GA-6KIEH-RH

GA-6KIEH2-RH

GA-6KIEL-RH

Intel® mini-ITX Motherboard

USER'S MANUAL

Intel® mini-ITX Motherboard

Rev. 1201

* 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.

GA-6KIEH-RH/GA-6KIEH2-RH/GA-6KIEL-RH Motherboard

Copyright

Notice

Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For detailed product information and specifications, please carefully read the "Product User Manual".
- For detailed information related to Gigabyte's unique features, please go to "Technology Guide" section on Gigabyte's website to read or download the information you need.

For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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- ☑ I/O Shield Kit
- ☑ IDE (ATA100) cable x 1
- ☑ CD for motherboard driver & utility
- ☑ GA--6KIEH-RH Quick Reference Guide (for GA-6KIEH-RH motherboard)
- ☑ GA-6KIEH2-RH/GA--6KIEL-RL Quick Reference Guide
  (for GA-6KIEH2-RH/GA-6KIEL-RH motherboard)

* 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

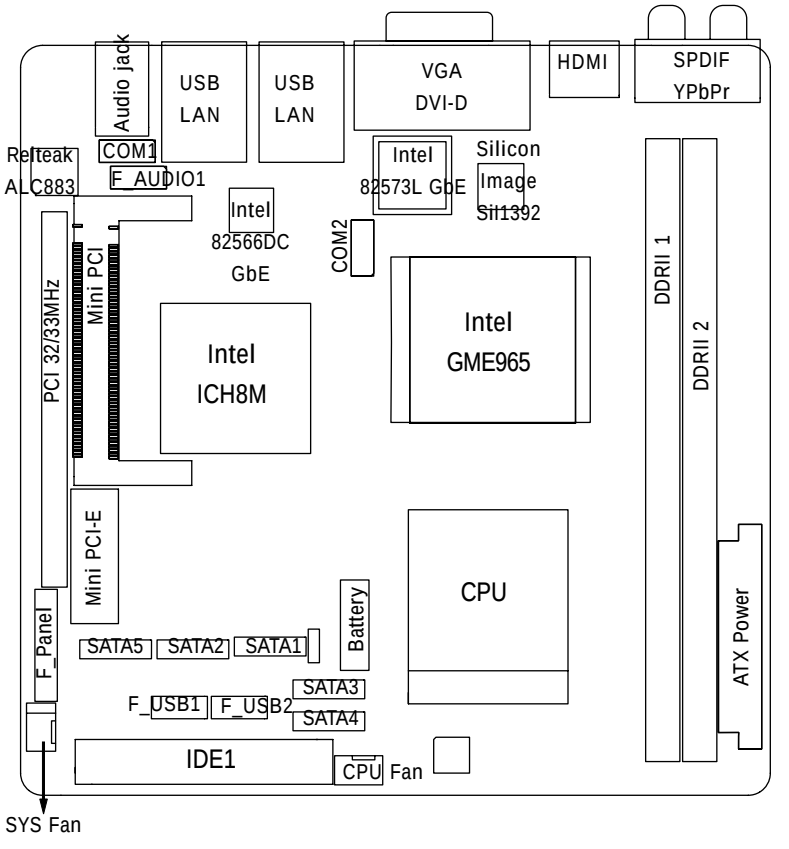
1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined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

1.2 Features Summary

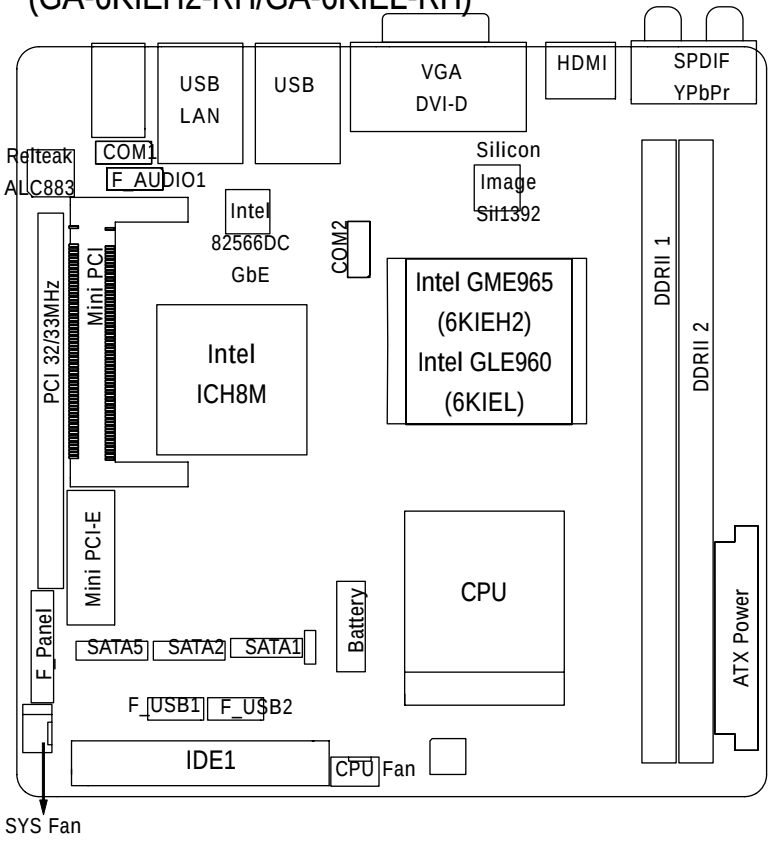
Form Factor	• 170mm x 170mm Mini ITX form factor, 8 layers PCB.
CPU	• Supports single Intel® Merom/Penryn/Celeron M550 series processor
(GA-6KIEH-RH)	• Socket P with 533/800MHz
CPU	• Supports single Intel® Celeron M550 series processor
(GA-6KIEL-RH)	• Socket P with 533MHz
Chipset	• Intel® GME965 MCH
(GA-6KIEH-RH)	• Intel® ICH8M
(GA-6KIEH2-RH)	
Chipset	• Intel® GLE960 MCH
(GA-6KIEL-RH)	• Intel® ICH8M
Memory	• 2 x DDR2 DIMM sockets
	• Supports up to 4GB 533/667 memory (GA-6KIEH-RH)
	• Supports up to 2GB 533 memory (GA-6KIEL-RH)
	• Supports 1.8V DDR2 DIMMs
I/O Control	• ITE IT8718F Super I/O
Expansion Slots	• Supports 1 PCI slots 32-Bit/33MHz
	• Supports 1 mini card slot (PCI-E x1/ USB 2.0)
	• Supports 1 mini PCI slot (PCI 33Mhz)
SATA Controller	• Built in Silicon Image® Sil 3114 with RAID 0,1,10, 5
(GA-6KIEH-RH)	• Supports 5 SATA connectors (Sil3114 4 Ports, ICH8M 1 Port)
SATA Controller	• Intel ® ICH8M supports 3 SATA 3.0 Gb/s connectors
(GA-6KIEL-RH)	
On-Board Graphic	• Intel® GMA X3100 3D Graphic Engine (GA-6KIEH-RH)
	• Intel® GMA X3000 3D Graphic Engine (GA-6KIEL-RH)
	• Shared system memory up to 256MB
Internal Connector	• 1 x 20-pin ATX power connector
	• 5 x SATA connectors
	• 1 x IDE connector
	• 2 x Serial connectors (COM)
	• 1 x front audio connector
	• 2 x USB 2.0 connectors for additional 4 ports by cable
	• 1 x front panel connecctor
	• 1 x System fan cable connector

	• 1 x CPU fan cable connector
Rear Panel I/O	• 1 x SPDIF Out (Coaxial) • 1 x YPbPr prot (HDTV out) • 1 x HDMI prot** • 1 x VGA port • 1 x DVI-D port** • 4 x USB 2.0 ports • 2 x LAN RJ45 ports (GA-6KIEH-RH) • 1 x LAN RJ45 port (GA-6KIEL-RH) • 1 HD Audio jacks (Line-out / MIC-in / Line-in) can configure 5.1 channel output by utility
Note HDMI & DVI only can select one function to use **Note** CF device only for Master user, and the IDE Device configuration must set to Slave	
Hardware Monitor	• Enhanced features with CPU Vcore, 1.5V reference, VCC3 (3.3V) , VBAT3V, +5VSB, CPUA/B Temperature, and System Temperature Values viewing • CPU/Power/System Fan Revolution Detect • CPU shutdown when overheat
On-Board LAN	• Intel® 82566DC and 82573L GbE controllers (GA-6KIEH-RH) • Intel® 82566DC GbE controller (GA-6KIEL-RH) • Supports WOL, PXE
BIOS	• Phoenix BIOS on 8Mb SPI Flash ROM
Additional Features	• External Modem wake up • Supports S1, S3, S4, S5 under Windows Operating System • Wake on LAN (WOL) • Supports Console Redirection • Supports 4-pin Fan controller

1.3 Motherboard Components (GA-6KIEH-RH)



1.4 Motherboard Components (GA-6KIEH2-RH/GA-6KIEL-RH)

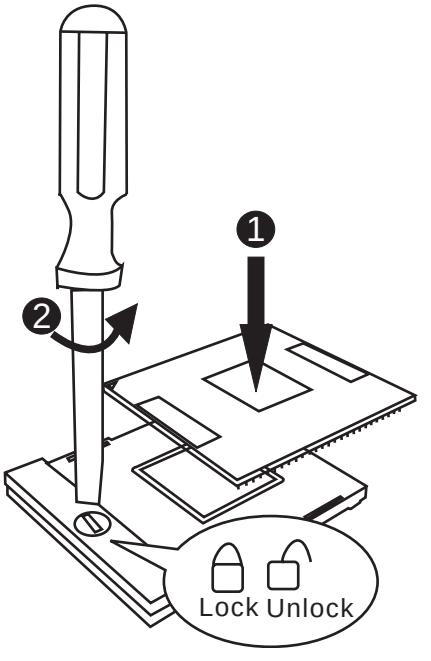


Chapter 2 Hardware Installation Process

2-1: Installing Processor

Step 1 The processor socket come with a screw to secure the processor. Insert the CPU into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket.

Step 2 Once the processor has slide into the socket, lock the screw. Refer to the figures below.



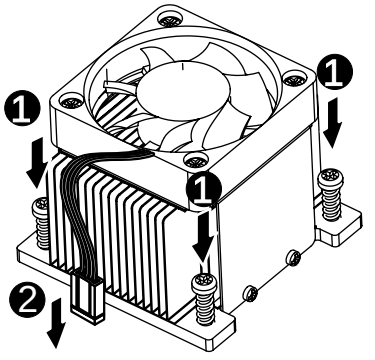
2-2: Installing Processor Colling Fan

WARNING!

To prevent the CPU overheat, please make sure you have apply the CPU cooler paste on the surface of installed CPU

Step 1 Attach the heat sink n the procssor socket. Secure the cooing fan with screws.

Step 2 Connect processor fan can cable to the processor fan connector.



2-3: Install Memory Modules

CAUTION

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

1. Please make sure the computer power is switched off before installing or removing memory modules.

The motherboard supports DDR2 memory module, whereby BIOS will automatically detect memory capacity and specifications. The memory module only can be inserted in one direction.

Installation Steps:

Step 1. Unlock a DIMM socket by pressing the retaining clips outwards. Aling a DIMM on the socket such that the notch on the DIMM exactly match the notch in the socket.

Step 2. Firmly insert the DIMMinto the socket until the retaining clips snap back in place. Reverse the installation steps if you want to remove the DIMM module.

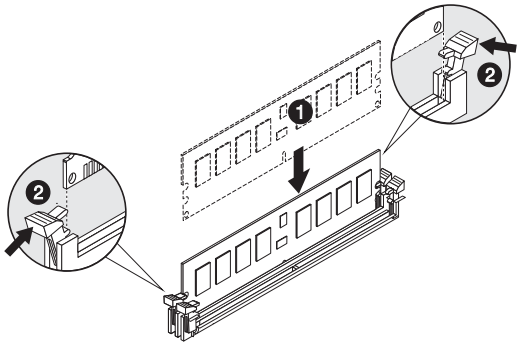


Table 1. Supported DIMM Module Type (GA-6KIEH-RH)

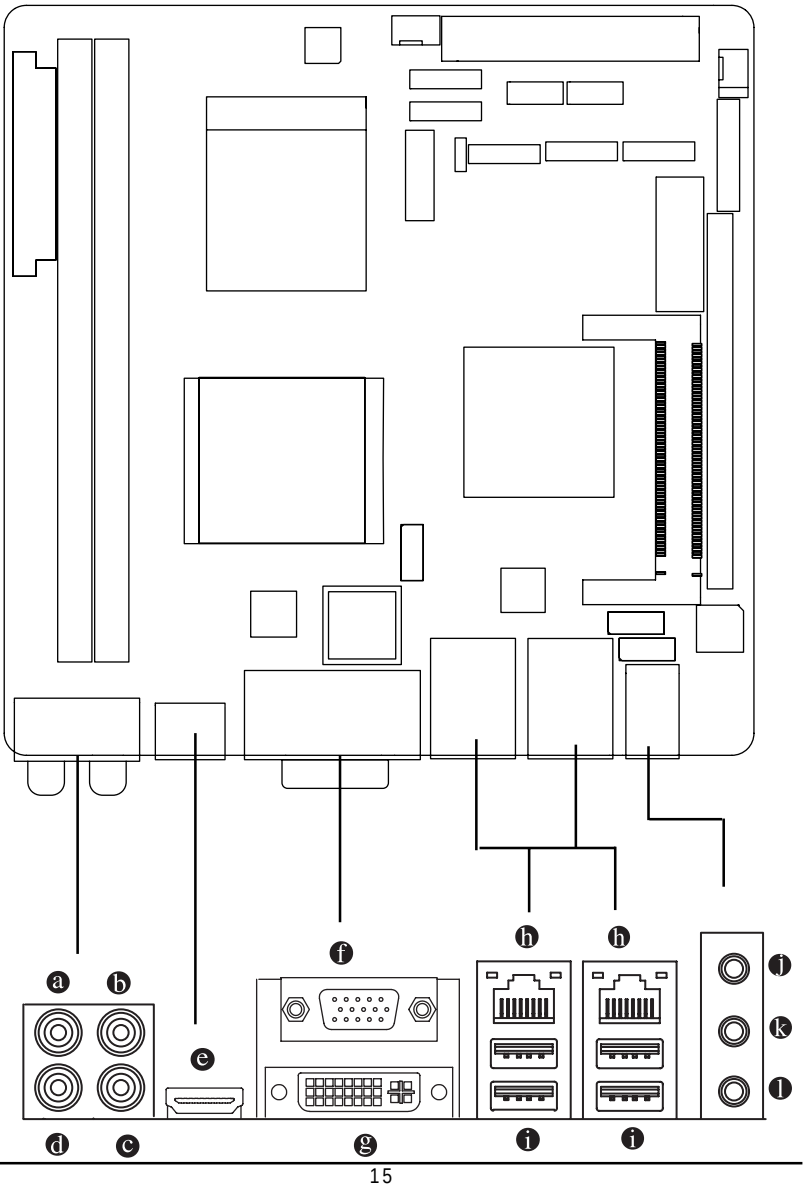
Size	Organization	RAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 16 x 4bks	16
512MB	16MB x 8 x 4bks	8
	32MB x 16 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 16 x 4bks	16
2GB	32MB x 8 x 4bks	8
	64MB x 16 x 4bks	16

Table 2. Supported DIMM Module Type (GA-6KIEL-RH)

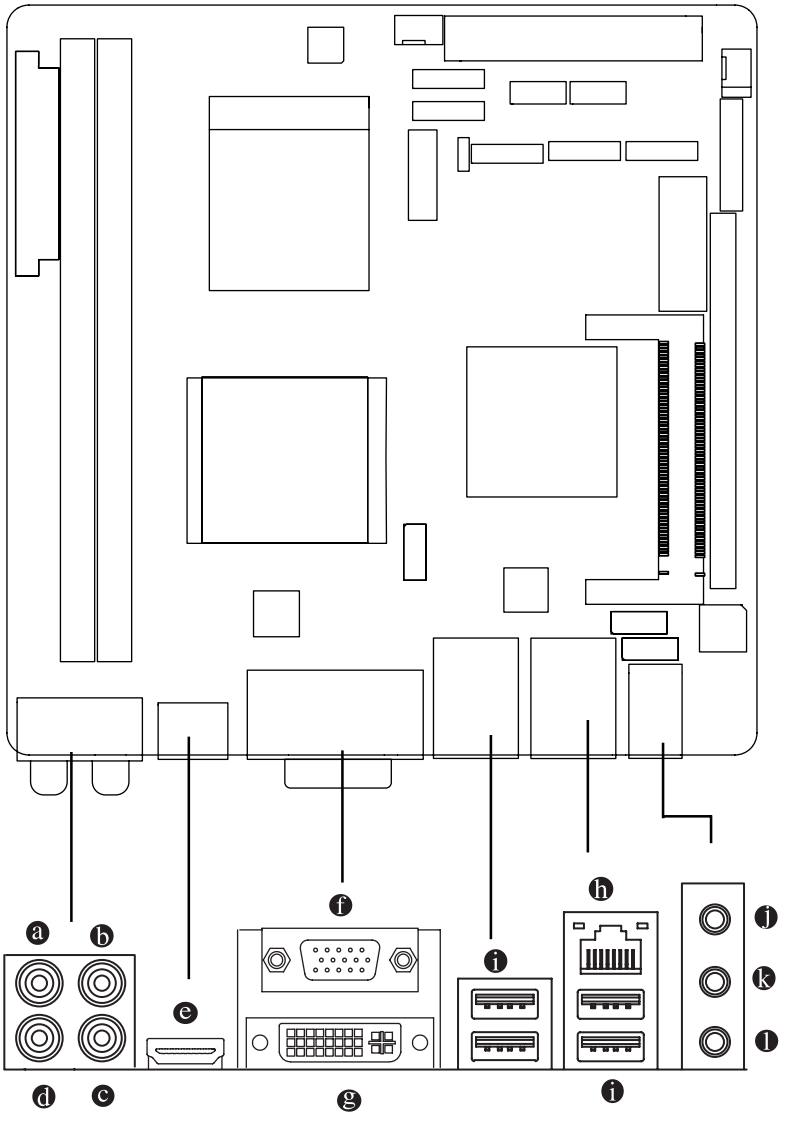
Size	Organization	RAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 16 x 4bks	16
512MB	16MB x 8 x 4bks	8
	32MB x 16 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 16 x 4bks	16

2-4: Connect ribbon cables, cabinet wires, and power supply

2-4-1 : I/O Back Panel Introduction (GA-6KIEH-RH)



2-4-2 : I/O Back Panel Introduction (GA-6KIEH2-RH/GA-6KIEL-RH)



ⓐ / ⓑ / ⓒ YPbPr Ports

The "Y," "Pb" and "Pr" are sets of three inputs or outputs on better video equipment and TVs. Blue port represents Pb port, Red represnts Pr port, and Green represent Y port. Connect the YPbPr cable to these three ports.

ⓓ COAXIAL (SPDIF Out)

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

ⓔ HDMI Port

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. The HDMI Technology can support a maximum resolution of 1920x1080p but the actual resolutions supported depend on the monitor being used.

NOTE: NOTE:

- After installing the HDMI device, make sure the default device for sound playback is the HDMI device. (The item name may differ by operating system. Refer the figures below for details.), and enter BIOS Setup, then set Onboard VGA output connect to D-SUB/ HDMI under Advanced BIOS Features.
- Please note the HDMI audio output only supports AC3, DTS and 2-channel-LPCM formats. (AC3 and DTS require the use of an external decoder for decoding.)

In Windows XP, select Start>Control Panel>Sounds and Audio Devices>Audio, set the Default device for sound playback to Realtek HDA HDMI Out.

In Windows Vista, select Start>Control Panel>Sound, select Realtek HDMI Output and then click Set Default.

f VGA Port
Connect the monitor cable to this port.

g DVI-D Port
The DVI-D port supports DVI-D specifictation. Connect a monitor that supports DVI-D connection to this port.

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

i USB
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.

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

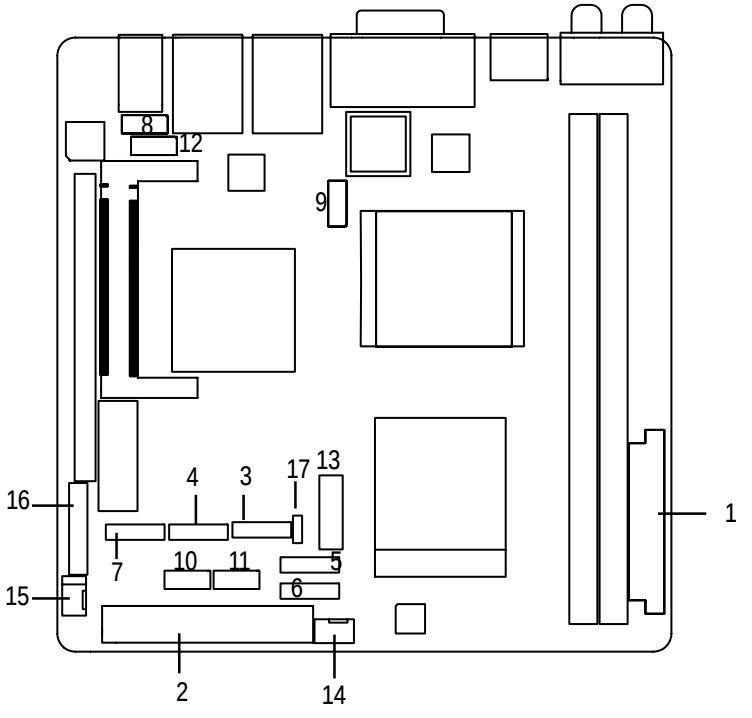
k Line Out (Front Speaker Out)
The default Line Out (Front Speaker Out) jack. Stereo speakers, earphone or front surround speakers can be connected to Line Out (Front Speaker Out) jack.

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

LAN LED Description

Name	Color	Condition	Description
LED1	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
LED2	-	OFF	10Mbps connection
	-	OFF	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

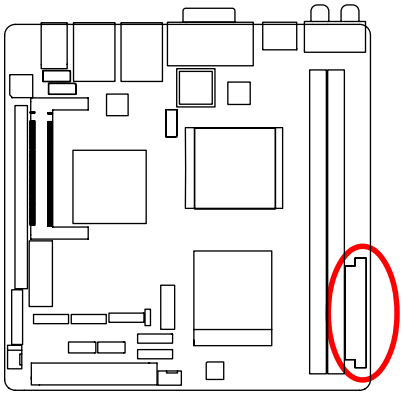
2-5: Connectors Introduction & Jumper Setting

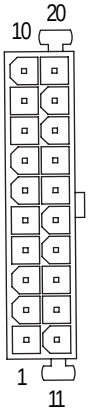


1. ATX1
2. IDE1 (IDE cable connector)
3. SATA1 (Sil3114 SATA cable connector)
4. SATA2 (Sil3114 SATA cable connector)
5**. SATA3 (Sil3114 SATA cable connector)
6**. SATA4 (Sil3114 SATA cable connector)
7. SATA5 (ICH8M SATA cable connector)
8. COM1
9. COM2
10. F_USB1 (Fornt USB cable connector)
11. F_USB2 (Fornt USB cable connector)
12. F_AUDIO1
13. BAT1 (Battery)
14. CPU_FAN1
15. SYS_FAN1
16. F_Panel (Front Panel connector)
17. CLR_CMOS (Clear CMOS)

** For GA-6KIEH-RH Only

1) ATX1 (Auxuliary power connector)





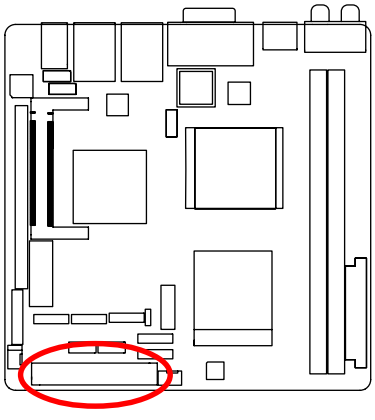
Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	VCC
5	GND
6	VCC
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	3.3V
12	-12V
13	GND
14	PS_ON(softOn/Off)
15	GND
16	GND
17	GND
18	-5V
19	VCC
20	VCC

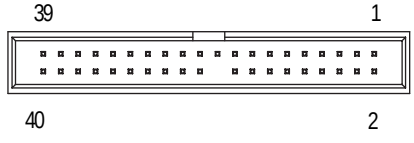
- AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

2) IDE1 (IDE cable connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you want to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information, please refer to the instructions located on the IDE device).

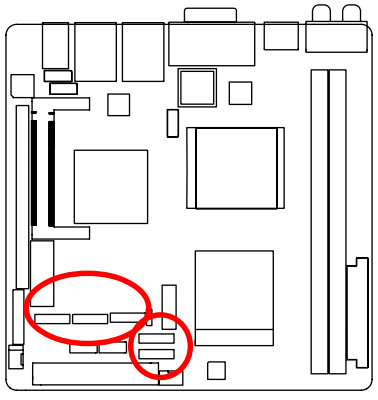
Before attaching the IDE cable, please take note of the foolproof groove in IDE connector.





3/ 4/ 5/ 6/ 7) SATA 1~5 (Serial ATA cable connectors)

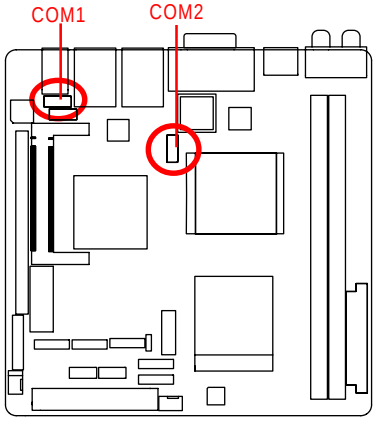
SATA 3Gb/s can provide up to 300MB/s stransfer rate. Please refer to the BIOS setting for the SATA 3Gb/s and install the proper driver in order to work properly.

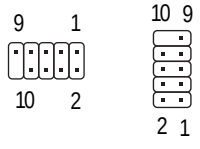


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

** For GA-6KIEH-RH Only

8/ 9) COM1/COM2

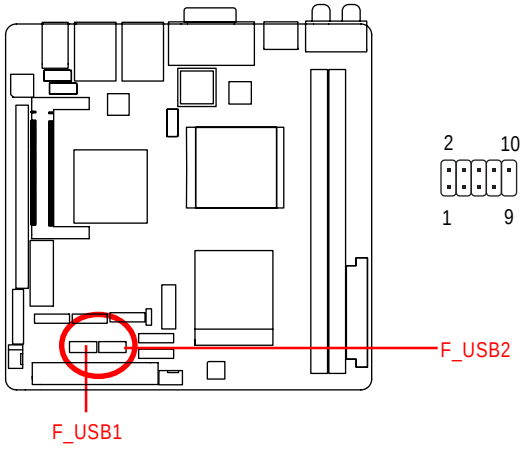




Pin No.	Definition
1	DCD-
2	SIN2
3	SOUT2
4	DTR2-
5	GND
6	DSR2-
7	RTS2-
8	CTS2-
9	RI2-
10	NC

10/ 11) F_USB1/2 (Front USB cable connectors)

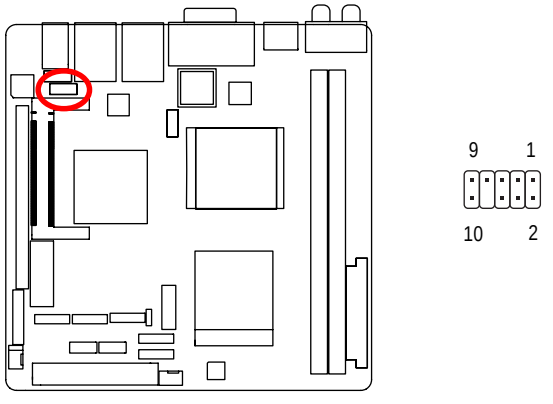
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



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

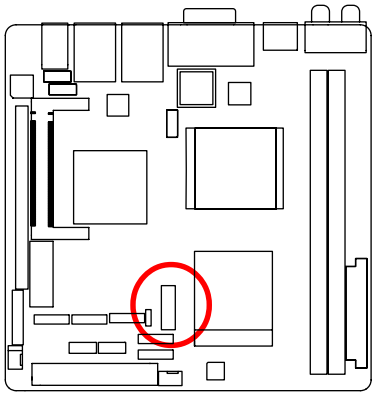
12) F_AUDIO1 (Front AUDIO connector)

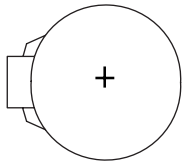
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.



Pin No.	Definition
1	MIC_L
2	GND
3	MIC_R
4	-ACZ_DEC
5	Line_R
6	GND
7	Faudio_JD
8	No Pin
9	Line_L
10	GND

13) BAT1 (Battery)





CAUTION

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

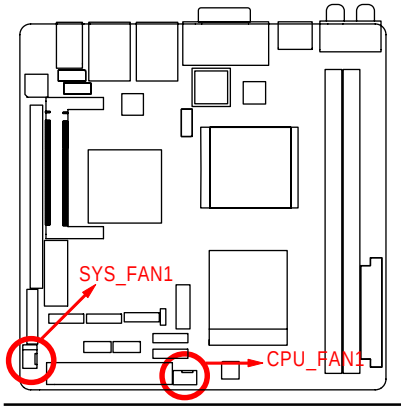
If you want to erase CMOS...
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

14/15) CPU_FAN1/SYS_FAN1 (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.



CPU_FAN1

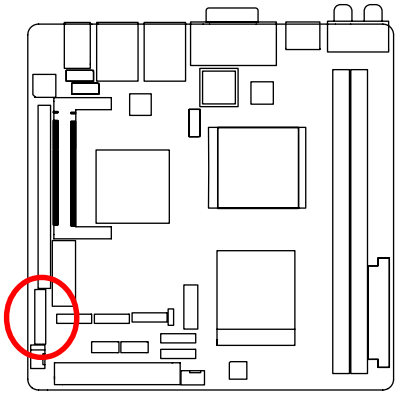
Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

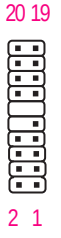
SYS_FAN1

Pin No.	Definition
1	GND
2	12V
3	Sense

16) F_Panel (2X10 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.



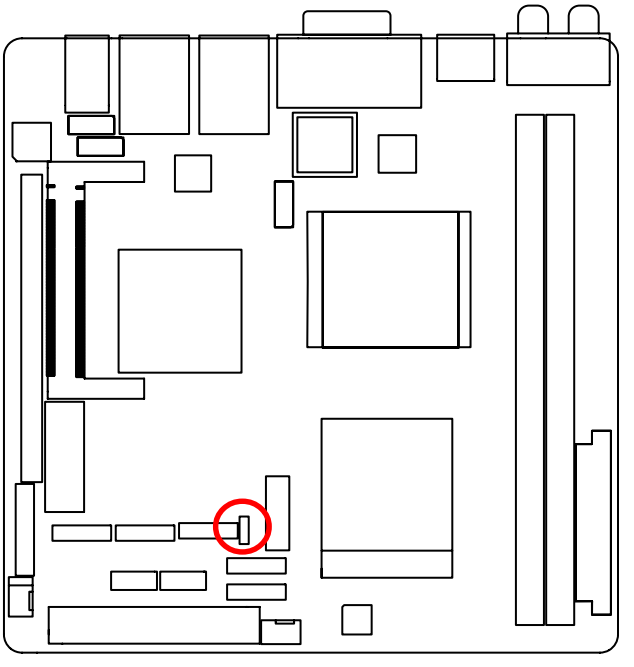


Pin No.	Signal Name	Description
1.	HD+	Hard Disk LED Signal anode (+)
2.	MSG+	Message LED Signal anode (+)
3.	HD-	Hard Disk LED Signal cathode(-)
4.	MSG-	Message LED Signal cathode(-)
5.	RES-	Reset Button cathode(-)
6.	PW+	Power Button Signal anode (+)
7.	RES+	Reset Button anode (+)
8.	PW-	Power Button Signal cathode(-)
9.	WLAN	Mini PCI-E LED Signal cathode(-)
10.	No Pin	Pin removed
11.	No Pin	Pin removed
12.	No Pin	Pin removed
13.	LAN2+	LAN 2 LED Signal anode (+)
14.	Speaker+	Speaker LED Signal anode (+)
15.	LAN2-	LAN 2 LED Signal cathode(-)
16.	NC	No connect
17.	LAN1+	LAN 1 LED Signal anode (+)
18.	NC	No connect
19.	LAN1-	LAN 1 LED Signal cathode(-)
20.	Speaker-	Speaker LED Signal cathode(-)

17) CLR_CMOS1 (Clear CMOS Function)

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

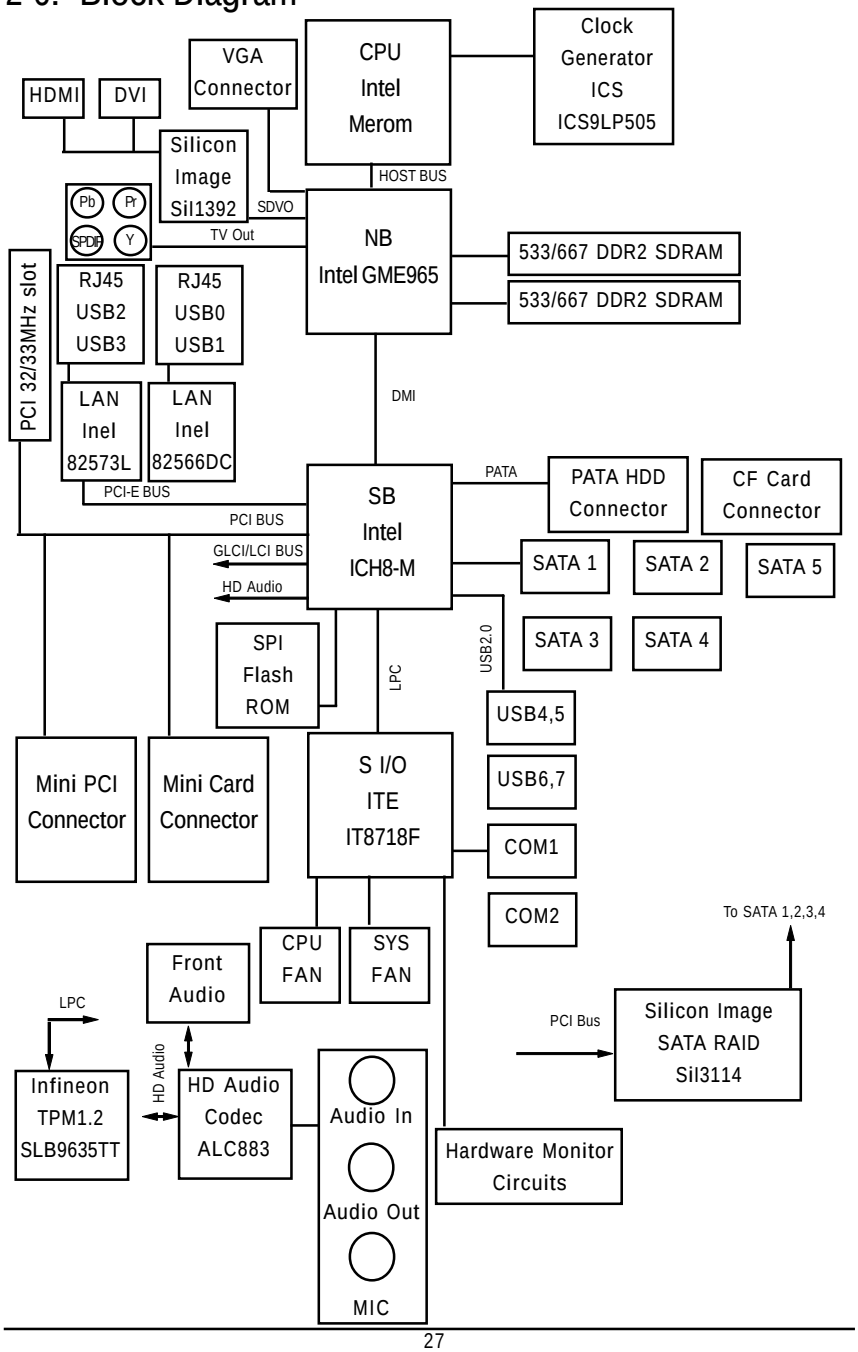
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 2-3 pin.



1  1-2 Close: Clear CMOS

1  2-3 Close: Normal operation(Default setting)

2-6: Block Diagram



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.)

- **TPM State**

  This setup page provide TPM state configuration

- **Security**

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

- **Boot**

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

- **Exit**

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

Main

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

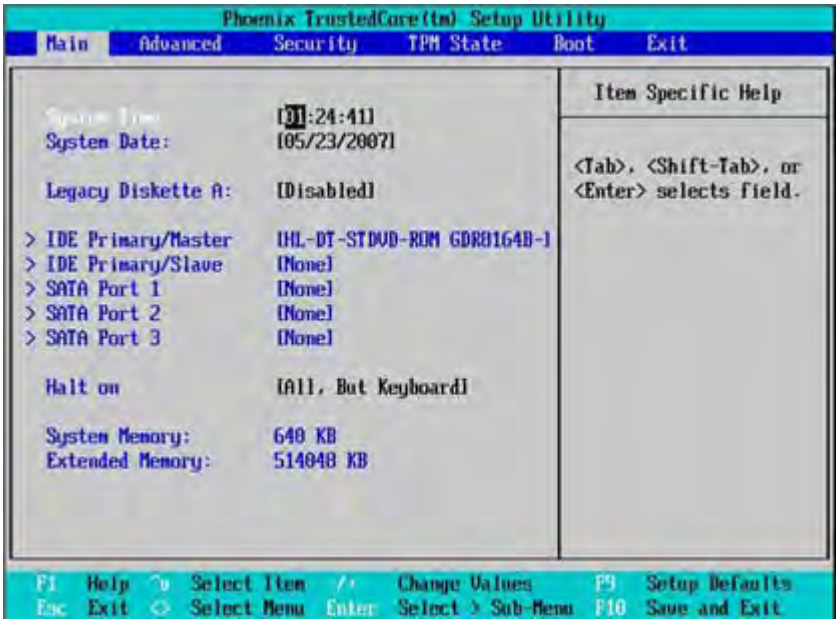


Figure 1: Main

☞ System Time

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

☞ System Time

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

☞ IDE Channel 0 Master/Slave/SATA Port 1/2/3

The category identifies the types of Serial SATA hard disk from drive 1 to 6 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 labled 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 max imize the IDE data transfer rate.

⏩ Transfer Mode — This field shows the information of Teansfer Mode.

⏩ Ultra DMA Mode — This filed displays the DMA mode of the device in the specific IDE channel.

⏩ SMART Monitoring — This filed allows allows your hard disk to report read/write errors and to issue warnings when third-party hardware monitor utility is

installed

☞ Halt On

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

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

☞ System Memory

The POST of the BIOS will determine the amount of system memory installed in the system.

☞ Extended Memory

The BIOS determines how much extended memory is present during the POST.
This is the amount of memory located above 1 MB in the CPU's memory address map.

Advanced

About This Section: Advanced

With this section, allowing user to configure your system for advanced operation. User can set the CPU Features, GM965 Features, ICH8MD0 Features, Super I/O Features, Power Features and Hardware Monitor Features.

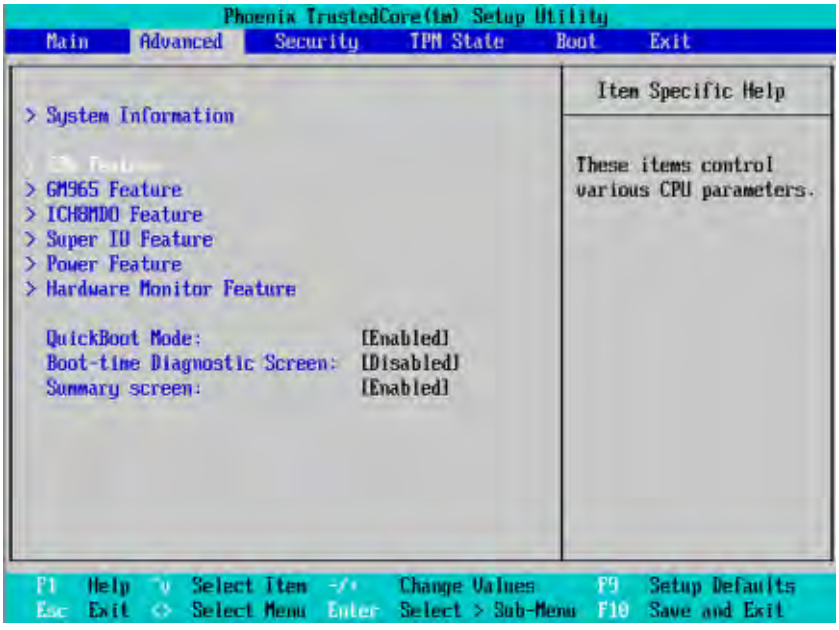


Figure 2: Advanced

System Information

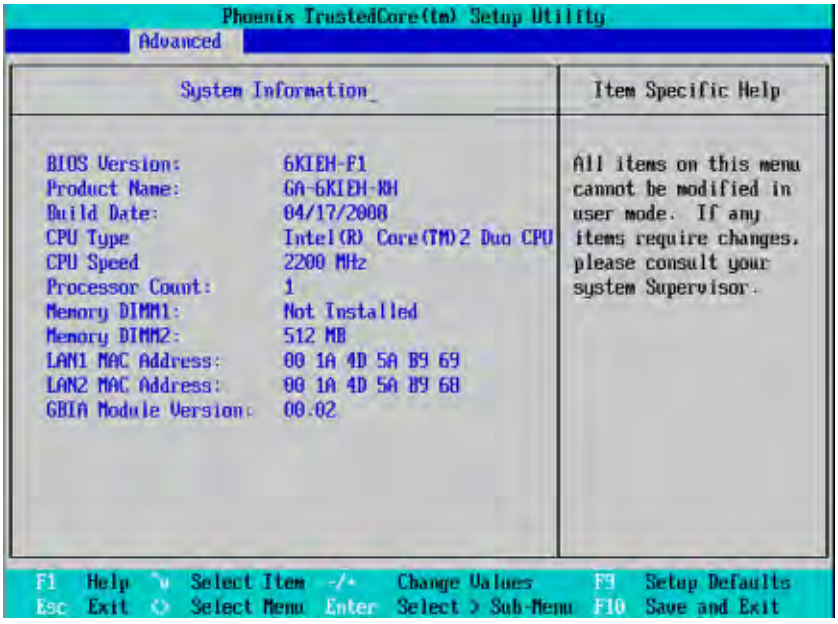


Figure 2-1: System Information

☞System Information

This category includes the information of BIOS Version, Product Name, BIOS Build Date, CPU Type, CPU Speed, numberof processor installed, Memory DIMM1/ DIMM2, LAN1/LAN2 MAC Address, and GBIA Module Version.

CPU Feature

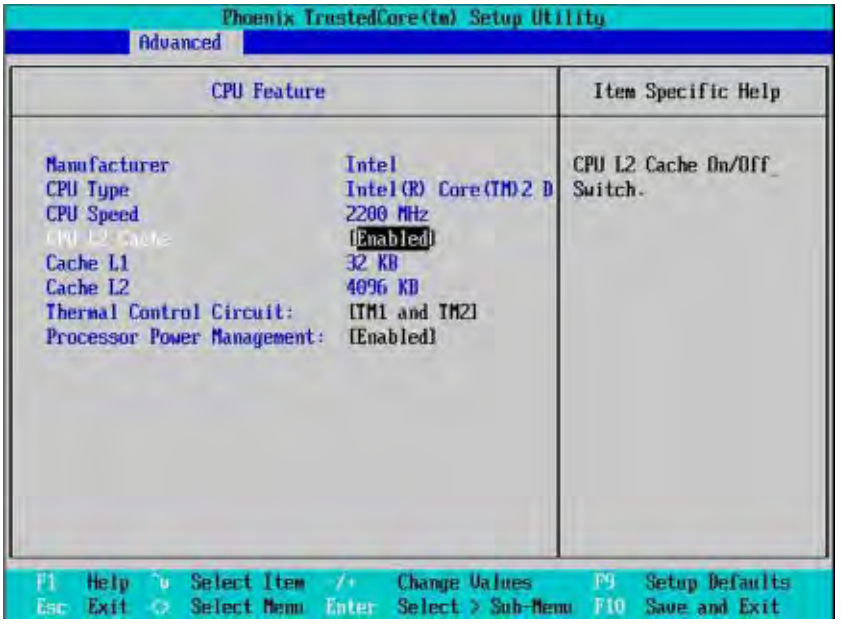


Figure 2-2: CPU Feature

☞ **Manufacturer**

This item displays the information of original CPU manufacturer.

☞ **CPUType**

This item displays the information of installed CPU type.

☞ **CPU Speed**

This item displays the information of CPU speed.

☞ **CPU L2 Cache**

- ⏩ Enabled — Enable CPU L2 cache.(Defualt setting)
- ⏩ Disabled — DisableCPU L2 cache.

☞ **Cache L1/Cache L2**

This item displays the CPU Cache L1/L2 size.

☞ Thermal Control Circuit

Configure the thermal control circuit portion of thermal monitor features of the processor.

⏩Disabled	Disable thermal control circuit function.
⏩TM1	Select TM1 as thermal control circuit function.
⏩TM2	Select TM2 as thermal control circuit function.
⏩TM1 and TM2	Select both TM1 and TM2 as thermal control circuit function. (Defualt setting)

☞ Processor Power Management

Select the Power Management desired

⏩Enabled	C states and GV3 are enabled. (Default setting)
⏩C States Only	GV3 are disabled.
⏩GV3 Only	C states are disabled.
⏩Disabled	C states and GV3 are disabled.

GM965 Feature

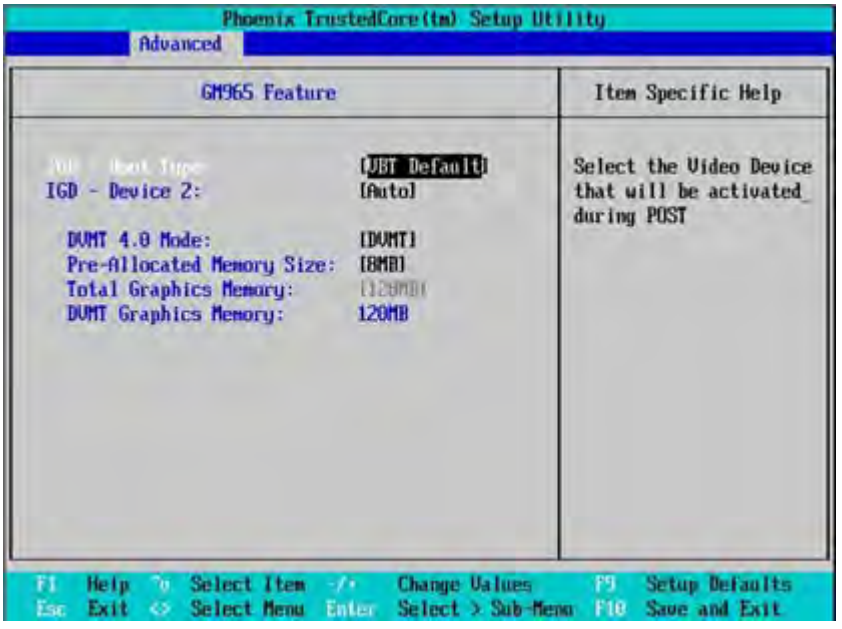


Figure 2-3: GM965 Feature

☞ **IGD Boot Type**

Select the Video Device that will be actived during POST.

▸▸Options VBT Default, CRT, TV, EFP, CRT+EFP.

☞ **IGD Device 2**

Enable or disable the Internal Graphics Device by setting this item to desire value.

▸▸Auto Enable internal Graphics Device. (Default setting)

▸▸Disabled Disable internal Graphics Device.

☞ **DVMT 4.0 Mode**

Select the configuration of DVMT 4.0 Graphics Memory that driver will allocate for use by the internal graphic device.

▸▸Fixed Disable DVMT 4.0 Mode.

▸▸DVMT Enable DVMT 4.0 Mode. (Default setting)

☞ Pre-Allocated Memory Size

Select the amount of Pre-Allocated Graphics Memory for use by the internal grapphics device.

- ⏩ 8M — Select 8M as Pre-Allocated Graphics Memory for use by the internal grapphics device.(Defualt setting)
- ⏩ 1M — Select 1M as Pre-Allocated Graphics Memory for use by the internal grapphics device.

☞ Total Graphics Memory

The POST of the BIOS will determine the amount of total graphics memory detected in the system.

☞ DVMT Graphics Memory

The POST of the BIOS will determine the amount of DVMT graphics memory detected in the system.

ICH8MDO Feature

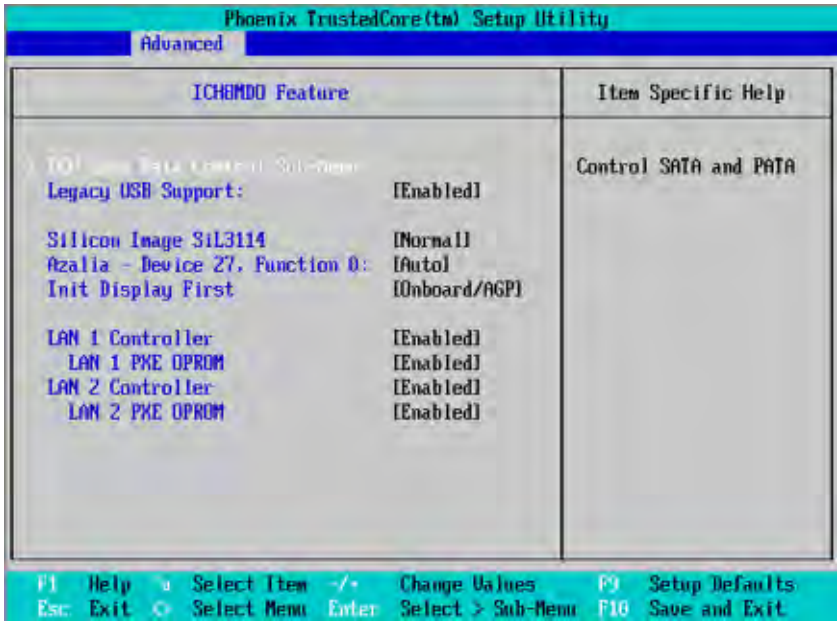


Figure 2-4: ICH8MDO Feature

☞ ICH8M Sata Pata Control Sub-Menu

Press [Enter] to configure advanced sub-menu for ICH8M Sata Pata Control options.

▶▶ ACHI Configuration

▶▶ Enabled Enable ACHI Configuration.

▶▶ Disabled Disable ACHI Configuration.(Defualt setting)

▶▶ Native Mode Operation

This option allows user to set the native mode for ICH8M SATA/PATA function.

▶▶ Auto Auto detected. (Default setting)

▶▶ Serial ATA Set Native mode to Serial ATA.

▶▶ Parallel ATA Auto detected. (Default setting)

▶▶ Both Set Native mode to Serial ATA and Parallel ATA.

▶▶ DFOROM (Robson) Support

Set this item to enabled will reduce the time it takes for a system to power up, access programs, and write data to the hard drive .

▶▶ Enabled Enable DFOROM (Robson) Support.

▶▶ Disabled Disable DFOROM (Robson) Support. (Default setting)

Please note that this option is functionable under Windows Vista operating system.

☞ Silicon Image Sil3114

Configure Silicon Image Sil3114 controller function.

▶▶ Normal Disable Silicon Image Sil3114 RAID function. (Default setting)

▶▶ RAID Enable Silicon Image Sil3114 RAID function.

☞ Azalia-Device 27, Function 0

Configure onborad audio device function.

▶▶ Auto Azalia device is always enabled. (Default setting)

▶▶ Enabled Azalia device will unconditionally enabled.

▶▶ Disabled Disable Azalia device.

☞ Init Display First

This feature allows you to select the first initation of the monitor display from which card, when you install an AGP VGA card and a PCI VGA card on board.

▶▶ Onboard/AGP Set Init Display First to onbaord AGP Slot. (Default setting)

▶▶ PCI Slot Set Init Display First to PCI Slot.

☞ Legacy USB Support

This option allows user to function support for legacy USB.

▶▶ Enabled Enable support for legacy USB. (Default setting)

▶▶ Disabled Disable support for legacy USB.

☞ LAN1 Controller

▶▶ Enabled Enable onboard LAN1 controller function. (Default setting)

▶▶ Disabled Disable onboard LAN1 controller function.

☞ LAN1 PXE OPROM

- ▸▸ Enabled Enable onboard LAN1 PXE option ROM. (Default setting)
- ▸▸ Disabled Disable onboard LAN1 PXE option ROM.

☞ LAN2 Controller

- ▸▸ Enabled Enable onboard LAN2 controller function. (Default setting)
- ▸▸ Disabled Disable onboard LAN2 controller function.

This item will show up only for GA-6KIEH-RH.

☞ LAN2 PXE OPROM

- ▸▸ Enabled Enable onboard LAN2 PXE option ROM. (Default setting)
- ▸▸ Disabled Disable onboard LAN2 PXE option ROM.

This item will show up only for GA-6KIEH-RH.

Super I/O Feature

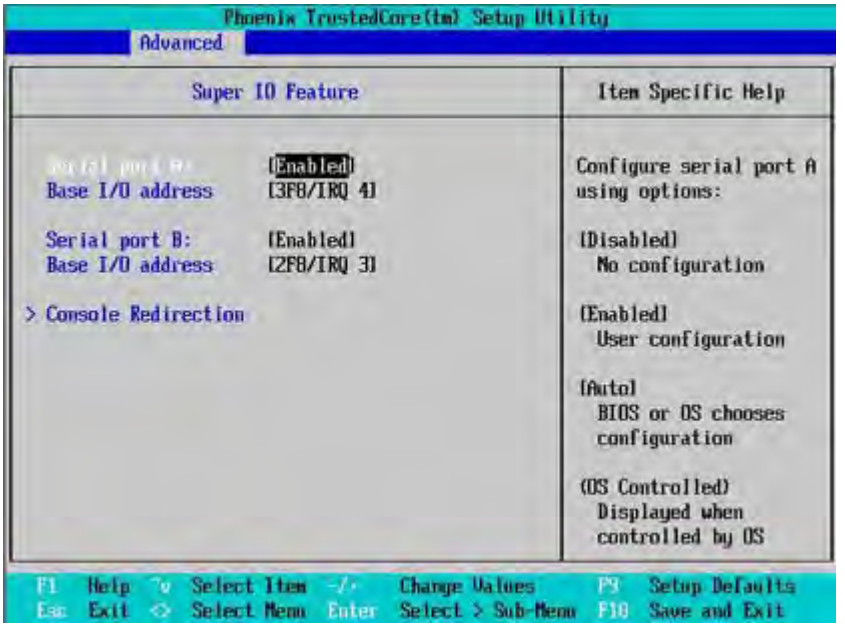


Figure 2-5:Super I/O Feature

☞ Serial Port A

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

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

▶▶Base I/O address

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

☞Serial Port B

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

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

⏩Base I/O address

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

☞COM Port Address

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

- ⏩Onboard serial Port A Use Serial Port A as the COM port address.
- ⏩Onboard serial Port B Use Serial Port B as the COM port address.
- ⏩ Disabled Disable this function. (Default setting)

☞Baud Rate

This option allows user to set the specified baud rate.

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

☞Console Type

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

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

☞Flow Control

This option provide user to enable the flow control function.

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

☞Console Connection

This field indicates whether the console is connected directly to the system or a modem is used to connect.

- ⏩Direct Console is connected directly to the system. (Default setting)

- Disabled Console is connected via the modem.

☞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)

Power Feature

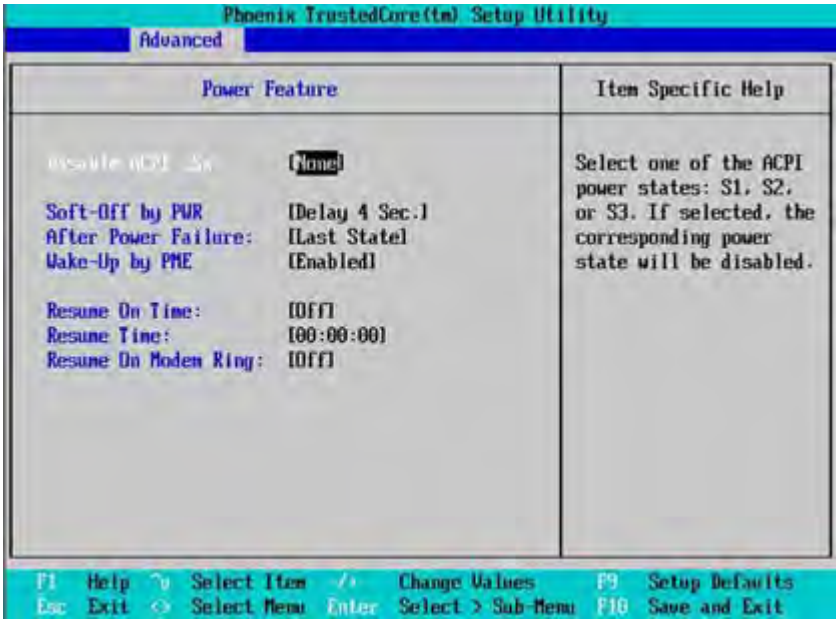


Figure 2-6: Power Feature

☞ Disable ACPI Six

Set the ACPI power state for your system.

- ▸▸None — Disable this function. (Default setting)
- ▸▸S1 — Set ACPI suspend type to S1 (Power On Suspend).
- ▸▸S3 — Set ACPI suspend type to S3(Suspend To RAM).

☞ Soft-Off by PWR

- ▸▸Instant-Off — Press power button then Power off instantly.
- ▸▸Delay 4 Sec. — Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec. (Default setting)

☞ After Power Failure

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

- ▸▸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)

▶▶Power On System power state when AC cord is re-plugged.

☞ **Wake Up by PME**

▶▶Enabled Enable PME as wake up function. (Default setting)

▶▶Disabled Disable this function.

☞ **Resume On Time**

▶▶On Enable alarm function to POWER ON system.

▶▶Off Disable this function. (Default setting)

☞ **Resume Time**

Set the specific resume time.

▶▶Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

☞ **Resume On Modem Ring**

▶▶On Enable wake up the system when a incoming call is detected on your modem.

▶▶Off Disable this function. (Default setting)

Hardware Monitor Feature

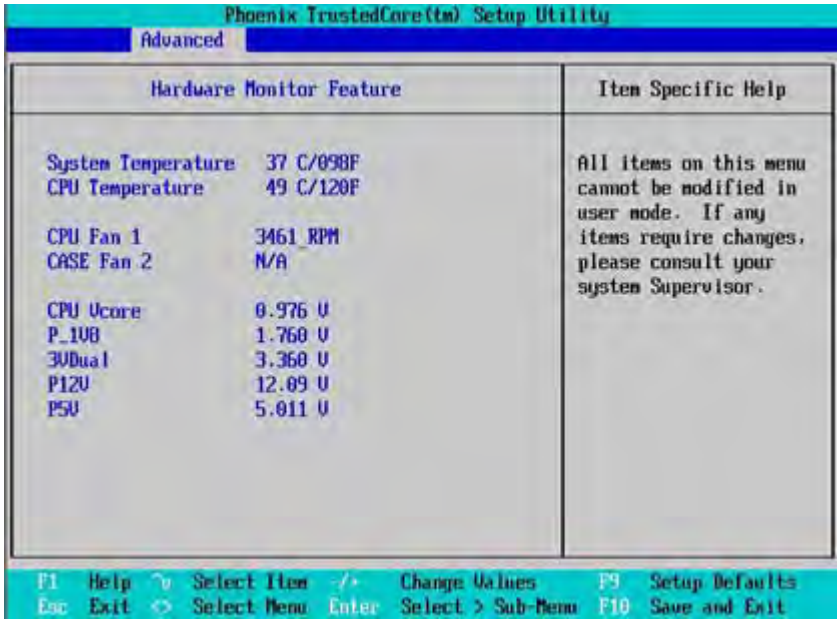


Figure 2-7: Hardware Monitor Feature

☞**System Temperature/CPU Temperature**

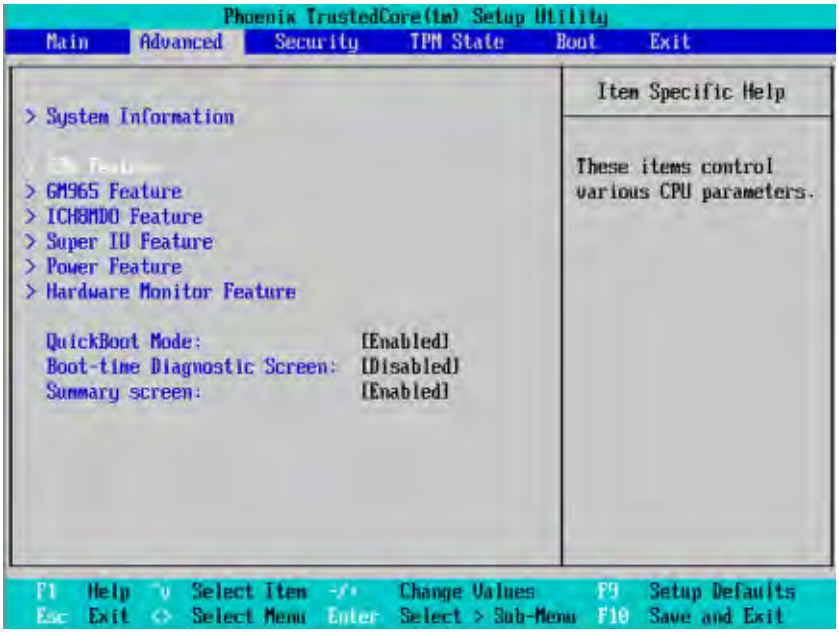
▸▸Detects and displays current system and CPU temperature automatically.

☞**CPU Fan1/CASE Fan 2**

▸▸Detects and displays the current CPU/system fan speed status automatically

☞**CPU Vcore/P 1VB/3VDual/P12V/P5V**

▸▸Detects and displays the current system's voltage status automatically.



☞ Quick Boot Mode

Set this item to enable will allow to skip sertain tests suring booting. This will decrease the time needed to boot the system.

- ▶▶ Enabled — Enable Quick Boot Mode. (Default setting)
- ▶▶ Disabled — Disable Quick Boot Mode.

☞ Boot-time Diagnostic Screen

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

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

☞ Summary Screen

Display system configuration on boot.

- ▶▶ Enabled — Enable Summary Screen function. (Default setting)
- ▶▶ Disabled — Disable Summary Screen function.

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.

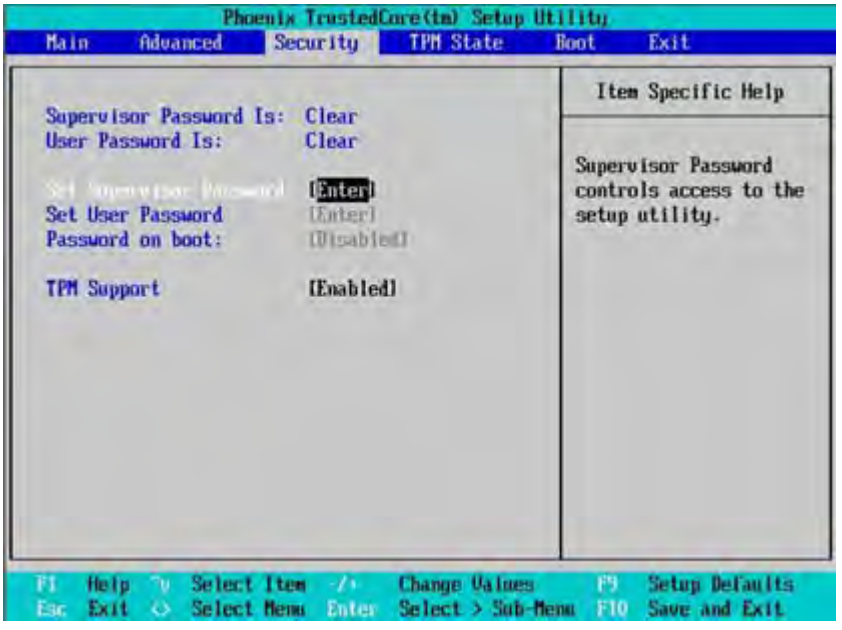


Figure 3: Security

☞ Set Supervisor Password

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

☞Set User Password

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

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

☞Password on boot

Password entering will be required when system on boot.

Please note that this item will be adjustable when supervision password is set.

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

☞TPM Support

TPM, stands for Trusted Platform Module. A Trusted Platform Module provides function for secure generation of cryptographic keys, the ability to limit the use of cryptographic keys, as well as a hardware pseudo-random number generator.

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

TPM State

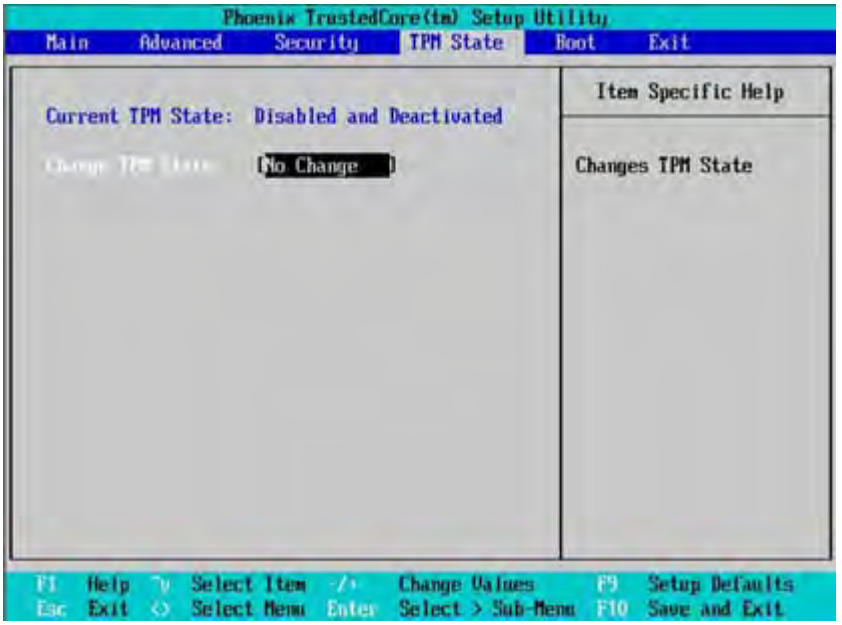


Figure 4: TPM State

☞ Current TPM State

▸▸ Displays the current TPM State status.

☞ Change TPM State

▸▸ No Change	No configuration on TPM State. (Default setting)
▸▸ Enable & Activate	Enable and activate TPM State.
▸▸ Deactivate & Disable	Disable and deactivate TPM State.
▸▸ Clear	Clear the TPM stored information on the TPM.

Boot

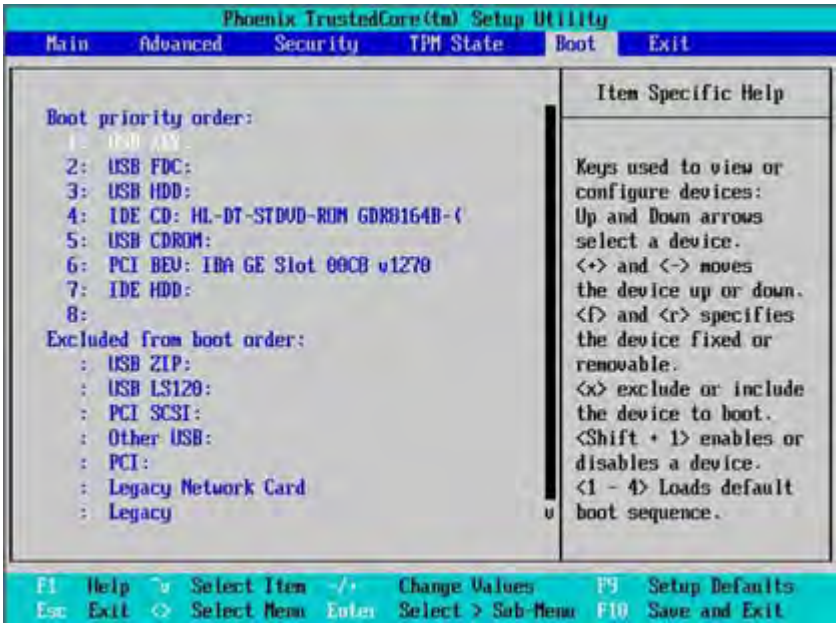


Figure 5: Boot

☞ Boot Priority Order

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

Key used to view 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 secquence.

Exit

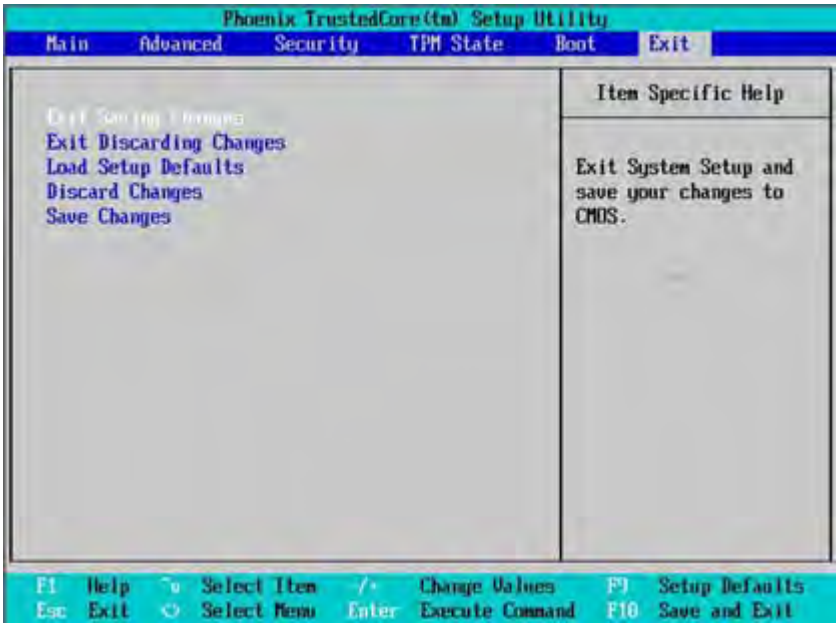


Figure 6: Exit

About This Section: Exit

Once you have changed all of the set values in the BIOS setup menu, 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
- Exit Discarding Changes
- Load Settup Default
- Discard Changes
- Save Changes

☞ Exit Saving Changes

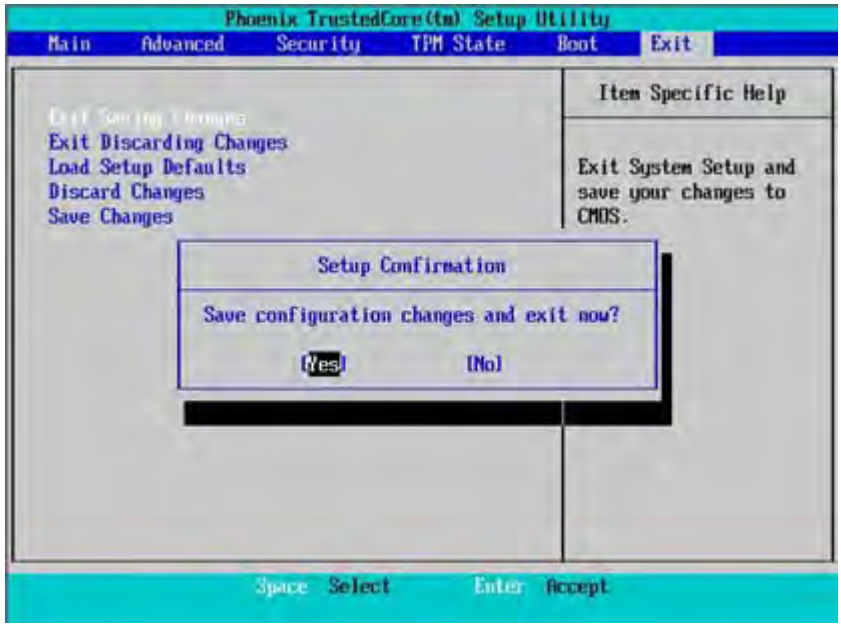
This option allows user to exit system setup with saving the changes.

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

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

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

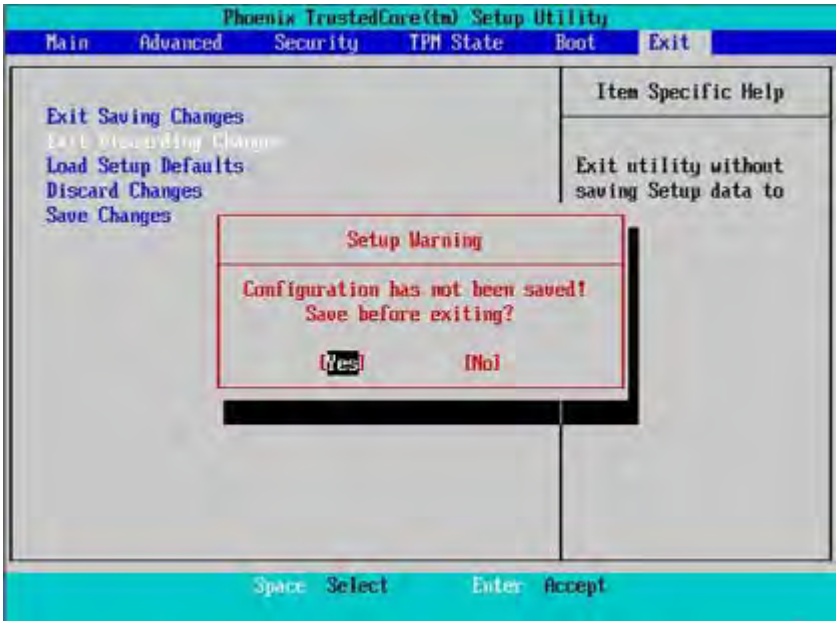
re-configure your system according data in CMOS.



☞Exit Discarding Changes

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

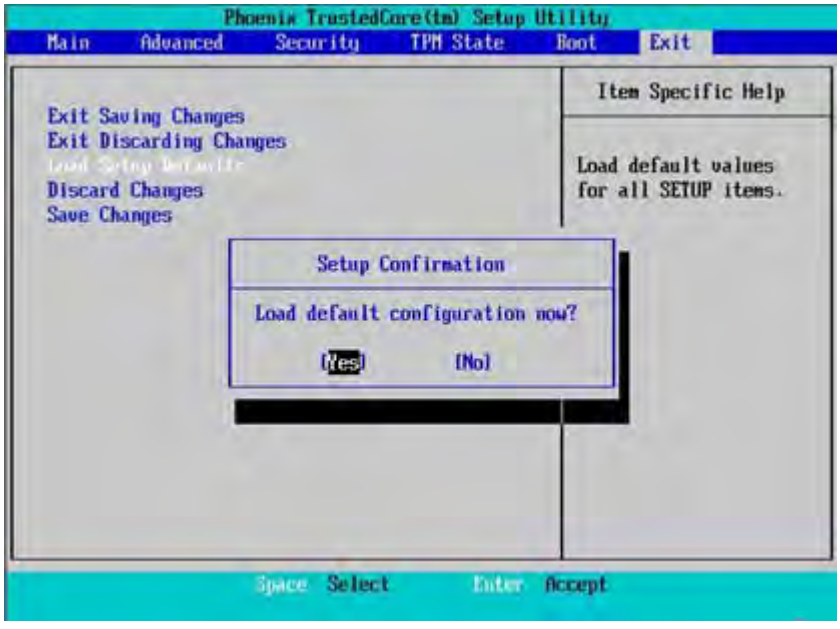
This will exit the Setup Utility and restart your compuetr when selecting this option.



Load Setup Default

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

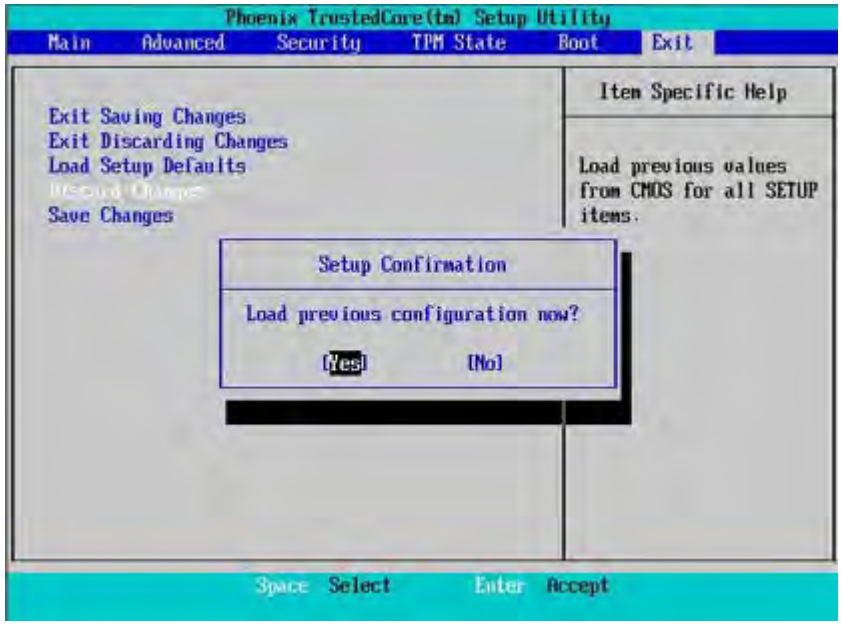
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Discard Changes

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

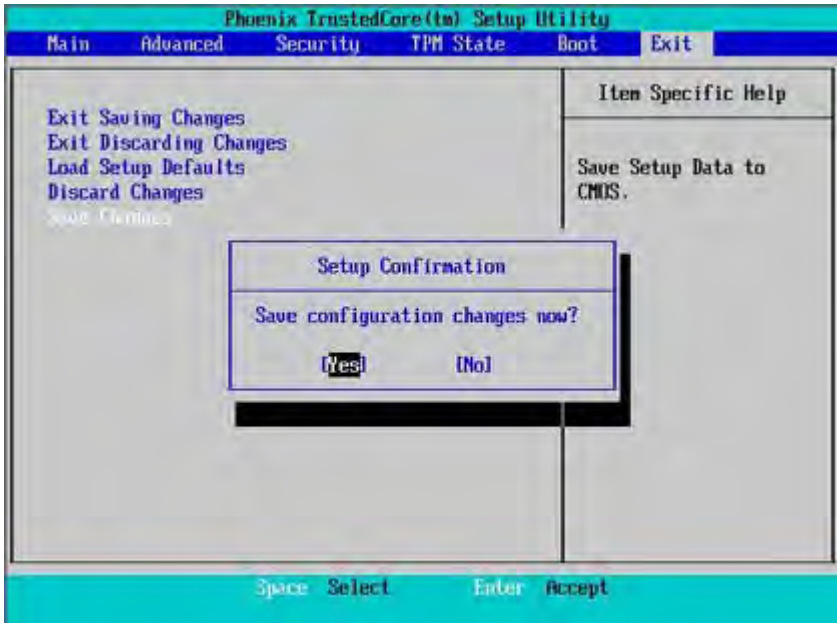
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Save Changes

This option allows user to save setup dat ato CMOS.

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



Press [Yes] to save setup daya to CMOS.