

GA-6LASH

GA-6LASL

LGA1150 socket motherboard for Intel® E3 series processors

User's Manual

Rev. 1001

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

- For detailed product information, carefully read the User's Manual.

For product-related information, check on our website at:

<http://www.gigabyte.com>

Table of Contents

Box Contents	5
GA-6LASH/GA-6LASL Motherboard Layout.....	6
GA-6LASH Block Diagram	9
GA-6LASL Block Diagram	10
Chapter 1 Hardware Installation	12
1-1 Installation Precautions	12
1-2 Product Specifications.....	13
1-3 Installing the CPU and CPU Cooler	15
1-3-1 Installing the CPU	15
1-3-2 Installing the CPU Cooler	17
1-4 Installing the Memory	18
1-4-1 Dual Channel Memory Configuration	18
1-4-2 Installing a Memory	19
1-5 Back Panel Connectors.....	20
1-6 Internal Connectors.....	21
Chapter 2 BIOS Setup	36
2-1 The Main Menu	38
2-2 Advanced Menu	40
2-2-1 ACPI Configuration.....	41
2-2-2 Trusted Computing (Optional)	42
2-2-3 PCI Subsystem Settings.....	43
2-2-3-1 PCI Express Settings.....	45
2-2-4 CPU Configuration.....	47
2-2-5 SATA Configuration.....	53
2-2-5-1 Software Feature Mask Configuration	55
2-2-6 Info Report Configuration	57
2-2-7 USB Configuration.....	58
2-2-8 IT8732 Super IO Configuration.....	59
2-2-9 IT8732 Hardware Monitor (GA-6LASL Only)	61
2-2-10 Serial Port Console Redirection	62
2-2-11 Network Stack	65
2-2-12 iSCSI Configuration	66
2-2-13 Intel (R) I210 Gigabit Network Connection	67
2-3 Chipset Menu	69
2-3-1 System Agent (SA)Configuration	70
2-3-1-1 Graphic Configuration.....	71

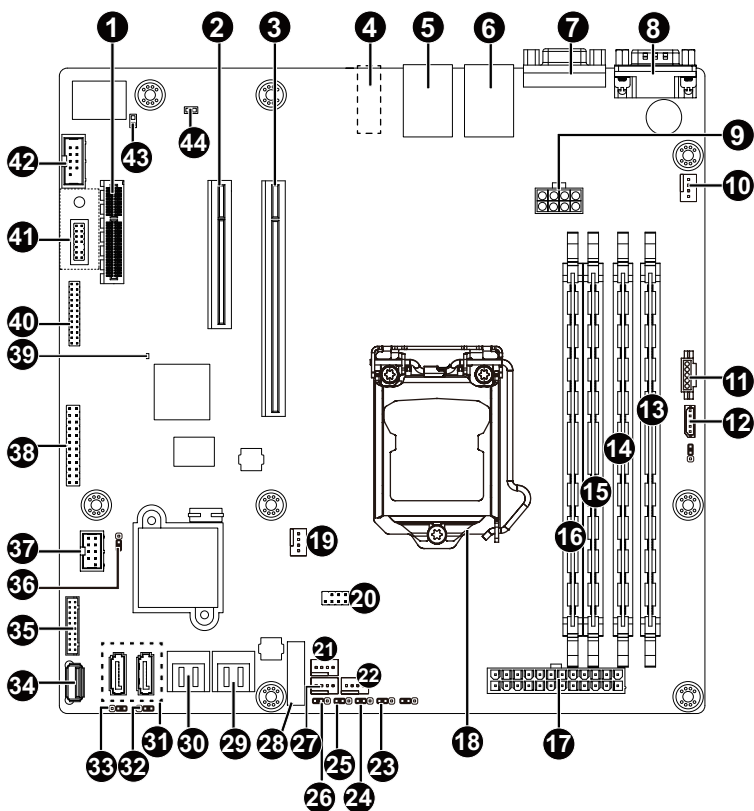
2-3-1-2	NB PCIe Configuration	72
2-3-1-3	Memory Configuration	74
2-3-2	PCH-IO Configuration.....	76
2-3-2-1	PCI Express Configuration	78
2-3-2-2	USB Configuration	79
2-3-3	Intel Server Platform Services.....	80
2-4	Security Menu	81
2-4-1	Secure Boot menu	82
2-4-1-1	Image Execution Policy	83
2-4-1-2	Key Management	84
2-5	Server Management Menu (GA-6LASH Only).....	86
2-5-1	BMC LAN Configuration (GA-6LASH Only).....	87
2-5-2	View FRU Information (GA-6LASH Only).....	88
2-5-3	System Event Log (GA-6LASH Only).....	89
2-6	Event Logs Menu	90
2-6-1	Change Smbios Event Log Settings.....	91
2-6-2	View Smbios Event Log.....	93
2-7	Boot Menu.....	94
2-7-1	CSM16 Parameters	96
2-7-2	CSM Parameters	97
2-8	Exit Menu	99
Chapter 3	Appendix	100
3-1	Regulatory Statements.....	100

Box Contents

- ☒ GA-6LASH/GA-6LASL motherboard
- ☒ Driver CD
- ☒ 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.
- The motherboard image is for reference only.

GA-6LASH/GA-6LASL Motherboard Layout



Item	Code	Description
1	PCIE_1	PCI-E x4 slot
2	PCIE_2	PCI-E x8 slot
3	PCIE_3	PCI-E x16 slot
4	HD_AUDIO ^(Note)	Audio connectors
5	USB2_LAN1	LAN1 port (top/NCSI LAN port for server management) / USB 2.0 ports (bottom)
6	USB2_LAN2	LAN2 port (top) / USB 2.0 ports (bottom)
7	VGA_1	VGA port
8	COM1	Serial port
9	P12V_AUX1	8 pin power connector
10	SYS_FAN1	System fan connector #1
11	PMBUS	PMBus connector
12	IPMB	IPMB connector
13	DDR3_P0_B1	DIMM slot (channel 2 slot 1)
14	DDR3_P0_B0	DIMM slot (channel 2 slot 0)
15	DDR3_P0_A1	DIMM slot (channel 1 slot 1)
16	DDR3_P0_A0	DIMM slot (channel 1 slot 0)
17	ATX	24 pin main power connector
18	CPU	Intel LGA1150 socket
19	CPU0_FAN	CPU fan connector
20	SATA_SGP1	SATA SGPIO header
21	SYS_FAN3	System fan connector #3
22	SYS_FAN2	System fan connector #2
23	BIOS_PWD	Clearing supervisor password jumper
24	PCH_ME	ME recovery jumper
25	BIOS_RCVR	BIOS Recovery jumper
26	CLR_CMOS	Clear CMOS jumper
27	SYS_FAN4	System fan connector #
28	BAT	Battery socket
29	SATA_4_5	SATA 3Gb/s connectors
30	SATA_2_3	SATA 3Gb/s connectors
31	SATA0/SATA1	SATA 6Gb/s connectors
32	SATA_DOM1	SATA port 1 DOM support jumper
33	SATA_DOM0	SATA port 0 DOM support jumper
34	USB2_A1	USB 2.0 Type A connector
35	F_USB3	USB 3.0 header
36	ME_UPDATE	ME update jumper
37	F_USB2	USB 2.0 Type A connector
38	FP_1	Front panel header

NOTE! This feature/device is only for GA-6LASH.



39	BMC_LED ^(Note)	BMC Readiness LED
40	BP_1	Back plane board header
41	TPM_MEZZ1	TPM module connector
42	COM2	Serial port cable connector
43	CASE_OPEN	Case open intrusion header
44	SPDIF_IN ^(Note)	SPDIF In header

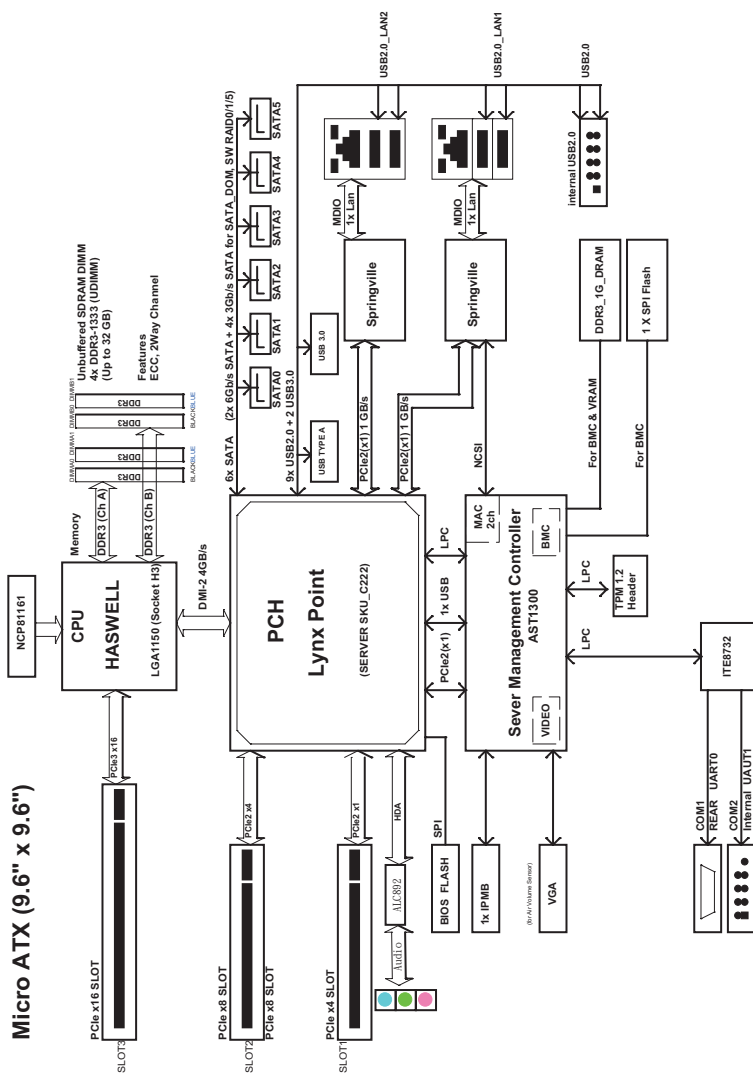


NOTE! This feature/device is only for GA-6LASH.



CAUTION! If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Default setting), in order to reduce any risk of hard disk damage. Please refer to Page 26 for SATA_DOM0 and SATA_DOM1 jumper setting instruction.

GA-6LASH Block Diagram



Micro ATX (9.6" x 9.6")












Chapter 1 Hardware Installation







1-1 Installation Precautions

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

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

1-2 Product Specifications

 CPU	<ul style="list-style-type: none"> Support for Intel® Xeon® E3-1200 family processors in the LGA1150 package L3 cache varies with CPU
 Chipset	<ul style="list-style-type: none"> Intel® C222 PCH
 Memory	<ul style="list-style-type: none"> 4 x 1.5V DDR3 DIMM sockets supporting up to 32 GB of system memory Dual channel memory architecture Support for DDR3 1333/1666 MHz memory modules Support for ECC memory modules
 LAN	<ul style="list-style-type: none"> 2 x Intel® I210 supports 10/100/1000 Mbps
 Onboard Graphics	<ul style="list-style-type: none"> ASPEED® AST2300 supports 128MB VRAM (GA-6LASH) ASPEED® AST1300 supports 128MB VRAM (GA-6LASL)
 Storage Interface	<ul style="list-style-type: none"> 4 x SATA 3Gb/s connectors 2 x SATA 6Gb/s connectors Support for Intel IRSTe SATA RAID 0, RAID 1, RAID 5, RAID 10
 USB	<ul style="list-style-type: none"> Up to 7 USB 2.0 ports (4 on the back panel, 1 Type A connector, 2 via the USB brackets connected to the internal USB headers) 2 USB 3.0 ports (2 via the USB brackets connected to the internal USB headers)
 Expansion Slots	<ul style="list-style-type: none"> 1 x PCI Express x16 slot, running at x16 (Gen3/PCIE_3) 1 x PCI Express x8 slot, running at x4 (Gen2/PCIE_2) 1 x PCI Express x4 slot, running at x1 (Gen2/PCIE_1)
 Internal Connectors	<ul style="list-style-type: none"> 1 x 24-pin ATX main power connector 1 x 8-pin ATX 12V power connector 4 x SATA 3Gb/s connectors 2 x SATA 6Gb/s connectors 1 x CPU fan header 4 x System fan header 1 x Front panel header 1 x PMBus header 1 x USB 2.0 header 1 x USB 3.0 header 1 x Serial port header 1 x SATA SGPIO header 1 x Back plane board header 1 x TPM module connector

	Back Panel Connectors	<ul style="list-style-type: none"> ♦ 3 x Audio connectors^(Note) ♦ 4 x USB 2.0 ports ♦ 2 x RJ-45 ports ♦ 1 x COM port ♦ 1 x VGA port
	I/O Controller	<ul style="list-style-type: none"> ♦ ASPEED® AST2300 chip (GA-6LASH) ♦ ASPEED® AST1300 chip (GA-6LASL)
	Hardware Monitor	<ul style="list-style-type: none"> ♦ System voltage detection ♦ CPU/System temperature detection ♦ CPU/System/Power fan speed detection ♦ CPU overheating warning ♦ CPU/System/Power fan fail warning ♦ CPU/System fan speed control <ul style="list-style-type: none"> * Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.
	BIOS	<ul style="list-style-type: none"> ♦ 1 x 128 Mbit flash ♦ AMI BIOS
	Form Factor	♦ Micro ATX Form Factor; 9.6 inch x 9.6 inch, 4 Layers
 NOTE! This feature/device is only for GA-6LASH.		
GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.		

1-3 Installing the CPU and CPU Cooler

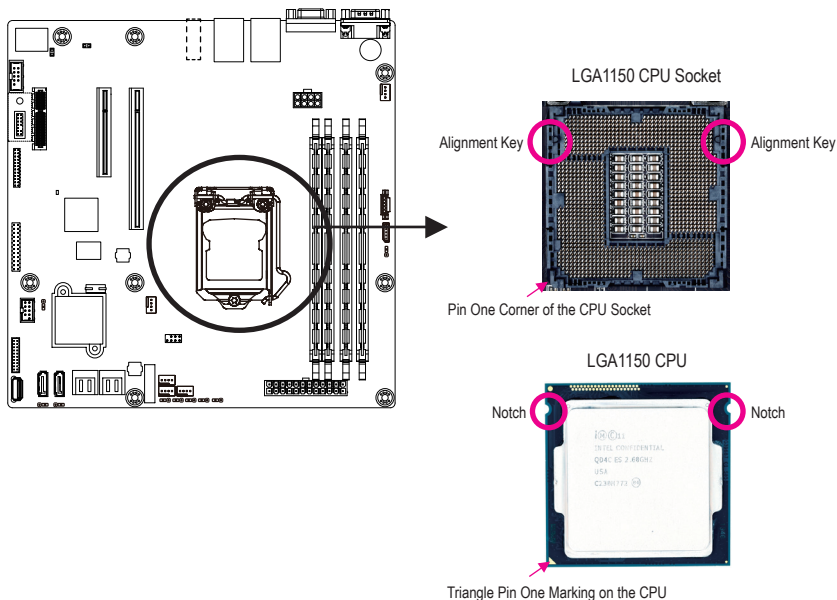


Read the following guidelines before you begin to install the CPU:

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

1-3-1 Installing the CPU

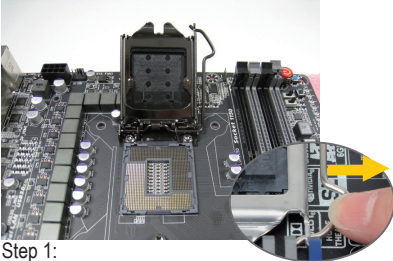
A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.



B. Follow the steps below to correctly install the CPU into the motherboard CPU socket.

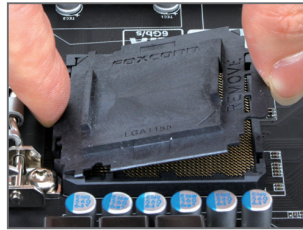


Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet power plug to prevent any damage to the CPU.



Step 1:

Gently press the CPU socket lever handle down and away from the socket with your finger. Then completely lift the CPU socket lever and the metal load plate will be lifted as well.



Step 2:

Remove the CPU socket cover as shown. Hold your index finger down on the rear grip of the socket cover and use your thumb to lift up the front edge (next to the "REMOVE" mark) and then remove the cover. (DO NOT touch socket contacts. To protect the CPU socket, always replace the protective socket cover when the CPU is not installed.)



Step 3:

Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys) and gently insert the CPU into position.



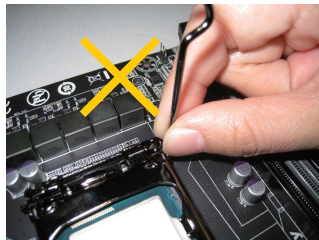
Step 4:

Once the CPU is properly inserted, use one hand to hold the socket lever and use the other to lightly replace the load plate. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw.



Step 5:

Push the CPU socket lever back into its locked position.



NOTE:

Hold the CPU socket lever by the handle, not the lever base portion.

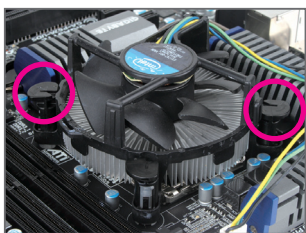
1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. (The following procedure uses Intel® boxed cooler as the example cooler.)



Step 1:

Apply an even and thin layer of thermal paste on the surface of the installed CPU.



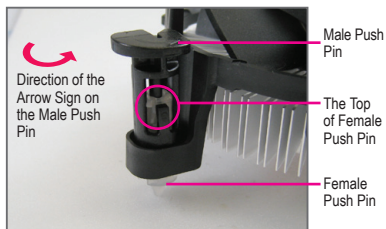
Step 3:

Place the cooler atop the CPU, aligning the four push pins through the pin holes on the motherboard. Push down on the push pins diagonally.




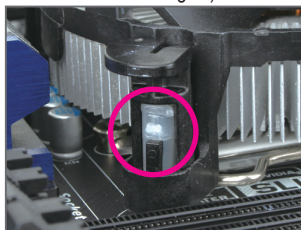
Step 5:

After the installation, check the back of the motherboard. If the push pin is inserted as the picture above shows, the installation is complete.



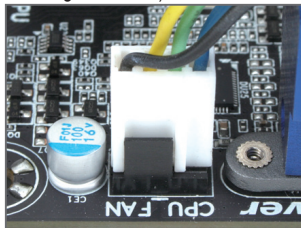
Step 2:

Before installing the cooler, note the direction of the arrow sign  on the male push pin. (Turning the push pin along the direction of the arrow is for removing the cooler, and the opposite direction is for installing it..)



Step 4:

You should hear a "click" when pushing down each push pin. Check that the Male and Female push pins are joined closely. (Refer to your CPU cooler installation manual for instructions on installing the cooler.)



Step 6:

Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.



Use extreme care when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4 Installing the Memory



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

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

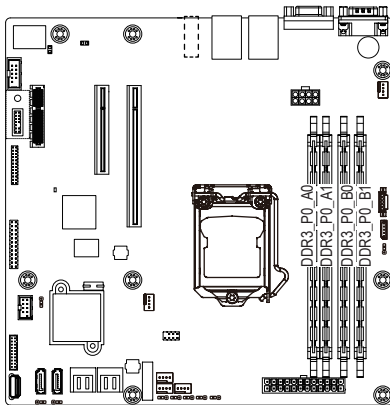
1-4-1 Dual Channel Memory Configuration

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

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

Channel 1: DDR3_P0, A0, DDR3_P0, A1

Channel 2: DDR3_P0, B0, DDR3_P0, B1



Total Capacity	DIMMA0	DIMMA1	DIMMB0	DIMMB1
1G				1G
2G		1G		1G
4G	1G	1G	1G	1G
2G				2G
4G		2G		2G
8G	2G	2G	2G	2G
4G				4G
8G		4G		4G
16G	4G	4G	4G	4G
32G	8G	8G	8G	8G

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

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

1-4-2 Installing a Memory



Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.

Be sure to install DDR3 DIMMs on this motherboard.

Installation Step:

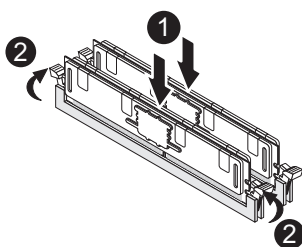
Step 1. Insert the DIMM memory module vertically into the DIMM slot, and push it down.

Step 2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

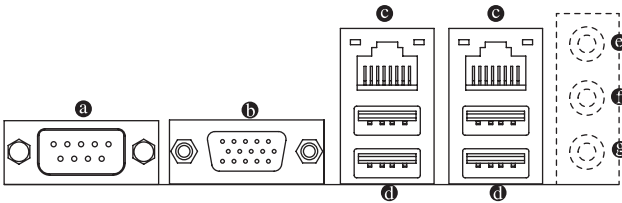
NOTE! DIMM must be populated in order starting from DIMM1A socket.

For dual-channel operation, DIMMs must be installed in matched pairs.

Step 3. Reverse the installation steps when you wish to remove the DIMM module.



1-5 Back Panel Connectors



- a Serial Port**
Connects to serial-based mouse or data processing devices.
- b Video Port**
The video in port allows connect to video in, which can also apply to video loop thru function.
- c 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.
- d USB 2.0/1.1 Port**
The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.
- e Line In Jack (Blue)**
The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.
- f Line Out Jack (Green)**
The default line out jack. Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.
- g MIC In (Pink)**
The default MIC In jack. Microphone cab be connected to MIC In jack.

Link
Activity LED

Speed LED

10/100/1000 LAN Port

I210 Speed LED:

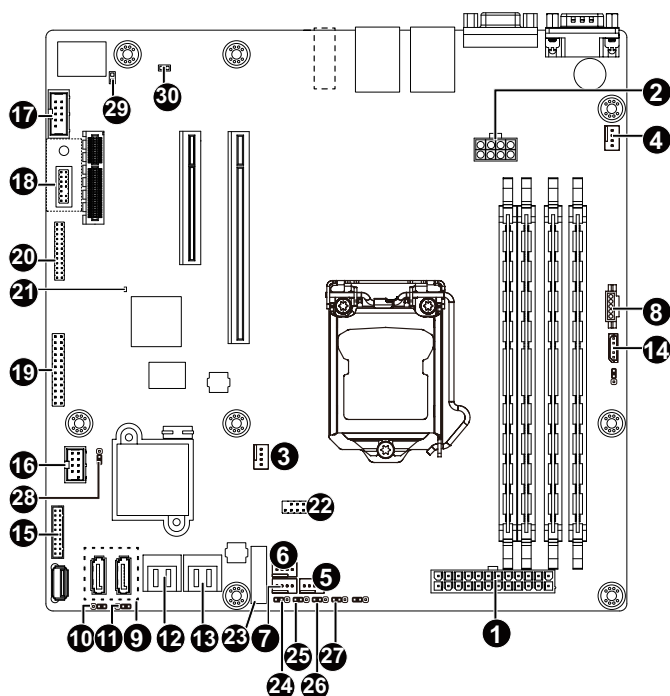
State	Description
Yellow On	1 Gbps data rate
Yellow Blink	Identify 1 Gbps data rate
Green On	100 Mbps data rate
Green Blink	Identify 100 Mbps data rate
Off	10 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

- 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) ATX1	16) F_USB2
2) P12V_AUX1	17) COM2
3) CPU0_FAN (CPU Fan)	18) TPM
4) SYS_FAN1 (System Fan)	19) FP_1
5) SYS_FAN2 (System Fan)	20) BP_1
6) SYS_FAN3 (System Fan)	21) BMC_LED ^(Note)
7) SYS_FAN4 (System Fan)	22) SATA_SGPIO
8) PMBUS	23) BAT
9) SATA0/1	24) CLR_CMOS
10) SATA_DOM0	25) BIOS_RCVR
11) SATA_DOM1	26) PCH_ME
12) SATA23	27) BIOS_PWD
13) SATA45	28) ME_UPDATE
14) IPMB	29) CASE_OPEN
15) F_USB3	30) SPDIF



NOTE! This feature/device is only for GA-6LASH.



Read the following guidelines before connecting external devices:

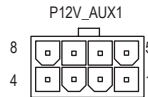
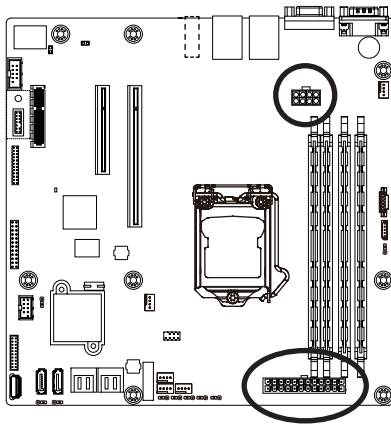
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the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

1/2) ATX1/P12V_AUX1 (2x12 Main Power Connector and 2x4 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.

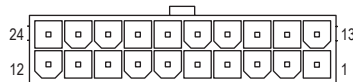


To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.



Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	+12V
6	+12V
7	+12V
8	+12V

ATX1

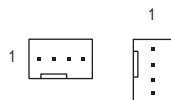
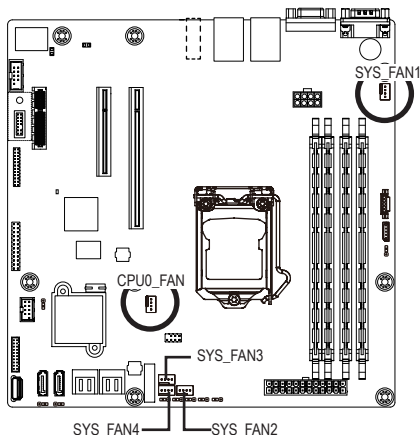


Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

3/4/5/6/7) CPU0_FAN1/SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4

(CPU Fan/System Fan Headers)

The motherboard has a 4-pin CPU fan header (CPU0_FAN1), and four 4-pin (SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4) system fan headers. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.

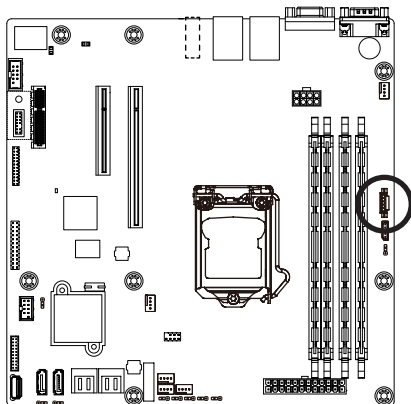


Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control



- 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.

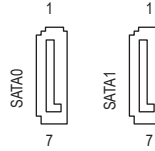
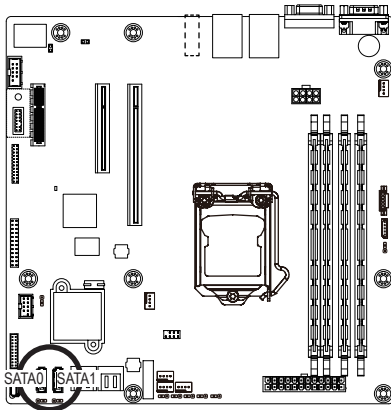
8) PMBUS (PMBus connector)



Pin No.	Definition
1	SMB CLK
2	SMB DATA
3	SMB Alert
4	GND
5	3.3V Sense

9) SATA0/SATA1 (SATA 6Gb/s Connectors)

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



When SATA_DOM0/1 jumper are set to 1-2 pin:

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	P5V

When SATA_DOM0/1 jumper are set to 2-3 pin:

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



- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number.
- A RAID 10 configuration requires four hard drives.

(Note) When a RAID configuration is built across the SATA 6Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected.

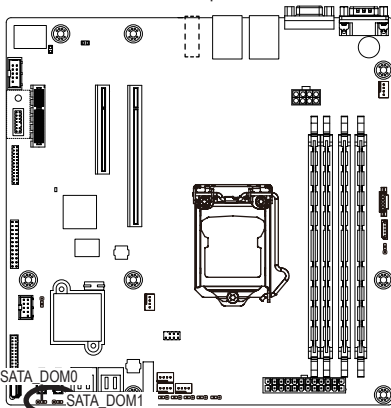
10(11) SATA_DOM0/SATA_DOM1 (SATA port 0 and port 1 DOM Jumpers)

CAUTION!



- If the SATA DOM power is supplied by the motherboard, set the jumper to pin 1-2.
- If the SATA DOM power is supplied by external power, set the jumper to pin 2-3.
- If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Default setting), in order to reduce any risk of hard disk damage.

Please refer to the pin definition table in the following.



For SATA_DOM0

Pin No.	Definition
1	P5V
2	SATA_DOM_0
3	GND



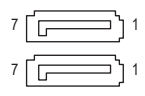
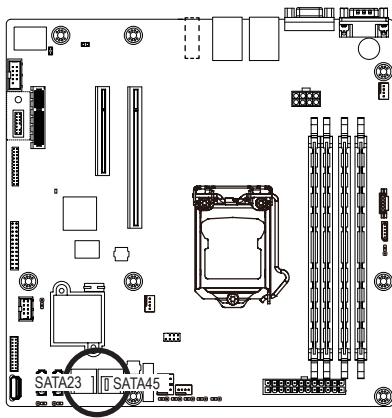
For SATA_DOM1

Pin No.	Definition
1	P5V
2	SATA_DOM_1
3	GND



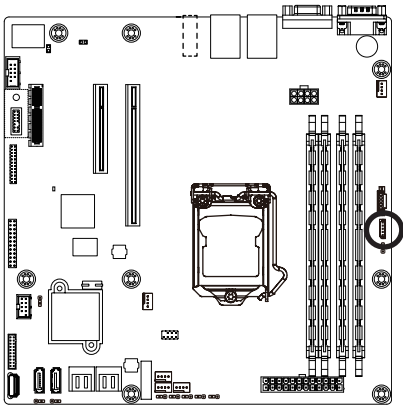
12/13) SATA23/SATA45 (SATA 3Gb/s Connectors)

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

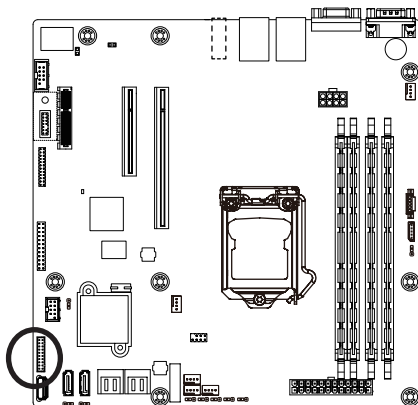
14) IPMB (IPMB connector)



Pin No.	Definition
1	SCL
2	GND
3	SDA

15) F_USB3 (USB 3.0 Header)

The headers conform to USB 3.0 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.



20 1

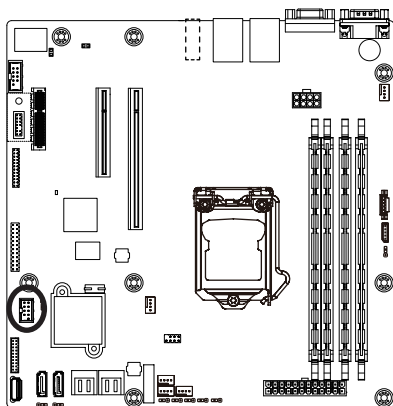


11 10

Pin No.	Definition
1	Power
2	IntA_P1_SSRX-
3	IntA_P1_SSRX+
4	GND
5	IntA_P1_SSTX-
6	IntA_P1_SSTX+
7	GND
8	IntA_P1_D-
9	IntA_P1_D+
10	NC
11	IntA_P2_D+
12	IntA_P2_D-
13	GND
14	IntA_P2_SSTX+
15	IntA_P2_SSTX-
16	GND
17	IntA_P2_SSRX+
18	IntA_P2_SSRX-
19	Power
20	No Pin

16) F_USB2 (Front USB Header)

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.



1 2

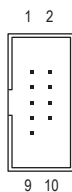
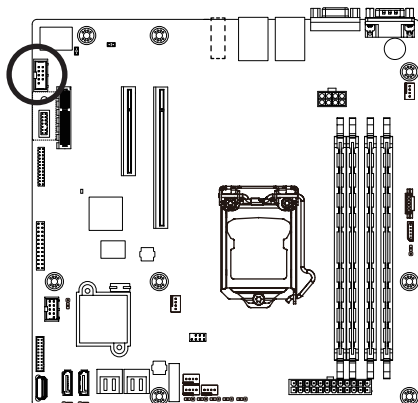


9 10

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

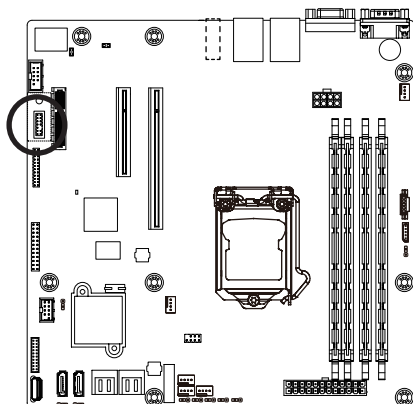
17) COM2 (Serial Port Header)

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



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

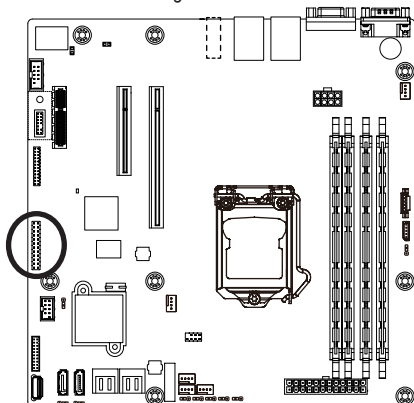
18) TPM (TPM Module connector)



Pin No.	Definition
1	CLK_33M_TPM
2	P_3V3_AUX
3	LPC_RST_DEBUG
4	P3V3
5	LPC_LAD0
6	IRQ_SERIAL
7	LPC_LAD1
8	TPM_DET_N
9	LPC_LAD2
10	NC
11	LPC_LAD3
12	GND
13	LPC_FRAME_N
14	GND

19) FP_1 (Front Panel Header)

Connect the power switch, reset switch, chassis intrusion switch/sensor 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.



1 2

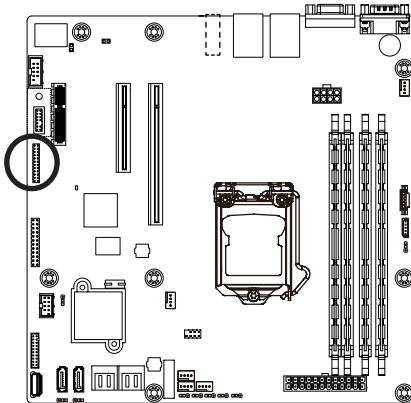


Pin No.	Signal Name	Definition
1	PWLED+	Power LED Signal anode (+)
2	5VSB	5V Standby Power
3	NC	No Pin
4	ID_LED+	ID LED Signal anode (+)
5	PWLED-	Power LED Signal cathode(-)
6	ID_LED-	ID LED Signal cathode(-)
7	HD+	Hard Disk LED Signal anode (+)
8	F_SYSRDY	System Front board LED Signal
9	HD- (GND)	Ground
10	SYS_STATUS-	System Status LED Signal cathode(-)
11	PWB+	Power Button Signal anode (+)
12	L2_ACT	LAN2 active LED Signal
13	PWB+_GND	Ground
14	L2_LINK-	LAN2 Link LED Signal cathode(-)
15	RST_BTN+	Reset button Signal anode (+)
16	SENSOR_SDA	SMBus Data Signal
17	RST_BTN_GND	Ground
18	SENSOR_SCL	SMBus Clock Signal
19	ID_SW+	ID Switch Signal anode (+)
20	CASE_OPEN-	Chassis intrusion Signal cathode(-)
21	ID_SW (GND)	Ground
22	L1_ACT	LAN1 active LED Signal
23	NMI_SW-	NMI switch Signal cathode(-)
24	L1_LINK-	LAN1 Link LED Signal cathode(-)



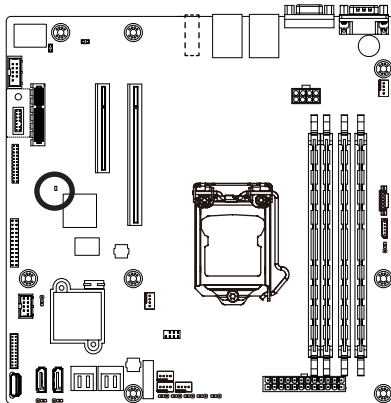
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

20) BP_1 (HDD Back Plane Board Headers)



Pin No.	Definition
1	B_SGCLK
2	PCH_BMC_THROTTLE_N
3	B_SGLD
4	IRQ_FAB_12V_GATE_N_BUF
5	B_SGDOUT
6	GND
7	KEY
8	RresetL_BRB
9	GND
10	BP_ALED_N
11	BP_LED_G_N
12	GND
13	B_SGDIN
14	ASSESS#_LED_BPB
15	GND
16	SMB_BPB1_DATA
17	GND
18	SMB_BPB1_CLK
19	P_3V3_AUX
20	BP_HDD_TYPE
21	P_3V3_AUX
22	FAN_TYPE
23	GND
24	KEY
25	BP_PRESENSE
26	GND

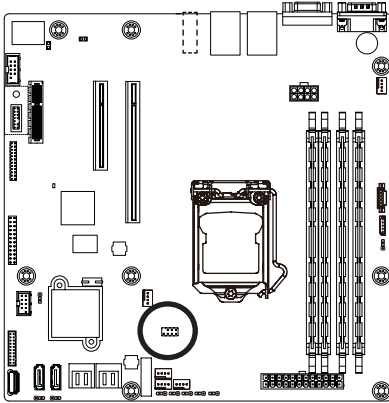
21) BMC_LED (BMC Firmware Readiness LED/GA-6LASH Only)



State	Description
On	BMC firmware is initial
Blinking	BMC firmware is ready
Off	System is powered off

22) SATA_SGPIO (SATA SGPIO Header)

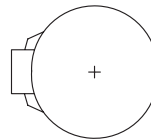
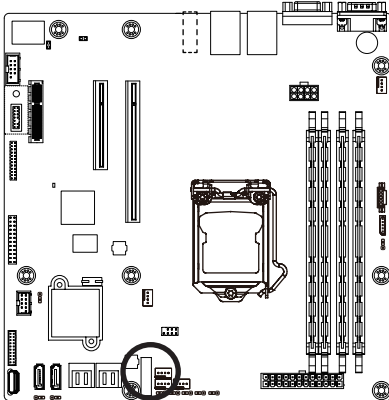
SGPIO is stands for Serial General Purpose Input/Output which is a 4-signal (or 4-wire) bus used between a Host Bus Adapter (HBA) and a backplane. Out of the 4 signals, 3 are driven by the HBA and 1 is driven by the backplane. Typically, the HBA is a storage controller located inside a server, desktop, rack or workstation computer that interfaces with Hard disk drives (HDDs) to store and retrieve data.



Pin No.	Definition
1	SGPIO_SATA_DATAIN
2	No Pin
3	SGPIO_SATA_DATAOUT
4	GND
5	GND
6	SGPIO_SATA_LOAD
7	NC
8	SGPIO_SATA_CLOCK

23) BAT (Battery)

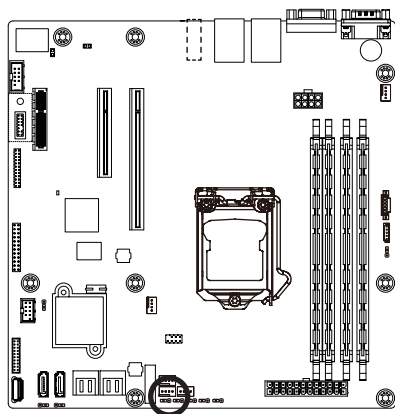
The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.




- 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.

24) CLR_CMOS (Clearing CMOS Jumper)

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



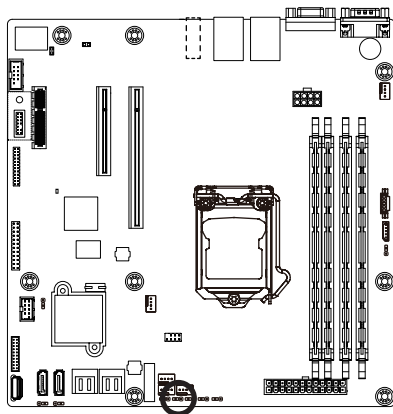
1  1-2 Close: Normal operation (Default setting)

1  2-3 Close: Clear CMOS data



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

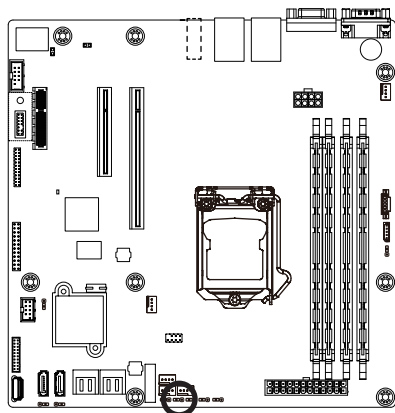
25) BIOS_RCVR (BIOS Recovery Jumper)




1  1-2 Close: Normal operation. (Default setting)

1  2-3 Close: BIOS recovery mode.

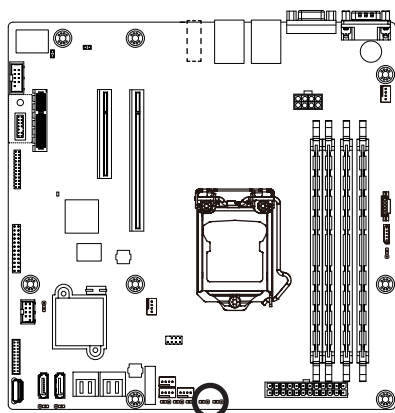
26) PCH_ME/ME_UPDATE (ME Recover Jumpers)



1  1-2 Close: Normal operation (Default setting)

1  2-3 Close: ME recovery mode.

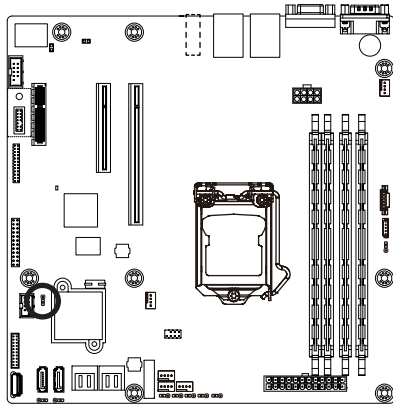
27) BIOS_PWD (Clearing Supervisor Password Jumper)





1  1-2 Close: Normal operation. (Default setting)

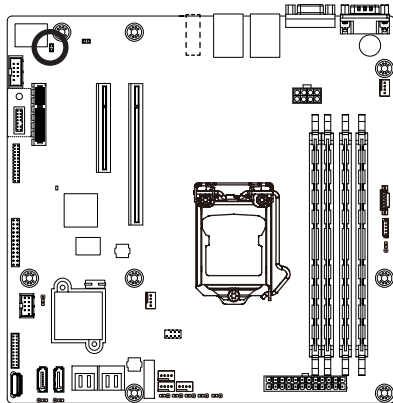
1  2-3 Close: Clear supervisor password.



28) ME_UPDATE (ME Recover Jumpers)



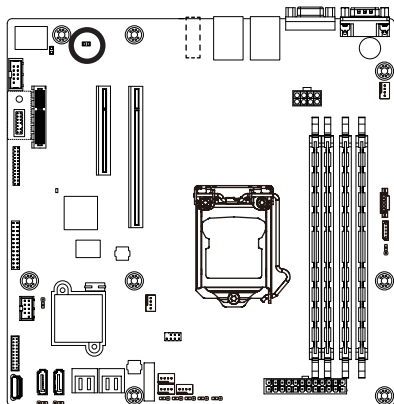
- 1  1-2 Close: Normal operation (Default setting)
- 1  2-3 Close: ME update.

29) CASE_OPEN (Case open intrusion header)



-  Open: Normal operation.
-  Closed: Active chassis intrusion alert.

30) SPDIF_IN (SPDIF In header)



1 2

Pin No.	Definition
1	GND
2	SPDIF_IN

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI 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 <F2> key during the POST when the power is turned on.



- BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS version, it is recommended that you don't 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 **Exit** section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<<-><->>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

■ **Main**

This setup page includes all the items in standard compatible BIOS.

■ **Advanced**

This setup page includes all the items of AMI BIOS special enhanced features.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

■ **Chipset**

This setup page includes all the submenu options for configuring the function of North Bridge and South Bridge.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

■ **Security**

Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.

A supervisor password allows you to make changes in BIOS Setup.

A user password only allows you to view the BIOS settings but not to make changes.

■ **Server Management (GA-6LASH Only)**

Server additional features enabled/disabled setup menus.

■ **Event Logs**

This setup page provides items for configuration of Smbios Event Log settings and display the Smbios event logs information.

■ **Boot**

This setup page provides items for configuration of boot sequence.

■ **Exit**

Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)

Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1 The Main Menu

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



- 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.

Bios Setup Utility		
Main Advanced Chipset Security Server Mgmt Event Logs Boot Save & Exit		
BIOS Information		Set the Date. Use Tab to switch between Date elements.
BIOS Version	F02	
Build Date and Time	09/13/2013 12:11:17	
BMC Information		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
BMC Firmware Version	02.06	
SDR Version	00.24	
FRU Version	00.02	
Processor Information		
Name	Haswell	
Brand String	Intel(R) Xeon(R) CPU E3-1230 v3 @ 3.30GHz	
Frequency	3500 MHz	
Processor ID	306c3	
Stepping	C0	
Number of Processors	4Core(s) / 8Thread(s)	
Microcode Revision	16	
Total Memory	2048 MB (DDR3)	
Memory Frequency	1333 Mhz	
System Date	[Sun 01/01/2012]	
System Time	[00:05:22]	

🔗 **BIOS Information**

🔗 **BIOS Version**

Display version number of the BIOS setup utility.

🔗 **BIOS Build Date and Time**

Displays the date and time when the BIOS setup utility was created.

🔗 **BMC Information**

🔗 **BMC Firmware Version**

Display version number of the BMC setup utility.

🔗 **SDR Version**

Display the SDR version of the BMC setup utility.

🔗 **FRU Version**

Display the FRU version of the BMC setup utility.

🔗 **Processor Information**

🔗 **Processor Information**

🔗 **CPU Type/Brand String/Frequency/Processor ID/Stepping/Number of Processors/
Microcode Patch Revision**

Displays the technical specifications for the installed processor.

🔗 **Memory Information**

🔗 **Memory Frequency**

Display the frequency information of the installed memory.

🔗 **System Date**

Set the date following the weekday-month-day- year format.

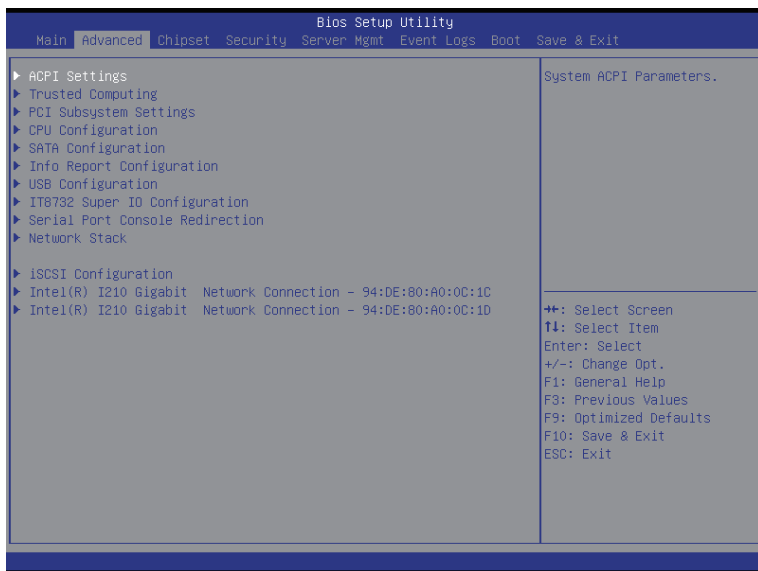
🔗 **System Time**

Set the system time following the hour-minute- second format.

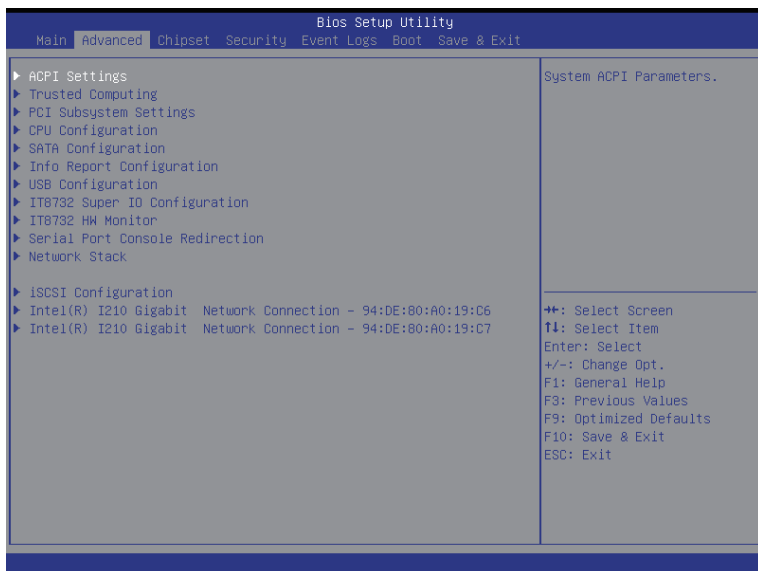
2-2 Advanced Menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen.

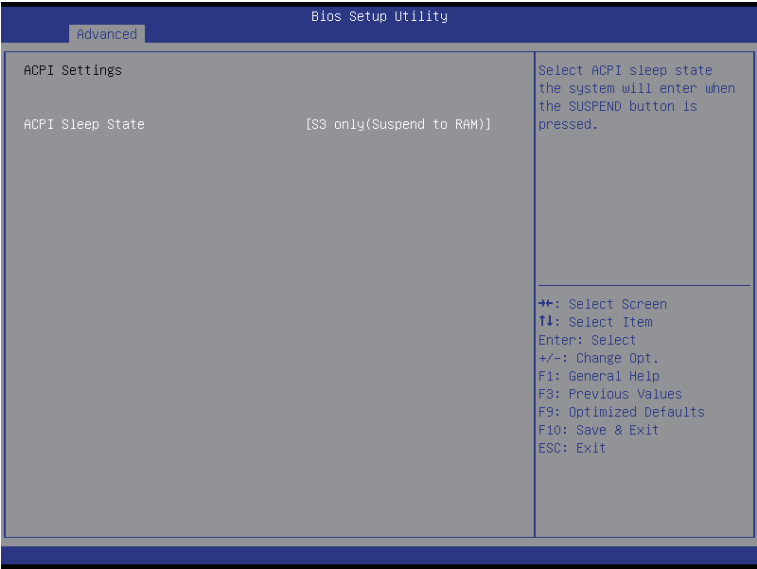
GA-6LASH



GA-6LASL



2-2-1 ACPI Configuration



ACPI Settings

ACPI Sleep State

Select the highest ACPI sleep state the system will enter, when the suspend button is pressed.

Options available: Suspend Disabled/S1 only (CPU Stop Clock)/S3 only (Suspend to RAM)/

Both S1 and S3 available for OS to choose from. Default setting is **S3 only (Suspend to RAM)**.

2-2-2 Trusted Computing (Optional)



Configuration

Security Device Support

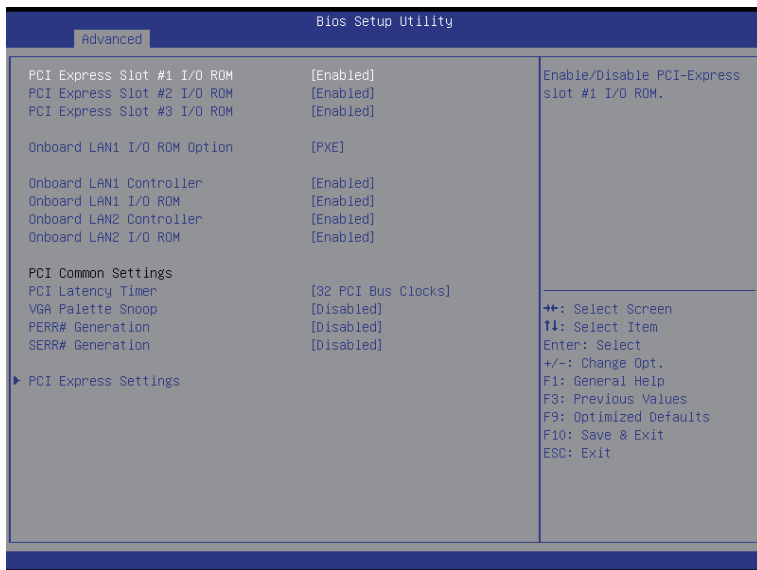
Select Enabled to activate TPM support feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Current Status Information

Display current TPM status information.

2-2-3 PCI Subsystem Settings



🔑 PCI Express Slot #1/2/3 I/O ROM

When enabled, This setting will initialize the device expansion ROM for the related PCI-E slot.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔑 Onboard LAN #1 I/O ROM

Configure onboard LAN devices and initialize device expansion ROM.

Options available: PXE/SCSI. Default setting is **PXE**.

🔑 Onboard LAN1/2 Controller

Enable/Disable Onboard LAN controllers.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔑 Onboard LAN1/2 I/O ROM

Enable/Disable onboard LAN devices and initialize device expansion ROM.

Options available: Enabled/Disabled. Default setting is **Disabled**.

🔑 PCI Common Settings

🔑 PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

Options available: 32 PCI Bus Clocks/64 PCI Bus Clocks/96 PCI Bus Clocks/128 PCI Bus Clocks/160 PCI Bus Clocks/192 PCI Bus Clocks/224 PCI Bus Clocks/248 PCI Bus Clocks/.

Default setting is **32 PCI Bus Clocks**.

VGA Palette Snoop

Enable/Disable VGA Palette Registers Snooping.

Options available: Enabled/Disabled. Default setting is **Disabled**.

PERR Generation

When this item is set to enabled, PCI bus parity error (PERR) is generated and is routed to NMI.

Options available: Enabled/Disabled. Default setting is **Disabled**.

SERR Generation

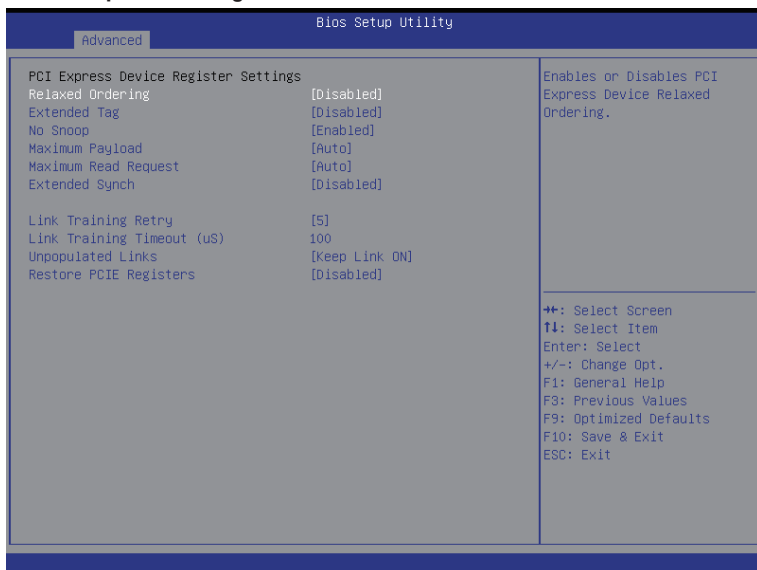
When this item is set to enabled, PCI bus system error (SERR) is generated and is routed to NMI.

Options available: Enabled/Disabled. Default setting is **Disabled**.

PCI Express Settings

Press [Enter] for configuration of advanced items.

2-2-3-1 PCI Express Settings



☞ PCI Express Device Register Settings

☞ Relaxed Ordering

Enable/Disable PCI Express Device Relaxed Ordering feature.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Extended Tag

When this feature is enabled, the system will allow device to use 8-bit Tag field as a requester.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ No Snoop

Enable/Disable PCI Express Device No Snoop option.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Maximum Payload

Set maximum payload for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

☞ Maximum Read Request

Set maximum Read Request size for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

☞ Extended Synch

When this feature is enabled, the system will allow generation of Extended Synchronization patterns.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Link Training Retry**

Define the number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful. Press <+> / <-> keys to increase or decrease the desired values.

☞ **Link Training Timeout (us)**

Define the number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Press <+> / <-> keys to increase or decrease the desired values. Value range is from 10 to 10000 us.

☞ **Unpopulated Links**

When this item is set to 'Disable Link', the system will operate power save feature for those unpopulated PCI Express links.

Options available: Keep Link ON/ Disable Link. Default setting is **Keep Link ON**.

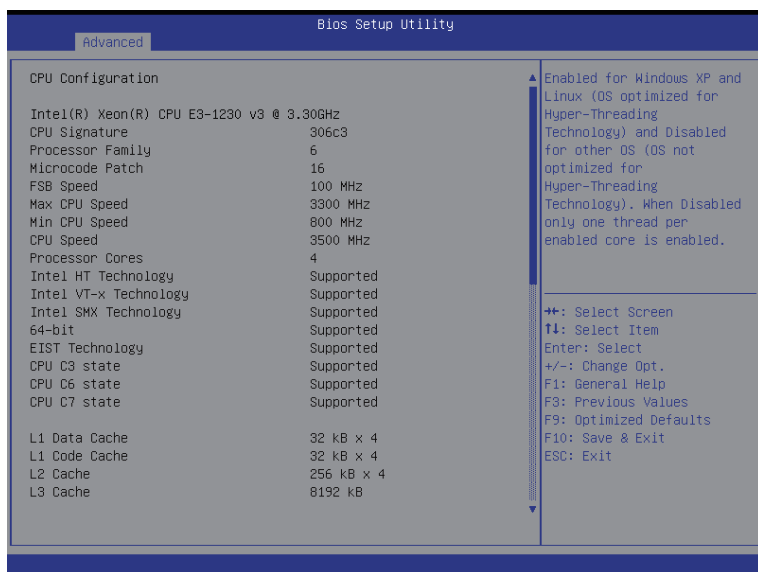
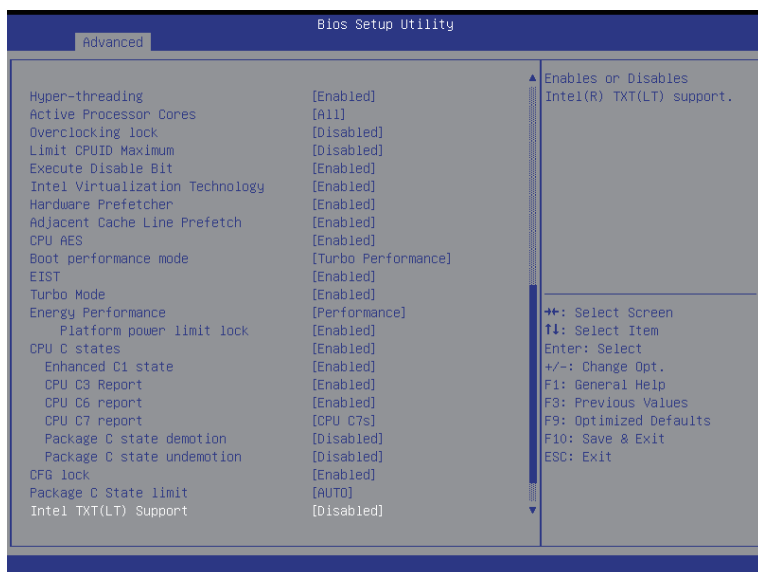
☞ **Restore PCIe Registers**

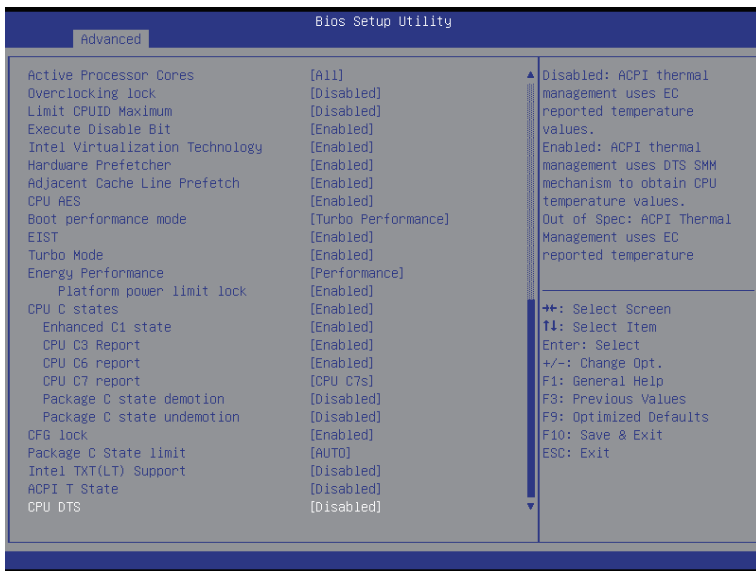
When this item is enabled, the system will restore PCI Express device configuration on S3 resume.

Warning: Enabling this may cause issues with other hardware after S3 resume.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-4 CPU Configuration





☞ CPU Configuration

☞ CPU Type/Signature/Processor Family/Microcode Patch/FSB Speed/Max CPU Speed/Min CPU Speed/Processor Cores/Intel HT Technology/Intel VT-x Technology/Intel SMX Technology

Displays the technical specifications for the installed processor.

☞ 64-bit

Display the supported information of installed CPU.

☞ EIST Technology

Display Intel EIST Technology function support information.

☞ CPU C3 state

Display the support information of CPU C3 state feature.

☞ CPU C6 state

Display the support information of CPU C6 state feature.

☞ CPU C7 state

Display the support information of CPU C7 state feature.

☞ Cache Information

☞ L1 Data Cache / L1 Code Cache / L2 Cache / L3 Cache

Displays the technical specifications for the installed processor.

☞ Hyper-threading

The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can

execute their threads, thereby improving performance.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Active Processor Cores ^(Note)

Allows you to determine whether to enable all CPU cores.

Options available: All/1/2/3. Default setting is **All**.

Limit CPUID Maximum

When enabled, the processor will limit the maximum CPUID input values to 03h when queried, even if the processor supports a higher CPUID input value.

When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Execute Disable Bit

When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.

When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Intel Virtualization Technology

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Hardware Prefetcher

Select whether to enable the speculative prefetch unit of the processor.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Adjacent Cache Line Prefetch

When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU AES

Enable/Disable CPU Advanced Encryption Standard instructions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Boot performance mode

Configure the Boot performance mode.

Options available: Turbo Performance/Max Non-Turbo Performance/Max bettery/Turbo Performance. Default setting is **Turbo Performance**.

EIST (Enhanced Intel SpeedStep Technology)

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Turbo Mode

When this item is enabled, the processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.

When this item is disabled, the processor will not overclock any of its core.

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

Options available: Enabled/Disabled. Default setting is **Enabled**.

Energy Performance

Energy Performance Bias is Intel CPU function.

The larger value in MSR_ENERGY_PERFORMANCE_BIAS register, CPU will save more power but lose more performance.

Note: This register will be changed by OS too if OS support it like Windows 2008 or newer Linux.

Options available:

Performance : Write value 0 into MSR_ENERGY_PERFORMANCE_BIAS

Balanced Performance: Write value 7 into MSR_ENERGY_PERFORMANCE_BIAS

Balanced Energy: Write value 11 into MSR_ENERGY_PERFORMANCE_BIAS

Energy Efficient: Write value 15 into MSR_ENERGY_PERFORMANCE_BIAS

Default setting is **Performance**.

Platform power limit lock

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C State

Enable/Disable CPU C State feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Enhanced C1 state

Enable/Disable C1E State feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C3/C6 Report ^(Note)

Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C7 Report ^(Note)

Allows you to enable or disable the CPU C7 (ACPI C3) report.

Options available: Disabled/CPU C7/CPU C7s. Default setting is **CPU C7s**.

Package C state demotion

Configure state for the C-State package demotion.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Package C state undemotion

Configure state for the C-State package undemotion.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CFG lock

Options available: Enabled/Disabled. Default setting is **Enabled**.

Package C State Limit

Configure state for the C-State package limit.

Options available: C0/C1/C3/C6/C7/C7s/C8/C9/C10/Auto. Default setting is **Auto**.

Intel TXT (LT) Support

Enable/Disable Intel TXT (LT) support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

ACPI T State

Enable/Disable ACPI T state support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

CPU DTS

Enable/Disable CPU DTS support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

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

2-2-5 SATA Configuration

Bios Setup Utility		
Advanced		
SATA Controller(s)	[Enabled]	▲ Enable or disable SATA Device.
SATA Mode Selection	[AHCI]	
SATA Test Mode	[Disabled]	
Aggressive LPM Support	[Enabled]	
SATA Controller Speed	[Default]	
▶ Software Feature Mask Configuration		
Serial ATA Port 0	Empty	▲ Select Screen ▼ Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Software Preserve	Unknown	
Port 0	[Enabled]	
Hot Plug	[Disabled]	
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	
Serial ATA Port 1	Empty	
Software Preserve	Unknown	
Port 1	[Enabled]	
Hot Plug	[Disabled]	
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	
Serial ATA Port 2	Empty	
Software Preserve	Unknown	
Port 2	[Enabled]	
Hot Plug	[Disabled]	

Bios Setup Utility		
Advanced		
Hot Plug	[Disabled]	▲ On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	
Serial ATA Port 3	Empty	
Software Preserve	Unknown	▲ Select Screen ▼ Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Port 3	[Enabled]	
Hot Plug	[Disabled]	
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	
Serial ATA Port 4	Empty	
Software Preserve	Unknown	
Port 4	[Enabled]	
Hot Plug	[Disabled]	
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	
Serial ATA Port 5	Empty	
Software Preserve	Unknown	
Port 5	[Enabled]	
Hot Plug	[Disabled]	
External SATA	[Disabled]	
SATA Device Type	[Hard Disk Drive]	
Spin Up Device	[Disabled]	

☞ **SATA Controller(s)**

Enable/Disable the SATA controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **SATA Mode Selection**

Select the on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

RAID Mode: When set to RAID, the SATA controller enables both its RAID and AHCI functions. You will be allowed access the RAID setup utility at boot time.

AHCI Mode: When set to AHCI, the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot access the RAID setup utility at boot time.

Options available: IDE/RAID/AHCI/Disabled. Default setting is **AHCI Mode**.

☞ **SATA Test Mode**

Enable/Disable SATA Test Mode.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Aggressive LPM Support**

Enable PCH to aggressively enter link power state.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **SATA Controller Speed**

Indicates the maximum speed that the SATA controller can support.

Options available: Default/Gen1/Gen2/Gen3. Default setting is **Default**.

☞ **Software Feature Mask Configuration**

Press [Enter] for configuration of advanced items.

☞ **Serial Port 0/1/2/3/4/5**

The category identifies Serial ATA type of hard disk that are installed in the computer.

System will automatically detect HDD type.

☞ **Port 0/1/2/3/4/5**

Enable/Disable Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Hot Plug (for Serial SATA Port 0/1/2/3/4/5)**

Enable/Disable Hot Plug support for Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **External SATA (for Serial SATA Port 0/1/2/3/4/5)**

Enable/Disable External SATA support for Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **SATA Device Type (for Serial SATA Port 0/1)**

Define the SATA Device for Serial ATA Port 0/1.

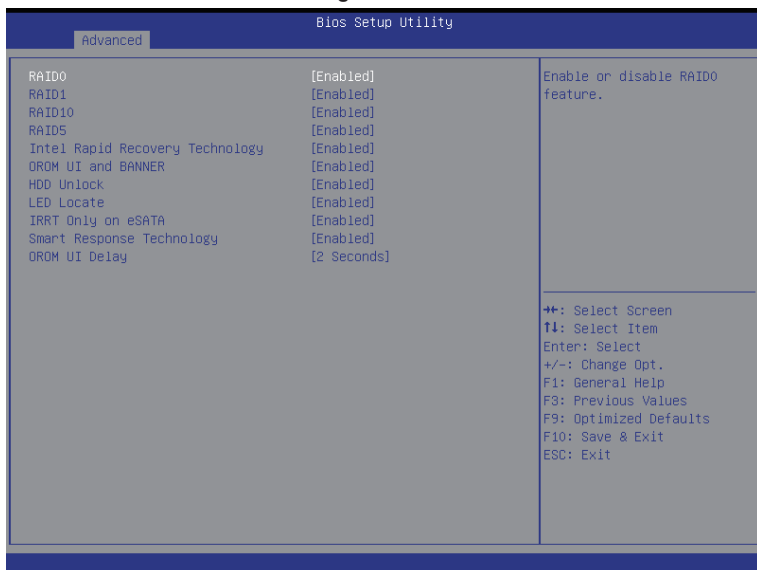
Options available: Hard Disk Drive/Solid State Drive. Default setting is **Disabled**.

☞ **Spin Up Device (for Serial SATA Port 0/1/2/3/4/5)**

On an edge detect from 0 to 1, the PCH starts a COMreset initialization to the device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-5-1 Software Feature Mask Configuration



RAID 0

Enable/Disable RAID 0 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.



RAID 1

Enable/Disable RAID 1 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.



RAID 10

Enable/Disable RAID 10 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.



RAID 5

Enable/Disable RAID 5 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.



Intel Rapid Recovery Technology

Enable/Disable the Intel Rapid Start Technology (IRSTe) function. The IRSTe enables your system to get up and running faster from even the deepest sleep, saving time and power consumption.

Option available: Enabled/Disabled. Default setting is **Disabled**.

Options available: Enabled/Disabled. Default setting is **Enabled**.



OROM UI and BANNER

Enable/Disable OROM UI and BANNER feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **HDD Unlock**

When this item is enabled, the HDD password unlock in the OS is enabled.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **LED Locate**

When this item is enabled, the LED/SGPIO hardware is attached and ping to locate feature is enabled on the OS.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **IRRT Only on eSATA**

When this item is enabled, only IRRT volumes can span internal and eSATA drives. If disabled, then any RAID volume can span internal and eSATA drives

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Smart Response Technology**

Enable/Disable Intel Smart Response Technology.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **OROM UI Delay**

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

2-2-6 Info Report Configuration



☞ Info Report Configuration

☞ Post Report

Enable/Disable Post Report support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Delay Time

Press <+> / <-> keys to increase or decrease the desired values.

☞ Error Message Report

☞ Info Error Message

Enable/Disable Info Error Message support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

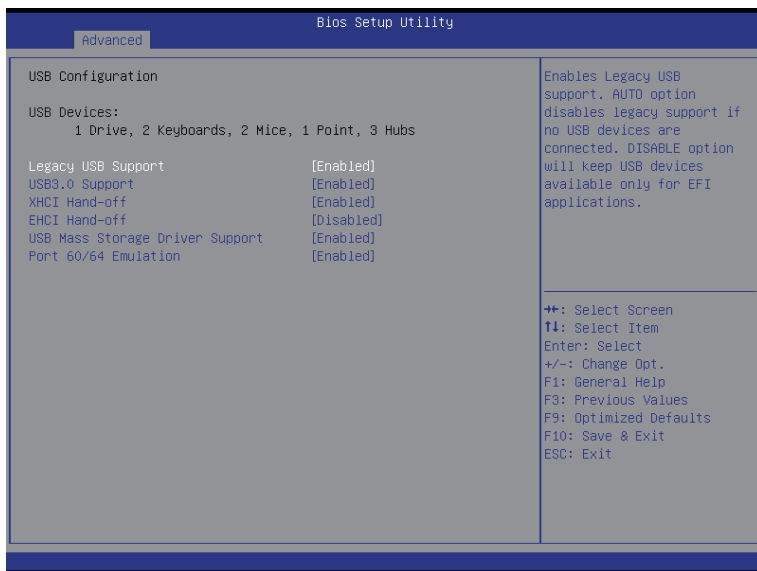
☞ Summary Screen

☞ Summary Screen

Enable/Disable Summary Screen support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-7 USB Configuration



Legacy USB Support

Enables or disables support for legacy USB devices.

Options available: Auto/Enabled/Disabled. Default setting is **Enabled**.

USB3.0 Support

Enables/Disable USB3.0 (XHCI) controller support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

XHCI Hand-off

Enable/Disable XHCI (USB 3.0) Hand-off support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

EHCI Hand-off

Enable/Disable EHCI (USB 2.0) Hand-off function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

USB Mass Storage Driver Support^(Note)

Enable/Disable USB Mass Storage Driver Support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Port 60/64 Emulation

Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non-USB aware OS.

Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) This item is present only if you attach USB types of device.

2-2-8 IT8732 Super IO Configuration

Bios Setup Utility	
Advanced	
IT8732 Super IO Configuration	
IT8732 Super IO Chip	IT8732
▶ Serial Port 1 Configuration	
▶ Serial Port 2 Configuration	
Set Parameters of Serial Port 1 (COMA)	
++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	

Bios Setup Utility	
Advanced	
Serial Port 1 Configuration	
Serial Port	[Enabled]
Device Settings	IO=3F8h; IRQ=4;
Change Settings	[Auto]
Device Mode	[Standard Serial Port Mode]
Enable or Disable Serial Port (COM)	
++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	



☞ Super IO Chip

Display the model name of Super IO chip.

☞ Serial Port 1/2 Configuration

☞ Serial Port 1/2

When enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Device Settings

Display the Serial Port 1/2 base I/O address and IRQ.

☞ Change Settings

Change Serial Port 0/1 device settings. When set to Auto allows the server's BIOS or OS to select a configuration.

Options available: Auto/IO=3F8; IRQ=4/IO=3F8h; IRQ=3,4,5,6,7,10,11,12/

IO=2F8h; IRQ=3,4,5,6,7,10,11,12 /IO=3E8h; IRQ=3,4,5,6,7,10,11,12/IO=2E8h; IRQ=3,4,5,6,7,10,11,12.

Default setting is **Auto**.

☞ Device Mode

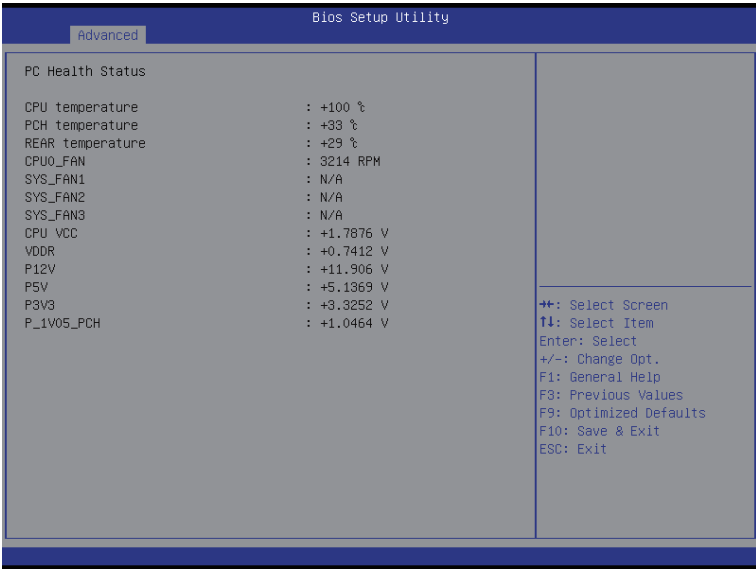
Configure the device mode for Serial port 1 and 2.

Options available: Standard Serial Port Mode/IrDA 1.0 (HP SIR) Mode/ASKIR Mode

Default setting is **Standard Serial Port Mode**.

2-2-9 IT8732 Hardware Monitor (GA-6LASL Only)

Press Enter to view the Hardware Monitor screen which displays a real-time record of the CPU/system temperature, and fan speed, Items on this window are non-configurable.



2-2-10 Serial Port Console Redirection





COM1/COM2/Serial Port for Out-of Band Management/Windows Emergency Management Service (EMS)

Console Redirection ^(Note)

Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Console Redirection Settings

Terminal Type

Select a terminal type to be used for console redirection.

Options available: VT100/VT100+/ANSI /VT-UTF8.

Bits per second

Select the baud rate for console redirection.

Options available: 9600/19200/57600/115200.

Data Bits

Select the data bits for console redirection.

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Options available: None/Hardware RTS/CTS.

Options available: 7/8.

(Note) Advanced items prompt when this item is defined.

☞ Parity

A parity bit can be sent with the data bits to detect some transmission errors.

Even: parity bit is 0 if the num of 1's in the data bits is even.

Odd: parity bit is 0 if num of 1's the data bits is odd.

Mark: parity bit is always 1. Space: Parity bit is always 0.

Mark and Space Parity do not allow for error detection.

Options available: None/Even/Odd/Mark/Space.

☞ Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Options available: 1/2.

☞ VT-UTF8 Combo Key Support ^(Note)

Enable/Disable VT-UTF8 Combo Key Support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Recorder Mode ^(Note)

When this mode enabled, only text will be send. This is to capture Terminal data.

Options available: Enabled/Disabled.

☞ Resolution 100x31 ^(Note)

Enables or disables extended terminal resolution.

Options available: Enabled/Disabled.

☞ Legacy OS Redirection Resolution ^(Note)

On Legacy OS, the number of Rows and Columns supported redirection.

Options available: 80x24/80X25.

☞ Putty KeyPad ^(Note)

Select function FunctionKey and KeyPad on Putty.

Options available: VT100/LINUX/XTERMR6/SCO/ESC/N/VT400.

☞ Redirection After BIOS POST ^(Note)

This option allows user to enable console redirection after O.S has loaded.

Options available: Always Enable/Boot Loader. Default setting is **Always Enable**.

☞ Out-of-Band Mgmt Port

Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.

Options available: COM1/COM2.

☞ SOL Switch

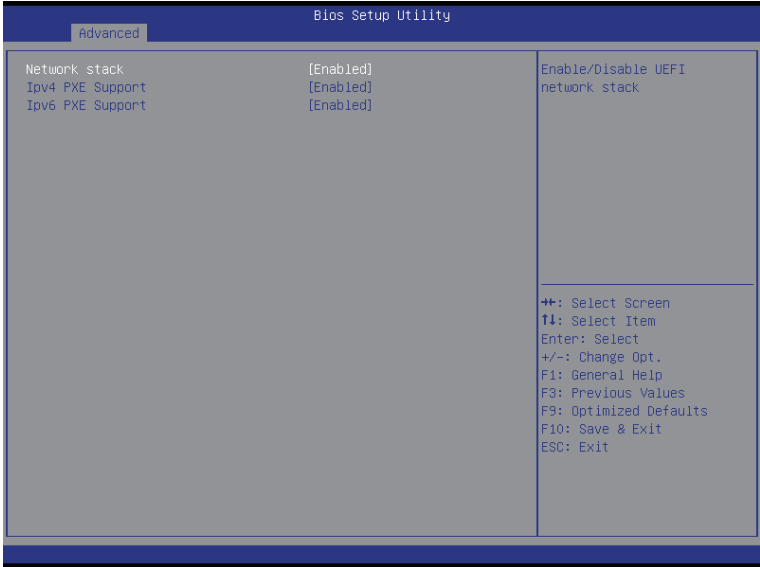
When enabled, COM1 Switch to AST2300 SOL UART.

When disabled, COM1 Switch to IT8728 SOL UART.

Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) Advanced items prompt when this item is defined.

2-2-11 Network Stack



🔑 Network stack

Enable/Disable UEFI network stack.

Options available: Enabled/Disabled. Default setting is **Disabled**.

🔑 Ipv4 PXE Support^(Note)

Enable/Disable Ipv4 PXE feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

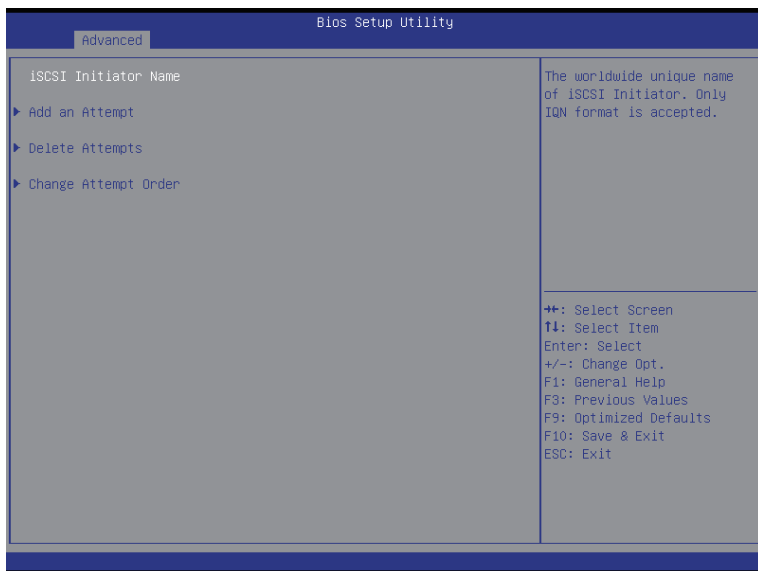
🔑 Ipv6 PXE Support^(Note)

Enable/Disable Ipv6 PXE feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

(Note) This item appears when **Network Stack** is set to **Enabled**.

2-2-12 iSCSI Configuration



☞ iSCSI Initiator Name

☞ Add an Attempts

Press [Enter] for configuration of advanced items.

☞ Delete Attempts

Press [Enter] for configuration of advanced items.

☞ Change Attempt Order

Press [Enter] for configuration of advanced items.

2-2-13 Intel (R) I210 Gigabit Network Connection

Bios Setup Utility		
Advanced		
PORT CONFIGURATION MENU ▶ NIC Configuration		Configure Boot Protocol, Wake on LAN, Link Speed, and VLAN.
Blink LEDs 0		
PORT CONFIGURATION INFORMATION		
UEFI Driver:	Intel(R) PRO/1000 5.7.06 PCI-E	⬆⬆: Select Screen ⬆⬆: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Adapter PBA:	130410-004	
Chip Type	Intel i210	
PCI Device ID	1533	
Bus:Device:Function	02:00:00	
Link Status	[Disconnected]	
MAC Address	94:DE:80:A0:0C:1C	
Virtual MAC Address	94:DE:80:A0:0C:1C	

Bios Setup Utility		
Advanced		
Link Speed	[Auto Negotiated]	Specifies the port speed used for the selected boot protocol.
Wake On LAN	[Enabled]	
		⬆⬆: Select Screen ⬆⬆: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

☞ **PORT CONFIGURATION MENU**

☞ **NIC Configuration**

Press [Enter] for configuration of advanced items.

☞ **Blink LEDs (range 0-15 seconds)**

Blink LEDs for the specified duration (up to 15 seconds).

Press the numeric keys to input the desired value.

☞ **UEFI Driver**

Display the UEFI driver information.

☞ **Adapter PBA**

Display the Adapter PBA information.

☞ **Chip Type**

Display the Chip type.

☞ **PCI Device ID**

Display the PCI device ID.

☞ **Bus:Device:Function**

Display the number of Bus/Device/Function

☞ **Link Status**

Display the link status.

☞ **MAC Address**

Display the Factory MAC address information.

☞ **Virtual MAC Address**

Display the virtual MAC address information.

☞ **Link Speed**

Change link speed duplex for current port.

Options available: AutoNeg/10Mbps Half/10Mbps Half/10Mbps Half/100Mbps Full.

Default setting is **AutoNeg**.

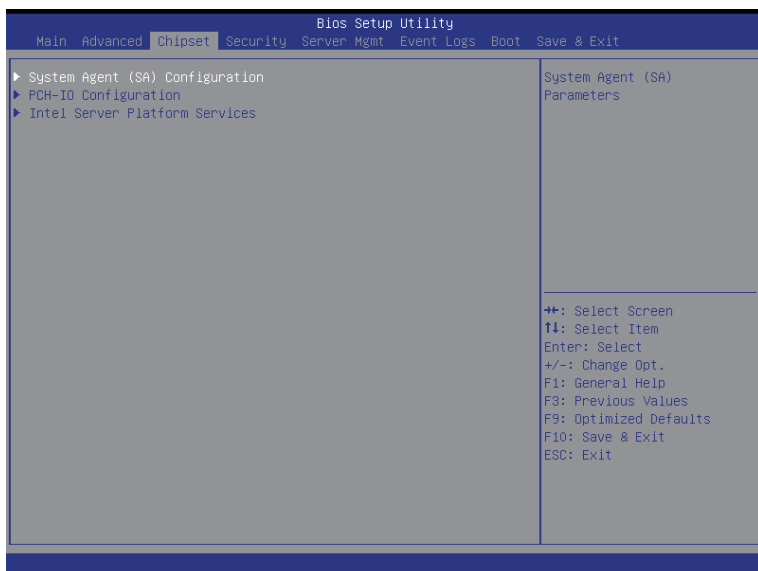
☞ **Wake On LAN**

Enable/Disable Wake On LAN feature.

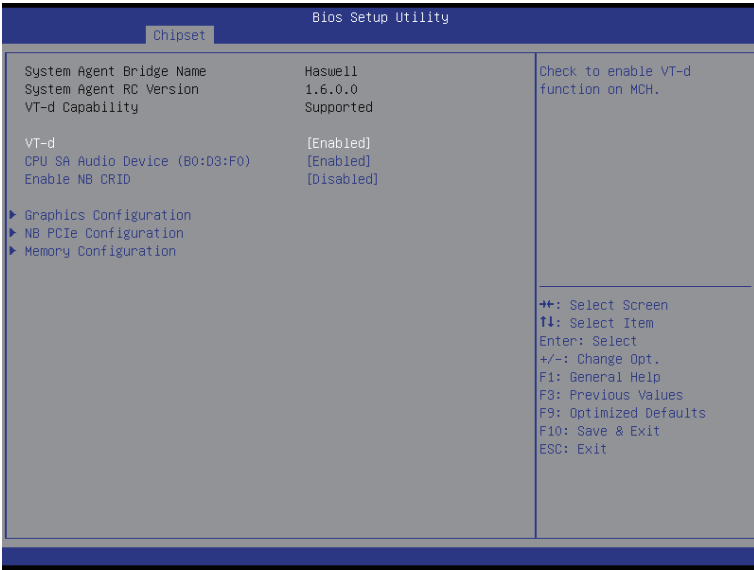
Options available: Enabled/Disabled. Default setting is **Enabled**.

2-3 Chipset Menu

The Chipset menu display submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen.



2-3-1 System Agent (SA) Configuration



System Agent Bridge Name

Display the System Agent (SA) Bridge Name.

System Agent RC Version

Display the version number of System Agent RC.

VT-d Capability

Display the VT-d support information.

VT-d

Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU SA Audio Device (B0:D3:F0)

Enable/Disable Northbridge onboard audio device feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Enable NB CRIB

Enable/Disable Northbridge CRIB feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Graphics Configuration

Press [Enter] for configuration of advanced items.

NB PCIe Configuration

Press [Enter] for configuration of advanced items.

Memory Configuration

Press [Enter] for configuration of advanced items.

2-3-1-1 Graphic Configuration



Graphic Configuration

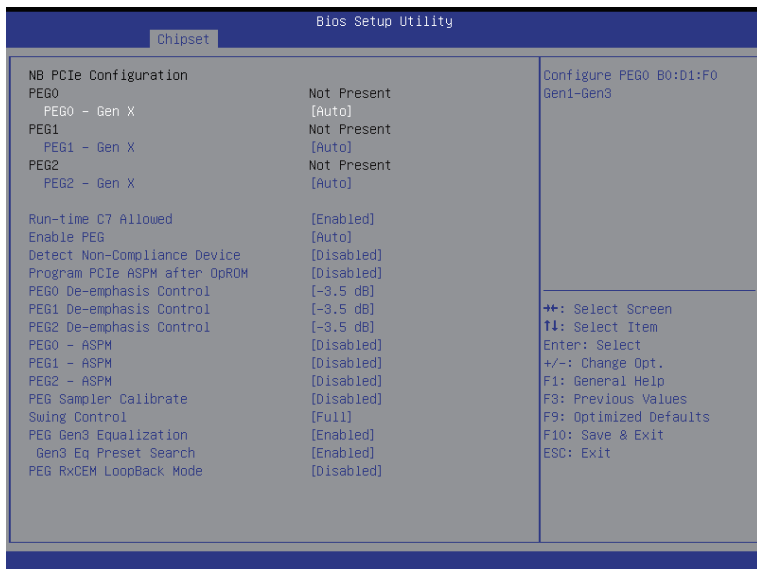
Primary Display Device

Configure the Primary display device.

Options available: Auto//PCIE_1/PCIE_2/PCIE_3/Onboard VGA.

Default setting is **Auto**.

2-3-1-2 NB PCIe Configuration



🔗 NB PCIe Configuration

🔗 PEG0

Display PEG0 configuration information.

🔗 PEG0 - Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

🔗 PEG1

Display PEG1 configuration information.

🔗 PEG1 - Gen X

Configure PEG1 B0:D1:F1 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

🔗 PEG2

Display PEG2 configuration information.

🔗 PEG2 - Gen X

Configure PEG2 B0:D1:F2 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

🔗 Run-time C7 Allowed

Configure Run-time C7 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔗 Enable PEG

Enable/Disable PEG.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Detect Non-Compliance Device**

Detect Non-Compliance PCI Express Device in PEG.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Program PCIe ASPM after OpROM**

Enable/Disable Program PCIe ASPM after OpROM.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG0 De-emphasis Control**

PEG0:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG1 De-emphasis Control**

PEG1:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG2 De-emphasis Control**

PEG2:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG0 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG1 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG2 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG Sampler Calibrate**

Enable or disable PEG Sampler Calibrate\nAuto means Disabled for SNB MB/DT, Enabled for IVB A0 B0.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Swing Control**

Perform PEG Swing Control, on IVB C0 and Later.

Options available: Reduced/Half/Full. Default setting is **Full**.

☞ **PEG Gen3 Equalization**

Perform PEG Gen3 Equalization steps.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Gen3 Eq Preset Search**

Perform PEG Gen3 Preset Search algorithm, on IVB C0 and Later.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **PEG RxCEM LoopBack Mode**

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-1-3 Memory Configuration



☞ Memory Information

☞ Memory RC Version

Display version number of installed memory.

☞ Memory Frequency

Display the frequency information of installed memory.

☞ Total Memory

Determines how much total memory is present during the POST.

☞ Memory Voltage

Display the voltage information of installed memory.

☞ DIMM Information:

☞ DDR3_P0_A0/DDR3_P0_A1/DDR3_P0_B0/DDR3_P0_B1 Status

The size of memory installed on each of the DDR3 slots.

☞ CAS Latency (tCL)

Display the CAS Latency (tCL) information of installed memory.

☞ Minimum delay time

☞ CAS to RAS (tRCDmin)

Display the CAS to RAS (tRCDmin) information of installed memory.

☞ Row Precharge (tRPmin)

Display the Row Precharge (tRPmin) information of installed memory.

☞ Active to Precharge (tRASmin)

Display the Active to Precharge (tRASmin) information of installed memory.

☞ **Memory Frequency Limiter**

Maximum Memory Frequency Selections in Mhz.

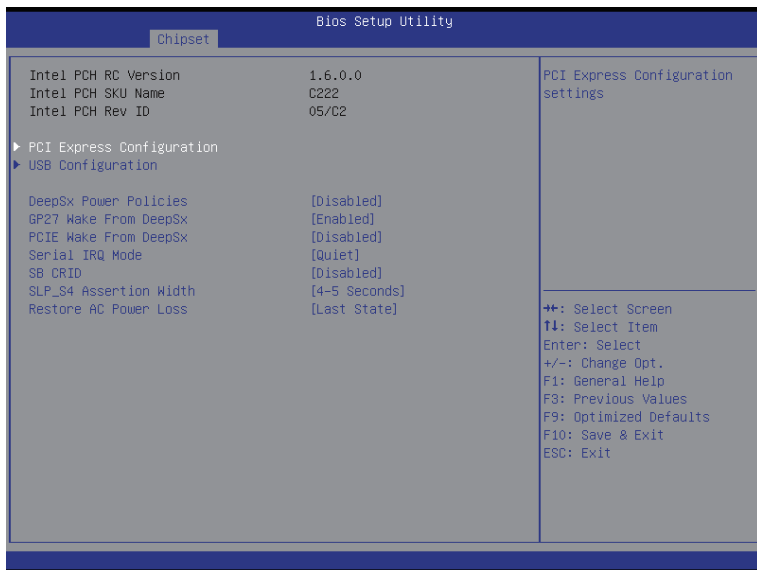
Options available: Auto/1067/1333/1600/1867/2133/2400/2667. Default setting is **Auto**.

☞ **Max TOLUD**

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

Options available: Dynamic/3.5 GB/3.25 GB/3 GB/2.75 GB/2.5 GB/2.25 GB/2 GB/1.75 GB/1.5 GB/1.25 GB/1 GB. Default setting is **Dynamic**.

2-3-2 PCH-IO Configuration



☞ Intel PCH RC Version/Intel PCH SKU/Intel PCH Rev ID Information

Displays the RC version, SKU and Revision ID information of PCH.

☞ PCI Express Configuration

Press [Enter] for configuration of advanced items.

☞ USB Configuration

Press [Enter] for configuration of advanced items.

☞ DeepSx Power Policies

Configure the DeepSx Mode configuration.

Options available: Disabled/Enabled in S5/Enabled in S4-S5. Default setting is **Enabled in S4-S5**.

☞ GP27 Wake From DeepSx

Wake from DeepSx by the assertion of GP27 pin.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ PCIE Wake From DeepSx

Wake from DeepSx by the assertion of PCIe.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Serial IRQ Mode

Configure Serial IRQ Mode.

Options available: Quiet/Continuous. Default setting is **Quiet**.

☞ SB CRID

Enable/Disable SB CRID.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **SLP_S4 Assertion Width**

Select a minimum assertion width of the SLP_S4# signal.

Options available: 1-2 Seconds/2-3 Seconds/3-4 Seconds/4-5 Seconds.

Default setting is **4-5 Seconds**.

☞ **Restore AC Power Loss**

This option provides user to set the mode of operation if an AC / power loss occurs.

Power On: System power state when AC cord is re-plugged.

Power Off: Do not power on system when AC power is back.

Last State: Set system to the last state when AC power is removed.

Options available: Power On/Power Off/Last State. Default setting is **Power Off**.

2-3-2-1 PCI Express Configuration



☞ PCI Express Clock Gating

Enable/Disable PCI Express Clock Gating for each root port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ DMI Link ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI Link.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ DMI Link Extended Synch Control

The control of Extended Synch on SB side of the DMI Link.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ PCIe-USB Glitch W/A

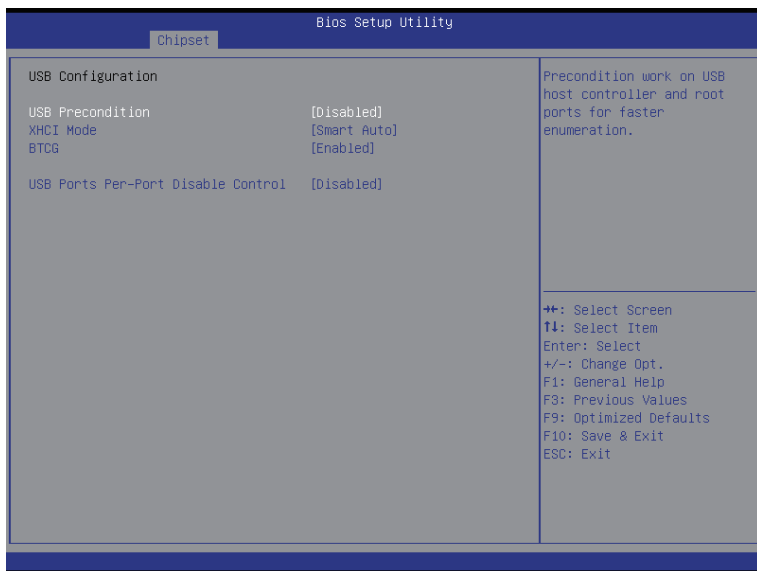
PCIe-USB Glitch W/A for bad USB device(s) connected behind PCIe/PEG Port.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ PCIe Root Port Function Swapping

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-2-2 USB Configuration



☞ USB Configuration

☞ USB Precondition

Precondition work on USB host controller and root ports for faster enumeration.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ XHCI Mode

Mode of operation of xHCI controller.

Options available: Smart Auto/Auto/Enabled/Disabled/Manual. Default setting is **Smart Auto**.

☞ BTCG

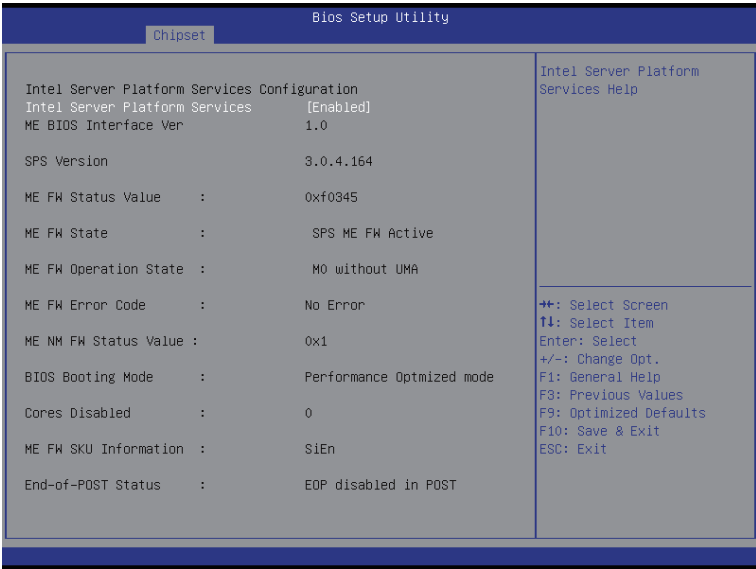
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-3 Intel Server Platform Services



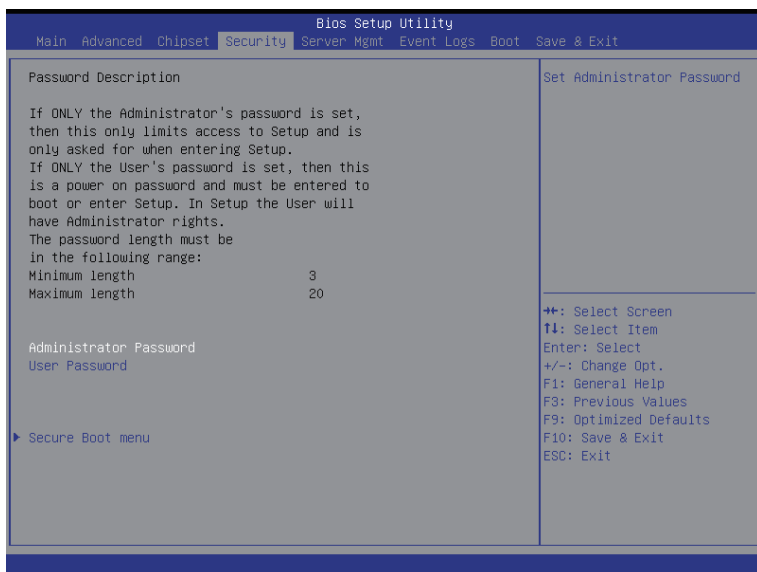
Intel Server Platform Services

Enable/Disable Intel Server Platform Services Help.

Options available: Enabled/Disabled. Default setting is **Enabled**.

2-4 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



There are two types of passwords that you can set:

- **Administrator Password**
Entering this password will allow the user to access and change all settings in the Setup Utility.
- **User Password**
Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

Administrator Password

Press Enter to configure the Administrator password.

User Password

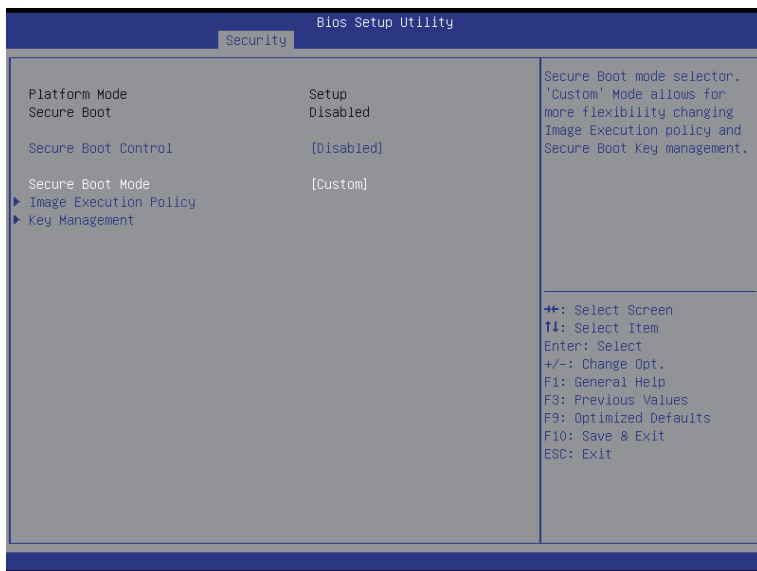
Press Enter to configure the user password.

Secure Boot menu

Press [Enter] for configuration of advanced items.

2-4-1 Secure Boot menu

The Secure Boot Menu is applicable when your device is installed the Windows® 8 operatin system.



🔑 Platform Mode

Display the System Platform Mode State.

🔑 Secure Boot

Display the status of Secure Boot.

🔑 Secure Boot Control

Enable/Disable Secure Boot function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔑 Secure Boot Mode

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.

When set to Standard, it will automatically load the Secure Boot keys from the BIOS databases.

When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database.

Options available: Standard/Custom. Default setting is **Standard**.

🔑 Image Execution Policy^(Note)

Press [Enter] for configuration of advanced items.

🔑 Key Management^(Note)

Press [Enter] for configuration of advanced items.

(Note) Advanced items prompt when this item is set to **Custom**.

2-4-1-1 Image Execution Policy

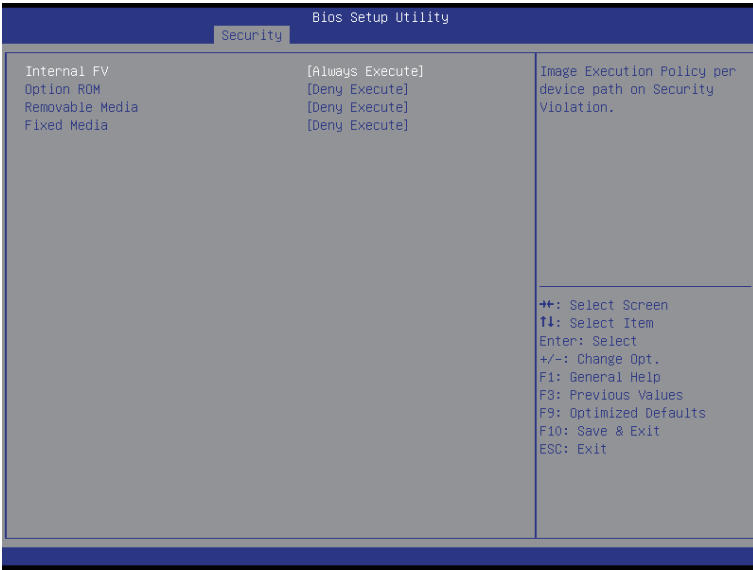


Image Execution policy

Internal FV

Image Execution Policy per device path on Security Violation.

Options available: Always Execute. Default setting is **Always Execute**.

Option ROM

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

Removable Media

Image Execution Policy per device path on Security Violation.

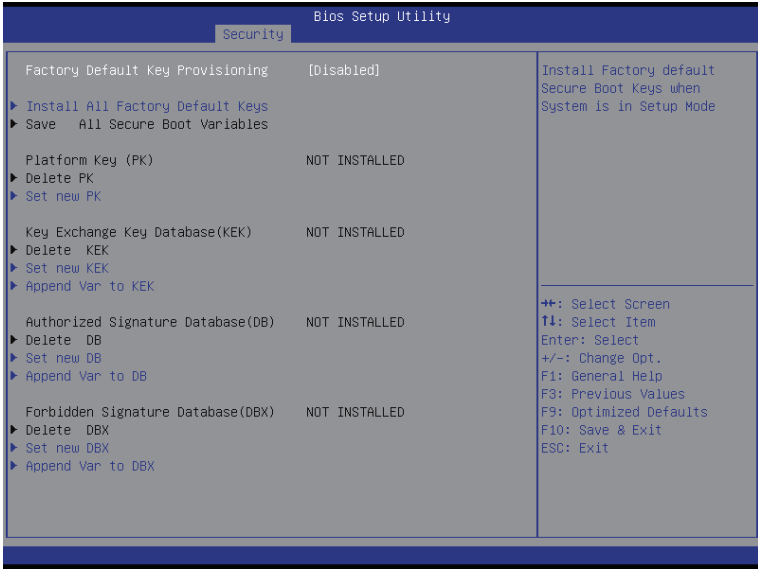
Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

Fixed Media

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

2-4-1-2 Key Management



Key Management

This item appears only when the **Secure Boot Mode** is set to **Custom**.

Factory Default Key Provisioning

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signatures Database (dbx). Options available: Enabled/Disabled. Default setting is **Disabled**.

Install All Factory Default Keys

Press [Enter] to install all factory default keys.

Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

Platform Key (PK)

Display the status of Platform Key.

Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

Set new PK File

Press [Enter] to configure a new PK.

Key Exchange Key Database (KEK)

Display the status of Platform Key.

Delete KEK

Press [Enter] to delete the KEK from your system.

☞ **Set new KEK**

Press [Enter] to configure a new KEK.

☞ **Append Var to KEK**

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

☞ **Authorized Signature Database (DB)**

Display the status of Authorized Signature Database.

☞ **Delete DB**

Press [Enter] to delete the db from your system.

☞ **Set new DB**

Press [Enter] to configure a new db.

☞ **Append aVar to DB**

Press [Enter] to load additional db from a storage devices.

☞ **Forbidden Signature Database (DBX)**

Display the status of Forbidden Signature Database.

☞ **Delete the DBX**

Press [Enter] to delete the dbx from your system.

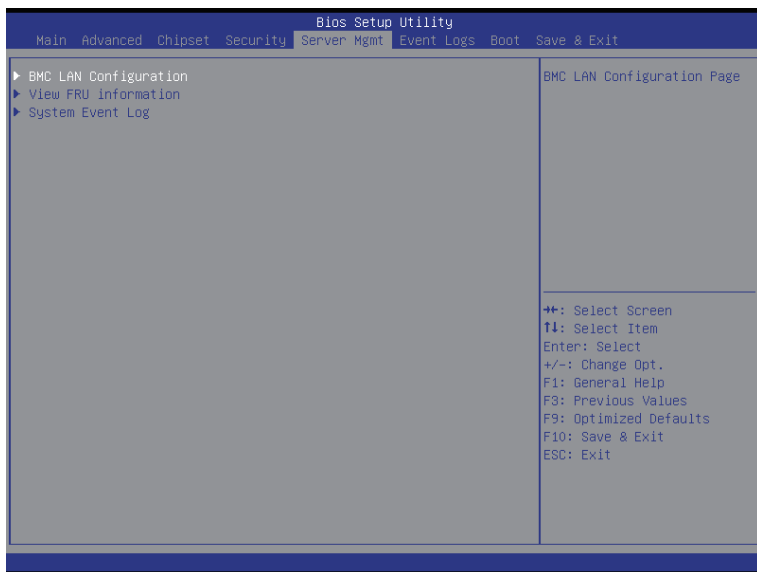
☞ **Set DBX from File**

Press [Enter] to configure a new dbx.

☞ **Append Var to DBX**

Press [Enter] to load additional db from a storage devices.

2-5 Server Management Menu (GA-6LASH Only)



BMC LAN Configuration

BMC LAN Configuration. Press Enter to access the related submenu.

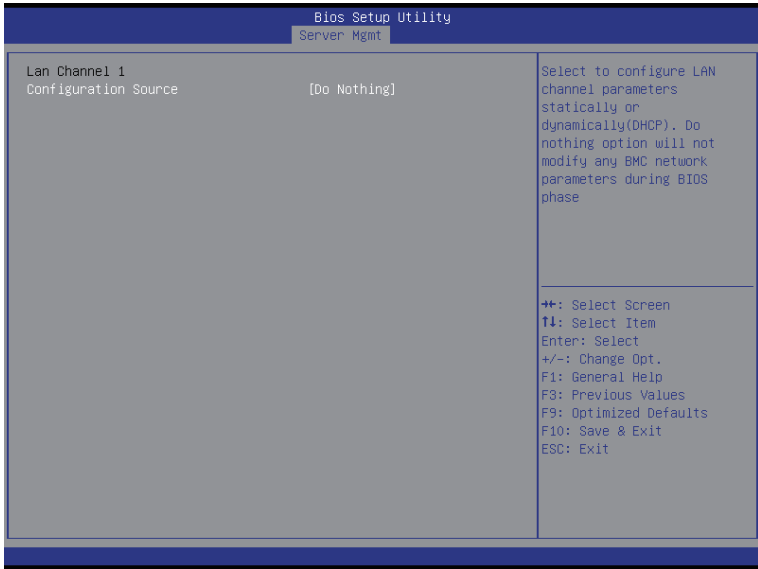
View FRU information

The FRU information submenu is a simple display page for basic system ID information, as well as system product information. Items on this window are non-configurable.

System Event Log

Displays Event Log advanced settings. Press Enter to access the related submenu.

2-5-1 BMC LAN Configuration (GA-6LASH Only)



☞ Lan Channel 1

☞ Configuration Source

Select to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase.

Options available: Static/Dynamic/Do Nothing.

☞ IP Address^(Note)

Display IP Address information.

☞ Subnet Mask^(Note)

Display Subnet Mask information.

Please note that the IP address must be in three digitals, for example, 192.168.000.001.

☞ Default Gateway Address^(Note)

Display Default Gateway Address information.

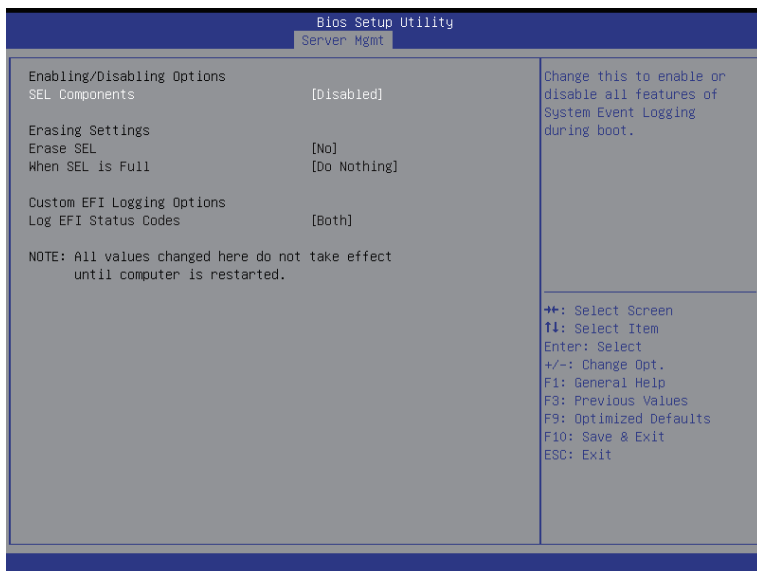
(Note) This item appears when **Configuration Source** is set to **Dynamic**.

2-5-2 View FRU Information (GA-6LASH Only)

The FRU Information menu is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.

Bios Setup Utility	
Server Mgmt	
FRU Information	
System Manufacturer	GIGABYTE
System Product Name	GA-6LASH
System Version	0100
System Serial Number	01234567890123456789AB
Board Manufacturer	GIGABYTE
Board Product Name	GA-6LASH
Board Version	00000001
Board Serial Number	01234567890123456789AB
Chassis Manufacturer	GIGABYTE
Chassis Product Name	00000001
Chassis Serial Number	01234567890123456789AB
SDR Revision	-
 ++: Select Screen F4: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	

2-5-3 System Event Log (GA-6LASH Only)



☞ Enabling/Disabling Options

☞ SEL Components

Change this to enable or disable all features of System Event Logging during boot.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Erasing Settings

☞ Erasing SEL

Choose options for erasing Smbios Event Log Erasing is done prior to any logging activation during reset.

Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

☞ When SEL is Full

Choose options for reactions to a full System Event Log.

Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

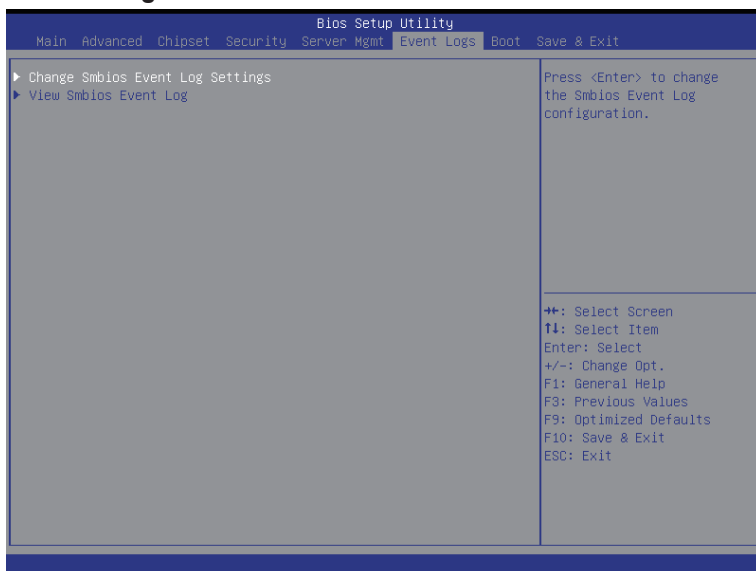
☞ Custom EFI Logging Options

☞ Log EFI Status Codes

Enable/Disable the logging of EFI Status Codes (if not already converted to legacy).

Options available: Disabled/Both/Error code/Progress code. Default setting is **Both**.

2-6 Event Logs Menu



☞ Change Smbios Event Log Settings

Press [Enter] for configuration of advanced items.

☞ View Smbios Event Log

Press [Enter] to view event logs.

2-6-1 Change Smbios Event Log Settings

Bios Setup Utility		
Event Logs		
Enabling/Disabling Options		Change this to enable or disable all features of Smbios Event Logging during boot.
Smbios Event Log	[Enabled]	
Erasing Settings		
Erase Event Log	[No]	
When Log is Full	[Do Nothing]	
Smbios Event Log Standard Settings		
Log System Boot Event	[Enabled]	
MECI	1	
METH	60	
Custom Options		
Log OEM Codes	[Disabled]	
Convert OEM Codes	[Disabled]	
NOTE: All values changed here do not take effect until computer is restarted.		

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F8: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

☞ Enabling/Disabling Options

☞ Smbios Event Log

Choose options to Enable/Disable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Erasing Settings

☞ Erasing Event Log

Choose options for erasing Smbios Event Log Erasing is done prior to any logging activation during reset.

Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

☞ When Log is Full

Choose options for reactions to a full Smbios Event Log.

Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

☞ Smbios Event Log Standard Settings

☞ Log System Boot Event

Choose options to Enable/Dsiable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ MECI

Multiple Event Count Increment: The number of occurrences of a duplicate event that must paass before the multi-event counter associated with the log entry is updated, specified as numeric value in the range 1 to 33. Press <+> / <-> keys to increase or decrease the desired values.

☞ **METW**

Multiple Event Time Window: The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes. Press <+> / <-> keys to increase or decrease the desired values.

☞ **Custom Options**

☞ **Log OEM Codes**

Enable/Disable the logging of EFI Status Codes as OEM Codes.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Convert OEM Codes**

Enable/Disable the converting of EFI Status Codes to Standard Smbios Type.

Options available: Enabled/Disabled. Default setting is **Enabled**.

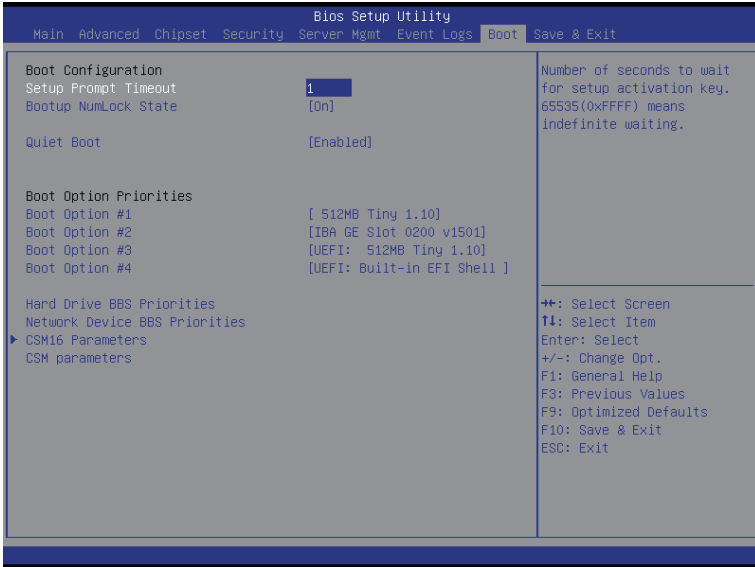
2-6-2 View Smbios Event Log

The Smbios Event Log is a display page of Smbios Event Log information. Items on this window are non-configurable. Press Enter to View Smbios Event Log

Bios Setup Utility				
Event Logs				
DATE	TIME	ERROR CODE	SEVERITY	DESCRIPTION
02/23/12	02:26:18	Smbios 0x16	N/A	Log Area Reset
02/23/12	02:26:18	Smbios 0x17	N/A	
02/23/12	02:26:46	Smbios 0x17	N/A	
02/23/12	02:27:55	Smbios 0x17	N/A	
02/23/12	02:28:32	Smbios 0x17	N/A	
01/01/12	00:00:01	Smbios 0x17	N/A	
01/01/12	00:00:29	Smbios 0x17	N/A	
01/01/12	00:02:35	Smbios 0x17	N/A	
01/01/12	00:03:21	Smbios 0x17	N/A	
01/01/12	00:04:41	Smbios 0x17	N/A	
				++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

2-7 Boot Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.



Boot Configuration

Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting." Press the numeric keys to input the desired value.

Bootup NumLock State

Enable or Disable Bootup NumLock function.
Options available: On/Off. Default setting is **On**.

Quiet Boot

Enables or disables showing the logo during POST.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Boot Priority Order

Boot Option #1/#2/#3/#4

Press Enter to configure the boot priority.
By default, the server searches for boot devices in the following sequence:

1. UEFI device.
2. Hard drive.
3. Network device.
4. Removable device.

☞ **Network Device BBS Priorities**

Press Enter to configure the boot priority.

☞ **Hard Drive BBS Priorities**

Press Enter to configure the boot priority.

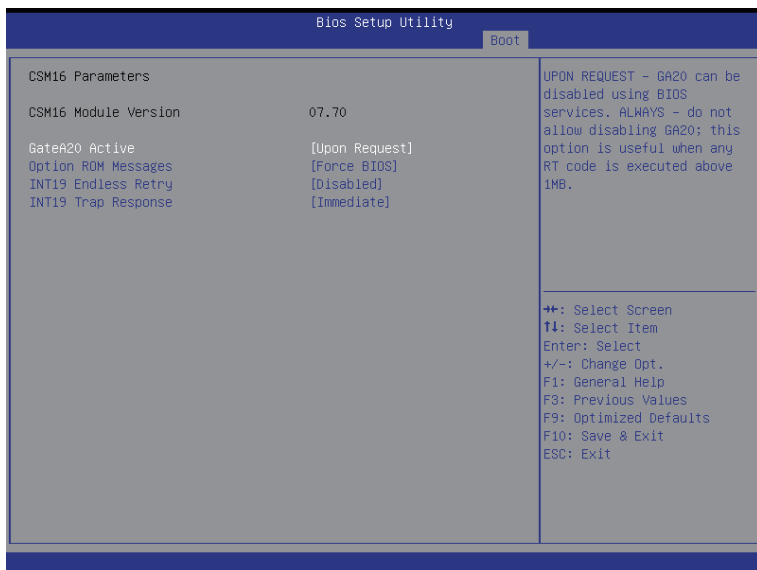
☞ **CSM16 Parameters**

Press [Enter] for configuration of advanced items.

☞ **CSM parameters**

Press [Enter] for configuration of advanced items.

2-7-1 CSM16 Parameters



CSM16 Module Version

Display CSM Module version information.

Gate20 Active

Upon Request: GA20 can be disabled using BIOS services.

Always: Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Options available: Upon Request/Always. Default setting is **Upon Request**.

Option ROM Messages

Option ROM Messages.

Options available: Force BIOS/Keep Current. Default setting is **Force BIOS**.

INT19 Endless Retry

Enabled: Allowed headless retry boot

Options available: Enabled/Disabled. Default setting is **Disabled**.

INT19 Trap Response

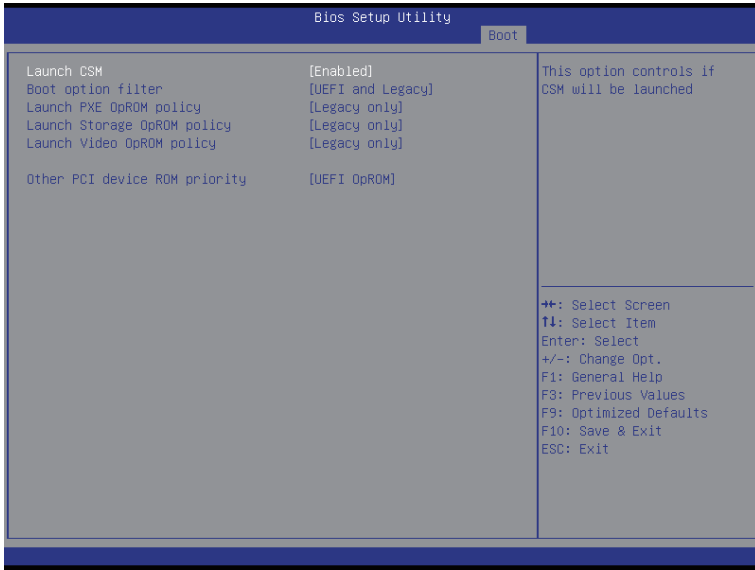
BIOS reaction on INT19 trapping by Option ROM

Immediate: execute the trap right away.

Postpone: execute the trap during legacy boot.

Options available: Immediate/Postpone. Default setting is **Immediate**.

2-7-2 CSM Parameters



☞ CSM parameters

Press Enter to configure the advanced items.

☞ Launch CSM (Compatibility Support Module)

Enable/Disable Compatibility Support Module (CSM) launch.

Options available: Enabled/Disabled. Default setting is **Enabled**.



- The following five items appear and are configurable when the **Launch CSM** is set to **Enabled**.
- If the **Launch CSM** is set to **Disabled**, the following five items will not be able to support Legacy mode.

☞ Boot option filter

Determines which devices system will boot to.

Options available: UEFI and Legacy/Legacy only/UEFI only. Default setting is **UEFI and Legacy**.

☞ Launch PXE OpROM policy

Determines which devices system will boot to.

Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Do not launch**.

☞ Launch Storage OpROM policy

Determines which devices system will boot to.

Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Legacy only**.

☞ Launch Video OpROM policy

Determines which devices system will boot to.

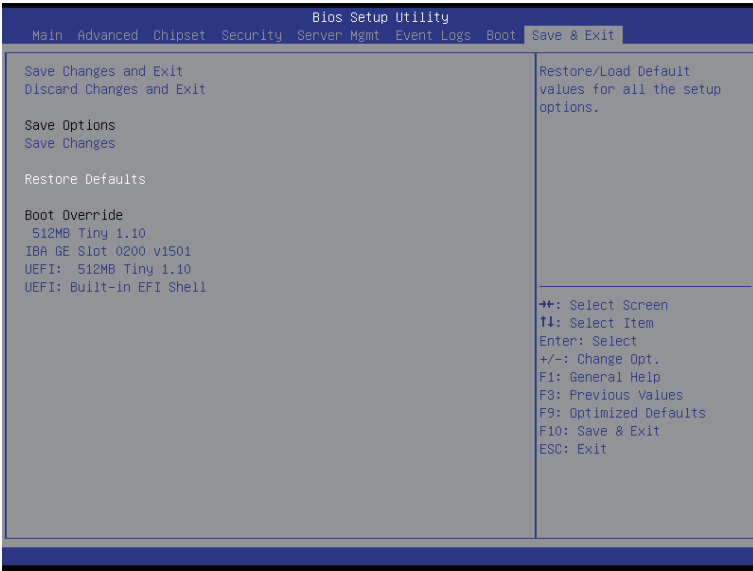
Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Legacy only**.

Other PCI device ROM priority

For PCI devices other than Network, Mass storage or Video device, defines which OpROM to launch.
Options available: UEFI OpROM/Legacy OpROM. Default setting is **UEFI OpROM**.

2-8 Exit Menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.



☞ Save Changes and Exit

Saves changes made and close the BIOS setup.

Options available: Yes/No.

☞ Discard Changes and Exit

Discards changes made and close the BIOS setup.

Options available: Yes/No.

☞ Save Options

☞ Save Changes

Saves changes made in the BIOS setup.

Options available: Yes/No.

☞ Restore Defaults

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.

Options available: Yes/No.

☞ Boot Override

Press Enter to configure the device as the boot-up drive.

☞ UEFI: Built-in in EFI Shell

Press <Enter> on this item to Launch EFI Shell from filesystem device.

Chapter 3 Appendix

3-1 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.