

TECHNICAL MANUAL
Of
NVIDIA MCP78S
Based
Mini-ITX M/B For AMD Socket AM2+ Processor

NO.G03-J6C2-F/G03-NC62-F

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Trademark:

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Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	May, 2008

Item Checklist

- Motherboard
- Cable for IDE Port
- CD for motherboard utilities
- Motherboard User's Manual
- Back panel(optional)
- DVI to HDMI Connector

Chapter 1

Introduction of the Motherboard

1-1 Feature of motherboard

The motherboard series are designed for the new generation AMD processor family guaranteed both of the performance and stability of general purpose IPC and dedicated IPC platform solutions. The MCP78S chipset is fully optimized to provide the variety IPC platform solutions by featuring the high compatibilities and cost-effective, low power consumption, high performance, and superior core graphics engine.

The motherboard AMD Socket AM2+ Quad core Opteron&Phenom, with low power consumption never denies high performance. The embedded AMD Socket AM2+ Quad core Opteron&Phenom family processor has evolved to meet the specific requirements of extended temperature applications in telecommunications infrastructure (including wired, wireless, and BSC/MSC), single board computing, automotive and transportation systems and industrial control and monitoring.

The motherboard series support HT3.0 and DDRII 400/533/667/800 system RAM Modules which is expandable to 2.0GB. **The motherboard offers ULTRA ATA 133 HDD connectors and Serial ATA2 with RAID 0 ,1, 5,10, JBOD functions which support up to IDE and four Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.** The motherboard provide two Gigabit Ethernet LAN for internet or intranet connections, one is PCI-E LAN, the other one is PHY LAN (optional) . The motherboard series are also integrated Realtek ALC883 8channel Audio CODEC on system which is fully compatible with Sound Blaster Pro[®] that gives you the best sound quality and compatibility.

Embedded 10 USB2.0 functional ports delivering 480Mb/s data transfer rate, these motherboards meet USB2.0 demands data transport demands which are also equipped with

hardware monitor function on system to monitor and protect your system and maintain your non-stop business computing.

Targets at High Growth Markets: Digital Home / Digital Office / Digital World

- Personal electronics such as personal video recorders (PVR), set top boxes, home theatres, digital audio centers, etc.
- Mini PCs / Green clients / Quiet desktop PCs / High density servers
- Home server appliances / Public information/entertainment kiosks / Point-of-Sales systems / Intelligent displays / Edge networking devices / Hospital monitoring systems / Municipal control & monitoring systems

1-1.1 Special Feature of motherboard

OC-CON --- (High-polymer Solid Electrolysis Aluminum Capacitors)

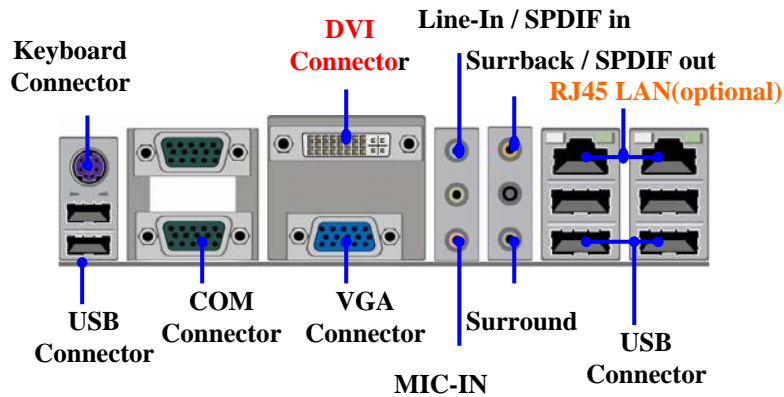
The working temperature is from 55 degrees Centigrade below zero to 125 degrees Centigrade, OC-CON capacitors possess superior physical characteristics that can be while reducing the working temperature between 20 degrees Centigrade each time, intact extension 10 times of effective product operation lives, at not rising degrees Centigrade of working temperatures each time a relative one, life of product decline 10% only too.

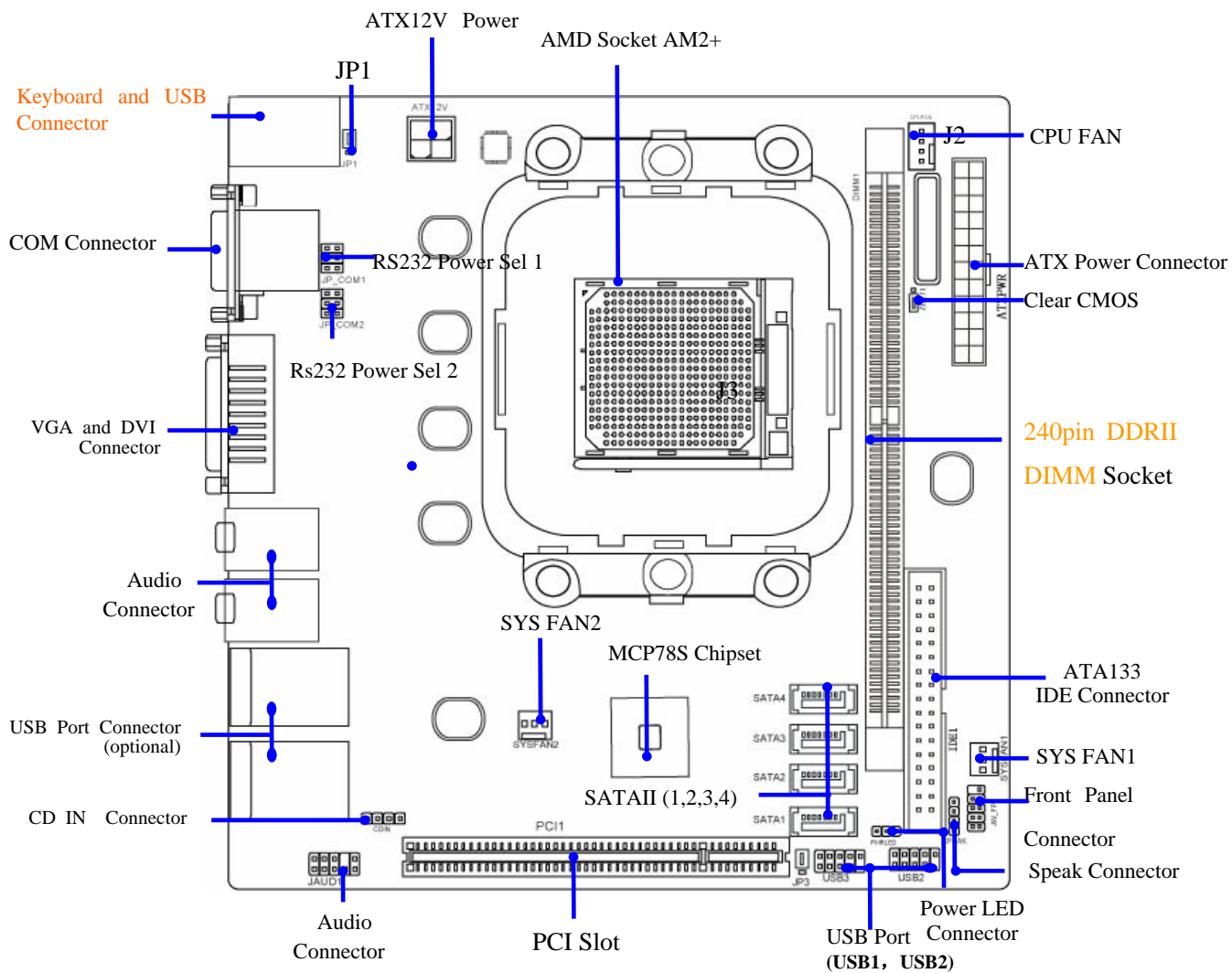
1-2 Specification

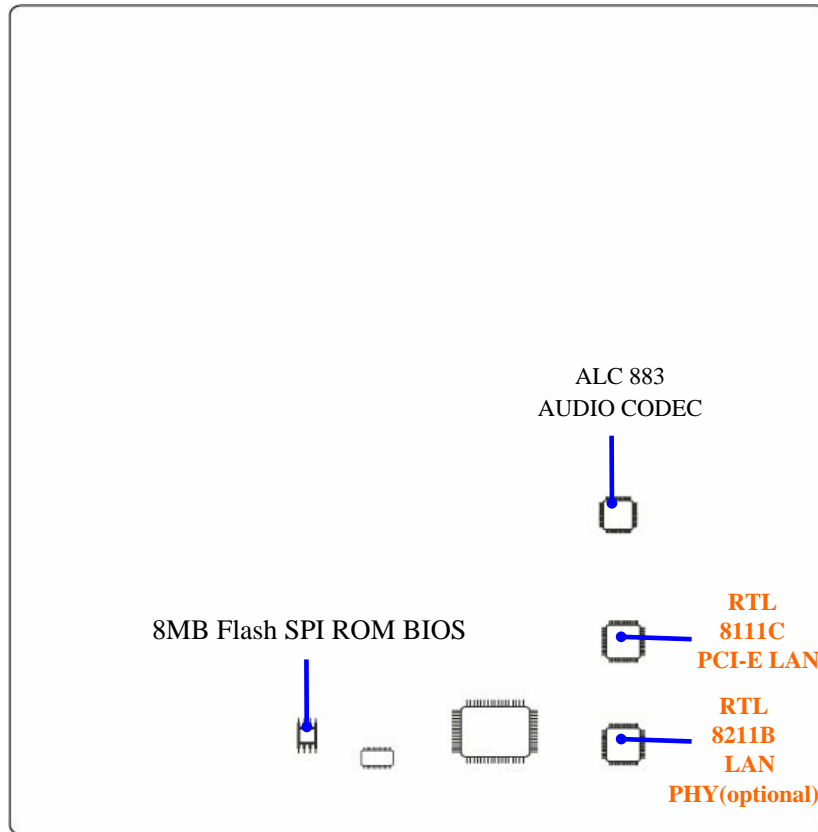
Spec	Description
Design	* Mini ITX form factor 6 layers PCB size: 17.0x17.0cm
Chipset	* NVIDIA MCP78S single chipset
Embedded CPU	* Support HT3.0 * Low Power Consumption * Socket AM2+ / AM2 AMD CPU
Memory Socket	* 240-pin DDRII DIMM socket x1 * Support DDRII 667MHz /DDRII 800MHz system Modules DDR memory * Expandable to 2GB.
Expansion Slots	* 32-bit PCI slot x 1pcs
Integrate IDE	* One PCI IDE controller that supports PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 133/100/66 functions that deliver the data transfer rate up to 100 MB/s;
LAN	* Integrated Realtek RTL8111B/C PCI-E LAN. * Integrated Realtek RTL8211B LAN PHY LAN(optional). * Support Fast Ethernet LAN function of providing 10Mb/100Mb /Gigabit Ethernet data transfer rate
Audio	* Realtek ALC883 8 channel Audio Codec integrated * Audio driver and utility included * Support SPDIF IN/OUT

BIOS	<ul style="list-style-type: none"> * Award 8MB SPI Flash ROM
Multi I/O	<ul style="list-style-type: none"> * PS/2 keyboard&Mouse Connector * D-Sub 15-pin VGA Conn. * USB 2.0 connector x6, USB2.0 header x2 * Serial port D-Sub x2 * 8-channel Audio connector (Line-out, MIC and SPDIF in/out) * DVI Conn.

1-3 Layout Diagram & Jumper Setting







Jumper

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear Function Setting	3-pin Block	p.9

Connectors

Connector	Name	Description	Page
12V CN	4-Pin 12V Power Connector	4-pin Block	p.12
USB1,USB2	USB Port Connector	4-pin Connector	p.13
UL3,UL4	RJ45 LAN Connector	4-pin Connector	p.14
VGA CN	VGA Port Connector	15-pin Female	p.12
CN4	Line-Out /MIC Audio Connector	2 Phone Jack	p.13
PS2 KB	PS2 Keyboard & Mouse Connector	5-Pin Connector	p.14

Headers

Header	Name	Description	Page
USB1,USB2	USB2.0 Port Headers	9-pin Block	p.14
IDE	44-Pin IDE Connector	44-pin IDE Block	p.15
RESET	Reset switch lead	2-pin Connector	p.15
PWR BTN	Power Button Headers	2-pin Connector	p.15
SATAIII1,2,3,4	Serial ATA Headers	7-pin Female Connector	p.16

Expansion Sockets

Socket/Slot	Name	Description	Page
DDRII	DDRII SDRAM Module Socket	240-pin DDR SODIMM Module Expansion Socket	p.10

Chapter 2

Hardware installation

2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:

1. Check motherboard jumper setting
2. Install System Memory (DIMM)
3. Install Expansion cards
4. Connect IDE, Front Panel /Back Panel cable
5. Connect Power connector
6. Install Operating System
7. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) Clear CMOS (3-pin): JBAT

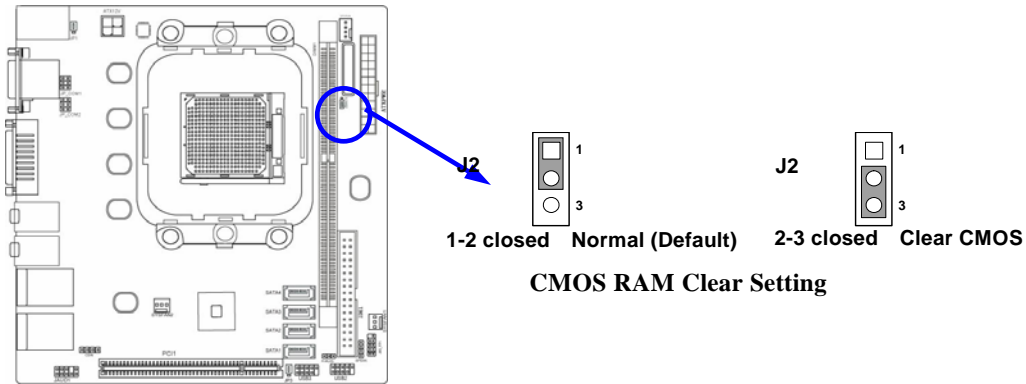
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:

1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should clear CMOS

1. *Troubleshooting*
2. *Forget password*
3. *After over clocking system boot fail*



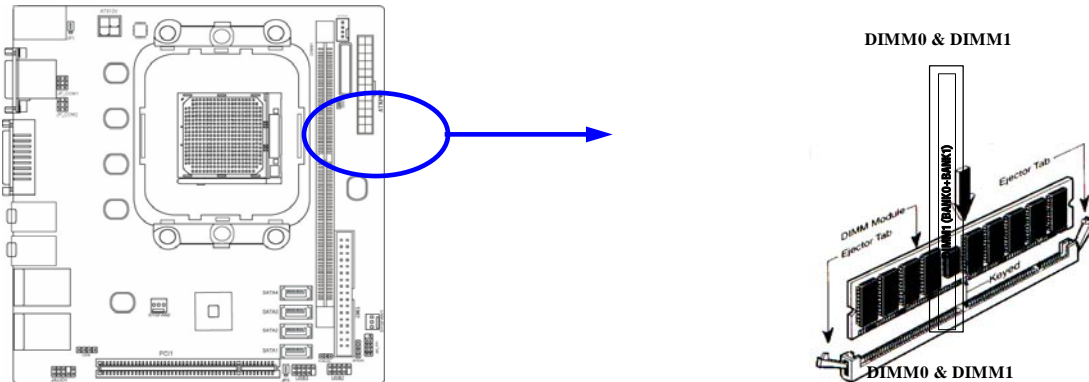
2-3 Install Memory

The motherboards provide one 240-pin DDRII MEMORY MODULE sites for memory expansion available from minimum memory size of 64MB to maximum memory size of 2.0GB DDRII SDRAM.

Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DDRII)	DDRII 800 / DDRII667/ DDRII533 DDRII SDRAM Module	X1	64MB~2.0GB
Total	System Memory (Max. 2.0GB)	1	64MB~2.0GB

Generally, installing DDRII memory to your motherboard is very easy; you can refer to figure 2-4 to see what a 240-Pin DDR 800II / DDRII 667 DDR SDRAM module looks like.



NOTE! When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indentation on both sides.

WARNING! For the DDR SDRAM CLOCK is set at 166MHz, use only DDR333-compliant DDR Modules. When this motherboard operate at 133MHz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your SDR Modules are not DDR333-compliant, set the DDR SDRAM clock to 133MHz to ensure system stability.

2-4 Expansion Cards

WARNING! Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2-4-1 Procedure For Expansion Card Installation

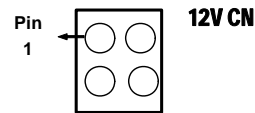
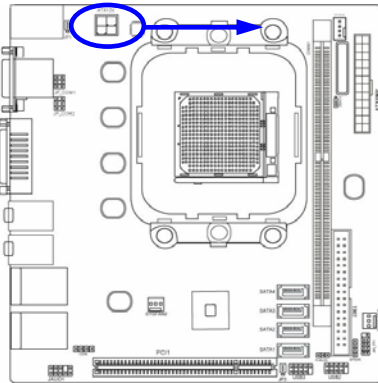
1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5 Connectors and Headers

2-5-1 Connectors

(1) 12V Power Connector (4-pin block):12V CN

This is a newly defined 4-pins connector support extra 12V voltage to maintain system power consumption in the case that an AD-Scalar daughter board is used. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



(2) USB Port connector: UL3,UL4

The connectors are 4-pins connector that connect USB devices to the system board, and standard RJ45 connector for Network supports 10/100/1000 BASE-T transfer rate.

(3) LAN Port connector: UL3,UL4(optional)

This connector is standard RJ45 over USB connectors for Network devices connection. LAN1 supports 10M/100Mb/s data transfer rate.

(4) VGA Connector (15-pin female): VGA

VGA Connector is a 15-pin D-Subminiature Receptacle connector. This connector is for connection Monitor and System to display.

(5) **DVI Connector (24-pin female): DVI**

DVI Connector is a 24-pin D-Subminiature Receptacle connector.

This interface standard designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors.

(6) **Audio Connector (Line-Out/ MIC):**

This Connector is 2 phone Jack for LINE-OUT/ MIC.

Line-in : (BLUE) Audio input to sound chip

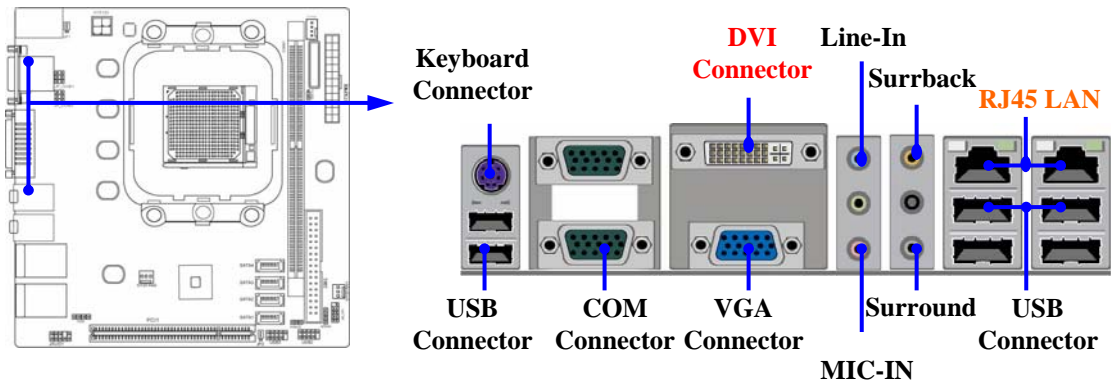
Line-out : (GREEN) Audio output to speaker

MIC : (PINK) Microphone Connector

Surrback : (ORANGE) Audio output to speaker-Rear speaker out

CEN/BASS : (BLACKNESS) Audio output to speaker-Center/Subwoofer speaker out

Surround: (GRAY) Audio output to speaker-Side speaker out



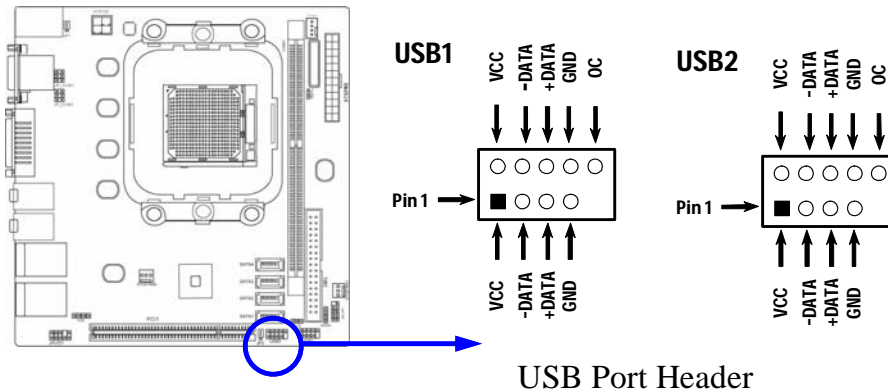
(7) **PS/2 Keyboard/Mouse Connector: PS2KB**

The connectors are for PS/2 keyboard/mouse device.

2-5-2 Headers

(1) USB Port Headers (9-pin): USB1,USB2

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.



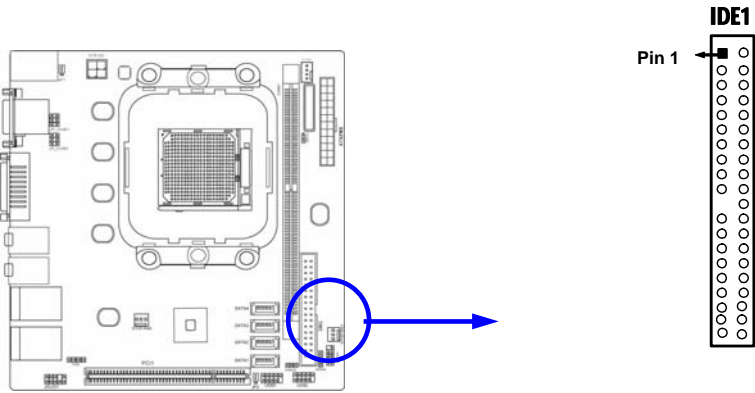
(2) IDE Connector:

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s).

You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

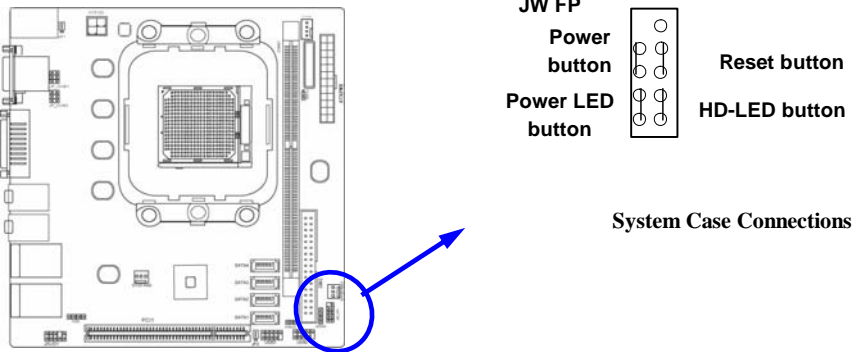
- Two hard disks can be connected to each connector. The first HDD is referred to as the “Master” and the second HDD is referred to as the “Slave”.

For performance issues, we strongly suggest you don’t install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.



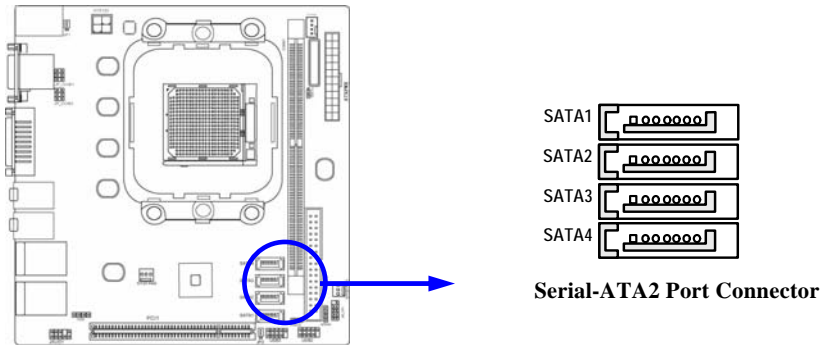
(3) Power switch: PWR BTN

This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.



(4) Serial ATA Connector (7-pin female): SATAII1/SATAII2/SATAII3/SATAII4

This connector supports the provided Serial ATA2 IDE hard disk cable to connecting the motherboard and serial ATAII hard disk.



2-6 Starting Up Your Computer

1. After all connections are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
 - a. Your monitor.
 - b. Other external peripheral (Printer, Scanner, External Modem etc...)
 - c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.

-
-
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it has a power standby feature. The system will then run power-on test. While the test is running, the BIOS will alarm beeps or additional message will appear on the screen.

If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, click **“Start”** button, click **“Shut down”** and then click **“Shut down the computer?”** The power supply should turn off after windows shut down.

Chapter 3

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for the active option.

3-1 Entering Setup

Power on the computer and by pressing immediately allows you to enter Setup.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <F1> to continue, <Ctrl-Alt-Esc> or to enter Setup

3-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

3-3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from fourteen setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features	Thermal Throttling Options
Advanced BIOS Features	Power User Overclock Settings
Advanced Chipset Features	Password Settings
Integrated Peripherals	Load Optimized Defaults
Power Management Setup	Load standard Defaults
Miscellaneous Control	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑↓→← : Select Item	
F10 : Save & Exit Setup	

Figure 3-1

Standard CMOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

Miscellaneous Control

Use this menu to specify your settings for **Miscellaneous Control**.

PC Health Status

This entry shows your PC health status.

Power User Overclock Settings

Use this menu to specify your settings (frequency, Voltage) for overclocking demand

CPU Thermal Throttling Setting

The selection is set for activating the active CPU Thermal Protection by flexible CPU loading adjustment in the arrange of temperature you define.

Load Optimized Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

Password Settings

This entry for setting Supervisor password and User password

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

3-4 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility

Advanced BIOS Features

CPU Feature	Press Enter	Item Help	
Hard Disk Boot Priority	Press Enter		
Virus Warning	Disabled	Menu Level >	
CPU Internal Cache	Enabled		
External Cache	Enabled		
Quick power on self Test	Enabled		
First Boot Device	Removable		
Second Boot Device	Hard Disk		
Third Boot Device	CDROM		
Boot other Device	Enabled		
Boot Up NumLock Status	On		
Gate A20 option	Fast		
Typematic Rate Setting	Disabled		
Typematic Rate (Chars/Sec)	6		
Typematic Delay (Msec)	250		
Security Option	Setup		
APIC Mode	Enabled		
MPS Version Control For OS	1.4		
OS Select For DRAM > 64MB	Non-OS2		
HDD S.M.A.R.T. Capability	Disabled		
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

Hard Disk Boot Priority

The selection is for you to choose the hard disk drives priorities to boot from.

Virus Warning

The selection Allow you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disabled (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

The default value is Enabled.

Enabled (default) Enable cache

Disabled Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the Level 2 cache memory.

Quick Power On Self-Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST

Disabled Normal POST

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status

The default value is On.

On (default) Keypad is numeric keys.

Off Keypad is arrow keys.

Gate A20 Option

Normal The A20 signal is controlled by keyboard controller or chipset hardware.

Fast (default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before beginning to repeat the keystroke. The settings are 250, 500, 750, and 1000.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

Setup (default) The system will boot, but access to Setup will be denied if the correct password is not entered prompt.

HDD S.M.A.R.T Capability

This option allow you to enable the HDD S.M.A.R.T Capability (Self-Monitoring, Analysis and Reporting Technology) . You can choose from Enabled and Disabled.

MPS Version Control For OS 1.4

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use.

OS Select For DRAM > 64MB

Allows OS2[®] to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2[®].

3-5 Intergrated peripherals

Phoenix - AwardBIOS CMOS Setup Utility Intergrated peripheral

Onchip IDE Function	Press Enter	Item Help
Onchip Device FUNCTION	Press Enter	
Onchip Superio Funtion	Press Enter	Menu Level >>
USB Deivce Setting	Press Enter	
Init Display First	PCI Slot	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Phoenix - AwardBIOS CMOS Setup Utility OnChip Device Function

Onboard HD Audio Device	Auto	Item Help
HDMI Audio	Auto	
Onboard PCIE LAN Device	Enabled	Menu Level >>
Onboard PCIE LAN Bootrom	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Onboard HD Audio

This item allows you to decide to enable/disable the chipset family to support HD Audio. The settings are: Enabled, Disabled.

Onboard PCIE LAN Bootrom

Decide whether to invoke the boot ROM of the onboard LAN chip.

3-6 PC Health Status

This section shows the Status of you CPU, Fan, and Warning for overall system status. This is only available if there is Hardware Monitor onboard.

Phoenix - AwardBIOS CMOS Setup Utility

PC Health Status

Show PC Health in Post	Enabled	Item Help
Smart FAN Configuration	Press Enter	
Vcore	1.36V	Menu Level >
VDIM	1.84V	
NB	1.12V	
+5V	5.04V	
+12V	11.96V	
+5VSB	5.04V	
VBAT	3.17V	
CPU Temperature	37°C/98F	
SYS Temperature	40°C/104F	
CPUFAN Speed	0 RPM	
SYS FAN1 Speed	0 RPM	
SYS FAN2 Speed	1514 RPM	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Show PC Health in Post

During Enabled, it displays information list below. The choice is either Enabled or Disabled

CPU Smart FAN Configurations

CPU Full-Speed Temp

This item allows you setting the FAN works in full speed when the temperature over the value which out set. If the temperature below the value but over the Idle Temperature, the FAN will works over 60% of full speed, and the higher temperature will gain higher FAN speed, after over the temperature which this item setting, the FAN works in full speed.

CPU Idle Temp

This item allows you setting the FAN works in 60% of full speed, when the temperature lower than the temperature which you setting.

Current CPU Temperature/Current System Temp/Current FAN1, FAN2 Speed/Vcore/Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)

This will show the CPU/FAN/System voltage chart and FAN Speed.

SFAN Smart Mode:

There are three choose , Disabled, Formula 1, Formula 2.

Disabled: Fan setting full speed.

Formula 1: Fan working low speed, under temperature 2.

Formula 2: Fan stop when under temperature 2.

3-7 Power User Overclock Setting

Phoenix - AwardBIOS CMOS Setup Utility

Power User Overclock Setting

Profile Load	Press Enter	Item Help
Profile Save	Press Enter	
Hyper Transport Settings	Press Enter	Menu Level >
Current Host Frequency is	200MHZ	
CPU Clock at next boot is	200	
Current DRAM Frequency is	DDR533	
DRAM Clock at Next Boot is	Auto	
CPU Voltage	Default(1.350v)	
CPU Vcore x-shift	Default	
LDT Voltage	1.20v(default)	
NB Voltage	1.10v(default)	
VDIMM Voltage	1.84v(default)	
CPU Voltage	1.36v	
NB Voltage	1.11v	
VDIMM Voltage	1.84v	
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

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CPU VOLTAGE at NEXT BOOT

Profile Load	Press Enter	Item Help
Profile Save	Press Enter	
Hyper Transport Settings	Press Enter	
Current Host Frequency is 200MHZ		CPU Voltage
CPU Clock at next boot is 200		Default []
Current DRAM Frequency is DDR533		1.550v []
DRAM Clock at Next Boot is Auto		1.525v []
CPU Voltage	Default(1.350v)
CPU Vcore x-shift	Default	0.800v []
LDT Voltage	1.20v(default)	↑↓:Move ENTER:Accept
NB Voltage	1.10v(default)	ESC:Abort
VDIMM Voltage	1.84v(default)	Menu Level >
CPU Voltage	1.36v	
NB Voltage	1.11v	
VDIMM Voltage	1.84v	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

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CPU VCORE x--SHIFT

Profile Load	Press Enter	Item Help
Profile Save	Press Enter	
Hyper Transport Settings	Press Enter	
Current Host Frequency is 200MHZ		CPU Vcore x-shift
CPU Clock at next boot is 200		Default []
Current DRAM Frequency is DDR533		+1.6% []
DRAM Clock at Next Boot is Auto		+3.2% []
CPU Voltage	Default(1.350v)
CPU Vcore x-shift	Default	+50% []
LDT Voltage	1.20v(default)	↑↓:Move ENTER:Accept
NB Voltage	1.10v(default)	ESC:Abort
VDIMM Voltage	1.84v(default)	

CPU Voltage	1.36v	Menu Level
NB Voltage	1.11v	
VDIMM Voltage	1.84v	
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

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VDIMM SELECT

Profile Load Press Enter Profile Save Press Enter Hyper Transport Settings Press Enter Current Host Frequency is 200MHZ CPU Clock at next boot is 200 Current DRAM Frequency is DDR533 DRAM Clock at Next Boot is Auto CPU Voltage Default(1.350v) CPU Vcore x-shift Default LDT Voltage 1.20v(default) NB Voltage 1.10v(default) VDIMM Voltage 1.84v(default) CPU Voltage 1.36v NB Voltage 1.11v VDIMM Voltage 1.84v	Item Help Menu Level > VDIMM Select 1.74v [] 1.79v [] 2.46v [] ↑↓:Move ENTER:Accept ESC:Abort
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults	

CPU Vcore

This item allows you select the CPU Vcore Voltage xx% more than the standard value, by

this function for the precise over-clocking for extra demanding of performance.

NB Voltage

This item allows you to select value of Voltage for North Bridge Chipset.

AOD Compatibility:

Choose Enabled means only AMD over drive can adjust voltage

Choose Disabled means only BIOS can adjust voltage

Note! Over standard voltage may damage device.