USER'S MANUAL
Of
NVIDIA
NF6100-430
Platform Processor Chipset

M/B For Socket AM2 64-bit Dual Core

AMD Processor

TABLE OF CONTENT

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.

Chapter 1

Introduction of NVIDIA NF6100-430 Motherboard Series

1-1   Features of motherboard

The NVIDIA NF6100-430 Platform Processor Chipset motherboard series are based on the latest NVIDIA NF6100-430(MCP61P) Platform Processor Chipset which supports the innovative and supercharged new generation 64-bit AMD Socket AM2+ dual core AMD Phenom™ processors and Socket AM2 Athlon64 and Sempron processors with Hyper Transport Technology up to 1000MHz. NVIDIA NF6100-430 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+ dual core AMD Phenom™ processors and 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 NF6100-430 Platform Processor Chipset integrated graphic processor which adopts the innovative 90nm process technology, the GeForce 6100 Graphics Core integrated video graphics array brings more compatibility, stability and reliability with the widest range of games and applications to the desktop platform system. 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 NF6100-430 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 incorporate the integrated NVIDIA GeForce 6100 Graphics Core which is fully compatible with Microsoft® DirectX® 9.0C and Shader Model 3.0. And it also supports 1000 MHz Hyper Transport speed of data transfer rate, 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 LAN function with Realtek RTL8102E 10/100 PCIE LAN which supports 10/100Mbps data transfer rate. The embedded 6-channel HD Audio CODEC is fully compatible with Sound Blaster Pro® standard.

NVIDIA NF6100-430(MCP61P) 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 two 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices.

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	∗ Micro ATX form factor 4 layers PCB size: 24.5cm*18.0cm
Chipset	∗ NVIDIA NF6100-430 Chipset
CPU Socket AM2	∗ Support 64bit AMD AM2 940-Pin package utilizes Flip-Chip Pin Grid Array package compatible processor ∗ Support for HTT 1GHz dual core AMD Phenom processors ∗ Support 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 NF6100-430 PPC motherboard ∗ 32-bit PCI slot x 2pcs
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 RTL8102E 10/100 LAN. ∗ Supports Fast Ethernet LAN function provide 10/100Mb /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 ∗ VGA 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 Item Checklist

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

1-4 Layout Diagram & Jumper Setting
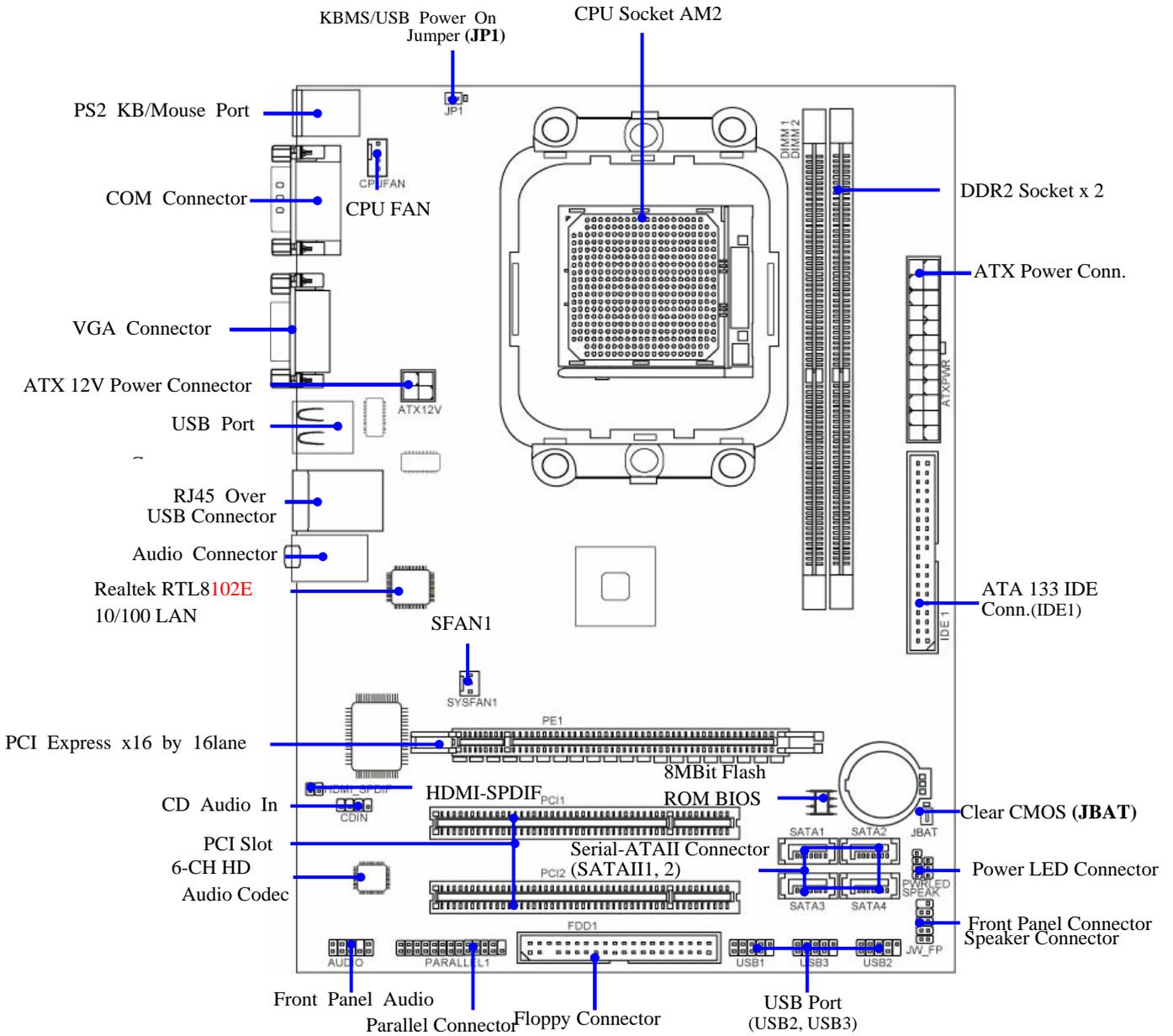
Chapter 2

## Hardware Installation

2-1 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.

Colden Arrow →

Socket AM2

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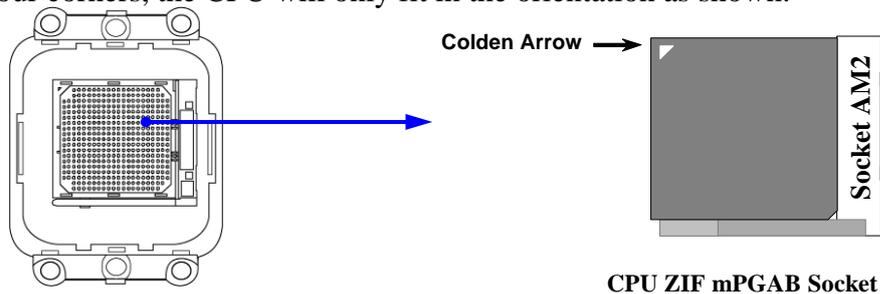
When you put the CPU into the ZIF socket.   No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-2   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

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.
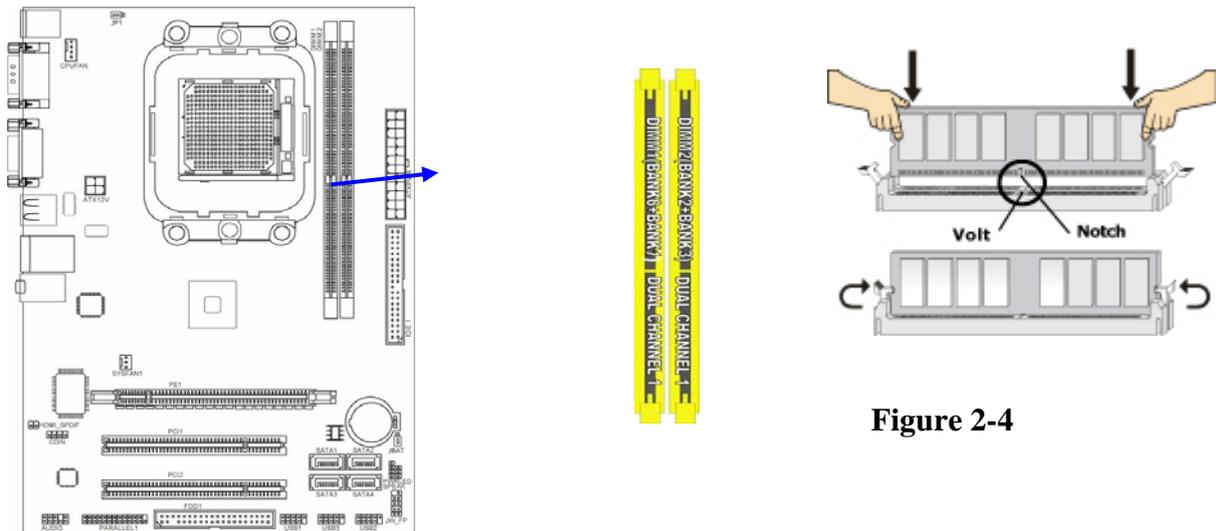
Figure 2-4

2-3   Expansion Cards

NVIDIA NF6100-430(MCP61P) 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 two 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices.
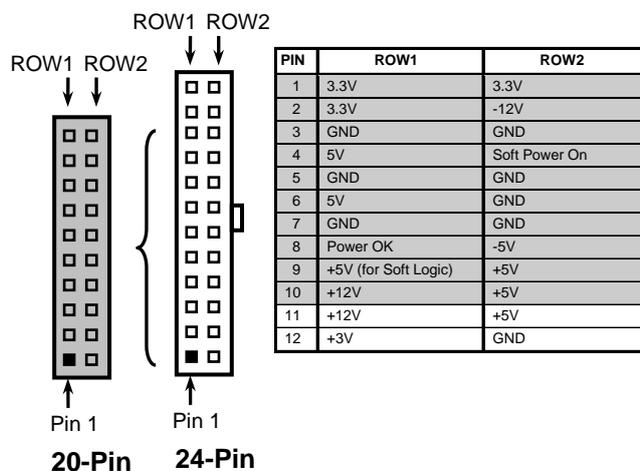
PCI-E x16 by 16
Slot
32-bit PCI Slot
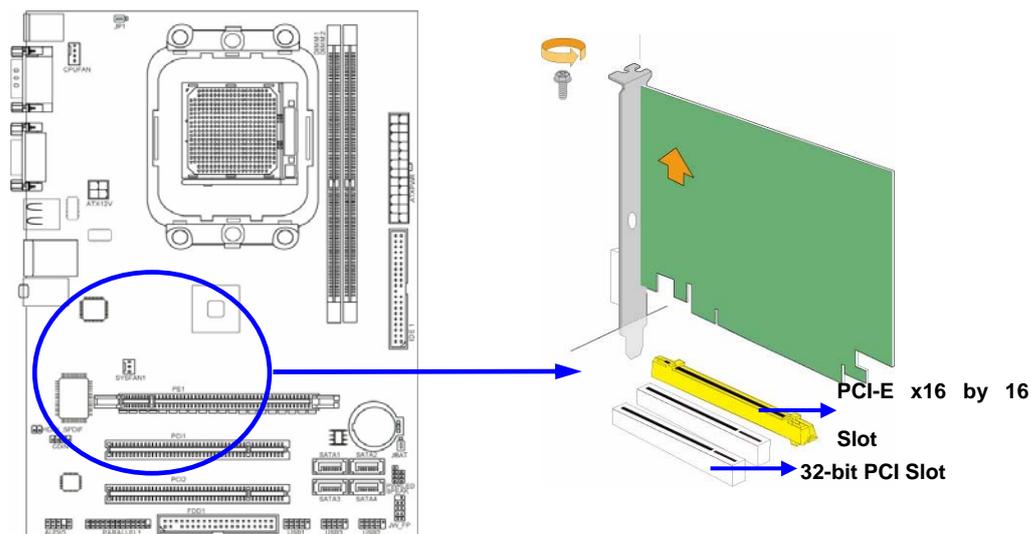
Chapter 3
Connectors, Headers & Jumpers Setting
3-1 Connectors

(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.

ROW1 ROW2

ROW1 ROW2

Pin 1   Pin 1

20-Pin   **24-Pin**

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.
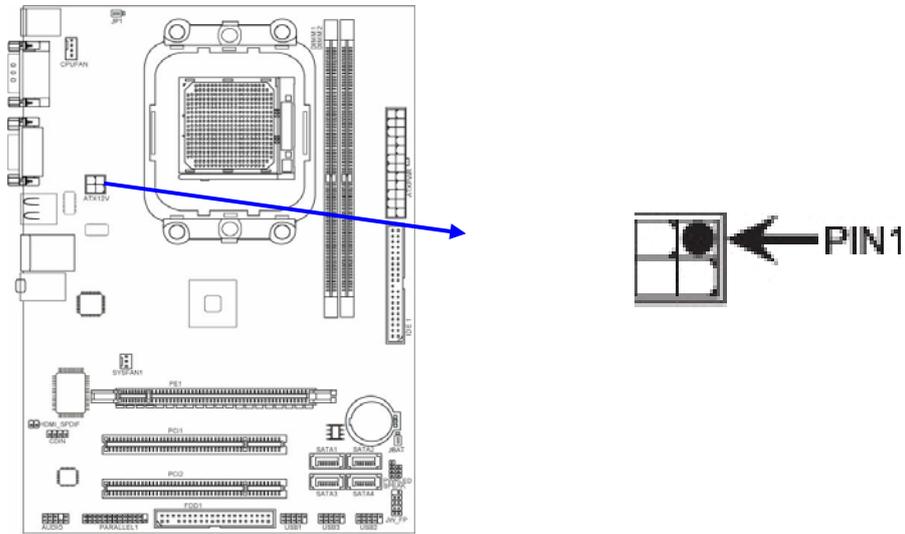
(3) PS/2 Mouse & PS/2 Keyboard Connector: KB1
The connector for PS/2 keyboard and PS/2 Mouse.

(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/100Mb 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
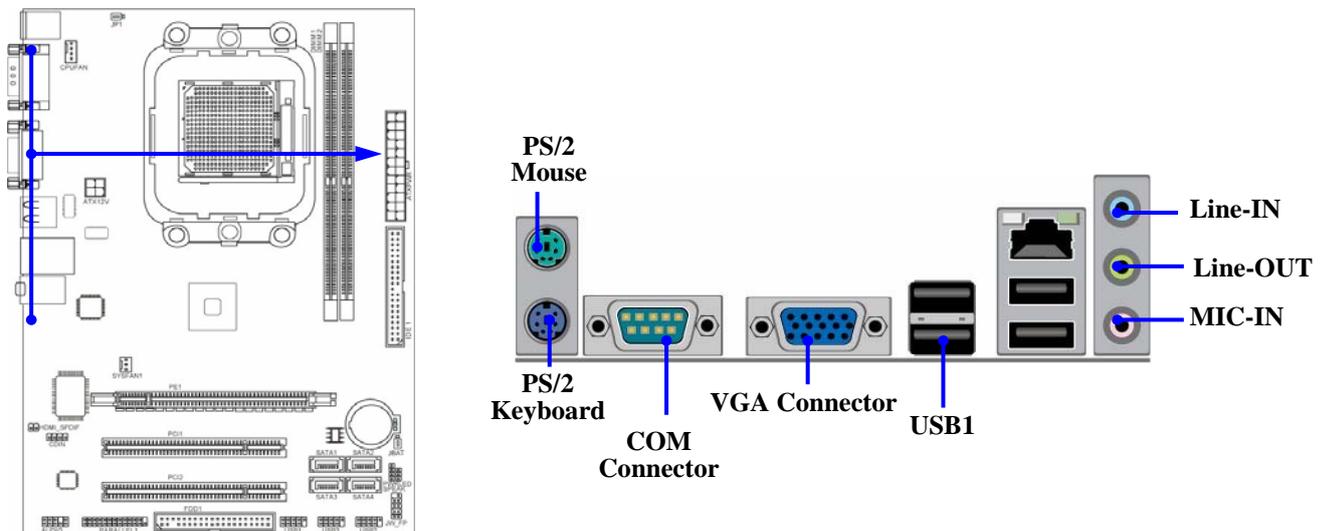
**(7) Floppy drive Connector (34-pin block): FDD1**

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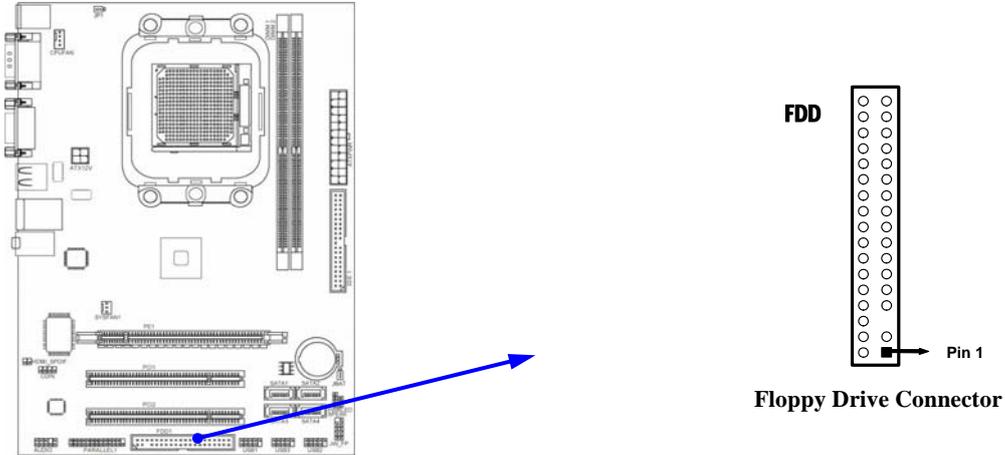
(8) Secondary IDE Connector (40-pin block): IDE1

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
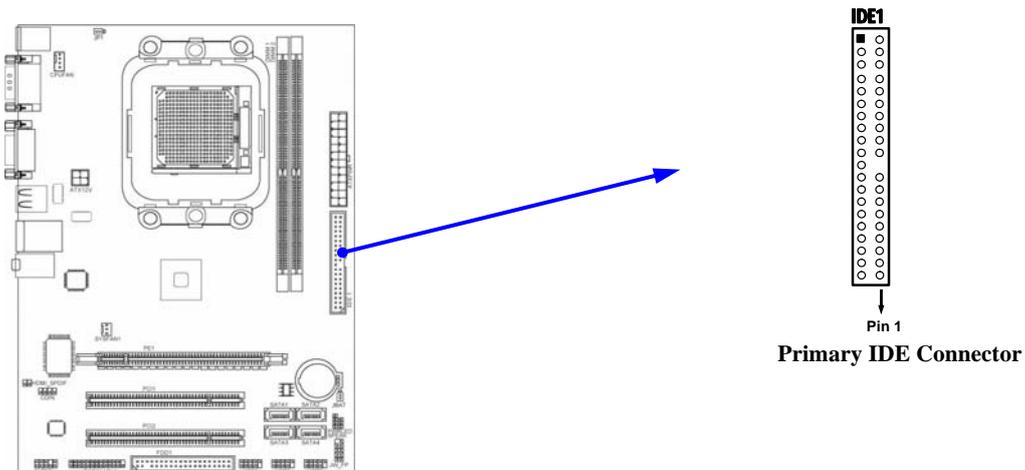
(9) Serial-ATA Port connector:
   SATA1 / SATA2/SATA3/SATA4
   This connector support the provided Serial ATA and Serial ATA2 IDE hard disk cable to connecting the motherboard and serial ATA hard disk.

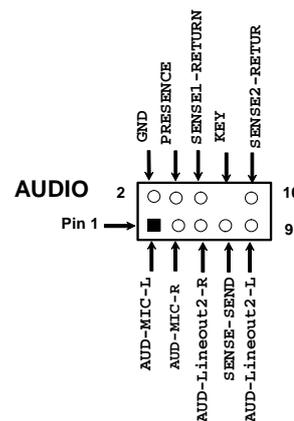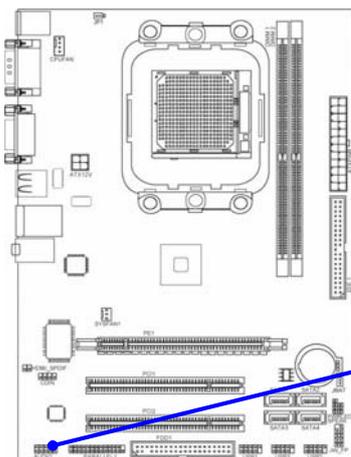**Serial-ATA1,2,3,4 Compatible Connectors**
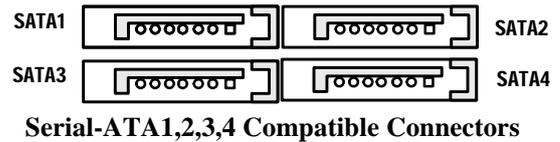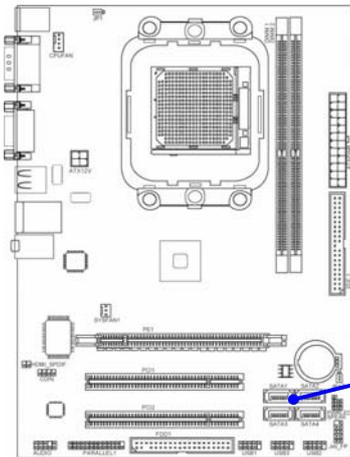
(10) D-Sub 15-pin Connector: VGA
   VGA is the 15-pin D-Subminiature female connector, it is for the display devices, such as the CRT monitor, LCD monitor and so on.

3-2 Headers

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

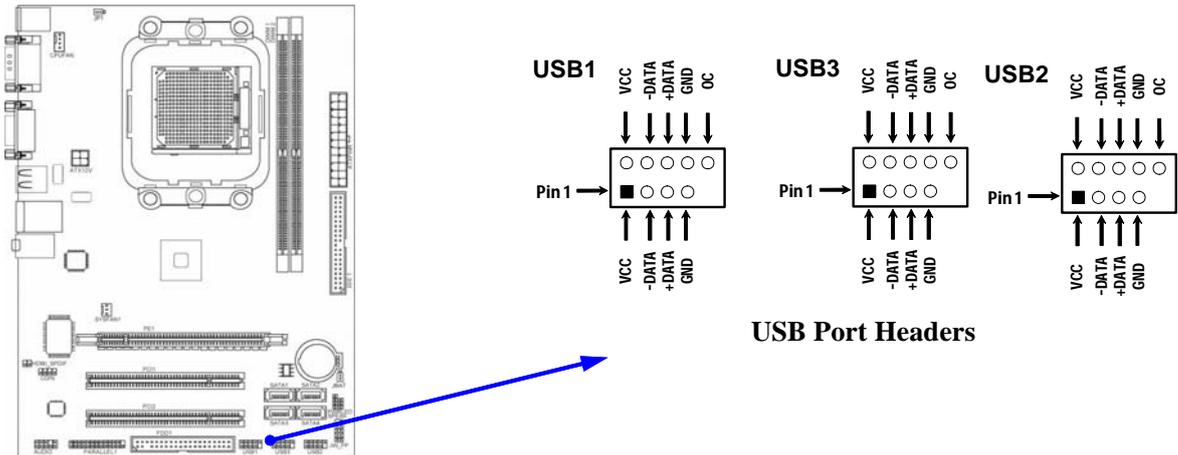This header connect to Front Panel Line-out, MIC connector with cable.

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
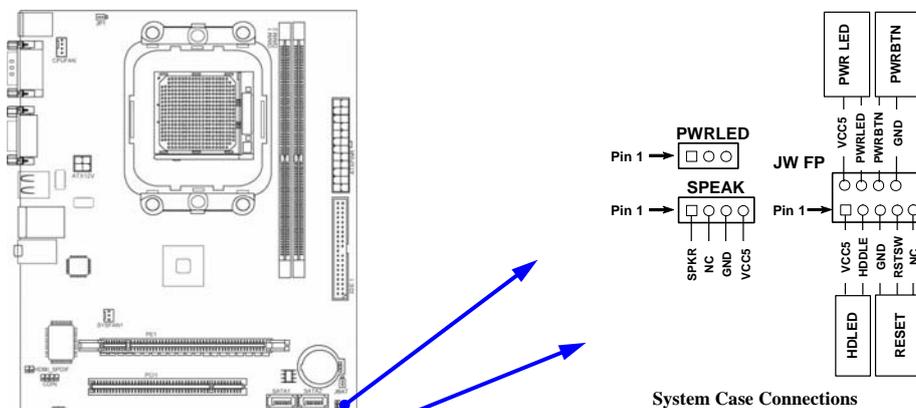
(8) FAN Power Headers: CHAFAN1, SYSFAN1, CPUFAN (4-pin)

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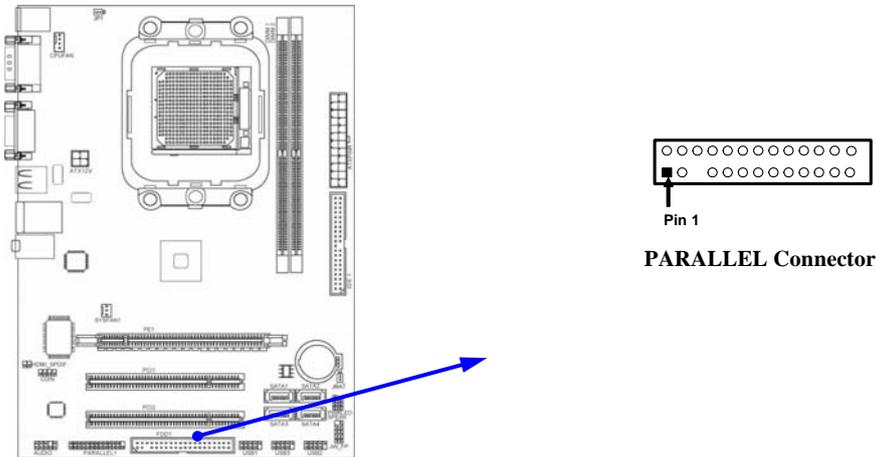
FAN Power Headers
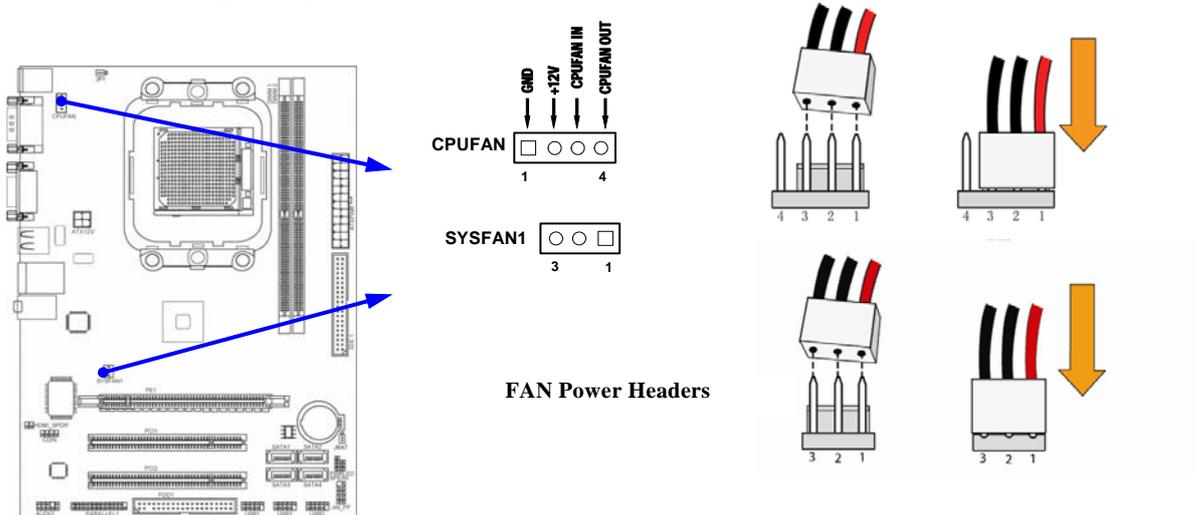
(9) CD Audio-In Headers (4-pin) : CDIN

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

CD Audio-In Headers
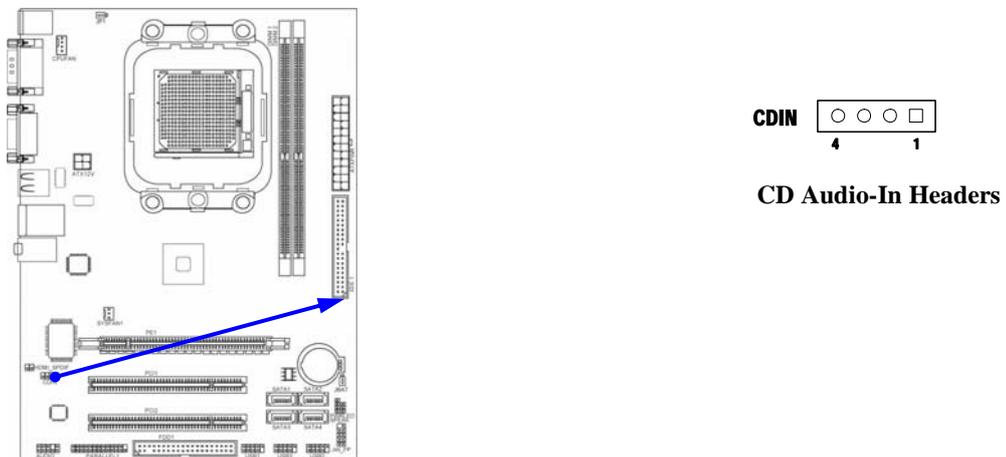
(10) Parallel Port Connector (25-pin female): PARALLEL1

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

Pin 1

PARALLEL Connector

(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.

SPDIF

HDMI_SPDIF_OUT → □ ○ ← GND

1   2
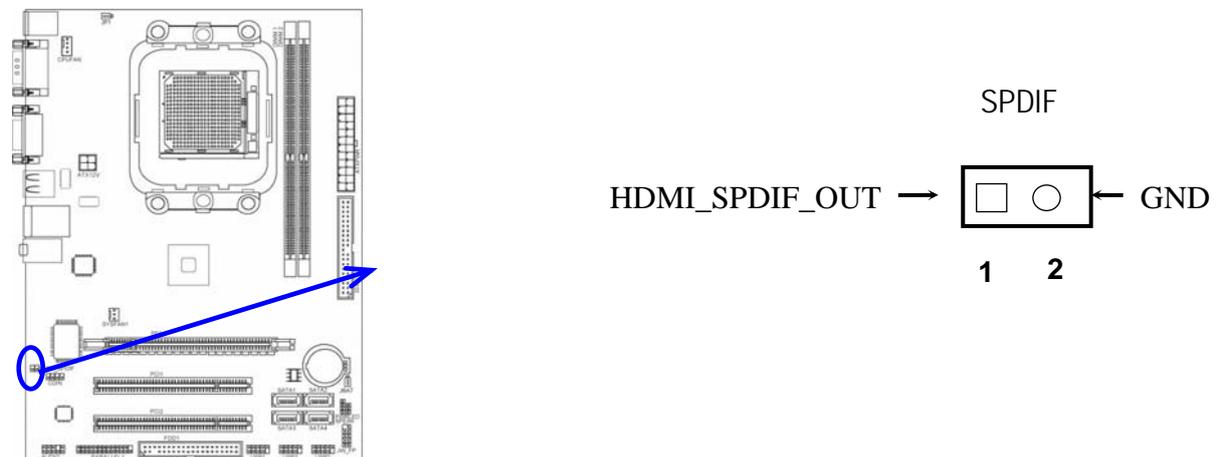
Chapter 4

USEFUL HELP

4-1 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.

4-2 Trouble Shooting

Problem	Solution
No power to the system to the all power light don't illuminate, fan inside power supply doesn't turn on.	1. Make sure power cable is security plugged in. 2. Replace cable. 3. Contact technical support.
System inoperative. Keyboard lights are on , power indicator lights are lit, and hard drive is spinning.	Using ever pressure on both ends of the DIMM , press down firmly until the module snaps into places.
System doesn't boot from hard disk drive, can be booted from optical drive.	1. Check cable running from disk to disk controller board. .Make sure both ends are securely plugged in, check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important .All hard disks are capable of breaking down at any time.
System only boots from optical drive .Hard disk can be read and applications can be used but booting from hard disk is impossible.	1. Back up date and applications files. 2. Reformat the hard drive. Reinstall applications and date using backup disks.
Screen message says "Invalid Configuration" or "CMOS Failure"	Review system 's equipment .Make sure correct information on is in setup.
Can not boot system after installing second hard drive.	1. Set master /slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacture for compatibility with other drives.