# GA-C1037UN-EU

User's Manual

Rev. 2001

12ME-C1037EU-2001R

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■ 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:
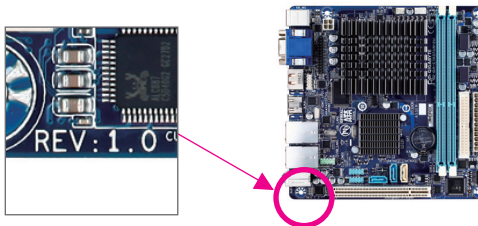
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GA-C1037UN-EU Motherboard Layout

Box Contents

- ☑ GA-C1037UN-EU motherboard
- ☑ Motherboard driver disk   ☑ Two SATA cables
- ☑ User's Manual   ☑ I/O Shield

The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.

GA-C1037UN-EU Motherboard Block Diagram

CPU CLK+/- (100 MHz)

Intel®
Celeron®
1037U CPU

DDR3 1600/1333 MHz

Dual Channel Memory

DMI

LAN

RJ45

Realtek®
GbE LAN

LAN

RJ45

Realtek®
GbE LAN

PCIe CLK
(100 MHz)

PCI Express Bus

x1

x1

x1

Intel® NM70

HDMI

D-Sub

Dual BIOS

3 SATA 3Gb/s

1 SATA 6Gb/s

8 USB 2.0/1.1

PCIe to PCI
Bridge

iTE®
Super
I/O

LPT

COM

LPC Bus

1 PCI

CODEC

PS/2 KB/Mouse

PCI CLK
(33 MHz)

MIC (Center/Subwoofer
Speaker Out)

Line-Out (Front Speaker Out)

Line-In (Rear Speaker Out)

For detailed product information/limitation(s), refer to "1-2 Product Specifications."

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, make sure the chassis is suitable for the motherboard.
- 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	◆	Built in with an Intel® Dual-core Celeron® 1037U processor (1.8 GHz)
		* Do not disassemble the onboard CPU/chipset and the heatsinks by yourself to avoid damage to these components.
	◆	2 MB L3 cache
Chipset	◆	Intel® NM70 Chipset
Memory	◆	2 x DDR3 DIMM sockets supporting up to 16 GB of system memory
		* Due to a 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 the size of the physical memory installed.
	◆	Dual channel memory architecture
	◆	Support for DDR3 1600/1333 MHz memory modules
		(Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
Onboard Graphics	◆	Integrated Graphics Processor:
		- 1 x D-Sub port
		- 1 x HDMI port, supporting a maximum resolution of 1920x1200
		* Support for HDMI 1.4 version.
		- Maximum shared memory of 1 GB
Audio	◆	Realtek® ALC887 codec
	◆	High Definition Audio
	◆	2/4/5.1/7.1-channel
		* 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.
LAN	◆	2 x Realtek® GbE LAN chips (10/100/1000 Mbit)
		* Teaming is not supported.
Expansion Slots	◆	1 x PCI slot
Storage Interface	◆	Chipset:
		- 1 x SATA 6Gb/s connector (SATA3 0)
		- 2 x SATA 3Gb/s connectors (SATA2 1~2)
		- 1 x eSATA 3Gb/s connector on the back panel
USB	◆	Chipset:
		- 8 x USB 2.0/1.1 ports (4 ports on the back panel, 4 ports available through the internal USB headers)
Internal Connectors	◆	1 x 24-pin ATX main power connector
	◆	1 x 4-pin ATX 12V power connector
	◆	1 x SATA 6Gb/s connector
	◆	2 x SATA 3Gb/s connectors
	◆	1 x CPU fan header
	◆	1 x system fan header
	◆	1 x front panel header
	◆	1 x front panel audio header
	◆	2 x USB 2.0/1.1 headers
	◆	1 x parallel port header

Internal Connectors	◆ 1 x serial port header ◆ 1 x Clear CMOS jumper ◆ 1 x chassis intrusion header
Back Panel Connectors	◆ 1 x PS/2 keyboard port ◆ 1 x PS/2 mouse port ◆ 1 x D-Sub port ◆ 1 x serial port ◆ 1 x HDMI port ◆ 4 x USB 2.0/1.1 ports ◆ 1 x eSATA 3Gb/s connector ◆ 2 x RJ-45 ports ◆ 3 x audio jacks (Line In, Line Out, Mic In)
I/O Controller	◆ iTE® I/O Controller Chip

Hardware Monitor	◆ System voltage detection
	◆ CPU/System temperature detection
	◆ CPU/System fan speed detection
	    * Whether the fan speed detect function is supported will depend on the cooler you install.
	◆ System fan speed control
	    * Whether the fan speed control function is supported will depend on the cooler you install.

BIOS	◆ 2 x 32 Mbit flash ◆ Use of licensed AMI UEFI BIOS ◆ Support for DualBIOS™ ◆ PnP 1.0a, DMI 2.0, SM BIOS 2.6, ACPI 2.0a
Unique Features	◆ Support for @BIOS ◆ Support for Q-Flash ◆ Support for Xpress Install ◆ Support for EasyTune * Available functions in EasyTune may differ by motherboard model. ◆ Support for Smart Recovery 2 ◆ Support for Auto Green ◆ Support for ON/OFF Charge
Bundled Software	◆ Norton® Internet Security (OEM version) ◆ Intel® Smart Connect Technology
Operating System	◆ Support for Windows 8.1/8/7/XP
Form Factor	◆ Mini-ITX Form Factor; 17.0cm x 17.0cm

* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.
* Please visit the **Support & Downloads\Utility** page on GIGABYTE's website to check the supported operating system(s) for the software listed in the "Unique Features" and "Bundled Software" columns.

1-3 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.

1-4 Back Panel Connectors
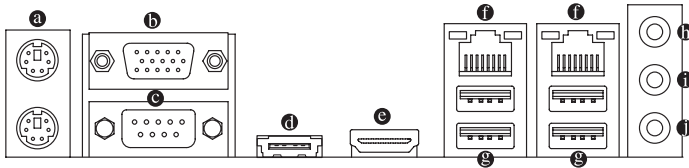
ⓐ **PS/2 Keyboard/Mouse Port**

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

ⓑ **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.

ⓒ **Serial Port**

Use the serial port to connect devices such as a mouse, modem or other peripherals.

ⓓ **eSATA 3Gb/s Port**

The eSATA 3Gb/s port conforms to SATA 3Gb/s standard and is compatible with SATA 1.5Gb/s standard.

ⓔ **HDMI Port**

The HDMI port is HDCP compliant and supports Dolby True HD 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 to set the default sound playback device to HDMI. (The item name may differ from operating system.)

Dual Display Configurations for the Onboard Graphics:

Dual-display configurations are supported in operating system environment only, but not during the BIOS Setup or POST process.

- **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

LAN Port

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

- **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.

- **Line In Jack (Blue)**

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

- **Line Out Jack (Green)**

    The 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.

- **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.

1-5   Internal Connectors
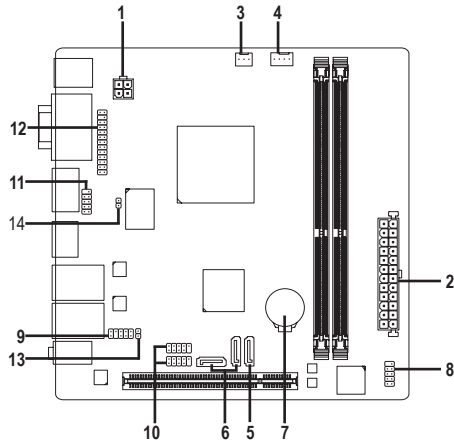
1)	ATX_12V	8)	F_PANEL
2)	ATX	9)	F_AUDIO
3)	CPU_FAN	10)	F_USB1/F_USB2
4)	SYS_FAN	11)	COMB
5)	SATA3 0	12)	LPT
6)	SATA2 1/2	13)	CLR_CMOS
7)	BAT	14)	CI

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.
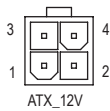
ATX_12V:

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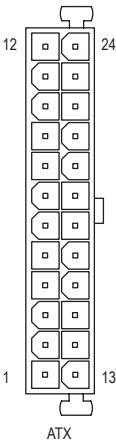
ATX:

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 3-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 speed control function requires the use of a fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.
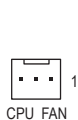
CPU_FAN:

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

SYS_FAN:

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

- 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) SATA3 0 (SATA 6Gb/s)

The SATA connector conforms to SATA 6Gb/s standard and is compatible with SATA 3Gb/s and SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device.

SATA3 0
1
7

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

6) SATA2 1/2 (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.

SATA2
2 1
7   1
1
7
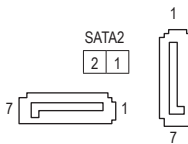
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

7) 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.

+
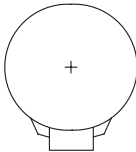
You may clear the CMOS values by removing the battery:
1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making 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.

8) F_PANEL (Front Panel Header)

Connect the power switch, reset switch, 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.
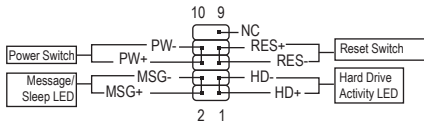
- **MSG** (Message/Sleep LED):

System Status	LED
S0	On
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 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," for more information).
- **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.
- **NC**:
  No connection.

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

9) 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.

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

- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB 2.0/1.1 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.

11) COMB (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	Pin No.	Definition
1	NDCD-	6	NDSR-
2	NSIN	7	NRTS-
3	NSOUT	8	NCTS-
4	NDTR-	9	NRI-
5	GND	10	No Pin

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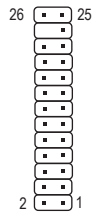
Pin No.	Definition	Pin No.	Definition
1	STB-	14	GND
2	AFD-	15	PD6
3	PD0	16	GND
4	ERR-	17	PD7
5	PD1	18	GND
6	INIT-	19	ACK-
7	PD2	20	GND
8	SLIN-	21	BUSY
9	PD3	22	GND
10	GND	23	PE
11	PD4	24	No Pin
12	GND	25	SLCT
13	PD5	26	GND

13) 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).

14) 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.

Pin No.	Definition
1	Signal
2	GND

Chapter 2   BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on.

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/clear CMOS jumper in Chapter 1 for how to clear the CMOS values.)

2-1   Startup Screen

The following startup Logo screen will appear when the computer boots.
(Sample BIOS Version: EA)

DEL : BIOS SETUP \ Q-FLASH   F9 : SYSTEM INFORMATION   F12 : BOOT MENU   END : Q-FLASH ——— Function Keys

On the main menu of the BIOS Setup program, press arrow keys to move among the items and press <Enter> to accept or enter a sub-menu. Or you can use your mouse to select the item you want.

> *   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.

2-2 M.I.T.

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

> 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.)

▶ **M.I.T. Current Status**
This screen provides information on CPU/memory frequencies/parameters.

▶ **Advanced Frequency Settings**

☞ **CPU Clock Ratio**
Allows you to alter the clock ratio for the installed CPU.

☞ **CPU Frequency**
Displays the current operating CPU frequency.

▶ **Advanced CPU Core Features**

☞ **CPU Clock Ratio, CPU Frequency**
The settings above are synchronous to those under the same items on the **Advanced Frequency Settings** menu.

☞ **CPU Core Enabled**
Allows you to determine whether to manually enable/disable CPU cores. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **CPU Enhanced Halt (C1E)**
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**
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**
  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**
  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)

- **System Memory Multiplier**
  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.

▶ **Advanced Memory Settings**

- **System Memory Multiplier, Memory Frequency(MHz)**
  The settings 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.
  ▶▶ Normal   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**
  Quick and **Expert** allows the **Channel Interleaving**, **Rank Interleaving**, and memory timing settings below to be configurable. Options are: Auto (default), Quick, Expert.

- **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**
This sub-menu provides memory timing settings for each channel of memory. The respective timing setting screens are configurable only when **DRAM Timing Selectable** is set to **Quick** or **Expert**. Note: Your system may become unstable or fail to boot after you make changes on the memory timings. If this occurs, please reset the board to default values by loading optimized defaults or clearing the CMOS values.

▶ **Advanced Voltage Settings**
This sub-menu allows you to set memory voltage.

▶ **PC Health Status**

- **Reset Case Open Status**
  ▶▶ Disabled   Keeps or clears the record of previous chassis intrusion status. (Default)
  ▶▶ Enabled   Clears the record of previous chassis intrusion status and the **Case Open** field will show "No" at next boot.

Case Open
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.

CPU Vcore/Dram Voltage/+5V/+12V/CPU VTT
Displays the current system voltages.

CPU/System Temperature
Displays current CPU/system temperature.

CPU/System Fan Speed
Displays current CPU/system fan speed.

System Fan Speed Control
Allows you to determine whether to enable the system fan speed control function and adjust the fan speed.
▶Normal   Allows the system fan to run at different speeds according to the system temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
▶Silent   Allows the system fan to run at slow speeds.
▶Manual   Allows you to control the system fan speed under the **Slope PWM** item.
▶Disabled   Allows the system fan to run at full speeds.

Slope PWM
Allows you to control the system fan speed. This item is configurable only when **System Fan Speed Control** is set to **Manual**. Options are: 0.75 PWM value /ºC ~ 2.50 PWM value /ºC.

2-3   System Information

This section provides information on your motherboard model and BIOS version. You can also select the default language used by the BIOS and manually set the system time.

System Language
Selects the default language used by the BIOS.

System Date
Sets the system date. The date format is week (read-only), month, date, and year. Use <Enter> to switch between the Month, Date, and Year fields and use the <Page Up> or <Page Down> key to set the desired value.

- **System Time**
 Sets the system time. The time format is hour, minute, and second. For example, 1 p.m. is 13:0:0. Use <Enter> to switch between the Hour, Minute, and Second fields and use the <Page Up> or <Page Down> key to set the desired value.
- **Access Level**
 Displays the current access level depending on the type of password protection used. (If no password is set, the default will display as **Administrator**.) The Administrator level allows you to make changes to all BIOS settings; the User level only allows you to make changes to certain BIOS settings but not all.

▶ **ATA Port Information**
 This section provides information on the device connected to each SATA port controlled by Intel® NM70 Chipset.
- **Port 0/1/2/3**
 Enables or disables each SATA port. (Default: Enabled)
 This item is configurable only when **SATA Mode Selection** is set to **AHCI**.
- **Hot plug**
 Enables or disable the hot plug capability for each SATA port. (Default: Disabled)
 This item is configurable only when **SATA Mode Selection** is set to **AHCI**.

2-4   BIOS Features

- **Boot Option Priorities**
 Specifies the overall boot order from the available devices. For example, you can set hard drive as the first priority **(Boot Option #1)** and DVD ROM drive as the second priority **(Boot Option #2)**. The list only displays the device with the highest priority for a specific type. For example, only hard drive defined as the first priority on the **Hard Drive BBS Priorities** submenu will be presented here.
 Removable storage devices that support GPT format will be prefixed with "UEFI:" string on the boot device list. To boot from an operating system that supports GPT partitioning, select the device prefixed with "UEFI:" string.
 Or if you want to install an operating system that supports GPT partitioning such as Windows 7 64-bit, select the optical drive that contains the Windows 7 64-bit installation disk and is prefixed with "UEFI:" string.

○ **Hard Drive/CD/DVD ROM Drive/Floppy Drive/Network Device BBS Priorities**
Specifies the boot order for a specific device type, such as hard drives, optical drives, floppy disk drives, and devices that support Boot from LAN function, etc. Press <Enter> on this item to enter the submenu that presents the devices of the same type that are connected. This item is present only if at least one device for this type is installed.

○ **Bootup NumLock State**
Enables or disables Numlock feature on the numeric keypad of the keyboard after the POST. (Default: Enabled)

○ **Security Option**
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 **Administrator Password/User Password** item.
▶ Setup   A password is only required for entering the BIOS Setup program.
▶ System   A password is required for booting the system and for entering the BIOS Setup program. (Default)

○ **Full Screen LOGO Show**
Allows you to determine whether to display the GIGABYTE Logo at system startup. **Disabled** skips the GIGABYTE Logo when the system starts up. (Default: Enabled)

○ **Fast Boot**
Enables or disables Fast Boot to shorten the OS boot process. **Ultra Fast** provides the fastest bootup speed. (Default: Disabled)

○ **VGA Support**
Allows you to select which type of operating system to boot.
▶ Auto   Enables legacy option ROM only.
▶ EFI Driver   Enables EFI option ROM. (Default)
This item is configurable only when **Fast Boot** is set to **Enabled** or **Ultra Fast**.

○ **USB Support**
▶ Disabled   All USB devices are disabled before the OS boot process completes.
▶ Full Initial   All USB devices are functional in the operating system and during the POST.
▶ Partial Initial   Part of the USB devices are disabled before the OS boot process completes. (Default)
This item is configurable only when **Fast Boot** is set to **Enabled**. This item is disabled when **Fast Boot** is set to **Ultra Fast**.

○ **PS2 Devices Support**
▶ Disabled   All PS/2 devices are disabled before the OS boot process completes.
▶ Enabled   All PS/2 devices are functional in the operating system and during the POST. (Default)
This item is configurable only when **Fast Boot** is set to **Enabled**. This item is disabled when **Fast Boot** is set to **Ultra Fast**.

○ **NetWork Stack Driver Support**
▶ Disabled   Disables booting from the network. (Default)
▶ Enabled   Enables booting from the network.
This item is configurable only when **Fast Boot** is set to **Enabled**. This item is disabled when **Fast Boot** is set to **Ultra Fast**.

○ **Limit CPUID Maximum**
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)

○ **Execute Disable Bit**
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)

- **Intel Virtualization Technology**
 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: Disabled)
- **OS Type**
 Allows you to select the operating system to be installed. Set this item to **Windows 8** for Windows 8 operating system. (Default: Other OS)
- **CSM Support**
 Enables or disables UEFI CSM (Compatibility Support Module) to support a legacy PC boot process.
 ▶▶ Always   Enables UEFI CSM. (Default)
 ▶▶ Never   Disables UEFI CSM and supports UEFI BIOS boot process only.
 This item is configurable only when **OS Type** is set to **Windows 8** or **Windows 8 WHQL**.
- **Boot Mode Selection**
 Allows you to select which type of operating system to boot.
 ▶▶ UEFI and Legacy   Allows booting from operating systems that support legacy option ROM or UEFI option ROM. (Default)
 ▶▶ Legacy Only   Allows booting from operating systems that only support legacy option ROM.
 ▶▶ UEFI Only   Allows booting from operating systems that only support UEFI option ROM.
 This item is configurable only when **CSM Support** is set to **Always**.
- **LAN PXE Boot Option ROM**
 Allows you to select whether to enable the legacy option ROM for the LAN controller. (Default: Disabled)
 This item is configurable only when **CSM Support** is set to **Always**.
- **Storage Boot Option Control**
 Allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.
 ▶▶ Disabled   Disables option ROM.
 ▶▶ Legacy Only   Enables legacy option ROM only. (Default)
 ▶▶ UEFI Only   Enables UEFI option ROM only.
 ▶▶ Legacy First   Enables legacy option ROM first.
 ▶▶ UEFI First   Enables UEFI option ROM first.
 This item is configurable only when **CSM Support** is set to **Always**.
- **Other PCI Device ROM Priority**
 Allows you to select whether to enable the UEFI or Legacy option ROM for the PCI device controller other than the LAN, storage device, and graphics controllers.
 ▶▶ Legacy OpROM   Enables legacy option ROM only.
 ▶▶ UEFI OpROM   Enables UEFI option ROM only. (Default)
- **Network stack**
 Disables or enables booting from the network to install a GPT format OS, such as installing the OS from the Windows Deployment Services server. (Default: Disabled)
- **Ipv4 PXE Support**
 Enables or disables IPv4 PXE Support. This item is configurable only when **Network stack** is enabled.
- **Ipv6 PXE Support**
 Enables or disables IPv6 PXE Support. This item is configurable only when **Network stack** is enabled.

- **Administrator Password**
 Allows you to configure an administrator password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. Differing from the user password, the administrator password allows you to make changes to all BIOS settings.

- **User Password**
  Allows you to configure a user password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. However, the user password only allows you to make changes to certain BIOS settings but not all.

  To cancel the password, press <Enter> on the password item and when requested for the password, enter the correct one first. When prompted for a new password, press <Enter> without entering any password. Press <Enter> again when prompted to confirm.

2-5 Peripherals

- **SATA Controller(s)**
  Enables or disables the integrated SATA controllers. (Default: Enabled)
- **SATA Mode Selection**
  Allows you to decide whether to configure the SATA controller integrated in the Chipset to AHCI mode.
  ▶ IDE   Configures the SATA controller to IDE mode.
  ▶ AHCI   Configures the SATA controllers 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. (Default)

- **USB2.0 Controller**
  Enables or disables the integrated USB 2.0/1.1 controller. (Default: Enabled)
- **Audio Controller**
  Enables or disables the onboard audio function. (Default: Enabled)
  If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to **Disabled**.
- **Init Display First**
  Specifies the first initiation of the monitor display from the installed PCI graphics card or the onboard graphics.
  ▶ Auto   Lets BIOS automatically configure this setting. (Default)
  ▶ IGFX   Sets the onboard graphics as the first display.
  ▶ PCI   Sets the graphics card on the PCI slot as the first display.

- ☞ **Internal Graphics**
  Enables or disables the onboard graphics function. (Default: Auto)
- ☞ **Internal Graphics Memory Size**
  Allows you to set the onboard graphics memory size. Options are: 32M~1024M. (Default: 64M)
- ☞ **DVMT Total Memory Size**
  Allows you to allocate the DVMT memory size of the onboard graphics. Options are: 128M, 256M, MAX. (Default: MAX)
- ☞ **Legacy USB Support**
  Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled)
- ☞ **EHCI Hand-off**
  Determines whether to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support. (Default: Disabled)
- ☞ **Port 60/64 Emulation**
  Enables or disables emulation of I/O ports 64h and 60h. This should be enabled for full legacy support for USB keyboards/mice in MS-DOS or in operating system that does not natively support USB devices. (Default: Disabled)
- ☞ **USB Storage Devices**
  Displays a list of connected USB mass storage devices. This item appears only when a USB storage device is installed.
- ☞ **OnBoard LAN Controller (LAN1), OnBoard LAN Controller#2 (LAN2)**
  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**.

- ▶ **Super IO Configuration**
  This section provides information on the super I/O chip and allows you to configure the serial port and parallel port.
- ☞ **Serial Port A (Serial Port on the Back Panel)**
  Enables or disables the onboard serial port. (Default: Enabled)
- ☞ **Serial Port B (Onboard COMB Connector)**
  Enables or disables the onboard serial port. (Default: Enabled)
- ☞ **Parallel Port**
  Enables or disables the onboard parallel port. (Default: Enabled)
- ☞ **Device Mode**
  This item is configurable only when **Parallel Port** is set to **Enabled**. Selects an operating mode for the onboard parallel (LPT) port. Options are: Standard Parallel Port Mode (Default), EPP Mode (Enhanced Parallel Port), ECP Mode (Extended Capabilities Port), EPP Mode & ECP Mode.

- ▶ **Intel(R) Smart Connect Technology**
- ☞ **ISCT Configuration**
  Enables or disables Intel® Smart Connect Technology. (Default: Disabled)

2-6　Power Management

⟡ **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:
▶▶ Wake up day: Turn on the system at a specific time on each day or on a specific day in a month.
▶▶ Wake up hour/minute/second: 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.

⟡ **ErP**
Determines whether to let the system consume least power in S5 (shutdown) state. (Default: Disabled)
Note: When this item is set to **Enabled**, the following functions will become unavailable: PME event wake up, power on by mouse, power on by keyboard, and wake on LAN.

⟡ **High Precision Event Timer** (Note)
Enables or disables High Precision Event Timer (HPET) for Windows 8/7 operating system. (Default: Enabled)

⟡ **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.

⟡ **Internal Graphics Standby Mode**
Allows you to determine whether to let the onboard graphics enter standby mode to decrease power consumption. (Default: Enabled)

⟡ **Internal Graphics Deep Standby Mode**
Allows you to determine whether to let the onboard graphics enter deeper standby mode. (Default: Enabled)

⟡ **AC BACK**
Determines the state of the system after the return of power from an AC power loss.
▶▶ Memory　　　　The system returns to its last known awake state upon the return of the AC power.
▶▶ Always On　　　The system is turned on upon the return of the AC power.
▶▶ Always Off　　　The system stays off upon the return of the AC power. (Default)

(Note)　　　　Supported on Windows 8/7 operating system only.

☞ **Power On By Keyboard**
Allows the system to be turned on by a PS/2 keyboard 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)
▷ 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.
▷ Any Key   Press any key to turn on the system.

☞ **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.

☞ **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)
▷ Move   Move the mouse to turn on the system.
▷ Double Click   Double click on left button on the mouse to turn on the system.

2-7   Save & Exit

☞ **Save & Exit Setup**
Press <Enter> on this item and select **Yes**. This saves the changes to the CMOS and exits the BIOS Setup
program. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ **Exit Without Saving**
Press <Enter> on this item and select **Yes**. This exits the BIOS Setup without saving the changes made
in BIOS Setup to the CMOS. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ **Load Optimized Defaults**
Press <Enter> on this item and select **Yes** 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.

- **Boot Override**
  Allows you to select a device to boot immediately. Press <Enter> on the device you select and select **Yes** to confirm. Your system will restart automatically and boot from that device.
- **Save Profiles**
  This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles and save as Setup Profile 1~ Setup Profile 8. Press <Enter> to complete. Or you can select **Select File in HDD/USB/FDD** to save the profile to your storage device.
- **Load Profiles**
  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 and then press <Enter> to complete. You can select **Select File in HDD/USB/FDD** to input the profile previously created from your storage device or load the profile automatically created by the BIOS, such as reverting the BIOS settings to the last settings that worked properly (last known good record).

Chapter 3   Drivers Installation

- Before installing the drivers, first install the operating system. (The following instructions use Windows 8 as the example operating system.)
- After installing the operating system, insert the motherboard driver disk into your optical drive. Click on the message "Tap to choose what happens with this disc" on the top-right corner of the screen and select "Run **Run**.exe." (Or 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 there of 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.

FCC Notice (U.S.A. Only)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a dealer or experienced TV/radio technician for help.

Canada, Industry Canada (IC) Notices / Canada, avis d'Industry Canada (IC)

- This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.
- Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
- Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.
- Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

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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.