

# **GA-H61M-S2-B3**

## **User's Manual**

Rev. 1002

12ME-H61MS2B-1002R

## Declaration of Conformity

We, Manufacturer  
**G.B.T. Technology Trading GmbH**  
**Bültenkoppl 16, 22047 Hamburg, Germany**

(description of the apparatus, system, installation to which it refers)

**CE**  
**EN 6100-3-2**  
**EN 6100-3-3**

(reference to the specification under which conformity is claimed)  
in accordance with the EMC Directive 2004/108/E

**EN 55011**  
Limits and methods of measurement of radio disturbance characteristics of household appliances, equipment and high frequency equipment

**EN 61003-2**  
 **EN 61003-3**

Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"

**EN 55013**  
Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment

**EN 55024**

Information Technology equipment-Immunity characteristics-Limits and methods of measurement

**EN 55014-1**  
Limits and methods of measurement of radio disturbance characteristics of portable tools and similar electrical apparatus

**EN 50082-1**  
 **EN 50082-2**

Generic immunity standard Part 1: Residential, commercial and light industry  
Generic immunity standard Part 2: Industrial environment

**EN 55015**  
Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires

**EN 55014-2**

Immunity requirements for household appliances tools and similar apparatus

**EN 55020**  
Immunity from radio interference of broadcast receivers and associated equipment

**EN 50091-2**

EMC requirements for uninterruptible power systems (UPS)

**EN 55022**

Limits and methods of measurement of radio disturbance characteristics of information technology equipment

**DIN VDE 0855**  
 **part 10**  
 **part 15**

**EN 50091-1**

General and Safety requirements for uninterruptible power systems (UPS)

**CE marking**



(CE conformity marking)

**EN 60085**

Safety requirements for mains operated electronic and related apparatus for household and similar general use

**EN 60950**

Safety for information technology equipment including electrical business equipment

**EN 60335**

Safety of household and similar electrical appliances

**EN 50091-1**

General and Safety requirements for uninterruptible power systems (UPS)

**Manufacturer/Importer**

Signature: **Timmy Huang**

(Stamp)

Date: **Jun. 3, 2011**

Name: **Timmy Huang**

## DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: **G.B.T. INC. (U.S.A)**

Address: **17358 Railroad Street**

City of Industry, CA 91748

Phone/Fax No: (818) 854-9336/ (818) 854-9339

hereby declares that the product

**Product Name: Motherboard**

**Model Number: GA-H61M-S2-B3**

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109

(a), Class B Digital Device

### Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undesired operation.

Representative Person's Name: **ERIC LU**

Signature: **Eric Lu**

Date: **Jun. 3, 2011**

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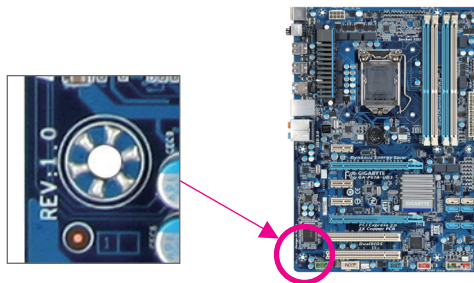
Changes to the specifications and features in this manual may be made by GIGABYTE without prior notice. No part of this manual may be reproduced, copied, translated, transmitted, or published in any form or by any means without GIGABYTE's prior written permission.

- In order to assist in the use of this product, carefully read the User's Manual.
- For product-related information, check on our website at: <http://www.gigabyte.com>

## **Identifying Your Motherboard Revision**

The revision number on your motherboard looks like this: "REV: X.X." For example, "REV: 1.0" means the revision of the motherboard is 1.0. Check your motherboard revision before updating motherboard BIOS, drivers, or when looking for technical information.

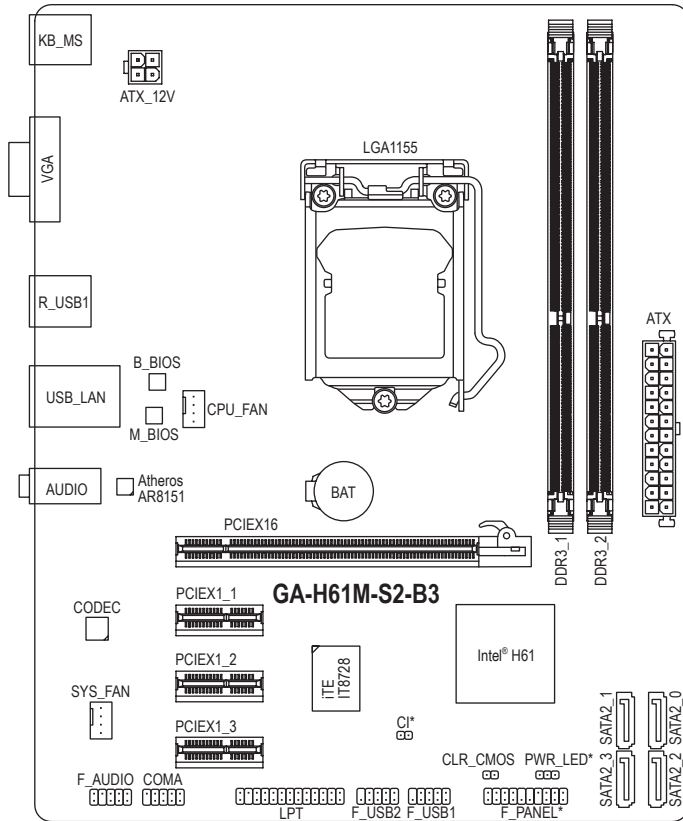
Example:



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# GA-H61M-S2-B3 Motherboard Layout



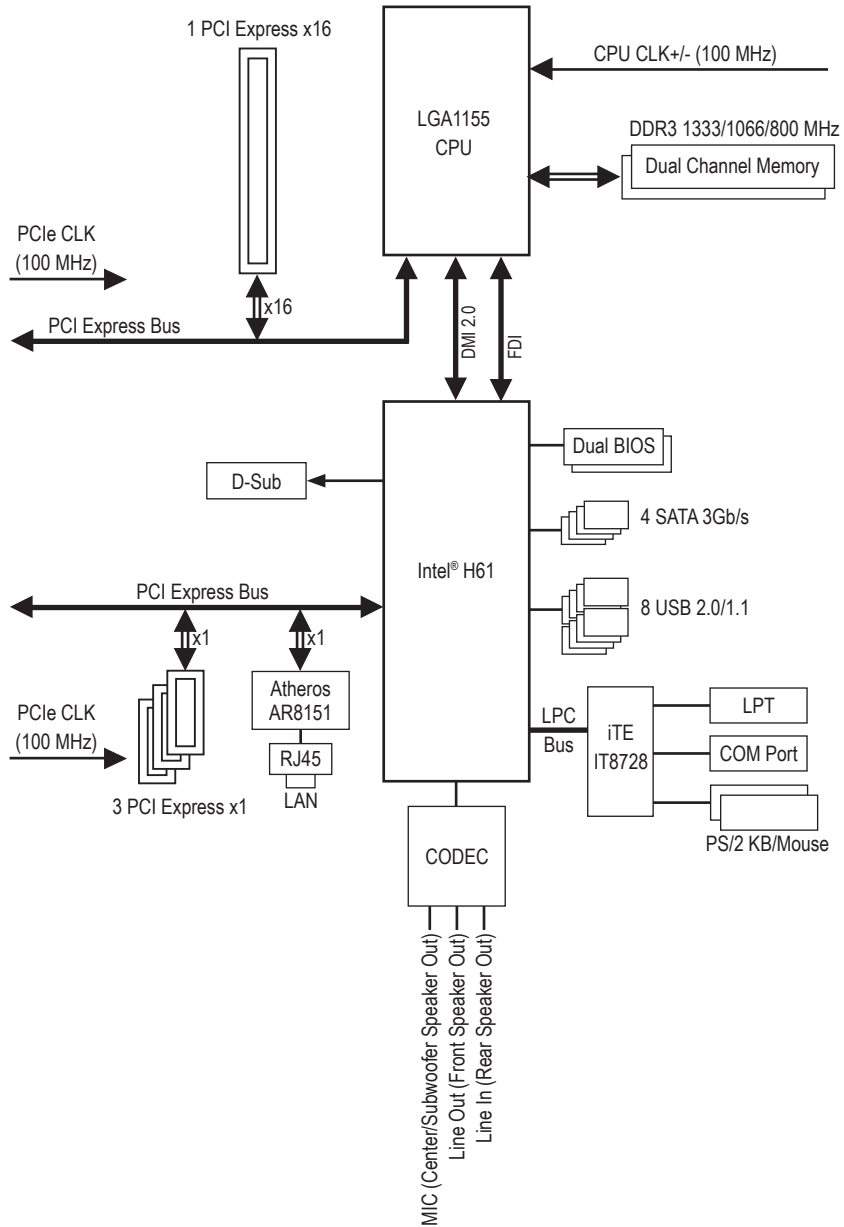
## Box Contents

- GA-H61M-S2-B3 motherboard
- Motherboard driver disk
- User's Manual
- Two SATA cables
- I/O Shield

The box contents above are for reference only and the actual items shall depend on the product package you obtain.

\* The actual location of the headers may differ by model.

# GA-H61M-S2-B3 Motherboard Block Diagram













# Chapter 1 Hardware Installation

## 1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:









- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- 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.

## 1-2 Product Specifications

	CPU	<ul style="list-style-type: none"> <li>◆ Support for Intel® Core™ i7 processors/Intel® Core™ i5 processors/Intel® Core™ i3 processors/Intel® Pentium® processors/Intel® Celeron® processors in the LGA1155 package (Go to GIGABYTE's website for the latest CPU support list.)</li> <li>◆ L3 cache varies with CPU</li> </ul>
	Chipset	<ul style="list-style-type: none"> <li>◆ Intel® H61 Express Chipset</li> </ul>
	Memory	<ul style="list-style-type: none"> <li>◆ 2 x 1.5V DDR3 DIMM sockets supporting up to 16 GB of system memory               <ul style="list-style-type: none"> <li>* Due to Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than 4 GB.</li> </ul> </li> <li>◆ Dual channel memory architecture</li> <li>◆ Support for DDR3 1333/1066/800 MHz memory modules</li> <li>◆ Support for non-ECC memory modules (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)</li> </ul>
	Onboard Graphics	<ul style="list-style-type: none"> <li>◆ Integrated in the Chipset:               <ul style="list-style-type: none"> <li>- 1 x D-Sub port</li> </ul> </li> </ul>
	Audio	<ul style="list-style-type: none"> <li>◆ VIA VT1708 codec</li> <li>◆ High Definition Audio</li> <li>◆ 2/4/5.1/7.1-channel               <ul style="list-style-type: none"> <li>* To configure 7.1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.</li> </ul> </li> </ul>
	LAN	<ul style="list-style-type: none"> <li>◆ 1 x Atheros AR8151 chip (10/100/1000 Mbit)</li> </ul>
	Expansion Slots	<ul style="list-style-type: none"> <li>◆ 1 x PCI Express x16 slot, running at x16</li> <li>◆ 3 x PCI Express x1 slots (All PCI Express slots conform to PCI Express 2.0 standard.)</li> </ul>
	Storage Interface	<ul style="list-style-type: none"> <li>◆ Chipset:               <ul style="list-style-type: none"> <li>- 4 x SATA 3Gb/s connectors supporting up to 4 SATA 3Gb/s devices</li> </ul> </li> </ul>
	USB	<ul style="list-style-type: none"> <li>◆ Chipset:               <ul style="list-style-type: none"> <li>- Up to 8 USB 2.0/1.1 ports (4 ports on the back panel, 4 ports available through the internal USB headers)</li> </ul> </li> </ul>
	Internal Connectors	<ul style="list-style-type: none"> <li>◆ 1 x 24-pin ATX main power connector</li> <li>◆ 1 x 4-pin ATX 12V power connector</li> <li>◆ 4 x SATA 3Gb/s connectors</li> <li>◆ 1 x CPU fan header</li> <li>◆ 1 x system fan header</li> <li>◆ 1 x front panel header*</li> <li>◆ 1 x front panel audio header</li> <li>◆ 2 x USB 2.0/1.1 headers</li> <li>◆ 1 x parallel port header</li> <li>◆ 1 x serial port header</li> <li>◆ 1 x power LED header*</li> <li>◆ 1 x chassis intrusion header*</li> <li>◆ 1 x clearing CMOS jumper</li> </ul>

\* The actual location of the headers may differ by model.



 Back Panel Connectors	<ul style="list-style-type: none"> <li>◆ 1 x PS/2 keyboard port</li> <li>◆ 1 x PS/2 mouse port</li> <li>◆ 1 x D-Sub port</li> <li>◆ 4 x USB 2.0/1.1 ports</li> <li>◆ 1 x RJ-45 port</li> <li>◆ 3 x audio jacks (Line In/Line Out/Microphone)</li> </ul>
 I/O Controller	<ul style="list-style-type: none"> <li>◆ iTE IT8728 chip</li> </ul>
 Hardware Monitor	<ul style="list-style-type: none"> <li>◆ System voltage detection</li> <li>◆ CPU/System temperature detection</li> <li>◆ CPU/System fan speed detection</li> <li>◆ CPU/System fan speed control <ul style="list-style-type: none"> <li>* Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.</li> </ul> </li> </ul>
 BIOS	<ul style="list-style-type: none"> <li>◆ 2 x 32 Mbit flash</li> <li>◆ Use of licensed AWARD BIOS</li> <li>◆ Support for DualBIOS™</li> <li>◆ PnP 1.0a, DMI 2.0, SM BIOS 2.4, ACPI 1.0b</li> </ul>
 Unique Features	<ul style="list-style-type: none"> <li>◆ Support for @BIOS</li> <li>◆ Support for Q-Flash</li> <li>◆ Support for Xpress BIOS Rescue</li> <li>◆ Support for Download Center</li> <li>◆ Support for Xpress Install</li> <li>◆ Support for Xpress Recovery2</li> <li>◆ Support for EasyTune <ul style="list-style-type: none"> <li>* Available functions in EasyTune may differ by motherboard model.</li> </ul> </li> <li>◆ Support for Smart 6™</li> <li>◆ Support for Auto Green</li> <li>◆ Support for ON/OFF Charge</li> <li>◆ Support for Cloud OC</li> <li>◆ Support for 3TB+ Unlock</li> <li>◆ Support for Q-Share</li> </ul>
 Bundled Software	<ul style="list-style-type: none"> <li>◆ Norton Internet Security (OEM version)</li> </ul>
 Operating System	<ul style="list-style-type: none"> <li>◆ Support for Microsoft® Windows 7/Vista/XP</li> </ul>
 Form Factor	<ul style="list-style-type: none"> <li>◆ Micro ATX Form Factor; 24.4cm x 19.5cm</li> </ul>

\* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.

## 1-3 Installing the CPU and CPU Cooler

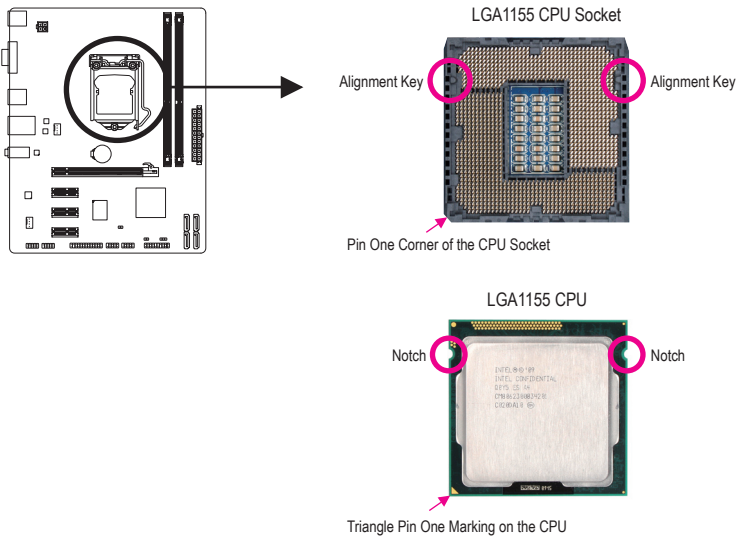


Read the following guidelines before you begin to install the CPU:

- Make sure that the motherboard supports the CPU.  
(Go to GIGABYTE's website for the latest CPU support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

### Installing the CPU

- A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.



## 1-4 Installing the Memory



Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.  
(Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

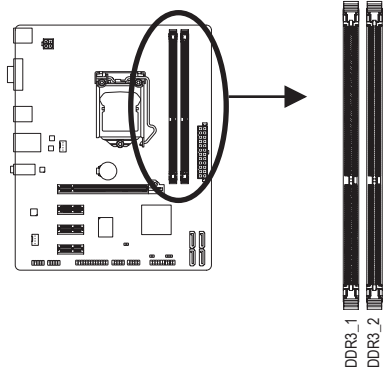
### Dual Channel Memory Configuration

This motherboard provides two DDR3 memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

The two DDR3 memory sockets are divided into two channels and each channel has one memory socket as following:

▶▶ Channel A: DDR3\_1

▶▶ Channel B: DDR3\_2



Due to CPU limitations, read the following guidelines before installing the memory in Dual Channel mode.

1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Dual Channel mode with two memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance.

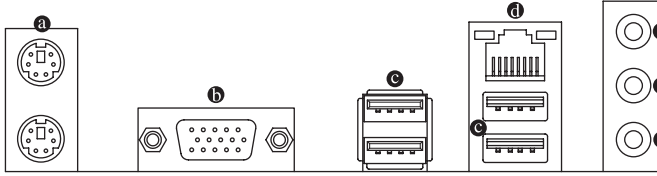
## 1-5 Installing an Expansion Card



Read the following guidelines before you begin to install an expansion card:

- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.

## 1-6 Back Panel Connectors



### a PS/2 Keyboard and PS/2 Mouse Port

Use the upper port (green) to connect a PS/2 mouse and the lower port (purple) to connect a PS/2 keyboard.

### b D-Sub Port

The D-Sub port supports a 15-pin D-Sub connector. Connect a monitor that supports D-Sub connection to this port.

### c USB 2.0/1.1 Port

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

### d RJ-45 LAN Port

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

Connection/ Speed LED	Activity LED	Connection/Speed LED:		Activity LED:	
<p>LAN Port</p>		State	Description	State	Description
		Orange	1 Gbps data rate	Blinking	Data transmission or receiving is occurring
		Green	100 Mbps data rate	Off	No data transmission or receiving is occurring
		Off	10 Mbps data rate		

### e Line In Jack (Blue)

The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

### f Line Out Jack (Green)

The default line out jack. Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.

### g Mic In Jack (Pink)

The default Mic in jack. Microphones must be connected to this jack.

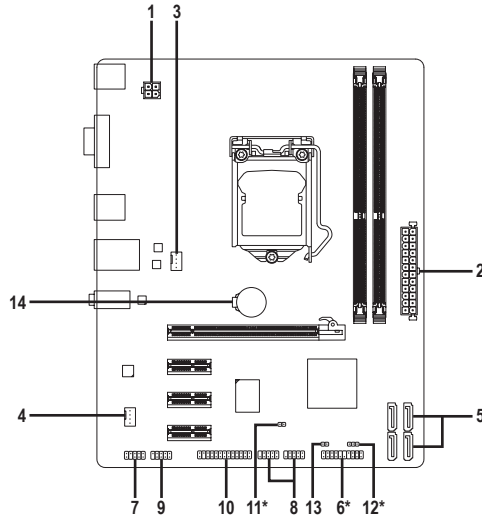


To configure 7.1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.



- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

## 1-7 Internal Connectors



1)	ATX_12V	8)	F_USB1/2
2)	ATX	9)	COMA
3)	CPU_FAN	10)	LPT
4)	SYS_FAN	11)	CI*
5)	SATA2_0/1/2/3	12)	PWR_LED*
6)	F_PANEL*	13)	CLR_CMOS
7)	F_AUDIO	14)	BAT

\* The actual location of the headers may differ by model.



Read the following guidelines before connecting external devices:

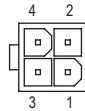
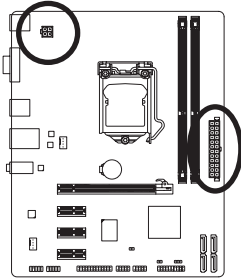
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

## 1/2) ATX\_12V/ATX (2x2 12V Power Connector and 2x12 Main Power Connector)

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, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.



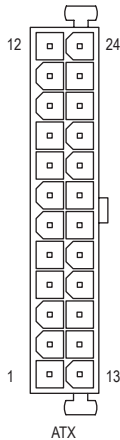
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.



ATX\_12V

ATX\_12V①

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



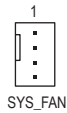
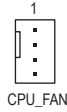
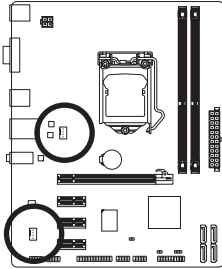
ATX

ATX:

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	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V (Only for 2x12-pin ATX)	23	+5V (Only for 2x12-pin ATX)
12	3.3V (Only for 2x12-pin ATX)	24	GND (Only for 2x12-pin ATX)

### 3/4) CPU\_FAN/SYS\_FAN (Fan Headers)

The motherboard has a 4-pin CPU fan header (CPU\_FAN) and a 4-pin system fan header (SYS\_FAN). Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.



CPU\_FAN:

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

SYS\_FAN:

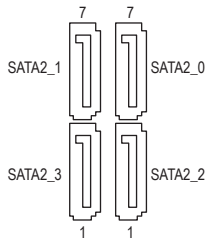
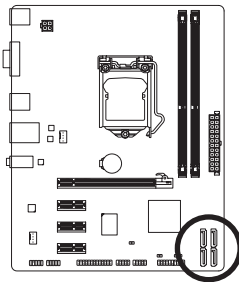
Pin No.	Definition
1	GND
2	+12V /Speed Control
3	Sense
4	Reserve



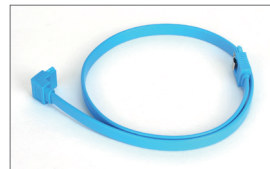
- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

### 5) SATA2\_0/1/2/3 (SATA 3Gb/s Connectors)

The SATA connectors conform to SATA 3Gb/s standard and are compatible with SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device.



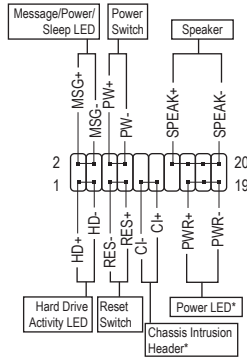
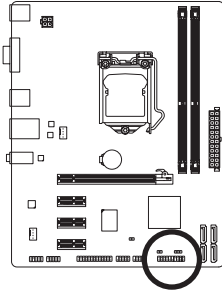
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



Please connect the L-shaped end of the SATA cable to your SATA hard drive.

## 6) F\_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



- **MSG/PWR\*** (Message/Power/Sleep LED):

System Status	LED
S0	On
S1	Blinking
S3/S4/S5	Off

Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

- **PW** (Power Switch):

Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Power Management Setup," for more information).

- **SPEAK** (Speaker):

Connects to the speaker on the chassis front panel. The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup. If a problem is detected, the BIOS may issue beeps in different patterns to indicate the problem. Refer to Chapter 5, "Troubleshooting," for information about beep codes.

- **HD** (Hard Drive Activity LED):

Connects to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

- **RES** (Reset Switch):

Connects to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

- **Cl\*** (Chassis Intrusion Header):

Connects to the chassis intrusion switch/sensor on the chassis that can detect if the chassis cover has been removed. This function requires a chassis with a chassis intrusion switch/sensor.

\* The actual location of the headers may differ by model.

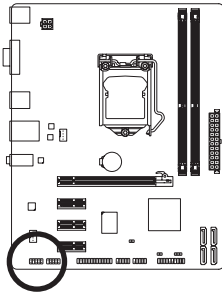


The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.



## 7) F\_AUDIO (Front Panel Audio Header)

The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it.



For HD Front Panel Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	LINE2_R
6	GND
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	GND

For AC'97 Front Panel Audio:

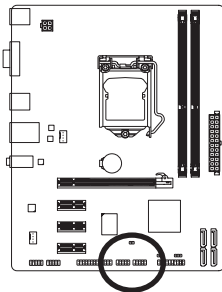
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC



- The front panel audio header supports HD audio by default.
- Audio signals will be present on both of the front and back panel audio connections simultaneously.
- Some chassis provide a front panel audio module that has separated connectors on each wire instead of a single plug. For information about connecting the front panel audio module that has different wire assignments, please contact the chassis manufacturer.

## 8) F\_USB1/2 (USB 2.0/1.1 Headers)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



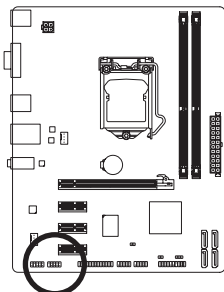
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC



- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB header.
- Prior to installing the USB bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB bracket.

### 9) COMA (Serial Port Header)

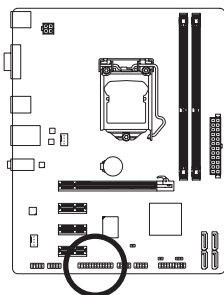
The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.



Pin No.	Definition
1	NCCD-
2	NSIN
3	NSOUT
4	NDTR-
5	GND
6	NDSR-
7	NRTS-
8	NCTS-
9	NRI-
10	No Pin

### 10) LPT (Parallel Port Header)

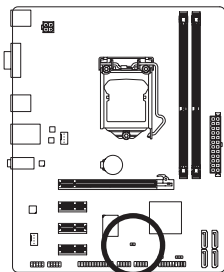
The LPT header can provide one parallel port via an optional LPT port cable. For purchasing the optional LPT port cable, please contact the local dealer.



Pin No.	Definition	Pin No.	Definition
1	STB-	14	GND
2	AFD-	15	PD6
3	PD0	16	GND
4	ERR-	17	PD7
5	PD1	18	GND
6	INIT-	19	ACK-
7	PD2	20	GND
8	SLIN-	21	BUSY
9	PD3	22	GND
10	GND	23	PE
11	PD4	24	No Pin
12	GND	25	SLCT
13	PD5	26	GND

## 11) CI (Chassis Intrusion Header)\*

This motherboard provides a chassis detection feature that detects if the chassis cover has been removed. This function requires a chassis with chassis intrusion detection design.

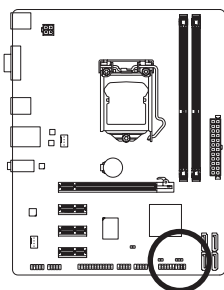


1 

Pin No.	Definition
1	Signal
2	GND

## 12) PWR\_LED (System Power LED Header)\*

This header can be used to connect a system power LED on the chassis to indicate system power status. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).



1 

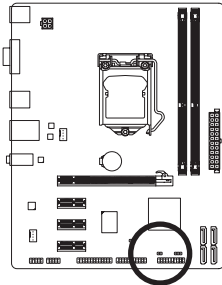
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

System Status	LED
S0	On
S1	Blinking
S3/S4/S5	Off

\* The actual location of the headers may differ by model.

### 13) CLR\_CMOS (Clearing CMOS Jumper)

Use this jumper to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, place a jumper cap on the two pins to temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.



 Open: Normal

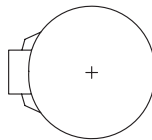
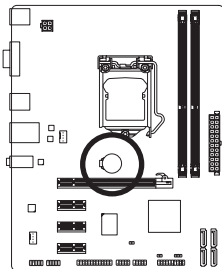
 Short: Clear CMOS Values



- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After clearing the CMOS values and before turning on your computer, be sure to remove the jumper cap from the jumper. Failure to do so may cause damage to the motherboard.
- After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

### 14) BAT (Battery)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.



You may clear the CMOS values by removing the battery:

1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.



- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.

## Chapter 2 BIOS Setup

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on. To see more advanced BIOS Setup menu options, you can press <Ctrl> + <F1> in the main menu of the BIOS Setup program.

To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility.

- Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system.
- @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS.



- Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

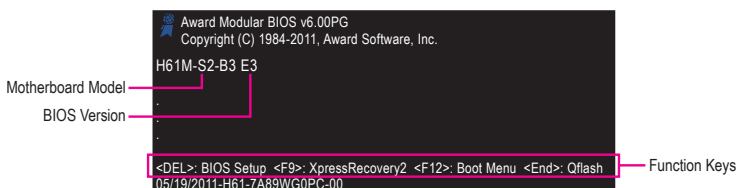
### 2-1 Startup Screen

The following screens may appear when the computer boots.

#### A. The LOGO Screen (Default):



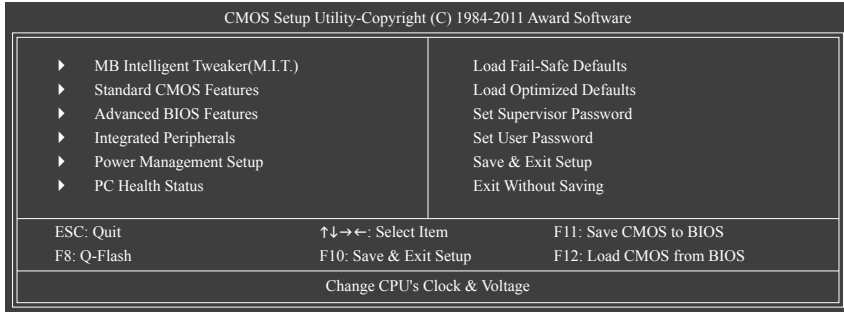
#### B. The POST Screen



## 2-2 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.

(Sample BIOS Version: E3)



- If you do not find the settings you want in the Main Menu or a submenu, press <Ctrl>+<F1> to access more advanced options.
- When the system is not stable as usual, select the **Load Optimized Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

### ■ The Functions of the <F11> and <F12> keys (For the Main Menu Only)

#### ▶ F11: Save CMOS to BIOS

This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles (Profile 1-8) and name each profile. First enter the profile name (to erase the default profile name, use the SPACE key) and then press <Enter> to complete.

#### ▶ F12: Load CMOS from BIOS

If your system becomes unstable and you have loaded the BIOS default settings, you can use this function to load the BIOS settings from a profile created before, without the hassles of reconfiguring the BIOS settings. First select the profile you wish to load, then press <Enter> to complete.

## 2-3 MB Intelligent Tweaker(M.I.T.)

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MB Intelligent Tweaker(M.I.T.)

▶ M.I.T Current Status	[Press Enter]	Item Help
▶ Advanced Frequency Settings	[Press Enter]	Menu Level ▶
▶ Advanced Memory Settings	[Press Enter]	
▶ Advanced Voltage Settings	[Press Enter]	
▶ Miscellaneous Settings	[Press Enter]	
BIOS Version	E3	
BCLK	99.80 MHz	
CPU Frequency	3193.73 MHz	
Memory Frequency	1330.76 MHz	
Total Memory Size	1024 MB	
CPU Temperature	36°C	
Vcore	1.188 V	
DRAM Voltage	1.584 V	
↑↓→←: Move	Enter: Select	+/-/PU/PD: Value
F5: Previous Values	F6: Fail-Safe Defaults	F10: Save
		ESC: Exit
		F1: General Help
		F7: Optimized Defaults



Whether the system will work stably with the overclock/overvoltage settings you made is dependent on your overall system configurations. Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This page is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Inadequately altering the settings may result in system's failure to boot. If this occurs, clear the CMOS values and reset the board to default values.)

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software  
MB Intelligent Tweaker(M.I.T.)

▶ M.I.T Current Status	[Press Enter]	Item Help
▶ Advanced Frequency Settings	[Press Enter]	Menu Level ▶
▶ Advanced Memory Settings	[Press Enter]	
▶ Advanced Voltage Settings	[Press Enter]	
▶ Miscellaneous Settings	[Press Enter]	
BIOS Version	E3	
BCLK	99.80 MHz	
CPU Frequency	3193.73 MHz	
Memory Frequency	1330.76 MHz	
Total Memory Size	1024 MB	
CPU Temperature	36°C	
Vcore	1.188 V	
DRAM Voltage	1.584 V	
↑↓→←: Move	Enter: Select	+/-/PU/PD: Value
F5: Previous Values	F6: Fail-Safe Defaults	F10: Save
		ESC: Exit
		F1: General Help
		F7: Optimized Defaults

This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size, CPU temperature, Vcore, and memory voltage.

► **M.I.T. Current Status**

This screen provides information on CPU/memory frequencies/parameters.

► **Advanced Frequency Settings**

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software  
Advanced Frequency Settings

<p>CPU Clock Ratio [31X]          CPU Frequency 3.10GHz (100x31)          ► <b>Advanced CPU Core Features</b> [Press Enter]          &gt;&gt;&gt;&gt;&gt; Standard Clock Control          System Memory Multiplier (SPD) [Auto]          Memory Frequency (Mhz) 1333 1333          Internal Graphics Clock 1100 [Auto]</p>	<p style="text-align: center;">Item Help Menu Level ►</p>
<p>↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help          F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults</p>	

► **Advanced CPU Core Features**

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software  
Advanced CPU Core Features

<p>CPU Clock Ratio [31X]          CPU Frequency 3.10GHz (100x31)          Intel(R) Turbo Boost Tech.<sup>(Note)</sup> [Auto]          -Turbo Ratio(1-Core)<sup>(Note)</sup> 34 Auto          -Turbo Ratio(2-Core)<sup>(Note)</sup> 33 Auto          -Turbo Ratio(3-Core)<sup>(Note)</sup> 33 Auto          -Turbo Ratio(4-Core)<sup>(Note)</sup> 32 Auto          -Turbo Power Limit(Watts) 95 [Auto]          -Core Current Limit(Amps) 97 [Auto]          CPU Cores Enabled<sup>(Note)</sup> [All]          CPU Multi-Threading<sup>(Note)</sup> [Enabled]          CPU Enhanced Halt (C1E)<sup>(Note)</sup> [Auto]          C3/C6 State Support<sup>(Note)</sup> [Auto]          CPU Thermal Monitor<sup>(Note)</sup> [Auto]          CPU EIST Function<sup>(Note)</sup> [Auto]          Bi-Directional PROCHOT<sup>(Note)</sup> [Auto]</p>	<p style="text-align: center;">Item Help Menu Level ►►</p>
<p>↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help          F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults</p>	

☞ **CPU Clock Ratio**

Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed.

☞ **CPU Frequency**

Displays the current operating CPU frequency.

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.



- ☞ **Intel(R) Turbo Boost Tech.** <sup>(Note)</sup>  
 Allows you to determine whether to enable the Intel CPU Turbo Boost technology. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)
- ☞ **Turbo Ratio (1-Core)/(2-Core)/(3-Core)/(4-Core)** <sup>(Note)</sup>  
 Allows you to set the CPU Turbo ratios for different number of active cores. **Auto** sets the CPU Turbo ratios according to the CPU specifications. (Default: Auto)
- ☞ **Turbo Power Limit (Watts)**  
 Allows you to set a power limit for CPU Turbo mode. When the CPU power consumption exceeds the specified power limit, the CPU will automatically reduce the core frequency in order to reduce the power. **Auto** sets the power limit according to the CPU specifications. (Default: Auto)
- ☞ **Core Current Limit (Amps)**  
 Allows you to set a current limit for CPU Turbo mode. When the CPU current exceeds the specified current limit, the CPU will automatically reduce the core frequency in order to reduce the current. **Auto** sets the current limit according to the CPU specifications. (Default: Auto)
- ☞ **CPU Cores Enabled** <sup>(Note)</sup>  
 Allows you to determine whether to enable all CPU cores.

  - ▶▶ All            Enables all CPU cores. (Default)
  - ▶▶ 1             Enables only one CPU core.
  - ▶▶ 2             Enables only two CPU cores.
  - ▶▶ 3             Enables only three CPU cores.
- ☞ **CPU Multi-Threading** <sup>(Note)</sup>  
 Allows you to determine whether to enable multi-threading technology when using an Intel CPU that supports this function. This feature only works for operating systems that support multi-processor mode. (Default: Enabled)
- ☞ **CPU Enhanced Halt (C1E)** <sup>(Note)</sup>  
 Enables or disables Intel CPU Enhanced Halt (C1E) function, a CPU power-saving function in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)
- ☞ **C3/C6 State Support** <sup>(Note)</sup>  
 Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)
- ☞ **CPU Thermal Monitor** <sup>(Note)</sup>  
 Enables or disables Intel CPU Thermal Monitor function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage will be reduced when the CPU is overheated. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)
- ☞ **CPU EIST Function** <sup>(Note)</sup>  
 Enables or disables Enhanced Intel SpeedStep Technology (EIST). Depending on CPU loading, Intel EIST technology can dynamically and effectively lower the CPU voltage and core frequency to decrease average power consumption and heat production. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ **Bi-Directional PROCHOT** <sup>(Note)</sup>

- ▶▶ Auto Lets the BIOS automatically configure this setting. (Default)
- ▶▶ Enabled When the CPU or chipset detects that an overheating is occurring, PROCHOT signals will be emitted to lower CPU performance to decrease heat production.
- ▶▶ Disabled Only allows the CPU to detect whether an overheating is occurring to emit PROCHOT signals.

>>>> **Standard Clock Control**

☞ **System Memory Multiplier (SPD)**

Allows you to set the system memory multiplier. **Auto** sets memory multiplier according to memory SPD data. (Default: Auto)

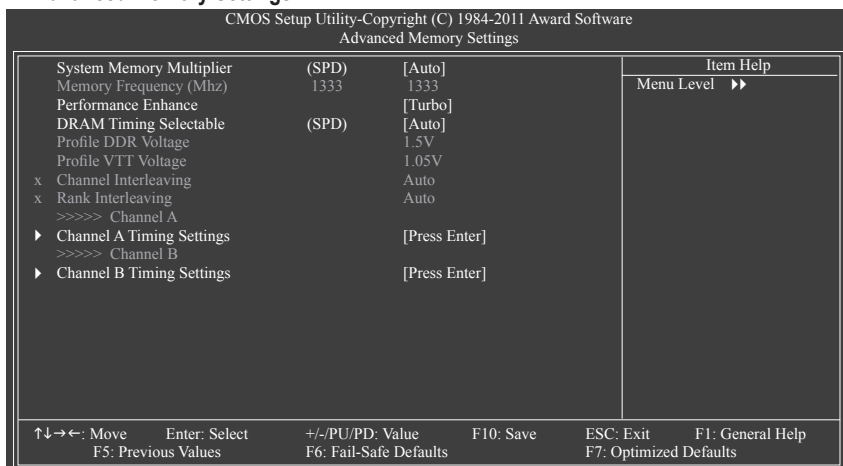
☞ **Memory Frequency(Mhz)**

The first memory frequency value is the normal operating frequency of the memory being used; the second is the memory frequency that is automatically adjusted according to the **System Memory Multiplier** settings.

☞ **Internal Graphics Clock**

Allows you to set the onboard graphics clock. The adjustable range is from 400 MHz to 3000 MHz. (Default: Auto)

▶ **Advanced Memory Settings**



☞ **System Memory Multiplier (SPD), Memory Frequency(Mhz)**

The settings under the two items above are synchronous to those under the same items on the **Advanced Frequency Settings** menu.

☞ **Performance Enhance**

Allows the system to operate at three different performance levels.

- ▶▶ Standard Lets the system operate at its basic performance level.
- ▶▶ Turbo Lets the system operate at its good performance level. (Default)
- ▶▶ Extreme Lets the system operate at its best performance level.

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ **DRAM Timing Selectable (SPD)**

**Quick** and **Expert** allows the **Channel Interleaving**, **Rank Interleaving**, **Channel A Timing Settings**, and **Channel B Timing Settings** items to be configurable. Options are: Auto (default), Quick, Expert.

☞ **Profile DDR Voltage**

Displays the memory voltage as **1.5V**.

☞ **Profile VTT Voltage**

The value displayed here is dependent on the CPU being used.

☞ **Channel Interleaving**

Enables or disables memory channel interleaving. **Enabled** allows the system to simultaneously access different channels of the memory to increase memory performance and stability. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Rank Interleaving**

Enables or disables memory rank interleaving. **Enabled** allows the system to simultaneously access different ranks of the memory to increase memory performance and stability. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

**>>>>> Channel A/B Timing Settings**

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Channel A Timing Settings

			Item Help
>>>>> Channel A Standard Timing Control			Menu Level >>>
x	CAS Latency Time	9 Auto	
x	tRCD	9 Auto	
x	tRP	9 Auto	
x	tRAS	24 Auto	
>>>>> Channel A Advanced Timing Control			
x	tRC	33 Auto	
x	tRRD	4 Auto	
x	tWTR	5 Auto	
x	tWR	10 Auto	
x	tWTP	21 Auto	
x	tWL	7 Auto	
x	tRFC	74 Auto	
x	tRTP	5 Auto	
x	tFAW	20 Auto	
x	Command Rate (CMD)	1 Auto	
>>>>> Channel A Misc Timing Control			
x	IO Latency	1 Auto	
x	Round Trip Latency	34 Auto	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

**>>>>> Channel A/B Standard Timing Control**

☞ **CAS Latency Time**

Options are: Auto (default), 5~15.

☞ **tRCD**

Options are: Auto (default), 1~15.

☞ **tRP**

Options are: Auto (default), 1~15.

☞ **tRAS**

Options are: Auto (default), 1~40.

**>>>>> Channel A/B Advanced Timing Control**

☞ **tRC**

Options are: Auto (default), 1~63.

- ☞ **tRRD**  
Options are: Auto (default), 1~15.
- ☞ **tWTR**  
Options are: Auto (default), 1~15.
- ☞ **tWR**  
Options are: Auto (default), 1~16.
- ☞ **tWTP**  
Options are: Auto (default), 1~31.
- ☞ **tWL**  
Options are: Auto (default), 1~12.
- ☞ **tRFC**  
Options are: Auto (default), 1~255.
- ☞ **tRTP**  
Options are: Auto (default), 1~15.
- ☞ **tFAW**  
Options are: Auto (default), 1~63.
- ☞ **Command Rate(CMD)**  
Options are: Auto (default), 1~3.
- >>>> **Channel A/B Misc Timing Control**
  - ☞ **IO Latency**  
Options are: Auto (default), 1~31.
  - ☞ **Round Trip Latency**  
Options are: Auto (default), 1~255.

▶ **Advanced Voltage Settings**

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Advanced Voltage Settings

***** Mother Board Voltage Control *****			Item Help
Voltage Types	Normal	Current	Menu Level ▶▶
<b>&gt;&gt;&gt; CPU</b>			
Dynamic Vcore(DVID)	+0.000V	[Auto]	
QPI/Vtt Voltage	1.050V	[Auto]	
<b>&gt;&gt;&gt; DRAM</b>			
DRAM Voltage	1.500V	[Auto]	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

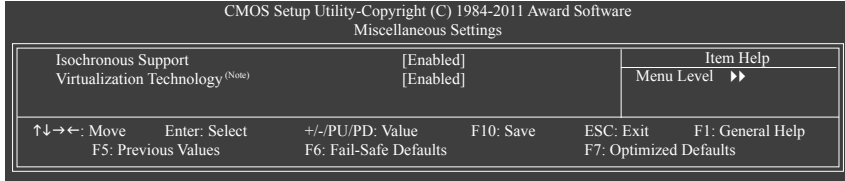
- >>> **CPU**
  - ☞ **Dynamic Vcore(DVID)**  
The default is **Auto**.
  - ☞ **QPI/Vtt Voltage**  
The default is **Auto**.

>>> **DRAM**

☞ **DRAM Voltage**

The default is **Auto**.

▶ **Miscellaneous Settings**



☞ **Isochronous Support**

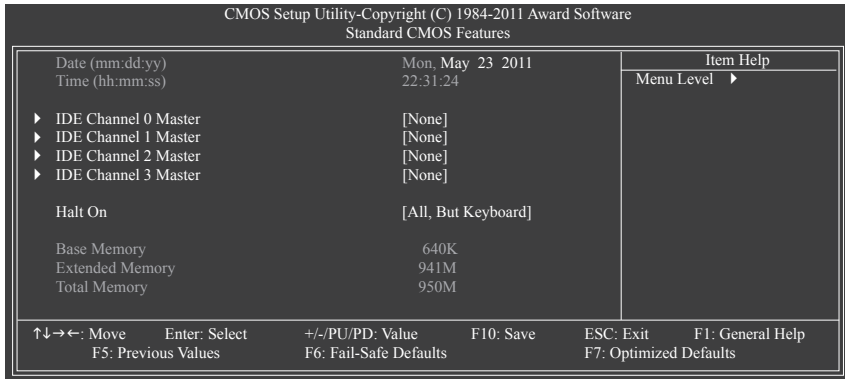
Determines whether to enable specific streams within the CPU and Chipset. (Default: Enabled)

☞ **Virtualization Technology <sup>(Note)</sup>**

Enables or disables Intel Virtualization Technology. Virtualization enhanced by Intel 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. (Default: Enabled)

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

## 2-4 Standard CMOS Features



☞ **Date (mm:dd:yy)**

Sets the system date.

☞ **Time (hh:mm:ss)**

Sets the system time.

☞ **IDE Channel 0, 1 Master**

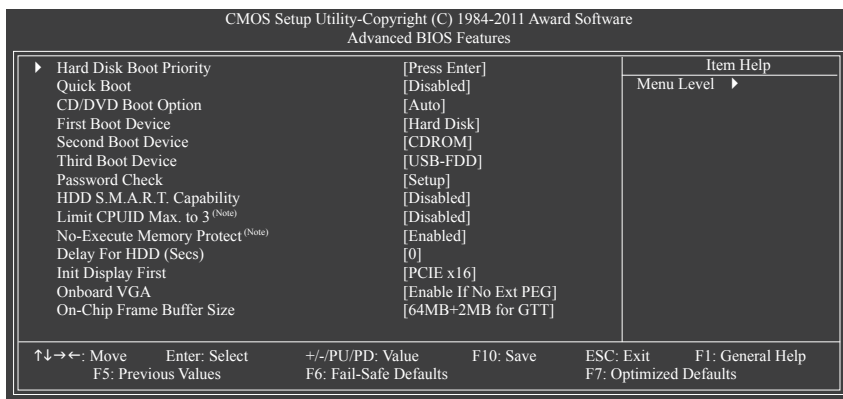
▶▶ IDE Channel 0, 1 Master

Configure your SATA devices by using one of the three methods below:

- None    If no SATA devices are used, set this item to **None** so the system will skip the detection of the device during the POST for faster system startup.
- Auto    Lets the BIOS automatically detect SATA devices during the POST. (Default)

- Manual Allows you to manually enter the specifications of the hard drive when the hard drive access mode is set to **CHS**.
  - ▶▶ Access Mode Sets the hard drive access mode. Options are: Auto (default), CHS, LBA, Large.
- ☞ **IDE Channel 2, 3 Master**
- ▶▶ Extended IDE Drive
- Configure your SATA devices by using one of the two methods below:
- Auto Lets the BIOS automatically detect SATA devices during the POST. (Default)
  - None If no SATA devices are used, set this item to **None** so the system will skip the detection of the device during the POST for faster system startup.
- ▶▶ Access Mode Sets the hard drive access mode. Options are: Auto (default), Large.
- The following fields display your hard drive specifications. If you wish to enter the parameters manually, refer to the information on the hard drive.
- ▶▶ Capacity Approximate capacity of the currently installed hard drive.
  - ▶▶ Cylinder Number of cylinders.
  - ▶▶ Head Number of heads.
  - ▶▶ Precomp Write precompensation cylinder.
  - ▶▶ Landing Zone Landing zone.
  - ▶▶ Sector Number of sectors.
- ☞ **Halt On**
- Allows you to determine whether the system will stop for an error during the POST. Options are: "All Errors," "No Errors," "All, But Keyboard". (Default)
- ☞ **Memory**
- These fields are read-only and are determined by the BIOS POST.

## 2-5 Advanced BIOS Features



### ☞ Hard Disk Boot Priority

Specifies the sequence of loading the operating system from the installed hard drives. Use the up or down arrow key to select a hard drive, then press the plus key <+> (or <PageUp>) or the minus key <-> (or <PageDown>) to move it up or down on the list. Press <Esc> to exit this menu when finished.

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

### ☞ **Quick Boot**

Enables or disables the quick boot function to speed up the system boot-up process to shorten the waiting time for entering the operating system and to deliver greater efficiency for daily use. The settings here synchronize with the settings of the SMART QuickBoot of Smart 6™. (Default: Disabled)

### ☞ **EFI CD/DVD Boot Option**

Set this item to **EFI** if you want to install the operating system to a hard drive larger than 2.2 TB. Make sure the operating system to be installed supports booting from a GPT partition, such as Windows 7 64-bit and Windows Server 2003 64-bit. **Auto** lets the BIOS automatically configure this setting depending on the hard drive you install. (Default: Auto)

### ☞ **First/Second/Third Boot Device**

Specifies the boot order from the available devices. Use the up or down arrow key to select a device and press <Enter> to accept. Options are: Hard Disk, CDROM, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, Legacy LAN, Disabled.

### ☞ **Password Check**

Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the **Set Supervisor/User Password** item in the BIOS Main Menu.

▶▶ Setup            A password is only required for entering the BIOS Setup program. (Default)

▶▶ System           A password is required for booting the system and for entering the BIOS Setup program.

### ☞ **HDD S.M.A.R.T. Capability**

Enables or disables the S.M.A.R.T. (Self Monitoring and Reporting Technology) capability of your hard drive. This feature allows your system to report read/write errors of the hard drive and to issue warnings when a third party hardware monitor utility is installed. (Default: Disabled)

### ☞ **Limit CPUID Max. to 3** <sup>(Note)</sup>

Allows you to determine whether to limit CPUID maximum value. Set this item to **Disabled** for Windows XP operating system; set this item to **Enabled** for legacy operating system such as Windows NT4.0. (Default: Disabled)

### ☞ **No-Execute Memory Protect** <sup>(Note)</sup>

Enables or disables Intel Execute Disable Bit function. This function may enhance protection for the computer, reducing exposure to viruses and malicious buffer overflow attacks when working with its supporting software and system. (Default: Enabled)

### ☞ **Delay For HDD (Secs)**

Allows you to set a delay time for the BIOS to initialize the hard drive as the system boots up. The adjustable range is from 0 to 15 seconds. (Default: 0)

### ☞ **Full Screen LOGO Show**

Allows you to determine whether to display the GIGABYTE Logo at system startup. Disabled displays normal POST message. (Default: Enabled)

### ☞ **Init Display First**

Specifies the first initiation of the monitor display from the installed PCI Express graphics card or the onboard graphics.

▶▶ Onboard           Sets the onboard graphics as the first display.

▶▶ PCIe x16          Sets the PCI Express graphics card on the PCIEX16 slot as the first display. (Default)

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

### Onboard VGA

Enables or disables the onboard graphics function.

▶▶ Enable If No Ext PEG

Activates the onboard graphics only when no PCI Express graphics card is installed. (Default)

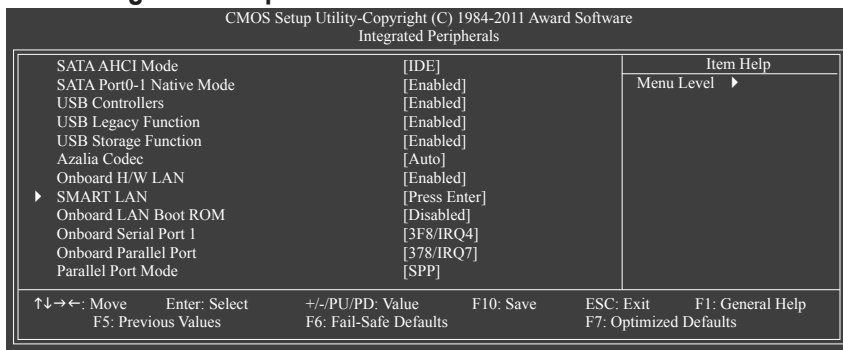
▶▶ Always Enable

Always activates the onboard graphics, whether or not a PCI Express graphics card is installed. If you wish to set up a dual-display configuration, set this item to **Always Enable**.

### On-Chip Frame Buffer Size

Frame buffer size is the total amount of system memory allocated solely for the onboard graphics controller. MS-DOS, for example, will use only this memory for display. Options are: 32MB+2MB for GTT ~ 480MB+2MB for GTT. (Default: 64MB+2MB for GTT)

## 2-6 Integrated Peripherals



### SATA AHCI Mode (Intel H61 Chipset)

Allows you to decide whether to configure the SATA controller integrated in the Intel H61 Chipset to AHCI mode.

▶▶ IDE                      Configures the SATA controller to IDE mode. (Default)

▶▶ AHCI                     Configures the SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

### SATA Port0-1 Native Mode (Intel H61 Chipset)

Specifies the operating mode of the integrated SATA controllers.

▶▶ Disabled                Allows the SATA controllers to operate in Legacy IDE mode.

In Legacy mode the SATA controllers use dedicated IRQs that cannot be shared with other device. Set this option to **Disabled** if you wish to install operating systems that do not support Native mode.

▶▶ Enabled                 Allows the SATA controllers to operate in Native IDE mode. Enable Native IDE mode if you wish to install operating systems that support Native mode. (Default)

### USB Controllers

Enables or disables the integrated USB controller. (Default: Enabled)

**Disabled** will turn off all of the USB functionalities below.

### USB Legacy Function

Allows USB keyboard to be used in MS-DOS. (Default: Enabled)

### USB Storage Function

Determines whether to detect USB storage devices, including USB flash drives and USB hard drives during the POST. (Default: Enabled)



☞ **Azalia Codec**

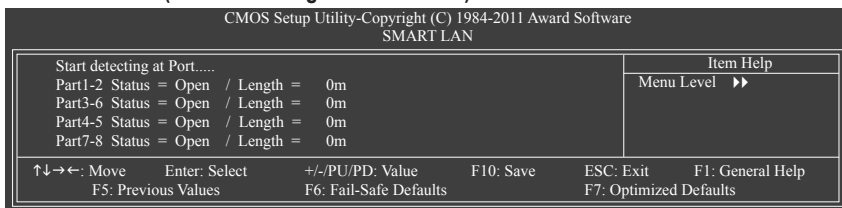
Enables or disables the onboard audio function. (Default: Auto)

If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to **Disabled**.

☞ **Onboard H/W LAN**

Enables or disables the onboard LAN function. (Default: Enabled) If you wish to install a 3rd party add-in network card instead of using the onboard LAN, set this item to **Disabled**.

☞ **SMART LAN (LAN Cable Diagnostic Function)**



This motherboard incorporates cable diagnostic feature designed to detect the status of the attached LAN cable. This feature will detect cabling issue and report the approximate distance to the fault or short.

☞ **Onboard LAN Boot ROM**

Allows you to decide whether to activate the boot ROM integrated with the onboard LAN chip. (Default: Disabled)

☞ **Onboard Serial Port 1**

Enables or disables the first serial port and specifies its base I/O address and corresponding interrupt. Options are: Auto, 3F8/IRQ4 (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled.

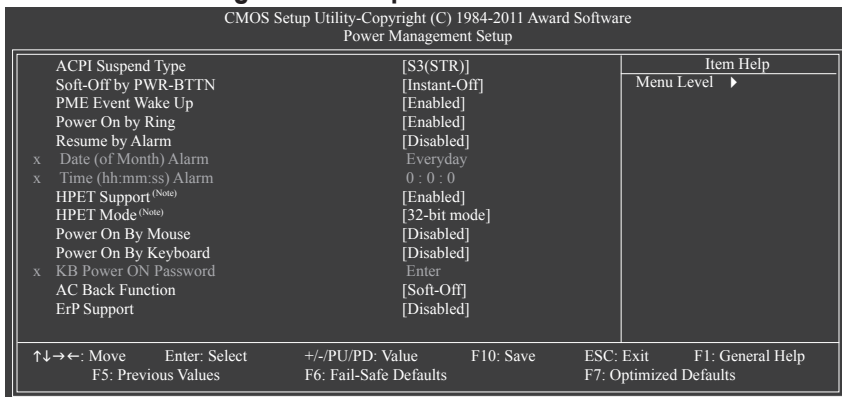
☞ **Onboard Parallel Port**

Enables or disables the onboard parallel port (LPT) and specifies its base I/O address and corresponding interrupt. Options are: 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7, Disabled.

☞ **Parallel Port Mode**

Selects an operating mode for the onboard parallel (LPT) port. Options are: SPP (Standard Parallel Port) (default), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port), ECP+EPP.

## 2-7 Power Management Setup



(Note) Supported on Windows 7/Vista operating system only.

### ☞ **ACPI Suspend Type**

Specifies the ACPI sleep state when the system enters suspend.

- ▶▶ S1(POS) Enables the system to enter the ACPI S1 (Power on Suspend) sleep state. In S1 sleep state, the system appears suspended and stays in a low power mode. The system can be resumed at any time.
- ▶▶ S3(STR) Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state (default). In S3 sleep state, the system appears to be off and consumes less power than in the S1 state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

### ☞ **Soft-Off by PWR-BTTN**

Configures the way to turn off the computer in MS-DOS mode using the power button.

- ▶▶ Instant-Off Press the power button and then the system will be turned off instantly. (Default)
- ▶▶ Delay 4 Sec. Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode.

### ☞ **PME Event Wake Up**

Allows the system to be awakened from an ACPI sleep state by a wake-up signal from a PCI or PCIe device. Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead. (Default: Enabled)

### ☞ **Power On by Ring**

Allows the system to be awakened from an ACPI sleep state by a wake-up signal from a modem that supports wake-up function. (Default: Enabled)

### ☞ **Resume by Alarm**

Determines whether to power on the system at a desired time. (Default: Disabled)

If enabled, set the date and time as following:

- ▶▶ Date (of Month) Alarm: Turn on the system at a specific time on each day or on a specific day in a month.
- ▶▶ Time (hh: mm: ss) Alarm: Set the time at which the system will be powered on automatically.

Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective.

### ☞ **HPET Support** <sup>(Note)</sup>

Enables or disables High Precision Event Timer (HPET) for Windows 7/Vista operating system. (Default: Enabled)

### ☞ **HPET Mode** <sup>(Note)</sup>

Allows you to select the HPET mode for your Windows 7/Vista operating system. Select **32-bit mode** when you install 32-bit Windows 7/Vista; select **64-bit mode** when you install 64-bit Windows 7/Vista. This item is configurable only when the **HPET Support** is set to **Enabled**. (Default: 32-bit mode)

### ☞ **Power On By Mouse**

Allows the system to be turned on by a PS/2 mouse wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.

- ▶▶ Disabled Disables this function. (Default)
- ▶▶ Double Click Double click on left button on the PS/2 mouse to turn on the system.

### ☞ **Power On By Keyboard**

Allows the system to be turned on by a PS/2 keyboard wake-up event.

Note: you need an ATX power supply providing at least 1A on the +5VSB lead.

- ▶▶ Disabled Disables this function. (Default)
- ▶▶ Password Set a password with 1~5 characters to turn on the system.
- ▶▶ Keyboard 98 Press POWER button on the Windows 98 keyboard to turn on the system.

(Note) Supported on Windows 7/Vista operating system only.

### KB Power ON Password

Set the password when **Power On by Keyboard** is set to **Password**. Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept. To turn on the system, enter the password and press <Enter>.

Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

### AC Back Function

Determines the state of the system after the return of power from an AC power loss.

- ▶▶ Soft-Off           The system stays off upon the return of the AC power. (Default)
- ▶▶ Full-On            The system is turned on upon the return of the AC power.
- ▶▶ Memory            The system returns to its last known awake state upon the return of the AC power.

### ErP Support

Determines whether to let the system consume less than 1W power in S5 (shutdown) state. (Default: Disabled)

Note: When this item is set to **Enabled**, the following four functions will become unavailable:

PME event wake up, power on by mouse, power on by keyboard, and wake on LAN.

## 2-8 PC Health Status

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		
PC Health Status		
Reset Case Open Status	[Disabled]	Item Help
Case Opened	No	Menu Level ▶
Vcore	1.200V	
DDR15V	1.516V	
+12V	11.779V	
Vtt	1.076V	
Current System Temperature	35°C	
Current CPU Temperature	36°C	
Current CPU FAN Speed	2039 RPM	
Current SYSTEM FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	
CPU Smart FAN Control	[Normal]	
x Slope PWM	1.75 PWM value /°C	
CPU Smart FAN Mode	[Auto]	

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

### Reset Case Open Status

Keeps or clears the record of previous chassis intrusion status. **Enabled** clears the record of previous chassis intrusion status and the **Case Opened** field will show "No" at next boot. (Default: Disabled)

### Case Opened

Displays the detection status of the chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will show "No". To clear the chassis intrusion status record, set **Reset Case Open Status** to **Enabled**, save the settings to the CMOS, and then restart your system.

### Current Voltage(V) Vcore/DDR15V/+12V/Vtt

Displays the current system voltages.

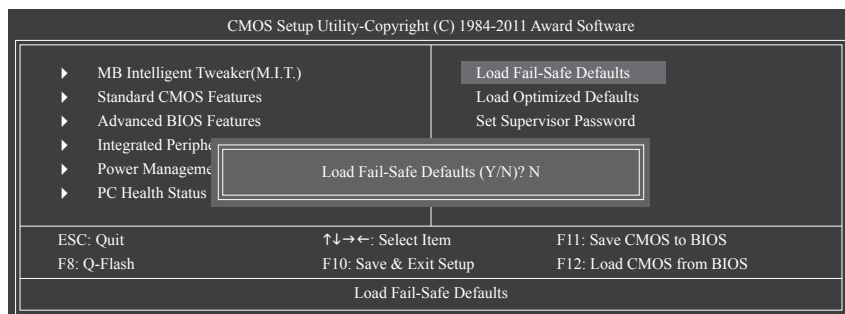
### Current System/CPU Temperature

Displays current system/CPU temperature.

- ☞ **Current CPU/SYSTEM FAN Speed (RPM)**  
Displays current CPU/system fan speed.
- ☞ **CPU Warning Temperature**  
Sets the warning threshold for CPU temperature. When CPU temperature exceeds the threshold, BIOS will emit warning sound. Options are: Disabled (default), 60°C/140°F, 70°C/158°F, 80°C/176°F, 90°C/194°F.
- ☞ **CPU/SYSTEM FAN Fail Warning**  
Allows the system to emit warning sound if the CPU/system fan is not connected or fails. Check the fan condition or fan connection when this occurs. (Default: Disabled)
- ☞ **CPU Smart FAN Control**  
Allows you to determine whether to enable the CPU fan speed control function and adjust the fan speed.
  - ▶▶ Normal Allows the CPU fan to run at different speeds according to the CPU temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
  - ▶▶ Silent Allows the CPU fan to run at slow speeds.
  - ▶▶ Manual Allows you to control the CPU fan speed under the **Slope PWM** item.
  - ▶▶ Disabled Allows the CPU fan to run at full speeds.
- ☞ **Slope PWM**  
Allows you to control the CPU fan speed. This item is configurable only when **CPU Smart FAN Control** is set to **Manual**. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.
- ☞ **CPU Smart FAN Mode**  
Specifies how to control CPU fan speed. This item is configurable only when **CPU Smart FAN Control** is enabled.
  - ▶▶ Auto Lets the BIOS automatically detect the type of CPU fan installed and sets the optimal CPU fan control mode. (Default)
  - ▶▶ Voltage Sets Voltage mode for a 3-pin CPU fan.
  - ▶▶ PWM Sets PWM mode for a 4-pin CPU fan.

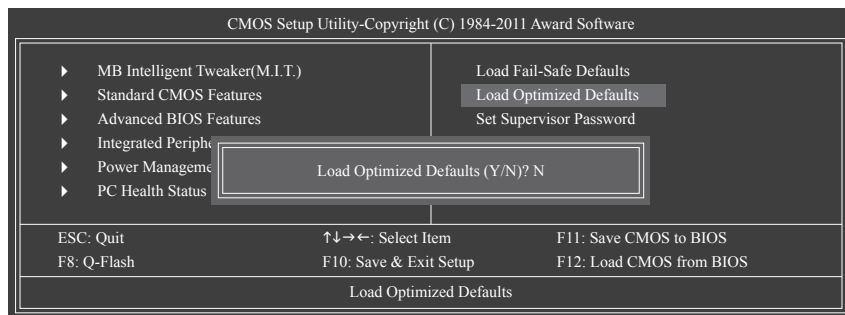
Note: The **Voltage** mode can be set for a 3-pin CPU fan or a 4-pin CPU fan. However, for a 4-pin CPU fan that is not designed following Intel PWM fan specifications, selecting **PWM** mode may not effectively reduce the fan speed.

## 2-9 Load Fail-Safe Defaults



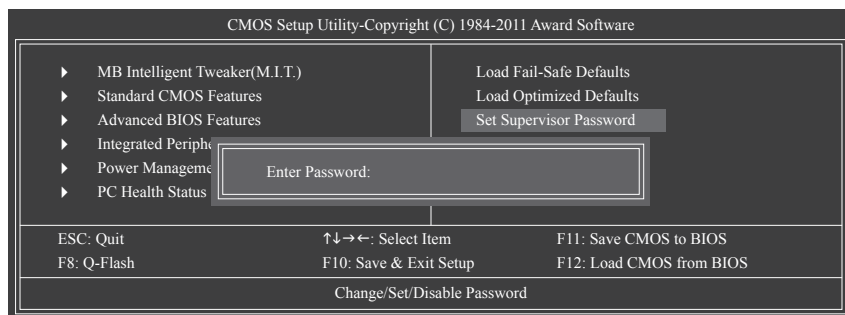
Press <Enter> on this item and then press the <Y> key to load the safest BIOS default settings. In case system instability occurs, you may try to load Fail-Safe defaults, which are the safest and most stable BIOS settings for the motherboard.

## 2-10 Load Optimized Defaults



Press <Enter> on this item and then press the <Y> key to load the optimal BIOS default settings. The BIOS default settings help the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.

## 2-11 Set Supervisor/User Password



Press <Enter> on this item and type the password with up to 8 characters and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>.

The BIOS Setup program allows you to specify two separate passwords:

### 🔑 Supervisor Password

When a system password is set and the **Password Check** item in **Advanced BIOS Features** is set to **Setup**, you must enter the supervisor password for entering BIOS Setup and making BIOS changes.

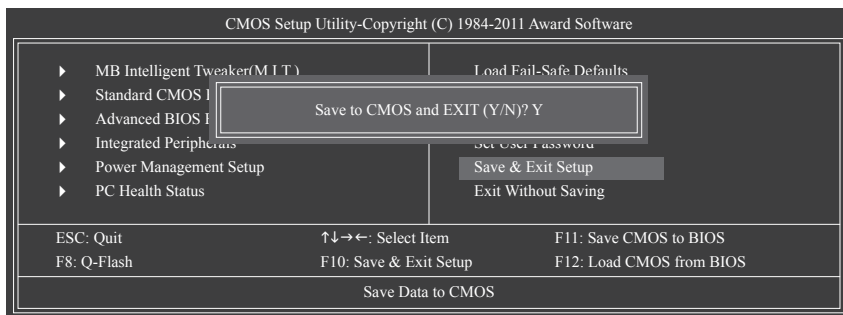
When the **Password Check** item is set to **System**, you must enter the supervisor password (or user password) at system startup and when entering BIOS Setup.

### 🔑 User Password

When the **Password Check** item is set to **System**, you must enter the supervisor password (or user password) at system startup to continue system boot. In BIOS Setup, you must enter the supervisor password if you wish to make changes to BIOS settings. The user password only allows you to view the BIOS settings but not to make changes.

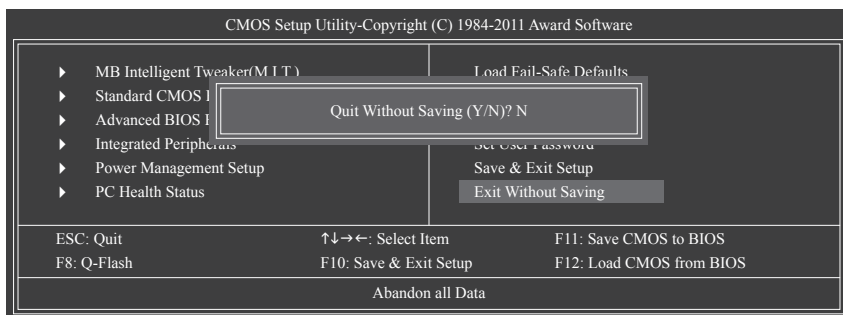
To clear the password, press <Enter> on the password item and when requested for the password, press <Enter> again. The message "PASSWORD DISABLED" will appear, indicating the password has been cancelled.

## 2-12 Save & Exit Setup



Press <Enter> on this item and press the <Y> key. This saves the changes to the CMOS and exits the BIOS Setup program. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

## 2-13 Exit Without Saving



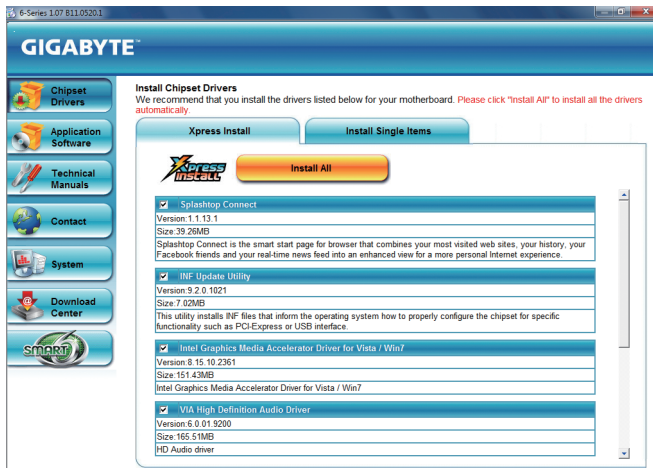
Press <Enter> on this item and press the <Y> key. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

## Chapter 3 Drivers Installation



- Before installing the drivers, first install the operating system.
- After installing the operating system, insert the motherboard driver disk into your optical drive. The driver Autorun screen is automatically displayed which looks like that shown in the screen shot below. (If the driver Autorun screen does not appear automatically, go to My Computer, double-click the optical drive and execute the **Run.exe** program.)

After inserting the driver disk, "Xpress Install" will automatically scan your system and then list all the drivers that are recommended to install. You can click the **Install All** button and "Xpress Install" will install all the recommended drivers. Or click **Install Single Items** to manually select the drivers you wish to install.















## Contact Us

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### GIGA-BYTE TECHNOLOGY CO., LTD.

Address: No.6, Bao Chiang Road, Hsin-Tien Dist., New Taipei City 231, Taiwan

TEL: +886-2-8912-4000, FAX: +886-2-8912-4003

Tech. and Non-Tech. Support (Sales/Marketing) : <http://ggts.gigabyte.com.tw>

WEB address (English): <http://www.gigabyte.com>

WEB address (Chinese): <http://www.gigabyte.tw>

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You may go to the GIGABYTE website, select your language in the language list on the top right corner of the website.

- **GIGABYTE Global Service System**



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<http://ggts.gigabyte.com.tw>

Then select your language to enter the system.