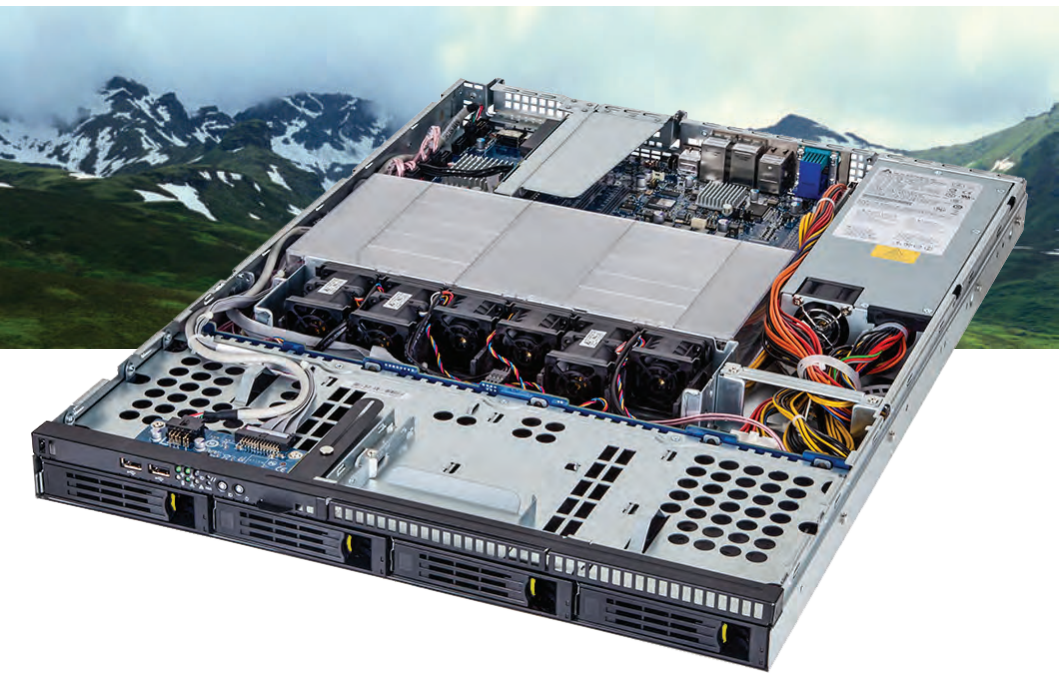
Relion 1800g

Dual LGA2011 sockets motherboard for Intel® Xeon® series processors

Technical Guide
Rev. 1.0



PENGUIN COMPUTING

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Documentation Classifications

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

- For quick set-up of the product, read the Quick Installation Guide included with the product.

For product-related information, check on our website at:
http://www.penguincomputing.com/products/rackmounted-servers/relion/relion-1800g

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Box Contents

- ☑ Relion 1800g
- ☑ Driver CD

- 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.

Safety, Care and Regulatory Information

Important safety information

Read and follow all instructions marked on the product and in the documentation before you operateyour system. Retain all safety and operating instructions for future use.

- The product should be operated only from the type of power source indicated on the rating label.* If your computer has a voltage selector switch, make sure that the switch is in the proper position foryour area. The voltage selector switch is set at the factory to the correct voltage.
- The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.
- All product shipped with a three-wire electrical grounding-type plug only fits into a grounding-type poweroutlet. This is a safety feature. The equipment grounding should be in accordance with local and nationalelectrical codes. The equipment operates safely when it is used in accordance with its marked electricalratings and product usage instructions
- Do not use this product near water or a heat source.* Set up the product on a stable work surface or so as to ensure stability of the system.
- Openings in the case are provided for ventilation. Do not block or cover these openings. Make sure youprovide adequate space around the system for ventilation when you set up your work area. Never insertobjects of any kind into the ventilation openings.
- To avoid electrical shock, always unplug all power cables and modem cables from the wall outletsbefore removing covers.
- Allow the product to cool before removing covers or touching internal components.

Precaution for Product with Laser Devices

Observe the following precautions for laser devices:

- Do not open the CD-ROM drive, make adjustments, or perform procedures on a laser device other than those specified in the product's documentation.
- Only authorized service technicians should repair laser devices.

Precaution for Product with Modems, Telecommunications, ot Local AreaNetwork Options

Observe the following precautions for laser devices:

- Do not connect or use a modem or telephone during a lightning storm. There may be a risk of electricalshock from lightning.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.
- Do not plug a modem or telephone cable into the network interface controller (NIC) receptacle.
- Disconnect the modem cable before opening a product enclosure, touching or installing internalcomponents, or touching an uninsulated modem cable or jack.
- Do not use a telephone line to report a gas leak while you are in the vicinity of the leak.

Federal Communications Commission (FCC) Statement

Warning

This is a class A product. In a domestic environment this product may cause radiointerferenceIn which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device,pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection againstharmful interference when the equipment is operated in a commercial environment. This equipmentgenerates, uses, and can radiate radio frequency energy and, if not installed and used in accordance withthe instruction manual, may cause harmful interference to radio communications. Operation of thisequipment in a residential area is likely to cause harmful interference in which case the user will berequired to correct the interference at his own expense.Properly shielded and grounded cables and connectors must be used in order to meet FCC emissionlimits. Neither the provider nor the manufacturer are responsible for any radio or television interferencecaused by using other than recommended cables and connectors or by unauthorized changes ormodifications to this equipment. Unauthorized changes or modifications could void the user's authority tooperate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digitalapparatus as set out in the radio interference regulations of Industry Canada.Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables auxappareils numeriques de Classe A prescrites dans le reglement sur le brouillage radioelectrique edicte parIndustrie Canada.

Class A equipment

This device has been tested and found to comply with the limits for a class A digital device pursuantPart 15 of the FCC Rules. These limits are designed to provide reasonable protection againstharmful interference when the equipment is operated in a commercial environment. This equipmentgenerate, uses, and can radiate radio frequency energy, and if not installed and used in accordancewith the instructions, may cause harmful interference to radio communication. Operation of thisequipment in a residential area is likely to cause harmful interference, in which case the user will berequired to correct the interference at personal expence.

However, there is no guarantee that interference will not occur in a particular installation. If thisdevice does cause harmful interference to radio or television reception, which can be determined bytuning the device off and on, the user is encouraged to try to correct the interference by on or more ofthe following measures:

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

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.

Battery Warning: Incorrectly installing a battery or using incompatible battery may increase the risk of ifre explosion. Replace the battery only with the same or equivalent type.

- Do not disassemble, crush, punchture batteries.
- Do not store or place your battery pack next to or in a heat source such as a fire, heatgenerating appliance, can or exhaust vent. Heating battery cells to temperatures above 65°C (149°F) can cause explosion or fire.
- Do not attempt to open or service batteries. Do not dispose of batteries in a fire or with household waste.

Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard/system contain numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the service guide 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	⓾ Support for Intel® Xeon® E5-2600 series processors in the LGA2011 package ⓾ L3 cache varies with CPU ⓾ Supports QuickPath Interconnect up to 8GT/s ⓾ Enhanced Intel SpeedStep Technology (EIST) ⓾ Support Intel Virtualization Technology (VT)
Chipset	⓾ Intel® C602 (Patsburg-A) Chipset
Memory	⓾ 16 x 1.5V DDR3 DIMM sockets supporting up to 128GB (UDIMM) and 512GB (RDIMM) of system memory ⓾ 16 x 1.35V DDR3L DIMM sockets supporting up to 512GB of system memory ⓾ Four channel memory architecture ⓾ Support for 800/1066/1333/1600 memory modules ⓾ Support for ECC RDIMM/ UDIMM memory modules
LAN	⓾ Intel® I350 supports 10/100/1000 Mbps ⓾ 1 x KVM management LAN port
Expansion Slot	⓾ 2 x PCI Express x8 slots
Onboard Graphics	⓾ ASPEED® AST2300 supports 16MB VRAM
Mass Storage (R1800G)	⓾ 4 x 3.5" Hot-Swap SATA HDDs ⓾ Support for Intel IRST SATA RAID 0, RAID 1, RAID 5, RAID 10
System Fans	⓾ 3 x 40x40x28mm 18000rpm ⓾ 3 x 40x40x56mm Front: 16000rpm/Rear: 15400rpm
USB	⓾ Up to 7 USB 2.0/1.1 ports (4 on the back panel, 2 at the front panel, 1 onboard header)
Internal Connectors	⓾ 1 x 24-pin ATX main power connector ⓾ 2 x 8-pin ATX 12V power connector ⓾ 2 x Mini SAS connectors (SAS 3Gb/s signal) ⓾ 2 x SATA 6Gb/s connectors ⓾ 4 x SATA 3Gb/s connectors ⓾ 1 x PMBus header ⓾ 1 x Front panel header ⓾ 1 x Back plane borad header ⓾ 1 x USB 2.0/1.1 header ⓾ 1 x USB 2.0/1.1 Type A connector ⓾ 1 x TPM module connector ⓾ 1 x Serial port connector ⓾ 1 x SKU KEY header ⓾ 1 x SPGIO header

Rear Panel I/O	⓾	4 x USB 2.0/1.1 ports
	⓾	5 x RJ-45 port (1 x 10/100 dedicated management LAN port)
	⓾	1 x COM port
	⓾	1 x VGA port
	⓾	1 x ID Switch button
Front Panel I/O	⓾	2 x USB 2.0/1.1 ports
Front Panel LED/Buttons	⓾	1 x Power button/LED
	⓾	1 x NMI button
	⓾	1 x ID Switch button/LED
	⓾	1 x Reset button
	⓾	2 x LAN LED
	⓾	1 x System status LED
	⓾	1 x HDD status LED
I/O Controller	⓾	ASPEED® AST2300 BMC chip
Hardware Monitor	⓾	System voltage detection
	⓾	CPU/System temperature detection
BIOS	⓾	1 x 64 Mbit flash
	⓾	AMI BIOS
Environment		
Ambient Temperature	⓾	Operating Temperature: 5°C to 35°C
	⓾	Non-operating Temperature: 0°C to 50°C
Relative Humidity	⓾	10-80% operating Humidity at 30°C
System Dimension	⓾	444Wx43.5Hx615D (mm)
Electrical Power Supply	⓾	Fixed 1U PSU 600W 100-240VAC at 80 plus gold level

* Penguin reserves the right to make any changes to the product specifications and product-related information without prior notice.

Chapter 2 System Hardware Installation

Pre-installation Instructions

Perform the steps below before you open the server or before you remove or replaceany component.

- Back up all important system and data files before performing any hardwareconfiguration.
- Turn off the system and all the peripherals connected to it.
- 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.

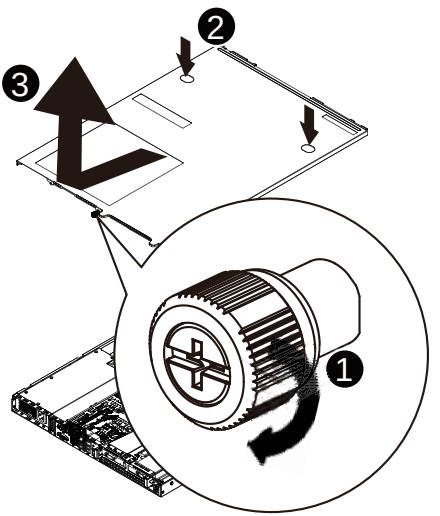
2-1 Removing Chassis Cover

Before you remove or install the system cover

- Make sure the system is not turned on or connected to AC power.

Follow these instructions to remove the system cover:

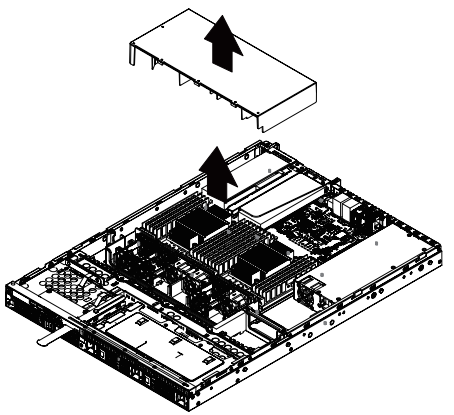
1. Loosen and remove the thumbscrew securing the front chassis cover.
2. Press the the indentation located at two sides of the cover.
3. Slide the cover horizontally to the back and remove the cover in the direction of the arrow.



2-2 Removing and Installing the Fan Duct

Follow these instructions to remove/install the fan duct:

1. Lift up to remove the fan duct
2. To install the fan duct, align the fan duct with the guiding groove. Push down the fan duct into chassis until its firmly seats



2-3 Installing the CPU

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

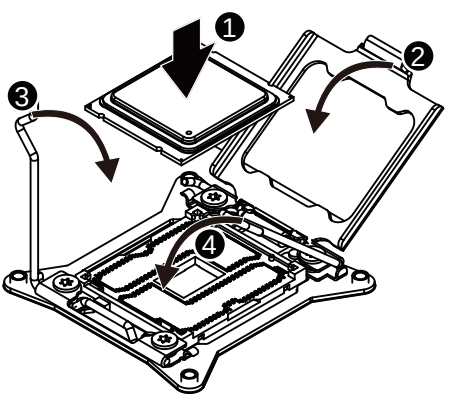
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Unplug all cables from the power outlets.
- Disconnect all telecommunication cables from their ports.
- Place the system unit on a flat and stable surface.
- Open the system according to the instructions.

WARNING!

Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Follow these instructions to install the CPU:

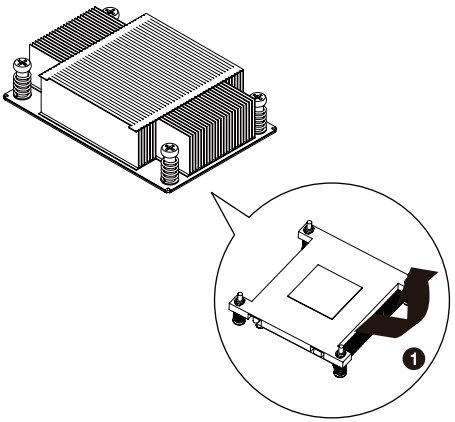
1. Raise the metal locking lever on the socket.
2. Remove the plastic covering on the CPU socket.Insert the CPU with the correct orientation. The CPU only fits in one orientation.
3. Replace the metal cover.
4. Push the metal lever back into locked position.

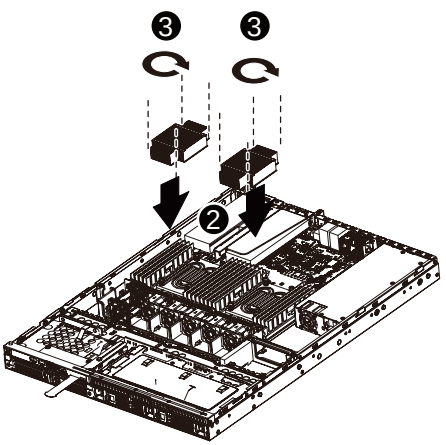


2-4 Installing the Heat Sink

Follow these instructions to install the heat sinks:

1. Apply thermal compound evenly on the top of the CPU. Remove the protective cover from the underside of the heat sink.
2. Place the heat sink(s) on top of the CPU.
3. Tighten the four positioning screws.





2-5 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.

2-5-1 Four Channel Memory Configuration

This motherboard provides eight DDR3 memory sockets and supports Four Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Four Channel memory mode will be four times of the original memory bandwidth.

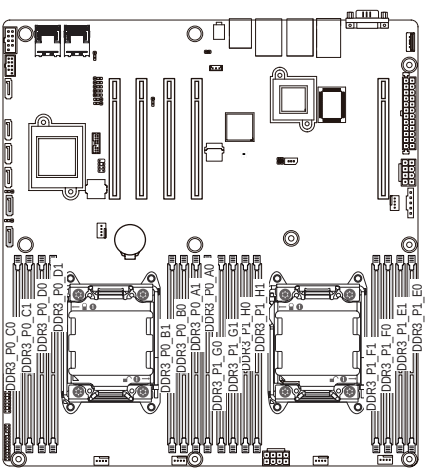
The four DDR3 memory sockets are divided into four channels each channel has two memory sockets as following:

Channel 1: DDR3_P0_A0, DDR3_P0_A1 (For pimary CPU)
DDR3_P0_E0, DDR3_P0_E1 (For secondary CPU)

Channel 2: DDR3_P0_B0, DDR3_P0_B1(For pimary CPU)
DDR3_P0_F0, DDR3_P0_F1 (For secondary CPU)

Channel 3: DDR3_P0_C0, DDR3_P0_C1(For pimary CPU)
DDR3_P0_G0, DDR3_P0_G1 (For secondary CPU)

Channel 4: DDR3_P0_D0, DDR3_P0_D1(For pimary CPU)
DDR3_H0_F0, DDR3_P0_H1 (For secondary CPU)



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

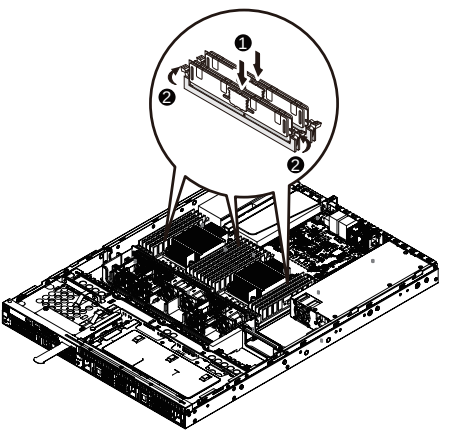
1. Four Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Four Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance.

2-5-2 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.

Follow these instructions to install the Memory:

1. Insert the DIMM memory module vertically into the DIMM slot, and push it down.
2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.
3. Reverse the installation steps when you want to remove the DIMM module.



2-5-3 DIMM Population Table

	1N or 2N	DIMM1	DIMM0
R-DIMM	1N	Empty	Single-Rank
	1N	Empty	Dual-Rank
	1N	Empty	Quad-Rank
	1N	Single-Rank	Single-Rank
	1N	Single-Rank	Dual-Rank
	1N	Dual-Rank	Dual-Rank
	1N	Single-Rank	Quad-Rank
	1N	Dual-Rank	Quad-Rank
	1N	Quad-Rank	Quad-Rank

	1N or 2N	DIMM1	DIMM0
U-DIMM	1N	Empty	Single-Rank
	1N	Empty	Dual-Rank
	2N	Single-Rank	Single-Rank
	2N	Single-Rank	Dual-Rank
	2N	Dual-Rank	Dual-Rank

2-6 Installing the PCI Expansion Card

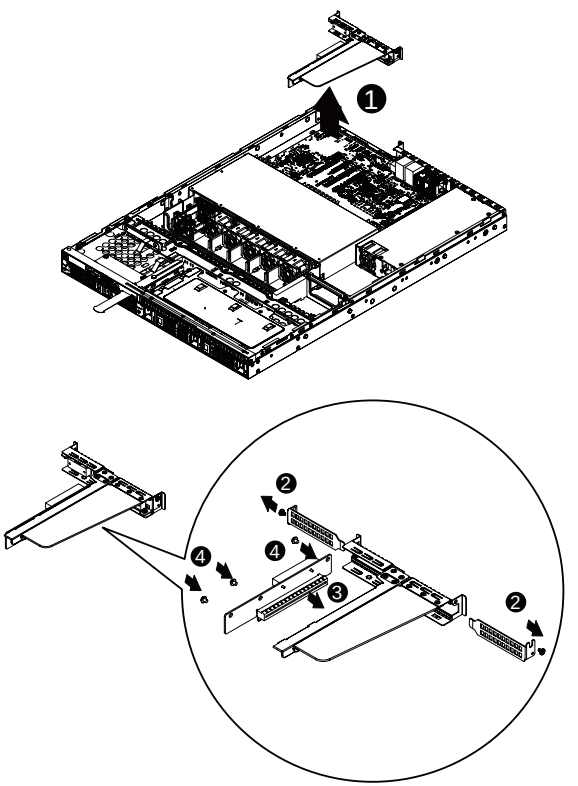
- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

Failure to observe these warnings could result in personal injury or damage to equipment.

- The PCI riser assembly does not include a riser card or any cabling as standard. To install a PCI card, a riser card must be installed.

Follow these instructions to PCI Expansion card:

1. Lift the riser bracket slightly.
2. Turn around the riser bracket and loosen the PCI bracket screws.
3. Attach the mini PCI card slot to the riser bracket.
4. Securing the mini PCI card with three screws.
5. Orient the PCI card with the riser guide connector and push into the slot until the PCI card sits in the PCI card connector.
6. Reverse the previous steps to install the riser bracket.



2-7 Installing the Hard Disk Drive

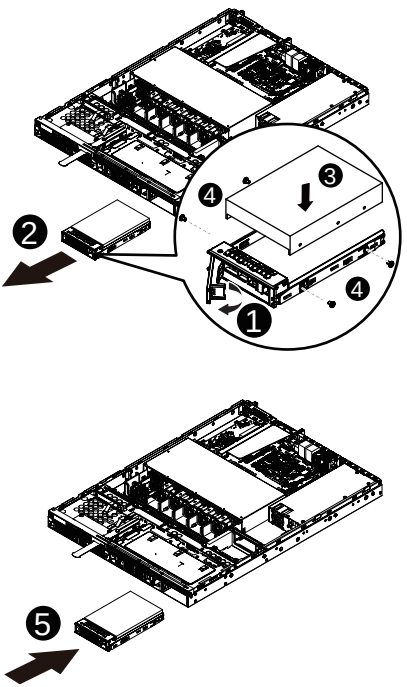
Read the following guidelines before you begin to install the Hard disk drive:

- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.
- Make sure that the HDD is connected to the HDD connector on the backplane.

2-7-1 Relion 1800g Hard Disk Drive Installation

Follow these instructions to install the Hard disk drive:

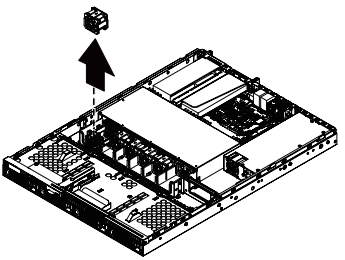
1. Press the release button.
2. Pull the locking lever to remove the HDD tray.
3. Slide hard disk into blank.
4. Secure the hard drive to the tray with four (4) screws as shown. Do not over tighten thescrews.
5. Slide the blank into the bay until it locks into place.



2-8 Replacing the FAN Assemblly

Follow these instructions to replace the fan assembly:

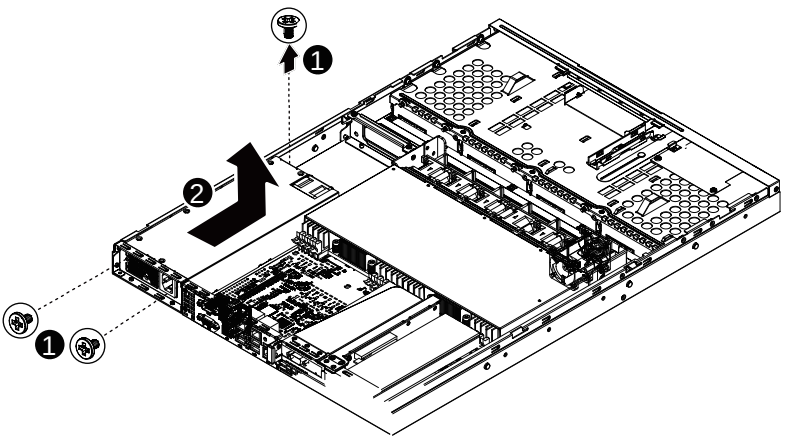
1. Lift up the fan assembly from the chassis.
2. Reverse the previous step to install the replacement fan assembly.



2-9 Replacing the Power Supply

Follow these instructions to replace the power supply:

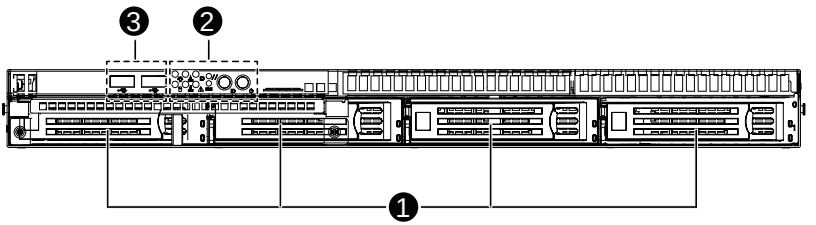
1. Disconnect the three power cables.
2. Remove the four screws securing on the power supply.
3. Lift the power supply out of the chassis in the direction of the arrow.
4. Insert the replacement power supply firmly into the chassis. Connect the AC power cord to the replacement power supply.



Chapter 3 System Appearance

3-1 Front View

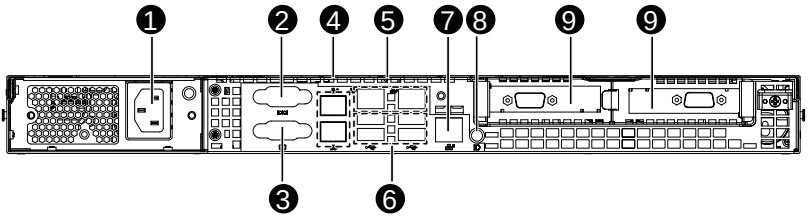
Relion 1800g



No.	Decription
1.	HDD bays
2.	Front Panel LEDs and buttons
3.	Front USB 2.0 ports

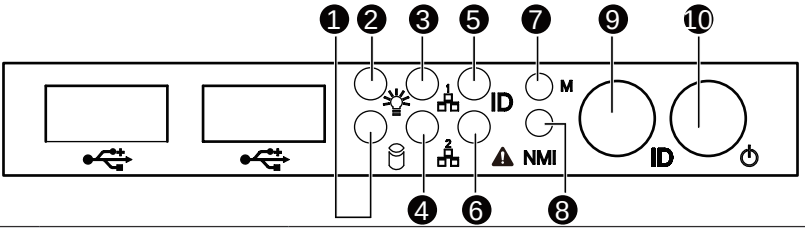
• Please Go to Chapter 3-3 Front Panel LED and Buttons for detail description of function LEDs.

3-2 Rear View



No.	Decription
1.	Power cord
2.	Serial port
3.	VGA port
4.	RJ-45 LAN ports #3 (top)/#4 (buttom)
5.	RJ-45 LAN ports #1 (Share NIC/right)/#2 (left)
6.	USB 2.0 ports
7.	Server management LAN port
8.	ID switch button
9.	Low-profile riser card bay

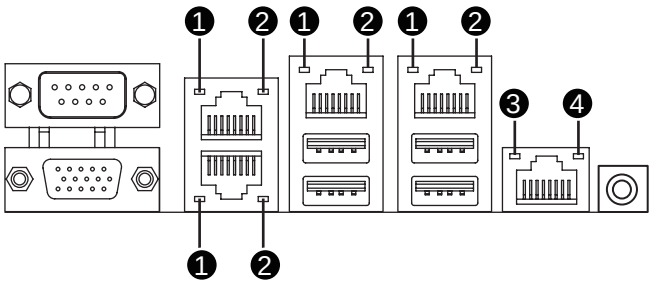
3-3 Front Panel LED and Buttons



No.	Name	Color	Status	Description
1	HDD Status LED	Green	On	HDD locate
			Blink	HDD access
		Amber	On	HDD fault
		Green/ Amber	Blink	HDD rebuilding
		N/A	Off	• No HDD access • No HDD fault
2	Power LED	Green	On	System has power applied to itor ACPI S0 state
		Green	Blink	System is in ACPI S1 state (sleep mode)
		N/A	Off	System is not powered on or in ACPI S5 state (power off) System is in ACPI S4 state (hlbernate mode)
3	LAN1 LED LED	Green	On	Link between system and network
		Green	Blink	Network access
		N/A	Off	No access
4	LAN2 LED LED	Green	On	Link between system and network
		Green	Blink	Network access
		N/A	Off	No access
5	ID LED	Blue	On	System identification is active
		N/A	Off	System identification is disabled

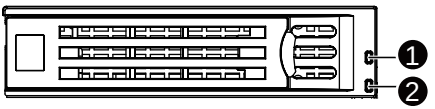
6	System Status LED	Amber	On	Critical condition. May indicate the following: • Power module failure • System fan failure • Power supply voltage issue • System temperature/voltage issue
				Non-critical condition. May indicate the following: • Redundant fan failure • Redundant power module failure • System temperature/voltage issue • HDD fault on RAID • Chassis intrusion
		N/A	Off	System not ready. May indicate the following: • POST error • NMI error • Processor or terminator missing
7	Reset button			
8	NMI button			
9	ID button			
10	Power button		On	System is powered on.
			Off	System is powered off.

3-4 Rear System LAN LEDs



No.	Name	Color	Status	Description
1	Connection/ Speed LED	Yellow	On	Linking at 1 Gbps data rate
			Blink	Identify at 1 Gbps data rate
		Green	On	Linking at 100 Mbps data rate
			Blink	Identify at 100 Mbps data rate
		N/A	Off	Linking at 10 Mbps data rate
2.	Activity LED	Green	Blink	Data transmission or receiving is occurring
		Green	On	No data transmission
		N/A	Off	No data transmission or receiving is occuring
3.	Connection/ Speed LED	Green	On	Linking at 100 Mbps data rate
		Green	Blink	Linking at 10 Mbps or 100 Mbps data rate
		N/A	Off	Linking at 10 Mbps data rate
4.	Activity LED	Green	Blink	Data transmission or receiving is occurring
		Green	On	No data transmission
		N/A	Off	No data transmission or receiving is occuring

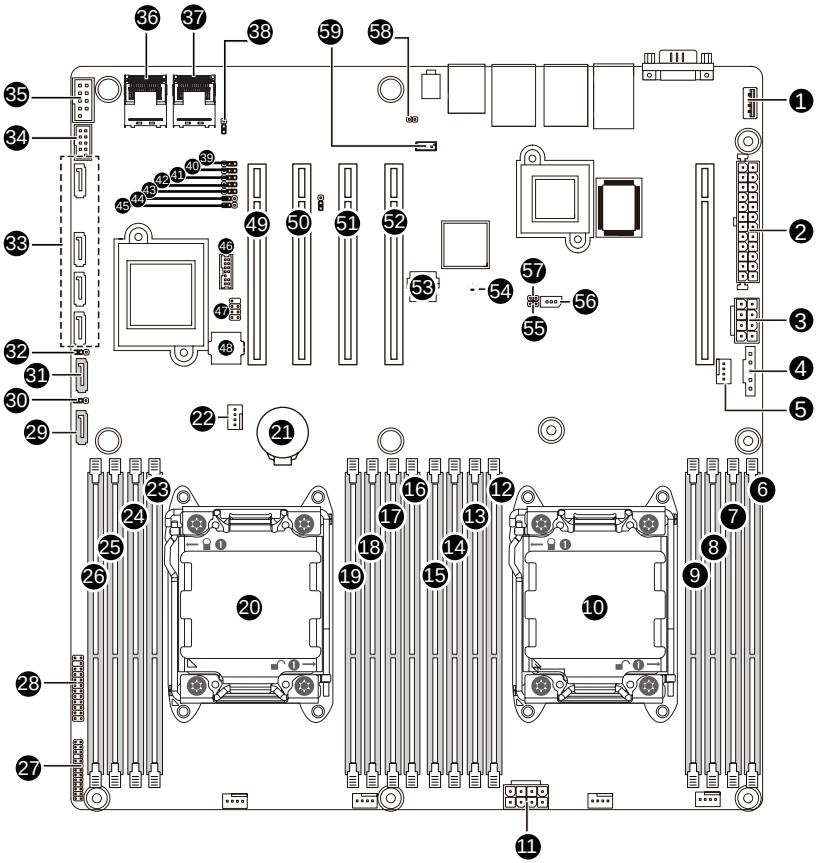
3-5 Hard Disk Drive LEDs



No	Description	Multi Color LEDs	
		LED Active Green	LED Active Amber
1	HDD Access	Blink	Off
	HDD Locate	On	Off
	HDD Failure	Off	On
	HDD connected and rebuilding data	Blink	Blink (Alternative)
2	Reserve		

Chapter 4 Motherboard Components

4-1 Relion 1800g Motherboard Components

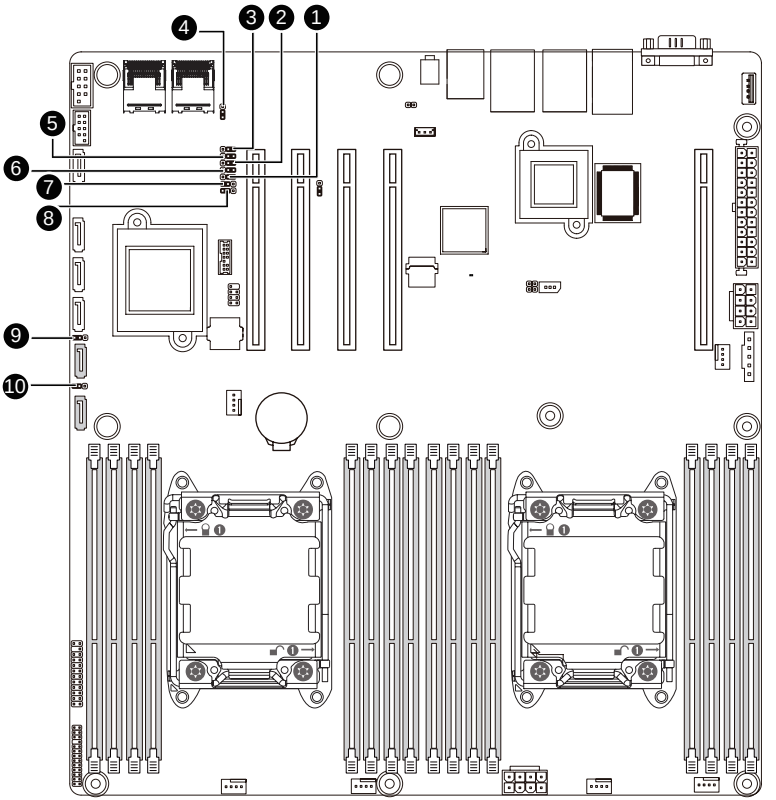


Item	Code	Description
1	USB_A1	Type A USB connector
2	ATX1	24 pin power connector
3	P12V_AUX2	8 pin power connector
4	PWR_DET1	PMBus connector
5	CPU1_FAN	CPU1 fan cable connector
6	DDR3_P1_E0	Channel 1 slot 0 (for secondary CPU)
7	DDR3_P1_E1	Channel 1 slot 1 (for secondary CPU)
8	DDR3_P1_F0	Channel 2 slot 0 (for secondary CPU)
9	DDR3_P1_F1	Channel 2 slot 1 (for secondary CPU)
10	CPU1	Intel LGA2011 socket (Secondary CPU)
11	P12V_AUX1	8 pin power connector
12	DDR3_P1_H1	Channel 4 slot 1 (for secondary CPU)
13	DDR3_P1_H0	Channel 4 slot 0 (for secondary CPU)
14	DDR3_P1_G1	Channel 3 slot 1 (for secondary CPU)
15	DDR3_P1_G0	Channel 3 slot 0 (for secondary CPU)
16	DDR3_P0_A0	Channel 1 slot 0 (for primary CPU)
17	DDR3_P0_A1	Channel 1 slot 1 (for primary CPU)
18	DDR3_P0_B0	Channel 2 slot 0 (for primary CPU)
19	DDR3_P0_B1	Channel 2 slot 1 (for primary CPU)
20	CPU0	Intel LGA2011 socket (Primary CPU)
21	BAT1	Battery socket
22	CPU0_FAN	CPU0 fan cable connector
23	DDR3_P0_D1	Channel 4 slot 1 (for primary CPU)
24	DDR3_P0_D0	Channel 4 slot 0 (for primary CPU)
25	DDR3_P0_C1	Channel 3 slot 1 (for primary CPU)
26	DDR3_P0_C0	Channel 3 slot 0 (for primary CPU)
27	BP_1	HDD back plane board header
28	FP_1	Front panel header
29	SATA1	SATA 6Gb/s connector
30	SATA_DOM1	SATA1 port DOM support jumper
31	SATA2	SATA 6Gb/s connector
32	SATA_DOM2	SATA2 port DOM support jumper
33	SATA3/SATA4/SATA5/SATA6	SATA 3Gb/s connectors
34	FRONT_USB	USB 2.0 connectors
35	COM2	Serial port cable connector
36	MINI_CN2	Mini SAS cable connector
37	MINI_CN1	Mini SAS cable connector
38	BIOS_WP1	BIOS write protect jumper
39	BMC_FRB1	Force to Stop FRB3 Timer jumper
40	BIOS_RVCR1	BIOS recovery jumper

41	PASSWORD1	Skip supervisor paswword jumper
42	SSB_ME1	ME recovery jumper
43	CLR_CMOS1	Clear CMOS jumper
44	FLASH_DP1	Flash descriptor security jumper
45	S3_MASK	S3 Power On Select Jumper
46	TPM_1	TPM module connector
47	SATA_SGPIO1	SATA SGPIO header
48	SSB_BIOS1	BIOS ROM
49	PCIE_1	PCI-E slot 1 (x16 slot)
50	PCIE2	PCI-E slot 2 (x16 slot/Running at x8; shared bandwidth with PCI-E slot 3)
51	PCIE_3	PCI-E slot 3 (x16 slot/Running at x8; shared bandwidth with PCI-E slot 2)
52	PCIE_4	PCI-E slot 4 (x16 slot)
53	U56	BMC uopgrade ROM
54	BMC_LED1	BMC firmware readiness LED
55	J3	LAN4 link/active LED
56	IPMB1	IPMB connector
57	J2	LAN3 link/active LED
58	JP1	Chassis intrusion header
59	SKU_KEY1	Intel C600 series upgrade key

CAUTION! If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to 2-3 pins (Normal mode), in order to reduce any risk of hard disk damage. Please refer Chater 4-2 Jumper Setting for SATA_DOM1 and SATA_DOM2 jumper setting instruction.

4-2 Jumper Setting

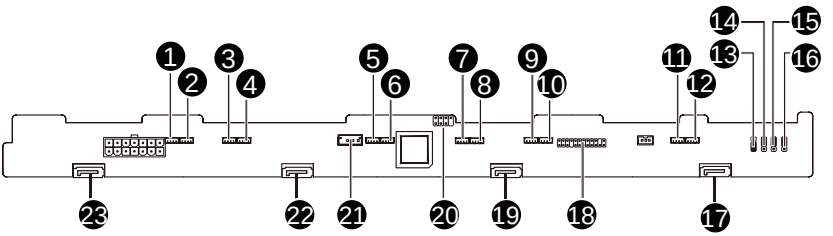


No.	Jumper Code	Jumper Setting
1.	CLR_CMOS1 (Clearing CMOS Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Clear CMOS data
2.	PASSWORD1 (Skip Supervisor Password Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Skip supervisor password.
3.	BMC_FRB1 (Force to Stop FRB3 Timer Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Force to Stop FRB3 Timer
4.	BIOS WP1 (BIOS Write Protect Jumper)	1-2 Close: Normal operation. (Default setting)
		2-3 Close: Enable BIOS write protect function.

No.	Jumper Code	Jumper Setting
5.	BIOS_RVCR1 (BIOS Recovery Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: BIOS recovery mode.
6.	SSB_ME1 (ME enable/ disable Jumper)	1-2 Close: Normal operation. (Default setting)
		2-3 Close: ME recovery mode (S/W).
7.	FLASH_DP1 (Flash Descriptor Security Jumper)	1-2 Close: Flash Descriptor Security Overridden
		2-3 Close: Flash Descriptor Security in effect. (Default setting)
8.	S3_MASK (S3 Power On Select Jumper)	1-2 Close: Stop an initial power on when BMC is not ready.
		2-3 Close: Keep initial power on. (Default setting)
9.	SATA_DOM2 (SATA port 2 DOM Jumper)	1-2 Close: Use SATA DOM.
		2-3 Close: Normal mode. (Default setting)
10.	SATA_DOM1 (SATA port 1 DOM Jumper)	1-2 Close: Use SATA DOM.
		2-3 Close: Normal mode. (Default setting)

CAUTION! If a SATA type hard drive is connected to the system, please ensure the jumper is closed and set to 2-3 pins (Normal mode), in order to reduce any risk of hard disk damage.

4-3 Back Plane Boad



Item	Code	Description
1	FAN1	System fan connector #1
2	FAN2	System fan connector #2
3	FAN3	System fan connector #3
4	FAN4	System fan connector #4
5	FAN5	System fan connector #5
6	FAN6	System fan connector #6
7	FAN7	System fan connector #7
8	FAN8	System fan connector #8
9	FAN9	System fan connector #9
10	FAN10	System fan connector #10
11	FAN11	System fan connector #11
12	FAN12	System fan connector #12
13	J4	Define HDD Type jumper
		1-2 Close: SAS
		2-3 Close: SATA
14	J3	SATA/LSI/SCU Switch jumper*
		Please refer to the following table for jumper
15	J2	SATA/LSI/SCU Switch jumper*
		Please refer to the following table for jumper
16	J1	Test LED jumper
		1-2 Cose: Test mode
		2-3 Close: Normal operation
17	SAS1	SATA connector #1
18	BPB_CON_TP1	Back Plane board connector
19	SAS2	SATA connector #2
20	SGPIO1	SGPIO connector
21	CD-ROM_PWR	CD-ROM power connector
22	SAS3	SATA connector #3
23	SAS4	SATA connector #4

J2/J3 Jumper Setting

	J2	J3
LSI, SCU	2-3 Close	2-3 Close
SATA	2-3 Close	1-2 Close

Chapter 5 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
<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**
  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.)

5-1 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.

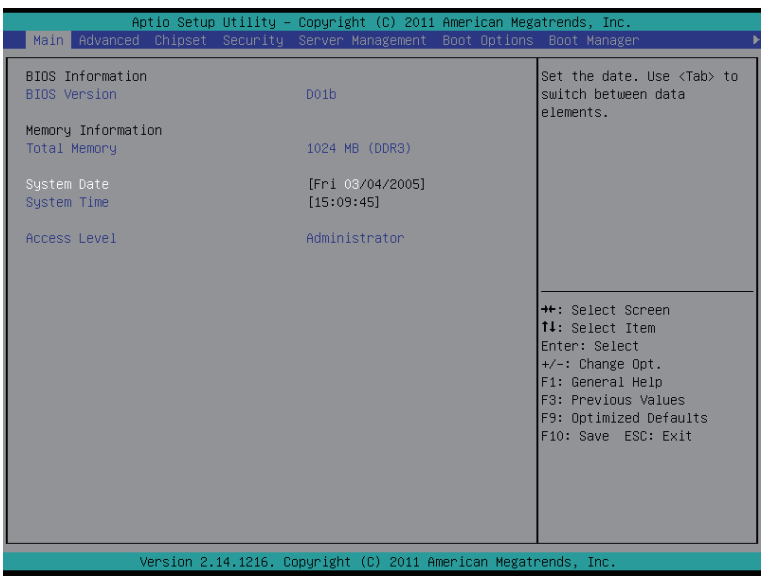
Main Menu Help

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

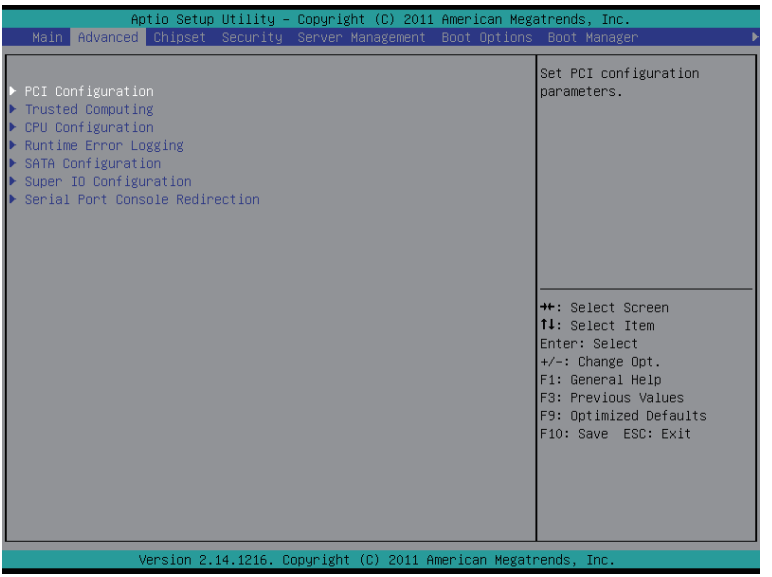
Set the system time following the hour-minute- second format.

☞ Access Level

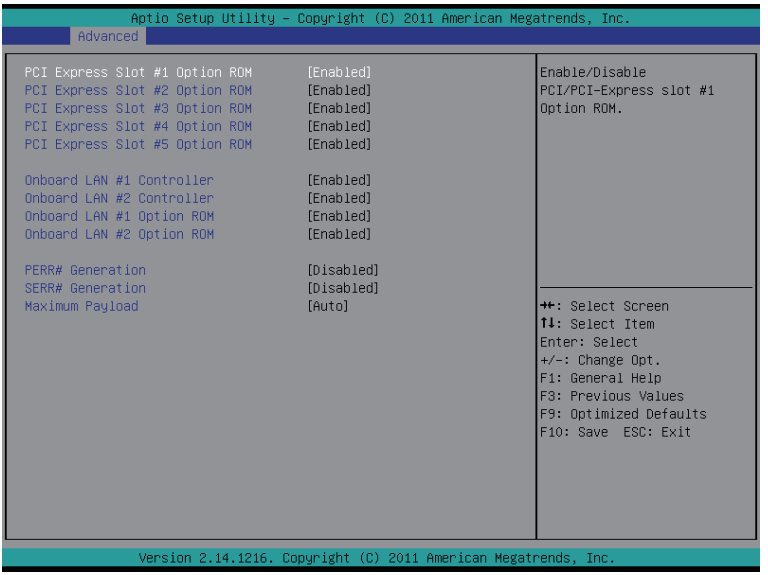
Display the current accessing level information.

5-2 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.



5-2-1 PCI Configuration



☞ PCI Express Slot 1/2/3/4/5 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 LAN1/2 Controller

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

☞ LAN1/2 Option ROM

Enable/Disable onboard LAN1 device and initialize device expansion ROM.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ 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**.

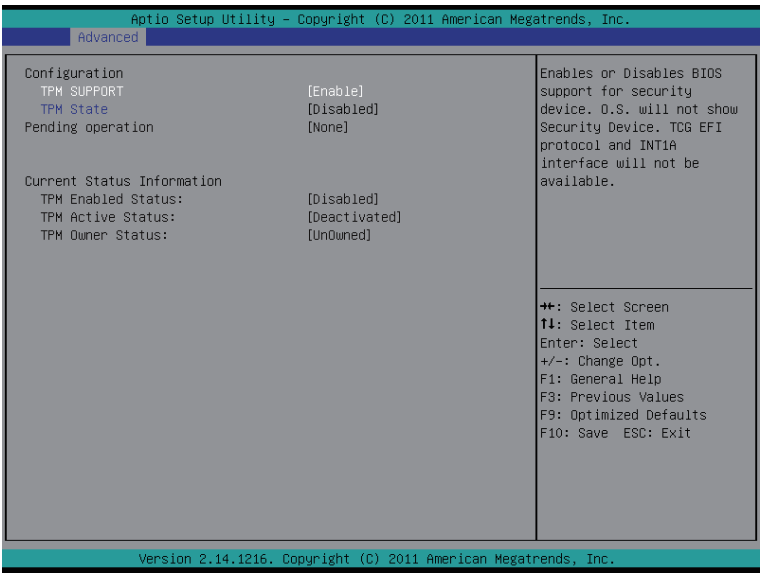
☞ SERR Generation

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 Playload

Set maximum playlooad 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**.

5-2-2 Trusted Computing



☞ **TPM Support**

Select Enabled to activate TPM support feature.

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

☞ **TPM State** (Note)

Select Enabled to activate TPM State function.

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

☞ **Pending Operation** (Note)

Determine the action when operation is pending.

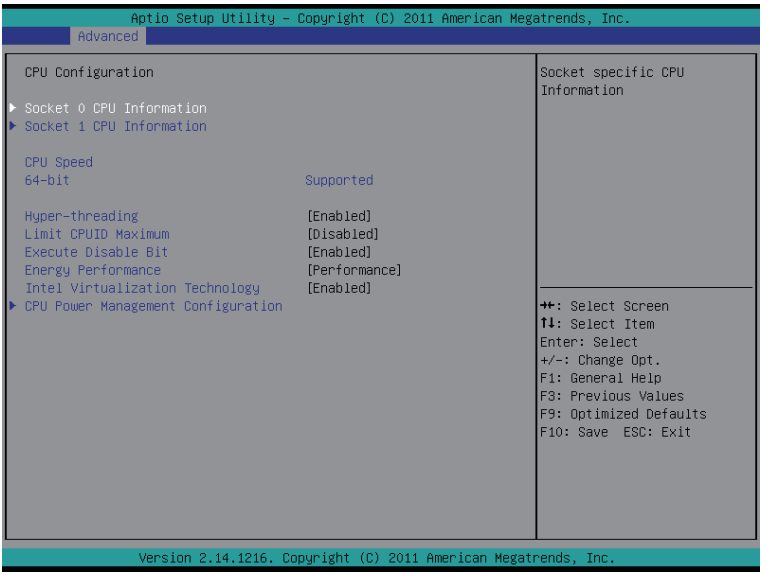
Options available: None. Default setting is **None**.

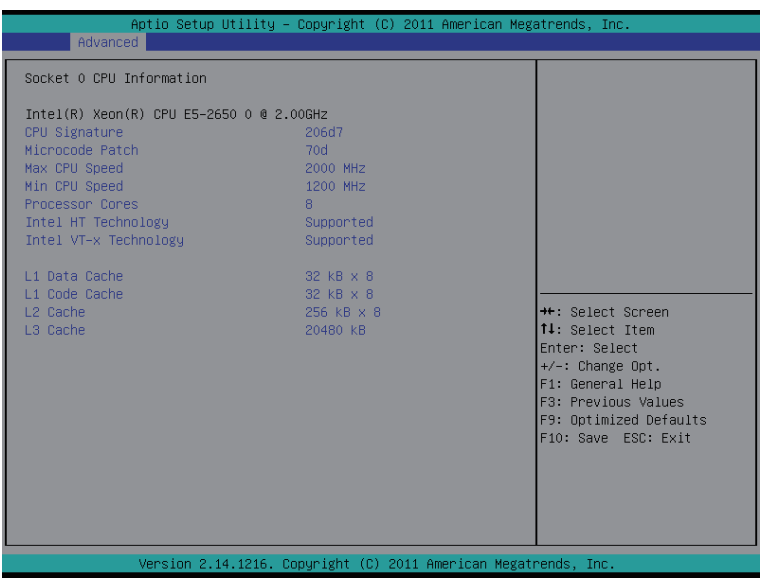
☞ **Current Status Information**

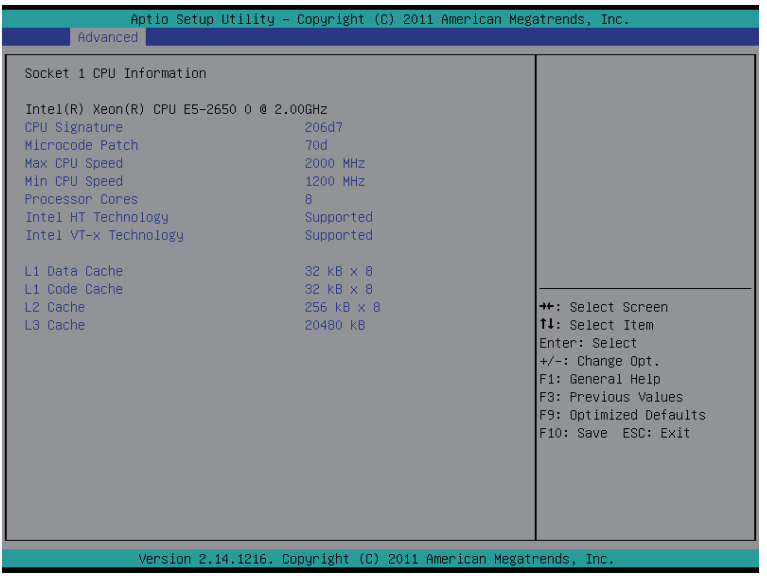
Display current TPM status information.

(Note) This item appears when the TPM module is attached.

5-2-3 CPU Configuration







- Socket 0/1 Information
- CPU Signature

  Displays the processor ID information.
- Microcode Patch

  Display Microcode patch information.
- Max CPU Speed

  Display the maximum processor speed.
- Min CPU Speed

  Display the minimum processor speed.
- Processor Cores

  Display the information of the processor core.
- Intel HT Technology

  Display Intel Hyper Threading Technology function support information.
- Intel VT-x Technology

  Display Intel Virtualization Technology function support information.
- Cache Information
- L1 Data Cache

  Display the information of L1 Data Cache.
- L1 Code Cache

  Display the information of L1 Code Cache.
- L2 Cache

  Display the total L2 cache memory of the installed processor in megabytes. If the installed processor is multi-core, it is displayed as numer of cores x L2 cache per core.

☞ L3 Cache

Display the total L2 cache memory of the installed processor in megabytes. This item appears when the installed processor supports L3 .

☞ CPU Speed

Display the current installed CPU speed.

☞ 64-bit

Display the supported infprmation 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 COUID input values to 03h when queried, even if the processor suppports 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.

☞ 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

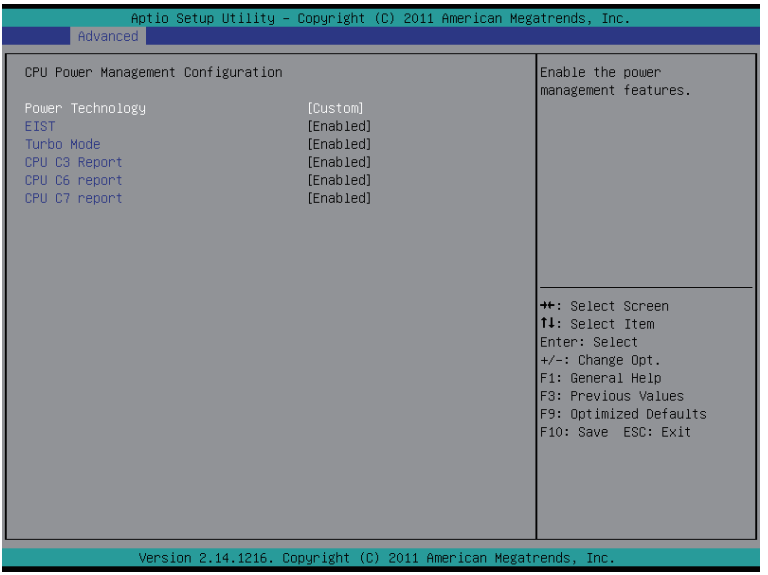
Balanced Energy: Write value 11 into MSR_ENERGY_PERFORMANCE_BIAS

Energy Efficient: Write value 15 into MSR_ENERGY_PERFORMANCE_BIAS

Default setting is Performance.

(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.

5-2-3-1 CPU Power Management Configuration



☞ **CPU Power Management Configuration**

☞ 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.

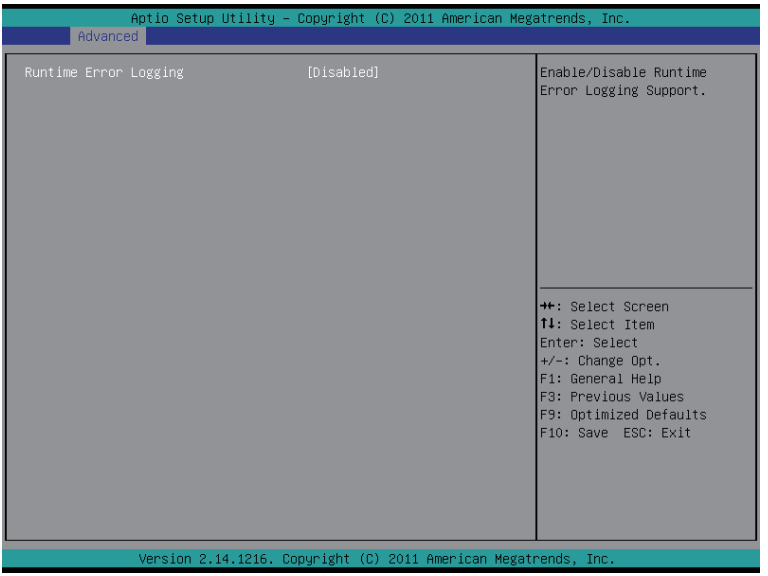
Options available: Enabled/Disabled. Default setting is Enabled.

☞ CPU C7 Report (Note)

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

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

5-2-4 Runtime Error Logging

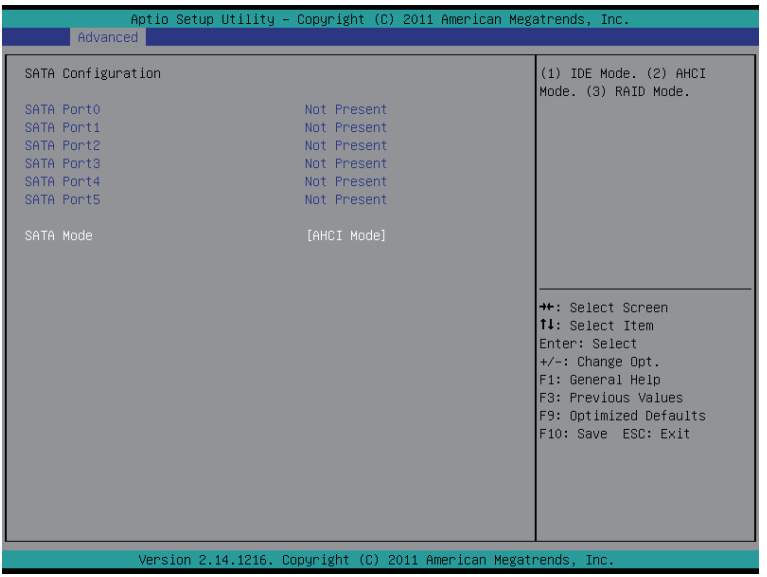


☞ **Runtime Error Logging**

Enable/Disable Runtime error logging support.

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

5-2-5 SATA Configuration



☞ SATA Port 0/1/2/3/4/5 (Note)

Displays the installed HDD devices information.

☞ SATA Mode

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.

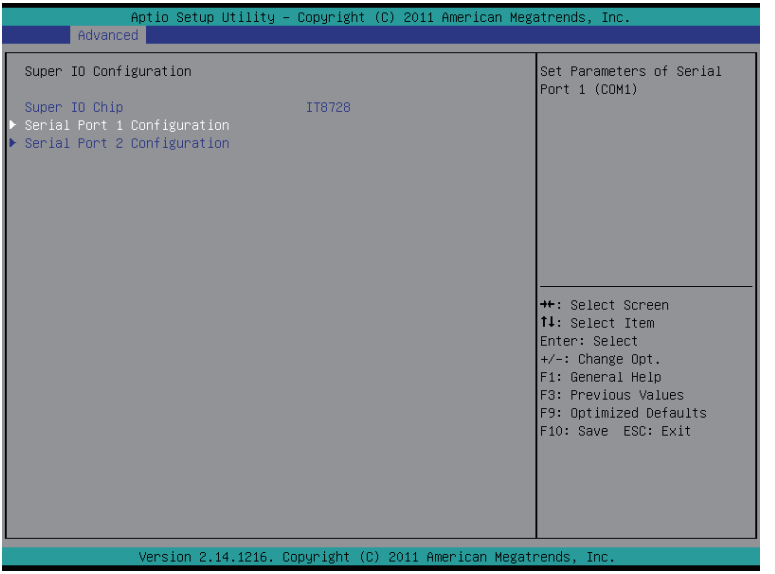
RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time.

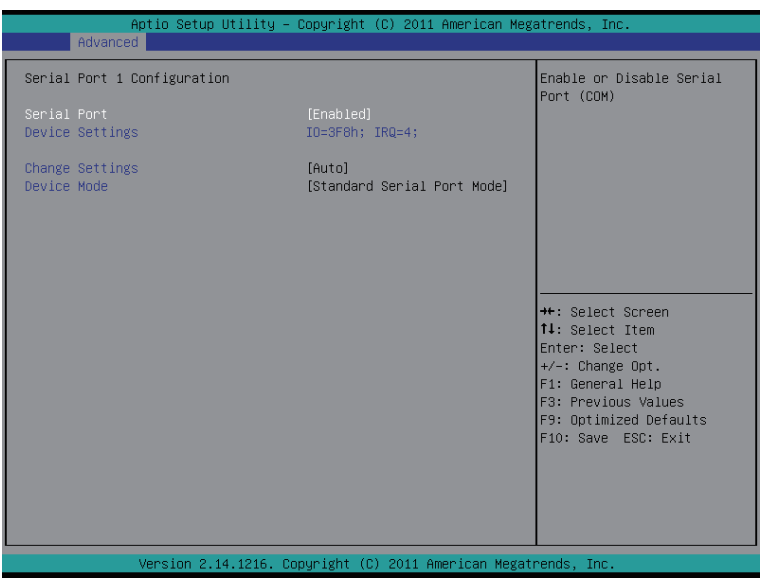
AHCI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time.

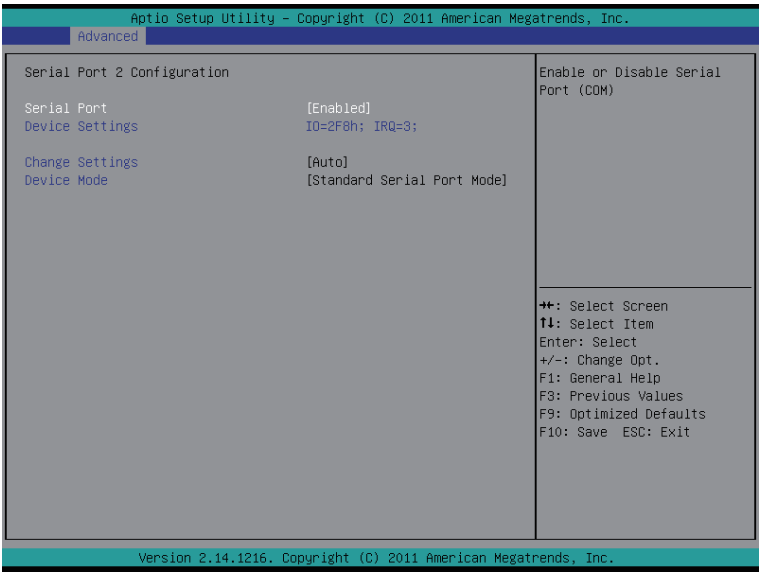
Options available: IDE/RAID/AHCI/Disabled. Default setting is AHCI Mode.

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

5-2-6 Super IO Configuration







- **Super IO Configuration**
- **Serial Port 1/2 Configuration**
- Serial Port

  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 addressand IRQ.
- Change Settings

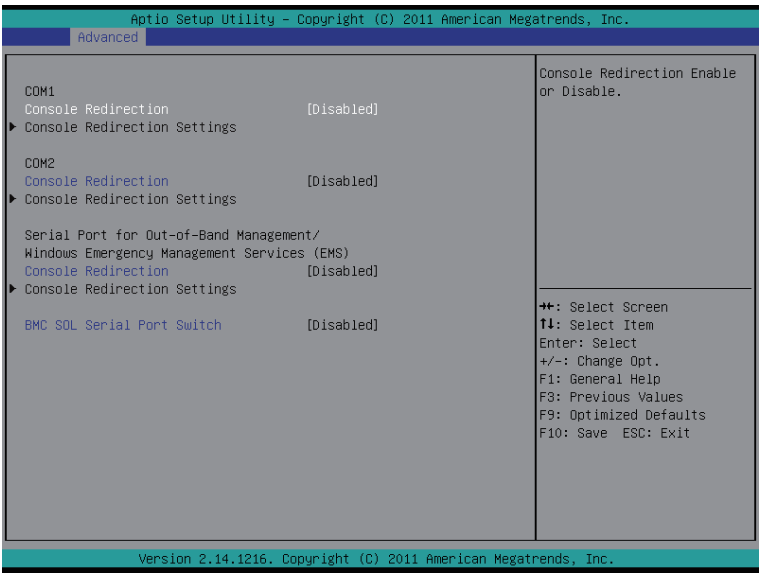
  Change Serial Port 1/2 device settings. When set to Auto allows the server's BIOS or OS to select a configuration.

  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.
- Device Mode

  Change the Serial Port mode.

  Options available: Standard Serial Port Mode (Normal Mode)/IrDA 1.0 (HP SIR) Mode (High Speed)/ ASKIRfdgdg Mode.

5-2-7 Serial Port Console Redirection



☞ 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 for COM1 and COM2

Press [Enter] to enter advanced meun for 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.

Options available: 7/8.

☞ Parity

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

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

Odd: parity bit is0if 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.

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

☞ 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.

☞ 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.

☞ VT-UTF8 Combo Key Support

Enable/Disable VT-UTF8 Combo Key Support.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Serial Port for Out-of-Bnad Management/Windows Emerency 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

Press [Enter] to enter advanced meun for console redirection settings.

☞ Out-of-Bnad Mgmt Port

Microsoft Windows Emerency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.
Options available: COM1

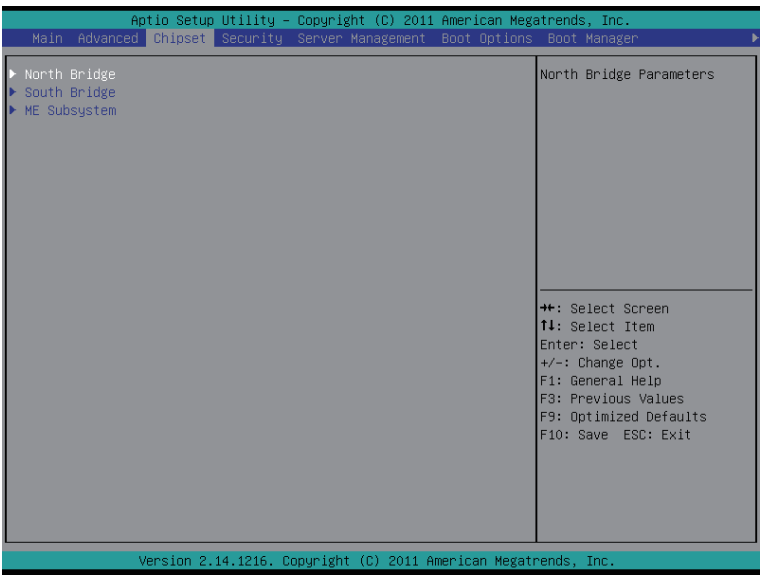
☞ BMC SOL Serial Port Switch

Enabled: COM1 Switch to AST2300 SOL UART.
Disabled: COM1 Switch to IT8728 SOL UART1.
Options available: Enabled/Disabled. Default setting is **Disabled**.

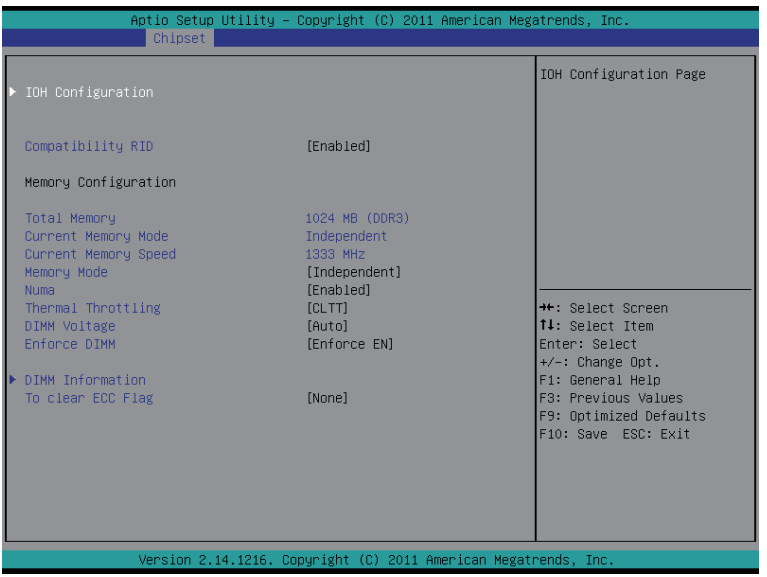
(Note) Advanced items prompt when this item is defined.

5-3 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.



5-3-1 North Bridge Configuration



☞ 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 cuurent memory mode. Memory mode can be determined in **Memory Mode** item.

☞ Current Memory Speed

Displays the cuurent memory speed.

☞ Memory Mode

Determine the memory mode.

When set to Indendent 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 coorectable errors is used to trigger fail-over. The spare memory is put online and used as active memory in place of the failed memory.

Options available: Indpendent /Mirroring/ Lockstep/Sparing.

☞ Numa

Enable/Disable Non Uniform Memory Access (NUMA) function.

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

☞ Thermal Thortting

Configure the Thermal Thortting.

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

☞ 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.

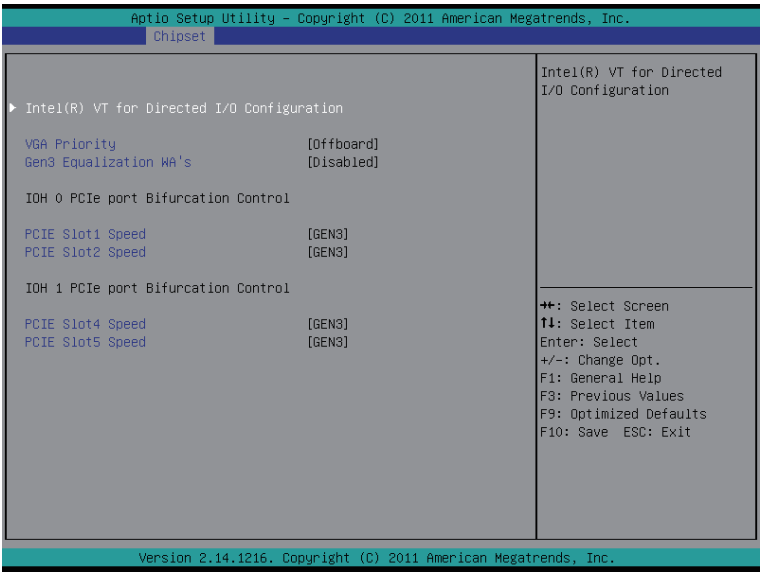
Options available: Enforce EN/Stretch EN/Enforce DIS. Default setting is Enforce EN.

☞ To clear ECC Flag

To clear ECC flag function.

Options available: None. Default setting is None.

5-3-1-1 IOH Configuration



- **IOH Configuration**
- **Intel(R) VT for Directed I/O Configuration**
- VGA Priority

  Define the display device priority.
- Gen3 Equalization WA's

  Enable/DIsable the support for Gen3 Equalization Workaround.
  Options available: Enabled/Disabled. Default setting is Disabled.
- IOH 0 PCIe port Bifurcation Control
- PCIE Slot 1 Speed

  Select PCIe slot 1 speed.
  Options available: GEN1/GEN2/GEN3. Default setting is GEN3.
- PCIE Slot 2 Speed

  Select PCIe slot 2 speed.
  Options available: GEN1/GEN2/GEN3. Default setting is GEN3.
- IOH 1 PCIe port Bifurcation Control
- PCIE Slot 4 Speed

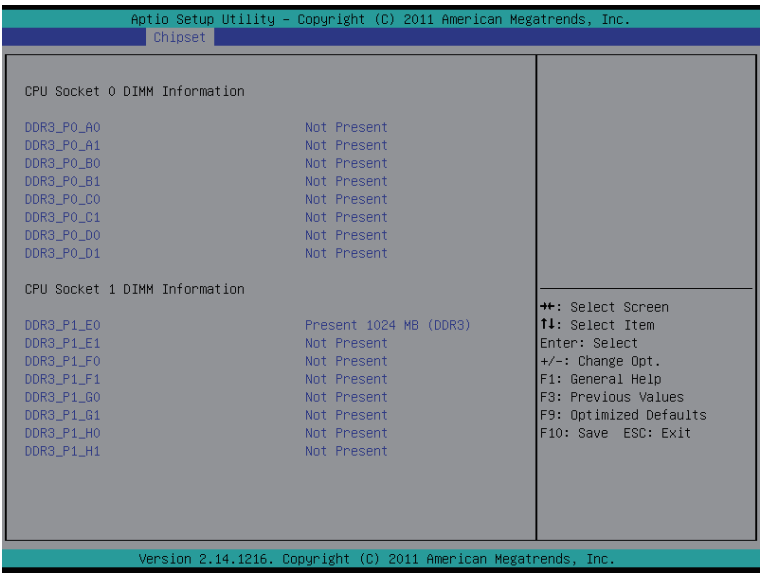
  Select PCIe slot 4 speed.
  Options available: GEN1/GEN2/GEN3. Default setting is GEN3.
- PCIE Slot 5 Speed

  Select PCIe slot 5 speed.
  Options available: GEN1/GEN2/GEN3. Default setting is GEN3.
- Intel(R) VT-d

  Enable/Disable Intel VT-d Technology function.
  Options available: Enabled/Disabled. Default setting is Enabled.
- ATS Support

  Enable/Disable VT-d Engine Aggress Translation Service (ATS) support.
  Options available: Enabled/Disabled. Default setting is Disabled.

5-3-1-2 DIMM Information



☞ DIMM Information:

☞ DIMM Group: CPU Socket 0/1 DIMM Information

CPU Socket 0:

DDR3_P0_A0/DDR3_P0_A1/DDR3_P0_B0/DDR3_P0_B1/DDR3_P0_C0/DDR3_P0_C1 Status

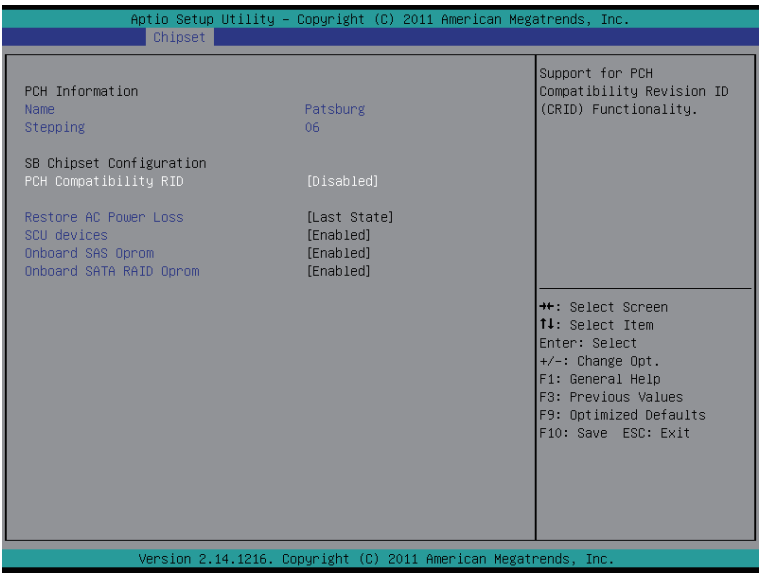
The size of memory installed on each of the DDR3 slots.

CPU Socket 1:

DDR3_P0_E0/DDR3_P0_E1/DDR3_P0_F0/DDR3_P0_F1/DDR3_P0_F0/DDR3_P0_F1 Status

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

5-3-2 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 sys- tem 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 device.

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

☞ Onboard SAS oprom

Enable/Disable onboard SAS option ROM.

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

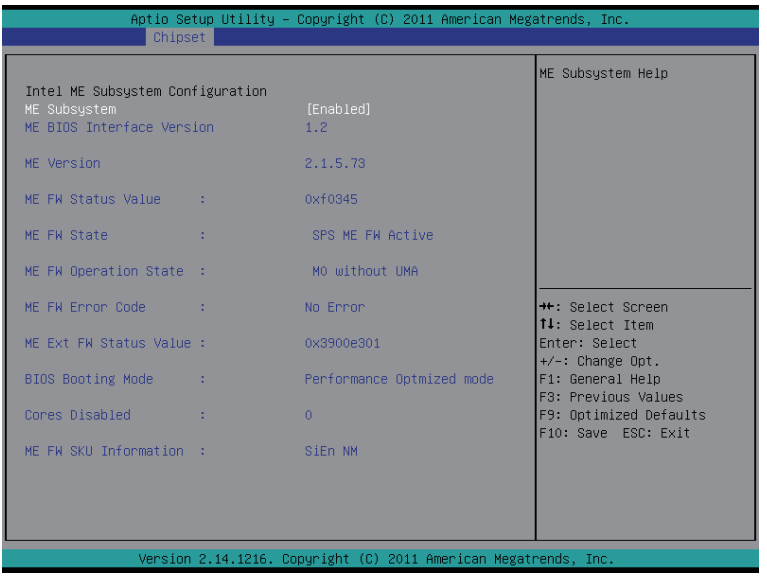
☞ Onboard SATA RAID oprom

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 15-20 seconds for BMC to save the last power state.

5-3-3 ME Subsystem



☞ **Intel ME Subsystem Configuration**

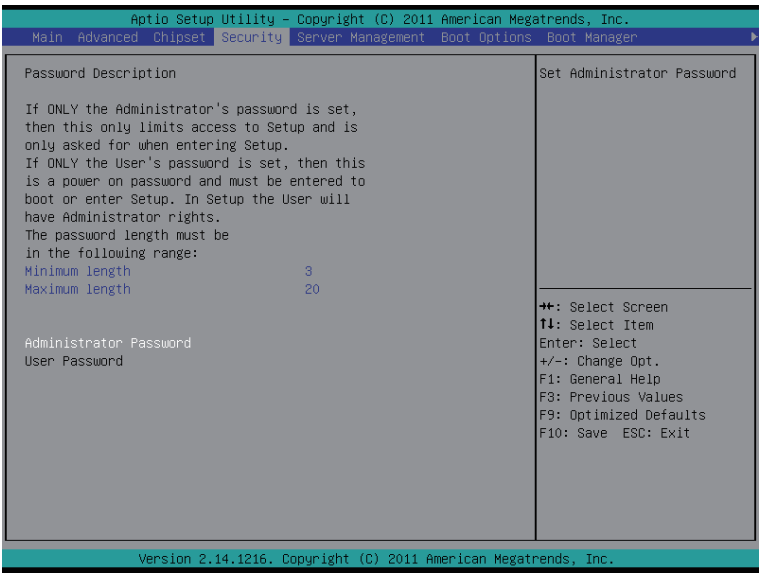
☞ ME Subsystem

Enable/Disable ME Subsystem function.

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

5-4 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.

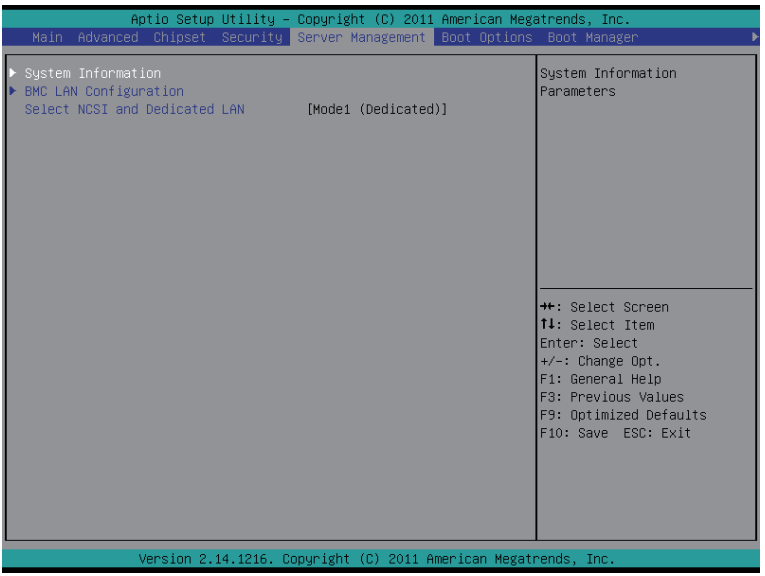
☞ Administrator Password

Press Enter to configure the Administrator password.

☞ User Password

Press Enter to configure the user password.

5-5 Server Management Menu



☞ System Information

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

☞ **BMC LAN Configuration**

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

☞ System Event Log

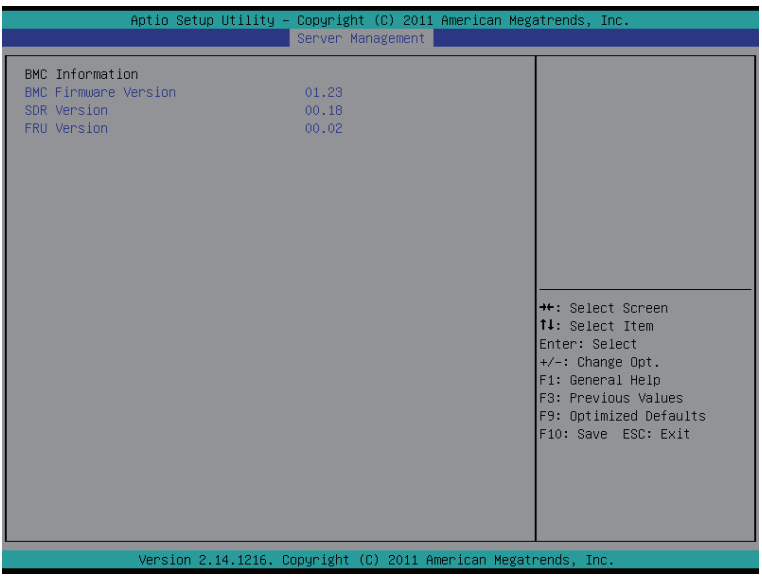
Press Enter to access the related system event log.

☞ Select NCSI and Dedicated LAN

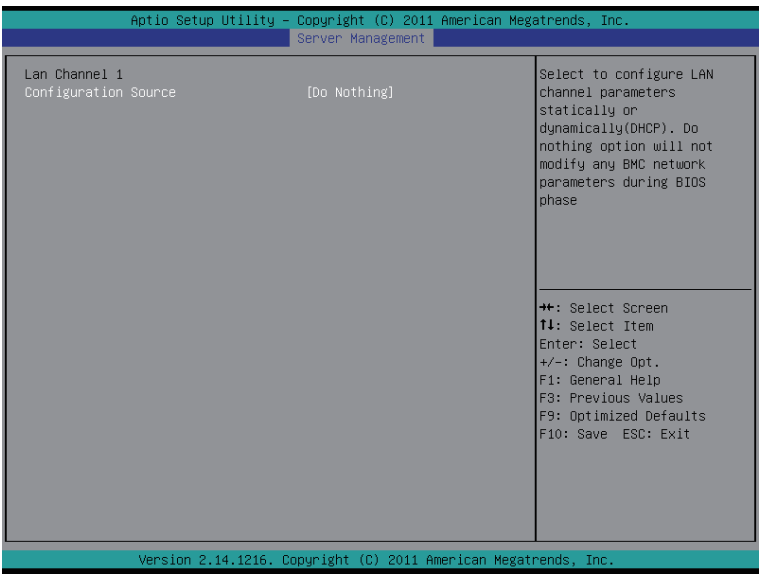
Switch NCSI and dedicated LAN and send KCS command.
Options available: Mode2(NSCI)/ Mode1 (Dedicated).

5-5-1 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.



5-5-2 BMC LAN Configuration



☞ Lan Channel 1

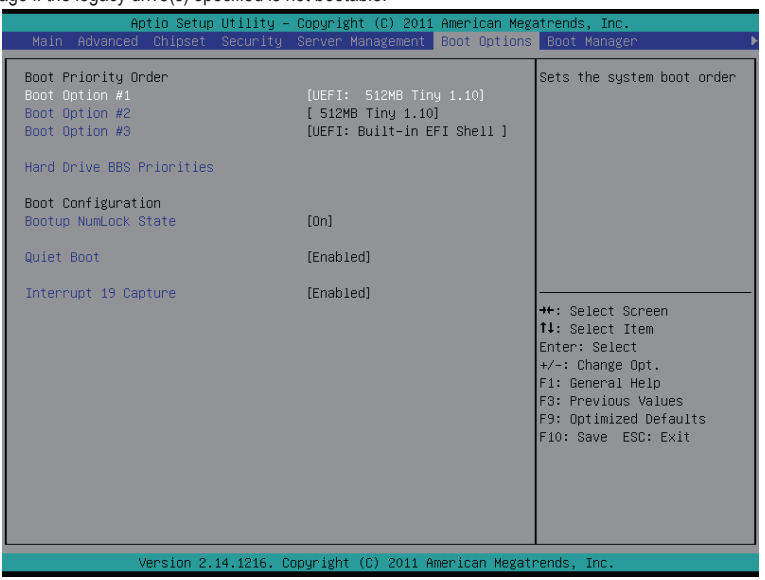
☞ **Configuration Source**

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. Default setting is Do Nothing.

5-6 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

Press [Enter] to configure the boot priority.

By default, the server searches for boot devices in the following secquence:

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

☞ Hard Drive BBS Priorities

Press [Enter] for advanced configuration.

☞ **Bootup 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 Enabled.

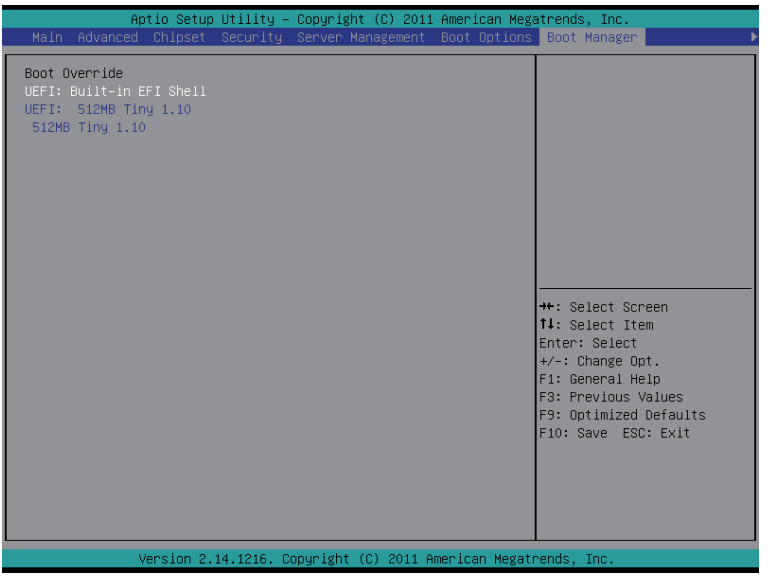
☞ Interrupt 19 Capture

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.

5-7 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.



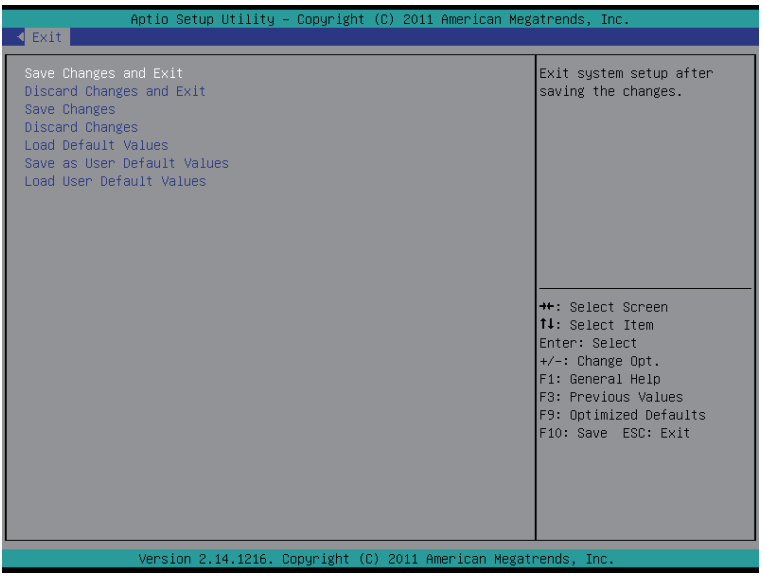
☞ Boot Override

☞ UEFI: Built-in EFI Shell

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

5-8 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.

5-9 BIOS Beep Codes

5-9-1 PEI Beep Codes

# of Beeps	Description
1	Memory not Installed.
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

5-9-2 DXE Beep Codes

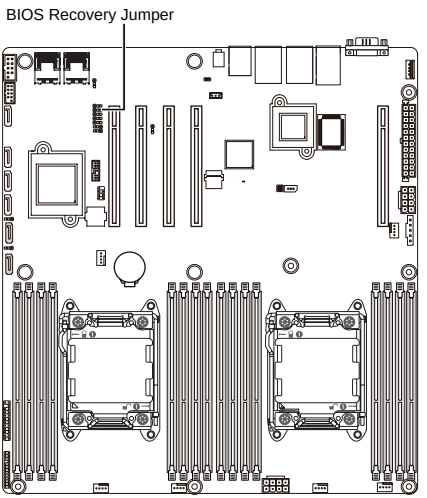
# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

5-10 BIOS Recovery Instruction

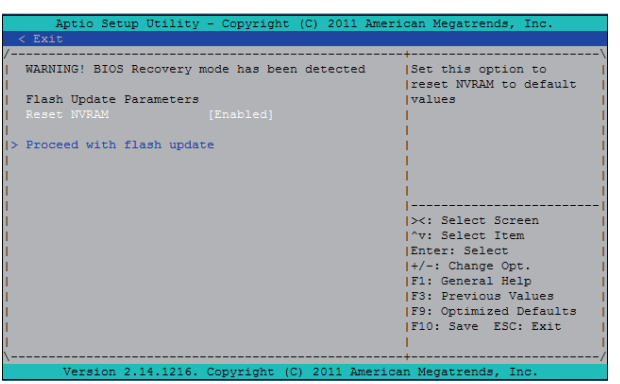
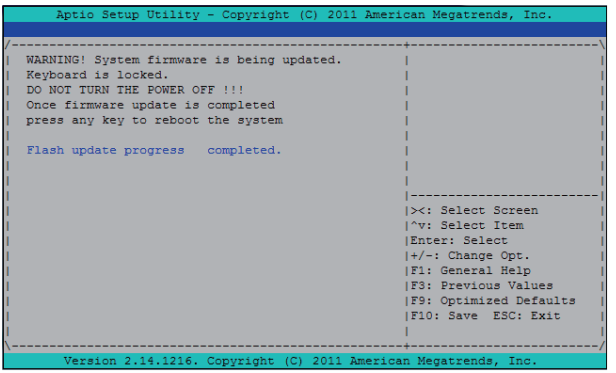
The system has an embedded recovery technique. In the event that the BIOS becomes corrupt the boot block can be used to restore the BIOS to a working state. To restore your BIOS, please follow the instructions listed below:

Recovery Instruction:

1. Change xxx.ROM to amiboot.rom.
2. Copy amiboot.rom and AFUDOS.exe to USB diskette.
3. Setting BIOS Recovery jump to enabled status.



4. Boot into BIOS recovery.
5. Run Proceed with flash update.



6. BIOS updated.