Edition: 1

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Abstract

This manual contains technical information such as specifications, hardware operations, software configuration, fault diagnosis, etc. that are relevant to the maintenance and operation of this server.

It is recommended that server installation, configuration, and maintenance is performed by experienced technicians only.

Target Audience

This manual is intended for:

- Technical support engineers
- Product maintenance engineers
- Technicians

Warnings:

This manual introduces the server's technical features, system installation and setup, which will help the user to understand how best to utilize the server and all its functionalities.

1.For your safety, please do not disassemble the server's components arbitrarily. Please do not extend configuration or connect other peripheral devices arbitrarily. If needed, please contact Inspur for our support and guidance.

2.Before disassembling the server's components, please be sure to disconnect all the power cords connected to the server.

3.BIOS and BMC setup is a significant factor in correctly configuring your server. If there are no special requirements, it is suggested to use the default values and not alter the parameter settings arbitrarily.

4.Please use the driver shipped with the server or provided in Inspur official website, if you use non-Inspur driver, it may cause compatibility issues and affect the normal use of the product, Inspur will not assume any responsibility or liability.

The manufacturer is not responsible for any damages, including loss of profits, loss of information, interruption of business, personal injury, and/or any damage or consequential damage without limitation, incurred before, during, or after the use of our products.

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1 Safety Instructions

⚠ Warning: Please be advised to follow the instructions below for safety. Failure to do so could result to potential dangers that may cause property loss, personal injury or death.

1. The power supplies in the system may produce high voltages and energy hazards that may cause personal injury. For your safety, please do not attempt to remove the cover of the system to remove or replace any component without assistance provided by Inspur. Only service technicians trained by Inspur are authorized to remove the cover of the host, and to remove and replace internal components.
2. Please connect the equipment to the appropriate power supply. Use only power supplies with the correct voltage and electrical specifications according to the label. To protect your equipment from damages caused by a momentary spike or plunge of the voltage, please use relevant voltage stabilizing equipment, or uninterruptible power supplies.
3. If you must use an extension cable, please use a three-core cable with properly grounded plugs. Observe extension cable ratings. Ensure that the total rating of all equipment plugged into the extension cable does not exceed 80 percent of the ratings limit for the extension cable.
4. Please be sure to use the power supply components that come with the server, such as power lines, power socket (if provided with the server) etc. For your safety, please do not replace power cables or plugs randomly.
5. To prevent electric shock dangers caused by leakage in the system, please make sure that the power cables of the system and peripheral equipment are correctly connected to the earthed/grounded power socket. Please connect the three-core power line plug to the three-core AC power socket that is well earthed and easy to access. Be sure to use earthing /grounding pin of power lines and do not use the patch plug or the earthing/grounding pin unplugged with cables. In the case that the earthing/grounding conductors are not installed and it is uncertain whether there are appropriate earthing/grounding protections,

please do not use or attempt to operate the equipment. Contact and consult an electrician.

6. Please do not push any objects into the openings of the system. Doing so may cause fire or electric shock.
7. Please place the system far away from the cooling plate and heat sources, and be sure not to block the air vents.
8. Please be sure not to scatter food or liquid in the system or on other components, and do not use the product in humid or dusty environments.
9. Using an incompatible battery may cause explosion. When battery replacement is required, please consult the manufacturer first, and choose batteries of the same or equivalent type. Do not disassemble, crush, puncture the batteries or make the external connection point short circuit, and do not expose them in the environment over 60°C. Never throw batteries into fire or water. Please do not attempt to open or repair the batteries. Dispose of used batteries according to instructions. For battery recycling, please contact the local waste recycling center.
10. Before installing equipment into the rack, please install all front and side stabilizers on the independent rack first. Please install the front stabilizers first, if connecting with other racks. Please install stabilizers before installing equipment into the rack. Failure to install the corresponding stabilizers before installing equipment into the rack may cause the cabinet to tip over, possibly resulting to severe injury. After installing the equipment and other components into the rack, only one component can be pulled out from the rack through its sliding part at one time. Pulling out several components at the same time may cause the rack to turn over, resulting to serious personal injury.
11. A minimum of two people are required to safely move a rack. The racks are extremely awkward and heavy, moving them without adequate, trained personnel could result in severe injury or death.
12. It is prohibited to directly short-circuit the copper busbar. Please do not touch the copper busbar when the rack is powered on.
13. This is Class A product, and may cause radio interference. In such case, users may need to take necessary measures to mitigate the interference.

14. The equipment is intended for installation in a Restricted Access Location.

⚠ Note: The following considerations may help avoid the occurrence of problems that could damage the components or cause data loss, etc.

1. In the event of the following, please unplug the power line plug from the power socket and contact Inspur's customer service department:

1) The power cables, extension cables or power plugs are damaged.
2) The products get wet.
3) The products have fallen or have been damaged.
4) Other objects have fallen into the products.
5) The products do not or are unable to function normally even when attempting to operate according to the instructions.

2. If the system becomes wet or damp, please follow these steps:

1) Power off the equipment, disconnect them with the power socket, wait for 10 to 20 seconds, and then open the host cover.
2) Move the equipment to a well-ventilated place to dry the system at least for 24 hours and make sure that the system is fully dried.
3) Close the host cover, reconnect the system to the power socket, and then power on.
4) In case of operation failure or other abnormal situations, please contact Inspur and get technical support.

3. Pay attention to the position of system cables and power cables-avoid placing wires in high foot traffic locations. Please do not place objects on the cables.
4. Before removing the host cover, and/or touching the internal components, please allow for the equipment to cool first. To avoid damaging the mainboard, please power off the system and wait for five seconds, and then remove the components from the mainboard and/or disconnect the peripheral device from the system. Please remember that only service technicians trained by Inspur are authorized to remove the cover of the host, and to remove and replace internal components.
5. If there is modem, telecom or LAN options installed in the equipment, please pay attention to the followings:

1) In the case of thunder and lightning, please do not connect or use the modem.
2) Never connect or use the modem in a damp environment.
3) Never insert the modem or telephone cables into the socket of network interface controller (NIC).
4) Before unpacking the product package, installing internal components, touching uninsulated cables or jacks of the modem, please disconnect the modem cables.

6. In order to prevent electrostatic discharge from damaging the electronic components in the equipment, please pay attention to the followings:

1) Please remove any static electricity on your body before dismounting or touching any electronic component in the equipment, to prevent the static electricity from conducting itself to the sensitive components. You may remove the static electricity on the body by touching the metal earthing objects (such as the unpainted metal surface on the rack).
2) Please do not take electrostatic sensitive components that are not ready to be installed for application out of the antistatic package materials.
3) While working, please touch the earthing conductor or the unpainted metal surface on the cabinet regularly to remove any static electricity from the body that may damage the internal components.

7. Upon receiving the proper authorization from Inspur and dismounting the internal components, please pay attention to the following:

1) Switch the system power supply off and disconnect the cables, including all connections of the system. When disconnecting the cables, please hold the connector of the cables and slowly pull the plugs out. Never pull on the cables.
2) The products need to completely cool down before dismounting the host cover or touching the internal components.
3) During the dismounting process, avoid making large movement ranges to prevent damage to the components or scratching arms.
4) Handle components and plug-in cards with care. Please do not touch the components or connection points on the plug-in cards. When handling the plug-in cards or components, firmly grab the edges of the plug-in cards and components, and/or their metal fixed supports.

8. During the process of rack installation and application, please pay attention to

the followings:

1) After the rack installation is finished, please ensure that the stabilizers have been fixed to the rack and supported to ground, and the weight of the rack is firm on ground.
2) Always load from the bottom up, and load the heaviest items first.
3) When pulling out the components from the rack, apply slight force to keep the rack balanced.
4) When pressing down the release latch and the rail of components is sliding, please be careful; as the sliding may hurt your fingers.
5) Do not overload the AC power supply branch circuits in the rack. The total load of the rack should not exceed 80% of the ratings of the branch circuits.
6) Ensure that components in the rack have good ventilation conditions.
7) When repairing components in the rack, never step on any other components.

2 Product Specification Introduction

2.1 Introduction

This type is a kind of server product developed independently. It adopts Intel Grantley-EP platform, and uses Wellsburg chip set. It supports two mainstream Intel Xeon E5-26** V4(or E5-26** V3) series processors. It supports 16 DIMM DDR4 memory, reaching up to 2400MHz. It supports ECC Registered and multiple senior memory redundancy function.It supports up to 2.5" x 16 SAS/SATA/SSD hot-plugging hard disks or 3.5" x 12 SAS/SATA/SSD hot-plugging hard disks.

Mainboard integrates Gigabit network cards of high performance, and supports network advanced features. Mainboard integrates BMC/KVM chips. 5 PCI-Express expansion slots available.Supports SAS 3.0 (12Gb/s) or SAS Raid cards, and implements flexible SAS/SAS RAID solutions. Modular design on components such as structure, storage, PCI expansion, power supply and fan etc. Energy-saving and noise reduction design, equipped with PMbus power supply of high efficiency, supports DPNM function, and implements energy saving and consumption reducing.

Supports 12 front set 3.5/2.5 inches SAS/SATA/SSD hard disks, and appearances of them are as shown in the following figure.

⚠ Note: The 3.5 inches hard disk bracket could be used to hold a 3.5/2.5 inches hard disk.

2.2 Features and Specification

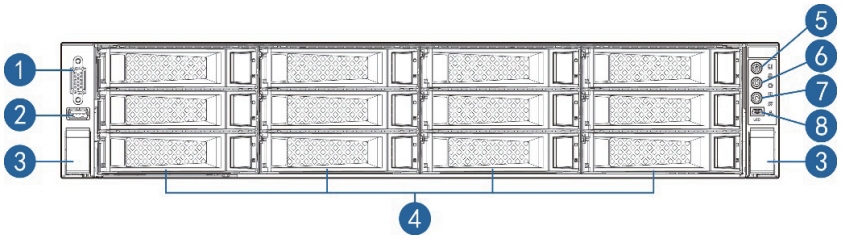
Processor	
Processor Type	Intel dual-way Xeon E5-26** V4(or E5-26** V3) Series (supports up to two 145W)
Interface	Two Socket-R3 slots.
Chipset	
Chipset Type	PCH C610(Wellsburg)

Memory	
Memory Type	DDR4 ECC RDIMM/LRDIMM memory
Single Inline Memory Module Qty.	16
Memory Volume	It supports up to 1024GB (64GB for single)
I/O Interface	
USB Interface	2 rear set USB 3.0 interfaces, and 2 built–in USB 3.0 interfaces
Display Interface	1 front set VGA interface 1 rear set VGA interface
Serial Interface	1 built–in serial port
ID Indicator Interface	1 ID indicator (blue) and its press button
Display Controller	
Controller Type	A speed 2400 integrated in chip, with max. resolution supporting 1280*1024
SAS Backplane	
SAS3.0 backplane	It supports hog–plugging SAS/SATA/SSD hard disks.
Network Card	
Network Card Controller	The mainboard optionally integrates 1 Intel I350 double gigabit or four gigabit net card, and provides two or four 1000M self–adapting RJ45 net ports; The mainboard optionally integrates 1 Intel 82599 single–port or double–port 10 gigabit net card, and provides one or two 10 gigabit SFP+Net Card(s).
Management Chip	
Management Chip	It integrates 1 independent 1000Mbps network interface, which is used in IPMI remote management.
PCI Extension Slot	Mainboard: 1 onboard PCI Express 3.0 x24 slot (used to support PCI–E Riser, which could not adapt to external cards); 3 vertically inserted PCIE slots; When there’s one single CPU is in the system: It could support 1 PCIE x8+x1 slot (able to support network sub card of management function). It could support 1 PCIE x8 (in x16 Slots). When there’re double CPUs in the system: It could support 1 vertically inserted PCIE x8+x1 slot (able to support management function network card). It could support 1 vertically inserted PCIE x8 (in x16 Slots) It could support 1 vertically inserted PCIE x16 (in x16 Slots) Via installing a Riser card connecting to a full height and half height card, it could support 1 vertically inserted PCIE x8 (in x8 Slots) and 1 PCIE x16 (in x16 Slots);
Hard Disk	
Hard Drive Type	Front set 2.5/3.5 inch SAS, SATA and SSD hard disks; Up to 4 rear set SATA and SSD hard disks could be supported. (Subject to actual type you purchased)

External Storage Driver	
CD Driver	External USB CD drive.
Drive U Disk	Optional drive U disk.
Power Supply	
Specification	Output power of sing/Double power 550W/800W and above; 1+1 redundancy; 2 power modules; it supports PMBus power supply, and implements Node Manager 3.0 function.
Power Input	Please refer to power input on nameplate tag of the host.
Physical Specification	
External Dimension of Package	651 width × 307 height × 971 depth (unit: mm)
Host Size	447 width × 87 height × 720 depth (unit: mm)
Product Weight	Standard configuration (3 hard disks) Host weight: 19.5kg; Gross weight: 32kg. (Gross weight includes: Host + Packing Box + Rail + Parts Kit) Full configuration (24 hard disks) Host weight: 25.8kg; Gross weight: 35.55kg. (Gross weight includes: Host + Packing box + Rail + Parts box)
Environment Parameters	
Working Environment Temperature	10℃ –35℃
Storage & Transportation Temperature	–40℃ –60℃
Working Humidity	35% –80% relative humidity
Storage & Transportation Humidity	20% –93% (40℃) relative humidity

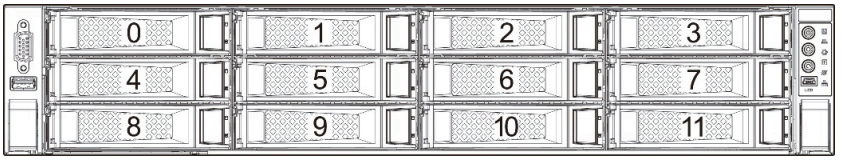
3 Component Identification

3.1 3.5×12 Disk Position

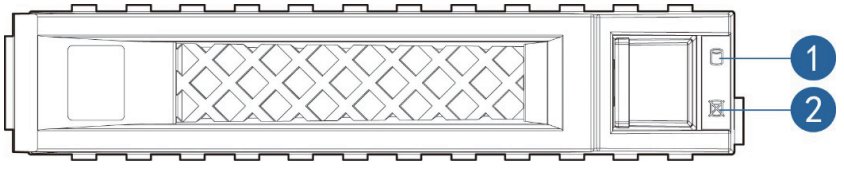


Number	Module Name
1	Front set VGA interface
2	Front set USB 3.0 interface
3	Securing buckle of server and cabinet
4	Front set hard disk slot
5	Server switch button
6	ID light and button
7	System fault indicator button
8	LCD liquid crystal management module interface

3.5×12 disk position hard disk sequence diagram

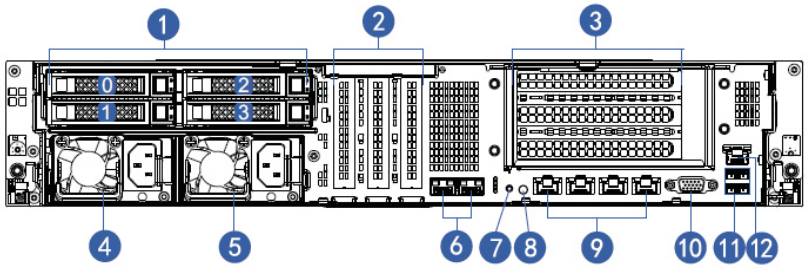


3.2 Hard Drive Bay LEDs



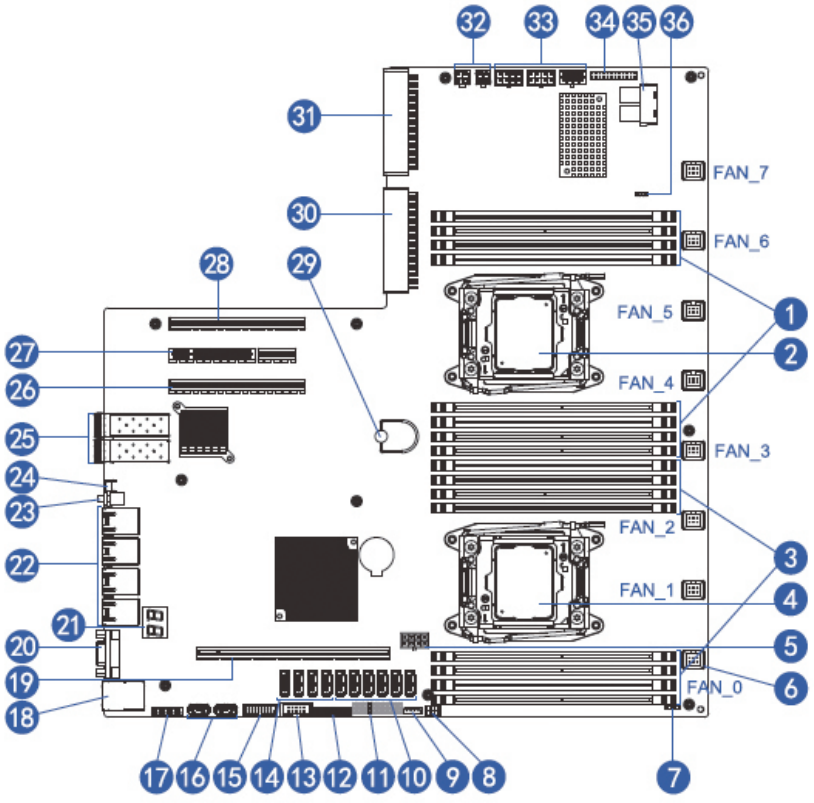
Number	Module Name	Description
1	Hard disk activity status indicator	Constant green: Normal Flashing green: Hard disk is reading and writing
2	Hard disk fault alarming indicator	Constant red: Hard disk fault Constant blue: Hard disk positioning Constant pink: In coordination with RAID rebuilding

3.3 Rear Panel



Number	Module Name
1	Rear set 2.5 inch hard disk slot
2	PCIE slot (half height)
3	PCIE slot (full height)
4	Power supply 0
5	Power supply 1
6	10 Gigabit net card interface
7	BMC reset button
8	ID light and button
9	Gigabit net card interface
10	VGA interface
11	USB3.0 interface
12	IPMI management interface

3.4 System Board Components



Number	Module Name
1	Memory slot (corresponding with CPU0)
2	CPU0
3	Memory slot (corresponding with CPU1)
4	CPU1
5	GPU Power supply interface
6	System fan interfaces (8 interfaces in all)
7	I2C interface
8	GPIO interface
9	IPMB interface
10	SATA interfaces (6)

Number	Module Name
11	CLEAR CMOS jumper
12	TCM interface
13	COM interface
14	sSATA interfaces (4)
15	Front set USB 3.0 interface
16	Built-in USB 3.0 interface
17	Front set VGA interface
18	IPMI management interface / rear set USB 3.0 interface (2)
19	PCIEx24 slots (corresponding with CPU1)
20	Rear set VGA interface
21	Debug light
22	Gigabit network port
23	ID light and button
24	BMC Reset button
25	10 Gigabit net port
26	PCIEx16 slots (corresponding with CPU1)
27	PCIEx8 (corresponding with CPU0)
28	PCIEx8 (in x16 slots corresponding with CPU0)
29	Mainboard handle
30	PSU1
31	PSU0
32	Power interface (4 port)
33	Power interface (8 port)
34	Front control panel interface
35	LSI 3008 HDminiSAS interface
36	LSI 3008 SAS Key

3.5 System Board Jumper Introduction

See [2.5 Mainboard Layout] for jumper positions.

Clear CMOS Jumper Introduction

Jumper No.	Function Description	Jumper Functions
CLR_CMOS	CMOS clear jumper	Short-circuit pin1-2, to restore normal status; short-circuit pin2-3, to clear CMOS.

⚠ Note:

It is required to shut down the system, as well as disconnect power supply during CMOS cleaning, and hold for 5 seconds after short-circuiting Pin2-3; then short-circuit Pin1 and Pin2 of CLR_CMOS jumper with a jumper cap (the default status), to restore its original status.

4 Operations

4.1 Power up the Server

Insert the power cord plug, then press the Power On button.

4.2 Power down the Server

⚠ WARNING: To reduce the risk of personal injury, electric shock, or damage to the equipment, remove the power cord to remove power from the server. The front panel Power On button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

IMPORTANT: If installing a hot-plug device, it is not necessary to power down the server.

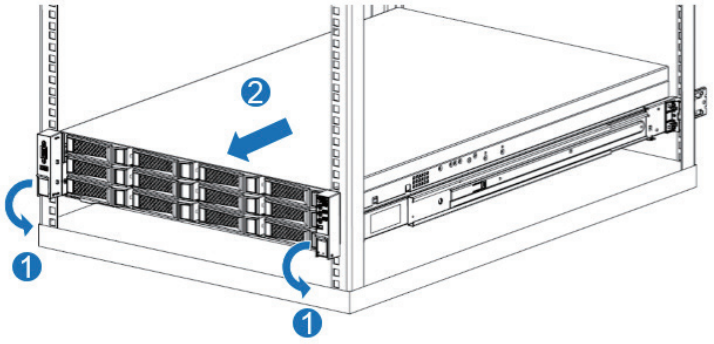
1. Back up the server data.
2. Shut down the operating system.
3. Disconnect the power cords.

The system is now without power.

4.3 Extend the Server from the Rack

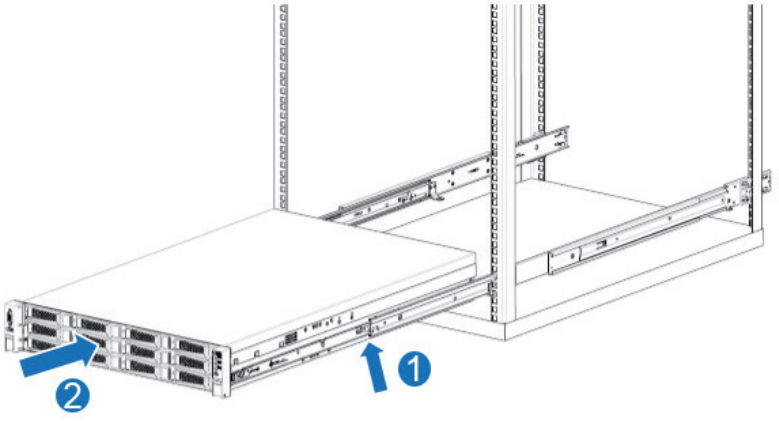
1. Pull down the quick release levers on each side of the server.
2. Extend the server from the rack.

⚠ WARNING: To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before extending a component from the rack.



3. After performing the installation or maintenance procedure, slide the server back into the rack, and then press the server firmly into the rack to secure it in place.

⚠ WARNING: To reduce the risk of personal injury, be careful when sliding the server into the rack. The sliding rails could pinch your fingers.



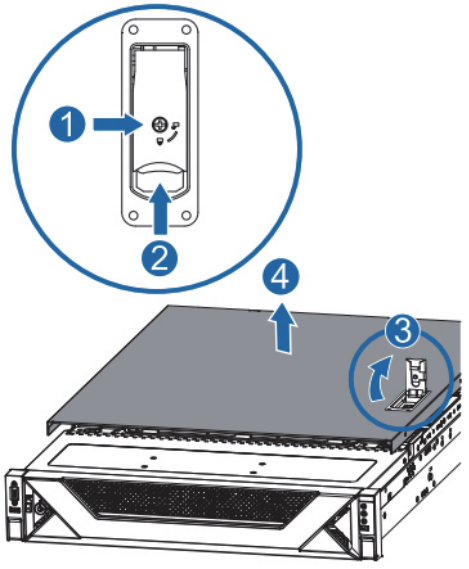
4.4 Remove the Access Panel

⚠ WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

⚠ CAUTION: For proper cooling do not operate the server without the access panel, air baffle, or fan installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

To remove the component:

1. Power down the server if performing a non-hot-plug installation or maintenance procedure.
2. Extend the server from the rack.
3. Use the screwdriver to loosen the security screw on the hood latch.
4. Lift up on the hood latch handle, and then remove the access panel.



4.5 Install the Access Panel

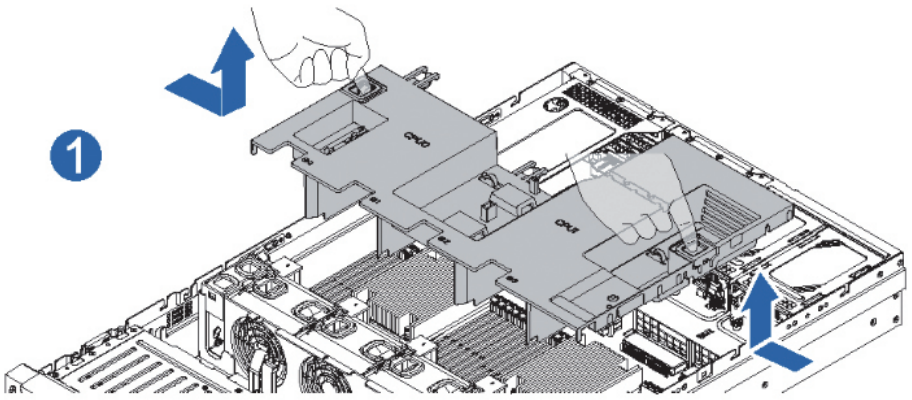
1. Place the access panel on top of the server with the hood latch open. Allow the panel to extend past the rear of the server.
2. Push down on the hood latch. The access panel slides to a closed position.
3. Use the screwdriver to tighten the security screw on the hood latch.

4.6 Remove the Air Baffle

CAUTION: For proper cooling do not operate the server without the access panel, air baffle, or fan installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

1. Power down the server.

2. Extend or remove the server from the rack.
3. Remove the access panel.
4. Remove the air baffle.



5 Setup

5.1 Optimum Environment

When installing the server in a rack, select a location that meets the environmental standards described in this section.

5.1.1 Space and Airflow Requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when deciding where to install a rack:

- Leave a minimum clearance of 63.5 cm (25 in) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in) behind the rack.
- Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

Inspur Servers draw in cool air through the front door and expel warm air through the rear door. Therefore, the front and rear rack doors must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

⚠ CAUTION: To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

When vertical space in the rack is not filled by a server or rack component, the gaps between the components cause changes in airflow through the rack and across the servers. Cover all gaps with blanking panels to maintain proper airflow.

⚠ CAUTION: Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

⚠ CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

• Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).

• Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in).

5.1.2 Temperature Requirements

To ensure continued safe and reliable equipment operation, install or position the system in a well-ventilated, climate-controlled environment.

The maximum recommended ambient operating temperature (TMRA) for most server products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

⚠ CAUTION: To reduce the risk of damage to the equipment when installing third-party options:

• Do not permit optional equipment to impede airflow around the server or to increase the internal rack temperature beyond the maximum allowable limits.

• Do not exceed the manufacturer's TMRA.

5.1.3 Power Requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

⚠ WARNING: To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

⚠ CAUTION: Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply (UPS). This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

When installing more than one server, you may need to use additional power distribution devices to safely provide power to all devices. Observe the following guidelines:

- Balance the server power load between available AC supply branch circuits.
- Do not allow the overall system AC current load to exceed 80 percent of the branch circuit AC current rating.
- Do not use common power outlet strips for this equipment.
- Provide a separate electrical circuit for the server.

5.1.4 Electrical Grounding Requirements

The server must be grounded properly for optimal operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes.

In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, and Canadian Electrical Code. In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or

certified grounding-type devices.

Because of the high ground-leakage currents associated with multiple servers connected to the same power source, Inspur recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the server is not recommended.

5.2 Rack Warnings

⚠ WARNING: To reduce the risk of personal injury or damage to the equipment, please be sure of the following:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

⚠ WARNING: To reduce the risk of personal injury or equipment damage when unloading a rack:

- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and may become unstable when being moved on its casters.
- Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

5.3 Identifying the Contents of the Server Shipping Carton

Unpack the server shipping carton and locate the materials and documentation necessary for installing the server. All the rack mounting hardware necessary for installing the server into the rack is included with the rack or the server.

The contents of the server shipping carton include:

- Server
- Power cord
- Power cord clasp
- Hardware documentation, Documentation CD, and software products
- Rack-mounting hardware

In addition to the supplied items, you may need:

- Operating system or application software
- Hardware options

5.4 Installing Hardware Options

Install any hardware options before initializing the server. For options installation information, refer to the option documentation. For server-specific information, refer to “Hardware options installation.”

5.5 Installing the Server into the Rack

⚠ CAUTION: Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

1. Install the server into the rack. For more information, see the installation instructions included with the Slide Rail System.
2. Connect peripheral devices to the server. For connector identification information, see Rear panel components in this guide.

⚠ WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into RJ-45 connectors.

3. Connect the power cord to the rear of the server.

ORTANT: When using cable management arm components, be sure to leave enough slack in each of the cables to prevent damage to the cables when the server

is extended from the rack.

4. Connect the power cord to the AC power source.

⚠ WARNING: To reduce the risk of electric shock or damage to the equipment:

• Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

• Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

• Unplug the power cord from the power supply to disconnect power to the equipment.

• Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

5.6 Installing the Operating System

To operate properly, the server must have a supported operating system installed. For the latest information on supported operating systems, refer to the Inspur website (http://www.inspur.com/eportal/ui?pageId=444443).

Methods to install an operating system on the server include:

- Ruijie assisted installation–Insert the Ruijie server kit CD into the CD-ROM drive and reboot the server.
- Manual installation–Insert the operating system CD into the CD-ROM drive and reboot the server. This process may require you to obtain additional drivers from the Inspur website (http://www.inspur.com/eportal/ui?pageId=444443).

6 Hardware Options Installation

Introduction

If more than one option is being installed, read the installation instructions for all the hardware options and identify similar steps to streamline the installation process.

⚠ WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

⚠ CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

6.1 Processor Option

The server supports single- and dual-processor operation.

⚠ CAUTION: To avoid damage to the processor and system board, only authorized personnel should attempt to replace or install the processor in this server.

⚠ CAUTION: To help avoid damage to the processor and system board, do not install the processor without using the processor installation tool.

⚠ CAUTION: To prevent possible server malfunction and damage to the equipment, multiprocessor configurations must contain processors with the same part number.

To install the component:

1 Power down the server

2 Extend the server from the rack

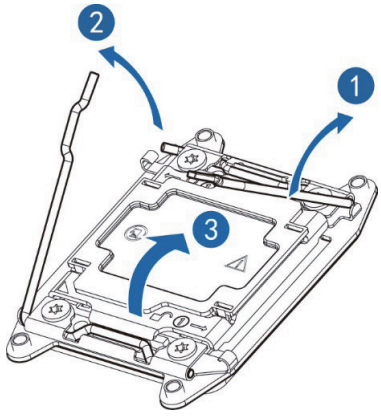
3 Remove the access panel

4 Remove the air baffle

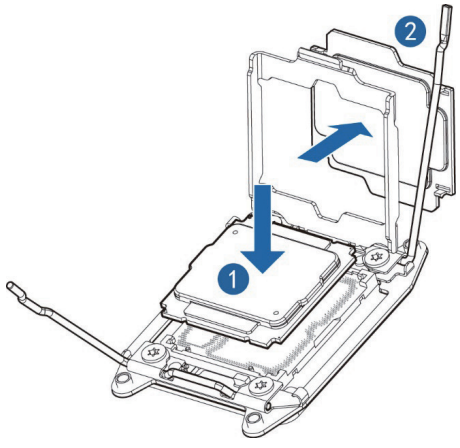
5 Remove the heatsink

6 Remove the processor:

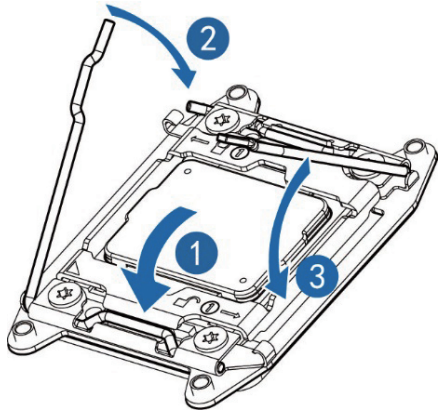
Step 1: Open the two locking levers and the CPU fixing plate.



Step 2: Install CPU into the CPU socket, and then remove the protective cover.



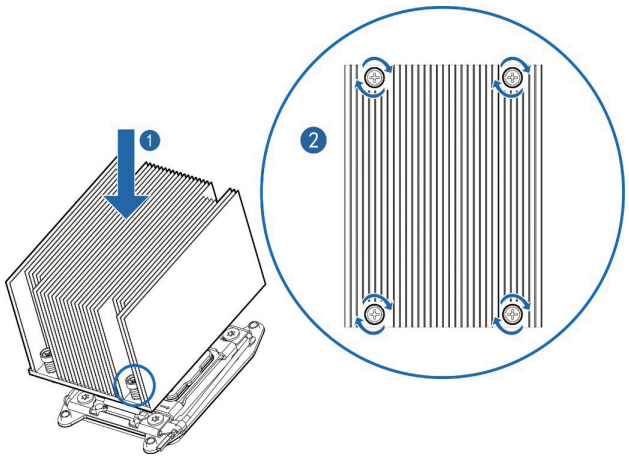
Step 3: Clamp CPU with CPU fixing plate, and then close the two locking levers firmly.



Step 4: Fix the CPU heatsink above CPU, and then fasten the bolts on the heatsink.

Note:

- It is required to coat thermal grease evenly onto the contact position between CPU heatsink and CPU.
- The direction of CPU heatsink fins should be identical with the system inlet/outlet direction.
- During fixing CPU heatsink, it is required to fasten bolts according to diagonal sequence accordingly.

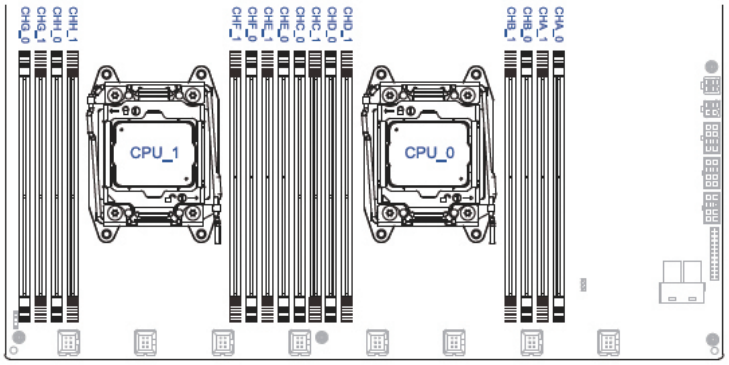


CAUTION: The pins on the processor socket are very fragile. Any damage to them may require replacing the system board.

CAUTION: Failure to completely open the processor locking lever prevents the processor from seating during installation, leading to hardware damage.

6.2 Memory Options

- Memory slot layout is as shown in the following figure:



- Memory installation principle:

Only memory of the same type could be used in the same machine. Detailed memory installation and combination principles are as follows:

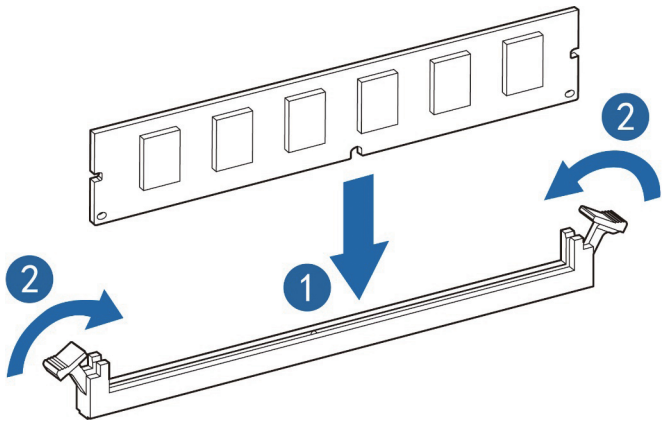
a. The white slot shall take the priority, while CPU1 memory shall be symmetrically installed with CPU0.

b. For single CPU, memory shall follow the screen printing sequence: CHA-0, CHB-0, CHC-0, CHD-0, CHA-1…

c. For dual CPUs, CPU0 position memory shall follow the screen printing sequence: CHA-0, CHB-0, CHC-0, CHD-0, CHA-1… CHG-0, CHH-0, CHE-0, CHF-0 …

Step 1: Open fixing catches on both ends of memory slot.

Step 2: Align the notch at memory bottom with memory slot positioning point, and press both ends of the memory with your thumbs, to insert the memory into the slot completely, and then fasten fixing catches on both ends of the memory slot.



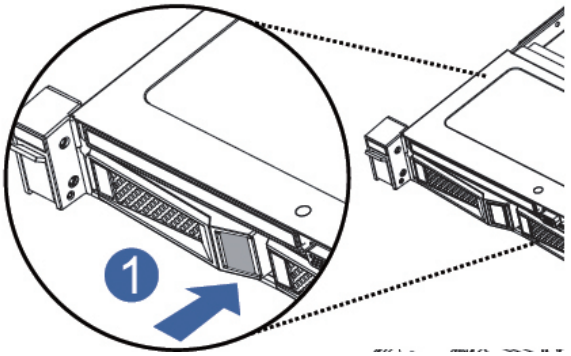
6.3 Hot-plug Hard Drive Option

When adding hard drives to the server, observe the following general guidelines:

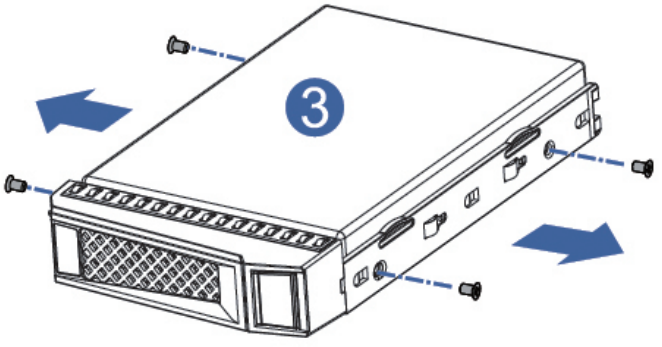
- The system automatically sets all device numbers.
- If only one hard drive is used, install it in the bay with the lowest device number; please check the hard drive device number on the pull-tag.

Installing a hot-plug SAS hard drive

1. Remove the SAS hard drive blank.



2. Prepare and install the hard drive.



3. Determine the status of the hard drive from the hot-plug SAS hard drive LED combinations.

6.4 Removing a Hot-plug Hard Drive

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

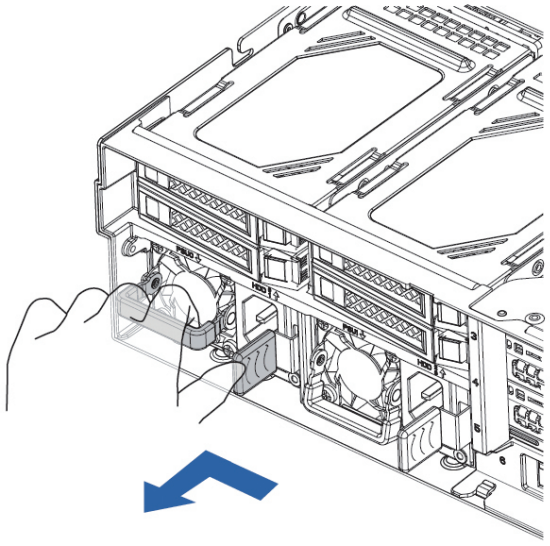
1 Determine the status of the hard drive from the hot-plug SAS hard drive LED combinations.

2 Back up all server data on the hard drive.

3 Remove the hard drive.

6.5 Redundant Hot-plug Power Supply Option

Step 1: Pull power catch in the direction of the arrow.



Step 2: Remove the power horizontally with even force.

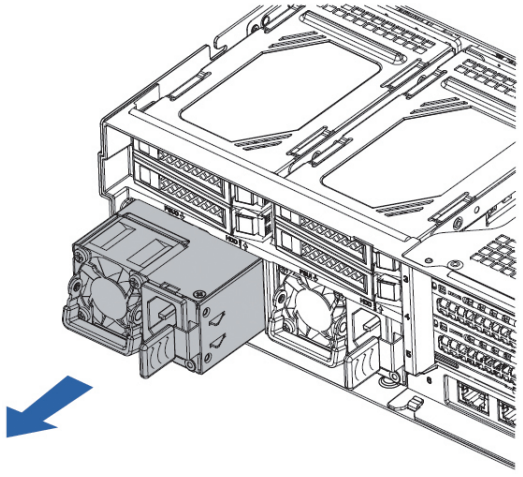
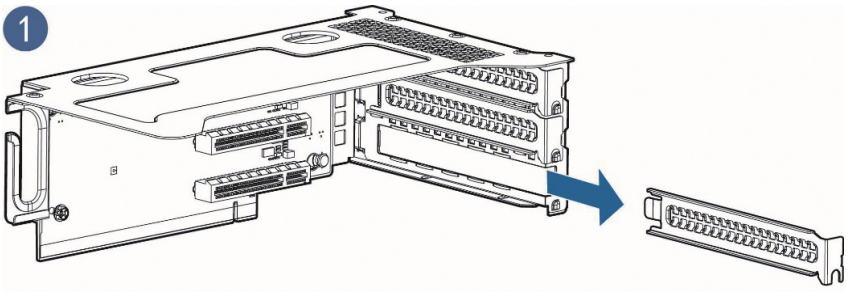


Figure 3: Install power module.

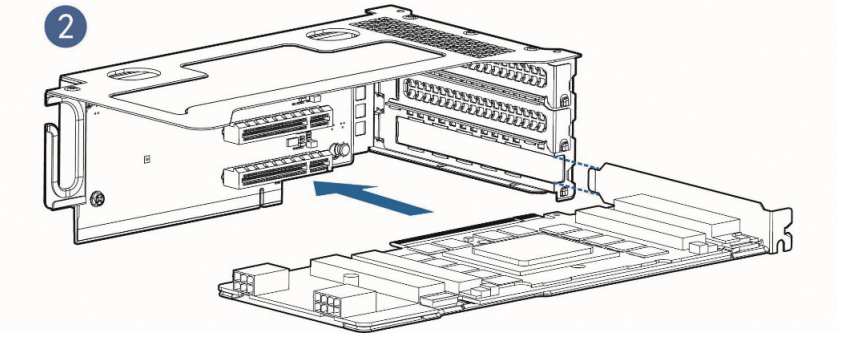
Push the new power module into the sliding channel, until a “click” sound is heard, power spring leaf is caught into the buckle automatically, and power module could not move any more.

6.6 PCIE Expansion Card Replacement

Step 1: Remove the blocking piece on riser card bracket.



Step 2: Install a matching blocking piece onto expansion card, and insert the expansion card into the slot corresponding to riser card.

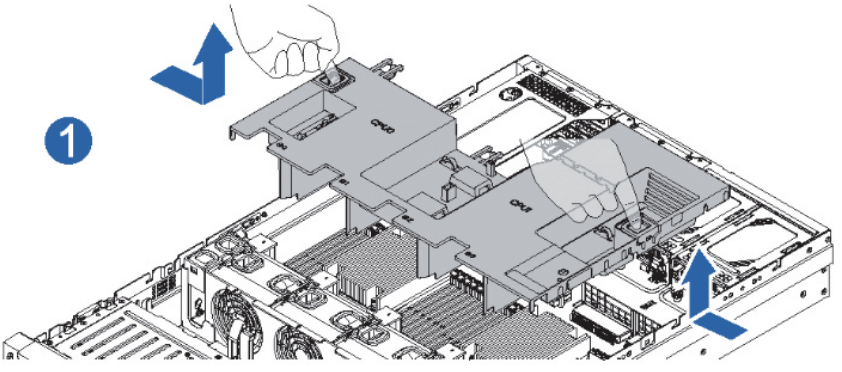


Step 3: Install the riser card bracket back to the server.

6.7 Air Baffle Replacement

Step 1: Open the top cover of the chassis.

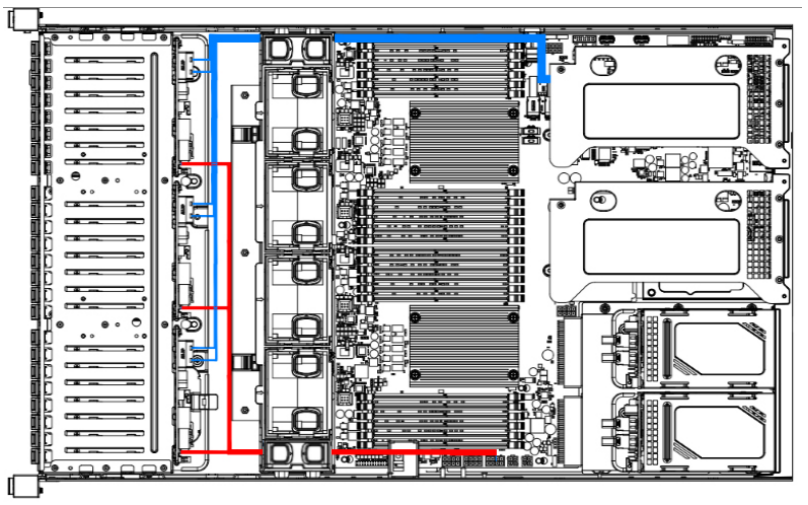
Step 2: Use fingers to lift up both ends of the air baffle, and remove the air baffle vertically.



7 Cabling

The SAS cable (blue) is used to connect the front backplane and SAS/RAID card;

The power cable (red) is used to connect the front backplane and motherboard.



CAUTION: Please route the cables according to your purchased machine.

8 BIOS Setup

This chapter introduces how to configure BIOS. All operations described in this section are limited to experienced operators or administrators with proper system maintenance qualifications.

BIOS is a basic input and output system. The system parameters and hardware parameters can be adjusted through special setup procedure. BIOS has a great impact on the system booting and running, setting parameters improperly may cause conflicts among hardware resources, or degrade the system running performance. Hence, understanding the BIOS setup is significant to the configuration of your server. It is suggested to use the default value, and not to alter the parameters arbitrarily.

⚠ WARNING: Incorrectly changing the BIOS settings may leave the computer in a state in which the Operating System will no longer start. We recommend that you record the original BIOS settings before you modify them so it can safely revert to its previous state if required.

1. The factory default settings are the optimal settings. It is advised not to alter the parameters before understanding their denotations.
2. The common settings are introduced in detail in this chapter, but less common ones are not.
3. The BIOS content varies according to different configurations of the products; hence the detailed introduction is elided.

8.1 System BIOS Setup Methods

Power on the server. The system will then start to boot. When the following content appears below Inspur logo on the screen:

- Press <DEL> to SETUP or <TAB> to POST or <F12> to PXE Boot.
- Press [DEL] button.
- When “Entering Setup...” appears in the lower right corner, it will enter system BIOS configuration later, and you could select options in BIOS main menu using arrow buttons to enter sub-menu.

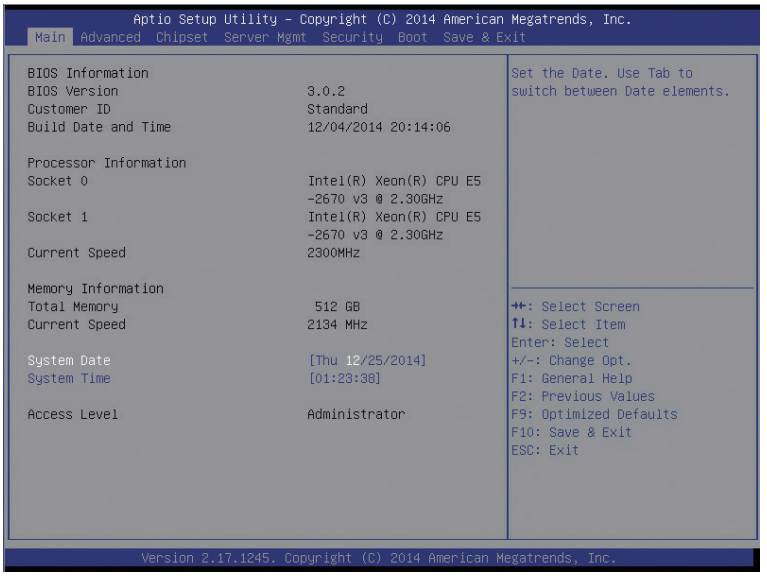
Note: Options in grey are not available. Options with symbol “” have a sub-menu.

Control key instruction table

Press Key	Function
<Esc>	Exit or return from sub-menu to main menu
< ← > or < → >	Select a menu
< ↑ > or < ↓ >	Move the cursor up or down
<Home> or <End>	Move the cursor to the top or bottom of the screen
<+> or <->	Select the previous or next numerical value or setting of the current one
<F1>	Help
<F2>	Restore to the last configuration
<F9>	Restore to default configuration
<F10>	Save and exit
<Enter>	Execute commands or select a sub-menu

8.2 BIOS Configuration

8.2.1 Main Menu



Main Menu Interface Instruction Table

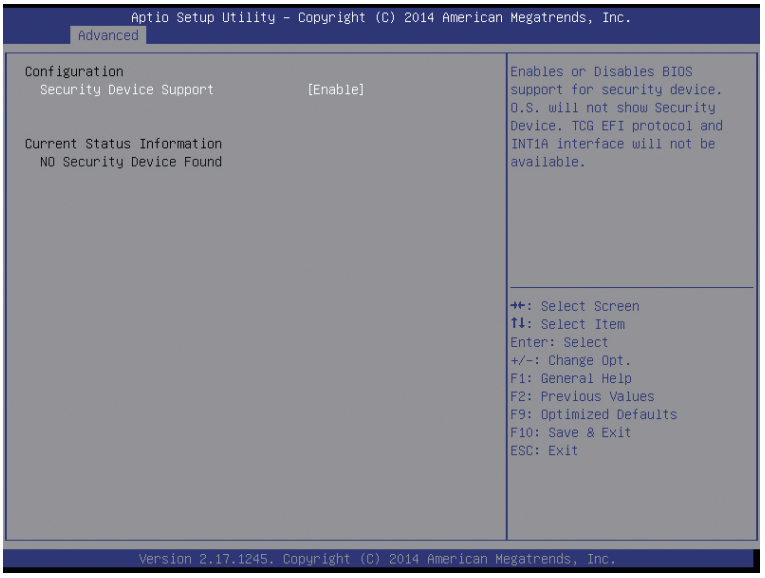
Interface Parameters	Function Description
BIOS Information	Displays current BIOS information.
Processor Information	Displays CPU information.
Memory Information	Displays memory volume and current speed.
System Date(Day mm/dd/yyyy) System Time (hh/mm/ss)	Displays system time.
Access Level	Current access level

8.2.2 Advanced Menu

Advanced Menu Interface Instruction Table

Interface Parameters	Function Description
Trusted Computing	Trustable computing configuration
ACPI Settings	Advanced configuration and power interface settings
AST2400 Super IO Configuration	AST2400 I/O chip parameter configuration
Serial Port Console Redirection	Serial port console redirection settings
PCI Subsystem Settings	PCI subsystem settings
Network Stack Configuration	Network stack configuration
CSM Configuration	CMS configuration
USB Configuration	USB configuration
Onboard LAN Configuration	Onboard network card configuration

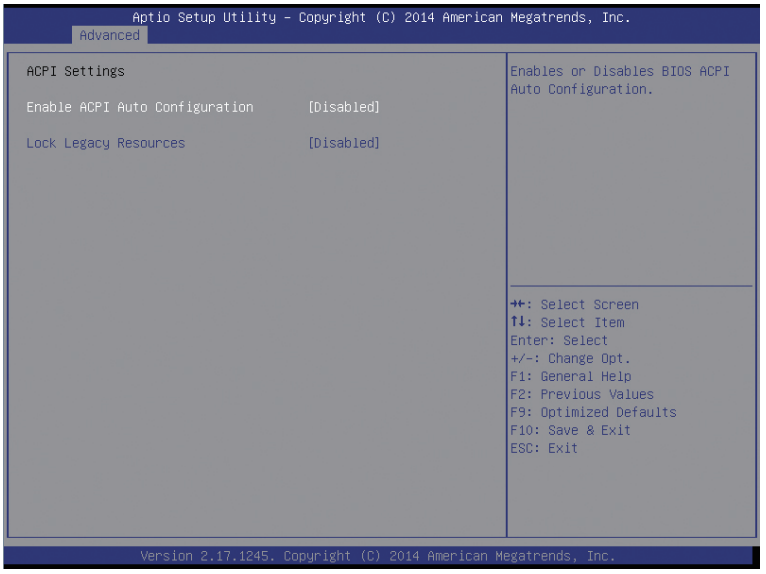
8.2.2.1 Trusted Computing



Trusted Computing Menu Interface Instruction Table

Interface Parameters	Function Description
Security Device Support	BIOS's security device support settings
Current Status Information	Status information of the current security device

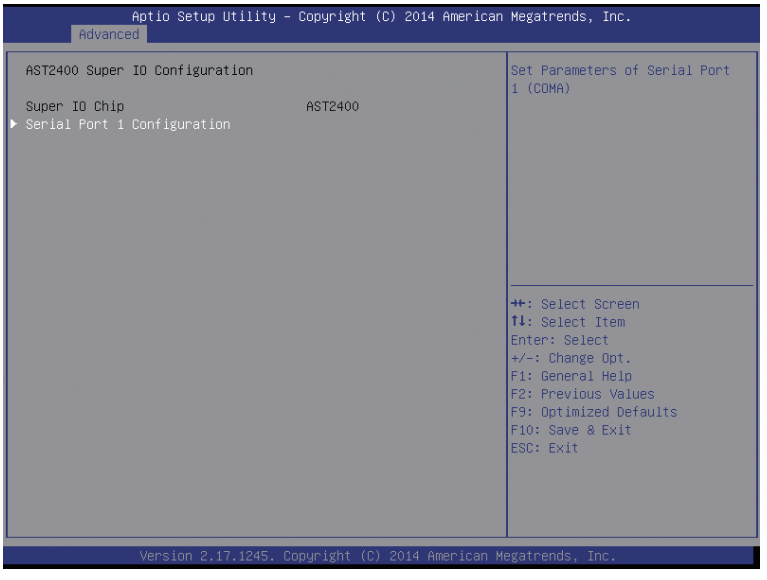
8.2.2.2 ACPI Settings



Advanced Menu Interface Instruction Table

Interface Parameters	Function Description
Enable ACPI Auto Configuration	To allow ACPI's automatic configuration.
Lock Legacy Resources	Locking legacy resources setting

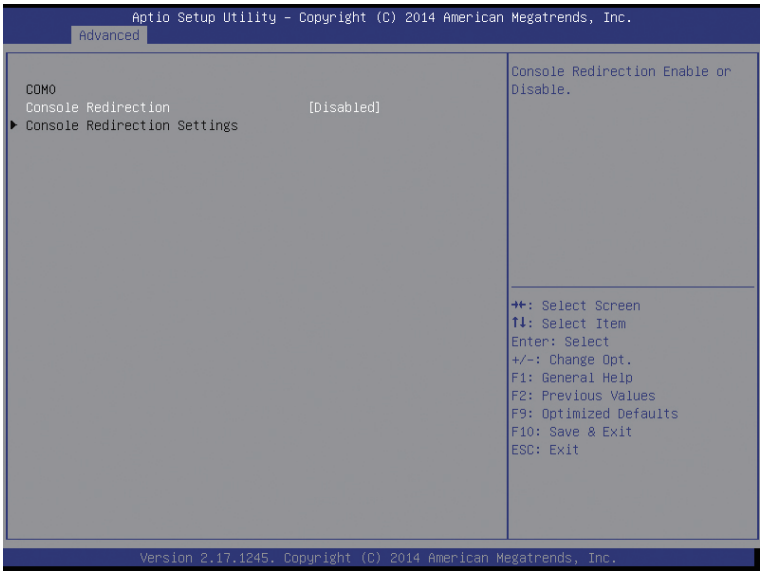
8.2.2.3 AST2400 Super IO Configuration



AST2400 Super IO Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Super IO Chip	The current I/0 chip
Serial Port 1 Configuration	Serial port 1 configuration

8.2.2.4 Serial Port Console Redirection

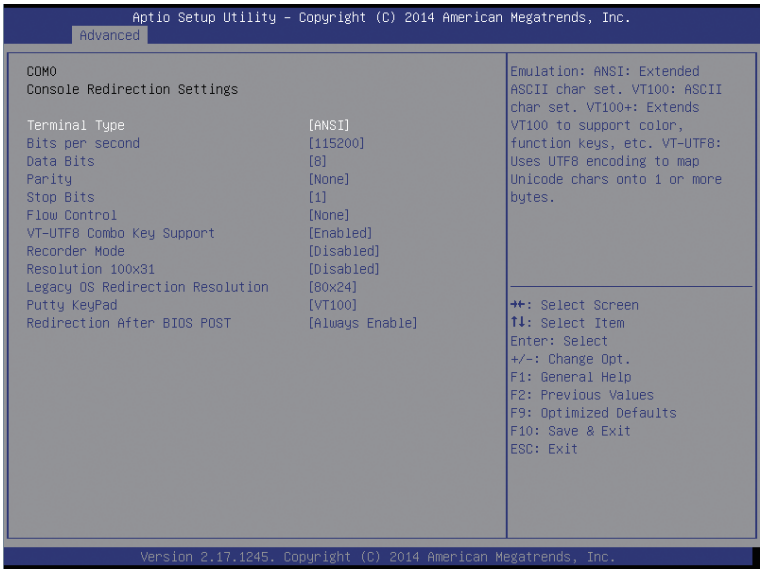


Serial Port Console Redirection Menu Interface Instruction Table

Interface Parameters	Function Description
Console Redirection	The console redirection switching settings
Console Redirection Settings	The console redirection parameter settings

8.2.2.4.1 Console Redirection Settings

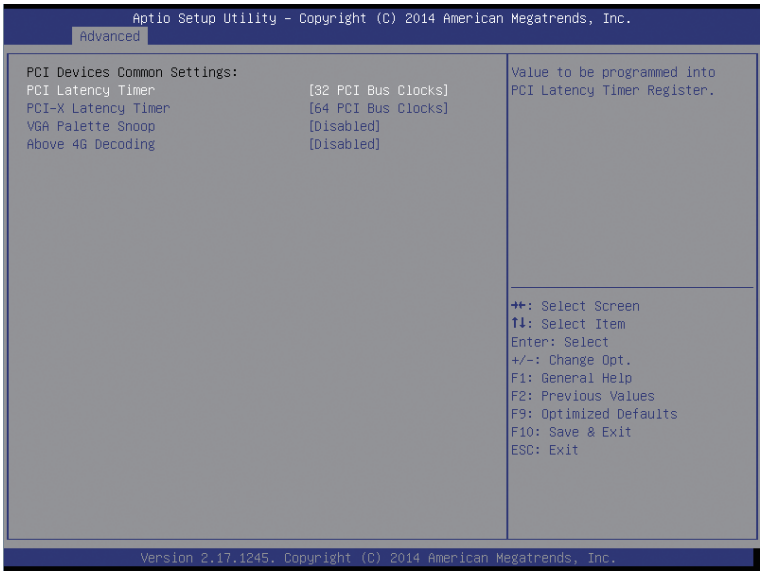
When the Console Redirection option is set to [Enabled], the Console Redirection Settings menu is started.



Console Redirection Settings Menu Interface Introduction

Interface Parameters	Function Description
Terminal Type	Terminal type settings
Bits per second	Baud rate settings
Data Bits	Data bits settings
Parity	Parity check settings
Stop Bits	Stop bits settings
Flow Control	Flow control settings
VT-UTF8 Combo Key Support	VT-UTF8 Combo key support settings
Recorder Mode	Recorder mode settings
Redirection 100×31	Expanded terminal resolution settings
Legacy OS Redirection Resolution	Terminal resolution settings of legacy OS
Putty KeyPad	Putty's functional keys and keyboard settings
Redirection After BIOS POST	Redirection after BIOS bootup settings

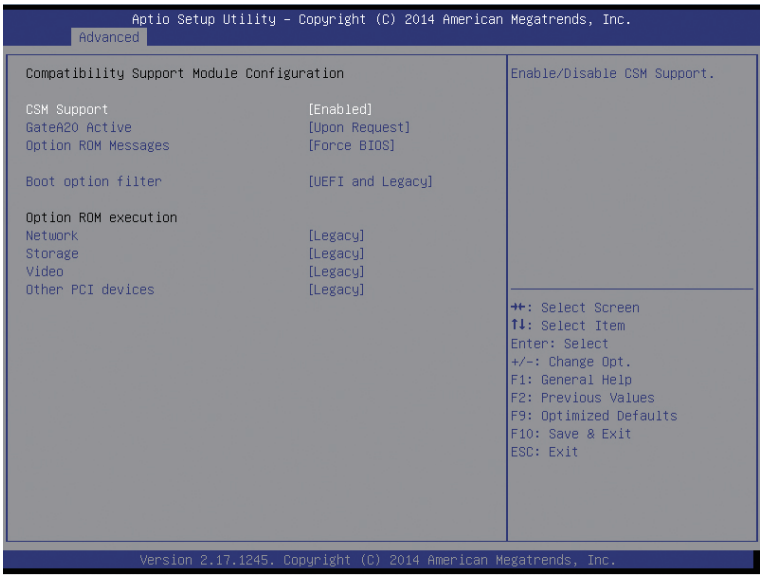
8.2.2.5 PCI Subsystem Settings



PCI Subsystem Settings Menu Interface Instruction Table

Interface Parameters	Function Description
PCI Latency Timer	PCI delay timer settings
PCI-X Latency Timer	PCI-X delay timer settings
VGA Palette Snoop	VGA color correction settings
Above 4G Decoding	64bit equipment's decoding settings on address space larger than 4G.

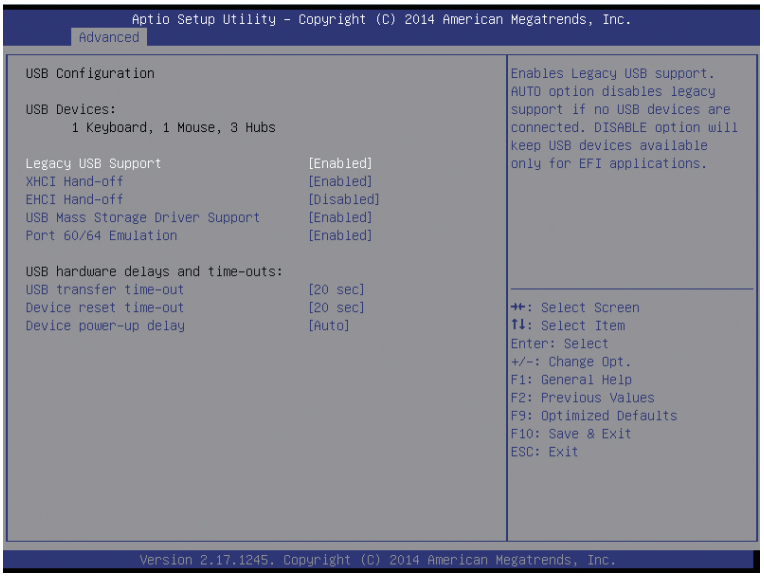
8.2.2.6 CSM Configuration



CSM Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
CSM Support	CSM support settings
GateA20 Active	A20 address line's control mode settings
Option Rom Message	Option Rom display mode settings
Boot option filter	Boot option filter settings
Option ROM execution	Option Rom execution method
Network	Network card Option Rom execution method settings
Storage	Storage device Option Rom execution method settings
Video	Video device Option Rom execution method settings
Other PCI devices	Other PCI devices Option Rom execution method settings

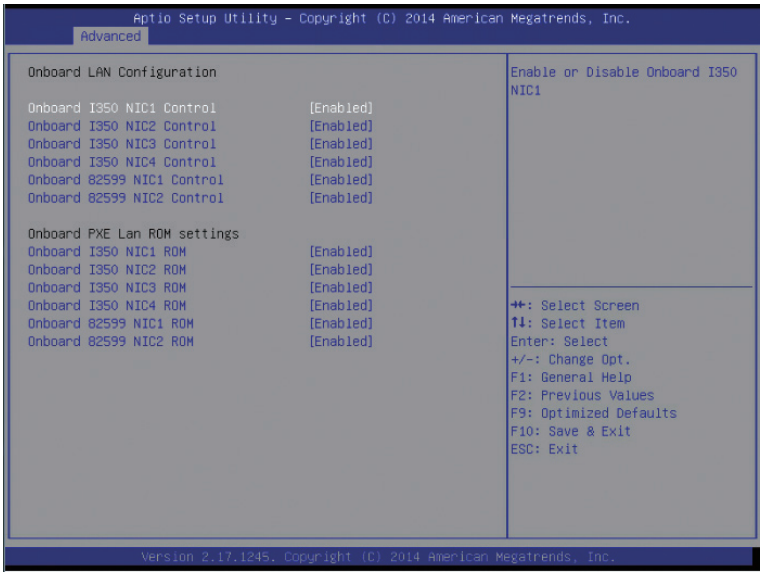
8.2.2.7 USB Configuration



USB Menu Interface Instruction Table

Interface Parameters	Function Description
Legacy USB Support	Legacy USB device settings
XHCI Hand-off	Expansible host controller interface settings, orienting to USB 3.0.
EHCI Hand-off	Enhanced host controller interface settings, orienting to USB2.0.
USB Mass Storage Driver Support	USB mass storage driver support settings
Port 60/64 Emulation	USB port 60/64h emulation settings

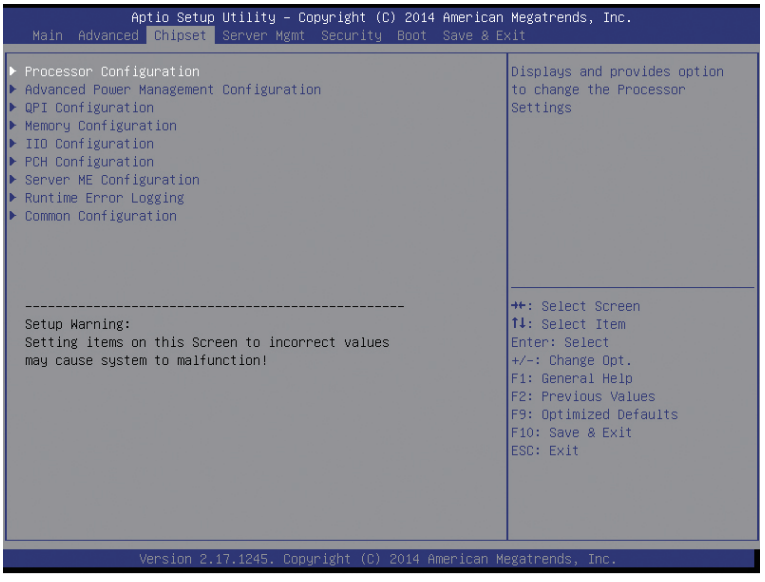
8.2.2.8 Onboard LAN Configuration



Onboard LAN Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Onbaord I350 NIC1 Control	Onboard network card NIC1 switching settings
---	---
Onboard PXE Lan ROM Settings	Onboard Lan PXE option switch settings
---	---

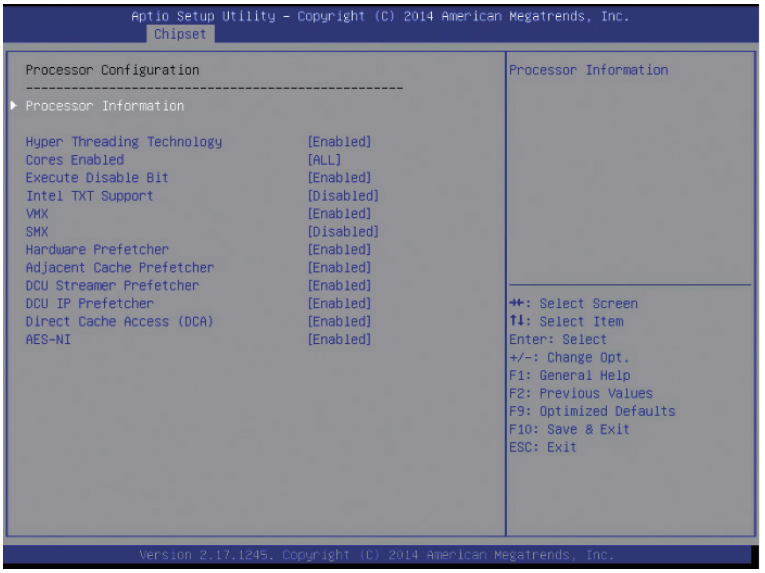
8.2.3 Chipset Menu



Chipset Menu Interface Instruction Table

Interface Parameters	Function Description
Processor Configuration	Processor configuration
Advanced Power Management Configuration	Advanced power management configuration
QPI Configuration	QPI configuration
Memory Configuration	Memory configuration
IIO Configuration	IIO configuration
PCH Configuration	PCH configuration
Server ME Configuration	Server ME configuration
Runtime Error Logging	Runtime error log configuration
Common Configuration	Common options configuration

8.2.3.1 Processor Configuration

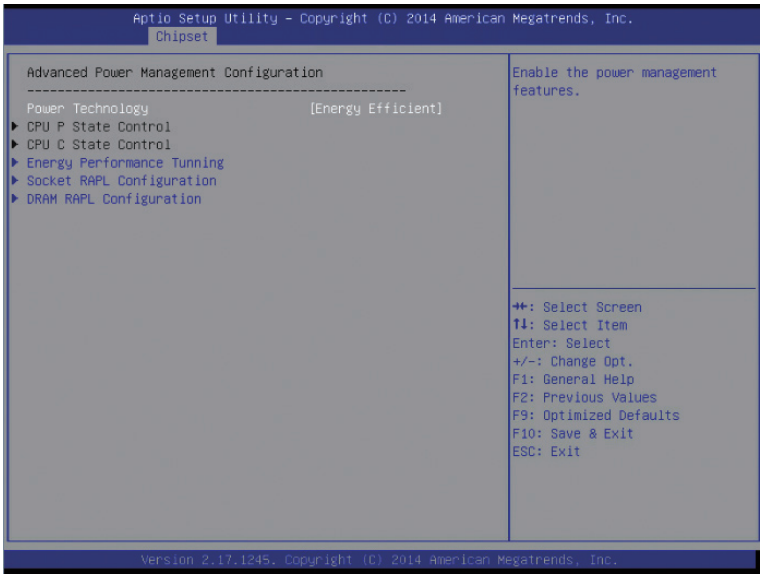


Processor Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Processor Information	Processor information sub-menu, and processor detailed information.
Hyper Threading Technology	Hyper threading technology settings
Core Enabled	CPU core number settings
Execute Disable Bit	Virus protecting technology settings
Intel TXT Support	Intel trustable execution technology support settings

VMX	Intel hardware-assisted virtualization technology settings
SMX	Safe mode expansion settings
Hardware Prefetcher	Hardware prefetch settings
Adjacent Cache Prefetch	Adjacent high speed cache prefetch settings
DCU Streamer Prefetcher	DCU Streamer prefetch settings
DCU IP Prefectcher	DCU IP prefetch settings
Direct Cache Access (DCA)	Direct high speed cache access settings
AES-NI	Intel AES-NI advanced encryption standard settings

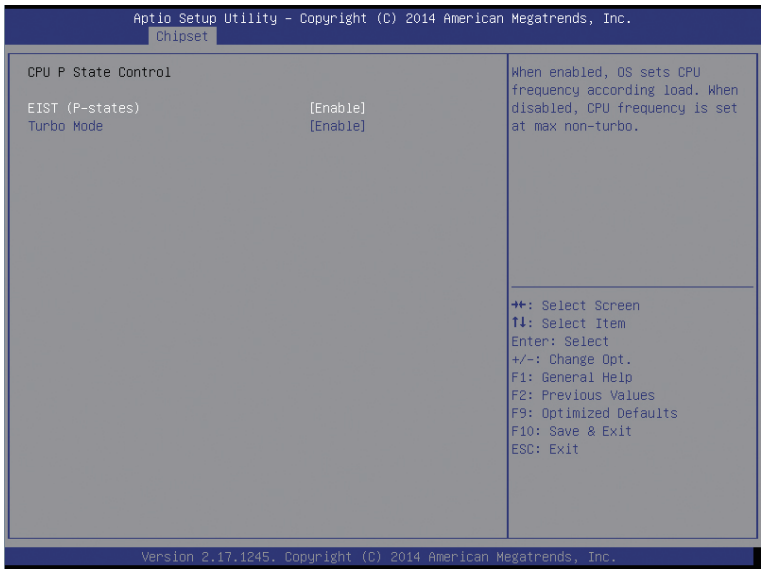
8.2.3.2 Advanced Power Management Configuration



Advanced Power Management Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Power Technology	To set power management
CPU P State Control	CPU P State control sets sub-menu, and starts when Power Technology is set to [Custom].
CPU C State Control	CPU C State control sets sub-menu, and starts when Power Technology is set to [Custom].
Energy Performance Tunning	CPU performance and energy tuning sub-menu
Socket RAPL Configuration	Turbo power limit settings sub-menu, and EIST option requires to be set to [Enabled].
DRAM RAPL Configuration	DRAM RAPL configuration sub-menu

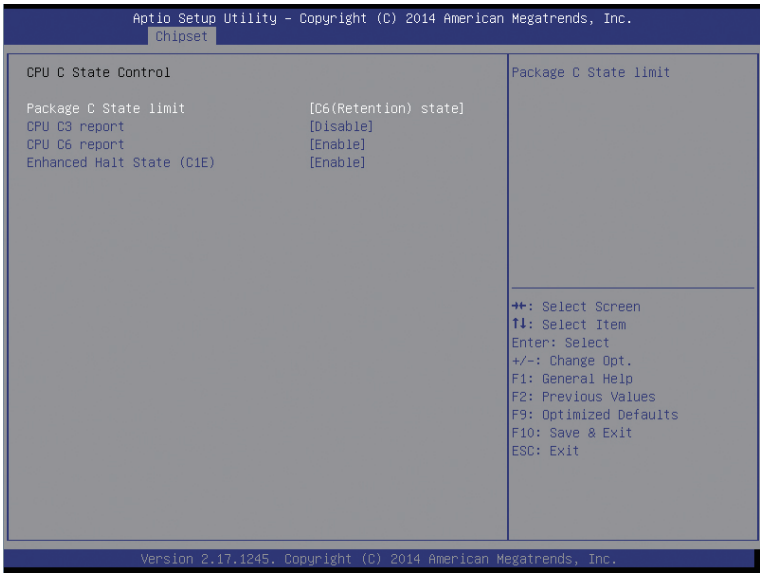
1) CPU P State Control



CPU P State Control Menu Interface Instruction Table

Interface Parameters	Function Description
EIST(P-states)	EIST switching settings
Turbo Mode	Turbo mode switching settings

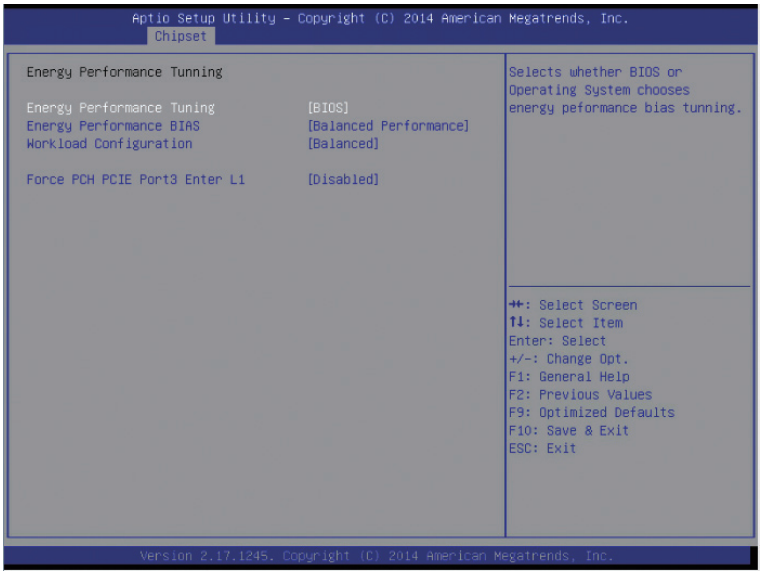
2) CPU C State Control



CPU C State Control Menu Interface Instruction Table

Interface Parameters	Function Description
Package C State limit	C state limit settings
CPU C3 report	C3 switching settings
CPU C6 report	C6 switching settings
Enhanced Halt State (C1E)	C1E switching settings

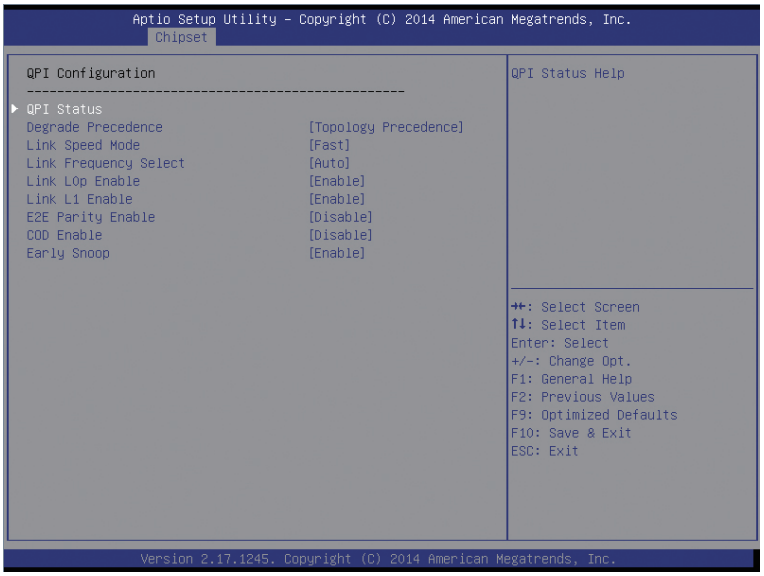
3) Energy Performance Tuning



Energy Performance Tunning Menu Interface Instruction Table

Interface Parameters	Function Description
Energy Performance Tunning	To select BIOS or OS to carry out energy performance tuning
Energy PerformanceBIAS	Energy performance management settings
Workload Configuration	Workload configuration
Force PCH PCIE Port3 Enter L1	PCH PCIE Port 3 settings

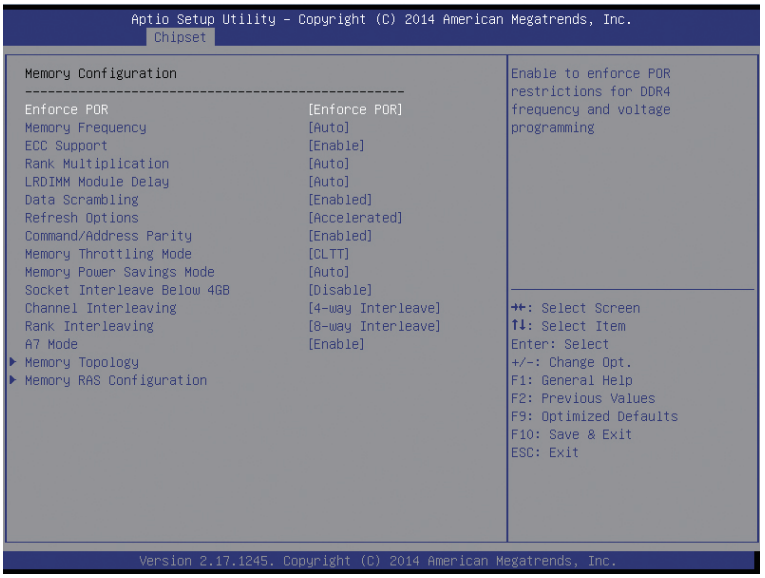
8.2.3.3 QPI Configuration



QPI Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
QPI Satus	QPI status display sub-menu
Degrade Precedence	To degrade to priority settings.
Link Speed Mode	Link speed mode settings
Link Frequency Select	Link frequency selection settings
Link L0p Enable	Link power saving mode settings, which is made when bandwidth is half of the peak bandwidth..
Link L1 Enable	In the case that system is extremely idle, turn off QPI Link.
E2E Parity Enable	E2E parity check enabling settings
COD Enable	COD enabling settings
Early Snoop	Early Snoop settings

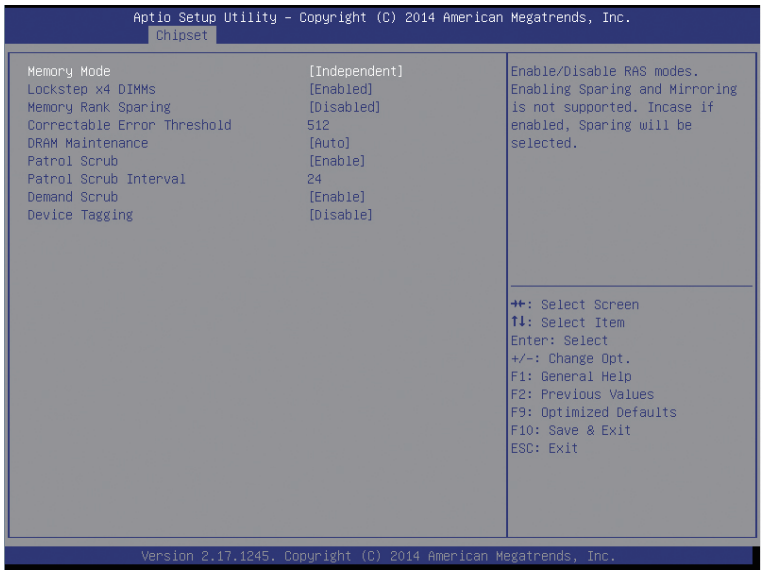
8.2.3.4 Memory Configuration



Memory Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Enforce POR	To execute POR settings
Memory Frequency	Memory frequency settings
ECC Support	ECC support settings
Rank Multiplication	Rank multiplication settings
LRDIMM Module Delay	LRDIMM module delay settings
Data Scrambling	Data scrambling settings
Refresh Options	Refresh mode settings
Command/Address Parity	DDR4 command/address parity check settings
Memory Throttling Mode	Memory thermal throttling mode settings
Memory Power Savings Mode	Memory power saving mode settings
Socket Interleave Below 4GB	Processor Interleaving settings on address space below 4G.
Channel Interleaving	Channel interleaving settings
Rank Interleaving	Rank interleaving settings
A7 Mode	A7 mode settings
Memory Topology	Memory Topology
Memory RAS Configuration	Memory RAS configuration sub-menu

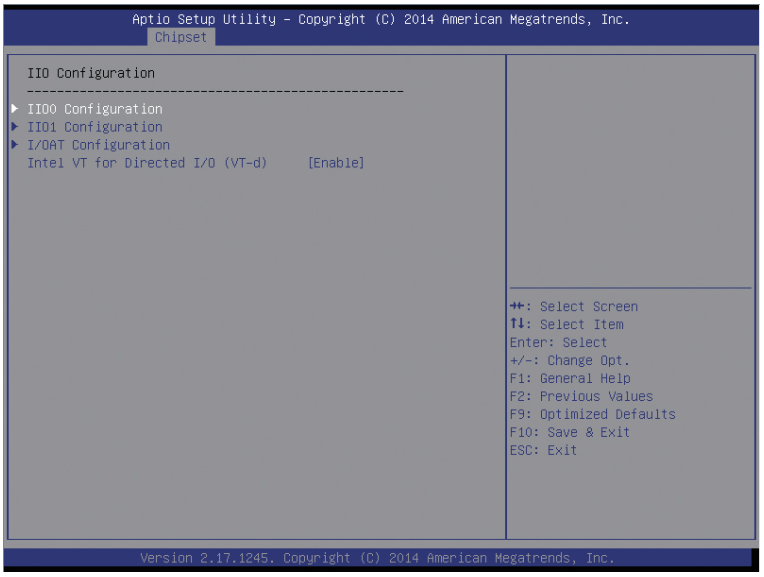
1) Memory RAS Configuration



Memory RAS Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Memory Mode	As for memory mode configuration, there’re 3 options of [Independent], [Mirroring] and [Lock Step].
Lockstep X4 DIMMs	X4 DIMMs’ Lockstep switching settings
Memory Rank Sparing	Memory Rank hot sparing settings
Correctable Error Threshold	Correctable error threshold settings
DRAM Maintenance	DRAM maintenance settings
Patrol Scrub	Patrol Scrub settings
Patrol Scrub Interval	Patrol Scrub interleaving settings
Demand Scrub	Demand Scrub settings
Device Tagging	Device tagging settings

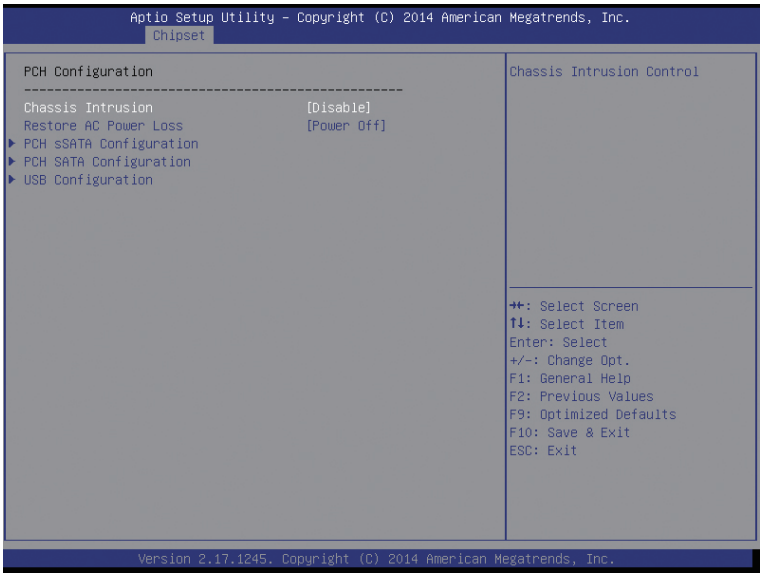
8.2.3.5 IIO Configuration



IIO Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
IIO0 Configuration	IIO0 configuration sub-menu, used to set link speed of PCIE device of CPU0.
IIO1 Configuration	IIO1 configuration sub-menu, used to set link speed of PCIE device of CPU1.
I/OAT Configuration	Intel I/O acceleration technology configuration sub-menu.
Intel VT for Directed I/O (VT-d)	Intel VT-d switching settings

8.2.3.6 PCH Configuration

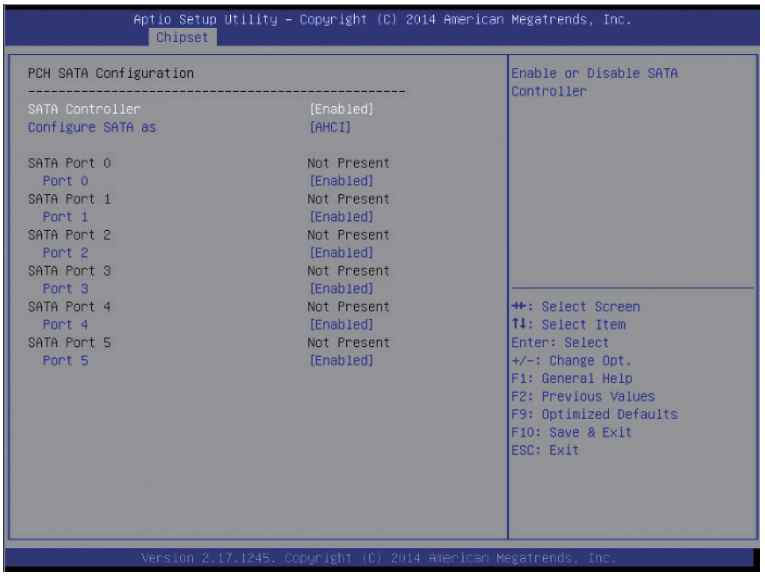


PCH Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Chassis Intrusion	Chassis intrusion switching settings
Restore AC Power Loss	AC power-on power status settings
PCH sSATA Configuration	PCH sSATA configuration sub-menu
PCH SATA Configuration	PCH SATA configuration sub-menu
USB Configuration	USB configuration sub-menu

1) PCH SATA Configuration

Taking PCH SATA Configuration menu as an example, introduce onboard SATA port, and SATA hard disk configuration, while PCH Ssata Configuration is similar to this, which will not be repeated here.



PCH SATA Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
SATA Controller	SATA controller switching settings
Configure SATA as	As for SATA mode configuration, there’re two modes of [AHCI] and [RAID] for setting.
SATA Port 0/1/2/3/4/5	Information of hard disks connected to onboard SATA port 0/1/2/3/4/5.

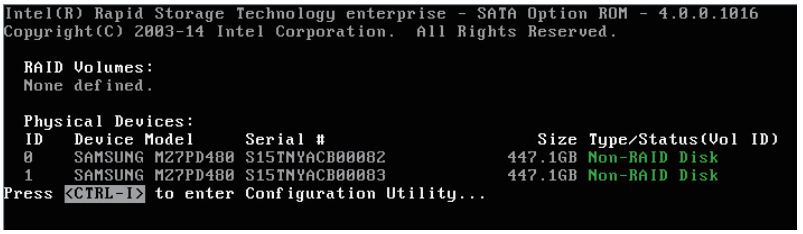
SATA RAID mode configuration.

a. Configure SATA as an option set to [RAID], press F10 to save settings, and system restarts.

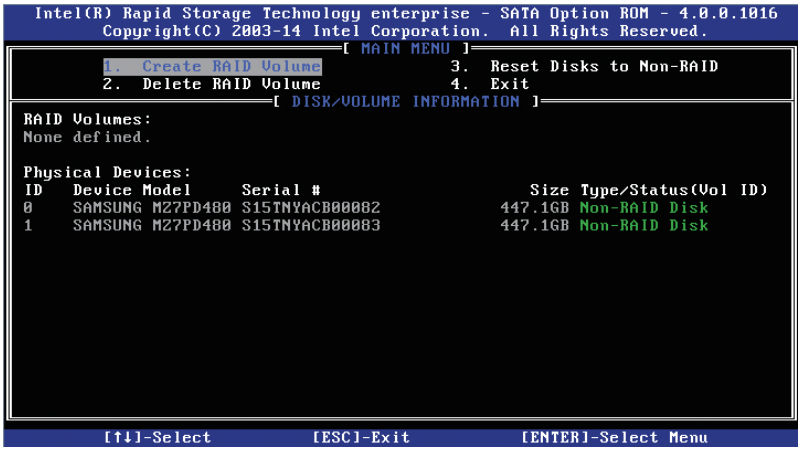
b. During system startup, the following content will display on the screen:

Press<CTRL-I> to enter Configuration Utility…

Meanwhile, press [Ctrl] and [I] synchronously to enter SATA RAID configuration interface, and one example is as shown in the following figure.



c. After entering SATA RAID configuration interface, menu list information, information of hard disk connecting to SATA controller (hard disk ID number, hard disk type, hard disk capacity as well as whether hard disk is a volume member etc.), existed RAID volume information (including volume ID number, name, RAID level, capacity, status, whether information bootable) will all display.



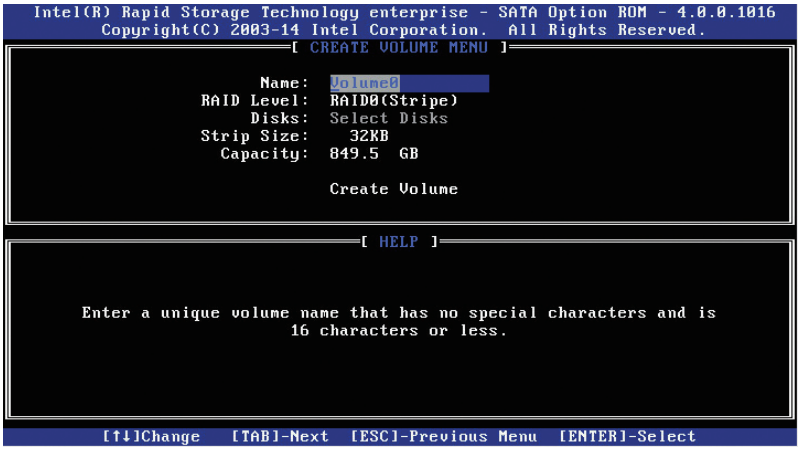
Press Key	Description
↑ ↓	Used to move cursor in different menus or to change values of menu options.
TAB	To select the next menu setting option.
Enter	To select a menu.
Esc	To exit menu or return to previous menu from sub-menu.

d.SATA RAID configuration interface has the following 4 executable menus:

Create RAID Volume	To create an RAID volume.
Delete RAID Volume	To delete an existed RAID volume.
Reset Disks to Non-RAID	To reset hard disks in RAID volume, and to restore them to non-RAID status.
Exit	To exit SATA Host RAID configuration interface.

a)Create RAID Volume Menu

After entering SATA RAID configuration interface, you could use up and down arrows to select this menu, then press [Enter] to create an RAID volume menu, or directly enter the number before the menu to create an RAID volume menu, for other menu operations are similar, so it will not be repeated here. A Create RAID Volume instance is as shown in the following figure:



System displays the following menu options:

Name	Please enter a volume label name less than 16 characters without containing any special character.
RAID Level	Please select RAID volume level, if no volume has been created at present, there're four volume levels of RAID0(Stripe), RAID1(Mirror), RAID10(RAID0+1) and RAID5(Parity)for selection, please select volume level according to actual requirements. RAID0: This RAID volume is allowed to be made on 2 or above hard disks. RAID1: This RAID volume is allowed to be made on 2 hard disks. RAID10: This RAID volume is allowed to be made on 4 hard disks, which is only available when hard disk quantity is 4 or above. RAID5 (Parity): This RAID volume is allowed to be made on 3 or above hard disks.
Disks	Select hard disks to make RAID volume, press enter after this option is selected, system will enter hard disk selection interface, please select hard disks to make RAID volume using space key accordingly, and then press enter to return to volume create menu.
Strip Size	Please select strip size, only RAID0 and RAID5 volumes could select this option.
Capacity	Set volume capacity, and the default value is the max. volume capacity.

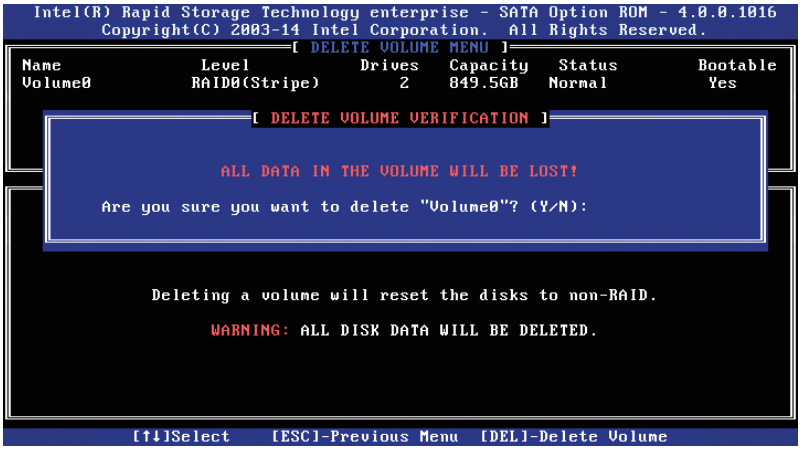
After completing the above configuration, please select [Create Volume], and press enter, system prompts: "WARNING:ALL DATA ON THE SELECTED DISKS WILL BE LOST. Are you sure you want to create this volume ?(Y/N):".

To create an RAID volume, please enter "Y", a volume will be created, and all data on the selected disk will be lost.

Otherwise, please enter "N", to exit volume creation.

Here we enter “Y” to create an RAID volume, after creation completed, return to SATA Host RAID configuration main interface, and the created RAID volume will display in RAID volume.

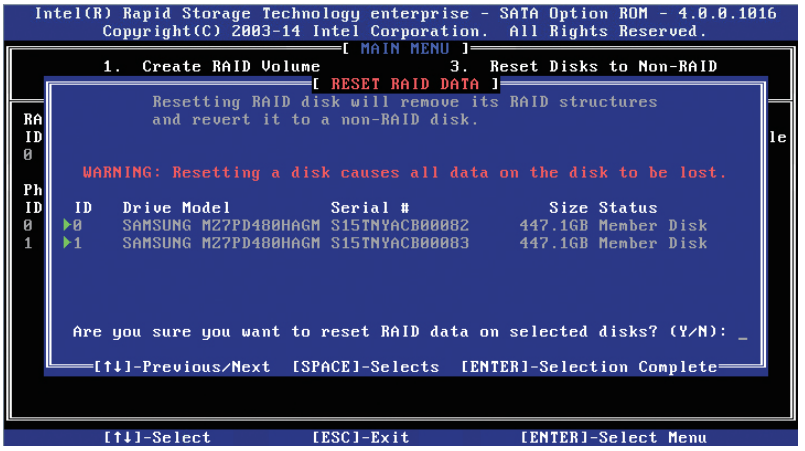
b) Delete RAID Volume Menu



After entering Delete RAID Volume menu, system prompts: “Deleting a volume will reset the disks to non-RAID. Warning: ALL DISKS DATA WILL BE DELETED.”.

To delete an RAID volume, please press [DEL], system prompts: “ALL DATA IN THE VOLUME WILL BE LOST!” again. Are you sure you want to delete “Volume*”?(Y/N):”, to delete this RAID volume, please enter “Y”, to cancel deletion of this RAID volume, please enter “N”.

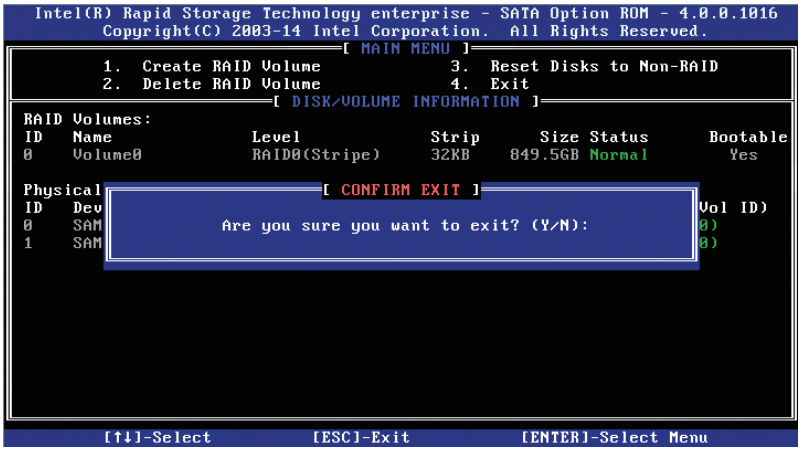
c)Reset Disks to Non-RAID Menu



After entering Reset Disks to Non-RAID menu, system will display all hard disks in RAID volume, please select the hard disk to reset using the space key according to actual demand, and then press enter to reset the hard disk, system prompts “Are

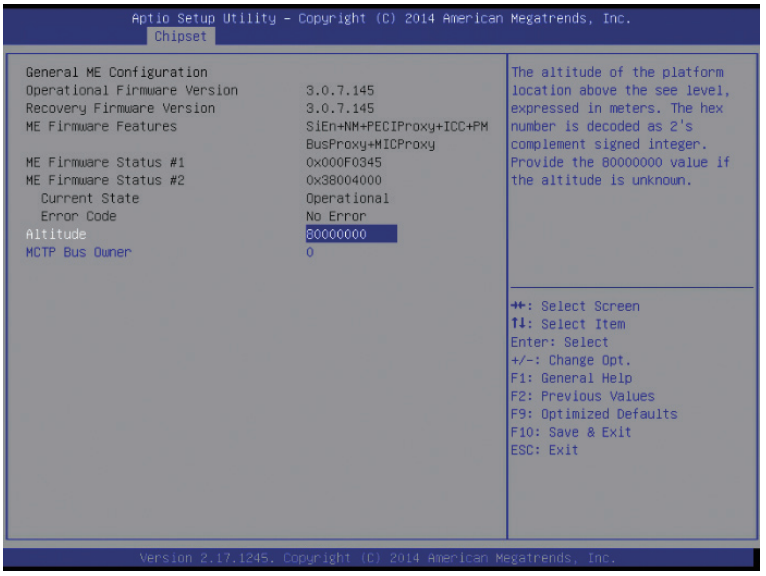
you sure you want to reset RAID data on selected disks? (Y/N)" again, enter "Y" or "N" according to prompt. It is to be noted that, during resetting hard disk, data on this disk will all be lost, meanwhile, this disk will not belong to RAID volume any more.

d) Exit Menu



System prompts: " Are you sure you want to exit?(Y/N):", enter "Y", to exit SAS RAID configuration interface, enter "N", to cancel exit operation.

8.2.3.7 Server ME Configuration

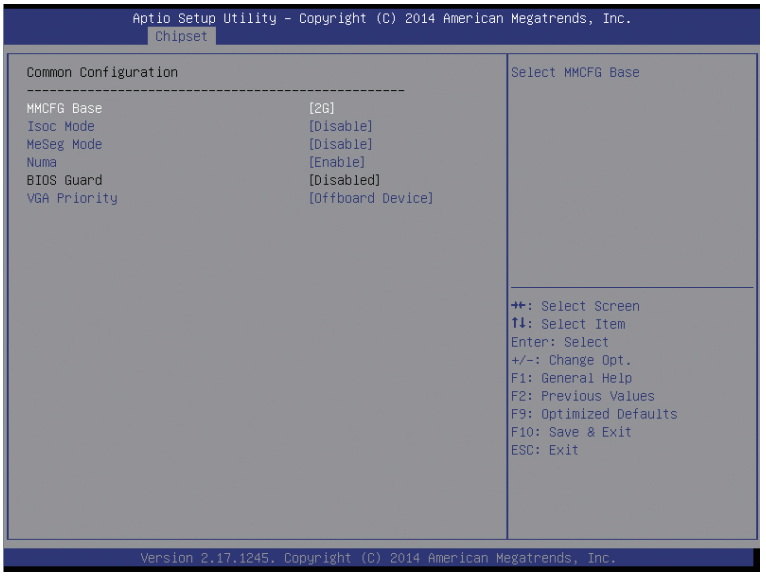


Server ME Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Operational Firmware Version	Operational ME firmware version
Recovery Firmware Version	Recovery ME firmware version
ME Firmware Features	ME firmware features

ME Firmware Status #1	ME FW status value #1
ME Firmware Status #2	ME FW status value #2
Current State	Current state
Error code	ME FW error code

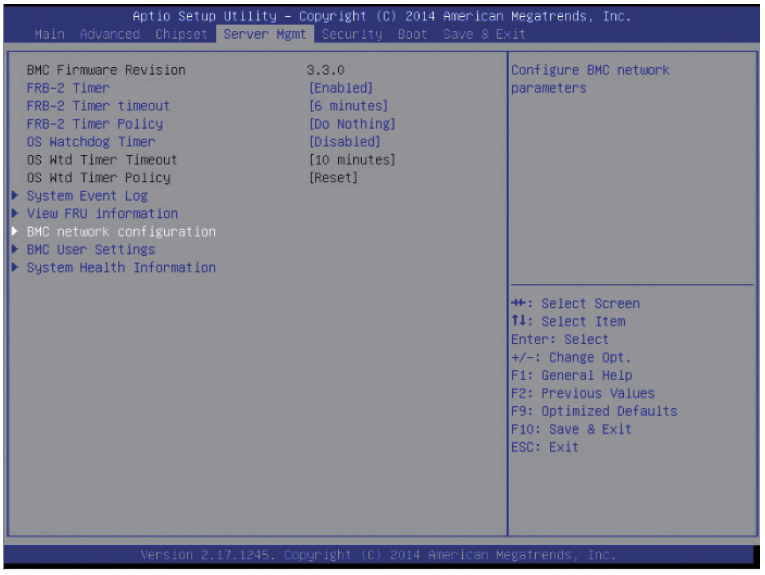
8.2.3.8 Common Configuration



Common Configuration Menu Interface Instruction Table

Interface Parameters	Function Description
MMCFG Base	MMCFG base address settings
Isoc Mode	Isoc mode settings
MeSeg Mode	MeSeg mode settings
Numa	Numa switching settings
BIOS Guard	BIOS guarding settings
VGA Priority	Integrated video card and external video card priority settings.

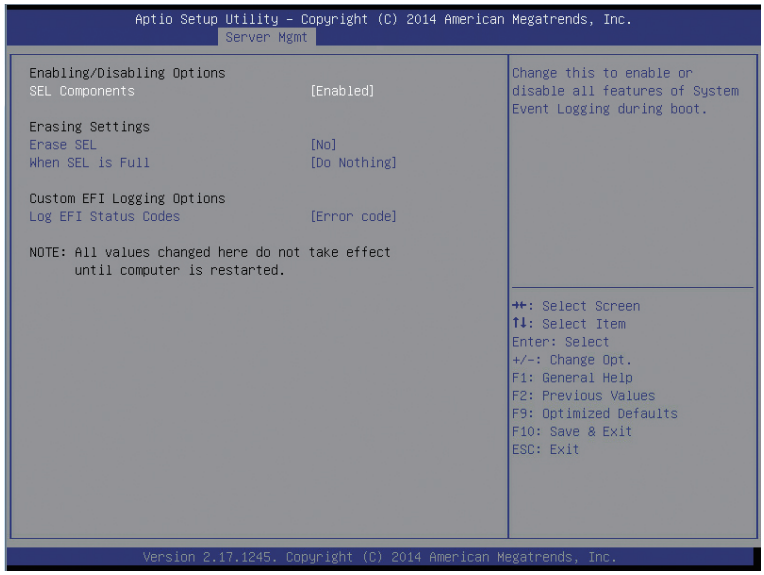
8.2.4 Server Mgmt



Server Mgmt Menu Interface Instruction Table

Interface Parameters	Function Description
BMC Firmware Version	BMC firmware version
FRB-2 TImer	FRB-2 clock settings
FRB-2 Timer timeout	FRB-2 clock expiration time settings
FRB-2 Timer policy	Policy settings after FRB-2 clock expiration
OS Watchdog Timer	System watchdog clock settings
OS Wtd Timer timeout	OS watchdog clock expiration time settings
OS Wtd Timer policy	Policy settings after OS watchdog clock expiration
BMC network configuration	BMC network settings
System Event Log	System event log sub-menu
View FRU information	To view FRU information sub-menu.
BMC network configuration	BMC network configuration sub-menu
BMC User Settings	BMC user settings sub-menu
SystemHealth Information	System health information sub-menu

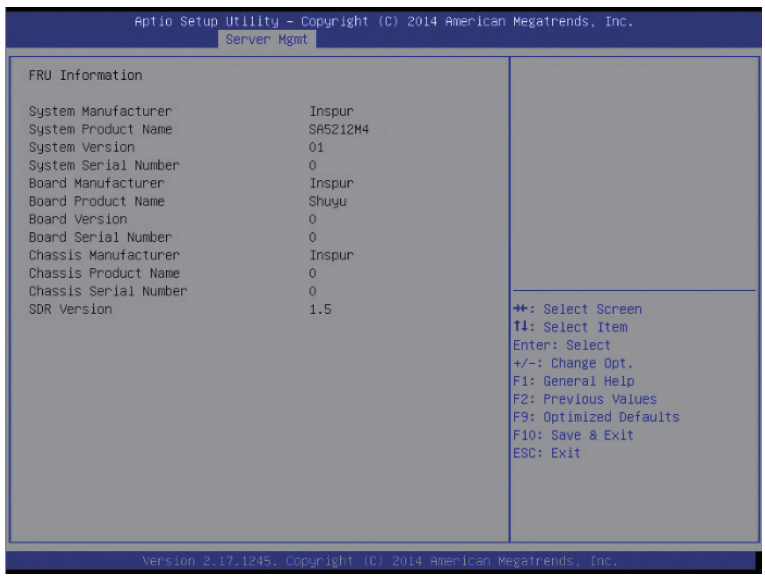
8.2.4.1 System Event Log



System Event log Menu Interface Instruction Table

Interface Parameters	Function Description
SEL Components	System event log switching settings during startup
Erase SEL	System event log erasing settings
When SEL is Full	Operation settings after system event log is full.
Log EFI Staus Codes	Logging EFI status codes settings

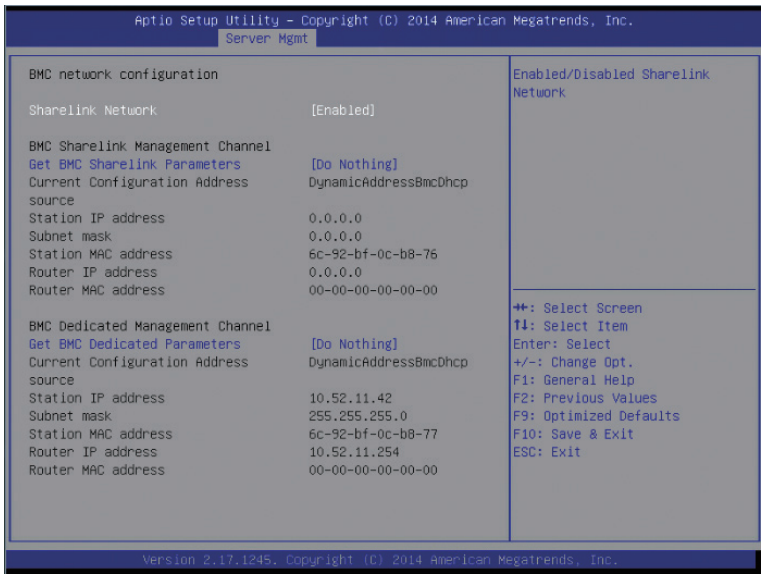
8.2.4.2 View FRU Information



The View FRU Information menu lists BMC FRU information read by BIOS, and BIOS will interact with BMC at each system restart, keeping synchronous update of

FRU information.

8.2.4.3 BMC network configuration

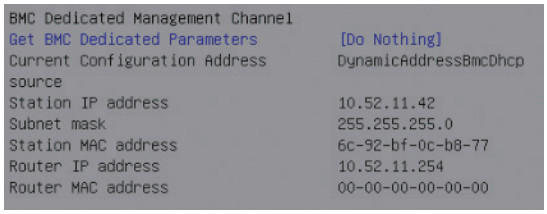


BMC network configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Configuration Address Source	Configuration BMC Network Status Parameter: It could set static IPs, and obtain IPs dynamically, while [Unspecified] will not modify BMC network parameters.
Current Configuration Address	Current configuration address status
Station IP adderess	Port IP address
Subnet mask	Subnet mask
Station MAC address	Port MAC address
Router IP address	Router IP address
Router MAC address	Router MAC address

BMC network configuration on BIOS setup interface, is to configure BMC management network via BIOS.

1) If no operation is carried out in BIOS, by default, it will read BMC, and configure its Dedicated management port and shareline management port, taking Dedicated management port as an example, the BIOS reading configuration is as shown in the following figure:

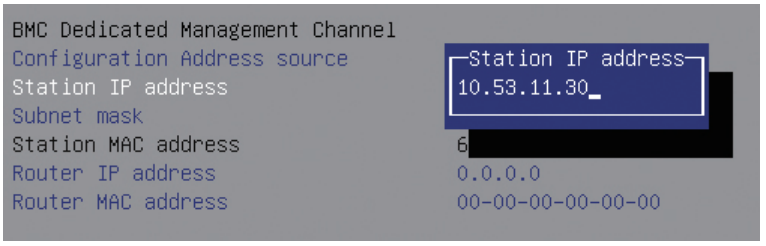


2) BIOS could carry out Dynamic and Static network settings on BMC Dedicated management port and sharelink management port, taking Dedicated management port as an example, to set a BMC Static IP as follows:

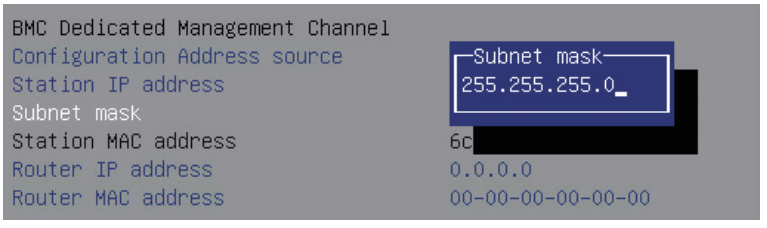
a. Set the Get BMC Dedicated Parameters option to【Manual】

b. Set the Configuration Address source option to【Static】

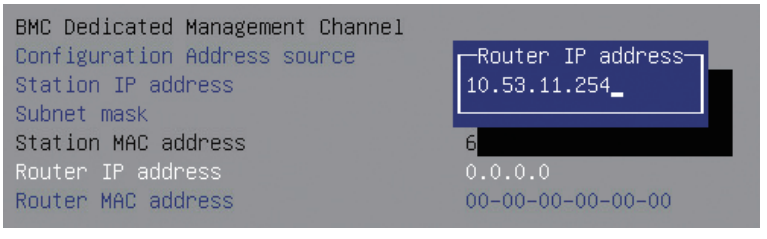
c. Select the Station IP Address option, and press Enter, to pop up the Station IP Address window, enter the Static IP to set manually, after configuration is completed, press Enter to confirm, and an example is as shown in the following figure:



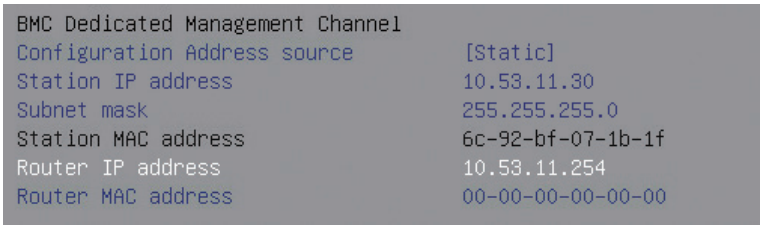
d. Select the Subnet Mask option, and press Enter, to pop up the Subnet Mask box, enter the Subnet Mask to set manually, after configuration is completed, press Enter to confirm, and an example is as shown in the following figure:



e. Select the Router IP Address option, and press Enter, to pop up the Router IP Address box, enter the Router IP Address to set manually, after configuration is completed, press Enter to confirm, and an example is as shown in the following figure:



f. When Static IP configuration is done, press F10 to save and restart, BIOS will carry out Static IP configuration for BMC.

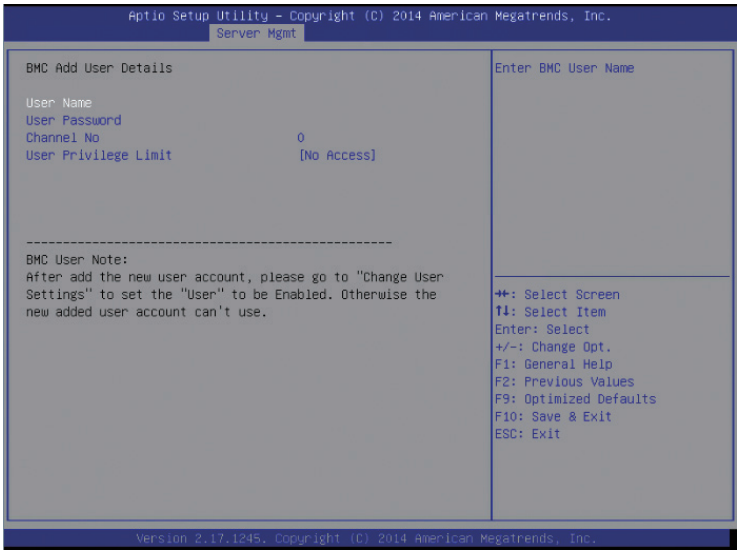


8.2.4.4 BMC User Settings

BMC User Settings Menu Interface Instruction Table

Interface Parameters	Function Description
Add User	The sub-menu for adding users.
Delete User	The sub-menu for deleting users.
Change User Settings	The sub-menu for modify user settings.

1) Add User operation

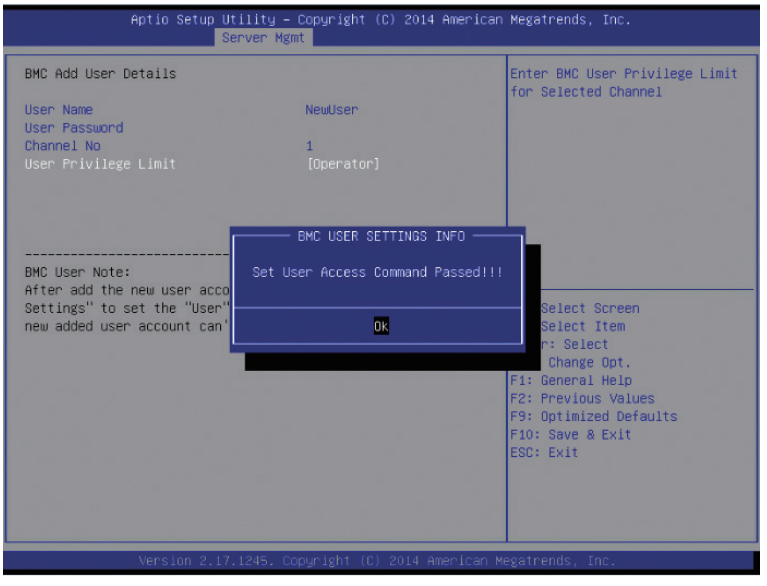


a. Select the User Name option, and press Enter to pop up the User Name box, enter the user name to set manually, after configuration is completed, press Enter to confirm.

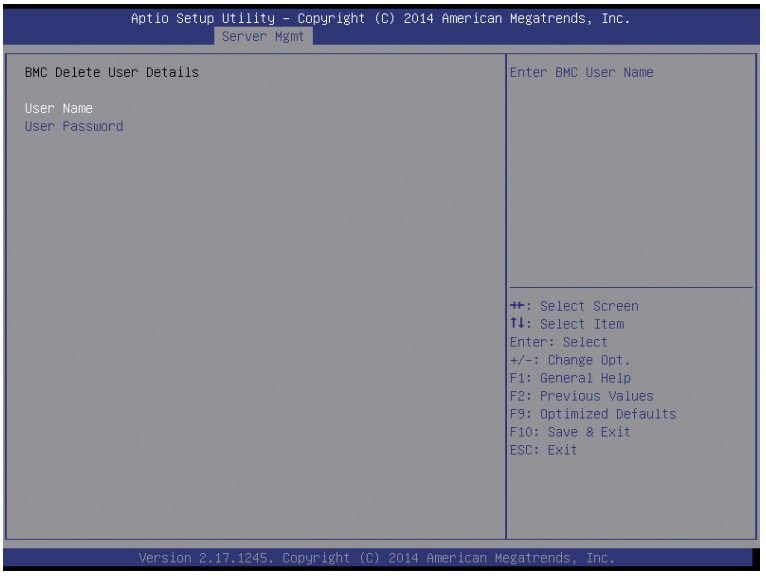
b. Select the User Password option, and press Enter to pop up the User Password box, enter the user password to set manually, after configuration is completed, press Enter to confirm.

c. Channel NO is set to 1 or 8.

d. The User Privilege Limit option, sets privilege for new user, after configuration is completed, press Enter, to pop up the BMC USER SETTINGS INFO box, when system prompts “Set User Access Command Passed”, press Enter and then OK to confirm, the new user is added successfully, and the example is as shown in the following figure:



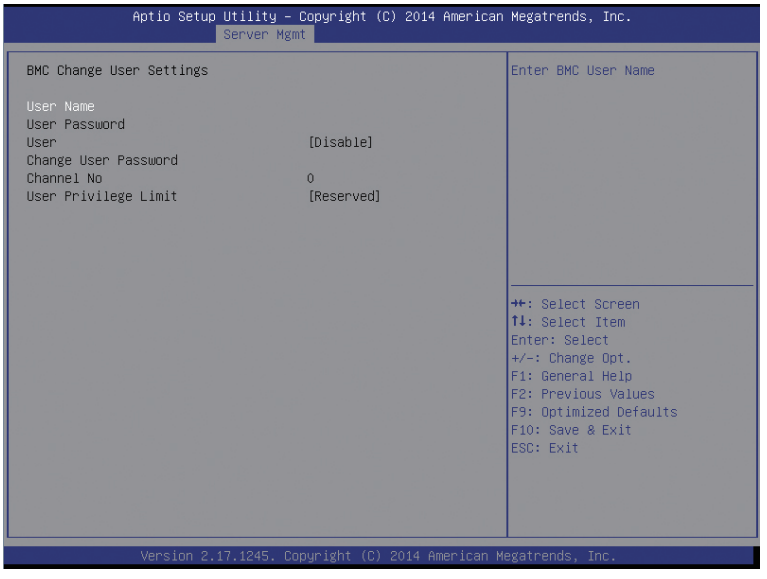
2) Delete User operation



a. Select the User Name option, and press Enter to pop up the User Name box, manually enter the user name to delete, after configuration is completed, press Enter to confirm.

b. Select the User Password option, and press Enter to pop up the User Password box, manually enter the user password to delete, after that, press Enter to confirm, and the BMC USER SETTINGS INFO prompt will pop up, indicating user password deletion is done or not.

3) Change User Settings



a. Select the User Name option, and press Enter to pop up the User Name box, manually enter the user name to modify, after configuration is completed, press Enter to confirm.

b. Select the User Password option, and press Enter to pop up the User Password box, manually enter the user password, and press Enter to confirm.

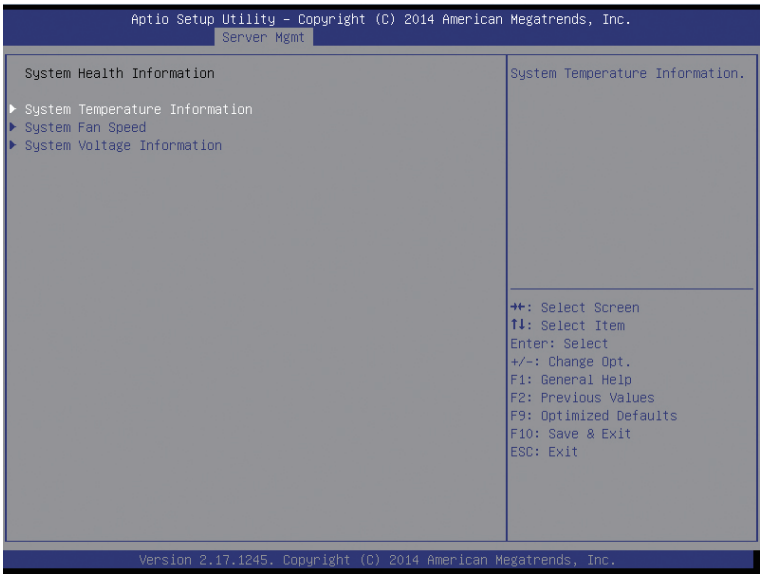
c. Select the User option, and set to [Enable] or [Disable].

d. Select the Change User Password option, to change user password.

e. Channel NO is set to 1 or 8.

f. The User Privilege Limit option, could change user's privilege, after configuration is completed, press Enter, to pop up the BMC USER SETTINGS INFO prompt, when system prompts "Set User Access Command Passed", press Enter and then OK to confirm, the user settings information is changed successfully.

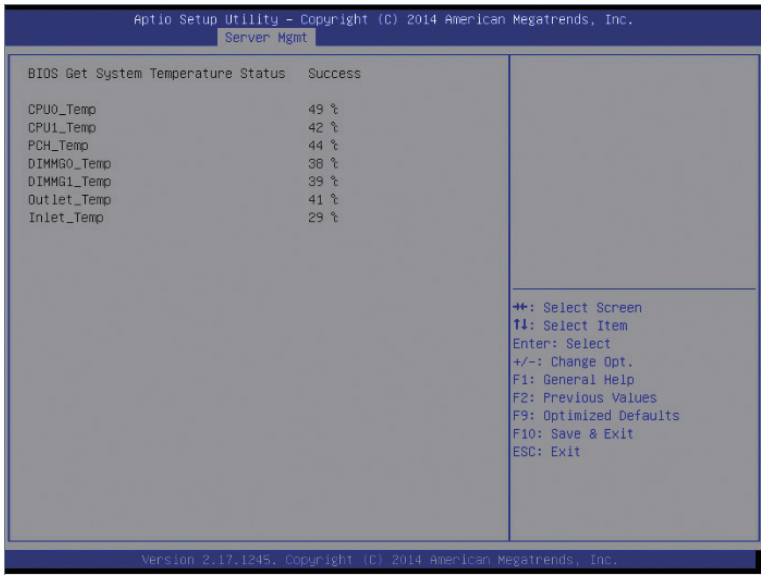
8.2.4.5 System Health Information



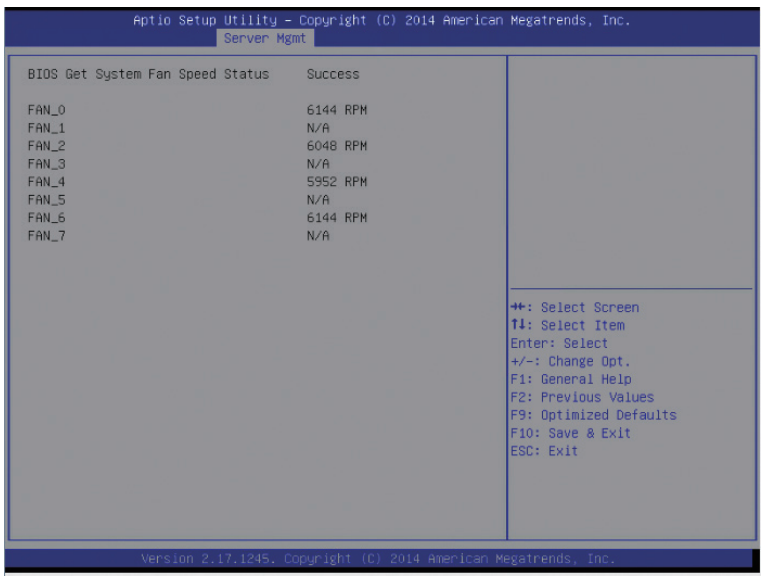
System Health Information Menu Interface Instruction Table

Interface Parameters	Function Description
System Temperature Information	System temperature information sub-menu
System Fan Speed	System fan speed sub-menu
System Voltage Information	System voltage information sub-menu

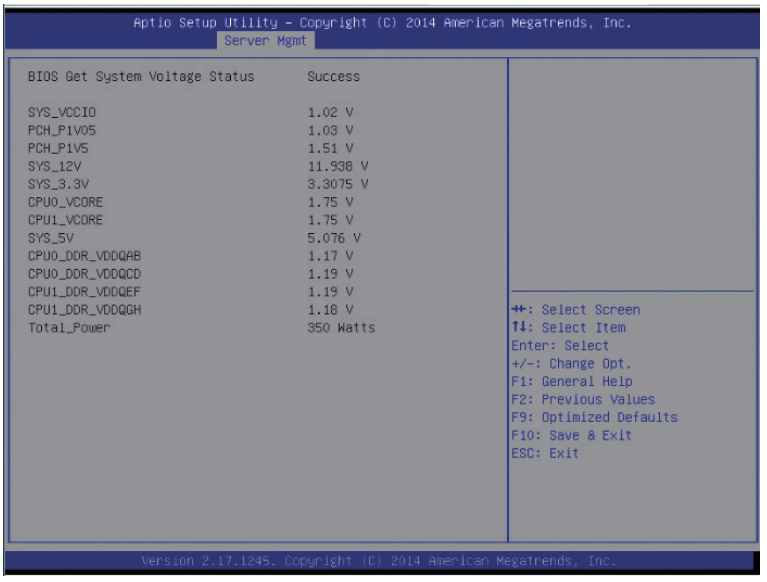
1) System Temperature Information



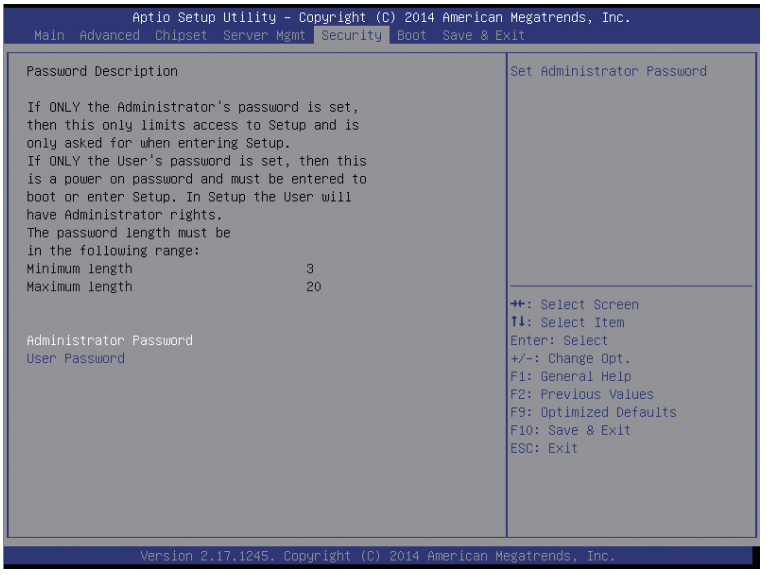
2) System Fan Speed



3) System Voltage Information



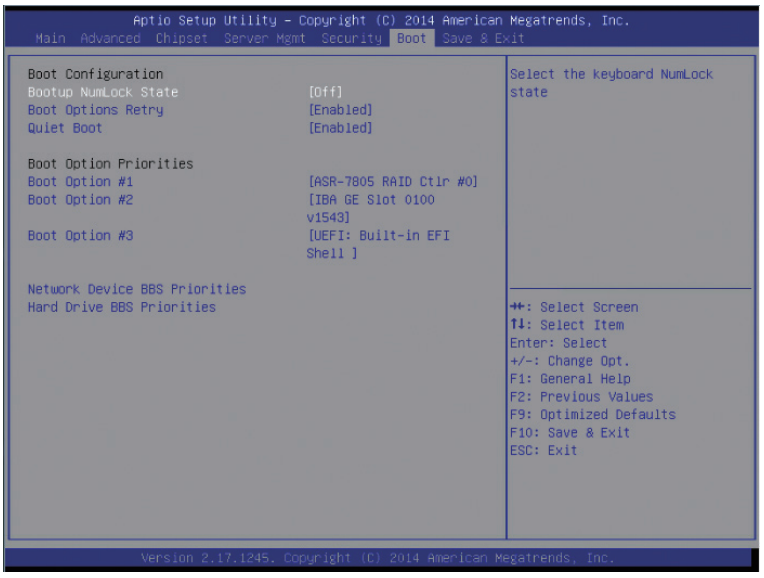
8.2.5 Security Menu



Security Menu Interface Instruction Table

Interface Parameters	Function Description
Administrator Password	Create a password for administrator.
User Password	Create a password for normal user.

8.2.6 Boot Menu

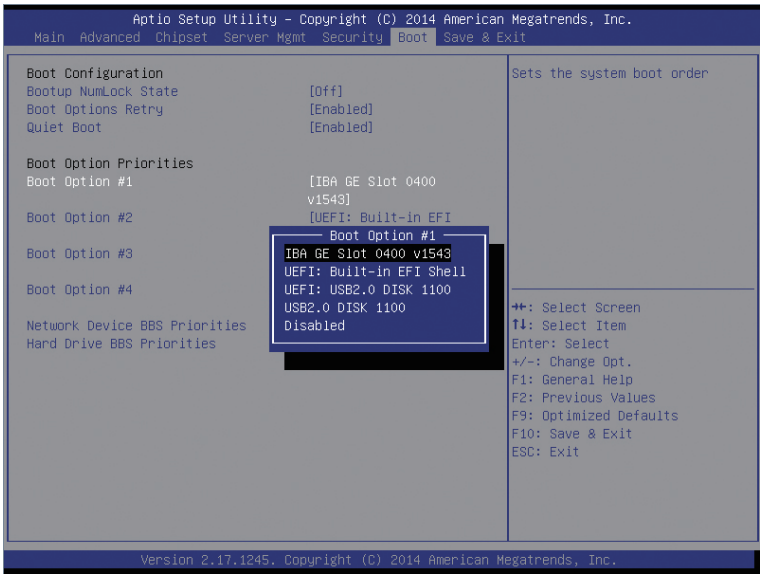


Boot configuration Menu Interface Instruction Table

Interface Parameters	Function Description
Bootup NumLock State	Numlock keys status settings after bootup.
Boot Options Retry	The booting device polling settings
Quiet Boot	To boot quietly, set this option to Enabled, and boot logo displays as that set by manufacturer, disabled, boot logo displays as AMI's default logo.
Boot Option Priorities Boot Option #X	Boot option priority settings
Hard Driver BBS Priorities	Hard disk device BBS priority settings
Network Device BBS Priorities	Network device BBS priority settings

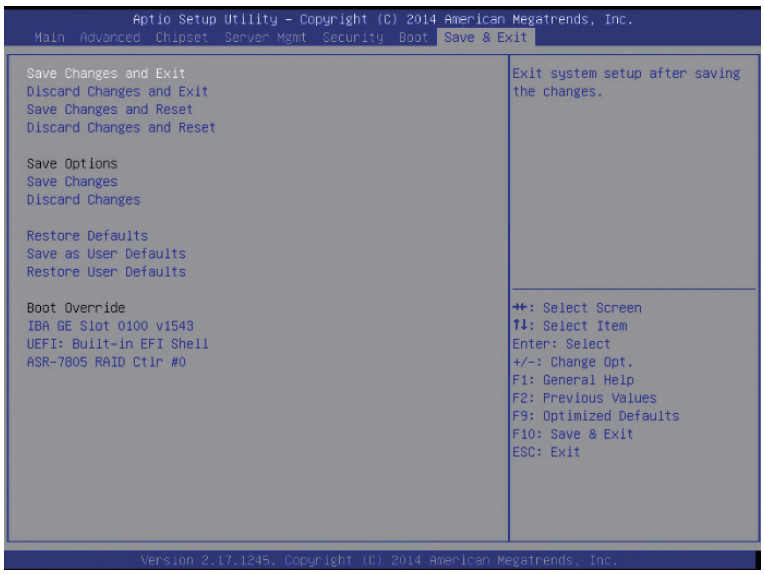
To set BIOS boot operation:

Enter Boot menu, move the cursor to Boot option #X via up and down arrows to select, and set system boot sequence, with X set to 1, 2, 3 etc., while an example is as shown in the following figure:



Taking Boot option #1 as an example, you could set the first boot device for the system: Move the cursor to Boot option #1, and press Enter, to pop up the boot option for selection: i.e. IBA GE slot 0400 v1543, UEFI: Built-in EFI Shell, UEFI:USB2.O DISK 1100, USB2.O DISK 1100 etc., select one via up and down keys, i.e. USB2.O DISK 1100, and press Enter, to select USB DOS disk as the first boot device for the system.

8.2.7 Save & Exit Menu



Save & Exit Menu Menu Interface Instruction Table

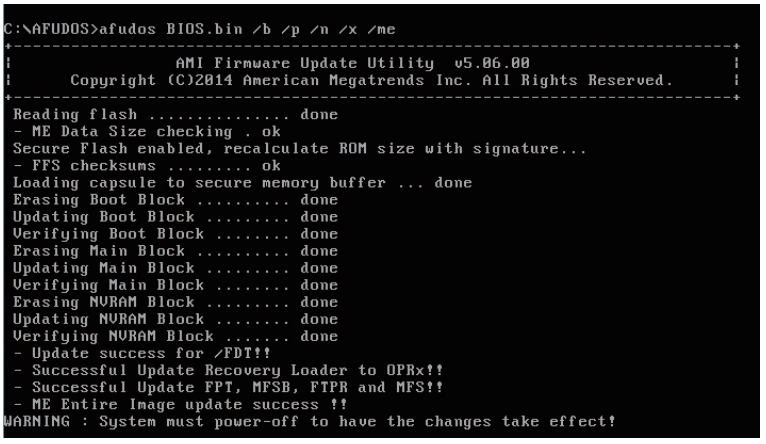
Interface Parameters	Function Description
Save Changes and Exit	To Save and exit
Discard Changes and Exit	To abandon changes and exit.
Save Changes and Reset	To save changes and reboot
Discard Changes and Reset	To abandon changes and reboot
Save Changes	To save changes.
Discard Changes	To abandon changes.
Restore Defaults	To restore factory settings.
Save as user Defaults	To save as defaults.
Restore user Defaults	To restore user defaults.
Boot Override	To reload boot device, you could select all boot devices in the following.

8.3Firmware Update

For BIOS update, you could select to update in DOS or OS.

1) Use afudos tool to update BIOS in DOS

System boots from USB DOS startup disk, enters the directory containing afudos tool, while bin files of the corresponding new BIOS version have been put into this folder, execute command: afudos BIOS.bin /b /p /n /x /me to update BIOS and ME, for BIOS.bin – bin files of the new BIOS version, an example is as shown in the following figure:



When there's no change in ME part, to update BIOS part, it is only required to execute command: afudos BIOS.bin /b /p /n /x.

Parameter instructions: /b -- Program Boot Block

/p -- Program Main BIOS

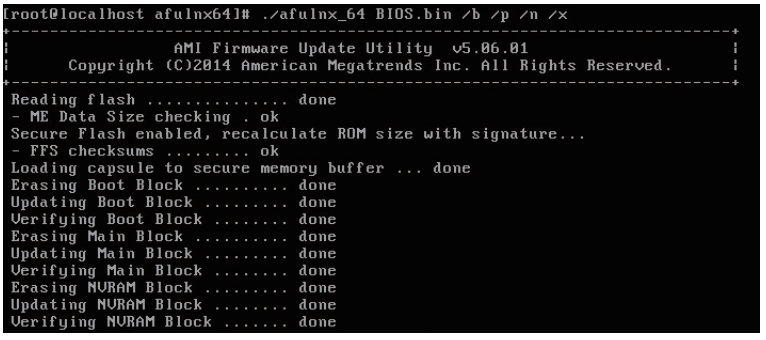
/n -- Program NVRAM

/x -- Don't Check ROM ID

/me -- Program ME Entire Firmware Block

2) Use afudos tool to update BIOS in Linux OS

There're 32bit and 64bit Linux OS afulnx tools, taking Linux 64bit OS as an example, use afulnx_64 tool, to enter the directory containing afulnx_64 tool, meanwhile, put bin files of corresponding BIOS into this folder, and enter command: /afulnx_64 BIOS.BIN /P /B /N /X /R, while an example is as shown in the following figure:



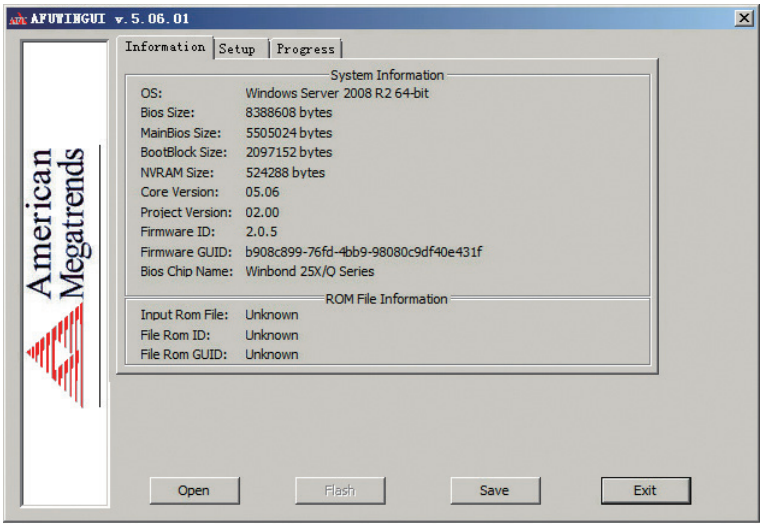
When there's any change in ME part, to update BIOS part, it is required to execute command: afudos BIOS.bin /b /p /n /x /me, with parameter instructions identical to DOS.

3) Use afuWin tool to update BIOS in Windows OS

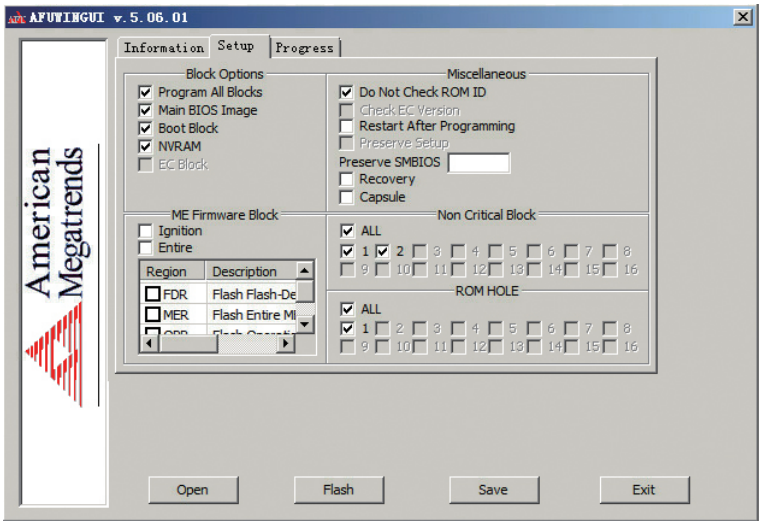
There're 32bit and 64bit Windows OS afuwin tools, and afuwinx64.exe is used in 64bit OS, run a command prompt, to enter the directory containing afuwinx64. exe tool, meanwhile, put bin files of corresponding BIOS into this folder, and enter command: afuwinx64.exe BIOS.BIN /P /B /N /X /R, to update BIOS files.

Meanwhile, GUI method is provided in Windows to refresh BIOS. Taking Windows 2008R2 OS as an example, use AFUWINGUI tool to update BIOS.

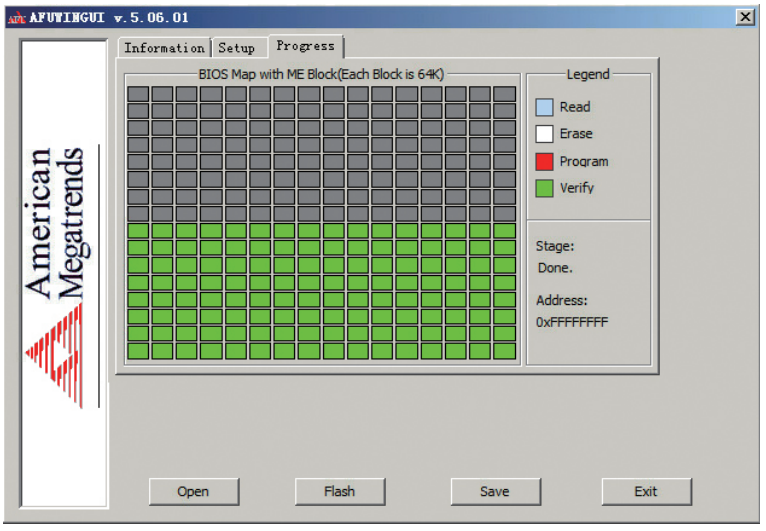
a. Run AUWINGUI.EXE tool, as shown in the following figure:



b. Click the Open button, after selecting the BIOS.bin file to update, system enters Setup interface automatically.



c. Select Program all Blocks and Do Not Check ROM ID options on Setup interface, click flash button, system enters Progress interface automatically, and executes BIOS update accordingly according to colors shown on the right, thus BIOS update is done as shown in the following figure:


AFUWINGUI v.5.06.01
Information
Setup
Progress
BIOS Map with ME Block(Each Block is 64K)
Legend
Read
Erase
Program
Verify
Stage:
Done.
Address:
0xFFFFFFFF
American Megatrends
Open
Flash
Save
Exit

9 BMC Settings

9.1 Introduction

This chapter introduces specifications and main functions to be abided by management software.

The distributor server management software is a control unit realizing server management, which is compatible with management standard of the server industry IPMI2.0 specification.

It mainly realizes the following functions:

- Remote control:

It realizes server control via functions such as KVM (Keyboard Video and Mouse), SOL (Serial Over Lan) and virtual media etc.

⚠ Note: SOL function has to be realized via third party tools such as IPMITool etc.

- Alarming management

Reports alarming information in a real-time way, and carries out corresponding solutions according to information.

- Status monitoring

Monitors various running states of all monitoring units in a real-time way.

- Device information management

Provides device version information, type and asset information.

- Heat radiation control

It could adjust fan rotation rate according to ambient temperature and workload dynamically.

- Supports IPMITool tool management.

Supports operation according to commands sent by IPMITool, and you could download IPMITool by yourself.

⚠ Note: IPMITool downloading website:
http://ipmitool.sourceforge.net/manpage.html

- Supports WEB interface management

Provides a friendly and visual interface management, and you could complete tasks of configuration and query via a click on the interface quickly.

- Supports account centralized management

Supports to store accounts in Active Directory server, and direct certification to server, so as to realize management system login with domain accounts.

9.2 Functional Modules

This chapter introduces the distributor server management system module composition as well as functions of these modules.

9.2.1 Module Composition

The distributor server management system is mainly composed of IPMI module, command line module, WEB module, KVMOver IP and virtual media etc.

- Command module realizes the calling of IPMI module. User realizes the operation on IPMI module via command lines.
- WEB module realizes daily management on server in the form of visual interface via calling IPMI commands, and WEB module has integrated functions of KVM and virtual media.

9.2.2 IPMI Module Introduction

IPMI module realizes management on server system according to IPMI2.0 standard. Functions realized by IPMI module include:

- System real-time monitoring

  It could realize alarming report, alarming indication and self-protection of startup system, when there's any fault detected.

- System remote control

  It could realize management requirements such as remote power-on/off, and business system reset etc. via command lines and Web.

9.2.3 Command Line Function Introduction

Command line module includes query and configuration commands for network, sensor, fan, user management, system and server etc.

9.2.4 Remote Control Module Introduction

Remote control module includes:

- KVM Over IP: It means a management method that user carries out monitoring and control on remote devices via using local video, keyboard and mouse at client, to operate remote devices in a real-time way.
- Virtual media: A method of providing remote access on local media (CD-Rom, floppy drive or CD/floppy disk iso file) in the form of virtual CD driver and floppy drive on server via internet.

Note:

If Java runtime environment does not comply with requirements, user could login http://www.oracle.com/technetwork/java/javase/downloads/index.html to download.

9.3 Web Interface Introduction

About this chapter

It introduces Web interface of management system as well as operation steps to login Web interface.

- Login Web interface.

Introduces methods to login Web interface.

- Web interface introduction

Introduces Web interface layout.

9.3.1 Login Web Interface

It introduces methods to login Web interface.

This guide introduces operation steps to login Web management interface, taking Windows 7 operation system and FireFox browser as examples.

Note: When carrying out interface operation via Web, up to 20 users could login synchronously.

Step 1 Ensure management net ports on Client and server are connected to internet.

Step 2 Open the browser, and enter “http://ipaddress” in the address bar. (In which

ipaddress is the IP address of management port, for specific determining method on IP address, please refer to the annex to determine IP address of management network port)

Step 3 The login interface pops up, as shown in the following figure, in this interface:

1. Enter user name and password.

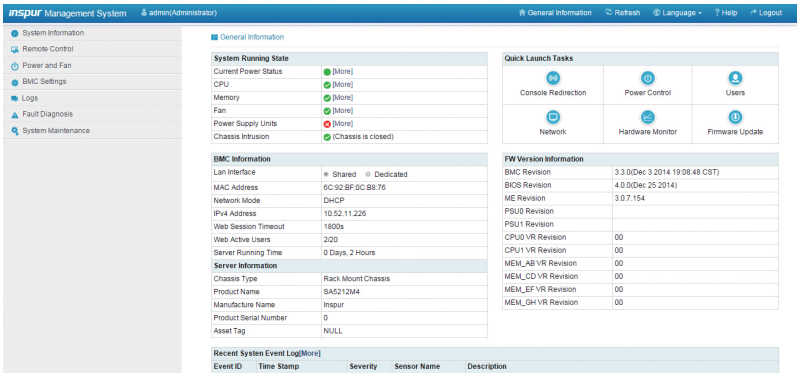
⚠ Note: System provides a default user “admin” in administer user group, and the default password is “admin”.

2. Click “Login”, to enter the management interface.

9.3.2 Web Interface Introduction

The Web interface helps users to accomplish server management via its visual and friendly interface, and the Web interface contains online help, so users could query instructions and operation guide on this interface via clicking button Help on any interface.

Web interface is divided into four parts, as shown in the following figure.



- The name of Web interface is displayed on top left of the interface.
- Meanings of all buttons on top right of the interface:

◎ General Information Click the System Abstract button, to return to the System Abstract page.

◎ Refresh Click the Refresh button, to refresh the page.

◎ Language Click the Language button, to shift language, which supports Chinese

and English.

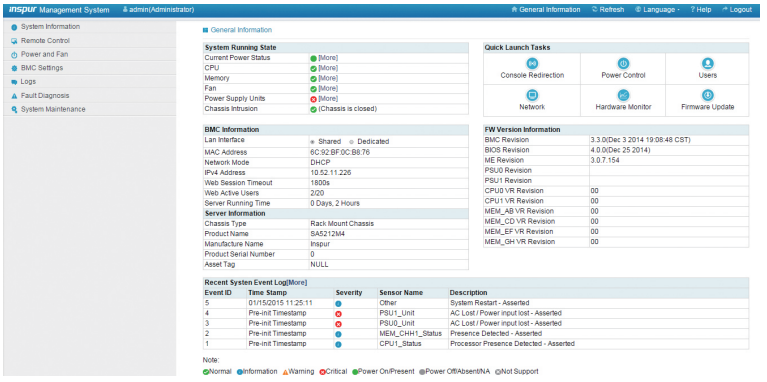
◎ Help Click the Help button to query help information on corresponding page.

◎ Logout Click the Logout button, to return to login page.

- There's a navigation tree on the left, via nodes on the tree, you could select different functional interfaces. Functions able to be realized via Web interface include: Viewing the overall situation, viewing system information, remote control, power management, event and log query, real-time monitoring, diagnosis and orientation, system maintenance, and system configuration etc. For detailed introduction on all functions, please refer to the following chapters.
- Specific operation interface is on the right of the interface.

9.3.3 Overall Situation

Click System Abstract, to open the "System Abstract" interface, as shown in the following figure.

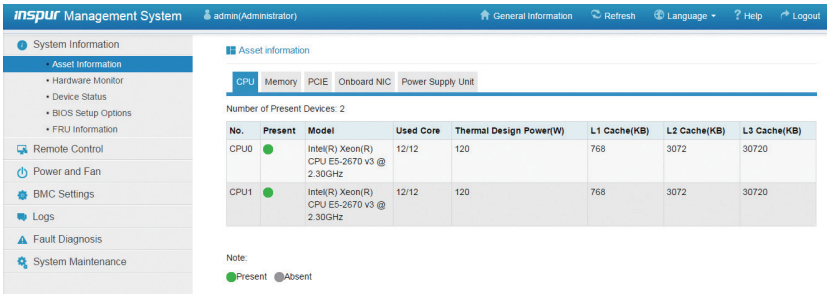


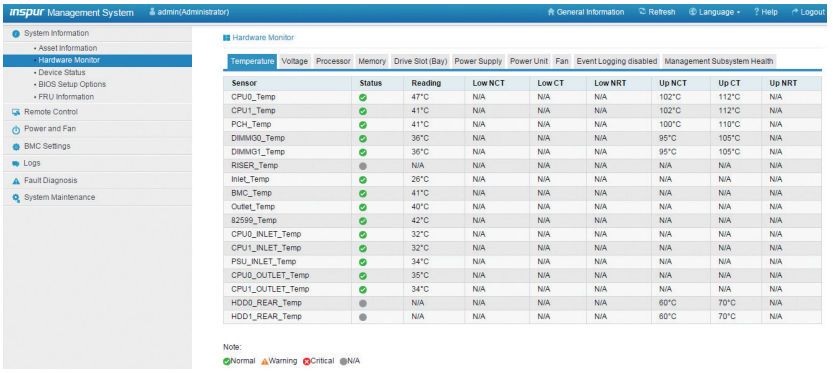
9.3.4 System Information

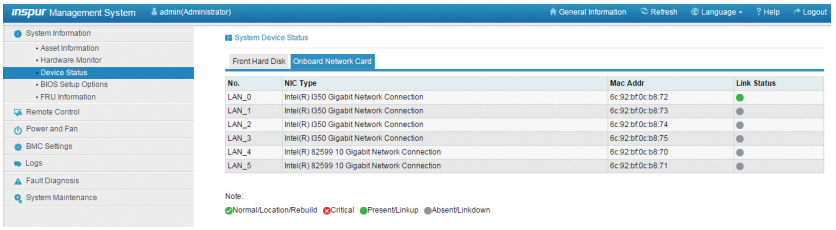
Select "System Information" on navigation tree, which includes five interfaces of ""Asset Information", "Hardware Monitoring", "Device Status", "BIOS Option", "FRU Information", as shown in the following figure.

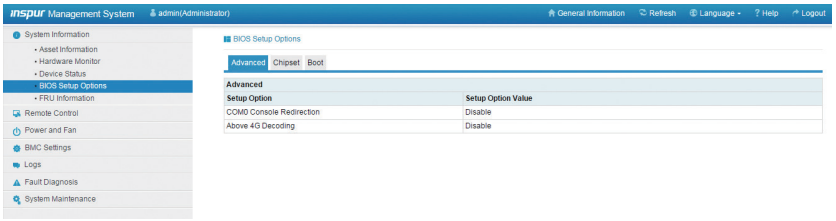
- Asset information: Displays system configuration information, which includes CPU, memory, PCIE device and Mac address information.
- Hardware monitoring: Displays real-time monitoring information, which includes temperature sensor, voltage sensor, fan rotation rate, power, processor status, memory status and power module status information.
- Device status: Displays status information of the front set hard disk.

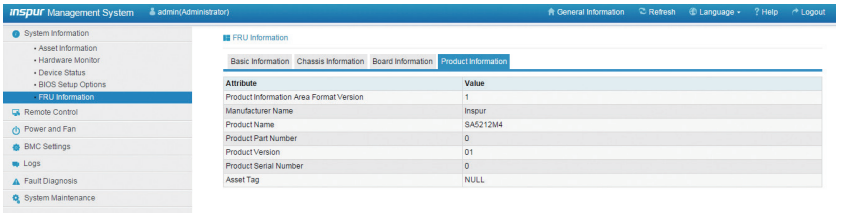
- FRU information: Displays FRU information;









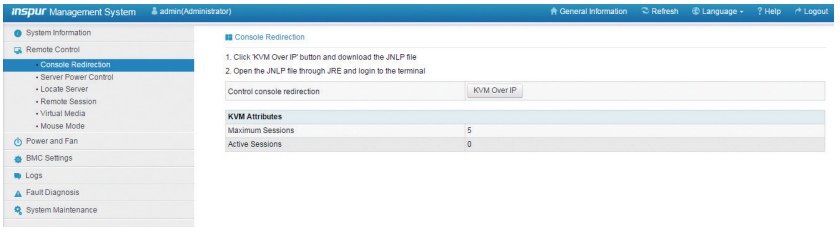


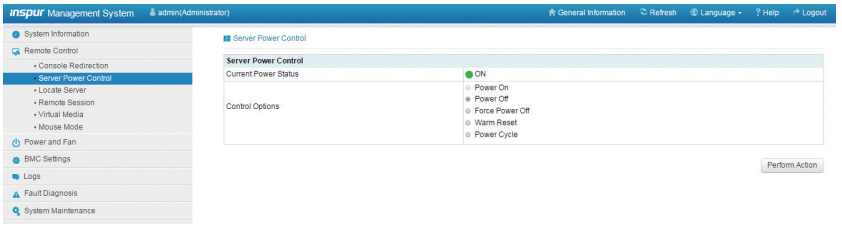
9.4 Remote Control

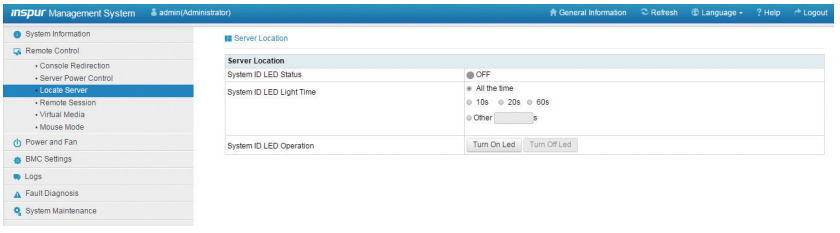
Select “Remote Control” on navigation tree, to open the remote control interface,

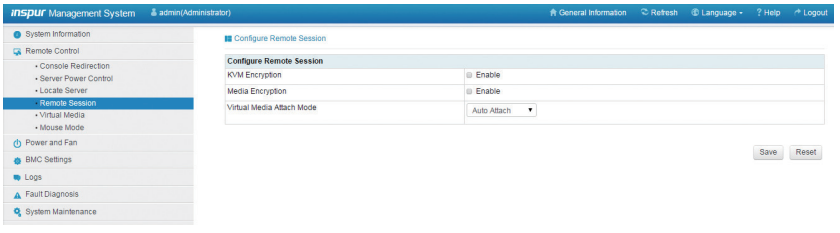
which contains six interfaces of “Console Redirection (KVM)”, server switch-on/off control, server orientation, remote session configuration, virtual media configuration and mouse mode configuration, as shown in the following figure.

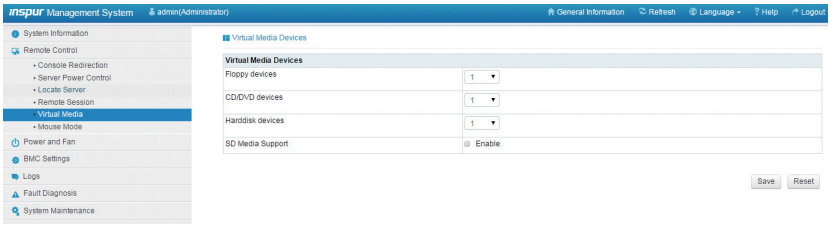
- Console redirection (KVM): To pop up the KVM console window.
- Server switch-on/off control: To control startup, shutdown and restart of the server.
- Server orientation: To turn on/off the positioning light.
- Remote session configuration: To set KVM session encryption, media encryption and virtual media connection methods.
- Virtual media configuration: To set the quantity of virtual media (floppy disks, CD drives and hard disks etc.)
- Mouse mode configuration: To set the mouse working mode for KVM remote console.

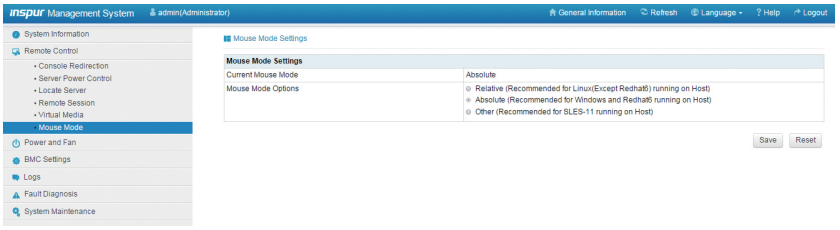












9.5 Power Supply and Heat Radiation

Select “Power Supply and Heat Radiation” on navigation tree, to open the power supply and heat radiation page, which contains three pages of power supply monitoring, power supply management, fan rotation rate control, as shown in the following figure.

- Power supply monitoring: Contains power supply module presence status, alarming status, temperature, input power, output power, input voltage, output voltage, input current, output current and power supply module firmware version information.
- Power supply management: Contains power supply module presence status, current status and primary/secondary mode switching function.
- Fan rotation rate control: Contains fan status, current rotation rate information and rotation rate control function.

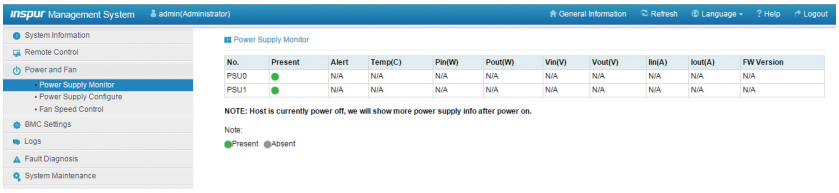
⚠ Note: Fan rotation rate control contains the following rotation rate gears:

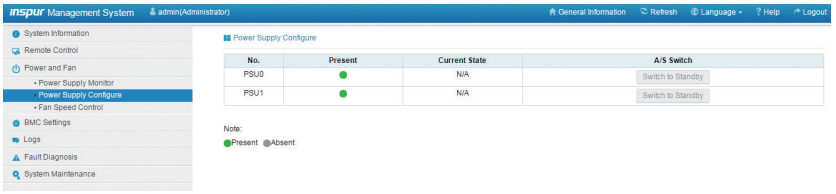
◎ Low speed gear: About 20% duty ratio.

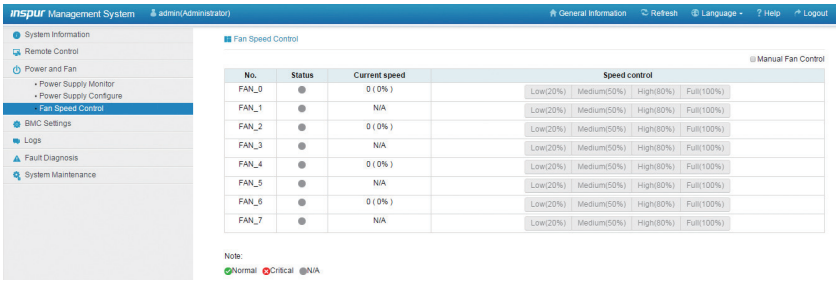
◎ Medium speed gear: About 50% duty ratio.

◎ High speed gear: About 80% duty ratio.

◎ Full speed gear: 100% duty ratio.







9.6 BMC Configuration

Select “BMC Configuration” on navigation tree, to open the BMC configuration page, which contains 10 pages of “BMC Network”, “Service Configuration”, “NTP Configuration”, “SMTP Configuration”, “Alarming Management”, “Active Directory Configuration”, “LDAP/E-Directory”, “User Configuration”, “IP Access Control”, “NCSI Network Card Selection”, as shown in the following figure.

- BMC network: Contains network for BMC configuration (static IP and DHCP), DNS configuration and network interface binding function.
- Service configuration: Configures BMC’S Web service, KVM service, ssh service and telnet service etc.
- NTP configuration: Sets BMC time, which has two methods:

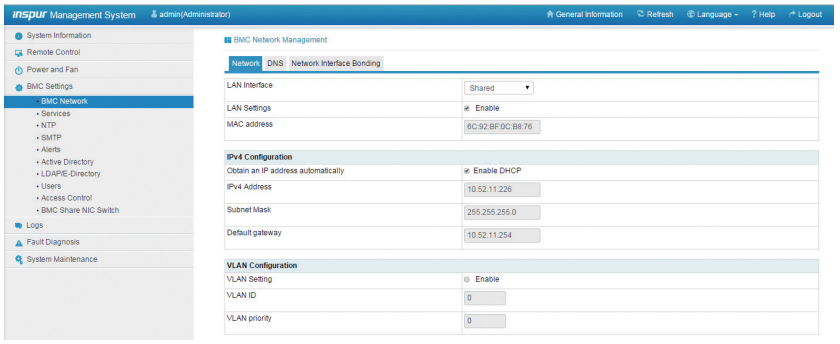
◎ One is to synchronize from NTP server.

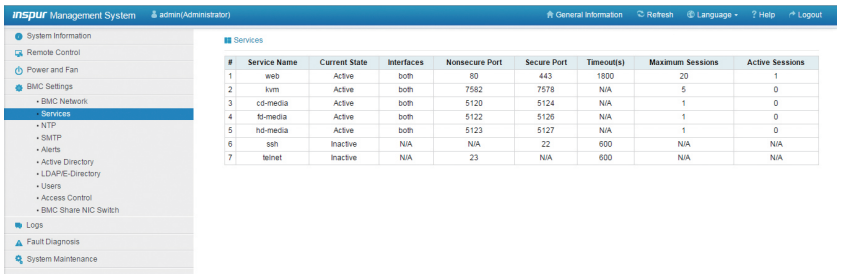
◎ The other is to configure time manually.

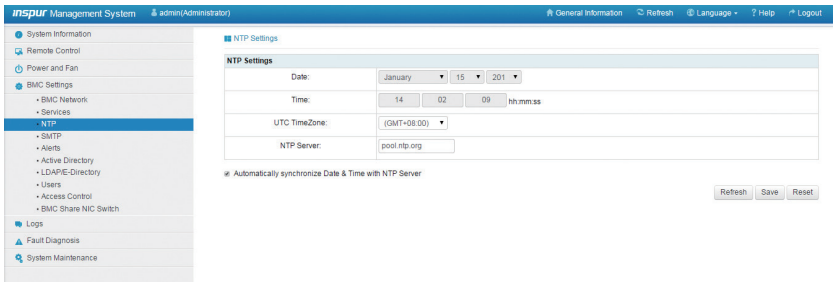
- SMTP configuration: Sets SMTP server information related to alarming.
- Alarming management: Sets information about BMC management module alarming event filtering and alarming targets etc.
- Active directory configuration: Carries out related configuration on BMC active

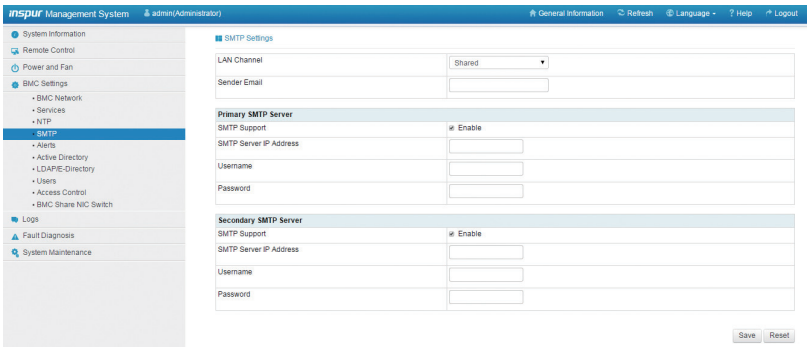
directory.

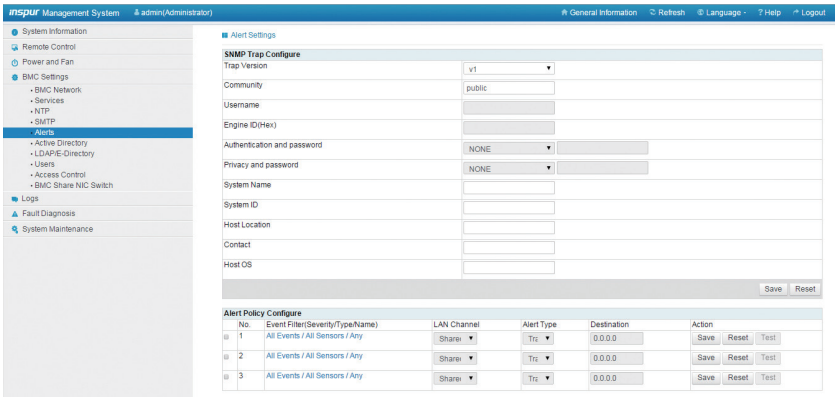
- LDAP/E-Directory: Carries out related configuration on BMC's LDAP.
- User configuration: Carries out management on BMC users, including add user, delete user and change password.
- IP access control: Configures IP address fields accessible to BMC.
- NCSI network card selection: Includes NCSI network card switching, and NCSI work mode switching functions.

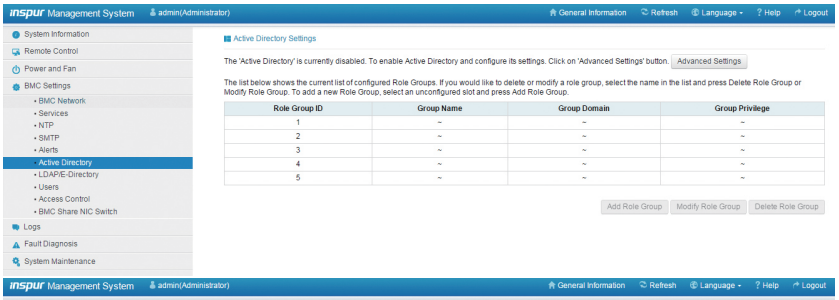


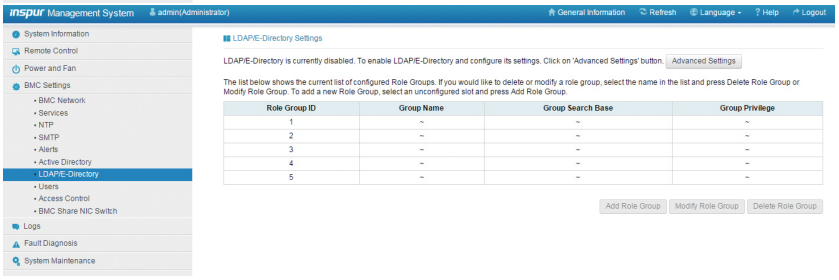


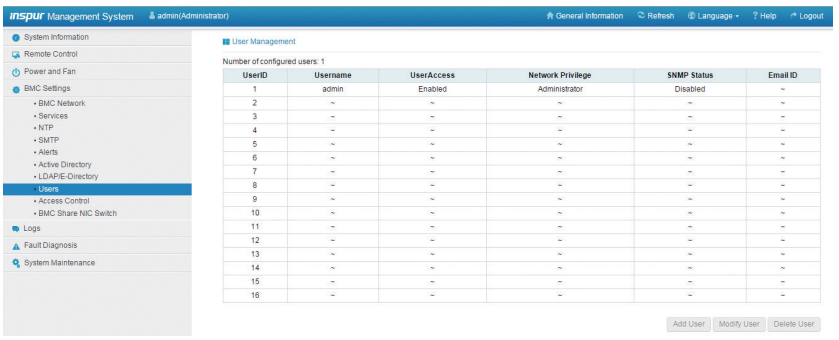


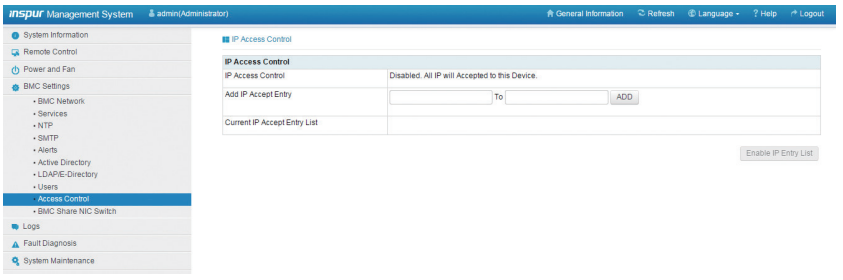


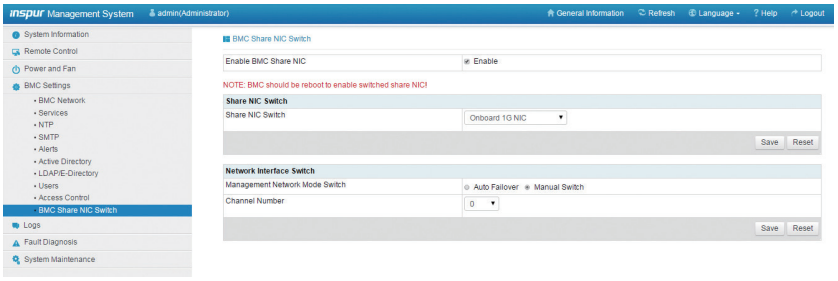

inspur Management System
admin(Administrator)
General Information
Refresh
Language
Help
Logout
System Information
Remote Control
Power and Fan
BMC Settings
BMC Network
Services
NTP
SMTP
Alerts
Active Directory
LDAP/E-Directory
Users
Access Control
BMC Share NIC Switch
Logs
Fault Diagnosis
System Maintenance
Alert Settings
SNMP Trap Configure
Trap Version
v1
Community
public
Username
Engine ID(Hex)
Authentication and password
NONE
Privacy and password
NONE
System Name
System ID
Host Location
Contact
Host OS
Save
Reset
Alert Policy Configure
No.
Event Filter(Severity/Type/Name)
LAN Channel
Alert Type
Destination
Action
All Events / All Sensors / Any
0.0.0.0
Save
Reset
Test


inspur Management System
admin(Administrator)
General Information
Refresh
Language
Help
Logout
Active Directory Settings
The 'Active Directory' is currently disabled. To enable Active Directory and configure its settings. Click on 'Advanced Settings' button.
Advanced Settings
The list below shows the current list of configured Role Groups. If you would like to delete or modify a role group, select the name in the list and press Delete Role Group or Modify Role Group. To add a new Role Group, select an unconfigured slot and press Add Role Group.
Role Group ID
Group Name
Group Domain
Group Privilege
Add Role Group
Modify Role Group
Delete Role Group


inspur Management System
admin(Administrator)
General Information
Refresh
Language
Help
Logout
LDAP/E-Directory Settings
LDAP/E-Directory is currently disabled. To enable LDAP/E-Directory and configure its settings. Click on 'Advanced Settings' button.
Advanced Settings
The list below shows the current list of configured Role Groups. If you would like to delete or modify a role group, select the name in the list and press Delete Role Group or Modify Role Group. To add a new Role Group, select an unconfigured slot and press Add Role Group.
Role Group ID
Group Name
Group Search Base
Group Privilege
Add Role Group
Modify Role Group
Delete Role Group


inspur Management System
admin(Administrator)
General Information
Refresh
Language
Help
Logout
User Management
Number of configured users: 1
UserID
Username
UserAccess
Network Privilege
SNMP Status
Email ID
admin
Enabled
Administrator
Disabled
Add User
Modify User
Delete User


inspur Management System
admin(Administrator)
General Information
Refresh
Language
Help
Logout
IP Access Control
IP Access Control
IP Access Control
Disabled. All IP will Accepted to this Device.
Add IP Accept Entry
To
ADD
Current IP Accept Entry List
Enable IP Entry List



9.7 Logs

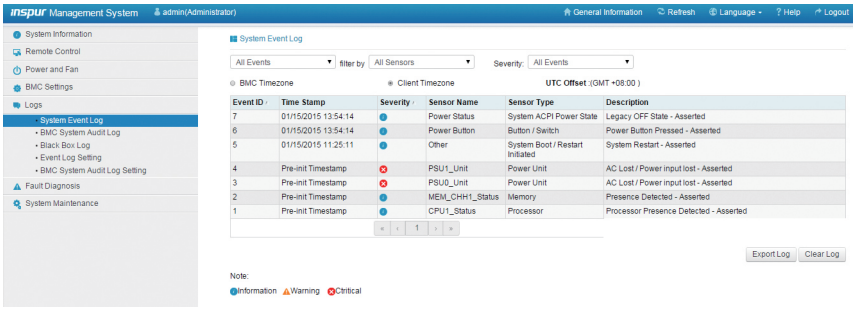
Select “Logs” on navigation tree, open pages related to logs, including four pages of “System Event Logs”, “BMC System Design Logs”, “Black Box Logs”, “Event Logs Settings” and “BMC System Audit Logs Settings”.

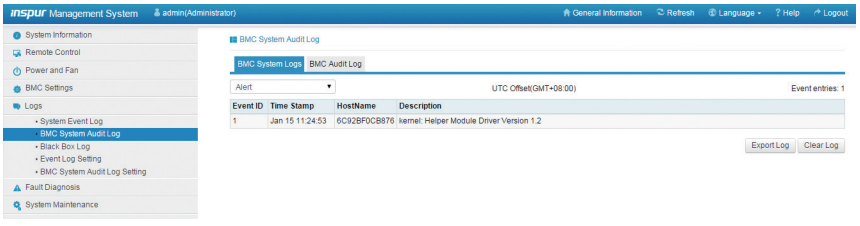
- System event logs: Displays various event logs generated by server.
- BMC system audit logs: Displays system logs and audit logs of BMC.
- Black box logs: Used to import fault logs.
- Event logs configuration: Sets BMC logs storage strategies:

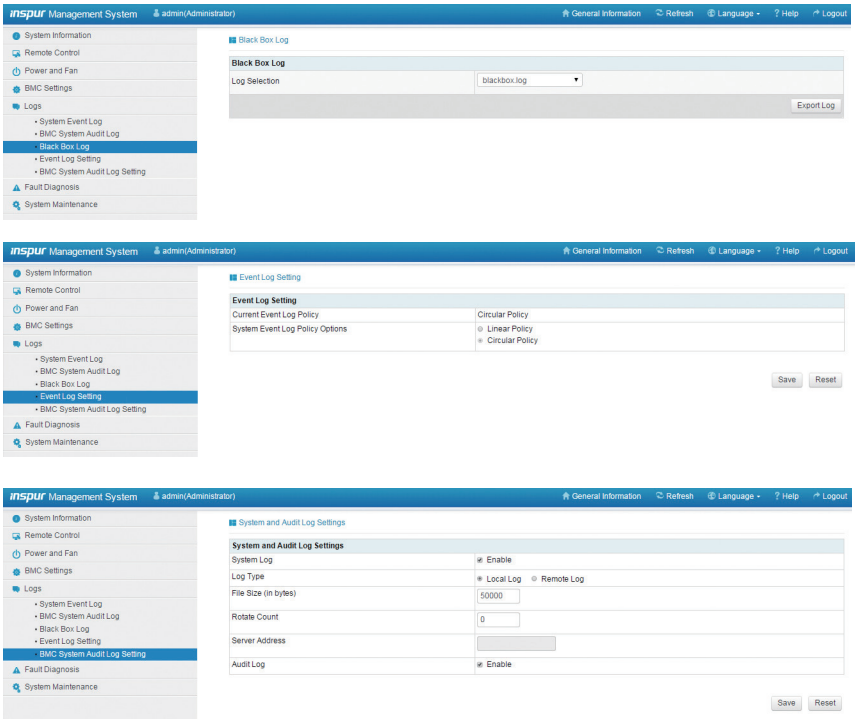
◎ Linear strategy: To clean all logs after log storage is full and record again.

◎ Circulation strategy: To record circularly after log record is full.

- BMC system audit logs configuration: Sets information about BMC system audit logs storage methods and lengths etc.







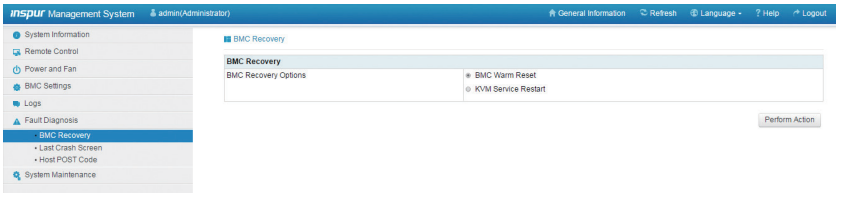
9.8 Fault Diagnosis

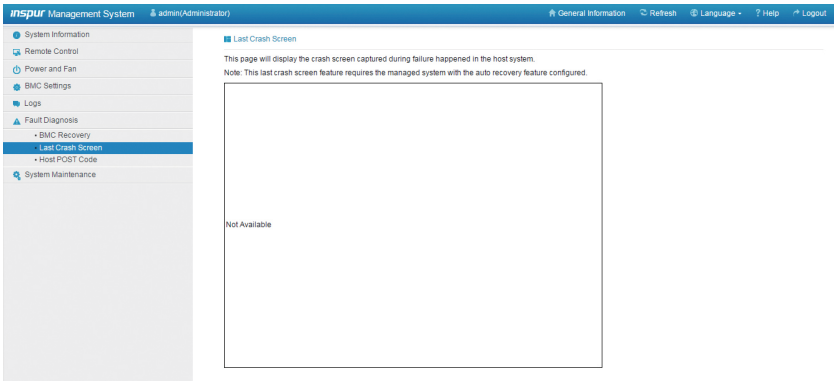
Select “Fault Diagnosis” on navigation tree, to open fault diagnosis page, which contains three pages of “Task Restart”, “Last Crash Screen” and “System Power On Self test codes”. As shown in the following figure.

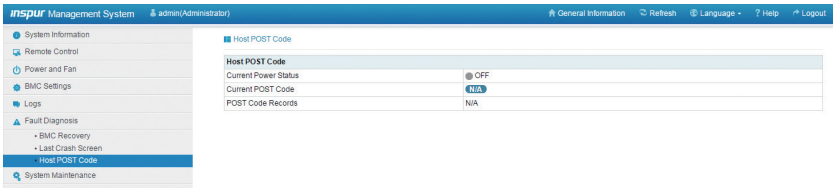
- Task restart: Contains restart two functions of restarting BMC and restarting KVM service;
- Last crash screen: Used to capture information on the last screen at system crash;

⚠ Note: Blue screen only adapts to Windows 2008R2 and Windows 2012 OS;

- System power on self test codes: Displays power-on codes during system startup.



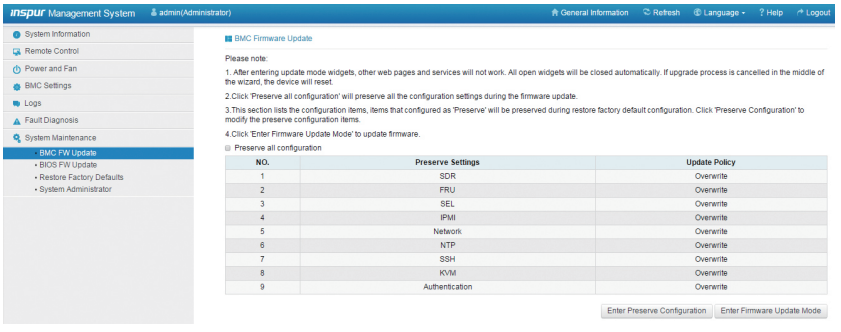


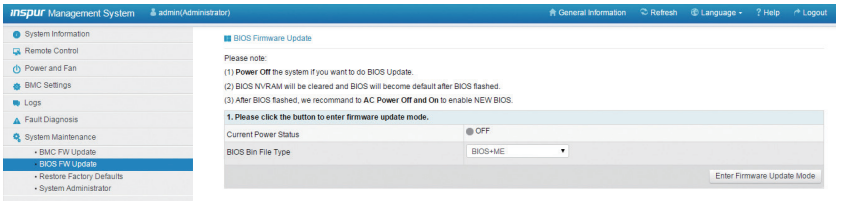


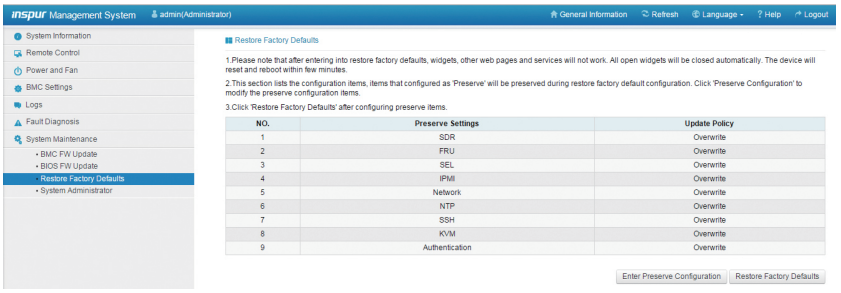
9.9 System Maintenance

Select “System Maintenance” on navigation tree, to open system maintenance page, and system maintenance page includes three pages of “BMC Firmware Update”, “BIOS Firmware Update” and “Restore Factory Settings”, as shown in the following figure.

- BMC firmware update: Carries out update on BMC FW via BMC Web interface;
- BIOS firmware update: Carries out update on BIOS via BMC Web interface;
- Restore factory configuration: Restores BMC’s configuration to factory state.







9.10 Command Line Function Introduction

About this chapter

It introduces Web interface of management system as well as operation steps to login Web interface.

- Login command line

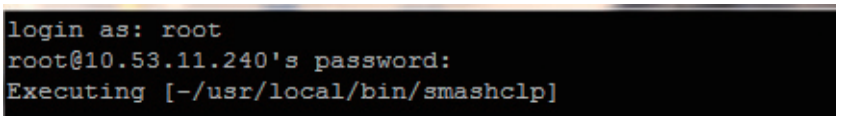
Introduces methods of login command line.

- Command line function introduction

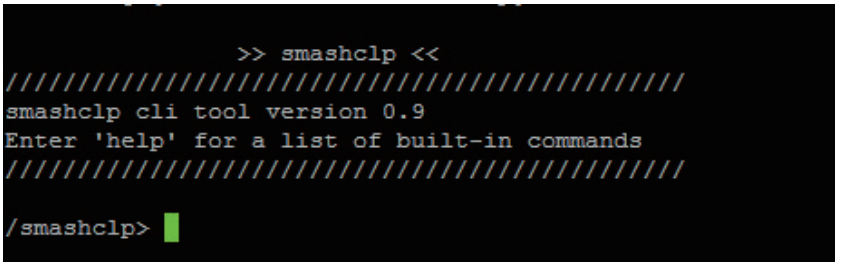
Introduces command line functions.

9.10.1 Command line login:

Command line using ssh to login BMC, default user name: root, and default password: rootuser.



After login, you could enter the command line interface:



Enter help, you could view online help:

```
/smashclp> help
Built-in command:
------------------
ipconfig:       get or set network parameters, please enter <ipconfig --help> for more information
sensor  :       get or set sensor parameters, please enter <sensor --help> for more information
fru     :       get or set fru parameters, please enter <fru --help> for more information
chassis :       get or set chassis parameters, please enter <chassis --help> for more information
user    :       get or set user parameters, please enter <user --help> for more information
mc      :       get or set mc parameters, please enter <mc --help> for more information
fan     :       get or set fan parameters, please enter <fan --help> for more information
psu     :       get or set psu parameters, please enter <psu --help> for more information
password:       change root password
exit    :       exit the command line
/smashclp>
```

9.10.2 Command Line Function Introduction

9.10.2.1 Network Information Acquisition and Configuration:

You could acquire and configure BMC's network information via ipconfig instruction:

```
/smashclp> ipconfig --get
     eth0
          IP Address Source  :  dhcp
          IP Address         :  10.53.11.240
          Subnet Mask        :  255.255.255.0
          Default Gateway IP :  10.53.11.254
          MAC Address        :  6C:92:BF:07:1A:B6
     eth1
          IP Address Source  :  dhcp
          IP Address         :  0.0.0.0
          Subnet Mask        :  0.0.0.0
          Default Gateway IP :  0.0.0.0
          MAC Address        :  6C:92:BF:07:1A:B7
```

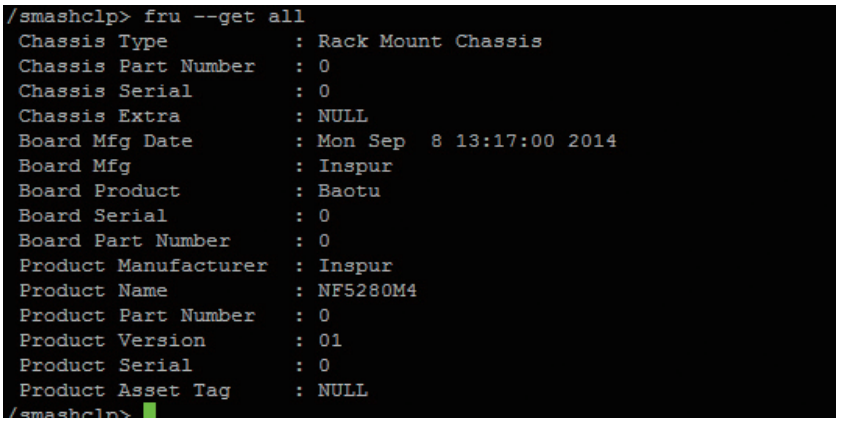
9.10.2.2 Sensor Information Acquisition:

Via sensor instruction, you could acquire all sensor information lists:

```
/smashclp> sensor --list
sensor name      | num | value     | unit        | status | lnr       | lc        | lnc       | unc       | uc        | unr
CPU0_Temp        | 19h | 60.000    | degrees C   | ok     | na        | na        | na        | 102.000   | 112.000   | na
CPU1_Temp        | 1Ah | na        | degrees C   | na     | na        | na        | na        | 102.000   | 112.000   | na
PCH_Temp         | 1Dh | 37.000    | degrees C   | ok     | na        | na        | na        | 100.000   | 110.000   | na
DIMMG0_Temp      | 1Eh | 30.000    | degrees C   | ok     | na        | na        | na        | 95.000    | 105.000   | na
DIMMG1_Temp      | 1Fh | na        | degrees C   | na     | na        | na        | na        | 95.000    | 105.000   | na
Inlet_Temp       | 02h | na        | degrees C   | na     | na        | na        | na        | 40.000    | 50.000    | na
Outlet_Temp      | 00h | na        | degrees C   | na     | na        | na        | na        | na        | na        | na
SYS0_Temp        | 01h | na        | degrees C   | na     | na        | na        | na        | na        | na        | na
SYS1_Temp        | 03h | na        | degrees C   | na     | na        | na        | na        | na        | na        | na
HDD0_REAR_Temp   | 04h | na        | degrees C   | na     | na        | na        | na        | 60.000    | 70.000    | na
HDD1_REAR_Temp   | 0Bh | na        | degrees C   | na     | na        | na        | na        | 60.000    | 70.000    | na
RISER0_Temp      | 05h | na        | degrees C   | na     | na        | na        | na        | na        | na        | na
RISER1_Temp      | 06h | na        | degrees C   | na     | na        | na        | na        | na        | na        | na
GPU0_Temp        | 07h | na        | degrees C   | na     | na        | na        | na        | 82.000    | 92.000    | na
GPU1_Temp        | 08h | na        | degrees C   | na     | na        | na        | na        | 82.000    | 92.000    | na
MIC0_Temp        | 09h | na        | degrees C   | na     | na        | na        | na        | 104.000   | 114.000   | na
MIC1_Temp        | 0Ah | na        | degrees C   | na     | na        | na        | na        | 104.000   | 114.000   | na
SYS_VCCIO        | 40h | 1.070     | Volts       | ok     | 0.690     | 0.770     | 0.850     | 1.170     | 1.250     | 1.330
SYS_12V          | 43h | 12.502    | Volts       | ok     | 9.024     | 9.776     | 10.528    | 13.536    | 14.288    | 15.040
SYS_3.3V         | 44h | 3.377     | Volts       | ok     | 2.660     | 2.800     | 2.940     | 3.657     | 3.797     | 3.938
SYS_5V           | 47h | 5.220     | Volts       | ok     | 3.888     | 4.176     | 4.464     | 5.544     | 5.832     | 6.120
PCH_P1V05        | 41h | 1.070     | Volts       | ok     | 0.770     | 0.850     | 0.930     | 1.170     | 1.250     | 1.330
PCH_P1V5         | 42h | 1.550     | Volts       | ok     | 1.180     | 1.260     | 1.340     | 1.670     | 1.750     | 1.830
CPU0_VCORE       | 45h | 1.810     | Volts       | ok     | 1.040     | 1.120     | 1.200     | 2.300     | 2.380     | 2.460
CPU1_VCORE       | 46h | na        | Volts       | na     | 1.040     | 1.120     | 1.200     | 2.300     | 2.380     | 2.460
CPU0_DDR_VDDQAB  | 48h | 1.220     | Volts       | ok     | 0.910     | 0.990     | 1.070     | 1.330     | 1.410     | 1.490
CPU0_DDR_VDDQCD  | 49h | 1.200     | Volts       | ok     | 0.910     | 0.990     | 1.070     | 1.330     | 1.410     | 1.490
CPU1_DDR_VDDQEF  | 4Ah | na        | Volts       | na     | 0.910     | 0.990     | 1.070     | 1.330     | 1.410     | 1.490
CPU1_DDR_VDDQGH  | 4Bh | na        | Volts       | na     | 0.910     | 0.990     | 1.070     | 1.330     | 1.410     | 1.490
FAN_0            | 30h | 0.000     | RPM         | cr     | na        | 0.000     | na        | na        | na        | na
FAN_1            | 31h | na        | RPM         | na     | na        | 0.000     | na        | na        | na        | na
FAN_2            | 32h | 0.000     | RPM         | cr     | na        | 0.000     | na        | na        | na        | na
FAN_3            | 33h | na        | RPM         | na     | na        | 0.000     | na        | na        | na        | na
FAN_4            | 34h | 0.000     | RPM         | cr     | na        | 0.000     | na        | na        | na        | na
FAN_5            | 35h | na        | RPM         | na     | na        | 0.000     | na        | na        | na        | na
FAN_6            | 36h | 0.000     | RPM         | cr     | na        | 0.000     | na        | na        | na        | na
FAN_7            | 37h | na        | RPM         | na     | na        | 0.000     | na        | na        | na        | na
CPU0_Status      | 6Ah | 0x0       | discrete    | 0x8080 | na        | na        | na        | na        | na        | na
CPU1_Status      | 6Bh | 0x0       | discrete    | 0x8000 | na        | na        | na        | na        | na        | na
MEM_CHA0_Status  | 70h | 0x0       | discrete    | 0x8040 | na        | na        | na        | na        | na        | na
```

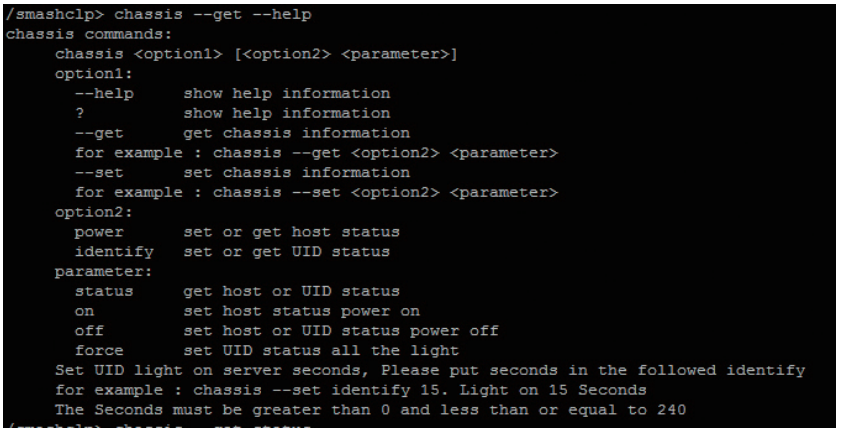
9.10.2.3 FRU Information Acquisition and Configuration:

Via FRU instruction, you could acquire FRU configuration information:

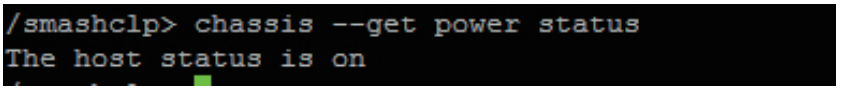


9.10.2.4 Chassis Status Acquisition and Control:

Via chassis instruction, you could acquire and control system power status.

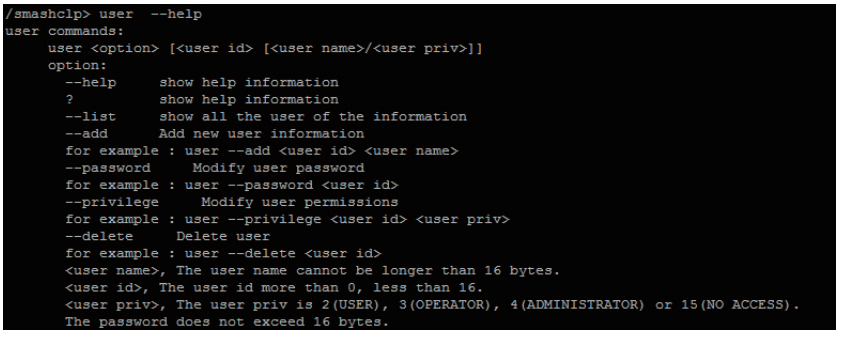


Acquiring system power status:



9.10.2.5 User Acquisition, Adding and Deleting:

Via user instruction, you could acquire the user list, to add or delete users.



Acquiring user list:

```
/smashclp> user  --list
ID  Name             Channel Priv Limit
1   admin            ADMINISTRATOR
2                    NO ACCESS
3                    NO ACCESS
4                    NO ACCESS
5                    NO ACCESS
6                    NO ACCESS
7                    NO ACCESS
8                    NO ACCESS
9                    NO ACCESS
10                   NO ACCESS
11                   NO ACCESS
12                   NO ACCESS
13                   NO ACCESS
14                   NO ACCESS
15                   NO ACCESS
16                   NO ACCESS
```

9.10.2.6 BMC Version Acquisition and BMC Restart

Via mc instruction, you could acquire BMC version information, and restart BMC.

```
/smashclp> mc --help
mc commands:
    mc <option1> [<option2>] <parameter>
    option1:
      --help     show help information
      ?          show help information
      --get      get mc information
      for example : mc --get <parameter>
      --set      set mc information
      for example : mc --set <option2> <parameter>
    option2:
      bmc        set bmc action, this only support --set
      kvm        set kvm action, this only support --set
    parameter:
      version    get bmc version, this only support --get command
      reset      set bmc or kvm reset action, this only support --set command
```

Acquiring BMC version information:

```
/smashclp> mc --get version
Device ID                 : 32
Device Revision           : 1
Firmware Revision         : 4.5.0
IPMI Version              : 2.0
```

9.10.2.7 Fan Work Mode Configuration and Fan Rotation Rate Acquisition:

Via fan instruction, you could either set fan work mode, or acquire fan rotation rate.

```
/smashclp> fan --help
fan commands:
     fan <option1> [<option2> <parameter1> [<parameter2>]]
     option1:
       --help      show help information
       ?           show help information
       --get       get fan information
       for example : fan --get <option2>
       --set       set fan information
       for example : fan --set <option2> <parameter1> [<parameter2>]
     option2:
       fanmode     set or get fanmode
       for example : fan --set fanmode 0|1
       0 : auto mode
       1 : manual mode
       fanlevel     set or get fan level
       for example : fan --set fanlevel <parameter1> <parameter2>
       parameter1: the fan id
       parameter2: the fan of the precent
```

Fan rotation rate acquisition:

```
/smashclp> fan --get fanlevel
ID   Status   SpeedPercent   SpeedRPM
0      NA           0           0 PRM
1      NA           0           0 PRM
2      NA           0           0 PRM
3      NA           0           0 PRM
4      NA           0           0 PRM
5      NA           0           0 PRM
6      NA           0           0 PRM
7      NA           0           0 PRM
```

9.10.2.8 Power Module Information Acquisition and Configuration:

Via Psu instruction, you could either acquire power module information, or set power module as main output.

```
/smashclp> psu --help
psu commands:
     psu <option1> <option2> [<parameter1> <parameter2>]
     option1:
       --help     show help information
       ?          show help information
       --get      get psu information
       for example : psu --get <option2>
       --set      set psu information
       for example : psu --set <option2> [<parameter1> <parameter2>]
     option2:
       psuinfo     show all psu information, this only support --get
       psumode     set psu information, this only support --set
       parameter1: the ID of the PSU module, not more than 1
       parameter2: the Action of the PSU module. 0 representation activate, 1 representation standby.
```

Power module information acquisition:

```
/smashclp> psu --get psuinfo
PSU Asset Info:
ID | Mfr ID          | Mfr Model      | Serail Number  | FW Ver
0  | N/A             | N/A            | N/A            | N/A
1  | N/A             | N/A            | N/A            | 1.000
PSU Monitor Info:
ID | Status | Alert | Temp(C) | Pin(W) | Pout(W) | Vin(V) | Vout(V) | Iin(A) | Iout(A)
0  | N/A    | N/A   | N/A     | N/A    | N/A     | N/A    | N/A     | N/A    | N/A
1  |Activate| OK    | 24      | 56     | 40      | 231    | 12.33   | 0.26   | 3.28
```

9.10.2.9 Change Root Password:

Via password instruction, you could change root user's password:

```
/smashclp> password
New password:
```

9.11 Time Zone Table

Time Zone	Countries and Regions
GMT-12:00	West Date Line
GMT-11:00	Appiah, Niue, Pago Pago, Midway
GMT-10:00	Fakaofo, Rarotonga, the island of Tahiti, Johnston, Hawaii
GMT-09:30	Marquesas
GMT-09:00	Alaska, Gambier Islands
GMT-08:00	Pacific Time (USA and Canada), Pitcairn, Whitehorse, Tijuana, Vancouver
GMT-07:00	Mountain Time (USA and Canada), Edmonton, Hermosillo, the Tao gave birth to Crick, Chihuahua, Yellowknife, Arizona, Mazatlan
GMT-06:00	Central Time (USA and Canada), Belize, Costa Rica, Easter Island, Galapagos Islands, Salvatore, Guatemala, Managua, Mexico City, Regina, Winnipeg
GMT-05:00	Eastern Time (USA and Canada), Panama, Bogota, Toronto, Grand Turk Island, Montreal, Iqaluit, Guayaquil, Havana, the Cayman Islands, Leo Brown Cu, Lima, Nassau, Port au Prince, Jamaica
GMT-04:00	Atlantic Time (Canada), Aruba, Anguilla, Antigua, Babado J, Bermuda, Puerto Rico, Bo Avesta, Campo Grande, Halifax City, Dominica, Grenada, Guadeloupe, Guyana, Caracas, Curacao, Cuiaba, Labasse, Martinique, Manaus, Montserrat, Palmer, Santiago, Santo Domingo, St. Kitts, St Lucia, St. Thomas, Vincent, STANLEY, Thule, Tortora, Porto Velho, port of Spain, Asuncion
GMT-03:30	St. Louis
GMT-03:00	Aragua ina, Belem, Buenos Aires, Fortaleza, Geert Holob, cayenne, Recife, Lutheran, Maceio, Montevideo, Miquelon Island, Paramaribo, Salvatore, St. Paul
GMT-02:00	South Georgia, Noronha
GMT-01:00	Cape Verde, Si kolle SBI Sander, Azores
GMT+00:00	Abidjan, Accra, Bamako, Banjul, Laayoune, Bissau, Dakar, Dublin, Freetown, Greenland, the Canary Islands, Casablanca, Conakry, Reykjavik, Lisbon, London, Monrovia, Nouakchott, Saint Lome, how beautiful, St. Helena, Ouagadougou
GMT+01:00	Algiers, Amsterdam, Andorra, Oslo, Paris, Berlin, Bangui, Porto Novo, Budapest, Brazzaville, Brussels, Tirana, Douala, Ndjamena, Copenhagen, Warsaw, Kinshasa, Lagos, Liebe Weil, Luxemburg, Luanda, Rome, Madrid, Malta, Monaco, Niamey, Stockholm, Guinea, Zurich, Tunisia, Vaduz, Vienna, Windhoek, Ceuta, Gibraltar
GMT+02:00	Amman, Beirut, Bucharest, Blantyre, Bujumbura, Damascus, Tripoli, Harare, Habo Roney, Helsinki, Kiev, Kigali, Kihine U, Cairo, Gaza, Riga, Lubumbashi, Lusaka, Maputo, Minsk, Kaliningrad, Maseru, Mbabane, Nicosia, Sofia, Tallinn, Tel Aviv, Vilnius, Athens, Istanbul, Johannesburg
GMT+03:00	Antananarivo, Baghdad, Bahrain, Dar Es Salaam, Djibouti, Qatar, ha Khartoum, Kampala, Comoros, Kuwait, Mayotte, Riyadh, Mogadishu, Moscow, Nairobi, Addisababa, Aden, Showa
GMT+03:30	Newfoundland
GMT+04:00	Baku, Dubai, Tbilisi, Reunion Island, Mahe, Muscat, Mauritius, Samarra, Ye Liewan

GMT+04:30	Kabul
GMT+05:00	Aktau Aktobe, Ashkhabad, Karachi, Dushanbe, Kell islands, Maldives, Kelang, Yekaterinburg, Tashkent
GMT+05:30	Colombo, India
GMT+06:00	Ala Mutu, Bishkek, Chagos, Dhaka, Mo Sen, Omsk, Novosibirsk, Thimphu, Vostok
GMT+06:30	The Coco Islands, Yangon
GMT+07:00	Davies, Hanoi, Phnom Penh, Khovd, Bangkok, Lasinuoyaersike, Christmas Island, Vientiane, Jakarta
GMT+08:00	Macao, Kuala Lumpur, Manila, Ilkuts J, Casey, Macassar, Taipei, Brunei, Ulan Bator, Perth, Singapore, Beijing, Hongkong, China
GMT+09:00	Chaya Pla, Dili, Tokyo, Yakutsk, Palau, Pyongyang, Qiao Bashan, Seoul
GMT+09:30	Adelaide, Darwin
GMT+10:00	Di Mundi Weil, Brisbane, Hobart, Melbourne, Sydney, Guam, Port Moresby, Yuzhno-Sakhalinsk, Saipan, Truc
GMT+11:00	Efate, Ponape Island, Guadalcanal, Kosrae, Magadan, Noumea
GMT+11:30	Nuo Fuke
GMT+12:00	Oakland, Funafuti, Kwajalein, Majuro, Pietro Pavlov's Kamchatka, Tarawa Island, Wallis, Wake Island, Nauru, Fiji
GMT+13:00	Nukualofa

10 Common Faults, Diagnosis and Troubleshooting

This chapter introduces the common server faults, as well as corresponding diagnosis and troubleshooting suggestions.

10.1 Common Faults

1) No power after startup

- After the machine is connected with power cable, no power is provided for the machine while pressing the On/Off button. The indicator does not light up after power on.

2) Power module indicator off or red indicator on

- The machine is under normal operation, but a certain power module indicator is off or red indicator is on.

3) No display after power on

- No information appeared on the display after power on via pressing On/Off button.

4) Front panel indicator is off

- All front panel indicators are off after power on.

5) Front panel status indicator alarms

- The machine is under normal operation, but status indicator gives an alarm.

6) Blank screen of the display

- Blank screen occurs during using the display.

7) Abnormal display

- Image dithering, rolling or warping occurs during using the display.

8) Abnormal display of memory capacity

- The operating system shows that memory capacity is inconsistent with physical memory capacity.

9) Keyboard and mouse are not available

- Neither keyboard nor mouse can be operated normally.

10) USB interface problem

- Introduce solutions when failing to use USB interface.

10.2 Diagnosis and Troubleshooting Instructions

1) Diagnosis and troubleshooting on power-on failure at startup

Description: After pressing the power button, server front control panel indicator (power-on status indicator, hard drive status indicator) is off. Meanwhile, no KVM (display) output is displayed, and server chassis fan does not rotate.

Operation steps:

a. Verify whether power supply is normal or not: if the power module indicator is on, it indicates normal power supply. If power module indicator is off, please check if power supply is normal.

b. If power supply is normal, plug in and off the power module again to test, and then power on for verification.

c. If there is a machine and a power module of the same type, you could change the power module to test whether there is a power module fault.

d. If the instructions above do not resolve the problem, please contact Inspur customer service.

2) Power module indicator off or red indicator on

Description: The machine is under normal operation, but a certain power module indicator is off or the red light is on.

Operation steps:

a. Firstly check whether all power cables are normal, and plug in power cables again.

b. If the fault still exists, plug in and off the power module again.

c. If shutdown is allowed, you could exchange the two power modules to judge whether it is a power module fault.

d. If above operations could not solve the problem, please contact Inspur customer service.

3) No display after power on

Description: After pressing the power button, server front control panel indicator is on, but there's no output on the display.

Operation steps:

a. Firstly check whether the display is connected normally with the server's VGA port;

b. Test on another display;

c. If above operations could not solve the problem, please contact Inspur customer

service.

4) Front panel status indicator alarms

Description: The server is under normal operation, but system status indicator on front control panel flashes or the red indicator is on.

Operation steps:

Please check whether all power module indicators are steadily green, if so, you can login BMC web interface to collect logs, and contact Inspur customer service.

5) Memory capacity incomplete

Description: Memory capacity viewed via the operating system does not correspond with physical memory capacity.

Operation steps:

a. Ensure all memories of correct type have been correctly installed in place.

b. Enter BIOS setup to view memory capacity, if it could be completely identified in BIOS setup, this may lie in the limitation on memory capacity set by the operating system. Otherwise, please contact Inspur customer service.

6) Keyboard and mouse are not available

Description: Neither keyboard nor mouse could be operated normally.

Operation steps:

a. Make sure the keyboard or mouse has been connected correctly and firmly.

b. Test other parts to verify whether it is a mouse or keyboard fault.

c. Retest the machine via power on/off.

d. Reboot and enter cmos or raid configuration interface to test keyboard or mouse performance. When tested in a non-system situation, if keyboard or mouse performance turns out to be normal, a system fault could be considered. If keyboard or mouse fault still exists, a mainboard interface fault could be considered, and Inspur technical hotline can be called for support.

7) USB interface problem

Description: Unable to use devices with a USB interface.

Operation steps:

a. Make sure the operating system on server supports USB devices.

b. Make sure system has been installed with correct USB device driver.

c. Power off the server, and then power on again to test.

d. Check whether the USB device is normal when connecting to other hosts.

e. If the USB device is normal when connecting to other hosts, the server may be abnormal: please call Inspur technical hotline for support. If the USB device turns out to be abnormal when connecting to other hosts, please replace the USB device.

11 Battery Replacement

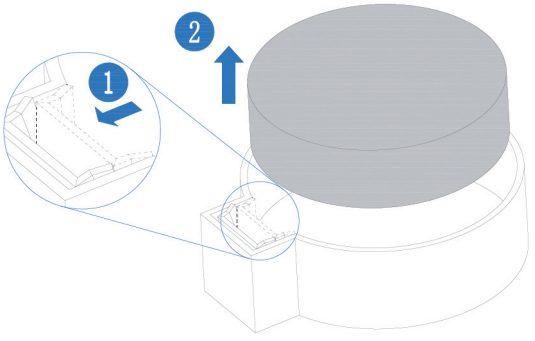
If the server no longer automatically displays the correct date and time, you may need to replace the battery that provides power to the real-time clock.

⚠ WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
- Replace only with the spare designated for this product.

To remove the component:

1. Power down the server.
2. Extend the server from the rack.
3. Remove the access panel.
4. Remove the full-length expansion board retainer if any full-length expansion boards are installed.
5. Remove the PCI riser cage.
6. Remove the air baffle.
7. Remove the battery.



To replace the component, reverse the removal procedure.

For more information about battery replacement or proper disposal, contact Inspur Customer Service.

12 Regulatory Compliance Notices

12.1 Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

12.2 Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

12.2.1 FCC Rating Label

The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

Class A Equipment

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 against harmful interference when the equipment is

operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

12.3 Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

12.4 European Union Regulatory Notice

Products bearing the CE marking comply with the following EU Directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Eco-design Directive 2009/125/EC, where applicable

CE compliance of this product is valid if powered with the correct CE-marked AC adapter provided by INSPUR.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by INSPUR for this product or product family and available (in English only) within the product documentation.

The compliance is indicated by one of the following conformity markings placed on the product:

Please refer to the regulatory label provided on the product.

12.5 Disposal of Waste Equipment by Users in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection

point for the recycling of waste electrical and electronic equipment. 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 city office, your household waste disposal service or the shop where you purchased the product.

12.6 Korean Notice

Class A Equipment

A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

Class B Equipment

B급 기기 (가정용 방송통신기기)	이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

12.7 Chinese Notice

Class A Equipment

声明
此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取可行的措施。

12.8 Battery Replacement Notice

⚠ WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to Inspur, an authorized Inspur Partner, or their agents.

13 Electrostatic Discharge

13.1 Preventing Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

13.2 Grounding Methods to Prevent Electrostatic Discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact Inspur Customer Service.

14 Inspur Support Guide

- Inspur Global Service Support

  Global Technical Service Hotline:

1-844-860-0011 (Toll Free)

1-646-517-4966 (Direct Phone)

Global Technical Service Email: serversupport@inspur.com

- Information customer needs to provide when requesting for support:

Contact name

Phone number

E-mail address

Product model

Product serial number

Part Number

Detailed description of problem