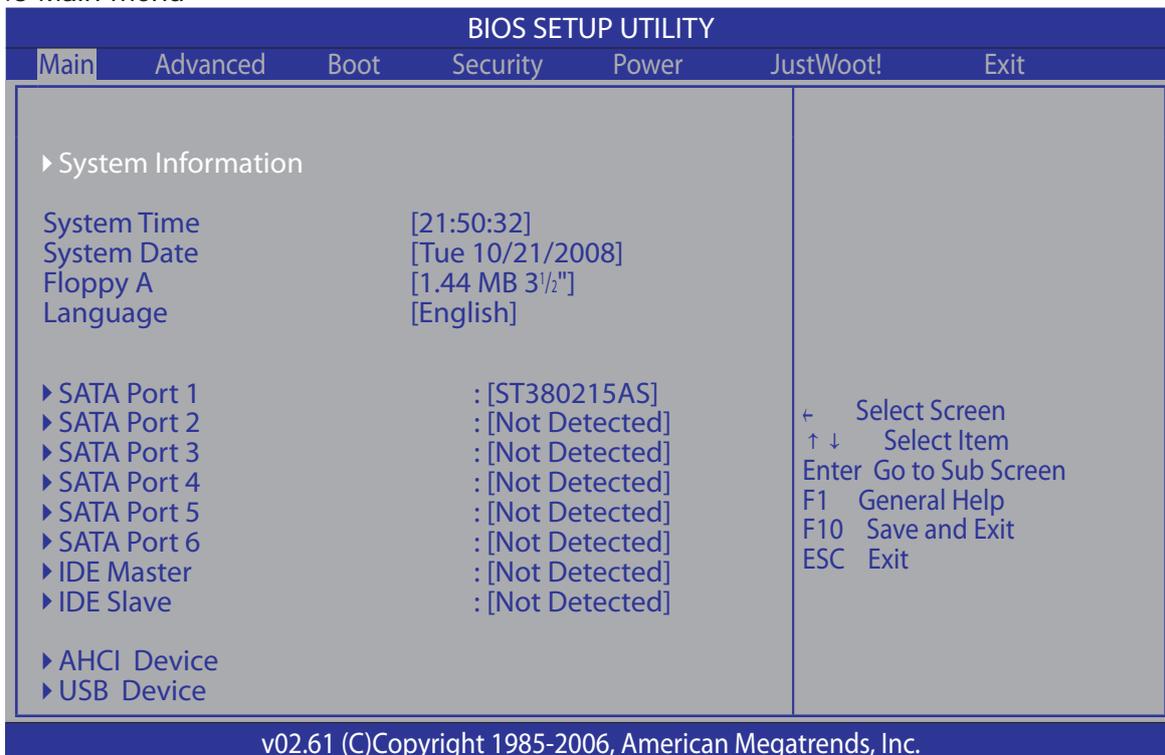
4.5.2 Control Keys

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.

Please check the following table for the function description of each control key.

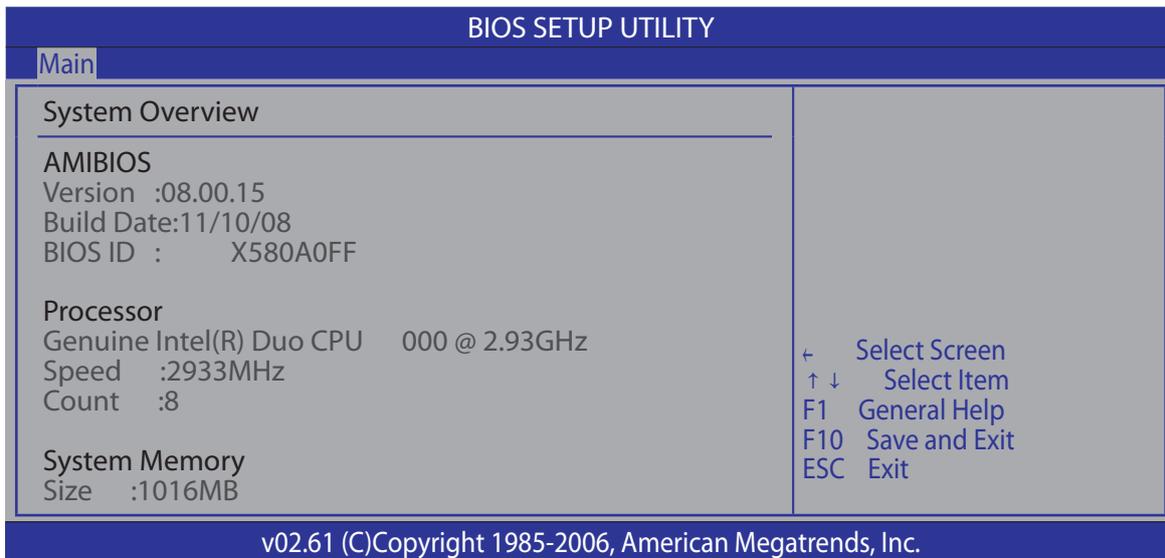
Control Key(s)	Function Description
← / →	Move cursor left or right to select Screens
↑ / ↓	Move cursor up or down to select items
+/-/PU/PD	To Change option for the selected items
<Enter>	To bring up the selected screen
<ESC>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<F1>	General help
<F2/F3>	Change Colors
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F7>	Discard Changes
<F8>	Load Failsafe Defaults
<F9>	Load Optimal Defaults
<F10>	Save configuration changes and exit setup

4.5.3 Main menu

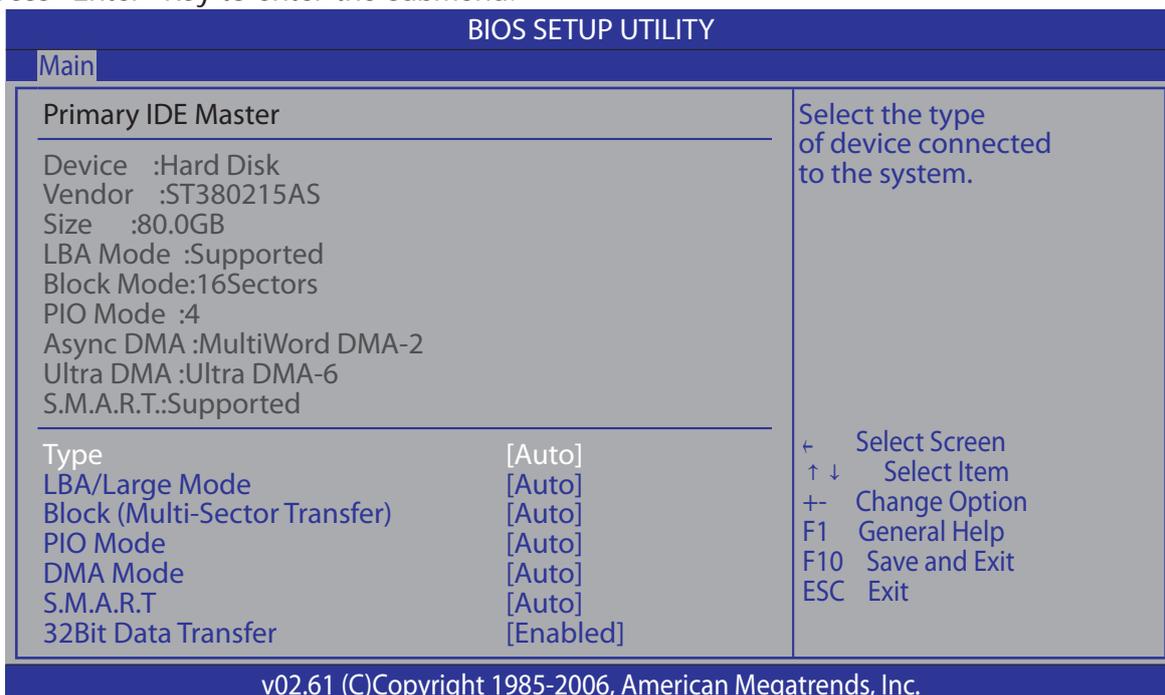


▶ System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.



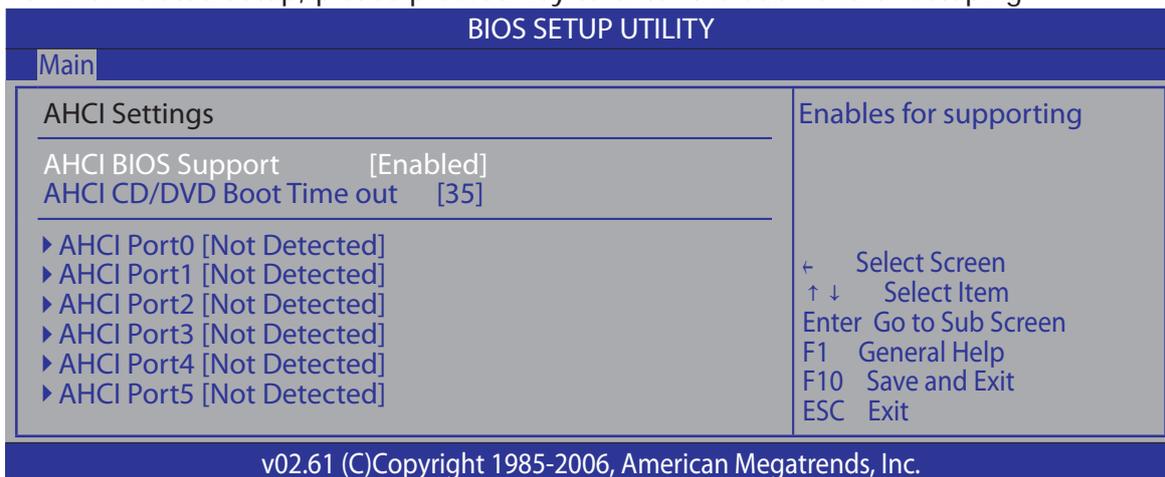
- **AMIBIOS** Displays the auto-detected BIOS information.
- **Processor** Displays the auto-detected CPU specification.
- **System Memory** Displays the auto-detected system memory.
 - Press <Esc> key to return to "Main" menu.
- **System time**
This item sets the time you specify(usually the current time)in the format of [Hour],[Minute]and [Second].
- **System date**
This item sets the date you specify(usually the current date in the format of [Month],[Date], and [Year].
- **Floppy A**
Allows you to selects the type of floppy disk drive installed in your system. If you do not install a floppy disk drive, set this item to None. Options are: None, 360K/5.25", 1.2M/5.25", 720K/3.5",1.44M/3.5", 2.88M/3.5".
- **Language**
Allows you to selects the current default language used by the BIOS.
- ▶ **SATA Port 1 、 2 、 3 、 4、 5、 6 ; IDE Master /Slave (SATA / IDE device)**
Press "Enter" Key to enter the submenu.



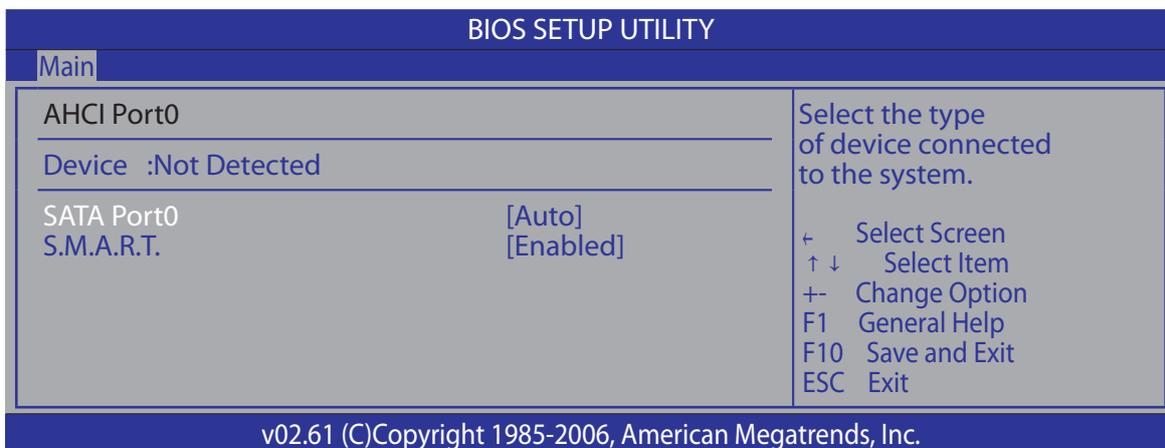
- **Type**
Use this item to configure the type of the IDE device that you specify.
- **LBA/Large Mode**
Enables or disables the LBA mode. Setting to [Auto] enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled.
- **Block (Multi-Sector Transfer)**
Enables or disables data multi-sectors transfers. When set to [Auto] , the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer frature. When set to [Disabled] , the data transfer from and to the device occurs one sector at a time.
- **PIO Mode**
Allows you to select the data transfer mode.
- **DMA Mode**
Selects the DMA mode.
- **S.M.A.R.T**
Set the Smart Monitoring, Analysis, and Reporting Technology.
- **32Bit Data Transfer**
Enables or disables 32-bit data transfer.
 - Press <Esc> key to return to "Main" menu.

▶ **AHCI Device**

The AHCI related setup, please pressed key to enter the submenu or setuping.



▶ **AHCI Port0/1/2/3/4/5**

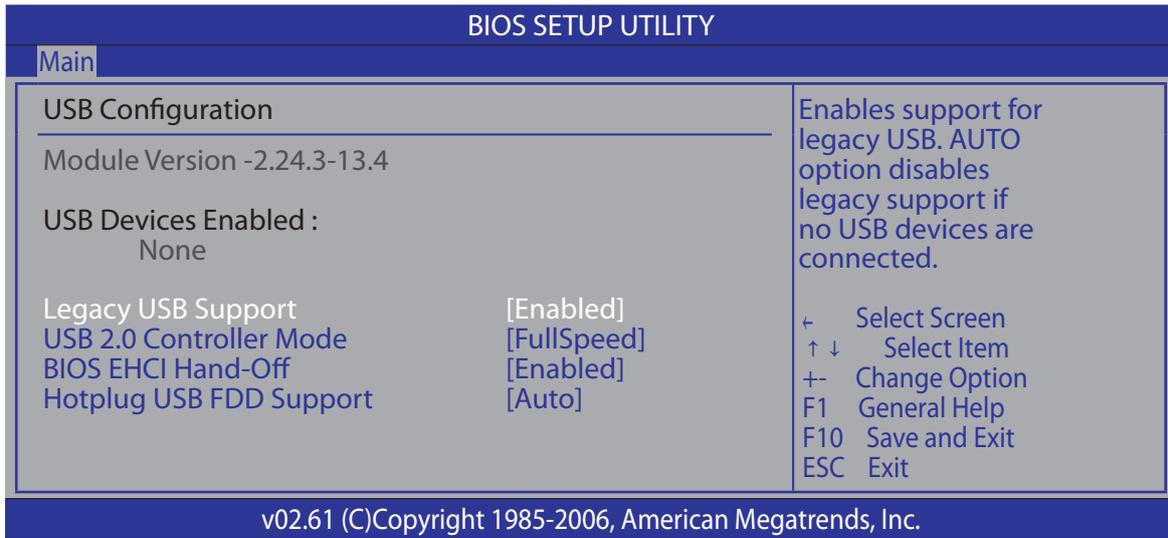


AHCI : Configures the SATA controllers to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

- Press <Esc> key to return to "Main" menu.

► **USB Device**

The items in this menu allows you to change the USB-related features.



- **Legacy USB Support**

Enabled or Disabled Legacy USB option, and Auto option disables legacy support if no USB devices are connected.

- **USB 2.0 Controller Mode**

Allow you to selects the HiSpeed(480Mbps) or FullSpeed(12Mbps).

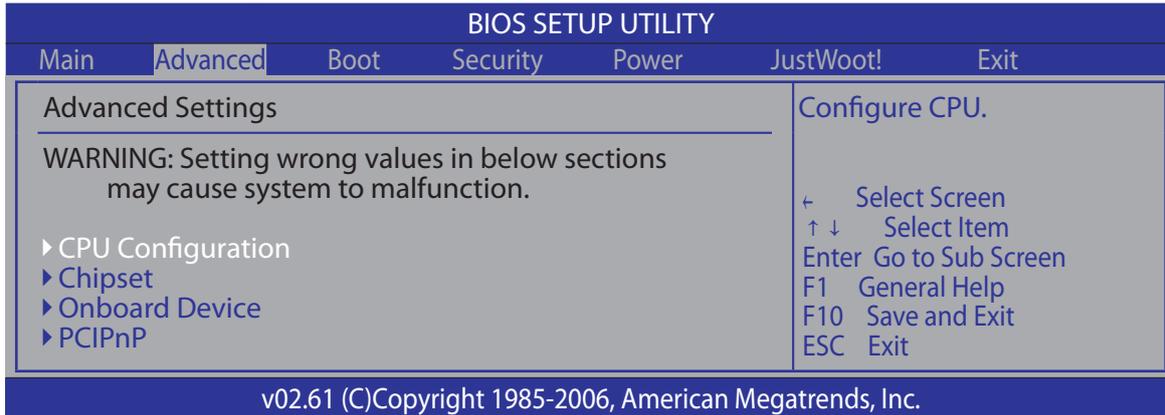
- **BIOS EHCI Hand-Off**

Allows you to enable the support for operating systems without an EHCI hand-off feature.

- **Hotplug USB FDD Support**

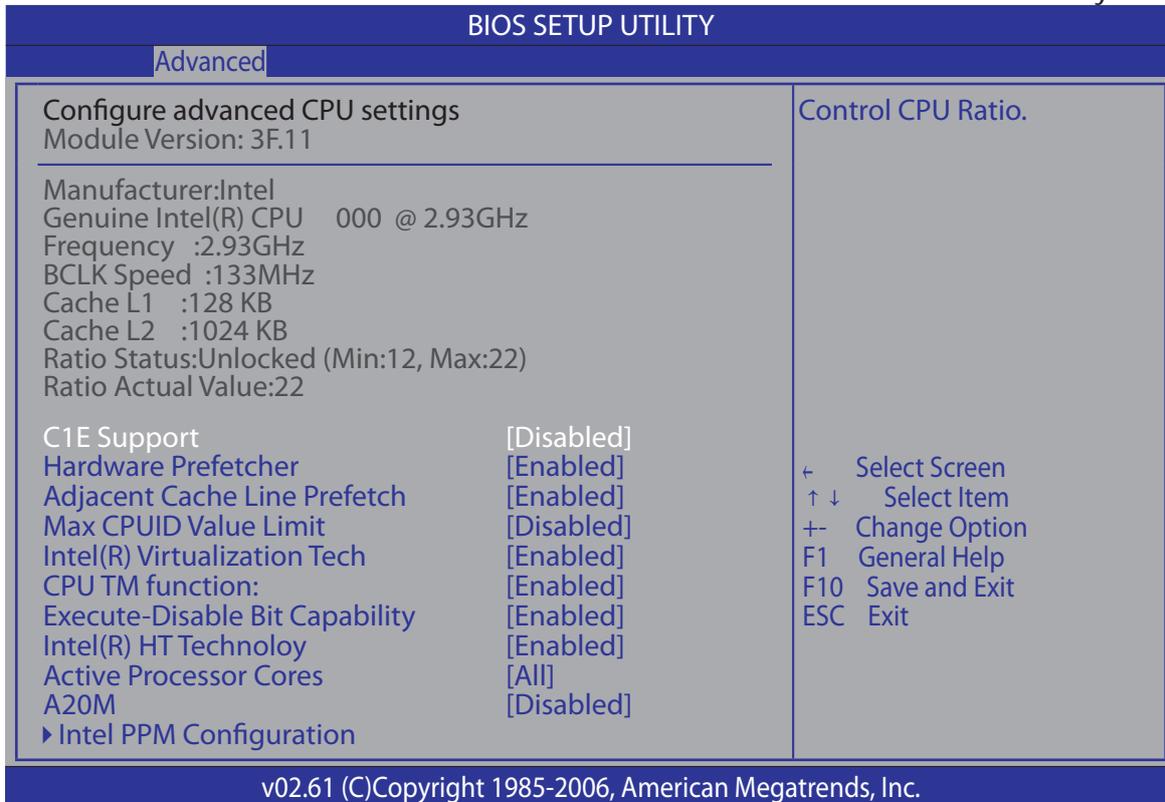
A dummy FDD device is created that will be associated with the hotplugged FDD later. Auto option creates this dummy device only if there is no USB FDD present.

4.5.4 Advanced setting



▶ **CPU Configuration**

This items in this menu show the CPU-related information that the BIOS automatically detects.



- **C1E Support**

Allows you to enable or disable Enhanced Halt State support.

- **Hardware Prefetcher**

This should be enabled in order to enable or disable the Hardware Prefetcher Disable Feature.

- **Adjacent Cache Line Prefetch**

This should be enabled in order to enable or disable the Adjacent Cache Line Prefetch Disable Feature.

- **Max CPUID Value Limit**

Setting this item to [Enabled] allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

- **Intel(R) Virtualization Tech**

When this option is set to Enabled, a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel (R) Virtualization Technology.

- **CPU TM function**

This function enables the overheated CPU to throttle the clock speed to cool down.

- **Execute-Disable Bit Capability**

Allows you to enable or disable the No-Execution Page Protection Technology. Setting this item to [Disable] forces the XD feature flag to always return to zero(0).

- **Intel(R) HT Technology**

Allows you to enable or disable the Intel Hyper-Threading Technology function. When disabled, only one thread per activated core is enabled.

- **Active Processor Cores**

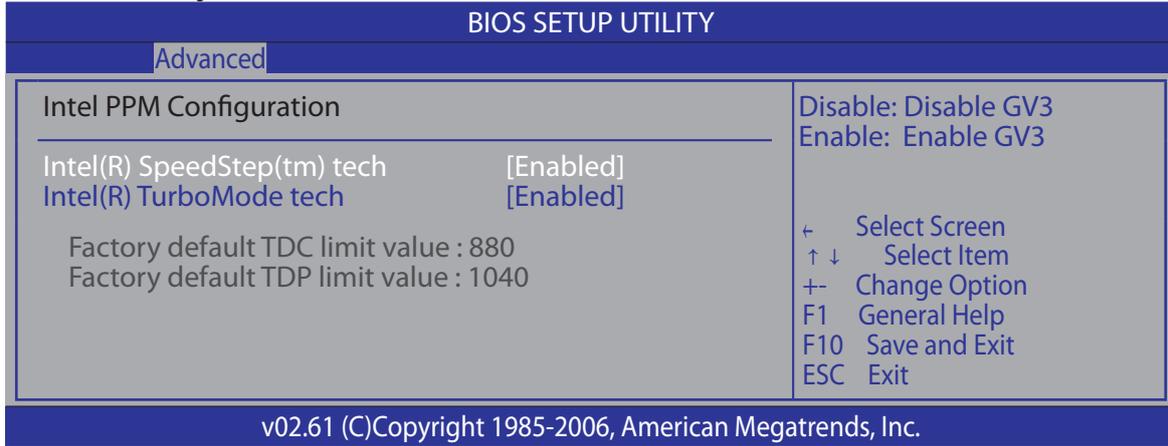
Allows you to choose the number of CPU cores to activate in each processor package.

- **A20M**

Legacy Oses and APs may need A20M enabled.

- ▶ **Intel PPM Configuration**

Press "Enter" Key to enter the submenu.



- **Intel(R) SpeedStep(tm) tech**

When set to Disabled, the CPU runs at its default speed. When set to Enabled, the CPU speed is controlled by the operating system.

- **Intel(R) TurboMode tech**

Turbo mode allows processor cores to run faster than marked frequency in specific condition.

- Press <Esc> key to return to "Main" menu.

- ▶ **Chipset**

The Chipset menu allows you to change the advanced chipset settings. Click <Enter> key to enter its submenu.

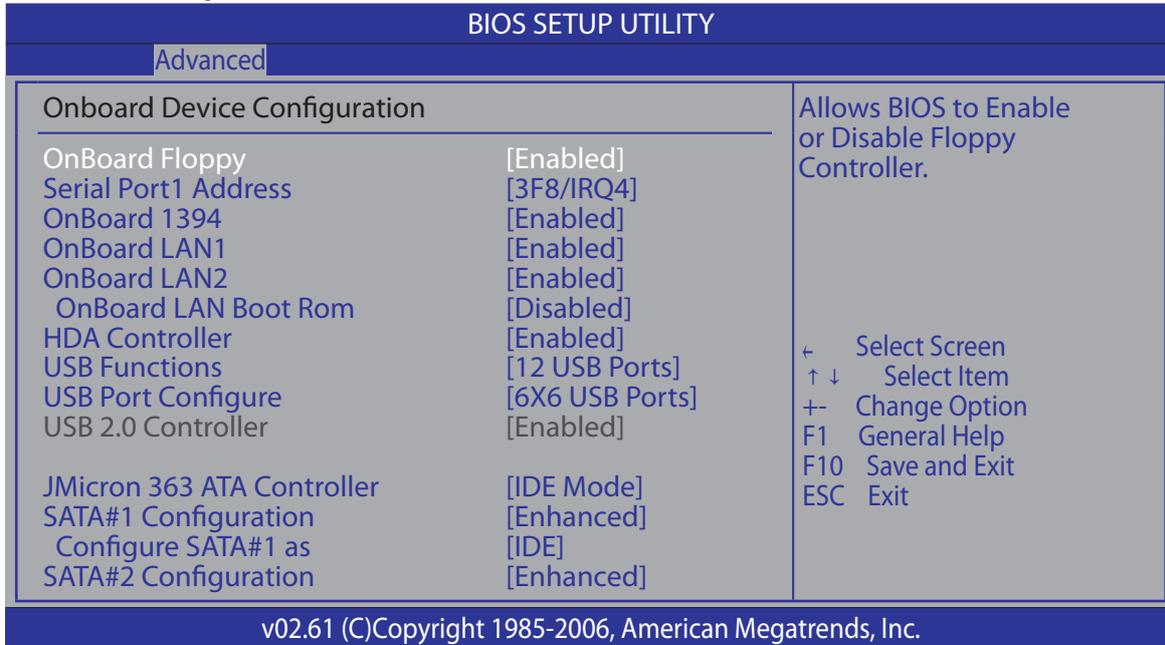
BIOS SETUP UTILITY	
Advanced	
Advanced Chipset Settings	
WARNING: Setting wrong values in below sections may cause system to malfunction.	
CPU Revision :C0 Current QPI Frequency :4.800GT Current Memory Frequency :1066 Mhz	
QPI Links Speed	[Full-Speed]
QPI Frequency	[Auto]
Memory Frequency	[Auto]
Memory Mode	[Independent]
Demand Scrubbing	[Disabled]
Patrol Scrubbing	[Disabled]
QPI L0s and L1	[Enabled]
Throttling - Closed Loop	[Enabled]
Hyster temp	[1.5°C]
Guardband temp	[006]
Inlet temp	[070]
Air Flow	[020]
Altitude	[1500]
DIMM Pitch	[Sea Level or Below]
Throttling - Open Loop	[400]
Inlet temp	[Enabled]
Temp Rise	[070]
Air Flow	[020]
Altitude	[1500]
DIMM Pitch	[Sea Level or Below]
NB Revision	:B2
+ Select Screen ↑ ↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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- **QPI Links Speed**
To transition the QPI links to full-speed or leave them in slow-mode.
- **QPI Frequency**
To transition the QPI links to the specified speed when transitioning the links to full-speed.(if supported by all components)
- **Memory Frequency**
Forces a DDR3 frequency slower than the common tCK detected via SPD.
- **QPI L0s and L1**
Enable/Disable L0s and L1.
- **Throttling - Closed Loop**
BIOS to program Closed Loop throttling for memory compents.
- **Hyster temp**
Temperature Hysteresis.
- **Guardband temp**
Temperature guradband to apply to DIMM temp sensor Threshold. (in 0.5°C units)
- **Inlet temp**
Temperature at the chassis inlet. (in 0.5°C units)
- **Temp Rise**
Temperature rise to the DIMM thermal zone. (in 0.5°C units)
- **Air Flow**
Air speed to the DIMMs. (in units of mm/sec)

- **Altitude**
The system altitude above sea level. (in meters)
- **DIMM Pitch**
The pitch between DIMMs. (in units of 1/1000 inch)
- **Throttling - Open Loop**
BIOS to program Open Loop throttling for memory compents.
 - Press <Esc> key to return to "Advanced" menu.

► **Onboard Device**

Click <Enter> key to enter its submenu.



- **OnBoard Floppy**
Allows BIOS to Enable or Disable Floppy Controller.
- **Serial Port1 Address**
Allows BIOS to Select Serial Port1 base address.
- **OnBoard 1394**
Allows you to enable or disable the onboard 1394 controller.
- **OnBoard LAN1**
Allows you to enable or disable the onboard LAN1 controller.
- **OnBoard LAN2**
Allows you to enable or disable the onboard LAN2 controller.
- **OnBoard LAN Boot ROM**
This item allows you to use the boot ROM to boot-up the system and access the local area network directly.
- **HDA Controller**
This setting is used to enable or disable the onboard audio controller.
- **USB Function**
Allows you to enable or disable the USB Host Controllers.
- **USB Port Configure**
Option: 6x6 USB ports, 8x4 USB ports
- **USB 2.0 Controller**
Allows you to enable or disable the USB 2.0 controller.
- **JMicron 363 ATA Controller**
Allows you to select ATA controller operator Mode.
- **SATA#1 Configuration**
Optional: Disabled, Compatible, Enhanced

• **Configure SATA#1 as**

This option is displayed when the SATA#1 Configuration option is set to Enhanced or Compatible. The SATA controller has three modes of operation:

IDE - no AHCI, no RAID / RAID - no IDE, no AHCI /AHCI - AHCI enabled, no RAID

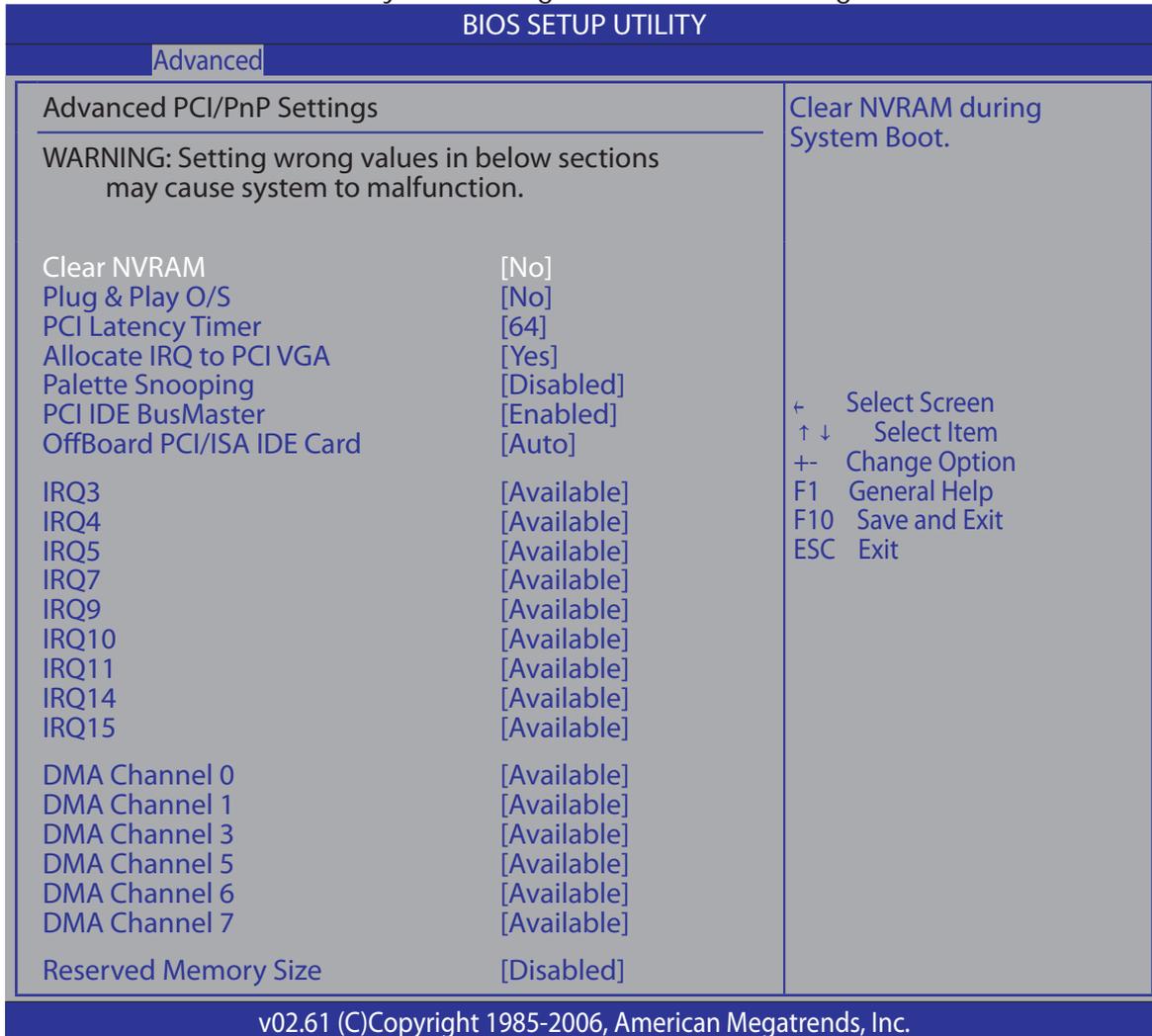
• **SATA#2 Configuration**

Option: Disabled, Compatible

- Press <Esc> key to return to "Advanced" menu.

► **PCIPnP**

The PCIPnP menu items allow you to change the advanced settings for PCI/PnP devices.



• **Clear NVRAM**

This item for clearing NVRAM during system boot.

• **Plug & Play O/S**

This item lets the BIOS configure all the devices in the system or lets the operating system configure plug and play (PnP) devices not required for boot if your system has a Plug and Play operating system.

• **PCI Latency Timer**

This item sets value in units of PCI clocks for PCI device latency timer register.

• **IRQ3/4/5/7/9/10/11/14/15**

Allows to you assigns IRQ 3,4,5,7,9,10,11,12,14,15 to the first PCI slot.

• **DMA Channel 0/1/3/5/6/7**

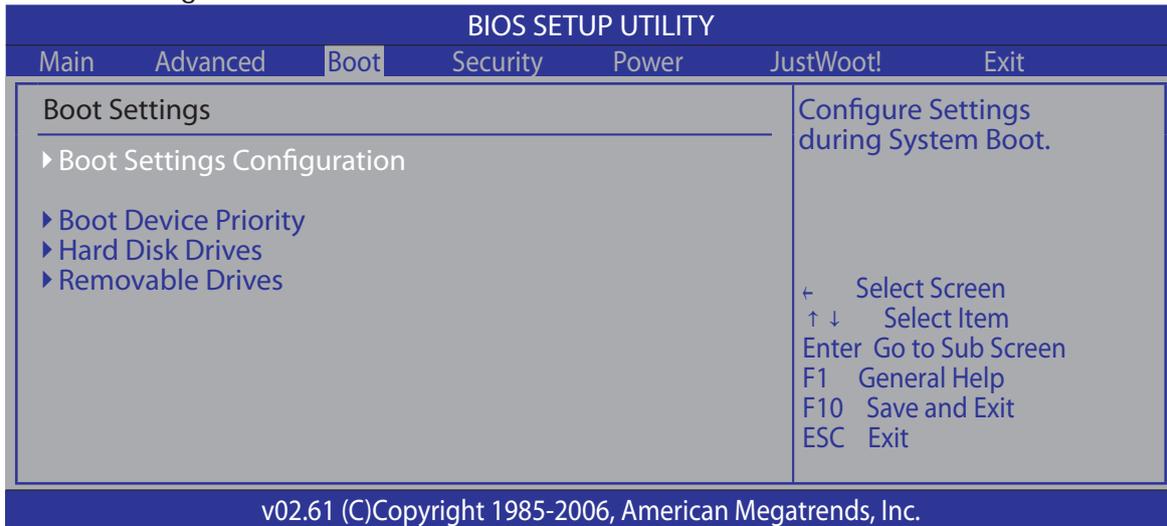
Available: Specified DMA is available to be used by PCI/PnP devices.

Reserved: Specified DMA is reserved for use by Legacy ISA devices.

• **Reserved Memory Size**

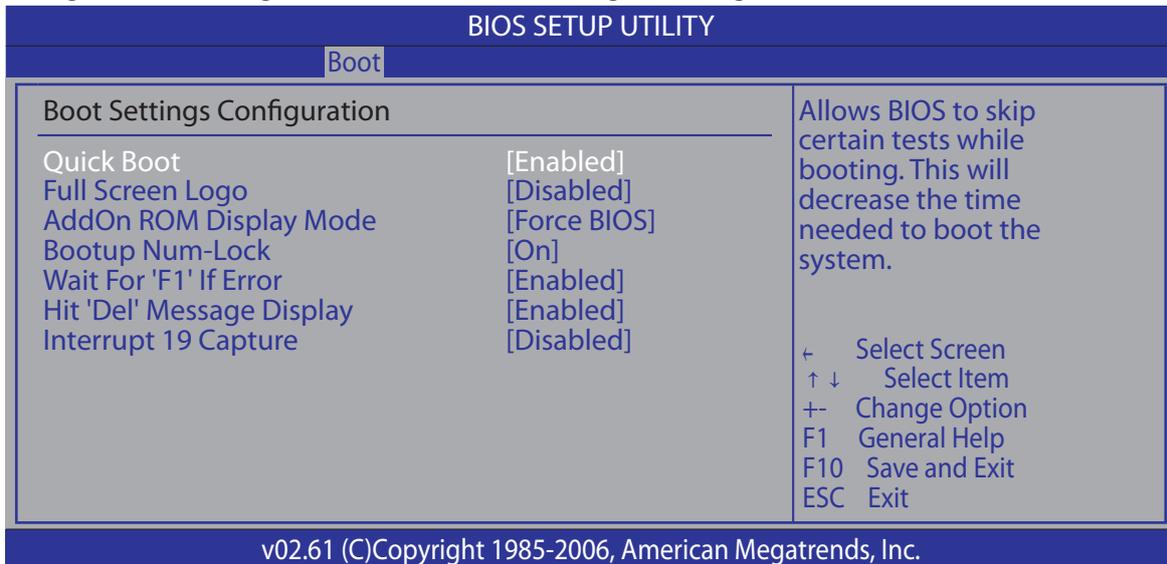
Allows you to select size of memory block to reserve for legacy ISA devices.

4.5.5 Boot setting



▶ **Boot Settings Configuration**

Click <Enter> key to enter its submenu, it will be display boot setting configuration, and the all functions allow BIOS to skip certain tests while booting, whether displays normal POST messages or OEM Logo instead of POST messages through sets the Quit Boot.



• **Quick Boot**

Allows BIOS to skip certain tests while booting, this will decrease the time needed to boot the system.

• **Full Screen Logo**

This allows you to enable or disable the full screen logo display feature.

• **AddOn ROM Display Mode**

Sets the display mode for option ROM.

• **Bootup Num-Lock**

Allows to you select the power-on state for the Numlock.

• **Wait For 'F1' if Error**

When set to [Enabled], the system waits for the <F1> key to be pressed when error occurs.

• **Hit 'DEL' Message Display**

When set to [Enabled], the system displays the message "Press DEL to run Setup" during POST.

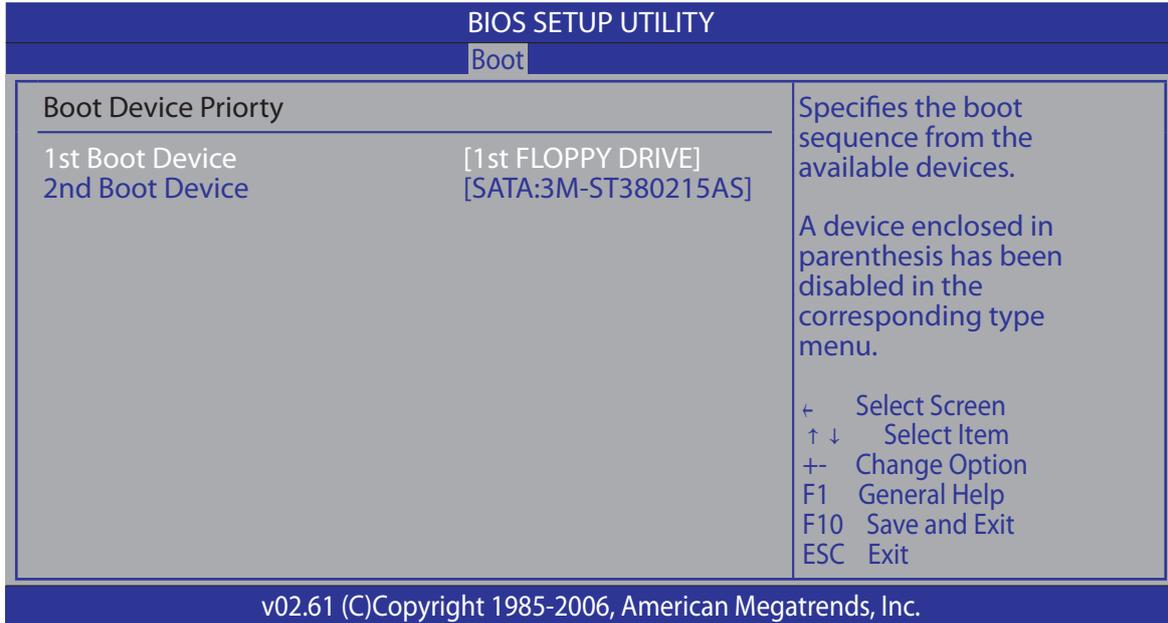
• **Interrupt 19 Capture**

Allows option ROMs to trap interrupt 19.

- Press <Esc> key to return to "**Boot**" menu.

▶ **Boot Device Priority**

Click <Enter> key to enter its submenu, it will be display specifies the boot sequence from the available devices.



- Press <Esc> key to return to "Boot" menu.

▶ **Hard Disk Drives**

Click <Enter> key to enter its submenu, it will be display specifies the boot device priority sequence from available Hard Disk drives.

▶ **Removable Drives**

Click <Enter> key to enter its submenu, it will be display specifies the boot device priority sequence from available removable drives.

4.5.6 Security setting

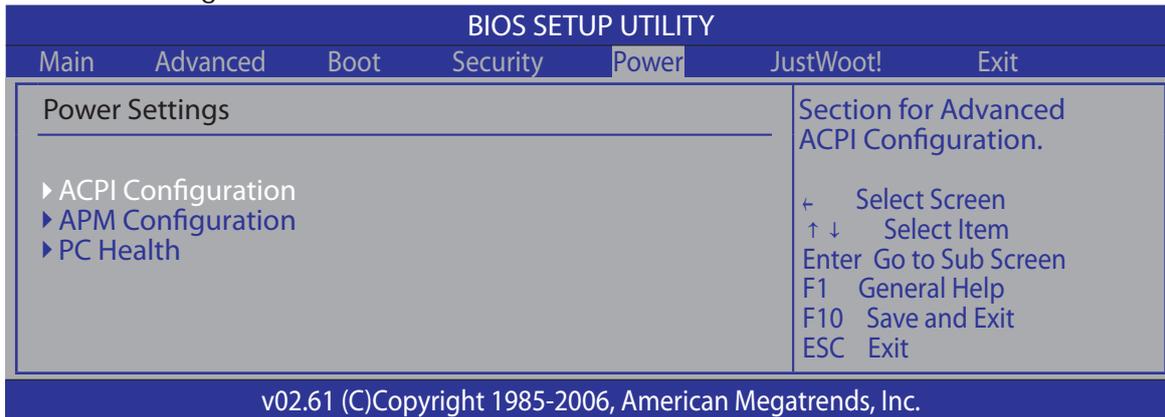
BIOS SETUP UTILITY						
Main	Advanced	Boot	Security	Power	JustWoot!	Exit
Security Settings <hr/> Supervisor Password : Not Installed User Password : Not Installed Change Supervisor Password User Access Level [Full Access] Change User Password Clear User Password Password Check [Setup] Boot Sector Virus Protection [Disabled] Flash Write Protection [Disabled]				Install or Change the password. ← Select Screen ↑ ↓ Select Item Enter Change F1 General Help F10 Save and Exit ESC Exit		
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This item allows you to Chage Supervisor/User Password, Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked toconfirm the password. Type the password again and press <Enter>.

 **Note:** Don't forget your password. If you forget the password, you will have to open the computer case and clear all information in the CMOS before you can start up the system. But by doing this, you will have to reset all previously set options.

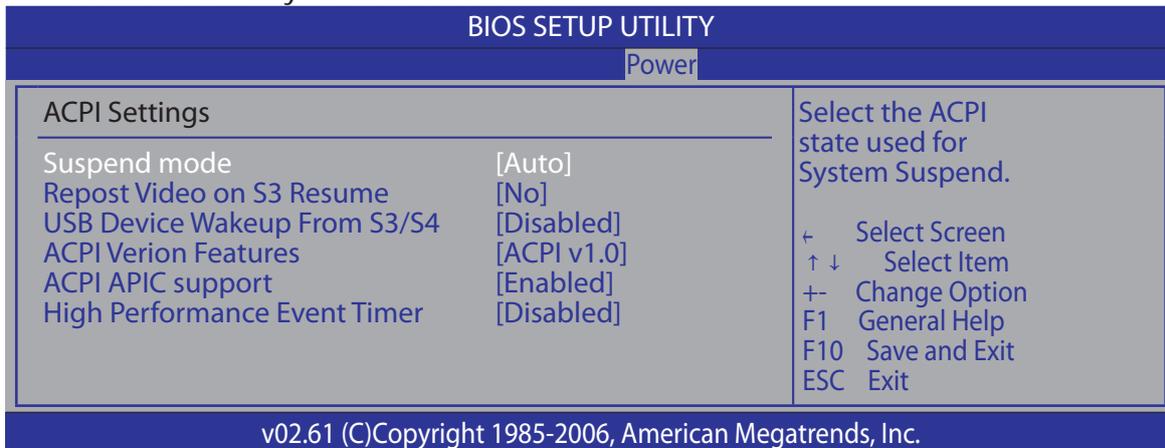
- **Boot Sector Virus Protection**
Uses this option, may prevent the change hard disk boot-sector (district table), thus prevents the infection computer virus.
- **Flash Write Protection**
This option is for BIOS protection function, selects disabled state, then it can update BIOS, If the option is Enabled state, this is BIOS protection, then cannot flash write or flash backup.

4.5.7 Power setting



▶ **ACPI Configuration**

Click <Press Enter> key to enter its submenu.



• **Suspend mode**

Optional: Auto, S1(POS), S3(STR)

S1(POS): Enables the system to enter the ACPI S1(Power on Suspend)sleep state(default), In S1 sleep state, the system appears suspended any stays in a low power mode. The system can be resumed at any time.

S3(STR): Enables the system to enter the ACPI S3(Suspend to RAM)sleep state. In S3 sleep state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

• **Repost Video on S3 Resume**

Determines whether to invoke VGA BIOS post on S3/STR resume.

Optional: Yes, No

• **USB Device Wakeup From S3/S4**

Allows you to select Enabled or Disabled for USB device Wakeup from S3/S4.

• **ACPI Version Features**

Enable RSDP pointers to 64-bit fixed system description tables.

Optional: ACPI v1.0, ACPI v2.0, ACPI v3.0

• **ACPI APIC support**

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Advanced Programmable Interrupt Controller (APIC) . When set to [Enabled], the ACPI APIC table pointer is included in the RSDT pointer list.

Optional: Enabled, Disabled

• **High Performance Event Timer**

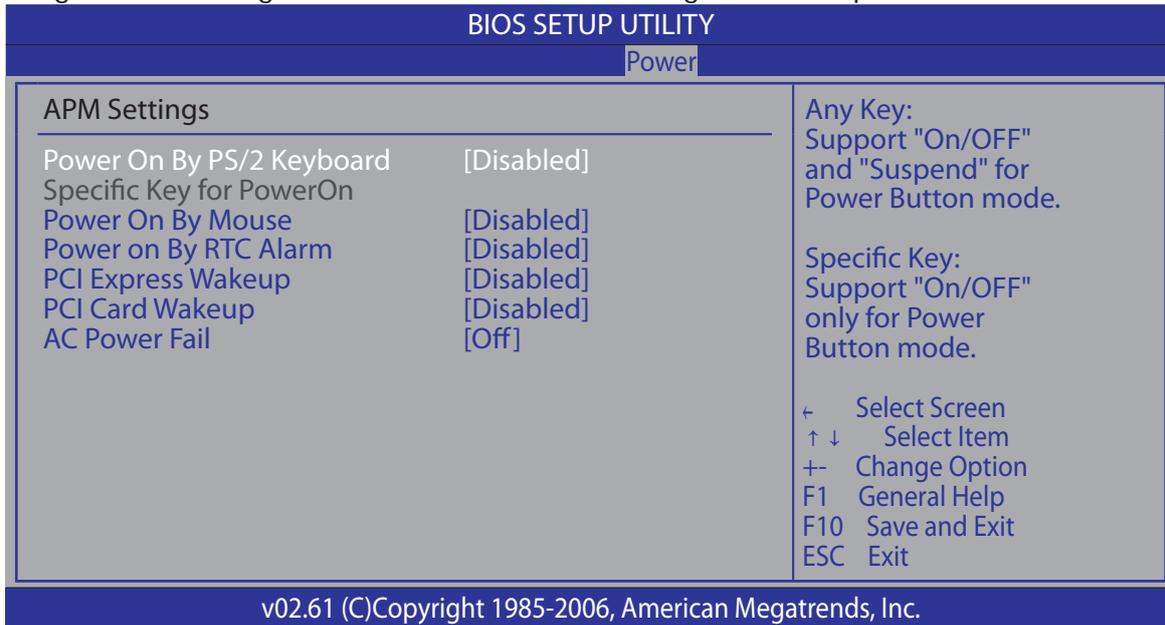
The item allows enable or disable HPET.

Optional: Enabled, Disabled

- Press <Esc> key to return to "Power" menu.

► **APM Configuration**

Click <Enter> key to enter its submenu, APM Configuration Template Manager allows you to manage Power Management default or custom configuration templates.



• **Power On By PS/2 Keyboard**

Allows the system to be turned on by a PS/2 keyboard wake-up event.

Disabled: Disables this function. (Default)

Specific Key: Set a password with 1~5 characters to turn on the system.

Any Key: Press any key on the keyboard to turn on the system.

• **Specific Key for PowerOn**

Set the password when **Power On By PS/2 Keyboard** is set to Password. Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept. To turn on the system, enter the password and press <Enter>.

Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

• **Power On By Mouse**

Allows the system to be turned on by a PS/2 mouse wake-up event.

• **Power on By RTC Alarm**

Allows you to enable or disable RTC to generate a wake event. When this item is set to [Enable], the items RTC Alarm Date (Days)/RTC Alarm Time will become user configurable with set values.

• **PCI Express Wakeup**

Selects disabled/Enabled for PCI Express to wakeup.

• **PCI Card Wakeup**

Selects disabled/Enabled for PCI card to wakeup.

• **AC Power Fail**

Determines the state of the system after the return of power from an AC power loss.

Optional: Off, On, Former Sts

Off: The system stays off upon the return of the AC power. (Default)

On: The system is turned on upon the return of the AC power.

Former Sts: The system returns to its last known awake state upon the return of the AC power.

- Press <Esc> key to return to "Power" menu.

► **PC Health**

Click <Enter> key to enter its submenu, it will be display hardware health configuration, including System temperature, CPU temperature, FAN speed and all kinds of voltages.

BIOS SETUP UTILITY		
		Power
PC Health		Fan configuration mode setting
CPU Temperature	:38°C/100°F	
Sys Temperature	:25°C/77°F	
CPU Fan Speed	:2596 RPM	
Fan 1 Reading	:N/A	
Fan 2 Reading	:N/A	
CPUCore Voltage Detected	:1.192 V	← Select Screen
3VCC	:3.232 V	↑ ↓ Select Item
DRAM	:1.501 V	+ - Change Option
MCHCore Voltage Detected	:1.118 V	F1 General Help
SB 1.5V Voltage Detected	:1.490 V	F10 Save and Exit
CPU VTT Voltage Detected	:1.120 V	ESC Exit
VBAT Voltage Detected	:3.184 V	
SBCore Voltage Detected	:1.091 V	
5V Voltage Detected	:5.017 V	
12V Voltage Detected	:12.302 V	
CPUFAN0 Mode Setting	[Manual Mode]	
CPUFAN0 PWM Control	[250]	

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• **All Voltages, Fans Speed and Termal Monitoring**

These unchangeable items list the current status of the CPU and environment temperatures, fan speeds, and system power voltage.

• **CPUFAN0 Mode Setting**

Fan configuration mode setting.

Optional: Manual Mode, Thermal Cruise Mode, Speed Cruise Mode

• **CPUFAN0 PWM Control**

PWM Duty Cycle Control. This item only when "CPUFAN0 Mode Setting" setup as "Manual Mode" is activated. Optional: 0~255

• **CPUFAN0 TargetTemp Value**

CPUFAN target temperature value. This item only when "CPUFAN0 Mode Setting" setup as "Thermal Cruise Mode" is activated. Optional: 0~255

• **CPUFAN0 Tolerance Value**

CPUFAN Tolerance Value. This item only when "CPUFAN0 Mode Setting" setup as "Thermal Cruise Mode" and "Speed Cruise Mode" is activated. Optional: 0~15

• **CPUFAN0 StartUp Value**

CPUFAN StartUp Value. This item only when "CPUFAN0 Mode Setting" setup as "Thermal Cruise Mode" is activated. Optional: 0~255

• **CPUFAN0 Stop Value**

CPUFAN Stop Value. This item only when "CPUFAN0 Mode Setting" setup as "Thermal Cruise Mode" is activated. Optional: 0~255

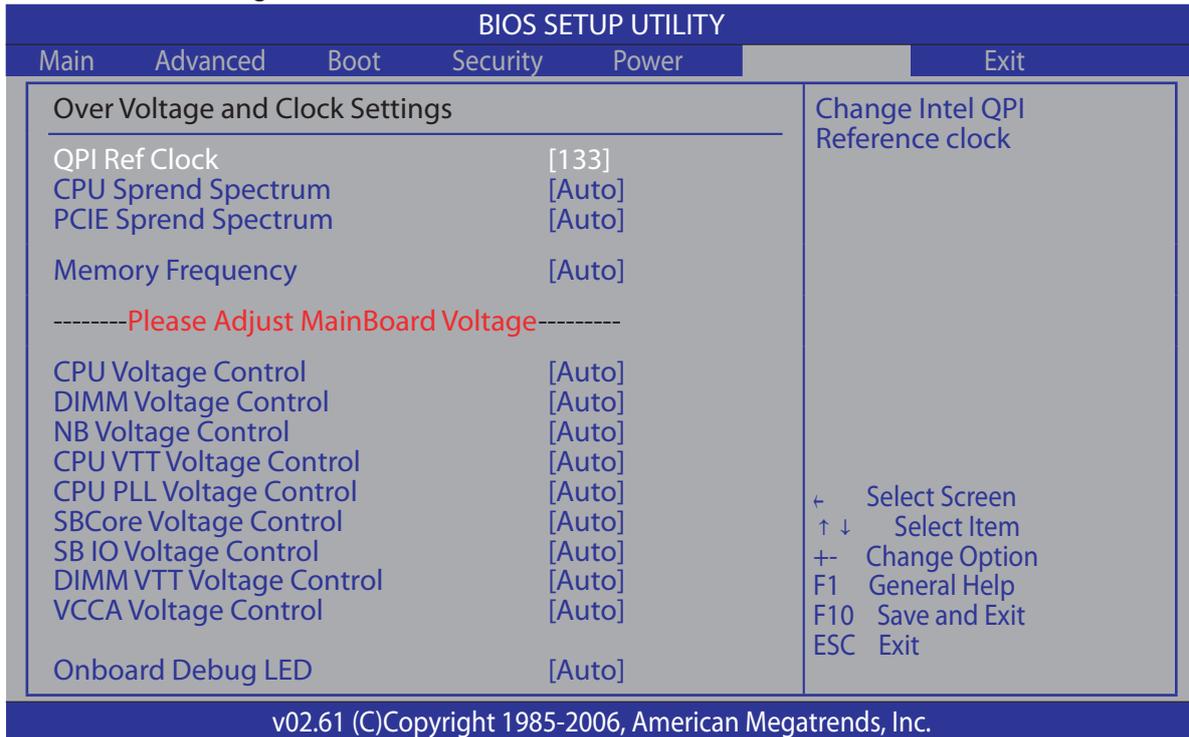
• **CPUFAN0 StopTime Value**

CPUFAN StopTime Value. This item only when "CPUFAN0 Mode Setting" setup as "Thermal Cruise Mode" is activated. Optional: 0~255

• **CPUFAN0 TargetSpeed Value**

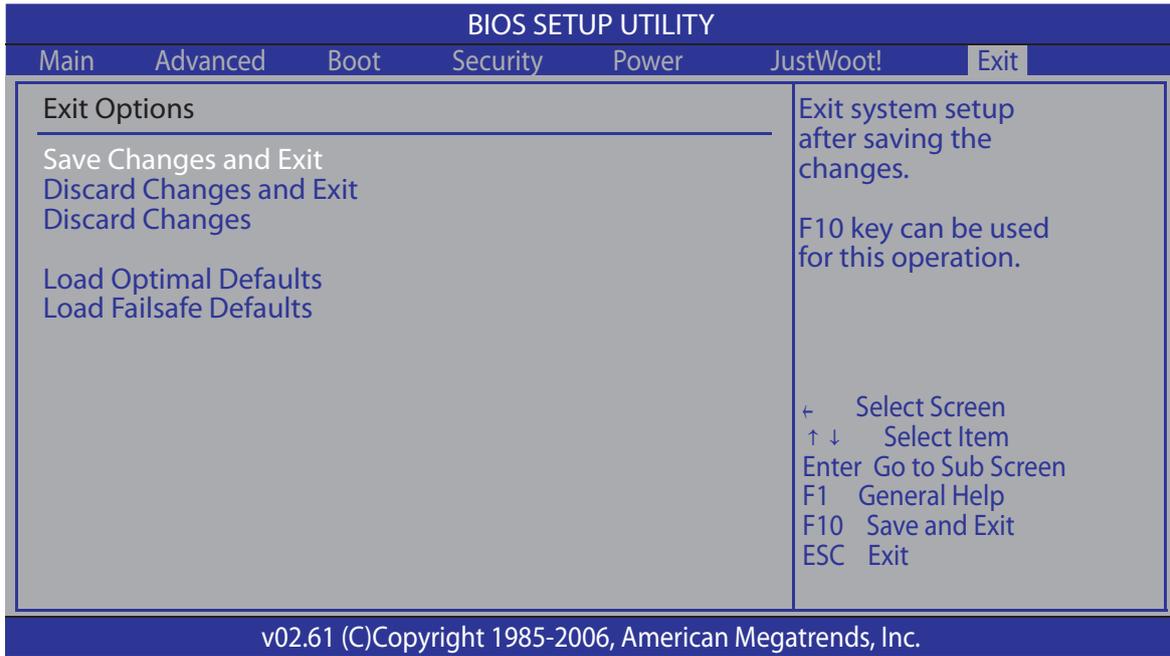
CPUFAN Target Speed Value. This item only when "CPUFAN0 Mode Setting" setup as "Speed Cruise Mode" is activated. Optional: 0~255

4.5.8 JustWoot! setting



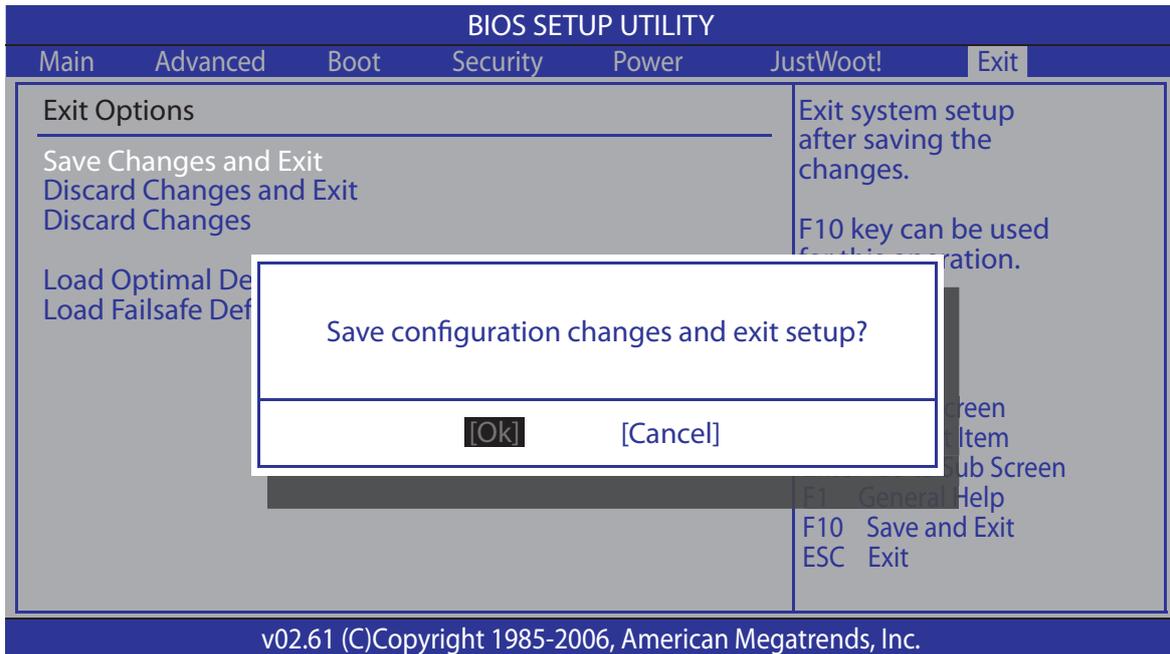
- **QPI Ref Clock**
Change Intel QPI Reference clock.
- **CPU Spread Spectrum**
This option reduces the EMI (Electromagnetic Interference) generated by the CPU.
- **PCIE Spread Spectrum**
This item allows you to select the PCIE Spread Spectrum function.
- **Memory Frequency**
Forces a DDR3 frequency slower than the common tCK detected via SPD.
- **CPU Voltage Control**
Allows you to adjust the CPU voltage. Normal sets the CPU voltage as required.
- **DIMM Voltage Control**
Allows you to set memory voltage.
- **NB Voltage Control**
Allows you to set NB voltage.
- **CPU VTT Voltage Control**
Allows you to set CPU VTT voltage.
- **CPU PLL Voltage Control**
Allows you to set CPU PLL voltage.
- **SBCore Voltage Control**
Allows you to set SBCore voltage.
- **SB IO Voltage Control**
Allows you to set SB IO voltage.
- **DIMM VTT Voltage Control**
Allows you to set DIMM VTT voltage.
- **VCCA Voltage Control**
Allows you to set VCCA voltage.
- **Onboard Debug LED**
This item may choose begins using or is forbid to Debug LED.
Optional: Auto(Default), Disabled

4.5.9 Exit Options



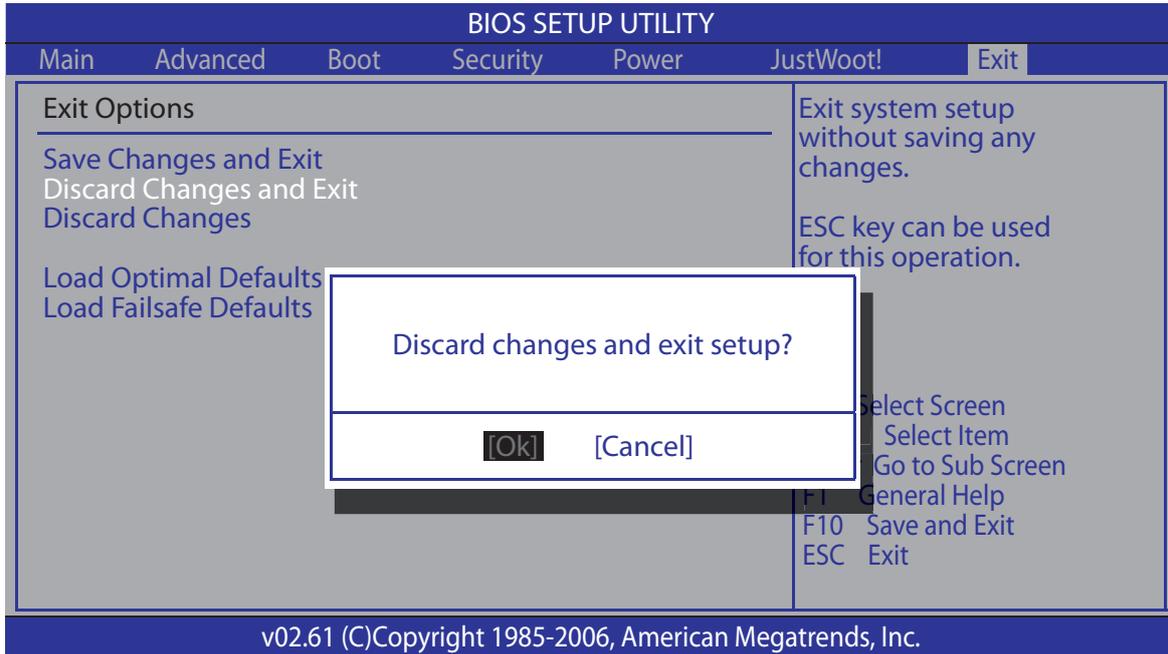
Save Changes and Exit

Highlight this item and select <Ok>, then press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



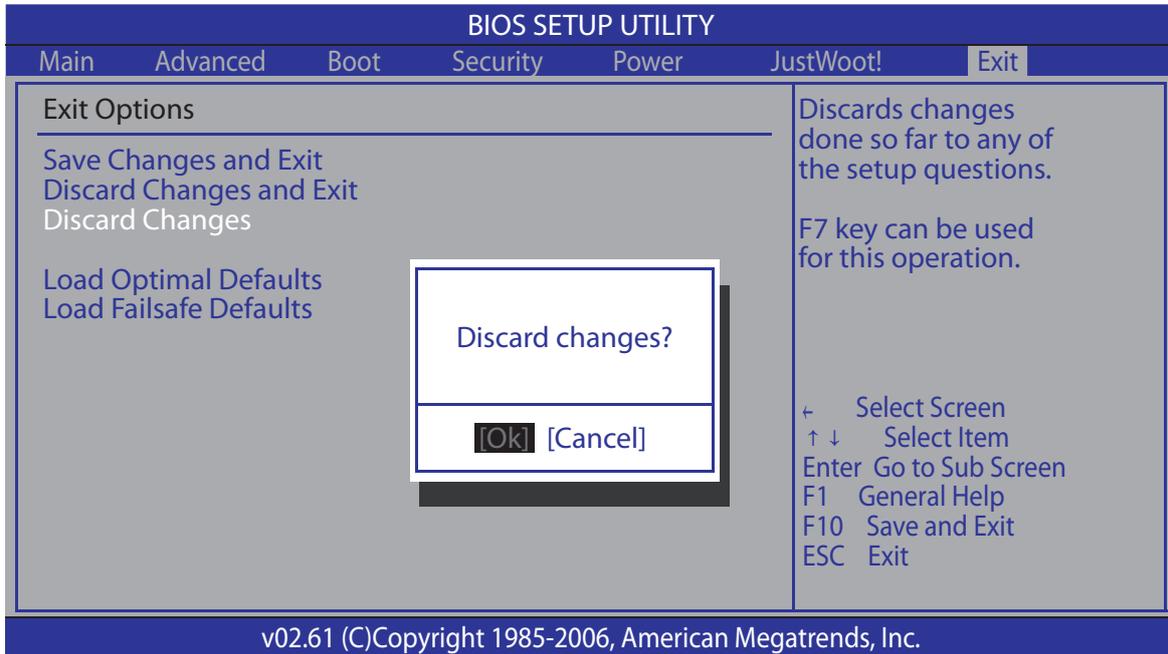
Discard Changes and Exit

Highlight this item and select <Ok>, then press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



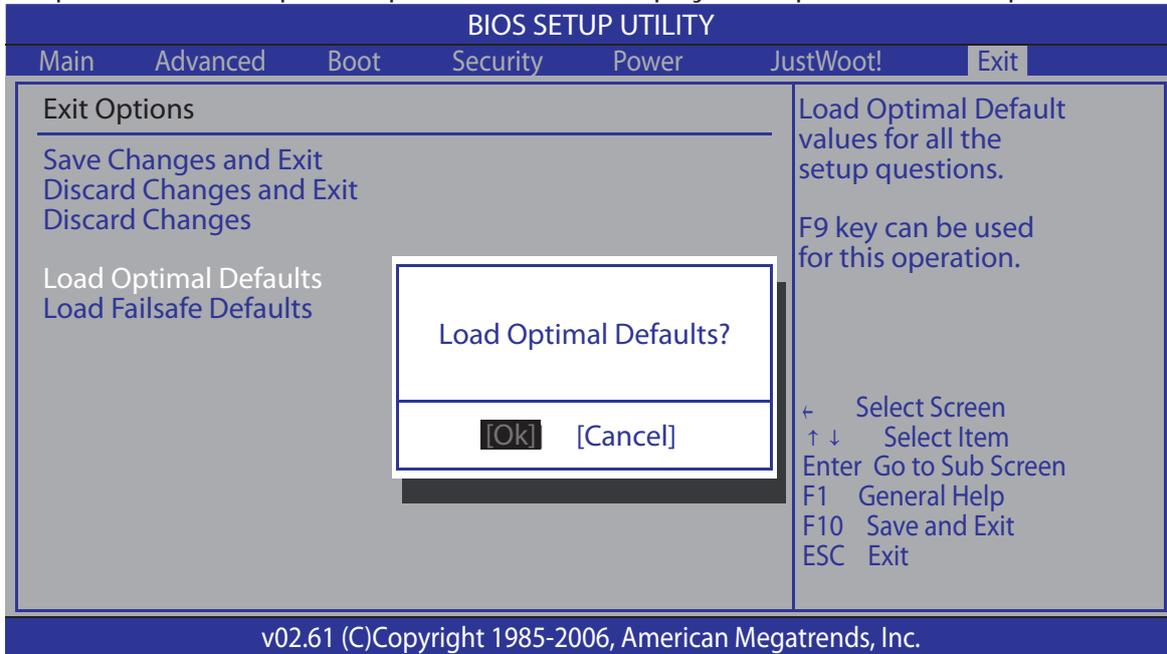
Discard Changes

Select <Ok> and press <Enter> to discard changes and exit, or press <Cancel> to return to the main menu.



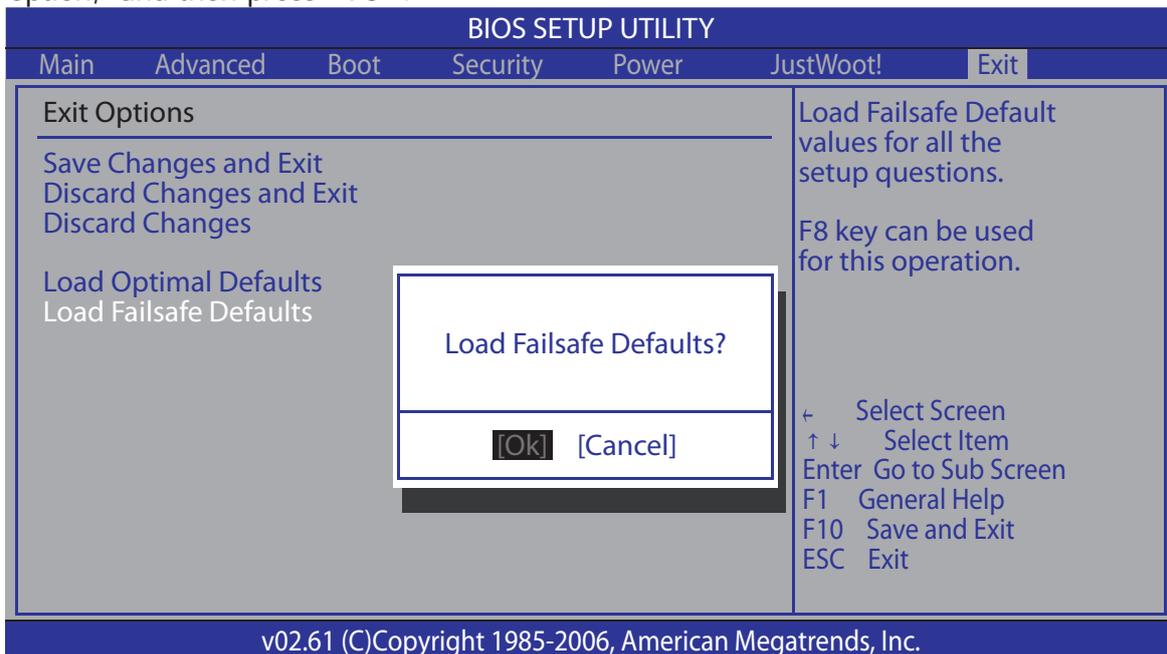
Load Optimized Defaults

This option opens a dialog box that let you install optimized defaults for all appropriate items in the Setup Utility. Select <OK> and then <Enter> to install the defaults. select <Cancel> and then <Enter> to not install the defaults. The optimized defaults place demand on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F9>.



Load Failsafe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Select <Ok> and the <Enter> to install the defaults. Select<Canel> and then <Enter> to not install the defaults. The fail-safe defaults place no great demand on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F8>.



APPENDIX 1

AMIBIOS Check Point and Code List:

1.Bootblock Initialization Code Checkpoints

The Bootblock initialization code sets up the chipset, memory and other components before system memory is available. The following table describes the type of checkpoints that may occur during the bootblock initialization portion of the BIOS:

Checkpoint	Description
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D1	Perform keyboard controller BAT test. Check if waking up from power management suspend state. Save power-on CPUID value in scratch CMOS.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the bootblock checksum.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512KB memory. Adjust policies and cache first 8MB. Set stack.
D5	Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM.
D6	Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. Main BIOS checksum is tested. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section of document for more information.
D7	Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. Determine whether to execute serial flash.
D8	The Runtime module is uncompressed into memory. CPUID information is stored in memory.
D9	Store the Uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM.
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). See POST Code Checkpoints section of document for more information.

2.Bootblock Recovery Code Checkpoints

The Bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS:

Checkpoint	Description
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.

Checkpoint	Description
EF	Read error occurred on media. Jump back to checkpoint EB.
E9 or EA	Determine information about root directory of recovery media.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 cache
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part.
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

3.POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialize CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initialize data variables that are based on CMOS setup questions. Initialize both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache - Init Local APIC
C1	Set up boot strap processor Information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors.
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.

Checkpoint	Description
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, ... etc.) successfully installed in the system and update the BDA, EBDA...etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).

