

# **GA-H61M-D2H**

# **GA-H61M-D2H-USB3**

## **User's Manual**

Rev. 1002

12ME-H61MD2H-1002R

## Declaration of Conformity

Ver. 1.0, March 2000, CE marking only

G.B.T. Technology Trading GmbH  
Bullenkoppel 16, 22047 Hamburg, Germany

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

Motherboard

GA-H61M-D2H/USB3

Is in conformity with  
(reference to the specification under which conformity is declared)

In accordance with the EMC Directive 2004/10/EC

EN 55011

Limits and methods of measurement of radio disturbance characteristics of industrial, scientific, and medical (ISM) high frequency equipment

EN 55013

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

EN 55014-1

Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus

EN 55015

Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires

EN 55020

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

EN 55022

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

DIN VDE 0855

Cabled distribution systems; Equipment for receiving and/or distributing sound and television signals part 10 part 12



(IEC conformity marking)

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with the EU Directive 2006/95/EC

EN 60065

Safety requirements for electric and related apparatus for household and similar electrical appliances

EN 60335

Electrical appliances

Manufacturer/importer

Signature: Tenny Huang

(Stamp)

Date: Sept. 9, 2011

Name: Jimmy 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: (626) 854-9338/(626) 854-9326

hereby declares that the product

Product Name: Motherboard

Model Number: GA-H61M-D2H/USB3

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 inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: ERIC LU

Date: Sept. 9, 2011

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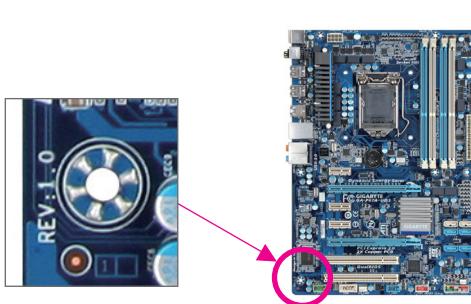
Changes to the specifications and features in this manual may be made by GIGABYTE without prior notice. No part of this manual may be reproduced, copied, translated, transmitted, or published in any form or by any means without GIGABYTE's prior written permission.

- 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.

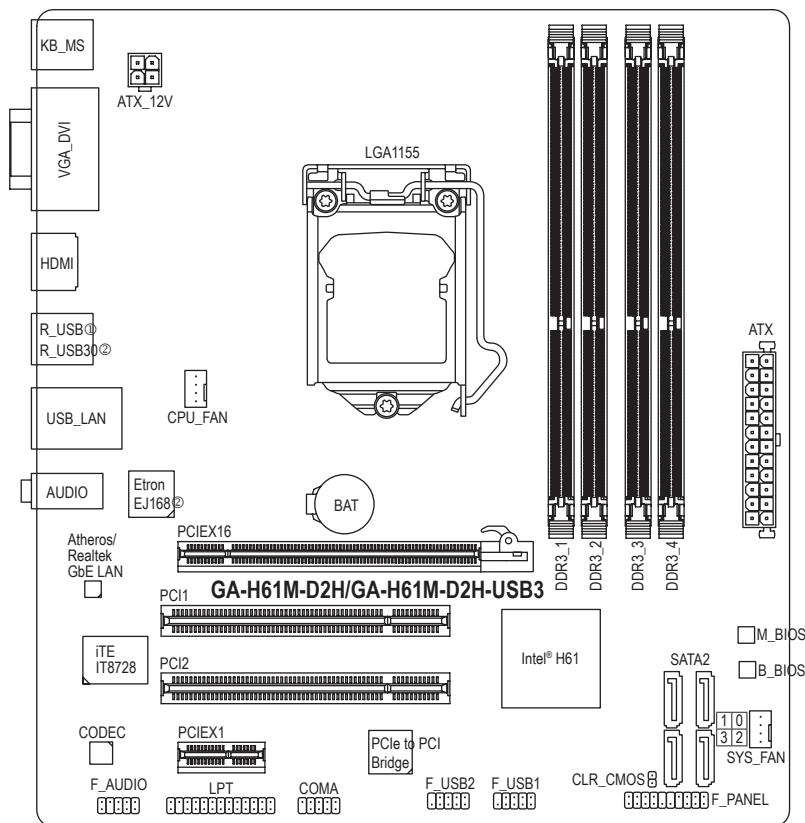
Example:



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# GA-H61M-D2H/GA-H61M-D2H-USB3 Motherboard Layout



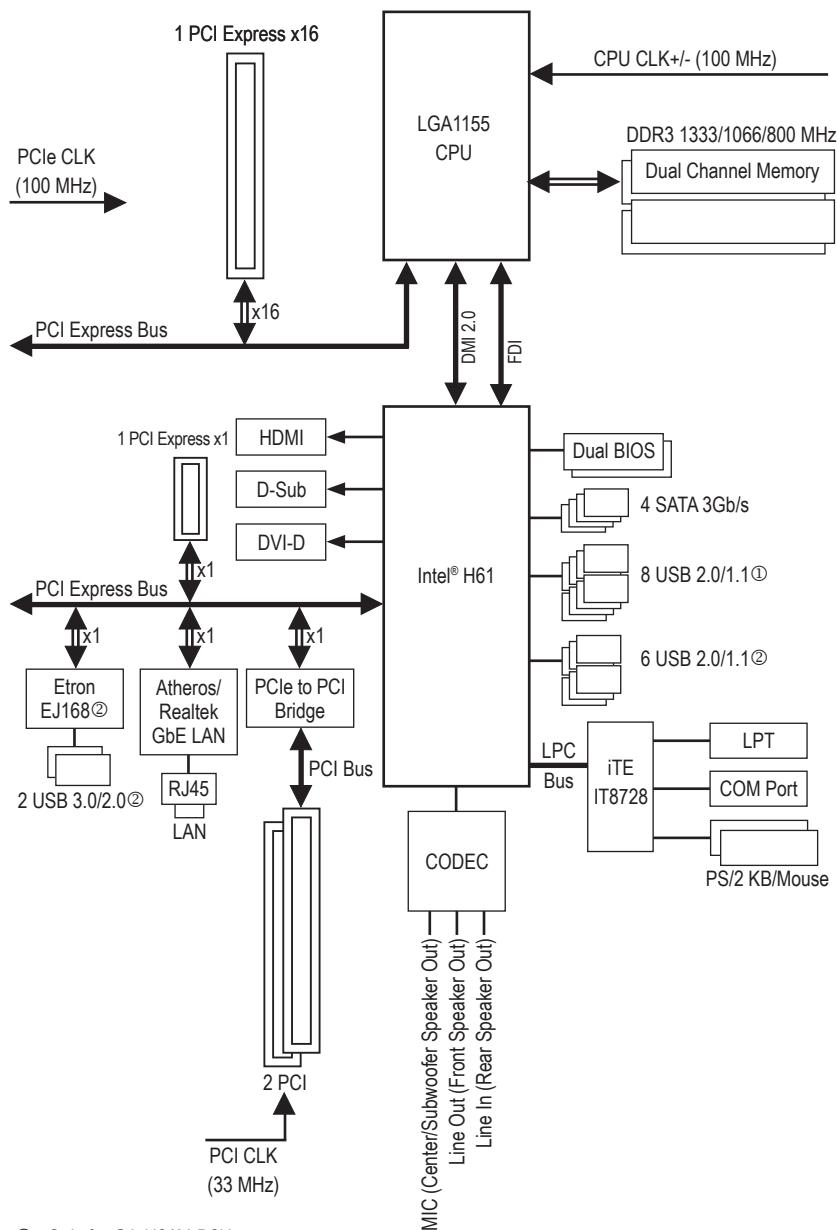
## Box Contents

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> GA-H61M-D2H or GA-H61M-D2H-USB3 motherboard | <input checked="" type="checkbox"/> Two SATA cables |
| <input checked="" type="checkbox"/> Motherboard driver disk                     | <input checked="" type="checkbox"/> I/O Shield      |
| <input checked="" type="checkbox"/> User's Manual                               |   |

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

- ① Only for GA-H61M-D2H.
- ② Only for GA-H61M-D2H-USB3.

## GA-H61M-D2H/GA-H61M-D2H-USB3 Motherboard Block Diagram



① Only for GA-H61M-D2H.

② Only for GA-H61M-D2H-USB3.

# **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>◆ 4 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 Graphics Processor:           <ul style="list-style-type: none"> <li>- 1 x D-Sub port</li> <li>- 1 x DVI-D port, supporting a maximum resolution of 1920x1200               <ul style="list-style-type: none"> <li>* The DVI-D port does not support D-Sub connection by adapter.</li> </ul> </li> <li>- 1 x HDMI port, supporting a maximum resolution of 1920x1200</li> </ul> </li> </ul>
 Audio	<ul style="list-style-type: none"> <li>◆ Realtek/VIA HD audio 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 GbE LAN 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>◆ 1 x PCI Express x1 slot (All PCI Express slots conform to PCI Express 2.0 standard.)</li> <li>◆ 2 x PCI slots</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) ①</li> <li>- Up to 6 USB 2.0/1.1 ports (2 ports on the back panel, 4 ports available through the internal USB headers) ②</li> </ul> </li> <li>◆ Etron EJ168 chip: ②</li> <li>◆ Up to 2 USB 3.0/2.0 ports on the back panel</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> </ul>

① Only for GA-H61M-D2H.

② Only for GA-H61M-D2H-USB3.

 Internal Connectors	<ul style="list-style-type: none"> <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 Clear CMOS jumper</li> </ul>
 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>◆ 1 x DVI-D port</li> <li>◆ 1 x HDMI port</li> <li>◆ 4 x USB 2.0/1.1 ports ①</li> <li>◆ 2 x USB 2.0/1.1 ports ②</li> <li>◆ 2 x USB 3.0/2.0 ports ②</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 TouchBIOS</li> <li>◆ Support for Q-Share</li> </ul>

① Only for GA-H61M-D2H.

② Only for GA-H61M-D2H-USB3.

 Bundled Software	◆ Norton Internet Security (OEM version)
 Operating System	◆ Support for Microsoft® Windows 7/Vista/XP
 Form Factor	◆ Micro ATX Form Factor; 24.4cm x 22.5cm

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

### 1-3 Installing the CPU

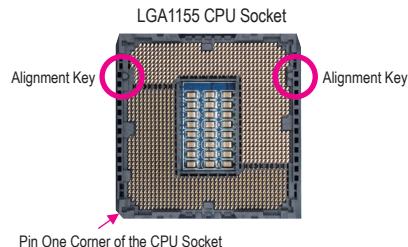
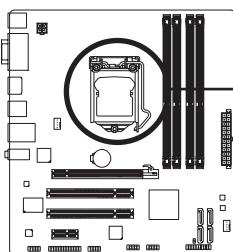


Read the following guidelines before you begin to install the CPU:

- 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.

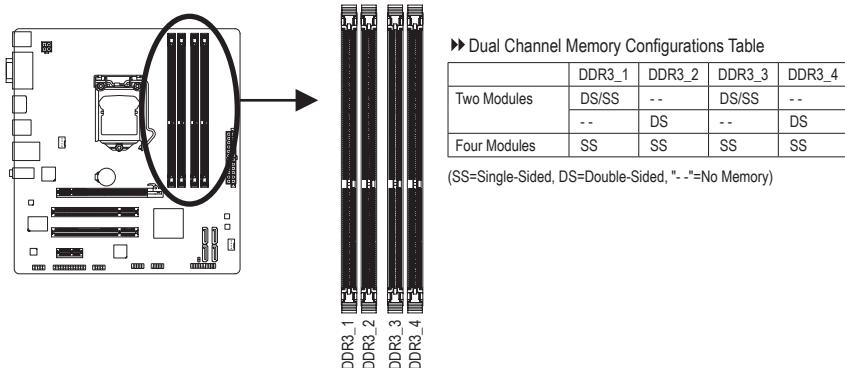
### Dual Channel Memory Configuration

This motherboard provides four 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 four DDR3 memory sockets are divided into two channels and each channel has one memory socket as following:

► Channel A: DDR3\_1, DDR3\_2

► Channel B: DDR3\_3, DDR3\_4



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.
  - If one or two single-sided memory modules are to be installed, be sure to install it/them in the DDR3\_1 socket or/and the DDR3\_3 socket. If three single-sided memory modules are to be installed, two of them must be installed in the DDR3\_1 and DDR3\_3 sockets. Due to a hardware limitation, if you have already installed two double-sided memory modules, any additional memory module will not be supported.
  - If four DDR3 1333 MHz memory modules are installed, the maximum memory speed will be limited to 1066 MHz.

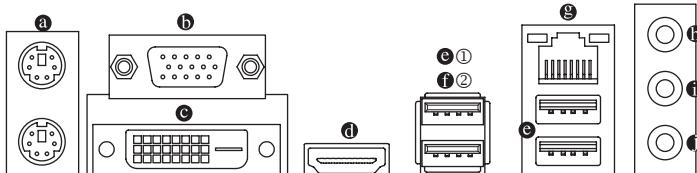
## 1-5 Installing an Expansion Card



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 DVI-D Port (Note)

The DVI-D port conforms to the DVI-D specification and supports a maximum resolution of 1920x1200 (the actual resolutions supported depend on the monitor being used). Connect a monitor that supports DVI-D connection to this port.

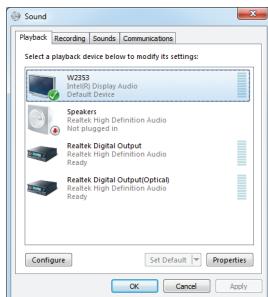
### d HDMI Port

HDMI (High-Definition Multimedia Interface) is an all-digital audio/video interface capable of transmitting uncompressed audio/video signals. The HDMI port is HDCP compliant and supports Dolby TrueHD and DTS HD Master Audio formats. It also supports up to 192KHz/24bit 8-channel LPCM audio output.

You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 1920x1200, but the actual resolutions supported are dependent on the monitor being used.



After installing the HDMI device, make sure the default device for sound playback is the HDMI device. (The item name may differ from operating system. Refer to the figure below for details.)



In Windows 7, select Start>Control Panel>Hardware and Sound>Sound>Playback, set **Intel(R) Display Audio** to the default playback device.

① Only for GA-H61M-D2H.

② Only for GA-H61M-D2H-USB3.

(Note) The DVI-D port does not support D-Sub connection by adapter.

### ④ USB 2.0/1.1 Port

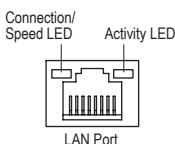
The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

### ⑤ USB 3.0/2.0 Port ②

The USB 3.0 port supports the USB 3.0 specification and is compatible to 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.

### ⑥ 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:

State	Description
Orange	1 Gbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

Activity LED:

State	Description
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

### ⑦ Line In Jack (Blue)

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

### ⑧ 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.

### ⑨ Mic In Jack (Pink)

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



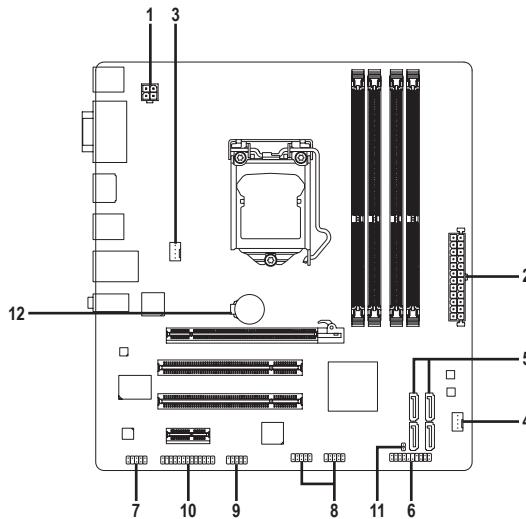
To configure 7.1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.

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- 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	7)	F_AUDIO
2)	ATX	8)	F_USB1/2
3)	CPU_FAN	9)	COMA
4)	SYS_FAN	10)	LPT
5)	SATA2 0/1/2/3	11)	CLR_CMOS
6)	F_PANEL	12)	BAT

Read the following guidelines before connecting external devices:



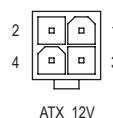
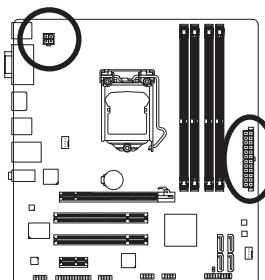
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the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

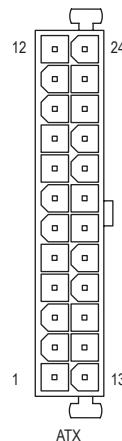


To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.



ATX\_12V:

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

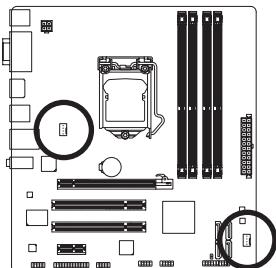


ATX:

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
3	Sense
4	Speed Control



SYS\_FAN:

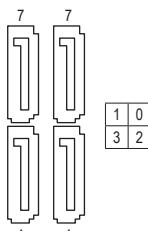
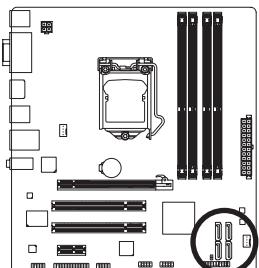
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Reserve



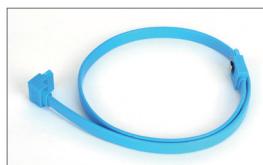
- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

### 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.



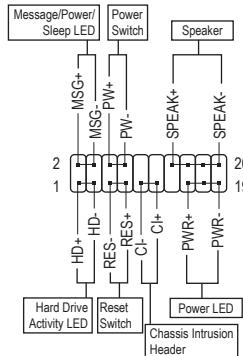
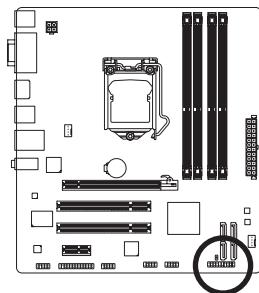
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



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.

- **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.

- **CI (Chassis Intrusion Header):**

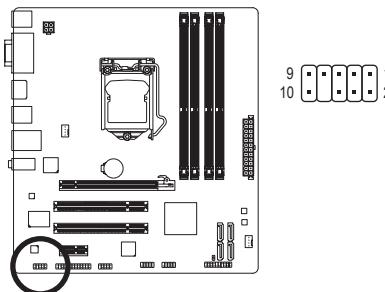
Connects to the chassis intrusion switch/sensor on the chassis that can detect if the chassis cover has been removed. This function requires a chassis with a chassis intrusion switch/sensor.



The 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.



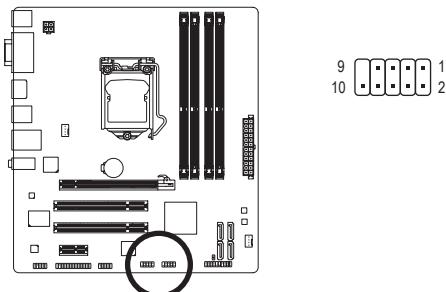
For HD Front Panel Audio:		For AC97 Front Panel Audio:	
Pin No.	Definition	Pin No.	Definition
1	MIC2_L	1	MIC
2	GND	2	GND
3	MIC2_R	3	MIC Power
4	-ACZ_DET	4	NC
5	LINE2_R	5	Line Out (R)
6	GND	6	NC
7	FAUDIO_JD	7	NC
8	No Pin	8	No Pin
9	LINE2_L	9	Line Out (L)
10	GND	10	NC



- 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.



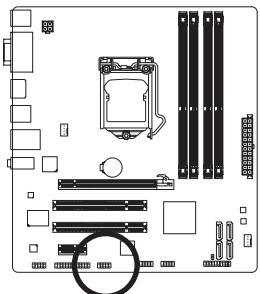
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC



- 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.

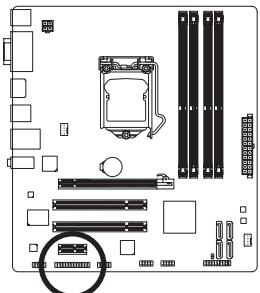


9 10 1 2

Pin No.	Definition
1	NDCD-
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.

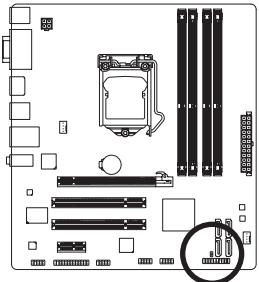


25 26 1 2

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) CLR\_CMOS (Clear 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, use a metal object like a screwdriver to touch the two pins for a few seconds.



 Open: Normal

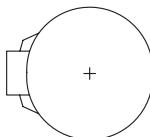
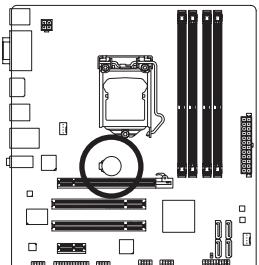
 Short: Clear CMOS Values



- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After 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).

## 12) 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.)

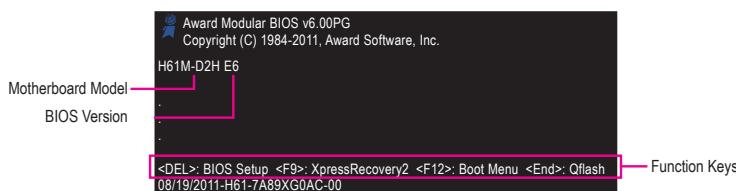
### 2-1 Startup Screen

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: GA-H61M-D2H E6)

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		
► MB Intelligent Tweaker(M.I.T.)		Load Fail-Safe Defaults
► Standard CMOS Features		Load Optimized Defaults
► Advanced BIOS Features		Set Supervisor Password
► Integrated Peripherals		Set User Password
► Power Management Setup		Save & Exit Setup
► PC Health Status		Exit Without Saving
ESC: Quit	↑↓→←: Select Item	F11: Save CMOS to BIOS
F8: Q-Flash	F10: Save & Exit Setup	F12: Load CMOS from BIOS
Change CPU's Clock & Voltage		



- 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.)

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	E6	
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	+/-PU/PD: Value	F10: Save
F5: Previous Values	F6: Fail-Safe Defaults	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	E6	
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	+/-PU/PD: Value	F10: Save
F5: Previous Values	F6: Fail-Safe Defaults	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			
CPU Clock Ratio	[31X]		Item Help
CPU Frequency	3.10GHz (100x31)		Menu Level ►
► Advanced CPU Core Features	[Press Enter]		
>>>> Standard Clock Control			
BCLK/DMI/PEG Clock Control	[Disabled]		
x BCLK/DMI/PEG Frequency(0.1MHz)	1000	100.0MHz	
System Memory Multiplier (SPD)	[Auto]		
Memory Frequency (Mhz)	1333	1333	
Internal Graphics Clock	1100	[Auto]	
↑↓↔: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults			

## ► Advanced CPU Core Features

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software Advanced CPU Core Features			
CPU Clock Ratio	[31X]		Item Help
CPU Frequency	3.10GHz (100x31)		Menu Level ►
Intel(R) Turbo Boost Tech. (Note)	[Auto]		
-Turbo Ratio(1-Core)(Note)	34	Auto	
-Turbo Ratio(2-Core)(Note)	33	Auto	
-Turbo Ratio(3-Core)(Note)	33	Auto	
-Turbo Ratio(4-Core)(Note)	32	Auto	
-Turbo Power Limit(Watts)	95	[Auto]	
-Core Current Limit(Amps)	97	[Auto]	
CPU Cores Enabled (Note)	[All]		
CPU Multi-Threading (Note)	[Enabled]		
CPU Enhanced Halt (C1E) (Note)	[Auto]		
C3/C6 State Support (Note)	[Auto]		
CPU Thermal Monitor (Note)	[Auto]		
CPU EIST Function (Note)	[Auto]		
Bi-Directional PROCHOT (Note)	[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 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.** (Note)  
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)** (Note)  
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** (Note)  
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** (Note)  
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)** (Note)  
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** (Note)  
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** (Note)  
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** (Note)  
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** (Note)
  - » 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**
- ☞ **BCLK/DMI/PEG Clock Control**

Enables or disables the control of CPU base clock and DMI/PCIe bus frequency. **Enabled** will allow the **BCLK/DMI/PEG Frequency(0.1MHz)** item below to be configurable. Note: If your system fails to boot after overclocking, please wait for 20 seconds to allow for automated system reboot, or clear the CMOS values to reset the board to default values. (Default: Disabled)
- ☞ **BCLK/DMI/PEG Frequency(0.1MHz)**

Allows you to manually set the CPU base clock and DMI/PCIe bus frequency. The adjustable range is from 800 MHz to 2000 MHz. This item is configurable only when the **BCLK/DMI/PEG Clock Control** option is enabled.

**Important:** It is highly recommended that the CPU frequency be set in accordance with the CPU specifications.
- ☞ **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 **BCLK/DMI/PEG Frequency(0.1MHz)** and **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)

(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.

## ► Advanced Memory Settings

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software			
Advanced Memory Settings			
			Item Help
System Memory Multiplier	(SPD)	[Auto]	Menu Level ►►
Memory Frequency (Mhz)	1333	1333	
Performance Enhance		[Turbo]	
DRAM Timing Selectable	(SPD)	[Auto]	
Profile DDR Voltage		1.5V	
Profile VTT Voltage		1.05V	
x Channel Interleaving		Auto	
x Rank Interleaving		Auto	
>>>> Channel A			
► Channel A Timing Settings		[Press Enter]	
>>>> Channel B			
► Channel B Timing Settings		[Press Enter]	

↑↓↔: Move      Enter: Select  
F5: Previous Values

+/-PU/PD: Value      F10: Save  
F6: Fail-Safe Defaults

ESC: Exit      F1: General Help  
F7: Optimized Defaults

### ☞ 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.

### ☞ 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

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software  
Channel A Timing Settings

>>>> Channel A Standard Timing Control				Item Help
x CAS Latency Time	9	Auto		Menu Level ►►
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

***** Mother Board Voltage Control *****			Item Help	
Voltage Types	Normal	Current	Menu Level	▶▶
>>> CPU				
Dynamic Vcore(DVID)	+0.000V	[Auto]		
QPI/Vtt Voltage	1.050V	[Auto]		
Graphics DVID	+0.000V	[Auto]		
>>> MCH/ICH				
PCH Core	1.050V	[Auto]		
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.
- ☞ **Graphics DVID**  
The default is Auto.
- >>> **MCH/ICH**
- ☞ **PCH Core**  
The default is Auto.
- ☞ **DRAM Voltage**  
The default is Auto.

## ► Miscellaneous Settings

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software Miscellaneous Settings			
Isochronous Support	[Enabled]	Item Help	
Virtualization Technology <sup>(Note)</sup>	[Enabled]	Menu Level ►	
↑↓←→: Move	Enter: Select	+/-PU/PD: Value	F10: Save
F5: Previous Values		F6: Fail-Safe Defaults	ESC: Exit F1: General Help
			F7: Optimized Defaults

### ☞ 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

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software Standard CMOS Features			
Date (mm:dd:yy)	Fri, Aug 19 2011	Item Help	
Time (hh:mm:ss)	22:31:24	Menu Level ►	
► IDE Channel 0 Master	[None]		
► IDE Channel 1 Master	[None]		
► IDE Channel 2 Master	[None]		
► IDE Channel 3 Master	[None]		
Halt On	[All, But Keyboard]		
Base Memory	640K		
Extended Memory	941M		
Total Memory	950M		
↑↓←→: Move	Enter: Select	+/-PU/PD: Value	F10: Save
F5: Previous Values		F6: Fail-Safe Defaults	ESC: Exit F1: General Help
			F7: Optimized Defaults

### ☞ 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

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		
Advanced BIOS Features		
► Hard Disk Boot Priority	[Press Enter]	Item Help
Quick Boot	[Disabled]	Menu Level ▶
EFI CD/DVD Boot Option	[Auto]	
First Boot Device	[Hard Disk]	
Second Boot Device	[CDROM]	
Third Boot Device	[USB-FDD]	
Password Check	[Setup]	
HDD S.M.A.R.T. Capability	[Disabled]	
Limit CPUID Max. to 3 <sup>(Note)</sup>	[Disabled]	
No-Execute Memory Protect <sup>(Note)</sup>	[Enabled]	
Delay For HDD (Secs)	[0]	
Full Screen LOGO Show	[Enabled]	
Init Display First	[PCIE x16]	
Onboard VGA	[Enable If No Ext PEG]	
On-Chip Frame Buffer Size	[64MB+2MB for GTT]	
↑↓←→: Move	Enter: Select	+/-PU/PD: Value
F5: Previous Values		F10: Save
		ESC: Exit
		F1: General Help
		F7: Optimized Defaults

## ☞ 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.

## ☞ 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)

(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.

- ☞ **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** (Note)  
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** (Note)  
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 graphics card, PCI Express graphics card, or the onboard graphics.
    - **PCI** Sets the PCI graphics card as the first display.
    - **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)
  - ☞ **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**.
- (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.

#### ☞ 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

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		
Integrated Peripherals		
		Item Help
SATA AHCI Mode	[IDE]	Menu Level ►
SATA Port0-1 Native Mode	[Enabled]	
USB Controllers	[Enabled]	
USB Legacy Function	[Enabled]	
USB Storage Function	[Enabled]	
Azalia Codec	[Auto]	
Onboard H/W LAN	[Enabled]	
SMART LAN	[Press Enter]	
Onboard LAN Boot ROM	[Disabled]	
Onboard USB3.0 Controller ②	[Enabled]	
Onboard Serial Port 1	[2F8/IRQ3]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	

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

#### ☞ 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**.

- ② Only for GA-H61M-D2H-USB3.

### 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)

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		SMART LAN	
Start detecting at Port.....		Item Help	
Part1-2 Status = Open / Length = 0m		Menu Level ►	
Part3-6 Status = Open / Length = 0m			
Part4-5 Status = Open / Length = 0m			
Part7-8 Status = Open / Length = 0m			
↑↓←→: Move	Enter: Select	+/-PU/PD: Value	F10: Save
F5: Previous Values		F6: Fail-Safe Defaults	ESC: Exit
			F1: General Help
			F7: Optimized Defaults

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 USB3.0 Controller (Etron EJ168 USB Controller) ②

Enables or disables the Etron EJ168 USB controller. (Default: Enabled)

### 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, 2F8/IRQ3 (default), 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 Only for GA-H61M-D2H-USB3.

## 2-7 Power Management Setup

CMOS Setup Utility-Copyright (C) 1984-2011 Award Software		Power Management Setup	
ACPI Suspend Type		[S3(STR)]	Item Help
Soft-Off by PWR-BTTN		[Instant-Off]	Menu Level ►
PME Event Wake Up		[Enabled]	
Power On by Ring		[Enabled]	
Resume by Alarm		[Disabled]	
x Date (of Month) Alarm		Everyday	
x Time (hh:mm:ss) Alarm		0 : 0 : 0	
HPET Support <sup>(Note)</sup>		[Enabled]	
HPET Mode <sup>(Note)</sup>		[32-bit mode]	
Power On By Mouse		[Disabled]	
Power On By Keyboard		[Disabled]	
x KB Power ON Password		Enter	
AC Back Function		[Soft-Off]	
ErP Support		[Disabled]	
↑↓←→: Move	Enter: Select	+/-PU/PD: Value	F10: Save
F5: Previous Values		F6: Fail-Safe Defaults	ESC: Exit
			F1: General Help
			F7: Optimized Defaults

(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

		Item Help
Reset Case Open Status	[Disabled]	Menu Level ▶
Case Opened	No	
Vcore	1.200V	
DDR15V	1.516V	
+12V	11.779V	
Vcc	3.478V	
Vtt	1.076V	
Current System Temperature	35°C	
Current CPU Temperature	36°C	
Current CPU FAN Speed	1973 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	

↑↓→←: Move    Enter: Select

F5: Previous Values

+/-PU/PD: Value

F6: Fail-Safe Defaults

F10: Save

ESC: Exit

F1: General Help

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/Vcc/Vtt

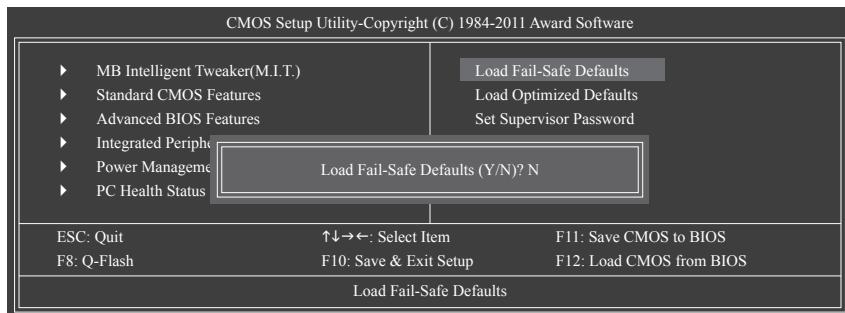
Displays the current system voltages.

### ☞ 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.

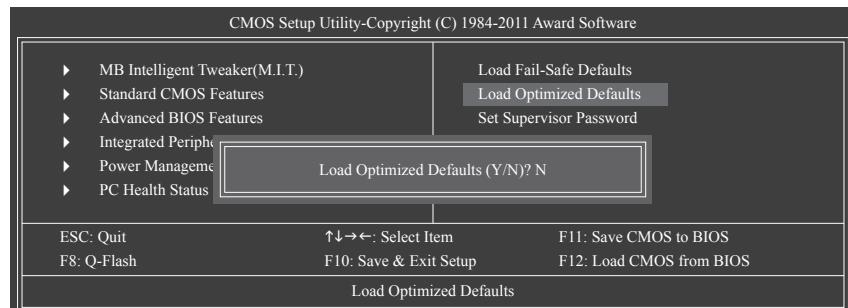
## 2-9 Load Fail-Safe Defaults



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.

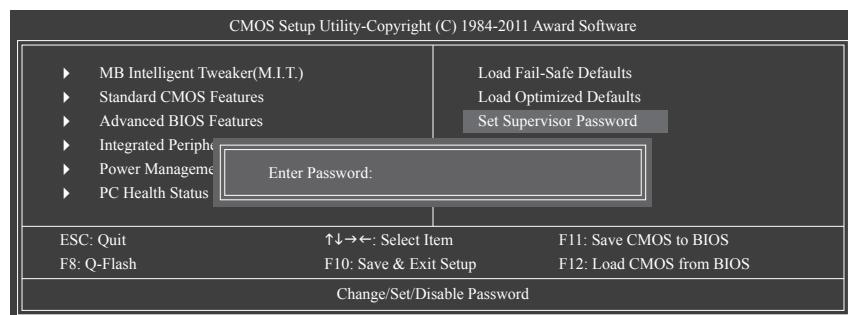
## 2-10 Load Optimized Defaults



Press <Enter> on this item and then press the <Y> key to load the optimal BIOS default settings.

The BIOS defaults 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.

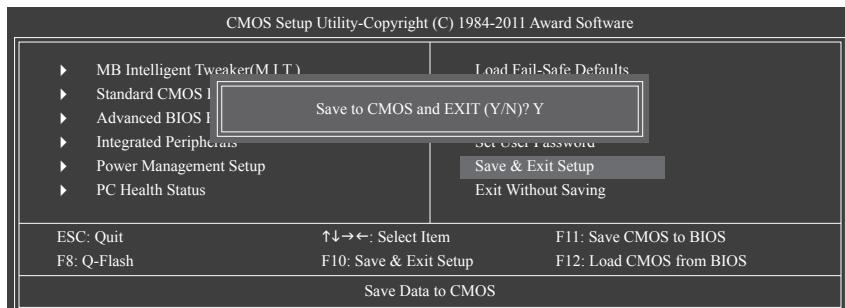
When the **Password Check** item is set to **System**, you must enter the supervisor password (or user password) at system startup and when entering BIOS Setup.

### ☞ 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.

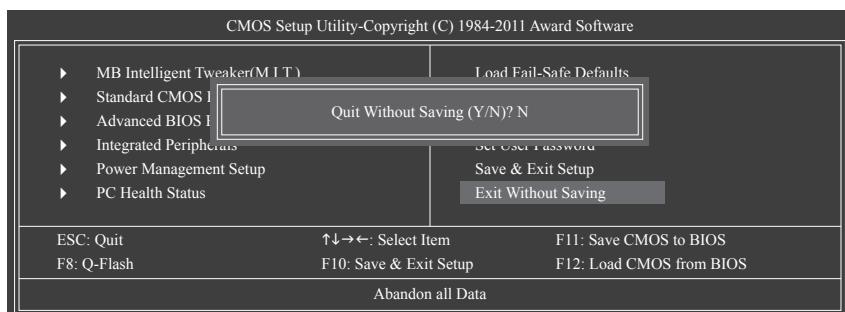
To clear the password, press <Enter> on the password item and when requested for the password, press <Enter> again. The message "PASSWORD DISABLED" will appear, indicating the password has been cancelled.

## 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



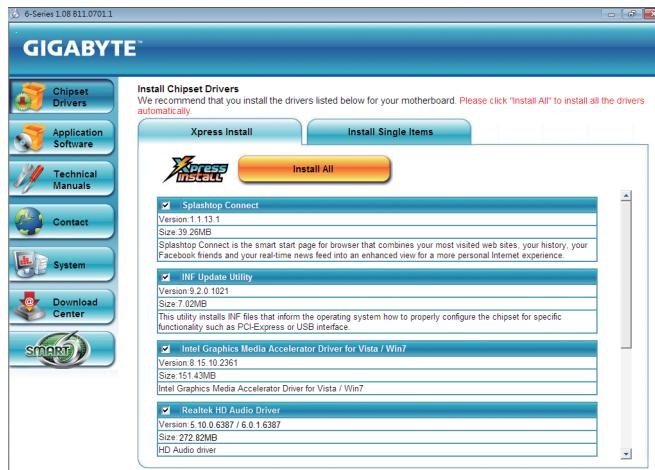
Press <Enter> on this item and press the <Y> key. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

## 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.



# Regulatory Statements

## **Regulatory Notices**

This document must not be copied without our written permission, and the contents thereof must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

## **Our Commitment to Preserving the Environment**

In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

### **Restriction of Hazardous Substances (RoHS) Directive Statement**

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

### **Waste Electrical & Electronic Equipment (WEEE) Directive Statement**

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

### **WEEE Symbol Statement**



The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.

The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- ◆ When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- ◆ If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.



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## Contact Us

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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**



To submit a technical or non-technical (Sales/Marketing) question, please link to:  
<http://ggts.gigabyte.com.tw>  
Then select your language to enter the system.