# AOpen
## Solutions · Components

# MX4LR-GN
# MX4GVR-GN

# Easy Installation Guide

PS/2 Mouse Connector
USB2.0 Ports
PS/2 Keyboard Connector

SPP/EPP/ECP Parallel Port
COM 1 Port
VGA Port

RJ45 10/100 LAN Jack
USB 2.0 Port

Line-In
Speaker Out
MIC-In

CD-IN Connector
AUX-IN Connector

AC'97 CODEC
Realtek RTL8101L LAN Chip
Front Audio Connector

Game Port Connector

32-bit PCI Expansion Slot x3

IrDA Connector

JP14 CMOS Clear Jumper

USB 2.0 Connector

SYSFAN3 Connector

Front Panel Connector
4Mb Flash ROM BIOS
Case Open Connector
ATA 66/100 IDE Connector x2

SYSFAN2 Connector
COM2 Connector
4-pin 12V. ATX Power Connector

JP28 Keyboard/Mouse Wakeup Jumper
Resetable Fuse
Low ESR Capacitors

FDC Connector

478-pin CPU socket (Willamette/Northwood) with Voltage and Frequency Auto-detection that supports Intel® Pentium® 4 1.4~2.4GHz+ CPU

Intel 845GL Chipset
CPUFAN1 Connector

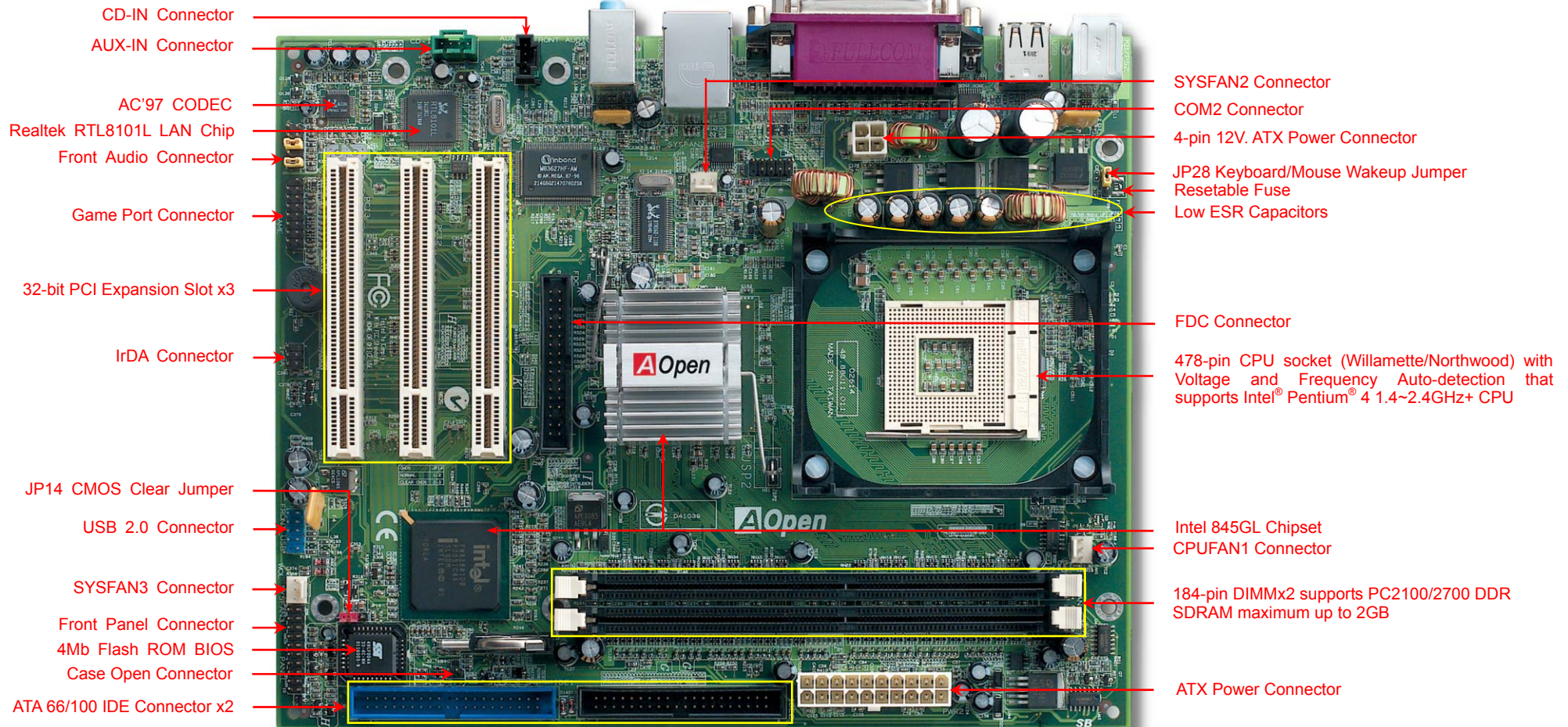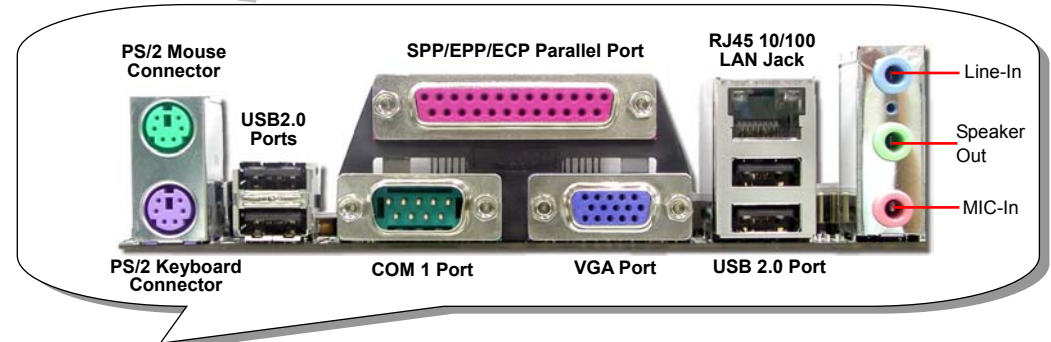184-pin DIMMx2 supports PC2100/2700 DDR SDRAM maximum up to 2GB

ATX Power Connector

PS. Here we use MX4LR-GN motherboard as illustration.

# 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

- ☑ *Easy Installation Guide x1*
- ☑ *80-wire IDE Cable x1*
- ☑ *Floppy Disk Drive Cable x1*
- ☑ *Registration Card x1*
- ☑ *Bonus Pack CD x1*
- ☑ *Retention Module x1*
- ☑ *I/O Shield x1*
- ☑ *EzRestore Guide x1*
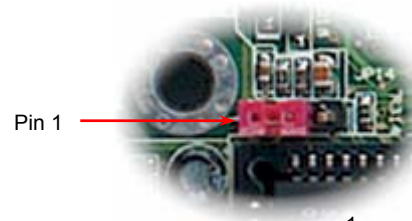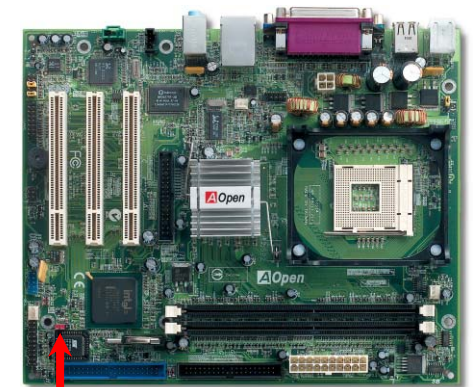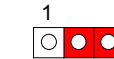
# 1. JP14 Clear CMOS

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.
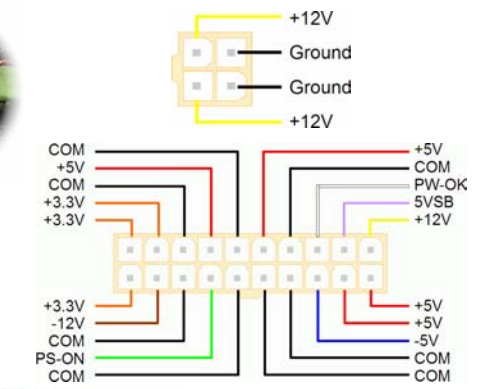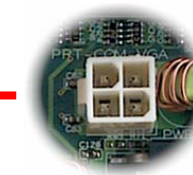5. Connect ATX power cable back to connector PWR2.

Pin 1

Normal (default)     Clear CMOS

*Tip: When should I Clear CMOS?*

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

# 2. Connecting ATX Power Connector

This motherboard comes with a 20-pin and 4-pin ATX power connector as shown below. Make sure you plug in the right direction. We strongly recommend you to insert the 4-pin connector before connecting the 20-pin connector.

+12V
Ground
Ground
+12V

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
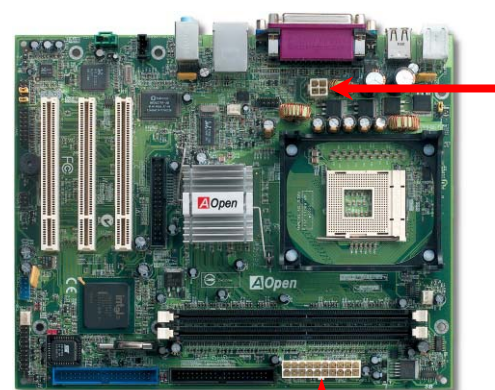
## 3. Installing Processor

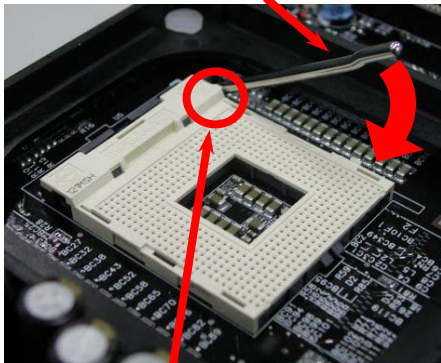This socket supports FC-PGA2 package CPU, which is the latest CPU package developed by Intel. Other forms of CPU package are impossible to be fitted in.

CPU socket lever



CPU Pin 1 and cut edge

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 in **SYSFAN2** or **SYSFAN3** connector.



GND
+12V
SENSOR

SYSFAN2 Connector

GND
+12V
SENSOR

CPUFAN1 Connector

GND
+12V
SENSOR

SYSFAN3 Connector
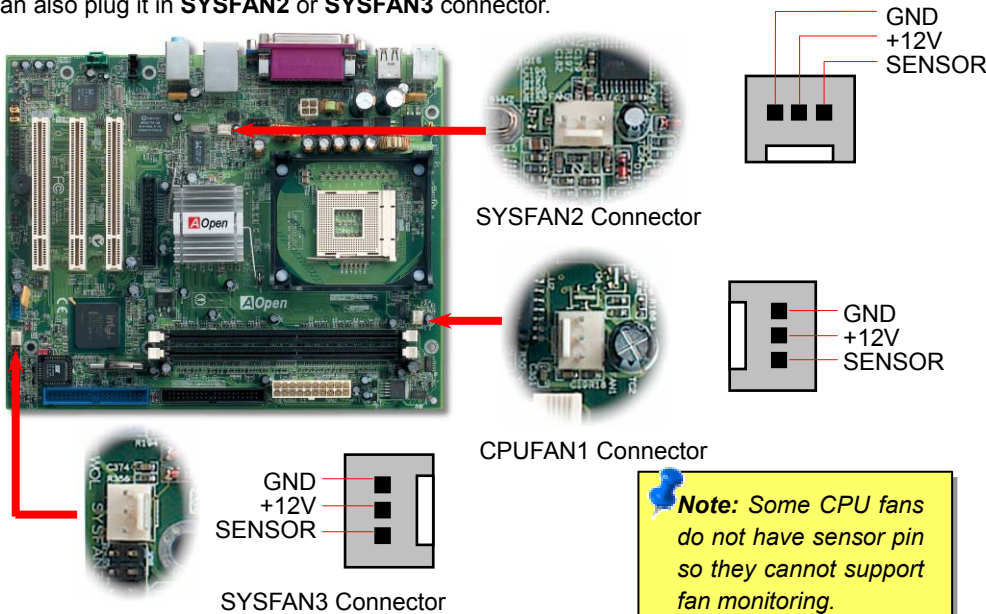
*Note: Some CPU fans do not have sensor pin so they cannot support fan monitoring.*

## 5. Setting CPU Voltage & Frequency

**Setting CPU Core Voltage**
This motherboard supports CPU VID function. The CPU core voltage will be automatically detected.

**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. The default setting is "table select mode". You can adjust the FSB from "CPU Host/SDRAM/PCI Clock" for overclocking.

*BIOS Setup > Frequency / Voltage Control > CPU Frequency Setup*

| CPU Ratio | 8x, 10x… 21x, 22x, 23x, 24x |
|---|---|
| CPU FSB (By BIOS table) | 100-255MHz. |

| MX4LR-GN(100MHz x 4) | | | | |
|---|---|---|---|---|
| CPU | CPU Core Frequency | FSB Clock | System Bus | Ratio |
| Celeron 1.7G | 1700MHz | 100MHz | 400MHz | 17x |
| Celeron 1.8G | 1800MHz | 100MHz | 400MHz | 18x |
| Celeron 2.0G | 2000MHz | 100MHz | 400MHz | 20x |
| Pentium 4 1.6G | 1600MHz | 100MHz | 400MHz | 16x |
| Pentium 4 1.7G | 1700MHz | 100MHz | 400MHz | 17x |
| Pentium 4 1.8G | 1800MHz | 100MHz | 400MHz | 18x |
| Pentium 4 1.9G | 1900MHz | 100MHz | 400MHz | 19x |
| Pentium 4 2.0G | 2000MHz | 100MHz | 400MHz | 20x |
| Pentium 4 2.2G | 2200MHz | 100MHz | 400MHz | 22x |
| Pentium 4 2.4G | 2400MHz | 100MHz | 400MHz | 24x |

| MX4GVR-GN(133MHz x 4) | | | | |
|---|---|---|---|---|
| CPU | CPU Core Frequency | FSB Clock | System Bus | Ratio |
| Pentium 4 2.4G | 2400MHz | 133MHz | 533MHz | 18x |
| Pentium 4 2.53G | 2530MHz | 133MHz | 533MHz | 19x |
| Pentium 4 2.66G | 2660MHz | 133MHz | 533MHz | 20x |
| Pentium 4 2.80G | 2800MHz | 133MHz | 533MHz | 21x |
| Pentium 4 3.06G | 3060MHz | 133MHz | 533MHz | 23x |

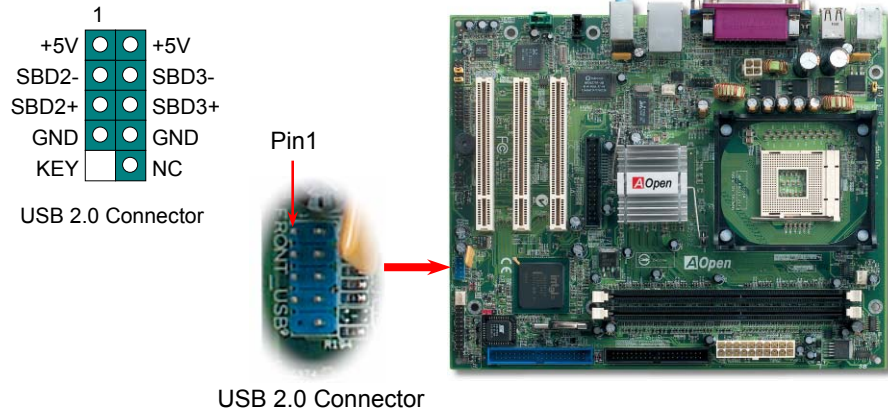*Warning: Intel[®]845GL chipset supports maximum 400MHz (100MHz x 4) system bus and 66MHz AGP clock; Intel[®]845GV chipset supports maximum 533Hz (133MHz x 4) system bus and 66MHz AGP clock, higher clock setting may cause serious system damage.*

*Note: Since the latest processor, Northwood, would detect the clock ratio automatically, you may not be able to adjust the clock ratio in BIOS manually.*
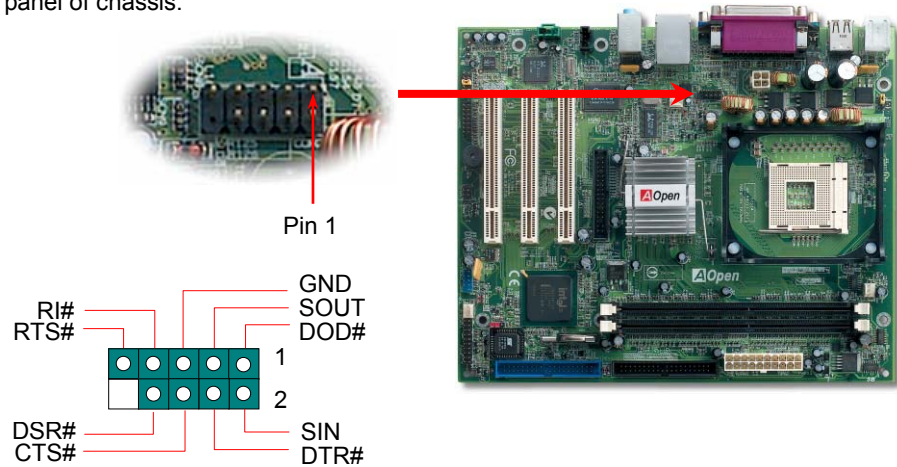
## 6. Support Six USB 2.0 Connectors

This motherboard provides six USB 2.0 connectors to link USB devices, such as mouse, keyboard, modem, printer, etc. There are four ports on the PC99 back panel. You can use proper cable to connect other USB connectors to the back panel or front panel of chassis.

```
        1
+5V   [O O]  +5V
SBD2- [O O]  SBD3-
SBD2+ [O O]  SBD3+
GND   [O O]  GND
KEY   [  O]  NC
```

USB 2.0 Connector

Pin1

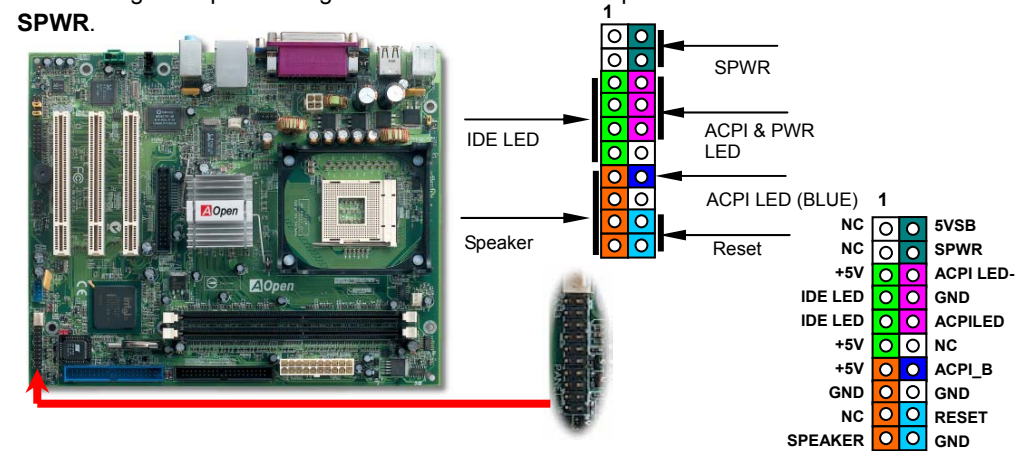USB 2.0 Connector

## 7. COM2 Connector

This motherboard provides two serial ports. One of them is on back panel connector, and the other is on the upper middle of board. With proper cable, you can connect it to the back panel of chassis.

Pin 1

```
RI#  ──┐                      ┌── GND
RTS# ──┤                      ├── SOUT
       │   [O O O O O]  1     ├── DOD#
       │   [  O O O O]  2     │
DSR# ──┤                      ├── SIN
CTS# ──┘                      └── DTR#
```

## 8. 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**.

SPWR

ACPI & PWR LED

IDE LED

ACPI LED (BLUE)

Speaker

Reset

| | | 1 | |
|---|---|---|---|
| NC | O O | 5VSB | |
| NC | O O | SPWR | |
| +5V | O O | ACPI LED- | |
| IDE LED | O O | GND | |
| IDE LED | O O | ACPILED | |
| +5V | O O | NC | |
| +5V | O O | ACPI_B | |
| GND | O O | GND | |
| NC | O O | RESET | |
| SPEAKER | O O | GND | |

## 9. 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 the jumper cap from the Front Audio Connector before you connect the cable. Do not remove this yellow jumper cap if your housing doesn't have an audio port on the front panel.

Pin 1

```
                     1
AUD_MIC       [O O]  AUD_GND
AUD_MIC_BIAS  [O O]  AUD_VCC
AUD_FPOUT_R   [O O]  AUD_RET_R
NC            [  O]  KEY
AUD_FPOUT_L   [O O]  AUD_RET_L
```

Front Audio Connector
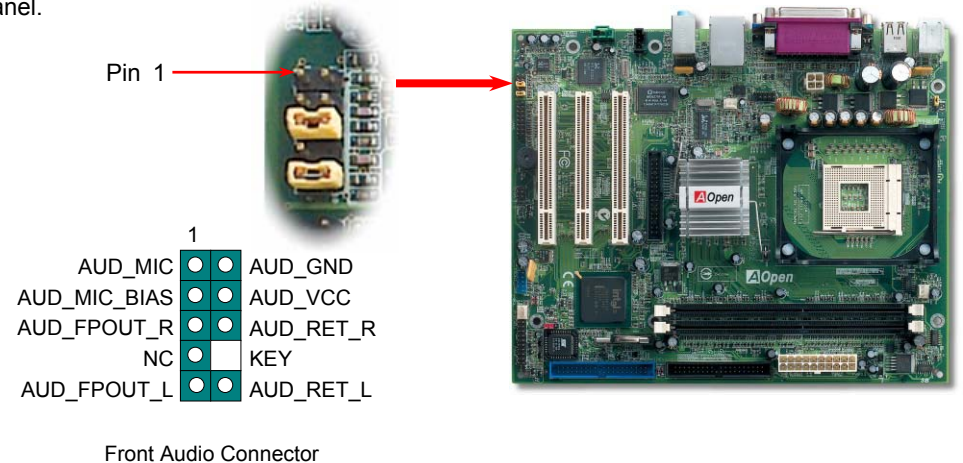
## 10. JP28 Keyboard/Mouse Wakeup Jumper

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 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

1
Disable
(Default)

1
Enable

## 11. 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, the 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).
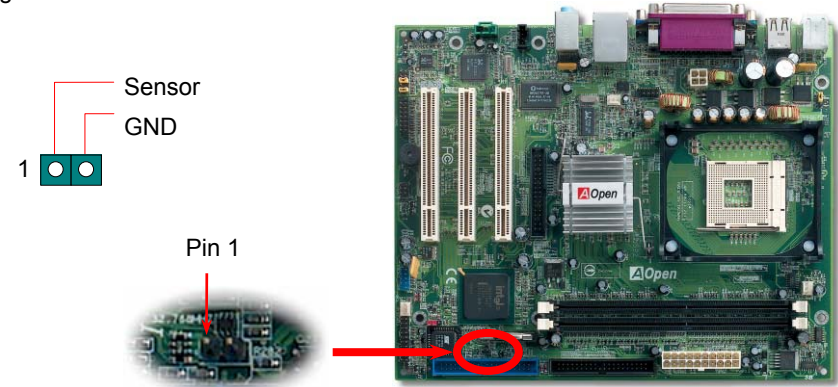
Install the infrared module onto the **IrDA** connector and enable the infrared function from BIOS Setup, UART Mode, make sure to have the correct orientation when you plug in the IrDA connector.

Pin 1

1
NC        KEY
+5V       GND
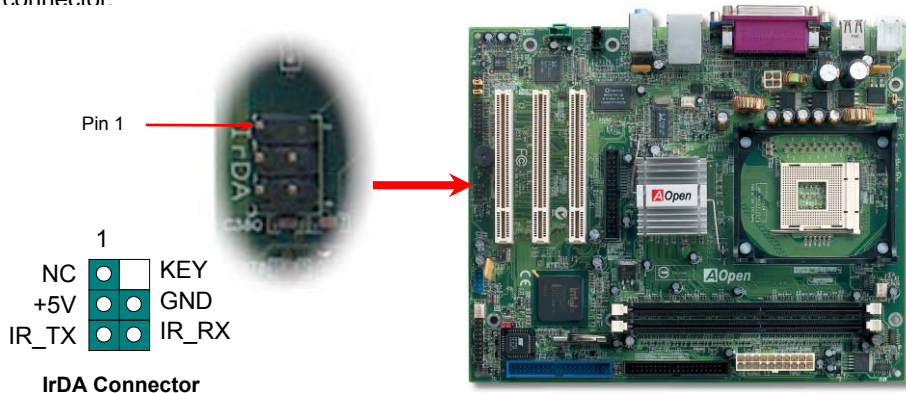IR_TX     IR_RX

**IrDA Connector**

## 12. Case Open Connector

The "CASE OPEN" header provides chassis intrusion-monitoring function. To make this function works, you have to enable it in the system BIOS, connect this header to a sensor somewhere on the chassis. So, whenever the sensor is triggered by lights or by the opening of the chassis, the system will beep to inform you. Please be informed that this useful function only applies to advanced chassis, you may purchase an extra sensor, attach it on your chassis, and make a good use of this function.

Sensor
GND
1

Pin 1

## 13. Support 10/100 Mbps LAN Onboard

On the strength of Realtek 8101L LAN controller on board, which is a highly-integrated Platform LAN Connect device, it provides 10/100M bps 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. To enable or disable this function, you may simply adjust it through BIOS.

**Green/Transfer**          **Orange/Link**
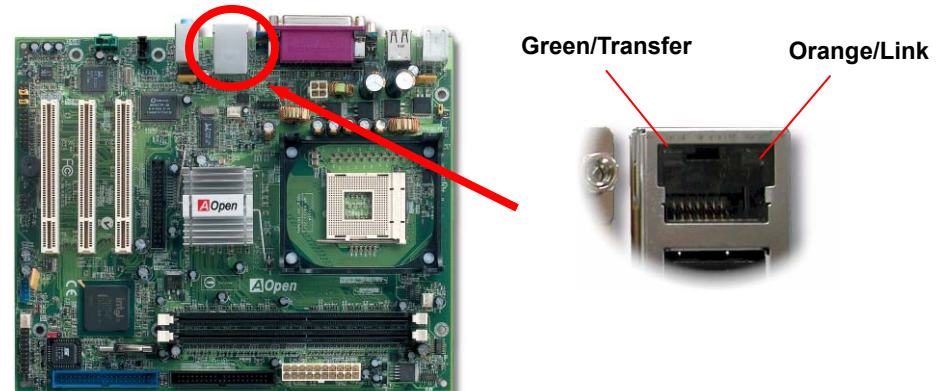
## 14. Power-on and Load BIOS Setup

**Del**

After you finish jumper settings 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.
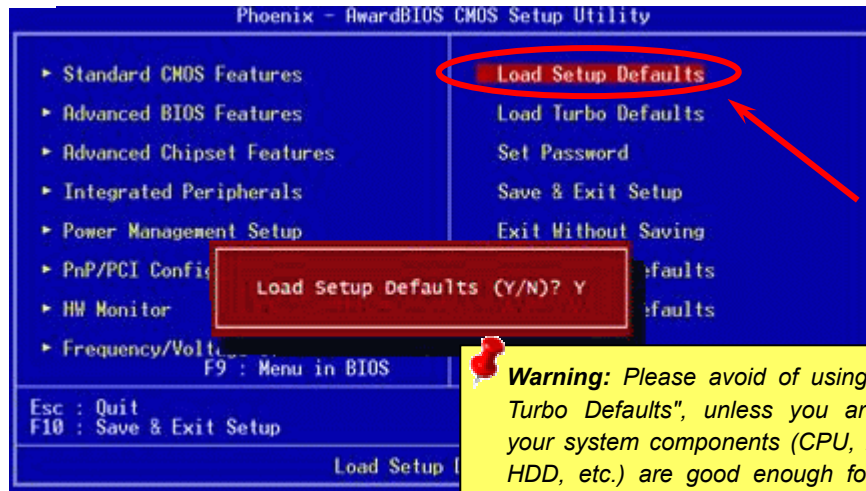


*Warning: Please avoid of using "Load Turbo Defaults", unless you are sure your system components (CPU, DRAM, HDD, etc.) are good enough for turbo setting.*

## 15. AOpen Bonus Pack CD

You can use the Autorun menu of Bonus CD. Choose the utility and driver and select model name. After selecting the model name, you can install its AGP, IAA, Audio, LAN and USB 2.0 drivers from this CD.
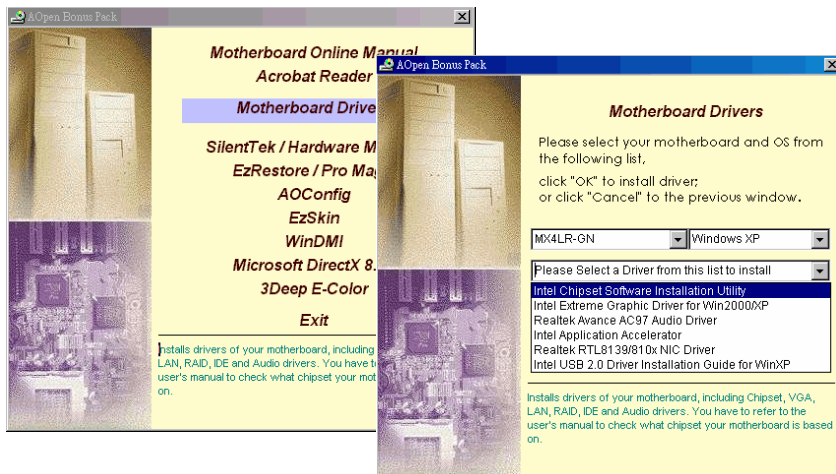


## 16. Installing Onboard Sound Driver

This motherboard comes with AC97 CODEC. You can find the audio driver from the Bonus Pack CD auto-run menu.
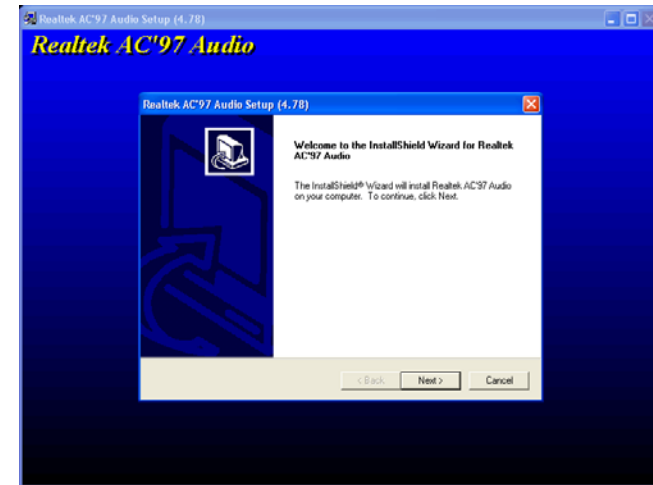


## NEW! 17. BIOS Upgrade under Windows Environment

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 our official web site. Unzip the download BIOS package (ex: WMX4LR-GN.ZIP) with WinZip (http://www.winzip.com) in Windows environment.

2. Save the unzipped files into a folder, for example, WMX4LR-GN.EXE & WMX4LR-GN.BIN.

3. Double click on WMX4LR-GN.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.

4. You may select preferred language in the main menu, then click [Start Flash] to start the BIOS upgrade procedure.

5. 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.

6. 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 while booting your 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
  same time, hold them and then     ------>  It is very possible that your keyboard
  press Del to see if the                    is defective.
  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 the bar code label on the outside packing or on the component side of PCB. For example:

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

91881102019 1949378KN73
Part No.        Serial No.
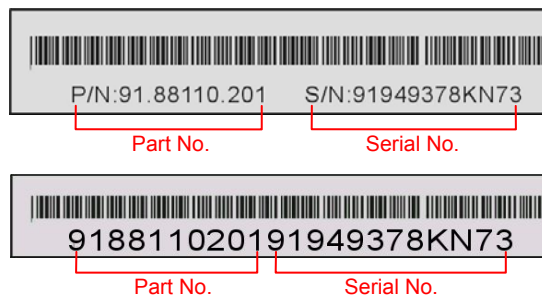
**P/N: 91.88110.201** is part number, **S/N: 91949378KN73** is serial number.

## 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:

**MX4LR-GN R1.00** Feb. 1. 2003 AOpen Inc.

Award Plug and Play BIOS Extension v1.0A

Copyright © 2003, Award Software, Inc.
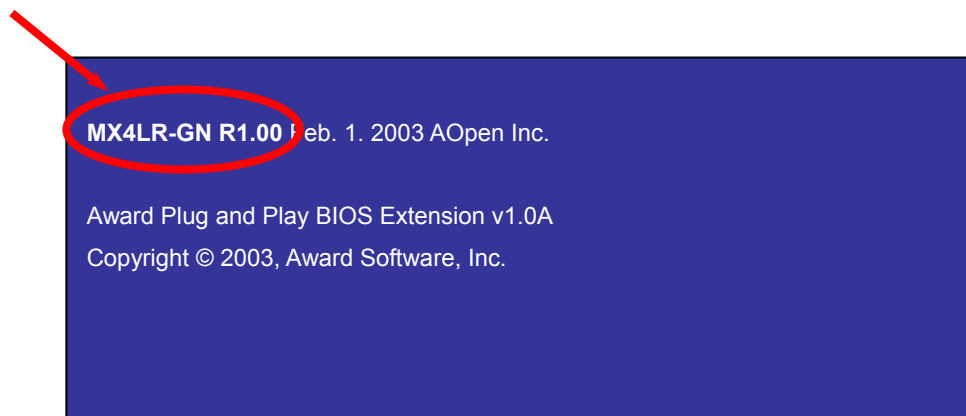
**MX4LR-GN** is model name of motherboard; **R1.00** is BIOS version

# 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<br>AOpen Inc.<br>Tel: 886-2-3789-5888<br>Fax: 886-2-3789-5899 | Europe<br>AOpen Computer b.v.<br>Tel: 31-73-645-9516<br>Fax: 31-73-645-9604 |
| China<br>艾爾鵬國際貿易(上海)有限公司<br>Tel: 86-21-6225-8622<br>Fax: 86-21-6225-7926 | America<br>AOpen America Inc.<br>Tel: 1-510-489-8928<br>Fax: 1-510-489-1998 |
| Germany<br>AOpen Computer GmbH.<br>Tel: 49-1805-559191<br>Fax: 49-2102-157799 | Japan<br>AOpen Japan Inc.<br>Tel: 81-048-290-1800<br>Fax: 81-048-290-1820 |

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**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://club.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://club.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.