

GA-8AENXP-DW

Intel® Pentium® 4 LGA775 Processor Motherboard

User's Manual

Rev. 1001

12ME-8AENXPDW-1001

Declaration of Conformity

G.B.T. Technology Trading GmbH
Wu. Manufacturer/Importer
Aussehlager Weg 41, 1F 20537 Hamburg, Germany

declares that the product:

EU T: Motherboard
Model Number: GA-8AENXP-DW
is in conformity with the following standards
in accordance with the RALTE Directive 1999/5/EC

<input type="checkbox"/> EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment.	<input checked="" type="checkbox"/> EN 61000-3-2	Disturbances in supply systems caused by non-linear apparatus and similar electrical equipment. "Voltage Reduction"
<input checked="" type="checkbox"/> EN 55013	Limits and methods of measurement of radio disturbance characteristics of equipment.	<input checked="" type="checkbox"/> EN 55024	Information Technology equipment immunity. Limits and methods of measurement.
<input checked="" type="checkbox"/> EN 55014-1	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical appliances.	<input checked="" type="checkbox"/> EN 60968-1	Generic immunity standard Part 1: Residential, commercial and light industry industrial environment.
<input checked="" type="checkbox"/> EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires.	<input checked="" type="checkbox"/> EN 55014-2	Immunity requirements for household appliances, tools and similar apparatus.
<input checked="" type="checkbox"/> EN 55020	Immunity from radio interference of receivers and associated equipment.	<input checked="" type="checkbox"/> EN 55011-2	EMC requirements for undisturbable power systems (UPS).
<input checked="" type="checkbox"/> EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment.	<input checked="" type="checkbox"/> EN 301 488-17	Electromagnetic compatibility and radio spectrum matters (ERM) - Common technical requirements for Multiband and HiperLAN equipment.
<input checked="" type="checkbox"/> EN 301 488-1	Electromagnetic compatibility and radio spectrum matters (ERM) - Common technical requirements.		
<input checked="" type="checkbox"/> EN 300 328	Electromagnetic compatibility and Radio Spectrum Matters (EN 300 328)		
<input checked="" type="checkbox"/> EN 60950	Safety for information technology equipment including electrical business equipment.		
<input checked="" type="checkbox"/> CE marking			



Manufacturer/Importer

Signature: Timmy Huang

Date: Jan 15, 2005 Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: GA-8AENXP-DW

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109

(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Jan 15, 2005

Important Safety Information

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

1. The product should be operated only from the type of power source indicated on the rating label.
2. If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.
3. The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.
4. All product shipped with a three-wire electrical grounding-type plug only fits into a grounding-type power outlet. This is a safety feature. The equipment grounding should be in accordance with local and national electrical codes. The equipment operates safely when it is used in accordance with its marked electrical ratings and product usage instructions.
5. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with codes for possible special disposal instructions.
6. Do not use this product near water or a heat source.
7. Set up the product on a stable work surface or so as to ensure stability of the system.
8. Openings in the case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space around the system for ventilation when you set up your work area. Never insert objects of any kind into the ventilation openings.
9. To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before removing covers.
10. Allow the product to cool before removing covers or touching internal components.

Battery safety information

1. The lithium battery on the system board of the computer contains lithium and can explode if not properly used, handled, or disposed of. Do not: (1) throw or immerse into water, (2) heat to more than 100 deg C (212 deg F), or (3) repair or disassemble.
2. Dispose of it as required by local ordinances or regulations.

Radio equipment safety information

1. Keep the radio components at least 20 cm from a pacemaker, as otherwise the proper operation of the pacemaker may be impaired by radio waves.
2. The transmitted radio waves can cause an unpleasant humming in hearing aids.
3. Do not let the radio components work near flammable gases or into hazardous environments (e.g. paintshops), as the transmitted radio waves can cause an explosion or a fire.

Federal Communications Commission (FCC) Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a dealer or experienced TV/radio technician for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the Dealer nor the Manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

European Community Directive Conformance Statement: R&TTE Directive

This wireless LAN card has been approved in accordance with Council Decision 99/5/EC on radio equipment and terminal telecommunication equipment (R&TTE Directive 1999/5/EC) as per

- * EN 60950 Safety of Information Technology equipment
- * EN 300 328 Technical requirements for radio equipment
- * EN 301 489 EMC requirements for radio equipment

This equipment is suitable for use in all the European Community Member States. Contact the corresponding government office of the respective country for current information on possible operating restrictions. If your country is not included in the list, then please contact the corresponding supervisory authority as to whether the use of this product is permitted in your country.

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Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For quick installation, please refer to the "Hardware Installation Guide" included with the product.
- For detailed product information and specifications, please carefully read the "Product User Manual".
- For detailed information related to Gigabyte's unique features, please go to Gigabyte's website under "Technology Guide" where information can be downloaded in .pdf format.

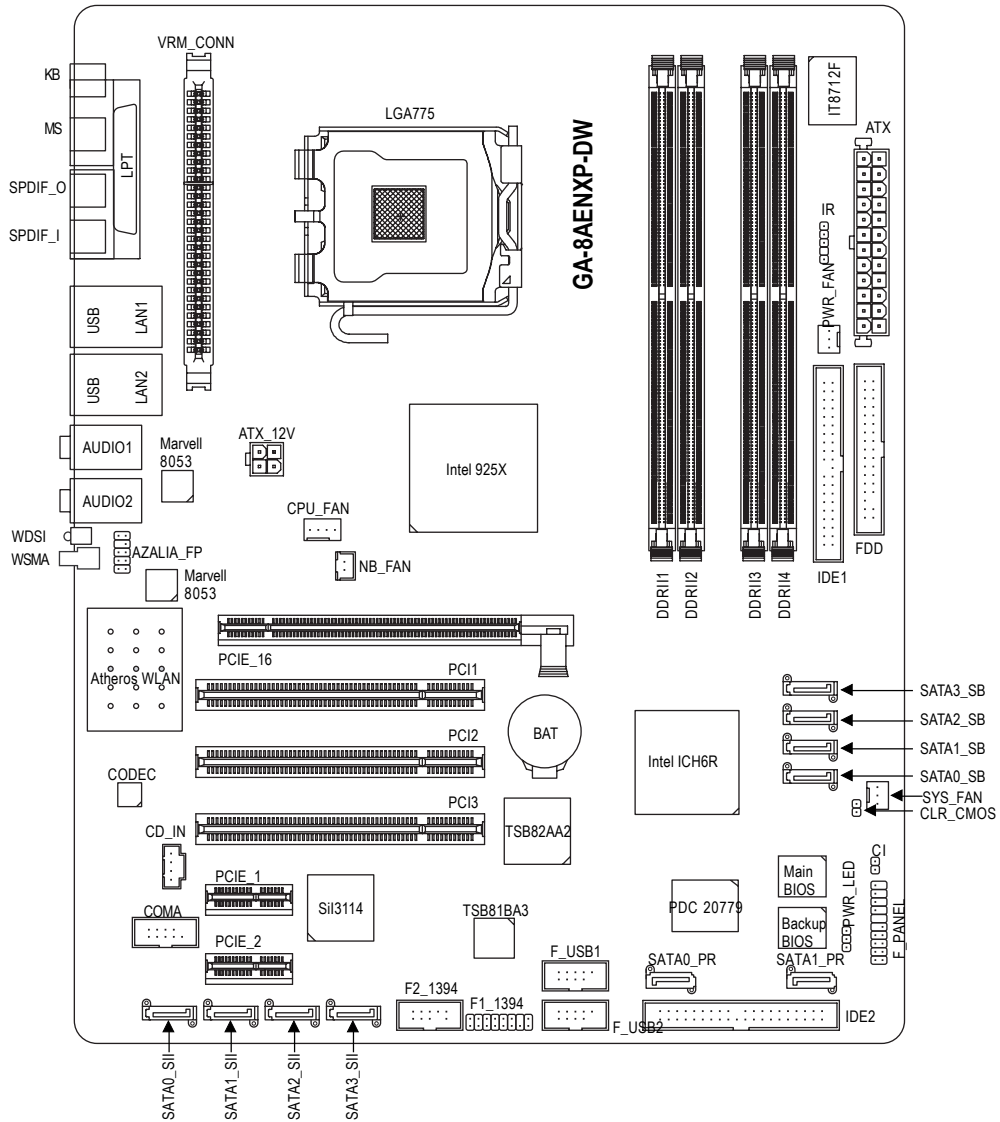
For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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GA-8AENXP-DW Motherboard Layout



Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that you the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

1-2 Feature Summary

CPU	<ul style="list-style-type: none"> ◆ Supports the latest Intel® Pentium® 4 LGA775 CPU ◆ Supports 1066/800/533MHz FSB ◆ L2 cache varies with CPU
Chipset	<ul style="list-style-type: none"> ◆ Northbridge: Intel® 925XE Express Chipset ◆ Southbridge: Intel® ICH6R
Memory	<ul style="list-style-type: none"> ◆ 4 DDR II DIMM memory slots (supports up to 4GB memory) ^(Note 1) ◆ Supports dual channel DDR II 711/600/533/400 unbuffered DIMM^(Note 2) ◆ Supports 1.8V DDR II DIMM
Slots	<ul style="list-style-type: none"> ◆ 1 PCI Express x 16 slot ◆ 2 PCI Express x 1 slots ◆ 3 PCI slots
IDE Connections	<ul style="list-style-type: none"> ◆ 1 port from ICH6R (IDE1) (UDMA 33/ATA 66/ATA 100), allows connection of 2 IDE devices ◆ 1 port from PDC20779 (IDE2)(UDMA 33/ATA 66/ATA 100/ATA 133), allows connection of 2 IDE hard drives
FDD Connections	<ul style="list-style-type: none"> ◆ 1 FDD connection, allows connection of 2 FDD devices
Onboard SATA	<ul style="list-style-type: none"> ◆ 4 SATA ports from ICH6R controller (SATA0_SB, SATA1_SB, SATA2_SB, SATA3_SB); ◆ 4 SATA ports from Sil3114 controller (SATA0_SII, SATA1_SII, SATA2_SII, SATA3_SII) ◆ 2 SATA II ports from PDC20779 controller (SATA0_PR, SATA1_PR)
Peripherals	<ul style="list-style-type: none"> ◆ 1 parallel port supporting Normal/EPP/ECP mode ◆ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable) ◆ 3 IEEE1394b ports (requires cable) ◆ Onboard COMA connection ◆ 1 front audio connector ◆ 1 IR connector ◆ 1 PS/2 keyboard port ◆ 1 PS/2 mouse port
Onboard LAN	<ul style="list-style-type: none"> ◆ Onboard Marvell 8053 chip (10/100/1000 Mbit) (LAN1/LAN2) ◆ 2 RJ45 ports
Onboard Audio	<ul style="list-style-type: none"> ◆ ALC880 CODEC ◆ Supports Jack Sensing function ◆ Supports 2 / 4 / 6 / 8 channel audio ◆ Supports Line In ; Line Out (Front Speaker Out) ; MIC ; Surround Speaker Out (Rear Speaker Out) ; Center/Subwoofer Speaker Out ; Side Speaker Out connection ◆ SPDIF In/Out connection ◆ CD In connection

(Note 1) Due to standard PC architecture, a certain amount of memory is reserved for system usage and therefore the actual memory size is less than the stated amount. For example, 4 GB of memory size will instead be shown as 3.xxGB memory during system startup.

(Note 2) To use a DDRII 711 memory module on the motherboard, you must install an 1066MHz FSB processor and overclock in BIOS. To use a DDRII 600 memory module on the motherboard, you must install an 800MHz FSB processor and overclock in BIOS.

I/O Control	♦ IT8712F
Hardware Monitor	<ul style="list-style-type: none"> ♦ System voltage detection ♦ CPU temperature detection ♦ CPU / System / Power fan speed detection ♦ CPU warning temperature ♦ CPU / System / Power fan failure warning ♦ CPU smart fan control
Onboard SATA RAID	<ul style="list-style-type: none"> ♦ Onboard ICH6R chipset (SATA0_SB, SATA1_SB, SATA2_SB, SATA3_SB) <ul style="list-style-type: none"> - supports data striping (RAID 0) or mirroring (RAID 1) function - supports data transfer rate of up to 150 MB/s - supports hot plugging function - supports a maximum of 4 SATA connections - supported on the Win 2000/XP operating systems ♦ Onboard Silicon Image Sil3114 chipset (SATA0_SII, SATA1_SII, SATA2_SII, SATA3_SII) <ul style="list-style-type: none"> - supports data striping (RAID 0), mirroring (RAID 1) or striping + mirroring (RAID 0+1) - supports data transfer rate of up to 150 MB/s - supports hot plugging function - supports a maximum of 4 SATA connections - supported on the Win 2000/XP/NT/98/Me operating systems ♦ Onboard Promise PDC20779 chipset (SATA0_PR, SATA1_PR) <ul style="list-style-type: none"> - supports data striping (RAID 0), mirroring (RAID 1) - supports data transfer rate of up to 300 MB/s - supports hot plugging function - supports a maximum of 2 SATA II connections - supported on the Win 2000/XP operating systems
Onboard Wireless LAN	<ul style="list-style-type: none"> ♦ supports IEEE 802.11b, 802.11g standards, Atheros Super G mode <ul style="list-style-type: none"> - up to 11Mbps/54Mbps/108Mbps wireless data transmission - frequency band: 2400 - 2483.5 MHz - Modulation technology: OFDM/DSSS - Modulation techniques: BPSK, QPSK, 16 QAM, 64 QAM, DBPSK, DQPSK, CCK - output level: 20dBm (maximum) @ antenna connector
BIOS	<ul style="list-style-type: none"> ♦ Use of licensed AWARD BIOS ♦ Supports Dual BIOS/Q-Flash
Additional Features	<ul style="list-style-type: none"> ♦ Supports U-Plus DPS ♦ Supports @BIOS ♦ Supports EasyTune 5 ^(Note)
Overclocking	<ul style="list-style-type: none"> ♦ Over Voltage via BIOS (CPU/ FSB/DDR II/ PCI-E) ♦ Over Clock via BIOS (CPU/ DDR II/ PCI-E)
Form Factor	♦ ATX form factor; 30.5cm x 24.4cm

(Note) EasyTune 5 functions may vary depending on different motherboards.

1-3 Installation of the CPU and Heatsink



Before installing the CPU, please comply with the following conditions:

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and heatsink.
4. Please make sure the heatsink is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.



HT functionality requirement content :

Enabling the functionality of Hyper-Threading Technology for your computer system requires all of the following platform components:

- CPU: An Intel® Pentium 4 Processor with HT Technology
- Chipset: An Intel® Chipset that supports HT Technology
- BIOS: A BIOS that supports HT Technology and has it enabled
- OS: An operation system that has optimizations for HT Technology

1-3-1 Installation of the CPU

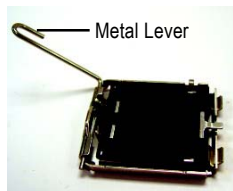


Fig. 1
Gently lift the metal lever located on the CPU socket to the upright position.

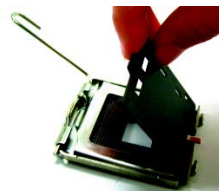


Fig. 2
Remove the plastic covering on the CPU socket.

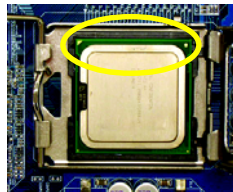


Fig. 3
Notice the small gold colored triangle located on the edge of the CPU socket. Align the indented corner of the

CPU with the triangle and gently insert the CPU into position. (Grasping the CPU firmly between your thumb and forefinger, carefully place it into the socket in a straight and downwards motion. Avoid twisting or bending motions that might cause damage to the CPU during installation.)



Fig. 4
Once the CPU is properly inserted, please replace the plastic covering and push the metal lever back into its original position.

1-3-2 Installation of the Heatsink

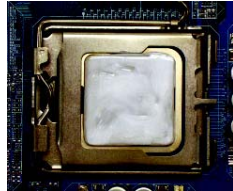


Fig. 1
Please apply an even layer of heatsink paste on the surface of the installed CPU.

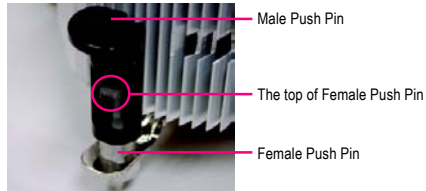


Fig. 2
(Turning the push pin along the direction of arrow is to remove the heatsink, on the contrary, is to install.) Please note the direction of arrow sign on the male push pin doesn't face inwards before installation. (This instruction is only for Intel boxed fan)

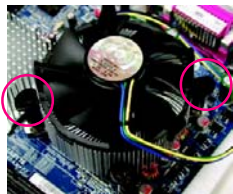


Fig. 3
Place the heatsink atop the CPU and make sure the push pins aim to the pin hole on the motherboard. Pressing down the push pins diagonally.

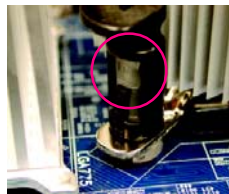


Fig. 4
Please make sure the Male and Female push pin are joined closely. (for detailed installation instructions, please refer to the heatsink installation section of the user manual)

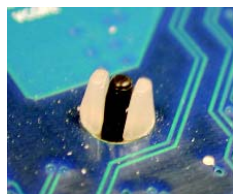


Fig. 5
Please check the back of motherboard after installing. If the push pin is inserted as the picture, the installation is complete.



Fig. 6
Finally, please attach the power connector of the heatsink to the CPU fan header located on the motherboard.



The heatsink may adhere to the CPU as a result of hardening of the heatsink paste. To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the heatsink.

1-4 Installing/Removing Cool-Plus (Northbridge Cooling Fan)

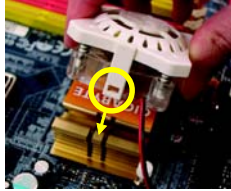


Fig.1

To attach Cool-Plus to a heatsink, align the extensions on both sides with the grooves in the heatsink as shown. Firmly press down until it snaps into position.

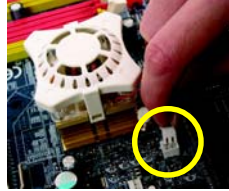


Fig.2

Once the fan is properly affixed onto the heatsink, plug the power cable into the NB_FAN connector.



Fig.3

Before proceeding, first check to make sure that the fan's power cable is disconnected. Then, while applying pressure to the top of the fan, carefully use a screwdriver to dislodge the extension on one side.



Exerting too much pressure on the fan during removal might cause the side extensions to break-off.

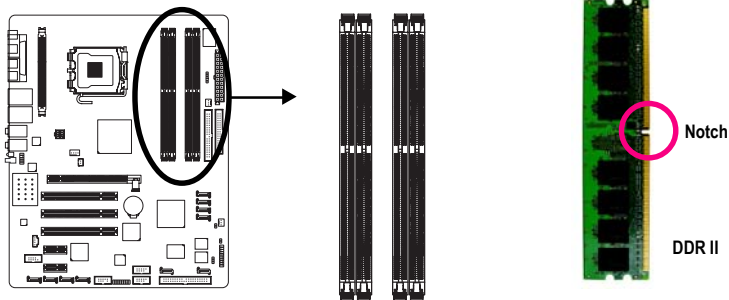
1-5 Installation of Memory



Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR II memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.



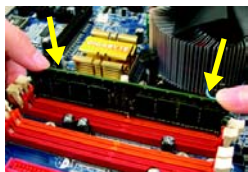


Fig.1

The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

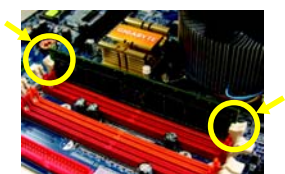


Fig.2

Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.



Dual Channel DDR II

GA-8AENXP-DW supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will double.

GA-8AENXP-DW includes 4 DIMM sockets, and each Channel has two DIMM sockets as following:

- ▶▶ Channel A : DDR II 1, DDR II 2
- ▶▶ Channel B : DDR II 3, DDR II 4

If you want to operate the Dual Channel Technology, please note the following explanations due to the limitation of Intel chipset specifications.

1. Dual channel memory cannot be used if one or three DDR II memory modules are installed.
2. If two DDR II memory modules are installed (same storage capacity), one must be added to the Channel A slot and the other in the Channel B slot in order to use dual channel memory. Dual channel memory cannot function if both DDR II memory modules are installed on the same channel.
3. If four DDR II memory modules are installed, please use memory of the same storage capacity in order to use dual channel memory and for BIOS to detect all the DDR II memory modules.

We'll strongly recommend our user to slot two DDR II memory modules into the DIMMs with the same color in order for Dual Channel Technology to work.

The following table is for Dual Channel Technology combination: (DS: Double Side, SS: Single Side)

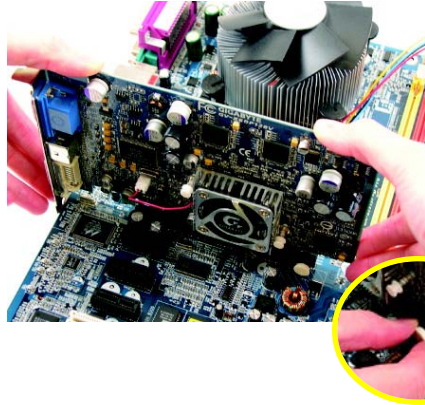
	DDR II 1	DDR II 2	DDR II 3	DDR II 4
2 memory modules	DS/SS	X	DS/SS	X
	X	DS/SS	X	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS

1-6 Installation of Expansion Cards

You can install your expansion card by following the steps outlined below:

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

Installing a PCI Express x 16 expansion card:



Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable bar.

1-7 Installation of U-Plus DPS (Universal Plus Dual Power System)

The U-Plus Dual Power System (U-Plus D.P.S.) is a revolutionary eight-phase power circuit built for ultimate system protection. Designed to withstand varying current levels and changes, the U-Plus DPS provides an immensely durable and stable power circuit to the CPU for solid system stability. These characteristics make it the ideal companion with the latest LGA775 Intel® Pentium® 4 Processor as well as future Intel® processors. As well, 4 blue LED's are mounted on the U-Plus D.P.S. for intelligent indication of system loading.

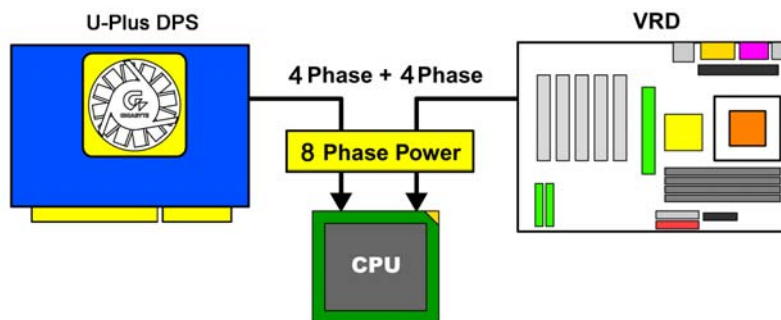


The U-Plus DPS can work in a Dual Power System: Parallel Mode--

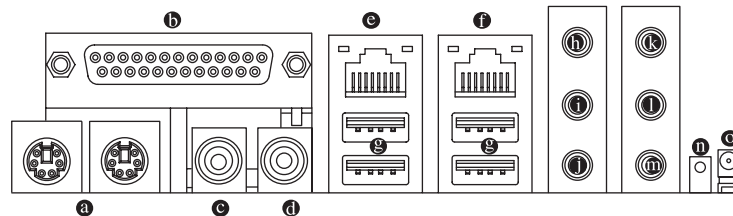
U-Plus DPS and motherboard CPU power can work simultaneously, providing a total of 8-phase power circuit.

How to install U-Plus DPS?

1. The U-Plus DPS socket (VRM_CONN) has a notch, so the U-Plus DPS can only fit in one direction.
2. Insert the U-Plus DPS vertically into the socket and then push it down.
3. Fix the U-Plus DPS on the motherboard with the clip.
4. Reverse the installation steps if you want to remove the U-Plus DPS.



1-8 I/O Back Panel Introduction



- a PS/2 Keyboard and PS/2 Mouse Connector**
To install a PS/2 port keyboard and mouse, plug the mouse to the left port (green) and the keyboard to the right port (purple).
- b Parallel Port**
The parallel port allows connection of a printer, scanner and other peripheral devices.
- c SPDIF_O (SPDIF Out)**
The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder.
- d SPDIF_I (SPDIF In)**
Use SPDIF In feature only when your device has digital output function.
- e LAN Port 1/LAN Port 2**
The provided Internet connection is Gigabit Ethernet (PCI Express Gigabit), providing data transfer speeds of 10/100/1000Mbps.
- f USB port**
Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.
- g Line In**
Devices like CD-ROM, walkman etc. can be connected to Line In jack.
- h Line Out (Front Speaker Out)**
Connect the stereo speakers, earphone or front surround speakers to this connector.
- i MIC In**
Microphone can be connected to MIC In jack.
- j Rear Speaker Out**
Connect the rear surround speakers to this connector.
- k Center/Subwoofer Speaker Out**
Connect the Center/Subwoofer speakers to this connector.
- l Side Speaker Out**
Connect the side surround speakers to this connector.

① **WDSI (Wireless LAN LED)**

Indicate the data activity status with the onboard wireless LAN . The led blinks every few seconds when the onboard wireless LAN is on but has no data receiving/transimting activity. The led stays off when the onboard wireless LAN is off. The led blinks quickly when the onboard wireless LAN is receiving/transmitting data.

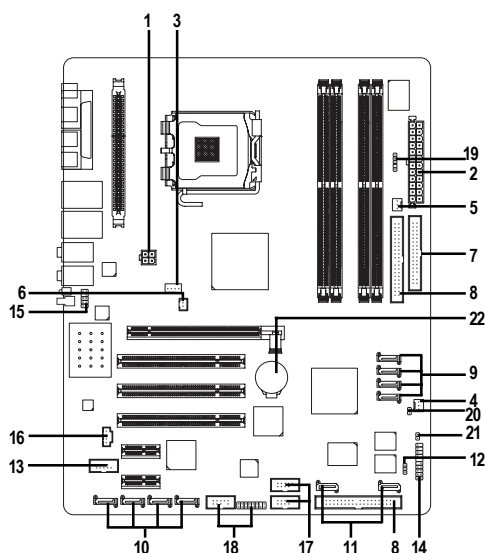
② **WSMA (Wireless LAN Antenna Port)**

Connect the dipolar antenna for the onboard wireless LAN.



NOTE You can use audio software to configure 2-/4-/6-/8-channel audio functioning.

1-9 Connectors Introduction



1) ATX_12V	12) PWR_LED
2) ATX (Power Connector)	13) COMA
3) CPU_FAN	14) F_PANEL
4) SYS_FAN	15) AZALIA_FP
5) PWR_FAN	16) CD_IN
6) NB_FAN	17) F_USB1 / F_USB2
7) FDD	18) F1_1394 / F2_1394
8) IDE1/IDE2	19) IR
9) SATA0_SB/SATA1_SB/SATA2_SB/SATA3_SB	20) CLR_CMOS
10) SATA0_SII/SATA1_SII/SATA2_SII/SATA3_SII	21) CI
11) SATA0_PR/SATA1_PR	22) BAT

1/2) ATX_12V/ATX (Power Connector)

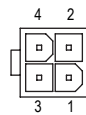
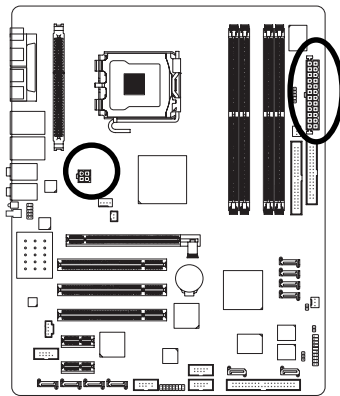
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

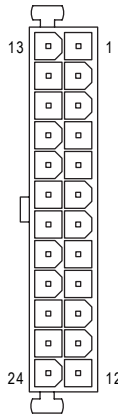
Caution!

Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.

Please remove the small cover on the motherboard before plugging in while the ATX power supplier is 24 pins; Otherwise, please do not remove it.



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	VCC
5	GND
6	VCC
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	+12V
12	3.3V(Only for 24pins ATX)
13	3.3V
14	-12V
15	GND
16	PS_ON(soft On/Off)
17	GND
18	GND
19	GND
20	-5V
21	VCC
22	VCC
23	VCC
24	GND

3/4/5) CPU_FAN / SYS_FAN / PWR_FAN (Cooler Fan Power Connector)

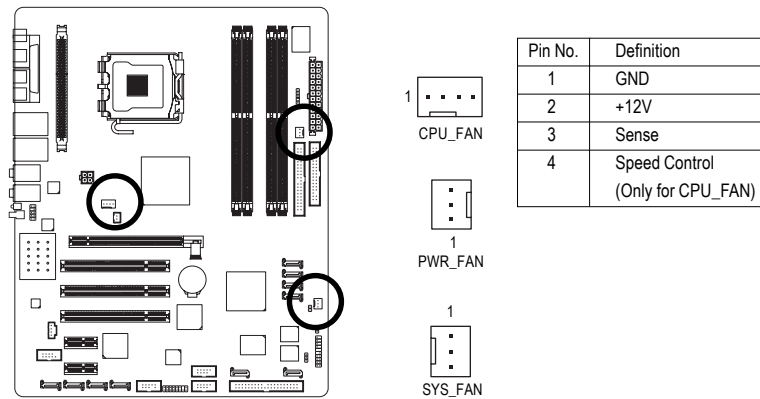
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin(only for CPU_FAN) power connector and possesses a full-proof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

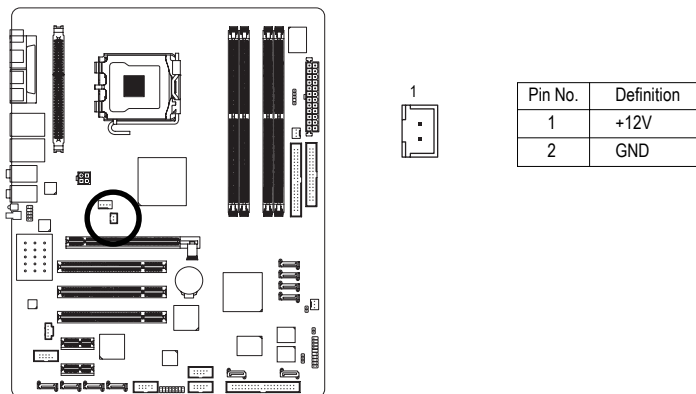
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



6) NB_FAN (Chip Fan Connector)

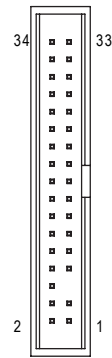
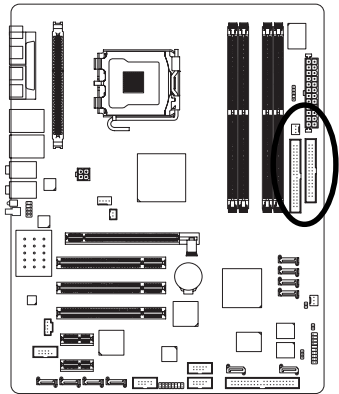
If you installed wrong direction, the chip fan will not work. Sometimes will damage the chip fan.

(Usually black cable is GND)



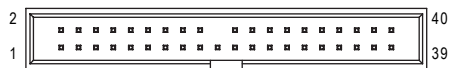
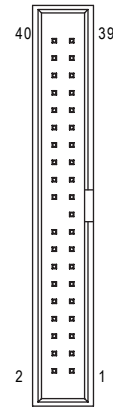
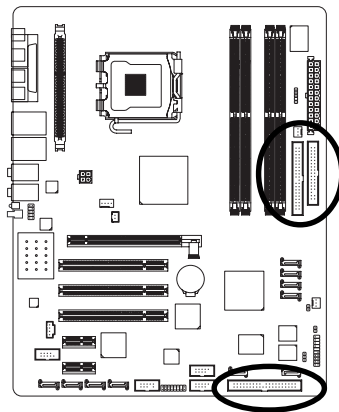
7) FDD (FDD Connector)

The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB. Please connect the red power connector wire to the pin1 position.



8) IDE1/2 (IDE Connector)

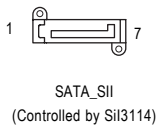
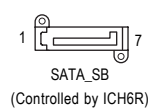
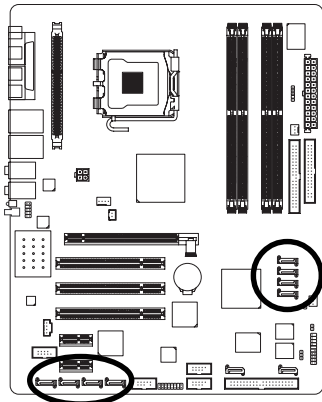
An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device).



9) **SATA0_SB/SATA1_SB/SATA2_SB/SATA3_SB (Serial ATA Connector, Controlled by ICH6R)**

10) **SATA0_SII/SATA1_SII/SATA2_SII/SATA3_SII (Serial ATA Connector, Controlled by SiI3114)**

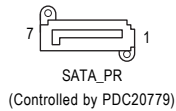
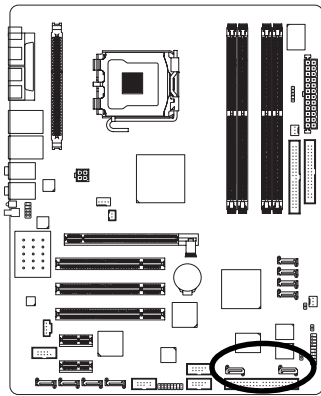
Serial ATA can provide 150MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA and install the proper driver in order to work properly.



Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

11) **SATA0_PR/SATA1_PR (Serial ATA II Connector, Controlled by PDC20779)**

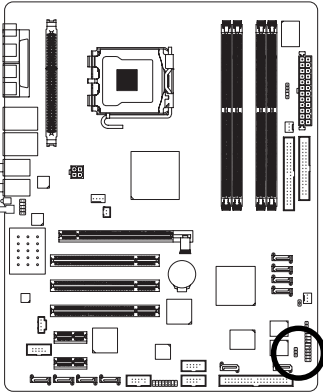
Serial ATA II can provide 300MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA II and install the proper driver in order to work properly.



Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

12) PWR_LED

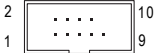
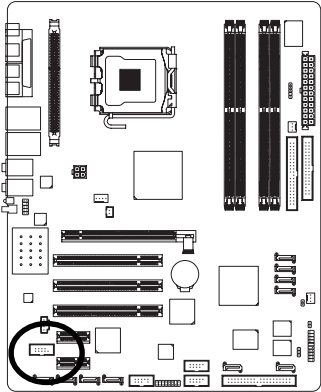
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.



Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

13) COMA (COMA Connector)

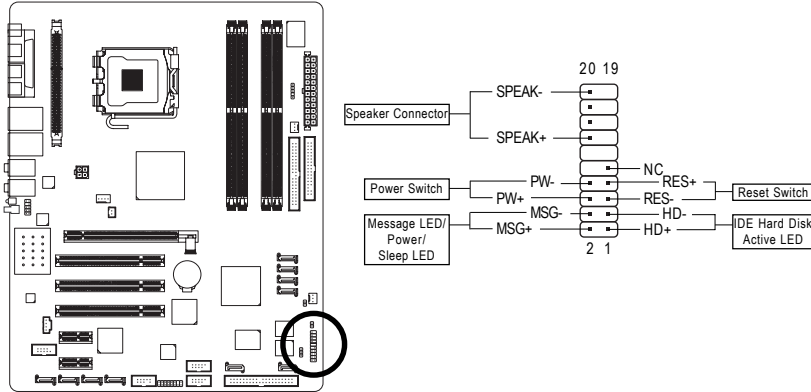
Be careful with the polarity of the COMA connector. Check the pin assignments while you connect the COMB cable. Please contact your nearest dealer for optional COMA cable.



Pin No.	Definition
1	NDCDA-
2	NSINA
3	NSOUTA
4	NDTRA-
5	GND
6	NDSRA-
7	NRTSA-
8	NCTSA-
9	NRIA-
10	No Pin

14) F_PANEL (Front Panel Jumper)

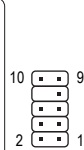
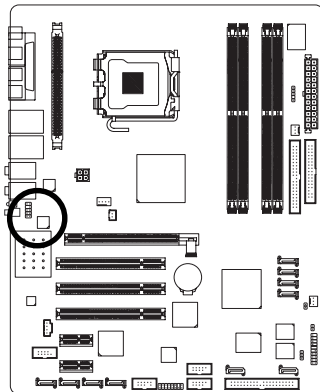
Please connect the power LED, PC peaker, reset switch and power switch etc of your chassis frontpanel to the F_PANEL connector according to the pin assignment below.



HD (IDE Hard Disk Active LED) (Blue)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPEAK (Speaker Connector) (Amber)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(-)
RES (Reset Switch) (Green)	Open: Normal Operation Close: Reset Hardware System
PW (Power Switch) (Red)	Open: Normal Operation Close: Power On/Off
MSG (Message LED/Power/Sleep LED) (Yellow)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC (Purple)	NC

15) AZALIA_FP (Front Audio Panel Connector)

This connector is supported to connect HD(High Definition) Audio and AC'97 Audio. Check the pin assignment carefully while you connect the audio panel cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional audio panel cable, please contact your local dealer.



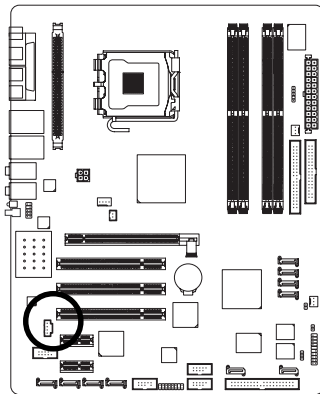
HD Audio:		AC'97 Audio:	
Pin No.	Definition	Pin No.	Definition
1	MIC2_L	1	MIC
2	GND	2	GND
3	MIC2_R	3	MIC Power
4	-ACZ_DET	4	N/A
5	Line2_R	5	Line Out (R)
6	FSENSE1	6	N/A
7	FAUDIO_JD	7	N/A
8	No Pin	8	No Pin
9	LINE2_L	9	Line Out (L)
10	FSENSE2	10	N/A



HD Audio is the default setting for this connector. To enable AC'97 Audio, from BIOS settings, set **Front Panel Type** under **Integrated Peripherals** to **AC97**.

16) CD_IN (CD In Connector)

Connect CD-ROM or DVD-ROM audio out to the connector.



Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R