ConRoe865GV

User Manual

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(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

ASRock Website: http://www.asrock.com

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Chapter 1 Introduction

Thank you for purchasing ASRock ***ConRoe865GV*** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website http://www.asrock.com

1.1 Package Contents

ASRock ***ConRoe865GV*** Motherboard
(Micro ATX Form Factor: 9.6-in x 8.0-in, 24.4 cm x 20.3 cm)
ASRock ***ConRoe865GV*** Quick Installation Guide
ASRock ***ConRoe865GV*** Support CD
(including *LGA 775 CPU Installation Live Demo*)
One 80-conductor Ultra ATA 66/100 IDE Ribbon Cable
One Ribbon Cable for a 3.5-in Floppy Drive
One Serial ATA (SATA) Data Cable (Optional)
One Serial ATA (SATA) HDD Power Cable (Optional)
One ASRock I/O Plus™ Shield
One COM Port Bracket
One ASRock MR Card (Optional)

1.2 Specifications

Platform	- Micro ATX Form Factor: 9.6-in x 8.0-in, 24.4 cm x 20.3 cm
CPU	- LGA 775 for Intel® Core™ 2 Duo / Pentium® XE / Pentium® D / Pentium® 4 / Celeron® D, supporting Conroe processors (in 775-land LGA package) (see **CAUTION 1**) - FSB 800/533 MHz - Supports Hyper-Threading Technology (see **CAUTION 2**) - Supports Untied Overclocking Technology (see **CAUTION 3**) - Supports EM64T CPU
Chipset	- Northbridge: Intel® 865GV - Southbridge: Intel® ICH5
Memory	- Dual Channel DDR memory technology (see **CAUTION 4**) - 2 x DDR DIMM slots - Support DDR400/333/266 (see **CAUTION 5**) - Max. capacity: 2GB
Hybrid Booster	- CPU Frequency Stepless Control (see **CAUTION 6**) - ASRock U-COP (see **CAUTION 7**) - Boot Failure Guard (B.F.G.)
Expansion Slot	- 3 x PCI slots - 1 x AGI slot (see **CAUTION 8**) - 1 x AMR slot (see **CAUTION 9**)
Graphics	- Integrated Intel® Extreme Graphics 2 - DirectX 8.0 - Max. shared memory 96MB
Audio	- C-Media 9761A 5.1 channel audio CODEC
LAN	- Realtek PCI LAN 8101L - Speed: 10/100 Ethernet - Supports Wake-On-LAN
Rear Panel I/O	ASRock I/O Plus™ - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 1 x VGA Port - 1 x Parallel Port (ECP/EPP Support) - 6 x Ready-to-Use USB 2.0 Ports - 1 x RJ-45 LAN Port - Audio Jack: Line in/Front Speaker/Microphone

Connector	- 2 x Serial ATA 1.5 Gb/s connectors (No Support for RAID and "Hot Plug" functions) - 2 x ATA100 IDE connectors (support 4 x IDE devices) - 1 x Floppy connector - 1 x COM port header - 1 x IR header - CPU/Chassis FAN connector - 20 pin ATX power connector - 4 pin 12V power connector - CD in header - AUX in header - Front panel audio connector - 2 x USB 2.0 headers (support 4 USB 2.0 ports; 2 of them are shared with USB45 ports on the I/O panel) (see **CAUTION 10**)
BIOS Feature	- 4Mb AMI BIOS - AMI Legal BIOS - Supports "Plug and Play" - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - AMBIOS 2.3.1 Support
Support CD	- Drivers, Utilities, AntiVirus Software (Trial Version)
Hardware Monitor	- CPU Temperature Sensing - Chassis Temperature Sensing - CPU Fan Tachometer - Chassis Fan Tachometer - CPU Quiet Fan - Voltage Monitoring: +12V, +5V, +3.3V, Vcore
OS	- Microsoft® Windows® 98SE / ME / 2000 / XP compliant
Certifications	- FCC, CE, WHQL

CAUTION!

1. This motherboard supports FSB800-CPU. If you plan to adopt Core™ 2 Duo CPU on this motherboard, you can only adopt Conroe 800 E4XXX processors.
2. About the setting of "Hyper Threading Technology", please check page 28.
3. This motherboard supports Untied Overclocking Technology. Please read "Untied Overclocking Technology" on page 23 for details.
4. This motherboard supports Dual Channel Memory Technology. Before you implement Dual Channel Memory Technology, make sure to read the installation guide of memory modules on page 17 for proper installation.
5. Please check the table below for the memory support frequency and its corresponding CPU FSB frequency.

CPU FSB Frequency	Memory Support Frequency
800	DDR266, DDR333*, DDR400
533	DDR266, DDR333

   * When you use an FSB800-CPU on this motherboard, it will run at DDR320 if you adopt a DDR333 memory module.
6. Although this motherboard offers stepless control, it is not recommended to perform over-clocking. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU.
7. While CPU overheat is detected, the system will automatically shutdown. Before you resume the system, please check if the CPU fan on the motherboard functions properly and unplug the power cord, then plug it back again. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.
8. The AGI [ASRock Graphics Interface] slot is a special design that only supports compatible AGP VGA cards. For the information of the compatible AGP VGA cards, please refer to the "Supported AGP VGA Cards List" on page 9 and page 10. For the proper installation of AGP VGA card, please refer to the installation guide on page 18.
9. Because the installed AMR card will occupy the same external connecting position with the PCI card that are installed in "PCI3" slot, you will not be able to install any PCI card in "PCI3" slot if an AMR card has already been installed in the AMR slot.
10. Power Management for USB 2.0 works fine under Microsoft® Windows® XP SP1 or SP2 / 2000 SP4. It may not work properly under Microsoft® Windows® 98/ ME. Please refer to Microsoft® official document at http://www.microsoft.com/whdc/hwdev/bus/USB/USB2support.mspx

1.3 Supported AGP VGA Cards List

(for Windows® 2000/Windows® XP)

I. AGP 4X

Graphics Chip Vendor	Model Name	Chipset Name
NVIDIA	ASUS V8170	GeForce MX440SE
	Ennyah G2 MX400	GeForce 2 MX400

II. AGP 8X

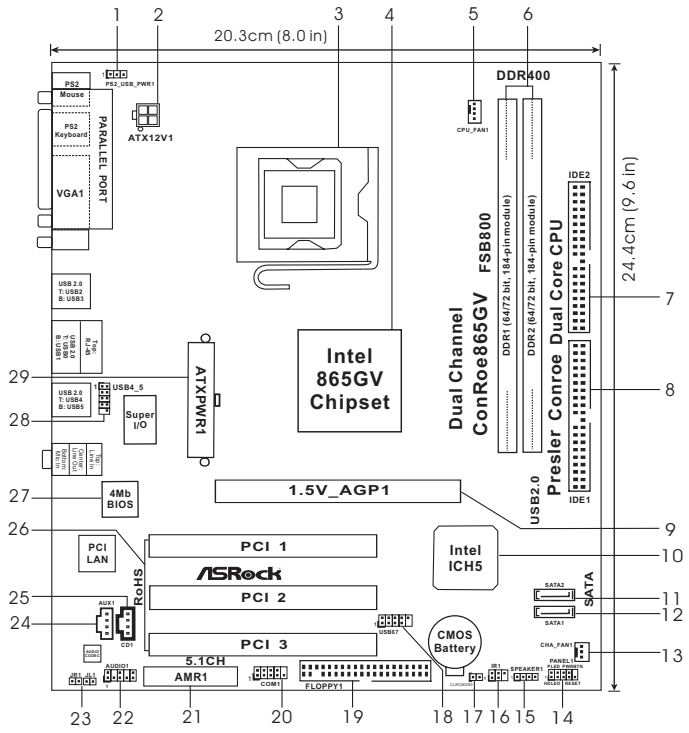
Graphics Chip Vendor	Model Name	Chipset Name
NVIDIA	ASUS N6200	NVIDIA GeForce 6200A
	ASUS N6200GE/TD/128M	NVIDIA GeForce 6200
	ASUS N6600LE/TD/256M	NVIDIA GeForce 6600 LE
	ASUS V9180 Magic	GF4 MX 440 64M
	ASUS V9400MAGIC	GeForce 4 MX4000
	ASUS V9520-X/128M	GeForce FX 5200
	ASUS V9560/TD	GeForce FX5600
	ASUS V9570/TD/256M	GeForce FX5700
	ASUS V9950ULTRA	GeForce FX 5900 Ultra
	ASUS V9999 Ultra/2DT	6800 Ultra 256M
	Albatron AGP6600GT	6600GT
	Albatron FX5600P Turbo	GeForce FX 5600
	Albatron MX-480E	GeForce 4 MX440-8X
	Aopen Aeolus Fx5200-DV 128	FX 5200 128M
	CHAINTECH SA5900X	NVIDIA GeForce 5900XT
	ELSA GLADIC FX733	NVIDIA GeForce 5500
	Ennyah GeForce FX5200 ULTRA	GeForce FX 5200 Ultra
	Gigabyte GV-N57L256D	GeForce FX 5700 LE
	Gigabyte GV-N66128DP	GeForce 6600
	Inno3D GeForce FX 5600 128MB	NVIDIA GeForce FX 5600
	Leadtek WinFast A340PRO/TD	GeForce FX 5500
	Leadtek WinFast A340TDH	GeForce FX 5200
	Leadtek WinFast A360TD	GeForce FX 5600
	Leadtek WinFast A400TDH	GeForce 6800
	Leadtek WinFast A6600 GT TDH	GeForce 6600GT
	MSI FX5700-TD128	GeForce FX 5700
	MSI FX5700-VTD128	NVIDIA GeForce 5700
	Prolink FX5900/128M	FX5900
	Prolink PV-N36AX	FX 5700 LE 128MB
	XFX 7800GS	NVIDIA GeForce 7800GS

ATI	ASUS A9800XT	ATI Radeon 9800 XT
	ELSA FALCOX 920FX	Radeon 9200
	GECUBE Radeon 9250/128M	Radeon 9250
	MSI RX 9200 SE-T128	Radeon 9200 SE
	PowerColor Radeon 9200SE	Radeon 9200SE
	PowerColor RADEON 9250/128M	Radeon 9250

* ATI 9600/9550 series and all Matrox series VGA cards are NOT supported with AGI.

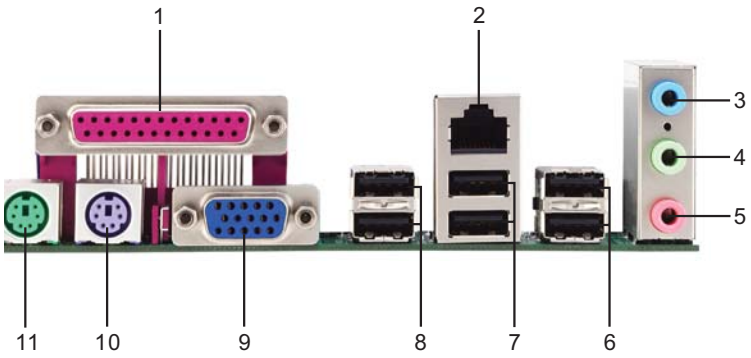
For the latest updates of the supported AGP VGA cards list, please visit ASRock website for details.
ASRock website: http://www.asrock.com/support/index.htm

1.4 Motherboard Layout



1	PS2_USB_PWR1 Jumper
2	ATX 12V Connector (ATX12V1)
3	775-Pin CPU Socket
4	North Bridge Controller
5	CPU Fan Connector (CPU_FAN1)
6	184-pin DDR DIMM Slots (DDR1- 2, Dual Channel)
7	Secondary IDE Connector (IDE2, Black)
8	Primary IDE Connector (IDE1, Blue)
9	ASRock Graphics Interface Slot (1.5V_AGP1)
10	South Bridge Controller
11	Secondary Serial ATA Connector (SATA2)
12	Primary Serial ATA Connector (SATA1)
13	Chassis Fan Connector (CHA_FAN1)
14	System Panel Header (PANEL1)
15	Chassis Speaker Header (SPEAKER 1)
16	Infrared Module Header (IR1)
17	Clear CMOS Jumper (CLRCMOS0)
18	USB 2.0 Header (USB67, Blue)
19	Floppy Connector (FLOPPY1)
20	COM Port Header (COM1)
21	AMR Slot (AMR1)
22	Front Panel Audio Header (AUDIO1)
23	JR1 Jumper / JL1 Jumper
24	Internal Audio Connector: AUX1 (White)
25	Internal Audio Connector: CD1 (Black)
26	PCI Slots (PCI1- 3)
27	BIOS FWH Chip
28	Shared USB 2.0 Header (USB4_5, Blue)
29	ATX 12V Connector (ATX12V1)

1.5 ASRock I/O Plus™



1	Parallel Port	7	USB 2.0 Ports (USB01)
2	RJ-45 Port	8	USB 2.0 Ports (USB23)
3	Line In (Light Blue)	9	VGA Port
4	Line Out (Lime)	10	PS/2 Keyboard Port (Purple)
5	Microphone (Pink)	11	PS/2 Mouse Port (Green)
6	Shared USB 2.0 Ports (USB45)		

Chapter 2 Installation

ConRoe865GV is a Micro ATX form factor (9.6-in x 8.0-in, 24.4 cm x 20.3 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

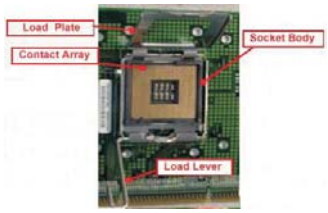
Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply.
Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 CPU Installation

For the installation of Intel 775-LAND CPU, please follow the steps below.



775-Pin Socket Overview

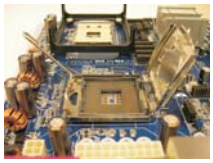
Before you insert the 775-LAND CPU into the socket, please check if the CPU surface is unclean or if there is any bent pin on the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.

Step 1. Open the socket:

Step 1-1. Disengaging the lever by depressing down and out on the hook to clear retention tab.

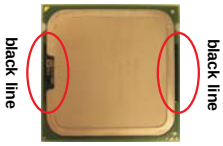
Step 1-2. Rotate the load lever to fully open position at approximately 135 degrees.

Step 1-3. Rotate the load plate to fully open position at approximately 100 degrees.

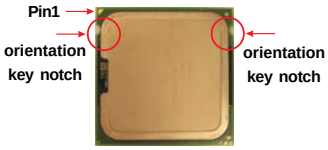


Step 2. Insert the 775-LAND CPU:

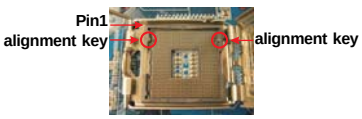
Step 2-1. Hold the CPU by the edges where are marked with black lines.



Step 2-2. Orient the CPU with IHS (Integrated Heat Sink) up. Locate Pin1 and the two orientation key notches.



775-LAND CPU



775-Pin Socket

For proper inserting, please ensure to match the two orientation key notches of the CPU with the two alignment keys of the socket.

Step 2-3. Carefully place the CPU into the socket by using a purely vertical motion.
Step 2-4. Verify that the CPU is within the socket and properly mated to the orient keys.

Step 3. Remove PnP Cap (Pick and Place Cap):
Use your left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from the socket while pressing on center of PnP cap to assist in removal.

1. It is recommended to use the cap tab to handle and avoid kicking off the PnP cap.
2. This cap must be placed if returning the motherboard for after service.

Step 4. Close the socket:
Step 4-1. Rotate the load plate onto the IHS.
Step 4-2. While pressing down lightly on load plate, engage the load lever.
Step 4-3. Secure load lever with load plate tab under retention tab of load lever.

2.4 Installation of CPU Fan and Heatsink

This motherboard is equipped with 775-Pin socket that supports Intel 775-LAND CPU. Please adopt the type of heatsink and cooling fan compliant with Intel 775-LAND CPU to dissipate heat. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation. Ensure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU_FAN connector (CPU_FAN1, see page 11, No. 5).

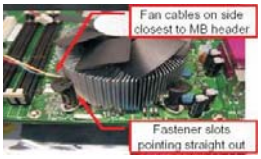
For proper installation, please kindly refer to the instruction manuals of your CPU fan and heatsink.

Below is an example to illustrate the installation of the heatsink for 775-LAND CPU.

Step 1. Apply thermal interface material onto center of IHS on the socket surface.

Step 2. Place the heatsink onto the socket. Ensure fan cables are oriented on side closest to the CPU fan connector on the motherboard (CPU_FAN1, see page 11, No. 5).

Step 3. Align fasteners with the motherboard throughholes.



Step 4. Rotate the fastener clockwise, then press down on fastener caps with thumb to install and lock. Repeat with remaining fasteners.

If you press down the fasteners without rotating them clockwise, the heatsink cannot be secured on the motherboard.

Step 5. Connect fan header with the CPU fan connector on the motherboard.

Step 6. Secure excess cable with tie-wrap to ensure cable does not interfere with fan operation or contact other components.

2.5 Installation of Memory Modules (DIMM)

ConRoe865GV motherboard provides two 184-pin DDR (Double Data Rate) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two **identical** (the same brand, speed, size and chip-type) memory modules in the DDR DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.

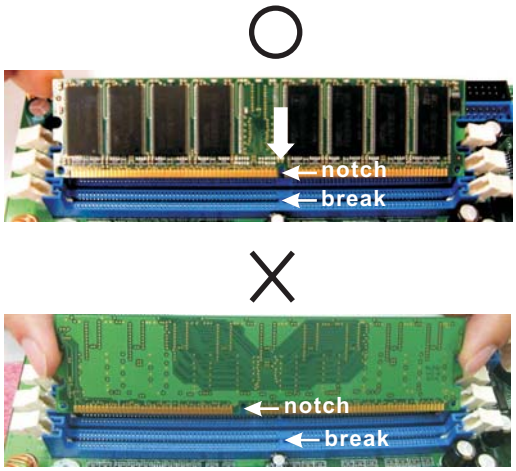
If you install only one memory module or two non-identical memory modules, it is unable to activate the Dual Channel Memory Technology.

Installing a DIMM

Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

Step 1. Unlock a DIMM slot by pressing the retaining clips outward.

Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

2.6 Expansion Slots (PCI, AMR, and AGI Slots)

There are 3 PCI slots, 1 AMR slot, and 1 AGI slot on this motherboard.

PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface.

Because the installed AMR card will occupy the same external connecting position with the PCI card installed in "PCI3" slot, you will no be able to install any PCI card in "PCI3" slot if an AMR card has already been installed in the AMR slot.

AMR slot: AMR slot is used to insert an ASRock MR card (optional) with v.92 Modem functionality.

AGI slot: The AGI [ASRock Graphics Interface] slot is a special design that only supports compatible AGP VGA cards. For the information of the compatible AGP VGA cards, please refer to the "Supported AGP VGA Cards List" on page 9 and page 10.

To install the system with an add-on AGP VGA card, you must make sure to install the driver of add-on AGP VGA card before you install the onboard VGA driver. If the onboard VGA driver has already been installed before you install the add-on AGP VGA card, the system will automatically set the onboard VGA as the primary graphics adapter. In that case, if you want to install the add-on AGP VGA card, you need to remove the onboard VGA driver first, and then install the add-on AGP VGA card and its driver. For the detailed instruction, please refer to the documents in the Support CD, "AGI Slot Installation Guide (for Windows 2000)" and "AGI Slot Installation Guide (for Windows XP)", which are located in the folder at the following path:

..\ Easy Dual Monitor

Installing an expansion card

Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

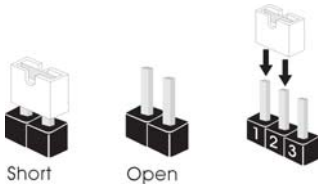
Step 6. Replace the system cover.

2.7 Easy Dual Monitor Feature

Thanks to ASRock patented AGI8X Technology, this motherboard supports Easy Dual Monitor upgrade. With the internal onboard VGA and the external add-on AGP VGA card, you can easily enjoy the benefits of Dual Monitor feature. For the detailed instruction, please refer to the document at the following path in the Support CD: **..\ Easy Dual Monitor**

2.8 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
PS2_USB_PWR1 (see p.11 No. 1)	1_2 +5V / 2_3 +5VSB	Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events.

Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply.

JR1 / JL1 Jumpers (see p.11 No. 23)

Note: If JR1 and JL1 Jumpers are short, both the front panel and the rear panel audio connectors can work.

Clear CMOS (CLRCMOS0) (see p.11 No. 17)

2-pin jumper

Note: CLRCMOS0 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short 2 pins on CLRCMOS0 for 5 seconds.

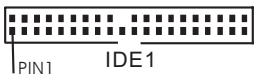
2.9 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

FDD connector
(33-pin FLOPPY1)
(see p.11 No. 19)

Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector.

Primary IDE connector (Blue)
(39-pin IDE1, see p.11 No. 8)



Secondary IDE connector (Black)
(39-pin IDE2, see p.11 No. 7)

connect the blue end to the motherboard

connect the black end to the IDE devices

80-conductor ATA 66/100 cable

Note: If you use only one IDE device on this motherboard, please set the IDE device as “Master”. Please refer to the instruction of your IDE device vendor for the details. Besides, to optimize compatibility and performance, please connect your hard disk drive to the primary IDE connector (IDE1, blue) and CD-ROM to the secondary IDE connector (IDE2, black).

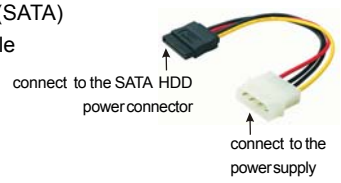
Serial ATA Connectors
(SATA1: see p.11 No. 12)
(SATA2: see p.11 No. 11)

These two Serial ATA (SATA) connectors support SATA data cables for internal storage devices. The current SATA interface allows up to 1.5 Gb/s data transfer rate.

Serial ATA (SATA)
Data Cable
(Optional)

Either end of the SATA data cable can be connected to the SATA hard disk or the SATA connector on the motherboard.

Serial ATA (SATA) Power Cable (Optional)

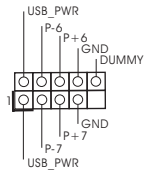


Please connect the black end of SATA power cable to the power connector on each drive. Then connect the white end of SATA power cable to the power connector of the power supply.

USB 2.0 Header

(9-pin USB67)

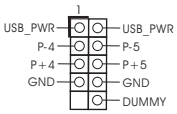
(see p.11 No. 18)



Shared USB 2.0 Header

(9-pin USB4_5)

(see p.11 No. 28)

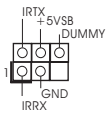


Besides six default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports. The shared USB 2.0 header (USB4_5) is shared with USB ports 45 on the I/O panel. When using the front panel USB ports by attaching the front panel USB cable to USB4_5 header, the USB ports 45 on the I/O panel will not be able to function.

Infrared Module Header

(5-pin IR1)

(see p.11 No. 16)



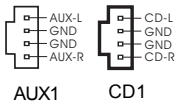
This header supports an optional wireless transmitting and receiving infrared module.

Internal Audio Connectors

(4-pin CD1, 4-pin AUX1)

(CD1: see p.11 No. 25)

(AUX1: see p.11 No. 24)

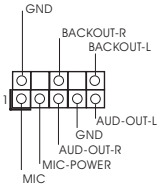


These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

Front Panel Audio Header

(8-pin AUDIO1)

(see p.11 No. 22)

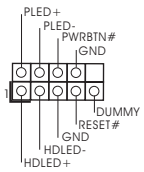


This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

System Panel Header

(9-pin PANEL1)

(see p.11 No. 14)

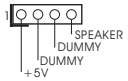


This header accommodates several system front panel functions.

Chassis Speaker Header

(4-pin SPEAKER 1)

(see p.11 No. 15)

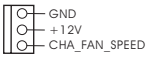


Please connect the chassis speaker to this header.

Chassis Fan Connector

(3-pin CHA_FAN1)

(see p.11 No. 13)

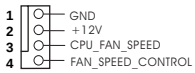


Please connect a chassis fan cable to this connector and match the black wire to the ground pin.

CPU Fan Connector

(4-pin CPU_FAN1)

(see p.11 No. 5)



You may connect either a 3-pin or a 4-pin CPU fan cable to this connector, then match the black wire to the ground pin.

Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected

3-Pin Fan Installation

ATX Power Connector

(20-pin ATXPWR1)

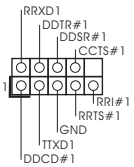
(see p.11 No. 29)

Please connect an ATX power supply to this connector.

COM Port Header

(9-pin COM1)

(see p.11 No. 20)



This COM port header is used to support a COM port module.

ATX 12V Connector (4-pin ATX12V1) (see p.11 No. 2)		Please note that it is necessary to connect a power supply with ATX 12V plug to this connector so that it can provides sufficient power. Failing to do so will cause the failure to power up.

2.10 Serial ATA (SATA) Hard Disks Installation

This motherboard adopts Intel® ICH5 south bridge chipset that supports Serial ATA (SATA) hard disks. You may install SATA hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA hard disks.

STEP 1: Install the SATA hard disks into the drive bays of your chassis.
STEP 2: Connect the SATA power cable to the SATA hard disk.
STEP 3: Connect one end of the SATA data cable to the motherboard's SATA connector.
STEP 4: Connect the other end of the SATA data cable to the SATA hard disk.

Before you install OS into the SATA hard disk, you need to check and ensure the configuration of the **OnBoard IDE Operate Mode** option in BIOS setup is correct according to the condition of your system. For the configuration details, please refer to the instruction on page 31.

2.11 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly.

2.12 Untied Overclocking Technology

This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI bus. You may set "CPU Host Frequency" option of BIOS setup to [Auto], which will show you the actual CPU host frequency in the following item. Therefore, CPU FSB is untied during overclocking, but PCI bus is in the fixed mode so that FSB can operate under a more stable overclocking environment.

Chapter 3 BIOS SETUP UTILITY

3.1 Introduction

This section explains how to use the BIOS SETUP UTILITY to configure your system. The BIOS FWH chip on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> during the Power-On-Self-Test (POST) to enter the BIOS SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the BIOS SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 BIOS Menu Bar

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
Advanced	To set up the advanced BIOS features
H/W Monitor	To display current hardware status
Boot	To set up the default system device to locate and load the Operating System
Security	To set up the security features
Exit	To exit the current screen or the BIOS SETUP UTILITY

Use <←> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

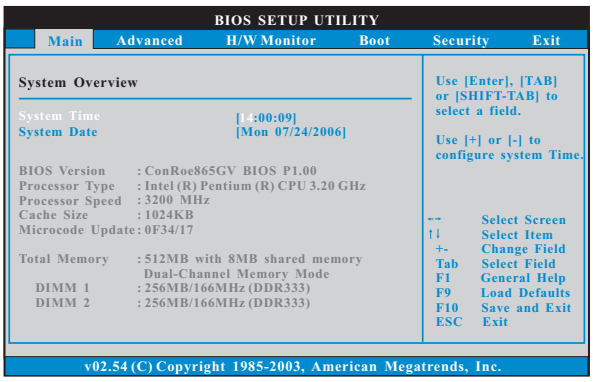
3.1.2 Navigation Keys

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

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the BIOS SETUP UTILITY
<ESC>	To jump to the Exit Screen or exit the current screen

3.2 Main Screen

When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview



System Time [Hour:Minute:Second]

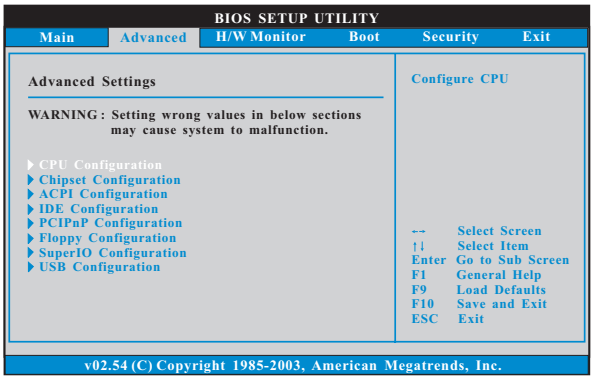
Use this item to specify the system time.

System Date [Day Month/Date/Year]

Use this item to specify the system date.

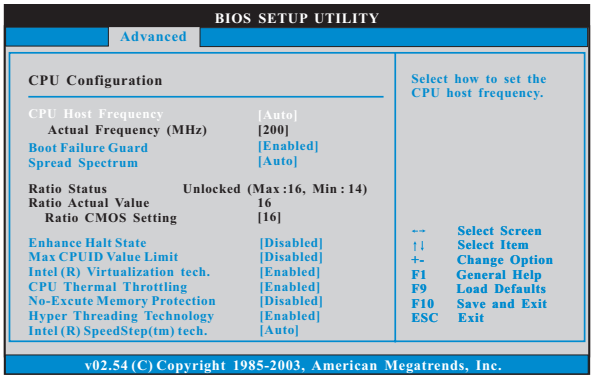
3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, IDE Configuration, PCIPnP Configuration, Floppy Configuration, SuperIO Configuration, and USB Configuration.



Setting wrong values in this section may cause the system to malfunction.

3.3.1 CPU Configuration



CPU Host Frequency

While entering setup, BIOS auto detects the present CPU host frequency of this motherboard. The actual CPU host frequency will show in the following item.

Boot Failure Guard

Enable or disable the feature of Boot Failure Guard.

Spread Spectrum

This item should always be [Auto] for better system stability.

Ratio Status

This is a read-only item, which displays whether the ratio status of this motherboard is “Locked” or “Unlocked”. If it shows “Unlocked”, you will find an item **Ratio CMOS Setting** appears to allow you changing the ratio value of this motherboard. If it shows “Locked”, then the item **Ratio CMOS Setting** will be hidden. If you use the ratio value to time the CPU frequency, it will be equal to the core speed of the installed processor.

Ratio Actual Value

This is a read-only item, which displays the ratio actual value of this motherboard.

Ratio CMOS Setting

If the ratio status of this motherboard is “Unlocked”, this item will display and allow you to set the ratio value between CPU Core Clock and the FSB frequency.

Enhance Halt State

All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches.

Max CPUID Value Limit

For Prescott CPU only, some OSes (ex. NT4.0) cannot handle the function with disable. This should be enabled in order to boot legacy OSes that cannot support 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 Thermal Throttling

You may select [Enabled] to enable P4 CPU internal thermal control mechanism to keep the CPU from overheated.

No-Excute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with “No Execute (NX) Memory Protection” can prevent data pages from being used by malicious software to execute code. This option will be hidden if the current CPU does not support No-Excute Memory Protection.

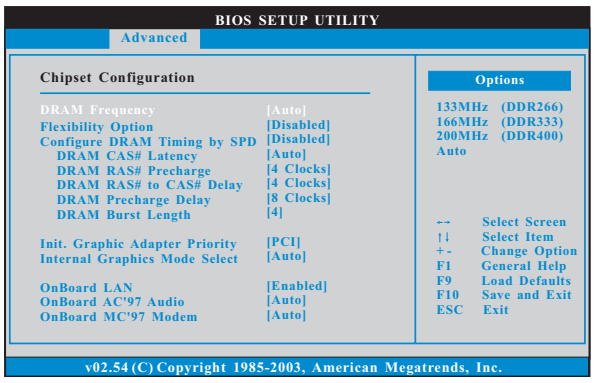
Hyper Threading Technology

To enable this feature, it requires a computer system with an Intel Pentium®4 processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® XP. Set to [Enabled] if using Microsoft® Windows® XP, or Linux kernel version 2.4.18 or higher. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Intel (R) SpeedStep(tm) tech.

Intel (R) SpeedStep(tm) tech. is Intel's new power saving technology. Processor can switch between multiple frequency and voltage points to enable power savings. If you select [Auto], you need to set the "Power Schemes" as "Portable/Laptop" to enable this function.

3.3.2 Chipset Configuration



DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically. You may also select other value as operating frequency: [133MHz (DDR 266)], [166MHz (DDR 333)], [200MHz (DDR 400)].

Flexibility Option

The default value of this option is [Disabled]. It will allow better tolerance for memory compatibility when it is set to [Enabled].

Configure DRAM Timing by SPD

Select [Enabled] will configure the following items by the contents in the SPD (Serial Presence Detect) device.

DRAM CAS# Latency

Use this item to adjust the means of memory accessing. Configuration options: [Auto], [2.5], [2], and [3]. Please note that the configuration option [3] is available only for FSB 800 and FSB 533.

DRAM RAS# Precharge

This controls the idle clocks after a precharge command is issued. Configuration options: [4 Clocks], [3 Clocks], and [2 Clocks].

DRAM RAS# to CAS# Delay

This controls the latency between the DRAM active command and the read / write command. Configuration options: [4 Clocks], [3 Clocks], and [2 Clocks].

DRAM Precharge Delay

This controls the number of DRAM clocks for RAS minimum. Configuration options: [8 Clocks], [7 Clocks], [6 Clocks], and [5 Clocks].

DRAM Burst Length

DRAM Burst length can be set as [8] or [4].

Init. Graphic Adapter Priority

This allows you to select [Onboard], [PCI], or [AGI] as the initial graphics adapter priority. The default vaule is [PCI].

Internal Graphics Mode Select

This allows you to select the size of share memory for onboard VGA. If larger size of share memory is selected, onboard VGA will get better resolution under DOS.

OnBoard LAN

This allows you to enable or disable the “OnBoard LAN” feature.

OnBoard AC’97 Audio

Select [Auto] or [Disabled] for the onboard AC’97 Audio feature.

OnBoard MC’97 Modem

Select [Auto] or [Disabled] for the onboard MC’97 Modem feature.

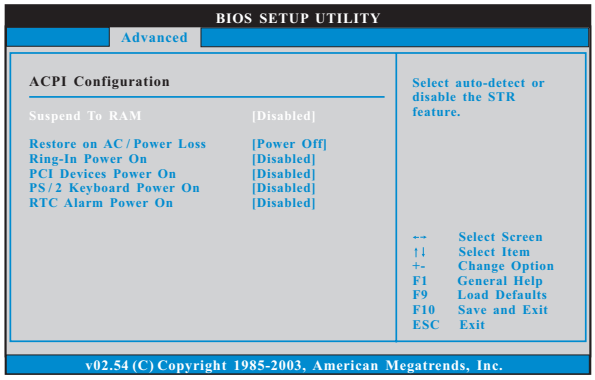
VCCM Voltage

Use this to select VCCM Voltage. Configuration options: [High], [Low], and [Auto]. The default value of this feature is [Auto].

VDDQ Voltage

Use this to select VDDQ Voltage. Configuration options: [High], [Low], and [Auto]. The default value of this feature is [Auto].

3.3.3 ACPI Configuration



Restore on AC/Power Loss

Use this item to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

PCI Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

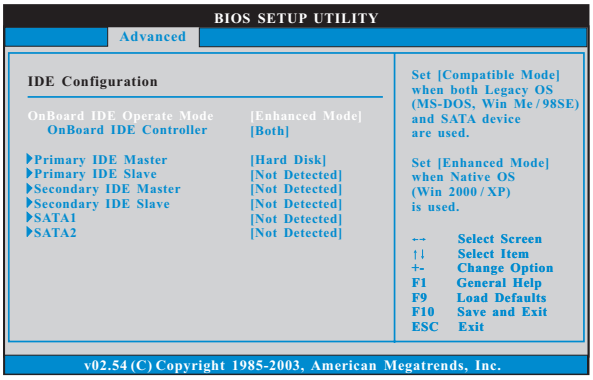
PS/2 Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

3.3.4 IDE Configuration



OnBoard IDE Operate Mode

Please select [**Compatible Mode**] when you install legacy OS (Windows® ME / 98SE) into SATA device. If you install legacy OS into IDE HDD while SATA devices are used, you also need to select [**Compatible Mode**].

If native OS (Windows® 2000 / XP) is installed into SATA device, please select [**Enhanced Mode**]. You also need to select [**Enhanced Mode**] while native OS is installed into IDE HDD and SATA devices are used.

If you do not install any SATA device, please also select [**Enhanced Mode**] no matter you use legacy OS or native OS for the system.

Please note that the following options will be varied depending on the **"OnBoard IDE Operate Mode"** ([**Compatible Mode**] or [**Enhanced Mode**]) that you selected.

When [**Enhanced Mode**] is selected:

OnBoard IDE Controller

You may enable either the primary IDE channel or the secondary IDE channel. Or you may enable both the primary and the secondary IDE channels by selecting [Both]. Set to [Disabled] will disable the both. Configuration options: [Disabled], [Primary], [Secondary], [Both].

When [**Compatible Mode**] is selected

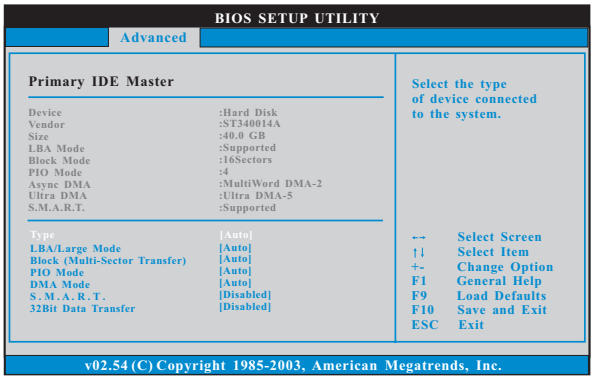
Combined Mode Option

It allows you to select between [**Pri IDE + SATA**] and [**SATA + Sec IDE**]. If it is set to [Pri IDE + SATA], then the secondary IDE will not work. Likewise, if it is set to [SATA + Sec IDE], then the primary IDE will not work.

Because Intel® ICH5 south bridge only supports four IDE devices under legacy OS (Windows® ME / 98SE), you have to choose either [**Pri IDE + SATA**] or [**SATA + Sec IDE**] when the installed SATA device is used with legacy OS.

IDE Device Configuration

You may set the IDE configuration for the device that you specify. We will use the “Primary IDE Master” as the example in the following instruction, which can be applied to the configurations of “Primary IDE Slave”, “Secondary IDE Master”, “Secondary IDE Slave”, “SATA1” and “SATA2” as well.



TYPE

Use this item to configure the type of the IDE device that you specify. Configuration options: [Not Installed], [Auto], [CD/DVD], and [ARMD].

[Not Installed]: Select [Not Installed] to disable the use of IDE device.

[Auto]: Select [Auto] to automatically detect the hard disk drive.

After selecting the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format the new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

[CD/DVD]: This is used for IDE CD/DVD drives.

[ARMD]: This is used for IDE ARMD (ATAPI Removable Media Device), such as MO.

LBA/Large Mode

Use this item to select the LBA/Large mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Disabled] to disable the LBA/Large mode.

Block (Multi-Sector Transfer)

The default value of this item is [Auto]. If this feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode

DMA capability allows the improved transfer-speed and data-integrity for compatible IDE devices.

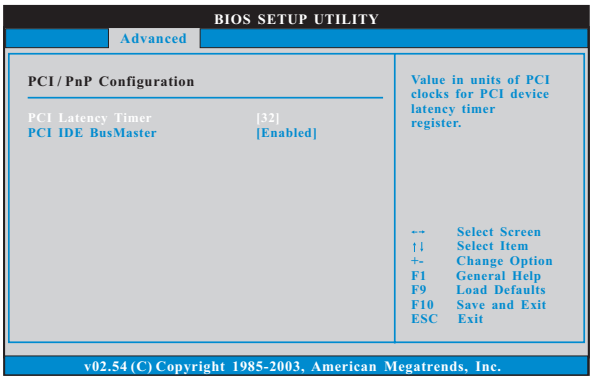
S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled], [Auto], [Enabled].

32-Bit Data Transfer

Use this item to enable 32-bit access to maximize the IDE hard disk data transfer rate.

3.3.5 PCIPnP Configuration



PCI Latency Timer

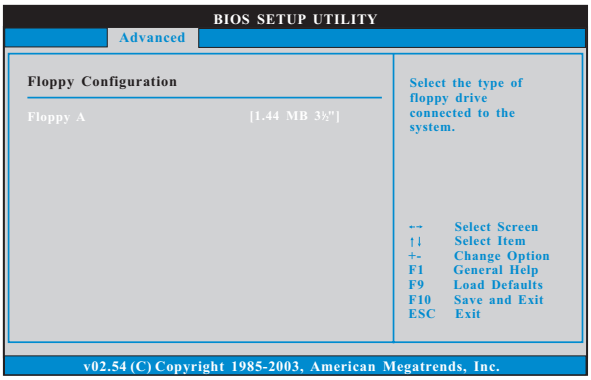
The default value is 32. It is recommended to keep the default value unless the installed PCI expansion cards' specifications require other settings.

PCI IDE BusMaster

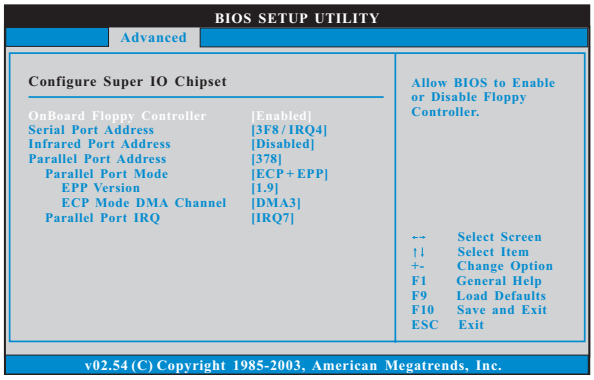
Use this item to enable or disable the PCI IDE BusMaster feature.

3.3.6 Floppy Configuration

In this section, you may configure the type of your floppy drive.



3.3.7 Super IO Configuration



OnBoard Floppy Controller

Use this item to enable or disable floppy drive controller.

Serial Port Address

Use this item to set the address for the onboard serial port or disable it. Configuration options: [Disabled], [3F8 / IRQ4], [2F8 / IRQ3], [3E8 / IRQ4], [2E8 / IRQ3].

Infrared Port Address

Use this item to set the address for the onboard infrared port or disable it. Configuration options: [Disabled], [2F8 / IRQ3], and [2E8 / IRQ3].

Parallel Port Address

Use this item to set the address for the onboard parallel port or disable it. Configuration options: [Disabled], [378], and [278].

Parallel Port Mode

Use this item to set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version". Configuration options: [Normal], [Bi-Directional], and [ECP+EPP].

EPP Version

Use this item to set the EPP version. Configuration options: [1.9] and [1.7].

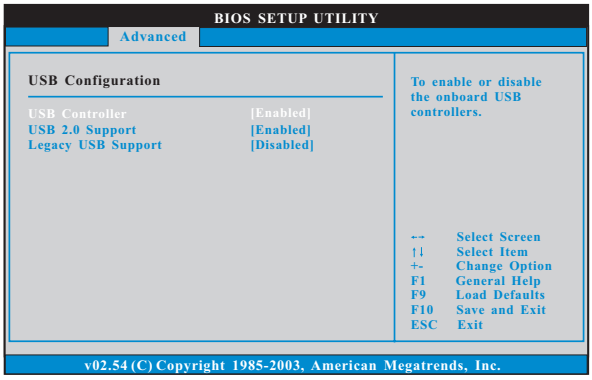
ECP Mode DMA Channel

Use this item to set the ECP mode DMA channel. Configuration options: [DMA0], [DMA1], and [DMA3].

Parallel Port IRQ

Use this item to set the IRQ for the parallel port. Configuration options: [IRQ5] and [IRQ7].

3.3.8 USB Configuration



USB Controller

Use this item to enable or disable the use of USB controller.

USB 2.0 Support

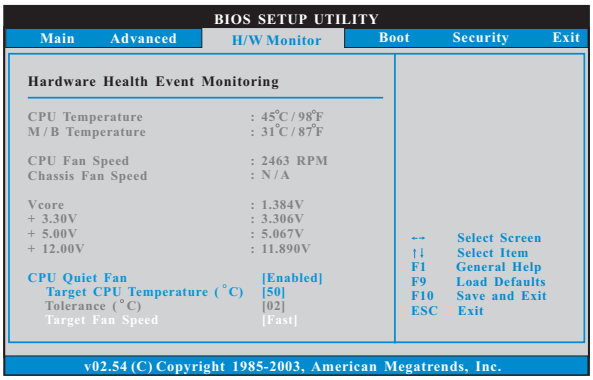
Use this item to enable or disable the USB 2.0 support.

Legacy USB Support

Use this item to enable or disable the support to emulate legacy I/O devices such as mouse, keyboard,... etc. Or you may select [Auto] so that the system will start to auto-detect; if there is no USB device connected, "Auto" option will disable the legacy USB support.

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



CPU Quiet Fan

This item allows you to identify the temperature of CPU fan. If you set this option as [Disabled], the CPU fan will operate in full speed. If you set this option as [Enabled], you will find the items "Target CPU Temperature (°C)", "Tolerance (°C)", and "Minimun Fan Speed" appear to allow you adjusting them. The default value is [Disabled]. You are allowed to enable this function only when you install 4-pin CPU fan.

Target CPU Temperature (°C)

The target temperature will be between 45 °C and 65 °C. The default value is [50].

Tolerance (°C)

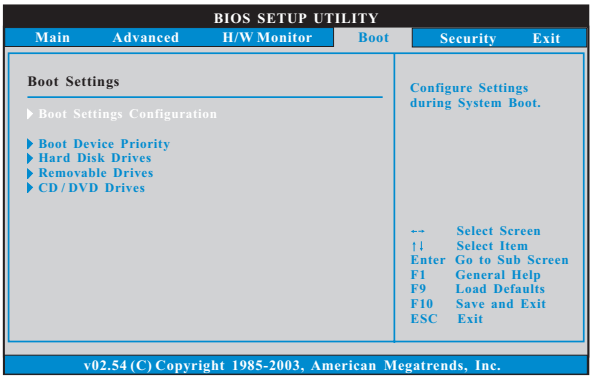
The default value of tolerance is [2], which means the error of the target CPU temperature will be within 2 °C.

Target Fan Speed

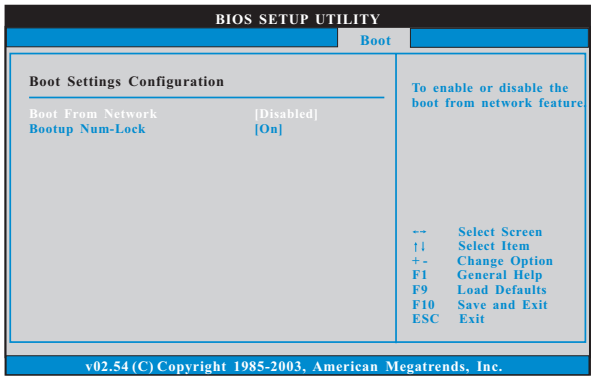
Use this option to set the target fan speed. You can freely adjust the target fan speed according to the target CPU temperature that you choose. The default value is [Fast]. Configuration options: [Fast], [Middle] and [Slow].

3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



3.5.1 Boot Settings Configuration



Boot From Network

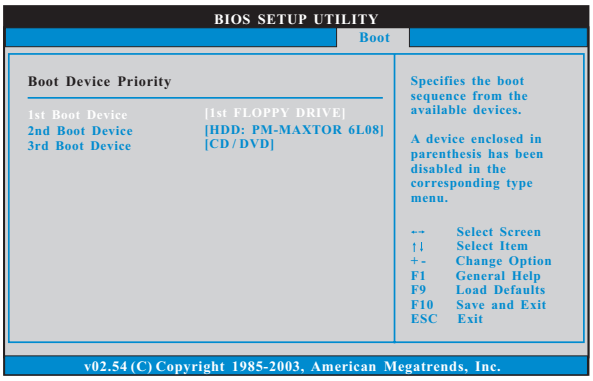
Use this item to enable or disable the Boot From Network feature.

Boot Up Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

3.5.2 Boot Device Priority

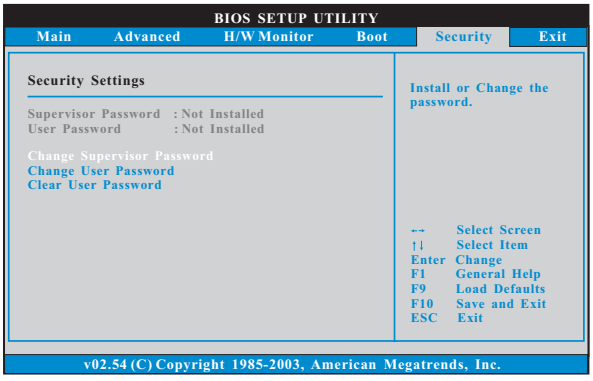
In this section, you may specify the boot sequence from the available devices in your system.



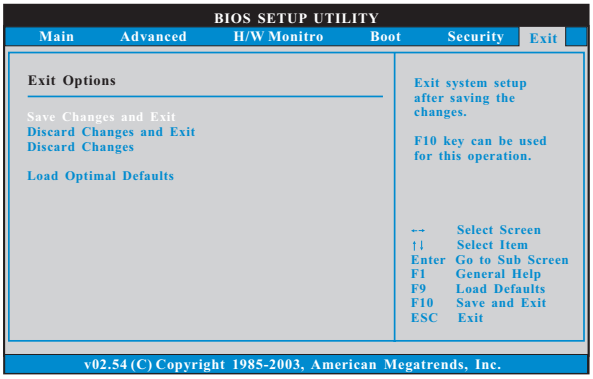
Likewise, you may also specify the boot sequence from the available devices for the hard disk drives, the removable drives, and the CD/DVD drives.

3.6 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the BIOS SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the BIOS SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

Load Optimal Defaults

When you select this option, it will pop-out the following message, "Load optimal defaults?" Select [OK] to load the default values for all the setup configurations.

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 98 SE / ME / 2000 / XP. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 "LGA 775 CPU Installation Live Demo" Program

This motherboard is equipped with Intel LGA 775 socket, which is a new CPU socket interface that Intel has released. Since it has several tiny pins, whcih are easily to be damaged by improper handling, ASRock sincerely presents you a clear installation guide through this "LGA 775 CPU Installation Live Demo". We hope you may check this live demo program before you start the installation of LGA 775 CPU in order to reduce the risks of CPU and motherboard damages caused by any improper handling. To see this Live Demo, you can run Microsoft® Media Player® to play the file. You may find this Live Demo in the motherboard's Support CD through the following path:

..\ Live Demo \ LGA 775 CPU Installation \ LGA775INST_English.DAT

4.2.5 Contact Information

If you need to contact ASRock or want to know more about ASRock, welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.