GA-7GEWH-RH

Dual Xeon Processor Motherboard

USER'S MANUAL

Xeon™ Processor Motherboard

Rev. 1001

12ME-7GEWHRH-1001R

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

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

Item Checklist

- ☑ The GA-7GEWH-RH motherboard
- ☑ IDE (ATA100) cable x 1 / Floppy cable x 1
- ☑ CD for motherboard driver & utility
- ☑ GA-7GEWH-RH user's manual
- ☑ Serial ATA cable x 6
- ☑ I/O Shield Kit
- ☑ Power cable x 4
- ☑ SAS cable x 2

WARNING!

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

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

Installing the motherboard to the chassis...

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

Chapter 1 Introduction

1.1 Features Summary

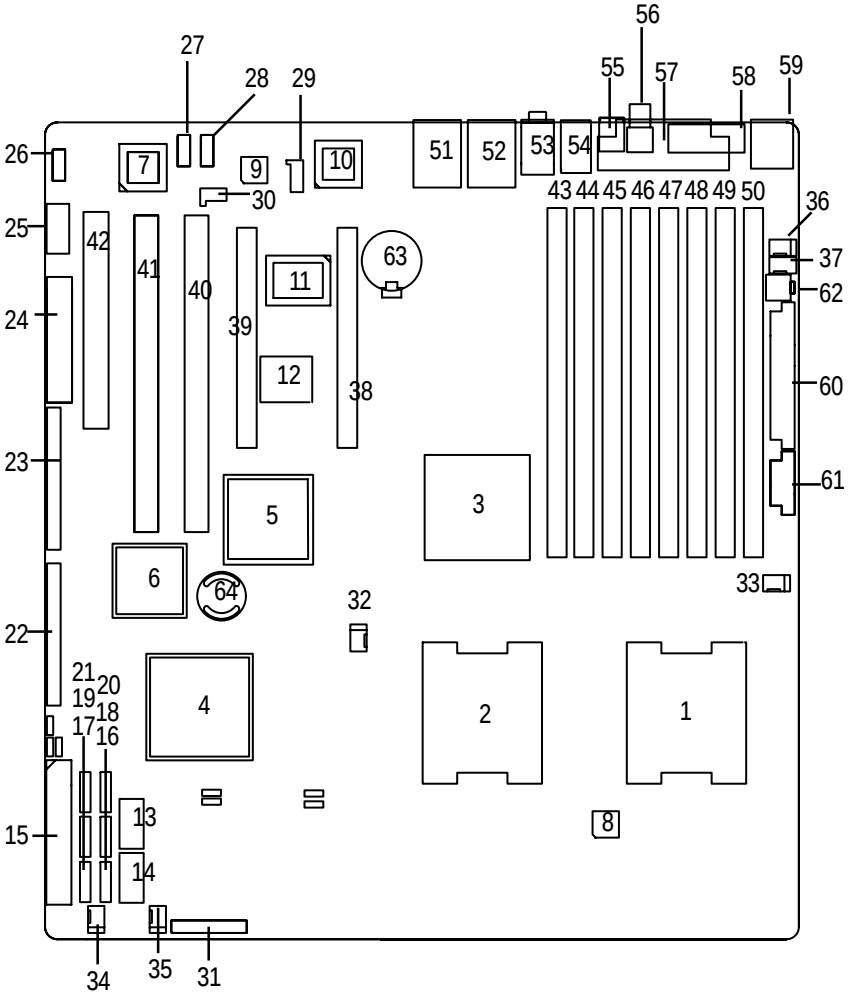
Form Factor	• 12" x 13" EATX size form factor, 8 layers PCB
CPU	• Supports Dual Intel® Xeon™ processors • Xeon™ Dual Core in LGA 771 socket • Supports 667/1066MHz FSB (Dempsey) • Supports 1066/1333MHz FSB (Woodcrest) • Enhanced Intel SpeedStep Technology (EIST) & Demand Based Switch (DBS) • Support Intel Virtualization Technology (VT) • L2 cache on-die per processor from 4M
Chipset	• Intel® 5000X Chipset • Intel® 6321ESB • Intel® 6702 PXH-V
Memory	• 8 x 240-pin DIMM sockets • Supports up to 32GB 533/667 memory • 4 Channel memory bus • Fully Buffered DIMM (FBD) 533/667MHz • Support 512MB, 1GB, 2GB and 4GB memory
I/O Control	• ITE Super I/O
Expansion Slots	• 1 PCI slots 32-Bit/33MHz (5V) • 2 PCI-X slots 64-Bit/66~133MHz • 1 PCI-Express x16 slot • 1 PCI-Express x8 slot (in x16 socket)
SAS RAID Controller	• LSI® SAS1068 SAS Controller • Supports 8 independant SAS 3.0 Gb/s with Host RAID 0,1,10
SATA RAID Controller	• Built in Intel® 6321ESB with SATA RAID 0,1,10 • Supports 6 SATA connectors
On-Board Audio	• Relteak ALC883
IEEE1394A	• TI TSB43AB23
On-Board LAN	• Build in Intel® 6321ESB chipset supports dual Gigabit Ethernet ports • Supports WOL, PXE

On-Board Peripherals	• 1 ATA 100 connector • 1 Floppyport supports 360K, 720K,1.2M, 1.44M and 2.88M bytes. • 2 PS/2 connectors • 1 Parallel port supports Normal/EPP/ECP mode • 2 Serial port (COM, 1 by cable) • 8 x USB 2.0 (4 by cable) • 2 x LAN RJ45 • 6 x SATA connectors
Hardware Monitor	• Winbond 83792G controller • Enhanced features with CPU Vcore, 1.5V reference, VCC3 (3.3V) , VBAT3V, +5VSB, CPUA/B Temperature, and System Temperature Values viewing • CPU/Power/System Fan Revolution Detect • CPU shutdown when overheat • System Voltage Detect • Support basic ASF remote transaction through CSA Bus with hardware circuit
BIOS Special Features	• Phoenix BIOS on 8Mb flash RAM • Ehanced feature with GSMT Lite Utility
Additional Features	• Supports S3, S4, S5 under Windows Operating System • Wake on LAN (WOL) • Wake on Ring (WOR) • AC Recovery • Supports Console Redirection • Supports 4-pin Fan controller

1.2 GA-7GEWH-RH Motherboard Components

1.	Primary CPU	33.	CPU1 Fan Connector
2.	Secondary CPU	34.	Front Fan1 Connector
3.	Intel 5000X	35.	Front Fan2 Connector
4.	Intel 6321ESB	36.	Rear Fan1 Connector
5.	Intel 6702 PXH-V	37.	Rear Fan2 Connector
6.	LSI SAS1068	38.	PCI-E x16 Slot
7.	TSB43AB23	39.	PCI-E x8 Slot (in X16 socket)
8.	Winbond W83792G	40.	PCI-X Slot (64bit/133MHz)
9.	Relteak ALC883	41.	PCI-X Slot (64bit/100MHz)
10.	Intel LAN Chip	42.	PCI Slot(32bit/33MHz)
11.	ITE 8718F-S	43.	FBDDIMM A1
12.	BIOS Flash	44.	FBDDIMM A2
13.	Front USB1 Connector	45.	FBD DIMMB1
14.	Front USB2 Connector	46.	FBD DIMMB2
15.	IDE Connector	47.	FBD DIMMC1
16.	SATA0 Connector	48.	FBD DIMMC2
17.	SATA 1Connector	49.	FBD DIMMD1
18.	SATA2 Connector	50.	FBD DIMMD2
19.	SATA3 Connector	51.	USB/LAN Ports
20.	SATA4 Connector	52.	USB/LAN Ports
21.	SATA5 Connector	53.	Audio Connectors
22.	SAS Connector	54.	Audio Connectors
23.	SAS Connector	55.	SPDIF out (Optical)
24.	Floppy Connector	56.	SPDIF out (Coaxial)
25.	COM2 Connector	57.	Parallel Port
26.	IEEE 1394A Connector	58.	Serial Port
27.	IEEE 1394B Connector	59.	Keyboard/Mouse Connector
28.	Front Audio Connector	60.	Auxiliary Power (ATX1)
29.	SPDIF In Connector	61.	Auxiliary Power (ATX3)
30.	CD In Connector	62.	Auxiliary Power (ATX2/+12V)
31.	Front Panel Connector	63.	Battery
32.	CPU0 Fan Connector	64.	ibutton**

**** ibutton functions for LSI Software RAID 0,1,5,10**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Chapter 2 Hardware Installation Process

2-1: Installing Processor and CPU Haet Sink

CAUTION

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

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

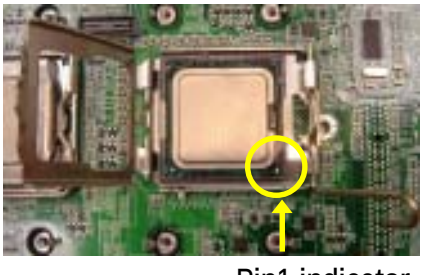
2-1-1: Installing CPU

Step 1 Raise the metal locking lever on the socket.

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

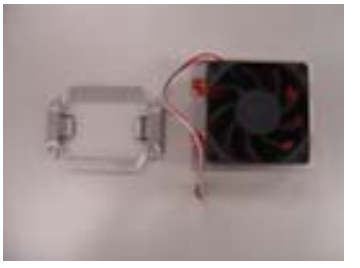
Step 3 Insert the CPU with the correct orientation. The CPU only fits in one orientation.

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

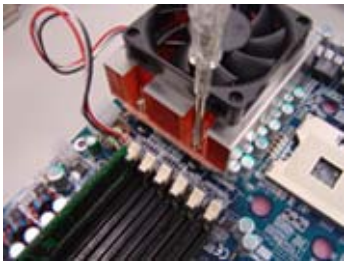


2-1-2: Installing Heat Sink

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



Step 2.
Preparing heat sink installation kit.



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

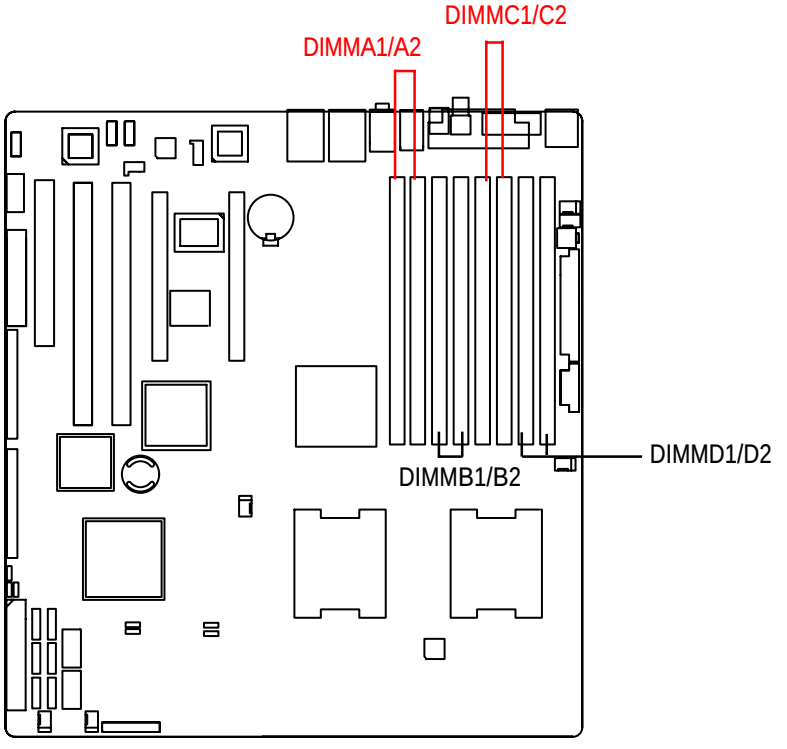
Step 4.
Attach the power connector of the heatsink to the CPU fan header located on the motherboard.

2-2: 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.

GA-7GEWH-RH has 8 dual inline memory module (DIMM) sokcets. It supports the 4 FB-DIMM Channels Technology. The BIOS will automatically detects memory type and size during system boot. For detail DIMM installation, please refer to the following instructions.



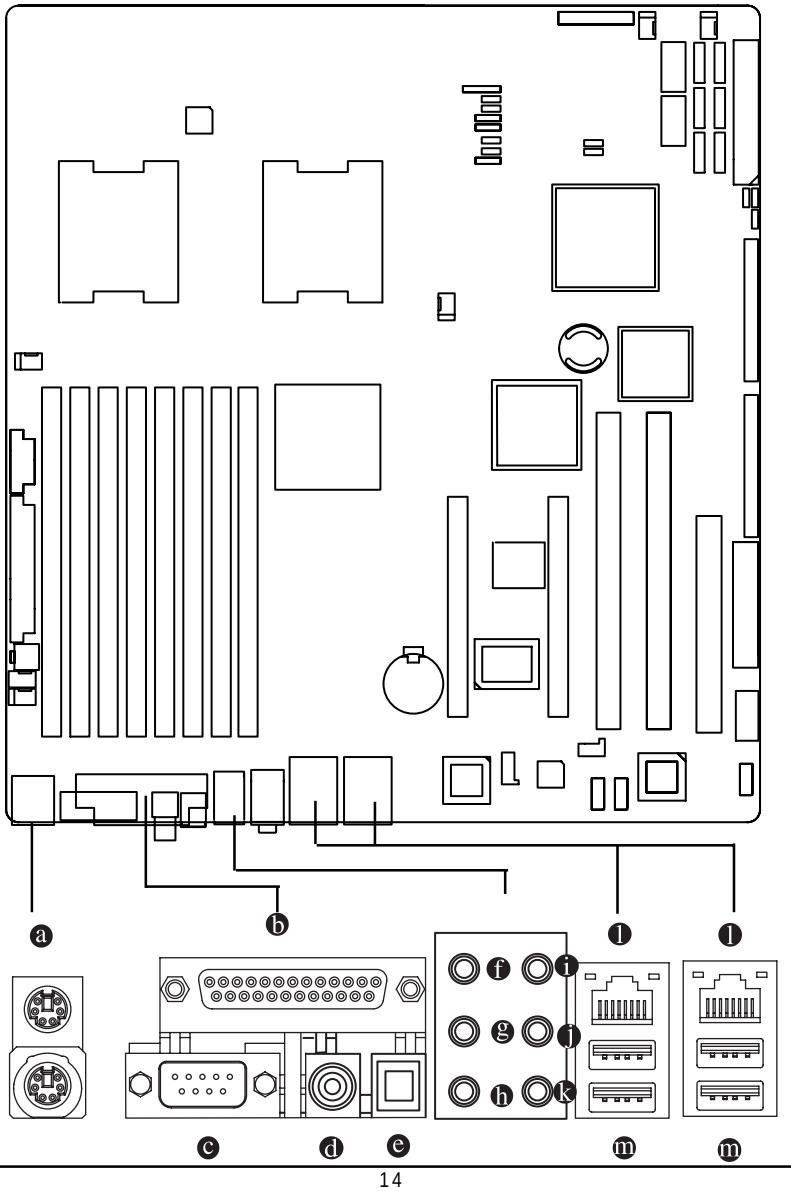
Installation Steps:

1. Unlock a DIMM socket by pressing the retaining clips outwards.
2. Aling a DIMM on the socket such that the notch on the DIMM exactly match the notches in the socket.
3. Firmly insert the DIMMinto the socket until the retaining clips snap back in place.
4. Please note that each logical DIMM must be made of two identical DIMMs having the same device size on each and the same DIMM size.
5. Reverse the installation steps when you want to remove the DIMM module.

Locked Retaining Clip

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

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



ⓐ PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

ⓑ Parallel Port

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

ⓒ COAXIAL (SPDIF Out)

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

ⓓ OPTICAL (SPDIF Out)

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

ⓔ Serial Port

Modem can be connected to Serial port.

ⓕ Line In

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

ⓖ Line Out (Front Speaker Out)

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

ⓗ MIC In

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

ⓘ Surround Speaker Out (Rear Speaker Out)

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

ⓙ Center/Subwoofer Speaker Out

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

ⓚ Side Speaker Out

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

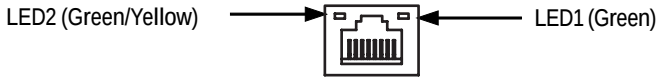
ⓛ LAN Port

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

ⓜ USB Port

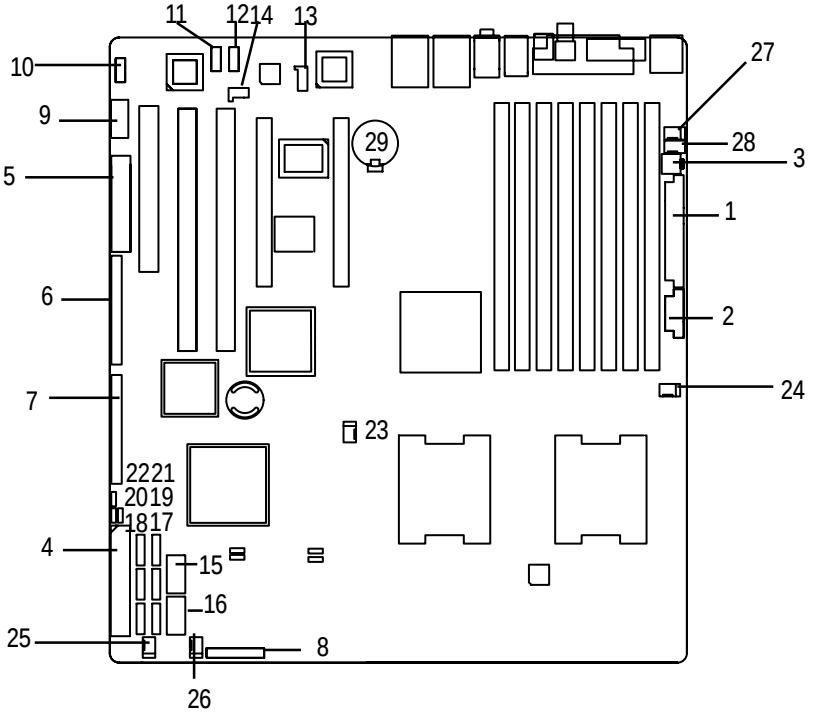
Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible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

LAN LED Description



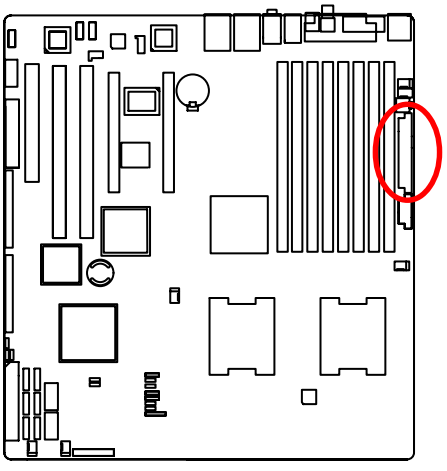
Name	Color	Condition	Description
LED1	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
LED2	-	OFF	10Mbps connection
	Green	BLINK	Port identification with 10 Mbps connection
	Green	ON	100Mbps connection
	Green	BLINK	Port identification with 100Mbps connection
	Yellow	ON	1Gbps connection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

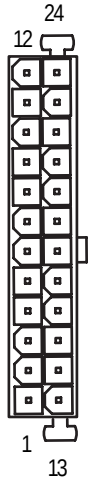
2-4 : Connectors Introduction



1. ATX1
2. ATX3
3. ATX2 (ATX +12V)
4. IDE1 (IDE Connector)
5. FDD1 (Floppy Connector)
6. SAS1 (SAS Connector)
7. SAS2 (SAS Connector)
8. F_Panel (Front Panel Connector)
9. COM2
10. F_1 (1394A Connector)
11. F_2 (1394B Connector)
12. F_Audio (Front Audio Connector)
13. CD_IN
14. SPDIF_I
15. F_USB1 (Front USB Connector)
16. F_USB2 (Front USB Connector)
17. SATA0 (SATA Connector)
18. SATA1 (SATA Connector)
19. SATA 2(SATA Connector)
20. SATA3 (SATA Connector)
21. SATA4 (SATA Connector)
22. SATA5 (SATA Connector)
23. CPU0_FAN (CPU 0 Fan Connector)
24. CPU1_FAN (CPU1 Fan Connector)
25. FAN_F1 (Front Fan1 Connector)
26. FAN_F2 (Front Fan2 Connector)
27. FAN_R1 (Rear Fan1 Connector)
28. FAN_R2 (Rear Fan2 Connector)
29. BAT1 (Battery)

1) ATX1 (Auxukiary Power Connector)

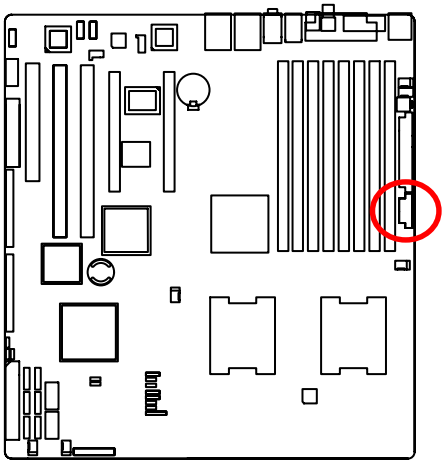


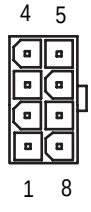


PIN No.	Definition
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	POK
9	5VSB
10	+12V
11	+12V
12	+3.3V
13	+3.3V
14	-12V
15	GND
16	PSON
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

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

2) ATX3 (Auxukiary Power Connector)



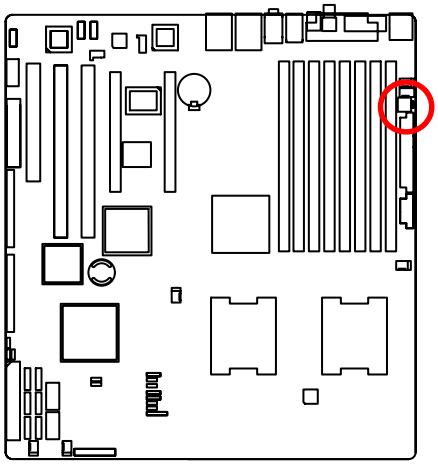


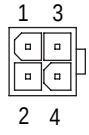
Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	P12V_CPU
6	P12V_CPU
7	P12V_CPU
8	P12V_CPU

3) ATX2 (Auxukiary +12V Power Connector)

This connector (ATX_12V) supplies the CPU operation voltage (Vcore).

If this "ATX_12V connector" is not connected, system cannot boot.

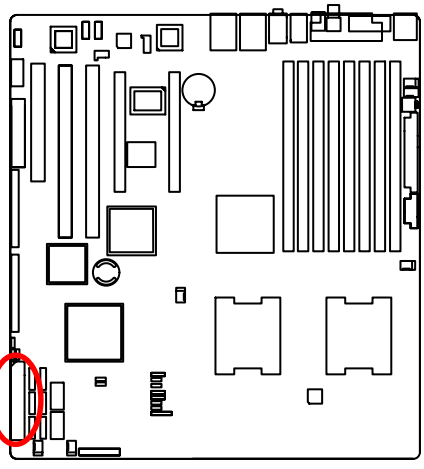


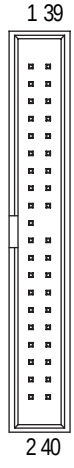


Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

4) IDE1 (IDE Connector)

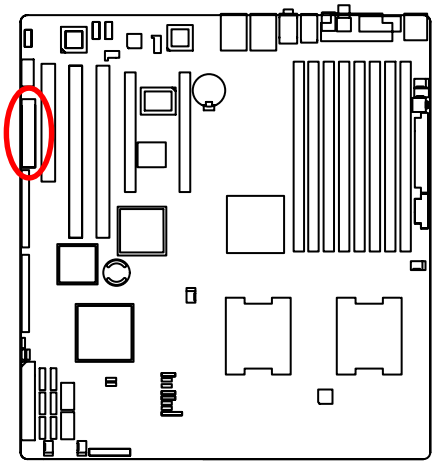
Please connect first harddisk to IDE1. The red stripe of the ribbon cable must be the same side with the Pin1.

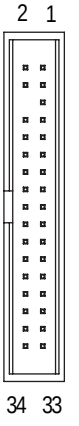




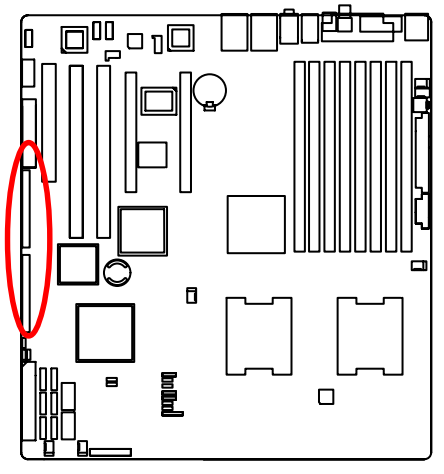
5) FDD1 (Floppy Connector)

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



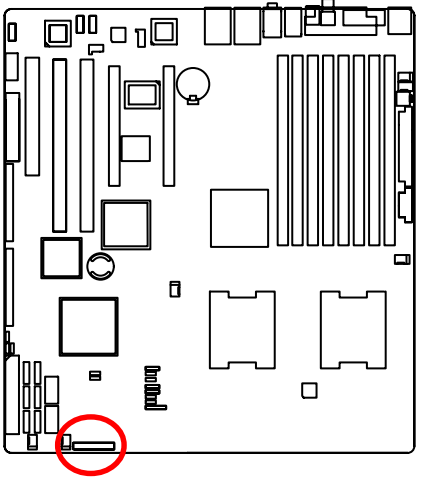


6/7) SAS1/SAS2 (SAS Connectors)



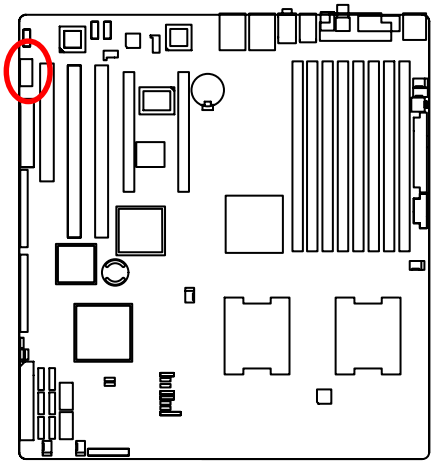
8) F_Panel (2X12 Pins Front Panel connector)

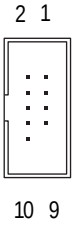
Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F_PANEL connector according to the pin assignment above.



Pin No.	Signal Name	Description
1.	PWLED+	Power LED Signal anode (+)
2.	5VSB	P5VStand By Power
3.	KEY	Pin Removed
4.	ID_LED+	ID LED Signal anode (+)
5.	PWLED-	Power LED Signal cathode(-)
6.	ID_LED-	ID LED Signal cathode(-)
7.	HD+	Hard Disk LED Signal anode (+)
8.	F_SYSRDY	System Fan Fail LED Signal
9.	HD-	Hard Disk LED Signal cathode(-)
10.	F_SYSTATUS	System Status LED Signal
11.	PWB+	Power Button Signal anode (+)
12.	L1_ACT	LAN1 access LED Signal
13.	PWB+_GND	Power Button Ground
14.	L1_LNK-	LAN1 linked LED Signal cathode(-)
15.	RST_BTN-	Reset Button cathode(-)
16.	SENSOR_SDA	SMBus Data
17.	RST_BTN_GND	Reset Button Ground
18.	SENSOR_SCL	SMBus Clock
19.	ID_SW-	ID Switch Signal cathode(-)
20.	CASE_OPEN-	Chassis intrusion Signal
21.	ID_SW-_GND	ID Switch Ground
22.	L2_ACT	LAN2 access LED Signal
23.	NMI_SW-	NMI Switch cathode(-)
24.	L2_LNK-	LAN2 linked LED Signal cathode(-)

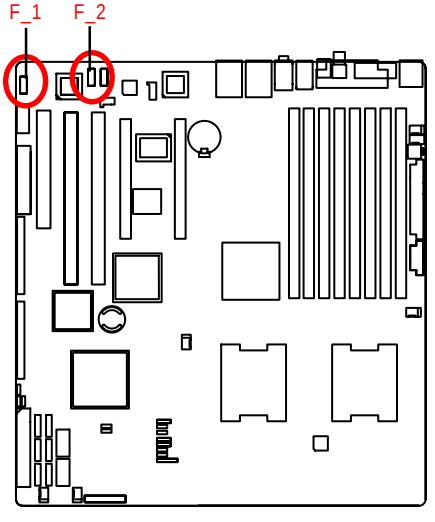
9) COM2





Pin No.	Definition
1	DCD-
2	SIN2
3	SOUT2
4	DTR2-
5	GND
6	DSR2-
7	RTS2-
8	CTS2-
9	RI2-
10	NC

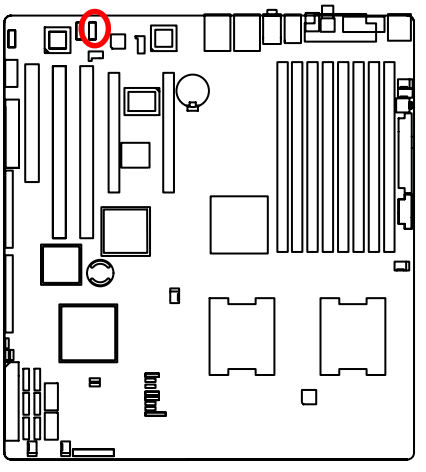
10/11) F_1/F_2(IEEE 1394 connectors)

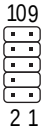


Pin No.	Definition
1	FTPA1+
2	FTPA1-
3	GND
4	GND
5	FTPB1+
6	FTPB1-
7	BUSVCC0
8	BUSVCC0
9	No Pin
10	NC

13) F_AUDIO (Front AUDIO Connector)

In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

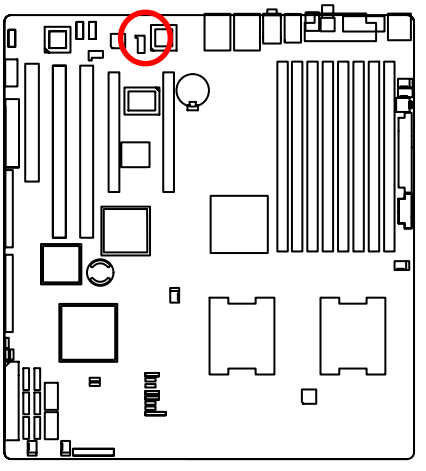




Pin No.	Definition
1	MIC
2	GND
3	REF
4	POWER
5	FrontAudio(R)
6	RearAudio(R)
7	Reserved
8	No Pin
9	FrontAudio (L)
10	RearAudio(L)

14) CD_IN (CD IN,Blank)

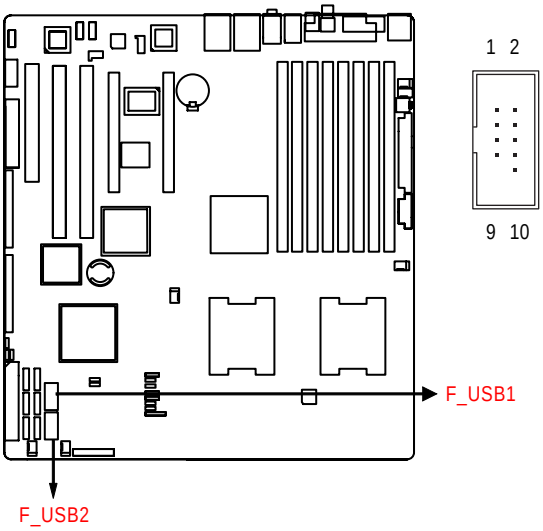
Connect CD-ROM or DVD-ROM audio out to the connector.



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

15/ 16) F_USB1/2 (Front USB Connectors)

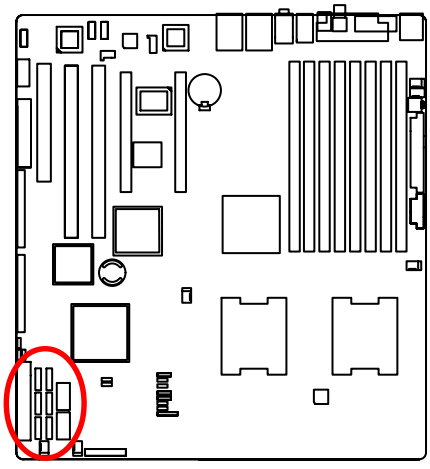
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



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

17/18/19/20/21/22) SATA 0~5 (Serial ATA Connectors)

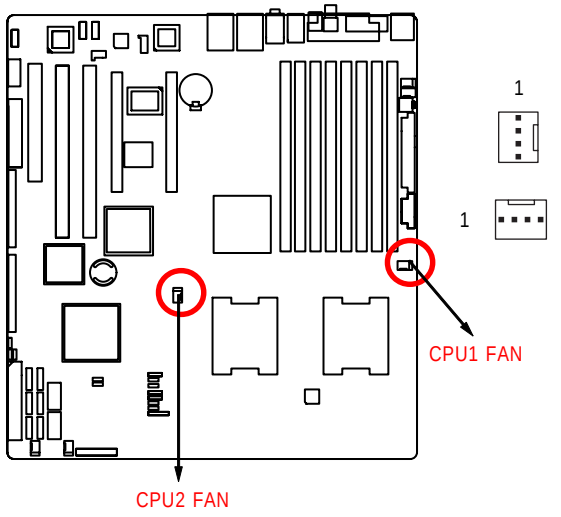
You can connect the Serial ATA device to this connector, it provides you high speed transfer rates (3.0Gb/sec).



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

23/ 24) CPU1/2_FAN (CPU Fan Connectors)

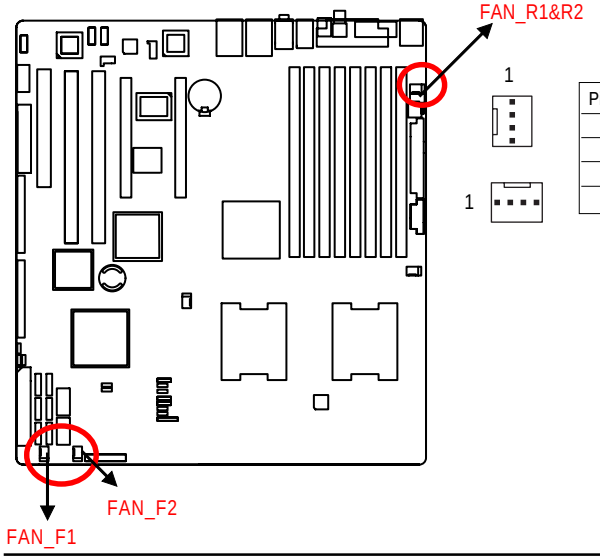
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 1A .



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

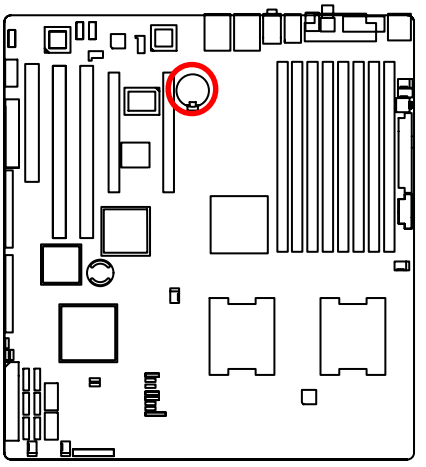
25/26/27/28) FAN_F1/F2/FAN_R1/R2 (System Front and Rear Fan Connectors)

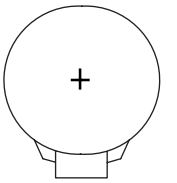
This connector allows you to link with the cooling fan on the system case to lower the system temperature. These connectors are for system use only.



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

29) BAT1 (Battery)



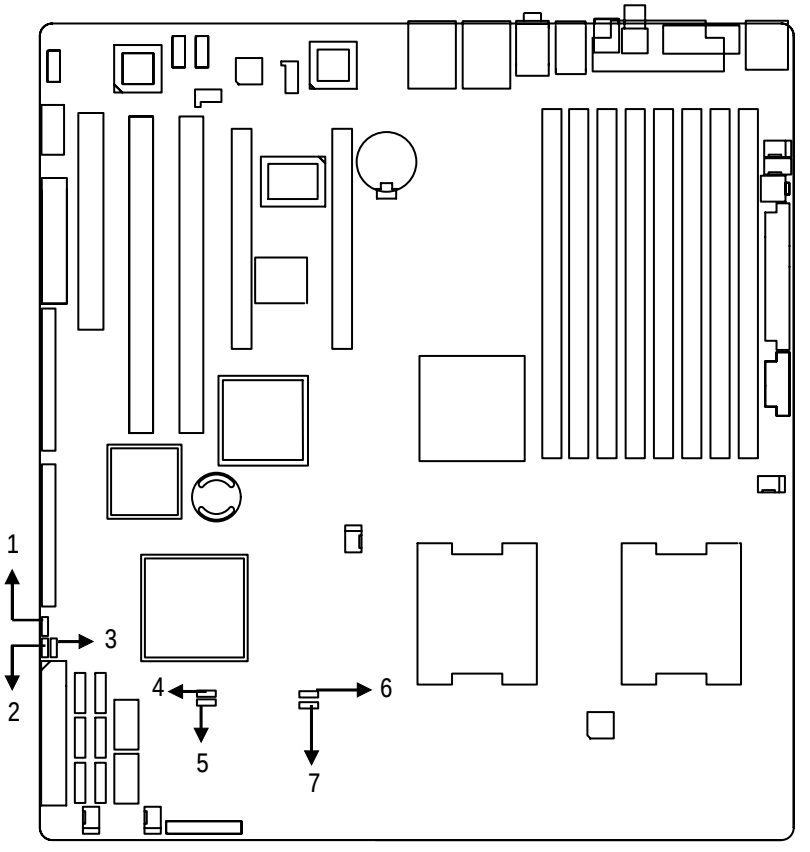


CAUTION

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

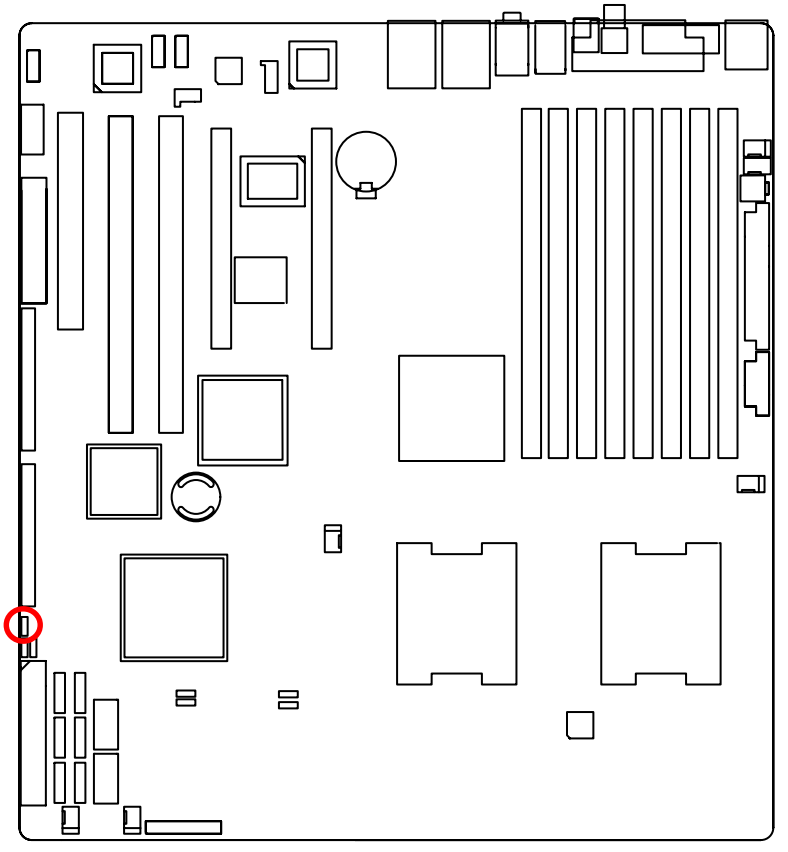
If you want to erase CMOS...
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

2-5 : Jumper Setting



1. JP_IBUT1
2. JP1
3. EN_ZCR
4. CLR_CMOS1
5. JP_REC1
6. JP_LAN1
7. JP_LAN2

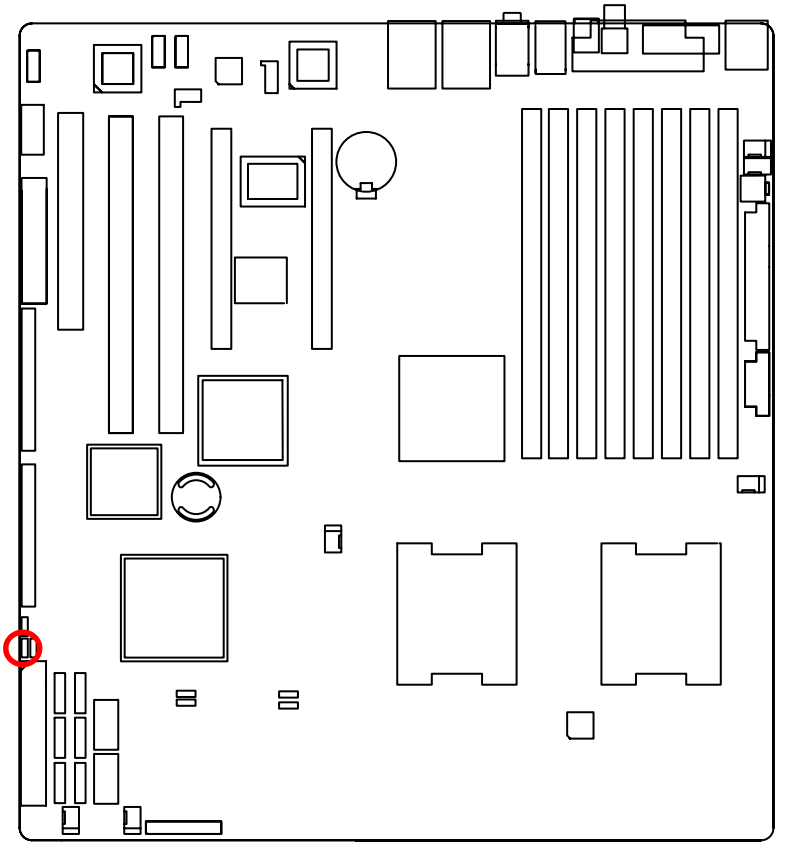
1) JP_IBUT1 (ibutton Code Select Function)



1 1-2 close: SAS function.

1 2-3 close: SATA funciton. (Default setting)

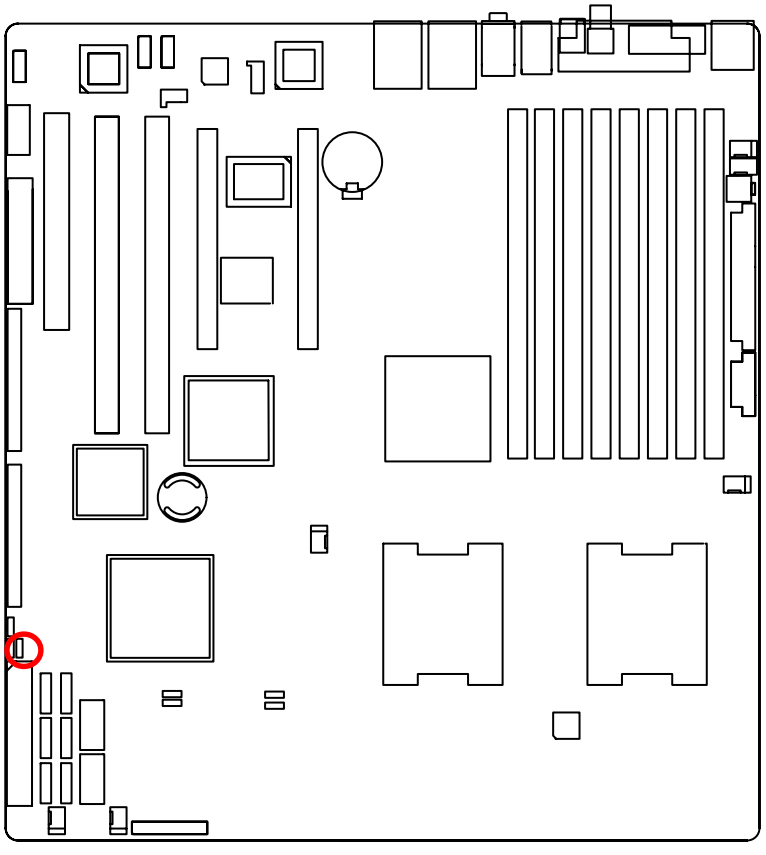
1) JP1 (SAS Mega RAID Function)



1 1-2 close: Enable Mega RAID function

1 2-3 close: Disable Mega RAID function (Default seting)

3) EN_ZCR (Enable SAS ZCR Function)



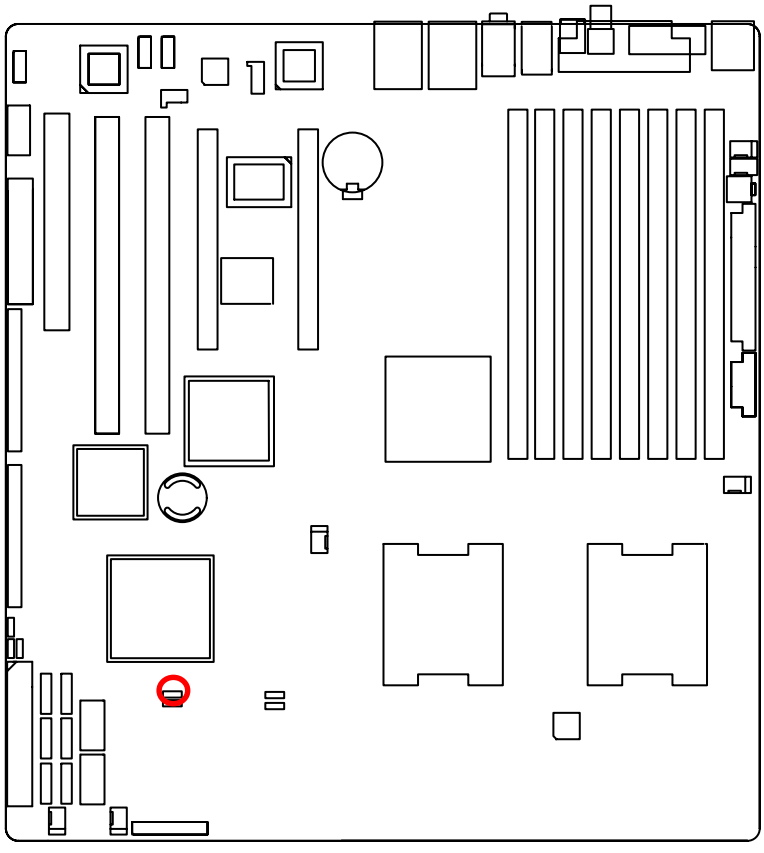
1 1-2 close: Disable SAS ZCR function (Default seting)

1 2-3 close: Enable SAS ZCR function

4) CLR_CMOS1 (Clear CMOS Function)

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

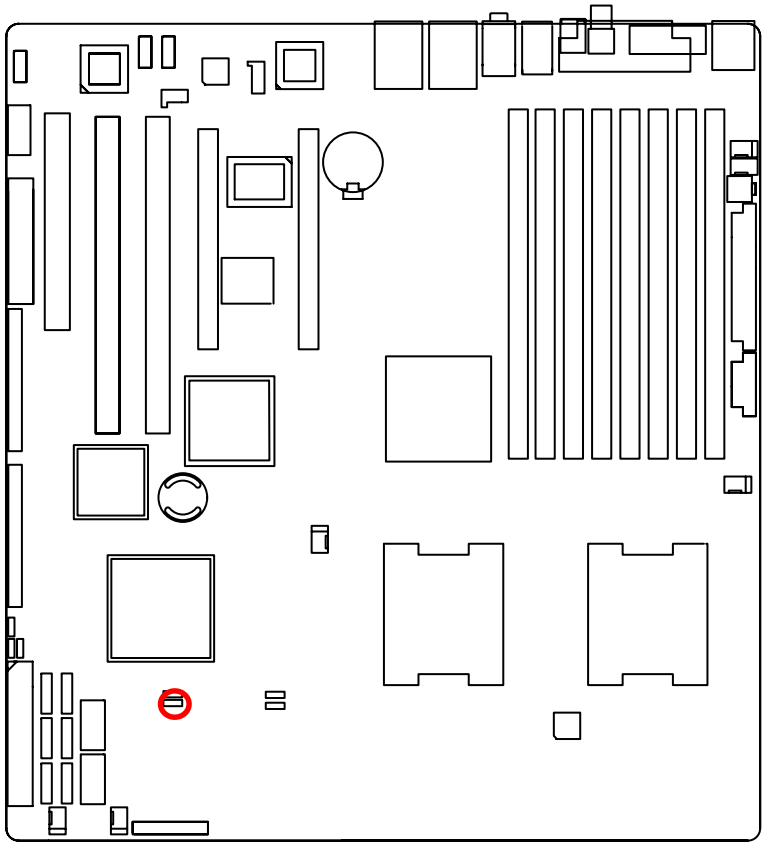
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.



1 1-2 close: Normal (Default setting)

1 2-3 close: Clear CMOS

5) JP_REC1 (BIOS Recovery Function)

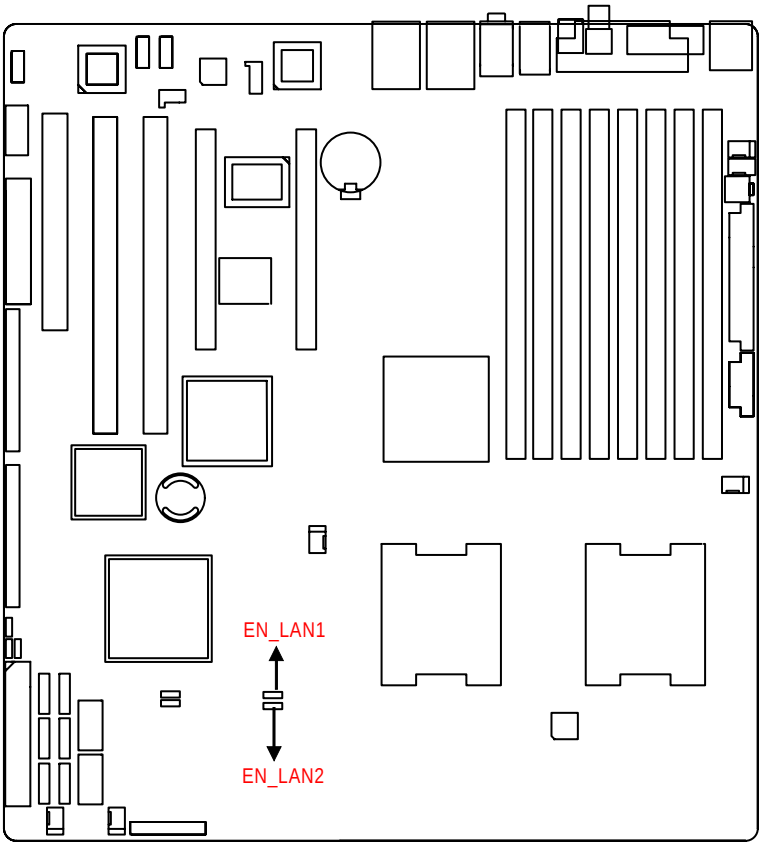


1 ⊡⊡⊡ 1-2 close: Enable BIOS Recovery function.

1 ⊡⊡⊡ 2-3 close: Normal. (Default setting)

Please remove the jumper when system access recovery flopp disk.

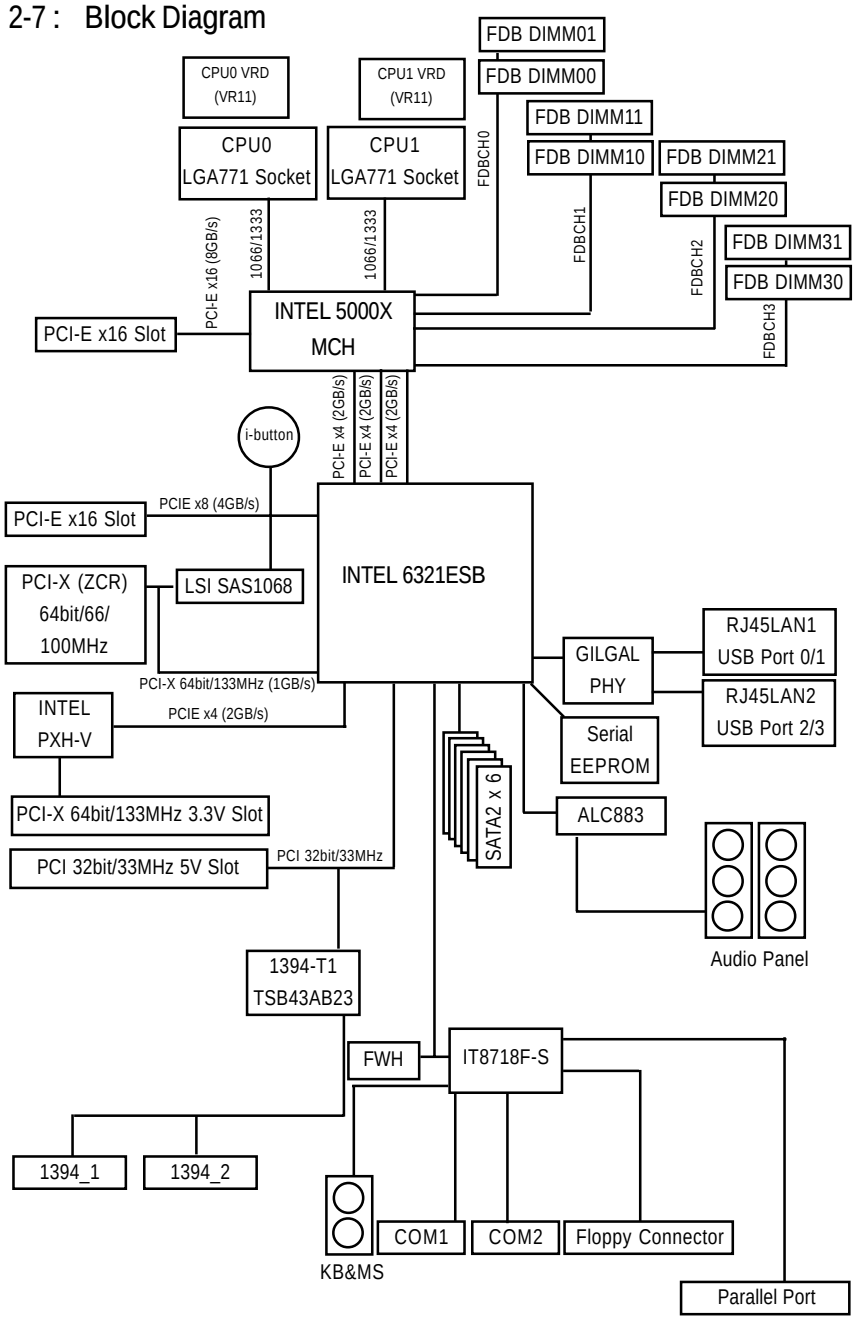
6/7) EN_LAN1/EN_LAN2 (Enable Onboard LAN1/LAN2 Function)



1 1-2 close: Enable onboard LAN function. (Default setting)

1 2-3 close: Disable onboard LAN function.

2-7 : Block Diagram



Chapter 5 BIOS Setup

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

ENTERINGSETUP

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

CONTROLKEYS

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

GETTINGHELP

Main Menu

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

Status Page Setup Menu / Option Page Setup Menu

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

- **Main**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced**

  This setup page includes all the items of AMI special enhanced features.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Security**

  Change, set, or disable password. It allows you to limit access the system and setup.

- **Server**

  Server additional features enabled/disabled setup menus.

- **Boot**

  This setup page include all the items of first boot function features.

- **Exit**

  There are five optionsin this selection: Exit Saving Changes, Exit Discarding Changes, Load Optimal Defaults, Load Failsafe Defaults, and Discard Changes.

Main

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

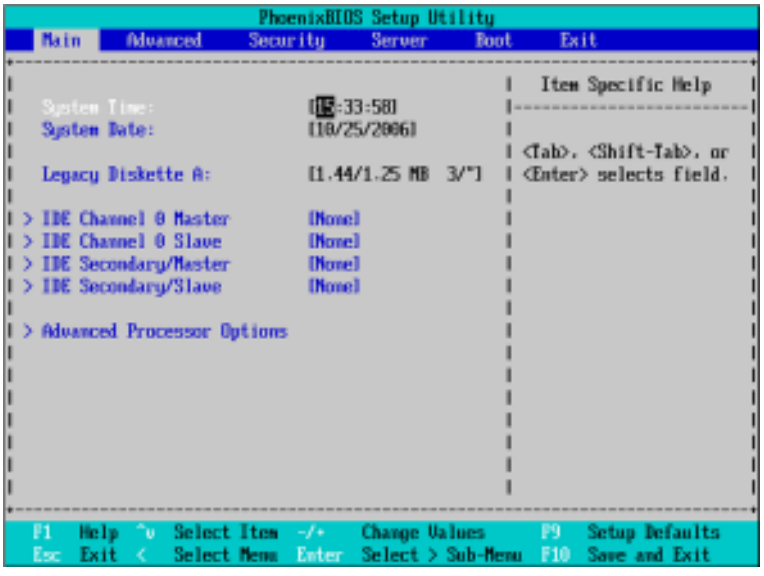


Figure 1: Main

System Time

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

System Date

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

IDE Primary Master, Slave / Secondary Master, Slave

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

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

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

- TYPE

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default setting)

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

ATAPI Removable: Removable disk drive is installed here.

- Multi-Sector Transfer

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

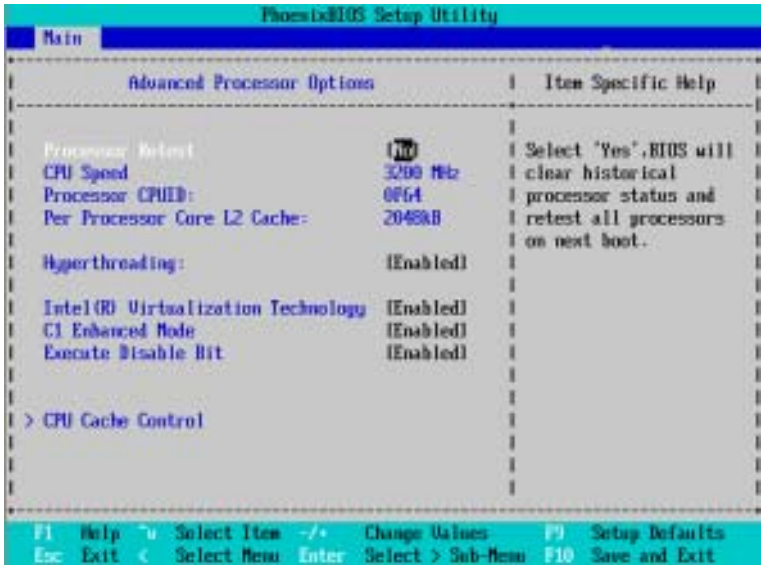
Disabled: The data transfer from and to the device occurs one sector at a time.

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

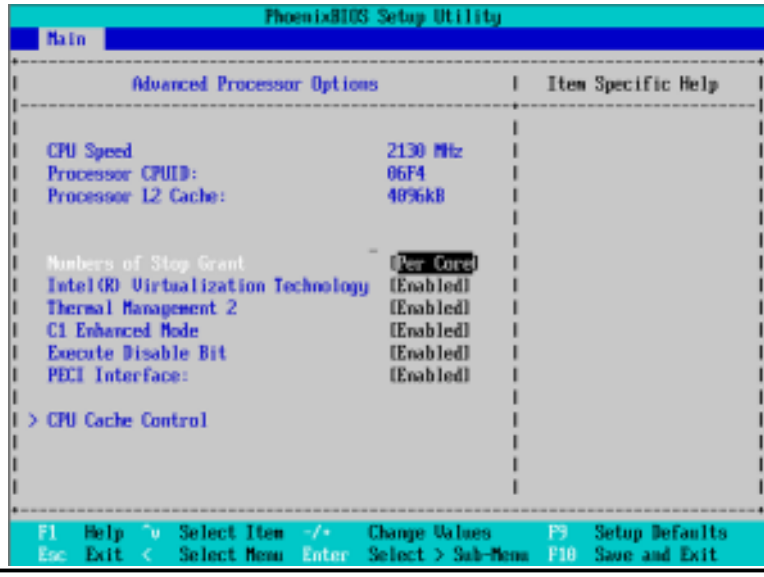
- LBA Mode — This field shows if the device type in the specific IDE channel support LBA Mode.
- 32-Bit I/O — Enable this function to max imize the IDE data transfer rate.
- Transfer Mode — This field shows the information of Teansfer Mode.
- Ultra DMA Mode — This filed displays the DMA mode of the device in the specific IDE channel.

Advanced Processor Options

Advanced Processor Options: Dempsey CPU



Advanced Processor Options: Woodcrest CPU



Advanced Processor Option

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

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

Processor Reset

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

Hyper Threading

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

NOTE: This option appears when using Dempsey CPU.

Thermal Management2

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

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

NOTE: This option appears when using Woodcrest CPU.

PECI Interface

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

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

NOTE: This option appears when using Woodcrest CPU.

Intel (R) Virtualization Technology

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

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

C1 Enhanced Mode

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

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

Execute Disable Bit

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

CPU Cache Control

DCU Prefetcher

When the DCU detects the multiple loads from the same cache line done. The DCU Prefetcherassumes the next line will be required. The next line is prefetched in to the L1 data cache from memory or L2.

- Enabled — Enabled DCU Prefetcher.
- Disabled — Disables this function. (Default setting)

Hardware Prefetcher

The Hardware Prefetcher looks the streams of data. The data is prefetched into L2 from external memory. Disabling of this item may impact processor performance.

- Enabled — Enabled Hardware Prefetcher. (Default setting)
- Disabled — Disables this function.

IP Prefetcher

It is an L1 instruction cache prefetcher. The IP Prefetcher looks for sequential load history to determine whether to prefetch the next expected data into the L1 instruction cache from memory or L2.

- Enabled — Enabled IP Prefetcher. (Default setting)
- Disabled — Disables this function.

Adjacent Cache Line Prefetch

When enable this item, both cache lines that comprise a cache line pair when it determines data required is not currently in its cache.

- Enabled — Adjacent Cache Line Prefetch. (Default setting)
- Disabled — Disables this function.

Direct Access Cache

Direct Access Cache is a system level protocol in a multi-processor system to improve I/O network performance.

- Enabled — Direct Access Cache.
- Disabled — Disables this function. (Default setting)

Advanced

About This Section: Advanced

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

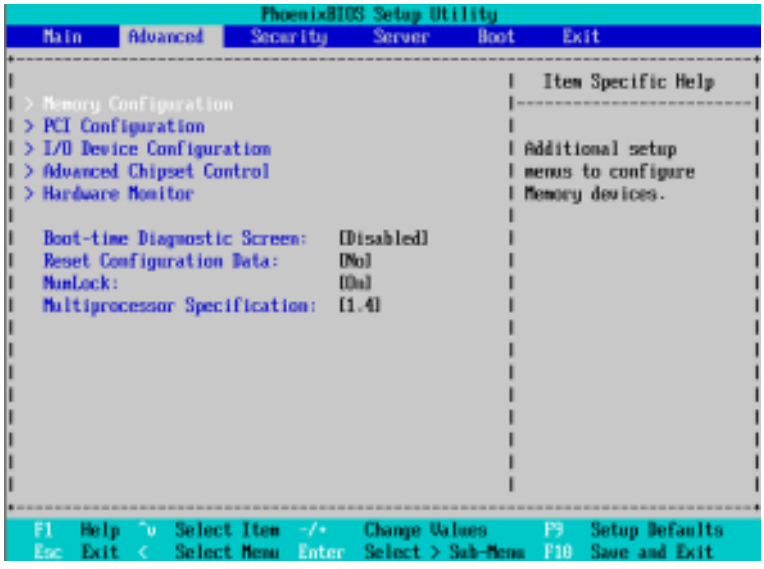


Figure 2: Advanced

Memory Configuration

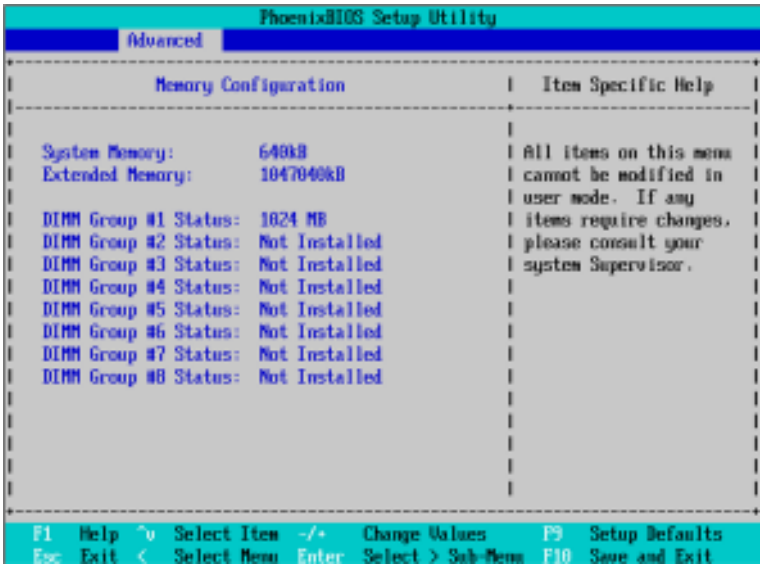


Figure 2-1: Memory Configuration

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

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

PCI Configuration

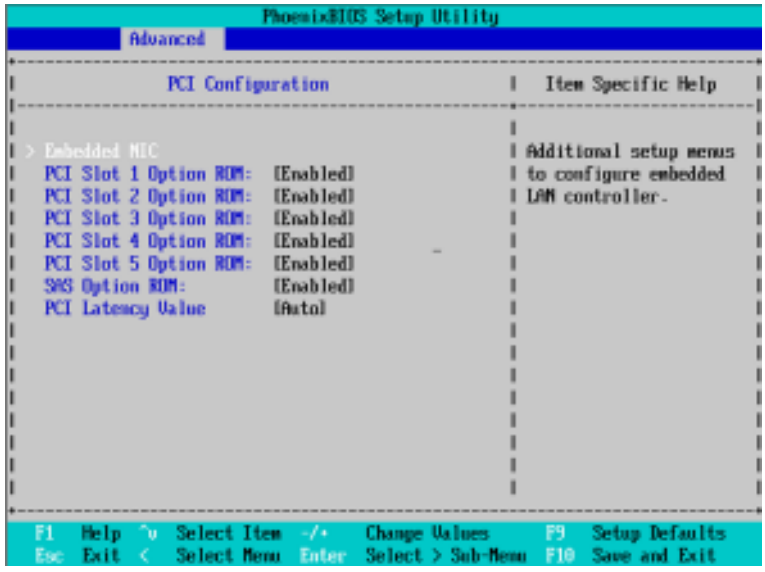


Figure 2-2: PCI Configuration

☞Embedded NIC

- LAN 1 Option ROM Scan

⏩Enabled — Enable onboard LAN1 device and initialize device expansion ROM. (Default setting)

⏩Disabled — Disable this function.

- LAN2 Option ROM Scan

⏩Enabled — Enable onboard LAN2 device and initialize device expansion ROM. (Default setting)

⏩Disabled — Disable this function.

PCI Slot 1/2/3/4/5 Option ROM

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

SAS Option ROM

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

PCI Latency Value

Configuration PCI latency time of PCI device.

- Options — 32, 64, 128, Auto. Default setting is Auto.

I/O Device Configuration

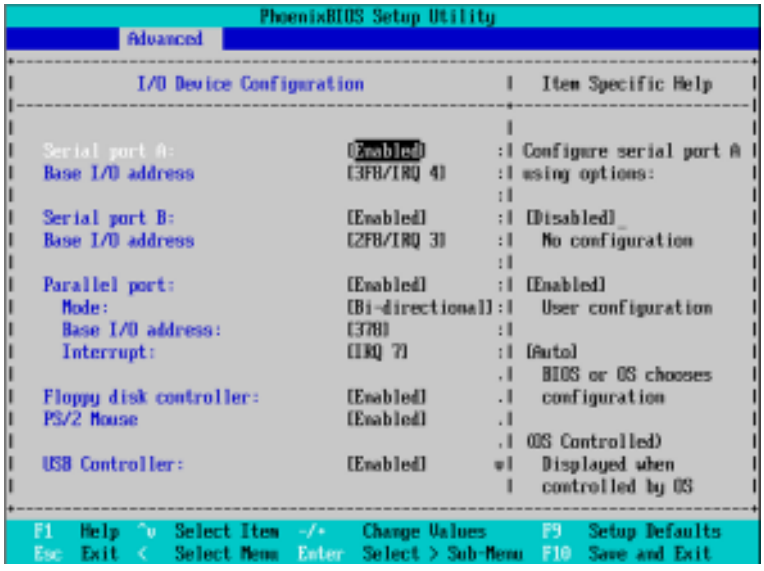


Figure 2-3: I/O Device Configuration

☞Serial Port A

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

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

- Base I/O Address/IRQ

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

Serial Port B

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

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

- Base I/O Address/IRQ

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

Parallel Port

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

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

- Mode

This option allows user to set Parallel Port transfer mode.

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

- Base I/O Address

- 378 — Set IO address to 378. (Default setting)
- 278 — Set IO address to 278.

- Iterrupt

- IRQ5 — Set Interrupt as IRQ5.
- IRQ7 — Set Interrupt as IRQ7. (Default setting)

Floppy disk controller

- Enabled — Enable onboard floppy disk controller. (Default setting)
- Disabled — Disable this device.

PS/2 Mouse

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

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

USB Controller

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

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

USB 2.0 Controller

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

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

Legacy USB Support

This option allows user to function support for legacy USB.

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

Route Port 80h cycles to

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

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

Parallel ATA

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

Serial ATA

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

▸ Native Mode Operation

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

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

Advanced Chipset Control

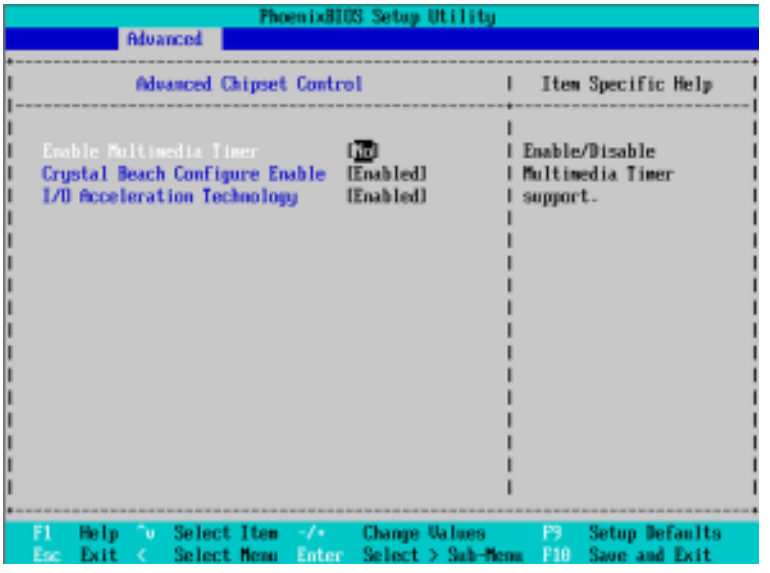


Figure 2-4: Advanced Chipset Control

Enable Multimedia Timer

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

Crystal Beach Configure Enable

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

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

I/O Acceleration Technology

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

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

Hardware Monitor

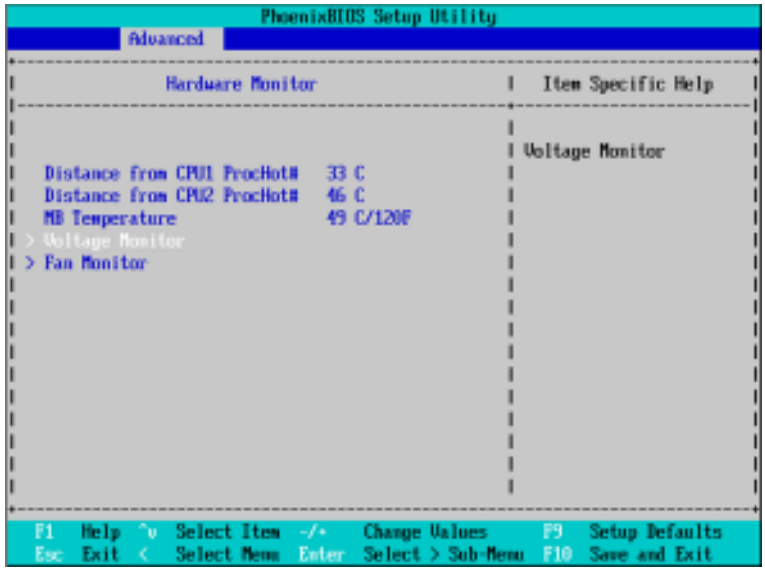


Figure 2-5: Hardware Monitor

- **CPU1/2 Core1/2 Temperature/ Motherboard Temperature**

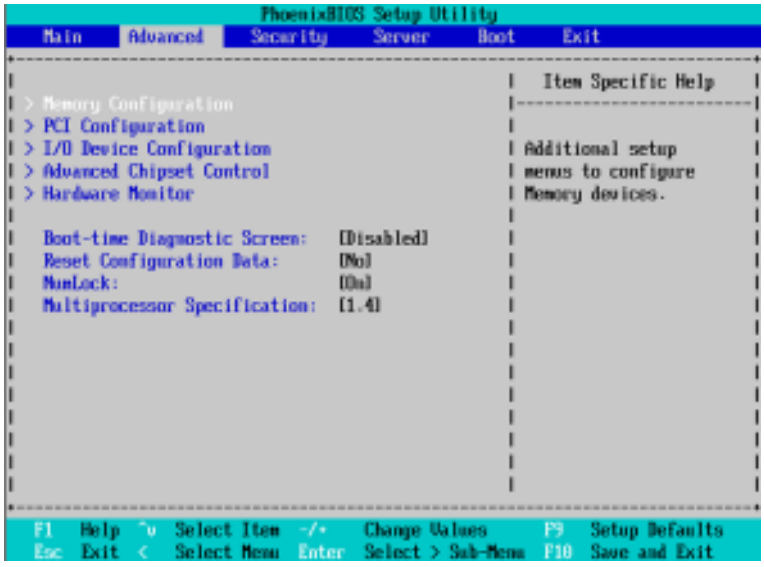
  ▸▸Display the current CPU1/CPU2 Core1/2 temperature, and Motherboard temperature.

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

  ▸▸Detect system's voltage status automatically.

- **FAN Monitor: CPU1/2 Fan/Fan R1/Fan R2/Fan F1/Fan F2 (RPM)**

  ▸▸Display the current CPU 1/CPU2 fan speed, front and rear system fan speed.



Boot -time Diagnostic

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

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

Reset Configuration Data

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

NumLock

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

- On — Enable NumLock. (Default setting)
- Off — Disable this function.

☞Multiprocessor Specification

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

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

Security

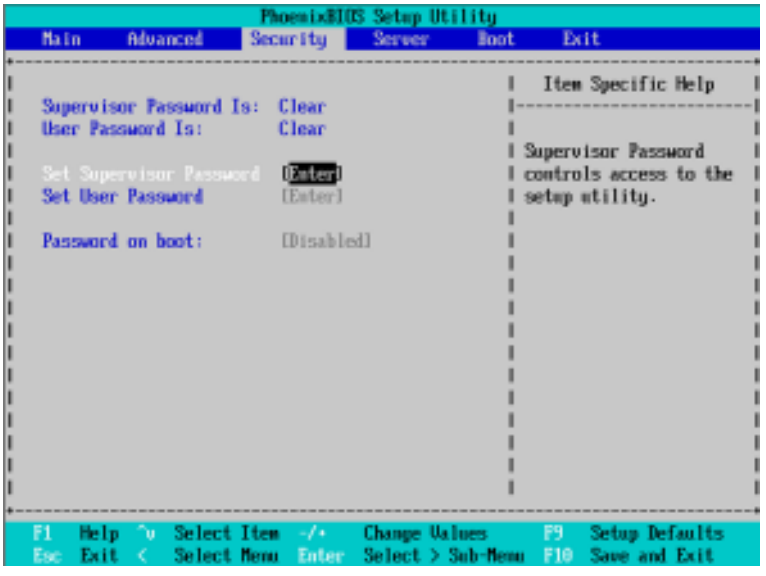


Figure 3: Security

☞Set Supervisor Password

You can install and change this options for the setup menus. Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password or press <Enter> key to disable this option.

☞Set User Password

You can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password.

☞Password on boot

Password entering will be required when system on boot.

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

Server

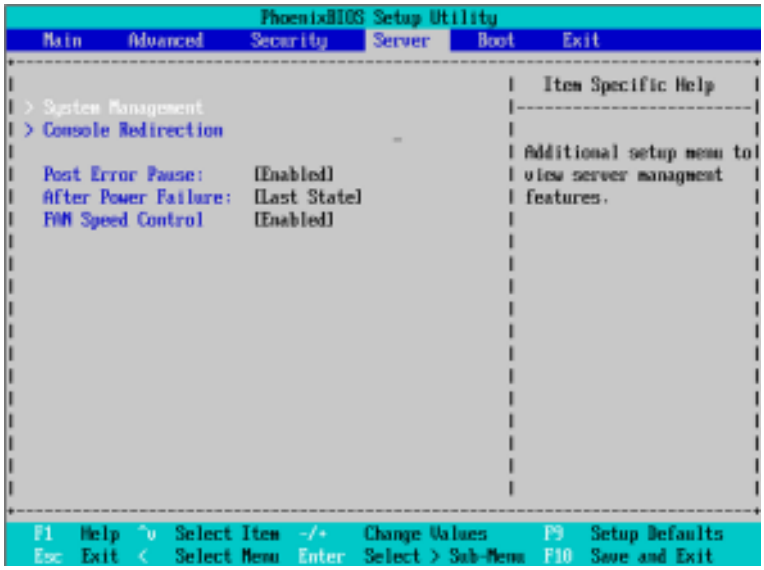


Figure 4: Server

Server Management

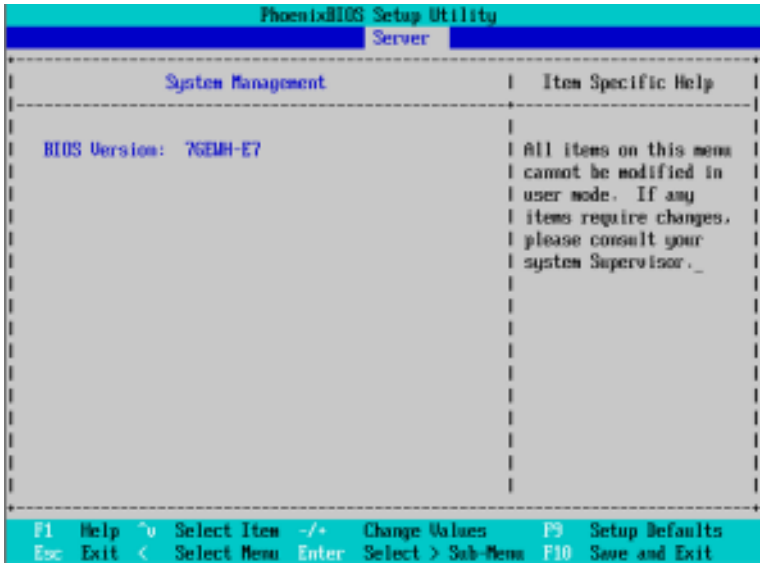


Figure 4-1: Server Managerment

☞Server Management

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

Console Redirection

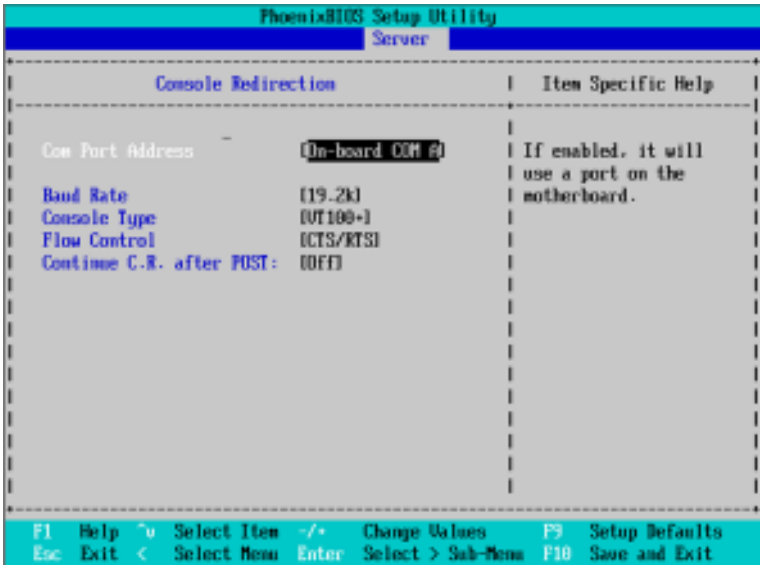


Figure 4-2: Console Redirection

COM Port Address

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

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

Baud Rate

This option allows user to set the specified baud rate.

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

Console Type

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

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

Flow Control

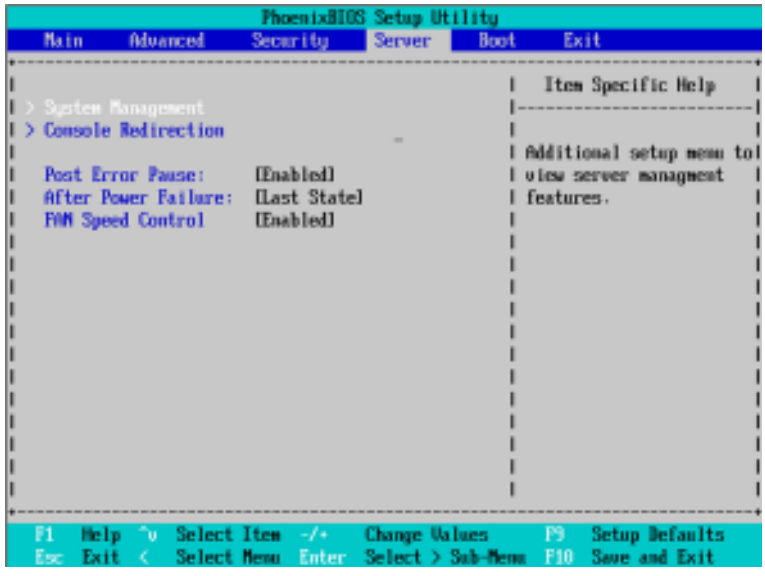
This option provide user to enable the flow control function.

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

Continue C.R. after POST

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

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



Post Error Pause

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

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

After Power Failure

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

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

FAN Speed Control

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

Boot

About This Section: Boot

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

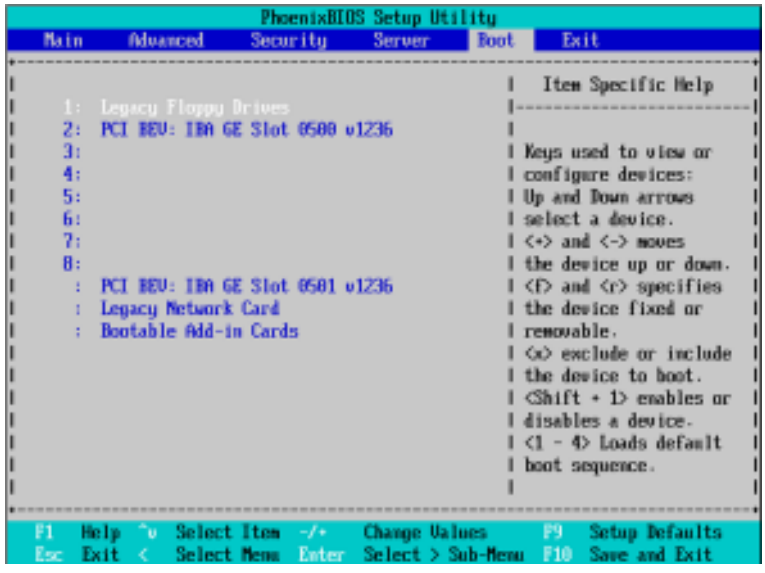


Figure 5: Boot

☞Boot Priority Order

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

Key used to view ot configure devices:

Up and Down arrows select a device.

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

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

<x> exclude or include the device to boot.

<1-4> Loads default boot secquence.

Exit

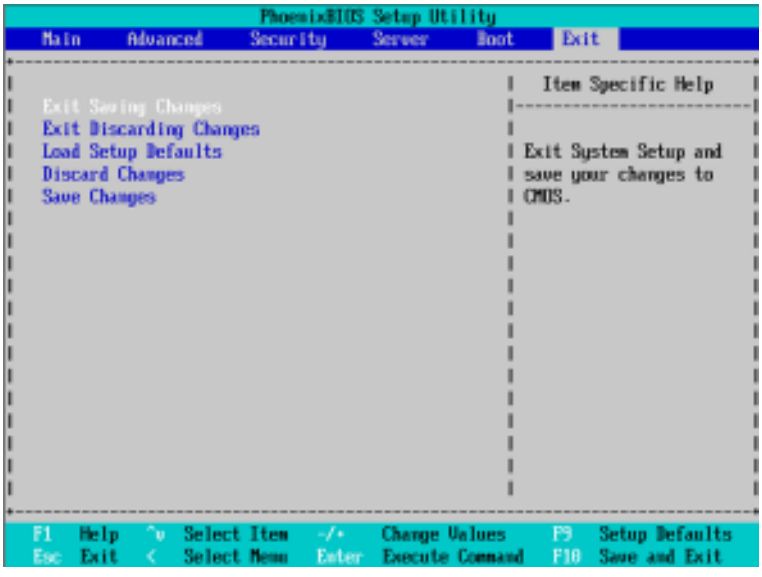


Figure 6: Exit

About This Section: Exit

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

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

Exit Saving Changes

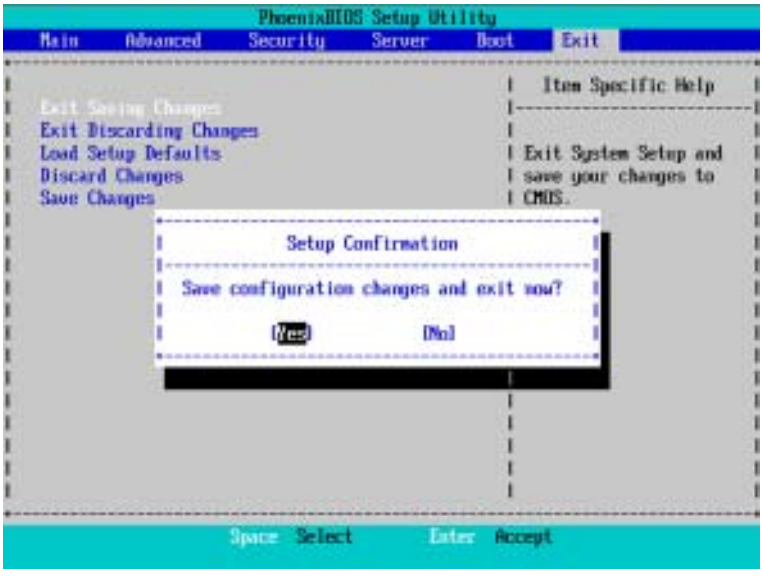
This option allows user to exit system setup with saving the changes.

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

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

Therefore, whenyou boot up your computer next time, the BIOS will

re-configure your system according data in CMOS.



Exit Discarding Changes

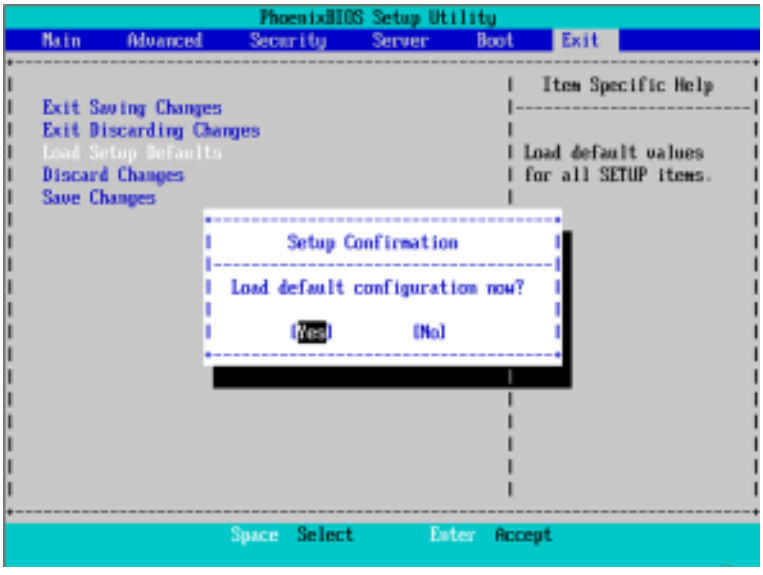
This option allows user to exit system setup without changing any previous settings values in CMOS. The previous selection remain in effect.

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

Load Settup Default

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

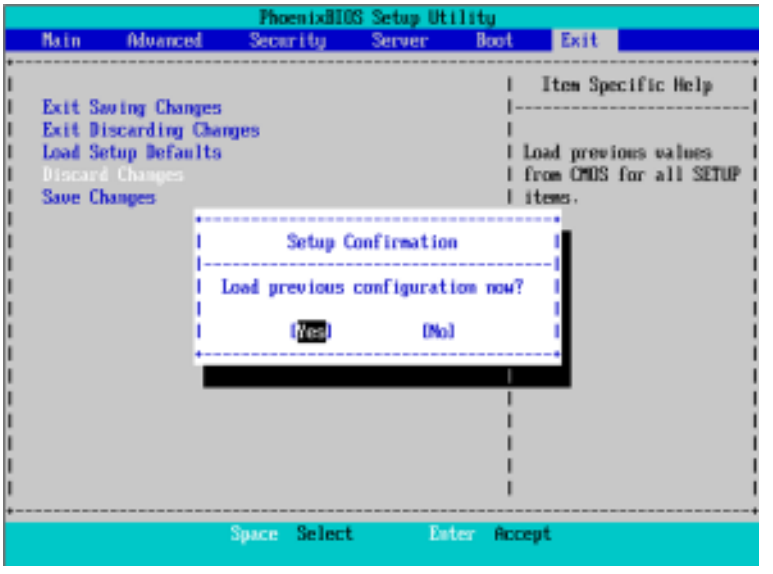
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Discard Changes

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

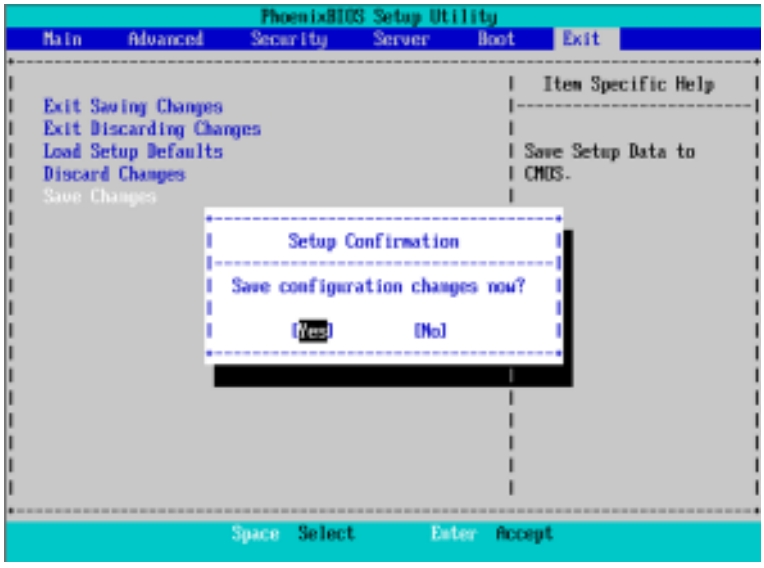
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Save Changes

This option allows user to save setup dat ato CMOS.

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



Press [Yes] to save setup daya to CMOS.