

GA-7PCSLD

LGA1356 socket motherboard for Intel® Xeon® 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>

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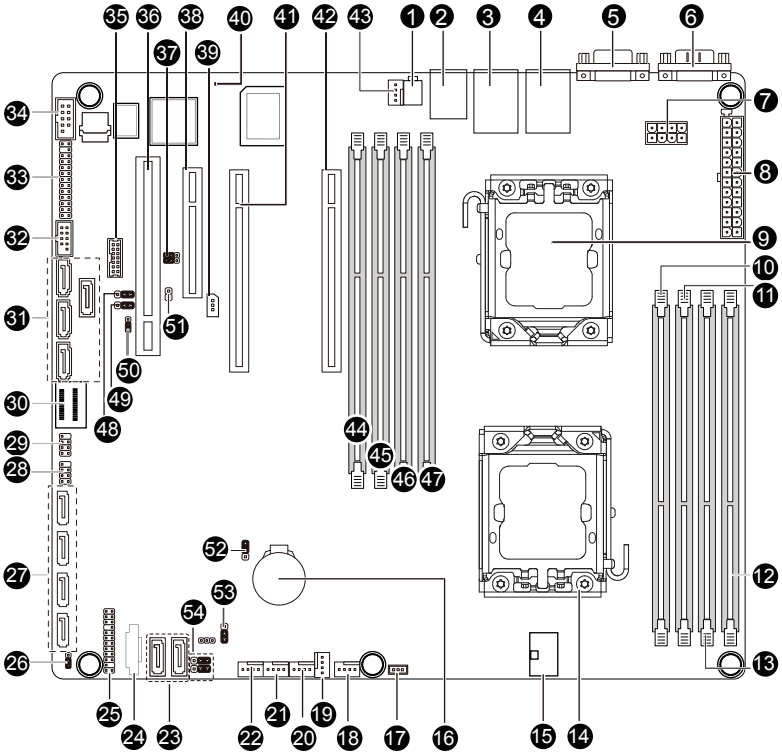
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Box Contents

- GA-7PCSLD 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-7PCSLD Motherboard Layout



Item	Code	Description
1	ID_SW	ID switch
2	MLAN	BMC Management LAN port
3	USB_LANB1	LAN1 port (top) / USB ports (bottom)
4	USB_LANB2	LAN2 port (top) / USB ports (bottom)
5	VGA_1	VGA port
6	COM1	Serial port
7	P12V_AUX2	8 pin power connector
8	ATX1	24-pin power connector
9	CPU1	Intel LGA1356 socket (Secondary CPU)
10	DDR3_P0_C1	Channel C slot 1 (for primary CPU)
11	DDR3_P0_C0	Channel C slot 0 (for primary CPU)
12	DDR3_P0_A0	Channel A slot 0 (for primary CPU)
13	DDR3_P0_B0	Channel B slot 0 (for primary CPU)
14	CPU0	Intel LGA1356 socket (Primary CPU)
15	P12V_AUX1	8 pin power connector
16	BAT	CMOS battery
17	SKU_KEY1	PBG A SKU Select connector
18	CPU0_FAN	CPU0 fan connector
19	SYS_FAN4	System fan connector
20	SYS_FAN3	System fan connector
21	SYS_FAN2	System fan connector
22	SYS_FAN1	System fan connector
23	SATA0/1	SATA 6Gb/s connectors
24	PMbus_CN_1	PM Bus connector
25	BP_1	HDD back plane connector
26	SSB_ME2	ME enable/disable jumper
27	SATA2/3/4/5	SATA 3Gb/s connectors
28	SATA_SGPI0	SATA SGPIO connector
29	SCU_SGPI0	SCU SGPIO connector
30	MINISAS_1	Mini SAS connector
31	SAS0~3	SAS connectors
32	F_USB1	Front USB connector
33	FP_1	Front panel connector
34	COM2	Serial cable connector
35	TPM_MEZZ1	TPM connector
36	PCL_1	PCI slot (32bit/33MHz)
37	ROMST_FRB3	Force to Stop FRB3 Timer jumper
38	PCIE_3	PCI-E slot 3 (x8 slot / x4 signal)
39	IPMB	IPMB connector
40	BMC_LED1	BMC Firmware Readiness LED
41	PCIE_2	PCI-E slot 2 (x16 slot / x8 signal)
42	PCIE_1	PCI-E slot 1 (x16 slot)
43	CPU1_FAN	CPU1 fan connector
44	DDR3_P1_D0	Channel A slot 0 (for secondary CPU)
45	DDR3_P1_E0	Channel B slot 0 (for secondary CPU)

46	DDR3_P1_F0	Channel C slot 0 (for secondary CPU)
47	DDR3_P1_F1	Channel C slot 1 (for secondary CPU)
48	PASSWORD	Clear password jumper
49	BIOS_RCVR	BIOS recovery jumper
50	SSB_ME1	ME enable/disable jumper
51	JP5	Chassis intrusion jumper
52	CLR_CMOS	Clear CMOS jumper
53	BIOS_WP	BIOS write protect jumper
54	SATA_DOM0/SATA_DOM1	SATA0/1 port DOM support jumper



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 32 for SATA_DOM0 and SATA_DOM1 jumper setting instruction.









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 Dual Intel® Xeon® Sandy-bridge-EN 2S processors in 1356 socket ◆ Intel® Xeon® Quad Core in LGA 1356 socket ◆ Supports QuickPath Interconnect up to 8GT/s ◆ Enhanced Intel SpeedStep Technology (EIST) & Demand BasedSwitch (DBS) ◆ Enhanced Intel SpeedStep Technology (EIST) ◆ Support Intel Virtualization Technology (VT)
	Chipset	<ul style="list-style-type: none"> ◆ Intel® C606 (Patsburg) Chipset
	Memory	<ul style="list-style-type: none"> ◆ 8 x 1.5V DDR3 DIMM sockets supporting up to 64 GB of system memory <ul style="list-style-type: none"> * Due to Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than 4 GB. ◆ 8 x 1.35V DDR3L DIMM sockets supporting up to 32 GB of system memory ◆ 3 channel memory architecture ◆ Support for 800/1066/1333/1600 memory modules ◆ Support for ECC RDIMM/ UDIMM memory modules
	LAN	<ul style="list-style-type: none"> ◆ 2 x Intel® 82574L supports 10/100/1000 Mbps
	Expansion Slots	<ul style="list-style-type: none"> ◆ 1 x PCI Express x16 slot, running at x16 (PCI_E_1) ◆ 1 x PCI Express x8 slot, running at x8 (PCI_E_2) ◆ 1 x PCI Express x8 slot, running at x4 (PCI_E_3) ◆ 1 x PCI slot 32-Bit/33MHz (PCI_1)
	Onboard Graphics	<ul style="list-style-type: none"> ◆ ASPEED® AST2300 supports 16MB VRAM
	Storage Interface	<ul style="list-style-type: none"> ◆ Intel® C606 controller ◆ 4 x SATA 3Gb/s connectors (SAS0/1/2/3/via SCU) ◆ 1 x mini SAS connector (4 SATA ports (3Gb/s)/optional with Upgrade ROM attached) ◆ 4 x SATA 3Gb/s connectors (SATA2/3/4/5) ◆ 2 x SATA 6Gb/s connectors (SATA0/1) ◆ Support for Intel RSTe SATA RAID 0, RAID 1, RAID 10 ◆ Support for Intel RSTe SAS RAID 0, RAID 1, RAID 10
	USB	<ul style="list-style-type: none"> ◆ Up to 6 USB 2.0/1.1 ports (4 on the back panel, 2 via the USB brackets connected to the internal USB headers)

	Internal Connectors	<ul style="list-style-type: none"> ◆ 1 x 24-pin ATX main power connector ◆ 2 x 8-pin ATX 12V power connector ◆ 4 x SATA 3Gb/s connectors (SAS0/1/2/3) ◆ 1 x mini SAS 3Gb/s connector ◆ 4 x SATA 3Gb/s connectors (SATA2/3/4/5) ◆ 2 x SATA 6Gb/s connectors ◆ 1 x PSMI header ◆ 2 x CPU fan header ◆ 4 x System fan header ◆ 1 x Front panel header ◆ 1 x USB 2.0/1.1 header ◆ 1 x Serial port header ◆ 1 x SPGPIO header
	Rear Panel I/O	<ul style="list-style-type: none"> ◆ 4 x USB 2.0/1.1 ports ◆ 2 x RJ-45 port ◆ 1 x COM port ◆ 1 x VGA port ◆ 1 x ID Switch button
	I/O Controller	<ul style="list-style-type: none"> ◆ ASPEED® AST2300 BMC chip
	Hardware Monitor	<ul style="list-style-type: none"> ◆ System voltage detection ◆ CPU/System temperature detection ◆ CPU/System fan speed detection ◆ CPU/System fan speed control <p style="margin-left: 40px;">* Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.</p>
	BIOS	<ul style="list-style-type: none"> ◆ 1 x 64 Mbit flash ◆ AMI BIOS
	Form Factor	<ul style="list-style-type: none"> ◆ CEB Form Factor; 12 inch x 10.5 inch, 8 layers PCB

* 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

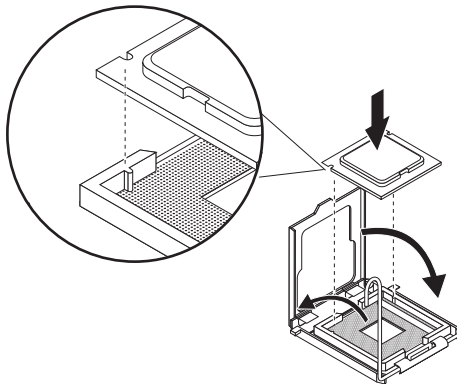


Read the following guidelines before you begin to install the CPU:

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

1-3-1 Installing the CPU

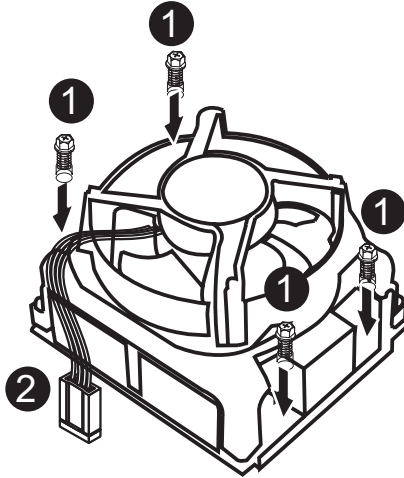
- Step 1. Raise the metal locking lever on the socket.
- Step 2. Remove the plastic covering on the CPU socket.
- Step 3. Lift the metal cover.
- Step 4. Insert the CPU with the correct orientation. The CPU only fits in one orientation.
- Step 5. Please replace the metal cover and push the metal lever back into locked position.



1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard.

- Step 1. Attach the heat sink clip to the processor socket.
- Step 2. Secure the cooling fan with screws..
- Step 3. Connect processor fan can cable to the processor fan connector.



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.
(Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

1-4-1 Dual/3 Channel Memory Configuration

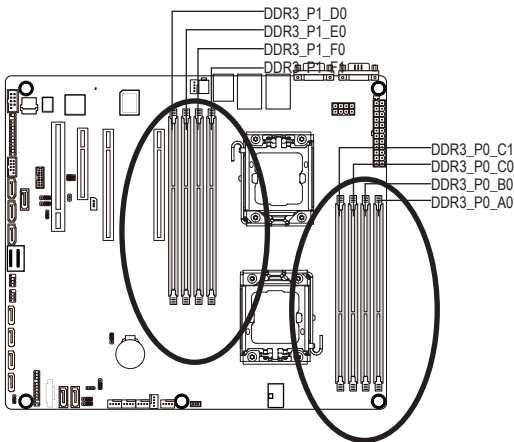
This motherboard provides eight DDR3 memory sockets and supports Dual/3 Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

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

Channel A: DDR3_P0_A0, DDR3_P1_D0

Channel B: DDR3_P0_B0, DDR3_P1_E0

Channel C: DDR3_P0_C0, DDR3_P0_C1, DDR3_P1_F0, DDR3_P1_F1



	Channel A	Channel B	Channel C
U-DIMM	DDR3_P0_A0 DDR3_P1_D0	DDR3_P0_B0 DDR3_P1_E0	DDR3_P0_C0 DDR3_P0_C1 DDR3_P1_F0 DDR3_P1_F1
	Single-Rank	Single-Rank	Single-Rank
	Dual-Rank	Dual-Rank	Dual-Rank

	Channel A	Channel B	Channel C
R-DIMM	DDR3_P0_A0 DDR3_P1_D0	DDR3_P0_B0 DDR3_P1_E0	DDR3_P0_C0 DDR3_P0_C1 DDR3_P1_F0 DDR3_P1_F1
	Single-Rank	Single-Rank	Single-Rank
	Dual-Rank	Dual-Rank	Dual-Rank
	Quad-Rank	Quad-Rank	Quad-Rank

Due to CPU limitation, read the following guidelines before installing the memory in Dual or 3 Channel mode

Dual Channel--

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 modules, it is recommended that memory of the same capacity, brand, speed, and chips be used. When enabling Dual Channel mode with two memory modules, be sure to install them in the DDR3_P0_A0 and DDR3_P0_B0 sockets for primary CPU; install DDR3_P1_D0 and DDR3_P1_E0 for secondary CPU.

3 Channel--

1. 3 Channel mode cannot be enabled if only one or two DDR3 memory modules are installed.
2. When enabling 3 Channel mode with three, four or six modules, it is recommended that memory of the same capacity, brand, speed, and chips be used. When enabling 3 Channel mode with three

memory modules, be sure to install them in the DDR3_P0_A0, DDR3_P0_B0 and DDR3_P0_C0 sockets for primary CPU; install DDR3_P1_D0, DDR3_P1_E0, DDR3_P1_F0 for secondary CPU. When enabling 3 Channel mode with four memory modules, be sure to install them in the DDR3_P0_A0, DDR3_P0_B0, DDR3_P0_C0, and DDR3_P0_C1 sockets for primary CPU; install DDR3_P1_D0, DDR3_P1_E0, DDR3_P1_F0, and DDR3_P1_F1 for secondary CPU

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.

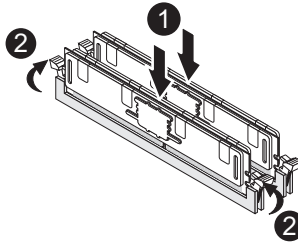
Installation Step:

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

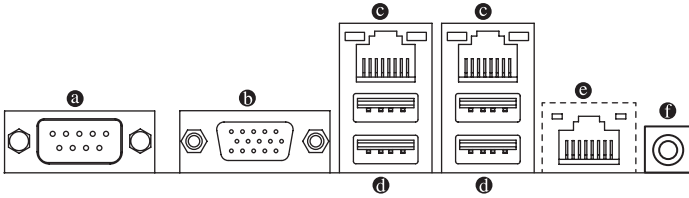
Step 2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

Note: 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

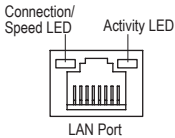
The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

e KVM Server Management 10/100 LAN Port

The LAN port provides Internet connection with data transfer speeds of 10/100Mbps.

f ID Switch Button

This button provide the selected unit identification function.



Connection/Speed LED:

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

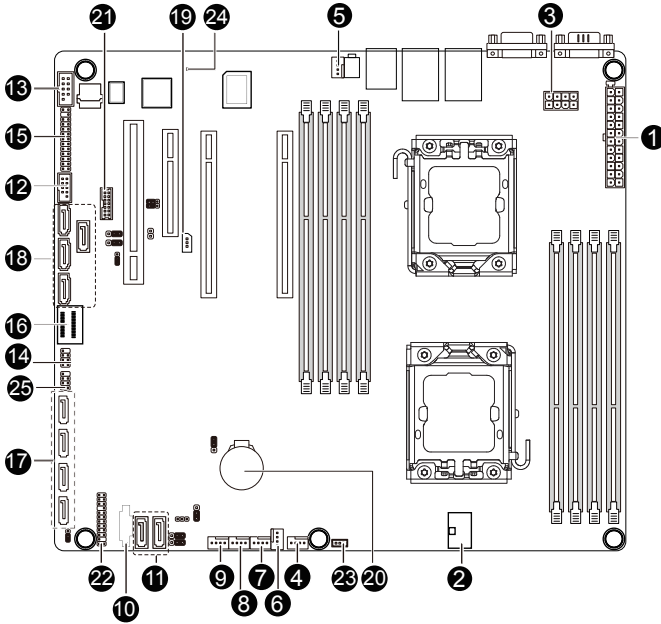
Activity LED:

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



- 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	14)	SCU_SGPIO
2)	P12V_AUX1	15)	FP_1
3)	P12V_AUX2	16)	MINISAS_1
4)	CPU0_FAN (for primary CPU)	17)	SATA2/3/4/5
5)	CPU1_FAN (for secondary CPU)	18)	SAS0/1/2/3
6)	SYS_FAN4 (System Fan)	19)	IPMB
7)	SYS_FAN3 (System Fan)	20)	BAT
8)	SYS_FAN2 (System Fan)	21)	TPM_MEZZ1
9)	SYS_FAN1 (System Fan)	22)	BP_1
10)	PMbus_CN_1	23)	SKU_KEY1
11)	SATA0/1	24)	BMC_LED1
12)	F_USB1	25)	SATA_SGPIO
13)	COM2		



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.

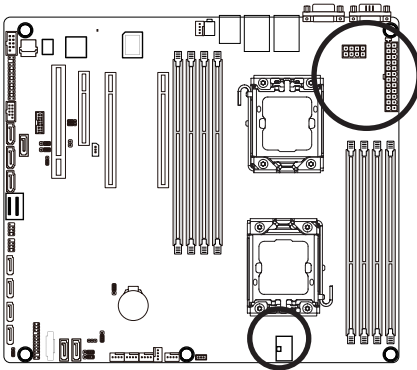
1/2/3) ATX1/P12V_AUX1/P12V_AUX2

(2x4 12V Power Connector and 2x12 Main Power Connector)

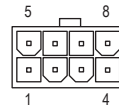
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.



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



P12V_AUX1
P12V_AUX2



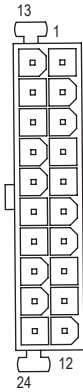
P12V_AUX1

Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	P12V_DDR3_CPU0
6	P12V_DDR3_CPU0
7	P12V_CPU0
8	P12V_CPU0

P12V_AUX2

Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	P12V_CPU1
6	P12V_CPU1
7	P12V_DDR3_CPU1
8	P12V_DDR3_CPU1

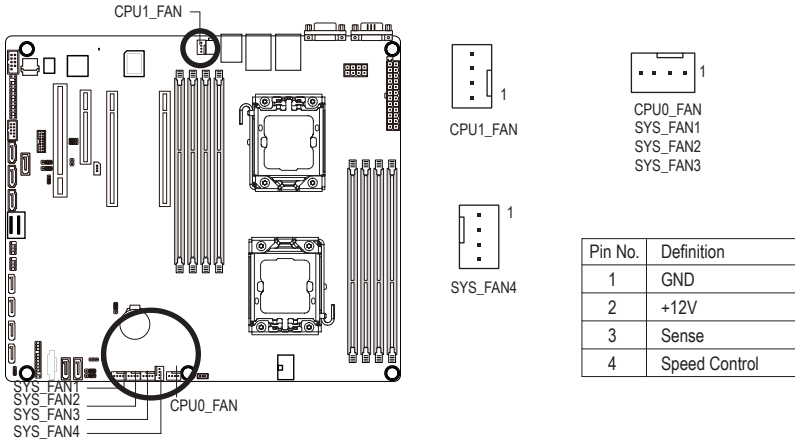
ATX1



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 (soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V (Only for 2x12-pin ATX)	23	+5V (Only for 2x12-pin ATX)
12	3.3V (Only for 2x12-pin ATX)	24	GND (Only for 2x12-pin ATX)

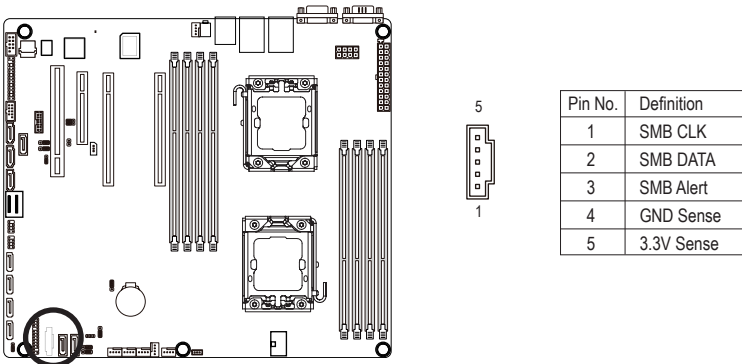
4/5/6/7/8/9) CPU0_FAN/CPU1_FAN/SYS_FAN4/SYS_FAN3/SYS_FAN2/SYS_FAN1 (CPU Fan/System Fan Headers)

The motherboard has a 4-pin CPU fan header (CPU_FAN1/2), a 4-pin (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.



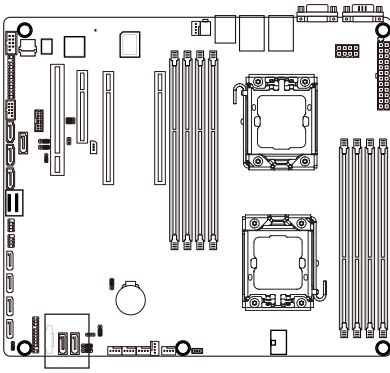
- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

10) Pmbus_CN_1 (Power management connector)



11) SATA0/1 (SATA 6Gb/s Connectors)

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



When SATA_DOM0/1 jumper are set to **Normal Mode**:

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

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

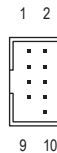
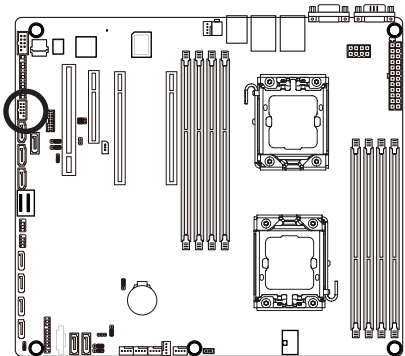


- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number.
- A RAID 10 configuration requires four hard drives.

(Note) When a RAID configuration is built across the SATA 3Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected.

12) F_USB1 (USB Headers)

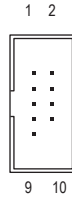
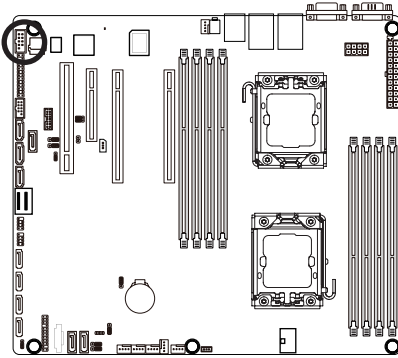
The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



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

13) COM2 (Serial Port Header)

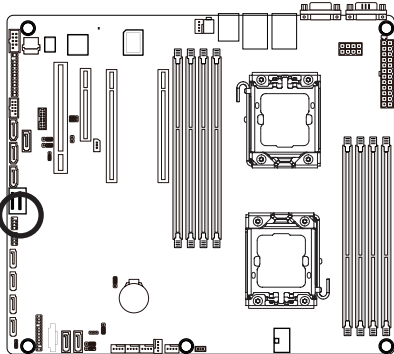
The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.



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

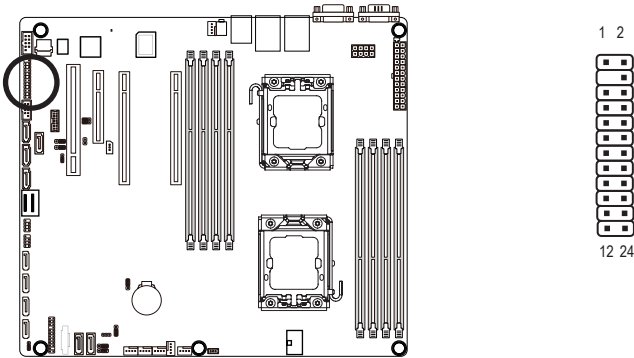
14) SCU_SGPIO (SCU SGPIO Header)

SGPIO 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_SAS1_DATAIN
2	No Pin
3	SGPIO_SAS1_DATAOUT
4	GND
5	GND
6	SGPIO_SAS1_LOAD
7	NC
8	SGPIO_SAS1_CLOCK

15) FP_1 (Front Panel Header)



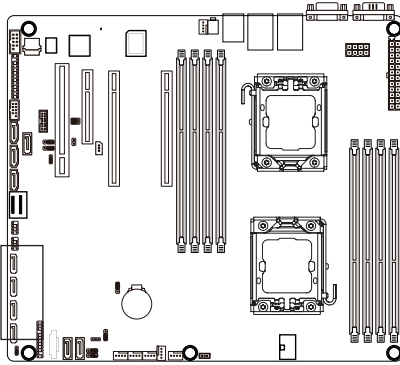
Pin No.	Signal Name	Definition
1	PWR_LED+	Power LED Signal anode (+)
2	5VSB	5V Standby Power
3	NC	No Pin
4	ID_LED+	ID LED Signal anode (+)
5	PWLED-	Power LED Signal cathode(-)
6	ID_LED-	ID LED Signal cathode(-)
7	HD+	Hard Disk LED Signal anode (+)
8	F_SYSRDY	System Front board LED Signal
9	HD- (GND)	Ground
10	SYS_STATUS-	System Status LED Signal cathode(-)
11	PWB+	Power Button Signal anode (+)
12	L1_ACT	LAN1 active LED Signal
13	PWB+ _GND	Ground
14	L1_LINK-	LAN1 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	L2_ACT	LAN2 active LED Signal
23	NMI_SW-	NMI switch Signal cathode(-)
24	L2_LINK-	LAN2 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.

17) SATA2/3/4/5 (SATA 3Gb/s Connectors)

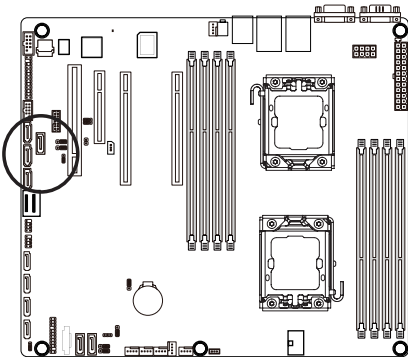
The SATA connectors conform to SATA 3Gb/s standard and are compatible with SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device.



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

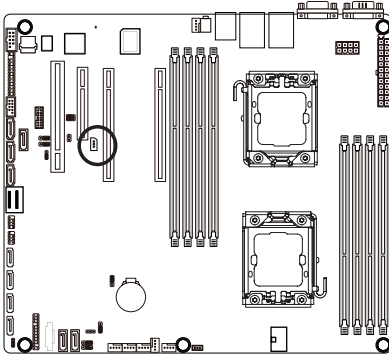
18) SAS0/1/2/3 (SAS cable connectors)

The SAS connectors conform to SATA 3Gb/s standard.



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

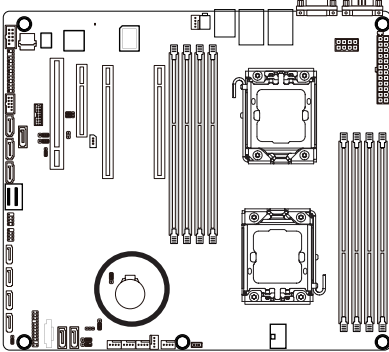
19) IPMB (IPMB connector)



Pin No.	Definition
1	SCL
2	GND
3	SDA

20) BAT (Battery)

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



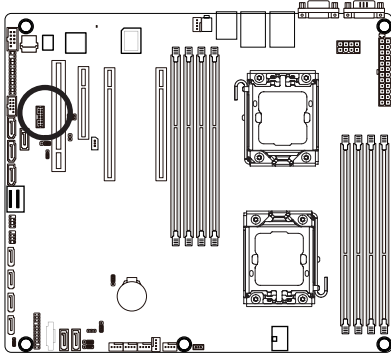
You may clear the CMOS values by removing the battery:

1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.



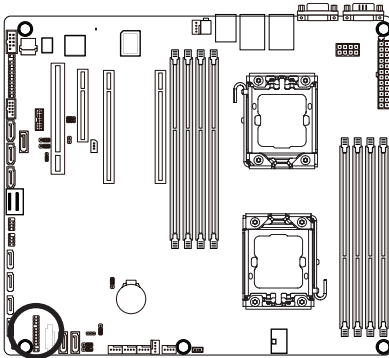
- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.

21) TPM_MEZZ1 (TPM Module)



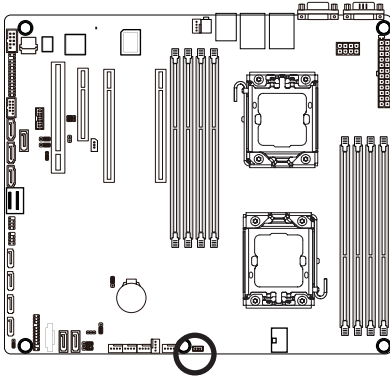
Pin No.	Definition
1	CLK_33M_TPM
2	P_3V3_AUX
3	LPC_RST_DEBUG
4	P3V3
5	LPC_LAD0
6	IRQ_SERIAL
7	LPC_LAD1
8	TPM_DET_N
9	LPC_LAD2
10	NC
11	LPC_LAD3
12	GND
13	LPC_FRAME_N
14	GND

22) BP1 (Back Plane Board Header)



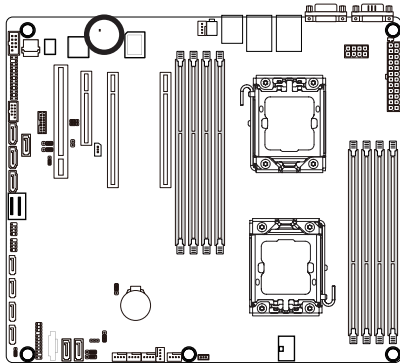
Pin No.	Definition
1	AST2300_SGCLK
2	FM_THROTTLE_AND_N
3	AST2300_SGLD
4	IQO_FAN_12v_GATE_N
5	AST2300_SGDOUT
6	GND
7	KEY
8	RresetL_BRB
9	GND
10	BP_ALED_N
11	BP_LED_G_N
12	GND
13	AST2300_SGDIN
14	ASSESS#_LED_BP1
15	GND
16	SMB_BP1_DATA
17	GND
18	SMB_BP1_CLK
19	P_3V3_AUX
20	BP_HDD_TYPE
21	P_3V3_AUX
22	FAN_TYPE
23	GND
24	KEY
25	BP_PRESENSE
26	GND

23) SKU_KEY1 (Patsburg Upgrade ROM Header)



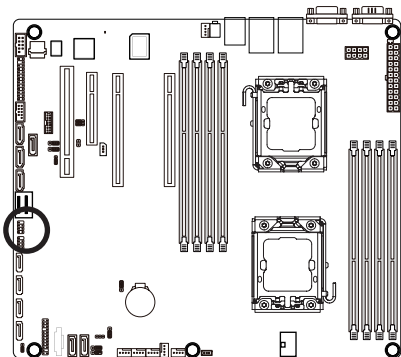
Pin No.	Definition
1	GND
2	FM_PBG_DYN_SKU_KEY
3	GND

24) BMC_LED1 (BMC Firmware Readiness LED)



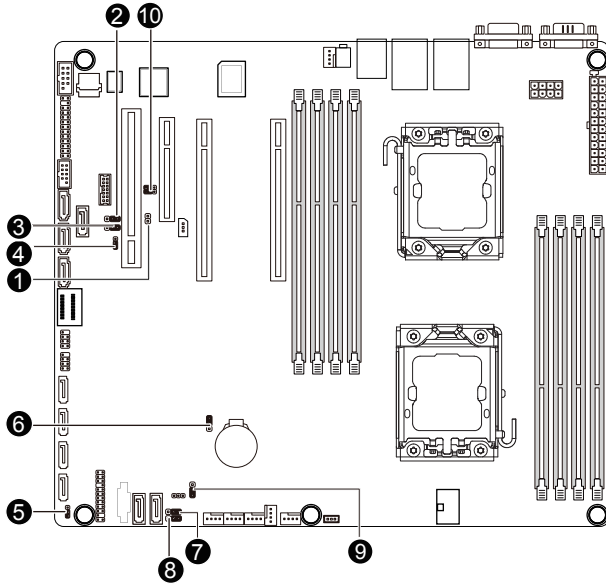
State	Description
On	BMC firmware is initial
Blinking	BMC firmware is ready
Off	System AC is powered off

25) SATA_SGPIO (SATA SGPIO Header)



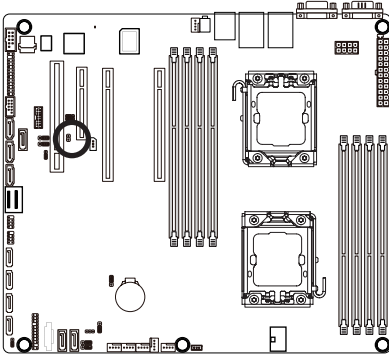
Pin No.	Definition
1	SGPIO_SATA_DATAIN
2	No Pin
3	SGPIO_SATA_DATAOUT
4	GND
5	GND
6	SGPIO_SATA_LOAD
7	NC
8	SGPIO_SATA_CLOCK



1-7 Jumper Setting



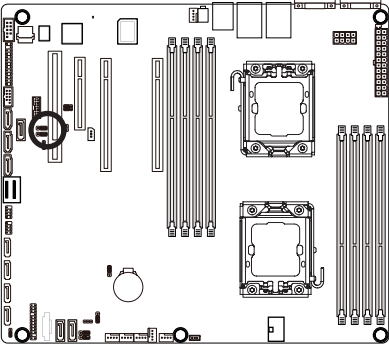
1) JP5	6) CLR_CMOS
2) PASSWORD	7) SATA_DOM0
3) BIOS_RCVR	8) SATA_DOM1
4) SSB_ME1	9) BIOS_WP
5) SSB_ME2	10) ROMST_FRB3



1) JP5 (Case Open Intrusion Jumper)



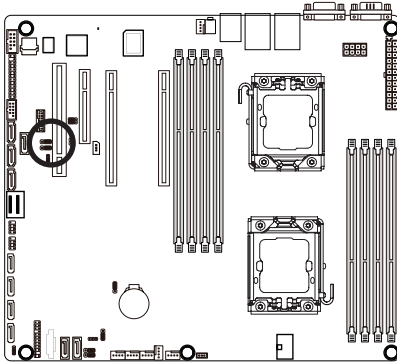
-  Open: Normal operation. (Default setting)
-  Close: Enable chassis intrusion alert.


2) PASSWORD (Skip Supervisor Password Jumper)




- 1  1-2 Close: Normal operation. (Default setting)
- 1  2-3 Close: Skip supervisor password.

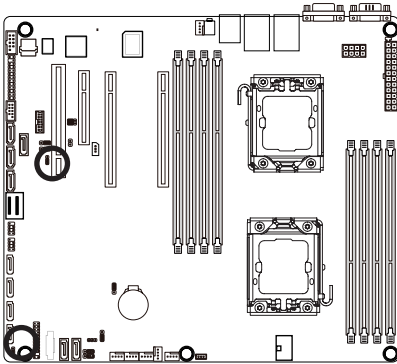
3) BIOS_RCVR (BIOS Recovery Jumper)





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


1
 2-3 Close: BIOS recovery mode.


4/5) SSB_ME1/SSB_ME2 (ME enable/disable Jumper)



SSB_ME1
1
 1-2 Close: Normal operation. (Default setting)

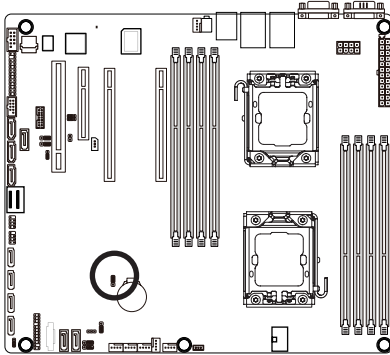
1
 2-3 Close: Disable ME function.

SSB_ME2
1
 1-2 Close: Disable ME function.

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

6) 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 or temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.



1 2-3 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 Setup Default**) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

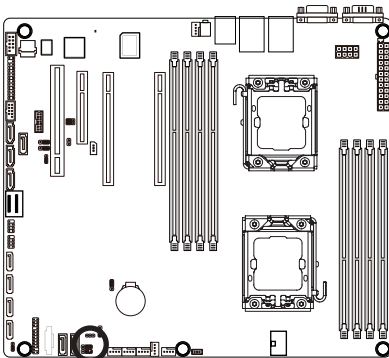
7/8) SATA_DOM0/1 (SATA DOM Jumper)

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

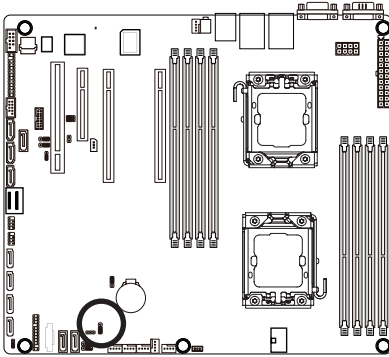
Pin No.	Definition
1	P5V
2	SATA_DOM_0
3	GND





For SATA_DOM1

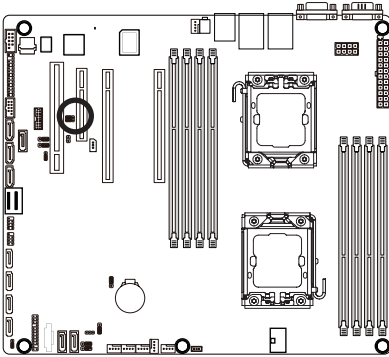
Pin No.	Definition
1	P5V
2	SATA_DOM_1
3	GND

9) BIOS_WP (BIOS Write Protect Jumper)



- 1  1-2 Close: Normal operation. (Default setting)
- 1  2-3 Close: Enable BIOS write protect function.




10) ROMST_FRB3 (Force to Stop FRB3 Timer Jumper)



2 6



Pin No.	Definition
1	SGPIO_IBMC_DOUT_PD
2	BMC_FRB3_SB3V
3	SGPIO_IBMC_DATOUT
4	BMC_R_FRB3
5	p_3V3_AUX
6	GND

	1-3 Close: Normal ROM Strap
	2-4 Close: Normal operation.
	4-6 Close: Force to stop FRB3 Timer.

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 "Load Optimized Defaults" section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<<-><->>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+> / <->	Increase/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 submenu
<F9>	Load the Optimized BIOS default settings for the current submenu
<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**

Server additional features enabled/disabled setup menus.

■ **Boot Options**

This setup page provides items for configuration of boot sequence.

■ **Boot Manager**

This setup page provides configuration of boot up devices.

■ **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

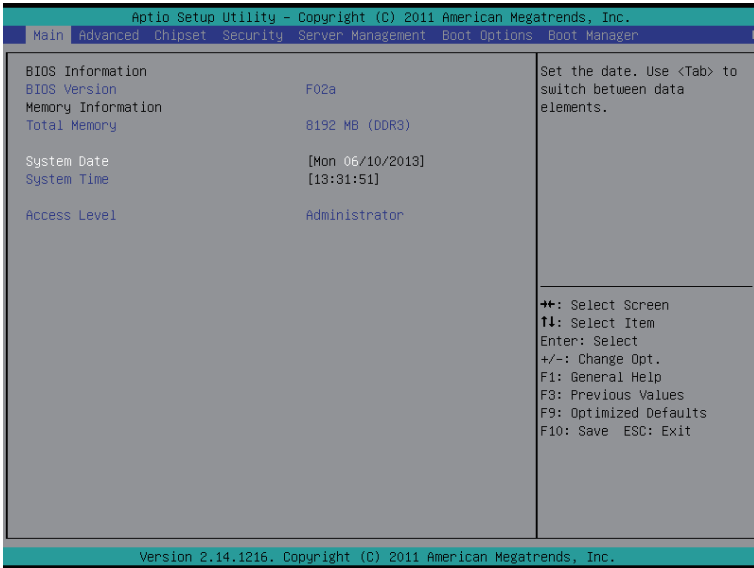
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

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 **Load Default Values** 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 Information**

☞ **BIOS Version**

Display version number of the BIOS setup utility.

☞ **Memory Information**

☞ **Total Memory**

Determines how much total memory is present during the POST.

☞ **System Date**

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

☞ **System Time**

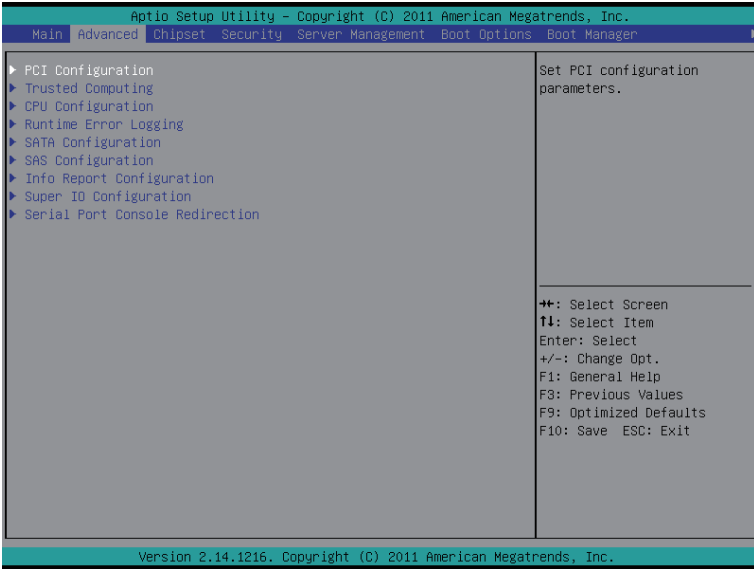
Set the system time following the hour-minute- second format.

☞ **Access Level**

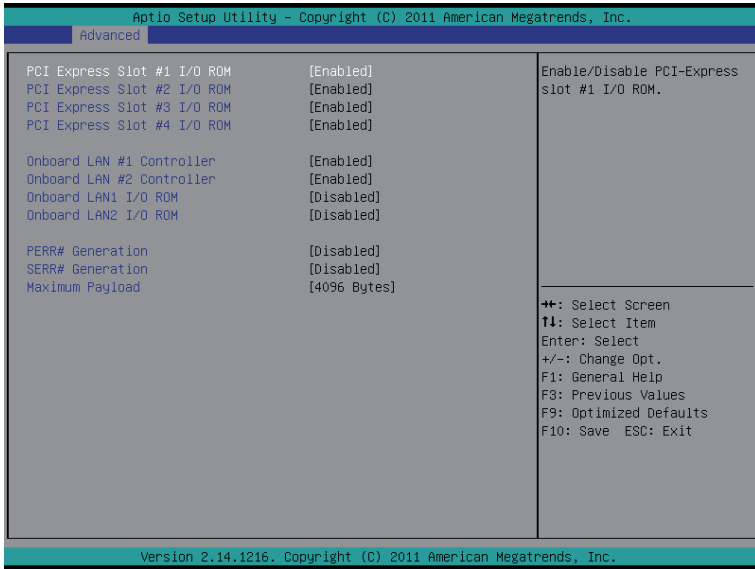
Display the current accessing level information.

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.



2-2-1 PCI Configuration



☞ PCI Express Slot #1/#2/#3/#4 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/#2 Controller

Enable/Disable Onboard LAN1/2 controller .
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ LAN#1/#2 I/O ROM

Enable/Disable onboard LAN1/2 device and initialize device expansion ROM.
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**.

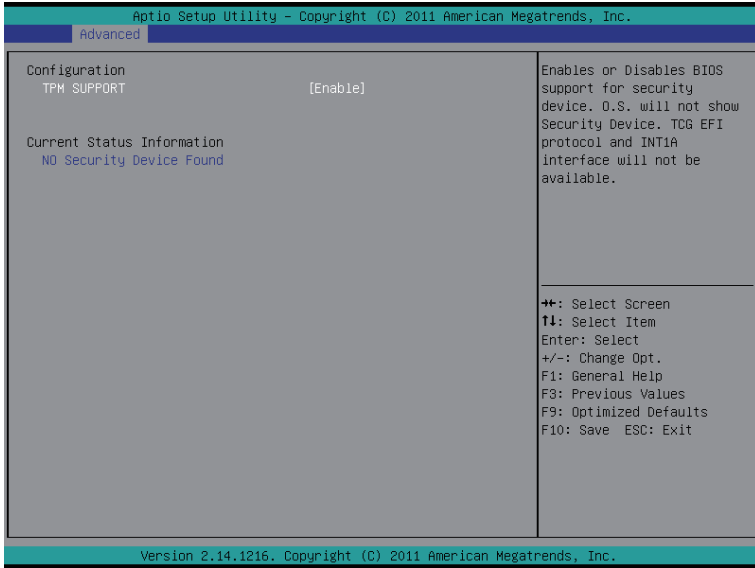
☞ SERR Generation

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**.

☞ 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 **4096 Bytes**.

2-2-2 Trusted Computing (Option)



☞ TPM Support

Select Enabled to activate TPM support feature.

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

☞ TPM State

Select Enabled to activate TPM State function.

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

☞ CPU Information

☞ Socket 0/1 CPU Information

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

Displays the technical specifications for the installed processor.

☞ Cache Information

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

Displays the technical specifications for the installed processor.

☞ CPU Speed

Display the current installed CPU speed.

☞ 64-bit

Display the supported information of installed CPU.

☞ 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**.

☞ 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**.

☞ Performance/Watt

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

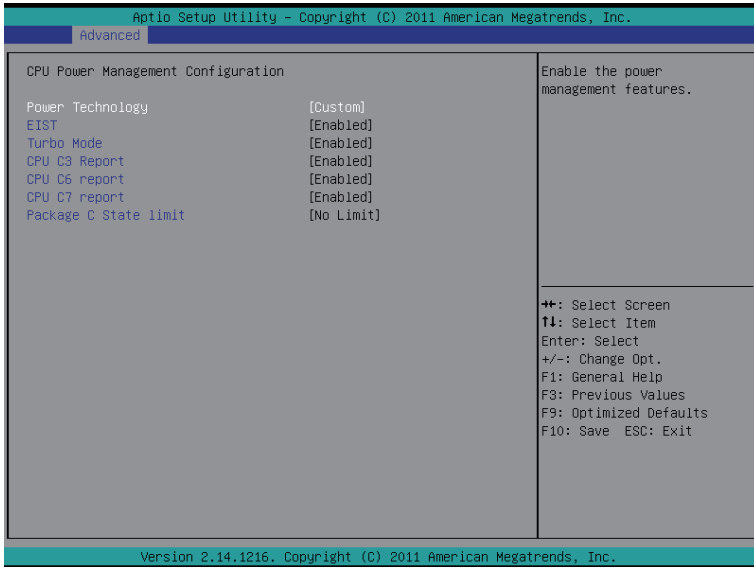
Balanced Performance: Write value 7 into MSR_ENERGY_PERFORMANCE_BIAS

Balanced Energy: Write value 11 into MSR_ENERGY_PERFORMANCE_BIAS

Energy Efficient: Write value 15 into MSR_ENERGY_PERFORMANCE_BIAS

Default setting is **Performance**.

2-2-3-1 CPU Power Management Configuration



☞ CPU Management

☞ Power Technology

Configure the power management features.

Options available: Disable/Energy Efficient/Custom. Default setting is **Custom**.

☞ 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 feature is enabled, the processor can dynamically overclock one or two of its four processing cores to improve performance with applications that are not multi-threaded or optimized for quad-core processors.

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 for C3 Report: ACPI C2/ACPI C3/Disabled. Default setting is **Enabled**.

Options available for C6 Report: Enabled/Disabled. Default setting is **Enabled**.

(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.

☞ **CPU C7 Report** ^(Note)

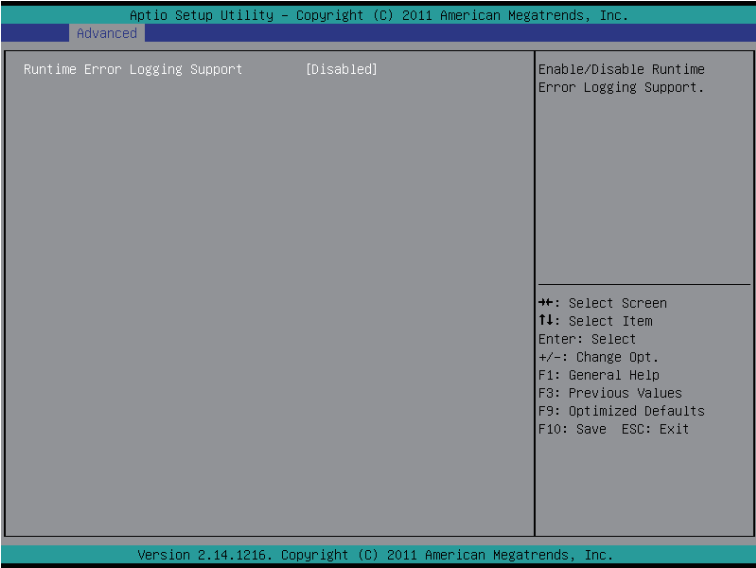
Allows you to enable or disable the CPU C7 (ACPI C3) report.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Package C State Limit**

Configure state for the C-State package limit.
Options available: C0/C1/C6/C7/No Limit. Default setting is **No Limit**.

(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.

2-2-4 Runtime Error Logging

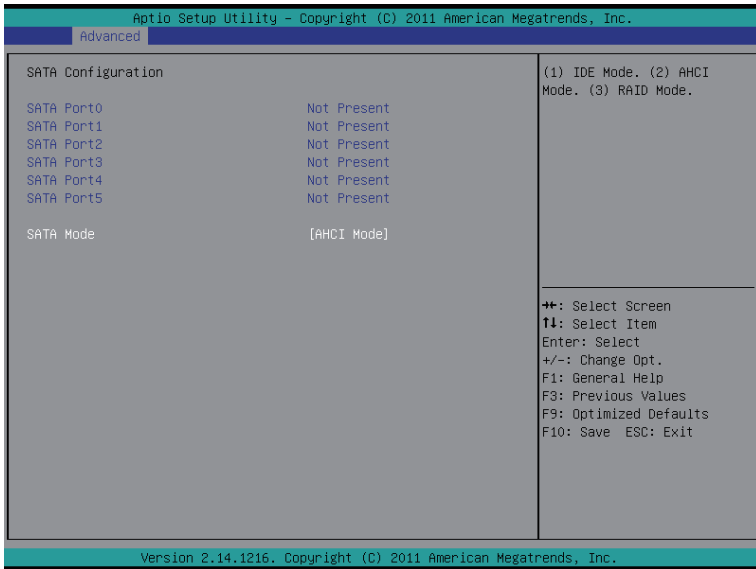


Runtime Error Logging Support

Enable/Disable Runtime error logging support.

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

2-2-5 SATA Configuration



☞ **SATA Port 0/1/2/3/4/5** (Note)

Press [Enter] to view the installed HDD devices.

☞ **SATA Mode**

Select the on chip SATA type.

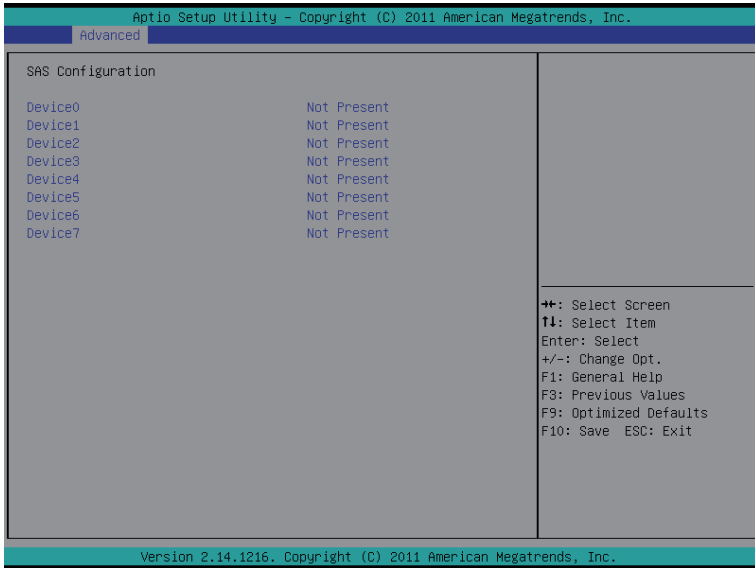
RAID Mode: When set to RAID, the SATA controller enables both its RAID and AHCI functions. You will be able to access the RAID setup utility at boot time.

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

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

(Note) This item will not appear when the SATA mode is set to RAID mode.

2-2-6 SAS Configuration

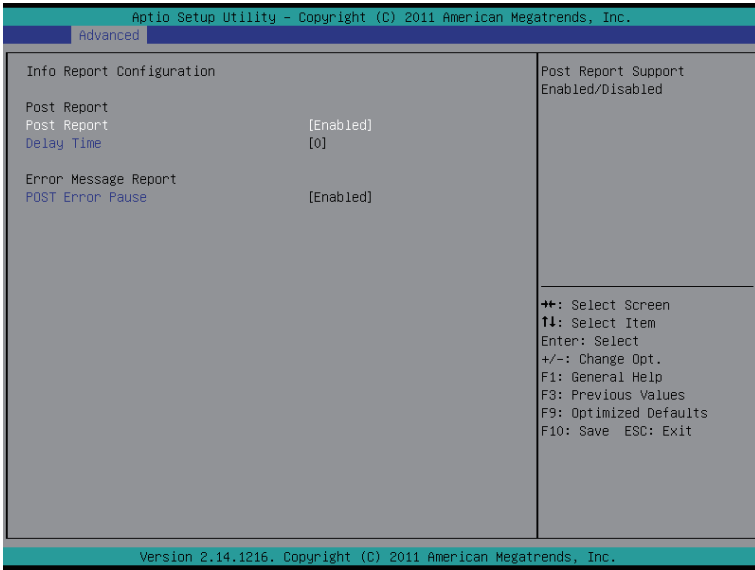


☞ Device 0/1/2/3/4/5/6/7 (Note)

Press [Enter] to view the installed HDD devices.

(Note) The number of SATA and SAS devices depends of the PCH SKU.

2-2-7 Info Report Configuration



☞ Info Report Configuration

☞ Post Report

☞ Post Report

Enable/Disable Post Report support.

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

☞ Delay Time

Press the numeric keys to input the desired value.

☞ Error Message Report

☞ POST Error Message

Enable/Disable Info Error Message support.

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

2-2-8 Super IO Configuration

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Advanced

Super IO Configuration	Set Parameters of Serial Port 1 (COMA)
Super IO Chip IT8728	
Serial Port 1 Configuration	
Serial Port 2 Configuration	

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save ESC: Exit

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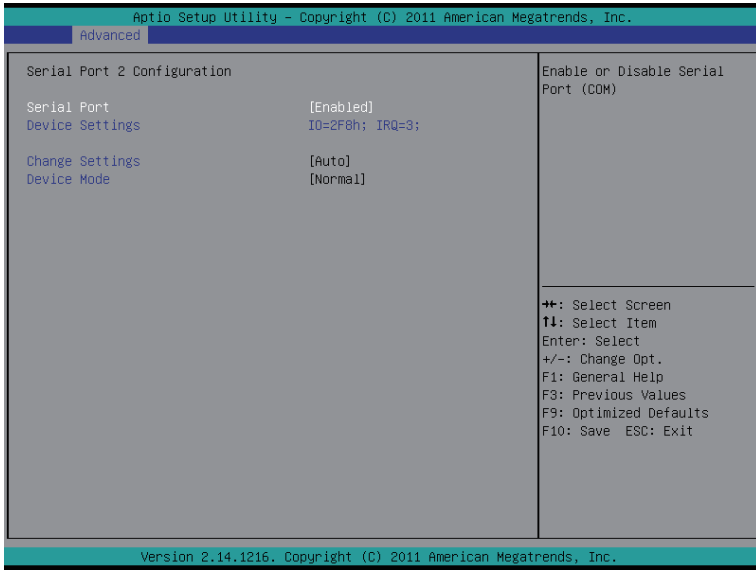
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Advanced

Serial Port 1 Configuration	Enable or Disable Serial Port (COM)
Serial Port [Enabled]	
Device Settings IO=3F8h; IRQ=4;	
Change Settings [Auto]	
Device Mode [Normal]	

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save ESC: Exit

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☞ Super IO Configuration

☞ Super IO Chip

Display the model name of Super IO chipset.

☞ Serial Port 1/2 Configuration

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

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

☞ Change Settings

Change Serial Port 1/2 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.

2-2-9 Serial Port Console Redirection

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Advanced

<p>COM1 Console Redirection [Disabled] ▶ Console Redirection Settings</p> <p>COM2 Console Redirection [Disabled] ▶ Console Redirection Settings</p> <p>Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS) Console Redirection [Disabled] ▶ Console Redirection Settings</p> <p>BMC SBL Serial Port Switch [Disabled]</p>	<p>Console Redirection Enable or Disable.</p> <hr/> <p>++: Select Screen ↑: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save ESD: Exit</p>
--	---

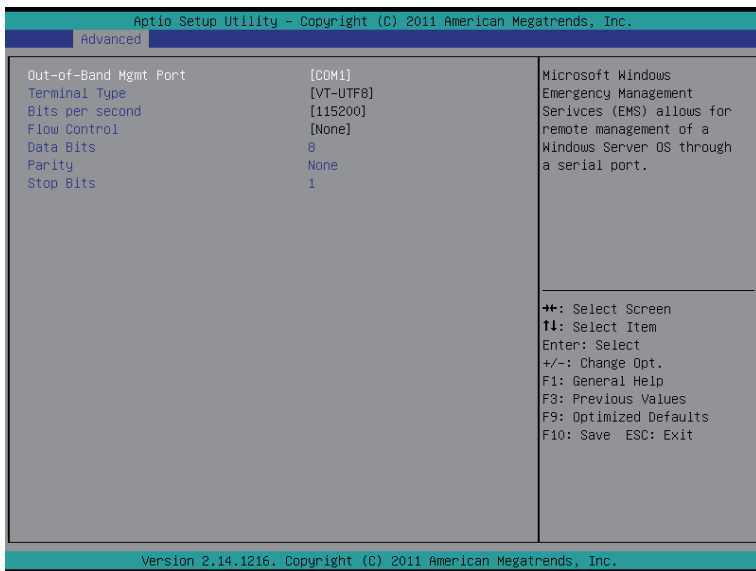
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Advanced

<p>COM1 Console Redirection Settings</p> <p>Terminal Type [ANSI] Bits per second [115200] Data Bits [8] Parity [None] Stop Bits [1] Flow Control [None] VT-UTF8 Combo Key Support [Enabled] Recorder Mode [Disabled] Resolution 100x31 [Enabled] Legacy OS Redirection Resolution [80x24]</p>	<p>Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.</p> <hr/> <p>++: Select Screen ↑: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save ESD: Exit</p>
---	---

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☞ 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/ESCN/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-Bnad 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.

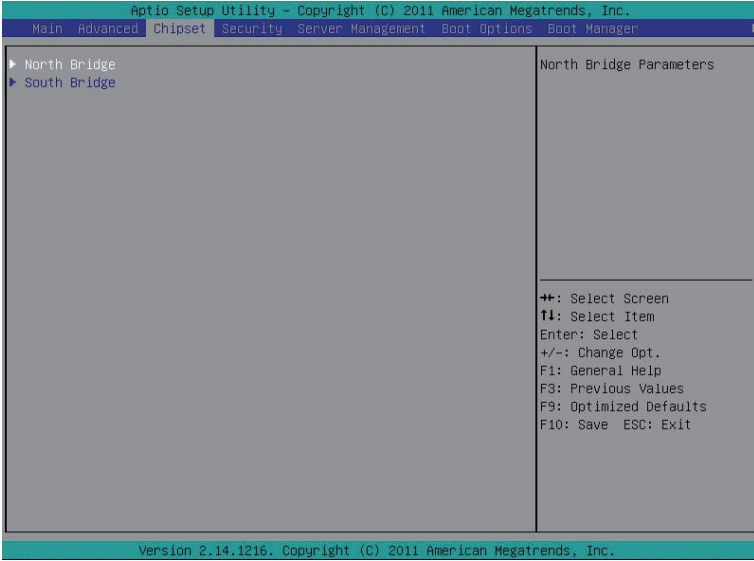
When disabled, COM1 Switch to IT8728 SOL UART.

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

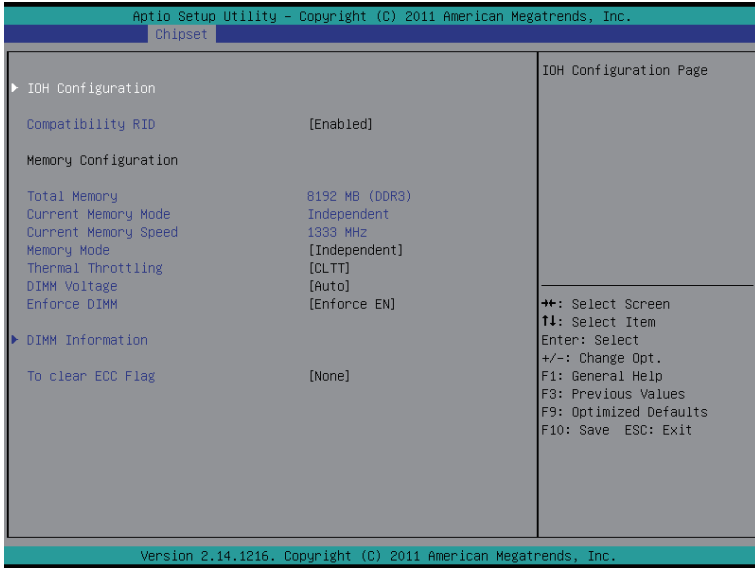
(Note) The item is only available for COM1 and COM2.

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 North Bridge Configuration



IOH Configuration

Press [Enter] for configuration of advanced items.

Compatibility RID

Enable/Disable Compatibility RID function.

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

Memory Configuration

Total Memory

Determines how much total memory is present during the POST.

Current Memory Mode

Displays the current memory mode. Memory mode can be determined in **Memory Mode** item.

Current Memory Speed

Displays the current memory speed.

Memory Mode

Determine the memory mode.

When set to Independent mode, all DIMMs are available to the operation system.

When set to Mirroring mode, the motherboard maintains two identical (redundant) copies of all data in memory.

When set to Lockstep mode, the motherboard uses two areas of memory to run the same set of operations in parallel.

When set to Sparing mode, a preset threshold of correctable errors is used to trigger fail-over.

The spare memory is put online and used as active memory in place of the failed memory.

Thermal Throttling

Configure the Thermal Throttling.

Options available: Disabled/OLTT/CLTT. Default setting is **CLTT**.

☞ **DIMM Voltage**

Configure the DIMM voltage.

Options available: Auto/ Force 1.5v/Force 1.35v. Default setting is **Auto**.

☞ **Enforce DIMM**

To enforce POR function. When disabled, the system will enforce 1600MHz LRDIMM.

Options available: Enforce EN/Stretch EN/Enforce DIS. Default setting is **Enforce EN**.

☞ **DIMM Information**

Press [Enter] to view the installed DIMMs information.

☞ **To clear ECC Flag**

When DDR3 Channel is maskoff after ECC multibit errors, it is required to clear ECC flag to make masked off channels be available.

Options available: None/To clear ECC Flag when save and exit. Default setting is **None**.

Options available: Indendent /Mirroring/ Lockstep/Sparing.

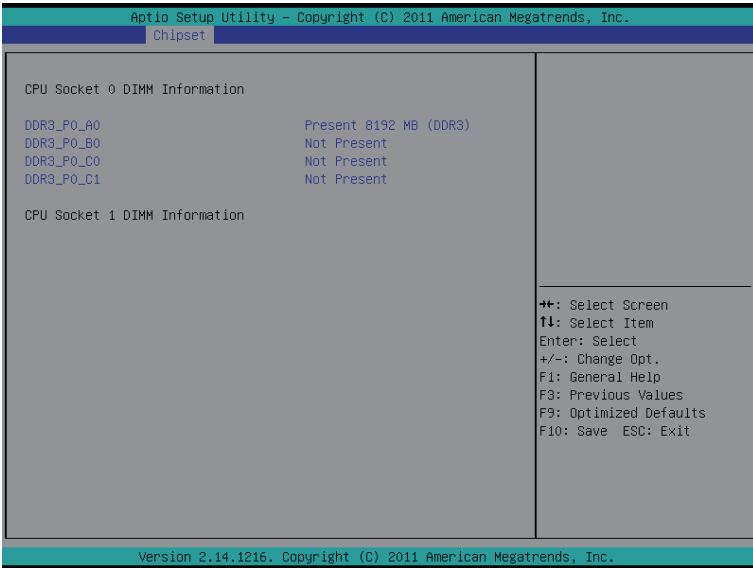
2-3-1-1 IOH Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Chipset	
<p>▶ Intel(R) VT for Directed I/O Configuration</p> <p>Intel(R) I/OAT [Disabled] DCA Support [Enabled] VGA Priority [Offboard] TargetVGA Vga From CPU 0 Gen3 Equalization HA's [Disabled] PCIE Slot3 Speed [GEN2] PCIE Slot1 Speed [GEN2]</p> <p>IOH 1 PCIe port Bifuncation Control</p>	<p>Intel(R) VT for Directed I/O Configuration</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save ESC: Exit </p>
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Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Chipset	
<p>Intel(R) VT-d [Enabled]</p>	<p>Enable/Disable Intel(R) Virtualization Technology for Directed I/O.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save ESC: Exit </p>
Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.	

- ☞ **IOH Configuration**
- ☞ **Intel(R) VT for Directed I/O Configuration**
- ☞ **Intel(R) I/OAT**
Enable/Disable Intel OAT Technology function.
Options available: Enabled/Disabled. Default setting is **Disabled**.
- ☞ **DCA Support**
Enable/Disable Direct Cache Access Support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **VGA Priority**
Define the display device priority.
Options available: Onboard/Offboard. Default setting is **Offboard**.
- ☞ **Target VGA**
Displays the information of Target VGA.
- ☞ **Gen3 Equalization WA's**
Enable/Disable the support for Gen3 Equalization Workaround.
Options available: Enabled/Disabled. Default setting is **Disabled**.
- ☞ **PCIE Slot3 Speed**
Select PCIe slot 3 speed.
Options available: GEN1/GEN2/GEN3. Default setting is **GEN2**.
- ☞ **PCIE Slot1 Speed**
Select PCIe slot 1 speed.
Options available: GEN1/GEN2/GEN3. Default setting is **GEN2**.
- ☞ **IOH 1 PCIe port Bifurcation Control**

2-3-1-2 DIMM Information



☞ DIMM Information:

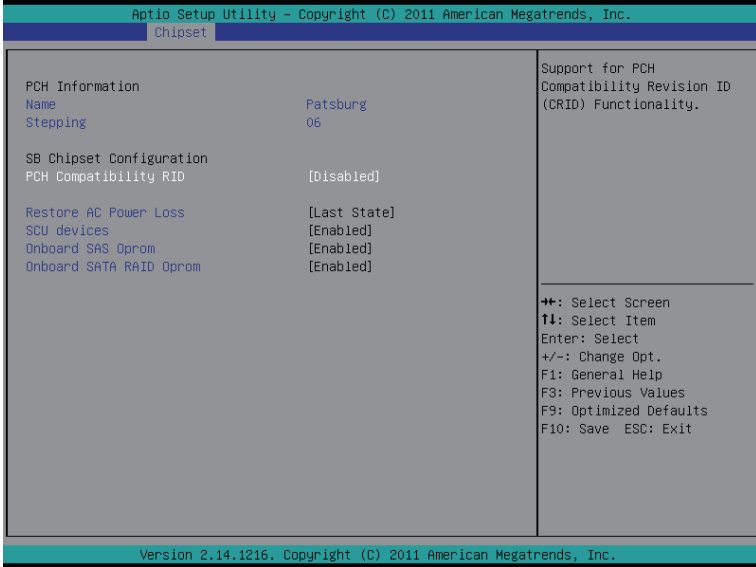
☞ DIMM Group: CPU Socket 0/1 DIMM Information

CPU Socket 0: DDR_3_P0_A0/DDR_3_P0_b0/DDR_3_P0_c0/DDR_3_P0_C1 Status

CPU Socket 1: DDR_3_P1_D0/DDR_3_P1_E0/DDR_3_P1_F0/DDR_3_P1_F1 Status

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

2-3-2 South Bridge Configuration



☞ PCH Information

☞ Name/Stepping Information

Displays the name and stepping information of the south bridge.

☞ SB Chipset Configuration

☞ PCH Compatibility RID

Enable/Disable PCH Compatibility RID support.

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

☞ Restore on AC Power Loss ^(Note)

Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Stay Off, the system remains off after power shutdown.

Options available: Last State/Stay Off/Power On. The default setting depends on the BMC setting.

☞ SCU devices

Enable/Disable Patsburg SCU devices.

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

☞ Onboard SAS oprom

Enable/Disable onboard SAS option ROM.

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

☞ Onboard SATA RAID oprom

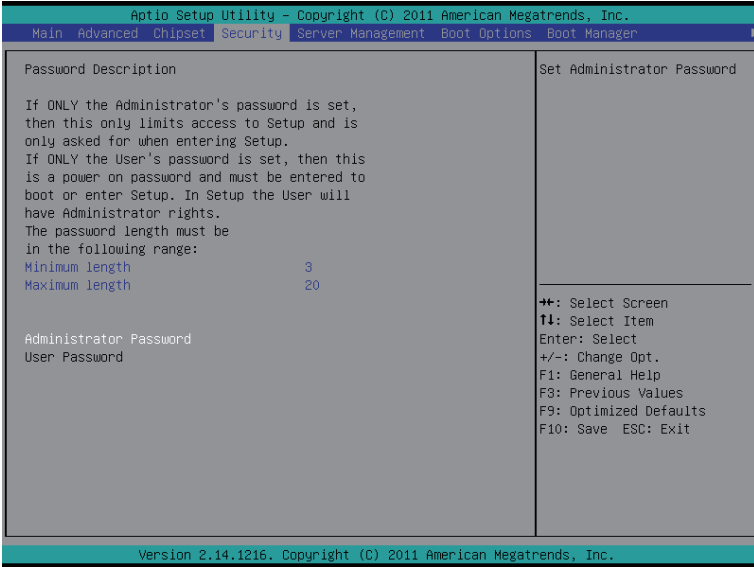
Enable/Disable onboard SATA RAID option ROM.

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

(Note) When the power policy is controlled by BMC, please wait for 15-20seconds for BMC to save the last power state.

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 Status**

This parameter indicates whether a Administrator Password has been assigned.

⌄ **User Password Status**

This parameter indicates whether a user password has been assigned.

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

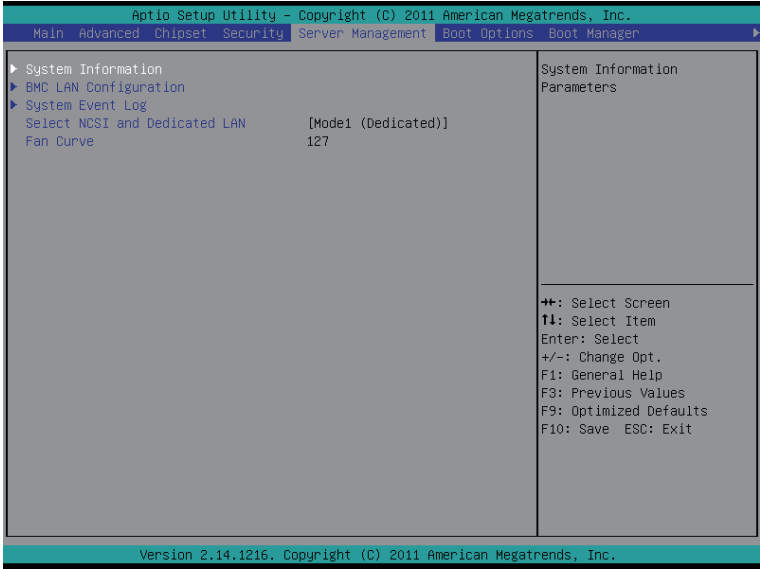
⌄ **Set Administrator Password**

Press Enter to configure the Administrator password.

⌄ **Set User Password**

Press Enter to configure the user password.

2-5 Server Management Menu



System Information

Displays basic system ID information, as well as BIOS version. Press Enter to access the related submenu.

BMC LAN Configuration

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

System Event Log

Press Enter to access the related system event log.

Select NCSI and Dedicated LAN

Switch NCSI and dedicated LAN and send KCS command.

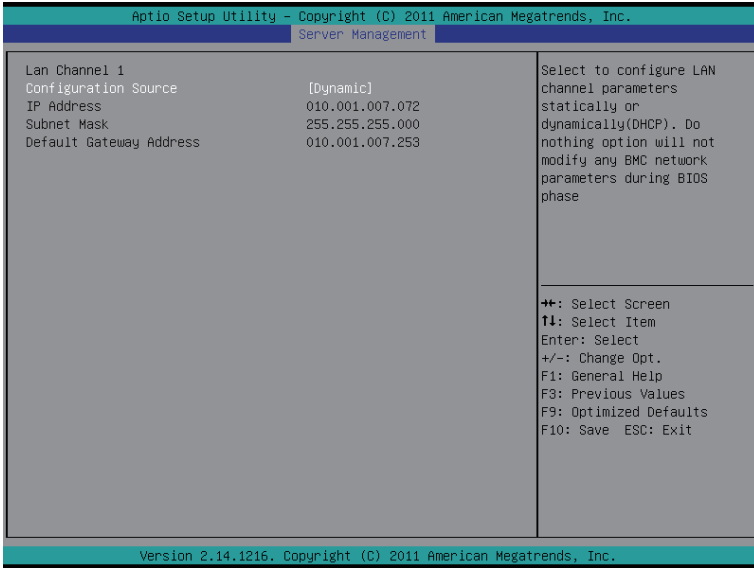
Options available: Mode2(NCSI)/ Mode1 (Dedicated).

2-5-1 System Information

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



2-5-2 BMC LAN Configuration



☞ 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

Display IP Address information.

☞ Subnet Mask

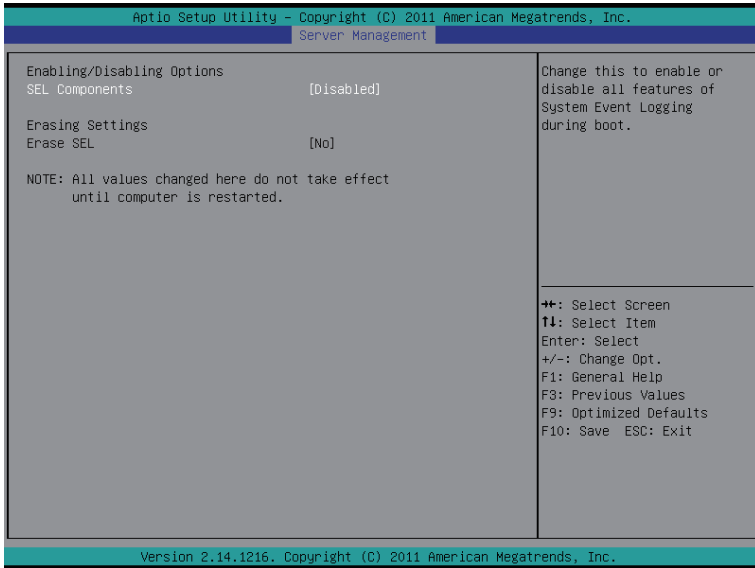
Display Subnet Mask information.

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

☞ Default Gateway Address

Display Default Gateway Address information.

2-5-3 System Event Log



☞ Enabling/Disabling Options

☞ SEL Components

Enable/Disable all features fo system event logging during system boot.

Options available: Enabled/Disabled.

☞ Erasing Settings

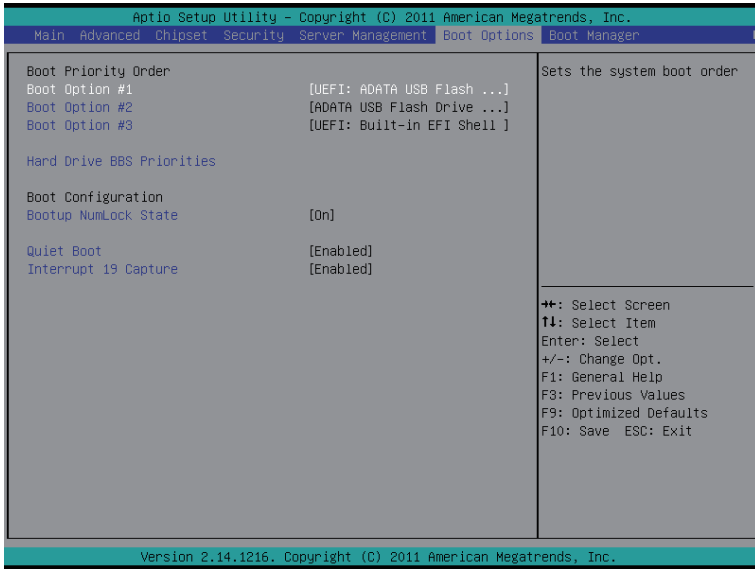
☞ Erase SEL

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

Options available: Yes/No.

2-6 Boot Option 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 Priority Order

☞ Boot Option #1/#2/#3

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.

☞ Hard Drive BBS Priorities

Press Enter to configure the boot priority.

☞ Boot Configuration

☞ 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 **Disabled**.

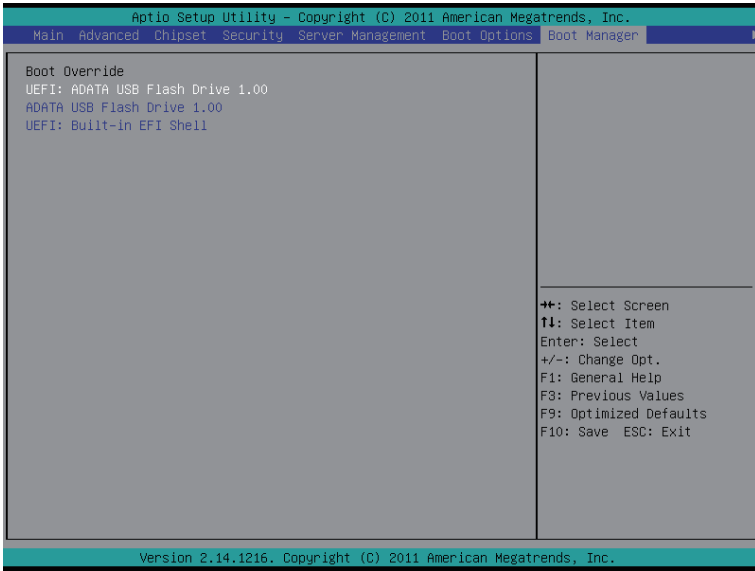
☞ Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When enabled, this BIOS feature allows the ROM BIOS of those host adaptors to "capture" Interrupt 19 during the boot process so that drives attached to these adaptors can function as bootable disks.

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

2-7 Boot Manager

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

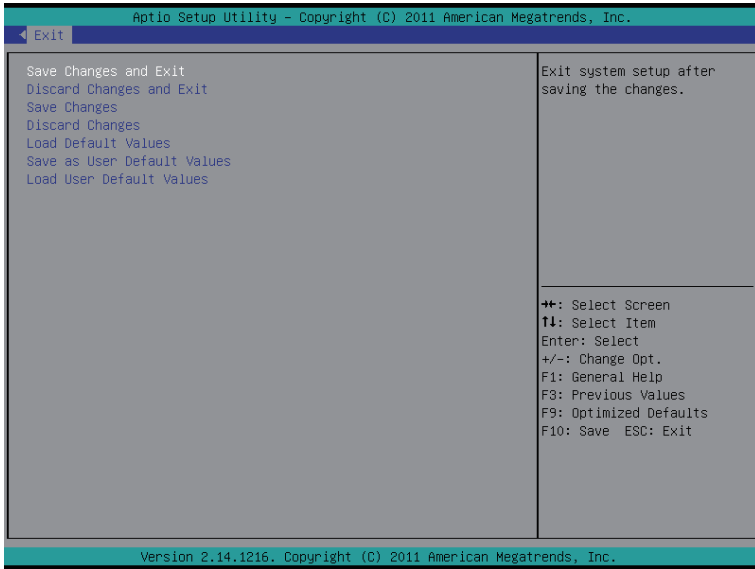


☞ UEFI: Built-in EFI Shell

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

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 Changes

Saves changes made in the BIOS setup.

Options available: Yes/No.

☞ Discard Changes

Discards all changes made in the BIOS setup.

Options available: Yes/No.

☞ Load Default Values

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.

☞ **Save as User Default Values**

Saves as user default and close the BIOS setup.

Options available: Yes/No.

☞ **Load User Default Values**

Loads the user default settings for all BIOS setup parameters.

Options available: Yes/No.

Chapter 3 Appendix

3-1 FAQ

Question	Answer
Why does when PCIE graphics card is used as default displaying device, iKVM video display always show "out of range"?	iKVM function can only be supported by using onboard video out.
Why does BMC featured server power on take longer time?	BMC featured server require BMC initialization before power on, please wait for BMC LED start to blink which indicates BMC initial process was completed the BIOS will start functioning.
For Dual Processor server platform, Do you need to connect both 8 Pin Power supply connector to power on?	Yes, this Dual processor platform require both 8 pin power connector for power supply else it will not power on.
Can you use E5-1400 series processor on Dual Processor EN server?	No, E5-1400 series processor can only be used on Single Processor EN server.

3-2 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.