GA-9ILDTH

Dual Xeon™ (Nocona)

Processor Motherboard

User's Manual

Dual Xeon™ (Nocona)Processor Motherboard

Rev. 1001

12ME-9ILDTH-1001

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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.

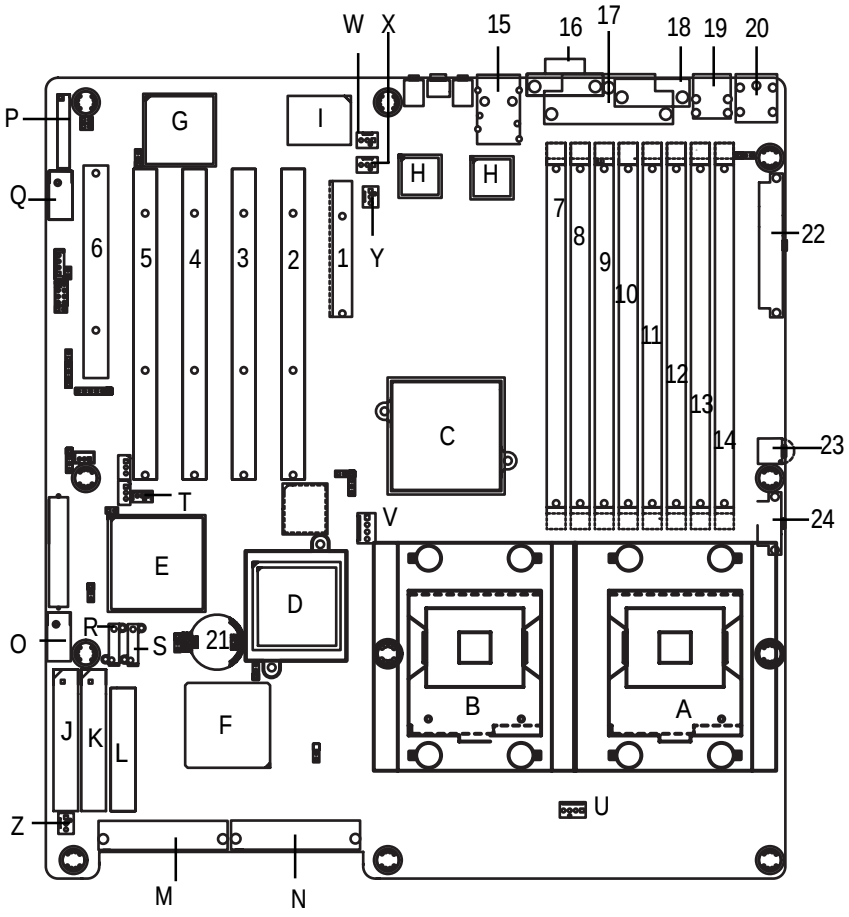
Chapter 1 Introduction

Features Summary

Form Factor	• 30.5cm x 33cm Extend ATX size form factor, 8 layers PCB.
Motherboard	• GA-9ILDTH Motherboard:
CPU	• Dual socket 604 for Intel® Xeon(Nocona) processor support 4.0 GB and upper • Intel® Xeon (Nocona) CPUs supports 800 MHz FSB • 2nd cache depend on CPU
Chipset	• Intel® E7520 Chipset • Intel® 6300ESB • Intel® 6700 PXH
Memory	• 6 x 240-pin DDRII DIMM sockets • Supports 8 ECC Registered DIMM DDRII 400 • Supports up to 16GB DRAM (Max) • Supports only 1.8V DDRII DIMM
I/O Control	• IT8712 F IX
Slots	• 2 PCI-X slot support 64/66MHz • 2 PCI-X slot supports 64/133MHz (3.3V) • 1 PCI-E slot by 8 x 1 • 1 PCI slot supports 32/33MHz (3.3V)
On-Board IDE	• 2 IDE bus master (ATA100) IDE ports for up to 2 ATAPI devices
On-Board Peripherals	• 1 Floppy port supports 1 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes. • 1 Parallel port supports Normal/EPP/ECP mode • 1 Serial port (COM) • 4 x USB 2.0 • 1 x VGA port • 2 x RJ45 LAN port
Hardware Monitor	• CPU/Power/System Fan Revolution Detect • CPU shutdown when overheat • System Voltage Detect

SCSI Controller	• Adaptec® AIC-7902W chipset supports PCI-X dual ultra 320 SCSI channels • Mirroring supports automatic background rebuilds • Supports RAID 0 ,1, 10 • Supports HOST RAID • Mirroring supports automatic background rebuilds • Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS
On-Board SATA	• Intel® 6300ESB chipset supports dual SATA channels
On-Board LAN	• Dual Broadcom® BCM5721 PCI-E GbE
On-Board VGA	• ATI® Rage-XL controller
On-Board USB 2.0	• Built in 6300ESB Chipset
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interace
BIOS	• Lincensed Phoenix® on 8MB Flash ROM • Supports multi boot function • User setting for hardware monitoring • DMI 2.0 compliant
Additional Features	• PS/2 Keyboard power on by password • PS/2 Mouse power on • STD (Suspend-To-Disk) • Wake on LAN (WOL) • AC Recovery • Poly fuse for keyboard over-current protection

GA-9ILDTH Motherboard Layout



A.	CPU0 (Install First)	1.	PCI-E (Supports PCI Express x8)
B.	CPU1	2.	PCI-X_2 (Supports 64bit//133MHz)
C.	Intel E7520	3.	PCI-X_3 (Supports 64bit//133MHz)
D.	Intel 6700 PXH	4.	PCI-X_4 (Supports 64bit//66MHz)
E.	Intel 6300ESB	5.	PCI-X_5 (Supports 64bit//66MHz)
F.	Adaptec 7902W	6.	PCI_6 (Supports 32bit//33MHz)
G.	ATI Rage_XL	7.	DDRIIA1
H.	Intel 82546GB	8.	DDRIIB1
I.	ITE IT8712F-A	9.	DDRIIA2
J.	IDE1	10.	DDRIIB2
K.	IDE2	11.	DDRIIA3
L.	FDD1 (Floppy Connector)	12.	DDRIIB3
M.	SCSI1 (SCSI connector)	13.	DDRIIA4
N.	SCSI2 (SCSI connector)	14.	DDRIIB4
O.	USB2	15.	RJ45 LAN Port
P.	F_Panel1 (Front Panel)	16.	VGA Port
Q.	COM2	17.	Parallel Port
R.	SATA1 (SATA Connector)	18.	COM Port
S.	SATA2 (SATA Connector)	19.	USB Connectors
T.	WOL (Wake O Lan)	20.	KB_MS (Keyboard & Mouse)
U.	CPU_Fan0	21.	BAT1 (Battery)
V.	CPU_Fan1	22.	ATX1 (SSI power connector)
W.	J2 (System Fan)	23.	ATX3 (SSI power connector)
X.	J3 (System Fan)	24.	ATX2 (SSI power connector)
Y.	J4 (System Fan)		
Z.	J11 (System Fan)		

Chapter 2 Hardware Installation Process

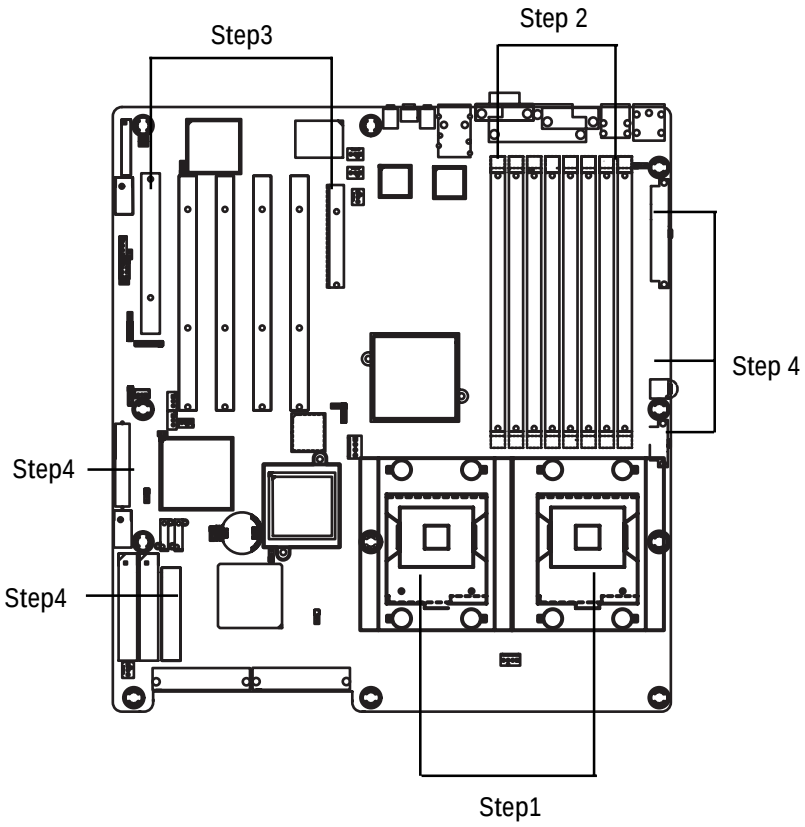
To set up your computer, you must complete the following steps:

Step 1- Install the Central Processing Unit (CPU)

Step 2- Install memory modules

Step 3- Install expansion cards

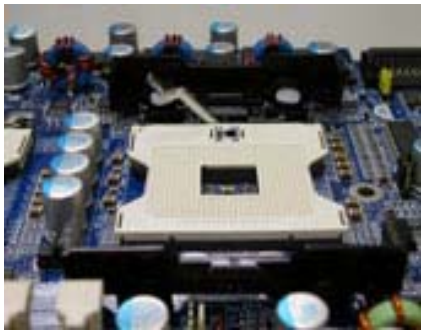
Step 4- Connect ribbon cables, cabinet wires, and power supply



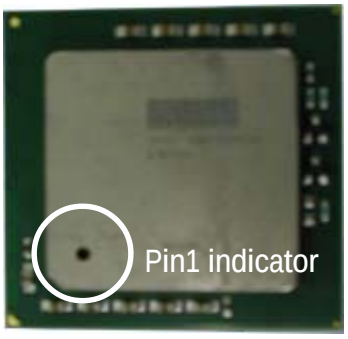
Step 1: Install the Central Processing Unit (CPU)

Before installing the processor , adhere to the following warning:

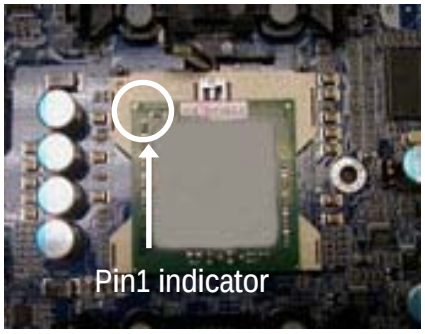
If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation. Please make sure the CPU type is supported by the motherboard.



1. Angling the rod to 65-degree maybe feel a kind of tight , and then continue pull the rod to 90-degree when a noise “cough” made.



2. CPU Top View



3. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

4. Press down the CPU socket lever and finish CPU installation.

Step 1-2:CPU Heat Sink Installation

Before installing the CPU Heat Sink , adhere to the following warning:

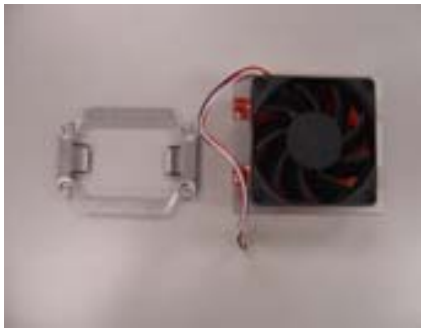
1.Please use Intel approved cooling fan.

2.We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink.

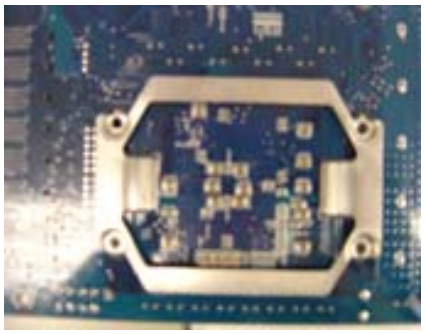
(The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)

3.Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.

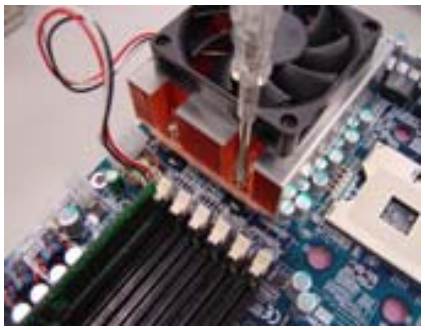
Please refer to CPU heat sink user's manual for more detail installation procedure.



1. Heat sink installation kit.



2. Turn the mother bord to the backside. Lock the retention module on the mother board
   Make sure the position of the 4 holes on the retention module match exactly the position on the motherboard.



3. Fasten the heatsink supporting-base onto the CPU socket on the mainboard.

4. Make sure the CPU fan is plugged to the CPU fan connector, than install complete.

Step 2: Install memory modules

CAUTION Before installing the processor and heatsink, adhere to the following warning:
When DIMM LED is ON, do not install/remove DIMM from socket.
Please note that the DIMM module can only fit in one direction due to the one notches. Wrong orientation will cause improper installation. Please change the insert orientation.
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.

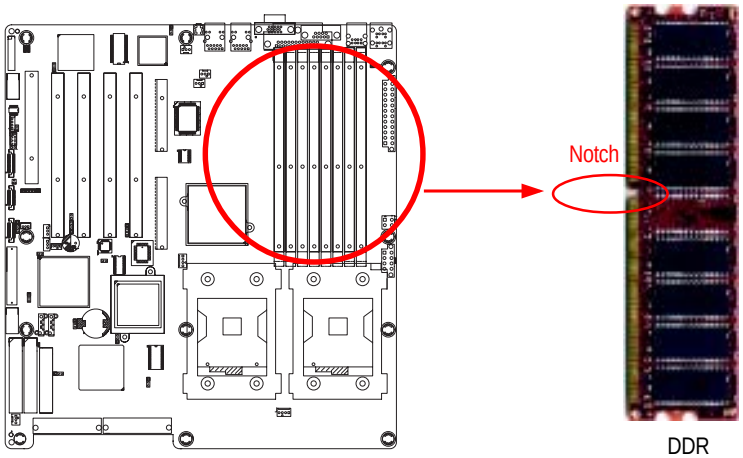
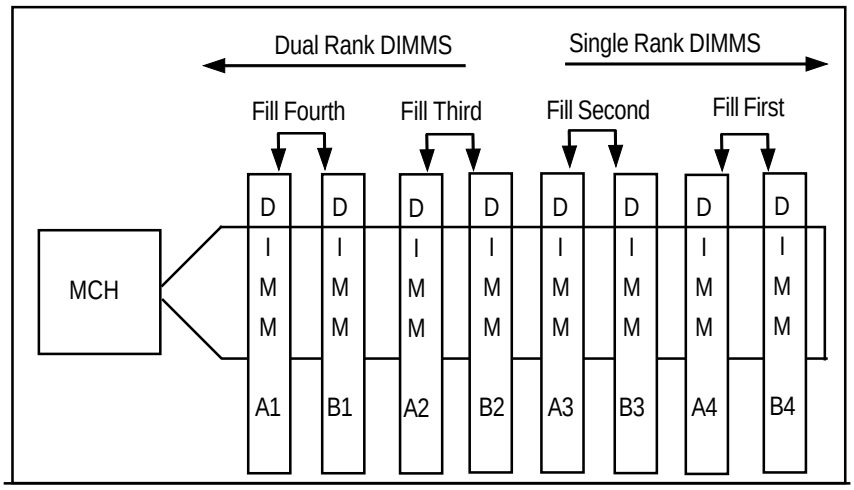


Table 2-1: DIMM-per Channel Implementation



2-1: DDR DIMM Slot Population

Table 1. Supported DIMM Module Type

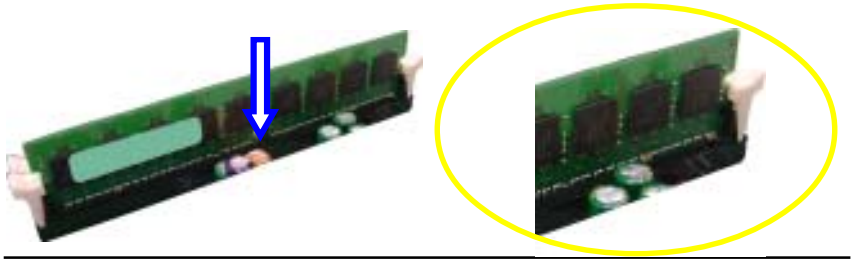
Technology	Organization	SDRAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 4 x 4bks	16
512MB	16MB x 8 x 4bks	8
	32MB x 4 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 4 x 4bks	16

Table 2. DIMM Placement DDR2-400

DIMM Configuration	DIMM1	DIMM2	DIMM3
1 Single Rank	Empty	Empty	Single Rank
1 Dual Rank	Empty	Empty	Dual Rank
2 Single Rank	Empty	Single Rank	Single Rank
1 Dual Rank, 1 Single Rank	Empty	Single Rank	Dual Rank
2 Dual Rank	Empty	Dual Rank	Dual Rank
3 Single Rank	Single Rank	Single Rank	Single Rank
1 Dual Rank, 2 Single Rank	Single Rank	Single Rank	Dual Rank

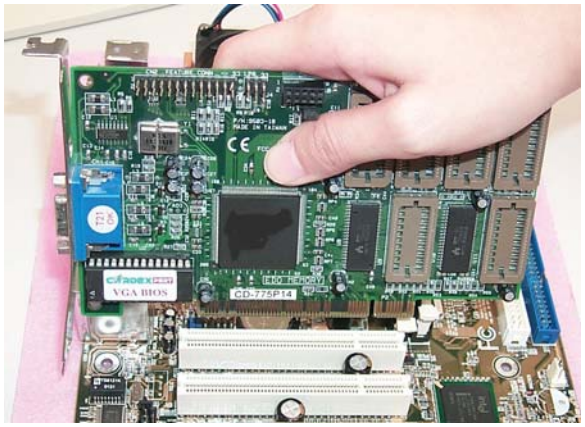
Installation Step:

1. Unlock a DIMM socket by pressing the retaining clips outwards.
2. Aling a DIMM on the socket such that the moyches on the DIMM exactly match the notches in the socket. Please note that DIMM must be populated in order starting at the nearest slot from the ATX power.
3. Firmly insert the DIMMinto the socket until the retaining clips snap back in place.
4. When installing the DIMM into the DIMM socket, we recommend to populate one DIMM in Channel A module and one in Channel B module for best performance.
   Please note that each logical DIMM must be madeof two identical DIMMs having the same device size on each and the same DIMM size.
5. Reverse the installation steps when you wish to remove the DIMM module.



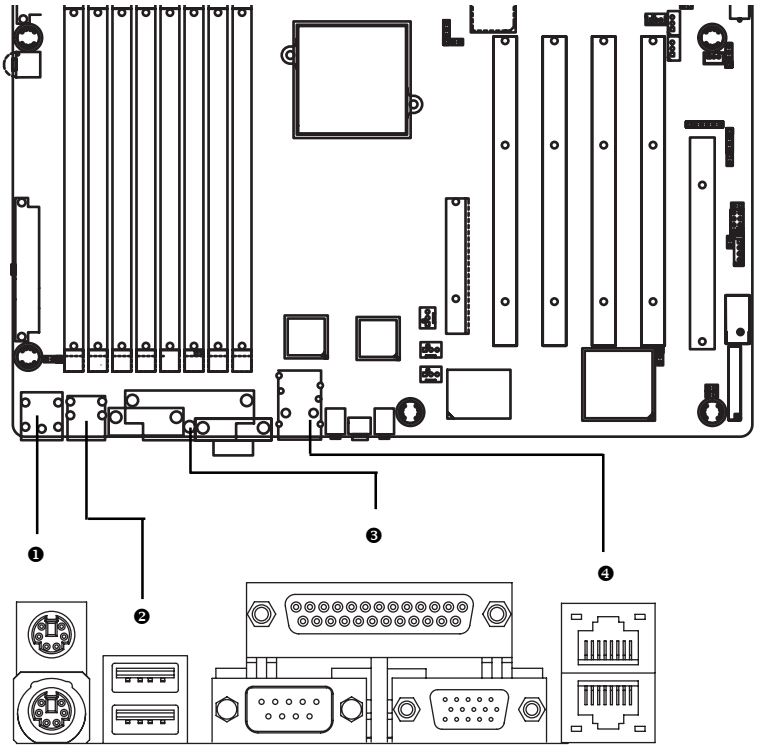
Step 3: Install expansion cards

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

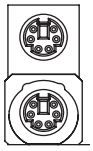


Step 4: Connect ribbon cables, cabinet wires, and power supply

Step 4-1 : I/O Back Panel Introduction



❶ PS/2 Keyboard and PS/2 Mouse Connector

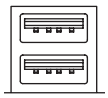


PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

➢This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ USB Connectors

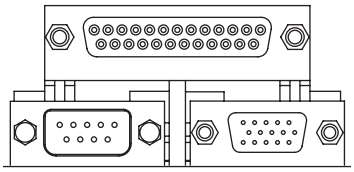


USB1

➢ Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker..etc. Have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

❸ Parallel Port / Serial Port / VGA Port (LPT/COMA/VGA)

Parallel Port
(25 pin Female)

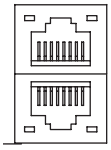


COMA
Serial Ports (9 pin Male)

VGA Port
(15 pin Female)

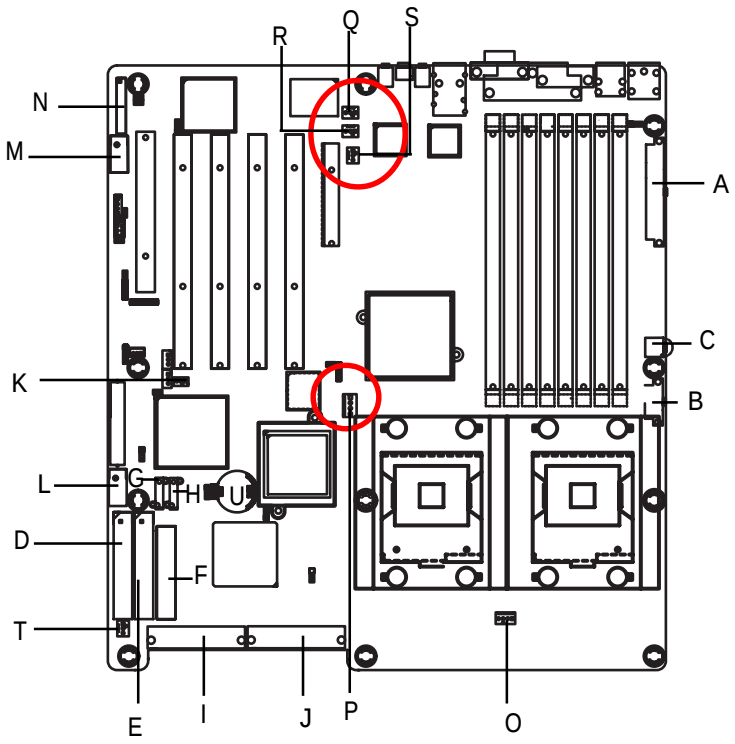
➢This connector supports 1 standard COM port and 1 Parallel port. Device like printer can be connected to Parallel port ; mouse and modem etc can be connected to Serial port.

❹ LAN Connecotrs



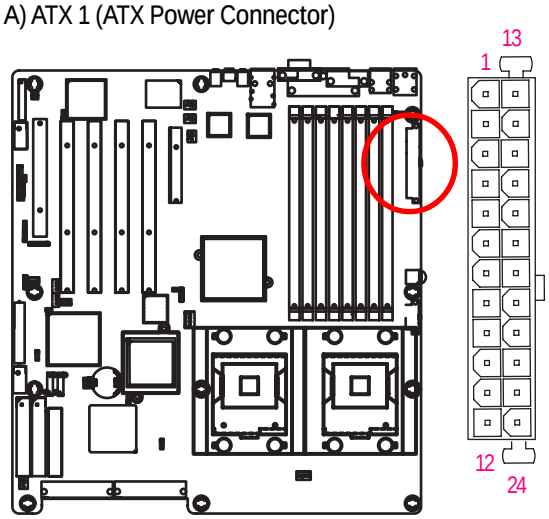
LAN Port	Status	Description
LAN	Yellow LED On	GIGALAN connected
	Green LED On	GIGALAN at Speed 10/100MB
	Green LED Blinking	Data Transfer

Step 4-2 :Connectors Introduction



A) ATX1	L) USB2
B) ATX3	M) COM2
C) ATX2	N) F_Panel1
D) IDE1	O) CPU_FAN0
E) IDE2	P) CPU_FAN1
F) FDD1	Q) J2 (System Fan)
G) SATA1	R) J3 (System Fan)
H) SATA2	S) J4 (System Fan)
I) SCSI1	T) J11 (System Fan)
J) SCSI2	U) BAT1 (Battery)
K) WOL	

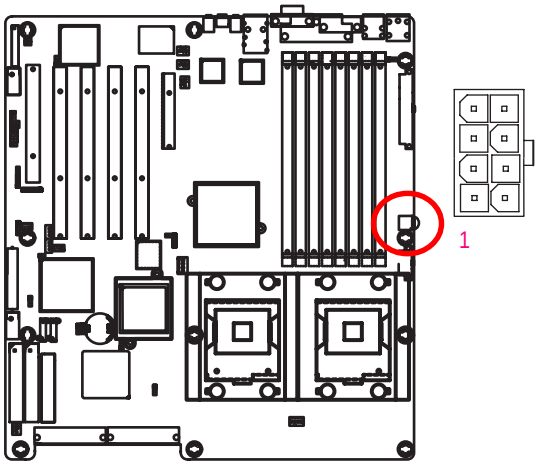
A) ATX 1 (ATX Power Connector)



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.

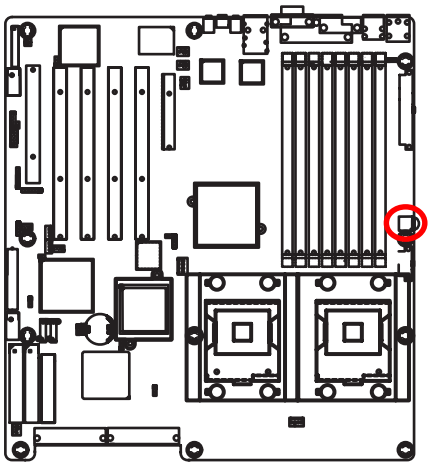
B) ATX3 (ATX Power Connector)

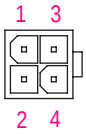


Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	P12V_CPU1
6	P12V_CPU1
7	P12V_CPU0
8	P12V_CPU0

C) ATX2 (ATX Power Connector)

This connector (ATX _12V) suppliesthe CPU operation voltage (Vcore). If this " ATX_ 12V connector" is not connected, system cannot boot.

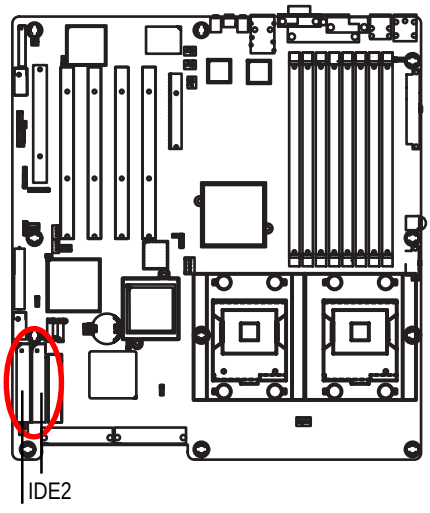


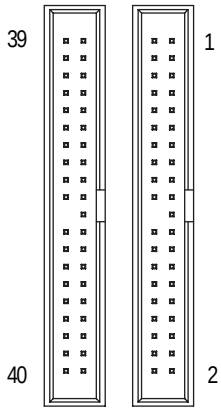


Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

D / E) IDE1 / IDE2 Connector(Primary/Secondary]

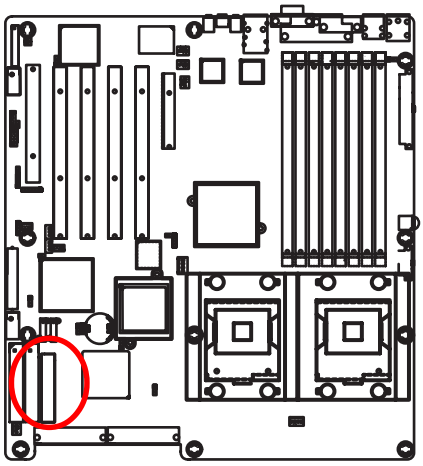
Please connect first harddisk to IDE1 and connect CDROM to IDE2. The red stripe of the ribbon cable must be the same side with the Pin1.

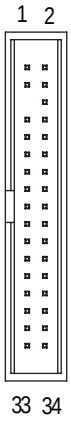




F) FDD1 (Floppy Connector)

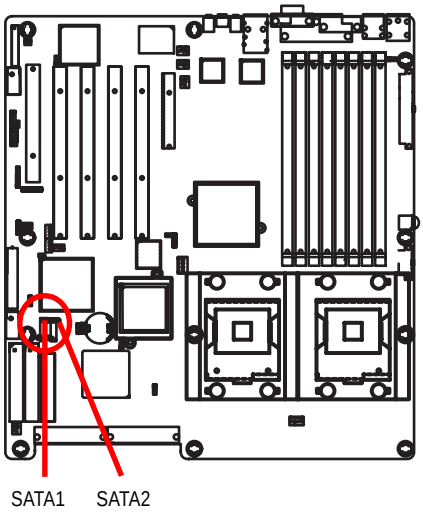
Please connect the floppy drive ribbon cables to FDD. It supports 360K,720K,1.2M,1.44M and 2.88Mbytes floppy disk types. The red stripe of the ribbon cable must be the same side with the Pin1.





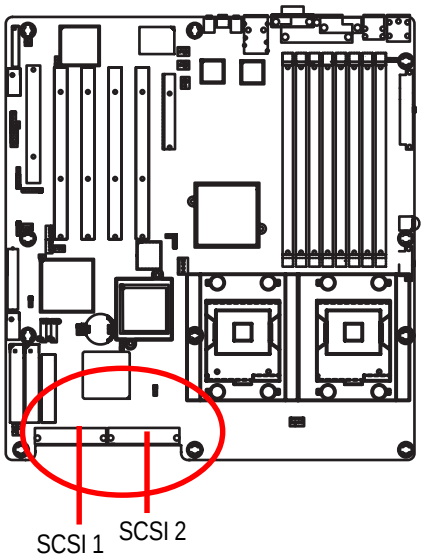
G / H) SATA1/SATA2 (Serial ATA Connectors)

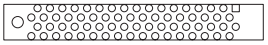
You can connect the Serial ATA device to this connector, it provides you high speed transfer rates (150MB/sec).



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

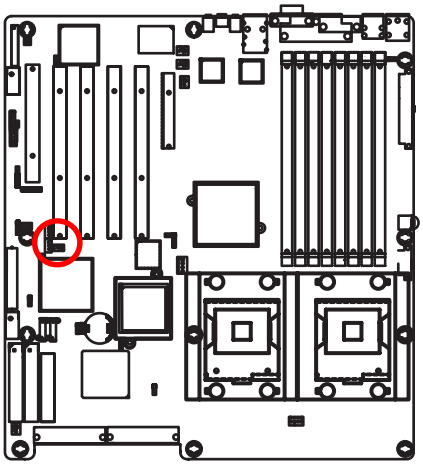
I / J) SCSI1 / SCSI2 (SCSI Connector)





K) WOL (Wake on LAN)

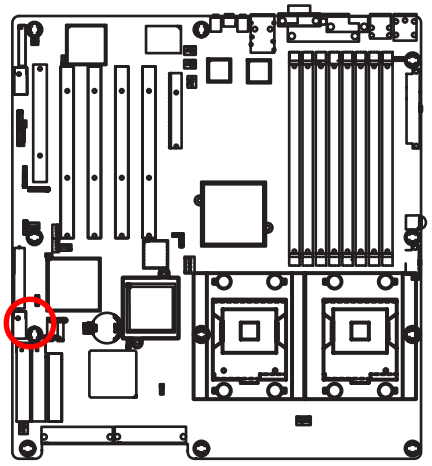
This connector allows the remove servers to manage the system that installed this mainboard via your network adapter which also supports WOL.

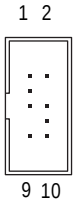


Pin No.	Definition
1	+5V SB
2	GND
3	Signal

L) USB2 (Front USB Connector)

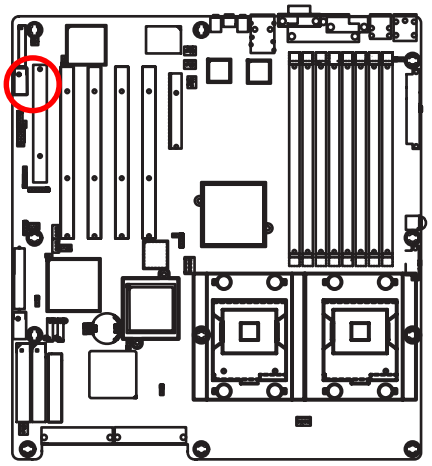
Be careful with the polarity of the front USB connector. Check the pin assignment while you connect the front USB cable. Please contact your nearest dealer for optional front USB cable.

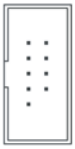




Pin No.	Definition
1	Power
2	GND
3	USB DX-
4	NC
5	USB DX+
6	USB Dy+
7	NC
8	USB Dy-
9	GND
10	Power

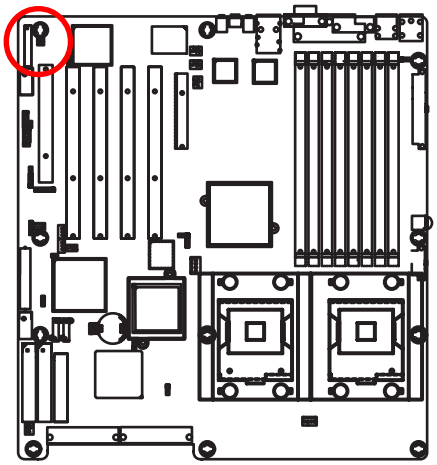
M) COM2





Pin No.	Definition
1	NDCDA2-
2	NDSRA2-
3	NSINA2
4	NRTS42-
5	NSOUTA2-
6	NCTSA2-
7	NDTRA2-
8	NRIA2-
9	GND
10	NC

N) F_Panel1 (2X13 Pins Front Panel connector)

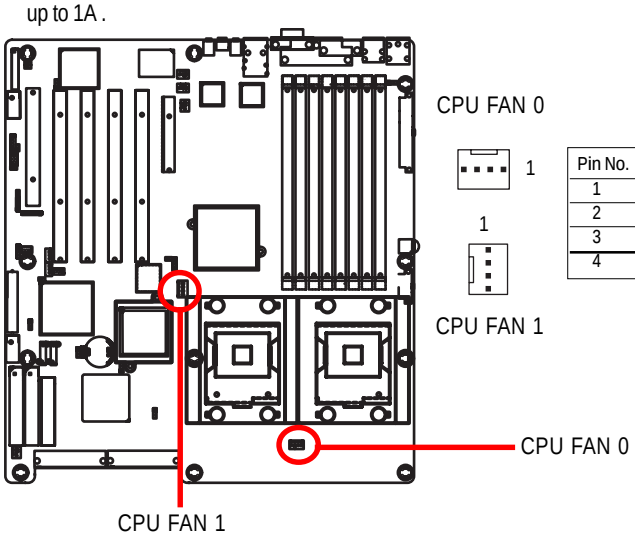


☞Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F_PANEL connector according to the pin assignment above.

Pin No	Signal Name	Description
1	PWRLED+	Power LED Signal anode (+)
2	P5V_STBY	Standby power button
3	Key	Pin Removed
4	ID_LED+	ID LED Signal anode (+)
5	PWRLED-	Power LED Signal cathode(-)
6	ID_LED-	ID LED Signal cathode(-)
7	HD_LED+	Hard Disk LED anode (+)
8	NC	No Connect
9	HD_LED-	Hard Disk LED cathode(-)
10	NC	No Connect
11	PWB+	Soft Power connector anode (+)
12	LAN1_ACT#	LAN1 access LED Signal
13	PWB+_GND	Ground
14	LAN1_LINK_LED	LAN1 linked LED Signal
15	RST_BTN	Reset Button
16	SENSOR_SDA	Sensor SM Bus Data Button
17	RST_BTN_GND	Reset Button Ground
18	SENSOR_SCL	Sensor SM Bus Clock Button
19	FP_ID_SW+	ID Switch LED Signal anode (+)
20	INTRUDER	Case Open Intrusion
21	FP_ID_SW-	ID Switch LED Signal cathode(-)
22	LAN2_ACT#	LAN1 access LED Signal
23	NMI_SW-	NMI Switch cathode(-)
24	LAN2_LINK_LED	LAN2 linked LED Signal

O / P) CPU_FAN0 /1 (CPU Fan Connector)

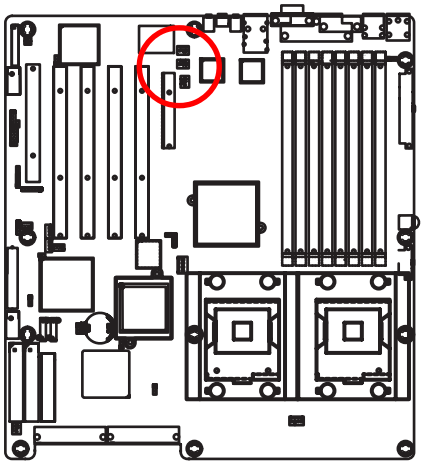
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 1A .

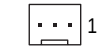


Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

Q / R / S) J2 / 3 / 4 (System Fan Connector)

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





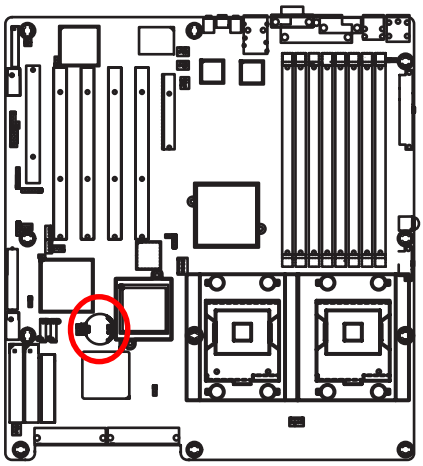
SYS FAN

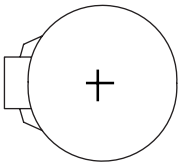
Pin No.	Definition
1	GND
2	12V
3	Sense

SYS FAN

Pin No.	Definition
1	GND
2	12V
3	Sense

U) BT1 (Battery)





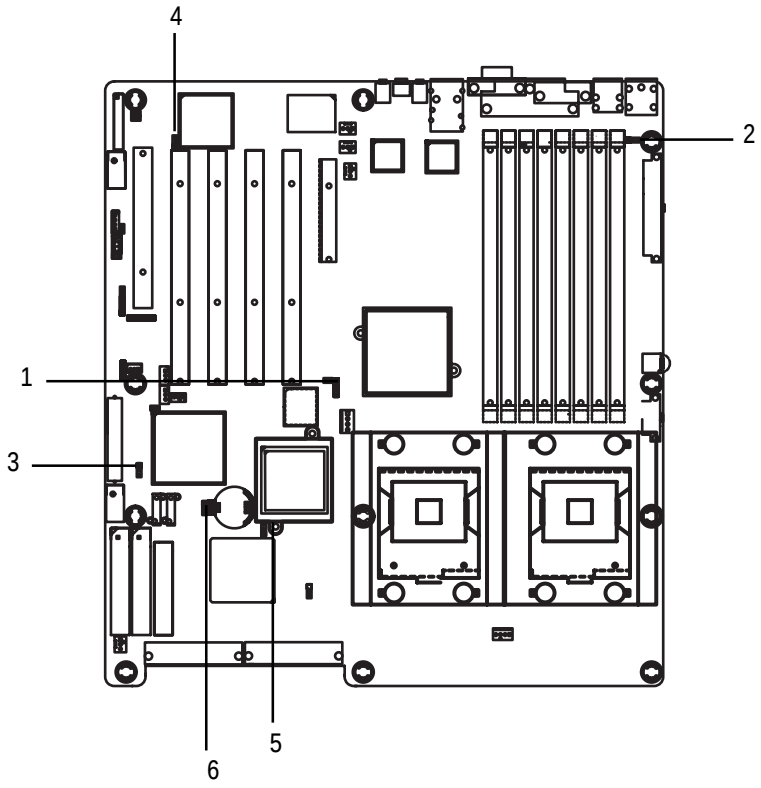
CAUTION

- ❖ 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...

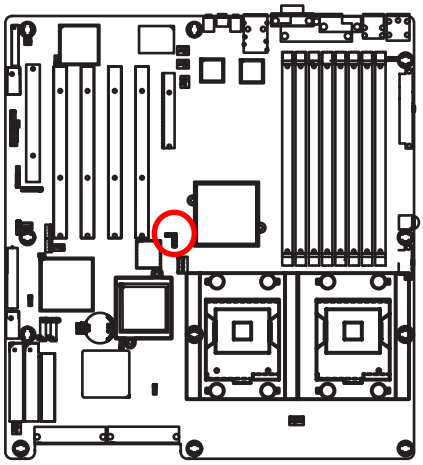
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

Step 4-3 : Jumper Setting Introduction



1) J 8	4) JP2
2) JP 1	5) JP4
3) JP 3	6) CLR_CMOS

1) J8 (FWH Write Protect Setting Jumper)

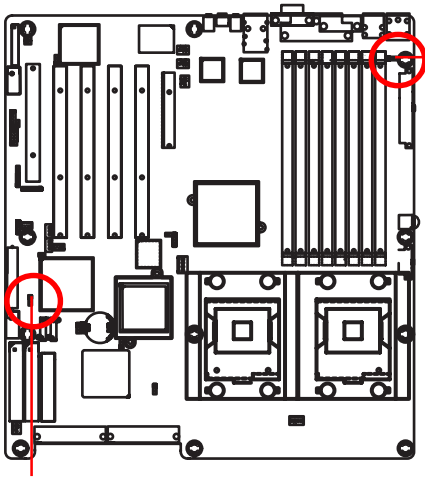


1-2 close: Top Block Lock (Default)

3-4 close: 2-8 Block Lock

Open: Enable CMOS Write Protection Function

2 / 3) JP1/JP3 (USB Wake Up Function)



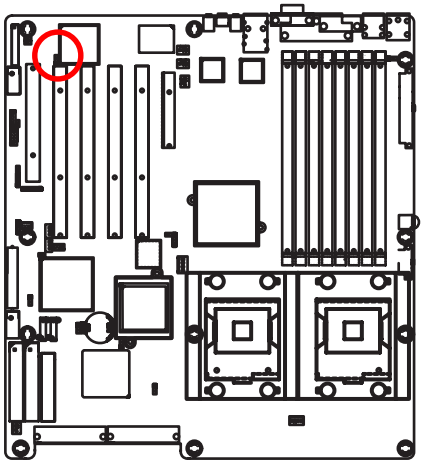
1 1-2 close: Enable USB wake-up function

1

1 2-3 close: Normal (Default)

1

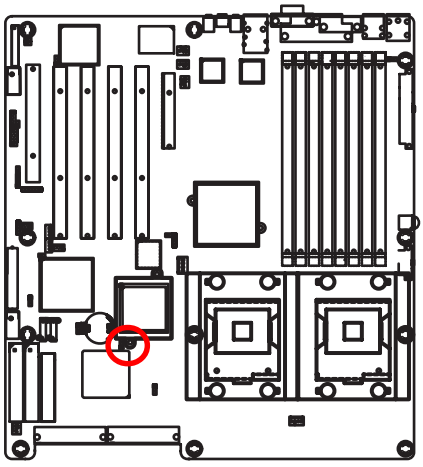
4) JP2 (Onboard VGA Enable/Disable Function)



1  1-2 close: Enable VGA function (Default)

1  2-3 close: Disable VGA function

5) JP4 (On board SCSI Enable/Disable Function)



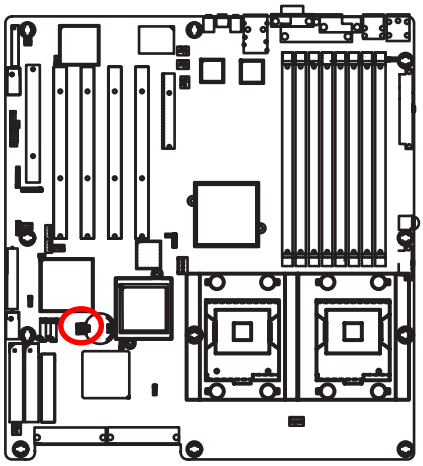
1  1-2 close: Enable SCSI function (Default)

1  2-3 close: Disable SCSI function

6) 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.



1-2 close: Clear CMOS

2-3 close: Normal (Default)

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.

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.

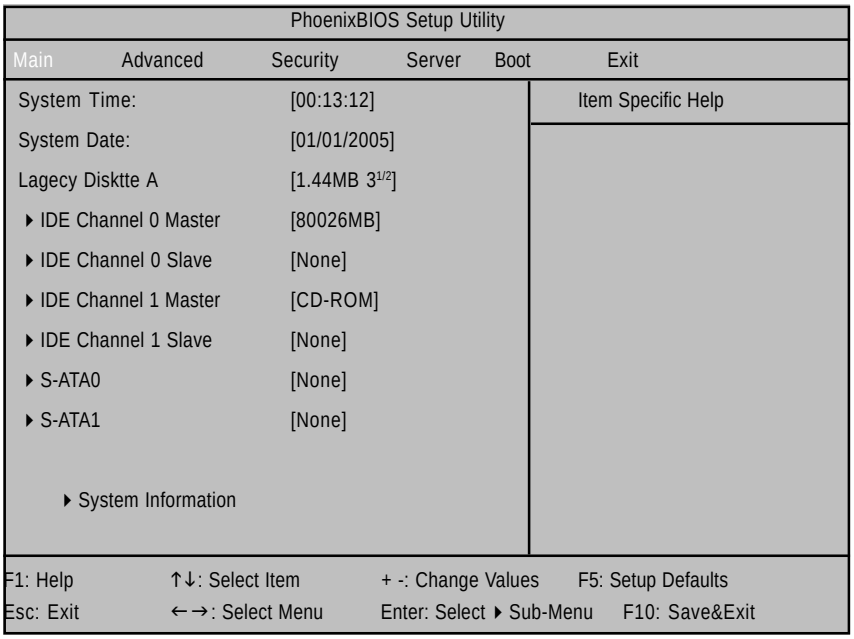


Figure 1: Main

☞ 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)

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, $5^{1/4}$ in. — $3^{1/2}$ inch AT-type high-density drive; 360K byte capacity
- 1.2MB, $3^{1/2}$ in. — $3^{1/2}$ inch AT-type high-density drive; 1.2M byte capacity
- 720K, $3^{1/2}$ in. — $3^{1/2}$ inch double-sided drive; 720K byte capacity
- 1.44M, $3^{1/2}$ in. — $3^{1/2}$ inch double-sided drive; 1.44M byte capacity.
- 2.88M, $3^{1/2}$ in. — $3^{1/2}$ inch double-sided drive; 2.88M byte capacity.

Note: The 1.25MB,$3^{1/2}$ reference a 1024 byte/sector Japanese media format. The 1.25MB,$3^{1/2}$ diskette requires 3-Mode floppy-disk drive.

IDE Channel 0 Master, Slave / Channel 1 Master, Slave, Serial ATA

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 Vaules)

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.

System Information

This category includes the information of Processor Type, Speed, Extended memory, BIOS Version, BIOS Date, System Product Name, System serial number, System version, System UUID, Main Board ID, and Main Board Serial number.

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.

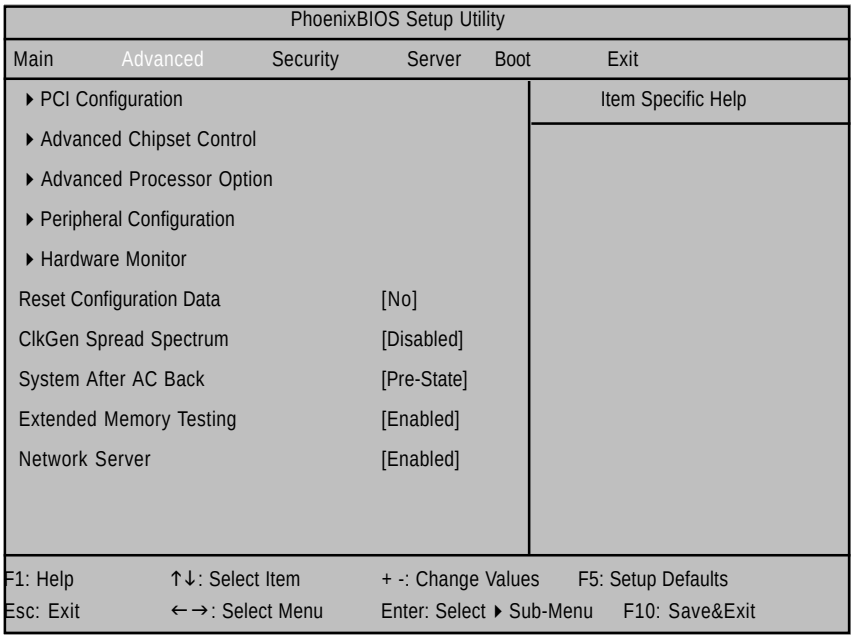


Figure 2: Advanced

PCI Configuration

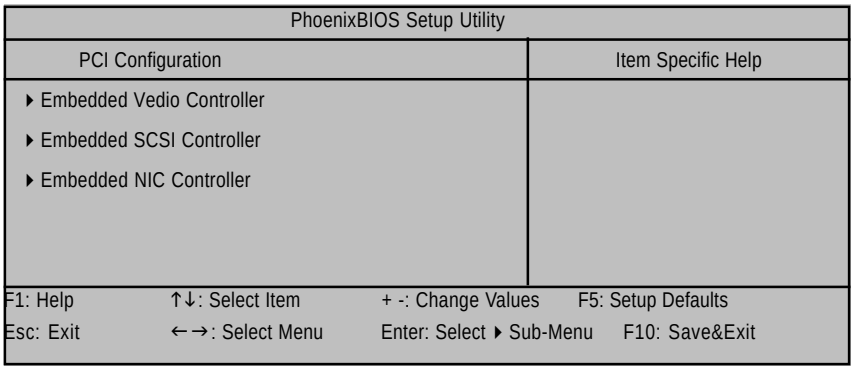


Figure 2-1: PCI Configuration

Embedded Video Controller

- Onboard VGA Control

Enabled	Enable onboard VGA device. (Default value)
Disabled	Disable this function.

Embedded SCSI Controller

- Onboard SCSI Controller

Enabled	Enable onboard SCSI device. (Default value)
Disabled	Disable this function.

- Option ROM Scan

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

EmbeddedNIC

Onboard LAN Control

- Enabled — Enable onboard LAN device. (Default value)
- Disabled — Disable this function.

Option ROM Scan

- Enabled — Enableing this item to initialize device expansion ROM.
- Disabled — Disable this function. (Defualt value)

Advanced Chipset Control

PhoenixBIOS Setup Utility		
Advanced Chipset Control		Item Specific Help
USB Controller	[Enabled]	Item Specific Help
Legacy USB Support	[Disabled]	
Force Compliance Mode	[Enabled]	
PCI-E port C Device 6	[Enabled]	
4GB PCI Hole Granularity	[128MB]	
Data Parity Error Recovery	[Enabled]	
Wake On LAN	[Enabled]	
F1: Help ↑↓: Select Item + -: Change Values F5: Setup Defaults		
Esc: Exit ←→: Select Menu Enter: Select ▸ Sub-Menu F10: Save&Exit		

Figure 2-2: Advanced Chipset Control

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 value)
- Options — Disbale this function.

Legacy USB Support

This option allows user to function support for legacy USB.

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

Force Compliance Mode

This option allows user to function PCI-E Compliance mode by setting item to desired value.

- Enabled — Enables PCI-E Force Compliance mode. (Default Value)
- Disabled — Disables this function.

4GB PCI Hole Granularity

By selecting the granularity of PCI hole for PCI resource, when MTRRs are not enough, we may use this option to reduce the MTRR occupation.

- Options — 128MB, 256MB. Default value is set to 128MB.

Data Parity Error Recovery

- Enabled — Enable data parity error recovery function. (Default vaules)
- Disabled — Disable this function.

Wake On LAN

This option allow user to determine the action of the system when a LAN wake up occurs.

- Enabled — Enable Wake On LAN. (Default value)
- Disabled — Disable this function.

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

Advanced Processor Option

PhoenixBIOS Setup Utility			
Advanced Processor Option			Item Specific Help
Hyper Threading Technology	[Enabled]		
Echo TPR	[Disabled]		
Machine Checking	[Disabled]		
Adjacent Cache Line Prefetch	[Enabled]		
Set Max Ext CPUID=3	[Enabled]		
F1: Help	↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit	←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-3: Advanced Processor Option

Hyper Threading Technology

- Enabled — Enables Hyper-Threading Technology Feature when using Windows XP and Linux 2.4x operating systems that are optimized for Hyper-Threading technology. (Default value)
- Disabled — Disables Hyper-Threading Technology when using other operating systems.

Echo TPR

When this item is enabled, xTPR messages are transmitted on the system bus to the central agent. When set to disabled, it will disable sending xTPR messages on the system bus.

- Enabled — Enable Echo TPR function.
- Disabled — Disable this function. (Default value)

Machine Checking

- Enabled — Enable Machine Checking.
- Disabled — Disable this function. (Default value)

Adjacent Cache Line Prefetch

- Enabled — Processor will fetch both cache lines when it requires data that is not currently inits cache. (Defualt value)
- Disabled — Processor will only fetch the cache line that contains the data currently required by the processor.

Set Max Ext CPUID = 3

Set MAX CPUID extended function value to 3.

- Enabled — Enable Set Max Ext CPUID = 3 function.
- Disabled — Disable this function. (Default value)

Peripheral Configuration

PhoenixBIOS Setup Utility		
Peripheral Configuration		Item Specific Help
Serial Port A	[Enabled]	
Base I/O address/IRQ	[3F8/IRQ4]	
Serial Port B	[Enabled]	
Base I/O address/IRQ	[2F8/IRQ3]	
Parallel Port	[Enabled]	
Mode	[Bi-directional]	
Base I/O addreee	[378]	
DMA Channel	[DMA3]	
Floppy disk connector	[Disabld]	
Floppy check	[Disabld]	
Parallel ATA	[Both]	
Serial ATA	[Enabled]	
Native Mode Operation	[Auto]	
F1: Help ↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit ←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-4: Peripheral Configuration

☞Serial Port A

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

- ⏩Disabled Disable the configuration.
- ⏩Enabled Enable the configuration (Default value)

▸ Base I/O Address/IRQ

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

Serial Port B

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

- Disabled — Disable the configuration. (Default value)
- Enabled — Enable the configuration

- Base I/O Address/IRQ

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

Parallel Port

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

- Enabled — Enable the configuration.
- Disabled — Disable the configuration. (Default value)

- Mode

This option allows user to set Parallel Port transfer mode.

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

- Base I/O Address

- 378 — Set IO address to 378
- 278 — Set IO address to 278.

- DMA Channel

- DMA1 — Select DMA1 as DMA channel.
- DMA3 — Select DMA3 as DMA channel. (Default values)

Floppy disk controller

- Enabled — Enable the floppy disk controller.
- Disabled — Disable the device. (Default value)

Floppy Check

- Enabled — Enable the device to verify floppy typer when system boot.
- Disabled — Disable the this function. (Default value)

Parallel ATA

- Disabled — Disable the device.
- Both — Select both Channel 0 and Channel 1 as Parallel ATA. (Default value)
- Channel 0 — Select both Channel 0 as Parallel ATA.
- Channel1 — Select both Channel 1 as Parallel ATA.

Serial ATA

- Enabled — Enable Serial ATA device. (Default value)
- Disabled — Disable the Serial ATA.

Native Mode Operation

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

Note that certain OS is not supported under Native Mode.

- Auto — Auto detected. (Default value)
- Serial ATA — Set Native mode to Serial ATA.
- Parallel ATA — Set Native mode to Parallel ATA.
- Both — Set Native mode to Parallel ATA and Serial ATA.

Hardware Monitor

PhoenixBIOS Setup Utility		
Hardware Monitor		Item Specific Help
Fan Alarm	[Enabled]	
Voltage Alarm	[Enabled]	
Temperature Alarm	[Enabled]	
CPU Temperature	38C/100F	
SDRAM Socket Temperature	33C/091F	
PCI Connector Temperature	33C/091F	
SCSI Connector Temperature	33C/091F	
▸ Voltage Monitor		
▸ Fan Monitor		
F1: Help ↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit ←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-5: Hardware Monitor

☞ Hardware Monitor Configuration

All items on this menu cannot be modified in user mode. If any items requires changes, please consult your system supervisor.

Fan Alarm

- Enabled — Enable Fan Alarm function. (Default value)
- Disabled — Disable this function.

Voltage Alarm

- Enabled — Enable Voltage Alarm function. (Default value)
- Disabled — Disable this function.

Temperature Alarm

- Enabled — Enable Temperature Alarm function. (Default value)
- Disabled — Disable this function.

CPU Temperature

This field only displlays the current CPU 0/1 temperature.

SDRAM Socket Temperature

This field only displlays the current SDRAM Socket temperature.

PCI Connector Temperature

This field only displlays the current PCI connector temperature.

SCSI Connector Temperature

This field only displlays the current SCSI connector temperature.

Voltage Monitor

- Voltage: VCORE1 / VCORE2 / 3.3V / 5V / 3VSB / 1.5 VSB / +12V / VBAT / 5VSB
  - Detect system's voltage status automatically.

Fan Monitor

- Fan: CPU Fan1 / CPU Fan2 / Power Fan / System Fan1 / System Fan2 / System Fan3
  - Display the current CPUs, Power and System 1/2/3 FAN speed.

Reset Configuration Data

- Yes — Clear the Extended System Configuration Data (ESCD) area.
- No — Disable this function. (default value)

Clk Gen Spread Spectrum

- Enabled — Enable ClkGen Spread Spectrum.
- Disabled — Disabled this function. (Default value)

System After AC Back

Set the mode od operation if an AC/Power loss occurs.

- Power On — Power on system without pressing power button.
- Stay Off — Keep the power off until the power button is pressed.
- Pre- State — Set system to the last sate when AC power is removed. Do not power on system when AC power is back. (Default value)

Extended Memory Testing

Determine which type of tests will be performed extended memory. (above 1M)

- Enabled — Enable Extended Memory Testing. (Default value)
- Disabled — Disable this function.

Network Server

- Enabled — System will be secured at boot to prevent tampering during network operation. (Default value)
- Disabled — Disable this function.

Security

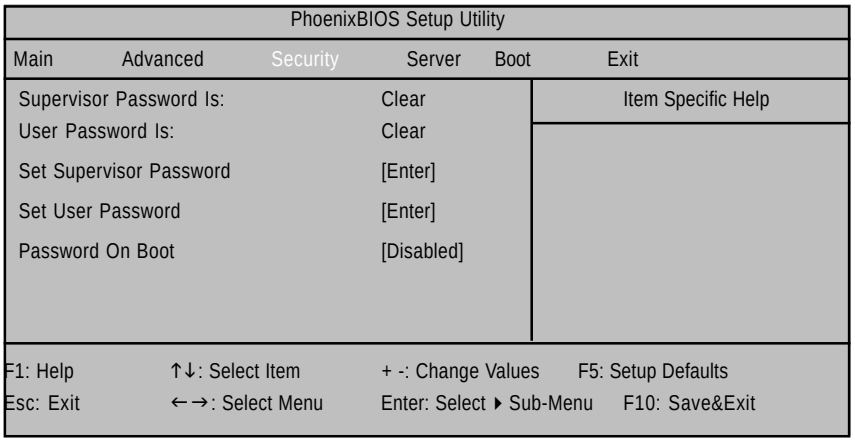


Figure 3: Security

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.

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 value)

Server

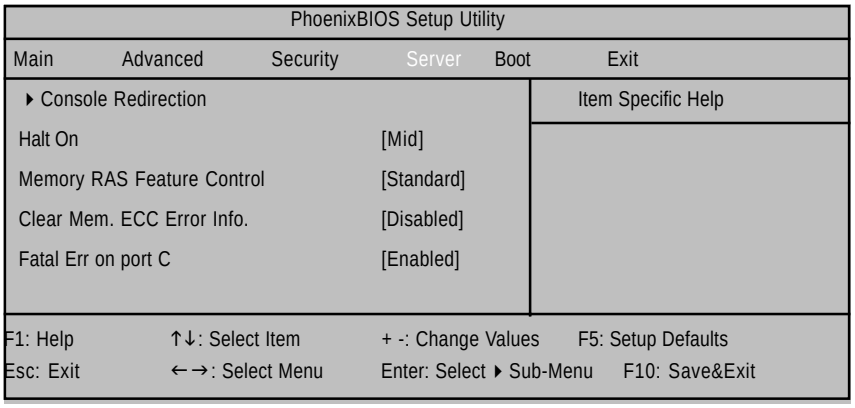


Figure 4: Server

Console Redirection

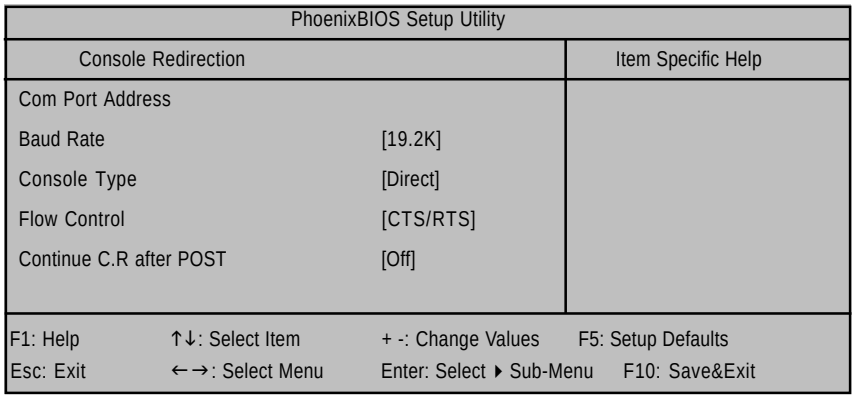


Figure 4-1: Console Redirection

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.
- On-board COMB — Use COMB as he COM port address.
- Disabled — Disable this function. (Default value)

Baud Rate

This option allows user to set the specified baud rate.

- Options — 9600, 19.2K, 38.4K, 57.6K, 115.2K.

Console Type

This option allows user to select the specified console type. This is defined by IEEE. PC-ANSI is the standard PC-type terminal. Note that for VT100+, you must select English as your languuage. And VT-UTF8 uses unicode.

- Options — vt100, vt100+, vt100 8bit, PC ANSI 7bit, PC-ANSI, VT-UTF8.

Flow Control

Enables Flow Control when EMP is dahring the same serial port as console redirection, the flow control must be set to CTS/RTS or CTS/RTS+CD depending on whether a modem is used.

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

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 value)

Halt On

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

NO Errors	The system boot will not stop for any error that may be detected and you will be prompted.
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped.
Mid	The system boot will not stop for a keyboard or disk error; it will stop for all other errors. (Default value)

Memory RAS Feature Control

Select specified features for DIMMs. Sparing or Memory Mirroring.

Standard	Select Standard as Memory RAS Feature. (Default value)
Mirroring	Memory mirroring allows user to install two banks of redundant memory on an SMP expansion module. If the Module detects memory errors in the active memory bank, it switches to the back-up memory bank if memory errors occur.
Sparing	This feature allows user to uses a spare online bank to provide DIMM fail-over capabilities when a pre-defined threshold of single-bit correctable errors is reached.

Clear Mem. ECC Error Info

Enabled	Enable Clear memory ECC error information function.
Disabled	Disable this function. (Default value)

Fatal Error on port C

Enabled	Enable Fatal Erre on port C.
Disabled	Disable this function. (Default value)

Boot

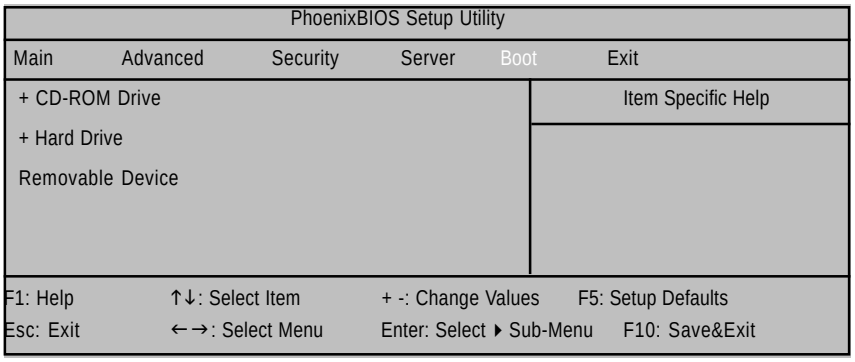


Figure 5: Boot

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.

Boot Device Priority

- Removable Device / Hard Drive / CD-ROM Drive/

These three fields 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.

Exit

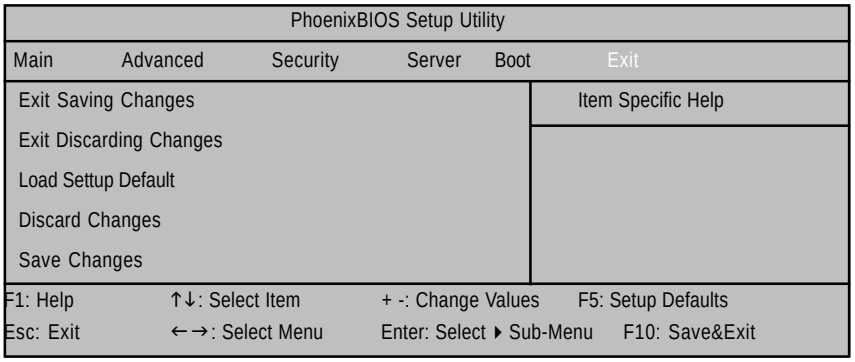


Figure 6: Exit

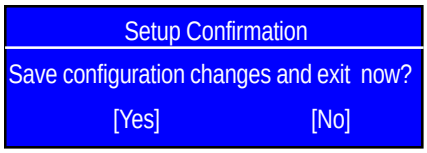
About This Section: Exit

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.

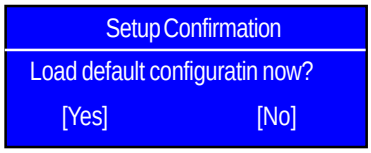


Exit Discarding Changes

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

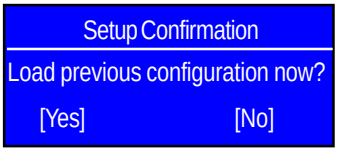
This option allows user to load default values for all setup items.
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Discard Changes

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

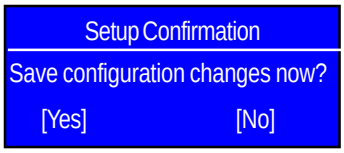
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Save Changes

This option allows user to save setup dat ato CMOS.

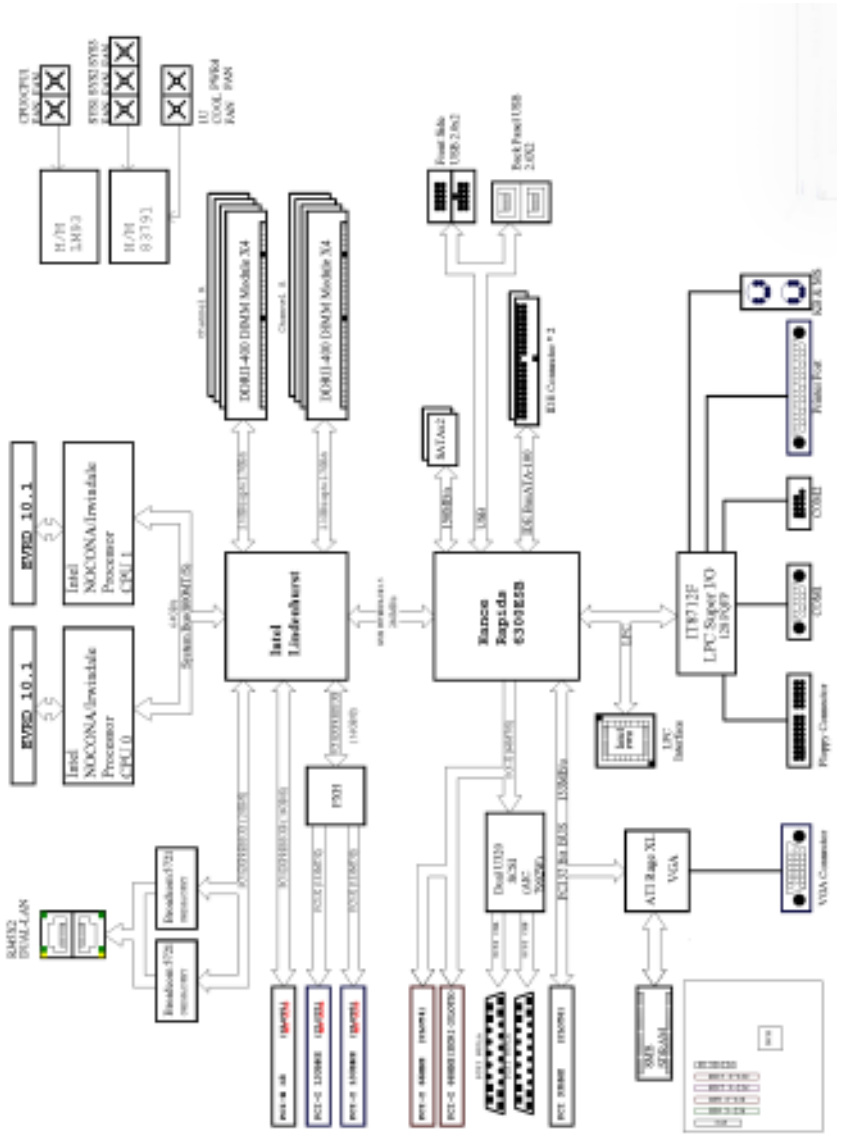
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Press [Yes] to save setup daya to CMOS.

Chapter 4 Technical Reference

Block Diagram



Chapter 5 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.

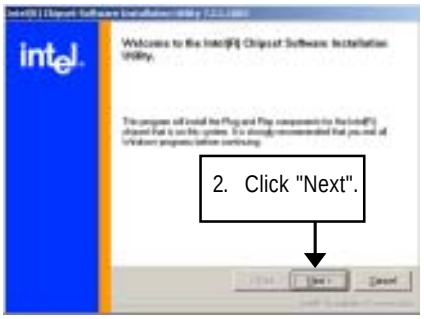
Installation Procedures:

1. The CD auto run program starts, Double click on “Intel Chipset Software Installation Utility” to start the chipset 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.

Auto Run windows

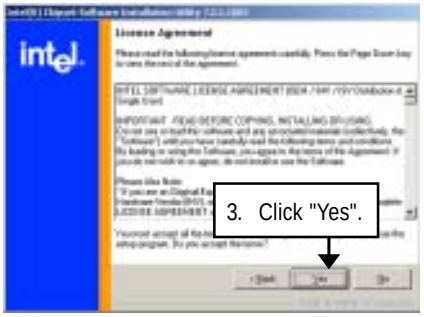
(1)

Setup Wizard



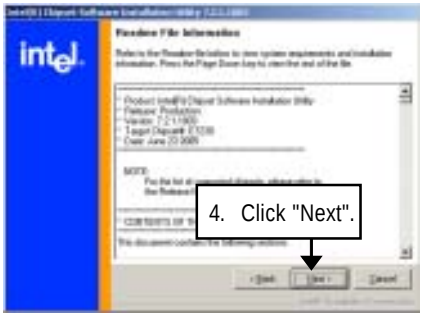
(2)

License Aggremment



(3)

Readme Information



(4)

Installation Completed

5. Installation completed, Click "Finish" to restart computer.

(5)

B. Broadcom 5721 Lan 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 "Broadcom 5721 Lan Software Installation Utility" to start the installation.
2. Select "DRIVER INSTALLER" to start installation.
3. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
4. Setup completed, click "Finish" to restart your computer.

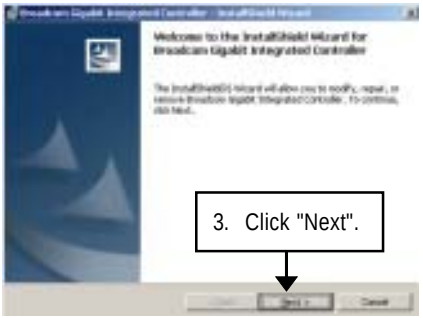
Auto Run windows

(1)

Broadcom Lan Software

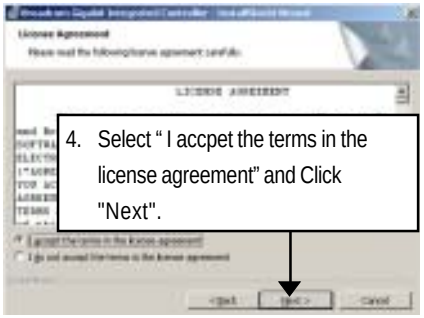
(2)

Driver Installation Wizard



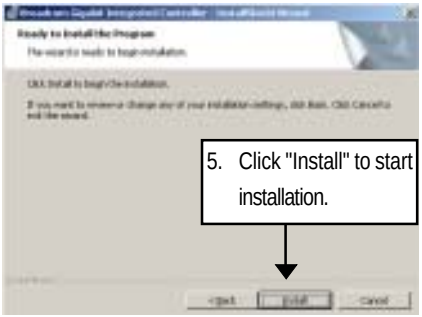
(3)

License Agreement



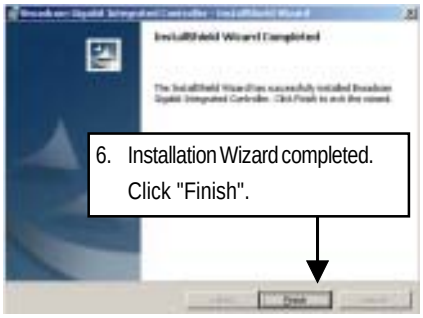
(4)

Ready to instll program



(5)

Installation Completed



(6)

C. Broadcom Management Applications 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 "Broadcom 5721 Lan Software Installation Utility" to start the installation.
2. Select "MANAGEMENT APPLICATIONS" to start installation.
3. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
4. Setup completed, click "Finish" to restart your computer.

Auto Run windows

(1)

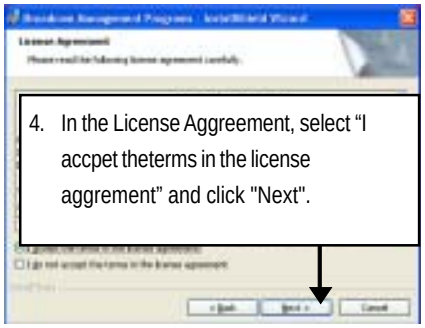
Broadcom Lan Software

(2)

InstallShield Wizard Welcome Window

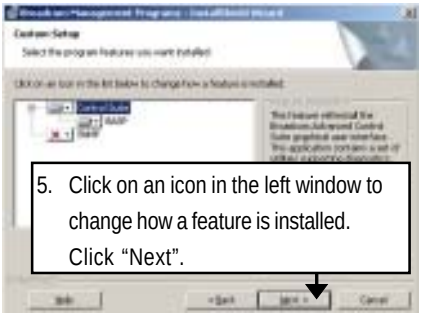
(3)

License Agreement



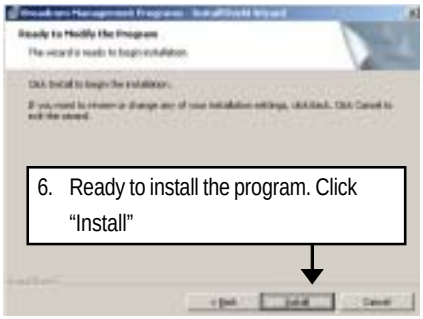
(4)

CUSTOM Setup



(5)

Ready to Install

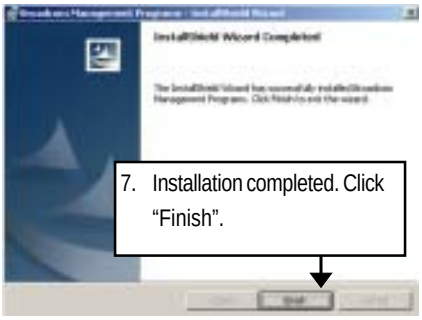


(6)

CUSTOM Setup Features

Control Suite	This feature will install Broadcom Advanced Control Suite graphical user interface. This application contains a set of utilities supporting diagnostic, monitoring, and configuration for Broadcom network adapters.
BASP	This feature will install Broadcom Advanced Server Program. This NDIS intermediates driver software allow for load balancing and failover, and VLAN capabilities.
SNMP	This feature will install SNMP sub-agent, allowing he SNMP manager to monitor the Broadcom Network Adapters. Note that the the Microsoft SNMP Service must be running for this feature to function properly.

Installaiton Wizard Completed



(7)

D. Adapetc 7902 Driver Installation

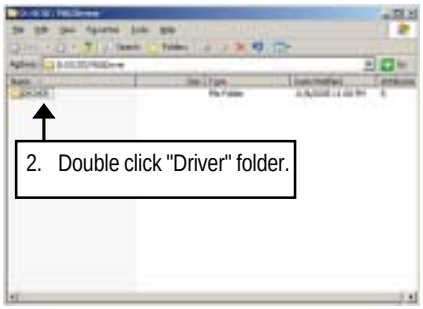
Installation Procedures:

1. The CD auto run program starts, Double click on “Intel SATA Host Raid Driver”.
2. Select the folder depending on your operating system.
3. Copy all files to the floppy disk.
4. Reboot the system.
5. Insert the floppy disk and press F6 when system boot.

Auto Run windows

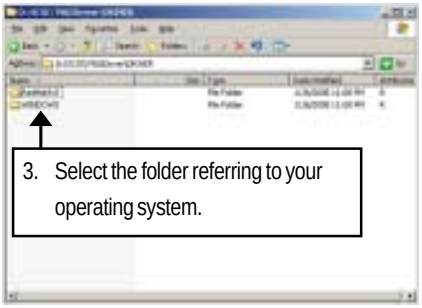
(1)

Driver Installation



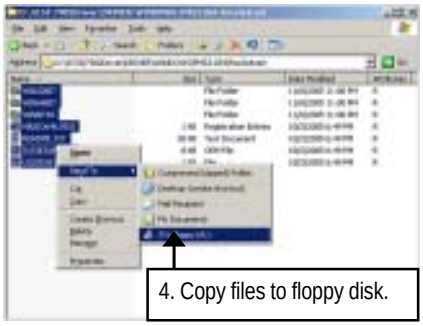
(2)

Operating System Selection



(3)

Copying Files



(4)

Chapter 6 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

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