USER'S MANUAL
Of
NVIDIA
MCP65S
Platform Processor Chipset

M/B For Socket AM2 64-bit Dual Core

AMD Processor

NO. G03-M26GTC-F
Rev:2.0

Release date: Jan. 2009

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.

TABLE OF CONTENT

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	Jan. 2009

Item Checklist

- ☑ NVIDIA NF6100-430 Platform Processor Chipset based motherboard
- ☑ CD for motherboard utilities
- ☑ Cable for Serial ATA IDE Port
- ☑ NVIDIA NF6100-430 Platform Processor Chipset motherboard User's Manual
- ☑ Back panel

AMD K8 Processor Family
Cooling Solutions

As processor technology pushes to faster speeds and higher performance with increasing operation clock, thermal management becomes increasingly crucial while building computer systems. Maintaining the proper computing environment without thermal increasing is the key to reliable, stable, and 24 hours system operation. The overall goal is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increasing surface area and concentrated airflow from attached active cooling fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, AMD recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

Please refer to the website below for collection of heatsinks evaluated and recommended for Socket-AM2 processors by AMD. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Socket-AM2 processors.

For vendor list of heatsinks and Active cooling fans, please visit：

Chapter 1

Introduction of NVIDIA MCP65S Motherboard Series

1-1 Features of motherboard

The NVIDIA MCP65S Platform Processor Chipset motherboard series are based on the latest NVIDIA MCP65S Platform Processor Chipset which supports the innovative and supercharged new generation 64-bit AMD Socket AM2 Athlon64 and Sempron processors with Hyper Transport Technology up to 1000MHz. NVIDIA MCP65S Platform Processor Chipset motherboard series deliver the outstanding system performance and professional desktop platform solution with the advantages of new generation 64-bit AMD Socket AM2 Athlon64 & Sempron processors with an integrated low-latency high-bandwidth DDRII memory controller and a highly-scalable Hyper Transport technology-based system bus up to 1.0GHZ. By implementing the new generation NVIDIA MCP65S Platform Processor Chipset integrated graphic processor which adopts the innovative 90nm process technology. The motherboards support the stunning video playback in all formats and with superb picture clarity that brings the best visual experience and ultra-realistic effects to the users. NVIDIA MCP65S Platform Processor Chipset motherboard series are the real cost-effective and powerful integrated multimedia platform solutions and meet the demanding usage of computing now and future.

The motherboards support new generation Socket AM2 processors with an integrated DDRII memory controller which provides with 266MHz / 333MHz/ 400MHz memory clock frequency for Dual channel DDRII533/DDRII667/DDRII800(AM2 Sempron processor only supports up to DDRII667 memory) DDRII Module up to 4GB. And NVIDIA it also accommodates ULTRA ATA 133 connectors and Serial ATA2 with RAID 0,1,5,0+1 functions which support up to one IDE and four Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.

The motherboards provide 10/100/1000Mbps LAN function with Realtek RTL8111CVC 10/100/1000 PCIE LAN which supports 10/100/1000Mbps data transfer rate. The embedded 6-channel HD Audio CODEC is fully compatible with Sound Blaster Pro® standard.

NVIDIA MCP65S PPC motherboard series offer one 16-LANE PCI-Express x16 graphics slot of 4Gbyte/sec data transfer rate at each relative direction which get 3.5 times of bandwidth more than AGP8X and it's up to a peak concurrent bandwidth of 8Gbyte/sec at full speed to guarantee the performance and compatibility of GPU graphics add-in cards. The whole series carry three 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices. One PCI Express x1 I/O slots offer 512Mbyte/sec concurrently bandwidth which is over 3.5 times than 32-bit PCI at 133Mbye/sec.

Embedded USB controller as well as capability of expanding to 10 of USB2.0 functional ports delivering 480Mb/s bandwidth and rich connectivity, these motherboards meet the future USB demands which are also equipped with hardware monitor function on system to monitor and protect your system and maintain your non-stop business computing.
Some special features---***CPU Thermal Throttling/ CPU Vcore 7-shift/ CPU Smart Fan)*** *in* this motherboard are designed for power user to use the over-clocking function in more flexible ways. But please be caution that the over-clocking maybe cause the fails in system reliabilities. This motherboard provides the guaranteed performance and meets the demands of the next generation computing. But if you insist to gain more system performance with variety possibilities of the components you choose, please be careful and make sure to read

the detailed descriptions of these value added product features, please get them in the coming section.

1-1.1 Special Features of Motherboard

CPU Thermal Throttling Technology---(The CPU Overheat Protection Technology)
To prevent the increasing heat from damage of CPU or accidental shutdown while at high workload, the CPU Thermal Throttling Technology will force CPU to enter partially idle mode from 87.5% to 12.5% according to preset CPU operating temperature in BIOS (from 40℃ to 90℃). When the system senses the CPU operating temperature reaching the preset value, the CPU operating bandwidth will be decreased to the preset idle percentage to cool down the processor. When at throttling mode the beeper sound can be optionally selected to indicate it is in working.

CPU Smart Fan---(The Noise Management System)
It's never been a good idea to gain the performance of your system by sacrificing its acoustics. CPU Smart Fan Noise Management System is the answer to control the noise level needed for now-a-day's high performance computing system. The system will automatically increase the fan speed when CPU operating loading is high, after the CPU is in normal operating condition, the system will low down the fan speed for the silent operating environment. The system can provide the much longer life cycle for both CPU and the system fans for game use and business requirements.

CPU Vcore 7-Shift--- (Shift to Higher Performance)
The CPU voltage can be adjusted up by 7 steps for the precisely over-clocking of extra demanding computing performance.

1-2 Specification

Spec	Description
Design	* ATX form factor 4 layers PCB size: 24.5cm*18.0cm
Chipset	* NVIDIAMCP65S Chipset
CPU Socket AM2	* Support 64bit AMD AM2 940-Pin package utilizes Flip-Chip Pin Grid Array package compatible processor * Support for HTT 1GHz AMD Athlon 64 X2 processor and Athlon 64, and HTT 800MHz Sempron Processors
Memory Socket	* 240-pin DDR2 Module socket x 2 * Support 2 pcs DDR2 533 / DDR2 667 / DDR2 800 Modules Expandable to 4GB
Expansion Slot	* PCI-Express x16 slot 1pcs deliver up to 8GB/s concurrent bandwidth for NVIDIA MCP65S motherboard * 32-bit PCI slot x 2pcs * PCI-Express x1 slot x1pcs
Integrate IDE and Serial ATA2 RAID	* One IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s. * Four Serial ATA2 ports provide 300 MB/sec data transfer rate with RAID 0,1,0+1,5 functions.
LAN	* Integrated Realtek RTL8111CVC 10/100/1000 LAN. * Supports Fast Ethernet LAN function provide 10/100/1000Mb /s data transfer rate
6-CH Audio	* 6-channel High Definition Audio CODEC on board * Support 6-channel 3D surround & Positioning Audio * Audio driver and utility included
BIOS	* Award 8MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x1 * USB2.0 port x 4 and headers x 4 (connecting cable option) * Audio connector (Line-in, Line-out, MIC/ 6CH Audio)

1-3 Performance List

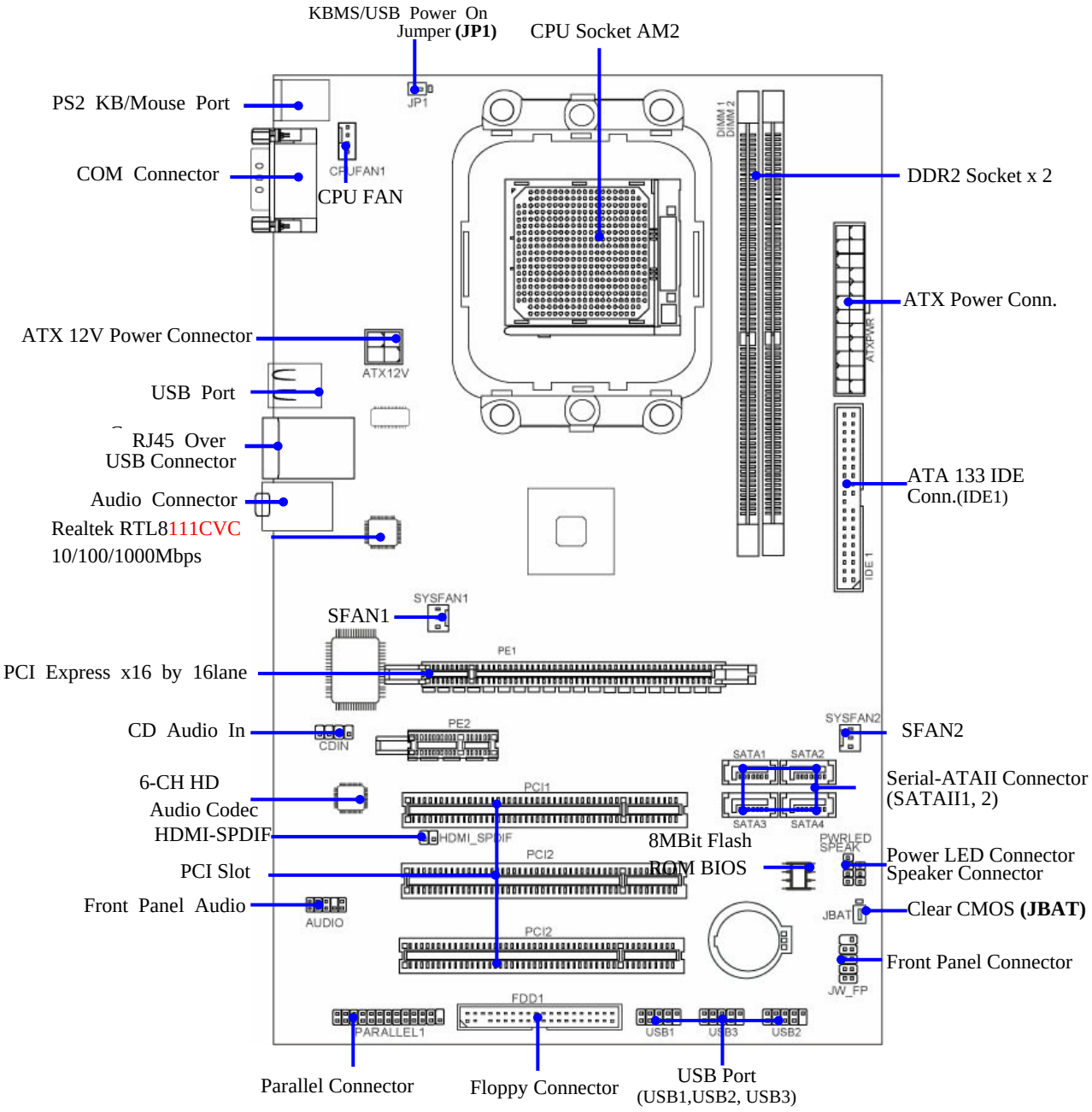
The following performance data list is the testing result of some popular benchmark testing programs. These data are just referred by users, and there is no responsibility for different testing data values gotten by users (the different Hardware & Software configuration will result in different benchmark testing results.)

Performance Test Report

CPU: AMD Athlon 64x2 4800+
DRAM: CORSAIR 512MB DDR2-800 Memory
VGA Card : GeForce 6800XT 128M (1024X768X32BIT Color)
Hard Disk Driver: MAXTOR IDE 80GB
BIOS: Award Standard default
OS: Windows XP Professional (SERVICE PACK 2)

	nForce MCP65S
3D Mark 2001SE	20942
3D Mark 2003	7861
3D Mark 2005	3040
3D Mark 2006	2137
AQUAMRK3 (GFX / CPU)	48884
PCMark2004	
System / CPU / Memory	6370 / 6666 / 5179
Graph / HDD	4639/ 3971
Content Creation Winstone 2004	29.3
Business Winstone 2004	28.2
Winbench 99 V2.0:	
Business/Hi-end Disk Winmark99	8140 / 33100
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)	
SISMark 2004	180 (197 / 164)
3D Creation / 2D Creation	186 / 242
/ Web publication	169
Communication / Document	158 / 181
/ Data Analysis	155
SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark	
1.Dhrystone ALU MIPS	7989
Whetstone FPU iSSE2 FLOPS	6761
2.Int/Float Buffered MB/S	4931 / 4896
3.Integer/Floating-Point IT/S	20776 / 22512
UT2003 Benchmark	59.26 / 36.66
Quake3 DEMO1 / FPS	11.2
Super Pi (1M) Second	201.1 / 315.8 / 2212.0
CPUZ System / CPU Clock	200.9 / 315.8 / 2210.2

1-4 Layout Diagram & Jumper Setting



Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.9
JP1	Keyboard/USB Power On Enabled/Disabled	3-pin Block	P.10

Connectors

Connector	Name	Description	Page
ATXPWR	ATX Power Connector	24-pin Block	P.14
ATX12V	ATX 12V Power Connector	4-pin Block	P.15
KB	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.15
USB4	USB Port Connector	4-pin Connector	P.15
UL1	USB/ LAN Port Connector	RJ-45 Connector	P.15
CN1 / CN2	6-CH HD Audio Connector	3- phone jack Connector.	P.15
FDD	Floppy Driver Connector	34-pin Block	P.16
IDE1	Primary IDE Connector	40-pin Block	P.16
SATA1~4	Serial ATAII IDE Connector	7-pin Connector	P.17

Headers

Header	Name	Description	Page
AUDIO	SPEAKER, MIC header	9-pin Block	P.17
USB1, USB2,USB3	USB Port Headers	9-pin Block	P.18
SPEAK	PC Speaker connector	4-pin Block	P.18
PWR LED	Power LED	3-pin Block	P.18
JW_FP (Reset/IDE LED/Power Button)	Front Panel Header (including IDE activity LED/Reset switch / Power On Button lead)	9-pin Block	P.20
SYSFAN1, SYSFAN2, CPUFAN	FAN Headers	3-pin Block	P.19
CDIN	CD Audio-In Header	4-pin Block	P.19
PARALLEL	Parallel Port Header	25-pin male	P.19
SPDIF	SPDIF Header	2-pin male	P.20

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket AM2	CPU Socket	940-pin mPGAB Athlon64 CPU Socket	P.11
DIMM1~2	DDRII Module Socket	240-pin DDRII Module Socket	P.11
PCI1~ PCI3	PCI Slot	32-bit PCI Local Bus Expansion slots	P.14
PE1	PCI-Express x16 Slot	PCI-Express x16 Expansion Slot	P.14
PE2	PCI-Express x1 Slot	PCI-Express x1 Expansion Slot	P.14

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 CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE and Floppy cables, Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) CMOS RAM Clear (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:

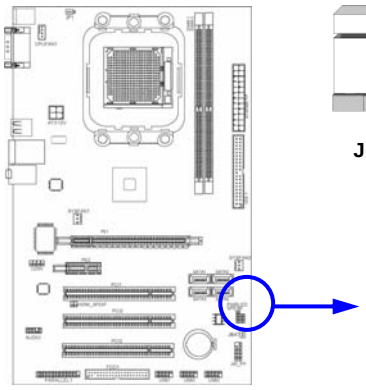
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

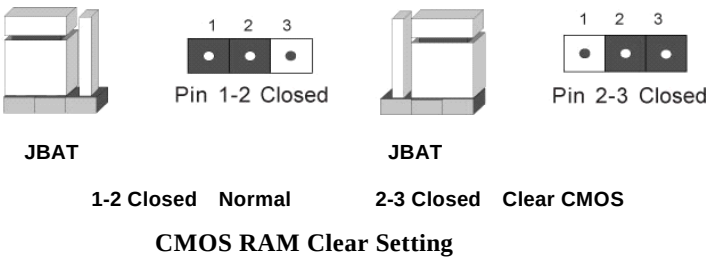
Note: When should clear CMOS

1. Troubleshooting

2. Forget password

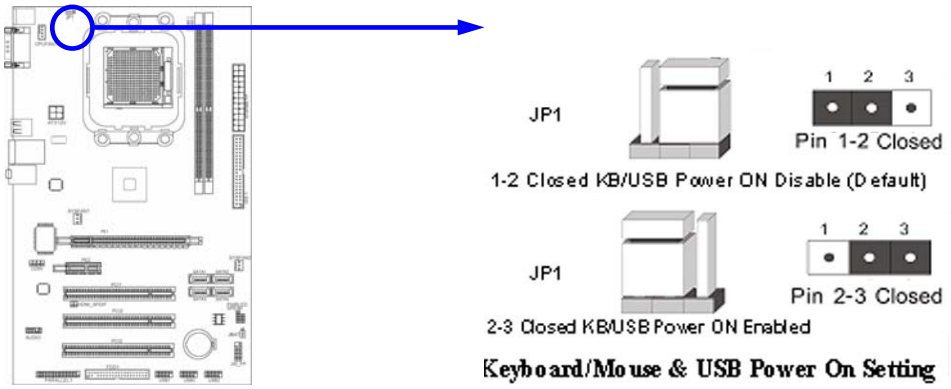
3. After over clocking system boot fail





CMOS RAM Clear Setting

(2) Keyboard /USB function Enabled/Disabled: JP1



2-3 Install CPU

2-3-1 Glossary

Chipset (or core logic) - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.

Processor slot/socket - the slot or socket used to mount the system processor on the motherboard.

Slot (PCI-E, PCI, RAM) - the slots used to mount adapter cards and system RAM.

AGP - **A**ccelerated **G**raphics **P**ort - a high speed interface for video cards; runs at 1X (66MHz), 2X (133MHz), or 4X (266MHz), or 8X (533MHz).

PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

PCI Express- Peripheral Component Interconnect Express- a high speed interface for video cards, sound cards, network interface cards, and modems.

Serial Port - a low speed interface typically used for mouse and external modems.

Parallel Port - a low speed interface typically used for printers.

PS/2 - a low speed interface used for mouse and keyboards.

USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.

BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.

Driver - software, which defines the characteristics of a device for use by another device or other software.

Processor - the "central processing unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

Front Side Bus Frequency - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

CPU L2 Cache - the flash memory inside the CPU, normal it depend on CPU type.

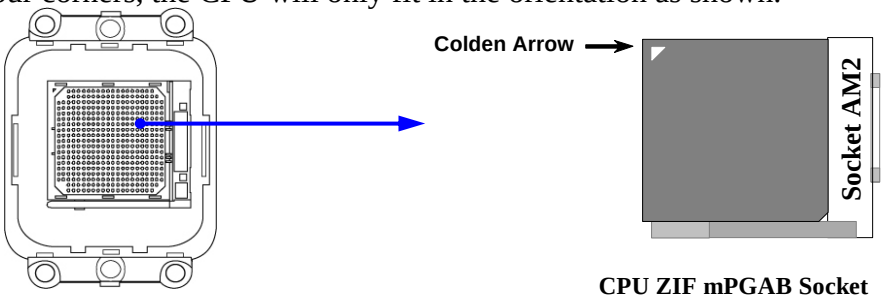
2-3-2 Install Socket AM2 Supported AMD Processor

This motherboard provides a 940-pin surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA940 socket supports AMD Athlon64 processor in the 940 Pin package utilizes Flip-Chip Pin Grid Array package technology.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



CPU ZIF mPGAB Socket

When you put the CPU into the ZIF socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-4 Install Memory

The motherboards provide two 240-pin DDRII DUAL INLINE MEMORY MODULES (DIMM) sites for DDRII memory expansion available from minimum memory size of 128MB to maximum memory size of 4GB DDRII SDRAM.

Valid Memory Configurations of 2-DIMM Design Motherboard

Bank	240-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDRII400/DDRII533/DDRII667/DDRII800	X1	128MB~2GB
Bank 2, 3 (DIMM2)	DDRII400/DDRII533/DDRII667/DDRII800	X1	128MB~2GB
Total	System Memory (Max. 4GB)	2	128MB~4GB

Recommend DIMM Module Combination

1. ***One DIMM Module ----Plug in DIMM1***
2. ***Two DIMM Modules---Plug in DIMM1 and DIMM2 for Dual channel function of 4-DIMM Design motherboard and Plug in DIMM1 and DIMM2 for Dual channel function of 2-DIMM Design motherboard.***

For Dual channel Limited!

1. Dual channel function only supports when 2 DIMM Modules plug in either both DIMM1 & DIMM2 or DIMM3 &DIMM4, 2 DIMM Modules plug in DIMM1 & DIMM2 of 2-DIMM Motherboard.
2. DIMM1 & DIMM2, or DIMM3 & DIMM4 ,and DIMM1 & DIMM2 of 2-DIMM motherboard must be the same type, same size, and same frequency for dual channel function.

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 240-Pin DDR2 400 / 533 / 667 / 800 SDRAM module looks like.

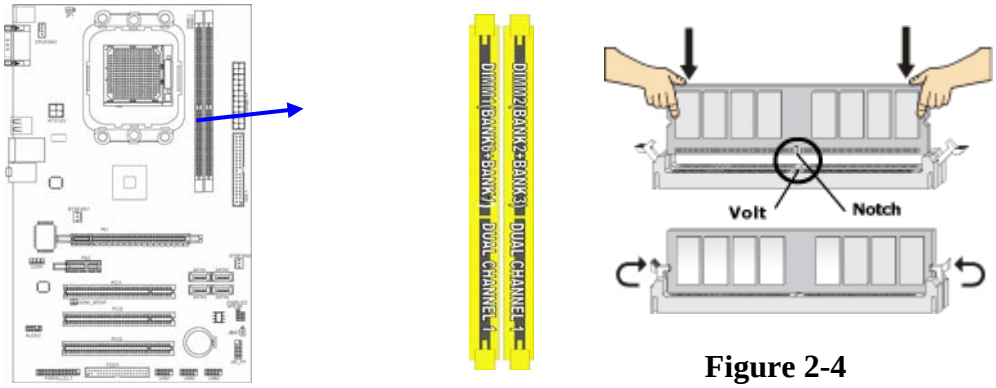


Figure 2-4

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 indention on both sides.

2-5 Expansion Cards

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

2-5-1 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.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	Sound Card (sometimes LPT2)
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2-5-3 Interrupt Request Table For This Motherboard

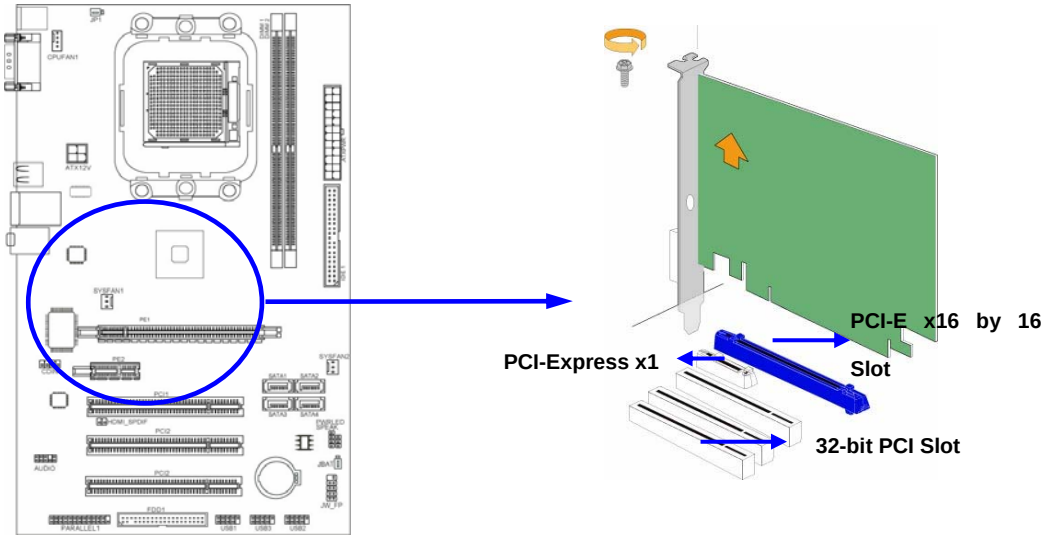
Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1		√						
Slot 2			√					
Slot 3			√					
Onboard USB 2		√						
Onboard USB 3			√					
HD Audio			√					

IMPORTANT! If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

2-5-4 PCI Express Slot

NVIDIA MCP65S motherboard series offer one 16-LANE PCI-Express x16 graphics slot of 4Gbyte/sec data transfer rate at each relative direction which get 3.5 times of bandwidth more than AGP8X and it's up to a peak concurrent bandwidth of 8Gbyte/sec at full speed to guarantee the performance and compatibility of GPU graphics add-in cards. The whole series carry three 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices. One PCI Express x1 I/O slots offer 512Mbyte/sec concurrently bandwidth which is over 3.5 times than 32-bit PCI at 133Mbye/sec.

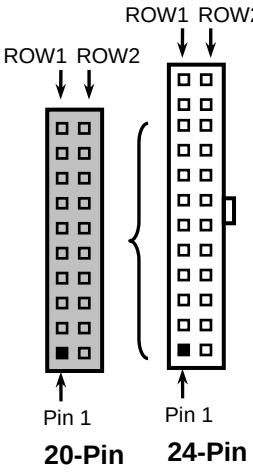


2-6 Connectors, Headers

2-6-1 Connectors

(1) Power Connector (24-pin block): ATXPWR1

ATX Power Supply connector. This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.



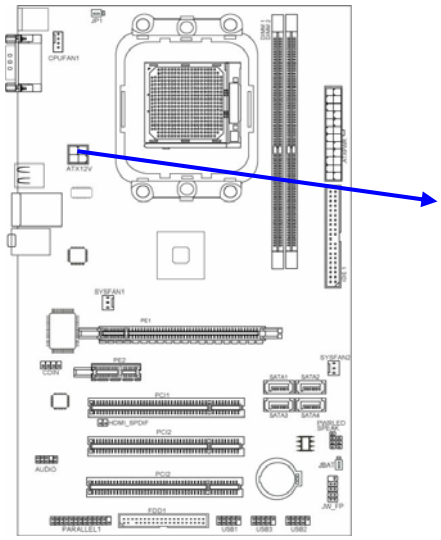
PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

** We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.

** If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.

(2) ATX 12V Power Connector (4-pin block) : ATX12V1

This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support AM2 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



(3) PS/2 Mouse & PS/2 Keyboard Connector: KB1

The connector for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector:

The connectors are 4-pin connector that connect USB devices to the system board.

(5) LAN Port connector: UL1

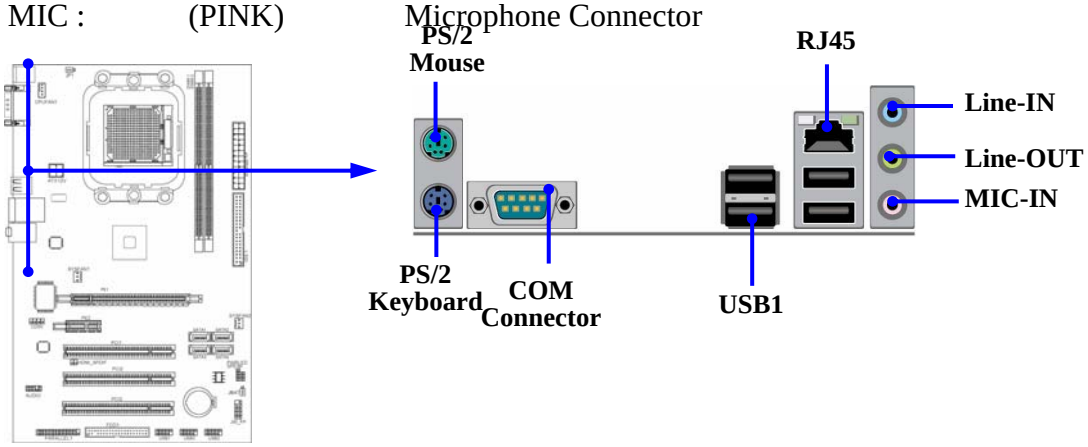
This connector is standard RJ45 connector for Network

The USBLAN1 support 10M/100/1000Mb data transfer rate

(6) Audio Line-In, Lin-Out, MIC Connector : SURROUND1 / CN1

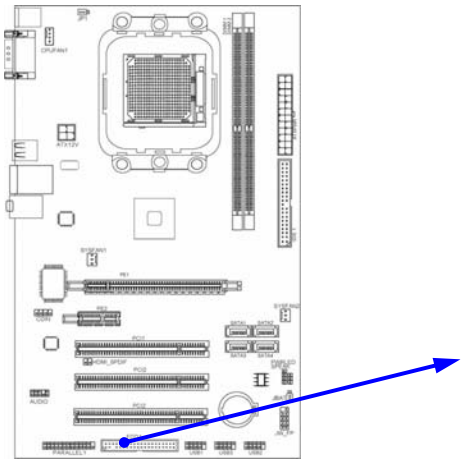
This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC

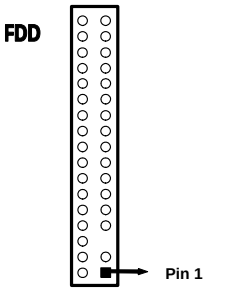
Line-in :	(BLUE)	Audio input to sound chip
Line-out :	(GREEN)	Audio output to speaker
MIC :	(PINK)	Microphone Connector



(7) Floppy drive Connector (34-pin block): FDD1

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.



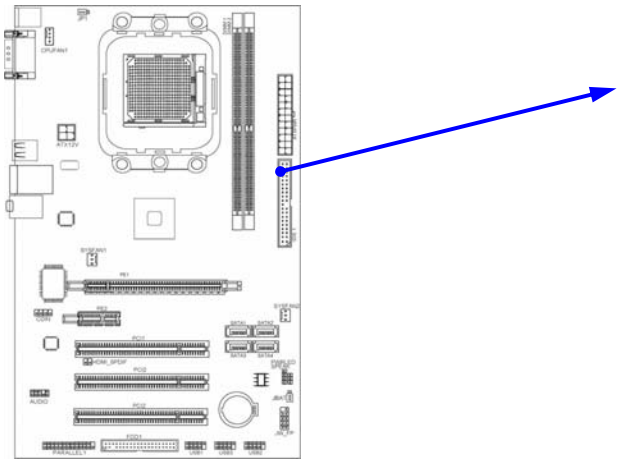


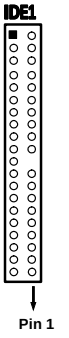
Floppy Drive Connector

(8) Secondary IDE Connector (40-pin block): IDE1

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. 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.



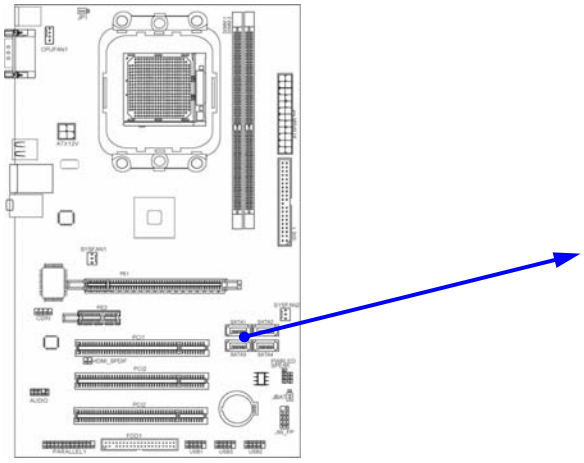


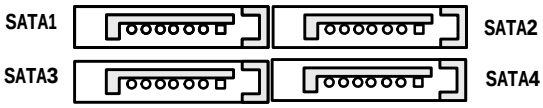
Primary IDE Connector

(9) Serial-ATA Port connector:

SATA1 / SATA2/SATA3/SATA4

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





Serial-ATA1,2,3,4 Compatible Connectors

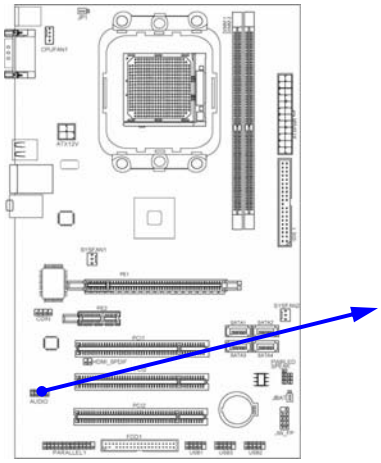
(10) D-Sub 15-pin Connector: VGA

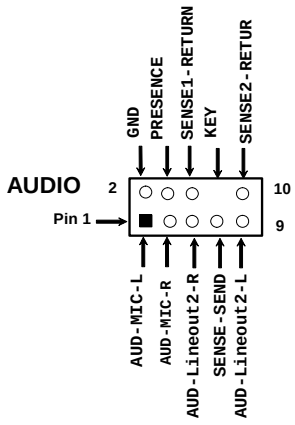
VGA is the 15-pin D-Subminiature female connector, it is for the display devices, such as the CRT monitor, LCD monitor and so on.

2-6-2 Headers

(1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO1

This header connect to Front Panel Line-out, MIC connector with cable.



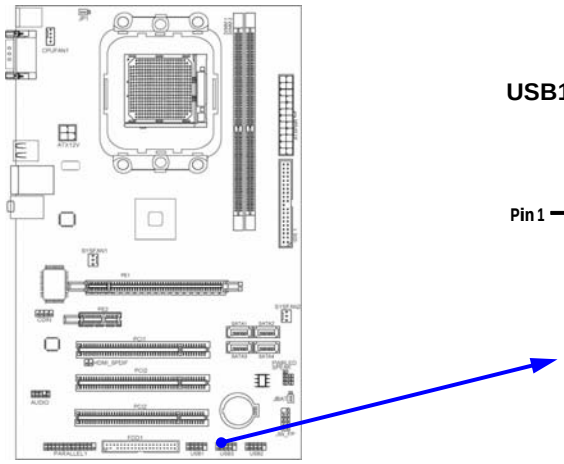


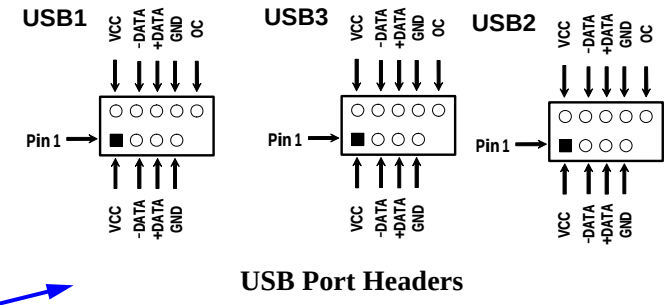
Line-Out, MIC Headers

(2) USB Port Headers (9-pin) :

USB1/USB2 / USB3

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.





USB Port Headers

(3) Speaker connector: SPEAK1

This 4-pin connector connects to the case-mounted speaker. See the figure below.

(4) Power LED: PWR LED1

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(5) IDE Activity LED: HD LED

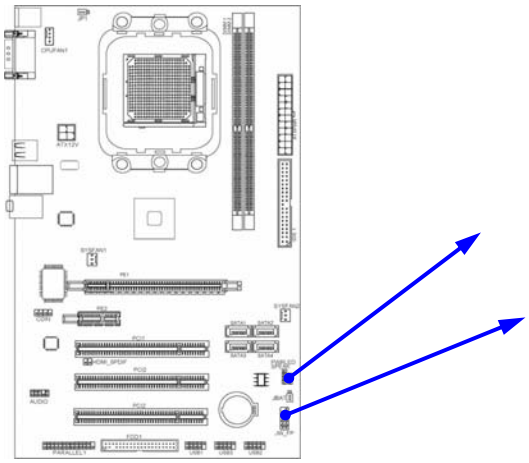
This connector connects to the hard disk activity indicator light on the case.

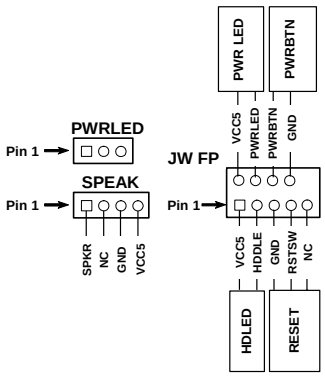
(6) Reset switch lead: RESET

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the lift of the system's power supply. See the figure below.

(7) Power switch: PWR BTN

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

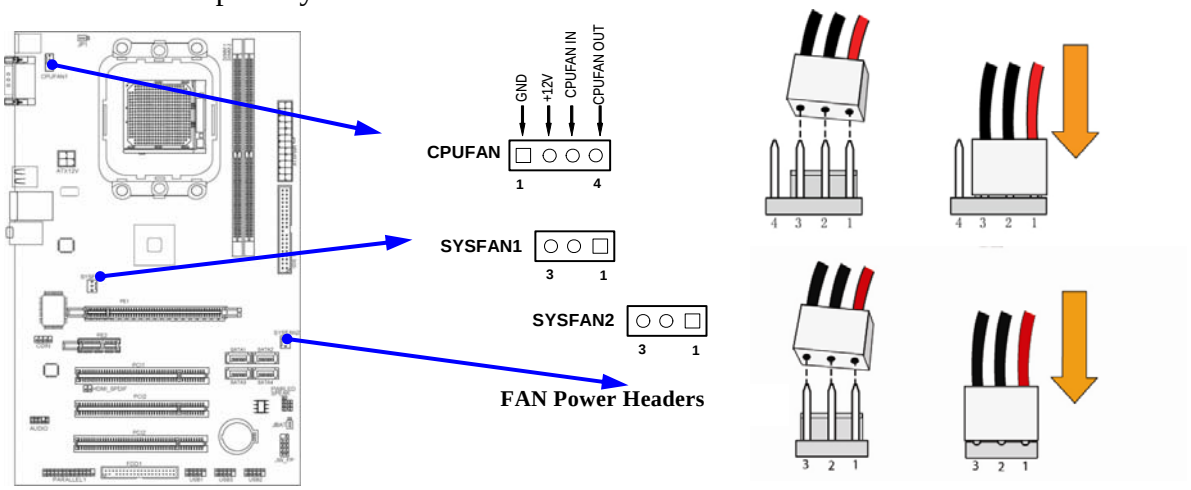




System Case Connections

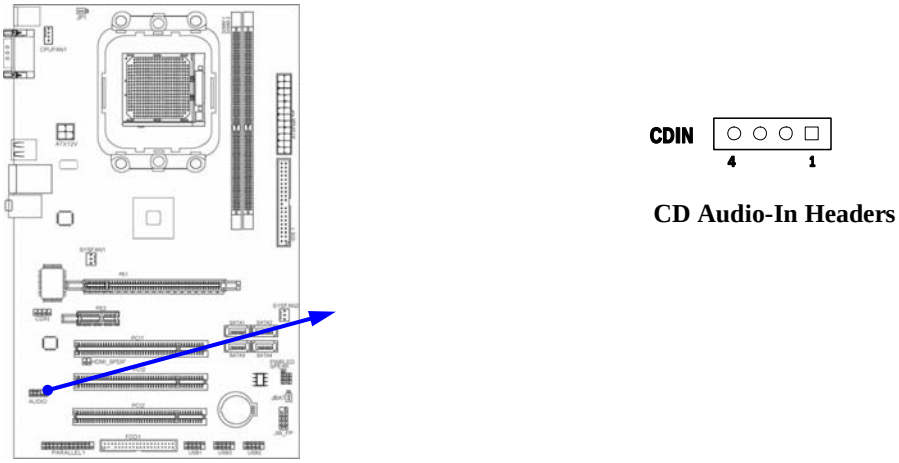
(8) FAN Power Headers: SYSFAN1, CPUFAN, SYS FAN (3-pin)

These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



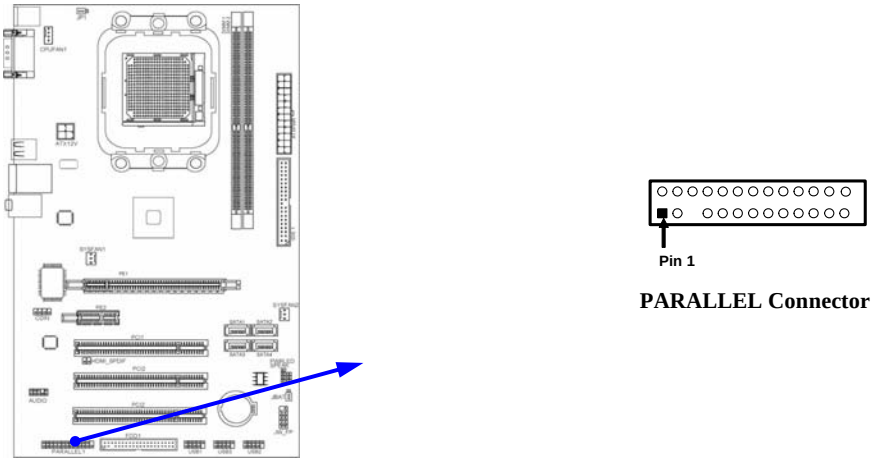
(9) CD Audio-In Headers (4-pin) : CDIN

CDIN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



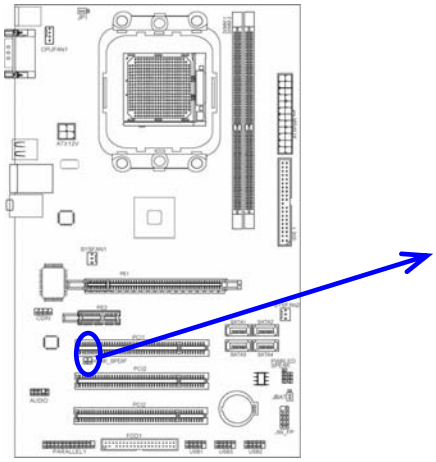
(10) Parallel Port Connector (25-pin female): PARALLEL1

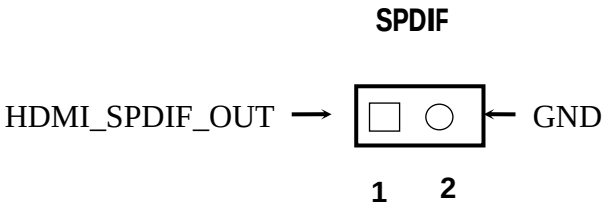
The On-board Parallel Port can be disabled through the BIOS SETUP.



(11) SPDIF Out header: SPDIF Out

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function.





2-7 Starting Up Your Computer

1. After all connection 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 is 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 <Del> immediately allows you to enter Setup.
If the message disappears before your 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 <Del> 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.

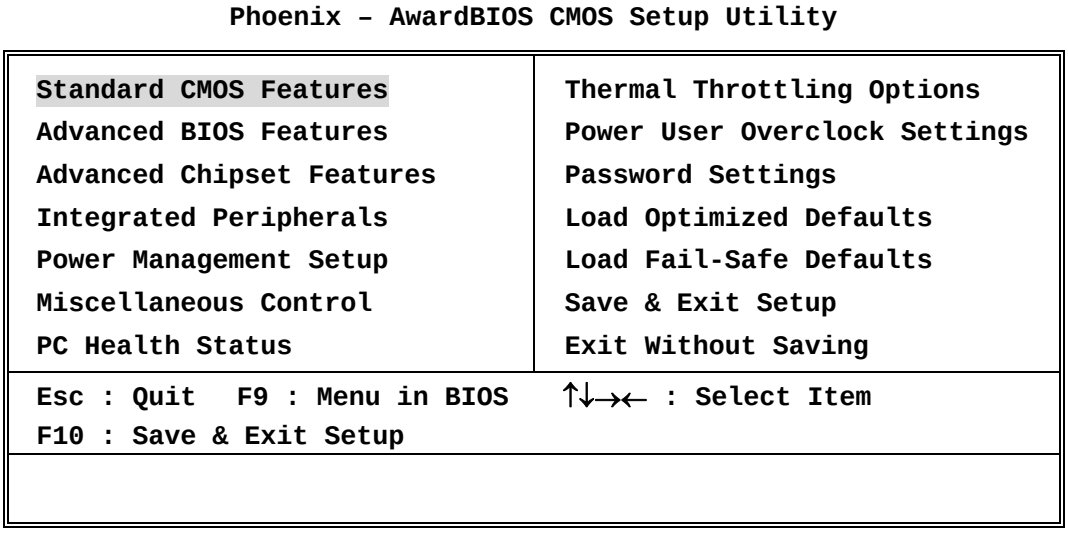


Figure 3-1

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.

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

Power User Overclock Settings
Use this menu to specify your settings (frequency, Voltage) for overclocking demand

Password Settings

This entry for setting Supervisor password and User password

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

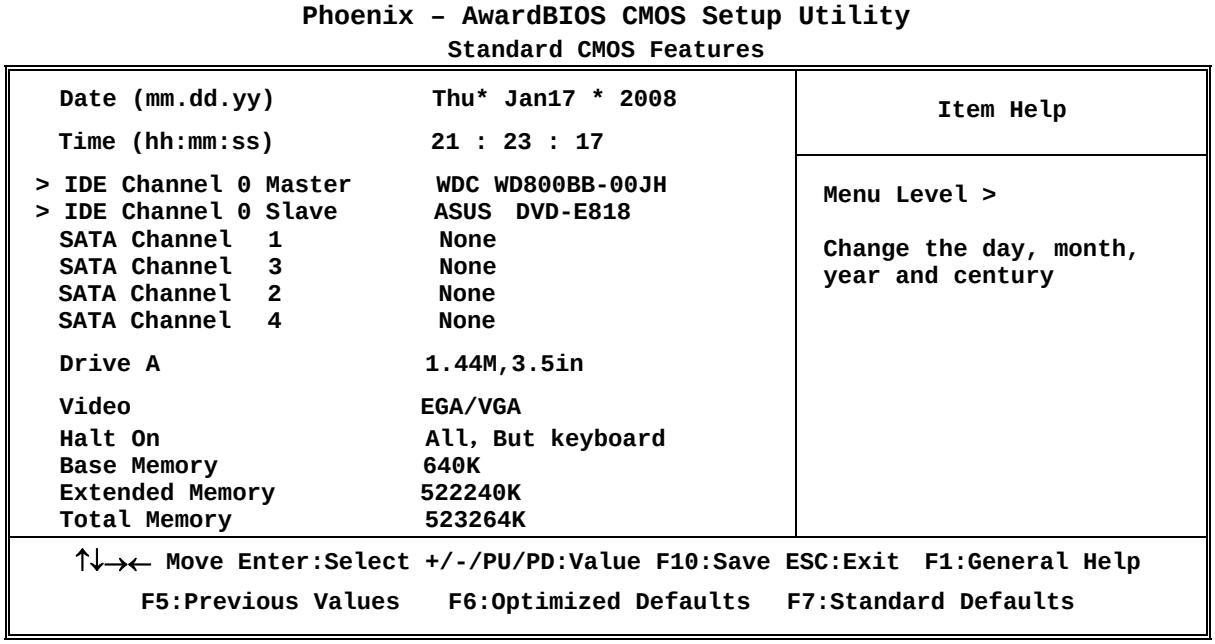
Load Standard Defaults
Use this menu to load the BIOS default values for the minimal/stable performance system operation.

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 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date
The date format is <day><month><date><year>.

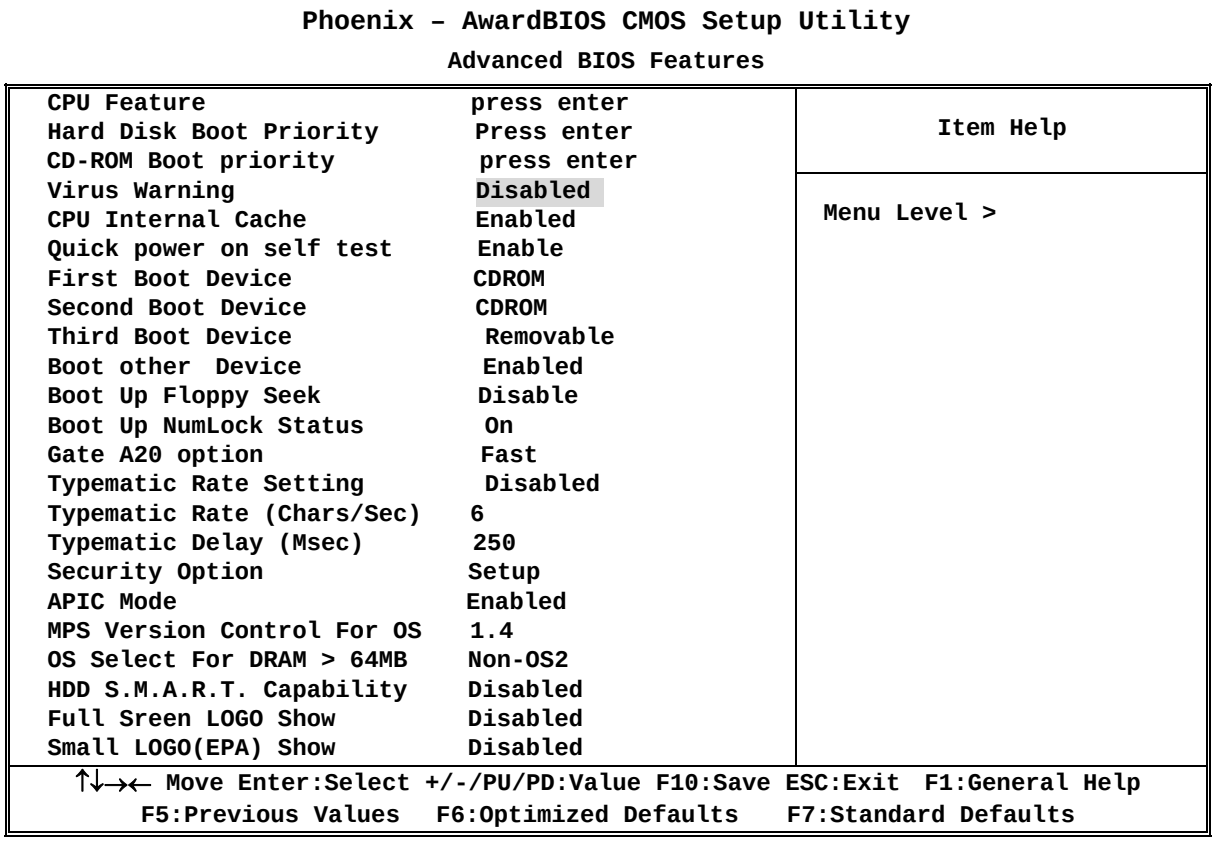
- **Day** Day of the week, from Sun to Sat, determined by BIOS. Read-only.
- **Month** The month from Jan. through Dec.
- **Date** The date from 1 to 31 can be keyed by numeric function keys.
- **Year** The year depends on the year of the BIOS.

Time
The time format is <hour><minute><second>.

IDE Channel 0 Master / Channel 0 Slave
SATA Channel 1, 2, 3, 4
Press PgUp/<+> or PgDn/<–> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work

properly if you enter improper information for this category. If the type of hard disk drives is not matched or listed, you can use Manual to define your own drive type manually.
If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
If the controller of HDD interface is SCSI, the selection shall be "None".
If the controller of HDD interface is CD-ROM, the selection shall be "None"
Access Mode The settings are Auto Normal, Large, and LBA.
Cylinder number of cylinders
Head number of heads
Precomp write precomp
Landing Zone landing zone
Sector number of sectors

3-5 Advanced BIOS Features



Removable Device Priority
The selection is for you to choose the removable devices (Such as USB floppy or other related accessories) priorities to boot from.
Hard Disk Boot Priority
The selection is for you to choose the hard disk drives priorities to boot from.
Virus Warning
The selection allows 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/Fourth 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.

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)

The selection is to set 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 is begins 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.

3-5-1 CPU FEATURES

Phoenix – AwardBIOS CMOS Setup Utility

CPU Feature

Virtualization	Enabled	Item Help
AMD K8 Cool & Quiet Control	Disabled	
TLB Check	Enabled	
Secure Virtual Machine Mode	Disabled	Menu Level >

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe Defaults F7:Optimized Defaults

3-5-2DRAM CONFIGUTATION

Phoenix – AwardBIOS CMOS Setup Utility

DRAM Configuration

DRAM Latency(tcl)	Auto	Item Help
RAS to CAS R/W Delay(Tptc)	Auto	
Row precharge Time(Trp)	Auto	
Minimum RAS Active Time(Tras)	Auto	
DRAM Command Rate	2T	
Memclock tri-stating	Disabled	
Memclock Hole Remapping	Enabled	
DDRII Timing Item	Disabled	
(Trc) Row cycle Time	26 bus clocks	
Trcd RAS to CAS Delay	5 clocks	
* (Trtp) Precharge Time	6 bus clocks	
TwTr Command Delay	3 bus clock	
Trfc 0 for DIMM0	75ns	
* Trfc 1 for DIMM 1	75ns	
* Trfc 2 for DIMM 2	75ns	Menu Level >>
* Trfc 3 for DIMM 3	75ns	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

RAS-to-CAS Delay

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 4T and 3T.

Row Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain date. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T and 3T.

DRAM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2T and 2.5T.

3-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Phoenix – AwardBIOS CMOS Setup Utility

Advanced Chipset Features

> DRAM Configuration	Press Enter	Item Help
K8<->NB HT Speed	Auto	
K8<->NB HT Width	Auto	Menu Level >
System BIOS Cacheable	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

DRAM Configuration

Please refer to section 3-6-1

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

3-7 Integrated Peripherals

Phoenix – AwardBIOS CMOS Setup Utility

Integrated Peripherals

IDE Function setup	Press Enter	Item Help
Onboard Device	Press Enter	
Superio Function setup	Press Enter	Menu Level >
Init Display First	PCIE x	
↑↓→← Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1

Select an address and corresponding interrupt for the serial port. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

Onboard Parallel Port

There is a built-in parallel port on the on-board Super I/O chipset that Provides Standard, ECP, and EPP features. It has the following option:

Disabled
(3BCH/IRQ7)/ Line Printer port 0
(278H/IRQ5)/ Line Printer port 2
(378H/IRQ7) Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP: Extended Capability Port

SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP+EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" at this time, the user can choose between DMA channels 3 to 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

OnChip IDE Function

Please refer to section 3-7-1

OnChip Device Function

Please refer to section 3-7-2

Init Display First

This item allows you to decide to activate whether PCI Slot or AGP VGA first. The settings are: PCI Slot, AGP Slot.

3-7-1 Super IO Function Setup

Phoenix – AwardBIOS CMOS Setup Utility

Super IO Function Setup

Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	
Onboard parallel port	2F8/IRQ7	
Parallel port Mode	SPP	Menu Level >>
ECP Mode use DMA	3	
PWROM After PWR-Fail	[OFF]	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

3-7-2 Onchip IDE Device

Phoenix – AwardBIOS CMOS Setup Utility

OnChip IDE Function

RAID Config	Press Enter	Item Help
Onchip IDE Channel IO	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	Menu Level >>
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
IDE DMA transfer access	Enabled	
Serial-ATA Control	Enabled	
IDE Prefecth Mode	Enabled	
IDE HDD Block Mode	Enabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

OnChip IDE Channal0/Channel1
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

Primary/Secondary Master/Slave PIO
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary/Secondary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

IDE Prefatch
The selection is for you to set the IDE device as the first priority to activate.

IDE HDD Block Mode
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

Delay for HDD (Secs)
The selection is set for you to extend the time to search for the HDD which needs more time to activate.

3-8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use

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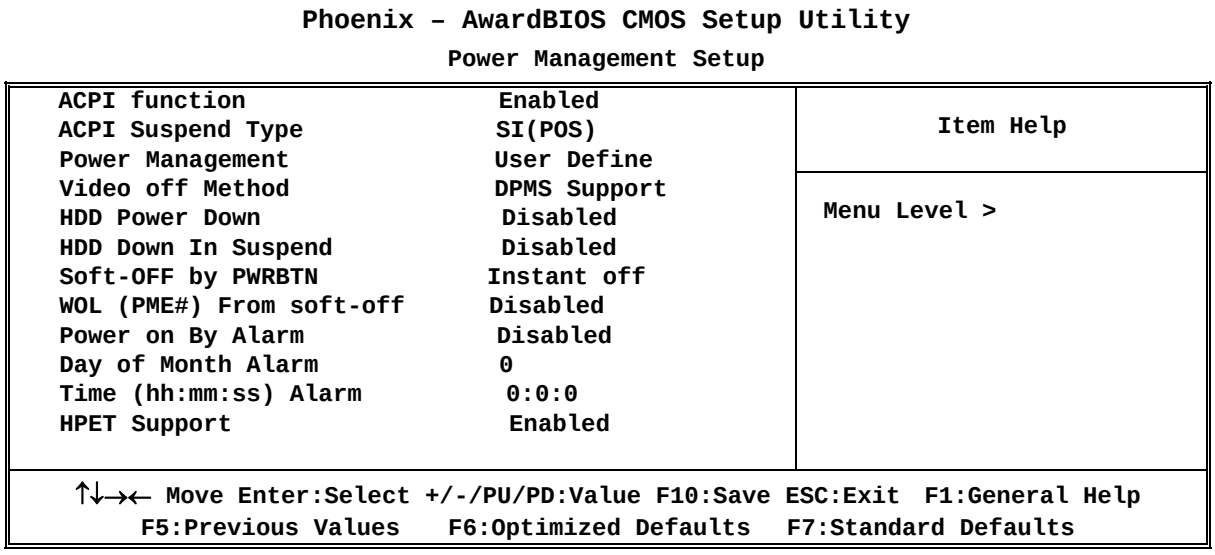


ACPI Function
This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

Video Off Method
This determines the manner in which the monitor is blanked.

DPMS (default)	Initial display power management signaling.
Blank Screen	This option only writes blanks to the video buffer.
V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Power Button Function
Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

Power-On by Alarm
This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm
You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm
You can choose what hour, minute and second the system will boot up.

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

3-9 Miscellaneous Control

This section is for setting CPU Frequency/Voltage Control.

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                          Miscellaneous Control
┌──────────────────────────────────────────────────────┬──────────────────────┐
│ PCIE Spread Spectrum              Disabled           │      Item Help       │
│ SATA Spread Spectrum              Disabled           │                      │
│ HT  Spread Spectrum               Disabled           │                      │
│ Resource Controlled by            Auto [ESCD]        │                      │
│ * IRQ Resource                    Press Enter        │ Menu Level >         │
│ PCI /VGA Palette SNOOP            Disabled           │                      │
│ Flash  Write Protect              Enabled            │                      │
│ PCI Express relative items                           │                      │
│ Maximum payload size              4096               │                      │
├──────────────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help    │
│      F5:Previous Values   F6:Optimized Defaults   F7:Standard Defaults       │
└──────────────────────────────────────────────────────────────────────────────┘
```

Spread Spectrum
This item allows you to set the CPU Host / SATA / PCI/PCIE clock and Spread Spectrum. The settings are: Enabled, Disabled.

Reset Configuration Data
Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration

If you enable this item and restart the system, any Plug and Play configuration data stored in the BIOS Setup is cleared from memory.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a ">").

The settings are: Auto(ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Please refer to section 3-9-1

PCI/VGA Palette Snoop

Leave this field at *Disabled.* The settings are Enabled, Disabled.

Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The settings are: Enabled and Disabled.

3-10 PC Health Status

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

Phoenix – AwardBIOS CMOS Setup Utility

PC Health Status

Show H/W Health in post	Enabled	Item Help
Shutdown Temperature	Disabled	
Smart FAN Configuration	Press Enter	
Vcore	1.36V	Menu Level >
NB	1.24V	
+5V	5.12V	
+12V	12.33V	
5VSB	5.12V	
VDIMM	1.84V	
VSB 3V	3.36V	
Voltage Battery	3.05v	
CPU Temperature	36°C /96F	
Sys Temperature	28°C/82F	
CPUFAN	2450 RPM	
SYS FAN1	0 RPM	
SYS FAN2	0 RPM	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

Shutdown Temperature

This item can let users setting the Shutdown temperature, when CPU temperature over this setting the system will auto shutdown to protect CPU.

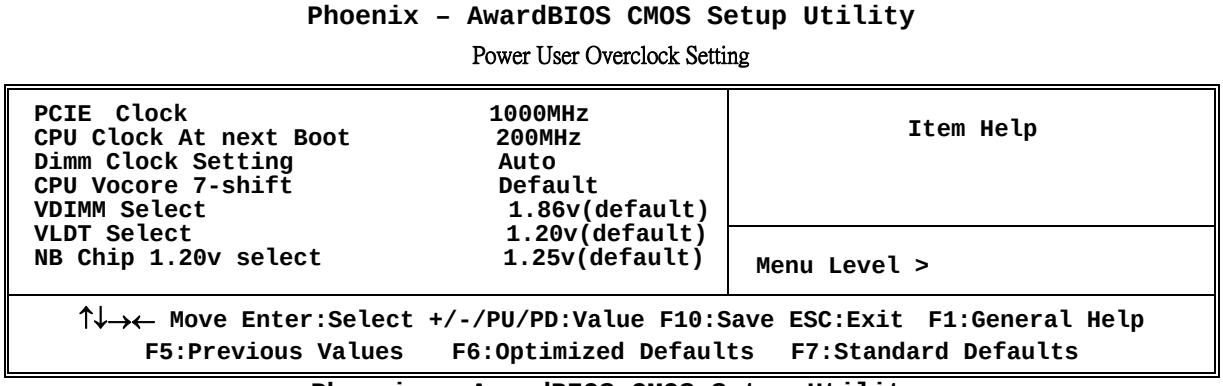
Show PC Health in Post

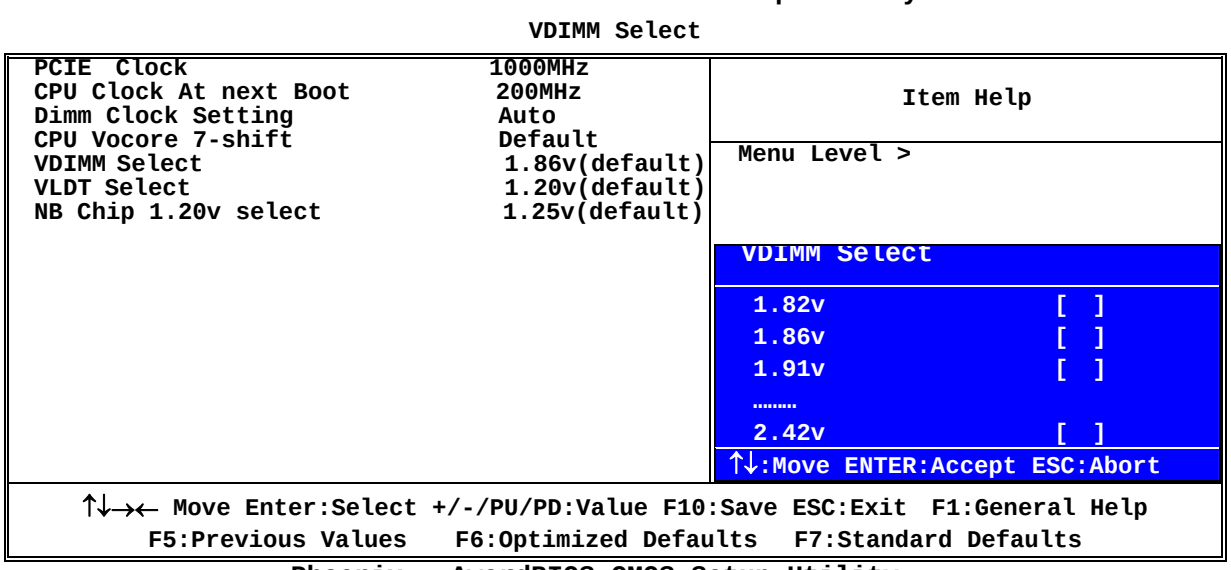
During Enabled, it displays information list below. The choice is either Enabled or Disabled

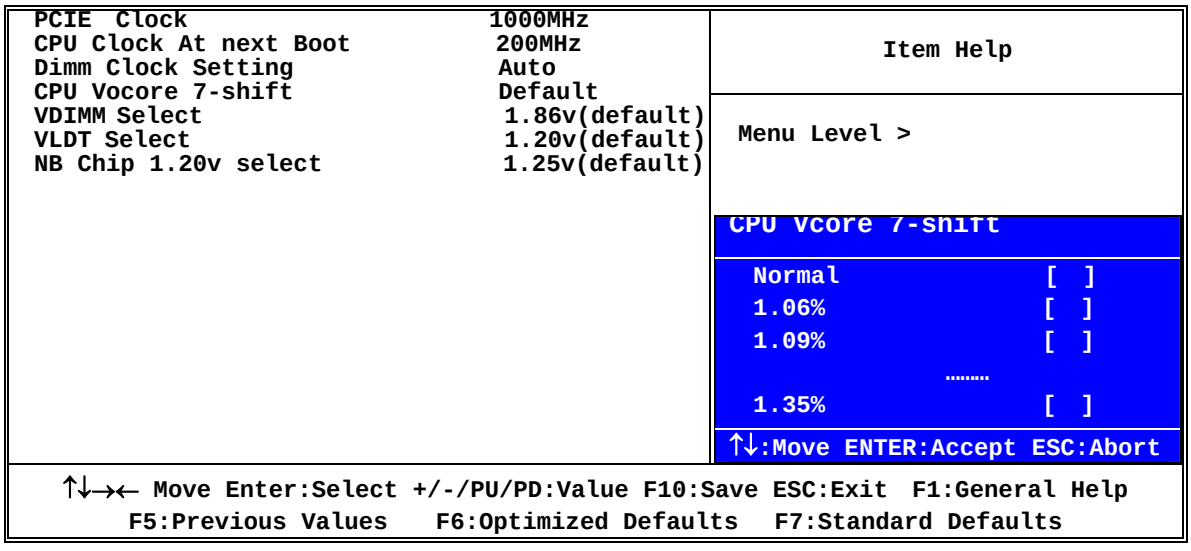
Current CPU Temperature/Current System Temp/Current FAN1, FAN2 Speed/Vcore/ Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)

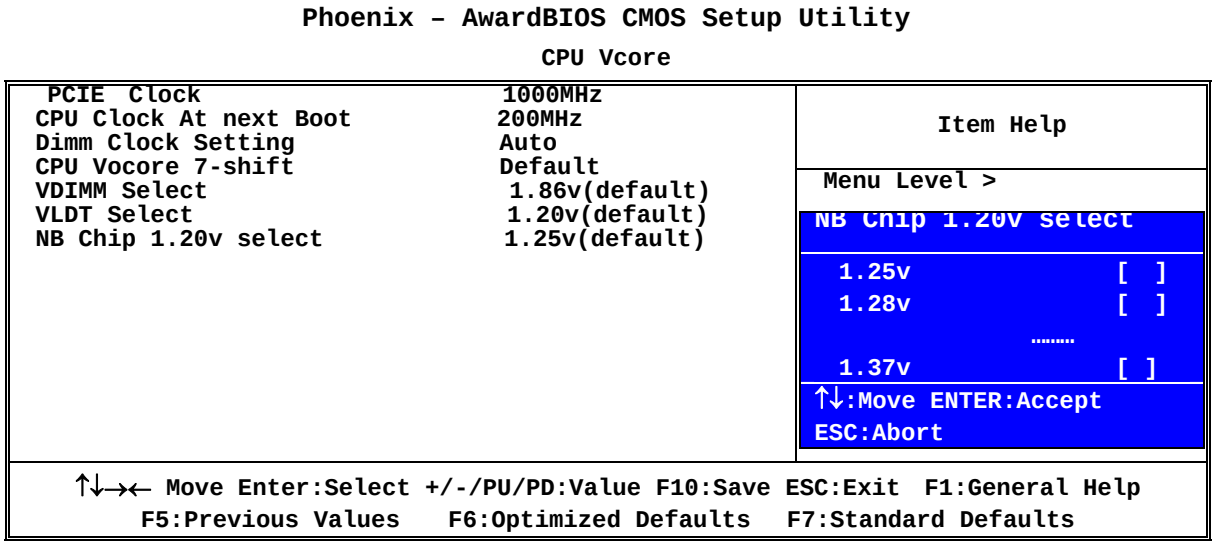
This will show the CPU/FAN/System voltage chart and FAN Speed.

3-11 Power User Overclock Settings





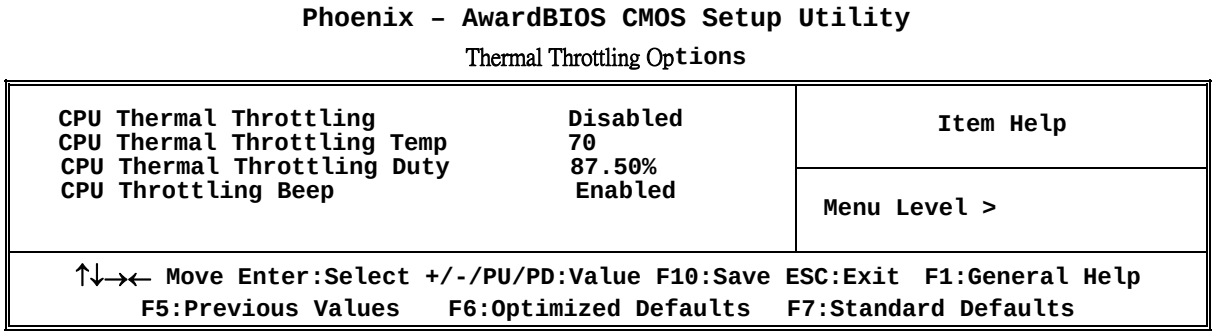




CPU Thermal Throttling Temp

This item allows you to activate the CPU Thermal Throttling function when the CPU temperature is over the value which you set to low down the CPU temperature when at high workload to protect processor from damage or accidental shutdown.

3-12 Thermal Throttling Options



CPU/DRAM Clock at next Boot is

This item allows you change the CPU Host /DRAM clock for overclock demand. *When the CPU Host clock is over the CPU default value BIOS will auto disabled Bi-Turbo function.*

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.

VDIMM Select

This item allows you to select the voltage of the DDR Module. The choice are from 1.86 V to 2.42V

NB Voltage

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

3-13 Password Settings

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              Password Settings

 Set Supervisor Password          Press Enter        |  Item Help
 Set User Password                Press Enter        |
                                                     |  Menu Level >
 ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help
      F5:Previous Values   F6:Optimized Defaults   F7:Standard Defaults
```

You can set either supervisor or user password, or both of them. The differences are:

Supervisor password: Can enter and change the options of the setup menus.

User password: Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3-14 Load Standard/Optimized Defaults

Load Standard Defaults

When you press <Enter> on this item, you get confirmation dialog box with a message similar to:

Load Standard Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

MAGIC INSTALL supports WINDOWS 9X/NT/2K/XP

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).

From MAGIC INSTALL MENU you may take 9 selections:

1. NFORCE install NFORCE integrated driver
2. SOUND install ALC662 HD Codec Audio driver
3. LAN install LAN
4. USB2.0 install USB 2.0 driver
5. PC-CILLIN install PC-CILLIN2007 anti-virus program
6. PC-HEALTH install My Guard PC-Health utility
7. RAIDDISK Install MCP65S RAID DRIVER DISK
8. BROWSE CD to browse the contents of the CD
9. EXIT to exit from MAGIC INSTALL menu

4-1 nForce Install nForce Integrated Driver

*** nForce Integrated driver pack include following device driver:**

NVIDIA DISPLAY driver : If you are using an AGP VGA Card, please install NVIDIA AGP GART driver which provides service routines to your VGA driver and interface directly to the hardware for speedy graphic access.

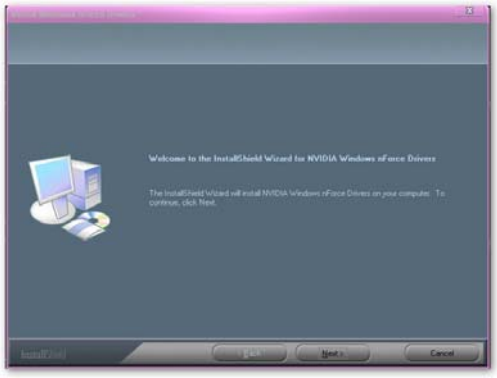
NVIDIA SMBUS driver : Install NVIDIA SMBUS driver

NVIDIA SMU driver : Install NVIDIA SMU driver

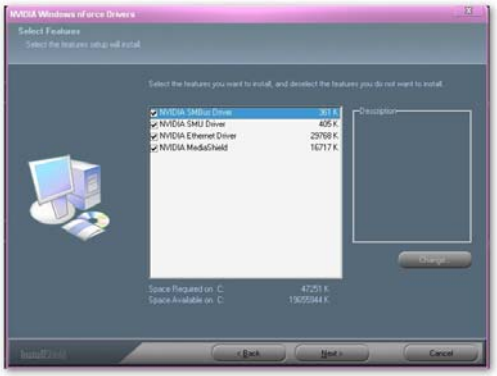
NVIDIA ETHERNET driver : Install NVIDIA 10/100 or 10/100/1000 Fast Ethernet device driver.
Install NVIDIA firewall and Forceware Network Access Manager utility.

NVIDIA Media Shield driver : Install NVIDIA Media Shield driver

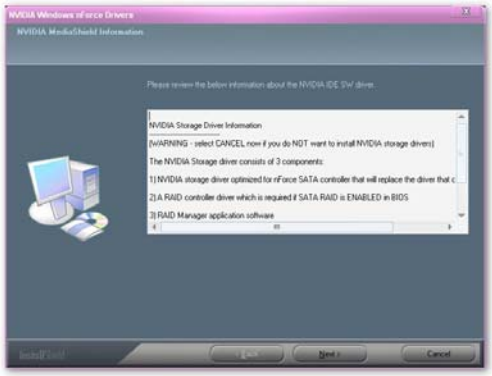
1. Click nForce in the MAGIC INSTALL MENU



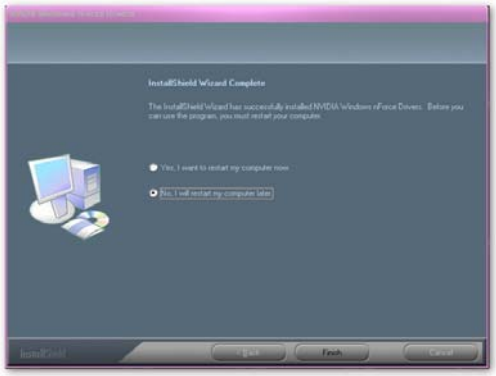
2. Click NEXT when nForce Integrated driver Install windows appears



3. Please select the features you wish to install .



4. Click NEXT to install IDE driver and click “Yes” to install the features you select.

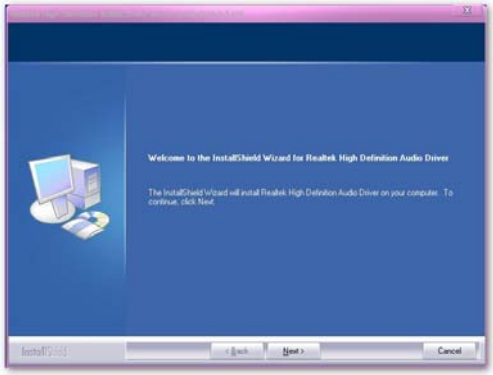


5. Select Finish and restart your computer

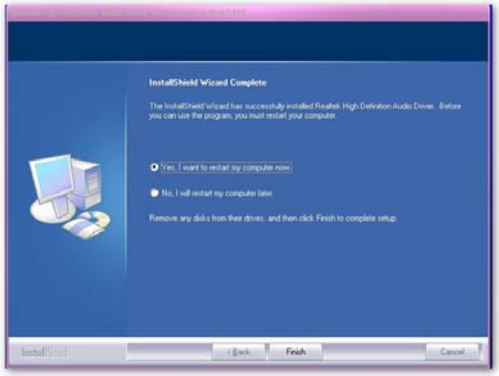
*** The path of the file is X:\NFORCE4\DRIVER\SETUP.EXE**

4-2 SOUND Install ALC662 HD Audio Driver

1. Click SOUND when MAGIC INSTALL MENU appears



2. Click Next when Realtek High Definition Audio driver windows appear



3. Click FINISH and restart your computer

4. Manual Sound Effect Setting

5. Drivers and mixer.

6. Audio input and output settings

7. Microphone effect.

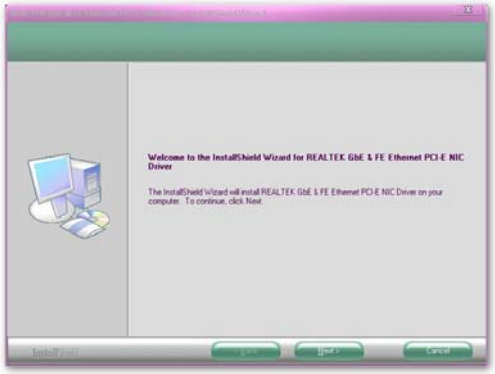
8. 3D Audio

NOTE: Please upgrade your Windows XP to Service Pack 1 / Windows 2000 to Service Pack 4 or later before you the HD Audio CODEC driver.

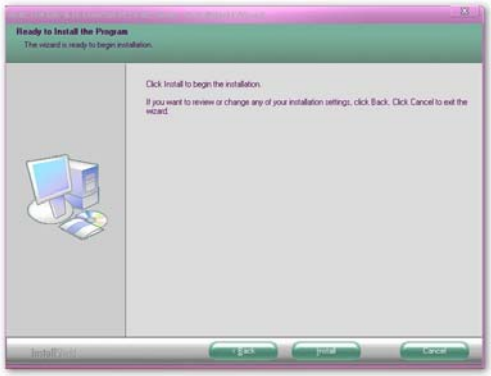
NOTE: Please upgrade your Windows XP to Service Pack 1 later before you the HD Audio CODEC driver

4-3 LAN

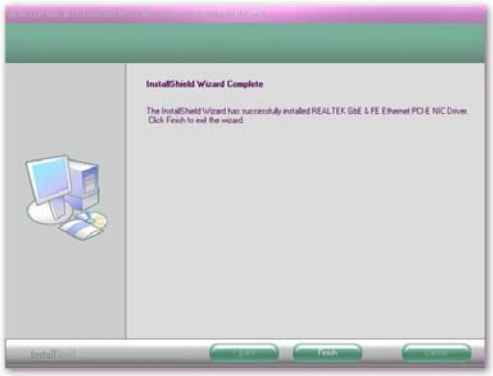
1. Click LAN when MAGIC INSTALL MENU appears



2. Click NEXT When Realtek High Definition Audio driver windows appear



3. Click INSTALL



4. Finish the installation.

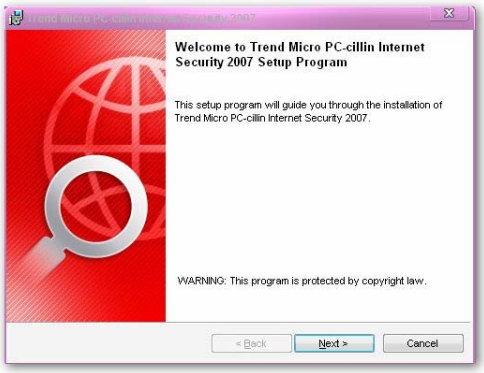
4-4 USB2.0 Install Intel USB2.0 DRIVER

1. Click USB2.0 when MAGIC INSTALL MENU appears

Windows XP OS
Please install Windows XP service pack 1 or later .

4-5 PC-CILLIN Install PC-CILLIN 2007 Anti-virus program

1. Click PC-CILLIN when MAGIC INSTALL MENU appears

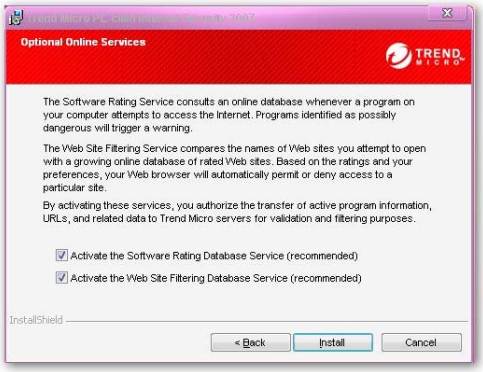


2. Please select “Install program” when the "Trend Micro internet security" install shield wizard windows appears

3. This is license agreement, select "I accept the terms in the licence agreement" and Click NEXT

4. The preinstallation checkup process

5. Click Next after you select the features you want to install and the folder to install it

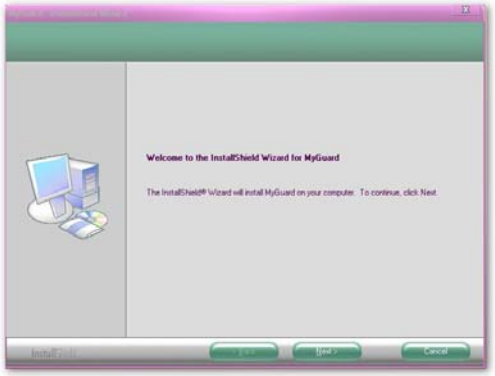


6. Click install after you select to install the optional online services.

6. Click the Finish bottom to complete the installation process and restart your computer to put the drive to work.

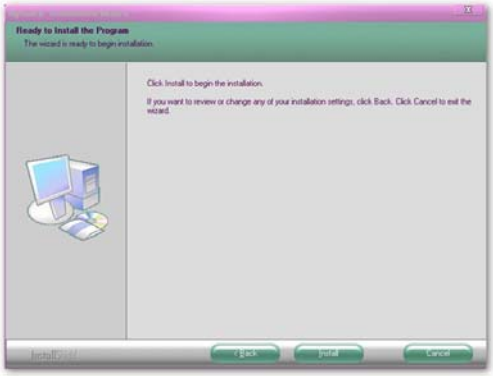
Note : Please install ACROBAT READER for reading PC-CILLIN 2007User Manual which locates at the path "X:\acrobat\adberdr6_enu_full.exe".

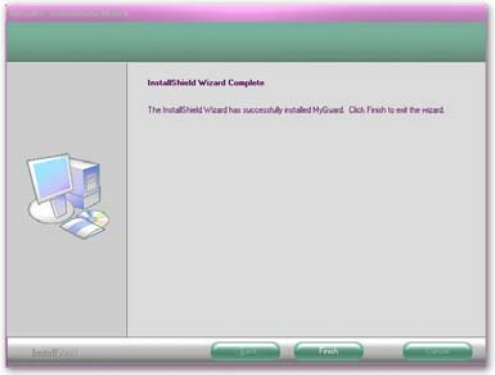
4-6 PC-HEALTH Install MyGuard Hardware monitor Utility



1. Click PC-HEALTH when MAGIC INSTALL MENU appears

2. Click NEXT after you choose to mosify, repair or remove the program.,



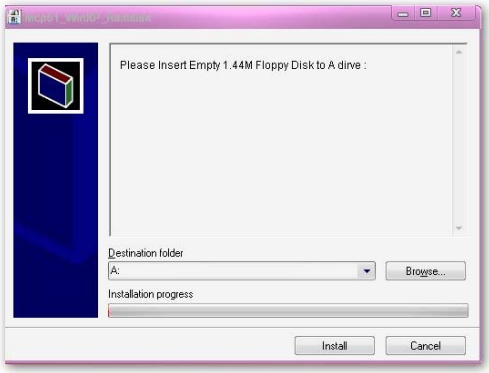


3. Select the features you want to install, and then click NEXT.

4. Click FINISH to complete the installation.

NOTE: MAGIC INSTALL will auto detect file path X:\NFORCE4\MYGUARD\SETUP.EXE

4-7 RAID DISK Install MCP65S WINXP RAID DRIVER DISK



1.Click RAIDDISK when MAGIC INSTALL MENU appears

2. Select Install to begin the installation.

NOTE: MAGIC INSTALL will auto detect file path X:\NF-ORCE4\MYGUARD\SETUP.EXE

4-8 HOW TO UPDATE BIOS

Before updating the BIOS, users have to check if the "Miscellaneous Control" of BIOS SETUP has the "Flash Part Write Protect" selection. If there is one, users have to "Disable" the "Flash Part Write Protect" selection of the "Miscellaneous Control" in BIOS SETUP. Otherwise the system will not allow you to upgrade BIOS by Award Flash Utility. If there is no such selection, users can follow the 4 steps directly to update BIOS.

STEP 1. Prepare a boot disc. (You may make one by click START click RUN type SYS A: click OK)

STEP 2. Copy utility program to your boot disc. You may copy from DRIVER CD X:\FLASH\AWDFLASH.EXE or download from our web site.

STEP 3. Download and make a copy of the latest BIOS for MCP61P SERIES motherboard series from the web site to your boot disc.

STEP 4. Insert your boot disc into A:,
Start the computer, type "Awdflash A:\xxxxxx.BIN /SN/PY/CD/CH/WB/CC/R"
xxxxxx.BIN is the file name of latest BIOS

SN	means	don't save existing BIOS data
PY	means	renew existing BIOS data
CD	means	clear DMI data after programming
CH	means	update HOLE
WB	means	always programming BootBlock
CC	means	clear existing CMOS data
R	means	restart computer

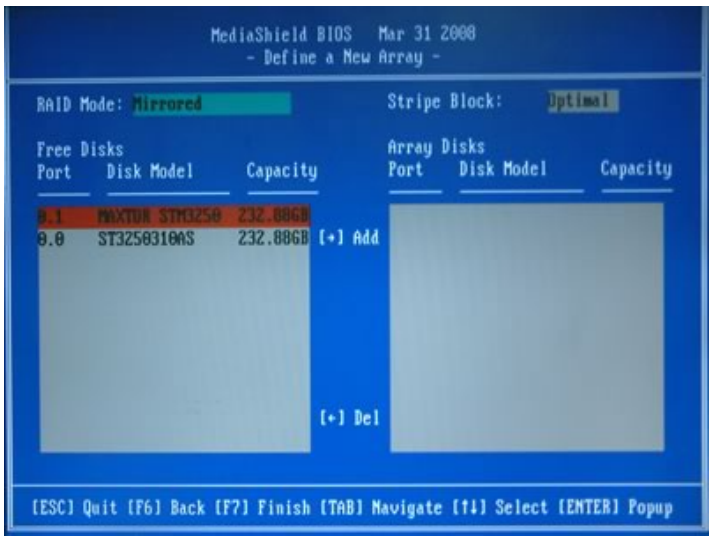
STEP 5. Type ENTER to update and flash the BIOS, then the system will restart automatically.

4-9 AMD Platform RAID Function Installation

Step 1.

Please get into the location: BIOS setup \ Integrated Peripherals \ Onchip IDE function \ RAID Config, select RAID and enable the RAID function. After the System reboots, you can find the AMD RAID IDE ROM BIOS windows appear. It will ask you to "Press F10 to enter RAID setup utility …" ?

Please press "F10" key to RAID utility in the Media Shield BIOS—Define a New Array shown up:



Select the disks you want to enable the RAID function. Add then from Free Disks to Array Disks with navigate key →or +. You could remove the added disks from Array Disks with navigate key ←or -, if you want to cancel the previous setting.

Users can select RAID Mold from the following items with navigate keys： ↑ or ↓ .

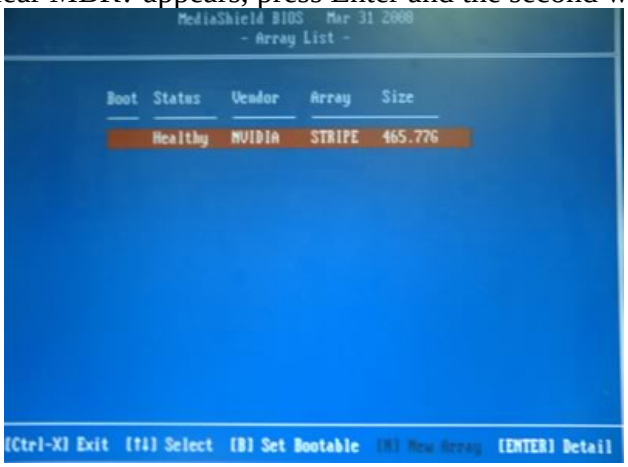
1. Mirrored（RAID 1） 2. Stripped (RAID 0）

3. Stripped Mirrorred（RAID 0+1） 4. Spanned （RAID 5）

And when Stripe Block is highlighted, users can choose from 8K/16K/32K/64K/128K/Optimal with the navigate key: ↑， ↓

Then press F7 and the following dialogue should appear: All data on new(or added)disks may be overwritten. Continue? Press Enter to overwrite the data:

Another dialogue: Clear MBR? appears, press Enter and the second window should appear:



Type B to boot the disks enabled the RAID function, or press Enter to have a view of Array Detail information

Step 3.

Making RAID driver diskette before Install WindowsXP/2000

Before you install the Windows XP or Windows 2000, you will need to make a RAID driver diskette before you start to install the Operating System.

How to make a RAID driver diskette?

1: Insert the diskette which is being formatted in floppy drive on a system which can start OS.

2: After booting OS insert the bundle CD in your CD-ROM
3: Copy all the files from \NF-orce4\RAIDDisk to floppy diskette
Once you have the SATA driver diskette ready, you may start to install Windows XP or Windows 2000 on your System.

Installation of Windows XP/ Windows 2000

For installation of Windows XP or Windows 2000, please insert Windows XP or Windows 2000 CD into the CD-ROM drive. Then remove the floppy diskette, and boot the system. At the very beginning, you will see the message at the bottom of screen, "Press F6 if you need to install a third party SCSI or RAID driver…."
At this moment, please press <F6> key and follow the instructions of Windows XP or Windows 2000 for the proper installation.

Execute Start → programs → NVIDIA corporation → RAID manager , you can view RAID function status or rebuild RAID function from Windows OS