Sugon

Sugon I610-G20

User's Manual

DAWNING INFORMATION INDUSTRY CO., LTD.

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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.

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.

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.

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.

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.

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.

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.

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.

Statement 4:

[Note]

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.

Statement 5:

[Note]

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.

Statement 6:

[Note]

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.

Statement 7:

[Note]

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.

Table of Contents

Statement ii

Trademark and Copyright iii

Operating Instruction for Power Supply iv

Dangerous Warning Statement vii

Table of Contents x

List of Figures xii

List of Tables xvii

1 Product Profile 1

1.1 Product Overview 1

1.2 Product Features 1

1.3 Product Specification 2

1.3.1 Technical Specification 2

1.3.2 Application Environment of Products 3

2 Product Structure and Installation 4

2.1 Product Composition 4

2.1.1 Front Panel Assembly 4

2.1.2 Rear Panel Assembly 7

2.2 Disassembly of Product Chassis and Main Components 8

2.2.1 Preparation Before Boot 8

2.2.2 Cover Opening Steps 9

2.2.3 CPU Installation/Removal Steps 9

2.2.4 Installation/Removal Steps of CPU Heat Sink 11

2.2.5 Installation/Removal Steps of Memory 12

2.2.6 Installation/Removal Steps of Hard Disk 14

2.2.7 Installation/Removal Steps of Power 15

2.2.8 Installation/Removal Steps of Expansion Card 16

2.2.9 Installation Instruction of Rail Component 17

3 Product Configuration 24

3.1 Clear CMOS Jumper Settings 24

3.2 BIOS Setup 24
3.2.1 BIOS System Setup Method 25
3.2.2 Main Menu 25
3.2.3 Advanced Menu 27
3.2.4 Chipset Menu 39
3.2.5 Server Mgmt Menu 61
3.2.6 Security Menu 72
3.2.7 Boot Menu 72
3.2.8 Save & Exit Menu 74
3.3 BMC Configuration 75
3.3.1 Dashboard 76
3.3.2 FRU&DMI 79
3.3.3 Server Health 81
3.3.4 Component Information 86
3.3.5 Configuration 91
3.3.6 Remote Control 112
3.3.7 Auto Video Recording 121
3.3.8 Maintenance 122
3.3.9 Firmware Update 124
4 Installation Guidelines of Operating System 127
4.1 Windows 2008 Enterprise Server R2 SP1 64bit 127
4.2 Red Hat Enterprise Linux AS 6 Update 2 X86_64 127
5 FAQ 130
Appendix 1: Abbreviations and Acronyms 131
Appendix 2: LCD POST Code Checkpoint 133
Appendix 3: RAID Configuration of Onboard Hard Disk Controller 140

List of Figures

Figure 2-1 Schematic Diagram of Front Panel 5
Figure 2-2 Schematic Diagram of Reset Button Operation 6
Figure 2-3 Schematic Diagram of Hard Disk Indicator 6
Figure 2-4 Rear View of Products 7
Figure 2-5 Open Chassis Cover 9
Figure 2-6 Schematic Diagram of CPU Socket 10
Figure 2-7 Schematic Diagram of Releasing CPU Lock Lever 10
Figure 2-8 Schematic Diagram of Opening CPU Protective Cover 10
Figure 2-9 CPU Installation 11
Figure 2-10 CPU Lock 11
Figure 2-11 Installation of CPU Heat Sink 12
Figure 2-12 Schematic Diagram of Memory Installation 14
Figure 2-13 Fasten Buckle of Hard Disk Box 14
Figure 2-14 Pull Out Hard Disk Box 15
Figure 2-15 Fix Hard Disk 15
Figure 2-16 Press Lock Button 16
Figure 2-17 Pull Out Power Module 16
Figure 2-18 Installation of Expansion Card 17
Figure 2-19 Rail Component 18
Figure 2-20 Fixing Position of Sliding Rail Front Support 18
Figure 2-21 Draw Out Inner Rail 19
Figure 2-22 Installation Method of Inner Rail 19
Figure 2-23 Install Outer Rail to Cabinet Column 20
Figure 2-24 Column Hole Location Map 21
Figure 2-25 Install Machine to Outer rail 21
Figure 2-26 Lock Outer rail 22
Figure 2-27 Install and Lock Chassis in Place 22
Figure 2-28 Unlock Chassis 23
Figure 3-1 Main Menu Interface 26
Figure 3-2 Advanced Menu Interface 27
Figure 3-3 Benchmark Recommendation Setting Interface 28
Figure 3-4 ACPI Settings Interface 29
Figure 3-5 Wakeup Event Setup Interface 30
Figure 3-6 Serial Port Console Redirection Interface 31
Figure 3-7 (COM0) Console Redirection Settings Interface 32

Figure 3-8 (EMS) Console Redirection Settings Interface 33
Figure 3-9 PCI Subsystem Settings Interface 34
Figure 3-10 Network Stack Configuration Interface 35
Figure 3-11 CSM Configuration Interface 36
Figure 3-12 H/W Monitor Interface 39
Figure 3-13 Chipset Interface 39
Figure 3-14 Processor Configuration Interface 41
Figure 3-15 Advanced Power Management Configuration Interface 43
Figure 3-16 CPU P State Control Interface 44
Figure 3-17 CPU C State Control Interface 45
Figure 3-18 Common RefCode Configuration Interface 46
Figure 3-19 QPI Configuration Interface 47
Figure 3-20 QPI General Configuration Interface 48
Figure 3-21 QPI Status Interface 49
Figure 3-22 Memory Configuration Interface 50
Figure 3-23 Memory Map Interface 52
Figure 3-24 Memory RAS Configuration Interface 53
Figure 3-25 IIO Configuration Interface 54
Figure 3-26 IOAT Configuration Interface 55
Figure 3-27 Intel VT for Directed I/O (VT-d) Interface 56
Figure 3-28 PCH Configuration Interface 57
Figure 3-29 PCH Devices Interface 58
Figure 3-30 PCH sSATA Configuration Interface 59
Figure 3-31 PCH SATA Configuration Interface 60
Figure 3-32 USB Configuration Interface 61
Figure 3-33 Server Mgmt Interface 62
Figure 3-34 System Event Log Interface 63
Figure 3-35 BMC Self Test Log Interface 64
Figure 3-36 BMC Network Configuration Interface 66
Figure 3-37 View System Event Log Interface 67
Figure 3-38 BMC User Settings Interface 68
Figure 3-39 Add User Interface 69
Figure 3-40 Delete Users Interface 70
Figure 3-41 Change User Settings Interface 71
Figure 3-42 Security Interface 72
Figure 3-43 Boot Interface 73
Figure 3-44 Save & Exit Interface 74

Figure 3-45 Login Interface 75
Figure 3-46 User Entry Interface 75
Figure 3-47 Management Platform Option 75
Figure 3-48 Device Information Module 76
Figure 3-49 Network Information Module 77
Figure 3-50 Remote Console Module 77
Figure 3-51 Sensor Information Module (Part) 78
Figure 3-52 Event Log Module 79
Figure 3-53 FRU&DMI Submenu 79
Figure 3-54 FRU Information Interface 79
Figure 3-55 DMI Information Interface 80
Figure 3-56 Server Health Submenu 81
Figure 3-57 Sensor Reading Main Interface 82
Figure 3-58 Sensor List Area (Part) 82
Figure 3-59 Sensor Details Area 83
Figure 3-60 Threshold Settings Interface 83
Figure 3-61 Sensor Event Statistics 84
Figure 3-62 Event Log Interface 84
Figure 3-63 System Log Interface 85
Figure 3-64 Audit Log Interface 85
Figure 3-65 BSOD Screen Interface 86
Figure 3-66 CPU Information Display 86
Figure 3-67 Memory Information Interface 87
Figure 3-68 Onboard Hard Disk Information Interface 88
Figure 3-69 Hard Disk Information Interface 88
Figure 3-70 PCIe Device Information Interface 89
Figure 3-71 PSU Information Interface 89
Figure 3-72 FAN Information Interface 90
Figure 3-73 Onboard NIC Information Interface 90
Figure 3-74 Expander NIC Information Interface 91
Figure 3-75 Configuration Submenu Interface 92
Figure 3-76 Active Directory Interface 92
Figure 3-77 Advanced Active Directory Settings Interface 93
Figure 3-78 Add Role Group Interface 93
Figure 3-79 Advanced Audit Log Interface 94
Figure 3-80 DNS Interface 95
Figure 3-81 LDAP/E-Directory Interface 96

Figure 3-82 Advanced LDAP Setting Interface 96
Figure 3-83 Mouse Mode Interface 97
Figure 3-84 Network Management Setting Interface 98
Figure 3-85 Network Bond Interface 99
Figure 3-86 NTP Settings Interface 99
Figure 3-87 PEF Management Interface 100
Figure 3-88 Add Event Filter Item Interface -1 101
Figure 3-89 Add Event Filter Item Interface -2 101
Figure 3-90 Add Event Filter Item Interface -3 101
Figure 3-91 Add Event Filter Item Interface-4 102
Figure 3-92 Interface of Adding Alert Policy Item 103
Figure 3-93 Interface of Adding LAN Destination Item 103
Figure 3-94 RADIUS Interface 104
Figure 3-95 Remote Session Interface 105
Figure 3-96 SMTP Interface 106
Figure 3-97 SSL Certificate Configuration Interface 106
Figure 3-98 Generate SSL Interface 107
Figure 3-99 View SSL Interface 108
Figure 3-100 System and Audit Log Settings Interface 108
Figure 3-101 System Firewall Settings Interface 109
Figure 3-102 Interface of Adding IP Address Policy 109
Figure 3-103 Interface of Adding Port Policy 109
Figure 3-104 Advanced Settings Interface 110
Figure 3-105 Users Interface 110
Figure 3-106 Interface of Adding Users 111
Figure 3-107 Virtual Media Interface 112
Figure 3-108 User Lock Settings Interface 112
Figure 3-109 Remote Control Submenu 112
Figure 3-110 Console Redirection Interface 113
Figure 3-111 Redirection Interface 114
Figure 3-112 Virtual Media Mounting Interface 114
Figure 3-113 Video Submenu 115
Figure 3-114 Keyboard Submenu 115
Figure 3-115 Keyboard Layout Submenu 116
Figure 3-116 Video Recording Submenu 116
Figure 3-117 Video Recording Setting Interface 117
Figure 3-118 Power Submenu 117

Figure 3-119 Power Control and Status Interface 118
Figure 3-120 Java SOL Interface 118
Figure 3-121 Serial Port Redirection Settings Interface 119
Figure 3-122 Session Submenu 119
Figure 3-123 ID LED Control Interface 120
Figure 3-124 Power Button Settings Interface 120
Figure 3-125 Fan Policy Settings Interface 121
Figure 3-126 BIOS First Boot Device Selector Interface 121
Figure 3-127 Auto Video Recording Submenu 121
Figure 3-128 Triggers Configuration Interface 122
Figure 3-129 Recorded Video Interface 122
Figure 3-130 Maintenance Submenu 123
Figure 3-131 Preserve Existing Configuration Interface 123
Figure 3-132 Restore Factory Settings Interface 123
Figure 3-133 Firmware Update Submenu 124
Figure 3-134 BMC Firmware Update Interface 124
Figure 3-135 BMC Firmware Update Refresh Module Selector Interface 125
Figure 3-136 BIOS Firmware Update Interface 125
Figure 3-137 BIOS Firmware Update Alert Interface 125
Figure 0-1 POST Prompt Interface 140
Figure 0-2 RAID Management Interface 140
Figure 0-3 Controller Interface 141
Figure 0-4 Create RAID Interface 141
Figure 0-5 Select Hard Disk 142
Figure 0-6 Advanced Settings Interface 143
Figure 0-7 Delete Virtual Drive 144
Figure 0-8 Delete Drive Group 144
Figure 0-9 Clear RAID Configuration Information 144

List of Tables

Table 1-1 I610-G20 Parameter Table (General for Four Models) 3
Table 1-2 Model Parameter Table of Different hard disk bays 3
Table 1-3 Application Environment of Products 4
Table 2-1 Function Description of Button 5
Table 2-2 Function Description of Front Panel LED Indicator 5
Table 2-3 Description of Hard Disk Backplane Indicator 6
Table 2-4 Interface Description of Rear Panel 7
Table 2-5 Memory Installation Rules① 12
Table 3-1 Description of Clearing CMOS Jumper 24
Table 3-2 Description of Control Key 25
Table 3-3 Parameter Description of Main Menu Interface 26
Table 3-4 Parameter Description of Advanced Interface 27
Table 3-5 Parameter Description of Benchmark Recommendation Setting Interface 28
Table 3-6 Parameter Description of ACPI Settings Interface 29
Table 3-7 Parameter Description of Wakeup Event Setup Interface 30
Table 3-8 Parameter Description of Serial Port Console Redirection Interface 31
Table 3-9 Parameter Description of (COM0) Console Redirection Settings Interface 32
Table 3-10 Parameter Description of (EMS) Console Redirection Settings Interface 33
Table 3-11 Description of PCI Subsystem Settings Interface 34
Table 3-12 Description of Network Stack Configuration Interface 35
Table 3-13 Description of CSM Configuration Interface 36
Table 3-14 Parameter Description of H/W Monitor Interface 39
Table 3-15 Parameter Description of Chipset Interface 39
Table 3-16 Parameter Description of Processor Configuration Interface 41
Table 3-17 Parameter Description of Advanced Power Management Configuration Interface 43
Table 3-18 Parameter Description of CPU P State Control Interface 44
Table 3-19 Parameter Description of CPU C State Control Interface 45
Table 3-20 Parameter Description of Common RefCode Configuration Interface 46
Table 3-21 Parameter Description of QPI Configuration Interface 47
Table 3-22 Parameter Description of QPI General Configuration Interface 48
Table 3-23 Parameter Description of Memory Configuration Interface 50
Table 3-24 Parameter Description of Memory Map Interface 52
Table 3-25 Parameter Description of Memory RAS Configuration Interface 53
Table 3-26 Parameter Description of IIO Configuration Interface 54
Table 3-27 Parameter Description of IOAT Configuration Interface 55

Table 3-28 Parameter Description of Intel VT for Directed I/O (VT-d) Interface 56
Table 3-29 Parameter Description of PCH Configuration Interface 57
Table 3-30 Parameter Description of PCH Devices Interface 58
Table 3-31 Parameter Description of PCH sSATA Configuration Interface 59
Table 3-32 Parameter Description of PCH SATA Configuration Interface 60
Table 3-33 Parameter Description of USB Configuration Interface 61
Table 3-34 Parameter Description of Server Mgmt Interface 62
Table 3-35 Parameter Description of System Event Log Interface 63
Table 3-36 Parameter Description of BMC Self Test Log Interface 64
Table 3-37 Parameter Description of BMC Network Configuration Interface 66
Table 3-38 Parameter Description of BMC User Settings Interface 68
Table 3-39 Parameter Description of BMC User Settings Interface 69
Table 3-40 Parameter Description of Delete Users Interface 70
Table 3-41 Parameter Description of Change User Settings Interface 71
Table 3-42 Parameter Description of Security Interface 72
Table 3-43 Parameter Description of Boot Interface 73
Table 3-44 Parameter Description of Save & Exit Interface 74
Table 3-45 Description of Management Platform 75
Table 3-46 Description of Basic Information 79
Table 3-47 Description of Chassis Information 79
Table 3-48 Description of Mainboard Information 80
Table 3-49 Description of Product Information 80
Table 3-50 Description of BIOS Information 80
Table 3-51 Description of System Information 81
Table 3-52 Description of Mainboard Information 81
Table 3-53 Description of Temperature Sensor Threshold Information 83
Table 3-54 Description of CPU Information 86
Table 3-55 Description of Memory Information 87
Table 3-56 Description of Onboard Hard Disk Information 88
Table 3-57 Description of Hard Disk Information 88
Table 3-58 Description of PCIe Device Information 89
Table 3-59 Description of PSU Information 89
Table 3-60 Description of FAN Information 90
Table 3-61 Description of Onboard NIC Information 91
Table 3-62 Description of Expander NIC Information 91
Table 3-63 Description of BIOS Information 93
Table 3-64 Description of Adding Role Group Interface 93

Table 3-65 Description of Advanced Audit Log Setting Interface 94
Table 3-66 Description of DNS Settings Interface..... 95
Table 3-67 Description of Advanced LDAP Setting Interface 96
Table 3-68 Network Setting Interface Information..... 98
Table 3-69 Description of Event Filter Information 100
Table 3-70 Description of Alert Policy Information 100
Table 3-71 Description of LAN Destination Information 100
Table 3-72 Description of Adding Event Filter Item Interface 102
Table 3-73 Description of Adding Alert Policy Item 103
Table 3-74 Description of Adding LAN Destination Item 103
Table 3-75 Description of RADIUS Interface 104
Table 3-76 Remote Session Interface Information..... 105
Table 3-77 Description of SMTP Interface Information 106
Table 3-78 Description of Generating SSL Interface Information..... 107
Table 3-79 Description of System and Audit Log Settings Interface Information 108
Table 3-80 Description of Adding Users Information..... 111
Table 3-81 Description of Power Selection 118
Table 3-82 Description of Settings Interface 119
Table 3-83 Description of Triggers Configuration..... 122

1 Product Profile

You will be able to understand the product features, technical characteristics and performance indexes of the I610-G20 server in this chapter, so as to get a more profound experience over the excellent performance of the I610-G20 server.

1.1 Product Overview

- The I610-G20 server is a high performance 2-way server developed by Sugon on the basis of the latest Intel Grantley-EP platform. This server supports the latest generation of the Intel Haswell architecture CPU and takes the 22nm manufacturing process. This server supports up to 4-channel DDR4 memory, and each channel can support up to 3 memory DIMM slots. This server supports up to 2,133MHz memory frequency, the higher QPI link rate, more CPU cores and up to 18 physical cores, and integrates with up to 40 Lanes of PCIE 3.0.
- The I610-G20 server has different models to support the 4 and 8 hard disk bays, and supports up to 8*2.5"SATA/SAShard disks. It can be taken as the administrative server to meet the requirements of general users. More PCIe slots, new horizontal card design and higher rate PCIe bus allow users to expand the system readily.
- I610-G20 server is very suitable for the industries with demanding requirements for the energy efficiency ratio and reliability of the server, such as the Internet, photo-electricity, public security, telecommunication and energy industry.

1.2 Product Features

Diversified Chassis Bay

- The chassis includes two models, e.g. 4 bays and 8 bays.
- Optional 2*2.5" built-in hard disk bays (non-hot swap); compatible with different types of hard disks, such as SATA/SAS/SSD;
- The power specification is upgraded to CRPS specification overall, and the industry unified specifications make the product quality gears to the international standard. The power supply complies with the requirements of 80Plus Certified Platinum Power Supplies, and its conversion efficiency is up to 94%, thus more energy-efficient and environment-friendly. The single power module is equipped with the standard configuration to meet the single power requirements of users, and it is optionally equipped with one redundant power module to upgrade to 1+1 redundant power.

High performance

- Take latest generation of Intel E5-2600 v3 series processors to provide higher performance for various applications of users. Compared with the previous generation of products, the Intel

Xeon E5-2600 v3series processors carry out the major improvement, including integrating with the PCIe controller for the processor internally, enhancing the PCIe bus to the 3.0 standard, so as to improve the expandability performance greatly. It takes more and faster QPI buses to promote the collaboration efficiency between CPUs greatly.

- It supports the 1866/2133 MHz DDR4 memory, and each CPU is integrated with 4 channel memory controllers. Compared with the previous generation of products, its memory bandwidth performance will be improved by 40% to the maximum, and its memory power consumption will be reduced by 25%.

High reliability

- It can perform the advanced memory fault tolerance function.
- Optional RAID configuration, support the online recovery of the RAID array, to ensure the data security when the hard disk fails.
- Support the multiple network cards redundancy to allocate the network flow evenly when the system operates normally. Switch the workload it undertakes to other network cards automatically when there is some problem with one network card.
- Support 1+1 redundant power to prevent instant power down, so as to provide users with more stable and reliable system power.
- Support up to 2*PCIe 3.0expansion slots, take the horizontal card design and support GPU full-height card, so as to provide high expansion capability.

High Manageability

- Optional intelligent hardware monitoring system Provide the operation status information, such as the system internal temperature, fan rotating speed and DC power voltage, etc. Record the downtime and log information of the host due to the fault automatically, so as to help analyze the cause of fault.
- Support the dynamic intelligent speed regulating of the fan, and regulate the fan speed with the system temperature dynamically, so as to minimize the system noise and power consumption effectively.
- It is equipped with the front panel monitoring screen for the convenience of management.

Easy maintenance

Integrate with the iKVM function for the remote operation and maintenance of the server, and perform the fault indication features, so as to minimize the downtime risk of users effectively.

1.3 Product Specification

1.3.1 Technical Specification

Table 1-1 I610-G20 Parameter Table (General for Four Models)

Parameter Name	Specification Description
Processor	Support the Intel Xeon E5-2600 v3 multi-core processor, high-speed QPI interconnection bus (9.6/8.0/6.4 GT/s, which may vary depending on the CPU models), and large capacity L3 cache (15/25/30/35/40/45 MB, which may vary depending on the CPU models).
Memory	24 memory slots Support DDR4 1866/2133 ECC memory (with operating frequency subject to different CPU and memory configurations) Expandable up to 1.5TB memory.
Storage system	Support 2 built-in 2.5" non hot-swap hard disk Support up to 4*3.5"/2.5" or 8*2.5" front hot-swap hard disks.
Display system	Integrate with the graphic controller of BMC chip.
CD-ROM	Optional SATA ultra-thin DVD-RW or USB DVD-RW.
Network interface card	Integrate with dual 1G network card and one 1G management interface (independent).
Expansion slot	Support up to 2 PCIe 3.0 slots
External device interface	2*RJ-45 network interfaces, located at the rear of chassis 1 RJ-45 management interface, located at the rear of chassis 4 USB 2.0 interfaces, 2 located at the rear and 2 at the front of the chassis 1 VGA interface, located at the rear of chassis 1 serial port, located at the rear of chassis
Chassis dimension	43.5mm(Height)x432mm(Width)x770.4mm(Depth)
Power voltage	220V 50Hz
Input current	3.5A
Heat dissipation system	8*intelligent speed regulating system fans.
Compatible operating system	Windows Server 2008 Enterprise Edition R2 SP164bit Red hat Enterprise Linux 6.2 for Intel EM64T SuSE Linux Enterprise Server 11 SP2 for Intel EM64T

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

Number of hard disks	Hard Disk Type	Monitoring screen	Power	Built-in CD-ROM
4 hard disk bays	3.5" (compatible with 2.5")	None	CRPS 550W power supply (support 1+1 redundancy)	Supported
8 hard disk bays	2.5"	None	CRPS 550W power supply (support 1+1 redundancy)	Not supported

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 Application Environment of Products

Parameters	Using Index
Application space requirement	1U
Operating temperature requirement	10℃ - 35℃ (50℉ - 95℉)
Operating relative humidity requirement	35％ - 80％ RH
Transportation and storage temperature requirement	-40℃ - 55℃ (-40℉ - 131℉)
Transportation and storage relative humidity requirement	20％ - 93％ RH (40℃)
Altitude	≤5,000m
Package and transportation dropping height:	≤600mm

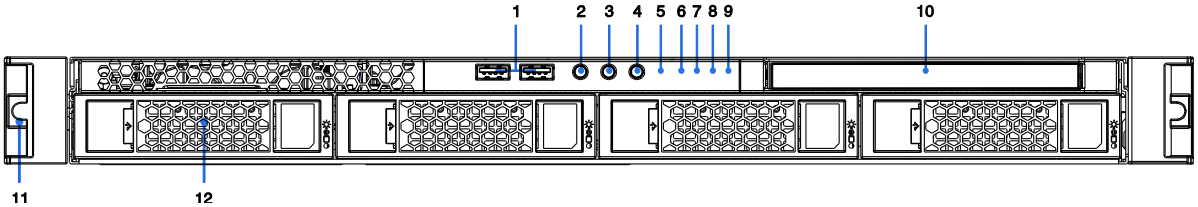
2 Product Structure and Installation

You will be able to understand the basic structure principle, correct connection mode and considerations for the safety operation of the I610-G20 server in this chapter. Read this chapter carefully, and it will be helpful for the safe and stable operation of the I610-G20 server.

2.1 Product Composition

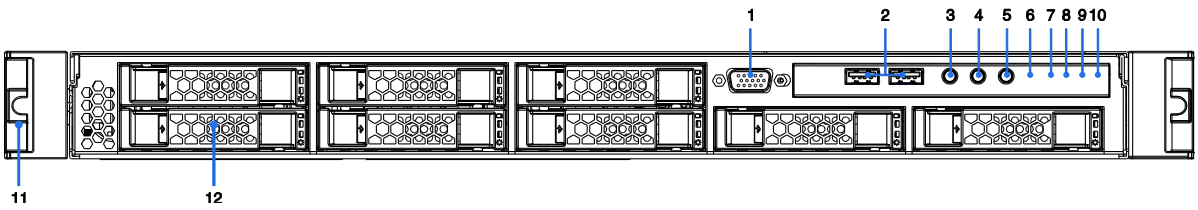
2.1.1 Front Panel Assembly

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



Schematic Diagram of Front Panel for 4-bay Equipment

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



Schematic Diagram of Front Panel for 8-bay Equipment

Figure 2-1 Schematic Diagram of Front Panel

Table 2-1 Function Description of Button

Button	Symbol	Function Description
Power button		Short press the power button: Boot or send the shutdown command to the operating system. Long press power button: Forced shutdown
ID button	ID	Turn on or off the blue ID light for the identification of servers.
Reset button	Rst	Press the Reset button to restart the server.

Table 2-2 Function Description of Front Panel LED Indicator

LED Indicator	Symbol	Function Description
Hard Disk Indicator		Lit: The hard disk operates normally. Extinguished: The hard disk fails or there is no hard disk.
System fault indicator		Lit: The server system fails or is abnormal. Extinguished: The server operates normally.
ID indicator		Mounted on the ID button. The blue indicator is lit, and users can identify this server tag.
NIC1/NIC2 Indicator		Lit: The onboard LAN is operating. Extinguished: The onboard LAN is not activated.
Power indicator		Mounted on the power button. Lit: The server is running. Extinguished: The server is not started.

Server Reset Button Operation

The location of the Reset button for the server is shown in Figure 2-2. If users want to carry out the reset operation for the server, they can press the Reset button by the pen point or sharp object in the shown method to restart the server.

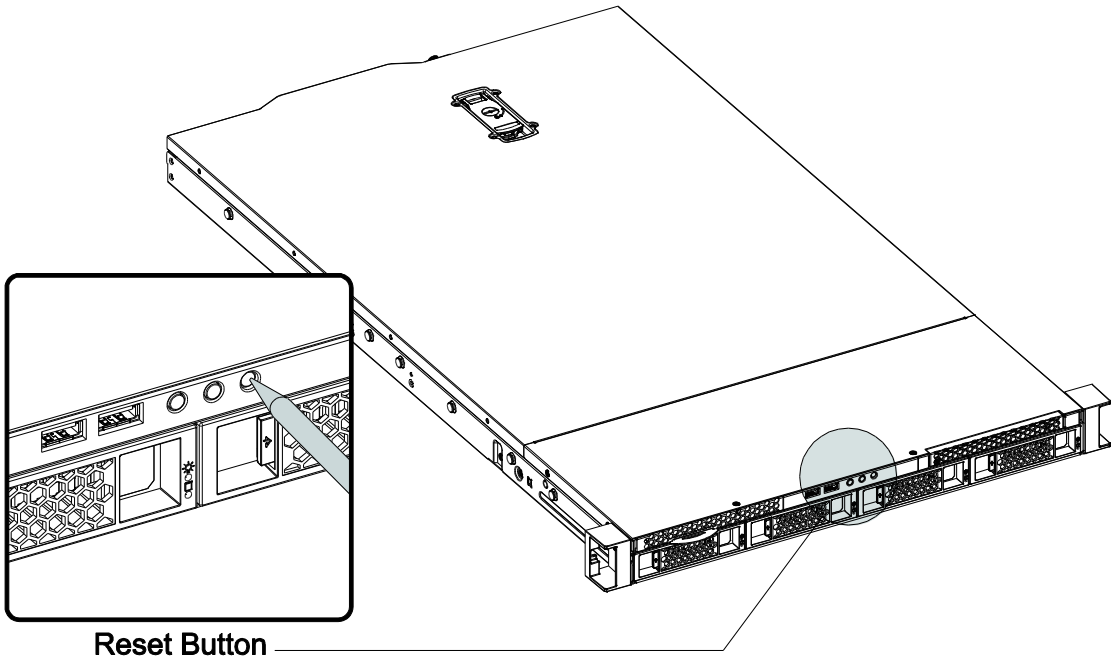


Figure 2-2 Schematic Diagram of Reset Button Operation

Description of Hard Disk Indicator

Each hard disk is equipped with two LED indicators, which is the Active indicator and the Status indicator respectively, as shown in Figure 2-3:

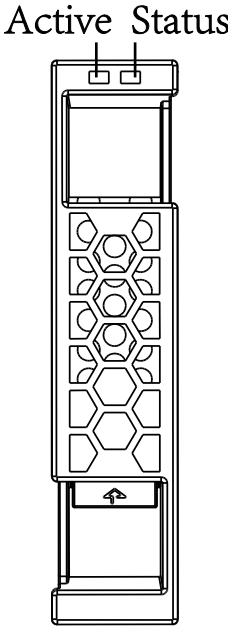


Figure 2-3 Schematic Diagram of Hard Disk Indicator

The Active indicator is the single green LED indicator, and the Status indicator is the dual green/amber LED indicator. You can obtain the operating status of the hard disk by observing the status change of two indicators as shown in Table 2-3.

Table 2-3 Description of Hard Disk Backplane Indicator

Active indicator	Status indicator	Hard disk status
Extinguished	Extinguished	The hard disk is not powered on.

Lit	Extinguished	The read/write operation is not carried out for the hard disk, and the hard disk is in the idle status.
The operation indicator flashes.	Extinguished	The hard drive is running and is in the read/write status.
Lit	The green indicator is lit.	It is carrying out the Locate operation under the Hard Disk Controller Management interface.
Flash	The amber indicator flashes slowly (1Hz).	The hard disk is reconstructing RAID.
Lit	The amber indicator is lit.	Some hard disk in the constructed RAID group is removed.

2.1.2 Rear Panel Assembly

The rear panel view of the equipment will vary depending on different IOM modules, Riser cards and rear hard disk configuration, as shown in Figure 2-4.

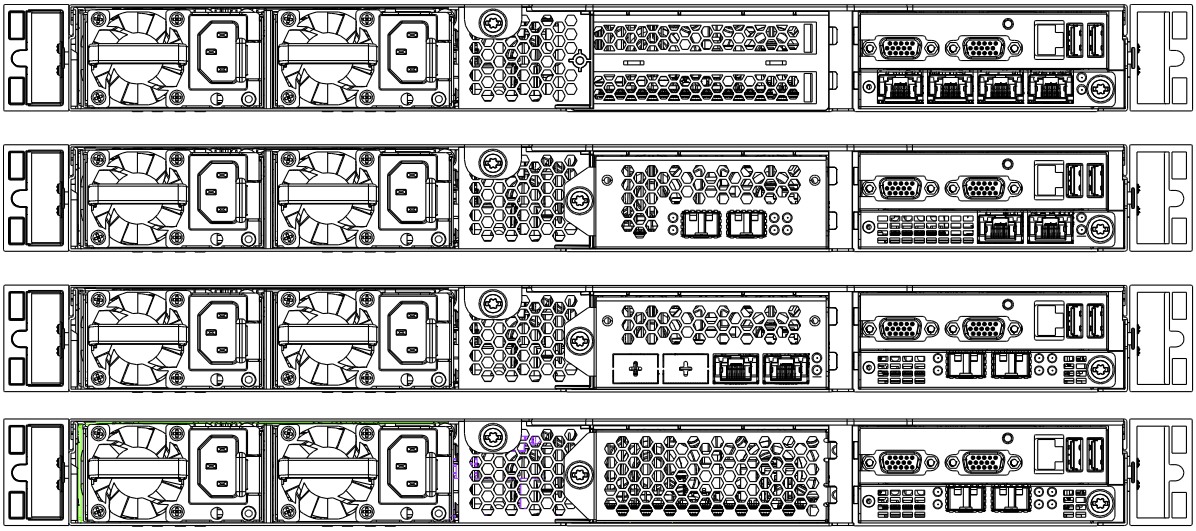


Figure 2-4 Rear View of Products

Table 2-4 Interface Description of Rear Panel

Symbol	Description
	USB interface
	VGA interface (video interface)
	COM port (serial port)
	Network interface/BMC management interface
	AC input terminal

2.2 Disassembly of Product Chassis and Main Components

This section will describe the assembly and disassembly steps and considerations of the I610-G20 server. Please assemble and disassemble the I610-G20 in accordance with the requirements.

Note: All pictures are for reference only, and specific operation is subject to material object.

2.2.1 Preparation Before Boot

Open the packing box of the W580-G20 server.

- Make sure to check whether the outer packing of the chassis is damaged before unpacking. If the outer packing is damaged, please consult with the delivery personnel, fill in relevant record and keep the proof of delivery.
- Open the outer packing, view the list of accompanying components, and confirm whether the accompanying component is complete. If there is any omission, please confirm with the field engineer. Remove the plastic bag for the outer packing of the packing box and place it in a proper place. Take out the host from the packing box, remove the plastic bag for the internal packing, and place the host carefully and smoothly in a proper place.

Deployment of Server

Select a proper place for the server. It's better to select environment with clean environment, excellent ventilation and far from heat source and strong electromagnetic field, and provide enough operating space, so as to plug and unplug the power cord from power supply and the power socket conveniently, and ensure the power supply is grounded appropriately.

Server Connection

After the server is placed in the location with appropriate environmental condition in accordance with above requirements, open the accessory box, and take out the keyboard, mouse and power cord to prepare for the connection of the server.

- Connect the keyboard and mouse. The keyboard and mouse shall be connected to the USB interface.

[Note] Don't hot or forcibly plug or unplug the keyboard and mouse cable for it is easy to damage the mainboard interface of the server.

- Connect the display. Insert the signal cable of the display gently in accordance with the corresponding interface shape, and lock the fixing screw on both sides.
- Connect the network cable, which takes the standard RJ45 interface. Insert it into the interface with the word NIC on the I/O backplane.
- Connect the power cord, which takes the standard220Vinput, and use the three-wire interface with the safe grounding. Make sure the main power is switched off before you insert the power

cord.

- Finally, confirm the cable connection of each component is correct and firm, and switch on the main power to enter the brand new 64-bit computer world.

2.2.2 Cover Opening Steps

Unscrew the screw at the rear of chassis, open the chassis lock catch, and lift it up to remove the top cover.

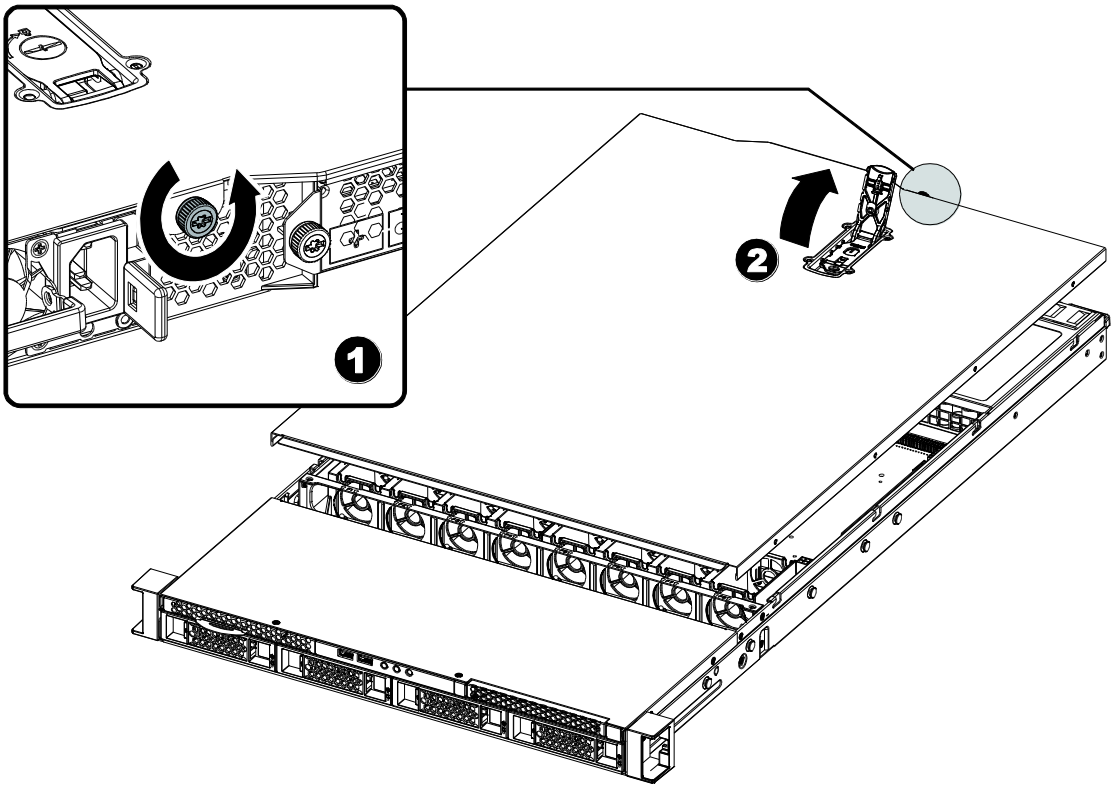


Figure 2-5 Open Chassis Cover

2.2.3 CPU Installation/Removal Steps

[Note] Pay attention to the following aspects when you install/remove CPU:

- It is necessary to handle CPU gently during the installation, so as to prevent from damaging the pin in the CPU slot on the mainboard due to the sliding of CPU. Check whether the CPU slot on the mainboard is damaged carefully during the installation. If you detect that the CPU pin is damaged, please contact us timely.
- If the server is started before the heat sink is installed, the CPU may be burned due to the CPU overheating, causing unnecessary loss.

Step 1: Locate the CPU slot on the mainboard firstly. As shown in Figure 2-6.

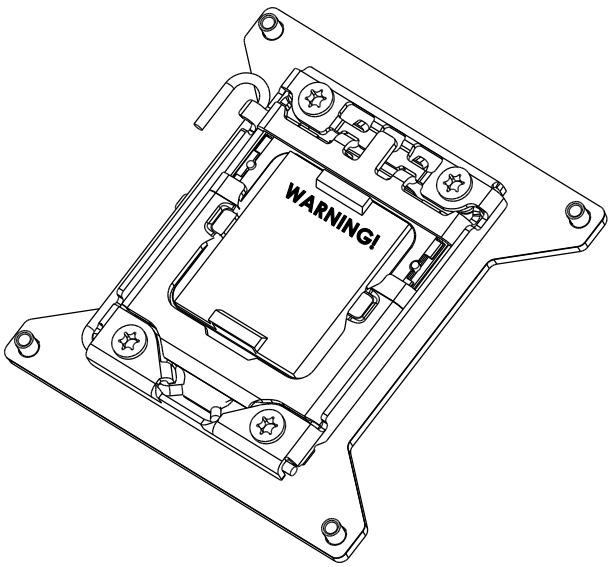


Figure 2-6 Schematic Diagram of CPU Socket

Step 2: Refer to Figure 2-7 to release the CPU lock lever.

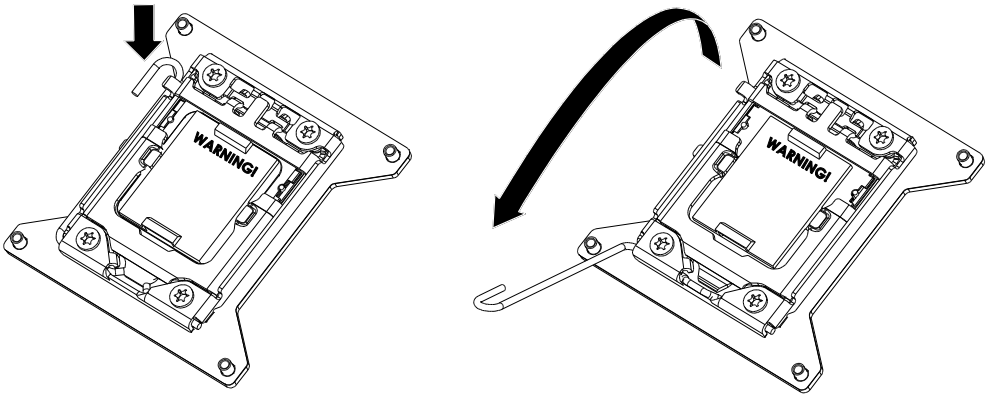


Figure 2-7 Schematic Diagram of Releasing CPU Lock Lever

Step 3: As shown in Figure 2-8, release the lock lever along the direction of the arrow in the left diagram, and open the protective cover.

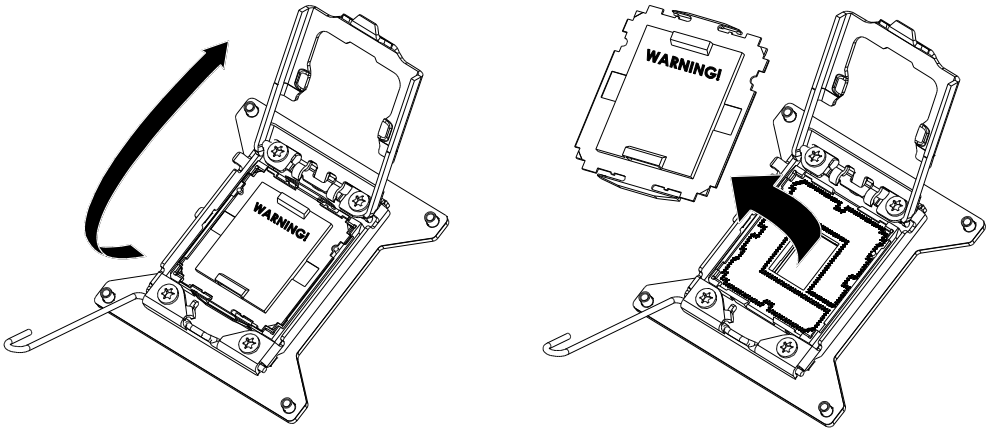


Figure 2-8 Schematic Diagram of Opening CPU Protective Cover

Step 4: As shown in Figure 2-9, put CPU into the CPU slot of the mainboard. Pay attention to the corresponding relationship between CPU Keys and Socket Keys.

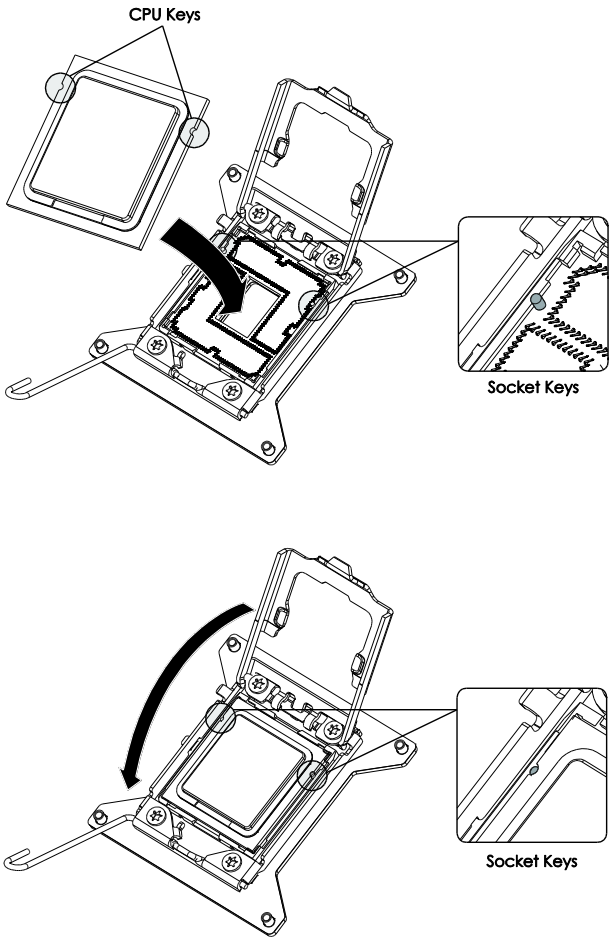


Figure 2-9 CPU Installation

Step 5: Close the top cover CPU Socket, and click the lock lever in place as shown in Figure 2-10.

Step 6: Repeat above steps to install additional CPUs.

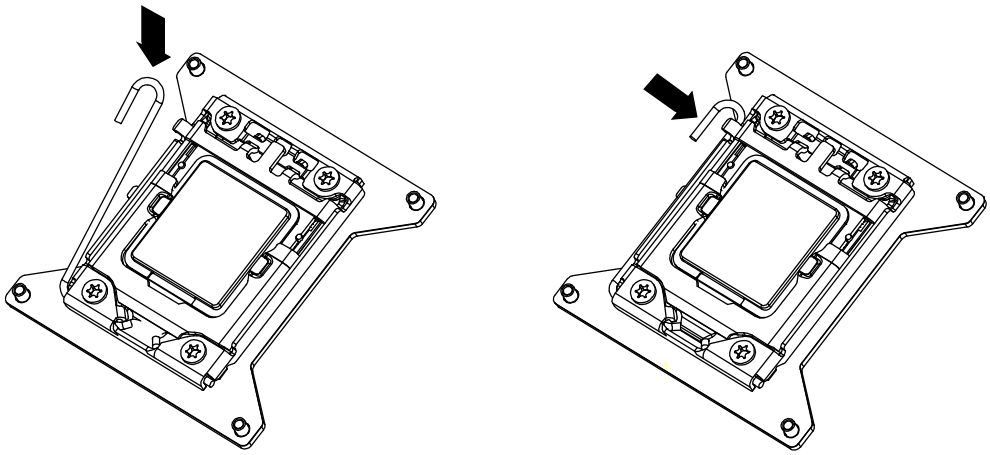


Figure 2-10 CPU Lock

Note: Before you remove CPU, remove the heat sink on the CPU, and then operate in accordance with the reverse steps of the CPU.

2.2.4 Installation/Removal Steps of CPU Heat Sink

[Note]Before you install the CPU heat sink, check whether there is any silica gel on the heat sink.

If there is no silica gel or the silica gel is air dried, it is necessary to apply the silica gel again.

Step 1: Ensure that the CPU has been installed into corresponding CPU slot.

Step 2: Put the bolt hole in the four corners of the heat sink and the bolt hole on the CPU slot into the corresponding position.

Step 3: Tighten the screw to fix and install the CPU heat sink.

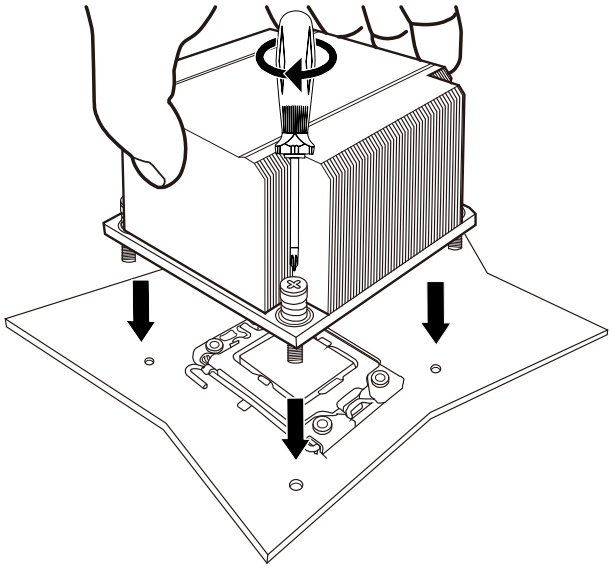


Figure 2-11 Installation of CPU Heat Sink

Note: The removal steps is reverse to the installation steps.

2.2.5 Installation/Removal Steps of Memory

Table 2-5 Memory Installation Rules①

	Installation of Single CPU (CPU0 Only)							
Quantity of memory installed	1	2	3	4	6	8	9	12
CPU0_DIMMA0	√	√	√	√	√	√	√	√
CPU0_DIMMA1					√	√	√	√
CPU0_DIMMA2							√	√
CPU0_DIMMB0			√	√	√	√	√	√
CPU0_DIMMB1					√	√	√	√
CPU0_DIMMB2							√	√
CPU0_DIMMC0		√	√	√	√	√	√	√
CPU0_DIMMC1					√	√	√	√
CPU0_DIMMC2							√	√
CPU0_DIMMD0				√		√		√

CPU0_DIMMD1						√		√
CPU0_DIMMD2								√

Memory Installation Rules②

	Installation of Dual CPU (CPU0 and CPU1)											
Quantity of memory installed	1	2	4	6	8	10	12	14	16	18	21	24
CPU0_DIMM_A0	√	√	√	√	√	√	√	√	√	√	√	√
CPU0_DIMM_A1						√	√	√	√	√	√	√
CPU0_DIMM_A2										√	√	√
CPU0_DIMM_B0				√	√	√	√	√	√	√	√	√
CPU0_DIMM_B1							√	√	√	√	√	√
CPU0_DIMM_B2										√	√	√
CPU0_DIMM_C0			√	√	√	√	√	√	√	√	√	√
CPU0_DIMM_C1							√	√	√	√	√	√
CPU0_DIMM_C2										√	√	√
CPU0_DIMM_D0					√	√		√	√		√	√
CPU0_DIMM_D1								√	√		√	√
CPU0_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: √ in the table indicates memory is installed into this memory slot, and the blank indicates no memory is installed into this memory slot.

Installation Method:

Step 1: Open the wrench on both sides of the memory slot.

Step 2: Align the memory with the memory slot. Pay attention to the corresponding relationship between the gap in the memory bank and the memory slot.

Step 3: Press the memory into the memory slot forcibly until the memory wrench sends the locking sound.

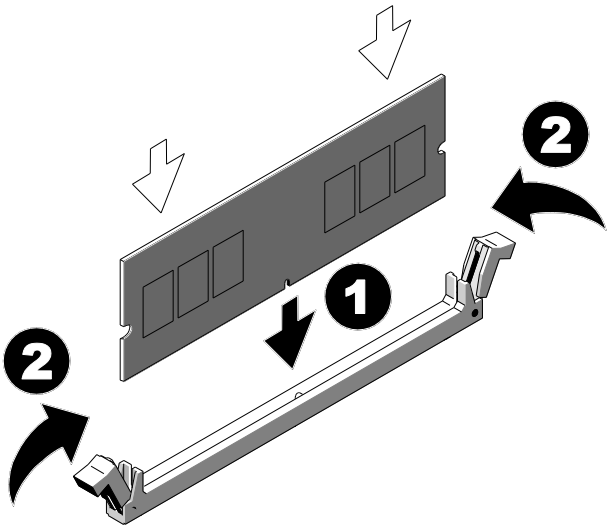


Figure 2-12 Schematic Diagram of Memory Installation

Note: The removal steps is reverse to the installation steps.

2.2.6 Installation/Removal Steps of Hard Disk

Step 1: Hold the subsidence area in front of the hard disk, and press the buckle in front of the hard disk.

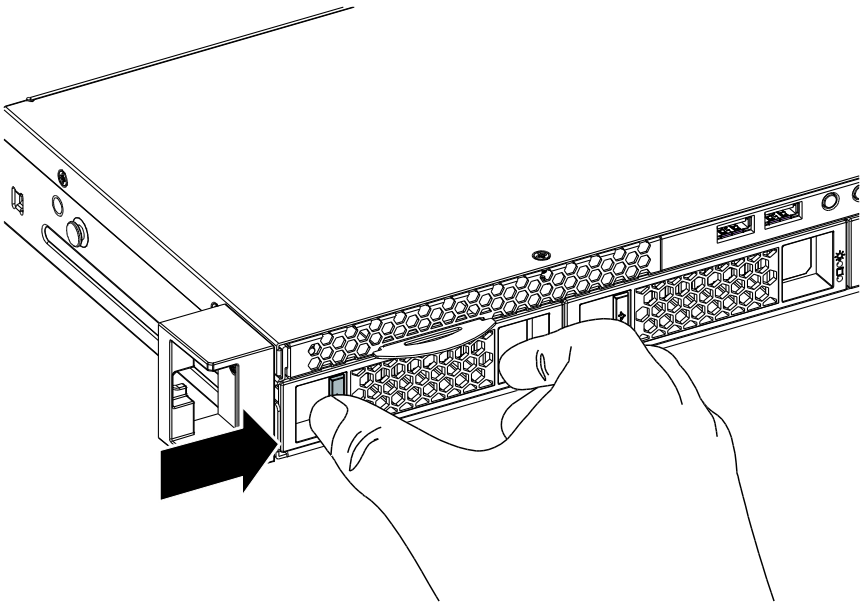


Figure 2-13 Fasten Buckle of Hard Disk Box

Step 2: After the disk tray is unlocked, draw out the hard disk forcibly.

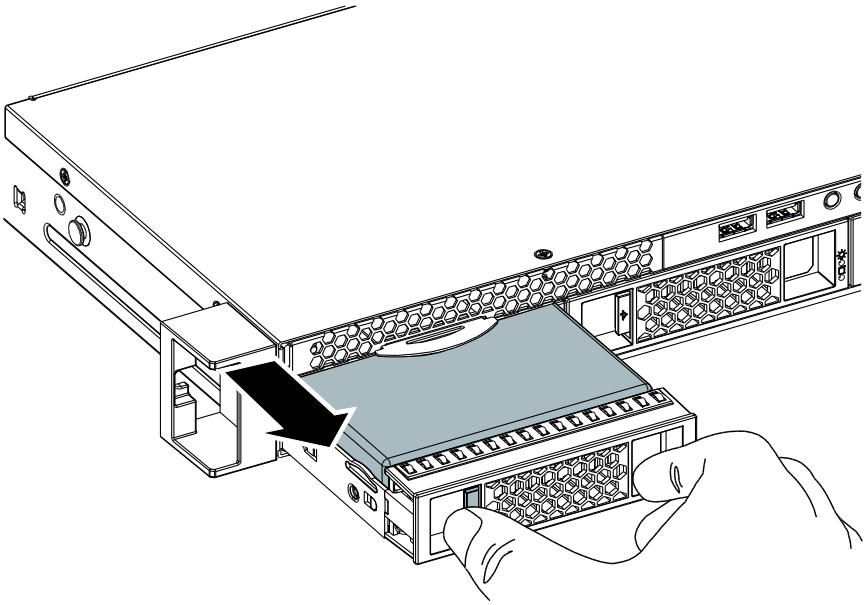


Figure 2-14 Pull Out Hard Disk Box

Step 3: As shown in figure 2-16, put the hard disk into the hard disk box, and fix it around four corners by the screw.

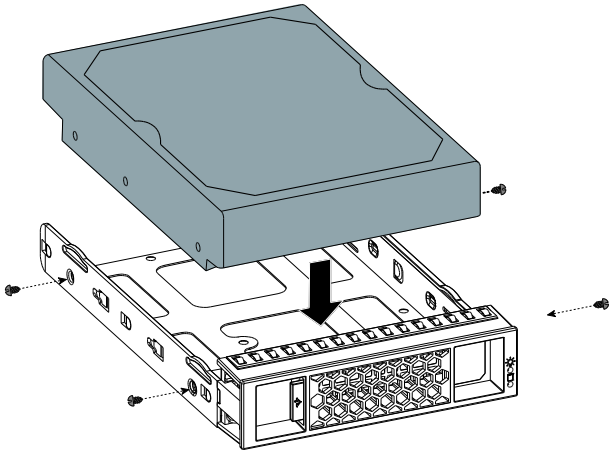


Figure 2-15 Fix Hard Disk

Note: The removal steps of the hard disk is reverse to its installation steps.

2.2.7 Installation/Removal Steps of Power

Removal of redundant power

Step 1: Press the blue lock button of the power module in the direction shown in the figure below.

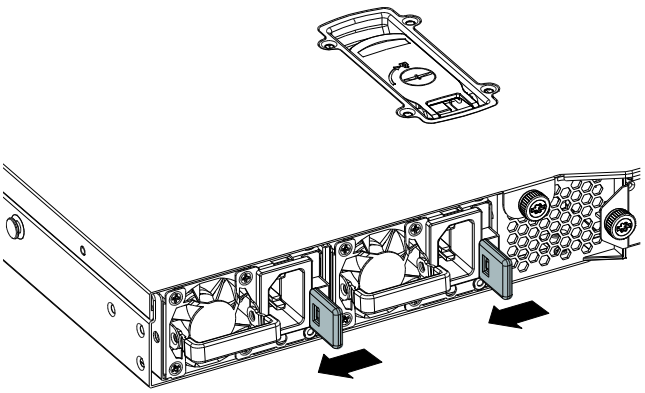


Figure 2-16 Press Lock Button

Step 2: Hold the hook of the power module with your middle finger and index finger, pull it out in the direction as shown in the figure below to remove the power module.

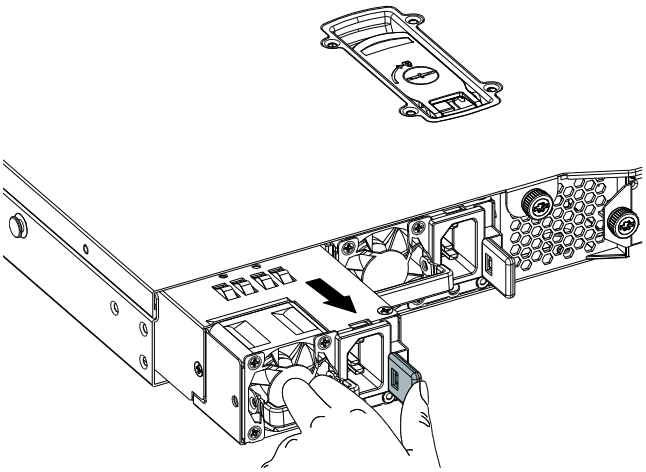


Figure 2-17 Pull Out Power Module

2.2.8 Installation/Removal Steps of Expansion Card

Step 1: Ensure that one baffle is installed on any empty expansion slot. The open expansion slot that is not installed with any baffle will damage the EMI integrity of the server (electromagnetic interference characteristic), and reduce heat dissipation effect of the system. Overheat caused thereby will impact system performance or damage components.

Step 2: Remove the PCIe adapter card as shown in Figure 2-18.

Step 3: Unscrew the fixing screw of the baffle on the expansion card, and remove the baffle on the expansion card.

Step 4: Insert the PCIe expansion card horizontally, and fix it with screw.

Note: The removal steps is reverse to the installation steps.

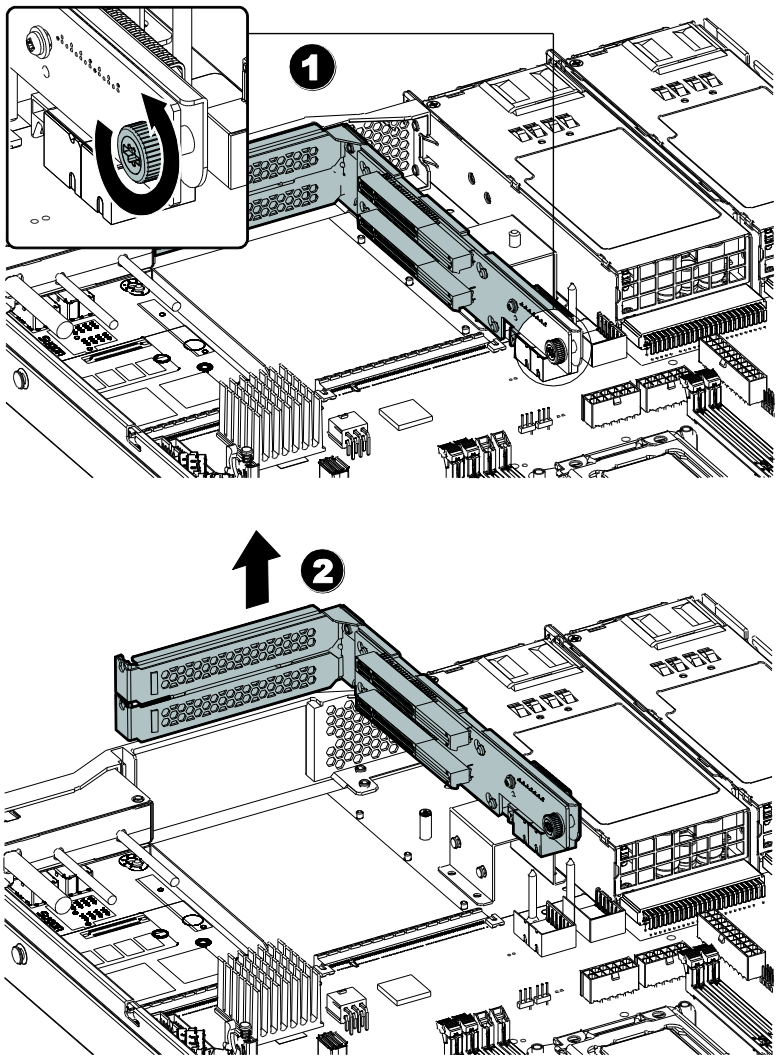


Figure 2-18 Installation of Expansion Card

2.2.9 Installation Instruction of Rail Component

Remove the rail component, and draw out the inner rail.

Rail Component

As shown in the figure below, Ⓐ is the outer rail and its support component; Ⓑ is the inner rail; Ⓒ is the lock catch of the inner rail in the closed position; Ⓓ is the locking clip in the sliding rail open position; Ⓔ is the screw to fix the outer rail support and the cabinet (specification: #8-32×1/2”, quantity: 4), and Ⓕ is the screw to fix the inner rail support and the cabinet (specification: #6-32X5, quantity: 2).

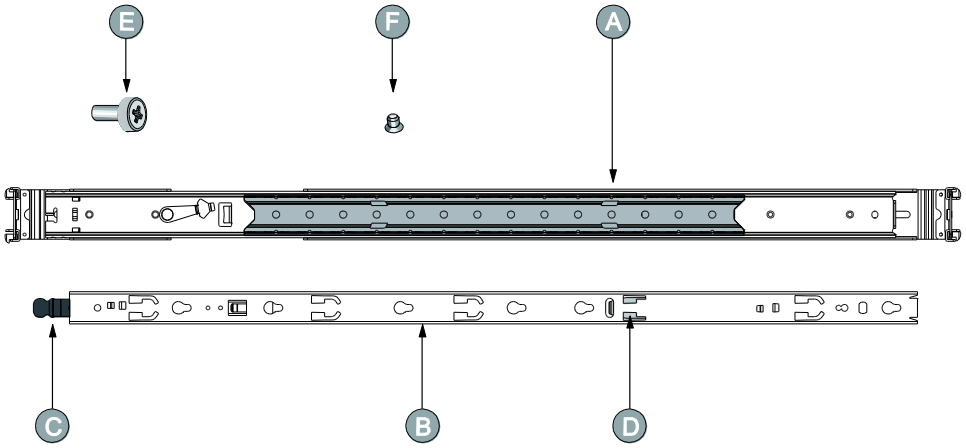


Figure 2-19 Rail Component

Fixing Position of Sliding Rail Front Support

As shown in Figure 2-20, the fixing position of the sliding rail front support is selected according to the actual design size of the chassis, whose adjusting range is 0 - 24mm. There are four fixing positions, and the spacing between adjacent fixing positions is 8mm.

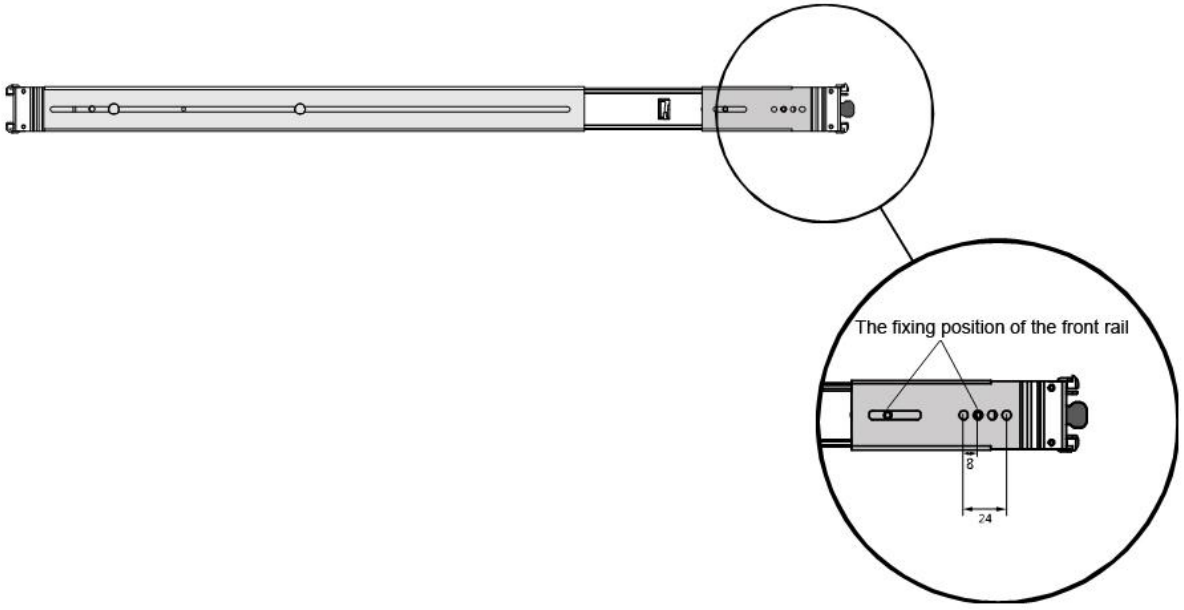


Figure 2-20 Fixing Position of Sliding Rail Front Support

Draw Out Inner Rail

Draw out the inner rail until it is self-locked (as shown in the figure below Ⓐ), press the locking clip in the open position of the inner rail for the unlocking with your hands (as shown in the figure below Ⓑ), and draw out the inner rail in the direction Ⓒ completely.

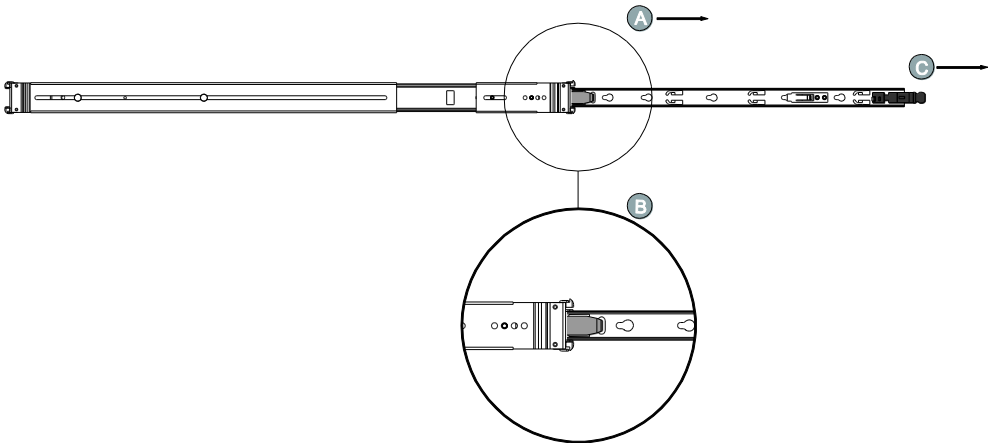


Figure 2-21 Draw Out Inner Rail

Install Inner Rail to Chassis

Enable the gourd hole in the inner rail to match with the T-shape screw on the side wall of the chassis along the figure below Ⓐ, and push the inner rail forward (the direction as shown in the figure below Ⓑ) until the spring lock in the inner rail locks one T-shape screw on the side wall of the chassis to complete the installation of the inner sliding rail.

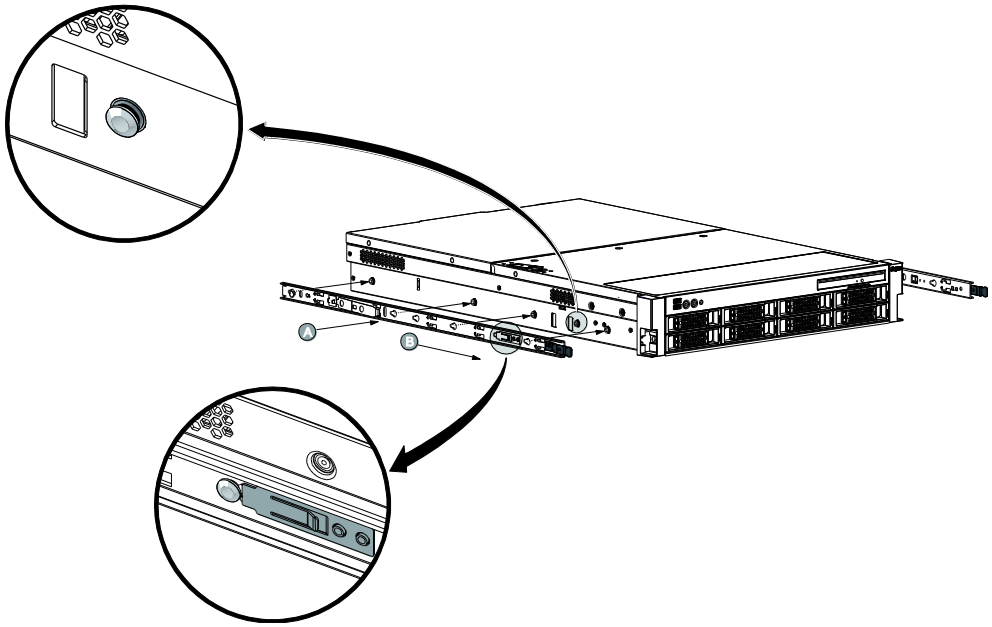


Figure 2-22 Installation Method of Inner Rail

Install Outer Rail to Cabinet

Quick Installation of Support Component

As shown in the figure below, slide the rear support to adjust the outer rail to the proper length according to the distance between the front column and the rear column (the direction as shown in

the figure below Ⓐ or Ⓑ), and click the clamping screw of the front and rear support into corresponding hole of the front and rear columns in the cabinet.

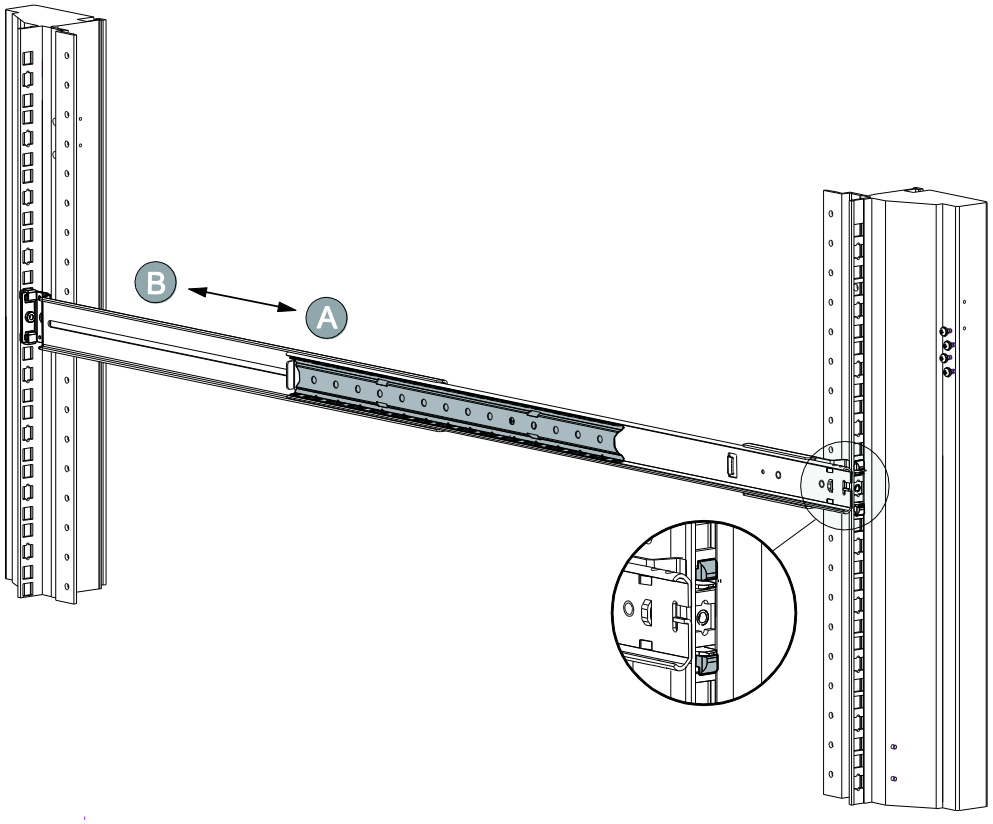


Figure 2-23 Install Outer Rail to Cabinet Column

Note:

(1) The stretching range of the outer rail is 660 - 900mm, and users shall confirm the installation size of the cabinet before the installation.

This outer rail is applicable for the cabinet with the square hole of column 8.8x8.8 - 9.5x9.5 (mm), and the spacing among three square holes on the same column for fixing the rail is 15.9mm.

(2) The column hole of the cabinet shall comply with standards as shown in the figure below.

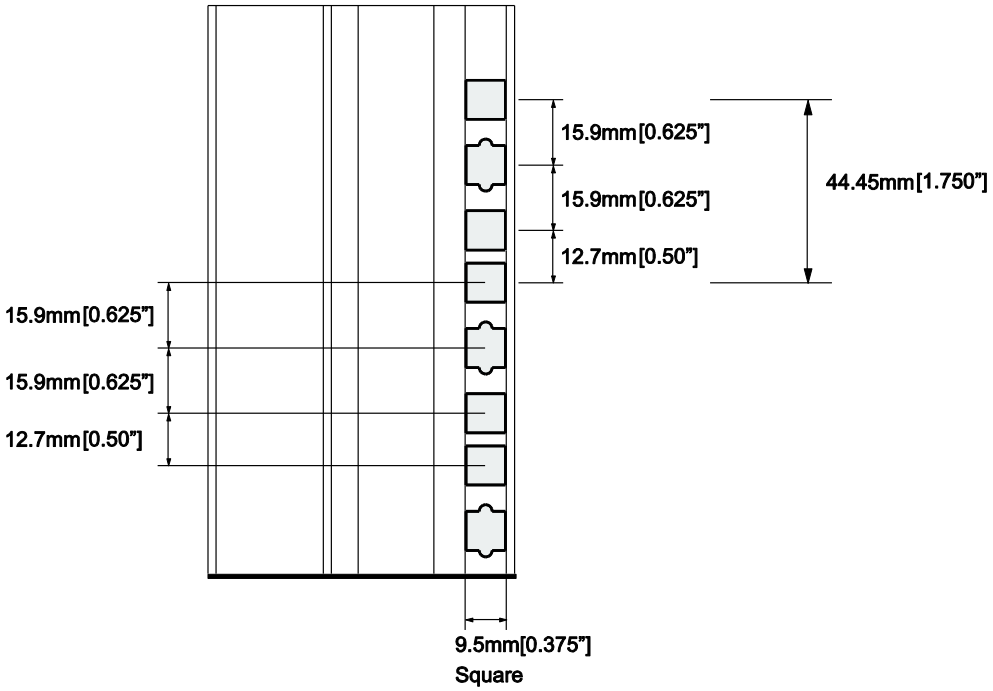


Figure 2-24 Column Hole Location Map

(3) The left and right outer rail shall be fixed on the same scale of the left and right column for the cabinet.

Chassis Putaway

Chassis Enters Outer Rail Component

Clip the machine which is installed with the inner rail and the chassis handle along the direction A at the front end of the outer rail, and push it inward along the direction B until the locking clip C is stuck.

[Note]:When the inner rail is clipped into the outer rail and is pushed into it, it is necessary to clip the inner rail into the ball rail firstly.

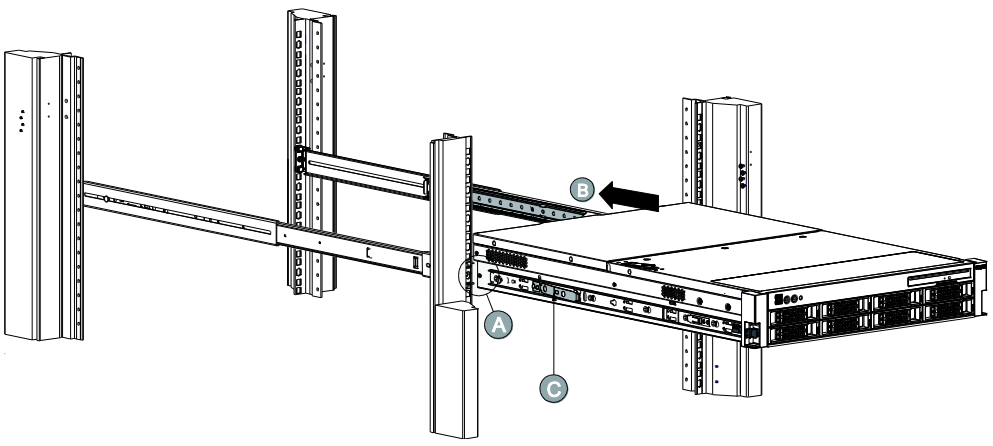


Figure 2-25 Install Machine to Outer rail

Lock Support Component

Fix the front and rear support of the left and right outer rail and the front and rear column of the cabinet with 4 #8-32X1/32screws respectively (as shown in the figure below), and push the ball rail on the inside of the outer rail to the forefront along the direction A until it cannot be pushed further.

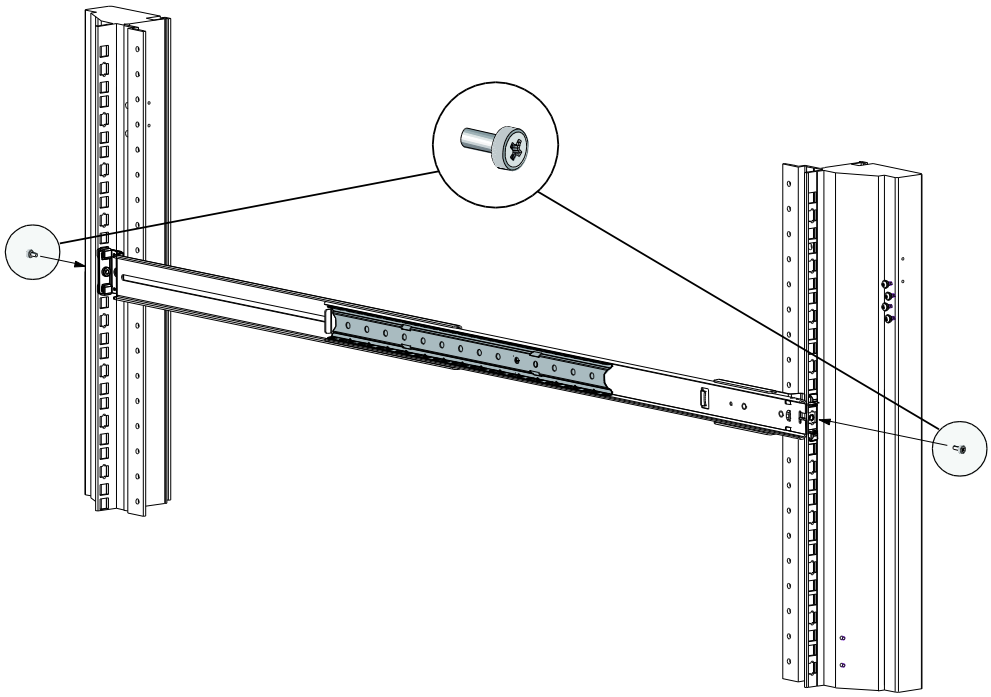


Figure 2-26 Lock Outer rail

Push Process for Unlocking

When the inner rail lock catch gets stuck, press the inner rail lock catch on both sides inward for the unlocking (the identification as shown in the figure below), and push the chassis inward in the direction B until the locking clip C in the closed position of the sliding rail is struck and the chassis cannot be drawn out.

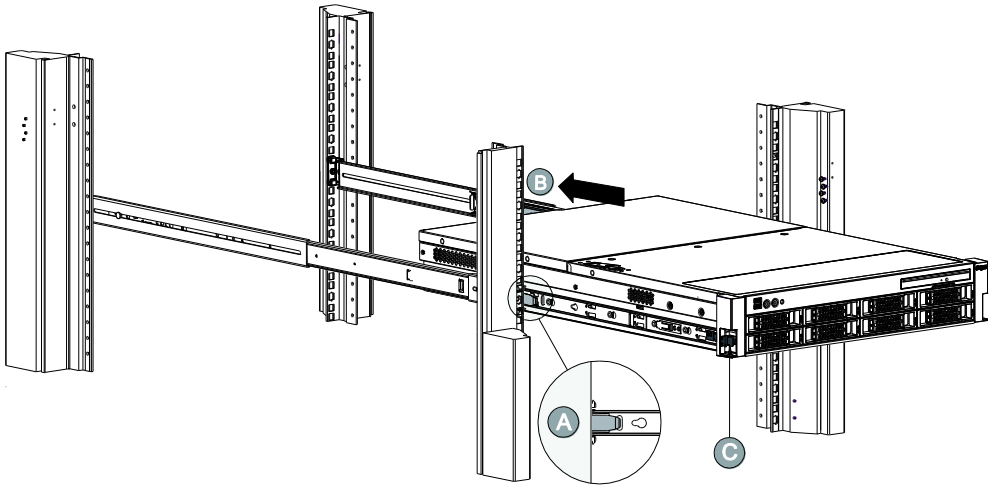


Figure 2-27 Install and Lock Chassis in Place

Sliding Rail for Unlocking

Toggle the sliding rail locking clip A along the direction B inward with index finger, and unlock the inner rail lock and the outer rail lock to draw out the chassis.

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

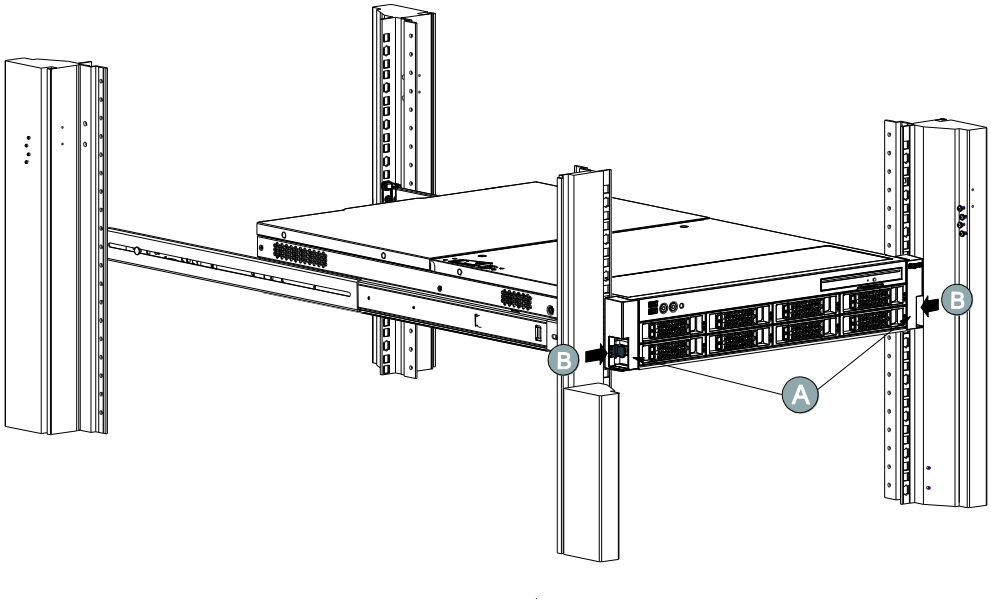


Figure 2-28 Unlock Chassis

3 Product Configuration

3.1 Clear CMOS Jumper Settings

The J3 jumper may be used to clear the CMOS configuration on the mainboard. Follow the table below to clear the CMOS configuration.

Table 3-1 Description of Clearing CMOS Jumper

 Normal (**Default**)	The jumper will be in this position by default. At this time, the system operates normally.
 Clear CMOS	To clear the CMOS configuration, connect this jumper in this way for the clearing. Return the jumper to the default settings after it is connected for 3 - 5s.

[Note] Make sure to close the system completely and unplug the AC power cord and the onboard battery before the J3 jumpers is short-circuited to clear CMOS.

3.2 BIOS Setup

- The BIOS setup refers to make use of the special setup program to adjust the system and hardware parameters. The improper parameter settings may cause the conflict of hardware resources or degrade the operation performance of the system. This section will describe the BIOS setup procedures, and you can set up the basic BIOS configuration by following this setup Steps. Such setups will be stored in the memory (referred to as NVRAM), and such information will not be lost when the power supply is turned off. It is important to understand the BIOS setup, and you are suggested to use the default value during the system delivery.
- Record corresponding initial setup before you change the BIOS setup of the server, so as to restore the server according to the recorded initial setup when the system operates abnormally due to the change in options.
- In general, the system factory default setup is of the optimized setup. Don't attempt to change the setups before you understand the meaning of various parameters.
- This chapter will mainly describe the common settings in detail, but will describe briefly or will not describe the options which are less involved during the use.
- Press <Ctrl>+<F11> to enter the super mode of BIOS during the power-on startup. There are more visible options in this mode, which will affect the core functionality and stability of the system. Don't modify them at will!

Note: Sugon reserves the right to change the system BIOS version without the prior notice. The BIOS setup method involved in this manual is based on the BIOS version used when this manual is printed. Hence, there may be difference between the actual interface that you see and the

diagram in the manual.

3.2.1 BIOS System Setup Method

Power on to start the server, and wait the screen to display the pattern with the Sugon typeface. At this time, press the <Del> or <F2> key, and the system will enter the BIOS setup program. You can select the subitem in the BIOS setup program by the arrow direction key, and hit the Enter key to enter the submenu.

Note: The gray option is not available. The items with the symbol "▶" include the submenu.

Table 3-2 Description of Control Key

Button	Function
<F1>	Help
<Esc>	Exit or return to the main menu from the submenu.
<←> or <→>	Select the menu.
<↑> or <↓>	Move the cursor up or down.
<Home> or <End>	Move the cursor to the top or bottom of the screen.
<PgUp> or <PgDn>	Move the cursor to the previous page or the next page.
<+> or <->	Select the previous or next value or setting of the current item.
<F2>	Undo the last operation.
<F3>	Set the default value.
<F4>	Save and exit.
<F5>	Save and Restart
<Enter>	Execute commands or select the submenu.

3.2.2 Main Menu

The Main menu is the first interface you can see after you enter the BIOS setup program, which is used to display and change the basic information of the system. Key description will be displayed in the window on the right and there is text information above the window. When some option is selected in the window on the left, this option will be highlighted, and it will display the description text of this option in the window on the right.

Figure 3-1 Main Menu Interface

Table 3-3 Parameter Description of Main Menu Interface

Interface Parameters	Function Description
Compliancy	Display the UEFI environment version.
Project Version	Display the BIOS version information
Build Date and Time	Display the BIOS compilation time.
Mainboard ID Number	Display the mainboard PCD version.
ROM Type	Display the model of the BIOS ROM memory chip.
ME Version	Display the ME version information.
PCH Name	Display the PCH model.
PCH Version	Display the PCH version.
IOM Socket (J13) IOM Socket (J14) IOM Socket (J15) IOM Socket (J16)	Display the IOM card plug connection at all positions.
Total Memory	Display the total memory capacity of the system.
System Language	Set the language type of the BIOS option, and support English only currently.

System Date	Set the system date.
System Time	Set the system time.

Note: The BIOS version is for reference only. For the latest version, the BIOS version released by Sugon shall prevail.

3.2.3 Advanced Menu

Advanced menu allows users to change the setting of the system CPU and other equipment.

[Note] Be careful when you change this menu setting for the improper change may cause system crash.

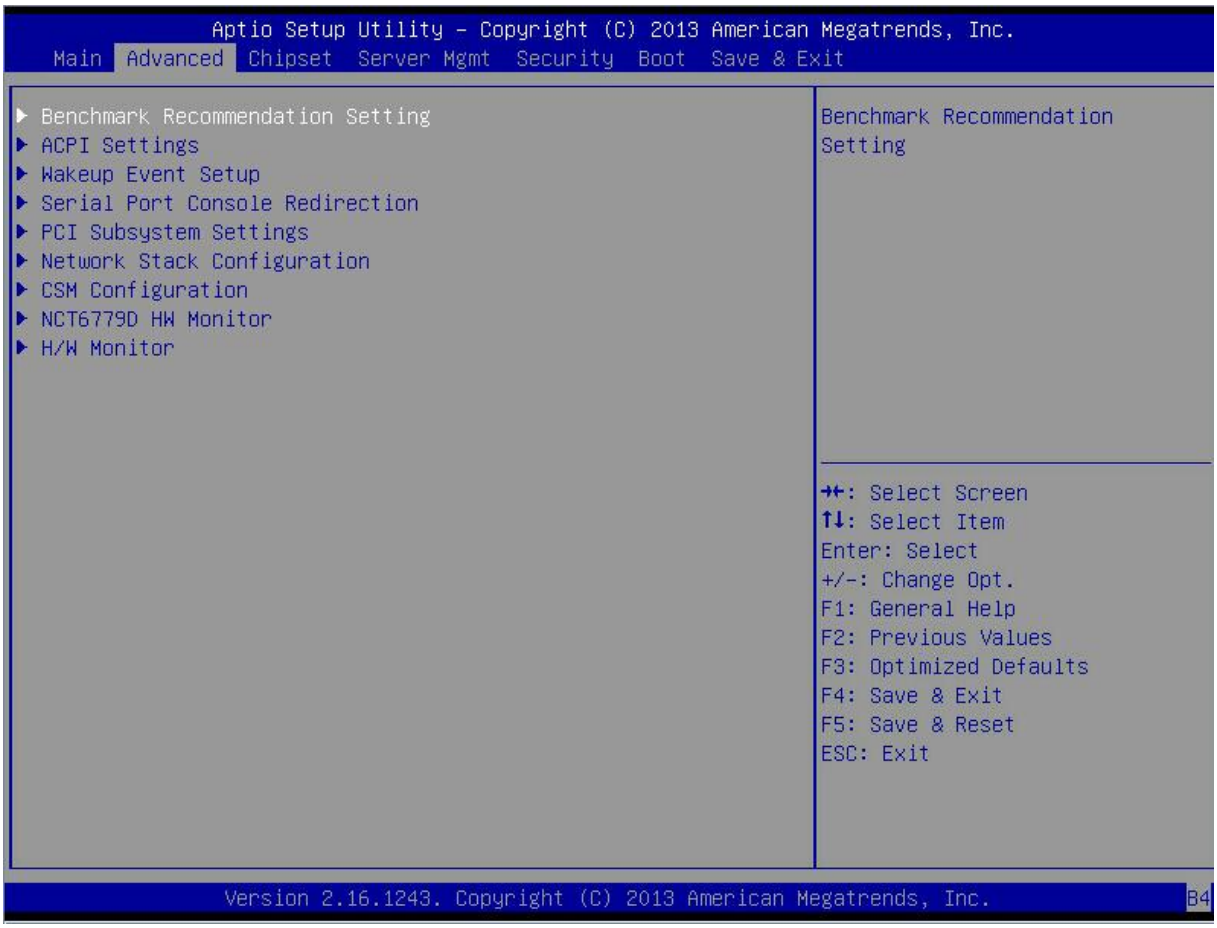


Figure 3-2 Advanced Menu Interface

Table 3-4 Parameter Description of Advanced Interface

Interface Parameters	Function Description
Benchmark Recommendation Setting	Benchmark test recommendation setting
ACPI Settings	Advanced configuration and power management interface settings
Wakeup Event Setup	Device wakeup event setup

Serial Port Console Redirection	Serial port redirection configuration
PCI Subsystem Settings	PCI subsystem settings
Network Stack Configuration	Network stack configuration
CSM Configuration	Compatibility module configuration
NCT6779D HW Monitor	Display the temperature and voltage monitoring information of some hardware.
H/W Monitor	Display the hardware detection information, and you can set the fan strategy.

Benchmark Recommendation Setting

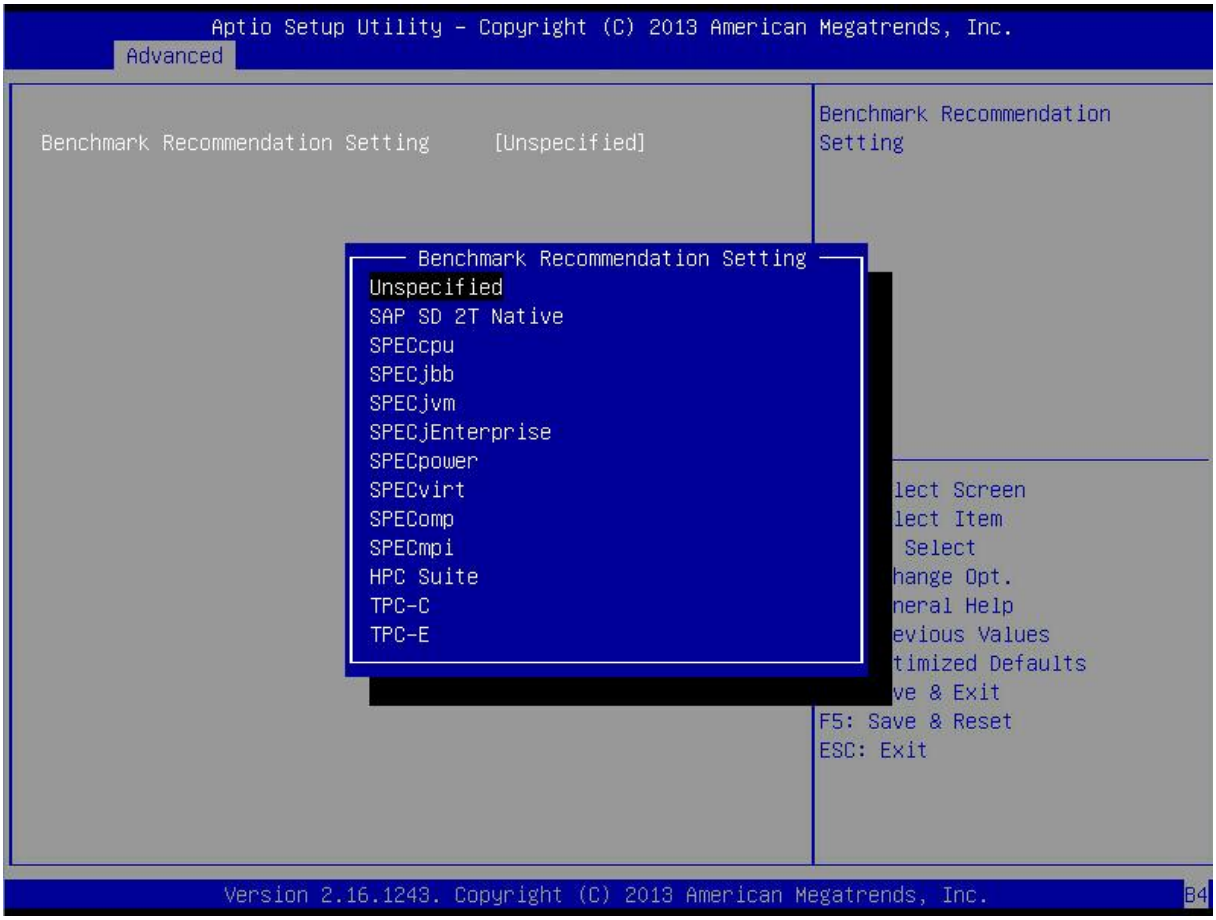


Figure 3-3 Benchmark Recommendation Setting Interface

Table 3-5 Parameter Description of Benchmark Recommendation Setting Interface

Interface Parameters	Function Description
Benchmark Recommendation Configuration	Benchmark test bias setting

ACPI Settings

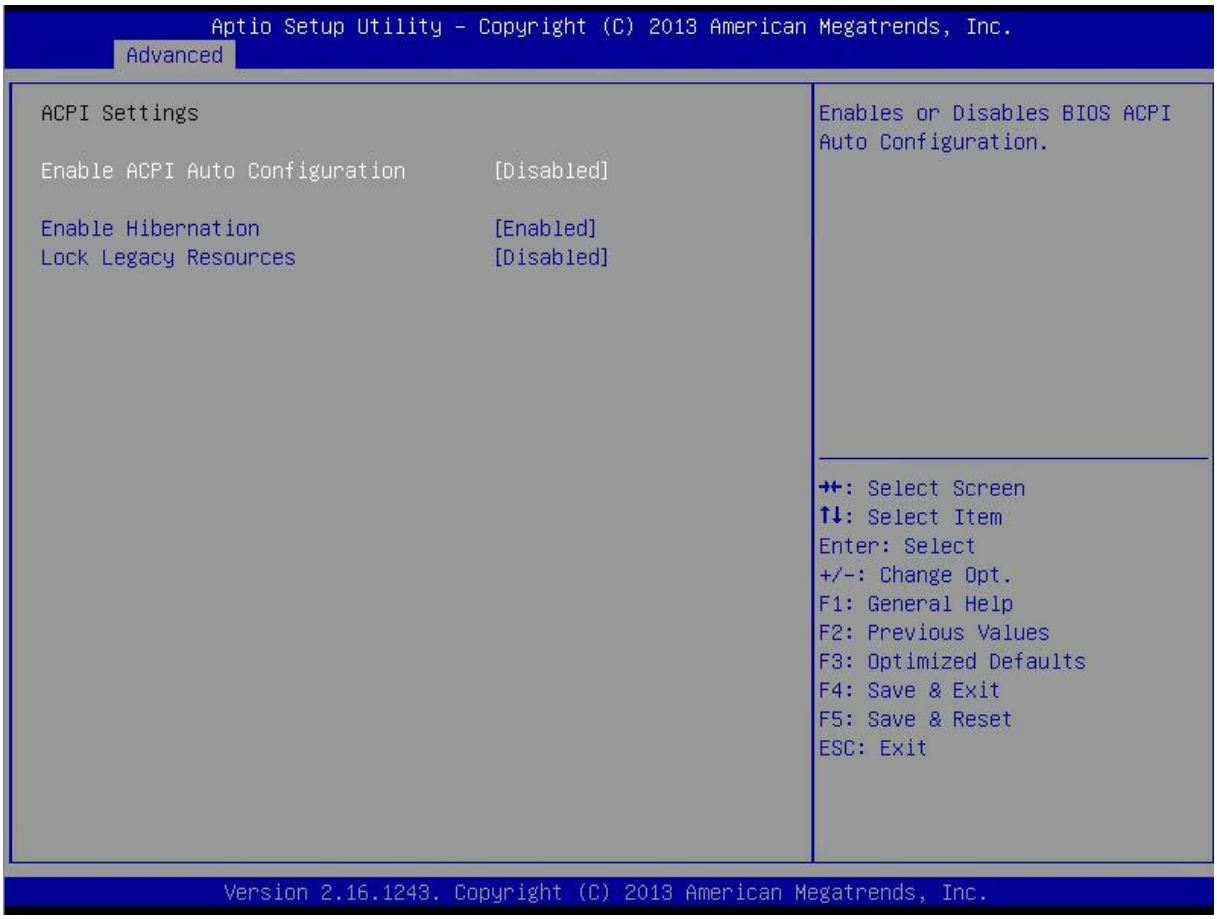


Figure 3-4 ACPI Settings Interface

Table 3-6 Parameter Description of ACPI Settings Interface

Interface Parameters	Function Description
Enable ACPI Auto Configuration	Advanced configuration and power management interface auto configuration
Enable Hibernation	Support the hibernation mode.
Lock Legacy Resources	Support the legacy power management resources

Wakeup Event Setup

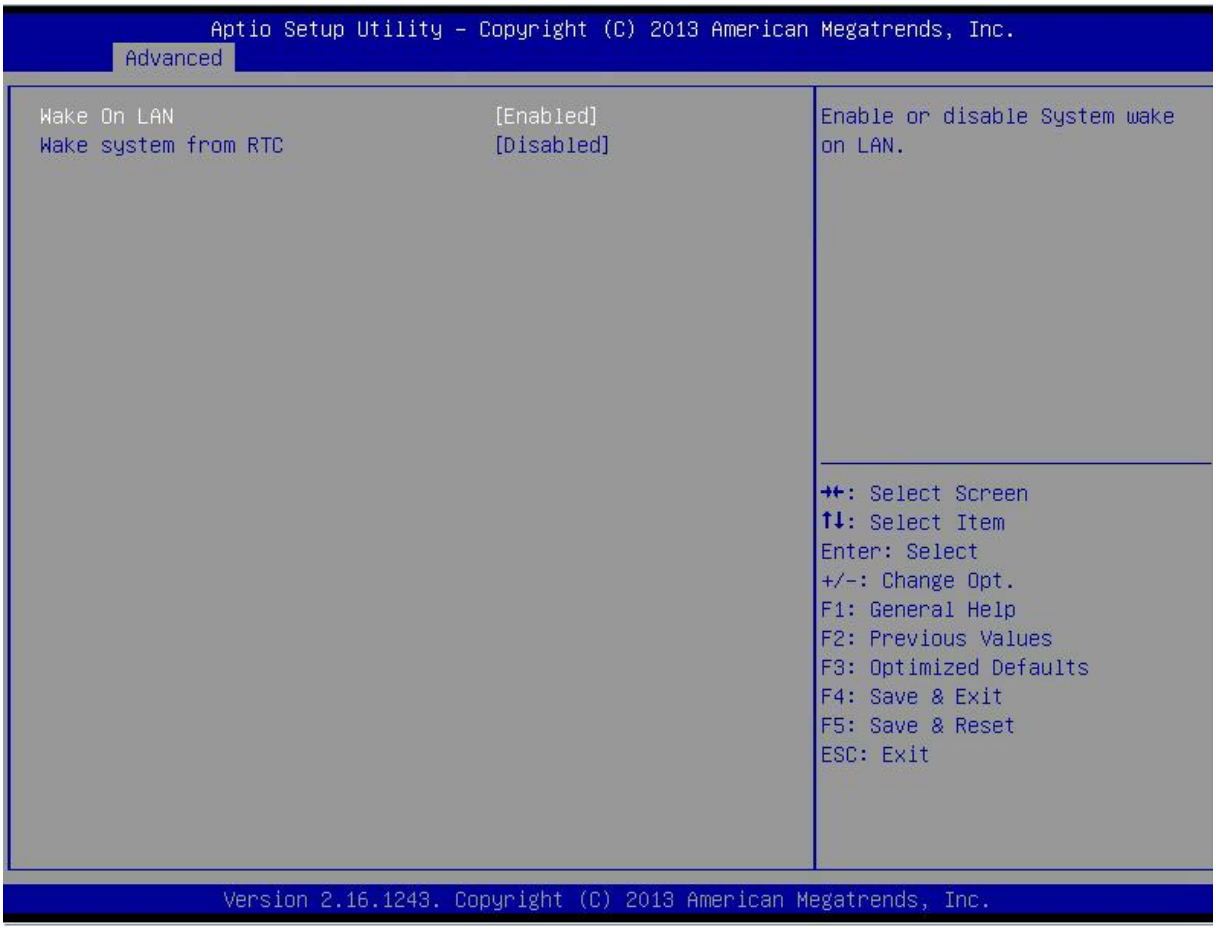


Figure 3-5 Wakeup Event Setup Interface

Table 3-7 Parameter Description of Wakeup Event Setup Interface

Interface Parameters	Function Description
Wake On LAN	Wake On LAN setting
Wake system from RTC	Wake system from RTC setting

Serial Port Console Redirection

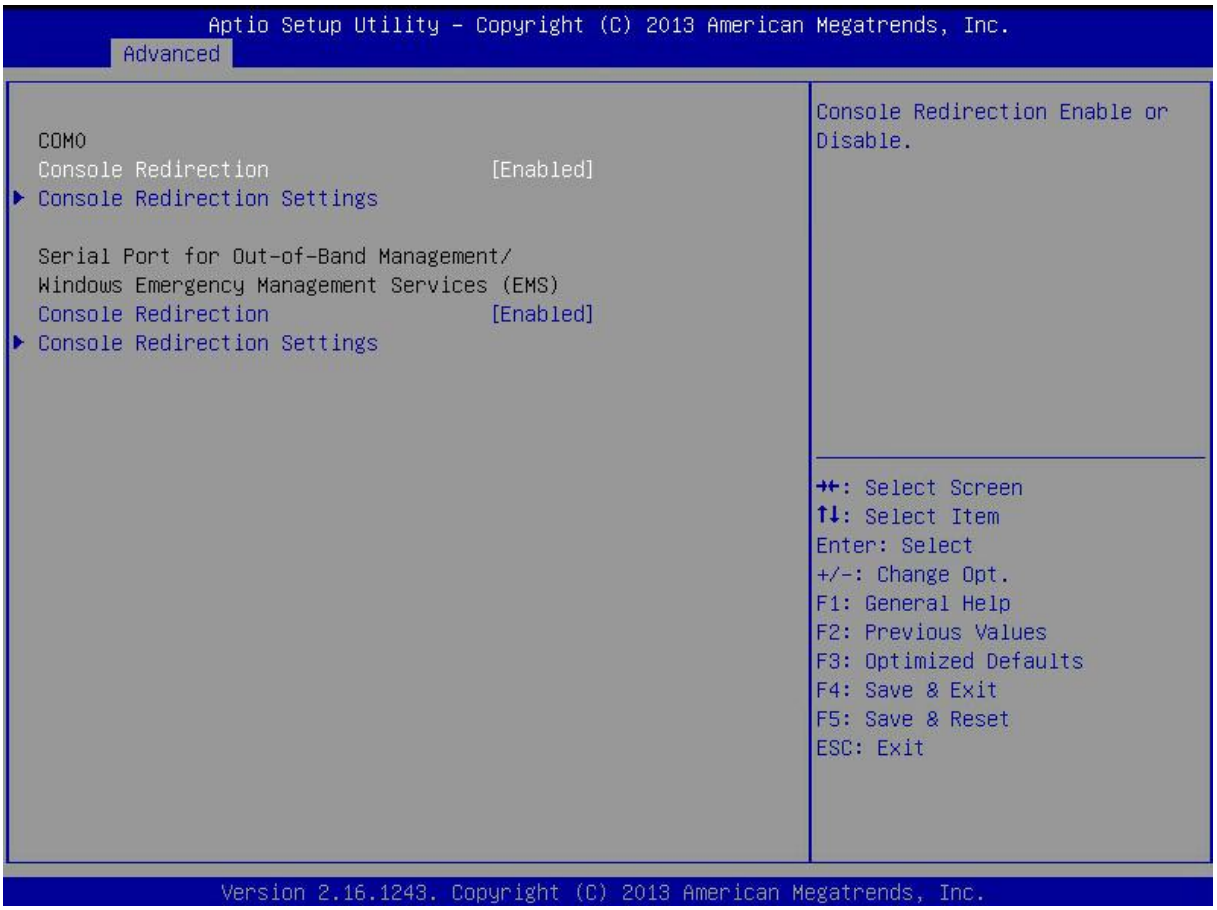


Figure 3-6 Serial Port Console Redirection Interface

Table 3-8 Parameter Description of Serial Port Console Redirection Interface

Interface Parameters	Description
(COM0) Console Redirection	Enable/Disable the COM0 console redirection.
(COM0) Console Redirection Settings	COM0 console redirection settings
(COM1) Console Redirection	Enable/Disable the COM1 console redirection.
(COM1) Console Redirection Settings	COM1 console redirection settings; click to enter the settings interface.

(COM0) Console Redirection Settings

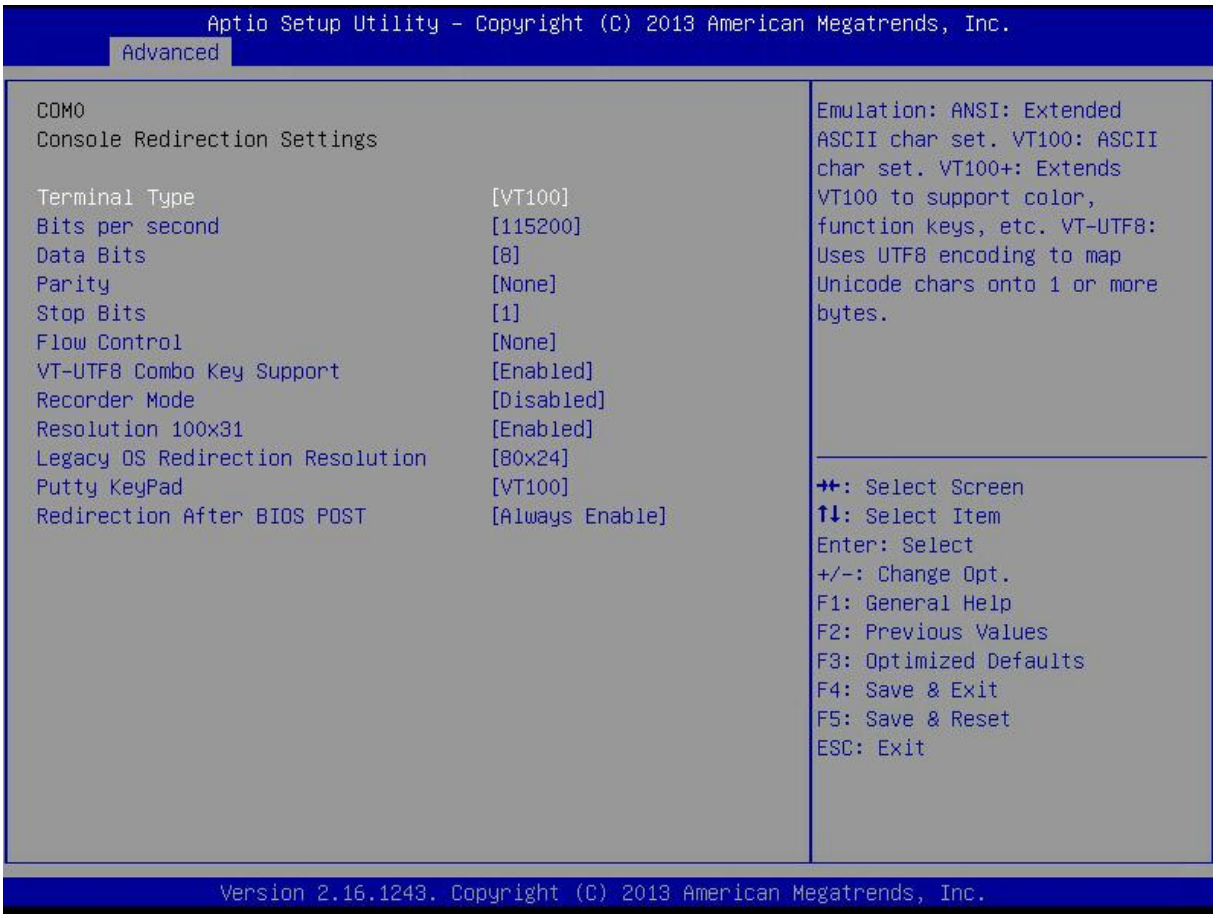


Figure 3-7 (COM0) Console Redirection Settings Interface

Table 3-9 Parameter Description of (COM0) Console Redirection Settings Interface

Interface Parameters	Function Description
Terminal Type	Terminal type
Bits per second	Transmission rate (bits per second)
Data Bits	Data bit
Parity	Set whether there is the parity.
Stop Bits	Stop bit
Flow Control	Set whether the flow control is required.
VT-UTFB Combo Key Support	Set whether the VT-UTFB combo key is supported.
Recorder Mode	Enable/disable the recorder mode.
Resolution 100x31	Whether the resolution 100x31 is supported.
Legacy OS Redirection Resolution	Redirection resolution of previous system
Putty Keypad	Putty keypad mode selection

Interface Parameters	Function Description
Redirection after BIOS POST	Redirection after BIOS POST setting

(EMS) Console Redirection Settings

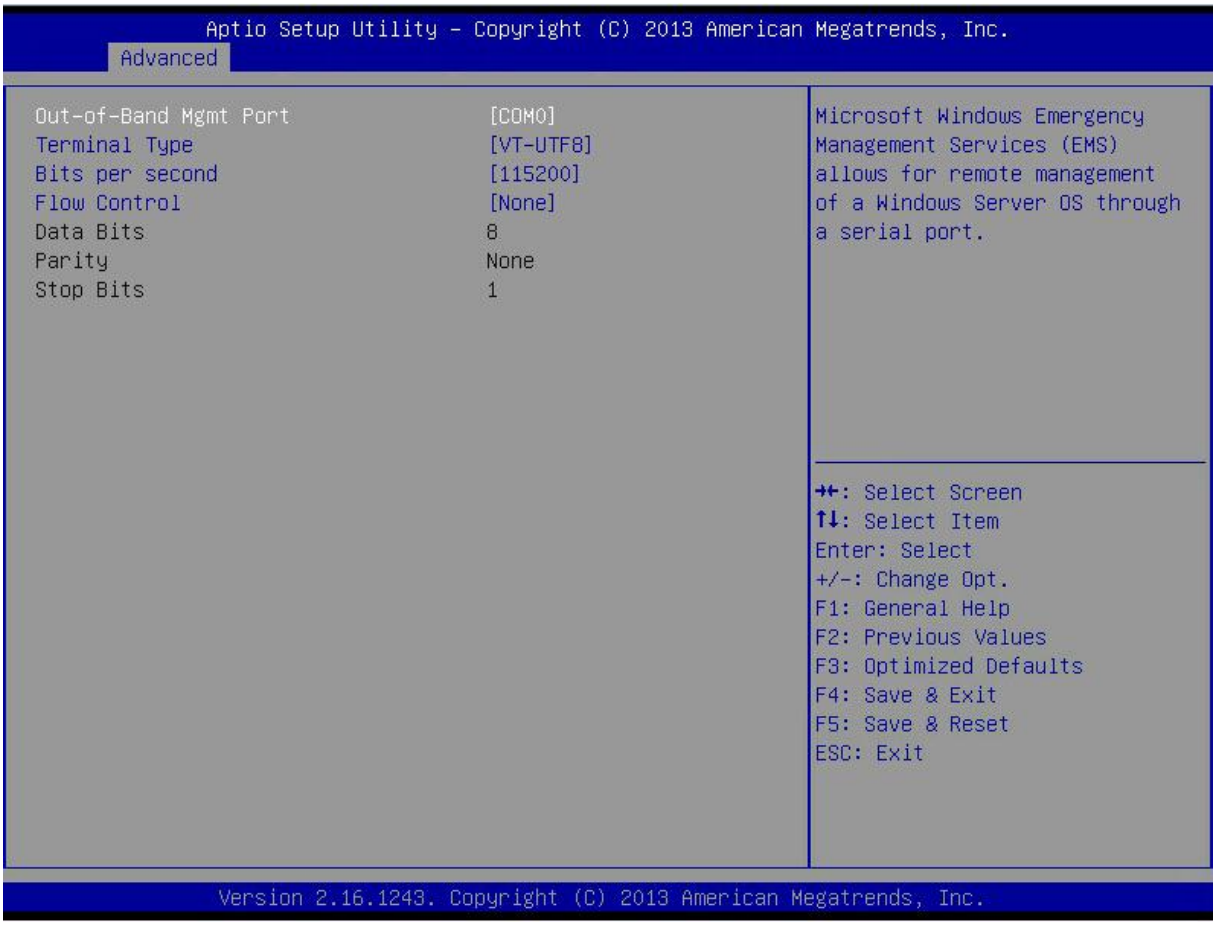


Figure 3-8 (EMS) Console Redirection Settings Interface

Table 3-10 Parameter Description of (EMS) Console Redirection Settings Interface

Interface Parameters	Function Description
Out-of-Band Mgmt Port	Set the out-of-band management port.
Terminal Type	Set the terminal type.
Bits per second	Set the transmission rate (bits per second).
Flow Control	Serial port properties, SOL and COM optional
Data Bits	Data bit
Parity	Whether there is the parity check
Stop Bits	Stop bit

PCI Subsystem Settings

Figure 3-9 PCI Subsystem Settings Interface

Table 3-11 Description of PCI Subsystem Settings Interface

Interface Parameters	Function Description
Above 4G Decoding	Above 4G memory address space access switch, which supports above 4G address space decoding of the 64-bit PCI device.
SR-IOV Support	Virtualization function control switch of PCIE device

Network Stack Configuration

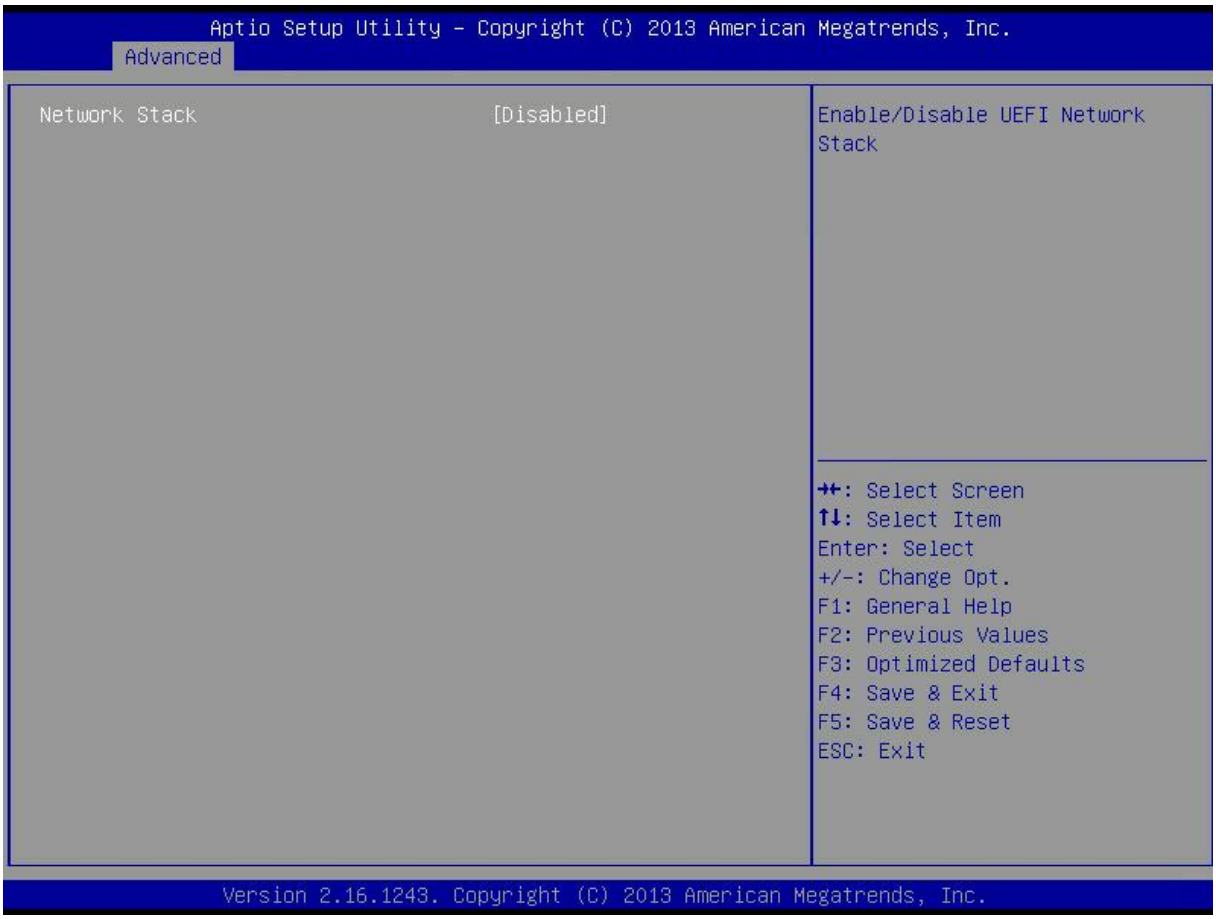


Figure 3-10 Network Stack Configuration Interface

Table 3-12 Description of Network Stack Configuration Interface

Interface Parameters	Function Description
Network Stack	Set whether to enable UEFI PXE to support the network stack (need to be supported by the network device UEFI Driver).

CSM Configuration

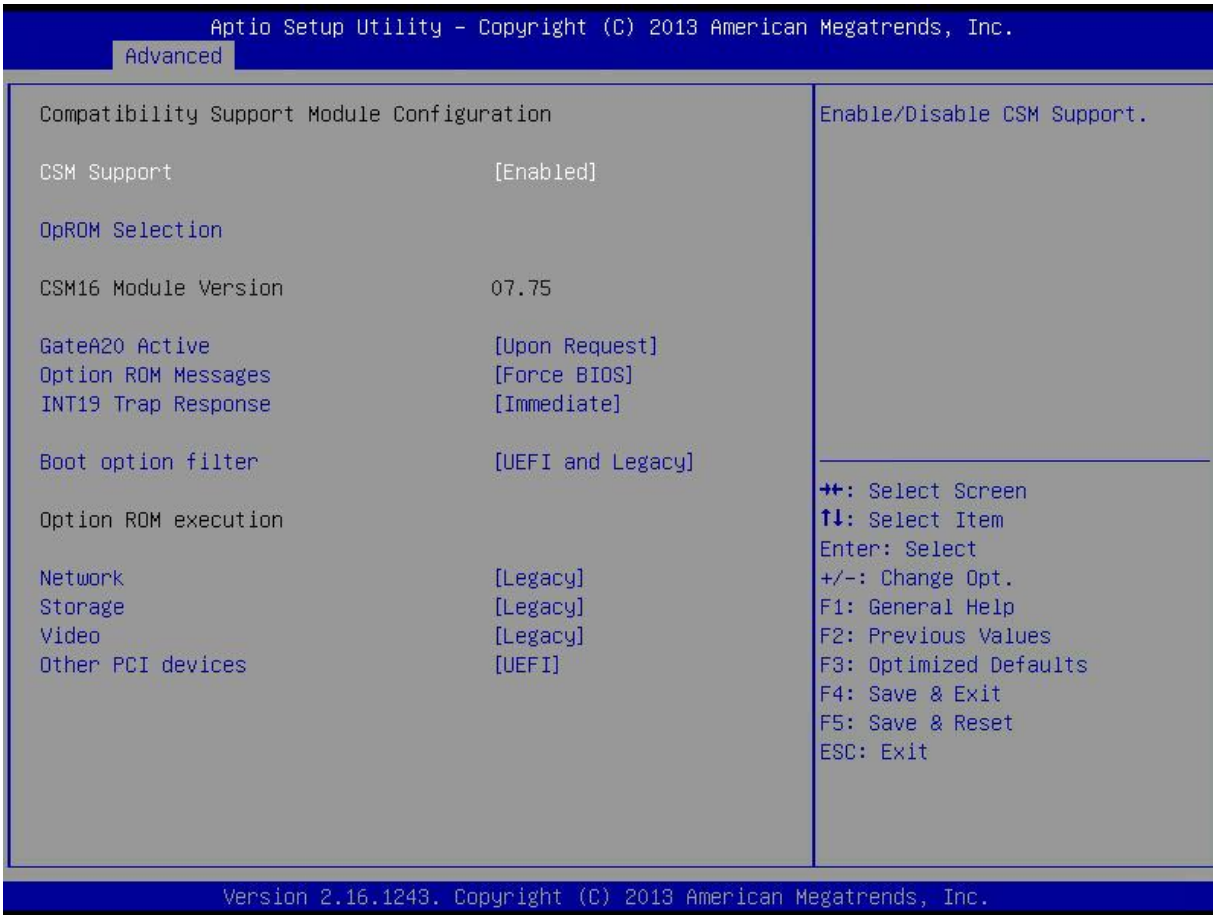
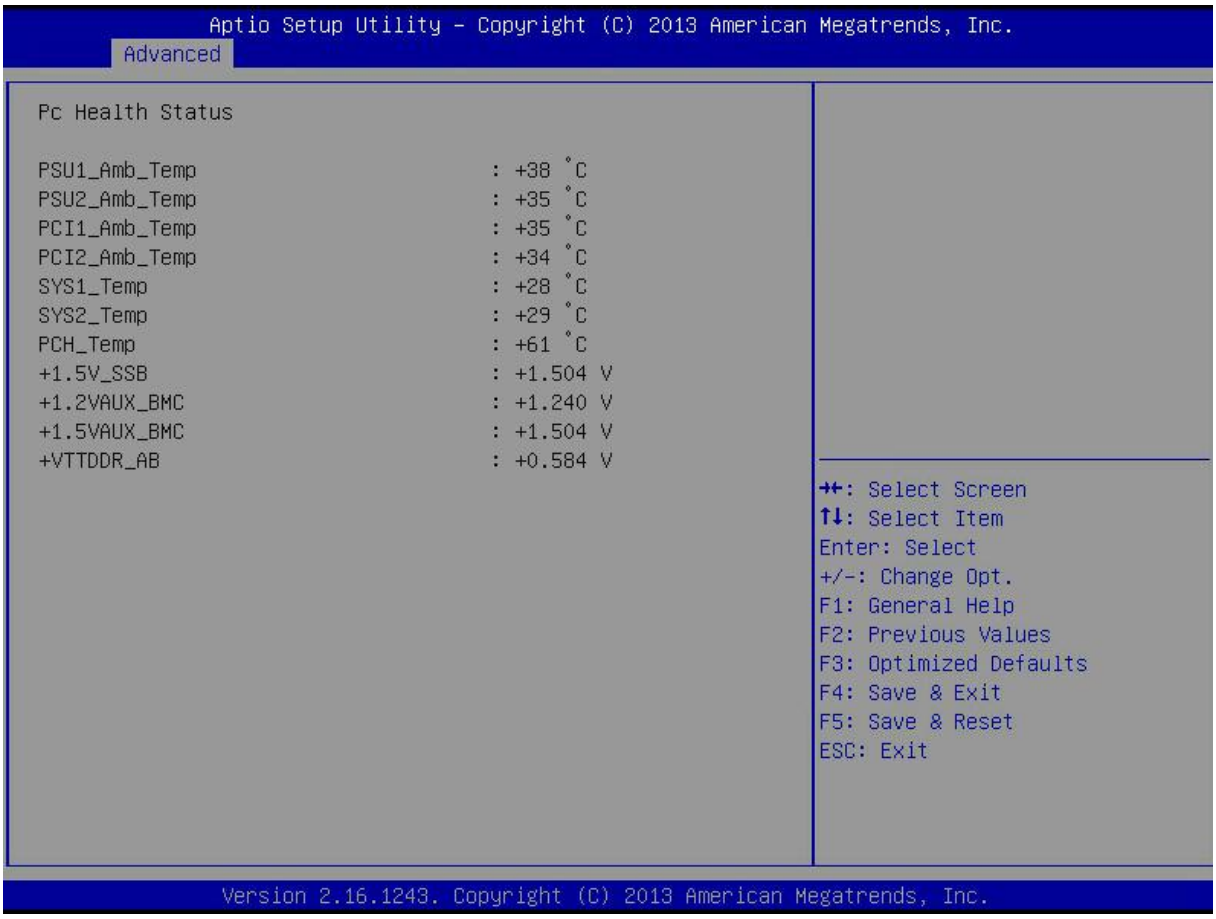


Figure 3-11 CSM Configuration Interface

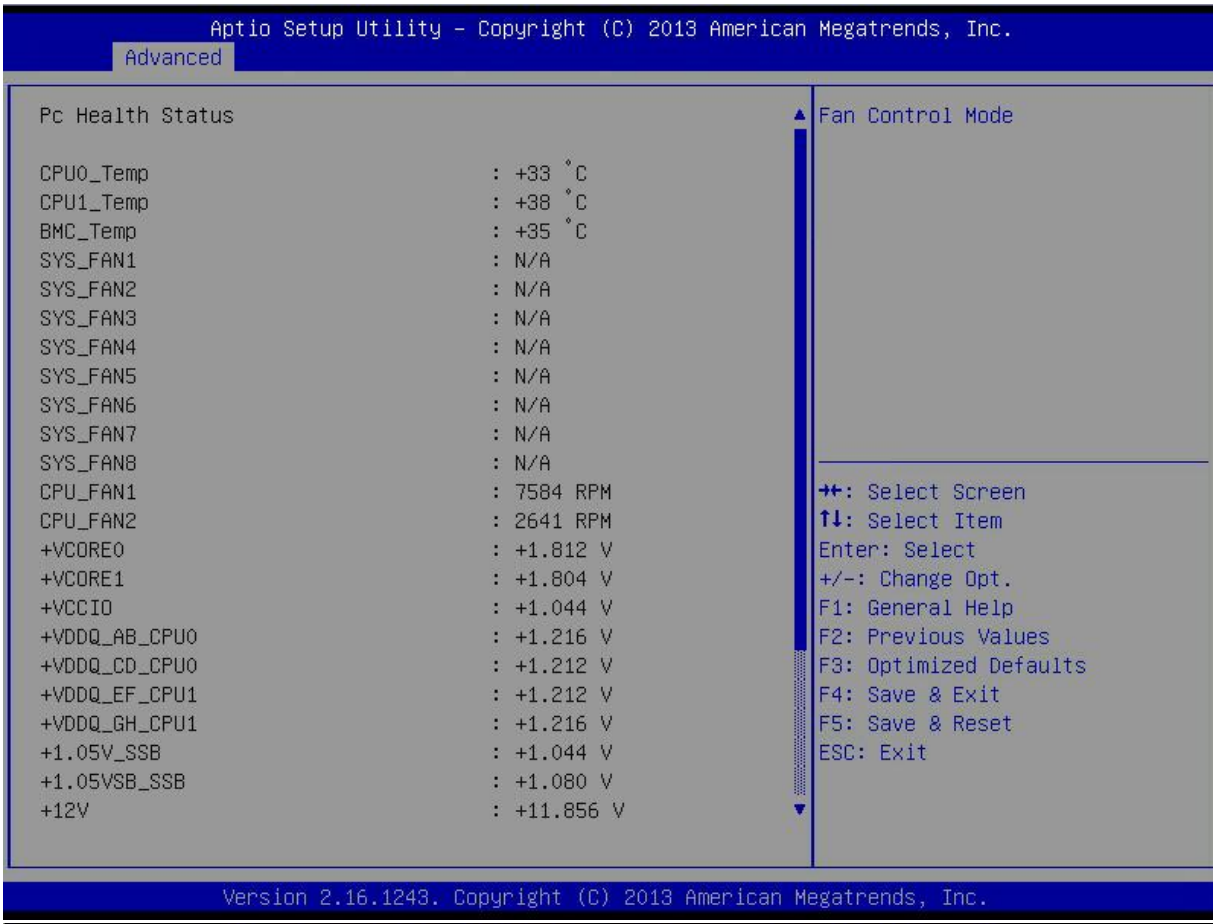
Table 3-13 Description of CSM Configuration Interface

Interface Parameters	Function Description
CSM Support	Set whether to enable the module compatibility support.
OpROM Selection	OpROM switch option of external PCIE device
CSM16 Module Version	Display the CSM16 module version.
GateA20 Active	Select to always open or close GateA20.
Option ROM Messages	Select the information display mode of Option ROM.
INT19 Trap Response	Trap the INT19 information.
Boot option filter	Control the boot priorities of Legacy ROM and UEFI ROM.
Network	UEFI/Legacy PXE OpROM parameter configuration of network device
Storage	UEFI/Legacy OpROM parameter configuration of storage device
Video	UEFI/Legacy OpROM parameter configuration of display device
Other PCI device	UEFI/Legacy OpROM parameter configuration of other device

NCT6679D HW Monitor



H/W Monitor


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced
Pc Health Status
CPU0_Temp : +33 °C
CPU1_Temp : +38 °C
BMC_Temp : +35 °C
SYS_FAN1 : N/A
SYS_FAN2 : N/A
SYS_FAN3 : N/A
SYS_FAN4 : N/A
SYS_FAN5 : N/A
SYS_FAN6 : N/A
SYS_FAN7 : N/A
SYS_FAN8 : N/A
CPU_FAN1 : 7584 RPM
CPU_FAN2 : 2641 RPM
+VCORE0 : +1.812 V
+VCORE1 : +1.804 V
+VCCIO : +1.044 V
+VDDQ_AB_CPU0 : +1.216 V
+VDDQ_CD_CPU0 : +1.212 V
+VDDQ_EF_CPU1 : +1.212 V
+VDDQ_GH_CPU1 : +1.216 V
+1.05V_SSB : +1.044 V
+1.05VSB_SSB : +1.080 V
+12V : +11.856 V
Fan Control Mode
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Save & Reset
ESC: Exit
Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.

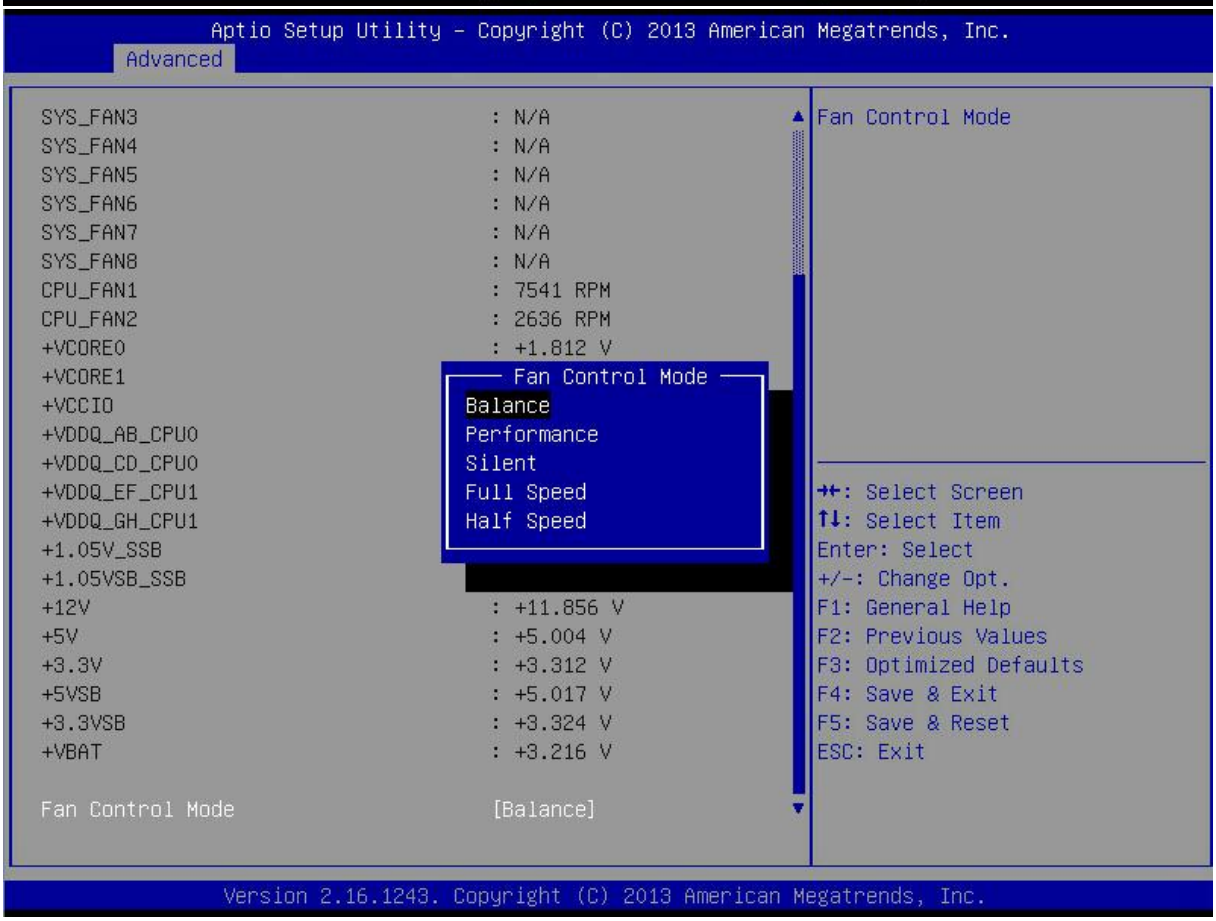

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced
SYS_FAN3 : N/A
SYS_FAN4 : N/A
SYS_FAN5 : N/A
SYS_FAN6 : N/A
SYS_FAN7 : N/A
SYS_FAN8 : N/A
CPU_FAN1 : 7541 RPM
CPU_FAN2 : 2636 RPM
+VCORE0 : +1.812 V
+VCORE1
+VCCIO
+VDDQ_AB_CPU0
+VDDQ_CD_CPU0
+VDDQ_EF_CPU1
+VDDQ_GH_CPU1
+1.05V_SSB
+1.05VSB_SSB
Fan Control Mode
Balance
Performance
Silent
Full Speed
Half Speed
+12V : +11.856 V
+5V : +5.004 V
+3.3V : +3.312 V
+5VSB : +5.017 V
+3.3VSB : +3.324 V
+VBAT : +3.216 V
Fan Control Mode [Balance]
Fan Control Mode
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Save & Reset
ESC: Exit
Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.

Figure 3-12 H/W Monitor Interface

Table 3-14 Parameter Description of H/W Monitor Interface

Interface Parameters	Function Description
Fan Control Mode	Set the fan speed control mode.

3.2.4 Chipset Menu

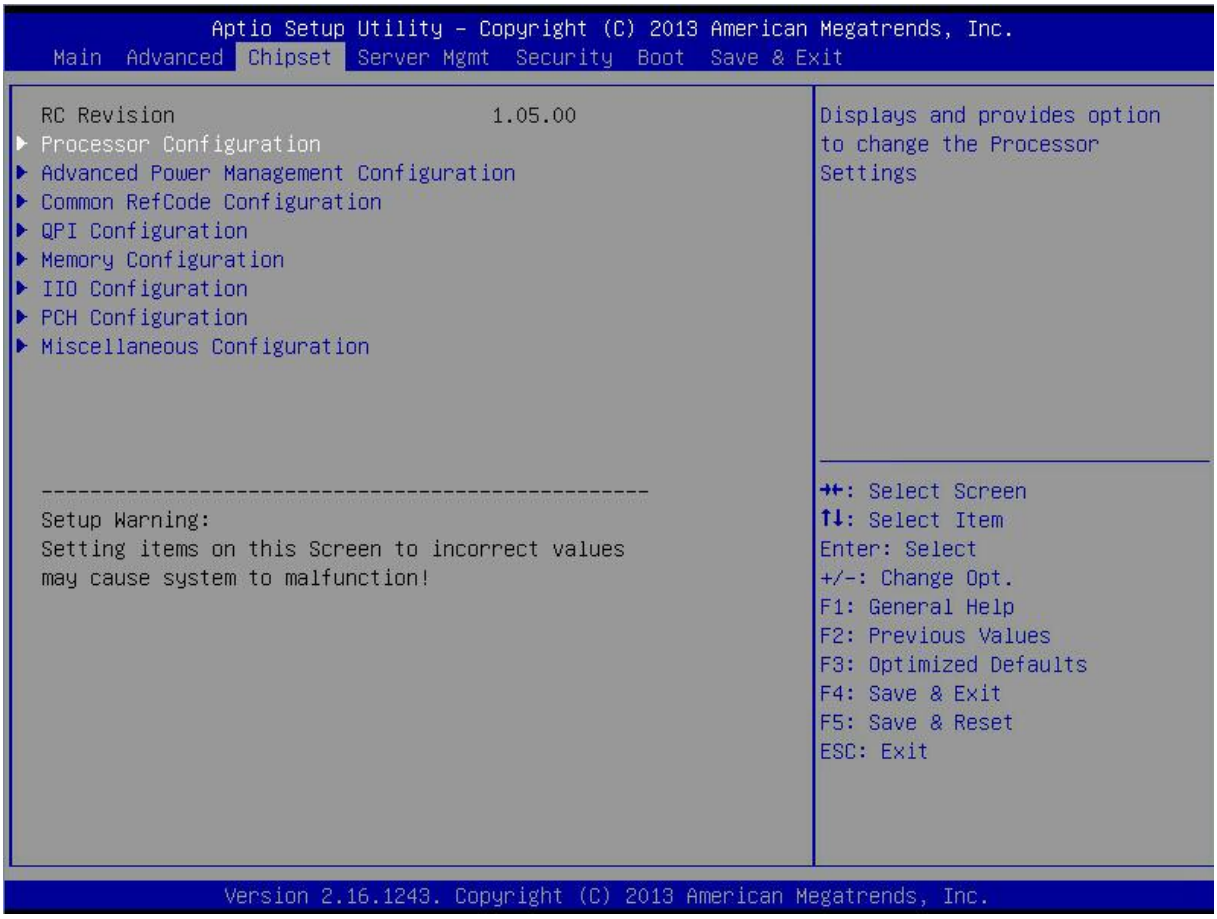


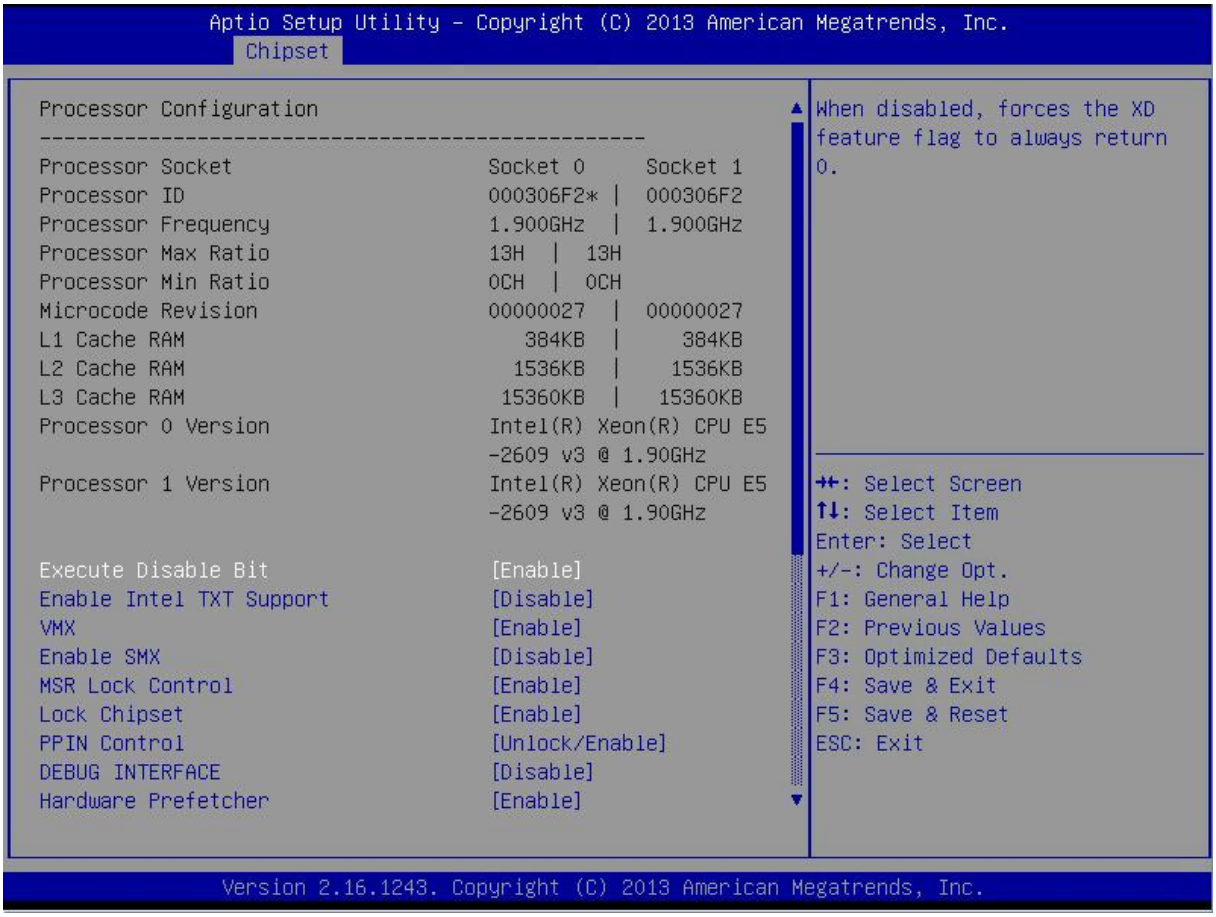
Figure 3-13 Chipset Interface

Table 3-15 Parameter Description of Chipset Interface

Interface Parameters	Function Description
RC Revision	Version information of Intel MRC
Processor Configuration	Processor related configuration
Advanced Power Management Configuration	Advanced power management related configuration
Common RefCode Configuration	Common reference code configuration
QPI Configuration	QPI link relevant configuration

Memory Configuration	Memory relevant configuration
IIO Configuration	Integrated input/output related configuration
PCH Configuration	Chipset relevant configuration
Miscellaneous Configuration	Other configuration

Processor Configuration



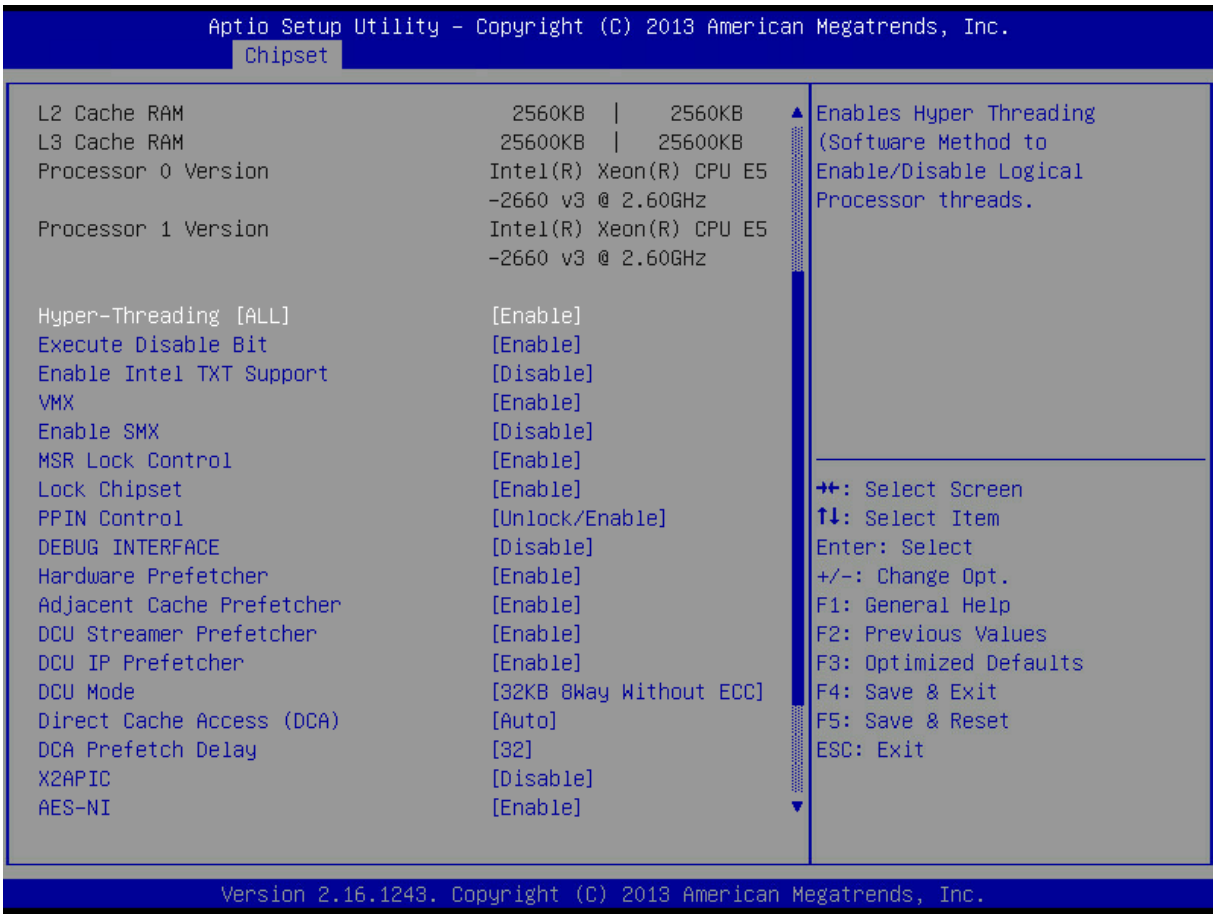


Figure 3-14 Processor Configuration Interface

Table 3-16 Parameter Description of Processor Configuration Interface

Parameter Name	Configuration Description
Processor Socket	Processor socket serial number
Processor ID	Processor ID
Processor Frequency	Processor frequency
Processor Max Ratio	Processor maximum ratio
Processor Min Ratio	Processor minimum ratio
Microcode Revision	Microcode revision information of processor
L1 Cache RAM	L1 cache capacity
L2 Cache RAM	L2 cache capacity
L3 Cache RAM	L3 cache capacity
Processor 0 Version Processor 1 Version	Processor model
Execute Disable Bit	Enable/disable the EDB technology. Enable this technology to enhance the system

Parameter Name	Configuration Description
	security and prevent the virus intrusion.
Enable Intel TXT Support	Whether the Intel TXT support is enabled, which is a technology to enhance the security of virtual machines.
VMX	Enable/disable the CPU relevant virtualization technology.
Enable SMX	Enable/disable the safe mode expansion technology, which can enhance the data security in the processor after the enabling.
MSR Lock Control	CPU module special register lock control
Lock Chipset	Set whether to lock the chipset register table; enable the lock to enhance the system security.
PPIN Control	Enable/disable the processor inventory number protection.
DEBUG INTERFACE	Enable/disable the diagnosis interface.
Hardware Prefetcher	Enable/disable the hardware prefetcher function. It can read the instruction and data in the memory to the cache in advance after the enabling, so as to improve the system performance.
DCU Streamer Prefetcher	Enable it to prefetch the data stream to DCU (Data Cache Unit) from the cache, so as to improve the data reading/writing and processing speed, and enhance the system performance.
DCU IP Prefetcher	Enable it to prefetch the IP address, so as to enhance the network performance.
DCU Mode	Set the DCU mode, used to enable the L1 cache error correction function.
Direct Cache Access (DCA)	Enable/disable the Direct Cache Access (DCA) technology; enable it to improve the data access and transmission efficiency.
DCA Prefetech Delay	Set the DCA prefetch delay.
X2APIC	Extended advanced programmable interrupt controller
AES-NI	Enable/disable the advanced encryption standard - new instruction (AES-NI) technology. Enable it to enhance the data security.

Advanced Power Management Configuration

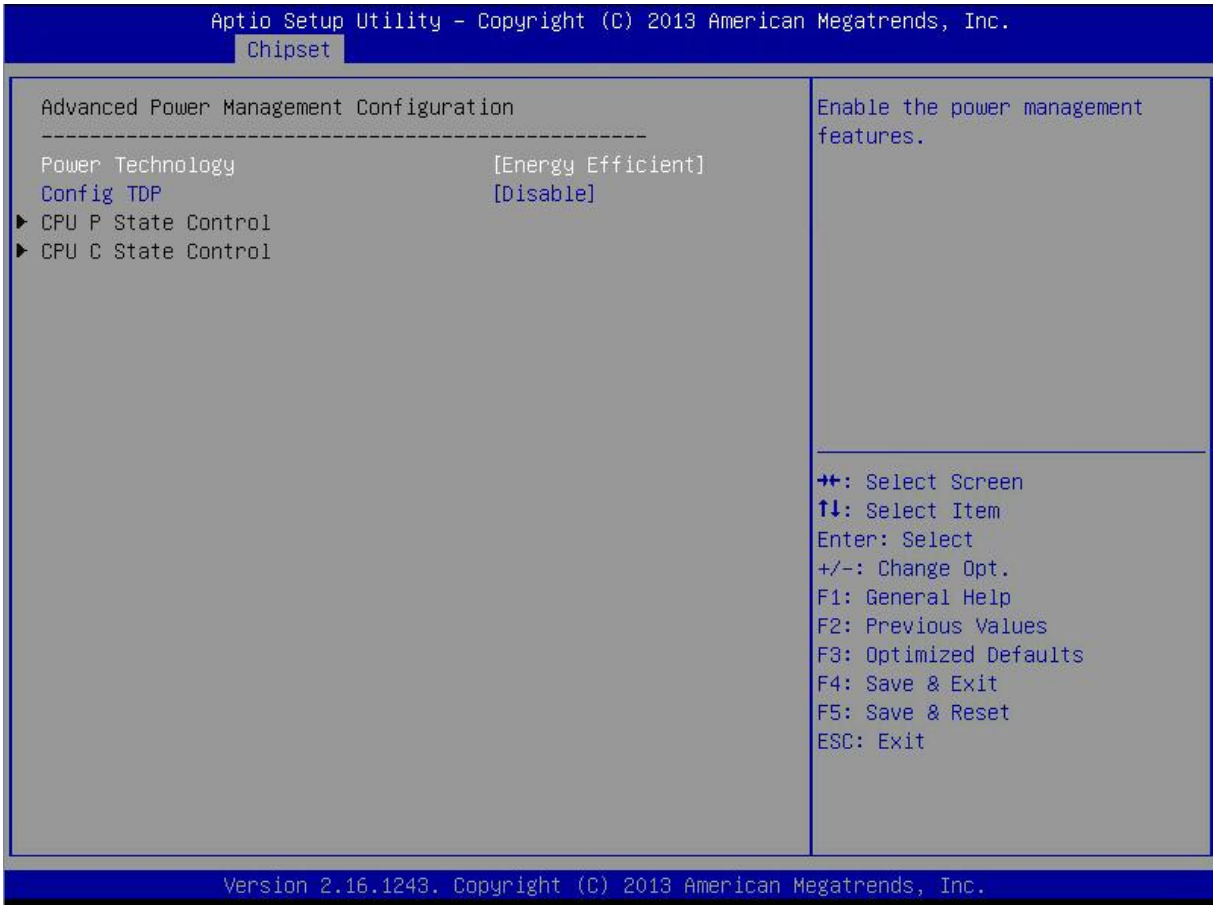


Figure 3-15 Advanced Power Management Configuration Interface

Table 3-17 Parameter Description of Advanced Power Management Configuration Interface

Parameter Name	Configuration Description
Power Technology	Power management strategy selection (Energy Efficient: Used to support the energy saving mode; Custom: Used to customize the system power settings; Disable: Used to disable the power energy saving settings. Options: Disable, Energy Efficient (default) or Custom
Config TDP	Configure the thermal design power (TDP).
CPU P State Control	Relevant parameter settings of processor power status
CPU C State Control	CPU free status relevant parameter settings

CPU P State Control

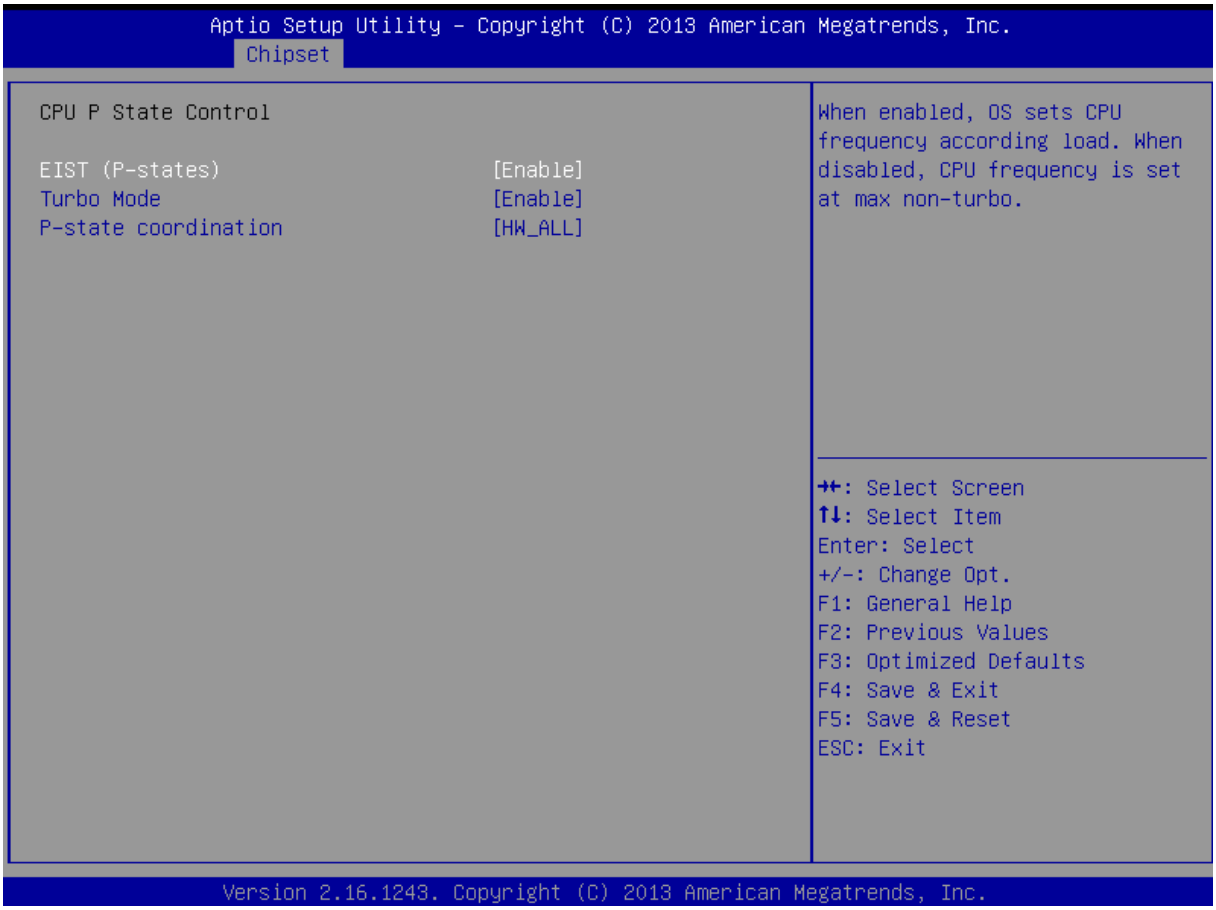


Figure 3-16 CPU P State Control Interface

Table 3-18 Parameter Description of CPU P State Control Interface

Parameter Name	Configuration Description
EIST (P-State)	Enable/disable the enhanced Intel speedstep technology (EIST).
Turbo Mode	Kernel running dynamic acceleration mode
P-State coordination	Set the power status supported by the processor.

CPU C State Control

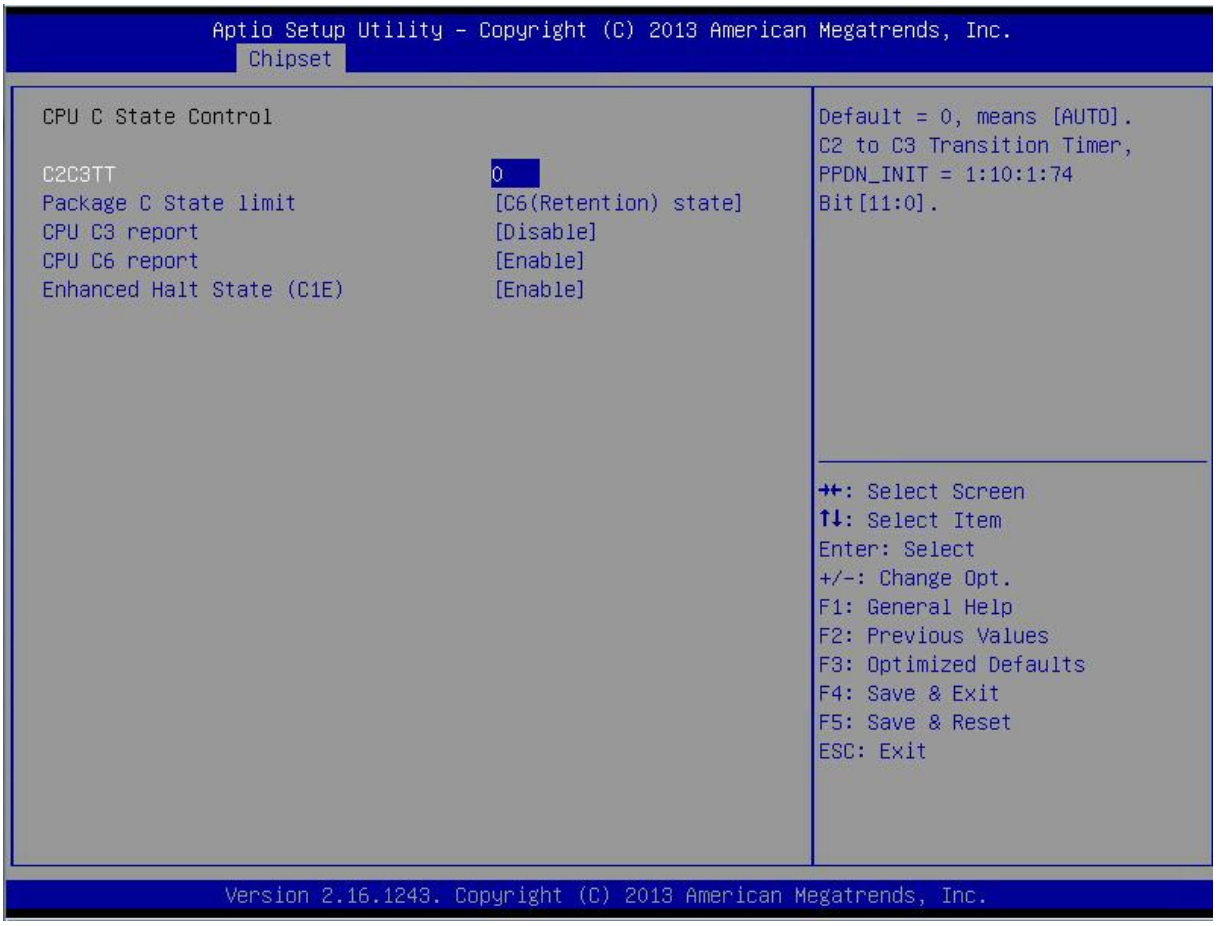


Figure 3-17 CPU C State Control Interface

Table 3-19 Parameter Description of CPU C State Control Interface

Parameter Name	Configuration Description
C2C3TT	Set the transition time from C2 state to C3 state.
Package C State Limit	CPU free state limit configuration
CPU C3 Report	Allow/prohibit BIOS to report the C3 idle state to OS.
CPU C6 Report	Allow/prohibit BIOS to report the C6 idle state to OS.
Enhanced Halt State (C1E)	Enable/disable the enhanced idle power supply management state conversion. It can reduce the CPU voltage and frequency, so as to save more power in the CPU idle state after the enabling.

Common RefCode Configuration

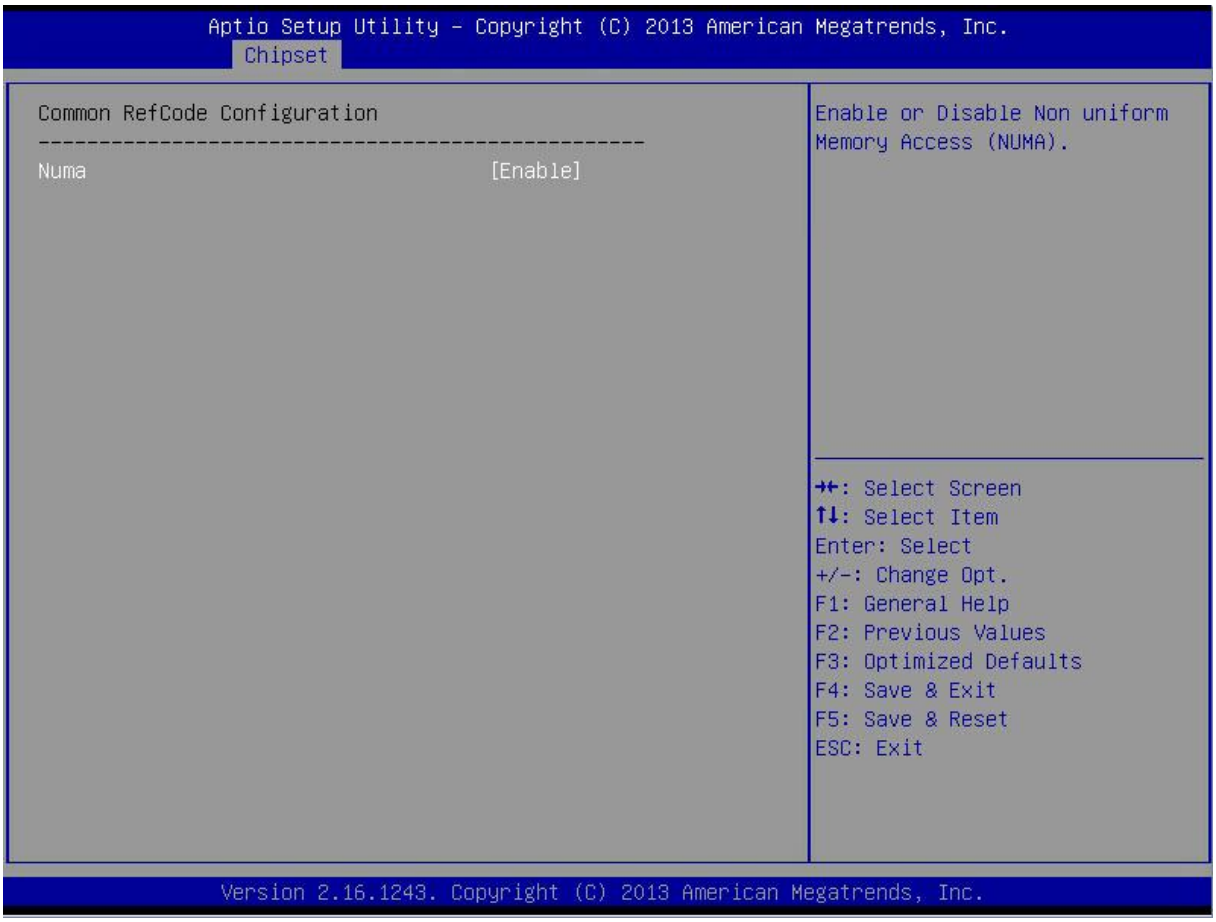


Figure 3-18 Common RefCode Configuration Interface

Table 3-20 Parameter Description of Common RefCode Configuration Interface

Parameter Name	Configuration Description
NUMA	Enable/disable the non-uniform memory access technology.

QPI Configuration

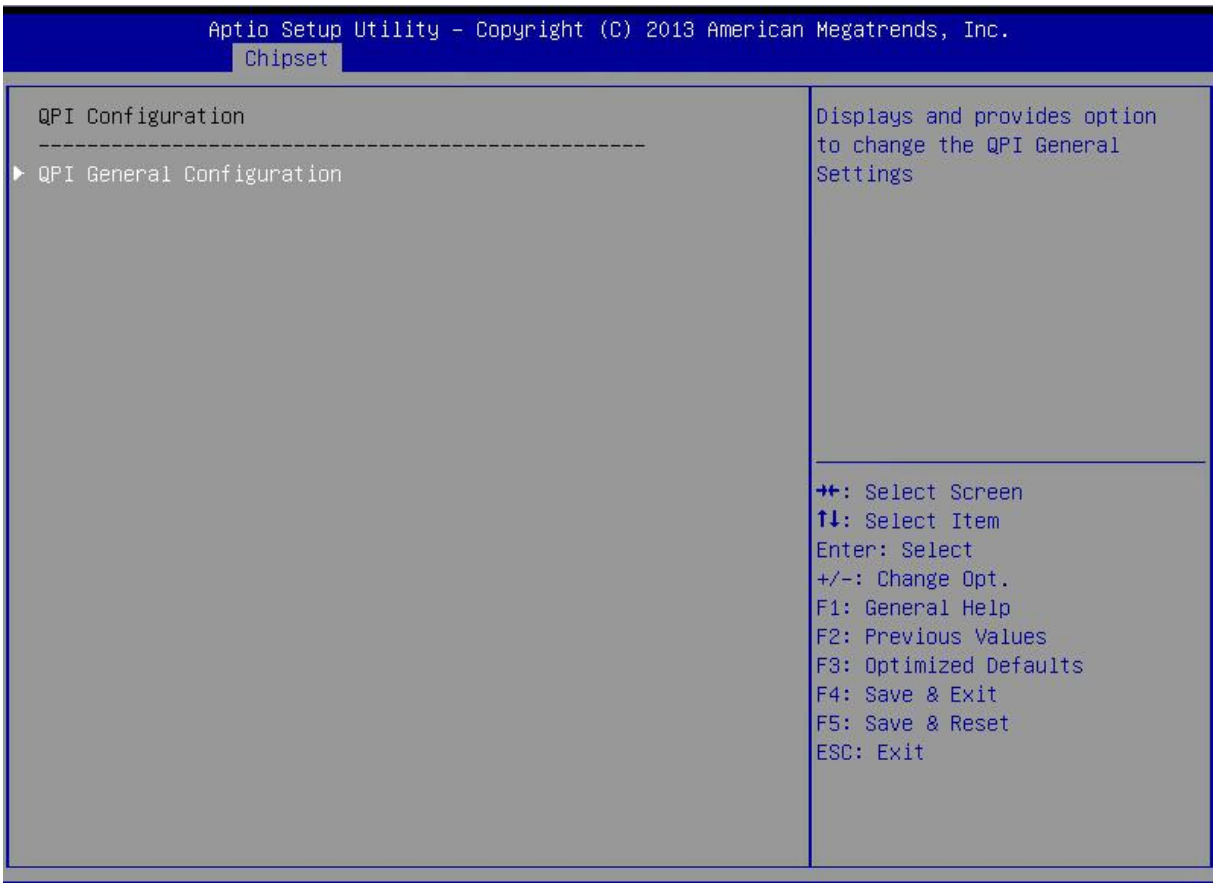


Figure 3-19 QPI Configuration Interface

Table 3-21 Parameter Description of QPI Configuration Interface

Parameter Name	Configuration Description
QPI General Configuration	QPI General Configuration

QPI General Configuration

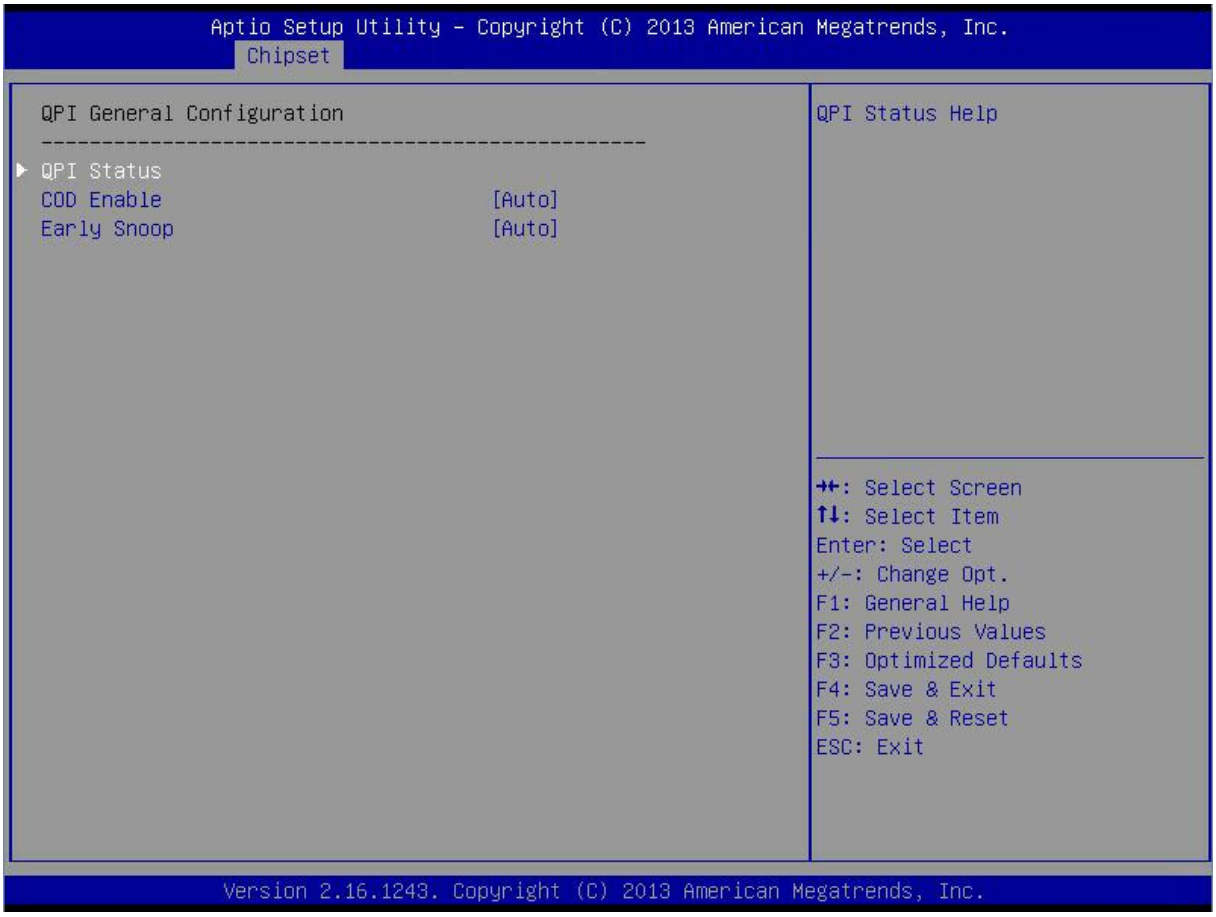


Figure 3-20 QPI General Configuration Interface

Table 3-22 Parameter Description of QPI General Configuration Interface

Interface Parameters	Function Description
QPI Status	Display the QPI status.
COD Enable	The Cluster on Die mode is used to reduce the communication between two CPU partitions, to improve its performance.
Early Snoop	Early snoop

QPI Status

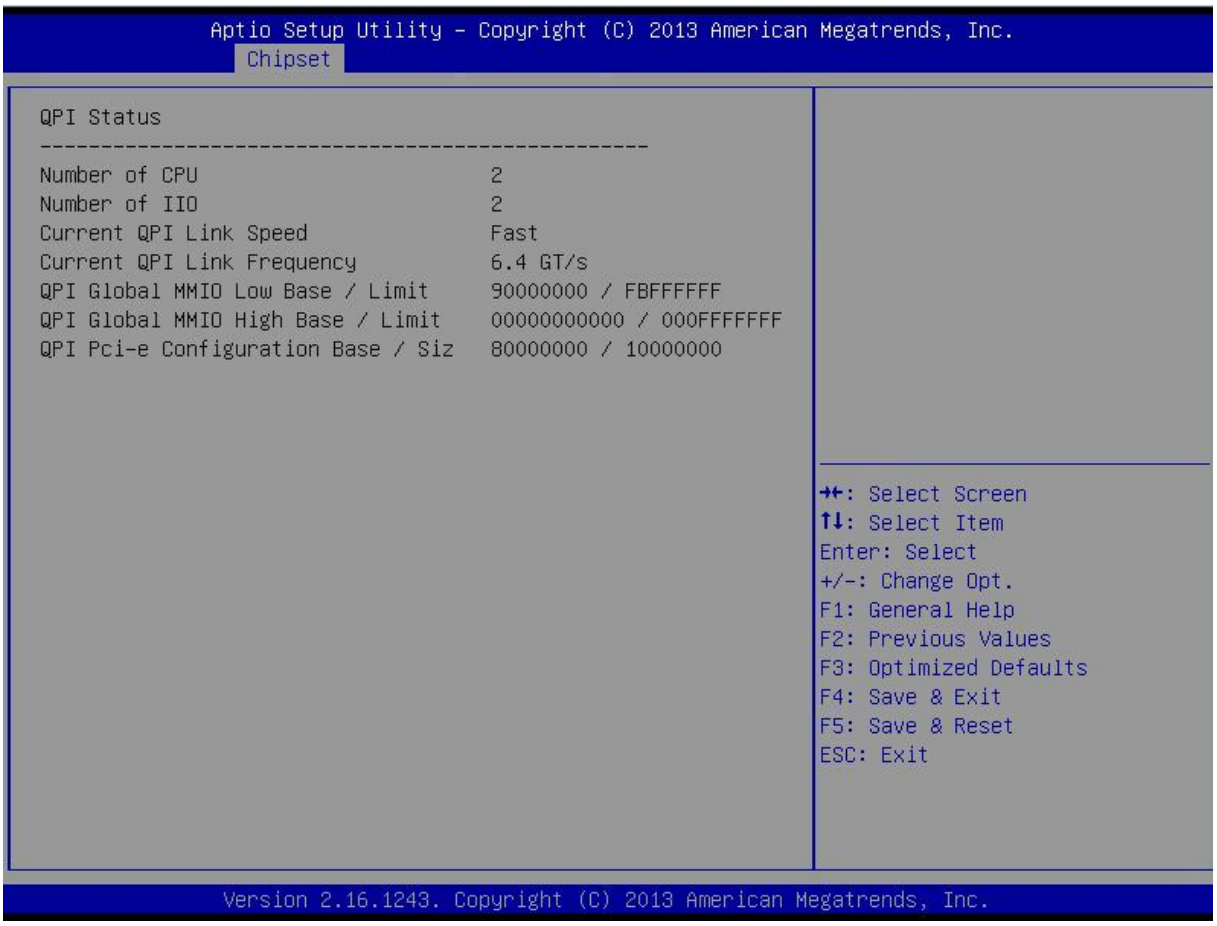


Figure 3-21 QPI Status Interface

Memory Configuration

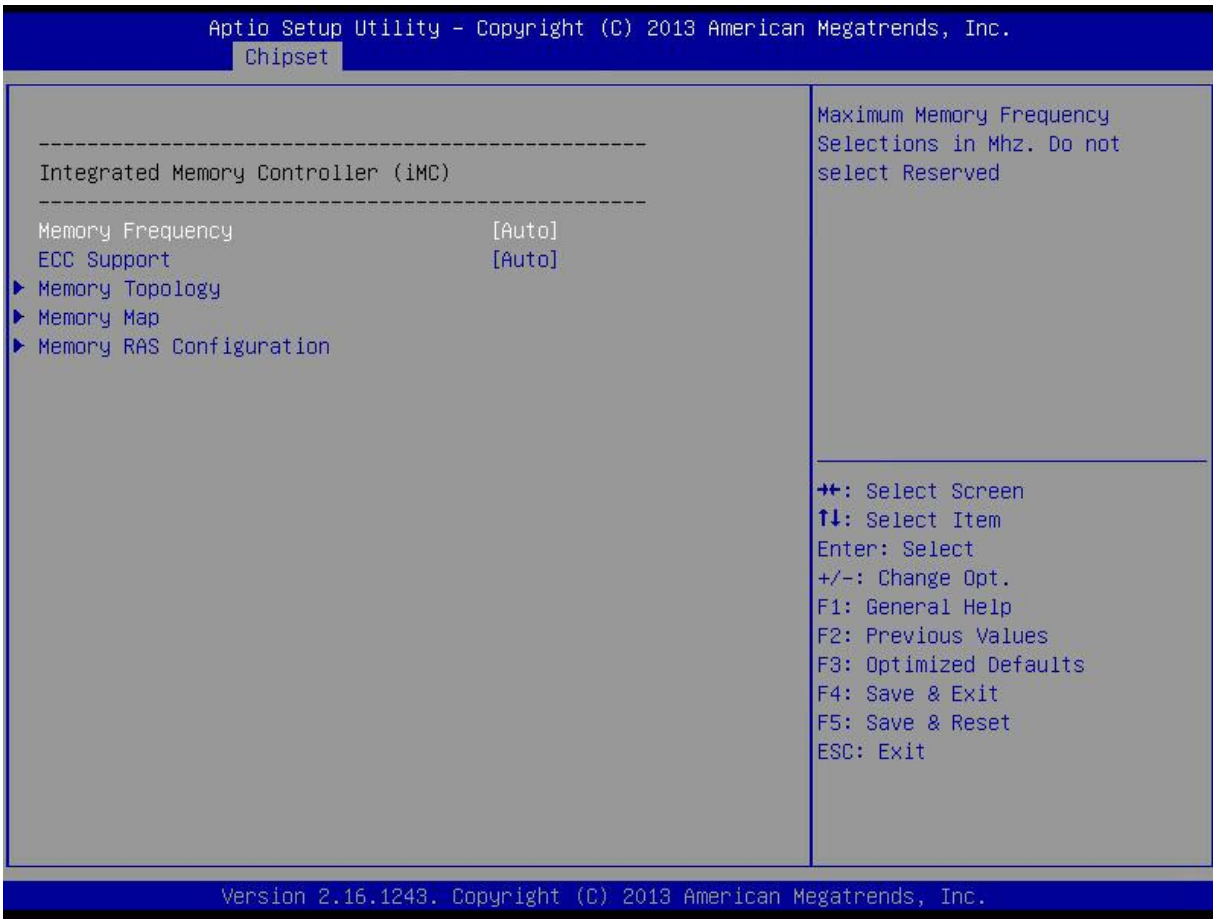
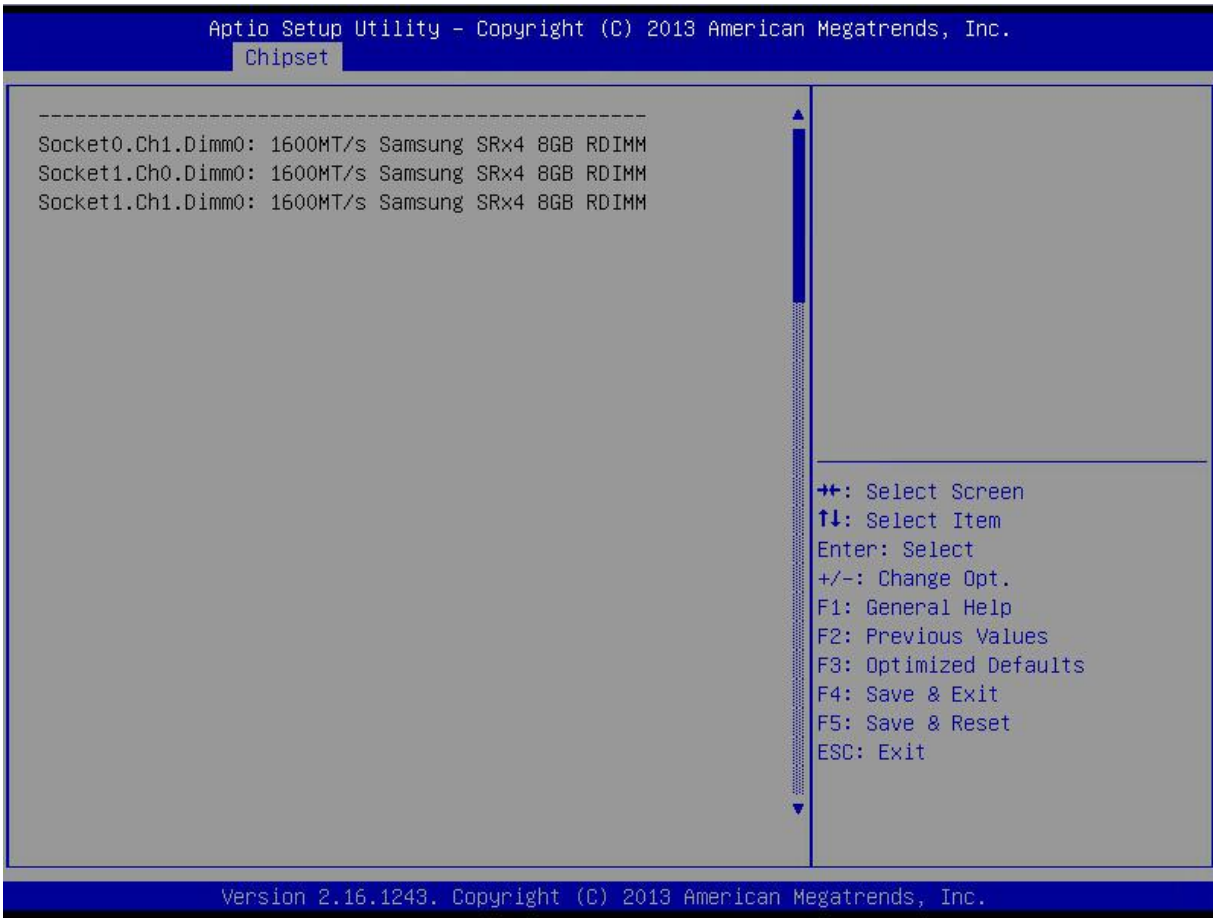


Figure 3-22 Memory Configuration Interface

Table 3-23 Parameter Description of Memory Configuration Interface

Interface Parameters	Function Description
Memory Frequency	Memory frequency settings
ECC Support	ECC function support settings
Memory Topology	Display the installed memory information.
Memory Map	Memory map related setting
Memory RAS Configuration	Memory RAS characteristic related configuration

Memory Topology



Memory Map

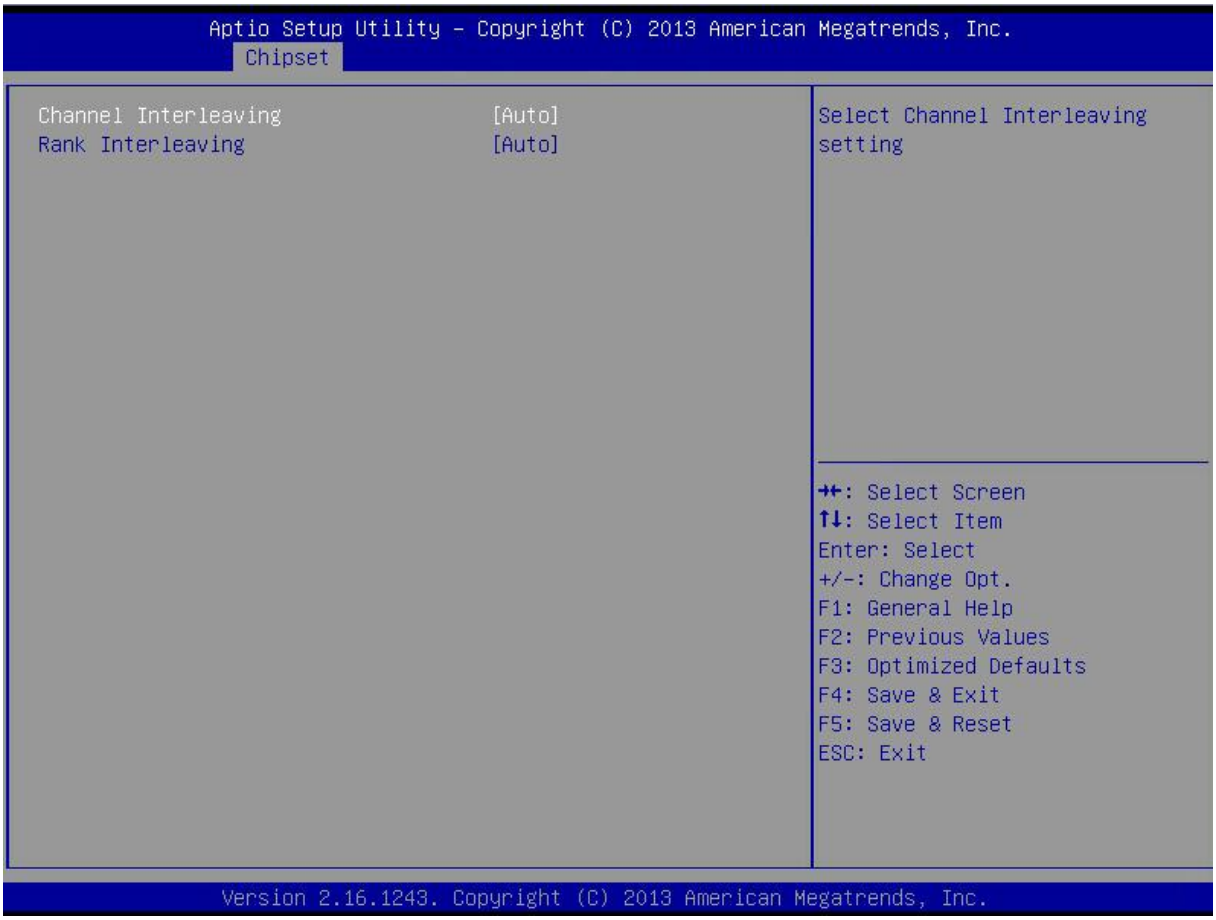


Figure 3-23 Memory Map Interface

Table 3-24 Parameter Description of Memory Map Interface

Interface Parameters	Function Description
Channel Interleaving	Set the memory channel level interleaving mode.
Rank Interleaving	Set the memory rank level interleaving mode.

Memory RAS Configuration

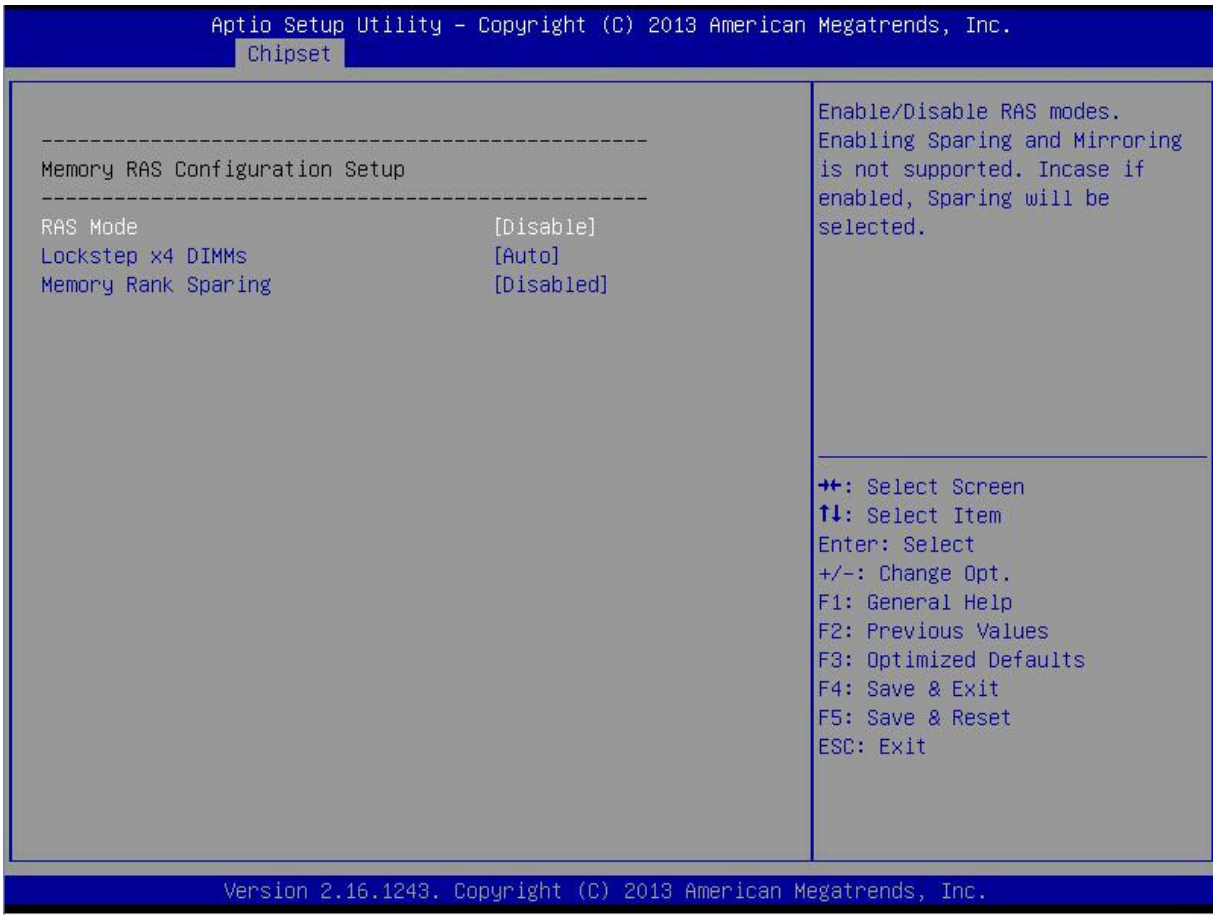


Figure 3-24 Memory RAS Configuration Interface

Table 3-25 Parameter Description of Memory RAS Configuration Interface

Interface Parameters	Function Description
RAS Mode	Set the RAS mode.
Lockstep x4 DIMMs	Enable/disable the lockstep mode for x4 DIMMs.
Memory Rank Sparing	Whether the memory rank redundancy function is enabled

IIO Configuration

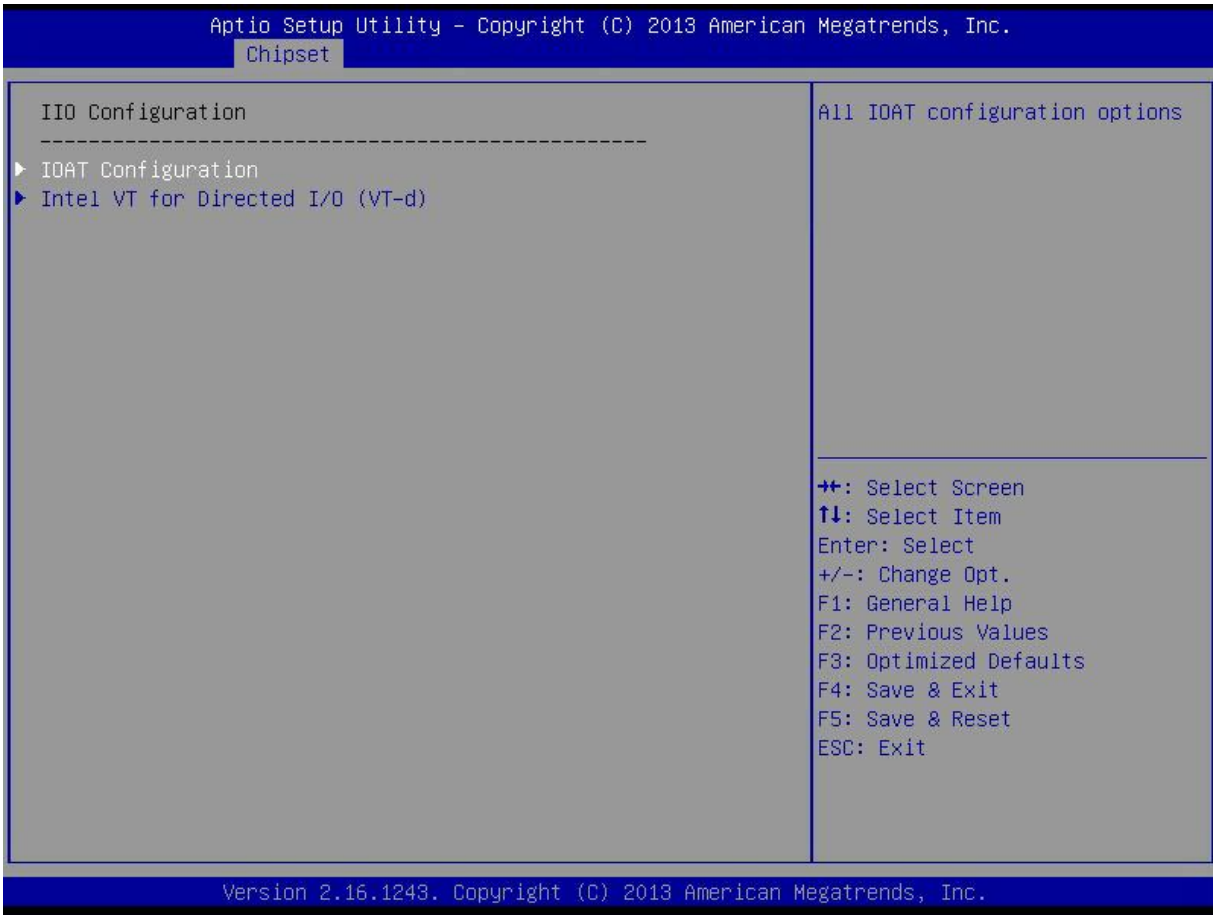


Figure 3-25 IIO Configuration Interface

Table 3-26 Parameter Description of IIO Configuration Interface

Interface Parameters	Function Description
IOAT Configuration	Integrated input/output acceleration related configuration
Intel VT for Directed I/O (VT-d)	Relevant settings of Intel VT for Directed I/O (VT-d)

IOAT Configuration

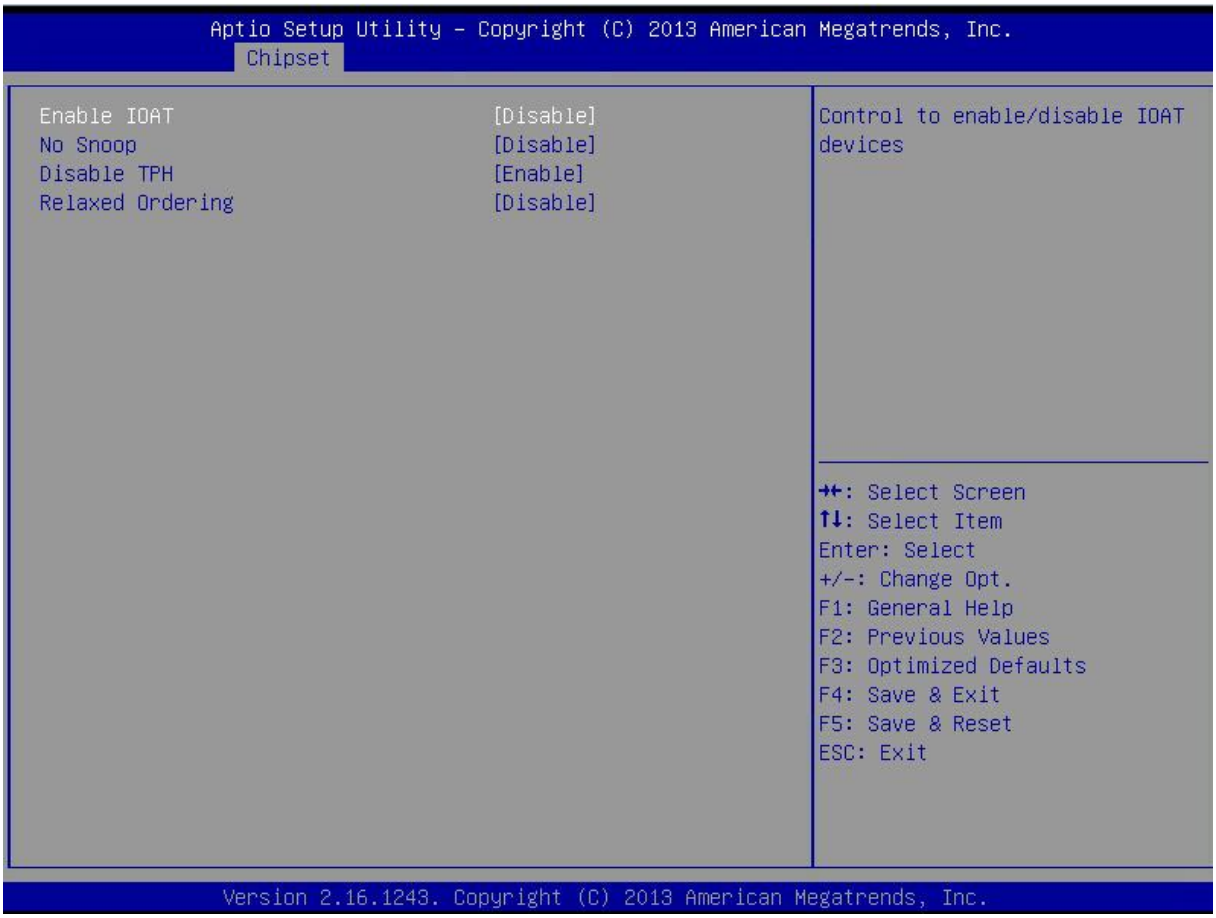


Figure 3-26 IOAT Configuration Interface

Table 3-27 Parameter Description of IOAT Configuration Interface

Interface Parameters	Function Description
Enable IOAT	Enable/disable the Intel input/output acceleration technology.
No Snoop	Enable/disable the PCIe no snooping function.
Disable TPH	Enable/disable the TLP processing prompt function.
Relaxed Ordering	Relaxed ordering

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

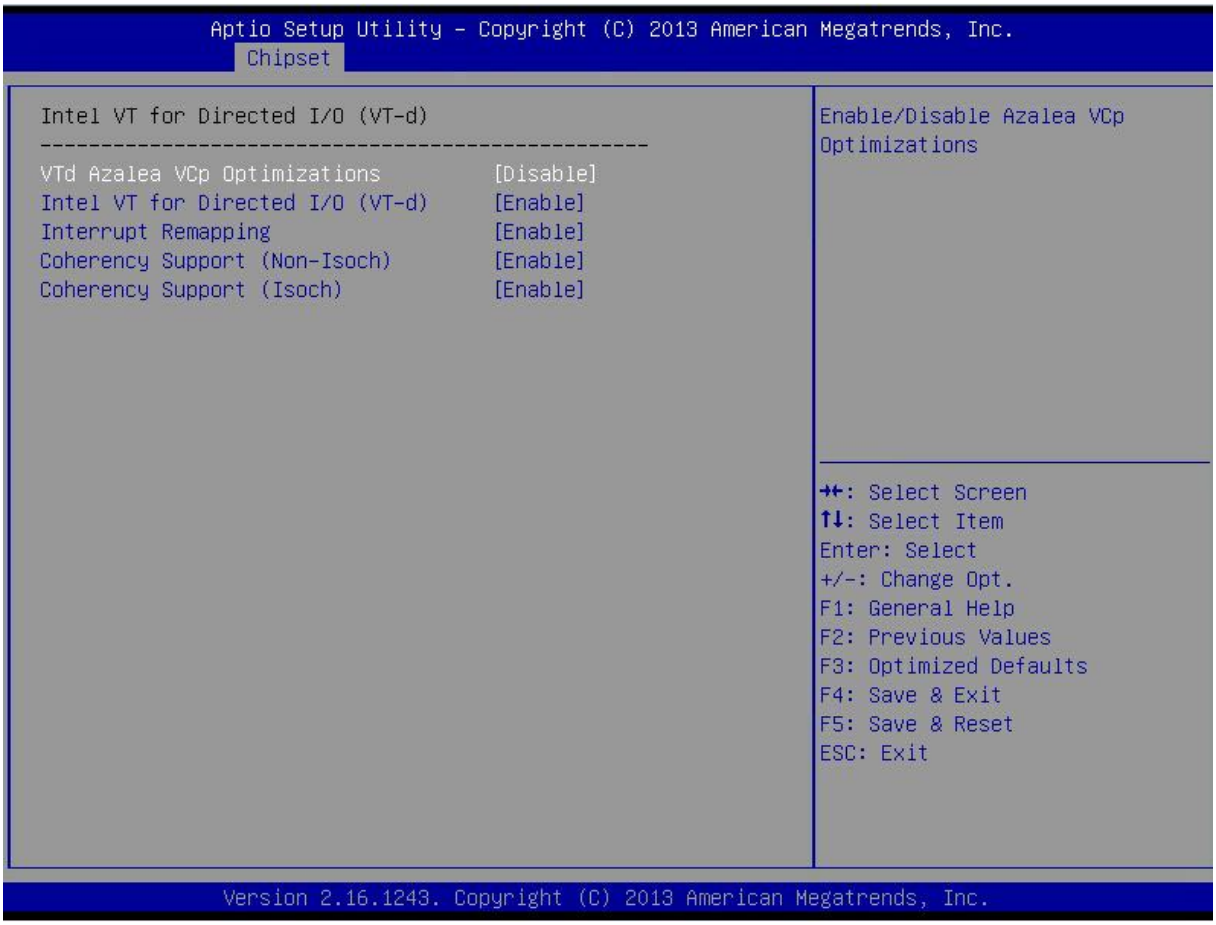


Figure 3-27 Intel VT for Directed I/O (VT-d) Interface

Table 3-28 Parameter Description of Intel VT for Directed I/O (VT-d) Interface

Interface Parameters	Function Description
VTd Azalea VCp Optimization	Virtualization configuration option of Intel IO
Intel VT for Directed I/O (VT-d)	Enable/disable the auxiliary virtualization function of the Intel hardware. It can make the system withstand more workload by enabling this feature, so as to improve the reliability and reduce TCO.
Interrupt Remapping	Enable/disable the interrupt remapping function.
Coherency Support (non-Isoch)	Enable/disable the coherency support (non-Isoch).
Coherency Support (Isoch)	Enable/disable the coherency support (Isoch).

PCH Configuration

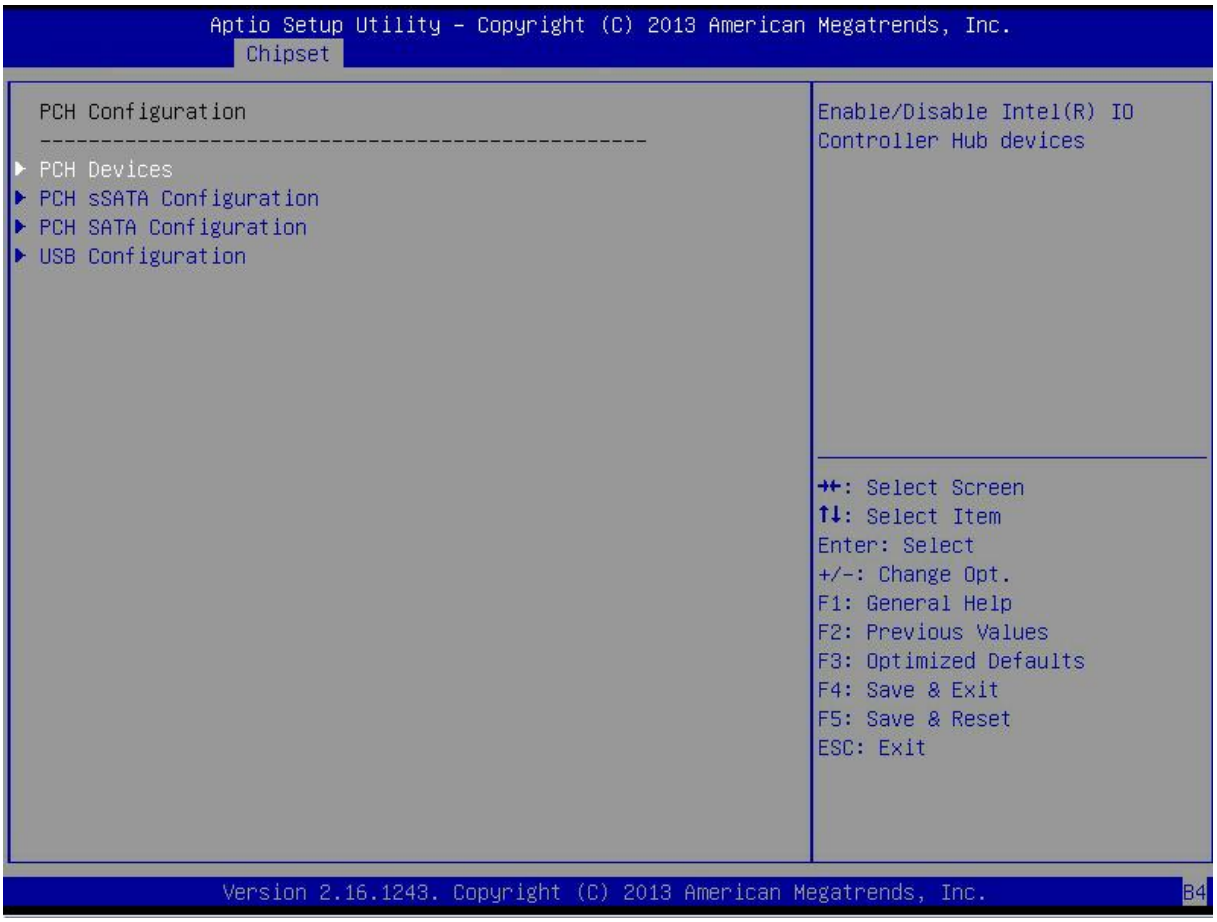


Figure 3-28 PCH Configuration Interface

Table 3-29 Parameter Description of PCH Configuration Interface

Interface Parameters	Function Description
PCH Devices	PCH device related configuration
PCH sSATA Configuration	sSATA related configuration on PCH
PCH SATA Configuration	SATA related configuration on PCH
USB Configuration	USB related configuration

PCH Devices

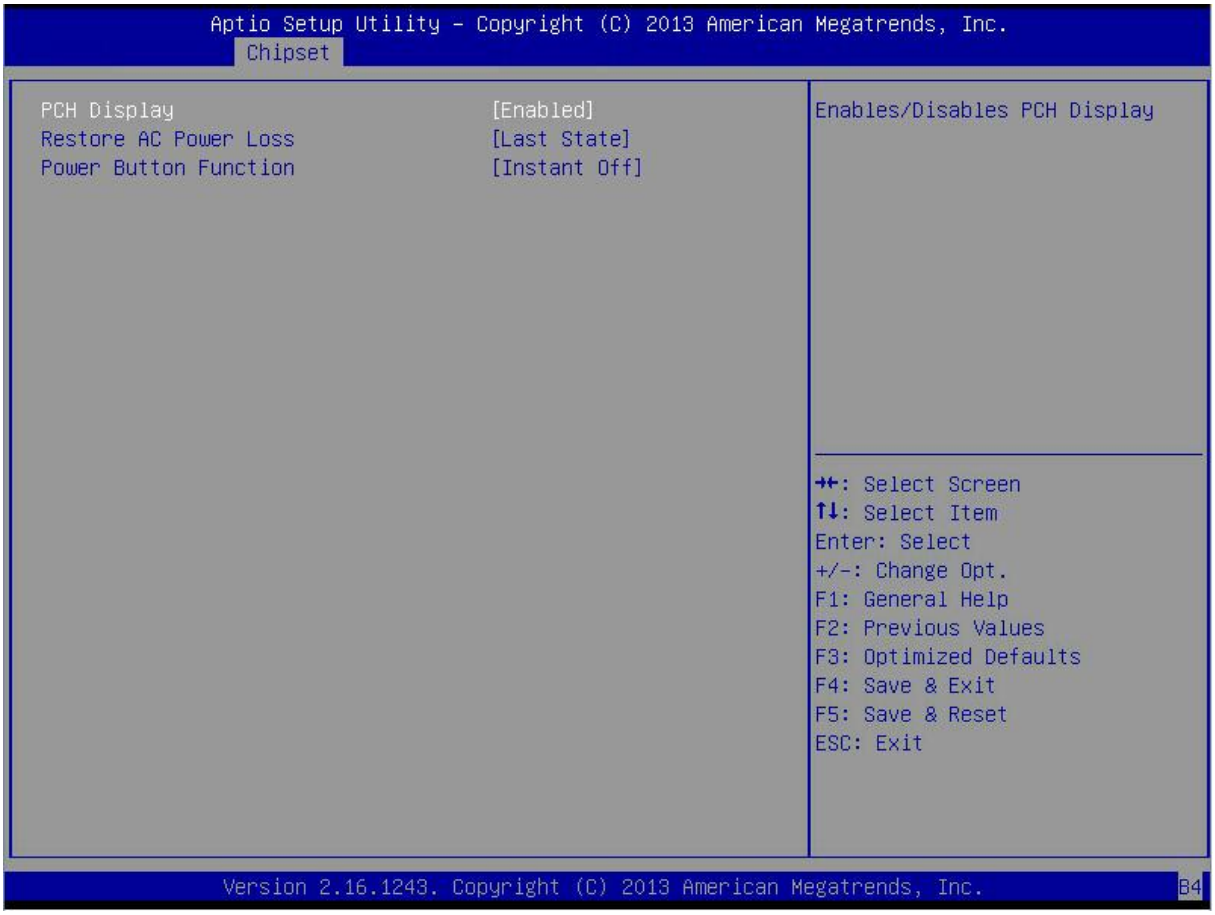


Figure 3-29 PCH Devices Interface

Table 3-30 Parameter Description of PCH Devices Interface

Interface Parameters	Function Description
PCH Display	Display the PCH device.
Restore AC Power Loss	This function is used to set the power operation status during the Stay Off and Power On of the system. Select Stay Off to indicate the system power will be stayed off after the Stay Off and Power On again. Select Power On to indicate the system power will be powered on automatically after the Stay Off and Power On again. Select Last State to indicate the system power will restart the last power status after the Stay Off and Power On again.
Power Button Function	Set the power button function of the machine. If it is set as the emergency shutdown, the system will shut down immediately when users press the power button. If it is set as 4 Seconds Override, the system will shut down after users press the power button for 4 seconds or more.

PCH sSATA Configuration

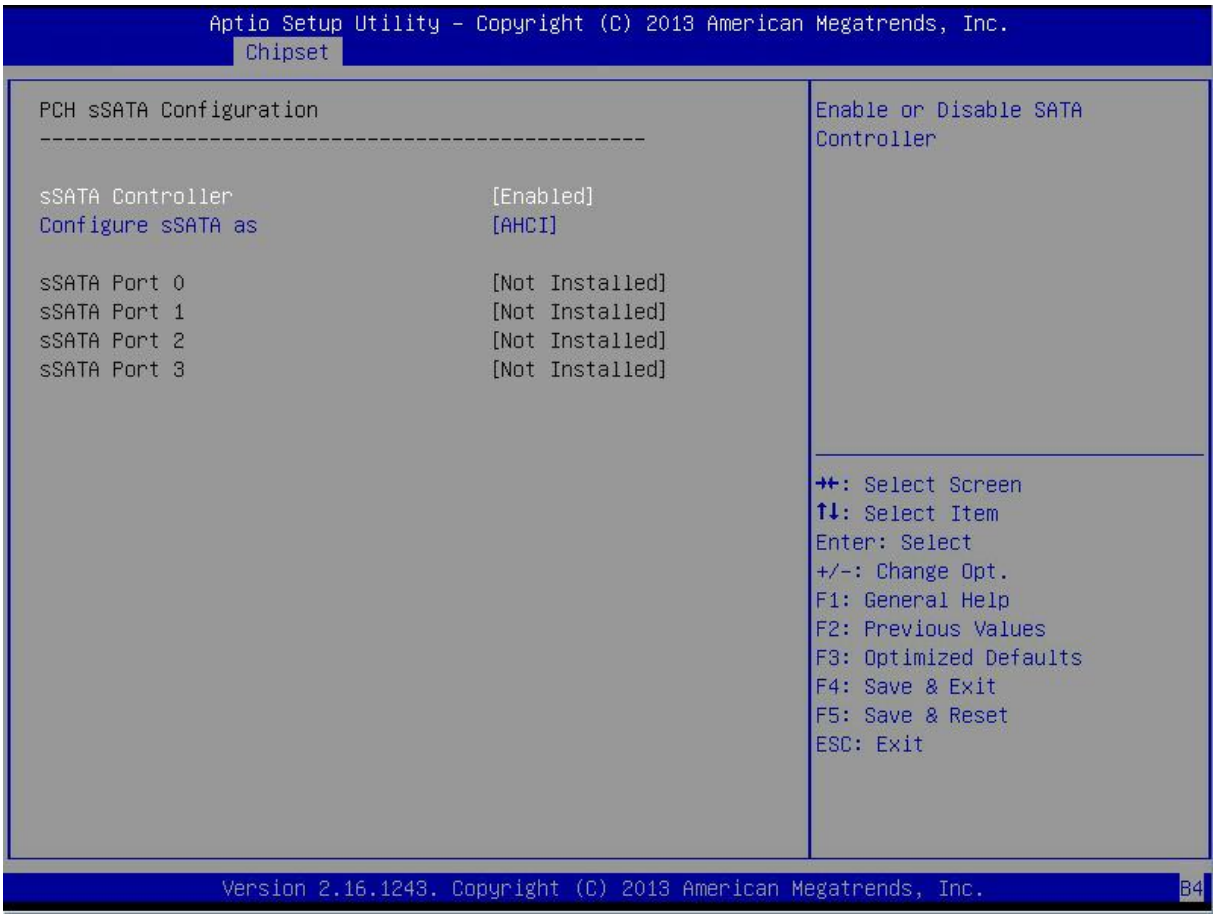


Figure 3-30 PCH sSATA Configuration Interface

Table 3-31 Parameter Description of PCH sSATA Configuration Interface

Interface Parameters	Function Description
sSATA Controller	Enable/disable the sSTAT controller.
Configure sSATA as	Configure the sSATA mode, which may be set as the IDE, AHCI or Raid mode.
sSATA Port 0 sSATA Port 1 sSATA Port 2 sSATA Port 3	Display the hard disk information of the sSATA interface. If the hard disk is not installed, it will display the hard disk details after the hard disk is installed when it displays "Not Installed".

PCH SATA Configuration

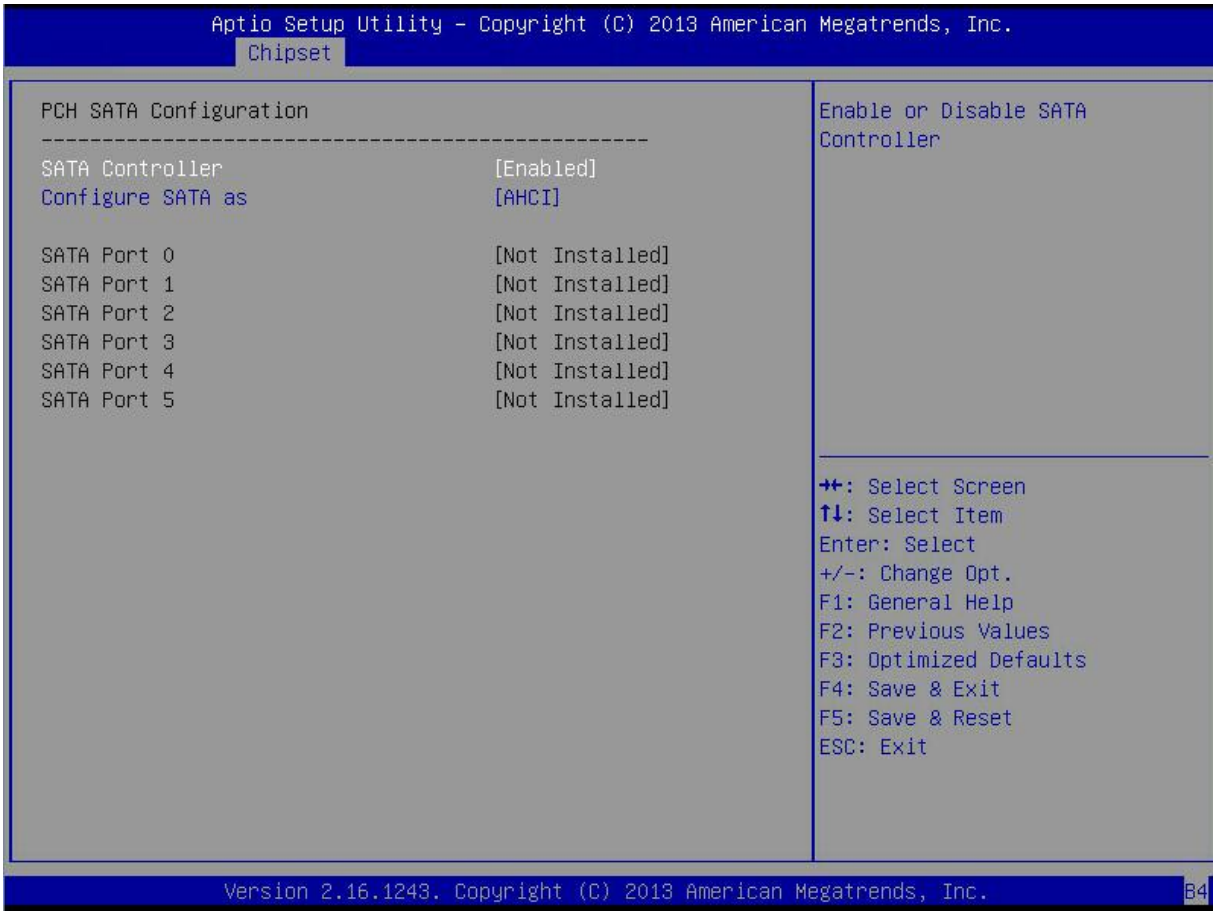


Figure 3-31 PCH SATA Configuration Interface

Table 3-32 Parameter Description of PCH SATA Configuration Interface

Interface Parameters	Function Description
SATA Controller	Enable or disable the SATA controller.
Configure SATA as	Configure the SATA mode, which may be set as the IDE, AHCI or Raid mode.
SATA Port 0 SATA Port 1 SATA Port 2 SATA Port 3	Display the hard disk information of the SATA interface. If the hard disk is not installed, it will display the hard disk details after the hard disk is installed when it displays "Not Installed".

USB Configuration

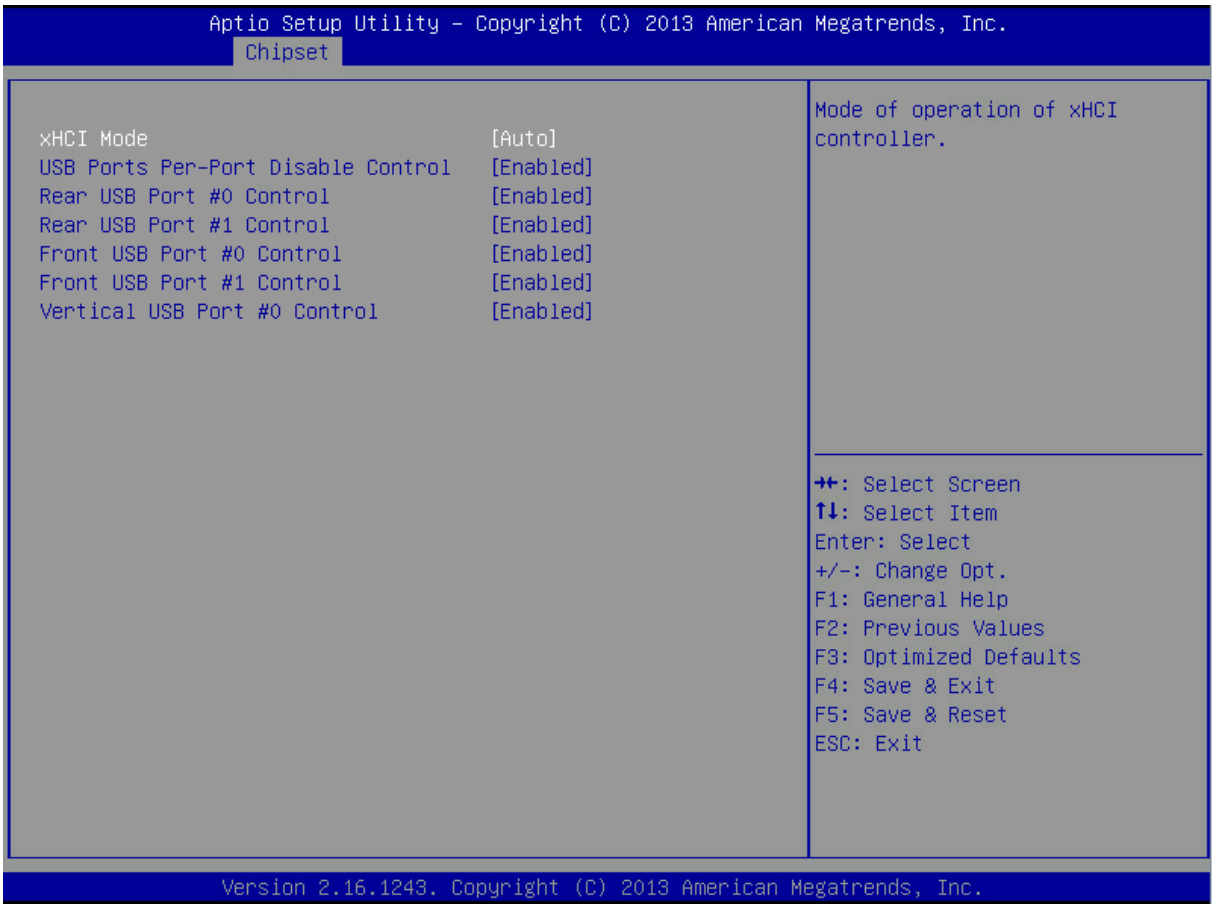


Figure 3-32 USB Configuration Interface

Table 3-33 Parameter Description of USB Configuration Interface

Interface Parameters	Function Description
xHCI Mode	Extensible host controller interface mode settings (compatible with USB3.0 or lower)
USB Ports Per-Port Disable Control	USB ports per-port disable control setting
Rear USB Port #0 control	USB port #0 control switch at the rear of chassis
Rear USB Port #1 control	USB port #1 control switch at the rear of chassis
Front USB Port #0 control	USB port #0 control switch on the front panel of chassis
Front USB Port #1 control	USB port #1 control switch on the front panel of chassis
Vertical USB Port #0 Control	Vertical USB port #0 control switch on the mainboard

3.2.5 Server Mgmt Menu

The Server Mgmt menu can set the BMC related options.

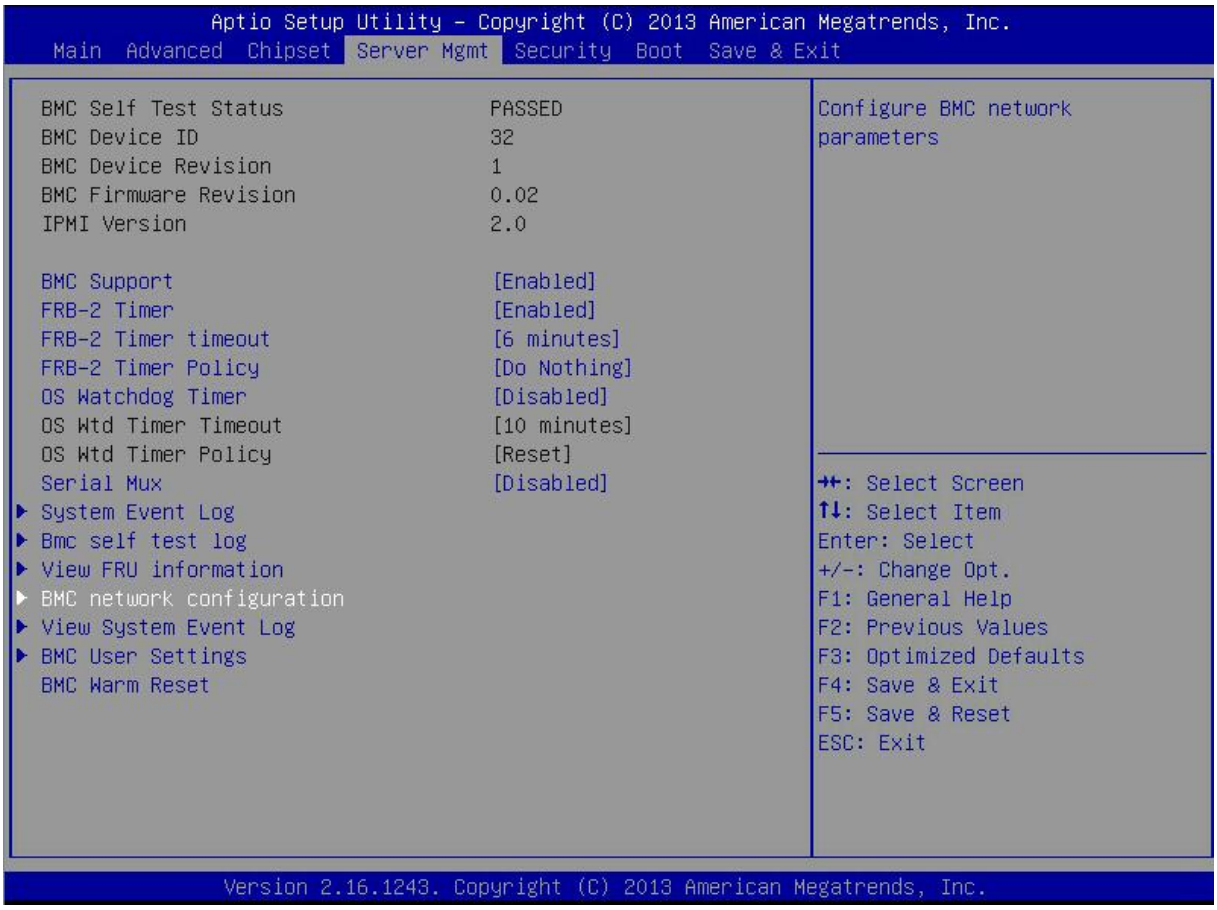


Figure 3-33 Server Mgmt Interface

Table 3-34 Parameter Description of Server Mgmt Interface

Interface Parameters	Function Description
BMC Self Test Status	BMC self test status
BMC Device ID	BMC device ID
BMC Device Revision	BMC device revision
BMC Firmware Revision	BMC firmware revision
IPMI Version	Supported IPMI standard version
BMC Support	Enable/disable the BMC function.
FRB-2 Timer	Fault recovery boot during POST
FRB-2 Timer timeout	Fault recovery boot time setting during POST
FRB-2 Timer Policy	Fault recovery boot policy during POST
OS Watchdog Timer	OS watchdog timeout setting
OS Wtd Timer Timeout	OS watchdog timer timeout setting
OS Wtd Timer Policy	OS watchdog timeout policy
Serial Mux	Serial communication
System Event Log	System event log related setting

BMC Self test log	BMC self test log related setting
View FRU information	View the FRU information.
BMC network configuration	BMC network related configuration
View System Event Log	View the system event log.
BMC User Settings	BMC user related settings, which can add, delete and modify the BMC user information.
BMC Warm Reset	BMC warm reset. Press the Enter key to prompt whether BMC is warm reset after the checking. Select Yes to warm reset BMC.

System Event Log

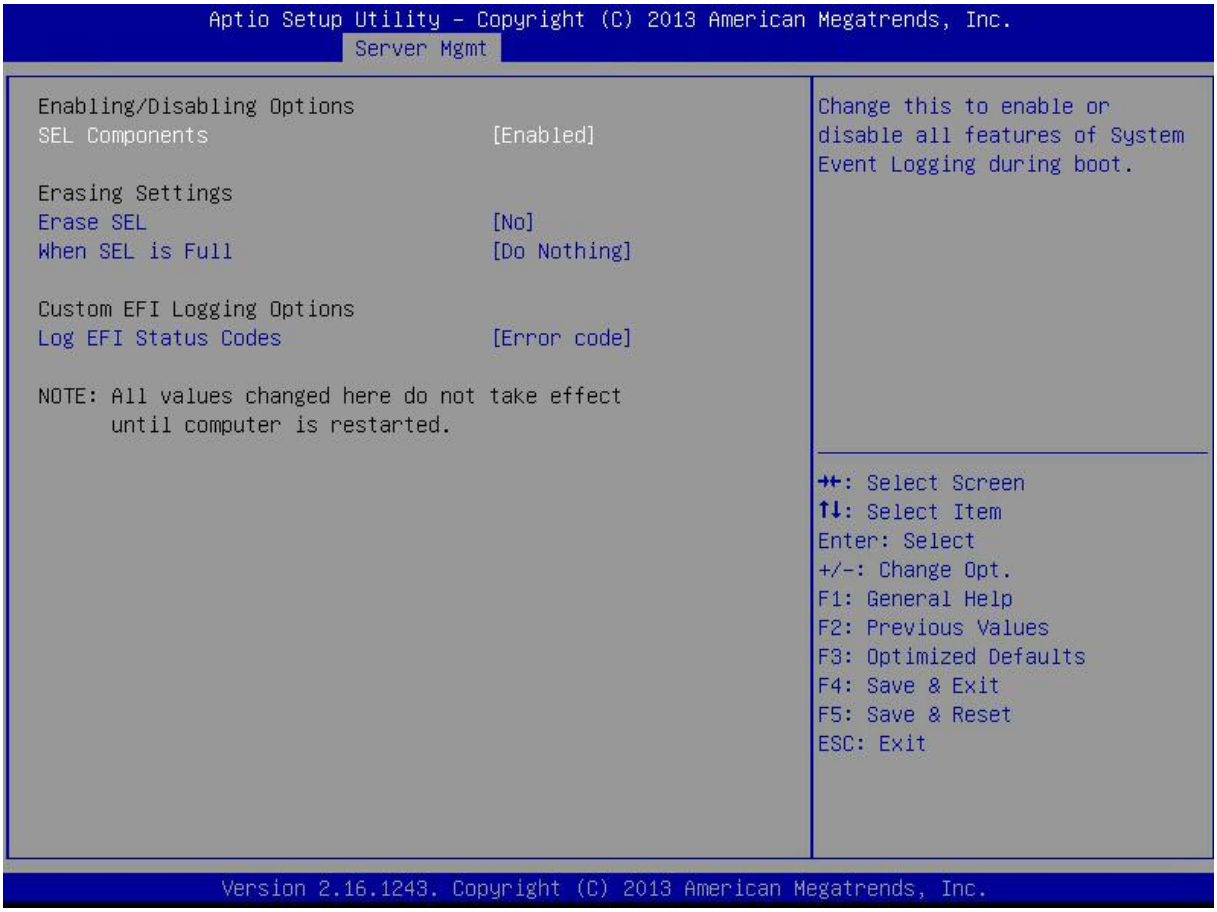


Figure 3-34 System Event Log Interface

Table 3-35 Parameter Description of System Event Log Interface

Interface Parameters	Function Description
SEL Components	Enable/disable the system log configuration function. Enable this function to set the operation function of the system log.
Erase SEL	Set whether the system event log (SEL) is cleared during the restart.
When SEL is Full	Set the action after the system event log (SEL) is full.

Log EFI Status Code	Record the setting of the EFI status code.

BMC self test log

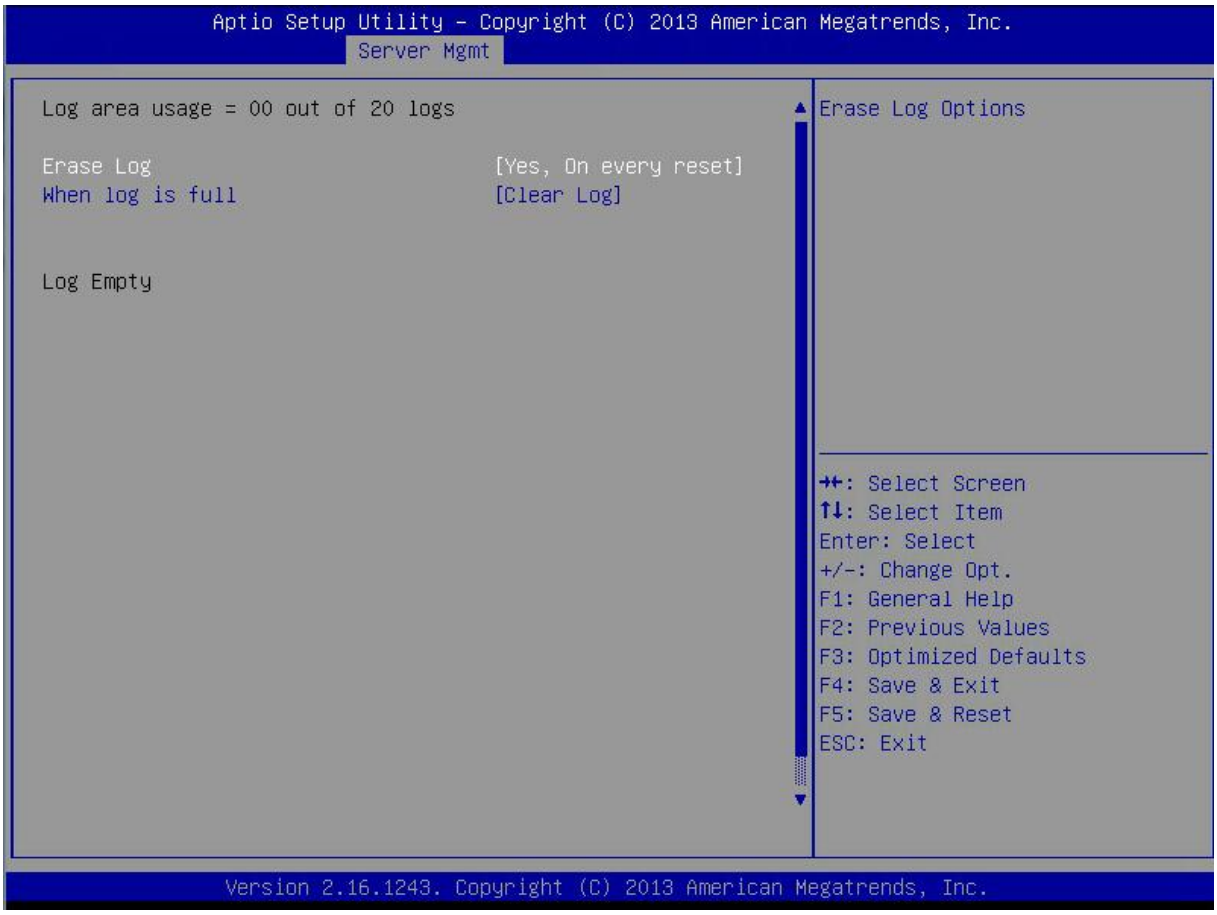
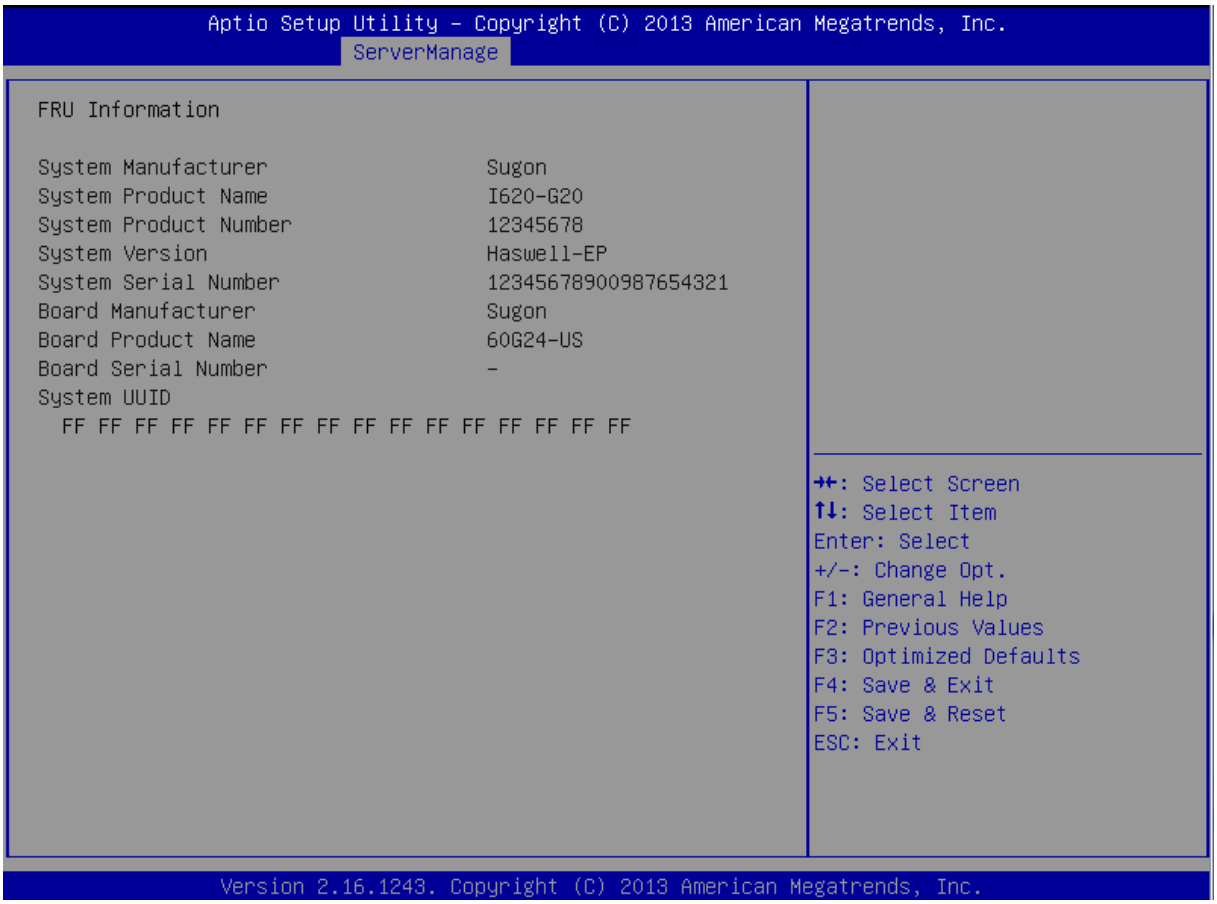


Figure 3-35 BMC Self Test Log Interface

Table 3-36 Parameter Description of BMC Self Test Log Interface

Interface Parameters	Function Description
Erase Log	Set the BMC self test log is cleared for each reboot.
When log is full	Set the action when the log is full.

View FRU information



BMC Network Configuration

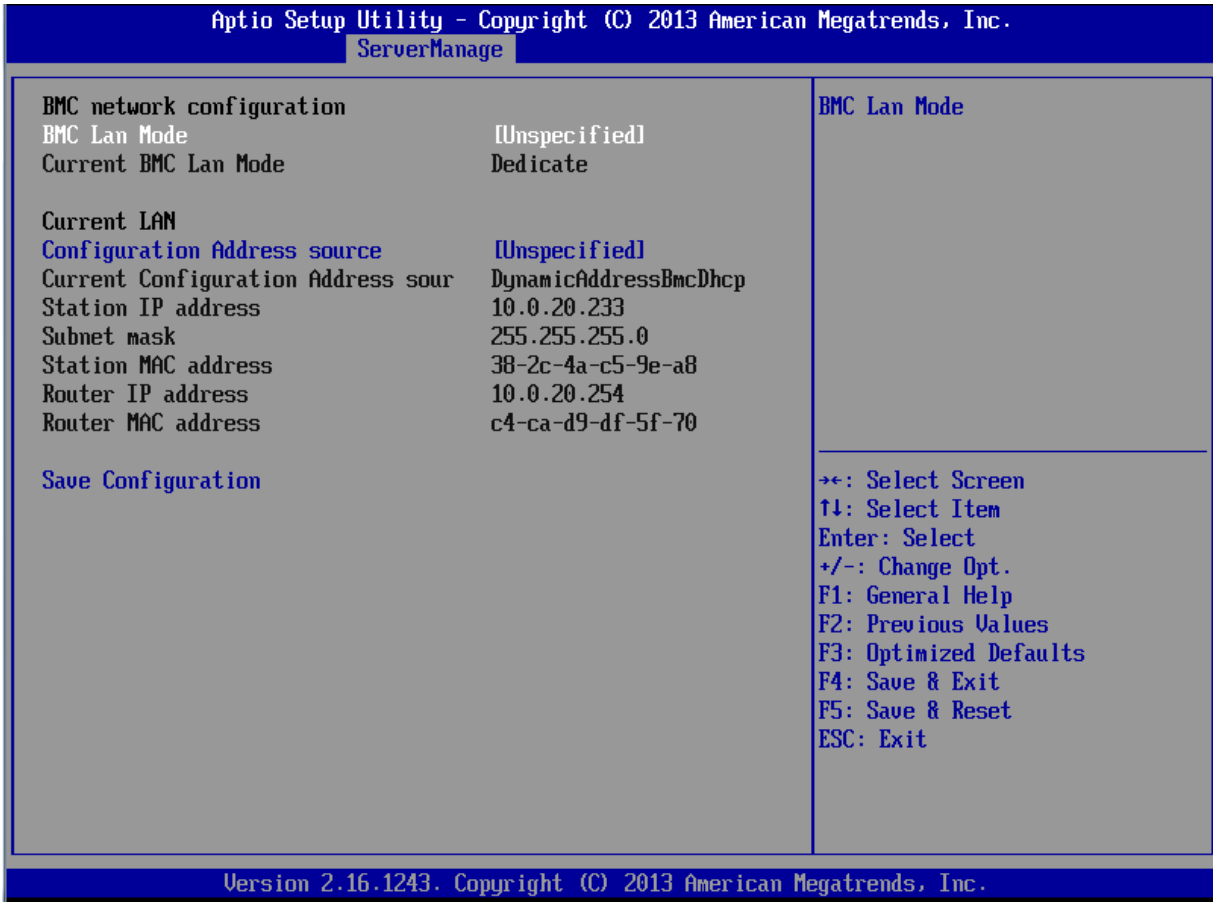


Figure 3-36 BMC Network Configuration Interface

Table 3-37 Parameter Description of BMC Network Configuration Interface

Interface Parameters	Function Description
BMC LAN Mode	Used to set the management network mode. The possible options are as follows according to different configuration: Unspecified: Not modified. Dedicate: Use the dedicate management network interface only. Share 1G: Use the share management network interface only. Share 10G: Use the 10G management network interface only. Failover 1G: Use the dedicated management network interface and share 1G management network interface simultaneously, and support the Failover function. Failover 10G: Use the dedicated management network interface and share 10G management network interface simultaneously, and support the Failover function.
Current BMC LAN Mode	Currently used management network mode
Configuration Address source	Set the IP address acquisition mode. Unspecified: Not modified. Static: Set the static address. DynamicBmcDhcp: Acquire in the DHCP mode.

Current Configuration Address sour	Display current IP address acquisition mode.
Station IP address	Display current IP address.
Subnet mask	Display current subnet mask.
Station MAC address	Display the MAC address of the network interface.
Router IP address	Display the IP address of the default router.
Router MAC address	Display the MAC address of the default router.
Save Configuration	Used to save current setting.

View System Event Log

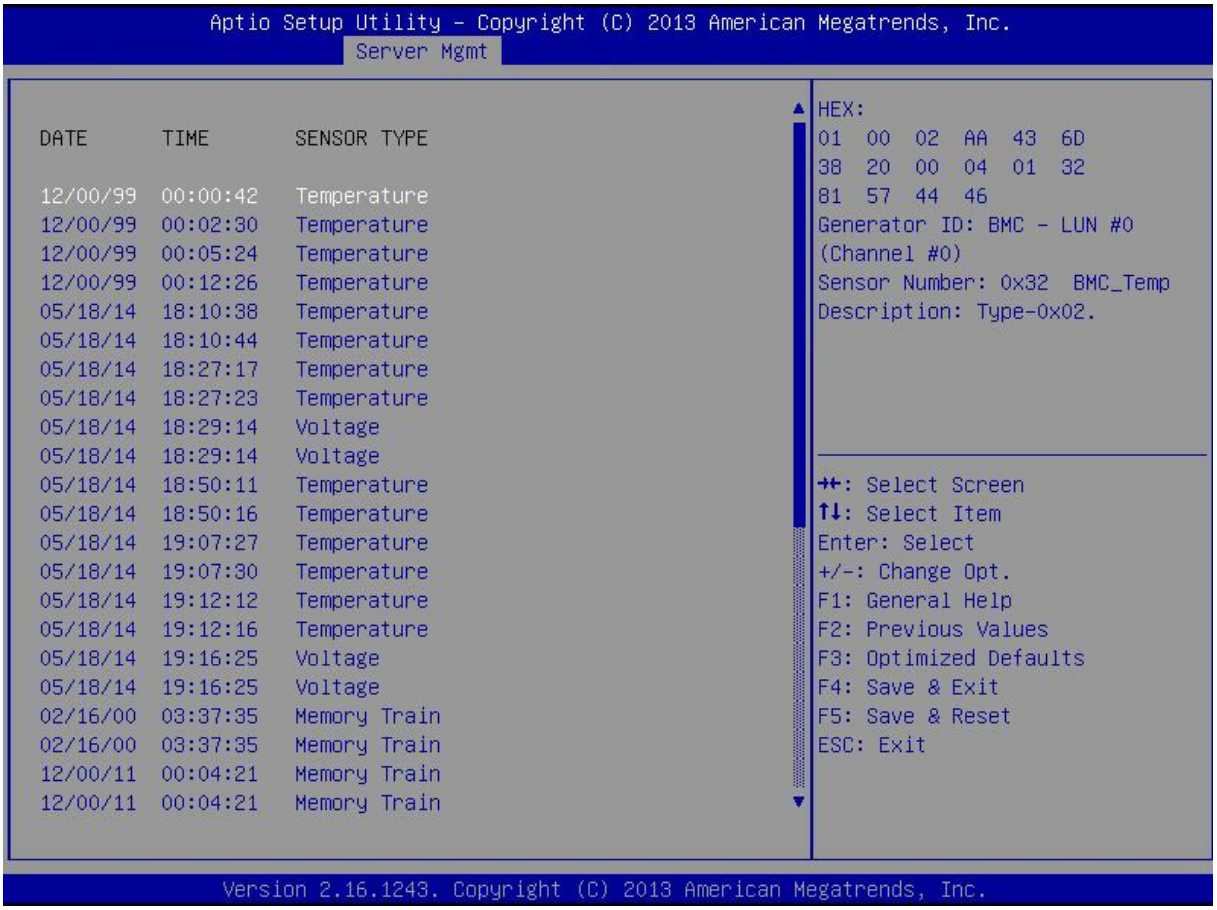


Figure 3-37 View System Event Log Interface

BMC User Settings

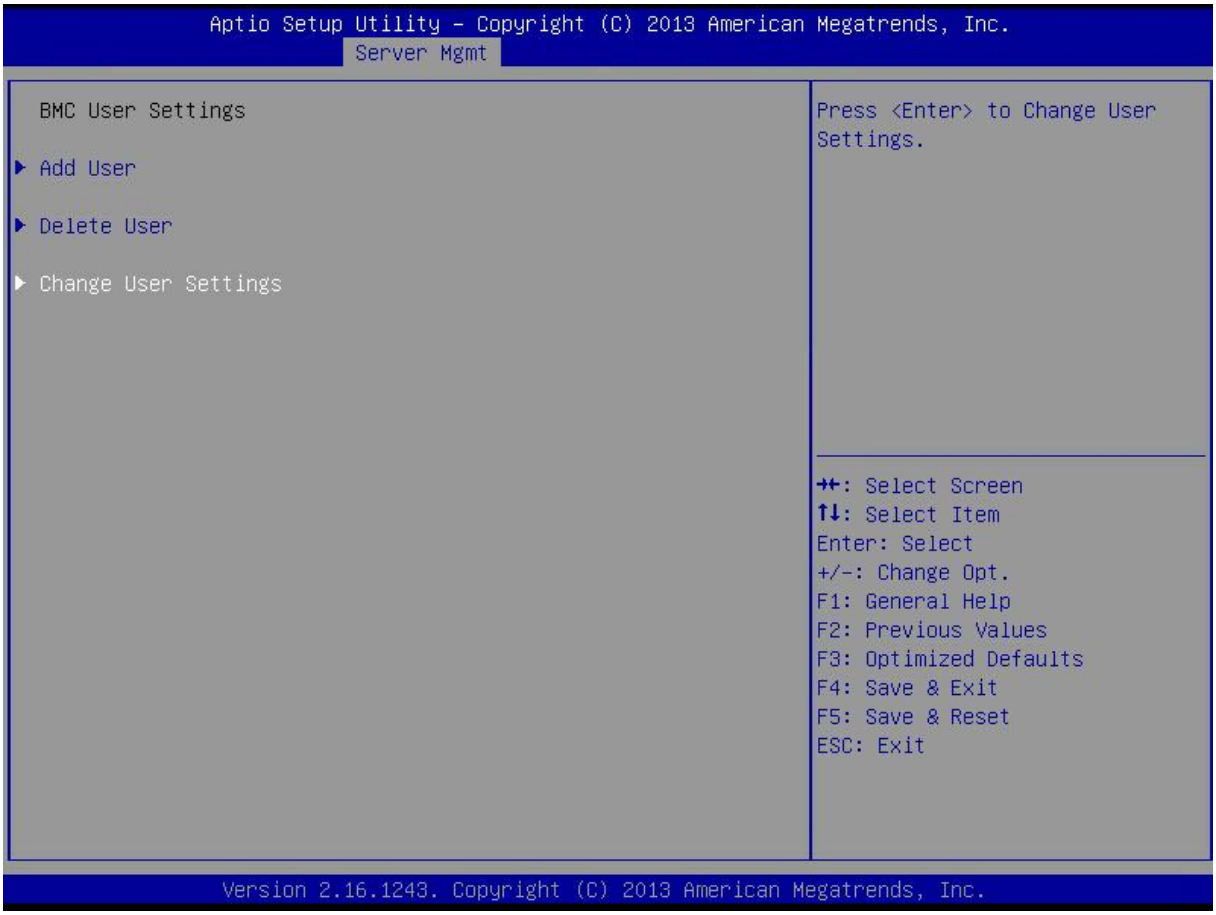


Figure 3-38 BMC User Settings Interface

Table 3-38 Parameter Description of BMC User Settings Interface

Interface Parameters	Function Description
Add User	Add the BMC user.
Delete User	Delete the BMC user.
Change User Settings	Change the BMC user settings.

Add User

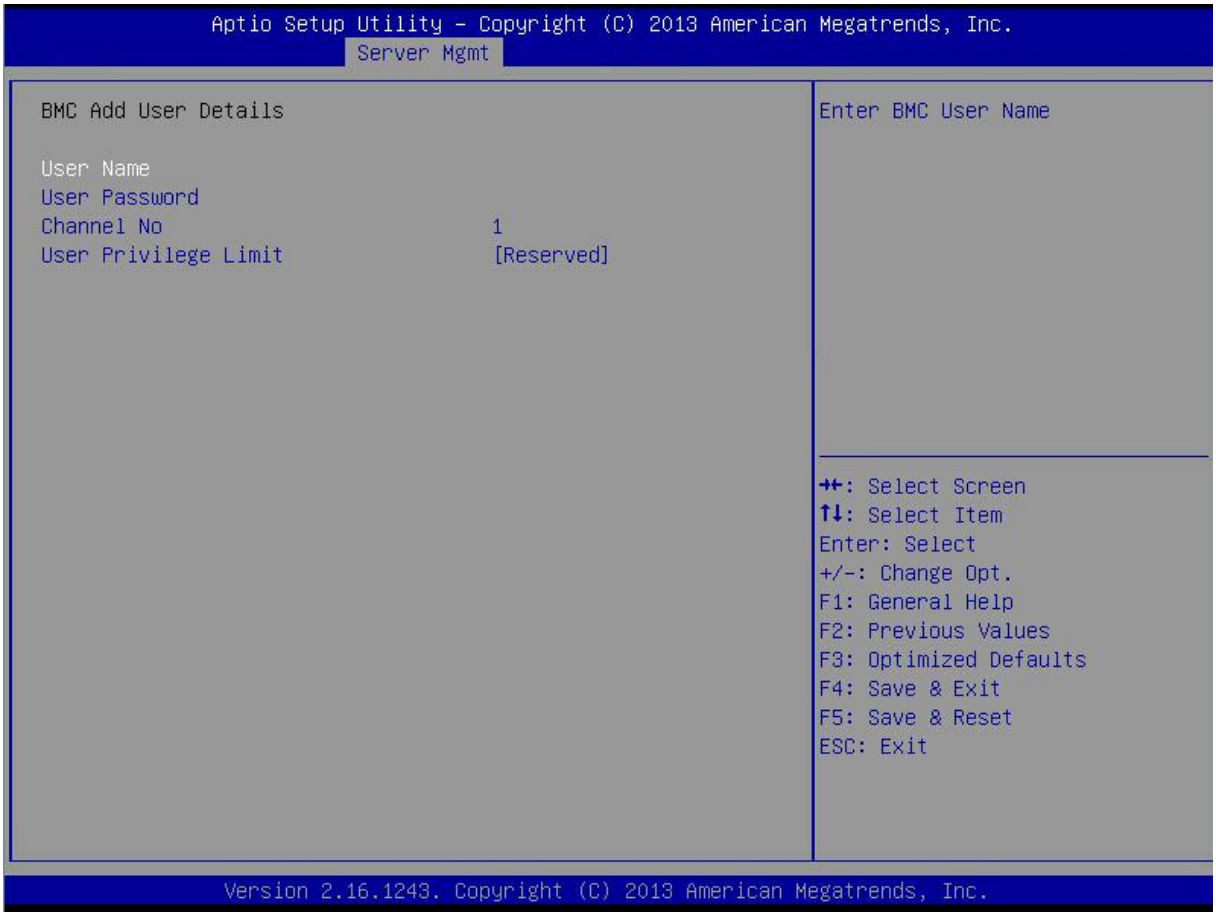


Figure 3-39 Add User Interface

Table 3-39 Parameter Description of BMC User Settings Interface

Interface Parameters	Function Description
User Name	Enter the BMC user name, which shall not be the same as the existing user name.
User Password	Enter the BMC user password, which shall be entered for two times and shall be exactly the same as each other.
Channel No	Set the channel number.
User Privilege Limit	Set the user privilege limit.

Delete User

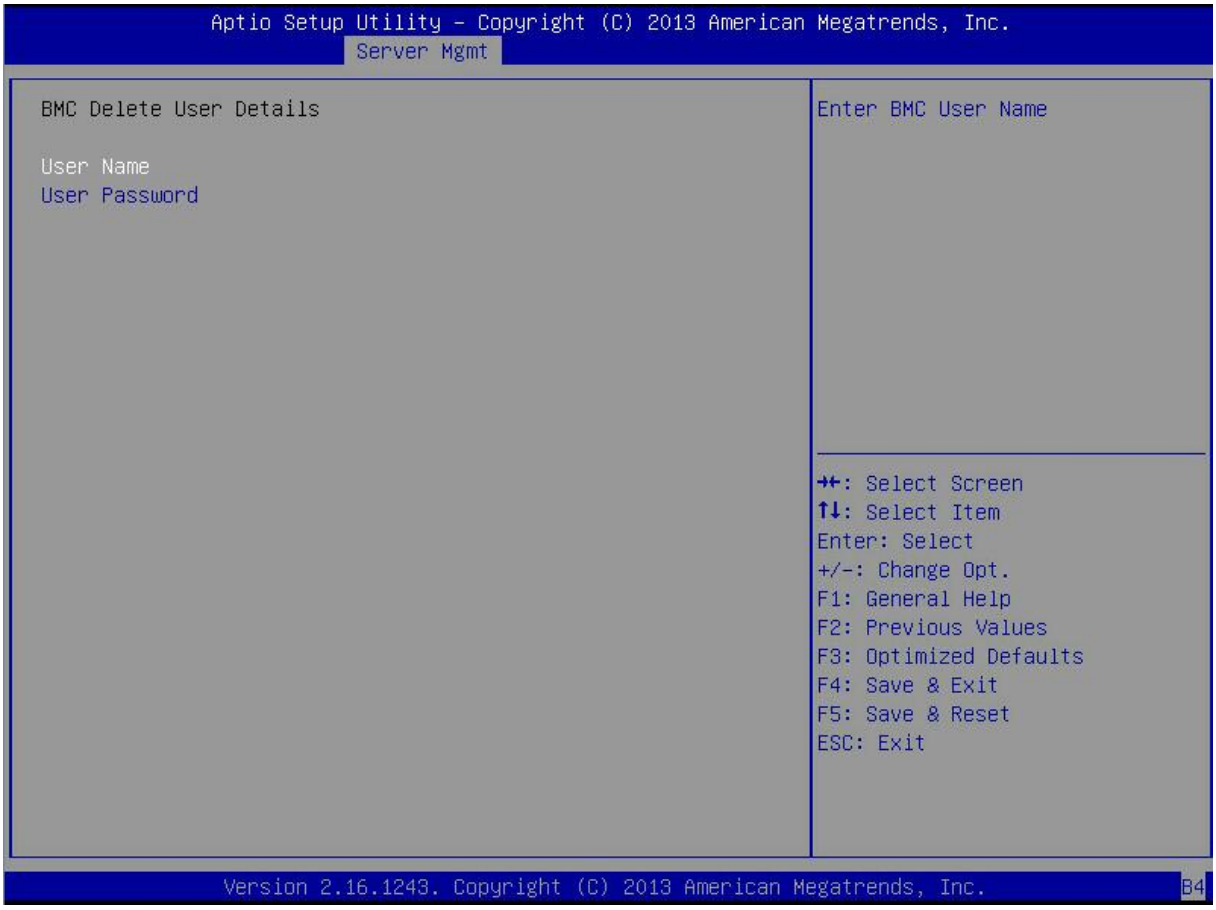


Figure 3-40 Delete Users Interface

Table 3-40 Parameter Description of Delete Users Interface

Interface Parameters	Function Description
User Name	Enter the user name to be deleted, which shall be an existing user.
User Password	Enter the user password to be deleted. This user will be deleted after the user password is entered correctly.

Change User Setting

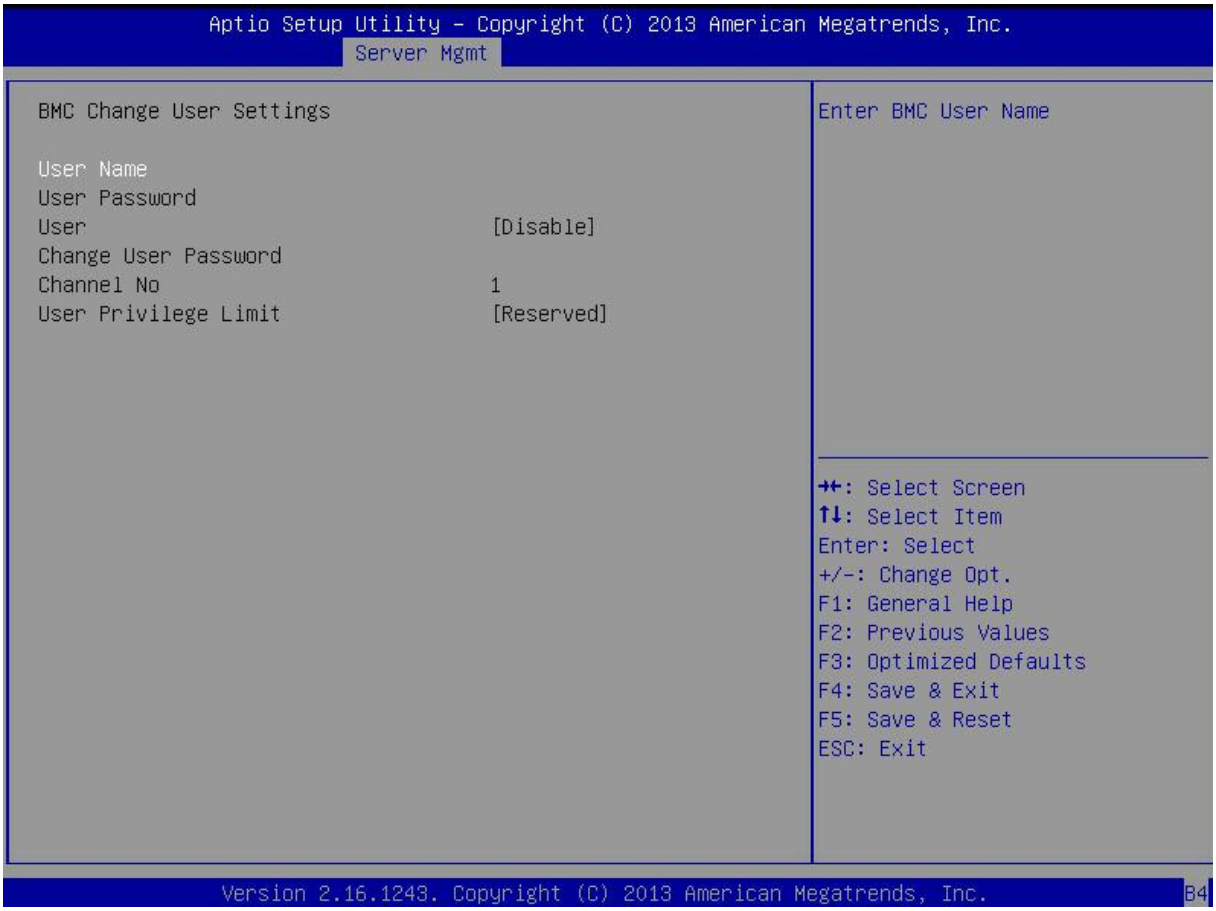


Figure 3-41 Change User Settings Interface

Table 3-41 Parameter Description of Change User Settings Interface

Interface Parameters	Function Description
User Name	Enter the user name to be changed.
User Password	Enter the user password to be changed.
User	Set whether this user is enabled.
Change User Password	Change the user password, which shall be entered for two times and shall be exactly the same as each other.
Channel No	Change the user channel number.
User Privilege	Change the user privilege.

3.2.6 Security Menu

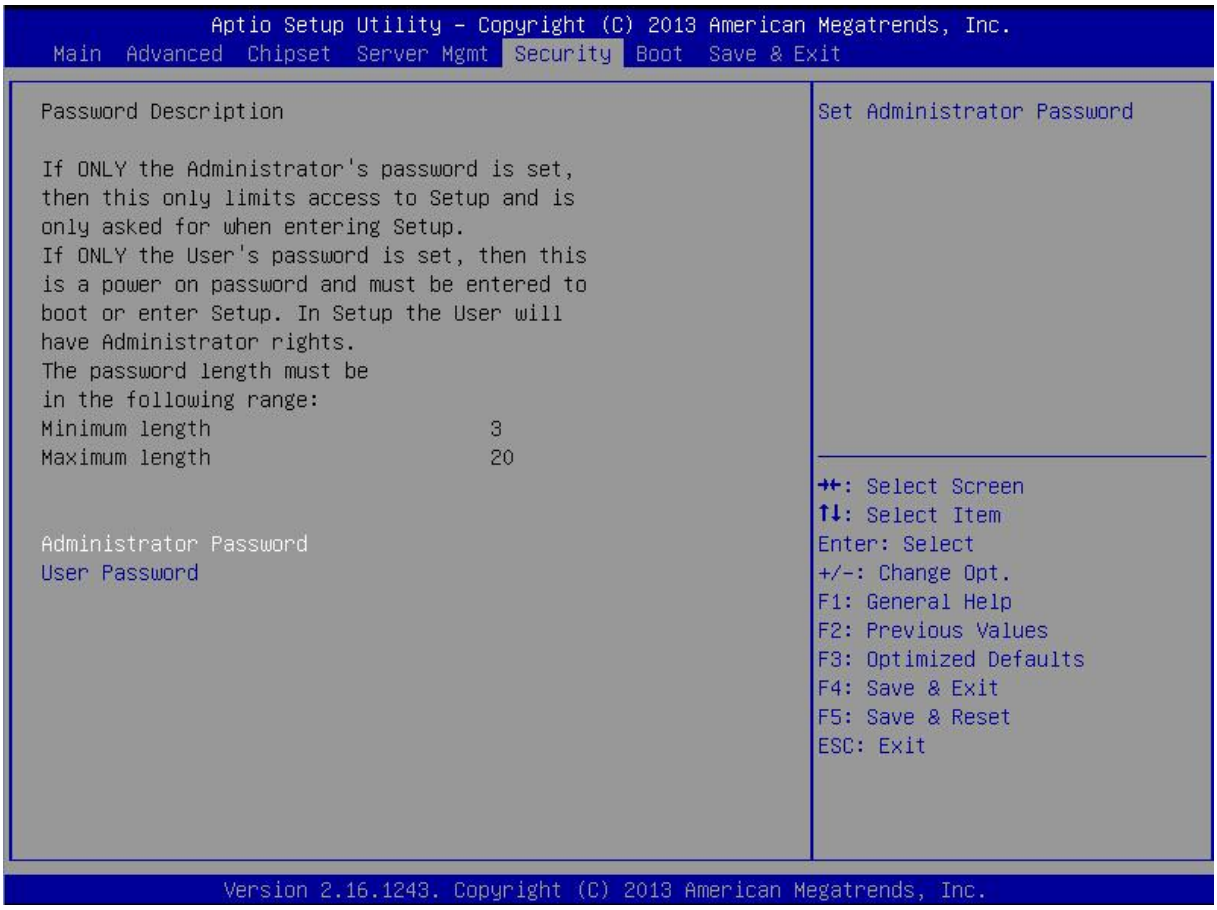


Figure 3-42 Security Interface

Table 3-42 Parameter Description of Security Interface

Interface Parameters	Function Description
Administrator Password	Add/modify/delete the administrator password.
User Password	Add/modify/delete the common user password.

[Note]The minimum length of the password setting is 3 characters, and the maximum length is 20 characters.

3.2.7 Boot Menu

This menu can configure the boot device.

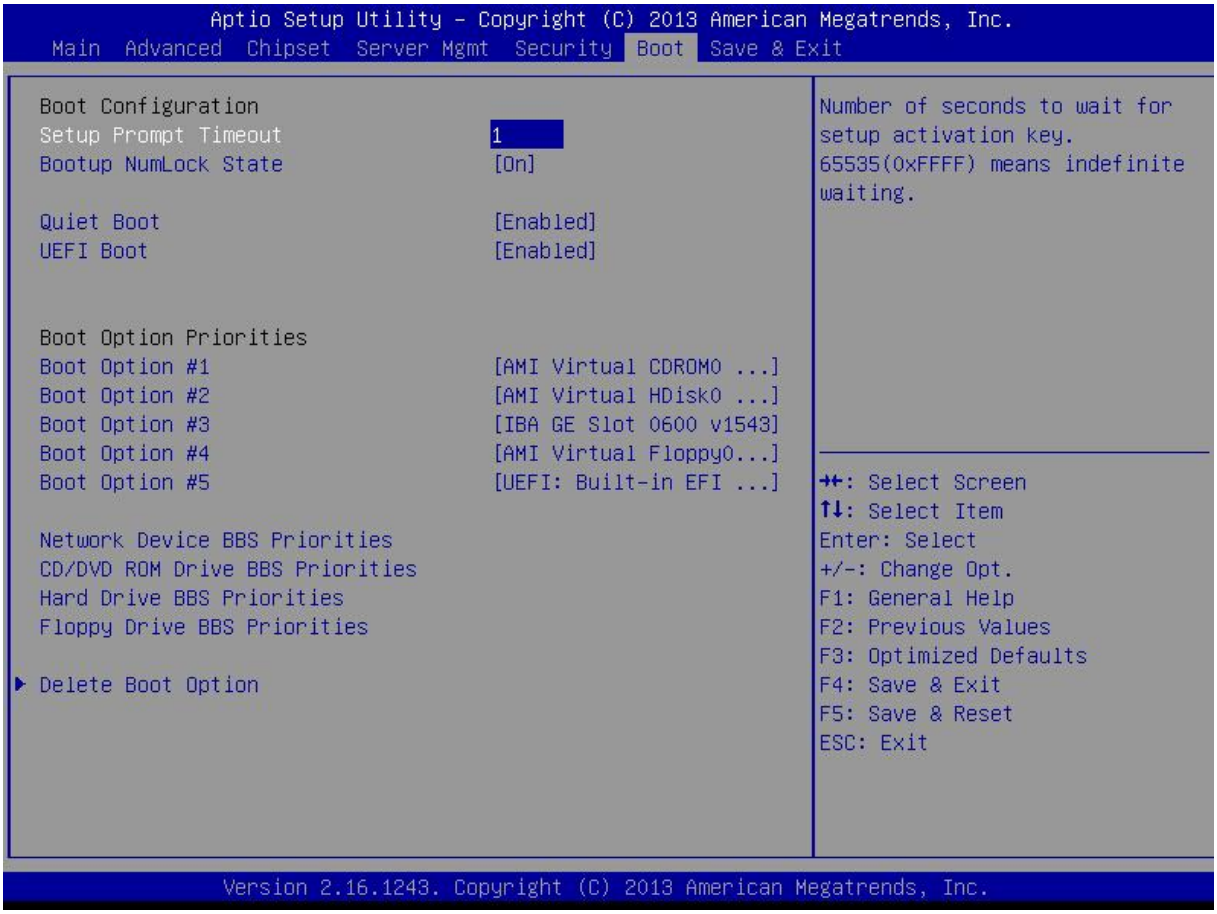


Figure 3-43 Boot Interface

Table 3-43 Parameter Description of Boot Interface

Interface Parameters	Function Description
Setup Prompt Timeout	Set the time to wait for the setup button (unit: second)
Bootup NumLock State	Set the Numlock state during the boot.
Quiet Boot	Enable/disable the POST OEM logo display function. Enable this function to display the OEM logo, and disable this function to display the self test information.
UEFI Boot	Enable or disable the UEFI boot option: If you select Auto, and the first boot hard disk is of the GPT partition format, then it will enable the UEFI boot mode.
Boot Option Priorities	Set the boot option priorities.
Network Device BBS Priorities	Set the network device BBS priorities.
CD/DVD ROM BBS Priorities	Set the CD/DVD ROM BBS priorities.
Hard Drive BBS Priorities	Set the hard disk BBS priorities.
Floppy Drive BBS Priorities	Set the floppy drive BBS priorities.
Delete Boot Option	Delete the boot option.

3.2.8 Save & Exit Menu

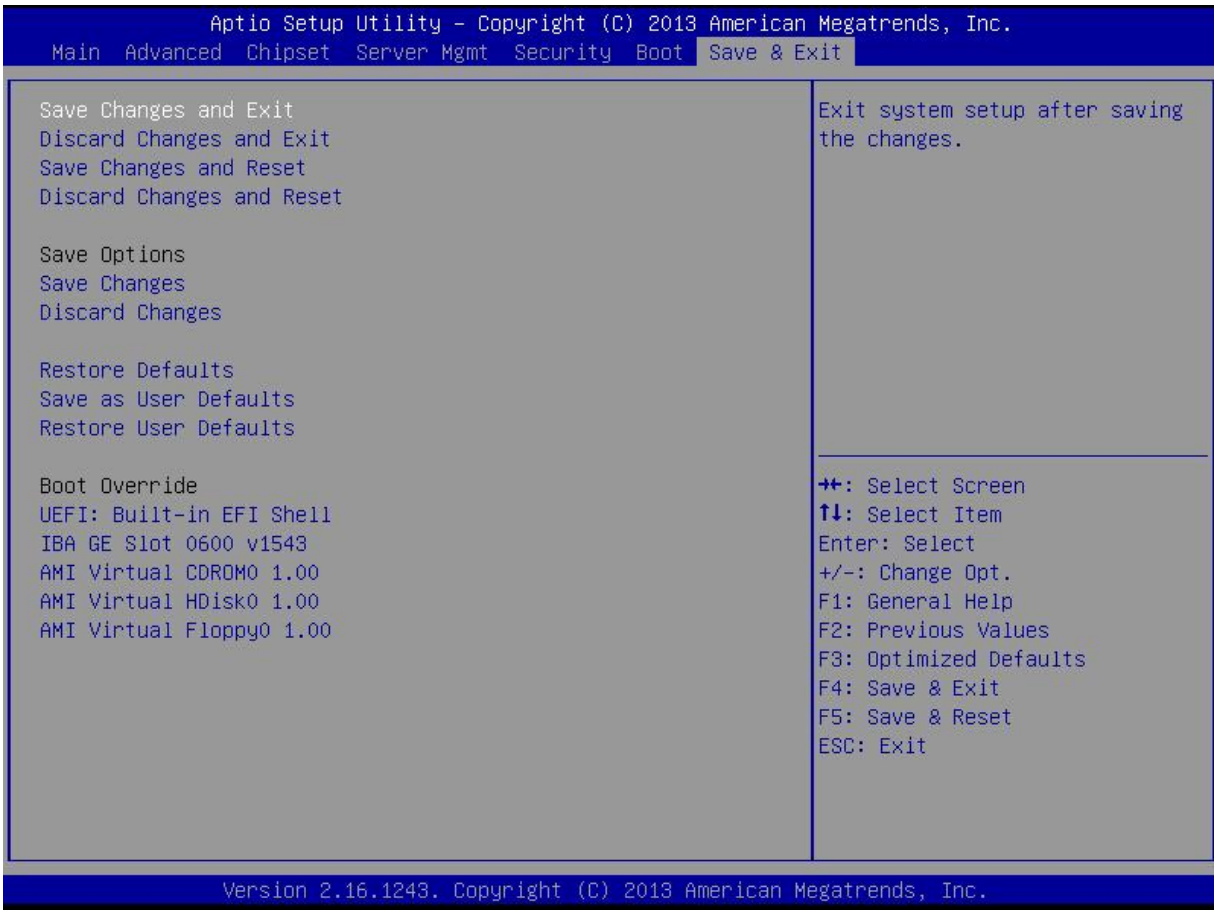


Figure 3-44 Save & Exit Interface

Table 3-44 Parameter Description of Save & Exit Interface

Interface Parameters	Function Description
Save Changes and Exit	Save the changes and exit.
Discard Changes and Exit	Discard the changes and exit.
Save Changes and Reset	Save the setting and restart.
Discard Changes and Reset	Discard the changes and restart.
Save Changes	Save the setting.
Discard Changes	Discard the changes.
Restore Defaults	Restore the default value.
Save As User Defaults	Save as the user default value.
Restore User Defaults	Restore the user default value.
Boot Override	Override the boot option. Select the following boot option to boot it from this boot option directly, with no change to the set boot priorities.

3.3 BMC Configuration

Open the IE browser, and enter the IP address of the server into the address bar to enter the server system management platform. As shown in Figure 3-45.

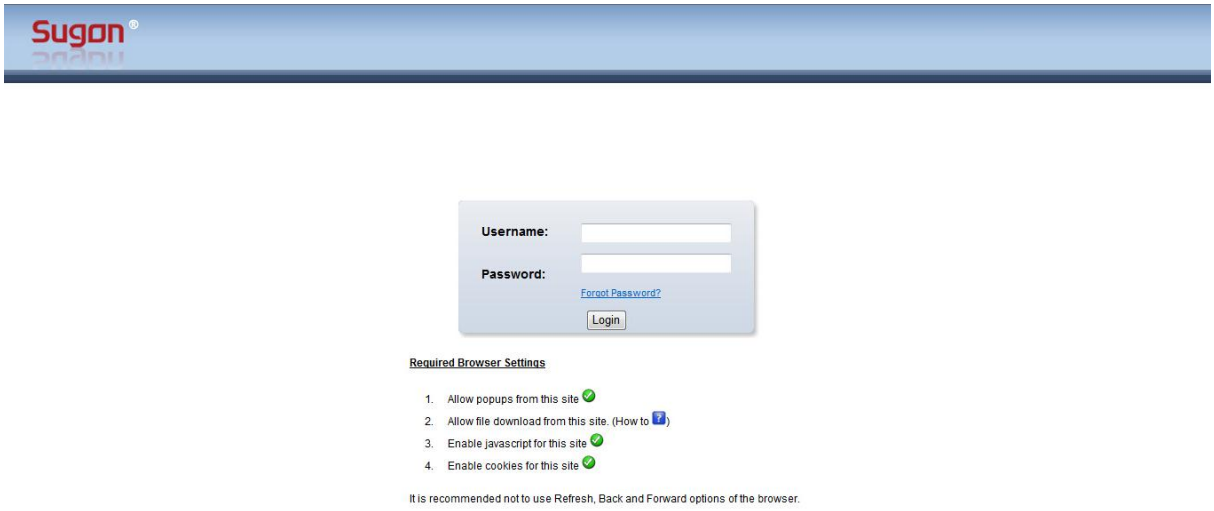


Figure 3-45 Login Interface

After users enter the system management platform, enter admin behind the username and password, and click login to enter the main interface as shown in Figure 3-46.

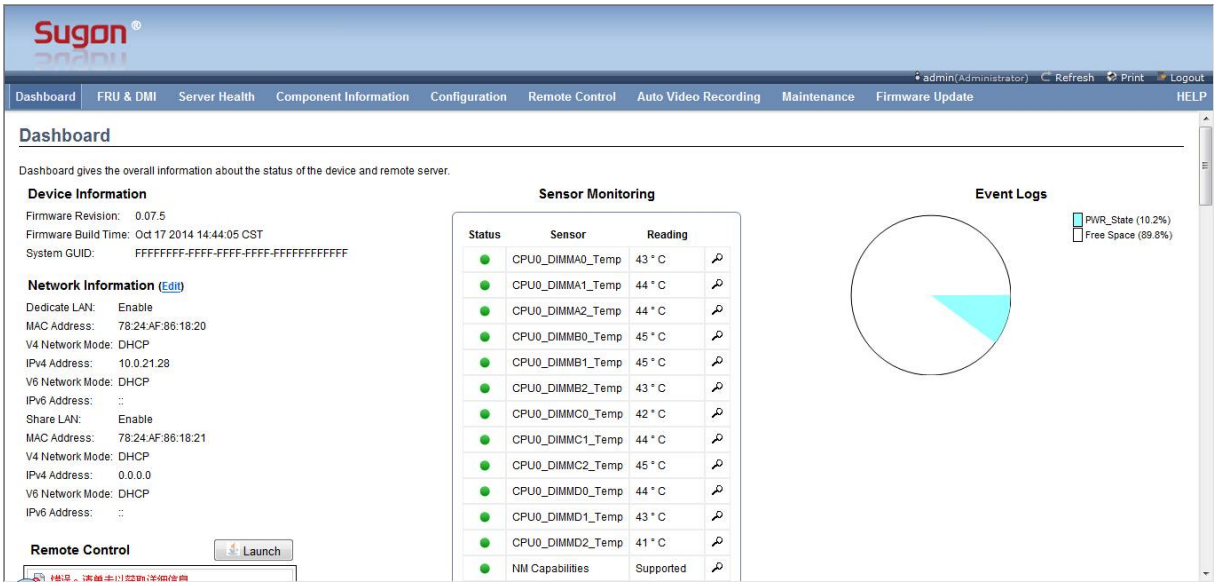


Figure 3-46 User Entry Interface

The whole management platform includes the following parts as shown in Figure 3-47:

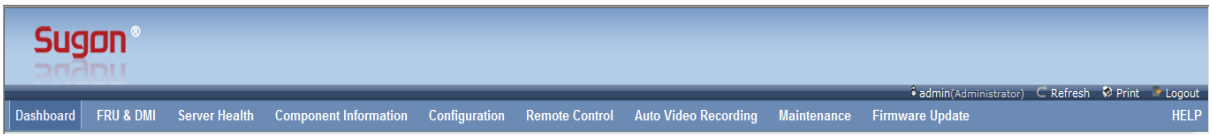


Figure 3-47 Management Platform Option

Table 3-45 Description of Management Platform

Option	Description
Dashboard	The information overview, which provides all status information of the device and the remote server.
FRU&DMI	It can used to view the FRU information and the DMI information, including the basic information, command head information, chassis information and mainboard information of the system, and the product information of the FRU component.
Server Health	The server health, which displays the server health related data, including the sensor reading and the event recording.
Component Information	The component information, which can view the CPU, memory, hard disk, PCI device, power and NIC information.
Configuration	The configuration, which can configure various aspects of the machine, such as DNS, LDAP, NTP and PEF.
Remote Control	The remote control, which allow users to carry out the remote operation on the server, including the boot remote console and server power control.
Auto Video Recording	The auto video recording, which can configure the trigger condition of the auto video recording and view and process the recorded video.
Maintenance	The maintenance, which can restore the factory settings of the machine configuration and keep part of settings.
Firmware Update	The firmware update, which can update BIOS and BMC under the web interface remotely.

3.3.1 Dashboard

Click the Dashboard menu to enter the interface as shown in Figure 3-46. The interface includes the following modules:

Device Information Module

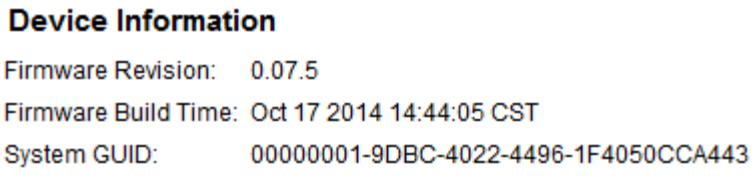


Figure 3-48 Device Information Module

Figure 3-48 is the basic device information, which is the firmware version, firmware compilation time and system GUID from top to bottom.

Note: The firmware version is for reference only. For the latest version, the firmware version released by Sugon shall prevail.

Network Information Module

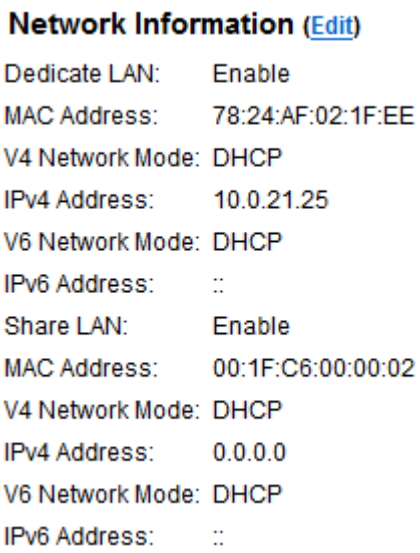


Figure 3-49 Network Information Module

Figure 3-49 is the network management information, and there are two network management interfaces, namely, the Dedicated LAN and Share LAN. The figure above display the status information of these two network interfaces. Click "Edit" to go into the Network Settings interface in the Configuration menu, which will be described in the later section in detail.

Remote Console Module

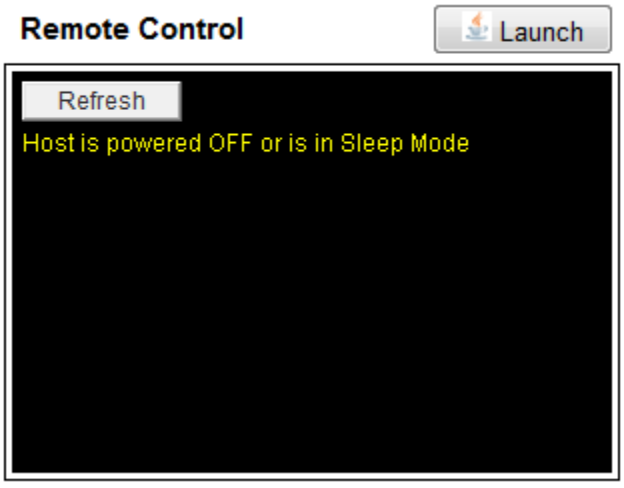
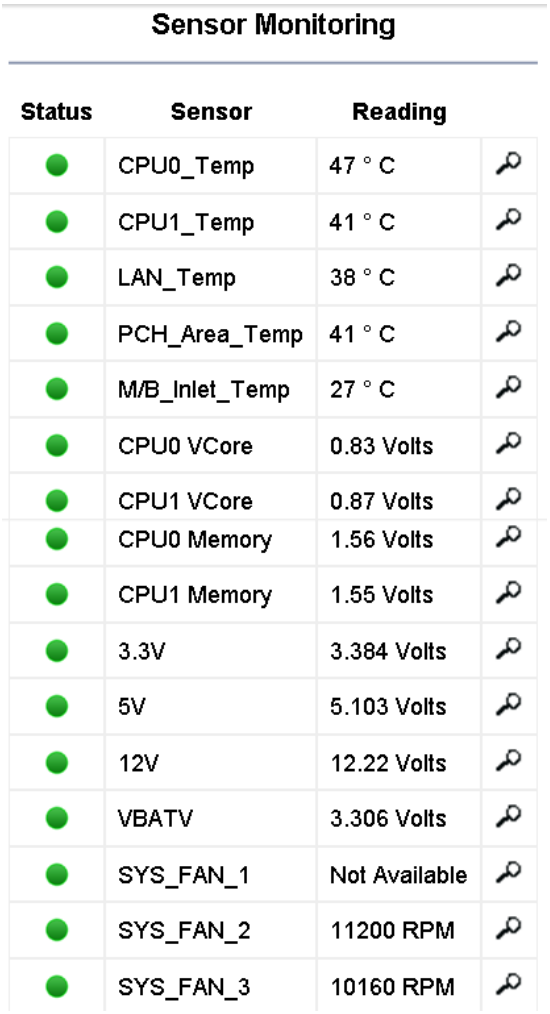


Figure 3-50 Remote Console Module

Figure 3-50 is the remote console module. Click the Launch button to start the remote console. It will display the Capture Screen in the black area in the figure below in the boot state. Click the "Refresh" button to refresh the capture screen.

Sensor Information Module



Sensor Monitoring

Status	Sensor	Reading	
●	CPU0_Temp	47 ° C	🔧
●	CPU1_Temp	41 ° C	🔧
●	LAN_Temp	38 ° C	🔧
●	PCH_Area_Temp	41 ° C	🔧
●	M/B_Inlet_Temp	27 ° C	🔧
●	CPU0 VCore	0.83 Volts	🔧
●	CPU1 VCore	0.87 Volts	🔧
●	CPU0 Memory	1.56 Volts	🔧
●	CPU1 Memory	1.55 Volts	🔧
●	3.3V	3.384 Volts	🔧
●	5V	5.103 Volts	🔧
●	12V	12.22 Volts	🔧
●	VBATV	3.306 Volts	🔧
●	SYS_FAN_1	Not Available	🔧
●	SYS_FAN_2	11200 RPM	🔧
●	SYS_FAN_3	10160 RPM	🔧

Figure 3-51 Sensor Information Module (Part)

Figure 3-51 is the sensor monitoring information, which includes the status, name and reading of the sensor. In the state term, ● indicates it exceeds the critical value, which is the alarm status. ● indicates the status is normal. Click the 🔧 icon to go into the Sensor Readings interface under Server Health, which will be described in the later section in detail.

Event Log Module

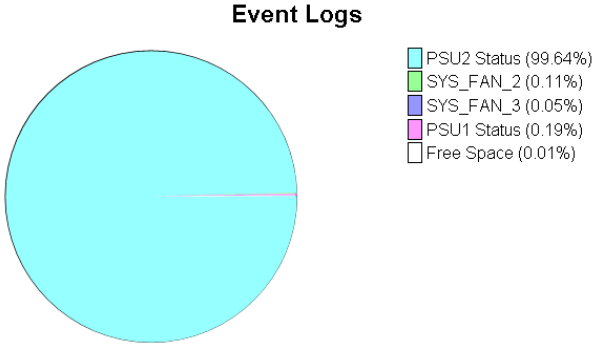


Figure 3-52 Event Log Module

Figure 3-52 is the event log statistics. Click the color box in front of various logs (such as) to enter the Details interface. The percent behind the event item indicates the proportion of this item to the total logs, and it is the pie chart on the left.

3.3.2 FRU&DMI

Click the FRU&DMI menu to display the interface as shown in the figure below.

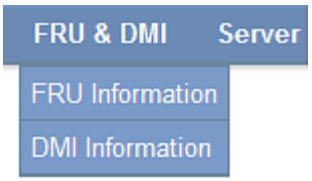


Figure 3-53 FRU&DMI Submenu

FRU Information

Select the FRU Information option to display the interface as shown in Figure 3-54.

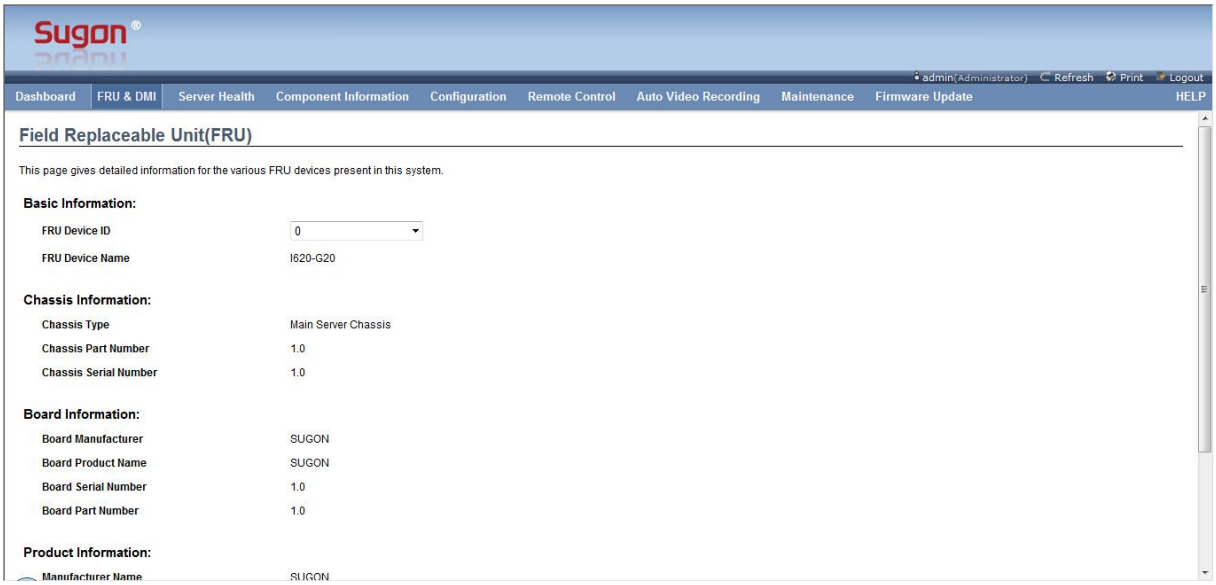


Figure 3-54 FRU Information Interface

Table 3-46 Description of Basic Information

Information Option	Description
FRU Device ID	FRU device ID
FRU Device Name	FRU device name

Table 3-47 Description of Chassis Information

Information Option	Description
Chassis Type	Chassis type

Chassis Part Number	Chassis part number
Chassis Serial Number	Chassis serial number

Table 3-48 Description of Mainboard Information

Information Option	Description
Board Manufacturer	Mainboard manufacturer
Board Product Name	Mainboard product name
Board Serial Number	Mainboard serial number
Board Part Number	Mainboard part number

Table 3-49 Description of Product Information

Information Option	Description
Manufacturer Name	Manufacturer name
Product Name	Product name
Product Part Number	Product part number
Product Version	Product version
Product Serial Number	Product serial number
Asset Tag	Asset tag

DMI Information

Select the DMI Information option to display the interface as shown in Figure 3-55.

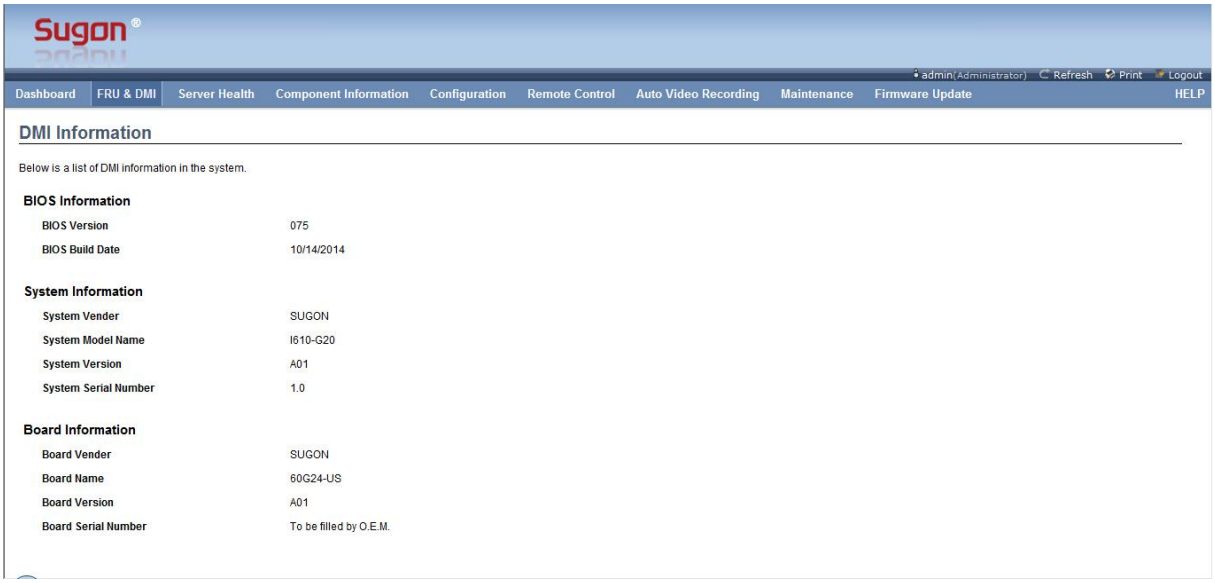


Figure 3-55 DMI Information Interface

Table 3-50 Description of BIOS Information

Information Option	Description
BIOS Version	BIOS version
BIOS Build Date	BIOS compilation time

Table 3-51 Description of System Information

Information Option	Description
System Vendor	System vendor
System Module Name	System model name
System Version	System version
System Serial Number	System serial number

Table 3-52 Description of Mainboard Information

Information Option	Description
Board Vendor	Mainboard vendor
Board Name	Mainboard part number
Board Version	Mainboard version
Board Serial Number	Mainboard serial number

3.3.3 Server Health

Click the Server Health menu to display the submenu as shown in Figure 3-56.

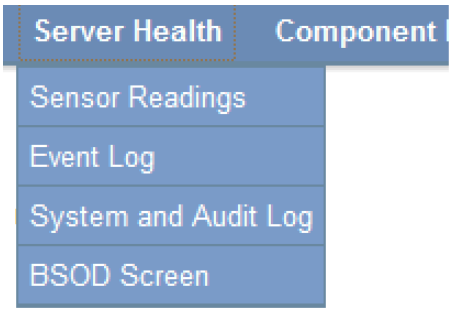


Figure 3-56 Server Health Submenu

Sensor Readings

Select Sensor Readings to display the interface as shown in Figure 3-57. It includes all sensor information in the interface, and it can filter the sensor from the drop-down menu in the upper left corner by the type. The optional type includes All Sensors, Temperature Sensors, Voltage Sensors, Fan Sensors, Physical Security, Processor, Power Supply, Memory, System ACPI Power Status and Watchdog 2.

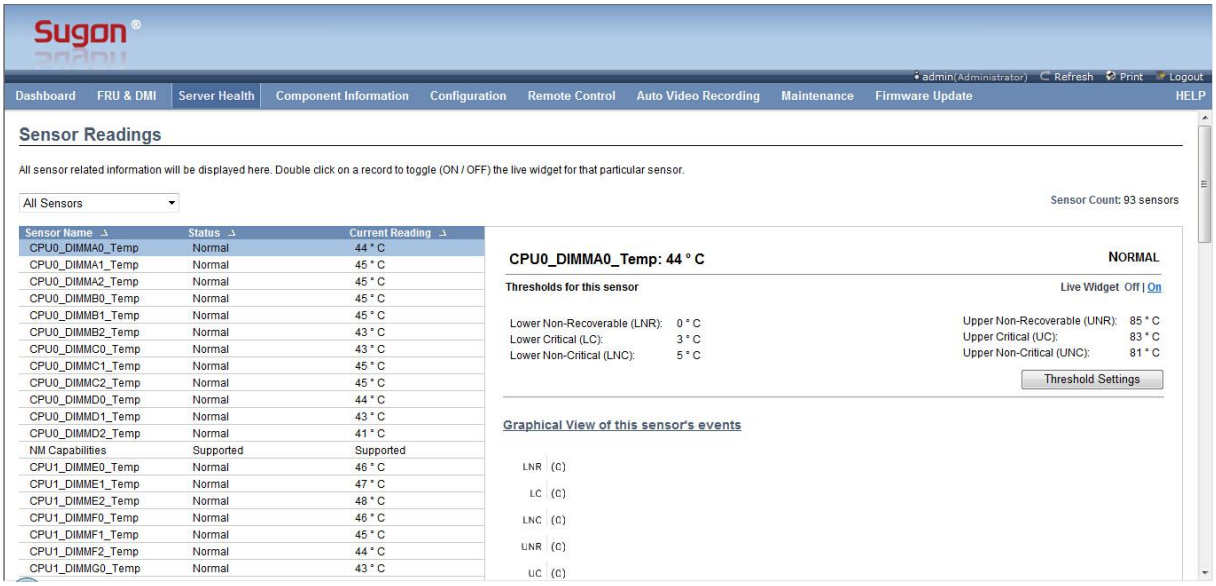


Figure 3-57 Sensor Reading Main Interface

The Figure 3-57 interface is composed of three areas, which will be described as follows respectively.

Sensor List Area:

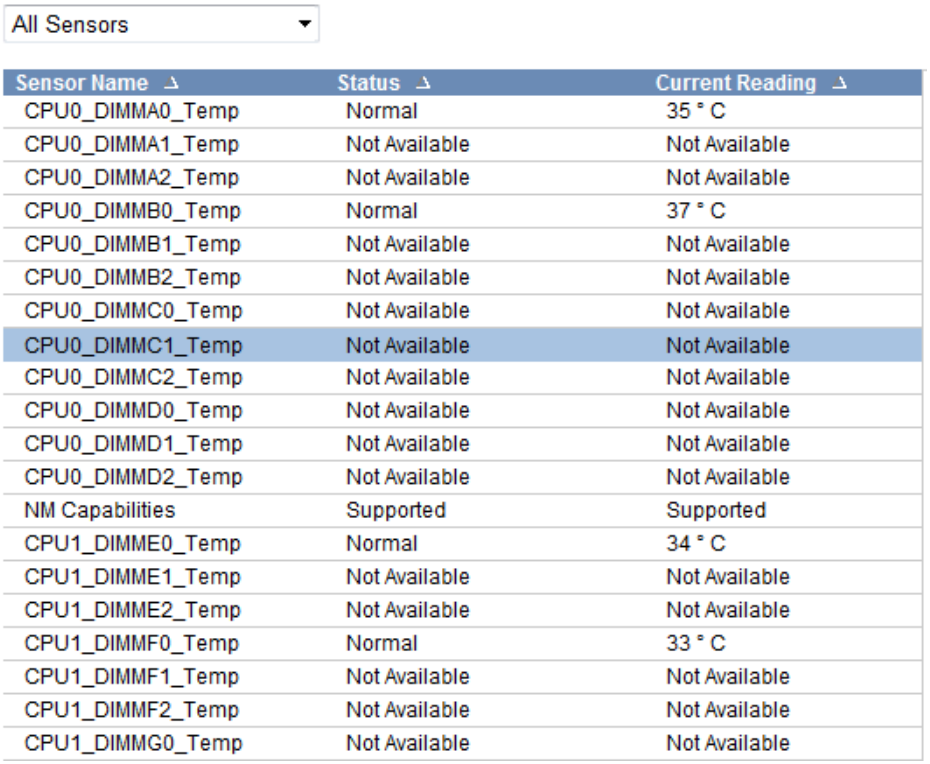


Figure 3-58 Sensor List Area (Part)

Figure 3-58 is the sensor list information, which includes all sensors and lists the name, status and current reading of the sensor.

Sensor Details:

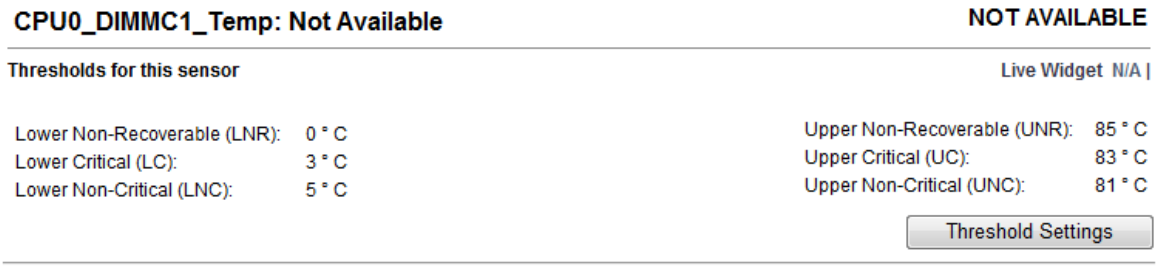


Figure 3-59 Sensor Details Area

The figure above is the sensor details area, which displays the details of the selected sensor, including the name, reading, status and various thresholds of the sensor. The meanings of various thresholds are shown in Table 3-53.

Table 3-53 Description of Temperature Sensor Threshold Information

Information Option	Description
Lower Non-Recoverable (LNR)	Lower non-recoverable value
Lower Critical (LC)	Lower critical value
Lower Non-Critical (LNC)	Lower non-critical value
Upper Non-Recoverable (UNR)	Upper non-recoverable value
Upper Critical (UC)	Upper critical value
Upper Non-Critical (UNC)	Upper non-critical value

Click the "Threshold Settings" button to pop up the Threshold Settings interface as shown in Figure 3-60 to set the threshold of the selected sensor.

Figure 3-60 Threshold Settings Interface

Sensor Event Statistical Chart:

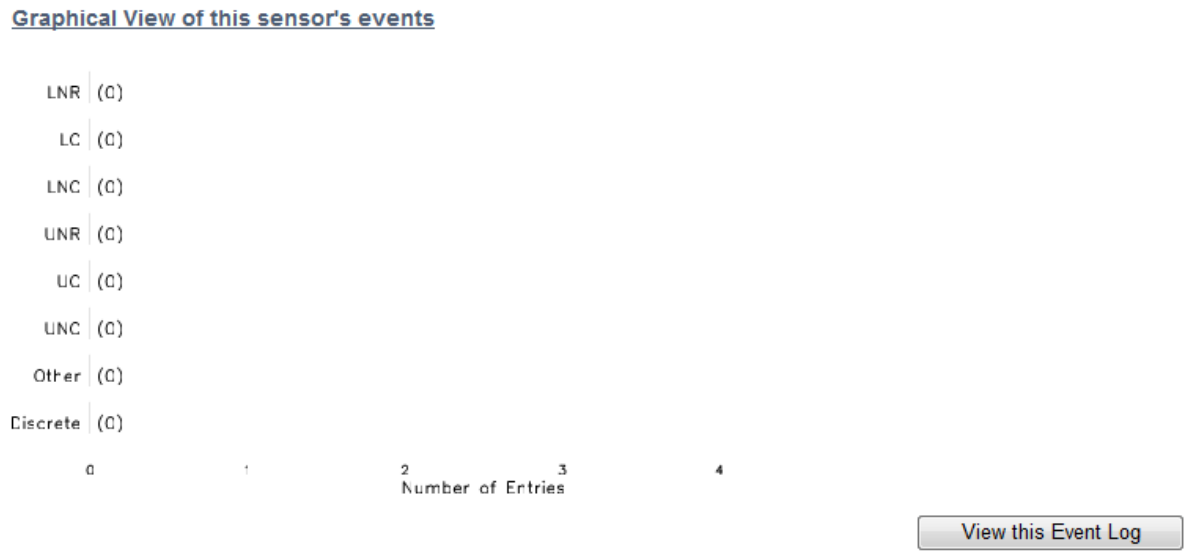


Figure 3-61 Sensor Event Statistics

Figure 3-61 is the event statistics of the selected sensor. The vertical one is the level of events, and the horizontal one is the number of events. Click the "View This Event Log" button to enter the event log list of this sensor in the Event Log.

Event Log

Select the Event Log option in the Serve Health menu to display the interface as shown in Figure 3-62.

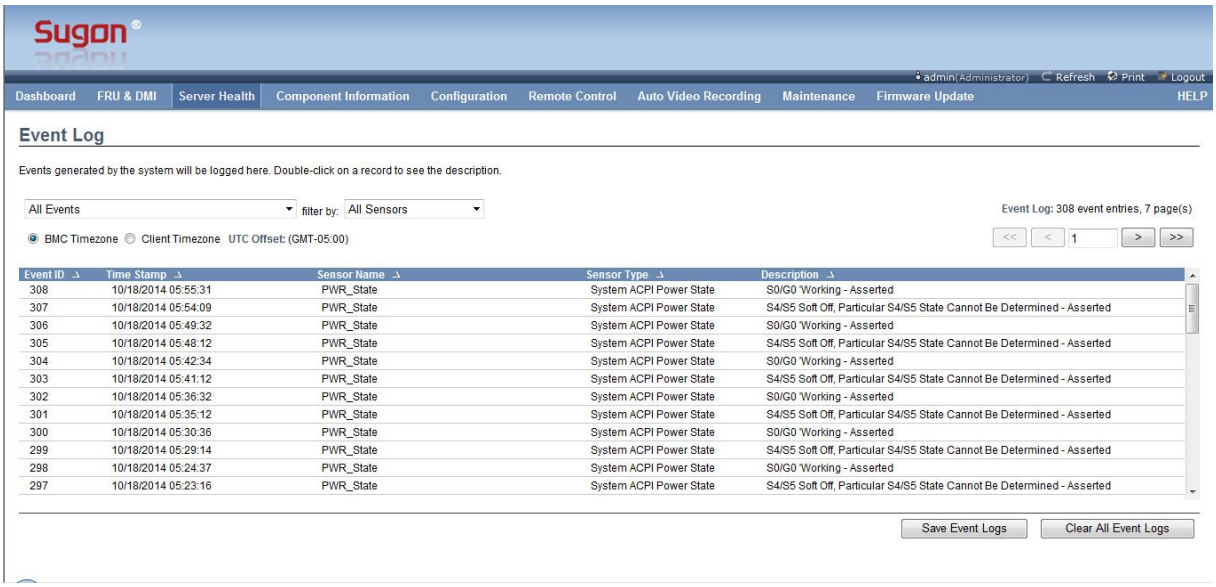


Figure 3-62 Event Log Interface

The figure above is the Event Log interface, which lists all event logs. You can filter the log via two drop-down boxes in the upper left corner. You can filter the log via the drop-down box on the left by the log source, including the 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. You can filter the log via the drop-down box on the right by each sensor.

Click the "Save Event Log" button to save the log locally.

Click the "Clear All Event Logs" button to clear all logs.

[Note] Perform this step carefully!

System and Audit Log

Select System and Audit Log in the Server Health menu, to display the interface as shown in Figure 3-63.

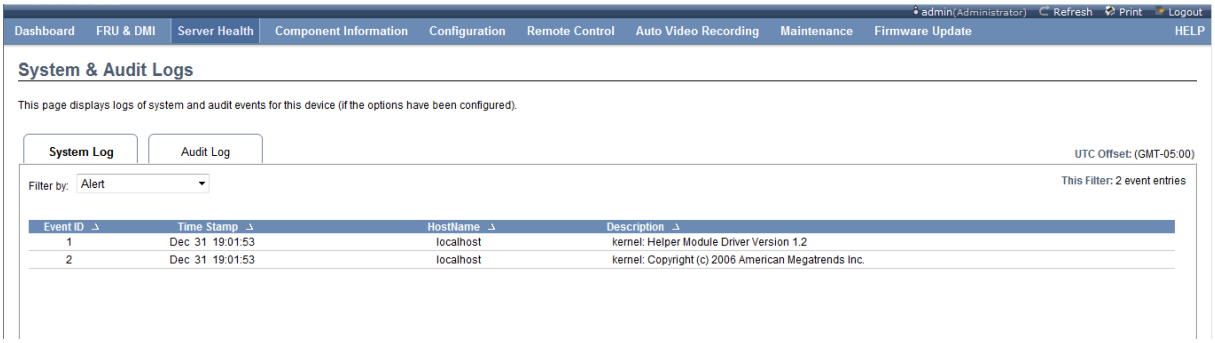


Figure 3-63 System Log Interface

There are two tabs in the interface, namely, System Log and Audit Log, which will be described as follows.

The **System Log:** interface is shown in the figure below, which records the logs generated by the system. You can view different levels of log by the drop-down box in the upper left corner, including the Alert, Critical, Error, Notification, Warning, Debug, Emergency, Information and other levels.

The **Audit Log** interface is shown in the figure below, which records some behavior logs of users, such as the login, logout, remote boot/shutdown and save log.

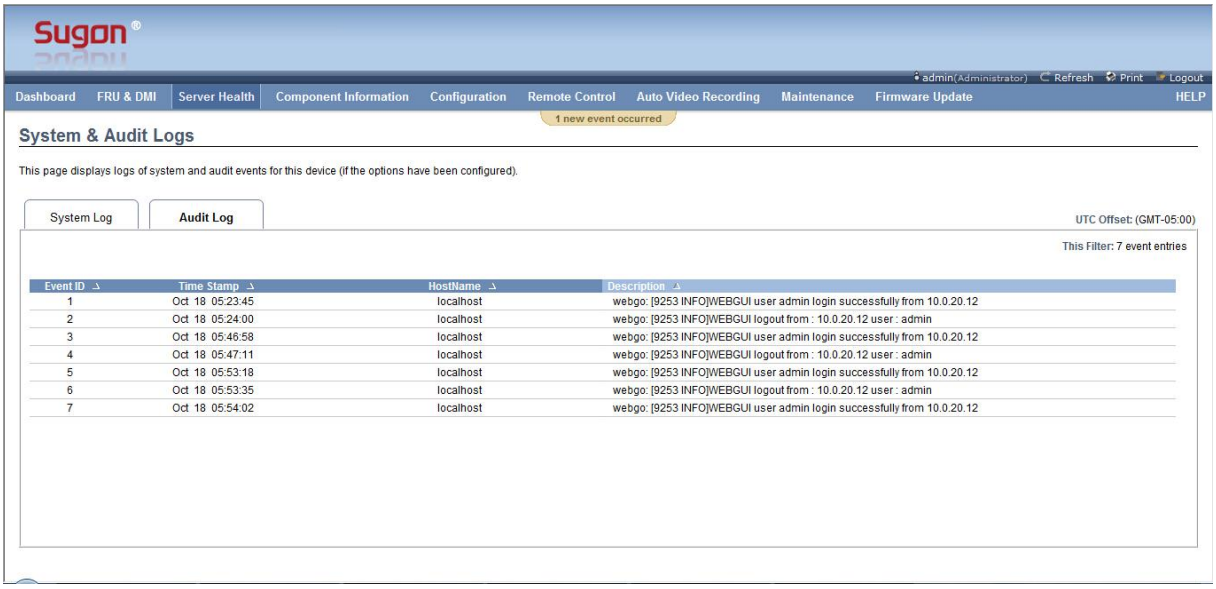


Figure 3-64 Audit Log Interface

BSOD Screen

Select the BSOD Screen option in the Server Health menu to display the interface as shown in Figure 3-65.

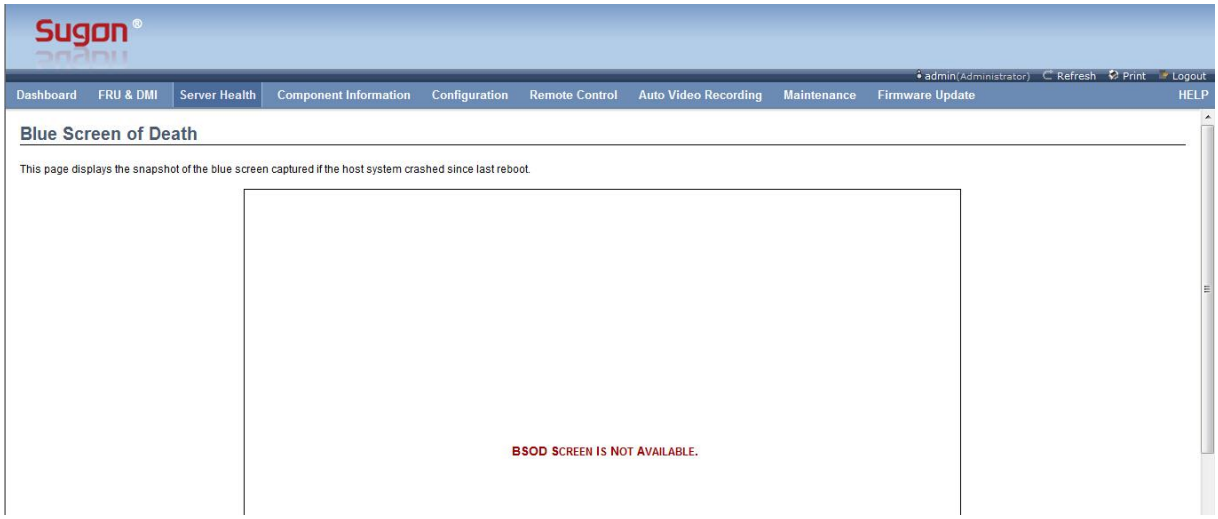


Figure 3-65 BSOD Screen Interface

It will capture and display the interface when the system crashes and produces a blue screen last time.

3.3.4 Component Information

Click the Component Information menu to display the interface as shown in the figure below.

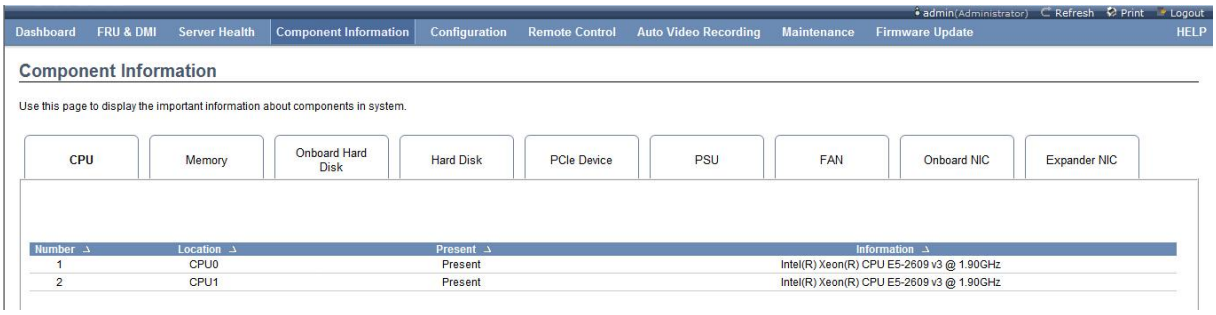


Figure 3-66 CPU Information Display

There are 9 tabs in the interface as shown in the figure below, including CPU, Memory, Onboard Hard Disk, Hard Disk, PCIe Device, PSU, FAN, Onboard NIC and Expander NIC. They are described respectively as follows.

CPU:

The interface is shown in Figure 3-66, and the monitored information is shown in the table below.

Table 3-54 Description of CPU Information

Information Option	Description
Number	Item number

Location	Location
Present	Present
Information	Model information

Memory:

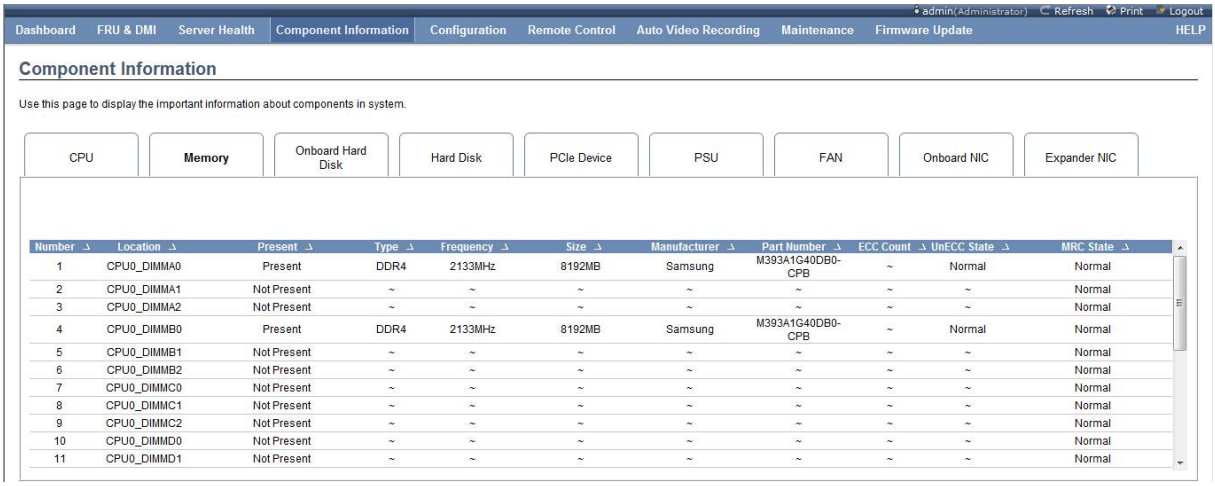


Figure 3-67 Memory Information Interface

Table 3-55 Description of Memory Information

Information Option	Description
Number	Item number
Location	Location
Present	Present
Type	Memory Type
Frequency	Memory frequency
Size	Memory capacity
Manufacture	Manufacturer
Part Number	Serial number
ECC Count	ECC count
UnECCC State	Non-recoverable ECC state
MRC State	MRC state

Onboard Hard Disk:

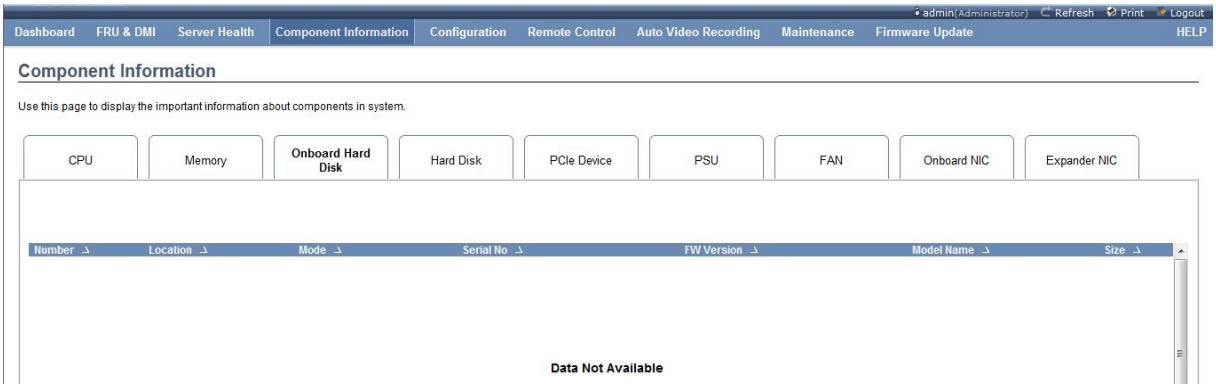


Figure 3-68 Onboard Hard Disk Information Interface

Table 3-56 Description of Onboard Hard Disk Information

Information Option	Description
Number	Item number
Location	Location
Mode	Mode
Serial No.	Serial number
FW Version	Firmware revision
Model Name	Model name
Size	Hard disk capacity

Hard Disk:

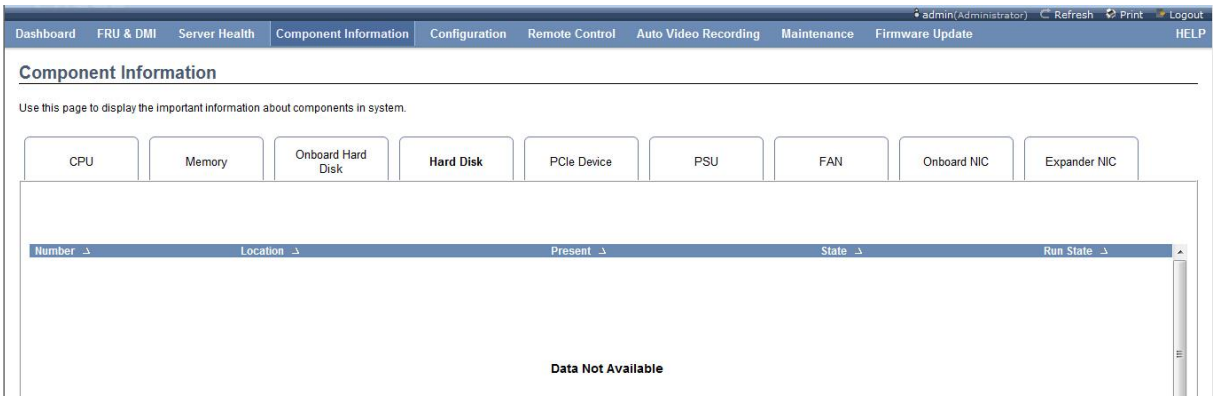


Figure 3-69 Hard Disk Information Interface

Table 3-57 Description of Hard Disk Information

Information Option	Description
Number	Item number
Location	Location
Present	Present

State	State
Run State	Run state

PCIe Device:

Figure 3-70 PCIe Device Information Interface

Table 3-58 Description of PCIe Device Information

Information Option	Description
Number	Item number
Location	Location
Present	Present
Manufacture	Manufacturer
Class	Class
State	State

PSU:

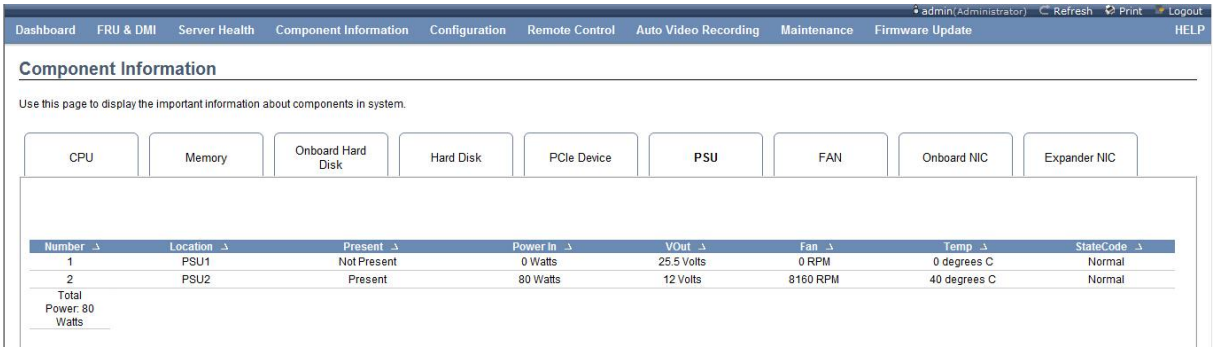


Figure 3-71 PSU Information Interface

Table 3-59 Description of PSU Information

Information Option	Description
Number	Item number
Location	Location

Present	Present
Power In	Input power
Vout	Output voltage
Fan	Power fan speed
Temp	Power temperature
State Code	State code
Total Power	System total power

FAN:

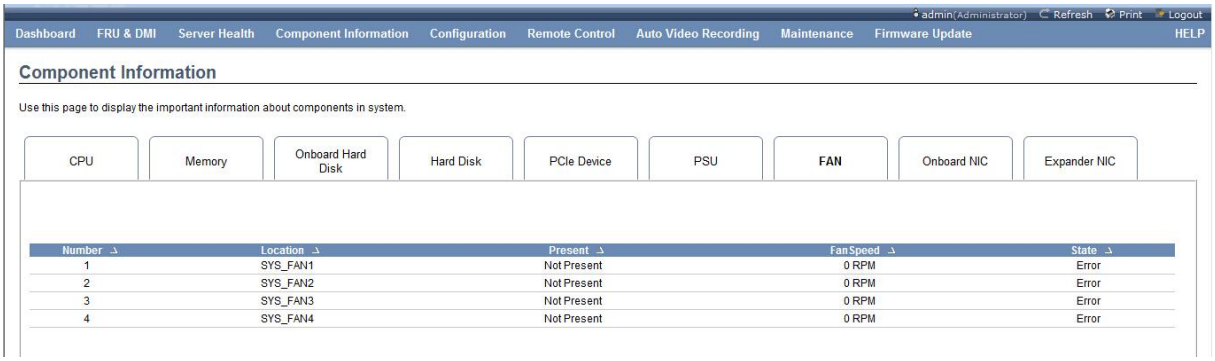


Figure 3-72 FAN Information Interface

Table 3-60 Description of FAN Information

Information Option	Description
Number	Item number
Location	Location
Present	Present
Fan speed	System fan speed
State	System fan state

Onboard NIC:

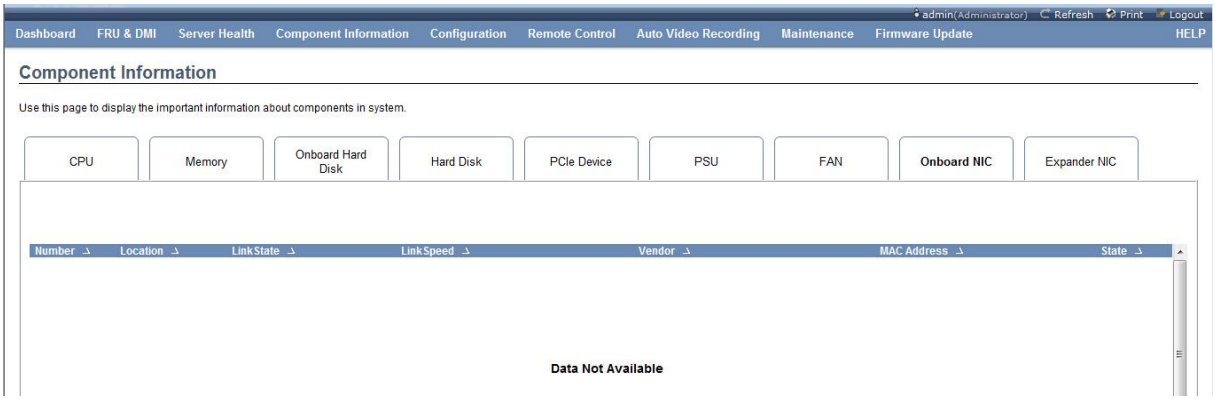


Figure 3-73 Onboard NIC Information Interface

Table 3-61 Description of Onboard NIC Information

Information Option	Description
Number	Item number
Location	Location
Link State	Link state
Link Speed	Link speed
Vendor	Vendor
MAC Address	MAC address
State	State

Expander NIC:

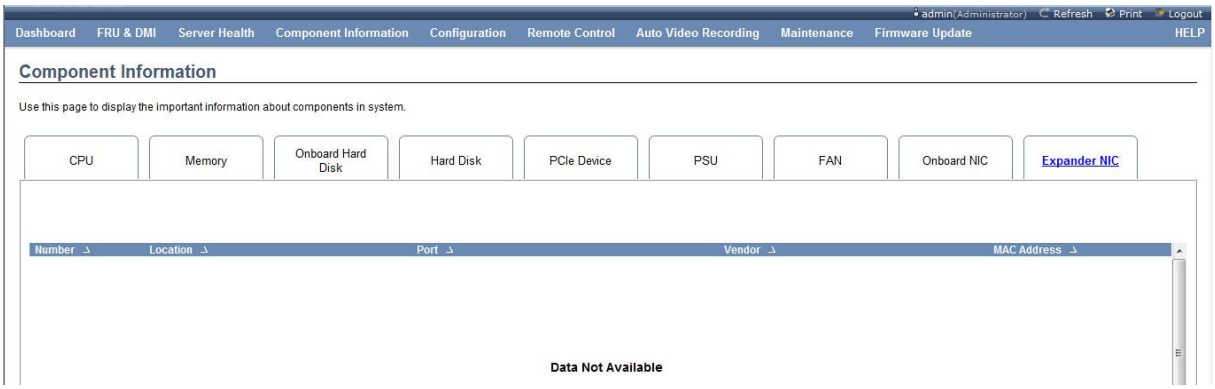


Figure 3-74 Expander NIC Information Interface

Table 3-62 Description of Expander NIC Information

Information Option	Description
Number	Item number
Location	Location
Port	Port
Vendor	Vendor
MAC Address	MAC address

3.3.5 Configuration

Click the Configuration menu to display the submenu as shown in Figure 3-75.

Figure 3-75 Configuration Submenu Interface

Various submenus will be described respectively as follows.

Active Directory

Select Active Directory to enter the Active Directory Settings interface as shown in Figure 3-76.

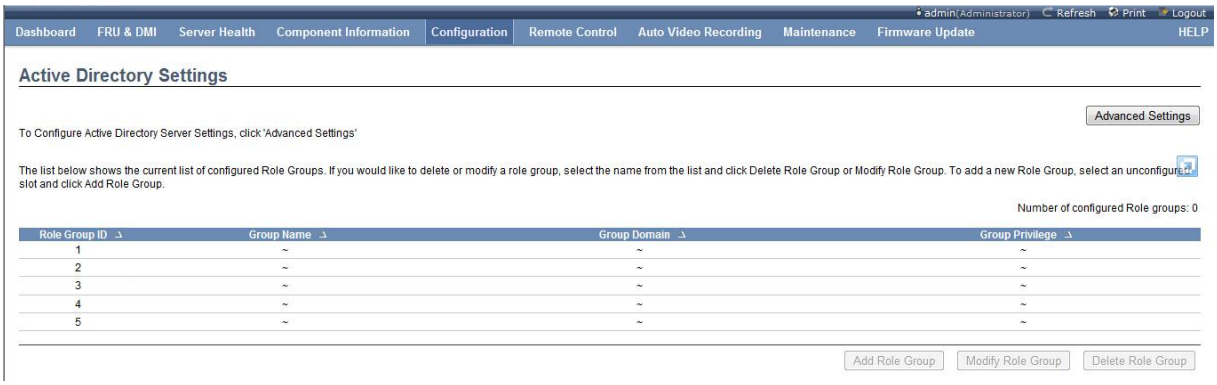


Figure 3-76 Active Directory Interface

Click the Advanced Settings button in the upper right corner for the advanced settings to display the interface as shown in Figure 3-77.

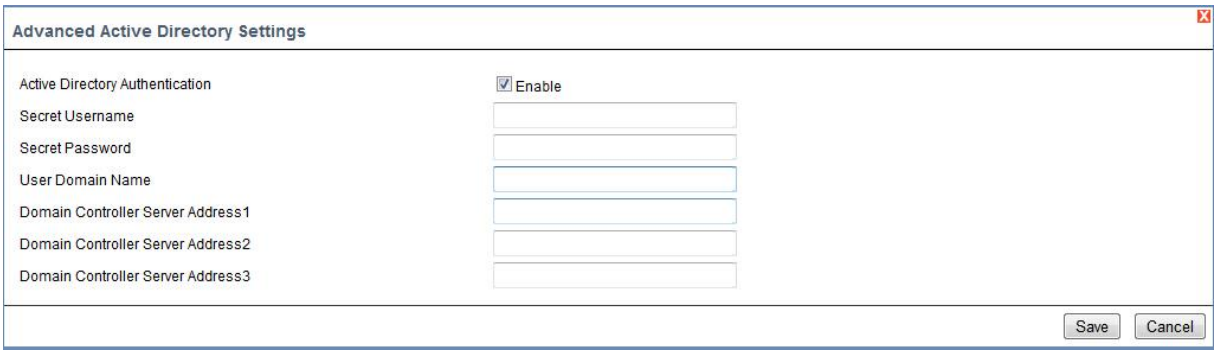


Figure 3-77 Advanced Active Directory Settings Interface

Table 3-63 Description of BIOS Information

Information Option	Description
Active Directory Authentication	Check the Enable box to enable this function.
Secret Username	Secret user name
Secret Password	Secret user password
User Domain Name	Set one domain name, and add the BMC device into this domain.
Domain Controller Server Address1 Domain Controller Server Address1 Domain Controller Server Address1	Set the domain controller server address. One domain controller server address shall be set at least.

On completion of the setting, click the Save button to save the setting. And then you can set the Role Group. You can set the BMC access privilege of the user group in the domain for each Role Group item, and you can set 5 items at most. Select the blank item, and click the Add Role Group button to display the Add Role Group setting box as shown in Figure 3-78.

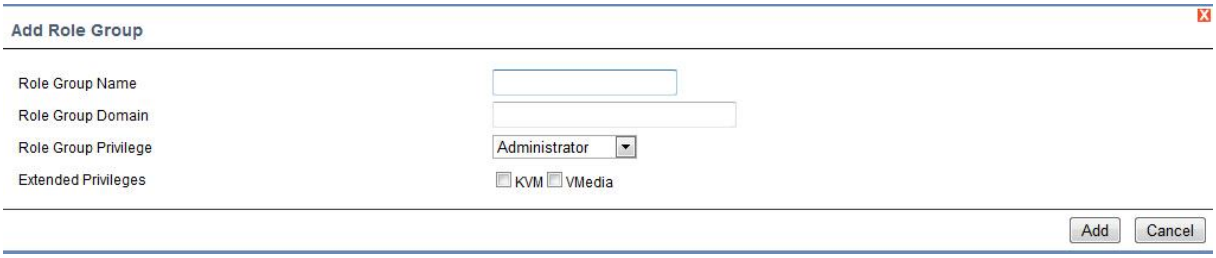


Figure 3-78 Add Role Group Interface

Table 3-64 Description of Adding Role Group Interface

Information Option	Description
Role Group Name	User group name
Role Group Domain	User group domain
Role Group Privilege	BMC access privilege setting of user group
Extended Privileges	Extended access privilege setting

Advanced Audit Log

Select Advanced Audit Log to enter the interface as shown in Figure 3-79.

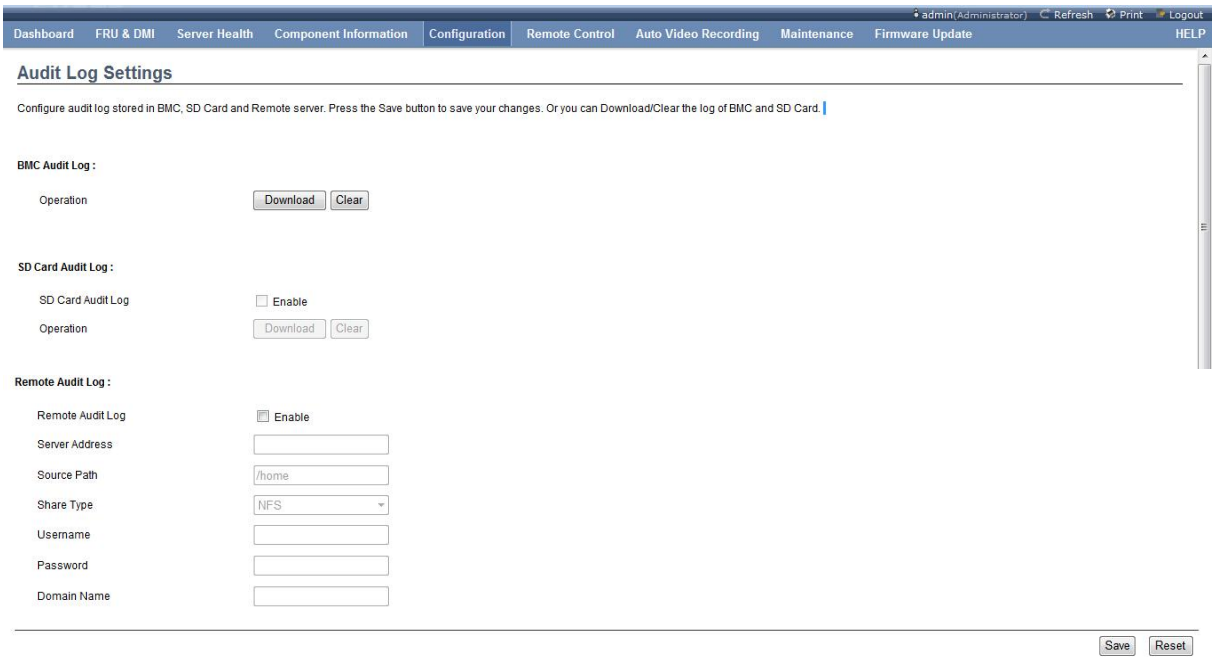


Figure 3-79 Advanced Audit Log Interface

Table 3-65 Description of Advanced Audit Log Setting Interface

Information Option	Description
BMC Audit Log	Click the Download button to download the BMC audit log, and click the Clear button to clear the BMC audit log.
SD Card Audit Log	When the mainboard is inserted with the SD card, you can check the Enable box to enable the SD card audit log. And then click the Download button to download the SD card audit log, and click the Clear button to clear the SD card audit log.
Remote Audit Log	Check the Enable box to enable the remote log function.
Server Address	IP address of remote file server
Source Path	File server share directory
Share type	Share type can be NFS or Samba optional (CIFS). It is necessary to set the later three options only when the latter is selected.
Username	Enter the user name of the Samba (CIFS) server.
Password	Enter the user password.
Domain Name	Enter the domain name.

DNS

Select DNS to enter the DNS interface as shown in Figure 3-80 .

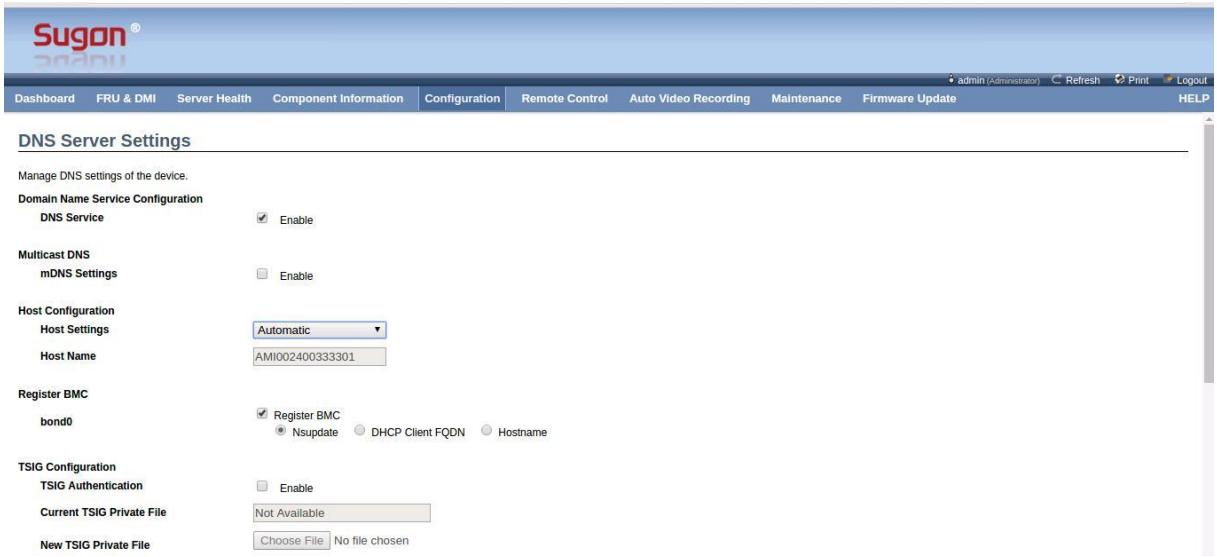


Figure 3-80 DNS Interface

Table 3-66 Description of DNS Settings Interface

Information Option	Description
DNS Service	Check the Enable box to enable the DNS settings.
mDNS Settings	Check the Enable box to enable mDNS.
Host Settings	Set the host name acquisition method, Automatic or Manual optional. You can set the subsequent Host Name only when Manual is selected.
Host Name	The host name. Enter the host name here when the Host Settings is set as Manual.
Register BMC	The register BMC, which can register the dedicated network management interface and the share network management interface respectively.
TSIG Authentication	Check the Enable box to enable the TSIG function, and allow BMC to update the DNS server record.
Current TSIG Private File	The current TSIG private file, which is used for the authentication when you update the DNS record.
New TSIG Private File	Update the new private file.
Domain Settings	Domain settings
Domain Name	Set the domain name. This option can be set only when the Domain Settings is set as Manual.
DNS Server Settings	DNS server settings
IP Priority	IP priority settings
DNS Server1 DNS Server2 DNS Server3	The IP address of DNS server. This option can be set only when the DNS Server Settings is set as Manual.

Event Log

Select Event Log, to enter the interface as shown in Figure 3-81.

You can set the event log policy in this interface, and select the linear log policy or the cyclic log policy.

LDAP/E-Directory

Select LDAP/E-Directory to enter the interface as shown in Figure 3-81.

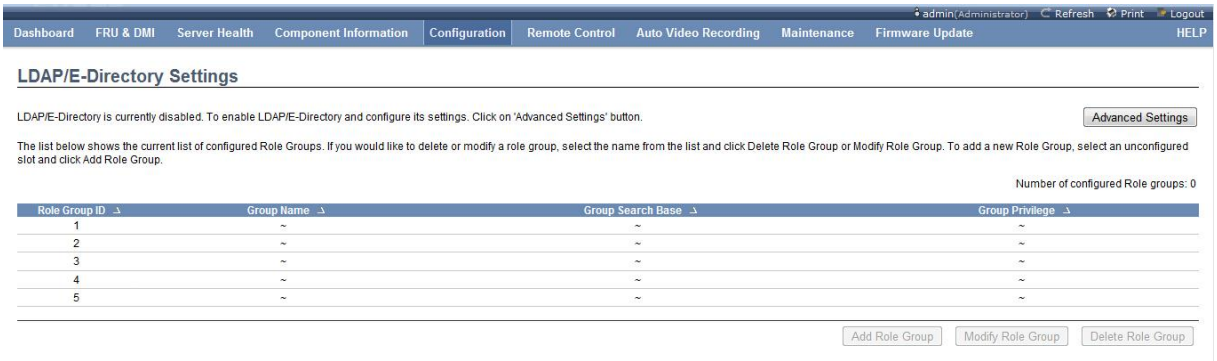


Figure 3-81 LDAP/E-Directory Interface

Click the Advanced Settings button to display the interface for the advanced setting as shown in Figure 3-82.

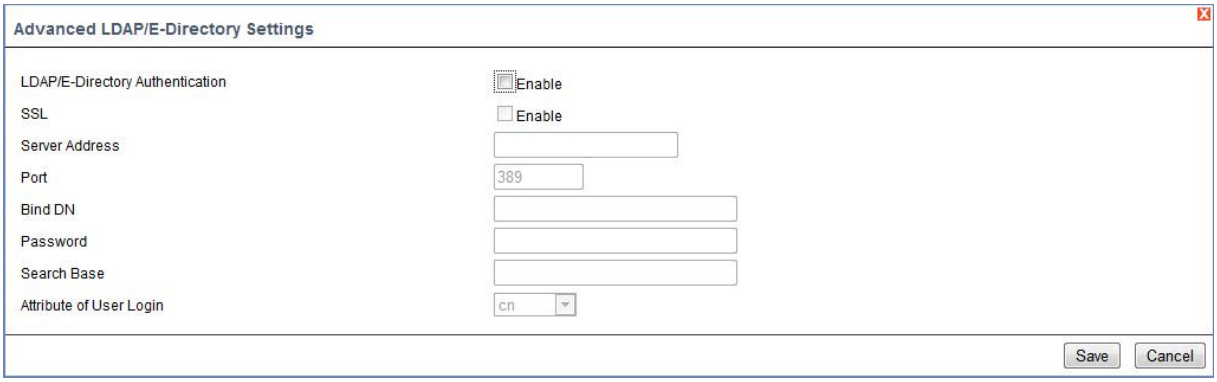


Figure 3-82 Advanced LDAP Setting Interface

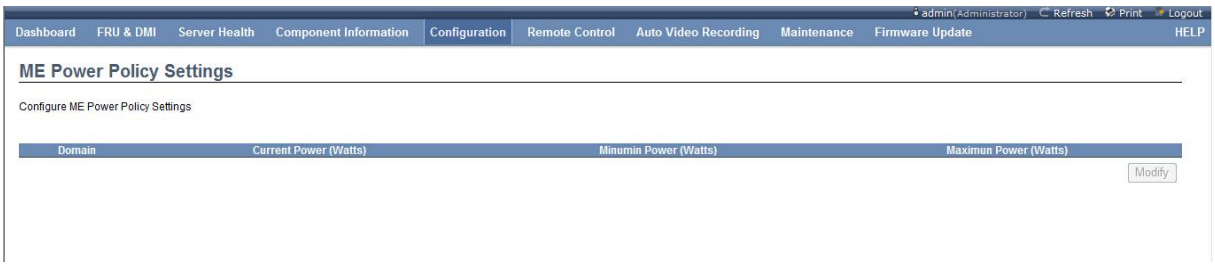
Table 3-67 Description of Advanced LDAP Setting Interface

Information Option	Description
LDAP/E-Directory Authentication	Check the Enable box to enable the LDAP/E-Directory function.

SSL	Check the Enable box to enable SSL, so as to enhance the data security.
Server Address	IP address of LDAP/E-Directory server
Port	Server port number
Bind DN	Set the BMC bind DN, which is used to identify one object.
Password	Password of bind DN
Search Base	Set the searched root directory.
Attribute of User Login	Attribute of user login

Mouse Mode

Select ME Power Policy to enter the interface as shown in Figure 3-83.



Mouse Mode

Select Mouse Mode to enter the Mouse Mode interface as shown in Figure 3-83.

You can modify the Redirection Console Mouse Mode settings in this interface. There are three mode settings, including the absolute mode, relative mode and other mode. When the operating system of the server is Windows, it is recommended to be set as the absolute mode. When the operating system is Linux, it is recommended to be set as the relative mode. When the operating system is SLES 11, it is recommended to be set as other modes.

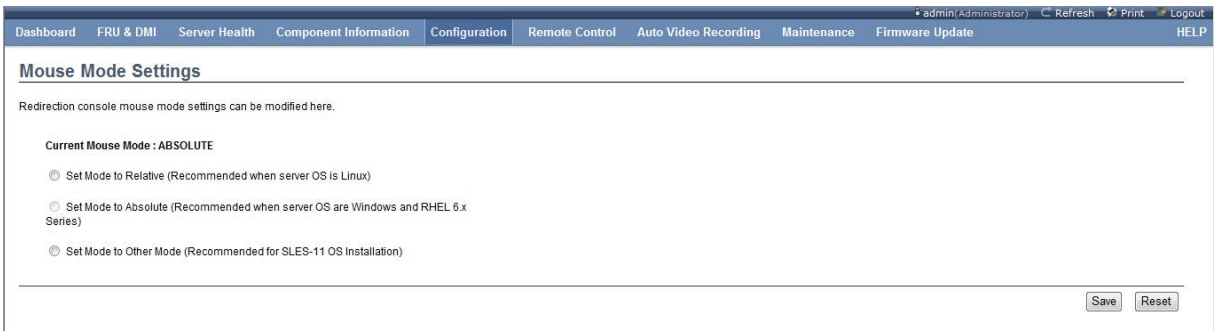


Figure 3-83 Mouse Mode Interface

Network

Select Network to enter the Network Management Device interface as shown in Figure 3-84.

You can set the dedicated network management interface and the share network management interface respectively in this interface. The setting content includes the IPv4 setting, IPv6 setting

and VLAN setting. Click Save to save the settings, and click Reset to reset the setting.

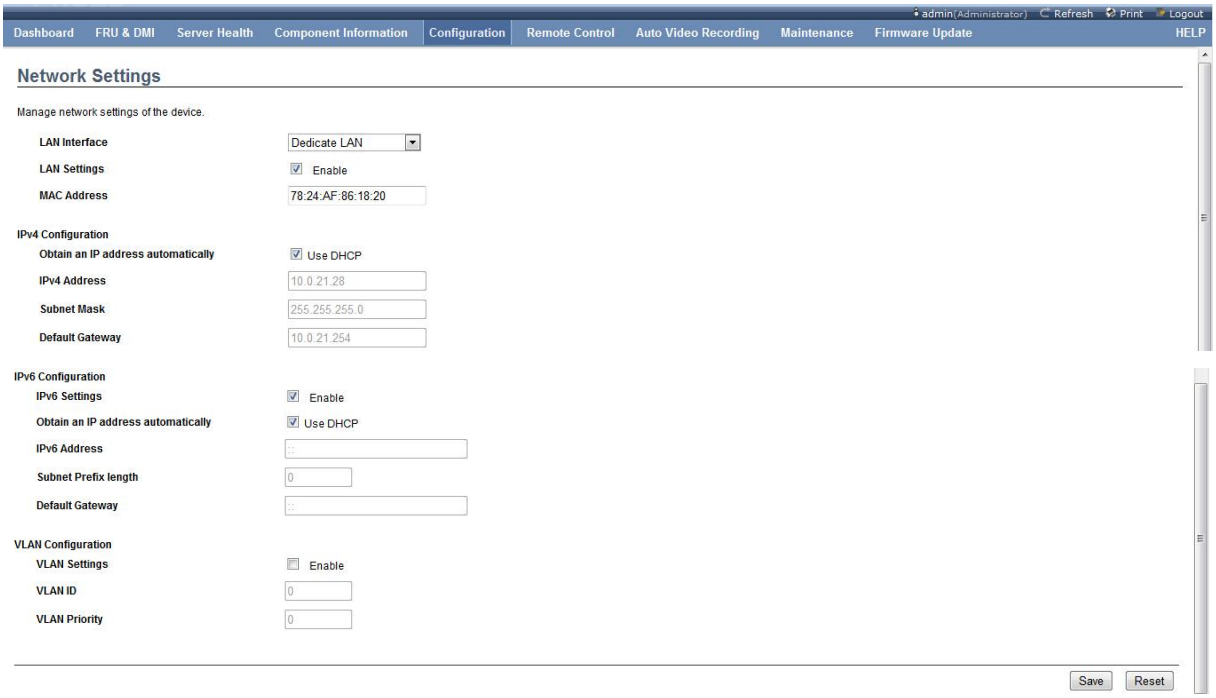


Figure 3-84 Network Management Setting Interface

Table 3-68 Network Setting Interface Information

Information Option	Description
LAN Interface	Set the network management mode, which includes the options as follows. Dedicated: Use the dedicated network management only. Share-1G: Use the share-1G network management only. Share-10G: Use the share-10G network management only. Failover-1G: Use the dedicated network management and the share-1G network management to support the Failover function. Failover-10G: Use the dedicated network management and the share-10G network management to support the Failover function.
LAN Settings	The LAN settings. Check the Enable box to enable this network interface.
MAC Address	Display the MAC address of the network interface, which cannot be modified.
IPv4 (6) Configuration	IPv4 (6) configuration
Obtain an IP address automatically	Obtain an IP address automatically. Check the box, and the network interface will obtain the IP address automatically by the DHCP server. It is necessary to set the latter three options only when the box is unchecked.
IPv4 (6) Address	SetIPv4 (6) Address
Subnet Mask (Subnet Prefix length)	Set the subnet mask (subnet prefix length).
Default Gateway	Set the default gateway.

Network Bond

Select Network Bond to enter the Network Bond interface as shown in the figure below.

Figure 3-85 Network Bond Interface

Check the Network Bonding box to enable the Network Bonding function. After the Network Bonding function is enabled, you can also check the Auto Configuration box to enable the Auto Configuration function.

NTP

Select NTP to enter the NTP settings interface as shown in Figure 3-86 . NTP (Network Time Protocol) is a protocol to synchronize the computertime.

You can set the following information respectively in this interface, such as the date (day, month and year), time (hour, minute and second), time zone and NTP server. When the "Automatically synchronize Date & Time with NTP Server" box is checked at the bottom of the page, it indicates to synchronize the time and date with the NTP server automatically. When it is unchecked, only the former three options can be set, while the NTP Server option cannot be set.

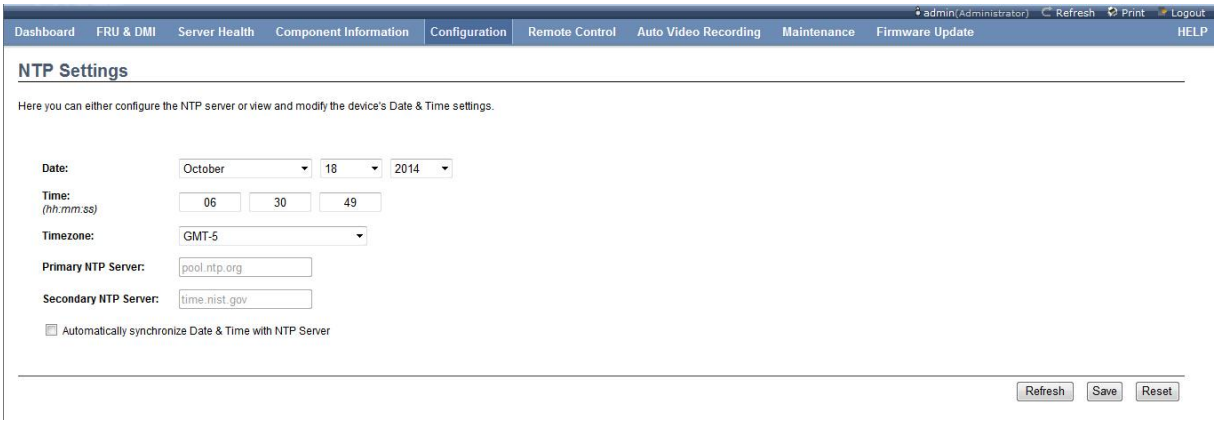


Figure 3-86 NTP Settings Interface

PEF

Select PEF to enter the PEF Management interface as shown in Figure 3-87 . You can set the Event Filter, Alert Policy and LAN Destination in this interface.

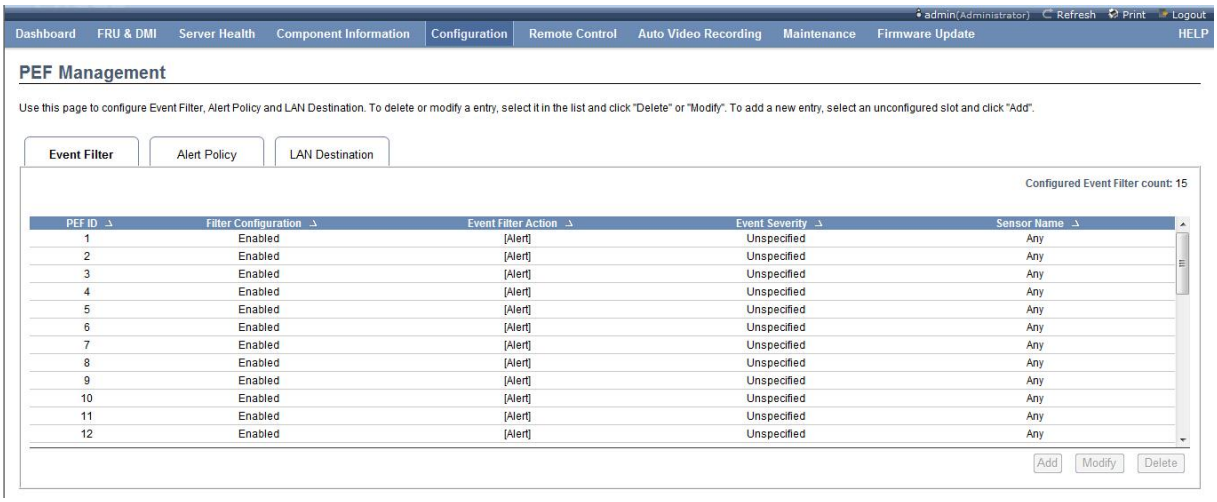


Figure 3-87 PEF Management Interface

Table 3-69 Description of Event Filter Information

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

Table 3-70 Description of Alert Policy Information

Information Option	Description
Policy Entry	Specified alarm number (1, 2, 3…)
Policy Number	Specified policy number
Policy Configuration	Specified configuration
Policy Set	Specified policy set
Channel Number	Number of channels
Destination Selector	Destination selector

Table 3-71 Description of LAN Destination Information

Information Option	Description
LAN Destination	LAN destination number (1, 2, 3…)
Destination Type	Destination type
Destination Address	Destination address

To delete or modify some item, select this item, and then click Modify or Delete. To add some item, select the blank item, and then click Add.

After you select Add or Modify from the Event Filter item, Settings interface will be displayed as shown in four figures below.

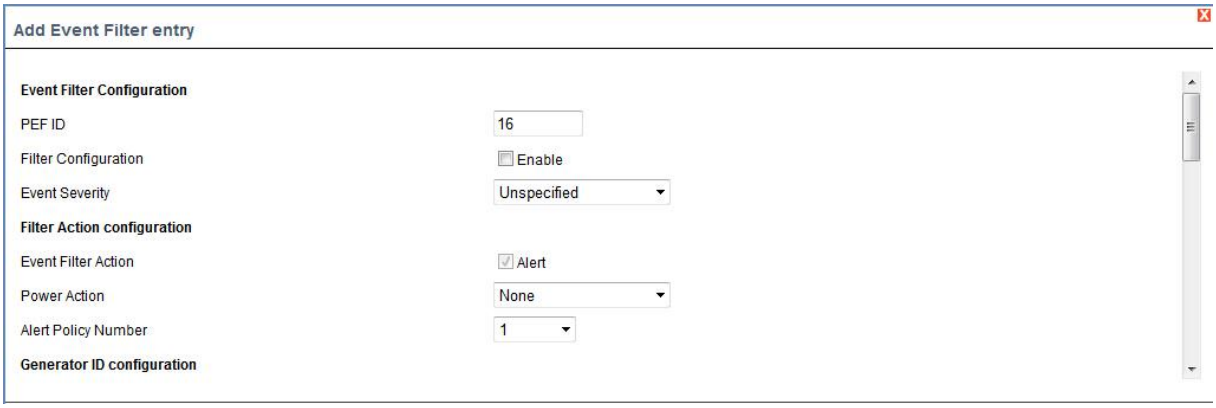


Figure 3-88 Add Event Filter Item Interface -1

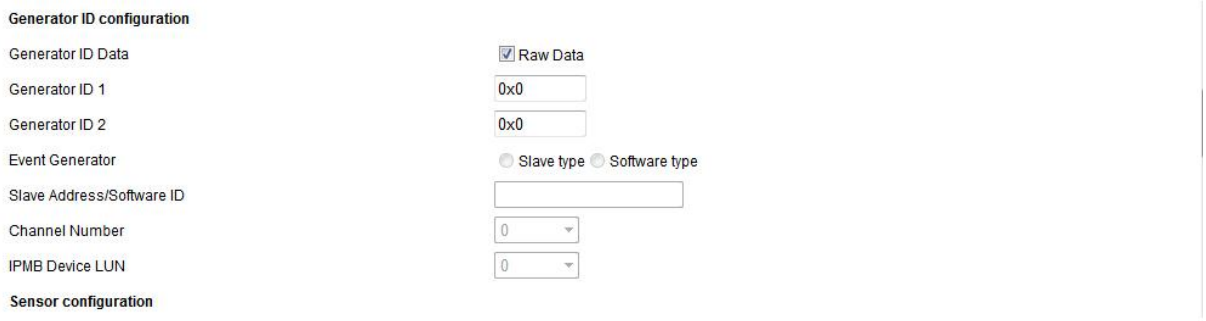


Figure 3-89 Add Event Filter Item Interface -2

Figure 3-90 Add Event Filter Item Interface -3

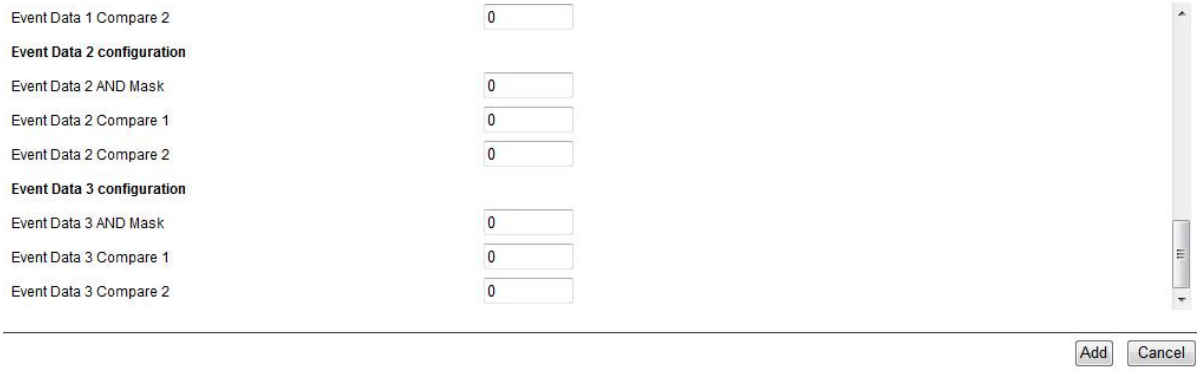


Figure 3-91 Add Event Filter Item Interface-4

Table 3-72 Description of Adding Event Filter Item Interface

Add Item Information	Description
Event Filter Configuration	Event filter configuration
PEF ID	The PEF serial number, which cannot be modified.
Filter Configuration	The filter configuration. Select Enable to enable this item.
Event Severity	The event severity, which are Unspecified, Monitor, Information, Normal, Non-Critical, Critical and Non-Recoverable in turn according to the option. Option: [Unspecified]/[Monitor]/[Information]/[Normal]/[Non-Critical]/[Critical]/[Non-Recoverable]
Filter Action Configuration	Filter action configuration
Event Filter Action	The event filter action. The Alert box is checked and cannot be unchecked.
Power Action	The power action, whose options are None, Power Down, Power Reset and Power Cycle in turn. Option: [None]/[Power Down]/[Power Reset]/[Power Cycle]
Alert Policy Number	Alert policy number, 1 - 15 optional.
Generator ID Data	Generated the ID data. The Raw Data indicates to select the raw data.
Generator ID 1 (2)	ID 1 (2)
Event Generator	The event generator, which can select the slave address or the system software ID. Option: [Slave Address]/[System Software ID]
Channel Number	Channel number (1 - 15 optional)
IPMB Device LUN	(1 - 3 optional)
Sensor configuration	Sensor configuration
Sensor Type	Sensor type
Sensor Name	Sensor name
Event Options	Event options
Event Data Configuration	Event data configuration
Event Trigger	Event trigger

After you select Add or Modify from the Alert Policy option, it will display the interface as shown in Figure 3-92:

Figure 3-92 Interface of Adding Alert Policy Item

Table 3-73 Description of Adding Alert Policy Item

Add Item Information	Description
Policy Entry	Specified alarm number (1, 2, 3…)
Policy Number	Specified policy number (1 - 15 optional)
Policy Configuration	Specified policy configuration, which can select Enable or None.
Policy Set	Specified policy set (0 - 4 optional)
LAN Interface	Select the network management network interface.
Destination Selector	Destination selector (1 - 15 optional)
Alert String	Alert string, which can select the special event.
Alert String Key	Alert string key value (0 - 127 optional)

After you select Add or Modify from the LAN Destination option, it will display the interface as shown in Figure 3-93.

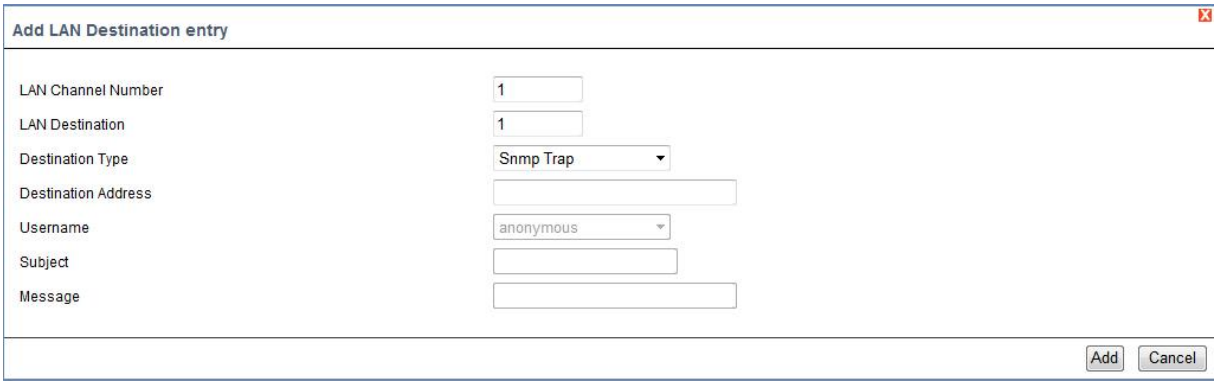


Figure 3-93 Interface of Adding LAN Destination Item

Table 3-74 Description of Adding LAN Destination Item

Add Item Information	Description
LAN Channel Number	LAN channel number
LAN Destination	The LAN destination number, which cannot be changed.

Destination Type	The destination type, the trap alert and email alert optional. When the trap alert is selected, the Destination Address may be set. When the email alert is selected, the Username, Subject and Message may be set. Option: [Snmp Trap]/[Email Alert]
Destination Address	Destination address of SNMP trap alert
Username	The user name, which is selected from all BMC users.
Subject	Subject of alert email
Message	Additional content of alert email

RADIUS

Select RADIUS to enter the interface as shown in Figure 3-94.

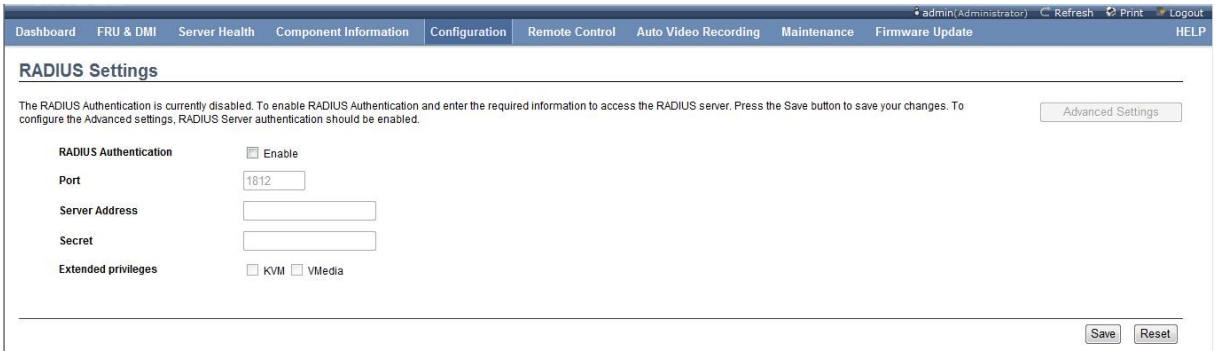


Figure 3-94 RADIUS Interface

Table 3-75 Description of RADIUS Interface

Add Item Information	Description
RADIUS Authentication	Check the Enable box to enable the RADIUS Authentication function.
Port	Server port number
Server Address	IP address of RADIUS server
Secret	Password
Extended privileges	The extended privileges. Check the box before corresponding item to assign corresponding privilege.

Remote Session

Select Remote Session to enter the Remote Session interface as shown in Figure 3-95.

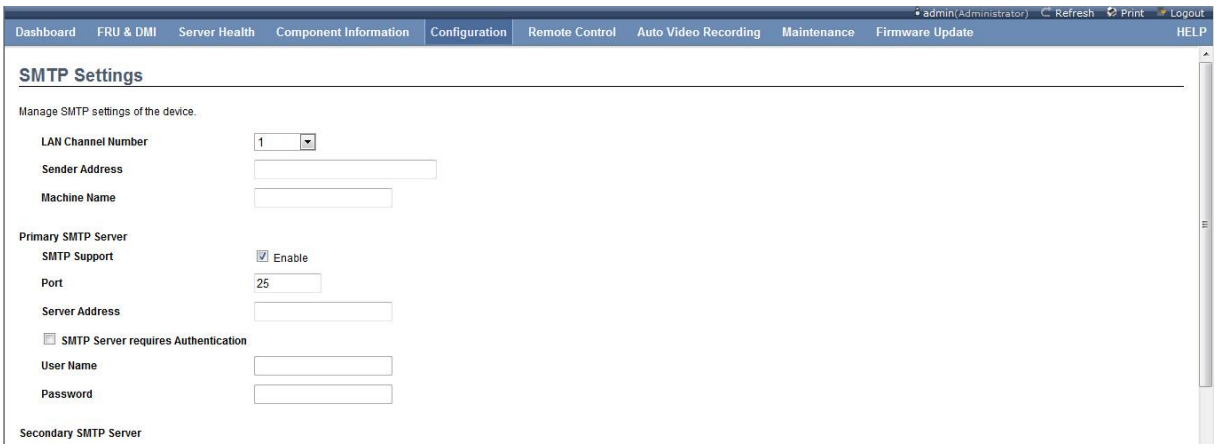
Figure 3-95 Remote Session Interface

Table 3-76 Remote Session Interface Information

Information Option	Description
Single Port Application	After the single port application is checked, the following two settings will be hidden.
KVM Encryption	KVM encryption
Media Encryption	Media encryption
Keyboard Language	Keyboard language selection
Virtual Media Attach Mode	Virtual media attach mode
Local Monitor Off	Local monitor off
Automatically OFF Local Monitor, When JViewer Launches	When launching JViewer, the local monitor will be switched off automatically.

SMTP

Select SMTP to enter the SMTP interface as shown in Figure 3-96. SMTP (Simple Mail Transfer Protocol), which is a set of rules to send the mail to the destination address from the source address and control the mail transfer mode.



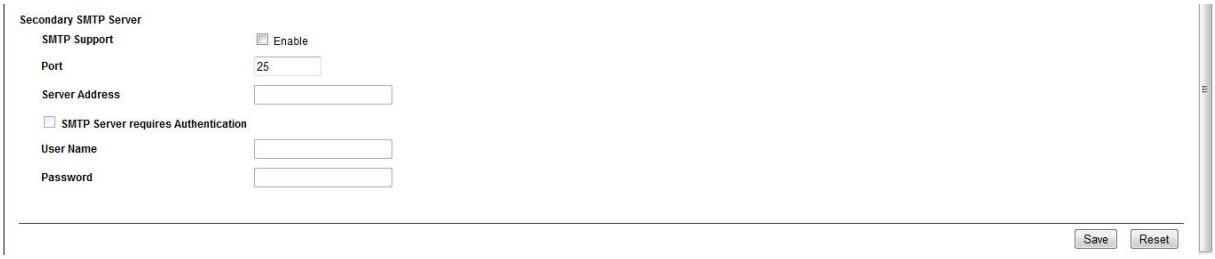


Figure 3-96 SMTP Interface

Table 3-77 Description of SMTP Interface Information

Information Option	Description
LAN Channel Number	Select the LAN channel number.
Sender Address	Sender address
Machine Name	Machine name
Primary SMTP Server (Secondary SMTP Server)	Primary SMTP server (Secondary SMTP Server) related settings
SMTP Support	Enable the SMTP support.
Port	Set the service port number.
Server Address	Server address
SMTP Server requires Authentication	SMTP server requires authentication, which can be set by checking the box before it.
User Name	User name
Password	Password

SSL

Select SSL to enter the SSL Certificate Configuration interface as shown in Figure 3-97 . This option includes three parts, namely, Upload SSL, Generate SSL and View SSL.

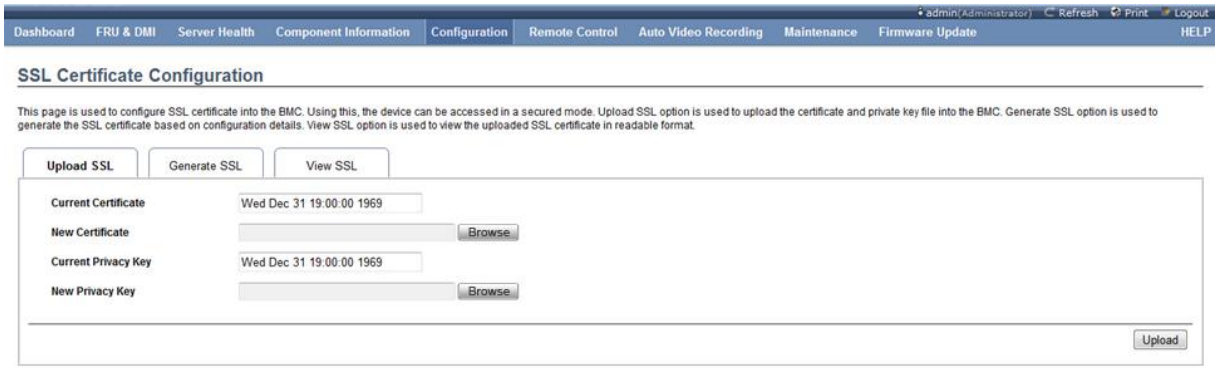


Figure 3-97 SSL Certificate Configuration Interface

Upload SSL:

Select Upload SSL to upload SSLas shown in Figure 3-97. For the following information items, the former two items are current certificate and current key respectively. Click Browse to select the new SSL certificate, and then click Upload to upload the SSL certificate.

Generate SSL:

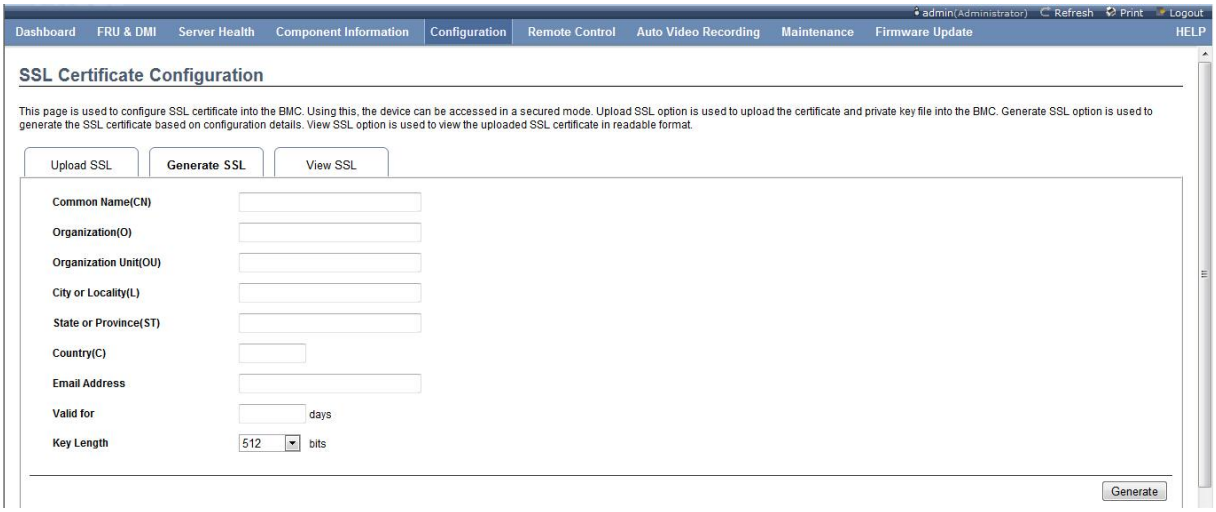


Figure 3-98 Generate SSL Interface

Select Generate SSL to generate SSLas shown in Figure 3-98 . Fill in corresponding information, and select Generate to generate SSL.

Table 3-78 Description of Generating SSL Interface Information

Information Option	Description
Common Name (CN)	Common name
Organization (O)	Organization
Organization Unit (OU)	Organization unit
City or Locality (L)	City or locality
State or Province (ST)	State or province
Country (C)	Country
Email Address	Email address
Valid for	Validity period
Key Length	Key length, 512 bytes and 1,024 bytes optional.

View SSL:

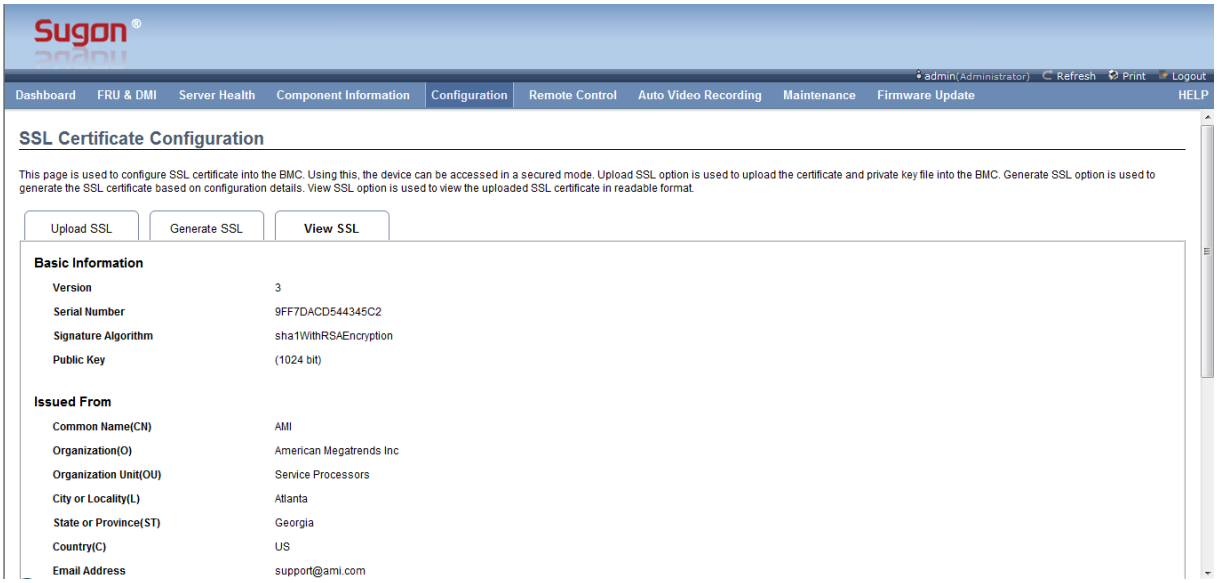


Figure 3-99 View SSL Interface

Select View SSL to view the SSL information, including the basic information (version, serial number, algorithm and public key), release information, effective time and send address.

System And Audit Log

Select System and Audit Log to enter the System and Audit Log Settings interface as shown in Figure 3-100.

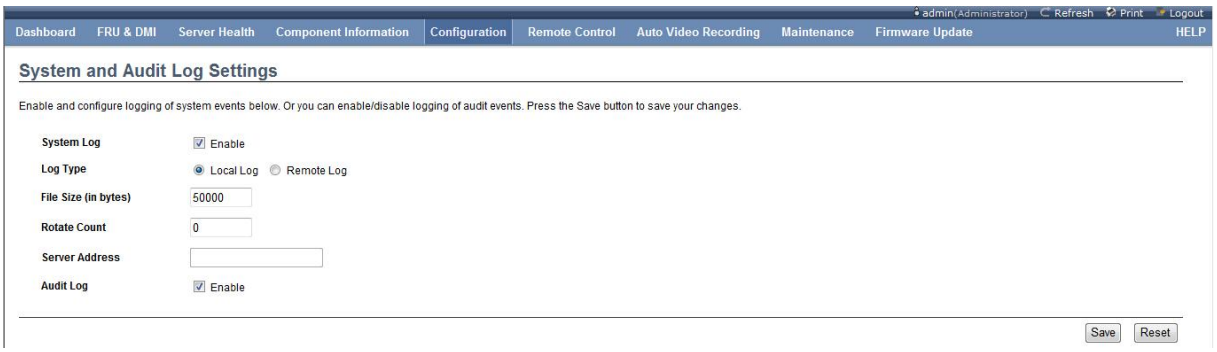


Figure 3-100 System and Audit Log Settings Interface

Table 3-79 Description of System and Audit Log Settings Interface Information

Information Option	Description
System Log	Check the box behind it to enable the system log.
Log Type	Select the type of the system log, Local Log and Remote Log optional. If the Local Log is selected, it is necessary to set the following File Size and Rotate Count parameters. If the Remote Log is selected, it is necessary to set the Server Address parameter.
File Size (in bytes)	Local log file size (in bytes)
Rotate Count	Cycle times

Server Address	Address of remote log server
Audit Log	Check the box behind it to enable the audit log.

System Firewall

Select System Firewall to enter the System Firewall interface as shown in Figure 3-101.

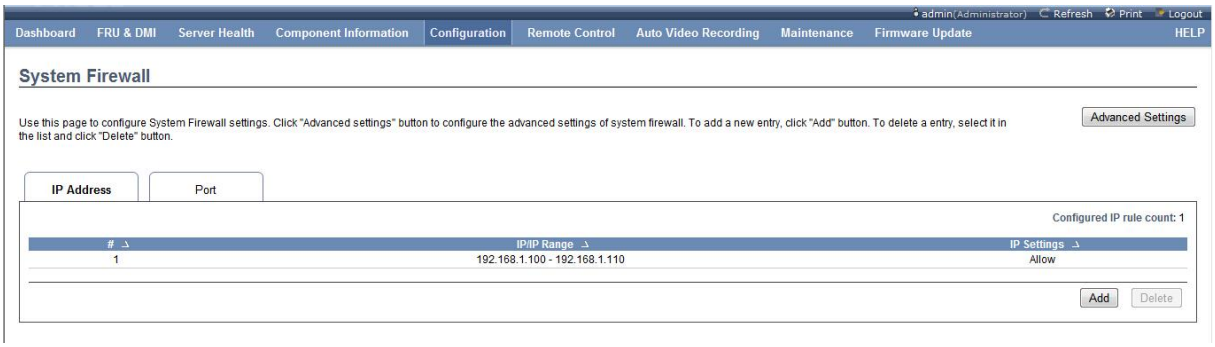


Figure 3-101 System Firewall Settings Interface

There are two tabs in this interface, namely, IP Address and Port. It will display the IP address policy in the IP Address page. Click the Add button in the upper right corner to add the new IP address policy as shown in Figure 3-102. Select the entry, and click the Delete button to delete it.

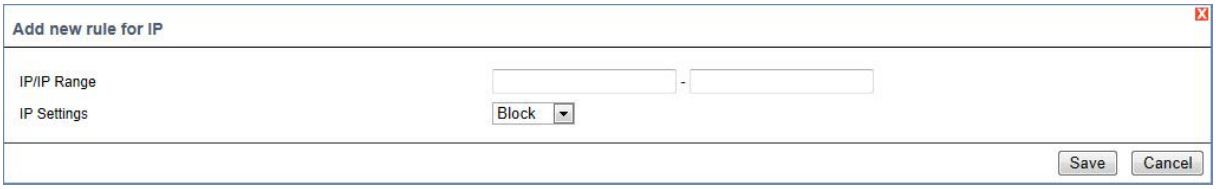


Figure 3-102 Interface of Adding IP Address Policy

IP/IP Range is used to set the IP address (range). IP Settings is used to set above IP address (range) policy, Allow or Block optional.

It will display the port policy in the Port page. Click the Add button in the lower right corner to add the new port policy as shown in Figure 3-103. Select the entry, and click the Delete button to delete it.

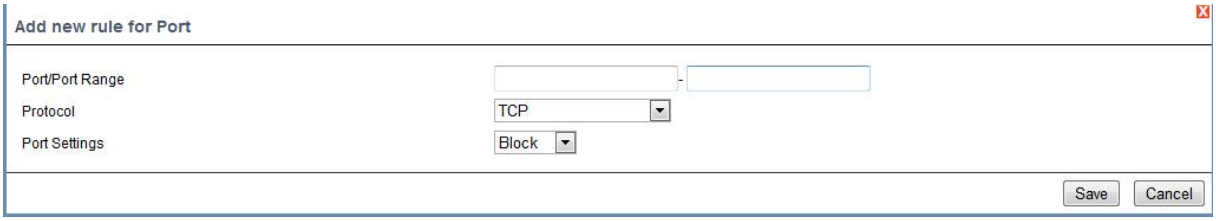


Figure 3-103 Interface of Adding Port Policy

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

Click the Advanced Settings button in the upper right corner for the unified settings as shown

in Figure 3-104.

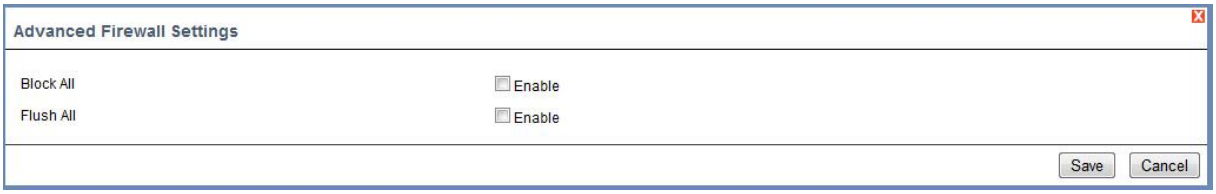


Figure 3-104 Advanced Settings Interface

Check Block All to block all accesses.

[Note] Check this item carefully. You can not access the network management interface after this item is checked.

Check Flush All to allow all accesses.

Users

Select Users to enter the User Management interface as shown in Figure 3-105.

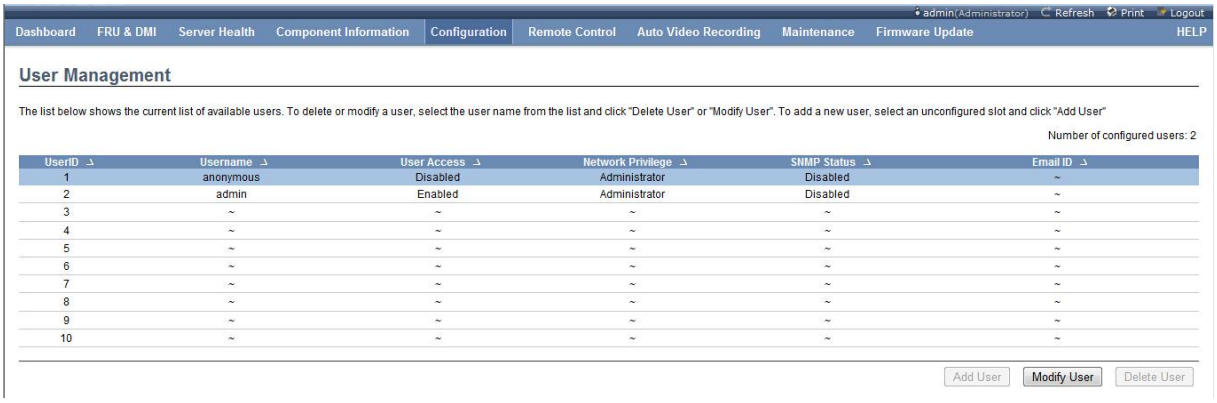


Figure 3-105 Users Interface

Select the exiting items and click Modify User or select the blank item and click Add User to display the interface as shown in Figure 3-106. Select the existing items, and click Delete User to delete users.

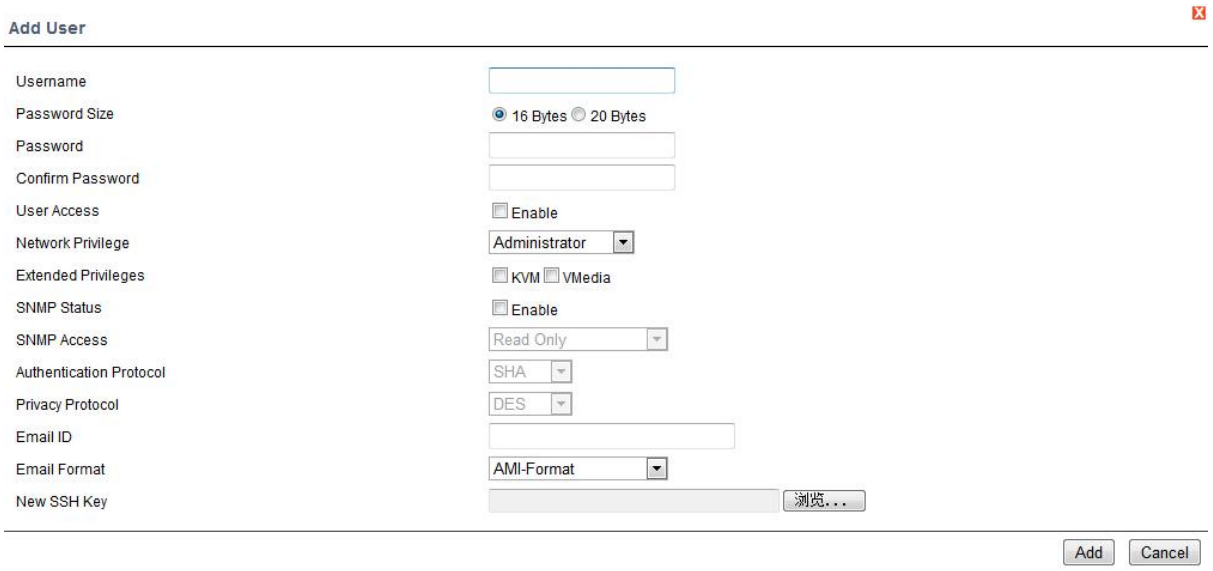


Figure 3-106 Interface of Adding Users

Table 3-80 Description of Adding Users Information

Information Option	Description
Username	User name
Password Size	Password length, 16-bit and 20-bit optional.
Password	Check the Change Password box to reset the password.
Confirm Password	Confirm password, which shall be exactly consistent with Password.
User Access	Select Enable, which indicates to allow the user access.
Network Privilege	Select the network privilege, which is Administrator, Operator, User, OEM Proprietary and No Access in turn. Option: [Administrator]/[Operator]/[User]/[OEM Proprietary]/[No Access]
Extended Privilege	Extended privilege, KVM and Vmedia optional.
SNMP Status	Check the box behind it to enable the SNMP privilege. The latter three options can be set after the checking.
SNMP Access	Set the SNMP read/write privilege, option: [Read Only]/[Read Write].
Authentication Protocol	Set the authentication protocol. Option: [SHA]/[MD5]
Privacy Protocol	Set the encryption protocol, option: [DES]/[AES].
Email ID	Set the email address of users.
Email Format	Set the email format of users, option: [AMI-Format]/[Fixed Subject-Format].
New SSH Key	New SSH key, click "Browse" for the selection.

On completion of the setting, click the Add or Modify button in the lower right corner to add/modify users.

Virtual Media

Select Virtual Media to enter the Virtual Media Device interface as shown in Figure 3-107. It is

allowed to configure the number of the supported virtual media devices in the following options, including the floppy device, CD-ROM device and hard disk device in turn.

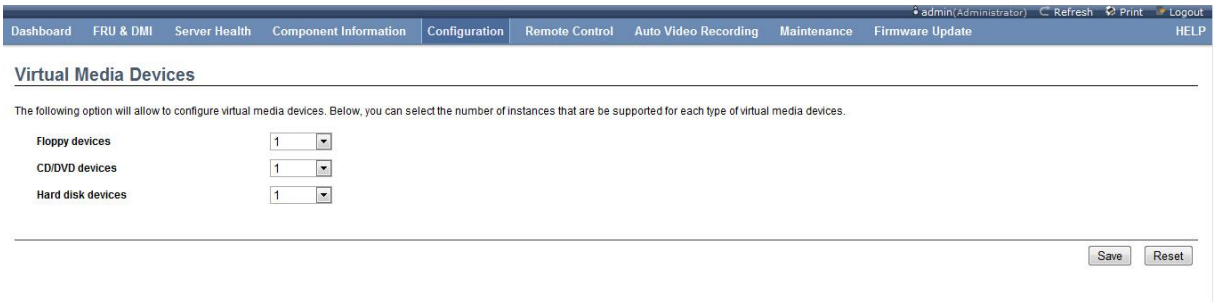


Figure 3-107 Virtual Media Interface

User Lock Settings

Select User Lock Settings, to enter the User Lock interface as shown in the figure below.

Figure 3-108 User Lock Settings Interface

You can set the maximum continuous error password entries of the user in this interface (the user will be locked if it is exceeded) and the user lock time. Click Save to save the settings, and click Reset to reset the settings.

3.3.6 Remote Control

Click the Remote Control menu to display the submenu as shown in the figure below.

Figure 3-109 Remote Control Submenu

Console Redirection

Select the Console Redirection option for the console redirection as shown in Figure 3-110.

Figure 3-110 Console Redirection Interface

Click the Java Console button for the operation according to the prompt, and the remote console window will open (it is necessary to install the JRE software package) as shown in Figure 3-111.

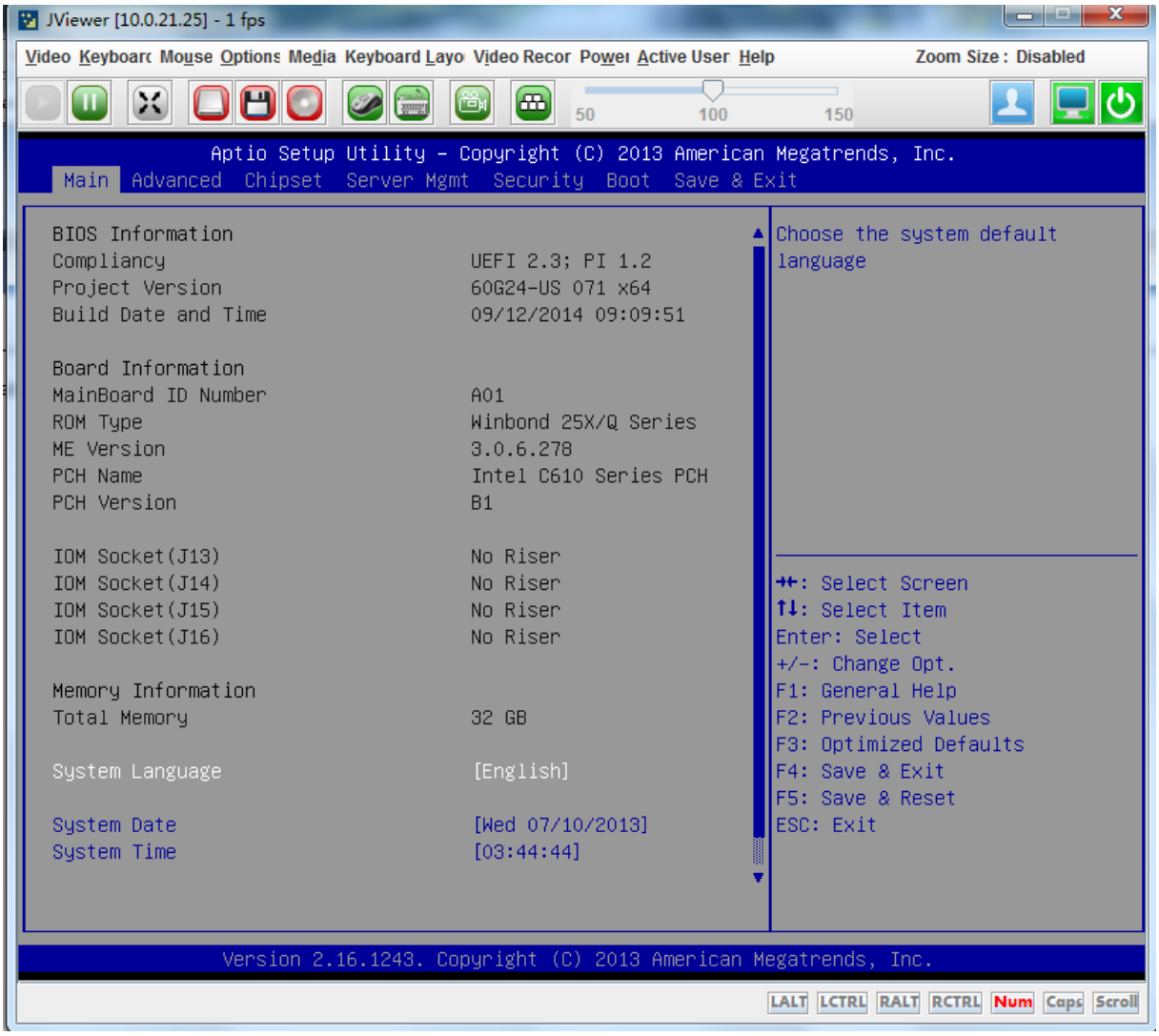


Figure 3-111 Redirection Interface

There are several menus in this remote console, and you can carry out various settings and perform various functions. Here will describe some commonly used functions only.

Remote Mounting Mirror File/Hard Disk/USB Flash Drive/CD-ROM/Floppy Drive:

Select the Virtual Media Wizard submenu in the Media menu, to pop up the interface as shown in Figure 3-112.

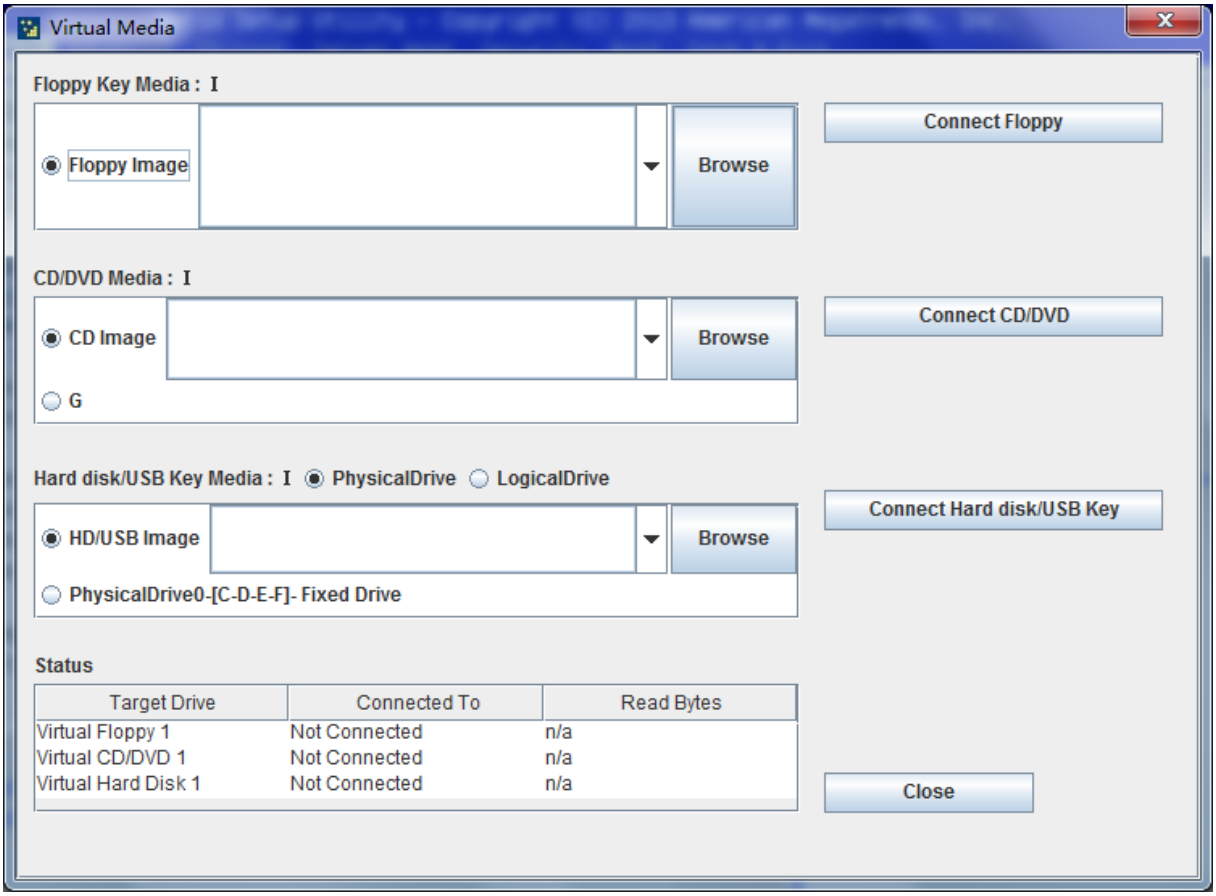


Figure 3-112 Virtual Media Mounting Interface

The floppy disk mirror or the floppy drive may be mounted in the Flop Key Media area in the figure above (when the computer is equipped with the floppy drive). To mount the mirror file, it is only necessary to click Browse, find and select the mirror file to be mounted, and then click the "Connect Floppy" button on the right.

The CD/DVD mirror may be mounted in the CD/DVD Media area, whose method is the same as that of the floppy drive mirror. The CD-ROM drive may be also mounted, and it is only necessary to select the CD-ROM letter (G in the figure), and then click the "Connect CD/DVD" button.

The ima and img mirror file or the local hard disk or the USB flash drive may be mounted in the Hard disk/USB Key Media area (when the computer is equipped with the USB flash drive), whose method is the same as that of above mirror and the CD-ROM.

Capture Screen Function:

As shown in Figure 3-113, select the Capture Screen submenu in the Video menu or use the Alt+S shortcut button to capture the interface in current console. Select the location to save the file in the pop-up Save File dialog box and set the file name, and click "Save" to save the file.

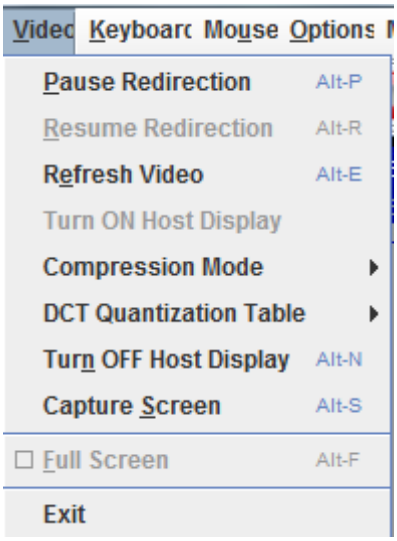


Figure 3-113 Video Submenu

Enable Full Keyboard Support:

You can use the keyboard in the redirection console. However, the combination key is not supported by default. If you want to use the combination key, it is only necessary for you to check the Full Keyboard Support box in the Keyboard menu.

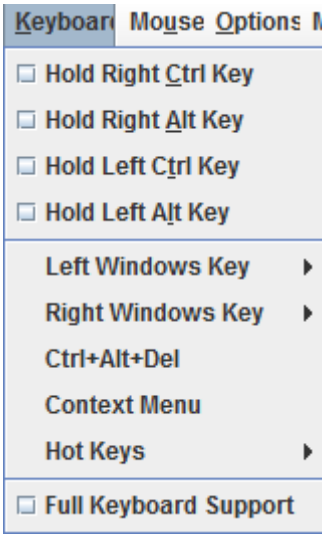


Figure 3-114 Keyboard Submenu

Enable Soft Keyboard:

Select the Soft Keyboard submenu in the Keyboard Layout menu to pop up the keyboard with different language layouts, and select the required keyboard to enable the virtual soft keyboard.

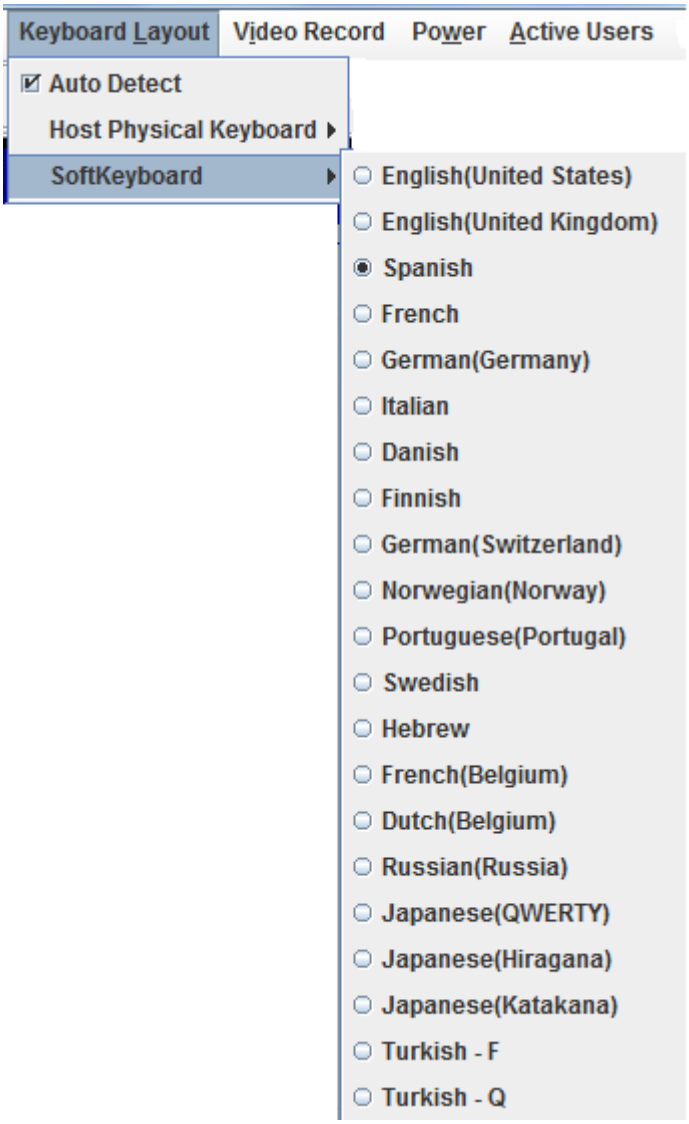


Figure 3-115 Keyboard Layout Submenu

Video Recording Function:

Select the Settings submenu in the Video Record menu to pop up the Video Record Settings interface as shown in Figure 3-117.

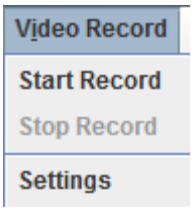


Figure 3-116 Video Recording Submenu

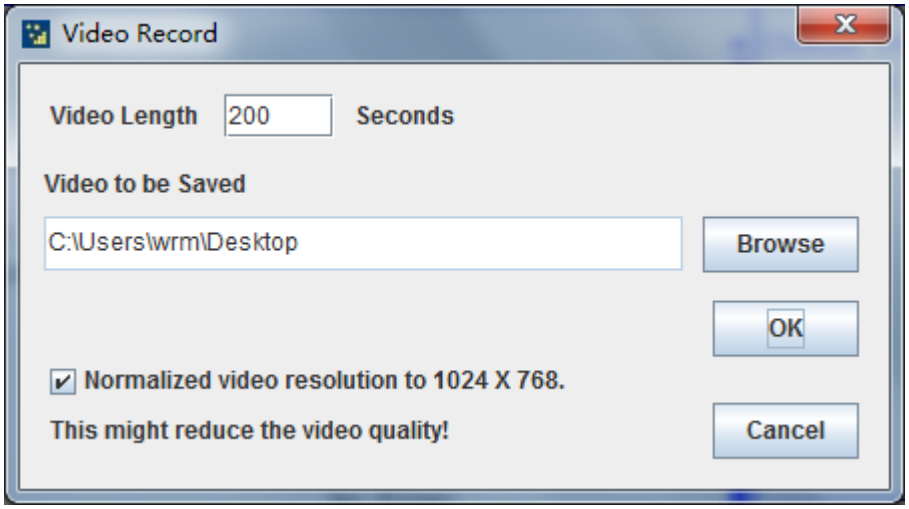


Figure 3-117 Video Recording Setting Interface

You can set the maximum length of the video record in the figure above. Click Browse to select the location to save the video record automatically. On completion of the settings, click "OK" to save the settings. At this time, you can use the Start Record and Stop Record in the Video Record menu to control the video record, and it will generate the video file automatically on completion of the video record.

Server Power Control:

Select the Power menu to display the submenu as shown in Figure 3-118.

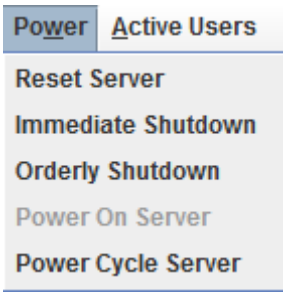


Figure 3-118 Power Submenu

Select Reset Server to restart the server. Select Immediate Shutdown to shut down the server immediately. Select Orderly Shutdown to send the shutdown command to the server. Select Power Cycle Server to shut down the server and then start the server. Power On Server is optional in the server shutdown state, and the server will be started after the Power On Server is selected.

Server Power Control

Select Server Power Control to control the power, and view current status as shown in Figure 3-119. Select the proper option according to the demand and click Perform Action to carry out the operation. At the same time, it will display current status correspondingly.

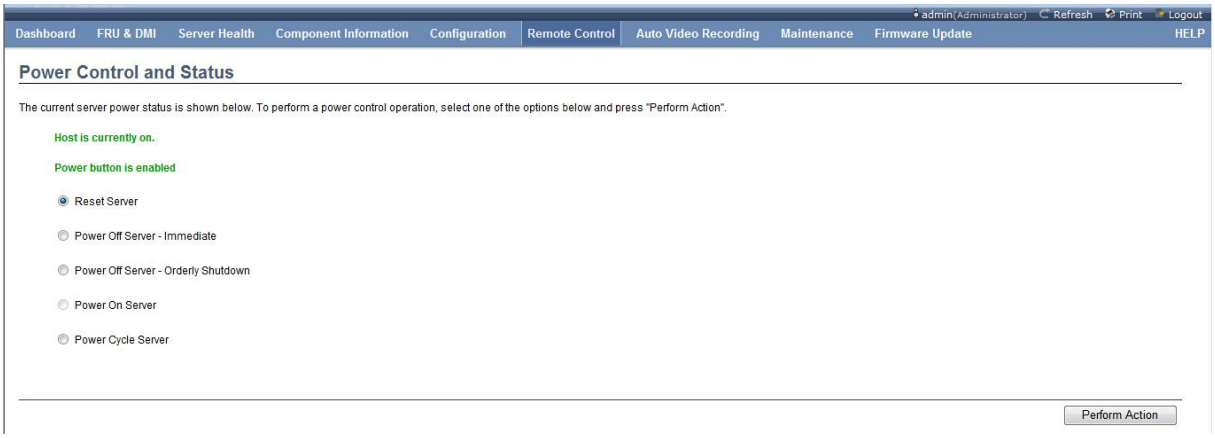


Figure 3-119 Power Control and Status Interface

Table 3-81 Description of Power Selection

Power Control Item	Description
Host is currently off	Display current host status in real time.
Reset Server	Restart the server.
Power Off Server - Immediate	Shut down the server immediately.
Power Off Server - Orderly Shutdown	Send the shutdown command to the server.
Power On Server	Boot the server.
Power Cycle Server	Shut down and then start the server.
Power Button	Power button

Java SOL

Select Java SOL for the serial port redirection as shown in Figure 3-120.

Figure 3-120 Java SOL Interface

Click the Java SOL button for the operation according to the prompt to open the Serial Port Redirection window, and pop up the Settings interface as shown in Figure 3-121.

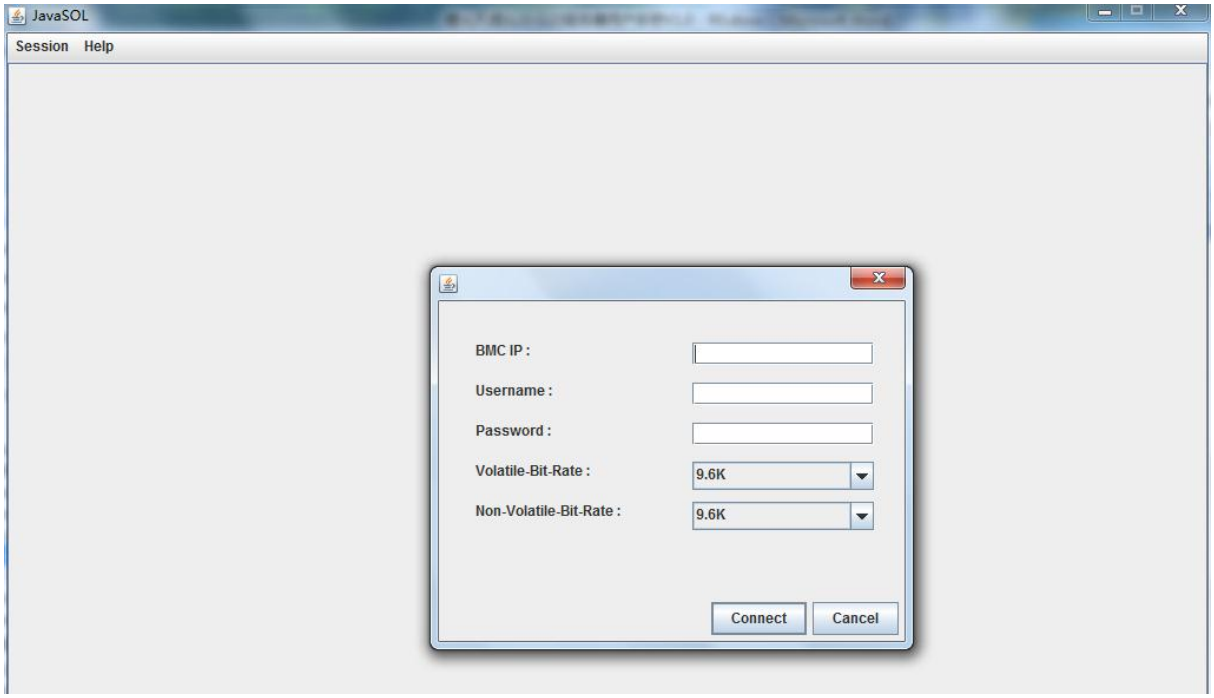


Figure 3-121 Serial Port Redirection Settings Interface

Table 3-82 Description of Settings Interface

Power Control Item	Description
BMC IP	BMC IP address
Username	BMC user name
Password	BMC user password
Volatile-Bit-Rate	Volatile bit rate
Non-Volatile-Bit-Rate	Non-volatile bit rate

Fill in the corresponding information correctly, and click the Connect button for the connection.

Click the Session menu as shown in the figure below.

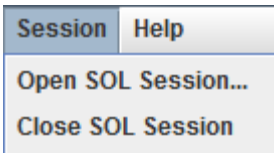


Figure 3-122 Session Submenu

Select Close SOL Session to close current SOL session. Select Open SOL Session to open a new SOL session.

ID LED Control

Select ID LED Control to display the ID LED Control interface as shown in Figure 3-123.

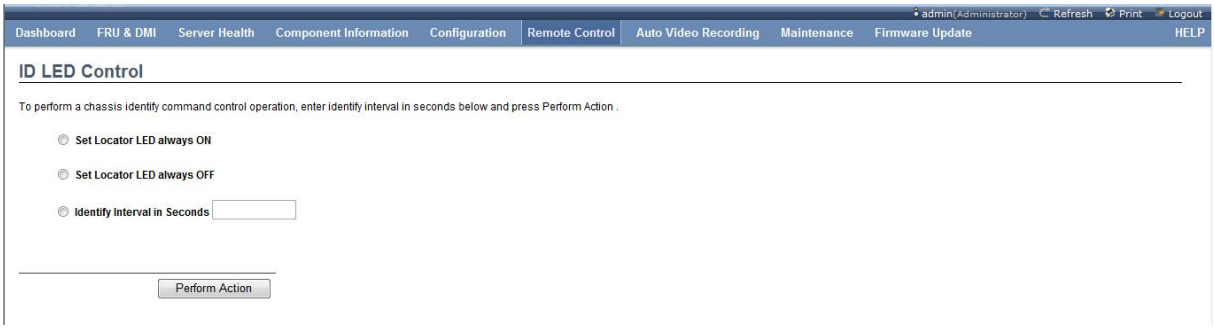


Figure 3-123 ID LED Control Interface

You can select ID LED Lit, ID LED Extinguished and ID LED extinguished after lit for a certain time in this interface in turn. Of which, you can set the ID LED Lit time automatically in the third item. Select this item, and click the Perform Action button to execute the operation.

Power Button Control

Select Power Button Control to display the Power Button Settings interface as shown in Figure 3-124.

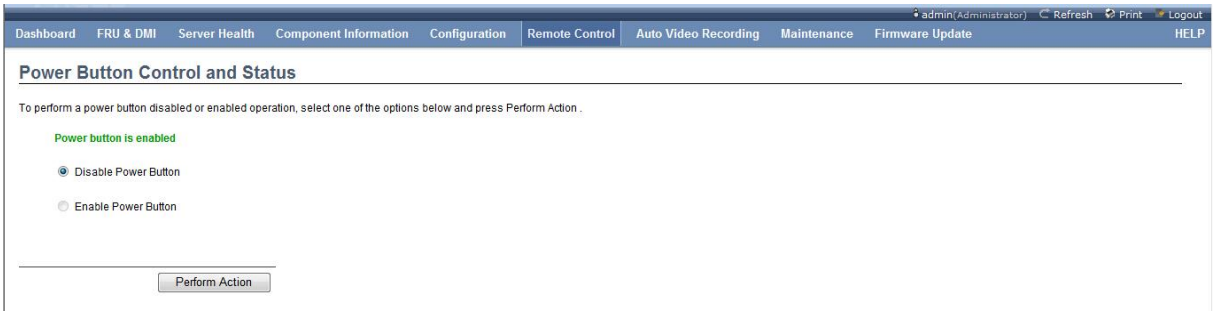


Figure 3-124 Power Button Settings Interface

You can disable/enable the power button in this interface. The power button on the machine will not take effect after it is disabled.

FAN Control

Select FAN Control to enter the Fan Policy Settings interface as shown in Figure 3-125.

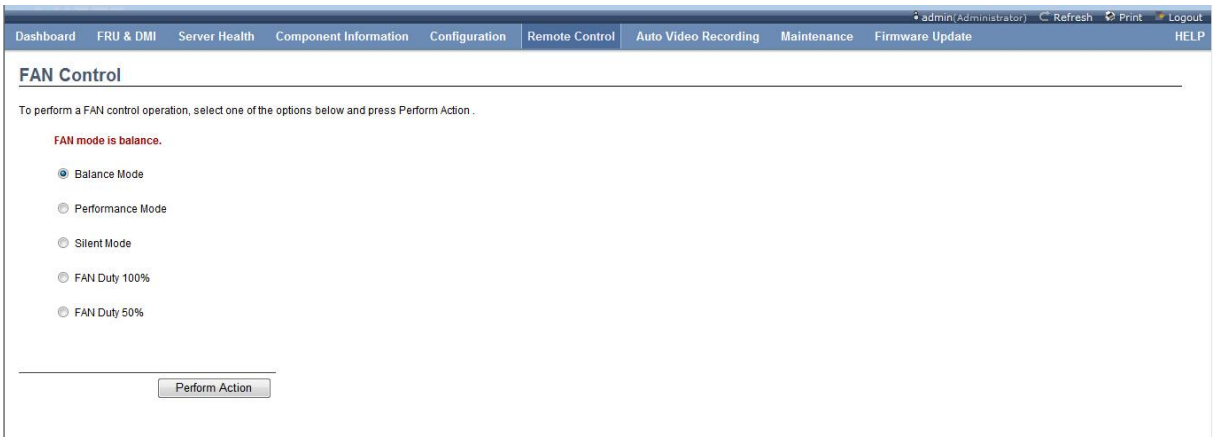


Figure 3-125 Fan Policy Settings Interface

You can set the fan policy as Balance Mode, High Performance Mode, Silent Mode, Full Speed Mode and Half Speed Mode in this interface.

BIOS First Boot Device Selector

Select BIOS First Boot Device Selector to enter the BIOS First Boot Device Selector interface as shown in Figure 3-126.

Figure 3-126 BIOS First Boot Device Selector Interface

You can set the first boot device for the next reboot in this interface, and it will not change the BIOS first boot device setting.

3.3.7 Auto Video Recording

Click the Auto Video Recording menu to display the Auto Video Recording submenu as shown in Figure 3-127.

Figure 3-127 Auto Video Recording Submenu

Triggers Configuration

Select Triggers Configuration, and enter the Triggers Configuration interface as shown in Figure 3-128.

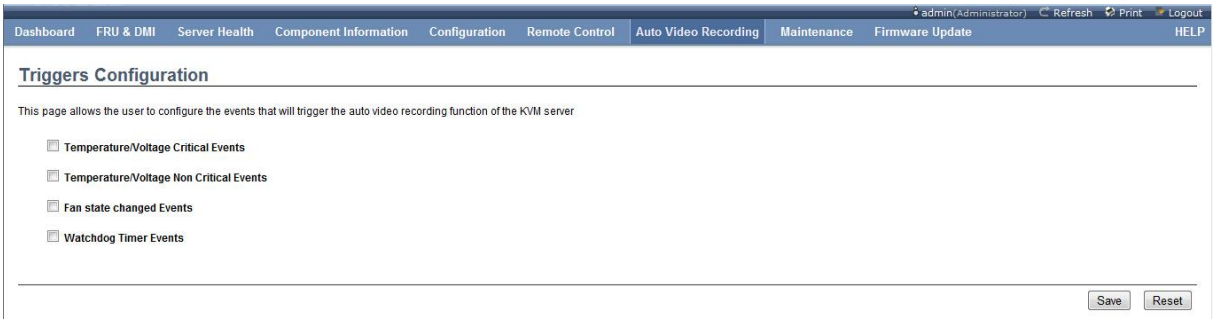


Figure 3-128 Triggers Configuration Interface

Table 3-83 Description of Triggers Configuration

Power Control Item	Description
Temperature/Voltage Critical Events	Temperature/voltage critical alert events
Temperature/Voltage Non Critical Events	Temperature/voltage non-critical events
Fan State Changed Events	Fan state changed events
Watchdog Timer Events	Watchdog timer events

Check corresponding triggers configuration, and click the Save button to save the triggers configuration.

Recorded Video

Select Recorded Video to display the Recorded Video interface as shown in Figure 3-129.

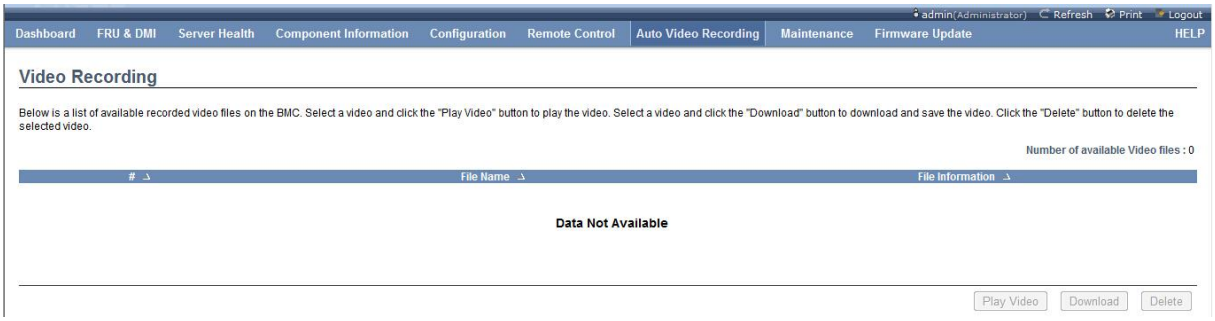


Figure 3-129 Recorded Video Interface

It will display the recorded video list in this interface (it displays there is no video in the figure). You can select the video, and click the button in the lower right corner to perform the video playing, video downloading and video deletion function.

3.3.8 Maintenance

Click the Maintenance menu to display the submenu as shown in the figure below.

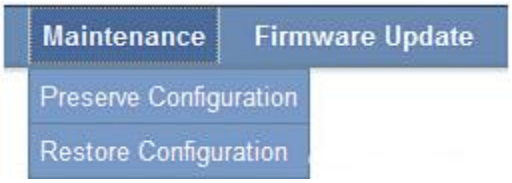


Figure 3-130 Maintenance Submenu

Preserve Configuration

Select Preserve Configuration to display the Preserve Existing Configuration interface as shown in Figure 3-131.

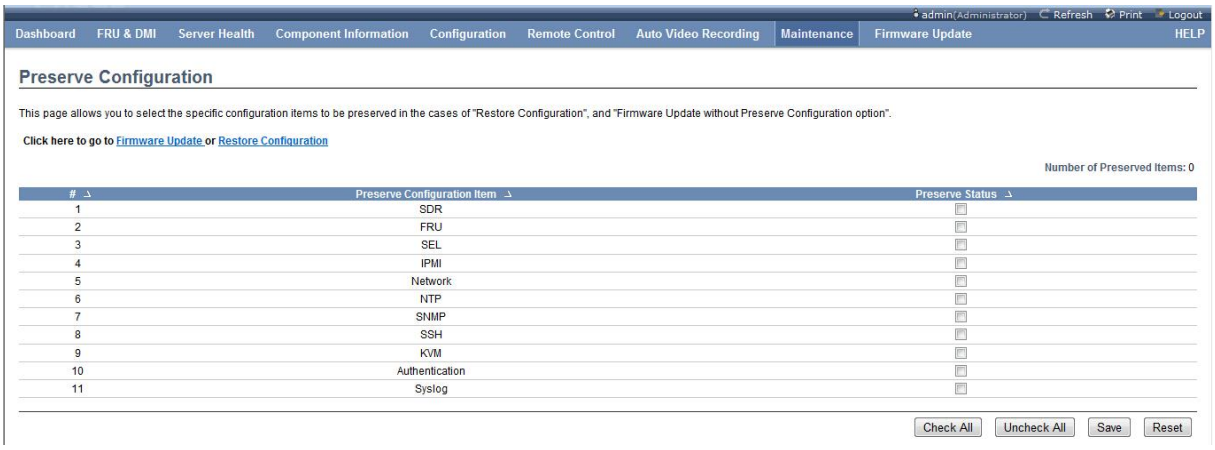


Figure 3-131 Preserve Existing Configuration Interface

You can set which configurations are saved but not reset when it restores factory settings or refreshes the firmware in this interface. Check the box behind the configuration item to be saved, and click the Save button to save the configuration.

Restore Configuration

Click Restore Configuration to enter the Restore Factory Settings interface as shown in Figure 3-132.

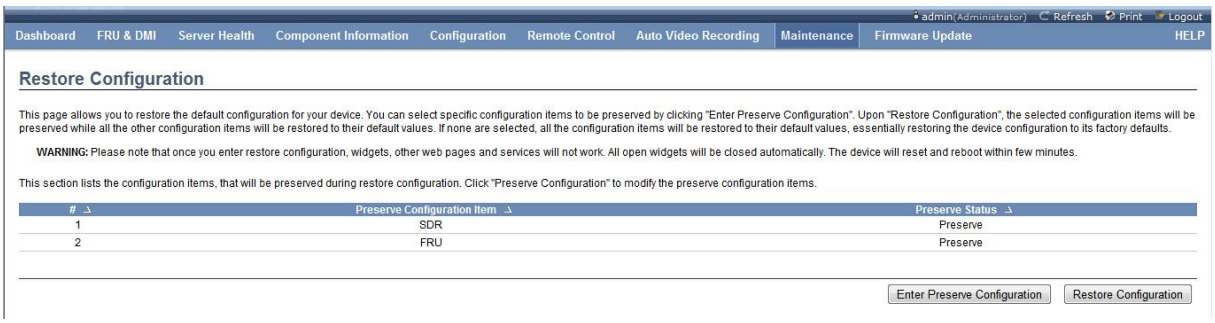


Figure 3-132 Restore Factory Settings Interface

It lists the option that is set in Preserve Configuration, but not be reset in this interface. Click the Enter Preserve Configuration button to enter the Preserve Configuration menu to reset the item to be saved. Click the Restore Configuration button to reset all BMC settings other than above list.

[Note] After you enter the Restore Factory Settings, other web pages and services cannot operate

normally, and all opened windows will be closed automatically. This device will be reset and restarted within several minutes.

3.3.9 Firmware Update

Click the Firmware Update menu to display the submenu as shown in the figure below.

Figure 3-133 Firmware Update Submenu

Firmware Update

Select the Firmware Update submenu to enter the BMC Firmware Update interface as shown in Figure 3-134.

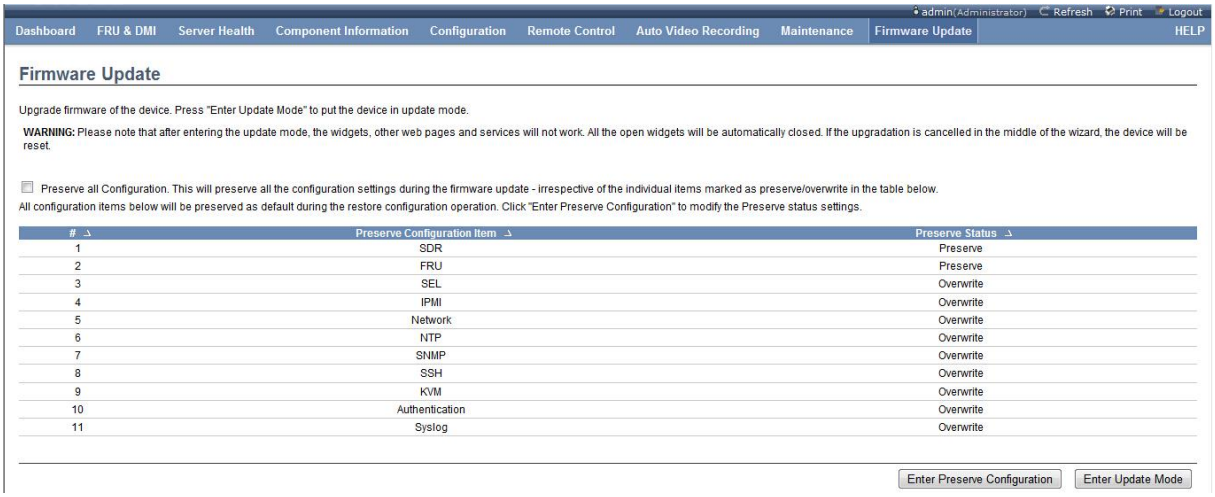


Figure 3-134 BMC Firmware Update Interface

It lists whether all configuration items are overwritten or saved during the firmware update in this interface. Click the Enter Preserve Configuration button to enter the Preserve Configuration menu, so as to set the configuration item to be saved. Click the Enter Update Mode button to enter the BMC Update mode, and upload the BMC file according to the prompt to display the interface as shown in Figure 3-135.

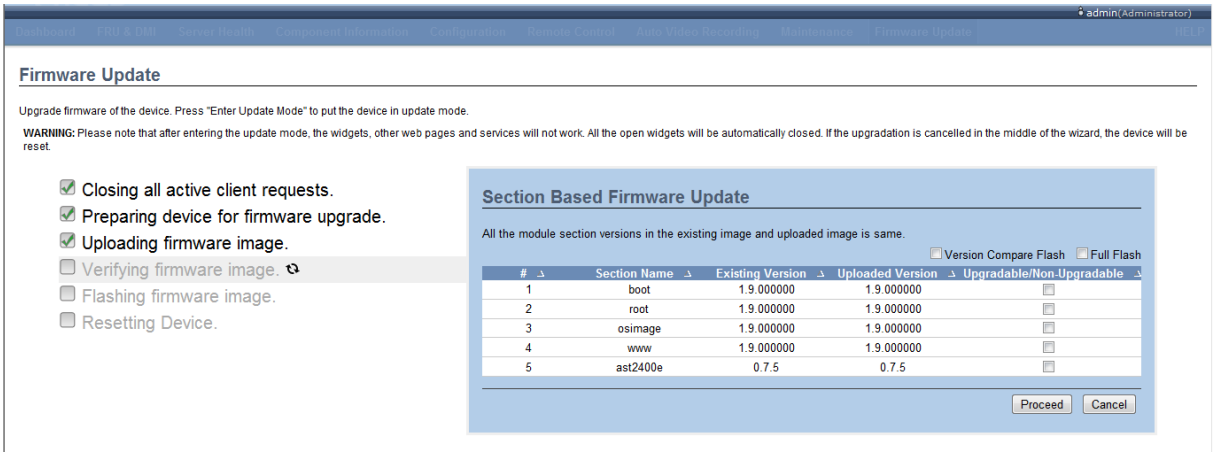


Figure 3-135 BMC Firmware Update Refresh Module Selector Interface

You can select which modules will be refreshed in this interface. You can check the item to be refreshed in the right list directly, and then click Proceed for the refresh, or check "Version Compare Flush" to refresh the module with the version update, or check "Full Flash" to refresh all modules. Click the Cancel button to cancel the refresh, and the BMC device will be restarted.

[Note] After you enter the Update mode, other web pages and service cannot operate normally, and all opened windows will be closed automatically. If the update process is canceled in the wizard, this device will be reset.

BIOS Update

Select BIOS Update to enter the BIOS Firmware Update interface as shown in Figure 3-136.

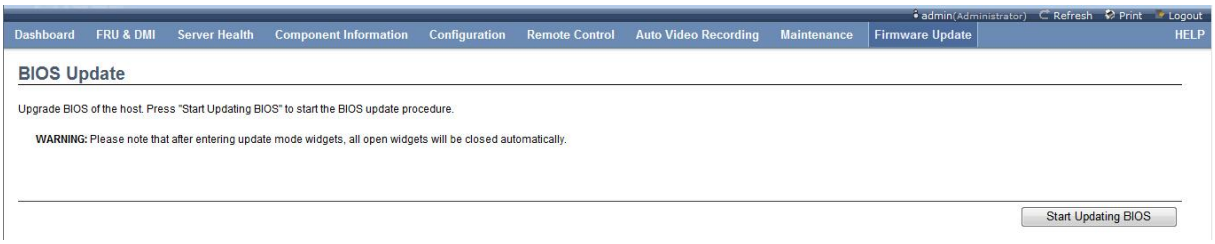


Figure 3-136 BIOS Firmware Update Interface

If the server is in the boot state, it will pop up the Alert dialog box as shown in Figure 3-137.

Figure 3-137 BIOS Firmware Update Alert Interface

It will prompt "Server is in Boot State, Please Shut Down Server" in the Alert dialog box. It is required that the server is in the shutdown state when the BIOS firmware is updated in this mode. Please shut down the server before the update.

After the server shuts down, click the Start Updating BIOS button to enter the BIOS update mode, and update the BIOS file according to the prompt, to start the update.

[Note]After you enter the BIOS update mode, other web pages and services cannot operate normally.

4 Installation Guidelines of Operating System

This guideline includes the following operating systems: Windows 2008 Enterprise Server and Red Hat Enterprise Linux6 Update.

4.1 Windows 2008 Enterprise Server R2 SP1 64bit

Installation Procedure

Step 1: Startup, and put the CD marked with "Microsoft Windows 2008 Server" into CD-ROM and boot from CD.

Step 2: Select the installation language, time and keyboard layout, and then click "Next".

Step 3: Click *"Install no*w" to start the installation.

Step 4: Pop up the "Input Serial Number" interface, input the correct serial number according to the prompt, and click "Next".

Step 5: Select the 2008 Server version to be installed. This guideline takes Windows Server 2008 Enterprise as an example, select the server version and check the "I have selected the edition of Windows that I purchased" prompt in the lower left of the screen, and then click "Next".

Step 6: Check "I accept the license terms" in the shown page, and click "Next".

Step 7: Select the "Custom" mode in the shown interface for the installation.

Step 8: If users haven't configured the RAID card, install the 2008 server on the hard disk partition directly. If users have configured the RAID card, it is necessary to select "Load Driver" to load the driver of corresponding RAID card in this step.

Step 9: On completion of the configuration, click "Next" to start the system installation process.

Step 10: The system will restart automatically during installation, please patiently wait for several quarters; user will be asked to configure password after installation.

Note: The Windows 2008 password shall include the English letter, number and symbol.

Step 11: Now, users can use the Windows 2008 Server operating system normally.

Note: Users may need to load drivers of some external cards by themselves.

4.2 Red Hat Enterprise Linux AS 6 Update 2 X86_64

Installation Procedure

Step 1: Power on the computer and put the CD marked with "Red Hat Linux Advanced Server 6 Update 2(64bit) DVD" into CD-ROM, then boot from CD. Load the floppy disk driver in the linux dd mode if necessary.

Step 2: Select "Skip" to skip the CD testing. Select "OK" if users want to test the integrity of the system CD.

Note: Disk testing will cost a relatively long time; please wait patiently.

Step 3: On completion of the test, click "Next" in the shown interface.

Step 4: Users can click "Next" to select the required language on the language Selection interface.

Step 5: Select the corresponding keyboard layout in the Keyboard Layout interface, and click "Next".

Step 6: Afterwards, it may prompt you to input serial number; users can input serial numbers as required.

Step 7: Initiate the hard disk data, select "Yes", and click "Next".

Step 8: When it displays the Hard Disk Partition interface, users can select the corresponding hard disk to create different partitions. This manual takes one hard disk as an example, to select "Create Custom layout", and click “Next”.

Step 9: Users can create different partitions according to their needs in this step. This manual creates the root partition, /boot partition and swap partition, and click “Next”.

Step 10: You can select whether the boot loader is installed in the “Boot Loader Configuration” interface, and click “Next”.

Step 11: Select the NIC Obtaining IP mode and set the Hostname of the host, and click “Next”.

Step 12: Select "Asia/Shanghai", and click “Next” in the Time Zone Selection interface.

Step 13: Input the root administrator password in “Root Password”, and input it again in “Confirm” for the confirmation in the Root Account Password Settings interface. Administrator password is at least 6 digits.

Step 14: When you select the installation software package, check “Customize now”, and click “Next”.

Step 15: Select the software package to be installed in the interface, and click “Next”.

Step 16: Wait for the installation program to check the relevance of the installation package, and click “Next” to start the system installation.

Step 17: On completion of the installation, click “Reboot”.

Step 18: When it displays the Configuration interface, select “Forward”.

Step 19: Select “Accept” in the “License Agreement” interface, and click ”Next”.

Step 20: Configure whether the firewall is enabled in the “Firewall” interface, and click ”Next”.

Step 21: At this time, it will display the "SELinux" configuration interface appears. Set the corresponding level, and click “Forward”.

Step 22: Set Kdump. Users can set it according to their own demand, and click “Next”.

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

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

Step 25: Create users (other than the root account). Users can create them according to their own demand, and click “Next”.

Step 26: You can select to install software packages of additional CDs in the “Additional CDs” page.

Step 27: Click “Finish”, and the Red Hat Enterprise Linux 6 Update 2 system will be available after restart by pressing the button.

5 FAQ

System Default Boot Priorities

USBDevice Built-in CD/DVD Drive Built-in Hard Disk Front Hard Disk External NICPXE OnboardPXE

How to Read Remote Management Website

- When the switch network is used, connect the network cable to the IPMI management interface at the rear of the chassis to enter the BIOS management interface to read BMC IP under BMC network configuration If there is no address, you can select the network configuration mode as [Dynamic-Obtained by BMC] ,and press F4 to save and restart it for the retry.
- When the direct mode is used, connect the network cable to the IPMI management interface to enter BIOS, select the network configuration mode as Static under BMC network configuration, enter the IP address and the gateway manually, and press F4 to save and restart it.

How to Add GPU or External Graphics Card Provided by Sugon

Confirm whether the GPU or external graphics card requires the external power supply. If yes, contact Sugon's after-sales service representative for the installation. Furthermore, set the VGA Priority option under BIOS as Offboard, and save it before the restart. At this time, the video signal will be output via VGA.

Appendix 1: Abbreviations and Acronyms

Abbreviations	Explanation
BIOS	Basic input/output system
BPS	Bit per second
CMOS	Complementary metal oxide semiconductor
CPU	Central processing unit
DIMM	Dual in-line memory module
DMA	Direct memory access DMA channel can make some types of data transmitting between RAM and devices, bypassing micro-processors.
DRAM	Dynamic random access memory Computer RAM is usually comprised of DRAM chips.
ECC	Error Checking and Correction
EMC	Electro magnetic compatibility
EMI	Electro magnetic interference
ESD	Electro static discharge
FAT	File allocation table
FTP	File transfer protocol
GB	Gigabyte 1 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 processor via the IRQ line, indicating the peripheral equipment will send or receive data.
KB	Kilobyte, namely, 1,024 bytes.
LAN	Local area network
LCD	Liquid crystal display
LED	Light emitting diode It is an electronic device that flashes when the current passes.
LUN	Logical unit number
MB	Megabyte It indicates 1,048,576 bytes.
MBR	Master boot record
MHz	Mega Hertz
MTBF	Mean time between failures
NIC	Network interface controller

Abbreviations	Explanation
NTFS	NT file system
PCI	Peripheral component interconnect
POST	Power-on self-test Before loading the operating system when power on, POST will test various components.
RAM	Random access memory It is usually referred to as 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 2: LCD POST Code Checkpoint

The POST code checkpoint is the maximum checkpoint set during the BIOS pre-boot. The table below describes the type of the possible checkpoint during the BIOS POST.

Checkpoint Range

State code range	Description
0x01 – 0x0B	Execute SEC
0x0C – 0x0F	Sec error
0x10 – 0x2F	PEI is executed until the memory test.
0x30 – 0x4F	Execute PEI after the memory test.
0x50 – 0x5F	PEI error
0x60 – 0x8F	DXE Executes BDS
0x90 – 0xCF	Execute BDS
0xD0 – 0xDF	DXE error
0xE0 – 0xE8	S3 restart (PEI)
0xE9 – 0xEF	S3 restart error (PEI)
0xF0 – 0xF8	Recovery (PEI)
0xF9 – 0xFF	Recovery error (PEI)

Standard Checkpoint

SEC Stage

State code	Description
0x00	Intended Use
Process code	Description
0x01	Start, reset test (soft/hard)
0x02	AP initialization before microcode loading
0x03	Northbridge initialization before microcode loading
0x04	Southbridge initialization before microcode loading
0x05	OEM initialization before microcode loading
0x06	Microcode loading
0x07	AP initialization after microcode loading
0x08	Northbridge initialization after microcode loading
0x09	Southbridge initialization after microcode loading
0x0A	OEM initialization after microcode loading
0x0B	Cache initialization

SEC error code	Description
0x0C – 0x0D	Used to keep the possible AMI SEC error code.
0x0E	No microcode is found.
0x0F	No microcode is found.

PEI Stage

State code	Description
Process code	Description
0x10	PCI kernel start
0x11	Enable preallocated memory initialization
0x12	Preallocated memory CPU initialization (CPU module embodiment)
0x13	Preallocated memory CPU initialization (CPU module embodiment)
0x14	Preallocated memory CPU initialization (CPU module embodiment)
0x15	Enable preallocated memory Northbridge initialization
0x16	Preallocated memory Northbridge initialization (Northbridge module embodiment)
0x17	Preallocated memory Northbridge initialization (Northbridge module embodiment)
0x18	Preallocated memory Northbridge initialization (Northbridge module embodiment)
0x19	Enable preallocated memory Southbridge initialization (Southbridge module embodiment)
0x1A	Enable preallocated memory Southbridge initialization (Southbridge module embodiment)
0x1B	Enable preallocated memory Southbridge initialization (Southbridge module embodiment)
0x1C	Enable preallocated memory Southbridge initialization (Southbridge module embodiment)
0x1D – 0x2A	OEM preallocated memory initialization code
0x2B	Memory initialization, reading serial presence detection (SPD) data
0x2C	Memory initialization, memory presence detection
0x2D	Memory initialization, memory process timing information
0x2E	Memory initialization, memory allocation
0x2F	Memory initialization (others)
0x30	Keep ASL
0x31	Install memory
0x32	Enable initialization after memory allocation of CPU
0x33	Cache initialization
0x34	Application initialization
0x35	Selection of boot strap processor (BSP)
0x36	System management mode initialization (SMM)
0x37	Northbridge initialization after memory allocation
0x38	Northbridge configuration after memory allocation (specific Northbridge module)

0x39	Northbridge configuration after memory allocation (specific Northbridge module)
0x3A	Northbridge configuration after memory allocation (specific Northbridge module)
0x3B	Southbridge initialization after memory allocation
0x3C	Southbridge configuration after memory allocation (specific Southbridge module)
0x3D	Southbridge configuration after memory allocation (specific Southbridge module)
0x3E	Southbridge configuration after memory allocation (specific Southbridge module)
0x3F – 0x4E	OEM initialization code after memory allocation
0x4F	Enable DXE PIL
PCI error code	Description
0x50	Memory initialization error Memory initialization error. Invalid memory type or incompatible memory speed.
0x51	Memory initialization error Read SDP fault
0x52	Memory initialization error Memory initialization error. Invalid memory size or mismatching memory module.
0x53	Memory initialization error. No available memory is detected.
0x54	Memory initialization error is not specified.
0x55	Memory is not installed.
0x56	Invalid CPU type or speed
0x57	CPU is not matched.
0x58	CPU self-test fault or possible CPU cache error
0x59	No CPU microcode is found or microcode update fault occurs.
0x5A	Internal CPU error
0x5B	Reset PPI not available
0x5C – 0x5F	Keep future AMI error code
S3 restart process code	Description
0xE0	Enable S3 restart (S3 restart PPI is controlled by DXE IPL)
0xE1	Execute S3 boot script
0xE2	Video transfer
0xE3	Call OS S3 wake vector
0xE4 – 0xE7	Keep future AMI process code
S3 restart error code	Description
0xE8	S3 restart fault
0xE9	No S3 restart PPI is found.

0xEA	S3 restart boot script error
0xEB	S3 OS wake error
0xEC – 0xEF	Keep future AMI error code
Recovery process code	Description
0xF0	Recovery caused by firmware (automatic recovery)
0xF1	Recovery caused by users (forced recovery)
0xF2	Enable recovery process
0xF3	Find recovery firmware image
0xF4	Load recovery firmware image
0xF5 – 0xF7	Keep future AMI process code
Recovery error code	Description
0xF8	Invalid PPI recovery
0xF9	No recovery protection is found.
0xFA	Invalid recovery protection
0xFB – 0xFF	Keep future AMI error code

PEI Buzz Code

Buzzer frequency	Description
1	Memory is not installed.
1	Memory is installed for two times (Installation PEI memory to PPE kernel is called for two times).
2	Enable recovery
3	No DXE IPL is found.
3	No DXE kernel firmware volume is found.
4	Recovery fault
4	S3 restart fault
7	Invalid reconfiguration PPI

DXE Stage

State code	Description
0x60	Enable DXE kernel
0x61	NVRAM initialization
0x62	Service during Southbridge initialization
0x63	Enable CPU DXE initialization

0x64	CPU DXE initialization (specific CPU module)
0x65	CPU DXE initialization (specific CPU module)
0x66	CPU DXE initialization (specific CPU module)
0x67	CPU DXE initialization (specific CPU module)
0x68	PCI Northbridge initialization
0x69	Enable Northbridge DXE initialization
0x6A	Enable Northbridge DXE SMM initialization
0x6B	Northbridge DXE initialization (specific Northbridge module)
0x6C	Northbridge DXE initialization (specific Northbridge module)
0x6D	Northbridge DXE initialization (specific Northbridge module)
0x6E	Northbridge DXE initialization (specific Northbridge module)
0x6F	Northbridge DXE initialization (specific Northbridge module)
0x70	Enable Southbridge DXE initialization
0x71	Enable Southbridge DXE SMM initialization
0x72	Southbridge device initialization
0x73	Southbridge initialization (specific Southbridge module)
0x74	Southbridge initialization (specific Southbridge module)
0x75	Southbridge initialization (specific Southbridge module)
0x76	Southbridge initialization (specific Southbridge module)
0x77	Southbridge initialization (specific Southbridge module)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Keep future AMI DXE code
0x80 – 0x8F	OEM DXE initialization code
0x90	Enable Boot Device Selector stage (BDS)
0x91	Enable drive connection
0x92	Enable PCI bus initialization
0x93	PCI bus hot swap controller initialization
0x94	PCI bus enumeration
0x95	PCI bus request resources
0x96	PCI bus allocation resources
0x97	Console output device connection
0x98	Console input device connection
0x99	Super I/O initialization
0x9A	Enable USB initialization

0x9B	USB reset
0x9C	USB test
0x9D	Boot USB
0x9E - 0x9F	Keep future AMI code
0xA0	Enable IDE initialization
0xA1	IDE reset
0xA2	IDE test
0xA3	Boot IDE
0xA4	Enable SCSI initialization
0xA5	SCSI reset
0xA6	SCSI test
0xA7	Boot SCSI
0xA8	Set password for authentication
0xA9	Start Installation
0xAA	Keep ASL
0xAB	Set Wait for Input
0xAC	Keep ASL
0xAD	Boot ready event
0xAE	Old boot event
0xAF	Exit boot service event
0xB0	Virtual address mapping set at the beginning of operation
0xB1	Virtual address mapping set at the end of operation
0xB2	Old option ROM initialization
0xB3	System reset
0xB4	USB hot swap
0xB5	PCI bus hot swap
0xB6	Clear NVRAM
0xB7	Configuration reset (reset NVRAM settings)
0xB8 – 0xBF	Keep AMI code
0xC0 – 0xCF	OEM BDS initialization code
DXE error code	Description
0xD0	CPU initialization error
0xD1	Northbridge initialization error
0xD2	Southbridge initialization error
0xD3	Some invalid framework protocols

0xD4	PCI resources allocation error, out of resources
0xD5	No space is provided for the old option ROM.
0xD6	No console output device is found.
0xD7	No console input device is found.
0xD8	Invalid password
0xD9	Error loading boot option (load image return error)
0xDA	Boot option fault (start image return error)
0xDB	Flash memory update fault
0xDC	Invalid protocol reset

DXE Buzzer Code

Buzzer frequency	Description
1	Invalid password
4	Some invalid framework protocols
5	No control output device is found.
5	No control input device is found.
6	Flash memory update fault
7	Invalid protocol reset
8	The platform PCI resources cannot meet the requirements.

ACPI/ASL Checkpoint

State code	Description
0x01	The system enters the S1 sleep state.
0x02	The system enters the S2 sleep state.
0x03	The system enters the S3 sleep state.
0x04	The system enters the S4 sleep state.
0x05	The system enters the S5 sleep state.
0x10	The system is waken up from the S1 sleep state.
0x20	The system is waken up from the S2 sleep state.
0x30	The system is waken up from the S3 sleep state.
0x40	The system is waken up from the S4 sleep state.
0xAC	The system has been switched to the ACPI mode. Interrupt controller is in APIC mode.
0xAA	The system has been switched to the ACPI mode. Interrupt controller is in APIC mode.

Appendix 3: RAID Configuration of Onboard Hard Disk Controller

Enter RAID Card Management Interface

[Note]Raid configuration program may be upgraded, the document content and illustration in this appendix is for reference only. The actual product type of users shall prevail.

Boot the system to display the prompt information in the POST interface as shown in the figure below, and type "Ctrl + R" to enter the RAID Card Management interface as shown in the figure below.

Figure 0-1 POST Prompt Interface

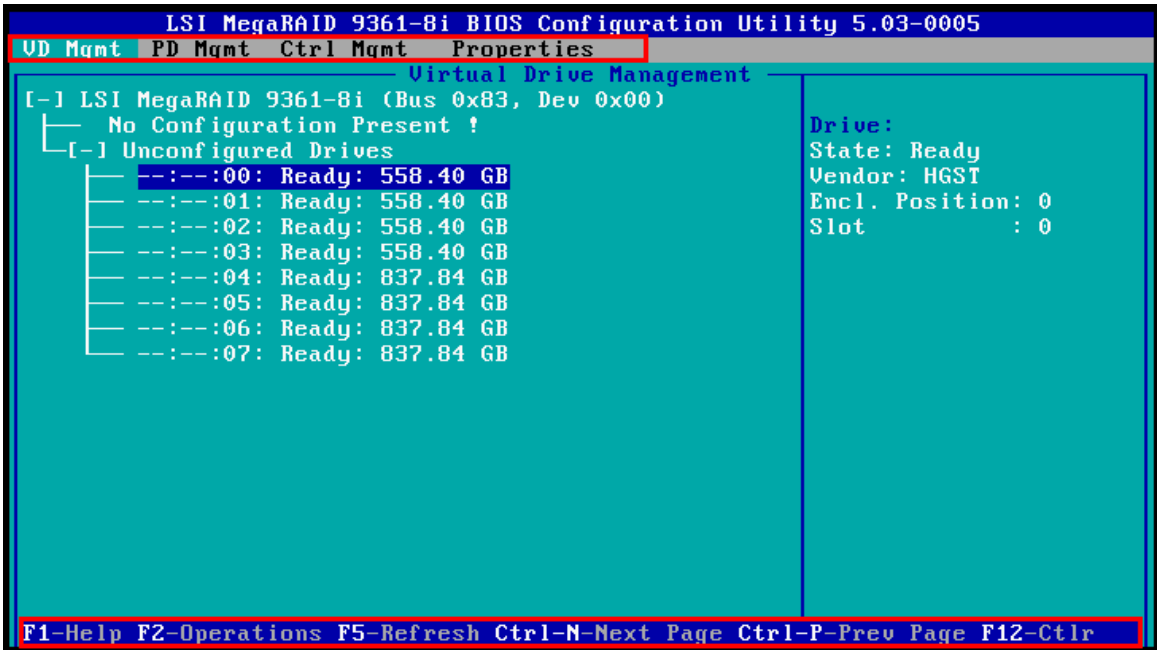


Figure 0-2 RAID Management Interface

Of which, "VD Mgmt" is the abbreviation of Virtual Drive Management, which can create and manage the RAID group array.

"PD Mgmt" is the abbreviation of Physical Drive Management, which can view operation to the physical drive, such as the hard disk information.

"Ctrl Mgmt" is the abbreviation of the controller management, which can set the controller.

"Properties" refers to the RAID card information, which can view the FW/BIOS/Model information

of the RAID card.

Create RAID Array:

On "VD Mgmt" interface, Use the "↑↓" keys to move the cursor to the Controller column in the "VD Mgmt" page, and press "F2" according to instructions at the bottom, to display the interface as shown in the figure below.

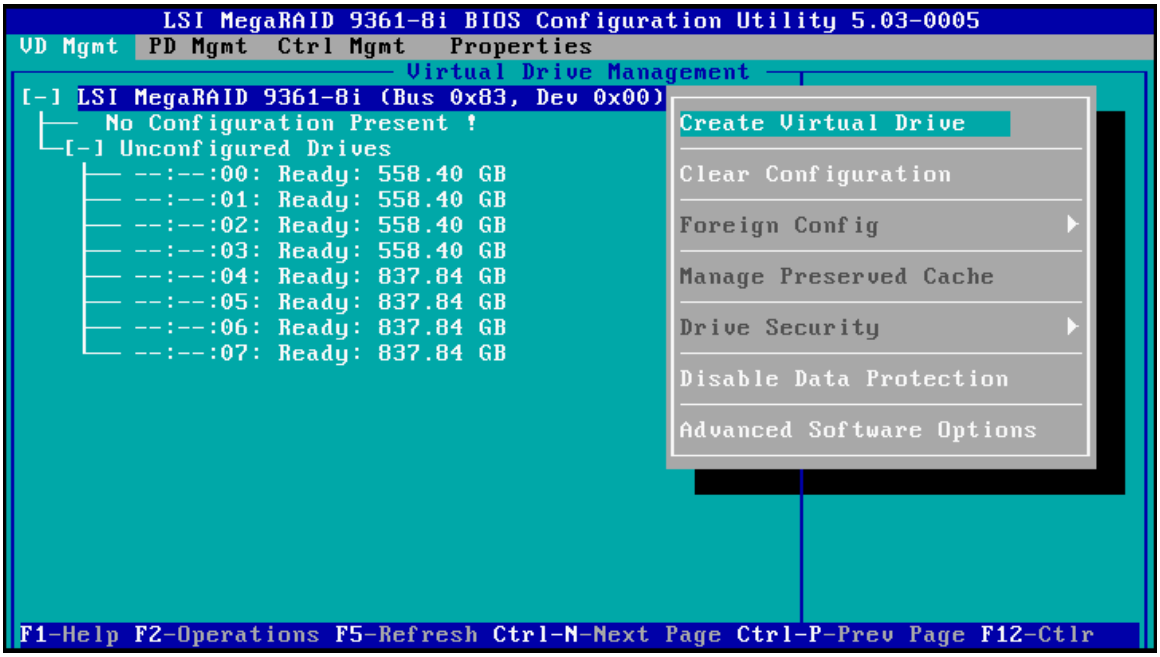


Figure 0-3 Controller Interface

Select "Create Virtual Drive" to enter RAID organization interface, as shown below:

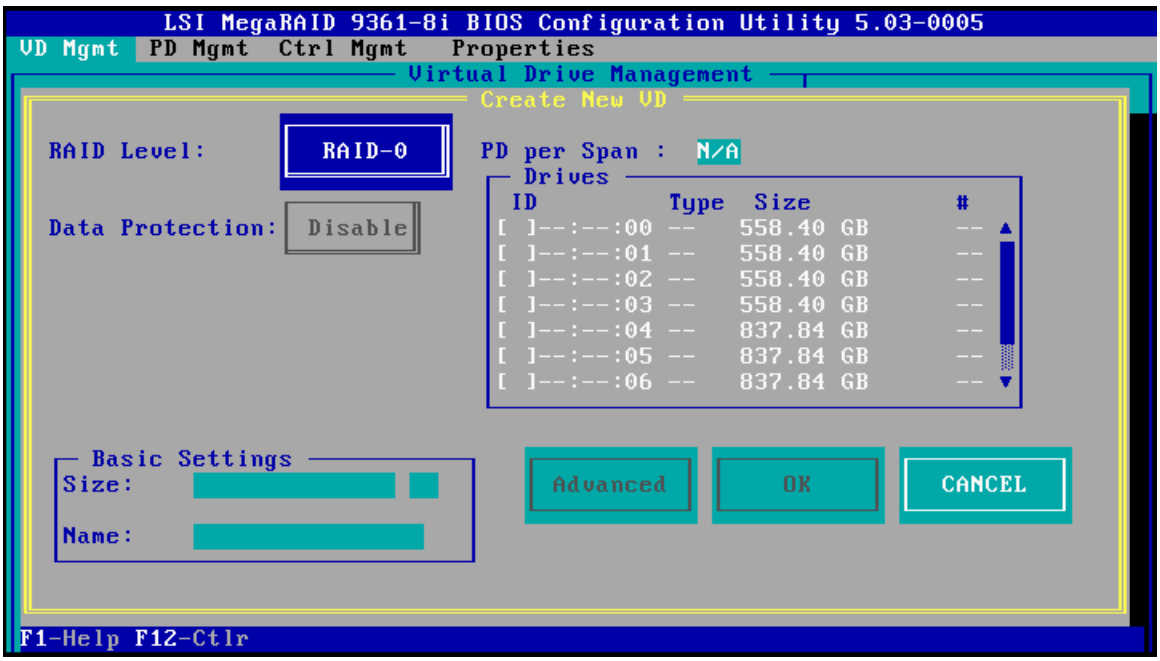


Figure 0-4 Create RAID Interface

Select the RAID level to be created in the "RAID Level" column. If the RAID to be created is

RAID10/RAID50/RAID60, it is necessary to set the "PD per Span" value, namely, the number of hard drives contained for each bottom RAID. Only even number that is greater than or equal to 2 can be selected for RAID10, and the value that is greater than or equal to 3 can be selected for RAID50/60.

Select the member hard disk of the RAID array. Taking the creation of RAID1 as an example, use the "Space" key to select the hard disk to be added into RAID in the Drives column as shown in the figure below.

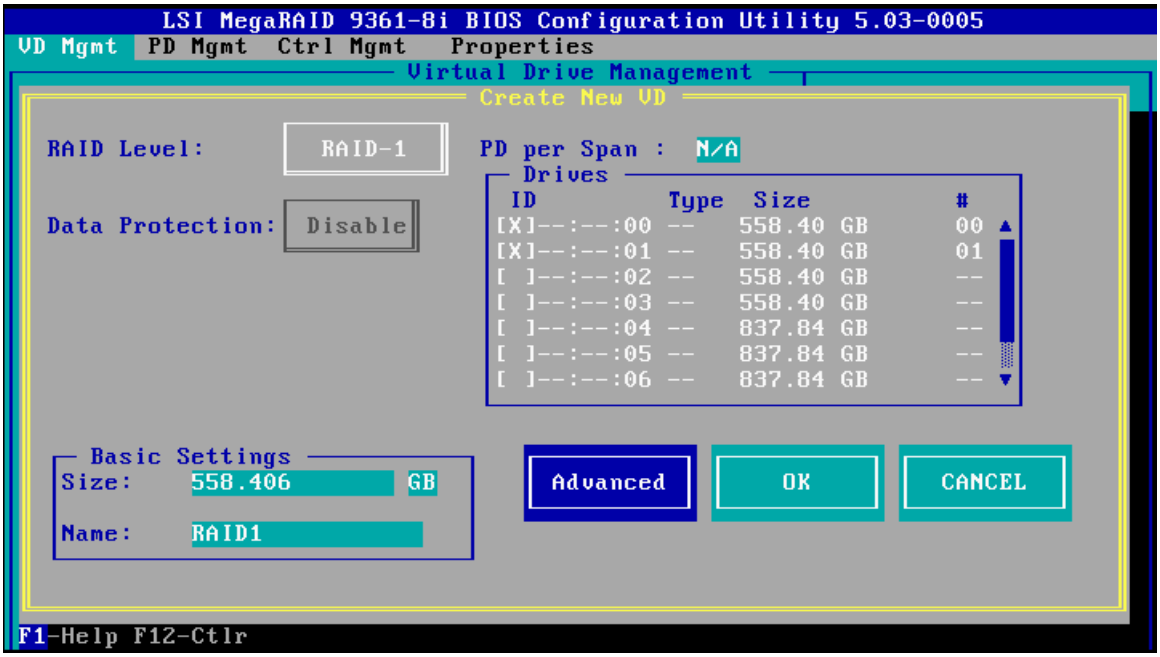


Figure 0-5 Select Hard Disk

You can set the capacity and name of RAID group arrays in "Basic Settings".

If you need to set the read-write policy, select "Advanced" for the settings as shown in the figure below.

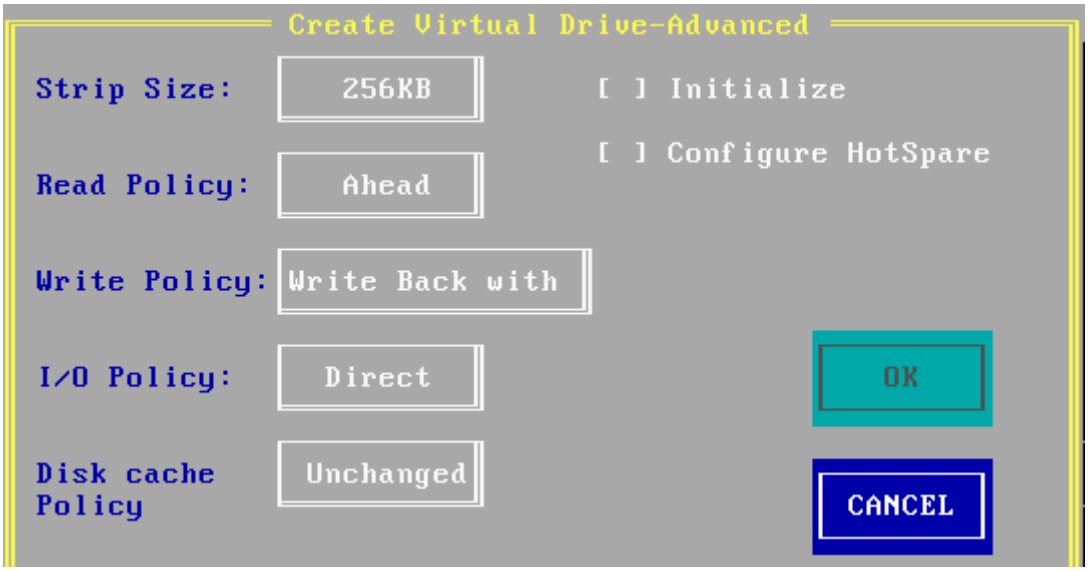


Figure 0-6 Advanced Settings Interface

Strip Size: Usually take the default value.

Read Policy: RAID array read policy, which takes the default value.

Write Policy: RAID array write policy. "Write Through" will write it into the hard disk directly, but will not use the cache accompanying with the RAID chip. The performance of this policy is slightly poor, but it will not lose data during the unexpected outage, "Write Back" will use the cache accompanying with the RAID chip, so it is high performance. However, it will lose the data in the cache during the unexpected outage if there is no standby battery. "Write Back With BBU" will take the "Write Back" policy if the standby battery is installed and take the "Write Through" policy if the standby battery is not installed.

I/O Policy: The read/write policy, which takes the default value.

Disk Cache Policy: The disk cache policy, which takes the default value.

Initialize: Check the box before it to initialize the RAID array, which will delete all data in the RAID array.

Configuration Hotspare: The configuration hotspare, which will replace the failed hard disk with other blank hard disk automatically when some hard disk fails in the RAID array.

On completion of the settings, select "OK" to save the settings.

Select "OK" in Figure 0-5 to complete the configuration of the RAID array.

Delete RAID Array:

There are three methods to delete the RAID arrays as follows.

Method 1: Delete some specific Virtual Drive.

Move the cursor to the specific RAID column to be deleted in Virtual Driver under the Drive Group directory, type "F2", and select "Delete VD".

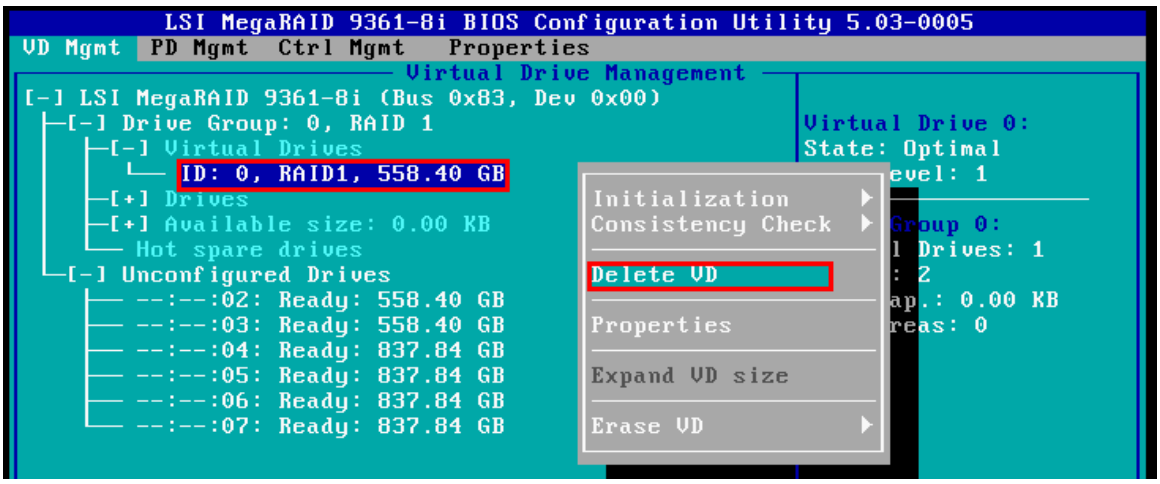


Figure 0-7 Delete Virtual Drive

Method 2: Delete all RAID arrays of Drive Group.

Move the cursor to the Drive Group column to be deleted, type "F2", and select "Delete Drive Group".

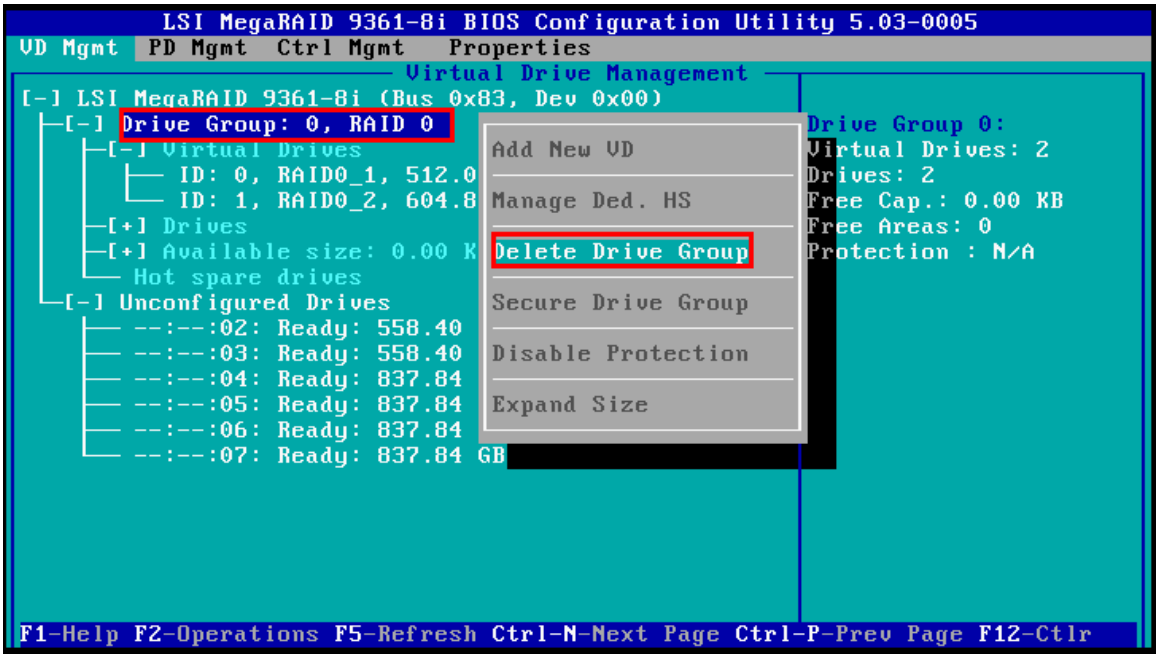


Figure 0-8 Delete Drive Group

Method 3: Clear all RAID configuration information.

Move the cursor to the RAID Card Controller column, type "F2", and select "Clear Configuration".

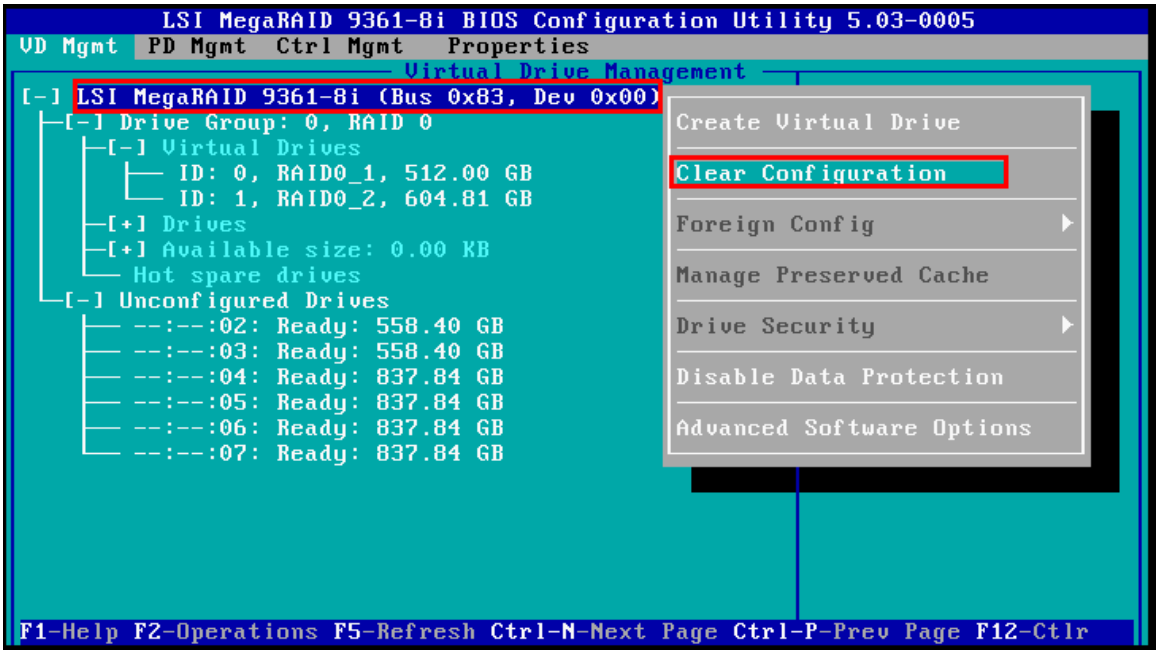


Figure 0-9 Clear RAID Configuration Information