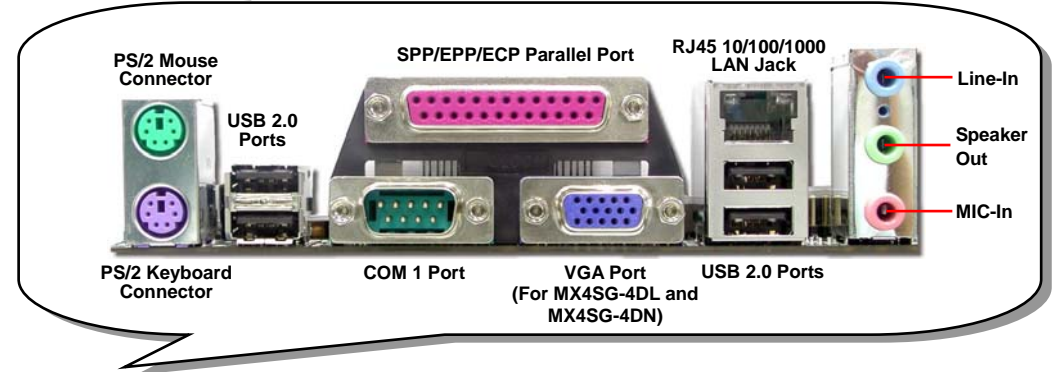


MX4SG-4DL
MX4SG-4DN
MX4SPB-N

Easy Installation Guide



Broadcom Gigabit LAN Chip (MX4SG-4DL)
Broadcom 10/100 Mbps LAN Chip (MX4SG-4DN & MX4SPB-N)

Onboard AC'97 CODEC

Front Audio Connector

AUX-IN Connector

CD-IN Connector

S/PDIF Connector

32-bit PCI Expansion Slot x3

USB 2.0 Connector x2

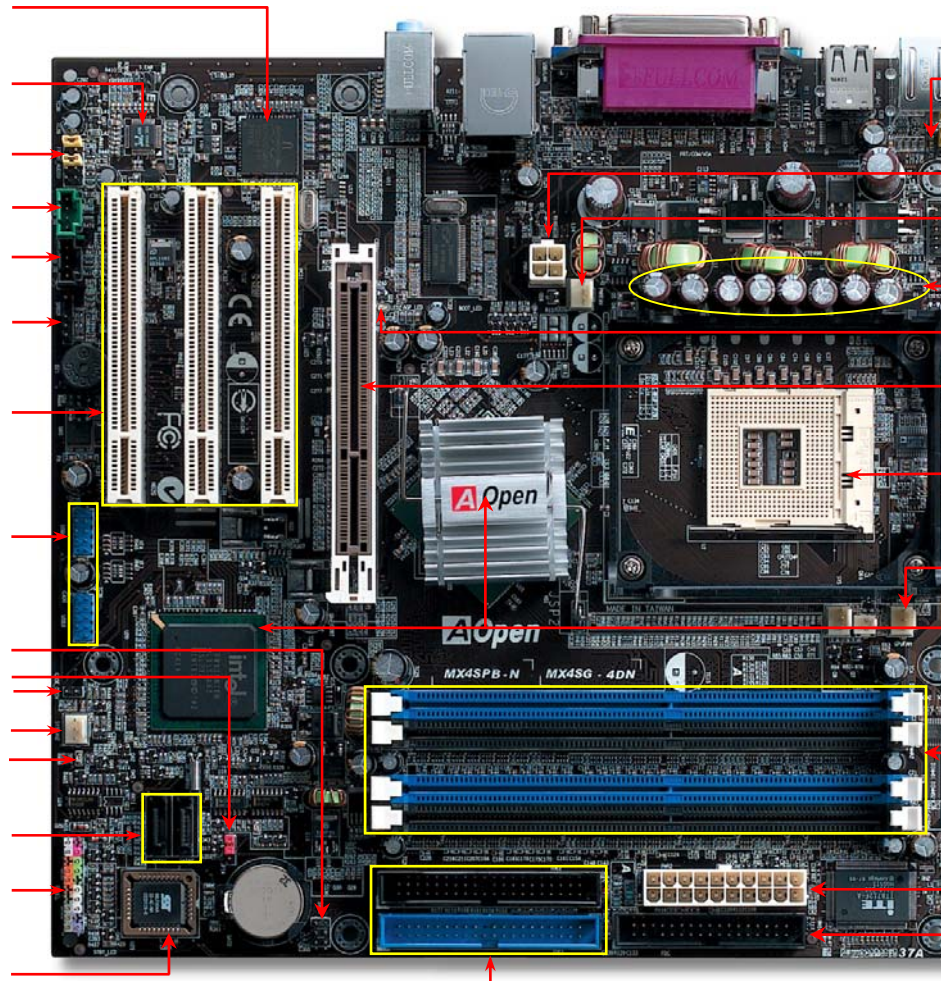
IrDA Connector
JP14 CMOS Data Clear Jumper
Case Open Connector

SYSFAN2 Connector
STBY LED

Serial ATA Port x2
Supports 150 MB/s Transfer Rate

Front Panel Connector

4 Mb Flash ROM BIOS



Resettable Fuse

JP28 PS2 KB/Mouse Wakeup Jumper

4-pin 12V ATX Power Connector

SYSFAN1 Connector

COM2 connector

Low ESR Capacitors

AGP Protection LED

AGP 8X Expansion Slot supports 8X AGP card (2.1GB/S) and ADD card (for MX4SG-4DL & MX4SG-4DN)

478-pin CPU socket with Voltage and Frequency Auto-detection that supports Intel® Pentium® 4 1.6~3.20GHz+ CPU

CPUFAN Connector

Intel® 865G Chipsets (for MX4SG-4DL & MX4SG-4DN)
Intel® 848PB Chipsets (for MX4SPB-N)

184-pin DIMMx4 supports
128bit dual channel DDR400/333/266
Max. To 4GB (for MX4SG-4DL & MX4SG-4DN)
184-pin DIMMx2 supports
128bit DDR400/333/266
Max. To 2GB (for MX4SPB-N)

ATX Power Connector

FDD Connector

IDE Connector x 2
(ATA33/66/100 supported)

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 x 1
- ✓ Floppy Disk Cable x 1
- ✓ 80-Wire IDE Cable x 1
- ✓ Serial ATA Cable x 1
- ✓ Serial ATA Power Cable x 1
- ✓ Bonus Pack CD x 1
- ✓ I/O Shield x 1

8x AGP8X

DDR400

SilentTek

Dual Channel

PART NO: 49.8B804.012

Watch DOG ABS

Flash EzWin Flash

Vivid Vivid BIOS

DOC. NO: MX4SG4DL-EG-E0311B

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)



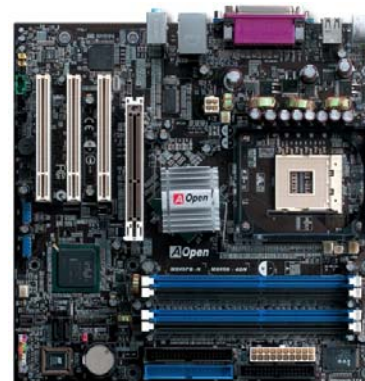
Clear CMOS

Tip: When should I Clear CMOS?

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

2. JP28 Keyboard/Mouse Wakeup Jumpers

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



Pin 1



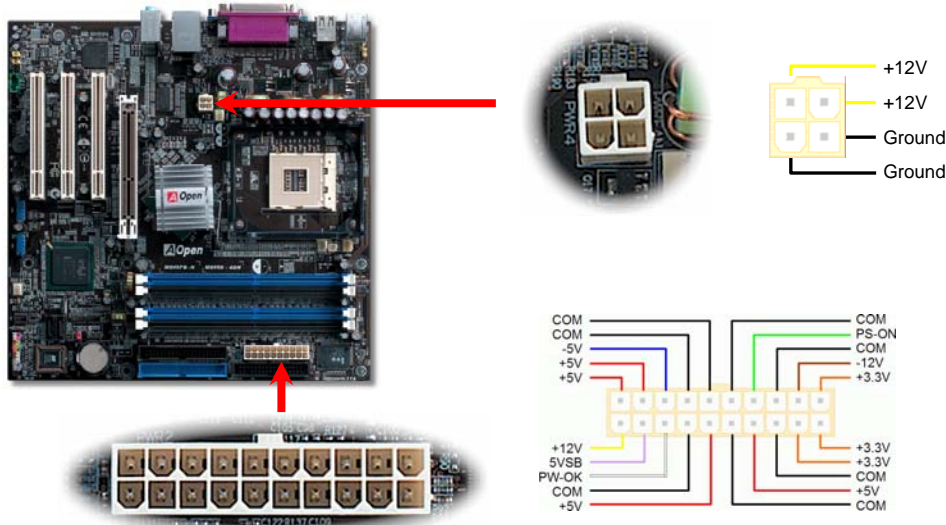
Disable (Default)



Enable

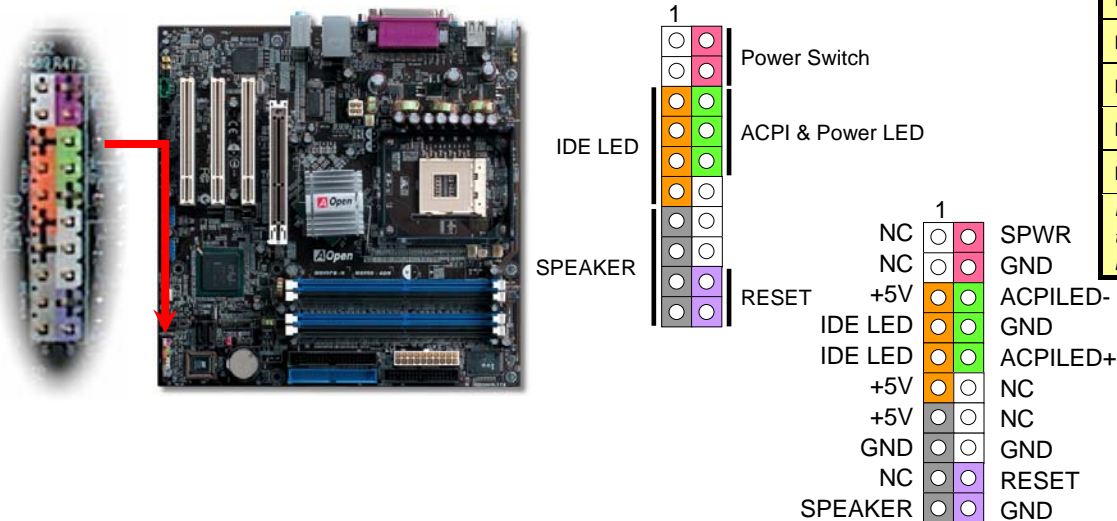
3. Connecting ATX Power Connector

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.



4. 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**.



5. Setting CPU Voltage & Frequency

Full-range Adjustable CPU Core Voltage

This motherboard supports CPU VID function. The CPU core voltage will be automatically detected and the range is from 0.8375V to 1.6000V. 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

$$\text{Core Frequency} = \text{CPU FSB Clock} * \text{CPU Ratio}$$

| | |
|-------------------------------|--|
| CPU Ratio | 8x, 10x... 24x, 25x, 26x, 27x, 28x |
| CPU FSB (Adjustment manually) | FSB = 100MHz-255MHz by 1MHz Stepping CPU Overclocking |

| Northwood CPU | CPU Core Frequency | FSB Clock | System Bus | Ratio |
|-----------------|--------------------|-----------|------------|-------|
| Pentium 4 1.8G | 1800MHz | 100MHz | 400MHz | 18x |
| Pentium 4 2.0G | 2000MHz | 100MHz | 400MHz | 20x |
| Pentium 4 2.2G | 2200MHz | 100MHz | 400MHz | 22x |
| Pentium 4 2.2G | 2200MHz | 133MHz | 533MHz | 16x |
| 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 2.8G | 2800MHz | 133MHz | 533MHz | 21x |
| Pentium 4 2.8G | 2800MHz | 200MHz | 800MHz | 14x |
| Pentium 4 3.06G | 3066MHz | 133MHz | 533MHz | 23x |
| Pentium 4 3.20G | 3200MHz | 200MHz | 800MHz | 16x |

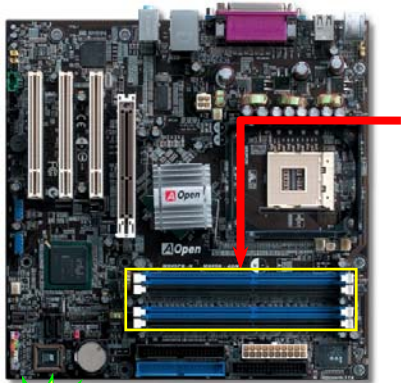
Note: With CPU speed changing rapidly, there might be fastest CPU on the market by the time you received this installation guide. This table is kindly for your references only.

Note: Intel 865G and 848PB chipsets only support Northwood processor. Northwood processor would detect the clock ratio automatically; you may not be able to adjust the clock ratio in BIOS manually.

Warning: Intel 865G and 848PB chipsets support maximum 800MHz (200MHz*4) system bus and 66MHz AGP clock; higher clock setting may cause serious system damage.

6. Memory Module

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. MX4SG-4DL and MX4SG-4DN support this dual channel mode. MX4SG-4DL and MX4SG-4DN support DDR 400/333/266 with maximum capacity up to 4GB. MX4SPB-N supports DDR 400/333/266 with maximum capacity up to 2GB.



128-bit DDR Dual Channel
Memory module
(For MX4SG-4DL and
MX4SG-4DN only)

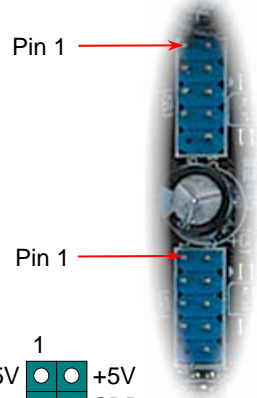
DIMMA1
DIMMA2

DIMMB1
DIMMB2

NEW!

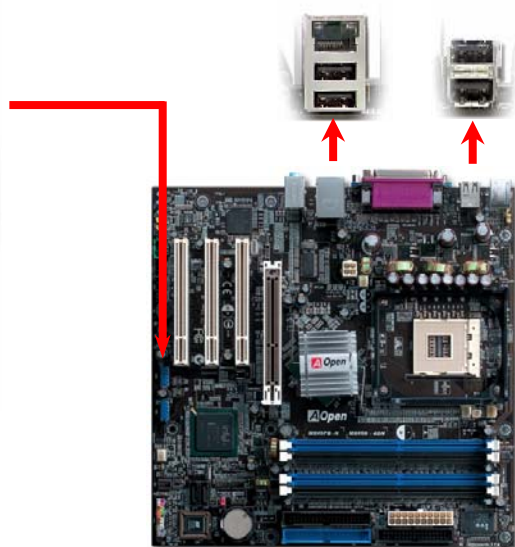
7. Support USB 2.0 Connector

This motherboard provides eight USB 2.0 ports to connect USB devices, such as mouse, keyboard, modem, printer, etc. There are four ports on the back panel. You can use proper cables to connect the Front USB connector to USB modules or front panel of chassis.



| | | | |
|-------|---|-------|--|
| 1 | | | |
| +5V | ● | +5V | |
| SBD6- | ● | SBD7- | |
| SBD6+ | ● | SBD7+ | |
| GND | ● | GND | |
| KEY | □ | NC | |

USB 2.0 Connector

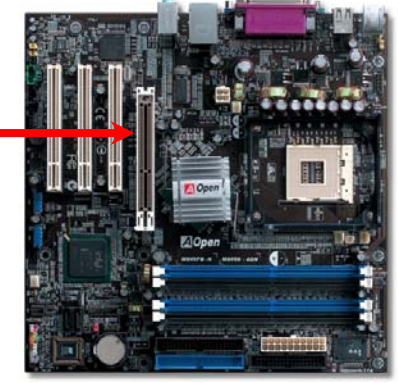


NEW!

8. AGP 8X Expansion Slot

This model provides an AGP 8X slot that is the latest AGP specification. The AGP 8X calls for the bus to operate at the basic AGP 66-MHz clock frequency and the bandwidth are 2.1Gbytes/s. It is a great improvement on the performance of 3D graphic. AGP supports only memory read/write operation and single-master single-slave one-to-one only. AGP uses both rising and falling edge of the 66MHz clock, for 4X AGP, the data transfer rate is $66\text{MHz} \times 4\text{bytes} \times 4 = 1056\text{MB/s}$. Now the transfer rate is $66\text{MHz} \times 4\text{bytes} \times 8 = 2112\text{MB/s}$.

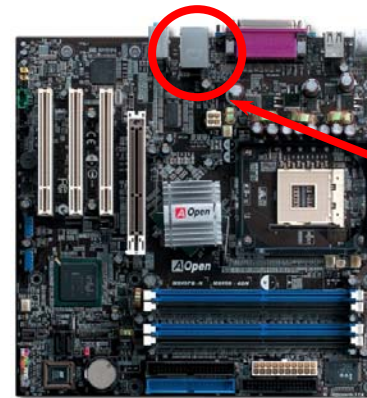
Warning: It is strongly recommended not to install a 3.3V AGP card, which is not supported by Intel 865G and 848PB chipset.



NEW!

9. Support LAN onboard

On the strength of Broadcom Gigabit LAN controller (MX4SG-4DL) or Broadcom BCM4401 LAN controller (MX4SG-4DN and MX4SPB-N) on board, this motherboard provides 10/100 Mbps (for MX4SG-4DL, it is 10/100/1000 Mbps) Ethernet for office and home use. The Ethernet RJ45 connector is located on top of USB connectors. The right hand side LED indicates link mode, it lights in orange whenever linking to network. The left hand side LED indicates the transfer mode and it lights in green when data is transferring in 100Mbps (never lights while in 10Mbps), but lights in orange when transferring in Gigabit's mode (MX4SG-4DL). To enable or disable this function, you may simply adjust it through BIOS.



Transferring (Left)
Green 100Mbps
Orange Gigabit mode

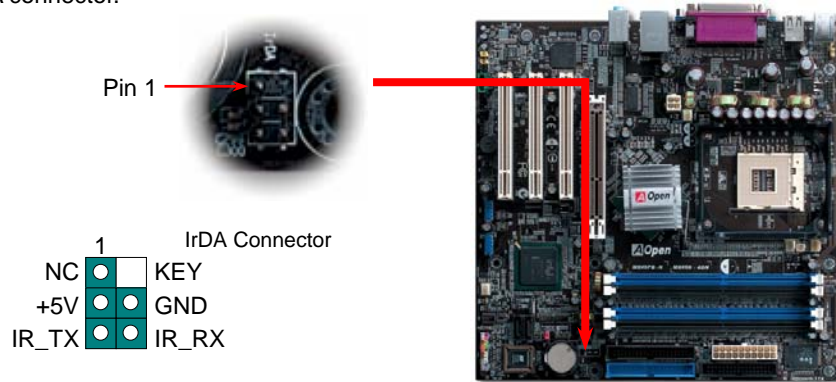
Linking (Right)
Orange



10. 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 98 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).

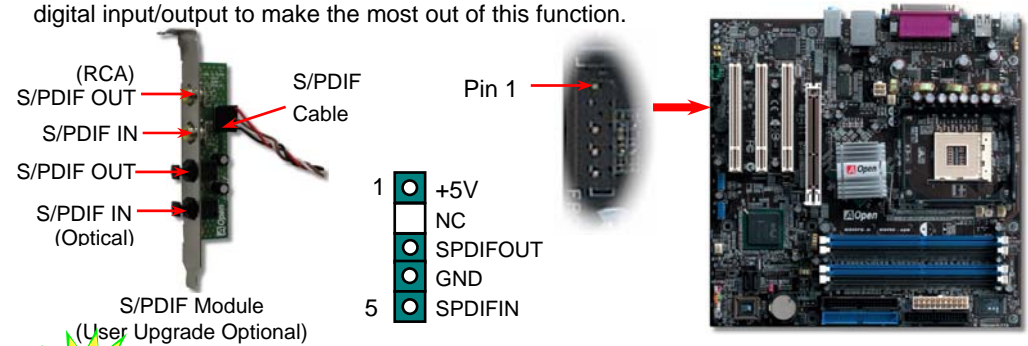
Install the infrared module onto the **IrDA** connector and enable the infrared function from BIOS Setup, UART mode select, make sure to have the correct orientation when you plug in the IrDA connector.



NEW!

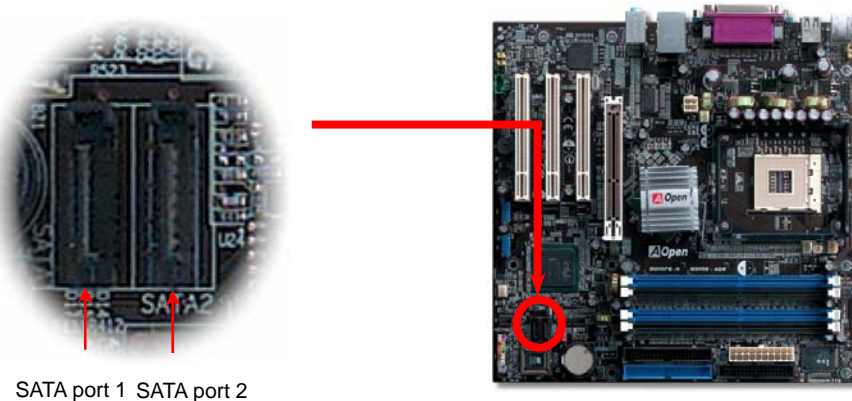
12. S/PDIF (Sony/Philips Digital Interface) Connector

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.



11. Connecting Serial ATA Connector

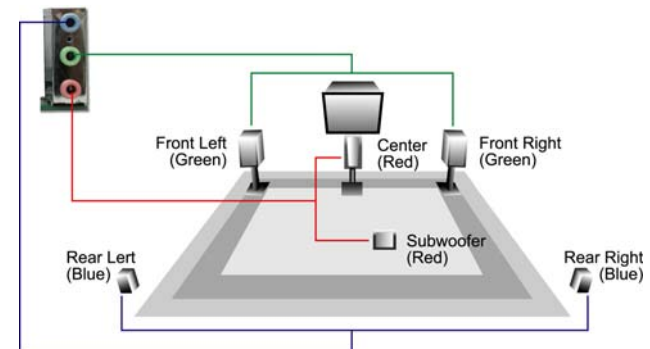
To connect a Serial ATA disk, you must use a 7-pin serial ATA cable. Connect two ends of the serial ATA cable to the serial ATA header on the main board and the disk. Like every other traditional disk, you also have to connect a power cable. Please note that it is a jumper free implement; you don't need 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.



NEW!

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 below 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.



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.



| | | | |
|-----------|---|---|--------------|
| AUD_RET_L | ● | ● | AUD_FPOUT_L |
| KEY | □ | ● | NC |
| AUD_RET_R | ● | ● | AUD_FPOUT_R |
| AUD_VCC | ● | ● | AUD_MIC_BIAS |
| AUD_GND | ● | ● | AUD_MIC |

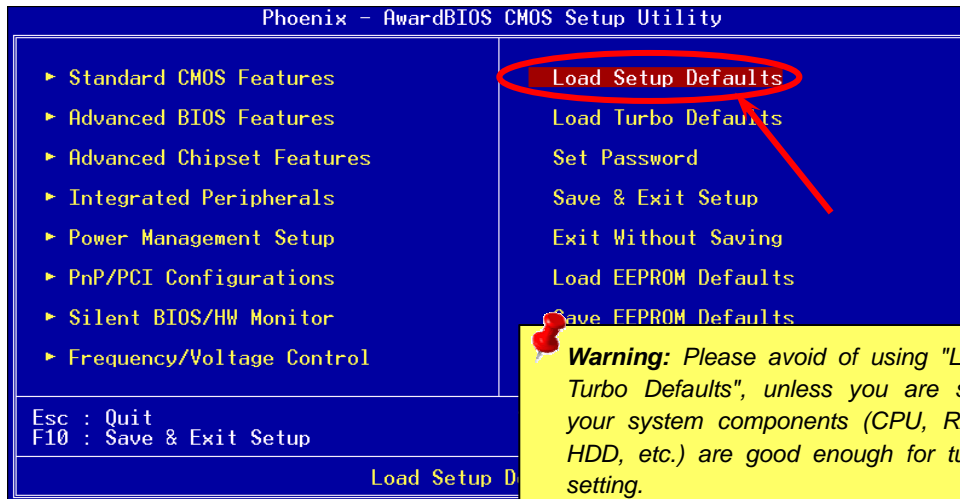
1

Front Audio Connector

15. 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 during POST (Power On Self Test). Choose "Load Setup Defaults" for recommended optimal performance.



16. AOpen Bonus Pack CD and EzInstall

You can use the autorun menu of Bonus CD disc. Choose the utility and driver from the ICON at left side.



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.

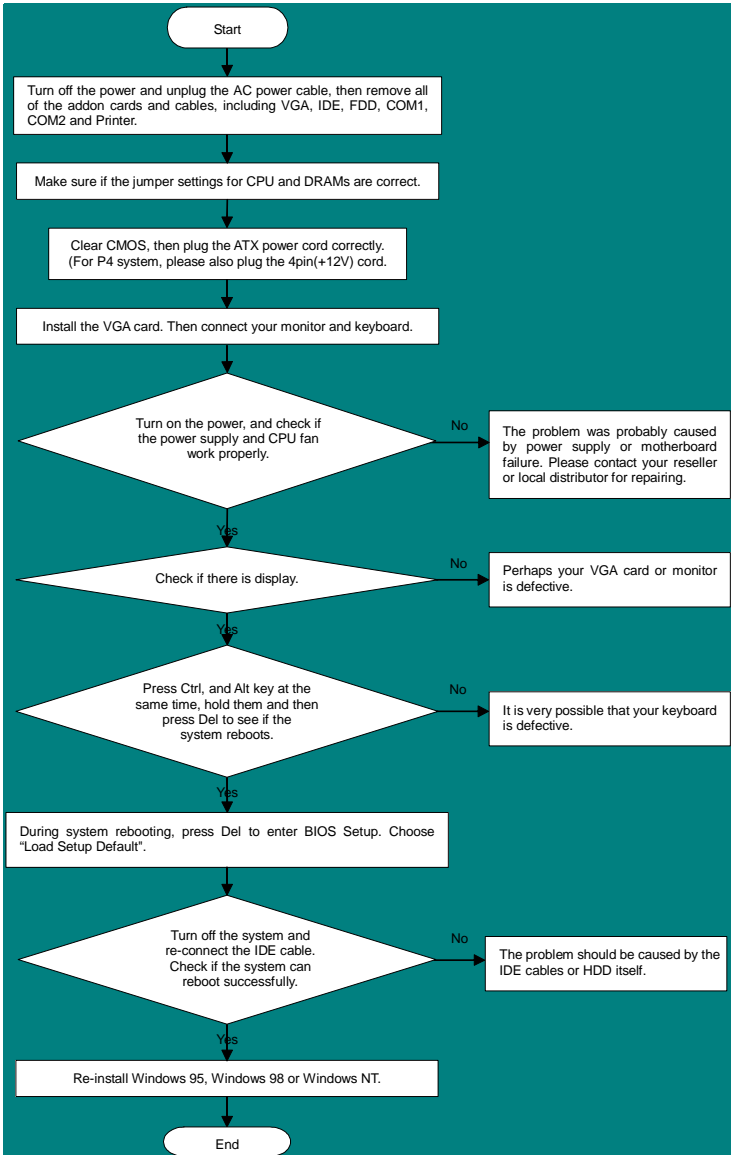
1. Download the new version of BIOS package zip file from AOpen official web site. (ex: <http://english.aopen.com.tw>)
2. Unzip the download BIOS package (ex: WSG4DL102.ZIP) with WinZip (<http://www.winzip.com>) in Windows environment.
3. Save the unzipped files into a folder, for example, WSG4DL102.EXE & WSG4DL102.BIN.
4. Double click on the WSG4DL102.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 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.



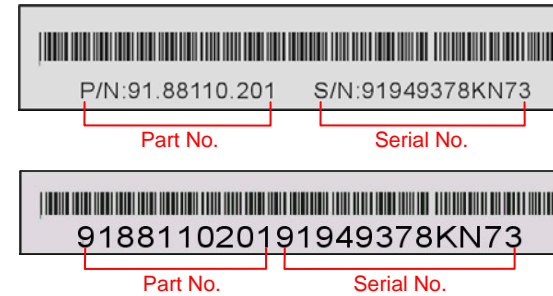
Troubleshooting

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



Part Number and Serial Number

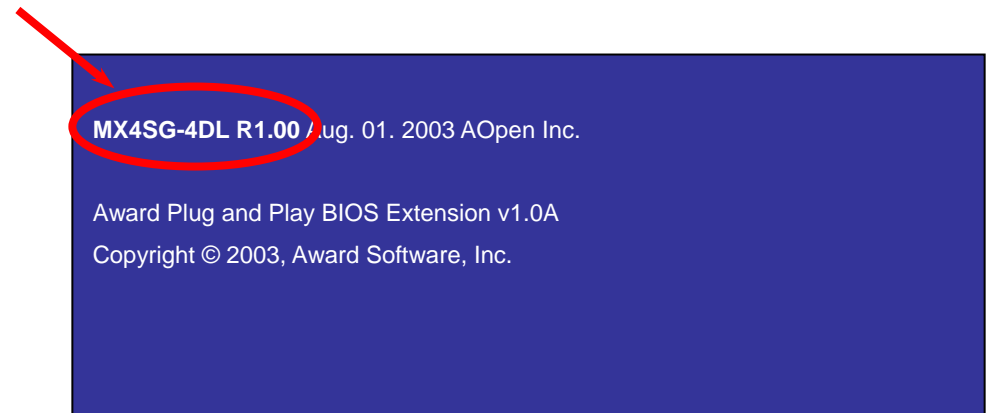
The Part Number and Serial number are printed on bar code label. You can find this bar code label on the outside packing, on component side of PCB. For example:



P/N: 91.88110.201 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:



MX4SG-4DL 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

| | |
|---|---|
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