MX46LS

Easy Installation Guide

PS/2 Mouse Connector
RJ45 LAN Jack
SPP/EPP/ECP Parallel Port
MIDI/Game Port

PS/2 Keyboard Connector
USB Port (V1.1)
COM 1 Port
VGA Connector

MIC-In
Line-In
Speaker Out

Flash ROM
CD-IN Connector
Front Audio Connector

AC'97 CODEC

MODEM-CN Connector

CNR Connector (Only CNR Audio Supported)

32-bit PCI Expansion Slot x3

WOM (Wake on Modem) Connector

FAN3 Connector
WOL (Wake on LAN) Connector
3rd USB V1.1 Connector
2nd USB V1.1 Connector

JP14 CMOS Clear Jumper

FAN2 Connector
Dr. LED Connector (Upgrade Optional)

Front Panel Connector

ATA66/100/133 IDE Connector x2

Resettable Fuse
COM2

PCI LAN Controller (Optional)
4-pin ATX-12V Power Connector
Low ESR Capacitors
IrDA Connector
AGP 4x Expansion Slot (1.5V/3.3V supported)
478-pin CPU socket (Willamette/Northwood) with Voltage and Frequency Auto-detection that supports Intel® Pentium® 4 1.4~2.4GHz+ CPU

SIS NB: 650GX/SB:961B Chipset
CPU FAN connector

168-pin DIMMx2 supports PC-100/133 SDRAM maximum up to 2 GB

ATX Power Connector

FDD Connector

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

☑ **Registration Card x1**
☑ **This Easy Installation Guide x1**
☑ **80-wire IDE Cable x1**
☑ **Floppy Disk Drive Cable x1**
☑ **Bonus Pack CD 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

1 Normal (default)
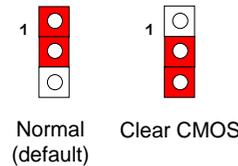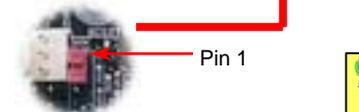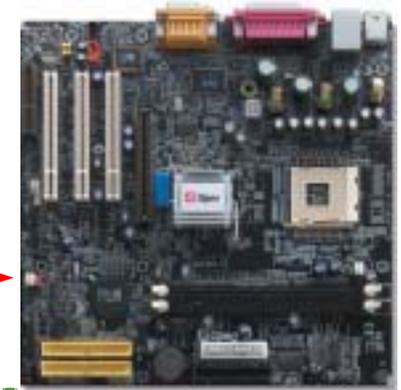
1 Clear CMOS

Tip: *When should I Clear CMOS?*

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

2. Connecting ATX Power Connector

This motherboard comes with a 20-pin ATX power connector and an extra 4-pin 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
12V
Ground
Ground

COM
COM
-5V
+5V
+5V

+12V
5VSB
PO-OK
COM
+5V

COM
PS-ON
COM
-12V
+3.3V

+3.3V
+3.3V
COM
+5V
COM
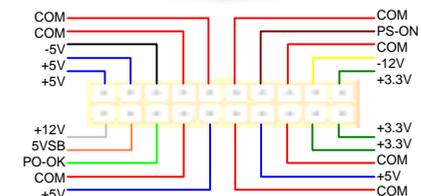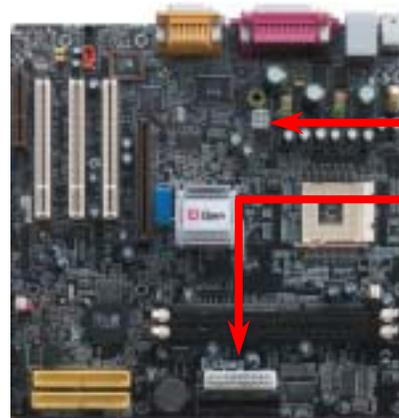
3. Installing Processor

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.

CPU socket lever

CPU Pin 1 and cut edge
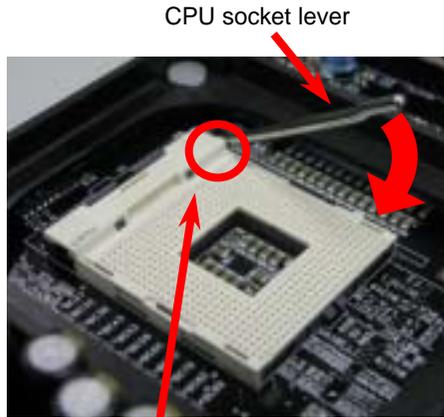
1. Pull up the CPU socket lever and up to 90-degree angle.

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, it may damage the CPU.*

4. Installing CPU & System Fan

Plug in the CPU fan cable to the 3-pin **CPU FAN** connector. If you have chassis fan, you can also plug it on **System FAN** (FAN2) or **AUX FAN** (FAN3) connector.

FAN3 Connector
(Without Hardware Monitor)

CPU Fan Connector

GND
+12V
SENSOR

FAN2 Connector
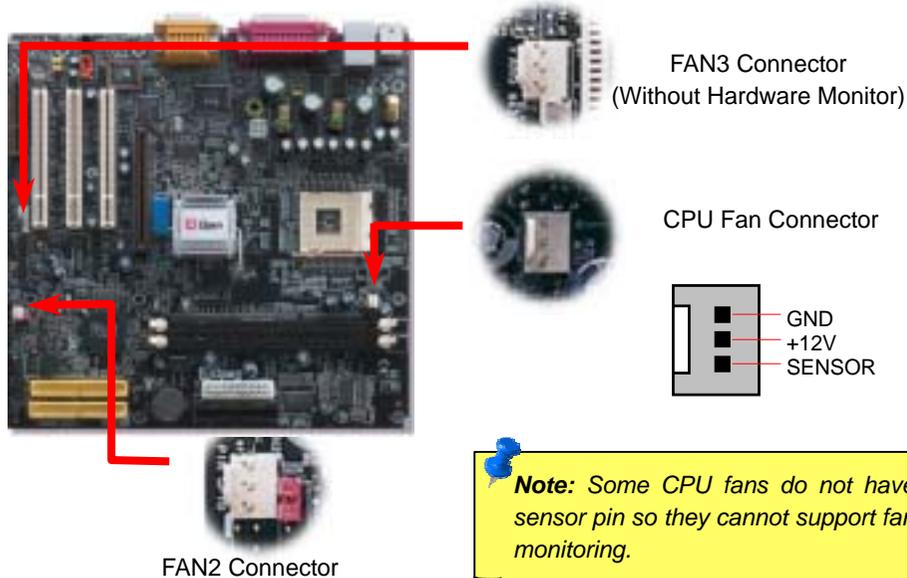
Note: *Some CPU fans do not have sensor pin so they cannot support fan monitoring.*

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 Speed Setup

CPU Ratio	10x... 21x, 22x, 23x, 24x
CPU FSB (By BIOS table)	100, 105, 108, 112 and 133MHz.

Northwood CPU	CPU Core Frequency	FSB Clock	System Bus	Ratio
Pentium 4 1.6G	1600MHz	100MHz	400MHz	16x
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 2.4G	2400MHz	100MHz	400MHz	24x
Willamette CPU	CPU Core Frequency	FSB Clock	System Bus	Ratio
Pentium 4 1.5G	1500MHz	100MHz	400MHz	15x
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

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.*

Warning: *SIS 650GX/961B Chipset supports maximum 400MHz (100MHz*4) system bus and 66MHz AGP clock; higher clock setting may cause serious system damage.*

Note: *SIS 650GX/961B Chipset supports SMA (Share Memory Architecture) for the build-in VGA function. You may adjust the size of video memory in BIOS. After entering the BIOS SETUP, please choose the "System Share Memory Size" of the "Advanced Chipset Features". We provide 8, 16, 32,and 64MB for choosing. It supports up to 64 MB shared system memory. It is recommended to keep enough system memory for your operating system.*

6. Support Six USB V1.1 Connectors

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

USB3 Connector — Pin 1

USB2 Connector — Pin 1

```
USB_FP_OC0  O |   | KEY
       GND  O | O  GND
  USB_FP_P1+ O | O  USB_FP_P0+
  USB_FP_P1- O | O  USB_FP_P0-
   USBPWR0   O | O  USBPWR0
                1
```
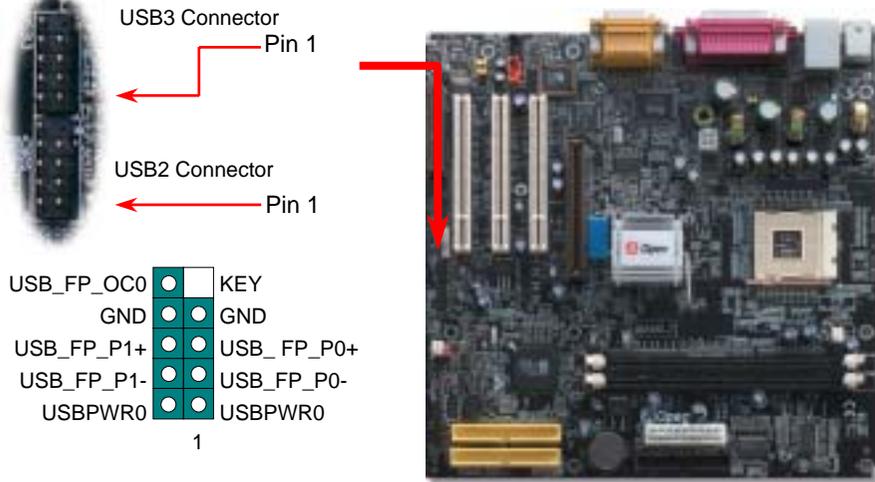
7. Connect IrDA Connector

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 select, make sure to have the correct orientation when you plug in the IrDA connector.

Pin 1

```
        1
  NC  O |   | KEY
 +5V  O | O  GND
IR_TX O | O  IR_RX
```
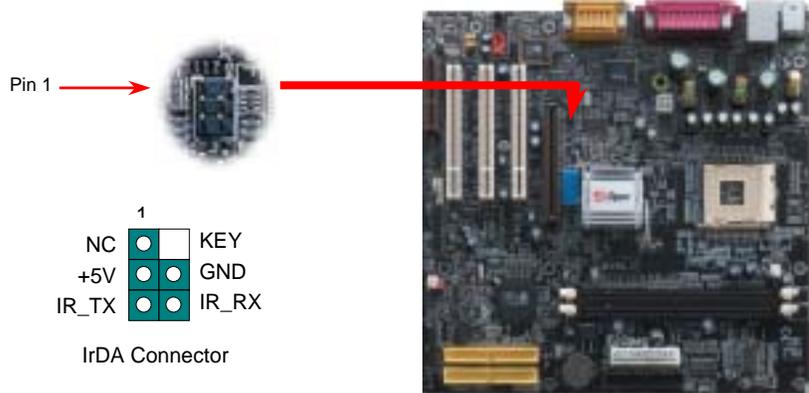
IrDA Connector

8. Connecting IDE and Floppy Cables

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

Primary Slave (2nd)   Primary Master (1st)

IDE 1 (Primary)
IDE 2 (Secondary)

Pin 1

Secondary Slave (4th)   Secondary Master (3rd)

ATA 66/100/133 IDE Connector

Pin 1   FDD Connector
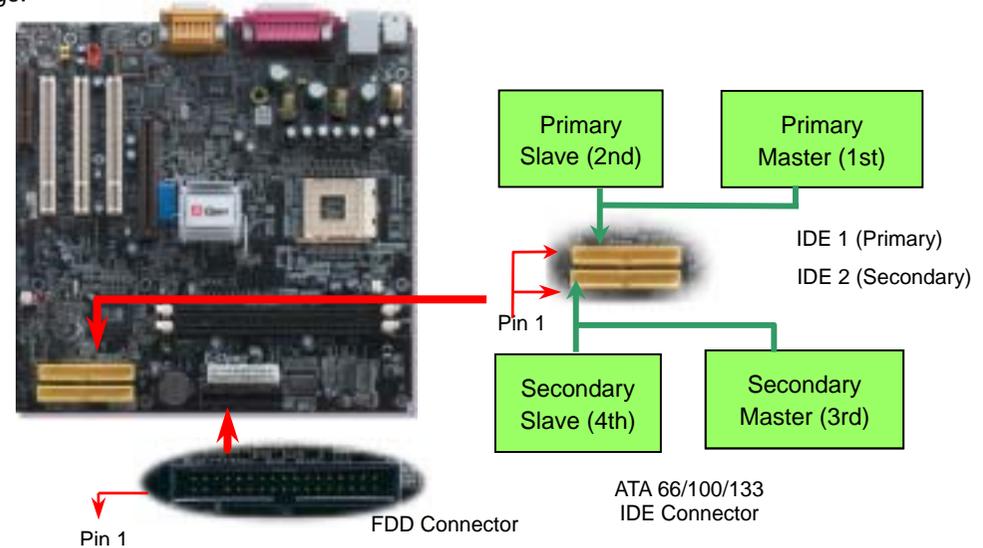
9. Connecting Front Panel Cable

Pin 1

```
                1
            O | O       SPWR
            O | O
  IDE LED   O | O    ACPI & PWR
            O | O      LED
            O | O
            O | O
  Speaker   O | O
            O | O    Reset
            O | O
```

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**.

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

10. 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_L	○ ○	AUD_FPOUT_L
KEY	○	NC
AUD_RET_R	○ ○	AUD_FPOUT_R
AUD_VCC	○ ○	AUD_MIC_BIAS
AUD_GND	○ ○	AUD_MIC

1
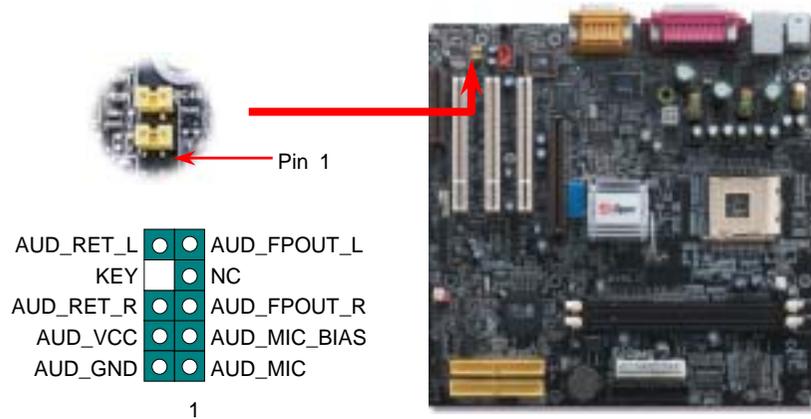
11. Support 10/100 Mbps LAN Onboard

On the strength of Realtek RTL8100 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 green LED indicates the link mode, it lights when linking to network and blinking when transferring data. The orange LED indicates the transfer mode, and it lights when data is transferring in 100Mbps mode. To enable or disable this function, you may simply adjust it through BIOS.

Green/ACT

Orange/Speed
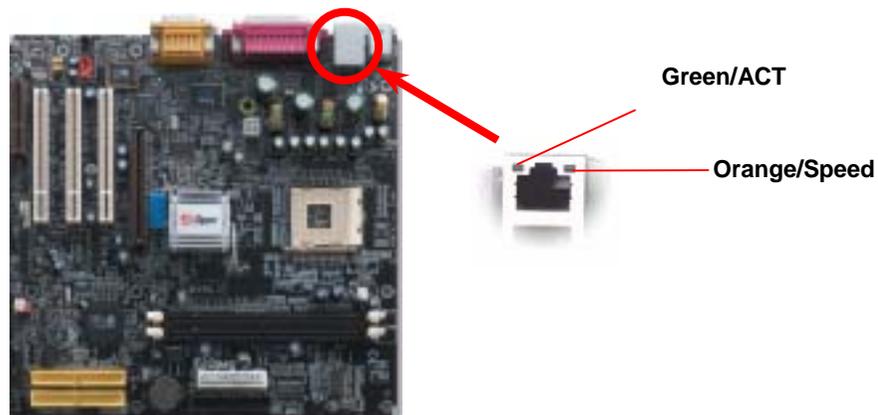
12. Connecting CD / MODEM Connector

CD-IN (Black)   MODEM-CN (Red)
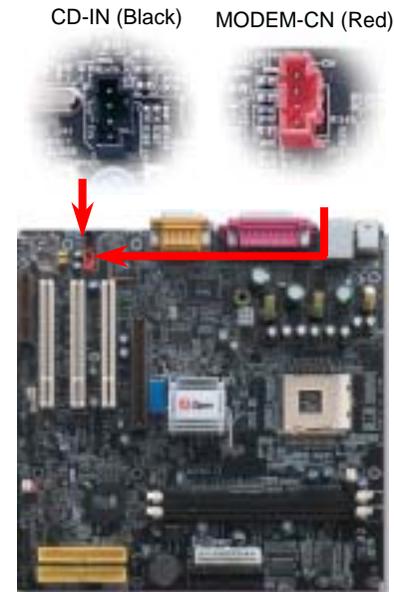
The **MODEM-CN** connector is used to connect Mono In/ Mic Out cable from internal modem card to onboard sound circuit.

The **CD-IN** connector is used to connect CD Audio cable from CDROM or DVD drive to onboard sound.

Connector	Pin1	Pin2	Pin3	Pin4
MODEM-CN	Mono In	GND	GND	Mic Out
CD-IN	Left	GND	GND	Right

13. Installing LAN Driver

You can install LAN Driver under WindowsME/98, Windows NT, Windows 2000 and Windows XP for RealTek RTL8100 PCI Fast Ethernet adapter by following steps.

Installing driver for Win98/Win98 SE/Windows2000/Windows ME/Windows XP:
----
1. Ask you to select which driver you want to install, select "Driver" from disk provided by hardware manufacturer".

2. Specify the setup file pathname
[CD-ROM]: Driver\LAN\RTL8100\Windows\WIN98 (for Windows 98/98 SE) or
[CD-ROM]: Driver\LAN\RTL8100\Windows\WIN2000 (for Windows 2000) or
[CD-ROM]: Driver\LAN\RTL8100\Windows\WINME (for Windows ME) or
[CD-ROM]: Driver\LAN\RTL8100\Windows\WinXP (for Windows XP)

3. Win98/Win98 SE/Windows2000/Windows ME will appear some messages to insert Win98/Win98 SE/Windows2000/Windows ME system disk to complete setup step.

4. Win98/Win98 SE/Windows2000/Windows ME will finish the other installation procedure automatically, then you restart the system.

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   ▶ CPU/PCI Clock Control
▶ Advanced BIOS Features   Load Setup Defaults
▶ Advanced Chipset Features   Load Trubo Defaults
▶ Integrated Peripherals   Set Password
▶ Power Management   etup
▶ PnP/PCI Configura   Load Setup Defaults (Y/N)? y   Saving
▶ PC Health Status

Esc : Quit   ↑ ↓
F10 : Save & Exit Setup

Load Setup Defau

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 disc. Choose the utility and driver and select model name.

16. Installing Onboard Sound Driver

This motherboard comes with a RealTek ALC201A AC97 CODEC, you can find the audio driver from the Bonus Pack CD disc auto-run menu.
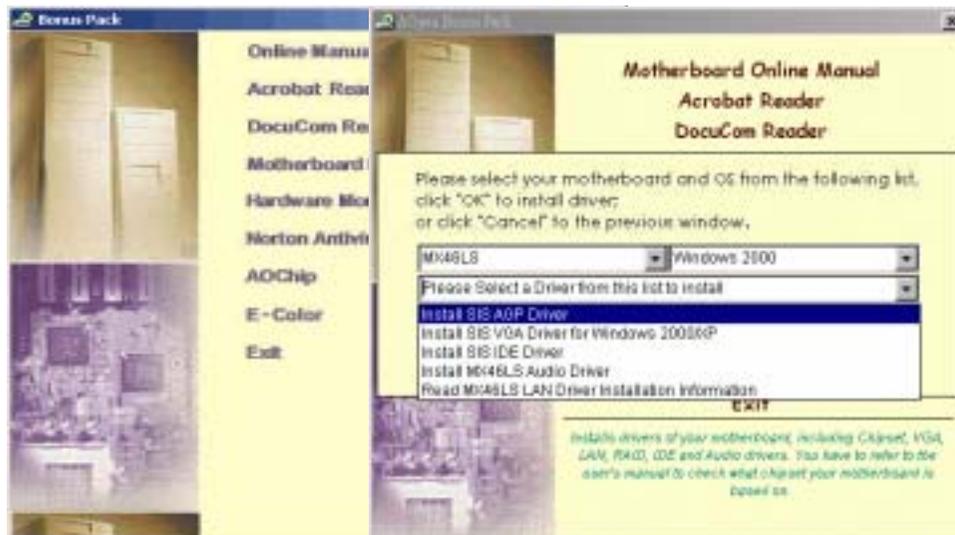
17. BIOS Upgrade under Windows Environment

NEW!

You may accomplish BIOS upgrade procedure with EZWinFlash by the following steps, and it's STRONGLY RECOMMMANDED 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://www.aopen.com)

2. Unzip the download BIOS package (ex: WMX46LS17.ZIP) with WinZip (http://www.winzip.com) in Windows environment.

3. Save the unzipped files into a folder, for example, WMX46LS17.EXE & WMX46LS17.BIN.

4. Double click on the WMX46LS17.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 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.
                      │
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
        │ Yes                                or local distributor for repairing.

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, on PCI slot or 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:

MX46LS R1.00 Mar. 06. 2002 AOpen Inc.

Award Plug and Play BIOS Extension v1.0A

Copyright © 1998, Award Software, Inc.

MX46LS is the model name of the 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 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

Pacific Rim AOpen Inc. Tel: 886-2-3789-5888 Fax: 886-2-3789-5899	**Europe** AOpen Computer b.v. Tel: 31-73-645-9516 Fax: 31-73-645-9604
China 艾尔鹏国际上海(股)有限公司 Tel: 86-21-6225-8622 Fax: 86-21-6225-7926	**Germany** AOpen Computer GmbH. Tel: 49-2102-157700 Fax: 49-2102-157799
America AOpen America Inc. Tel: 1-408-922-2100 Fax: 1-408-922-2935	**Japan** AOpen Japan Inc. Tel: 81-048-290-1800 Fax: 81-048-290-1820

Web Site: *www.aopen.com*

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

English	*http://www.aopen.com/tech/contact/techusa.htm*
Japanese	*http://www.aopen.co.jp/tech/contact/techjp.htm*
Chinese	*http://www.aopen.com.tw/tech/contact/techtw.htm*
German	*http://www.aopencom.de/tech/contact/techde.htm*
French	*http://france.aopen.com/tech/contact/techfr.htm*
Simplified Chinese	*http://www.aopen.com.cn/tech/contact/techcn.htm*

1 **Online Manual:** Please check the manual carefully and make sure the jumper settings and installation procedure are correct.
http://www.aopen.com/tech/download/manual/default.htm

2 **Test Report:** We recommend choosing board/card/device from the compatibility test reports for assembling your PC.
http://www.aopen.com/tech/report/default.htm

3 **FAQ:** The latest FAQ (Frequently Asked Questions) may contain a solution to your problem.
http://www.aopen.com/tech/faq/default.htm

4 **Download Software:** Check out this table to get the latest updated BIOS/utility and drivers.
http://www.aopen.com/tech/download/default.htm

5 **News Group:** Our support engineer or professional users on the news group probably had answered your problem.
http://www.aopen.com/tech/newsgrp/default.htm

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 if next time you want to buy something else from them.

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.