GA-IMB1900N

User's Manual

Rev. 1001

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

To reduce the impacts on global warming, the packaging materials of this product are recyclable and reusable. GIGABYTE works with you to protect the environment.

Declaration of Conformity

We, Manufacturer/Importer,

G.B.T. Technology Trading GMbH

Address: Bullenkoppel 16, 22047 Hamburg, Germany

Declare that the product

Product Type: Motherboard

Product Name: GA-IMB1900N

conforms with the essential requirements of the following directives:

☒ **EMC Directive 2014/30/EU:**

☒ Conduction & Radiated Emissions:	EN 55032:2012+AC:2013
☒ Immunity:	EN 55024:2010+A1:2015
☒ Power-line harmonics:	EN 61000-3-2:2014
☒ Power-line flicker:	EN 61000-3-3:2013

☒ **Low Voltage Directive 2014/35/EU:**

☒ Safety:	EN60950-1:2006+A11:2009+A12:2011+A2:2013

☒ **RoHS Directive 2011/65/EU**

☒ Restriction of use of certain substances in electronic equipment:	This product does not contain any of the restricted substances listed in Annex II, in concentrations and applications banned by the directive.

☒ **CE marking**

CE

Signature: Timmy Huang

(Stamp) Date: Nov. 08, 2019 Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

FC

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

Address: 17358 Railroad Street
City of Industry, CA 91748

Phone/Fax No: (626) 854-9338/ (626) 854-9326

hereby declares that the product

Product Name: Motherboard

Model Number: GA-IMB1900N

Conforms to the following specifications:

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

Supplementary Information:

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

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Nov. 08, 2019

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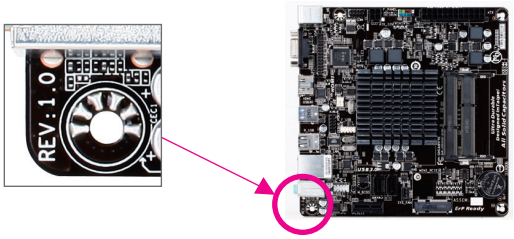
- In order to assist in the use of this product, carefully read the User's Manual.
- For product-related information, check on our website at: https://www.gigabyte.com

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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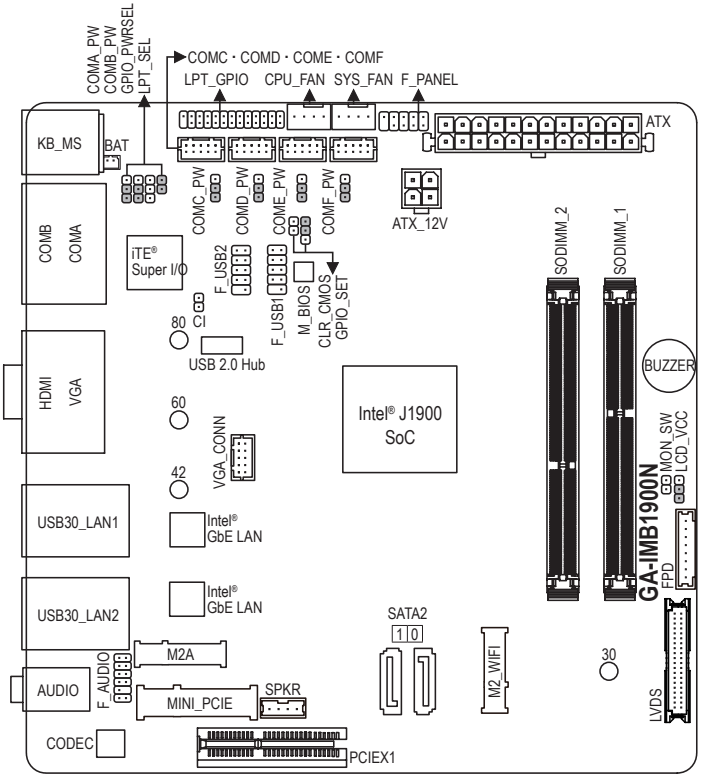
GA-IMB1900N Motherboard Layout



Box Contents

- ☑ GA-IMB1900N motherboard
- ☑ Motherboard driver disc
- ☑ User's Manual
- ☑ I/O Shield
- ☑ Two SATA cables
- ☑ Two COM port cables
- ☑ One LPT port cable

* 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.

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® Celeron® Quad-Core J1900 SoC (2.42 GHz) * Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components. ◆ 2 MB L2 Cache
Memory	◆ 2 x 1.35V DDR3L DIMM sockets supporting up to 8 GB of system memory * If only one DDR3L memory module is to be installed, be sure to install it in the SODIMM_1 socket. ◆ Dual channel memory architecture ◆ Support for DDR3L 1333 MHz memory modules ◆ Support for non-ECC memory modules (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
Onboard Graphics	◆ Integrated in the SoC: - 1 x D-Sub port, supporting a maximum resolution of 2560x1600@60 Hz - 1 x HDMI port, supporting a maximum resolution of 1920x1200@60 Hz ◆ Support for up to 2 displays at the same time
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 Intel® GbE LAN chips (10/100/1000 Mbit)
Expansion Slots	◆ 1 x PCI Express x1 slot ◆ 1 x full size Mini PCIe connector (MINI_PCIE) * The MINI_PCIE connector can also be used as an MSATA connector. (The PCI Express x1 slot and Mini PCIe connector conform to PCI Express 2.0 standard.) ◆ 1 x M.2 Socket 1 connector for the PCIe wireless communication module (M2_WIFI)
Storage Interface	◆ Integrated in the SoC: - 1 x M.2 connector (Socket 3, M key, type 2242/2260/2280 SATA and PCIe x2 SSD support) (M2A) - 2 x SATA 3Gb/s connectors * Refer to "1-6 Internal Connectors," for the installation notices for the M.2 and SATA connectors.
USB	◆ Integrated in the SoC: - 4 x USB 3.0 ports on the back panel ◆ SoC + USB 2.0 Hub: - 4 x USB 2.0/1.1 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 CPU fan header ◆ 1 x system fan header ◆ 2 x SATA 3Gb/s connectors ◆ 1 x M.2 Socket 3 connector ◆ 1 x Mini PCIe connector ◆ 1 x front panel header ◆ 1 x front panel audio header ◆ 1 x battery power cable connector ◆ 2 x USB 2.0/1.1 headers ◆ 4 x serial port headers ◆ 6 x serial port power select jumpers ◆ 1 x D-Sub header ◆ 1 x LPT/GPIO header (LPT_GPIO) ◆ 1 x GPIO status configuration jumper (GPIO_SET) ◆ 1 x GPIO power selection jumper (GPIO_PWRSEL) ◆ 1 x LPT configuration jumper (LPT_SEL) ◆ 1 x LVDS header ◆ 1 x LVDS drive voltage jumper (LCD_VCC) ◆ 1 x flat panel display header (FPD) ◆ 1 x flat panel display switch header (MON_SW) ◆ 1 x speaker header (SPKR) ◆ 1 x chassis intrusion header ◆ 1 x Clear CMOS jumper
Back Panel Connectors	◆ 1 x PS/2 mouse port ◆ 1 x PS/2 keyboard port ◆ 2 x serial ports ◆ 1 x D-Sub port ◆ 1 x HDMI port ◆ 4 x USB 3.0 ports ◆ 2 x RJ-45 ports ◆ 2 x audio jacks
I/O Controller	◆ iTE® I/O Controller Chip
Hardware Monitor	◆ System voltage detection ◆ Temperature detection ◆ Fan speed detection ◆ 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
Unique Features	◆ Support for Xpress Install
Bundled Software	◆ Norton® Internet Security (OEM version)
Operating System	◆ Support for Windows 10 64-bit ◆ Support for Windows 7 32-bit/64-bit * To install the LAN driver on Windows 7 32-bit, go to the **Network\Intel** folder in the driver disc and execute the **Autorun.exe** program.
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 GIGABYTE's website for support lists of CPU, memory modules, SSDs, and M.2 devices.

Please visit the **Support\Utility List** page on GIGABYTE's website to download the latest version of apps.

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.
- According to CPU specifications, if only one memory module is to be installed, be sure to install it in the SODIMM_1 slot.

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. Enabling Dual Channel memory mode will double the original memory bandwidth.

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

- Channel A: SODIMM_1
- Channel B: SODIMM_2

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

1. 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.

1-4 Installing an Expansion Card

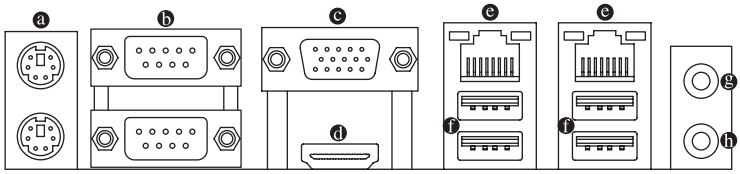
Read the following guidelines before you begin to install an expansion card:

- 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.

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

Please visit GIGABYTE's website for details on hardware installation.

1-5 Back Panel Connectors



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

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

b Serial Port

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

c D-Sub Port

The D-Sub port supports a 15-pin D-Sub connector and supports a maximum resolution of 2560x1600@60 Hz (the actual resolutions supported depend on the monitor being used). Connect a monitor that supports D-Sub connection to this port.

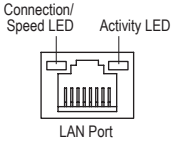
d HDMI Port

The HDMI port is HDCP compliant and supports Dolby TrueHD and DTS HD Master Audio formats. It also supports up to 192KHz/24bit 8-channel LPCM audio output. You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 1920x1200@60 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.)

e RJ-45 LAN Port

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



Connection/Speed LED:

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

Activity LED:

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

f USB 3.0 Port

The USB port supports the USB 3.0/2.0 specification. Use this port for USB devices.

- 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.

⓰ **Line Out/Front Speaker Out (Green)**

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

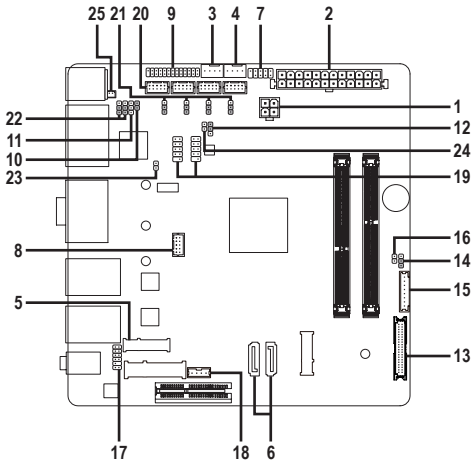
⓱ **Mic In/Center/Subwoofer Speaker Out (Pink)**

The Mic in jack.

- The integrated HD (High Definition) audio provides jack retasking capability that allows the user to change the function for each jack through the audio driver.
- 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. Please go to the Start menu to select **Realtek Audio Console**, enter the **Device advanced settings** tab in the lower left corner of the dialog box, and select the option **Mute the internal output device, when an external headphone plugged in**. to proceed with 7.1-channel settings.

Please visit GIGABYTE's website for details on configuring the audio software.

1-6 Internal Connectors



1)	ATX_12V	14)	LCD_VCC
2)	ATX	15)	FPD
3)	CPU_FAN	16)	MON_SW
4)	SYS_FAN	17)	F_AUDIO
5)	M2A	18)	SPKR
6)	SATA2 0/1	19)	F_USB1/F_USB2
7)	F_PANEL	20)	COMC/COMD/COME/COMF
8)	VGA_CONN	21)	COMC_PW/COMD_PW/COME_PW/COMF_PW
9)	LPT_GPIO	22)	COMA_PW/COMB_PW
10)	LPT_SEL	23)	CI
11)	GPIO_PWRSEL	24)	CLR_CMOS
12)	GPIO_SET	25)	BAT
13)	LVDS		

Read the following guidelines before connecting external devices:

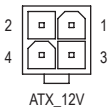
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the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

1/2) ATX_12V/ATX (2x2 12V Power Connector and 2x12 Main Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation.

The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

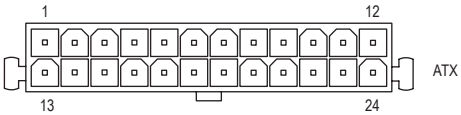
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.



ATX_12V

ATX_12V:

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



ATX:

Pin No.	Definition	Pin No.	Definition	Pin No.	Definition
1	3.3V	9	5VSB (stand by +5V)	17	GND
2	3.3V	10	+12V	18	GND
3	GND	11	+12V (Only for 2x12-pin ATX)	19	GND
4	+5V	12	3.3V (Only for 2x12-pin ATX)	20	NC
5	GND	13	3.3V	21	+5V
6	+5V	14	-12V	22	+5V
7	GND	15	GND	23	+5V (Only for 2x12-pin ATX)
8	Power Good	16	PS_ON (soft On/Off)	24	GND (Only for 2x12-pin ATX)

3/4) CPU_FAN/SYS_FAN (Fan Headers)

All fan headers on this motherboard are 4-pin. 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

CPU_FAN:

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

SYS_FAN

SYS_FAN:

Pin No.	Definition
1	GND
2	Voltage Speed Control
3	Sense
4	PWM 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) M2A (M.2 Socket 3 Connector)

The M.2 connector supports M.2 SATA SSDs and M.2 PCIe SSDs.

Follow the steps below to correctly install an M.2 SSD in the M.2 connector.
Step 1:
Use a screw driver to unfasten the screw and standoff from the motherboard. Locate the proper mounting hole for the M.2 SSD to be installed and then screw the standoff first.
Step 2:
Slide the M.2 SSD into the connector at an angle.
Step 3:
Press the M.2 SSD down and then secure it with the screw.

Select the proper hole for the M.2 SSD to be installed and refasten the screw and standoff.

Installation Notices for the M.2 and SATA Connectors:

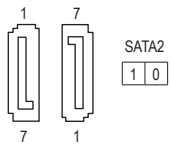
The availability of the SATA connectors may be affected by the type of device installed in the M.2 connector. The M2A connector shares bandwidth with the SATA2 1 connector. Refer to the following table for details.

Connector / Type of M.2 SSD	SATA2 0	SATA2 1
M.2 SATA SSD	✔	✕
M.2 PCIe SSD	✔	✔
No M.2 SSD Installed	✔	✔

✔: Available, ✕: Not available

6) SATA2 0/1 (SATA 3Gb/s Connectors)

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

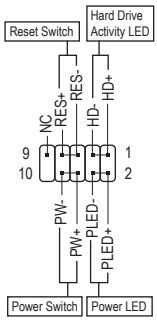


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

To enable hot-plugging for the SATA ports, refer to Chapter 2, "BIOS Setup," "Advanced\IDE Configuration," for more information.

7) 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," "Chipset," 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.

8) VGA_CONN (D-Sub Port Header)

This header can be used to connect a D-Sub monitor by an adapter.

Pin No.	Definition	Pin No.	Definition
1	VGA_R	6	GND
2	GND	7	HSYNC
3	VGA_G	8	VSYNC
4	GND	9	VGA_SCL
5	VGA_B	10	VGA_SDA

9) LPT_GPIO (LPT/GPIO Header)

Use this header to connect a LPT or GPIO device. Refer to the descriptions of the LPT_SEL, GPIO_PWRSEL, and GPIO_SET jumpers for further configuration.

LPT:

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

GPIO:

Pin No.	Definition	Pin No.	Definition	Pin No.	Definition
1	SIO_GP87	10	GPIOPWR	19	SIO_GP83
2	SIO_GP86	11	SIO_GP74	20	GND
3	SIO_GP70	12	GPIOPWR	21	SIO_GP82
4	NC	13	SIO_GP75	22	GND
5	SIO_GP71	14	GND	23	SIO_GP81
6	SIO_GP85	15	SIO_GP76	24	GND
7	SIO_GP72	16	GND	25	SIO_GP80
8	SIO_GP84	17	SIO_GP77	26	No Pin
9	SIO_GP73	18	GND		

10) LPT_SEL (LPT Configuration Jumper)

Place the jumper cap on the two pins to configure the LPT_GPIO header to support LPT device. Note: If the jumper cap is removed from this jumper, be sure to place it on the GPIO_PWRSEL pins.

Short: Configure the LPT_GPIO header to support LPT device. (Default)

11) GPIO_PWRSEL (GPIO Power Selection Jumper)

Move the jumper cap from the LPT_SEL jumper to this jumper to configure the LPT_GPIO header to support GPIO device and also to specify the GPIO voltage.

1-2 Close: Set GPIO voltage to +12V.

2-3 Close: Set GPIO voltage to 5V.

10) GPIO_SET (GPIO Status Configuration Jumper)

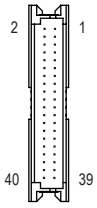
Use this jumper to set the GPIO status of the LPT_GPIO header to HIGH or LOW.

1-2 Close: Set to HIGH level (Default)

2-3 Close: Set to LOW level.

13) 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	Pin No.	Definition
1	LCD_VCC	15	-RXO3_C	29	CABLE_DET (Note)
2	LCD_VCC	16	+RXO3_C	30	-RXE3_C
3	VCC3	17	GND	31	+RXE3_C
4	NC	18	-RXECLKO_C	32	GND
5	NC	19	+RXECLKO_C	33	-RXECLKE_C
6	-RXO0_C	20	GND	34	+RXECLKE_C
7	+RXO0_C	21	-RXE0_C	35	GND
8	GND	22	+RXE0_C	36	SC_BKLT_EN
9	-RXO1_C	23	GND	37	SC_BKLT_CTL
10	+RXO1_C	24	-RXE1_C	38	FPD_PWR
11	GND	25	+RXE1_C	39	FPD_PWR
12	-RXO2_C	26	GND	40	FPD_PWR
13	+RXO2_C	27	-RXE2_C		
14	GND	28	+RXE2_C		

(Note) Connects to the ground pin of the LVDS.

14) LCD_VCC (LVDS Drive Voltage Jumper)

This jumper can be used to provide different screen voltage settings.

1-2 Close: Set to 3V. (Default)

2-3 Close: Set to 5V.

15) FPD (Flat Panel Display Header)

The FPD is a high-speed interface connecting the output of a video controller in a laptop computer, computer monitor or LCD television set to the display panel. Most laptops, LCD computer monitors and LCD TVs use this interface internally. The header conforms to FPD specification.

Pin No.	Definition
1	BKLT_EN
2	BKLT_PWM
3	BKLT_PWR
4	BKLT_PWR
5	BKLT_GND/Brightness_GND
6	BKLT_GND/Brightness_GND
7	Brightness_Up
8	Brightness_Down

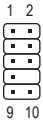
16) MON_SW (Flat Panel Display Switch Header)

This header allows you to connect an on/off switch for the display.

Pin No.	Definition
1	Mon_SW
2	GND

17) F_AUDIO (Front Panel Audio Header)

The front panel audio header supports 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	Pin No.	Definition
1	MIC2_L	6	Sense
2	GND	7	FAUDIO_JD
3	MIC2_R	8	No Pin
4	NC	9	LINE2_L
5	LINE2_R	10	Sense

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.

18) SPKR (Speaker Header)

This speaker header is connected to a L/R audio pins from the board to support the 3W (4ohm) stereo speaker on your AIO chassis.

Pin No.	Definition
1	Speaker OUT R-
2	Speaker OUT R+
3	Speaker OUT L-
4	Speaker OUT L+

19) F_USB1/F_USB2 (USB 2.0/1.1 Headers)

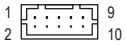
The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.

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.

20) COMC/COMD/COME/COMF (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.



Pin No.	Definition	Pin No.	Definition
1	NDCD-	6	NDCD-
2	NDSR-	7	NDSR-
3	NSIN	8	NSIN
4	NRTS-	9	NRTS-
5	NSOUT	10	NSOUT

21) COMC_PW/COMD_PW/COME_PW/COMF_PW (Serial Port Header Power Select Jumpers)

The power select jumpers are used to select serial port power.

1-2 Close: Set to 12V.

2-3 Close: Set to 5V. (Default)

22) COMA_PW/COMB_PW (Serial Port Header Power Select Jumpers)

The power select jumpers are used to select serial port power.

1-2 Close: Set to 12V.

2-3 Close: Set to 5V. (Default)

23) 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

24) 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.

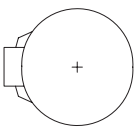
Open: Normal

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 Restore Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

25) 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. 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.

Pin No.	Definition
1 (+)	RTC Power
2 (-)	GND

- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Damage to your devices may occur 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.
- Used batteries must be handled in accordance with local environmental regulations.

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 Startup Screen

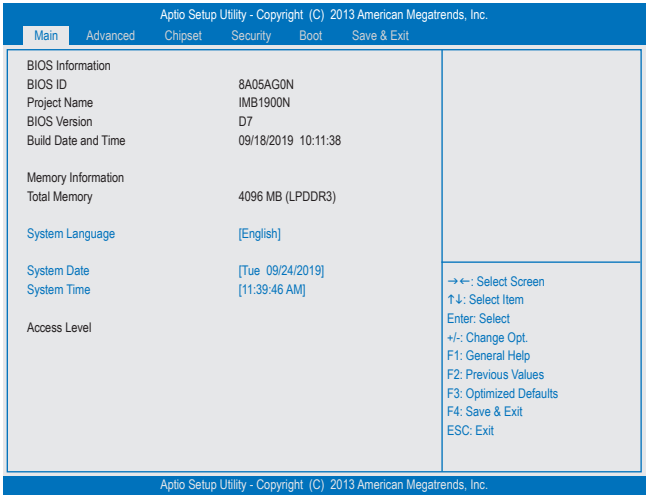
The following startup Logo screen will appear when the computer boots.

2-2 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: D7)

- 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.



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.

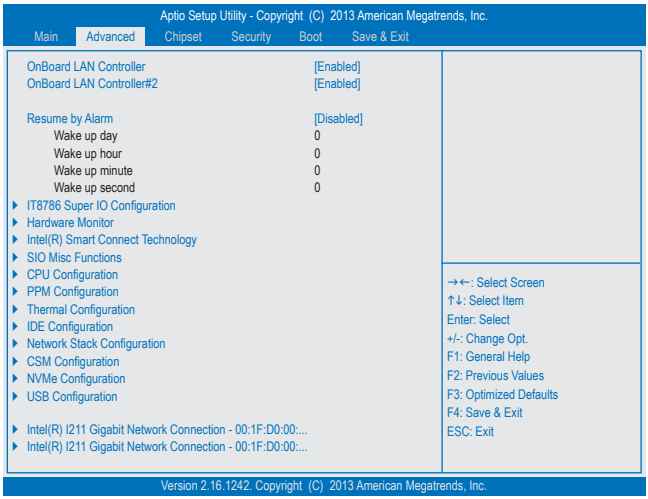
☞ **System Language**
Selects the default language used by the BIOS.

☞ **System Date**
Sets the system date. The date format is week (read-only), month, date, and year. Use <Tab> to switch between the Month, Date, and Year fields and use the <+> or <-> 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 <Tab> to switch between the Hour, Minute, and Second fields and use the <+> or <-> 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.

2-3 Advanced



☞ **OnBoard LAN Controller (LAN1)**

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**.

☞ **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**.

☞ **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.

▶ **IT8786 Super IO Configuration**

This section provides information on the super I/O chip and allows you to configure the serial port and parallel port.

▶ **Hardware Monitor**

☞ **System Fan mode**

Auto	Lets the BIOS automatically detect the type of fan installed and sets the optimal control mode. (Default)
Pwm	PWM mode is recommended for a 4-pin fan.
Voltage	Voltage mode is recommended for a 3-pin fan.

☞ **CPU Temperature (DTS)/System Temperature**

Displays current CPU/system temperature.

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

☞ **Vcore/DDR1_35/+12V/VCC/CPU_VAXG**
Displays the current system voltages.

▶ **Intel(R) Smart Connect Technology**

☞ **ISCT Support**
Enables or disables Intel® Smart Connect Technology. (Default: Disabled)

▶ **SIO Misc Functions**

☞ **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: Resume by Alarm, power on by mouse, and power on by keyboard.

☞ **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)

☞ **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.

☞ **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 intrusion Prompt**
Allows you to determine whether to display chassis intrusion notification at system startup. (Default: Disabled)

☞ **Watch Dog**
Enables or disables Watch Dog function. (Default: Disabled)

☞ **Target Time**
Allows you to configure the time at which Watch Dog restarts the system. This item is configurable only when **Watch Dog** is set to **Enabled**.

▶ **CPU Configuration**

▶ **Socket 0 CPU Information**
This section provides information on your CPU, frequency, and cache memory.

☞ **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)

☞ **Hardware Prefetcher**
Enables or disables L2 Cache Hardware Prefetcher. (Default: Enabled)

☞ **Adjacent Cache Line Prefetch**
Enables or disables L2 prefetching of adjacent cache lines. (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: Enabled)

☞ **Power Technology**
Allows you to configure Intel® power management features. (Default: Energy Efficient)

▶ **PPM Configuration**

☞ **CPU C state Report**
Enables or disables support for CPU's power-saving functions. (Default: Enabled)

☞ **Enhanced C state**
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. This item is configurable only when **CPU C state Report** is enabled. (Default: Enabled)

☞ **Max CPU C-state**
Allows you to determine the maximum C state that the CPU will support. Options include: C6, C1 (default). This item is configurable only when **CPU C state Report** is enabled.

▶ **Thermal Configuration**

☞ **DTS**
Enables or disables the CPU overheating protection function. (Default: Disabled)

☞ **Critical Trip Point**
Allows you to set the CPU temperature threshold. If the CPU temperature reaches this value, the operating system will shut down the system. This item is configurable only when **DTS** is enabled. (Default: 100 C)

☞ **Passive Trip Point**
Allows you to set the CPU temperature threshold. If the CPU temperature reaches this value, the CPU frequency will be automatically reduced. This item is configurable only when **DTS** is enabled. (Default: 85 C)

▶ **IDE Configuration**

☞ **Serial-ATA (SATA)**
Enables or disables the integrated SATA controllers. (Default: Enabled)

▶ **SATA Mode**
Allows you to decide whether to configure the SATA controller integrated in the Chipset to AHCI mode. This item is configurable only when **Serial-ATA(SATA)** is set to **Enabled**.

- IDE Mode — Disables RAID for the SATA controllers and configures the SATA controllers to IDE mode.
- AHCI Mode — 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)

☞ **Serial-ATA Port 0/Serial-ATA Port 1**
Enables or disables each SATA port. This item is configurable only when **Serial-ATA(SATA)** is set to **Enabled**. The area below displays the current status of each SATA port. (Default: Enabled)

SATA Port 0 HotPlug/SATA Port 1 HotPlug
Enables or disable the hot plug capability for each SATA port. (Default: Disabled)

Network Stack Configuration

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.

CSM Configuration

CSM Support
Enables or disables UEFI CSM (Compatibility Support Module) to support a legacy PC boot process.
- Enabled — Enables UEFI CSM. (Default)
- Disabled — Disables UEFI CSM and supports UEFI BIOS boot process only.

Boot option filter
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 **Enabled**.

Network
Allows you to select whether to enable the UEFI or legacy option ROM for the LAN controller.
- Do not launch — Disables option ROM. (Default)
- UEFI only — Enables UEFI option ROM only.
- Legacy only — Enables legacy 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 **Enabled**.

Storage
Allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.
- Do not launch — Disables option ROM.
- UEFI only — Enables UEFI option ROM only.
- Legacy only — Enables legacy option ROM only. (Default)
- 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 **Enabled**.

Video
Allows you to select whether to enable the UEFI or legacy option ROM for the graphics controller.
- Do not launch — Disables option ROM.
- UEFI only — Enables UEFI option ROM only. (Default)
- Legacy only — Enables legacy 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 **Enabled**.

- **Other PCI devices**
  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.
  - UEFI First — Enables UEFI option ROM first. (Default)
  - Legacy only — Enables legacy option ROM only.

  This item is configurable only when **CSM Support** is set to **Enabled**.

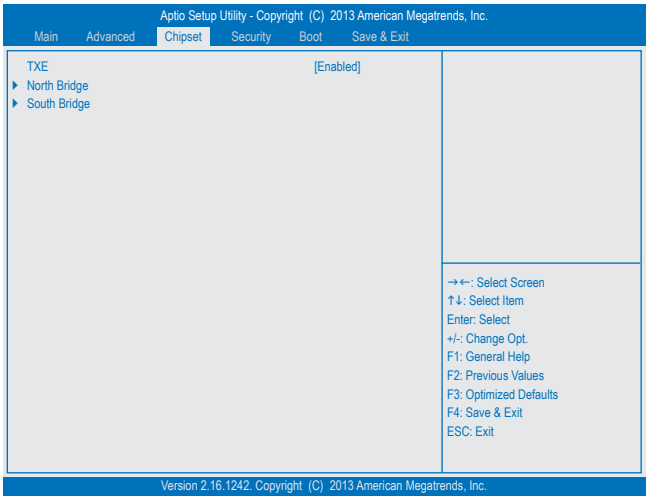
- **NVMe Configuration**
  Displays information on your M.2 NVME PCIe SSD if installed.

- **USB Configuration**
- **Legacy USB Support**
  Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled)
- **USB3.0 Support**
  Enables or disables the USB 3.0 controller. (Default: Enabled)
- **XHCI Hand-off**
  Determines whether to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support. (Default: Enabled)
- **EHCI Hand-off**
  Determines whether to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support. (Default: Disabled)
- **USB Mass Storage Driver Support**
  Enables or disables support for USB storage devices. (Default: Enabled)
- **Mass Storage Devices**
  Displays a list of connected USB mass storage devices. This item appears only when a USB storage device is installed.

- **Intel(R) I211 Gigabit Network Connection**
  This sub-menu provides information on LAN configuration and related configuration options.

- **Intel(R) I211 Gigabit Network Connection**
  This sub-menu provides information on LAN configuration and related configuration options.

2-4 Chipset



☞ **TXE**
Enables or disables the TXE feature. (Default: Enabled)

▶ **North Bridge**
This section provides information on the installed memory size and memory/onboard graphics-related configuration options.

▶ **Intel IGD Configuration**
This section provides onboard graphics-related configuration options.

☞ **MAX TOLUD**
Allows you to configure the maximum TOLUD value. (Default: Dynamic)

▶ **South Bridge**
This section provides information on the installed memory size and memory/onboard graphics-related configuration options.

▶ **USB Configuration**
This section provides you with configuration options for the USB controller, such as enabling/disabling a specific USB port and support for certain features.

▶ **PCI Express Configuration**
This section provides you with configuration options for the PCI Express bus, such as enabling/disabling a specific PCI Express channel and speed configuration.

☞ **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**.

☞ **High Precision Timer**

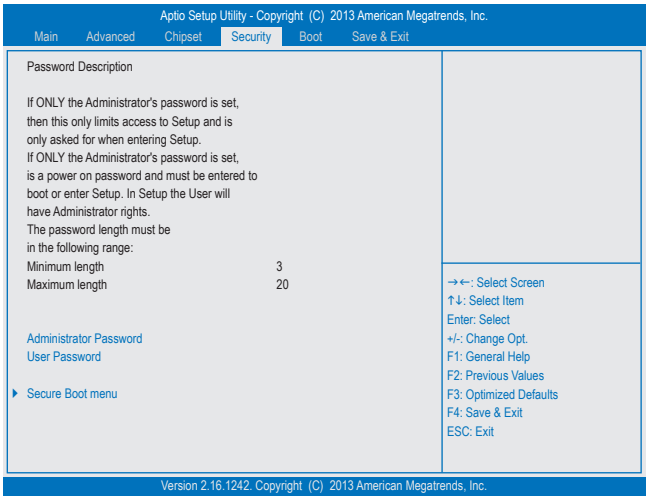
Enables or disables High Precision Event Timer (HPET) in the operating system. (Default: Enabled)

☞ **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.

2-5 Security



☞ **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.

▶ **Secure Boot menu**

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

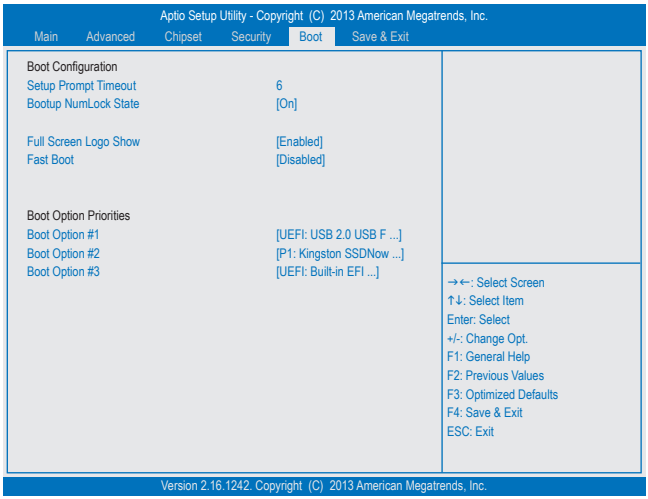
☞ **Secure Boot**
Displays the current secure boot state.

☞ **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 loads and gets to the login screen have not been tampered with. (Default: Disabled)

☞ **Secure Boot Mode**
Allows you to configure the secure boot mode. (Default: Custom)

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

2-6 Boot



☞ **Setup Prompt Timeout**
Allows you to configure the number of seconds to stay in BIOS setup prompt screen. (Default: 6)

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

☞ **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. (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**.

☞ **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**.

☞ **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**.

☞ **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**.

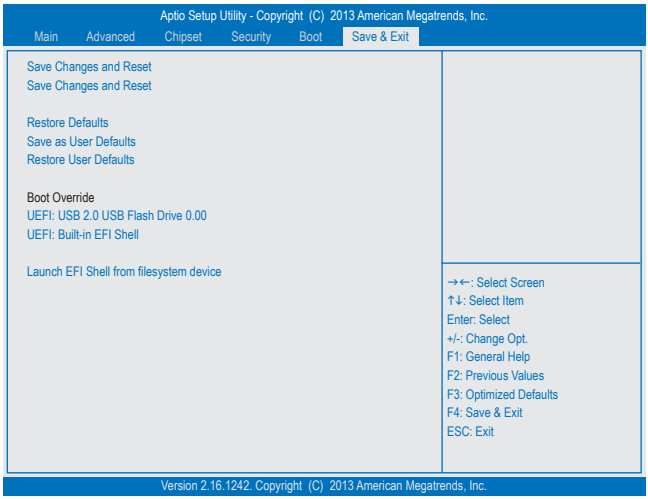
☞ **Boot Option #1/2/3**

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 disc and is prefixed with "UEFI:" string.

2-7 Save & Exit



☞ **Save Changes and Reset**
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.

☞ **Discard Changes and Reset**
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.

☞ **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.

☞ **Save as User Defaults**
Save to current BIOS settings as user-defined default settings.

☞ **Restore User Defaults**
Load the user-define default settings for all BIOS options.

☞ **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.

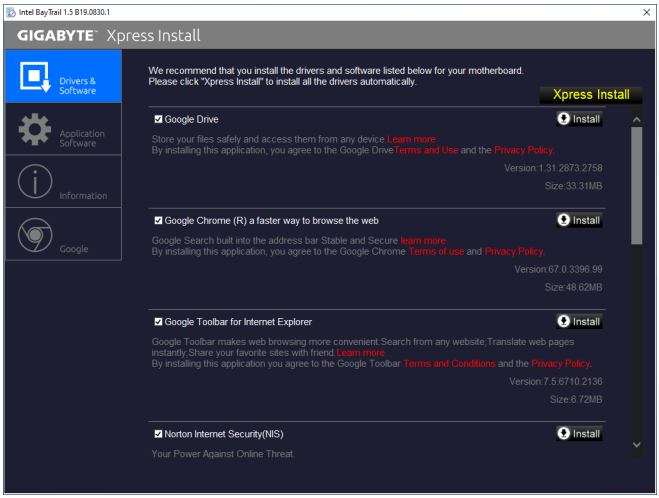
☞ **Launch EFI Shell from filesystem device**
Allows you to launch the EFI Shell application (shell.efi) from one of the available filesystem devices. Press <Enter> on this option and the system will restart to the EFI Shell screen automatically.

Chapter 3 Appendix

Drivers Installation

- Before installing the drivers, first install the operating system.
- After installing the operating system, insert the motherboard driver disc 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.)

"Xpress Install" will automatically scan your system and then list all of the drivers that are recommended to install. You can click the **Xpress Install** button and "Xpress Install" will install all of the selected drivers. Or click the arrow Install icon to individually install the drivers you need.



Please visit GIGABYTE's website for more software information.

Please visit GIGABYTE's website for more troubleshooting information.

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 2012/19/EU 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.

Battery Information

European Union—Disposal and recycling information
GIGABYTE Recycling Program (available in some regions)

This symbol indicates that this product and/or battery should not be disposed of with household waste. You must use the public collection system to return, recycle, or treat them in compliance with the local regulations.

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.

Contact Us

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- **GIGABYTE eSupport**

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