Sugon

# Sugon I620-G20

# User's Manual

DAWNING INFORMATION INDUSTRY CO., LTD.

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This manual is intended to help users to use the server product of Sugon correctly (hereinafter referred to as "This Product"). Please read all accompanying materials carefully before you install and use this product for the first time, especially for the considerations mentioned in this manual. This will help you to better use this product safely. Please keep this manual properly for the future reference.

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# Operating Instruction for Power Supply

## Switch on power supply for servers

To switch on the power supply for servers, please press the "ON/OFF" button.

## Switch off power supply for servers

1. Backup the server data.
2. Shut down the operating system in accordance with the instruction of the operating system document.

(If the operating system puts the server in standby mode automatically, skip the next step.)

3. Press the "ON/OFF" button to put the server in the standby mode. When the server activates the Wait for Power mode, the system power LED indicator will change to red.
4. Unplug all power cords. At present, the system is in the Power-off status.

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## Requirement for Power Supply

This equipment shall be installed in accordance with the local or regional electrical regulations on the installation of information technology equipment, and the installation procedure shall be completed by the recognized electrical engineer. The equipment is designed elaborately and can operate in the installation environment that complies with the national power supply specification. For the power supply rating of relevant options, please refer to the product rating label or the accompanying user document of the option.

When more than one server are installed, other power distribution equipment may be needed to supply the power for all equipment safely. Please observe the following guidelines:

- Balance the server power supply load between the available AC power supply branch circuits.
- The total AC current load of the system is not allowed to exceed 80 percent of the AC current rating for the branch circuit.
- Do not use the ordinary power wiring board to connect with this equipment.
- The server is powered by the separate circuit.

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## Requirements for Electrical Grounding

The server shall be grounded properly to make it operates normally and ensure safety. This equipment shall be installed in accordance with the following requirements: Any regional or national/local electrical connection procedure, such as part 1 - 7 of IEC rules 364. Furthermore, it is necessary for you to ensure that all power distribution equipment used during the installation (such as the branch connection and socket) is of the listed or certificated ground type equipment.

For several servers connecting to the same power supply are needed to lead a large amount of electric current into underground, Sugon suggests the used PDU is connected to the branch circuit of buildings fixedly or equipped with one non-detachable wire which is connected with the industrial plug. All plugs which comply with the IEC 60309 standard shall be considered as applicable plugs. It is not suggested to use the ordinary power wiring board to connect with this server.

## Electrostatic Discharge

### Electrostatic Discharge Prevention

In order to prevent from damaging the system, it is necessary to take necessary precautions when you install the system or take out/put in the component. The static electricity discharged by fingers or other conductors may damage the main board or other electrostatic sensitive equipment. The electrostatic damage will shorten the expected service life of above-mentioned equipment. To prevent the electrostatic damage, attention shall be paid to the following aspects:

- The product shall be packed in the anti-static package to prevent from touching the product by hands directly during the transportation and storage.
- Before the electrostatic sensitive components are transported to the work place which is not affected by static electricity, put them in their respective package for storage.
- Take out the equipment from their package, and do not put it down, but install it into the server directly. If you want to put down the equipment, put it back in the anti-static package. Do not put the equipment on the outer cover or metal surface of the server.
- When the equipment is still in the anti-static package, the equipment shall contact the unpainted outer metal surface of the server for 2 seconds at least. In this way, it can implement the electrostatic discharge of the anti-static package and your body.
- Minimize the movement. The movement will lead to the accumulation of static electricity around your body.
- Hold the edge or frame of the equipment, and operate the equipment carefully.
- Do not touch the welding point, pin or exposed circuit.
- Do not put the equipment in the place where other people can touch and damage it.
- When you touch the electrostatic sensitive components or devices, it is necessary to take appropriate grounding measures.
- You should take particular care when operating the equipment in cold weather. The heating system will reduce indoor humidity and increase static electricity.

### Grounding Method for Electrostatic Discharge Prevention

There are several grounding methods. You can use one or more of the following methods when you take out/put in or install the electrostatic sensitive components:

- You can use the wrist strap, which is connected with the grounding work area or computer chassis by grounding wire. The wrist strap shall be scalable flexibly, and the resistance of the grounding wire shall be 10 percent of 1 Mega ohms at least. To achieve the grounding purpose, the wrist strap shall be close to the skin tightly when you put on it.
- Use the heel strap, toe strap or boot strap in the vertical work area. Tie the belt on your feet when you stand on the conductive floor or dissipative static floor mat.
- Use the conductive field maintenance tool.

• Combine with the use of dissipative static folding tool pad and portable field maintenance kit.

## Dangerous Warning Statement

### [Warning]

This product is of the grade A product. The product may cause the radio interference in the living environment. In this case, it may require users take practical measures to prevent the interference.

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The current in the power supply, telephone and communication cable is dangerous. In order to eliminate the risk of electric shock:

• Do not connect or disconnect any cable, or install, maintain, or reconfigure this product during the lightning.

• Connect all power cords to the power supply socket with the correct wiring and proper grounding.

• Connect all equipment which needs to be connected to this product to the socket with the correct wiring.

• Connect or disconnect the signal cable by one hand as far as possible.

• Do not turn on any equipment when there is signs of fire, flood or house collapse.

• Unless otherwise stated during the installation and configuration, disconnect the connected power cord, remote communication system, network and modem before you open the outer cover of the equipment.

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### Statement **1**:

### [Note]

The power control button on the equipment and the power switch the power supply will not disconnect the current of the supply equipment. The equipment may be also provided with more than one power cord. To enable the equipment to be powered off completely, ensure all power cords are disconnected with the power supply.

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### Statement 2:

### [Note]

Do not remove the outer cover of power supply or the outer cover of any component with the following label. There is dangerous voltage, current and energy level in any component with this label. There is not any maintainable component in these components. If you suspect some component with any problem, please contact technical service personnel.

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### Statement 3:

### [Danger]

In some cases, the high branch circuit load may cause the fire and electrical shock hazard. In order to prevent such risks, ensure that the electrical requirements of the system does not exceed the protection requirements of the branch circuit. Refer to the accompanying information of the equipment to understand the electrical specification.

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Operate in the interior of power-on server.

[Warning]

When the server is powered on, the static electricity discharged into the internal components of the server may cause the server to abort abnormally, which may cause data loss. To prevent this potential problem, please always use the ESD wrist strap or other grounding systems when you operate inside the power-on server. The server (some models) supports the hot plug equipment and is designed to operate safely when the server is powered on and the outer cover is removed. Please observe the following guidelines below when you operate inside the power-on server.

- Prevent from putting on clothes with loose cuffs. Clamp the button on the cuffs of long sleeve shirt before you operate it in the server internally. Do not wear any cuff links when you operate inside the server.
- Do not let tie or scarf down into the server.
- Take off all jewelries, such as bracelet, necklace, ring and loose wrist watch.
- Take out items in shirt pocket (such as pen and pencil) which may fall into the server when you bend over the server.
- Prevent any metal items (such as paper clip, hair clip and screw) from falling into the server.

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### Statement 4:

In order to reduce the risk of personal injury, fire or equipment damage, the AC power supply branch circuit powered for the rack shall not be overloaded. Please consult with the electrical agency who formulates the equipment wiring and installation requirements.

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### Statement 5:

Use the adjustable UPS to prevent the server from being affected by the power fluctuation and temporary power outage. This equipment can prevent the hardware from being damaged by the impact of surge and peak voltage, and maintain the system in normal operation state during power failure.

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### Statement 6:

When you use the cable management arm component, each cable shall be kept loose to prevent from damaging the cable when taking out server from the rack.

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### Statement 7:

To reduce the risk of electric shock or equipment damage, attention shall be paid to the following aspects:

- Make sure to use the grounding plug of the power cord. The grounding plug can perform important safety protection function.
- Always plug the power cord into the nearby accessible grounding power socket.
- Unplug the power cord to disconnect the power supply of the equipment.
- Do not put power cord in a place where it is easy to be stepped on or squeezed by the object beside it. Special

attention shall be paid to the plug, power socket and the connection point between power line and server.

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# 1 System Overview

The following sections provide detailed information about the I620-G20 system.

## 1.1 I620-G20

- I620-G20 server is a high-performance 2-way server, which is developed by Sugon based on the latest Intel Grantley-EP platform. This server supports the latest Intel Haswell CPU, which is made by using 22nm processor and supports 4-way DDR4 memory. Each channel can supports up to 3 memory DIMM slots, maximum 2133MHz, higher QPI link rate, more CPU cores, and maximum 18 physical cores. The server integrates 40 Lanes PCIE 3.0.
- The I620-G20 server supports 8, 12, 16 and 24 disks and maximum 24 2.5 inch SATA/SAS hard disk, which can satisfy the administrative server requirements of general users and can be used as the storage server for massive storage. More PCI-E slots, brand-new horizontal card and high-rate PCI-E bus enable users to realize easy expansion.
- The I620-G20 server is very applicable to the industries such as Internet, photo-electricity, public security, telecommunication and power, which require stricter energy consumption ratio and reliability.

## 1.2 Product Features

### Versatile Chassis Bay

- The chassis is divided into 8-disk chassis, 12-disk chassis, 16-disk chassis and 24-disk chassis.
- Optionally support two 2.5 inch built-in hard disks (non-hot plug) and be compatible to SATA/SAS/SSD hard disks.
- Optionally support 2 or 4 rear disk slots and be compatible to different hard disks such as SATA/SAS/SSD;
- The monitoring functions based on the LCM monitoring screen are added for 8 and 16 disk slots. The monitoring screen supports to display the SUGON Logo, CPU model and BMC IP address and inquire CPU temperature, fan rotation speed and current operation power. When a server fails to boot, the server can display corresponding Debug Code. A user can quickly locate the problem by inquiring or providing Debug Code and quickly solve the server failure.
- The power specification is completely upgraded to CRPS specification. This uniform industrial specification enables the product quality to keep abreast with the international level. The power meets the requirements of 80Plus platinum power. The conversion efficiency reaches 94%, so it can save energy and protect the environment. The standard single-power module is adapted to the user's single power requirement. One power redundant module is optionally configured to upgrade to 1+1 redundant power. In addition, when the user selects to install GPU, the server optionally supports 1200W high-power CRPS redundant power powered by GPU.

### High performance

- The latest Intel E5-2600 v3 processor is used to provide higher performance for different user applications. Compared to older products, Intel Xeon E5-2600 v3 processors are improved more, including integrated PCI-E controller inside the processor. The PCI-E bus is upgraded to 3.0 standards and extremely improves the expansion performance. More and quicker QPI buses are used between processors to improve the collaboration efficiency between CPU much.
- The server supports 1866/2133 MHz DDR4 memory. Each CPU integrates 4-way memory controller. Compared to older product, the memory bandwidth performance can be improved by maximum 40% and the memory power consumption will reduce by 25%.

### High reliability

- Provide advanced memory error tolerance function.
- Provide optional RAID configuration, support online RAID array recovery, and secure data in case of a hard disk failure.
- Support multi-network card redundancy, which can share the network traffic when the system operates normally. When one network card fails, the shared work will be automatically switched to other network cards.
- The front panel is designed with the monitoring screen, which can monitor the system hardware and display the system information and operation state of the hardware such as CPU and fan.
- Standard 1+1 redundant power, which can avoid instantaneous power failure and provide the users with more stable and reliable system power.
- The server support 6 PCI-E 3.0 expansion slots and is designed with the horizontal slot. The server supports full-height cards such as GPU and provides high scalability.

### High Manageability

- Optional intelligent hardware monitoring system, which displays the operation states such as internal temperature, fan rotary speed and DC power voltage, and can automatically record the time and log information for failure analysis when the host stops operation due to a failure.
- Support intelligent and dynamic adjustment of fan’s rotating speed, which can dynamically adjust the fan’s rotating speed with the system temperature and effectively reduce the system noises and power consumption.
- Be configured with front panel touch screen for easy management.

### Easy maintenance

Integrate iKVM function, which can provide remote operation and maintenance, provide failure indication function, and effectively reduce crash risk of users.

## 1.3 Product Specification

### 1.3.1 Technical Specification

Table 1-1 I620-G20 Parameter Table

| Parameter name | Specification |
|---|---|
| **Processor** | Support Intel Xeon E5-2600v3 multi-core processor, high-speed QPI interconnection bus (9.6/8.0/6.4 GT/s, depending on different CPU models), high-capacity L3 cache (15/20/25/30/35 MB, depending on CPU models). |
| **Memory** | 24 memory slots<br>Support DDR4 2133/1866 ECC memory (the work frequency will vary with CPU and memory configuration)<br>The memory can expand to maximum 1.5TB |
| **Memory controller** | Integrate 8-port SATA hard disk controller and support RAID 0, 1, 5 and 10<br>Optionally integrate 8-port SAS RAID card and support RAID 0/1/5/6/10/50/60 |
| **Hard disk scheme** | Four optional hard disk schemes for four models:<br>8-disck model can support maximum 8 3.5 inch or 2.5 inch hot-plug SAS/SATA hard disk<br>16-disck model can support maximum 16 2.5 inch hot-plug SAS/SATA hard disk<br>12-disck model can support maximum 12 3.5 inch or 2.5 inch hot-plug SAS/SATA hard disk<br>24-disck model can support maximum 24 2.5 inch hot-plug SAS/SATA hard disk<br>All models should support mixed insertion of SAS/SATA hot-plug and optional 4 rear hot-plug 2.5 inch<br>SATA/SAS hard disk or SSD hard disk |
| **Display system** | Graphic controller integrating BMC chip |
| **CD ROM** | Optional SATA ultra-thin DVD-RW CD ROM or USB DVD-RW CD ROM |
| **Network card** | Integrate double 1000M network card and one management network interface (independent). |
| **Expansion slot** | Support maximum 8 PCI-E expansion slots<br>Optionally support horizontal Riser expansion card and maximum 5 full-height expansion cards;<br>Optionally install high-performance GPU (with high-power power supply) |
| **External device interface** | 1 RJ-45 management interface in the rear of the chassis<br>4 USB 2.0 interfaces, including 2 interfaces in the rear of the chassis and 2 interfaces at the front of the chassis<br>1 VGA interface in the rear of the chassis and optional front VGA<br>1 serial port in the rear of the chassis |
| **Chassis size** | 87.8mm(height)x 448mm(width)x794.4mm(depth) |
| **Power voltage** | 220V 50Hz |
| **Heat dissipation system** | 4 intelligent speed-adjusting and hot-plug system fans |
| **Compatible OS** | Windows Server 2008 Enterprise Edition R2 SP164bit<br>Red hat Enterprise Linux 6.2 for Intel EM64T<br>SuSE Linux Enterprise Server 11 SP2 for Intel EM64T |

Table 1-2 Model Parameter Table of Different hard disk bays

| Disk number | Type of disk | Monitoring screen | Power supply | Built-in CD |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **8 disks** | 3.5 inch (compatible to 2.5 inch) | Optional | Support CRPS 550W, 800W and 1200W power module<br>Support 1+1 redundancy | Support |
| **12 disks** | 3.5 inch (compatible to 2.5 inch) | Not supported | Support CRPS 550W, 800W and 1200W power module<br>Support 1+1 redundancy | Not support |
| **16 disks** | 2.5 inch | Optional | Support CRPS 550W, 800W and 1200W power module<br>Support 1+1 redundancy | Support |
| **24 disks** | 2.5 inch | Not support | Support CRPS 550W, 800W and 1200W power module<br>Support 1+1 redundancy | Not support |

Note: Sugon reserves the right to change the configuration without the prior notice to users.

### 1.3.2 Application Environment of Products

Table 1-3 Operation environment of products

| Parameter | Operation indicator |
|---|---|
| **Operation space** | 2U |
| **Operation temperature** | 10℃-35℃(50℉-95℉) |
| **Operation humidity** | 35%-80% RH |
| **Transportation and storage temperature** | -40℃-55℃(-40℉-131℉) |
| **Transportation and storage humidity** | 20%-93% RH(40℃) |
| **Elevation** | Less than or equal to 3000m |
| **Falling height in packing and transportation** | Less than or equal to 600mm |

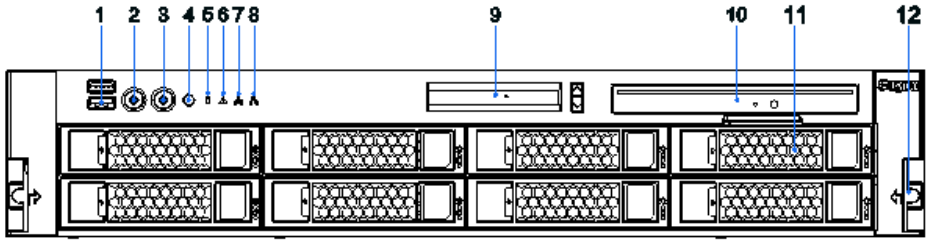
# 2 Architecture and Installation

This chapter describes the overall system architecture and installation for the I620-G20. You can know basic structure principle and correct wiring mode of I620-G20 server and notices for safe server operation in this chapter. To carefully read this chapter, it will contribute to safe and stable operation of the I620-G20 server much.

## 2.1 Product components

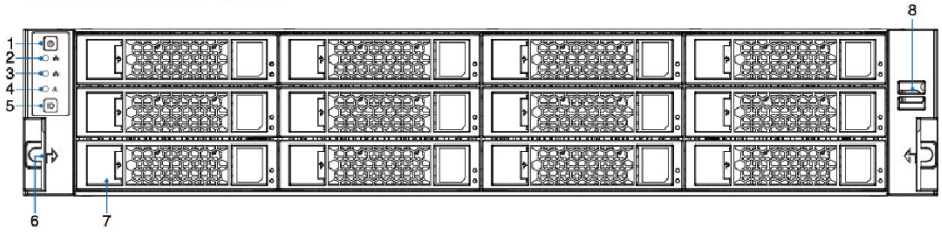
### 2.1.1 Front panel component

1. USB 2. Power Button 3. ID Button 4. Reset button 5. HDD LED
6. Warning LED 7. NIC1 8. NIC2 9. LCM 10. Optical Disc Drive
11. Hard Disk Drive 12. Unlock Clips



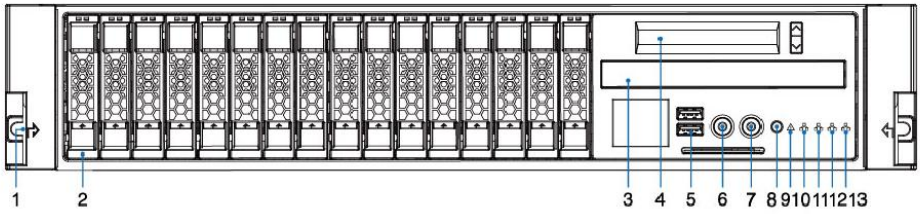

Front view of 8 HDD bays of the I620-G20

1. Power Button 2. NIC1 3. NIC2 4. Warning LED 5. ID Button 6. Unlock Clips
7. Hard Disk Drive 8. USB



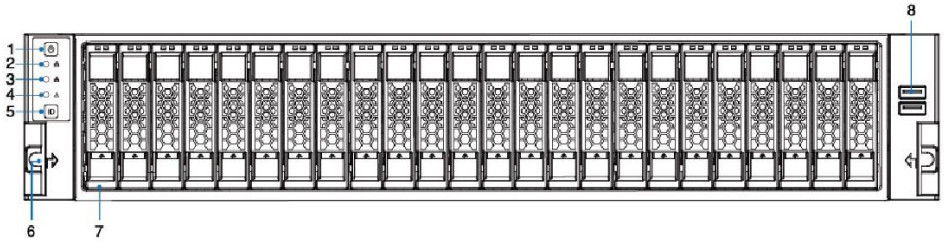

Front view of 12 HDD bays of the I620-G20

1. Unlock Clips 2. Hard Disk Drive 3. Optical Disc Drive 4. LCM 5. USB
6. Power Button 7. ID Button 8. Reset Button 9. Warning LED 10. NIC4
11. NIC3 12. NIC2 13. NIC1




Front view of 16 HDD bays of the I620-G20

1. Power Button 2. NIC1 3. NIC2 4. Warning LED 5. ID Button 6. Unlock Clips
7. Hard Disk Drive 8. USB Port




Front view of 24 HDD bays of the I620-G20

Figure 2-1 Front view of I620-G20

Table 2-1 Description of key functions

| Key | Symbol | Function description |
|---|---|---|
| Power button |  | Click power button: power on or send power off command to OS<br>Hold power button: forcefully power off |
| ID button | ID | Turn on or turn off blue ID lamp for server identification |
| Reset key | Rst | To press Reset key, the server will restart |

Table 2-2 Description of front panel LED indicator function

| LED indicator | Symbol | Function description |
|---|---|---|
| Hard disk indicator |  | On: the hard disk works normally; Off: hard disk failure or no hard disk |
| System failure indicator |  | Off: the server system fails or is exceptional; Off: the server works normally |
| ID indicator |  | It is installed on ID key. The blue indicator is on. The user can recognize this server mark. |
| NIC1/NIC2 indicator |  | On: the onboard LAN works; Off: the onboard LAN is inactive; |
| Power indicator |  | It is installed on the power button. On: the server is in operation; Off: the server does not start |

**Operations on server reset button**

The position of the reset button on the server is shown as the figure 2-2. When a user resets the server, he can press the reset button by using the nib or sharp objects (shown as the figure) and restart the server.

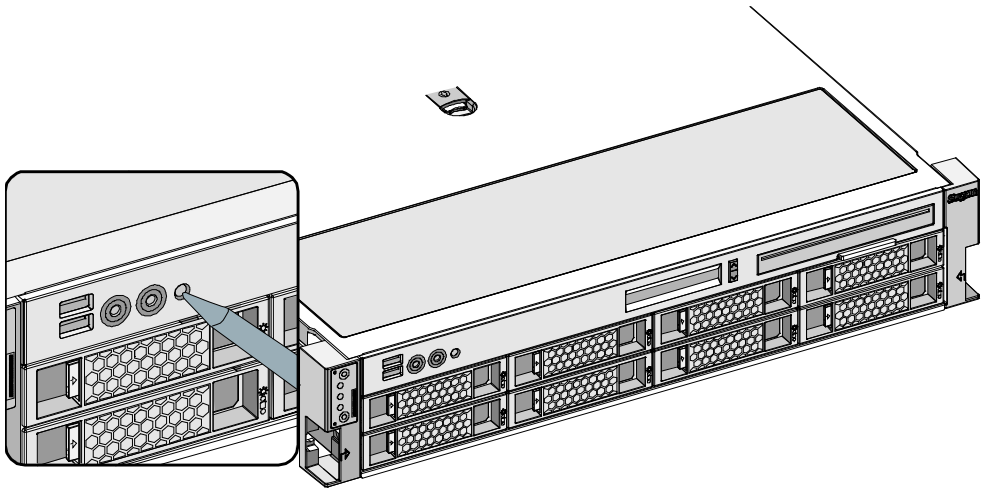


Figure 2-2 Schematic diagram of reset key

**Description of hard disk indicator**

Each hard disk is configured with two LED indicators, including active indicator and Status indicator, shown as the figure 2-3.

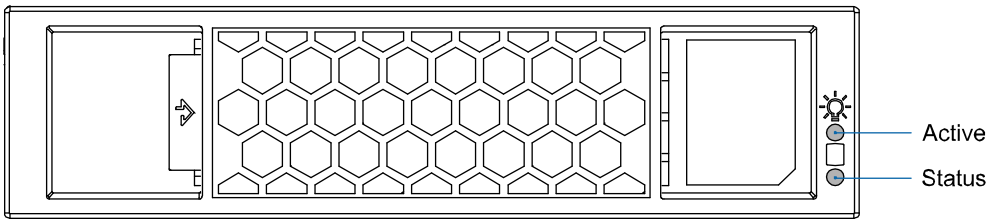



Figure 2-3 Schematic diagram of hard disk indicator

The Active indicator is the green monochrome LED indicator. The Status indicator is the green/amber double-color LED indicator. By observing the status change of two indicators, you can get the operation status of the hard disk, shown as the table 2-3.

Table 2-3 Description of hard disk rear board indicator

| Active indicator | Status indicator | Hard disk status |
|---|---|---|
| Off | Off | The hard disk does not boot |
| On | Off | The hard disk do not execute read operation and is under the idle state |
| Flicker | Off | The hard disk is operating and is under read/write status |
| On | Green indicator is on | The hard disk controller management interface shows Locate operation in execution |
| Flicker | Amber indicator slowly flickers (1Hz) | The hard disk is executing RAID reestablishment |
| On | The amber indicator is on | A hard disk in reconstructed RAID group is removed |

### 2.1.2 Rear panel component

The rear panel view of the server will vary with the configuration of IOM module, Riser card and rear hard disk, shown as the figure 2-4.

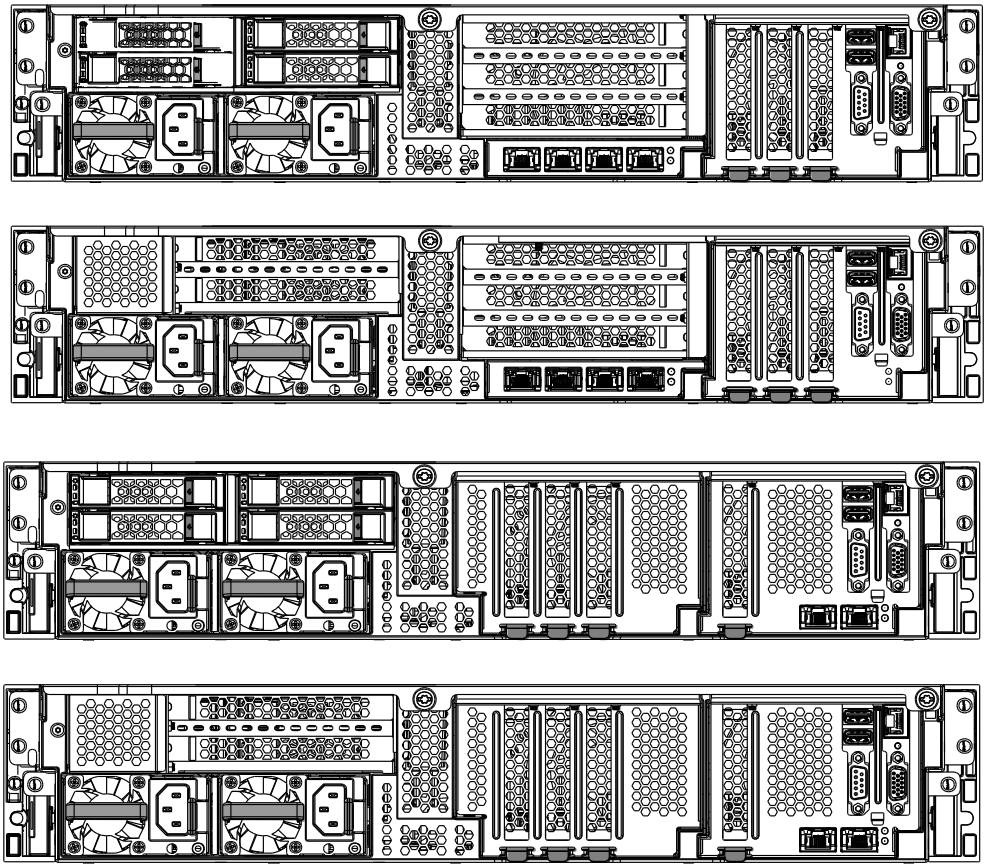


Figure 2-4 Rear view of product

Table 2-4 Interface description of rear panel

| Symbol | Description |
|---|---|
|  | USB interface |
|  | VGA interface (video interface) |
|  | COM interface (serial port) |
|  | Network interface/BMS management interface |
|  | AC input end |

## 2.2 Disassembly of product chassis and main components

This section will introduce disassembly steps and notices of I620-G20 server to you. Please disassemble the I620-G20 server according to the requirements.

**Note**: All images are only for reference, refer to the material objects.

### 2.2.1 Preparation prior to power on

**Open the server packing box**

- Before unpacking, make sure to check if the chassis package is damaged. If any damage occurs, please consult the delivery person, fill related cords, and keep the delivery certificates.
- Unpack the product, check the list of accompanied component and determine if the accompanied components are complete. If any component is missing, please confirm it together with the filed engineers. First unpack plastic bag outside the packing box, place it at the proper site for keeping, lift the host from the packing box, remove the plastic bag for internal packing, and carefully and stably place the host at the proper site.

**Server placement**

- Please select a proper placement site for the server, which is clean, well ventilated and is remote from the heat source and strong electromagnetic area, provide enough operation space for easily plugging off the power cable from the power and power socket, and ensure good power grounding.

**Sever wiring**

After the server is placed under proper conditions, you should disassemble fitting box, take out the keyboard, mouse and power cable, and connect the server.

- Connect the keyboard and mouse to the USB interface.

**【Notice】** Do not plug in/off or forcefully plug in/off keyboard and mouse wire under live state. Otherwise, it will damage the interface damage of the server host.

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- Connect the display, match the display signal cable properly according to the interface shape, slightly insert it, and lock fixing screws on both sides.
- Connect the network cable with standard RJ45 interface and insert it into the interface with NIC text on the I/O rear board;
- Connect the standard 220V input power cable, use the three-wire interface with secure grounding and confirm that the general power is disconnected before the power cable is inserted.
- Finally check if different parts are wired correctly. After it is fastened, to turn on the general power switch, you will enter the brand-new 64-bit computer world.

### 2.2.2 Steps for uncovering server

Step 1: Pull the chassis latch, lift it upward, and take the up cover of the front half part of the chassis.

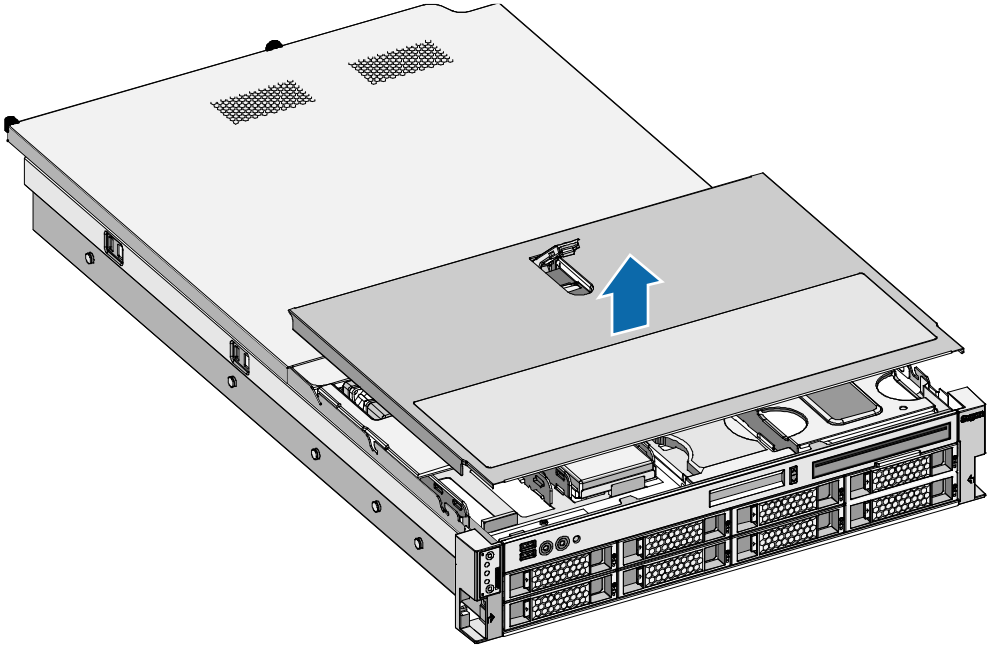


Figure 2-5 Open cover from chassis

Step 2: Anticlockwise rotate the rear fixing screws of the chassis, push the up cover plate back, and take off the rear cover.

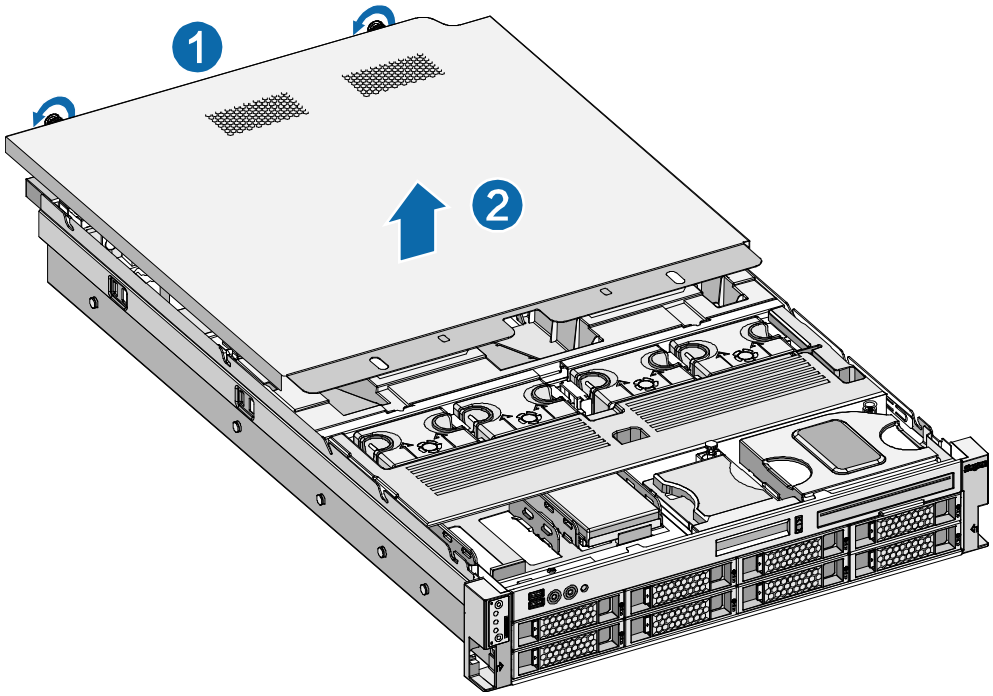



Figure 2-5 Take off the cover

Step 3: Take off the line shielding cover and air director.

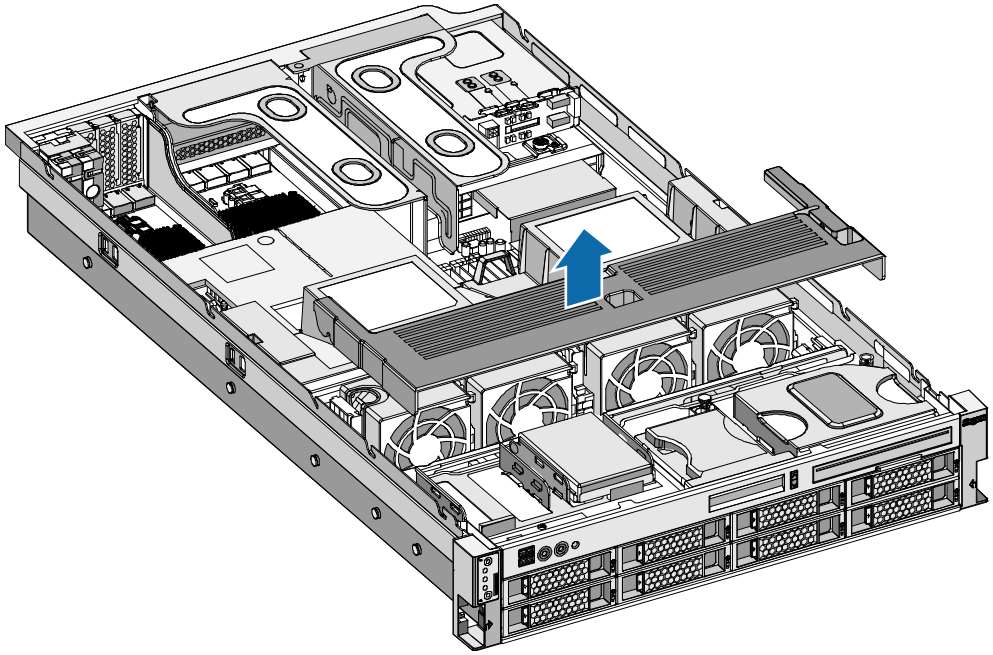


Figure 2-6 Take off air director and line shielding cover

### 2.2.3 Removing CPU

【Notice】 When the CPU is installed, please notice the following items:

- Take and place it carefully in case of installation. Notice that CPU should not slide and damage the pin inside the CPU slot on the mainboard. Carefully check CPU slot of the mainboard in case of installation and check damage. If the pin inside CPU is damaged, please contact us in time.
- If the server starts without installed heat radiator, it will easily lead to CPU over-heat and CPU burning and bring unnecessary loss.

Step 1: First find the CPU slot on the mainboard, shown as the figure 2-7.

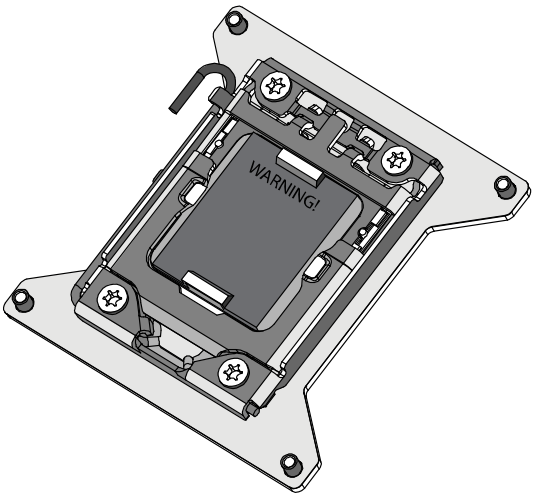


Figure 2-7 CPU Socket schematic diagram

Step 2: Loosen CPU locking rod by referring to the figure 2-8.

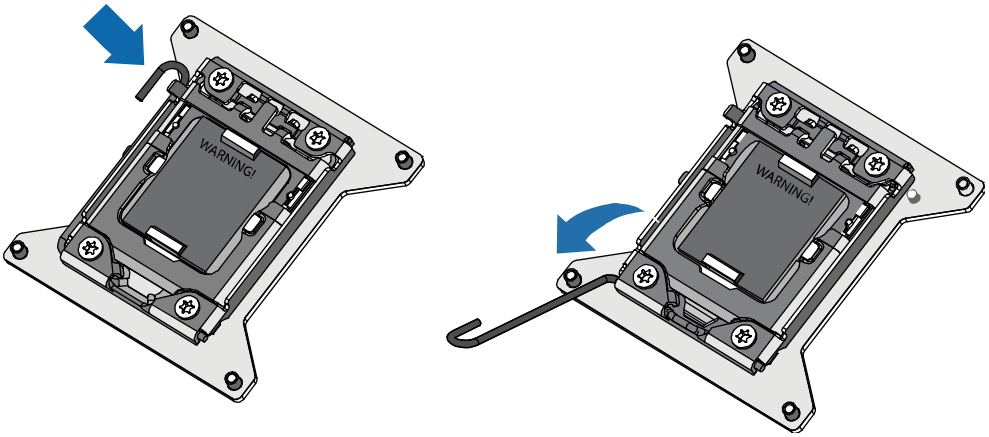



Figure 2-8 Schematic diagram for opening CPU locking rod

Step 3: Shown as the figure 2-9, please loosen the locking rod and uncover the protective cover in the arrow direction in the figure.

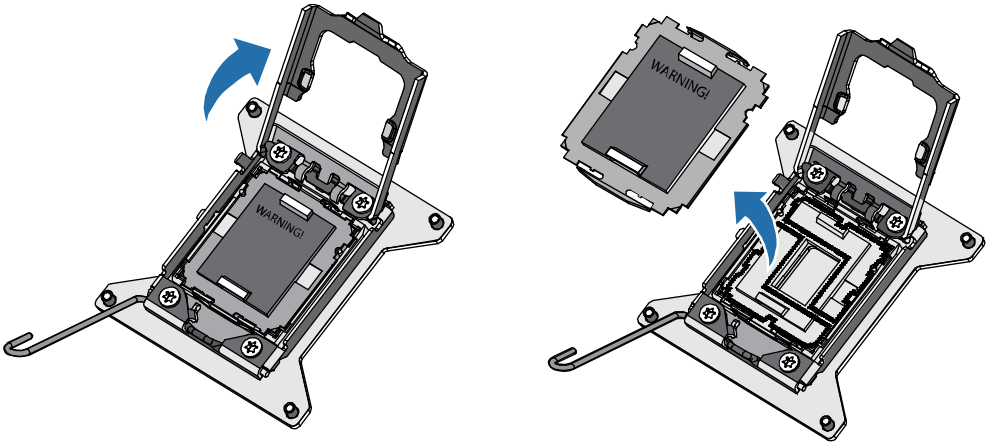



Figure 2-9 Schematic diagram for opening CPU protective cover

Step 4: Shown as the 2-10, place CPU into the CPU slot of the mainboard and notice mapping between CPU Keys and Socket Keys.

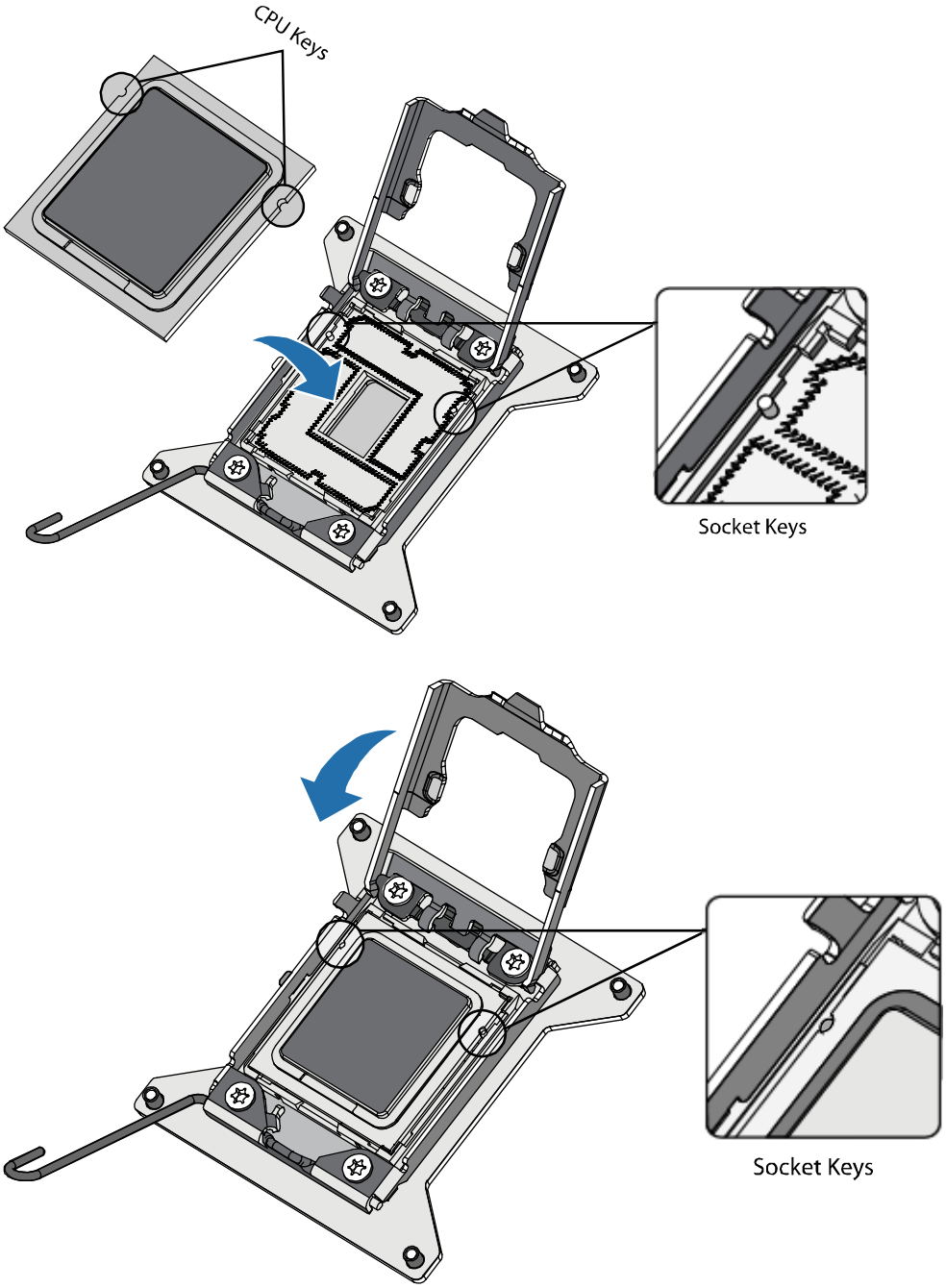



Figure 2-10 CPU installation

Step 5: Close the up cover of CPU Socket and snap the locking rod in place, shown as the figure 2-11.

Step 6: Repeat the above steps and install additional CPU.

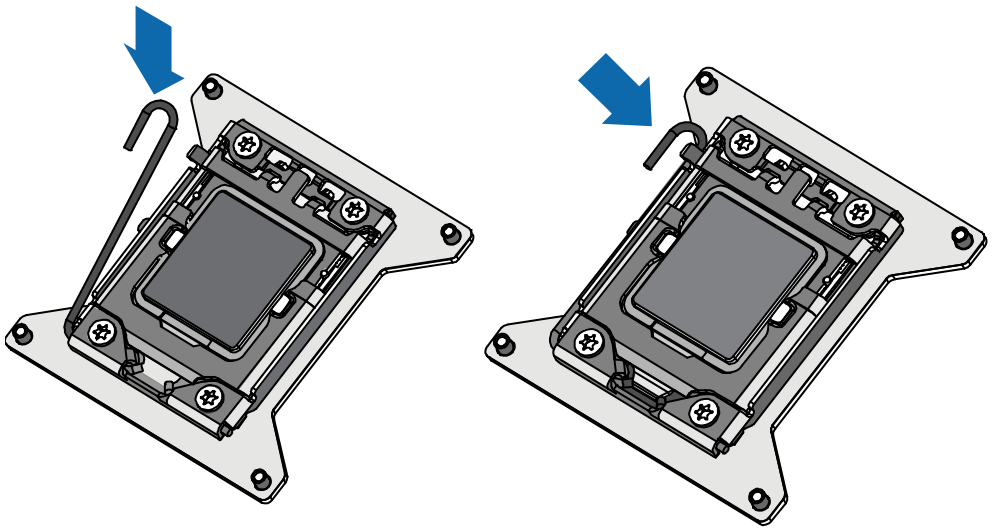


Figure 2-11 CPU locking

Note: Before the CPU is disassembled, first remove the heat radiator on CPU and then CPU

### 2.2.4 Removal steps of CPU heat radiators

【Notice】Before CPU heat radiator is installed, check if the heat radiator has the silicon glue. If no silicon glue is available or the silicon glue is air drying, it should be painted again.

---

Step 1: Ensure that CPU is installed into CPU slot.

Step 2: Place the screw holes at four corners of the heat radiator and screw holes of CPU slot at the corresponding positions.

Step 3: Screw up the screws and fix and install CPU heat radiators.

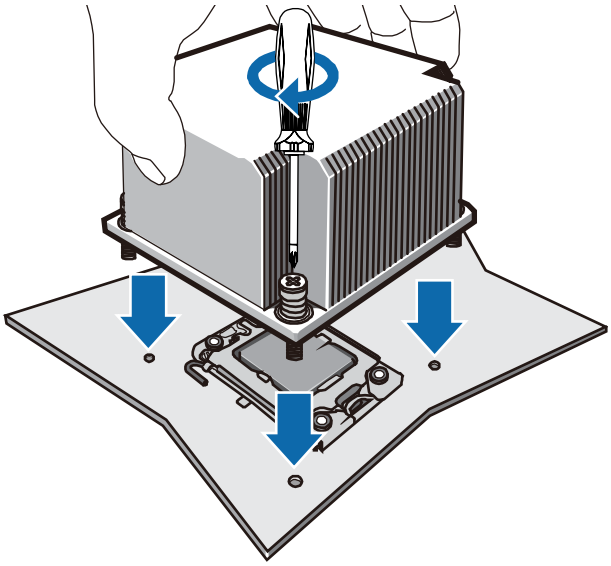


Figure 2-12 Install CPU heat radiator

Note: the disassembly steps are reverse.

### 2.2.5 Memory disassembly steps

Table 2-5 Memory installation rule table①

| | Installation of single CPU (CPU0 only) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quantity of memory Installed | 1 | 2 | 3 | 4 | 6 | 8 | 9 | 12 | | | | |
| CPU1_DIMMA0 | √ | √ | √ | √ | √ | √ | √ | √ | | | | |
| CPU1_DIMMA1 | | | | | √ | √ | √ | √ | | | | |
| CPU1_DIMMA2 | | | | | | | √ | √ | | | | |
| CPU1_DIMMB0 | | | √ | √ | √ | √ | √ | √ | | | | |
| CPU1_DIMMB1 | | | | | √ | √ | √ | √ | | | | |
| CPU1_DIMMB2 | | | | | | | √ | √ | | | | |
| CPU1_DIMMC0 | | √ | √ | √ | √ | √ | √ | √ | | | | |
| CPU1_DIMMC1 | | | | | √ | √ | √ | √ | | | | |
| CPU1_DIMMC2 | | | | | | | √ | √ | | | | |
| CPU1_DIMMD0 | | | | √ | | √ | | √ | | | | |
| CPU1_DIMMD1 | | | | | | √ | | √ | | | | |
| CPU1_DIMMD2 | | | | | | | | √ | | | | |

Memory installation rule table②

| | Installation of double CPU (CPU0 and CPU1) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quantity of memory Installed | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 21 | 24 |
| CPU1_DIMM_A0 | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_A1 | | | | | | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_A1 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_B0 | | | | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_B1 | | | | | | | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_B2 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_C0 | | | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_C1 | | | | | | | √ | √ | √ | √ | √ | √ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CPU1_DIMM_C2 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_D0 | | | | | √ | √ | | √ | √ | | √ | √ |
| CPU1_DIMM_D1 | | | | | | | | √ | √ | | √ | √ |
| CPU1_DIMM_D2 | | | | | | | | | | | √ | √ |
| CPU1_DIMM_E0 | | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_E1 | | | | | | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_E2 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_F0 | | | | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_F1 | | | | | | | √ | √ | √ | √ | √ | √ |
| CPU1_DIMM_F2 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_G0 | | | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| CPU1_DIMM_G1 | | | | | | | √ | | √ | √ | √ | √ |
| CPU1_DIMM_G2 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_H0 | | | | | √ | √ | | | | √ | √ | √ |
| CPU1_DIMM_H1 | | | | | | | | | | √ | √ | √ |
| CPU1_DIMM_H2 | | | | | | | | | | √ | √ | √ |

Note: The √ in the table indicates the installation memory of this memory slot. The blank indicates that this memory slot is not installed with the memory.

**Installation method:**

Step 1: Open the spanner on both sides of the memory slot;

Step 2: Align the memory with the memory slot and make the opening on the memory module mapped with the memory slot.

Step 3: Press the memory into the memory slot forcefully till locking sound of the memory spanner is heard.

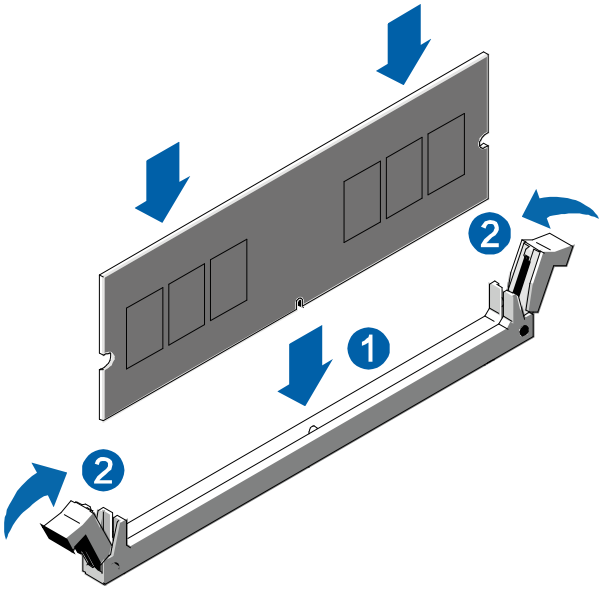



Figure 2-13 Schematic diagram of memory installation

Note: the disassembly steps are reverse.

### 2.2.6 Hard disk disassembly steps

Step 1: Lock the sunk area at the front of the hard disk with the hand and press the front fastener of the hard disk box.

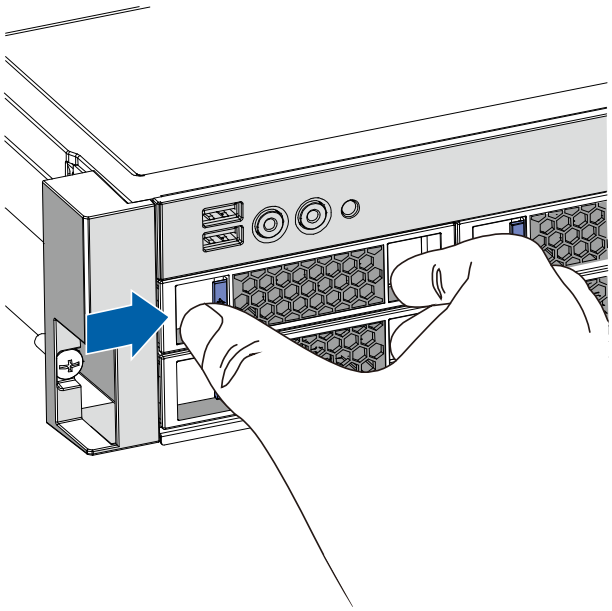


Figure 2-14 Lock hard disk box fastener

Step 2: After the tray rack is unlocked, pull the hard disk out forcefully.

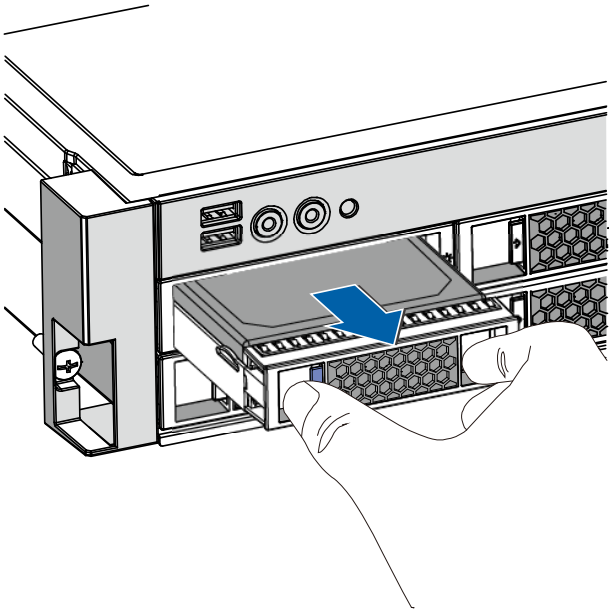


Figure 2-15 Pull out hard disk box

Step 3: Shown as the figure 2-16, place the hard disk into the hard disk box and fix it around the box with the screws.

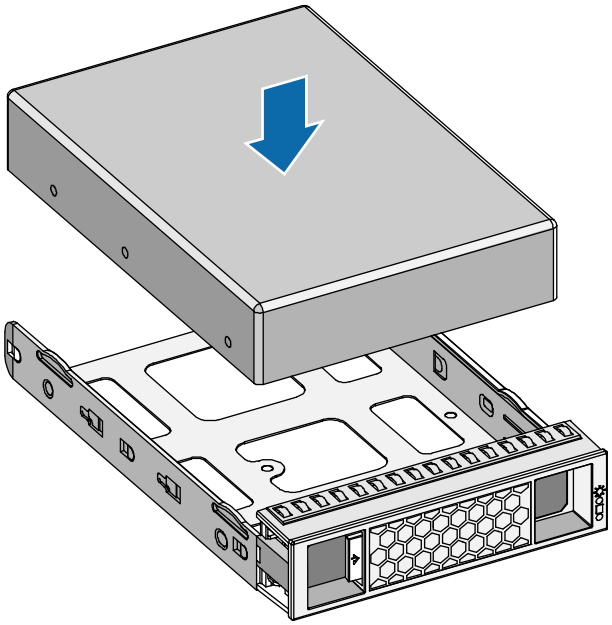


Figure 2-16 Fix hard disk

Remark: The hard disk is disassembled via the reverse steps.

### 2.2.7 Power disassembly steps

**Disassembly of redundant power**

Step 1: Press the blue locking buckle of the power module according to the direction in the following figure.

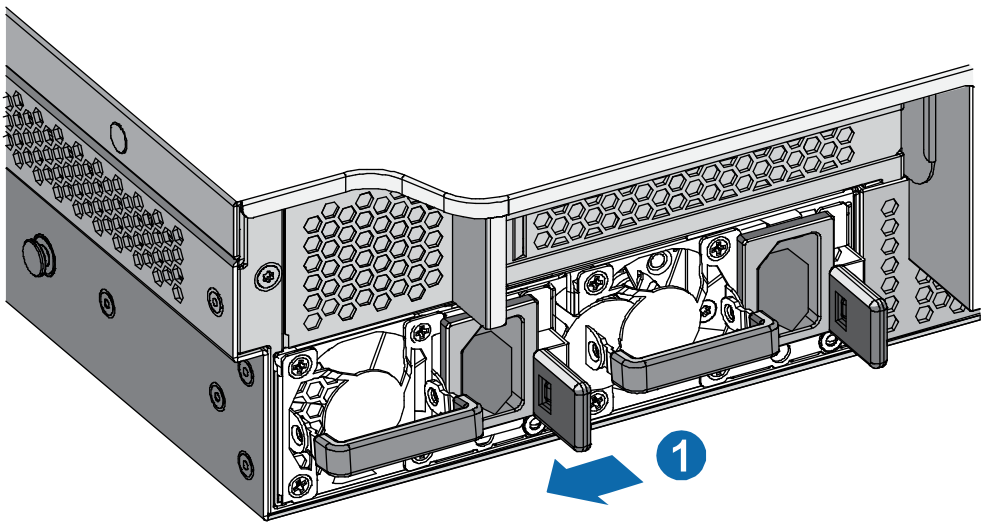



Figure 2-17 Press locking buckle

Step 2: Pull the power module drag the hook with the middle finger, extend it outward in the direction in the following figure, and take out the power module.

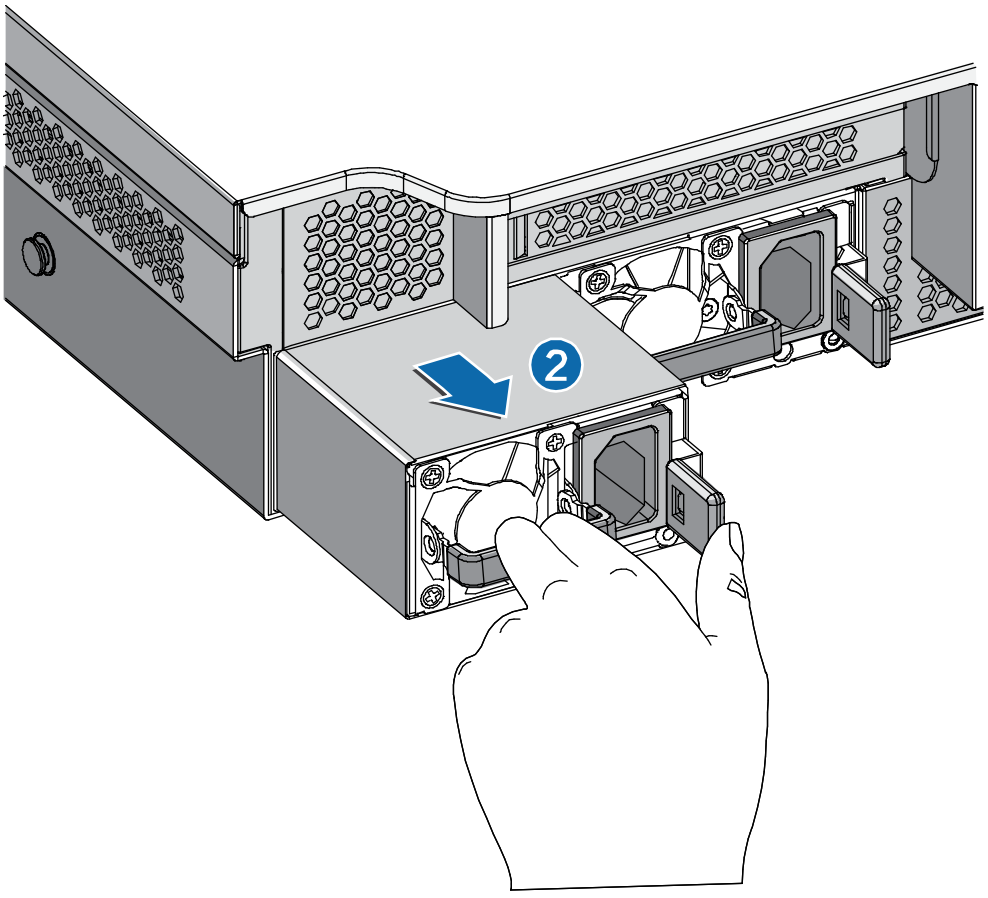



Figure 2-18 Plug out the power module

### 2.2.8 Disassembly steps of expansion cards

Step 1: Ensure one dummy wafer on any empty expansion slot. One open expansion slot without

dummy wafer will destruct the EMI (electromagnetic disturbance feature) integrity and reduce the system heat dissipation effect, so it may lead to over-heat, affect system performance or lead to component damage.

Step 2 Take off PCIE adapter, shown as the figure 2-19.

Step 3: Screw off the fixing screw of the dummy wafer of the expansion card and take off the dummy wafer on the expansion card;

Step 4: Horizontally insert the PCIE expansion card and fix it with the screws;

Note: The disassemble steps are performed reversely.

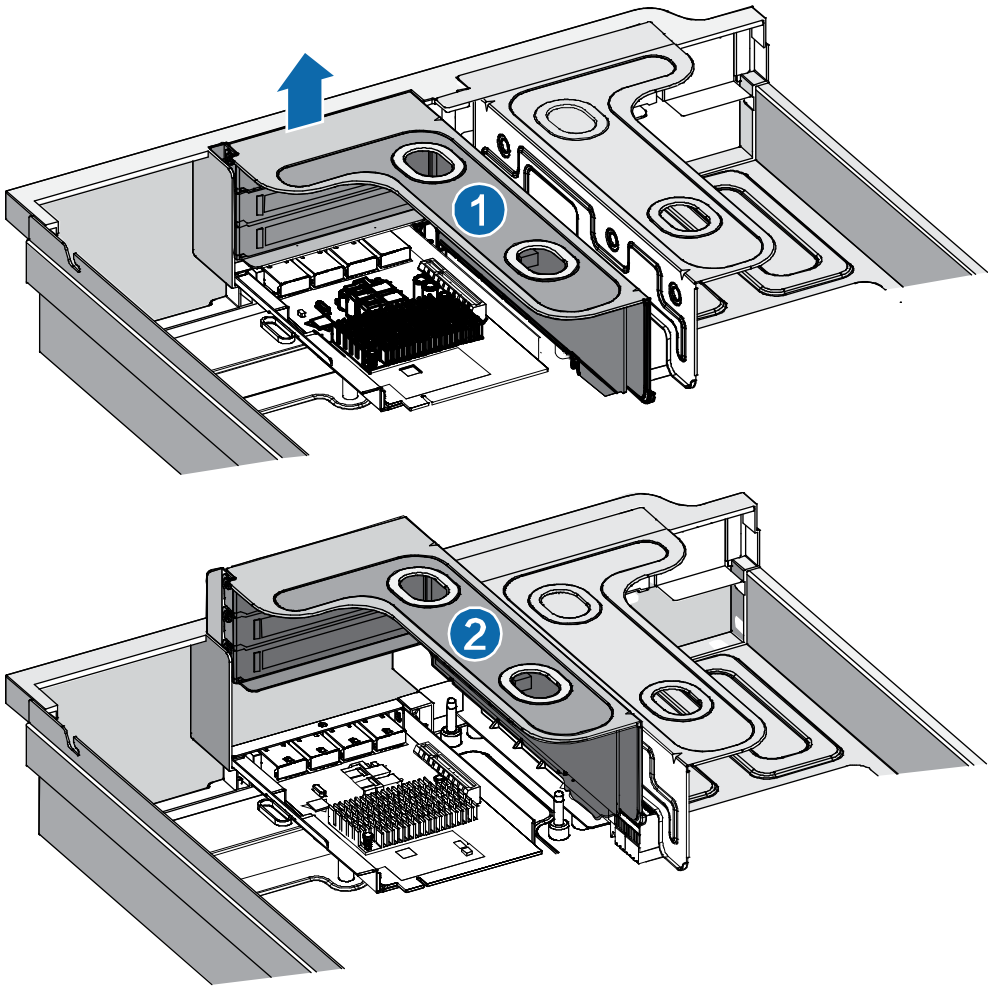



Figure 2-19 Installation of expansion card

### 2.2.9 Disassembly steps of fan

**Fan installation**

Step 1: Align the terminal of the hotspare fan module with the internal interface of the fan cabin.

Step 2: Insert the fan module downward till the locking sound of the shell splinter is heard, which indicates that the fan is installed.

**Fan disassembly**

Step 1: Insert the hand into the sunk area on both sides of the fan and press the fan fastener in the direction in the number ① in the figure.

Step 2: Pull out the fan in the direction of the number ② in the figure.

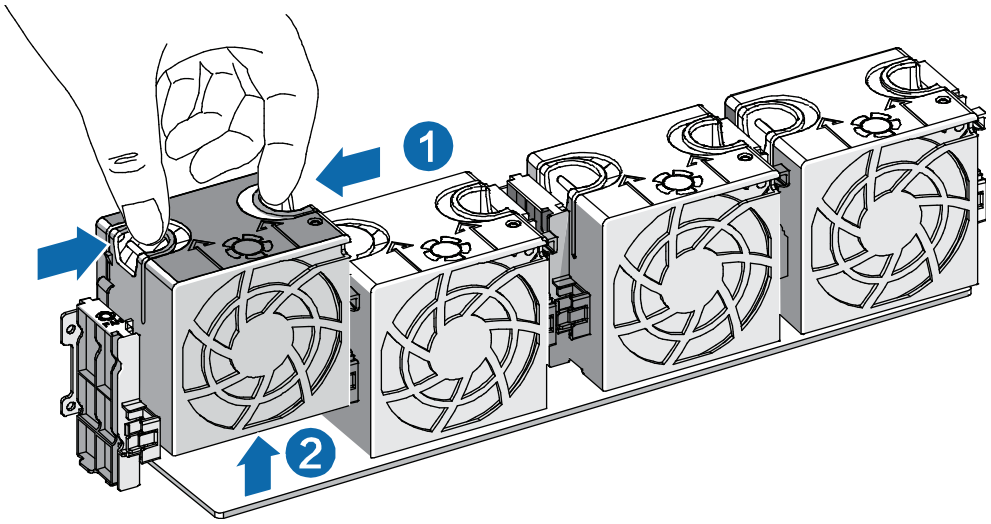



Figure 2-20 Fan pull-out schematic diagram

### 2.2.10 Installation instruction of guide components

**Take out the guide components and pull out the internal guide.**

Guide components

Shown as the following figure, A is the external guide and support component. B is the internal guide. C is the latch at the closing position of the internal guide. D is the locking plate at the opening position of the sliding rail. E is the screw to fix the external guide support and cabinet (specification: ＃8-32×1/2, number: 4). F is the screw to fix the internal guide and chassis (specification: #6-32X5, number: 2).

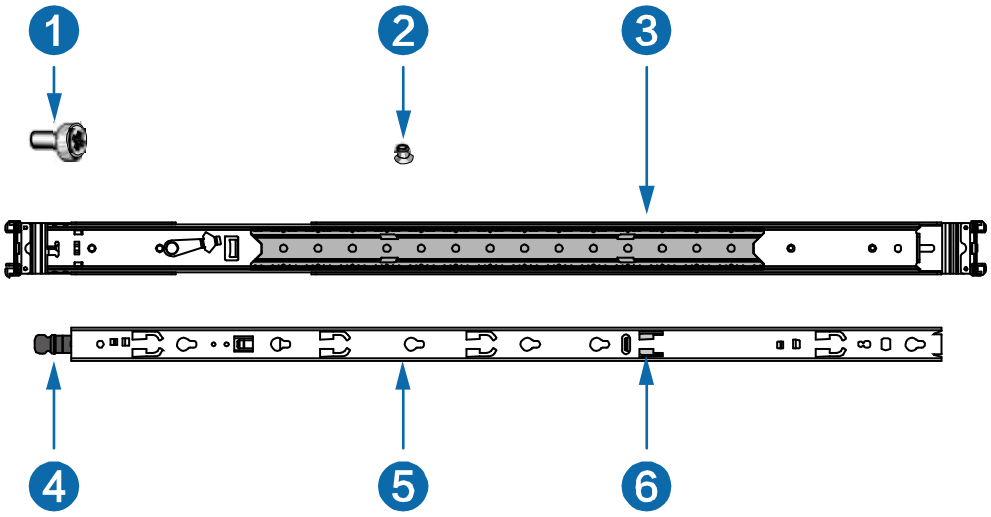



Figure 2-21 Guide components

**Fixing position of front support of sliding rail**

Shown as the figure 2-22, the fixing position of the front support of the sliding rail is selected according to the actual design size of the chassis. The front support is adjusted within 0-24mm. Total four fixing positions are available. The gap between two adjacent fixing positions is 8mm.

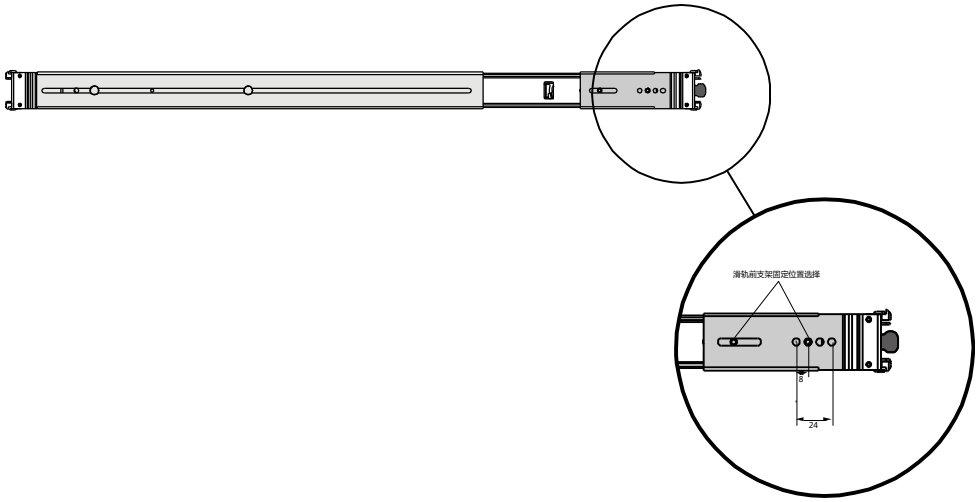


Figure 2-22 Fixing position of front support of sliding rail

**Pull out internal guide**

Pull out the internal guide till the internal guide is self-locked (shown as the following figure A) and press the locking plate at the opening position of the internal guide with the hand (shown as the following figure B), Fully pull out the internal guide along the direction.

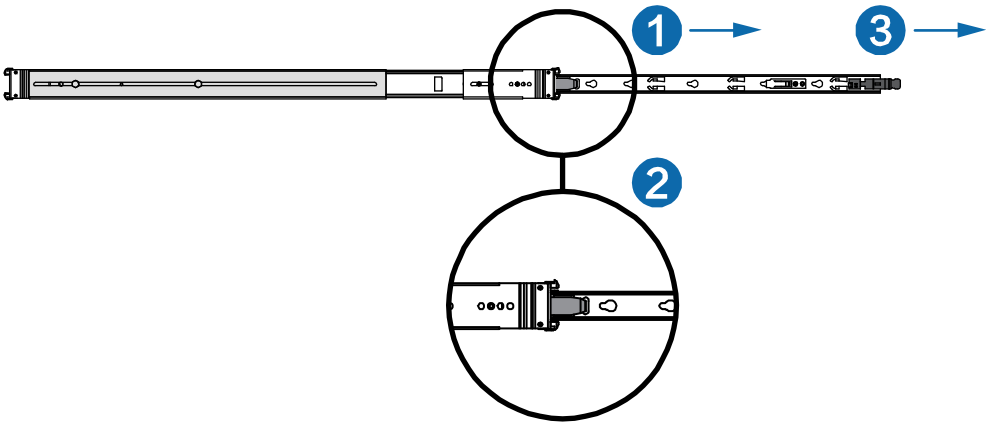



Figure 2-23 Pull out internal guide

**Install the internal guide to the chassis**

Match the hoister hole on the internal guide with the T-type nail on the chassis side wall along the direction in the figure A and push the internal rail downward (the B direction in the figure B) till the spring locking plate on the internal rail locks one T-type nail on the chassis side wall. At this time, the internal sliding rail.

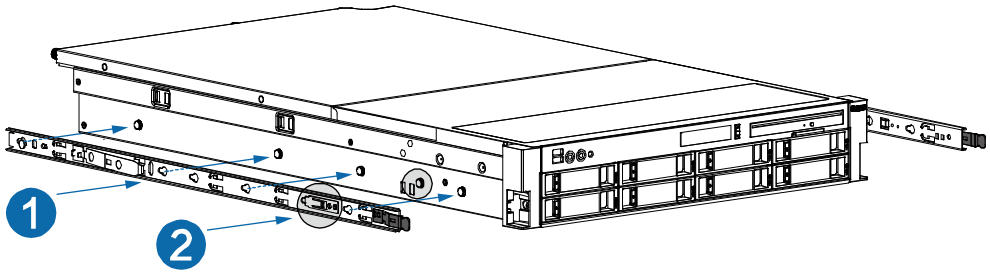



Figure 2-24 Installation method of internal rail

**Install external rail to cabinet**

Quick installation of support component

Shown as the following figure, adjust the external guide to proper length by sliding the rear support (A or B direction in the figure) according to the distance between front and rear pole of the cabinet and snap the locking screw of front and rear support into the corresponding hole on the front and rear upright post of the cabinet.

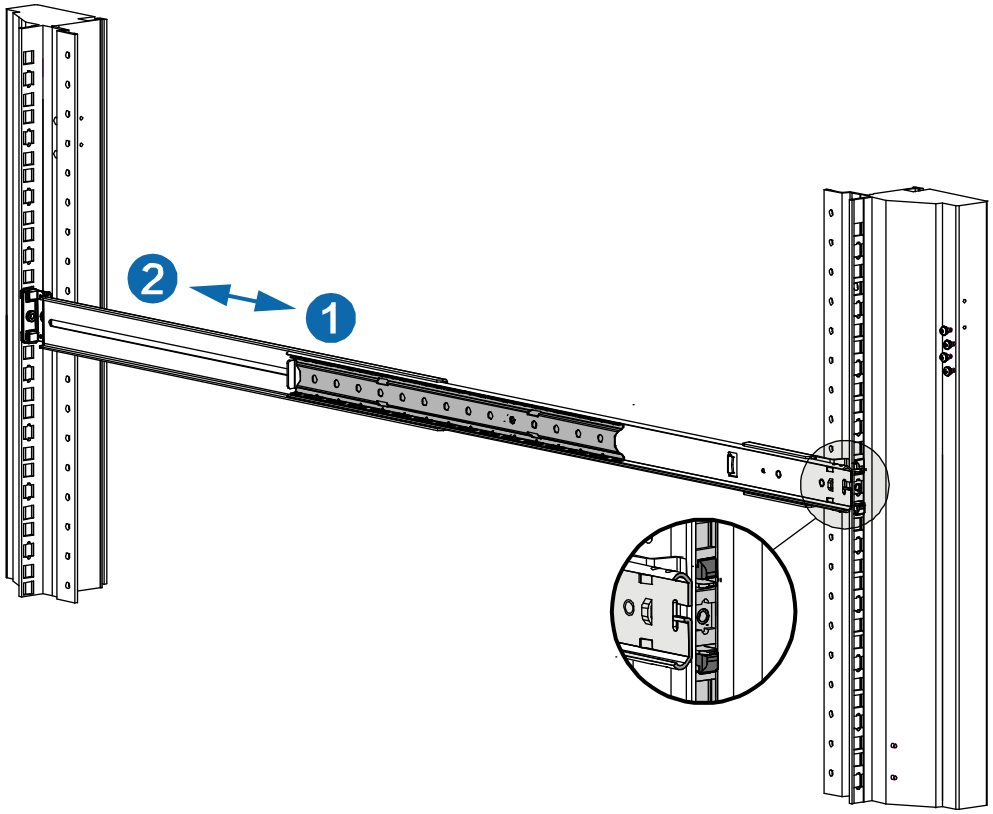



Figure 2-25 Install external guide to cabinet upright post

Note:

(1) The extensible scope of the external guide is 660~900mm. A user should confirm the installation size of the cabinet prior to installation.

This external rail is suitable for the cabinet with 8.8x8.8~9.5x9.5(mm) square hole of the upright post. The gap between three square holes for fixing the guide on one upright post is 15.9mm.

(2) The upright post of the cabinet should comply with the standard in the following figure.

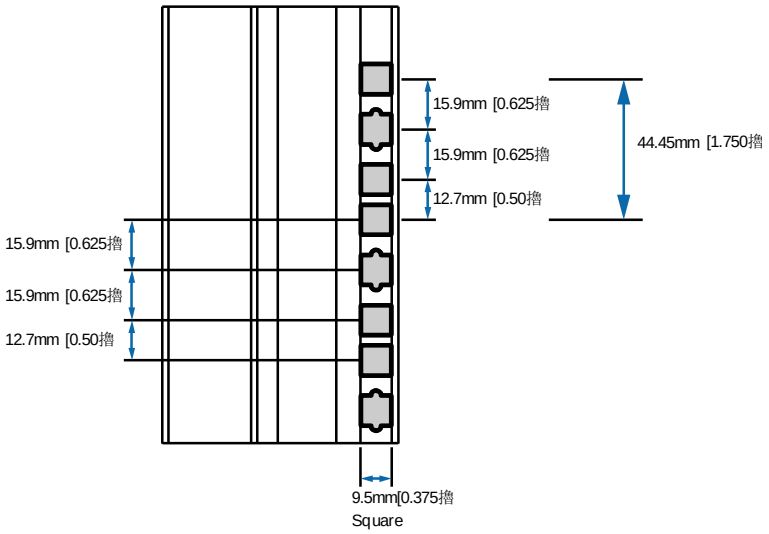



Figure 2-26 Upright post position diagram

(3) The left and right external guide should be fixed to same scale of the left and right upright post

of the cabinet.

**Up rack of chassis**

The chassis enters the external rail component

Lock the machine installed with the internal guide and chassis handle into the front A of the external rail, then push inward along the direction B till the locking plate C is locked.

【Notice】: When the internal guide is locked into the external rail and is pushed, the internal rail is locked into the rolling rail.

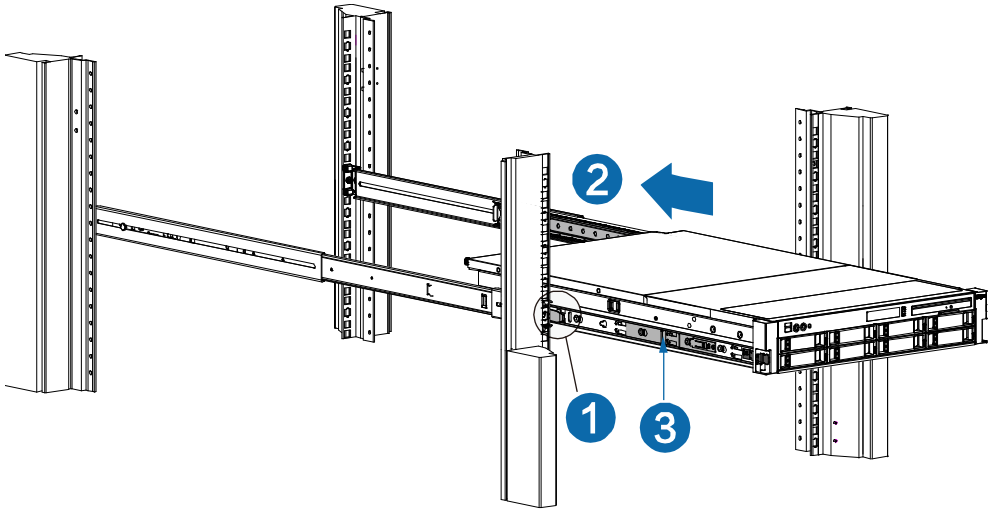



Figure 2-27 Install machine onto external rail

**Lock support component**

Respectively fix the front and rear support of left and right external guide and front and rear upright post of the cabinet (shown as the following figure), then push the rolling rail on internal and external side to the front end in A direction till it can not be pushed.

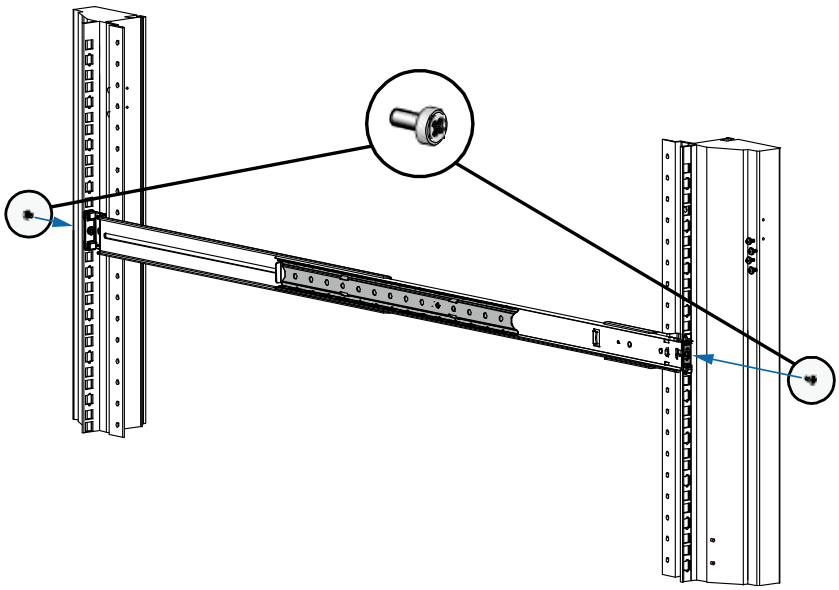


Figure 2-28 Lock external guide

**Unlock push process**

When the internal guide is locked, press the internal guide latch on both sides inward for unlocking (mark A in the following figure), then push the chassis inward along the direction B till the locking plate C at the sliding rail closing position is locked and the chassis can not be pushed out.

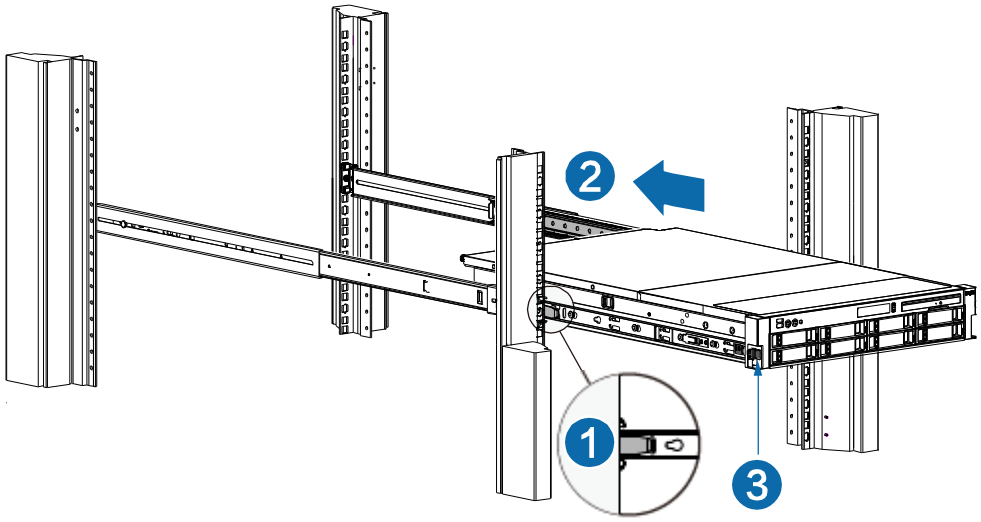



Figure 2-29 Install the chassis in place and lock it

**Unlock sliding rail**

To toggle the locking plate A of the sliding rail along B direction with the forefinger and unlock the internal rail and external rail, the chassis can be pushed out.

Other unlocking steps are reverse to the installation steps of the sliding rail.

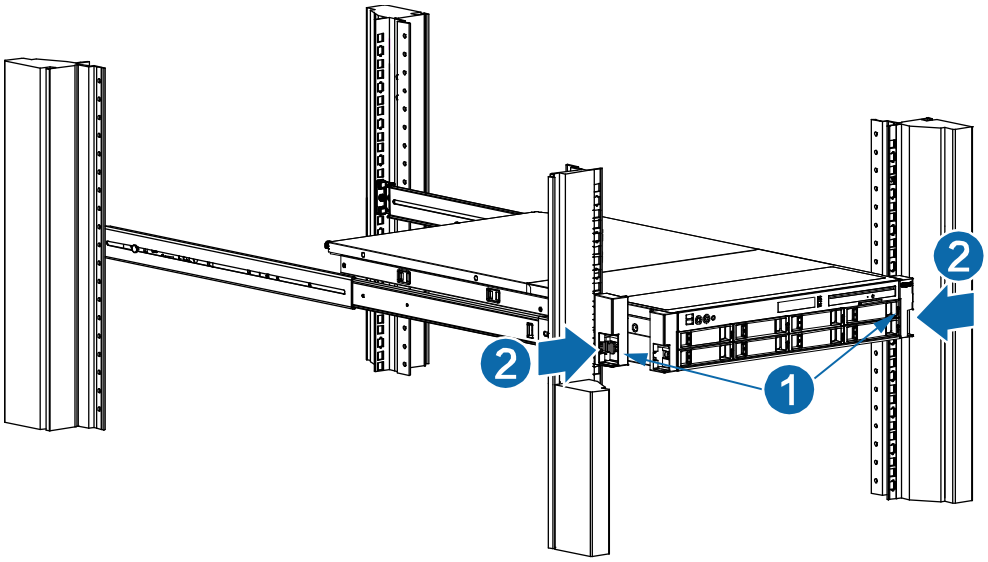



Figure 2-30 Unlock chassis

# 3 Product configuration

## 3.1 LCD module

### 3.1.1 Typical application

The LCD display module is a new server monitoring display product, which is presented by Sugon, can display the server state information and alarms, can monitor the system operation states such as power on state, fan rotating speed, CPU temperature, BMC IP address and power consumption of Sugon Server under all weather, and provide humanistic user experiences to customers.

### 3.1.2 Function description

The LCD display module includes SMBus bus, interconnects the device mode and mainboard SMBus interface of the server, communicates with BMC, gets the mainboard operation information in real time, and drives the LCD to display the server operation state and information by building in the MCU into the LCD display module.

The layout of the CLD display module is shown as the figure 3-1.

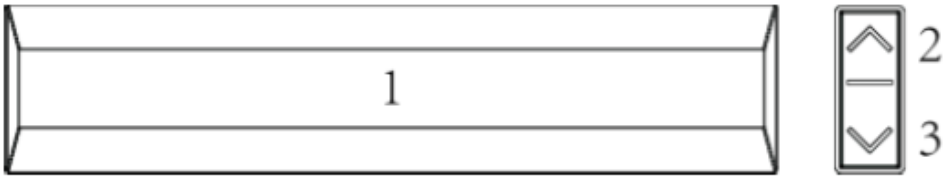



Figure 3-1 LCD display module layout diagram

Table 3-1 Interface description

| SN | Name | Function description |
|---|---|---|
| 1 | LCD | It is used to display server state |
| 2 | ENTER key | Enter/exit menu and view state information |
| 3 | Page key | One-way cycle menu for paging |

Specific function description of LCD display module

- The background light is controlled. When the key does not respond after over 7s, the LCD module will automatically enter the dormancy mode (The LCD white background light is on for 2s and then off for 4s).
- The LCD display module interconnects the device and server BMC for communication, can monitor the server operation state in real time, and gives out alarms via the white and red background light in an alternate manner for the SYS ERR such as VOLTAGEWARNING, FAN ERR, CPU ERR and RAM ERR. A user can inquire the system information via the combined key.

### 3.1.3 Inquiry and operation of system-related information

**Interface menu of LCD display module**

The LCD display module interface of the I620-G15 chassis includes the initialization interface and L2 menu. The LCD display module can display in single line. Each line can display at most 18 characters. The system menu information can be inquired by combining the OK key and Page key.

The menu contents are shown as the figure 3-2.

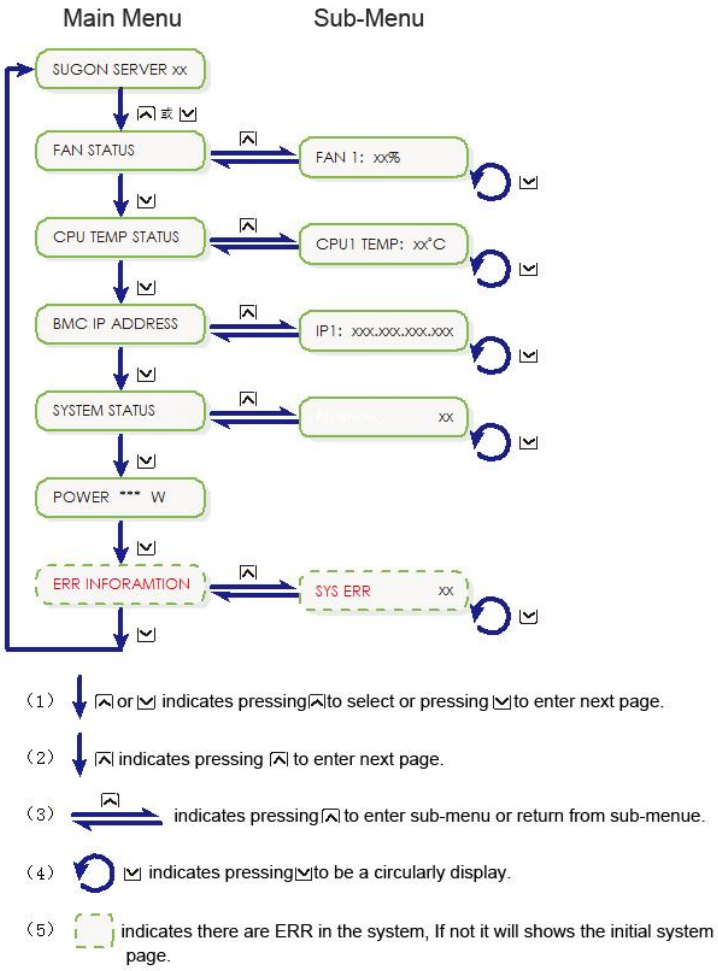



Figure 3-2 LCD principle flow chart

Note: If the server system has an error (ERR information) on any menu, the LCD module will alternately flicker via the red and white light for alarm. If no ERR is available and no key is pressed within 7 min, the white background light will flicker once every 6 s. When no key is pressed, the system will restore to the initial interface after 24 hours.

**Default initial interface**


Figure 3-3 Initial interface

The initial display interface displays SUGON SERVER plus 2-digit code of Port80 in case of start. SUGON SERVER is fixed. 2-digit Port80 code displays when SMBus data communication changes.

**Note**: The Port80 will be refreshed once every 1s. On the initialization interface, to press any key, you can enter the L2 menu FAN STATUS.

**Inquiry of fan status**

- Under the initial status, to press any key, FAN STATUS menu will display. To press OK key under this menu, FAN STATUS L2 sub-menu will display. Otherwise, to press key under FAN STATUS L1 menu, the CPU TEMP STATUS menu will display.
- To enter FAN STATUS L2 sub-menu, you can inquire the status of different fans of the server. The fan status will display the fan rotating speed information of the server in the format xx%. The LCD module will display FAN1 xx% (xx% is the percent of the fan rotating speed. The range is 0-100%. The following description indicates this meaning), shown as the figure 3-4. To press key in turn, FANi xx% will display in cycle (i=1, 2, …, number of fans supported by the mainboard). To press the key menu on any phase of L2 sub-menu, you can return to FAN STATUS L1 menu.

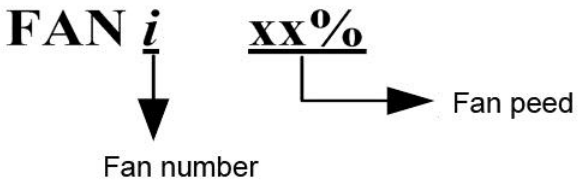



Figure 3-4 Display mode of fan status

**Inquiry of CPU temperature**

- To continuously press key twice under initial status, the CPU TEMP STATUS menu will display. To press key, the CPU TEMP STATUS L2 sub-menu will display. Otherwise, to press key under CPU TEMP STATUS L1 menu, BMC IP ADDRESS menu will display.
- To enter CPU TEMP STATUS L2 sub-menu, LCD module displays CPU1 xx℃ (xx is CPU temperature. The following description indicates this meaning), shown as the figure 3-5. To press key in turn, the CPU m xx℃ will display in cycle (m=1, 2, …, number of CPU supported by the mainboard). You should press key on any phase of L2 sub-menu.

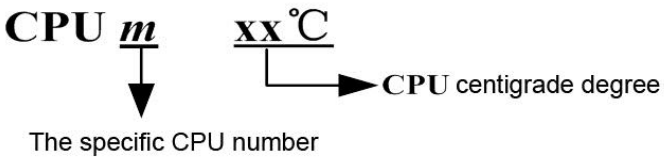



Figure 3-5 Display mode of CPU temperature status

**BMC IP information inquiry**

- Under the initial status, to continuously press key three times, BMC IP ADDRESS menu will display. To press key, BMC IP ADDRESS L2 sub-menu will display. Otherwise, to

press key under BMC IP ADDRESS L1 menu, the SYSTEM STATUS menu will display.

- To enter the BMC IP ADDRESS L2 menu, the LCD module displays BMC IP1 : xxx.xxx.xxx.xxx (xxx.xxx.xxx.xxx indicates the specific IP address), shown as the figure 3-6. To press key in turn, IPn: xxx.xxx.xxx.xxx(n=1, 2) can display in cycle. To press key on any phase of L2 sub-menu, you can return to BMC IP ADDRESS L1 menu.

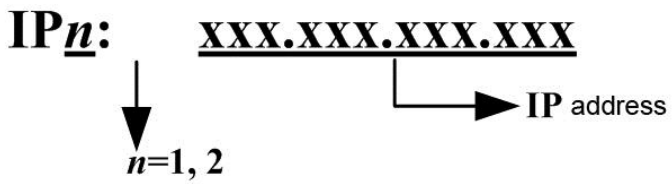



Figure 3-6 BMC IP address format

**System status inquiry**

- Under the initial status, to continuously press key, SYSTEM STATUS menu will display. To press key, SYSTEM STATUS L2 sub-menu will display. Otherwise, to press key in SYSTEM STATUS L1 menu, the POWER xxxW menu will display.
- To enter SYSTEM STATUS L2 sub-menu, if the system is under POWER ON status, the LCD module will display RUNNING… xx(xx indicates Port80 information), shown as the figure 3-7. Otherwise, LCD module displays POWER OFF. To press key, the system will return to SYSTEM STATUS L1 menu.

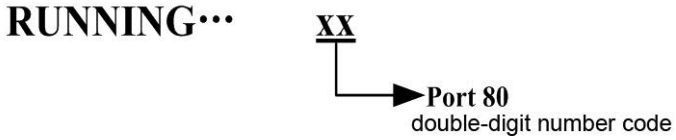



Figure 3-7 System status

**System power consumption inquiry**

- Under the initial status, to continuously press key five time, the POWER xxxW menu will display. The POWER xxxW menu does not include L2 sub-menu. If the system does not fail, to press page key in POWER xxxW menu, the system will return to the initial page. If the system fails, to press key in POWER xxxW menu, the ERR INFORMATION menu will display.
- The system power supply power information will display under POWER xxxW m menu. The system power consumption of the whole device will display with W as the unit. The system can read the data on the display screen to view the system power consumption.

**System failure information inquiry**

- If the server system fails (ERR information displays) under any menu, the LCD module will flicker alternatively under the red and white background light for alarm. In addition, the system will automatically add ERROR INFORMATION menu to the L1 menu column. Under the initial status, to continuously press the key 6 times, the ERROR INFORMATION menu will display. To press key, ERROR INFORMATION L2 sub-menu will display. Otherwise, to press key under ERROR INFORMATION L1 menu, the system will return to the initial interface.
- To enter ERR INFORMATION L2 sub-menu, the LCD module will display SYS ERR. To press key in turn, the LCD will display ERR information in cycle. To press key on any phase of L2 sub-menu, the system will return to ERR INFORMATION L1 menu.

The specific failure information will display, shown as the table 3-2.

Table 3-2 Failure information report

| Alarm information | Information description |
|---|---|
| SYS ERR | System error |
| VOLTAGE ERR | Voltage error |
| FAN ERR | Fan error |
| CPU ERR | CPU error |
| RAM ERR | Memory error |

## 3.2 Eliminate CMOS jumper setting

The J3 jumper can be used to eliminate the CMOS setting on the mainboard. You can clear CMOS according to the following table:

Table 3-3 CMOS jumper clearing description

| | |
|---|---|
|  | The jumper will be under this position by default. At this time, the system will normally work. |
|  | When CMOS will be cleared, the jumper will be cleared as this step. The jumper will set the jumper by default after 3-5s. |
| 【Notice】 Before the J3 jumper is short circuit and CMOS is cleared, make sure to fully shut down the system and plug off the AC power cable and onboard battery. | |

## 3.3 BIOS setup

- BIOS setup indicates to adjust the system and hardware parameters by using the special setup program. Setup of different parameters may lead to hardware resource confliction or reduce the system operation performance. This section will introduce the BIOS setup program. You can set the basic BIOS configurations. These settings will be stored into a memory body (called as NVRAM) and these settings will not be lost after the power turns off. It is important to know BIOS setting. You are recommended to use the default factory settings of the system.
- Before the server BIOS setting is changed, the system will record the corresponding initial setting. When the system works abnormally due to setting change, the system can resume according to the recorded initial setting.
- Generally the default system factory setting is optimal. Before the meaning of the parameters is not understood, you should not try to change it.
- This chapter will give the detailed description of the frequent settings. The seldom used options are only simply described or are not described.

Note: Sugon will reserve the right to change the system BIOS version without prior notification. The BIOS setting method in this manual is based on the BIOS version when this manual is made, so it may make the actual interface be different from the diagrams in this manual.

### 3.3.1 System BIOS setup method

When the server boots and the caption displays “Sugon” text, to press <Del> or <F2> key, the system will enter BIOS setup program. You can select sub-options via the arrow in BIOS setup program. To press Return key, you can enter the sub-menu.

Note: The gray options are unavailable. The items with “  ” mark include sub-menu.

Table 3-4 Description of control key

| Key | Function |
|---|---|
| <F1> | Help |
| <ESC> | Exit or return to the main menu from sub-menu |
| <←> or <→> | Select menu |
| <↑> or <↓> | Move cursor up or down |
| <Home>or<End> | Move cursor to the top or bottom of the screen |
| <PgUp>or<PgDn> | Move cursor to previous page or next page |
| <+>or<-> | Select previous or next value of current item and setup |
| <F2> | Cancel to previous operation |
| <F3> | Set default |
| <F4> | Save and exit |
| <F5> | Save and restart |

| | |
|---|---|
| <Enter> | Execute command or select sub-menu |

### 3.3.2 Main menu

The main menu is the first interface, which you first see when entering BIOS setup program. This menu will display and change basic system information. The right window displays the key description. The text information will display above it. When an item on the left window is selected, this option will be highlighted. The right window will display the description text of this option.

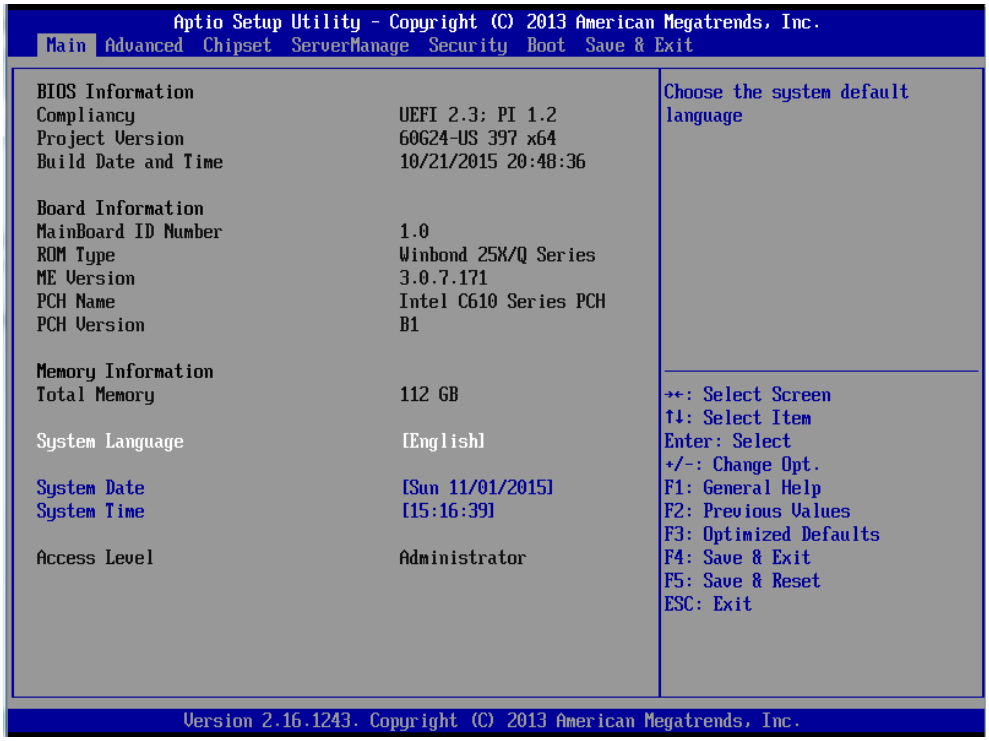



Figure 3-8 Main menu interface

Table 3-5 Description of Main interface parameters

| Interface parameters | Function description |
|---|---|
| Compliancy | Display UEFI environment version |
| Project Version | Display BIOS version information |
| Build Date and Time | Display BIOS compiling time |
| Main Board ID Number | Display mainboard PCB version |
| ROM Type | Display model of BIOS ROM memory chip |
| ME Version | Display ME version information |
| PCH Name | Display PCH model |
| PCH Version | Display PCH version |
| IOM Socket (J13)<br>IOM Socket (J14)<br>IOM Socket (J15)<br>IOM Socket (J16) | Display IOM card insertion at different positions |
| Total Memory | Display total capacity of system memory |
| System Language | Set language type of BIOS option. Currently only English is supported |
| System Date | Set system date |
| System Time | Set system time |

Note: BIOS version is only for reference. For the latest version, refer to the version issued by Sugon.

### 3.3.3 Advanced menu

Advanced menu permits a user to change settings of the system CPU and other devices.

【Notice】You should carefully change the menu setting. Incorrect setting may lead to system crash.

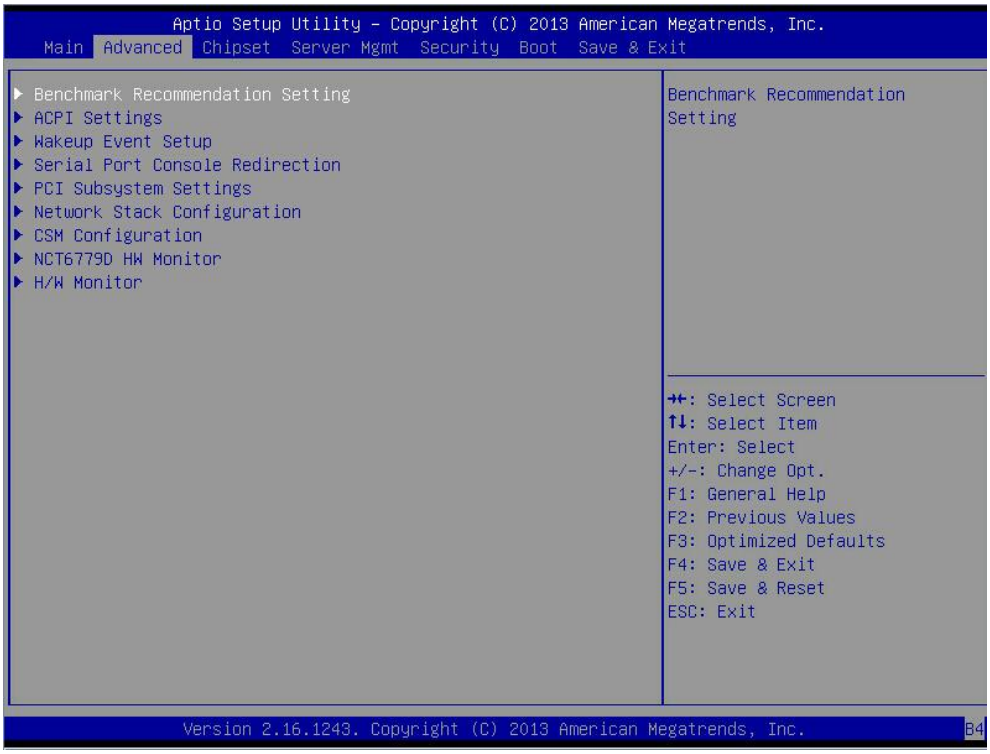



Figure 3-9 Advanced menu interface

Table 3-6 Description of Advanced interface parameters

| Interface parameters | Function description |
|---|---|
| Benchmark Recommendation Setting | Recommended setting for benchmark test |
| ACPI Settings | Advanced configuration and power management interface setting |
| Wakeup Event Setup | Device wake on LAN (WOL) event configuration |
| Serial Port Console Redirection | Serial port redirection configuration |
| PCI Subsystem Settings | PCI sub-system configuration |
| Network Stack Configuration | Network protocol stack configuration |
| CSM Configuration | Compatibility module configuration |
| NCT6779D HW Monitor | Display temperature and voltage monitoring information of partial hardware |
| H/W Monitor | Display hardware detection information and set fan strategy |

Benchmark Recommendation Setting

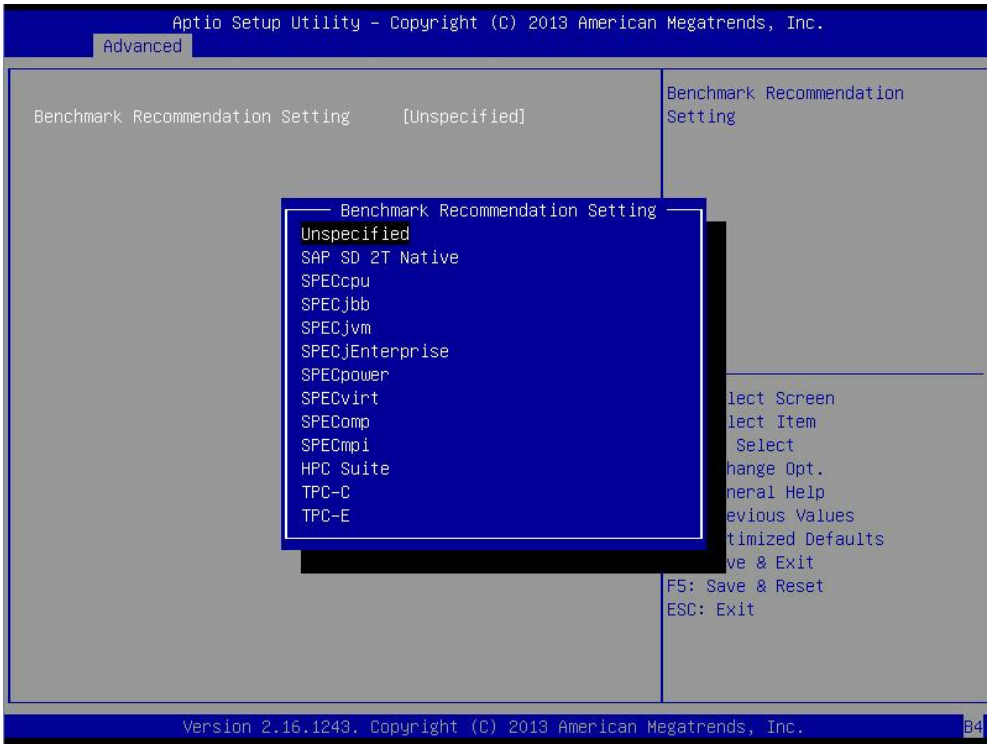



Figure 3-10 Benchmark Recommendation Setting menu interface

Table 3-7 Description of Benchmark Recommendation Setting interface parameter

| Interface parameters | Function description |
|---|---|
| Benchmark Recommendation Configuration | Benchmark test preference setup |

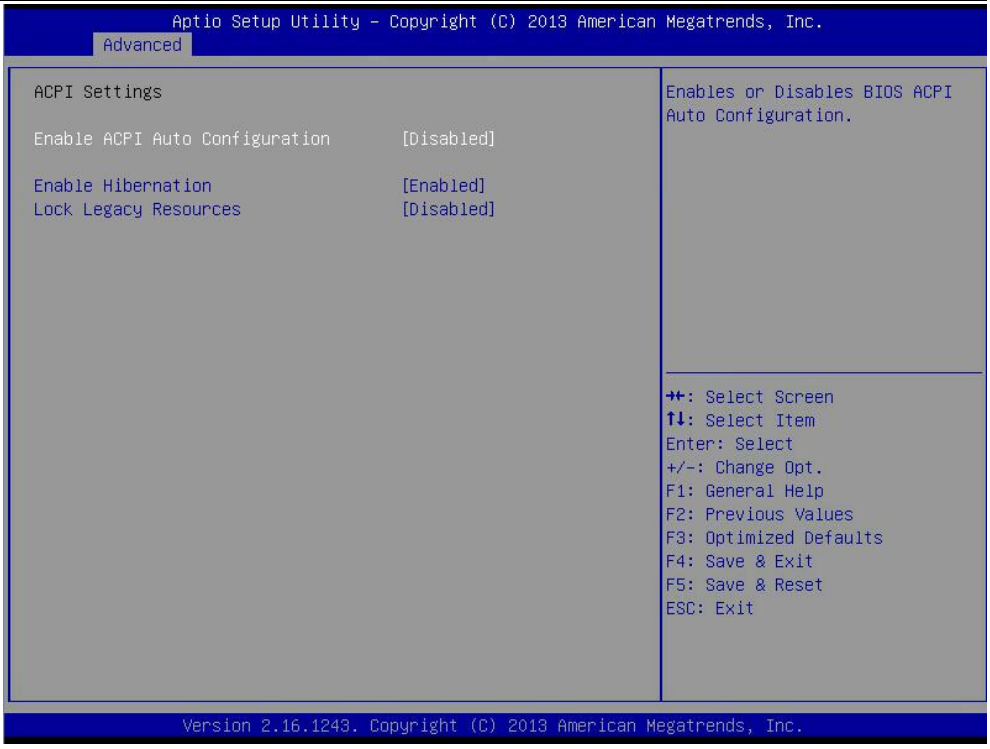



Figure 3-11 ACPI Settings interface

Table 3-8 Description of ACPI Settings interface parameters

| Interface parameters | Function description |
|---|---|
| Enable ACPI Auto Configuration | Advanced configuration and automated configuration of power management interface |
| Enable Hibernation | Support dormancy mode |
| Lock Legacy Resources | Support traditional power management resource |

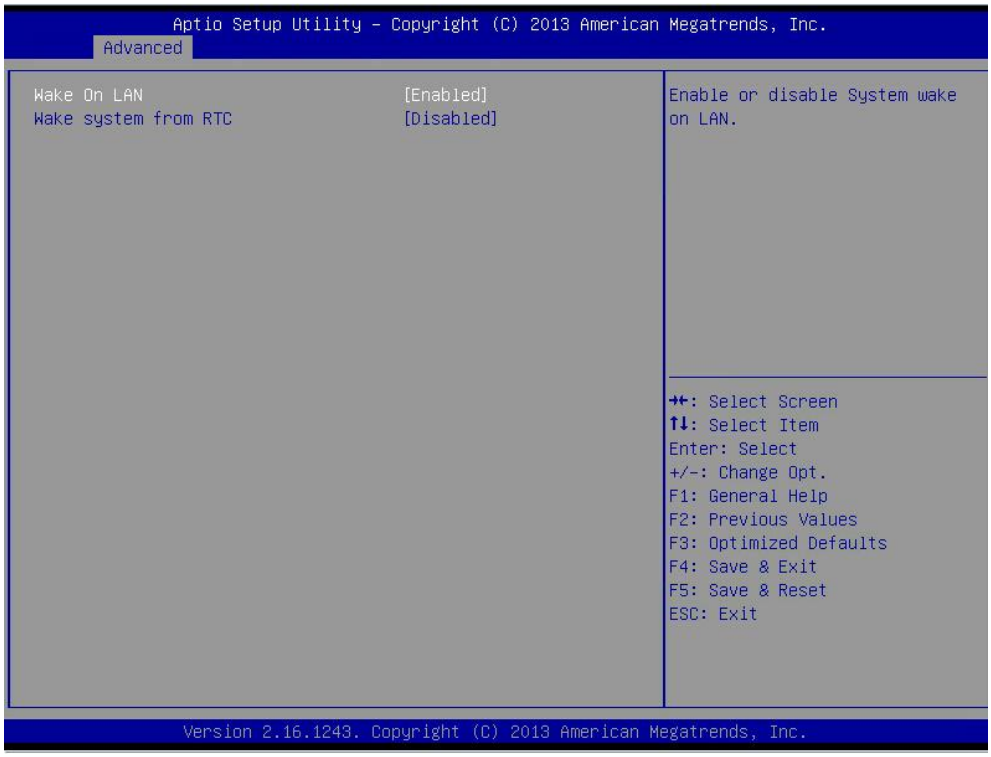



Figure 3-12 Wakeup Event Setup interface

Table 3-9 Description of Wakeup Event Setup interface parameters

| Interface parameters | Function description |
|---|---|
| Wake On LAN | Network wakeup function setup |
| Wake system from RTC | Clock wakeup function setup |

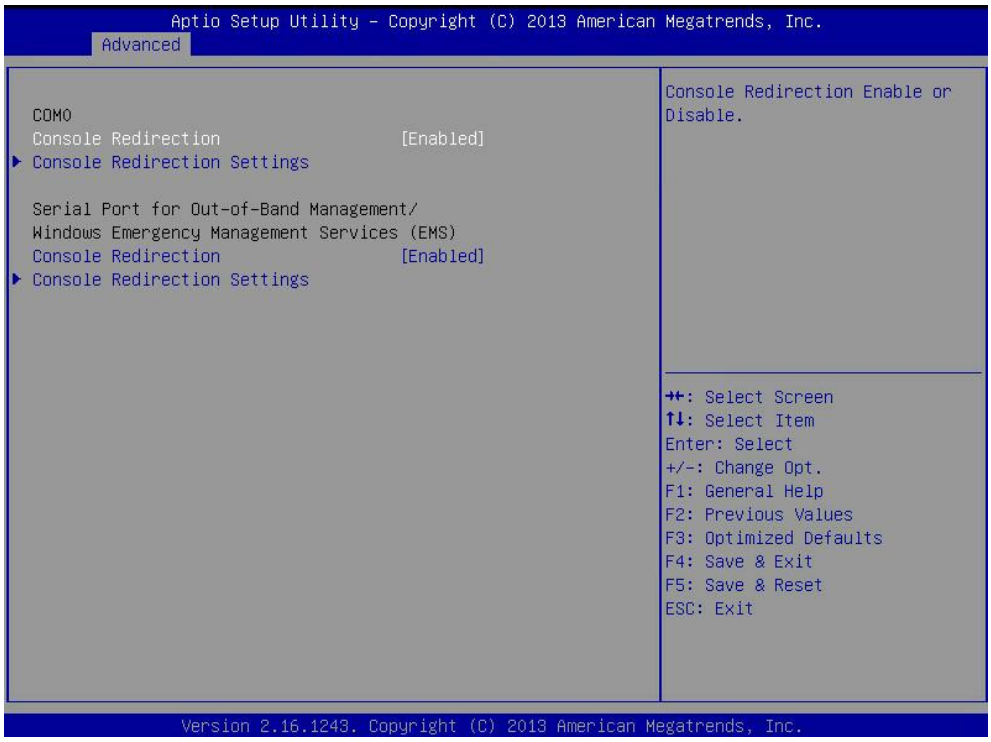



Figure 3-13 Serial Port Console Redirection interface

Table 3-10 Description of Serial Port Console Redirection interface

| Interface parameters | Function description |
|---|---|
| (COM0) Console Redirection | Enable/disable CM0 console redirection |
| (COM0) Console Redirection Settings | COM0 console redirection setup |
| (COM1) Console Redirection | Enable/disable COM1 console redirection |
| (COM1) Console Redirection Settings | COM1 console redirection setup. To click it, the system can enter the setup interface |

(COMO) Console Redirection Settings

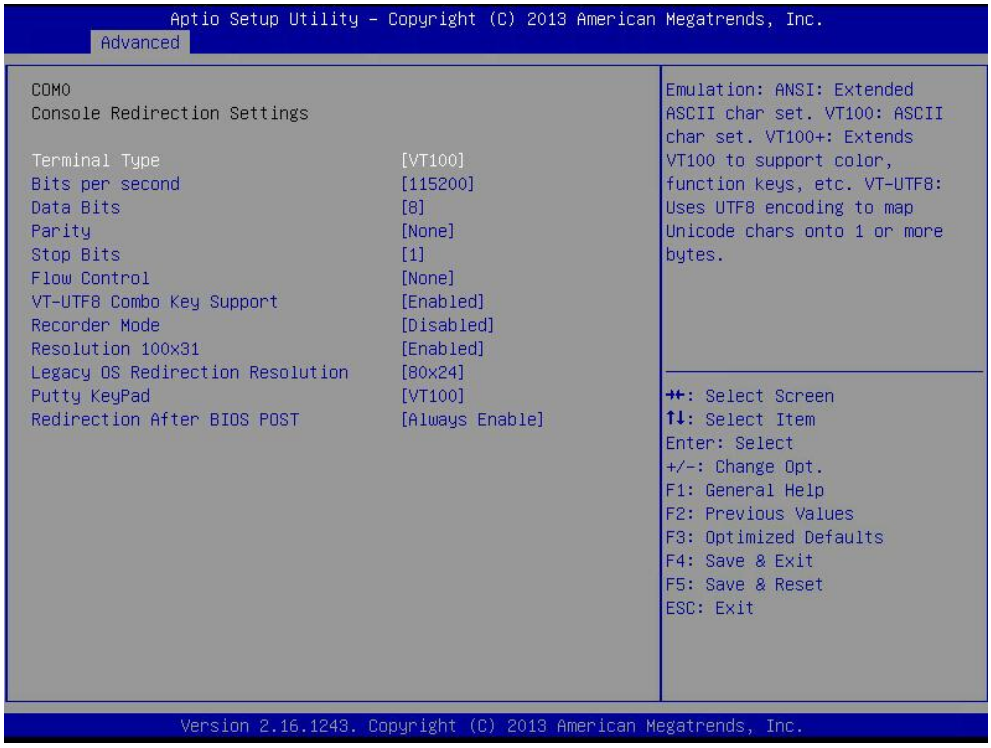



Figure 3-14 (COM0) Console Redirection Settings interface

Table 3-11 Description of (COM0) Console Redirection Settings

| Interface parameters | Function description |
|---|---|
| Terminal type | Terminal type |
| Bits per second | Transmission speed (bit/s) |
| Data Bits | Data bit |
| Parity | Set if parity is available |
| Stop Bits | Stop bit |
| Flow Control | Set if traffic control is required |
| VT-UTFB Combo Key Support | Set if VT-UTFB combination key is supported |
| Recorder Mode | Enable/disable recording mode |
| Resolution 100x31 | Set if the resolution 100x31 is supported |
| Legacy OS Redirection Resolution | Redirection resolution of previous system |
| Putty Keypad | Selection of Putty small keyboard mode |
| Redirection after BIOS POST | Redirection setup after BIOS starts |

(EMS) Console Redirection Settings

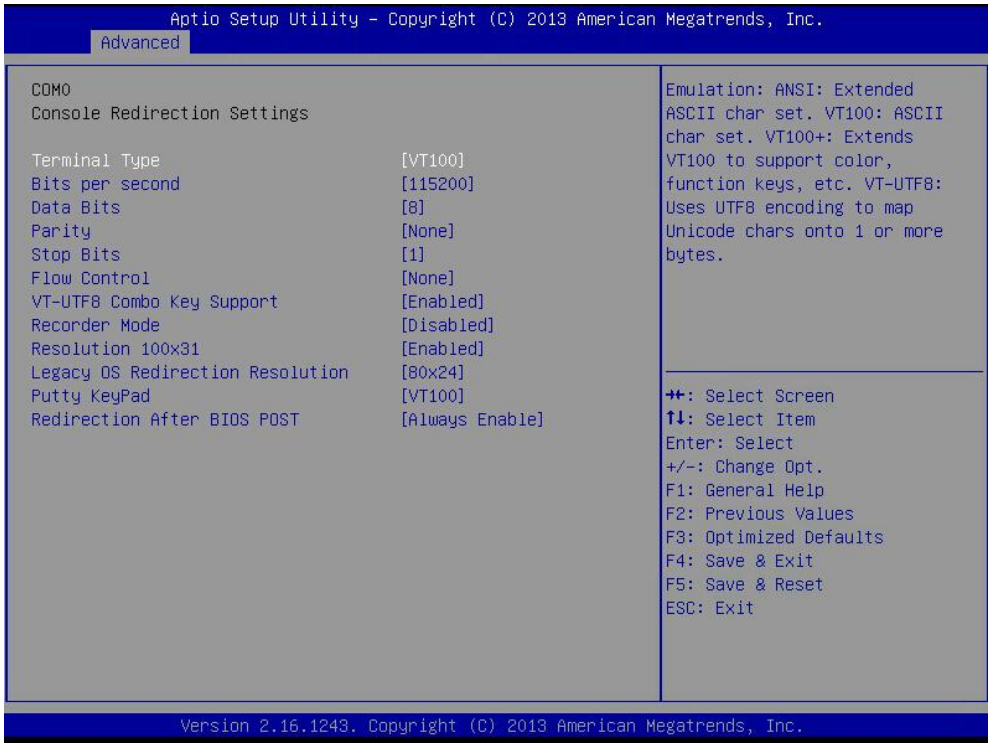



Figure 3-15 (EMS) Console Redirection Settings configuration interface

Table 3-12 Description of (EMS) Console Redirection Settings configuration interface

| Interface parameters | Function description |
|---|---|
| Out-of-Band Mgmt Port | Set out-band management port |
| Terminal Type | Set terminal type |
| Bits per second | Set transmission speed (bit/s) |
| Flow Control | Property of serial port with optional SOL and COM |
| Data Bits | Width of data bit |
| Parity | Set if parity check is available |
| Stop Bits | Stop bit |

PCI Subsystem Settings


Figure 3-16 PCI Subsystem Settings configuration interface

Table 3-13 Description of PCI Subsystem Settings configuration interface

| Interface parameters | Function description |
|---|---|
| Above 4G Decoding | Over 4G memory address space access switch, which supports decoding of over 4G address space of 64-bit PCI device |
| SR-IOV Support | PCIE device virtualization function control switch |

Network Stack Configuration

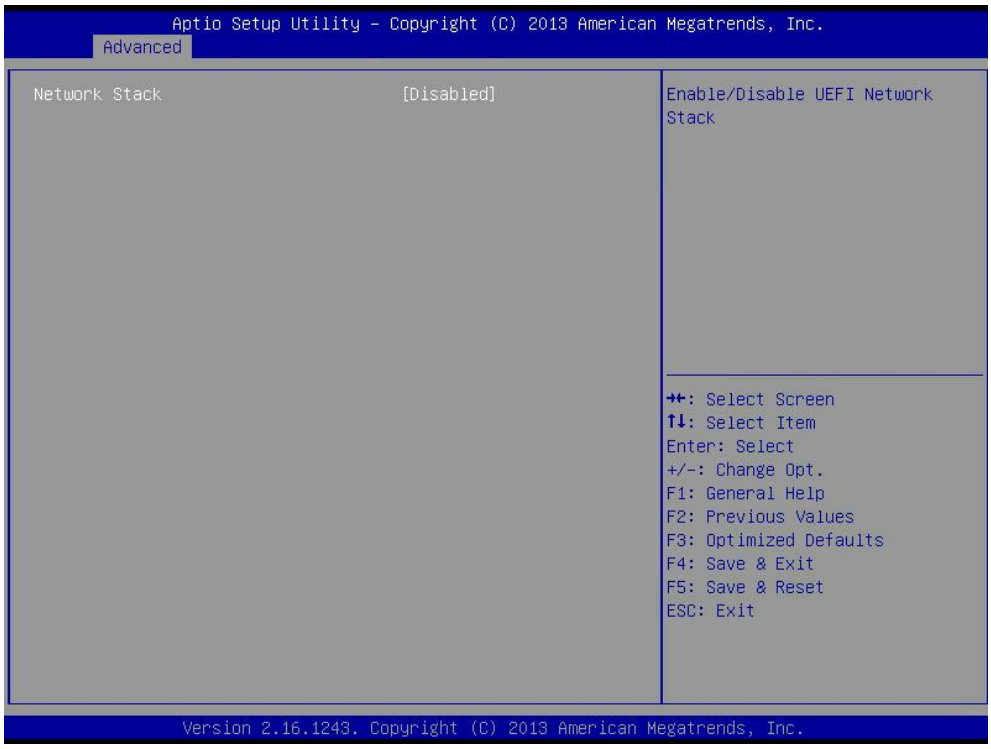



Figure 3-17 Network Stack Configuration interface

Table 3-14 Description of network Stack Configuration interface

| Interface parameters | Function description |
|---|---|
| Network Stack | Set if UEFI PXE is enabled to support the network protocol stack (network device UEFI Driver support required) |

CSM Configuration

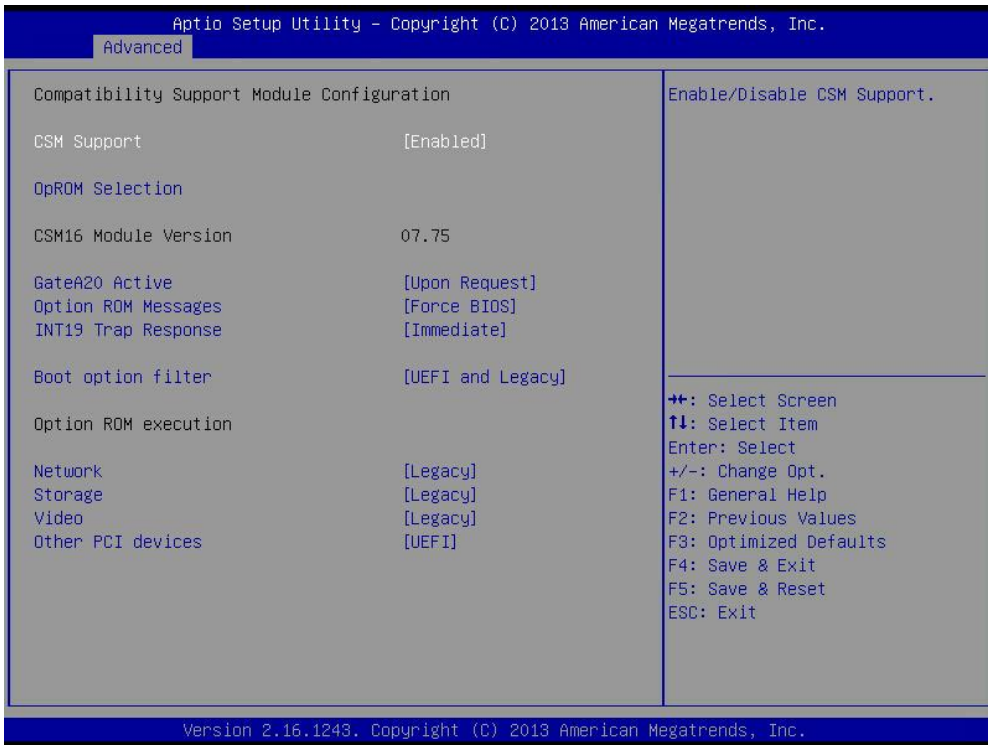
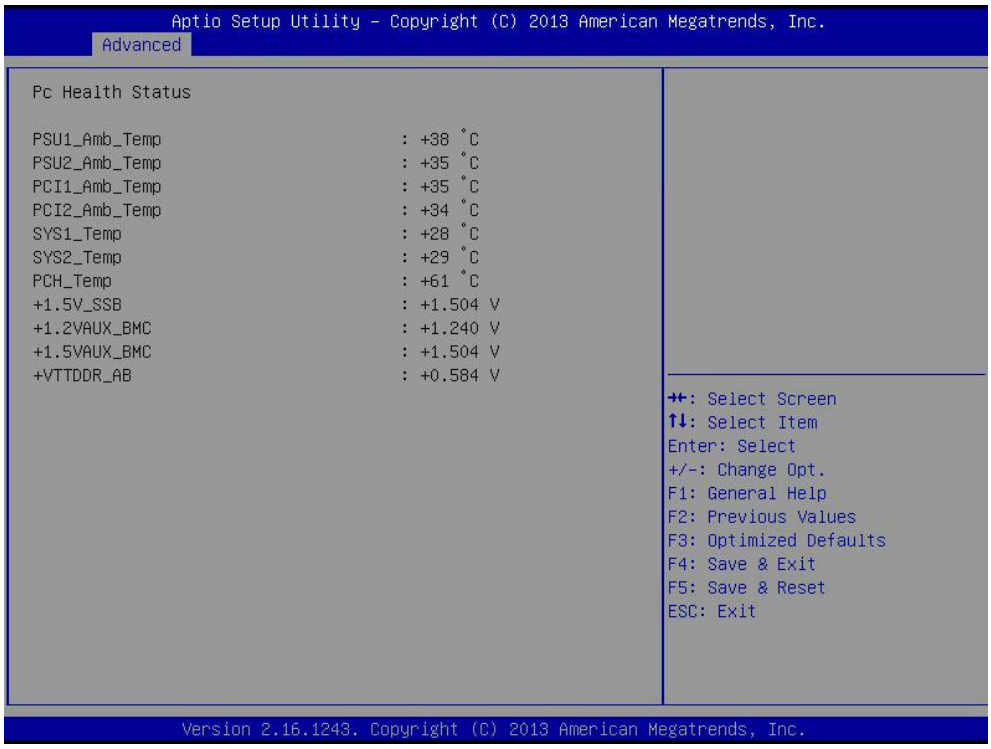



Figure 3-18 CSM Configuration interface

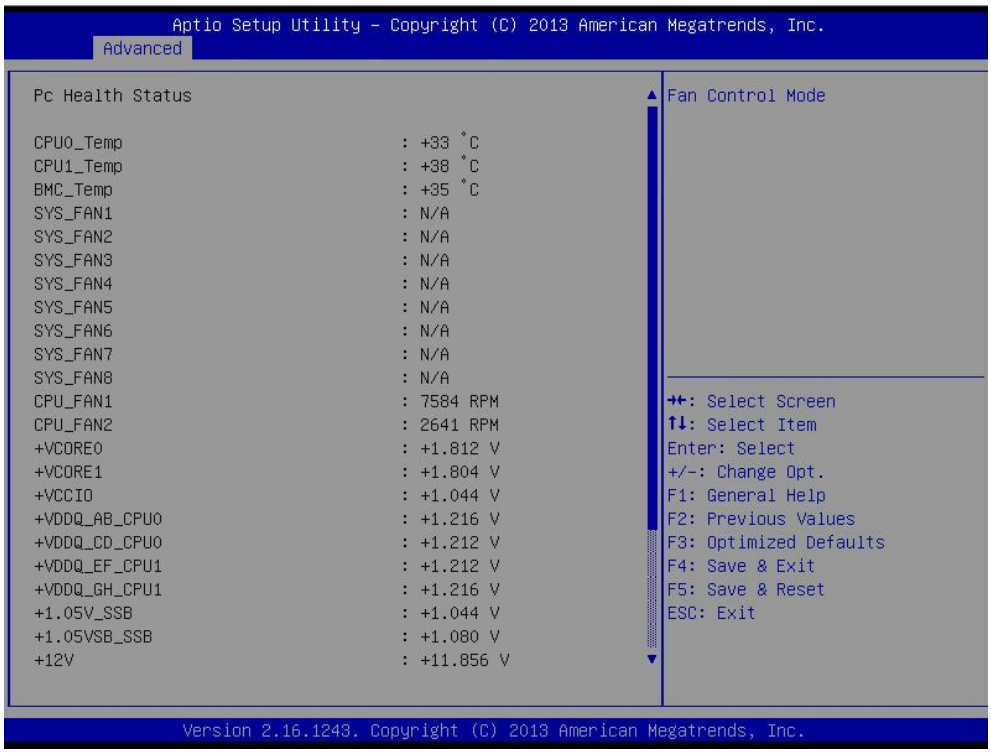
Table 3-15 Description of CSM Configuration interface

| Interface parameters | Function description |
|---|---|
| CSM Support | Set if the module compatibility is supported |
| OpROM Selection | OpROM switch option of external plug-in PCIE device |
| CSM16 Module Version | Display CSM16 module version |
| GateA20 Active | Select to keep GateA20 on or off all the time |
| Option ROM Messages | Select information display mode of Option ROM |
| INT19 Trap Response | Capture information on interruption 19 |
| Boot option filter | Control start priority sequence of Legacy ROM and UEFI ROM |
| Network | Parameter configuration of network device UEFI/Legacy PXE OpROM |
| Storage | Parameter configuration of storage device UEFI/Legacy OpROM |
| Video | Parameter configuration of display device UEFI/Legacy OpROM |
| Other PCI device | Parameter configuration of UEFI/Legacy OpROM parameter |

NCT6679D HW Monitor




H/W Monitor



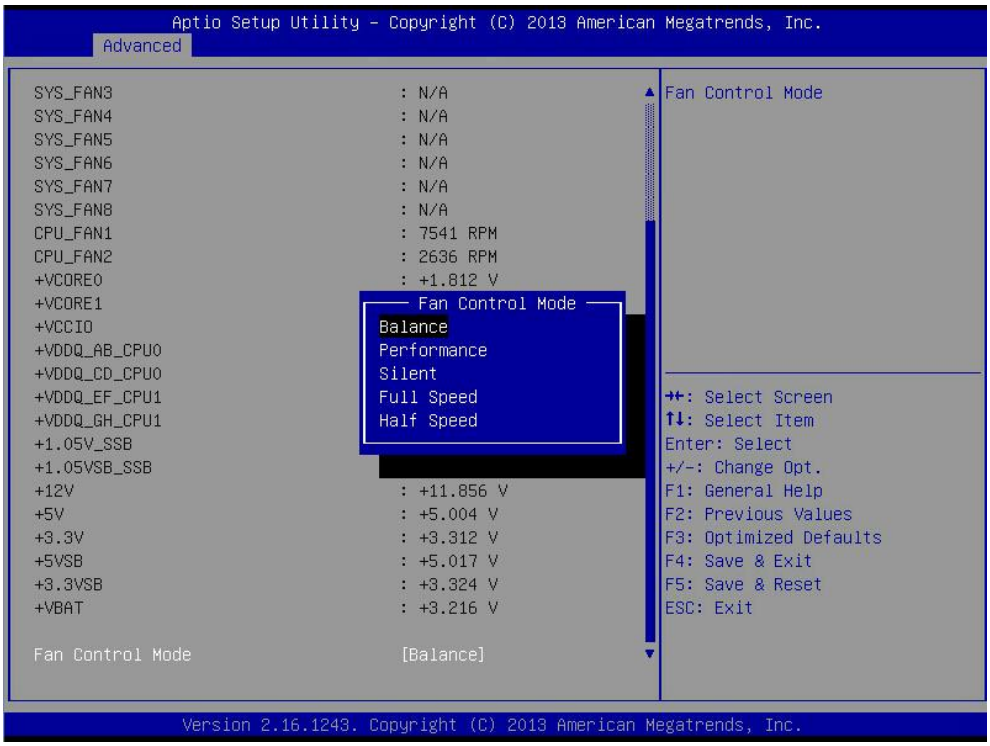



Figure 3-19 H/W Monitor menu interface

Table 3-16 Description of H/W Monitor interface parameter

| Interface parameters | Function description |
|---|---|
| Fan Control Mode | Set fan speed adjustment mode |

## 3.3.4 Chipset menu

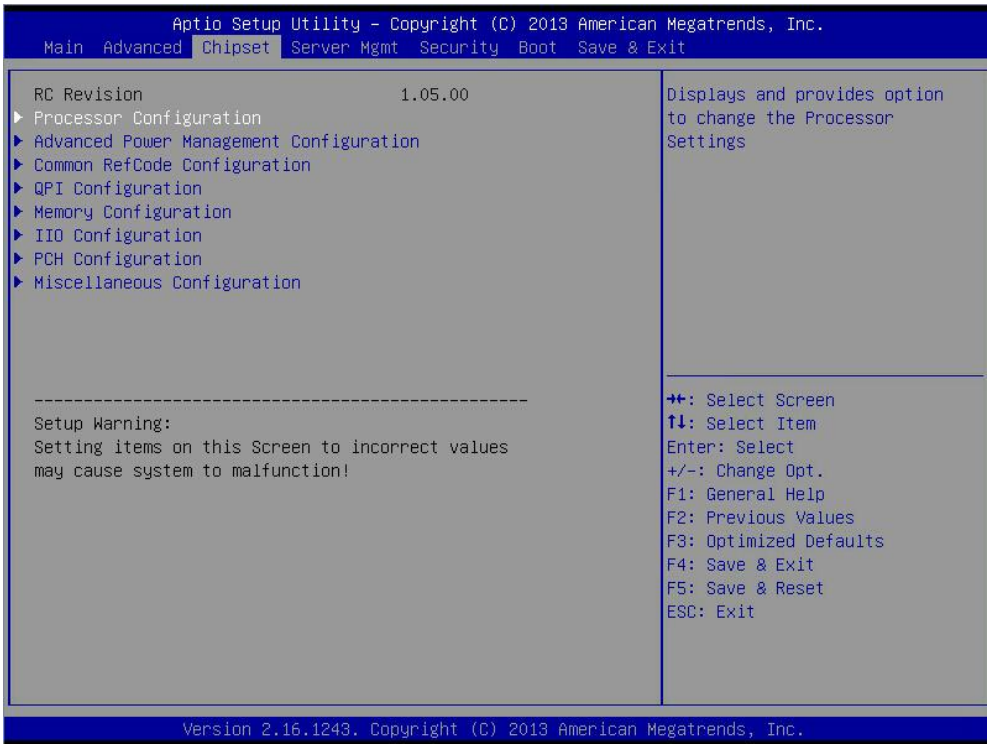
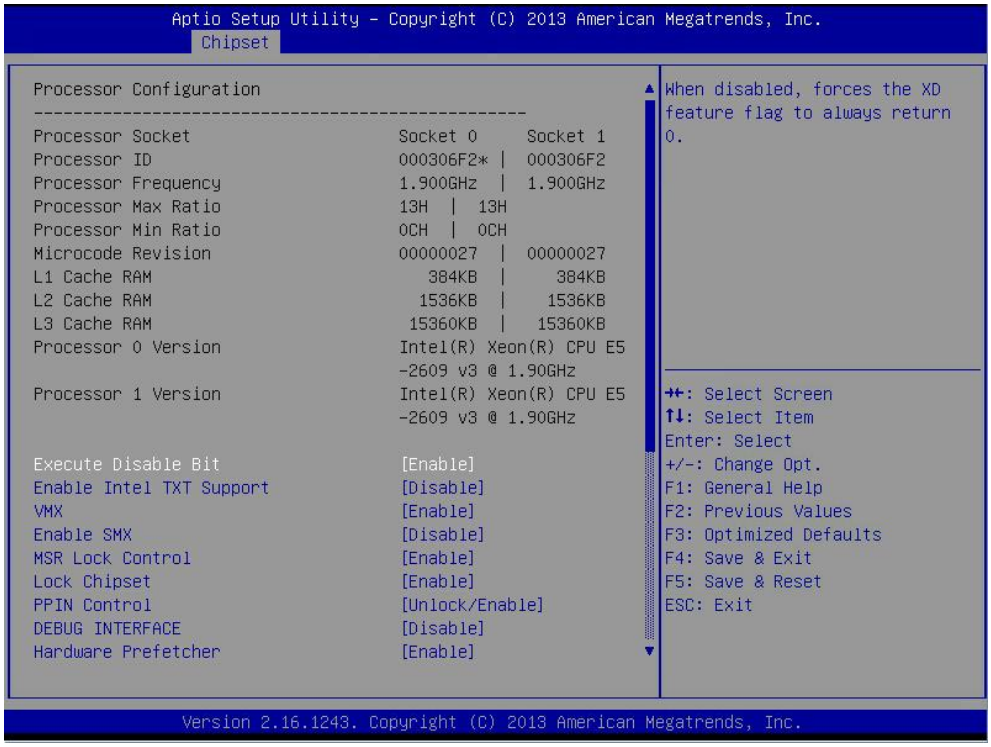



Figure 3-20 Chipset menu interface

Table 3-17 Description of Chipset interface parameter

| Interface parameters | Function description |
|---|---|
| RC Revision | Intel MRC version information |
| Processor Configuration | Processor configuration |
| Advanced Power Management Configuration | Advanced power management configuration |
| Common RefCode Configuration | Frequent reference code configuration |
| QPI Configuration | QPI link configuration |
| Memory Configuration | Memory configuration |
| IIO Configuration | Integrated input/output configuration |
| PCH Configuration | Chipset configuration |
| Miscellaneous Configuration | Other configurations |

Processor Configuration



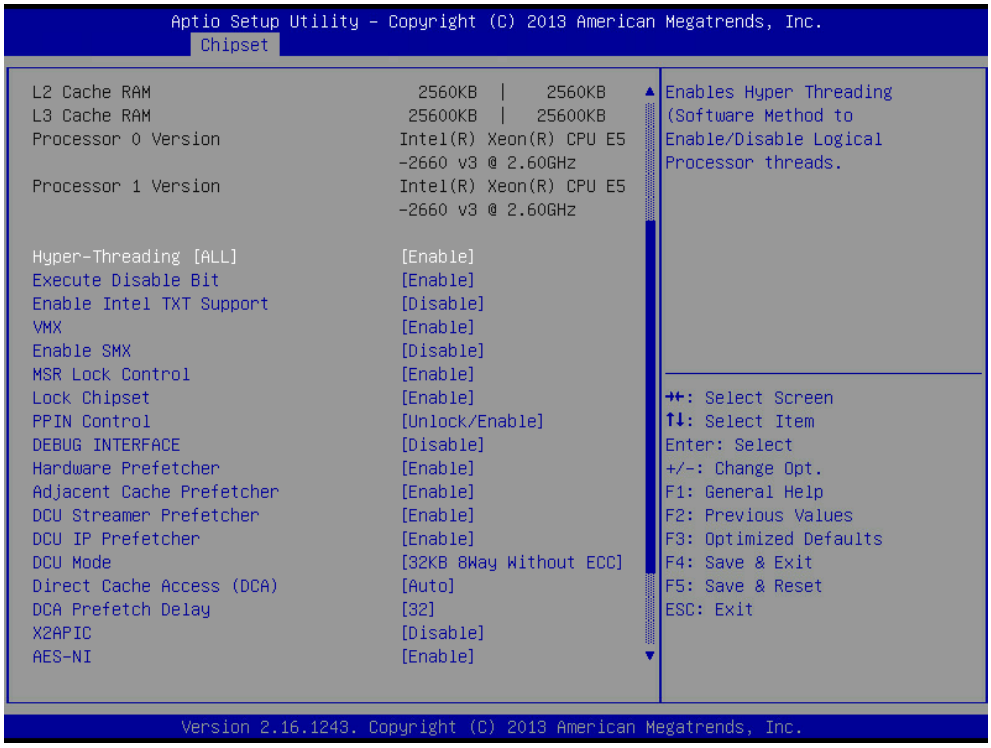



Figure 3-21 Processor Configuration menu interface

Table 3-18 Description of Processor Configuration interface parameters

| Parameter name | Configuration description |
|---|---|
| Processor Socket | Processor socket SN |
| Processor ID | Processor ID |
| Processor Frequency | Processor frequency |
| Processor Max Ratio | Processor maximum frequency doubling |
| Processor Min Ratio | Processor minimum frequency doubling |
| Microcode Revision | Processor micro-code version information |
| L1 Cache RAM | L1 cache capacity |
| L2 Cache RAM | L2 cache capacity |
| L3 Cache RAM | L3 cache capacity |
| Processor 0 Version<br>Processor 1 Version | Processor model |
| Execute Disable Bit | Enable/disable EDB technology. After it is enabled, it can enhance the system security and avoid virus intrusion. |
| Enable Intel TXT Support | Set if the trustable execution technology support is enabled or not, which is an enhanced virtual machine security technology |
| VMX | Enable/disable CPU virtualization technology |
| Enable SMX | Enabled/disable secure mode expansion technology. After it is enabled, it can enhance the data security inside the processor |
| MSR Lock Control | Special register locking control of CPU module |
| Lock Chipset | Set if the chipset register table is locked. After it is enabled, it can enhance the system security. |
| PPIN Control | Enable/disable processor stock number protection |
| DEBUG INTERFACE | Enable/disable diagnosis interface |
| Hardware Prefetcher | Enable/disable hardware pre-fetching function. After it is enabled, the command and data in the memory can be fetched to the buffer to improve the system performance. |
| DCU Streamer Prefetcher | After it is enabled, the data stream is fetched form the cache to DCU (data cache unit) to improve the data read/write and processing speed and enhance system performance |
| DCU IP Prefetcher | After it is enabled, the system will fetch IP address and enhance |

| | |
|---|---|
| | network performance |
| DCU Mode | Set DCU mode to enable L1 cache correction function |
| Direct Cache Access (DCA) | Enable/disable direct cache access technology. After it enabled, it can enhance data access and transmission efficiency. |
| DCA Prefetech Delay | Set DCA fetching delay |
| X2APIC | Extended advanced programmable interruption controller |
| AES-NI | Enable/disable new command technology of advanced encryption standard. After it is enabled, it can enhance data security. |

Advanced Power Management Configuration

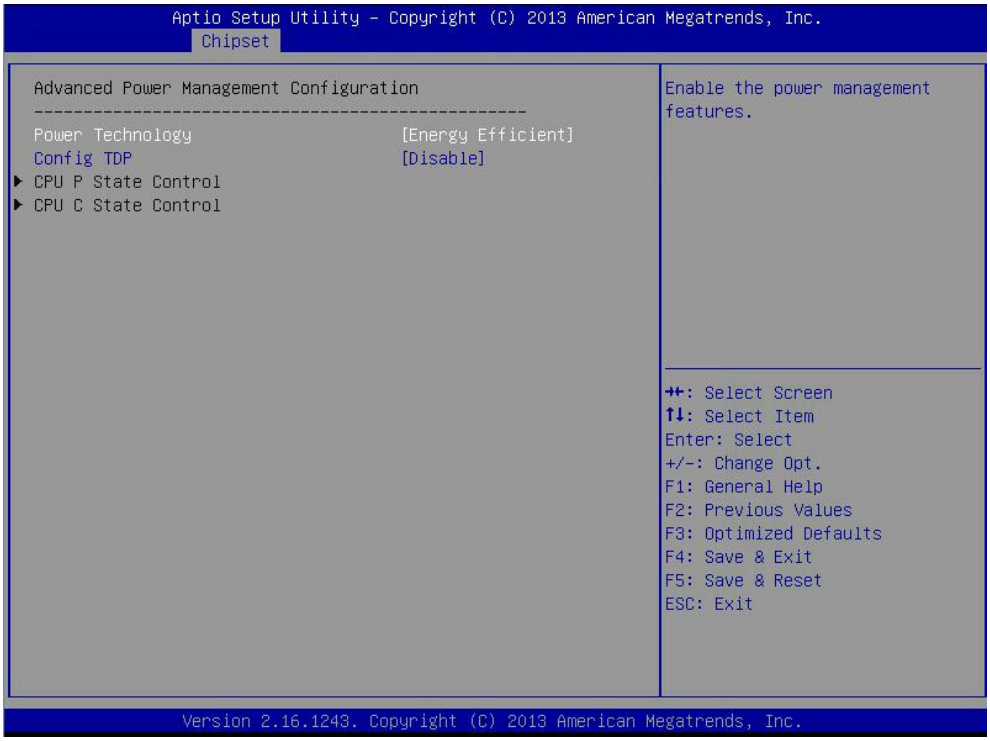



Figure 3-22 Advanced Power Management Configuration menu interface

Table 3-19 Description of Advanced Power Management Configuration interface parameters

| Parameter name | Configuration description |
|---|---|
| Power Technology | The power management strategy selection (energy efficient: it is used to support power energy saving mode; Custom: it is used to set the self-defined system power; Disable: it is used to forbid power energy saving setup. Option: Disable, Energy Efficient (default) or Custom). |
| Config TDP | Configure designed power consumption of heat dissipation |
| CPU P State Control | Processor power status parameter setup |
| CPU C State Control | Processor idle status parameter setup |

CPU P State Control

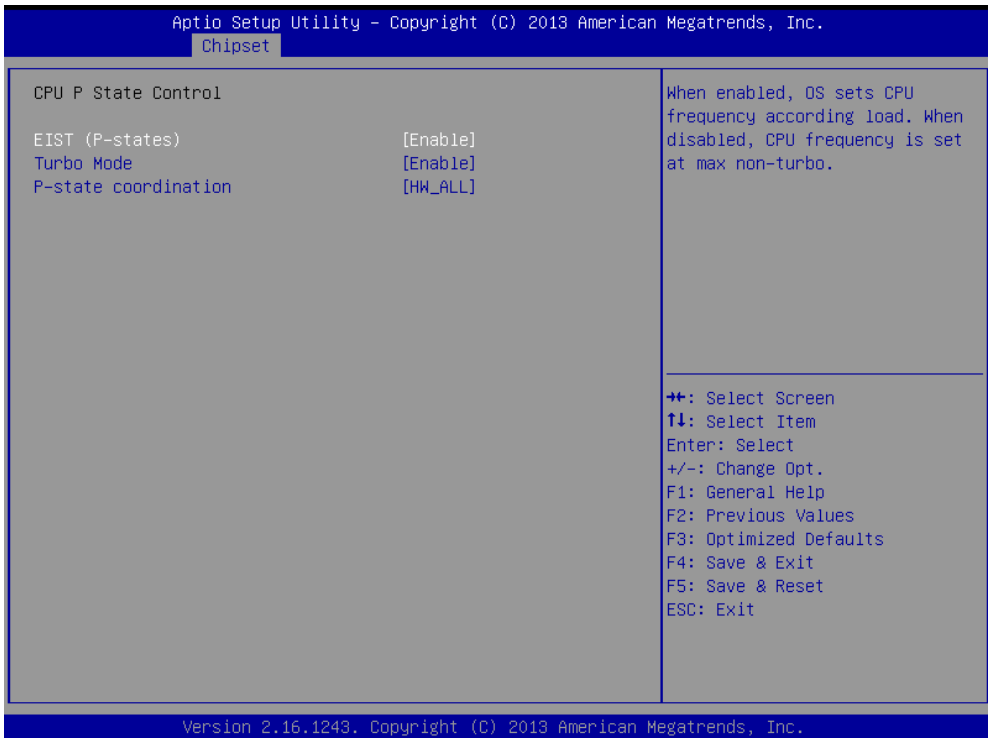



Figure 3-23 CPU P State Control menu interface

Table 3-20 description of CPU P State Control interface parameter

| Parameter name | Configuration description |
|---|---|
| EIST (P-State) | Enable/disable Intel intelligent under-locking technology |
| Turbo Mode | Core operation dynamic acceleration mode |
| P-State coordination | Set power status supported by processor |

CPU C State Control

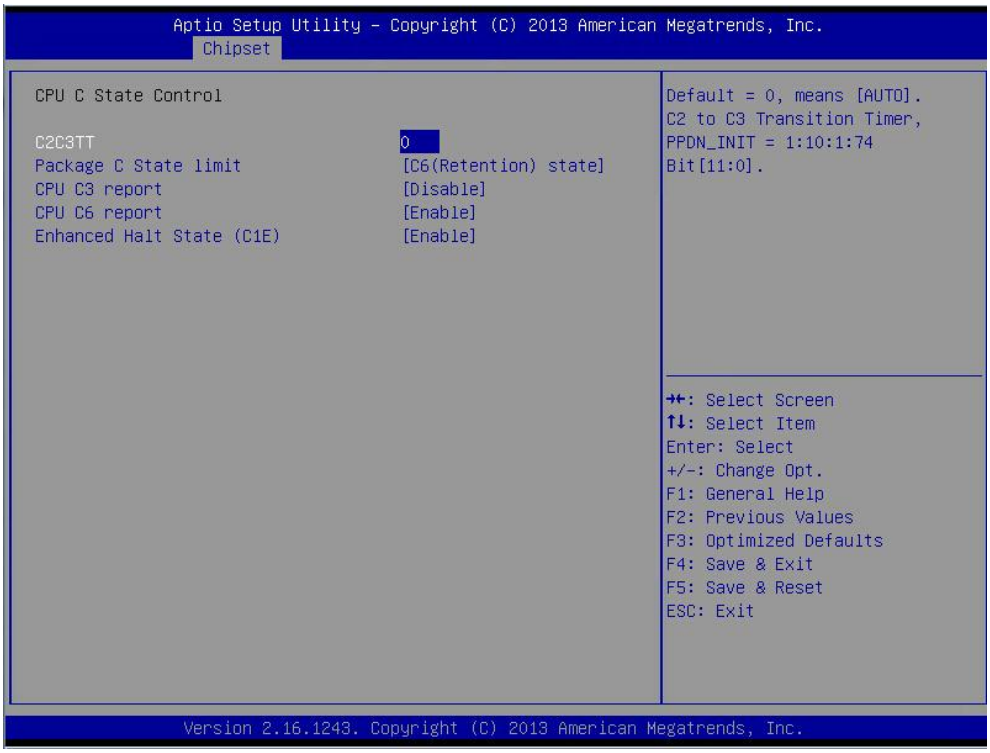



Figure 3-24 CPU C State Control menu interface

Table 3-21 Description of CPU C State Control interface parameter

| Parameter name | Configuration description |
|---|---|
| C2C3TT | Set transition time from C2 status to C3 status |
| Package C State Limit | Processor idle status limit configuration |
| CPU C3 Report | Enable/disable BIOS to report C3 idle status to OS |
| CPU C6 Report | Enable/disable BIOS to report C6 idle status to OS |
| Enhanced Halt State (C1E) | Enable/disable enhanced idle power management status switching. After it is enabled, it can reduce CPU voltage and frequency under idle CPU status and save power. |

Common RefCode Configuration

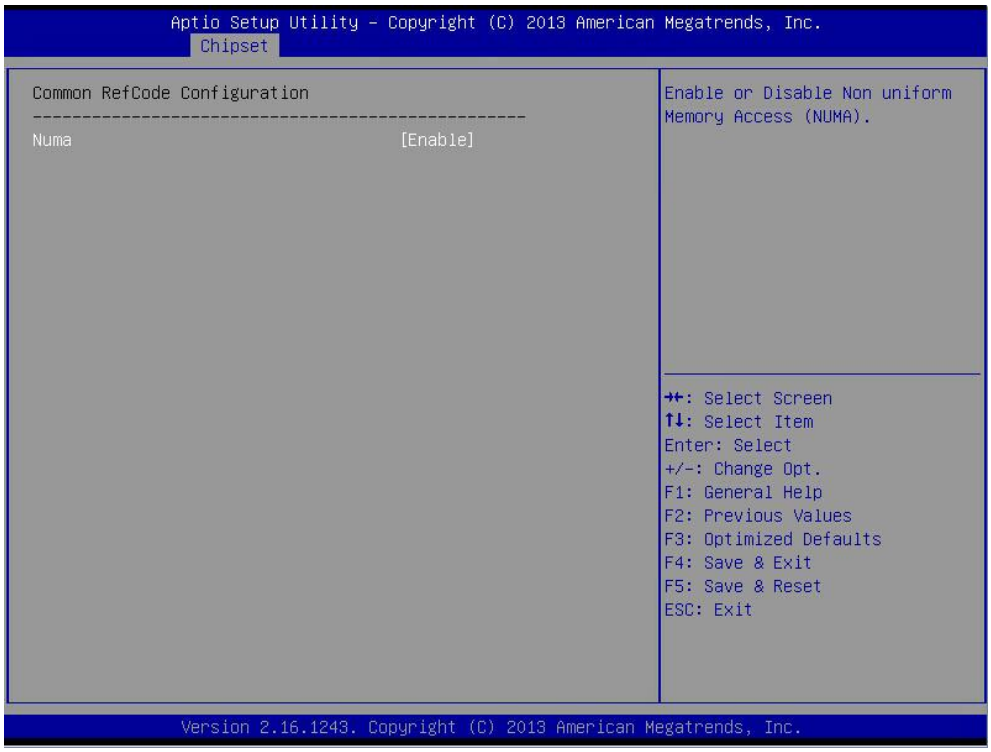



Figure 3-25 Common RefCode Configuration menu interface

Table 3-22 Description of Common RefCode Configuration interface parameter

| Parameter name | Configuration description |
|---|---|
| NUMA | Enable/disable inconsistent memory access technology |

QPI Configuration

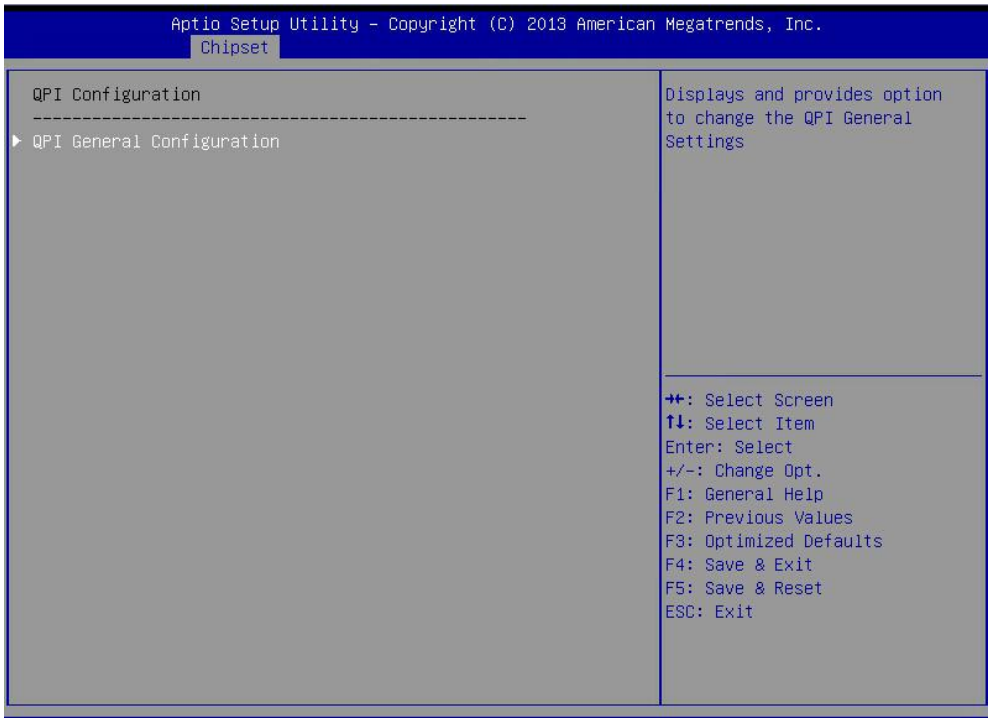



Figure 3-26 QPI Configuration menu interface

Table 3-23 Description of QPI Configuration interface parameter

| Parameter name | Configuration description |
|---|---|
| QPI General Configuration | QPI general setting |

QPI General Configuration

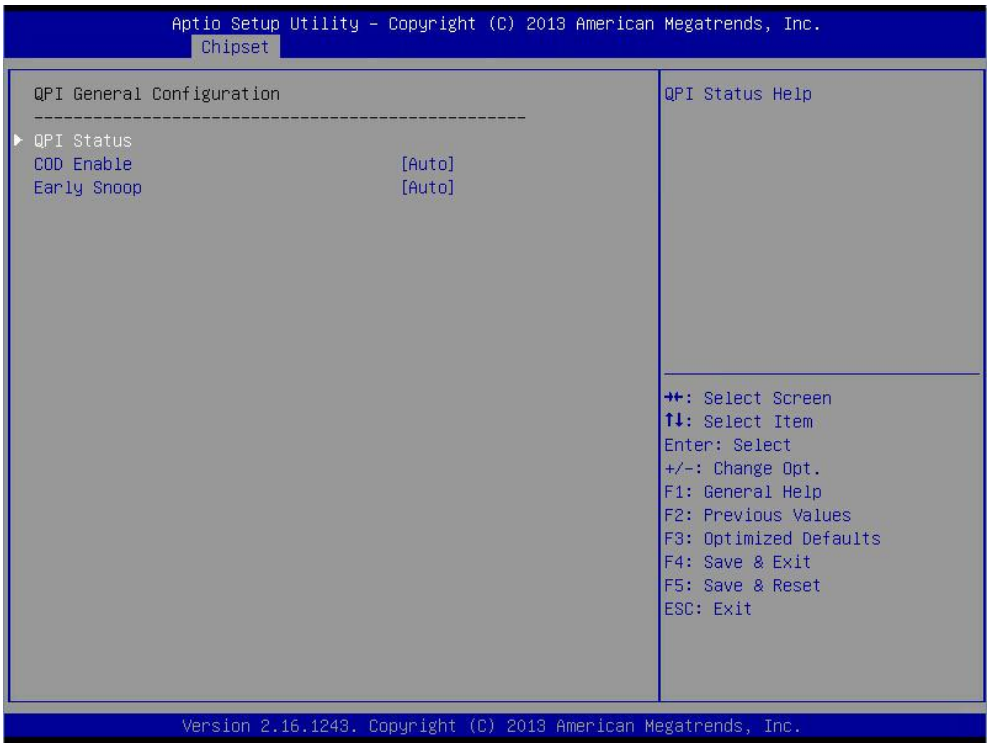



Figure 3-27 QPI General Configuration menu interface

Table 3-24 Description of QPI General Configuration interface parameter

| Parameter name | Configuration description |
|---|---|
| QPI Status | Display QPI status |
| COD Enable | Cluster on Die mode is used to reduce communication between two CPU partitions and improve performance |
| Early Snoop | Early probe |

QPI Status

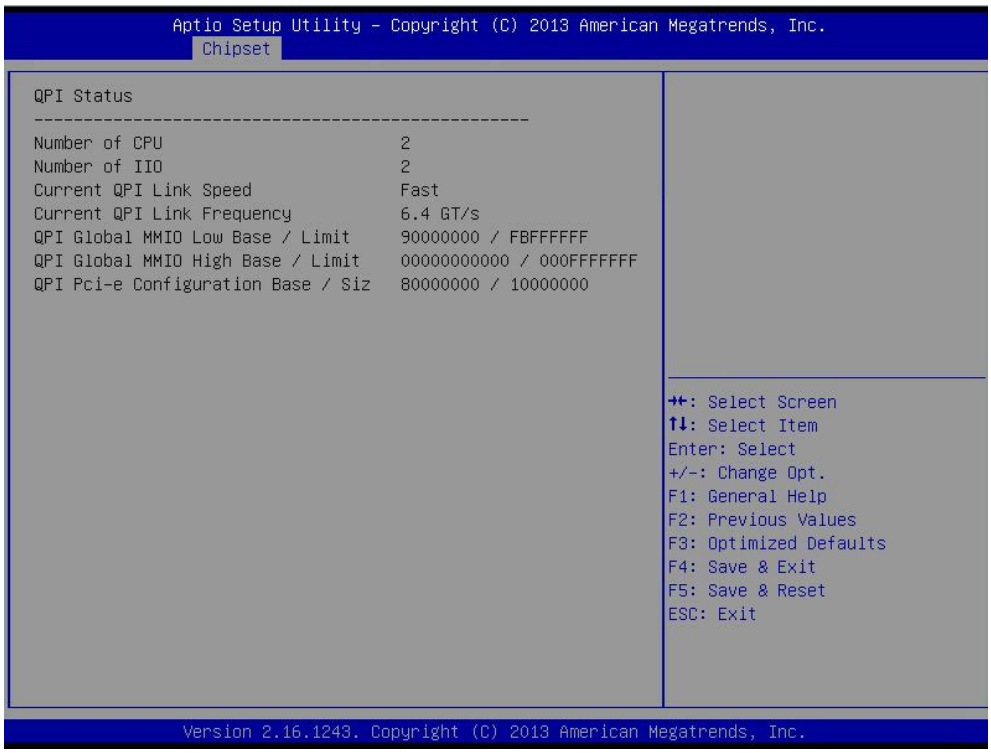



Figure 3-28 QPI Status menu interface

Memory Configuration

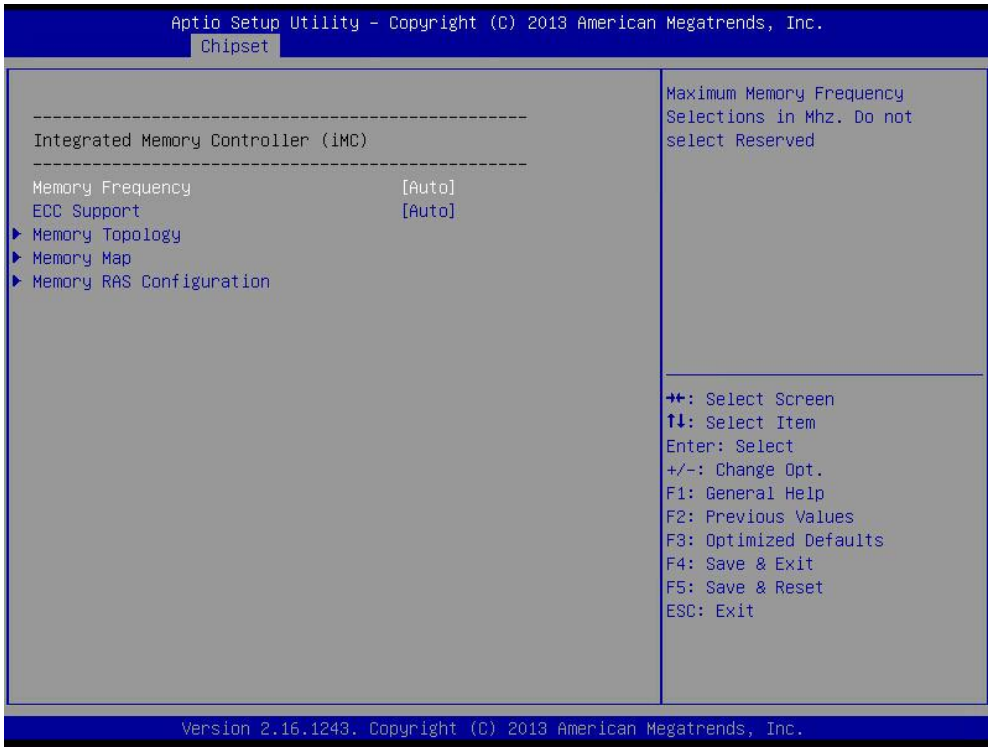
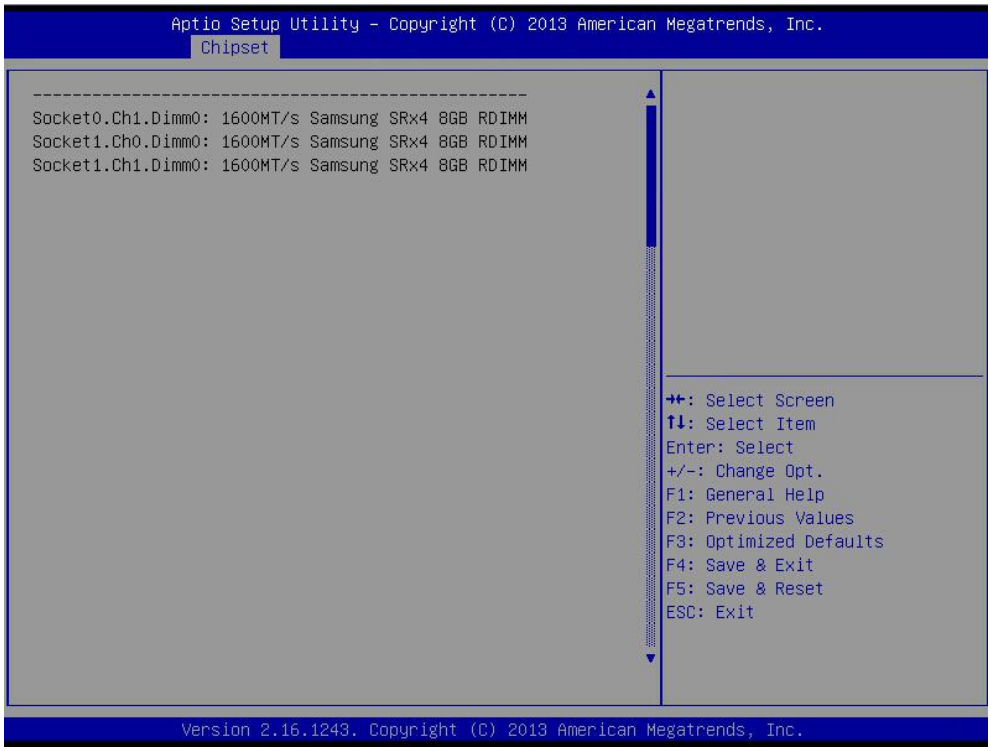



Figure 3-29 Memory Configuration menu interface

Table 3-25 Description of Memory Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| Memory Frequency | Memory frequency setup |
| ECC Support | ECC function support setup |
| Memory Topology | Display information on installed memory |
| Memory Map | Memory mapping setting |
| Memory RAS Configuration | Memory RAS feature setting |

## Memory Topology




## Memory Map

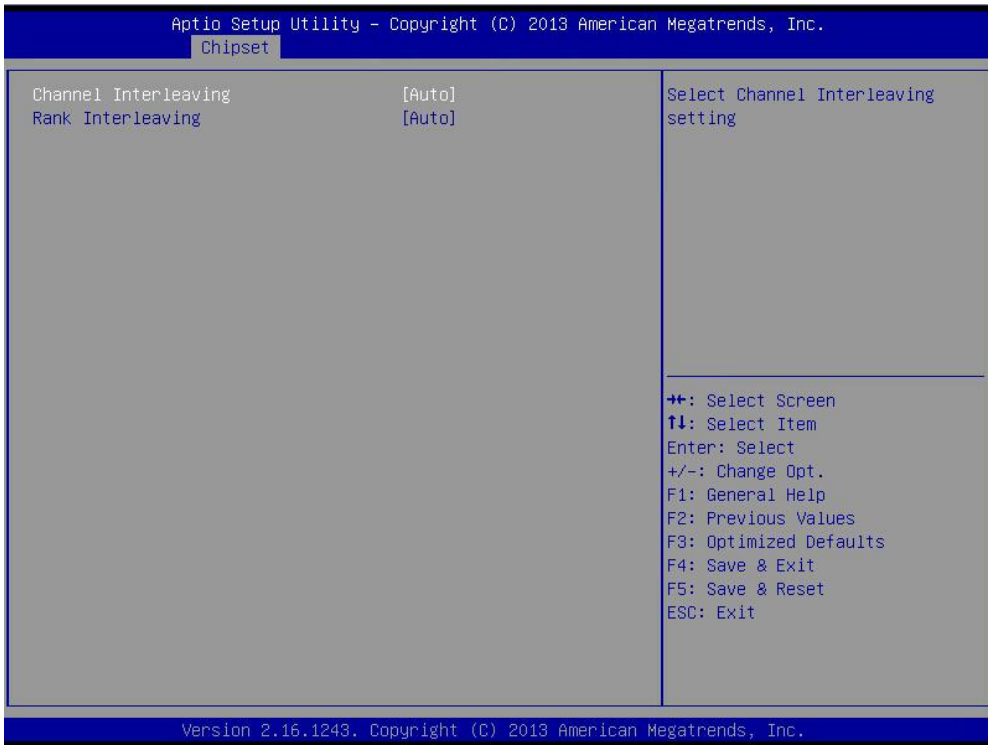


Figure 3-30 Memory Map menu interface

Table 3-26 Description of Memory Map interface parameter

| Interface parameters | Function description |
|---|---|
| Channel Interleving | Set crossing mode of memory channel level |
| Rank Interleaving | Set crossing mode of memory Rank level |

Memory RAS Configuration

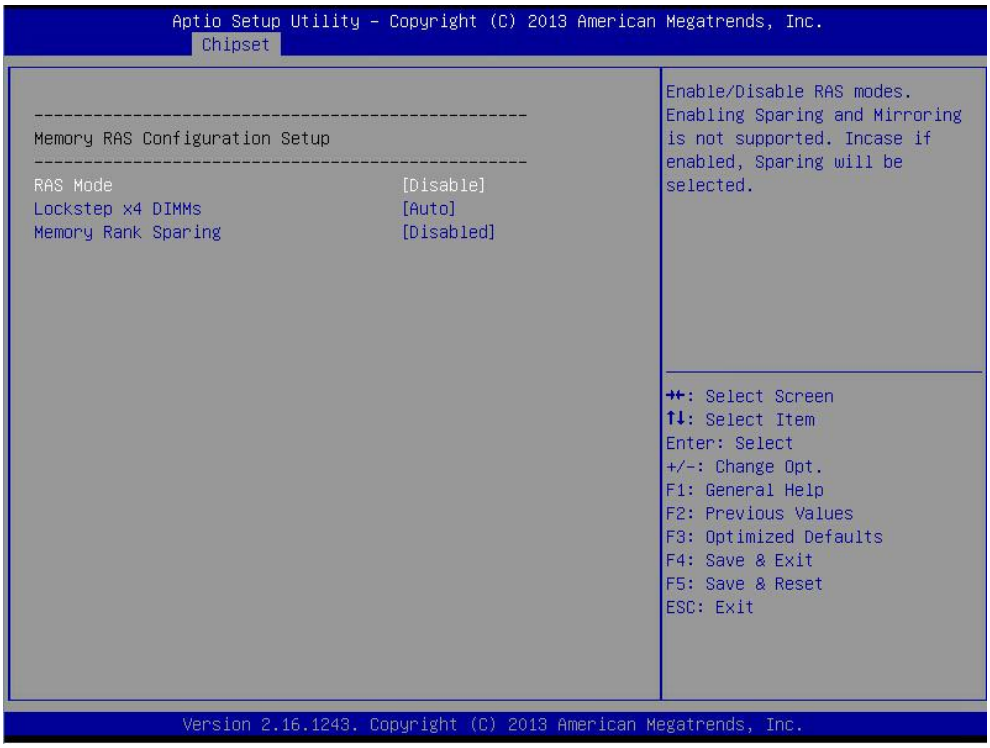



Figure 3-31 Memory RAS Configuration menu interface

Table 3-27 Description of memory RAS Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| RAS Mode | Set RAS mode |
| Lockstep x4 DIMMs | Enable/disable step mode x4 DiMM |
| Memory Rank Sparing | Set if the memory Rank redundancy function is enabled |

IIO Configuration

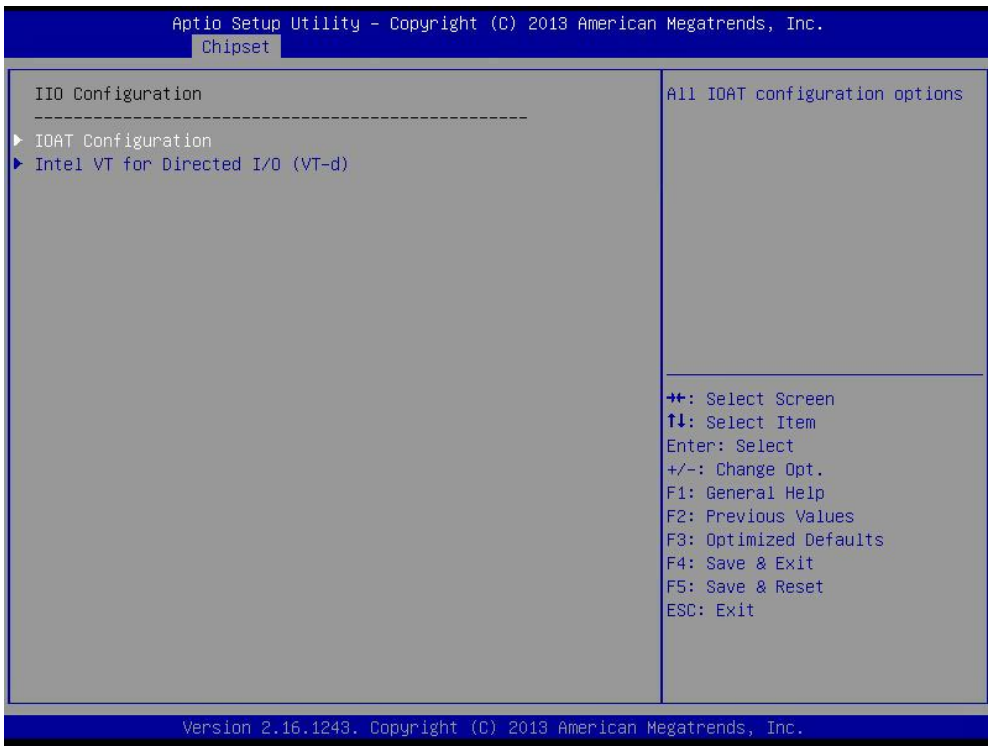



Figure 3-32 IIO Configuration menu interface

Table 3-28 Description of IIO Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| IOAT Configuration | Integrated input/output acceleration configuration |
| Intel VT for Directed I/O (VT-d) | Virtualization technology setting of Intel direct IO access |

IOAT Configuration

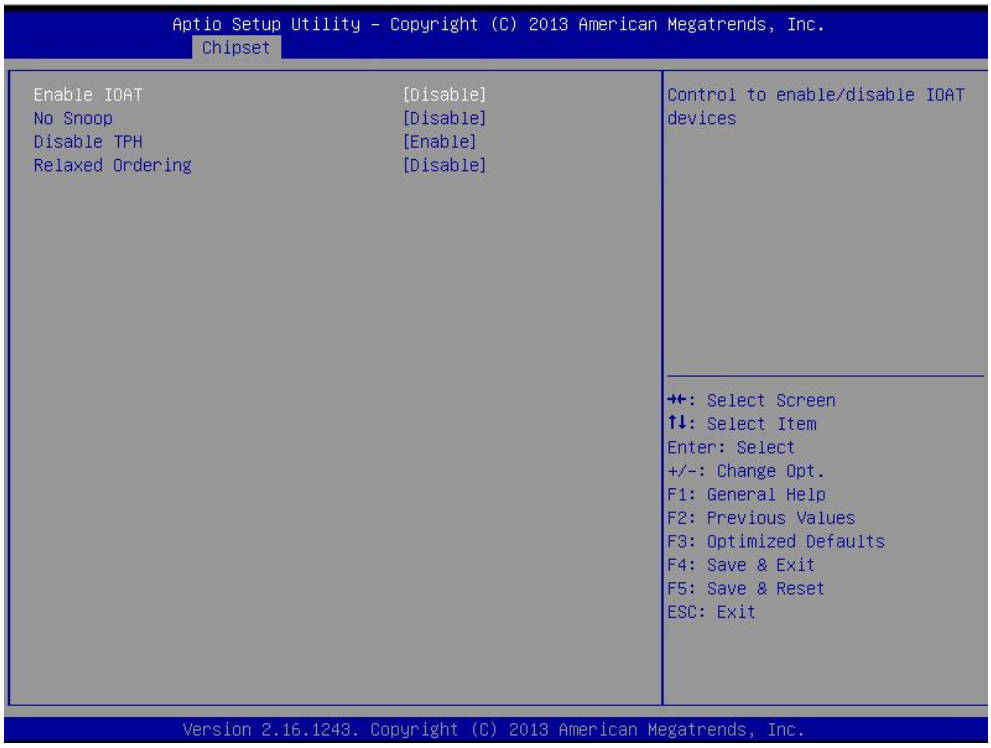


Figure 3-33 IOAT Configuration menu interface

Table 3-29 Description of IOAT Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| Enable IOAT | Enable/disable Intel input/output acceleration technology |
| No Snoop | Enable/disable PCI-E non-monitoring function |
| Disable TPH | Enable/disable TLP processing prompt |
| Relaxed Ordering | Relax sorting |

Intel VT for Directed I/O (VT-d)

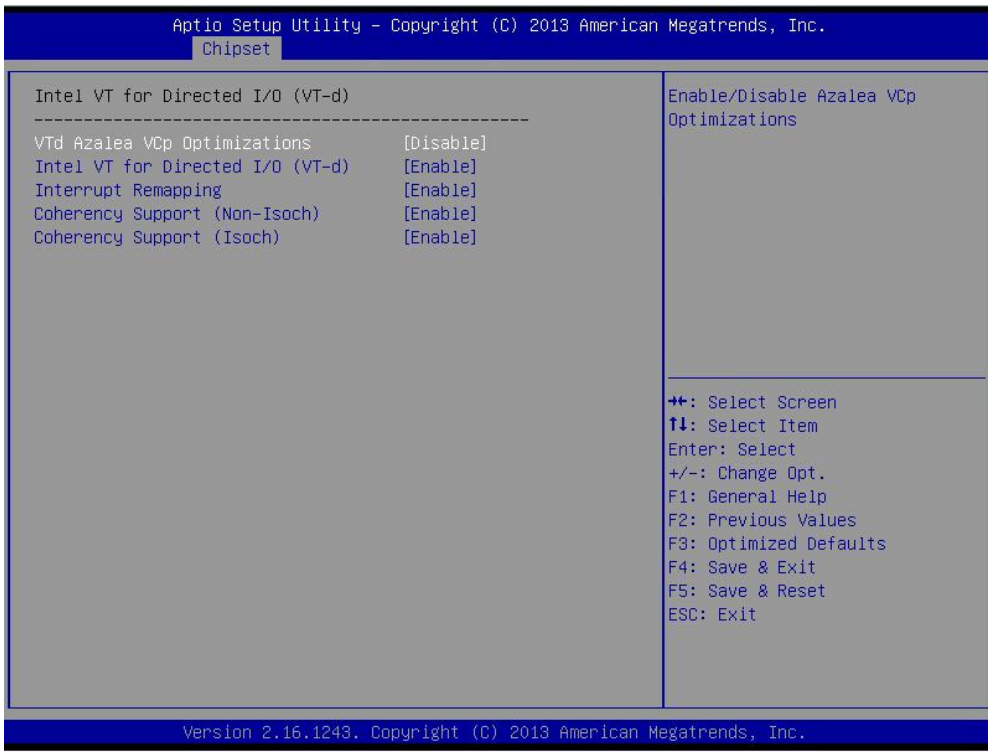



Figure 3-34 Intel VT for Directed I/O (VT-d) menu interface

Table 3-30 Description of Intel VT for Directed I/O (VT-d) interface parameter

| Interface parameters | Function description |
|---|---|
| VTd Azalea VCp Optimization | Intel IO virtualization configuration option |
| Intel VT for Directed I/O (VT-d) | Enable/disable Intel hardware assisted virtualization function. To enable this function, the system can bear more work load, improve reliable and reduce TCO. |
| Interrupt Remapping | Enable/disable interruption re-mapping function |
| Coherency Support (non-Isoch) | Enable/disable (non-synchronization mode) consistency support |
| Coherency Support (Isoch) | Enable/disable (synchronization mode) consistency support |

PCH Configuration

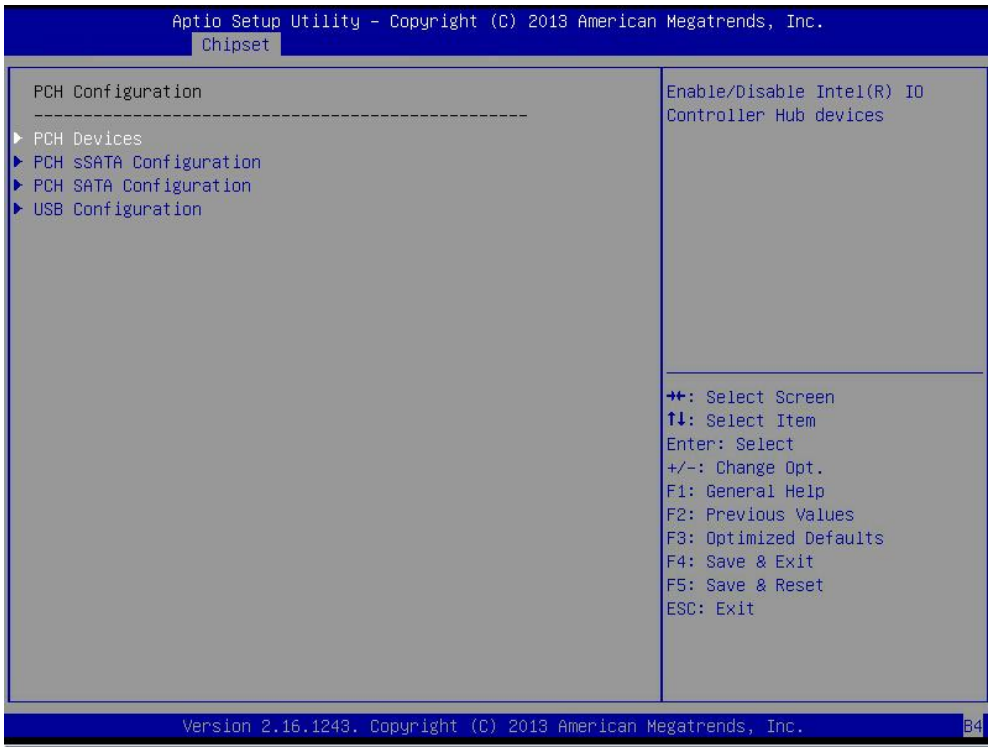



Figure 3-35 PCH Configuration menu interface

Table 3-31 Description of PCH Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| PCH Devices | PCH device configuration |
| PCH sSATA Configuration | PCH sSATA configuration |
| PCH SATA Configuration | PCH SATA configuration |
| USB Configuration | USB configuration |

PCH Devices

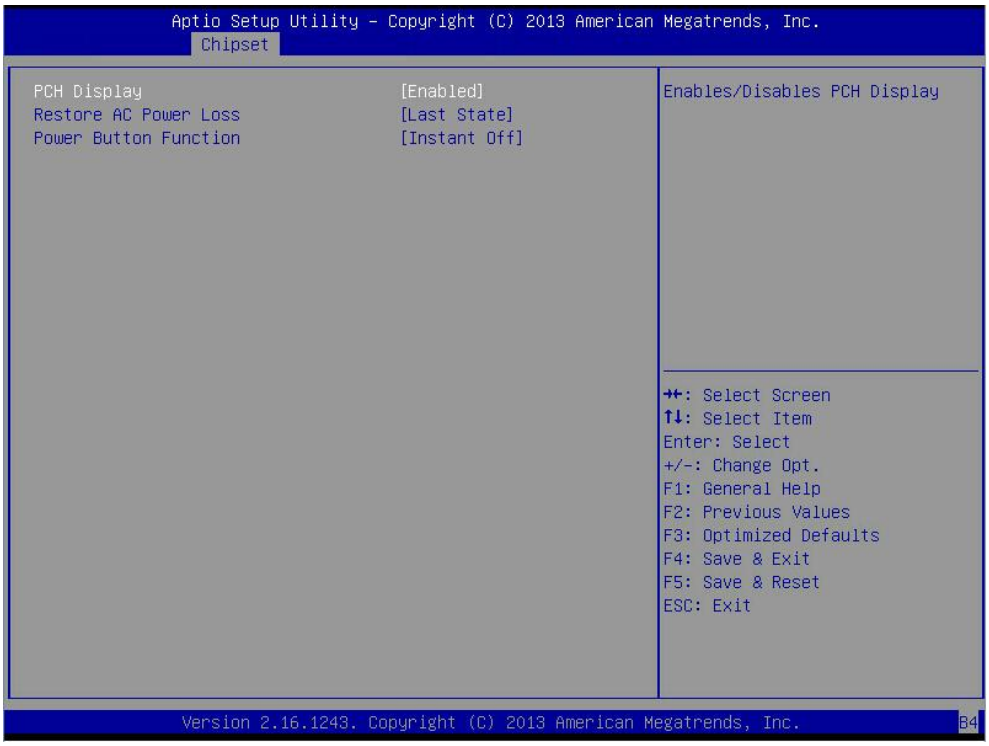



Figure 3-36 PCH Devices menu interface

Table 3-32 Description of PCH Devices interface parameter

| Interface parameters | Function description |
|---|---|
| Restore AC Power Loss | This function is used to set the power operation status when the system power is disconnected and powers on again. To select Stay off, it indicates that the system power will keep power off status after power interruption and power on. To select power on, it indicates that the system power will automatically power on after power interruption and power on again. To select Last state, it indicates that the system power will restart the final power status after interruption and power on. |
| Power Button Function | Set machine power button. If it is set as emergency off button, when a user presses the power button, the system will instantly power off. If it is set as 4 Seconds Override, when the user holds the power button for 4s or longer, the system will power off. |

PCH sSATA Configuration

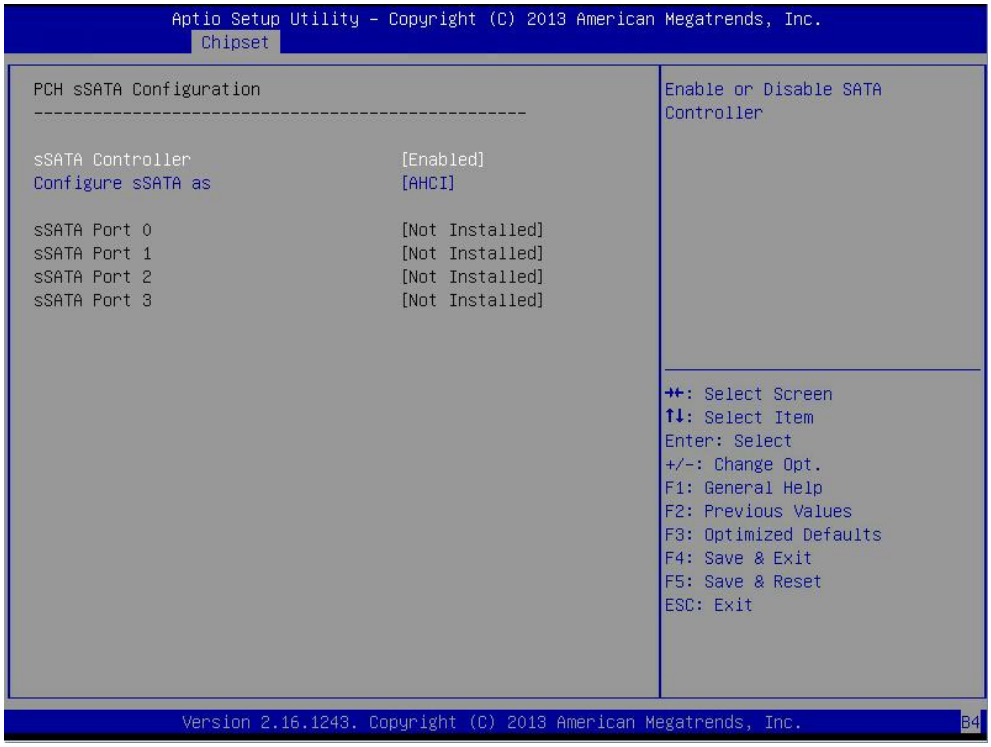



Figure 3-37 PCH sSATA Configuration menu interface

Table 3-33 Description of PCH sSATA Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| sSATA Controller | Enable/disable sSTAT controller |
| Configure sSATA as | Configure sTATA mode, which can be set as IDE, AHCI or Raid mode |
| sSATA Port 0<br>sSATA Port 1<br>sSATA Port 2<br>sSATA Port 3 | Display hard disk information at sTATA interface. When the hard disk is not connected, “Not Installed” will display. To connect the hard disk, the detailed hard disk information will display. |

PCH SATA Configuration

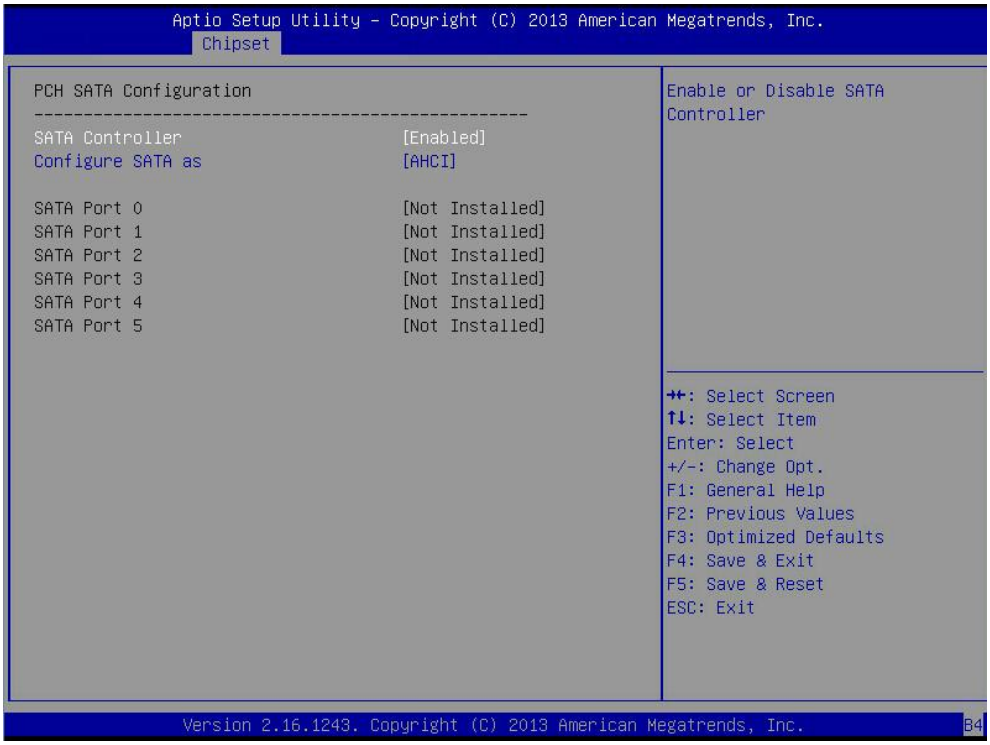



Figure 3-38 PCH SATA Configuration menu interface

Table 3-34 Description of PCH SATA Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| SATA Controller | Enable/disable SATA controller |
| Configure SATA as | Configure SATA mode, which can be set as IDE, AHCI or Raid mode |
| SATA Port 0<br>SATA Port 1<br>SATA Port 2<br>SATA Port 3 | Display hard disk information at SATA interface. When the hard disk is not connected, “Not Installed” will display. To connect the hard disk, the detailed hard disk information will display. |

USB Configuration

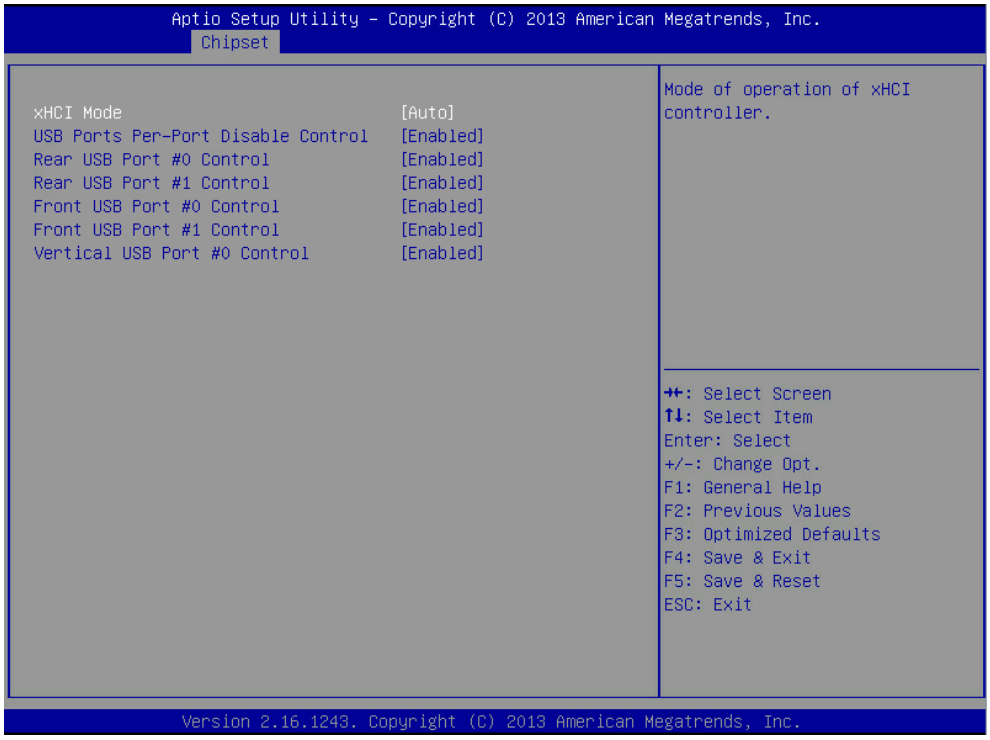



Figure 3-39USB Configuration menu interface

Table 3-35 Description of USB Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| xHCI Mode | Scalable host controller interface mode setup (down compatible to USB3.0) |
| USB Ports Per-Port Disable Control | Set if each USB interface is disabled |
| Rear USB Port #0 control | Control switch of USB interface 0 on the rear of the chassis |
| Rear USB Port #1 control | Control switch of USB interface 1 on the rear of the chassis |
| Front USB Port #0 control | Control switch of USB interface 0 on the front panel of the chassis |
| Front USB Port #1 control | Control switch of USB interface 1 on the front panel of the chassis |
| Vertical USB Port #0 Control | Vertical USB interface control switch on mainboard |

### 3.3.5 Server Mgmt menu

The Server Mgmt menu can set BMC options.

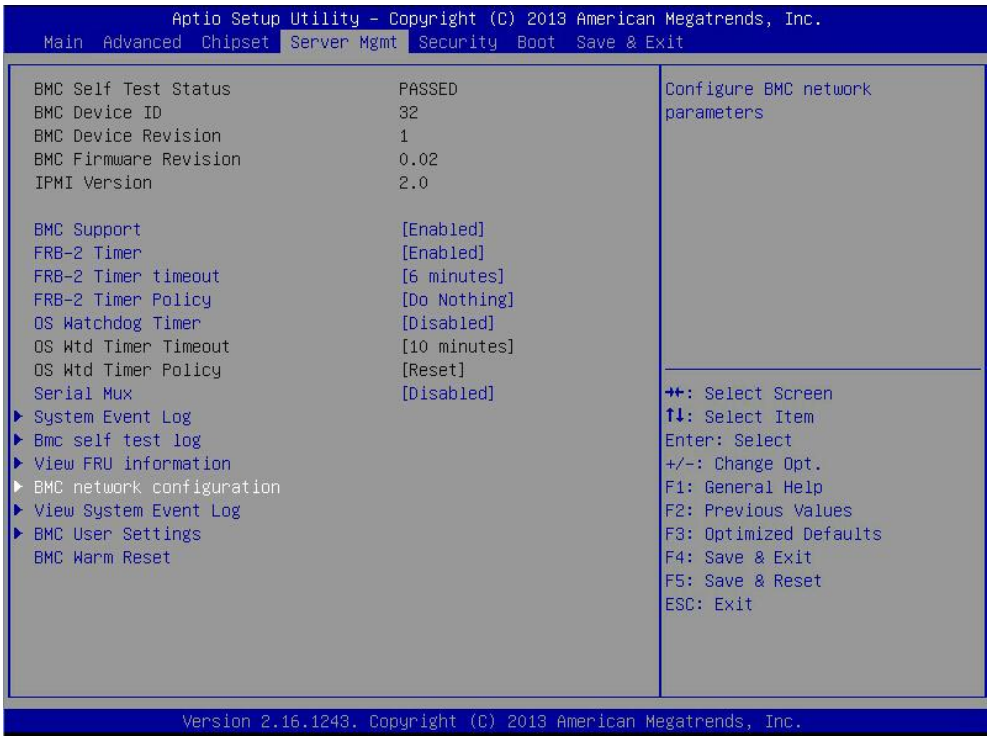



Figure 3-40 Server Mgmt menu interface

Table 3-36 Description of Server Mgmt interface parameter

| Interface parameters | Function description |
|---|---|
| BMC Self-Test Status | BMC self-test status |
| BMC Device ID | BMC device ID number |
| BMC Device Revision | BMC device revision |
| BMC Firmware Revision | BMC firmware revision |
| IPMI Version | Supported IPMI standard version |
| BMC Support | Enable/disable BMC function |
| FRB-2 Timer | Failure recovery and start in Post |
| FRB-2 Timer timeout | Failure recovery and start time setup in Post |
| FRB-2 Timer Policy | Failure recovery and start handling mechanism in Post |
| OS Watchdog Timer | Watchdog timeout setting in OS |
| OS Wtd Timer Timeout | Watchdog timeout duration setting in OS |
| OS Wtd Timer Policy | Watchdog timeout handling mechanism in OS |
| Serial Mux | Serial communication |
| System Event Log | System event log setting |
| BMC Self test log | BMC self-test log setting |
| View FRU information | View FRU information |
| BMC network configuration | BMC network setting |
| View System Event Log | View system event log |
| BMC User Settings | BMC user setting, including addition, deletion and change of BMC user information |
| BMC Warm Reset | BMC warm reset. To select it and press Enter key, the system will prompt if the BMC boots in a warm manner. To select Yes, the BMC will boot in a warm manner. |

System Event Log

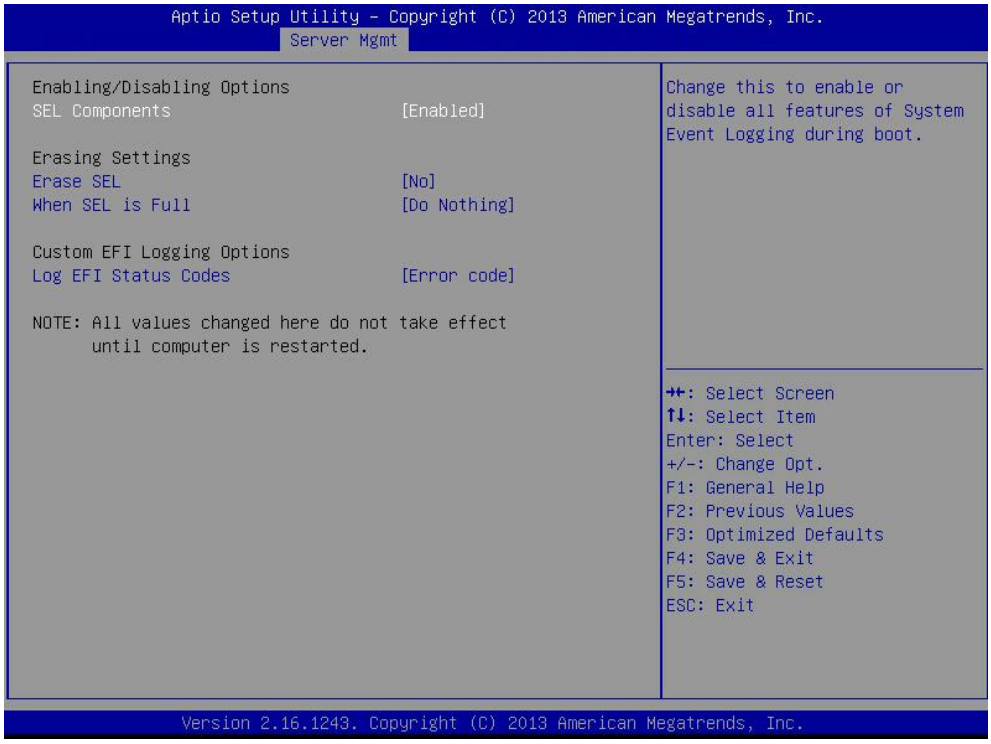



Figure 3-41 System Event Log menu interface

Table 3-37 Description of system Event Log interface parameter

| Interface parameters | Function description |
|---|---|
| SEL Components | Enable/disable system log configuration function. To enable this function, the system log operation function can be bonded |
| Erase SEL | Set if the system log is cleared in case of restart |
| When SEL is Full | Set actions when the stored system logs are full |
| Log EFI Status Code | Record status code setup of EFI |

BMC self-test log

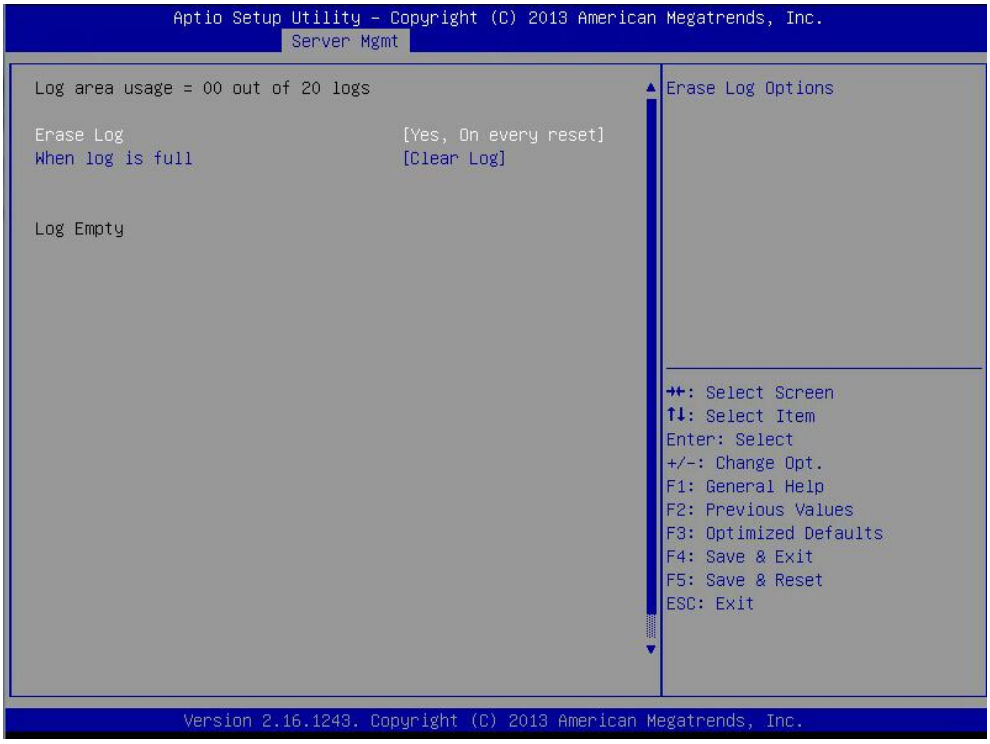
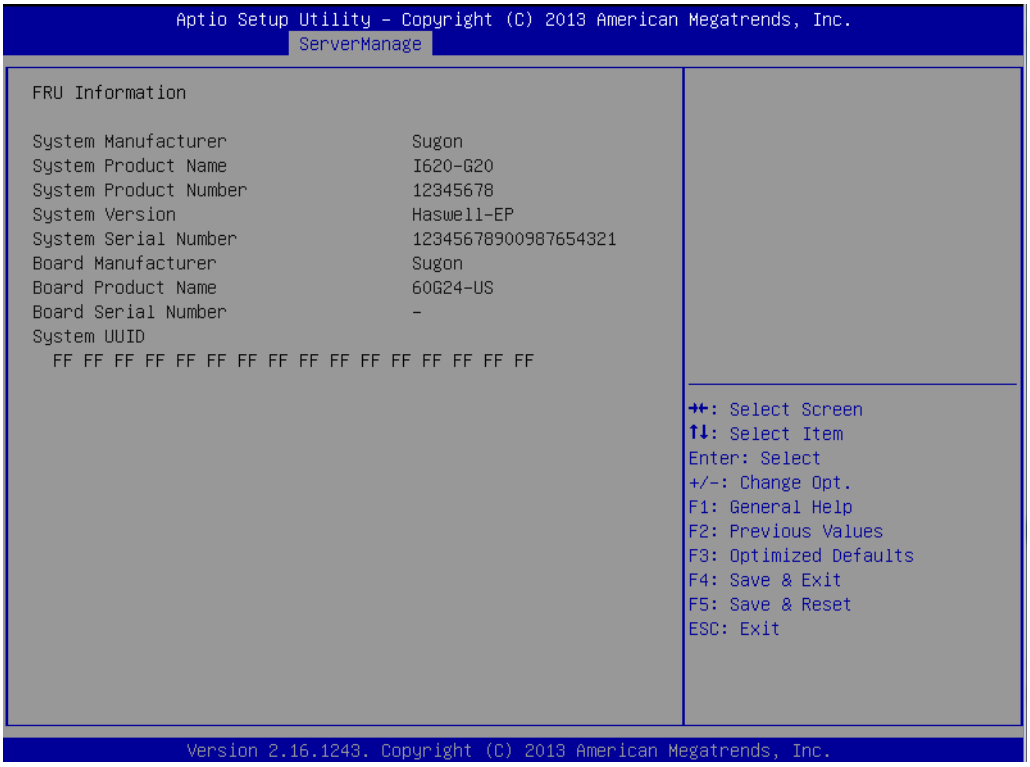



Figure 3-42 BMC self test log menu interface

Table 3-38 Description of BMC self-test log interface parameter

| Interface parameters | Function description |
|---|---|
| Erase Log | Set if the BMC self-test log is cleared in case of restart |
| When log is full | Set actions when the log is stored fully |

## View FRU information




## BMC Network Configuration

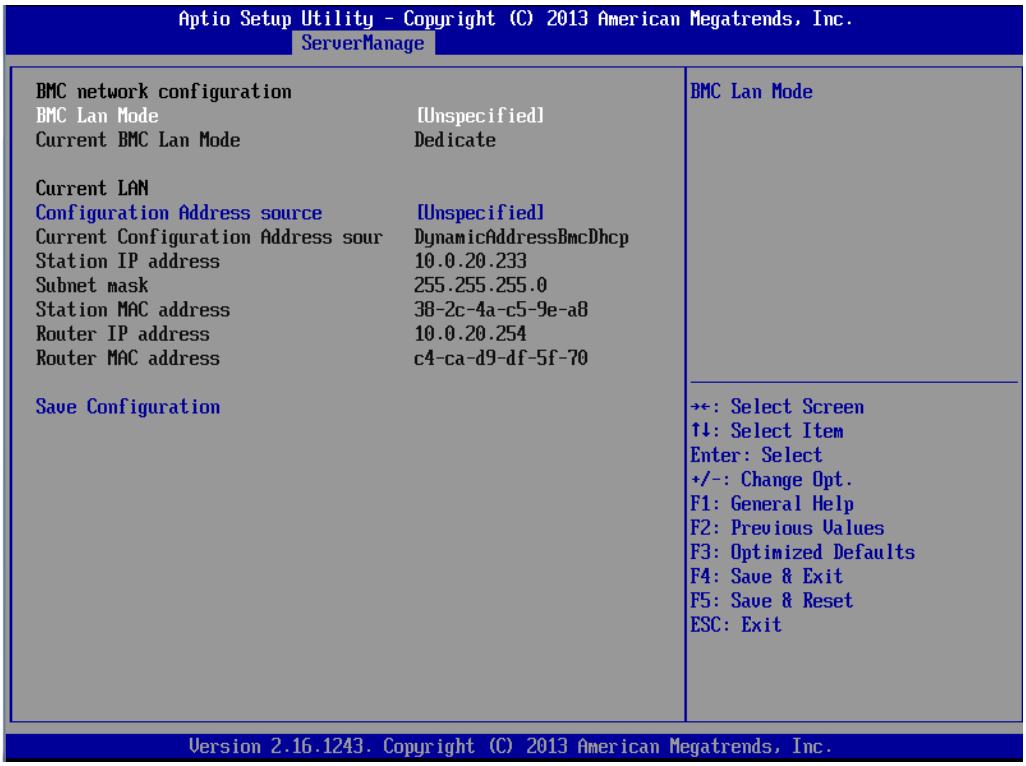



Figure 3-43 BMC Network Configuration menu interface

Table 3-39 Description of BMC Network Configuration interface parameter

| Interface parameters | Function description |
|---|---|
| BMC LAN Mode | Network management mode: according to the different system, it offers different option as below：<br>Unspecifie<br>Dedicate: only use dedicate Ethernet port<br>Share 1G: only use share 1G Ethernet port<br>Share 10G:only use share 10G Ethernet port<br>Failover 1G：use the dedicate Ethernet port and share 1G Ethernet port at the same time by supporting Failover function.<br>Failover 10G：use the dedicate Ethernet port and share 10G Ethernet port at the same time by supporting Failover function. |
| Current BMC LAN Mode | |
| Configuration Address source | Configure the source of IP address |
| Current Configuration Address sour | Display current IP address source |
| Station IP address | Display current IP address |
| Subnet mask | Display current subnet mask |
| Station MAC address | Display MAC address of network interface |
| Router IP address | Display IP address of router by default |
| Router MAC address | Display MAC address of router by default |
| Save Configuration | Save setting |

View System Event Log

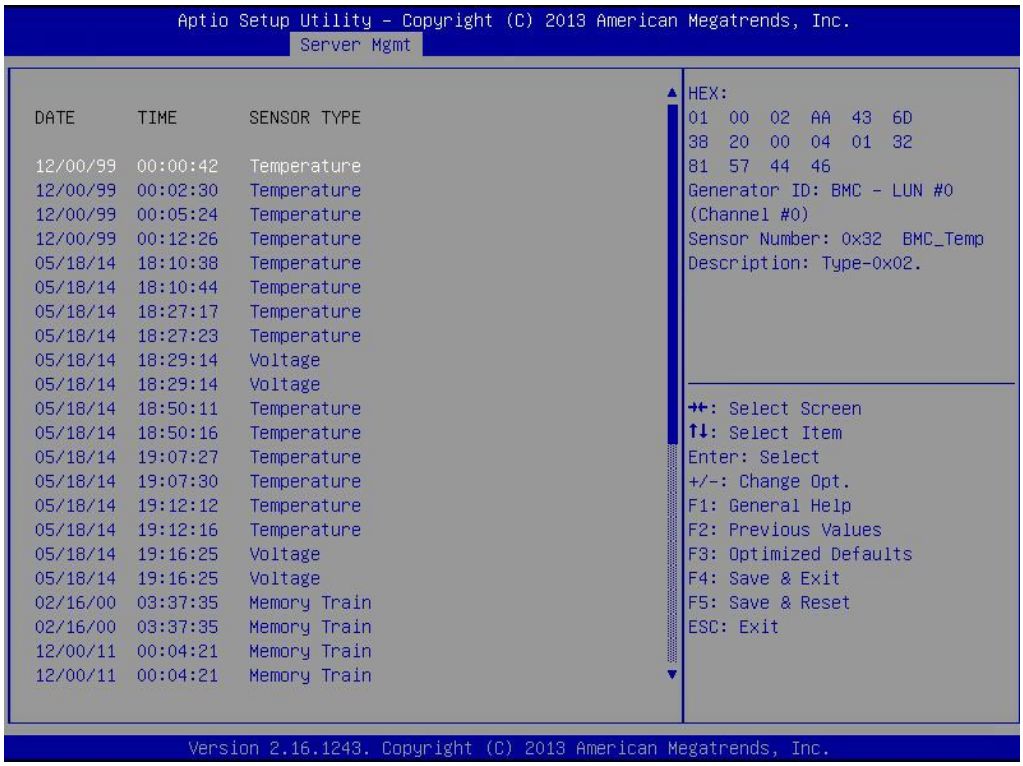



Figure 3-44 View System Event Log menu interface

## BMC User Settings

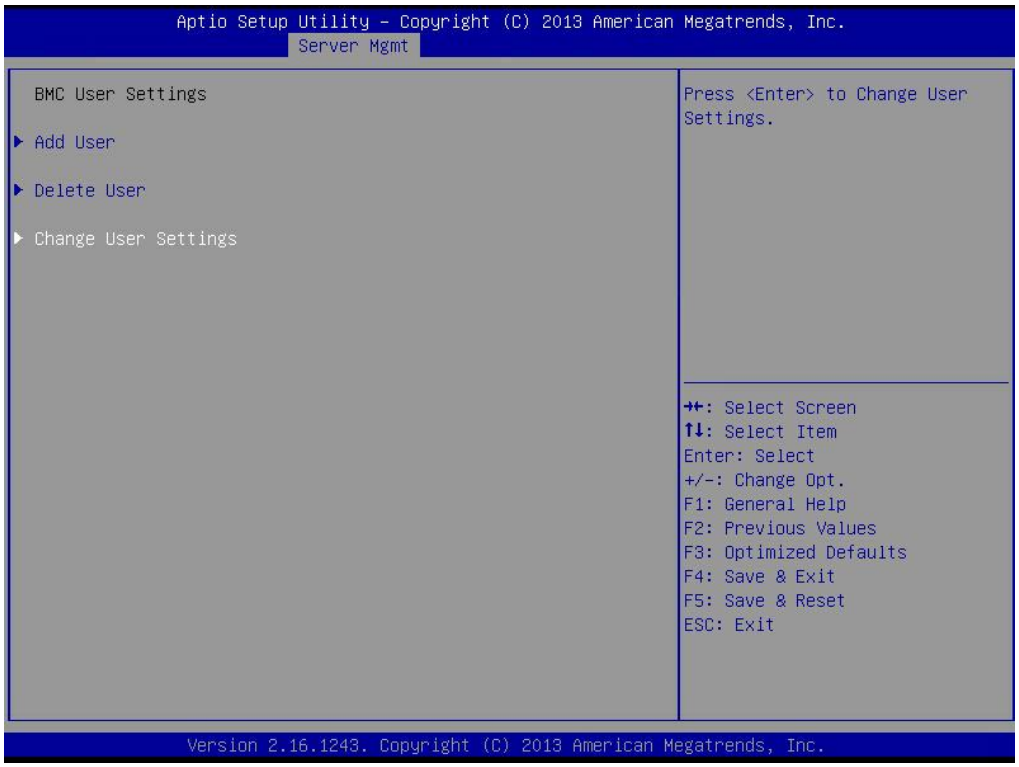



Figure 3-45 BMC User Settings menu interface

Table 3-40 Description of BMC User Settings interface parameter

| Interface parameters | Function description |
|---|---|

| | |
|---|---|
| Add User | Add BMC user |
| Delete User | Delete BMC user |
| Change User Settings | Change BMC user setting |

### Add User

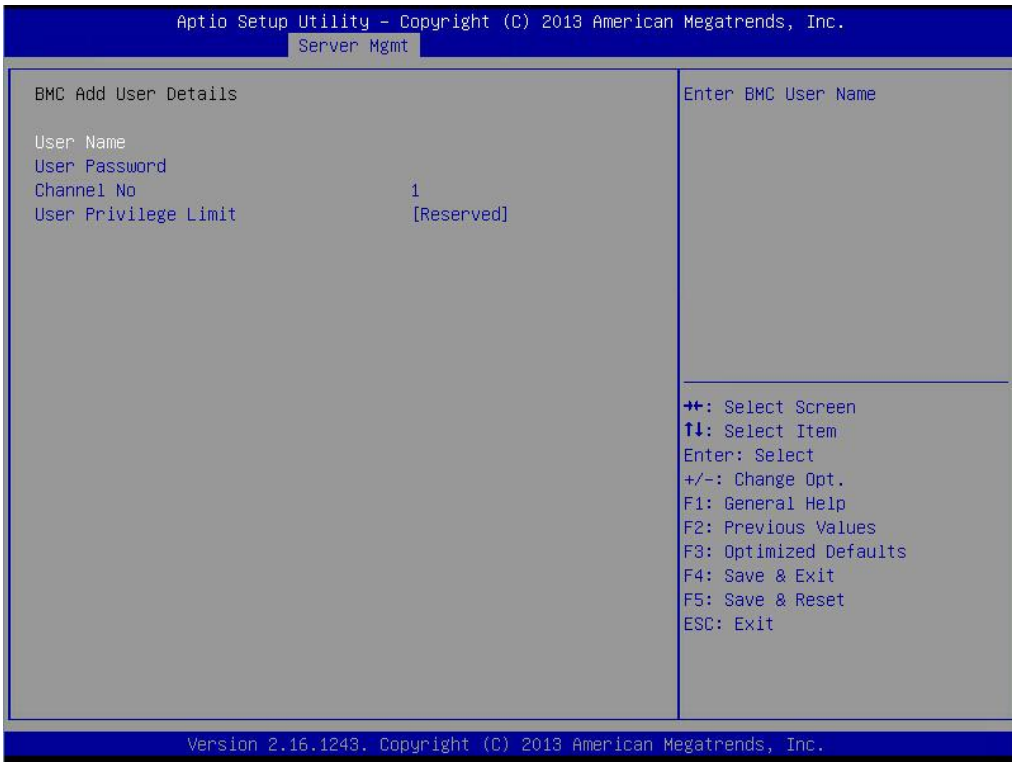



Figure 3-46 Add User menu interface

Table 3-41 Description of BMC User Settings interface parameter

| Interface parameters | Function description |
|---|---|
| User Name | Input BMC user name, which should not be same as the existing user name |
| User Password | Input BMC user password, which should be inputted two times and should be fully same. |
| Channel No | Set channel number |
| User Privilege Limit | Set user privilege |

### Delete User

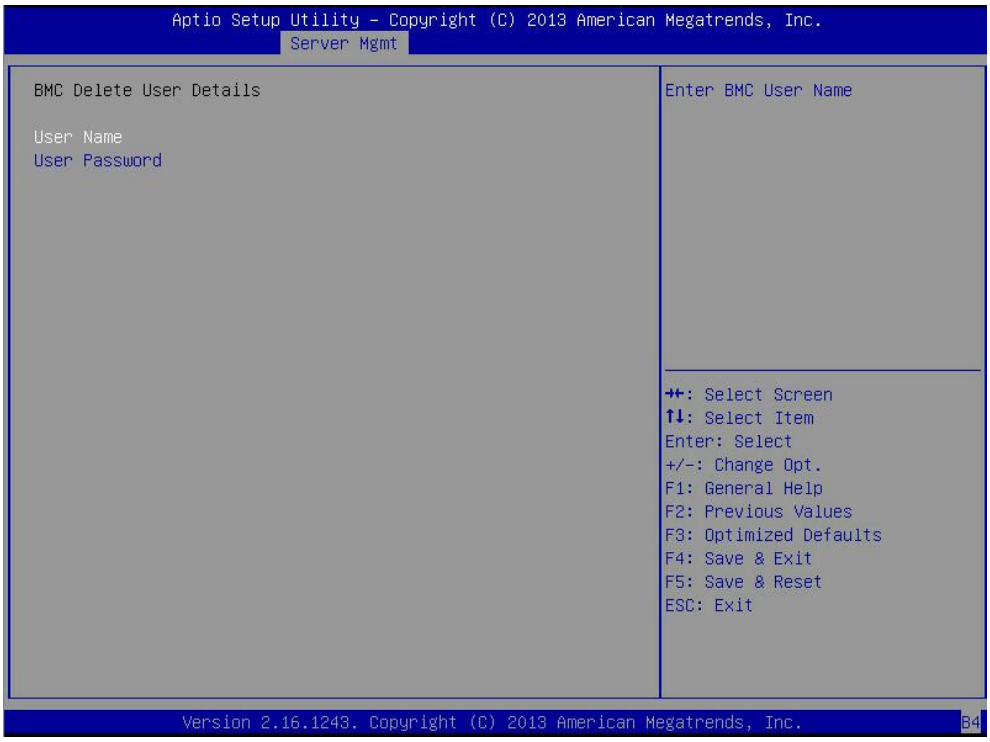



Figure 3-47 Delete Users menu interface

Table 3-42 Description of Delete User interface parameter

| Interface parameters | Function description |
|---|---|
| User Name | Input the user name to delete, which should exist |
| User Password | Input user password. If it is correct, this user will be deleted. |

Change User Setting

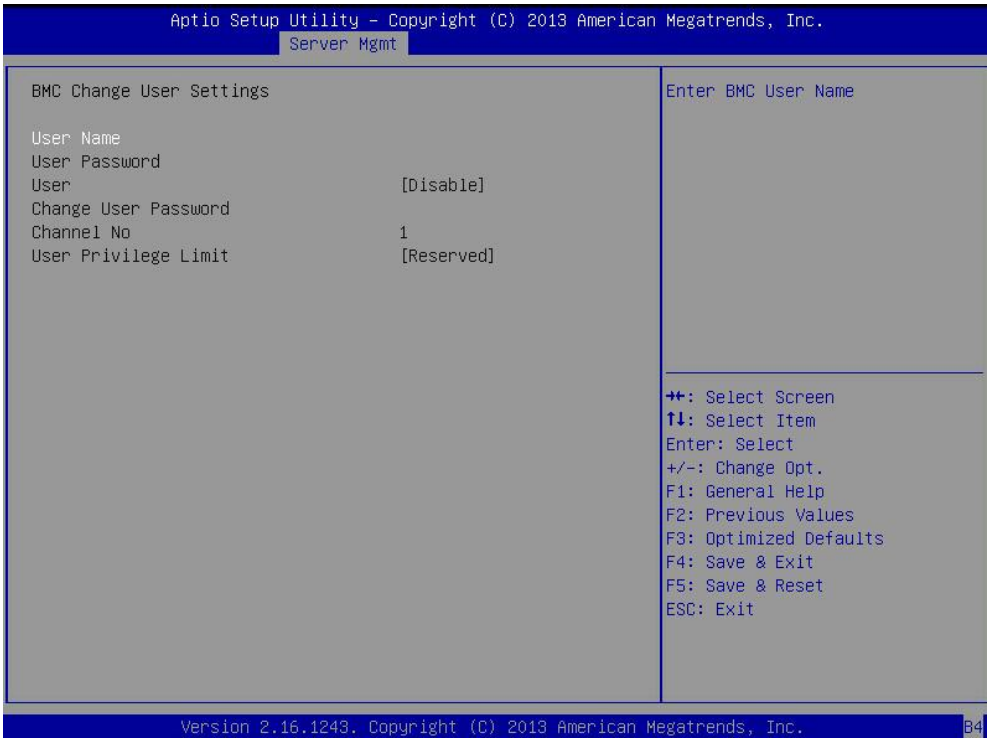


Figure 3-48 Change User Settings menu interface

Table 3-43 Description of Change User Settings interface parameter

| Interface parameters | Function description |
|---|---|
| User Name | Input user name to change |
| User Password | Input user password to change |
| User | Set if this user is enabled |
| Change User Password | Change user password, which should be inputted two times and should be fully same |
| Channel No | Change user channel number |
| User Privilege | Change user privilege |

## 3.3.6 Security menu

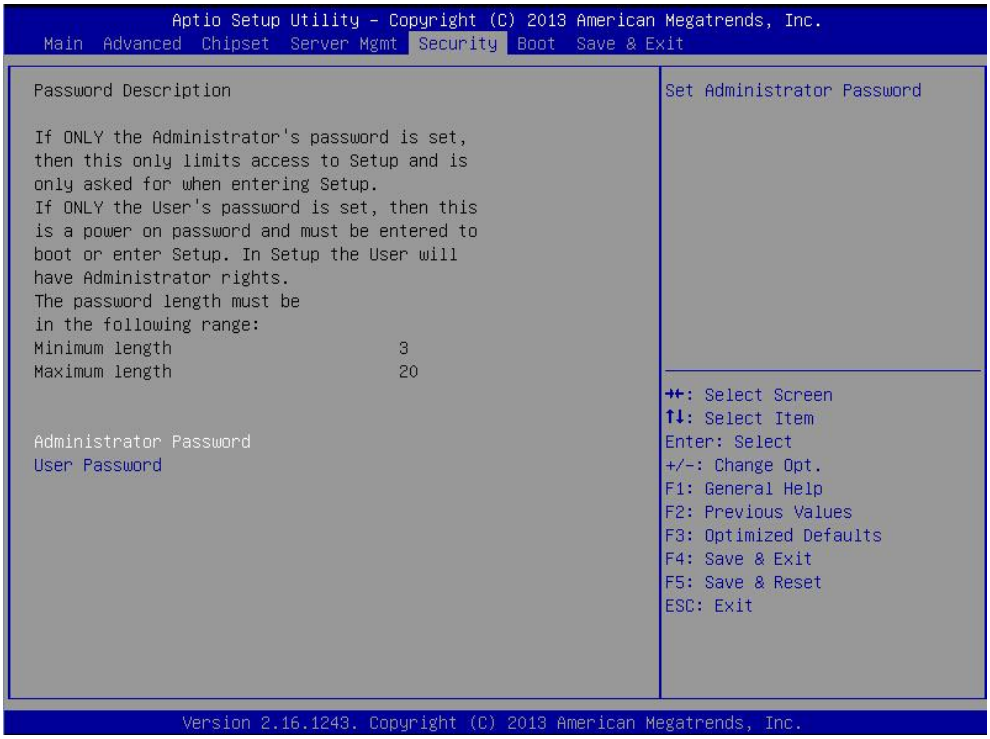



Figure 3-49 Security menu interface

Table 3-44 Description of security interface parameter

| Interface parameters | Function description |
|---|---|
| Administrator Password | Add/change/delete user password of administrator privilege |
| User Password | Add/change/delete user password of general user privilege |
| 【Notice】The minimal length of the password is 3 characters. The maximum length is 20 characters. | |

### 3.3.7 Boot menu

This menu can configure the start device.

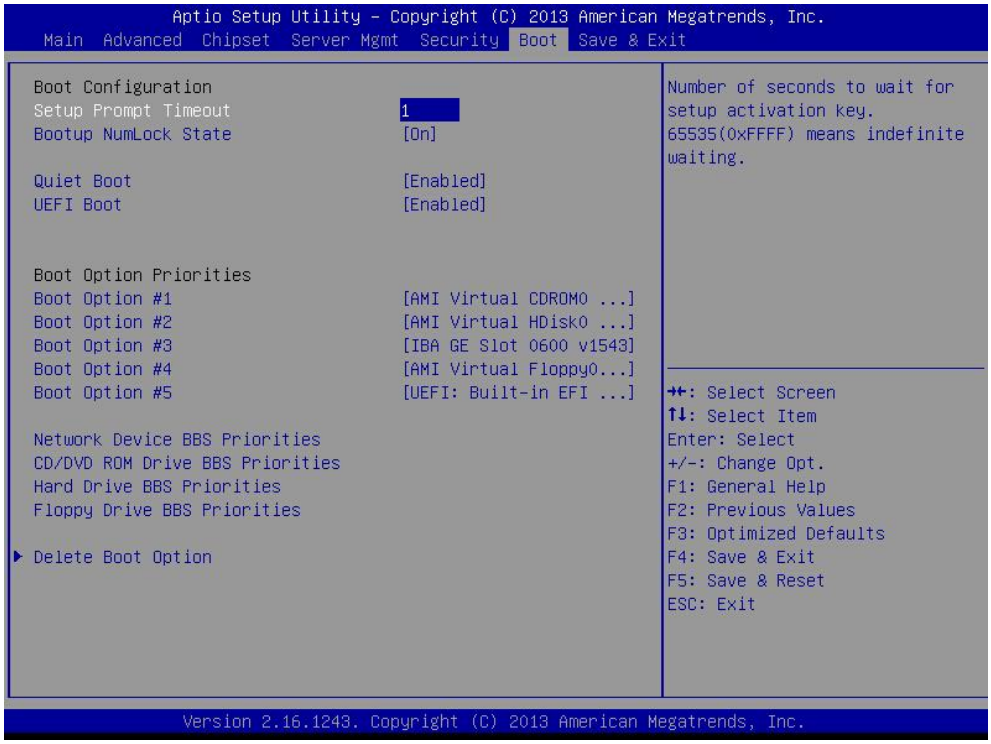



Figure 3-50 Boot menu interface

Table 3-45 Description of Boot interface parameter

| Interface parameters | Function description |
|---|---|
| Setup Prompt Timeout | Set time for waiting for Setup key (the unit is s) |
| Bootup NumLock State | Set status of NumLock key in case of power on |
| Quiet Boot | Enable/disable POST OEM logon display function. When this function is enabled, OEM logo will display. When this function is disabled, the self-test information will display |
| UEFI Boot | Enable/disable UEFI start option. If Auto is selected, when the first start hard disk uses GTP partition format, UEFI start mode is enabled. |
| Boot Option Priorities | Set priority sequence of start items |
| Network Device BBS Priorities | Set priority sequence of network start equipment |
| CD/DVD ROM BBS Priorities | Set priority sequence of CD ROM start device |
| Hard Drive BBS Priorities | Set priority sequence of hard disk start device |
| Floppy Drive BBS Priorities | Set priority sequence of floppy disk start device |
| Delete Boot Option | Delete start items |

### 3.3.8 Save & Exit menu

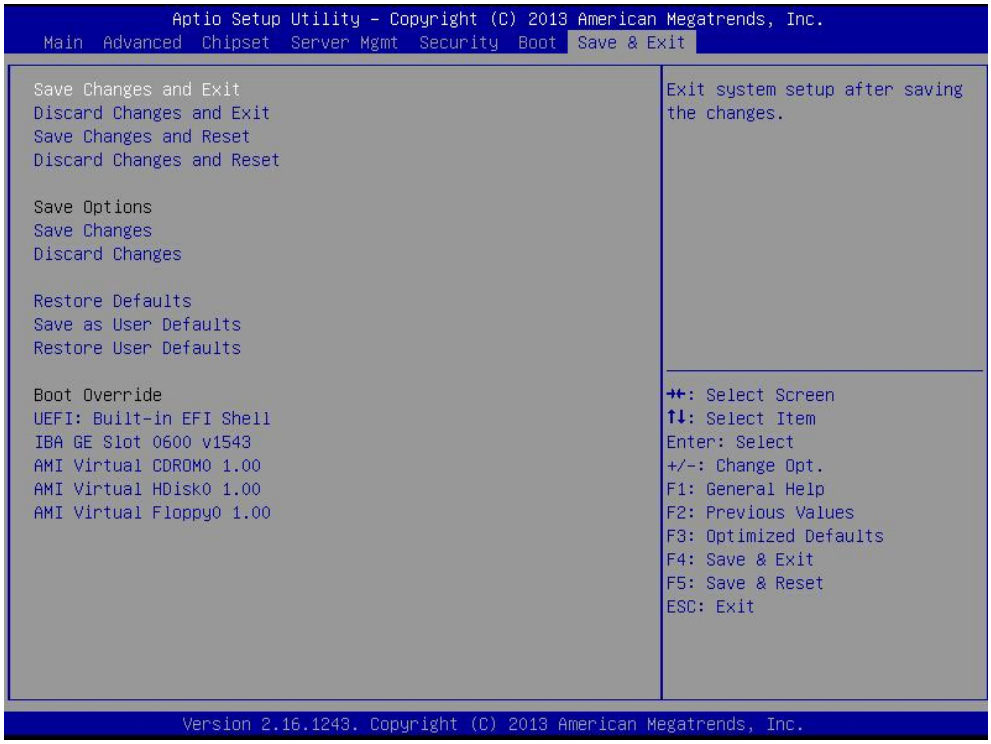



Figure 3-51 Save & Exit menu interface

Table 3-46 Description of Save & Exit interface parameter

| Interface parameters | Function description |
|---|---|
| Save Changes and Exit | Save setting and exit |
| Discard Changes and Exit | Discard change and exit |
| Save Changes and Reset | Save setting and restart |
| Discard Changes and Reset | Discard change and restart |
| Save Changes | Save setting |
| Discard Changes | Discard change |
| Restore Defaults | Restore default |
| Save As User Defaults | Save as default user value |
| Restore User Defaults | Restore default user value |
| Boot Override | Boot override. To select the following booting items, you can directly boot from this start item, but it will change set booting sequence. |

## 3.4 BMC configuration

To open IE browser and input server IP address at the URL column, you can enter the server system management platform, shown as the figure 3-52.

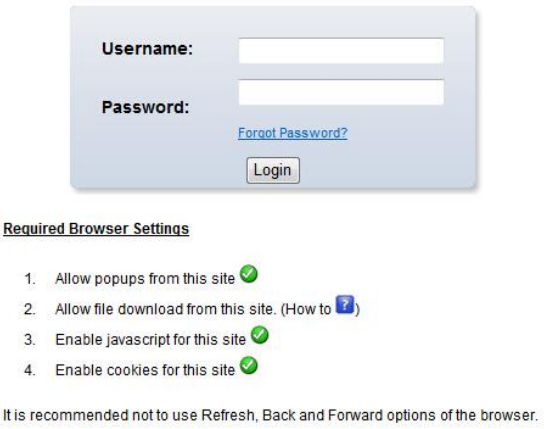



Figure 3-52 login interface

After the user enters the system management platform, he should input admin at the username and password field and click login, then he can enter the main interface, shown as the figure 3-53.

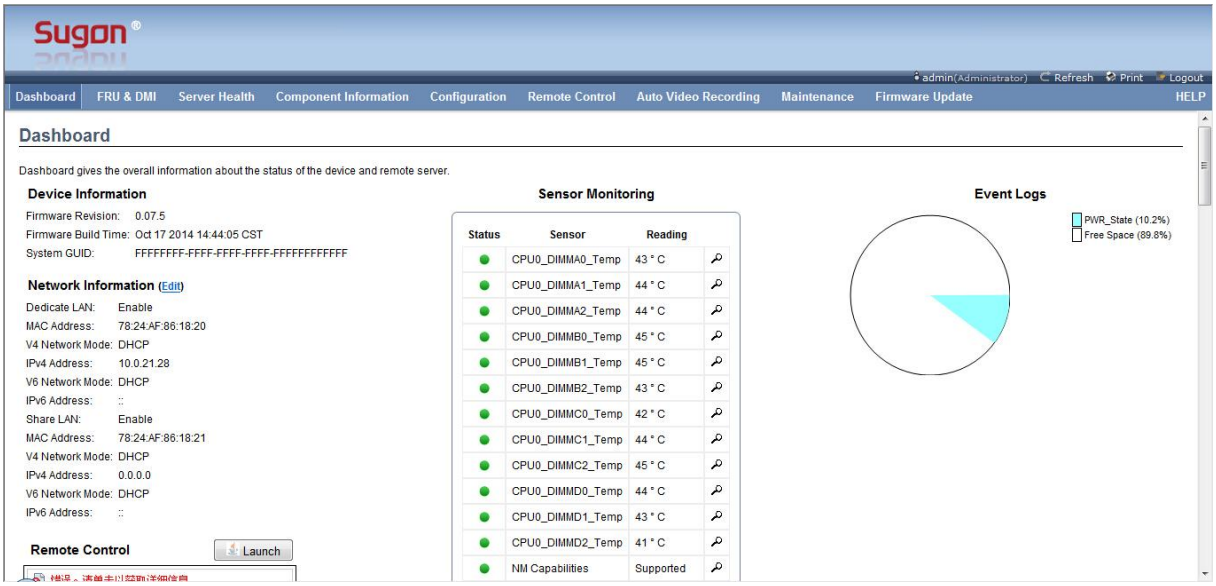



Figure 3-53 User entry interface

The whole management platform includes several parts in the figure 3-54.

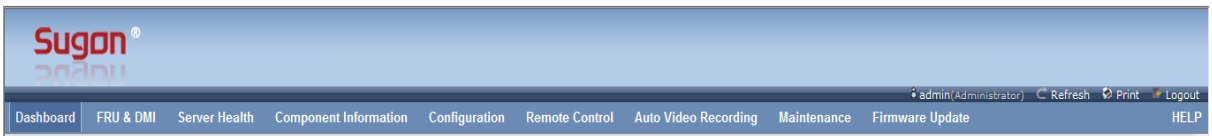



Figure 3-54 Management platform items

Table 3-47 Description of management platform

| Option | Description |
|---|---|
| Dashboard | Information view, which gives all status information of the device and remote server |
| FRU&DMI | View FRU information and DMI information, including basic system information, frequent header information, chassis information, mainboard information and FRU component information. |
| Server Health | Server operation condition, which displays the data on server |

| | |
|---|---|
| | operation status, including sensor reading and event record. |
| Component Information | Component information, which displays CPU, memory, hard disk, PCI device, power and network card information |
| Configuration | Configuration, which can configure the device such as DNS, LDAP, NTP and PEF. |
| Remote Control | Remote control, which permits the user to remotely operate the server, including remote console start and server power control |
| Auto Video Recording | Automated video recording, which can configure the trigger conditions of automated video recording and view and handle recorded videos. |
| Maintenance | Maintenance, which can restore factory setting of the device configuration and reserve partial setting |
| Firmware Update | Firmware upgrade, which can remotely refresh the BIOS and BMC on Web interface |

### 3.4.1 Dashboard

To click Dashboard menu, the interface is shown as the figure 3-53. The interface includes the following modules:

Device information module

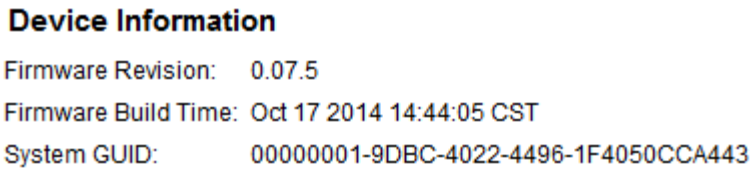



Figure 3-55 Device information module

The figure 3-55 shows the basic device information, displaying firmware version, firmware compiling time and system GUID from up to down.

Note: the firmware version is only for reference. For the latest version, refer to the version issued by Sugon.

**Network information module**

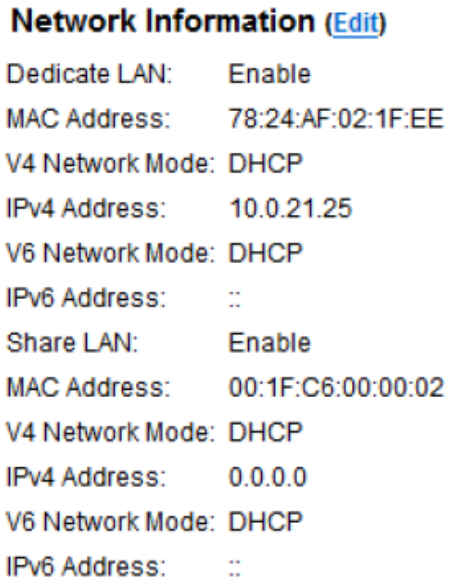



Figure 3-56 Network information module

The figure 3-56 displays the network management information and two management network interfaces and Dedicated LAN and Share LAN. The figure displays the status information of two network interfaces. To click “Edit”, the system will switch to network setting interface under Configuration menu.

It will be introduced in details in the late part.

**Remote console module**

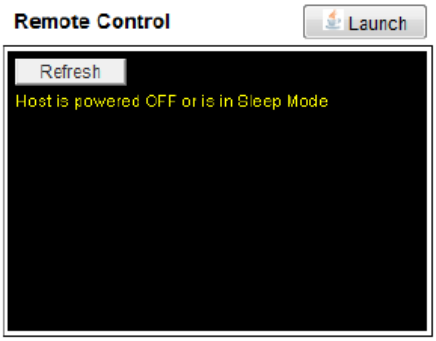



Figure 3-57 Remote console module

The figure 3-57 displays the remote console module. To click Launch button, the remote console will start. The black area in the figure under the power status will display the screen snapshot. To click “Refresh” button, the snapshot will be refreshed.

**Sensor information module**

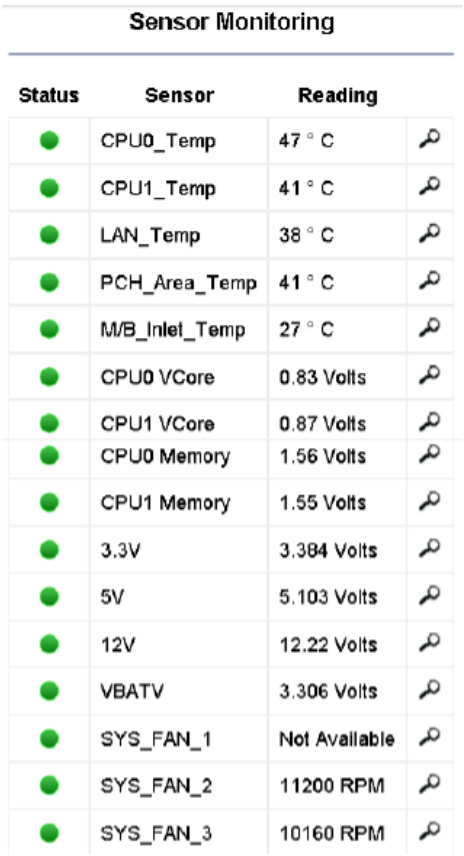



Figure 3-58 Sensor information module (part)

The figure 3-58 displays monitoring information of some sensors. This module includes sensor status, name and reading. The icon indicates to exceed the critical value and is under the alarm status. The icon indicates normal status. To click the icon , the system will switch to sensor readings interface under Server Health. It will be introduced in the late part in details.

**Event log module**

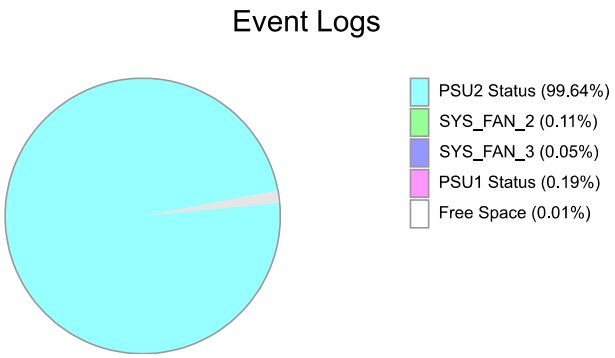



Figure 3-59 Event log module

The figure 3-59 displays the log statistics information. To click the color box before logs (e.g. ), you will enter the detailed information interface. The percent in the bracket after the event item will indicate the percent of this item in the total logs. The left side shows the pie chart.

### 3.4.2 FRU & DMI

To click FRU&DMI, the following interface will display.

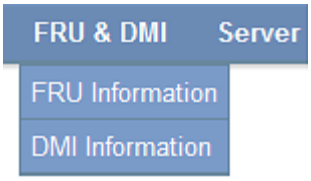



Figure 3-60 FRU&DMI sub-menu

FRU Information

To select FRU Information item, the interface is shown as the figure 3-61.

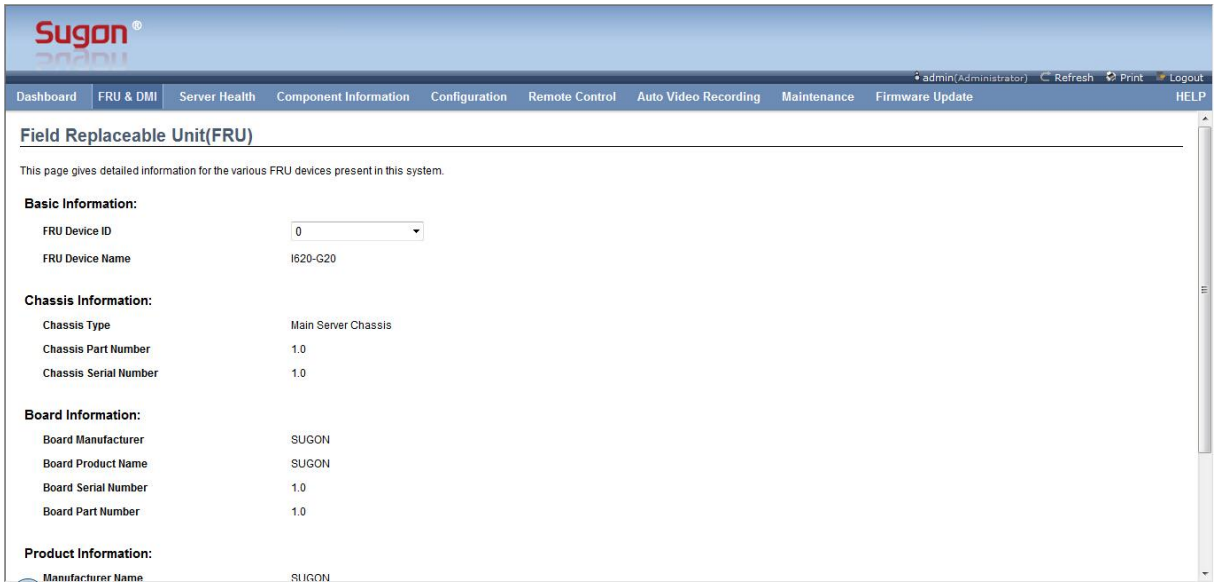



Figure 3-61 FRU information interface

Table 3-48 Description of basic information

| Information item | Description |
|---|---|
| FRU Device ID | FRU device ID |
| FRU Device Name | FRU device name |

Table 3-49 Chassis Information

| Information item | Description |
|---|---|
| Chassis Type | Chassis type |
| Chassis Part Number | Number of Chassis part |
| Chassis Serial Number | Chassis SN |

Table 3-50 Description of Board Information

| Information item | Description |
|---|---|
| Board Manufacturer | Mainboard manufacturer |
| Board Product Name | Name of mainboard product |
| Board Serial Number | Mainboard SN |
| Board Part Number | Number of mainboard part |

Table 3-51 Description of Product Information

| Information item | Description |
|---|---|
| Manufacturer Name | Manufacturer name |
| Product Name | Product part number |
| Product Part Number | Number of product part |

| Product Version | Product version |
|---|---|
| Product Serial Number | Product SN |
| Asset Tag | Asset tag |

DMI Information

To select DMI Information, the interface is shown as the figure 3-62.

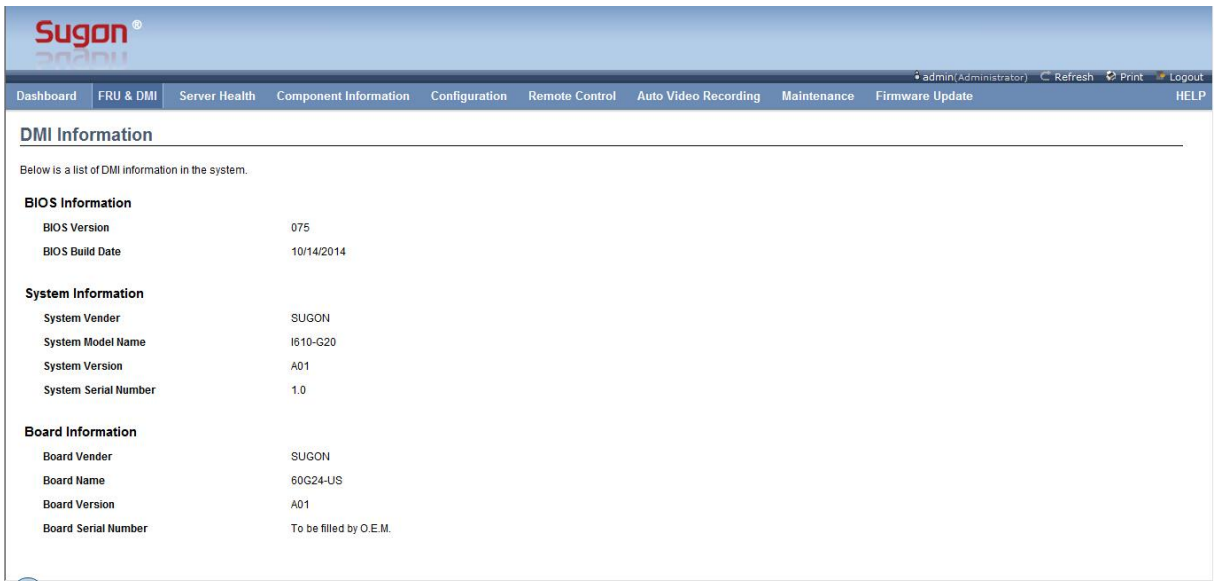



Figure 3-62 DMI information interface

Table 3-52 Description of BIOS Information

| Information item | Description |
|---|---|
| BIOS Version | BIOS version |
| BIOS Build Date | BIOS building time |

Table 3-53 Description of System Information

| Information item | Description |
|---|---|
| System Vender | System manufacturer |
| System Module Name | Name of system model |
| System Version | System version |
| System Serial Number | System SN |

Table 3-54 Description of Board Information

| Information item | Description |
|---|---|
| Board Vender | Mainboard manufacturer |
| Board Name | Mainboard model |
| Board Version | Mainboard version |
| Board Serial Number | Mainboard SN |

### 3.4.3 Server Health

To click Server Health menu, the sub-menu is shown as the figure 3-63.

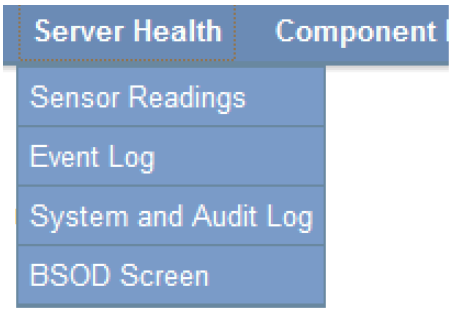



Figure 3-63 Server Health sub-menu

**Sensor Readings**

To select Sensor readings, the interface is shown as the figure 3-64. This interface includes information on all sensors. The drag-down menu at the left top corner can be used to select the sensor by category. The options include All Sensors, Temperature Sensors, Voltage Sensors, Fan Sensors, Physical Security, Processor, Power Supply, Memory, System ACPI Power Status and Watchdog 2.

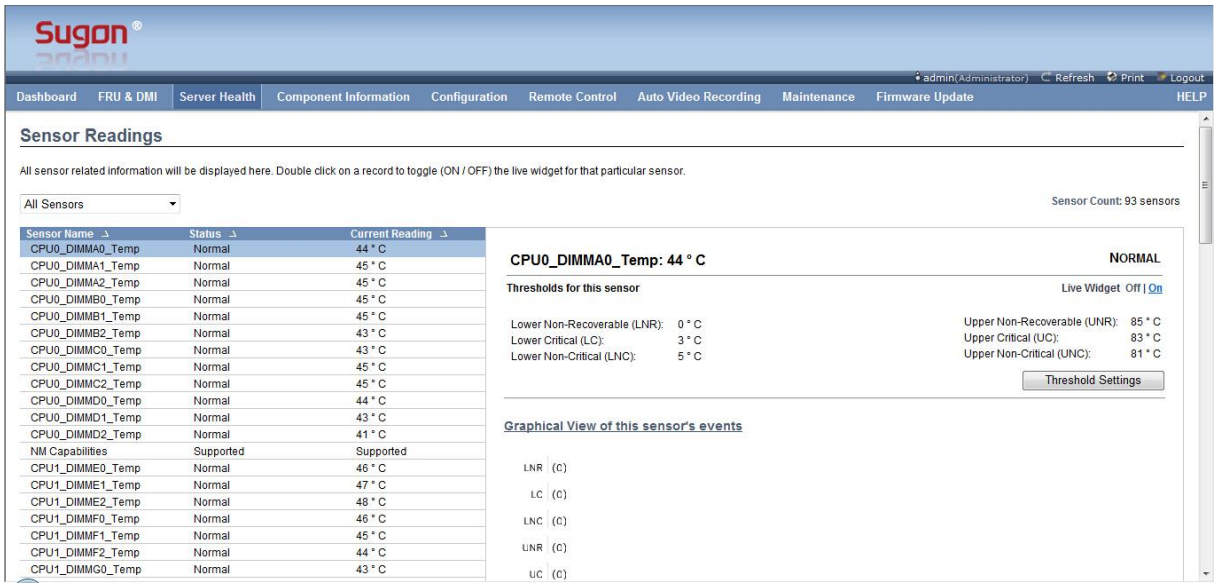



Figure 3-64 Sensor reading main interface

The interface on the figure 3-64 is divided into three areas, which are introduced as follows:

**Sensor list area:**

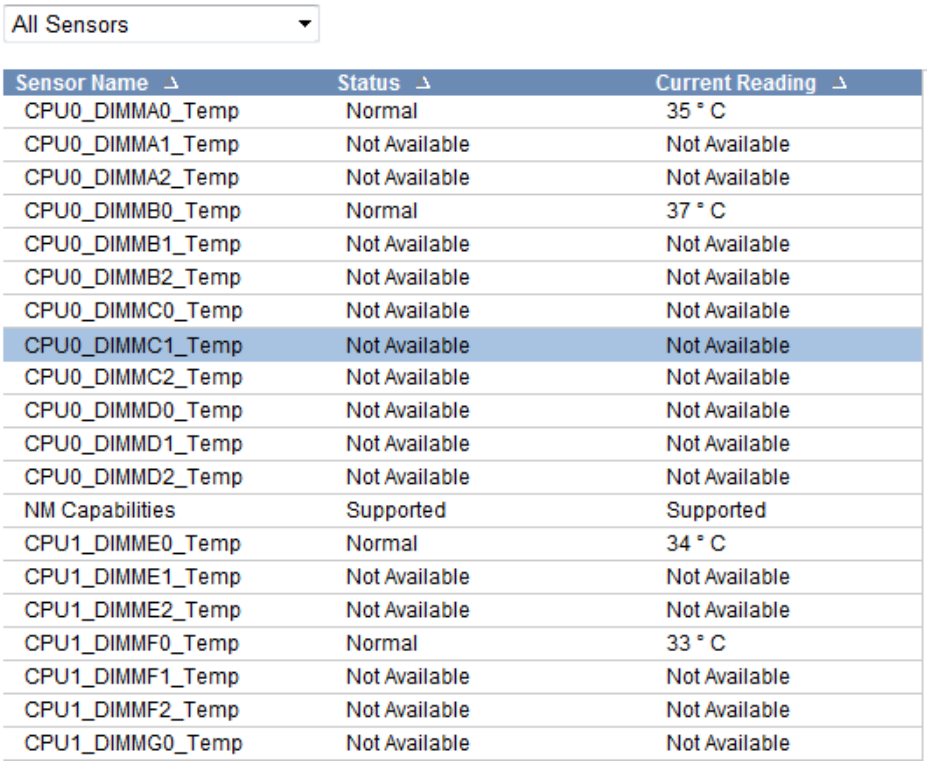



Figure 3-65 Sensor list area (part)

The figure 3-65 shows the sensor list. This list includes all sensors and gives the sensor name, status and current readings.

Detailed information on sensor:

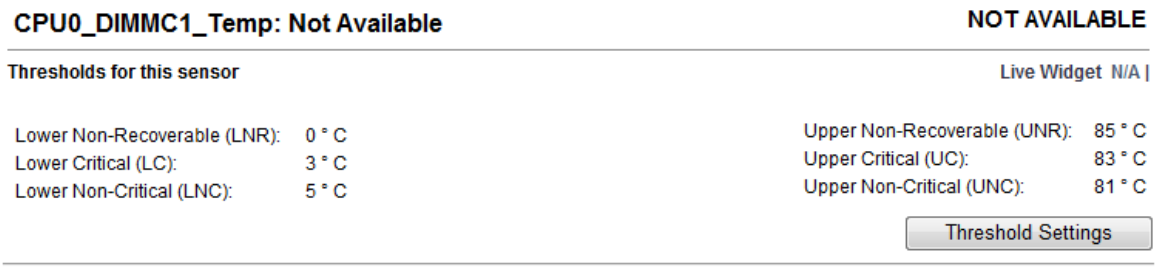



Figure 3-66 Detailed sensor information area

This figure displays the detailed information area of the sensor and detailed information on the selected sensor, including sensor name, reading, status and threshold. For the meaning of the threshold, refer to the table 3-55.

Table 3-55 Description of temperature sensor threshold

| Information item | Description |
|---|---|
| Lower Non-Recoverable (LNR) | Low non-recoverable value |
| Lower Critical (LC) | Low critical value |
| Lower Non-Critical (LNC) | Low non-critical value |
| Upper Non-Recoverable (UNR) | High non-recoverable value |
| Upper Critical (UC) | High critical value |

| | |
|---|---|
| Upper Non-Critical (UNC) | High non-critical value |

To click “Threshold Settings” button, the threshold setup interface will pop up, shown as the figure3-67. The thresholds of the selected sensors can be set.


Figure 3-67 Threshold setup interface

**Sensor event statistics diagram**

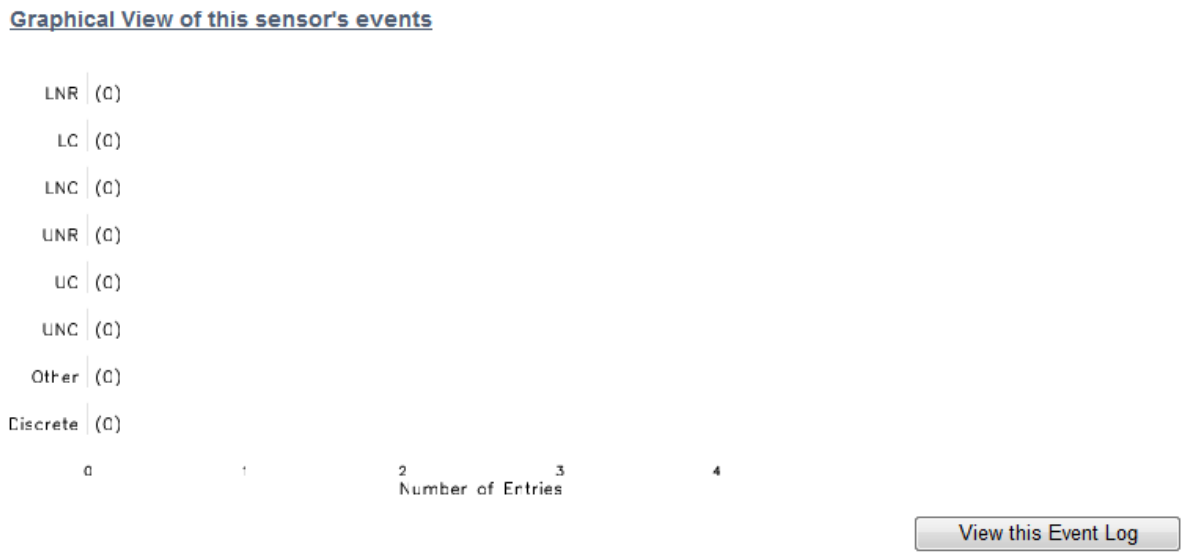



Figure 3-68 Sensor event statistics diagram

The figure 3-68 shows the selected sensor event statistics diagram. The vertical axis displays the event level and the horizontal axis displays the event number. To click “View this Event Log” button, you can enter the event log list of this sensor of this event log.

Event Log

To select Event Log under Server Health menu, the figure 3-69 will displays.

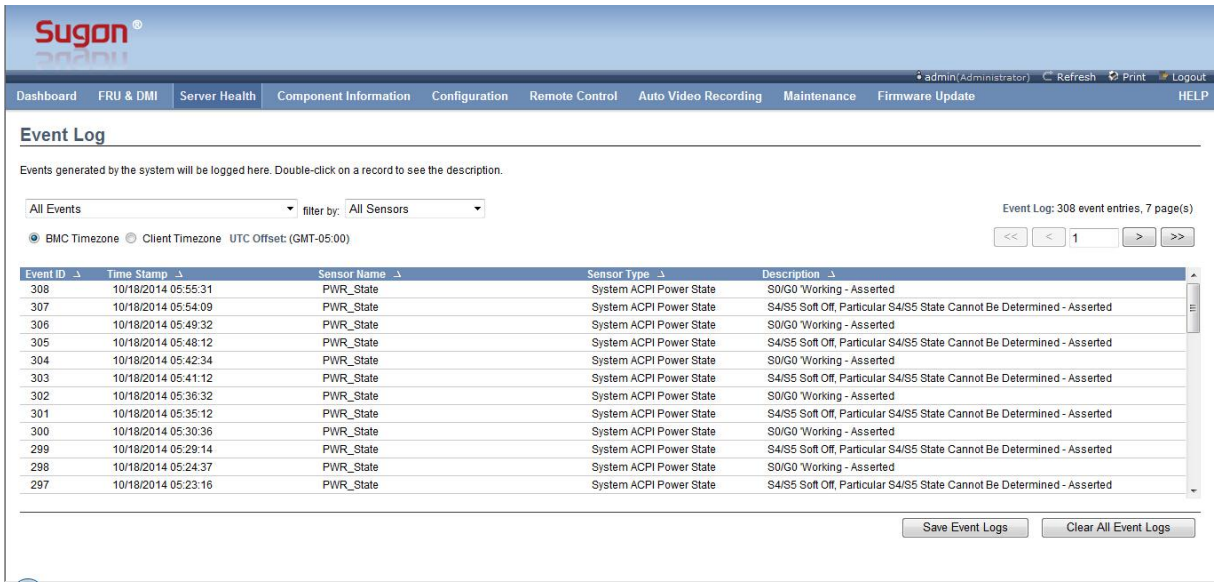



Figure 3-69 Time log interface

The figure shows the event log interface. The list displays all event logs on the figure. Two drag-down boxes at the left up corner will filter the logs. The left drag-down box can filter the log according to the log source, including System Event Records, OEM Event Records, BIOS Generated Events, SMI Handler Events, System Management Software Events, System Software-OEM Events, Remote Console Software Events and Terminal Mode Remote Console Software Events. The right drag-down box can filter the event logs according to the sensor.

To click “Save Event Log” button, the log can be saved locally.

To click “Clear All Event Logs”, all logs can be deleted.

【Notice】 This step can be operated carefully!

---

System and Audit Log

To select System and Audit Log under Server Health, the interface is shown as the figure 3-70.

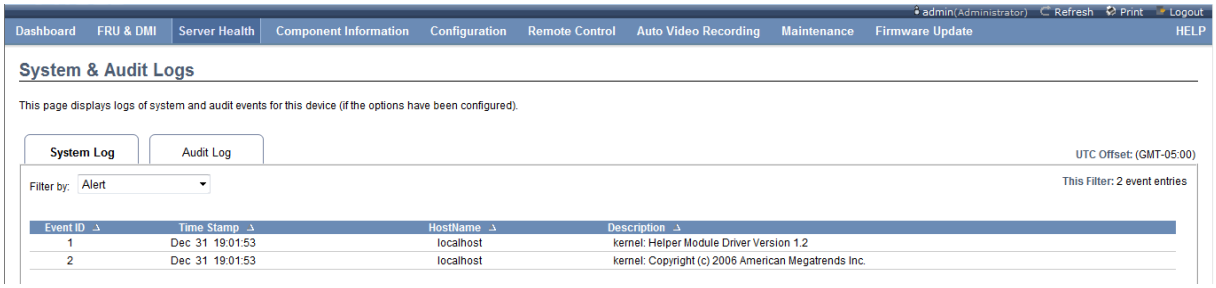



Figure 3-70 System Log interface

The interface includes System Log and Audit Log label tab, which are introduced as follows:

System Log: The interface is shown as the figure, which records the system generated log. The

drag-down box at the left up corner can show logs at different levels, including Alert, Critical, Error, Notification, Warning, Debug, Emergency and Information level.

Audit Log: The interface is shown as the figure, which records some action log of the user, e.g. login, logout, remote power on/off and log saving.

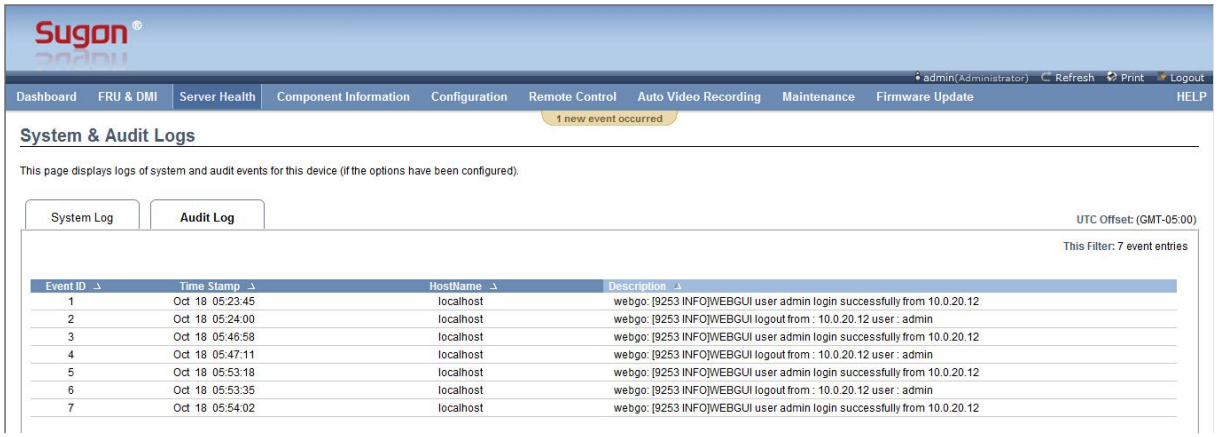



Figure 3-71 Audit Log interface

BSOD Screen

To BSOD Screen item under Server Health menu, the interface is shown as the figure 3-72.

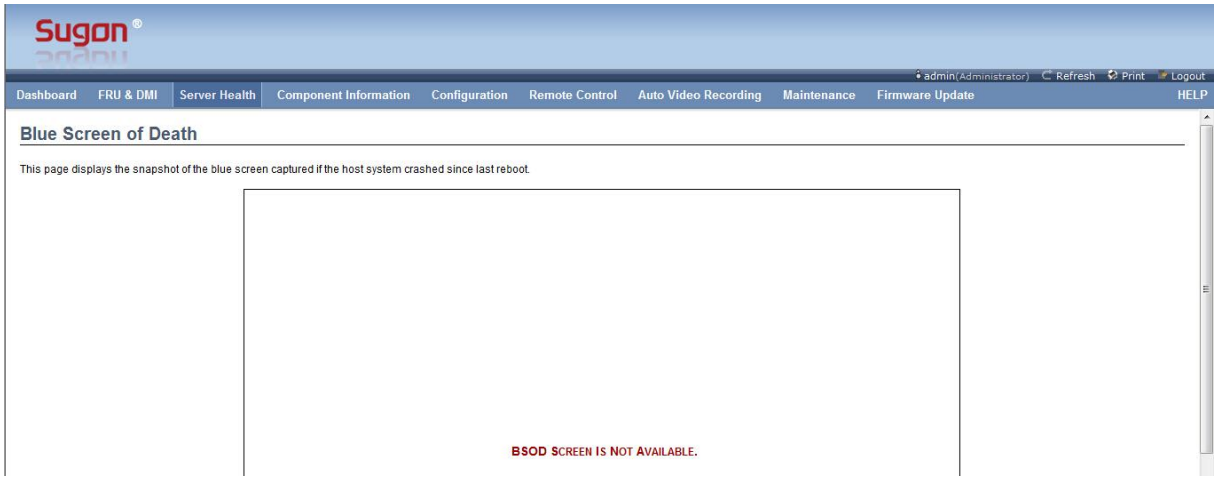



Figure 3-72 BSOD Screen interface

This interface will snapshot the blue screen in case of system crash and display it.

### 3.4.4 Component Information

To click Component Information menu, the interface is shown as the figure.

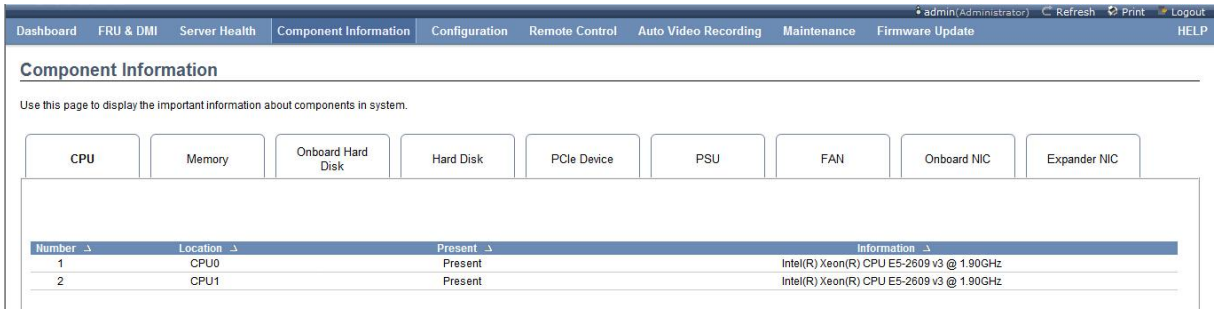



Figure 3-73 CPU information display

The figure shows 9 label tabs on the interface, including CPU, Memory, Onboard Hard Disk, Hard Disk, PCIe Device, PSU, FAN Onboard NIC, and Expander NIC, which are introduced as follows:

**CPU**：

The interface is shown as the figure 3-74. The monitoring information is shown as the following table.

Table 3-56 Description of CPU information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| Information | Model information |

**Memory**：

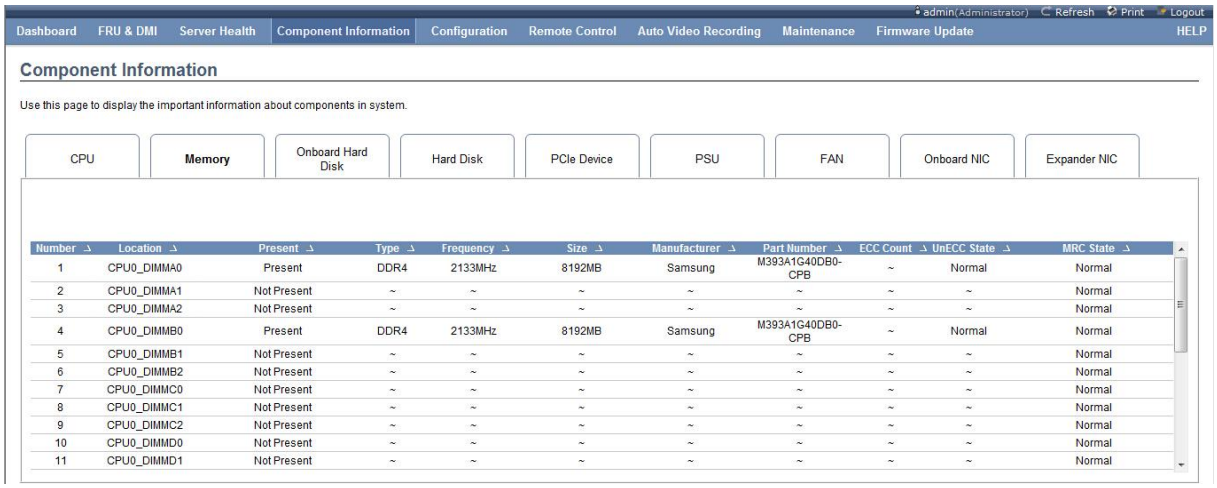



Figure 3-74 Memory information interface

Table 3-57 Description of Memory information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| Type | Memory type |
| Frequency | Memory frequency |
| Size | Memory capacity |
| Manufacture | Manufacturer |
| Part Number | SN |
| ECC Count | ECC error number |
| UnECCC State | Non-recoverable ECC error status |
| MRC State | MRC status |

**Onboard Hard Disk：**

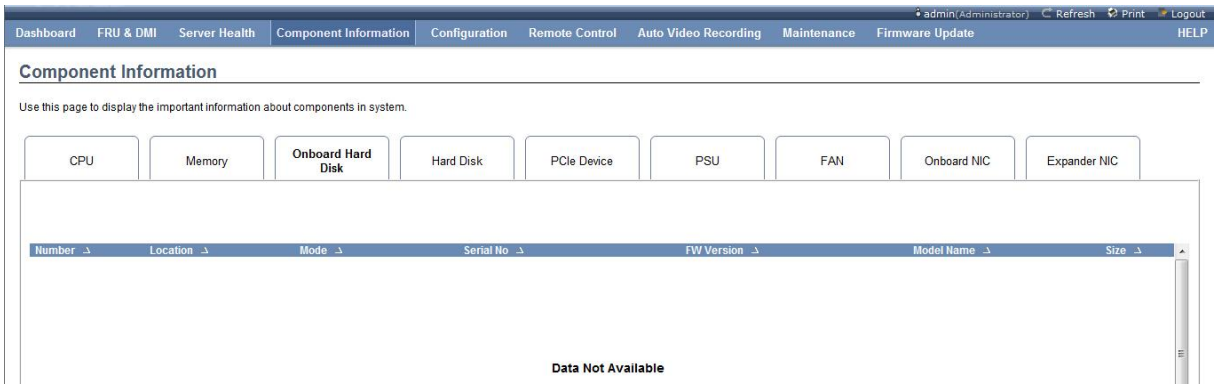



Figure 3-75 Onboard Hard Disk information interface

Table 3-58 Description of Onboard Hard Disk information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Mode | Mode |
| Serial No. | SN |
| FW Version | Firmware version |
| Model Name | Model name |
| Size | Hard disk capacity |

**Hard Disk：**

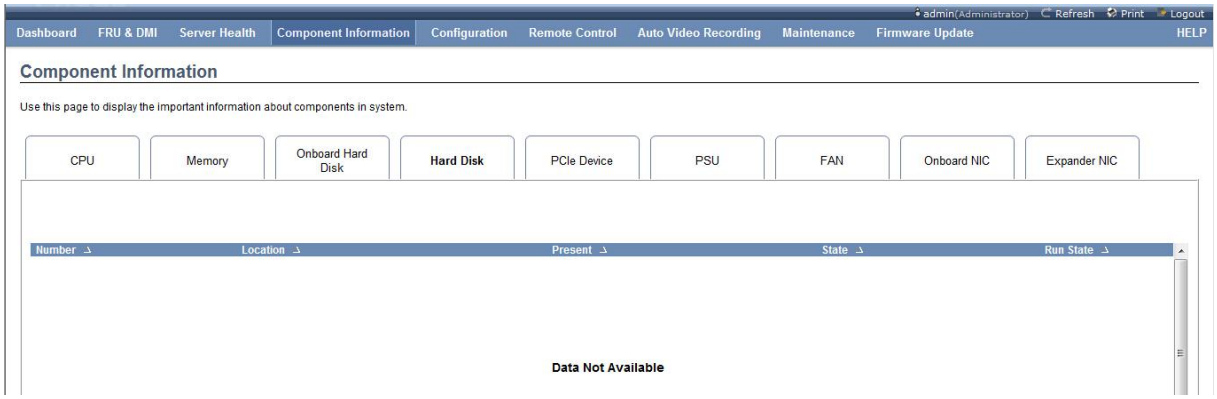



Figure 3-76 Hard Disk information interface

Table 3-59 Description of Hard Disk information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| State | Status |
| Run State | Operation status |

**PCIe Device：**

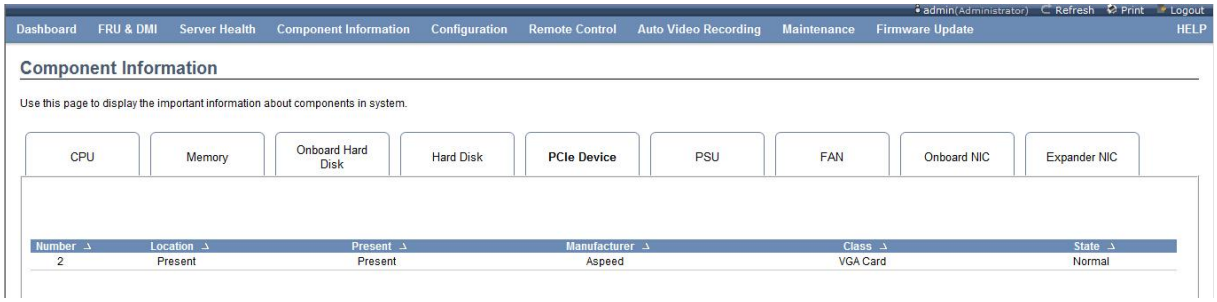



Figure 3-77 PCIe Device information interface

Table 3-60 Description of PCIe Device information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| Manufacture | Manufacturer |
| Class | Classification |
| State | Status |

**PSU：**

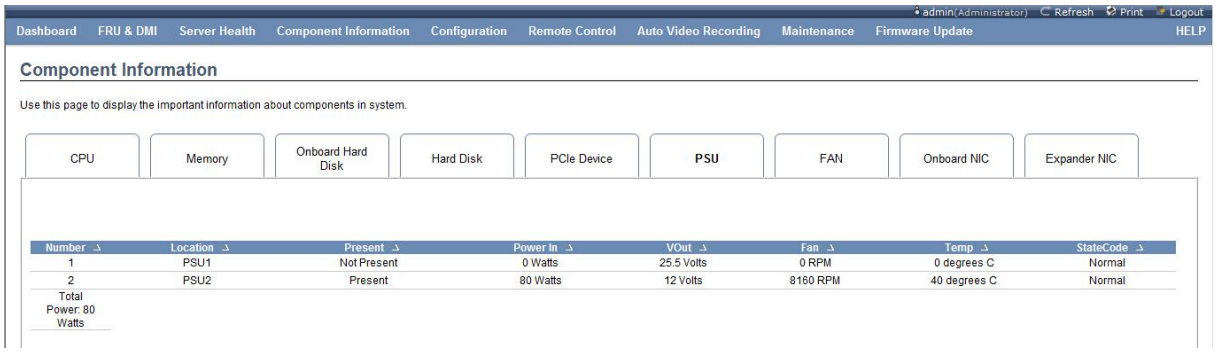



Figure 3-78 PSU information interface

Table 3-61 Description of PSU information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| Power In | Input power |
| Vout | Output voltage |
| Fan | Rotating speed of power fan |
| Temp | Power temperature |
| StateCode | Status code |
| Total Power | Total system power |

**FAN:**

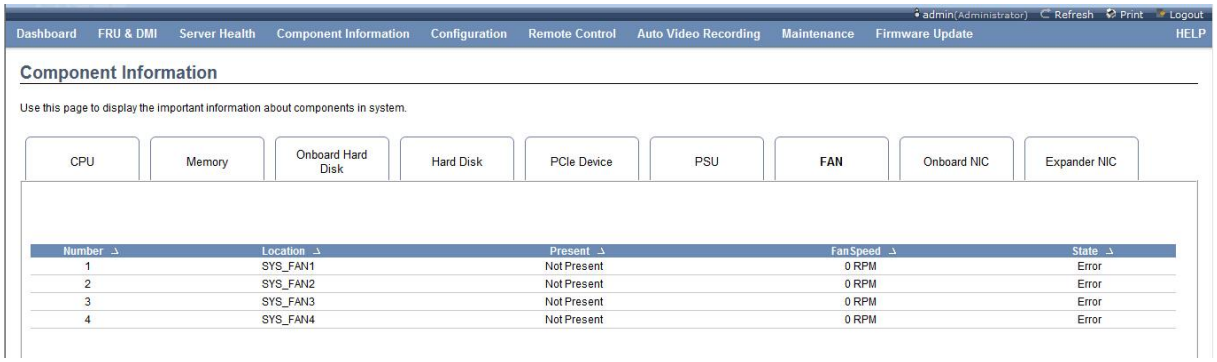



Figure 3-79 FAN information interface

Table 3-62 Description of FAN information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Present | Post status |
| Fan Speed | Fan speed of system |

| | |
|---|---|
| State | Fan status of system |

Onboard NIC：

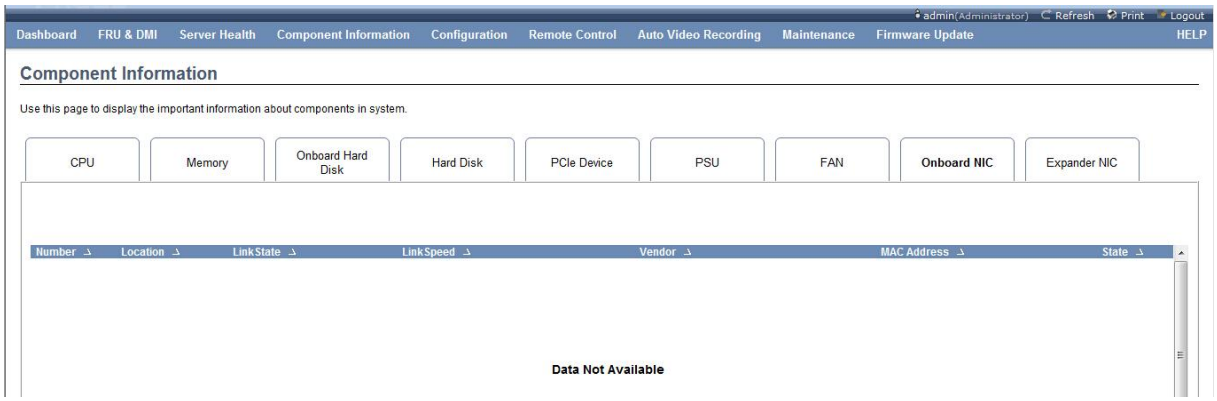



Figure 3-80 Onboard NIC information interface

Table 3-63 Description of Onboard NIC information

| Information items | Description |
|---|---|
| Number | Item number |
| Location | Position |
| Link State | Link status |
| Link Speed | Link speed |
| Vender | Manufacturer |
| MAC Address | MAC address |
| State | Status |

**Expander NIC：**

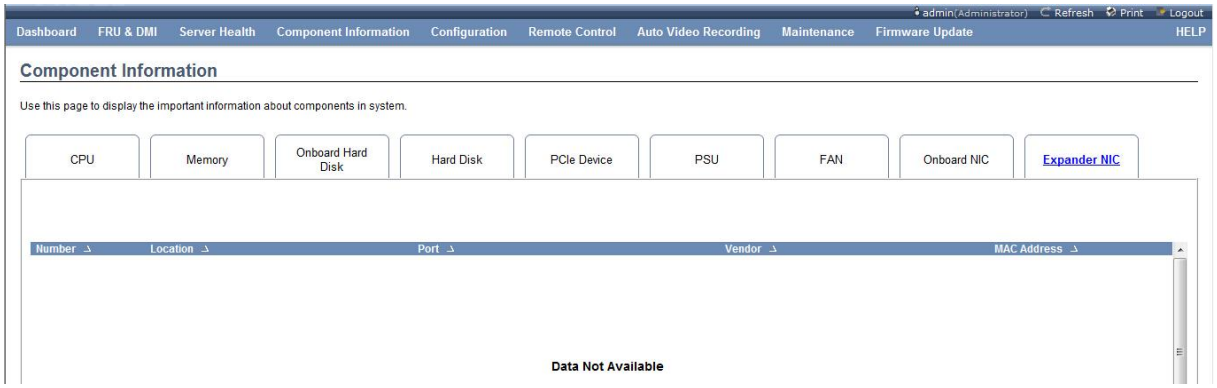



Figure 3-81 Expander NIC information interface

Table 3-64 Description of Expander NIC information

| Information items | Description |
|---|---|
| Number | Item number |

| Location | Position |
|---|---|
| Port | Port |
| Vender | Manufacturer |
| MAC Address | MAC address |

### 3.4.5 Configuration

To click Configuration menu, the menu displays as the figure 3-82.


Figure 3-82 Configuration sub-menu

The sub-menus are introduced as follows:

**Active Directory**

To select Active Directory, a user can enter the active directory setup interface, shown as the figure 3-83.

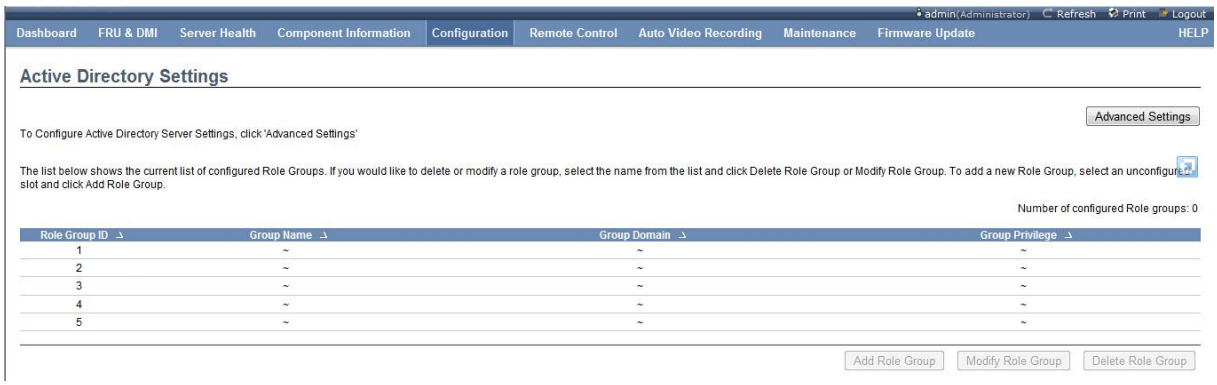



Figure 3-83 Active directory interface

To click the button Advanced Settings: at the right up corner, a user can set the advanced options and the figure 3-84 interface displays.

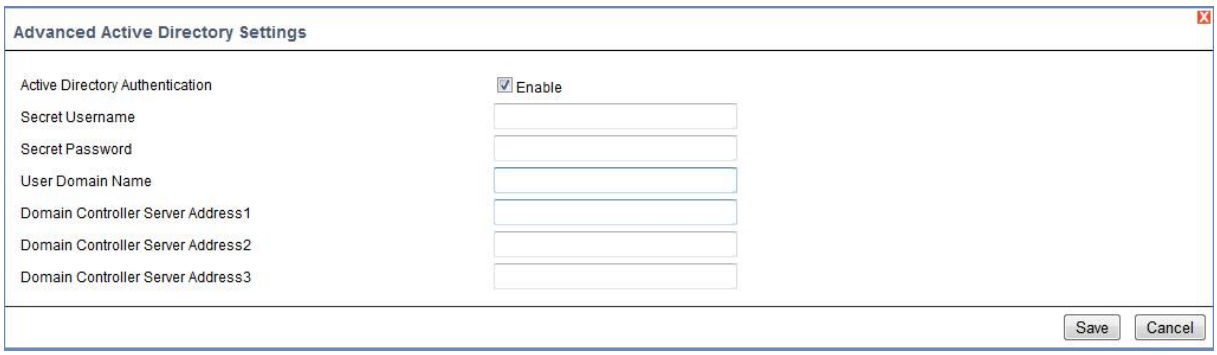



Figure 3-84 Advanced active directory setup interface

Table 3-65 Description of BIOS Information

| Information items | Description |
|---|---|
| Active Directory Authentication | Check the checkbox before Enable and enable this function |
| Secret Username | Private user name |
| Secret Password | Private user password |
| User Domain Name | To set a domain name, The BMC device will be added to this domain. |
| Domain Controller Server Address1<br>Domain Controller Server Address1<br>Domain Controller Server Address1 | Set the address of the domain control server and at least set one address. |

After setting is completed, to click the button Save, you can save the setting and then set Role Group. Each Role Group setting item can be used to set the BMC access privilege of a user in the group. At least 5 items can be sets. To select the blank item and click the button Add Role Group:, the setup box for adding role group is shown as the figure 3-85.

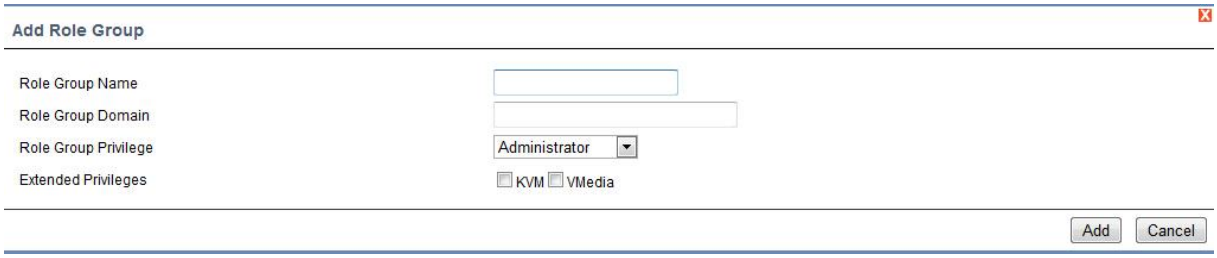



Figure 3-85 Role group addition interface

Table 3-66 Description of role group addition interface

| Information items | Description |
|---|---|
| Role Group Name | Name of user group |
| Role Group Domain | Domain of user group |
| Role Group Privilege | BMC access privilege setup of user group |

| | |
|---|---|
| Extended Privileges | Scalable access privilege setup |

### Advanced Audit Log

To select Advanced Audit Log, the system will enter the interface in the figure 3-86.

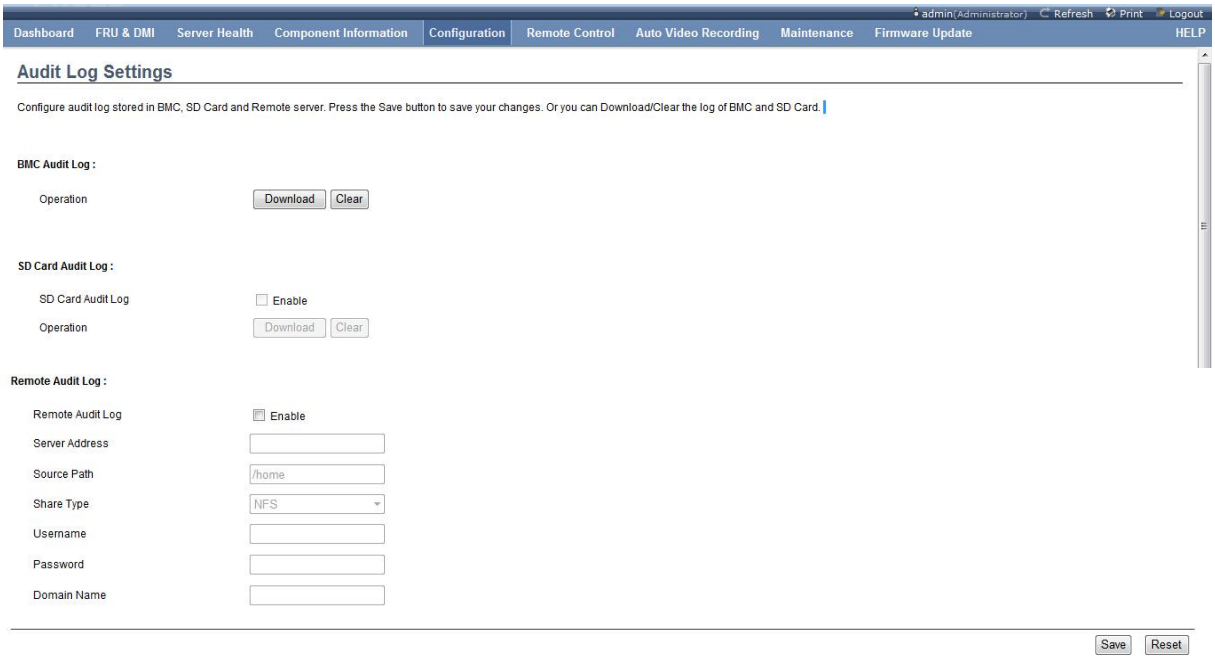



Figure 3-86 Advanced Audit Log interface

Table 3-67 Description of Advanced auditing log setup interface

| Information items | Description |
|---|---|
| BMC Audit Log | To click the button Download, a user can download BMC auditing log. To click the button Clear, a user can clear BMC auditing log. |
| SD Card Audit Log | When the mainboard is inserted with the SD card, a user can check the checkbox before Enable to enable auditing log of the SD card; After it is enabled, to click the button Download, a user can download audit log of SD card. To click the button Clear, a user can clear the audit log of the SD card. |
| Remote Audit Log | To check the checkbox before Enable, a user can enable the remote log function |
| Server Address | IP address of remote file server |
| Source Path | Sharing directory of file server |
| Share type | Sharing type, NFS or Samba (CIFS) are optional. Only when the latter is selected, the late three items will be set. |
| Username | Input user name of Samba(CIFS) |
| Password | Input user password |
| Domain Name | Input domain name |

### DNS

To select DNS, you can enter the DNS interface shown as the figure 3-87.

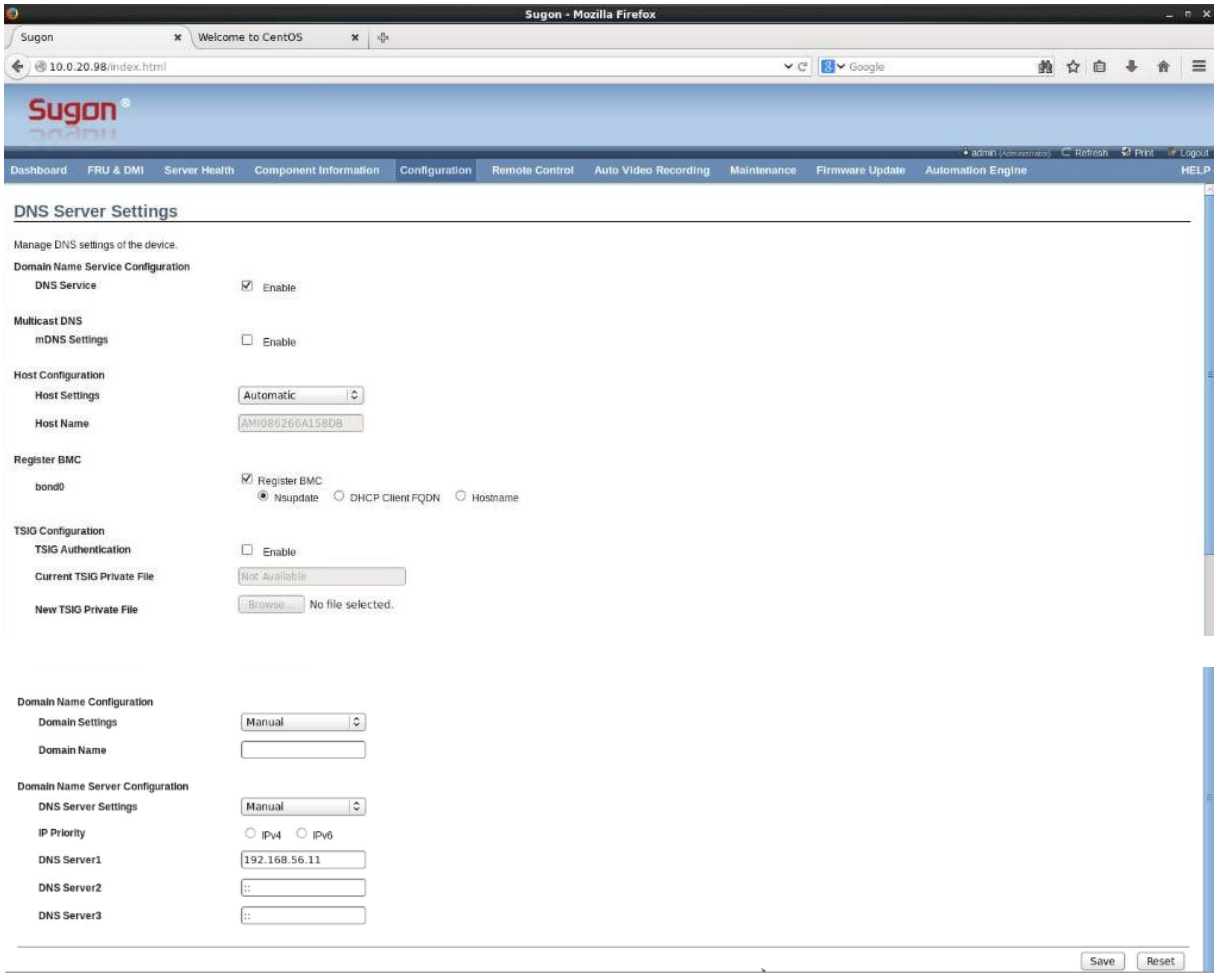



Figure 3-87 DNS interface

Table 3-68 Description of DNS setup interface

| Information items | Description |
|---|---|
| DNS Service | Check the checkbox before Enable and enable DNS setting |
| mDNS Settings | Check the checkbox before Enable and enable Mdns |
| Host Settings | Set the acquisition method of the host name and select Automatic or manual. Only when Manual is select, the late Host name can be set |
| Host Name | Host name. When Manual is selected for Host Settings, you can input the host name here. |
| Register BMC | Register BMC, you can respectively register the special management interface and sharing network port |
| TSIG Authentication | Check the checkbox before Enable and enable TSIG function and permit BMC to update DNS server records. |
| Current TSIG Private File | Current TSIG private file, which is used to validate identity when DNS record is updated |
| New TSIG Private File | Update new private file |
| Domain Settings | Domain name setting |
| Domain Name | Set domain name. only when Domain Settings is set as Manual, this item can be set |
| DNS Server Settings | Domain name server setup |
| IP Priority | IP protocol priority setup |
| DNS Server1<br>DNS Server2<br>DNS Server3 | IP address of DNS server, only when DNS Server Setting is set as Manual, this item can be set. |

### Event Log

To select Event Log, you can enter the interface shown as the figure 3-88.


This interface can set the event log strategy and the linear log strategy or cycle log strategy are optional.

### LDAP/E-Directory

To select LDAP/E-Directory, you can enter the interface shown as the figure 3-38.

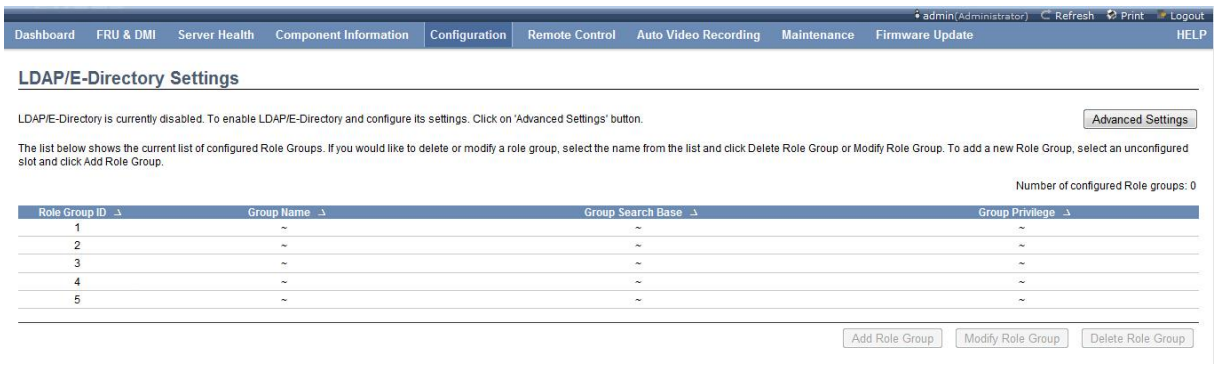



Figure 3-88 LDAP/E-Directory interface

To click the button Advanced Settings, the interface displays, shown as the figure 3-89.

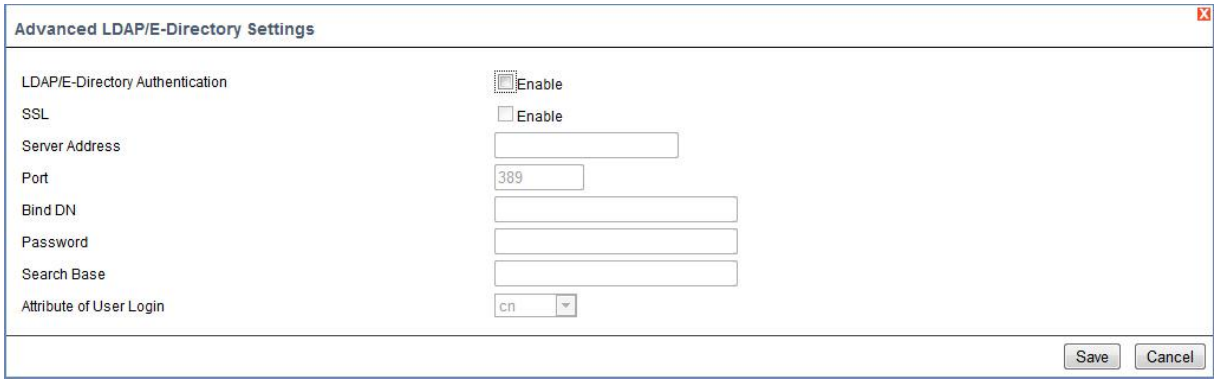



Figure 3-89 Advanced LDAP setup interface

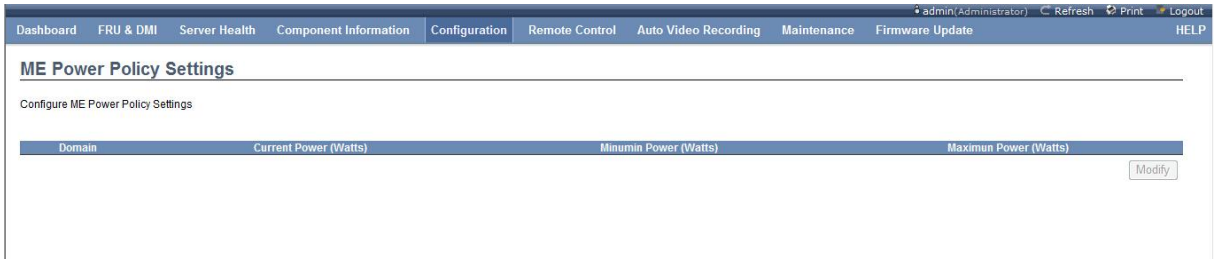
Table 3-69 Description of advanced LDAP setup interface

| Information items | Description |
|---|---|
| LDAP/E-Directory Authentication | Check checkbox before Enable and enable LDAP/E-Directory function |
| SSL | Check checkbox before Enable and enable SSL to enhance data security |

| | |
|---|---|
| Server Address | IP address of LDAP/E-Directory server |
| Port | Service port number |
| Bind DN | Set distinction name for BMC bonding. The distinction name is used to mark one object |
| Password | Bond password of distinction name |
| Search Base | Set searched root directory |
| Attribute of User Login | Attribute for user login |

**Mouse Mode**

To select ME Power Policy, you can enter the interface shown as the figure 3-90.




**Mouse Mode**

To select Mouse Mode, you can enter the mouse mode shown as the figure 3-90.

On this interface, you can change the setting for mouse mode of the redirection console, including absolute mode, relative mode and other. When the server runs on Windows, the absolute mode is recommended. When the server runs on Linux, the relative mode is recommended. When the server runs on SLES 11, other mode is recommended.

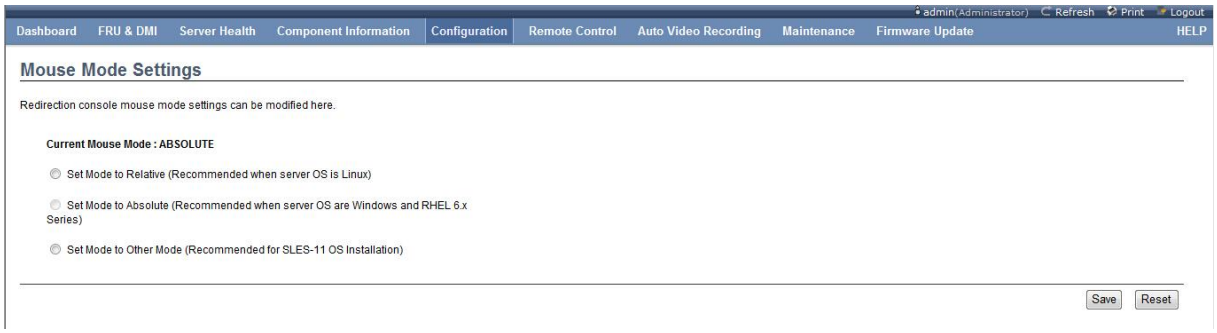



Figure 3-90 Mouse mode interface

**Network**

To select the network, you can enter the management network setup interface shown as the figure 3-91.

You can set the dedicated management network interface and sharing management network interface on this interface, including IPv4 setup, IPv6 setup and virtual LAN setup. You can click the button Save to save setting and the button Reset to reset.

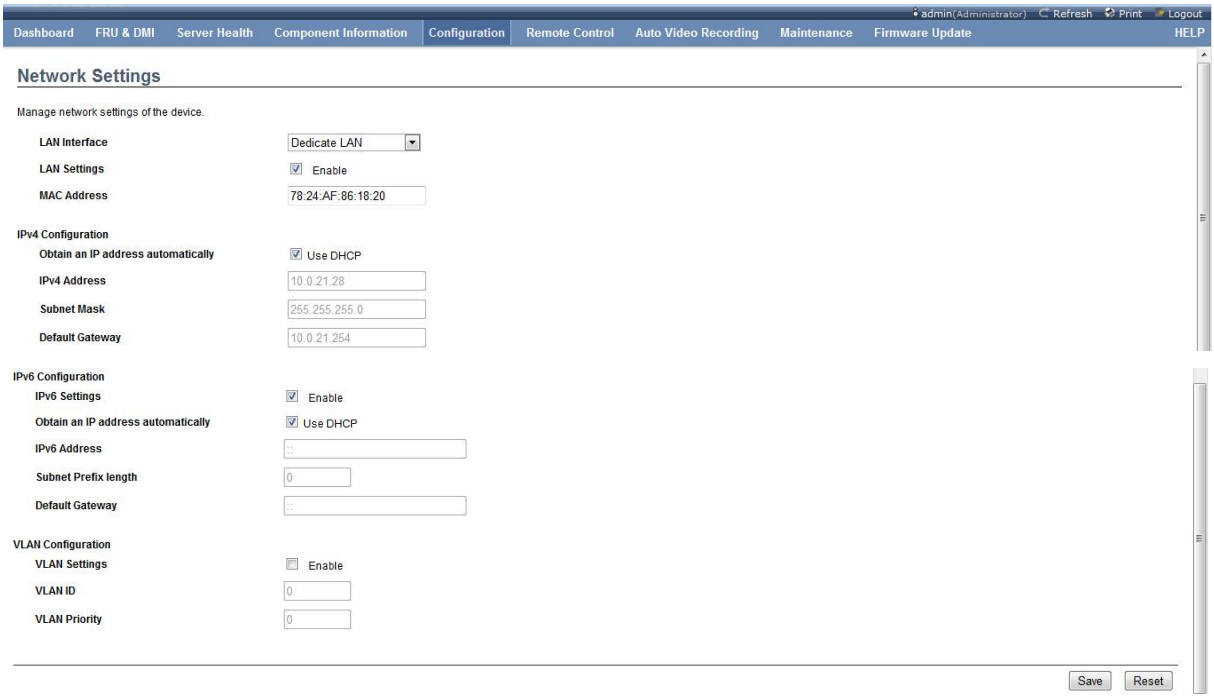



Figure 3-91 Management network setup interface

Table 3-70 Network setup interface information

| Information items | Description |
|---|---|
| LAN Interface | Network management mode: according to the different system, it offers different option as below：<br>Dedicate: only use dedicate Ethernet port<br>Share 1G: only use share 1G Ethernet port<br>Share 10G:only use share 10G Ethernet port<br>Failover- 1G：use the dedicate Ethernet port and share 1G Ethernet port at the same time by supporting Failover function.<br>Failover -10G：use the dedicate Ethernet port and share 10G Ethernet port at the same time by supporting Failover function. |
| LAN Settings | Network configuration, select”Enable” box to enable this port. |
| MAC Address | Display MAC address, which can not be changed. |
| IPv4(6) Configuration | IPv4 (6) configuration |
| Obtain an IP address automatically | Automatically acquire IP address by selecting this box. Ethernet port will automatically acquire IP via the DHCP (dynamic host configuration protocol) server. Only when the box is not selected, the other thee items can be configured. |
| IPv4(6) Address | Set IPv4(6) address |
| Subnet Mask (Subnet Prefix length) | Set sub-network mask (sub-network prefix length) |
| Default Gateway | Set default gateway |

**Network Bond**

To select Network Bond, you can enter the network bonding setup interface, shown as the figure.

Figure 3-92 Network bonding setup interface

Check the checkbox after “Network Bonding” and enable network bonding. After the network bonding is enabled, you can check the checkbox after the Auto Configuration to enable automatic setting.

**NTP**

To select NTP, you can enter the NTP setup interface shown as the figure 3-93. NTP (network time protocol) is a protocol to synchronize the computer time.

The following information can be set on this interface, including date (MM-DD-YY), time (HH-MM-SS), time zone and NTP server.

To check “Automatically synchronize Date & Time with NTP Server” under the page, it indicates to automatically synchronize time and data with NTP server. At this time, only later two items are set. When it is unchecked, the previous three items are set. NTP Server item can not be set.

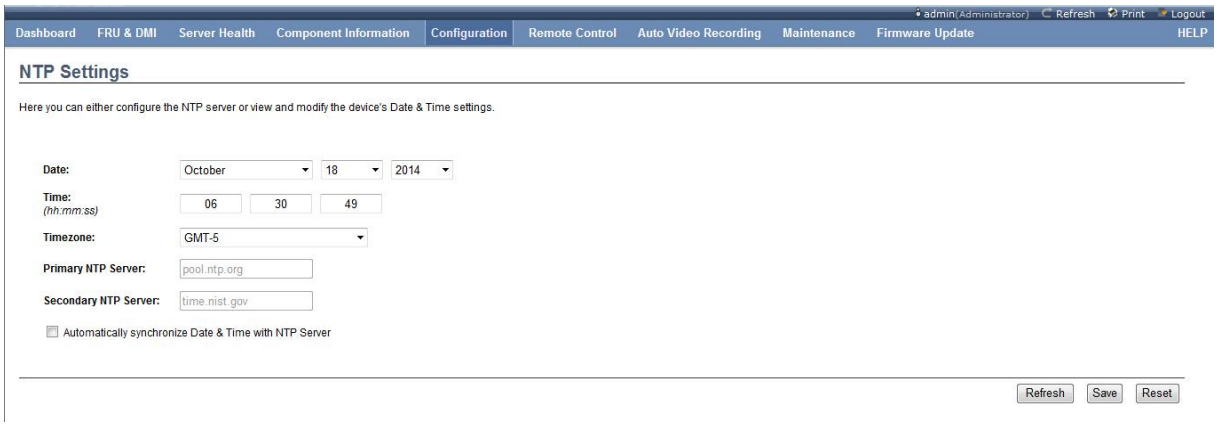



Figure 3-93 NTP setup interface

**PEF**

To select PEF, you can enter the PEF management interface shown as the figure 3-94. You can set the event filter, alert policy and LAN destination on this interface.

Figure 3-94 PEF management interface

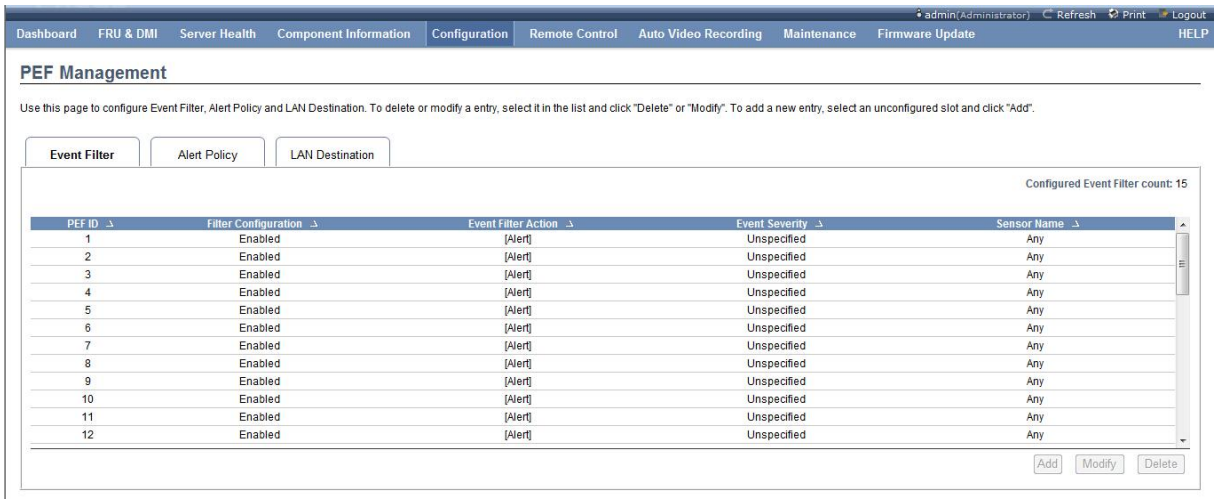



Table 3-71 Description of Event Filter item information

| Information items | Description |
|---|---|
| PEF ID | PEF number (1, 2, 3….) |
| Filter Configuration | Filter configuration |
| Event Filter Action | Specific action for event filter |
| Event Severity | Event severity |
| Sensor Name | Sensor name |

Table 3-72 Description of Alert Policy item information

| Information items | Description |
|---|---|
| Policy Entry | Number regulated for alert (1, 2,3…) |
| Policy Number | Regulated number |
| Policy Configuration | Regulated configuration |
| Policy Set | Regulated setting |
| Channel Number | Channel number |
| Destination Selector | Destination selection |

Table 3-73 Description of LAN Destination item information

| Information items | Description |
|---|---|
| LAN Destination | Network destination number (1, 2, 3…) |
| Destination Type | Destination type |
| Destination Address | Destination address |

To delete or change an item, you can select this item and click the button Modify or Delete. To add an item, you can select blank item and then click the button Add for addition.

To select Add or Modify in Event Filter item, the following setup interface will display.

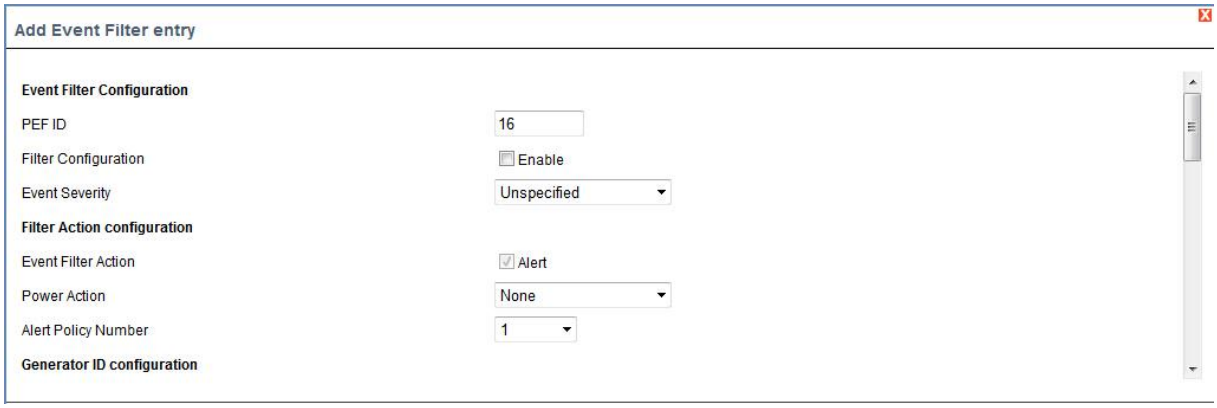



Figure 3-95Event Filter addition interface -1

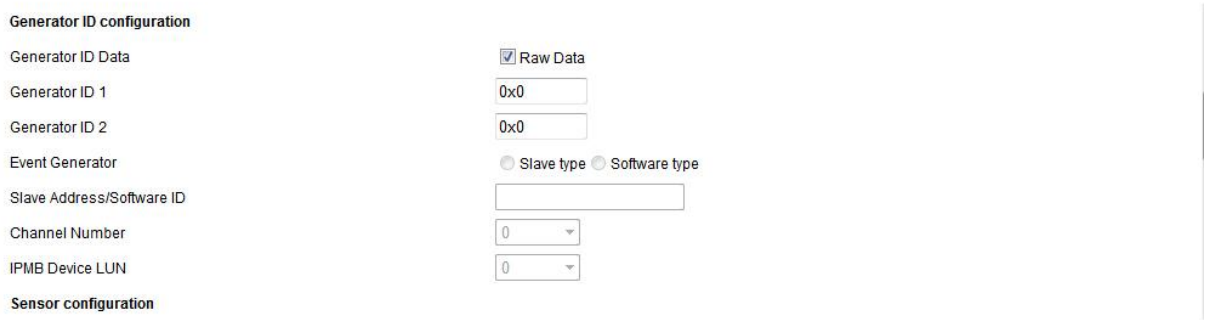



Figure 3-96Event Filter addition interface -2

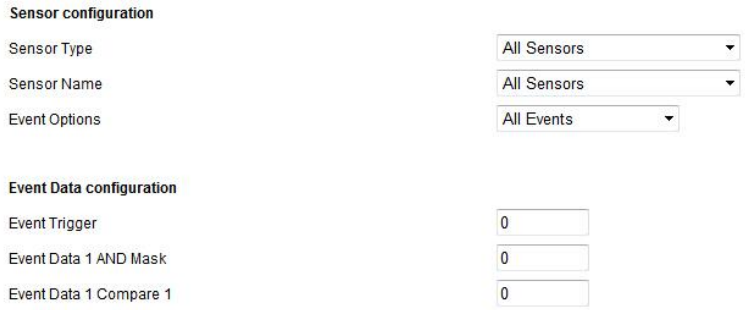



Figure 3-97Event Filter addition interface -3

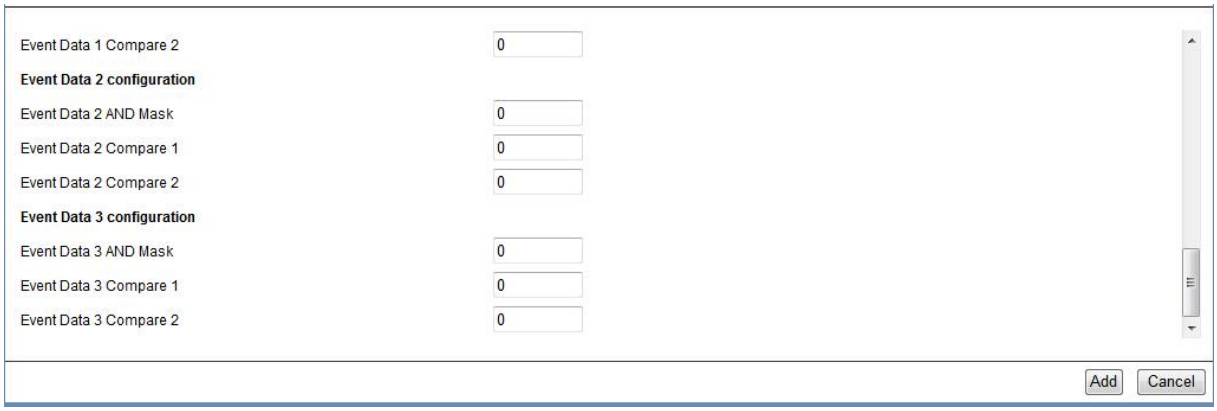



Figure 3-98Event Filter addition interface -4

Table 3-74 Description of Event Filter addition item

| Addition items | Description |
|---|---|
| Event Filter Configuration | Event filter configuration |
| PEF ID | PEF SN, which can not be changed |
| Filter Configuration | Filter configuration. To select Enable, this function is enabled. |
| Event Severity | Event severity, including non-defined, monitoring, information, normal, non-critical, critical and non-recoverable.<br>Option:<br>[Unspecified]/[Monitor]/[Information]/[Normal]/[Non-Critical]/[ Critical]/[Non-Recoverable] |
| Filter Action | Filter action configuration |

| | |
|---|---|
| configuration | |
| Event Filter Action | Event filter action. The checkbox before Alert is checked and can not be unchecked. |
| Power Action | Power action, including no action, close, restart and cycle<br>Option:<br>[None]/[Power Down]/[Power Reset]/[Power Cycle] |
| Alert Policy Number | Alert policy number, 1-15 are optional |
| Generator ID Data | Generate ID data. To select Raw Data, it indicates to select the original data. |
| Generator ID 1(2) | ID1(2) |
| Event Generator | Event generation, you can select slave address or system software ID<br>Option:<br>[Slave Address]/[System Software ID] |
| Channel Number | Channel number (0-15 are optional) |
| IPMB Device LUN | (1-3 are optional) |
| Sensor configuration | Sensor configuration |
| Sensor Type | Sensor type |
| Sensor Name | Sensor name |
| Event Options | Event option |
| Event Data configuration | Event data configuration |
| Event Trigger | Event trigger |

To select Add or Modify in Alert Policy, the interface displays, shown as the figure 3-99.

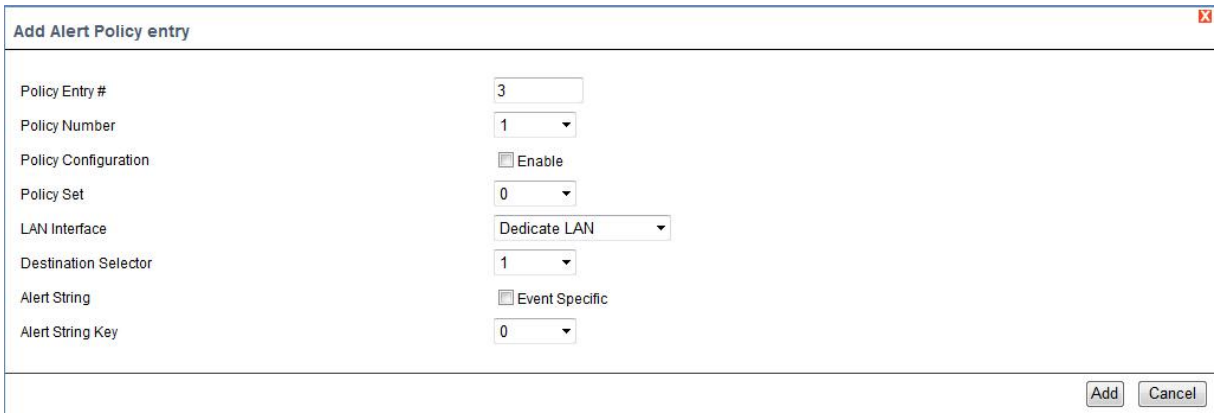



Figure 3-99Alert Policy addition item interface

Table 3-75 Description of Alert Policy addition item

| Addition items | Description |
|---|---|
| Policy Entry | Regulated alert number (1, 2, 3…) |
| Policy Number | Regulated number (1-15 are optional) |
| Policy Configuration | Regulated configuration, a user can select Enable or does not select |
| Policy Set | Regulated setting (0-4 are optional) |
| LAN Interface | Select management network interface |
| Destination Selector | Destination selection (1-15 are optional) |
| Alert String | Alert string, which can be selected as a special event. |
| Alert String Key | Key value of alert string (0-127 are optional) |

To select Add or Modify in LAN Destination, the interface displays, shown as the figure 3-100.

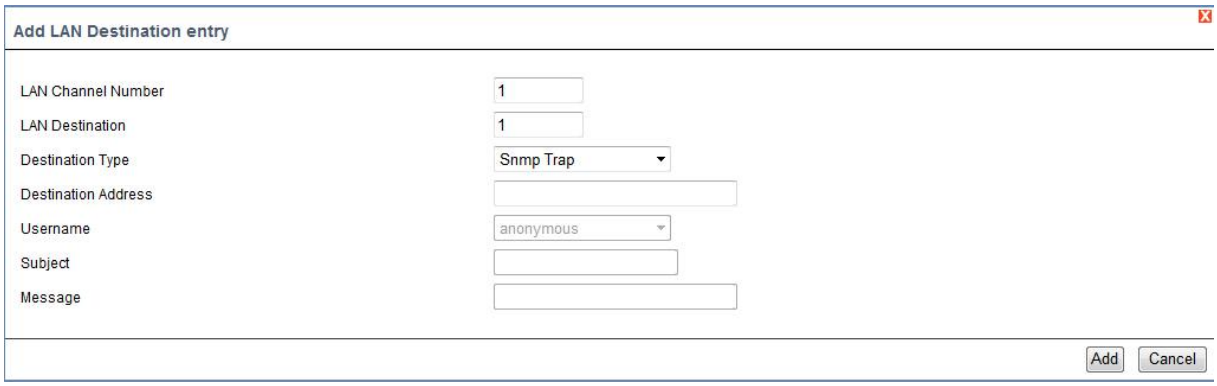



Figure 3-100LAN Destination addition item interface

Table 3-76 Description of LAN Destination addition item

| Addition items | Description |
|---|---|
| LAN Channel Number | Network channel number |
| LAN Destination | Network destination number, which can not be changed |
| Destination Type | Destination type. Trap alert and mail alert are optional. When Trap alert is selected, the Destination Address can be set. When the mail alert is selected, the Username, Subject and Message can be set. Option: [Snmp Trap]/[Email Alert] |
| Destination Address | SNMP Trap alert receiving address |
| Username | User name, which is selected from all BMC users |
| Subject | Title of alert mail |
| Message | Attached contents of alert mail |

**RADIUS**

To select RADIUS, you can enter the interface, shown as the figure 3-101.

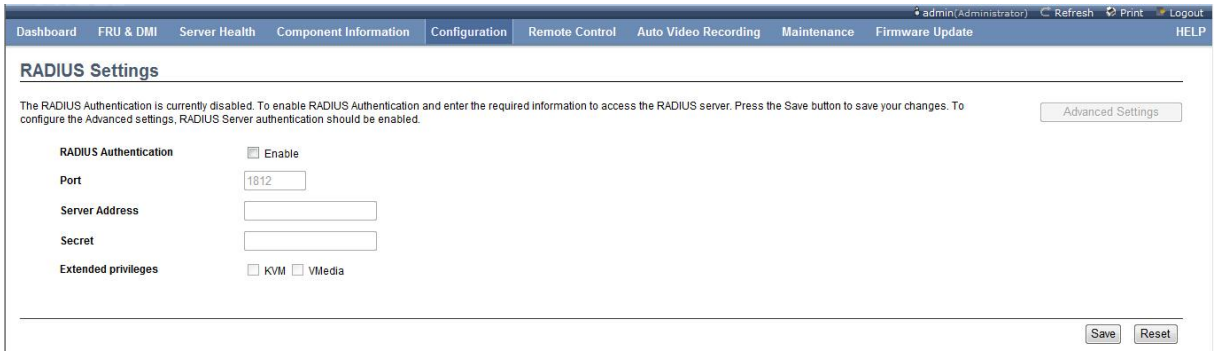



Figure 3-101 RADIUS interface

Table 3-77 Description of RADIUS setup interface

| Addition items | Description |
|---|---|
| RADIUS Authentication | Check checkbox before Enable and enable RADIUS authentication function |
| Port | Service port number |
| Server Address | IP address of RADIUS server |
| Secret | Password |
| Extended privileges | Expansion privilege. Check the checkbox before the |

| | |
|---|---|
| | corresponding item and grant corresponding privilege. |

**Remote Session**

To select Remote Session, you can enter the remote session interface as the figure 3-102.

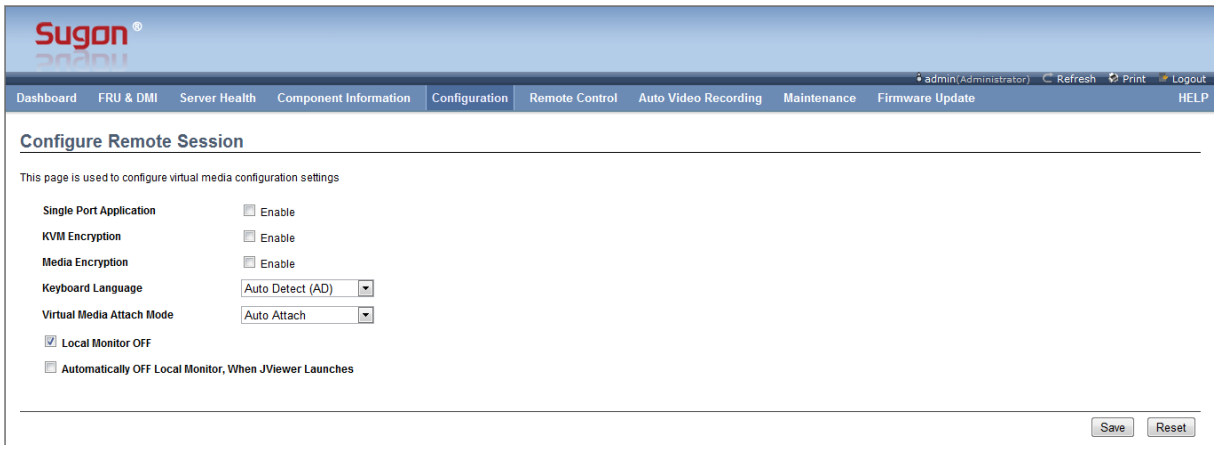



Figure 3-102 Remote conference interface

Table 3-78 Remote Session interface information item

| Information items | Description |
|---|---|
| Single Port Application | Single-port application. To check this item, the setting of the following two items will be hidden. |
| KVM Encryption | KVM encryption |
| Media Encryption | Media encryption |
| Keyboard Language | Keyboard language selection |
| Virtual Media Attach Mode | Virtual media connection mode |
| Local Monitor Off | Local monitor off |
| Automatically OFF Local Monitor，When JViewer Launches | When JViewer starts, the local monitoring will automatically turn off |

**SMTP**

To select SMTP, you can enter the SMTP interface shown as the figure 3-103. The SMTP indicates Simple Mail Transfer Protocol and is a group of rules to transfer mails from the source address to destination address. It can control forwarding mode of the mails.

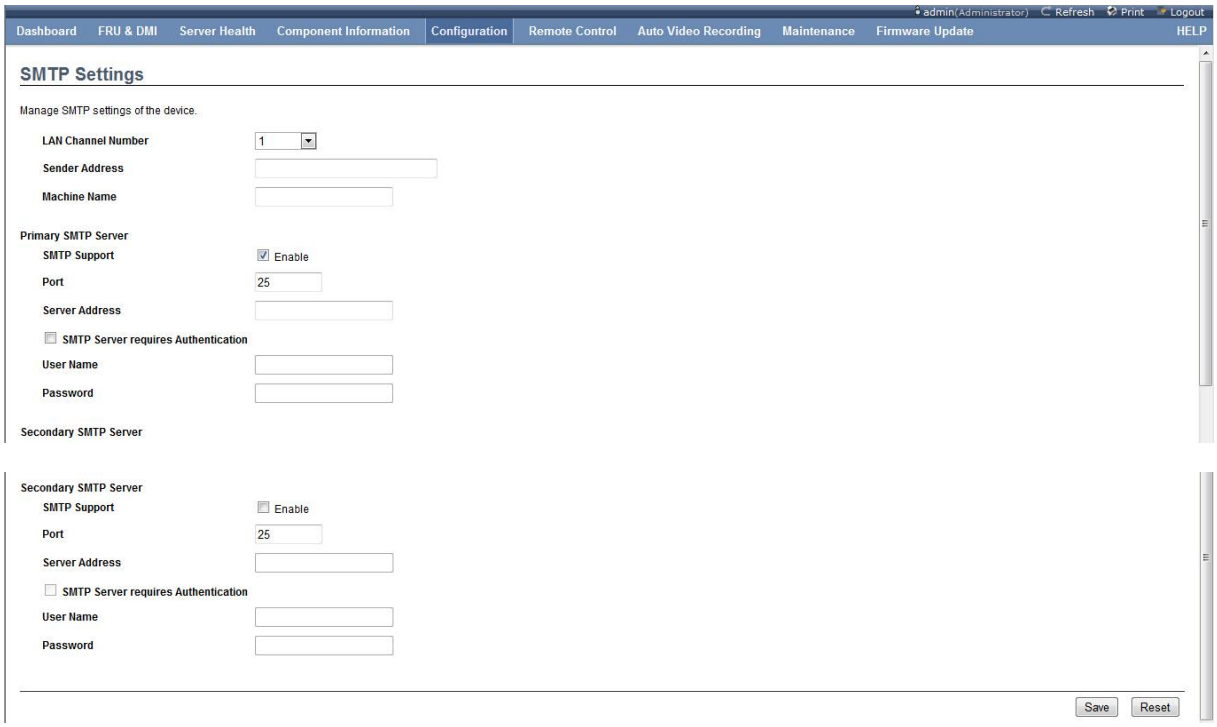



Figure 3-103 SMTP interface

Table 3-79 Description of SMTP interface information

| Information items | Description |
|---|---|
| LAN Channel Number | Select channel number |
| Sender Address | Sender address |
| Machine Name | Machine name |
| Primary SMTP Server (Secondary SMTP Server) | Master SMTP server (slave SMTP server) setting |
| SMTP Support | Enable SMTP support |
| Port | Set service port number |
| Server Address | Server address |
| SMTP Server requires Authentication | SMTP server should be validated and can be set by selecting the front checkbox |
| User Name | User name |
| Password | Password |

**SSL**

To select SSL, the system will enter the SSL authentication configuration interface shown as the figure 3-104. This item includes Upload SSL, GenerateSSL and View SSL.

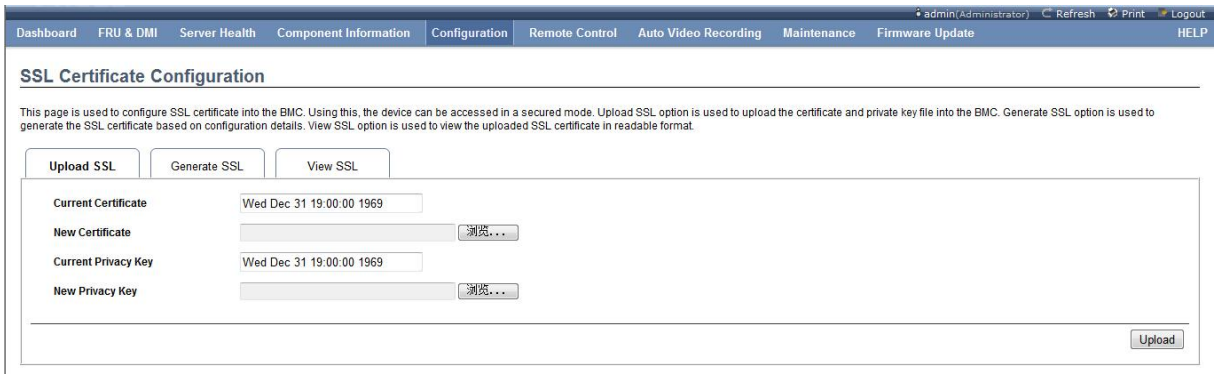



Figure 3-104 SSL authentication configuration interface

**Upload SSL**

To select Upload SSL, you can originate SSL upload, shown as the figure 3-104. The first two items are the current certificate and current key in the following information items. To click the button 浏览..., select a new SSL certificate, and click the button Upload, you can upload it.

**Generate SSL：**

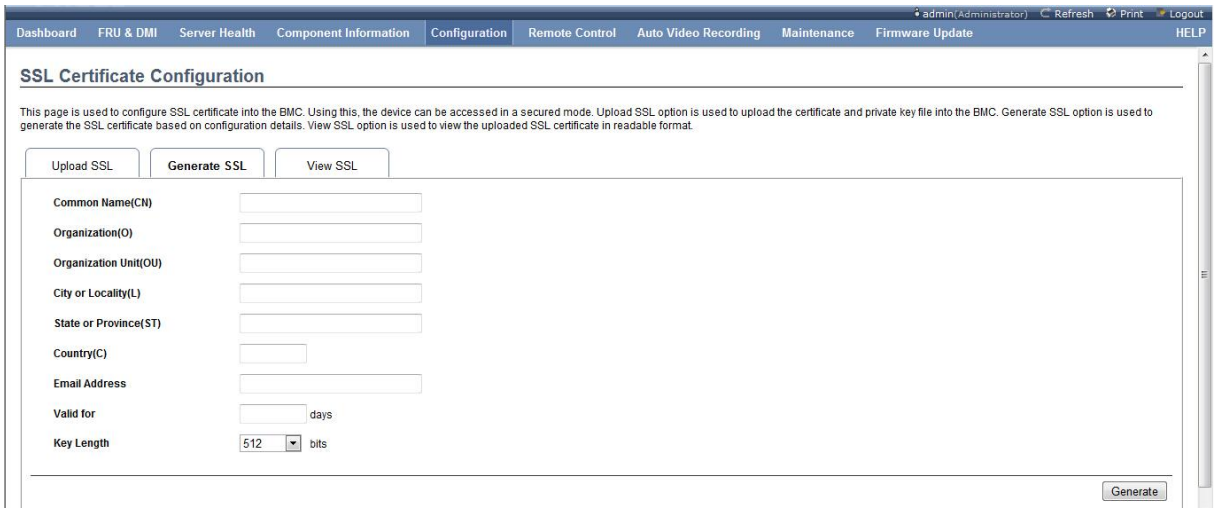



Figure 3-105Generate SSL item interface

To select Generate SSL, you can generate SSL, shown as the figure 3-105. Fill corresponding information and select the button Generate for generation.

Table 3-80 Description of Generate SSL interface information

| Information items | Description |
|---|---|
| Common Name(CN) | General name |
| Organization(O) | Organization |
| Organization Unit(OU) | Organization unit |
| City or Locality(L) | City or area |
| State or Province(ST) | State or province |
| Country(C) | State |
| Email Address | Email address |
| Valid for | Valid period |

| | |
|---|---|
| Key Length | Key length, 512 and 1024 are optional |

**View SSL**

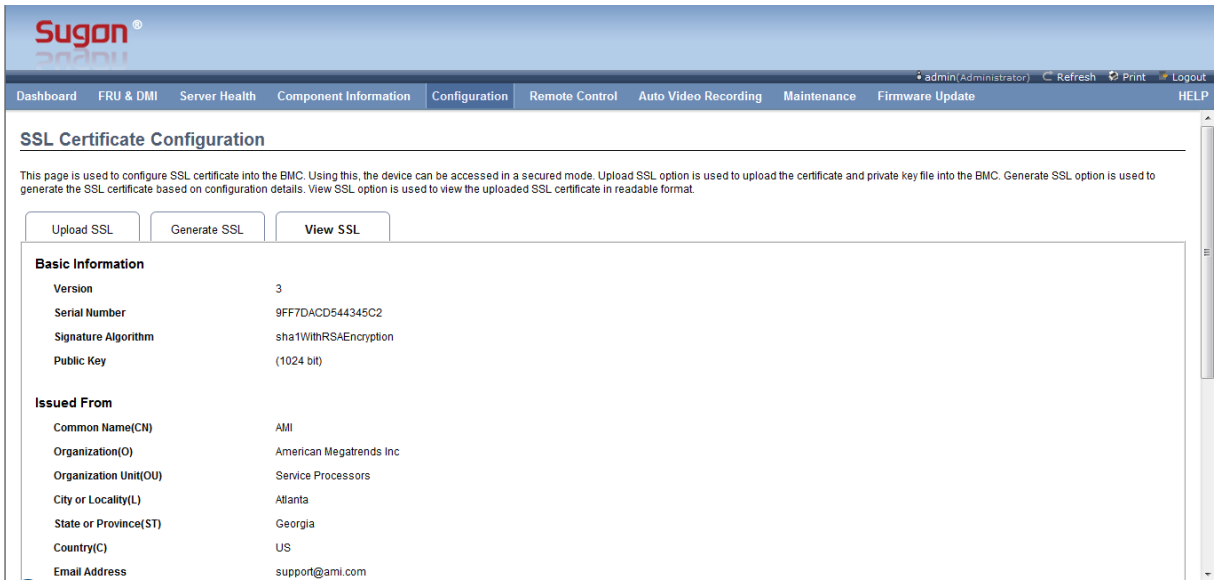



Figure 3-106 View SSL item interface

To select View SSL, you can view SSL information, including basic information (version, SN, algorithm and public key), release information, valid time and sending address.

**System and Audit Log**

To select System and Audit Log, you can enter the system and audit log setup interface shown as the figure 3-107.

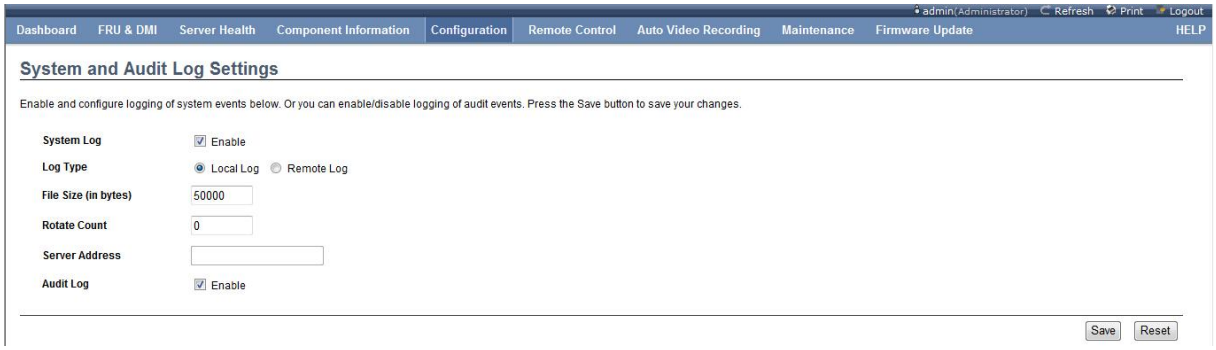



Figure 3-107 System and audit log setup interface

Table 3-81 Description of system and audit log setup interface information

| Information items | Description |
|---|---|
| System Log | Check the later checkbox to enable system log |
| Log Type | To select local mode, you should set the following File size and Rotate Count parameter. To select remote mode, you should set the Server Address parameter |
| File Size(in bytes) | Size of local log file (with byte as the unit) |
| Rotate Count | Cycle time |
| Server Address | Address of remote log server |
| Audit Log | Check the later checkbox to enable audit log |

**System Firewall**

To select System Firewall, you can enter the system firewall interface shown as the figure 3-108.

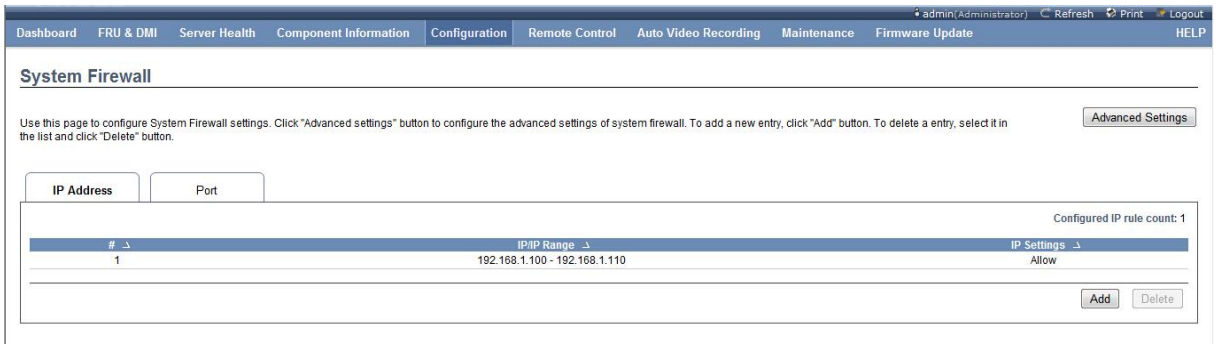



Figure 3-108 System firewall setup interface

This interface includes two label tabs, including IP Address and Port. The IP Address tab displays the IP address policy. To click the button Add at the right low corner, you can add a new IP address strategy, shown as the figure 3-109. Select an item and click the button Delete for deletion.

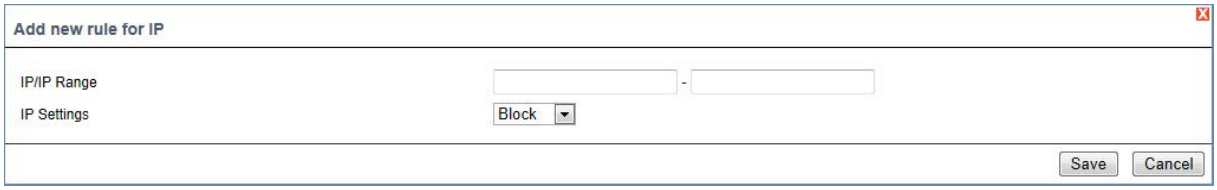



Figure 3-109 IP address policy addition interface

The IP/IP Range item is used to set the IP address (range). The IP Settings item is used to set the policy for above IP address (range). Allow or block are optional.

The Port page displays the policy for the port. To click the button Add at the right and low corner, you can add new port policy, shown as the figure 3-110.

To select an item and click the button Delete, you can delete it.

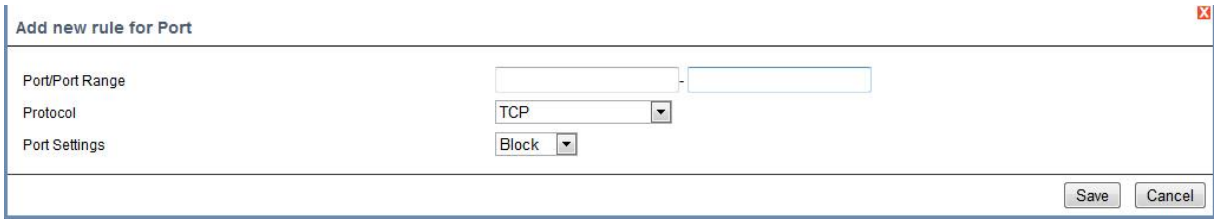



Figure 3-110 Port policy addition interface

Port/Port Range item is used to set the port number (range). The Protocol item is used to select the transfer protocol. TCP or UDP are optional. Port Settings is used to set the port policy. Allow or block are optional.

To click the button Advanced Settings at the right up corner, you can uniformly set it, shown as the

figure 3-111.

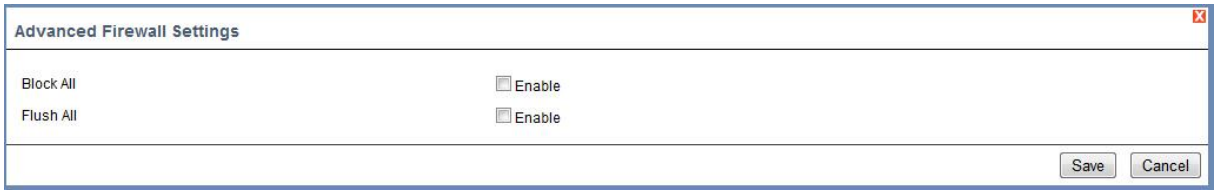



Figure 3-111 Advanced setup interface

Check Block All and forbid all access.

【Notice】Please check this item carefully. To check it, you can not access the management network interface!

---

Check Flush All, all access are permitted.

**Users**

To select Users, you can enter the user management interface shown as the figure 3-112.

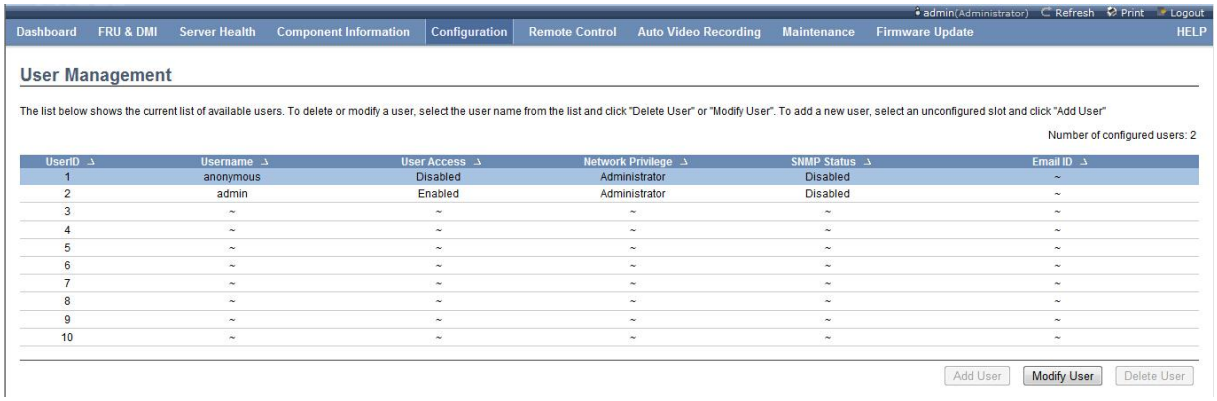



Figure 3-112 Users interface

To check existing item and click the button Modify User or select the blank item, and click the button Add User , the interface will display, shown as the figure 3-113. To the existing item and click the button Delete User , the user can be deleted.

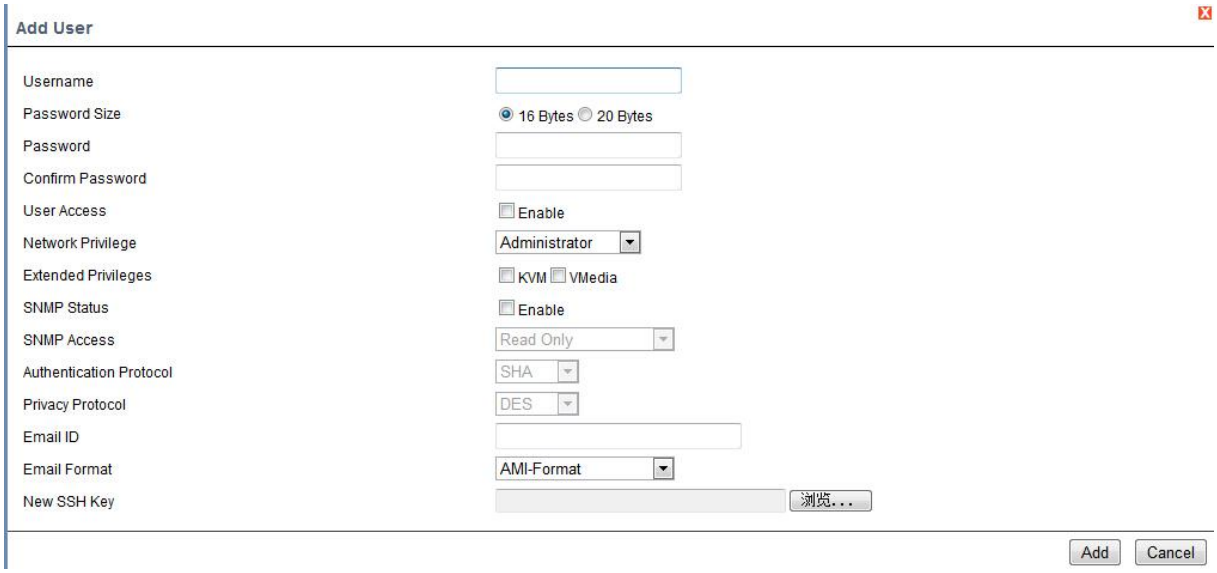



Figure 3-113 User addition interface

Table 3-82 Description of user information item addition

| Information items | Description |
|---|---|
| Username | User name |
| Password Size | Password length, 16 digits and 20 digits are optional |
| Password | To select the checkbox before Change Password, you can reset the password. |
| Confirm Password | Confirm the password and keep it consistent with Password |
| User Access | Select Enable, which indicates to allow user access. |
| Network Privilege | Select the network privilege, including administrator, operator, user, OEM owner and no privilege.<br>Option: [Administrator]/[Operator]/[User]/[OEM Proprietary]/[No Access] |
| Extended Privilege | Expansion privilege, KVM and Vmedia are optional |
| SNMP Status | Check the later checkbox to enable the SNMP privilege and then set the latter three items. |
| SNMP Access | Set SNMP read/write privilege, option: [Read Only]/[Read Write] |
| Authentication Protocol | Set authorized agreement. Option: [SHA]/[MD5] |
| Privacy Protocol | Set encryption agreement: Option: [DES]/[AES] |
| Email ID | Set user mailbox address |
| Email Format | Set format of user email, option: [AMI-Format]/[Fixed Subject-Format] |
| New SSH Key | New SSH key. To click “Browse”, you can select it |

After setting, to click the button Add or Modify at the right low corner, you can add/change user.

**Virtual Media**

To select Virtual Media, you can enter the virtual media device interface shown as the figure 3-114. The following options will allow to configure the number of supported virtual media devices, including floppy device, CD device and hard disk device.

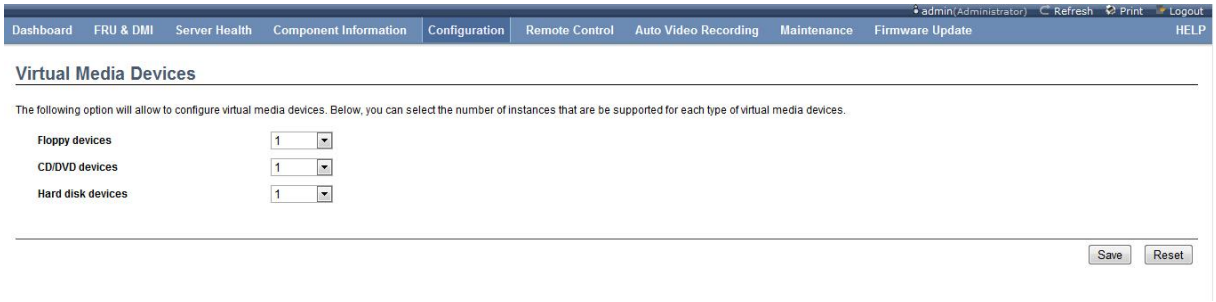



Figure 3-114Virtual Media interface

**User Lock Settings**

To select User Lock Settings, you can enter the user lock interface shown as the figure.

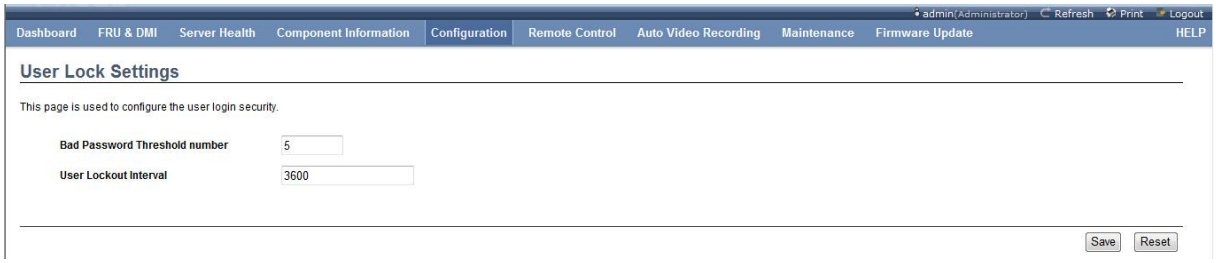



Figure 3-115 User lock setup interface

This interface can set the maximum time of continuous incorrect password input for the user. After this limit is exceeded, the user will be locked. It can also set the user lock time. To click the button Save , you can save setting. To click the button Reset , you can reset.

## 3.4.6 Remote Control

To click Remote Control menu, the following sub-menu will occur, shown as the following figure.


Figure 3-116 Remote control sub-menu

**Console Redirection**

To select Console Redirection item, you can redirect the console, shown as the figure 3-117.


Figure 3-117Console Redirection interface

To click the button Java Console, you can operate as the prompt and enable the remote console window (JRE software package should be installed), shown as the figure 3-118.

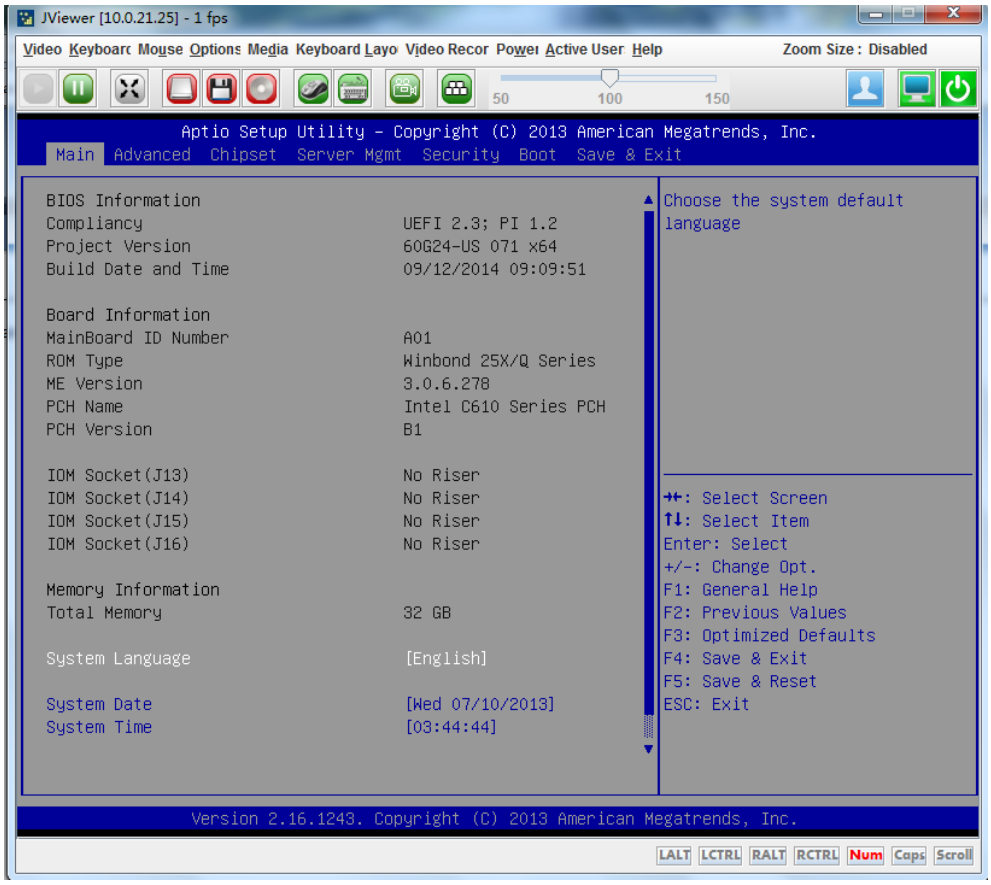



Figure 3-118 Redirection interface

This remote console includes many menus, can perform many settings, and realize many functions. Here only several frequent functions are introduced.

**Remote mounting of mirroring file/hard disk/U disk/CD/floppy driver:**

To select Virtual Media Wizard submenu under Media menu, the interface will pop up, shown as the figure 3-119.

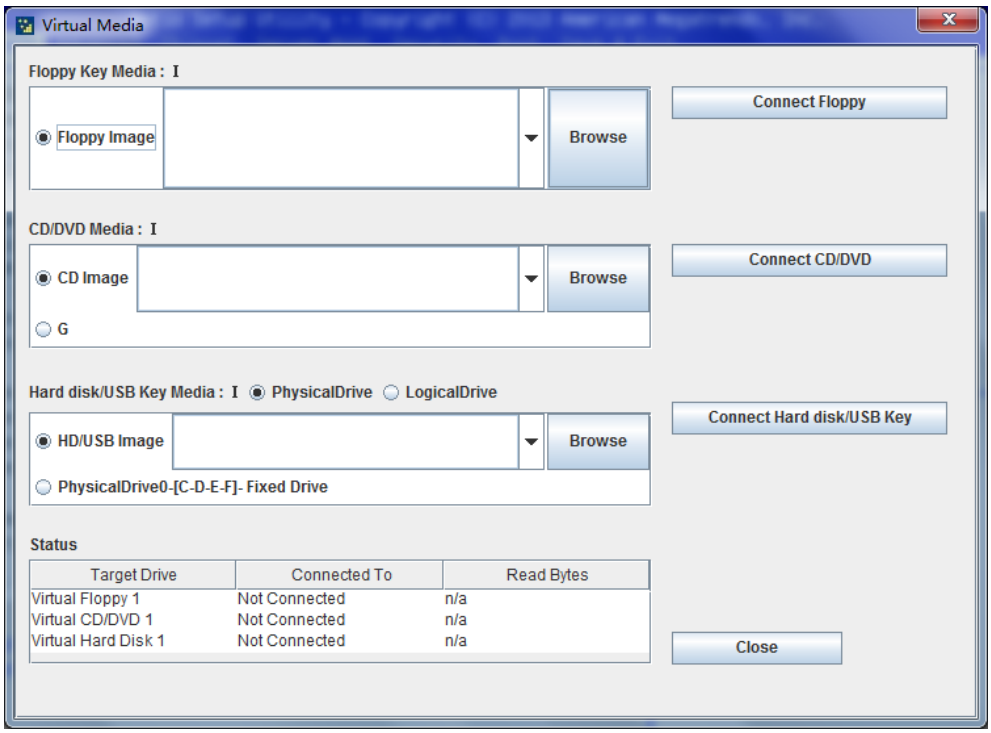



Figure 3-119 Virtual media mounting interface

On this figure, Flop Key Media area can mount floppy disk or floppy drive (when the PC provides the floppy drive). To mount the image, you should click Browse. You should find and select the mirroring file to mount and then click the right “Connect Floppy” button.

The CD/DVD Media area can mount the CD image in a manner as the floppy drive image and can mount the CD ROM. You should select the CD ROM symbol (G in the figure) and then click “Connect CD/DVD” button.

Hard disk/USB Key Media area can mount ima and img mirroring files or mount the local hard disk or U disk (when the PC includes U disk). The mounting method is same as the above mirroring and CD ROM.

**Snapshot function**

Shown as the figure 3-120, to select Capture Screen sub-menu under Video menu or use Alt+S shortcut key, you can cut the interface on the current console. To select the file saving location on the pop-up file saving dialog and set the file name and click “Save”, you can save the file.

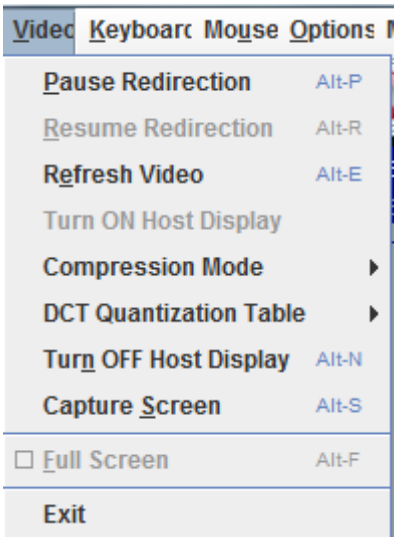



Figure 3-120 Video sub-menu

**The full keyboard supports enable function:**

You can use the keyboard on the redirection console, but the combination key is not supported by default. If the combination key is expected, you can check the checkbox before Full Keyboard Support under Keyboard menu.

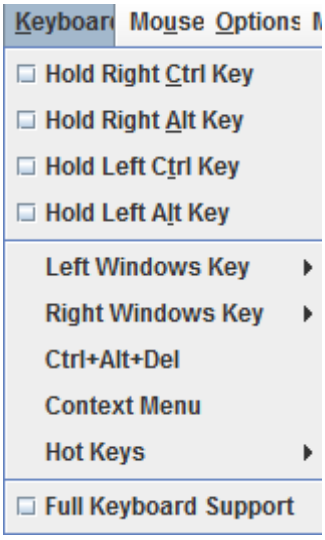



Figure 3-121 Keyboard sub-menu

**Enable soft keyboard:**

To select SoftKeyboard sub-menu under the Keyboard Layout menu, the keyboard with different language layouts will pop up. To select the required keyboard, you can open the virtual keyboard.

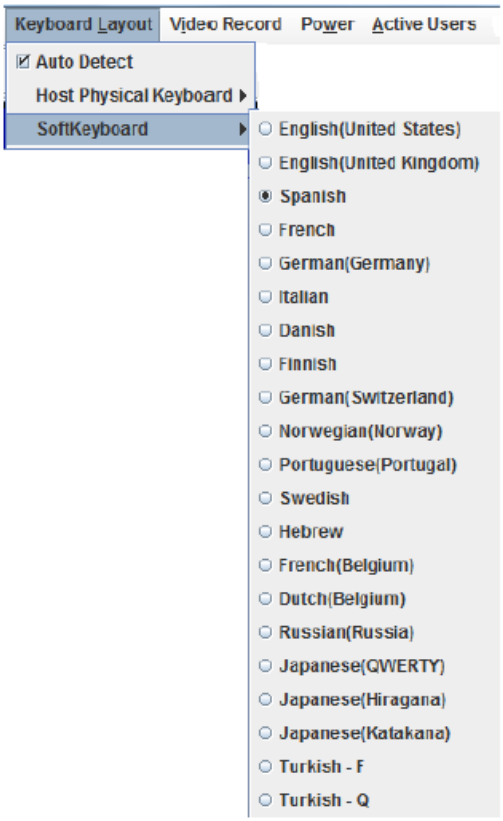



Figure 3-122 Keyboard Layout sub-menu

**Video recording function**

To select the Settings sub-menu under Video Record menu, the video recording setup interface will pop up, shown as the figure 3-124.

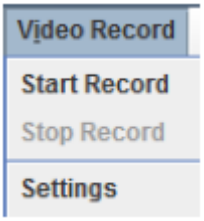



Figure 3-123 Video Record sub-menu

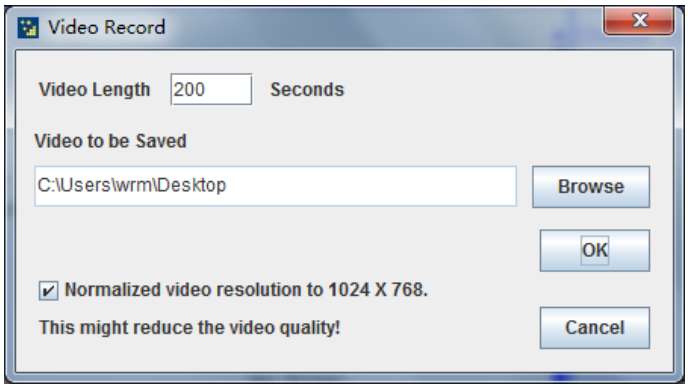



Figure 3-124 Video recording setup interface

On this figure, you can set the maxim recording length of the video. To click Browse, you can select the location for automatically saving the video. After setting, you can set “OK” and save this

setting. At this time, you can Start Record and Stop Record under Video Record menu to control video recording. After recoding, the video file will be automatically generated.

**Server power control:**

To select Power menu, its sub-menu is shown as the figure 3-125.

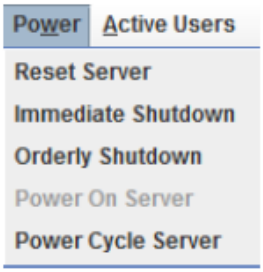
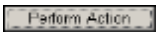



Figure 3-125 Power sub-menu

To select Reset Server, you can restart the server. To select Immediate Shutdown, the server will instantly shut down. To select Orderly Shutdown, the power-off command will be sent to the server. To select Power Cycle Server, the server will power off and then power on. When the server powers off, the Power On Server is optional. To select it, the server will start.

**Server Power Control**

To select Server Power Control, you can view the current state, shown as the figure 3-126. To select proper options on demand and click the button 

, you can realize the operation. The current status will display corresponding contents.

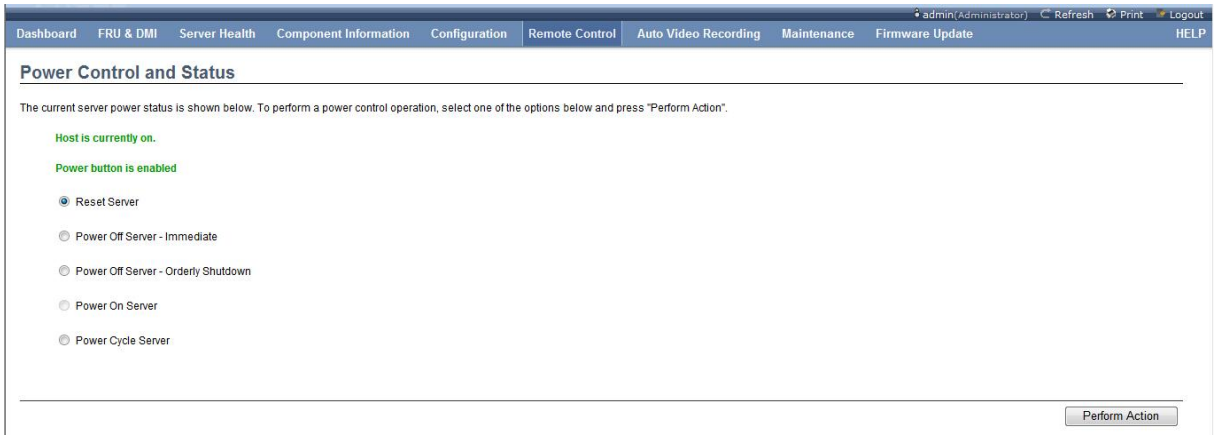



Figure 3-126Power Control and Status

Table 3-83 Description of Power option

| Power control item | Description |
|---|---|
| Host is currently off | Display current host status in real time |
| Reset Server | Restart server |
| Power Off Server - Immediate | Instantly shut down server |
| Power Off Server – Orderly Shutdown | Send power off command to the server |

| | |
|---|---|
| Power On Server | Start server |
| Power Cycle Server | Cut off the server DC and power off |
| Power Button | Power button |

**Java SOL**

To select Java SQL, you can redirect the serial port, shown as the figure 3-127.


Figure 3-127 Java SOL interface

To click the button Java SOL, you can operate and open the serial port to redirect the window according to prompt and the setup interface pops up, shown as the figure 3-128.

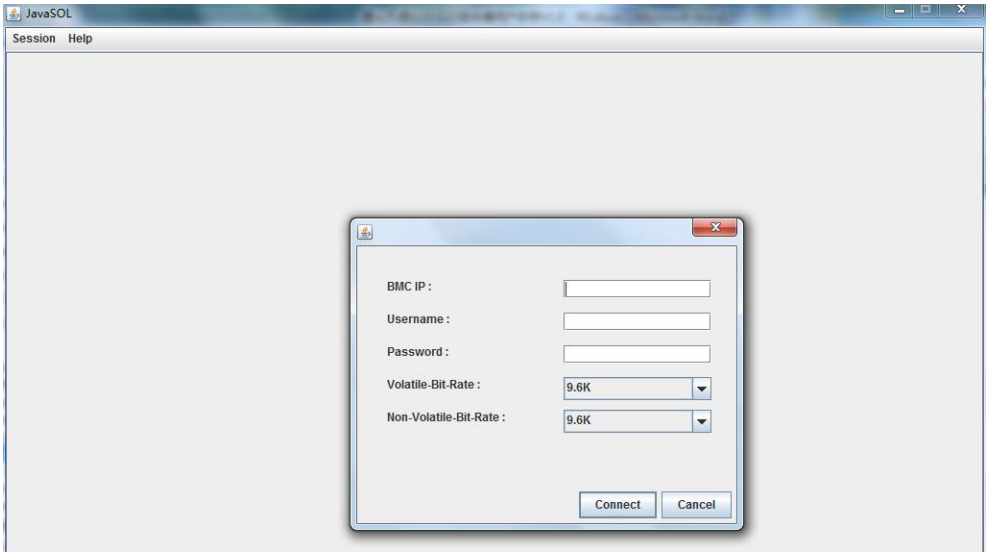



Figure 3-128 Serial port redirection setup interface

Table 3-84 Description of serial port redirection setup interface

| Power control item | Description |
|---|---|
| BMC IP | IP address of BMC |
| Username | BMC user name |
| Password | BMC user password |
| Volatile-Bit-Rate | Volatile bit rate |
| Non-Volatile-Bit-Rate | Non-volatile bit rate |

To correctly fill the corresponding information and click the button Connect, you can connect.

To click Session, the following figure is shown.

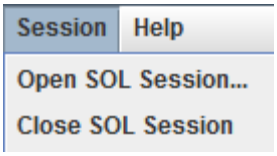



Figure 3-129 Session sub-menu

To Close SOL Session, you can close the current SQL session. To select Open SQL Session, you can open a new SQL session.

**ID LED Control**

To select ID LED Control, the ID lamp control interface is shown as the figure 3-130.

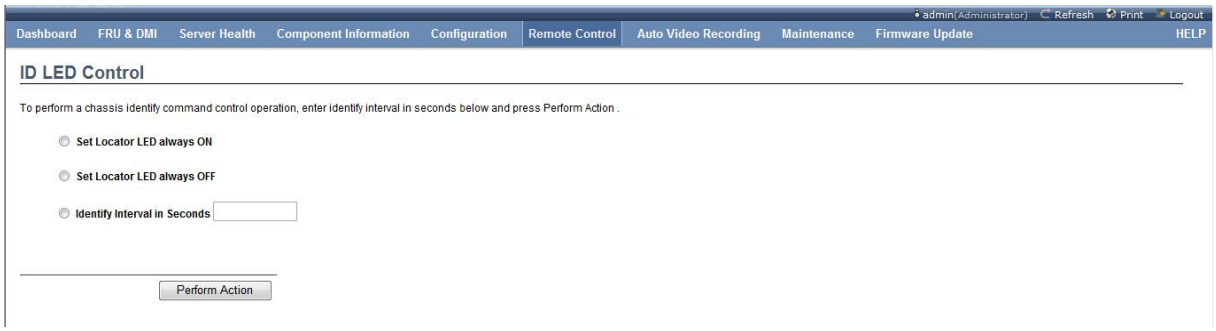



Figure 3-130 ID control interface

You can select to turn on ID lamp, turn off ID lamp and turn on ID lamp and then turn off after a period on this interface. The third item can be set with the on time. After it is selected, you can click the button Perform Action and execute the operation.

**Power Button Control**

To select Power Button Control, the power button setup interface displays, shown as the figure 3-131.

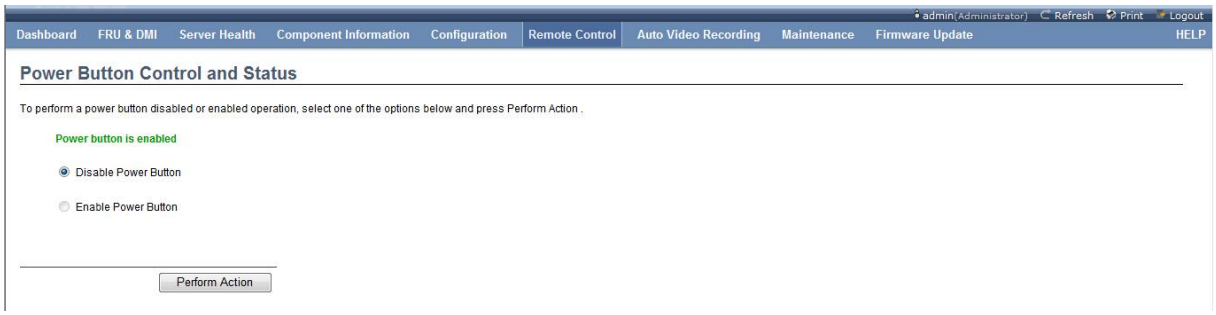



Figure 3-131 Power button setup interface

This interface can disable/enable the power button. After it is enabled, the power button on the device will not take effect.

**FAN Control**

To select FAN Control, you can enter the fan policy setup interface shown as the figure 3-132.

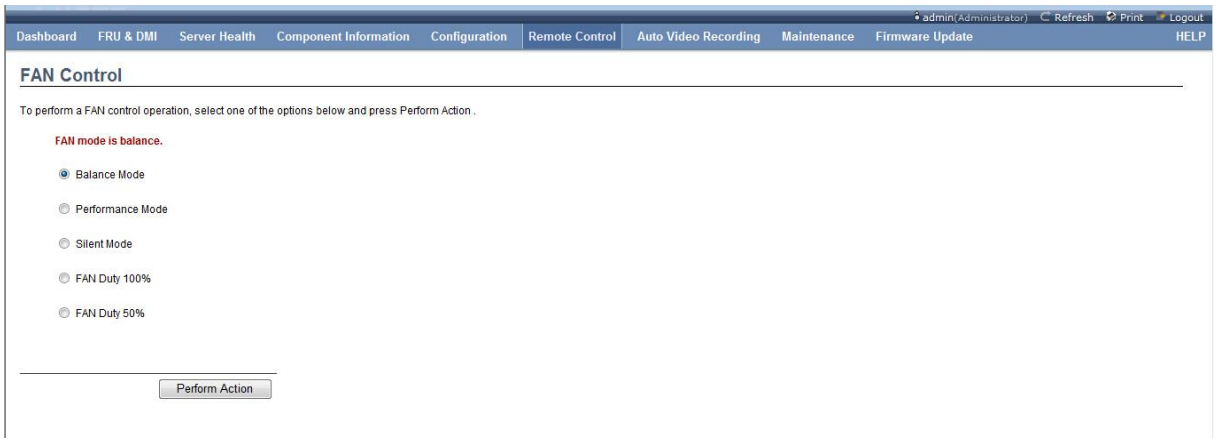



Figure 3-132 Fan policy setup interface

On this interface, you can set the fan policy as the balance mode, high performance mode, silence mode, full-speed mode and half-speed mode.

**BIOS First Boot Device Selector**

To select BIOS First Boot Device Selector, you can enter the BIOS first start item selection interface shown as the figure 3-133.

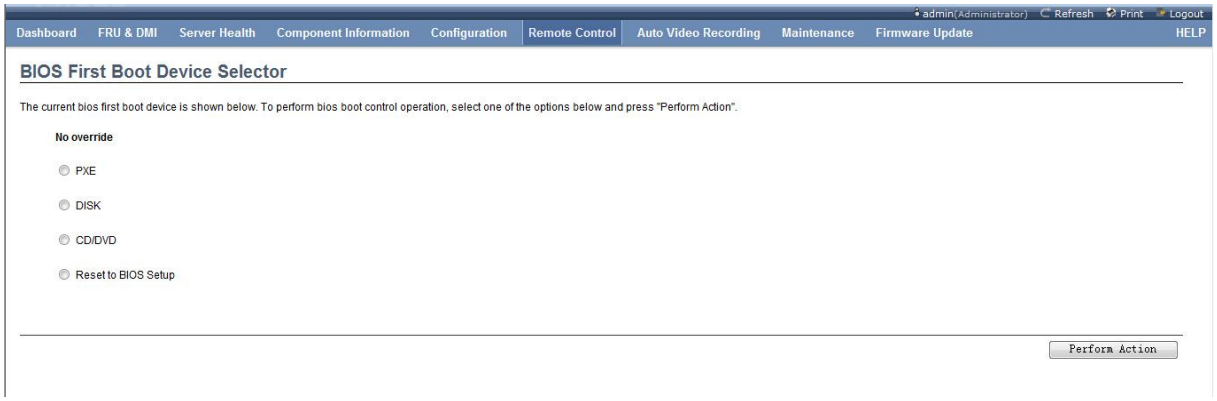



Figure 3-133 BIOS first start item selection interface

On this interface, you can set the first start item when the device restarts next time and will not change the start sequence setting in BIOS.

## 3.4.7 Auto Video Recording

To click Auto Video Recording menu, the automated video recording sub-menu will display, shown as the figure 3-134.


Figure 3-134 Automated video recording sub-menu

**Triggers Configuration**

To select Triggers Configuration, you can enter the trigger condition setup interface shown as the

figure 3-135.

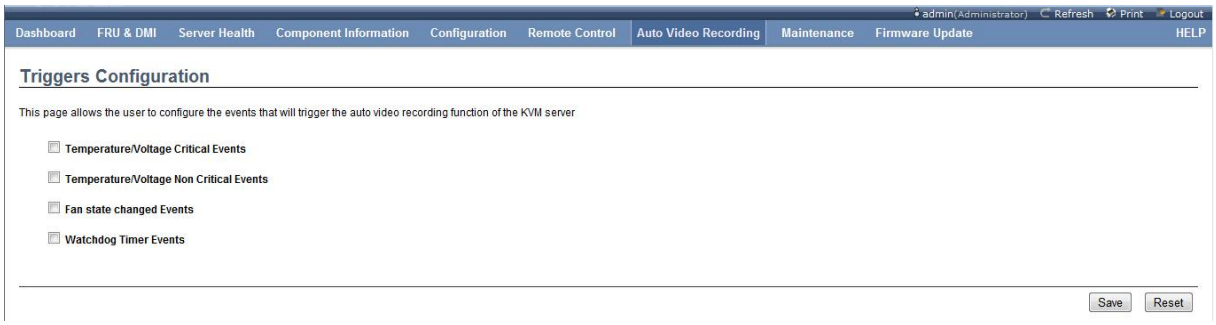



Figure 3-135 Trigger condition setup interface

Table 3-85 Description of trigger condition

| Power control item | Description |
|---|---|
| Temperature/Voltage Critical Events | Temperature/voltage critical alert event |
| Temperature/Voltage Non Critical Events | Temperature/voltage non-critical alert event |
| Fan State Changed Events | Fan status change event |
| Watchdog Timer Events | Watchdog timer event |

To tick the corresponding trigger condition and click the button Save, you can save the settings.

**Recorded video**

To select Recorded Video, the recorded list interface will display as the figure 3-136.

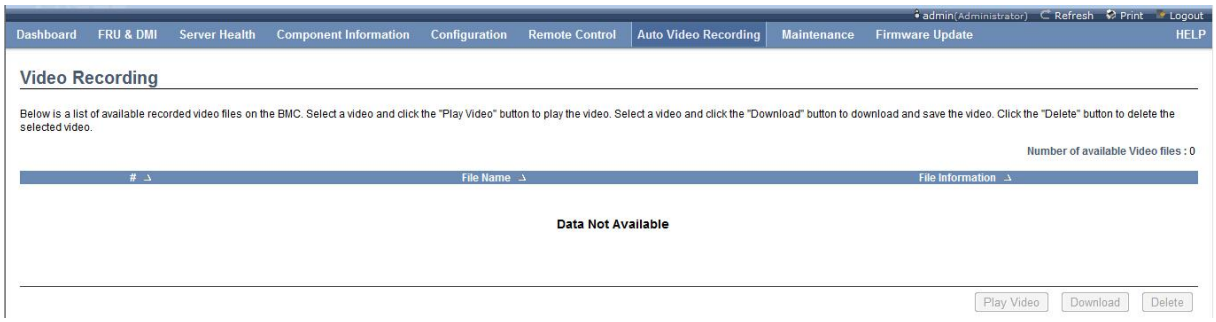



Figure 3-136 Recorded video list interface

This interface display the recorded video list (display no video on the figure). To select the video and click the button at the right low corner, you can play, download and delete video.

## 3.4.8 Maintenance

To click Maintenance menu, the sub-menu will display as the following figure.

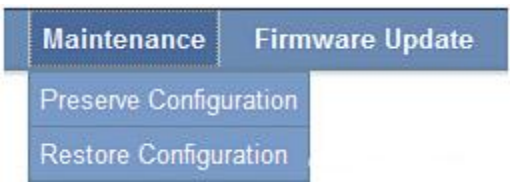



Figure 3-137 Maintenance sub-menu

**Preserve Configuration**

To select Preserve Configuration, the setup interface for keep existing configuration will display, shown as the figure 3-138.

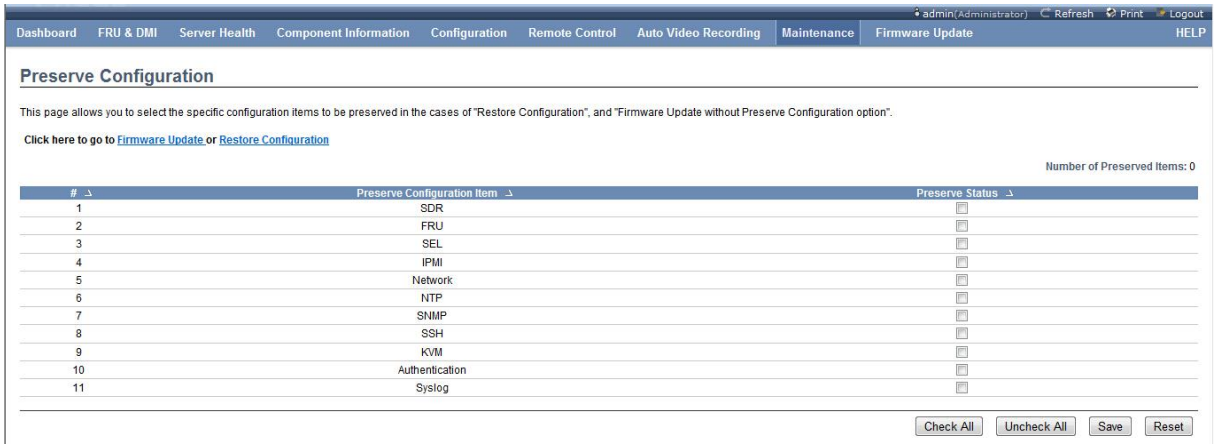



Figure 3-138 Setup interface for keeping existing configuration

On this interface, you can set the configurations which are saved and are not reset in case of factory setting recovery or firmware refreshing. To check the checkbox after the configuration to save and click the button Save, you can save the setting.

**Restore Configuration**

To click Restore Configuration, you will enter the factory setting recovery interface, shown as the figure 3-139.

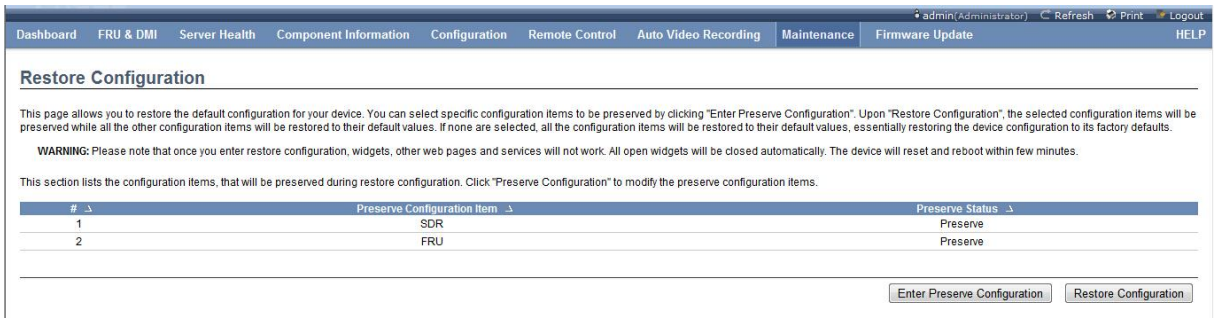



Figure 3-139 Factory setting recovery setup interface

This interface lists the non-rest items set in Preserve Configuration. To click the button Enter Preserve Configuration, you can enter the Preserve Configuration menu. To reset the items to save and click the button Restore Configuration, all other BMC settings except items in the above list will be reset.

【Notice】 To enter factory setting recovery interface, other webpages and services will not work. All opened windows will automatically close. This device will reset and restart within several minutes.

### 3.4.9 Firmware Update

To click Firmware Update menu, the sub-menu displays, shown as the following figure.


Figure 3-140 Firmware Update sub-menu

**Firmware Update**

To select Firmware Update sub-menu, you can enter the BMC firmware upgrade interface, shown as the figure 3-141.

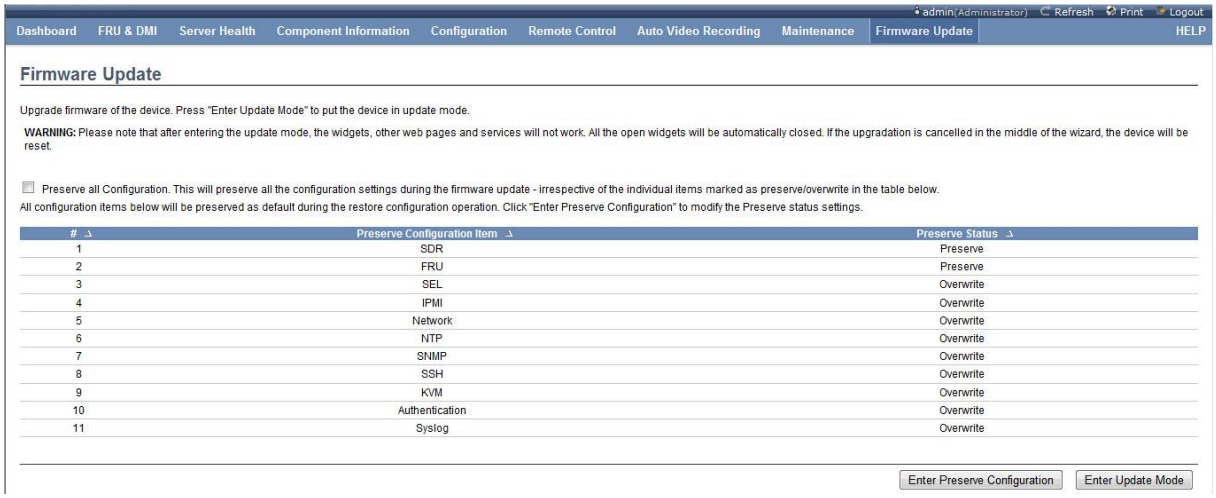



Figure 3-141 BMC firmware upgrade interface

This interface lists all configurations which are changed or saved in firmware refreshing. To click the button Enter Preserve Configuration , you can enter Preserve Configuration menu and set the configuration to save. To click the button Enter Update Mode , you will enter BMC refreshing mode and upload BMC file as the prompt. The interface will display, shown as the figure 3-142.

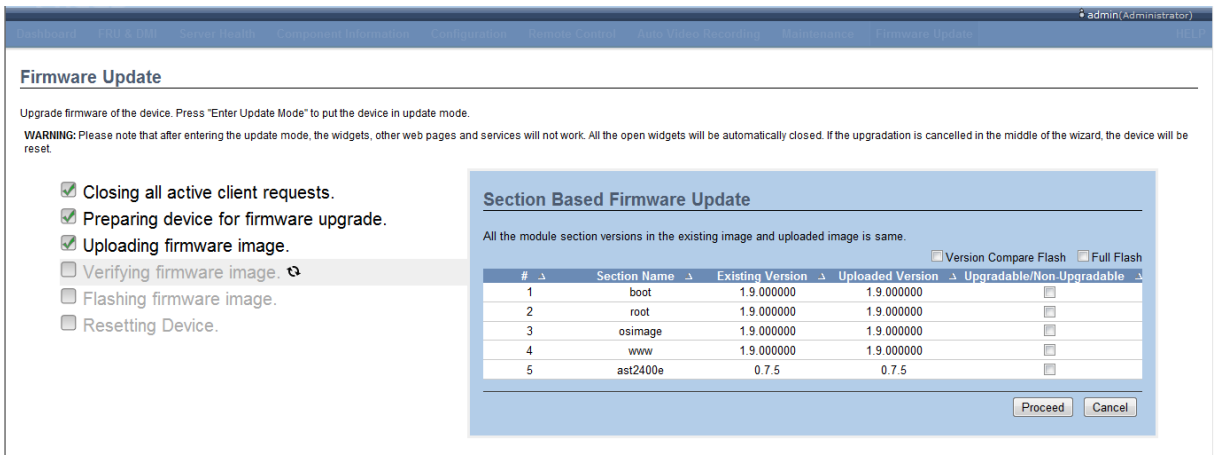



Figure 3-142 Selection interface of BMC firmware upgrade and refreshing module

This interface can be used to refresh some modules. To check the items to refresh on the right list

and click the button Proceed, you can refresh it. To check “Version Compare Flush“, only the modules with updated versions are refreshed. To check “Full Flash”, all modules can be refreshed.

To click the button Cancel, you can cancel refreshing. BMC device will restart.

【Notice】To enter the update mode, other webpages and service can not work. All opened windows will automatically close. If upgrade process is cancelled in guidance, this device will be reset.

---

**BIOS Update**

To select BIOS Update, you will enter the BIOS firmware refreshing interface, shown as the figure 3-143.

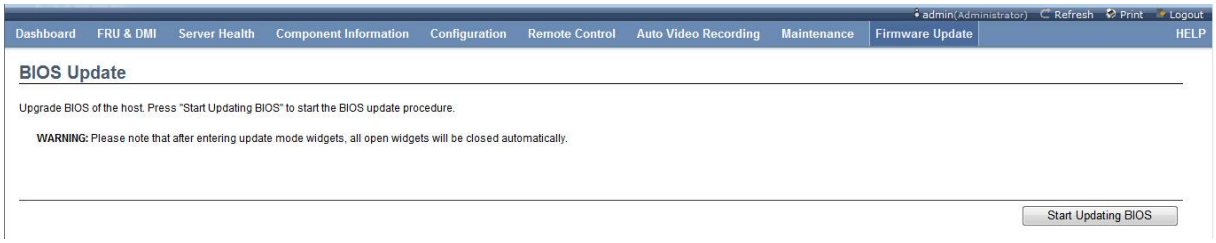



Figure 3-143 BIOS firmware refreshing interface

If the machine is under the power on status, the alert box will pop up, shown as the figure 3-144.


Figure 3-144 BIOS firmware refreshing alert interface

The alert box prompts “the server is under power on status, please shut down the server”. This mode will refresh BIOS firmware when the server is under power off status, please refresh when the server powers off.

After the server powers off, to click the button Start Updating BIOS, the system will enter the BIOS refreshing mode. After BISO file is uploaded according to the prompt, refreshing will start.

【Notice】To enter BIOS refreshing mode, other webpages and service can not work.

---

# 4 OS installation guide

This guide includes the following OS, including Windows 2008 Enterprise Server and Red Hat Enterprise Linux6 update.

## 4.1 Windows 2008 Enterprise Server R2 SP1 64bit

**Installation steps:**

Step 1: Power on, place the CD marked with “Microsoft Windows 2008 Server” into the CD ROM, and boot from the CD.

Step 2: Select installation language, time and keyboard layout and then click “Next”.

Step 3: Click “Install now” and start to install it.

Step 4: Display SN input interface, correctly input the SN according to the prompt, and click “Next”.

Step 5: Next select the 2008 server version to install. With Windows Server 2008 Enterprise as the example, check the prompt “I have selected the edition of Windows that I purchased” under the screen, and click “Next”.

Step 6: Check “I accept the license terms” on the webpage and click “Next”.

Step 7: Select “Custom” mode on the displaying interface and install it.

Step 8: If the user is not configured with RAID card, you can directly install it on the hard disk partition. If RAID card is configured, you should select “Load Driver” and load the driver of the corresponding RAID card.

Step 9: After configuration is completed, to click “Next”, the system installation will start.

Step 10: The system will automatically restart during installation. After tens of minutes, the system installation is completed and the user password should be configured.

Note: The Windows 2008 password should include English letters, numbers and symbols.

Step 11: After completion, a user can normally use Windows 2008 Server OS.

Note: A user may load drivers for some external plug-in cards.

## 4.2 Red Hat Enterprise Linux AS 6 Update 2 X86_64

**Installation steps**

Step 1: Power on, place the CD marked with “Redhat Linux Advanced Server 6 Update 2(64bit) DVD” into the CD ROM, and start from CD. If requested, please load the floppy disk driver via linux dd mode.

Step 2: To select “Skip”, you can skip the detection CD. If the user wants to detect integrity of the system CD, he can select “OK”.

Note: It will spend much time in detecting the CD, please wait for it patiently.

Step 3: After detection is completed, click “Next” on the interface.

Step 4: A user selects the required language on the language selection interface and click “Next”.

Step 5: Select the corresponding keyboard layout on the keyboard layout configuration interface and then click “Next”.

Step 6: Next input the SN according to the prompt. A user can input the SN according to the requirements.

Step 7: Initialize the hard disk data according to the requirements, select “Yes” and click “Next”.

Step 8: When the hard disk partition configuration interface displays, a user can select the corresponding hard disk and create different partitions. With one hard disk as one example, select “Create Custom layout” and click “Next”.

Step 9: A user can create different partitions on demand in this step. Create the root partition, /boot partition and swap partition and click “Next”.

Step 10: Select if the boot loader is installed and click “Next” on “Boot Loader Configuration” interface.

Step 11: Select and configure IP acquisition mode of the network card, configure the Hostname of the host, and click “Next”.

Step 12: Select “Asia/Shanghai” and click “Next” on the time zone selection interface.

Step 13: Input root administrator password at “Root Password” field, input it at “Confirm” field, and confirm it on the root account password setup interface. The administrator password should include at least 6 digits.

Step 14: When the software package is installed, you should check “Customize now” and click “Next”.

Step 15: Select the installation package and click “Next” on the interface.

Step 16: To wait for the installation procedure, check association of the installation package and then click “Next”, the system installation starts.

Step 17: After installation ends, click “Reboot”.

Step 18: Display configuration interface and select “Forward”.

Step 19: Select accept and click “Next” on the “License Agreement” interface.

Step 20: Configure if the firewall is enabled on “Firewall” interface and click “Next”.

Step 21: At this time, the “SELinux” configuration interface will display. You should set the corresponding level and click “Forward”.

Step 22: A user sets Kdump on demand and clicks “Next”.

Step 23: Set date and time and click “Next”.

Step 24: Register product and operate according to the interface prompt.

Step 25: A user (non-root account user) can create account on demand and click “Next”.

Step 26: Select to install some software packages of other CD on the “Additional CDs” page.

Step 27: To click “Finish” and restart button, you can use Red Hat Enterprise Linux 6 Update 2 system.

# 5 FAQ of products

**Default start sequence of system**

USB device, built-in CD, built-in hard disk, front hard disk, external network card PXE, onboard PXE

**How to read the remote management URL**

- When the switcher network is used, you should connect the network cable to the rear IPMI management interface of the classis and read BMC IP address via the front panel, or you should enter the BIOS management interface and read BMC IP under BMC network configuration. If no address is available, the network configuration mode is selected as [Dynamic-Obtained by BMC]. Press F4 to save, restart and try again.
- When the direct connection mode is used, after the network cable is connected to IPMI management interface, you will enter BIOS, select the network configuration mode as Static under BMC network configuration, manually input IP address and gateway, press F4 to save and restart.

**How to install GPU or external plug-in display card provided by Sugon**

Please confirm if the GPU or external plug-in display card connects the external power supply. If it is required, please contact Sugon after-sale personnel for assembly. First, set the VGA Priority option in BIOS as the offboard, save it and restart. At this time, the video will be outputted via VGA.

# Appendix I Abbreviations

| Abbreviations | Explanation |
|---|---|
| BIOS | Basic input/output system |
| BPS | Bit/sec (BIT PER SECOND) |
| CMOS | COMPLEMENTARY METAL OXIDE SEMICONDUCTOR |
| CPU | CENTRAL PROCESSING UNIT |
| DIMM | DUAL IN-LINEMEMORY MODULE |
| DMA | DIRECT MEMORY ACCESS. DMA channel can make some data bypass the processor and directly transfer between RAM and device |
| DRAM | DYNAMIC RANDOM ACCESS MEMORY. Generally computer’s RAM is composed of DRAM chip. |
| ECC | ERROR CHECKINGAND CORRECTION |

| | |
|---|---|
| EMC | ELECTRO MAGNETIC COMPATIBILITY |
| EMI | ELECTRO MAGNETIC INTERFERENCE |
| ESD | ELECTRO STATIC DISCHARGE |
| FAT | FILE ALLOCATION TABLE |
| FTP | FILE TRANSFER PROTOCOL |
| GB | GIGABYTE. One GB is equal to 1024MB or 1,073,741,824 bytes. |
| Hz | HERTZ |
| I/O | INPUT/OUTPUT |
| IP | INTERNET PROTOCOL |
| IRQ | INTERRUPT REQUEST. It is a signal sent to the bit process via IRQ line and indicates that the peripheral device will send or receive data. |
| KB | KILOBYTE, namely 1024 bytes |
| LAN | LOCAL AREA NETWORK |
| LCD | LIQUID CRYSTAL DISPLAY |
| LED | LIGHT EMITTING DIODE, it is an electronic device which will give out light when the current passes it. |
| LUN | LOGICAL UNIT NUMBER |
| MB | MEGABYTE, which indicates 1,048,576 bytes |
| MBR | MASTER BOOT RECORD |
| MHz | MEGA HERT Z |
| MTBF | MEAN TIME BETWEEN FAILURES |
| NIC | NETWORK INTERFACE CONTROLLER |
| NTFS | FILE SYSTEM |
| PCI | PERIPHERAL COMPONENT NTERCONNECT |
| POST | POWER-ON SELF-TEST. Before the device powers on and loads the OS, POST will detect different components |
| RAM | RANDOM ACCESS MEMORY, namely the memory |
| ROM | READ ONLY MEMORY |
| SDRAM | SYNCHRONOUS DYNAMIC RANDOM ACCESS MEMORY |
| SNMP | SIMPLE NETWORK MANAGEMENT PROTOCOL |
| TCP/IP | TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL |
| UPS | UNINTERRUPTED POWER SUPPLY |
| USB | UNIVERSAL SERIAL BUS |

# Appendix II POST code check point of LCD

The POST code check point is the maximum check point set of BIOS pre-booting. The following table describes the type of the possible check points of BIOS POST.

**Scope of check points**

| Scope of status code | Description |
|---|---|
| 0x01 – 0x0B | Execute SEC |
| 0x0C – 0x0F | Sec error |
| 0x10 – 0x2F | PEI execution ends at the memory test |
| 0x30 – 0x4F | PEI error |
| 0x50 – 0x5F | DXE executes BDS |
| 0x60 – 0x8F | Execute BDS |
| 0x90 – 0xCF | DXE error |
| 0xD0 – 0xDF | S3 restart (PEI) |
| 0xE0 – 0xE8 | S3 restart error (PEI) |
| 0xE9 – 0xEF | Recovery (PEI) |
| 0xF0 – 0xF8 | Recovery error (PEI) |
| 0xF9 – 0xFF | |

Standard check point

**SEC phase**

| SEC phase | Description |
|---|---|
| 0x00 | Careful operation |
| Process cod | Description |
| 0x01 | Start, reset test (soft/hard) |
| 0x02 | Initialize AP before micro-code is loaded |
| 0x03 | Initialize north bridge before micro-code is loaded |
| 0x04 | Initialize south bridge before micro-code is loaded |
| 0x05 | Initialize OEM before micro-code is loaded |
| 0x06 | Load micro-code |
| 0x07 | Initialize AP after micro-code is loaded |
| 0x08 | Initialize north bridge after micro-code is loaded |
| 0x09 | Initialize south bridge after micro-code is loaded |
| 0x0A | Initialize OEM after micro-code is loaded |
| 0x0B | Initialize high-speed cache |
| SEC error code | Description |

| | |
|---|---|
| 0x0C – 0x0D | Reserve code of possible AMI SEC error |
| 0x0E | No micro code found |
| 0x0F | No micro code found |

**PEI phase**

| Status code | Description |
|---|---|
| Process code | Description |
| 0x10 | PCI core start |
| 0x11 | Pre-memory initialization started |
| 0x12 | Pre-memory CPU initialization (CPU module embodiment) |
| 0x13 | Pre-memory CPU initialization (CPU module embodiment) |
| 0x14 | Pre-memory CPU initialization (CPU module embodiment) |
| 0x15 | Pre-memory north bridge initialization started |
| 0x16 | Pre-memory north bridge initialization (north bridge module embodiment) |
| 0x17 | Pre-memory north bridge initialization (north bridge module embodiment) |
| 0x18 | Pre-memory north bridge initialization (north bridge module embodiment) |
| 0x19 | Pre-memory south and south bridge initialization started (south bridge module embodiment) |
| 0x1A | Pre-memory south and south bridge initialization started (south bridge module embodiment) |
| 0x1B | Pre-memory south and south bridge initialization started (south bridge module embodiment) |
| 0x1C | Pre-memory south and south bridge initialization started (south bridge module embodiment) |
| 0x1D - 0x2A | OEM pre-memory initialization code |
| 0x2B | Memory initialization, which reads serial existence detection (SPD) data |
| 0x2C | Memory initialization, memory existence detection |
| 0x2D | Memory initialization, memory process time sequence information |
| 0x2E | Memory initialization, memory configuration |
| 0x2F | Memory initialization (Other) |
| 0x30 | ASL reserved |

| | |
|---|---|
| 0x31 | Memory installation |
| 0x32 | Start initialization after CPU memory configuration |
| 0x33 | High-speed cache initialization |
| 0x34 | Application initialization |
| 0x35 | Processor binding selection started |
| 0x36 | System management mode initialization (SMM) |
| 0x37 | Start North bridge initialization after memory configuration |
| 0x38 | North bridge configuration after memory configuration (specific north bridge module) |
| 0x39 | North bridge configuration after memory configuration (specific north bridge module) |
| 0x3A | North bridge configuration after memory configuration (specific north bridge module) |
| 0x3B | Start south bridge initialization after memory configuration |
| 0x3C | South bridge configuration after memory configuration (specific south bridge module) |
| 0x3D | South bridge configuration after memory configuration (specific south bridge module) |
| 0x3E | South bridge configuration after memory configuration (specific south bridge module) |
| 0x3F - 0x4E | OEM initialization code after memory configuration |
| 0x4F | DXE PIL started |
| PCI error code | Description |
| 0x50 | Memory initialization error, invalid memory type or incompatible memory speed |
| 0x51 | Memory initialization error, SPD reading failure |
| 0x52 | Memory initialization error, invalid memory size and non-matched active memory module |
| 0x53 | Memory initialization error, no available memory detected |
| 0x54 | Memory initialization error not specified |
| 0x55 | Memory not installed |
| 0x56 | Invalid CPU type or speed |
| 0x57 | CPU self-test failure or possible CPU high-speed cache error |
| 0x58 | CPU micro-code or micro-code update failure not found |
| 0x59 | CPU micro-code not found or micro-code update failed |
| 0x5A | Internal CPU error |

| | |
|---|---|
| 0x5B | Reset PPI unavailable |
| 0x5C - 0x5F | Further AMI error code reserved |
| S3 rebooting process code | Description |
| 0xE0 | S3 rebooting started (S3 rebooting PPI is controlled by DXE IPL) |
| 0xE1 | S3 power on script execution |
| 0xE2 | Video posting |
| 0xE3 | OS S3 wakeup vector called |
| 0xE4 - 0xE7 | Further AMI process code reserved |
| S3 rebooting error code | Description |
| 0xE8 | S3 rebooting failure |
| 0xE9 | S3 rebooting PPI not found |
| 0xE A | S3 rebooting script error |
| 0xE B | S3 OS wakeup error |
| 0xE C - 0xEF | Future AMI error code reserved |
| Recovery process code | Description |
| 0xF0 | Recovery caused by firmware (automated recovery) |
| 0xF1 | Recovery caused by user (forced recovery) |
| 0xF2 | Recovery process started |
| 0xF3 | Firmware image found and recovered |
| 0xF4 | Firmware image loaded and recovered |
| 0xF5 - 0xF7 | Future AMI process code reserved |
| Code of recovery error | Description |
| 0xF8 | Invalid recovery PPI |
| 0xF9 | Recovery protection not found |
| 0xFA | Invalid recovery protection |
| 0Xfb - 0xFF | Future AMI error code reserved |

**PEI beeping code**

| Beeping time | Description |
|---|---|
| 1 | Memory not installed |
| 1 | Memory installed two time (process from PIE memory |

| | |
|---|---|
| | installation to PIE core call executed two times) |
| 2 | Recovery started |
| 3 | DEX IPL not found |
| 4 | DXE core firmware volume not found |
| 5 | Recovery failure |
| 6 | S3 rebooting failure |
| 7 | Invalid PPI reconfiguration |

**DXE phase**

| Status code | Description |
|---|---|
| 0x60 | DXE core started |
| 0x61 | NVRAM initialization |
| 0x62 | Service in case of south bridge operation initialization |
| 0x63 | CPU DXE initialization started |
| 0x64 | CPU DEX initialization (specific CPU module) |
| 0x65 | CPU DEX initialization (specific CPU module) |
| 0x66 | CPU DEX initialization (specific CPU module) |
| 0x67 | CPU DEX initialization (specific CPU module) |
| 0x68 | PCI main bridge initialization |
| 0x69 | North DXE initialization started |
| 0x6A | North bridge DXE SMM initialization started |
| 0x6B | North bridge DXE initialization (specific north bridge module) |
| 0x6C | North bridge DXE initialization (specific north bridge module) |
| 0x6D | North bridge DXE initialization (specific north bridge module) |
| 0x6E | North bridge DXE initialization (specific north bridge module) |
| 0x6F | North bridge DXE initialization (specific north bridge module) |
| 0x70 | South DXE initialization started |
| 0x71 | South DXE SMM initialization started |
| 0x72 | South bridge device initialization |
| 0x73 | South bridge initialization (specific south bridge module) |
| 0x74 | South bridge initialization (specific south bridge module) |
| 0x75 | South bridge initialization (specific south bridge module) |
| 0x76 | South bridge initialization (specific south bridge module) |
| 0x77 | South bridge initialization (specific south bridge module) |
| 0x78 | ACPI module initialization |
| 0x79 | CSM initialization |

| | |
|---|---|
| 0x7A - 0x7F | Further AMI DXE code reserved |
| 0x80 - 0x8F | OEM DXE initialization code |
| 0x90 | Start device selection phase started (BDS) |
| 0x91 | Driver connection started |
| 0x92 | PCI bus initialization started |
| 0x93 | PCI bus hot plug controller initialization |
| 0x94 | PCI bus enumeration |
| 0x95 | PCI bus request resources |
| 0x96 | PCI bus configuration resource |
| 0x97 | Console output device connection |
| 0x98 | Console input device connection |
| 0x99 | Over IO initialization |
| 0x9A | USB initialization started |
| 0x9B | USB resetting |
| 0x9C | USB detection |
| 0x9D | USB started |
| 0x9E - 0x9F | Further AMI code reserved |
| 0Xa0 | IDE initialization started |
| 0xA1 | IDE resetting |
| 0xA2 | IDE detection |
| 0xA3 | IDE started |
| 0xA4 | SCSI initialization started |
| 0xA5 | SCSI resetting |
| 0xA6 | SCSI resetting |
| 0xA7 | SCSI detection |
| 0xA8 | SCSI started |
| 0xA9 | Validation password setting |
| 0xAA | Installation started |
| 0xAB | ASL reserved |
| 0xAC | Input waiting setting |
| 0xAD | ASL reserved |
| 0xAE | Start ready event |
| 0xAF | Old start event |
| 0Xb0 | Exit from start service event |
| 0xB1 | Set virtual address mapping in case of operation start |
| 0xB2 | Set virtual address mapping in case of operation termination |

| | |
|---|---|
| 0xB3 | Old optional ROM initialization |
| 0xB4 | System resetting |
| 0xB5 | USB hotspare |
| 0xB6 | NVRAM clearing |
| 0xB7 | Configuration resetting (NVRAM setting reset) |
| 0xB8 - 0xBF | AMI code reserved |
| 0Xc0 - 0xCF | OEM BDS initialization code |
| DXE error code | Description |
| 0xD0 | CPU initialization error |
| 0xD1 | North bridge initialization error |
| 0xD2 | South bridge initialization error |
| 0xD3 | Some invalid architecture protocol |
| 0xD4 | PCI resource allocation error, exceeding resources |
| 0xD5 | No space provided to optional ROM |
| 0xD6 | Console output device not found |
| 0xD7 | Console input device found |
| 0xD8 | Invalid password |
| 0xD9 | Error loading booting option (image loading error returned) |
| 0xDA | Start option failure (image transfer start error) |
| 0xDB | Flash memory update failure |
| 0xDC | Invalid protocol resetting |

**DXE being code**

| Beeping time | Description |
|---|---|
| 1 | Invalid password |
| 2 | Some invalid constructed protocol |
| 3 | Control output device not found |
| 4 | Control input device found |
| 5 | Memory update failure |
| 6 | Invalid protocol reset |
| 7 | Platform PCI resources failing to meet requirements |
| 8 | |

**ACPI/ASL check point**

| Status code | Description |
|---|---|

| | |
|---|---|
| 0x01 | System enters S1 sleeping status |
| 0x02 | System enters S2 sleeping status |
| 0x03 | System enters S3 sleeping status |
| 0x04 | System enters S4 sleeping status |
| 0x05 | System enters S5 sleeping status |
| 0x10 | System wakes up from S1 sleeping status |
| 0x20 | System wakes up from S2 sleeping status |
| 0x30 | System wakes up from S3 sleeping status |
| 0x40 | System wakes up from S4 sleeping status |
| 0xAC | System has transformed to ACPI mode. The interruption controller includes APIC mode |
| 0xAA | System has transformed to ACPI mode. The interruption controller includes APIC mode |

# Appendix III RAID configuration description of onboard hard disk controller

**Enter RAID card management interface**

【Notice】Raid configuration program may be upgraded and updated. The documents and figure in the appendix is only for reference. Refer to the actual products of users.

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To start the system and input “Ctrl+ R” when the POST interface shows the prompt in the following figure, you enter the RAID card management interface, shown as the figure.


Figure 0-1 POST prompt interface

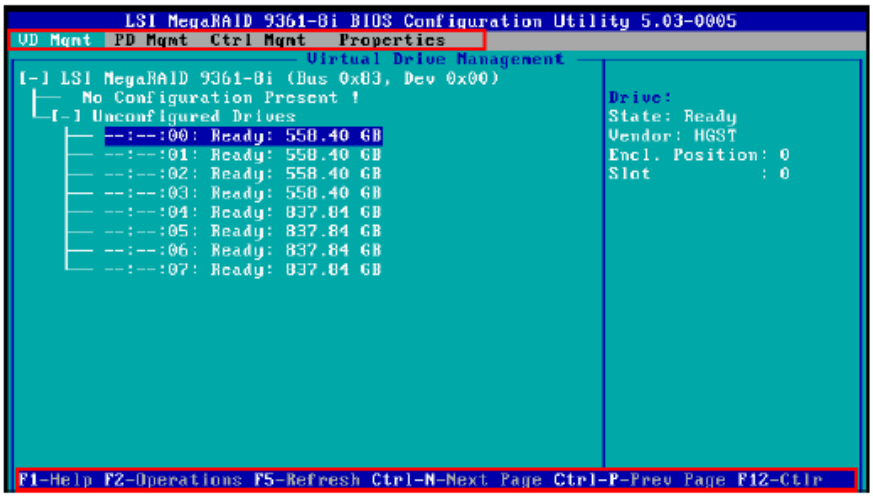


Figure 0-2 RAID management interface

"VD Mgmt" indicates "Virtual Drive Management" and aims to create and manage RAID array.

"PD Mgmt" indicates "Physical Drive Management" and aims to perform physical disk operations such as hard disk information view.

"Ctrl Mgmt" indicates controller management and can set the controller.

"Properties" indicates RAID card information and aims to view FW/BIOS/Model of RAID card.

**Create RAID array:**

To move the cursor to the controller column by using "↑↓"on "VD Mgmt" and input "F2" according to the bottom prompt, the following interface is shown.

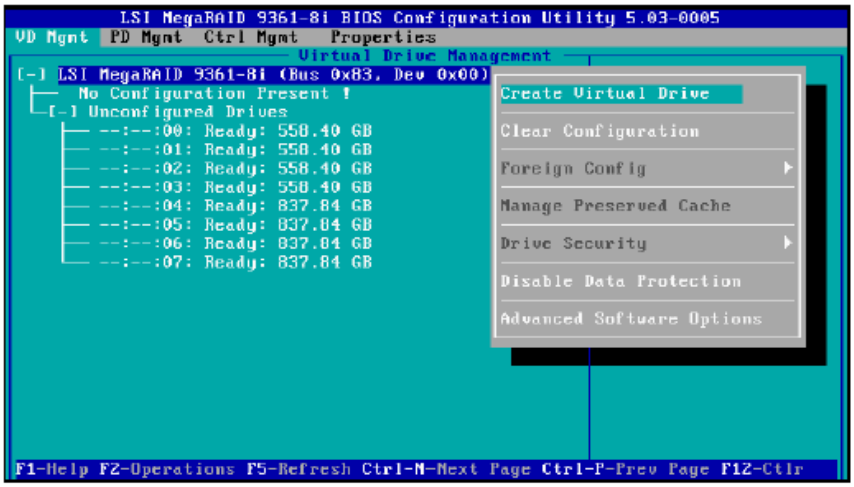


Figure 0-3 Controller menu interface

To select "Create Virtual Drive", you can enter the RAID creation interface, shown as the following figure.

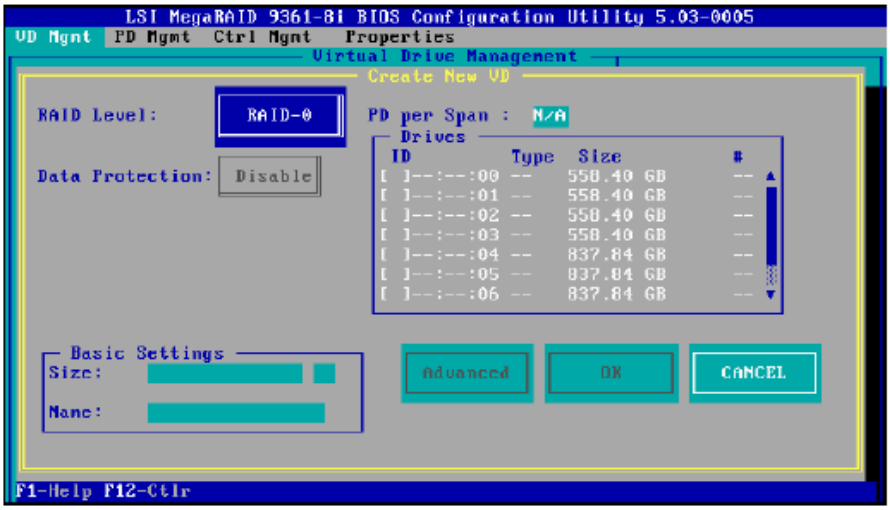


Figure 0-4 RAID creation interface

Select level of RAID to create at the “RAID Level” column. If the RAID to create is RAID10/RAID50/RAID60, the “PD per Span” value should be set, namely number of hard disks included in each bottom RAID. An even number bigger than or equal to 2 can only be selected for RAID10.

A number bigger than or equal to 3 should be selected for RAID50/60.

Select the memory hard disk of RAID array. With RAID1 as the example in the figure, select the hard disk to add RAID by using “Space” key at Drives column.

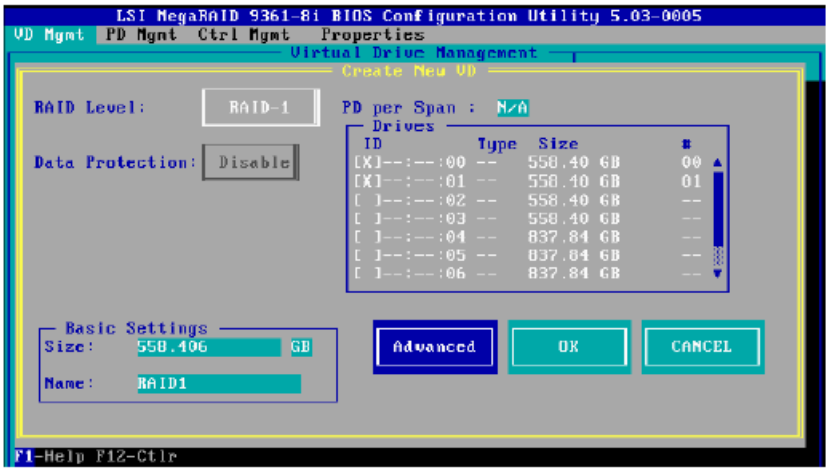


Figure 0-5 Hard disk selection

Set the capacity and name of RAID array in “Basic Settings”.

to set the read/write policy, you should select “Advanced” for setting, shown as the following figure.

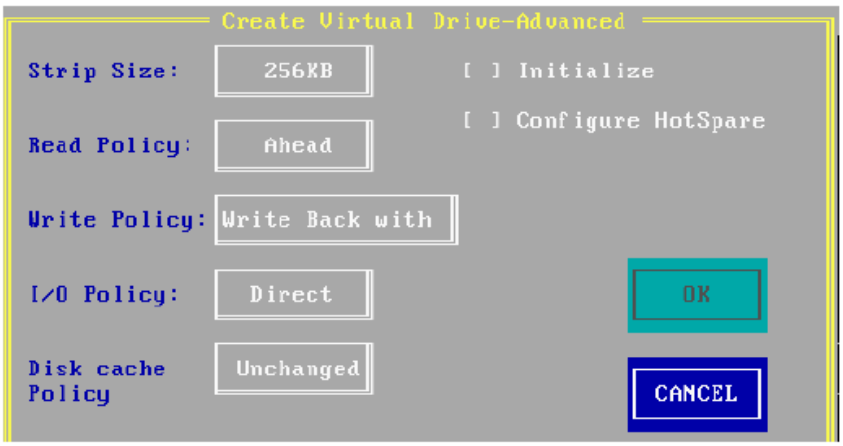


Figure 0-6 Advanced setup interface

Strip Size: generally it is a default value.

Read Policy: read policy of RAID array. It keeps the default value.

Write Policy: write policy of RAID array. “Write Through” indicates to directly write into the hard disk without the need of using the RAID chip cache. The performance of this policy is not high, but it will not lead to data loss in case of crash failure. “Write Back” will use the RAID chip cache, so it improves the performance. When no spare battery is available, the data in the cache will be lost due to accidental crash. “Write Back With BBU” will use “Write Back” policy when the spare battery is installed. When spare battery is not installed, “Write Through” is used.

I/O Policy: read/write policy, it keeps the default value.

Disk Cache policy: hard disk cache policy, it keeps the default value.

Initialize: to check the checkbox before it, the RAID array will be initialized. It will delete all data on the array.

Configuration hotspare: the redundant spare is configured. Other blank hard disks will be automatically used to replace the invalid hard disk when a hard disk in the array is invalid.

After setting, to select “OK”, you can save settings.

To select “OK” on the figure 0-5, you can complete RAID array configuration.

**Delete RAID array:**

RAID array will be deleted via the following three modes:

Mode 1: delete a specific Virtual Drive.

Move the RAID column under the Virtual Driver in Drive Group directory, input “F2” and select “Delete VD”.

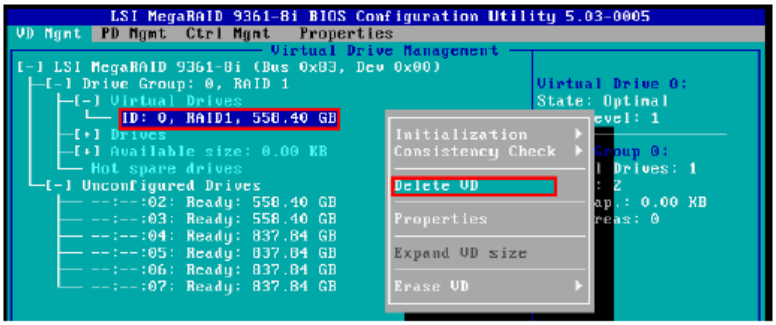


Figure 0-7 Delete Virtual Drive

Mode II: delete all RAID arrays in Drive Group.

Move the cursor to the Drive Group column to delete, input “F2” and select “Delete Drive Group”.

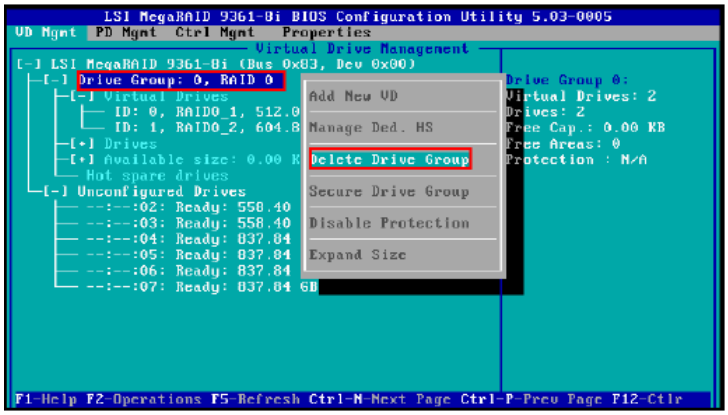


Figure 0-8 Delete Drive Group

Mode III: Delete all RAID configuration information.

Move the cursor to RAID card controller column, input “F2” and select “Clear Configuration”.

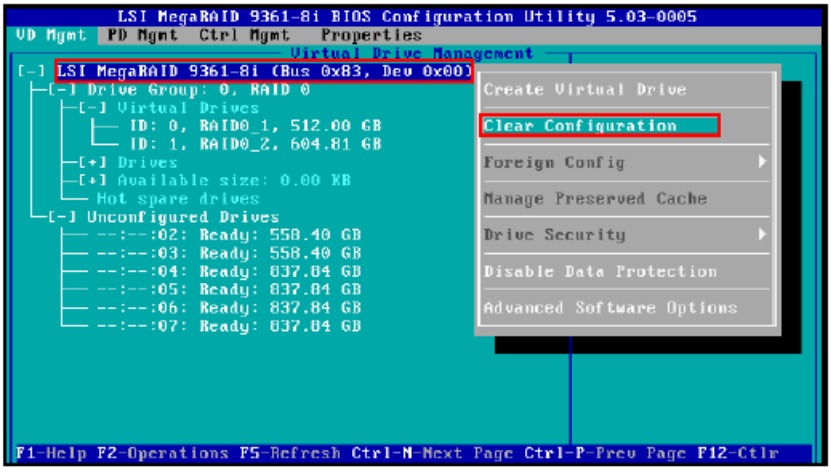


Figure 0-9 Clear RAID configuration information