

USER'S MANUAL Of

MCP61P Chipset

M/B for Socket AM3 Series Quad Core AMD Processor

***NO. G03-M26GT4SVM-F
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Trademark:

*** Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**



Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 40 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)
- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.
- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

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

CHAPTER 1 INTRODUCTION OF MCP61P MOTHERBOARD SERIES	
1-1 FEATURES OF MOTHERBOARD	1
1-1.1 SPECIAL FEATURES OF MOTHERBOARD	2
1-2 SPECIFICATION	3
1-3 ITEM CHECKLIST	3
1-4 LAYOUT DIAGRAM	4
CHAPTER 2 HARDWARE INSTALLATION	
2-1 CPU INSTALLATION	5
2-2 INSTALL MEMORY	6
2-3 EXPANSION CARDS	7
CHAPTER 3 CONNCTORS, HEADERS & JUMPER SETTING	
3-1 CONNECTORS	8
3-2 HEADERS	11
3-3 JUMPER SETTING	13
CHAPTER 4 USEFUL HELP	
4-1 HOW TO UPDATE BIOS	14
4-2 TROUBLE SHOOTING	14
APPENDIX1	15

Chapter 1

Introduction of MCP61P Motherboard Series

1-1 Features of motherboard

The MCP61P Platform Processor Chipset motherboard series are based on the latest MCP61P Platform Processor Chipset which supports the following AM3 CPU under the 95W: Phenom II x 4; Phenom II x 3; Phenom II x 2; Athlon II x 4; Athlon II x 3; Athlon II x 2; Sempron. With an integrated low-latency high-bandwidth DDRIII memory controller and a highly-scalable Hyper Transport technology-based system bus up to 1000MHZ. By implementing the new generation MCP61P 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. MCP61P 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 MCP61P series motherboards support new generation Socket AM3 processors with an integrated DDRIII memory controller for Dual channel DDRIII 800/DDRIII 1066/DDRIII 1333 module up to 8GB. And MCP61P it also accommodates ULTRA ATA 133 connectors and Serial ATA2 with RAID 0,1 functions which support up to one IDE and two Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.

The MCP61P motherboards provide 10/100 PCI-E LAN which supports 10/100Mbps data transfer rate. And the embedded ALC662 6-channel HD Audio CODEC is fully compatible with Sound Blaster Pro® standard that offer you with the home cinema quality and satisfying software compatibility.

The MCP61P motherboard series offer one PCI-Express x16 by16-Lane graphics slot of 4Gbyte/sec data transfer rate at each relative direction which gets 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 MCP61P motherboards also carry one 32-bit PCI slot guarantee the rich connectivity for the I/O peripheral devices.

Embedded USB controller as well as capability of expanding to 6 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 VID/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 causes 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°C to 90°C). 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 VID--- (Shift to Higher Performance)

The CPU voltage can be adjusted for the precisely over-clocking of extra demanding computing performance.

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.

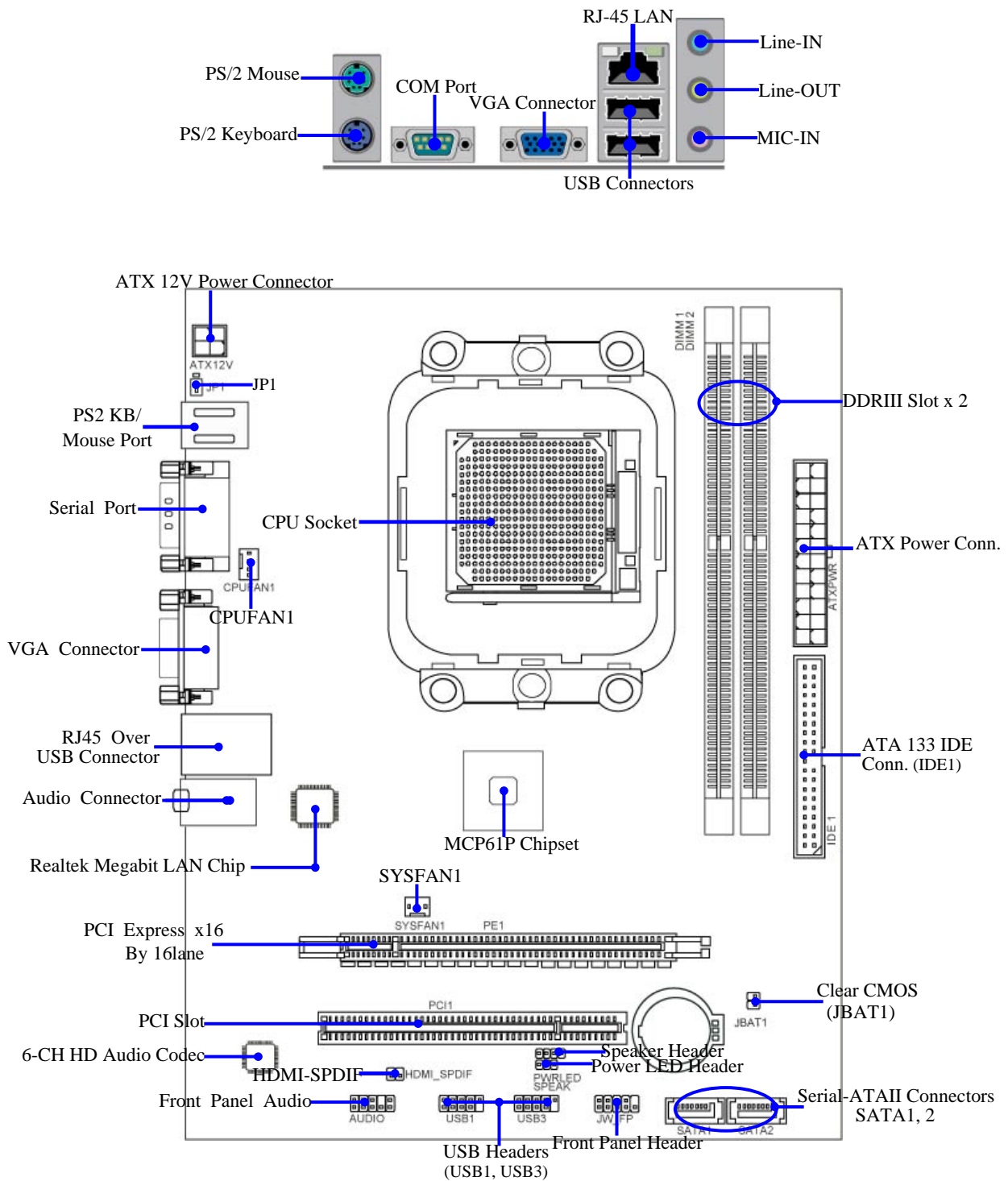
1-2 Specification

Spec	Description
Design	* PCB size: 22.5cm*17.7cm
Chipset	* MCP61P Chipset
CPU Socket	* Support Phenom II x 4 ; Phenom II x 3 ; Phenom II x2 ; Athlon II x4 ; Athlon II x3 ; Athlon II x2 ; Sempron series AM3 CPU under 95W.
Memory Socket	* 240-pin DDRIII module slot x 2 * Support 2pcs DDRIII 800/DDRIII 1066/DDRIII 1333 modules expandable to 8GB * Dual channel supported
Expansion Slot	* 1pcs PCI-Express x16(by 16 lane) slot * 1pcs 32-bit PCI slot
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 for one IDE Devices and for two Serial ATA2 ports provide 300 MB/sec data transfer rate with RAID 0, 1 functions.
LAN	* Integrated 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 * Audio driver and utility included
BIOS	* AMI 8MB SMT Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Serial Port x1 * VGA Connector x1 * USB2.0 port x 2 and headers x2 * RJ-45 LAN Connector x1 * Audio connector x1 * Hard disk driver connector x1/ SATA connector x 2 * Front Panel Audio headerx1 * HDMI-SPDIF header x1

1-3 Item Checklist

- ☒ MCP61P Platform Processor Chipset based motherboard
- ☒ DVD for motherboard utilities
- ☒ User's Manual
- ☒ SATA Cable
- ☒ Back shield

1-4 Layout Diagram



Chapter 2

Hardware Installation

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

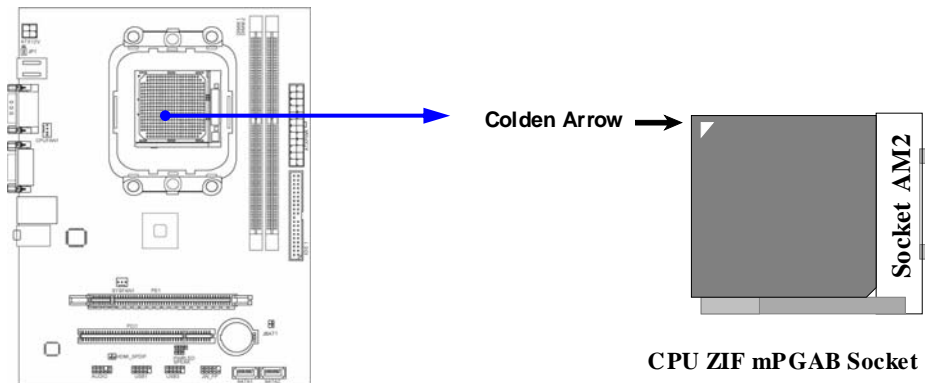
2-1 CPU Installation

This motherboard provides a socket AM2 surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA940 socket supports AMD AM3 processors.

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.



When you put the CPU into the ZIF socket, do not require force to insert of the CPU, and then press the level to locate position slightly without any extra force.

2-2 Install Memory

The motherboards provide two 240-pin DDRIII DUAL INLINE MEMORY MODULES (DIMM) sites for DDRIII memory expansion to maximum memory size of 8GB DDRIII SDRAM.

Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Maximum Capacity
DIMM1	DDRIII 800/DDRIII 1066/DDRIII 1333	X1	4GB
DIMM2	DDRIII 800/DDRIII 1066/DDRIII 1333	X1	4GB
Total	System Memory (Max.4GB)	2	8GB

Recommend DIMM Module Combination

1. One DIMM Memory Module ----Plug in DIMM1
2. Two DIMM Memory Modules---Plug in DIMM1 and DIMM2 for Dual channel function

Dual channel Limited!

1. Dual channel function only supports when 2 DIMM Modules plug in both DIMM1 & DIMM2.
2. Memory modules plugged in DIMM1 & DIMM2 must be of the same type, same size, and same frequency for dual channel function.

Generally, installing DDRIII modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 240-Pin DDRIII 800/DDRIII 1066/DDRIII 1333 SDRAM module looks like.

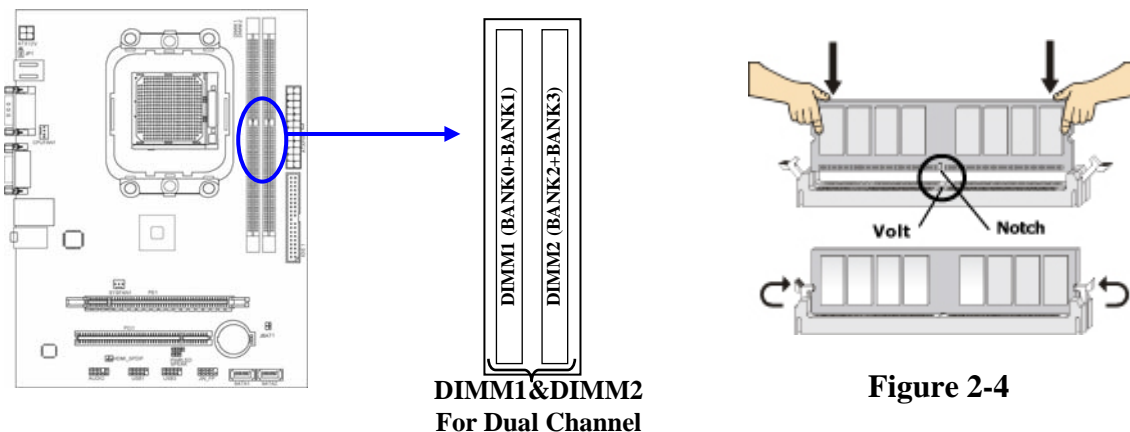


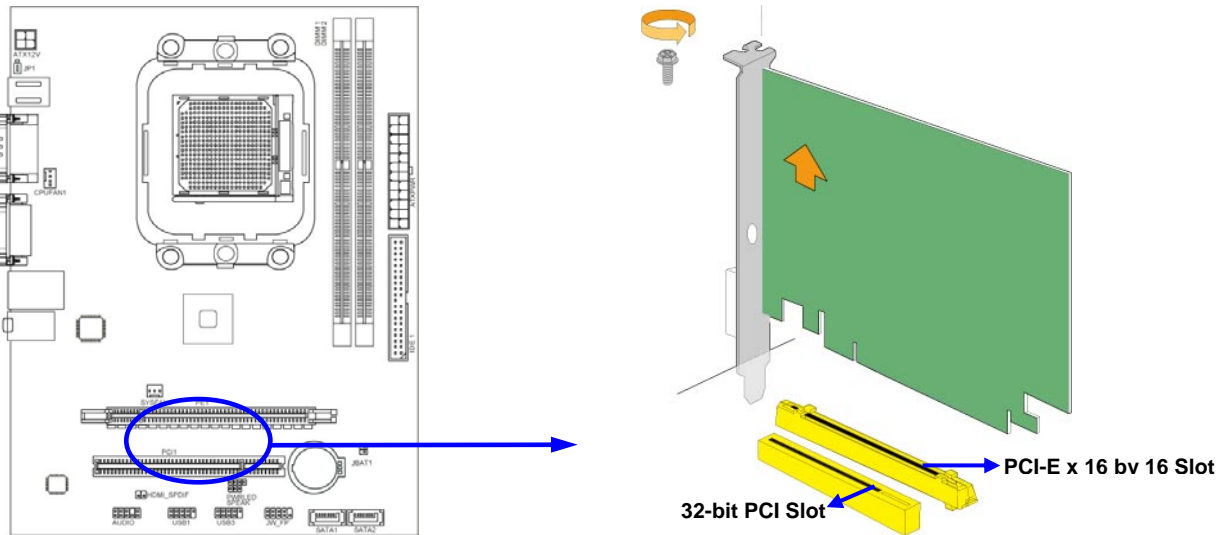
Figure 2-4

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 indentation on both sides.

2-3 Expansion Cards

MCP61P series motherboards offer one PCI-Express x16by16-LANE graphics slot of 4Gbyte/sec data transfer rate at each relative direction which gets 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 one 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices.



Chapter 3

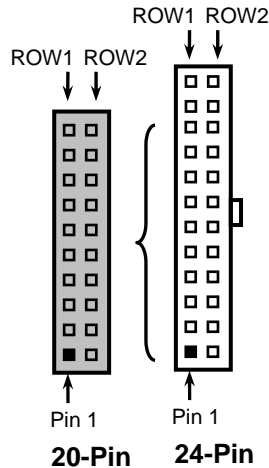
Connectors, Headers & Jumper Setting

3-1 Connectors

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

ATX Power Supply connector:

This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using 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.
- ** Please refer to Figure 1 for 20-pin power plug connection. Power plug and motherboard power connectors has adopted key design to avoid installation mistake through connection can be made easily if in the proper direction. If the installation direction is incorrect and you make the connection by force both the board and the power supply can be burned. Please see to it that the direction is correct during installation.

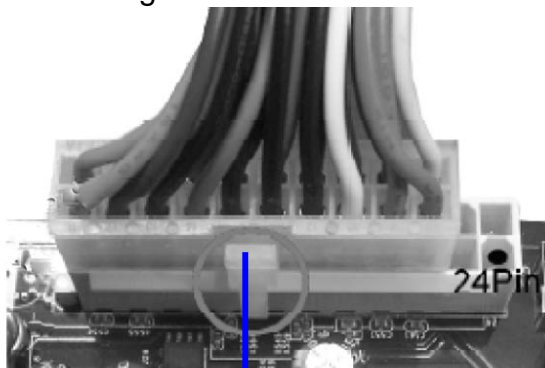


Figure 1: 20-pin power plug

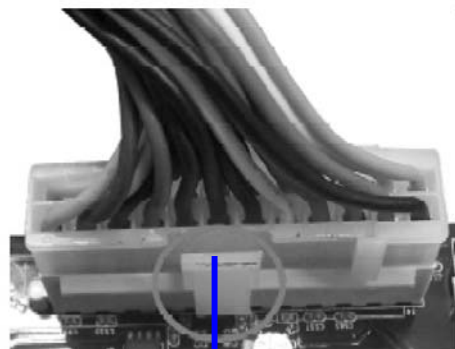
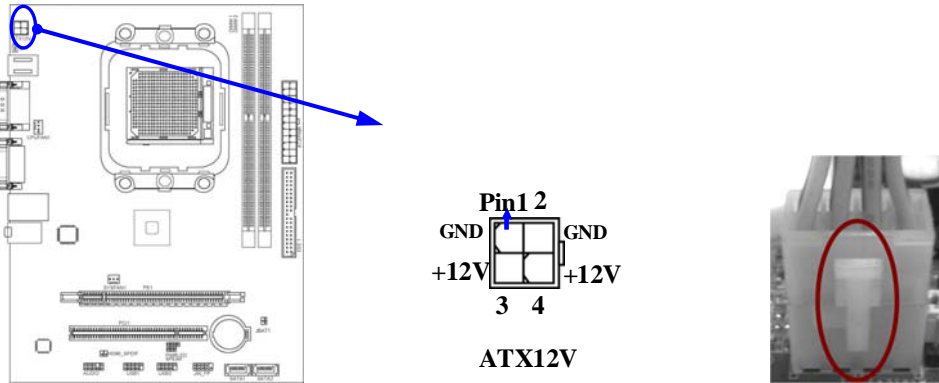


Figure2: 24-pin power plug

(2) ATX 12V Power Connector (4-pin block): ATX12V

This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully supports AMD AM3 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 is for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: ULI for USB

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

(5) LAN Port connector: UL1 for RJ-45 LAN

This connector is standard RJ-45 connector for Network. The LAN support 10M/100Mb data transfer rate.

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

This Connector is 3 phones Jack for LINE-OUT, LINE-IN, and MIC Audio connectors

Line-in: (BLUE)

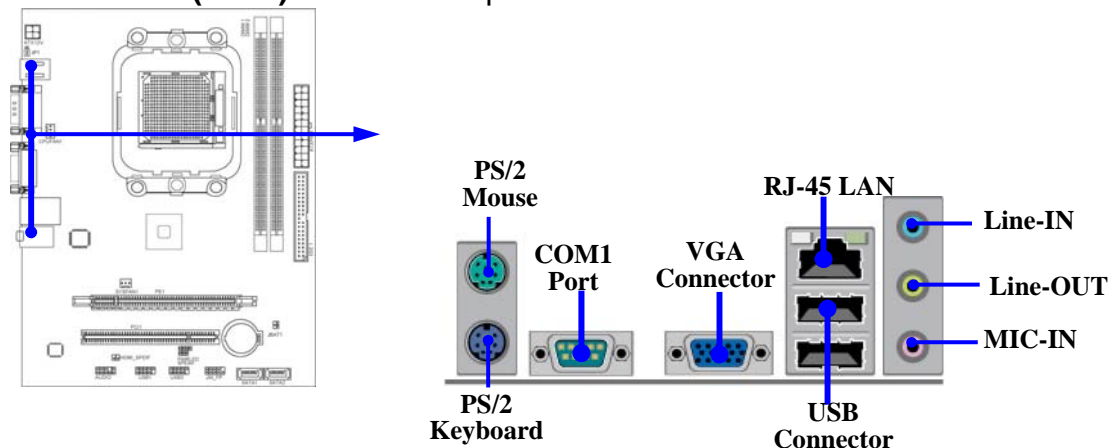
Audio input to sound chip

Line-out: (GREEN)

Audio output to speaker

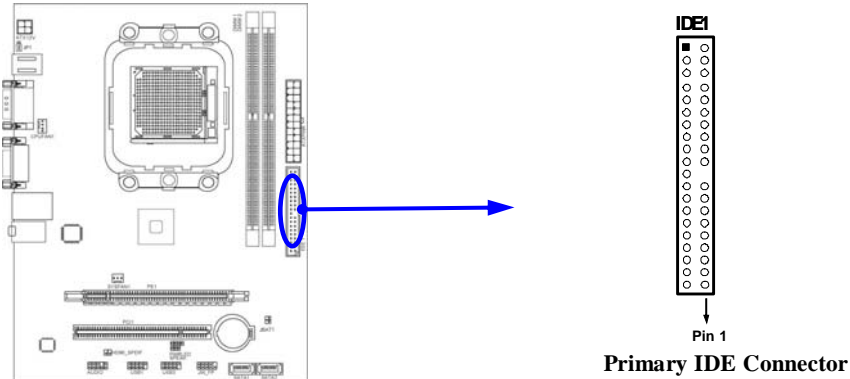
MIC: (PINK)

Microphone Connector



(7) Primary IDE Connector (40-pin block): IDE1

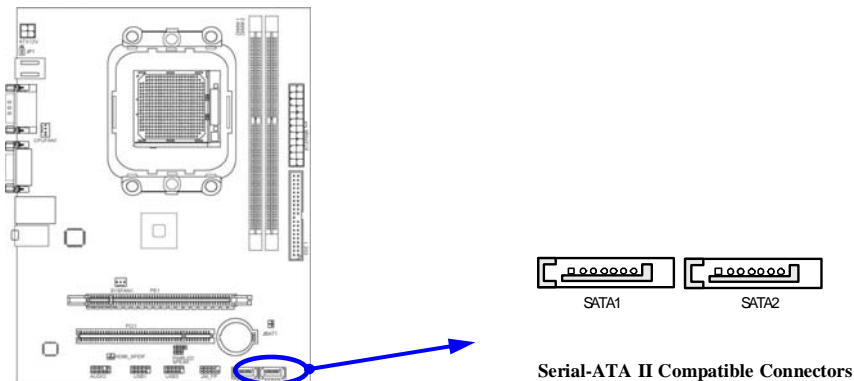
This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



- 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.

(8) Serial-ATA II Port connector: SATA1 / SATA2

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



(9) Serial COM Port: COM1

COM1 is the 9-pin block pin-header.

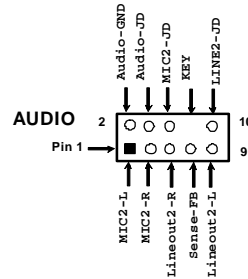
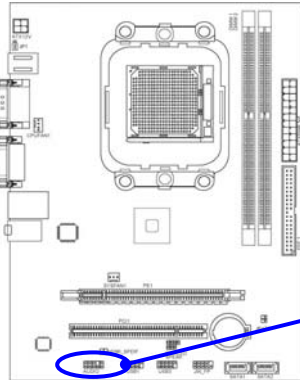
(10) D-Sub 15-pin Connector: VGA

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): AUDIO

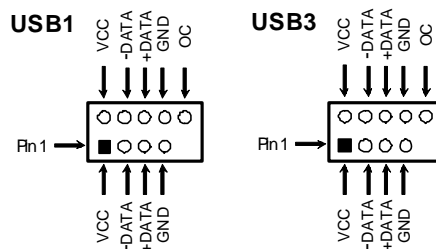
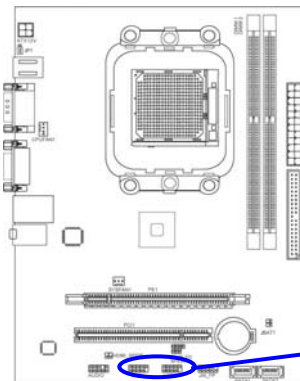
These headers connect to Front Panel Line-out, MIC connector with cable.



Line-Out, MIC Headers

(2) USB Port Headers (9-pin):USB1/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: SPEAK

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

(4) Power LED: PWR LED

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

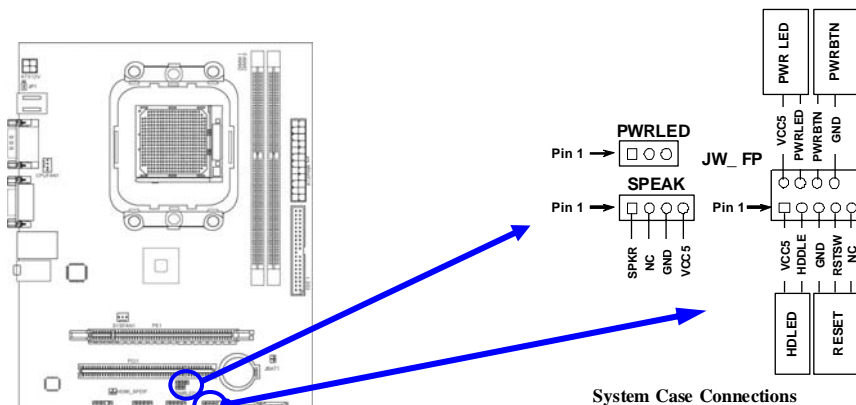
This connector connects to the hard disk activity indicator light on the case.

(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 life of the system's power supply. See the figure below.

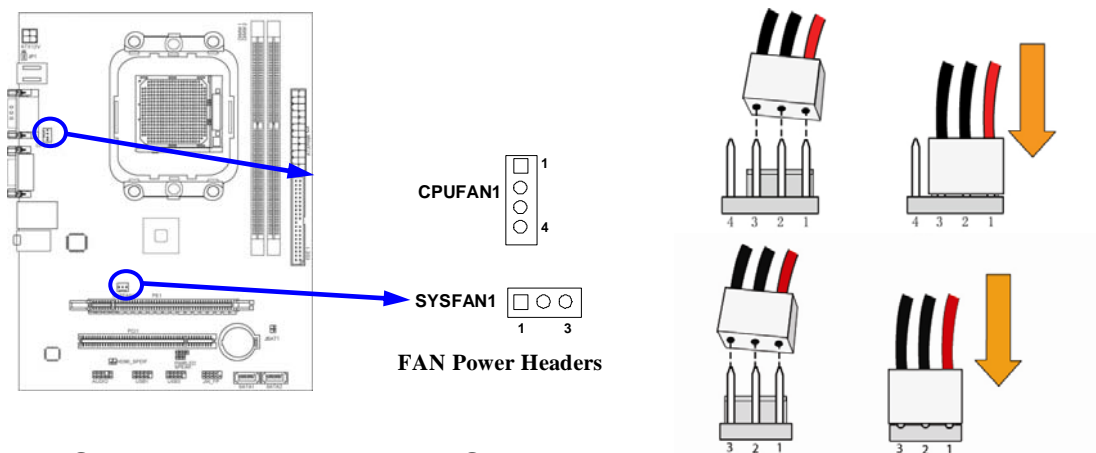
(7) Power switch: PWR BTN

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



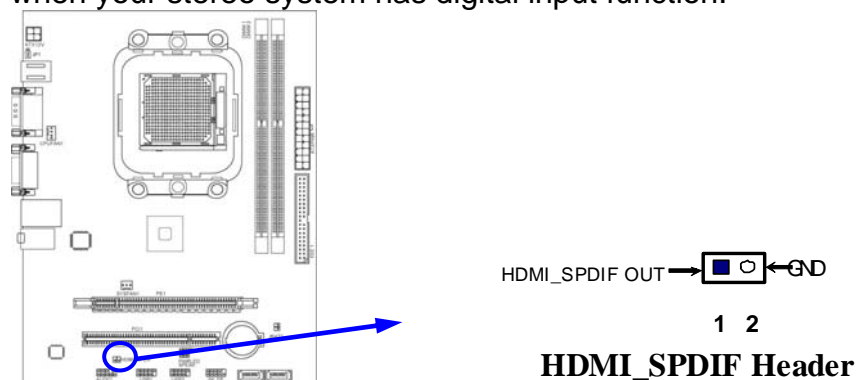
(8) FAN Power Headers: SYSFAN1 (3-pin), CPUFAN1 (4-pin)

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.



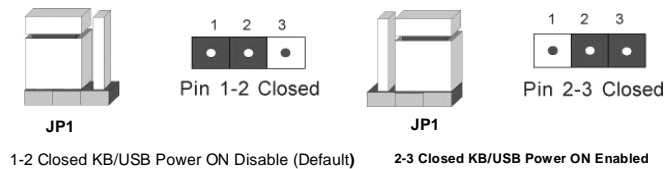
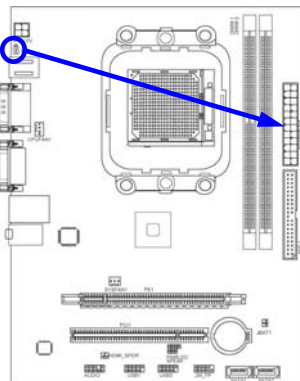
(9) HDMI-SPDIF Out header: HDMI_SPDIF

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.



3-3 Jumper Setting

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



Keyboard/ USB Power On Setting

(2) CMOS RAM Clear (2-pin): JBAT1

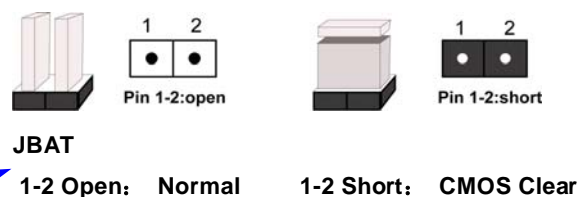
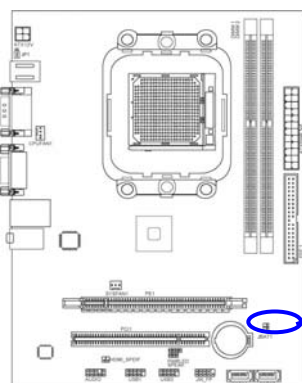
A battery must be used to retain the motherboard configuration in CMOS RAM, short 1-2 pins of JBAT to clear the CMOS data.

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 1-2 for a few seconds, if shorted with the jump cap, short for a few seconds then pull out the hat.
4. 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 Clear Setting

Chapter 4

Useful Help

4-1 How 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.** Download upgrade tools and the latest BIOS files of the motherboard from official website and then make a copy of it to your bootable floppy disk after decompressing these files
- Step 3.** Insert the disk into A: start your computer and then type in "A:\xxxxxx.BAT" (xxxxxxx being the file name of the latest BIOS)
- Step 4.** Type Enter to update and flash the BIOS. The system will restart automatically when BIOS is upgraded.

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.

Appendix I

Subject 1: Regarding the Application of 3-Phase or 3+1 Phase Power Supply Mold



As a result of the increasing power consumption demand from many AMD CPUs in current market, we suggest not to use a CPU that demands more than 65W power consumption at work for an AMD CPU compliant board that comes with power supply design as 3 phase or 3+1 phase mold and MOSFET design as working in High SideX1 and Low SideX1 mold so as to avoid MOSFET getting burned or other phenomena like a halted system or system instability. So please take notice of the CPU you are using and make sure that it is one that demand not more than 65 W to ensure long-term working order.

Note:

1. The relation between CPU Power Consumption Amount and Power Phase: depending on difference in voltage rating, one-phase of power can provide 25~30W to the motherboard.
2. 3- Phase Power Supply Mold: motherboard with 3 inductances for CPU power supply, and each inductance carries with it 2 MOSFET (6 MOSFETs in total) (Figure1); 3+1–Phase Power Supply Mold: motherboard with 4 inductances for CPU power supply, and each inductance carries with it 2 MOSFET (8 MOSFETs in total) (Figure2)

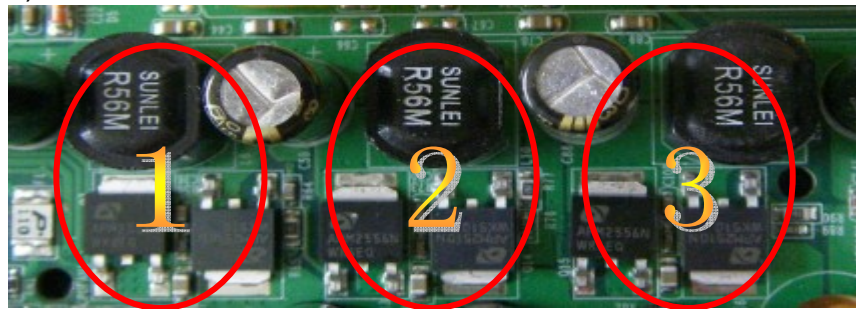


Figure 1

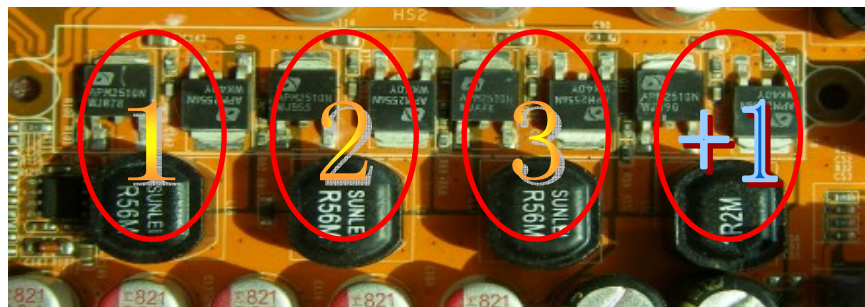


Figure 2

Solution:

We recommend users choose motherboards with power design of 4-phase, 4+1 phase or more for CPUs that demand 89W or 95W power consumption.

We recommend users choose motherboards with power design of 5-phase, 5+1 phase or more for CPUs that demand 125W or 140W power consumption.

Subject 2: Suggestion on choosing electric fan



Both the amount of electric current to MOSFET and the heat produced from the motherboard go up as AMD's CPU power consumption increases. In this case we recommend users select a CPU fan with air outlet towards MOSFET so that CPU fan can carry away heat produced by MOSFET, for better heat dissipation effects. At the same time we suggest using well-ventilated cases to maintain temperature as 38°C approximately inside. (38°C is recommended by CPU manufactures)

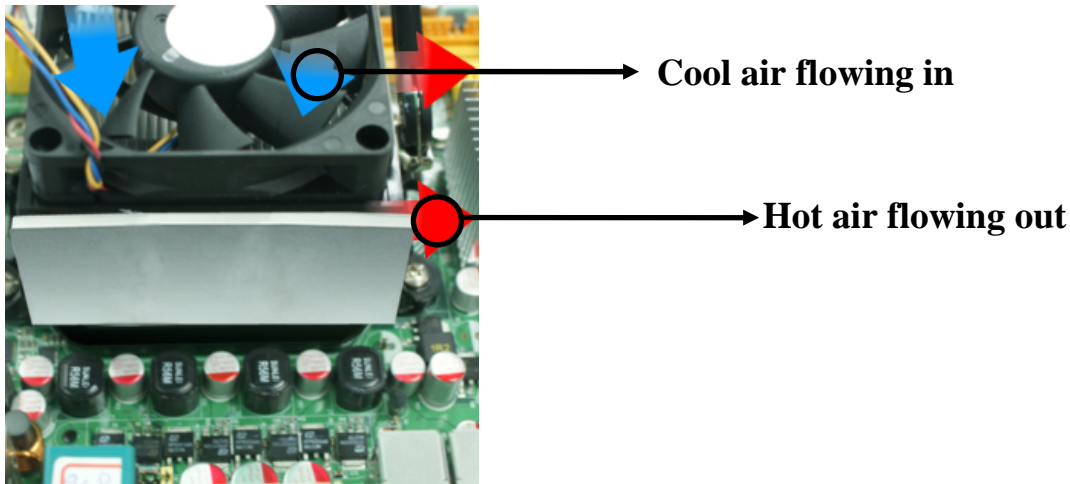


Figure 1---- CPU Fan can not blow off the heat produced by MOSFET. We suggest not to using fans of this kind

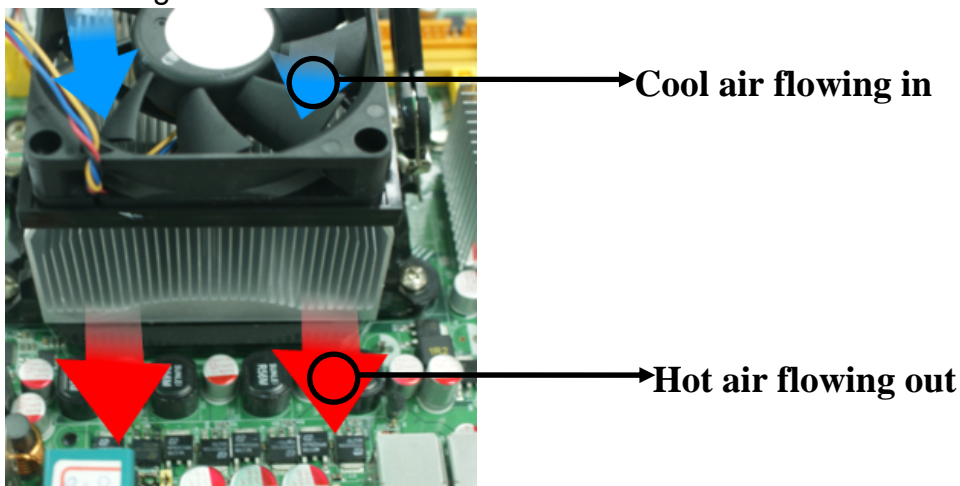


Figure 2---- CPU Fan can blow off the heat produced by MOSFET. We suggest using fans of this kind