GS-SR295 Rack Mount Server

System Installation Guide

Dual Xeon™(Nocona)Processor Motherboard Rev. 1.1 25A08-02950-F00

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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 and modem 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 with Modems, Telecommunications, ot Local Area Network Options

Observe the following guidelines when working with options:

* Do not connect or use a modem or 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 modem or telephone cable into the network interface controller (NIC) receptacle.
- * Disconnect the modem cable before opening a product enclosure, touching or installing internal components, or touching an uninsulated modem cable or jack.
- * 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 B 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.

FCC part 68 (applicable to products fitted with USA modems)

The modem complies with Part 68 of the FCC Rules. On this equipment is a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

If your telephone equipment causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will notify in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

The FCC prohibits this equipment to be connected to party lines or coin-telephone service.

The FCC also requires the transmitter of a FAX transmission be properly identified (per FCC Rules Part 68, Sec. 68.381 (c) (3)).

/ for Canadian users only /

▶ Canadian Department of Communications Compliance Statement

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

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

▶ DOC notice (for products fitted with an Industry Canada-compliant modem)

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user satisfaction. Before installing this equipment, users ensure that it is permissible to be connected to the facilities of the local Telecommunications Company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if resent are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

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.



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.

Introduction

Welcome to Gigabyte GS-SR295 Rack mount Server System Installation Guide. The guide provides instructions for configuration hardware for the GS-SR295 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
- ☑ The GA-9ILDR Motherboard(Installed)
- ☑ Two CPU Heat Sinks
- ☑ GS-SR295 System Installation Guide
- ☑ Driver CD for GSMT
- ☑ Hard Disk Drive Trays x 8

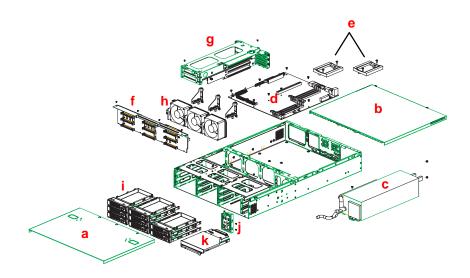
- Silm type CD-ROM drive (Installed)
- ☑ Silm type Floppy drive (Installed)
- ☑ Driver CD for motherboard driver & utility
- ☑ GSMT User's Manual
- ✓ Power Supply (Installed)

Chapter 1 Features Summary

onapter i reat	· C· I	es carririar y
Motherboard	•	GA-9ILDR
Processor Supported	•	Dual socket 604 for Intel® Xeon(Nocona) processor suopprts
		3.6 GB and upper
	•	Intel® Xeon (Nocona) CPUs supports 800 MHz FSB
	•	2nd cache depend on CPU
Chipset	•	Intel E7520 Chipset
	•	ICH5R I/O Controller Hub
	•	Intel 6700 PXH
System Memory:		
Memory Capacity	•	6 x 184-pin DIMM Sockets
	•	Supports up to 16GB DRAM (Max) for DDR-333
	•	Supports up to 24GB DRAM (Max) for DDR-266
Memory Type	•	Registered DDR-200/266/333
Memory Voltage	•	2.5V only
Error Correction:	•	Single-bit Errors Correction, Multiple-bit Errors Detection
Expansion Slot	•	Supports 2 x full-height/full-length 64bit/100MHz PCI-X slots
	•	Supports 2x full-height/full-length 64bit/100MHz PCI-X slots
		(Supports 1 x full-height/full-length 64bit/100MHz PCI-X slot when
		ZCR riser card is inserted)
	•	Supports 1 x low-profile half -length 64bit/100MHz PCI slot
	•	Supports 1 x low-profile half -length 64bit/133MHz PCI slot
	•	Supports 1 x PCI-X Adaptec ZCR slot (Optional)
Drive Bay:		
Hard Disk Drives:	•	8 x Hot-Swap SCSI HDDs
Floppy Drive	•	1 slim type Floppy
Slim Type CDROM	•	1 slim type CD-ROM
Cooling Fans:	•	3 X System Fan
Integrated LANs:		
Controller	•	Dual Broadcom® BCM5721 PCI-E I/F Gigabit Ethernet Controller
Advanced Software Function	•	Adapter Fault Tolerance
	•	Adaptive Load Balancing
	•	Fast Ethernet Channel
	•	Wake On LAN
		0

	r catare Summary
Integrated Graphics:	
Controller	ATI® RAGE-XL VGA Controller
Graphics Memory	8MB SDRAM
Integrated Super I/O:	
Serial Ports	1 x Serial Port COM1 (Rear I/O-Shield)
Keyboard/Mouse	1 x PS/2 Keyboard Port (Rear I/O-Shield)
•	1 x PS/2 Mouse Port (Rear I/O-Shield)
USB 2.0	2 x USB ports (Rear I/O-Shield)
	2 x USB Port (Front Panel)
VGA Connector	1 x VGA connector (Rear I/O-Shield)
LAN Ports	2 x RJ45 LAN ports (Rear I/O-Shield)
System BIOS:	
BIOS Type	AWARD BIOS, Multi-boot BBS 1.0 Compliant4Mb
	Flash Memory
Special Features	ACPI 1.1, DMI, PXE, Plug and Play,
	A/C Power Recovery
Server Management Function	ns .
BMC Chip	NS IPMI 1.5 controller
Failure Detection	IPMI 1.5 specification of Server management
Event Logging •	32KB Nonvolatile Memory to Log System Failure Events
Remote Management •	Follow the IPMI 1.5 specification of Server management
Environment	
Ambient Temperature •	Operating Temperature: 5°C to 35°C
•	Non-operating Temperature: 0°C to 50°C
Relative Humidity	■ 10-85% operating Humidity at 30°C
Safety Regulations	CE, FCC, UL
Electrical Power Supply:	
AC Voltage and Frequency	100V/240V; 47Hz/63Hz
DC Power Supply	500W

Chapter 2 System Overview



a.	Chassis front cover	g.	Riser card bracket
b.	Chassis rear cover	h.	System Fans x 3
c.	Single/Redundant Power supply	i.	SCSI HDD Trays x 8
d.	GA-9ILDR Motherboard	j.	Front LEDs & Power Button
e.	Dual Sockets 604	k.	CD-ROM & Floppy Drives
f.	Backplane board		

Chapter 3 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

Front Cover:

Step 1 Push down the two buttons located at two sides of the chassis.

Step 2 Slide toward to remove the front cover.

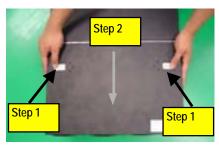
Rear Cover:

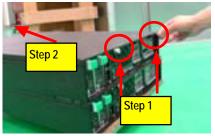
Step 1 Remove the two thumbscrews from back side of the system.

Step 2 Slide it toward to remove the rear cover.

Front Cover:







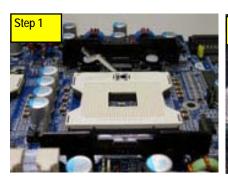
Note: Before installing CPU, you must remove the FAN duct. For FAN duct removal, please see Subsection 2-7 "FAN Duct Removal and Installtion" for detail instruction.

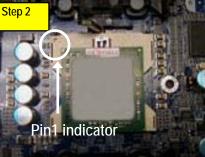
Step 2-2: CPU Installation

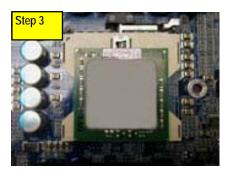


Please make sure the CPU type and speed that are supported by the motherboard.

- Step 1. Rise the lever bar on the socket.
- Step 2. Aligning the pins of the processor with the socket, insert the processor into the socket.
- Step 3 Close the lever completely.



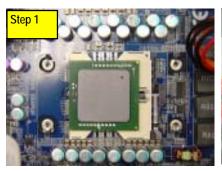


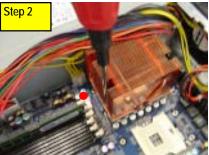


Step 2-3: CPU Heat Sink Installation

Step 1 Make sure the heat sink matches exactly the four holes on the motherboard.

Step 2 Attach the heat sink to the processor scoket. Lock the heat sink to the motherboard with four screws.





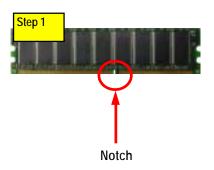
Step 2-4: Memory Installation

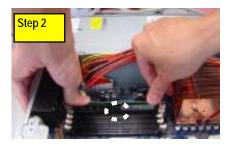
Step 1 The DIMM slot has a notch, the DIMM memory module only fit in one direction.

Step 2 Align the memory notch to the module and push the memory into the DIMM socket.



NOTE!! DIMM must be populated in order starting at the nearest slot from the ATX power.

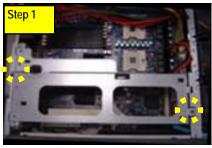




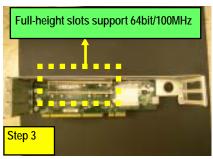
Step 2-5: PCI Expansion Card Installation

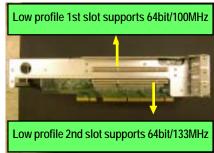
GS-SR295 provides expansion riser slots for four peripheral cards, two full-heigh 64bit/100MHz PCI-X slots and one low profile with 64bit/100MHz and one low profile 64bit/133MHz PCI slots. To install the peripheral, please go through the following steps.

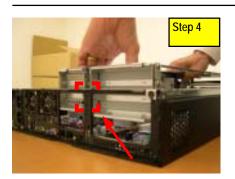
- Step 1 Lossen the screws to remove the riser bracket.
- Step 2 Detach the riser bracket with both hands.
- Step 3 Installing the PCI Riser card. Align the expansion card with the guide groove. Slide the expansion board into the slot until the board firmly seats. Repeat **Step 2 & 3** to install remaining add-on cards.
- Note: When you install ZCR card, the second full-heightfull-length slot can not work properly.
- Step 4 Replace the riser bracket into the system module (see the arrow direction mark), and push down vertically.
- Step 5 Reverse Step 1 & 2 to secure the riser bracket firmly. Installation completed.





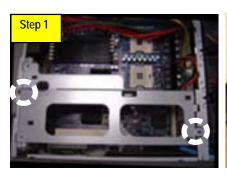






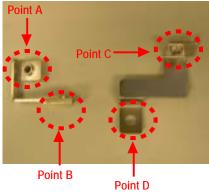
Step 2-6: PCI-X ZCR Expansion Card Installation (Optional)

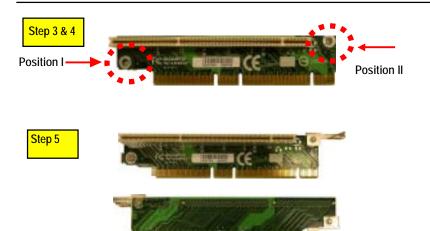
- Step 1 Remove two screws on the riser bracket.
- Step 2 Detach the riser bracket with both hands.
- Step 3 Align Point A to the hole located at upper right habd side (Position II) of the ZCR card. Then, secure the screw holder with screws.
- Step 4 Align Point C to the hole located at down left hand side (Position I) of the ZCR card. Secure the screw holder with screws.
- Step 5 ZCR card assemble completed.
- Step 6 Push riser card into the ZCR slot and fasten the card with screws (Point B)
- Step 7 Attach the ZCR card to the system. Lock it on the stand-off with screw. (Point D)
- Step 8 Reverse Step 1 & 2 to lock the riser bracket firmly. Installation completed.

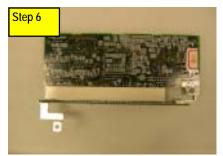


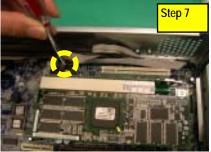






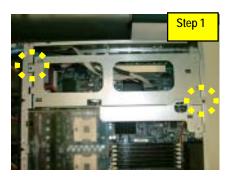






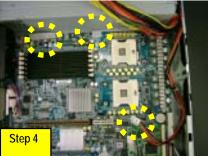
Step 2-7: FAN Duct Removal and Installation

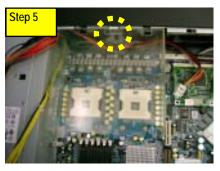
- Step 1 Remove two screws on the riser bracket.
- Step 2 Detach the riser bracket with both hands.
- Step 3 To remove the FAN duct, just pull up the screw-holder and unscrew thumbscrews to remove the FAN duct.
- Step 4 Unplug the power connectors.
- Step 5 Attach Fan duct to the system. Note that the fan duct must align to the emplacement point.
- Step 6 Conntect the power connectors.
- Step 7 Adjust cables between power supply and thumb-screws.
- Step 8 Replace the riser bracket and secure the screws to locked position.
- Step 9 Adjust the cables.



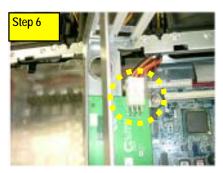


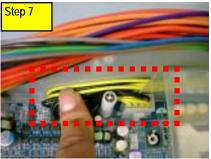


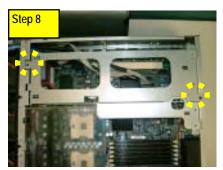


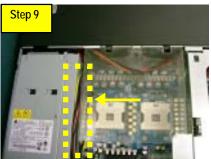












Step 2-8: Hard Disk Drive Installation

- Step 1 Push the hard disk drive trail button.
- Step 2 Pull out the trail and remove the trail from the chassis.
- Step 3 Insert the hard disk into the trail.
- Step 4 Secure each hard disk drive with 4 screws.
- Step 5 After securing the hard disk drive with the screws, hold the hard drive handle at open position, place the tray into chassis and push the hard disk drive tray handle to the locked position.



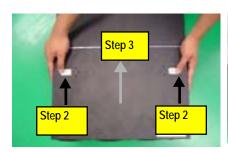
Step 2-9: Reinstall Chassis Cover

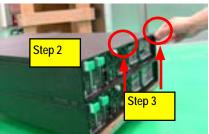
Front Cover:

- $Step \, 1 \quad Insert \, the \, front \, edge \, from \, 15 \, degree.$
- Step 2 Close the cover in un-lock position.
- Step 3 Slide it toward to screw lock position.

Rear Cover:

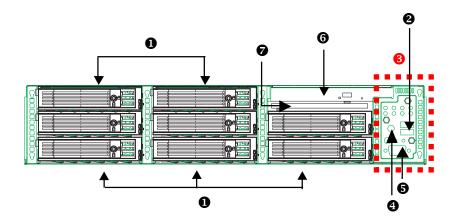
- Step 1 Close the cover in un-lock position.
- Step 2 Slide it to lock position.
- $Step \ 3 \quad Attach \ the \ two \ thumbscres \ to \ the \ back \ of \ chassis. \ Secure \ the \ screw \ to \ lock \ position.$





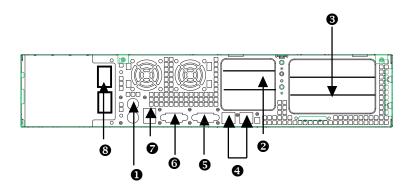
Chapter 3 Appearance of GS-SR295

3-1: Front View of GS-SR295



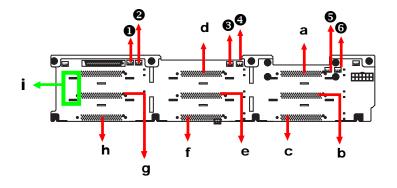
0	8 Hot-Swap SCSI HDDs	
9	USB Connectors	
6	Front LED	
4	Power Button	
6	Front COM port	
0	CD-ROM Drive	
9	Floppy Drive	

3-2: Rear View of GS-SR295



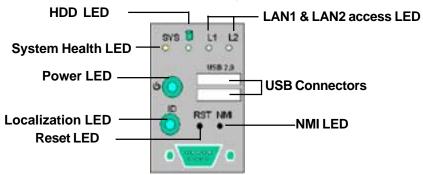
0	PS/2 Keyboard & Mouse Connector	
9	Low Profile PCI-X Riser Slot	
•	Full-Height / Full- Length Riser Slot	
4	LAN 1 / 2 Ports	
6	VGA Port	
6	COM Port	
0	USB Connectors	
8	Power Connector	

3-3: SCSI Backplane Layout and Description



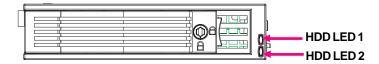
а	SCA_1	i	Power
b	SCA_2	0	FAN 1
С	SCA_3	2	FAN 2
d	SCA_4	8	FAN 3
е	SCA_5	4	FAN 4
f	SCA_6	6	FAN 5
g	SCA_7	6	FAN 6
h	SCA_8		

3-4: Switch and LED Indicators Description



	Acting	Color	Status
Power LED	On	Green	Power On
	On	Amber	Power cable is plugged in
	Off	N/A	No power
SYS Health LED	On	Amber	System is ready but
		(Please	degraded: some CPU Fault
		check with	Critical PowerModules Failure,
		GSMT User's	Critical FANs Failure,
		Manual)	Voltage (Power Supply),
			critical Temperature and Voltage
		Green	Normal operating
	Off	N/A	No power
LAN1&2 LED	On	Green	LAN online
	Off	N/A	LAN offline
	Blink	Green	LAN active
ID (Localization	On	Blue	Identified by users
LED)	Off	N/A	N/A

3-5: HDD LED Indicators Description



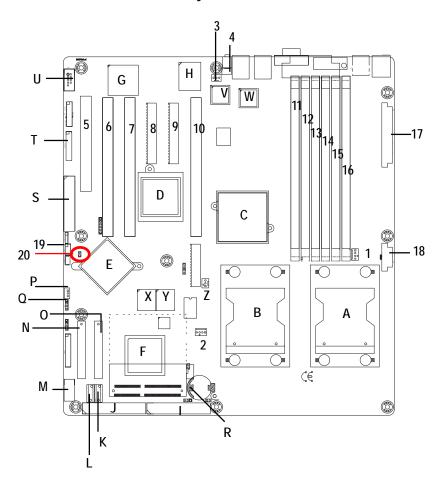
	Acting	Color	Status
HDD LED 1	Off	N/A	HDD poweroff
HDD LED 1	On	Green	HDD poweron
HDD LED 2	Off	N/A	HDD non-active
HDD LED 2	Blink	Green	HDD active

3-6: Connector Icon Description

Suggest Icon	Description
<u></u>	Keyboard
	VGA
Ó	Mouse
물	LAN
	Serial Port
-<-	USB

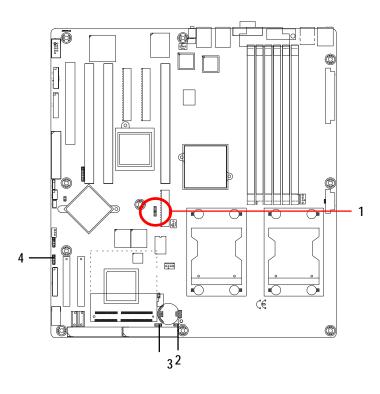
Chapter 4 Motherboard Layout & Jumper Setting

4-1: GA-9ILDR Motherboard Layout



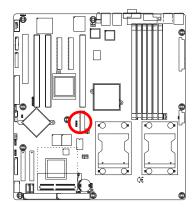
A.	CPU0 (Install First)	1.	CPU_FAN0 (CPU FAN)
B.	CPU1	2.	CPU_FAN1 (CPU FAN)
C.	Intel E7520	3.	SYS_FAN1 (System FAN)
D.	Intel 6700 PXH	4.	SYS_FAN2 (System FAN)
E.	LSI 1030 (SCSI Controller)	5.	PCI-6 (Supports 32bit/33MHz)
F.	ICH5R	6.	PCI-5 (Supports 64bit/66~100MHz)
G.	ATI Rage_XL	7.	PCI-4 (Supports 64bit/66~100MHz)
H.	ITE IT8712F	8.	PCIE-3 (Supports PCI Express)
I.	IDE2	9.	PCIE-2 (Supports PCI Express)
J.	IDE1	10.	PCI-1 (Supports 64bit/133MHz)
K.	SATA0	11.	DDRA1
L.	SATA1	12.	DDRB1
M.	USB2	13.	DDRA2
N.	SCSI2 (SCSI connector)	14.	DDRB2
0.	SCSI1 (SCSI connector)	15.	DDRA3
P.	IPMB1	16.	DDRB3
Q.	IPMB2	17.	ATX1 (SSI power connector)
R.	BT1 (Battery)	18.	ATX2 (SSI power connector)
S.	FD1 (Floppy connector)	19.	WOL (Wake On LAN)
T.	295_FP (Front Panel)	20.	RI (Ring Input)
U.	COM1		
٧.	Broadcom BCM5721		
W.	Broadcom BCM5721		
Х.	BIOS		
Υ.	SCSI BIOS		
Z.	PXH_FAN		

4-2: Jumper Setting Introduction



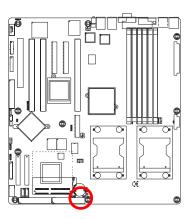
1) PLL0/1	3) CLR_CMOS
2) CASEOPEN	4) CMOS_Lock

1) PLL0/1 (DDR-266/333 Speed Adjustment Jumper)



- Open: Set memory speed at DDR-266
- Close: Set memory speed at DDR-333

2) CASEOPEN (Case Open Function)

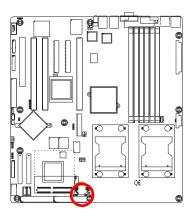


- Open: Disable this function
- •• Close: Enable Case open function (Default)

3) CLR_CMOS (Clear CMOS Function)

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

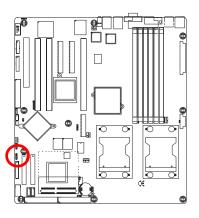
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.



1 1-2 close: Clear CMOS

1 2-3 close: Normal (Default)

4) CMOS_Lock (CMOS Write Protect Function)



1 -2 close: Top Block Lock

3-4 close: 2-8 Block Lock

Open: Enable CMOS Write Protection

Function

Chapter 5 Appendix

5-1: 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
1/0	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