AOpen
Solutions·Components

MK89-N
MK89-L
MK89-1394

Easy Installation Guide

PS/2 Mouse Connector

USB2.0 Ports

SPP/EPP/ECP Parallel Port

RJ45 10/100 LAN Jack

Line-In

Speaker Out

MIC-In

PS/2 Keyboard Connector

COM 1 Port

COM2 Port

USB2.0 Ports

SYSFAN2 Connector

Front Audio Connector

CD-IN Connector

AUX-IN Connector

Onboard AC97 CODEC

S/PDIF Connector

IrDA Connector

Case Open Connector

FDD Connector

32-bit PCI Expansion Slot x3

Game Port Connector

IEEE1394 Connectors x 2 (for MK89-1394)

JP14 CMOS Data Clear Jumper

SYSFAN1 Connector

USB2.0 Connector

Front Panel Connector

JP28 KB/Mouse Wakeup Jumper

Resetable Fuse

184-pin DIMMx2 supports DDR400/333/266 Max. to 2GB

CPUFAN Connector

754-pin CPU Socket with Voltage and Frequency Auto-Detection that supports AMD™ Athlon™ 64

AGP 8x Expansion Slot (for 1.5V AGP card)

Nvidia nForce3 Chipset

ATX Power Connector

4-pin 12V ATX Power Connector

IDE Connector x2 (ATA/66/100/133 supported)

AOpen reserves the right to revise all the specifications and information contained in this document, which are subject to change without notice.

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. Thanks for the help of saving our earth.

Accessory Checklist

- ☑ **This Easy Installation Guide x 1**
- ☑ **80-Wire IDE Cable x 1**
- ☑ **Floppy Drive Cable x 1**
- ☑ **IEEE1394 Cable x 1 (for MK89-1394 only)**
- ☑ **Bonus Pack CD x 1**
- ☑ **Registration Card x 1**

EzWin Flash   DDR400

SilentTek   Vivid BIOS

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

1
Normal Operation
(default)

1
Clear CMOS
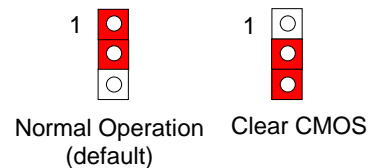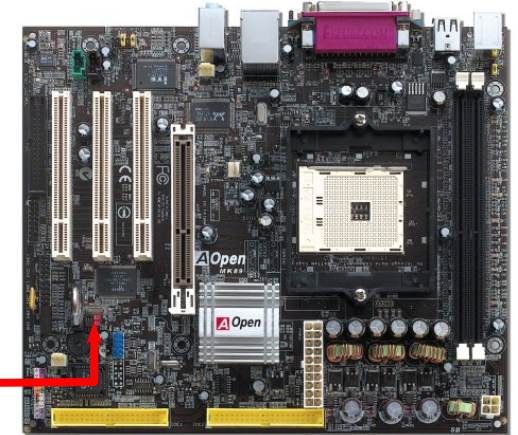
Tip: When should I Clear CMOS?

1. *Boot fail because of overclocking…*
2. *Forget password…*
3. *Troubleshooting…*
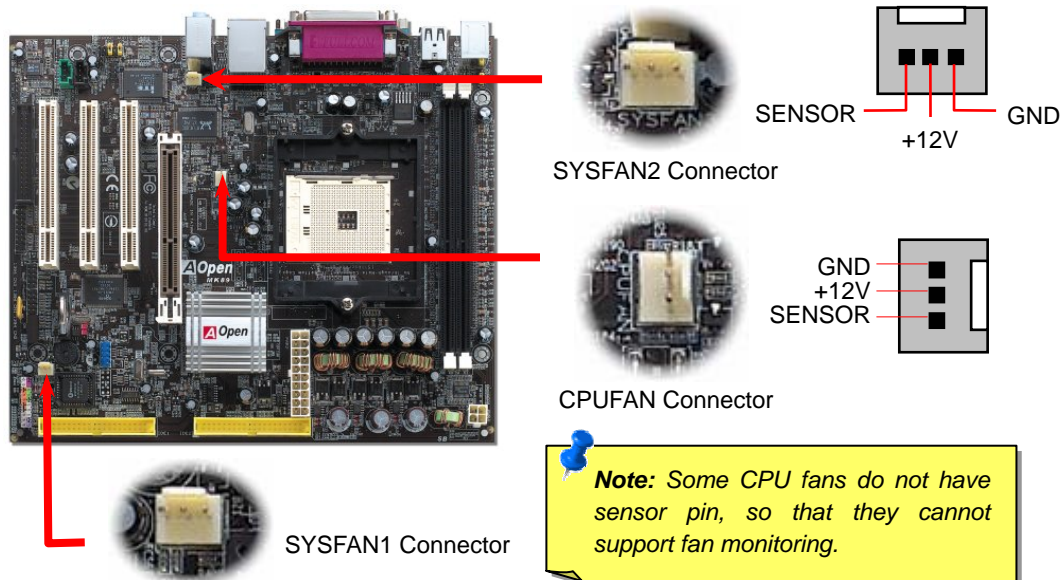
2. JP28 Keyboard/Mouse Wakeup Jumper

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 connected. The factory default setting is set to "Disable"(1-2), and you may enable this function by setting the jumper to pin2-3.

Pin 1

1
Disable
(Default)

1
Enable
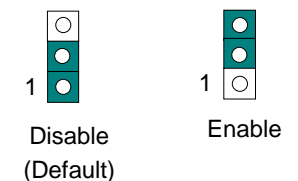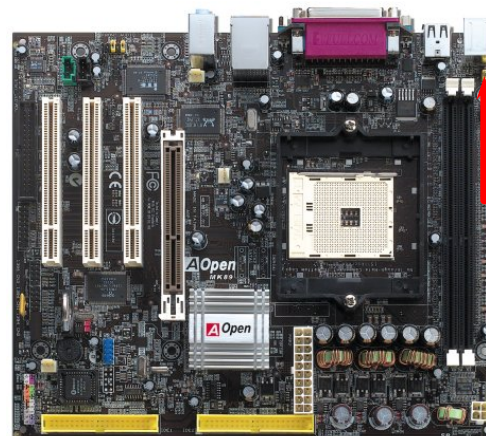
3. Installing CPU & Housing Fan

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.

SENSOR — +12V — GND

SYSFAN2 Connector

GND
+12V
SENSOR

CPUFAN Connector

SYSFAN1 Connector

Note: Some CPU fans do not have sensor pin, so that they cannot support fan monitoring.

4. Connecting IDE & Floppy Connectors

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

FDD Connector

Pin 1

Pin 1

IDE 2 (Secondary)

IDE 1(Primary)

5. Setting CPU Voltage & Frequency

Supported CPU Frequency
Core Frequency = CPU Bus Clock * CPU Ratio
Bus Speed = CPU external bus clock x 2
PCI Clock = CPU Bus Clock / Clock Ratio   *AGP Clock = PCI Clock x 2*

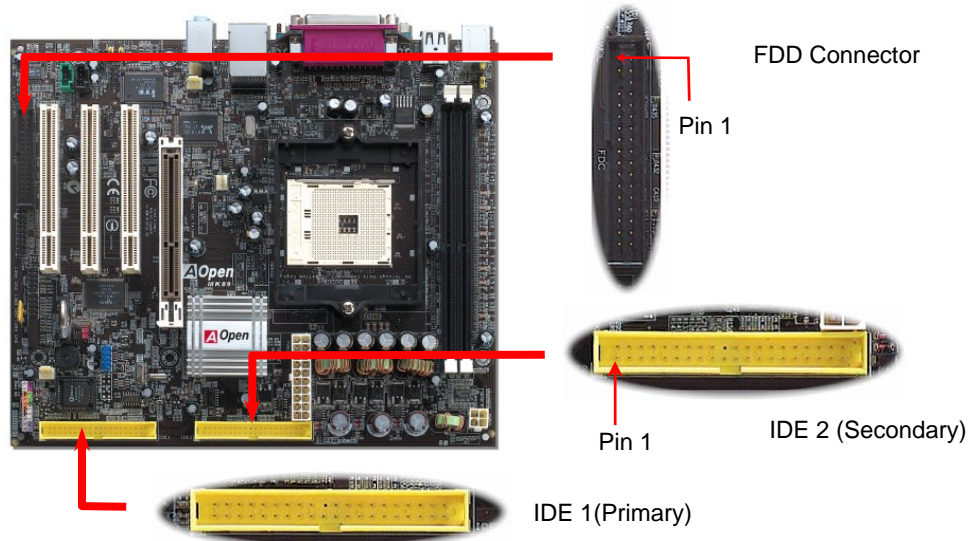| CPU	CPU Core Frequency	Clock	Ratio
Athlon 64 3200+	1.8GHz	200MHz	9x
Athlon 64 3400+	2.0GHz	200MHz	10x
Athlon 64 3700+	2.2GHz	200MHz	11x
Athlon 64 4000+	2.4GHz	200MHz	12x
Note: With CPU speed changing rapidly, there might be faster CPU on the market by the time you received this installation guide. This table is kindly for your references only.			

Warning: nForce3 chipset supports 200MHz system clock and 66MHz AGP clock; higher clock setting may cause serious system damage.

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 the AOpen "Watch Dog ABS" reset the system in five seconds and system will auto-detect hardware again.
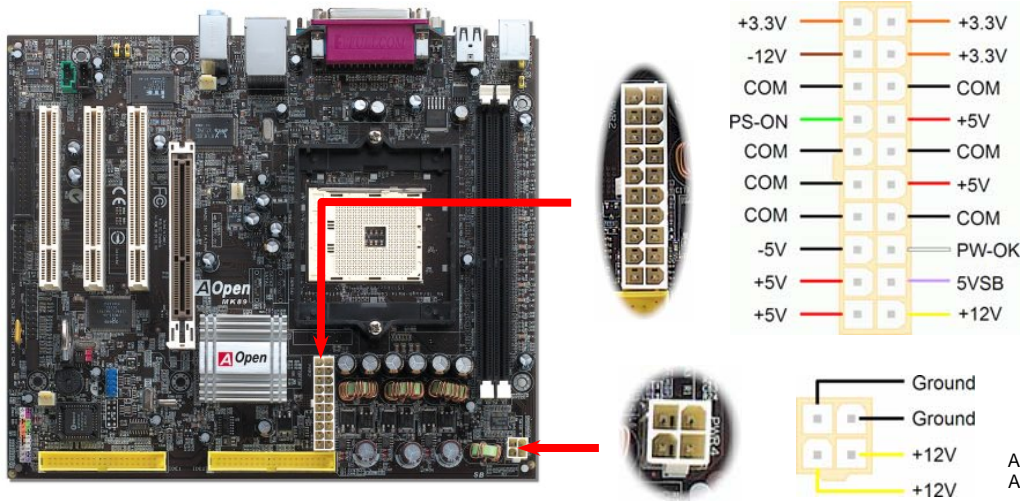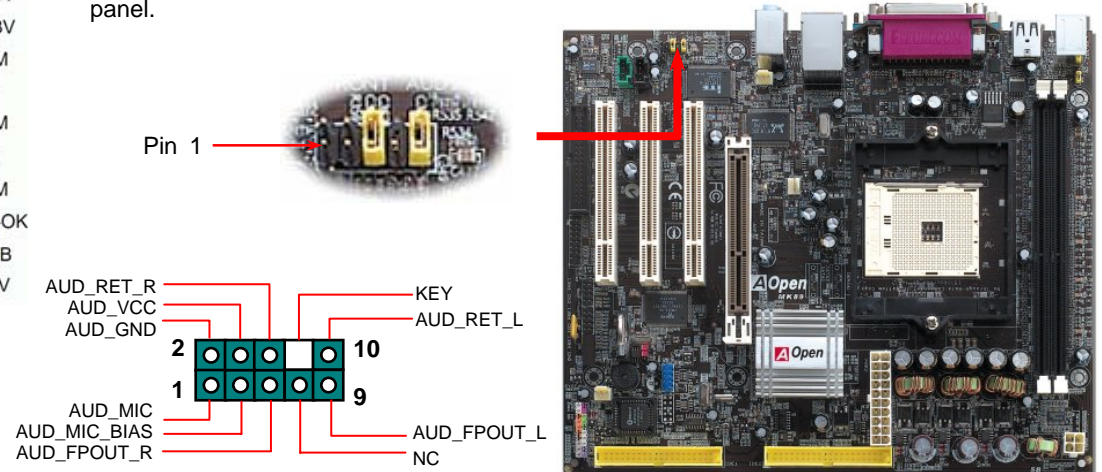
6. Connecting ATX Power Connector

This motherboard comes with a 20-pin and 4-pin ATX power connector. Make sure you plug in the right direction. We strongly recommend you to connect the 4-pin 12V ATX connector before connecting the 20-pin ATX power connector and use standard power supply.

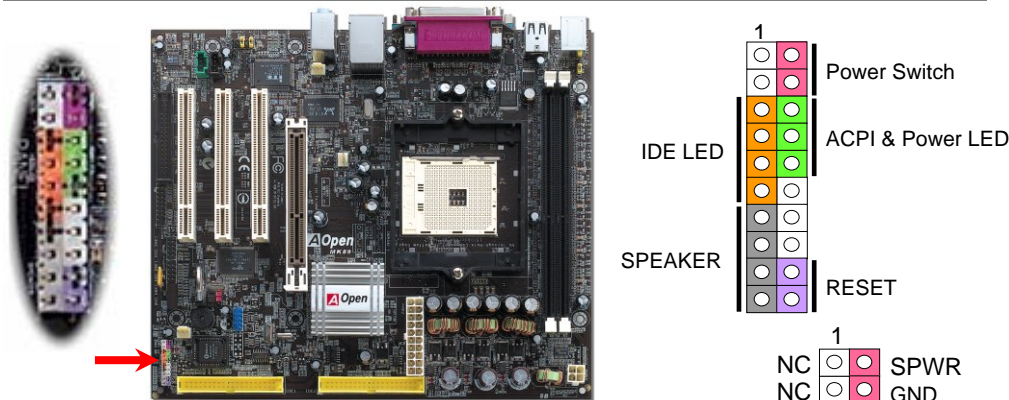| +3.3V	+3.3V
-12V	+3.3V
COM	COM
PS-ON	+5V
COM	COM
COM	+5V
COM	COM
-5V	PW-OK
+5V	5VSB
+5V	+12V

Ground
Ground
+12V
+12V

8. Connecting 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

AUD_RET_R
AUD_VCC
AUD_GND
2   10
1   9
AUD_MIC
AUD_MIC_BIAS
AUD_FPOUT_R

KEY
AUD_RET_L
AUD_FPOUT_L
NC

7. Support Front Panel Connector

1
Power Switch
ACPI & Power LED
IDE 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**.

9. Connecting IEEE 1394 Connectors (for MK89-1394)

With AGERE FW323 onboard, the IEEE 1394 provides data transfer rate up to 400Mb/s, and USB1.0/1.1 just has 12Mbps. Therefore, the IEEE 1394 interface can connect with the devices that need high data transferring performance, such as digital camera, scanner or other IEEE 1394 devices. Please use the proper cable to connect with devices.

10   9
Shielding GND — KEY
1394_PWR — 1394_PWR
TPB- — TPB+
GND — GND
TPA- — TPA+
2   1
Pin 1
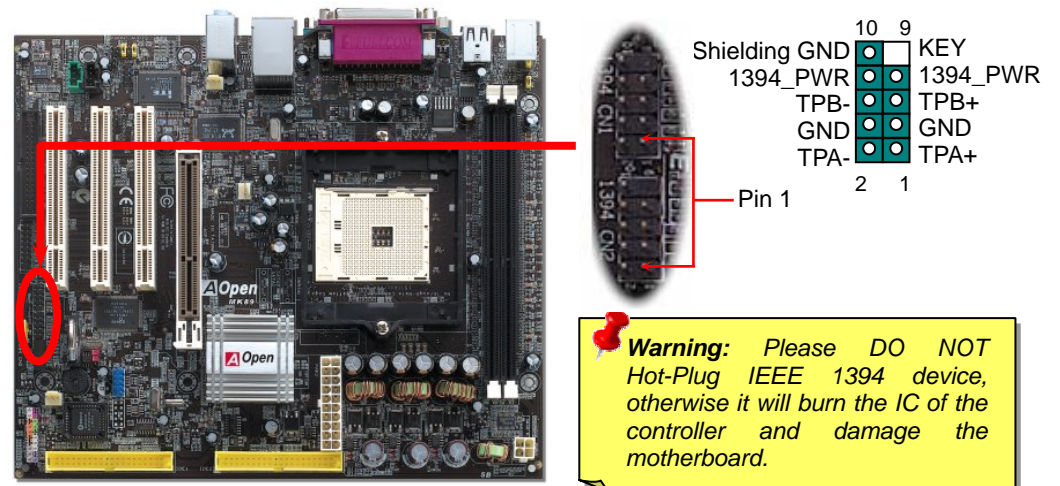
Warning: Please DO NOT Hot-Plug IEEE 1394 device, otherwise it will burn the IC of the controller and damage the motherboard.

10. Support USB2.0 Connector

This motherboard provides six USB connectors to connect USB devices, such as mouse, keyboard, modem and printer, etc. There are four connectors on the back panel. You can use proper cables to connect the Front USB connector to USB modules or front panel of chassis.

Pin 1 →

Front USB Connector

1	
+5V	+5V
SBD2-	SBD3-
SBD2+	SBD3+
GND	GND
KEY	NC
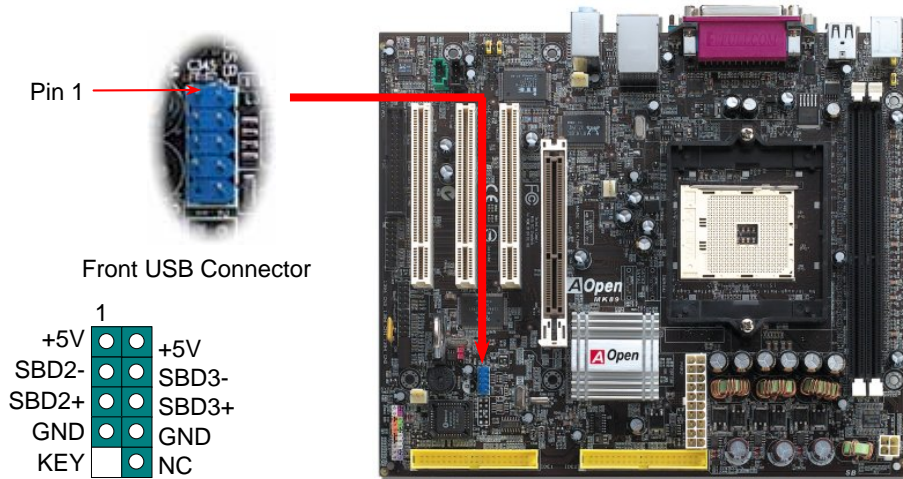
11. Connecting IrDA Connector

The IrDA connector can be configured to support wireless infrared module. With this module and application software such as Laplink or Windows 95 Direct Cable Connection, user can transfer files to or from laptops, notebooks, PDA devices and printers. This connector supports HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps). Install infrared module onto **IrDA** connector and enable the infrared function from BIOS Setup, UART2 Mode. Make sure you have the correct orientation when connecting IrDA connector.

Pin 1

1	
NC	KEY
+5V	GND
IR_TX	IR_RX

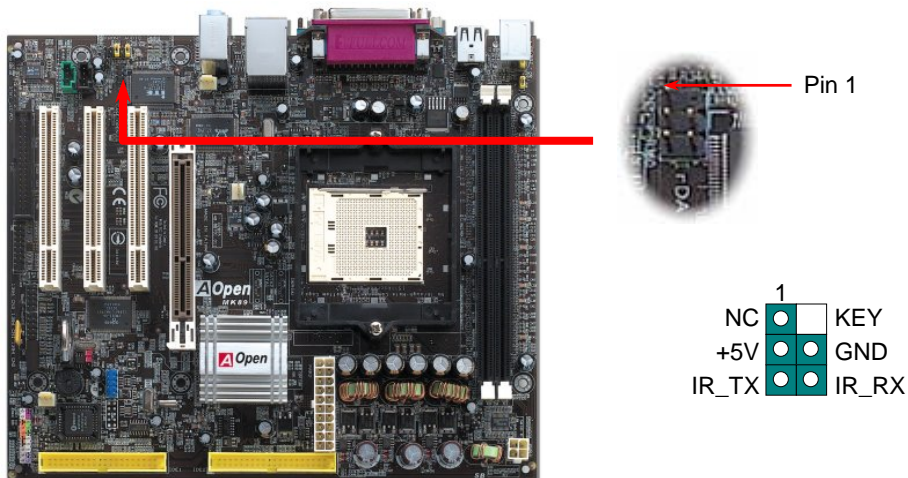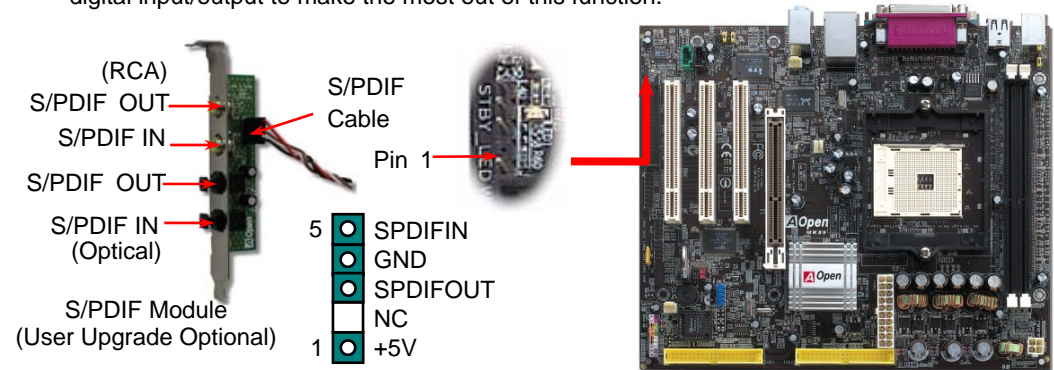# 12. Connecting S/PDIF Connector

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)

5	SPDIFIN
	GND
	SPDIFOUT
	NC
1	+5V

13. Super 5.1 Channel Audio Effects

This motherboard comes with an ALC655 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 ALC655, 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)

Rear Left (Blue)   Subwoofer (Red)   Rear Right (Blue)
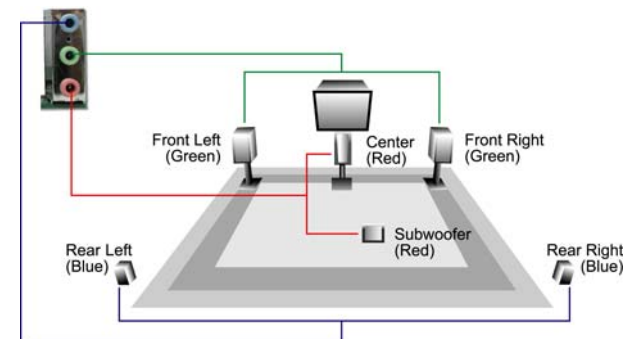
14. Power-on and Load BIOS Setup

`Del`

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.

```
CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
  ▶ Standard CMOS Features          Load Setup Defaults
  ▶ Advanced BIOS Features          Load Turbo Defaults
  ▶ Advanced Chipset Features       Set Password
  ▶ Integrated Peripherals          Save & Exit Setup
  ▶ Power Management Setup          Exit Without Saving
  ▶ PnP/PCI Configura                            faults
                       Load Setup Defaults (Y/N)? Y
  ▶ PC Health Status                             faults
  ▶ Frequency/Voltage

  Esc : Quit                                          ↑
  F10 : Save & Exit Setup                        (S

                       Load Setup Def
```

Warning: *Please avoid of using "Load Turbo Defaults", unless you are sure your system components (CPU, SDRAM, HDD, etc.) are good enough for turbo setting.*

15. AOpen Bonus Pack CD

You can use the autorun menu of Bonus CD. Choose the utility and driver and select model name.
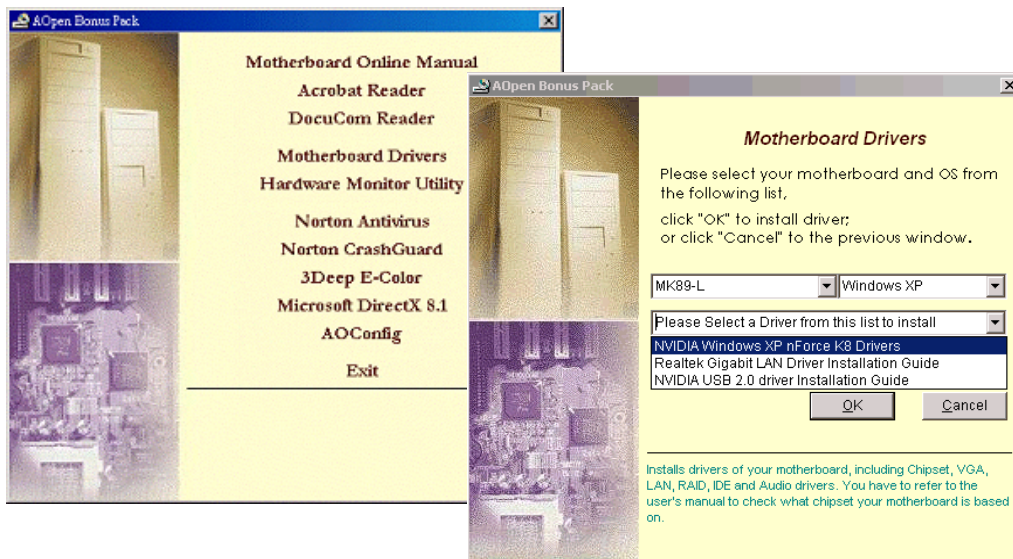
16. Installing Nvidia nForce3 Driver

This Nvidia driver is an all in one package, which contains the below components:
Audio driver, Audio utilities, GART driver, SMBus driver, Memory controller driver.

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: WMK89N102.ZIP) with WinZip (http://www.winzip.com) in Windows environment.
3. Save the unzipped files into a folder, for example, WMK89N102.EXE & WMK89N102.BIN.
4. Double click on the WMK89N102.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!

It is strongly recommended NOT to turn off the power or run any application during FLASH PROCESS.

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 the power supply and CPU fan work properly.
— No → The problem was probably caused by power supply or motherboard 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 same time, hold them and then press Del to see if the system reboots.
— No → It is very possible that your keyboard is defective.
— Yes

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

Turn off the system and re-connect the IDE cable. Check if the system can reboot successfully.
— No → The problem should be caused by the IDE cables or HDD itself.
— 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, on component side of PCB. For example:

P/N:91.88110.201   S/N:91949378KN73
Part No.   Serial No.

918811020191949378KN73
Part No.   Serial No.
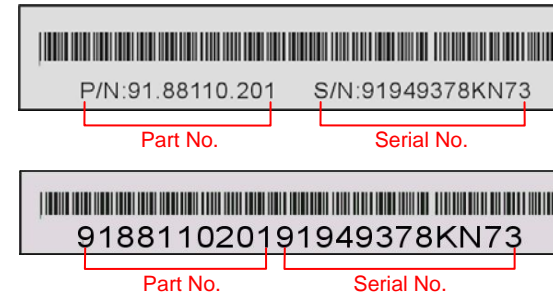
P/N: 91.88110.201 is part number, **S/N: 91949378KN73** is serial number.

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:

MK89-N   R1.02 Aug. 01. 2003 AOpen Inc.

Award Plug and Play BIOS Extension v1.0A

Copyright © 2003, Award Software, Inc.
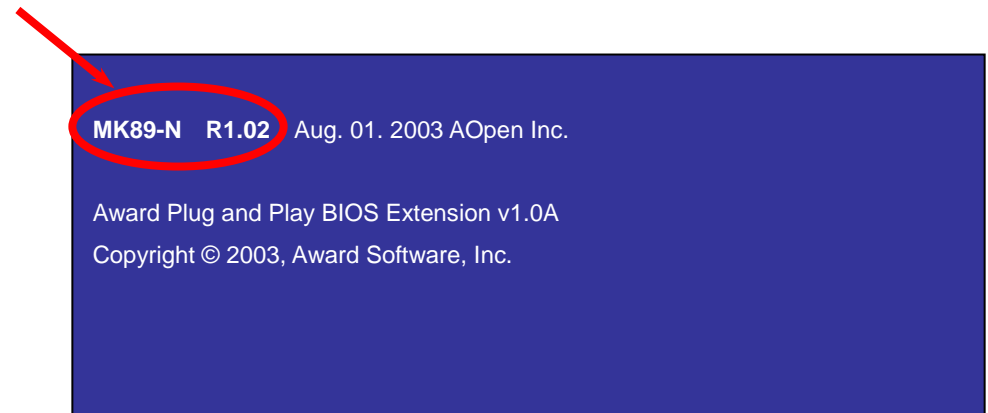
MK89-N is model name of motherboard; **R1.02** is BIOS version

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 follow the procedures below and seek help before contact 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

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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

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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 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.