



***N68C-GS4 FX /
N68C-S4 FX***

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.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

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1. Introduction

Thank you for purchasing ASRock **N68C-GS4 FX / N68C-S4 FX** 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>
If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
www.asrock.com/support/index.asp

1.1 Package Contents

One ASRock **N68C-GS4 FX / N68C-S4 FX** Motherboard (Micro ATX Form Factor)
One ASRock **N68C-GS4 FX / N68C-S4 FX** Quick Installation Guide
One ASRock **N68C-GS4 FX / N68C-S4 FX** Support CD
Two Serial ATA (SATA) Data Cables (Optional)
One I/O Panel Shield

1.2 Specifications

Platform	- Micro ATX Form Factor
A-Style	- Home Cloud (N68C-GS4 FX)
CPU	<ul style="list-style-type: none">- Support for Socket AM3+ processors- Support for AM3 processors: AMD Phenom™ II X6 / X4 / X3 / X2 (except 920 / 940) / Athlon II X4 / X3 / X2 / Sempron processors (see CAUTION 1)- Support for Socket AM2+ / AM2 processors: AMD Phenom™ FX / Phenom / Athlon 64 FX / Athlon 64 X2 Dual-Core / Athlon X2 Dual-Core / Athlon 64 / Sempron processor- Supports 8-Core CPU- Supports UCC feature (Unlock CPU Core) (see CAUTION 2)- Supports AMD's Cool 'n' Quiet™ Technology- FSB 1000 MHz (2.0 GT/s)- Supports Untied Overclocking Technology- Supports Hyper-Transport Technology
Chipset	- NVIDIA® GeForce 7025 / nForce 630a
Memory	<ul style="list-style-type: none">- Dual Channel DDR3/DDR2 Memory Technology- 2 x DDR3 DIMM slots- Support DDR3 1600/1333/1066 non-ECC, un-buffered memory (see CAUTION 3)- Max. capacity of system memory: 16GB (see CAUTION 4)- 2 x DDR2 DIMM slots- Support DDR2 1066/800/667/533 non-ECC, un-buffered memory (see CAUTION 5)- Max. capacity of system memory: 8GB (see CAUTION 4)
Expansion Slot	<ul style="list-style-type: none">- 1 x PCI Express x16 slot- 1 x PCI Express x1 slot- 2 x PCI slots
Graphics	<ul style="list-style-type: none">- Integrated NVIDIA® GeForce 7025 graphics- DX9.0 VGA, Pixel Shader 3.0- Max. shared memory 256MB- Supports D-Sub with max. resolution up to 1920x1440 @ 60Hz
Audio	- 5.1 CH HD Audio (Realtek ALC662 / VIA® VT1705 Audio Codec)
LAN	<p>N68C-GS4 FX:</p> <ul style="list-style-type: none">- Qualcomm® Atheros® AR8171, speed 10/100/1000 Mb/s- Supports Qualcomm® Atheros® Security Wake On Internet Technology- Supports Wake-On-LAN

	<ul style="list-style-type: none"> - Supports Energy Efficient Ethernet 802.3az - Supports PXE N68C-S4 FX: <ul style="list-style-type: none"> - Atheros® AR8152, speed 10/100 Mb/s - Supports Wake-On-LAN - Supports PXE
Rear Panel I/O	I/O Panel <ul style="list-style-type: none"> - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 1 x Serial Port: COM1 - 1 x VGA Port - 4 x USB 2.0 Ports - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jack: Line in / Front Speaker / Microphone
Storage	- 4 x SATA2 3.0Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 0+1, RAID 5, JBOD), NCQ and Hot Plug
Connector	<ul style="list-style-type: none"> - 1 x ATA133 IDE connector (supports 2 x IDE devices) - 1 x Floppy connector - 1 x Print port header - 1 x Chassis intrusion header - 1 x CPU Fan connector (4-pin) - 1 x Chassis Fan connector (3-pin) - 1 x Power Fan connector (3-pin) - 1 x 24 pin ATX power connector - 1 x 4 pin 12V power connector - 1 x Front panel audio header - 3 x USB 2.0 headers (support 6 USB 2.0 ports)
BIOS Feature	<ul style="list-style-type: none"> - 8Mb AMI Legal BIOS - Supports "Plug and Play" - ACPI 1.1 Compliant Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support - CPU, VCCM, NB Voltage Multi-adjustment
Support CD	- Drivers, Utilities, AntiVirus Software (Trial Version), Google Chrome Browser and Toolbar, Start8 (30 days trial)
Hardware Monitor	<ul style="list-style-type: none"> - CPU Temperature Sensing - Chassis Temperature Sensing - CPU Fan Tachometer - Chassis Fan Tachometer - CPU Quiet Fan - CASE OPEN detection - Voltage Monitoring: +12V, +5V, +3.3V, Vcore

OS	- Microsoft® Windows® 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit / Vista™ 32-bit / Vista™ 64-bit / XP 32-bit / XP 64-bit (see CAUTION 6)
Certifications	- FCC, CE, WHQL - ErP/EuP ready (ErP/EuP ready power supply is required)

* For detailed product information, please visit our website: <http://www.asrock.com>

WARNING

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using the third-party overclocking tools. Overclocking may affect your system stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

CAUTION!

1. This motherboard supports CPU up to 95W. Please refer to our website for CPU support list. ASRock website <http://www.asrock.com>
2. UCC (Unlock CPU Core) feature simplifies AMD CPU activation. As long as a simple switch of the BIOS option "ASRock UCC", you can unlock the extra CPU core to enjoy an instant performance boost. When UCC feature is enabled, the dual-core or triple-core CPU will boost to the quad-core CPU, and some CPU, including quad-core CPU, can also increase L3 cache size up to 6MB, which means you can enjoy the upgrade CPU performance with a better price. Please be noted that UCC feature is supported with AM2+ / AM3 / AM3+ CPU only, and in addition, not every AM2+ / AM3 / AM3+ CPU can support this function because some CPU's hidden core may be malfunctioned.
3. Whether 1600MHz memory speed is supported depends on the AM3/AM3+ CPU you adopt. If you want to adopt DDR3 1600 memory module on this motherboard, please refer to the memory support list on our website for the compatible memory modules.
ASRock website <http://www.asrock.com>
4. Due to the operating system limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 8 / 7 / Vista™ / XP. For Windows® OS with 64-bit CPU, there is no such limitation.
5. Whether 1066MHz memory speed is supported depends on the AM2+ / AM3 CPU you adopt. If you want to adopt DDR2 1066 memory module on this motherboard, please refer to the memory support list on our website for the compatible memory modules.
ASRock website <http://www.asrock.com>
6. This motherboard does not support RAID mode under Windows® 8.1 32-bit / 8.1 64-bit.

1.3 Unique Features

ASRock OC Tuner

ASRock OC Tuner is a user-friendly overclocking tool which allows you to surveil your system by hardware monitor function and overclock your hardware devices to get the best system performance under WindowsR environment. Please visit our website for the operation procedures of ASRock OC Tuner.

ASRock Instant Boot

ASRock Instant Boot allows you to turn on your PC in just a few seconds, provides a much more efficient way to save energy, time, money, and improves system running speed for your system. It leverages the S3 and S4 ACPI features which normally enable the Sleep/Standby and Hibernation modes in WindowsR to shorten boot up time. By calling S3 and S4 at specific timing during the shut-down and startup process, Instant Boot allows you to enter your WindowsR desktop in a few seconds.

ASRock Instant Flash

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or WindowsR. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

ASRock OC DNA

The software name itself – OC DNA literally tells you what it is capable of. OC DNA, an exclusive utility developed by ASRock, provides a convenient way for the user to record the OC settings and share with others. It helps you to save your overclocking record under the operating system and simplifies the complicated recording process of overclocking settings. With OC DNA, you can save your OC settings as a profile and share with your friends! Your friends then can load the OC profile to their own system to get the same

OC settings as yours! Please be noticed that the OC profile can only be shared and worked on the same motherboard.

ASRock APP Charger

If you desire a faster, less restricted way of charging your Apple devices, such as iPhone/iPad/iPod Touch, ASRock has prepared a wonderful solution for you - ASRock APP Charger. Simply install the APP Charger driver, it makes your iPhone charge much quickly from your computer and up to 40% faster than before. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). With APP Charger driver installed, you can easily enjoy the marvelous charging experience.

ASRock XFast USB

ASRock XFast USB can boost USB storage device performance. The performance may depend on the properties of the device.

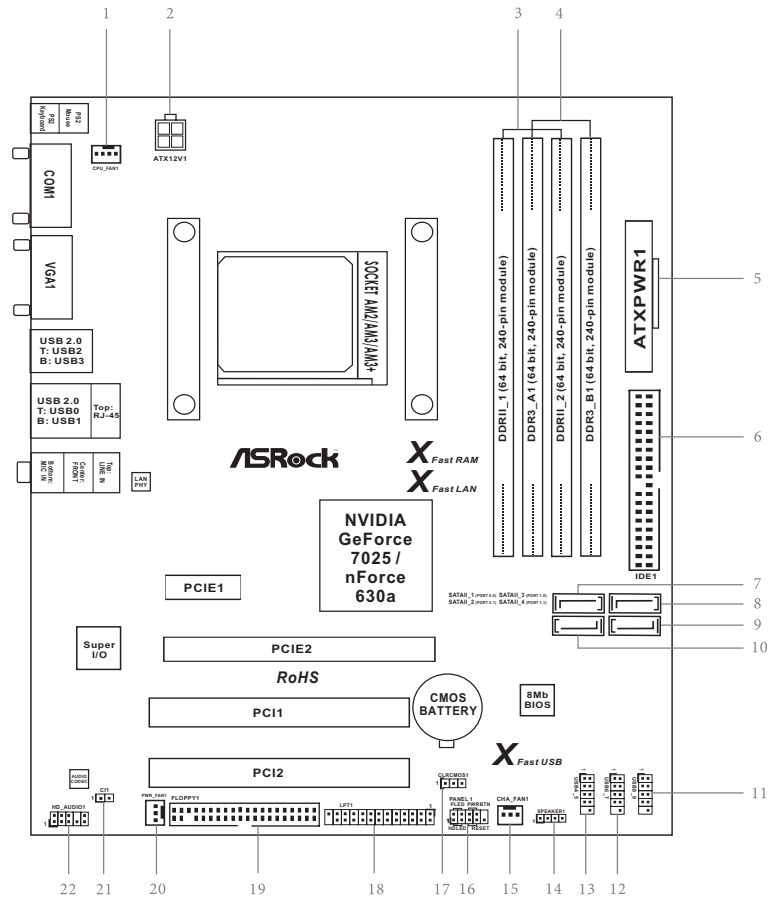
ASRock XFast LAN

ASRock XFast LAN provides a faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and/or add new programs. Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are transferring currently.

ASRock XFast RAM

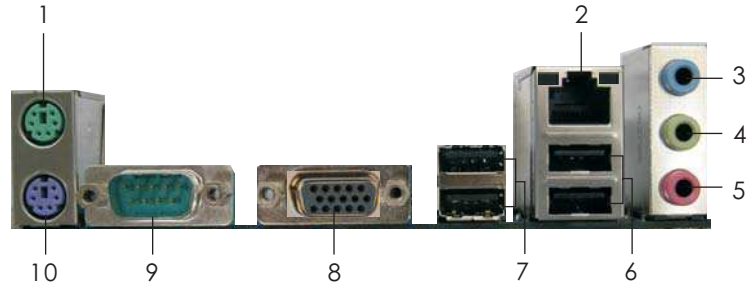
ASRock XFast RAM fully utilizes the memory space that cannot be used under WindowsR OS 32-bit CPU. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever. And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan.

1.4 Motherboard Layout



- | | | | |
|----|---|----|--------------------------------------|
| 1 | CPU Fan Connector (CPU_FAN1) | 11 | USB 2.0 Header (USB8_9) |
| 2 | ATX 12V Power Connector (ATX12V1) | 12 | USB 2.0 Header (USB6_7) |
| 3 | 2 x 240-pin DDR2 DIMM Slots
(Dual Channel: DDRII_1, DDRII_2; Yellow) | 13 | USB 2.0 Header (USB4_5) |
| 4 | 2 x 240-pin DDR3 DIMM Slots
(Dual Channel: DDR3_A1, DDR3_B1; Black) | 14 | Chassis Speaker Header (SPEAKER1) |
| 5 | ATX Power Connector (ATXPWR1) | 15 | Chassis Fan Connector (CHA_FAN1) |
| 6 | Primary IDE Connector (IDE1) | 16 | System Panel Header (PANEL1) |
| 7 | SATA2 Connector (SATAII_1 (PORT 0.0)) | 17 | Clear CMOS Jumper (CLRCMOS1) |
| 8 | SATA2 Connector (SATAII_3 (PORT 1.0)) | 18 | Print Port Header (LPT1) |
| 9 | SATA2 Connector (SATAII_4 (PORT 1.1)) | 19 | Floppy Connector (FLOPPY1) |
| 10 | SATA2 Connector (SATAII_2 (PORT 0.1)) | 20 | Power Fan Connector (PWR_FAN1) |
| | | 21 | Chassis Intrusion Header (CI1) |
| | | 22 | Front Panel Audio Header (HD_AUDIO1) |

1.5 I/O Panel

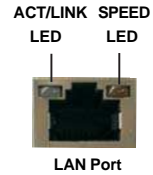


- | | |
|---------------------------|--------------------------------|
| 1 PS/2 Mouse Port (Green) | 6 USB 2.0 Ports (USB01) |
| * 2 RJ-45 Port | 7 USB 2.0 Ports (USB23) |
| 3 Line In (Light Blue) | 8 D-Sub Port |
| 4 Front Speaker (Lime) | 9 COM Port |
| 5 Microphone (Pink) | 10 PS/2 Keyboard Port (Purple) |

* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications


Activity/Link LED		SPEED LED	
Status	Description	Status	Description
Off	No Activity	N68C-GS4 FX:	
Blinking	Data Activity	Off	10Mbps connection
		Orange	100Mbps connection
		Green	1Gbps connection
		N68C-S4 FX:	
		Off	10Mbps connection
		Orange	100Mbps connection



For Realtek ALC662 Audio Codec:

To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. Please refer to below steps for the software setting of Multi-Streaming.

For Windows® XP:

After restarting your computer, you will find "Mixer" tool on your system. Please select "Mixer ToolBox"  , click "Enable playback multi-streaming", and click "ok". Choose "2CH" or

"4CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. Then reboot your system.

For Windows® 8 / 7 / Vista™:

After restarting your computer, please double-click "Realtek HD Audio Manager" on the system tray. Set "Speaker Configuration" to "Quadraphonic" or "Stereo". Click "Device advanced settings", choose "Make front and rear output devices playbacks two different audio streams simultaneously", and click "ok". Then reboot your system.

For VIA® VT1705 Audio Codec:


To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find "VIA HD Audio Deck" tool on your system. Please follow below instructions according to the OS you install.

For Windows® XP OS:

Please click "VIA HD Audio Deck" icon  , and click "Speaker". Then you are allowed to

select "2 Channel" or "4 Channel". Click "Power" to save your change.

For Windows® 8 / 7 / Vista™ OS:

Please click "VIA HD Audio Deck" icon  , and click "Advanced Options" on the left side

on the bottom. In "Advanced Options" screen, select "Independent Headphone", and click "OK" to save your change.

2. Installation

This is a Micro ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

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



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.

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 anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.1 CPU Installation

- Step 1. Unlock the socket by lifting the lever up to a 90° angle.
- Step 2. Position the CPU directly above the socket such that the CPU corner with the golden triangle matches the socket corner with a small triangle.
- Step 3. Carefully insert the CPU into the socket until it fits in place.

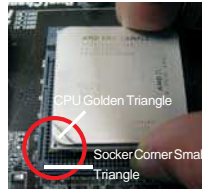


The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins.

- Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.



STEP 1:
Lift Up The Socket Lever



STEP 2 / STEP 3:
Match The CPU Golden Triangle To The Socket Corner Small Triangle



STEP 4:
Push Down And Lock The Socket Lever

2.2 Installation of CPU Fan and Heatsink

After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure 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. 1). For proper installation, please kindly refer to the instruction manuals of the CPU fan and the heatsink.

2.3 Installation of Memory Modules (DIMM)

This motherboard provides two 240-pin DDR2 (Double Data Rate 2) DIMM slots and two 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install **identical** (the same brand, speed, size and chip-type) DDR2/DDR3 DIMM pair in the slots of the same color. In other words, you have to install **identical** DDR2 DIMM pair in **Dual Channel** (DDRII_1 and DDRII_2; Yellow slots; see p.11 No.3), or **identical** DDR3 DIMM pair in **Dual Channel** (DDR3_A1 and DDR3_B1; Black slots; see p.11 No.4), so that Dual Channel Memory Technology can be activated. You may refer to the Dual Channel Memory Configuration Table below.

Dual Channel DDR2 Memory Configurations (DS: Double Side, SS: Single Side)

	DDRII_1 (Yellow Slot)	DDRII_2 (Yellow Slot)
2 memory modules	SS	SS
2 memory modules	DS	DS

Dual Channel DDR3 Memory Configurations (DS: Double Side, SS: Single Side)

	DDR3_A1 (Black Slot)	DDR3_B1 (Black Slot)
2 memory modules	SS	SS
2 memory modules	DS	DS



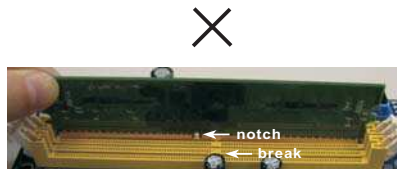
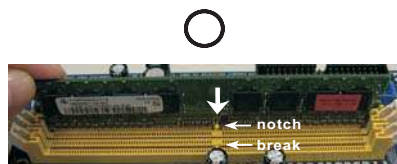
1. If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots of the same color. In other words, install them in the set of black slots (DDR3_A1 and DDR3_B1), or in the set of yellow slots (DDRII_1 and DDRII_2).
2. If only one memory module is installed in the DIMM slot on this motherboard, it is unable to activate the Dual Channel Memory Technology.
3. It is not allowed to install a DDR3 memory module into DDR2 slot or install a DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
4. DDR2 and DDR3 memory modules cannot be installed on this motherboard at the same time.
5. DDR3 memory module is only supported by installing AM3/AM3+ CPU. DDR2 memory module is only supported by installing AM2/AM2+/AM3 CPU.

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.

2.4 Expansion Slots (PCI and PCI Express Slots)

There are 2 PCI slots and 2 PCI Express slots on this motherboard.

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

PCIe slots: PCIe1 (PCIe x1 slot) is used for PCI Express cards with x1 lane width cards.

PCIe2 (PCIe x16 slot) is used for PCI Express cards with x16 lane width graphics cards.

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 bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 3. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 4. Fasten the card to the chassis with screws.

2.5 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						
Clear CMOS Jumper (CLRCMOS1) (see p.11, No. 17)	<table><tr><td>1_2</td><td>2_3</td></tr><tr><td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/></td><td><input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td></tr><tr><td>Default</td><td>Clear CMOS</td></tr></table>	1_2	2_3	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Default	Clear CMOS
1_2	2_3						
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>						
Default	Clear CMOS						

Note: CLRCMOS1 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 pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.



If you clear the CMOS, the case open may be detected. Please adjust the BIOS option "Clear Status" to clear the record of previous chassis intrusion status.

2.6 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!

Floppy Connector

(33-pin FLOPPY1)

(see p.11 No. 19)



↑
the red-striped side to Pin1

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

Primary IDE connector

(39-pin IDE1, see p.11 No. 6)



connect the blue end
to the motherboard



connect the black end
to the IDE devices

80-conductor ATA 66/100/133 cable

Note: Please refer to the instruction of your IDE device vendor for the details.

Serial ATA2 Connectors

(SATAII_1 (PORT 0.0):
see p.11, No. 7)

SATAII_1
(PORT 0.0)



SATAII_3
(PORT 1.0)



(SATAII_2 (PORT 0.1):
see p.11, No. 10)



(SATAII_3 (PORT 1.0):
see p.11, No. 8)

SATAII_2
(PORT 0.1)

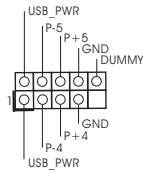
SATAII_4
(PORT 1.1)

(SATAII_4 (PORT 1.1):
see p.11, No. 9)

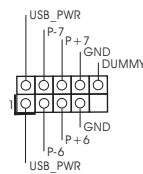
These four Serial ATA2 (SATA2) connectors support SATA2 or SATA hard disk for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

USB 2.0 Headers

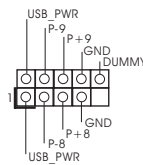
(9-pin USB4_5)
(see p.11 No. 13)



(9-pin USB6_7)
(see p.11 No. 12)



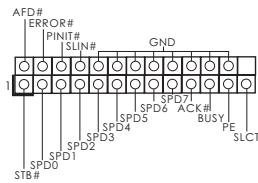
(9-pin USB8_9)
(see p.11 No. 11)



Besides four default USB 2.0 ports on the I/O panel, there are three USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

Print Port Header

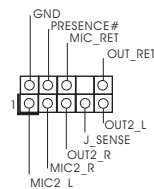
(25-pin LPT1)
(see p.11 No. 18)



This is an interface for print port cable that allows convenient connection of printer devices.

Front Panel Audio Header

(9-pin HD_AUDIO1)
(see p.11, No. 22)



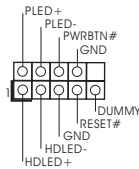
This is an interface for the front panel audio cable that allows convenient connection and control of audio devices.



1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
 - A. Connect Mic_IN (MIC) to MIC2_L.
 - B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
 - C. Connect Ground (GND) to Ground (GND).
 - D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.

System Panel Header

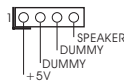
(9-pin PANEL1)
(see p.11 No. 16)



This header accommodates several system front panel functions.

Chassis Speaker Header

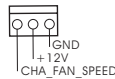
(4-pin SPEAKER 1)
(see p.11 No. 14)



Please connect the chassis speaker to this header.

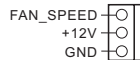
Chassis and Power Fan Connectors

(3-pin CHA_FAN1)
(see p.11 No. 15)



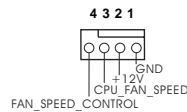
Please connect the fan cables to the fan connectors and match the black wire to the ground pin.

(3-pin PWR_FAN1)
(see p.11 No. 20)



CPU Fan Connector

(4-pin CPU_FAN1)
(see p.11 No. 1)



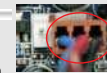
Please connect the CPU fan cable to this connector and match the black wire to the ground pin.



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.

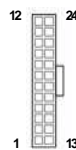
Pin 1-3 Connected

3-Pin Fan Installation



ATX Power Connector

(24-pin ATXPWR1)
(see p.11 No. 5)



Please connect an ATX power supply to this connector.



Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation



ATX 12V Power 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. Failing to do so will cause power up failure.

Chassis Intrusion Header
(2-pin CI1)
(see p.11 No. 21)



This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

2.7 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.

2.8 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit Without RAID Functions

If you just want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit on your SATA / SATA2 HDDs without RAID functions, you don't have to make a SATA / SATA2 driver diskette. Besides, there is no need for you to change the BIOS setting. You can start to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit on your system directly.

2.9 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit With RAID Functions

If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit OS on your SATA / SATA2 HDDs with RAID functions, please follow below procedures according to the OS you install.

2.9.1 Installing Windows® XP / XP 64-bit With RAID Functions

If you want to install Windows® XP / XP 64-bit on your SATA / SATA2 HDDs with RAID functions, please follow below steps.

STEP 1: Set Up BIOS.

- A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set the "SATA Operation Mode" option to [IDE].

STEP 2: Make a SATA / SATA2 Driver Diskette.

- A. Insert the ASRock Support CD into your optical drive to boot your system.
- B. During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device.
- C. When you see the message on the screen, "Generate Serial ATA driver diskette [YN]?", press <Y>.

D. Then you will see these messages,

**Please insert a blank
formatted diskette into floppy
drive A:
press any key to start**

Please insert a floppy diskette into the floppy drive, and press any key.

E. The system will start to format the floppy diskette and copy SATA / SATA2 drivers into the floppy diskette.

STEP 3: Set Up BIOS.

A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the “SATA Operation Mode” option to [RAID].

STEP 4: Use “RAID Installation Guide” to set RAID configuration.

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide in the following path in the Support CD:

.. \ RAID Installation Guide

STEP 5: Install Windows® XP / XP 64-bit OS on your system.

You can start to install Windows® XP / XP 64-bit OS on your system. At the beginning of Windows® setup, press F6 to install a third-party RAID driver. When prompted, insert the SATA / SATA2 driver diskette containing the NVIDIA® RAID driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the mode you choose and the OS you install.

NOTE. If you install Windows® XP / XP 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATAII HDDs, you still need to set up “SATA Operation Mode” to [RAID] in BIOS first. Then, please set the RAID configuration by using the Windows RAID installation guide in the following path in the Support CD:

.. \ RAID Installation Guide

2.9.2 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit With RAID Functions

If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on your SATA / SATA2 HDDs with RAID functions, please follow below steps.

STEP 1: Set Up BIOS.

A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the “SATA Operation Mode” option to [RAID].

STEP 2: Use “RAID Installation Guide” to set RAID configuration.

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD:

.. \ RAID Installation Guide

STEP 3: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

Insert the Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows® Vista™ / Vista™ 64-bit OS on your system. When you see “Where do you want to install Windows?” page, please insert the ASRock Support CD into your optical drive, and click the “Load Driver” button on the left on the bottom to load the NVIDIA® RAID drivers. NVIDIA® RAID drivers are in the following path in our Support CD:

..\I386 (For Windows® Vista™ OS)

..\AMD64 (For Windows® Vista™ 64-bit OS)

After that, please insert Windows® Vista™ / Vista™ 64-bit optical disk into the optical drive again to continue the installation.

NOTE. If you install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATA2 HDDs, you still need to set up “SATA Operation Mode” to [RAID] in BIOS first. Then, please set the RAID configuration by using the Windows RAID installation guide in the following path in the Support CD:

..\RAID Installation Guide

NOTE. For Windows® 8 / 8 64-bit / 7 / 7 64-bit users, you do not need to load RAID driver from ASRock support CD. Please use the native driver to install Windows® 8 / 8 64-bit / 7 / 7 64-bit OS, and then install ASRock All-in-1 driver.

2.10 Untied Overclocking Technology

This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter “Overclock Mode” option of BIOS setup to set the selection from [Auto] to [CPU, PCIE, Async.]. Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment.



Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology.

2.11 ASRock Home Cloud (N68C-GS4 FX)

Have you ever been in a situation where you emergently needed certain files in your computer, however the computer was gazillion miles away out of reach? ASRock Home Cloud includes several technologies and software solutions for remotely controlling your computer, even if the computer is in off mode. For ASRock motherboards with a Qualcomm® Atheros® LAN chip, ASRock Home Cloud allows users to remotely wake up their computers via the internet by using a secondary device, such as a smartphone or tablet. Users may use Sunlogin to remotely wake up and control their computers, or they could wake up the computer then use any other preferred remote desktop application. This motherboard supports Security Wake On Internet Technology with the onboard Qualcomm® Atheros® LAN, so you can connect with your PC from anywhere in the world. You will be able to power your PC on or turn it off, monitor and take control of it remotely with another smartphone, tablet or computer.



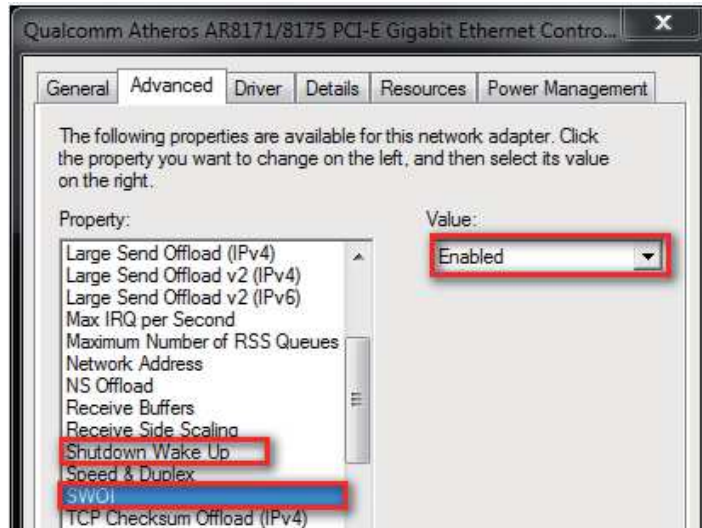
2.11.1 Qualcomm® Atheros® Security Wake On Internet Technology

Qualcomm® Atheros® Security Wake On Internet Technology allows you to wake up and remote control your home computer from energy efficient sleep mode.

Before configuring this feature, verify the following.

- Make sure that the "PCI Devices Power On" is enabled in BIOS SETUP UTILITY > Advanced > ACPI Configuration.

- Make sure that the "Shutdown Wake Up" and "SWOI" are enabled in Device Manager > Network Adapters > Qualcomm Atheros AR8171/8175 PCI-E Gigabit Ethernet Controller > Advanced.
* "SWOI" may not appear in certain driver versions.



2.11.1.1 Configuring and Using Sunlogin

Oray Sunlogin is a remote control software that lets you easily access and control the remote host that is installed with the Oray SunLogin Client software.

Installing Sunlogin remote client

Step 1

Login to sunlogin.oray.com.

If you have not created a Sunlogin account, create one.

Step 2

Download "Sunlogin Client" from the Download section of sunlogin.oray.com

Sunlogin Client for Windows package [Update History](#)

System Support: Win2000 WinXP Win2003 WinVista Win2008 Win7 Win8

Software Language: English, Simplified Chinese, Traditional Chinese

Size: 41,144 KB

Updated on: 2013-05-27

MD5 value: B52D880C7347AFE72133214CEFE83E03

Version: 5.4.31.25828


[Download now](#)

Step 3

Click on **Remote Client** and follow the onscreen instructions to complete the installation.

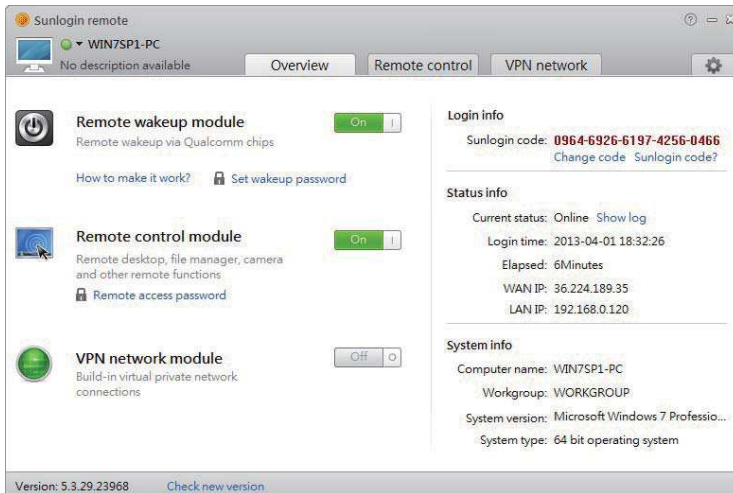


Step 4

Double-click the Sunlogin Remote Control icon  in the Windows system tray.

Step 5

Make sure that "Remote wakeup module" and "Remote control module" is set to On.



Installing Sunlogin control client

Step 1

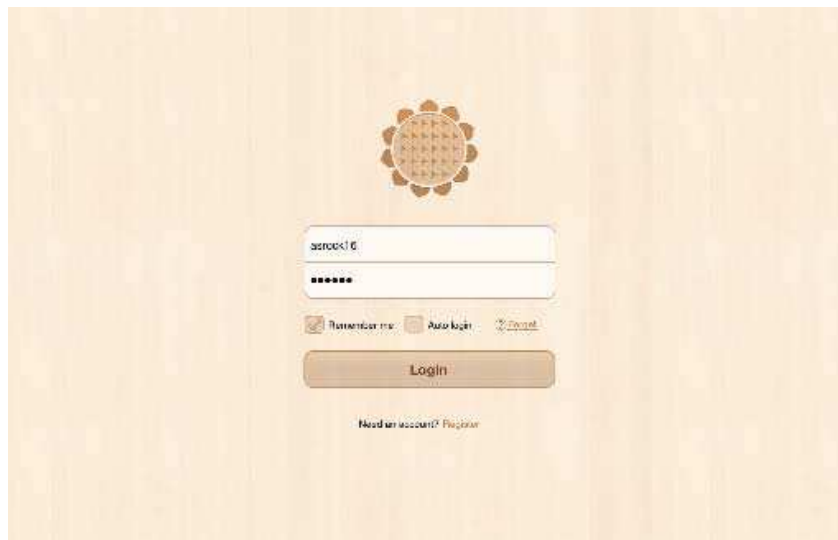
For Windows users:

Download "Sunlogin Remote" from the Download section of sunlogin.oray.com and execute it. Log-in with your Sunlogin Account and Password.



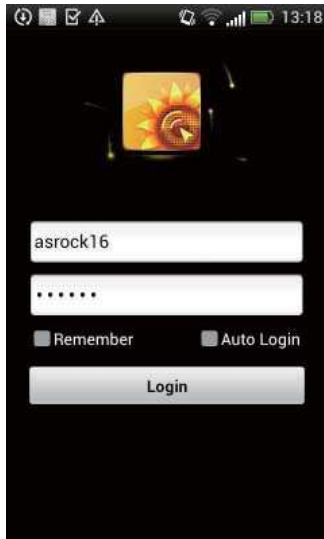
For iPad/iPhone users:

Download "Sunlogin" from the App Store and install the app. Then fill in your Sunlogin Account and Password.



For Andriod mobile device users:

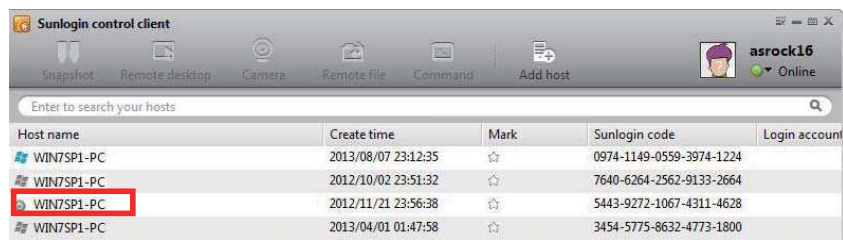
Search “Sunlogin” in Google PLAY and then install the app. Then fill in your Sunlogin Account and Password.



Using Remote Wakeup

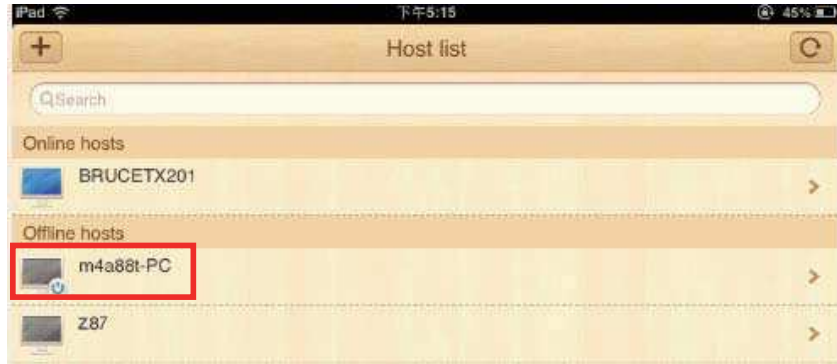
For Windows users:

Select one Host (Offline with Gray power button) on the control client panel to wake up your home computer.



For iPad/iPhone users:

Tap one Host (Offline with Gray power button) on the Host List. Then tap the Power button to wakeup your home computer.



For Andriod mobile device users:

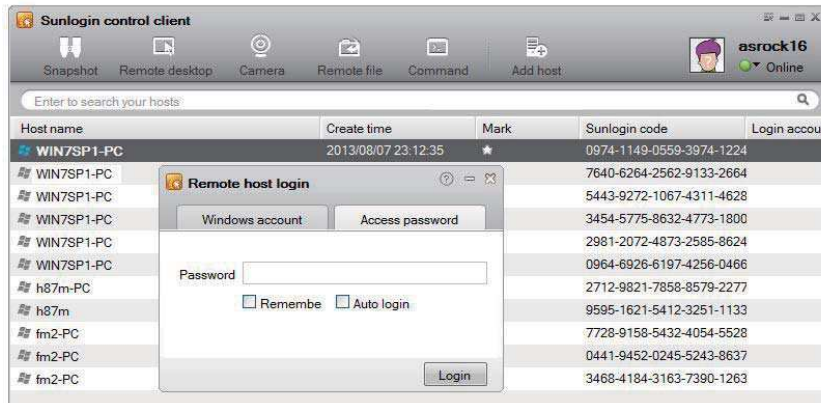
Tap one Host (Offline with Blue power button) on the Host List. Then tap the Power button to wakeup your home computer.



Using Remote Control

For Windows users:

Right-click on a Host (Online with Blue Windows logo) on the control client panel. Then key in your remote access password.



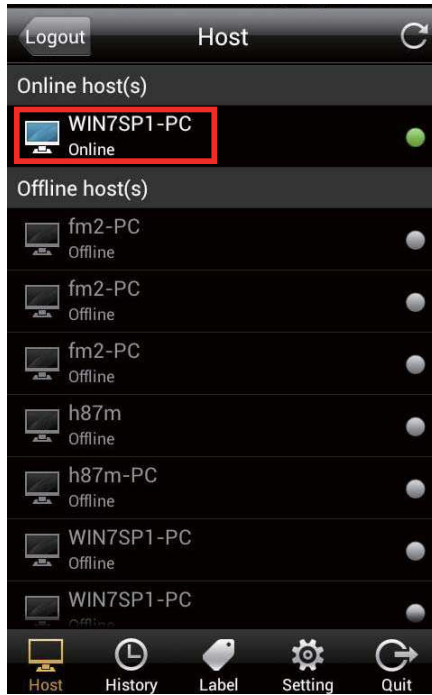
For iPad/iPhone users:

Tap one online machine on the Host List and fill in the Access password to start using remote control.



For Andriod mobile device users:

Tap one online machine and fill in the Access password to start using remote control.



Tutorial Video

3. BIOS SETUP UTILITY

3.1 Introduction

This section explains how to use the BIOS SETUP UTILITY to configure your system. The SPI Memory on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> or 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
- OC Tweaker** To set up overclocking features
- 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

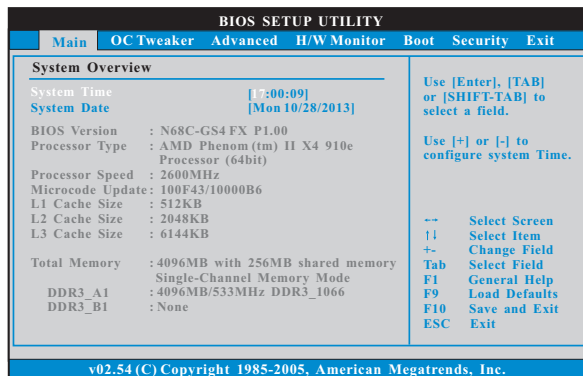
Please check the following table for the function description of each navigation key.

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.

N68C-GS4 FX



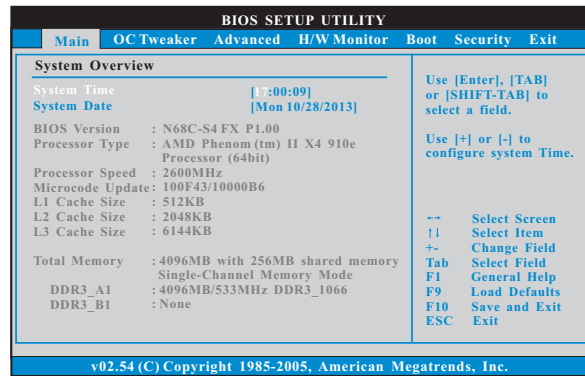
System Time [Hour:Minute:Second]

Use this item to specify the system time.

System Date [Day Month/Date/Year]

Use this item to specify the system date.

N68C-S4 FX



System Time [Hour:Minute:Second]

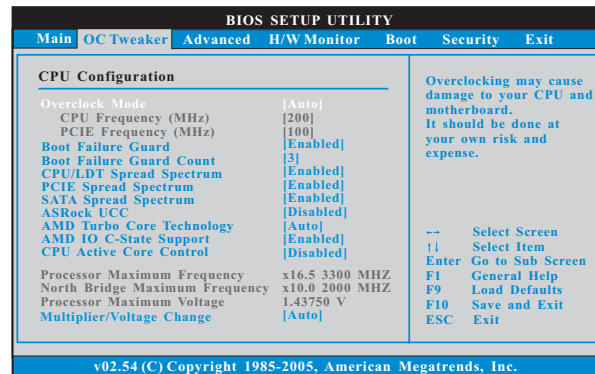
Use this item to specify the system time.

System Date [Day Month/Date/Year]

Use this item to specify the system date.

3.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.



CPU Configuration

Overclock Mode

Use this to select Overclock Mode. The default value is [Auto]. Configuration options: [Auto], [CPU, PCIE, Sync.], [CPU, PCIE, Async.] and [Optimized].

CPU Frequency (MHz)

Use this option to adjust CPU frequency.

PCIE Frequency (MHz)

Use this option to adjust PCIE frequency.

Boot Failure Guard

Enable or disable the feature of Boot Failure Guard.

Boot Failure Guard Count

Enable or disable the feature of Boot Failure Guard Count.

CPU/LDT Spread Spectrum

This feature will be set to [Enabled] as default. Configuration options: [Disabled] and [Enabled].

PCIE Spread Spectrum

This feature will be set to [Enabled] as default. Configuration options: [Disabled] and [Enabled].

SATA Spread Spectrum

This feature will be set to [Enabled] as default. Configuration options: [Disabled] and [Enabled].

ASRock UCC

ASRock UCC (Unlock CPU Core) feature simplifies AMD CPU activation. As long as a simple switch of the BIOS option "ASRock UCC", you can unlock the extra CPU core to enjoy an instant performance boost. When UCC feature is enabled, the dual-core or triple-core CPU will boost to the quad-core CPU, and some CPU, including quad-core CPU, can also increase L3 cache size up to 6MB, which means you can enjoy the upgrade CPU performance with a better price. Please be noted that UCC feature is supported with AM2+/AM3/AM3+ CPU only, and in addition, not every AM2+/AM3/AM3+ CPU can support this function because some CPU's hidden core may be malfunctioned.

AMD Turbo Core Technology

This item appears only when the processor you adopt supports this feature. Use this to select enable or disable AMD Turbo Core Technology. Configuration options: [Auto] and [Disabled]. The default value is [Auto].

AMD IO C-State Support

This allows you to enable or disable AMD IO C-State Support. The default value is [Enabled].

CPU Active Core Control

This allows you to adjust CPU Active Core Control feature. The configuration options depend on the CPU core you adopt. The default value is [Disabled].

Processor Maximum Frequency

It will display Processor Maximum Frequency for reference.

North Bridge Maximum Frequency

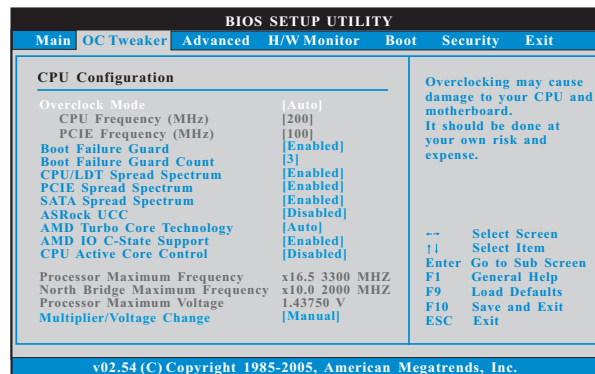
It will display North Bridge Maximum Frequency for reference.

Processor Maximum Voltage

It will display Processor Maximum Voltage for reference.

Multiplier/Voltage Change

This item is set to [Auto] by default. If it is set to [Manual], you may adjust the value of Processor Frequency and Processor Voltage. However, it is recommended to keep the default value for system stability.



CPU Frequency Multiplier

For safety and system stability, it is not recommended to adjust the value of this item.

Processor Voltage

It allows you to adjust the value of processor voltage. However, for safety and system stability, it is not recommended to adjust the value of this item.

NB Frequency Multiplier

For safety and system stability, it is not recommended to adjust the value of this item.

HT Bus Speed

This feature allows you selecting Hyper-Transport bus speed. Configuration options: [Auto], [x1 200 MHz] to [x5 1000 MHz].

HT Bus Width

This feature allows you selecting Hyper-Transport bus width. Configuration options: [Auto], [8 Bit] and [16 Bit].

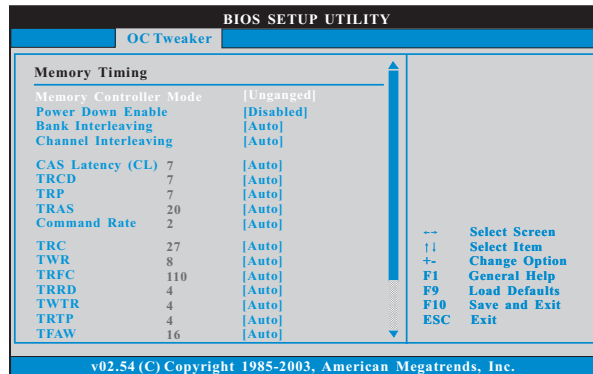
Memory Configuration

This item can be set by the code using [Auto]. You can set one of the standard values as listed for DDR2 memory modules: [200MHz DDR2_400], [266MHz DDR2_533], [333MHz DDR2_667] and [400MHz DDR2_800]. If you adopt Phenom CPU, there is one more option: [533MHz DDR2_1066]. You can set one of the standard values as listed for DDR3 memory modules: [400MHz DDR3_800], [533MHz DDR3_1066], [667MHz DDR3_1333] and [800MHz DDR3_1600].

DRAM Voltage

Use this to select DRAM voltage. The default value is [Auto].

Memory Timing



Memory Controller Mode

It allows you to adjust the memory controller mode. Configuration options: [Unganged] and [Ganged]. The default value is [Unganged].

Power Down Enable

Use this item to enable or disable DDR power down mode.

Bank Interleaving

Interleaving allows memory accesses to be spread out over banks on the same node, or across nodes, decreasing access contention.

Channel Interleaving

It allows you to enable Channel Memory Interleaving. The default value for DDR2 is [Hash 1]. The default value for DDR3 is [Hash 2].

CAS Latency (CL)

Use this item to adjust the means of memory accessing. The default value is [Auto].

TRCD

Use this to adjust TRCD values. The default value is [Auto].

TRP

Use this to adjust TRP values. The default value is [Auto].

TRAS

Use this to adjust TRAS values. The default value is [Auto].

Command Rate

Use this item to change Command Rate Auto/Manual setting. Min: 1N. Max: 2N. The default is [Auto].

TRC

Use this to adjust TRC values. The default value is [Auto].

TWR

Use this to adjust TWR values. The default value is [Auto].

TRFC

Use this to adjust TRFC values. The default value is [Auto].

TRRD

Use this to adjust TRRD values. The default value is [Auto].

TWTR

Use this to adjust TWTR values. The default value is [Auto].

TRTP

Use this to adjust TRTP values. The default value is [Auto].

TFAW

Use this to adjust TFAW values. The default value is [Auto].

Chipset Settings**Chipset Voltage**

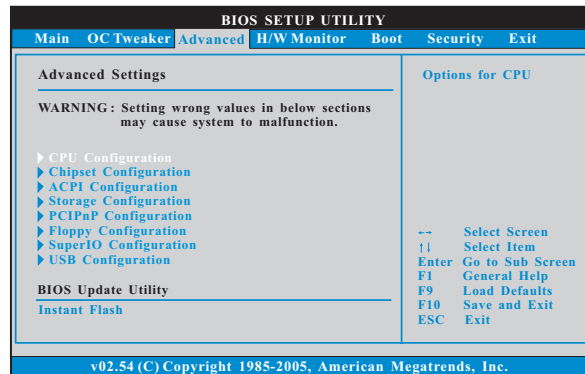
Use this to select chipset voltage. The default value is [Auto].

Would you like to save current setting user defaults?

In this option, you are allowed to load and save three user defaults according to your own requirements.

3.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, Storage Configuration, PCI/PnP Configuration, Floppy Configuration, SuperIO Configuration and USB Configuration.

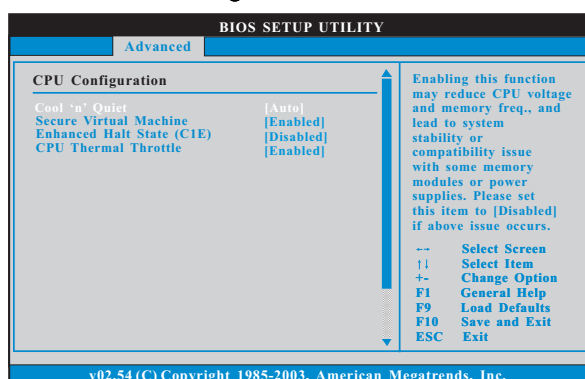


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the BIOS files and their respective information. Select the proper BIOS file to update your BIOS, and reboot your system after BIOS update process completes.

3.4.1 CPU Configuration



AM2 Boost

This option appears only when you adopt AM2 CPU. If you set this option to [Enabled], you will enable ASRock AM2 Boost function, which will improve the memory performance. The default value is [Disabled]. Please refer to caution 20 on page 11 for details.

Cool 'n' Quiet

Use this item to enable or disable AMD's Cool 'n' Quiet™ technology. The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows® 8 / 7 / Vista™ and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disable] if above issue occurs.

Secure Virtual Machine

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by AMD-V. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled].

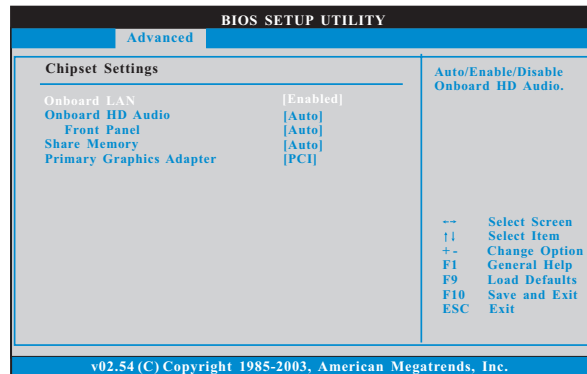
Enhance Halt State (C1E)

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.

CPU Thermal Throttle

Use this item to enable CPU internal thermal control mechanism to keep the CPU from overheated. The default value is [Auto].

3.4.2 Chipset Configuration



Onboard LAN

This allows you to enable or disable the onboard LAN feature.

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

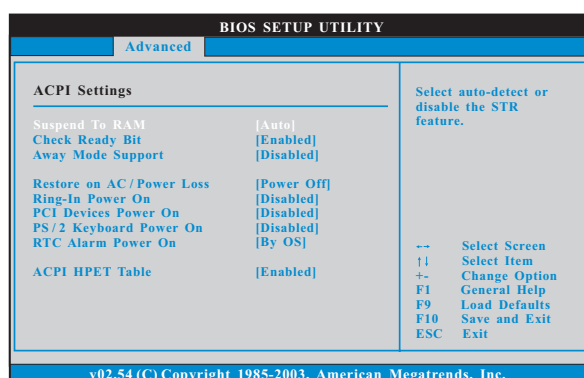
Share Memory

This allows you to set share memory feature. The default value is [Auto]. Configuration options: [Auto], [32MB], [64MB], [128MB] and [256MB].

Primary Graphics Adapter

This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI]. Configuration options: [PCI], [Onboard] and [PCI Express].

3.4.3 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

Check Ready Bit

Use this item to enable or disable the feature Check Ready Bit.

Away Mode Support

Use this item to enable or disable Away Mode support under Windows® XP Media Center OS. The default value is [Disabled].

Restore on AC/Power Loss

This allows you 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.

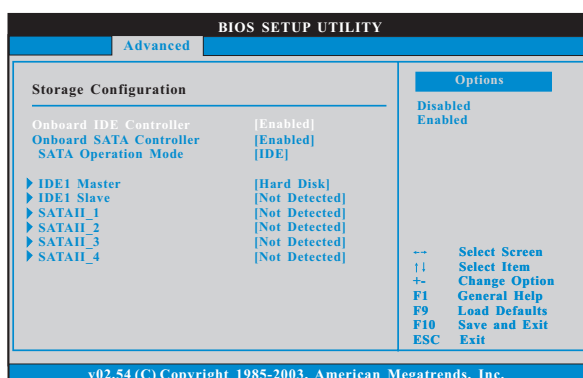
RTC Alarm Power On

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

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Disabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

3.4.4 Storage Configuration



OnBoard IDE Controller

Use this item to enable or disable the "OnBoard IDE Controller" feature.

Onboard SATA Controller

Use this item to enable or disable the "Onboard SATA Controller" feature.

SATA Operation Mode

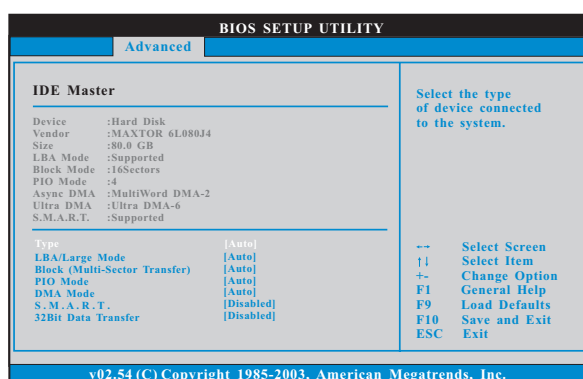
Use this item to adjust SATA Operation Mode. The default value of this option is [IDE]. If you want to operate RAID function on SATA / SATAII HDDs, please select [RAID]. Configuration options: [IDE] and [RAID].

* If you select [RAID] mode, SATA / SATAII HDDs can not be accessed until you finish configuring RAID functions in NVIDIA BIOS / Windows RAID Utility.

* If you install OS on SATA / SATAII HDDs, please do not change the setting of this item after OS installation.

IDE Device Configuration

You may set the IDE configuration for the device that you specify. We will use the "IDE1 Master" as the example in the following instruction, which can be applied to the configurations of "IDE1 Slave" 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.

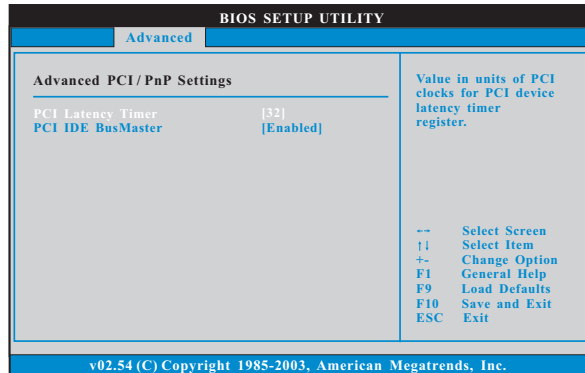
S.M.A.R.T.

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].

32Bit Data Transfer

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

3.4.5 PCI PnP Configuration



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

PCI Latency Timer

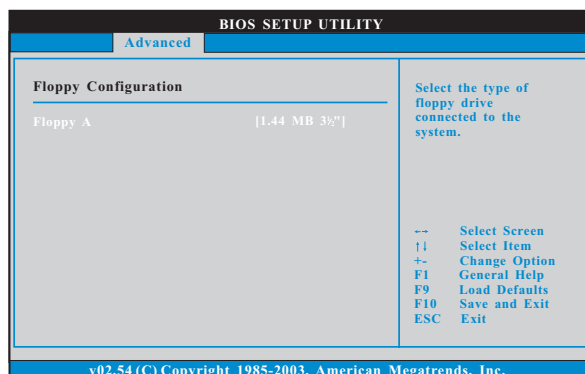
The default value is 32. It is recommended to keep the default value unless the installed PCI expansion cards' specifications require other settings.

PCI IDE BusMaster

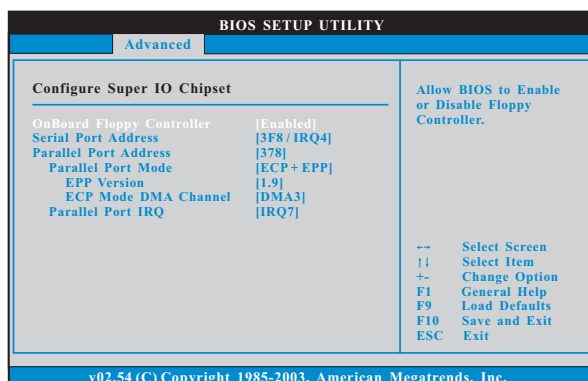
Use this item to enable or disable the PCI IDE BusMaster feature.

3.4.6 Floppy Configuration

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



3.4.7 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].

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

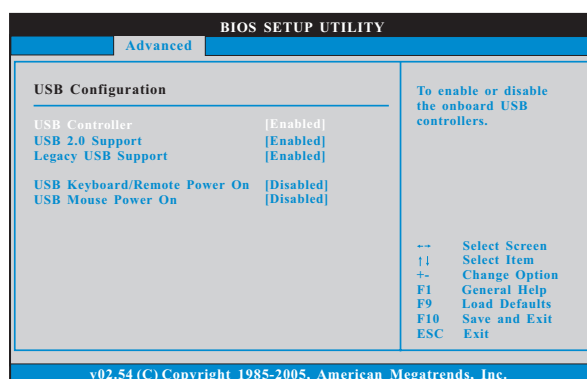
Use this item to set the ECP mode DMA channel. Configuration options: [DMA0], [DMA1], and [DMA3].

Parallel Port IRQ

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



3.4.8 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 option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [BIOS Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[Disabled] - USB devices are not allowed to use under legacy OS and BIOS setup when [Disabled] is selected. If you have USB compatibility issue, it is recommended to select [Disabled] to enter OS.

[BIOS Setup Only] - USB devices are allowed to use only under BIOS setup.

USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote Power On on the system.

USB Mouse Power On

Use this item to enable or disable USB Mouse Power On on the system.

3.5 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.

BIOS SETUP UTILITY						
Main	OC Tweaker	Advanced	H/W Monitor	Boot	Security	Exit
Hardware Health Event Monitoring				Enable/Disable CPU Quiet Fan Function.		
CPU Temperature	:	37°C / 98°F				
M/B Temperature	:	27°C / 80°F				
CPU Fan Speed	:	4722 RPM				
Chassis Fan Speed	:	N/A				
Power Fan Speed	:	N/A				
Vcore	:	1.216V		--	Select Screen	
+ 3.30V	:	3.248V		F1	Select Item	
+ 5.00V	:	5.136V		F1	General Help	
+ 12.00V	:	12.091V		F9	Load Defaults	
CPU Quiet Fan	:	[Disabled]		F10	Save and Exit	
				ESC	Exit	

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CPU Quiet Fan

This item allows you to control the CPU fan speed and fan noise. 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" and "Target 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

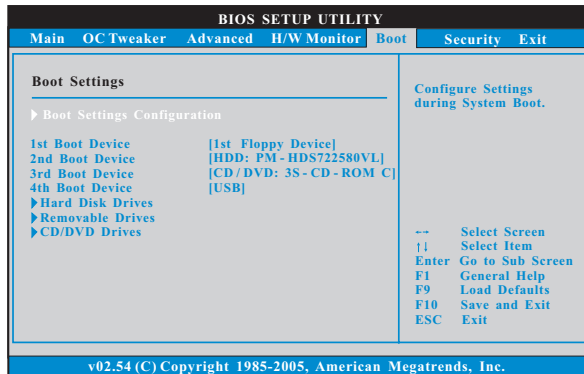
The target temperature will be between 45°C/113°F and 65°C/149°F. The default value is [50°C/122°F].

Target Fan Speed

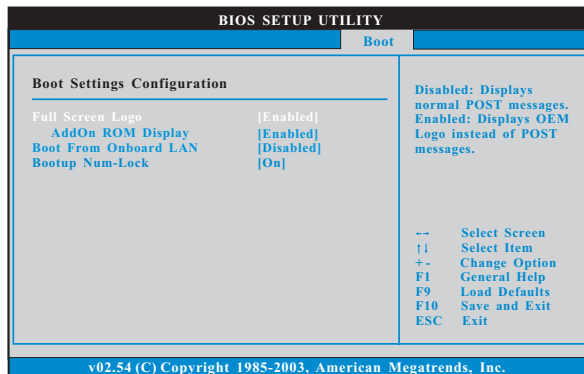
Use this option to set the target fan speed. You can freely adjust the target fan speed according to the target CPU temperature that you choose. Configuration options: [Level 1] to [Level 9]. The default value is [Level 9].

3.6 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.



3.6.1 Boot Settings Configuration



Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

Boot From Onboard LAN

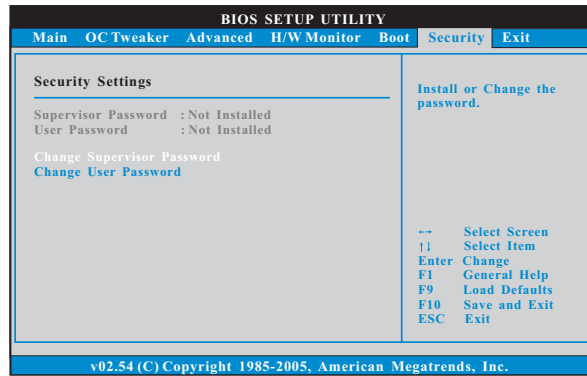
Use this item to enable or disable the Boot From Onboard LAN feature.

Boot Up Num-Lock

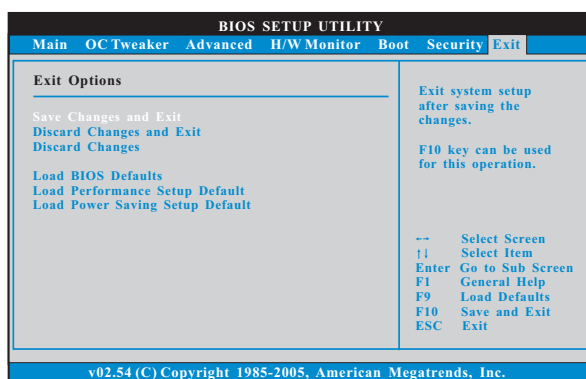
If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

3.7 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.



3.8 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 BIOS Defaults

Load BIOS default values for all the setup questions. F9 key can be used for this operation.

Load Performance Setup Default

This performance setup default may not be compatible with all system configurations. If system boot failure occurs after loading, please resume optimal default settings. F5 key can be used for this operation.

Load Power Saving Setup Default

Load power saving setup default. F6 key can be used for this operation.

4. Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems:

8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit / Vista™ 32-bit / Vista™ 64-bit / XP 32-bit / XP 64-bit. 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 "ASRSETUP.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 the 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 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.