AOpen
Solutions·Components

Easy Installation Guide

AK77-600GN

PS/2 Mouse Connector

SPP/EPP/ECP Parallel Port

RJ45 LAN Jack

USB Ports

Line-In

Speaker Out

MIC-In

PS/2 Keyboard Connector

COM 1 Port

COM 2 Port

USB Ports

Realtek LAN Chip

2Mb Flash ROM BIOS

Onboard AC'97 CODEC

GAME Port Connector

AUX-IN Connector

CD-IN Connector

Front Audio Connector

S/PDIF Connector

32-bit PCI Expansion Slots x5

Case Open Connector

IrDA Connector

USB 2.0 Connectors x2

STBY LED

JP14 CMOS Clear Jumper

SYSFAN2 Connector

FDD Connector

Front Panel Connector

ATA 66/100/133 IDE Connectors x2

SATA Connectorsx2

Wake On LAN Connector

Resetable Fuse

ATX Power Connector

JP28 Keyboard/Mouse Wakeup Jumper

3300 μ F Low ESR Capacitors

SYSFAN1 Connector

8X AGP slot

462-pin CPU Socket with Voltage and Frequency Auto-Detection that supports AMD™Athlon™ / Duron™ / and Athlon™XP (with CPU Overheat Protection circuit to Athlon™XP CPU only)

VIA® Apollo KT600 / VT8237 Chipsets

CPUFAN Connector

184-pin DIMMsx3 supports DDR 266/333/400 (Max to 3GB)

JP21 K7 Host Clock Select Jumper
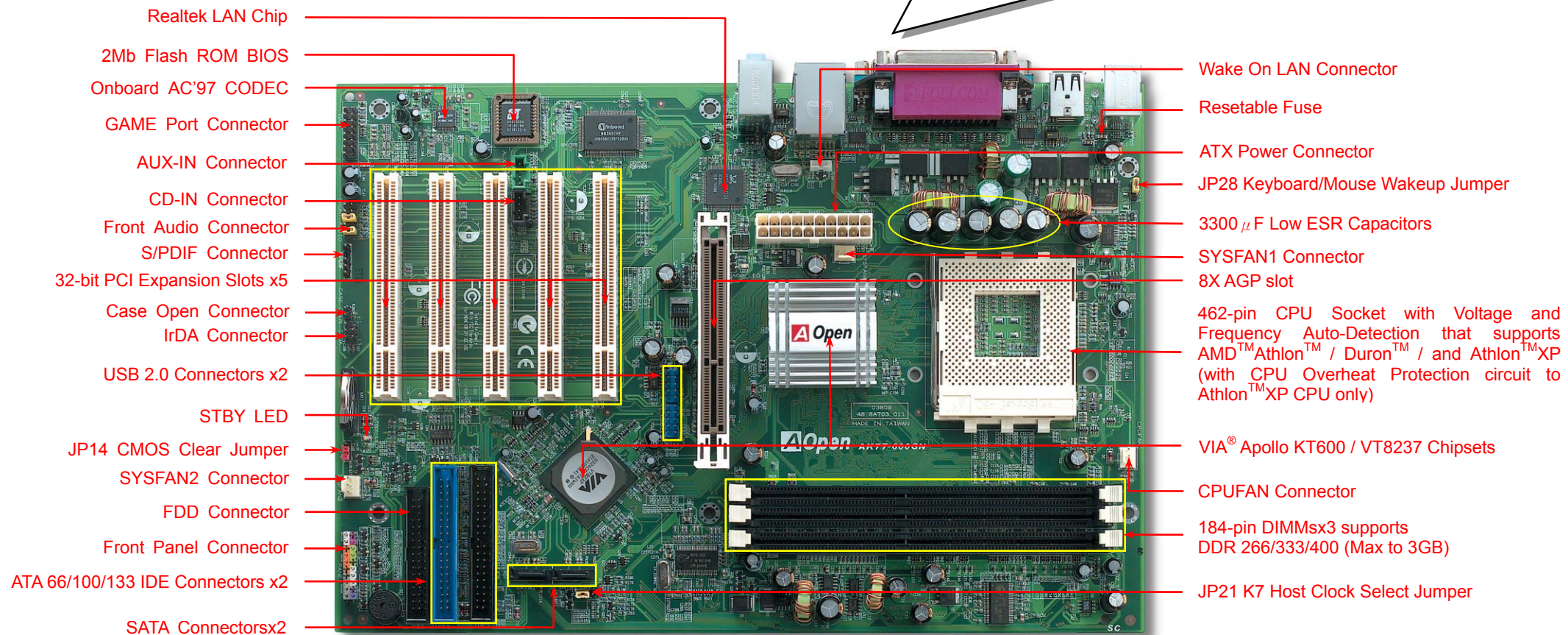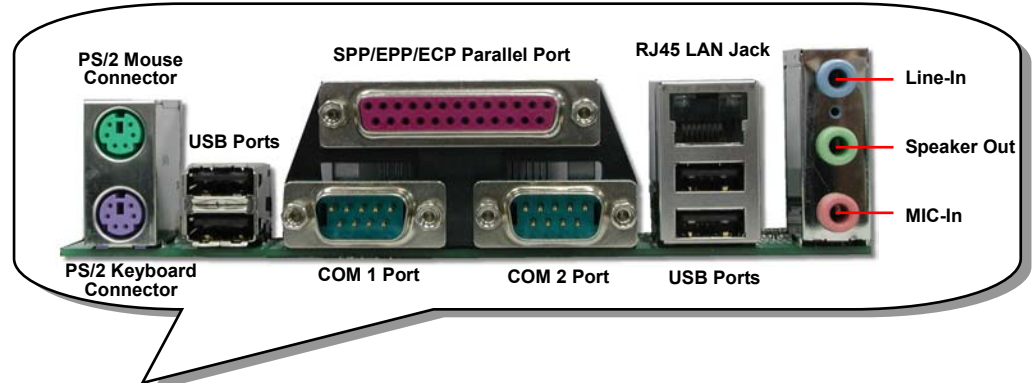
Before You Start

Everything you need to boot this motherboard is included in this Easy Installation Guide. For more information, a complete Online User's Manual can be found in the Bonus Pack CD Disc. Thanks for the help of saving our earth.

Accessory Checklist

- ✔ **Motherboard x1**
- ✔ **Easy Installation Guide x1**
- ✔ **80-wire IDE Cable x1**
- ✔ **Floppy Disk Drive Cable x1**
- ✔ **Serial ATA Cable x 1**
- ✔ **IO Shield x 1**
- ✔ **Bonus Pack CD x1**
- ✔ **VIA SATA RAID Driver Diskette x 1**

PART NO: 49.8A706.EE4

DOC. NO: AK77600GN-EG-E0312D

1. JP14 Clear CMOS

You can clear CMOS to restore system default setting. To clear the CMOS, follow the procedure below.

1. Turn off the system and unplug the AC power.
2. Remove ATX power cable from connector PWR2.
3. Locate JP14 and short pins 2-3 for a few seconds.
4. Return JP14 to its normal setting by shorting pin 1 & pin 2.
5. Connect ATX power cable back to connector PWR2.
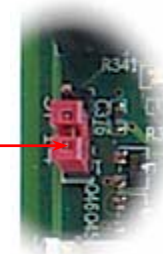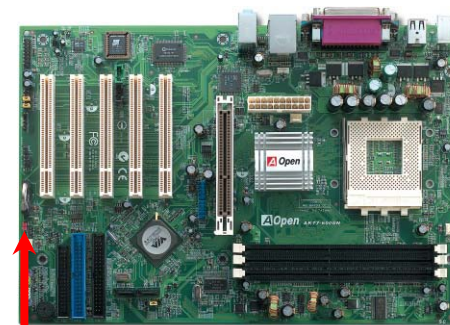
Pin 1

Normal (default)   Clear CMOS

Tip: *When should I Clear CMOS?*

1. *Boot fails because of overclocking…*
2. *Forget password…*
3. *Troubleshooting…*

2. JP28 Keyboard/Mouse Wake-up Enable/Disable Jumper

This motherboard provides keyboard / mouse wake-up function. You can use JP28 to enable or disable this function, which could resume your system from suspend mode with keyboard or mouse installed. The factory default setting is set to "Disable" (1-2), and you may enable this function by setting the jumper to 2-3.
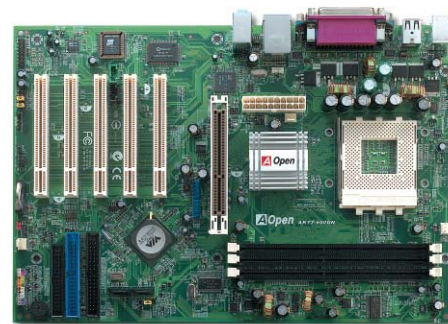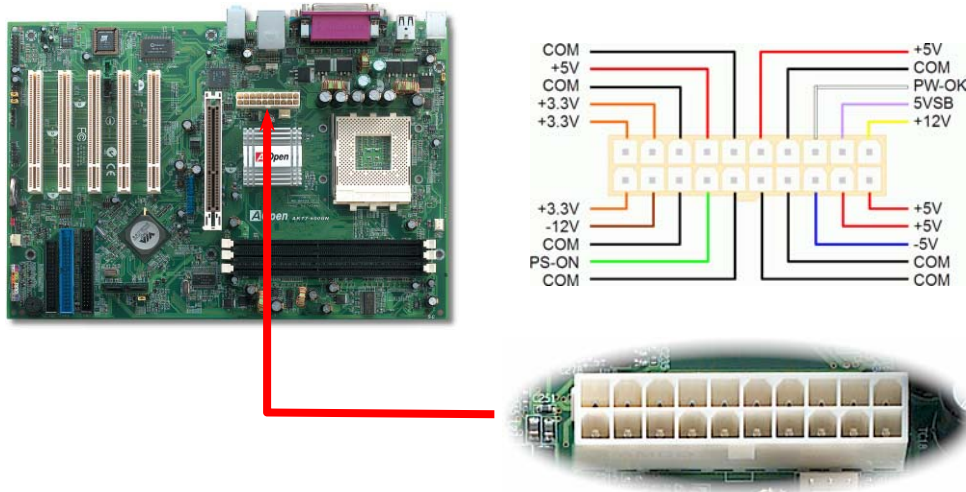
Pin 1

JP28
KB/Mouse Wake-up

Disable (Default)   Enable

3. Connecting ATX Power Connector

The ATX power supply uses a 20-pin connector shown below. Make sure you plug in the right direction.

COM	+5V
+5V	COM
COM	PW-OK
+3.3V	5VSB
+3.3V	+12V
+3.3V	+5V
-12V	+5V
COM	-5V
PS-ON	COM
COM	COM

4. Installing CPU & System Fan

Plug in the CPU fan cable to the 3-pin **CPUFAN** connector. If you have chassis fan, you can also plug it on **SYSFAN1** or **SYSFAN2** connector.

SYSFAN1 Connector

GND
+12V
SENSOR

CPUFAN Connector

GND
+12V
SENSOR

SYSFAN2 Connector

GND
+12V
SENSOR
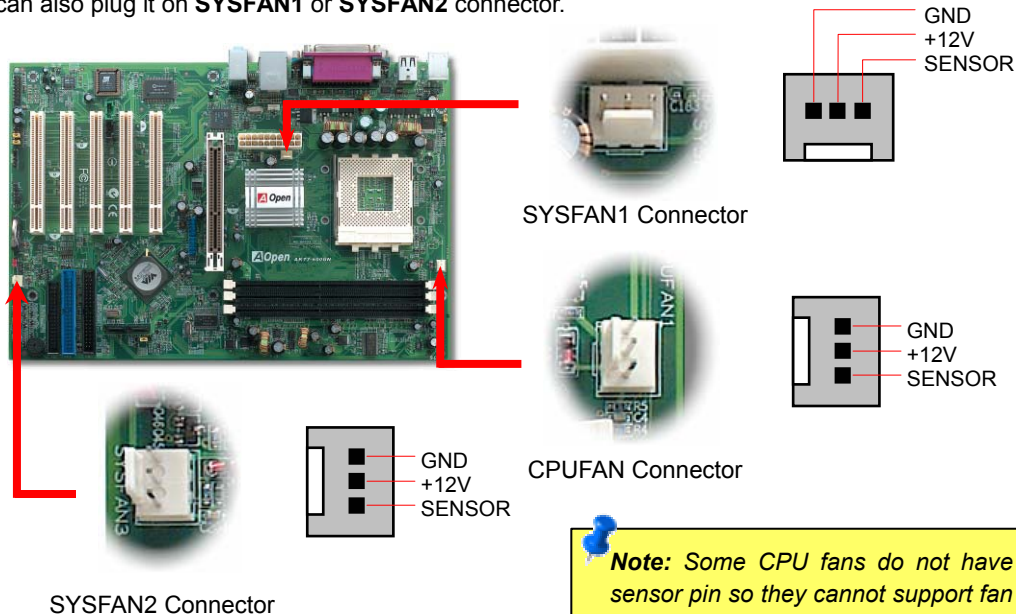
Note: Some CPU fans do not have sensor pin so they cannot support fan monitoring.

5. Setting CPU Voltage & Frequency

CPU Core Voltage Auto Detectable
This motherboard supports CPU VID function. The CPU core voltage will be automatically detected and it is not necessary to set CPU Core Voltage.

Setting CPU Frequency
This motherboard is CPU jumper-less design, you can set CPU frequency through the BIOS setup, and no jumpers or switches are needed.

BIOS Setup > Frequency / Voltage Control > CPU Bus Frequency

*Core Frequency = CPU FSB Clock * CPU Ratio*

CPU Ratio	From 5.0x to 18x step 0.5x
CPU FSB	100-248MHz

CPU	CPU Core Frequency	EV6 Bus Clock	Ratio
Athlon 1.33G	1.33GHz	266MHz	10.0x
Athlon 1.4G	1.4GHz	266MHz	10.5x
AthlonXP 1500+	1.3GHz	266MHz	10.0x
AthlonXP 1600+	1.4GHz	266MHz	10.5x
AthlonXP 1700+	1.46GHz	266MHz	11.0x
AthlonXP 1800+	1.53GHz	266MHz	11.5x
AthlonXP 1900+	1.6GHz	266MHz	12.0x
AthlonXP 2000+	1.667GHz	266MHz	12.5x
AthlonXP 2100+	1.73GHz	266MHz	13x
AthlonXP 2200+	1.80GHz	266MHz	13.5x
AthlonXP 2400+	2.0GHz	266MHz	15x
AthlonXP2500+ (Barton)	1.833GHz	333MHz	11x
AthlonXP 2600+	2.13GHz	266MHz	16x
AthlonXP 2600+	2.08GHz	333MHz	12.5x
AthlonXP 2700+	2.16GHz	333MHz	13x
AthlonXP 2600+ (Barton)	1.917GHz	333MHz	11.5x
AthlonXP 2800+ (Barton)	2.083GHz	333MHz	12.5x
AthlonXP 3000+ (Barton)	2.167GHz	333MHz	13x
AthlonXP 3000+ (Barton)	2.100GHz	400MHz	10.5x
AthlonXP 3200+ (Barton)	2.2GHz	400MHz	11x

Note: With CPU speed changing rapidly, there might be fastest CPU on the market by the time you received this installation guide. This table is kindly for your references only.

Tip: If your system hangs or fails to boot because of overclocking, simply use <Home> key to restore the default setting or you can wait till the AOpen "Watch Dog ABS" reset the system in five seconds and system will auto-detect hardware again.

Warning: Supposed you have had adjusted CPU ratio on your current CPU, and you plan to replace it with a new CPU. Please use <Home> key or Clear CMOS to restore the default setting after reinstalling a new CPU.

Note: VIA® Apollo KT600 chipset supports 266/333/400MHz FSB with performance reaches maximum 400MHz EV6 system bus and supports 66MHz AGP clock, higher clock setting may cause serious system damage.
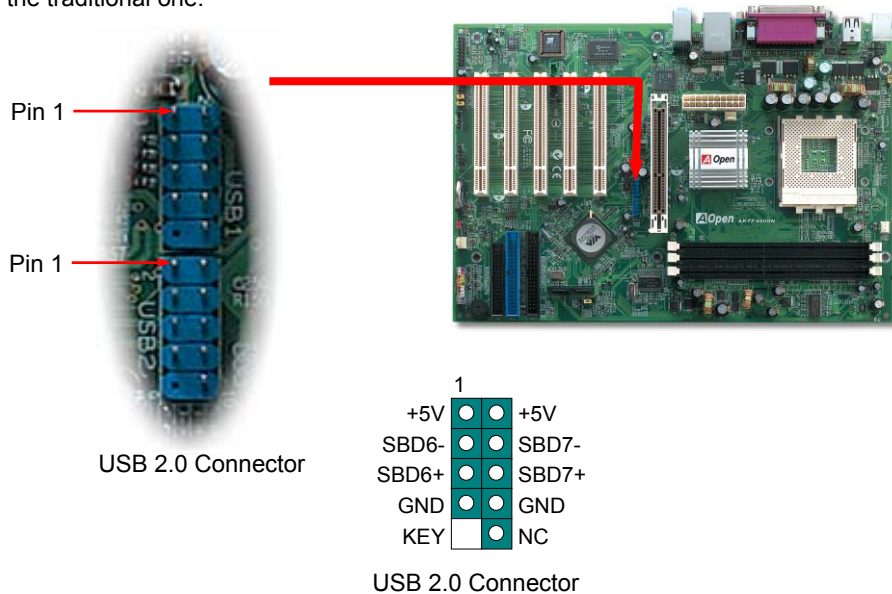
6. JP21 K7 Host Clock Selection

This jumper is used to specify the relationship of PCI and FSB clock. Generally speaking, if you are not an over-clocker, we recommend you to set it to the default setting. Additionally, this motherboard also provides "**1MHz Stepping Adjustment**" feature for overclockers to adjust CPU FSB frequency via BIOS setup program. If you fix the CPU FSB frequency by JP21, the "1MHz Stepping Adjustment" range will be changed according to what type of CPU you use.

Pin 1

JP21 K7 Host Clock
Select Jumper

1

Auto detect
(default)
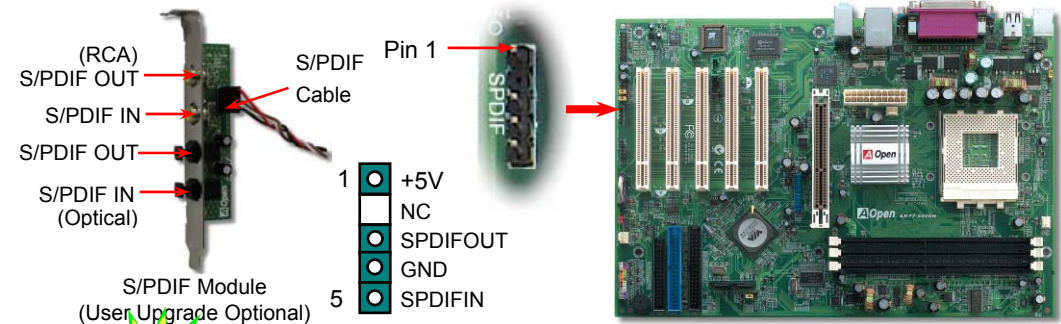
1

100MHz
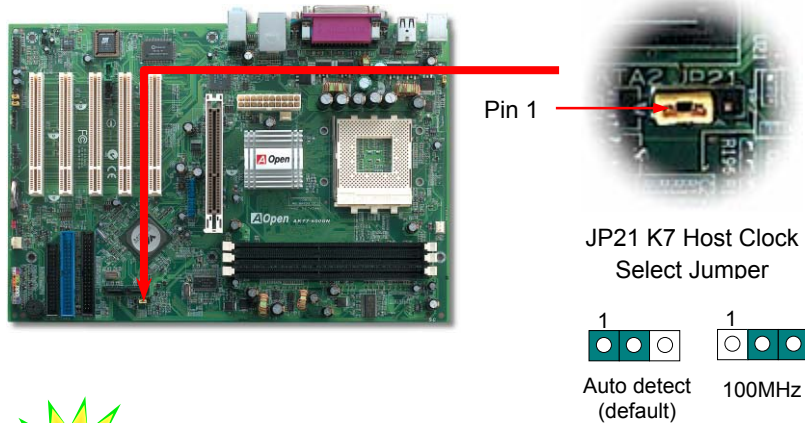
7. Support Eight USB 2.0 Ports

This motherboard provides eight USB 2.0 ports. Compared to traditional USB 1.0/1.1 with the speed of 12Mbps, USB 2.0 has a fancy speed up to 480Mbps, which is 40 times faster than the traditional one.

Pin 1

Pin 1

USB 2.0 Connector

1

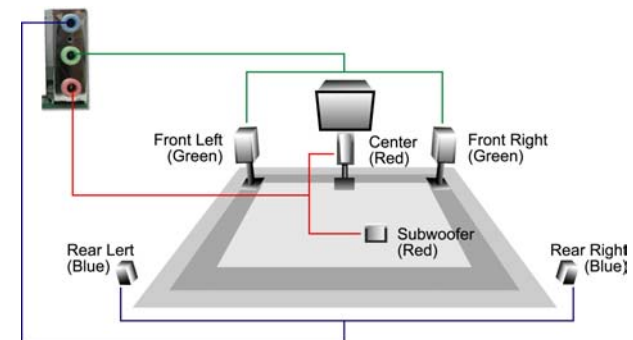| +5V | +5V |
SBD6-	SBD7-
SBD6+	SBD7+
GND	GND
KEY	NC

USB 2.0 Connector

8. S/PDIF Connector

NEW!

S/PDIF (Sony/Philips Digital Interface) is a newest audio transfer file format, which provides impressive audio quality through optical fiber and allows you to enjoy digital audio instead of analog audio. Through a specific audio cable, you can connect the S/PDIF connector to other end of the S/PDIF audio module, which bears S/PDIF digital output. Normally there are two S/PDIF outputs as shown, one for RCA connector, the most common one used for consumer audio products, and the other for optical connector with better audio quality. Same as outputs, you can also connect RCA or optical audio products to input connectors on the module and have the voice or music come out from your computer. However, you must have a S/PDIF supported speaker/amplifier/decoder with S/PDIF digital input/output to connect to the S/PDIF digital input/output to make the most out of this function.

(RCA)
S/PDIF OUT
S/PDIF IN
S/PDIF OUT
S/PDIF IN
(Optical)

S/PDIF
Cable

Pin 1

S/PDIF Module
(User Upgrade Optional)

1 +5V
   NC
   SPDIFOUT
   GND
5 SPDIFIN

9. Super 5.1 Channel Audio Effects

NEW!

This motherboard comes with an ALC650F CODEC, which supports high quality of 5.1 Channel audio effects, bringing you a brand new audio experience. On the strength of the innovative design of ALC650F, you're able to use standard line-jacks for surround audio output without connecting any external module. To apply this function, you have to install the audio driver in the Bonus Pack CD as well as an audio application supporting 5.1 Channel. Picture bellow represents the standard location of all speakers in 5.1Channel sound track. Please connect the plug of your front speakers to the green "Speaker out" port, rear speakers' plug to the blue "Line in" port and both of the center and subwoofer speakers to the red "MIC in" port.

Front Left
(Green)

Center
(Red)

Front Right
(Green)

Subwoofer
(Red)

Rear Lert
(Blue)

Rear Right
(Blue)

10. Connecting Front Panel Cable

1		
	○ ○	Power Switch
	○ ○	
IDE LED	○ ○	ACPI & Power LED
	○ ○	
	○ ○	
	○ ○	
SPEAKER	○ ○	
	○ ○	RESET

	1		
NC	○ ○	SPWR
NC	○ ○	GND
+5V	○ ○	ACPILED-
IDE LED	○ ○	GND
IDE LED	○ ○	ACPILED+
+5V	○ ○	NC
+5V	○ ○	NC
GND	○ ○	GND
NC	○ ○	RESET
SPEAKER	○ ○	GND
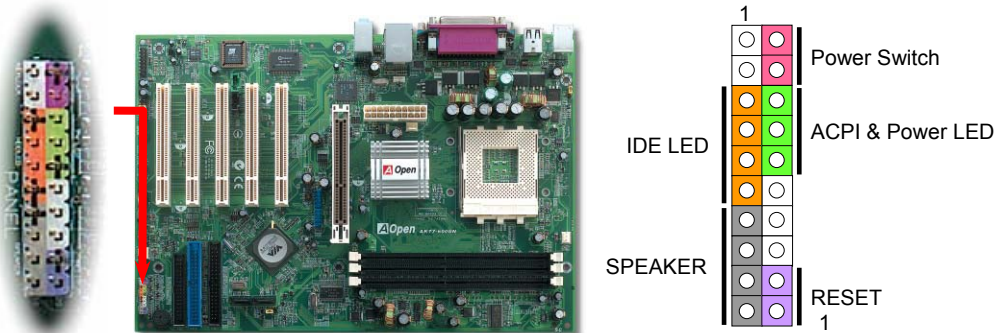
Attach the power LED, speaker, and reset switch connectors to the corresponding pins. If you enable "Suspend Mode" item in BIOS Setup, the ACPI & Power LED will keep flashing while the system is in suspend mode.

Locate the power switch cable from your ATX housing. It is 2-pin female connector from the housing front panel. Plug this connector to the soft-power switch connector marked **SPWR**.

11. Connecting Serial ATA Disk

To connect a Serial ATA disk, you have to have a 7-pin serial ATA cable. Connect two ends of the serial ATA cable to the serial ATA header on the motherboard and the disk. Like every other traditional disk, you also have to connect a power cable.   Please be noted that it is a jumper free implement; you don't need to set jumpers to define a master or slave disk.   When connecting two serial ATA disks, the system will automatically take the one connected to "Serial ATA 1" header as a master disk.
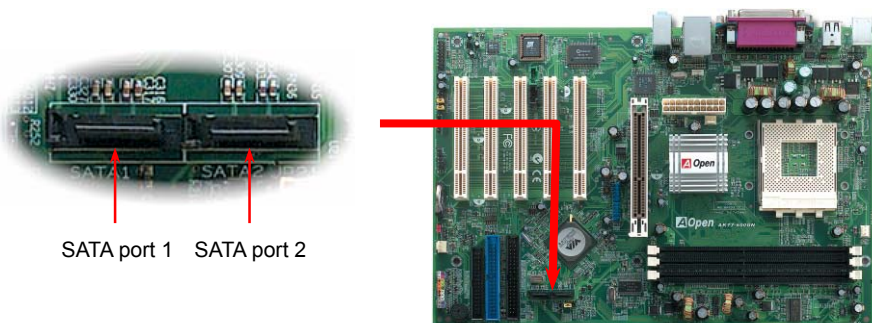
SATA port 1   SATA port 2

12. Front Audio Connector

If the housing has been designed with an audio port on the front panel, you'll be able to connect onboard audio to front panel through this connector. By the way, please remove 5-6 and 9-10 jumper caps from the Front Audio Connector before connecting the cable. Please do not remove these 5-6 and 9-10 yellow jumper caps if there's no audio port on the front panel.

Pin 1 →
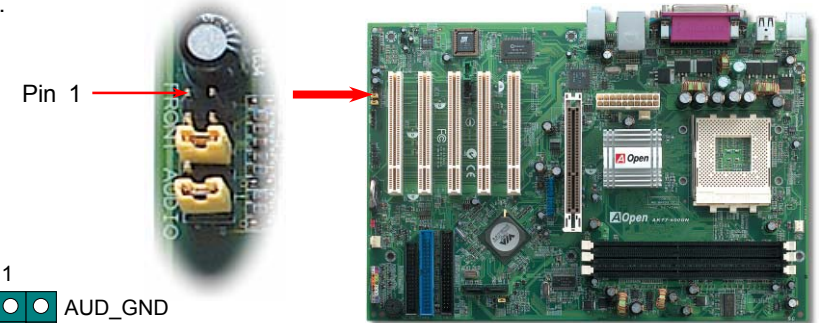
	1		
AUD_MIC	○ ○	AUD_GND
AUD_MIC_BIAS	○ ○	AUD_VCC
AUD_FPOUT_R	○ ○	AUD_RET_R
NC	○	KEY
AUD_FPOUT_L	○ ○	AUD_RET_L

Front Audio Connector

13. Support 10/100 Mbps LAN onboard

On the strength of Realtek 8101L LAN controller on board, this motherboard provides 10/100 Mbps Ethernet for office and home use. The Ethernet RJ45 connector is located on top of USB connectors. The orange LED indicates the link mode, it lights when linking to network. The green LED indicates the transfer mode and it lights when data is transferring in 100 Mbps. To enable or disable this function, you may simply adjust it through BIOS.
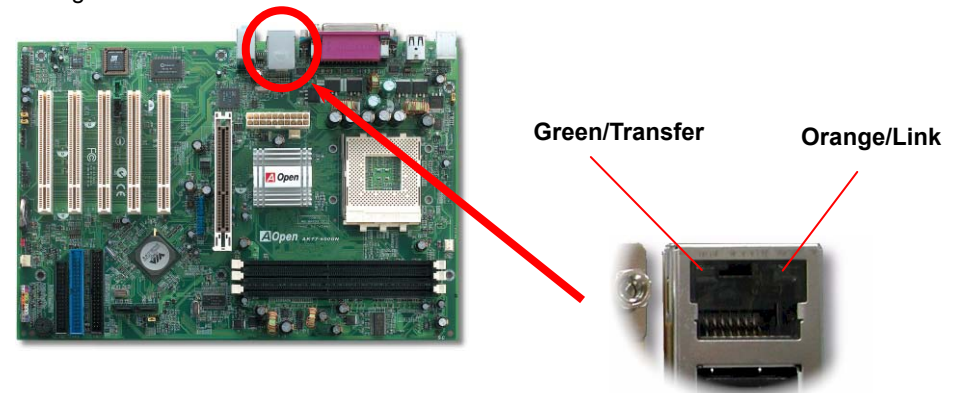
Green/Transfer   **Orange/Link**

14. AOpen Bonus Pack CD

You can use the autorun menu of Bonus CD disc. Choose the utility and driver and select model name.

16. Installing VIA 4 in 1 Driver

You can install the VIA 4 in 1 driver (IDE Bus master (For Windows NT use), VIA ATAPI Vendor Support Driver, VIA AGP, IRQ Routing Driver (For Windows 98 use), VIA Registry (INF) Driver) from the Bonus Pack CD disc auto-run menu.

Warning: To take advantage of ATA133, it is a must to install the latest version of VIA 4in1 driver in the Bonus CD.

For Windows2000, it cannot support ATA133 even after installing the latest version of VIA 4-in-1 driver until the new release of Service-Pack 3 from Microsoft.

15. Power-on and Load BIOS Setup

After you finish the setting of jumpers and connect correct cables. Power on and enter the BIOS Setup, press <Del> during POST (Power On Self Test). Choose "Load Setup Defaults" for recommended optimal performance.
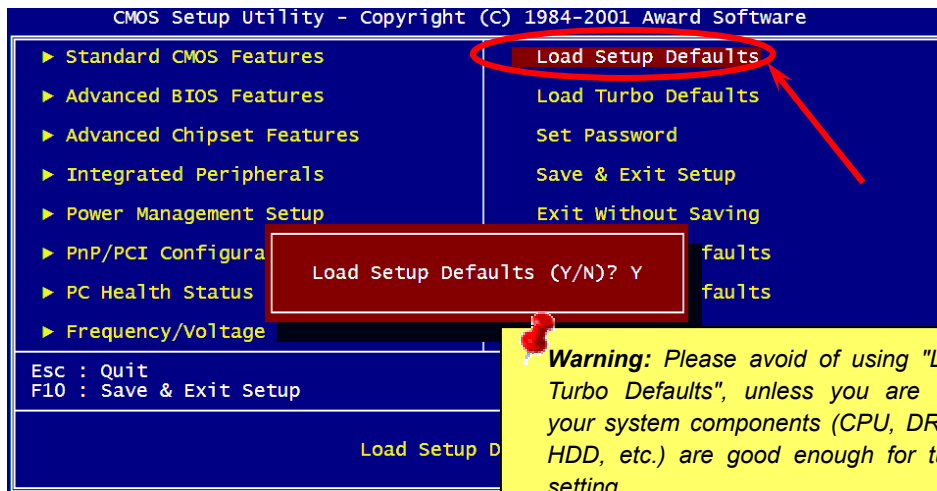
Warning: Please avoid of using "Load Turbo Defaults", unless you are sure your system components (CPU, DRAM, HDD, etc.) are good enough for turbo setting.

NEW! 17. BIOS Upgrade under Windows Environment

You may accomplish BIOS upgrade procedure with EzWinFlash by the following steps, and it's STRONGLY RECOMMENDED to close all the applications before you start the upgrading.

1. Download the new version of BIOS package zip file from AOpen official web site. (ex: http://english.aopen.com.tw)
2. Unzip the download BIOS package (ex: WAK77600GN102.ZIP) with WinZip (http://www.winzip.com) in Windows environment.
3. Save the unzipped files into a folder, for example, WAK77600GN102.EXE & WAK77600GN102.BIN.
4. Double click on the WAK77600GN102.EXE; EzWinFlash will detect the model name and BIOS version of your motherboard. If you had got the wrong BIOS, you will not be allowed to proceed with the flash steps.
5. You may select preferred language in the main menu, then click [Start Flash] to start the BIOS upgrade procedure.
6. EzWinFlash will complete all the process automatically, and a dialogue box will pop up to ask you to restart Windows. You may click [YES] to reboot Windows.
7. Press <Del> at POST to enter BIOS setup, choose "Load Setup Defaults", then "Save & Exit Setup". Done!

Warning: The upgrade of new BIOS will permanently replace your original BIOS content after flashing. The original BIOS setting and system PnP information will be refreshed and you probably need to re-configure your system.

Troubleshooting

If you encounter any trouble to boot you system, follow the procedures accordingly to resolve the problem.

```
                          Start

Turn off the power and unplug the AC power cable, then remove all
of the addon cards and cables, including VGA, IDE, FDD, COM1,
COM2 and Printer.

Make sure if the jumper settings for CPU and DRAMs are correct.

Clear CMOS, then plug the ATX power cord correctly.
(For P4 system, please also plug the 4pin(+12V) cord.)

Install the VGA card. Then connect your monitor and keyboard.

Turn on the power, and check if        No    The problem was probably caused
the power supply and CPU fan    ──────────►  by power supply or motherboard
work properly.                                failure. Please contact your reseller
                                              or local distributor for repairing.
         │ Yes

Check if there is display.               No    Perhaps your VGA card or monitor
                                ──────────►  is defective.
         │ Yes

Press Ctrl, and Alt key at the           No    It is very possible that your keyboard
same time, hold them and then   ──────────►  is defective.
press Del to see if the
system reboots.
         │ Yes

During system rebooting, press Del to enter BIOS Setup. Choose
"Load Setup Default".

Turn off the system and                  No    The problem should be caused by the
re-connect the IDE cable.       ──────────►  IDE cables or HDD itself.
Check if the system can
reboot successfully.
         │ Yes

Re-install Windows 95, Windows 98 or Windows NT.

                          End
```

Part Number and Serial Number

The Part Number and Serial number are printed on bar code label. You can find this bar code label on the outside packing, or on component side of PCB. For example:

P/N:91.88110.201   S/N:91949378KN73

Part No.   Serial No.

9188110201 91949378KN73

Part No.   Serial No.
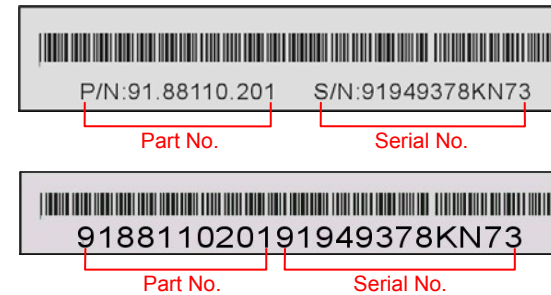
P/N: 91.88110.201 is part number, **S/N: 91949378KN73** is serial number.

Model name and BIOS version

Model name and BIOS version can be found on upper left corner of first boot screen (POST screen). For example:

AK77-600GN R1.00 Aug. 01. 2003 AOpen Inc.

Award Plug and Play BIOS Extension v1.0A

Copyright © 2003, Award Software, Inc.

AK77-600GN is model name of motherboard; **R1.00** is BIOS version

Technical Support

Dear Customer,

Thanks for choosing AOpen products. To provide the best and fastest service to our customer is our first priority. However, we receive numerous emails and phone-calls worldwide everyday; it is very hard for us to serve everyone on time. We recommend you to follow the procedures below and seek help before contacting us. With your help, we can then continue to provide the best quality service to more customers.

Thanks very much for your understanding!

AOpen Technical Supporting Team

Pacific Rim AOpen Inc. Tel: 886-2-3789-5888 Fax: 886-2-3789-5899	Europe AOpen Computer b.v. Tel: 31-73-645-9516 Email: Support@AOpen.NL
China 艾爾鵬國際貿易(上海)有限公司 Tel: 86-21-6225-8622 Fax: 86-21-6225-7926	America AOpen America Inc. Tel: 1-408-232-1200 Fax: 1-408-232-1280
Germany AOpen Computer GmbH. Tel: 49-2131-1243-710 Fax: 49-2131-1243-999	Japan AOpen Japan Inc. Tel: 81-048-290-1800 Fax: 81-048-290-1820

Web Site: *http://www.aopen.com.tw*

E-mail: Send us email by going through the contact form below.

English	*http://english.aopen.com.tw/tech/default.htm*
Japanese	*http://www.aopen.co.jp/tech/default.htm*
Chinese	*http://www.aopen.com.tw/tech/default.htm*
German	*http://www.aopencom.de/tech/default.htm*
Simplified Chinese	*http://www.aopen.com.cn/tech/default.htm*

1 **Online Manual:** To download manual, please log on and then select your preferred language. Under "Type" directory, choose "Manuals" to go to our manual database. You can also find the manual and EIG in AOpen Bonus Pack.
http://download.aopen.com.tw/downloads

2 **Test Report:** We recommend you to choose board/card/device from the compatibility test reports for assembling your PC. It may prevent incompatibility problems.
http://english.aopen.com.tw/tech/report/default.htm

3 **FAQ:** Here we list problems that users often encounter and FAQ (Frequently Asked Questions). You may select your preferred language after log on, and may be able to find a solution to your problem.
http://club.aopen.com.tw/faq/

4 **Download Software:** After log on and having language selected, you may get the latest updated BIOS/utility and drivers you need under "Type" directory. In most case, newer versions of drivers and BIOS have solved earlier bugs or compatibility problems.
http://download.aopen.com.tw/downloads

5 **eForum:** AOpen eForum is provided to discuss our products with other users, in which your problem probably had been discussed before or will be answered. After log on, you may select your preferred language under "Multi-language".
http://club.aopen.com.tw/forum/

6 **Contact Distributors/Resellers:** We sell our products through resellers and integrators. They should know your system configuration very well and should be able to solve your problem efficiently and provide important reference for you.

7 **Contact Us**: Please prepare detail system configuration and error symptom before contacting us. The **part number**, **serial number** and **BIOS version** are also very helpful.