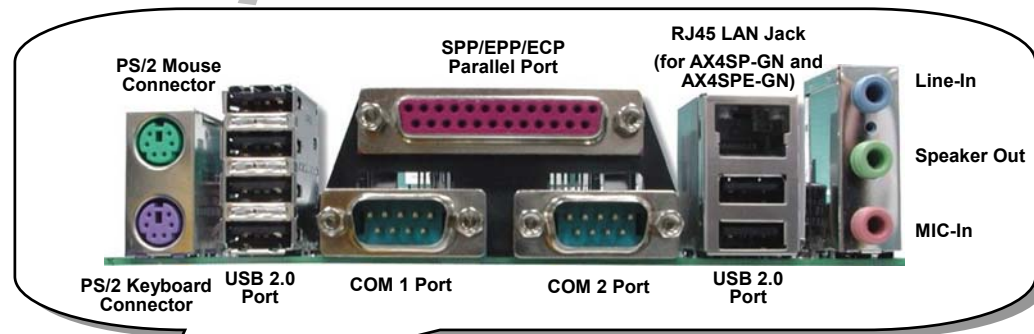


# AX4SP-G AX4SP-GN AX4SPE-G AX4SPE-GN

## Easy Installation Guide



Realtek 8101L LAN Chip  
(AX4SP-GN and AX4SPE-GN)

GAME Port Connector

2Mb Flash ROM BIOS

Onboard AC'97 CODEC

Front Audio Connector

AUX-IN Connector

CD-IN Connector

IrDA Connector

SYSFAN3 Connector

Case Open Connector

32-bit PCI Expansion Slot x5

FDD Connector

USB 2.0 Connector

STBY LED

JP14 CMOS Clear Jumper

Serial ATA Ports x2

Front Panel Connector

SYSFAN2 Connector

JP22 FSB OverClocking Jumper

Resetable Fuse

JP28 Keyboard/Mouse Wakeup  
Enable/Disable Jumper

ATX Power Connector

3300  $\mu$  F Low ESR Capacitors

4-pin 12V. ATX Power Connector

8X AGP slot

478-pin CPU socket with Voltage and  
Frequency Auto-detection that supports Intel®  
Pentium4 1.6~3.20GHz+ CPU (Northwood)

Intel® 865-P chipsets (AX4SP-G and  
AX4SP-GN)

Intel® 865-PE chipsets (AX4SPE-G and  
AX4SPE-GN)

CPUFAN1 Connector

184-pin DIMMx2 supports Dual Channel  
DDR 266/333/400 (Max to 2GB)  
(only AX4SPE-G and AX4SPE-GN support  
DDR 266/333/400)

ATA33/66/100 IDE Connectors x2

# 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
- ✓ EzRestore Guide x 1
- ✓ 80-wire IDE Cable x1
- ✓ Floppy Disk Drive Cable x1
- ✓ Serial ATA Cable x 1
- ✓ IO Shield x 1
- ✓ Bonus Pack CD x1



PART NO: 49.8AT21.E02

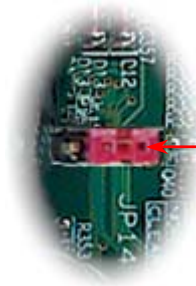


DOC. NO: AX4SPEGN-EG-E0307B

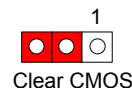
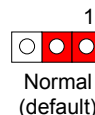
## 1. JP14 Clear CMOS

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



**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)

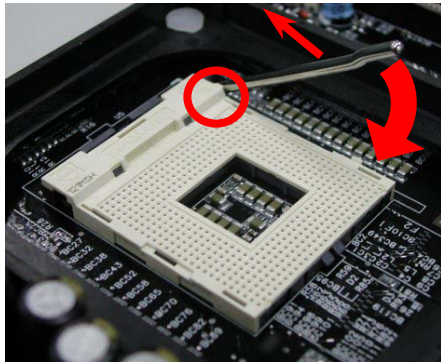


Enable



### 3. Installing Processor

This socket supports Micro-FC-PGA2 package CPU, which is the latest CPU package developed by Intel. Other forms of CPU package are impossible to be fitted in.

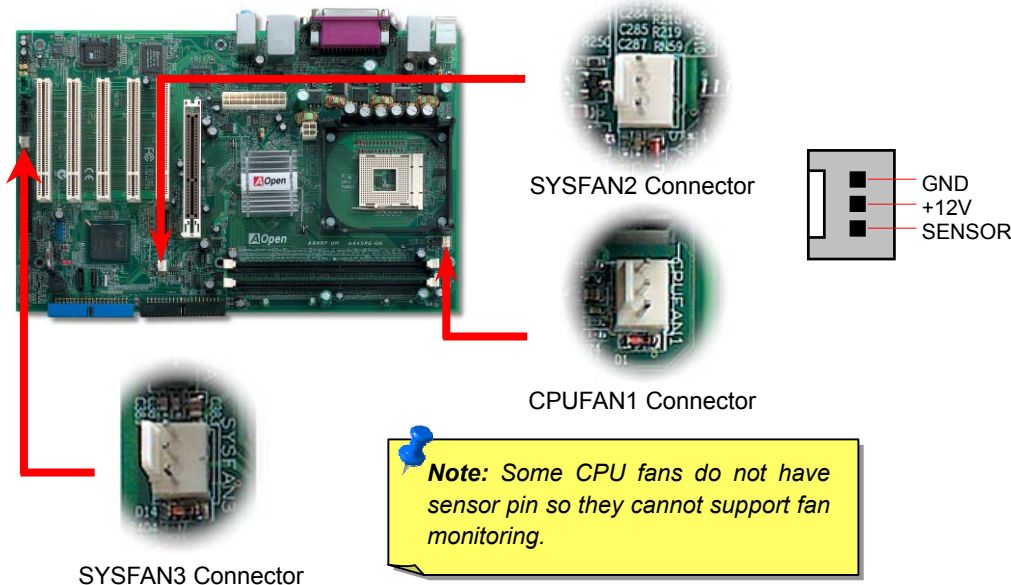


1. Pull up the CPU socket lever and up to 90-degree angle.
2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper interface. Match Pin 1 and cut edge. Then insert the CPU into the socket.
3. Press down the CPU socket lever and finish CPU installation.

**Note:** If you do not match the CPU socket Pin 1 and CPU cut edge well, you may damage the CPU.

### 4. Installing CPU & System Fan

Plug in the CPU fan cable to the 3-pin **CPUFAN1** connector. If you have chassis fan, you can also plug it on **SYSFAN2** or **SYSFAN3** connector.



**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	8x, 9x, 10x... 21x, 22x, 23x, 24x
CPU FSB	100-400MHz

Northwood CPU	CPU Core Frequency	FSB Clock	System Bus	Ratio
Pentium 4 2.0G	2000MHz	100MHz	400MHz	20x
Pentium 4 2.2G	2200MHz	100MHz	400MHz	22x
Pentium 4 2.26G	2260MHz	133MHz	533MHz	17x
Pentium 4 2.4G	2400MHz	100MHz	400MHz	24x
Pentium 4 2.4G	2400MHz	133MHz	533MHz	18x
Pentium 4 2.53G	2530MHz	133MHz	533MHz	19x
Pentium 4 2.6G	2600MHz	200MHz	800MHz	13X
Pentium 4 2.66G	2660MHz	133MHz	533MHz	20x
Pentium 4 2.80G	2800MHz	133MHz	533MHz	21x
Pentium 4 2.80G	2800MHz	200MHz	800MHz	14x
Pentium 4 3.0G	3000MHz	200MHz	800MHz	15x
Pentium 4 3.06G	3060MHz	133MHz	533MHz	23x
Pentium 4 3.20G	3200MHz	200MHz	800MHz	16x
Celeron 2.1G	2100MHz	100MHz	400MHz	21x
Celeron 2.2G	2200MHz	100MHz	400MHz	22x
Celeron 2.4G	2400MHz	100MHz	400MHz	24x

**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.

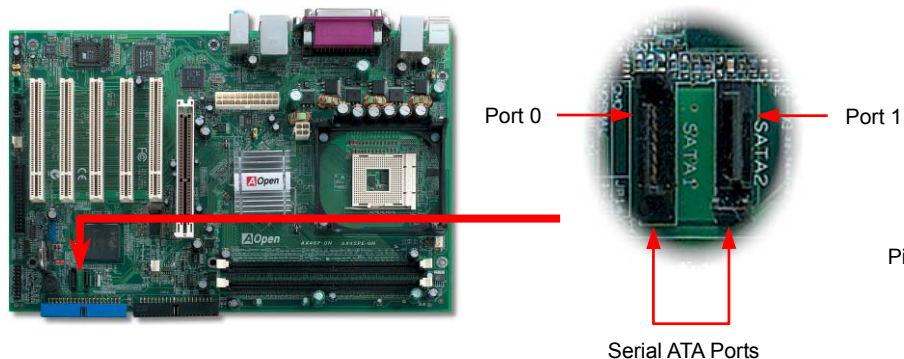
**Warning:** Intel® 865-P/PE chipset supports maximum 800MHz (200MHz\*4) system bus and 66MHz AGP clock; higher clock setting may cause serious system damage.

**Note:** Intel 865-P/PE chipset only support Northwood processors, and don't support Willamette processors. Northwood processor would detect the clock ratio automatically, you may not be able to adjust the clock ratio in BIOS manually.



## 6. Serial ATA Supported

This motherboard comes with integrated Serial ATA controller in chip, aiming to provide you an even faster transfer rate of 150 Mbytes/second. The traditional parallel ATA specification has defined the standard storage interface for PCs with its original speed of just 3 Mbytes/second since the protocol was introduced in the 1980s. And the latest generation of the interface, Ultra ATA-133, has been developed further with a burst data transfer rate of 133 Mbytes/second. Please be noted that Hot-Plug in is not allowed.



## 7. 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 serial ATA hard disks are installed on serial ATA ports, the one connected on Port 0(SATA 1) will be set as the first boot device automatically.

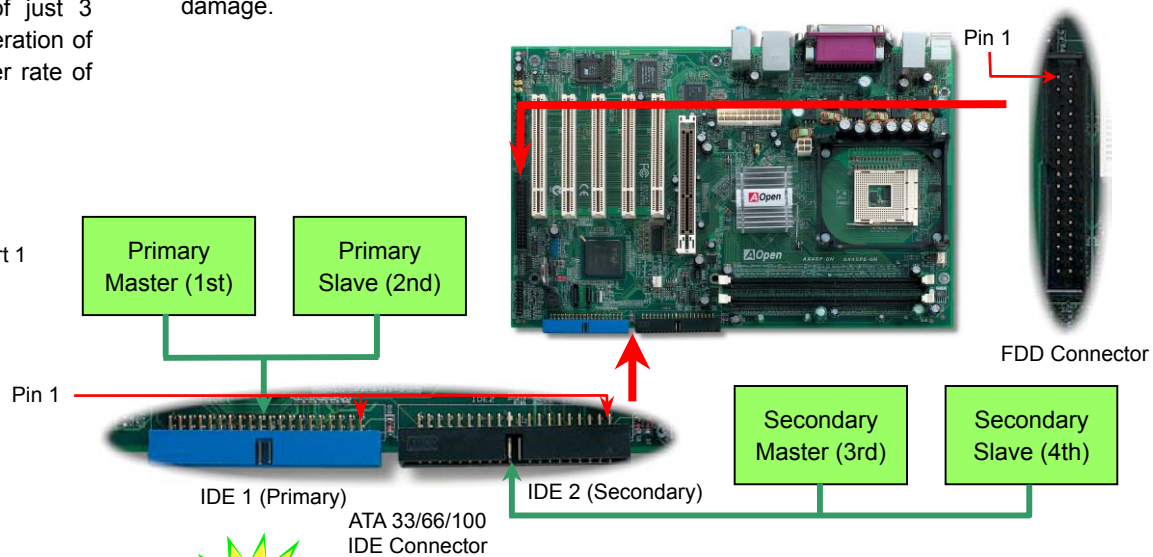


Serial ATA cable



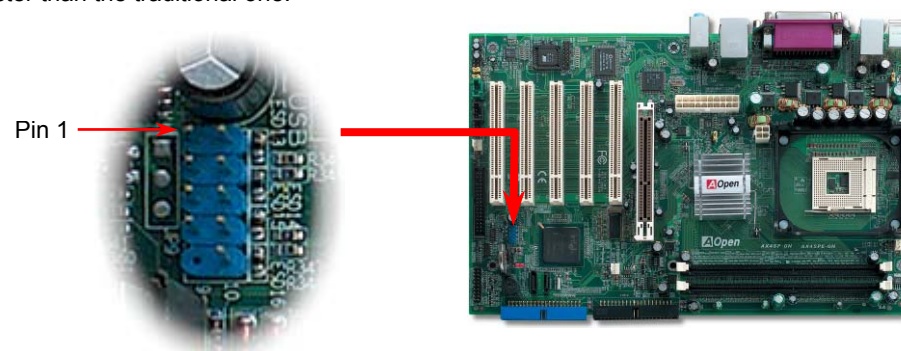
## 8. Connecting IDE and Floppy Cables

Connect 34-pin floppy cable and 40-pin, 80-wire IDE cable to floppy connector FDD and IDE connector. Be careful of the pin1 orientation. Wrong orientation may cause system damage.



## 9. Support Eight USB 2.0 Connectors

This motherboard provides Eight USB 2.0 connectors. 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.



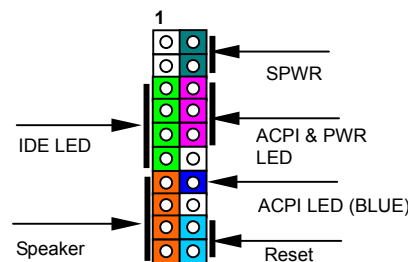
USB 2.0 Connector

1					
+5V	●	●	●	●	+5V
SBD6-	●	●	●	●	SBD7-
SBD6+	●	●	●	●	SBD7+
GND	●	●	●	●	GND
KEY	■	■	■	■	NC

USB 2.0 Connector

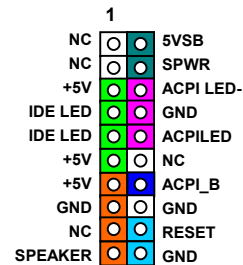


## 10. Connecting Front Panel Cable



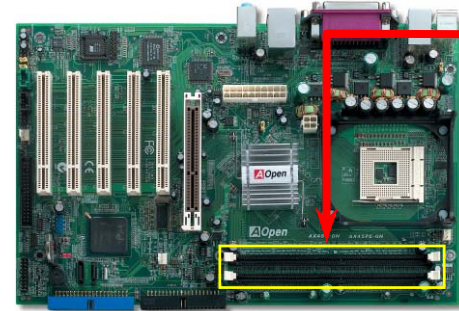
Attach the power LED, speaker, and reset switch connectors to the corresponding pins. If you enable "Suspend Mode" item in BIOS Setup, the ACPI & Power LED will keep flashing while the system is in suspend mode.

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**.



## 12. Memory Module (128-Bit DDR Dual Channel)

In the past, we used to have 64-bit memory bandwidth for memory access. No matter how many memory modules have been installed, though capacity added, the speed of access remains the same. With 128-bit dual channel introduced, it doubles the memory bandwidth up to 6.4GB in advanced 128-bit mode. AX4SPE-G and AX4SPE-GN support DDR 400/333/266 with Maximum capacity up to 2 GB; AX4SP-G and AX4SP-GN only support DDR 333/266 up to 2 GB.



128-bit DDR Dual Channel Memory module

*Note: To run dual channel speed, you have to install the same type memory modules in two DIMM. If you install two different sized modules, the system only can run in single channel mode with the speed of lower memory module.*

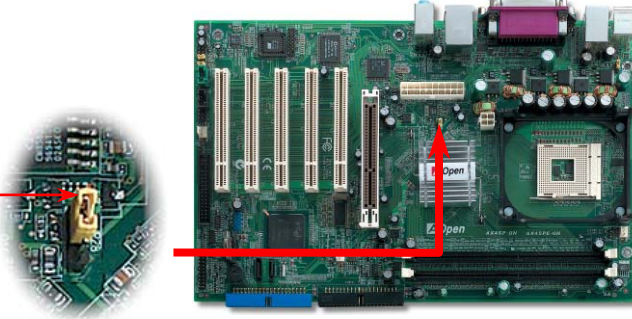
## 11. JP22 FSB 800 MHz OverClocking Jumper

AX4SP-G/AX4SP-GN motherboard with Intel® 865-P chipsets only support 400/533MHz FSB. However you can overclock to 800MHz FSB via JP22. The default setting is 1-2 in normal mode. To run in 800MHz FSB, you should set Jumper to 2-3 in Turbo mode that support 200 system bus. If your CPU only support 100/133 system bus, we strongly recommend you don't change the default setting to avoid any CPU damage.

CPU FSB	JP 22
Normal	1-2(default)
Turbo	2-3

Pin 1

JP22 FSB OverClocking Jumper



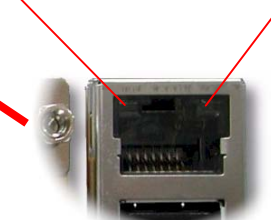
## 13. Support LAN (For AX4SP-GN and AX4SPE-GN)

On the strength of Realtek 8101L LAN controller (for AX4SP-GN and AX4SPE-GN) 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

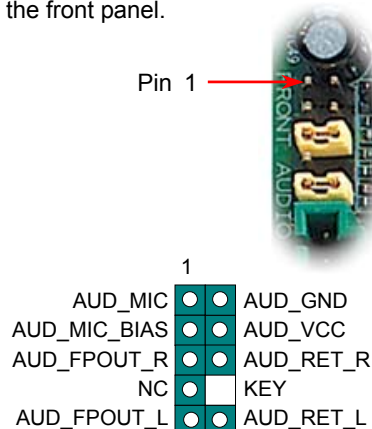
Orange/Link



**Note:** FSB 800MHz is not the standard specification of Intel 865-P chipset. You are taking your own risk to enjoy this overclocking technology. To overclock 800 MHz FSB, you should run in DDR 400 mode.

## 14. 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.

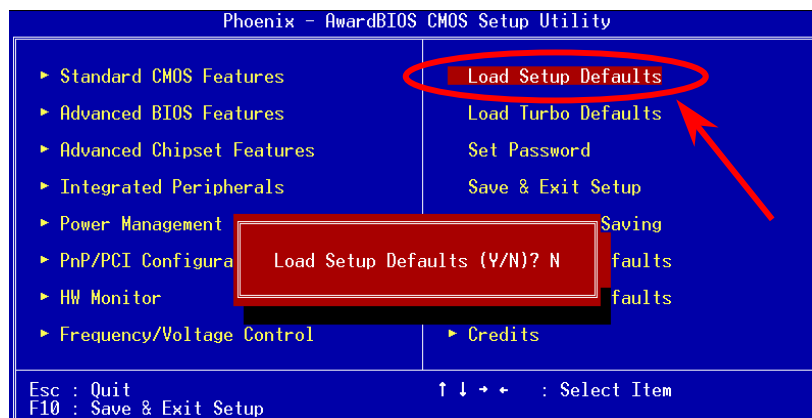


Front Audio Connector

## 15. Power-on and Load BIOS Setup



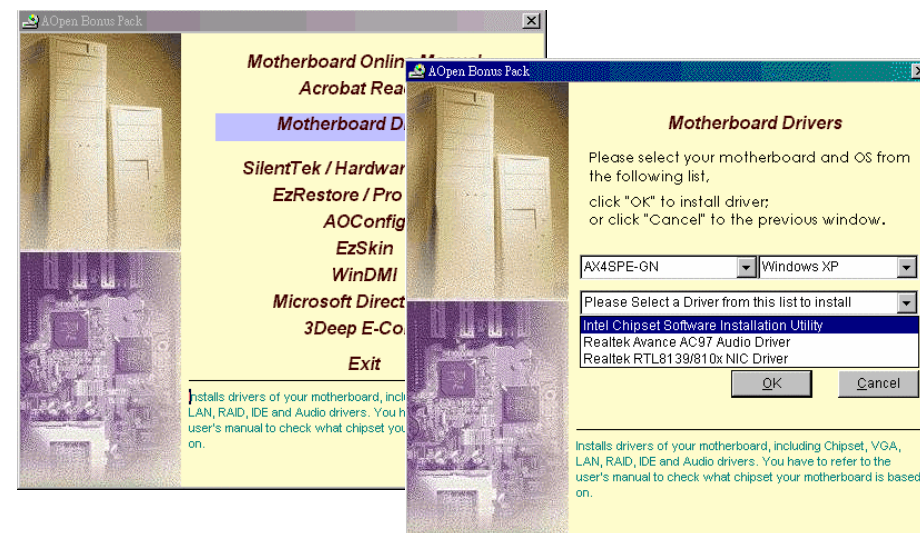
After you finish the setting of jumpers and connect correct cables. Power on and enter the BIOS Setup, press <Del> during POST (Power On Self Test). Choose "Load Setup Defaults" for recommended optimal performance.



**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.

## 16. AOpen Bonus Pack CD

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



## 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.

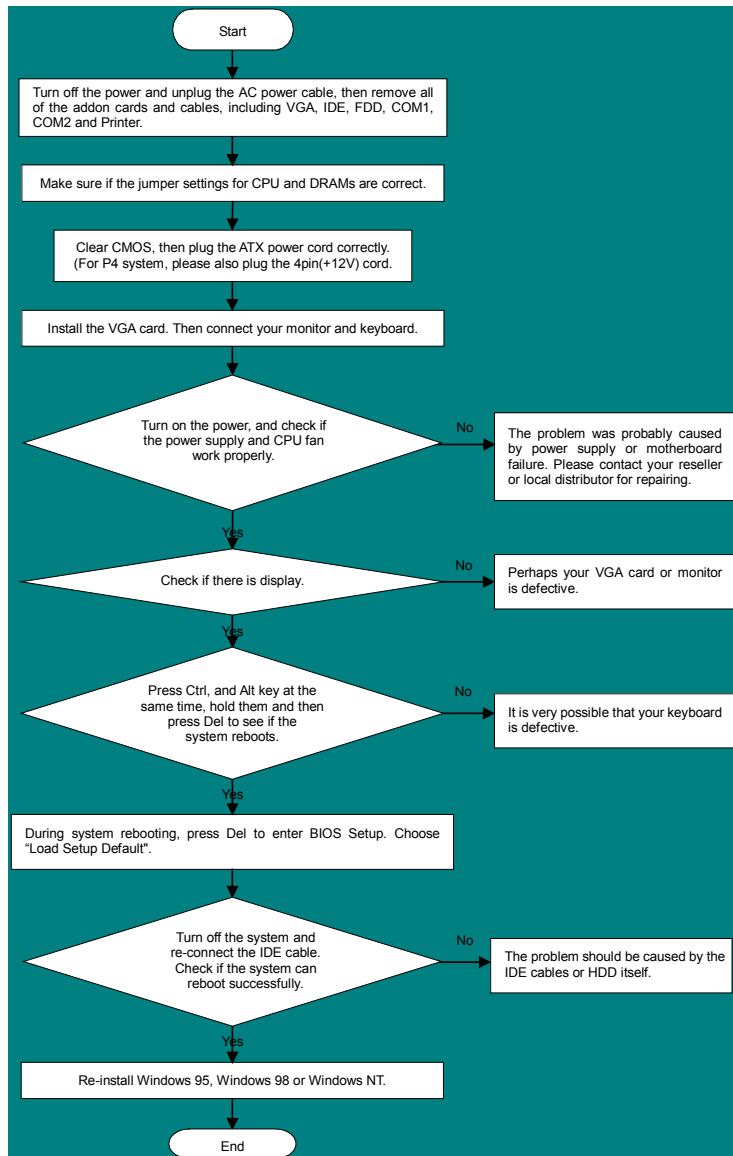
1. Download the new version of BIOS package zip file from AOpen official web site. (ex: <http://english.aopen.com.tw>)
2. Unzip the download BIOS package (ex: WAX4SPEGN102.ZIP) with WinZip (<http://www.winzip.com>) in Windows environment.
3. Save the unzipped files into a folder, for example, WAX4SPEGN102.EXE & WAX4SPEGN102.BIN.
4. Double click on the WAX4SPEGN102.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 Win95/Win98 PnP information will be refreshed and you probably need to re-configure your system.



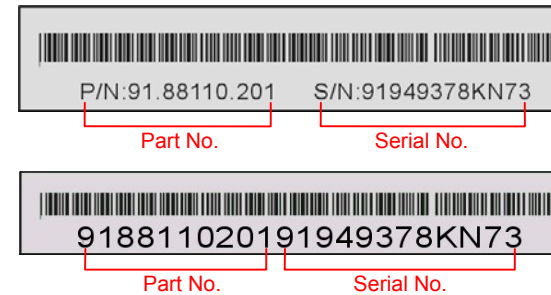
## Troubleshooting

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



## 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 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:



AX4SPE-GN 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: 1-510-489-8928  
Fax: 1-510-489-1998

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>

