

GA-3CCWV-RH

GA-3CCWL-RH

AMD Socket F Dual Processor Motherboard

# USER'S MANUAL

AMD Opteron™ Socket F Dual Processor Motherboard

Rev. 1001

12ME-3CCWVRH-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"/> GA-3CCWV-RH motherboard                   | <input checked="" type="checkbox"/> GA-3CCWL-RH Motherboard |
| <input checked="" type="checkbox"/> Serial ATA cable x 6                      | <input checked="" type="checkbox"/> I/O Shield Kit          |
| <input checked="" type="checkbox"/> IDE (ATA133) cable x 1 / Floppy cable x 1 | <input checked="" type="checkbox"/> SATA Power cable x 3    |
| <input checked="" type="checkbox"/> CD for motherboard driver & utility       |   |
| <input checked="" type="checkbox"/> GA-3CCWV-RH/GA-3CCWL-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 10.5" CEB form factor, 8 layers PCB.</li> </ul>
CPU	<ul style="list-style-type: none"> <li>• Support Dual AMD Opteron™ Dual Core Processors (Socket F)</li> <li>• The HyperTransport link of the AMD Opteron processor is capable of operating at 400, 800, 1200, and 1600 MT/s.</li> <li>• Supports L2/3 Cache with 1MB/2MB</li> </ul>
Chipset	<ul style="list-style-type: none"> <li>• NVIDIA® NFP3600 Chipset</li> <li>• NEC® UDP 702404 (For GA-3CCWV-RH Only)</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 8 x DDRII DIMM sockets</li> <li>• Supports up to 32GB 533/667 memory</li> <li>• Dual Channel memory bus</li> <li>• ECC Registered 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 IT8716F Super I/O</li> </ul>
Expansion Slots (GA-3CCWV-RH)	<ul style="list-style-type: none"> <li>• 1 PCI slots 32-Bit/33MHz (5V)</li> <li>• 1 PCI-Express x8 slot</li> <li>• 1 PCI-Express x16 slot (Supports LSI graphics card)</li> <li>• 1 PCI-X slot (by NEC UDP 702404 PCI-X bridge)</li> </ul>
Expansion Slots (GA-3CCWL-RH)	<ul style="list-style-type: none"> <li>• 1 PCI slots 32-Bit/33MHz (5V)</li> <li>• 1 PCI-Express x8 slot</li> <li>• 1 PCI-Express x16 slot (Supports LSI graphics card)</li> <li>• 1 PCI-Express x4 slot</li> </ul>
SATA RAID Controller	<ul style="list-style-type: none"> <li>• Built in NVIDIA® MCP55 Pro with Software RAID 0,1,0+1, 5</li> <li>• Supports 6 SATA 3.0 Gb/s connectors</li> </ul>
On-Board Audio	<ul style="list-style-type: none"> <li>• VISTA premium</li> </ul>
On-Board Peripherals	<ul style="list-style-type: none"> <li>• 1 ATA 100 connector</li> <li>• 1 Floppy connector</li> <li>• 6 SATA 3.0 Gb/s connectors</li> <li>• 2 PS/2 connectors</li> <li>• 1 Parallel port supports Normal/EPP/ECP mode</li> <li>• 1 Serial port (COM)</li> <li>• 10 x USB 2.0 (6 by cable)</li> <li>• 2 x LAN RJ45</li> <li>• 6 x Audio ports (4 x Line-out/ 1 x Line-in/ 1 x MIC)</li> <li>• 2 x SPDIF Out (Optical + Coaxial)</li> </ul>

GA-3CCWV-RH/GA-3CCWL-RH Motherboard

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Hardware Monitor	<ul style="list-style-type: none"><li>• Enhanced features with CPU Vcore, 1.5V reference, VCC3 (3.3V) , VBAT3V, +5VSB, CPUA/B Temperature, and System Temperature Values viewing</li><li>• CPU/Power/System Fan Revolution Detect</li><li>• CPU shutdown when overheat</li><li>• System Voltage Detect</li></ul>
On-Board LAN	<ul style="list-style-type: none"><li>• Dual Marvell® 88E1116 GbE PHY</li><li>• Supports WOL, PXE</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Phoenix BIOS on 8Mb flash ROM</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>

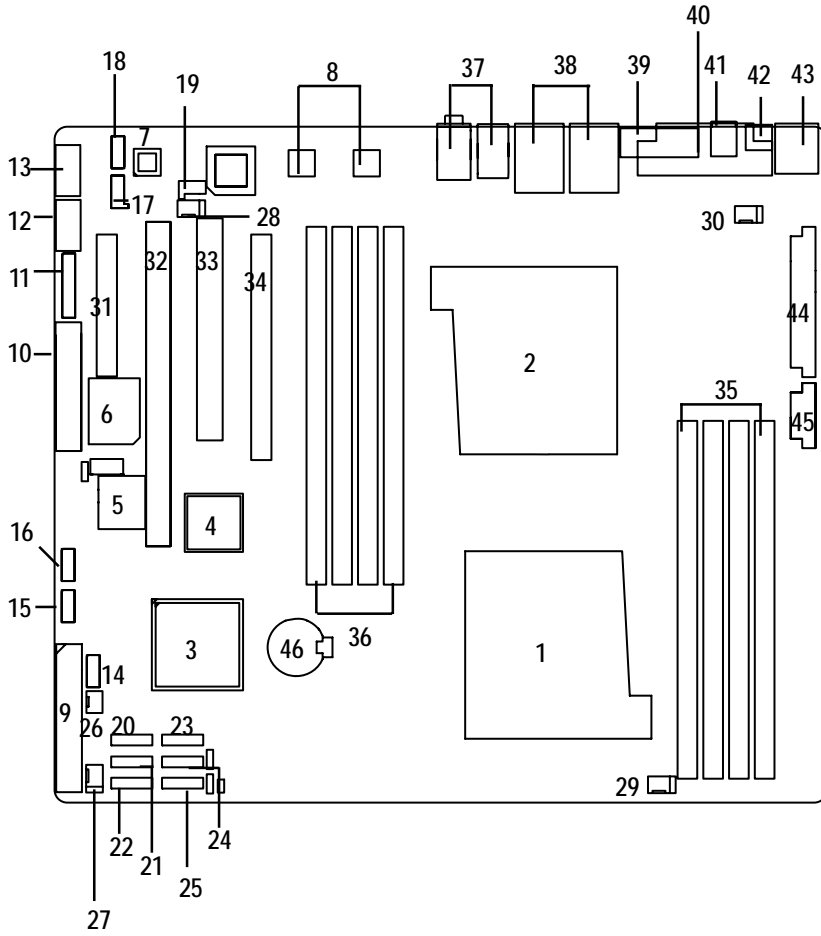
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## 1.2 GA-3CCWV-RH Motherboard Components

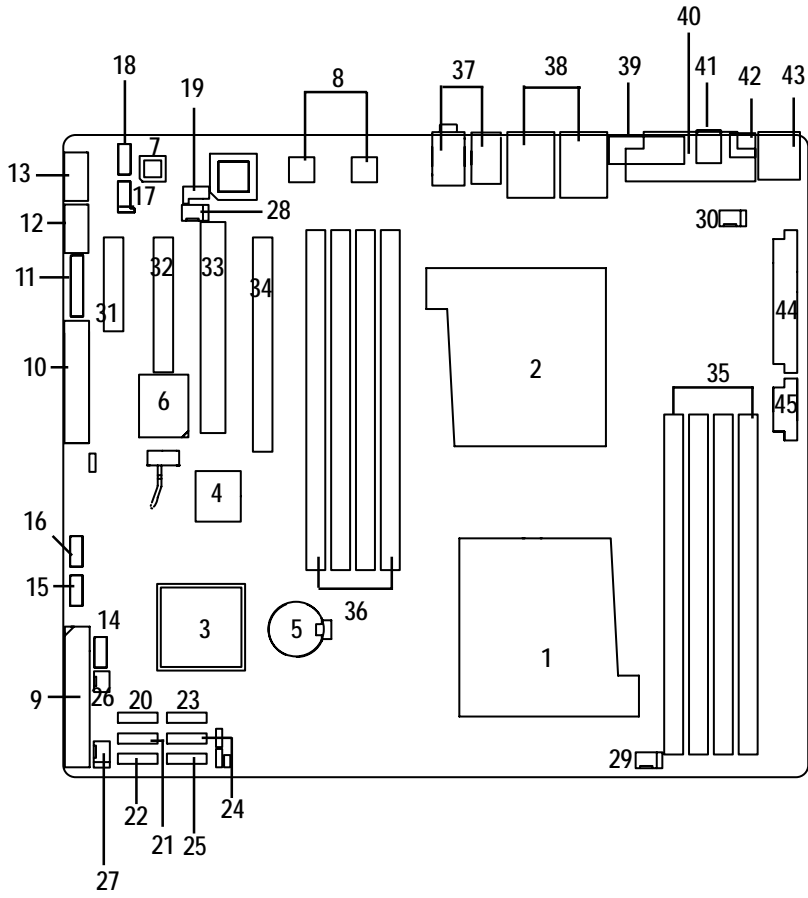
- |     |                       |     |                           |
|-----|-----------------------|-----|---------------------------|
| 1.  | Primary CPU           | 24. | SATA5 Connector           |
| 2.  | Secondary CPU         | 25. | SATA6 Connector           |
| 3.  | NVIDIA MCP55 Pro      | 26. | MCP55 Fan Connector       |
| 4.  | NEC UDP 702404        | 27. | Front Fan Connector       |
| 5.  | BIOS Flash            | 28. | Rear Fan Connector        |
| 6.  | ITE IT8716F           | 29. | CPU0 Fan Connector        |
| 7.  | Realtek ALC 883       | 30. | CPU1 Fan Connector        |
| 8.  | Marvell 88E1116       | 31. | PCI-E x4 Slot             |
| 9.  | IDE Connector         | 32. | PCI-X Slot (64bit/133MHz) |
| 10. | Floppy Connector      | 33. | PCI Slot(32bit/33MHz)     |
| 11. | Front Panel Connector | 34. | PCI-E x16 Slot            |
| 12. | 1394a Connector       | 35. | DIMMA1/B1/A2/B2 (CPU0)    |
| 13. | 1394a Connector       | 36. | DIMMA1/B1/A2/B2 (CPU1)    |
| 14. | Front USB1 Connector  | 37. | Audio Connectors          |
| 15. | Front USB2 Connector  | 38. | RJ45 Lan Ports/USB Ports  |
| 16. | Front USB3 Connector  | 39. | COM Port                  |
| 17. | CD IN                 | 40. | Parallel Port             |
| 18. | Front Audio Connector | 41. | SPDIF out (Optical)       |
| 19. | SPDIF In              | 42. | SPDIF out (Coaxial)       |
| 20. | SATA1 Connector       | 43. | PS/2 Connectors           |
| 21. | SATA2 Connector       | 44. | Auxiliary Power (ATX1)    |
| 22. | SATA3 Connector       | 45. | Auxiliary Power (ATX 12V) |
| 23. | SATA4 Connector       | 46. | Battery                   |





## 1.3 GA-3CCWL-RH Motherboard Components

- |     |                       |     |                           |
|-----|-----------------------|-----|---------------------------|
| 1.  | Primary CPU           | 24. | SATA5 Connector           |
| 2.  | Secondary CPU         | 25. | SATA6 Connector           |
| 3.  | NVIDIA MCP55 Pro      | 26. | MCP55 Fan Connector       |
| 4.  | BIOS Flash            | 27. | Front Fan Connector       |
| 5.  | Battery               | 28. | Rear Fan Connector        |
| 6.  | ITE IT8716F           | 29. | CPU0 Fan Connector        |
| 7.  | Realtek ALC 883       | 30. | CPU1 Fan Connector        |
| 8.  | Marvell 88E1116       | 31. | PCI-E x8 Slot             |
| 9.  | IDE Connector         | 32. | PCI-E x8 Slot             |
| 10. | Floppy Connector      | 33. | PCI Slot(32bit/33MHz)     |
| 11. | Front Panel Connector | 34. | PCI-E x16 Slot            |
| 12. | 1394a Connector       | 35. | DIMMA1/B1/A2/B2 (CPU0)    |
| 13. | 1394a Connector       | 36. | DIMMA1/B1/A2/B2 (CPU1)    |
| 14. | Front USB1 Connector  | 37. | Audio Connectors          |
| 15. | Front USB2 Connector  | 38. | RJ45 Lan Ports/USB Ports  |
| 16. | Front USB3 Connector  | 39. | COM Port                  |
| 17. | CD IN                 | 40. | Parallel Port             |
| 18. | Front Audio Connector | 41. | SPDIF out (Optical)       |
| 19. | SPDIF In              | 42. | SPDIF out (Coaxial)       |
| 20. | SATA1 Connector       | 43. | PS/2 Connectors           |
| 21. | SATA2 Connector       | 44. | Auxiliary Power (ATX1)    |
| 22. | SATA3 Connector       | 45. | Auxiliary Power (ATX 12V) |
| 23. | SATA4 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 will cause improper installation. 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 Insert the CPU with the correct orientation. The CPU only fits in one orientation.
- Step 4 Once the CPU is properly placed, please replace the plastic covering and push the metal lever back into locked position.



Step 4. When the processor installation is completed, apply thermal grease to the processor (as prior to installing the heatsink. AMD recommends using a high thermal conductivity grease for the thermal interface material rather than a phase change material.

Phase change materials develop strong adhesive forces between the heatsink and processor.

**Removing the heatsink under such conditions can cause the processor to be removed from the socket without moving the socket lever to the unlocked position and then damage the processor pins or socket contacts.**

\*\* We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink. (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket along with the cooling fan, and might damage the processor.

To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution)

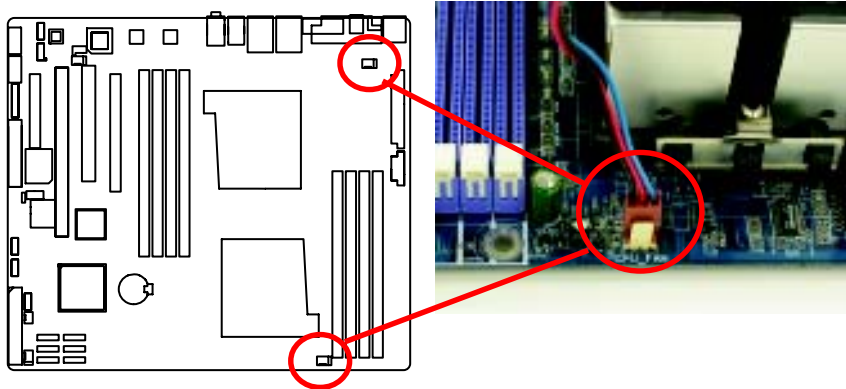
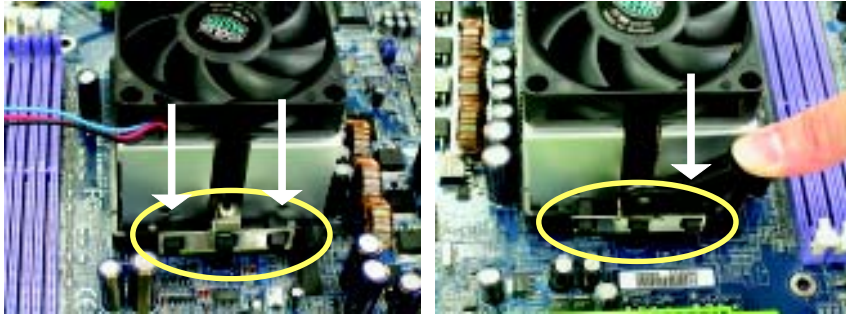
## 2-1-2: Installing Heat Sink

Step 1. Attach the cooling fan clip to the processor socket. Align the heatsink assembly with the support frame mating with the backer plate standoffs as shown in Figure 5&6.

Step 2. Connect the processor fan cable to the processor fan connector.



**NOTE:** We recommend you to buy the type of cooling fan which is shown in Figure 7. This type of cooling fan will provide the best performance for heat releasing.



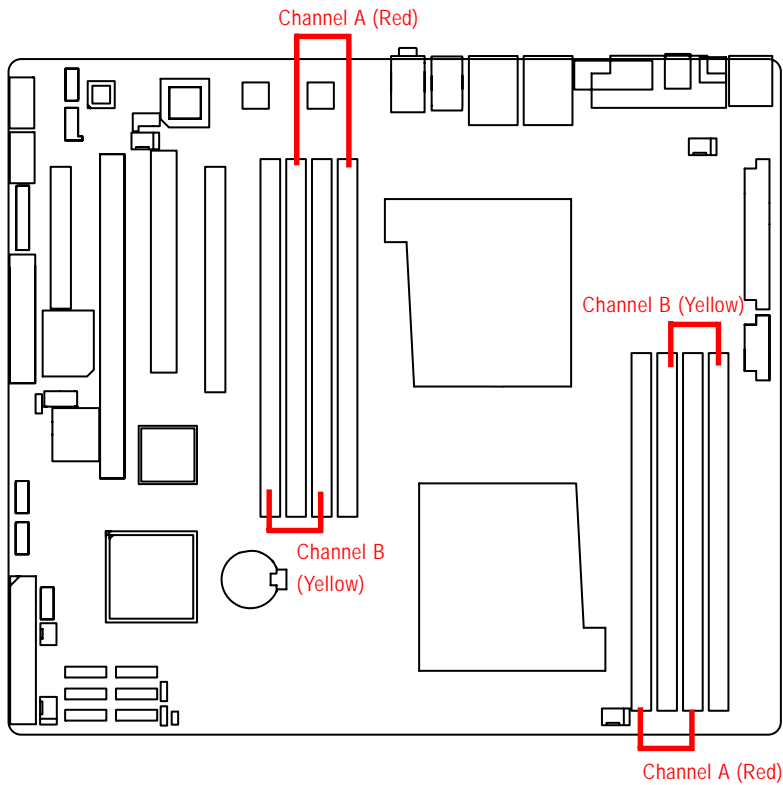
## 2-2: Install Memory Modules



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

### CAUTION

The motherboard has 8 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket. The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.



**Installation Step:**

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 notches in the socket. Firmly insert the DIMM into the socket until the retaining clips snap back in place.
3. The processor supports 64-bit mode and 128-bit mode configuration of the DIMMs. In 64 bit mode, only DIMM 0 and 2 can be populated. Possible combinations of DIMMs in 64 bit mode are listed in Table 1. In 128 bit mode, minimum of two DIMMs is required to create the 128 bit bus; therefore, DIMMs can only be populated in even numbered pairs in slot 0 & 1, and 2 & 3. Each logical DIMM must be made of two identical DIMMs having the same device size on each and the same DIMM size. Regardless of mode, DIMM must be populated in order starting at the farthest slot from the processor. Table 2 & 3 shows the possible combination of DIMMs for 128 mode. Not all possible combinations are listed in the tables.
4. Installed DIMMs must be the same speed and must all be registered. For a list of supported memory, please refer to the table of previous page.
5. Reverse the installation steps when you wish to remove the DIMM module.

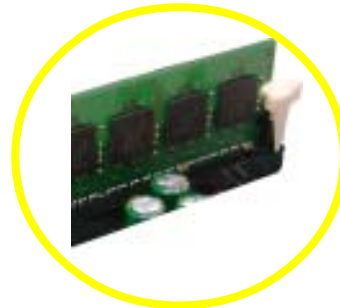
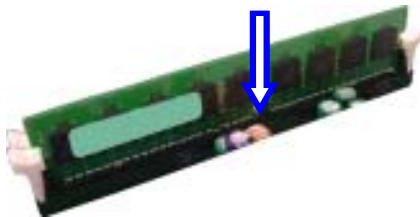
**Locked Retaining Clip**



Table 1. Valid DIMM Configuration for 64 bit Mode

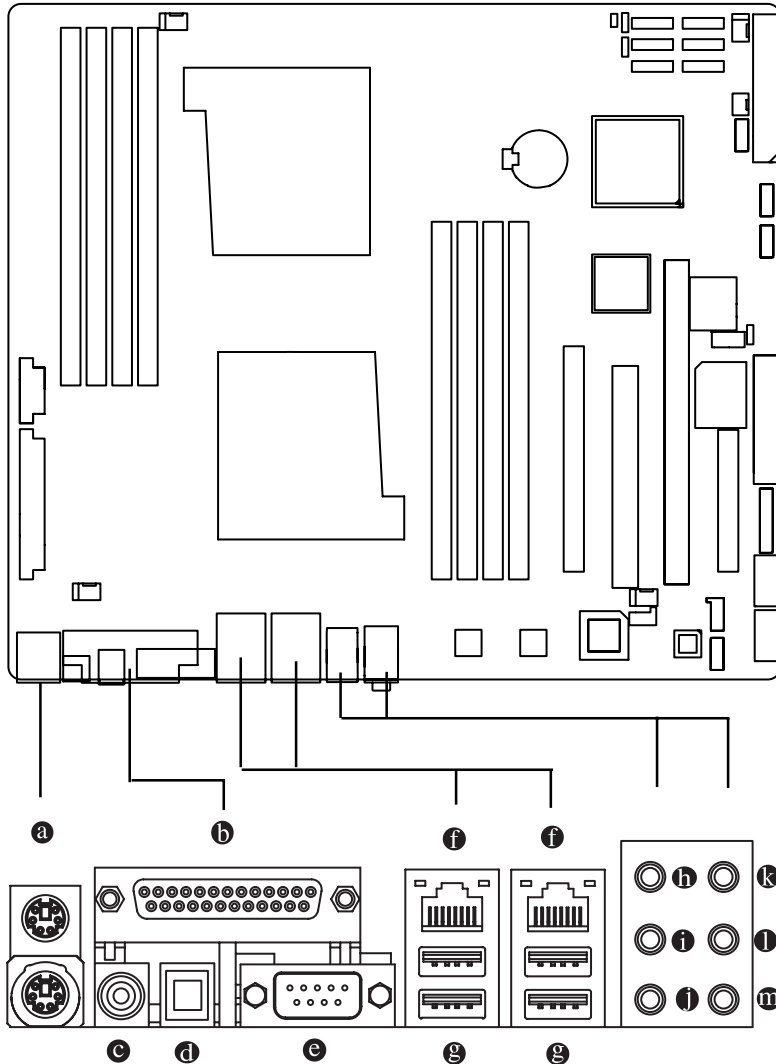
DIMM 0 (MB)	DIMM 2 (MB)
X	256
256	256
X	512
512	512
X	1024
1024	1024
X	2048
2048	2048
X	4096
4096	4096
Note: X = Do not populate	

Table 2. Valid DIMM Configuration for 128 bit Mode

Logical DIMM 0		Logical DIMM1	
DIMM 0 (MB)	DIMM 1 (MB)	DIMM 2 (MB)	DIMM 3 (MB)
X	X	256	256
256	256	256	256
X	X	512	512
512	512	512	512
X	X	1024	1024
1024	1024	1024	1024
X	X	2048	2048
2048	2048	2048	2048
X	X	4096	4096
4096	4096	4096	4096
Note: X = Do Not populate			

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

### 2-3-1 : I/O Back Panel Introduction



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**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 com-pressed AC3 data to an external Dolby Digital Decoder via an optical cable.

**e Serial Port**

Modem can be connected to Serial port.

**f LAN Port**

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

**g 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.

**h Line In**

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

**i 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.

**j MIC In**

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

**k 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.

**l Center/Subwoofer Speaker Out**

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

**m Side Speaker Out**

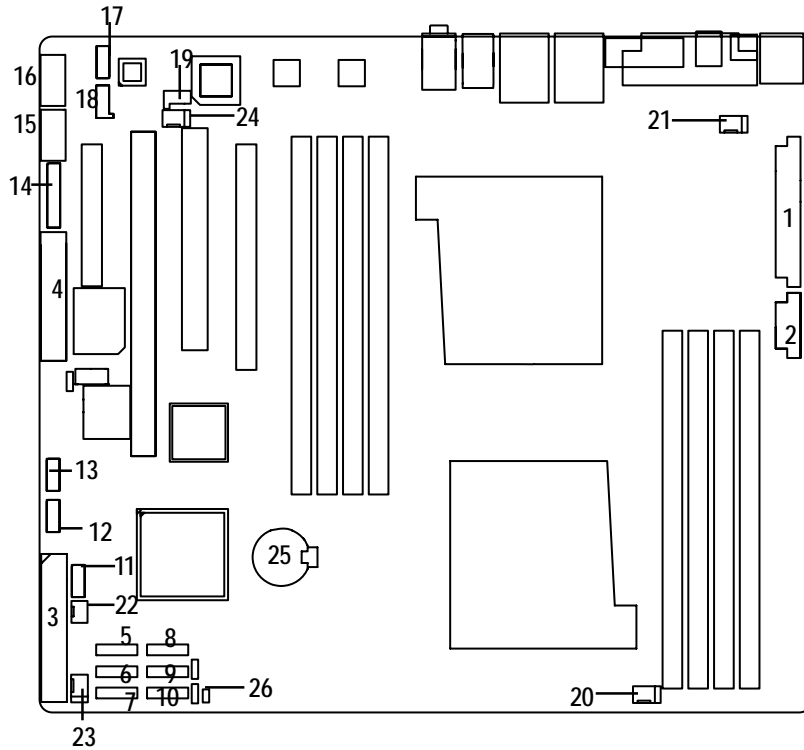
The default Side Speaker Out jack. Surround side speakers can be connected to Side Speaker Out jack.

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**LAN LED Description**

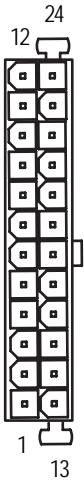
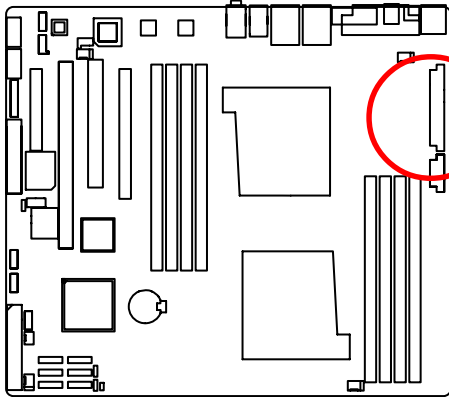

Name	Color	Condition	Description
LED1	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
LED2	-	OFF	10Mbps connection
	Green	BLINK	Port identification with 10 Mbps connection
	Green	ON	100Mbps connection
	Green	BLINK	Port identification with 100Mbps connection
	Yellow	ON	1Gbps connection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

## 2-4: Connectors Introduction



- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1. ATX1                             | 15. F1_1394 (IEEE 1394 connector)   |
| 2. ATX2                             | 16. F2_1394 (IEEE 1394 connector)   |
| 3. IDE                              | 17. F_Audio (Front Audio Connector) |
| 4. FDD (Floppy Connector)           | 18. CD_IN                           |
| 5. SATA 1 (SATA Connector)          | 19. SPDIF_IN                        |
| 6. SATA 2 (SATA Connector)          | 20. CPU0_FAN(CPU0 Fan Connector)    |
| 7. SATA 3 (SATA Connector)          | 21. CPU1_FAN(CPU1 Fan Connector)    |
| 8. SATA 4 (SATA Connector)          | 22. MCP55_FAN (NB Fan Connector)    |
| 9. SATA 5 (SATA Connector)          | 23. FRONT_FAN                       |
| 10. SATA 6 (SATA Connector)         | 24. REAR_FAN                        |
| 11. F_USB1 (Front USB Connector)    | 25. BATTERY                         |
| 12. F_USB2 (Front USB Connector)    | 26. CI                              |
| 13. F_USB3 (Front USB Connector)    |                                     |
| 14. F_Panel (Front Panel Connector) |                                     |

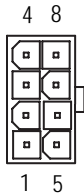
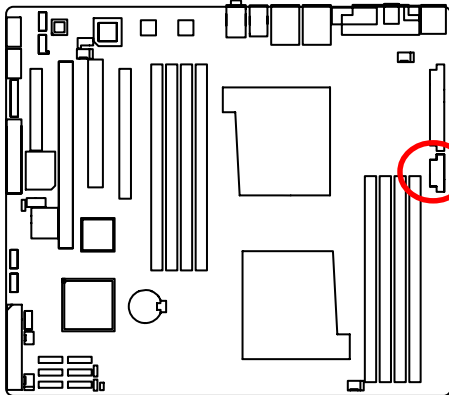
1) ATX1 (Auxukiary Power Connector)



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

➤ 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.

2) ATX2 (Auxukiary +12V Power Connector)

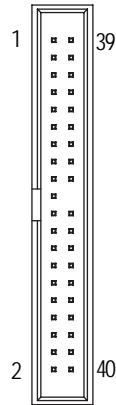
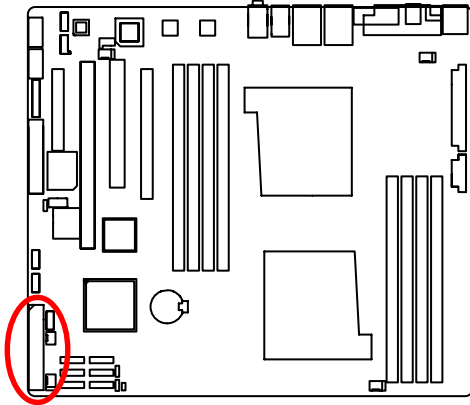


Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	P12V_CPU1
6	P12V_CPU1
7	P12V_CPU0
8	P12V_CPU0

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

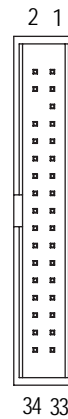
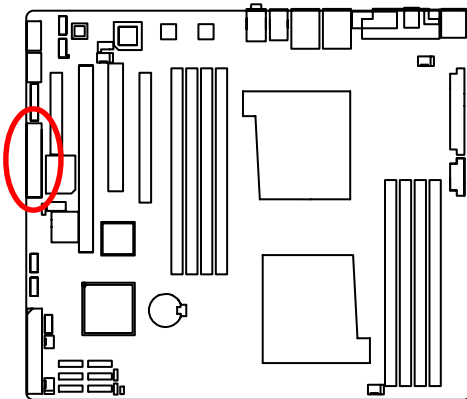
### 3) IDE (IDE Connector)

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



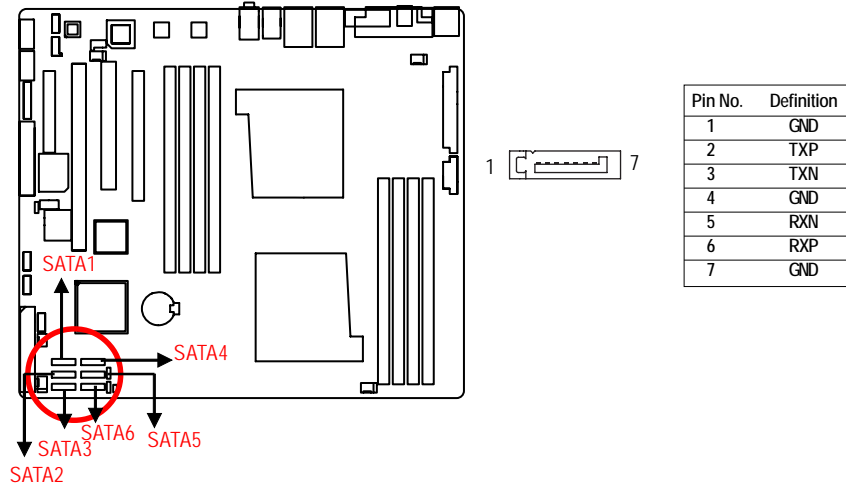
### 4) FDD (Floppy Connector)

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.



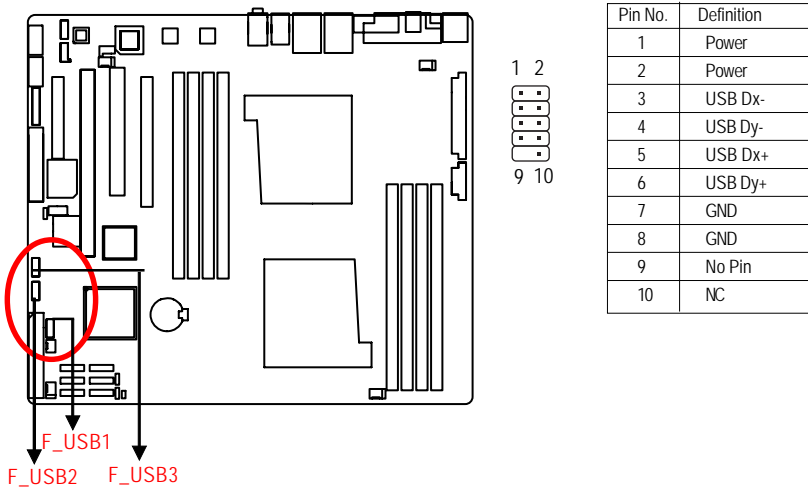
**5/ 6/ 7/ 8/9/10) SATA 1-6 (Serial ATA Connectors)**

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



**11/ 12/13) F\_USB1/2/3 (Front USB Connectors)**

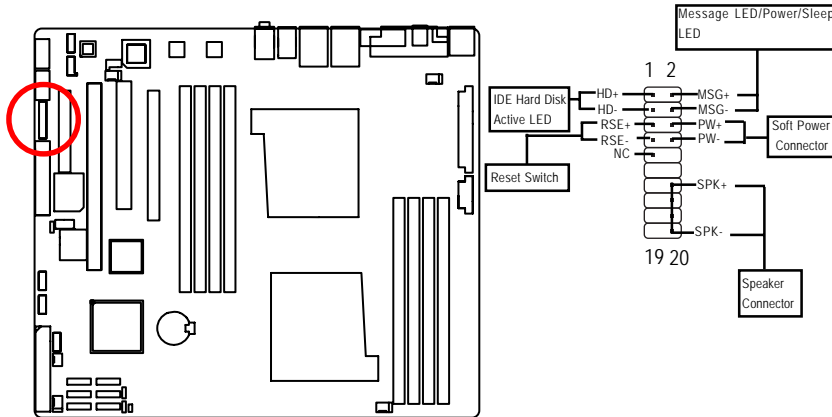
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.





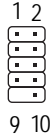
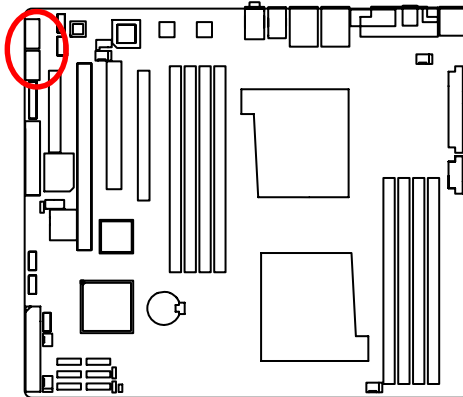
**14 ) F\_Panel (2X10 Pins Front Panel connector)**

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.



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

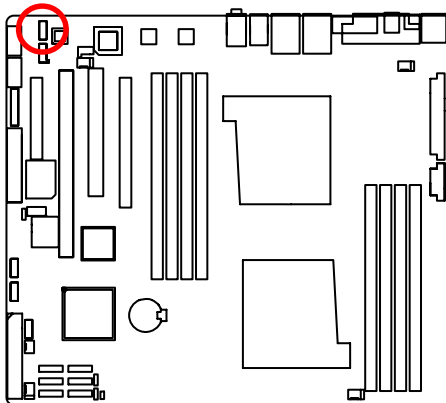
15/16) F1\_1394/F2\_1394 (IEEE 1394 connectors)



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

17) F\_AUDIO (Front AUDIO Connector)

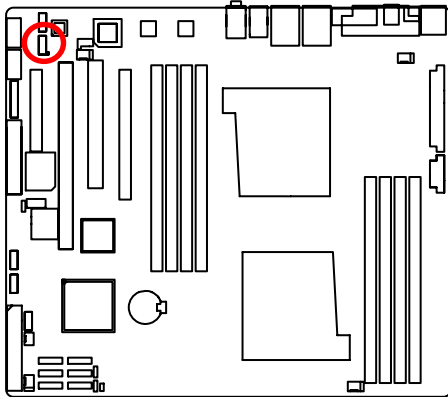
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you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

18) CD\_IN (CD IN,Blank)

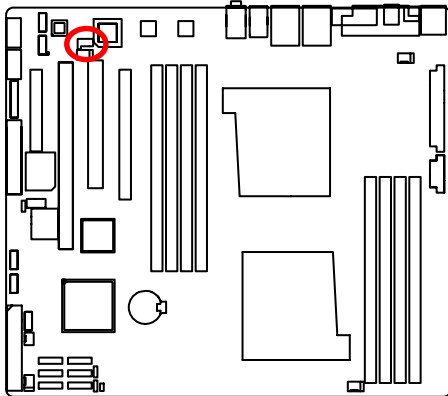
Connect CD-ROM or DVD-ROM audio out to the connector.



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

19) SPDIF\_IN

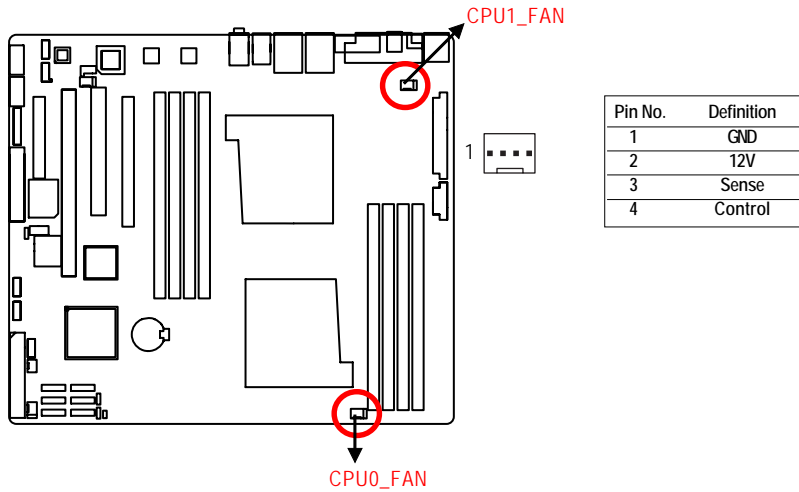
Use this device only when your hardware system has digital output function.



Pin No.	Definition
1	VCC
2	SPDIF IN
3	GND

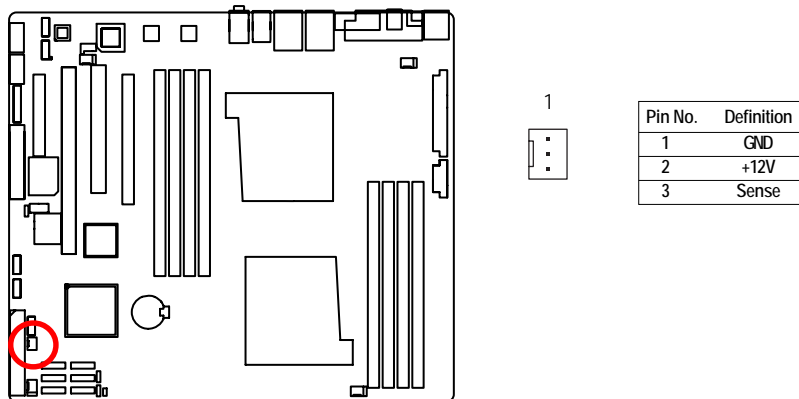
**20/21 ) CPU0\_FAN/CPU1\_FAN (CPU0/1 Fan Connectors)**

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 .



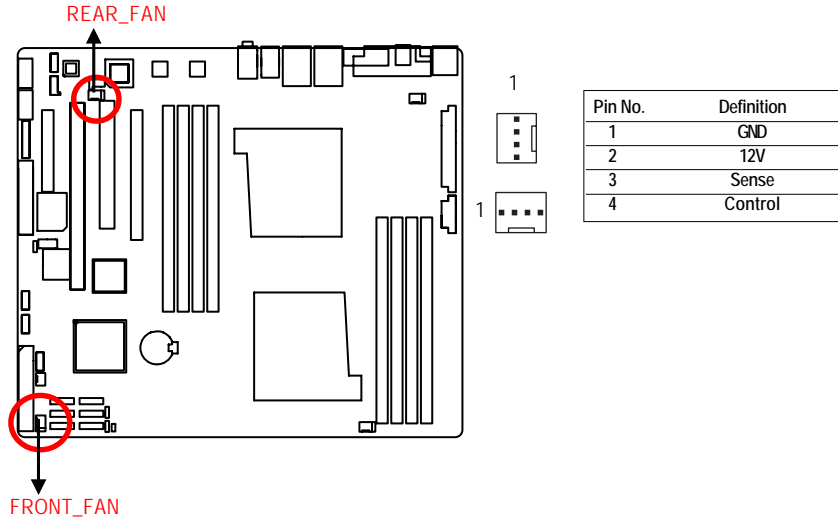
**22 ) MCP55\_FAN (North Bridge Chipset Fan Connector)**

If you install in wrong direction, the Chip Fan will not work. Sometimes will damage the Chip Fan. (Usually black cable is GND)

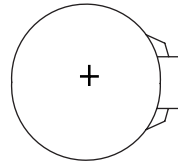
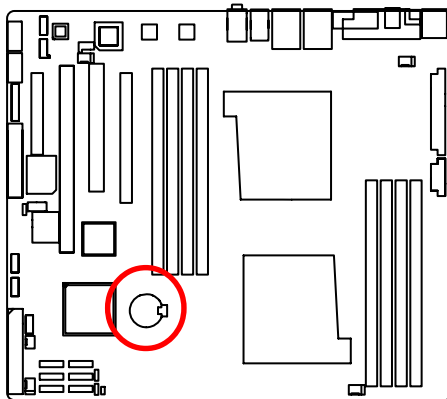


23/24) FRONT\_FAN/REAR\_FAN (System Fan Connectors)

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.



25) BATTERY



**CAUTION**

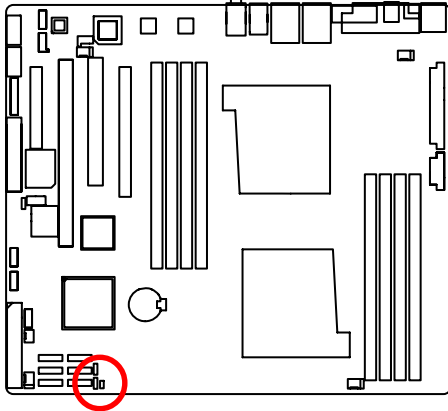
- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

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.
5. Or, you can use CLR\_CMOS jumper to erase CMOS data

### 26) CI (CASE OPEN)

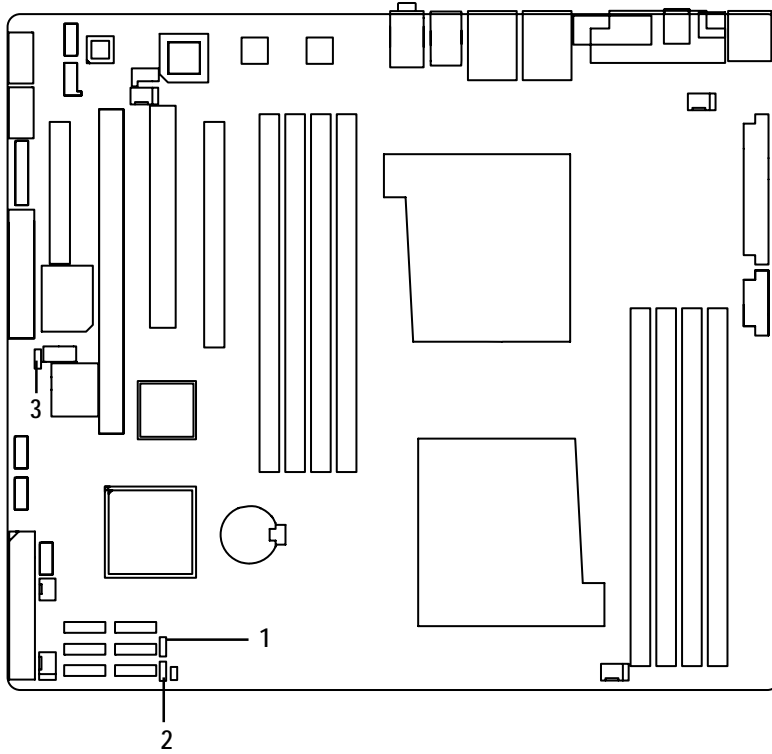
This 2 pin connector allows your system to enable or disable the "case open" item in BIOS if the system case begin remove.



1  

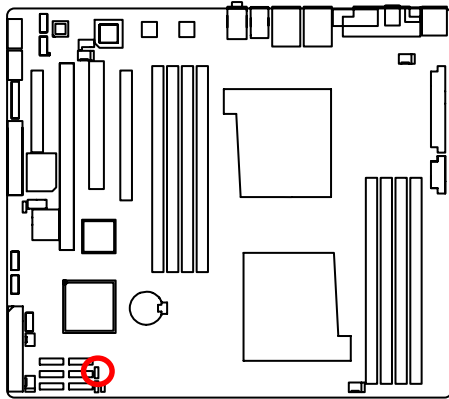

Pin No.	Definition
1	Signal
2	GND



## 2-5: Jumper Setting



1. BIOS\_RECOVERY
2. CLR\_CMOS
3. SLI\_EN

1) BIOS\_RECOVERY ( BIOS Recovery Function)

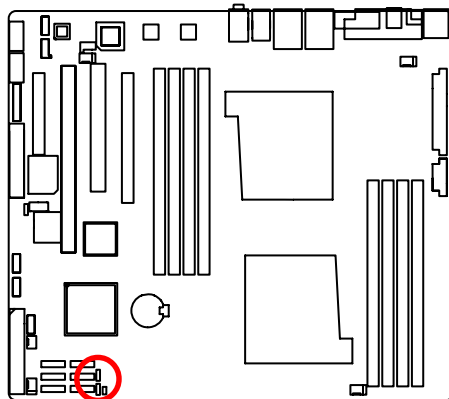




- 1  1-2 Close: Enable BIOS Recovery function.
- 1  2-3 Close: Disable BIOS Recovery function (Default value)

2) CLR\_CMOS1 (Clear CMOS Function)

You may clear the CMOS data to restore its default values by this jumper.

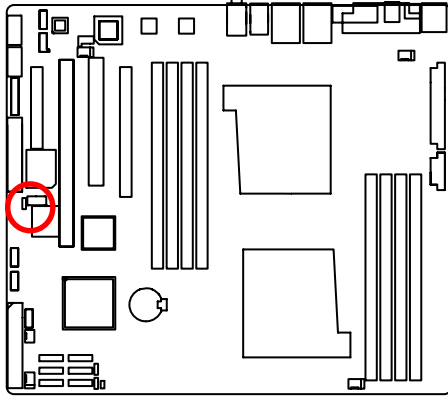
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.




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



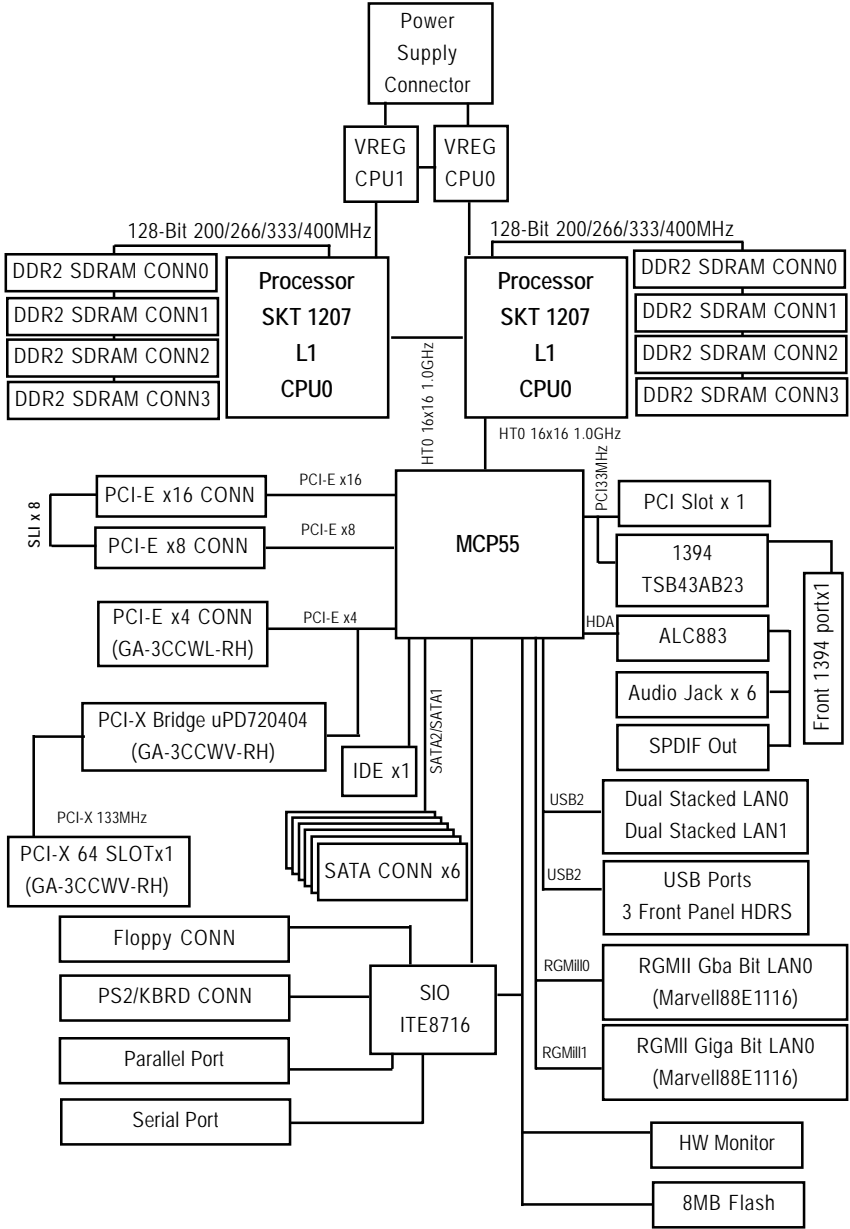
3 ) SLI\_EN (Support SLI Function)



1  1-2 Close: Enable SLI function

1  2-3 Close: Disable SLI function

## 2-7: Block Diagram



## Chapter 3 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
<F6>	Reserved
<F7>	Reserved
<F8>	Reserved
<F9>	Load the Optimized Defaults
<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 AMI special enhanced features.  
(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)
- **Security**  
Change, set, or disable password. It allows you to limit access the system and setup.
- **Server**  
Server additional features enabled/disabled setup menus.
- **Boot**  
This setup page include all the items of first boot function features.
- **Exit**  
There are five options in this selection: Exit Saving Changes, Exit Discarding Changes, Load Optimal Defaults, Load Failsafe Defaults, and Discard Changes.

## Main

Once you enter Phoenix BIOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

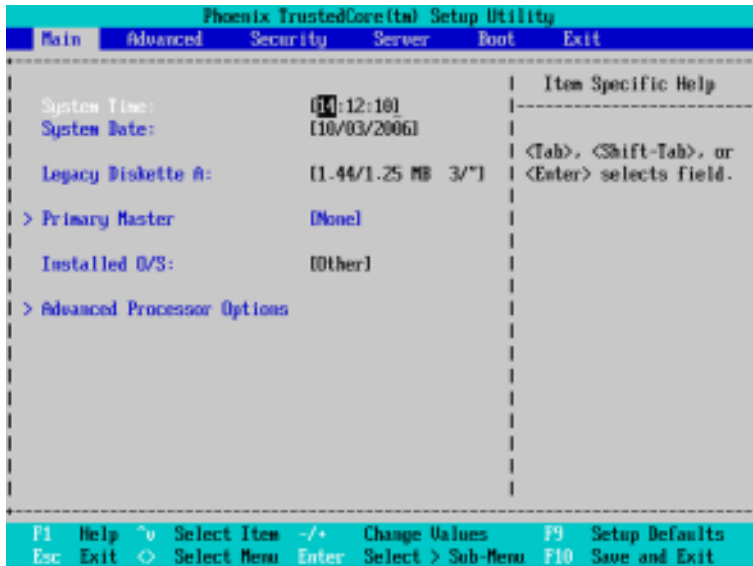


Figure 1: Main

### ☞ System Time

The time is calculated based on the 24-hour military time clock. Set the System Time (HH:MM:SS)

### ☞ System Date

Set the System Date. Note that the "Day" automatically changed after you set the date. (Weekend: DD: MM: YY) (YY: 1099-2099)

### ☞ Legacy Diskette A

This category identifies the type of floppy disk drive A that has been installed in the computer.

- ▶▶ Disabled            Disable this device.
- ▶▶ 360KB, 5<sup>1/4</sup> in.    3<sup>1/2</sup> inch AT-type high-density drive; 360K byte capacity
- ▶▶ 1.2MB, 3<sup>1/2</sup> in.    3<sup>1/2</sup> inch AT-type high-density drive; 1.2M byte capacity
- ▶▶ 720K, 3<sup>1/2</sup> in.      3<sup>1/2</sup> inch double-sided drive; 720K byte capacity
- ▶▶ 1.44M, 3<sup>1/2</sup> in.    3<sup>1/2</sup> inch double-sided drive; 1.44M byte capacity.
- ▶▶ 2.88M, 3<sup>1/2</sup> in.    3<sup>1/2</sup> inch double-sided drive; 2.88M byte capacity.

**Note:** The 1.25MB, 3<sup>1/2</sup> reference a 1024 byte/sector Japanese media format. The 1.25MB, 3<sup>1/2</sup> diskette requires 3-Mode floppy-disk drive.

### ☞ Primary 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 which 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.

#### ▶▶ TYPE

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default setting)

CD-ROM: Use for ATAPI CD-ROM drives or double click [Auto] to set all HDD parameters automatically.

ATAPI Removable: Removable disk drive is installed here.

**» Multi-Sector Transfer**

This field displays the information of Multi-Sector Transfer Mode.

Disabled: The data transfer from and to the device occurs one sector at a time.

Auto: The data transfer from and to the device occurs multiple sectors at a time if the device supports it.

**» LBA Mode**

This field shows if the device type in the specific IDE channel support LBA Mode.

**» 32-Bit I/O**

Enable this function to maximize the IDE data transfer rate.

**» Transfer Mode**

This field shows the information of Transfer Mode.

**» Ultra DMA Mode**

This field displays the DMA mode of the device in the specific IDE channel.

**🔗 Installed OS**

This category allows you to select the operating system which you will use commonly.

**» Other**

Select 'Other' if your operating system is not on the item list. (Default setting)

**» Windows 32bit**

Select Windows 32 bit as the operating system that you use commonly .

**» Windows 64bit**

Select Windows 64 bit as the operating system that you use commonly .

**» Linux**

Select Linux as the operating system that you use commonly .

## Advanced Processor Options

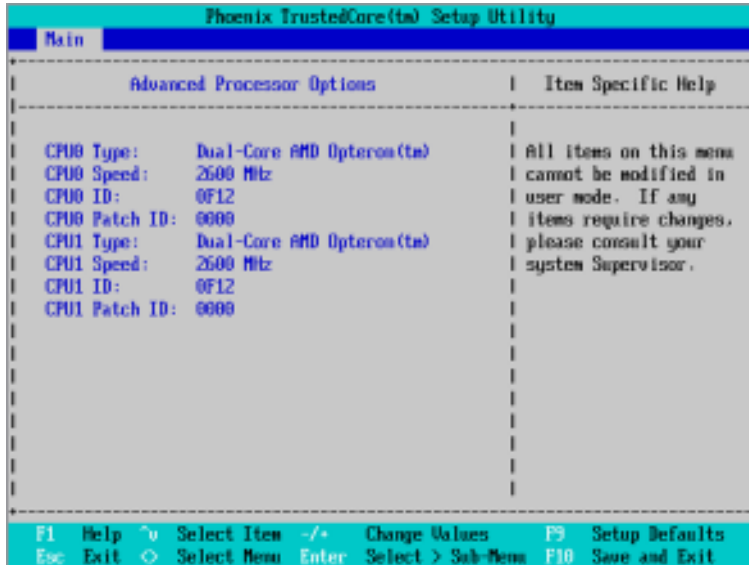


Figure 1-1: Advanced Processor Option

### ☞ Advanced Processor Option

This category displays the information of current CPU Type, CPU Speed, CPU ID, and CPU Path ID. These category is display-only which is determined by POST (Power On Self Test) of the BIOS.



## Advanced

### About This Section: Advanced

With this section, allowing user to configure your system for basic operation. User can change the processor options, chipset configuration, PCI configuration and chipset control.

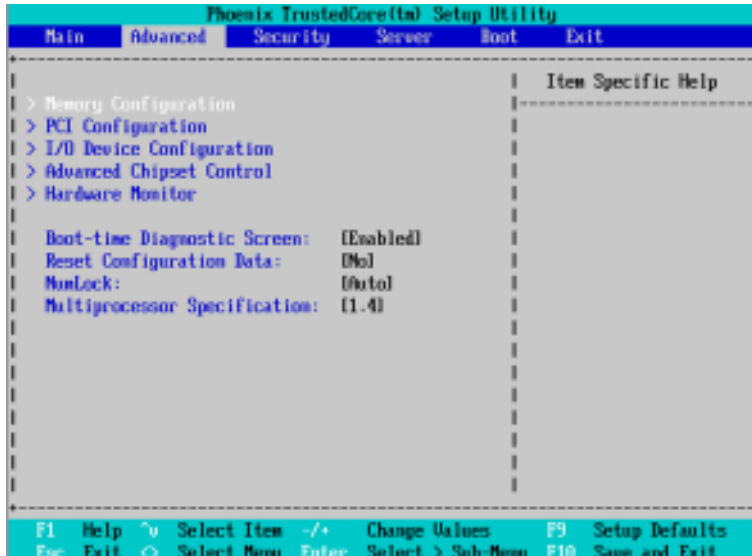


Figure 2: Advanced

## Memory Configuration

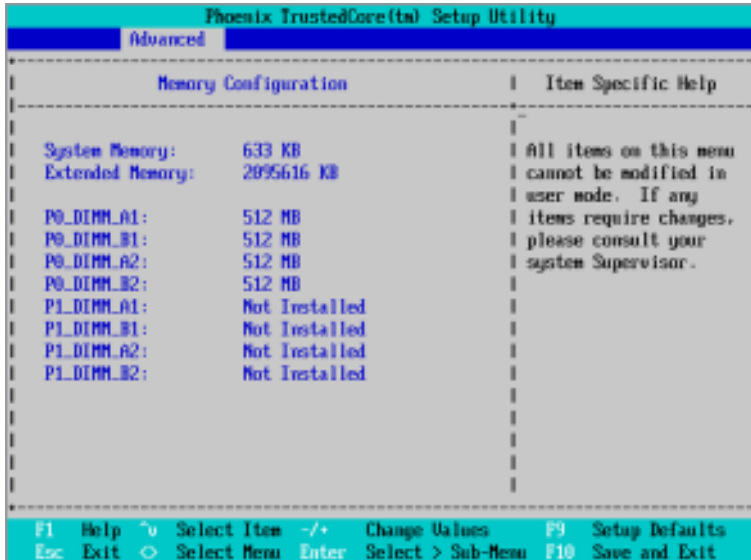


Figure 2-1: Memory Configuration

### System Memory/Extended Memory/P0\_DIMMA1/B1,A2/B2/ P1\_DIMMA1/B1,A2/B2Status

This category is display-only which is determined by POST (Power On Self Test) of the BIOS.

PCI Configuration

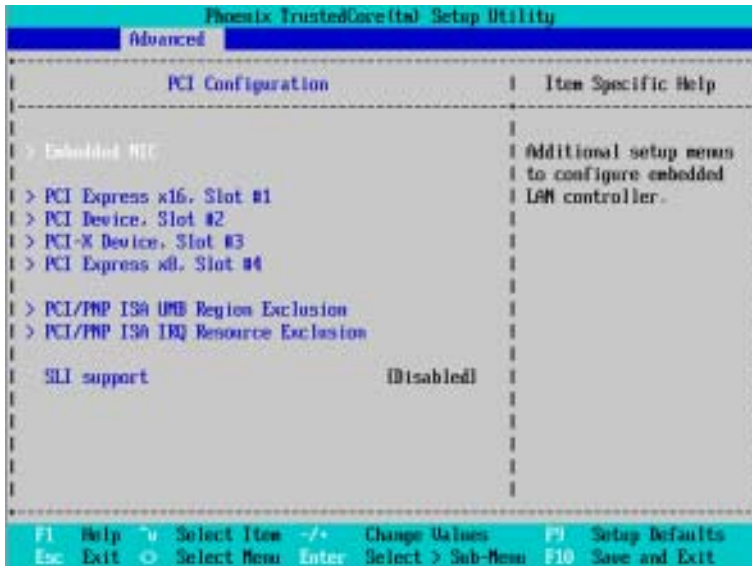


Figure 2-2: PCI Configuration

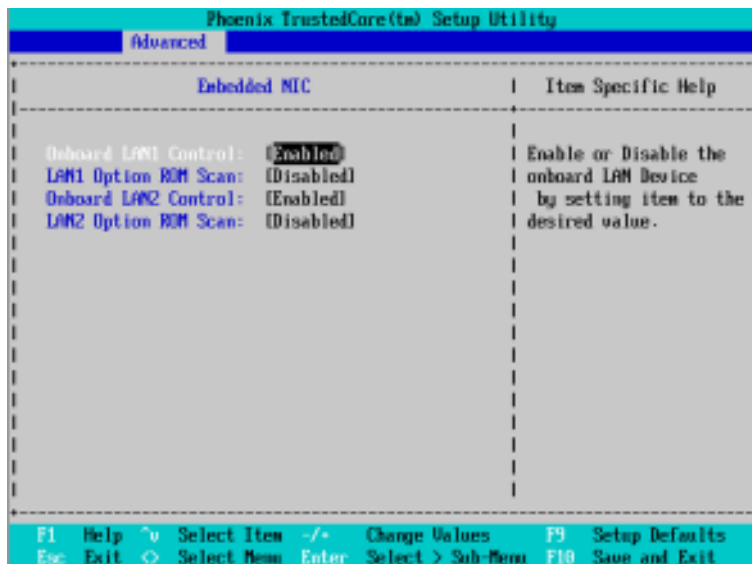


Figure 2-2-1: Embedded NIC

🔗 **Embedded NIC**

▶ **Onboard LAN1 Control**

- ▶▶ Enabled                    Enable onboard LAN1 device. (Default setting)
- ▶▶ Disabled                    Disable this function.

▶ **Option ROM Scan**

- ▶▶ Enabled                    Enabling this item to initialize device expansion ROM.
- ▶▶ Disabled                    Disable this function. (Default setting)

▶ **Onboard LAN2 Control**

- ▶▶ Enabled                    Enable onboard LAN2 device. (Default setting)
- ▶▶ Disabled                    Disable this function.

▶ **Option ROM Scan**

- ▶▶ Enabled                    Enabling this item to initialize device expansion ROM.
- ▶▶ Disabled                    Disable this function. (Default setting)

🔗 **PCI Express x16 Slot #1/PCI Device, Slot #2/PCI -X Device, Slot #3/  
PCI Express x8 Slot #4**

▶ **Option ROM Scan**

- ▶▶ Enabled                    Enable this item to initialize device expansion ROM.  
(Default setting)
- ▶▶ Disabled                    Disable this function.

▶ **Latency Timer**

This item allows you to minimum gurranteed time slice alloted fpr bus master in units of PCI bus clocks.

- ▶▶ Options                    0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, 00Eh.

☞ **PCI/PNP ISA UMB Region Exclusion**

Reserve specific upper memory blocks for use by legacy ISA devices.

- ▶ C800-CBFF/ CC00-CFFF/ D000-D3FF/ D400 -D7FF/ D800-DBFF/ DC00-DFFF

☞ **PCI/PNP ISA IRQ Resource Exclusion**

Reserve specific IRQs for use by legacy ISA devices.

- ▶ IRQ3/ IRQ4/ IRQ5/ IRQ7/ IRQ9/ IRQ10/ IRQ11/ IRQ15

☞ **SLI Support**

- ▶ Enabled                      Enable SLI Support.
- ▶ Disabled                     Disable this function. (Default setting)

## I/O Device Configuration

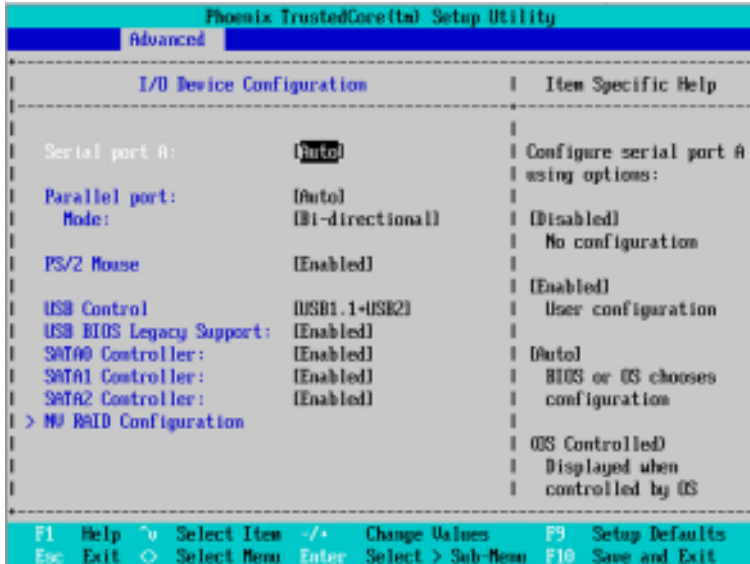


Figure 2-3: I/O Device Configuration

### Serial Port A

This allows users to configure serial port A by using this option.

- ▶▶ Auto      BIOS or OS chooses configuration automatically. (Default setting)
- ▶▶ Enabled    Enable the configuration.
- ▶▶ Disabled    Disable the configuration.

---

### ☞ Parallel Port

This allows users to configure parallel port by using this option.

- ▶▶ Auto BIOS or OS choosed configuration automatically. (Default setting)
- ▶▶ Enabled Enable the configuration.
- ▶▶ Disabled Disable the configuration.

#### ▶ Mode

This option allows user to set Parallel Port transfer mode.

- ▶▶ Bi-directional Use this setting to support bi-directional transfers on the parallel port. (Default setting)
- ▶▶ EPP Using Parallel port as Enhanced Parallel Port.
- ▶▶ ECP Using Parallel port as Extended Capabilities Port.

### ☞ PS/2 Mouse

Set this option 'Enabled' to allow BIOS support for a PS/2 - type mouse.

- ▶▶ Enabled 'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present. (Default setting)
- ▶▶ Disabled 'Disabled' prevents any installed PS/2 mouse from functioning, but frees up IRQ12.

### ☞ USB Control

This item allows users to enable or disable the onboard USB controller by setting item.

- ▶▶ USB1.1+USB2 Enable USB1.1 and USB2.0 controllers. (Default value)
- ▶▶ USB1.1 EnableUSB1.1 controller.
- ▶▶ Disabled Disbale this device.

### ☞ BIOS USB Legacy Support

This option allows user to function support for legacy USB.

- ▶▶ Enabled Enables support for legacy USB (Default Value)
- ▶▶ Disabled Disables support for legacy USB

☞ **SATA0/SATA1/SATA2 Controller**

- ▶▶ Enabled      Enables on-board Serial ATA controller. (Default setting)
- ▶▶ Disabled     Disables on-board Serial ATA controller.

☞ **NV RAID Configuration**

- ▶▶ Enabled      Enable NVIDA RAID Control.
- ▶▶ Disabled     Disable NVIDA RAID Control. (Default setting)



**Note!!** To function NV RAID Configuration properly, you must enable SATA Controller items.



## Advanced Chipset Control

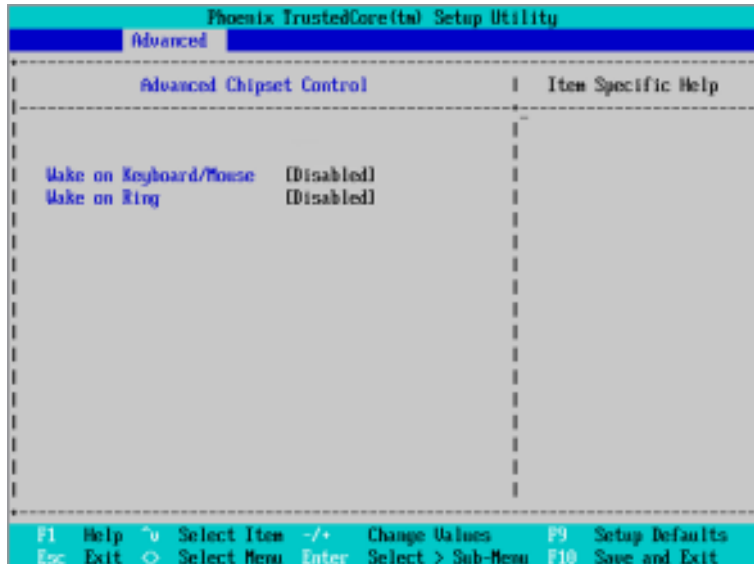


Figure 2-4: Advanced Chipset Control

### ☞ Wake on Keyboard/Mouse

This item allows you to set the enable/disable for powering-on the system by keyboard and mouse.

- ▶▶ Enabled Wake on Keyboard/Mouse.
- ▶▶ Disabled Disable this function. (Default setting)

**Note:** This item must be enabled if you're running under Windows operating system.

### ☞ Wake On Ring

This item allows user to determine the action of the system power is off and the modem is ringing.

- ▶▶ Enabled Enable Wake On Ring.
- ▶▶ Disabled Disable this function. (Default setting)

**Note:** This item must be enabled if you're running under Windows operating system.

### **Wake On Ring**

This item allow user to determine the action of the system power is off and the modem is ringing.

- ▶▶ Enabled                      Enable Wake On Ring.
- ▶▶ Disabled                     Disable this function. (Default setting)

**Note:** This item must enabled if you're running under Windows operating system.

## Hardware Monitor

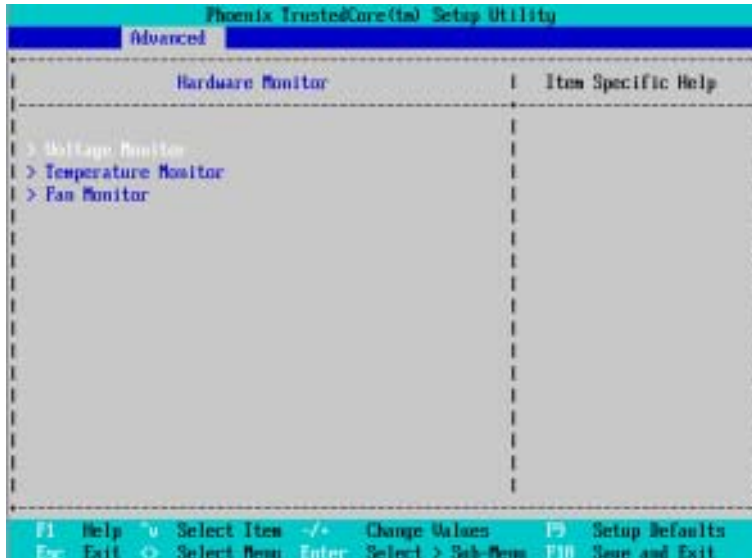
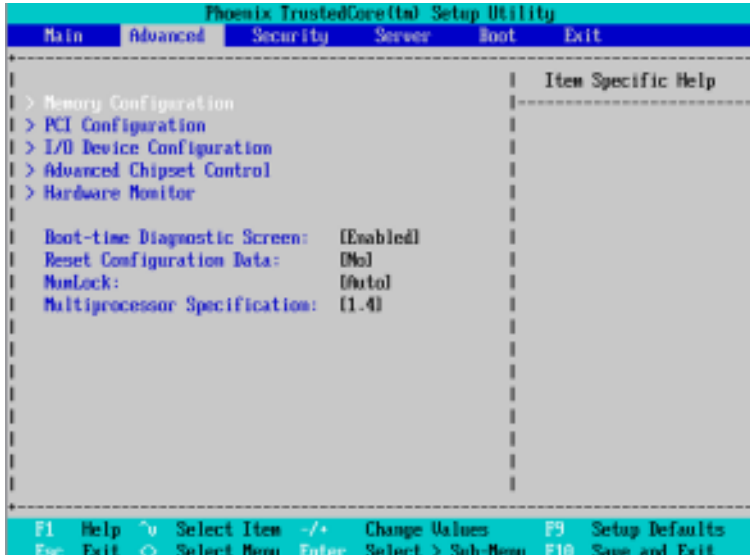


Figure 2-5: Hardware Monitor

- ☞ **Voltage Monitor: V<sub>CORE0/1</sub>, 3.3V, 5V, 12V, DDRP0/P1, 5 Dual, VBAT**
  - ▶▶ Detect system's voltage status automatically.
- ☞ **Temperature Monitor: CPU0/1 Temperature, System Temperature**
  - ▶▶ Display the current CPU1/2 temperature, and System temperature.
- ☞ **FAN Monitor: CPU0/1, MCP55, Front and Rear Fan (RPM)**
  - ▶▶ Display the current CPU1/2 and System FAN 1/2/3 speed.



### ☞ Boot -time Diagnostic Screen

When this item is enabled, system will shows Diagnostic status when system boot.

- ▶▶ Enabled      Enable Boot-time Diagnostic.(Default setting)
- ▶▶ Disabled     Disable this function.

### ☞ Reset Configuration Data

- ▶▶ Yes            Reset all configuration data.
- ▶▶ No            Do not make any changes. (Default setting)

### ☞ NumLock

This option allows user to select power-on state for NumLock.

- ▶▶ On            Enable NumLock.
- ▶▶ Off           Disable this function.
- ▶▶ Auto         Auto detection. (Default setting)

---

**⌘ Multiprocessor Specification**

This option allows user to configure the multiprocessor(MP) specification revision level.  
Some operating system will require 1.1 for compatibility reasons.

- ▶▶ 1.4          Support MPS Version 1.4 . (Default setting)
- ▶▶ 1.1          Support M PS Version 1.1.

## Security

### 🔑 About This Section: Security

In this section, user can set either supervisor or user passwords, or both for different level of password securities. In addition, user also can set the virus protection for boot sector.

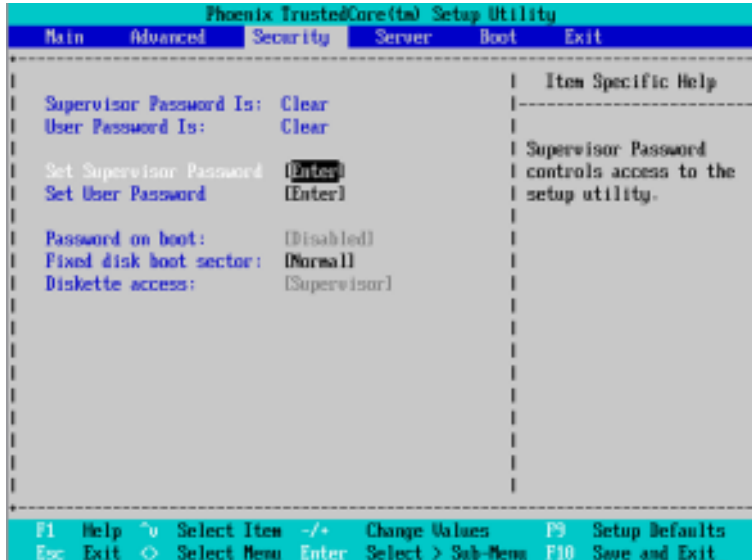


Figure 3: Security

### 🔑 Set User Password

You can only enter but do not have the right to change the options of the setup menus. 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 6 characters in length and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. 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 specified password.

### ☞ **Set Supervisor Password**

You can install and change this options for the setup menus. Type the password up to 6 characters in length and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. 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 specified password or press <Enter> key to disable this option.

### ☞ **Password on boot**

Password entering will be required when system on boot.

- ▶▶ Enabled      Requires entering password when system on boot.
- ▶▶ Disabled      Disable this function. (Default setting)

### ☞ **Fixed disk boot sector**

- ▶▶ Write Protect    Write protects boot sector on harddisk to protect against virus.
- ▶▶ Normal          Set the fixed disk boot sector at Normal state. (Default setting)

### ☞ **Diskette access**

Control access to diskette drives.

- ▶▶ User            Requires user's password to access floppy drives.
- ▶▶ Supervisor    Requires supervisor's password to access floppy drives. (Default setting)

## Server

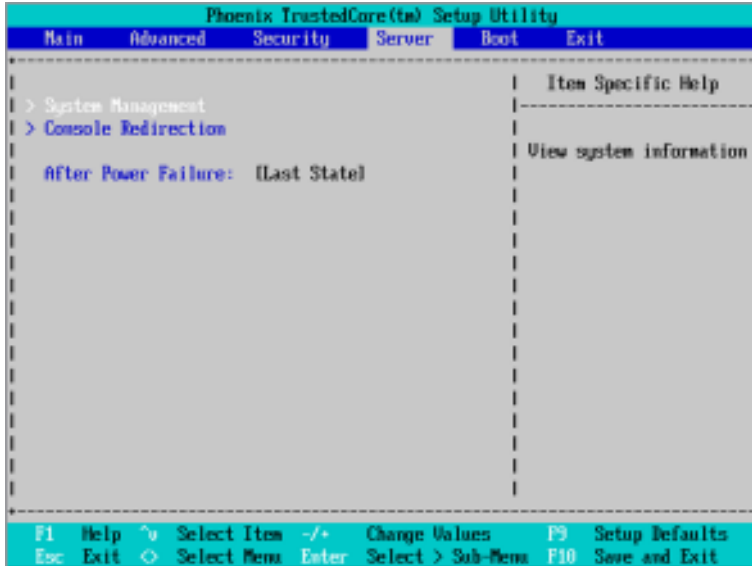


Figure 4: Server



## System Management

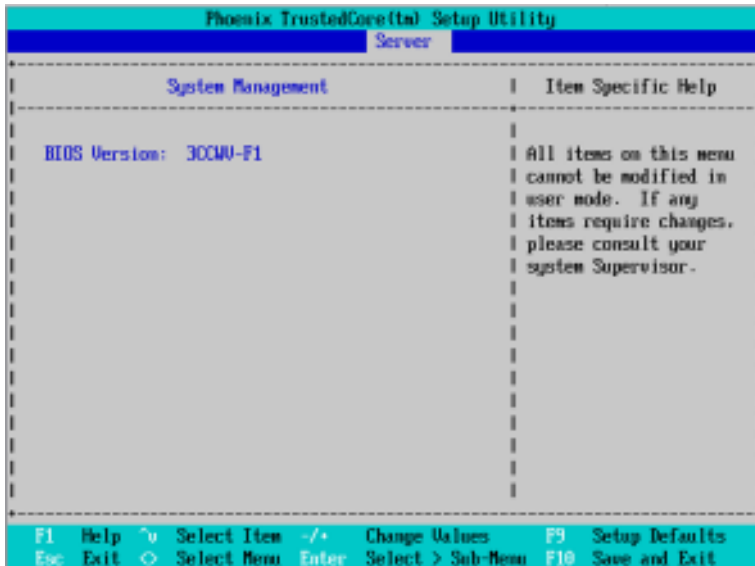


Figure 4-1: System Management

### Server Management

This category allows user to view the server management features. Including information of BIOS Version. All items in this menu cannot be modified in user's mode. If any items require changes, please consult your system supervisor.

## Console Redirection

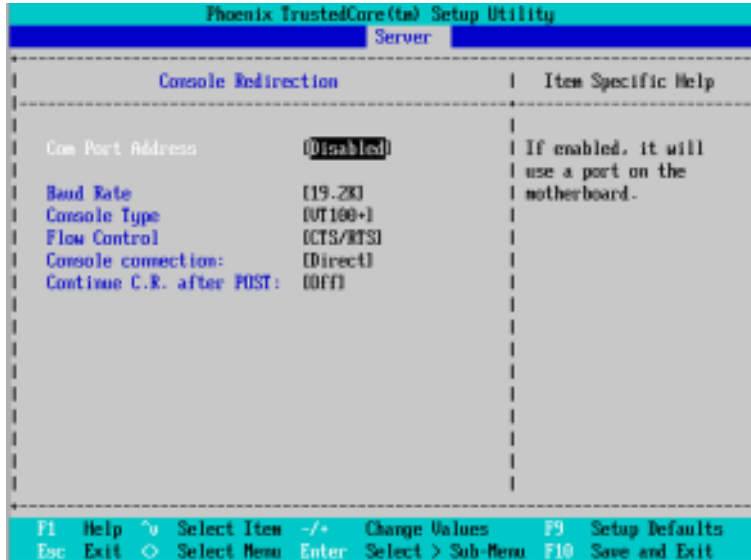


Figure 4-2: Console Redirection

### ☞ COM Port Address

If this item allows user to determine which port to use for console redirection.

- ▶▶ On-board COMA      Use COMA as the COM port address.
- ▶▶ On-board COMB      Use COMB as the COM port address.
- ▶▶ Disabled              Disable this function. (Default setting)

### ☞ Baud Rate

This option allows user to set the specified baud rate.

- ▶▶ Options                300, 1200, 2400, 9600, 19.2K, 38.4K, 57.6K, 115.2K.

### ☞ Console Type

This option allows user to select the specified terminal type. This is defined by IEEE.

- ▶▶ Options                VT100, VT100 8bit, PC-ANSI 7bit, VT100+, VT-UTF8

---

**⌘ Flow Control**

This option provide user to enable the flow control function.

- ▶▶ None                      Not supported.
- ▶▶ XON/OFF                 Software control.
- ▶▶ CTS/RTS                 Hardware control. (Default setting)

**⌘ Console connection**

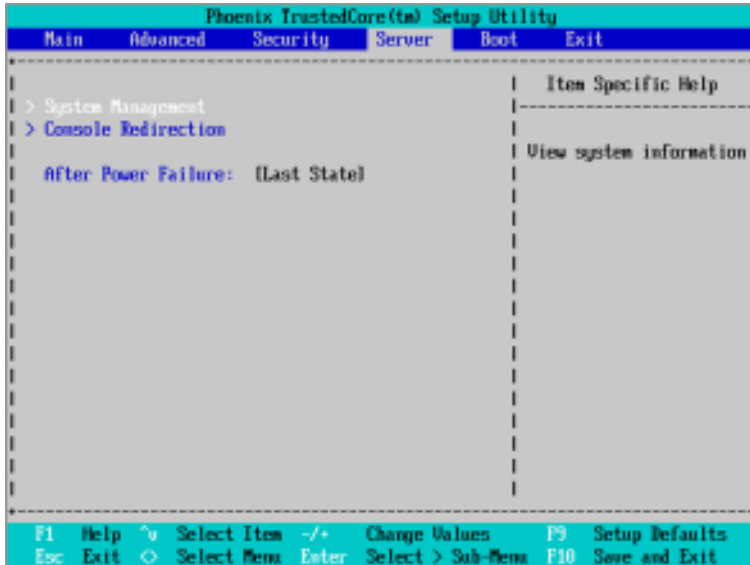
This field indicates whether the console is connected directly to the system or a modem is used to connect.

- ▶▶ Direct                     Console is connected directly to the system. (Default setting)
- ▶▶ Disabled                 Console is connected via the modem.

**⌘ Continue C.R. after POST**

This option allows user to enable console redirection after O.S has loaded.

- ▶▶ On                         Enable console redirection after O.S has loaded.
- ▶▶ Off                        Disable this function. (Default setting)



### After Power Failure

This option provides user to set the mode of operation if an AC / power loss occurs.

- ▶▶ Power On    System power state when AC cord is re-plugged.
- ▶▶ Stay Off    Do not power on system when AC power is back.
- ▶▶ Last State    Set system to the last state when AC power is removed. Do not power on system when AC power is back. (Default setting)

## Boot

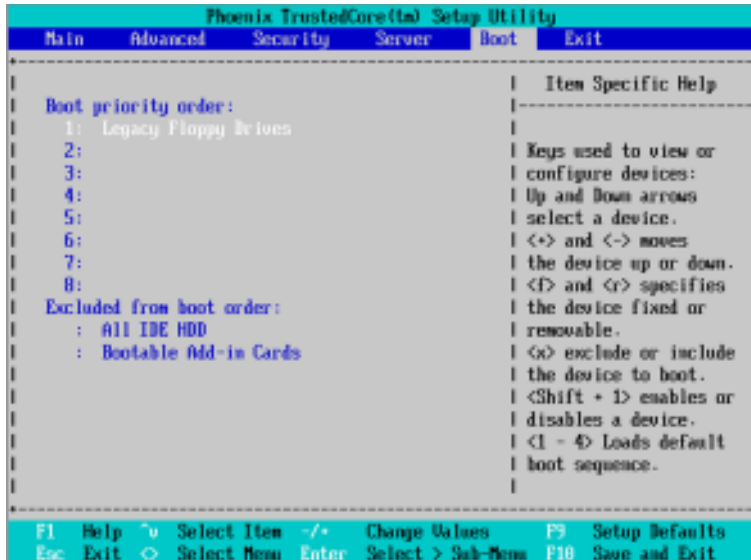


Figure 5: Boot

### ☞ Boot Priority Order

This field determines which type of device the system attempt to boot from after PhoenixBIOS Post completed. Specifies the boot sequence from the available devices. If the first device is not a bootable device, the system will seek for next available device.

#### Key used to view ot configure devices:

Up and Down arrows select a device.

<+> and <-> moves the device up or down.

<f> and <r> specifies the device fixed or removable.

<x> exclude or include the device to boot.

<1-4> Loads default boot sequence.

## Exit

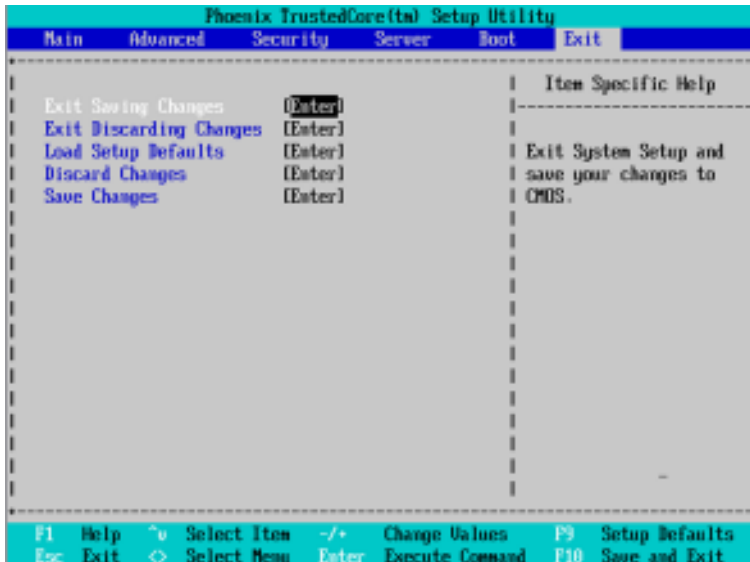


Figure 6: Exit

### ⚡ About This Section: Exit

Once you have changed all of the set values in the BIOS setup, you should save your changes and exit BIOS setup program. Select "Exit" from the menu bar, to display the following sub-menu.

- ☛ Exit Saving Changes
- ☛ Exit Discarding Changes
- ☛ Load Setup Default
- ☛ Discard Change
- ☛ Save Changes

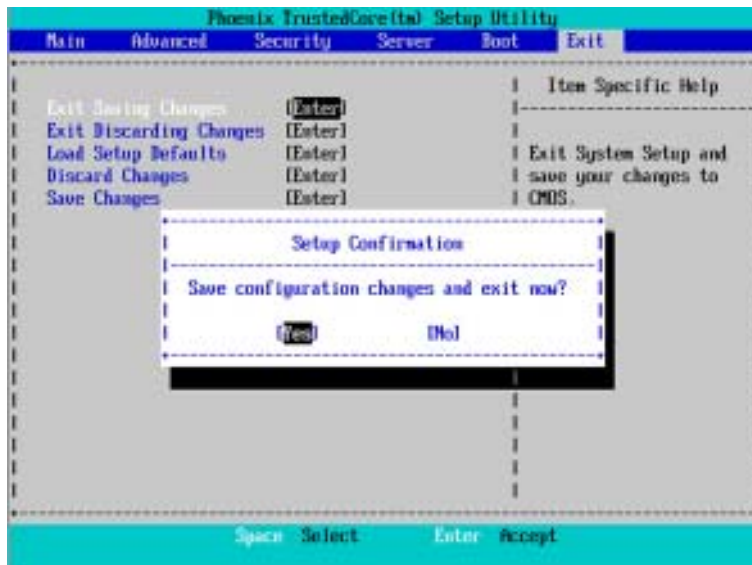
### ☞ Exit Saving Changes

This option allows user to exit system setup with saving the changes.

Press <Enter> on this item to ask for the following confirmation message:

Pressing 'Y' to store all the present setting values tha user made in this time into CMOS.

Therefore, whenyou boot up your computer next time, the BIOS will re-configure your system according data in CMOS.



### ☞ Exit Discarding Changes

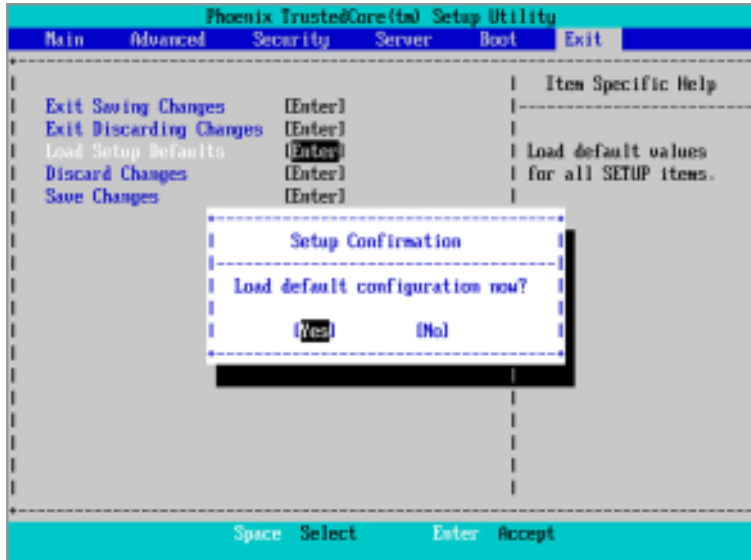
This option allows user to exit system setup without changing any previous settings values in CMOS. The previous selection remain in effect.

This will exit the Setup Utility and restart your computer when selecting this option.

### ☞ Load Setup Default

This option allows user to load default values for all setup items.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:

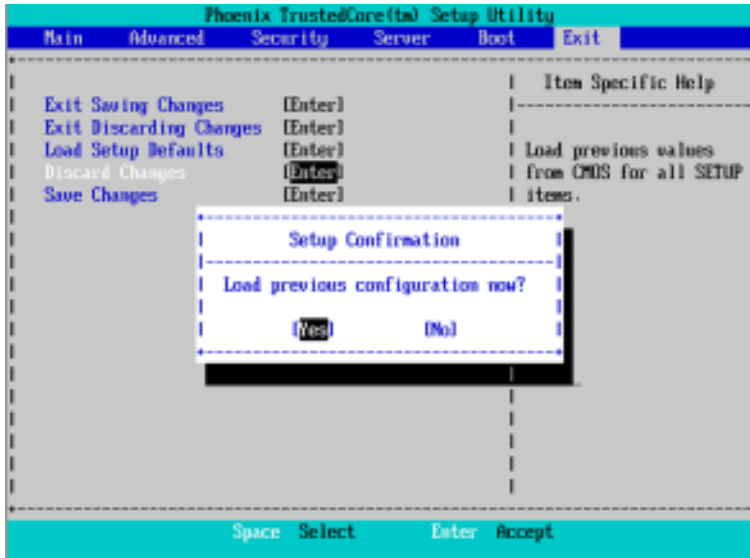




### ☞ Discard Changes

This option allows user to load previous values from CMOS for all setup item.

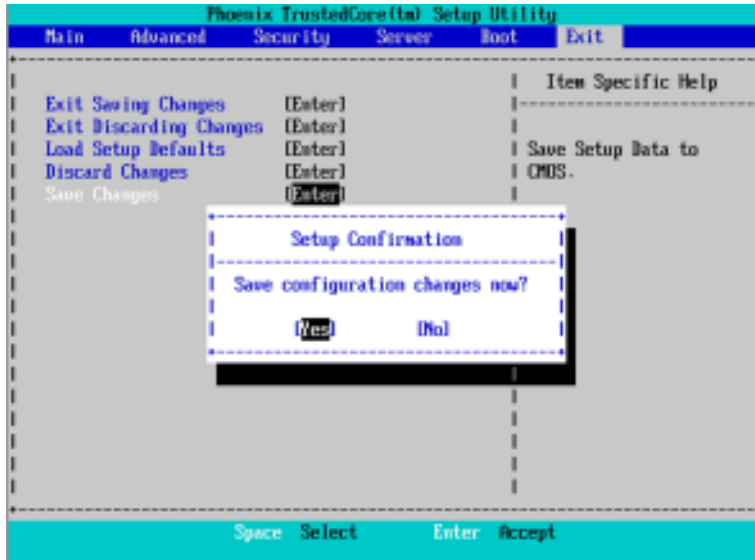
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



### ☞ Save Changes

This option allows user to save setup data to CMOS.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Press [Yes] to save setup data to CMOS.

## Chapter 4 Application Driver Installation

### A. NVIDIA Chipset Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

#### Installation Procedures:



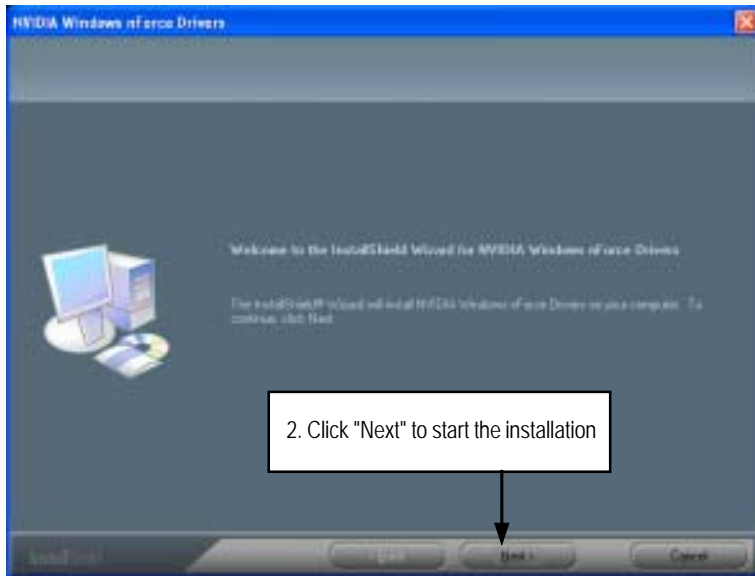
**NOTE:** If you are using Windows 64-bit operating system, please install Audio Hot Fix driver prior to start the NVIDIA Chipset Driver Installation.

1. The CD auto run program starts, Click on "nVIDIA Chipset Driver" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click "Finish" to restart your computer.

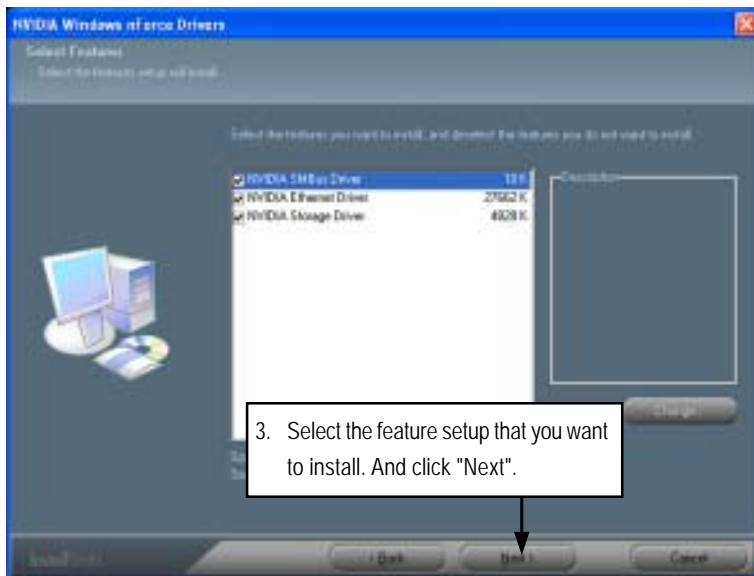
#### 1. Autorun



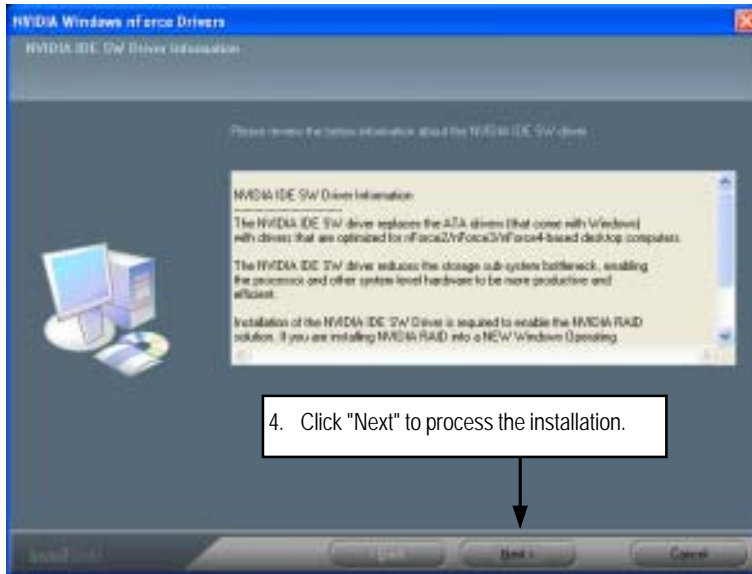
2. InstallShield Wizard Welcome Window



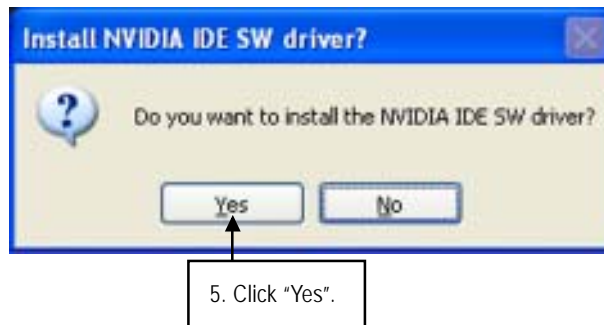
3. Select Features



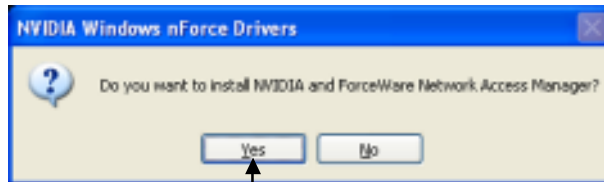
4. NVIDIA IDE SW Driver Information



5. IDE SW Driver Installation Confirmation Dialog

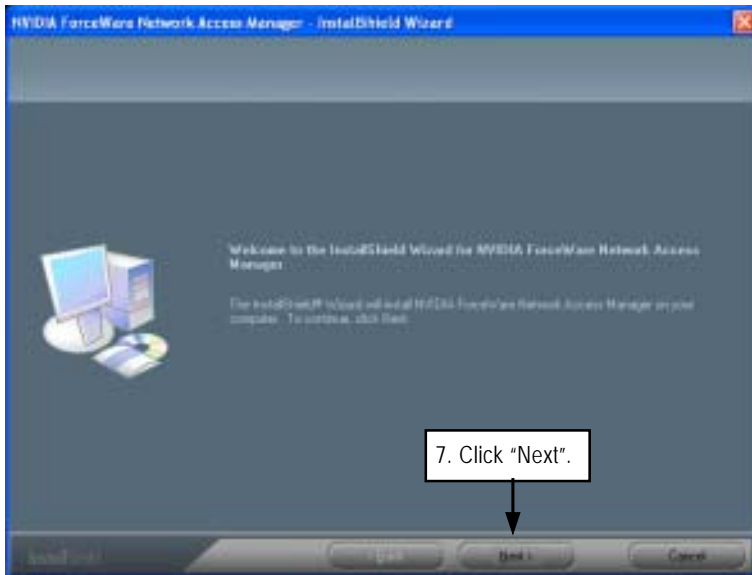


6. Firewall and ForceWare Network Access Manager Installation Confirmation Dialog



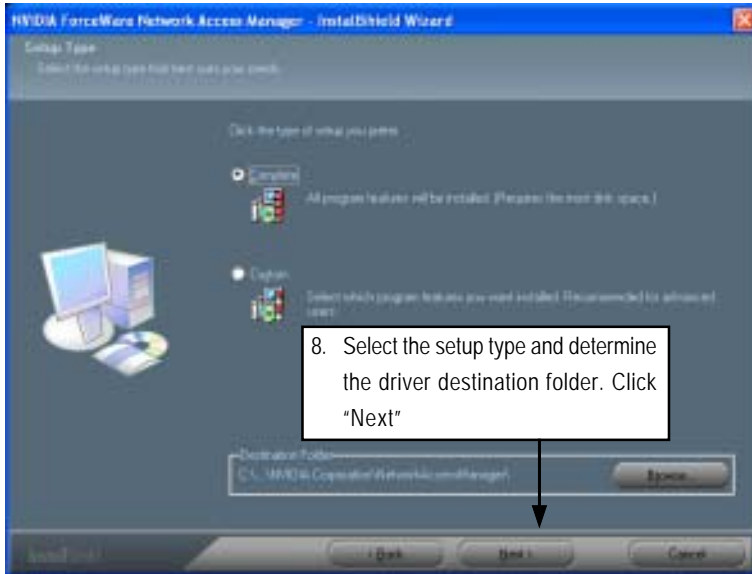
6. Click "Yes".

7. Network Access Manager Installation



7. Click "Next".

8. Network Access Manager Setup Type Selection



9. Installation Complete. Restart Computer



**B. Audio Hot Fix Driver Installation**  
**(For Windows 64-bit operating system)**

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

**Installation Procedures:**

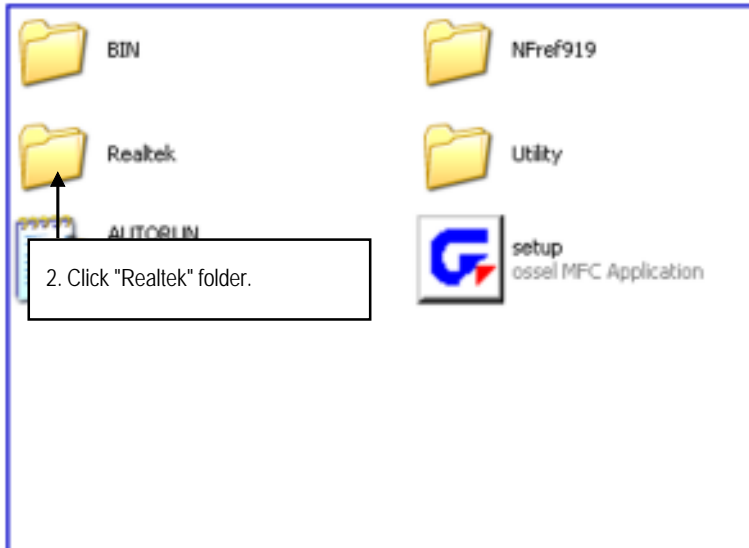
1. The CD auto run program starts, **Click** on "Browse this CDR" to start the installation.
2. Select "Realtek" folder.
3. Execute the self-execute file to start installation.
4. Follow up the wizards to install the drivers.
5. Installation complete, click "Finish".

**1. Autorun**

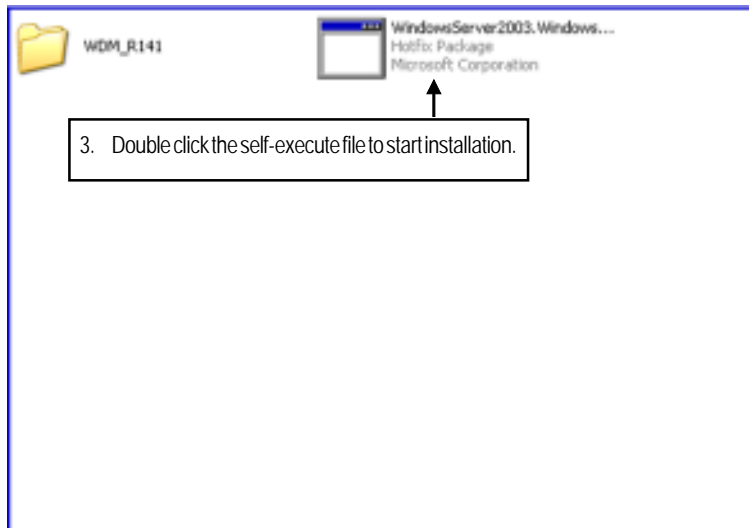




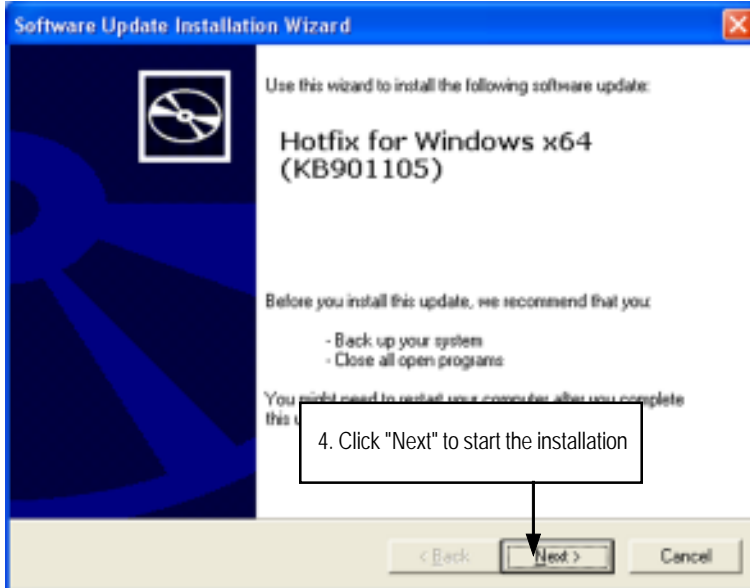
2. Select "Realtek" Folder



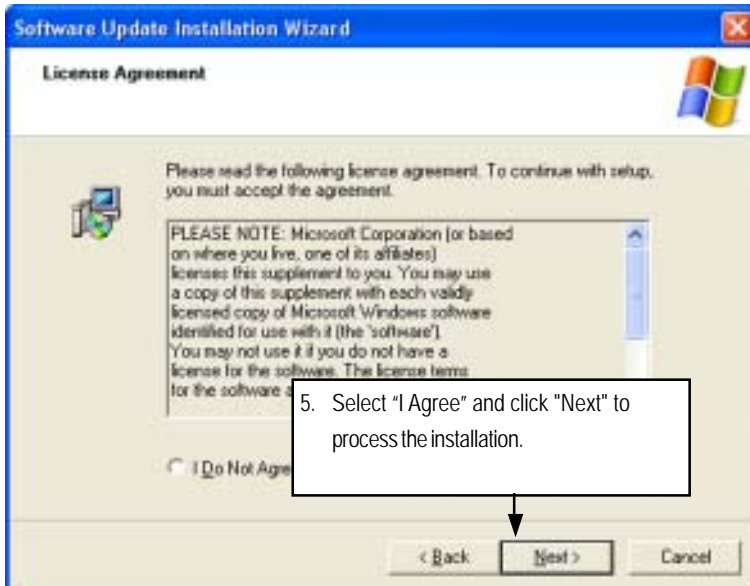
3. Execute the file



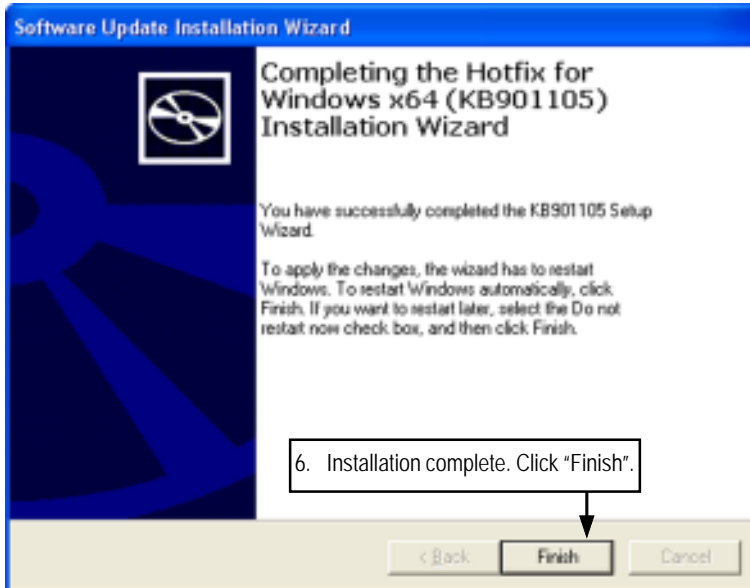
4. InstallShield Wizard Welcome Window



5. License Agreement



6. Installation Complete



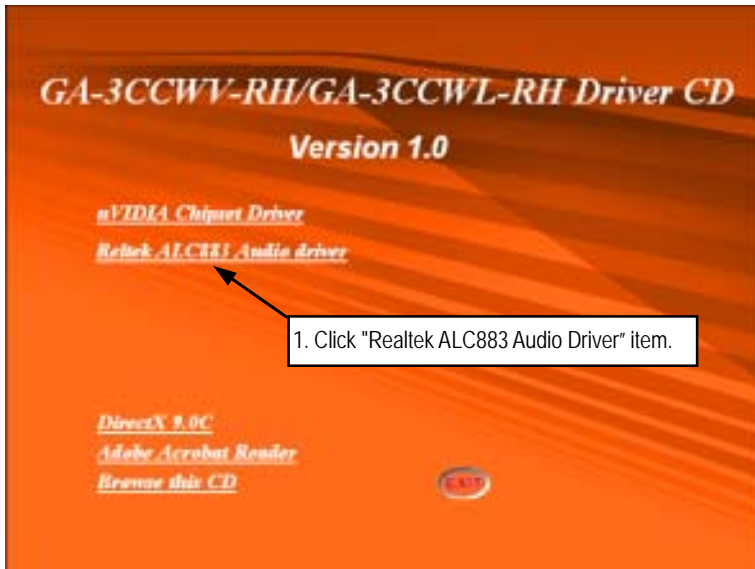
### C. Realtek ALC883 Audio Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

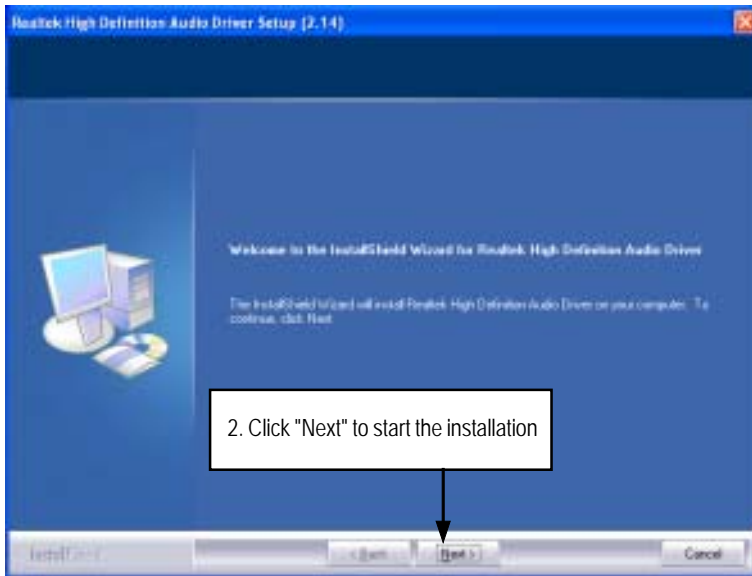
#### Installation Procedures:

1. The CD auto run program starts, **Click** on "Realtek ALC883 Audio Driver" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click "Finish" to restart your computer.

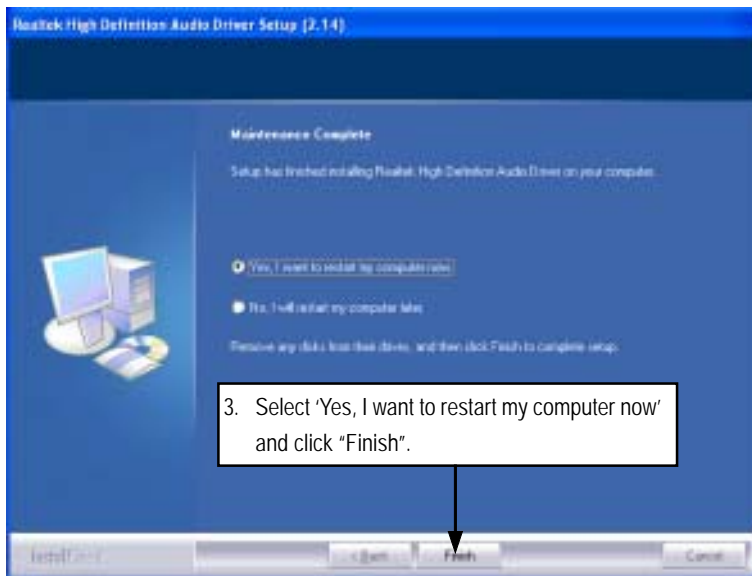
#### 1. Autorun



2. InstallShield Wizard Welcome Window



3. Installaiton Wizard Complete



#### D. DirectX 9.0 Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

##### Installation Procedures:

1. The CD auto run program starts, **Double click** on "Directx9.0" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click "Finish" to restart your computer.

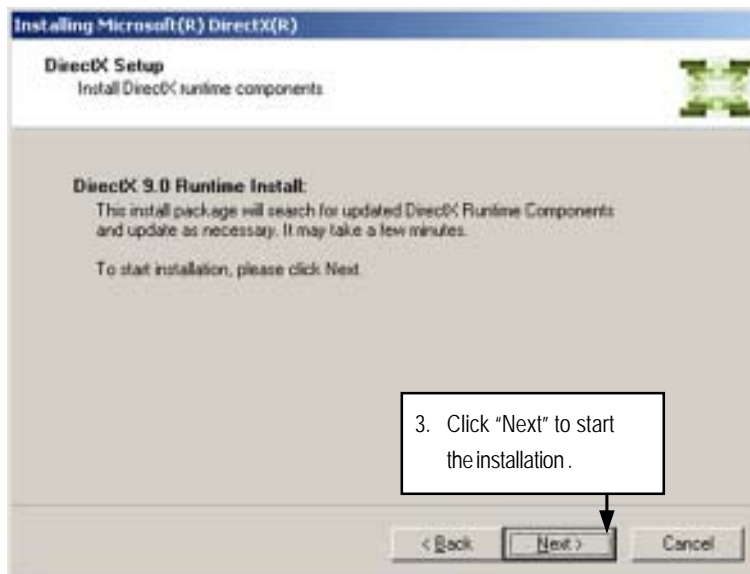
##### 1. Autorun



## 2. License Agreement



## 3. Start Installation



4. Installaiton Wizard completed





# Chapter 5 Appendix

## Appendix: PCI-X Card QVL

No.	Test Item	Test Procedure (Note: Please "Disabled" memory "ECC" function)	Result	Remark
1.	Adaptec 29320A-R SCSI RAID card (Build HostRAID 1+ Hot Spare)	Driver Installation under Windows XP Professional + SP2  SPbest Stress test	P	Please change to all slots after installing O.S.
2.	Adaptec 2200S RAID card (Build RAID0)	Driver Installation under Windows XP Professional + SP2  SPbest Stress test	P	Please change to all slots after installing O.S.
3.	Intel SRCU42L SCSI RAID card (Build RAID0)	Driver Installation under Windows XP Professional + SP2  SPbest Stress test	P	Please change to all slots after installing O.S.
4.	Adaptec 2120S RAID card (Build RAID0)	Driver Installation under Windows XP Professional x64 + SP1  SPbest Stress test	P	Please change to all slots after installing O.S.

No.	Test Item	Test Procedure (Note: Please "Disabled" memory "ECC" function)	Result	Remark
5.	Adaptec 19160 SCSI card	Driver Installation under Windows XP Professional + SP2  SPbest Stress test	P  P	Please change to all slots after installing O.S.
6.	Intel 1000XT LAN card	Driver Installation under Windows XP Professional + SP2  Dp_tcp32 LAN Stress test for all slot	P  P	Please change to all slots
7.	Intel 1000MT LAN card	Driver Installation under Windows XP Professional + SP2  Dp_tcp32 LAN Stress test for all slot	P  P	Please change to all slots
8.	Intel 1000MT Dual ports LAN card	Driver Installation under Windows XP Professional + SP2  Dp_tcp32 LAN Stress test for all slot	P  P	Please change to all slots

**Appendix : Acronyms**

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BBS	BIOS Boot Specification
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture

GA-3CCWV-RH/GA-3CCWL-RH Motherboard

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LAN	Local Area Network
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory
SMP	Symmetric Multi-Processing
SMI	System Management Interrupt
USB	Universal Serial Bus
VID	Voltage ID

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