

GA-5LXWL-RH  
Pentium® 4/D Processor Motherboard

# USER'S MANUAL

Pentium® 4/D Processor Motherboard

Rev. 1001

12ME-5LXWLRH-1001R



\* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!!



\* The WEEE marking applies only in European Union's member states.

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## Item Checklist

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> The GA-5LXWL-RH motherboard               | <input checked="" type="checkbox"/> Serial ATA cable x 4 |
| <input checked="" type="checkbox"/> IDE (ATA100) cable x 1 / Floppy cable x 1 | <input checked="" type="checkbox"/> I/O Shield Kit       |
| <input checked="" type="checkbox"/> CD for motherboard driver & utility       | <input checked="" type="checkbox"/> SATA Power cable x 4 |
| <input checked="" type="checkbox"/> GA-5LXWL-RH user's manual                 |  |



### WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

### Installing the motherboard to the chassis...

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

## Chapter 1 Introduction

### 1.1 Features Summary

Form Factor	<ul style="list-style-type: none"> <li>• 12" x 9.6" ATX form factor, 4 layers PCB.</li> </ul>
CPU	<ul style="list-style-type: none"> <li>• Supports single Intel® Pentium® 4/Pentium® D processor</li> <li>• Intel Pentium® Dual Core in LGA 775 socket</li> <li>• Supports 800/1066MHz FSB</li> <li>• L2 cache on-die per processor from 4M</li> </ul>
Chipset	<ul style="list-style-type: none"> <li>• Intel® 975X Chipset</li> <li>• Intel® ICH7R</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 4 x DDRII DIMM sockets</li> <li>• Supports up to 8GB 533/667 memory</li> <li>• Dual Channel memory bus</li> <li>• ECC Unbuffered DDRII 533/667</li> <li>• Supports 512MB, 1GB, 2GB and 4GB memory</li> </ul>
I/O Control	<ul style="list-style-type: none"> <li>• ITE IT8718F Super I/O</li> </ul>
Expansion Slots	<ul style="list-style-type: none"> <li>• Supports 2 PCI slots 32-Bit/33MHz (5V)</li> <li>• Supports 1 PCI-Express x8 slot</li> <li>• Supports 1 PCI-Express x4 slot (in x8 slot)</li> </ul>
SATA RAID Controller	<ul style="list-style-type: none"> <li>• Built in Intel® ICH7R with Software RAID 0,1,10, 5</li> <li>• Supports 4 SATA 3.0 Gb/s connectors</li> </ul>
On-Board Graphic	<ul style="list-style-type: none"> <li>• Build in Intel® 975X Chipset</li> </ul>
On-Board Sound	<ul style="list-style-type: none"> <li>• Realtek® ALC888</li> <li>• Support Jack-Sensing</li> <li>• Line Out / 2 front speaker</li> <li>• Line In / 2 rear speaker (by s/w switch)</li> <li>• Mic In / center &amp; subwoofer (by s/w switch)</li> <li>• SPDIF Out / SPDIF In</li> <li>• CD_In</li> <li>• Surround Back speaker (by optional Surround-Kit)</li> <li>• Compliant with Vista Premium</li> </ul>
On-Board IEEE 1394	<ul style="list-style-type: none"> <li>• TI TSB43AB23</li> </ul>

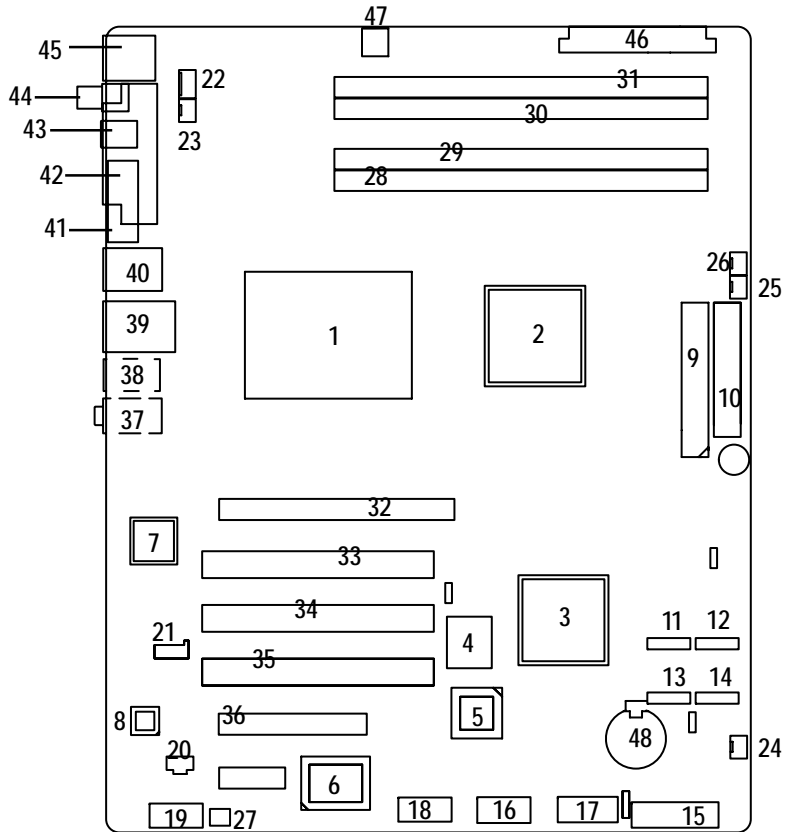
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On-Board Peripherals	<ul style="list-style-type: none"><li>• 1 x ATA 133 connector</li><li>• 1 x Floppy connector</li><li>• 2 x PS/2 connectors</li><li>• 1 x Parallel port supports Normal/EPP/ECP mode</li><li>• 1 x Serial port (COM)</li><li>• 2 x IEEE 1394 connectors</li><li>• 8 x USB 2.0/1.1 ports (4 x Rear, 4 x Front by cable)</li><li>• 7 x Audio ports (4 x Line-out/ 1 x Line-in/ 1 x MIC/ 1 by cable)</li><li>• 2 x LAN RJ45</li><li>• 4 x SATA 3.0Gb/s connectors</li></ul>
Hardware Monitor	<ul style="list-style-type: none"><li>• Enhanced features Voltage detection (+3.3V/+5V/+12V/Vbat/Vcore)</li><li>• Temperature auto detection (CPU/VRM/chassis)</li><li>• CPU shutdown when overheat</li><li>• System Voltage Detect</li></ul>
On-Board LAN	<ul style="list-style-type: none"><li>• Broadcom® BCM5787 GbE controller</li><li>• Supports WOL, PXE</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Phoenix BIOS on 8Mb flash ROM</li></ul>
Special Features	<ul style="list-style-type: none"><li>• Enhanced feature with GSMT Lite Utility</li></ul>
Additional Features	<ul style="list-style-type: none"><li>• PS/2 Mouse wake up from S1 under Windows Operating System</li><li>• External Modem wake up</li><li>• Supports S1, S4, S5 under Windows Operating System</li><li>• Wake on LAN (WOL)</li><li>• Wake on Ring (WOR)</li><li>• AC Recovery</li><li>• Supports Console Redirection</li><li>• Supports 4-pin Fan controller</li></ul>

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## 1.2 GA-5LXWL-RH Motherboard Components

- |                           |                               |
|---------------------------|-------------------------------|
| 1. CPU                    | 26. PSU Fan Connector         |
| 2. Intel 975X             | 27. Case Open                 |
| 3. Intel ICH7R            | 28. DIMM1                     |
| 4. BIOS Flash             | 29. DIMM2                     |
| 5. TI TSB43AB23           | 30. DIMM3                     |
| 6. ITE IT8718F-S          | 31. DIMM4                     |
| 7. Broadcom CM5787        | 32. PCI-E x 16 Slot           |
| 8. Realtek ALC888         | 33. PCI1 Slot(32bit/33MHz)    |
| 9. IDE Connector          | 34. PCI2 Slot(32bit/33MHz)    |
| 10. Floppy Connector      | 35. PCI3 Slot(32bit/33MHz)    |
| 11. SATA1 Connector       | 36. PCI-E x8 Slot             |
| 12. SATA2 Connector       | 37. PCI-E x4 Slot             |
| 13. SATA3 Connector       | 38. Audio Port                |
| 14. SATA4 Connector       | 39. Audio Port                |
| 15. Front Panel Connector | 40. IEE 1394/USB ports        |
| 16. Front USB1 Connector  | 41. COM Port                  |
| 17. Front USB2 Connector  | 42. Parallel Port             |
| 18. Front 1394 Connector  | 43. SPDIF out (Optical)       |
| 19. Front Audio Connector | 44. SPDIF out (Coaxial)       |
| 20. SPDIF In Connector    | 45. PS/2 Connectors           |
| 21. CD IN Connector       | 46. Auxiliary Power (ATX1)    |
| 22. CPU Fan Connector     | 47. Auxiliary Power (ATX 12V) |
| 23. Rear Fan Connector    | 48. Battery                   |
| 24. Front Fan Connector   |                               |
| 25. System Fan Connector  |                               |



## Chapter 2 Hardware Installation Process

### 2-1: Installing Processor and CPU Heat Sink

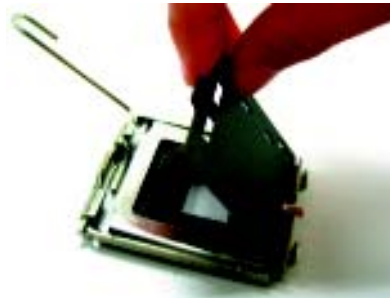


Before installing the processor and cooling fan, adhere to the following cautions:

1. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.
2. Never force the processor into the socket.
3. Apply thermal grease on the processor before placing cooling fan.
4. Please make sure the CPU type is supported by the motherboard.
5. If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU. Please change the insert orientation.

#### 2-1-1: Installing CPU

- Step 1 Raise the metal locking lever on the socket.
- Step 2 Remove the plastic covering on the CPU socket.
- Step 3 Lift the metal cover.
- Step 4 Insert the CPU with the correct orientation. The CPU only fits in one orientation.
- Step 5 Once the CPU is properly placed, please replace the metal cover and push the metal lever back into locked position.

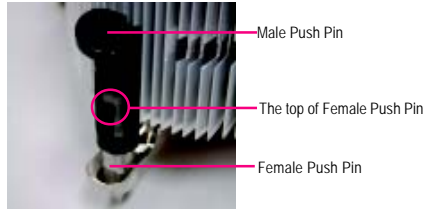




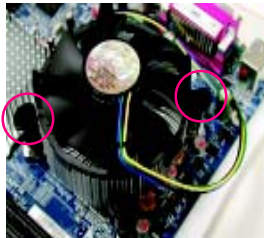
## 2-1-2: Installing Heat Sink



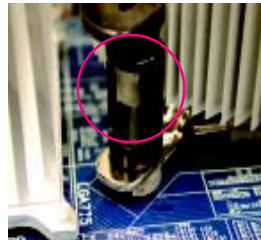
Step 1.  
Please apply heat sink paste on the surface of the installed CPU.



Step. 2  
(to remove the heat sink, turning the push pin along the direction of arrow; and reverse the previous step to install the heat sink.)  
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)



Step. 3  
Place the heat sink on top the CPU and make sure the push pins align to the pin hole on the motherboard. Push down the push pins diagonally.



Step. 4  
Please make sure the Male and Female push pin are brought together. (for detailed installation instructions, please refer to the heat sink installation section of the user manual)



Step. 5  
Please check the back side of the motherboard. Make sure the push pin is seated firmly as the picture shown.



Step 6.  
Attach the power connector of the heat sink to the CPU fan header located on the motherboard. Heat sink installation is completed.

## 2-2: Install Memory Modules



Before installing the processor and heatsink, adhere to the following warning:  
When DIMM LED is ON, do not install/remove DIMM from socket.

### CAUTION

GA-5LXWL-RH has 4 dual inline memory module (DIMM) sockets. It supports Dual Channels Technology. The BIOS will automatically detects memory type and size during system boot. For detail DIMM installation, please refer to the following instructions.

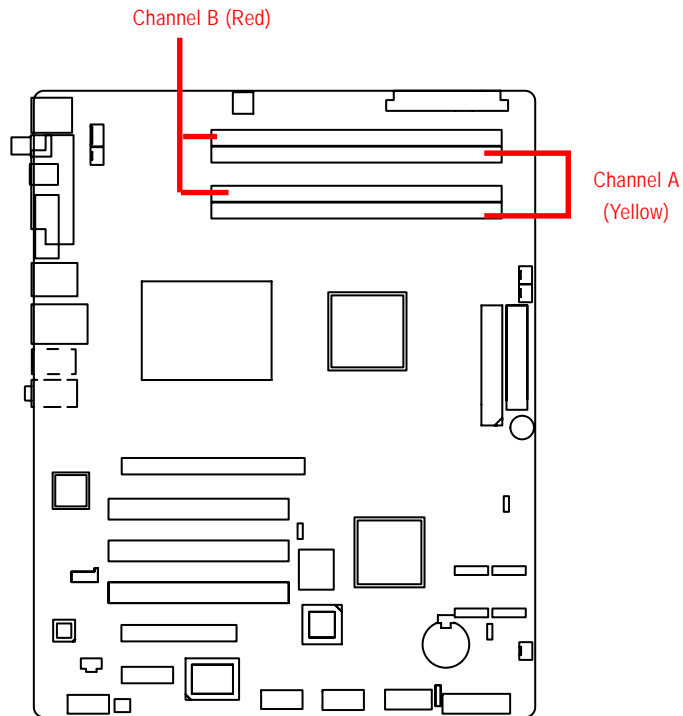
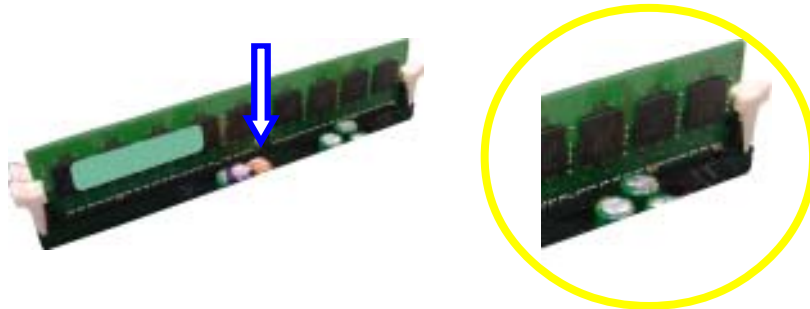


Table 1. Supported DIMM Module Type

Size	Organization	RAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 4 x 4bks	16
512MB	16MB x 8 x 4bks	8
	32MB x 4 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 4 x 4bks	16

### Installation Steps:

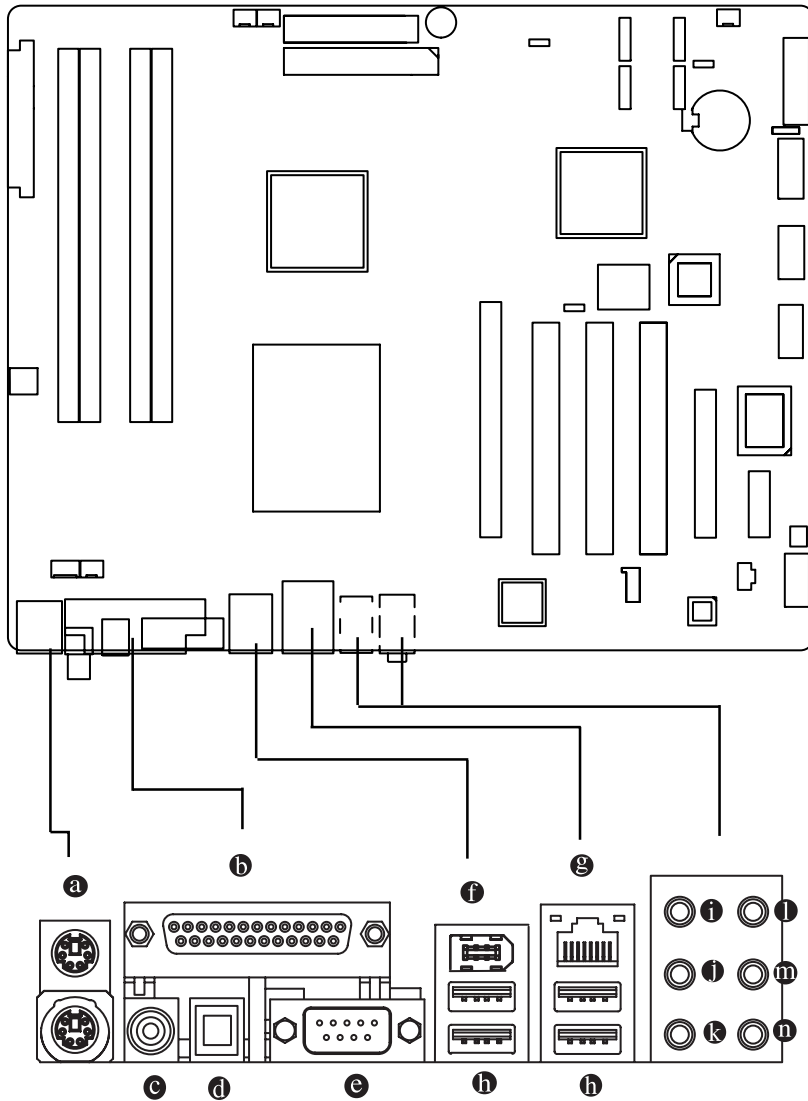
1. Unlock a DIMM socket by pressing the retaining clips outwards.
2. Align a DIMM on the socket such that the notch on the DIMM exactly matches the notch in the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place.
4. When installing the memory into the DIMM socket, we recommend to populate the memory as a pair. One in Channel A module and one in Channel B module for best performance. Please populate DIMM starting from Channel A (Yellow slot).  
Note that each logical DIMM must be made of two identical DIMMs having the same device size on each and the same DIMM size.
5. Reverse the installation steps if you want to remove the DIMM module.



**Locked Retaining Clip**

## 2-3: Connect ribbon cables, cabinet wires, and power supply

### 2-3-1 : 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 upper port (green) and the keyboard to the lower port (purple).

**b Parallel Port**

The parallel port allows connection of a printer, scanner and other peripheral devices.

**c COAXIAL (SPDIF Out)**

The SPDIF coaxial output port is capable for providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder via a coaxial cable.

**d OPTICAL (SPDIF Out)**

The SPDIF optical output port is capable for providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder via an optical cable.

**e Serial Port**

Modem can be connected to Serial port.

**f IEEE1394 Port**

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features with high speed, high bandwidth and hot plug

**g LAN Port**

The provided Internet connection is Gigabit Ethernet, providing data transfer speeds of 10/100/1000Mbps.

**h 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 updated. For more information please contact your OS or device(s) vendors.

**i** Line In

The default Line In jack. Devices like CD-ROM, walkman etc. can be connected to Line In jack.

**j** Line Out (Front Speaker Out)

The default Line Out (Front Speaker Out) jack. Stereo speakers, earphone or front surround speakers can be connected to Line Out (Front Speaker Out) jack.

**k** MIC In

The default MIC In jack. Microphone must be connected to MIC In jack.

**l** Surround Speaker Out (Rear Speaker Out)

The default Surround Speaker Out (Rear Speaker Out) jack. Rear surround speakers can be connected to Surround Speaker Out (Rear Speaker Out) jack.

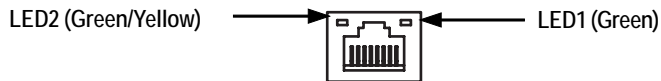
**m** Center/Subwoofer Speaker Out

The default Center/Subwoofer Speaker Out jack. Center/Subwoofer speakers can be connected to Center/Subwoofer Speaker Out jack.

**n** Side Speaker Out

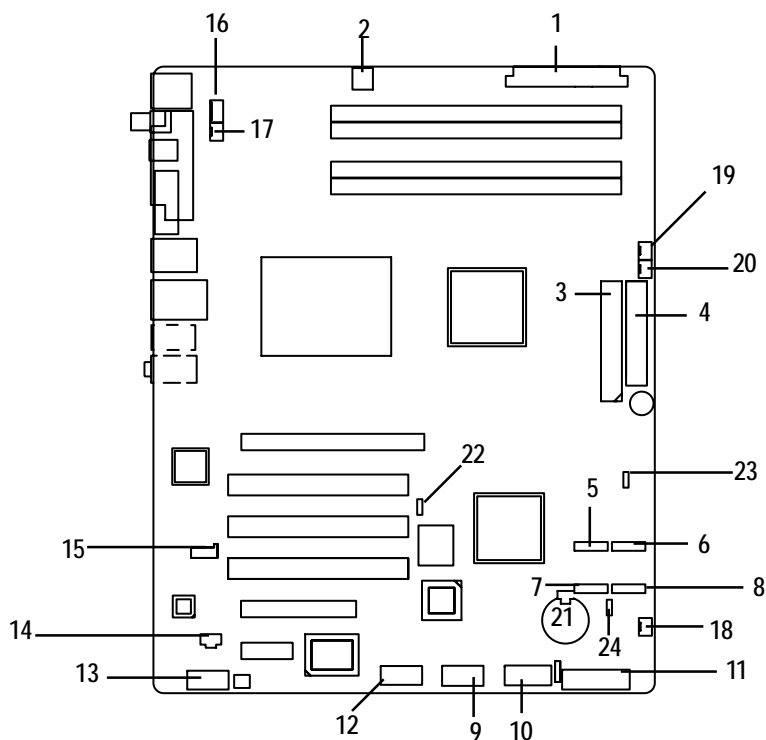
The default Side Speaker Out jack. Surround side speakers can be connected to Side Speaker Out jack.

LAN LED Description



Name	Color	Condition	Description
LED1	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
LED2	-	OFF	10Mbps connection
	Green	BLINK	Port identification with 10 Mbps connection
	Green	ON	100Mbps connection
	Green	BLINK	Port identification with 100Mbps connection
	Yellow	ON	1Gbps connection
	Yellow	BLINK	Port identification with 1Gbps connection

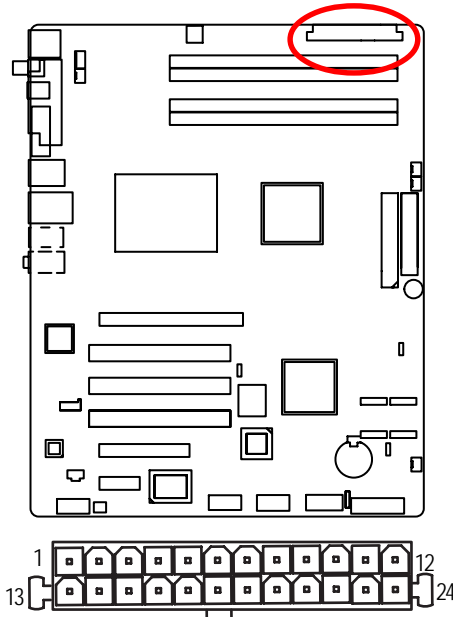
## 2-4: Connectors Introduction & Jumper Setting



- |                                    |                                     |
|------------------------------------|-------------------------------------|
| 1. ATX1                            | 13. F_Audio (Front Audio Connector) |
| 2. ATX2                            | 14. SPDIF (SPDIF In Connector)      |
| 3. IDE1 (IDE Connector)            | 15. CD_IN (CD In Connector)         |
| 4. FDD (Floppy Connector)          | 16. CPU_FAN (CPU Fan Connector)     |
| 5. S_ATA1 (SATA Connector)         | 17. REAR_FAN                        |
| 6. S_ATA2 (SATA Connector)         | 18. FRONT_FAN                       |
| 7. S_ATA3 (SATA Connector)         | 19. PSU_FAN                         |
| 8. S_ATA4 (SATA Connector)         | 20. SYS_FAN                         |
| 9. F_Panel (Front Panel Connector) | 21. BAT1 (Battery)                  |
| 10. F_USB1 (Front USB Connector)   | 22. JP3                             |
| 11. F_USB2 (Front USB Connector)   | 23. JP4                             |
| 12. F_1394 (Front 1394 Connector)  | 24. JP5                             |

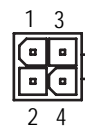
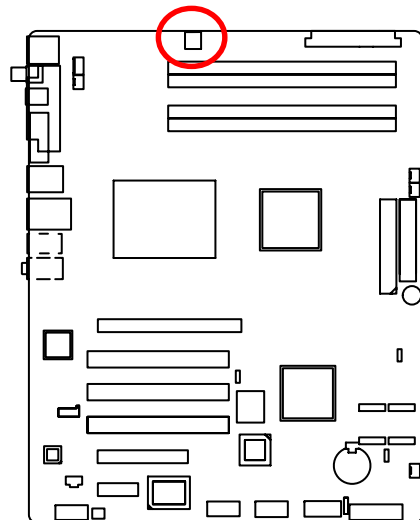
**1) ATX1 (Auxiliary Power Connector)**

AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.



PIN No.	Definition
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	POK
9	5VSB
10	+12V
11	+12V
12	+3.3V
13	+3.3V
14	-12V
15	GND
16	PSON
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

**2) ATX2 (Auxiliary +12V Power Connector)**



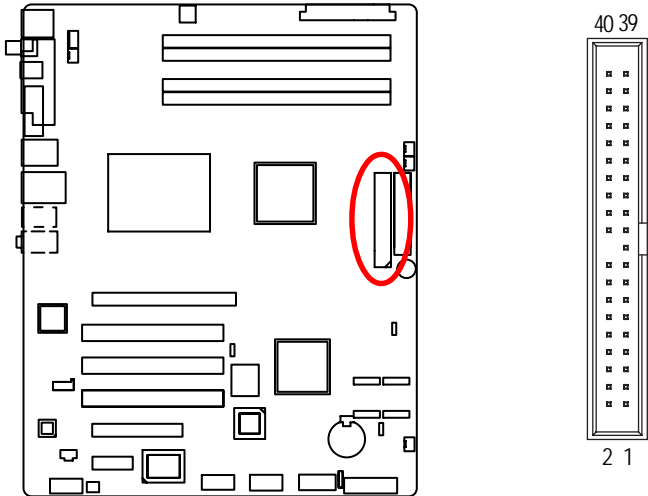
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

➤ This connector (ATX +12V) is used only for CPU Core Voltage.



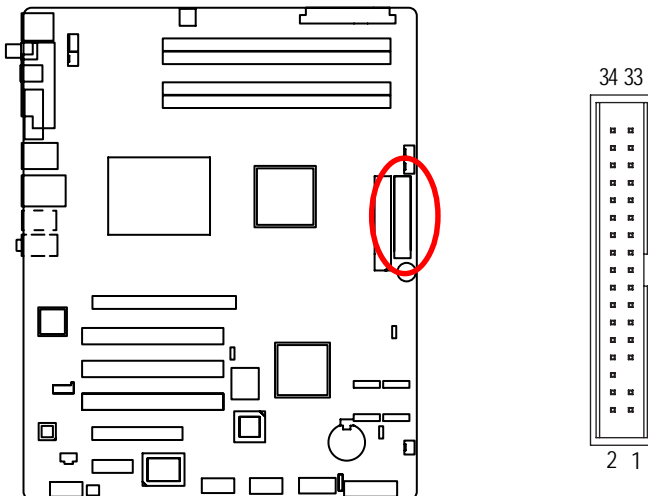
### 3) IDE1 (IDE Connector)

Please connect first harddisk to IDE1. The red stripe of the ribbon cable must be the same side with the Pin1.



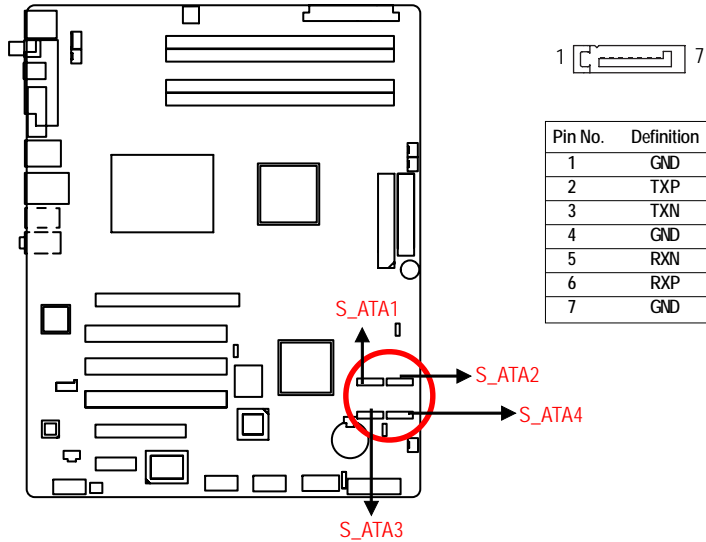
### 4) FDD (Floppy Connector)

Please connect the floppy drive ribbon cables to FDD. It supports 720K, 1.2M, 1.44M and 2.88Mbytes floppy disk types. The red stripe of the ribbon cable must be the same side with the Pin1.



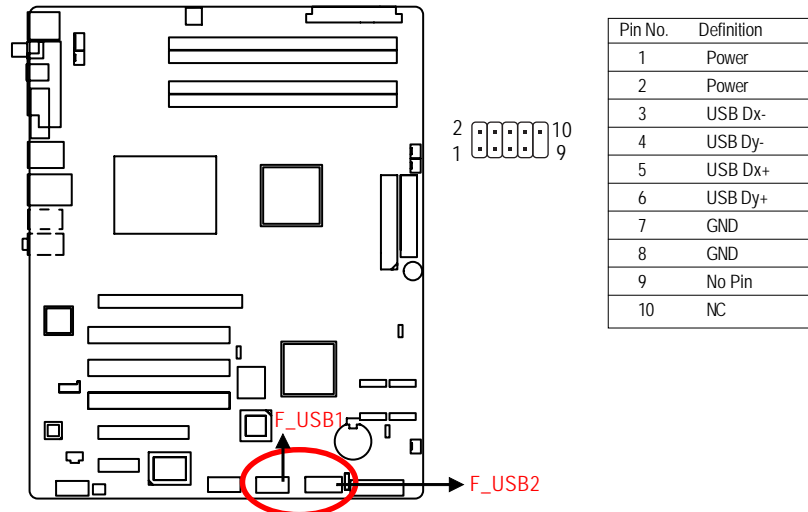
**5/ 6/ 7/ 8) S\_ATA 1~4 (Serial ATA Connectors)**

You can connect the Serial ATA device to this connector, it provides you high speed transfer rates (3.0Gb/s).



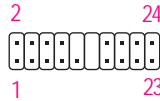
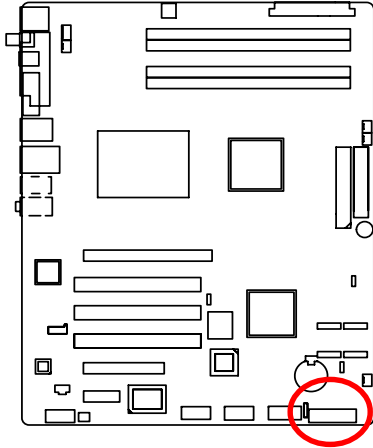
**9/ 10) F\_USB1/2 (Front USB Connectors)**

Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



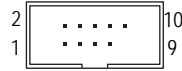
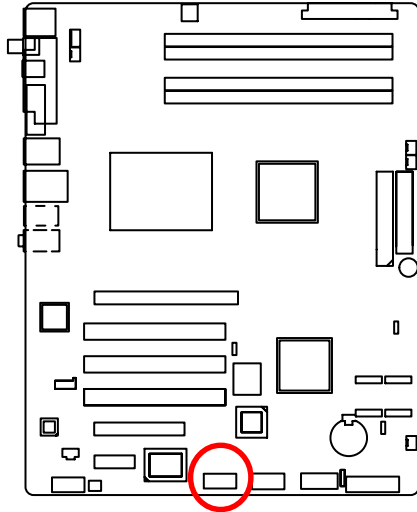
### 11) F\_Panel (2X10 Pins Front Panel connector)

Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F\_PANEL connector according to the pin assignment above.



Pin No	Signal Name	Description
1	HD+	Hard Disk LED anode (+)
2	MSG+	MESSAGE signal anode (+)
3	HD-	Hard Disk LED cathode(-)
4	MSG-	MESSAGE signal cathode(-)
5	RES-	Front Panel Reset Switch cathode(-)
6	PW+	Soft power connector anode (+)
7	RES+	Front Panel Reset Switch anode (+)
8	PW-	Soft power connector cathode(-)
9	N C	No connect
10	Pin Removed	N C
11	Pin Removed	N C
12	Pin Removed	N C
13	GD+	Green LED anode (+)
14	SPK+	Speaker connector anode (+)
15	GD-	Green LED cathode(-)
16	SPK-	Speaker connector cathode(-)
17	GN+	Green Switch anode (+)
18	SPK-	Speaker connector anode (+)
19	GN-	Green Switch cathode(-)
20	SPK-	Speaker connector cathode(-)

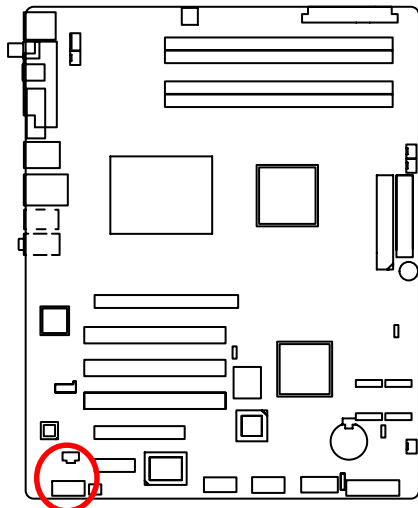
12 ) F\_1394 (IEEE 1394 connector)



Pin No.	Definition
1	FTP A1+
2	FTP A1-
3	GND
4	GND
5	FTP B1+
6	FTP B1-
7	BUSVCC0
8	BUSVCC0
9	No Pin
10	NC

13) F\_AUDIO (Front AUDIO Connector)

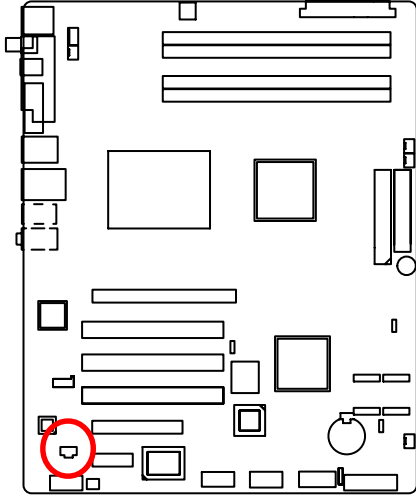
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.



Pin No.	Definition
1	MIC
2	GND
3	REF
4	POWER
5	FrontAudio(R)
6	RearAudio(R)
7	Reserved
8	No Pin
9	FrontAudio (L)
10	RearAudio(L)

14) SPDIF (SPDIF In Connector)

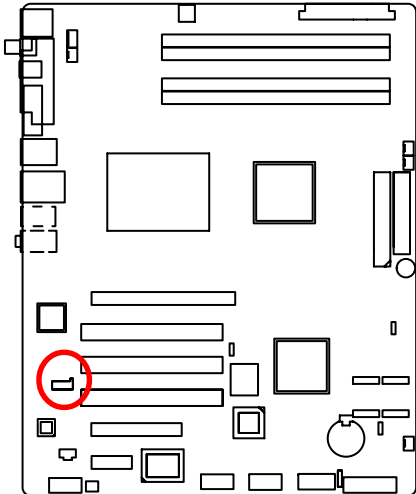
Use this device only when your hardware system has digital output function.



Pin No.	Definition
1	VCC
2	SPDIF IN
3	GND

15) CD\_IN (CD IN,Blank)

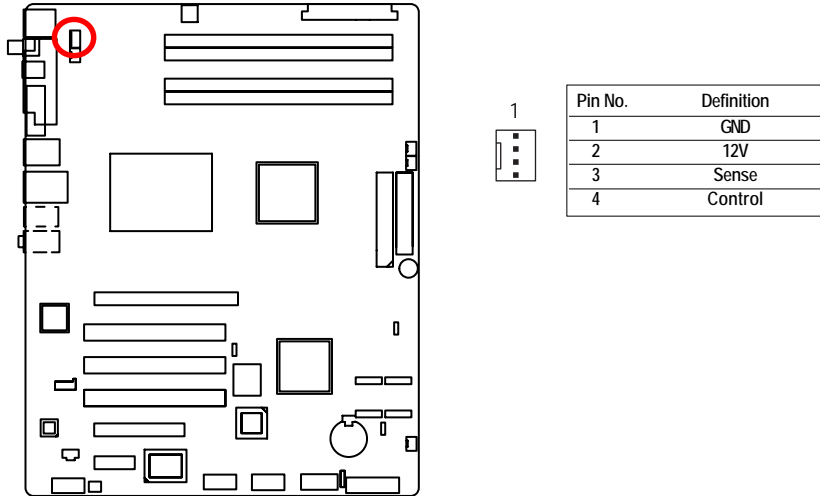
Connect CD-ROM or DVD-ROM audio out to the connector.



Pin No.	Definition
1	CD_L
2	GND
3	GND
4	CD_R

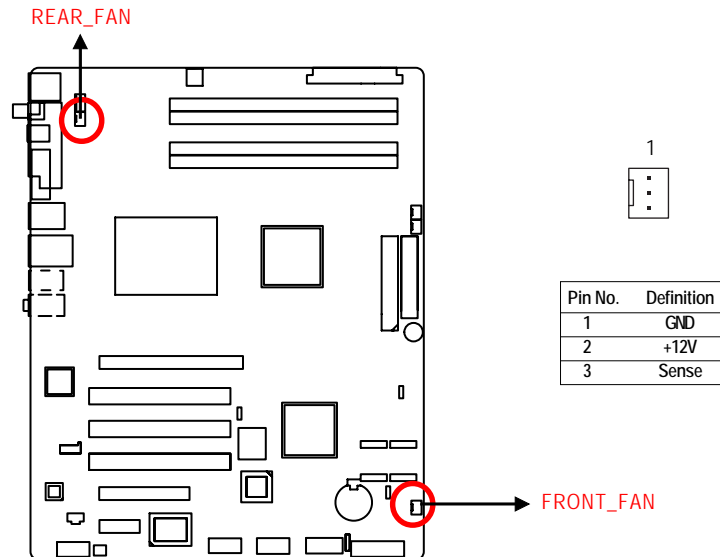
### 16 ) CPU\_FAN (CPU Fan Connector)

Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating. The CPU fan connector supports Max. current up to 1A .



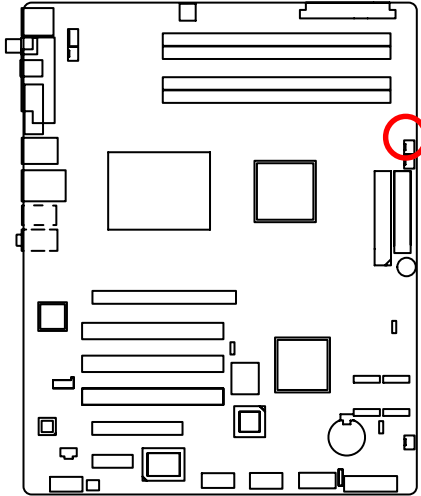
### 17/18 ) REAR\_FAN/FRONT\_FAN (Rear and Front Fan Connectors)

This connector allows you to link with the cooling fan on the system case to lower the system temperature. These connectors are for system use only.



**19) PSU\_FAN (Power Fan Connector)**

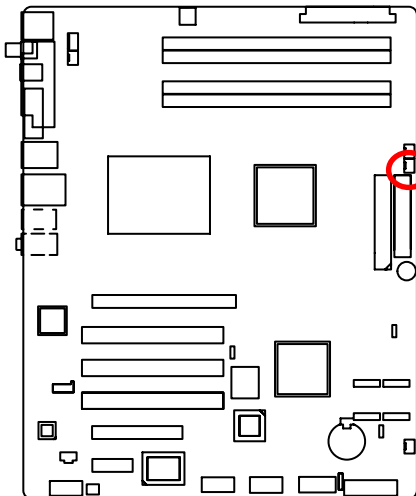
This connector allows you to link with the cooling fan on the system case to lower the system temperature.



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

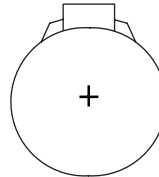
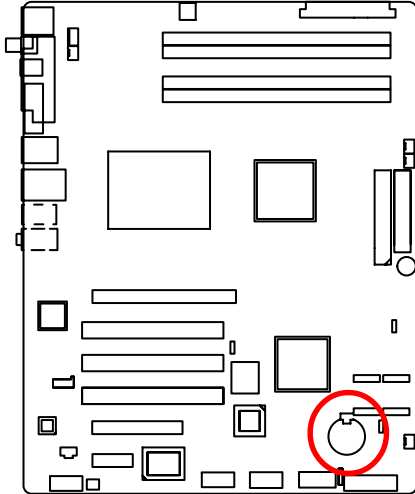
**20) SYS\_FAN (System Fan Connector)**

This connector allows you to link with the cooling fan on the system case to lower the system temperature. These connectors are for system use only.



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

### 21 ) BAT1 (Battery)



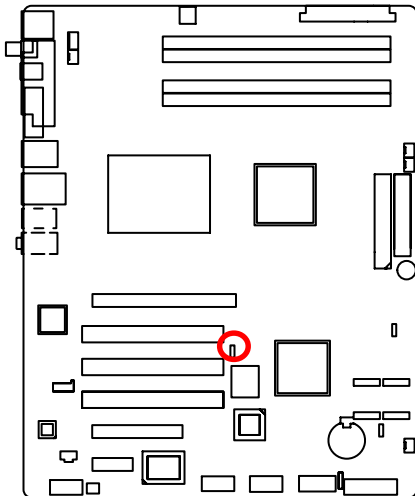
#### CAUTION



- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery, wait for 30 second.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

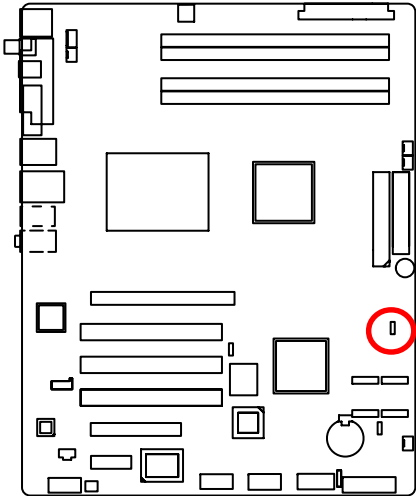
### 22 ) JP3 (BIOS Recovery Function)





- 1  1-2 Close: Normal (Default setting)
- 1  2-3 Close: Enable BIOS Recovery function



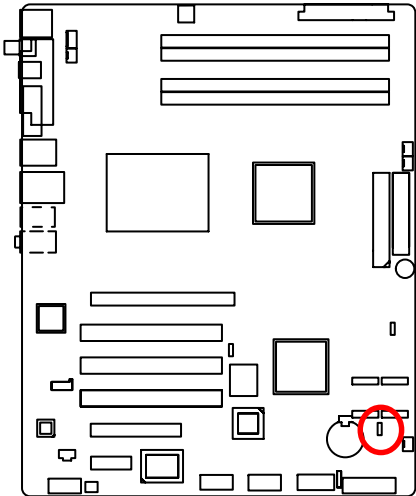
23 ) JP4 (Skip Password Function)





- 1  1-2 Close: Normal (Default setting)
- 1  2-3 Close: Skip Supervisor Password in BIOS setup menu

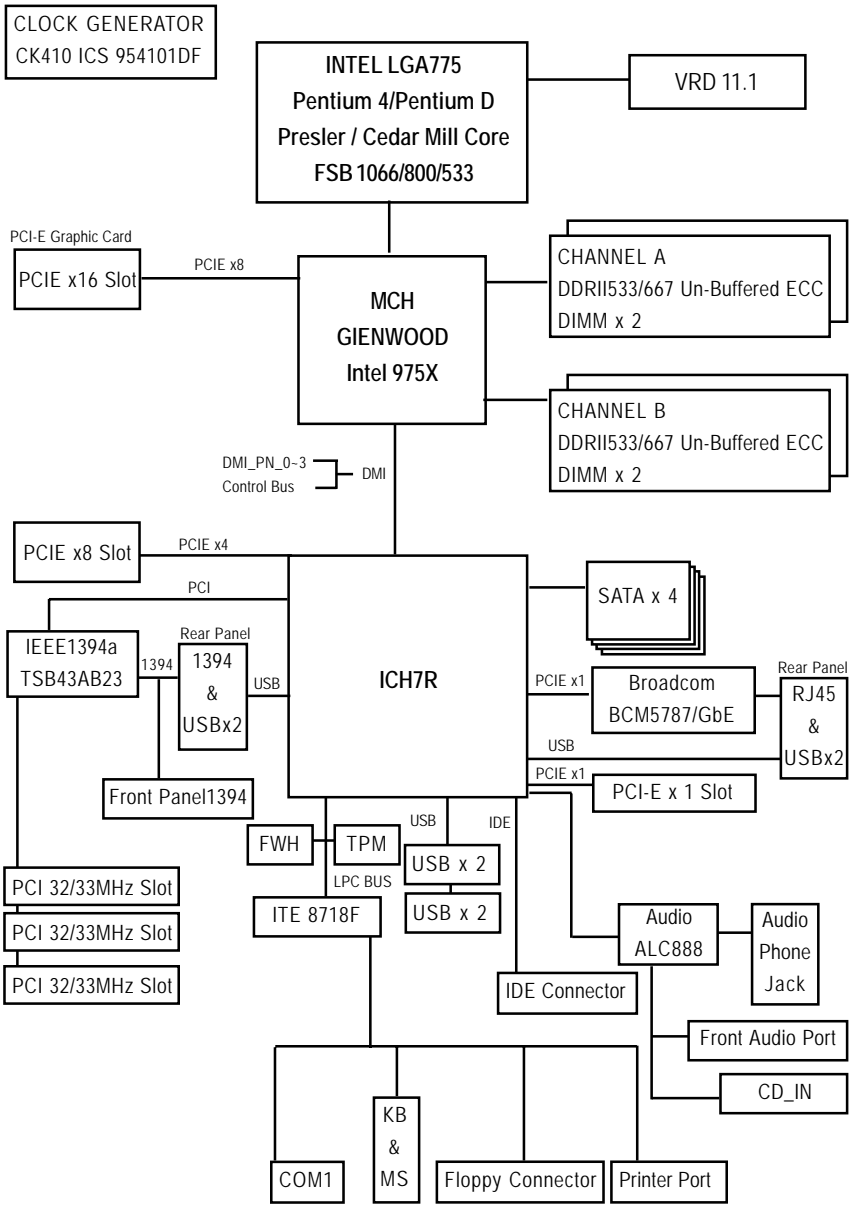
24 ) CLR\_CMOS1 (Clear CMOS Function)

You may clear the CMOS data to restore its default values by this jumper.  
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.



- 1  1-2 Close: Normal (Default setting)
- 1  2-3 Close: Clear CMOS

## 2-5: Block Diagram



## Chapter 5 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

### ENTERING SETUP

Power ON the computer and press <F2> immediately will allow you to enter Setup.

### CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Reserved
<F7>	Load the Optimized Defaults
<F8>	Reserved
<F9>	Reserved
<F10>	Save all the CMOS changes, only for Main Menu

## **GETTINGHELP**

### **Main Menu**

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### **Status Page Setup Menu / Option Page Setup Menu**

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

- **Main**  
This setup page includes all the items in standard compatible BIOS.
- **Advanced**  
This setup page includes all the items of AWARD special enhanced features.  
(ex: onboard device enable/disable, power management)
- **Security**  
Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.
- **PC Health**  
This setup page displays the System auto detect Temperature, voltage, fan speed.
- **Info**  
Display BIOS version, CPU Type and Speed, and total memory populated.
- **Exit**  
Save CMOS value settings to CMOS and exit setup or abandon all CMOS value changes and exit setup.



### ☞ **IDE Channel 0 Master, Slave / Channel 1 Master, Slave**

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: **auto type**, and **manual type**. Manual type is user-definable; Auto type that will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

### ☞ **IDE HDD Auto Detection**

Press [Enter] to auto-detect the HDD's size, head, etc on this channel.

### ☞ **Access Mode**

This option allows user to set hard drive parameters.

Option: CHS, LBA, Large, Auto (Default Value)

- |                 |                              |
|-----------------|------------------------------|
| ▶▶ Capacity     | Displays the capacity of HDD |
| ▶▶ Cylinder     | Number of cylinders          |
| ▶▶ Heads        | Number of heads              |
| ▶▶ Precmp       | Write precomp                |
| ▶▶ Landind Zone | Landing zone                 |
| ▶▶ Sectors      | Number of sectors            |

If a hard disk has not been installed, select NONE and press <Enter>.

---

**☞ DriveA**

The category identifies the types of floppy disk drive A that has been installed in the computer.

- ▶▶ None                      No floppy drive installed
- ▶▶ 360K, 5<sup>1/4</sup> in.            5.25 inch PC-type standard drive; 360K byte capacity.
- ▶▶ 1.2M, 5<sup>1/4</sup> in.            5.25 inch AT-type high-density drive; 1.2M byte capacity  
(3.5 inch when 3 Mode is Enabled).
- ▶▶ 720K, 3<sup>1/2</sup> in.            3.5 inch double-sided drive; 720K byte capacity
- ▶▶ 1.44M, 3<sup>1/2</sup> in.           3.5 inch double-sided drive; 1.44M byte capacity.
- ▶▶ 2.88M, 3<sup>1/2</sup> in.           3.5 inch double-sided drive; 2.88M byte capacity.

## Advanced

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software					
Main	Advanced	Security	PC Health	Info	Exit
▶ Advanced BIOS Feature			Item Help		
▶ Integrated Peripherals					
▶ Power Management Setup					
▶ PnP/PCI Configuration					
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help					
F5: Previous Values			F7: Optimized Defaults		

Figure 2: Advanced



**Advanced BIOS Feature**

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software		
Advanced		
Advanced BIOS Feature		Item Help
▶ Hard Disk Boot Priority		
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[CD-ROM]	
Boot Menu	[Enabled]	
Boot Up Flppy Seek	[Enabled]	
Boot Num-Lock	[On]	
Init Display First	[PEG]	
Limit CPUID Max to 3	[Disabled]	
XD Memory Protect	[Enabled]	
CPU EIST Function	[Disbaled]	
Virtualizational Technology	[Disabled]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                      F7: Optimized Defaults		

Figure 2-1: Advanced BIOS Features

### ☞ **Quick Power On Self Test**

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

- ▶▶ Enabled                      Enables quick POST. (Default setting)
- ▶▶ Disabled                     Normal POST.

### ☞ **First / Second/ Third Boot Device**

Select the first/second/third boot device

- ▶▶ Floppy                        Select your boot device priority by Floppy.
- ▶▶ LS120                        Select your boot device priority by LS120.
- ▶▶ Hard Disk                    Select your boot device priority by Hard Disk.
- ▶▶ CDROM                       Select your boot device priority by CDROM.
- ▶▶ ZIP100                       Select your boot device priority by ZIP100.
- ▶▶ USB-FDD                     Select your boot device priority by USB-FDD.
- ▶▶ USB-ZIP                      Select your boot device priority by USB-ZIP.
- ▶▶ USB-CDROM                 Select your boot device priority by USB-CDROM.
- ▶▶ LAN                            Select your boot device priority by LAN.
- ▶▶ Disabled                      Select your boot device priority by Disabled.

### ☞ **Boot Menu**

Select the specified boot device priority.

- ▶▶ Enabled                      Enable the specified boot device.
- ▶▶ Disabled                     Disable the specified boot device.

### ☞ **Boot Up Floppy Seek**

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks 720K, 1.2M and 1.44M are all 80 tracks.

- ▶▶ Enabled                      BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks. (Default setting)
- ▶▶ Disabled                     BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

---

**☞ Boot Up Num-Lock**

- ▶▶ On Enable the Boot Up Num-Lock. (Default setting)
- ▶▶ Off Disable this function.

**☞ Init Display First**

This feature allows you to select the first initiation of the monitor display from which card, when you install an AGP VGA card and a PCI VGA card on board.

- ▶▶ PEG Set Init Display First to PCI Express Slot. (Default setting)
- ▶▶ PCI Slot Set Init Display First to PCI Slot.

**☞ Limit CPU ID Max to 3**

- ▶▶ Enabled Set Limit CPU ID Max value to be 3.
- ▶▶ Disabled Disables this function. (Default setting)

**☞ XD Memory Protect**

When this item set to disabled, system will forces the XD feature flag to always run 0.

- ▶▶ Enabled Enable XD Memory Protect. (Default setting)
- ▶▶ Disabled Disable this function.

**☞ CPU EIST Function**

- ▶▶ Enabled EIST function Driver manages clock and VID to be serve the thermal, performance and power requirement.
- ▶▶ Disabled Disables this function. (Default setting)

**☞ Virtualization Technology**

Intel(R) Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple "virtual" systems. With processor and I/O enhancements to Intel's various platforms, Intel Virtualization Technology can improve the performance and robustness of today's software-only virtual machine solutions.

- ▶▶ Enabled Enable Intel Virtualization Technology.
  - ▶▶ Disabled Disable this function. (Default setting)
-

## Integrated Peripherals

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software		
Advanced		
Integrated Peripherals		Item Help
On-Chip Primary PCI IDE	[Enabled]	
SATA RAID/ACHI Mode	[Disabled]	
On-Chip SATA Mode	[Enhmanced]	
x PATA IDE Set to	Ch.0 Master/Slave	
SATA Port 0/2 Set to	Ch.2 Master/Slave	
SATA Port 1/3 Set to	Ch.3 Master/Slave	
USB Controller	[Enabled/All]	
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
Azalia Codec	[Auto]	
Onboard H/W 1394	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP]	
ECP Mode Use DMA	[3]	
↑↓ → ← : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F7: Optimized Defaults		

Figure 2-2: Integrated Peripherals

---

**☞ OnChip Promary PCIIDE**

- ▶▶ Enabled      Enable the function of On-chip primary PCI IDE. (Default setting)
- ▶▶ Disabled      Disable this function.

**☞ OnChip SATARAID/ACHIMode**

- ▶▶ Disabled      Disable both RAID and ACHI function. (Default setting)
- ▶▶ ACHI          Enable SATA as ACHI function.
- ▶▶ RAID          Enable SATA as RAID function.

**☞ OnChip SATA Mode**

- ▶▶ Auto          Auto arrange by BIOS.
- ▶▶ Combined      PATA and SATA are combined. Max. of 2 IDE drives in each channel.
- ▶▶ Enhanced      Enable both SATA and PATA. Max. of 6 IDE drives are supported. (Default setting)
- ▶▶ Non-Combined    SATA is operating in legacy mode.
- ▶▶ Disabled      Disable this function.

**☞ USB Controller**

- ▶▶ Enabled/All      Enable all USB controllers. (Default setting)
- ▶▶ Rear Only        Enable rear USB controller only.
- ▶▶ Disabled        Disable all USB controller.

**☞ USB 2.0 Controller**

This item provide the function for user to enable/disable EHCI controller only. THIS BIOS itself may / may not have high speed USB support built-in, the support will be automatically turn on when high speed device were attached.

- ▶▶ Enabled      Enable USB 2.0 Controller function. (Default setting)
- ▶▶ Disabled      Disable USB 2.0 Controller function.

### ☞ **USB Keyboard Support**

- ▶▶ Enabled      Enable USB Keyboard Support.
- ▶▶ Disabled     Disable USB Keyboard Support. (Default setting)

### ☞ **USB Mouse Support**

- ▶▶ Enabled      Enable USB Mouse Support.
- ▶▶ Disabled     Disable USB Mouse Support. (Default setting)

### ☞ **Azalia Codec**

- ▶▶ Auto          Auto detect audio function.(Default value)
- ▶▶ Disabled     Disable this function.

### ☞ **Onboard H/W 1394**

- ▶▶ Enabled      Enable onboard H/W LAN. (Default setting)
- ▶▶ Disabled     Disable this function.

### ☞ **Onboard Serial Port 1**

- ▶▶ 3F8/IRQ4     Enable onboard Serial port 1 and set IO address to 3F8.
- ▶▶ 2F8/IRQ3     Enable onboard Serial port 1 and set IO address to 2F8.
- ▶▶ 3E8/IRQ4     Enable onboard Serial port 1 and set IO address to 3E8. (Default setting)
- ▶▶ 2E8/IRQ3     Enable onboard Serial port 1 and set IO address to 2E8.
- ▶▶ Disabled     Disable onboard Serial port 1.

### ☞ **Onboard Parallel Port**

- ▶▶ 378/IRQ7     Enable onboard LPT port and set address to 378/IRQ7. (Default setting)
- ▶▶ 278/IRQ5     Enable onboard LPT port and set address to 278/IRQ5.
- ▶▶ 3BC/IRQ7     Enable onboard LPT port and set address to 3BC/IRQ7.
- ▶▶ Disabled     Disable onboard LPT port.

☞ **Parallel Port Mode**

- ▶▶ SPP            Using Parallel port as Standard Parallel Port. (Default setting)
- ▶▶ EPP            Using Parallel port as Enhanced Parallel Port.
- ▶▶ ECP            Using Parallel port as Extended Capabilities Port.
- ▶▶ ECP+EPP      Using Parallel port as ECP & EPP mode.

☞ **ECP Mode Use DMA**

This option is only available if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by parallel port.

The options: 1,3. Default setting is 3.

## Power Management Setup

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software		
Advanced		
Power Management		Item Help
ACPI Suspend Type	[S3(STR)]	
AC Back Function	[Memory]	
Resume By Alarm	[Disabled]	
x Date (of Month) Alarm	0	
x Time (hh: mm: ss)	0:0:0	
↑↓ → ←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                    F7: Optimized Defaults		

Figure 2-3: Power Management Setup

### ☞ ACPI Suspend Type

- ▶▶ S1(POS)            Set suspend type to Power On Suspend under ACPI OS.
- ▶▶ S3 (STR)            Set suspend type to RAM under ACPI OS. (Default setting)

### ☞ AC Back Function

- ▶▶ Soft-Off            When AC-power back to the system, the system will be in "Off" state.
- ▶▶ Full-On             When AC-power back to the system, the system always in "On" state.
- ▶▶ Memory             When AC-power back to the system, the system will return to the Last state before AC-power off. (Default setting)



### **Resume by Alarm**

You can set "Resume by Alarm" item to enabled and key in Date/time to power on system.

- ▶▶ Disabled      Disable this function. (Default setting)
- ▶▶ Enabled        Enable alarm function to POWER ON system.

If RTC Alarm Lead To Power On is Enabled.

Date ( of Month) Alarm :            Everyday, 1~31

Time ( hh: mm: ss) Alarm :        (0~23) : (0~59) : (0~59)

## PnP/PCI Configuration

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software	
Advanced	
PnP/PCI Configuration	Item Help
▶ IRQ Resources	
PCI Latency Time (Clk) [64]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F7: Optimized Defaults	

Figure 2-4: PnP/PCI Configuration

### ☞ **IRQ Resources Assignment**

▶▶3,4,5,7,9,10,11,12,14,15    Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI device.

### ☞ **PCI Latency Time (Clk)**

▶▶Options    32, 64, 128. Default setting is 64.

## Security

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software					
Main	Advanced	Security	PC Health	Info	Exit
Set Supervisor Password			Item Help		
x	Set User Password				
	Password Check	[Setup]			
	Halt On	[All Errors]			
	Chassis Opening Warning	[Disabled]			
x	Hard Disk Security				
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                    F7: Optimized Defaults					

Figure 3: Security

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

### **Password Check**

Select whether the password is required every time when the system boots or only when user enter the setup.

### **Halt On**

The category determines whether the computer will stop if an error is detected during power up.

- ▶▶ NO Errors                      The system boot will not stop for any error that may be detected and you will be prompted.
- ▶▶ All Errors                      Whenever the BIOS detects a non-fatal error the system will be stopped. (Default setting)
- ▶▶ All, But Keyboar              The system boot will not stop for a keyboard error; it will stop for all other errors.
- ▶▶ All, But Diskette              The system boot will not stop for a disk error; it will stop for all other errors.
- ▶▶ All, But Disk/Key              The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

### **Chassis Opening Warning**

Set this option to Enabled to active warning beep sound when the system chassis is opened.

- ▶▶ Enabled                      Enable chassis opening warning.
- ▶▶ Disabled                      Disable this function. (Default setting)

## PC Health

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software					
Main	Advanced	Security	PC Health	Info	Exit
<ul style="list-style-type: none"> <li>▶ Temperature</li> <li>▶ Voltage</li> <li>▶ FAN</li> </ul>			Item Help		
↑↓ → ← : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                      F7: Optimized Defaults					

Figure 4: PC Health

### ☞ Temperature

▶▶ Display the current CPU temperature, motherboard front and rear temperature.

### ☞ Voltage: VCORE/ +5V/ +3.3V/ +12V/ VBAT

▶▶ Detect system's voltage status automatically.

### ☞ FAN(RPM)

▶▶ Display the current CPU, Front, Rear, System and Power FAN speed.

**Info**

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software					
Main	Advanced	Security	PC Health	Info	Exit
BIOS Version	F1			Item Help	
BIOS Date	10/3/2006				
Processor Type	Genuine Intel(R)				
Processor Speed	1.87GHz/1068MHz				
L1 Cache	64KB				
L2 Cache	2048KB				
Total Memory					
DIMM1	Not Installed				
DIMM2	256MB/533MHz				
DIMM3	Not Installed				
DIMM4	Not Installed				
Onboard LAN Mac Adress	00:00:00:00:00:00				
Configuration ID	00000000				
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                      F7: Optimized Defaults					

Figure 5: Defaults

**Info**

This category includes the information of processor type, speed, L1/L2 Cache, total memory installed, onboard LAN MAC Address, and Configuration.

## Exit

CMOS Setup Utility-Copyright(c) 1984-2006 Award Software					
Main	Advanced	Security	PC Health	Info	Exit
Save & Exit Setup					Item Help
Save & Turn Off					
Exit Without Saving					
Load Setup Defaults					
↑ ↓ → ← : Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values                                    F7: Optimized Defaults					

Figure 6: Exit

### ☞ Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

### ☞ Save & Turn Off

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS and turn of power automatically.

Type "N" will return to Setup Utility.

### ☞ Exit Without Saving

Type "Y" will abandon all data and quit without saving.

Type "N" will return to Setup Utility.

### ☞ Load Setup Defaults

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.