

GA-6FXSV2  
Xeon Processor Motherboard

# USER'S Manual

Xeon® Processor Motherboard  
Rev. 1001



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



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

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## Item Checklist

- The GA-6FXSV2 motherboard
- Serial ATA cable x 2
- I/O Shield Kit
- CD for motherboard driver & utility
- The GA-6FXSV2 quick reference guide

\* The items listed above are for reference only, and are subject to change without notice.

## Chapter 1 Introduction

### 1.1. Considerations Prior to Installation

#### Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

#### Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

#### Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

## 1.2. Features Summary

Form Factor	<ul style="list-style-type: none"> <li>• 9.6" x 9.6" Micro ATX size form factor, 6 layers PCB</li> </ul>
CPU	<ul style="list-style-type: none"> <li>• Supports single Intel® LGA1156 (socket H1) processor</li> <li>• Support Lynnfield (Quad-core) processor</li> <li>• Enhanced Intel SpeedStep Technology (EIST) &amp; Demand Based Switch (DBS)</li> <li>• Support Intel Virtualization Technology (VT)</li> </ul>
Chipset	<ul style="list-style-type: none"> <li>• Intel® 3420 Chipset</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 6 x DIMM slots support DDR3 1066/1333</li> <li>• Dual channel memory architecture</li> <li>• Support 1066/1333 memory</li> <li>• Support Unbuffered DDR3 ECC DIMM</li> </ul>
I/O Control	<ul style="list-style-type: none"> <li>• Windbond W83627DHG-P Super I/O</li> </ul>
Expansion Slots	<ul style="list-style-type: none"> <li>• 1 PCI slots 32-Bit/33MHz (5V)</li> <li>• 1 PCI-Express x16 slot (Gen2 x16 bandwidth)</li> <li>• 1 PCI-Express x8 slot (Gen2 at x8 bandwidth)</li> <li>• 1 PCI-Express x8 slot (Gen2 at x4 signal)</li> <li>• 1 PCI-Express x4 slot (Gen2 at x1 signal)</li> </ul>
SATA RAID Controller	<ul style="list-style-type: none"> <li>• Intel® 3420 SATA Controller</li> <li>• Supports 6 independent SATA 3.0 Gb/s with Intel Software RAID 0,1,5,10</li> </ul>
On-Board VGA	<ul style="list-style-type: none"> <li>• ServerEngines Pilot II with 32MB DDR2 memory</li> </ul>
On-Board LAN	<ul style="list-style-type: none"> <li>• Intel® 82574L GbE controller and Intel® 82578DM PHY support dual Gigabit Ethernet ports</li> </ul>
Internal Connector	<ul style="list-style-type: none"> <li>• 1 x 24-pin ATX power connector</li> <li>• 1 x 8-pin ATX power connector</li> <li>• 6 x SATA 3.0Gb/s connectors</li> <li>• 1 x Serial connector (COM)</li> <li>• 1 x USB 2.0 connectors for additional 2 ports by cable</li> <li>• 1 x front panel connector</li> <li>• 4 x System fan cable connector</li> </ul>
Rear Panel I/O	<ul style="list-style-type: none"> <li>• P/S 2 Keyboard and Mouse connectors</li> <li>• 1 x Serial port</li> <li>• 2 x USB 2.0 dual-port connector</li> <li>• 1 x VGA connector</li> <li>• 2 x RJ45 LAN ports</li> </ul>

GA-6FXSV2 Motherboard

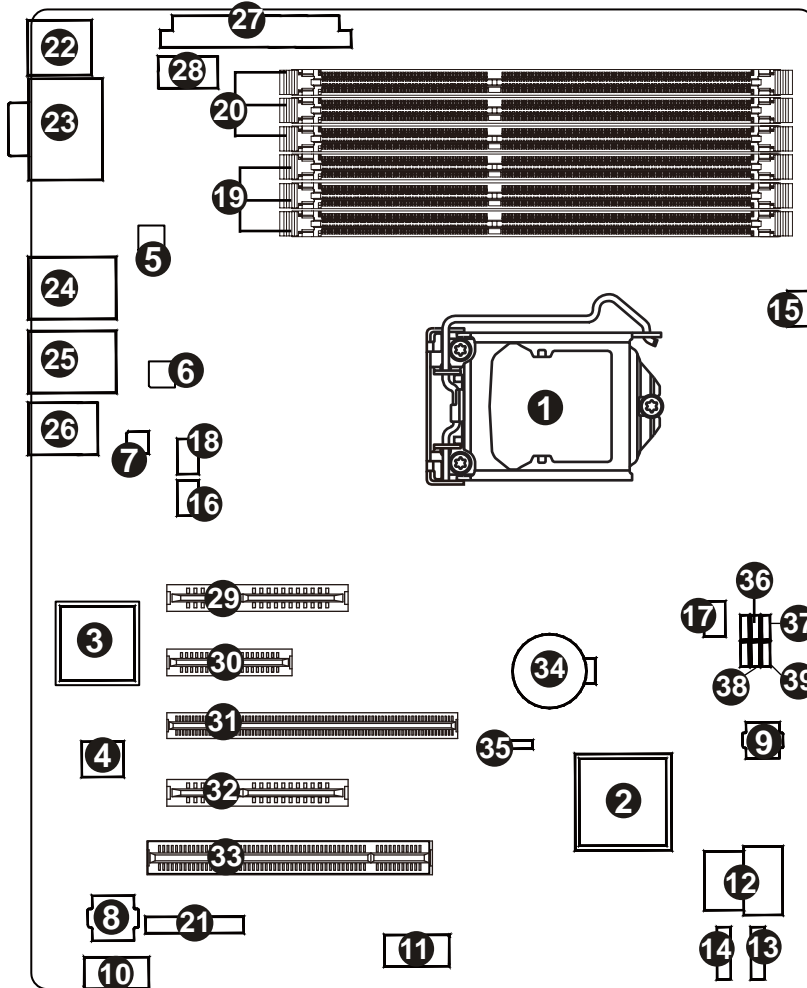
	<ul style="list-style-type: none"><li>• 1 x 10/100 LAN port (for server management)</li></ul>
Hardware Monitor	<ul style="list-style-type: none"><li>• Winbond W83627DHG-P controller</li><li>• Enhanced features with CPU Vcore, DDR3 1.5V, VCC3 (3.3V), 12V, 5V, and System Temperature Values viewing</li><li>• CPU/System Fan Revolution Detect</li><li>• CPU shutdown when overheat</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Phoenix BIOS on 16Mb flash RAM</li></ul>
Additional Features	<ul style="list-style-type: none"><li>• Supports S4, S5 under Windows Operating System</li><li>• AC Recovery</li><li>• Supports Console Redirection</li><li>• Supports 4-pin Fan controller</li></ul>

\*\* The entire specification provided herein are for reference only. The specification may differ by the motherboard model.

### 1.3. GA-6FXSV2 Motherboard Component

No	Code	Description
1.	U1	CPU
2.	U2	Intel 3420 chipset
3.	U28	ServerEngine Pilot II
4.	U40	VGA memory
5.	U19	Intel 8578DM PHY
6.	U21	Intel 82574L GbE controller
7.	U45	SMSC 8700 management 10/100 PHY
8.	U23	BMC firmware
9.	U23	BIOS Flash ROM
10.	COM1	Com port cable connector
11.	USB2	USB cable connector
12.	SATA0-3	SATA cable connectors
13.	SATA4	SATA cable connector
14.	SATA5	SATA cable connector
15.	FAN1	CPU fan cable connector
16.	FAN2	System fan cable connector
17.	FAN3	System fan cable connector
18.	FAN4	System fan cable connector
19.	DIMM1/3/5	Channel A DDR3 socket
20.	DIMM2/4/6	Channel B DDR3 socket
21.	F_PANEL	front panel connector
22.	KB_MS	Keyboard and mouse connectors
23.	COM2_VGA	Serial port and VGA port
24.	GLAN1	Gigabit LAN port + USB ports
25.	GLAN2	Gigabit LAN port + USB ports
26.	BMC_LAN	Server management 10/100 LAN port
27.	ATX	24 pin ATX power connector
28.	ATX_CPU	8 pin ATX power connector
29.	PCI1	PCIe2.0 (5.0GT/s), x 8 Slot
30.	PCI2	PCIe2.0 (2.5GT/s), x 4 Slot (x1 signal)
31.	PCI3	PCIe2.0 (5.0GT/s), x 16 Slot (**Share with PCI1)
32.	PCI4	PCIe2.0 (2.5GT/s), x 8 Slot (x4 signal)
33.	PCI5	PCI 32bit/33MHz slot
34.	BAT	CMOS battery
35.	CLR_CMOS	Clear CMOS jumper
36.	BIOS_WP	BIOS write protect Jumper
37.	PASSWORD	Set Supervisor Password jumper
38.	SATA RAID	Enable SATA RAID jumper
39.	BIOS_RVCR	BIOS recovery jumper





## Chapter 2 Hardware Installation Process

### 2.1. Installing Processor and CPU Heat Sink

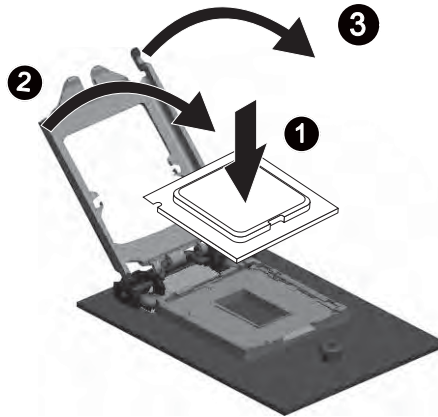


Before installing the processor and cooling fan, adhere to the following cautions:

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

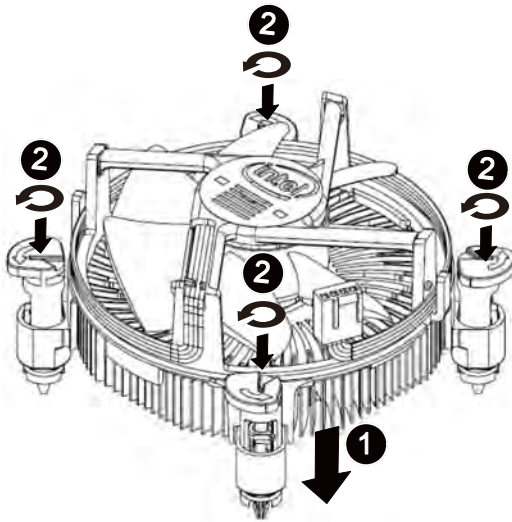
#### 2.1.1. Installing CPU

- Step 1 Raise the metal locking lever on the socket.  
Remove the plastic covering on the CPU socket.  
Insert the CPU with the correct orientation. The CPU only fits in one orientation.
- Step 2 Replace the metal cover.
- Step 3 Push the metal lever back into locked position.



### 2.1.2. Installing Cooling FAN

- Step 1 Attach the cooling fan on the processor socket.
- Step 2 Turning and push vertically the push pin as arrow direction shown.
- Step 3 Connect processor fan cable connector to the processor fan connector.



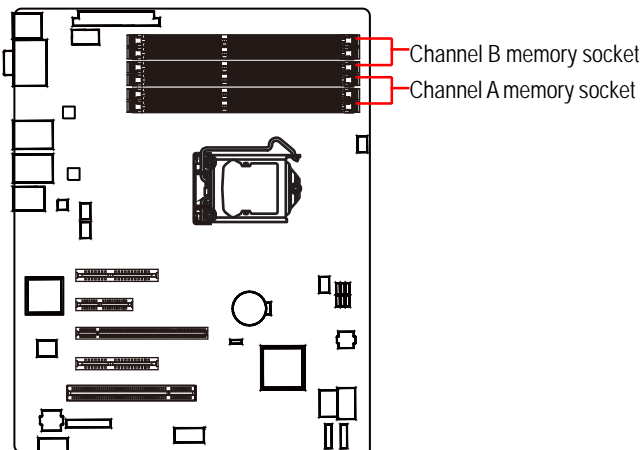
## 2.2. Installing memory modules



Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory is supported by the motherboard. It is recommended to use the memory with similar capacity, specifications and brand.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR3 memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.



### Installation Steps:

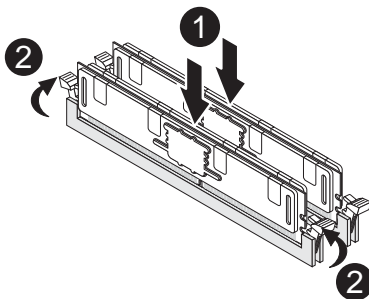
Step 1. Insert the DIMM memory module vertically into the DIMM slot, and push it down.

Step 2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

**NOTE!** DIMM must be populated in order starting from DIMM1/DIMM3/DIMM5 socket.

For dual-channel operation, DIMMs must be installed in matched pairs.

Step 3. Reverse the installation steps when you wish to remove the DIMM module.

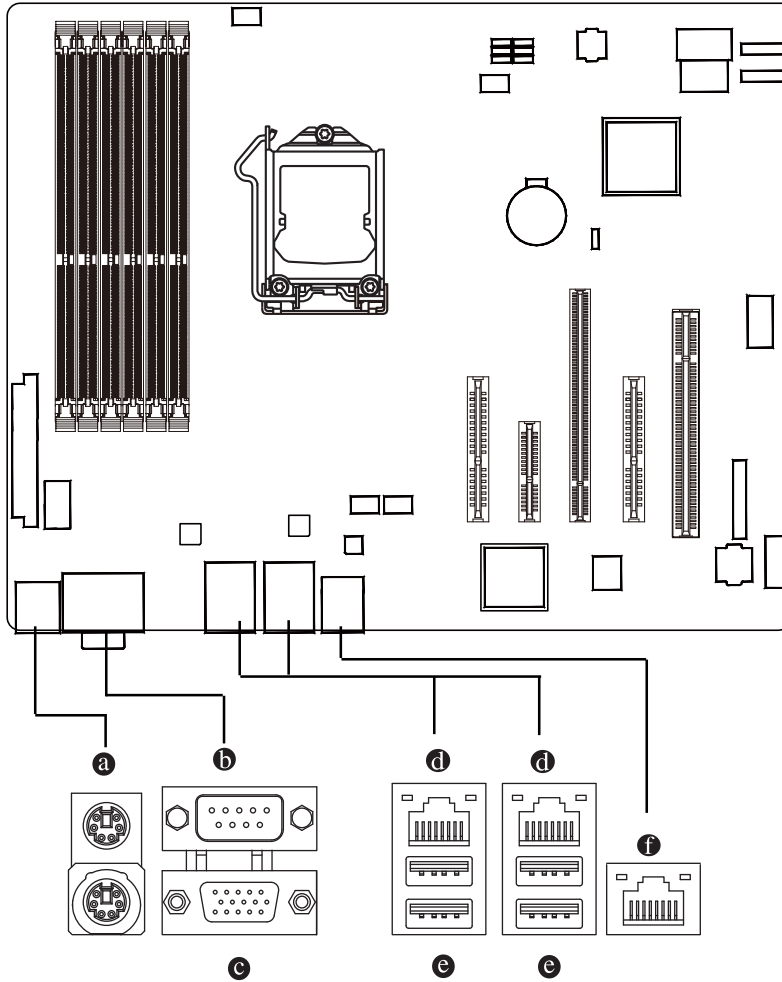


Memory Population Table

	Channel A			Channel B		
	DIMM1	DIMM3	DIMM5	DIMM2	DIMM4	DIMM6
R-DIMM	✓					
	✓	✓				
	✓	✓	✓			
	✓			✓		
	✓	✓		✓		
	✓	✓	✓	✓		
	✓	✓		✓	✓	
	✓	✓	✓	✓	✓	
	✓	✓	✓	✓	✓	✓
U-DIMM	✓					
	✓	✓				
	✓			✓		
	✓	✓		✓		
	✓	✓		✓	✓	

## 2.3. Connect ribbon cables, cabinet wires, and power supply

### 2.3.1. I/O Back Panel Introduction



**a PS/2 Keyboard and PS/2 Mouse Connector**

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

**b Serial Port**

Connects to serial-based mouse or data processing devices.

**c Video Port**

The video in port allows connect to video in, which can also apply to video loop thru function.

**d Gigabit LAN Ports**

The LAN port provides Internet connection of Gigabit Ethernet with data transfer speeds of 10/100/1000Mbps.

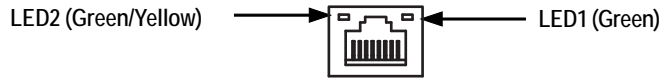
**e USB Port**

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.

**f KVM Server Management 10/100 LAN Port**

The LAN port provides Internet connection with data transfer speeds of 10/100Mbps.

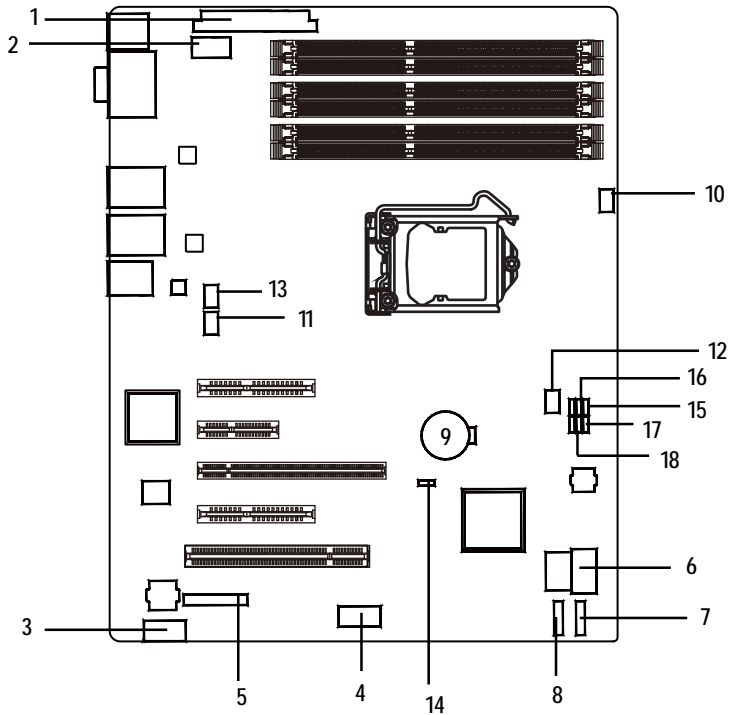
## LAN LED Description



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 and Jumper Setting Introduction



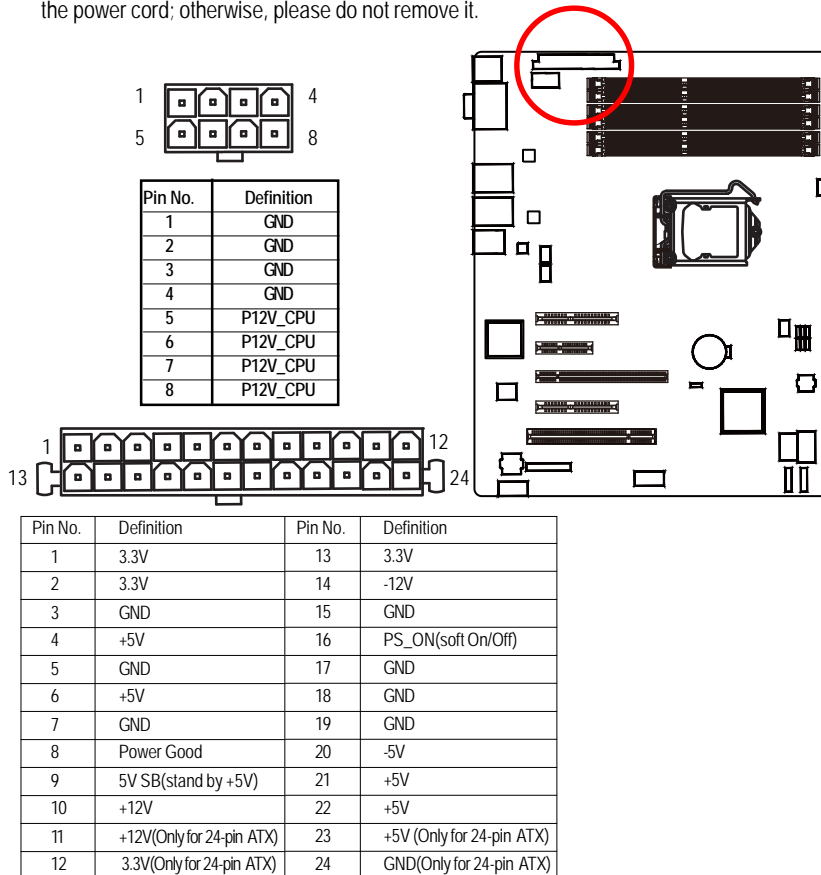
- |   |                                 |
|---|---------------------------------|
| 1. ATX                                  | 10. FAN1 (CPU fan connector)    |
| 2. ATX_CPU                              | 11. FAN2 (System fan connector) |
| 3. COM1                                 | 12. FAN3 (System fan connector) |
| 4. USB2 (USB cable connector)           | 13. FAN4 (System fan connector) |
| 5. F_PANEL                              | 14. CLR_CMOS                    |
| 6. SATA0-3 (SATA data cable connectors) | 15. PASSWORD                    |
| 7. SATA4 (SATA data cable connector)    | 16. BIOS_WP                     |
| 8. SATA5 (SATA data cable connector)    | 17. BIOS_RVCR                   |
| 9. BAT (CMOS Battery)                   | 18. SATA_RAID                   |

## 1/2 ) ATX/ATX\_CPU (24-pin/ 8-pin ATX power connectors)

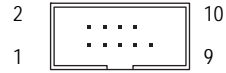
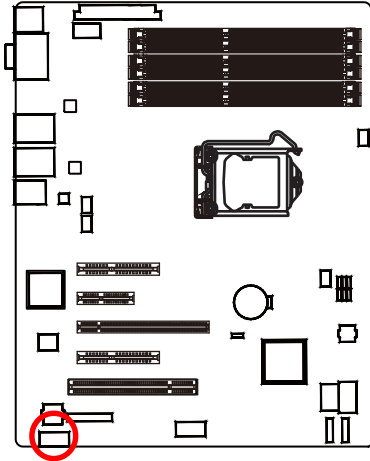
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

The ATX\_12V power connector mainly supplies power to the CPU. If the ATX\_12V power connector is not connected, the system will not start.

Caution! Please use a power supply that is able to support the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (350W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start. If you use a power supply that provides a 24-pin ATX power connector, please remove the small cover on the power connector on the motherboard before plugging in the power cord; otherwise, please do not remove it.



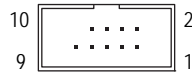
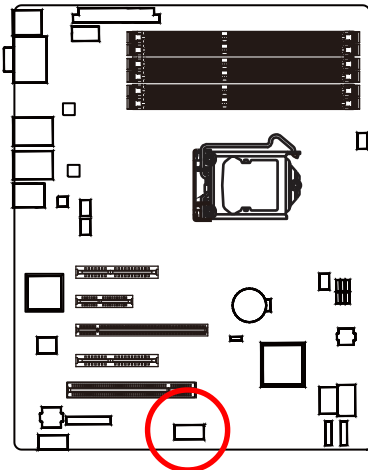
### 3) COM1



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

### 4) USB2 (USB cable connector)

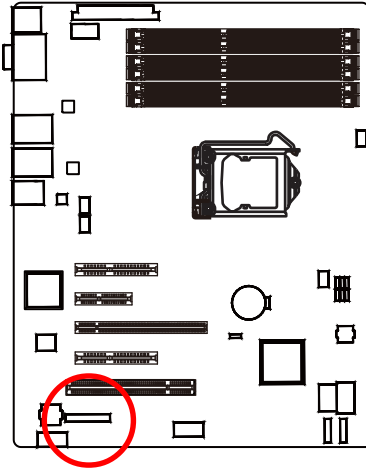
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



Pin No.	Definition
1	5V power
2	5V power
3	-FUSB4
4	-FUSB5
5	+FUSB4
6	+FUSB5
7	GND
8	GND
9	NC
10	NC

## 6) F\_PANEL (2X12 Pins Front Panel connector)

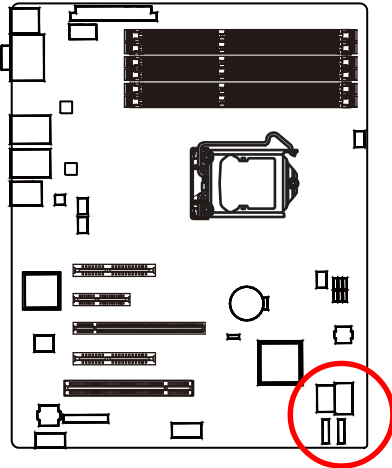
Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F\_PANEL connector according to the pin assignment above.



Pin No.	Signal Name	Description
1.	Power LED +	Power LED Signal anode (+)
2.	5V standby	Front panel power
3.	Pin removed	Pin removed
4.	NC	No connect
5.	Power LED -	Power LED Signal cathode(-)
6.	NC	No connect
7.	HD status LED+	Hard Disk LED Signal anode (+)
8.	NC	No connect
9.	HD status LED-	Hard Disk LED Signal cathode(-)
10.	NC	No connect
11.	Power on switch	Power button
12.	LAN1 active LED (-)	LAN1 active LED Signal cathode(-)
13.	GND	Ground
14.	LAN1 active LED (+)	LAN1 active LED Signal anode (+)
15.	Reset switch	Reset button Signal
16.	NC	No connect
17.	GND	Ground
18.	NC	No connect
19.	NC	No connect
20.	CASEOPEN	Chassis intrusion Signal
21.	NC	No connect
22.	LAN2 active LED (-)	LAN2 active LED Signal cathode(-)
23.	NMI switch	NMI switch Signal
24.	LAN2 active LED (+)	LAN2 active LED Signal anode (+)

**6/7/8 ) SATA 0-5 (Serial ATA cable connectors)**

SATA 3Gb/s can provide up to 300MB/s transfer rate. Please refer to the BIOS setting for the SATA 3Gb/s and install the proper driver in order to work properly.

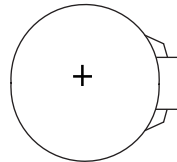


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

**9 ) BAT (CMOSattery)**

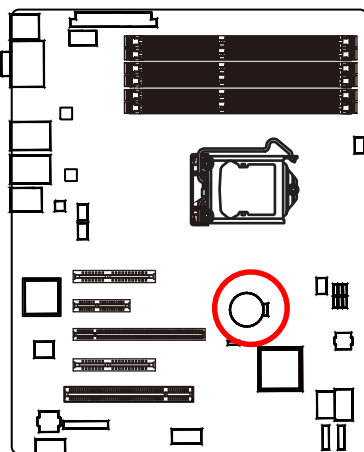
If you want to erase CMOS...

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.



**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.

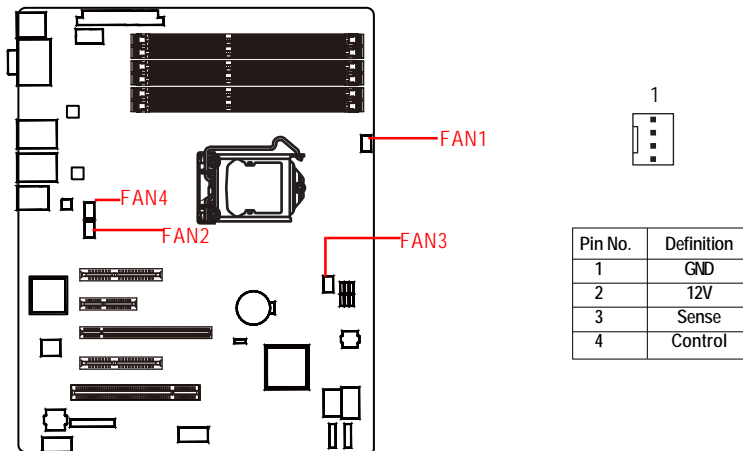


### 10~13 ) FAN1/2/3/4 (CPU fan/System fan cable connectors)

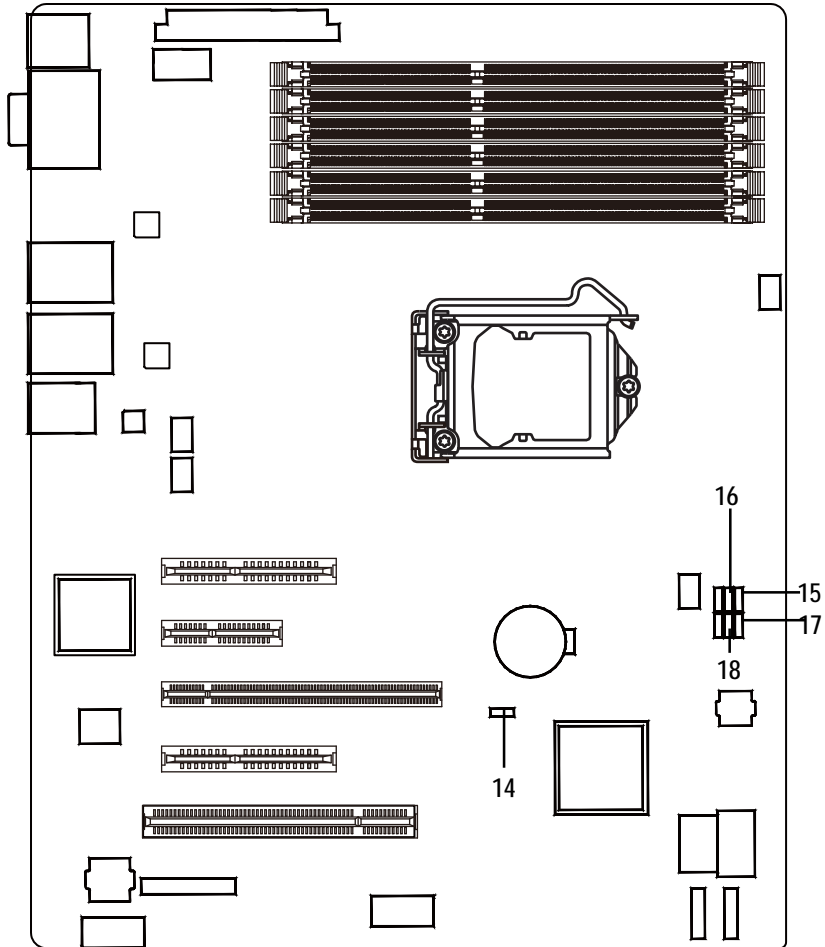
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin(CPU\_FAN) power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Remember to connect the CPU/system fan cable to the CPU\_FAN/SYS\_FAN connector to prevent CPU damage or system hanging caused by overheating.



Jumper Setting




**14 ) CLR\_CMOS (Clear CMOS jumper)**

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

**To clear CMOS, temporarily short 2-3 pin.**

1  1-2 close: Normal operation (Default setting)

1  2-3 close: Clear CMOS

**15 ) PASSWORD (Set Supervisor password jumper)**

1  1-2 Close: Set Supervisor Password. (Default setting)


1 } 2-3 Close: Clear Supervisor Password in BIOS setup menu.

**16 ) BIOS\_WP (BIOS Write Protect jumper)**

1  1-2 close: Normal power operation. (Default setting)

1 } 2-3 close: Enable BIOS protect function.

**17 ) BIOS\_RVCR (BIOS Recovery jumper)**

1  1-2 close: Normal operation. (Default setting)

1 } 2-3 close: Enable BIOS Recovery function.

**18 ) SATA\_RAID (Enable SATA RAID jumper)**

1  1-2 close: Enable SATA RAID. (Default setting)

1 } 2-3 close: Disable SATA RAID.



## Chapter 3 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.

The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.

### ENTERING SETUP

When the power is turned on, press the <F2> button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen. You can enter the BIOS setup screen by pressing "Ctrl + F1".

### CONTROL KEYS

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

## GETTINGHELP

### Main Menu

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

### Status Page Setup Menu / Option Page Setup Menu

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

Select the **Load Setup Defaults** item in the BIOS Exit Setup menu when somehow the system is not stable as usual. This action makes the system reset to the default settings for stability.

- **Main**

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

- **Advanced**

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

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

- **Power**

This setup page includes all the items of Green function features.

- **Security**

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

- **Server**

Server additional features enabled/disabled setup menus.

- **Boot**

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

- **Exit**

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

## Main

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

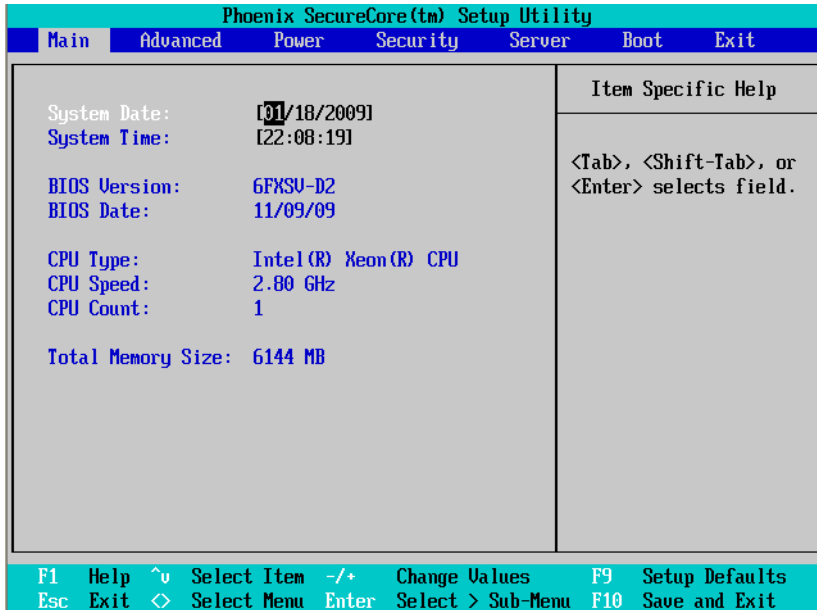


Figure 1: Main

### System Date

Set the System Date. Note that the "Day" automatically changed after you set the date.

### System Time

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

### BIOS Information

- ▶▶BIOS Version: displays the BIOS version.
- ▶▶BIOS Date: displays the BIOS established date.

🔑 **Total Memory**

The BIOS determines how much total memory is present during the POST.

## Advanced

### About This Section: Advanced

With this section, allowing user to configure your system for advanced operation. User can set the Processor configuration, Memory configuration, Advanced chipset control, PCI configuration, SATA configuration, I/O device configuration, Boot configuration, and Thermal and Acoustic configuration.

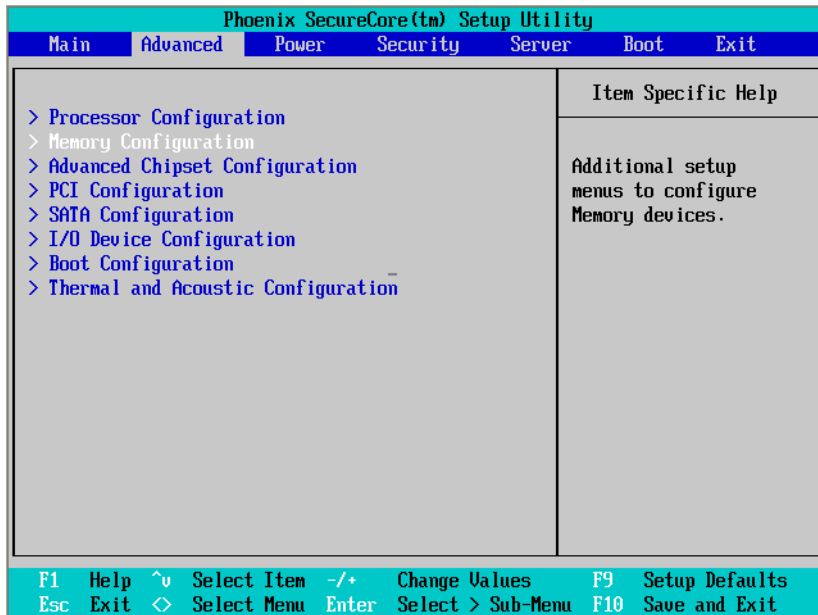


Figure 2: Advanced

## Processor Setting

Phoenix SecureCore (tm) Setup Utility		
Advanced		
Processor Configuration		Item Specific Help
Processor 1 Information: Processor Speed: 2.80 GHz Processor CPUID: 106E5 Processor L2 Cache: 1024 kB Processor L3 Cache: 8192 kB  Multiprocessor Specification: [1.4]  Intel(R) Virtualization Technology: [Enabled] Execution Disable Bit: [Enabled] Hardware Prefetcher: [Enabled] Adjacent Cache Line Prefetch: [Enabled] CPU Thermal Trip: [Enabled] BMC Action for CPU Thermal Trip: [Power Off]		Configures the MP Specification revision level. Some operating systems will require 1.1 for compatibility reasons.
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit		
Phoenix SecureCore (tm) Setup Utility		
Advanced		
Processor Configuration		Item Specific Help
Execution Disable Bit: [Enabled] ^ Hardware Prefetcher: [Enabled] Adjacent Cache Line Prefetch: [Enabled] CPU Thermal Trip: [Enabled] BMC Action for CPU Thermal Trip: [Power Off]  > CPU Power Management  Active Processors: [Max. Core] Hyper-Threading Technology: [Enabled] A20M Support: [Enabled] Machine Checking: [Enabled]  Discrete MTRR Allocation: [Disabled] Thermal Management: [Enabled]		Enable Thermal Monitor
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit		

### ☞ **Processor Setting**

This category includes the information of CPU Speed, Processor ID ,Processor L2 / L3 Cache.

Please note that setup menu options will be variable depends on the type of CPU.

### ☞ **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.

### ☞ **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.

### ☞ **Execute Disable Bit**

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

### ☞ **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.

### ☞ **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.

☞ **CPU Thermal Trip**

- ▶▶ Enabled Enable CPU Thermal Trip. (Default setting)
- ▶▶ Disabled Disable CPU Thermal Trip.

☞ **BMC Action for CPU Thermal Trip**

- ▶▶ Enabled BMC Action for CPU Thermal Trip. (Default setting)
- ▶▶ Disabled Disable BMC Action for CPU Thermal Trip.

☞ **Discrete MTRR Allocation**

- ▶▶ Enabled Enable Discrete MTRR Allocation.
- ▶▶ Disabled Disable Discrete MTRR Allocation. (Default setting)

☞ **Thermal Management**

- ▶▶ Enabled Enable Thermal Management. (Default setting)
- ▶▶ Disabled Disable Thermal Management.



## Memory Configuration

Phoenix SecureCore (tm) Setup Utility	
Advanced	
Memory Configuration	Item Specific Help
Base Memory: 631 kB	Clears the memory error status.
Extended Memory: 6143 MB	
Memory Frequency: 800 MHz	
DIMM 1 : 1024 MB	
DIMM 3 : 1024 MB	
DIMM 5 : 1024 MB	
DIMM 2 : 1024 MB	
DIMM 4 : 1024 MB	
DIMM 6 : 1024 MB	
Memory Retest: [No]	
Memory Control Settings: [Manual]	
Memory Frequency: [Auto]	
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults	
Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit	

Figure 2-2: Memory Configuration

### ☞ Base Memory/Extended Memory/Memory Frequency/DIMM Status

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

### ☞ Memory Reset

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

### ☞ Memory Control Settings

- ▶▶ Manual Select 'Manual' will pop up sub-menu for configuration.
- ▶▶ Auto Auto configuration. (Default setting)

### ☞ Memory Frequency

- ▶▶ Select the desired value of Memory frequency. Options available: Auto, DDR-3 1066, and DDR-3 1333.

### Advanced Chipset Configuration

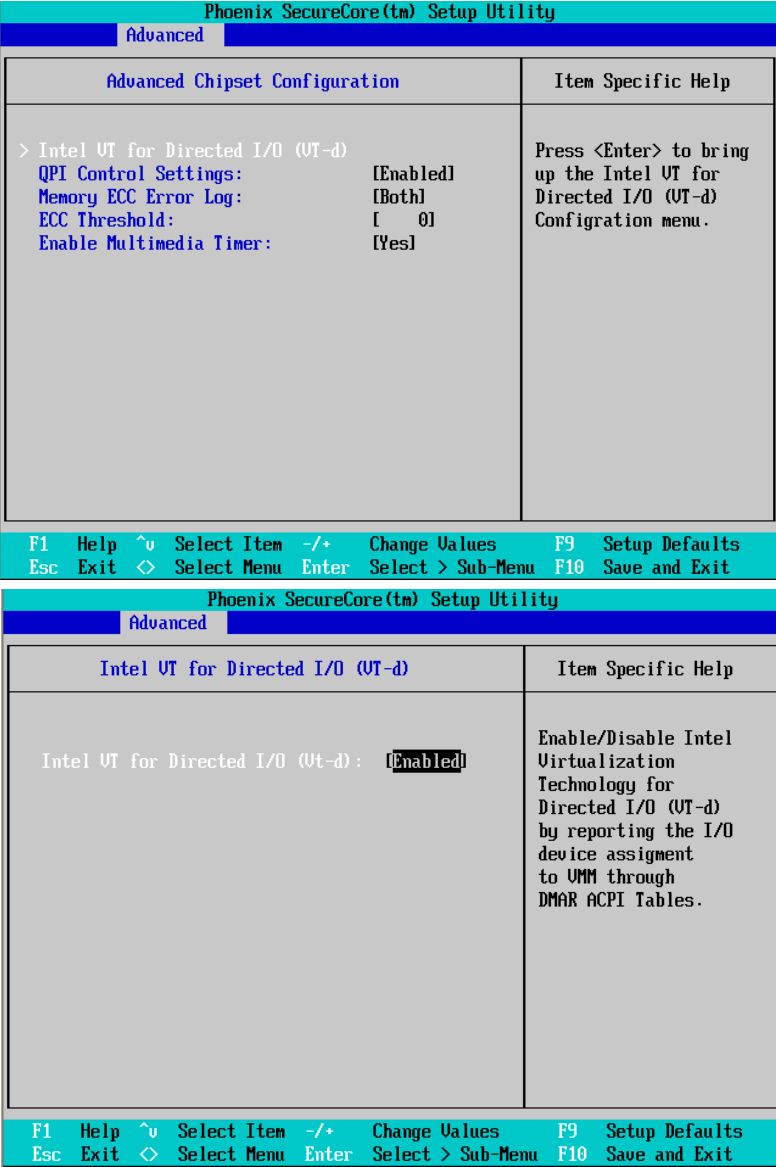


Figure 2-3: Advanced Chipset Configuration

☞ **Intel VT for Directed I/O (VT-d)**

- ▶▶ Enabled      Enable Intel VT for Directed I/O (VT-d). (Default setting)
- ▶▶ Disabled      Disable Intel VT for Directed I/O (VT-d).

☞ **Advanced Chipset Control Main Menu Options**

☞ **QPI Control Settings**

- ▶▶ Enabled      Enable QPI Control settings.
- ▶▶ Disabled      Disable QPI Control settings. (Default setting)

☞ **Memory ECC Error Log**

- ▶▶ Identify the memory ecc error log. Option available: Disable, Correctable Error, Uncorrectable Error, and Both. The default setting is Both.

☞ **ECC Threshold**

- ▶▶ Use the "+" and "-" keys to adjust the desire value of ECC Threshold.

☞ **Enable Multimedia Timer**

- ▶▶ Enabled      Enable Multimedia Timer support. (Default setting)
- ▶▶ Disabled      Disable this function.

## PCI Configuration

Phoenix SecureCore (tm) Setup Utility	
Advanced	
PCI Configuration	Item Specific Help
PCI Slot 1 Option ROM: [Enabled] PCI Slot 2 Option ROM: [Enabled] PCI Slot 3 Option ROM: [Enabled] PCI Slot 4 Option ROM: [Enabled] PCI Slot 5 Option ROM: [Enabled] Onboard LAN1 Control: [Enabled] LAN1 Option ROM Scan: [Enabled] Onboard LAN2 Controller: [Enabled] LAN2 Option ROM Scan: [Enabled]	Initialize device expansion ROM
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit	

Figure 2-4: PCI Configuration

### ☞ PCI Slot 1/2/3/4/5 Option ROM

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

### ☞ Onboard LAN1 Control

- ▶▶ Enabled Enable Onboard LAN controller. (Default setting)
- ▶▶ Disabled Disable this function.

### ☞ LAN1 Option ROM Scan

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

### ☞ Onboard LAN2 Control

- ▶▶ Enabled Enable Onboard LAN controller. (Default setting)
- ▶▶ Disabled Disable this function.

☞ **LAN2Option ROM Scan**

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

## SATA Configuration

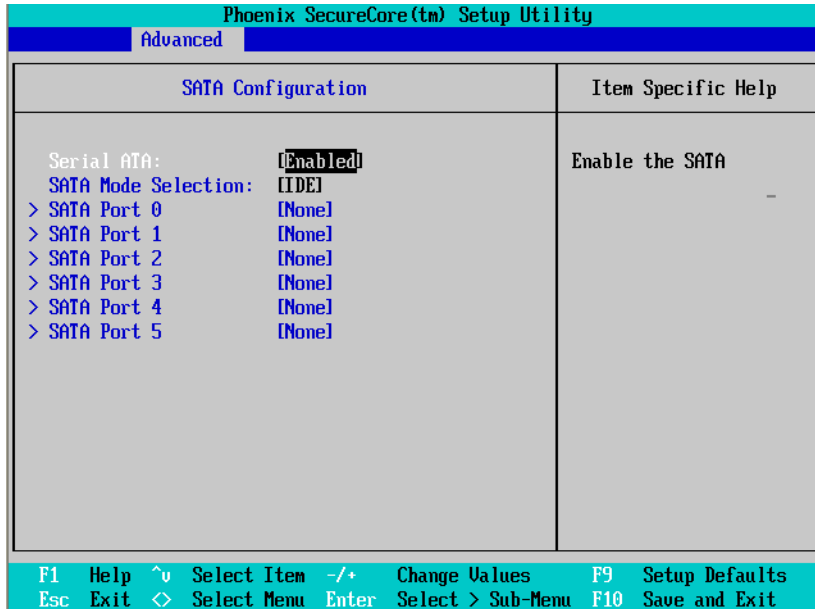


Figure 2-5: SATA Configuration

### Serial ATA

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

### SATA Mode Selection

- ▶▶ IDE Determine IDE as the SATA mode. (Default setting)
- ▶▶ RAID Enable the SATA RAID function.
- ▶▶ ACHI Set this item to enable SATA AHCI function for WinXP-SP1+IAA driver supports AHCI mode.

### SATA Port 0/1/2/3/4/5

The category identifies the types of Serial SATA hard disk from drive 0 to 5 that has been installed in the computer. System 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.

Hard drive information should be labeled on the outside device casing. Enter the appropriate option based on this information.

▶▶ **TYPE**

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default setting)

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

ATAPI Removable: Removable disk drive is installed here.

▶▶ **Multi-Sector Transfer**

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

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

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

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

## Peripheral Configuration

Phoenix SecureCore (tm) Setup Utility	
Advanced	
I/O Device Configuration	Item Specific Help
Serial port A: <b>[Enabled]</b> Base I/O address: <b>[3F8/IRQ 4]</b>	PilotII Configure serial port A using options:  <b>[Disable]</b> No configuration  <b>[Enable]</b> User configuration
Serial port B: <b>[Enabled]</b> Base I/O address/IRQ: <b>[2F8/IRQ 3]</b>	
<b>F1 Help</b> <b>^v Select Item</b> <b>-/+ Change Values</b> <b>F9 Setup Defaults</b> <b>Esc Exit</b> <b>&lt; Select Menu</b> <b>Enter Select &gt; Sub-Menu</b> <b>F10 Save and Exit</b>	

Figure 2-6: Peripheral Configuration

### Serial Port A

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

- ▶▶ Enabled      Enable the configuration. (Default setting)
- ▶▶ Disabled     Disable the configuration.
- ▶▶ Base I/O Address
  - ▶▶ 3F8          Set IO address to 3F8.(Default setting)
  - ▶▶ 2F8          Set IO address to 2F8.
  - ▶▶ 3E8          Set IO address to 3E8.
  - ▶▶ 2E8          Set IO address to 2E8.



### **Serial Port B**

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

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

#### ▶▶ **Base I/O Address**

- ▶▶ 3F8            Set IO address to 3F8.
- ▶▶ 2F8            Set IO address to 2F8. (Default setting)
- ▶▶ 3E8            Set IO address to 3E8.
- ▶▶ 2E8            Set IO address to 2E8.

## Boot Device Configuration

Phoenix SecureCore (tm) Setup Utility	
Advanced	
Boot Configuration	Item Specific Help
Boot-time Diagnostic Screen: [Disabled] Post Error Pause: [Enabled] NumLock: [On]	Display the diagnostic screen during boot
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit	

Figure 2-7: Boot Device Configuration

### ☞ 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)

### ☞ Post Error Pause

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

- ▶▶ All Error Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▶▶ No Error The system boot will not stop for any error that may be detected and you will be prompted.
- ▶▶ All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default setting)

 **NumLock**

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

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

## Thermal and Acoustic Configuration

Phoenix SecureCore (tm) Setup Utility		
Advanced		
Thermal and Acoustic Configuration		Item Specific Help
Open-loop Thermal Throttle	[Enabled]	Enable/Disable Open-loop Thermal Throttle
Temperature Chasis inlet	[ 35]	
Temperature Rise	[ 10]	
Air speed to the DIMMs	[1500]	
System Altitude	[ 01]	
Pitch between DIMMs	[400]	
Close-loop Thermal Throttle	[Enabled]	
Temperature hysteresis	[1]	
Temperature guardband	[ 3]	
Temperature Chasis inlet	[ 35]	
Temperature Rise	[ 10]	
Air speed to the DIMMs	[1500]	
System Altitude	[ 01]	
Pitch between DIMMs	[400]	
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit		
Phoenix SecureCore (tm) Setup Utility		
Advanced		
Thermal and Acoustic Configuration		Item Specific Help
Temperature Rise	[ 10]	Enable or Disable the FAN Speed Control by setting item to the desired value. PS: System will monitoring the MB Temperature not CPU temperature for Fan Speed Control function.
Air speed to the DIMMs	[1500]	
System Altitude	[ 01]	
Pitch between DIMMs	[400]	
Close-loop Thermal Throttle	[Enabled]	
Temperature hysteresis	[1]	
Temperature guardband	[ 3]	
Temperature Chasis inlet	[ 35]	
Temperature Rise	[ 10]	
Air speed to the DIMMs	[1500]	
System Altitude	[ 01]	
Pitch between DIMMs	[400]	
FAN Speed Control:	[Enabled]	
F1 Help ^v Select Item -/+ Change Values F9 Setup Defaults Esc Exit < Select Menu Enter Select > Sub-Menu F10 Save and Exit		

Figure 2-8: Thermal and Acoustic Configuration

**Open loop Thermal Throttle**

- ▶▶ Enabled      Open loop Thermal Throttle. (Default setting)
- ▶▶ Disabled      Disable Open loop Thermal Throttle.

**Temperature Chassis inlet**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Temperature Rise**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Air speed to the DIMMs**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**System Altitude**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Pitch between DIMMs**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Close loop Thermal Throttle**

- ▶▶ Enabled      Close loop Thermal Throttle. (Default setting)
- ▶▶ Disabled      Disable Close loop Thermal Throttle.

**Temperature Hysteresis**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Temperature Guardband**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Temperature Chassis inlet**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Temperature Rise**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**Air speed to the DIMMs**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

**System Altitude**

- ▶▶ This item is user defined. Use nuber key to adjust desired value.

 **Pitch between DIMMs**

▶▶ This item is user defined. Use nuber key to adjust desired value.

 **FAN Speed Contyrol**

▶▶ Enabled      Enable FAN Speed Control. (Default setting)

▶▶ Disabled      Disable FAN Speed Control.

## Power

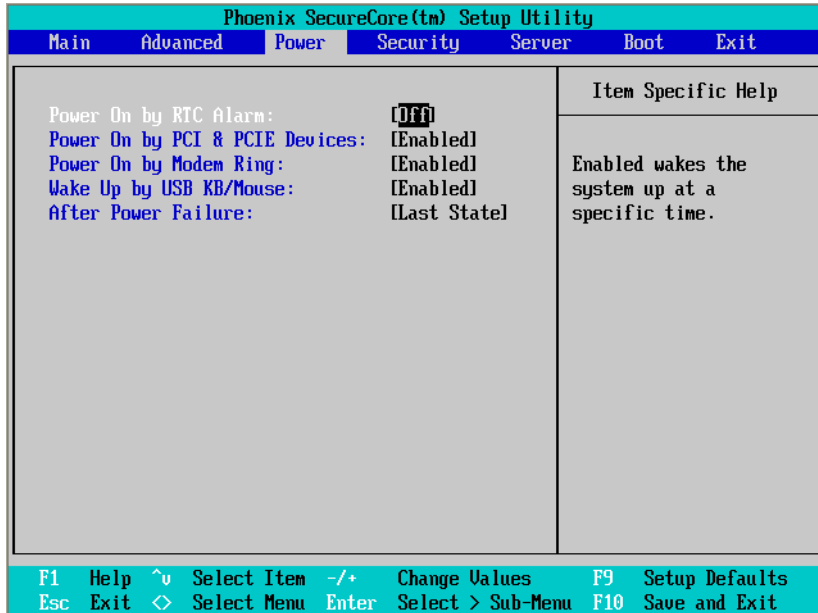


Figure 3: Power

### ☞ Power On by RTC Alarm

You can set item to Enabled and key in Date/Time to power on system.

- ▶▶ On Enable alarm function to POWER ON system. (Default setting)
- ▶▶ Off Disable this function. (Default setting)

If Resume On Time is set to On status:

- ▶▶ RTC Alarm control select: Manual/Auto
- ▶▶ Time (0~23) : (0~59) : (0~59)

### ☞ Power On PCI & PCIE Devices

- ▶▶ Enabled Enable Power On PCI & PCIE Devices. (Default setting)
- ▶▶ Disabled Disable this function.

### ☞ Wake up by USB KB/Mouse

- ▶▶ Enabled Enable S1 Wake up by USB KB/Mouse. (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.
- ▶▶ Stay Off    Do not power on system when AC power is back.
- ▶▶ Last State    Set system to the last state when AC power is removed. Do not power on system when AC power is back. (Default setting)



## Security

### 🔑 About This Section: Security

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

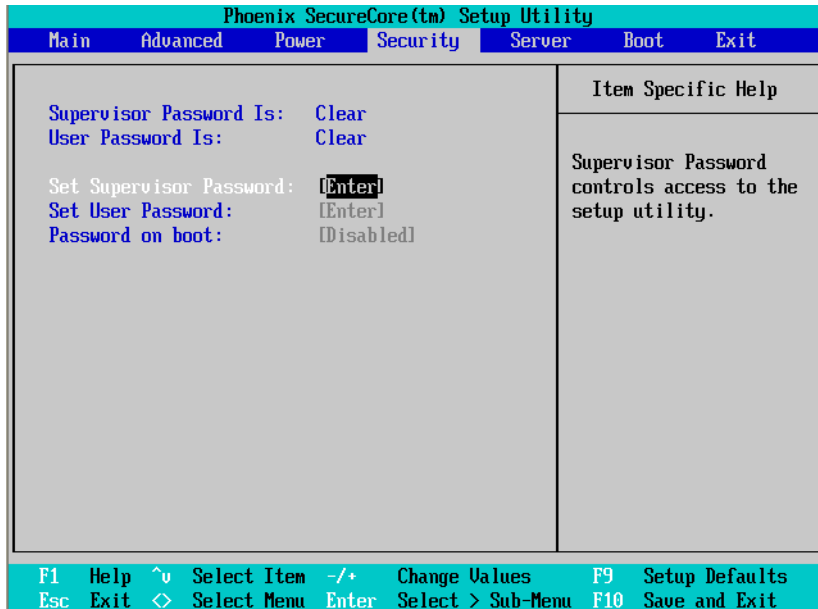


Figure 4: Security

### 🔑 Set Supervisor Password

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

### ☞ **Set User Password**

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

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

### ☞ **Password on boot**

Password entering will be required when system on boot.

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

## Server

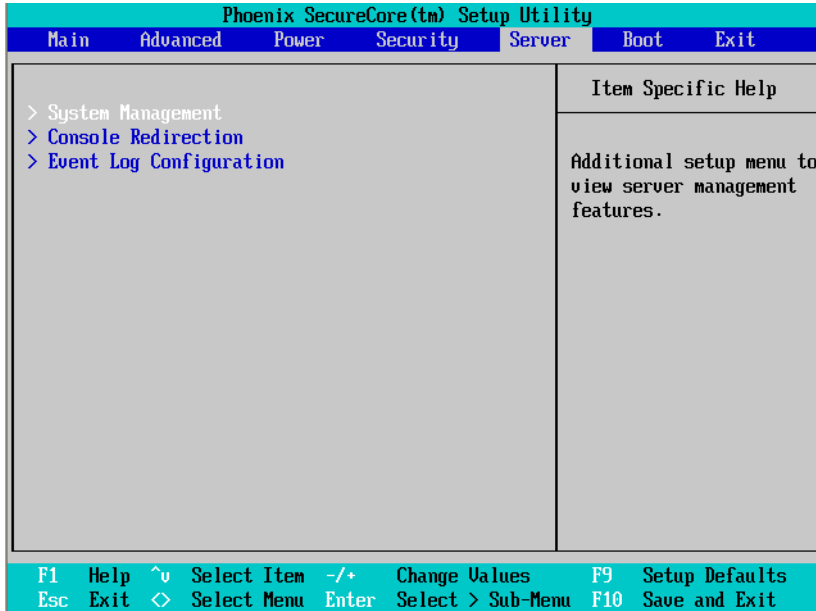


Figure 5: Server

# System Management

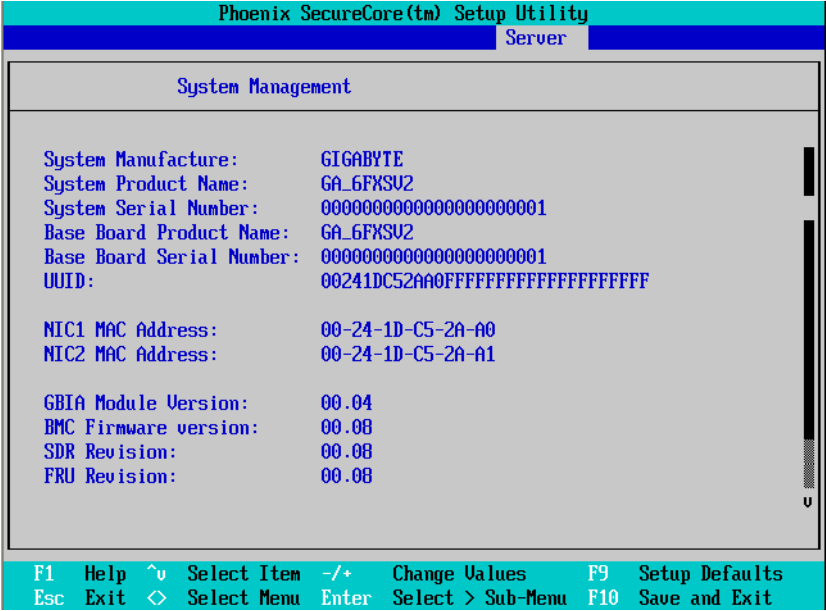


Figure 5-1: System Management

## Server Management

This category allows user to view the server management features. Including information of Motherboard Hardware information and software information.

## Console Redirection

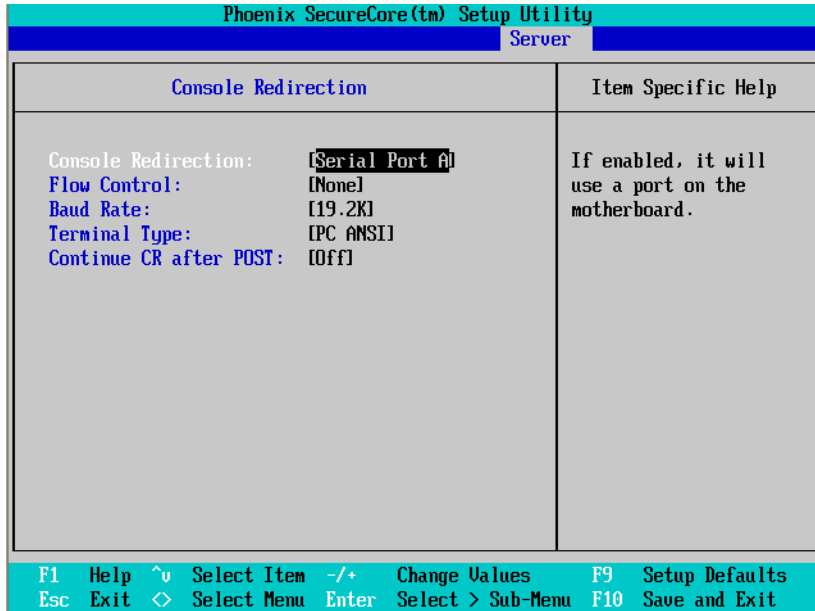


Figure 5-2: Console Redirection

### ☞ Console Redirection

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

- ▶▶ On-board COM A Use Serial Port A as the COM port address.
- ▶▶ On-board COM B Use Serial Port B as the COM port address.
- ▶▶ Disabled Disable this function. (Default setting)

### ☞ Flow Control

This option provide user to enable the flow control function.

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

### ☞ 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.

🔑 **Terminal 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, ASCII.

🔑 **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)

## DMI Event Logging

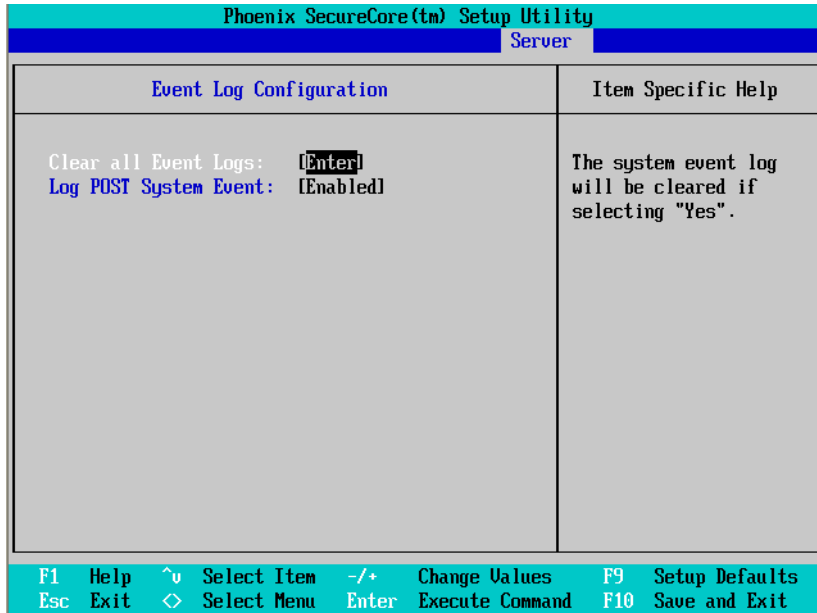


Figure 5-3: DMI Event Logging

### ☞ Clear all Event Logs

- ▶▶ Press Enter to clear all system event logs.

### ☞ Log POST System Event

- ▶▶ Enabled      Enable Log POST System Event. (Default setting)
- ▶▶ Disabled     Disabled Log POST System Event.

## Boot

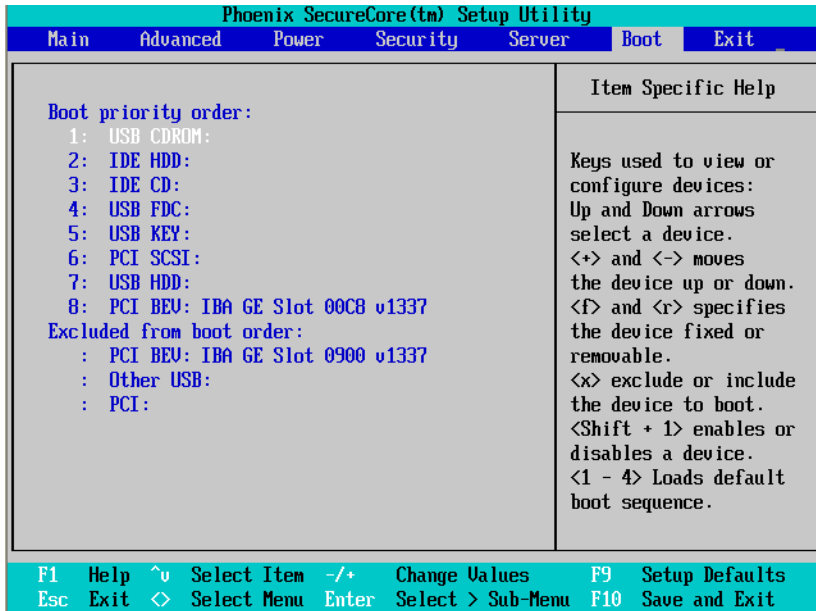


Figure 6: Boot

### ☞ 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 or 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.
- <Shift + 1> Enable or disable a device.
- <1-4> Loads default boot sequence.



## Exit

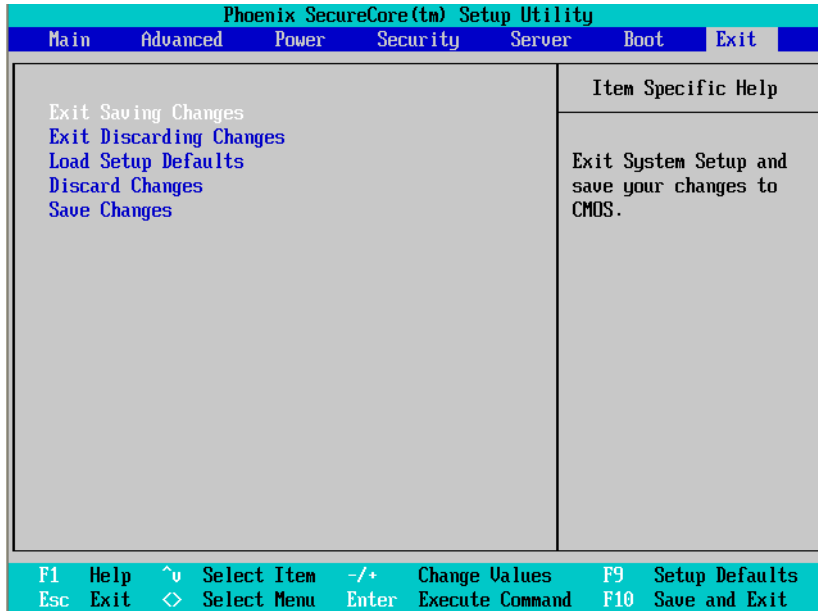


Figure 7: Exit

### ☞ About This Section: Exit

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

#### ☞ Exit Saving Changes

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 the user made in this time into CMOS.

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

#### ☞ Exit Discarding Changes

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

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

**⌘ Load Setup Default**

if you highlight this item and press Enter, a dialog box asks if you want to install optimal settings for all the items in the Setup utility. Press the Y key to indicate Yes, and then press Enter to install the optimal settings.

**⌘ Discard Changes**

Select this item and press Enter to discard any changes you have made without leaving the setup utility.

**⌘ Save Changes**

This option allows user to save setup data to CMOS.  
Press [Yes] to save setup data to CMOS.