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1.1 A Thank-you Note Before You Get Start

First of all, we would like to express our gratitude for purchasing AOpen products. Once again, this motherboard is designed uniquely to meet all your personal needs with our great industry-designing ability and our everlasting perseverance to the quality of all our products.

This manual will introduce you how this motherboard is installed. Please keep it well for your future reference. If you lost your printed manual, you may also go to our website at <http://www.aopen.com> to download the updated file.

Now, we would like to invite you to personally experience this user-friendly manual and all of the powerful functions this AOpen product offers.

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1.2 Features of This Manual

To help you grab the useful information of this motherboard and aware of certain conditions that you might need to know, you will see the icons below frequently:



Note

This contains knowledge you should know in process of assembling, or some helpful tips.



Warning / Caution

Please be careful when you see this mark. It highlights mistakes that occur often during assembling, or something you need to pay attention to.



Tip

This tip tells you some useful information that will make your installation smoothly.

1.3 Safety Information



Please wear a wrist strap and attach it to a metal part of the system unit before handling a component. Alternatively, you can also touch an object that is of ground connection or with metal surface.



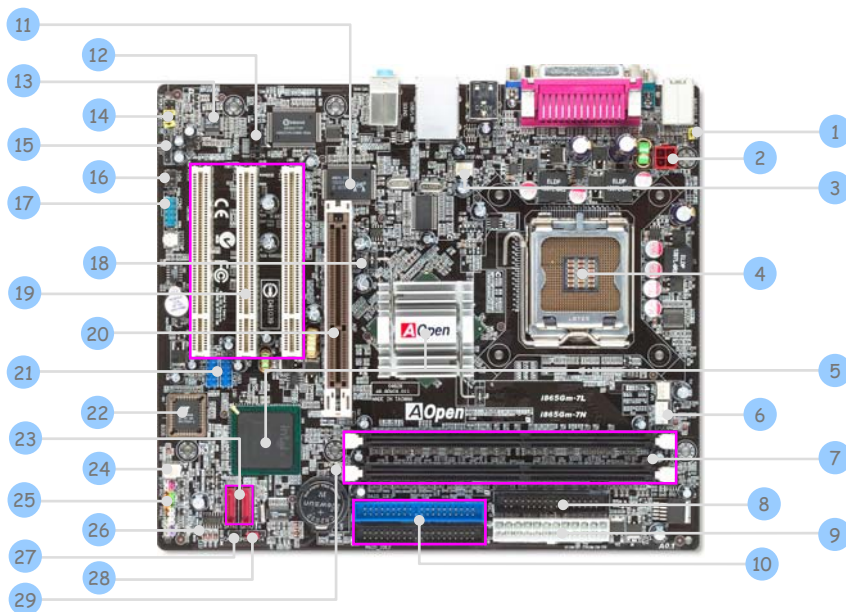
Always unplug the power before you make any jumper setting.



Before you install or remove any components on the motherboard, please make sure to disconnect the power first in case of damaging motherboard or other components.

Chapter 2 Introduction to This Motherboard

2.1 How does your motherboard look like?



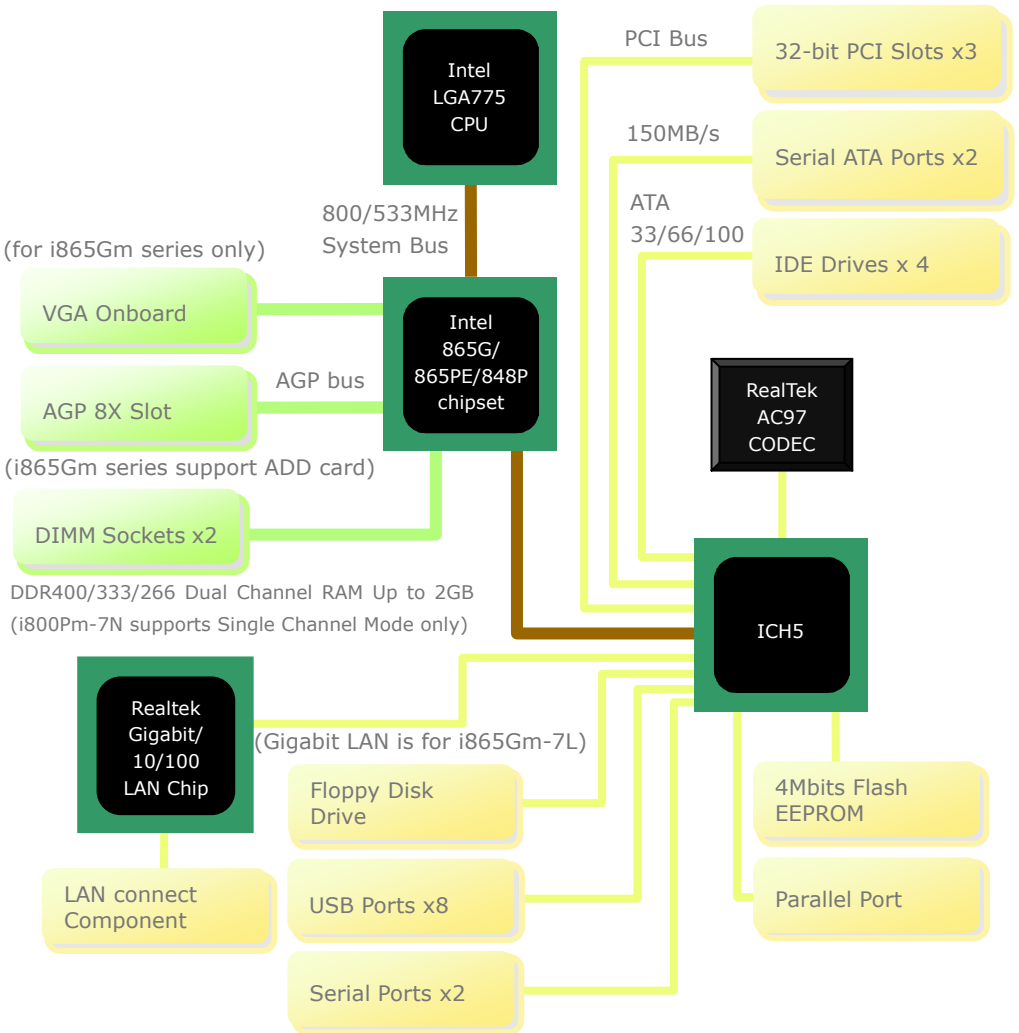
1. JP28 PS2 KB/Mouse Wakeup Jumper	16. IrDA Connector
2. 4-pin 12V ATX Power Connector	17. COM2 Connector
3. SYSFAN1 Connector	18. AGP Protection LED
4. LGA775 CPU Socket Supporting Intel FC-LGA4 CPU	19. 32-bit PCI Expansion Slots X 3
5. Intel 865G/865PE/848P/ICH5 Chipsets	20. AGP 8X Graphics Slot
6. CPUFAN Connector	21. USB 2.0 Connectors X 2
7. 184-pin DIMMs X 2	22. Diehard BIOS Lite
8. FDD Connector	23. Serial ATA Ports X 2
9. 24-pin ATX Power Connector	24. SYSFAN2 Connector
10. IDE Connectors x 2	25. Front Panel Connector
11. Realtek Gigabit PCI LAN Chip (for i865Gm-7L) Realtek 10/100 PCI LAN (for 7N series)	26. STBY LED
12. CD_IN Connector	27. Case Open Connector
13. Realtek AC'97 CODEC	28. JP14 CMOS Data Clear Jumper
14. Front Audio Connector	29. BOOT LED
15. S/PDIF Connector	

2.2 Specification

Here are the main specifications of your motherboard.

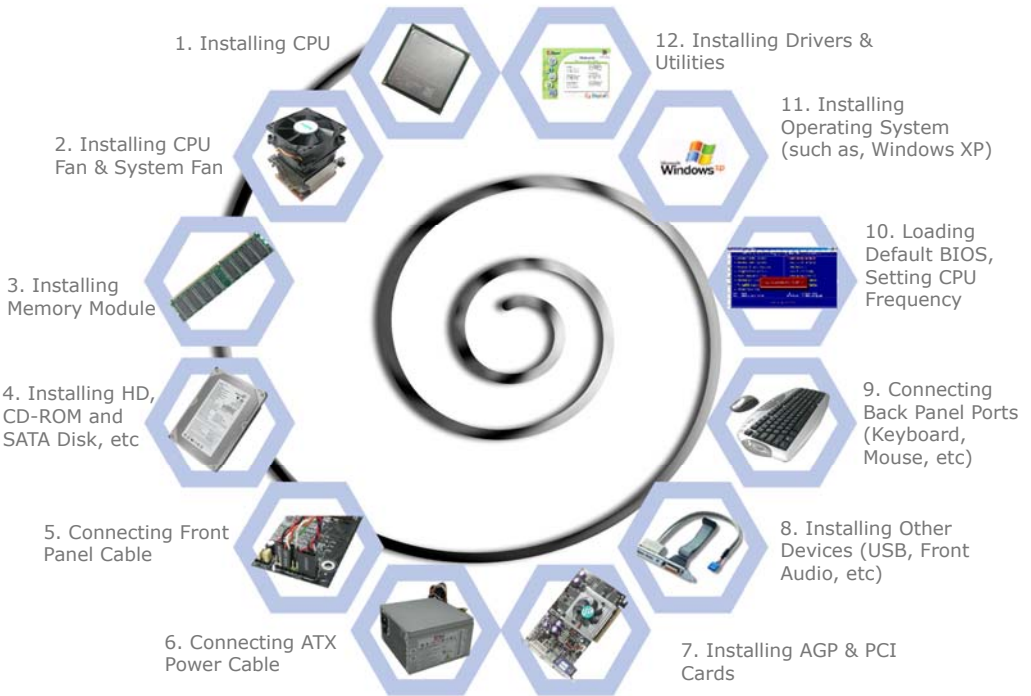
Models	I865Gm-7L/7N	I865PEm-7N	I800Pm-7N
CPU	Intel LGA775 CPU Socket T 800/533MHz	Intel LGA775 CPU Socket T 800/533MHz	Intel LGA775 CPU Socket T 800/533MHz
Chipset	Intel 865G Intel ICH5	Intel 865PE Intel ICH5	Intel 848P Intel ICH5
Main Memory	Dual Channel Mode DDR 400/333/266MHz DDR DIMM x 2 DIMM Type: 128/256/512MB & 1GB Max Memory: 2GB	Dual Channel Mode DDR 400/333/266MHz DDR DIMM x 2 DIMM Type: 128/256/512MB & 1GB Max Memory: 2GB	Single Channel Mode DDR 400/333/266MHz DDR DIMM x 2 DIMM Type: 128/256/512MB & 1GB Max Memory: 2GB
Graphics	Integrated VGA Engine in chipset AGP 8X slot Support ADD card	AGP 8X slot	AGP 8X slot
IDE & SATA	Integrated ATA100 and Serial ATA Controller Max Disk: 144,000,000GB [by 48 bits LBA Spec.]	Integrated ATA100 and Serial ATA Controller Max Disk: 144,000,000GB [by 48 bits LBA Spec.]	Integrated ATA100 and Serial ATA Controller Max Disk: 144,000,000GB [by 48 bits LBA Spec.]
LAN	Realtek Gigabit PCI LAN Controller (7L) 10/100 PCI LAN (7N)	Realtek 10/100Mbps PCI LAN chip	Realtek 10/100Mbps PCI LAN chip
Sound	Realtek AC'97 CODEC onboard, support Dolby Digital system and 5.1 Channel	Realtek AC'97 CODEC onboard, support Dolby Digital system and 5.1 Channel	Realtek AC'97 CODEC onboard, support Dolby Digital system and 5.1 Channel
USB	Integrated in chipset USB2.0 x 8	Integrated in chipset USB2.0 x 8	Integrated in chipset USB2.0 x 8
Slots	AGP x 1 PCI x 3	AGP x 1 PCI x 3	AGP x 1 PCI x 3
Back Panel I/O	PS/2 Keyboard x 1 PS/2 Mouse x 1 USB Port x 4 LAN Port x 1 VGA Port x 1 COM Port x 1 Printer Port x 1 Speaker_Out x 1 Line_In x 1 MIC_In x 1	PS/2 Keyboard x 1 PS/2 Mouse x 1 USB Port x 4 LAN Port x 1 COM Port x 1 Printer Port x 1 Speaker_Out x 1 Line_In x 1 MIC_In x 1	PS/2 Keyboard x 1 PS/2 Mouse x 1 USB Port x 4 LAN Port x 1 COM Port x 1 Printer Port x 1 Speaker_Out x 1 Line_In x 1 MIC_In x 1
On Board Connector	Front Panel x 1 / Front Audio x 1 / CPU FAN x 1 / System FAN x 1 / Chassis FAN x 1 Power FAN x 1 / Power Temperature Connector x 1 / Case Open Connector x 1 CD_IN x 1 / IrDA x 1 / COM2 x 1 / USB Port x 4		
BIOS	Award PnP 4Mb Flash ROM BIOS	Award PnP 4Mb Flash ROM BIOS	Award PnP 4Mb Flash ROM BIOS
Board Size	244 mm x 210 mm	244 mm x 210 mm	244 mm x 210 mm

2.3 Block Diagram



Chapter 3 Hardware Installation

3.1 Quick Installation Procedure

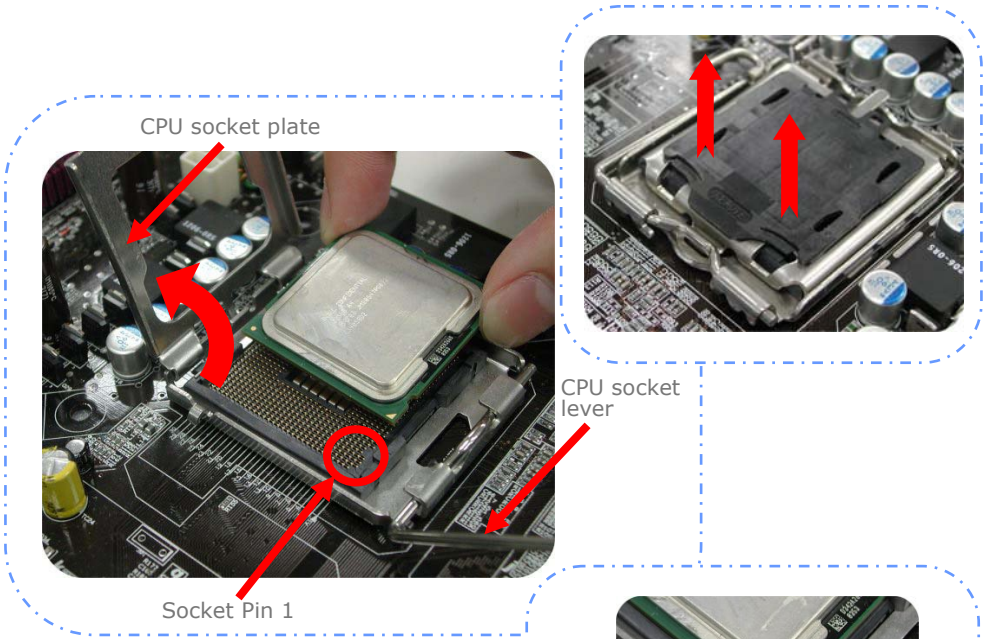


3.2 Installation You Have to Know

Installing CPU

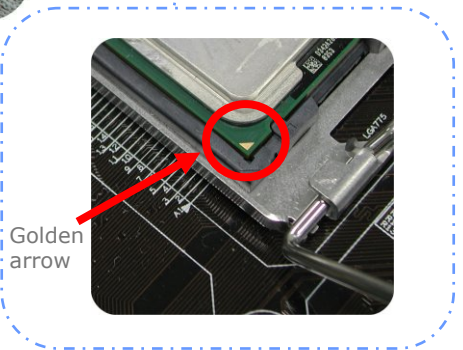
This socket supports FC-LGA4 package CPU, which is the latest CPU package developed by Intel. Other forms of CPU package are impossible to be fitted in. Pull CPU socket lever and plate up.

1. Remove plastic cap from CPU socket plate.
2. 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.
3. Press down the CPU socket plate and lever to finish CPU installation.



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 Prescott CPU.

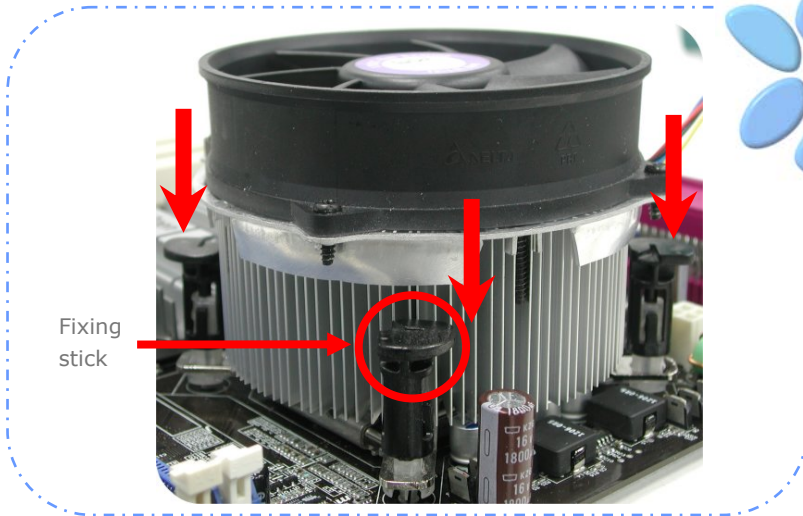



Installing CPU Fan

1. Gently put down the CPU fan on CPU socket with four sticks aiming correctly to the four mounting holes.



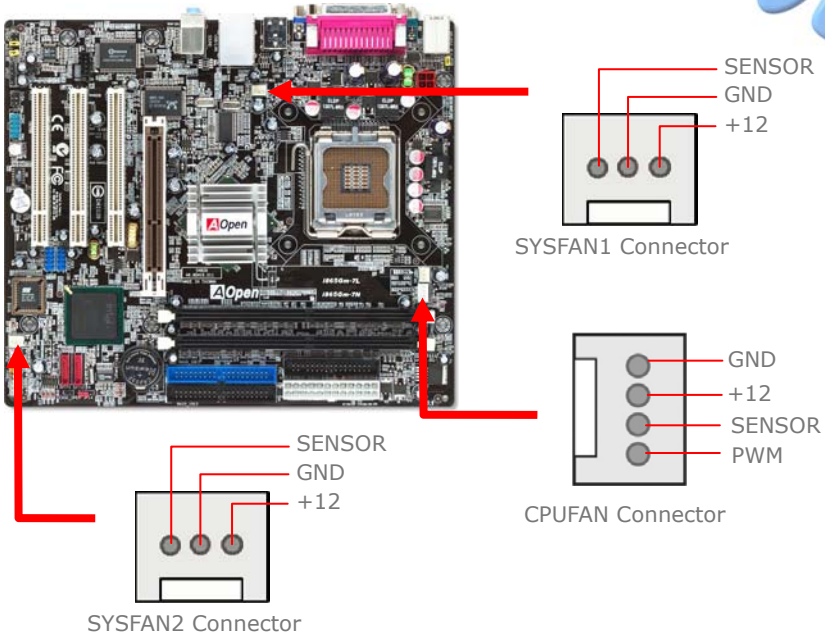
2. Press down four fixing sticks into the holes one by one. Make sure the sticks are firmly fixed into the holes.



 **Note:** The picture above may look different from the product you purchased.

Connecting CPU and System Fans

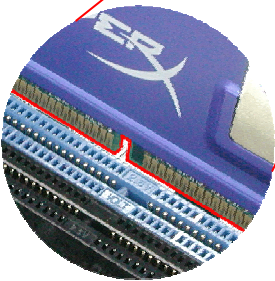
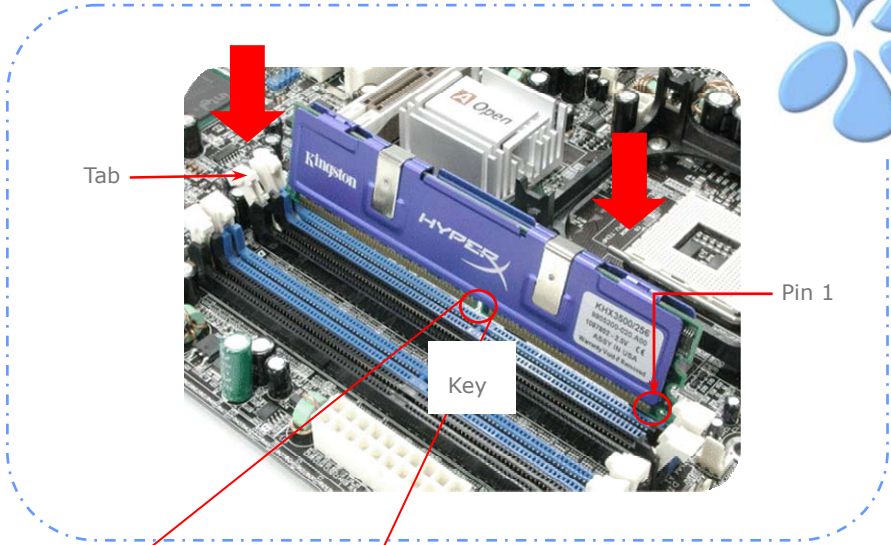
Plug the CPU fan cable to the 4-pin CPUFAN connector. If you have chassis fan, you can also plug chassis fan in SYSFAN1 or SYSFAN2 connector.




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

Installing Memory Modules

Insert the module straight down to the DIMM slot with both hands and press down firmly until the DIMM module is securely in place.



 **Note:** The tabs of the DIMM slot will clip to hold the DIMM in place when the DIMM touches the slot's bottom.

Maximum The Performance of the Dual Channel

To obtain the highest performance of Dual Channel, the configuration of DIMM must meet the following conditions.

Matched DIMM configuration in each channel

- Same density (128MB~1GB)
- Same DRAM bus width (x8 or x16)
- Either single-sided or double-sided



Note: Using memory modules of different chip and density will cause system unstable.

When dual channel mode is successfully enabled, the screen will show “Dual Channel Mode Enabled” while entering POST screen.

```
Phoenix - AwardBIOS v6.00PG, An Energy Star Ally
Copyright (C) 2003, Phoenix Technologies, LTD

Feb.02.2004 AOpen Inc.

Main Processor : Intel Pentium(R) 4 2.80GHz(200x14.0)
Memory Testing : 1048576K OK
CPU Brand Name : Intel(R) Pentium(R) 4 CPU 2.80GHz

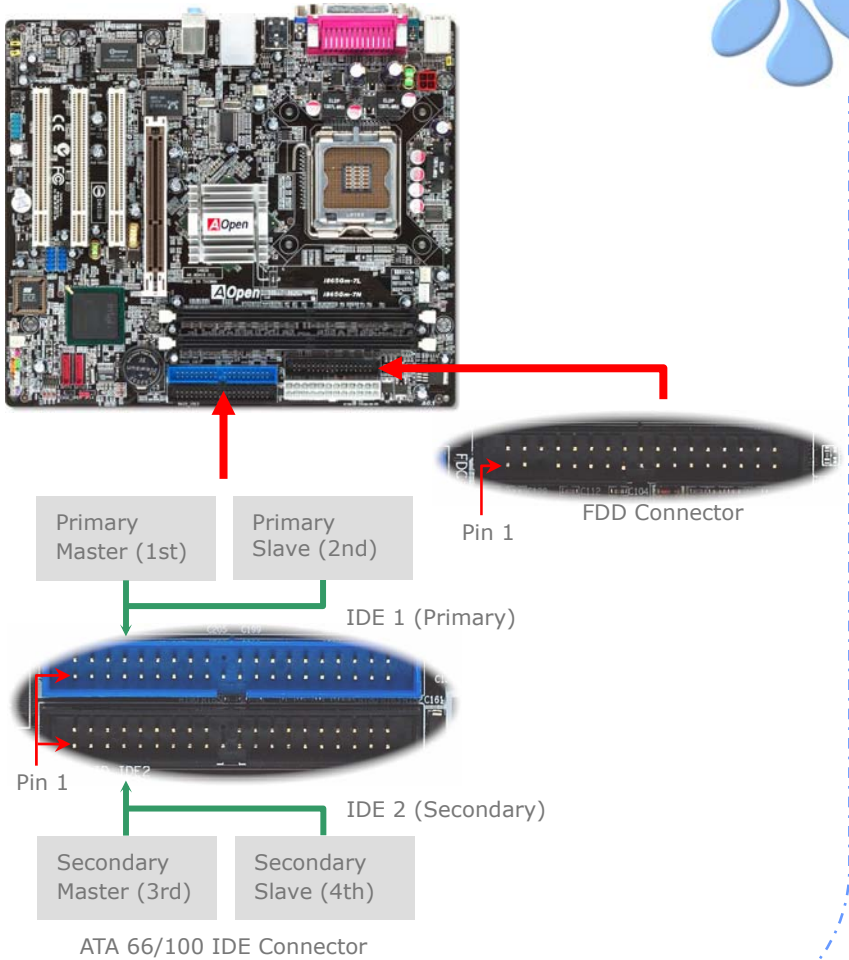
Human-Engineering Technology Enabled
Dual Channel Mode Enabled
CPU          200MHz / Setting          Default / Setting
DRAM         400MHz / 400MHz                AUTO / AUTO
AGP          66.67MHz / 66.67MHz            1.50 V / 1.50 V
PCI          33.33MHz / 33.33MHz          3.30 V / 3.30 V
IDE Channel 0 Master : WDC WD300AB-00CDB0 22.04A22
IDE Channel 0 Slave : None
IDE Channel 1 Master : None
IDE Channel 1 Slave : None

AOpen http://www.aopen.com.tw intel inside pentium 4

Press DEL to enter SETUP
02/02/2004-Springdale-G-6A79AAB9C-00
```


Connecting IDE and Floppy Cables

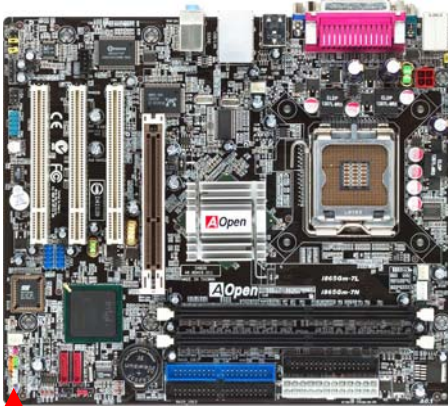
Connect the 34-pin floppy cable and 40-pin, 80-wire IDE cable to floppy connector and IDE connector. Be careful of the pin1 orientation. Wrong orientation may cause system damage.



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, which is a 2-pin female connector from the housing front panel. Plug this connector to the soft-power switch connector marked SPWR.



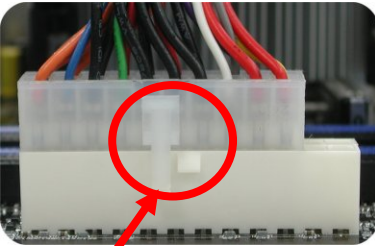
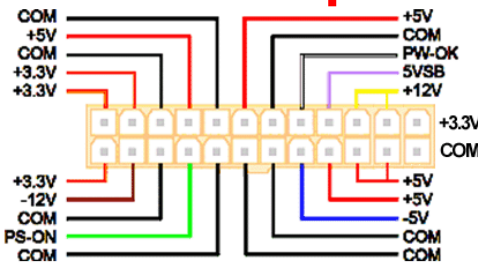
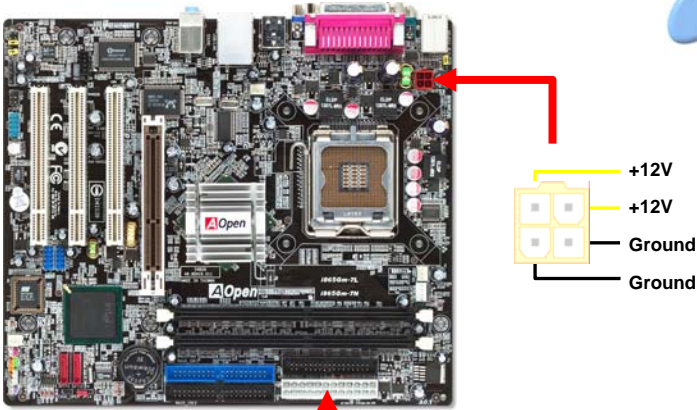
NC			Power
NC			GND
+5			Power LED-
HDD LED			GND
HDD LED			Power LED+
+5			NC
+5			GND
GND			GND
NC			RESET
SPEAKER			GND

Front Panel Connector



Connecting ATX Power Cables

This motherboard comes with a 24-pin and 4-pin ATX power connector as shown below. Make sure you plug them in the right direction. We strongly recommend you to insert the 4-pin connector before connecting the 24-pin connector.



Foolproof latch

Note: If your chassis supports only a 20-pin ATX power cable, please face the foolproof latch and plug the 20-pin ATX power cable leftwards into the on-board 24-pin ATX power connector as shown leftwards.

3.3 Other Installation for Your Reference

Setting CPU Voltage and Frequency

Setting CPU Core Voltage

This motherboard supports Voltage ID (VID) function to detect CPU voltage automatically during power-on and the range is from 0.8375V to 1.6V. It's not necessary to set CPU core voltage.

Setting CPU Frequency

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

BIOS Setup > Frequency / Voltage Control > CPU Speed Setup

(Users will do the overclocking at their own risks!!)

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
5 Series				
580	4.00G	800MHZ	20x	1MB L2
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				
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.



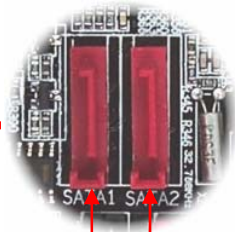
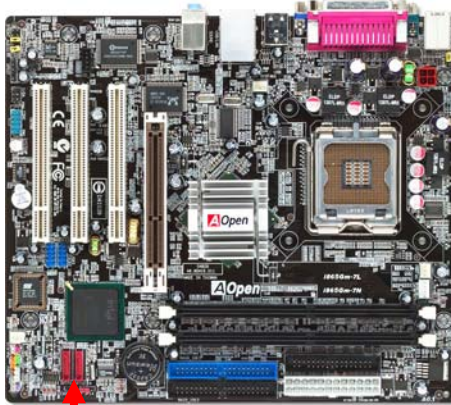
Note:
Some CPU fans do not have sensor pin so that they cannot support fan monitoring.



Warning: Intel 865G/865PE/848P chipset support maximum 800MHz (200MHz*4) system; higher clock setting may cause serious system damage.

Connecting Serial ATA

To connect a serial ATA disk, you have to have a 7-pin serial ATA cable. Connect two ends of the serial ATA cable to the serial ATA 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 hard disks are installed on serial ATA ports, the one connected on Port 0(SATA 1) will be set as the first boot device automatically. **Please note that it doesn't support Hot-Plug in function.**



SATA1 SATA2



Adjusting your Hard Disk Setting

Except its original 2 sets of parallel IDE, this motherboard supports the latest serial ATA hard disk. If you are unable to find your newly installed serial ATA hard disks on your operating system after having them installed, the problem may lie in the BIOS setting. You can simply adjust BIOS settings to have them work properly.

After installing your hard disks properly, you can directly go to BIOS setting screen for adjustment. Simply pressing **“Integrated Peripherals → OnChip IDE Device → On-Chip Serial ATA”** to choose your preferable mode. If you have no intention of changing its original setting, the default would be Auto.

The image shows two overlapping screenshots of the Phoenix - AwardBIOS CMOS Setup Utility. The top screenshot shows the main menu with 'Integrated Peripherals' highlighted. The bottom screenshot shows the 'OnChip IDE Device' sub-menu with 'On-Chip Serial ATA' highlighted. The 'On-Chip Serial ATA' sub-menu shows the current mode is 'Auto'.

```
Phoenix - AwardBIOS CMOS Setup Utility
├── Standard CMOS Features
├── Advanced BIOS Features
├── Advanced Chipset Features
├── Integrated Peripherals
├── Power
├── PnP/PS/2
├── SATA
├── Frequency
├── Load Setup Defaults
├── Load Turbo Defaults
├── Set Password
└── Save & Exit Setup

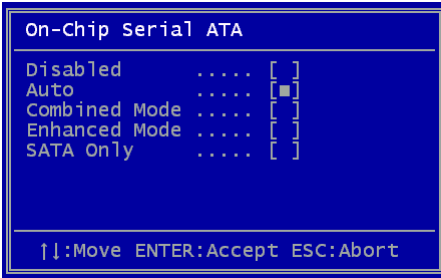
Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
├── OnChip IDE Device
├── Onboard Device
├── SuperIO Device
├── Press Enter
├── Press Enter
├── Press Enter
├── Item Help
├── Menu Level ▶
├── Esc : Quit
├── F10 : Save

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode Enabled
On-Chip Primary PCI IDE Enabled
IDE Primary Master PIO Auto
IDE Primary Slave PIO Auto
IDE Primary Master UDMA Auto
IDE Primary Slave UDMA Auto
On-Chip Secondary PCI IDE Enabled
IDE Secondary Master PIO Auto
IDE Secondary Slave PIO Auto
IDE Secondary Master UDMA Auto
IDE Secondary Slave UDMA Auto

*** On-Chip Serial ATA Setting ***
x SATA Mode IDE
On-Chip Serial ATA Auto
x Serial ATA Port0 Mode SATA0 master
Serial ATA Port1 Mode SATA1 master

Item Help
Menu Level ▶▶
[Disabled]: disabled SATA controller.
[Auto]: Auto arrange by BIOS.
[Combined Mode]: PATA and SATA are combined. Max. of 2 IDE drives in each channel.
[Enhanced Mode]: Enable both SATA and PATA. Max. of 6 IDE drives are supported.
[SATA only]: SATA is operating in legacy mode.

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F2:Item Help F5:Previous Values F6:Setup Defaults F7:Turbo Defaults
```



If you desire to change the default setting, press Enter for selection list:

Disabled: You can choose this item if there are only traditional IDE hard disks had been installed on your system. Disabling this item will also cancel the detection of serial ATA hard disks during POST, which will theoretically speed up your boot-up time a little bit; however,

please remember to re-adjust the setting here if you want to use serial ATA hard disk later.

Auto: This is factory default setting on this motherboard. Basically, if your system functions properly, it is unnecessary to change it. The system will automatically recognize the first hard disk on IDE1 as first boot device.

Note: *Please be informed that when you are using Windows98/ME with the capacity of all six hard disks being installed, the Auto mode will not function properly. It is because Windows98/Me is not able to energize Enhanced Mode to detect all hard disks.*

Combined Mode: If you have traditional IDE hard disks and serial ATA hard disks installed at the same time, then you can choose this mode. Under this mode, you can randomly choose either IDE hard disks or serial ATA had disk as your first boot device. But please note, serial ATA will exist with IDE in a mapping way, which means it will occupy one of the IDE Channel and leave you one IDE Channel only.

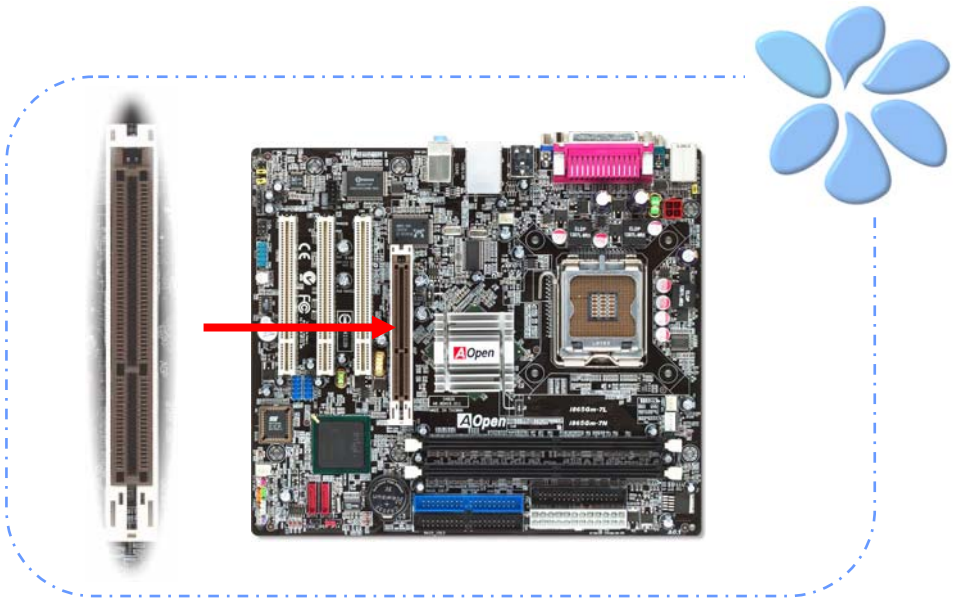
Enhanced Mode: If you are using the latest operating system (say, Windows XP, Windows.NET Server), it is highly recommended that you select Enhanced Mode. Under this mode the system will detect all six devices (traditional IDE x 4, Serial ATA x 2) completely and function perfectly. But please note that traditional IDE is set to first boot device under this mode.

Note: *According to practical lab tests of us, there are no obvious problems or mistakes happened when we set this mode under Windows2000 operating system; however, it is not recommended by Intel.*

SATA Only: You may select this mode if you install serial ATA hard disks only. This mode also allows you to select booting sequence from Port0 (SerialATA1) or Port1 (SerialATA2).

Connecting AGP 8X Expansion Slot

This motherboard provides an AGP 8X slot, a sky blue slot having the latest AGP specification on motherboard. The AGP 8X is a bus interface targeted for high-performance 3D graphic. Traditionally AGP used both rising and falling edge of the 66MHz clock for 4X AGP, and the data transfer rate could achieve $66\text{MHz} \times 4\text{bytes} \times 4 = 1056\text{MB/s}$. Now AGP is moving to AGP 8X mode, which is upgraded to $66\text{MHz} \times 4\text{bytes} \times 8 = 2.1\text{GB/s}$. For i865Gm-7L/7N, the AGP slot can automatically recognize an AGP or a Multiplexed Intel DVO Output depending on which cards being inserted, such as AGP, or ADD (AGP Digital Display) cards. With an ADD card implemented to this slot, Multiplexed Intel DVO output will provide high-speed digital connection for digital displays or TV-OUT functionality.



Warning: It is strongly recommended not adjust AGP/PCI voltage/clock when you connect SATA device. It is because when the voltage/clock for AGP/PCI is adjusted, the SATA clock cannot remain at 100MHz, and the system will therefore be unstable.



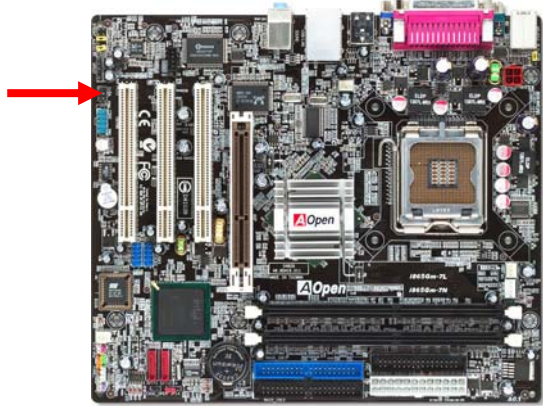
Warning: It is strongly recommended not install a 3.3V AGP card, which is not supported by Intel 865G / 865PE / 848P chipsets on this motherboard.



Connecting IrDA

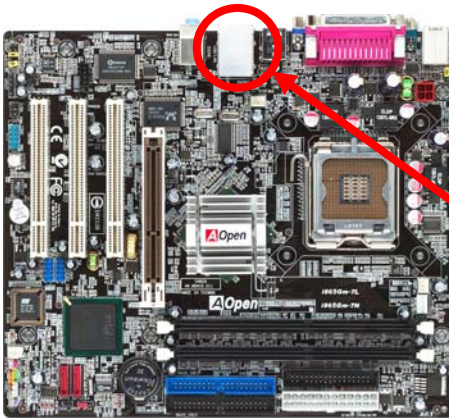
The IrDA connector can be configured to support wireless infrared module, with this module and application software such as Laplink or Windows Direct Cable Connection, user can transfer files to or from laptops, notebooks, PDA devices and printers. This connector supports both HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps).

Install an infrared module onto the IrDA connector and enable the infrared function from BIOS Setup, UART Mode, you can use this function. Please make sure you connect correct orientation when plugging IrDA module.



10/100/1000Mbps LAN Supported (1000Mbps for i865Gm-7L)

With the strength of Gigabit LAN controller on board, i865Gm-7L motherboard provides 1000Mbps Gigabit Ethernet for office and home use. The Ethernet RJ45 connector is located on the top of USB connectors. The right hand side LED indicates link mode; it lights in yellow when linking to network. The left hand side LED indicates the transfer mode and will light in green when data is transferring at 100Mbps (never lights while at 10Mbps), but will light in orange when transferring in Gigabit's mode. To enable or disable this function, you may simply adjust it through BIOS. To enable LAN wakeup function, you have to set the "Wake on PCI Card" enable in the BIOS "Power Management Setup" section.



Transferring (Left)

Green 100Mbps

Orange Gigabit mode

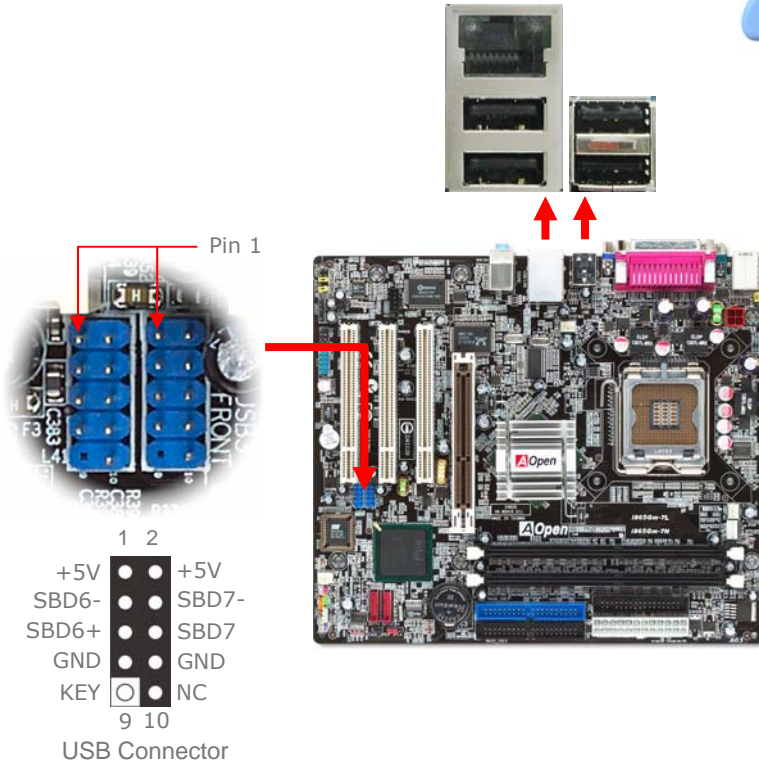


Linking (Right)

Yellow

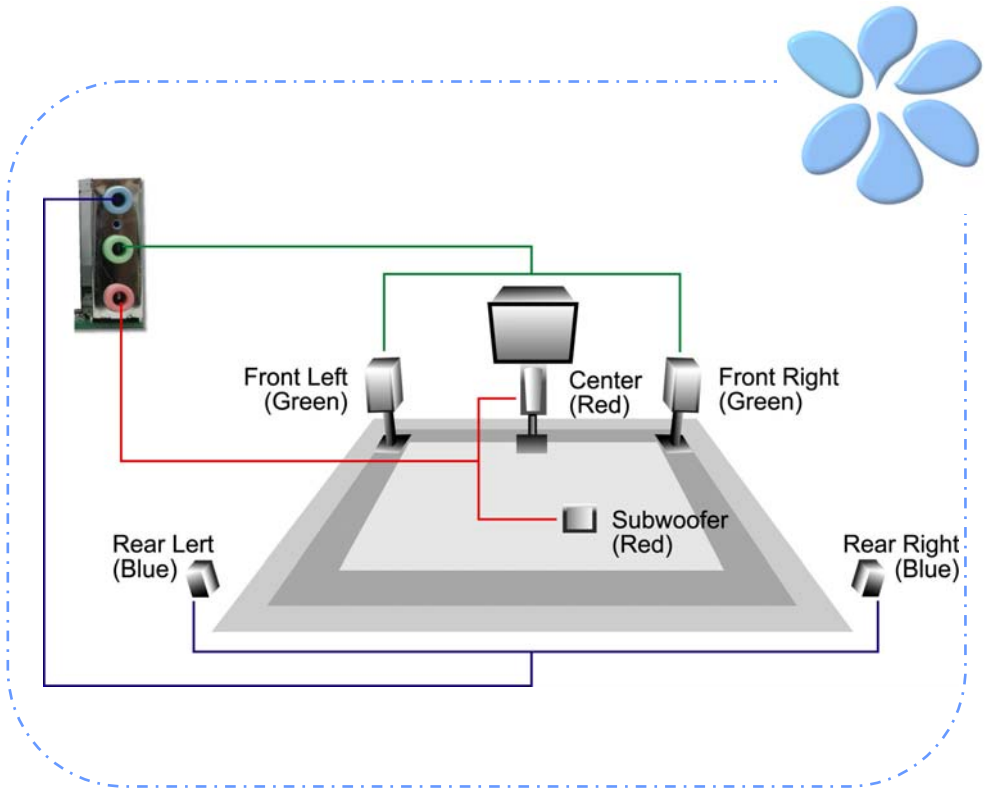
Connecting USB2.0

This motherboard provides eight USB2.0 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 Front USB connector to USB modules or chassis front panel.



Super 5.1 Channel Audio Effect

This motherboard comes with a Realtek AC'97 CODEC (ALC655), which supports high quality of 5.1 Channel audio effect, 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 5.1 Channel sound tracks. 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.

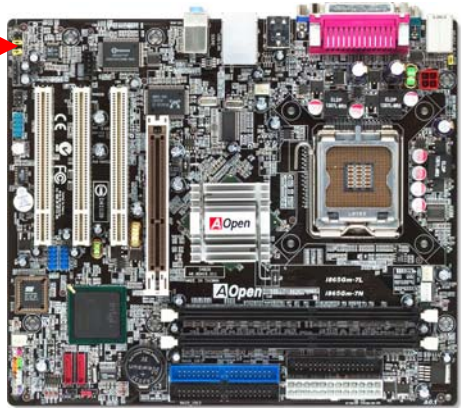


Connecting Front Audio

If the housing is 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



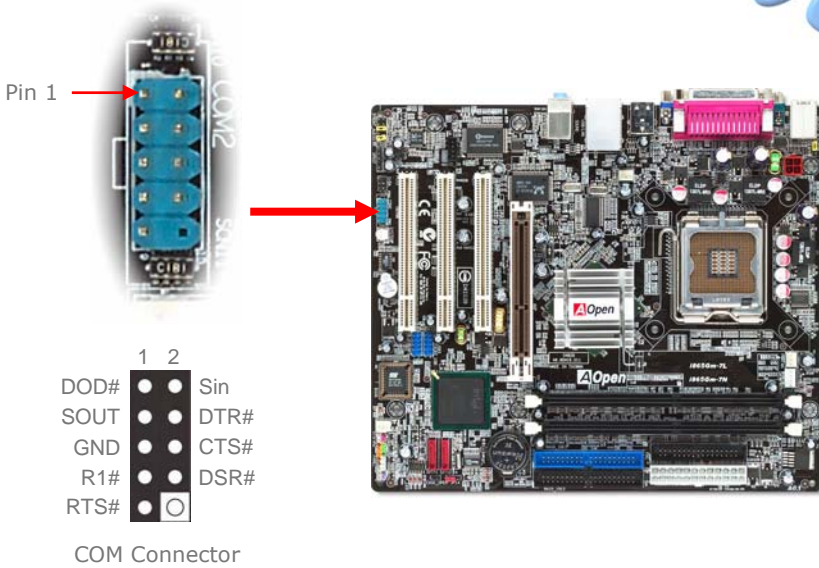
AUD_MIC	●	AUD_GND
AUD_MIC_BIAS	●	AUD_VCC
AUD_FPOUT_R	●	AUD_RET_R
NC	○	KEY
AUD_FPOUT_L	●	AUD_RET_L

Front Audio Connector



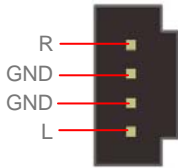
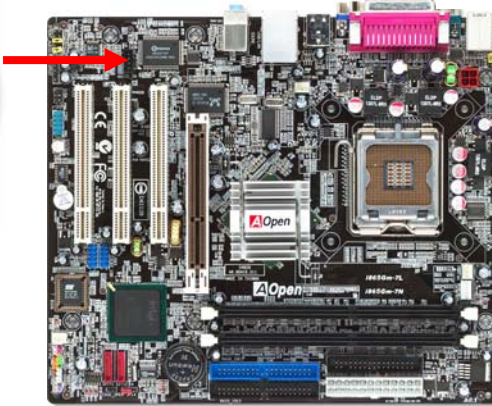
Connecting COM2

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



Connecting CD_IN

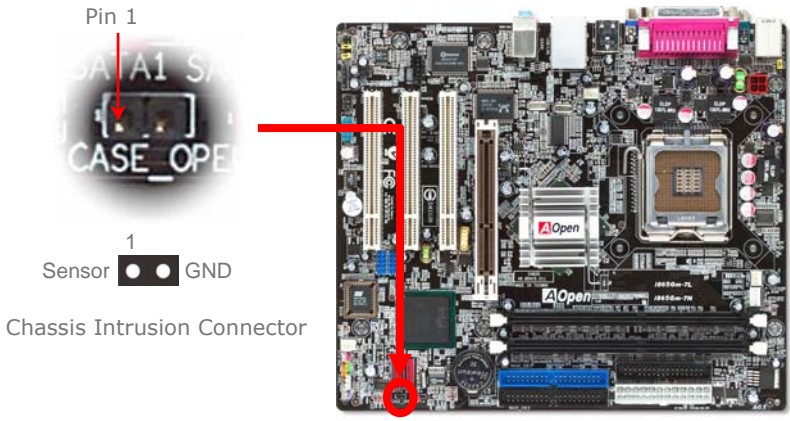
This connector is designed to connect CD Audio cable from CDROM or DVD drive to onboard sound.



CD-IN Connector

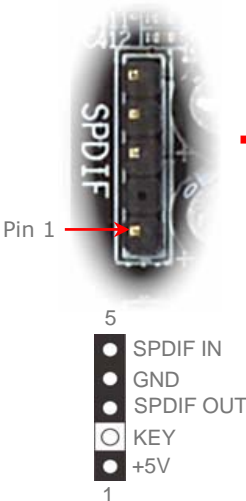
Connecting Case Open

The "CASE OPEN" header provides chassis intrusion-monitoring function. To make this function work, 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.

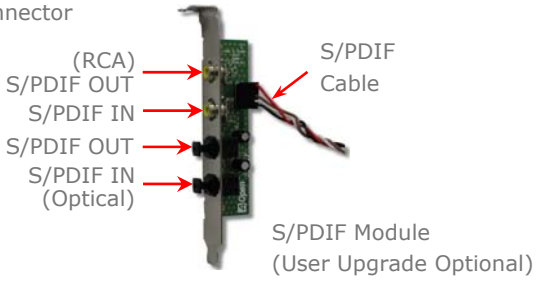
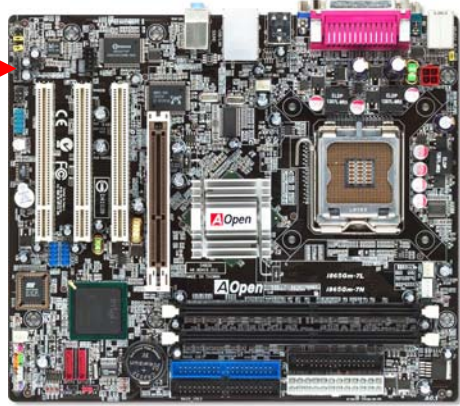


Connecting S/PDIF (Sony/Philips Digital Interface)

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.

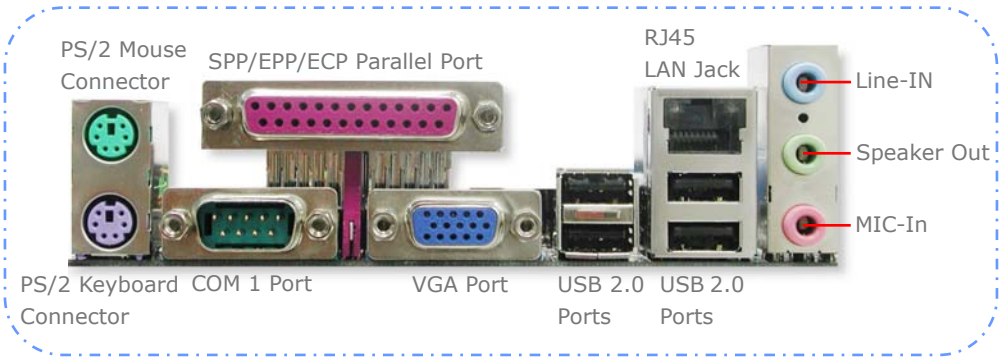


S/PDIF Connector



Colored Coded Back Panel (for i865Gm-7L/7N)

The onboard I/O devices have PS/2 keyboard, PS/2 mouse, RJ-45 LAN connector, VGA connector, COM1 port, Printer, USB, and AC'97 sound ports. The view angle of drawing shown here is from the back panel of the housing.



PS/2 Keyboard:

For standard keyboard, which use a PS/2 plug.

PS/2 Mouse:

For PC-Mouse, which use a PS/2 plug.

Parallel Port:

To connect with SPP/ECP/EPP printer.

COM1 Port:

To connect with pointing devices, modem or others serial devices.

VGA Connector:

To connect with PC monitor.

RJ-45 LAN Port:

To connect Ethernet for home or office use.

USB Port:

Available for connecting USB devices.

Speaker Out:

To External Speaker, Earphone or Amplifier.

Line-In:

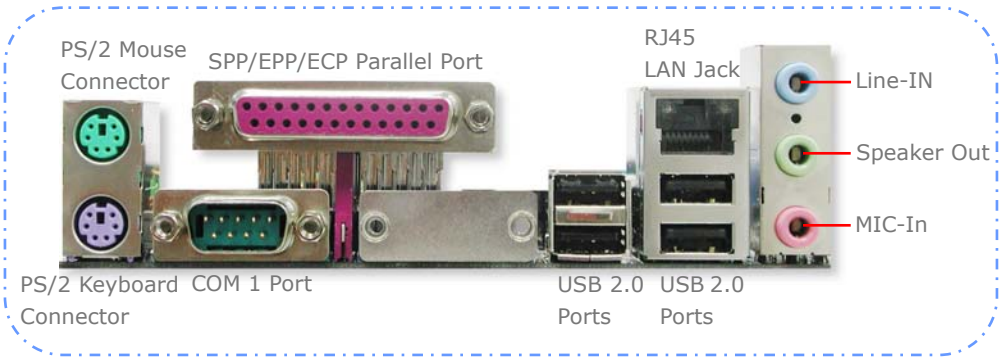
Comes from the signal sources, such as CD/Tape player.

MIC-In:

For Microphone.

Colored Coded Back Panel (for i865PEm-7N/i800Pm-7N)

The onboard I/O devices have PS/2 keyboard, PS/2 mouse, RJ-45 LAN connector, COM1 port, Printer, USB, and AC'97 sound ports. The view angle of drawing shown here is from the back panel of the housing.



PS/2 Keyboard:

For standard keyboard, which use a PS/2 plug.

PS/2 Mouse:

For PC-Mouse, which use a PS/2 plug.

Parallel Port:

To connect with SPP/ECP/EPP printer.

COM1 Port:

To connect with pointing devices, modem or others serial devices.

RJ-45 LAN Port:

To connect Ethernet for home or office use.

USB Port:

Available for connecting USB devices.

Speaker Out:

To External Speaker, Earphone or Amplifier.

Line-In:

Comes from the signal sources, such as CD/Tape player.

MIC-In:

For Microphone.

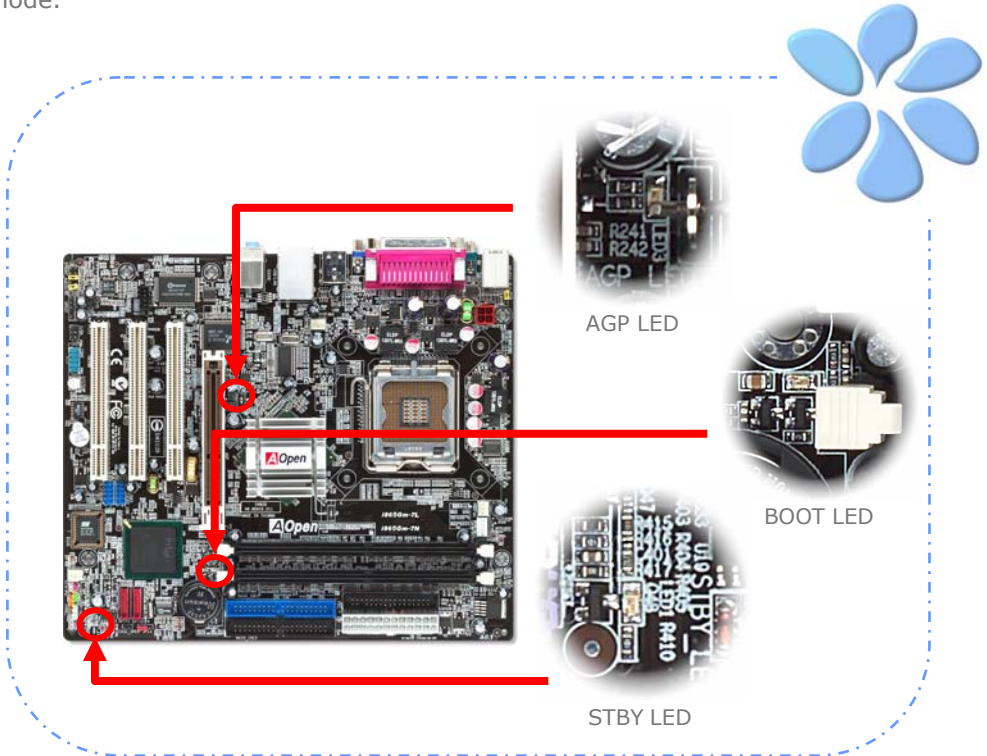
LED Indication

LED indication including AGP LED, Boot LED and Standby LED are AOpen's considerate designs that aim at providing you friendly system information.

AGP LED aims to protect your motherboard from being damaged by over voltage of AGP card. When AGP Protection Technology is implemented, this motherboard will automatically detect the voltage of AGP card and prevent your chipsets from being burnt out. Please note that if you install an AGP card with 3.3V, which is not supported by Intel 865G/865PE/848P chipset, the AGP LED on the motherboard will light up to warn you the possible damage of the exceeding voltage.

BOOT LED will keep blinking when you power the system on and when your system is under POST (Power-On Self Test). After POST diagnoses everything all right and finishes the booting, the LED will stay on otherwise it will remain flashing to warn you that mistakes have occurred during POST

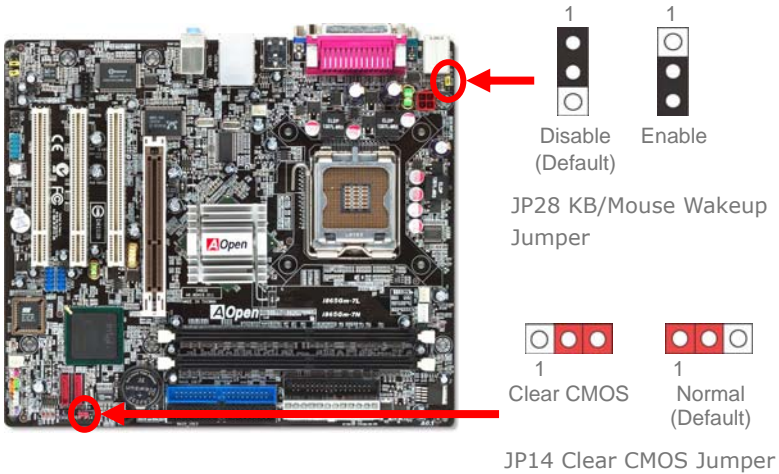
STBY LED will light up when power is provided to the motherboard, giving you a convenient indication check the system power status in circumstances such as power on/off, stand-by mode and RAM power status during Suspend to RAM mode.



3.4 Jumper Settings

JP28 Keyboard / Mouse Wakeup Jumper

This motherboard provides PS2 keyboard / mouse wakeup function.



JP14 Clear CMOS Data

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.

Chapter 4 Special Features and Utilities

Other Useful Features

With excellent design ability of R&D team, AOpen boasts for its various powerful and handy features that come with our product like follows. You are welcomed to visit our technical website to learn more about those features.

<http://english.aopen.com.tw/tech/techinside>



Chapter 5 Setting BIOS

Introduction

System parameters can be modified by going into BIOS Setup menu; this menu allows you to configure the system parameters and save the configuration into the 128 bytes CMOS area (normally in the RTC chip or in the main chipset).

The Phoenix-Award BIOS™ that installed in the Flash ROM of the motherboard is a custom version of an industry standard BIOS. The BIOS provides critical low-level support for standard devices such as hard disk drives, serial and parallel ports.

AOpen's R&D engineering team had optimized most BIOS settings of this motherboard. However, some default settings of BIOS cannot fine-tune those sections that controlled by chipset. Therefore, this chapter is intended to guide you and help you to configure some other settings.

To enter BIOS setup menu, press when POST (Power-On Self Test) screen is shown on your monitor.



Note: Because BIOS code is the most often changed part on motherboard, the BIOS information contained in this manual may be different from the BIOS version that comes with your motherboard.

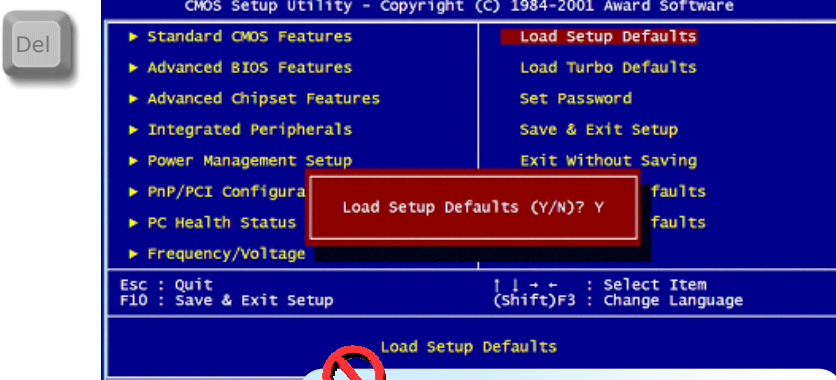
How To Use Phoenix-Award™ BIOS Setup Program

Generally, you can use arrow keys to highlight items that you want to choose, press <Enter> key to select, and use <Page Up> and <Page Down> keys to change setting values. You can press <Esc> key to quit Phoenix-Award™ BIOS setup program. The following table provides details about how to use keyboard in the Phoenix-Award™ BIOS setup program.

Key	Description
Page Up or +	Change setting to next value or increase the value.
Page Down or -	Change setting to previous value or decrease value.
Enter	Select the item.
Esc	In main menu: Quit without saving any changes. In sub menu: Exit current menu to main menu.
Up Arrow	Highlight previous item.
Down Arrow	Highlight next item.
Left Arrow	Move the light bar to left side of menu.
Right Arrow	Move the light bar to right side of menu.
F6	Load Setup Default setting value from CMOS.
F7	Load turbo setting value from CMOS.
F10	Save changed settings and exit setup program.

How To Enter BIOS Setup

After finishing the jumper settings and connecting cables, you can power on and enter the BIOS Setup. Press during POST (Power-On Self Test) and choose "Load Setup Defaults" for recommended optimal performance.

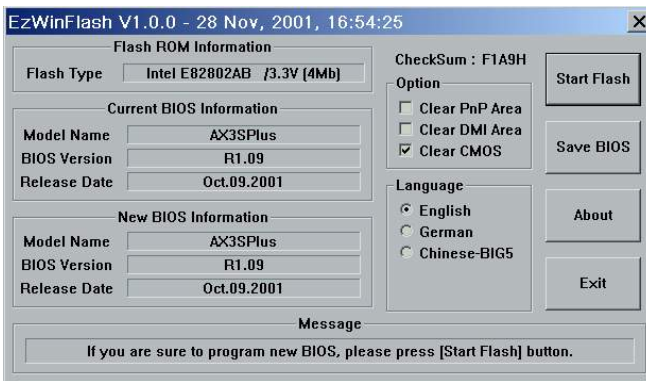


BIOS Upgrade under Windows environment



With outstanding R&D ability of AOpen, we now bring you a whole new BIOS Flash wizard ---- EzWinFlash. With an eye to convenience for users, EzWinFlash combines the BIOS binary code and flash module together, so the only thing you have to do is just clicking on the utility you downloaded from web and let it help you complete the flash process automatically. EzWinFlash detects your motherboard and checks the BIOS version cleverly to prevent your system from any possible failure. Moreover, EzWinFlash has been taken into consideration to go with any windows platform you might be using, no matter if you're using Windows 95/98, 98SE/ME, NT4.0/2000, or Windows XP.

In the meanwhile, in order to provide a much more user-friendly operating environment, AOpen EzWinFlash is natively designed to have multi-language function to provide easier way for user in changing BIOS setting.



Caution: You are taking a risk of BIOS flash failure when you update your system. If your motherboard is working stable, and there are no major bugs to be fixed by a latter BIOS revision, we recommend that you **DO NOT** upgrade your BIOS. If you intent on upgrade **PLEASE MAKE SURE** you get the right BIOS revision for your motherboard model so as to avoid any possible failure.

Note: The model name on this BIOS picture is for reference only. It may not be the same model with your motherboard.



You may accomplish BIOS upgrade procedure with EzWinFlash according to following steps, and it's STRONGLY RECOMMENDED to close all applications before you start the upgrades.

Download the latest version of BIOS package zip file from AOpen official web site. (Ex: <http://english.aopen.com.tw/>)

Unzip the downloaded BIOS package (ex: WSGMAXII102.ZIP) with WinZip (<http://www.winzip.com>) in Windows environment.

Save the unzipped files into a folder, for example, WSGMAXII102.EXE & WSGMAXII102.BIN.

Double click WSGMAXII102.EXE; EzWinFlash will detect the model name and BIOS version of your motherboard. If you collect wrong BIOS, you will not be allowed to proceed with the flash steps.

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

EzWinFlash will complete all the process automatically, and a dialogue box will pop up to ask you to restart Windows. Click [YES] to reboot Windows.

Press at POST to enter BIOS setup screen; choose "Load Setup Defaults", then "Save & Exit Setup". Done!

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



Warning: The new BIOS upgrade will permanently replace your original BIOS setting when flashing. You may need to reconfigure the BIOS setting before your system goes back to work as normal.

Chapter 6 Installing Drivers



You may think that installing drivers and utilities would be a repeated task of going through those installation wizards and steps-by-steps. Now, you will be surprised with how "Ez" EzInstall could do. Without wizards or steps, all you have to do is to do one click and then it's done. Click and done. Yes. EzInstall makes installation easy and even foolproof!

After putting in the CD, you will be prompted with AOpen welcome page and our branches information.

First, click on the install driver ICON at left side for necessary drivers.

Second, click on the install utility ICON at left side for preferred utilities.

Practically, it's done. But you may also browse CD contents, Readme to get more information or just exit the CD installation.

A screenshot of the AOpen EzInstall welcome screen. The screen has a green background with a grid pattern. At the top left is the AOpen logo. In the center, it says "Welcome" and "Thank you for choosing AOpen i865Gm-7L". Below this is a "Contact us" section with contact information for AOpen Inc., AOpen America Inc., AOpen Computer B.V., AOpen Computer GmbH, AOpen Japan Inc., and AOpen International Co., Ltd. On the left side, there are five circular icons: a computer monitor, a folder, a globe, a CD/DVD, and a book. Callout boxes point to these icons with labels: "Install driver", "Install utility", "Browse CD Contents", "Readme", and "Exit CD". On the top right, there is an "Install User manual" icon with a callout box saying "Click to install online manual". On the bottom right, there is a callout box saying "AOpen branches information". At the bottom of the screen, the "Ez Install" logo is displayed in a colorful, bubbly font.

6.1 Installing Drivers

As you may see from the Installing driver page, EzInstall had picked up necessary for your motherboard. All you have to do is just click on the "GO", and no more steps afterward, of all listed drivers, grey checks indicate necessary drivers; you cannot click them off. Red checks can be disabled if you don't want to install them now.



Press the icon will prompt the "Install Driver" page. You may also press "Back" to return to the Main page.



Once clicking "GO", EzInstall will run the installing procedure automatically, and prompt a reboot dialog (Some drivers or utilities may skip the reboot part).

6.2 Installing Utilities

Installing Utilities is virtually the same as installing drivers. AOpen provides you many friendly and powerful utilities to manage your system. You may find lots of fabulous utilities listed there, and all you have to do is to click on the "GO", then it will install the utilities to your system right away without complicated steps.

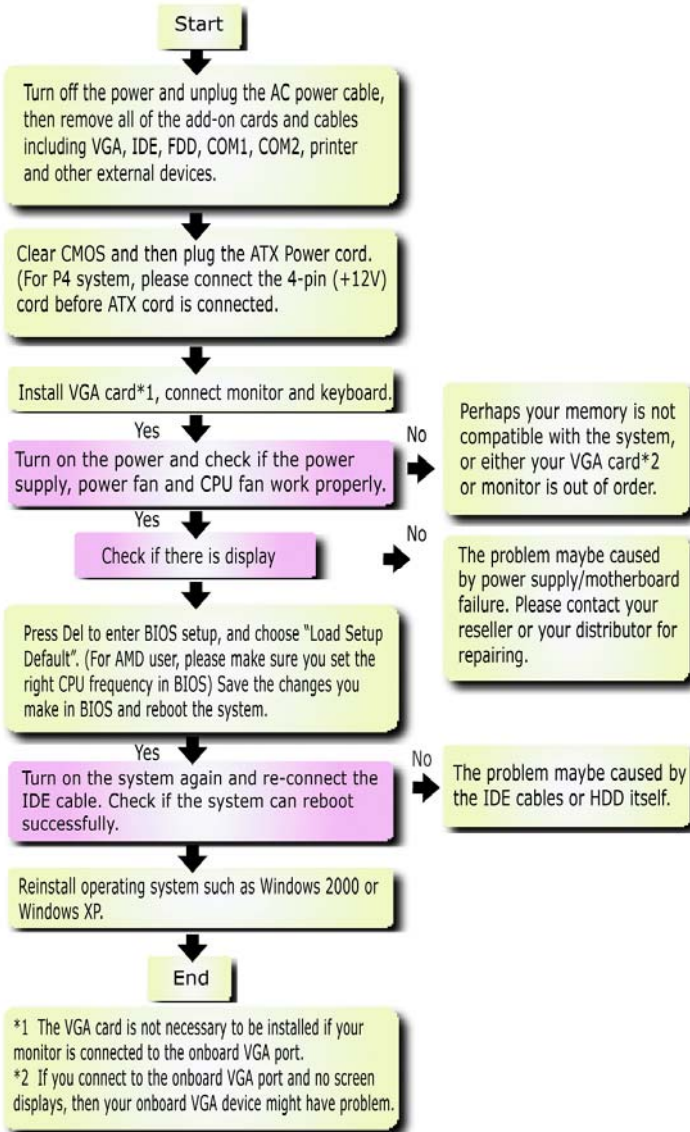


Press the icon will prompt the "Install Utilities" page for your selection. You may also press "Back" to get back to the Main page.





Troubleshooting



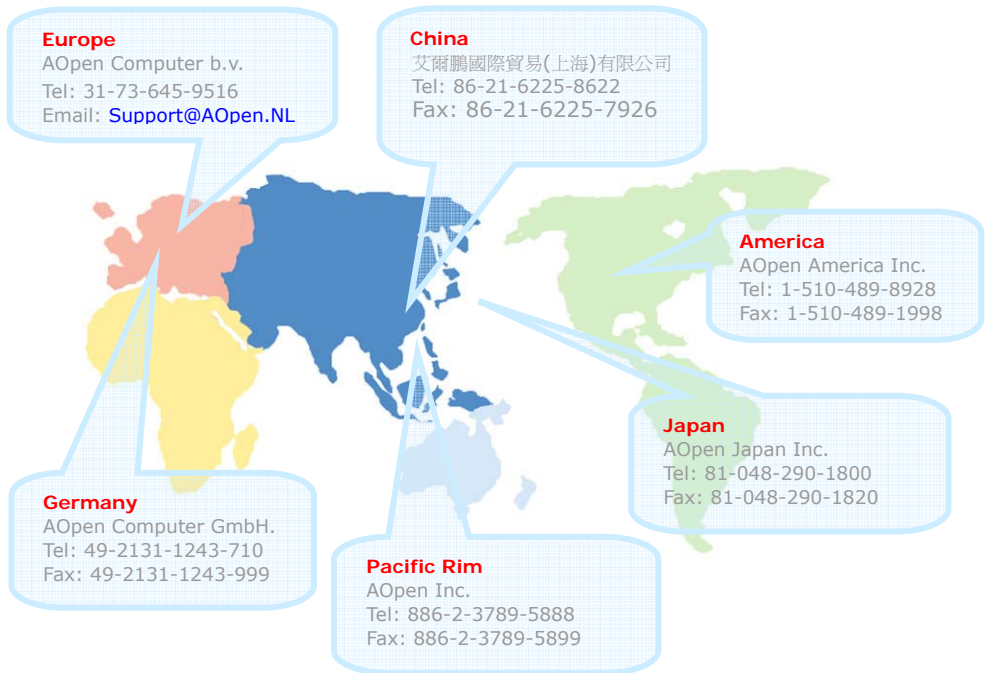
Chapter 8 Technical Support

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!

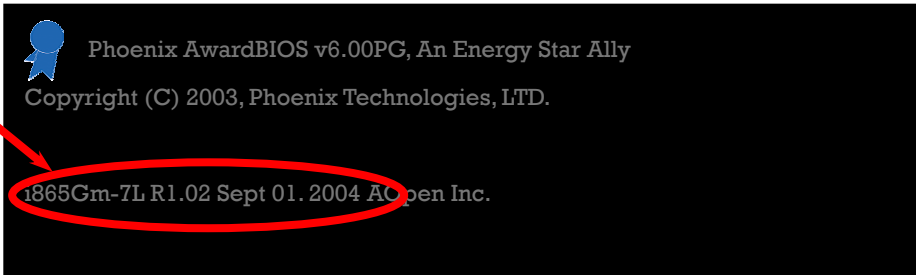
AOpen Technical Supporting Team



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.tw/tech/default.htm>
Japan: <http://aopen.jp/tech/index.html>

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:



i865Gm-7L is model name of motherboard; R1.02 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:



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

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.