GA-6FASV Series
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.

Table of Contents

Item Checklist

- ☑ The GA-6FASV1 motherboard
- ☑ The GA-6FASV2 motherboard
- ☑ Serial ATA cable x 2
- ☑ I/O Shield Kit
- ☑ CD for motherboard driver & utility
- ☑ The GA-6FASV1/The GA-6FASV2 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	• 9.6" x 9.6" Micro ATX size form factor, 6 layers PCB
CPU	• Supports single Intel® LGA1156 (socket H1) processor • Support Lynnfield (Quad-core) processor • Enhanced Intel SpeedStep Technology (EIST) & Demand Based Switch (DBS) • Support Intel Virtualization Technology (VT)
Chipset	• Intel® 3420 Chipset
Memory	• 4 x DIMM slots support DDR3 1066/1333 • Dual channel memory architecture • Support 1066/1333 memory • Support Unbuffered DDR3 ECC DIMM
I/O Control	• Windbond W83627DHG-P Super I/O
Expansion Slots	• 1 PCI slots 32-Bit/33MHz (5V) • 1 PCI-Express x16 slot (Gen2 x16 bandwidth) • 1 PCI-Express x8 slot (Gen2 at x4 bandwidth) • 1 PCI-Express x4 slot (Gen2 at x2 bandwidth)
SATA RAID Controller	• Intel® 3420 SATA Controller • Supports 6 independent SATA 3.0 Gb/s with Intel Software RAID 0,1,5,10
On-Board VGA	• XGI Volari Z9s with 64MB DDR2 memory
On-Board LAN	• Intel® 82574L and Intel® 82578DM GbE controller support dual Gigabit Ethernet ports
Internal Connector	• 1 x 24-pin ATX power connector • 1 x 4-pin ATX power connector • 6 x SATA 3.0Gb/s connectors • 1 x Serial connector (COM) • 2 x USB 2.0 connectors for additional 4 ports by cable • 1 x front panel connector • 1 x Audio connector (Option) • 1 x IPMB connector • 4 x System fan cable connector
Rear Panel I/O	• P/S 2 Keyboard and Mouse Connectors • 1 x Serial port • 2 x USB 2.0 dual-port connector • 1 x VGA connector

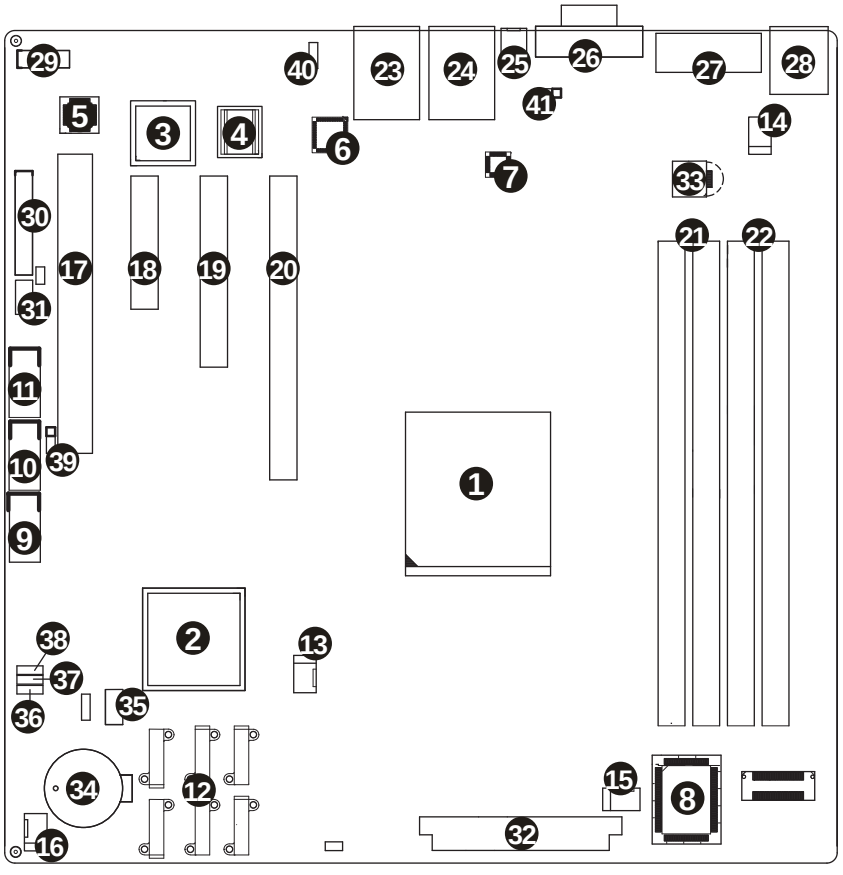
	• 2 x RJ45 LAN ports (GA-6FASV1) • 1 x RJ45 LAN ports (GA-6FASV2) • 1 x NMI switch
Hardware Monitor	• Winbond W83627DHG-P controller • Enhanced features with CPU Vcore, DDR3 1.5V, VCC3 (3.3V), 12V, 5V, and System Temperature Values viewing • CPU/System Fan Revolution Detect • CPU shutdown when overheat
BIOS	• Phoenix BIOS on 16Mb flash RAM
Additional Features	• Supports S4, S5 under Windows Operating System • AC Recovery • Supports Console Redirection • Supports 4-pin Fan controller

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

1.3. GA-6FASV1/GA-6FASV2 Motherboard Component

No	Code	Description
1.	CPU	CPU
2.	U3	Intel 3420 chipset
3.	U10	XGI Volari Z9s
4.	U11	VGA memory
5.	U75**	Realtek ALC889A Audio controller (option)
6.	U9	Intel 82574L GbE controller
7.	U7	Intel 82578DM GbE controller
8.	U13	Winbond W83627DHG-P I/O controller
9.	COM2	Com port cable connector
10.	USB4_5	USB cable connector
11.	USB10_11	USB cable connector
12.	SATA0-5	SATA cable connectors
13.	FAN1	CPU fan cable connector
14.	FAN2	System fan cable connector
15.	FAN3	System fan cable connector
16.	FAN4	System fan cable connector
17.	PCI4	PCI 32bit/33MHz slot
18.	PCI3	PCIe2.0 (2.5GT/s), x 4 Slot
19.	PCI2	PCIe2.0 (2.5GT/s), x 8 Slot
20.	PCI1	PCIe2.0 (5.0GT/s), x 16 Slot
21.	DIMM3/1	Channel A DDR3 sockets
22.	DIMM4/2	Channel B DDR3 sockets
23.	USB23_LANB**	USB 2.0 and Gigabit LAN ports (GA-6FASV1) USB2.0 only (GA-6FASV2)
24.	USB01_LANA	USB 2.0 and Gigabit LAN ports
25.	NMI_BTN	NMI switch
26.	VGA	VGA port
27.	COM1	Serial port
28.	KB_MS	Keyboard and mouse connectors
29.	AUDIO**	Audio connector (option)
30.	MB_PANEL	Front panel connector
31.	IPMB1**	IPMB1 SMBus connector (Option)
32.	P1	24 pin ATX power connector
33.	P2	4 pin ATX power connector
34.	BAT	CMOS battery
35.	SGPIO**	SGPIO connector (Option)
36.	CLR_CMOS1	Clear CMOS jumper
37.	PASSWORD1	Set Supervisor Password Jumper
38.	BIOS_RVCR1	BIOS recovery jumper

39. USB_PWR1 USB1 power source selection jumper
40. USB_PWR2 USB2 power source selection jumper
41. USB_PWR3 USB3 power source selection jumper



Chapter 2 Hardware Installation Process

2.1. Installing Processor and CPU Heat Sink

CAUTION

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

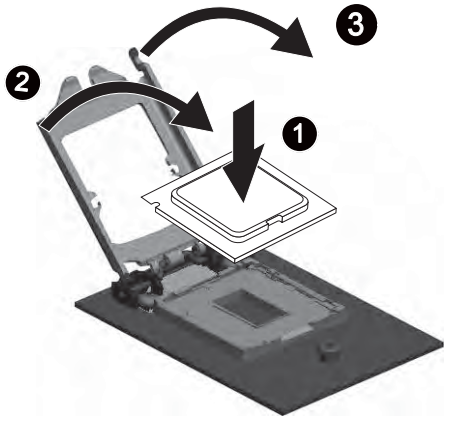
1. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.
2. Never force the processor into the socket.
3. Apply thermal grease on the processor before placing cooling fan.
4. Please make sure the CPU type is supported by the motherboard.
5. If you do 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.
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.

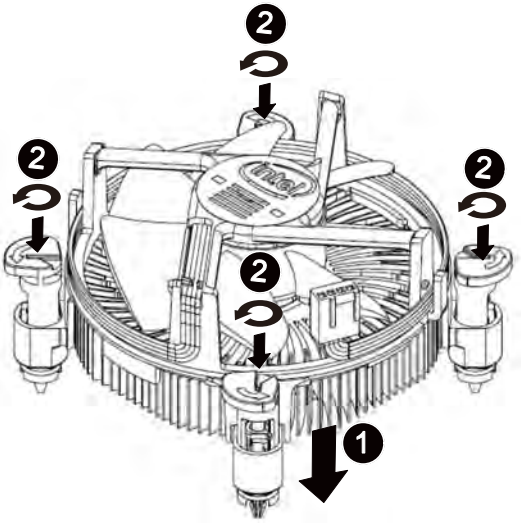


2.1.2. Installing Cooling FAN

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.



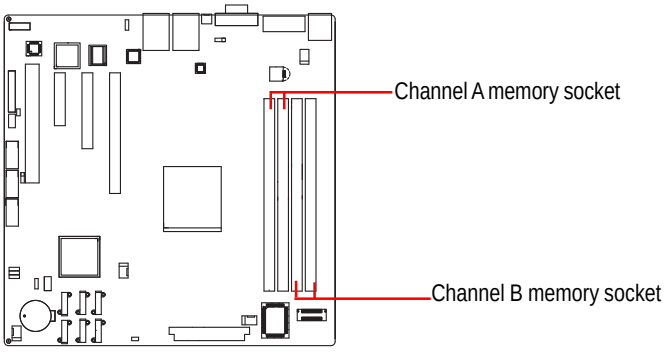
2.2. Installing memory modules

CAUTION

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.



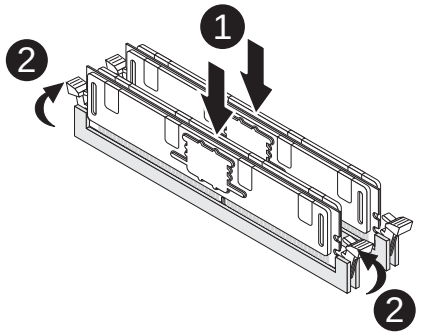
Installation Steps:

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 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.

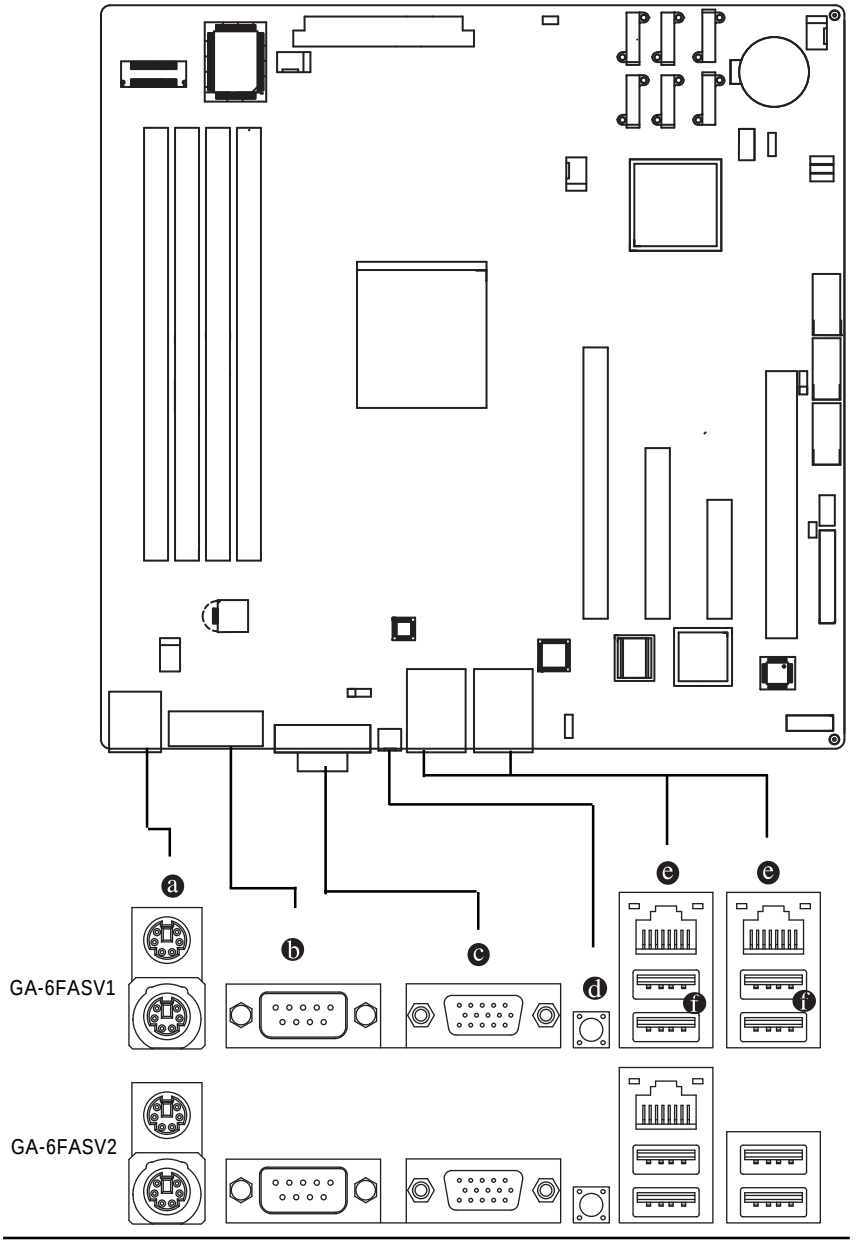


Memory Population Table

Interleave mode	Channel A		Channel B		Total Memory
	DIMM3	DIMM1	DIMM4	DIMM2	
Single Channel		1GB			1GB
		2GB			2GB
		4GB			4GB
Dual Channel		1GB		1GB	2GB
		2GB		2GB	4GB
		4GB		4GB	8GB
	1GB	1GB	1GB	1GB	4GB
	2GB	2GB	2GB	2GB	8GB
	4GB	4GB	4GB	4GB	16GB

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).

ⓑ Serial Port

Connects to serial-based mouse or data processing devices.

ⓒ Video Port

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

ⓓ NMI Switch

This button provides the NMI function

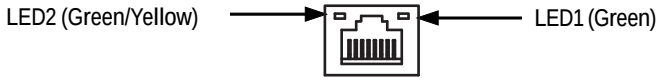
ⓔ Gigabit LAN Ports

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

ⓕ USB Port

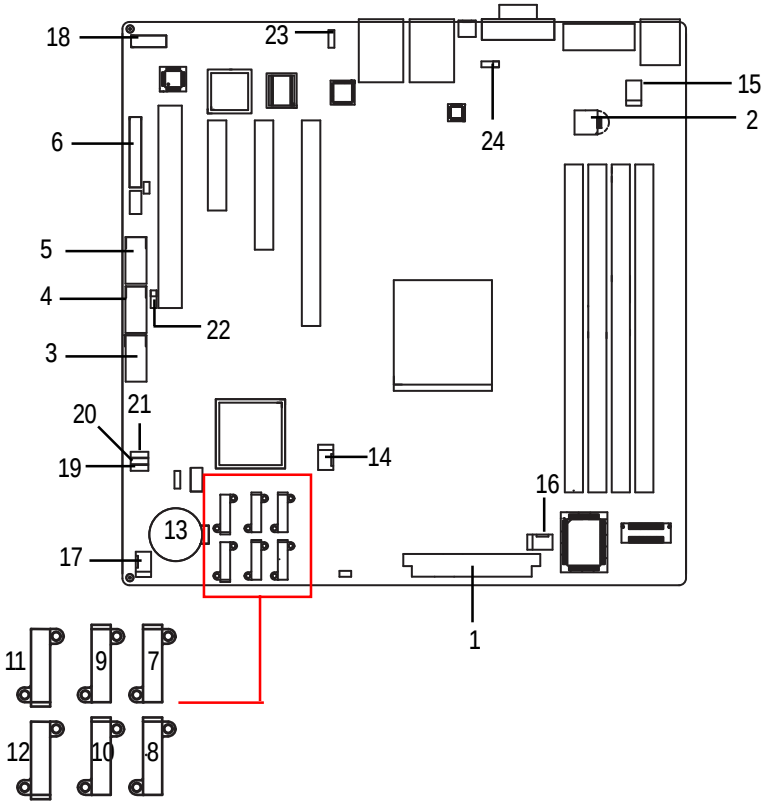
Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible 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 and Jumper Setting Introduction



1. P1
2. P2
3. COM2
4. USB4_5 (USB cable connector)
5. USB10_11 (USB cable connector)
6. MB_PANEL
7. SATA0 (SATA data cable connector)
8. SATA1 (SATA data cable connector)
9. SATA2 (SATA data cable connector)
10. SATA3 (SATA data cable connector)
11. SATA4 (SATA data cable connector)
12. SATA5 (SATA data cable connector)
13. CMOS Battery
14. FAN1 (CPU fan connector)
15. FAN2 (System fan connector))
16. FAN3 (System fan connector)
17. FAN4 (System fan connector)
18. AUDIO**
19. CLR_CMOS1
20. PASSWORD1
21. BIOS_RVCR1
22. USB_PWR1
23. USB_PWR2
24. USB_PWR3

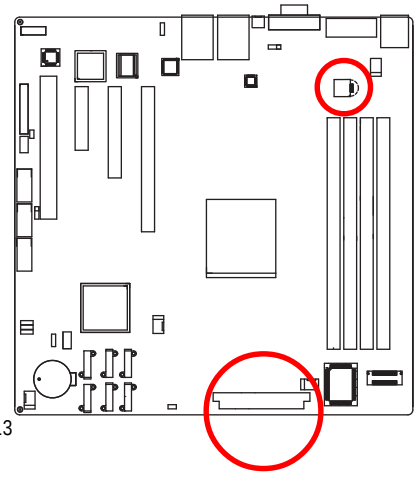
1/2) P1/P2 (24-pin/ 4-pin ATX power connectors)

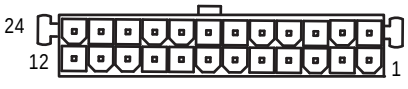
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard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

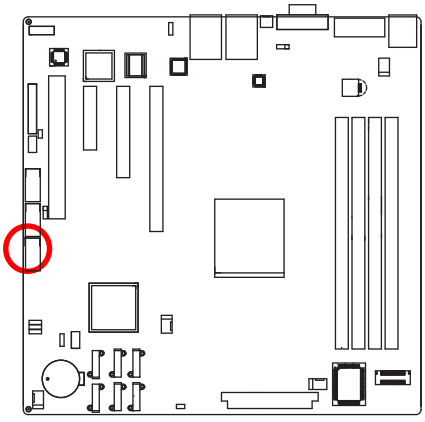
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

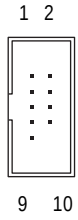




Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5V SB(stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V(Only for 24-pin ATX)	23	+5V (Only for 24-pin ATX)
12	3.3V(Only for 24-pin ATX)	24	GND(Only for 24-pin ATX)

3) COM2

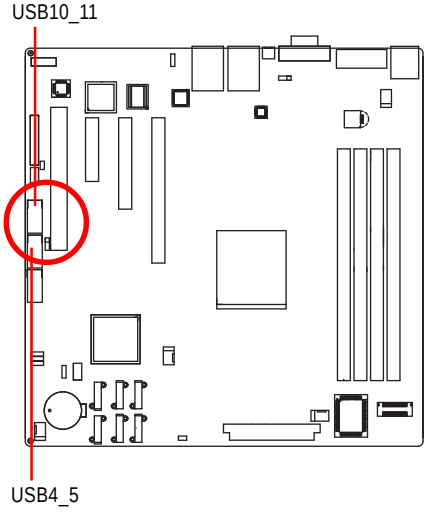


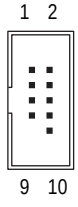


Pin No.	Definition
1	DCD-
2	SIN2
3	SOUT2
4	DTR2-
5	GND
6	DSR2-
7	RTS2-
8	CTS2-
9	RI2-
10	NC

4/5) USB4_5/USB10_11 (USB cable 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.

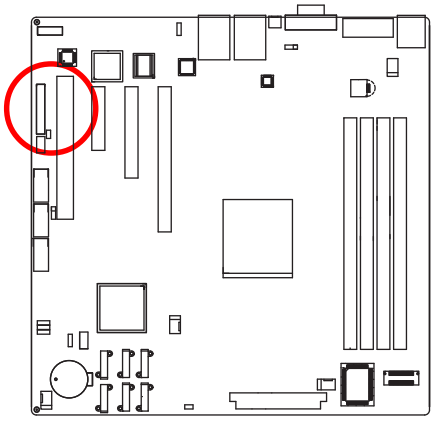




Pin No.	Definition
1	5V power
2	5V power
3	-FUSB4
4	-FUSB5
5	+FUSB4
6	+FUSB5
7	GND
8	GND
9	NC
10	NC

6) F_PANEL (2X12 Pins Front Panel connector)

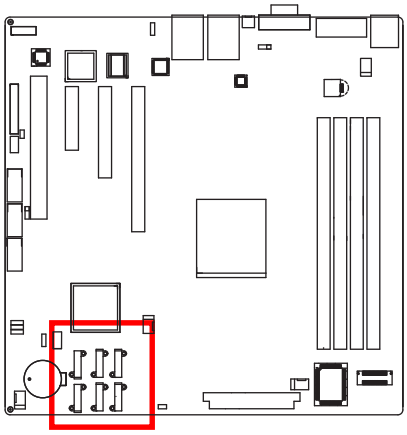
Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F_PANEL connector according to the pin assignment above.



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 (+)

7/8/9/10/11/12) SATA 0~5 (Serial ATA cable connectors)

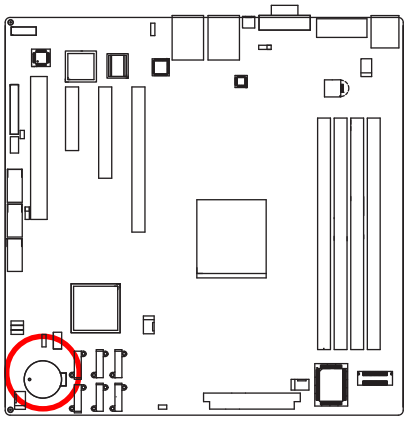
SATA 3Gb/s can provide up to 300MB/s transfer rate. Please refer to the BIOS setting for the SATA 3Gb/s and install the proper driver in order to work properly.

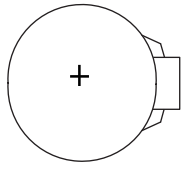


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

13) BAT (Battery)

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

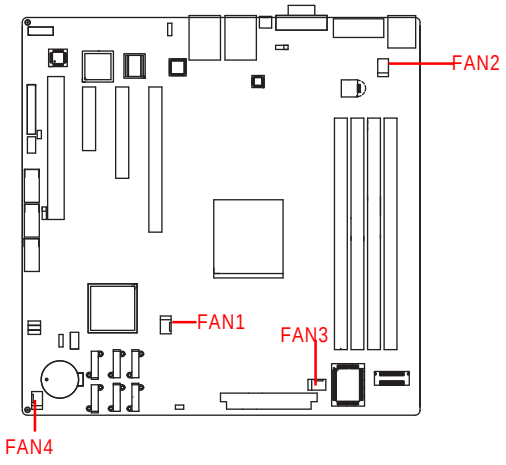
- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

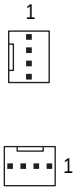
14/15/16/17) FAN1/2/3/4 (CPU fan/System fan cable connectors)

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.

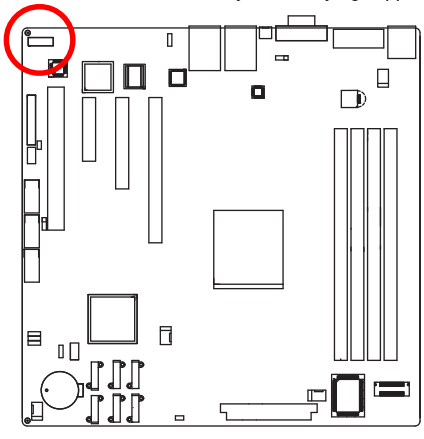


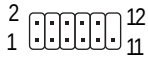


Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

18)AUDIO (Front AUDIO connector/Option)

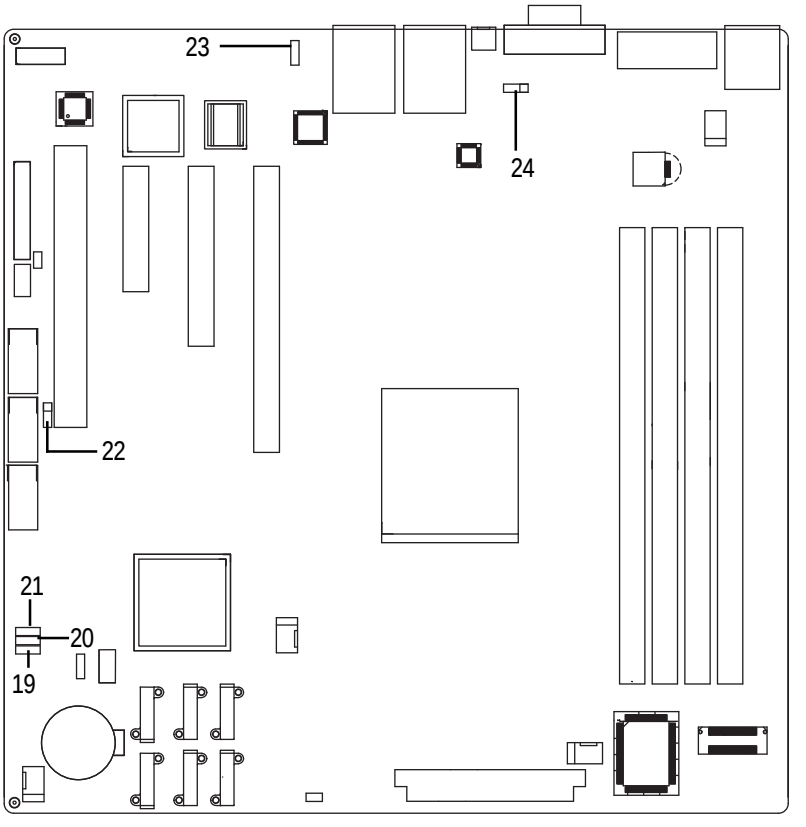
In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.





Pin No.	Definition
1	Line IN (R)
2	MIC(R)
3	Line IN (L)
4	MIC (L)
5	Line IN Jack Detect
6	GND
7	GND
8	Line Out Jack Detect
9	Line Out (R)
10	MIC Jack Detect
11	Line Out (L)
12	Key

Jumper Setting



19) CLR_CMOS1 (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

20) PASSWORD1 (Set Supervisor password jumper)

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

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

21) BIOS_RVCR1 (BIOS Recovery jumper)

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

1 2-3 close: Enable BIOS Recovery function.

22) USB_PWR1 (USB1 power source selection jumper)

1 1-2 close: Normal power operation.

1 2-3 close: Standby power operation. (Default setting)

23) USB_PWR2 (USB2 power source selection jumper)

1 1-2 close: Normal power operation.

1 2-3 close: Standby power operation. (Default setting)

24) USB_PWR3 (USB3 power source selection jumper)

1 1-2 close: Normal power operation.

1 2-3 close: Standby power operation. (Default setting)

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.

ENTERINGSETUP

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".

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>.

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.

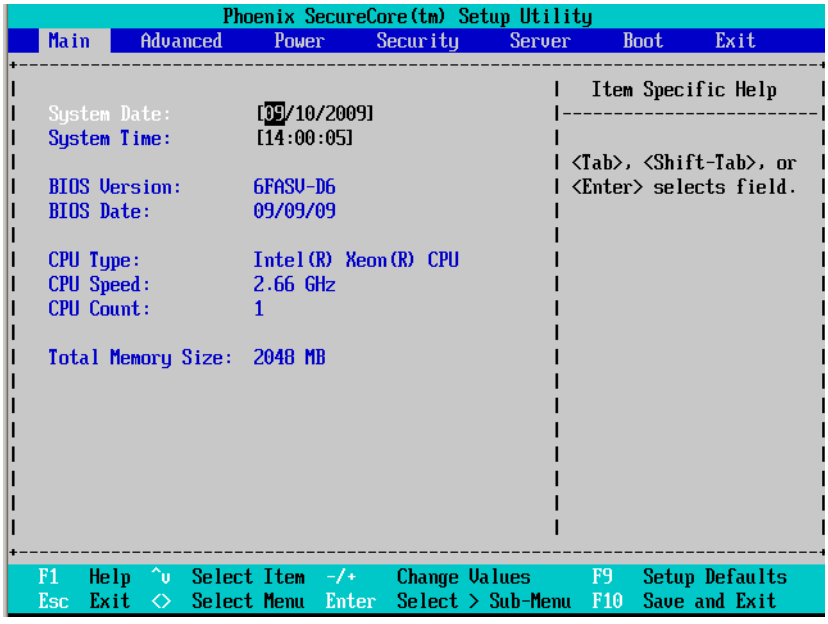


Figure 1: Main

☞ 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.

☞ Processor Information

This category includes the information of CPU type, Speed ,and number of CPU count.

☞ 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, Peripheral configuration, Boot configuration, and Hardware Monitor.

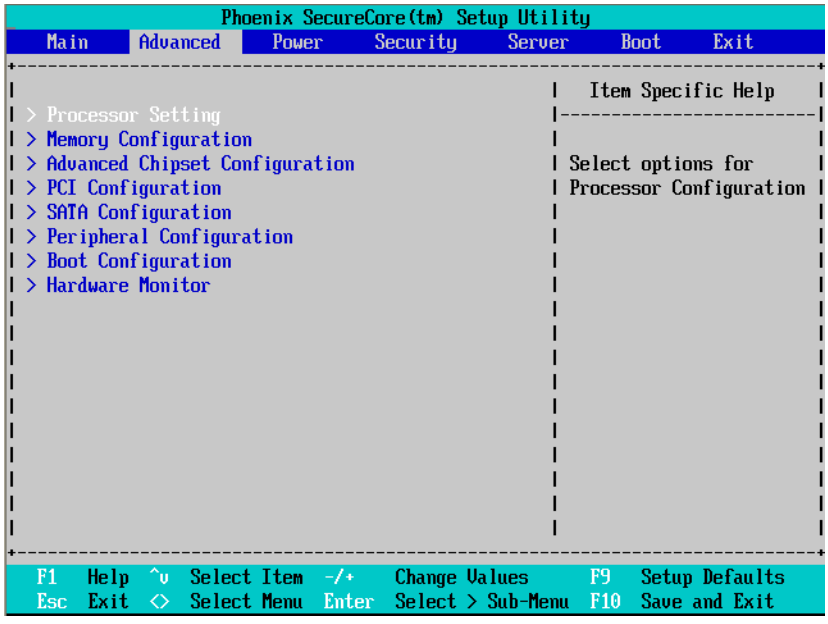
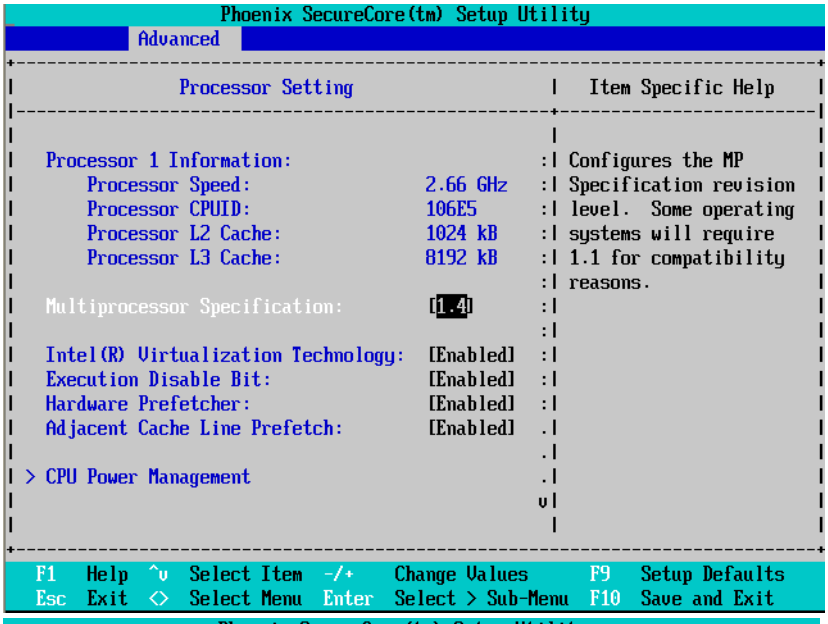
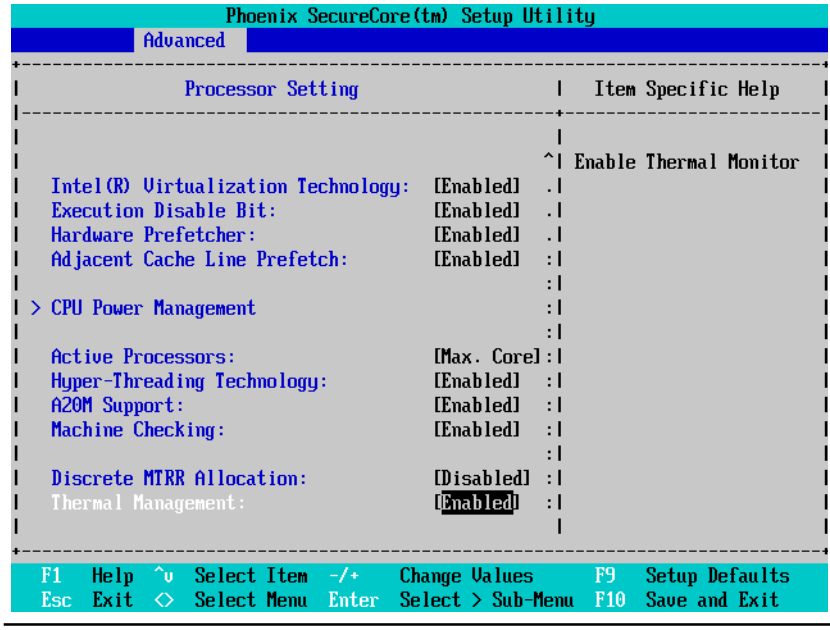


Figure 2: Advanced

Processor Setting





☞ Processor Setting

This category includes the information of CPU Speed, Processor ID ,Processor L2 / L3 Cache. And setup sub-menu for CPU Power Management.

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.

☞ **Active Processor Cores**

▶▶Options	One Core, Two cores, Max Cores. Default setting is Max Cores.

☞ **Hyper-Threading Technology**

▶▶Enabled	Enable Intel Hyper Threading Technology.
▶▶Disabled	Disable Intel Hyper Threading Technology. (Default setting)

☞ **A20M Support**

▶▶Enabled	Enable A20M Support. (Default setting)
▶▶Disabled	Disable A20M Support.

☞ **Machine Checking**

▶▶Enabled	Enable Machine Checking. (Default setting)
▶▶Disabled	Disable Machine Checking.

☞ **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.

Power Management

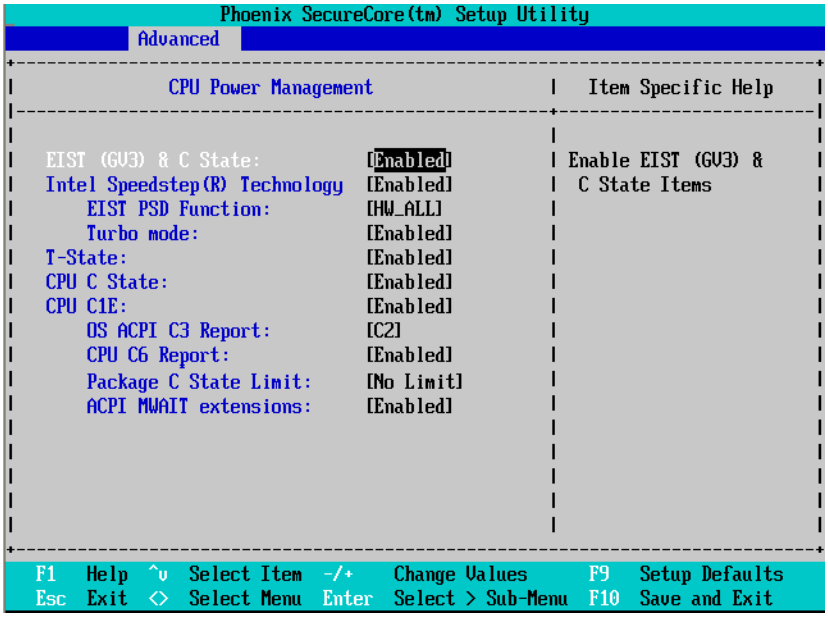


Figure 2-1-1: Power Management

☞ EIST (GV3) & C State

- ▸▸ Enabled — Enable EIST (GV3) and C State items. (Default setting)
- ▸▸ Disabled — Disable EIST (GV3) and C State items.

☞ Intel Speedstep(R) Technology

- ▸▸ Enabled — Enable Intel Speedstep(R) Technology. (Default setting)
- ▸▸ Disabled — Disable Intel Speedstep(R) Technology.

☞ EIST PSD Function

- ▸▸ HW_ALL — In HW_ALL mode, the processor hardware is responsible for coordinating the P-state among logical processors dependencies. The OS is responsible for keeping the P-state request up to date on all logical processors. (Default setting)

- SW_ALL — In SW_ALL mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and must initiate the transition on all of those Logical Processors.
- SW_ANY — In SW_ANY mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and may initiate the transition on any of those Logical Processors .

☞ Turbo Mode

Turbo Mode automatically allows processor cores to run faster than marked frequency if the physical processor is operating below power, temperature and current specification limits.

Turbo Mode can be engaged with SMT (Simultaneous Multi Threading) enabled and 1 to 4 cores active and is not limited to only a single core or logical processor.

- Enabled — Turbo Mode. (Default setting)
- Disabled — Disable Turbo Mode.

☞ T State

- Enabled — Enable CPU T-State. (Default setting)
- Disabled — Disable T-State.

☞ CPU C State

- Enabled — Enable ACPI C-State (C0, C1/C1E, C3, and C6). (Default setting)
- Disabled — Disable C-State.

☞ CPU C1E

- Enabled — Enable CPU C1E. (Default setting)
- Disabled — Disable CPU C1E.

☞ OS ACPI C3 Report

- C3 — Desire state for the CPU core C3 state include in the CST as ACPI C3 state.
- C2 — Desire state for the CPU core C2 state include in the CST as ACPI C2 state.
- Disabled — Disable OS ACPI C3 Report. (Default setting)

☞ CPU C6 Report

- Enabled — Desire state for the CPU core C6 state include in the CST as ACPI C3

state.

- ▸▸ Disabled — Disable CPU C6 Report. (Default setting)

☞ Package C State Limit

Desired state for the C-State package limit.

- ▸▸ Options — C0, C1 State, C3 State, C6 State, No Limit. The default setting is No Limit. Default setting is No Limit.

☞ ACPI MWAIT extensions

- ▸▸ Enabled — CST using MWAIT extension is enabled for OSPM use. (Default setting)
- ▸▸ Disabled — Disable ACPI MWAIT extensions.

Memory Configuration

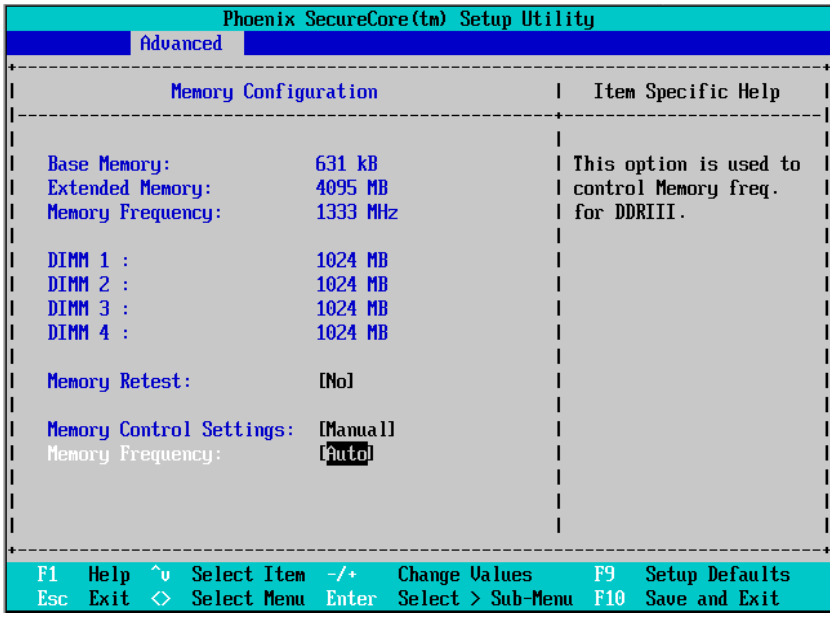


Figure 2-2: Memory Configuration

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

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

☞Memory Reset

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

☞Memory Control Settings

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

☞Memory Frequency

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

Advanced Chipset Configuration

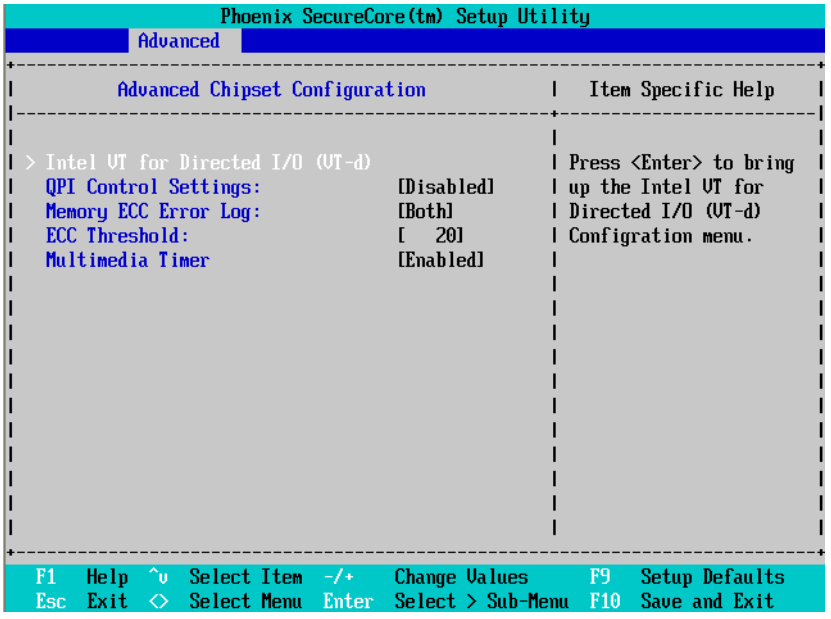


Figure 2-3: Advanced Chipset Configuration

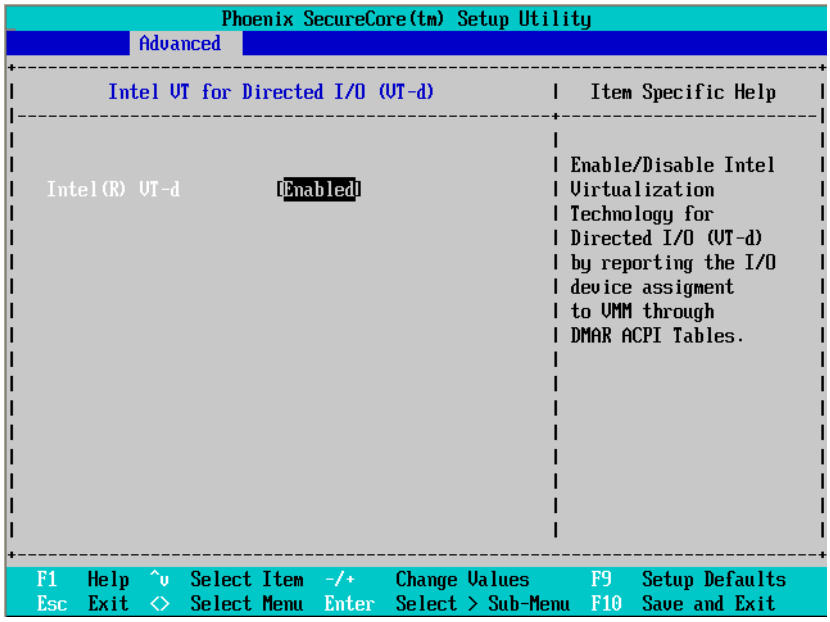


Figure 2-3-1: Intel VT for Directed I/O (VT-d)

☞ 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.

☞ Multimedia Timer

⏩Enabled Enable Multimedia Timer support. (Default setting)

⏩Disabled Disable this function.

PCI Configuration

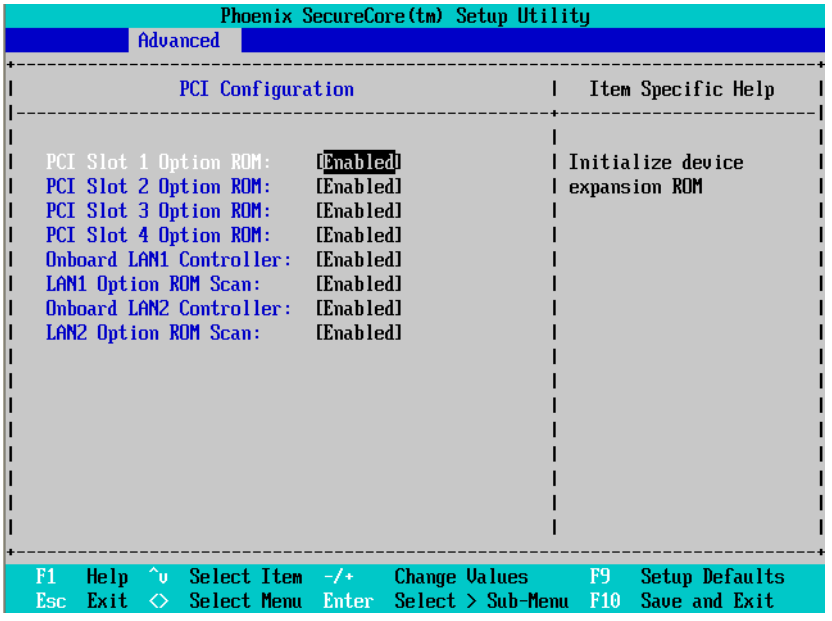


Figure 2-4: PCI Configuration

☞ PCI Slot 1/2/3/4 Option ROM

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

☞ Onboard LAN1 Controller

- ⏩ 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 Controller

- ⏩ 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

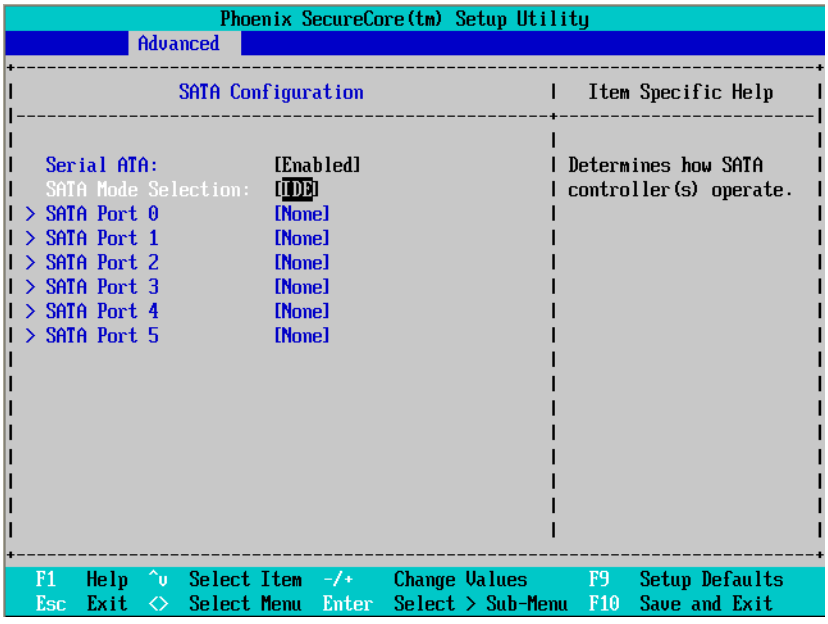


Figure 2-5: SATA Configuration

☞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 filed displays the DMA mode of the device in the specific IDE channel.

Peripheral Configuration

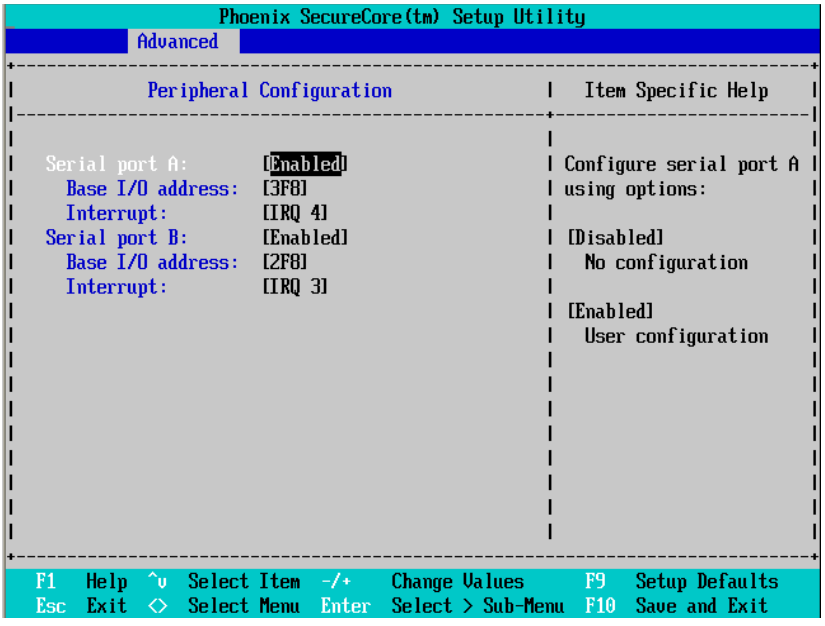


Figure 2-6: Peripheral Configuration

☞ 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.

▸▸Interrupt

- ▸▸IRQ4 — Set IO interrupt to IRQ4.(Default setting)
- ▸▸IRQ3 — Set IO interrupt to IRQ3

☞ 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.

⏩Interrupt

- ⏩IRQ4 — Set IO interrupt to IRQ4.
- ⏩IRQ3 — Set IO interrupt to IRQ3. (Default setting)

Boot Device Configuration

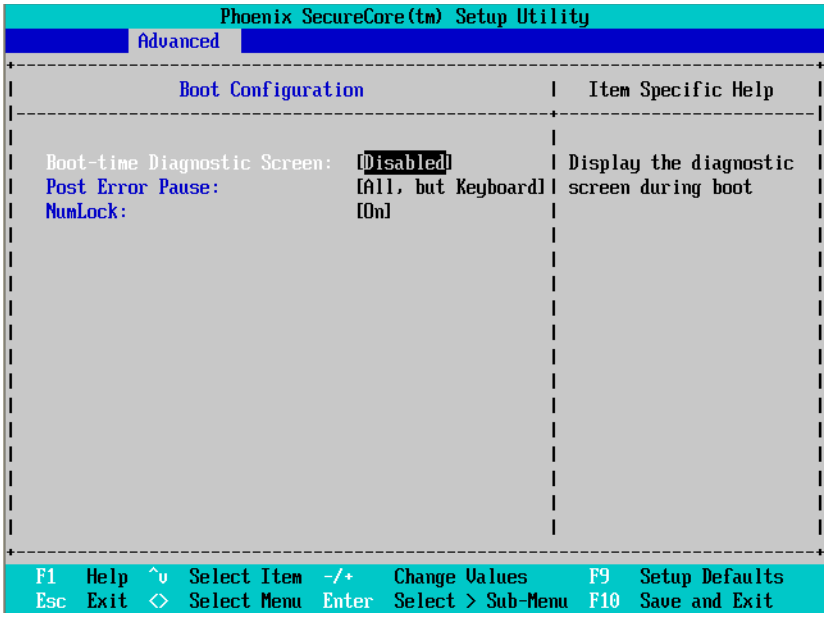


Figure 2-7: Boot Device Configuration

☞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.

Hardware Monitor

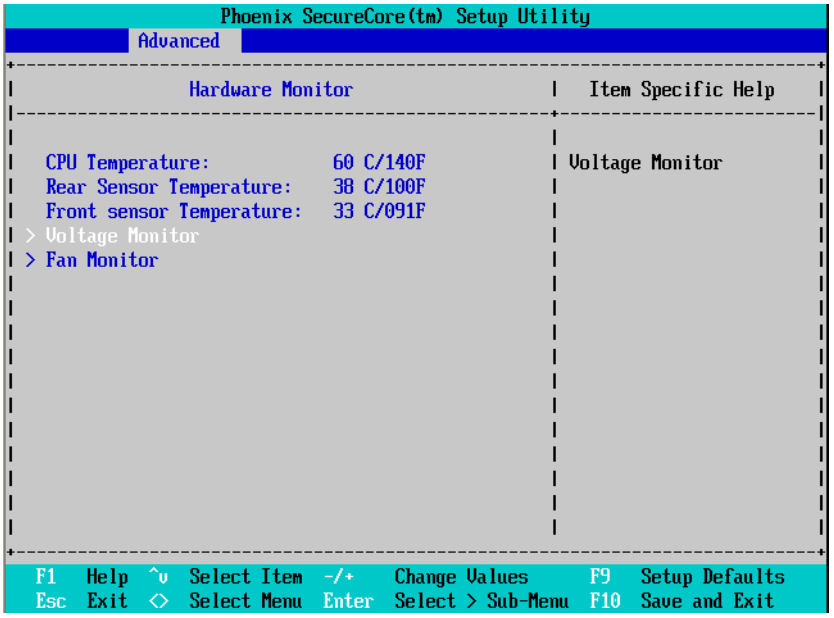


Figure 2-8: Hardware Monitor

☞ **CPU Temperature/ Rear Sensor Temperature/ Front Sensor Temperature**

▸▸Display the current CPU temperature, motherboard rear and front sensor temperature.

☞ **Voltage Monitor: VCORE/ DDR3 V1.5/ 3V3/ 5V/ 12V1**

▸▸Detect system's voltage status automatically.

☞ **Fan Monitor: System Fan 1/2/3/4**

▸▸Display the current system fan 1/2/3/4 speed.

Power

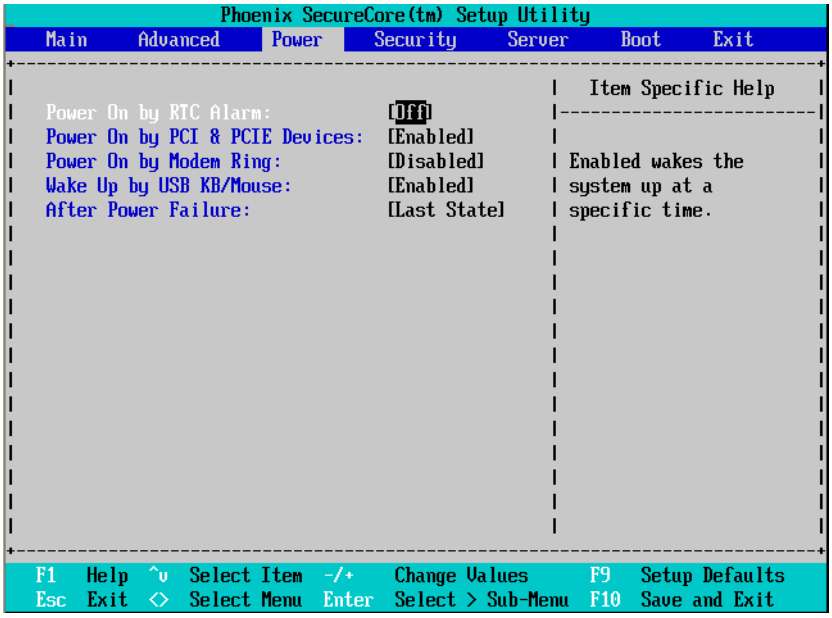


Figure 3: Power

☞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.

☞Resume On Modem Ring

- ▸▸On — Enable Resume on Modem Ring. (Default setting)
- ▸▸Off — Disable Resume on Modem Ring.

☞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 sate 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.

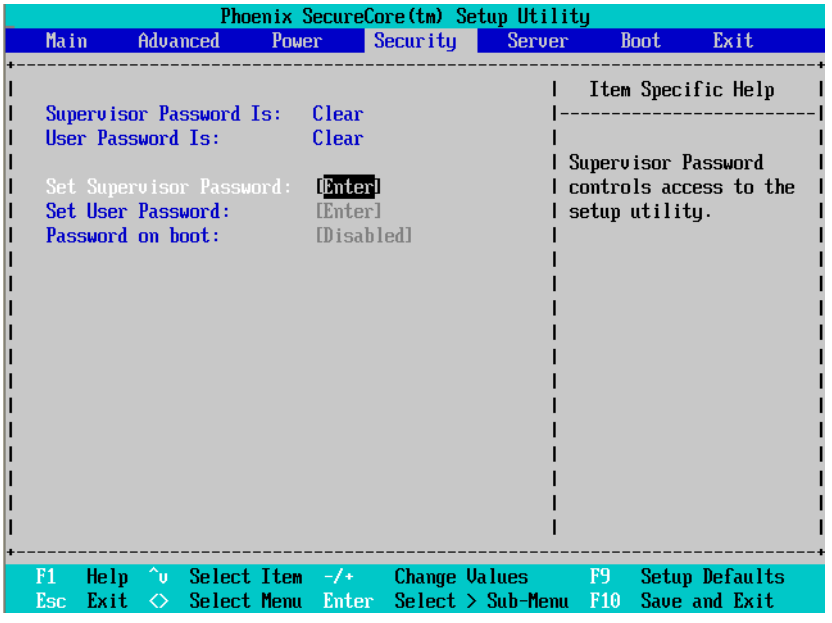


Figure 4: Security

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

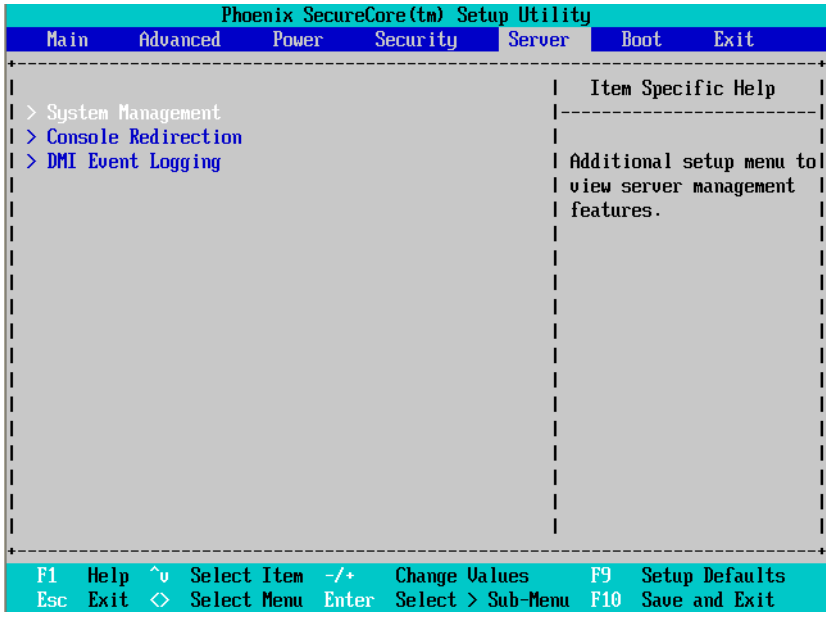


Figure 5: Server

System Management

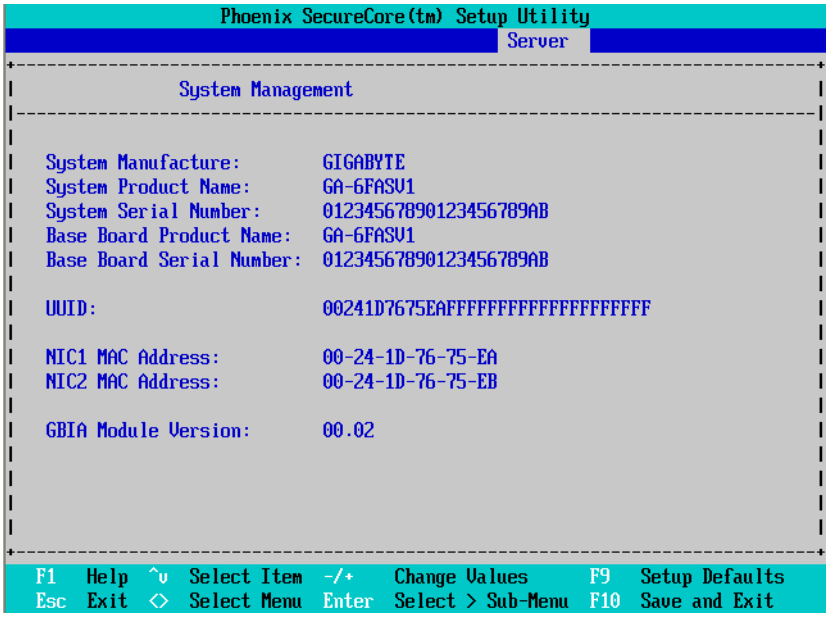


Figure 5-1: System Management

☞Server Management

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

Console Redirection

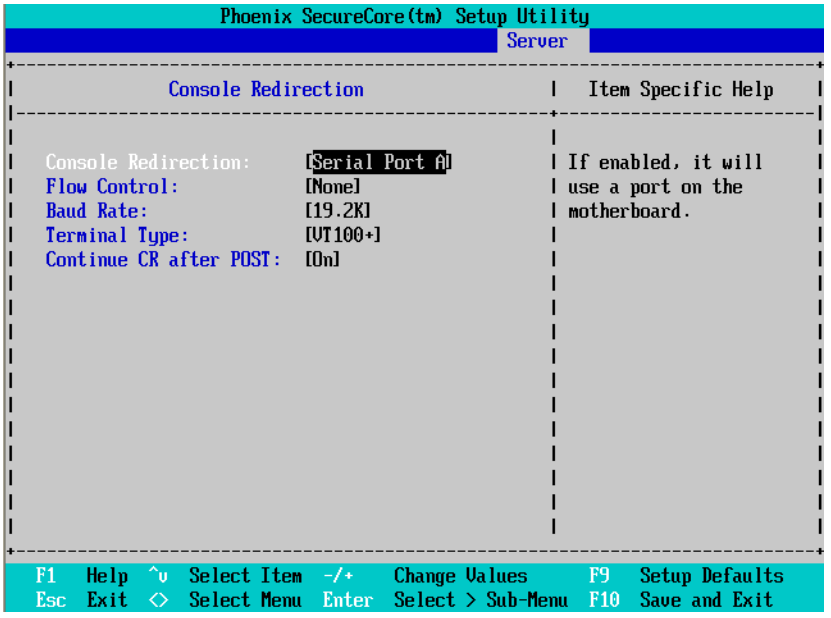


Figure 5-2: Console Redirection

☞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

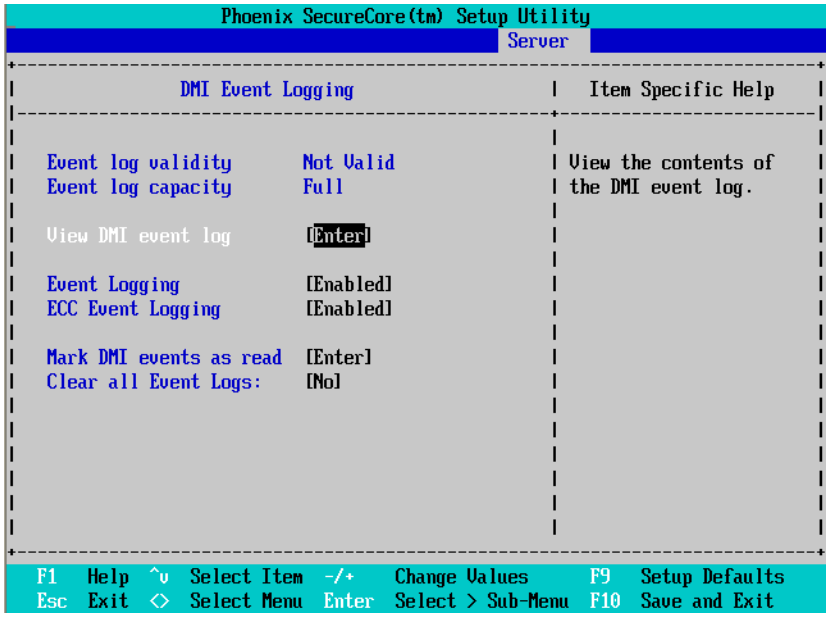


Figure 5-3: DMI Event Logging

☞Event Log validity/ Event Log capacity

▸▸Display the information of Event Log validity and capacity.

☞View DMI event log

▸▸Press [Enter] to view DMI event log.

☞ Event Logging

▸▸Enabled Enable Event logging. (Default setting)

▸▸Disabled Disable this function.

☞ECC Event Logging

▸▸Enabled Enable ECC Event logging. (Default setting)

▸▸Disabled Disable this function.

☞Mark DMI events as read

▸▸Press [Enter] to Mark DMI events as read.

☞Clear all Event Logs

⏩Yes	Clear all Event Logs after system reboot.
⏩No	No changes. (Default setting)

Boot

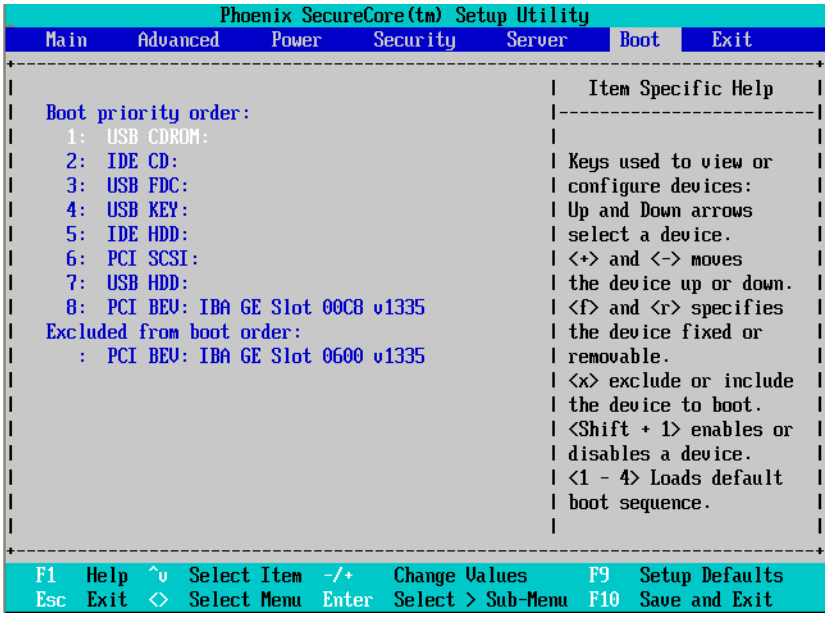


Figure 6: Boot

☞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

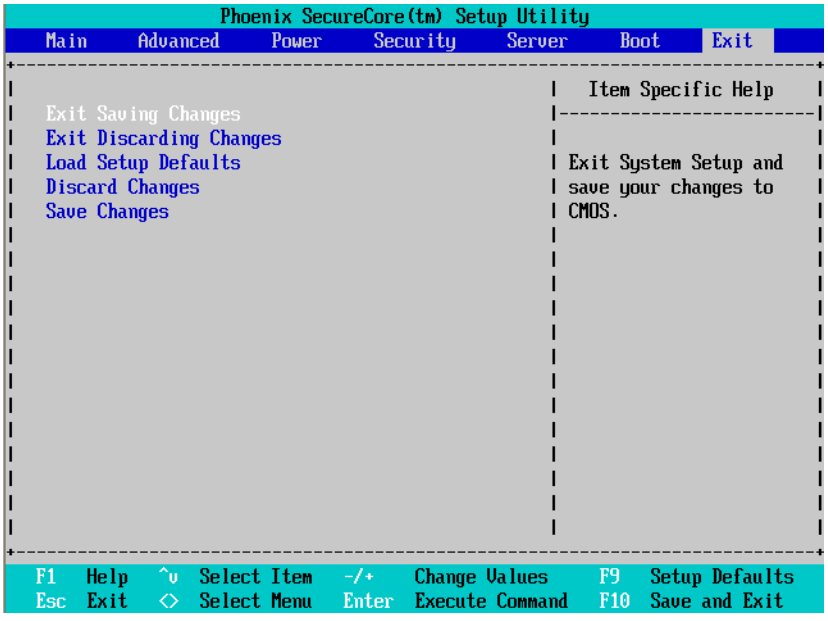


Figure 7: Exit

☞ 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 dat ato CMOS.

Press [Yes] to save setup data to CMOS.