GA-N3050N GSM PLUS

User's Manual

Rev. 1001

12ME0-N30500-00R

For more product details, please visit GIGABYTE's website.

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Disclaimer

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:
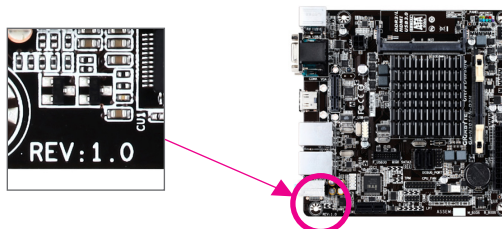
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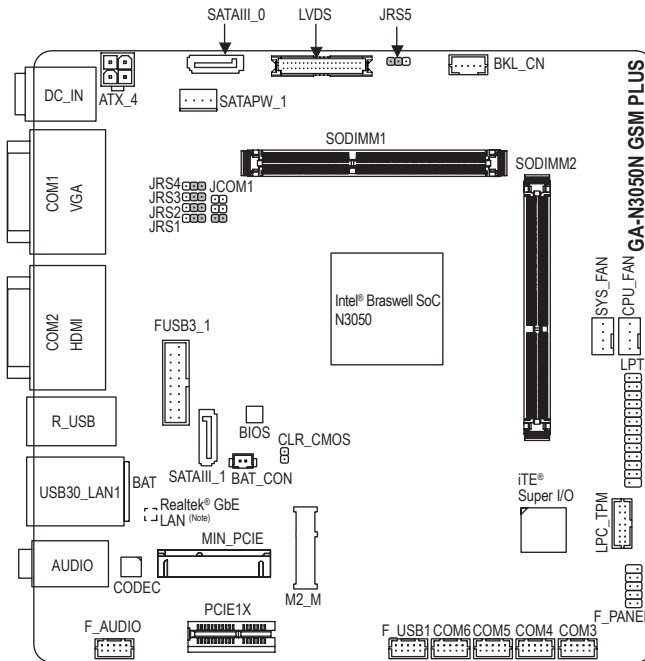
Box Contents

- ☑ GA-N3050N GSM PLUS motherboard
- ☑ Motherboard driver disk
- ☑ User's Manual

- ☑ One SATA power cable
- ☑ Two SATA cables
- ☑ I/O Shield

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

(Note)   This chip is on the back of the motherboard.

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 connecting or 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 or wet 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.
- If you use an adapter, extension power cable, or power strip, ensure to consult with its installation and/or grounding instructions.

1-2 Product Specifications

CPU	◆	Built in with an Intel® Dual-Core Celeron® N3050 SoC (1.6 GHz)
		* Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components.
	◆	TDP 6W
	◆	L1/L2 varies with CPU
Memory	◆	2 x DDR3L DIMM sockets supporting up to 8 GB of system memory
		* If only one memory module is to be installed, be sure to install it in the SODIMM1 socket.
	◆	Dual channel memory architecture
	◆	Support for DDR3L 1333/1600 MHz memory modules
		* Due to an SoC limitation, if a 1333 MHz memory is installed, it will be downgraded to 1066 MHz.
	◆	Support for non-ECC memory modules
Onboard Graphics	◆	Integrated in the SoC:
		- 1 x D-Sub port, supporting a maximum resolution of 1920x1200@60 Hz
		- 1 x HDMI port, supporting a maximum resolution of 3840x2160@30 Hz
Audio	◆	Realtek® ALC269 codec
	◆	High Definition Audio
	◆	2-channel
LAN	◆	Realtek® RTL8111HS GbE LAN chip (10/100/1000 Mbit)
Expansion Slots	◆	1 x PCI Express x1 slot
	◆	1 x Mini PCIe slot (half size) (MIN_PCIE)
		(The PCI Express slots conform to PCI Express 2.0 standard.)
Storage Interface	◆	Integrated in the SoC:
		- 2 x SATA 6Gb/s connectors
		* The M.2 slot shares bandwidth with the SATAIII_1 connector. The SATAIII_1 connector becomes unavailable when an M.2 SSD is installed.
	◆	1 x M.2 slot (B/M key, type 2242 SATA and PCIe x1 SSD support) (M2_M)
USB	◆	Integrated in the SoC:
		- 4 x USB 3.0/2.0 ports (2 ports on the back panel, 2 ports available through the internal USB header)
		- 6 x USB 2.0/1.1 ports (4 ports on the back panel, 2 ports available through the internal USB header)
Internal Connectors	◆	1 x 4-pin ATX 12V power connector
	◆	1 x CPU fan header
	◆	1 x system fan header
	◆	1 x front panel header
	◆	1 x front panel audio header
	◆	2 x SATA 6Gb/s connectors
	◆	1 x M.2 slot
	◆	1 x SATA power connector
	◆	1 x battery cable header
	◆	1 x USB 3.0/2.0 header
	◆	1 x USB 2.0/1.1 header

Internal Connectors	◆ 1 x Trusted Platform Module (TPM) header ◆ 4 x serial port headers ◆ 1 x COM1 function select jumper ◆ 1 x parallel port header ◆ 1 x LVDS header ◆ 1 x LCD inverter connector ◆ 1 x Clear CMOS jumper
Back Panel Connectors	◆ 1 x DC In power connector ◆ 2 x serial ports ◆ 1 x D-Sub port ◆ 1 x HDMI port ◆ 4 x USB 2.0/1.1 ports ◆ 2 x USB 3.0/2.0 ports ◆ 1 x RJ-45 port ◆ 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 fail warning ◆ CPU/System fan speed detection ◆ CPU/System fan speed control * Whether the fan speed control function is supported will depend on the cooler you install.
BIOS	◆ 1 x 64 Mbit flash ◆ Use of licensed AMI UEFI BIOS ◆ PnP 1.0a, DMI 2.7, WfM 2.0, SM BIOS 2.7, ACPI 5.0
Operating System	◆ Support for Windows 10 32-bit/64-bit ◆ Support for Windows 8.1/7 64-bit * Please download the "Windows USB Installation Tool" from GIGABYTE's website and install it before installing Windows 7.
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.

⚠ Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components.

Please visit GIGABYTE's website for the memory support list.

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.

Dual Channel Memory Configuration

This motherboard provides two memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.
The two memory sockets are divided into two channels as following:
▶ Channel A: SODIMM1
▶ Channel B: SODIMM2

Due to SoC limitations, read the following guidelines before installing the memory in Dual Channel mode.
1. If only one memory module is to be installed, be sure to install it in the SODIMM1 socket, and Dual Channel mode cannot be enabled if only one memory module is installed.
2. When enabling Dual Channel mode with two memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance.

1-4 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.

1-5 Back Panel Connectors
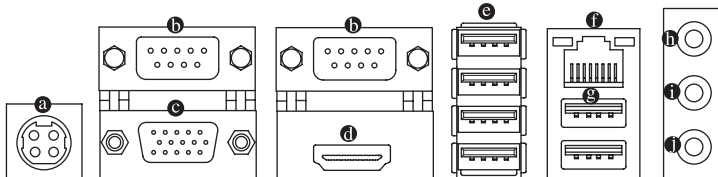
ⓐ **DC In Power Connector**

Connect the DC power to this jack.

ⓑ **Serial Port**

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

ⓒ **D-Sub Port**

The D-Sub port supports a 15-pin D-Sub connector and supports a maximum resolution of 1920x1200@60 Hz (the actual resolutions supported depend on the monitor being used). Connect a monitor that supports D-Sub connection to this port.

HDMI Port

HIGH-DEFINITION MULTIMEDIA INTERFACE™ The HDMI port is HDCP compliant and supports Dolby True HD and DTS HD Master Audio formats. You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 3840x2160@30 Hz, 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 depending on your operating system.)

Dual Display Configurations for the Onboard Graphics:

Dual-display configurations are supported after you install motherboard drivers in OS, but not during the BIOS Setup or POST process.

USB 2.0/1.1 Port

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices.

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
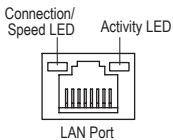
Connection/Speed LED:

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 3.0/2.0 Port

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.

Line In (Blue)

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

Line Out (Green)

The line out jack. Use this audio jack for a headphone or 2-channel speaker.

Mic In (Pink)

The Mic in jack.

- 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.

1-6   Internal Connectors
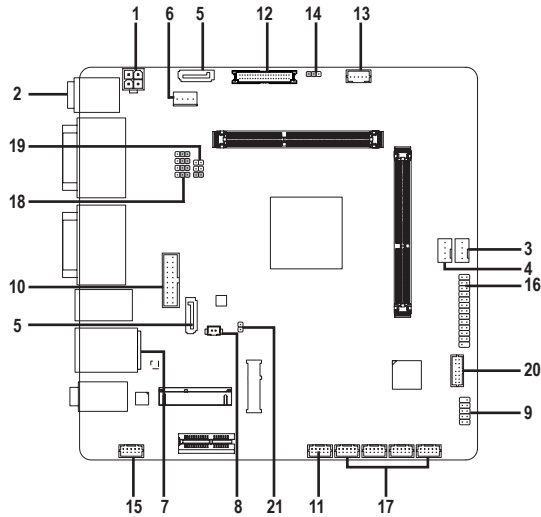
1)	ATX_4	12)	LVDS
2)	DC_IN	13)	BKL_CN
3)	CPU_FAN	14)	JRS5
4)	SYS_FAN	15)	F_AUDIO
5)	SATAIII_0/1	16)	LPT
6)	SATAPW_1	17)	COM3/4/5/6
7)	BAT	18)	JRS4/JRS3/JRS2/JRS1
8)	BAT_CON	19)	JCOM1
9)	F_PANEL	20)	LPC_TPM
10)	FUSB3_1	21)	CLR_CMOS
11)	F_USB1		

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) ATX_4 (2x2 12V 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.
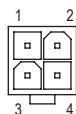
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

2) DC_IN (DC In Power Connector)
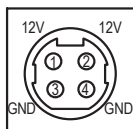
Pin No.	Definition
1	DC_IN
2	DC_IN
3	GND
4	GND

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 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
4	Speed Control

SYS_FAN:

Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control
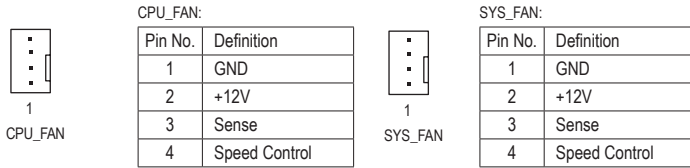
- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

5)   SATAIII_0/1 (SATA 6Gb/s Connectors)(Note)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and 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
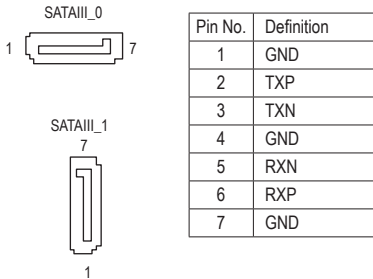
(Note)   The M.2 slot shares bandwidth with the SATAIII_1 connector. The SATAIII _1 connector will become unavailable when an M.2 SSD is installed.

6) SATAPW_1 (SATA Power Connector)
This connector provides power to installed SATA devices.
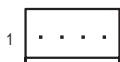
Pin No.	Definition
1	+12V
2	GND
3	GND
4	VCC

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.
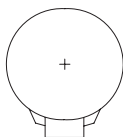
You may clear the CMOS values by removing the battery cable:
1. Turn off your computer and unplug the power cord.
2. Unplug the the battery cable from the battery cable header and wait for one minute.
3. Plug in the battery cable.
4. Plug in the power cord and restart your computer.

• 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) BAT_CON (Battery Cable Header)

Pin No.	Definition
1	RTC Power
2	GND

9) 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.
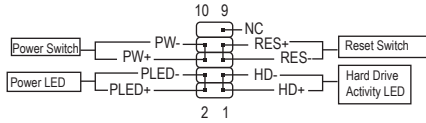
- **PLED** (Power LED, Yellow):

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, Red):
  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, Blue):
  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, Green):
  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** (Purple):
  No connection.

> 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 and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

10) FUSB3_1 (USB 3.0/2.0 Header)

The header conforms to USB 3.0/2.0 specification and can provide two USB ports. For purchasing the optional 3.5" front panel that provides two USB 3.0/2.0 ports, please contact the local dealer.
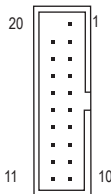
Pin No.	Definition	Pin No.	Definition
1	FUSB_POWER	11	USB2_D+
2	USB3_RXN	12	USB2_D-
3	USB3_RXP	13	GND
4	GND	14	USB3_TXP
5	USB3_TXN	15	USB3_TXN
6	USB3_TXP	16	GND
7	GND	17	USB3_RXP
8	USB2_D-	18	USB3_RXN
9	USB2_D+	19	FUSB_POWER
10	USB_OC-	20	No Pin

> 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) F_USB1 (USB 2.0/1.1 Header)

The header conforms 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	VCC	6	USB_D+
2	VCC	7	GND
3	USB_D-	8	GND
4	USB_D-	9	NC
5	USB_D+	10	NC

⚠ 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.

12) LVDS (LVDS Header)

LVDS stands for Low-voltage differential signaling, which uses high-speed analog circuit techniques to provide multigigabit data transfers on copper interconnects and is a generic interface standard for high-speed data transmission.
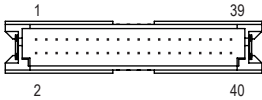
Pin No.	Definition	Pin No.	Definition
1	VCC3_LVDS	21	LVDS_DATA5+(EVEN_1+)
2	VCC_LVDS	22	LVDS_DATA4+(EVEN_0+)
3	VCC3_LVDS	23	LVDS_DATA5-(EVEN_1-)
4	VCC_LVDS	24	LVDS_DATA4-(EVEN_0-)
5	SPC0	25	GND
6	SPD0	26	GND
7	GND	27	LVDS_DATA7+(EVEN_3+)
8	GND	28	LVDS_DATA6+(EVEN_2+)
9	LVDS_DATA1+ (ODD_1+)	29	LVDS_DATA7-(EVEN_3-)
10	LVDS_DATA0+ (ODD_0+)	30	LVDS_DATA6-(EVEN_2-)
11	LVDS_DATA1-(ODD_1-)	31	GND
12	LVDS_DATA0-(ODD_0-)	32	GND
13	GND	33	LVDS2_CLK2+(EVEN_CLK+)
14	GND	34	LVDS_CLK1+ (ODD_CLK+)
15	LVDS_DATA3+ (ODD_3+)	35	LVDS_CLK2-(EVEN_CLK-)
16	LVDS_DATA2+ (ODD_2+)	36	LVDS_CLK1-(ODD_CLK-)
17	LVDS_DATA3-(ODD_3-)	37	GND
18	LVDS_DATA2-(ODD_2-)	38	NC
19	GND	39	+12V_LVDS
20	GND	40	+12V_LVDS

13) BKL_CN (LCD Inverter Connector)

Pin No.	Definition
1	VCC
2	BLKCTL
3	ENABKL
4	GND
5	+12V

14) JRS5 (LVDS Enable/Disable Jumper)

1-2 Close: Enables LVDS

2-3 Close: Disables LVDS

15) F_AUDIO (Front Panel Audio Header)
The front panel audio header supports Intel® High Definition audio (HD). 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.
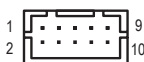
Pin No.	Definition
1	MIC-L
2	GND
3	MIC-R
4	ACZ-DET
5	LINE-OUT-R
6	MIC-SENSE
7	SENSE-RETURN
8	NC
9	LINE-OUT-L
10	LINE-OUT-SENSE

- 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.

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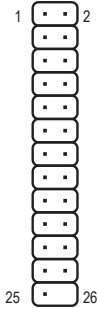
Pin No.	Definition	Pin No.	Definition
1	STB-	14	GND
2	AFD-	15	PD6
3	PD0	16	GND
4	ERR-	17	PD7
5	PD1	18	GND
6	INIT-	19	ACK-
7	PD2	20	GND
8	SLIN-	21	BUSY
9	PD3	22	GND
10	GND	23	PE
11	PD4	24	GND
12	GND	25	SLCT
13	PD5	26	NC

17) COM3/4/5/6 (Serial Port Headers)

Each 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.

COM3/4

Pin No.	Definition
1	NRXD-
2	NDCD-
3	NDTR-
4	NTXD-
5	NDSR-
6	GND
7	NCTS-
8	NRTS-
9	NC
10	RI-/5V/12V

COM5/6

Pin No.	Definition
1	NRXD-
2	NDCD-
3	NDTR-
4	NTXD-
5	NDSR-
6	GND
7	NCTS-
8	NRTS-
9	NC
10	RI-

18) JRS4/JRS3/JRS2/JRS1 (For COM1)
19) JCOM1 (COM1 Function Select jumper)

RS232 Jumper Settings

JRS4 1
JRS3 1   JCOM1
JRS2 1
JRS1 1   1 2

RS485 Jumper Settings

JRS4 1
JRS3 1   JCOM1
JRS2 1   5   6
JRS1 1

RS422 Jumper Settings

JRS4 1
JRS3 1   JCOM1
JRS2 1   3   4
JRS1 1
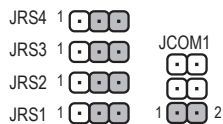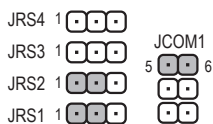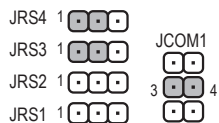
JCOM1:

Pin No.	Definition
1	RXD232-
2	RXD1-
3	RXD422
4	RXD1-
5	RXD485
6	RXD1-

20) LPC_TPM (Trusted Platform Module Header)

You may connect a TPM (Trusted Platform Module) to this header.

14 13
2   1
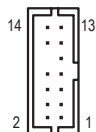
Pin No.	Definition	Pin No.	Definition
1	LPC CLK	8	NC
2	3VDUAL	9	LPC AD2
3	PLTRST-	10	No Pin
4	VCC3	11	LPC AD3
5	LPC AD0	12	GND
6	SERIRQ_N	13	-FRAME
7	LPC AD1	14	GND

21) CLR_CMOS (Clear CMOS Jumper)

Use this jumper to clear the BIOS configuration 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).

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.

- 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 "Restore 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 Main

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.

Main Menu Help
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.
Submenu Help
While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

(Sample BIOS Version: F1)

> • When the system is not stable as usual, select the **Restore 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.

```
                    Aptio Setup Utility - Copyright  (C)  2015 American Megatrends, Inc.
    Main    Advanced    Chipset    Security    Boot    Save & Exit

   BIOS Information

   Project Name                    GA-N3050N
   BIOS Version                    F1
   Build Date and Time             08/31/2015  11:05:12

   LAN MAC Address                 40-8D-5C-1D-22-D1

   Memory Information
   Total Memory                    4096 MB (LPDDR3)

   TXE FW Version                  02.00.00.2060
                                                        →←: Select Screen
   System Date                     [Mon  09/07/2015]    ↑↓: Select Item
   System Time                     [02:35:02 PM]        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

☞ **BIOS Information**

☞ **Project Name**
Displays the motherboard model.

☞ **BIOS Version**
Displays the BIOS version.

☞ **Build Date and Time**
Displays the date and time when the BIOS setup utility was created.

☞ **LAN MAC Address**
Displays the MAC address information.

☞ **Memory Information**

☞ **Total Memory**
Determines how much total memory is present during the POST.

☞ **TXE FW Version**
Displays the TXE firmware version.

☞ **System Date**
Set the date following the weekday-month-day-year format.

☞ **System Time**
Set the system time following the hour-minute-second format.

2-2   Advanced

| Main | Advanced | Chipset | Security | Boot | Save & Exit |

▶ Trusted Computing
▶ IT8786 Super IO Configuration
▶ Hardware Monitor
▶ S5 RTC Wake Settings
▶ CPU Configuration
▶ SATA Configuration
▶ OS Selection

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
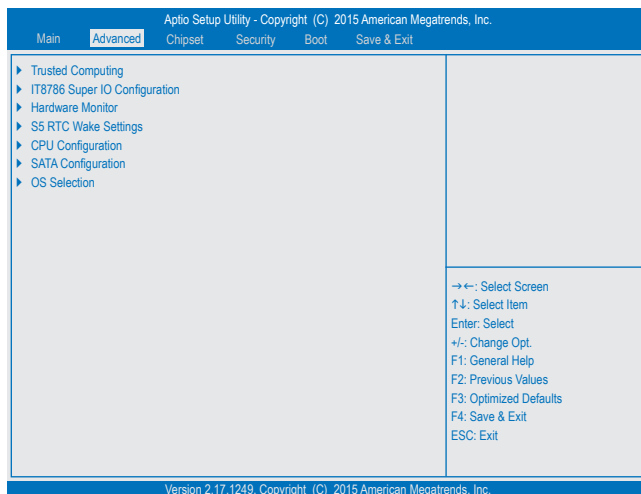
▶ **Trusted Computing**

☞ **fTPM**
Enables or disables fTPM. (Default: Enabled)

☞ **Security Device Support**
Enables or disables Trusted Platform Module (TPM). (Default: Enabled)

☞ **Pending operation**
To clear TPM related settings, set this item to **TPM Clear**. (Default: None)

☞ **Platform Hierarchy**
Enables or disables Platform Hierarchy. (Default: Enabled)

☞ **Storage Hierarchy**
Enables or disables Storage Hierarchy. (Default: Enabled)

☞ **Endorsement Hierarchy**
Enables or disables Endorsement Hierarchy. (Default: Enabled)

☞ **HashPolicy**
Allows you to select the Hash policy to use. (Default: Sha-1)

☞ **TPM 20 InterfaceType**
Allows you to select the communication interface for the TPM 2.0 device. (Default: CRB)

☞ **Device Select**
Allows you to select whether to support TPM 1.2 or TPM 2.0 device. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

▶ **IT8786 Super IO Configuration**

☞ **Serial Port 1~Serial Port 6 Configuration**
Configures the serial ports.

☞ **Paralle Port**
Configures the onboard parallel port.

▶ **Hardware Monitor**

☞ **CPU/System Fan Fail Warning**
Allows the system to emit warning sound if the fan is not connected or fails. Check the fan condition or fan connection when this occurs. (Default: Disabled)

☞ **CPU Fan Speed Control**
Allows you to determine whether to enable the fan speed control function and adjust the fan speed.
▸ Normal   Allows the fan to run at different speeds according to the CPU temperature. (Default)
▸ Full Speed   Allows the fan to run at full speeds.

☞ **System Fan Speed Control**
Allows you to determine whether to enable the fan speed control function and adjust the fan speed.
▸ Normal   Allows the fan to run at different speeds according to the system temperature. (Default)
▸ Full Speed   Allows the fan to run at full speeds.

☞ **CPU Temperature/System Temperature**
Displays current CPU/system temperature.

☞ **CPU/System Fan Speed**
Displays current CPU/system fan speeds.

☞ **CPUVCore/DDR1.35V/+12V/VCC+5V/VCC+3.3V**
Displays the current system voltages.

▶ **S5 RTC Wake Settings**

☞ **Wake system from S5**
Determines whether to power on the system from S5 state at a desired time. (Default: Disabled)
If set to **Fixed Time**, set the date and time as following:
▸ 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.

▶ **CPU Configuration**

▶ **CPU Information**
Displays the CPU related information.

☞ **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: Enabled)

☞ **EIST**
Enables or disables Enhanced Intel® Speed Step 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: Enabled)

☞ **Turbo Mode**
Allows you to determine whether to enable the Intel® CPU Turbo Boost technology. (Default: Enabled)

☞ **CPU C state Report**
Enables or disables CPU C-state report function. (Default: Enabled)

☞ **Max CPU C-state**
Allows you to specify the Max C-state that the processor will support. (Default: C7)

▶ **SATA Configuration**
☞ **SATA Port 0/1**
   This section displays the types of hard drive that are installed in the computer. The system will automatically detect the hard drive type.

▶ **OS Selection**
☞ **OS Selection**
   Allows you to select the operating system to be installed. (Default: UEFI System)
☞ **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.
☞ **LAN PXE OpROM**
   Allows you to select whether to enable the UEFI or legacy option ROM for the LAN controller. (Default: Disabled)
   This item is configurable only when **CSM Support** is set to **Always**.
☞ **LAN EFI Driver**
   Enables or disables LAN EFI driver. (Default: Disabled)
   This item is configurable only when **CSM Support** is set to **Always**.

2-3 Chipset

```
                    Aptio Setup Utility - Copyright  (C)  2015 American Megatrends, Inc.
   Main       Advanced    Chipset     Security     Boot     Save & Exit

   Onboard Audio                        [Enabled]
   Onboard LAN                          [Enabled]

   DVMT Pre-Allocated                   [32M]

   ERP Lowest Power State Mode          [Disabled]
   Restore AC Power Loss                [Power Off]

   LVDS support                         [Enabled]
       Panel Type                       [1024x 768 / 24 bit]
       Brightness Level                 [50 %]

                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit

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```

☞ **Onboard Audio**
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**.

☞ **Onboard 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**.

☞ **DVMT Pre-Allocated**
Allows you to set the onboard graphics memory size. Options are: 32M~512M. (Default: 32M)

☞ **ERP Lowest Power State Mode**
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: RTC Wake, PME event wake up, and wake on LAN.

☞ **Restore AC Power Loss**
Determines the state of the system after the return of power from an AC power loss.
▶ Power On   System powers on when AC cord is re-plugged.
▶ Power Off   Do not power on system when AC power is back. (Default)
▶ Last State   Set system to the last state when AC power is removed.

☞ **LVDS support**
Enables or disables the LVDS function. (Default: Enabled)

☞ **Panel Type**
Allows you to specify the LVDS panel type. (Default: 1024x768/24 bit)
This item is configurable only when **LVDS support** is set to **Enabled**.

☞ **Brightness Level**
Allows you to select the brightness level. (Default: 50%)
This item is configurable only when **LVDS support** is set to **Enabled**.

2-4   Security

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Main   Advanced   Chipset   Security   Boot   Save & Exit

Password Description

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the Administrator's password is set,
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length   3
Maximum length   20

Administrator Password
User Password

▶ Secure Boot menu

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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☞ **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.
NOTE: Before setting the User Password, be sure to set the Administrator Password first.

▶ **Secure Boot menu**

☞ **System Mode**
Displays the current system mode.

☞ **Secure Boot**
Displays the current secure boot state.

☞ **Vendor Keys**
Displays the vendor keys.

- **Secure Boot**
  Enables or disables the secure boot function. Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows 8 loads and gets to the login screen have not been tampered with. (Default: Enabled)
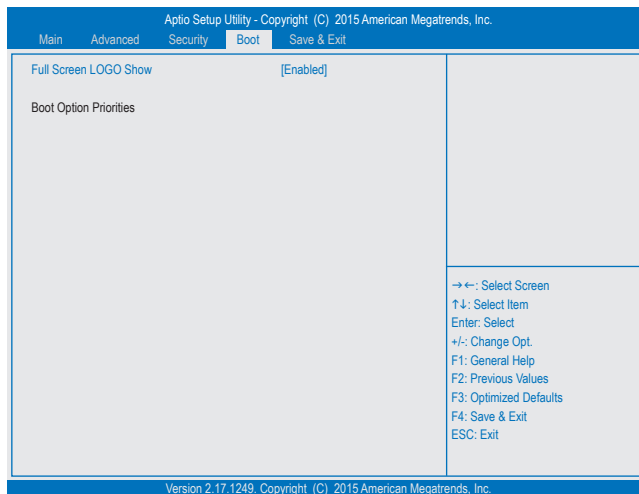- **Secure Boot Mode**
  Allows you to configure the secure boot mode. (Default: Standard)

▶ **Key Management**
  This section provides you with configuration options for secure boot key management.

2-5   Boot

```
                    Aptio Setup Utility - Copyright  (C)  2015 American Megatrends, Inc.
        Main      Advanced      Security      Boot      Save & Exit

        Full Screen LOGO Show                        [Enabled]


        Boot Option Priorities




                                                              → ←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit

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```

- **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)
  This item is configurable only when **Fast Boot** is set to **Enabled**.
- **Boot Option #1/2/3**
  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.
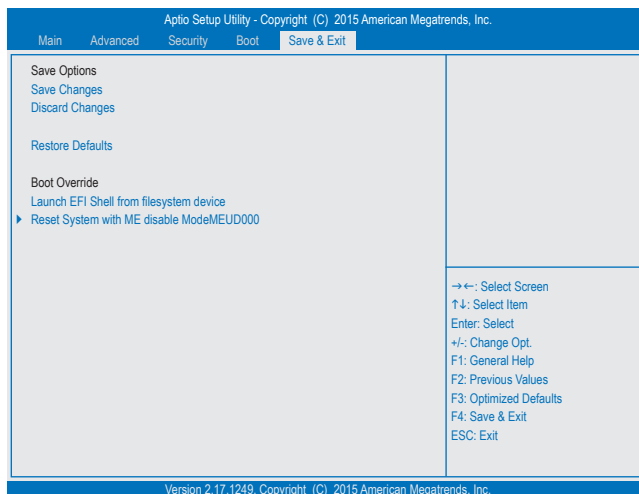 Removable storage devices that support GPT format will be prefixed with "UEFI:" string on the boot device list. To boot from an operating system that supports GPT partitioning, select the device prefixed with "UEFI:" string.
  Or if you want to install an operating system that supports GPT partitioning 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.

2-6   Save & Exit

Save Options
Save Changes
Discard Changes

Restore Defaults

Boot Override
Launch EFI Shell from filesystem device
▶ Reset System with ME disable ModeMEUD000

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

☞ **Save Changes**
Press <Enter> on this item and select **Yes** to save the changes to the CMOS. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ **Discard Changes**
Press <Enter> on this item and select **Yes** to cancel the BIOS changes. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ **Restore Defaults**
Press <Enter> on this item and select **Yes** to load the BIOS factory 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. Your system will restart automatically and boot from that device.

☞ **Launch EFI Shell from filesystem device**
Allows you to launch the EFI Shell application (shell.efi) from one of the available filesystem devices. Press <Enter> on this option and the system will restart to the EFI Shell screen automatically.

▶ **Reset System with ME disable Mode**
ME will run into the temporary disable mode.

Chapter 3   Appendix

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. 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.)

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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•   **GIGABYTE eSupport**

    To submit a technical or non-technical (Sales/Marketing) question, please link to:
    http://esupport.gigabyte.com