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1.1 Safety Precautions

Read and follow the content of the Safety Precautions carefully so that you will not cause damages to yourself or the system. 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.

1. Pay attention to the warnings and notes in this manual to avoid causing unexpected damages.
2. If you want to wipe the system with a wet cloth, make sure the power cord is disconnected. We strongly suggest not to wipe the system with chemical detergent or sprayed detergent.
3. When moving the system, do not put the system on uneven, unsteady or slanting surfaces.
4. Do not put water cups or beverages near the PC system to protect the system from being damaged by liquids.
5. There are ventilating holes on the backboard of the computer case to dissipate heat from the machine. You should pay attention to the position of the PC so that the ventilating holes will not be blocked. Meanwhile, do not put your PC on something not sturdy enough – like rug or bed mattress – to ensure smooth air flow for heat dissipation.
6. Before plugging on power, make certain the electric voltage in your area complies with that of the PC. If you are uncertain, consult your PC dealer or power company first.
7. Do not place your PC on power cords. Do not leave the power lines in tangles which may cause people to stumble.
8. It normally takes several power sockets to meet the need of a PC system. Make sure the extension power line is capable of handling the total power load for all equipment. In other words, the combined amperage of all electrical appliances on the same extension line must not exceed the strength of electric currents or the fuse of the extension line.
9. When your PC system runs into problems, do not try to fix it unless you possess adequate technical know-how concerning hardware installation and system maintenance. It would advisable to seek assistance from qualified maintenance personnel so as to avoid improper disassembling.
10. When encountering the following more dangerous situations, unplug the power to shut down the system and then seek help from professional technicians to fix the problems:

- * When liquids find their way into the equipment.
- * When the PC is soaked by rain.
- * When power cords or power sockets are damaged.
- * When the PC system falls to the ground and is damaged.
- * When some problems cannot be solved even after you installed the system according to the manual or the troubleshooting procedures.

1.2 Disposal Instruction



Disposal Instruction (US)

For better protection of our earth, please don't throw this electronic device into municipal trash bin when discarding. To minimize pollution and ensure utmost protection of the global environment, please recycle the product.

For more information about the collection and recycling of Waste Electrical and Electronic Equipment (WEEE), you are invited to visit our homepage at www.aopen.com under "Green Products".

廃棄上の指示 (US)

より良い地球保護のために、電子機器を廃棄処分にするときは、ゴミ箱に捨てないで下さい。汚染を最小限に抑え、地球環境を最大限に保護するために、製品のリサイクルをお願い致します。

廃電気電子機器(WEEE)の回収とリサイクルについての情報は、弊社ホームページ www.aopen.com の"Green Products" (環境に優しい製品) をご覧下さい。

Instruktion til bortskaffelse (Danish)

Af hensyn til vores miljø bedes De ikke bortskaffe denne elektroniske enhed i en almindelig affaldsspand. For at mindske forurening og sikre beskyttelse af miljøet bedes De genbruge produktet.

For yderligere information vedrørende indsamling og genbrug af elektronik-affald (Waste Electrical and Electronic Equipment (WEEE)) er De velkommen til at besøge vores website www.aopen.com og læse nærmere under "Green Products".

Verwijderingsinstructie (Dutch)

Om mogelijke schade aan het milieu of de menselijke gezondheid door ongecontroleerde afvalverwijdering te voorkomen, moet u dit elektronisch product scheiden van andere soorten afval en op een verantwoorde manier recycleren. Verwijder dit product dan ook alstublieft niet samen met ander huishoudelijk afval.

Voor meer informatie over de verzameling en recycling van elektrisch afval en elektronische apparatuur (WEEE), nodigen we u uit om onze homepage te bezoeken www.aopen.com onder "Green Products".

Instruction de Disposition (French)

Pour une meilleure protection de la terre, ne jetez pas ce dispositif électronique dans la poubelle municipale lors de la disposition. Pour éliminer la pollution et assurer la plus grande protection de l'environnement global, réutilisez s'il vous plaît le produit.

Pour plus d'informations sur la gestion des déchets d'Équipements Electriques et Electroniques (DEEE ou WEEE), vous êtes invité à visiter notre site à www.aopen.com sous " Green Products".

Entsorgungsanleitung (German)

Zum besseren Schutze unseres Planeten, schmeissen Sie elektrische Geräte bitte nicht in öffentliche Mülleimer. Zur Verringerung der Verschmutzung und zur Sicherstellung grösstmöglichen Schutzes der Umwelt recyceln Sie bitte das Produkt.

Für mehr Informationen zum Sammeln und Recyceln von elektrischen und elektronischen Müll (WEEE) besuchen Sie bitte unsere Homepage unter www.aopen.com unter dem Punkt "Green Products".

Istruzioni per lo smaltimento (Italian)

Per una migliore salvaguardia del nostro pianeta, si prega di non gettare questo dispositivo elettronico nei normali rifiuti al momento dell'eliminazione. Per ridurre al minimo l'inquinamento ed assicurare la massima protezione dell'ambiente, si prega di riciclare il prodotto.

Per maggiori informazioni riguardanti la raccolta ed il riciclaggio delle apparecchiature elettriche ed elettroniche residue (WEEE), siete invitati a visitare la nostra homepage www.aopen.com alla voce "Green Products".



Instruksjoner for Resirkulering og Oppsamling (Norwegian)

For å beskytte vår planet, kast ikke dette elektroniske utstyret sammen med vanlig avfall. For å beskytte vår natur og miljø, vennligst resirkuler dette produktet.

For mer informasjon om oppsamling og resirkulering i henhold til Waste Electrical and Electronic Equipment (WEEE), se vår hjemmeside på www.aopen.com under "Green Products".

REEE - Programa de Tratamento de Resíduos de Equipamentos Eléctricos e Electrónicos (Portugese)

Para melhor protecção ambiental do nosso planeta terra, não coloque o dispositivo electrónico no receptáculo de lixo municipal. Para minimizar a poluição e garantir protecção máxima do ambiente global, recicle o produto.

Para mais informações sobre acerca da recolha e reciclagem de Equipamento Eléctrico e Electrónico (WEEE), convidamos-lhe a visitar nossa página na Internet em www.aopen.com sobre "Green Products".

Instrucciones para depositar los productos electrónicos (Spanish)

Para proteger mejor el medio ambiente, por favor, no deposite los productos electrónicos en los contenedores de basura tradicionales. Para reducir la contaminación y proteger el medio ambiente se recomienda que los recicle.

Para más información acerca de dónde depositar y cómo reciclar Equipos Electrónicos y Desperdicios Electrónicos (WEEE), por favor, visite la página web www.aopen.com y entre en la sección Productos Ecológicos ("Green Products").

Kassering (Swedish)

För att bättre värna om vår jord bör denna elektroniska utrustning ej kasseras tillsammans med vanligt avfall. För att minimera mängden föroreningar och så långt som möjligt skydda den globala miljön bör produkten återvinnas.

För vidare information om insamling och återvinning av uttjänta elektriska och elektroniska produkter (Waste Electrical and Electronic Equipment, WEEE), besök avsnittet "Green Products" på vår hemsida, www.aopen.com.



1.3 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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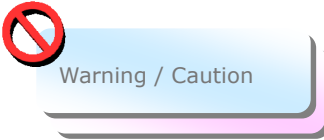
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1.4 Features of This Manual

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:



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



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



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

1.5 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.



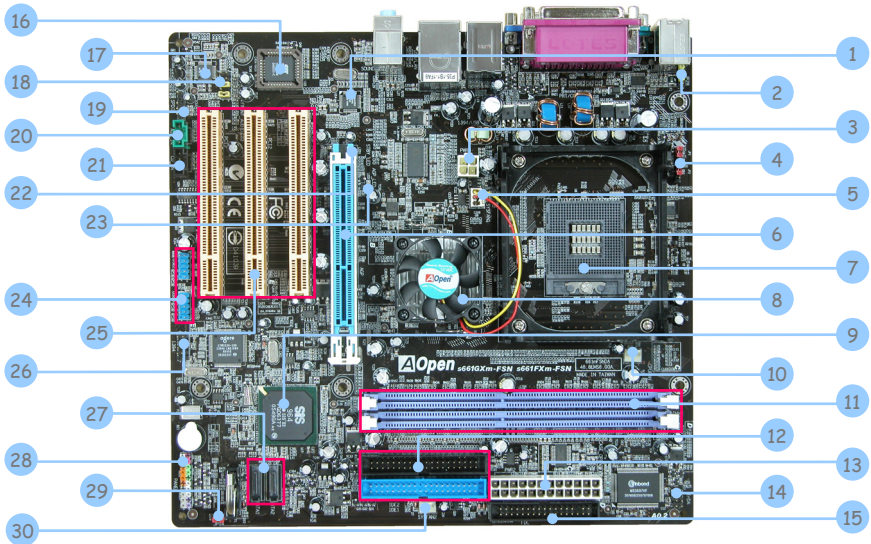
Always unplug the power before you make any jumper setting.



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?



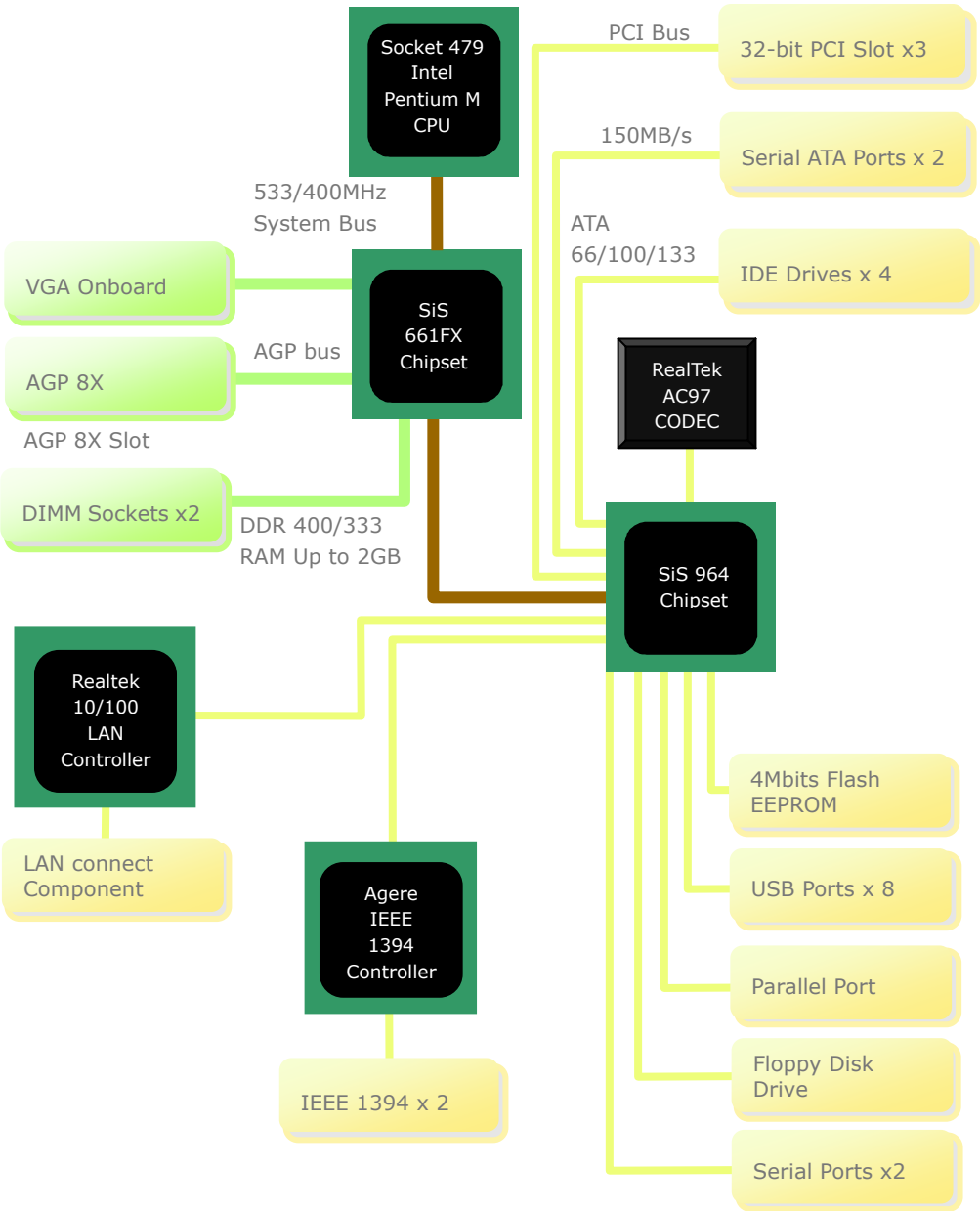
1. Realtek 10/100 LAN	16. DieHard BIOS Lite
2. JP28 PS2 KB/Mouse Wakeup Jumper	17. Onboard AC'97 CODEC
3. 4-pin 12V ATX Power Connector	18. Front Audio Connector
4. JP2, JP3 CPU FSB Jumper	19. S/PDIF Connector
5. SYSFAN1 Connector	20. AUX_IN Connector
6. AGP 8X Expansion Slot	21. CD_IN Connector
7. 479-pin CPU socket supporting Intel Pentium M CPU	22. STBY LED
8. SiS 661FX Chipset	23. AGP LED
9. SiS 964 Chipset	24. USB 2.0 Connector x 2
10. CPUFAN Connector	25. 32-bit PCI Expansion Slots X 3
11. 184-pins DIMMs x 2	26. IEEE 1394 Connector
12. IDE Connectors x 2	27. Serial ATA Ports X 2
13. 24-pin ATX Power Connector	28. Front Panel Connector
14. IRDA Connector	29. JP14 CMOS Data Clear Jumper
15. FDD Connector	30. SYSFAN2 Connector

2.2 Specification

Here is the main function of your motherboard.

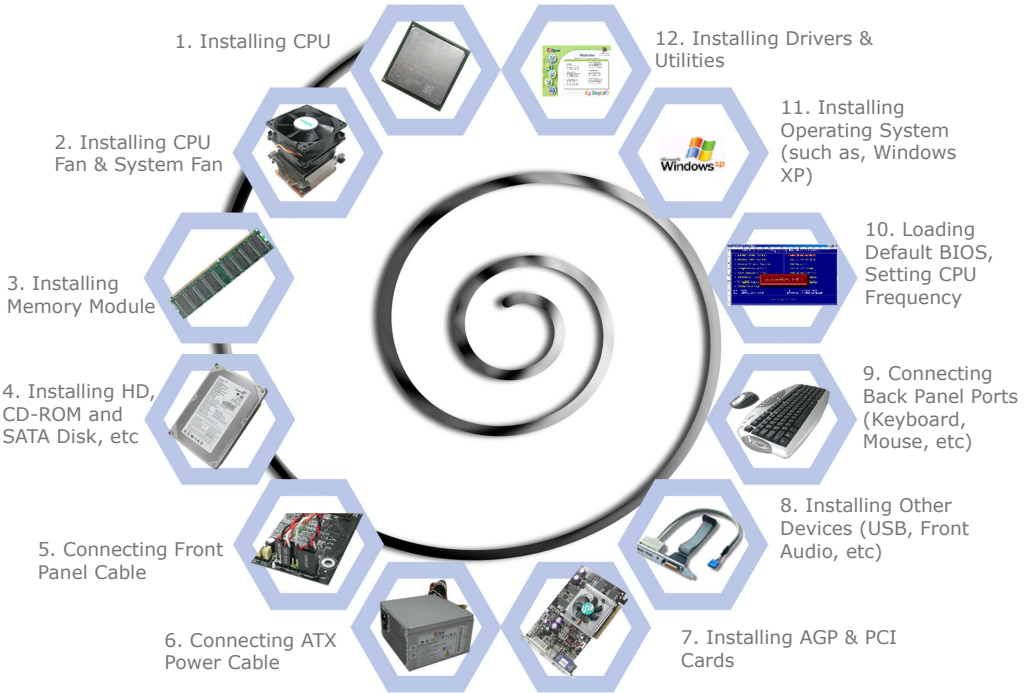
Models	S661FXm-FSN
CPU	Intel Pentium M / Celeron M Processor Socket 479 533/400MHz
Chipset	SiS 661FX/964 Chipset
Main Memory	400/333MHz DDR DIMM x 2 DIMM Type : 256/512MB & 1GB Max Memory : 2GB
Graphics	Integrated High Performance Graphic Engine 8X AGP slot
IDE	Integrated ATA133 and Serial ATA Controller Support Serial ATA RAID 0, 1 Max Disk: 144,000,000GB [by 48 bits LBA Spec.]
LAN	Realtek 10/100 Mbps LAN Controller RealTek PHY
Sound	Realtek AC'97 CODEC onboard support 5.1 Channel
USB	Integrated in chipset USB 2.0 x 8 Port
IEEE 1394	Agere 1394 Control Chip
Slots	8X AGP x 1 PCI x 3
Back Panel I/O	PS/2 Keyboard x 1 PS/2 Mouse x 1 USB Port x 4 IEEE1394 Port x 1 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
On Board Connector	Floppy Driver Connector x 1 IDE Channel: ATA133 x 2 Serial ATA Channel x 2 Front Panel x 1 Front Audio x 1 CPU FAN x 1 System FAN x 2 Power FAN x 1 CD_IN x 1 AUX_IN x 1 IrDA x 1 S/PDIF x 1 IEEE 1394 x 1 USB Connector x 2
BIOS	Award PnP 4Mb Flash ROM BIOS
Board Size	244 mm x 230 mm

2.3 Block Diagram



Chapter 3 Hardware Installation

3.1 Quick Installation Procedure

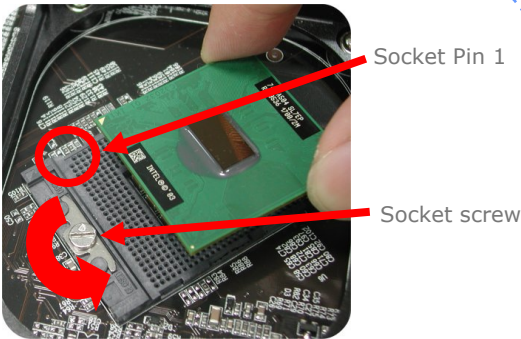


3.2 Installation You Have to Know

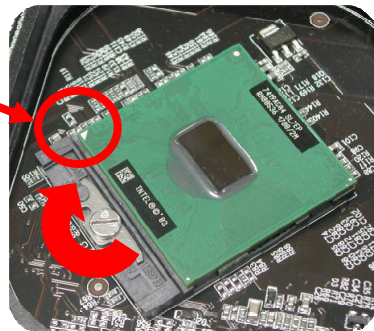
Installing CPU

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

1. Unscrew the socket screw counter-clockwise.
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. Lock the CPU socket screw clockwise to fasten CPU.



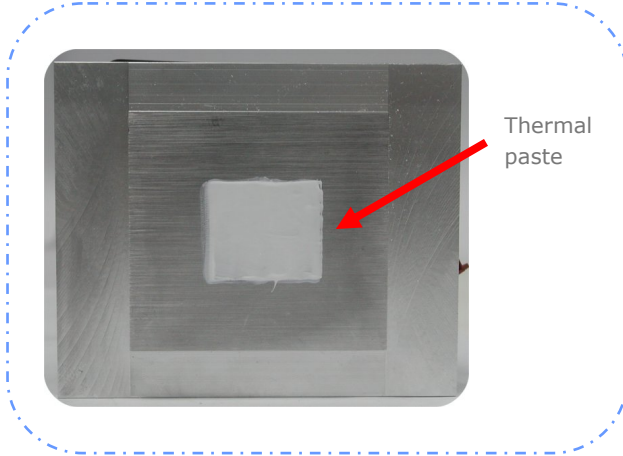
Golden arrow



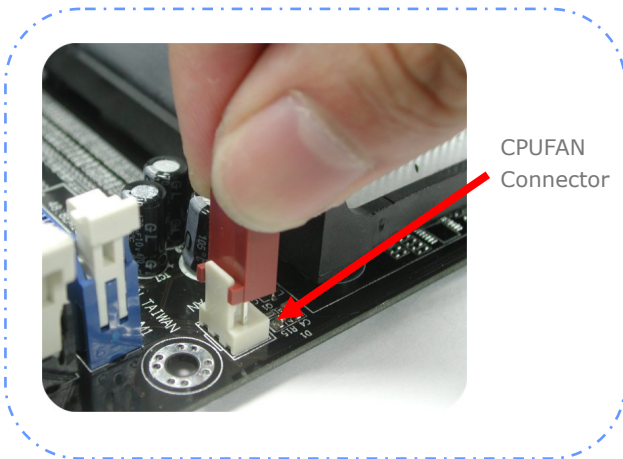
Installing CPU Cooler

This motherboard comes with a special CPU cooler designed by AOpen, please follow the following steps to install CPU cooler.

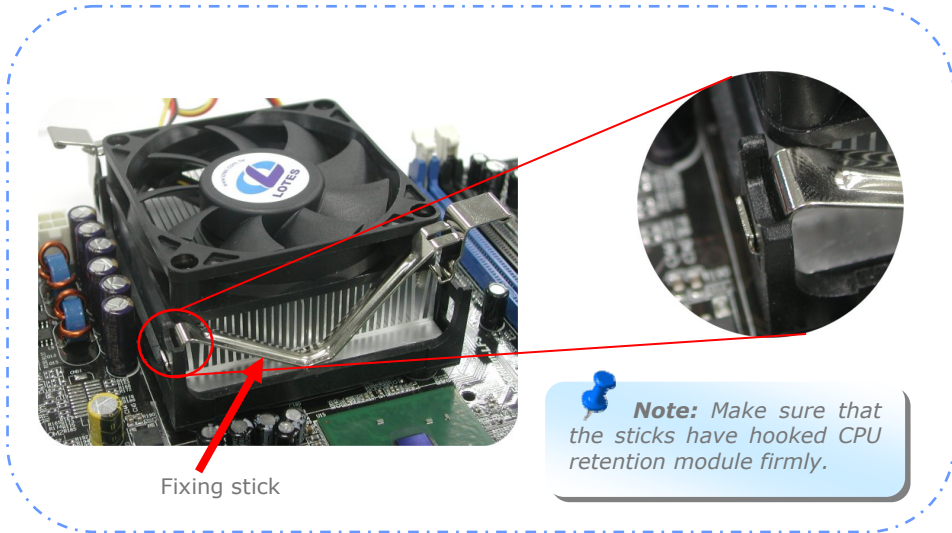
1. Please apply thermal paste on the bottom of CPU cooler.



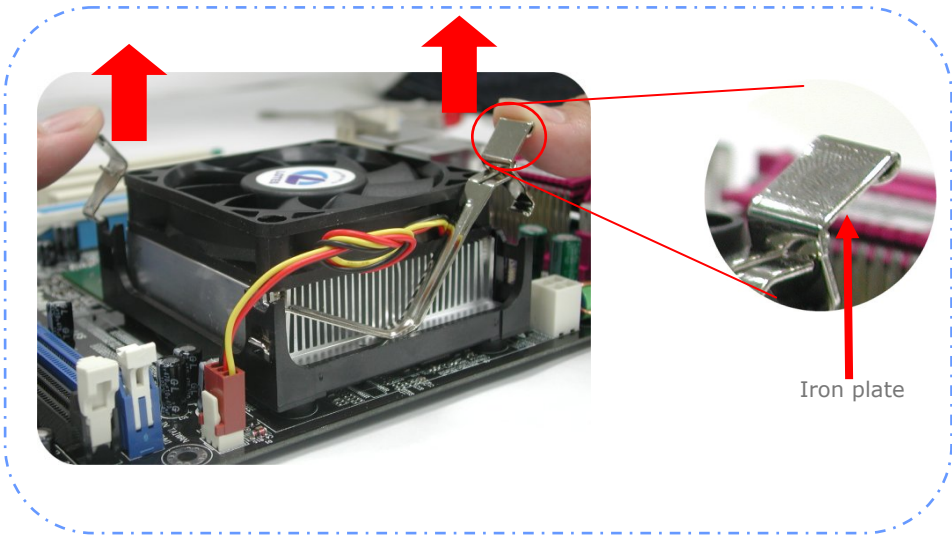
2. Gently put CPU cooler onto the CPU retention module.
3. Connect cooler's fan power cable onto CPUFAN connector.



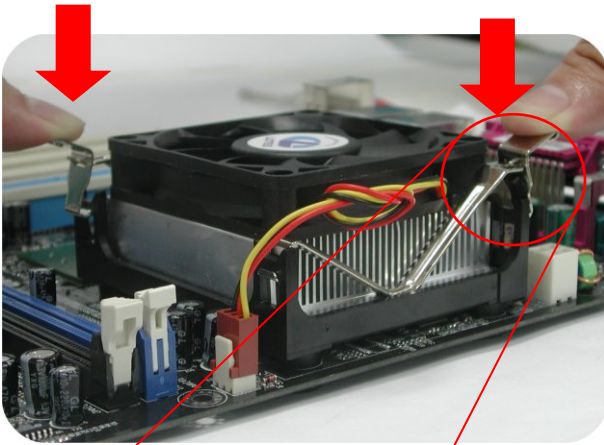
4. Install two cooler fixing sticks into CPU retention module.



5. Push the iron plate of cooler fixing stick up a bit.



6. Then press iron plate downward till you hear a "clip" sound.



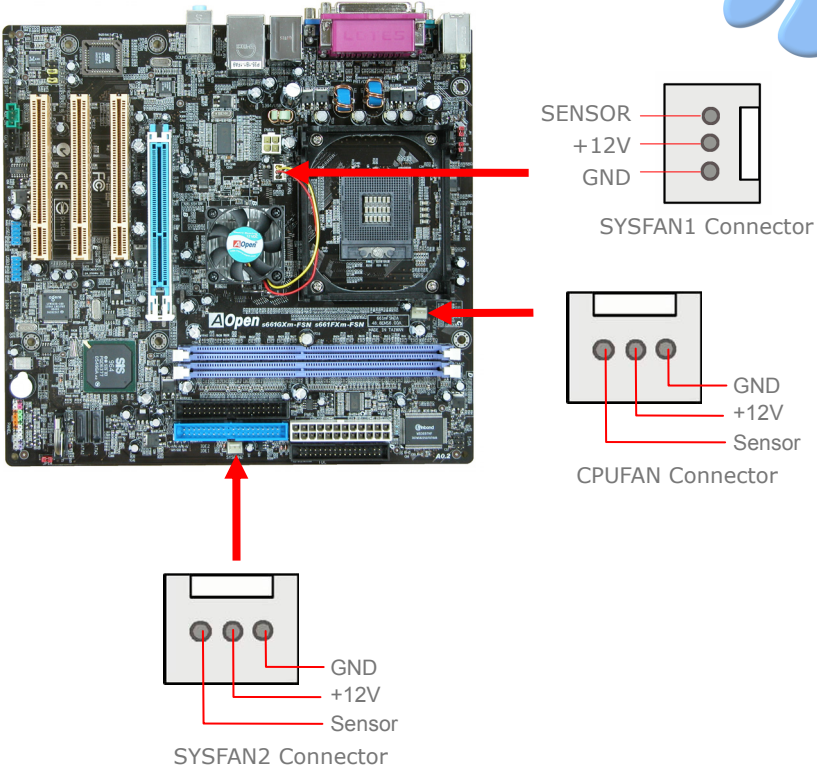
Note: Make sure that the iron plate have hooked CPU retention module firmly.



Note: We recommend to use our AOpen FAN.

Installing CPU and System Fans

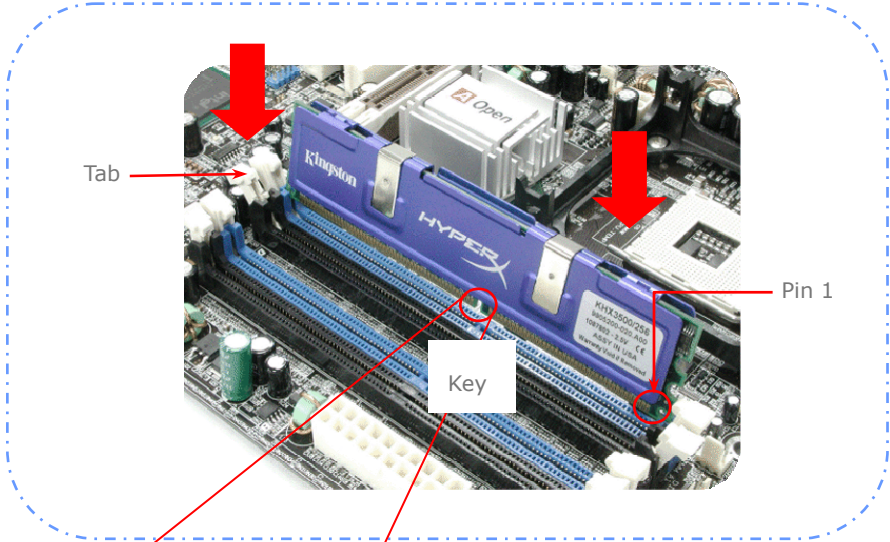
Plug the CPU fan cable to the 3-pin CPUFAN connector. If you have chassis fan, you can also plug it in SYSFAN1 or SYSFAN2 connector.



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

Installing Memory Modules

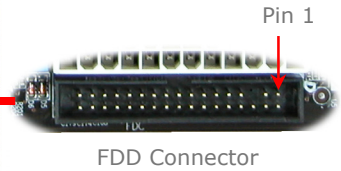
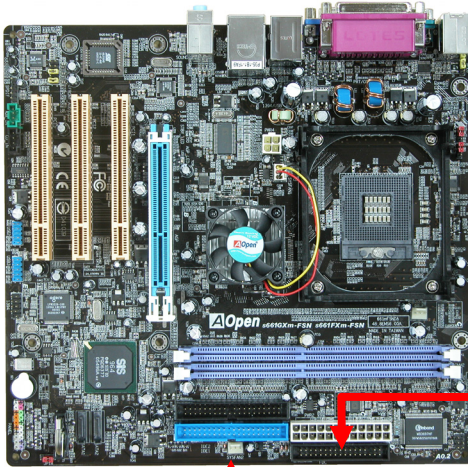
DIMM slots are designed in black which are very easy to recognize. Insert the module straight down to the DIMM slot with both hands and press down firmly until the DIMM module is securely in place.



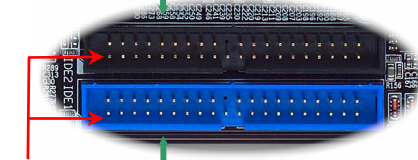
Note: The tabs of the DIMM slot will clip to hold the DIMM in place when the DIMM touches the slot's bottom.

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.



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



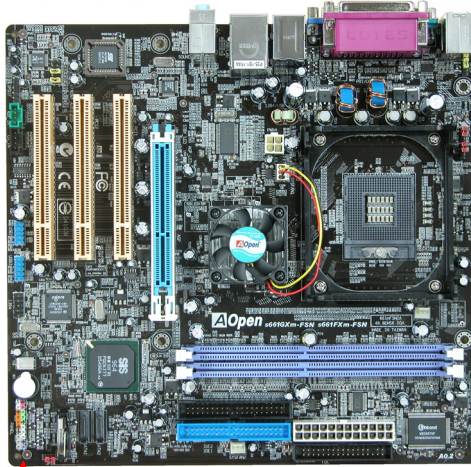
Primary Slave (2nd) Primary Master (1st)

ATA 66/100/133 IDE Connector

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

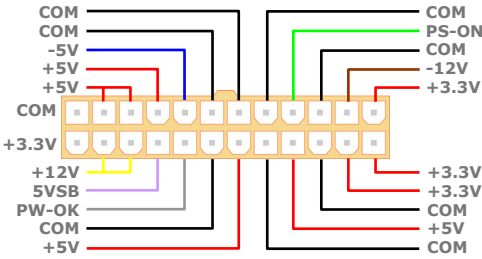
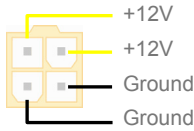
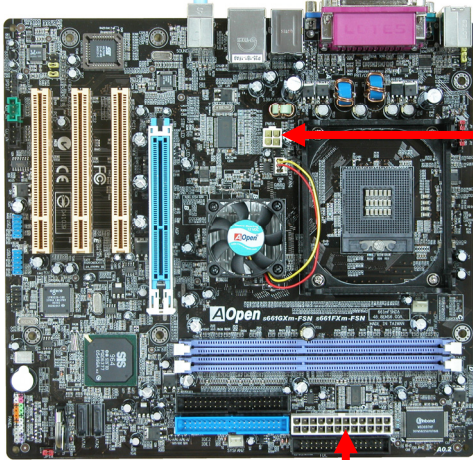


	1	
NC		Power Switch
NC		GND
+5V		Power LED-
HDD LED		GND
HDD LED		Power LED+
+5V		NC
+5V		GND
GND		GND
NC		RESET
SPEAKER		GND

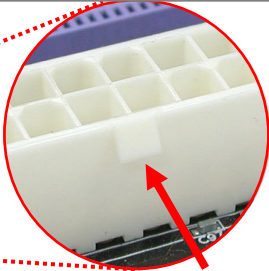
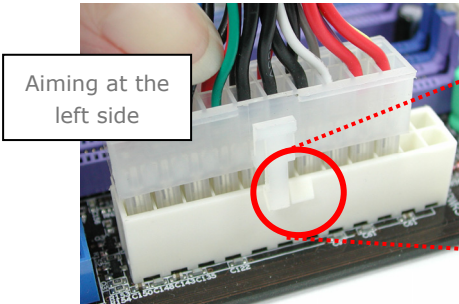
Front Panel Connector

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.



Note: Please aim the power plug at the **left side** of the 24-pin ATX power connector when the foolproof design faces you as shown.



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.

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 External Frequency 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 Bus Frequency

CPU Ratio	4x, 7x... 17x, 18x, 20x
CPU FSB (Adjustment manually)	FSB = 100MHz - 400MHz by 1MHz Stepping CPU Overclocking

Processor Number	Architecture	Clock Speed	Front Side Bus	Cache	Ratio
Pentium M 770	90nm	2.13GHz	533MHz	2MB L2	16x
Pentium M 760	90nm	2.00GHz	533MHz	2MB L2	15x
Pentium M 750	90nm	1.86GHz	533MHz	2MB L2	14x
Pentium M 740	90nm	1.73GHz	533MHz	2MB L2	13x
Pentium M 730	90nm	1.60GHz	533MHz	2MB L2	12x
Pentium M 765	90nm	2.10GHz	400MHz	2MB L2	21x
Pentium M 755	90nm	2.00GHz	400MHz	2MB L2	20x
Pentium M 745	90nm	1.80GHz	400MHz	2MB L2	18x
Pentium M 735	90nm	1.70GHz	400MHz	2MB L2	17x
Pentium M 725	90nm	1.60GHz	400MHz	2MB L2	16x
Pentium M 715	90nm	1.50GHz	400MHz	2MB L2	15x
Pentium M 705	130nm	1.50GHz	400MHz	1MB L2	15x
Celeron M 370	90nm	1.50GHz	400MHz	1MB L2	15x
Celeron M 360	90nm	1.40GHz	400MHz	1MB L2	14x
Celeron M 350	90nm	1.30GHz	400MHz	1MB L2	13x
Celeron M 340	130nm	1.50GHz	400MHz	512KB L2	15x
Celeron M 330	130nm	1.40GHz	400MHz	512KB L2	15x

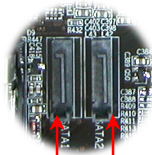
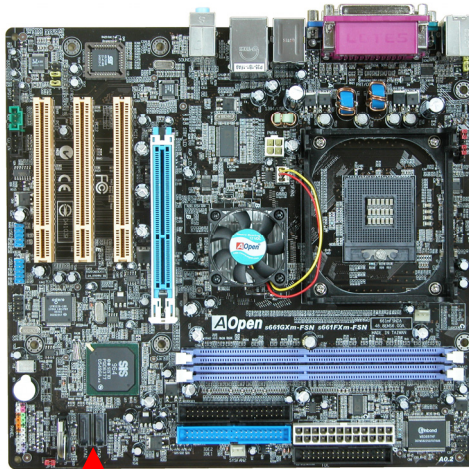
Note: With CPU speed changing rapidly, there might be faster CPU on the market by the time you received this installation guide. This table is kindly for your references only.



Warning: SiS 661FX chipset support maximum 533MHz (133MHz*4) system bus; 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 Port0 (SATA1) will be set as the first boot device automatically. **Please note that it doesn't support Hot-Plug in function.**

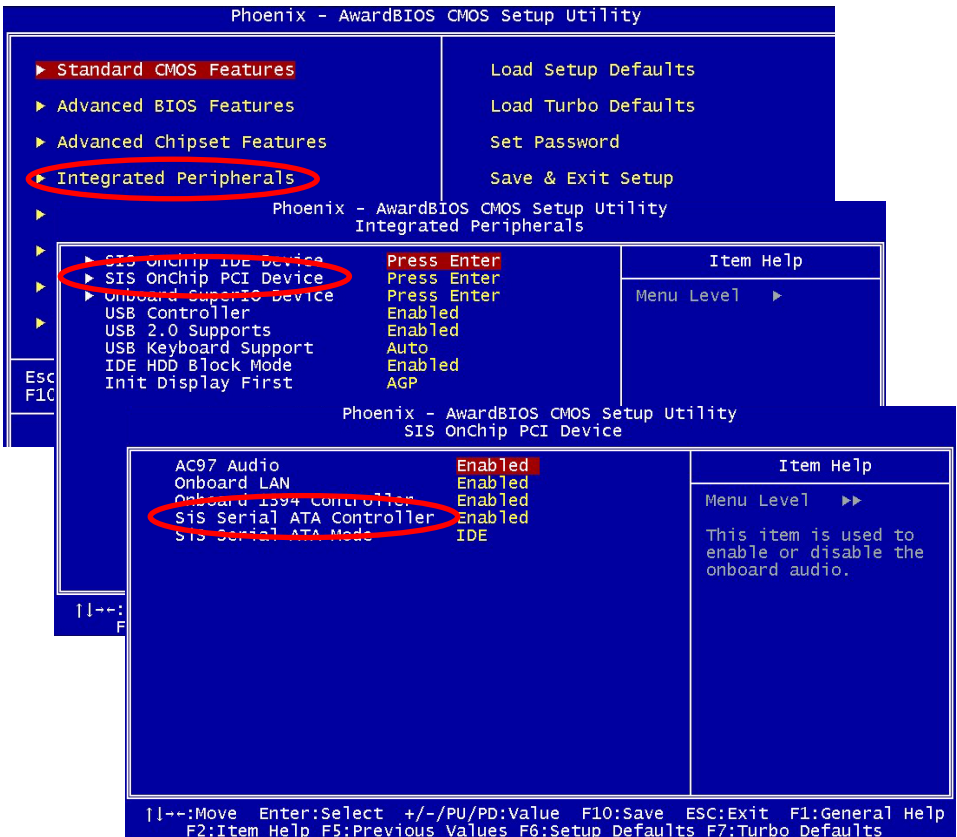


SATA1 SATA2

Adjusting your Hard Disk Setting

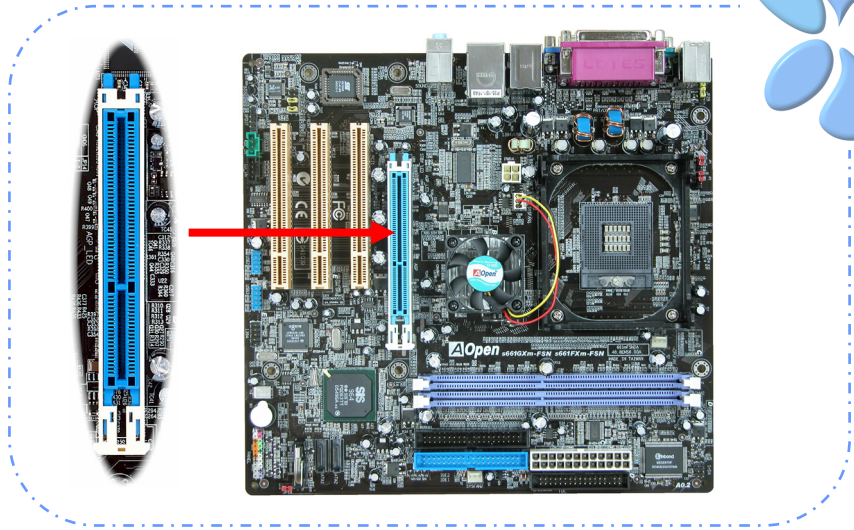
Except its original 2 sets of parallel IDE, this motherboard supports the latest serial ATA hard disk. If you are unable to find your newly installed serial ATA hard disks on your operating system after having them installed, the problem may lie in the BIOS setting. You can simply adjust BIOS settings 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** → **SIS OnChip PCI Device** → **SIS Serial ATA Controller**" to either enable or disable SATA interface.



Connecting AGP 8X Expansion Slot

This motherboard provides an AGP 8X slot. 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 $66\text{MHz} \times 4\text{bytes} \times 8 = 2.1\text{GB/s}$.



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.



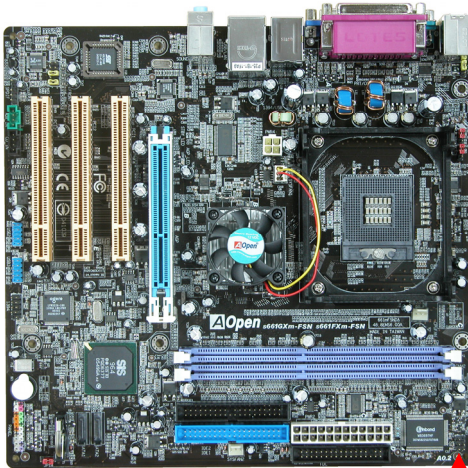
Warning: It is strongly recommended not install a 3.3V AGP card, which is not supported by SIS 661FX chipsets on this motherboard.



Connecting IrDA

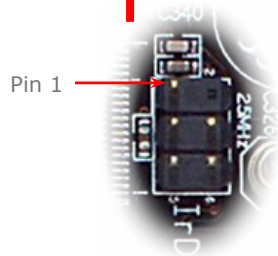
The IrDA connector can be configured to support wireless infrared module, with this module and application software such as Laplink or Windows Direct Cable Connection, user can transfer files to or from laptops, notebooks, PDA devices and printers. This connector supports both HPSIR (115.2Kbps, 2 meters)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



	1		
NC	●	○	KEY
+5V	●	●	GND
IR_TX	●	●	IR_RX

IrDA Connector



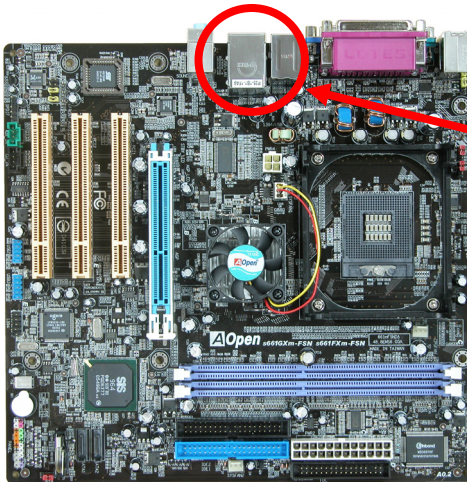
10/100 LAN Supported

On the strength of SIS 10/100 LAN controller on board, this motherboard provides 10/100Mbps 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). 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.



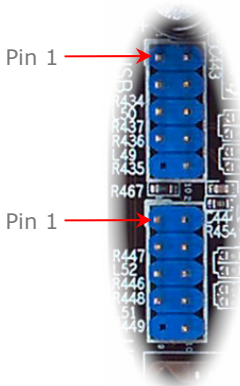
Speed LED (Left)
Green 100Mbps

ACT LED (Right)
Yellow



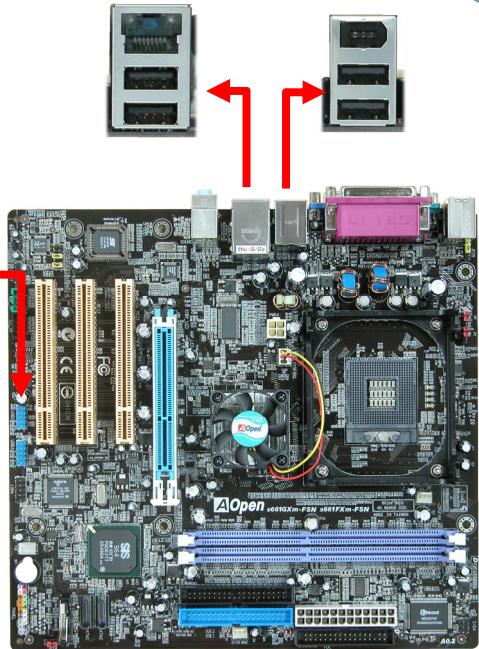
Connecting USB2.0

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 Front USB connector to USB modules or chassis front panel.



	1				
+5V	●	●	+5V		
SBD6-	●	●	SBD7-		
SBD6+	●	●	SBD7+		
GND	●	●	GND		
KEY	○	●	NC		

USB 2.0 Connector

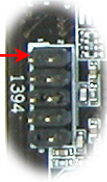


Connecting 1394

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



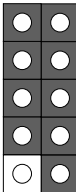
1 2

TPA+

GND

TPB+

+12V (Fused)



TPA-

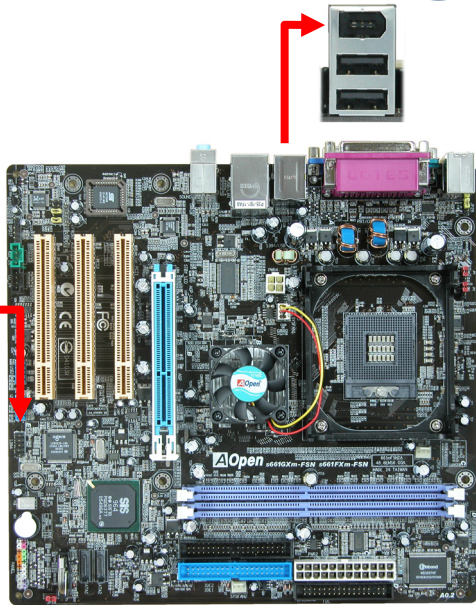
GND

TPB-

+12V (Fused)

SHIED GND

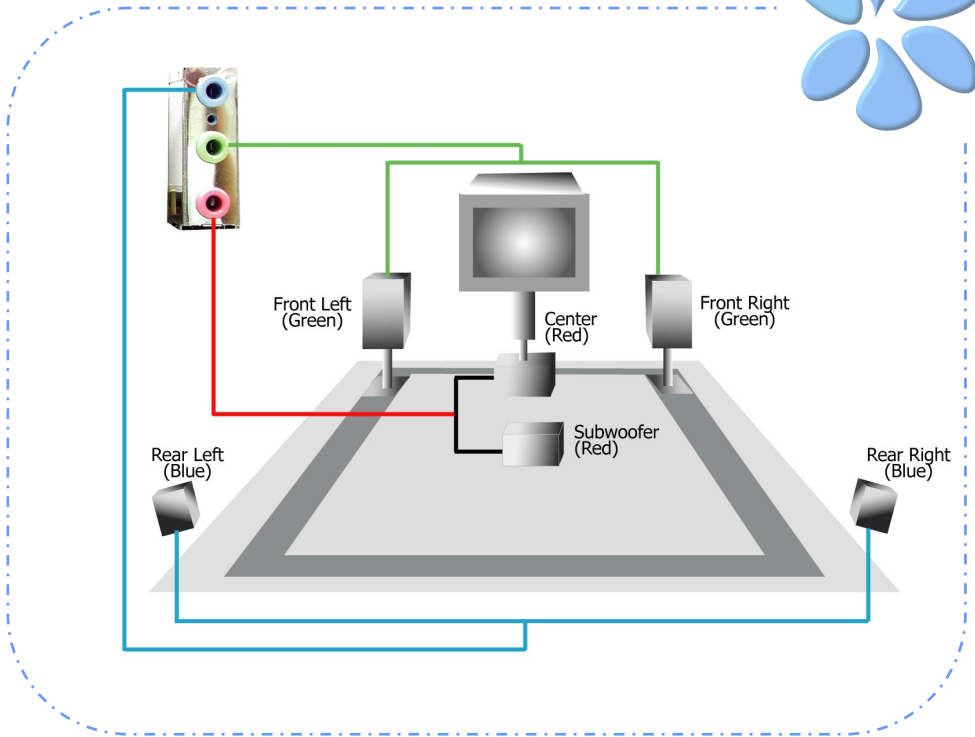
IEEE 1394 Connector



Warning: Please note that Hot-Plug is not allowed on IEEE 1394 headers; doing so will burn the controller IC and damage the motherboard.

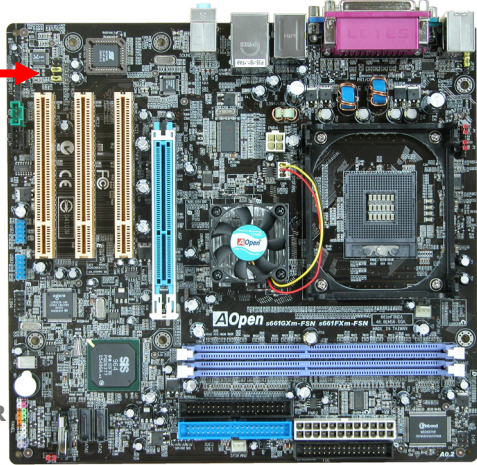
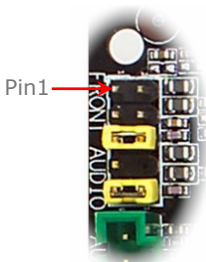
Super 5.1 Channel Audio Effect

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

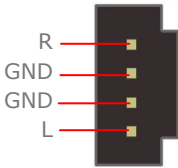
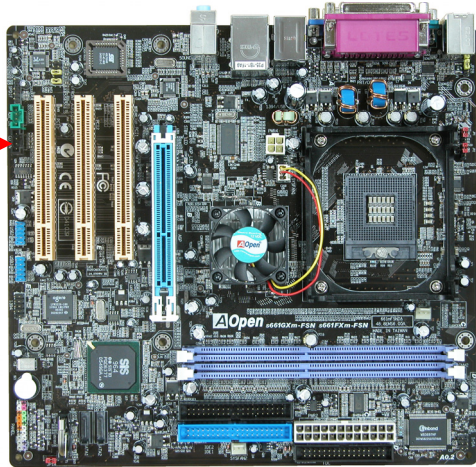
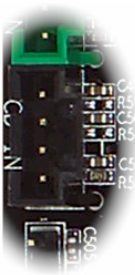


	1	2	
AUD_MIC	●	○	AUD_GND
AUD_MIC_BIAS	○	●	AUD_VCC
AUD_FPOUT_R	○	○	AUD_RET_R
NC	○	○	KEY
AUD_FPOUT_L	○	○	AUD_RET_L

Front Audio Connector

Connecting CD_IN

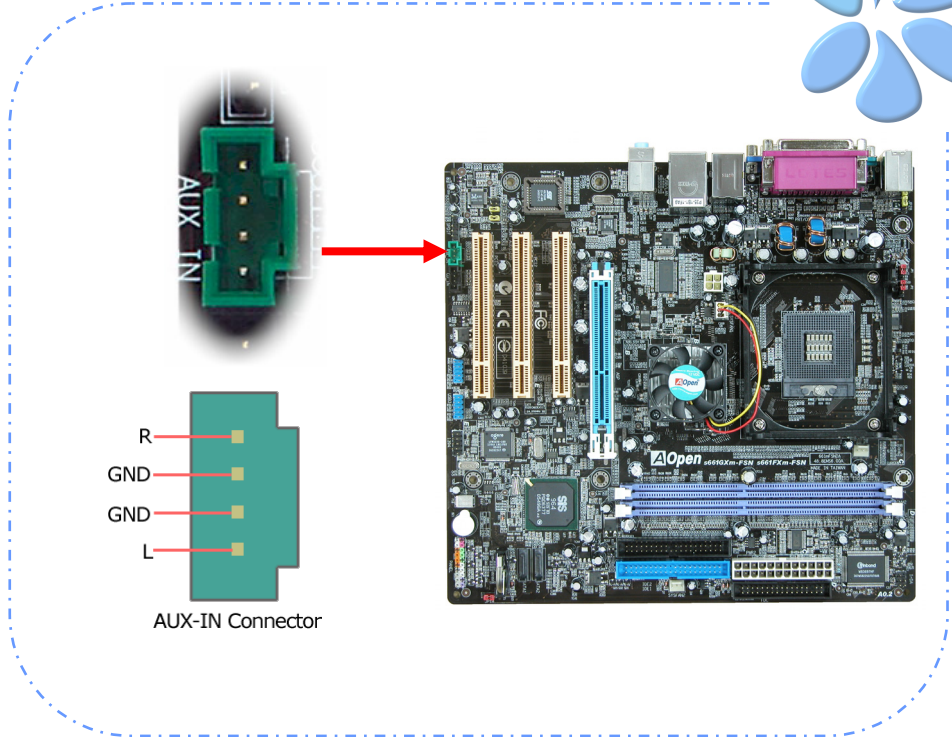
This connector is designed to connect CD Audio cable from CDROM or DVD drive to onboard sound.



CD-IN Connector

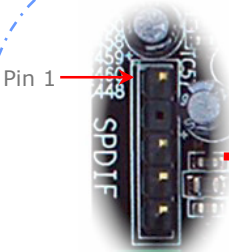
Connecting AUX_IN

This connector is used to connect MPEG Audio cable from MPEG card to onboard sound.



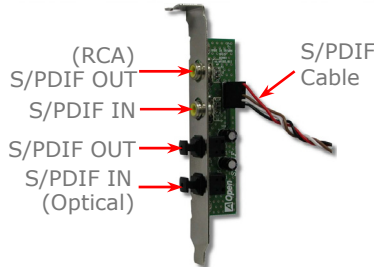
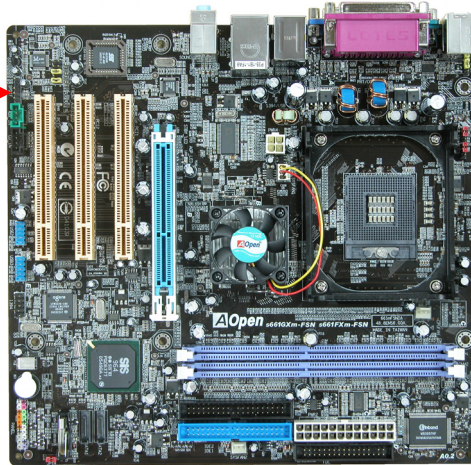
Connecting S/PDIF (Sony/Philips Digital Interface)

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.



- 1
- +5V
- KEY
- SPDIF OUT
- GND
- SPDIF IN

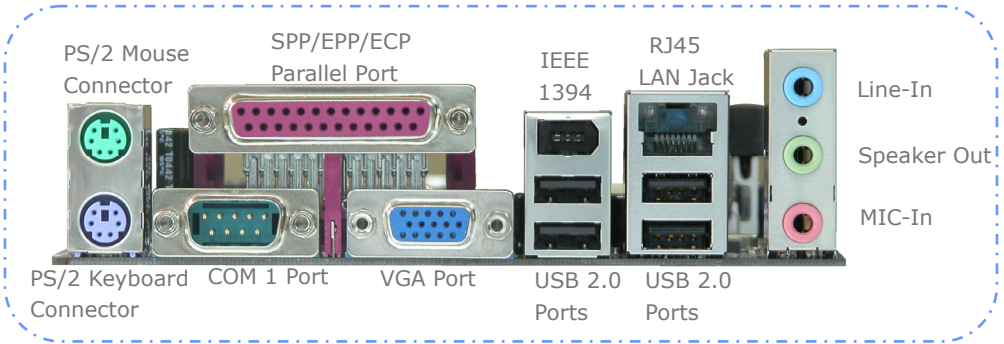
S/PDIF Connector



S/PDIF Module
(User Upgrade Optional)

Colored Coded Back Panel

The onboard I/O devices have PS/2 Keyboard, PS/2 Mouse, RJ-45 LAN Connector, IEEE1394, COM1, VGA port, Printer, USB, and AC'97 sound. The view angle of drawing shown here is from the back panel of the housing.

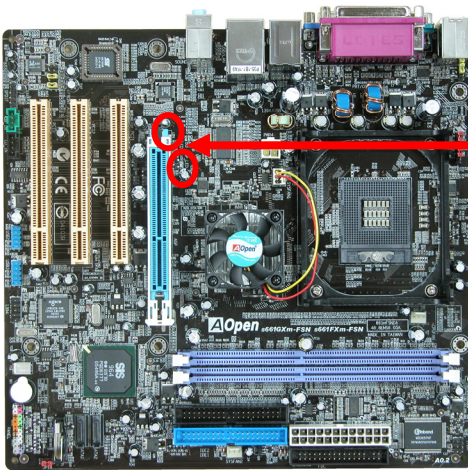


- PS/2 Keyboard:** For standard keyboard, which use a PS/2 plug.
- PS/2 Mouse:** For PC-Mouse, which use a PS/2 plug.
- USB Port:** Available for connecting USB devices.
- Parallel Port:** To connect with SPP/ECP/EPP printer.
- COM1 Port:** To connect with pointing devices, modem or others serial devices.
- RJ-45 LAN Port:** To connect Ethernet for home or office use.
- IEEE 1394 Port:** Available for connecting IEEE 1394 interface devices.
- VGA Connector:** To connect with PC monitor.
- 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 Standby LED and AGP LED are AOpen's considerate designs that aim at providing you friendly system information.

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.



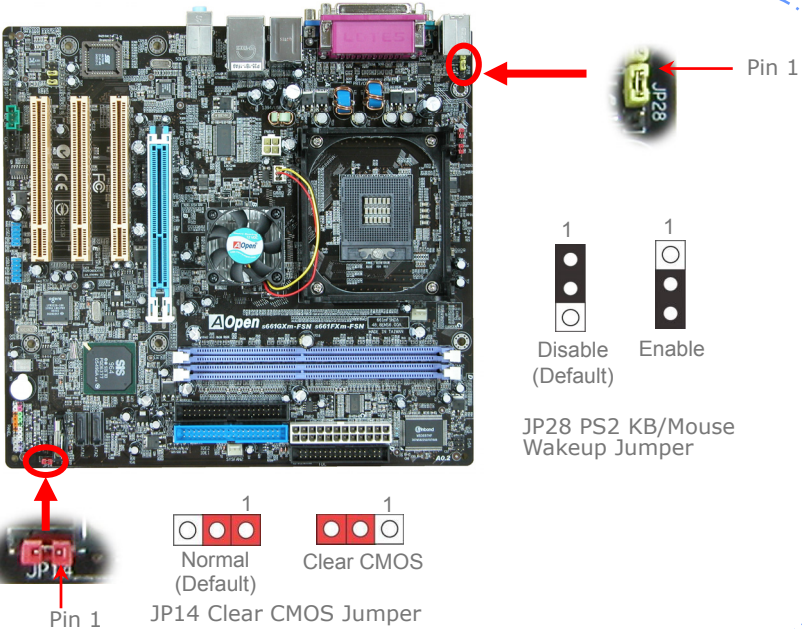
STBY LED



3.4 Jumper Settings

JP28 Keyboard / Mouse Wakeup Jumper

This motherboard provides PS2 keyboard / mouse wake-up 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 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.

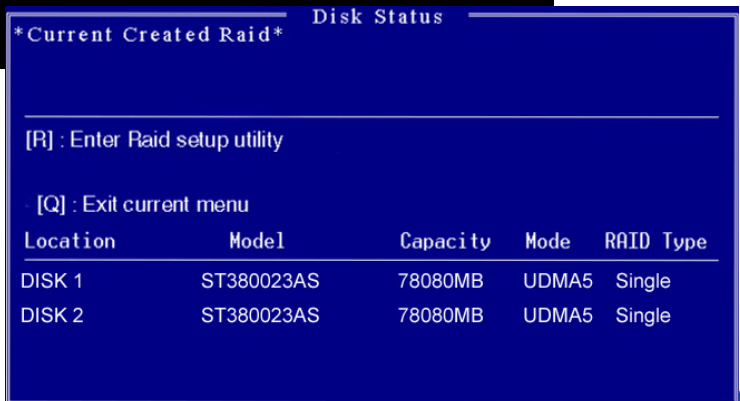
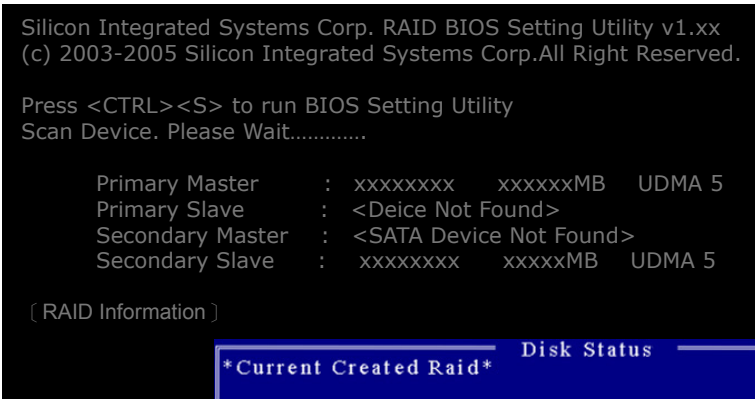
Chapter 4 Special Features and Utilities

4.1 RAID (Redundant Array of Independent Disks)

With the latest chipsets implemented, SIS 964 provides RAID 0 and RAID 1 function for the Serial ATA hard disks. You may use RAID BIOS Setting Utility provided by SIS to setup your disk array. For more RAID introduction, please visit our website: <http://english.aopen.com.tw/tech/techinside/RAID.htm>

RAID BIOS Setting Utility

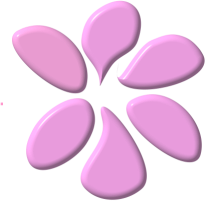
In order to make sure your system can recognize and operate Serial ATA RAID device smoothly, we have to enter RAID BIOS Setting Utility to do some configuration. After finishing the BIOS setup and reboot, you will see [Press <CTRL><S> to run BIOS Setting Utility] about half way through the boot up. When you enter you will be presented with a screen as shown below. You can use this utility to create or delete your disk arrays.



4.2 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

5.1 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.



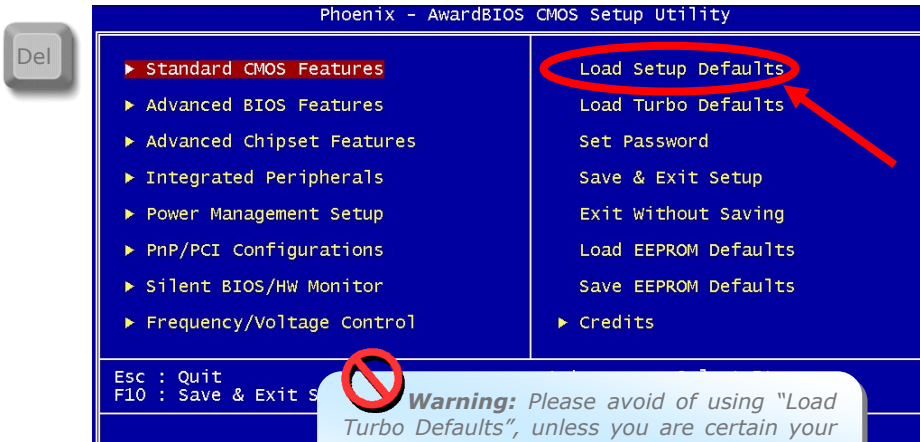
5.2 How To Use Phoenix-Award™ BIOS Setup Program

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.

5.3 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.



Phoenix - AwardBIOS CMOS Setup Utility

Del

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

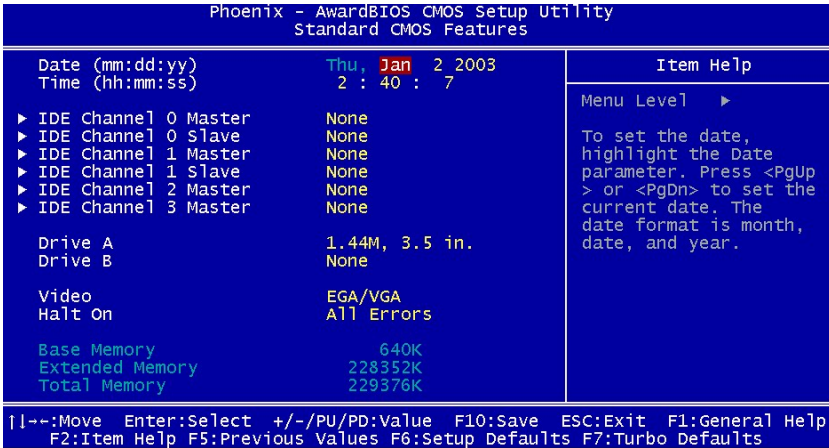
- Load Setup Defaults
- Load Turbo Defaults
- Set Password
- Save & Exit Setup
- Exit Without Saving
- Load EEPROM Defaults
- Save EEPROM Defaults
- ▶ Credits

Esc : Quit
F10 : Save & Exit S

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

Standard CMOS Features

The "Standard CMOS Setup" sets the basic system parameters such as the date, time, and the hard disk type. Use the arrow keys to highlight an item and <PgUp> or <PgDn> to select the value for each item.



Standard CMOS Features > Date

To set the date, highlight the Date parameter. Press <PgUp> or <PgDn> to set the current date. The date format is month, date, and year.

Standard CMOS features > Time

To set the time, highlight the Time parameter. Press <PgUp> or <PgDn> to set the current time in hour, minute, and second format. The time is based on the 24 hour military clock.

Standard CMOS features > IDE Channel 0 Master

Standard CMOS features > IDE Channel 0 Slave

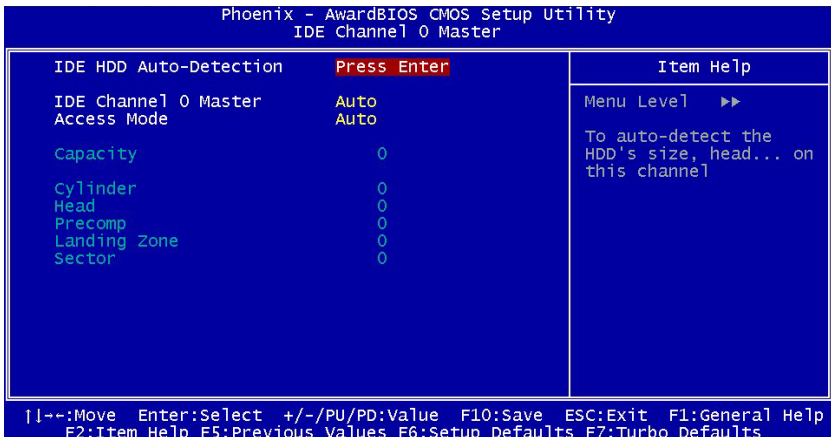
Standard CMOS features > IDE Channel 1 Master

Standard CMOS features > IDE Channel 1 Slave

Standard CMOS features > IDE Channel 2 Master

Standard CMOS features > IDE Channel 3 Master

This item lets you select the IDE hard disk parameters that your system supports. These parameters are Size, Number of Cylinder, Number of Head, Start Cylinder for Pre-compensation, Cylinder number of Head Landing Zone and Number of Sector per Track. The default setting is **Auto**, which enables BIOS to automatically detect the parameters of installed HDD (Hard Disk Drive) at POST (Power-On Self Test). If you prefer to enter HDD parameters manually, select Manual.



Standard CMOS features > IDE Channel 0 Master > IDE HDD Auto-Detection

Press "Enter" to auto-detect parameters of HDD

Standard CMOS features > IDE Channel 0 Master > IDE Channel 0 Master (Slave)

Define the parameters of IDE devices in Channel 0 (Master or Slave).

Available options:

- **None:** if there is no device, please select "None" for speeding boot up.
- **Auto:** enable BIOS to auto-detect parameters of IDE device. (Default)
- **Manual:** allow users to define parameter of IDE device.

Standard CMOS features > IDE Channel 0 Master > Access Mode

Set the using mode of HDD.

Available options: **CHS / LBA / Large / Auto** (default). User can select the mode according to the label on HDD.

- **Cylinder:** Enter cylinder number
- **Head:** Enter head number
- **Precomp:** Write precompensation
- **Landing Zone:** Location of head
- **Sector:** Sector Number

Standard CMOS Features > Drive A

This item allows user select the floppy drive type.

Available items: **None / 360KB 5.25" / 1.2MB 5.25" / 720KB 3.5" / 1.44MB 3.5" / 2.88MB 3.5"**

Standard CMOS Features > Vedio

This item specifies the type of video card in use. The default setting is **VGA/EGA**. Since current PCs use VGA only, this function is almost useless and may be disregarded in the future.

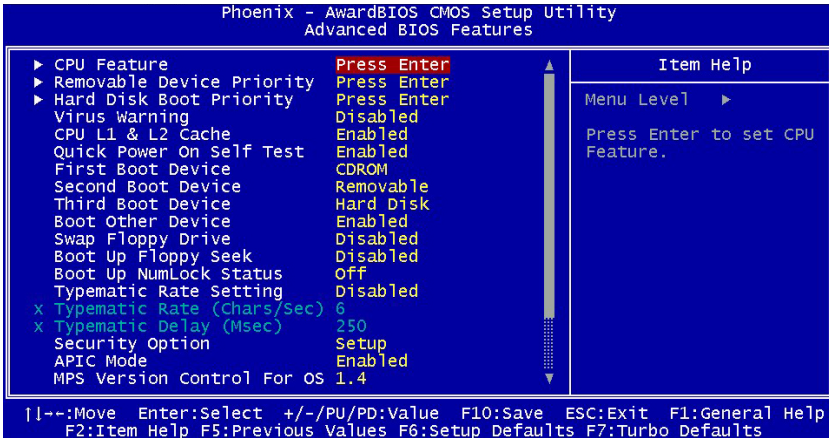
Standard CMOS Features > HaltOn

This parameter enables you to control the system stops in case of Power-On Self Test (POST) error.

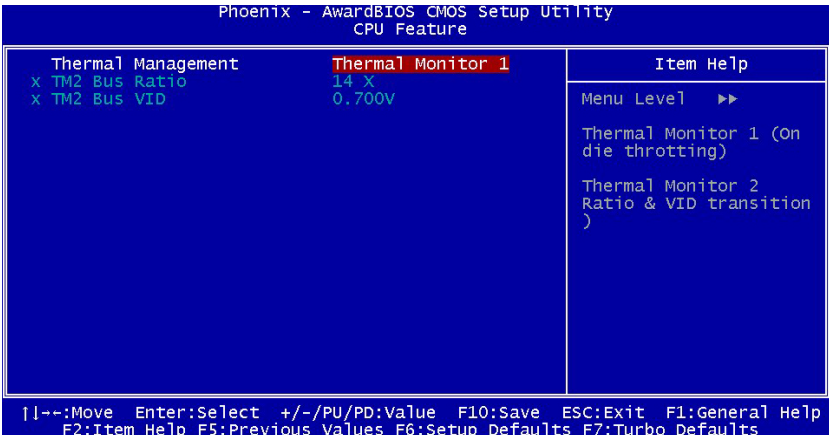
Available items: **No errors** / **All errors** / **All, But Keyboard** / **All, But Diskette** / **All, But Disk/Key**

Advanced BIOS Features

This screen appears when you select the option "Advanced BIOS Features" from the main menu.



Advanced BIOS Features > CPU feature



Advanced BIOS Features > CPU feature > Thermal Management

Set the function of CPU internal Thermal Management. When CPU supports Thermal Monitor 1 (TM1) and Thermal Monitor 2 (TM2), user could select TM1 or TM2. But if CPU doesn't Support TM2, it will be fixed On TM1. When TM2 is

enabled, and a high temperature situation is detected, it will cause the CPU to adjust its operating frequency via the core to bus ratio and input voltage via the VID signals. **TM2 Bus Ratio** and **TM2 Bus VID** show the CPU default value for TM2.

Advanced BIOS Features > Removable Device Priority

Advanced BIOS Features > Hard Disk Boot Priority

Advanced BIOS Features > Virus Warning

Advanced BIOS Features > CPU L1 & L2 Cache

Advanced BIOS Features > Quick Power On Self Test

Advanced BIOS Features > First Boot Device

Advanced BIOS Features > Second Boot Device

Advanced BIOS Features > Third Boot Device

This parameter allows you to specify the system boot up search sequence.

Available options:

- **Removable:** Floppy, USB, ZIP...etc
- **Hard Disk:** Hard Disk Drives
- **CD-ROM:** CD-ROM, DVD-ROM...etc
- **LAN:** LAN Card with boot ROM
- **Disabled**

Advanced BIOS Features > Boot Other Device

This parameter allows you to enable other system boot up devices that is not described above.

Advanced BIOS Features > Swap Floppy Drive

Advanced BIOS Features > Boot Up Floppy Seek

Advanced BIOS Features > Boot Up NumLock Status

Set this parameter to **"On"** to enable the numeric function of the numeric keypad. Set this parameter to **"Off"** to disabling the numeric function allows you to use the numeric keypad for cursor control.

Advanced BIOS Features > Typematic Rate Setting

Advanced BIOS Features > Typematic Rate (Chars/Sec)

Advanced BIOS Features > Typematic Delay (Msec)

Advanced BIOS Features > Security Option

The **"System"** option limits access to both the System boot and BIOS setup. A prompt asking you to enter your password appears on the screen every time you boot the system.

The "Setup" option limits access only to BIOS setup.

To disable the security option, select Password Setting from the main menu, don't type anything and just press <Enter>

Advanced BIOS Features > APIC Mode

Advanced BIOS Features > MPS Version Control For OS

Advanced Chipset Features

The "Advanced Chipset Features" includes settings for the chipset dependent features. These features are related to system performance.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

▶ DRAM Clock/Timing Control	Press Enter	Item Help
Graphic Window WR Combin	Disabled	
AGP Fast Write Support	Disabled	Menu Level ▶
AGP Data Rate	Auto	
AGP Aperture Size (MB)	64	
VGA Share Memory Size	32 MB	
Graphics Engine Clock	133MHz	
Intruder Detection	Disabled	

⚠ **Warning:** Make sure you fully understand the items contained in this menu before you try to change anything. You may change the parameter settings to improve system performance. However, it may cause your system to be unstable if the setting is not correct for your system configuration.

↑↓←→:Move Enter:Select +/-/PU/PD:Value
F2:Item Help F5:Previous Values

Advanced Chipset features > DRAM Clock/Timing Control

Phoenix - AwardBIOS CMOS Setup Utility
DRAM Clock/Timing Control

Performance Mode	Disabled	Item Help
DRAM Timing Control	By SPD	
X CAS Latency Time	2.5T	Menu Level ▶▶
X RAS Active Time	8T	
X RAS Precharge Time	4T	
X RAS to CAS Delay	4T	

↑↓←→: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

Advanced Chipset features > DRAM Clock/Timing Control > Performance Mode

Advanced Chipset features > DRAM Clock/Timing Control > DRAM Timing Control

Available options:

- **By SPD:** System will define timing according to default of Dram. (Default)
- **Manual:** Allow user to define timing himself.

Advanced Chipset features > DRAM Clock/Timing Control > CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Available options: **2, 2.5, 3**

Advanced Chipset features > DRAM Clock/Timing Control > RAS Active Time

Advanced Chipset features > DRAM Clock/Timing Control > RAS Precharge Time

If an insufficient number of cycles are allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast give faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. Available options: **2, 3, 4, 5**

Advanced Chipset features > DRAM Clock/Timing Control > RAS to CAS Delay

This field lets user to insert a timing delay between the CAS and RAS strobe signals, used when RAM is written to, read from, or refreshed. Fast gives fater performance; and Slow give more stable performance. This field applies only when synchronous DRAM is installed in the system.

Available options: **2, 3, 4, 5**

Advanced Chipset features > Graphic Window WR Combin

Advanced Chipset features > AGP Fast Write Support

Advanced Chipset features > AGP Data Rate

Advanced Chipset features > AGP Aperture Size (MB)

This item allows you to determine the effective size of the AGP Graphic Aperture. Available options: **4, 8, 16, 32, 64, 128, 256**

Advanced Chipset features > Graphics Engin Clock

Advanced Chipset features > VGA Share Memory Size

Advanced Chipset features > Intruder Detection

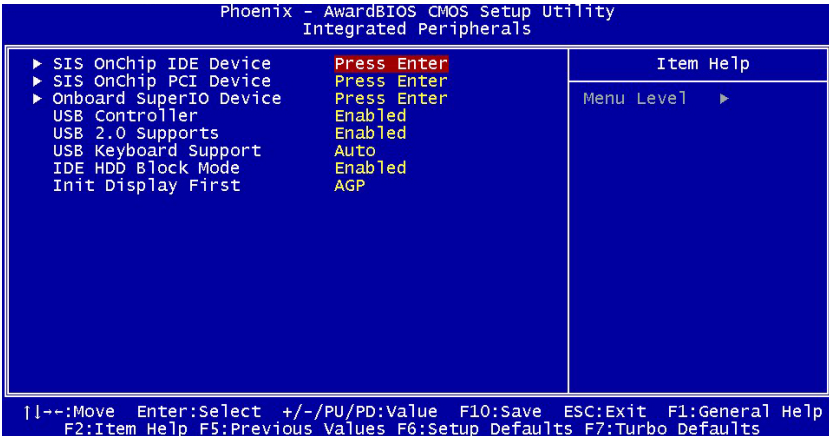
This item allow user to detect the housing is opened or not. It works only when the housing is designed with CASE OPEN cable and connected to motherboard.

Available options: **Disabled, Enabled**



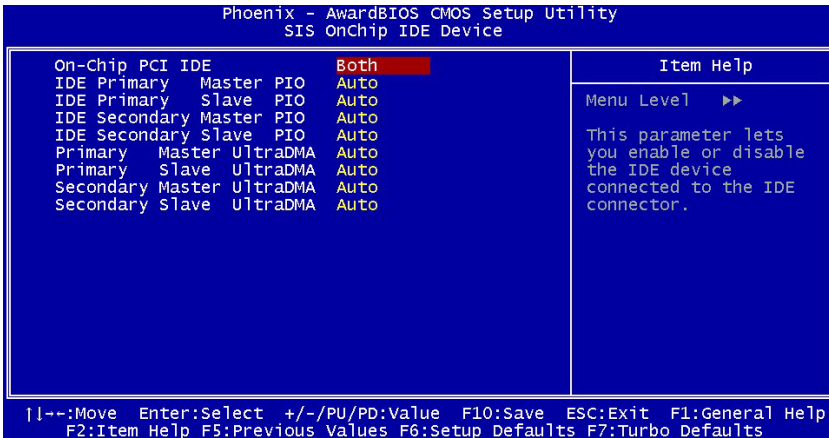
Integrated Peripherals

This submenu appears if you select the option "Integrated Peripherals" from the main menu. This option allows you to configure the I/O features.



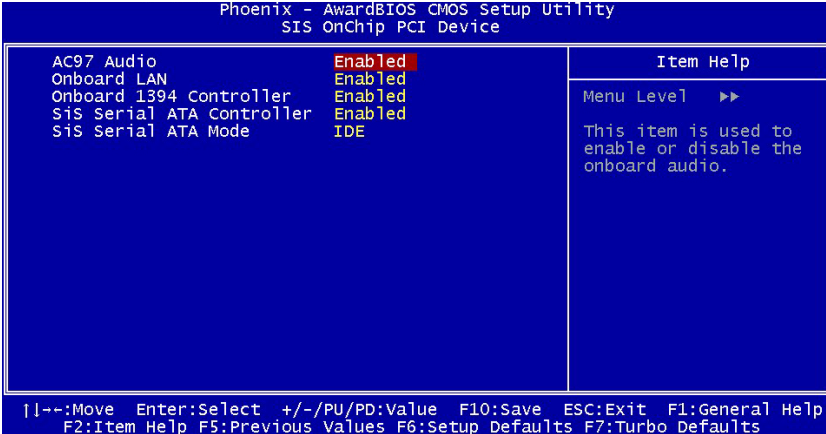
Integrated peripherals > SiS OnChip IDE Device

This parameter allows you to "Enable" or "Disable" the IDE device connected to the primary or secondary IDE connector.



Integrated peripherals > Onboard Device

This item allows you to set onboard devices.



Integrated peripherals > Onboard Device > AC97 Audio

This item is used to enable or disable the onboard audio.

Integrated peripherals > Onboard Device > Onboard LAN Control

This item lets you enable or disable onboard LAN.

Integrated peripherals > Onboard Device > Onboard 1394 Controller

This item lets you enable or disable onboard 1394.

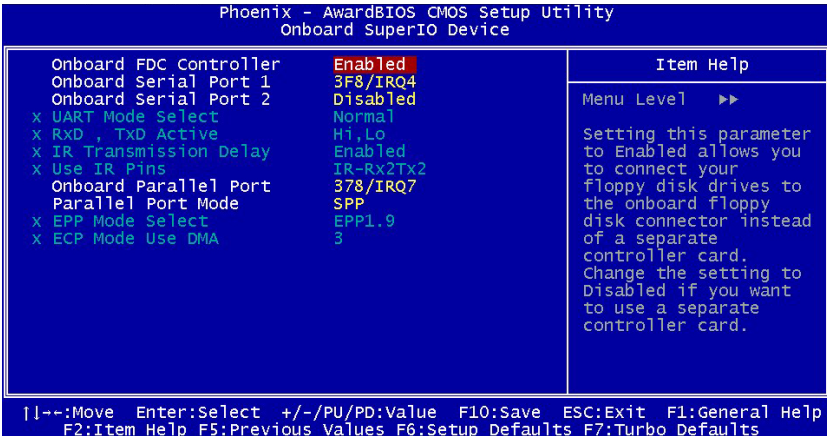
Integrated peripherals > Onboard Device > SiS Serial ATA Controller

This item lets you enable or disable onboard SATA.

Integrated peripherals > Onboard Device > SiS Serial ATA Mode

Integrated peripherals > Onboard SuperIO Device

This item allows you to set SuperIO device.



Integrated peripherals > Onboard SuperIO Device > Onboard FDC Controller

Setting this parameter to **"Enabled"** allowing you to connect your floppy disk drives to the onboard floppy disk connector instead of a separate controller card. Change the setting to Disabled if you want to use a separate controller card.

Integrated peripherals > Onboard SuperIO Device > Onboard Serial Port 1

This item allows you to assign address and interrupt for the board serial port. The default is **"Auto"**.

Integrated peripherals > Onboard SuperIO Device > Onboard Serial Port 2

This item allows you to assign address and interrupt for the board serial port. The default is **"Auto"**.

Integrated peripherals > Onboard SuperIO Device > UART Mode Select

This item is configurable only if the "Onboard Serial Port 2" is enabled. This allows you to specify the mode of serial port2.

Available options:

- **Normal:** Sets serial port 2 to operate in normal mode. This is the default setting.
- **IrDA (SIR):** This setting allows infrared serial communication at a maximum baud rate of 115.2K baud.
- **ASKIR:** This setting allows infrared serial communication at a maximum baud rate of 57.6K baud.

Integrated peripherals > Onboard SuperIO Device > RXD, TXD Active

This item is used to select RxD (Receive Data) and TxD (Transmit Data) mode for UART, for instance, IR device, modem, etc. Normally, we suggest you keep the default setting. Please see the documentation that comes with your device.

Available options: **Hi, Hi / Hi, Lo**

Integrated peripherals > Onboard SuperIO Device >IR Transmission Delay

If “**Enabled**” is selected, there will be a 4 character delay when SIR is changed from TX mode to RX mode.

Integrated peripherals > Onboard SuperIO Device >Use IR Pins

Integrated peripherals > Onboard SuperIO Device >Onboard Parallel Port

This item controls the onboard parallel port address and interrupt.

Available options: **3BC/IRQ7, 3BC/IRQ7, 3BC/IRQ7, Disabled**

Integrated peripherals > Onboard SuperIO Device >Parallel Port Mode

This item lets you set the parallel port mode. The mode options are SPP (Standard and Bidirection Parallel Port), EPP (Enhanced Parallel Port) and ECP (Extended Parallel Port).

Available options:

- **SPP (Standard and Bidirection Paralell Port):** SPP is the IBM AT and PS/2 compatible mode.
- **EPP (Enhanced Parallel Port):** EPP enhances the parallel port throughput by directly writing/reading data to/from parallel port without latch.
- **ECP (Extend Parallel Port):** ECP supports DMA and RLE (Run Length Encoded) compression and decompression.
- **ECP + EPP**

Integrated peripherals > Onboard SuperIO Device >EPP Mode Select

This item lets you select EPP mode protocol.

Available options: **EPP 1.7, EPP 1.9**

Integrated peripherals > Onboard SuperIO Device >ECP Mode Use DMA

This item lets you set the DMA channel of ECP mode.

Available options: **3, 1**

Integrated peripherals > USB Controller

This item lets you enable or disable the USB controller.

Integrated peripherals > USB 2.0 Controller

This item lets you enable or disable the USB 2.0 controller.

Integrated peripherals > USB Keyboard Support

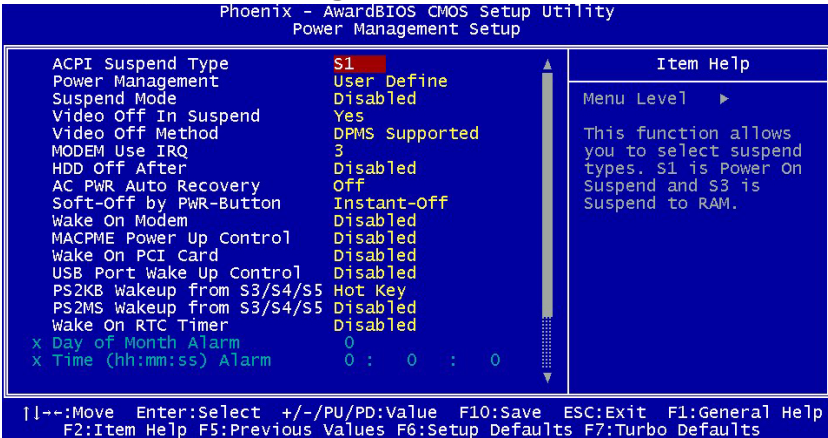
This item lets you enable or disable the USB keyboard driver within the onboard BIOS. The keyboard driver simulates legacy keyboard command and let you use USB keyboard during POST or after boot if you don't have USB driver in the operating system.

Integrated peripherals > IDE HDD Block Mode

Integrated peripherals > Init Display First

Power Management Setup

The Power Management Setup screen enables you to control the motherboard green features. See the following screen.



Power Management > ACPI Suspend Type

This function allows you to select suspend types. S1 is Power On Suspend and S3 is Suspend to RAM.

Available Options: **S1, S3, S1 & S3**

Power Management > Power Management

Power Management > Suspend Mode

Power Management > Video off In Suspend

Power Management > Video off Method

Power Management > MODEN use IRQ

Power Management > HDD of After

Power Management > AC PWR Auto Recovery

A traditional ATX system should remain at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation, without an UPS, that needs to keep power-on. This item is used to solve this problem. Selecting On enabling system to automatically power-on after AC power resumes; in the other hand, the system will remain power-off if you select Off. If Former-Sts (former status) option is selected, the system will power-on or power-off based on the original state.

Available options: **Former-Sts, On, Off**

Power Management > Soft-off by PWR-BTTN

This is a specification of ACPI and supported by hardware. When Delay 4 sec. is selected, the soft power switch on the front panel can be used to control power On, Suspend and Off. If the switch is pressed for less than 4 seconds during power On, the system will go into Suspend mode. If the switch is pressed for longer than 4 seconds, the system will be turned Off. The default setting is Instant-Off. If Instant-Off is selected the soft power switch is only used to control On and Off, so there is no need to press it for 4 seconds, and there is no Suspend.

Available Options: **Delay 4 sec., Instant-Off**

Power Management > Wake On Modem

This option lets you specify enable or disable Wake On Modem function.

Available options: **Disabled, Enabled**

Power Management > MACPME Power Up Control

Power Management > Wake On PCI card

This is a function of PCI specification 2.2. PCI bus supports standby current to PCI card and PCI card can wakeup system if it detects certain activity.

Available options: **Disabled, Enabled**

Power Management > USB Port Wake Up Control

Power Management > PS2KB Wakeup from S3/S4/S5

Power Management > PS2MS Wakeup from S3/S4/S5

Power Management > Wake On RTC Timer

The Wake Up Timer is more like an alarm, which wakes up and powers on your system at a pre-defined time for a specific application. It can be set to wake up everyday or on specific date within a month. The date/time is accurate to within a second. This option lets you enable or disable the RTC Wake Up function.

Available options: **By Date, By Week, Disabled**

Power Management > Date (of Month) Alarm

This item is displayed when you enable the Wake On RTC Timer option. Here you can specify what date you want to wake up the system. For Example, setting to 15 will wake up the system on the 15th day of every month.



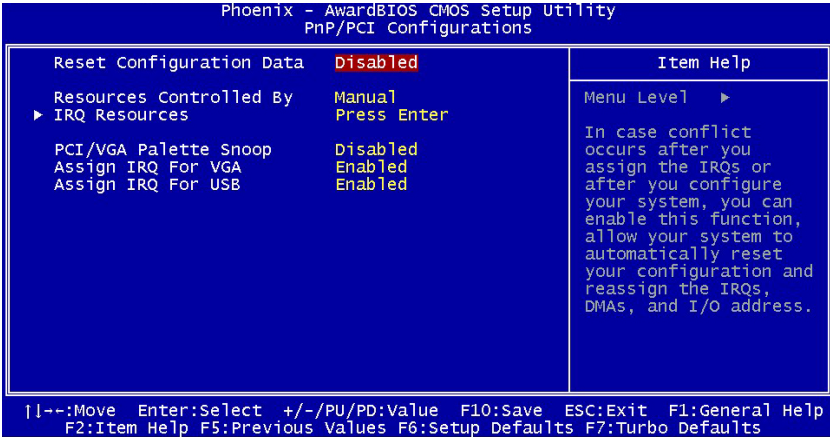
Tip: Setting this item to 0 will wake up the system on the specified time (which can be set in the Wake On RTC Timer) every day.

Power Management > Time (hh:mm:ss) Alarm

This item is displayed when you enable the Wake On RTC Timer option. Here you can specify what time you want to wake up the system.

PNP/PCI Configurations

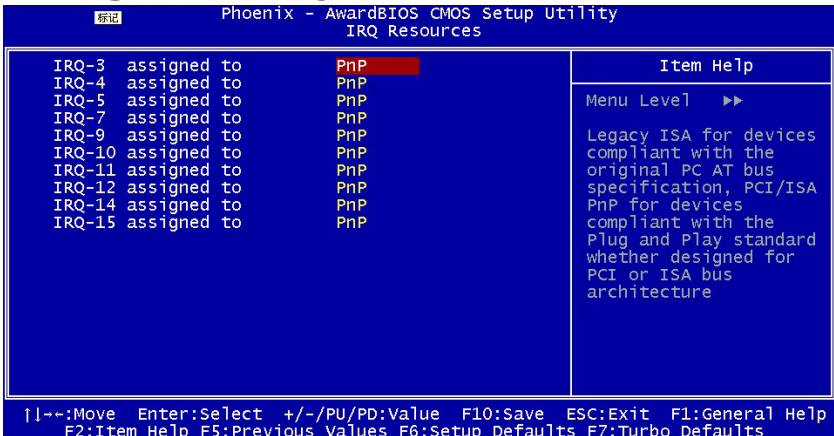
The PNP / PCI Configuration Setup allows you to configure the ISA and PCI devices installed in your system. The following screen appears if you select the option "PNP/PCI Configuration Setup" from the main menu.



PNP/PCI Configurations > Reset Configuration Data

PNP/PCI Configurations > Resources Controlled By

PNP/PCI Configurations > IRQ Resources



PNP/PCI Configurations > Assign IRQ For VGA

In case conflict occurs after you assign the IRQs or after you configure your system, you can enable this function, allow your system to automatically reset your configuration and reassign the IRQs, DMAs, and I/O address.

Available options: **Disabled, Enabled**

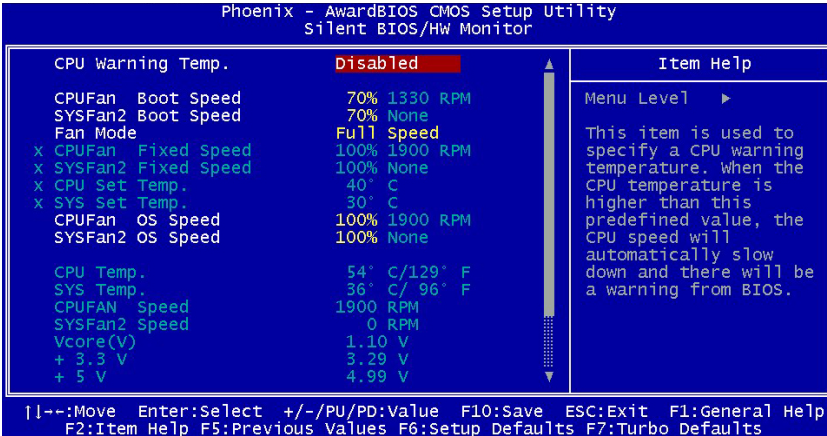
PNP/PCI Configurations > Assign IRQ For USB

In case conflict occurs after you assign the IRQs or after you configure your system, you can enable this function, allow your system to automatically reset your configuration and reassign the IRQs, DMAs, and I/O address.

Available options: **Disabled**, **Enabled**

Silent BIOS/HW Monitor

This submenu displays Silent BIOS / HW monitor status and provides some basic control function.



Silent BIOS/HW Monitor > CPU Warning Temperature

This item is used to specify a CPU warning temperature. When the CPU's temperature is higher than this predefined value, the CPU's speed will automatically slow down and there will be a warning from BIOS.

Silent BIOS/HW Monitor > CPUFan Boot Speed

Silent BIOS/HW Monitor > SYSFan Boot Speed

Silent BIOS/HW Monitor > Fan Mode

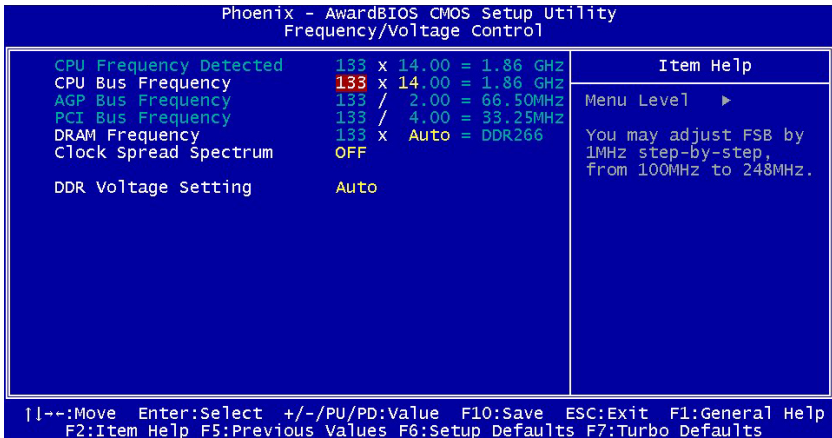
This item allows user to select the mode of Fan Speed. Available options:

- **Full Speed:** All fans will operate in full speed.
 1. If CPUFAN doesn't be connected or operate, there would be Warning Beep.
 2. When SystemFAN or PowerFAN is connected to motherboard, if SystemFAN or PowerFAN doesn't work, there would be Warning Beep.
- **Smart Control:** User could set critical temperature for each fan. If the temperature is under critical temperature, fan wouldn't operate; on the contrary fan would operate.
 1. If Power Temperature connector isn't be connected, Smart Control.mode for Power Fan will be disabled.

- **Fixed Speed:** User could define the voltage of each fan to make fan operate in a fixed speed.
 1. If CPUFAN doesn't be connected or operate, there would be Warning Beep.
 2. When SystemFAN or PowerFAN is connected to motherboard, if SystemFAN or PowerFAN doesn't work, there would be Warning Beep.

Frequency/Voltage Control

This submenu allows you to configure the CPU and memory clock.



Frequency/Voltage Control > CPU Frequency Detected

Frequency/Voltage Control > CPU Bus Frequency

This item allows user to overclock the bus frequency of CPU. The range is from 100 to 400.



Tip: When you fail to overclock, you could:

1. Clear CMOS (JP14) to restore the default setting.
2. After turning power on, press "Home" immediately until the screen appears.

Frequency/Voltage Control > AGP Bus Frequency

Frequency/Voltage Control > PCI Bus Frequency

These two items allow user to adjust AGP / PCI Bus Frequency. The ratio of AGP and PCI Bus frequency is fixed at 2:1. Available options: **66.00/33.00, 75.43/33.72, 88.00/44.00**

Frequency/Voltage Control > DRAM Frequency



Frequency/Voltage Control > Clock Spread Spectrum

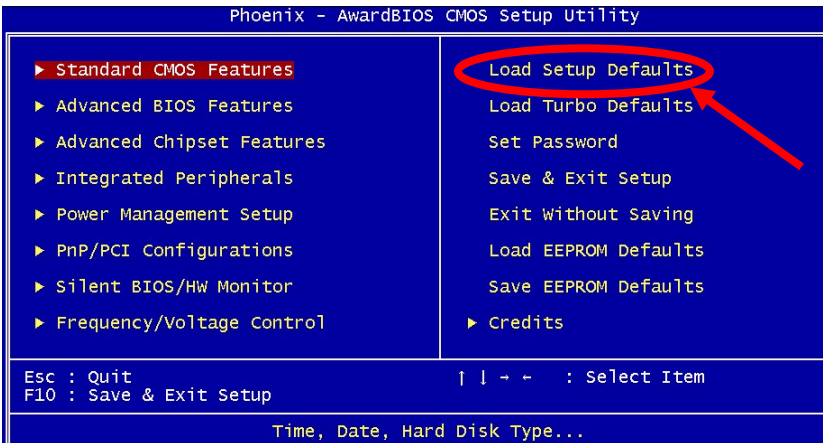
This item is used to set the value of clock Spread Spectrum. BIOS will determine the adjustable value according to the CPU installed, not all items will be showed. This function only works when CPU Bus frequency is at 100MHz.

Available options: **0.3% Center / 0-0.5% down / 0.55% Center / 0-0.75% down / Spread Off**

Frequency/Voltage Control > DDR Voltage Setting

Load Setup Defaults

The "Load Setup Defaults" option loads optimized settings for optimum system performance. Optimal settings are relatively safer than the Turbo settings. All the product verification, compatibility/reliability test report and manufacture quality control are based on "Load Setup Defaults". We recommend using these settings for normal operation. "Load Setup Defaults" is not the slowest setting for this motherboard. If you need to verify an unstable problem, you may manually set the parameter in the "Advanced BIOS Features" and "Advanced Chipset Features" to get slowest and safer setting.



Load Turbo Defaults

The "Load Turbo Defaults" option gives better performance than "Load Setup Defaults". It is provided for the convenience of power user who wants to push the motherboard to get better performance. Turbo setting does not go through all the detail reliability and compatibility test, it is tested only with limited configuration and loading (for example, a system that contains only a VGA card and one DIMM/RIMM). Use Turbo setting only when you fully understand the items in Chipset Setup menu.

Set Password

Password prevents unauthorized use of your computer. If you set a password, the system prompts for the correct password before boot or access to Setup.

To set a password:

1. At the prompt, type your password. Your password can be up to 8 alphanumeric characters. When you type the characters, they appear as asterisks on the password screen box.
2. After typing the password, press.
3. At the next prompt, re-type your password and press again to confirm the new password. After the password entry, the screen automatically reverts to the main screen.

To disable the password, press "**Enter**" when being prompted to enter the password. The screen displays a message confirming that the password has been disabled.

Save & Exit Setup

This function automatically saves all CMOS values before leaving Setup.

Exit without Saving

Use this function to exit Setup without saving the CMOS value changes. Do not use this option if you want to save the new configuration.

Load EEPROM Defaults

Except "Load Setup Default" and "Load Turbo Default", you may also use "Save EEPROM Default" to save your own settings into EEPROM, and reload by using this item.

Save EEPROM Defaults

You may use this item to save your own settings into EEPROM. Then, if the data in CMOS is lost or you forget the previous settings, you may use "Load EEPROM Default" to reload.

Credits

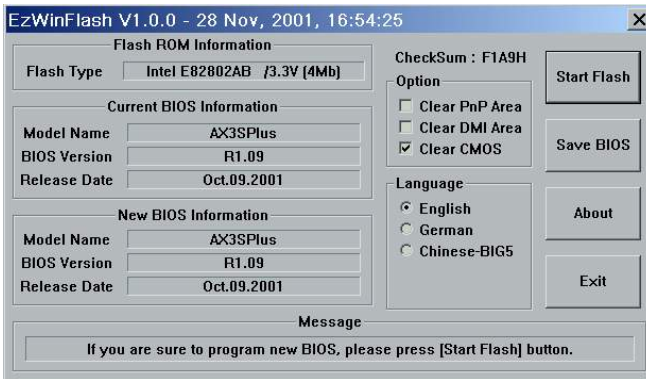
List of all excellent AOpen's R&D join the research and development of this motherboard.

5.4 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.

The screenshot shows the AOpen EzInstall welcome screen. On the left side, there are five circular icons with callout boxes: 'Install driver' (CD icon), 'Install utility' (toolbox icon), 'Browse CD Contents' (CD with magnifying glass icon), 'Readme' (book icon), and 'Exit CD' (CD with exit arrow icon). On the right side, there is a 'Welcome' message and a 'Contact us' section with a table of AOpen branches. A callout box at the top right says 'Click to install online manual'. A callout box at the bottom right says 'AOpen branches information'.

AOpen

Welcome

Thank you for choosing AOpen s681FXm-FSN

Contact us

AOpen Inc. http://www.aopen.com.tw TEL: +886-2-3789-5888 FAX: +886-2-3789-5899	AOpen Computer GmbH. http://www.aopen.com.de TEL: +49-1805-559191 FAX: +49-2102-157799
AOpen America Inc. http://english.aopen.com.tw TEL: +1-510-489-8928 FAX: +1-510-489-1998	AOpen Japan Inc. http://www.aopen.co.jp TEL: +81-048-290-1800 FAX: +81-048-290-1820
AOpen Computer B.V. http://www.aopen.nl TEL: +31-73-645-9516 FAX: +31-73-645-9604	AOpen International Co., Ltd. http://www.aopen.cn TEL: +86-21-6225-8622 FAX: +86-21-6225-7926

Ez Install

Install driver

Install utility

Browse CD Contents

Readme

Exit CD

Click to install online manual

AOpen branches information

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.

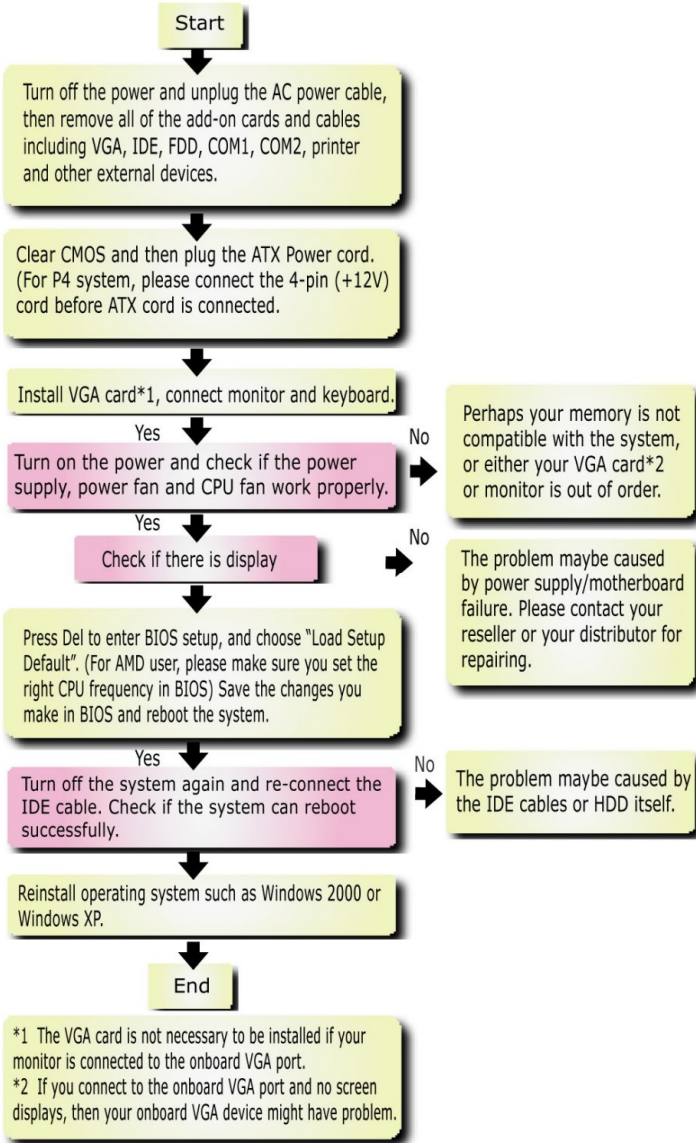


Press the icon will prompt the "Install Utilities" page for your selection. You may also press "Back" to get back to the Main page.





Troubleshooting



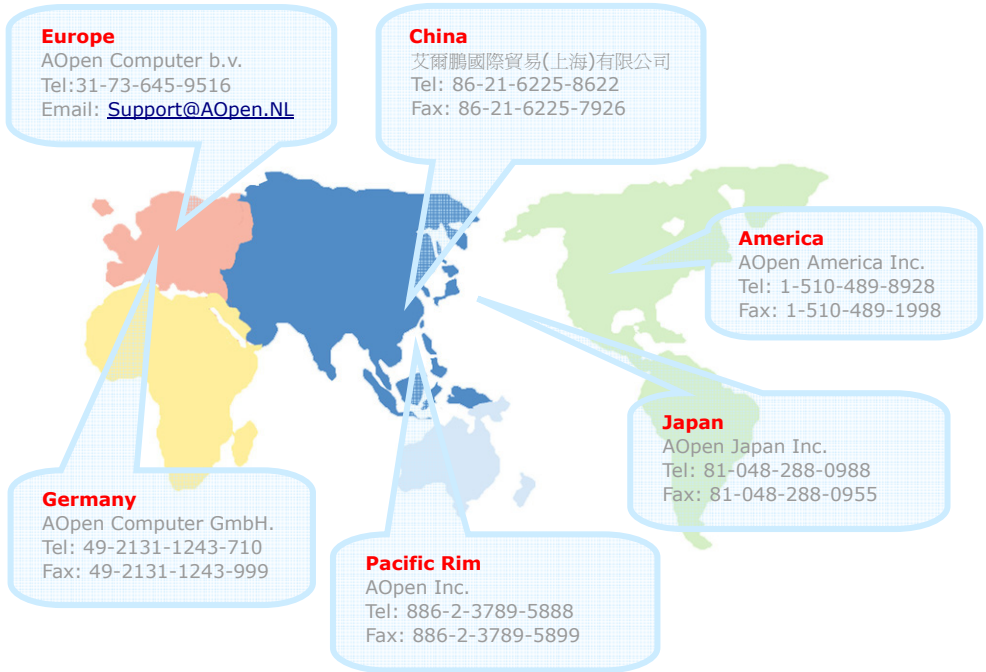
Chapter 8 Technical Support

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 <http://www.aopen.nl/tech/default.htm>
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>

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:



s661FXm-FSN 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:



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

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/>

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://global.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/>

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.

