GS-R127-RH Series

GS-R127V-RH

GS-R127H-RH

1U Rack Mount Server

Service Guide

Intel® Pentium Xeon™ Processor Serverboard

Rev. 1.0

25A08G-01270-F00

Table of Content

Safety, Care and Regulatory Information

Important safety information

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

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

Precaution for Product with Laser Devices

Observe the following precautions for laser devices:

* Do not open the CD-ROM drive, make adjustments, or perform procedures on a laser device other than those specified in the product's documentation.
* Only authorized service technicians should repair laser devices.

Precaution for Product Telecommunications, ot Local AreaNetwork Options

Observe the following guidelines when working with options:

* Do not connect or use a telephone during a lightning storm. There may be a risk of electrical shock from lightning.

* To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.
* Do not plug a telephone cable into the network interface controller (NIC) receptacle.
* Do not use a telephone line to report a gas leak while you are in the vicinity of the leak.

➧ Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

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

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

➧ Canadian Department of Communications Compliance Statement

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

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de Classe A prescrites dans le reglement sur le brouillage radioelectrique edicte par Industrie Canada.

NOTICE: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the sum of the Load Numbers of all the devices does not exceed 100.

/ for European users only /

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.

Class A Warning statement

WARNING

This is class A products. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The equipment was tested with horizontal positoin if installed other position, the test shall be considered again.

Server Warnings and Cautions

WARNING: To reduce the risk of electric shock or damage to the equipment:

- Disconnect power from the system by unplugging all power cords from the power supplies.
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electric outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electric outlet, and the point where the cord extends from the server.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: The computer is designed to be electrically grounded (earthed). To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only

Introduction

Welcome to Gigabyte GS-R127-RH Rack mount Server System Installation Guide. The guide provides instructions for configuration hardware for the GS-R127-RH your system.

This installation guide will assist you in installing all the essential components for the sever system. For your protection, please read and undertand all of the safety and operating instructions regarding your Gigabyte Server and retain for future reference. The procedures in this guidebook assume that your are a system or network administrator experienced in installing similar hardware.

Contents Packages

When opening the package, please ensure the system components are not damaged during the shipping. Using the following checklist to verify the contents. If any component is missing or damaged in the system, please contact your vendor immediately.

- ☑ Chassis
- ☑ Power Supply (Installed)
- ☑ CPU Heat Sink x 2
- ☑ FAN Duct x 1
- ☑ Silm type CD-ROM drive (Installed)
- ☑ Case Handle Kit x 2
- ☑ Driver CD for motherboard driver & utility
- ☑ GS-R127-RH Series System Installation Guide
- ☑ GA-7BPSH00-RH Motherboard (GS-R127V-RH)
- ☑ GA-7BPSH01-RH Motherboard (GS-R127H-RH)

GS-R127-RH Series Model List

- ✓ GS-R127V-RH (Supports 4 hot-swap SCSI HDDs)
- ✓ GS-R127H-RH (Supports 4 hot-swap SAS HDD)

Chapter 1 Features Summary

Motherboard	• GA-7BPSH00-RH (GS-R127V-RH) • GA-7BPSH01-RH (GS-R127H-RH)
Processor Supported	• Dual Intel® Xeon™ Dual Core in LGA 771 socket • Supports 667/1066MHz FSB (Dempsey) • Supports 1066/1333MHz FSB (Woodcrest) • 2nd cache depend on CPU
Chipset	• Intel® 5000P Chipset • Intel® 6321 ESB
System Memory:	
Memory Capacity	• Supports 4 Channel memory bus up to 32GB
Memory Type	• 8 x Registered Fully Buffered DIMM (FBD) 533/667MHz
Error Correction:	• Single-bit Errors Correction, Multiple Bit Errors Detection
Additional Features	• DIMM Sparing support, support for RASUM fail-over to an on-line spare DIMM device
Expansion Slot	• 1 riser card supports 1 x PCI-X 64/100MHz add-on card • 1 x PCI-E x8 slot
SCSI Controller: (GS-R127V-RH)	
Controller	• Adaptec® AIC-7901 chipset
RAID Supported	• Supports Host RAID RAID 0, 1 and 10 data protection
Features	• Supports ultra 320 SCSI channel • Mirroring supports automatic background rebuilds • Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS
SAS RAID Controller (GS-R127H-RH)	• One IPMI slot slot supports SAS ZCR card • Supports Host RAID 0,1,10
Cooling Fans:	• 9 X System Fans
Integrated LANs:	
Controller	• Build in Intel® 6321ESB chipset supports dual Gigabit Ethernet ports
Features	• WOL, Teaming, ALB, AFT

Integrated Graphics:	
Controller	• ATI ES1000
Mass Storage System	• 4 x Hot Swapable HDDs • 1 Slim Type 24X CD-ROM
Front Panel	• Power SW, Reset SW, NMI SW, UID SW, • 2 x LAN LED • 1 x Power/Sleep LED • 1 x HDD LED • 1 x System Status LED • 2 x USB
Super I/O	
Controller	• ITE IT8718
Additional Features	• Supports Wake on Ring
Hardware Monitor	• CPU/System Fan Revolution detect • CPU/System temperature detect (Controlled by Winbond W83792G) • System Voltage Detect
Built-in I/O	• 1 x Serial ports (COM, at rear) • 1 x USB 2.0 dual-port connector • 1 x VGA connector • 2 x RJ45 LAN ports • P/S 2 Keyboard and Mouse Connectors
System BIOS:	
BIOS Type	• Lincensed Phoenix on 8Mb Flash ROM
Special Features	• Supports multi boot function • User setting for hardware monitoring • Supports PXE • ACPI 1.0 Compliant/ ACPI defined S1, S4, and S5

Server Management Functions:		
BMC Chip	•	IPMI 2.0 controller
Failure Detection	•	IPMI 2.0 specification of Server management
Event Logging	•	32KB Nonvolatile Memory to Log System Failure Events
Remote Management	•	Follow the IPMI 2.0 specification of Server management
Environment		
Ambient Temperature	•	Operating Temperature: 5°C to 35°C
	•	Non-operating Temperature: 0°C to 50°C
Relative Humidity	•	10-80% operating Humidity at 30° C
Safety Regulations	•	FCC, CE, BSMI, CB,
System Dimention:	•	19"W x 1.73"H x 26.6"D
Electrical Power Supply	•	Single Power Supply 600W

Chapter 2 System Hardware Installation

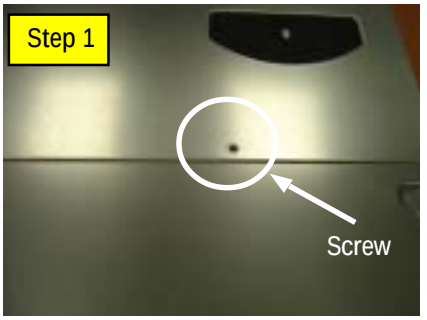
Please observe the safety information in chapter "Important Safety Information"
Do not expose the server to extreme environmental conditions. Protect it from dust, humidity, and heat.

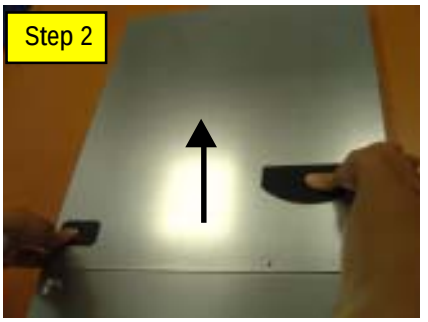
Step 2-1: Chassis Removal and Installation

Step 1 Loosen thscrew from the top cover.

Step 2 Push down the indentation located at two sides of the chassis, and slide toward to remove the top cover.

Step 3 Reverse Step 1, and 2 to replace the chassis cover.





Note: Before installing CPU, you must remove the FAN duct. For FAN duct removal, please see Sub-section 2-7 "FAN Duct Removal and Installtion" for detail instruction.

Step 2-2: CPU Installation

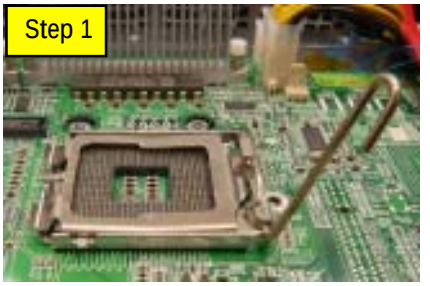
Please make sure the CPU type and speed that are supported by the motherboard.

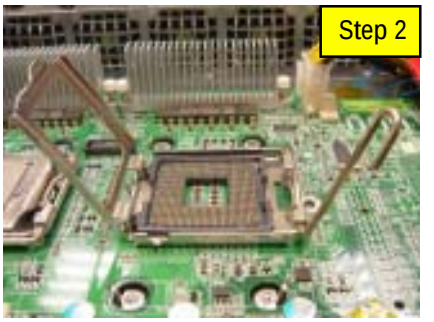
Step 1 Raise the metal locking lever on the socket.

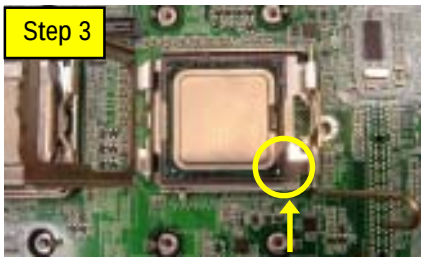
Step 2 Remove the plastic covering on the CPU socket and lift the metal cover.

Step 3 Insert the CPU with the correct orientation. The CPU only fits in one orientation.

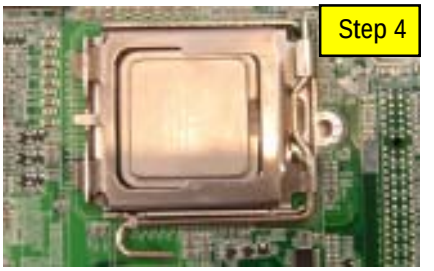
Step 4 Once the CPU is properly placed, please replace the plastic covering and push the metal lever back into locked position.







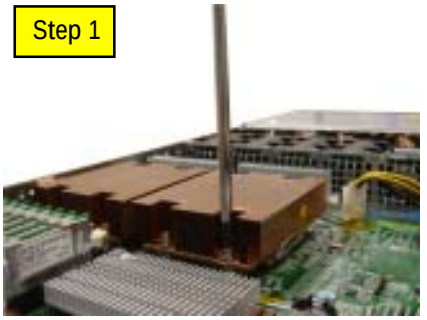
Pin1 indicator



Step 2-3: Heat Sink Installation

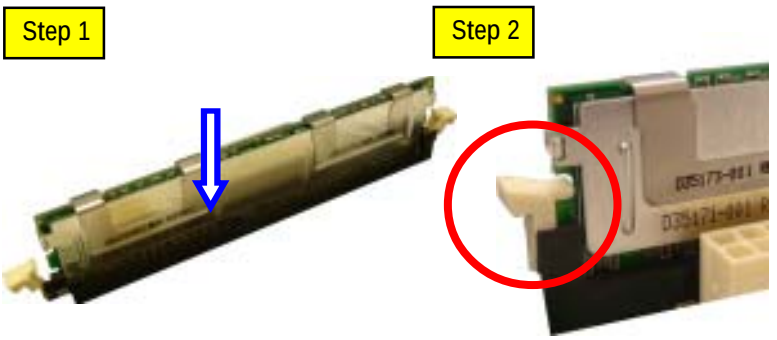
Step 1 Place the Heat Sink on the CPU. Before putting the heat sink on the CPU, please well remember to apply the thermal conductivity compound on the CPU.

Step 2 Seat the heat sink with the four screws. Installation completed.



Step 2-4: Memory Installation

1. The DIMM slot has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.
3. Close the plastic clip at both edges of theDIMM slots to lock the DIMM module.
4. Reverse the installation steps when you wish to remove the DIMM module.



Step 2-5: PCI Expansion Card Installation

GS-R127V-RH provides expansion riser slot for one PCI-X 64/100MHz slot; and one with PCI-E x8. To install the peripheral, please go through the following steps.

Note:

Before installing the PCI expansion card, please check the card size limitation. Size limitation for PCI-E is listed below:

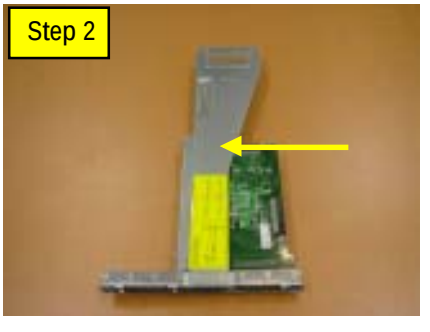
Heigth: 18.73mm(max) ; Length: 167.65mm(max) ; Width: 52mm(max)

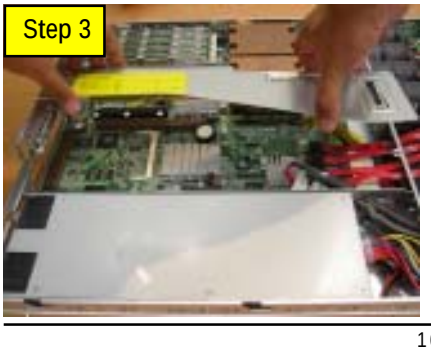
Step 1 Lift the riser bracket slightly, then pull it out from the server chassis.

Step 2 Align the expansion card with the guiding groove. Slide the expansion card into the slot until the card firmly seats.

Step 3 Align the riser bracket to the system module (see the arrow direction mark 1), and push it to locked position.

Step 4 Reverse Step 1 & 2 to lock the riser bracket firmly. Installation completed.



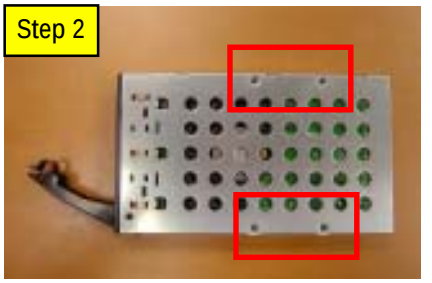


Step 2-6: Hard Disk Drive Installation

Step 1 Press the release button and pull the blank out of the drive bay.

Step 2 Remove the hard disk blank. Slide hard disk into blank and secure it with screws.

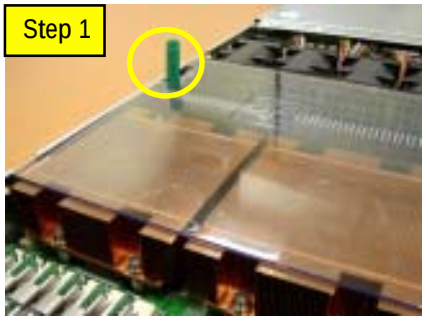
Step 3 Slide the drive into the cage until it clicks, locking the drive into place. Connect cable and power.

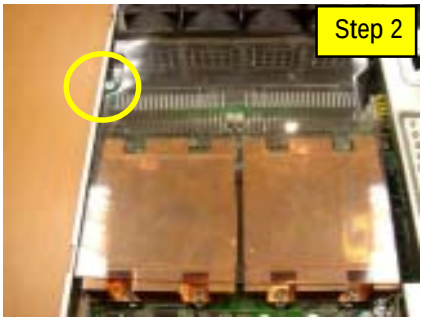


Step 2-7: Fan Duct Removal and Installation

Step 1 Pull up the screw-holder and lossen the thumbscrews. Lift up to remove the fan duct.

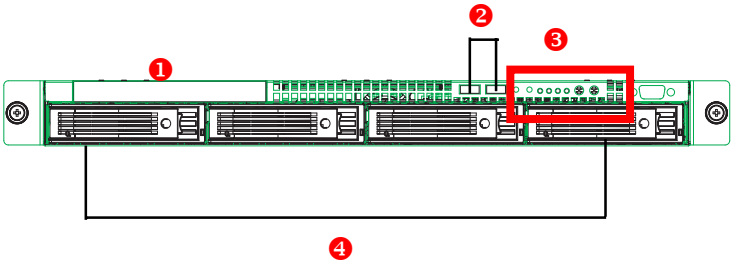
Step 2 For FAN Duct Installation, place the fan duct on the top of heat sinks. Fasten the screws to the locked position and push down the screw-holders.





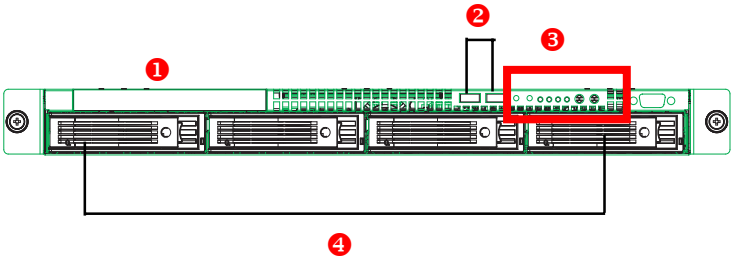
Chapter 3 Appearance of GS-R127V-RH

3-1: Front View of GS-R127V-RH



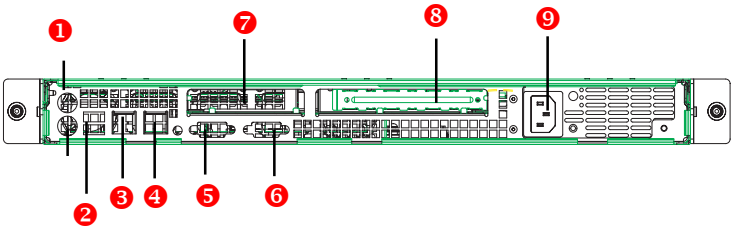
x	Slim Type CD-ROM
y	USB Connector
z	LEDs
{	Hot swap SCSI HDDs

3-2: Front View of GS-R127H-RH



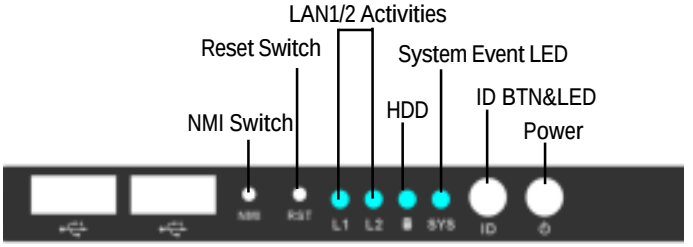
x	Slim Type CD-ROM
y	USB Connector
z	LEDs
{	Hot swap SAS HDDs

3-3: Rear View of GS-R127V-RH/GS-R127H-RH



x	PS/2 Connectors
y	USB Connectors
z	LAN1 Port (RJ45)
{	LAN2 Port (RJ45)
|	COM Port
}	VGA Port
~	Limited Low-Profile PCI-E Riser Slot
¡	Full-Height PCI-X Riser Slot
¢	Power cord

3-4: Switch and LED Indicators Introduction



Name	Color	Condition	Description
Power	Green	On	Power On
	Green	Blink	Sleep (S1)
	--	Off	Power Off (S4)
SYS (System)	Amber	Blink	System Ready but degraded, CPU Failed, DIMM Killed
	Amber	On	Critical Alarm: Critical Power Module Failure, Critical FANs Failure, Voltage (Power Supply) Critical Teemperature and Voltage
	--	Off	System healthy.
HDD	Green	Blink	Hard Disk Drive Access
	--	Off	No Access and No HDD Fault
LAN1 Activity	Green	On	LAN Link / No access
	Green	Blink	LAN access
	--	Off	Idle
LAN2 Activity	Green	On	LAN Link / No access
	Green	Blink	LAN access
	--	Off	Idle
ID (Identification)	Blue	On	Unti selected for identification
	--	Off	No identification

3-5: LAN LED Description

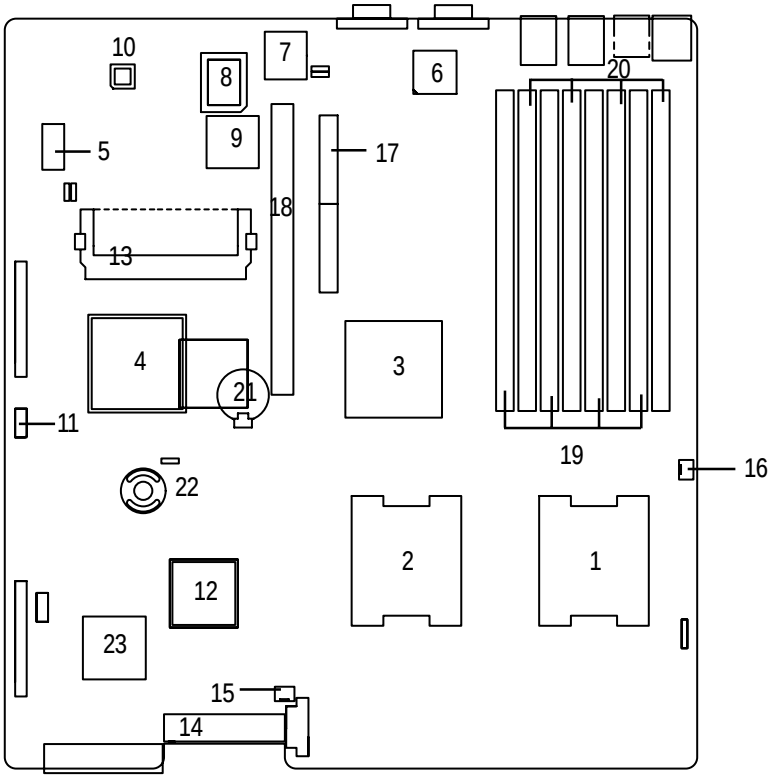
Name	Color	Condition	Description
LAN Link/Activity	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
10 LAN Speed	-	OFF	10Mbps connection
100 LAN Speed	Green	ON	100Mbps connection
	Green	BLINK	Port identification with 10 or 100Mbps connection
GbE LAN Speed	Yellow	ON	1Gbps connection
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

3-6 : Connector Icon Description

Suggest Icon	Description
	Keyboard
	VGA
	Mouse
	LAN
	Serial Port
	USB

Chapter 4 Motherboard Layout & Jumper Setting

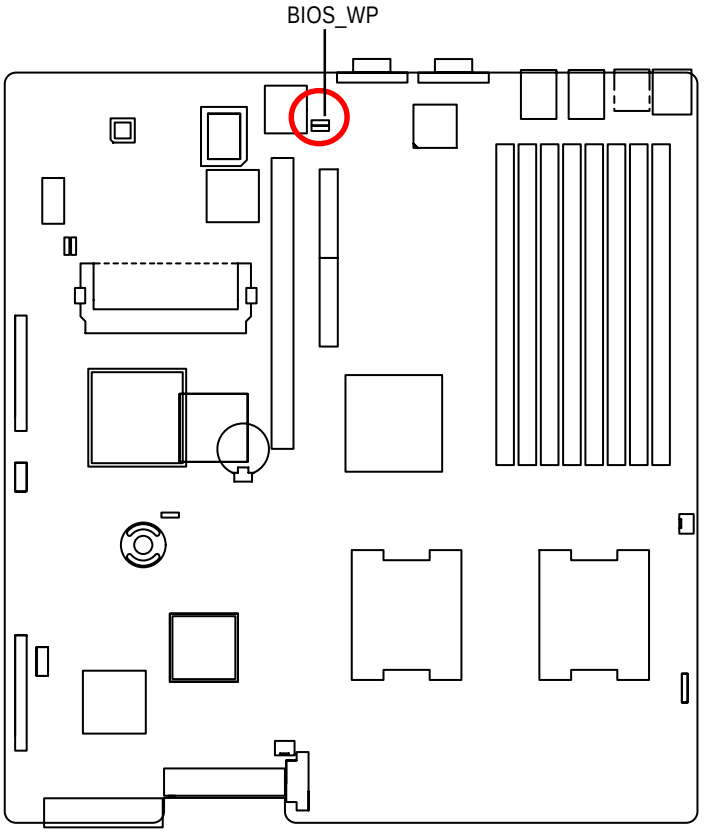
4-1: GA-7BPSH-RH Motherboard Layout



1	Primary CPU	**13**	IPMI module
2	Secondary CPU	**14**	SCSI Connector
3	Intel 5000P	**15**	Fan Connector
4	Intel 6321ESB	**16**	Fan Connector
5	Debug Port	**17**	PCI-E x8 Slot
6	Intel#LAN#chip	**18**	PCI-X Slot (64/100MHz)
7	BIOS Flash	**19**	Fully Buffered DIMM A1/A2/A3/A4
8	ITE IT8718	**20**	Fully Buffered DIMM B1/B2/B3/B4
9	ATI ES1000	**21**	Battery
10	Winbond W83792G	**22**	i-button (GS-R127H-RH)
11	Front USB connector	**23**	LSI 1068 (GS-R127H-RH)
12	Adaptec AIC-7901 (GS-R127V-RH)		

4-2: Jumper Setting

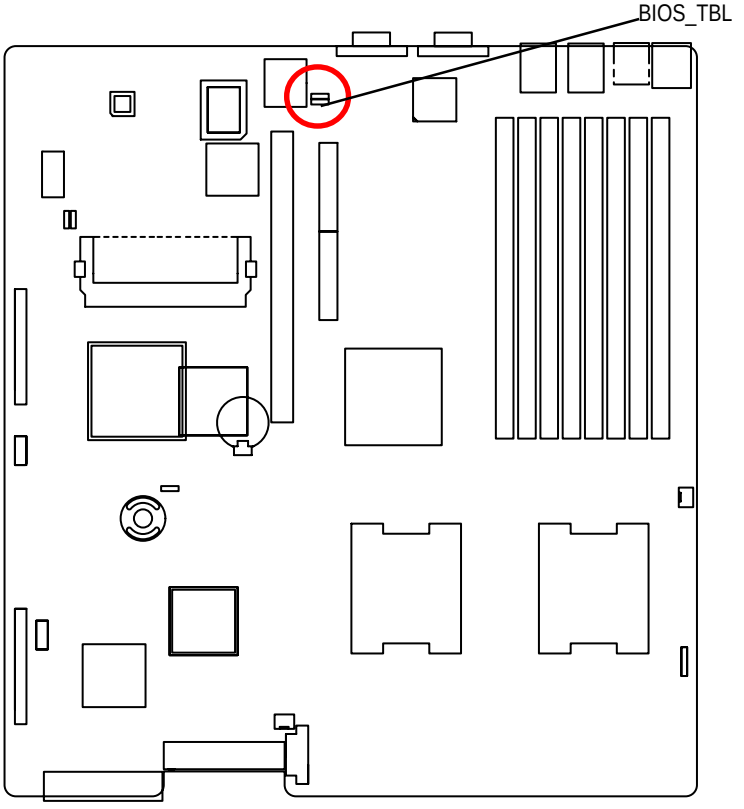
BIOS_WP (BIOS Write Protect Function)



1 1-2 close: Disable BIOS Write Protect Function (Default setting)

1 2-3 close: Enable BIOS Write Protection Function

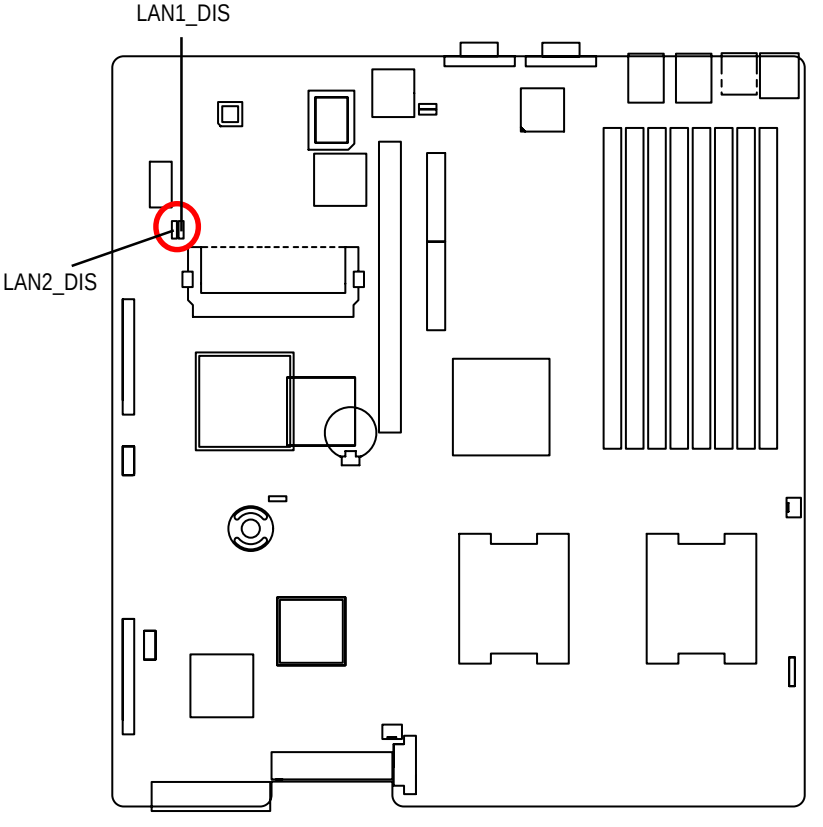
BIOS_TBL (CMOS Lock Function)



1 1-2 close: Disable Top BlockFunction (Default setting)

1 2-3 close: Enable CMOS Top Block Lock

LAN1_DIS/LAN2_DIS (Lan1/Lan2 Enable/Disable Function)



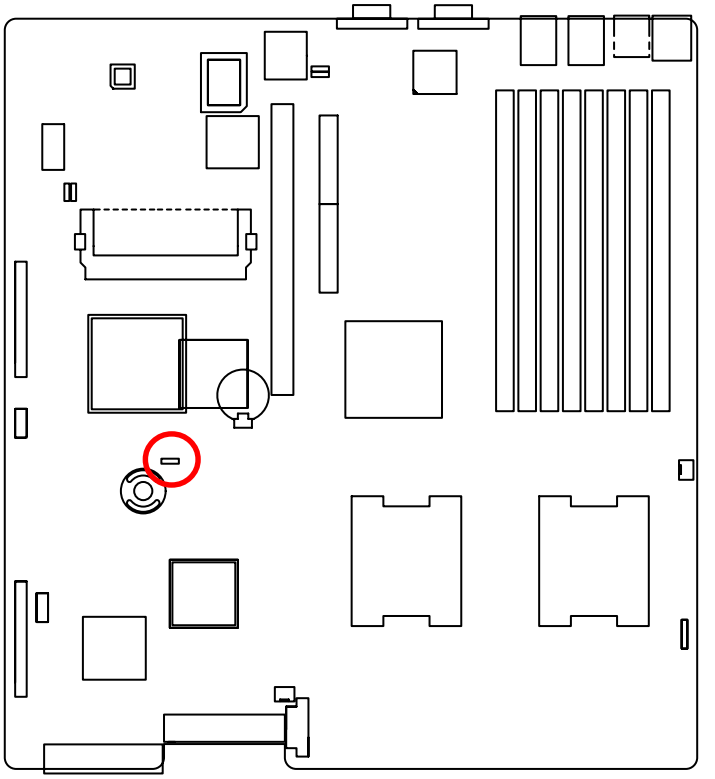
1  1-2 close: Enable onboard LAN1/LAN2 device (Default setting)

1  2-3 close: Disable onboard Lan//Lan2 device

JP19 (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 2-3 pin.



1 1-2 close: Normal (Default setting)

1 2-3 close: Clear CMOS

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.

ENTERINGSETUP

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

CONTROLKEYS

<↑>	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 optionsin 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.

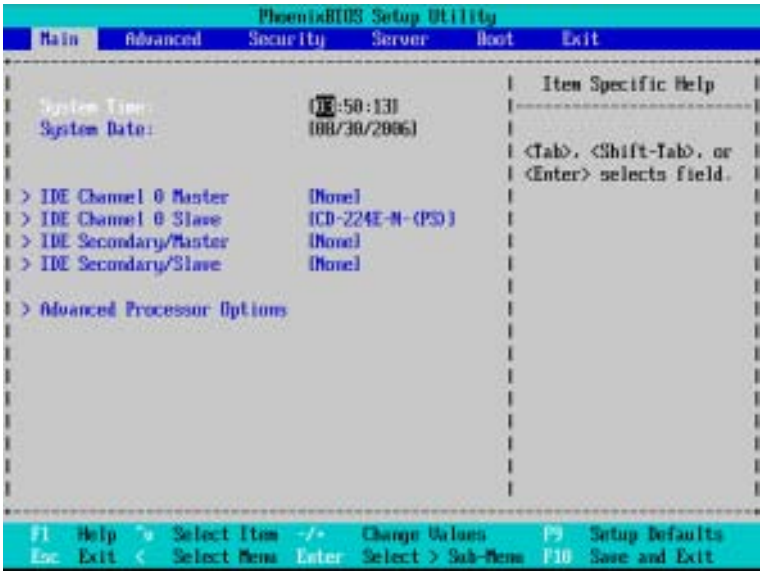


Figure 1: Main

☞ 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)

IDE Primary Master, Slave / Secondary 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 max imize the IDE data transfer rate.
Transfer Mode	This field shows the information of Teansfer Mode.
Ultra DMA Mode	This filed displays the DMA mode of the device in the specific IDE channel.

Advanced Processor Options

Advanced Processor Options: Dempsey CPU

```
PhoenixBIOS Setup Utility
Main

Advanced Processor Options                    | Item Specific Help

  Processor Retest                  [No]      | Select 'Yes',BIOS will
  CPU Speed                         3200 MHz  | clear historical
  Processor CPUID:                  0F64      | processor status and
  Per Processor Core L2 Cache:      2048KB    | retest all processors
                                              | on next boot.
  Hyperthreading:                   [Enabled]
                                              |
  Intel(R) Virtualization Technology [Enabled]
  C1 Enhanced Mode                  [Enabled]
  Execute Disable Bit               [Enabled]

> CPU Cache Control

F1  Help ↑↓ Select Item -/+   Change Values     F9  Setup Defaults
Esc Exit ←  Select Menu Enter Select > Sub-Menu F10 Save and Exit
```

Advanced Processor Options: Woodcrest CPU

```
PhoenixBIOS Setup Utility
Main

Advanced Processor Options                    | Item Specific Help

  Processor Retest                  [No]      | Select 'Yes',BIOS will
  CPU Speed                         2300 MHz  | clear historical
  Processor CPUID:                  06F6      | processor status and
  Shared L2 Cache Per Die:          4096KB    | retest all processors
                                              | on next boot.
                                              |
  Intel(R) Virtualization Technology [Enabled]
  Thermal Management 2              [Disabled]
  C1 Enhanced Mode                  [Disabled]
  Execute Disable Bit               [Enabled]

  PECI Interface:                   [Disabled]
> CPU Cache Control

F1  Help ↑↓ Select Item -/+   Change Values     F9  Setup Defaults
Esc Exit ←  Select Menu Enter Select > Sub-Menu F10 Save and Exit
```

Advanced Processor Option

This category includes the information of CPU Speed, Processor ID and Per Processor Core L2 Cache. And setup menu for Hyperthreading, Intel Virtualizational Technology, Thermal Management 2, C1 Enhanced Mode, Execute Disable Bit.

Setup menu options will be variable depends on the type of CPU.

Processor Reset

▸▸ Yes	Select 'Yes' BIOS will clear historical processor status and reset all processors on next boot.
▸▸ No	Disable Processor Reset function. (Default setting)

Hyper Threading

▸▸ Enabled	Enable Hyper-Threading Technology Feature when using Windows XP and Linux 2.4x operating systems that are optimized for Hyper-Threading technology. (Default setting)
▸▸ Disabled	Disable Hyper-Threading Technology when using other operating systems.

NOTE: This option appears when using Dempsey CPU.

Thermal Management2

Thermal Management 2 enhances the features of power reduction capability. When TM2 is enabled, it will reduce the frequency and VID which results in a saving of power consumption of processor.

▸▸ Enabled	Enabled Thermal Management 2. (Default setting)
▸▸ Disabled	Disables this function.

NOTE: This option appears when using Woodcrest CPU.

☞PECI Interface

The Platform Environmental Control Interface (PECI Interface) is designed specifically to convey system management information from the processor. It is a proprietary single wire bus between the processor and the chipset or other health monitoring device. Data from the Digital Thermal Sensors are processed and stored in a processor register (MSR) which is queried through the Platform Environment Control Interface (PECI).

▸▸Enabled	Enable PECI Interface
▸▸Disabled	Disable this function. (Default setting)

NOTE: This option appears when using Woodcrest CPU.

☞Intel (R) 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. (Default setting)
▸▸Disabled	Disable this function.

☞C1 Enhanced Mode

With enabling C1 Enhanced Mode, all loical processors in the physical processor have entered the C1 state, the processor will reduce the core clock frequency to system bus ratio and VID.

▸▸Enabled	Enable C1 Enhanced Mode.
▸▸Disabled	Disable C1 Enhanced Mode. (Default setting)

☞Execute Disable Bit

▸▸Enabled	Enable Execute Disable Bit.
▸▸Disabled	Disable this function. (Default setting)

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.

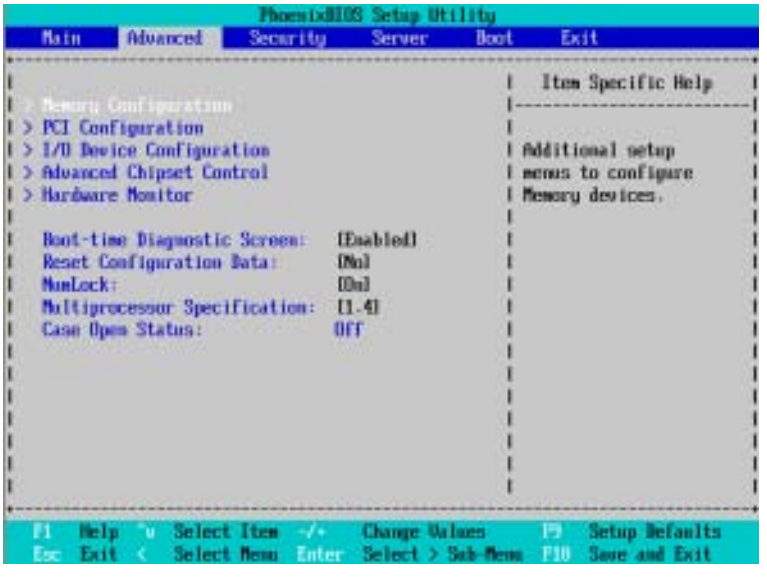


Figure 2: Advanced

Memory Configuration

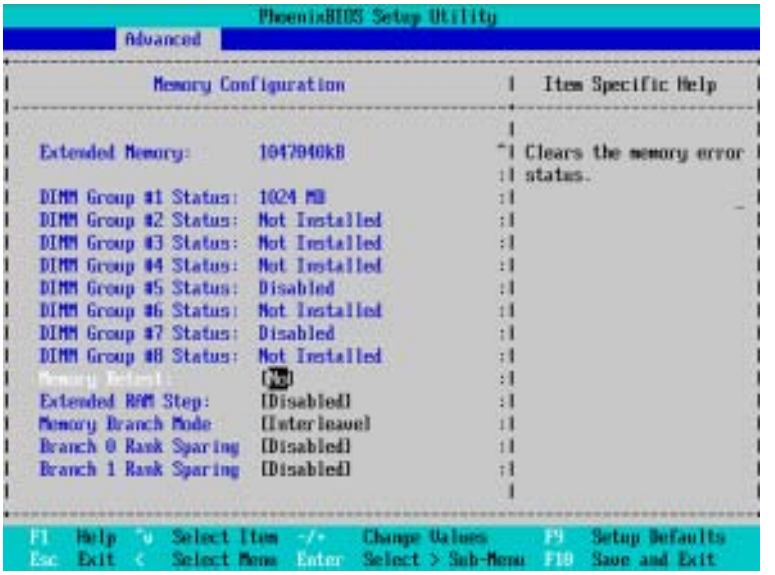


Figure 2-1: Memory Configuration

☞System Memory/Extended Memory/DIMM Group 1~8 Status

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

☞Memory Reset

▸▸Yes	Select 'Yes', system will clear the memory error status. Save the changes and restart system. After rebooting system, the Memory Reset item will set to 'No' automatically.
▸▸No	Disable this function. (Default setting)

☞Extend RAM Step

▸▸Enabled	Enable test extended memroy process.
▸▸Disabled	Disable this function. (Default setting)

☞Memory Branch Mode

▸▸Sequential	Memory will use sequential mode to save date.
▸▸Interleave	Memory will use Interleave mode for to distribute every one memory to save date. (Default setting)
▸▸Mirror	Mirror will use backup date by image. Only half of the total memory is report to OS.
▸▸Single Channel 0	Disable Default operate Dual channel Mode. Only Single channel 0 will be detect.

☞Branch 0 Rank Sparing

▸▸Enabled	Enable this item, memory will spare two(dual channel) of all slots.
▸▸Disabled	Disable this function. (Default setting)

☞Branch 1 Rank Sparing

▸▸Enabled	Enable this item, memory will spare two(dual channel) of all slots.
▸▸Disabled	Disable this function. (Default setting)

PCI Configuration

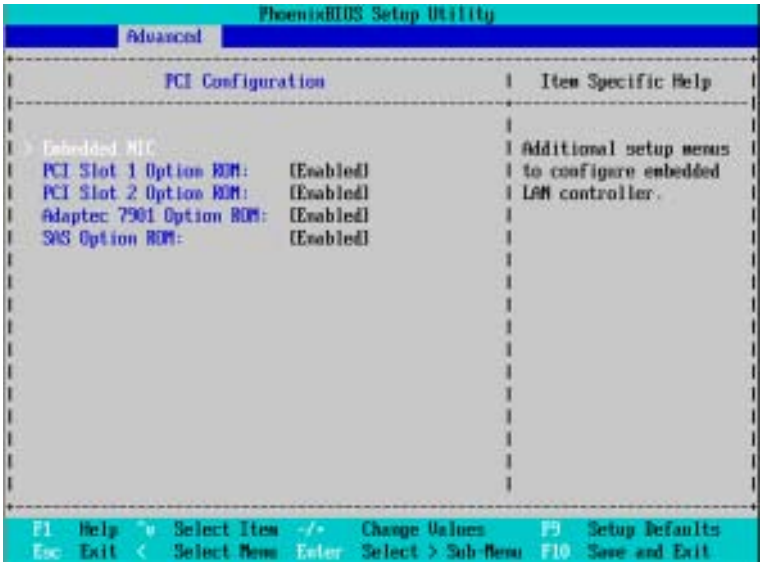


Figure 2-2: PCI Configuration

☞Embedded NIC

▸ LAN 1 Option ROM Scan

▸▸Enabled	Enable onboard LAN1 device and initialize device expansion ROM. (Default setting)
▸▸Disabled	Disable this function.

▸ LAN2 Option ROM Scan

▸▸Enabled	Enable onboard LAN2 device and initialize device expansion ROM. (Default setting)
▸▸Disabled	Disable this function.

☞PCI Slot 1/2 Option ROM

▸▸Enabled	Enableing this item to initialize device expansion ROM. (Defualt setting)
▸▸Disabled	Disable this function.

☞Adaptec 7901 Option ROM

▸▸Enabled	Enableing this item to initialize device expansion ROM. (Default setting)
▸▸Disabled	Disable this function.

☞SAS Option ROM

▸▸Enabled	Enableing this item to initialize device expansion ROM. (Default setting)
▸▸Disabled	Disable this function.

Please note that this option will appear and enable when SAS daughter card is populated.

I/O Device Configuration

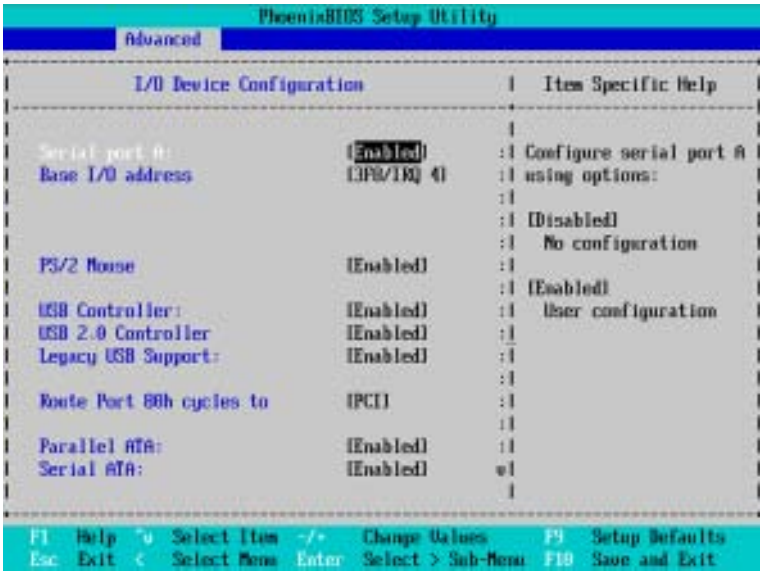


Figure 2-3: I/O Device Configuration

☞Serial Port A

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

- ▸▸Enabled Enable the configuration (Default setting)
- ▸▸Disabled Disable the configuration.

▸ Base I/O Address/IRQ

- ▸▸3F8/IRQ4 Set IO address to 3F8. (Default setting)
- ▸▸2F8/IRQ3 Set IO address to 2F8.
- ▸▸3E8/IRQ4 Set IO address to 3E8.
- ▸▸2E8/IRQ3 Set IO address to 2E8.

☞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 Controller

This item allows users to enable or disable the USB device by setting item to the desired value.

- ▸▸Enabled Enable USB controller. (Default setting)
- ▸▸Disabled Disbale this function.

☞USB 2.0 Controller

This item allows users to enable or disable the USB 2.0 device by setting item to the desired value.

- ▸▸Enabled Enable USB 2.0 controller.(Default setting)
- ▸▸Disabled Disbale this function.

☞Legacy USB Support

This option allows user to function support for legacy USB.

- ▸▸Enabled Enables support for legacy USB (Default setting)
- ▸▸Disabled Disables support for legacy USB.

☞Route Port 80h cycles to

Set route port 80h cycles to either PCI or LPC bus.

- ▸▸ PCI Set Route Port 80h I/O cycles to the PCI bus. (Default setting)
- ▸▸ LPC Set Route Port 80h I/O cycles to the LPC bus.

Parallel ATA

- Enabled — Enable Parallel ATA. (Default setting)
- Disabled — Disable the device.

Serial ATA

- Enabled — Enables on-board serial ATA function. (Default setting)
- Disabled — Disables on-board serial ATA function.

Native Mode Operation

This option allows user to set the native mode for Serial ATA function.

- Auto — Auto detected. (Default setting)
- Serial ATA — Set Native mode to Serial ATA.

SATA Controller Mode Option

- Compatible — SATA and PATA drives are auto-detected and placed in Legacy mode. (Default setting)
- Enhanced — SATA and PATA drives are auto-detected and placed in Native mode.

Note: Pre-Win2000 operating system do not work in Enhanced mode.

Advanced Chipset Control

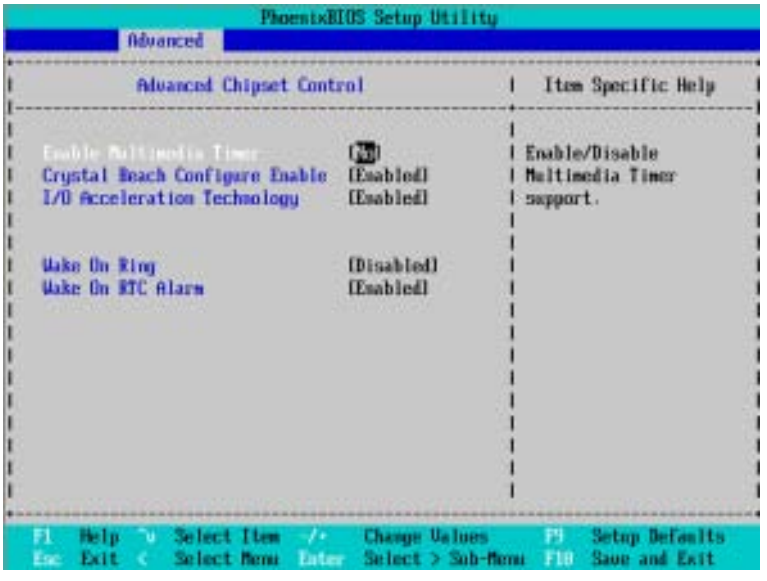


Figure 2-4: Advanced Chipset Control

☞Enable Multimedia Timer

▸▸Yes	Enable Multimedia Timer support.
▸▸No	Disable this function. (Default setting)

☞Crystal Beach Configure Enable

Enable Configuration/Memory mapped accesses to the Crystal Beach Configuration sapce located in Device 8, Fn0, and Fn1.

▸▸Enabled	Crystal Beach Configure function. (Default setting)
▸▸Disabled	Disable this function.

☞I/O Acceleration Technology

It addresses all segments of the server I/O bottleneck problem using TCP/IP and without requiring any modification of existing or future applications.

- ▸▸Enabled — Enable I/O Acceleration Technology. (Default setting)
- ▸▸Disabled — Disable this function.

☞Wake On Ring

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

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

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

☞Wake On RTC Alarm

When "RTC Alarm Resume" item is set to enabled, system will wakeup from RTC. (This item will be functionalized under ACPI OS)

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

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

Hardware Monitor

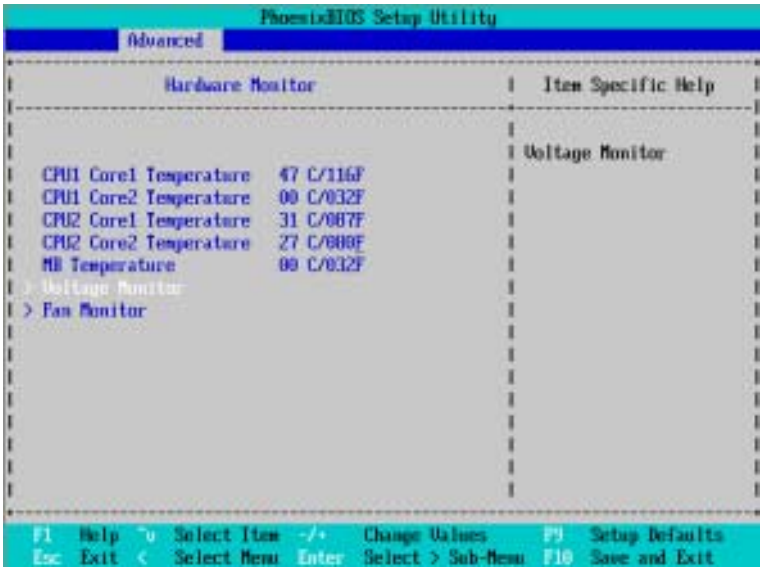


Figure 2-5: Hardware Monitor

CPU1/2 Core1/2 Temperature/ Motherboard Temperature

- Display the current CPU1/CPU2 Core1/2 temperature, and Motherboard temperature.

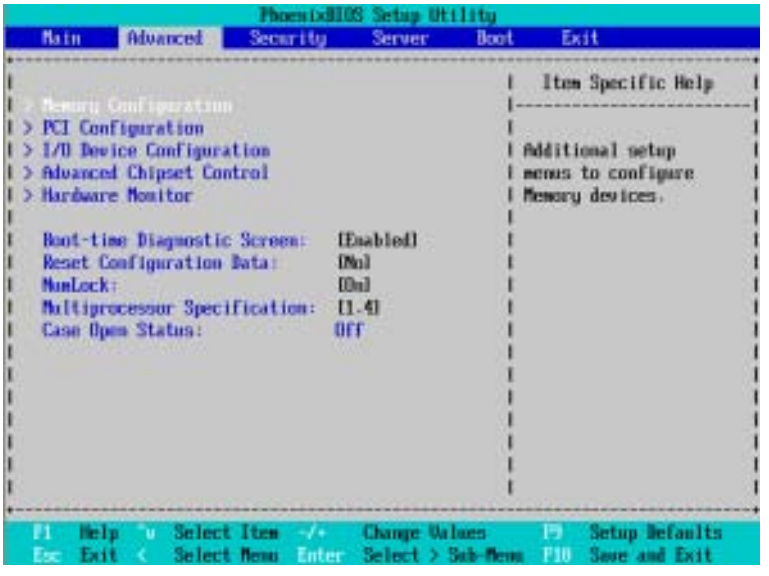
Voltage Monitor: +3.3V, +5V, VCOREA, VCOREB, VBAT

- Detect system's voltage status automatically.

FAN Monitor: System 1/3/4/5/6/7/8/9/10 (RPM)

- Display the current System FAN 1/3/4/5/6/7/8/9/10 speed.

This Menu will disappear when BMC module is populated.



☞Boot -time Diagnostic

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

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

☞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. (Default setting)
- ▸▸ Off — Disable this function.

☞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.

☞Case Open Status

This item shows the Case Open Status. If system chassis is not closed properly, this item will show status as “ON”.

Security

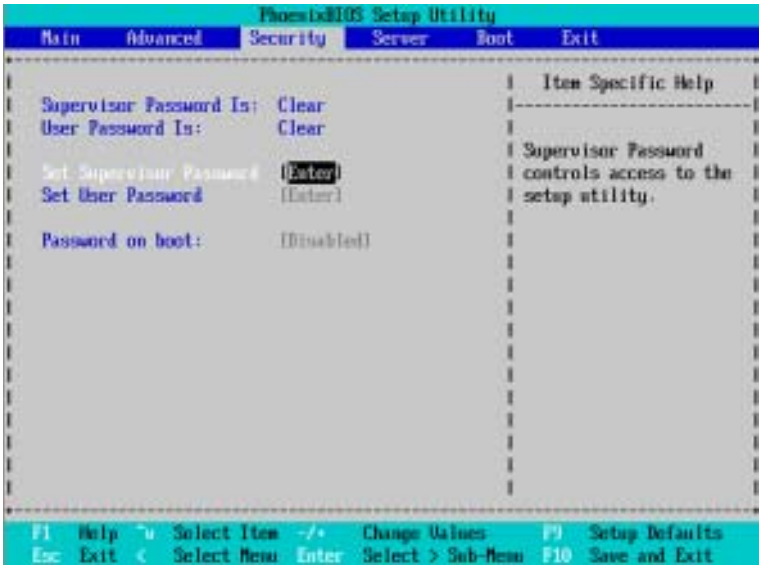


Figure 3: Security

☞Set Supervisor Password

You can install and change this options for the setup menus. Type the password up to 6 characters in lengh 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.

☞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 lengh 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.

☞Password on boot

Password entering will be required when system on boot.

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

Server

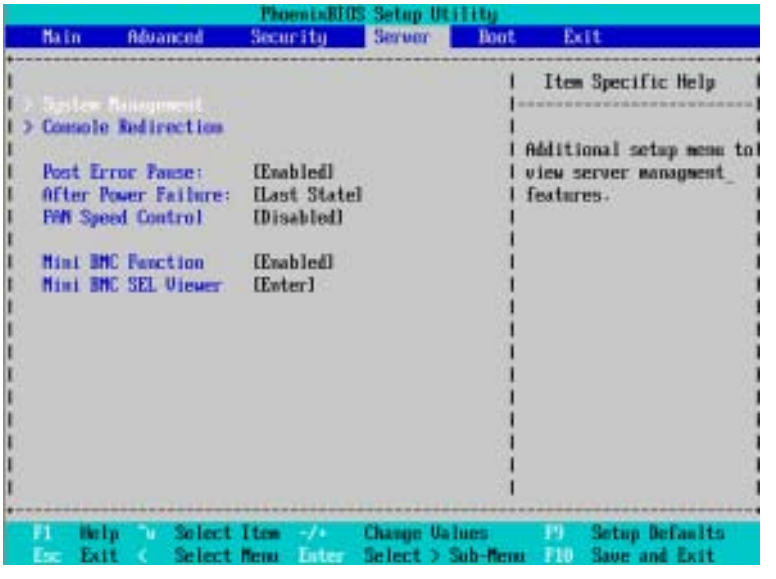


Figure 4: Server

Server Management

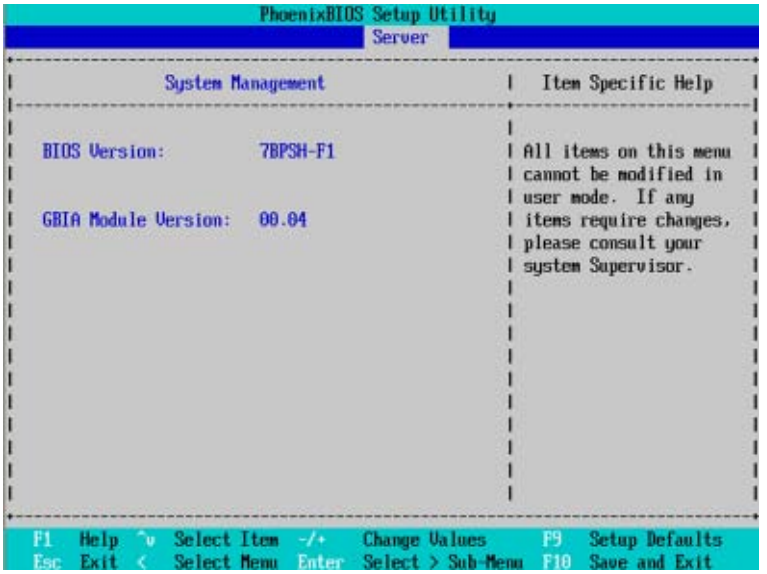


Figure 4-1: Server Managerment

☞Server Management

This category allows user to view the server management features. Including information of BIOS Version and GBIA Module 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

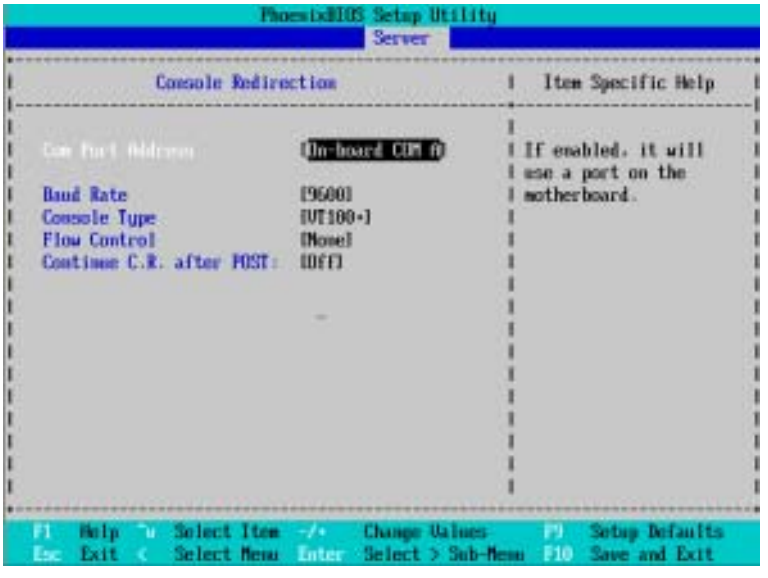


Figure 4-2: Console Redirection

COM Port Address

If this option is set to enabled, it will use a port on the motherboard.

- On-board COMA — Use COMA as he 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)

☞ 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)

```
                    PhoenixBIOS Setup Utility
   Main    Advanced    Security    Server    Boot    Exit
+-------------------------------------------------------------------+
|                                          |  Item Specific Help    |
| > System Management                      |------------------------|
| > Console Redirection                    |                        |
|                                          | Additional setup menu to|
|   Post Error Pause:      [Enabled]       | view server managment_ |
|   After Power Failure:   [Last State]    | features.              |
|   FAN Speed Control      [Disabled]      |                        |
|                                          |                        |
|   Mini BMC Function      [Enabled]       |                        |
|   Mini BMC SEL Viewer    [Enter]         |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
|                                          |                        |
+-------------------------------------------------------------------+
  F1   Help  ↑↓  Select Item  -/+    Change Values      F9   Setup Defaults
  Esc  Exit  ←   Select Menu  Enter  Select > Sub-Menu  F10  Save and Exit
```

Post Error Pause

If this item is set to enabled, the system will wai for user intervention on critical POST errors. If this item is disabled, the system will boot with no intervention if possible.

- Enabled — Enable Post Error Pause. (Default setting)
- Disabled — Disable this function.

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. (Default setting)
- Stay Off — Do not power on system when AC power is back.
- Last State — Set system to the last sate when AC power is removed. Do not power on system when AC power is back.

FAN Speed Control

- Enabled — Enable FAN Speed Control. (Default setting)
- Disabled — Disable this function.

Mini BMC Function

▸▸Enabled	Enable Mini BMC function. (Default value)
▸▸Disabled	Disable this function.

This option will disappear and disable when BMC module is populated.

Mini BMC SEL View

Press [Enter] to view the Mini BMC SEL.

This option will disappear and disable when BMC module is populated.

Boot

About This Section: Boot

The "Boot" menu allows user to select among four possible types of boot devices listed using the up and down arrow keys. By applying <+> and <Space> key, you can promote devices and by using the <-> key, you can demote devices. Promotion or demotion of devices alerts the priority that the system uses to search for boot device on system power on.

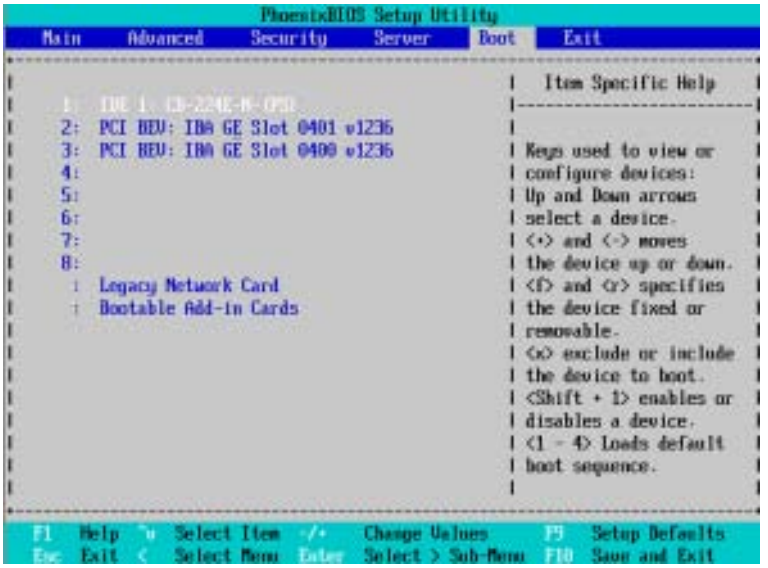


Figure 5: Boot

☞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 secquence.

Exit

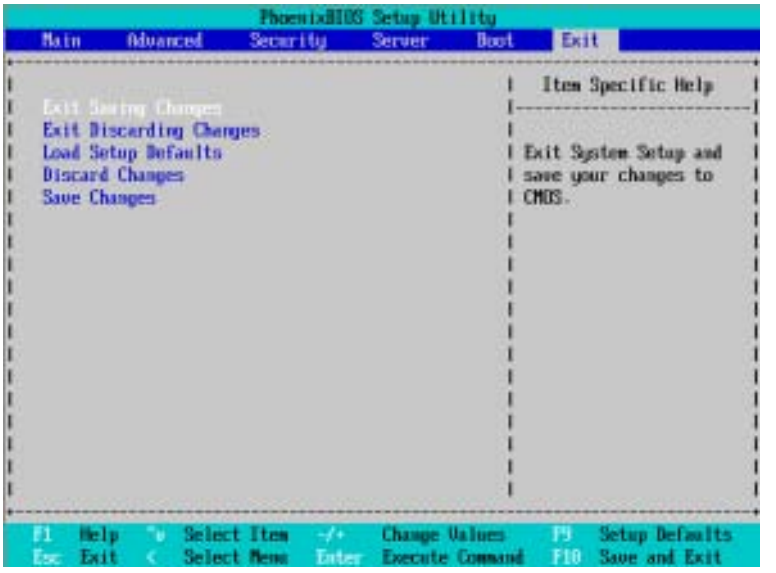


Figure 6: Exit

About This Section: Exit

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

- Exit Saving Changes
- Exit Discarding Changes
- Load Settup Default
- Discard Change
- Save Changes

☞Exit Saving Changes

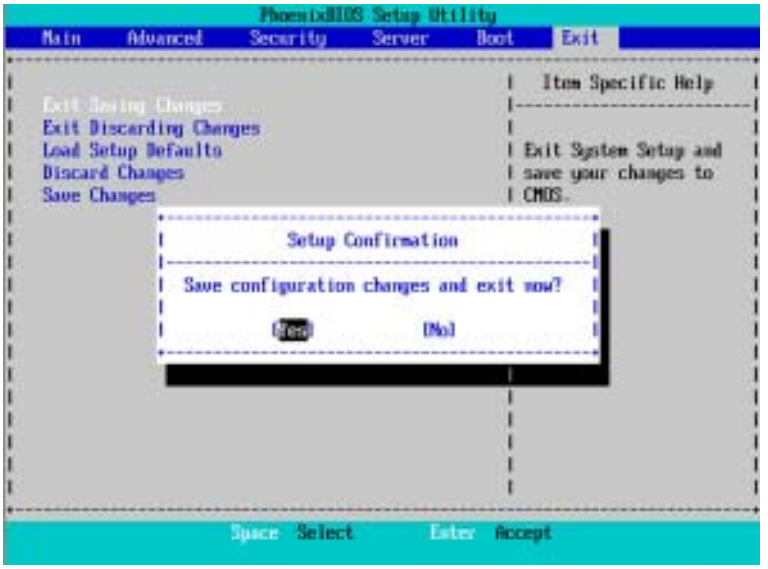
This option allows user to exit system setup with saving the changes.

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

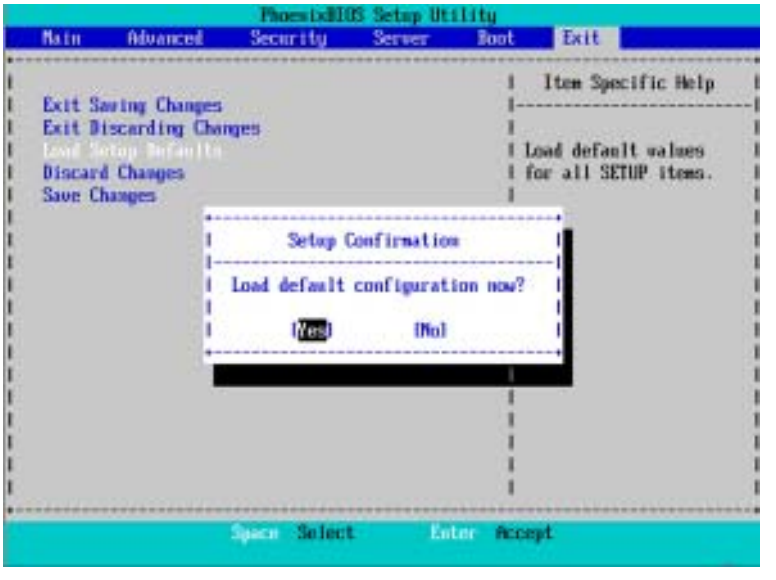
This option allows user to exit system setup without changing any previous settings values in CMOS. The previous selection remain in effect.

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

☞Load Settup Default

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

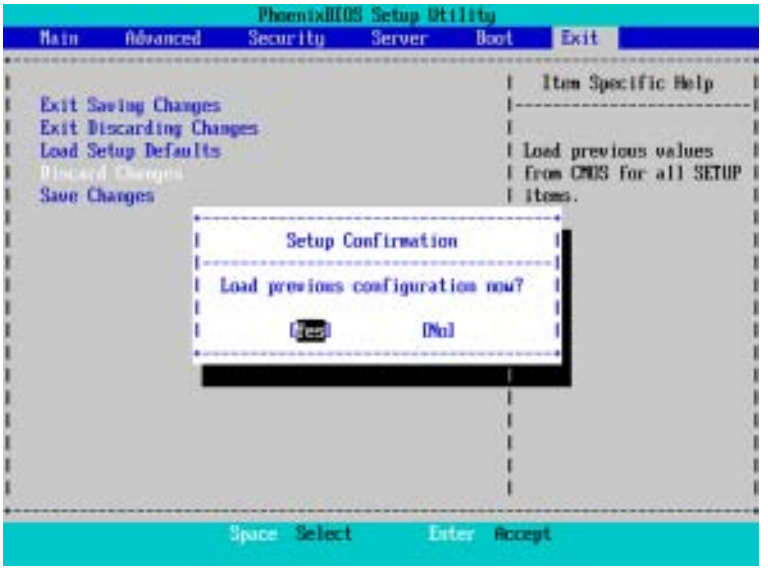
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Discard Changes

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

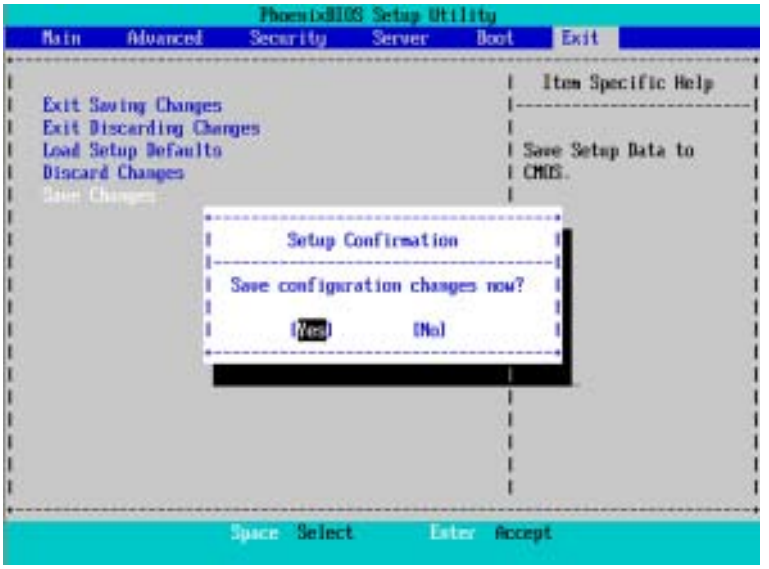
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Save Changes

This option allows user to save setup dat ato 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 daya to CMOS.

Chapter 6 Driver Installation

A. Intel Chipset Software Installation Utility

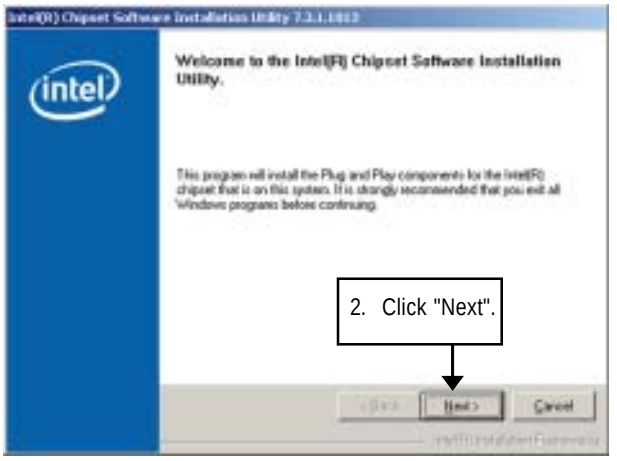
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Installation Procedures:

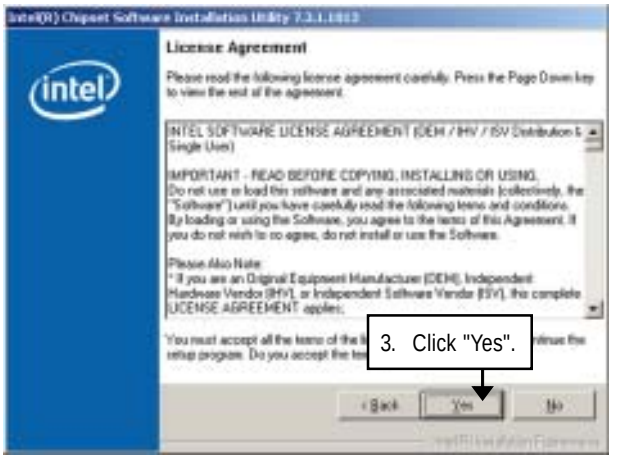
1. The CD auto run program starts, Double click on "Intel Chipset Software Installation Utility" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click "Finish" to restart your computer.

1. Auto Run window

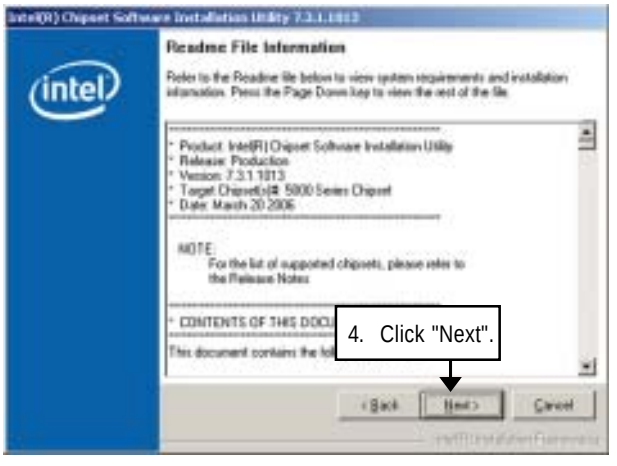
2. Setup Wizard



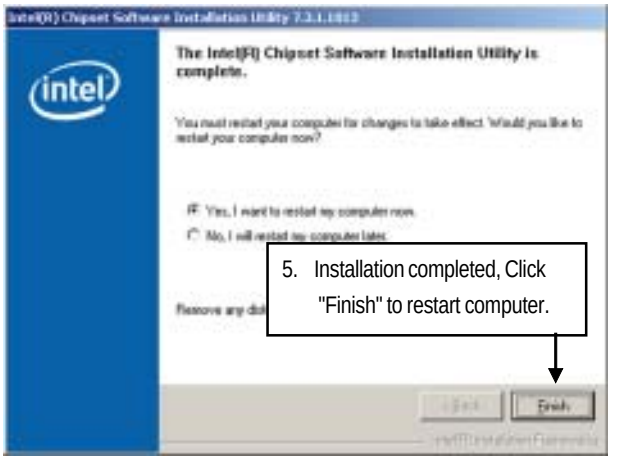
3. License Aggremment



4. Readme Information



5. Installation Completed



B. ATI ES1000 VGA 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 a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

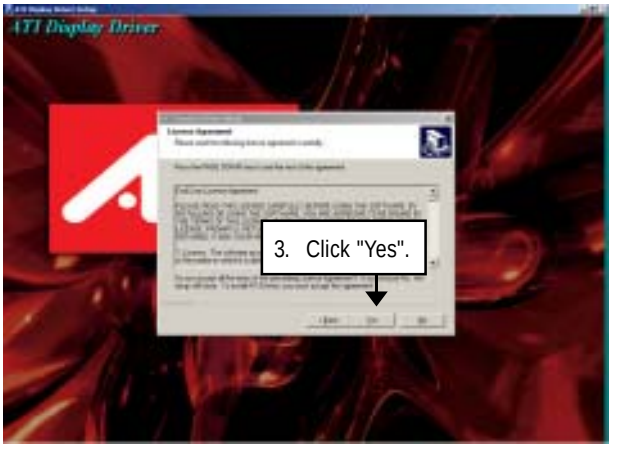
Installation Procedures:

1. The CD auto run program starts, Double click on “ATI VGA 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.

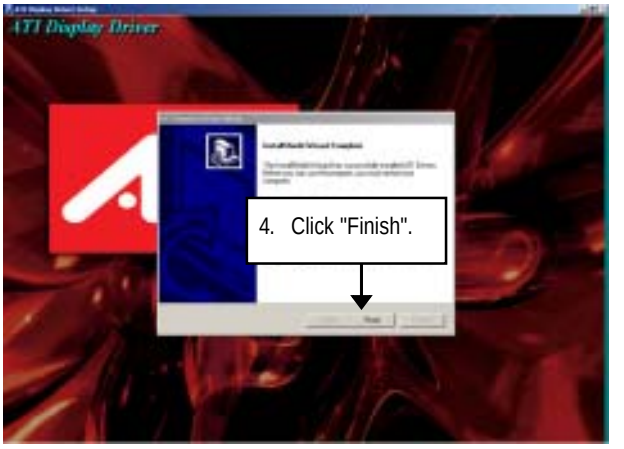
1. Auto Run window

2. Setup Wizard

3. License Aggremment



4. Installation Complete



C. Intel LAN 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 a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

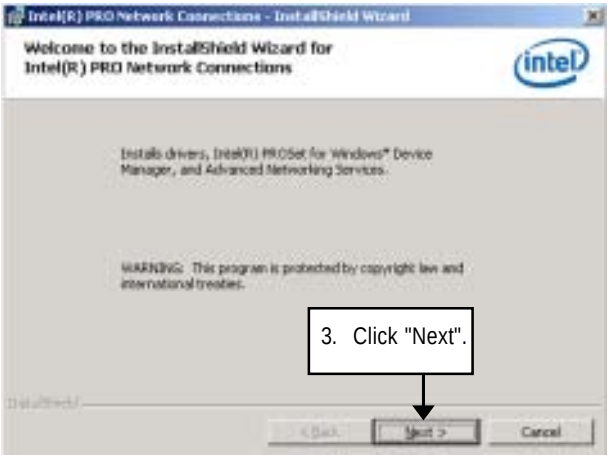
Installation Procedures:

1. The CD auto run program starts, Double click on “Intel LAN Driver” to start the installation.
2. Select “Install Driver.
3. System starts to install the LAN Driver automatically.

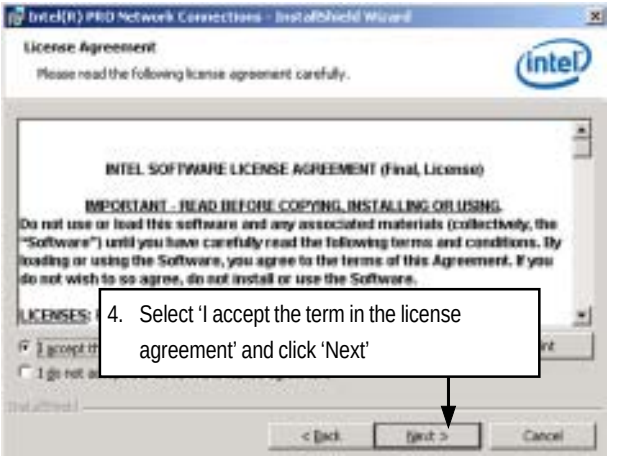
1. Autorun

2. Installation Wizard Welcom Window

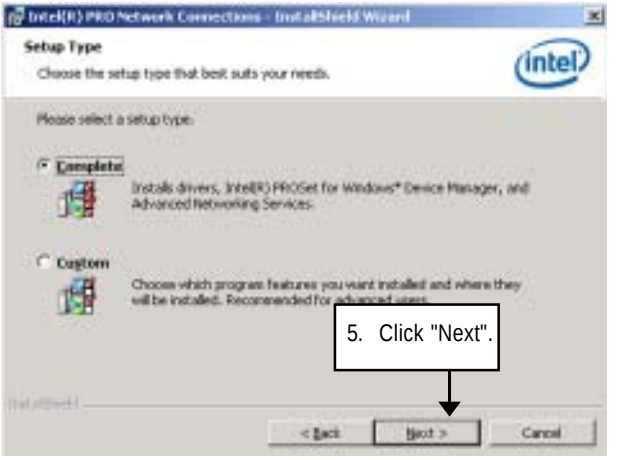
3. InstallShield Wizard Welcome Window



4. License Agreement



5. Select Setup Type



Step 5. User can select either **Complete** or **Custom** Setup Types. **Complete** setup type allows users to Installs drivers, Intel PROSet for Windows* Device Manager, and Advanced Networking Services. **Custom** setup type embraces installing features and subfeatures user selects, including modern utilities, manage ment components and drivers. Recommended for advanced users.

6. Ready to instll program

7. Installation Complete

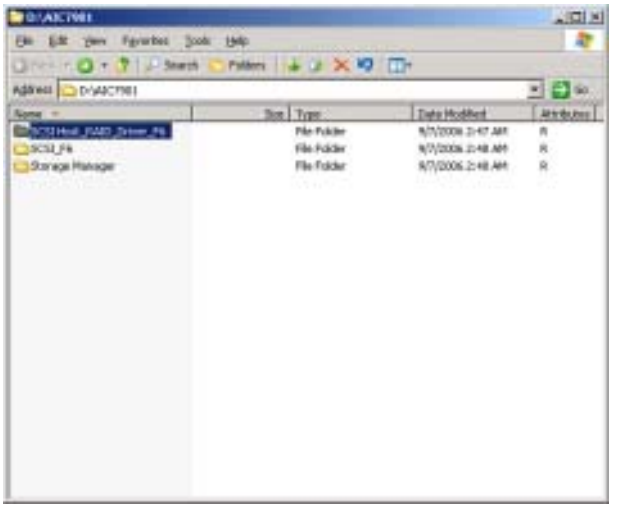
D. AIC-7901 RAID Driver Installation (GS-R127V-RH)

Installation Procedures:

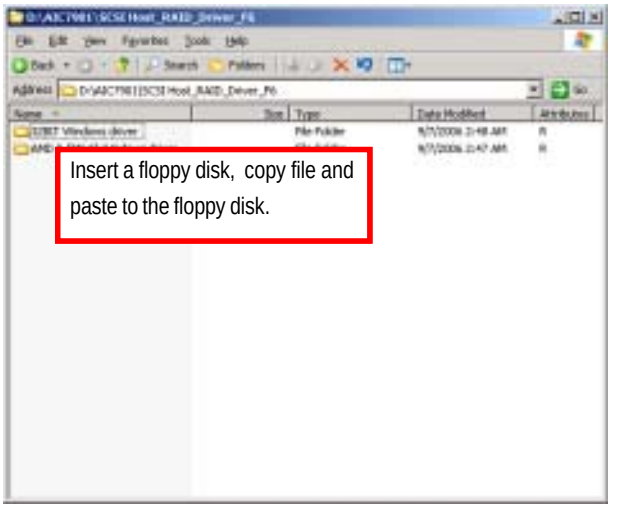
1. The CD auto run program starts, **Double click** on "AIC-7901 RAID Driver" to make a driver disk.
2. Select a folder refering to your operating system.
3. Insert a flopp disk in the floppy drive. Copy file and paste to the floppy disk.
4. Driver disk creation completed.

1. Autorun

2. Select RIAD Driver Folder



3. Start to make a driver disk



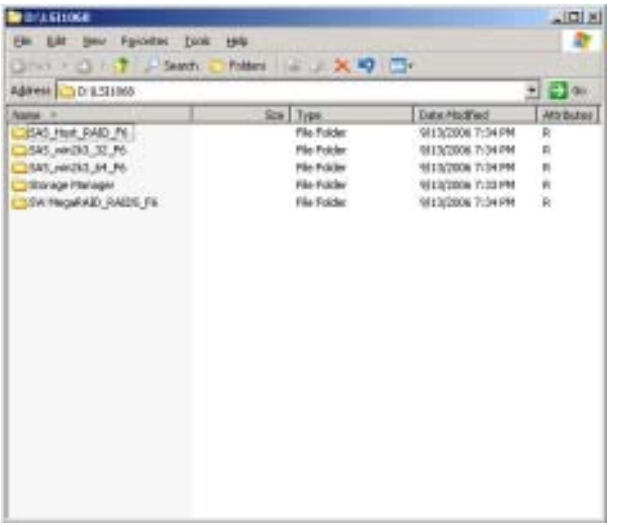
E. LSI-1068 RAID Driver Installation (GS-R127H-RH)

Installation Procedures:

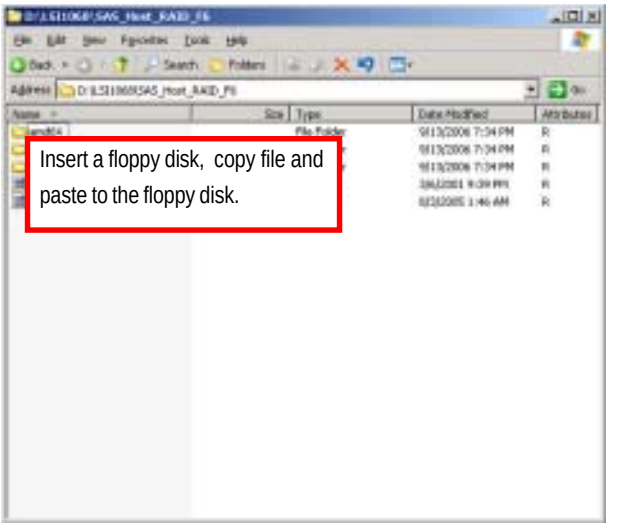
1. The CD auto run program starts, **Double click** on "LSI-1068 RAID Driver" to make a driver disk.
2. Select a folder refering to your operating system.
3. Insert a flopp disk in the floppy drive. Copy file and paste to the floppy disk.
4. Driver disk creation completed.

1. Autorun

2. Select RIAD Driver Folder



3. Start to make a driver disk



F. DirectX 9.0C 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.

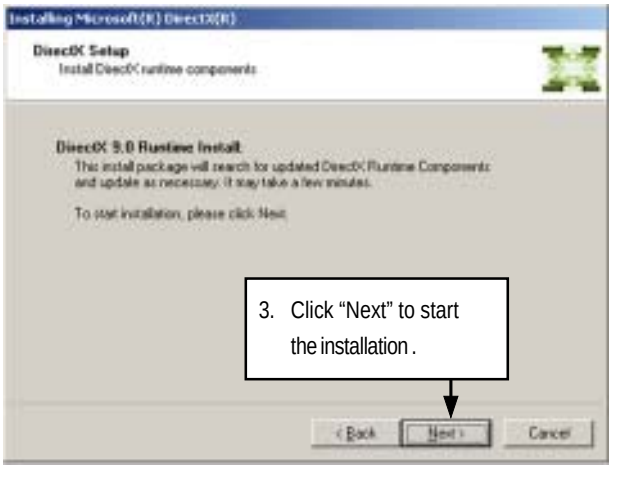
Installation Procedures:

1. The CD auto run program starts, Double click on “Directx9.0C” 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.

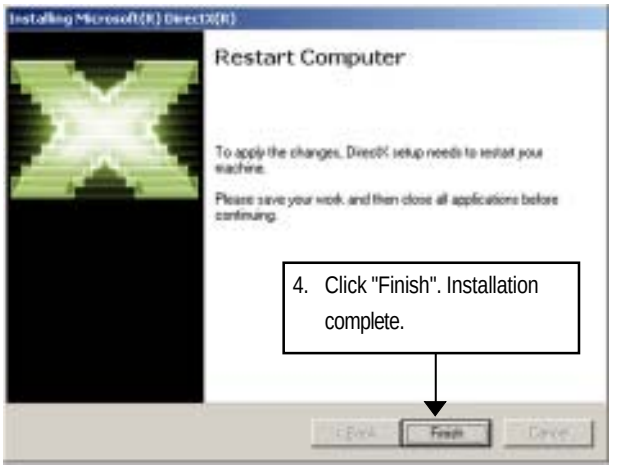
1. Autorun

2. License Agreement

3. Start Installaiton



4. Installaiton Wizard completed



Chapter 7 Appendix

7-1: 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

Acronyms	Meaning
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
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
ZCR	Zero Channel RAID