i945Ga-PLF / i945Pa-PLF

PS/2 Mouse Connector
SPP/EPP/ECP Parallel Port
IEEE 1394 port
RJ45 LAN Jack
Rear SUR
Line-In
Speaker Out
Center / Subwoofer
MIC-In
Side SUR
PS/2 Keyboard
COM Port
VGA Port (for i945Ga-PLF)
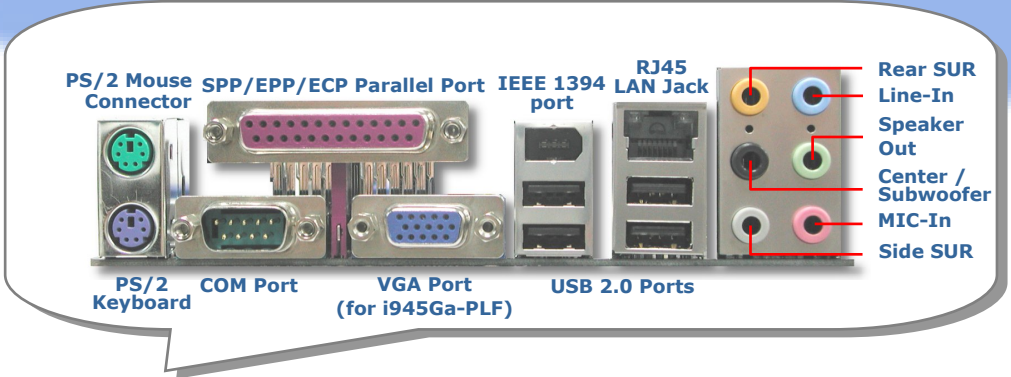USB 2.0 Ports

CD_IN Connector

Realtek Gigabit LAN Chip

Onboard AC'97 CODEC

Front Audio Connector

DieHard BIOS Lite

S/PDIF Connector

PCI Express x1 Slots x 2

Game Connector

IRDA Connector

32-bit PCI Expansion Slots x 3

STBY LED

IEEE 1394 Connector x 1

IrDA Connector

FDD Connector

Serial ATA II Ports x 4 Supports 300 MB/s Transfer Rate

USB 2.0 Connectors x 2

Case Open Connector

JP14 CMOS Data Clear Jumper

BOOT LED

Front Panel Connector

IDE Connectors x 2 (iTE IT8211F) (ATA 66/100/133 supported)

SYSFAN2 Connector
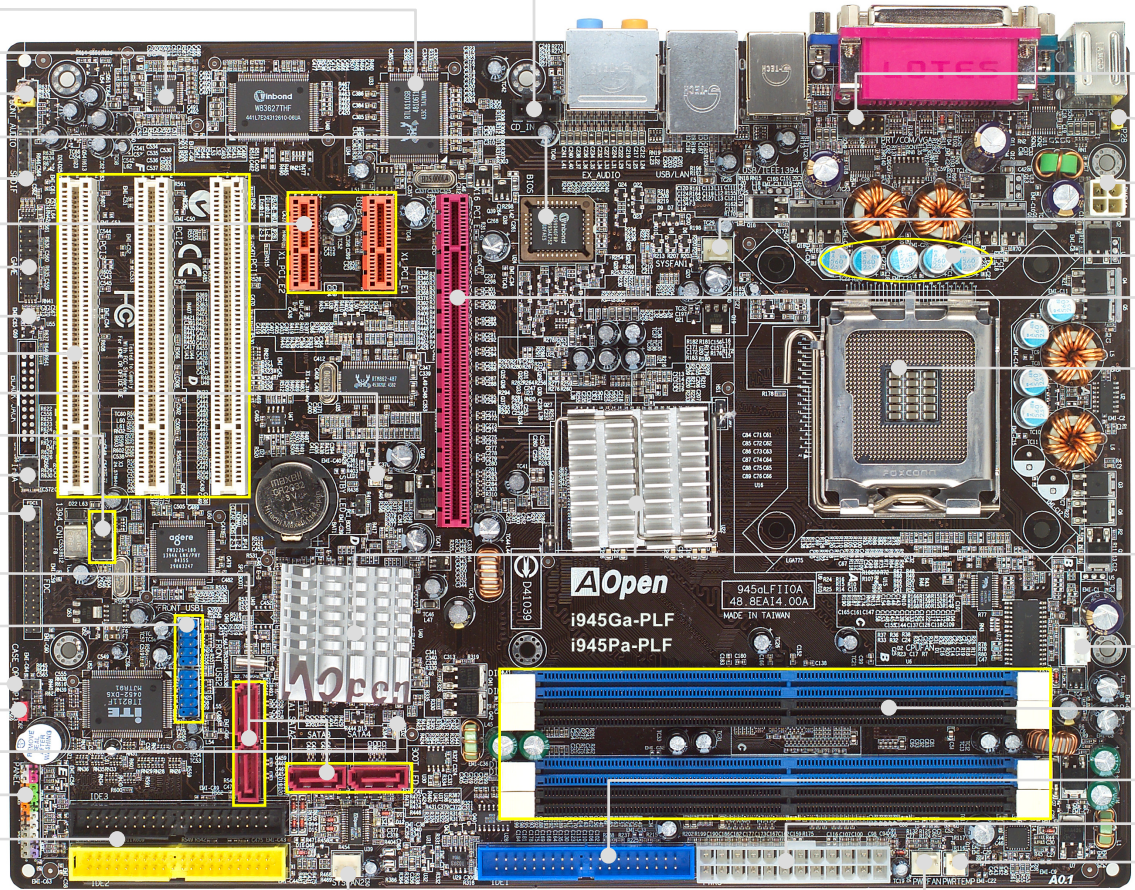
COM2 Connector (i945Ga-PLF)

JP28 PS2 KB/Mouse Wakeup Jumper

4-pin 12V ATX Power Connector

SYSFAN1 Connector

Functional Polymer Capacitor

PCI Express x 16 Graphics Slot (8.0GB/s)

LGA 775 CPU Socket with Voltage and Frequency Auto-detection that supports Intel® FC-LGA4 CPU

Intel® 945G / ICH7 (i945Ga-PLF) 945P / ICH7 (i945Pa-PLF) Chipsets that support 1066MHz FSB, DDRII 667 and PCI Express x16

CPUFAN Connector

240-pin DIMMs x 4 support Dual Channel DDR400/533/667 Max. To 4GB

IDE Connector (ATA 33/66/100 supported)

ATX Power Connector

Power Temperature Connector

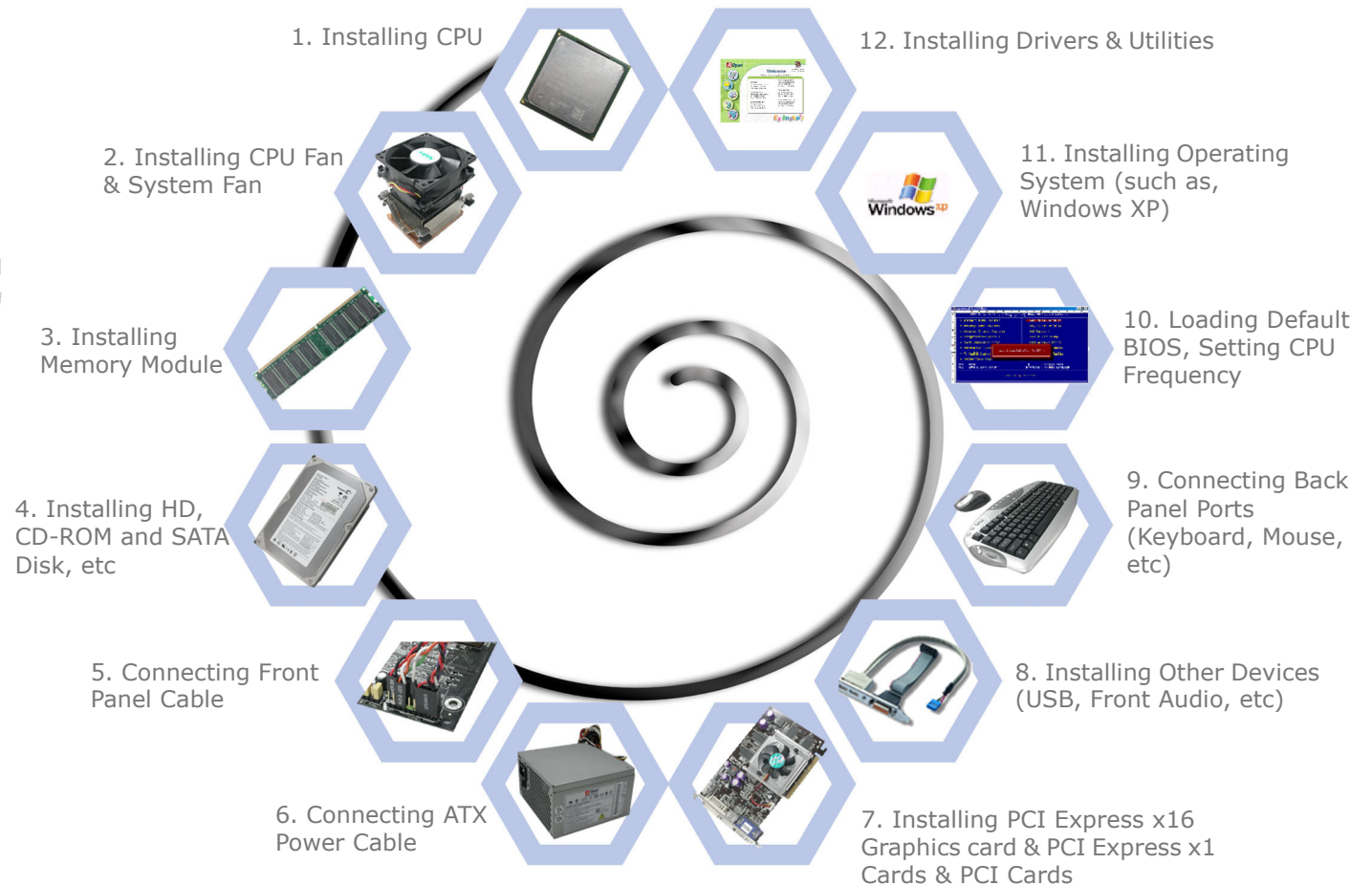PWRFAN Connector

i945Ga-PLF
i945Pa-PLF

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**
- **Enhanced Full Pictured Manual x 1**
- **80-Wire IDE Cable x 1**
- **Floppy Drive Cable x 1**
- **Serial ATA Cable x 1**
- **Serial ATA Power Cable x 1**
- **Back Panel I/O Shield x 1**
- **Bonus Pack CD x 1**

Installing By Yourself

1. Installing CPU

2. Installing CPU Fan & System Fan

3. Installing Memory Module

4. Installing HD, CD-ROM and SATA Disk, etc

5. Connecting Front Panel Cable

6. Connecting ATX Power Cable

7. Installing PCI Express x16 Graphics card & PCI Express x1 Cards & PCI Cards

8. Installing Other Devices (USB, Front Audio, etc)

9. Connecting Back Panel Ports (Keyboard, Mouse, etc)

10. Loading Default BIOS, Setting CPU Frequency

11. Installing Operating System (such as, Windows XP)

12. Installing Drivers & Utilities

IEEE1394

Dual Channel

1MHz Stepping CPU

EzInstall

Gigabit LAN

EzWin Flash

PCI Express

7♪ High Definition Azalia

1. Installing CPU

This socket supports FC-LGA4 CPU, which is the latest CPU package developed by Intel. Other forms of CPU package are impossible to be fitted in.
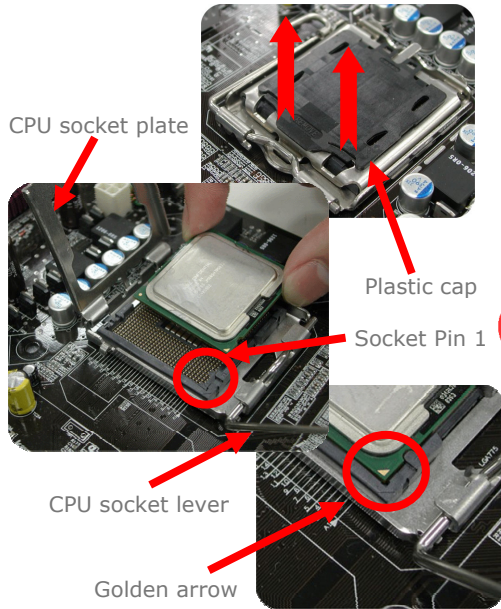
1. Pull CPU socket lever and plate up.
2. Remove plastic cap from CPU socket plate.
3. Locate Pin 1 in the socket and look for a golden arrow on the CPU upper interface. Match Pin 1 and golden arrow. Then insert the CPU into the socket.
4. Press down CPU socket plate and lever to finish CPU installation.

CPU socket plate

Plastic cap

Socket Pin 1

CPU socket lever

Golden arrow

🚫 *Warning: If you do not match the CPU socket Pin 1 and CPU golden arrow well, you may damage the CPU. And please don't touch CPU socket pins when installing CPU.*

📌 *Note: It's strongly recommended by Intel to use thermal paste properly to avoid over-heat generated From CPU.*

2. Installing CPU & System Fans

Plug in the CPU fan cable to the 4-pin CPUFAN connector. If you have chassis fan, you can also plug it in SYSFAN1 or SYSFAN2 connector.

GND
+12V
Sensor

SYSFAN1 Connector

PWM
SENSOR
+12V
GND

CPUFAN Connector

GND
+12V
Sensor

SYSFAN2 Connector
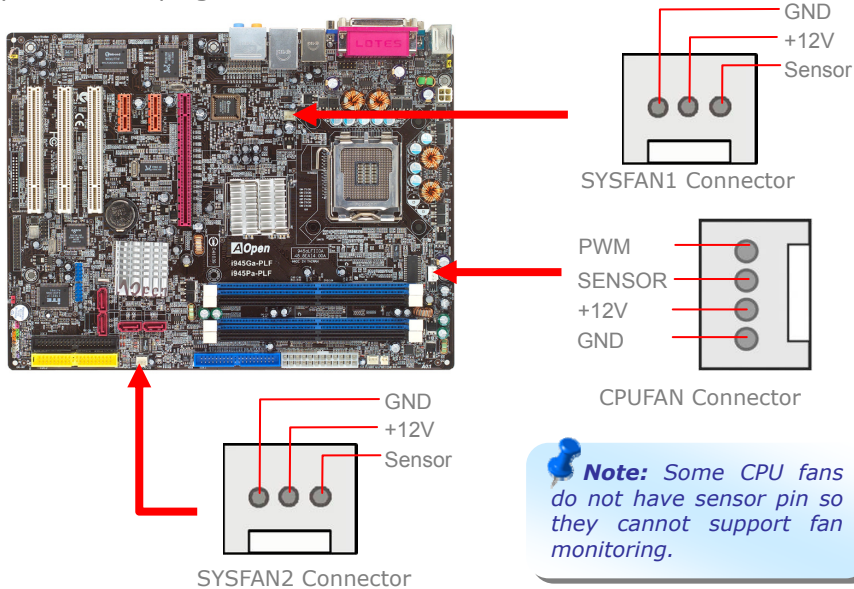
📌 *Note: Some CPU fans do not have sensor pin so they cannot support fan monitoring.*
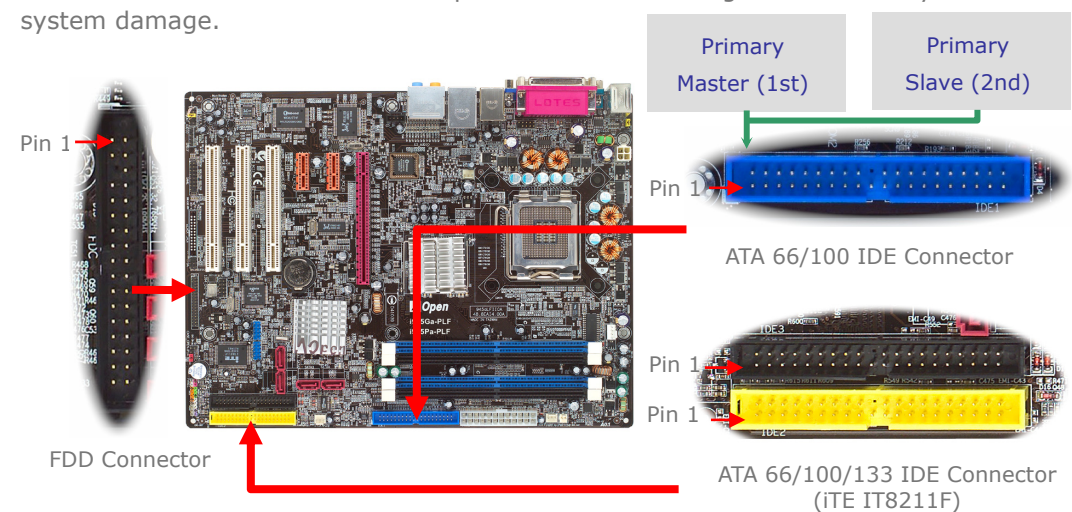
3. Installing Memory Modules

DIMM slots are designed in balck and navy blue which are very easy to recognize. Insert the module straight down to the DIMM slot with both hands and press down firmly until the DIMM module is securely in place.

Tab

Key
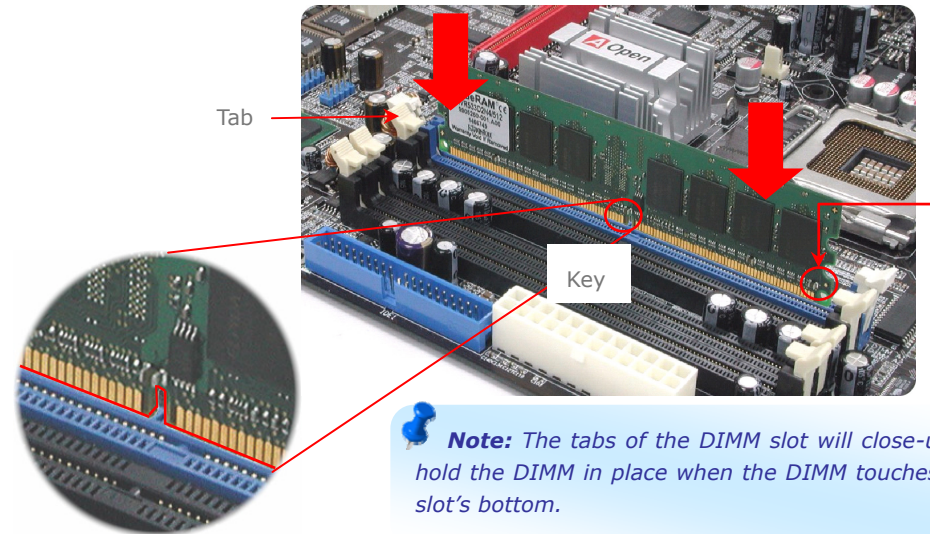
📌 *Note: The tabs of the DIMM slot will close-up to hold the DIMM in place when the DIMM touches the slot's bottom.*

4. 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.

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

Pin 1

Pin 1

ATA 66/100 IDE Connector

Pin 1

Pin 1

ATA 66/100/133 IDE Connector (iTE IT8211F)

FDD Connector

5. 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*.
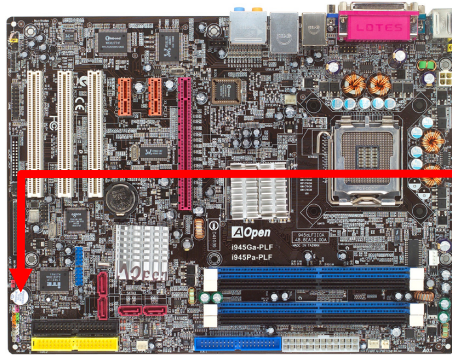

	1	
NC	○ ○	Power Switch
NC	○ ○	GND
+5V	○ ○	Power LED-
HDD LED	○ ○	GND
HDD LED	○ ○	Power LED+
+5V	○ ○	NC
+5V	○ ○	GND
GND	○ ○	GND
NC	○ ○	RESET
SPEAKER	○ ○	GND

Front Panel Connector
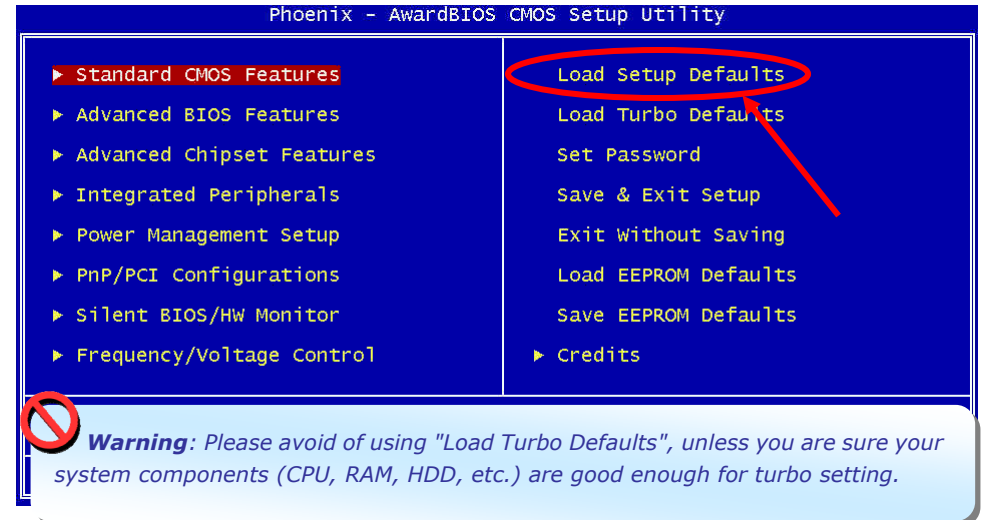
6. Connecting ATX Power Cables

This motherboard comes with a 24-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 24-pin connector.
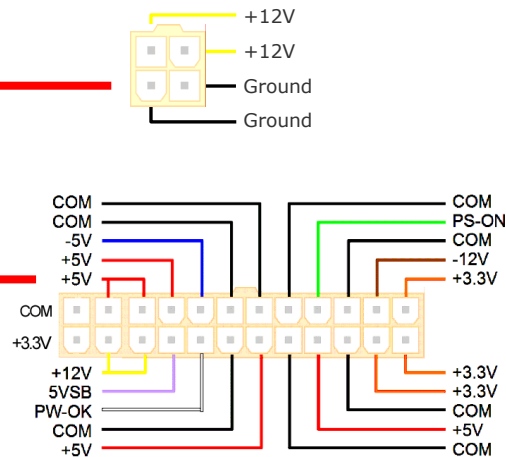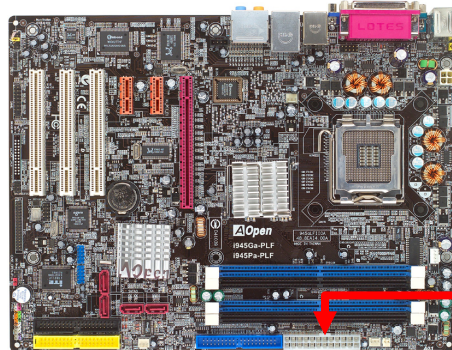
7. Power-on and Loading BIOS Setup

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.

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features
▶ Advanced BIOS Features
▶ Advanced Chipset Features
▶ Integrated Peripherals
▶ Power Management Setup
▶ PnP/PCI Configurations
▶ Silent BIOS/HW Monitor
▶ Frequency/Voltage Control

Load Setup Defaults
Load Turbo Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Load EEPROM Defaults
Save EEPROM Defaults
▶ Credits

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

8. AOpen EzInstall and Bonus Pack CD

You can use the autorun menu of Bonus CD disc. Choose the utility and driver from the icons at left side, and then click on the "**GO**" button to complete installation automatically.

Setting CPU Voltage & Frequency

Setting CPU Core Voltage

This motherboard supports Voltage ID (VID) function to detect CPU voltage automatically during power-on. It's not necessary to set CPU core voltage.

Setting CPU Frequency

This motherboard is CPU jumper-less design, you can set CPU frequency through 1MHz stepping CPU Overclocking in the BIOS. CPU Core Frequency = CPU FSB clock x CPU Ratio. However, all CPU now selling in the market belong to "Fixed Multiplier". That means users can not adjust the CPU Ratio but only change CPU FSB clock to achieve overclocking.

(Users do the overclocking at their own risk!!)

BIOS Setup > Frequency / Voltage Control > CPU Speed Setup

CPU Ratio	8x, 10x... 24x, 25x, 26x, 27x, 28x
CPU FSB (Adjustment manually)	FSB = 100MHz-400MHz by 1MHz Stepping CPU Overclocking

Processor Number	Processor Frequency	FSB	CPU Ratio	Cache
Extreme Edition Processor				
-	3.73G	1066MHz	14x	2MB L2
8 Series				
840	3.20G	800MHz	16x	2 x 1MB L2
830	3.00G	800MHz	15x	2 x 1MB L2
820	2.80G	800MHz	14x	2 x 1MB L2
6 Series				
670	3.80G	800MHz	19x	2MB L2
660	3.60G	800MHz	18x	2MB L2
650	3.40G	800MHz	17x	2MB L2
640	3.20G	800MHz	16x	2MB L2
630	3.00G	800MHz	15x	2MB L2
5 Series				
570	3.80G	800MHz	19x	1MB L2
560	3.60G	800MHz	18x	1MB L2
550	3.40G	800MHz	17x	1MB L2
540	3.20G	800MHz	16x	1MB L2
530	3.00G	800MHz	15x	1MB L2
520	2.80G	800MHz	14x	1MB L2
3 Series				
355	3.33G	533MHz	25x	256K L2
350	3.20G	533MHz	24x	256K L2
345	3.06G	533MHz	23x	256K L2
340	2.93G	533MHz	22x	256K L2
335	2.80G	533MHz	21x	256K L2

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.

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

🚫 *Warning: Intel 945G / 945P chipset support maximum 1066MHz (266MHz*4) system bus; higher clock setting may cause serious system damage.*

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 PWR3.
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 PWR3.

Pin 1

Normal (Default)   Clear CMOS

1   1
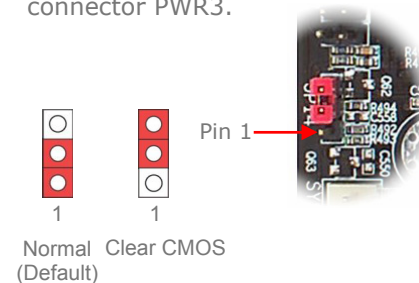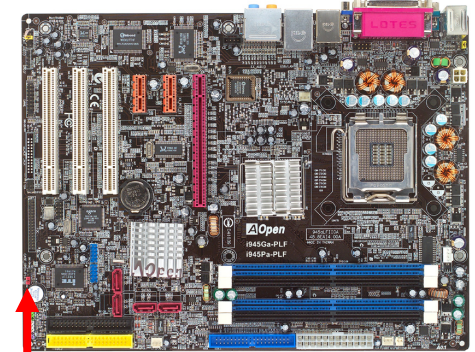
💡 *Tip: When should I Clear CMOS?*
1. Boot fails because of overclocking...
2. Forget password...
3. Troubleshooting...

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

Pin 1

1   1

Disable (Default)   Enable
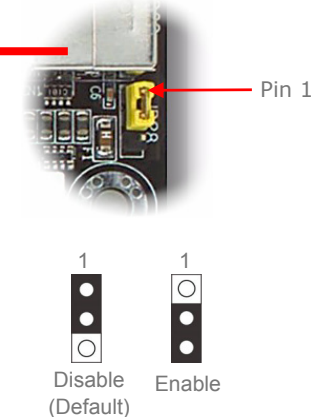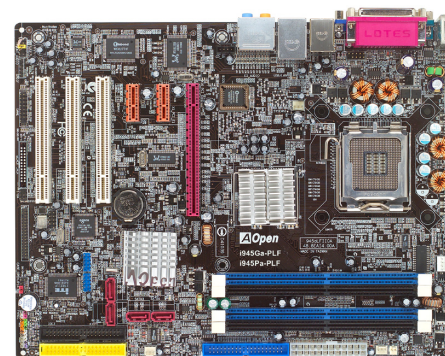
IEEE 1394 Connectors

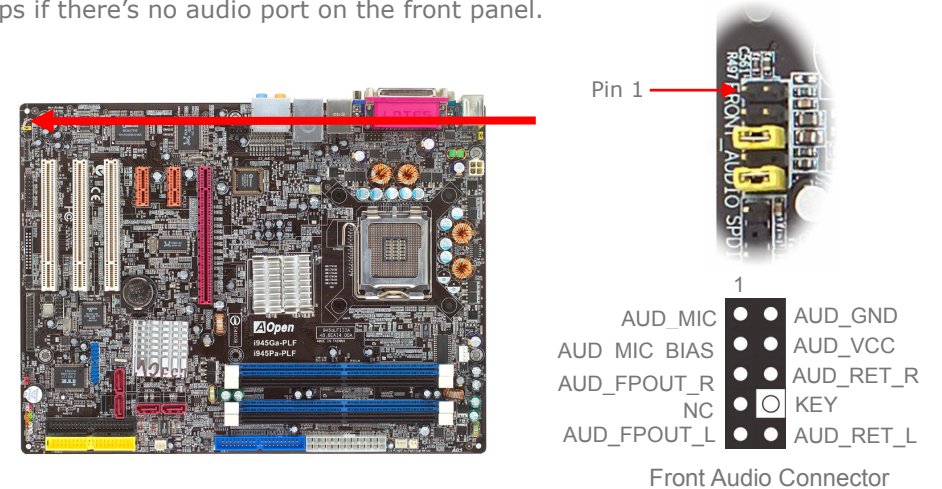With IEEE1394 Chip on board (AGERE 1394), having its data transfer rate up to 400Mb/s, this interface can connect to devices that require high data transferring performance such as digital camera, scanner or others IEEE 1394 devices. Please use appropriate cables to connect IEEE1394 devices.

Pin1

1 2

| TPA+ | | | TPA- |
GND			GND
TPB+			TPB-
+12V (Fused)			+12V (Fused)
			SHIED GND

IEEE 1394 Connector
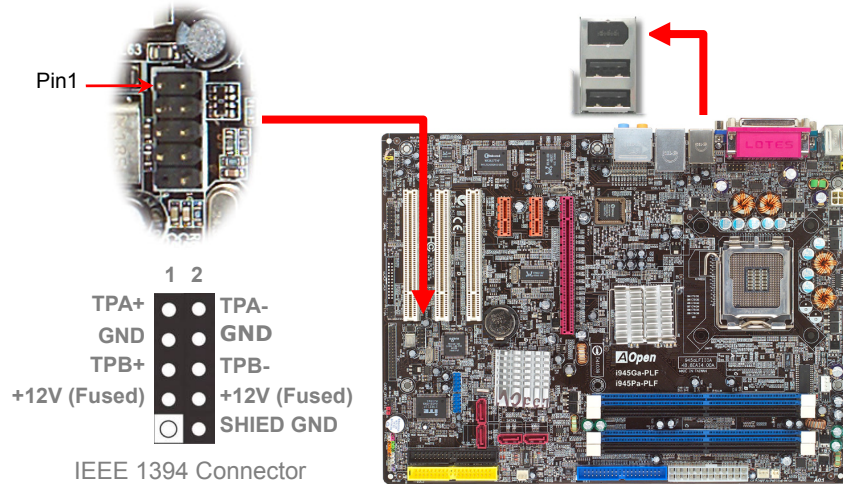
Front Audio Connectors

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

1

| AUD_MIC | | | AUD_GND |
AUD MIC BIAS			AUD_VCC
AUD_FPOUT_R			AUD_RET_R
NC			KEY
AUD_FPOUT_L			AUD_RET_L

Front Audio Connector

Gigabit LAN onboard

On the strength of Realtek Gigabit LAN chip on board, the motherboard provides 10/100/1000Mbps Ethernet for home and office use. The Ethernet RJ45 connector is located on top of USB connectors. The right hand side LED indicates link mode, it lights in yellow 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. To enable or disable this function, you may simply adjust it through BIOS.

Transferring (Left)
Green 100Mbps
Orange Gigabit mode

Linking (Right)
Yellow
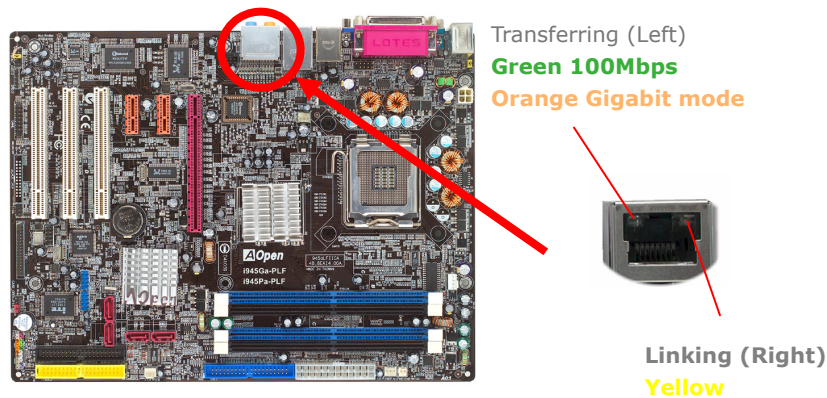
Serial ATA II Connectors

To connect a serial ATA II disk, you have to have a 7-pin serial ATA cable. Connect two ends of the serial ATA II cable to the serial ATA II 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 II hard disks are installed on serial ATA II ports, the one connected on Port0 (SATA1) will be set as the first boot device automatically. *Please note that it doesn't support Hot-Plug in function.*

SATA 2.0 Port1

SATA 2.0 Port2

SATA 2.0 Port3

SATA 2.0 Port4
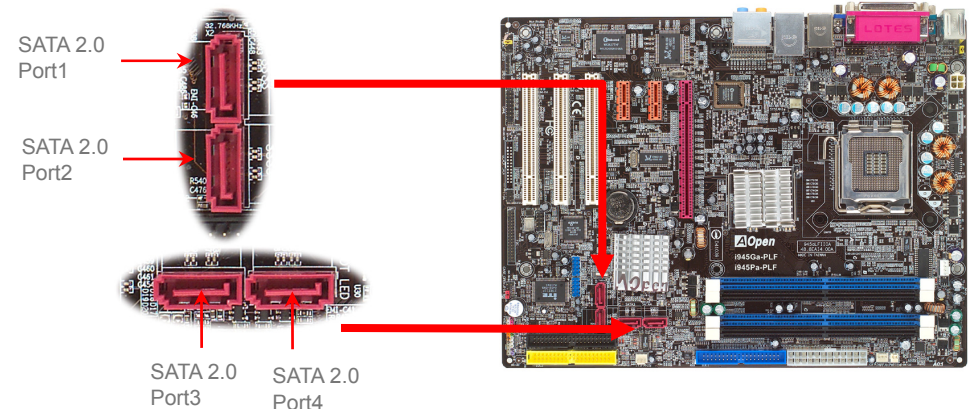
Troubleshooting

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 add-on cards and cables including VGA, IDE, FDD, COM1, COM2, printer and other external devices.

Clear CMOS and then plug the ATX Power cord. (For P4 system, please connect the 4-pin (+12V) cord before ATX cord is connected.)
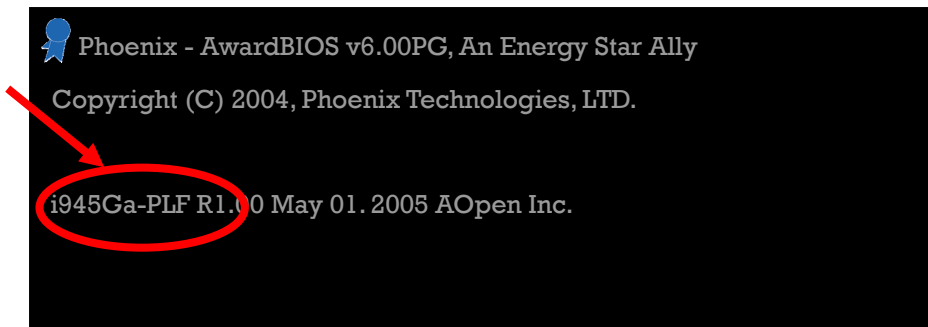
Install VGA card*1, connect monitor and keyboard.

↓ Yes

Turn on the power and check if the power supply, power fan and CPU fan work properly.

→ No → Perhaps your memory is not compatible with the system, or either your VGA card*2 or monitor is out of order.

↓ Yes

Check if there is display

→ No → The problem maybe caused by power supply/motherboard failure. Please contact your reseller or your distributor for repairing.

↓ Yes

Press Del to enter BIOS setup, and choose "Load Setup Default". (For AMD user, please make sure you set the right CPU frequency in BIOS) Save the changes you make in BIOS and reboot the system.

↓ Yes

Turn on the system again and re-connect the IDE cable. Check if the system can reboot successfully.

→ No → The problem maybe caused by the IDE cables or HDD itself.

↓

Reinstall operating system such as Windows 2000 or Windows XP.

↓

End

*1 The VGA card is not necessary to be installed if your monitor is connected to the onboard VGA port.
*2 If you connect to the onboard VGA port and no screen displays, then your onboard VGA device might have problem.

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:

Phoenix - AwardBIOS v6.00PG, An Energy Star Ally

Copyright (C) 2004, Phoenix Technologies, LTD.

i945Ga-PLF R1.00 May 01. 2005 AOpen Inc.

i945Ga-PLF is model name of motherboard; **R1.00** is BIOS version

Register Your Motherboard

Thanks for choosing AOpen product, please register this motherboard at http://club.aopen.com.tw/productreg/ to become a Gold member of Club AOpen, and to ensure high service quality and priority from AOpen. You will also have a chance to play slot machine game to win prize from AOpen. Please prepare the following information before you start: **Model Name, Part Number (P/N), Serial Number (S/N) and Purchase Date**. 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:

918811020191949378KN73
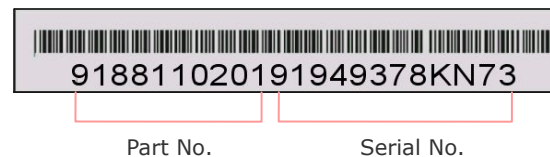
Part No.   Serial No.

P/N: 91.88110.201 is part number, **S/N: 91949378KN73** is serial number.

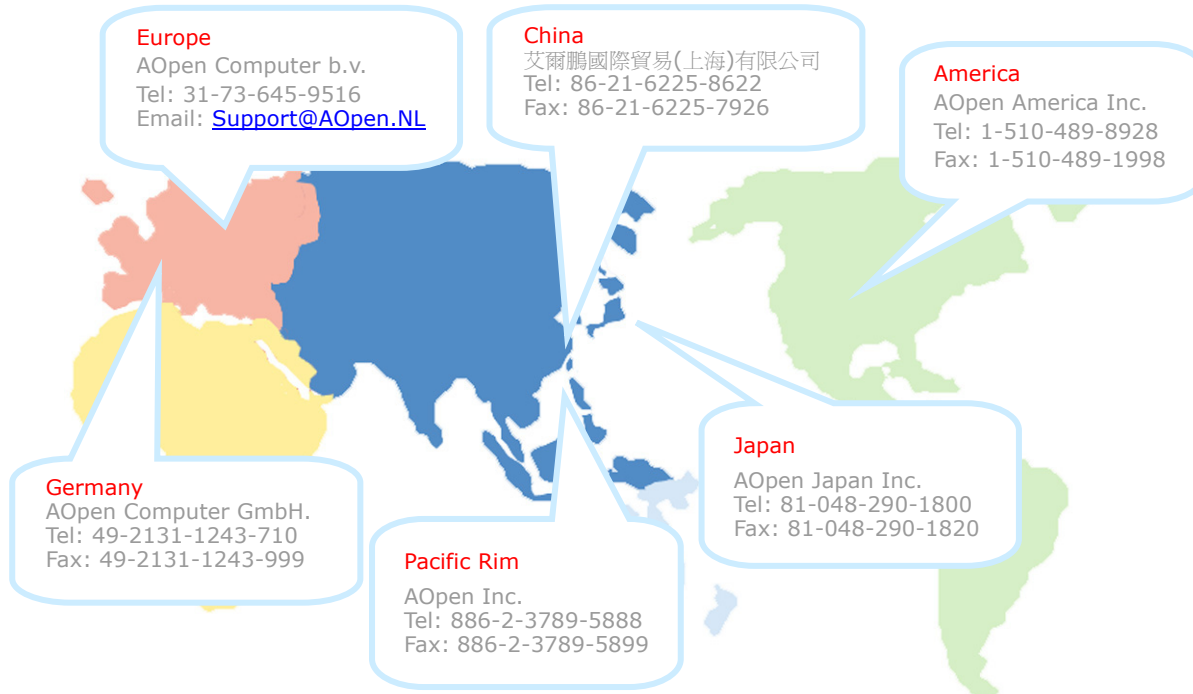| Phoenix-Award BIOS ERROR Message	
Beep Sound	Message
1 short(Beep)	System booting is normally.
1 long - 1 short(Beep)	DRAM ERROR
1 long - 2 short(Beep)	Display card or monitor connected error
1 long - 3 short(Beep)	Keyboard Error
Long(Beep) continuous	DRAM hasn't inset correctly.

Technical Support

Dear Customer,

Thanks for choosing AOpen products. We invite you to register at http://www.aopen.com to become a Gold Member of Club AOpen so as to ensure quality service in the future. In order to maintain the best service to every customer of us, we recommend you to follow the procedures below and seek help from our branches according to the region you buy the product. With your help, we can then continue to provide efficient and the best quality service to every customer.

Thanks very much for your understanding!

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AOpen Computer b.v.
Tel: 31-73-645-9516
Email: Support@AOpen.NL

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艾爾鵬國際貿易(上海)有限公司
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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

Pacific Rim
AOpen Inc.
Tel: 886-2-3789-5888
Fax: 886-2-3789-5899

Japan
AOpen Japan Inc.
Tel: 81-048-290-1800
Fax: 81-048-290-1820

Europe	Email: Support@AOpen.NL
Pacific Rim	http://www.aopen.com.tw/tech/default.htm
China:	http://www.aopen.com.cn/tech/default.htm
Germany	http://www.aopencom.de/tech/default.htm
America	http://usa.aopen.com/tech/default.htm
Japan	http://aopen.jp/tech/index.html

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

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

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/

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

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

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.

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.