



# SNR

Purley platform 1U server

**SNR-SR1204RS**



**SNR-SR1210RS**



User operation manual

**V1.0**

## Foreword

This manual is the product technical manual of Purley 1U dual-channel cabinet server, which mainly introduces and explains the technical characteristics, system architecture, installation mode and basic operation of this product. Purley 1U dual-channel server is divided into various models of 1U4 and 1U10. This product has the characteristics of low energy consumption, flexible expansion, high reliability, easy management and easy deployment.

This manual is for the reference of professional system integrators and personal computer technicians. This product should only be installed and maintained by experienced technicians.

## Manual organization

### **The first chapter safety statement**

This section describes some environmental conditions, precautions and explanations of laws and regulations related to this product.

### **Chapter II Product Introduction**

This section provides the specifications of the main components of the system and describes the main characteristics of each model of Purley 1U dual-channel cabinet server series.

### **Chapter III Installation of System Components**

This section describes the installation methods and main precautions of various main system components using Purley 1U dual cabinet server.

### **The fourth chapter cabinet installation system**

This section describes the steps and precautions for installing and putting on the rack by using the guide rails randomly equipped with Purley 1U dual cabinet server.

### **The fifth chapter BIOS parameter setting instructions**

This chapter mainly introduces the parameter setting and main functions of the system BIOS.

### **Chapter VI Description of RAID Settings**

This chapter mainly introduces how to set up RAID.

### **Chapter 7 IPMI Rapid Deployment**

This chapter focuses on how to deploy IPMI quickly.

### **Chapter VIII Technical Specifications of Products**

This chapter focuses on the main technical specifications of Purley 1U dual cabinet server products.

## Statements

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**Product name: Purley platform 1U server**

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## Explanation of nouns:

Noun	Paraphrase
Intel® Xeon® Scalable Processors	Intel Xeon Scalable Processor
White gold medal efficiency power supply	The white gold certified power supply is "80 PLUS Platinum" standard, that is, the conversion rate of 20% load is over 90%, the conversion rate of 50% load is over 94%, and the conversion rate of 100% is over 91%
M.2	M. 2 interface is a new generation interface standard tailored for ultrabook. It is a new interface specification introduced by Intel® to replace msata
C621/C622	Intel® chipset
RJ45	Standard 8-bit modular interface
AST2500	Aspeed® BMC chip
Socket P	One of the Intel® processor interface types
-F CPU	It refers to the CPU supporting Intel® Omni path host fabric interface, Omni path high-speed optical cable interconnection technology, which can support up to 100gbps end-to-end interconnection
8038 fan	Fan size 80X80X38MM
LGA3647	Full name land grid array, grid array package, lga3647 represents 3647 contacts
CR2032	It is a 3V CR2032 lithium manganese battery, shaped like a button, referred to as button battery or lithium manganese button battery
RS-232	One of the communication interfaces on the computer is the asynchronous transmission standard interface, called COM port
Jtag	Joint test action group, a joint test working group, is mainly used for in chip testing
NC Pin	Empty pin
XDP	Extend debug port, Intel® CPU debug interface


## Abbreviation


The abbreviations used in this paper are described, and the full English name explanation of each abbreviation are provided as follows:


Aabbreviation	Original text
PCH	Platform Controller Hub
GbE	Gigabit Ethernet
BMC	Baseboard Management Controller
IPMI	Intelligent Platform Management Interface
CPU	Central Processing Unit
SATA	Serial Advanced Technology Attachment
SAS	Serial Attached SCSI
sSATA	secondary SATA
LAN	Local Area Network
VGA	Video Graphics Array
MB	Mother Board
MIB	Motherboard Interface Board
BP	Backplane
PDB	Power Distribution Board


FIB	Fan Interface Board
PCIE	Peripheral Component Interconnect Express
USB	Universal Serial Bus
FW	Firmware
TPM	Trusted Platform Module
IO	Input/Output
BIOS	Basic Input-Output System
CMOS	Complementary Metal Oxide Semiconductor
ME	Management Engine
DDR4	Double Data Rate 4 SDRAM
DIMM	Dual-Inline-Memory-Modules
RDIMM	Registered DIMM
LRDIMM	Load-Reduced DIMM
AEP	Apache Pass
MEZZ CONN	Mezzanine Connector
KVM	Keyboard Video Mouse
CPLD	Complex Programmable Logic Device
ECC	Error Correcting Code
CFM	Cubic Feet Per Minute
RPM	Revolution Per Minute

## Symbolic convention:


 Note: If it is used to transmit equipment or environmental safety warning messages, it may lead to equipment replacement, data loss, equipment performance degradation or other unpredictable results.


 Warning: It is used to warn of potential dangerous situations, which may lead to death or serious personal injury if unavoidable.

 Red arrow: indicates pointing to a certain position.

 Blue arrow: indicates the action of pulling out or inserting downward or inserting obliquely.

 Empty arrow: indicates the next action or result.

 Dark blue rotating arrow 1: indicates clockwise screwing or outward pulling.

 Dark blue rotating arrow2: It represents the action of turning the screw counterclockwise or screwing it inward

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## The first chapter safety statement

### 1.1 general safety matters

**To prevent the risk of significant personal and property damage, please follow the following suggestions.**

Please do not open the cover plate of the system by yourself. It should be operated by professional trained maintenance technicians. Please do not touch the triangle marking part with lightning symbol because there may be high voltage or electric shock.

Remember: disconnect all cables before carrying out maintenance. (there may be more than one cable)

It is strictly forbidden to start the machine before the cover plate is closed.

When it is necessary to open the cover, please wait for the internal equipment to cool before performing, otherwise it is easy to cause scald to you.

Do not use this equipment in humid environment.

If the extension cable needs to be used, use a three-wire cable and make sure it is properly grounded.

Make sure the computer is well grounded. It can be grounded in different ways, but it must be physically connected to the ground. If you are not sure whether the grounding protection is safe, please contact the appropriate organization or electrician for confirmation. Please contact OOO "NAG" for suggestions if you need to lay the stranding table cable.

Please use three core power cord and socket with grounding protection. Incorrect grounding may lead to leakage, burning, explosion and even personal injury.

Please make sure that the power socket and the power interface are in close contact. Loose contact may cause fire hazard.

Please use your computer under the voltage of 220V AC. working at an inappropriate voltage will cause electric shock, fire and damage to the computer.

The computer should be well ventilated and away from heat sources and fire sources. Do not block the cooling fan. Otherwise, the computer may cause smoke, fire or other damage due to overheating.

If you smell or see the computer smoking, please turn off the computer immediately and unplug the power cord.

It is required to be able to plug and pull the power cord from the power supply and power socket conveniently. Please keep the power cord and plug clean and intact, otherwise there may be electric shock or fire hazard.

**Note:** if the battery is not replaced properly, there will be explosion risk. Only the same or equivalent type of replacement recommended by the manufacturer is allowed. The waste battery will pollute the

environment. Please set the replaced old battery according to the relevant instructions.

Keep the computer away from electromagnetic fields.

Keep away from electronic noise caused by high-frequency safety equipment such as air-conditioning fan, large motor, radio and television transmitting tower.

Please do not plug the backplane or move the computer while the computer is running, otherwise the computer may be down or damaged.

Please try to avoid frequent restart or on-off to prolong the service life of the computer.

Please keep the environment clean and avoid dust. The working environment temperature of the equipment is 10 °C ~ 35 °C, and the humidity is 35% ~ 80%.

Please back up important data in time. OOO “NAG”. is not responsible for data loss caused by any circumstances.

This product uses optical disc drive for class 1 laser equipment.



Figure 1- 1

## 1.2 Name and Content Identification Table of Toxic and Harmful Substances or Elements in Products

Within the 10-year environmental protection service life, the toxic and harmful substances or elements contained in the products will not leak out or mutate under normal use conditions, and the users of electronic information products will not cause serious pollution to the environment or cause serious damage to their personal and property.

Part name	Harmful substances					
	lead (Pb)	mercury (Hg)	cadmium (Cd)	Hexavalent chromium (Cr VI)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ether (PBDE)
Chassis / bezel	X	O	O	O	O	O
Mechanical components (fan, radiator, motor, etc.)	X	O	O	O	O	O
Printed circuit components - PCA*	X	O	O	O	O	O
Cable / wire / connector	X	O	O	O	O	O

Hard disk drive	X	O	O	O	O	O
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Table 1- 1

Part name	Harmful substances					
	lead (Pb)	mercury (Hg)	cadmium (Cd)	Hexavalent chromium (Cr VI)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ether (PBDE)
Media reading / storage device (CD, etc.)	X	O	O	O	O	O
Power supply unit / power adapter	X	O	O	O	O	O
power cord	X	O	O	O	O	O
Pointing devices (mouse, etc.)	X	O	O	O	O	O
keyboard	X	O	O	O	O	O
UPS	X	O	O	O	O	O
Complete cabinet/ rail products	X	X	O	O	O	O

Table 1- 2

The content of the toxic and harmful substance in all homogeneous materials of the component is below the limit specified in GB / t26572-2011 "limit requirements for restricted substances in electronic and electrical products".

X indicates that the content of the toxic and harmful substance in at least one homogeneous material of the component exceeds the limit requirement specified in GB / t26572-2011 "limit requirements for restricted substances in electronic and electrical products". However, it complies with the EU ROHS Directive (including its exemption provisions).

Note: this table shows the status of toxic and harmful substances in all possible components of SNR server, memory and workstation products. Customers can refer to this table for the toxic and harmful substances in each part of the purchased products.

### 1.3 warning notice

This product meets the EMC class a standard.

### 1.4 climatic and environmental requirements

- The best working temperature of the equipment is 10 °C - 40 °C; the maximum indoor environment temperature of the equipment is 45 °C.
- System battery: 3 V CR2032 lithium battery.

Note: some configurations have been verified for performance at 45 °C and 90% (29 °C maximum dew point) humidity.


temperature	
working temperature	10 °C to 40 °C (50 °f to 104 °f) with a maximum temperature gradient of 10°C per hour
Continuous operating temperature range (below 950 m or 3117 ft)	10°C to 40°C (50°F to 104°F) without direct light on the equipment.
Storage temperature range	– 40°C to 65°C (– 40°F to 149°F)
humidity	
storage	The relative humidity ranges from 5% to 95% at a maximum dew point of 33°C (91°F). The air must never condense.
Continuous operating humidity percentage range	Relative humidity ranges from 10% to 80% at a maximum dew point of 26°C (78.8°F).


Table 1- 3

- If the computer environment lightning protection facilities are poor or not, please shut down the computer in thunderstorm weather, and unplug the power line, network cable, telephone line, etc. connected to the computer.
- Please use genuine operating system and software, and configure it correctly. OOO “NAG” is not responsible for the maintenance of the server failure caused by the operating system and software.
- Please do not disassemble the chassis or increase or decrease the server hardware configuration. OOO “NAG” is not responsible for the hardware and data damage caused by this.
- When the server fails, please first check the "troubleshooting" section of this manual to identify and troubleshoot common faults. If you are not sure the cause of the failure, please contact the technical support department of OOO “NAG” for help.
- Choosing a suitable environment for the computer is helpful for the stable operation of the computer and can prolong the service life of the computer.

OOO “NAG”. reserves the right of final interpretation of the above clauses

## 1.5 other important descriptions

 "If the equipment is marked with a sign, it means that the equipment with the logo is only designed and evaluated according to the altitude of 2000m, so it is only suitable for safe use below 2000m, and there may be potential safety hazards when using above 2000m altitude".

 "If the equipment is marked with this sign, it means that the equipment with the label is only designed and evaluated according to the non-tropical climate conditions. Therefore, it is only suitable for safe use in non-tropical climate conditions, and there may be potential safety hazards when using in tropical climate conditions.".

## Chapter II Product Introduction

### 2.1 system introduction

SNR-SR series server is a new generation of 1U dual channel cabinet server, which is developed by OO "NAG" for Internet, IDC (Internet Data Center), cloud computing, enterprise market and telecom business application. It is suitable for its core business, cloud computing virtualization, high performance computing, distributed storage, big data processing, enterprise or telecom business applications and other complex workload. The server has the advantages of low energy consumption, strong scalability, high reliability, easy management and deployment.

### 2.2 system configuration

SNR-SR series server products include 1U4 (model: SNR-SR1204RS) drawer and 1u10 (model: SNR-SR1210RS) drawer. In addition to different hard disk connection methods and the maximum number of compatible hard disks, other specifications are the same.

#### 2.2.1 system parameters

System	
System model	SNR-SR1204RS, SNR-SR1210RS
Chassis	SNR® 1U cabinet chassis
Motherboard	G3DCL-B
CPU	First and second-generation Intel® Xeon® scalable processors
Memory	Support DDR4 lrdimm / rdimm / nv-dimm ECC memory The memory frequency supports 2133 / 2400 / 2666 / 2933mhz A single CPU supports 6 DDR4 channels, and each channel supports 2 slots. Cpu0 / CPU1 has a total of 24 DDR4 slots Support single capacity of 8GB, 16GB, 32GB, 64GB, 128G
Hard disk	The front end of 1U4 supports four 3.5 / 2.5-inch hot swap hard disks The front end of 1u10 supports 10 2.5-inch hot swappable hard disks
Network function	Support two RJ45 Gigabit / 10 Gigabit network ports
Management interface	1 RJ45 IPMI management network port
Display function	Aspeed® AST2500 64MB, with a standard VGA interface extended by a custom high-density connector
M.2	Support two m.2 interfaces
USB	Four standard USB3.0 interfaces are extended by custom high-density connectors, and one USB3.0 is built-in
Expansion Slots	Supports up to 11 PCIe expansion slots
Power Supply	The system supports 550W, 800W, 1200W, 1300W, 1600W hot plug redundant white gold efficiency power supply (adapted according to the actual power)
System fan	The system supports x7 4056 temperature-controlled fans

System size	748mm x 433.4mm x 43.6mm (L*W*H)
System weight	The net weight of 1U4 is 13.9 kg and the gross weight is 15.75 kg The net weight of 1u10 is 13.9 kg and the gross weight is 16.45 kg
<b>System board</b>	
Motherboard model	G3DCL-B
processor	First and second-generation Intel®Xeon®scalable processors
Number of memory slots	Supports 24 DDR4 memory slots
Memory support types	Support DDR4 lrdimm / rdimm / nv-dimm ECC memory The memory frequency supports 2133 / 2400 / 2666 / 2933mhz
Memory size	Support single capacity of 8GB, 16GB, 32GB, 64GB, 128G
Hard disk interface	Two ssata3.0 Dom and three minisas 8643 interfaces
IPMI	Support IPMI 2.0 IPMI 2.0 supports network mapped virtual storage devices and KVM Support aspeed®AST2500 BMC
network card	Two Intel® I350-AM2 1GbE network interfaces
PCIe adapter card	Two PCIe 3.0 x24; 1 PCIe 3.0 x16; 2 Slimline x8;
VGA	Extend a standard VGA interface through custom high-density connector
USB	1 built-in USB3.0 interface and 4 USB3.0 extended by custom high-density connector
<b>System power supply</b>	
Power supply quantity	Two are supported
Power supply characteristics	The system supports 550W, 800W, 1200W, 1300W, 1600W hot plug redundant white gold efficiency power supply (adapted according to the actual power)
input voltage	100-127vac/200-240vac 47hz ~ 63hz/240vdc (limited to Chinese mainland)
Output voltage	+12Vdc
<b>System fan</b>	
Number of fans	The system supports 7 4056 temperature-controlled fans
Fan voltage	12(10.8-12.6) VDC
Fan current	4A (4.4A Max)
Fan speed	Maximum 23000 +/- 10% RPM
Fan airflow	3.2m/min (141.9cfm), minimum 2.63m/min (125.8cfm)
Fan pressure	The minimum is 657.5 Pa and the maximum is 800Pa
<b>Operating system support</b>	
Support operating system	Windows10x64, Windows server 2012 R2, Windows server 2016 Windows server 2019x64, CentOS7.5/7.6, RHEL7.4/7.6 SLES12 SP3, Ubuntu 16.04 LTS, Fedora28 VMware ESXi, VMware Citrix, Hyper-V
<b>System ambient temperature</b>	
Operating temperature of system	Operating temperature: 10°C~ 40°C; Non-operating temperature: -40°C~ 70°C
Temperature and humidity of system storage	Operating humidity: 35%~ 80%; Non-operating humidity: 20% ~ 90%
<b>Safety certification</b>	
Authentication	UL CE CCC ROHS

Table 1- 4

## 2.2.2 system architecture

SNR-SR series server is a server based on Intel Purley platform, which supports 1U height, 205W CPU and 24 memories at most. This system uses a universal motherboard named G3DCL-B. The 1U4 front panel can support four 3.5-inch SATA/SAS hard disks, and the 1U10 front panel can support ten 2.5-inch SATA/SAS hard disks.

Motherboard features are as follows:

- The CPU adopts the first- and second-generation Intel® Xeon® scalable processor, LGA3647 socket, TDP power consumption 205W;
- Each CPU supports six channels of DDR4, two memory chips per channel, RDIMM/LRDIMM, and each CPU supports a maximum capacity of 1.5TB;
- Type of DDR4: ddr4-2133/2400/2666/2933 ECC-rdim, ECC-l rdim;
- There are three PCIE RISER slots on the single board, among which, 24 pcie lanes of riser R1 are all from CPU 0, 24 pcie lanes of RISER1 24, among which 8 pcie lanes are from CPU0, 16 pcie lanes are from CPU1, and 16 pcie lanes of riser 3 are also from CPU 1.
- G3DCL-B motherboard provides two M.2 Key M SSD slots, supports 2280 size, and only supports PCIe X2 signals;
- Two gigabit network ports are integrated on the motherboard, using 88E1512 chip from PCH;
- PCH of south bridge adopts INTEL LEWISBURG C621/C622 series chipset;
- PCH leads out 14 SATA Port, with the highest speed of 6Gb/s, compatible with SATA 1.5Gb/s, 3.0Gb/s; SATA Controller gives out 8 SATA ports, while SSATA gives out 6 SATA ports, among which 8 SATA ports are introduced into two SFF8643 connectors in sequence, while the first 4 ports of SSATA are introduced into one SFF8643 connector, and the latter 2 ports are introduced into 7PIN SATA connector for accessing SATA DOM and DVD.
- The BMC chip in this board adopts AST2500 control chip of ASPEED Company, which is used for IPMI remote management. VGA output port, dedicated Gigabit RJ45 management network port, and connecting to PCH through RMII/NCSI.

System architecture motherboard block diagram is as follows:



## G3DCL-B (Nebula2) Block Diagram

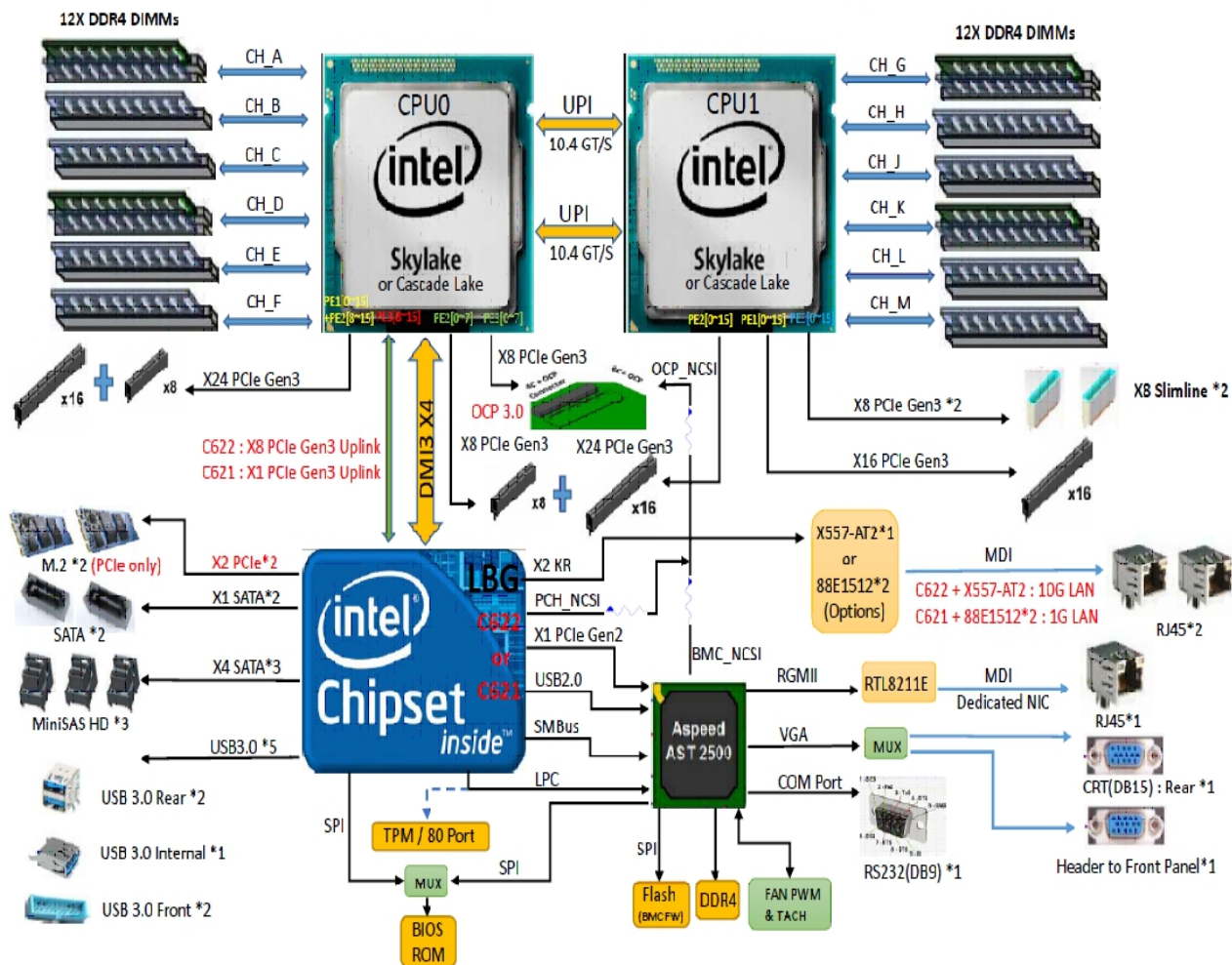


Figure 2- 1

## 2.3 introduction of system model specifications

- 1U4-position 3.5-inch disk model



Figure 2- 2

Product name	SNR-SR1204RS
Processor	Supports 1 or 2 Intel Xeon scalable series processors, with a maximum support of 205W W.
Motherboard model	G3DCL-B
Chipset	Intel®C621/C622 Series Server Chipsets
Memory (system)	Support DDR4 lrdimm / rdimm / nv-dimm ECC memory The memory frequency supports 2133 / 2400 / 2666 / 2933mhz A single CPU supports 6 DDR4 channels, each channel supports 2 slots, and CPU0/CPU1 has a total of 24 DDR4 slots Support single capacity of 8GB, 16GB, 32GB, 64GB, 128G
PCIe expansion	1. (left) PCI-Express 3.0 X24 slot comes from CPU0; 2. (middle) PCI-Express 3.0 X24 slot comes from CPU0/CPU1; 3. (Right) PCI-Express 3.0 X16 slot comes from CPU1;
Hard disk	Up to 4 front 3.5 "/2.5" SAS/SATA (HDD/SSD) are supported Onboard 3*8643 interface, 2*SATA DOM
M.2 SSD	Two M.2 PCIE3.0 (2280)
LAN	On-board 2 Gigabit RJ45 data network ports (optional 2 Gigabit RJ45 data network ports)
External port	Front port: 1 VGA, 2 USB3.0 Rear: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 data network ports and 1 DB-9 COM port
Management	On-board iBMC management module supports IPMI, SOL, KVM Over IP, virtual media and other management features
System fan	Seven 4056 brand fans
Power Supply	Standard platinum level 550W, optional 800W, 1200W, 1600W hot-plug redundant power supply (adapted according to actual power)
Dimensions	1U cabinet type, 748mm X 433.4mm X 43.6mm

Table 1- 5

- 1U10 disc position 3.5-inch disc model



Figure 2- 3

Product name	SNR-SR1210RS
Processor	Supports 1 or 2 Intel Xeon scalable series processors, with a maximum support of 205W W.
Motherboard model	G3DCL-B
chip set	Intel®C621/C622 Series Server Chipsets
Memory (system)	Support DDR4 Irdimm / rdimm / nv-dimm ECC memory The memory frequency supports 2133 / 2400 / 2666 / 2933mhz A single CPU supports 6 DDR4 channels, each channel supports 2 slots, and CPU0/CPU1 has a total of 24 DDR4 slots Support single capacity of 8GB, 16GB, 32GB, 64GB, 128G
PCIe expansion	1. (left) PCI-Express 3.0 X24 slot comes from CPU0; 2. (middle) PCI-Express 3.0 X24 slot comes from CPU0/CPU1; 3. (Right) PCI-Express 3.0 X16 slot comes from CPU1;
Hard disk	Up to 10 front 2.5-inch SAS/SATA (HDD/SSD) are supported Onboard 3*8643 interface, 2*SATA DOM
M.2 SSD	Two M.2 PCIE3.0 (2280)
LAN	On-board 2 Gigabit RJ45 data network ports (optional 2 Gigabit RJ45 data network ports)
External port	Front port: 1 VGA, 2 USB3.0 Rear: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 data network ports and 1 DB-9 COM port
manage	On-board iBMC management module supports IPMI, SOL, KVM Over IP, virtual media and other management features
System fan	Seven 4056 brand fans
Power Supply	Standard platinum level 550W, optional 800W, 1200W, 1600W hot-plug redundant power supply (adapted according to actual power)
dimensions	1U cabinet type, 748 X 433.4 X 43.6 mm

Table 1- 6

## 2.4 introduction of system components

### 2.4.1 front panel assembly

- 1U4-position 3.5-inch disk model

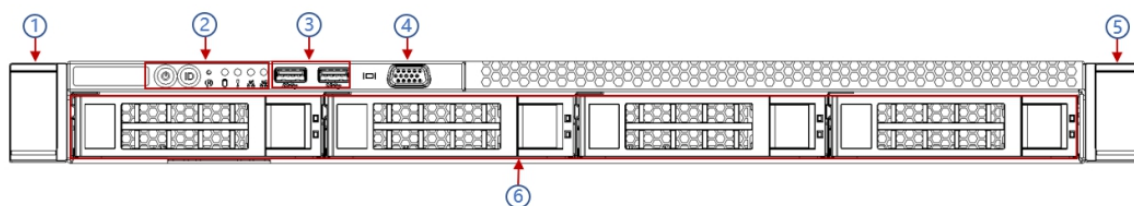


Figure 2- 4

Serial number	Name	Serial number	Name
1	Left hanging ear	4	VGA interface
2	Front panel indicator	5	Right hanging ear
3	USB3.0 interface	6	3.5-inch hard disk

Table 1- 7

- 1U10 disc position 3.5-inch disc model

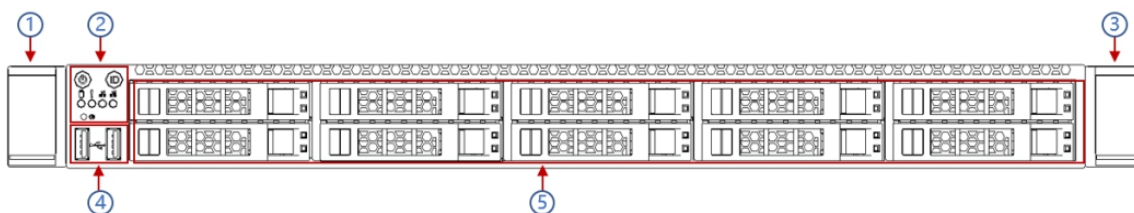


Figure 2- 5

Serial number	Name	Serial number	Name
1	Left hanging ear	4	USB3.0 interface
2	Front panel indicator	5	2.5-inch hard disk
3	Right hanging ear		

Table 1- 8

- Description of front panel interface

Name	Type	Explain
Usb interface	USB 3.0	Provide outgoing USB interface, through which USB devices can be accessed. Note: Make sure that the USB device is in good condition when using the external USB device, otherwise the server may work abnormally.

Table 1- 9

● Description of front panel indicators and buttons

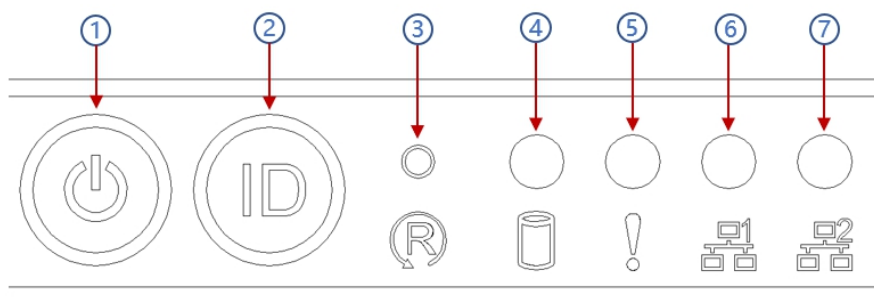


Figure 2- 6

Serial number	Indicator lights/buttons	Serial number	Indicator lights/buttons
1	Power switch button/indicator light	5	System alarm indicator
2	UID button/indicator light	6	Connection status indicator of network port 1
3	Reset restart server button	7	Connection status indicator of network port 2
4	Hard disk indicator		

Table 1- 10

LED status description		
sign	Indicator lights/buttons	Description of status
	Power light	<p>Description of power indicator:</p> <p>Green (always on): indicates that the equipment has been powered on normally.</p> <p>Green (flashing): indicates that the equipment is in standby state.</p> <p>Green off: indicates that the equipment is not powered on.</p> <p>Power button description:</p> <p>Press this button briefly in the boot state, and the OS shuts down normally.</p> <p>Press and hold the button for 6 seconds in the power-on state to force the server to power down.</p> <p>Press this button briefly in the power-on state to start the machine.</p>
	UID button/indicator light	<p>UID button/indicator light is used to locate the server to be operated conveniently, and it can be turned off or turned on remotely by manually pressing UID button or BMC command.</p> <p>UID led description:</p> <p>Blue (always on/flashing): indicates that the server is located.</p> <p>Off: indicates that the server is not located.</p> <p>UID button description: press this button briefly to</p>

		turn on/off the positioning lamp.
	Reset restart server button	Press to restart the server
	Hard disk indicator	The green light flashes: the hard disk runs normally
	System alarm indicator	System alarm indicator. Including system alarm, fan alarm and power alarm, which can be viewed through IPMI management software
	Network port connection status indicator lamp	Ethernet port indicator light corresponding to the card inserted into the network card. Green (always on): indicates that the network port is connected normally. Off: indicates that the network port is unused or faulty. Description: It corresponds to two 1GE network ports on the motherboard.
	Network port connection status indicator lamp	Ethernet port indicator light corresponding to the card inserted into the network card. Green (always on): indicates that the network port is connected normally. Off: indicates that the network port is unused or faulty. Description: It corresponds to two 1GE network ports on the motherboard.

Table 1- 11

## 2.4.2 rear panel assembly

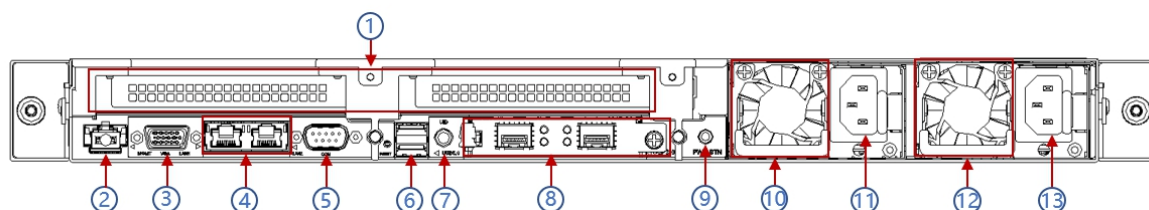


Figure 2- 7

Serial number	Name	Serial number	Name
1	Riser module	8	OCP3.0 interface
2	Management network port	9	Power switch button
3	VGA interface	10	Power supply module 1
4	RJ45 gigabit network port	11	AC interface 1 of power module

5	cluster communication port	12	Power supply module 2
6	USB 3.0 interface	13	AC interface 2 of power module
7	UID indicator		

Table 1- 12

● **Description of rear panel interface**

Name	Type	Quantity	Explain
VGA interface	DB15	1	Used to connect a display terminal, such as a monitor or KVM.
Management network port	GE BASE-T	1	1000Mbit/s Ethernet port for outgoing is provided. This server can be managed through this interface.
Usb interface	USB 3.0	2	Provide outgoing USB interface, through which USB devices can be accessed. Note: Make sure that the USB device is in good condition when using the external USB device, otherwise the server may work abnormally.
RJ45 gigabit network port	GE BASE-T	2	Server service network port.
AC interface of power module	/	1 or 2	You can select the number of power supplies according to your actual needs, but make sure that the rated power of the power supply is greater than the rated power of the whole machine.
cluster communication port		1	cluster communication port
OCP3.0 interface		1	Install OCP3.0 network card

Table 1- 13

● **Description of rear panel indicators and buttons**

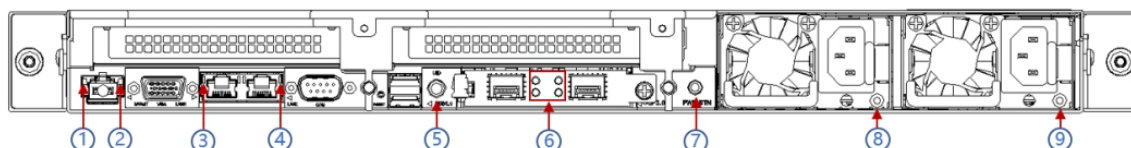


Figure 2- 8

Serial number	Name	Serial number	Name
1	Connection status indicator	6	OCP network port indicator lamp

2	Data transmission status indicator	7	power knob
3	Connection status indicator	8	Power module indicator
4	Data transmission status indicator	9	Power module indicator
5	UID indicator		

Table 1- 14

Indicator lights/buttons	Description of status
Power module indicator	<p>Green (always on): indicates normal input and output.</p> <p>Red (always on): indicates that the input is normal, and there is no output due to over-temperature protection of power supply, over-current/short circuit of power supply output, over-voltage of output, short circuit protection, device failure (excluding all device failures), etc.</p> <p>Green (1Hz/ flashing): indicates that the input is normal, and the output is turned off due to power-on or in-place; Input overvoltage and undervoltage.</p> <p>Green (4Hz/ flashing): it indicates that Firmware is being upgraded online.</p> <p>Off: indicates that there is no AC power input.</p>
Connection status indicator	<p>Long green: indicates gigabit Link.</p> <p>Orange is always on: it means 100m Link.</p> <p>Turn off: 10 mega Link.</p>
Data transmission status indicator	<p>Yellow (flashing): indicates that data is being transmitted.</p> <p>Off: indicates no data transmission.</p>
UID indicator	<p>Blue (always on/flashing): indicates that the server is located.</p> <p>Off: indicates that the server is not located.</p> <p>UID button description: press this button briefly to turn on/off the positioning lamp.</p>
OCP network port indicator lamp	The upper two are connection status indicators, and the lower two are data transmission status indicators
Power Button	<p>Press this button briefly in the boot state, and the OS shuts down normally.</p> <p>Press and hold the button for 6 seconds in the power-on state to force the server to power down.</p> <p>Press this button briefly in the power-on state to start the machine.</p>

Table 1- 15



## 2.4.3 Motherboard components

- All models share motherboard components, and the interface description is as follows

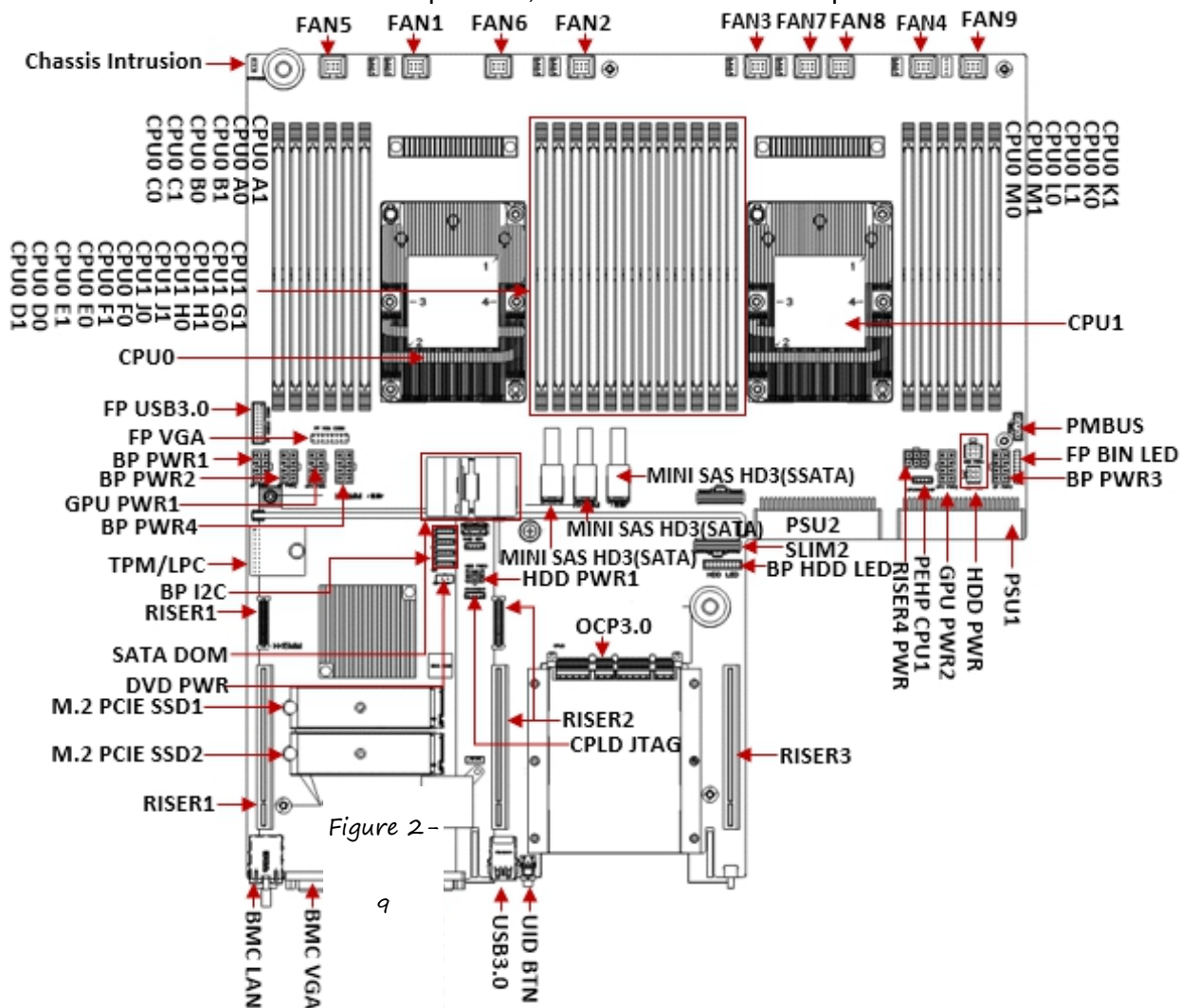


Figure 2-9

## 2.4.4 hard disk backplane assembly

- 1U4 expansion backplane as shown in the figure

TOP noodles

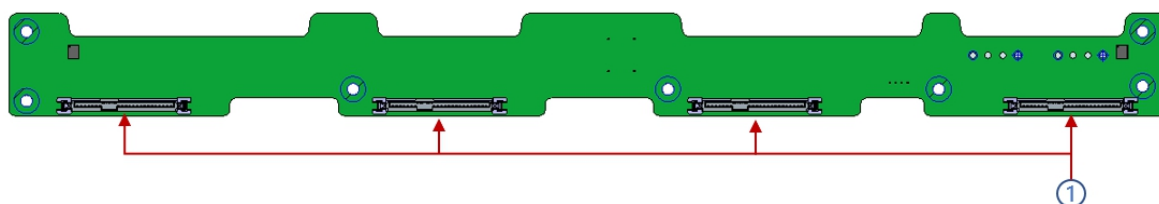


Figure 2- 10

Serial number	Describe	Function
1	SAS/SATA hard disk connector	1. maximum support for 12G/b SAS hard disk; 2. Maximum support for 6G/b SATA hard disk; 3. Support hot swap of SAS/SATA hard disk.

Table 1- 16

Bottom noodles

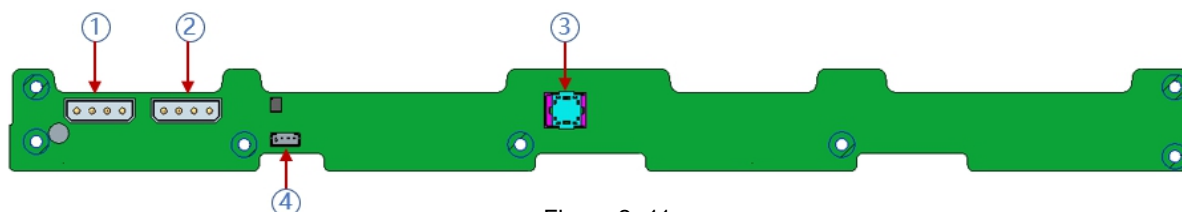


Figure 2- 11

Serial number	Describe	Function
1, 2	Power connector	Backplane power transmission connector for 5V/12V power transmission
3	12gb SAS interface of SFF-8643	Backplane position signal interface
4	I2C interface	Interface for I2C signals

Table 1- 17

● 1U10 expansion backplane as shown in the figure

TOP noodles

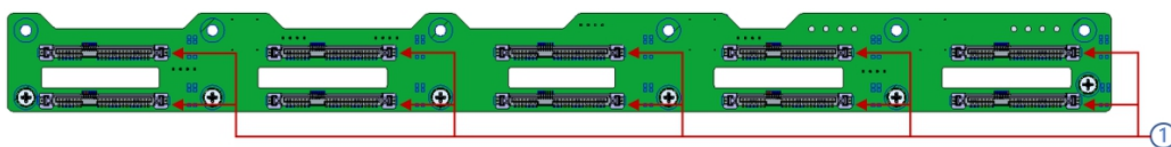


Figure 2- 12

Serial number	Describe	Function
1	SAS/SATA hard disk connector	1. maximum support for 12G/b SAS hard disk; 2. Maximum support for 6G/b SATA hard disk; 3. Support hot swap of SAS/SATA hard disk.

Table 1- 18

Bottom noodles

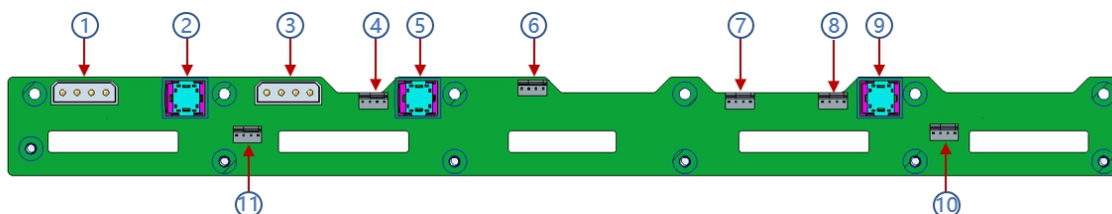


Figure 2- 13

Serial number	Describe	Function
1, 3	Power connector	Backplane power transmission connector for 5V/12V power transmission
2, 5, 9	12gb SAS interface of SFF-8643	Backplane position signal interface
4, 6, 7, 8, 10, 11	Temperature control fan socket	Used for 4pin fan interface

Table 1- 19

● RISER 1 backplane is shown in the figure

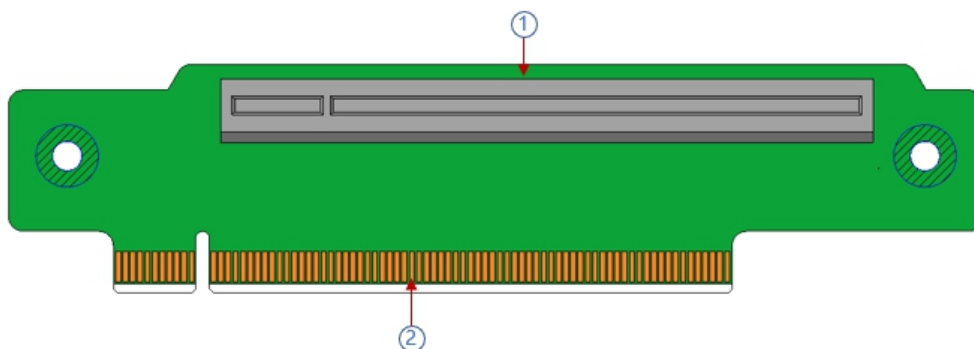


Figure 2- 14

Serial number	Describe	Function
1	PCIE 3.0 X16 slot	Used to connect PCIe 3.0 X16 devices.
2	PCIE X16 gold finger	Used to connect PCIe X16 interface

Table 1- 20

- OCP3.0 network card is shown in the figure

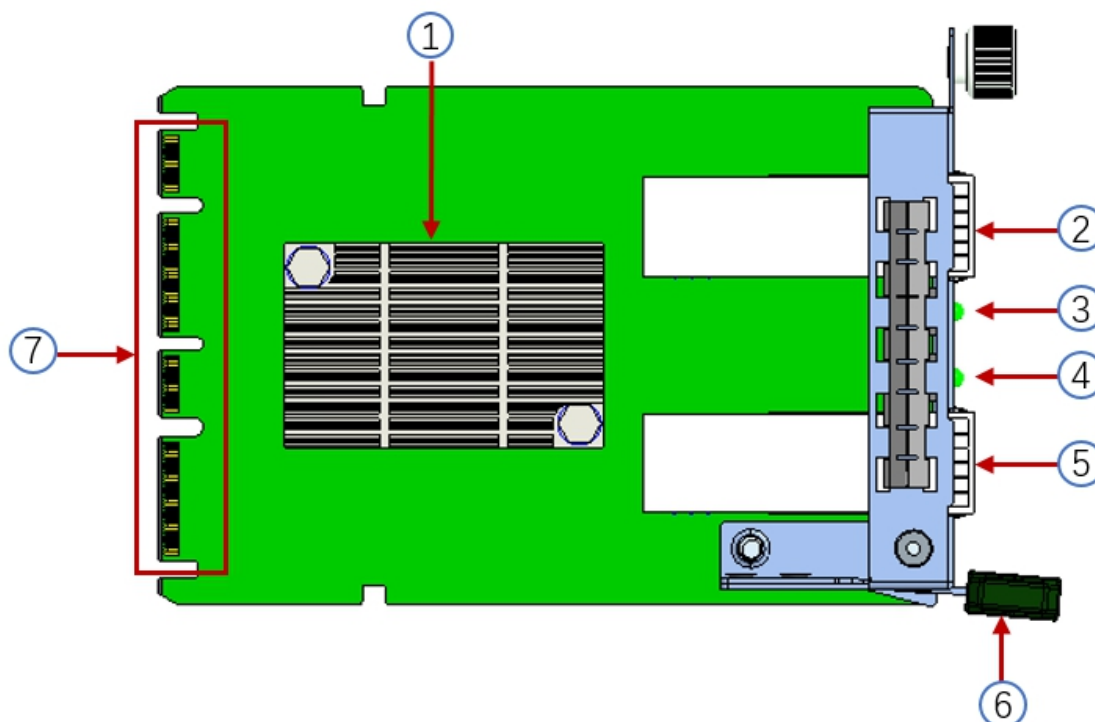


Figure 2- 22

Serial number	Describe	Function
1	Intel 82599ES chip	The network interface controller, which is mainly connected with the motherboard CPU through PCIe Gen.2 X8, is converted into a two-port optical port SFP+ at the network card end, and the 82599ES chip also provides an interface to communicate with the motherboard BMC NCSI as the information transfer between BMC and the network card.
2	SFP+ LAN1	Provide SFP+ 10G optical port signal
3	LED1	LED status indicator
4	LED2	LED status indicator
5	SFP+ LAN2	Provide SFP+ 10G optical port signal
6	Network card buckle	Used to lock the network card. When removing the network card, you need to press it down to pull out the network card
7	OCP3.0 interface	Used for docking motherboard OCP3.0 PCIe X8 signal /12V power supply/Sideband signal

Table 1- 28

### Description of LED indicator

Serial number	Describe	Function
LED1	SFP+ LAN1 Link LED	Green/yellow indicator light for indicating LAN1 network speed Green: 10 Gigabit network speed; Yellow: Gigabit network speed Not bright: Network cable without optical port
	SFP+ LAN1 ACT LED	Green indicator light to indicate LAN1 data activity Blinking: There are data activities; Not bright: no data activity
LED2	SFP+ LAN2 Link LED	Green/yellow indicator light for indicating LAN2 network speed Green: 10 Gigabit network speed; Yellow: Gigabit network speed Not bright: Network cable without optical port
	SFP+ LAN2 ACT LED	Green indicator light to indicate LAN2 data activity Blinking: There are data activities; Not bright: no data activity

Table 1- 29

### 2.4.5 DIMM slot location

The motherboard adopts Intel Purley platform and Intel Xeon SkyLake CPU, and supports 12 DDR4 channels and 24 DDR4 slots (when only one memory is inserted, the plastic color of the slot in the slot board in the red frame below is blue), and supports DDR4 ECC RDIMMs/LRDIMMs server memory, and the memory frequency supports 2133/2400/2666/2933MHz. The location is shown in the following figure:

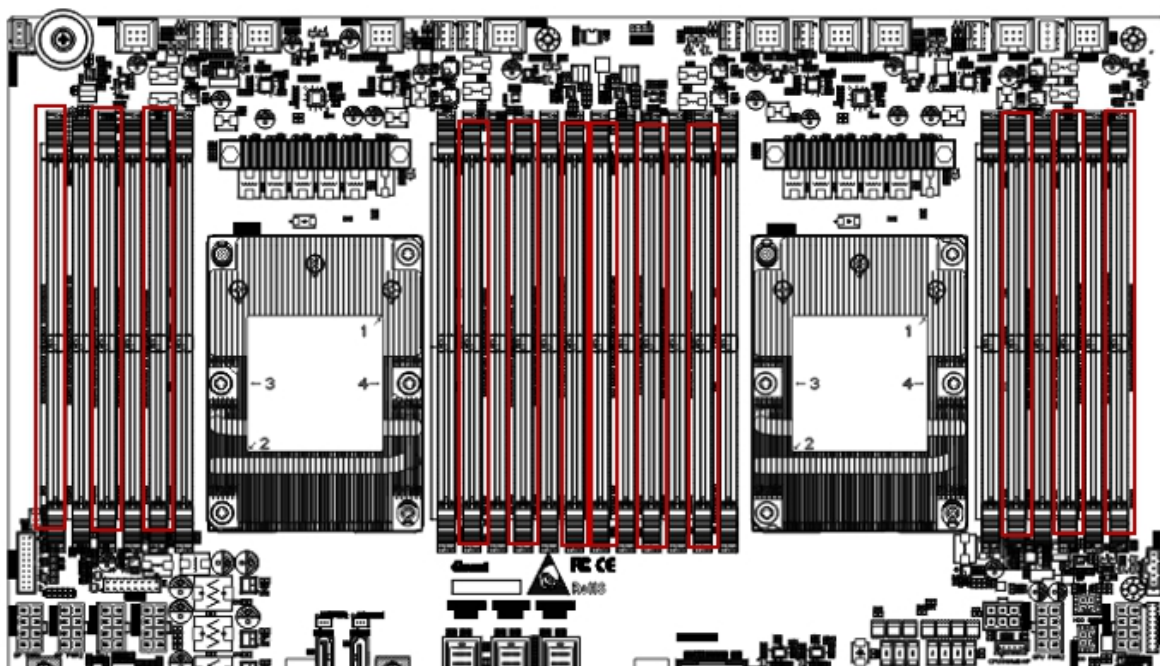


Figure 2- 15

## 2.4.6 hard disk label

- 1U4-position 3.5-inch disk model

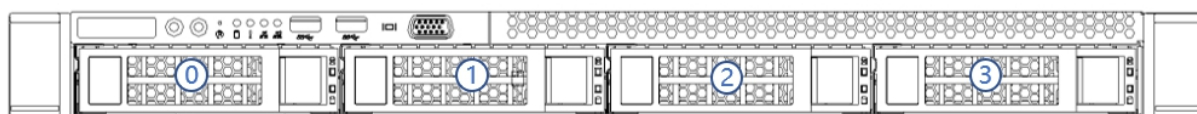


Figure 2- 16

- 1U10 2.5-inch disk model

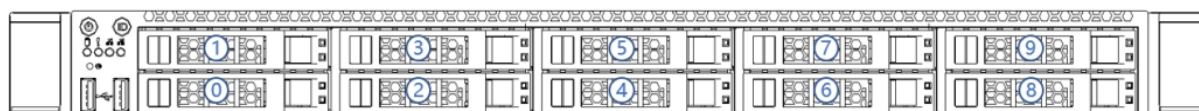


Figure 2- 17

## 2.4.7 hard disk indicator light

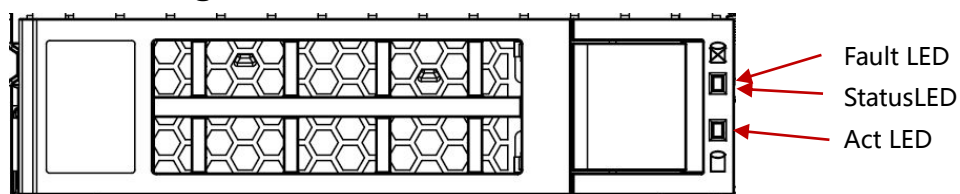


Figure 2- 18

Function	Act LED	Fault LED	Status LED
Hard disk in place	Changliang	OFF	OFF
Hard disk activity	Blinking 4Hz/ s	OFF	OFF
Hard disk positioning	Changliang	Blinking 4Hz/ s	OFF
Hard disk report error	Changliang	OFF	Changliang
RAID rebuild	Changliang	OFF	Blinking 1Hz/ sec

Table 1- 21

## 2.4.8 system fan

The server supports variable fan speeds. Generally, the fan rotates at the lowest speed. If the server temperature rises, the fan will increase the speed to cool down.

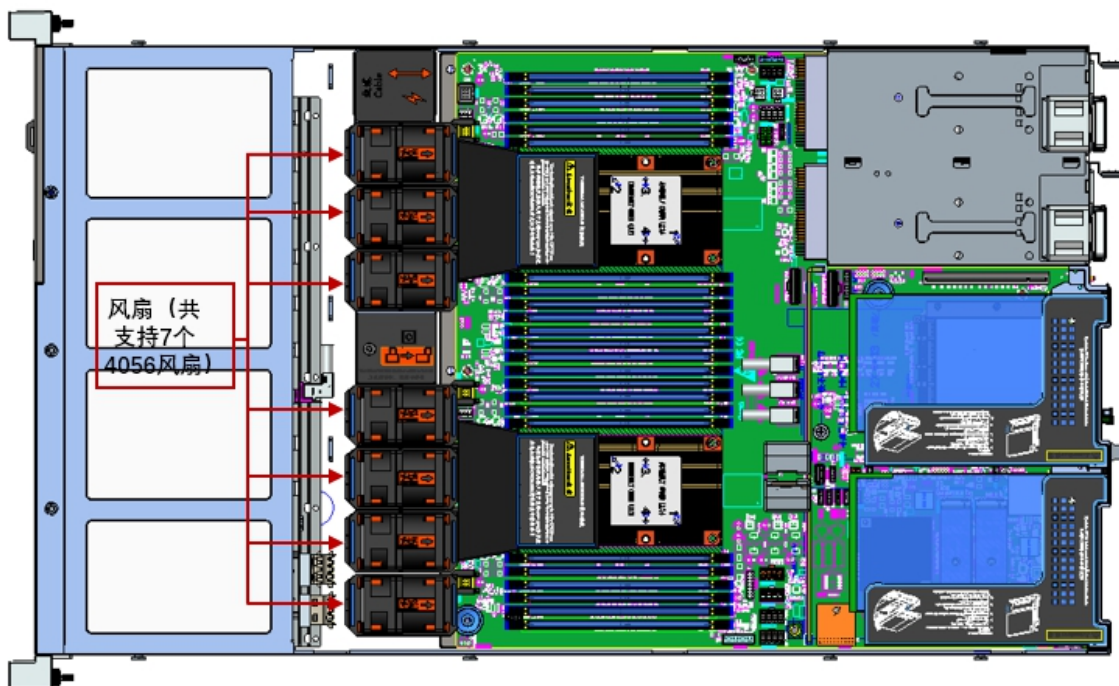


Figure 2- 19

## Chapter III Installation of System Components

### 3.1 CPU installation

- **Install the processor:**

Step 1: CPU installation

1. tilt the CPU angle as shown in the figure, align the angle A1 (triangle mark) and clamp it on one end of the clamping piece.
2. Direction, press the other end of the clamping piece to fix the CPU to the clamping piece.

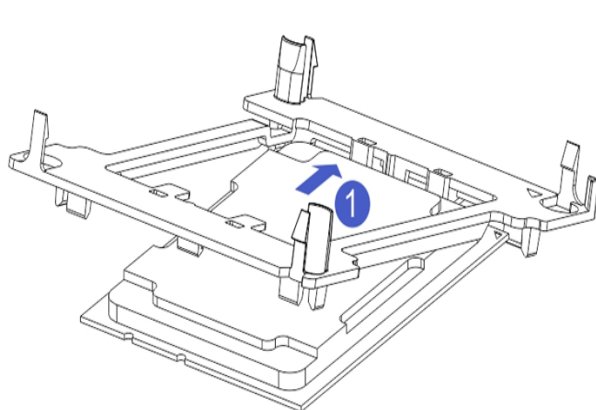


Figure 3- 1

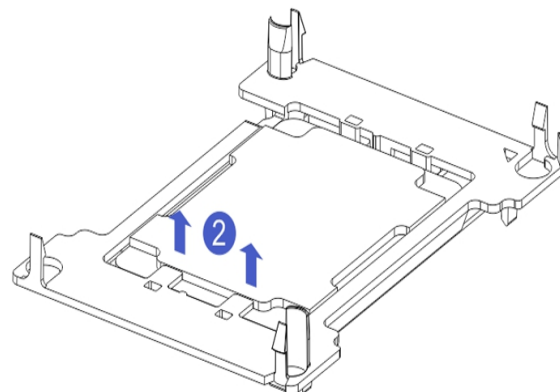


Figure 3- 2

Step 2: Install the CPU on the radiator to ensure that the surfaces of the CPU and radiator are clean, free of oil and foreign matter. (as shown in the figure below)

1. apply about 0.4ml volume of heat conductive silicone grease on the 1.CPU, and smooth it evenly.
2. Align the corner A1 (triangle mark) and fasten the CP

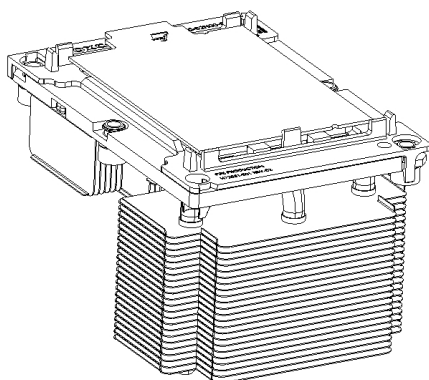


Figure 3-3

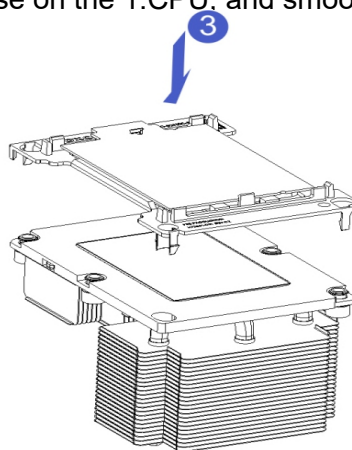


Figure 3- 4



## 3.2 Installation of Radiator

- **Installation steps:**

1. Remove the processor idle baffle (as shown in the following figure)

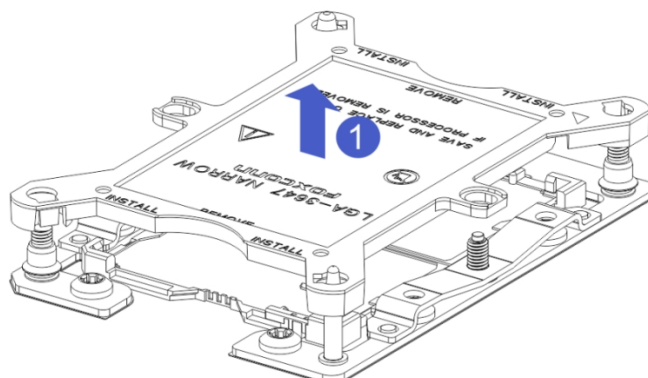


Figure 3-5

2. Align the radiator with the radiator fixing studs on the CPU base, and tighten the fixing screws of the radiator according to the instructions. (as shown in the figure below)

Note: The pins on the motherboard are extremely fragile and easily damaged. To avoid damaging the motherboard, do not touch the processor or processor socket contacts.

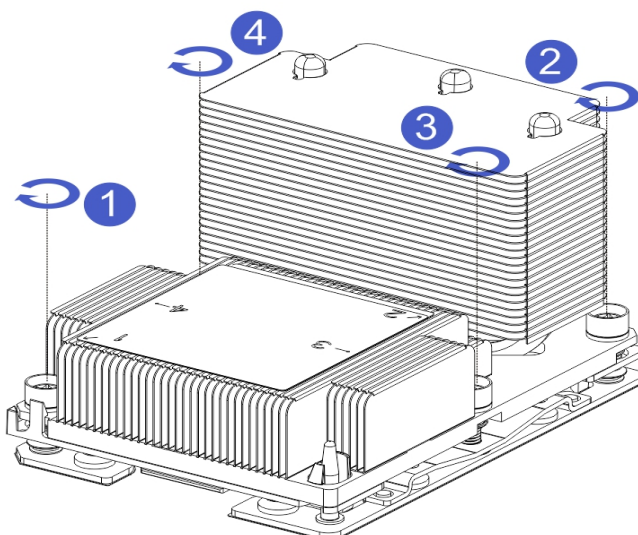



Figure 3-6

## 3.3 Installation of Memory

### 3.3.1 Memory support specifications

The motherboard supports 8GB/16GB/32GB R-DIMMs, 32GB/64GB LR-DIMMs, 128GB 3ds I R-DIMM DDR4 memory, and can support up to 2933MHz (2933MT/s is only achieved when a single memory is used per channel, depending on CPU SKU).

 **Note:** Please use memory modules with the same CAS latency value on this motherboard. It is recommended that you use memory with the same capacity and frequency produced by the same manufacturer. The following tables 1-22 and 1-23 are recommended:

Memory access principle: (1 CPU)														
processor	passage	core position	Memory quantity (recommended: √ not recommended: o)											
			√	√	√	√	o	√	o	√	o	o	o	√
			1	2	3	4	5	6	7	8	9	10	11	12
CPU0	A	A1	●	●	●	●	●	●	●	●	●	●	●	●
		A2							●	●	●	●	●	●
	B	B1		●	●	●	●	●	●	●	●	●	●	●
		B2								●	●	●	●	●
	C	C1			●		●	●	●		●	●	●	●
		C2									●		●	●
	D	D1				●	●	●	●	●	●	●	●	●
		D2								●		●	●	●
	E	E1				●	●	●	●	●	●	●	●	●
		E2								●		●	●	●
	F	F1							●	●		●	●	●
		F2												●

Table 1-22

When installing a CPU, there are many rules for memory installation. In order to achieve optimal performance, it is recommended to follow the following specifications:

1 root memory, CPU0\_A1

Two memories: CPU0\_A1/CPU0\_B1

3 memories: CPU0\_A1/CPU0\_B1/CPU0\_C1

Four memories: CPU0\_A1/CPU0\_B1/CPU0\_D1/CPU0\_E1

5 root memory: this configuration is not recommended


6 memories: CPU0\_A1/CPU0\_B1/CPU0\_C1/CPU0\_D1/CPU0\_E1/CPU0\_F1

7 root memory: this configuration is not recommended

Eight memories: CPU0\_A1/A2, CPU0\_B1/B2, CPU0\_D1/D2/CPU0\_E1/E2

9 Memory /10 Memory /11 Memory: This configuration is not recommended

12 memories: fully inserted

 **Note:** The following rules must be followed in the case of the 5th, 7th, 9th, 10th and 11th memory:

- A single number of memory is inserted into the blue on the motherboard;
- Double-root memory can refer to the above configuration of the most recent memory quantity, and then increase the memory;

In addition, it is important to note that:

- ◆ In the same Channel, the first memory with large capacity must be inserted (for example, A1/B1/C1/D1/E1/F1): blue;

The mixed use of RDIMM and LRDIMM is not allowed.

Memory access principle: (2 CPUs)																										
processor	passage	core position	Memory quantity (recommended: √ not recommended: o)																							
			O	√	O	√	O	√	O	√	O	√	O	√	O	√	O	√	O	√	O	√	O	√	O	√
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CPU0	A	A1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		A2													●	●	●	●	●	●	●	●	●	●	●	
	B	B1			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		B2														●	●	●	●	●	●	●	●	●	●	
	C	C1					●	●			●	●	●	●	●	●			●	●	●	●	●	●	●	
		C2																	●	●			●	●	●	
	D	D1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		D2																	●	●			●	●	●	
	E	E1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		E2																	●	●			●	●	●	
	F	F1												●	●	●	●			●	●	●	●	●	●	
		F2																							●	
CPU1	A	A1		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		A2														●	●	●	●	●	●	●	●	●		
	B	B1				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		B2															●	●	●	●	●	●	●	●		
	C	C1					●	●			●	●	●	●	●	●			●	●	●	●	●	●		
		C2																	●	●			●	●		
	D	D1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		D2																	●	●			●	●		
	E	E1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		E2																	●	●			●	●		
	F	F1												●	●	●	●			●	●	●	●	●		
		F2																						●		

Table 1-23

When installing two CPUs, in order to achieve optimal performance, it is recommended to install double-root memory, and the memory amount of each CPU remains the same;

Two memories: CPU0\_A1/CPU1\_A1

Four memories: CPU 0 \_ A1/CPU 0 \_ B1/CPU 1 \_ A1/CPU 1 \_ B1

6 memories: CPU 0/CPU 2 \_ A1, CPU 0/CPU 1 \_ B1, CPU 0/CPU 1 \_ C1

Eight memories: cpu0/cpu2 \_ a1, cpu0/cpu1 \_ B1, cpu0/cpu1 \_ D1, cpu0/cpu1 \_ E1

10 root memories: asymmetric, this configuration is not recommended

12 memories: cpu0/cpu1 \_ a1, cpu0/cpu1 \_ B1, cpu0/cpu1 \_ C1, cpu0/cpu1 \_ D1, cpu0/cpu1 \_ E1.


CPU0/CPU1\_F1

14 root memory: asymmetric: this configuration is not recommended

16 memories: cpu0 \_ a1/a2, cpu0 \_ B1/B2, cpu0 \_ D1/D2, cpu0 \_ E1/E2, cpu1 \_ a1/a2, cpu1 \_ B1/B2, cpu1 \_ D1/D2, cpu1 \_ E1/E2

18 root memory /20/ root memory /22 root memory: asymmetric, this configuration is not recommended

24 pieces of memory: fully inserted

 Note: In the same Channel, the first memory with large capacity must be inserted (for example, A1/B1/C1/D1/E1/F1): blue

The mixed use of RDIMM and LRDIMM is not allowed; If there is only one memory, install it to CPU0\_A1.

### 3.3.2 How to install the memory

The eight memory slots controlled by the motherboard CPU 1 are: Dimma1, a2, DIMMs B1, B2, DIMMs C1, C2 and DIMM D1, D2; The eight memory slots controlled by CPU 2 are: DIMME 1, E2, DIMMs F1, F2, DIMMs G1, G2 and DIMMs H1, H2. Pay attention to that the gap of memory is consistent with that of DIMM slots, and vertically clamp each DIMM module in place to prevent incorrect installation.

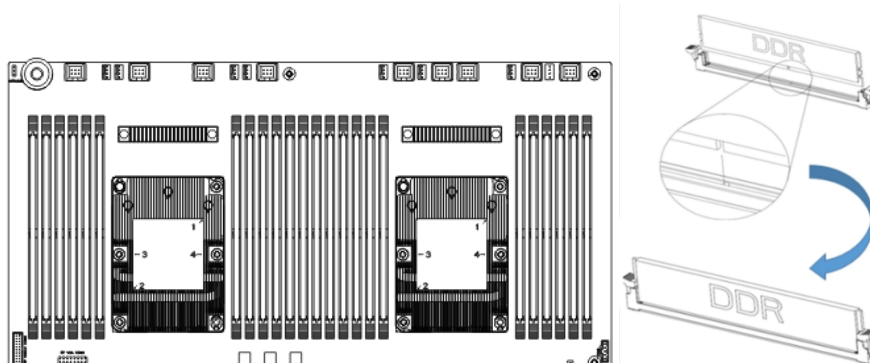


Figure 3-7

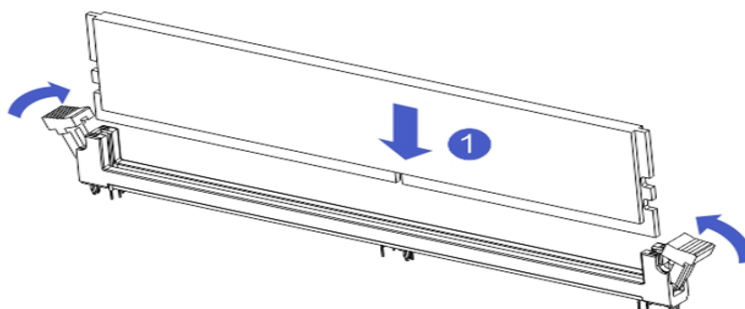


Figure 3-8

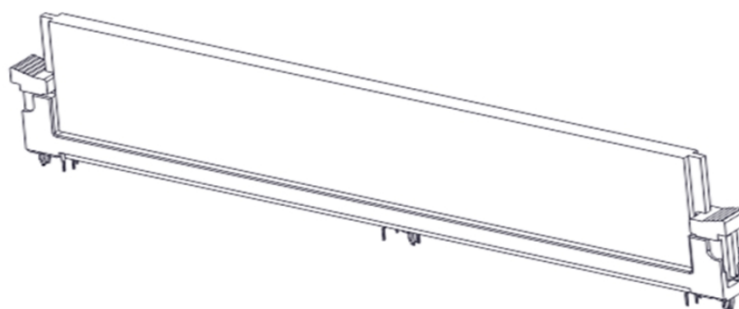


Figure 3-9

### 3.4 Installation of Hard Disk

- **Install the 3.5-inch hard disk:**

1. Place the hard disk in the tray
2. There are 4 countersunk screws on the left and right sides to lock the hard disk (the screw heads shall not protrude from the sideway surfaces on both sides of the tray)

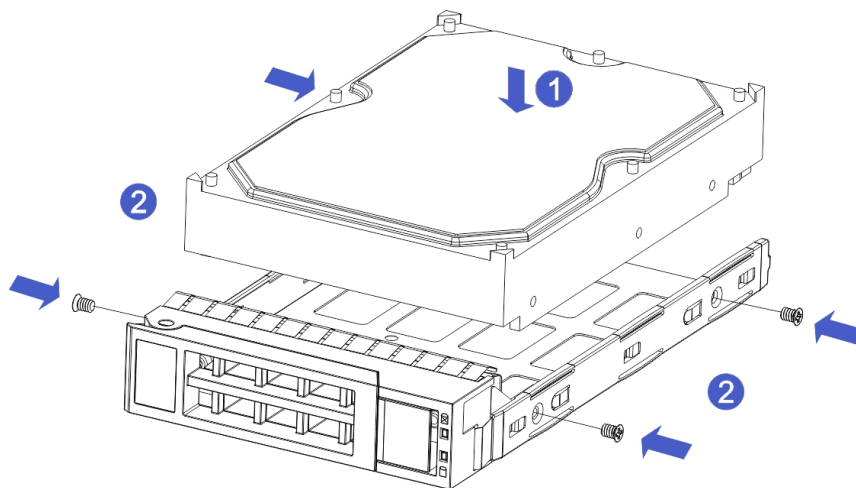


Figure 3- 10

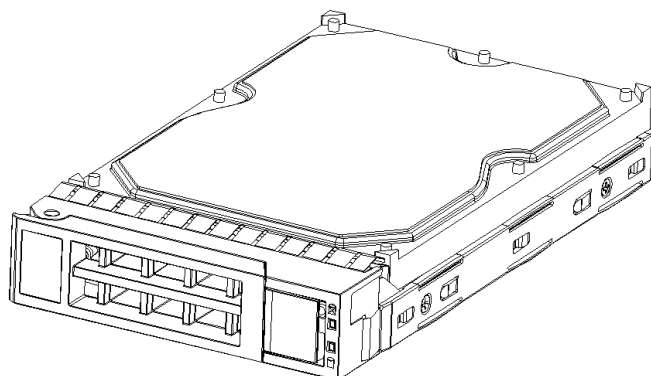


Figure 3- 11

## Install 2.5-inch hard disk

1. Place the hard disk in the tray
2. The bottom four countersunk screws lock the hard disk (the screw heads protrude from the bottom of the tray)

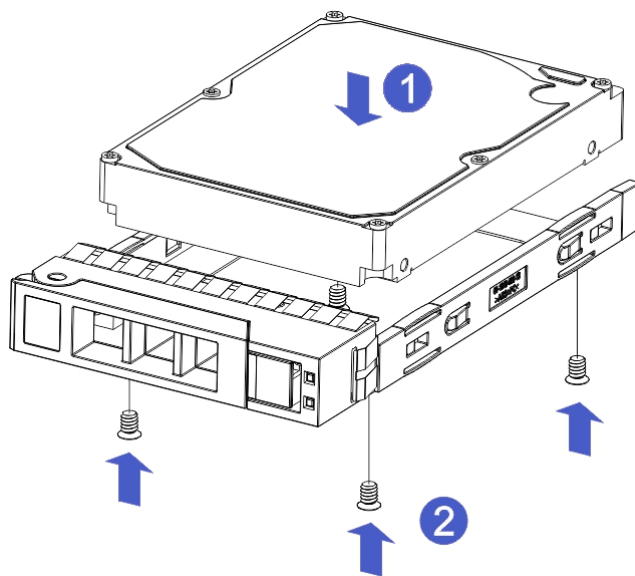


Figure 3- 12

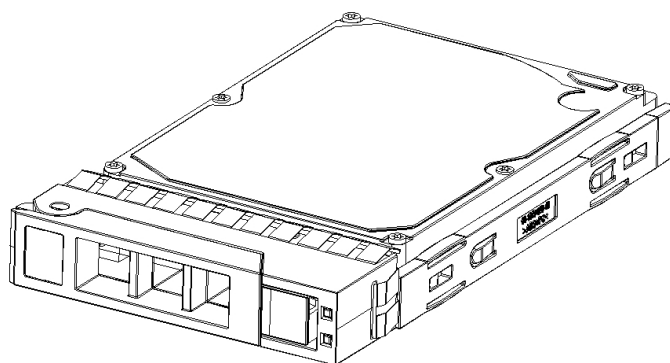


Figure 3- 13

Install the hard disk tray assembly into the chassis:

1. with the hard disk wrench open, push it into the chassis
2. When the gold finger of the hard disk touches the backplane device, turn the wrench in the direction of arrow, that is, the hard disk is installed in place.

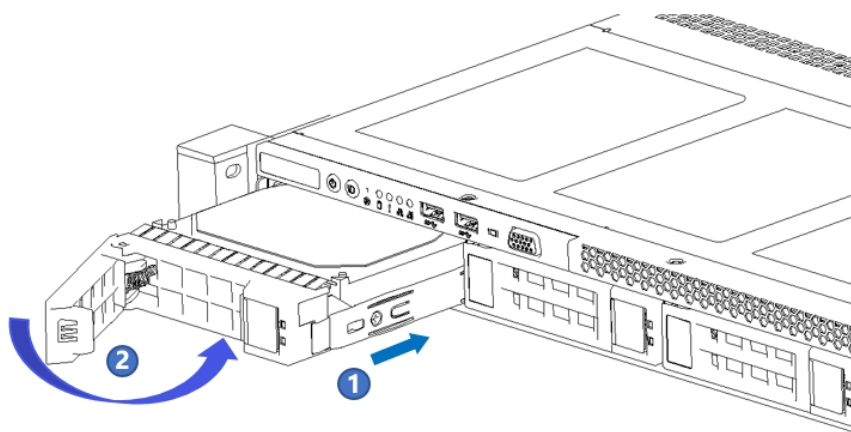


Figure 3- 14

### 3.5 M.2 SSD installation

Step 1: Install the positioning stud according to the length of the M.2 card to be installed.

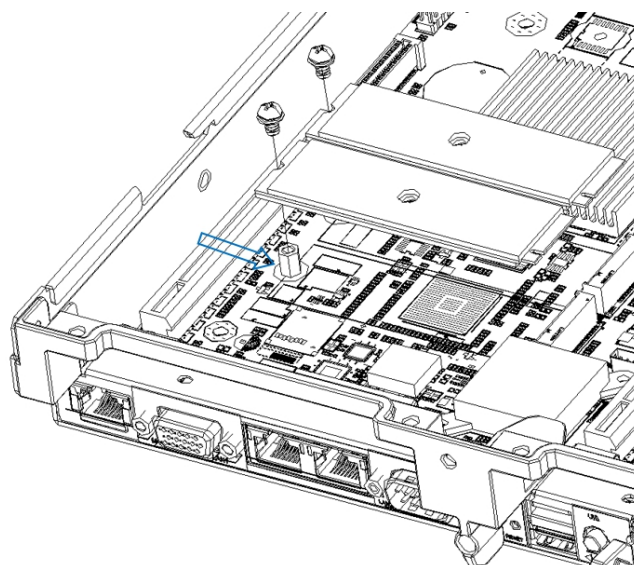


Figure 3-15

Step 2: Install the M.2 card

1. insert the connector end of M.2 card into the motherboard connector as shown.
2. Press the other end of the M.2 card to the positioning stud plane in step 1.
3. Install the fixing screws of M.2 card.

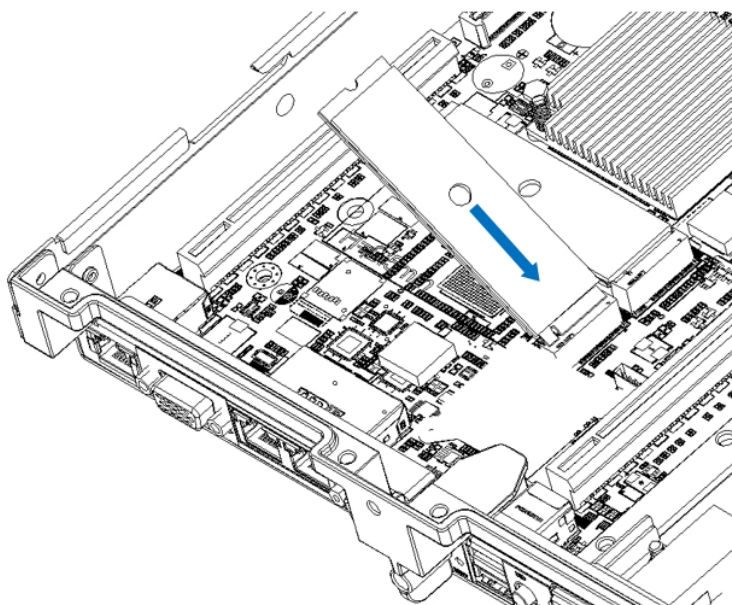


Figure 3- 16

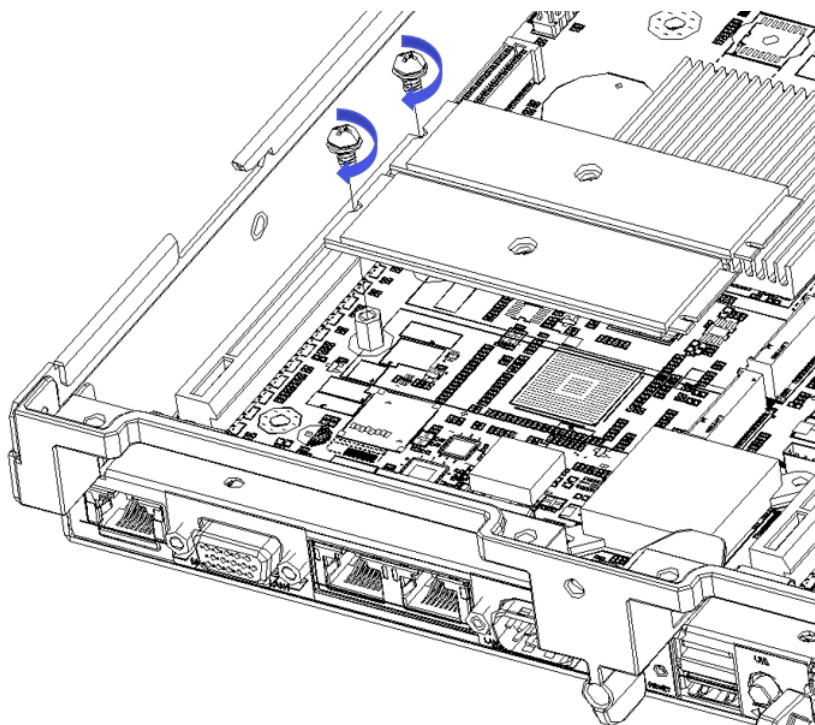


Figure 3- 17



### 3.6 Installation of PCI-E Expansion Card

Step: Install PCIE card

1. load the PCIE card in the direction indicated in the figure
2. rotate the PCIE card lock buckle
3. Lock the PCIE card lock according to the arrow scheme

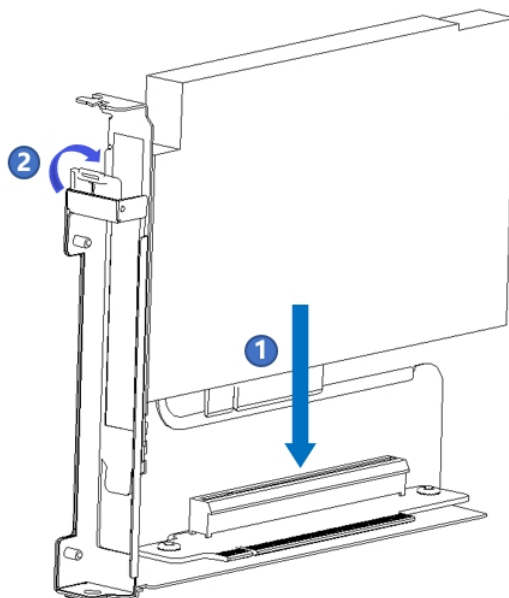


Figure 3- 18

### 3.7 PCI-E module installation

Riser1-3 module installation steps: rear window PCIE component, vertically downward-align PCIE slot, align locating hole, and place it flush with rear window.

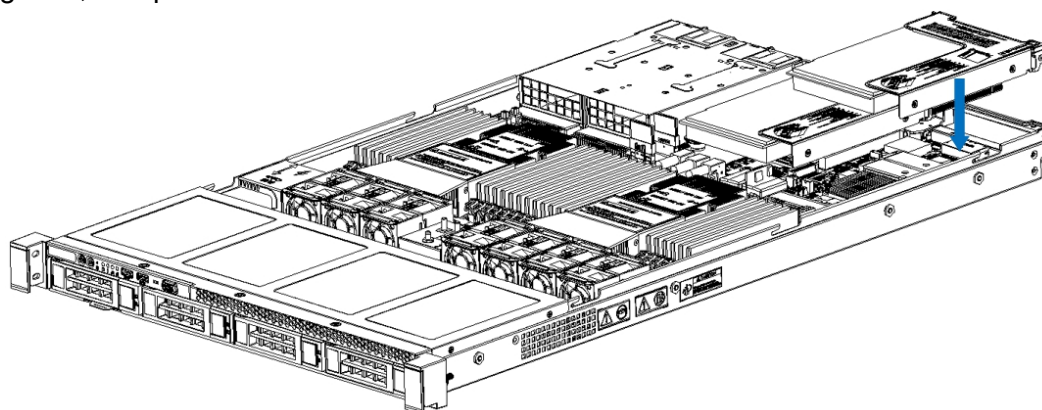


Figure 3- 19

### 3.8 Installation of Power Module

Step: Push the power supply to the bottom according to the direction of the arrow, and the shrapnel wrench on the right side makes a snapping sound, indicating that it is installed in place;

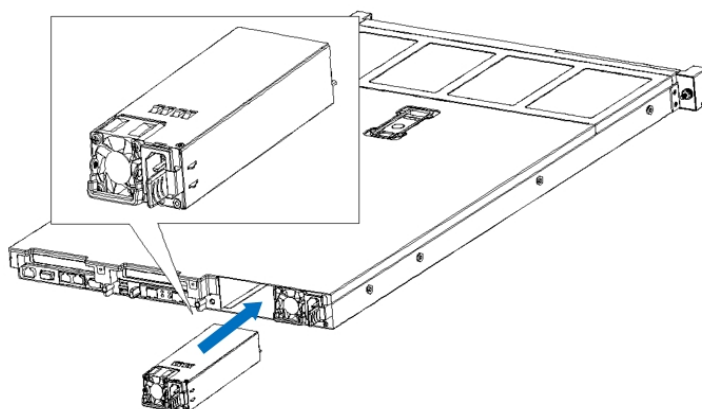


Figure 3- 20

### 3.9 Installation of Fan Module

Step: the fan module can be vertically and downward placed in place according to the direction of arrow (pay attention to the direction of fan module)

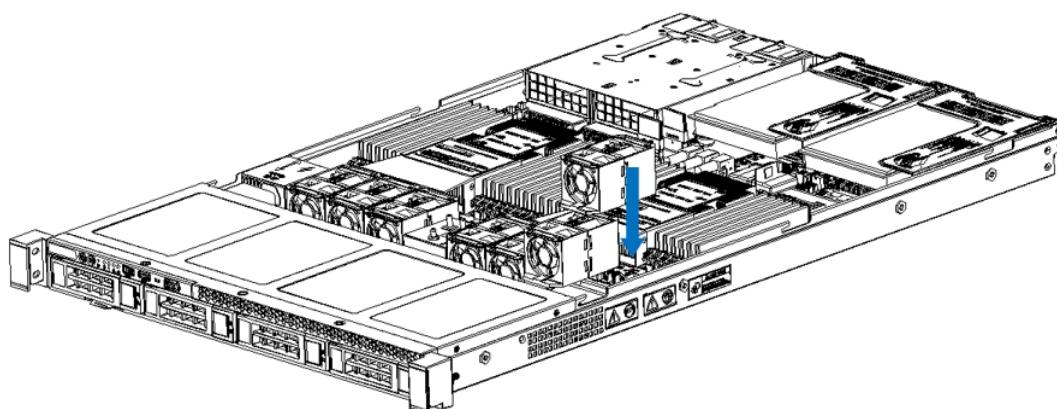


Figure 3- 21

### 3.10 Installation of wind deflector

Step: align the wind deflector module with the hanging points on the left and right sides, and place it vertically downward-the height is lower than the height of the box body

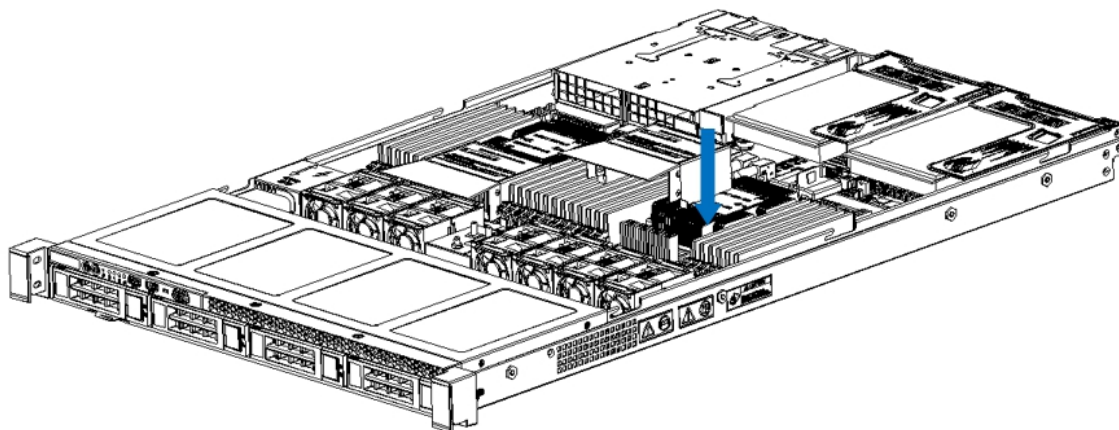


Figure 3- 22

### 3.11 Installation of the upper cover of the chassis

Step 1: Install the rear upper cover of the chassis

1. the upper cover hanging nail is aligned with the opening position of the box body and placed downward
2. Rotate the upper cover latch in the direction of arrow and lock it in place

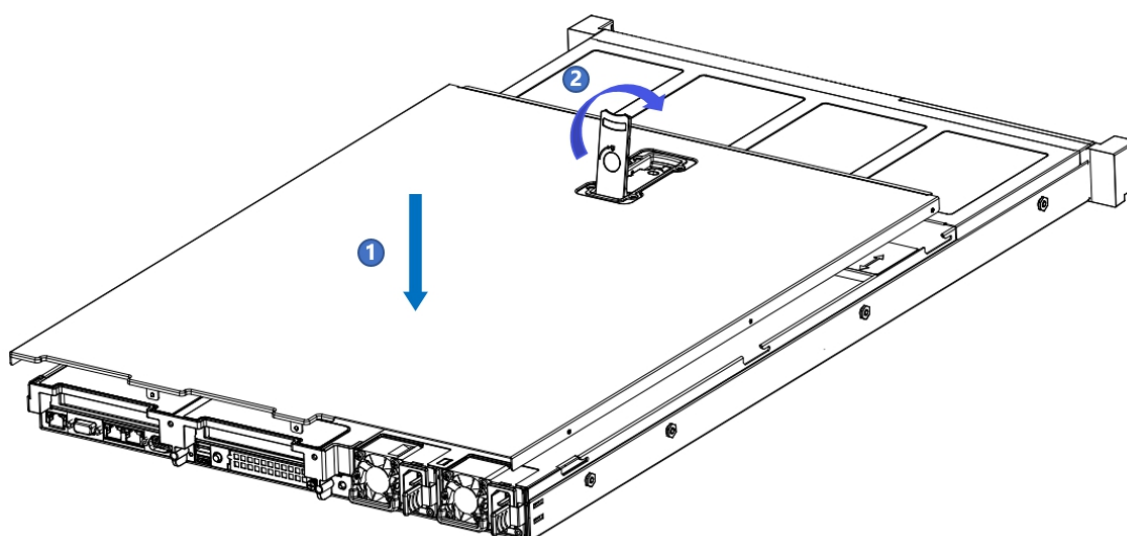


Figure 3- 23

## The fourth chapter cabinet installation system

### 4.1 Installation of guide rail inner rail

Step 1: Prepare two sliding rail and draw out the inner rail.

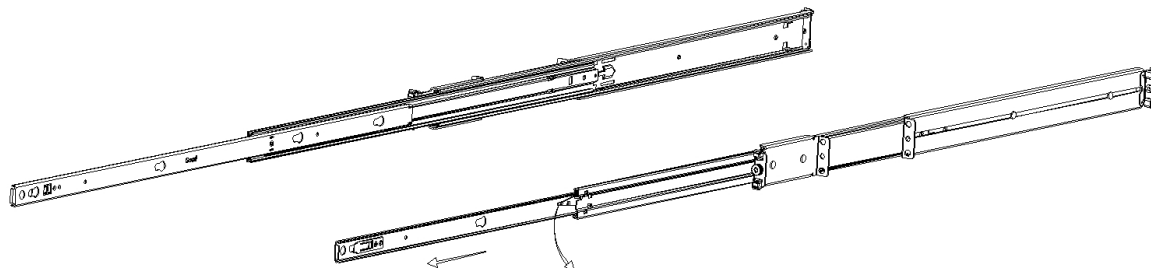


Figure 4- 1

Step 2. Fix the inner rails on both sides of the chassis.

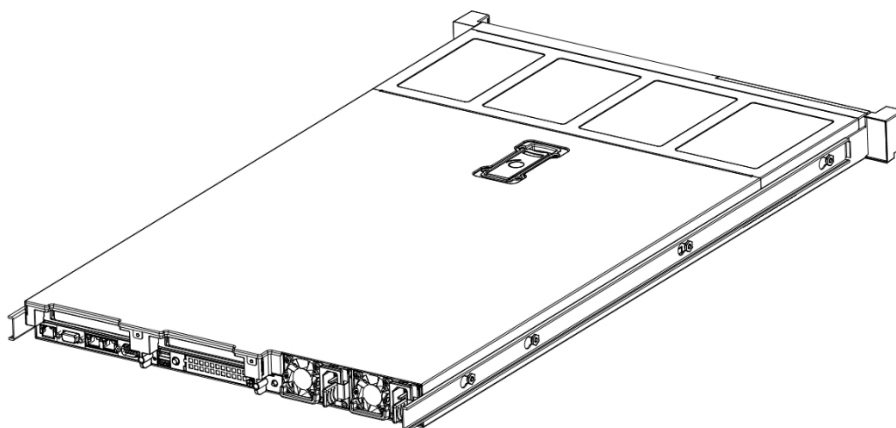


Figure 4- 2

### 4.2 Install the outer rail to cabinet

Step 3: Install the outer rail on the cabinet bracket and tighten the screws.

Attention: when installing the guide rail, aim at the u mark, install it in place with a click, and fasten it with M5 screws.

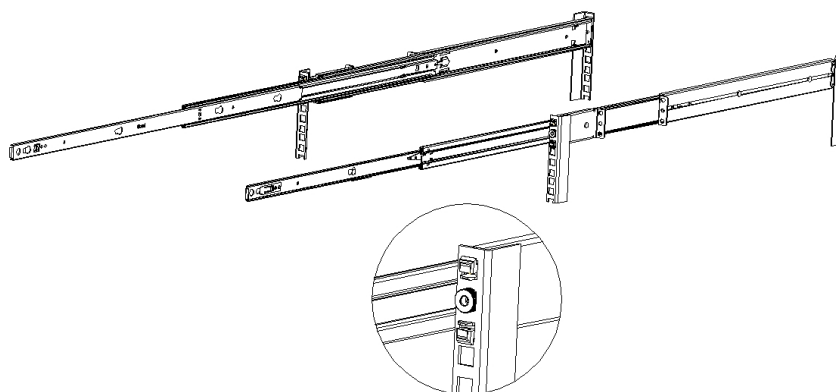


Figure 4- 3

### 4.3 Install the server to cabinet

Step 4: Install the chassis with the inner rail aligned with the outer rail.

Note: When you push the chassis forward, you hear a snap. If you can't push it, you need to pull down the inner rail buckle before you can continue to push the chassis gently.

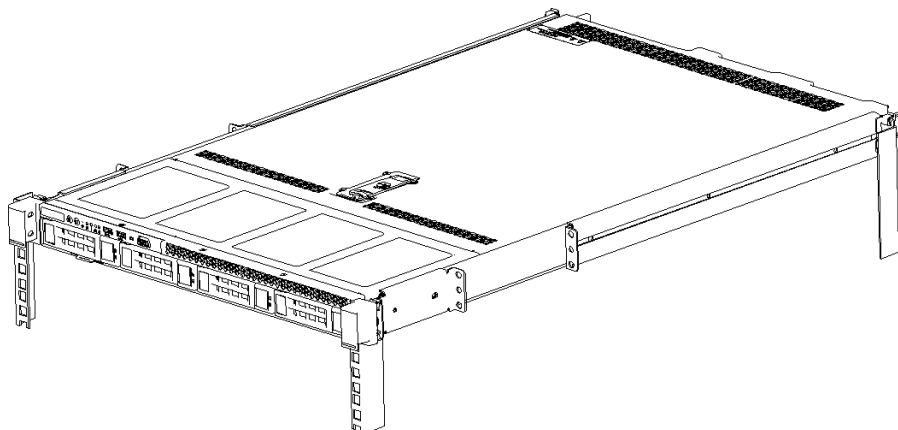


Figure 4- 4

Step 5: When the chassis is pushed forward and cannot slide, the screws are firmly installed.

Note: During equipment maintenance, it is necessary to loosen the panel screws and gently pull the chassis. Do not push and pull the chassis at random to avoid damaging the equipment.

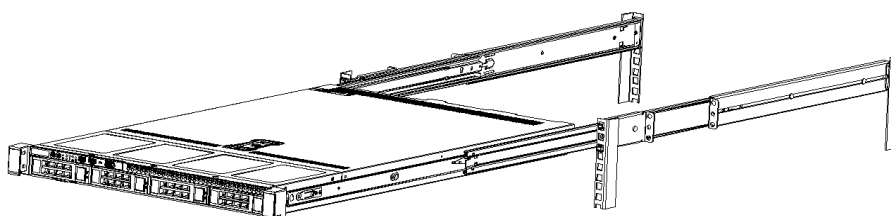


Figure 4- 5

## The fifth chapter BIOS parameter setting instructions

### 5.1 Enter the BIOS Setup interface

Operating steps:

1. Power on the server motherboard and connect it to the keyboard;
2. In the POST process, pay attention to the prompt "press < del > or < ESC > to enter setup, < F7 > to enter boot menu" at the bottom left of the Logo screen.
3. Press the keyboard < DEL > or < ESC > to get ready to enter the BIOS Setup interface;

### 5.2 Description of Setup menu parameters

#### 5.2.1 Navigation key description

→←:	Menu switch (Select Screen)
↑↓:	Item switch (Select Item)
Enter:	Select (select)
+/-:	Change options (Change Opt.)
F1:	General Help information (general help)
F2:	The last saved values (Previous Values)
F3:	The default optimized values (Optimized Defaults)
F4:	Save changes and restart the system (Save & Reset)
ESC:	Exit (exit)

## 5.2.2 Main menu description

The Main interface contains the basic information of BIOS system, such as BIOS version number, CPU model and memory capacity, and can set the system time.



Figure 5- 1

### BIOS Information

#### Project Version:

Displays the version information of the single board BIOS.

#### Build Date and Time:

Displays the compilation date and time of the single board BIOS.

#### BMC Firmware Revision:

Displays the version information of the single board BMC.

#### ME Firmware Version:

Displays the version information of the single board ME.

#### CPLD Name:

Displays the name information of single board CPLD.

#### CPLD Version:

Displays the version information of single board CPLD.

#### Build Date and Time:

Displays the compilation date and time of single board CPLD.

**Access Level:**

According to the veneer current user permissions.

**Platform Information****Processor:**

CPUID and step information.

**Processor Type:**

CPU model information.

**PCH:**

PCH SKU and stepping information.

**RC Revision:**

According to the version information of single board RC.

**Memory information****Total Memory:**

Displays the total memory capacity of the system.

**Usable Memory:**

Displays the available memory capacity of the system.

**System Language:**

Select the current system language.

**System Date:**

Displays and sets the current system date. The format of the system date is "week month/day/year". Press "Enter" to switch between month, day and year, and you can change the value in the following ways:

- Press "+":the value is increased by 1.
- Press "-":the value decreases by 1.
- Press numeric keys: change the numerical value directly.

**System Time:**

Displays and sets the current system time. The system time is 24 hours, and the format is "hours: minutes: seconds". Press "Enter" to switch between hours, minutes and seconds, and the numerical value can be changed in the following ways:

- Press "+":the value is increased by 1.
- Press "-":the value decreases by 1.
- Press numeric keys: change the numerical value directly.



## 5.2.3 Advanced menu description

The Advanced interface contains advanced configuration items for BIOS system.

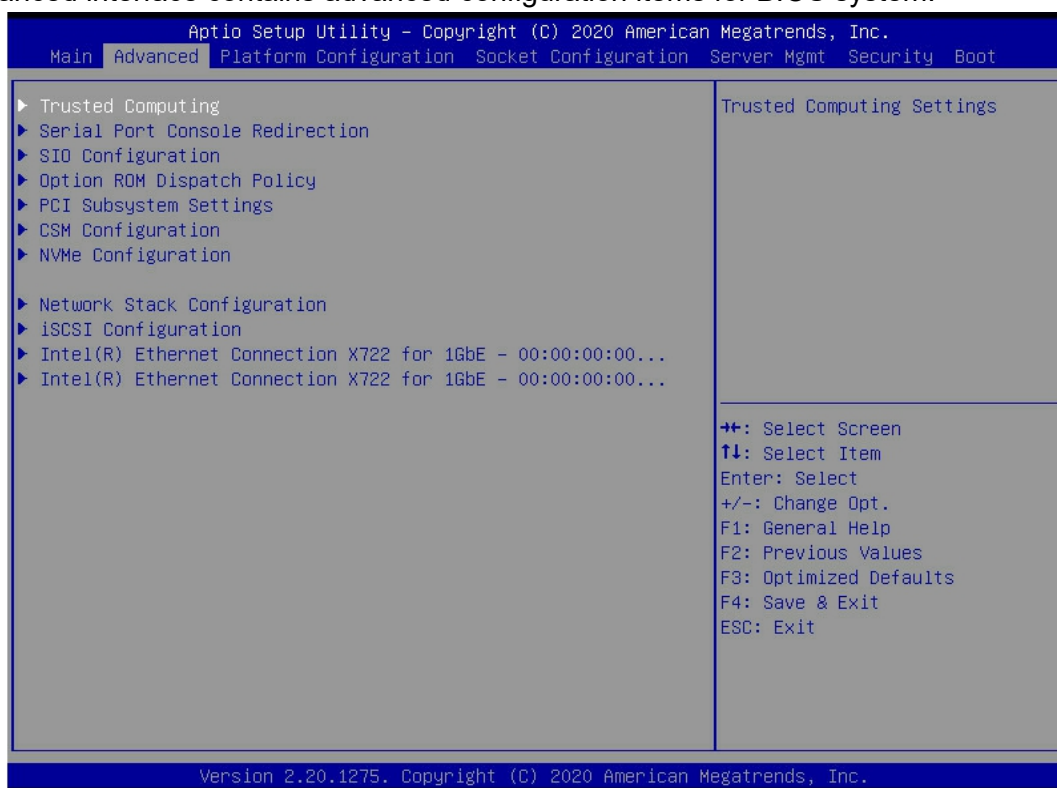


Figure 5- 2

- Trusted Computing  
Trusted execution module configuration.
- Serial Port Console Redirection  
Serial port redirection configuration.
- SIO Configuration  
SIO configuration.
- Option ROM Dispatch Policy  
Option ROM call policy.
- PCI Subsystem Settings  
PCI subsystem settings.
- CSM Configuration  
CSM configuration.
- NVMe Configuration  
NVMe configuration.
  
- Network Stack Configuration  
Network stack configuration.
- iSCSI Configuration  
iSCSI configuration.
- Intel Enthernet Connection X722 for xGbE - XX:XX:XX:XX:XX:XX

## 5.2.4 Trusted Computing

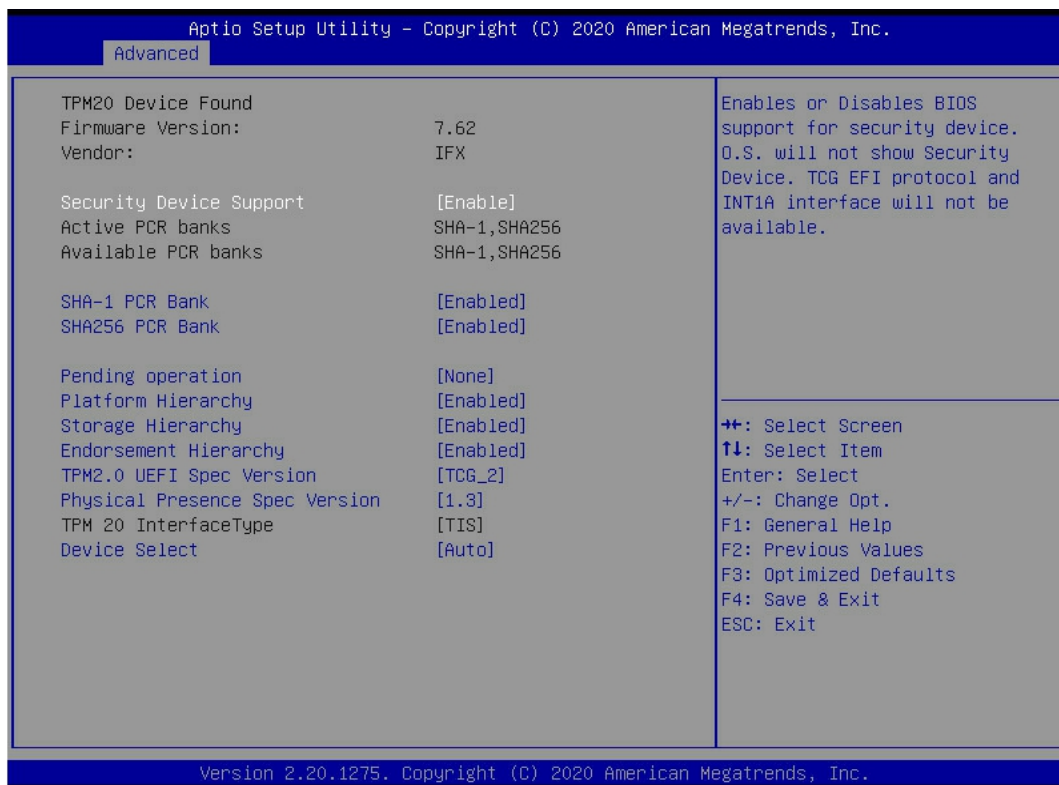


Figure 5- 3

Display and set TCM/TPM module information. Different module options are set differently. Users can set them according to the help instructions of Setup.

## 5.2.5 Serial Port Console Redirection



Figure 5- 4

### Console Redirection

The console redirection function switch redirects the information output from the console (such as video card) to the display to the serial port.

- Disabled: turn off the redirection function.
- Enabled: turn on the redirection function.

Default value: Disabled

## 5.2.6 Console Redirection Settings

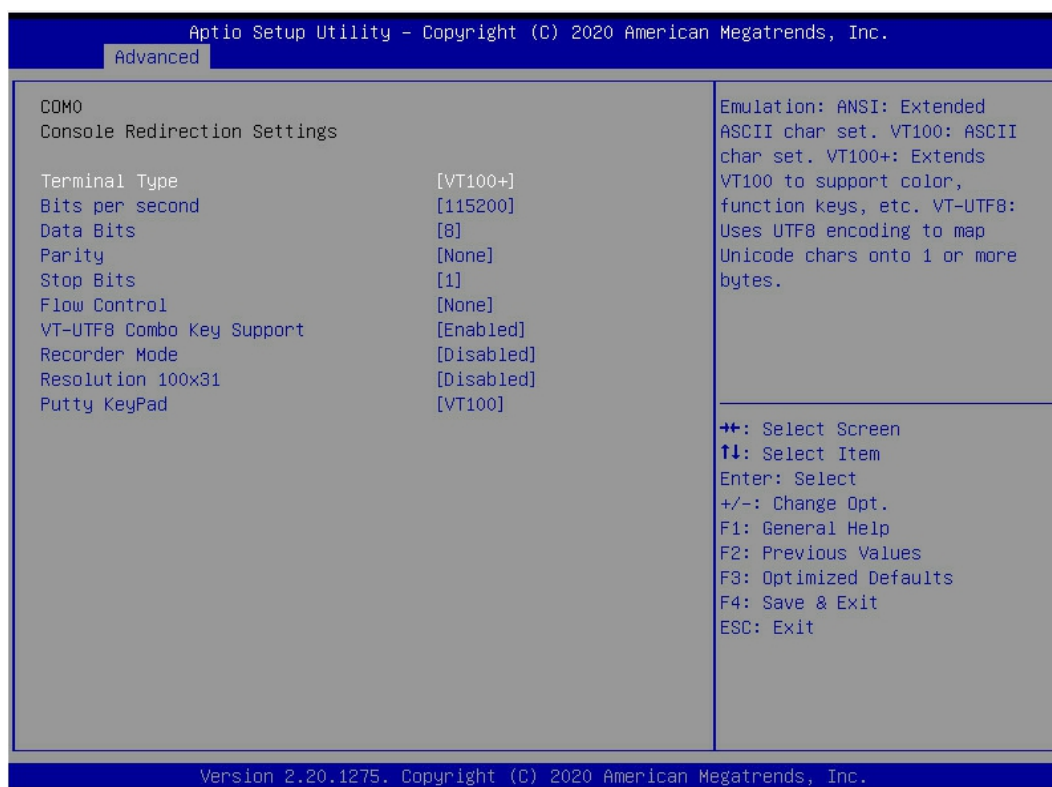


Figure 5- 5

### Terminal Type

With this option, you can select the simulation type, which must match the mode selected in the terminal program. Menu options are:

- VT100
- VT100+
- VT-UTF8
- ANSI

Default value: VT100+

### Bits per second

Serial port redirection rate, ranging from 9600 to 115200

Default value: 115200

### Data Bits

Serial port redirection data bit length, menu options are:

- 8
- 7

Default value: 8


### Parity

Serial port redirection check switch, menu options are:

- None: no verification
- Even: even check
- Odd: odd check

- Mark: the parity bit is always 1
- Space: The parity bit is always 0

Default value: None

 Mark and Space checks are not allowed to detect errors.

#### Stop Bits

Serial port data packet end flag bit, menu options are:

- 1
- 2

Default value: 1

#### Flow Control

Serial port redirection control flow selection switch, menu options are:

- None: Turn off the serial port redirection control flow
- Hardware RTS/CTS: request to send/clear to send

Default value: None

#### VT-UTF8 Combo key support

The ANSI/VT100 terminal VT-UTF8 key combination supports switches, and the menu options are:

- Disabled: turn off the support of VT-UTF8 key combination in ANSI/VT100 terminal
- Enabled: enable VT-UTF8 key combination support of ANSI/VT100 terminal

Default value: Enabled

#### Recorder Mode

Record mode switch, turn on this function, only text information will be sent, and the menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Disabled

## 5.2.7 SIO Configuration

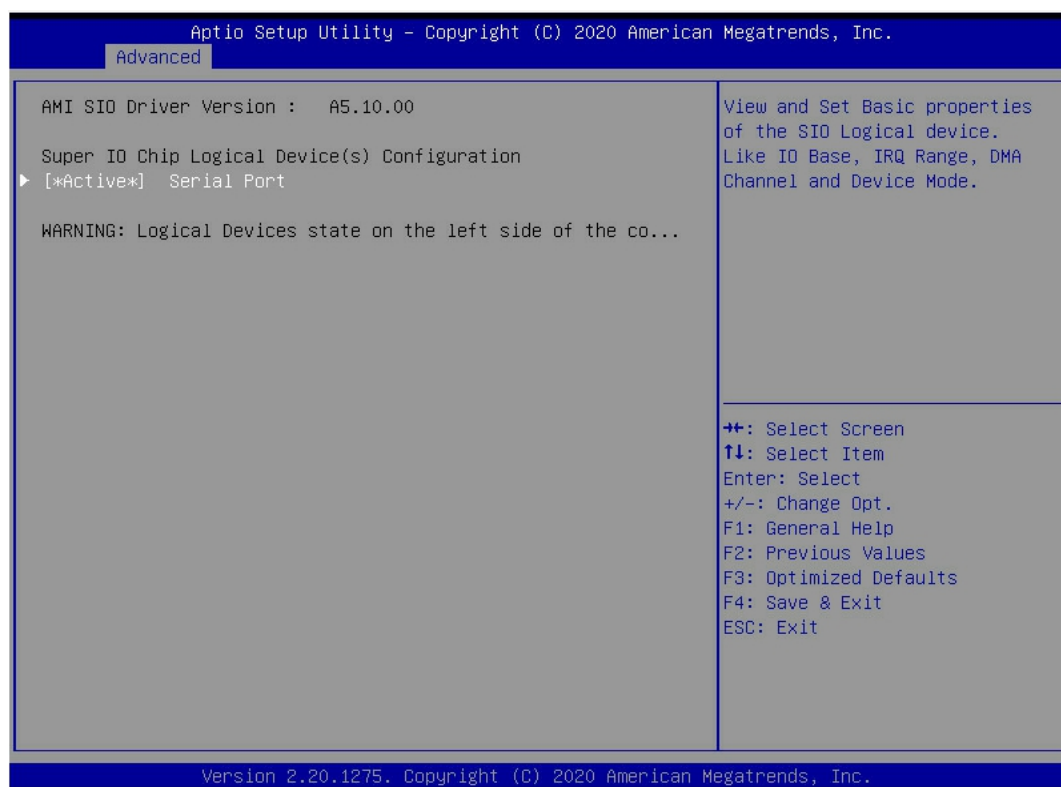


Figure 5- 6

## 5.2.8 [\*Active\*] Serial Port

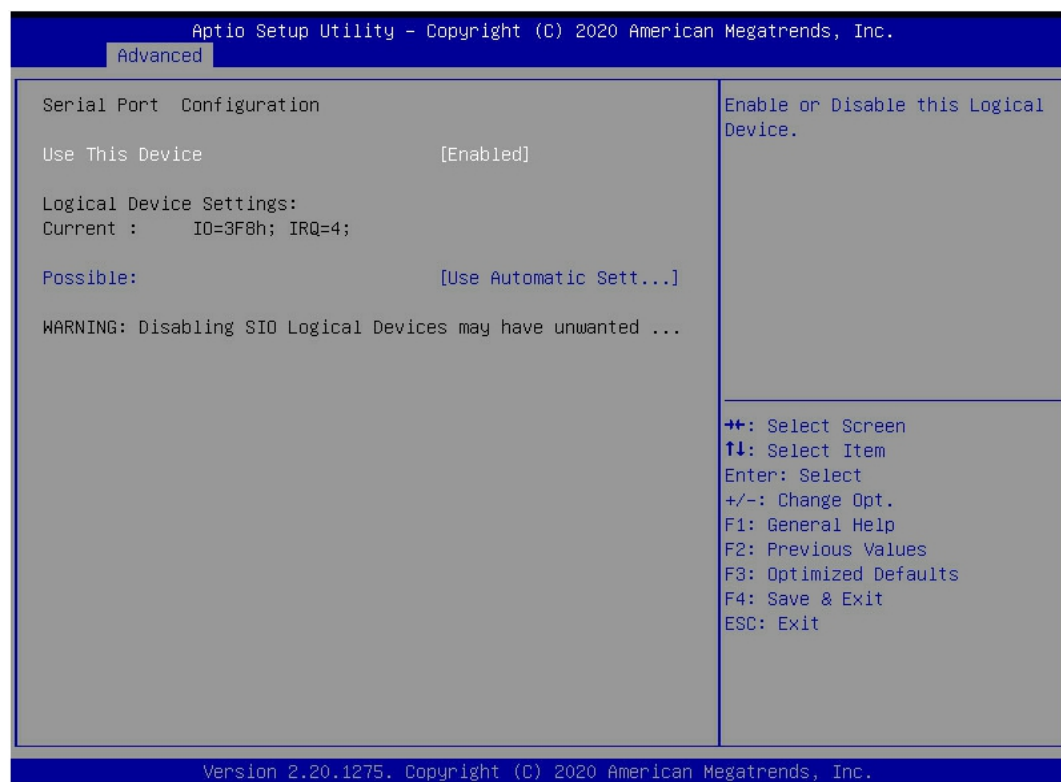


Figure 5- 7

### Use This Device

With this device, the menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

### Possible

Choose the optimal setting for serial port according to requirements, and the menu options are:

- Use Automatic Settings
- IO=3F8h; IRQ=4; DMA;
- IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;
- IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;

●IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;

●IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;

Default value: Use Automatic Settings

## 5.2.9 Option ROM Dispatch Policy

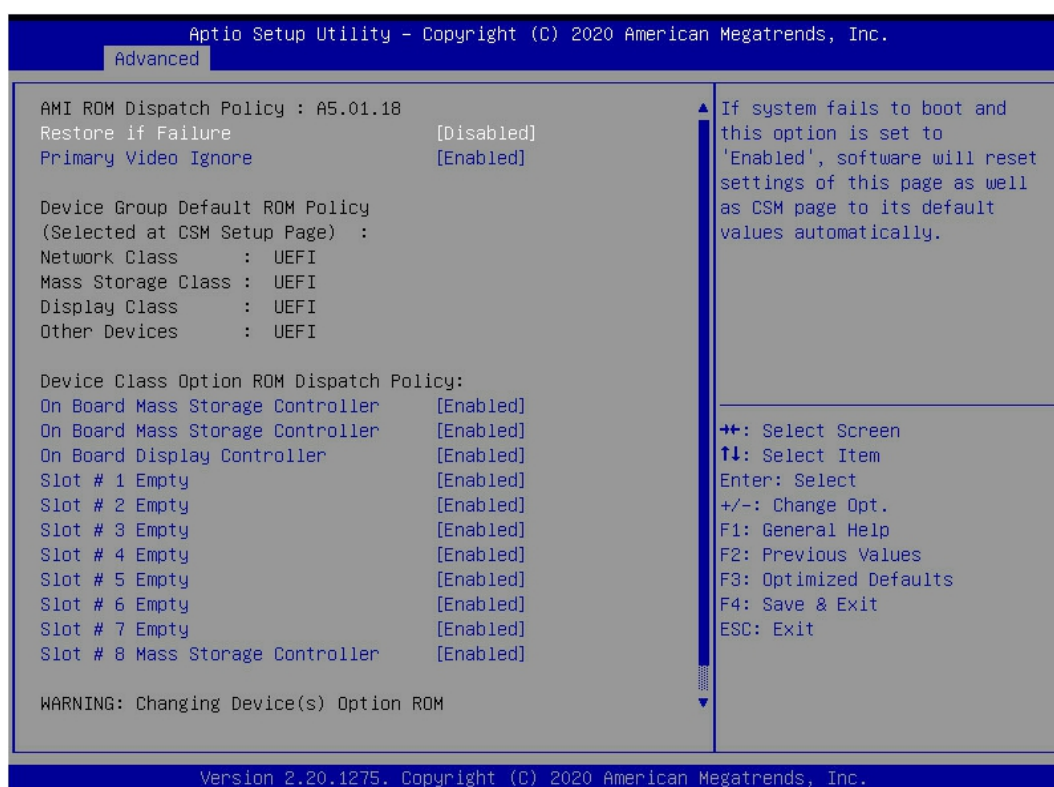


Figure 5- 8

### Managing Option ROM call policies

#### Restore if Failure

Recover in case of failure. The menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Disabled

#### Primary Video Ignore

Ignore the basic graphics card, and the menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

#### On Board Mass Storage Controller

On-board or external device controller, menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

#### On Board Mass Storage Controller

On-board or external device controller, menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

#### On Board Display Controller

On-board or external device controller, menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

#### Slot # 1 Empty

On-board or external device controller, menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

...

#### Slot # 8 Empty

On-board or external device controller, menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled



## 5.2.10 PCI Subsystem Settings

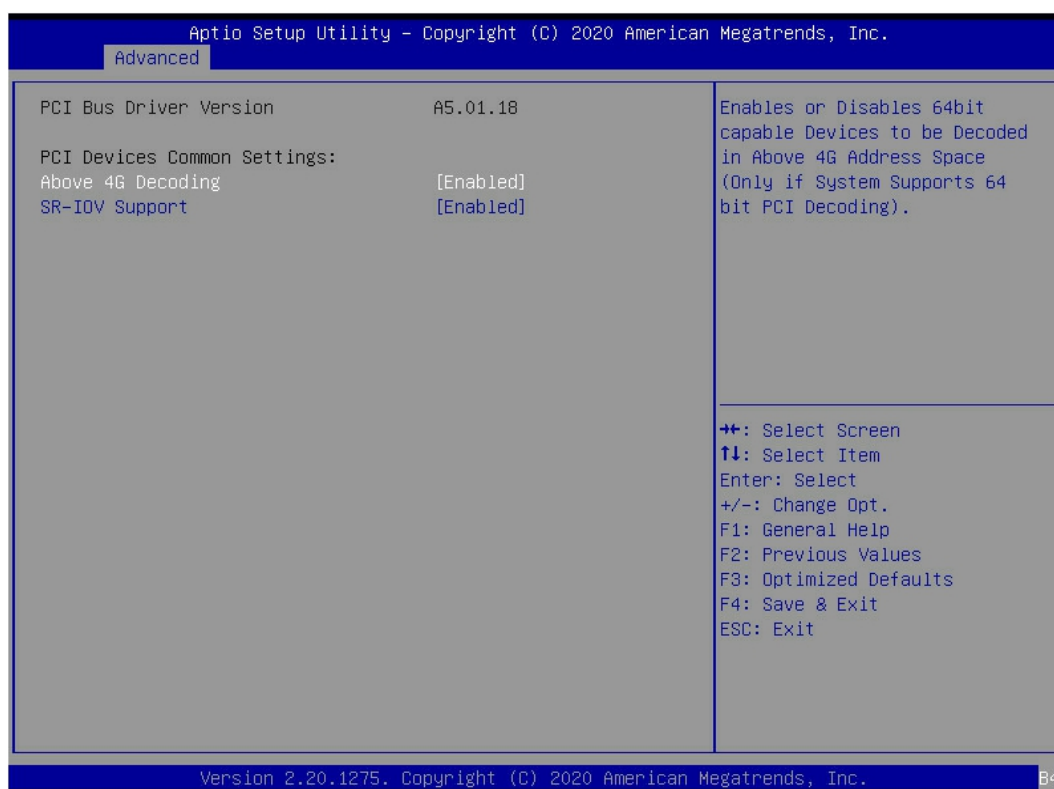


Figure 5- 9

### Above 4G Decoding

For the decoding control switch of memory space resources above 4G, the menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

### SR-IOV Support

SR-IOV supports switch setting, and the menu options are:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

## 5.2.11 CSM Configuration

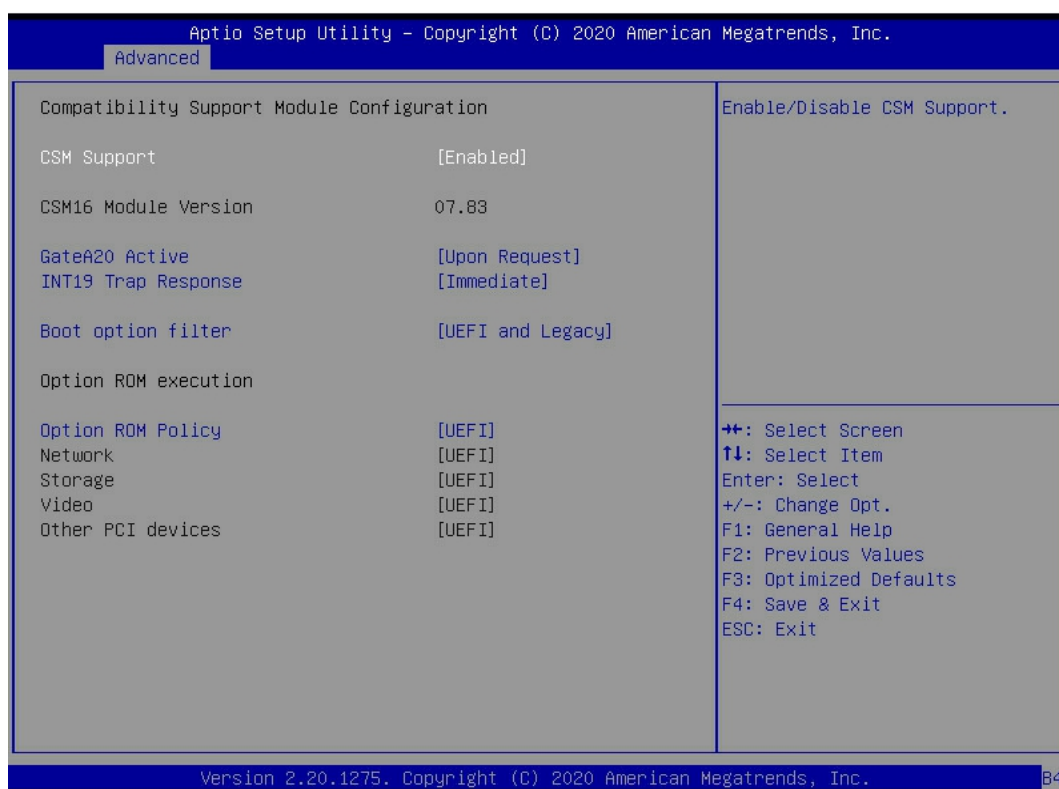


Figure 5- 10

### CSM Support

Turn on or off the compatible support module, and the menu options are:

- Disabled: closed
- Enabled: open

Default value: Enabled

### GateA20 Active

A20 address line control mode settings, menu options are:

- upon request: if necessary

Always: always

Default value: upon request

### INT19 Trap Response

Interrupt, capture signal response settings, menu options are:

Immediate: immediate response

Delayed response

Default value: immediate

### Boot option filter

Start the option control switch, and the menu options are as follows:

UEFI and legacy: UEFI and legacy startup items

UEFI only: UEFI start item

Legacy only: Legacy startup

Default: UEFI and legacy

### Option ROM Policy

Select the option ROM execution mode, and the menu options are:

UEFI: UEFI mode

Legacy: legacy mode

Default: UEFI

## 5.2.12 NVMe Configuration

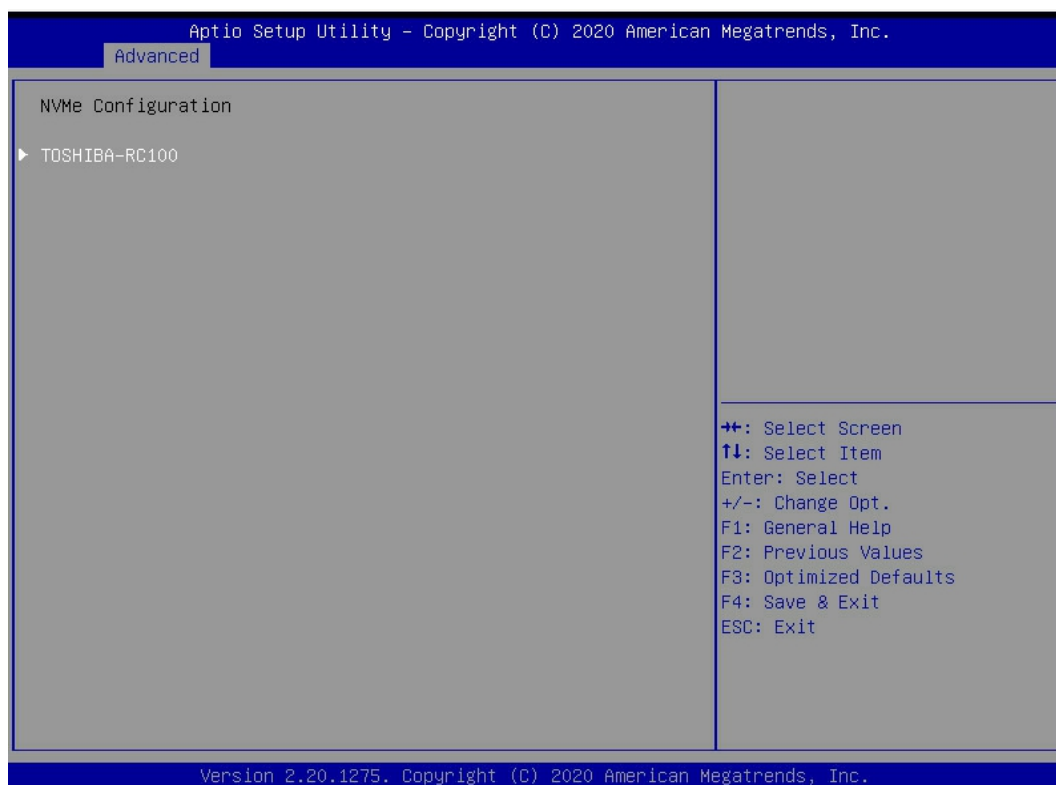


Figure 5- 11

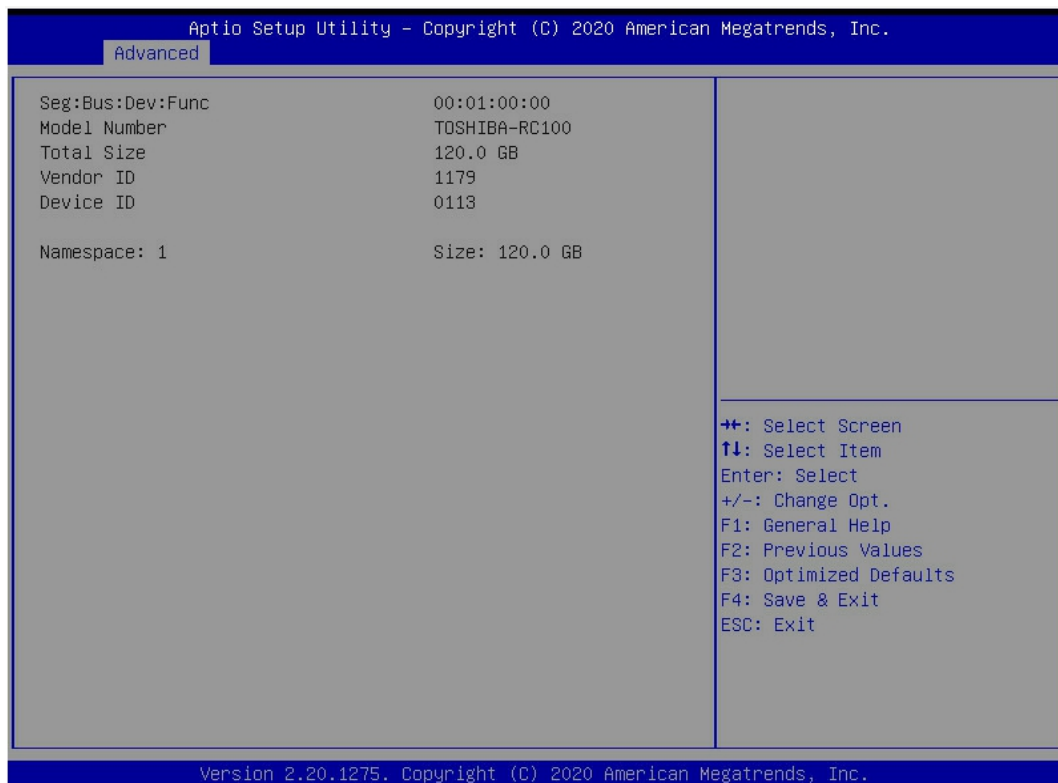


Figure 5- 12

Displays the details of the nvme hard disk.

## 5.2.13 Network Stack Configuration

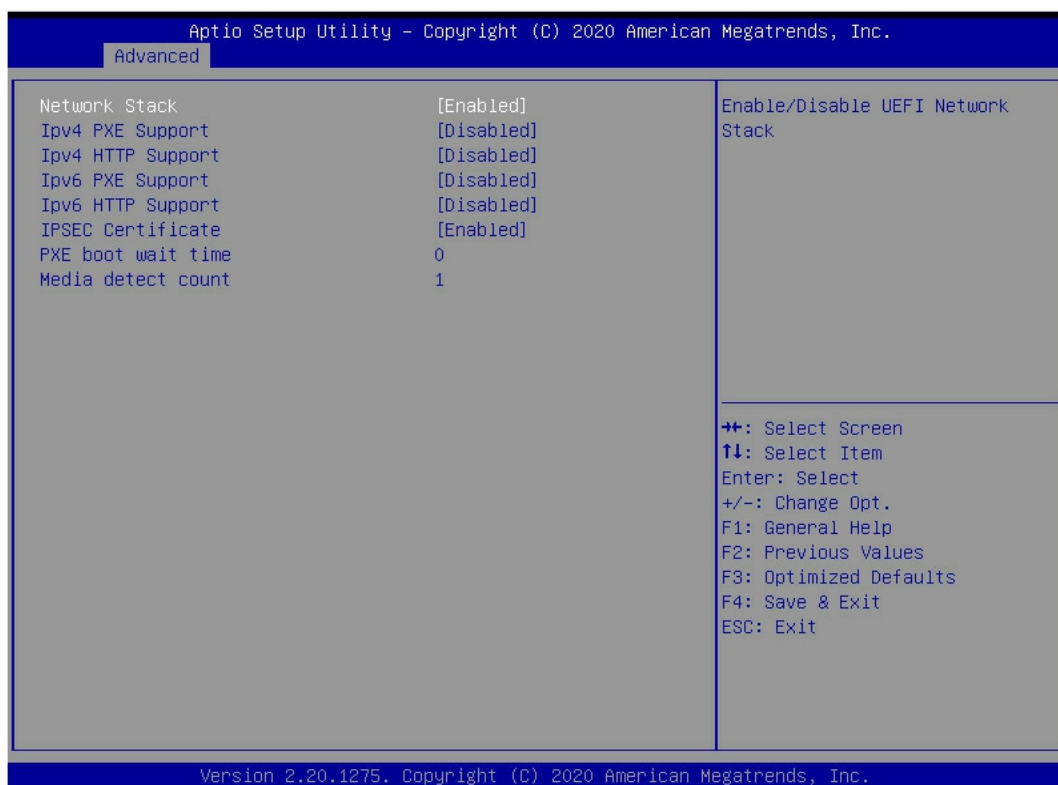


Figure 5- 13

Network Stack

Network stack control switch, menu options are:

- Enabled: enabled
  - Disabled: closed
- Default value: Disabled

#### Ipv4 PXE Support

IPv4 UEFI PXE function control switch, menu options are:

- Enabled: enabled
  - Disabled: closed
- Default value: Disabled

#### Ipv4 HTTP Support

IPv4 HTTP function control switch, menu options are:

- Enabled: enabled
  - Disabled: closed
- Default value: Disabled

#### Ipv6 PXE Support

IPv6 UEFI PXE function control switch, menu options are:

- Enabled: enabled
  - Disabled: closed
- Default value: Disabled

#### Ipv6 HTTP Support

IPv6 HTTP function control switch, menu options are:

- Enabled: enabled
  - Disabled: closed
- Default value: Disabled

#### PXE boot wait time

PXE boot waiting time: the user can input the PXE boot waiting time. The waiting process can press "ESC" to abort PXE boot. The default value is 0.

#### Media detect count

The number of device in place detection. The user can input the device detection times of the device network card. The default value is 1

## 5.2.14 iSCSI Configuration

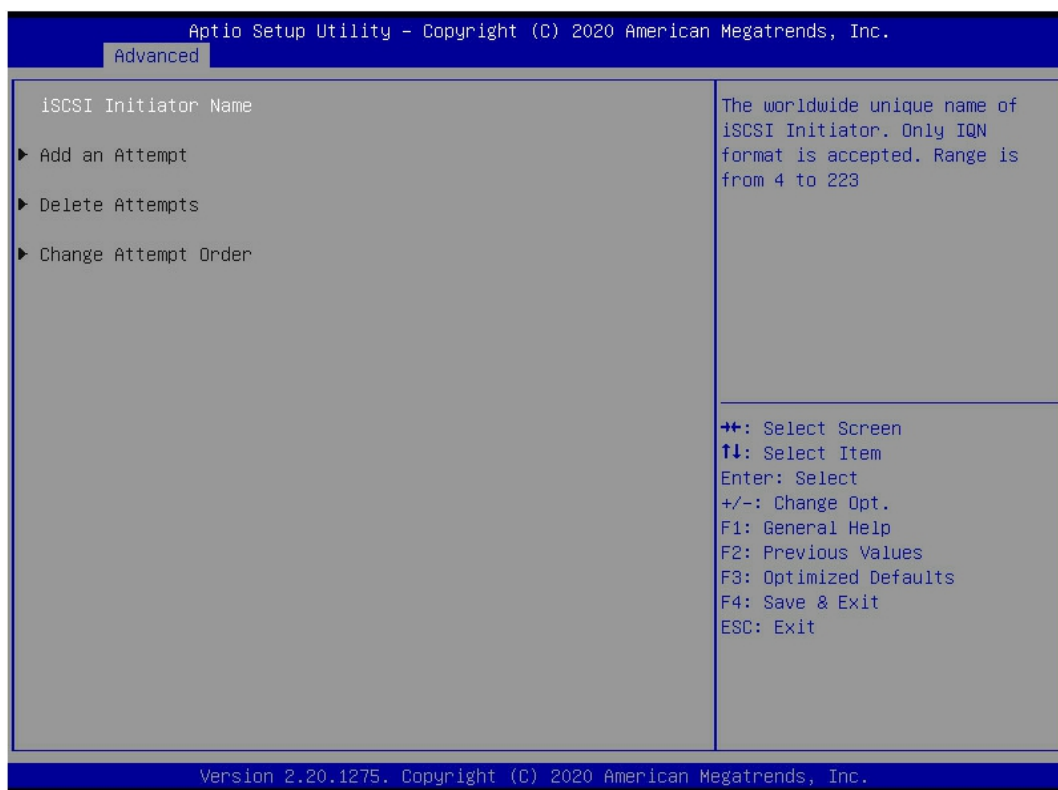


Figure 5- 14

iSCSI configuration

## 5.2.15 Platform Configuration menu

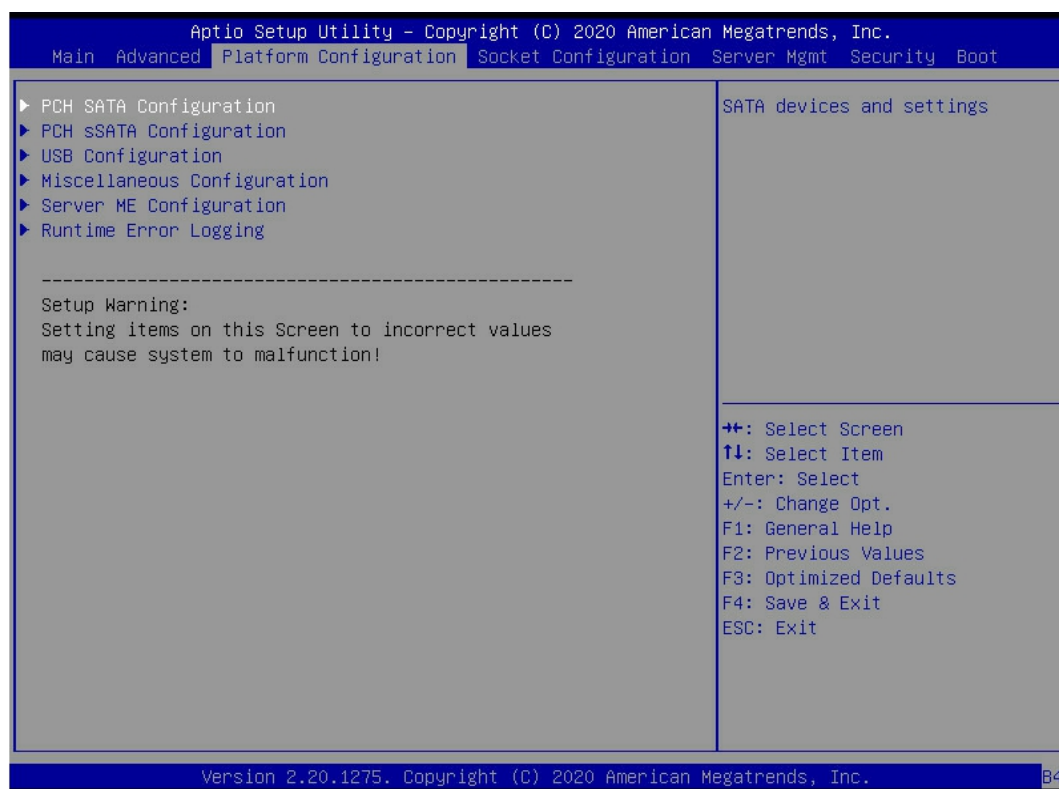


Figure 5- 15

- PCH SATA Configuration

PCH SATA related configuration;

- PCH sSATA Configuration

PCH ssata related configuration;

- USB Configuration

USB related configuration.

- Miscellaneous Configuration

Other relevant configurations;

- Server ME Configuration

Server me configuration;

- Runtime Error Logging

Runtime error log.

## 5.2.16 PCH SATA Configuration

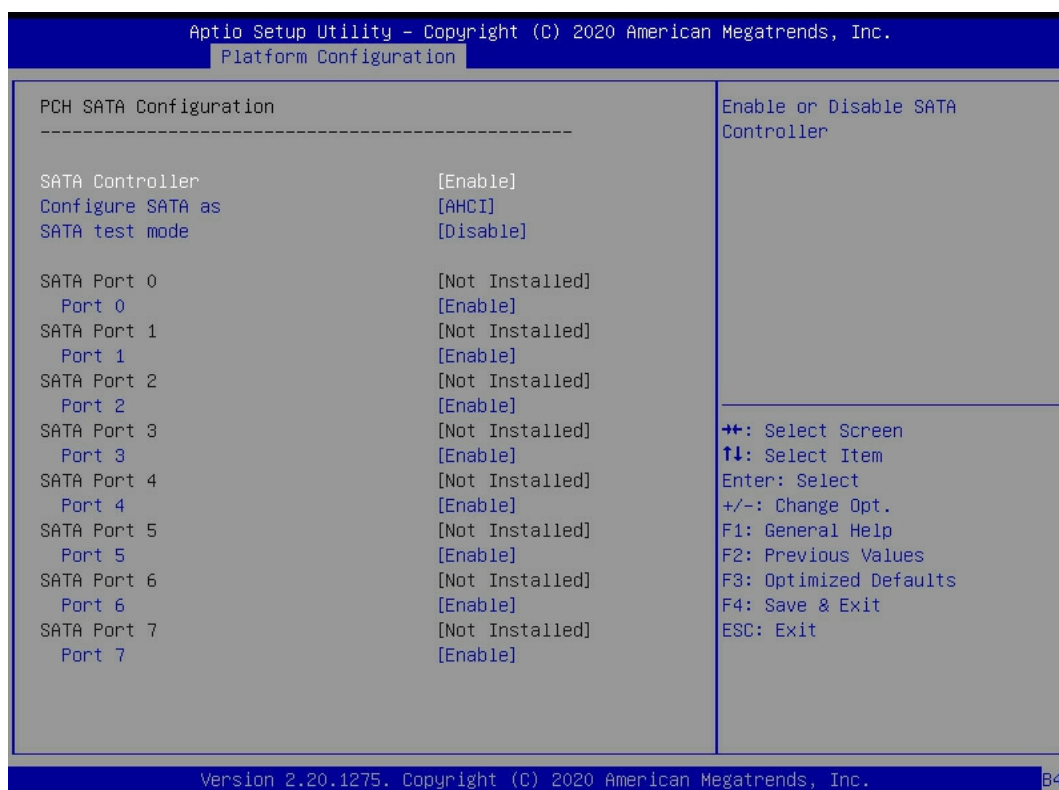


Figure 5- 16

### SATA Controller

Switch on and off the SATA controller. The menu options are as follows:

Disabled: turn off the SATA controller.

Enabled: turn on the SATA controller.

Default value: Enabled

### Configure SATA as

Select the SATA mode, and the menu options are:

AHCI: select the SATA mode as AHCI mode.

Raid: select the SATA mode as RAID mode.

Default value: AHCI

### SATA test mode

SATA test mode switch, menu options are:

Disable: off.

Enable: open.

Default value: disable

### SATA Port X

Displays the device information on the SATA port 0 ~ 7, and displays not installed when the device is not connected.



## Port X

To control the opening and closing of SATA port x, the menu options are as follows:

Disabled: close the SATA port X.

Enabled: enable the SATA port X.

Default value: Enabled

## Hot Plug

Control the startup and shutdown of the hot swap function of the SATA port x device. The menu options are as follows:

Disabled: turn off the hot swap function of SATA port X.

Enabled: enable the hot swap function of SATA port X.

Default value: Enabled

## 5.2.17 PCH sSATA Configuration

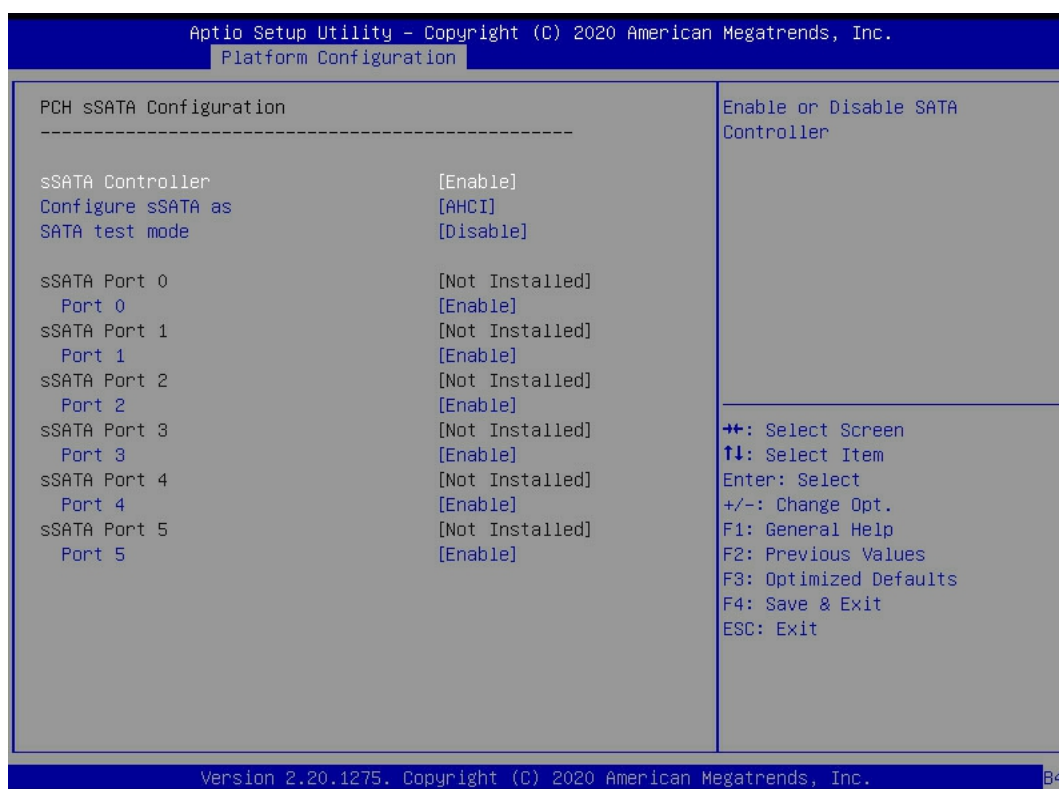


Figure 5- 17

### sSATA Controller

The ssata controller switch controls the opening and closing of the ssata controller. The menu options are as follows:

Disabled: turn off the ssata controller.

Enabled: turn on the ssata controller.

Default value: Enabled

### Configure sSATA as

Ssata mode selection, menu options are:

AHCI: select ssata mode as AHCI mode.

Raid: select ssata mode as RAID mode.

Default value: AHCI

### SATA test mode

SATA test mode switch, menu options are:

Disable: off.

Enable: open.

Default value: disable

### sSATA Port X

The device information on ssata port 0 ~ 7 is displayed. When the device is not connected, it is displayed as not installed.

### Port X

Control the opening and closing of ssata port X. the menu options are as follows:

- disabled: close ssata port X.

Enabled: enable ssata port X.

Default value: Enabled

## 5.2.18 USB Configuration

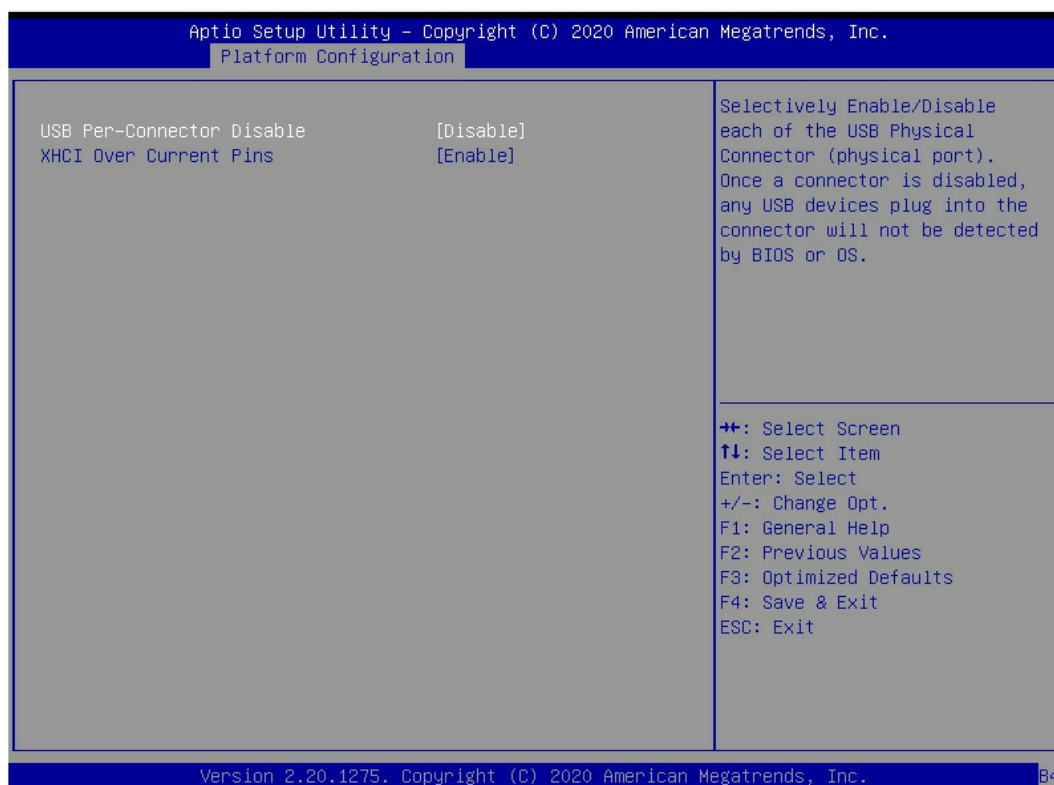


Figure 5- 18

For each USB connector switch, the menu options are:

Enable: on

Disable: off

Default value: disable

XHCI Over Current Pins

Xhci overcurrent pin switch, menu options are:

Enable: on

Disable: off

Default value: Enable

## 5.2.19 Miscellaneous Configuration



Figure 5- 19

PCH state after G3

After G3, PCH status is set, and the menu options are as follows:

S0: power on and start directly

S5: press the power button to power on

Leave power state unchanged

Default value: S0

Max Page Table Size Select

Select the maximum page table size setting. The menu options are:

- 2M

●1G

Default value: 1g

### Active Video

Select the active display device type, and the menu options are:

Auto: automatic

● onboard device

PCIe device

Default value: Auto

## 5.2.20 Server ME Configuration

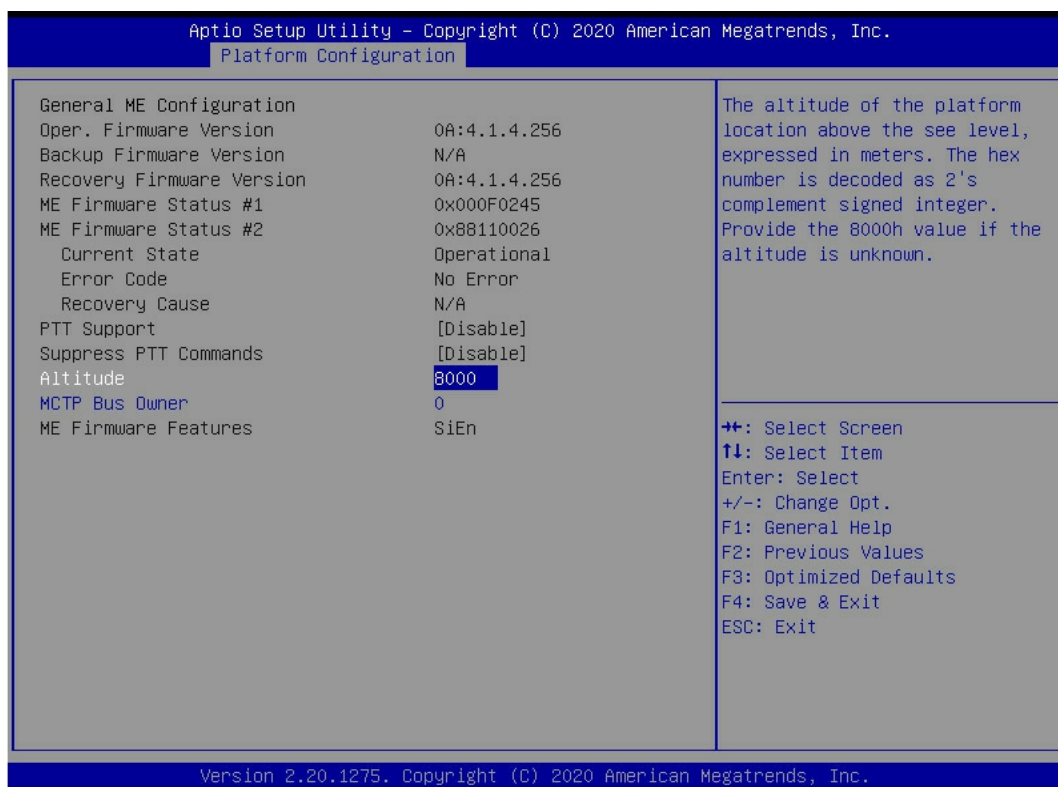


Figure 5- 20

Display server me version, features, status and other information;

## 5.2.21 Runtime Error Logging



Figure 5- 21

### System Errors

To turn on or off the system error function, the menu options are:

- Disabled: closed
- Enabled: open

Default value: Enabled

## 5.2.22 Socket Configuration menu

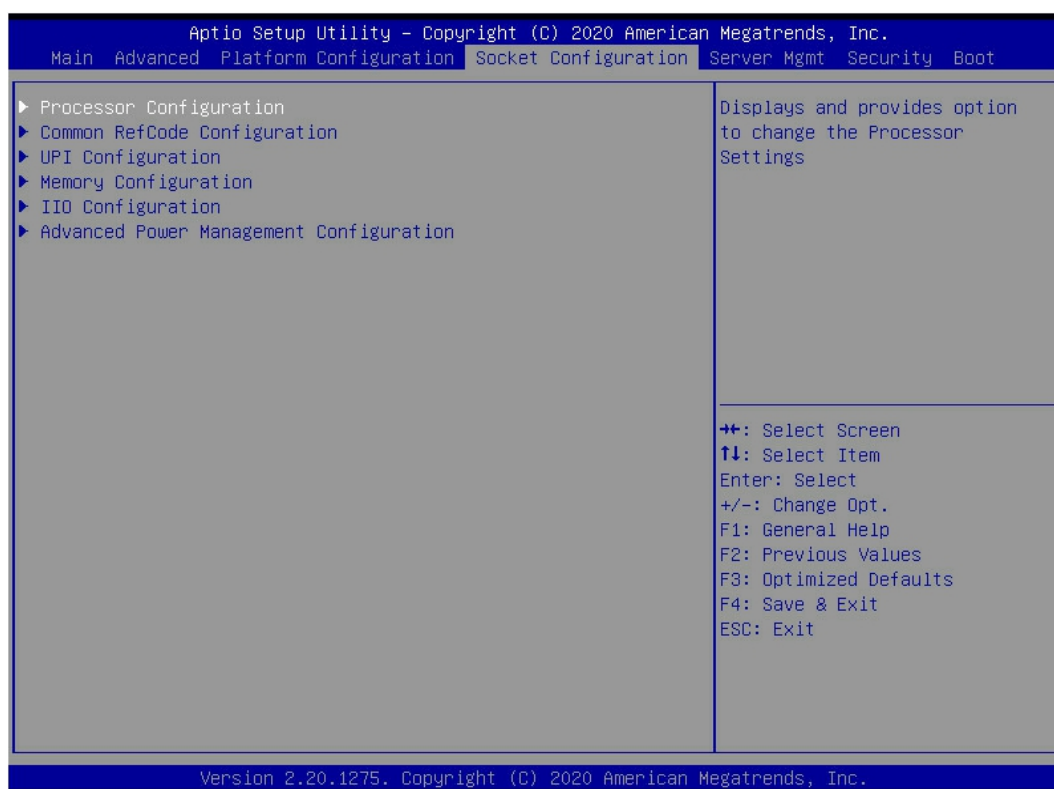


Figure 5- 22

- Processor Configuration

Processor related configuration;

- Common RefCode Configuration

General refcode configuration;

- UPI Configuration

UPI configuration;

- Memory Configuration

Memory configuration;

- IIO Configuration

IIO configuration;

- Advanced Power Management Configuration

Advanced power management configuration.

## 5.2.23 Processor Configuration

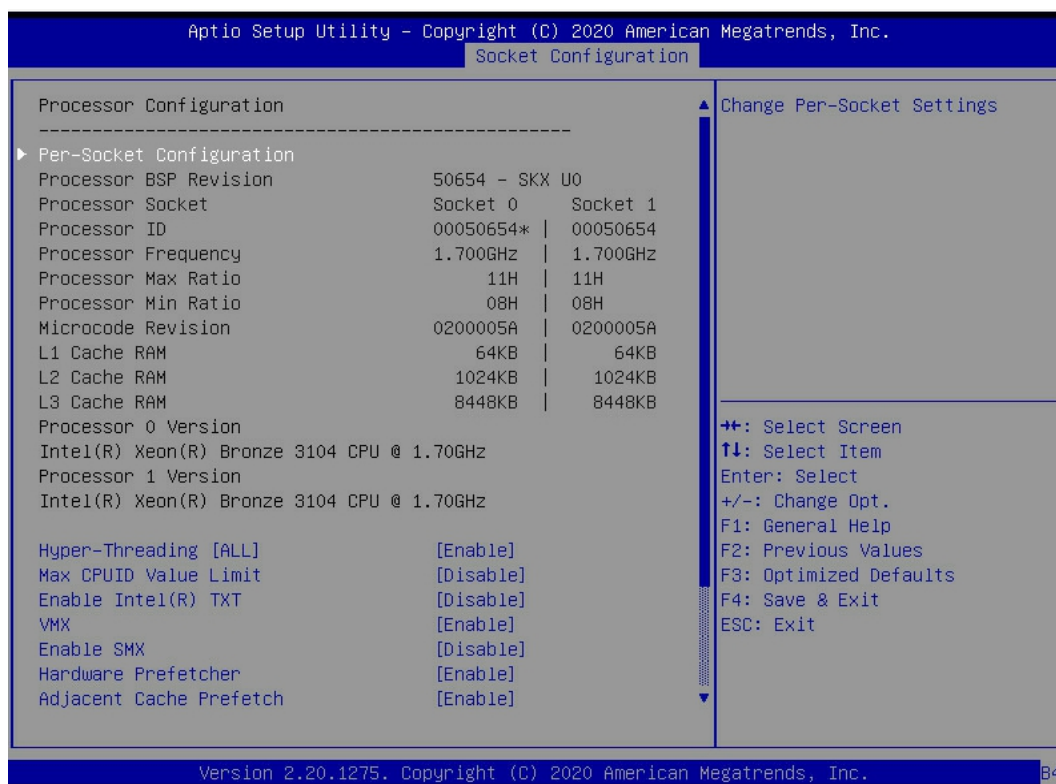


Figure 5- 23

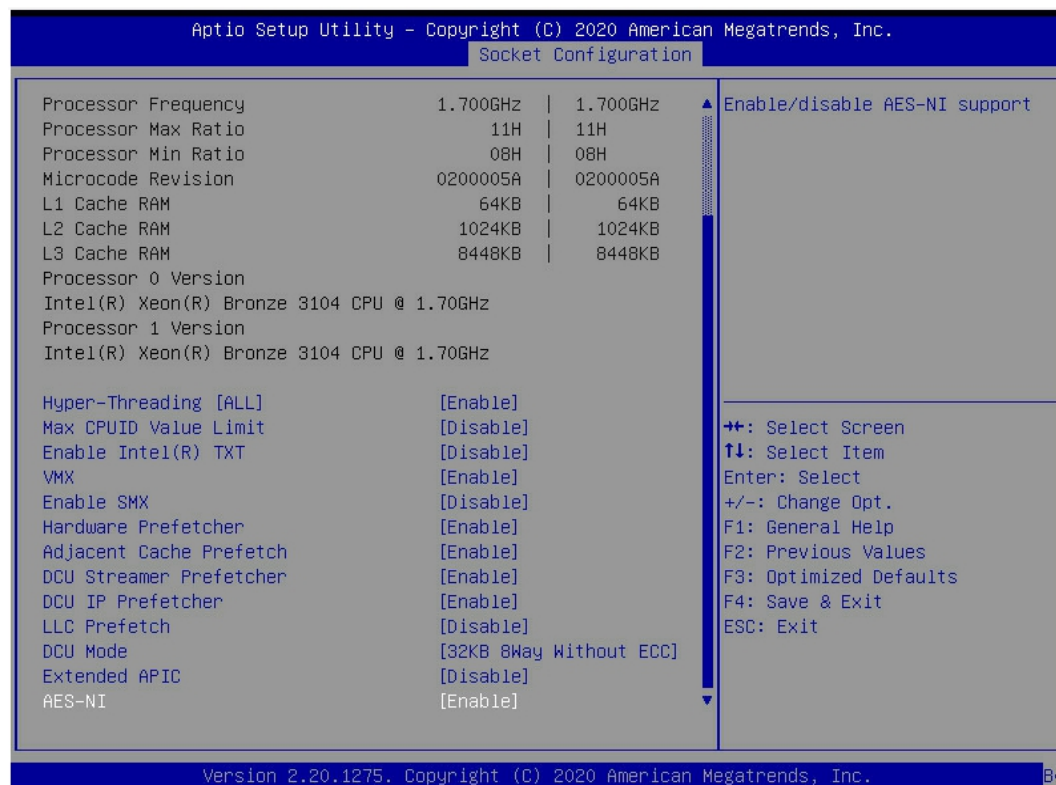


Figure 5- 24

Display CPU type, ID, speed, cache and other information, and configure CPU related functions;

- pre socket configuration: each slot configuration;

### Hyper-Threading

Hyper threading control switch, which enables or deactivates the hyper threading feature of Intel processors. When this feature is enabled, each physical processor core is equivalent to two logical processor cores; when disabled, each physical processor core is equivalent to only one logical processor core. Enabling this feature will lead to a higher processor core count and improve the overall performance of the application. The menu options are:

Enable: on

Disable: off

Default value: Enable

### Max CPUID Value Limit

When starting a traditional operating system that cannot support extended CPUID, the menu options are:

Enable: on

Disable: off

Default value: disable

### Enable Intel(R) TXT

Intel TXT function switch, menu options are:

Enable: on

Disable: off

Default value: disable

### VMX

CPU virtualization technology switch. If this option is enabled, the virtualization layer or operating system supporting this option can use the hardware capabilities of Intel virtualization technology. Some virtualization layers require Intel virtualization technology to be enabled. Do not use a virtualization layer or operating system that supports this option, or you can keep it enabled. The menu options are:

Enable: on

Disable: off

Default value: Enable

### Enable SMX

Expand safe mode function switch, menu options are:

Enable: on

Disable: off

Default value: disable

### Hardware Prefetcher

Hardware prefetching refers to that before CPU processes instructions or data, it prefetches these instructions or data from memory to L2 cache, so as to reduce memory read time, help eliminate potential bottlenecks, and improve system performance. The menu options are:

Enable: on

Disable: off

Default value: Enable



### Adjacent Cache Prefetch

After the function of adjacent cache prefetching is turned on, the computer will intelligently think that the data next to or adjacent to the data to be read is also needed, so the adjacent data will be read out in advance when processing, which can speed up the reading speed. When the application scenario is sequential memory access, enabling this feature improves performance. It is recommended to disable this option when the application scenario is random access to memory. The menu options are:

Enable: on

Disable: off

Default value: Enable

### DCU Streamer Prefetcher

DCU stream prefetch switch, menu options are:

Enable: on

Disable: off

Default value: Enable

### DCU IP Prefetcher

DCU IP prefetch switch, menu options are:

Enable: on

Disable: off

Default value: Enable

### LLC Prefetcher

LLC prefetch switch, menu options are:

Enable: on

Disable: off

Default value: disable

### DCU Mode

DCU mode settings, menu options are:

- 32KB 8way without ECC: 32KB 8-way without ECC
- 16kb 4way with ECC: 16kb 4-way with ECC

Default value: 32KB 8way without ECC

### Extended APIC

To turn on / off the extended APIC support, the menu options are:

Enable: on

Disable: off

Default value: disable

### AES-NI

Open and close AES (Advanced Encryption Standard), menu options are:

Enable: on

Disable: off

Default value: Enable

## 5.2.24 Common RefCode Configuration

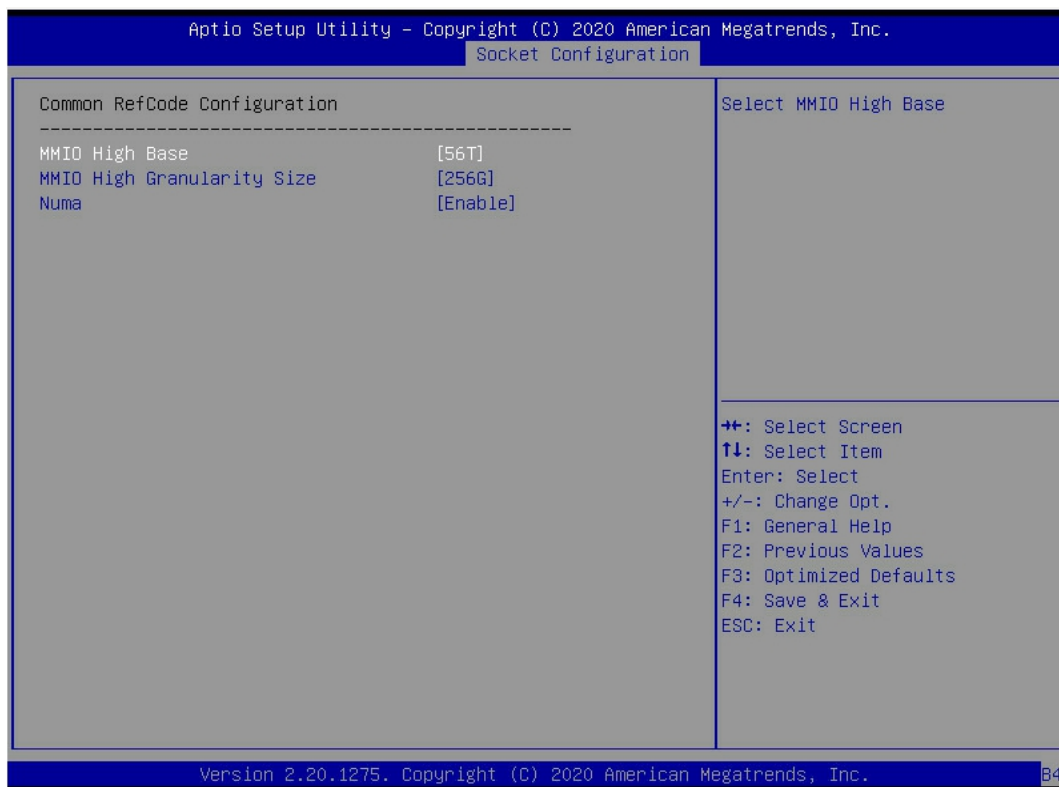


Figure 5- 25

### MMIO High Base

Select mmio high base address, and the menu options are:

- 56T
- 40T
- 24T
- 16T
- 4T
- 1T

Default value: 56t

### MMIO High Granularity Size

Select the mmio high interval size, and the menu options are:

- 1G
- 4G
- 16G
- 64G
- 256G
- 1024G

Default value: 256g

Numa

To turn on or off inconsistent memory access, the menu options are:

Enable: on

Disable: off

Default value: Enable

## 5.2.25 UPI Configuration

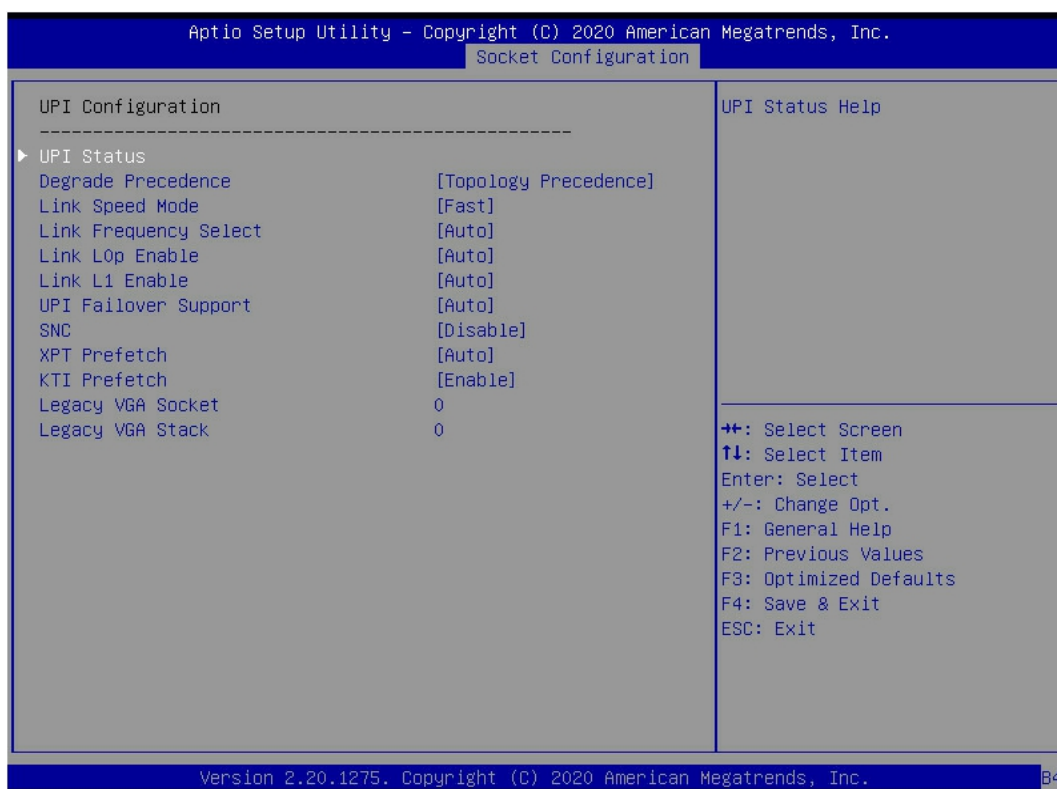


Figure 5- 26

- UPI status: the sub menu of UPI link status, which displays the current UPI link status

Degrade Precedence

When the system settings conflict, the feature can be lowered by setting topology precedence or by setting feature precedence. The menu options are as follows:

Topology priority: topology priority

Feature precedence: feature priority

Default value: topology precedence

Link Speed Mode

Link speed mode settings, menu options are:

Slow: slow

Fast: fast

Default value: fast

#### Link L0p Enable

Link l0p switch, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Auto

#### Link L1 Enable

Link l1 switch, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Auto

#### UPI Failover Support

UPI failure transfer support switch settings, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Auto

#### SNC

Sub NUMA cluster settings, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: disable

#### XPT Prefetch

XPT prefetch settings, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Auto

#### KTI Prefetch

KTI prefetch settings, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Enable

Legacy VGA socket: the number of traditional VGA is set, and the effective value range is 0 ~ 1.

Legacy VGA stack: the number of traditional VGA stacks is set, and the effective value range is 0 ~ 6.

## 5.2.26 Memory Configuration

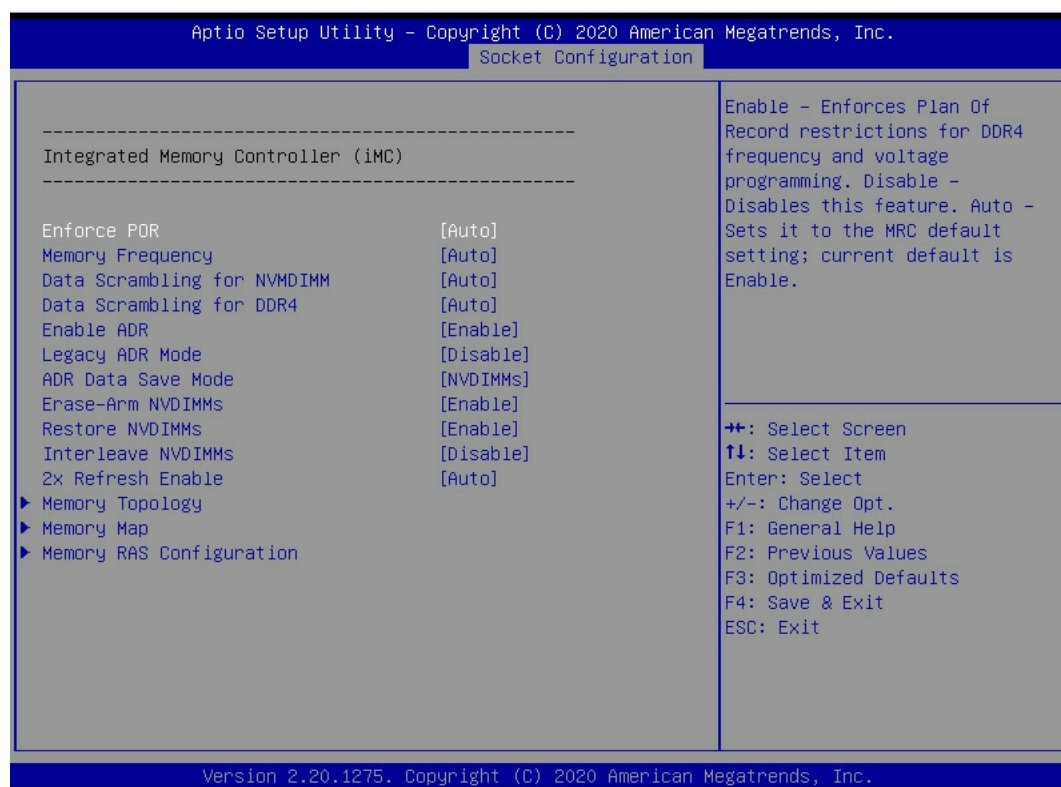


Figure 5- 27

### Enforce POR

To enforce por settings, the menu options are:

Auto: automatic

- por: execute POR

Disable: close

Default value: Auto

### Memory Frequency

Memory frequency setting, menu options are:

Auto: automatic

- 800
- 1000
- 1066
- 1200
- 1333
- 1400
- 1600

.....

Default value: Auto

### Data Scrambling for NVDIMM

Nvdimm data scrambling switch settings, menu options are:

Auto: automatic

Disable: close  
Enable: open  
Default value: Auto

#### Data Scrambling for DDR4

DDR4 data scrambling switch settings, menu options are:

Auto: automatic  
Disable: close  
Enable: open  
Default value: Auto

#### Enable ADR

ADR enable switch settings, menu options are:

Disable: close  
Enable: open  
Default value: Enable

#### Legacy ADR Mode

Traditional ADR mode switch settings, menu options are:

Disable: close  
Enable: open  
Default value: Enable

#### ADR Data Save Mode

ADR data saving mode settings, menu options are:

Disable: close  
●Batterybacked DIMMs  
●NVDIMMs  
Default value: nvdimm

#### Erase-ARM NVDIMMs

Set the erase arm nvdimm switch, and the menu options are as follows:

Disable: close  
Enable: open  
Default value: Enable

#### Restore NVDIMMs

Repair the nvdimm switch settings, and the menu options are:

Disable: close  
Enable: open  
Auto: automatic  
Default value: Auto

#### Interleave NVDIMMs

The settings of nvdimm switch are interleaved, and the menu options are as follows:

Disable: close

Enable: open

Default value: disable

### 2x Refresh Enable

2X refresh switch settings, menu options are:

Disable: close

Enable: open

Default value: disable

### Memory Topology

Memory topology submenu, display in place memory details;

### Memory Map

Memory map submenu;

### Memory RAS Configuration

Memory Ras configuration submenu;

## 5.2.27 Memory Topology

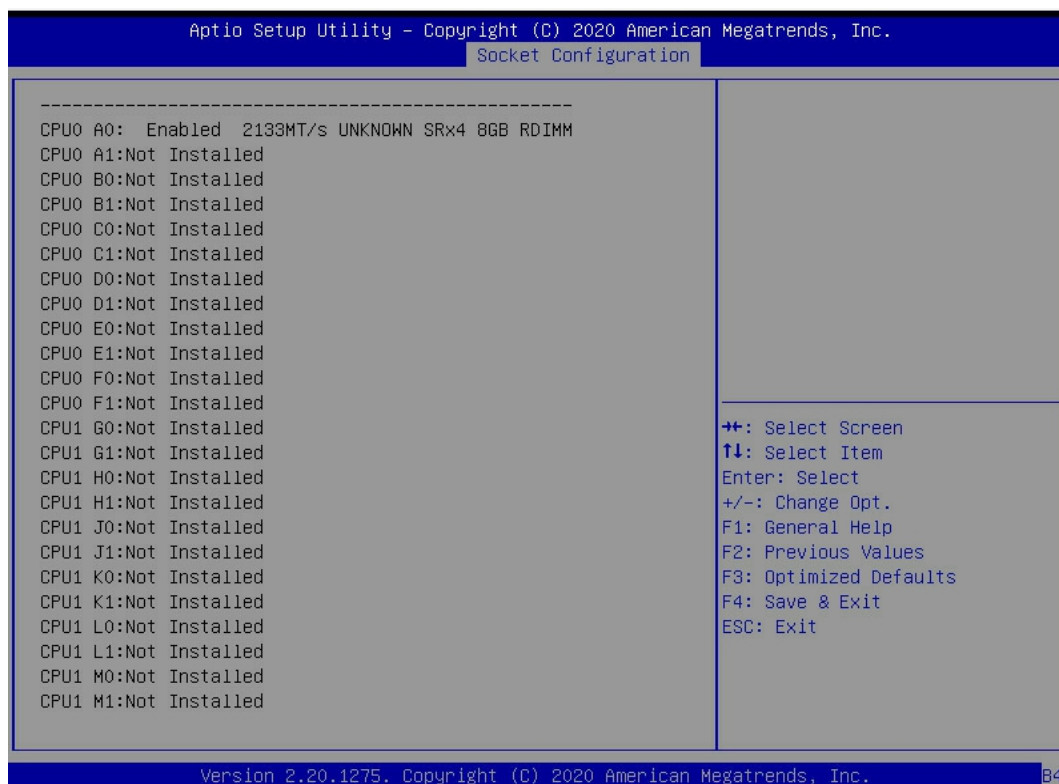


Figure 5- 28

Displays the current in place memory details

## 5.2.28 Memory Map

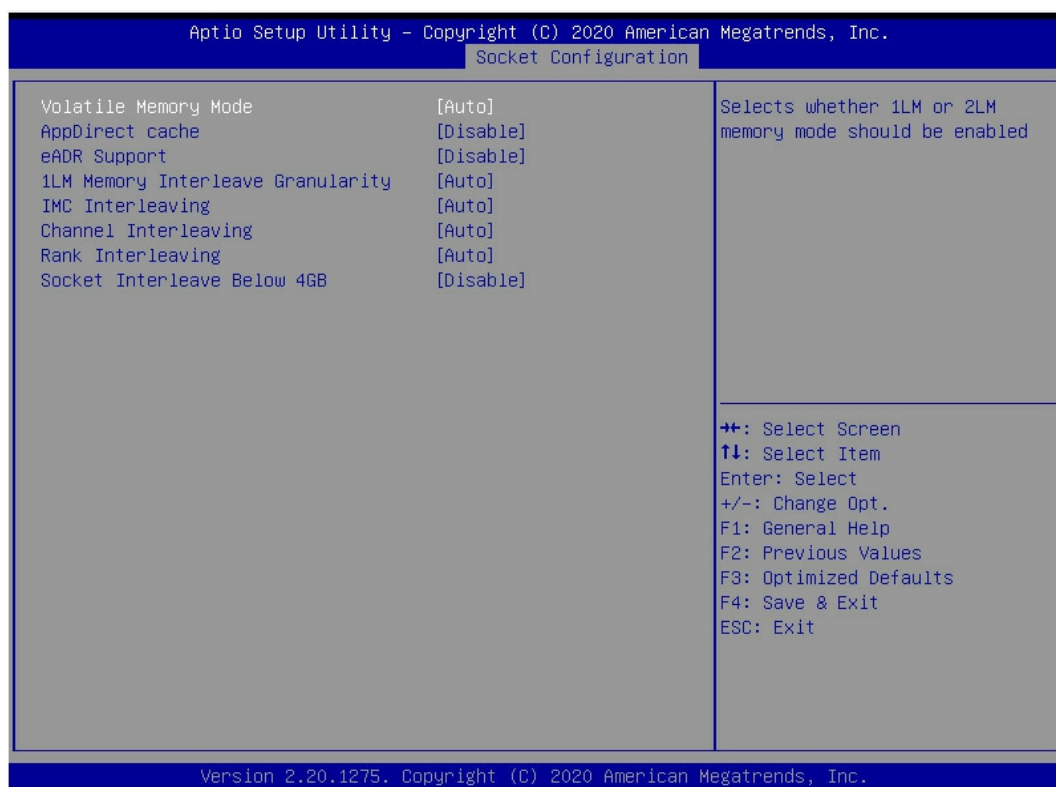


Figure 5- 29

### Volatile Memory Mode

The menu options are as follows:

- 1LM
- 2LM
- Auto

Default value: Auto

### 1LM Memory Interleave Granularity

1lm memory cross interval setting, menu options are:

- Auto
- 256B Target, 256B Channel
- 64B Target, 64B Channel

Default value: Auto

### IMC Interleaving

IMC cross setting, menu options are:

- Auto
- 1-way Interleavel
- 2-way Interleavel

Default value: Auto

### Channel Interleaving

Channel cross setting, menu options are as follows:



- Auto
  - 1-way Interleavel
  - 2-way Interleavel
  - 3-way Interleavel
- Default value: Auto

### Rank Interleaving

The menu options are as follows:

- Auto
  - 1-way Interleavel
  - 2-way Interleavel
  - 4-way Interleavel
  - 8-way Interleavel
- Default value: Auto

### Socket Interleave Below 4GB

Set the interleaving switch of the processor in the address space below 4GB, and the menu options are as follows:

- Enable: open
  - Disable: close
- Default value: disable

## 5.2.29 Memory RAS Configuration

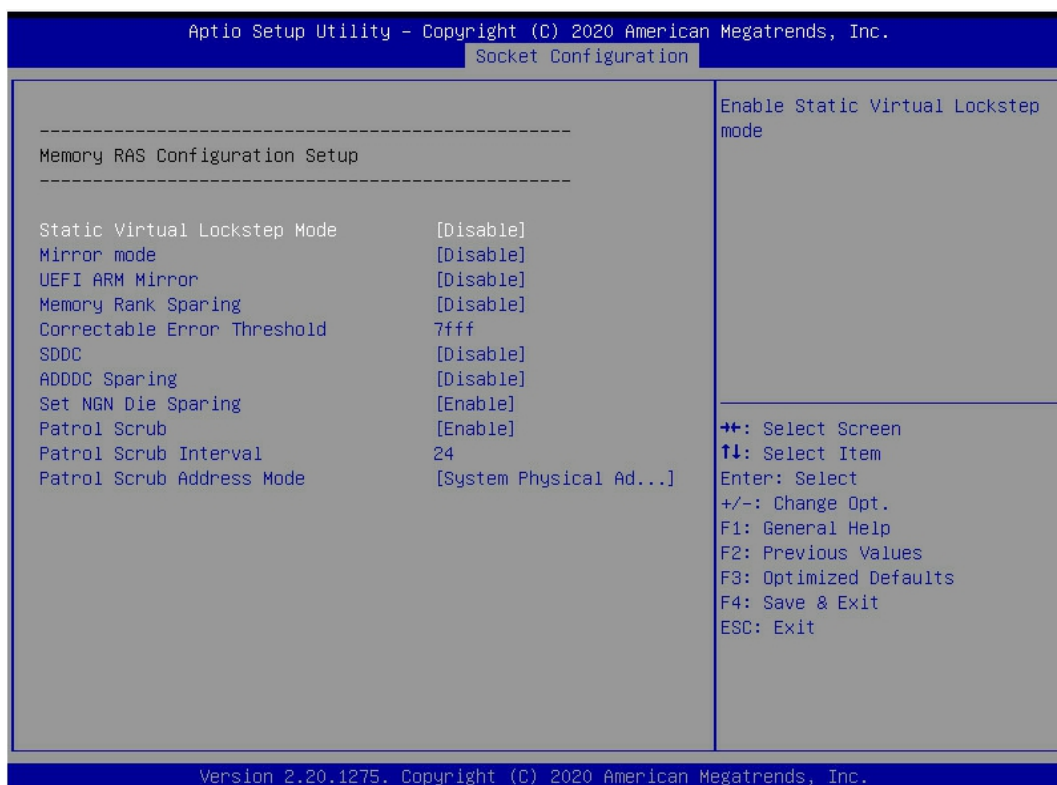


Figure 5- 30

### Static Virtual Lockstep Mode

Static virtual lockstep mode switch settings, menu options are:

Enable: open

Disable: close

Default value: disable

### Mirror Mode

Mirror mode settings, menu options are:

Disable: close

●Enable Mirror Mode (1LM)

Default value: disable

### UEFI ARM Mirror

UEFI arm mirror mode switch settings, menu options are:

Enable: open

Disable: close

Default value: disable

### Memory Rank Sparing

Memory rank hot standby switch settings, menu options are:

Enable: open

Disable: close

Default value: disable

Correctable Error Threshold: The error threshold can be corrected. The valid value is 0x01-0x7fff, and the default value is 0x7FFF.

### SDDC

SDDC switch setting. Note: AEP DIMM is not supported when it exists. The menu options are:

Enable: open

Disable: close

Default value: disable

### ADDDC Sparing

Adddc hot standby switch settings, menu options are:

Enable: open

Disable: close

Default value: disable

### Set NGN Die Sparing

Set the NGN die hot standby switch settings. The menu options are as follows:

Enable: open

Disable: close

Default value: Enable

### Patrol Scrub

Patrol scrub switch settings, menu options are:

Enable: open

Disable: close

Default value: Enable

Patrol Scrub Interval: Patrol scrub interval time setting, unit hours, the range is 1-24, the default value is 24.

Patrol Scrub Address Mode

Patrol scrub address mode settings, menu options are:

- Reverse address

- System Physical Address

Default value: system physical address

## 5.2.30 IIO Configuration



Figure 5- 31

### SocketN Configuration

The socketn configuration submenu is used to set the link speed, Max payload size, ASPM and other settings of the device on the PCIe of cpu0, and display the link status, maximum link and current link rate of the current PCIe port;

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

Intel vt-d technology related settings submenu, Intel vt-d technology on Off setting;

### Intel(R) VMD Technology

Intel VMD technology related settings submenu, each CPU

Switch settings of VMD on pstack;

### Intel(R) AIC Retimer/AIC SSD Technology(non-VMD)

Intel AIC retimer / AIC SSD technology related settings submenu, each

AIC retimer / AIC SSD technology on each pstack with CPUs

Switch settings.

### PCIe Hot Plug

The menu options are as follows:

Enable: open

Disable: close

Default value: disable

### PCI-E ASPM Support(Global)

The main switch settings of PCIe ASPM are as follows:

Disable: close

- per port: each port

- L1 only: L1 only

Default value: per port

### PCI-E Max Read Request Size

Set the maximum read request size of the PCIe. The menu options are:

- Auto

- 128B

- 256B

- 512B

- 1024B

- 2048B

- 4096B

Default value: Auto

## 5.2.31 Advanced Power Management Configuration

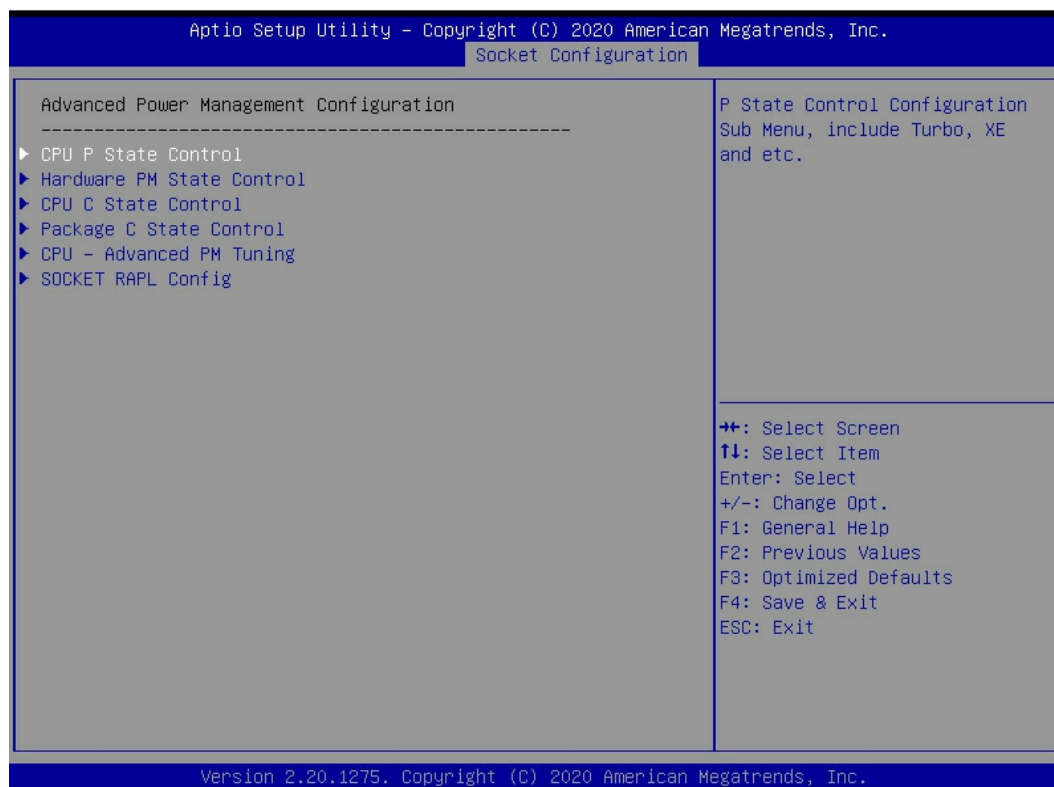


Figure 5- 32

CPU P State Control

CPU P state control setting submenu;

Hardware PM State Control

Hardware power management status control submenu;

CPU C State Control

CPU C state control setting submenu;

Package C State Control

Package C status control submenu;

CPU-Advanced PM Tuning

CPU performance and energy saving adjustment submenu;

Socket RAPL Configuration

Socket rapl configuration submenu;

## 5.2.32 CPU P State Control

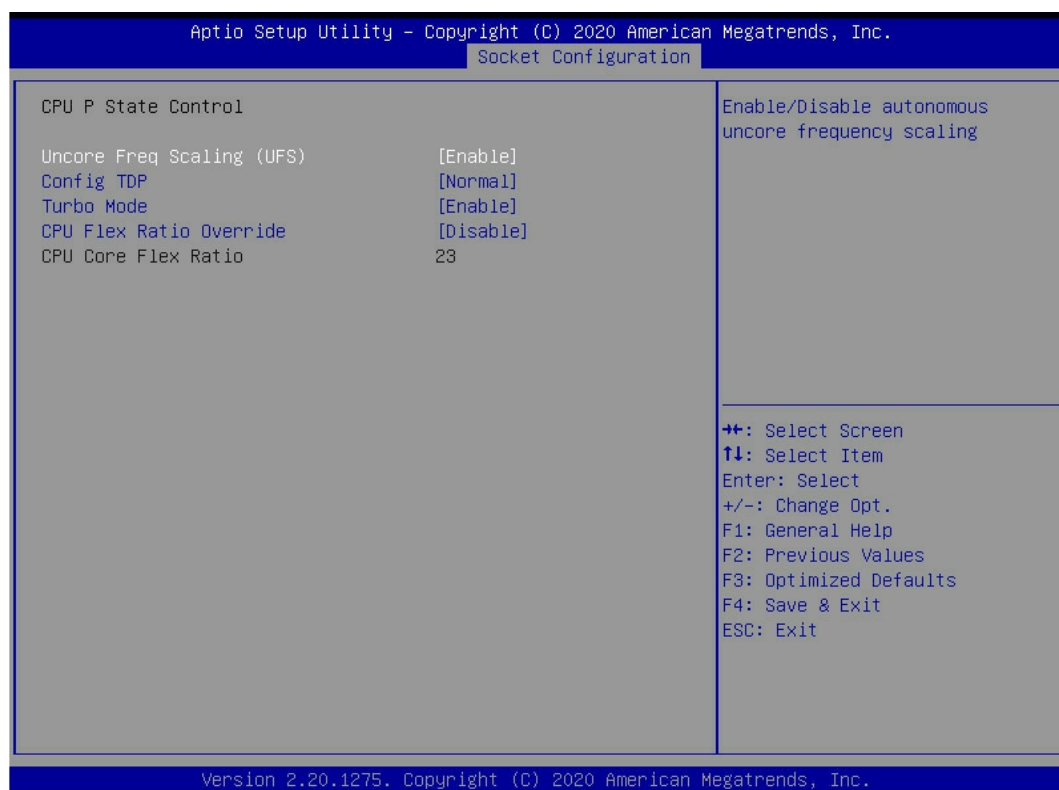


Figure 5- 33

### Uncore Freq Scaling (UFS)

Uncore frequency extension settings, menu options are:

Enable: open

Disable: close

Default value: Enable

### Config TDP

TDP level settings, menu options are:

Normal: normal

Level 1: Level 1

Level 2: Level 2

Default value: normal

### Turbo Mode

Dynamic acceleration switch settings, menu options are:

Enable: open

Disable: close

Default value: Enable

## 5.2.33 Hardware PM State Control

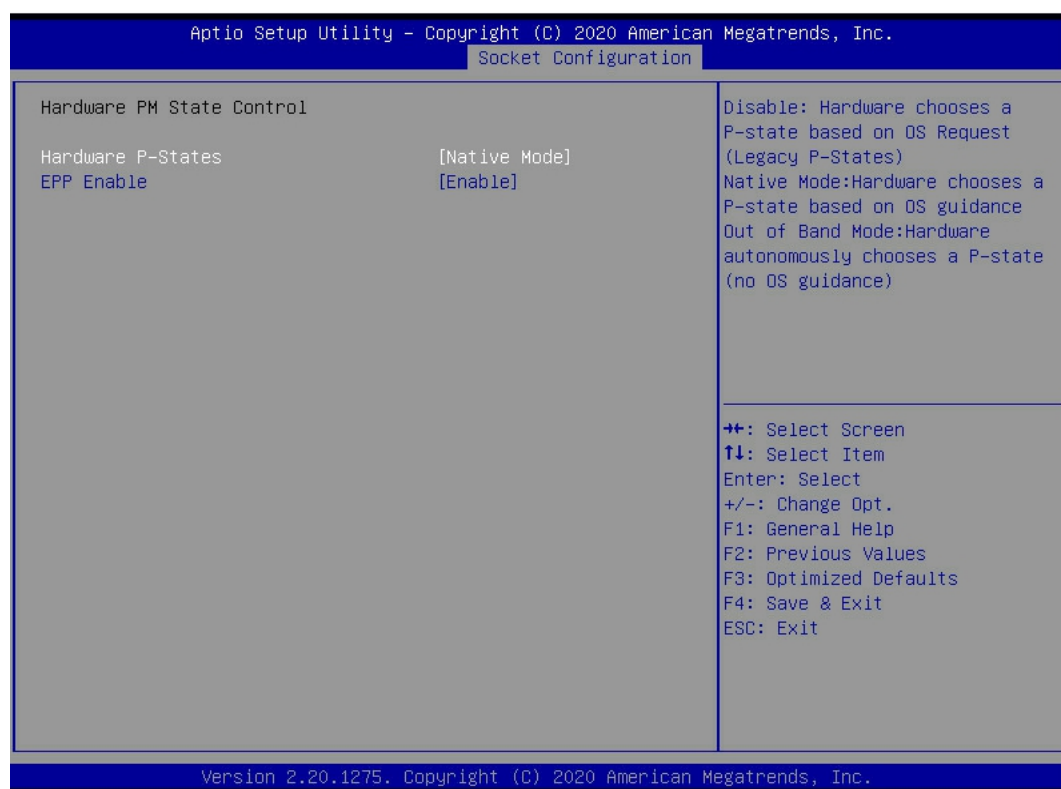


Figure 5- 34

### Hardware P-State

The hardware selects whether the p-state state is actively set by OS. The default value is determined according to the actual test. The menu options are:

Disable: hardware selection p-states is based on traditional OS request

Native mode: hardware selection p-state is based on traditional OS boot

- out of band mode: the hardware is automatically selected and no OS boot is required
- Native Mode with No Legacy Support

Default: native mode

### EPP Enable

EPP enable settings, menu options are:

Enable: open

Disable: close

Default value: Enable

## 5.2.34 CPU C State Control



Figure 5- 35

### Autonomous Core C-State

The menu options are as follows:

Enable: open

Disable: close

Default value: disable

### CPU C6 report

Report C6 status switch settings to OS, menu options are:

Disable: close

Enable: open

Auto: automatic

Default value: Auto

### Enhanced Halt State(C1E)

C1E switch settings, menu options are:

Disable: close

Enable: open

Default value: Enable



## 5.2.35 Package C State Control



Figure 5- 36

### Package C State

Package C status settings, menu options are:

- C0/C1 state
- C2 state
- C6(non Retention) state
- C6(Retention) state
- No Limit

Default value: Auto

## 5.2.36 CPU-Advanced PM Tuning

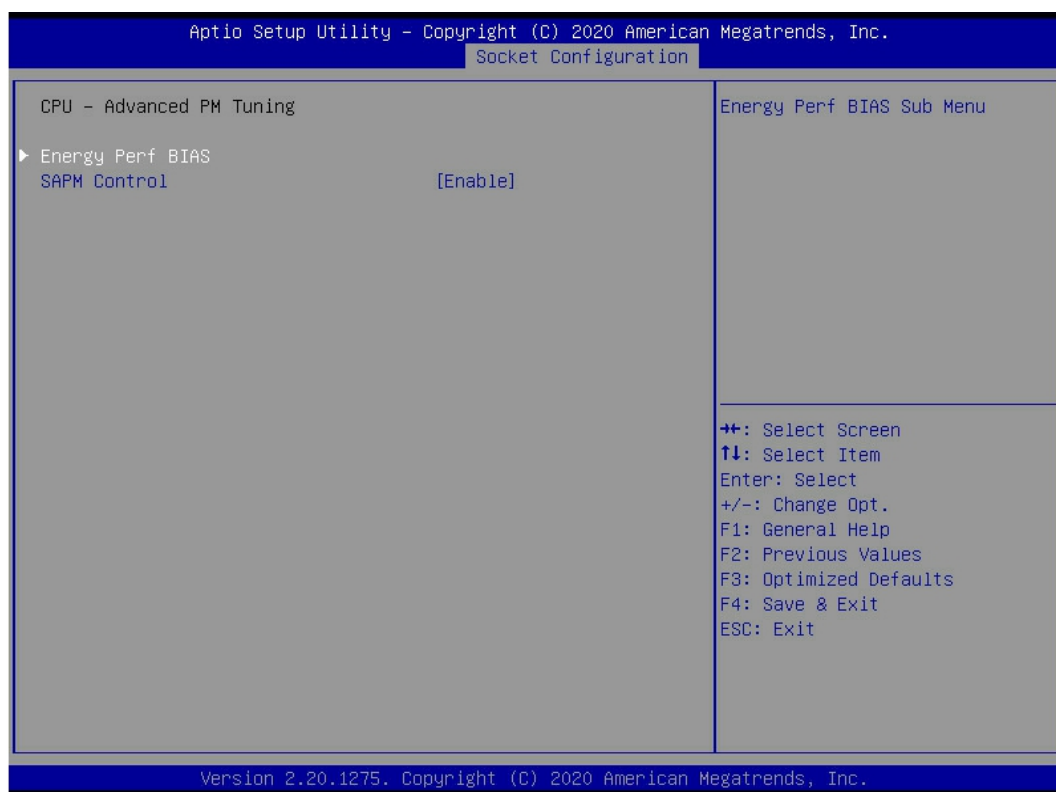


Figure 5- 37

Energy Perf BIAS

CPU energy saving performance related options settings

## 5.2.37 Energy Perf BIAS

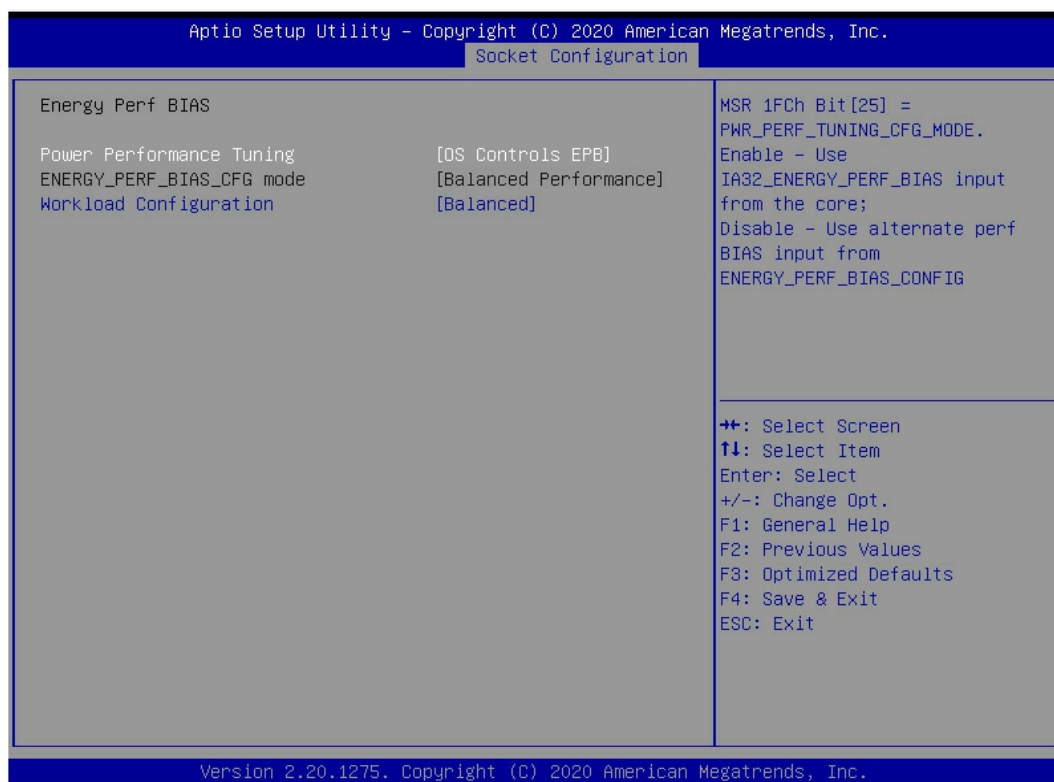


Figure 5- 38

### Power Performance Tuning

Energy saving performance adjustment settings, menu options are:

- OS controls EPB: energy saving performance adjustment of OS control
- BIOS controls EPB: BIOS control energy saving performance adjustment

Default: OS controls EPB

### ENERGY\_PERF\_BIAS\_CFG Mode

Energy saving performance management settings: this item can be set when power performance tuning is set to BIOS control EPB, and the menu options are:

Performance: Performance

Balanced performance: balanced performance

Balanced power: balanced energy saving

Power: energy saving

Default value: balanced performance

### Workload Configuration

To optimize the settings of workload characteristics, the menu options are as follows:

- Balanced
- I/O Sensitive

Default value: balanced

## 5.2.38 Server Mgmt menu

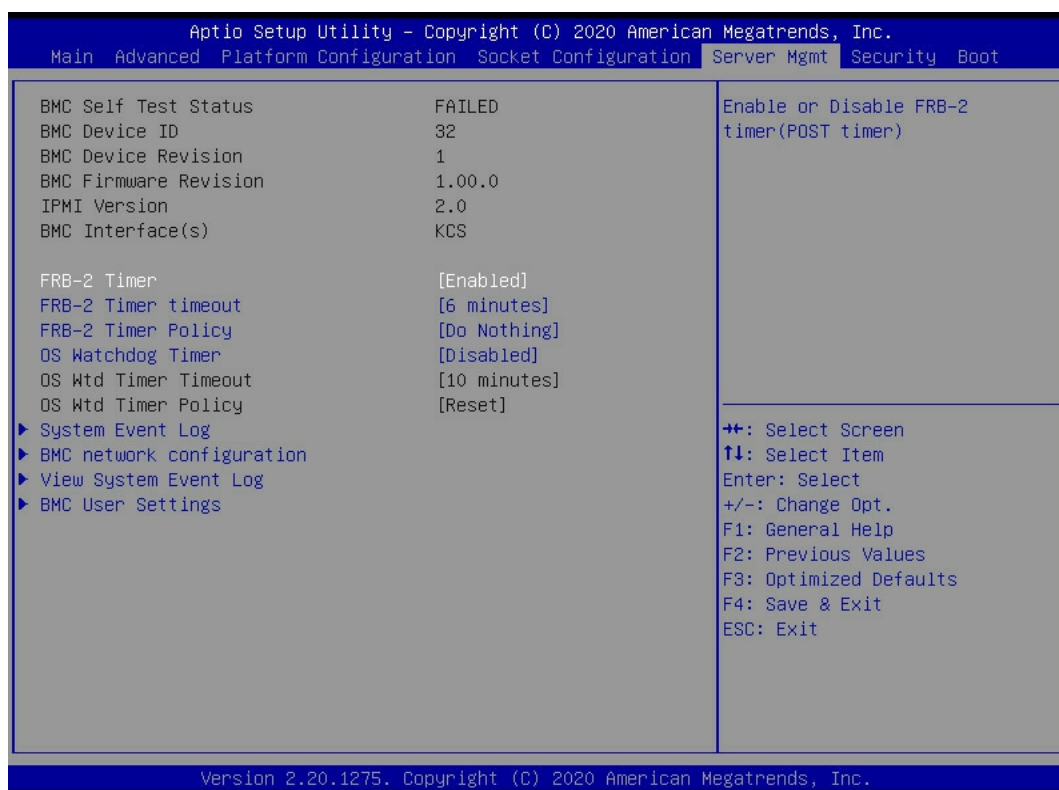


Figure 5- 39

Display BMC self-test status, device ID, device version, BMC software version, support IPMI specification version.

### FRB-2 Timer

Frb-2 clock switch settings, menu options are:

Enabled: on

Disabled: off

Default value: Enabled

### FRB-2 Timer timeout

Frb-2 clock timeout setting, menu options are:

- 3 minutes
- 4 minutes
- 5 minutes
- 6 minutes

Default value: 6 minutes

### FRB-2 Timer Policy

After frb-2 clock timeout, the menu options are as follows:

- Do Nothing

- Reset
- Power Down
- Power Cycle

Default value: do nothing

#### OS Watchdog Timer

OS watchdog clock switch settings, menu options are:

Enabled: on

Disabled: off

Default value: Disabled

#### OS Wtd Timer timeout

OS watchdog clock timeout setting, menu options are:

- 5 minutes
- 10 minutes
- 15 minutes
- 20 minutes

Default value: 10 minutes

#### OS Wtd Timer Policy

After OS watchdog clock timeout, the menu options are as follows:

- Do Nothing
- Reset
- Power Down
- Power Cycle

Default value: reset

#### System event log menu

System event record control menu

BMC network configuration menu

BMC network configuration menu

- view system event log menu

View system event log control menu

- BMC user settings menu

BMC user settings menu

## 5.2.39 System Event Log menu

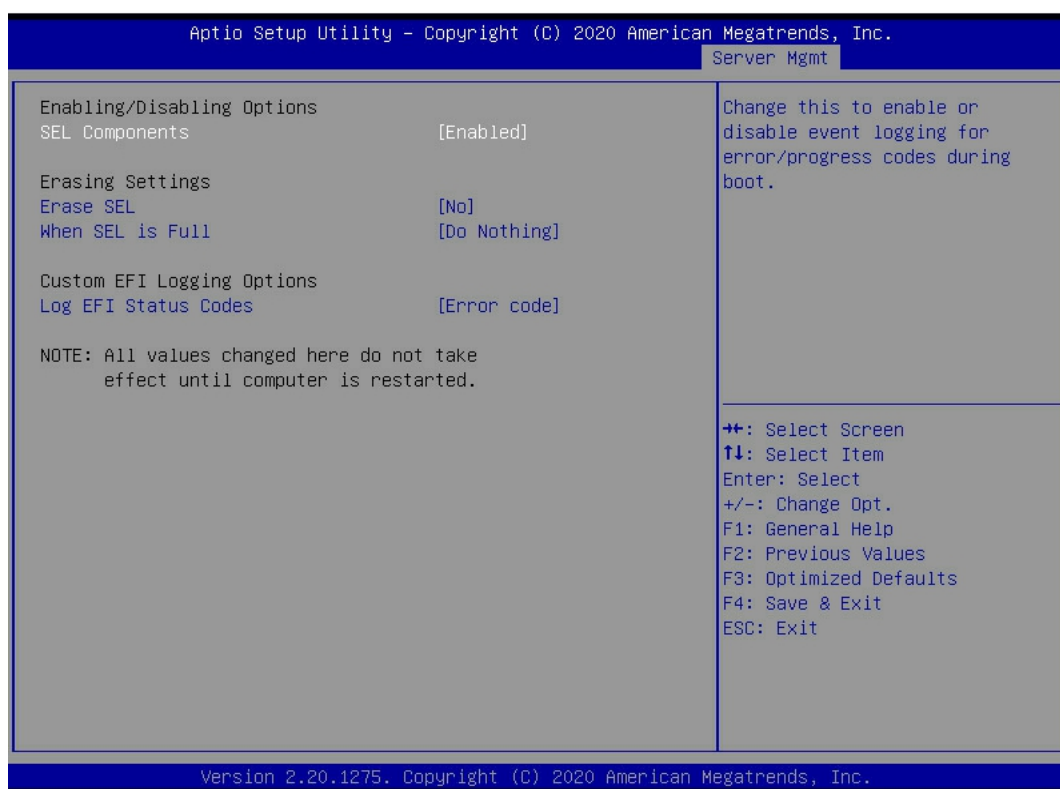


Figure 5- 40

### SEL Components

Start the process system event recording function control switch, menu options:

- Enabled: enabled
- Disabled: closed

Default value: Enabled

### Erase SEL

Clear system event logging control switch, menu options:

No: not cleared

- yes, on next reset: clear the next restart
- yes, on every reset

Default value: no

### When SEL is Full

When the storage space of system event record is full, operate the control switch, menu options:

Do nothing: do nothing

- Erase Immediately: clear immediately

Default value: do nothing

### Log EFI Status Codes

Configuration record EFI status codes, menu options:

- Disabled: do not record

Both: record error code & progress code

Error code: only the error code is recorded

●Progress code: only record Progress code

Default value: error code

## 5.2.40 BMC network configuration menu

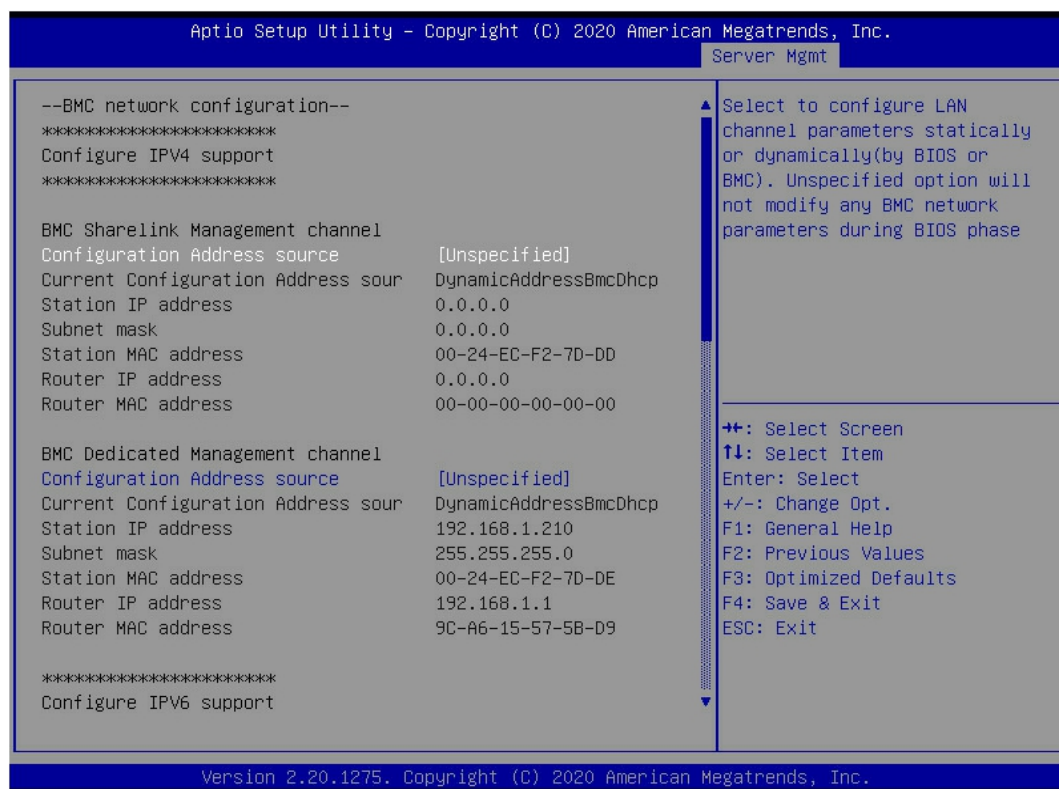


Figure 5- 41

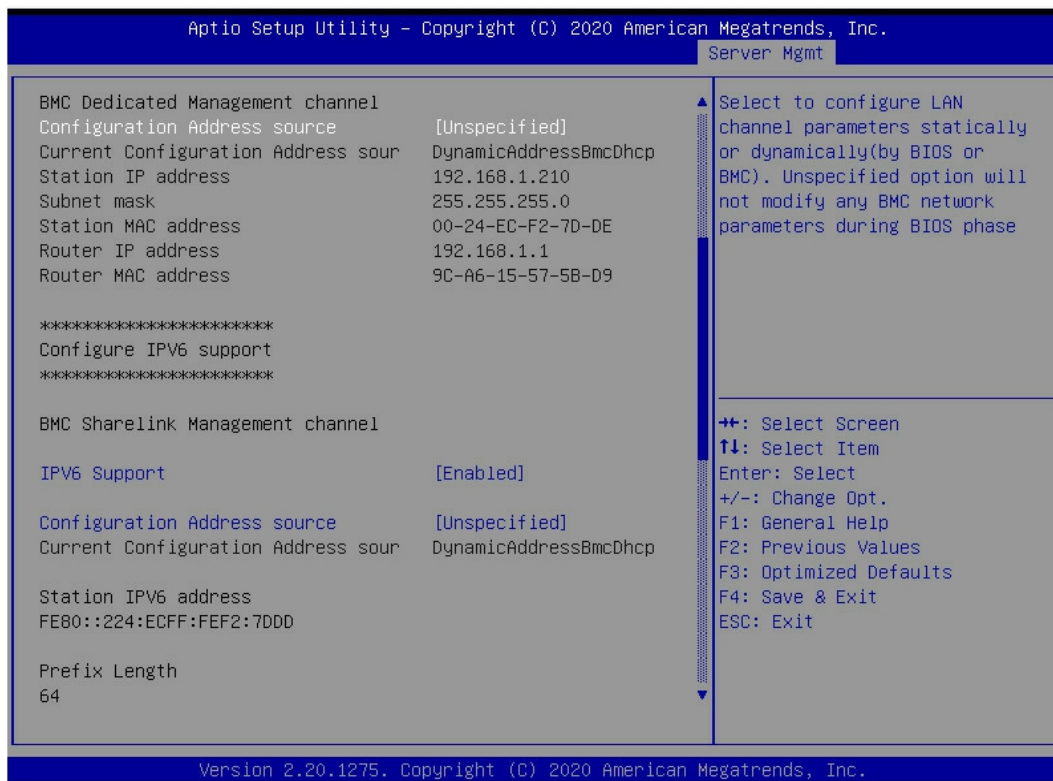


Figure 5- 42

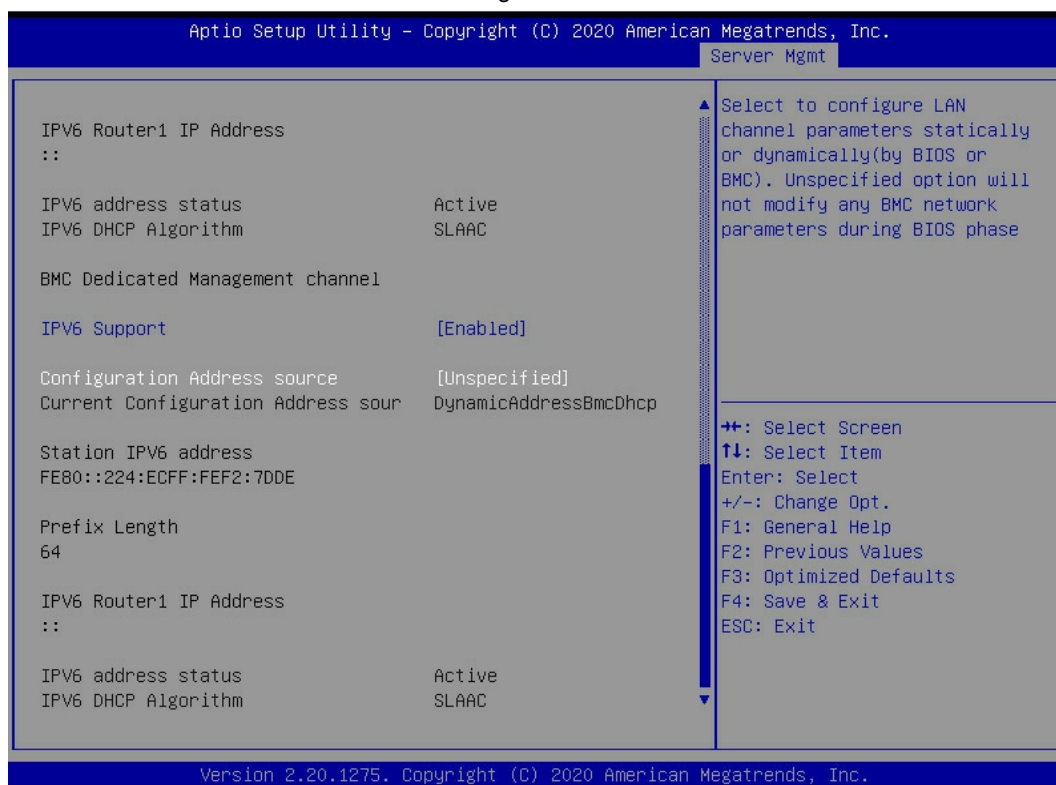


Figure 5- 43

Configure IPv4 support

BMC sharelink Management Channel

Configuration Address source

Configure BMC IP address assignment mode, menu options are:

Not specified: the BMC parameters are not changed




Static: BIOS static IP settings

Dynamic bmcdhcp: BMC runs DHCP to allocate IP dynamically

Dynamic BMC nondhcp: BMC runs non DHCP protocol to allocate IP dynamically

Default: unspecified

 Change from unspecified to other parameters. After saving and restarting the execution, the option will restore the unspecified value,

There is no need to configure BMC IP for each boot process.

When the configuration address source option is unspecified, the network parameter information (IPv4) of the shared network interface of the system will be displayed, including the current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP and routing Mac;

BMC Dedicated Management Channel

Configuration Address source

Configure BMC IP address assignment mode, menu options are:


Not specified: the BMC parameters are not changed

Static: BIOS static IP settings

Dynamic bmcdhcp: BMC runs DHCP to allocate IP dynamically

Dynamic BMC nondhcp: BMC runs non DHCP protocol to allocate IP dynamically

Default: unspecified

 Change from unspecified to other parameters. After saving and restarting the execution, the option will restore the unspecified value,

There is no need to configure BMC IP for each boot process.

When the configuration address source option is not specified, the network parameter information (IPv4) of the system private network interface will be displayed, including the current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP, and routing Mac;

Configure IPV6 support

BMC Sharelink Management Channel


IPV6 Support

Select whether to support IPv6. The menu options are as follows:

Enable: support IPv6

Disabled: IPv6 is not supported

Default value: Enable

 Change from unspecified to other parameters. After saving and restarting the execution, the option will restore the unspecified value,

There is no need to configure BMC IP for each boot process.

When the configuration address source option is unspecified, the network parameter information (IPv6) of the system shared network port will be displayed;

BMC Dedicated Management Channel


IPV6 Support

Select whether to support IPv6. The menu options are as follows:

Enable: support IPv6

Disabled: IPv6 is not supported

Default value: Enable

 Change from unspecified to other parameters. After saving and restarting the execution, the option will restore the unspecified value,

There is no need to configure BMC IP for each boot process.

When the configuration address source option is unspecified, the network parameter information (IPv6) of the system private network port will be displayed;

## 5.2.41 View system event log menu

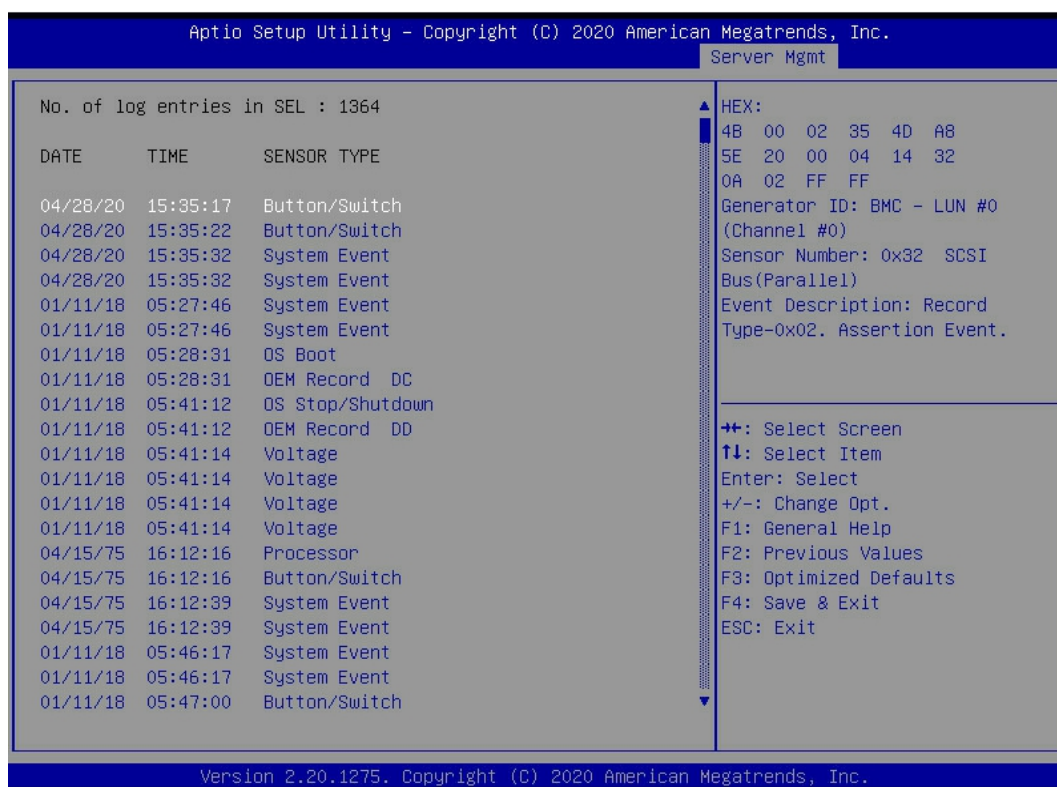



Figure 5- 44

View system event log information.

 Note that entering this menu, BIOS needs to read sel data and needs to wait for a period of time.

## 5.2.42 BMC User Setting

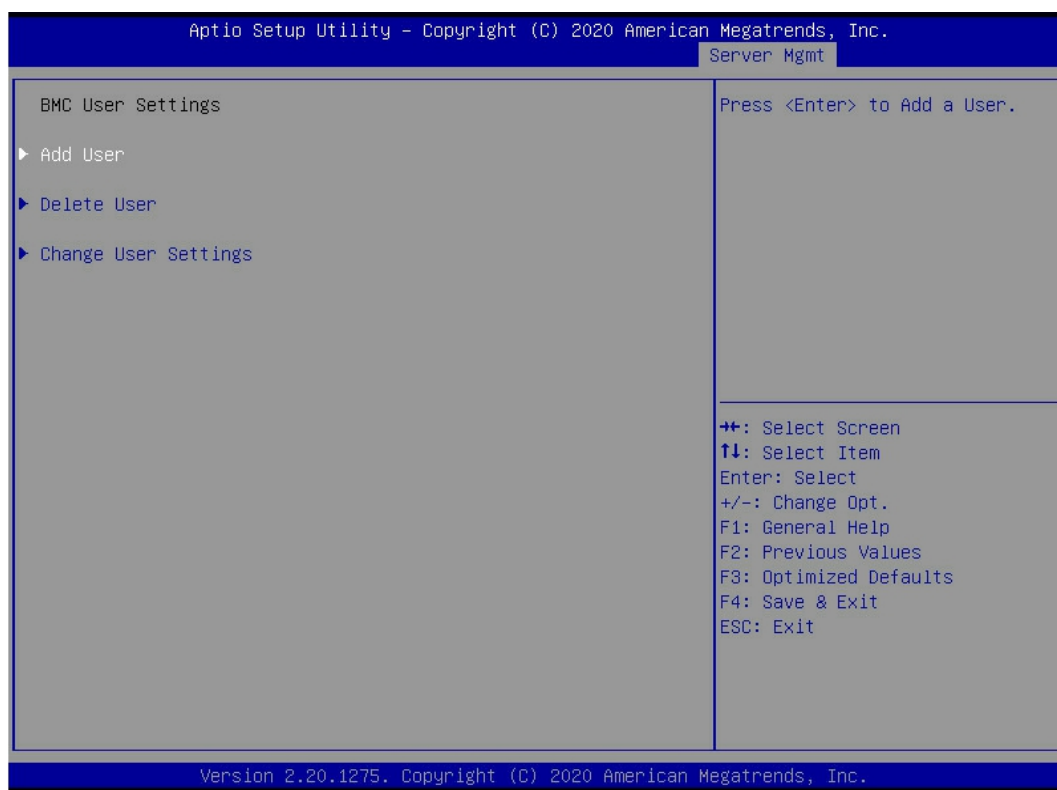


Figure 5- 45

- Add User  
Add user submenu
- Delete User  
Delete user submenu
- Change User Setting  
Modify user settings submenu

## 5.2.43 Add User

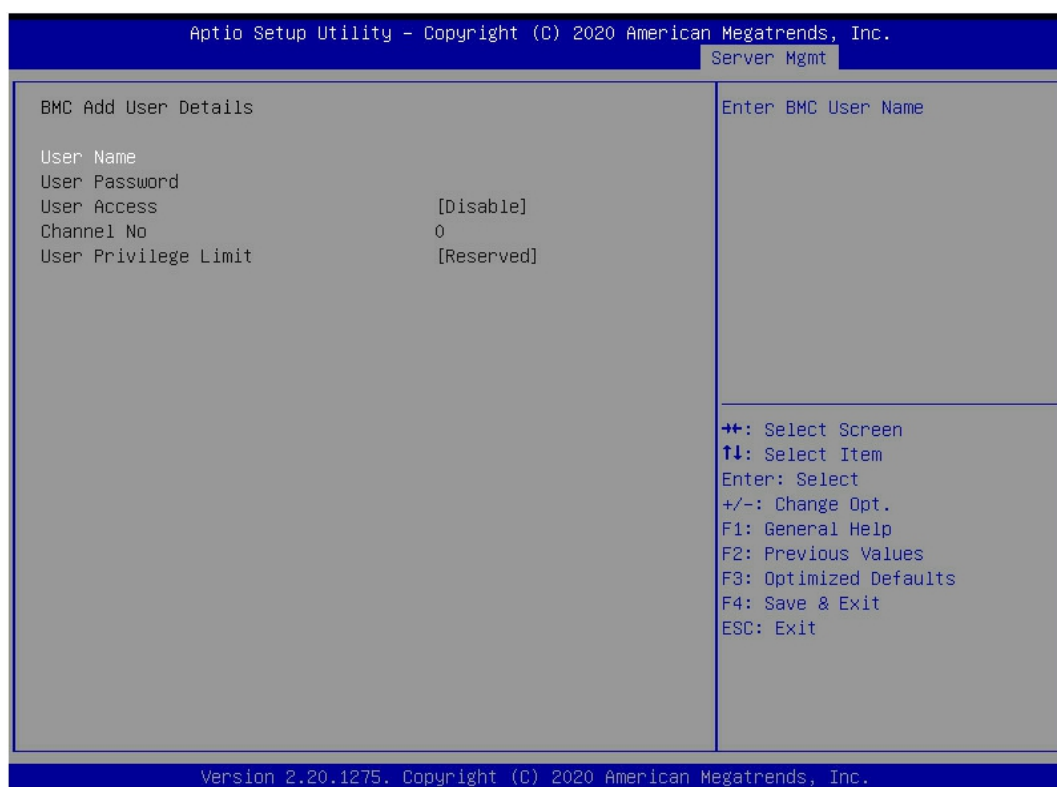


Figure 5- 46

User Name: User name setting, up to 16 characters.

User Password: User password settings, password characters must include upper and lower case letters, special characters and numbers, at least 8 characters, maximum 20 characters.

Channel No: BMC channel settings, enter 1 or 8

User Privilege Limit

User rights settings, menu options are:

- Reserved
- Callback
- User
- Operator
- Administrator

After the setting is successful, "set user access command passed" will be prompted, and BMC user will take effect immediately.

## 5.2.44 Delete User

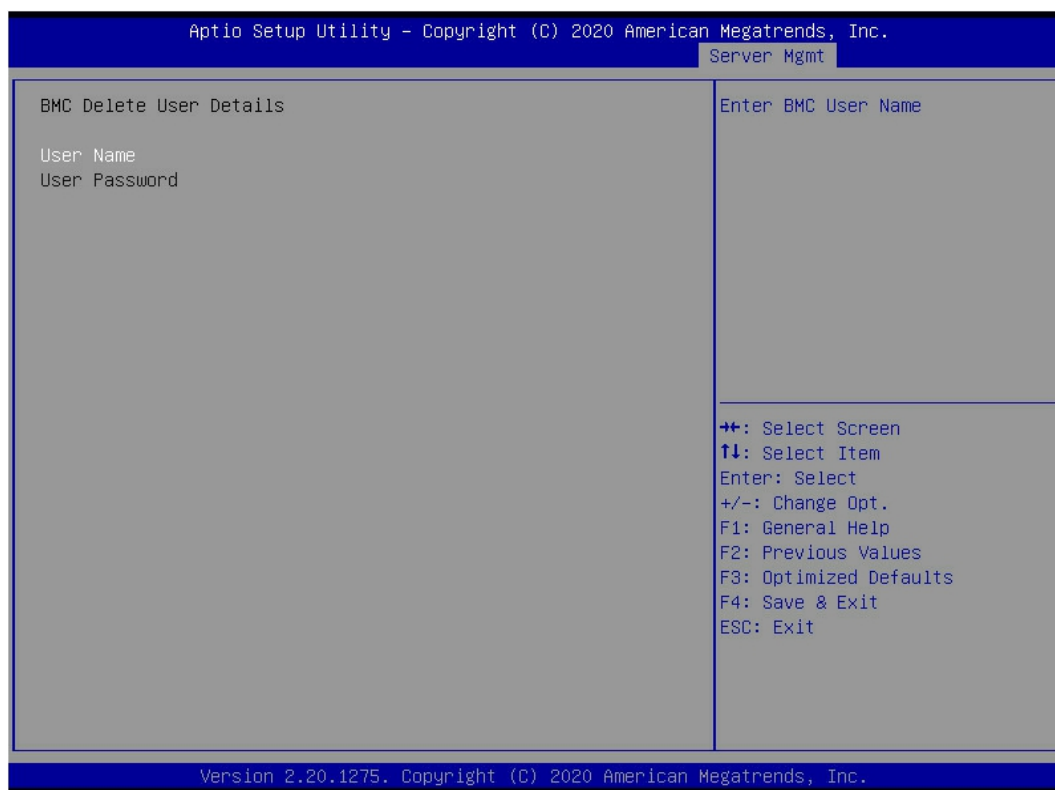


Figure 5- 47

User Name: Enter the name of the user to delete.

User Password: Enter the password of the user to be deleted. When the password is correct, a prompt "user delete!!!" will pop up. The user who has successfully deleted the password will immediately take effect in the BMC, and the user will not be able to log in to the BMC web interface.

## 5.2.45 Change User Setting



Figure 5- 48

User Name: Enter the name of the user you want to modify.

User Password: Enter the user password to be modified. The following options can be modified only if the name and password are entered correctly.

### User

User authority switch settings, menu options are:

Enabled: on

Disabled: off

Default value: Disabled

Change User Password: To modify the user's password, the input password must contain upper- and lower-case letters, special characters and numbers, with a minimum of 8 characters and a maximum of 20 characters.

Channel NO: BMC channel setting, enter 1 or 8.

### User Privilege Limit

To modify the user permission settings, the menu options are as follows:

- Reserved
- Callback
- User
- Operator

- Administrator

## 5.2.46 Security menu

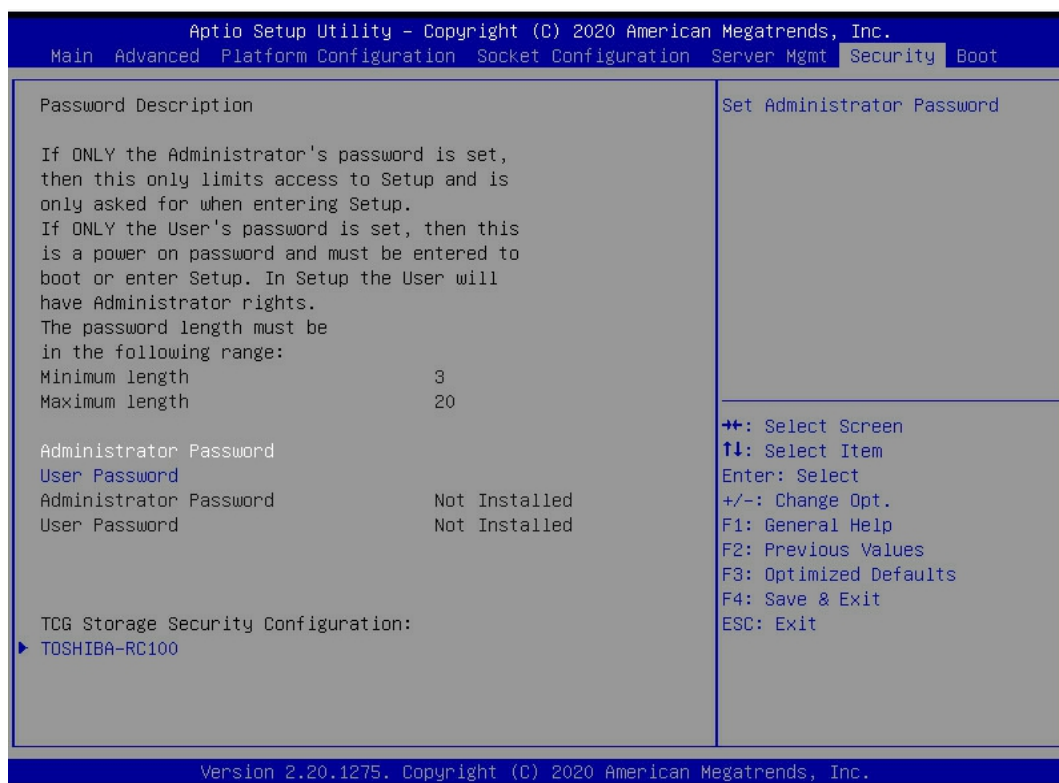


Figure 5- 49

### Administrator Password

Select this option to set the administrator password;

### User Password

Select this option to set the user password;

### Administrator Password

The status of administrator password is displayed. If the system has administrator password, it will display installed. If there is no administrator password, it will display not installed;

### User Password

Display the status of user password, the system has user password, displays installed, does not exist user password, displays not installed;

### HDD Security Configuration

The list of hard disks is displayed dynamically. The hard disks connected to the SATA and ssata controllers will be displayed here. You can set the hard disk password when entering the hard disk interface. If there is no hard disk connection, it will not be displayed.

## 5.2.47 Boot menu

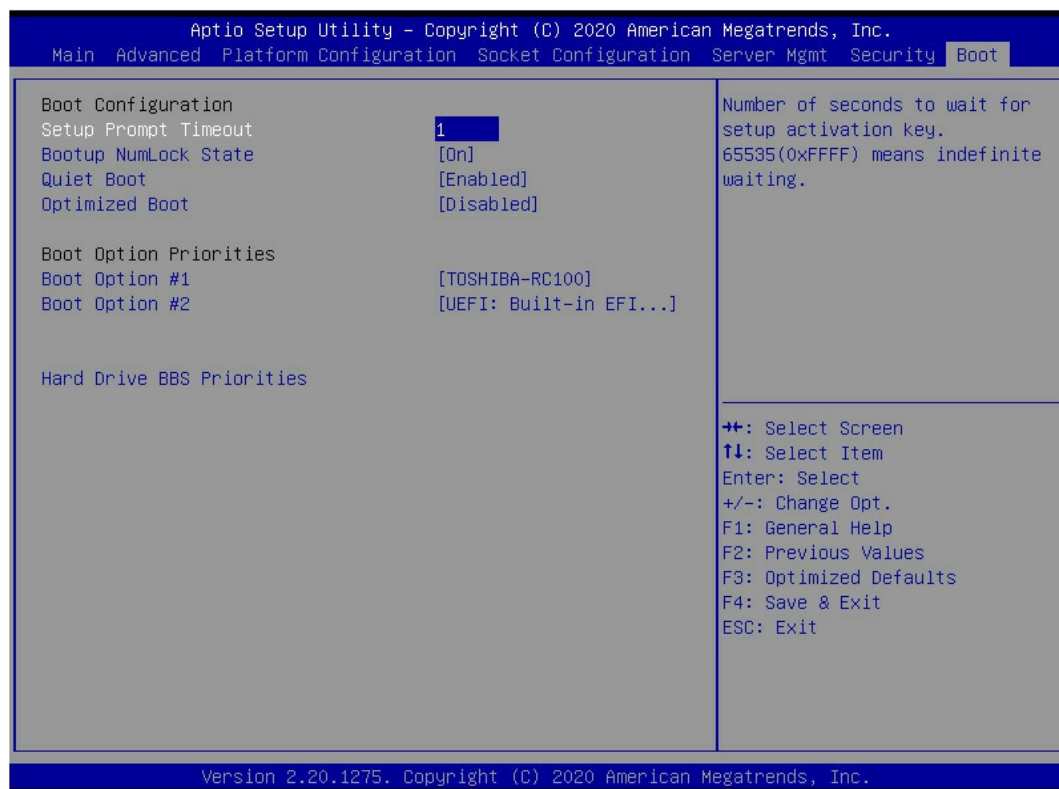


Figure 5- 50

**Setup Prompt Timeout:** Setup prompt timeout setting. Set the time to wait for the setup activation key. The maximum value is 65535 seconds. The default value is 1.

### Bootup Numlock State

During the startup process, the NumLock indicator light status switch is set, and the menu options are

On: on

Off: off

Default value: on

### Quiet Boot

Turn the quiet boot function on and off. The menu options are:

- disabled: turn off quiet boot, and post information will be displayed
- enabled: open quiet boot and the OEM logo will be displayed

Default value: Enabled

### Optimized Boot

Turn on and off the optimized boot function. The menu options are:

Disabled: turn off quiet boot

- enabled: turn on quiet boot to disable CSM support and connect network devices to reduce startup time

Default value: Disabled

### Boot Option Priorities

The list of startup options, which is dynamically displayed, is determined by the number of startup options



in the system. If there is no startup item, it will not be displayed.

XXXX Driver BBS Priorities

Priority setting for BBS of XXX device

## 5.2.48 Save & Exit menu

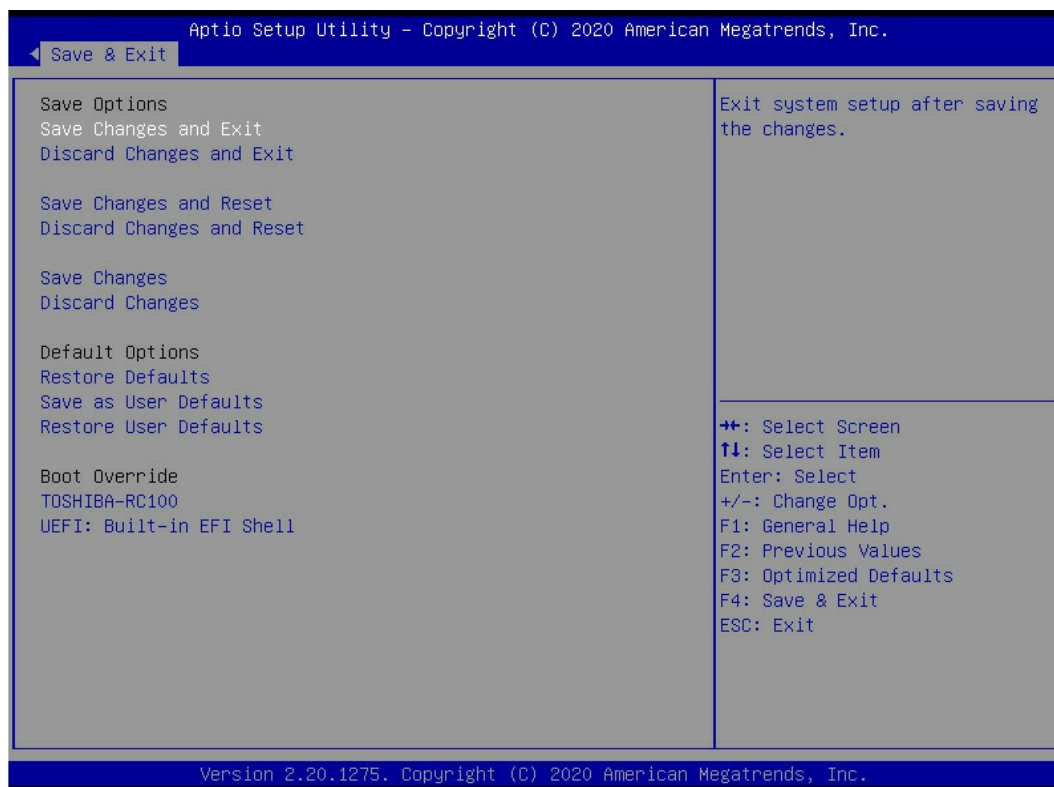


Figure 5- 51

**Save Changes and Exit**

Save the settings and exit the BIOS Setup menu;

**Discard Changes and Exit**

Discard saving settings and exit BIOS Setup menu;

**Save Changes and Reset**

Save the settings and restart the system;

**Discard Changes and Reset**

Discard the save settings and restart the system;

**Save Changes**

Save settings;

**Discard Changes**

Discard the save settings;

Restore Defaults

Load BIOS factory settings;

Save as user Defaults

Save as user default settings;

Restore user Defaults

Overload user default configuration;

Boot Override

List of startup options, where you can select startup options.

### **5.3 user operation reminder**



1. With options, when the user needs to operate, understand the operation specification in detail.
2. When operating the options, please understand the meaning of the options by referring to the operating manual and BIOS Setup interface options.

## Chapter VI Description of RAID Settings

### 6.1 PCH Group RAID

#### 6.1.1 configuring raid in UEFI boot mode

➤ **Operation before group raid**

- a) During the server startup process, press Delete / ESC according to the prompt to enter the BIOS Setup interface.
- b) Move to the platform page, PCH configuration, PCH SATA configuration, configure SATA as, as shown in Figure 6-1.

✧ Figure 6-1 configuring SATA to raid mode:

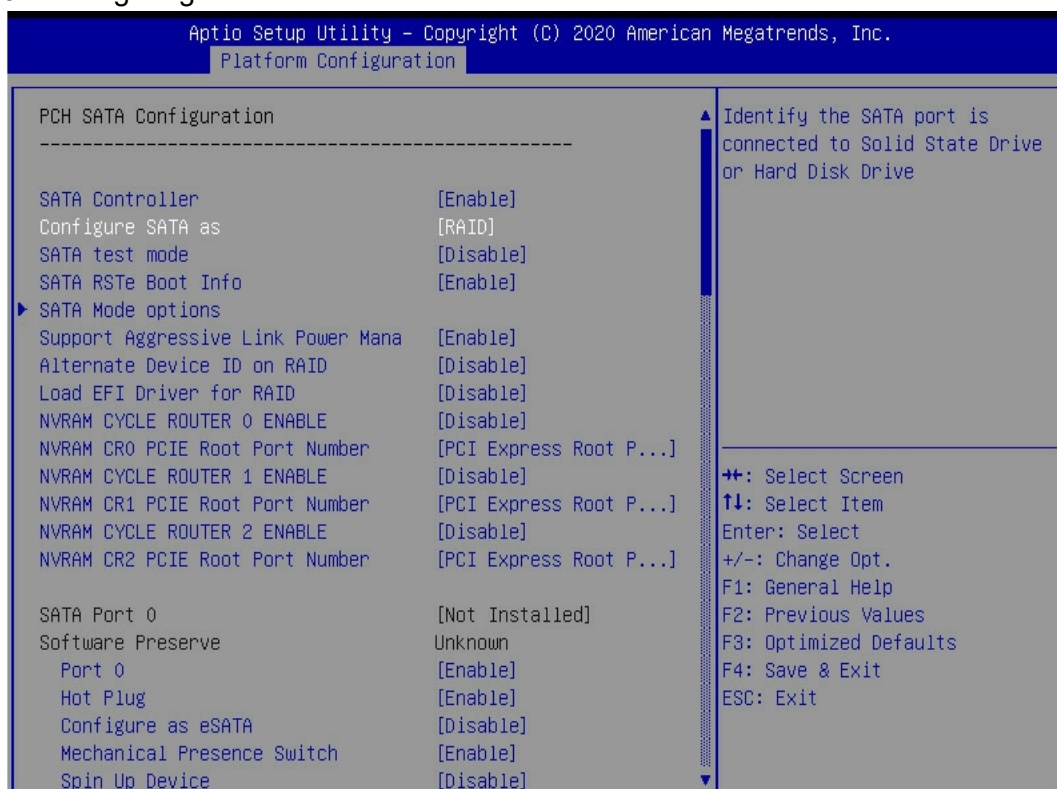


Figure 6- 1

- c) Ensure that storage and video in CSM configuration are UEFI mode, as shown in Figure 6-2

✧ Figure 6-2 setting storage and video to UEFI mode

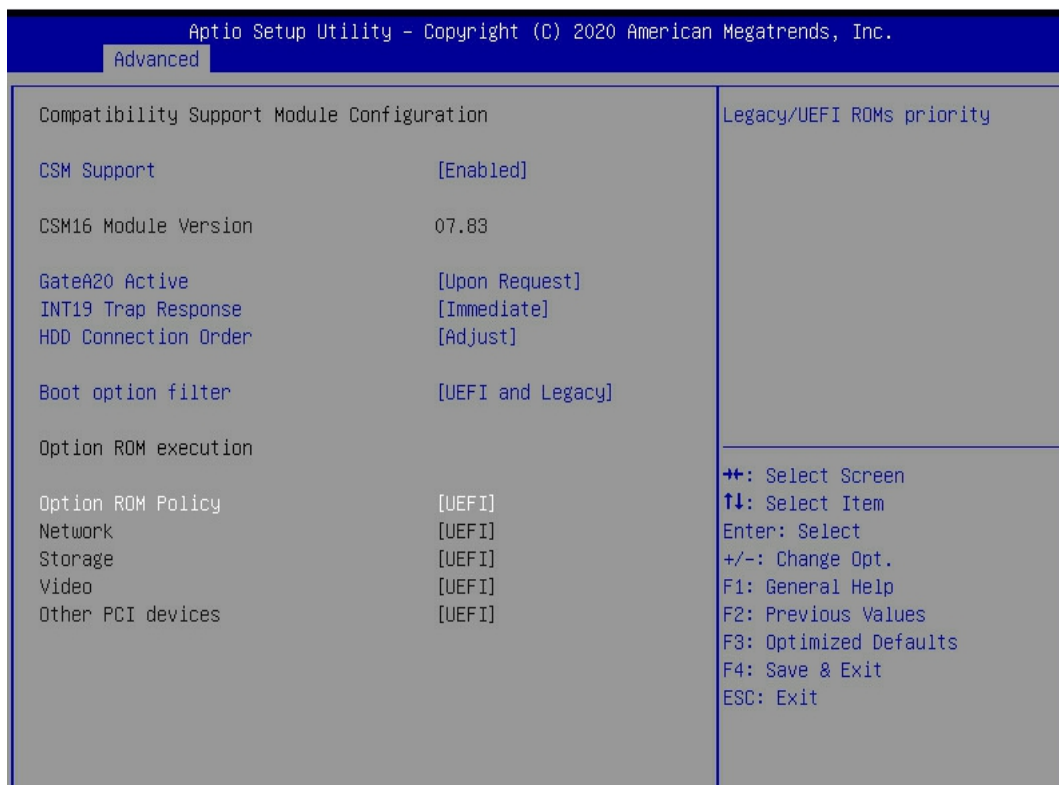


Figure 6- 2

d) Restart the server, enter the BIOS Setup interface, move to the advanced page, and you will see Intel (R) RSTe SATA controller. Press enter to enter RAID configuration, as shown in Figure 6-3

❖ Figure 6-3 Intel RSTe SATA controller

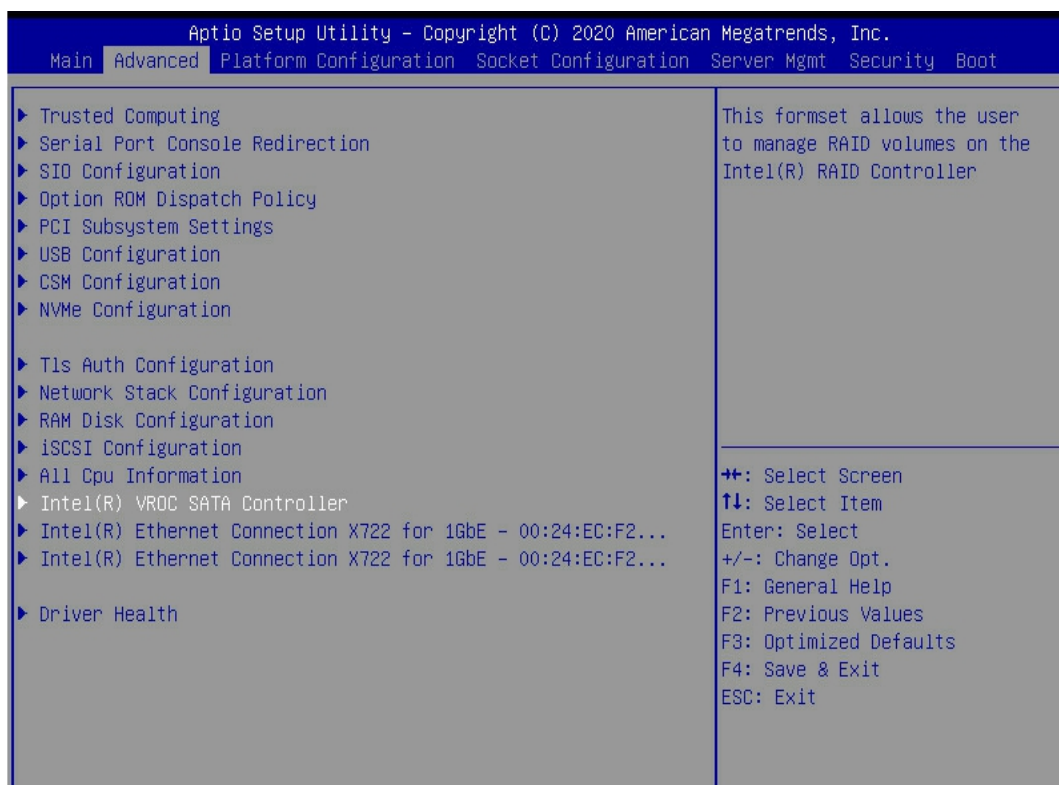


Figure 6- 3

➤ **Create raid**

a) Select Create raid volume and press enter. As shown in Figure 6-4

❖ Figure 6-4 creating raid

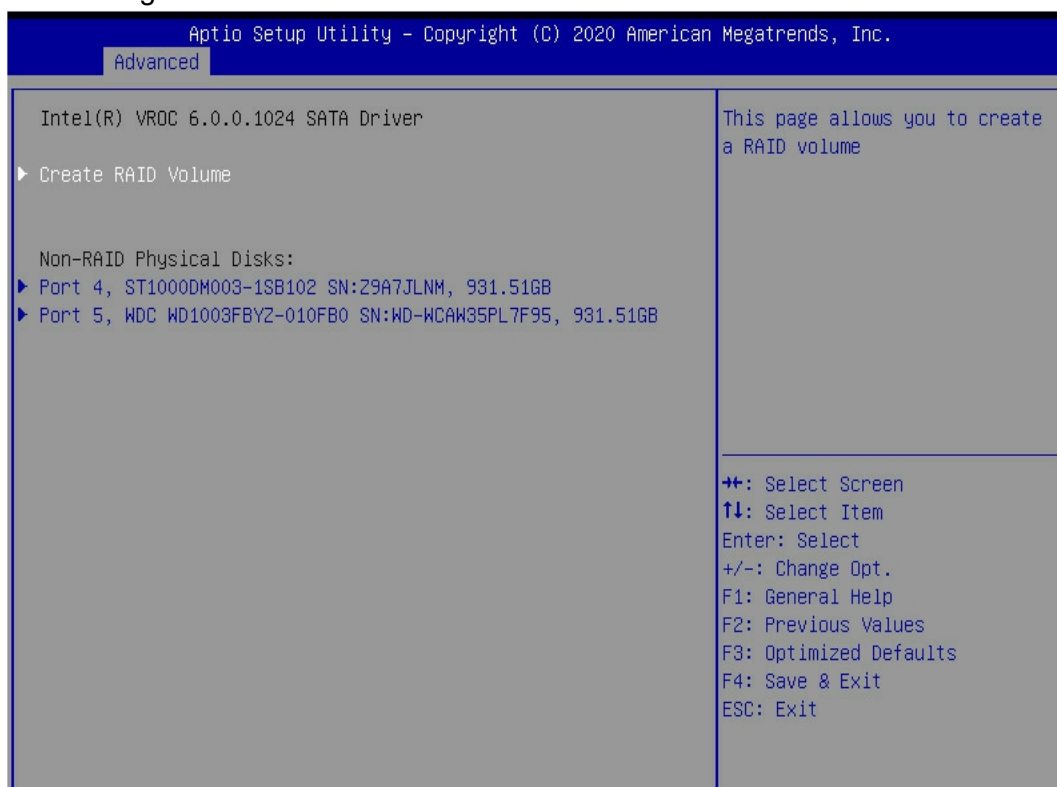


Figure 6- 4

b) Change the name of the created raid. Note that it cannot contain special characters. As shown in Figure 6-5

❖ Figure 6-5 create raid name

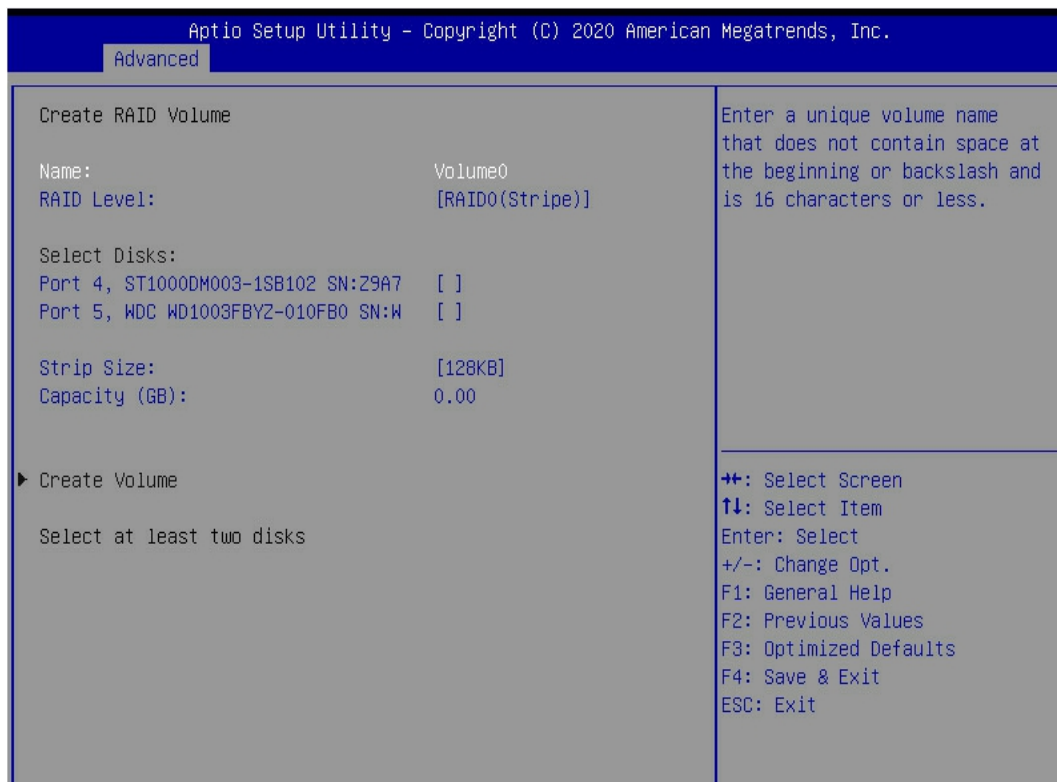


Figure 6- 5

c) RAID level: select the RAID level of the group, as shown in Figure 6-6

❖ Figure 6-6 selecting the level of group raid

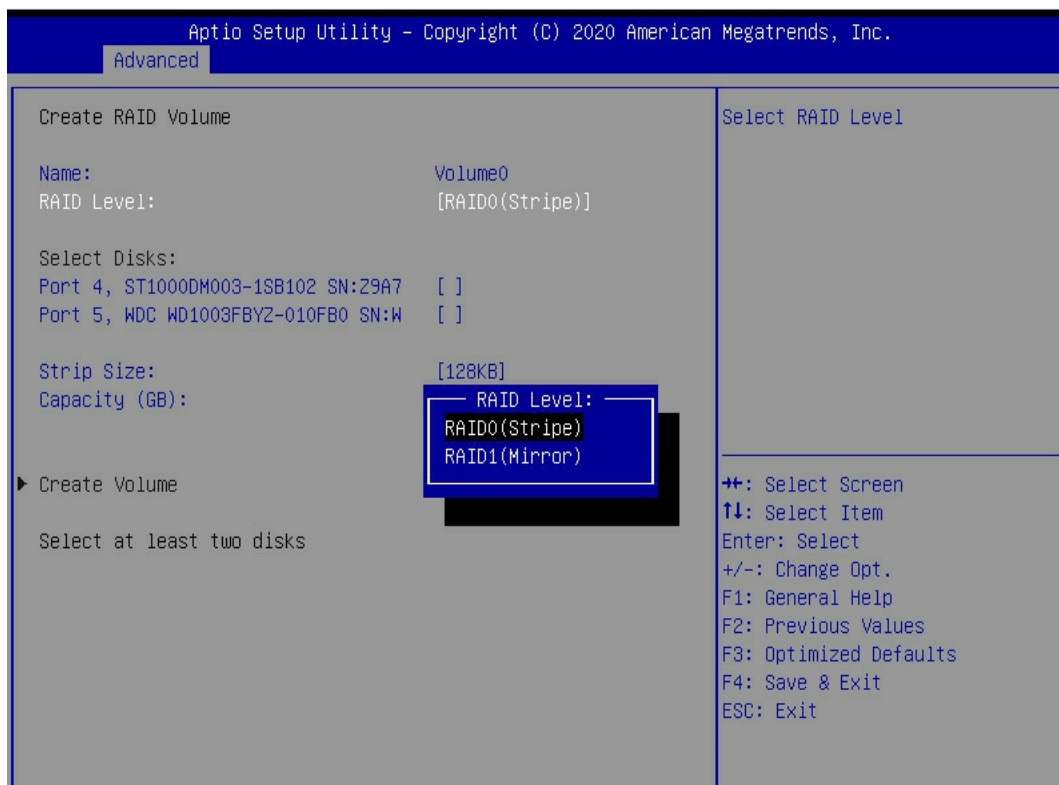


Figure 6- 6

d) Select disks: press the space bar to select the disks that need to participate in the group raid. As shown in Figure 6-7

✧ Figure 6-7 selecting disks for group raid

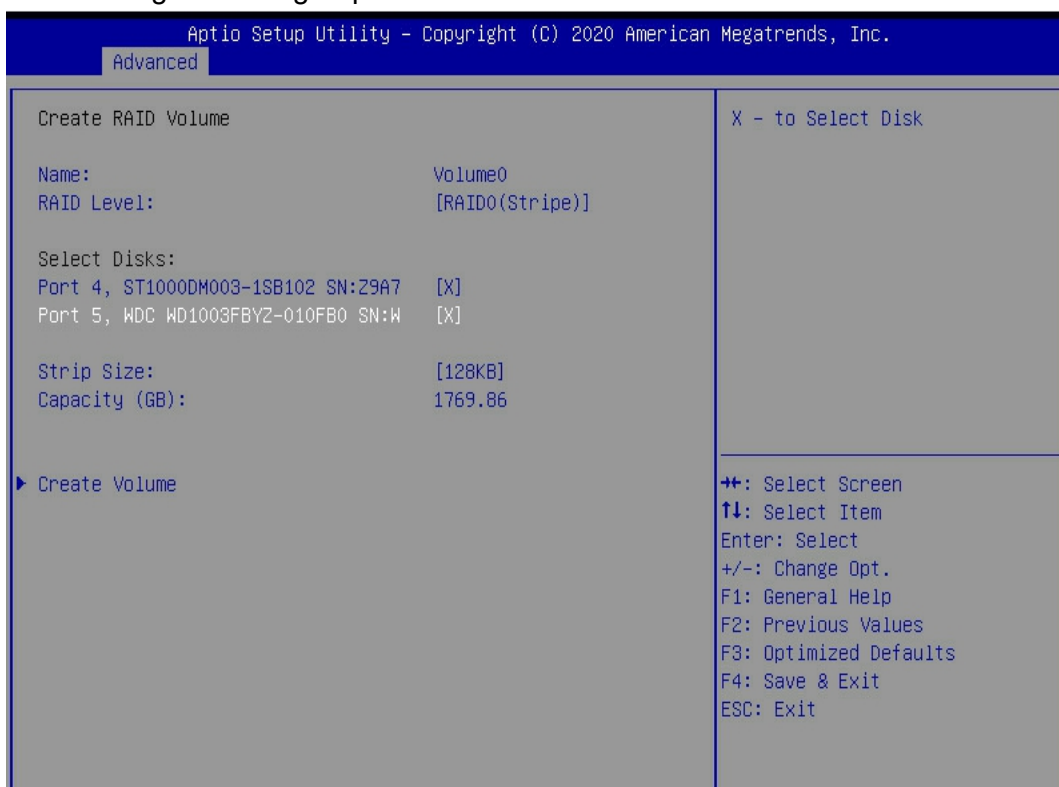


Figure 6- 7

e) Select Create volume and press enter to group raid.

✧ The related parameters are described in table 1-24

Parameter	Explain
Name	The name of the raid.
RAID Level	RAID level, which determines logical disk performance, fault tolerance and capacity.
Select Disks	Select the member disks that make up the raid. The available disks are displayed below the select disks column. Press enter to select a disk, and [x] indicates that the disk is selected.
Strip Size	Stripe size, the size of the stripe data block written on each disk.
Capacity	The capacity of the logical drive.

Table 1-24

After the raid is created, it will be displayed in the raid volumes directory. Select a raid and press enter to view the detailed information of the raid (including raid name, level, disk information, etc.).

### ➤ Configure hot spare

a) As shown in Figure 6-8, select the disk you want to configure as a hot spare and press enter.

✧ Figure 6-8 selecting the disk to be configured as a hot spare

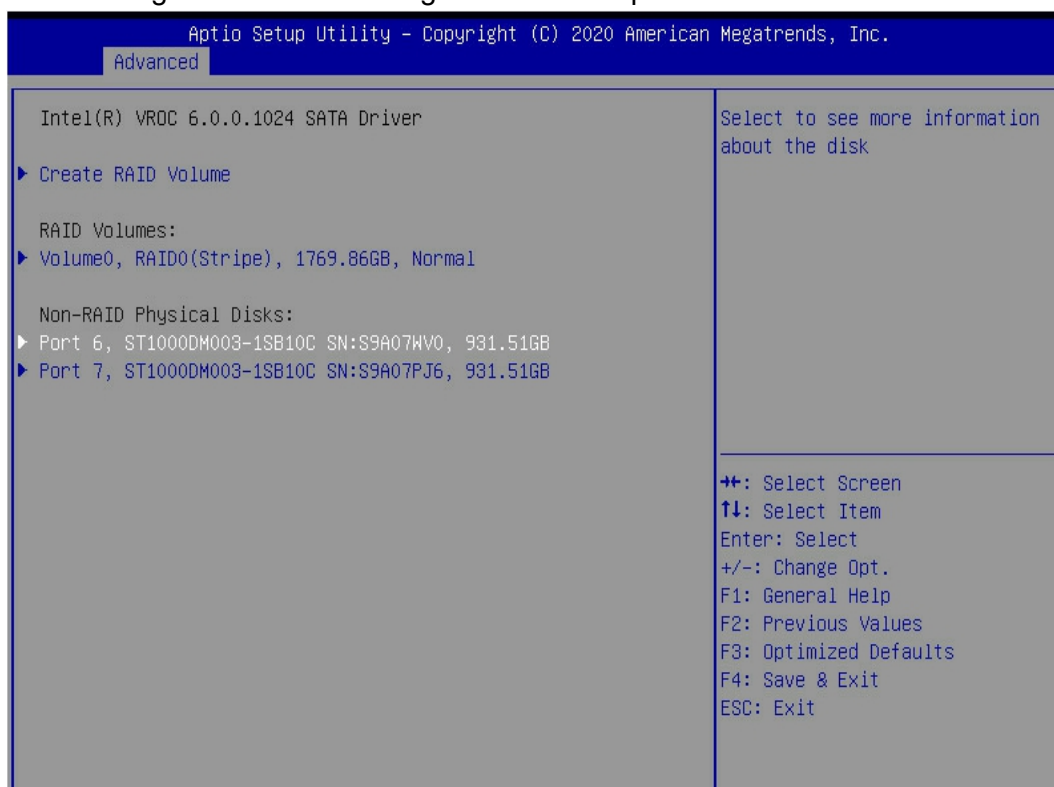


Figure 6- 8

b) Enter the interface shown in Figure 6-9, select "mark as spare" and press enter.

✧ Figure 6-9 hot spare configuration interface

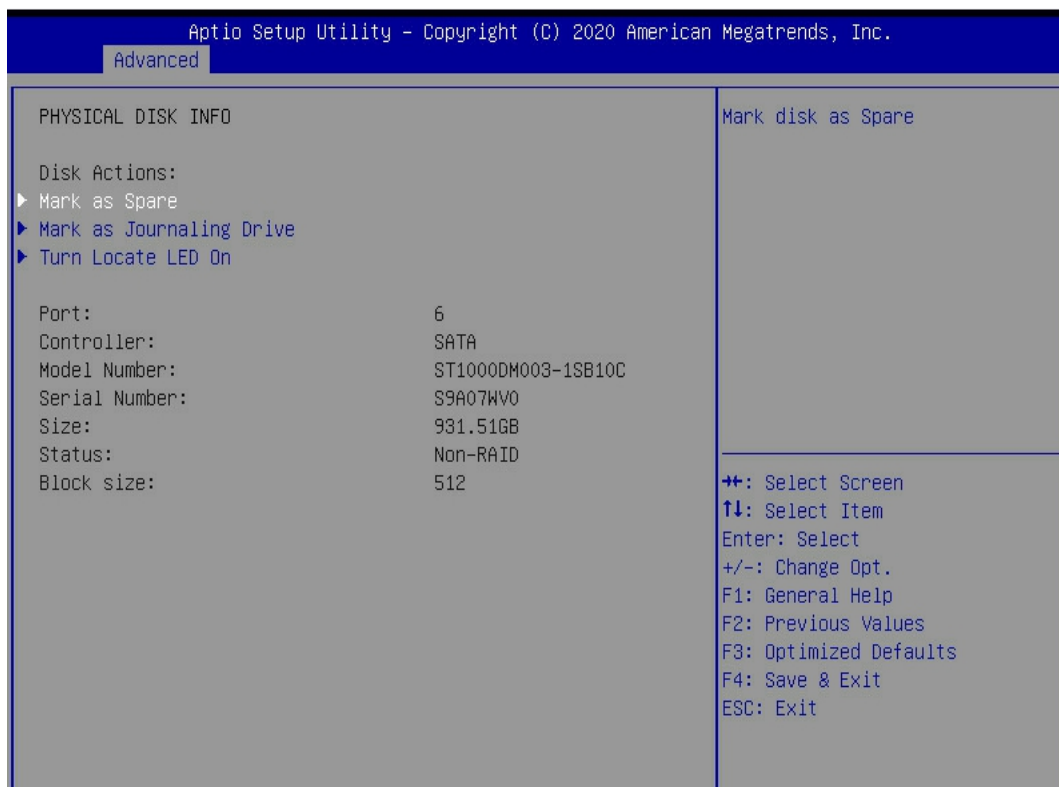


Figure 6- 9

- c) Enter the interface shown in Figure 6-10, select "yes" and press enter to complete the configuration of hot spare.
- ✧ Figure 6-10 confirm the configuration of the hot spare

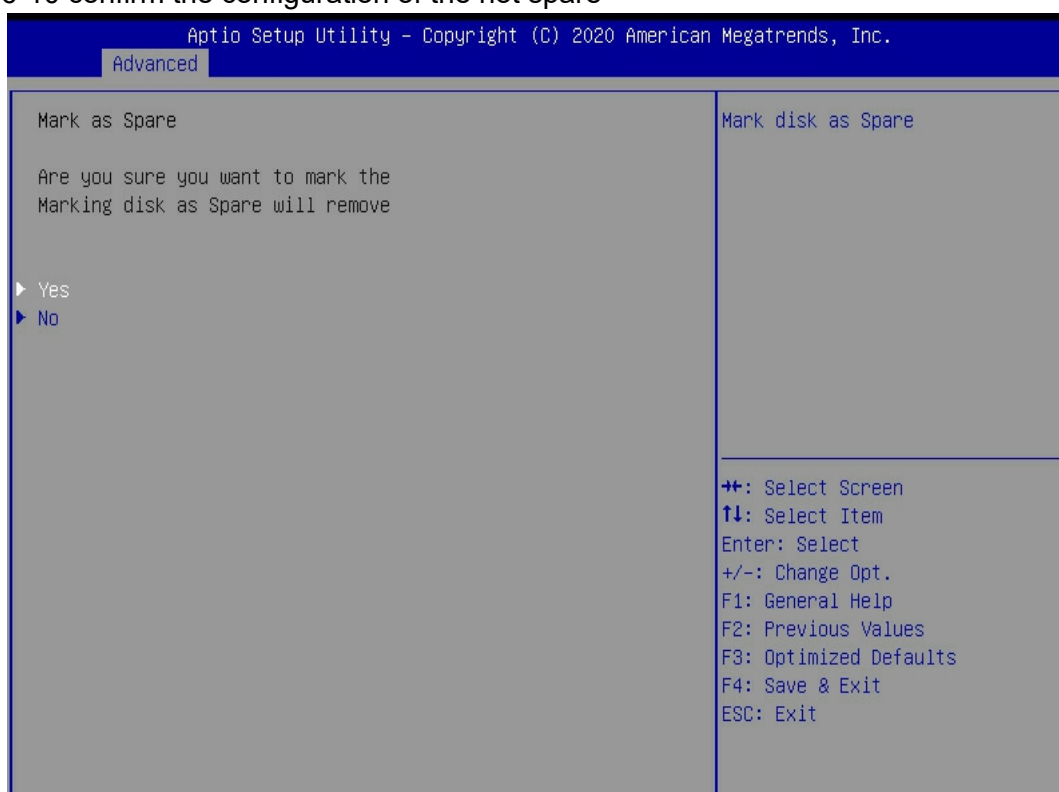


Figure 6- 10

➤ **Remove raid**

- a) Enter RSTe configuration interface.
- b) As shown in Figure 6-11, select the raid to be deleted in the raid volumes directory and press enter.
- ✧ Figure 6-11 select raid to be deleted



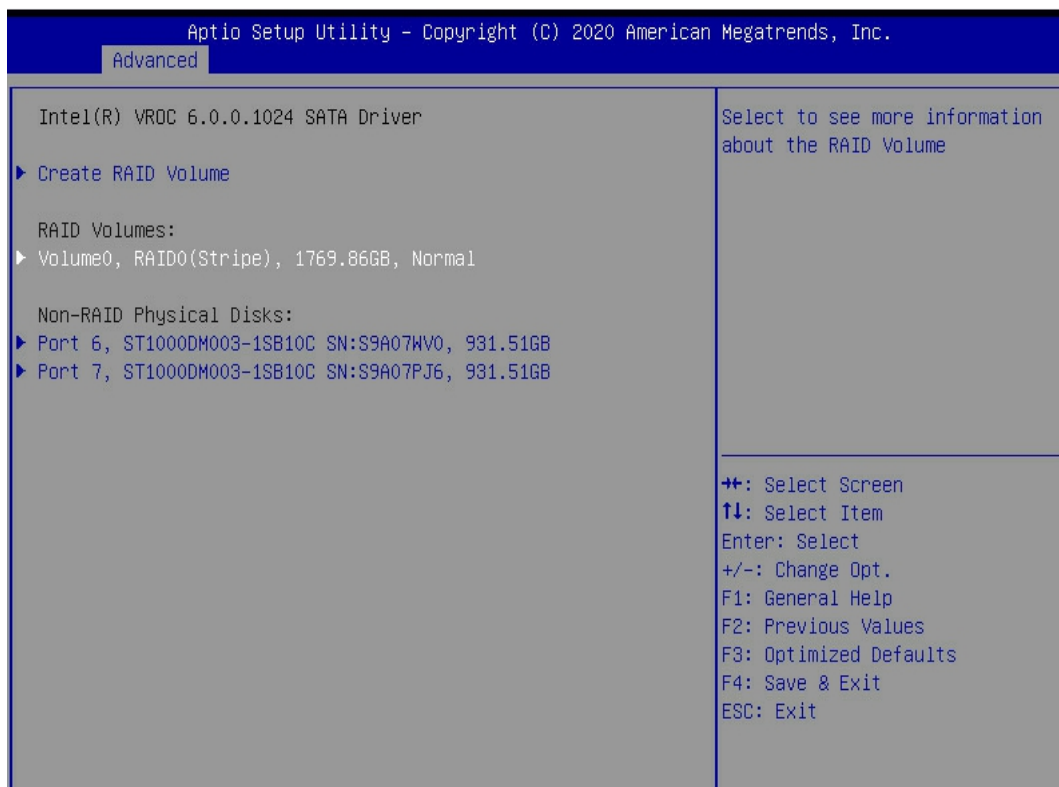


Figure 6- 11

c) Enter the raid information interface shown in Figure 6-12, select Delete and press enter to delete the raid.

✧ Figure 6-12 raid information interface

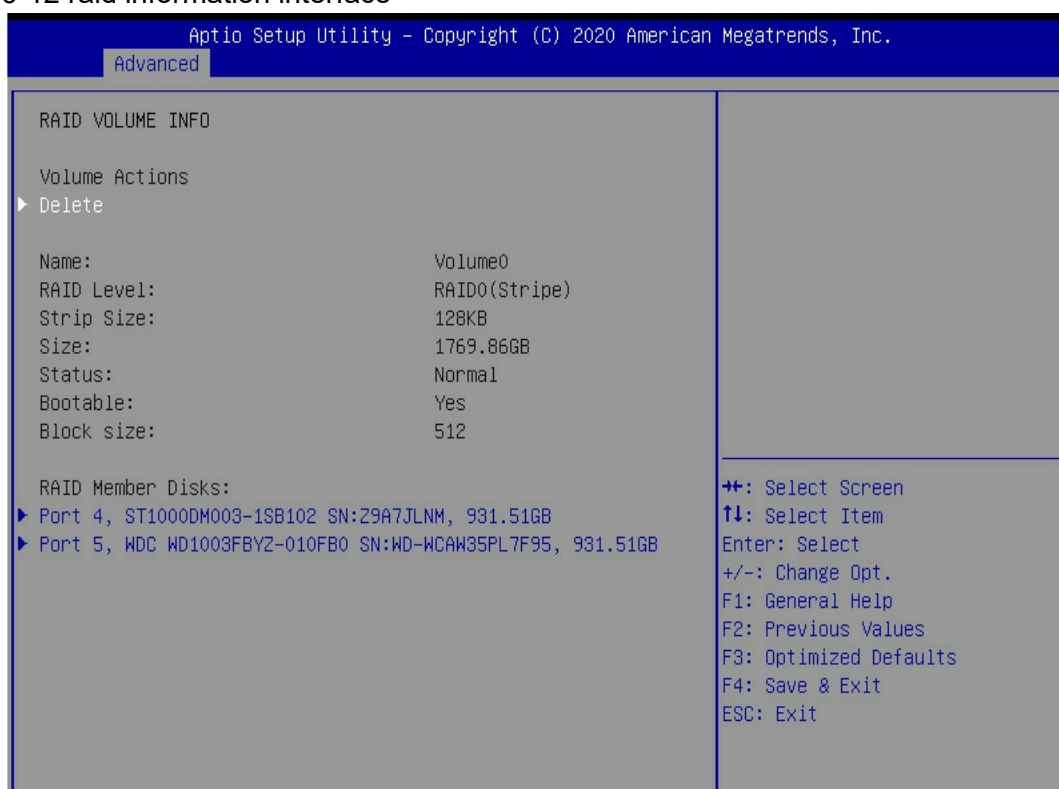


Figure 6- 12

## 6.1.2 configuring raid in legacy boot mode

### ➤ Set RSTe working mode

a) Enter the BIOS Setup interface.

b) Move to the platform page --> PCH configuration --> PCH SATA configuration

❖ Figure 6-13 PCH SATA configuration interface

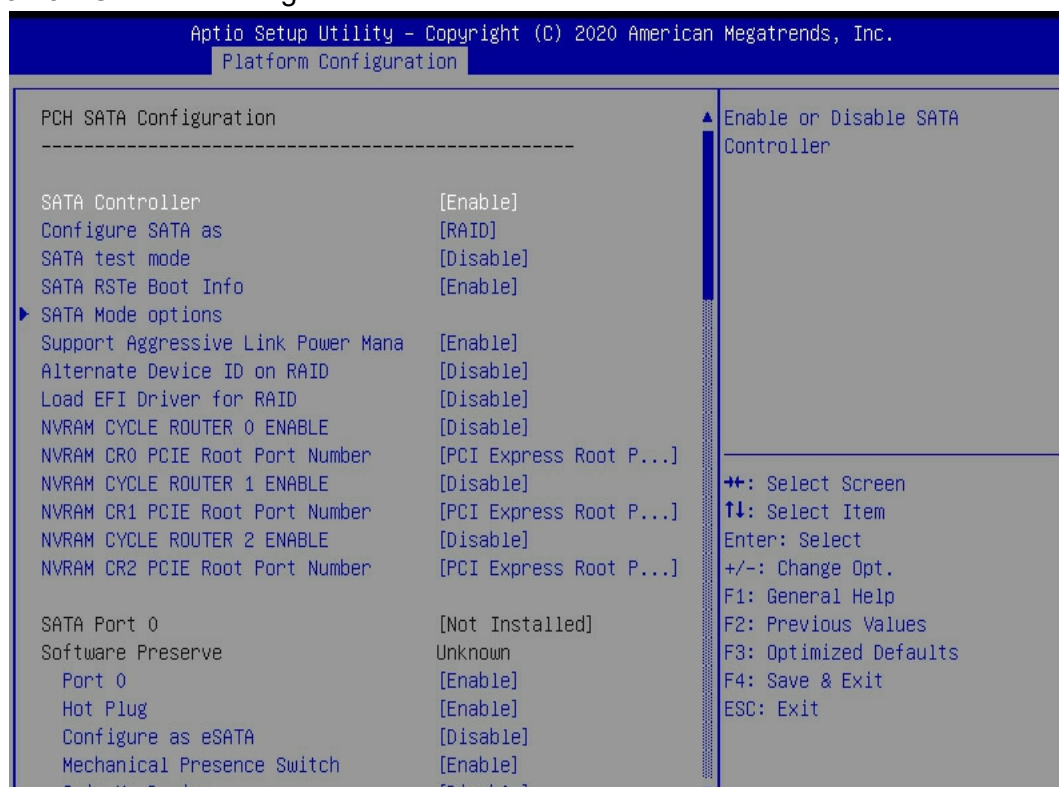



Figure 6- 13

 **Instruction** RSTe on-board soft raid has two controllers: SATA and ssata, which manage the disks connected to the two interfaces of the raid card respectively. The SATA controller supports up to 8 disks, and the ssata controller supports up to 6 disks.

c) Enter the interface shown in Figure 6-14, select Configure SATA as, press enter, and select the operating mode of RSTe onboard soft raid.

❖ Figure 6-14 modifying the working mode of raid card

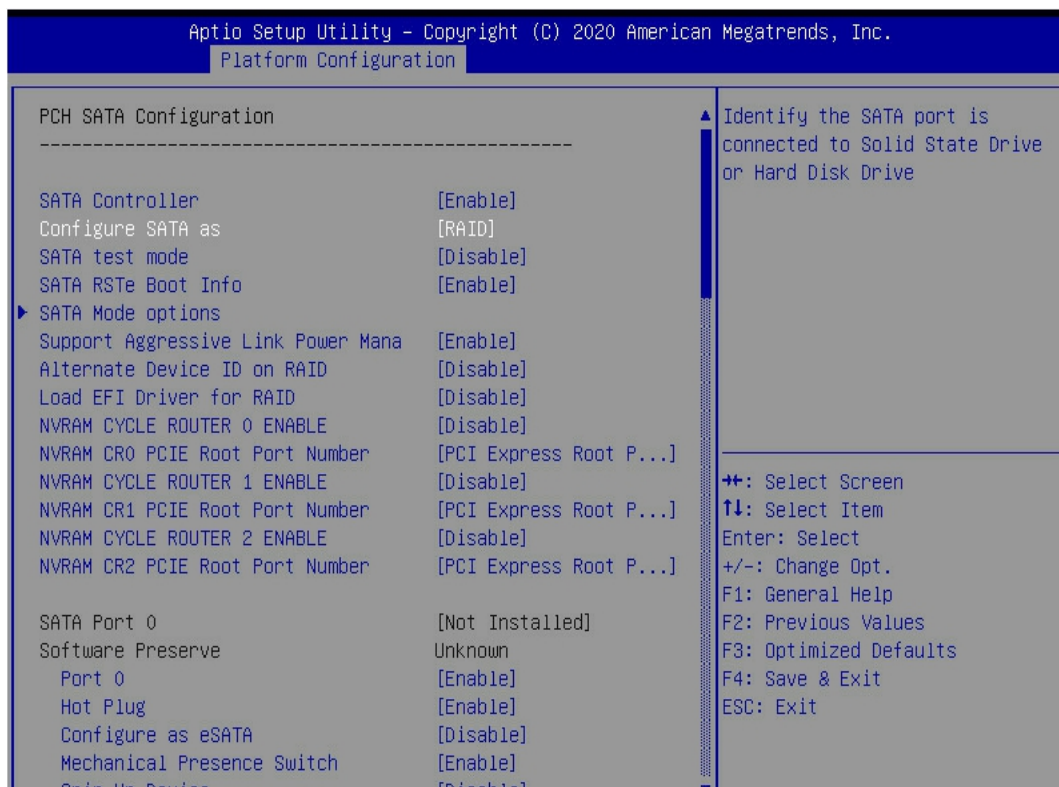


Figure 6- 14

➤ **Enter RSTe configuration interface**

a) Power on or restart the server. After the interface shown in Figure 6-15 appears during BIOS startup, press Ctrl + I.

✧ Figure 6-15 BIOS startup interface

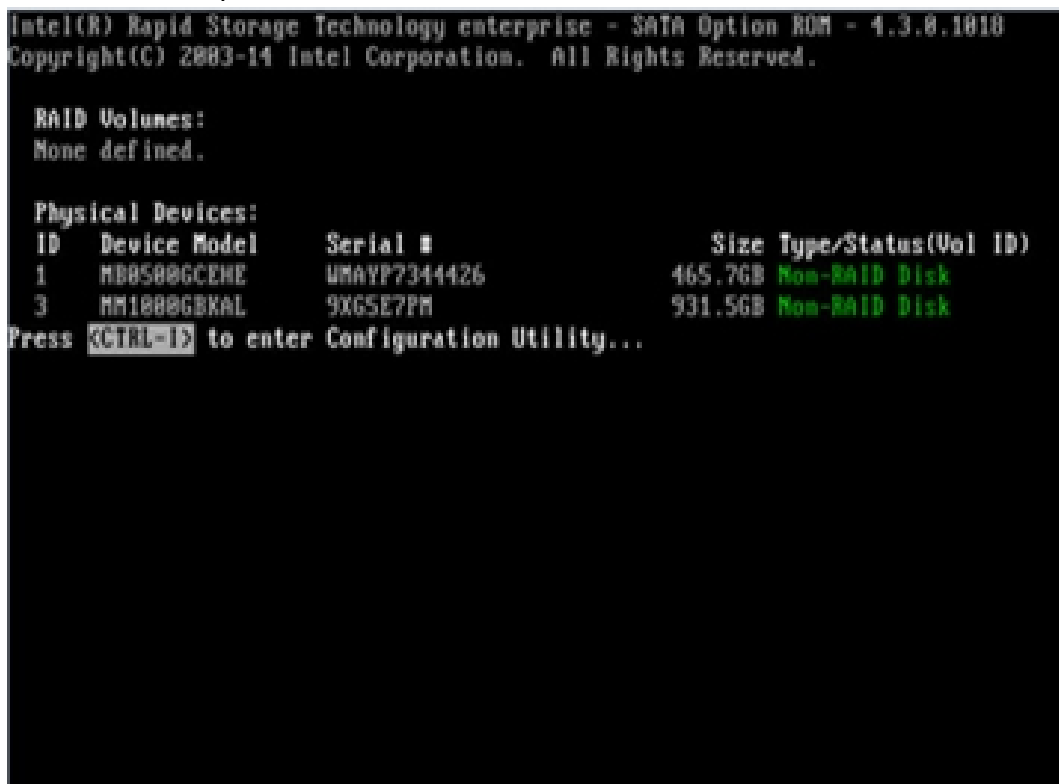



Figure 6- 15

 **Instruction** if the working mode of both ssata and SATA controllers is set to raid, "press < ctrl-i > to enter configuration utility" will appear twice during BIOS startup, which corresponds to ssata and SATA

controllers in turn. Please select the controller according to the disk required for RAID configuration.

b) Enter the RSTe configuration interface shown in Figure 6-16 (see table 1-25 for interface description). Please refer to the key operation tips on the bottom border of the interface to realize navigation and modify settings in the interface.

✧ Figure 6-16 RSTe configuration interface

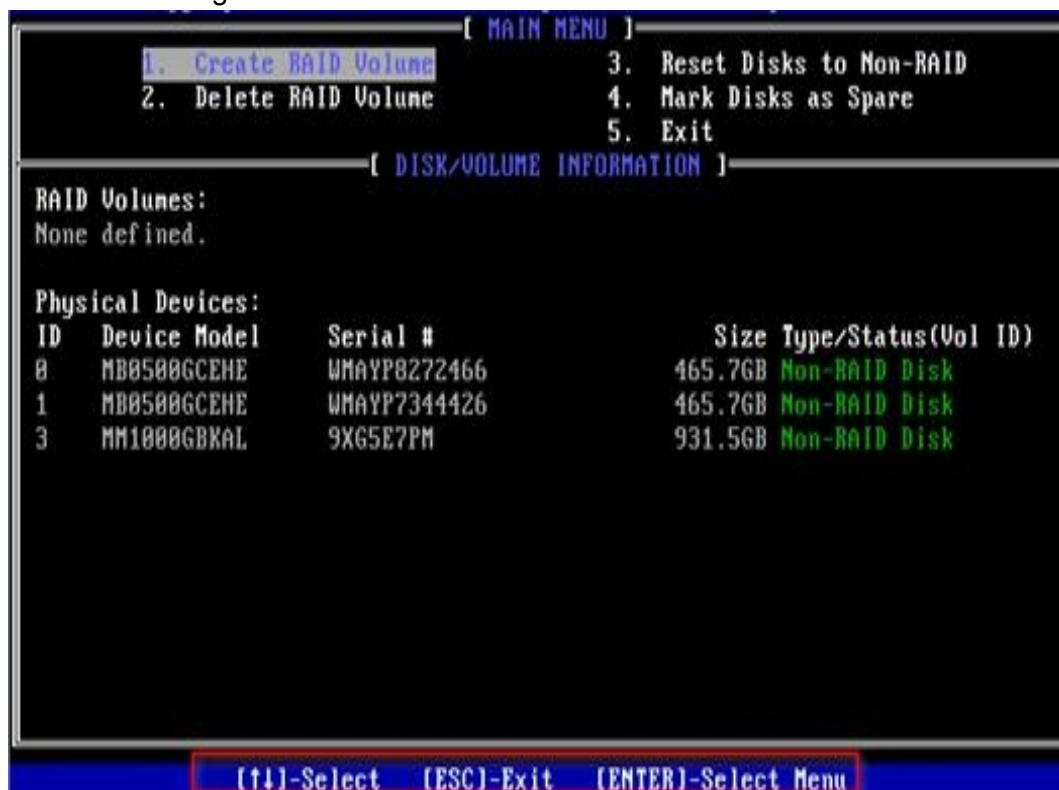


Figure 6- 16

✧ Table 1-25 RSTe configuration interface description

option	explain
Main menu	Located on the upper side of the interface, it can perform the following operation tasks: 1. Create raid volume: configure raid volume. 2. Delete raid volume: delete raid volume. 3. Reset disks to non Raid: clear the RAID configuration information of the disk. 4. Mark disks as spare: configure hot spare. 5. Exit: exit.
DISK/VOLUME INFORMATION (disk and volume information)	Located at the lower side of the configuration interface, you can view the summary information of the raid and physical disks that have been created.

Table 1-25

➤ **Common tasks**

**Configure Raid:**

- a) Enter RSTe configuration interface.
- b) As shown in Figure 6-17, select Create raid volume in RSTe configuration interface and press enter.

✧ Figure 6-17 RSTe configuration interface

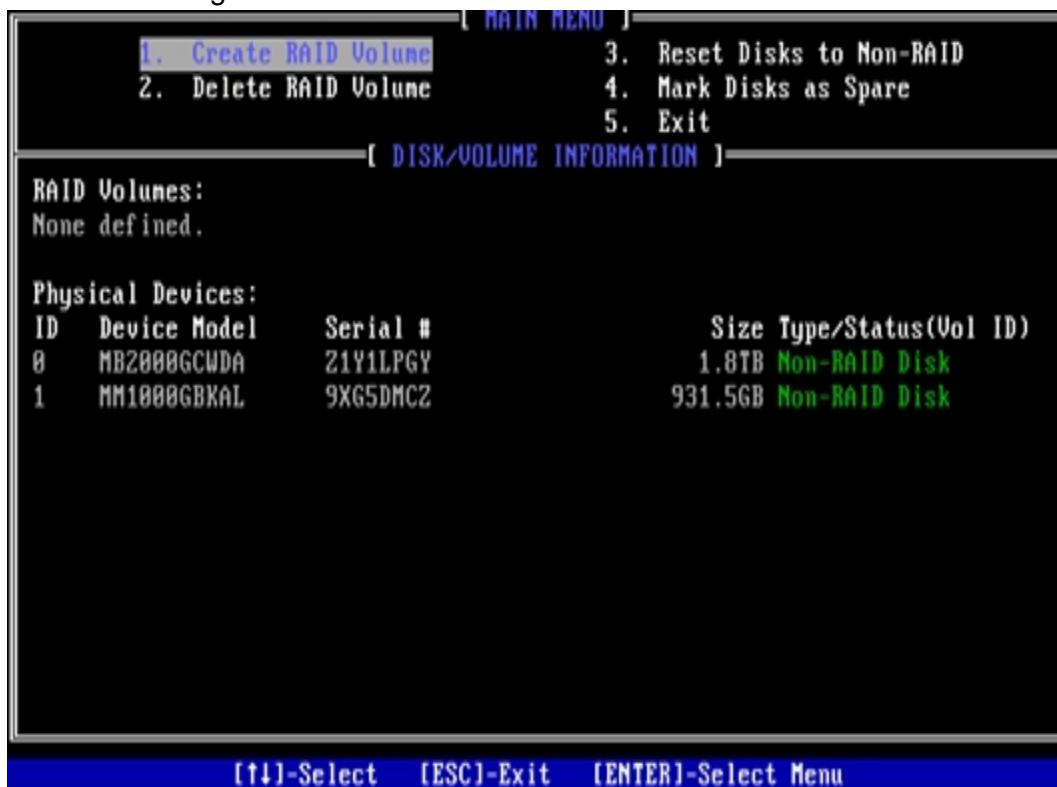


Figure 6- 17

c) Enter the interface shown in Figure 6-18, set the corresponding columns in name, RAID level, disks, strip size and capacity (see table 1-26 for parameter description), and then select Create volume and press enter.

✧ Figure 6-18 create raid volume interface

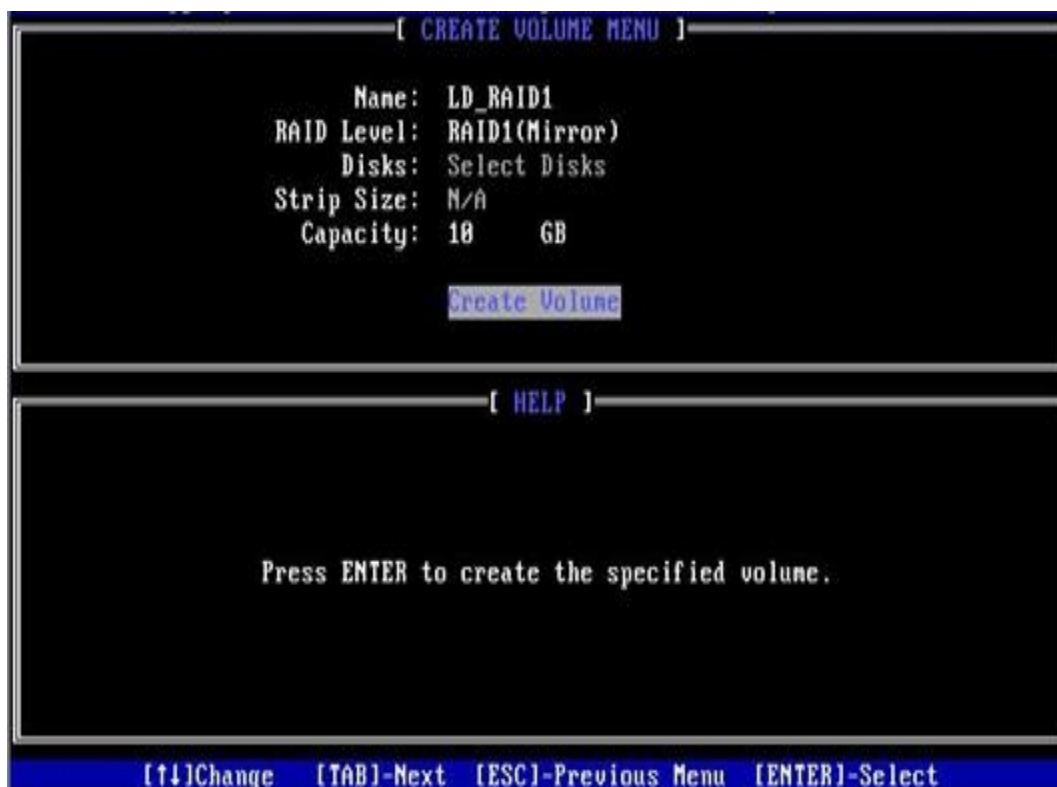


Figure 6- 18

✧ Table 1-26 parameter description

Parameter	Explain
Name	The name of the raid.
RAID Level	RAID level. RAID level determines logical disk performance, fault tolerance and capacity.
Disks	Select the member disks that make up the raid. Select the disks column, press enter, and press space to select the disk.
Strip Size	Stripe size, the size of the stripe data block written on each disk.
Capacity	The capacity of the logical drive.

Table 1 - 26

d) Enter the interface shown in Figure 6-19 to view the detailed information of RAID (including raid name, level, disk information, etc.).

✧ Figure 6-19 raid information interface



Figure 6- 19

**To configure a hot spare:**

- Enter RSTe configuration interface
  - As shown in Figure 6-20, select mark disks as spare in RSTe configuration interface and press enter.
- ✧ Figure 6-20 RSTe configuration interface

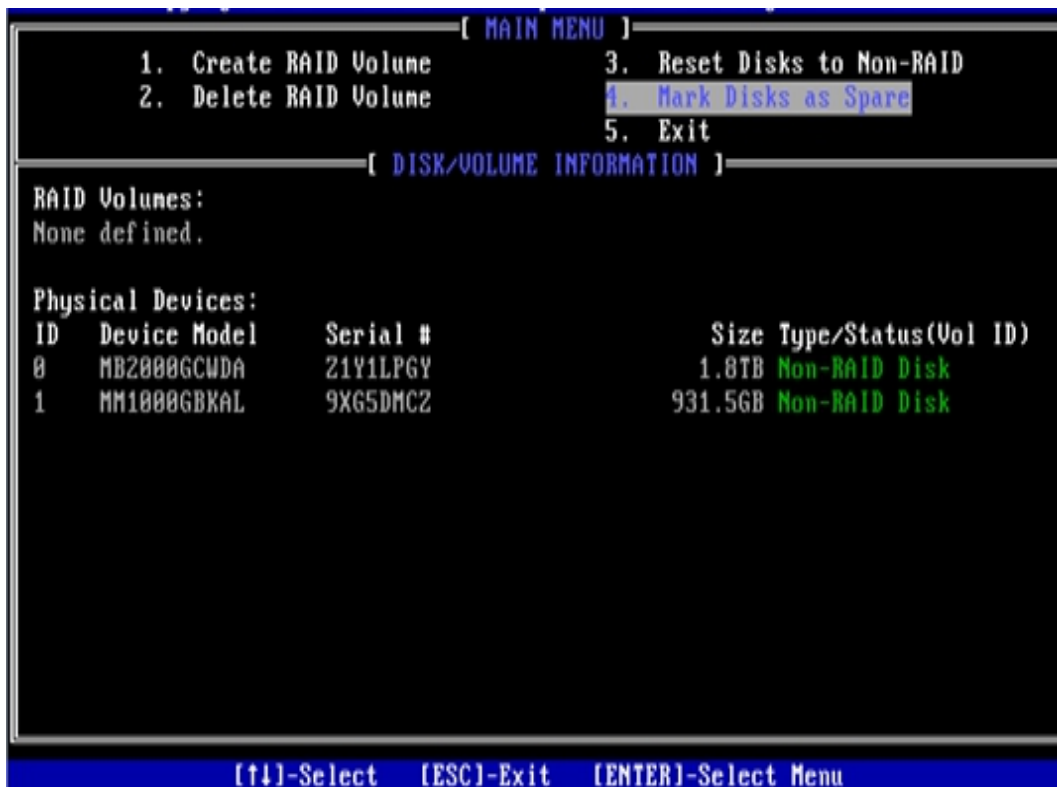


Figure 6- 20

c) Enter the interface shown in Figure 6-21, select the disk to be configured as a hot spare, press space to select it, and then press enter. In the prompt bar, enter y and press enter to complete the hot spare configuration.

✧ Figure 6-21 selecting disks

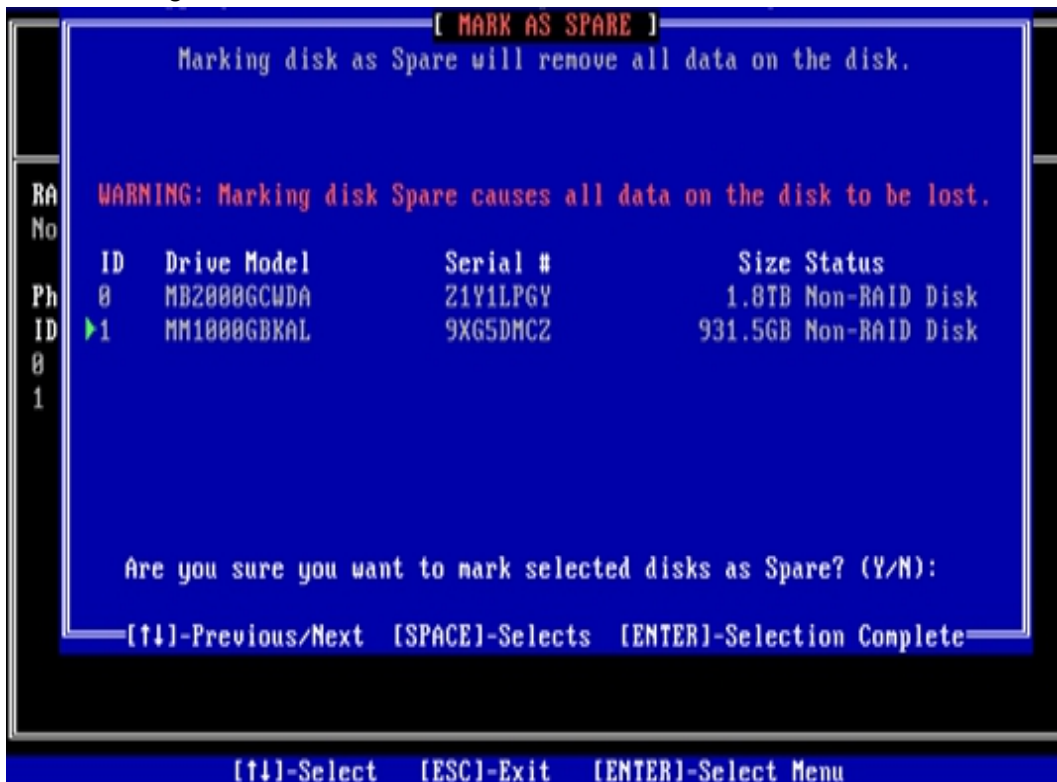


Figure 6- 21

d) In the RSTe configuration interface, you can see the hot spare information, as shown in Figure 6-22.

✧ Figure 6-22 viewing hot spare information in RSTe configuration interface

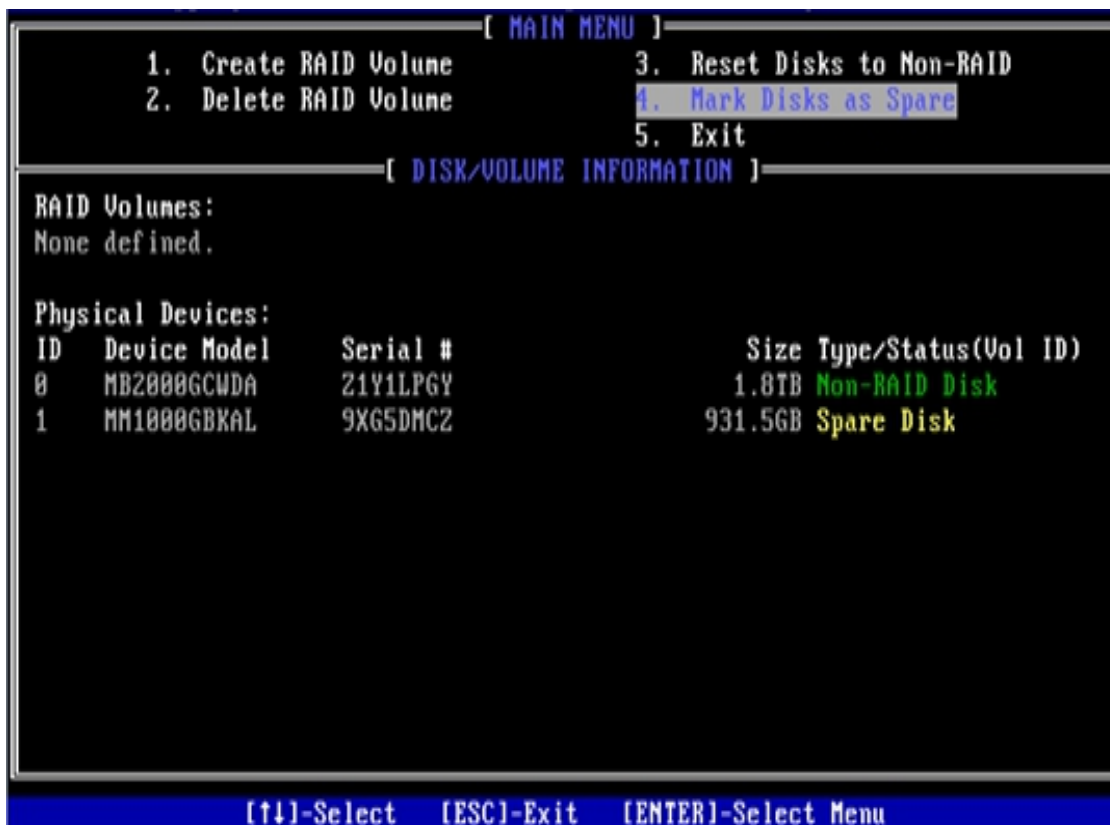


Figure 6- 22

### Delete Raid:

- Enter RSTe configuration interface
  - As shown in Figure 6-23, select Delete raid volume in RSTe configuration interface and press enter.
- ✧ Figure 6-23 RSTe configuration interface



Figure 6- 23



c) Enter the interface shown in Figure 6-24, select the raid to be deleted, and press Delete to complete the deletion.

✧ Figure 6-24 select raid to be deleted

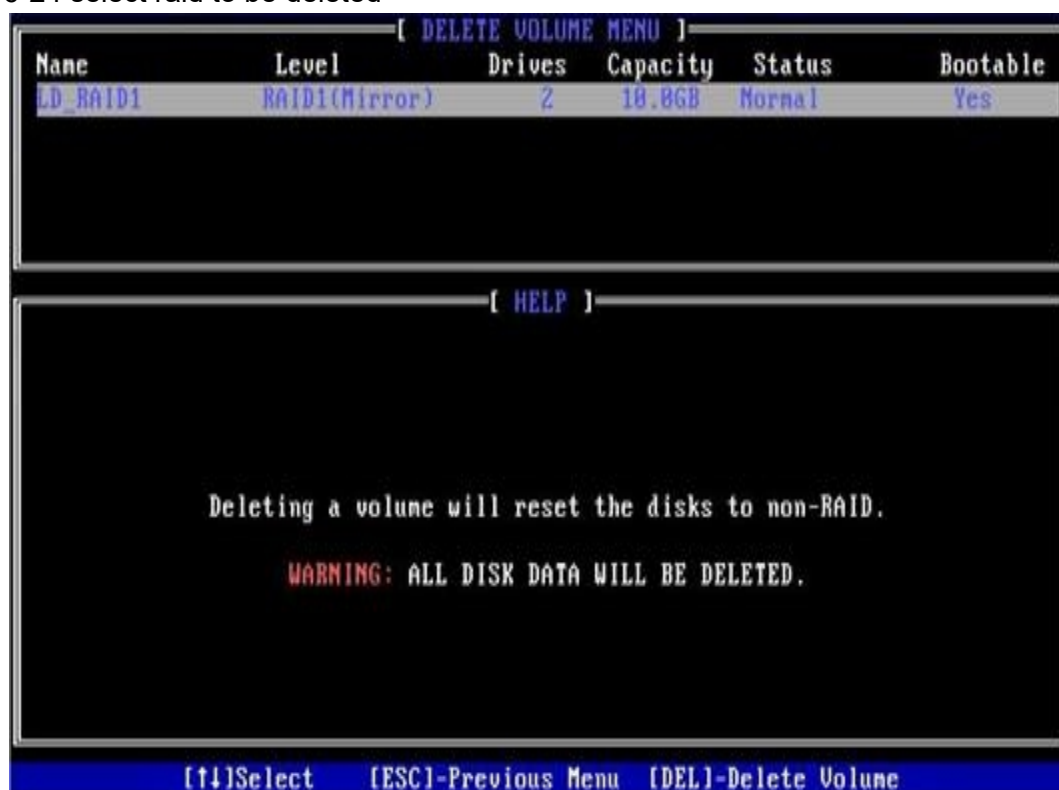


Figure 6- 24

## 6.2 raid card group raid

### 6.2.1 configuring raid in UEFI boot mode

➤ Enter the raid card configuration interface

- During the server startup process, press Delete / ESC according to the prompt to enter the BIOS Setup interface.
  - Select advanced > Avago MegaRAID < Avago MegaRAID SAS 91311-8i > configuration utility and press enter.
  - Enter the interface shown in Figure 6-25, which shows five categories of configuration tasks (see table 1-27 for related instructions).
- ✧ Figure 6-25 raid card configuration interface, as shown in Figure 6-25

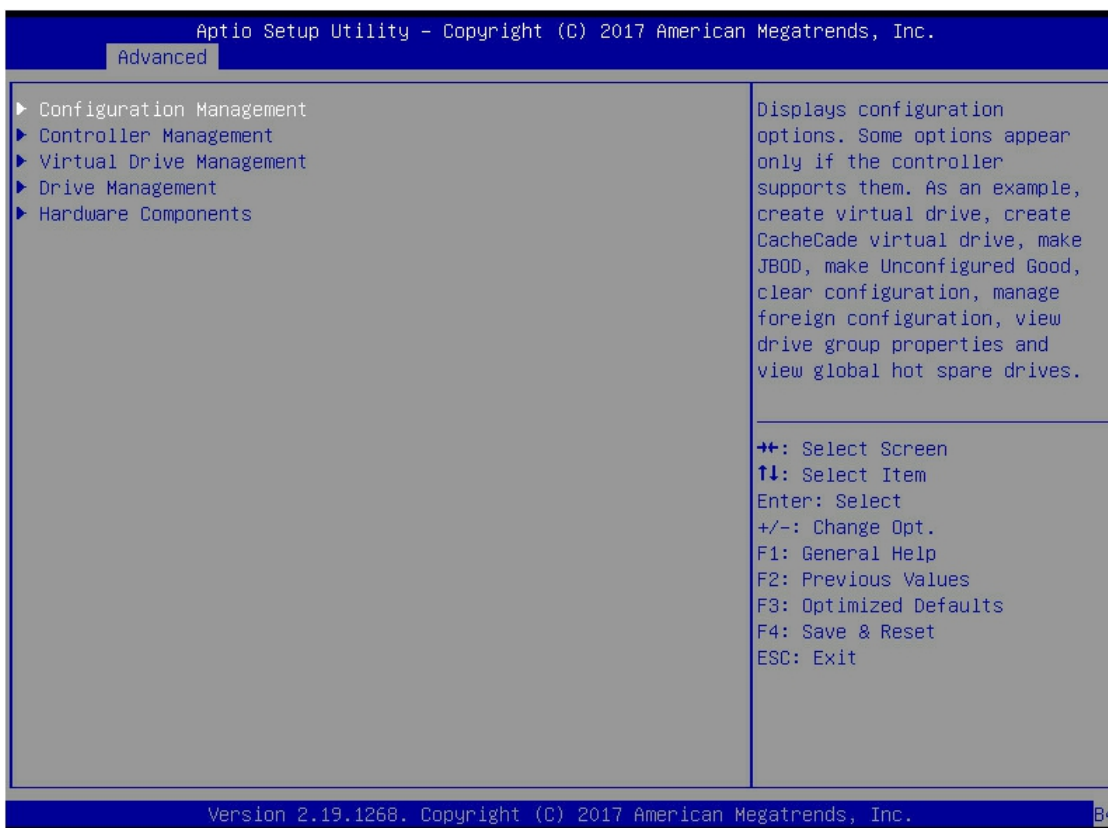


Figure 6- 25

✧ Table 1-27 parameter description

Option	Program specification
Configuration Management	Select configuration management to perform tasks such as creating logical disks, viewing disk group properties, viewing hot backup information, and clearing configuration.
Controller Management	Select controller management to view and manage controller properties and perform tasks such as clearing controller events, scheduling and running controller events, and running patrol reads.
Virtual Drive Management	Select logical drive management to perform tasks such as viewing logical drive properties, locating logical drives, and running consistency checks.
Drive Management	Select disk management to view the physical disk properties and perform tasks such as locating the disk, initializing the disk, and rebuilding after a disk fails.
Hardware Components	Select hardware components to view super capacitor properties, manage supercapacitors and manage peripheral components.

Table 1-27

➤ **Common tasks**

**Switch disk mode:**

Raid card supports switching the following three disk modes.

1. Unconfigured good: indicates that the physical disk is normal and can be used to configure raid or hot spare.

2. Unconfigured bad: indicates that the physical disk has residual raid information, which needs to be cleared manually.
3. JBOD: just a bunch of disks, which only concatenates the disks together to expand the capacity, but does not have the raid function.

Here, we take the example of switching from unconfigured good mode to unconfigured bad mode.

- a) As shown in Figure 6-26, select drive management in the raid card configuration interface and press enter.

✧ Figure 6-26 raid card configuration interface

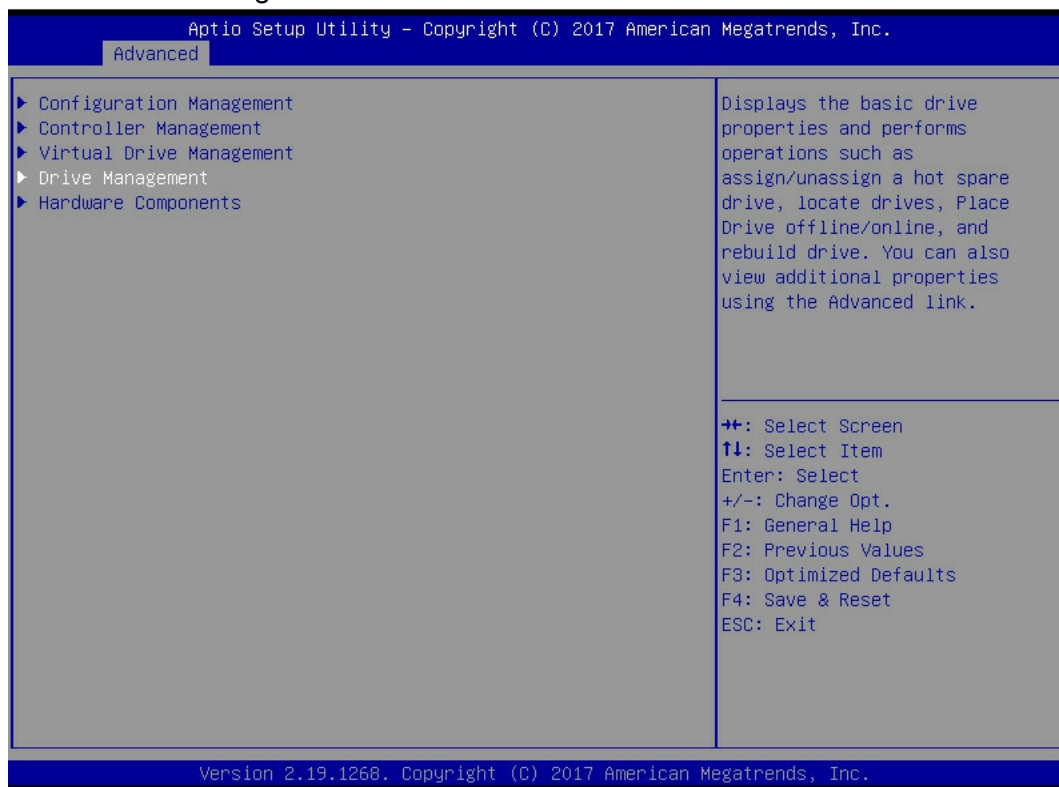


Figure 6- 26

- b) Enter the interface shown in Figure 6-27, select the disk to be configured, and press enter.

✧ Figure 6-27 drive management interface

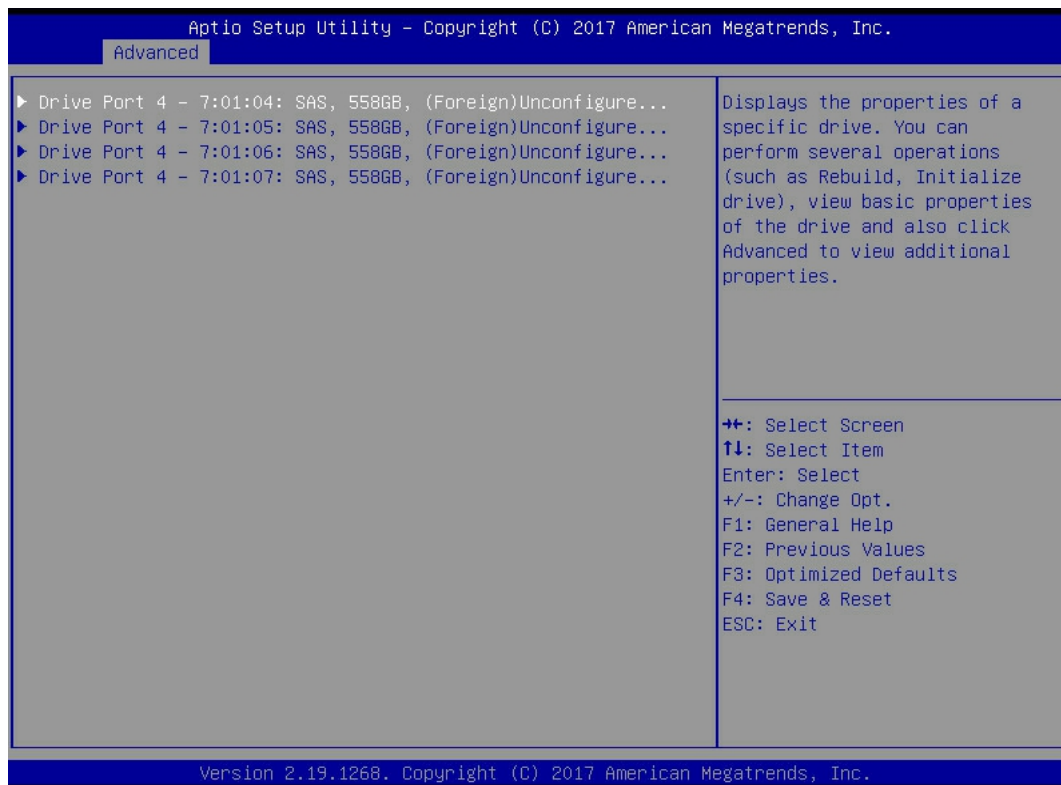


Figure 6- 27

- c) Enter the interface shown in Figure 6-28, select operation, press enter, and then select make unconfigured bad in the pop-up dialog box, and press enter.

✧ Figure 6-28 operation interface

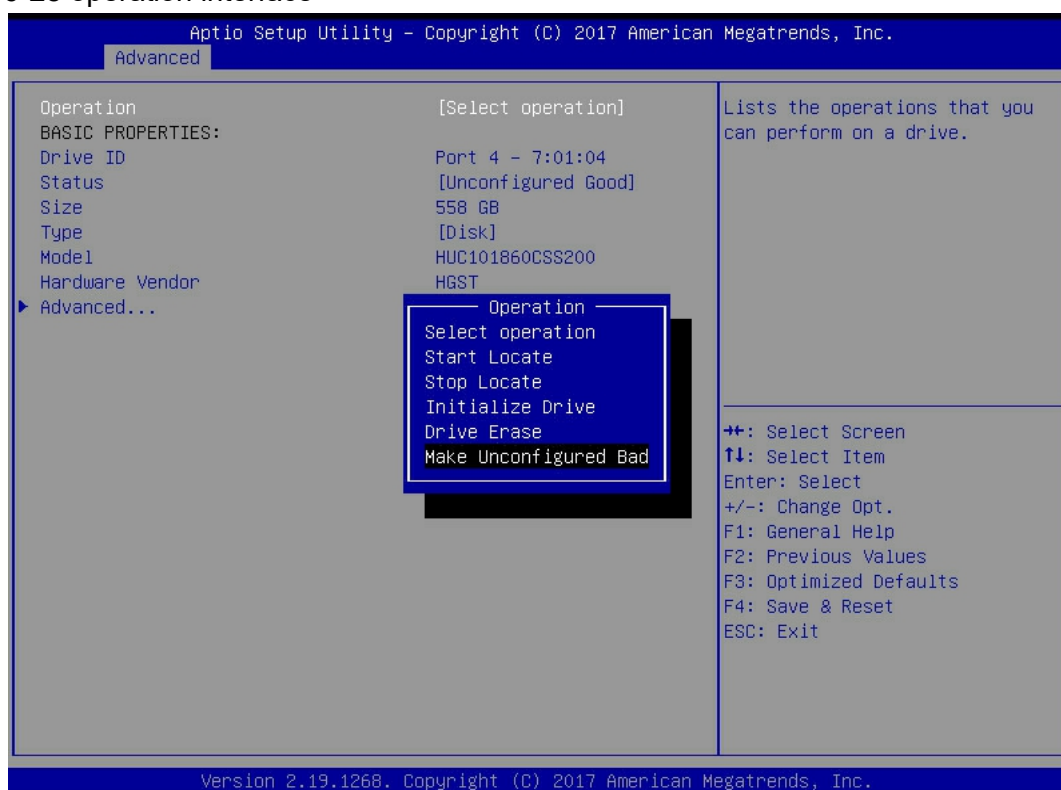


Figure 6- 28

- d) Enter the interface shown in figure 6-29, select go and press enter.

✧ Figure 6-29 select go

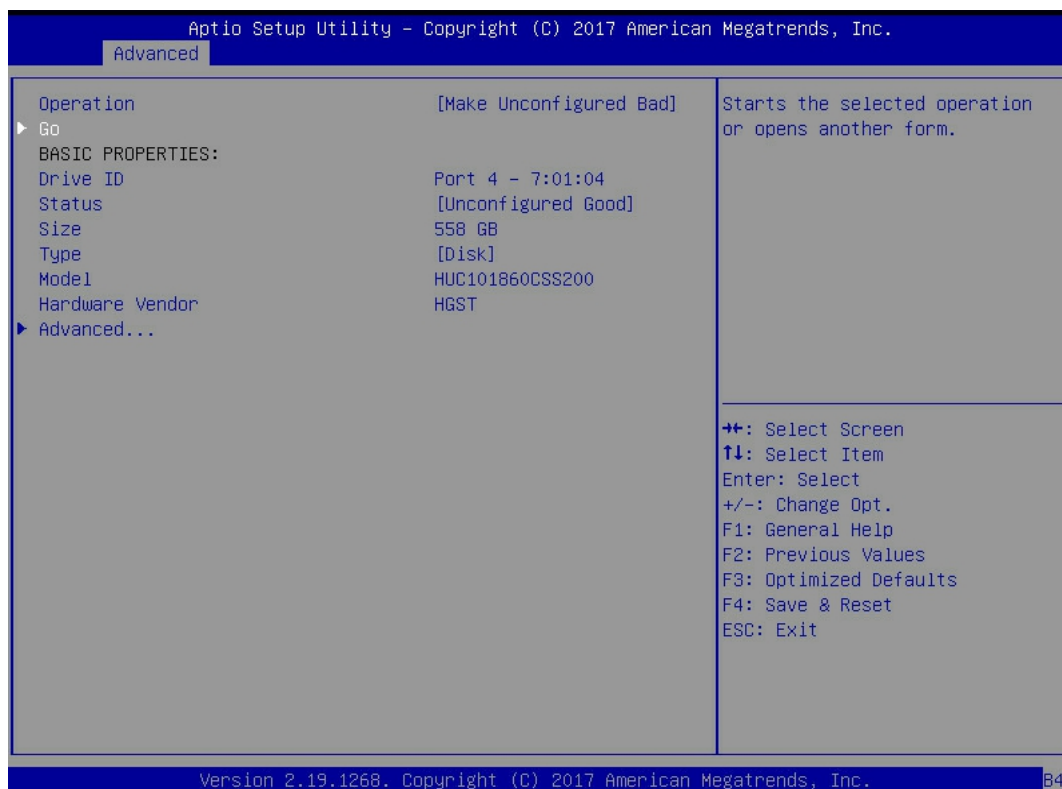


Figure 6- 29

- e) Enter the interface shown in Figure 6-30 to complete the operation of switching disk mode.
- ✧ Figure 6-30 complete disk mode switch



Figure 6- 30

**Create Raid:**

- a) As shown in Figure 6-31, select configuration management in the raid card configuration interface and press enter.
- ✧ Figure 6-31 raid card configuration interface

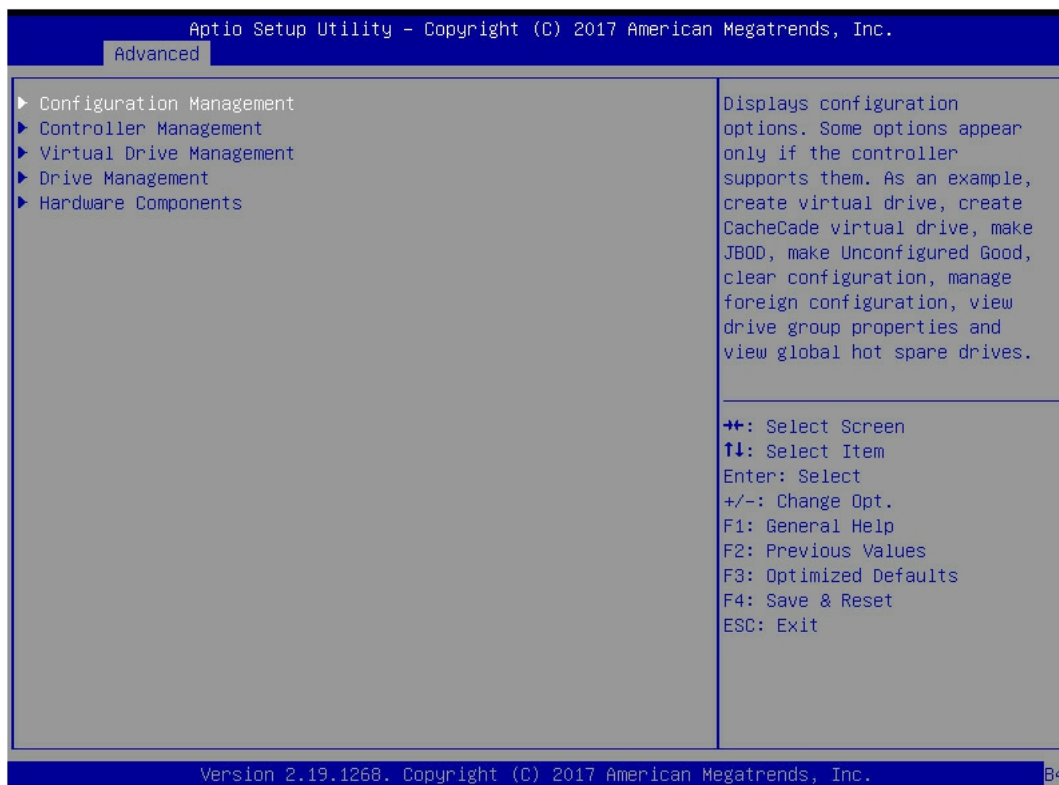


Figure 6- 31

b) Enter the interface shown in figure 6-32, select create virtual drive, and press enter.

✧ Figure 6-32 select Create Virtual Drive

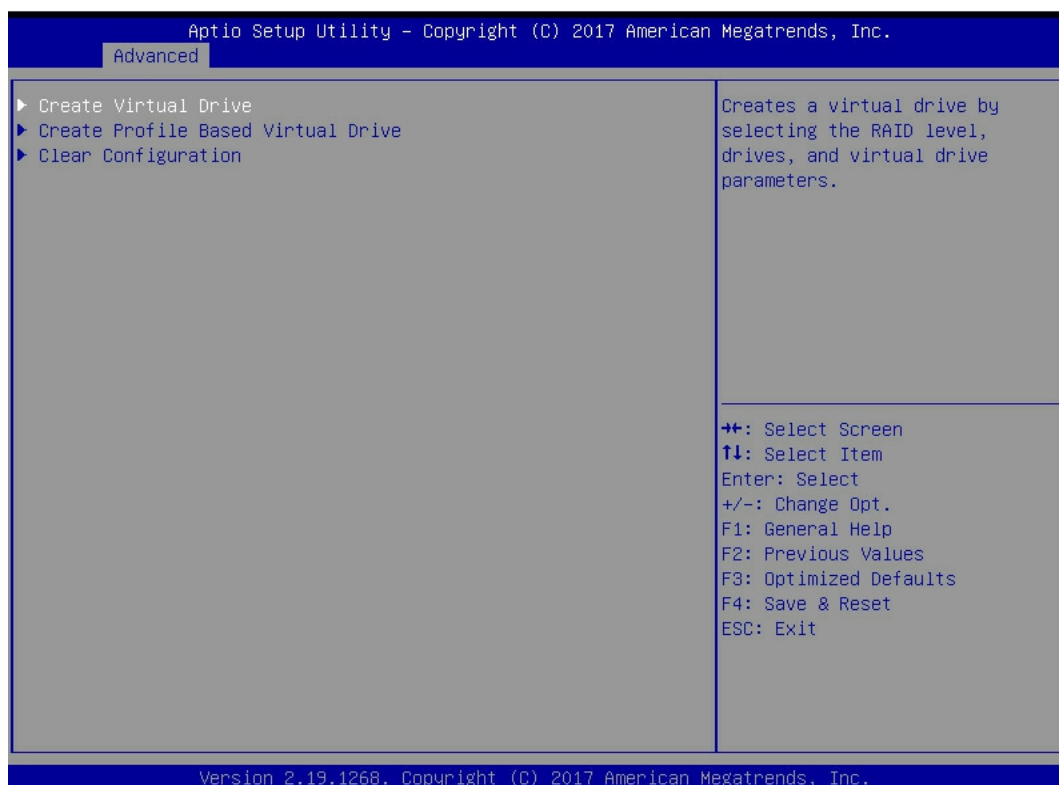


Figure 6- 32

c) Enter the interface shown in figure 6-33, select select RAID level, set RAID level, and press enter.

✧ Figure 6-33 setting RAID levels

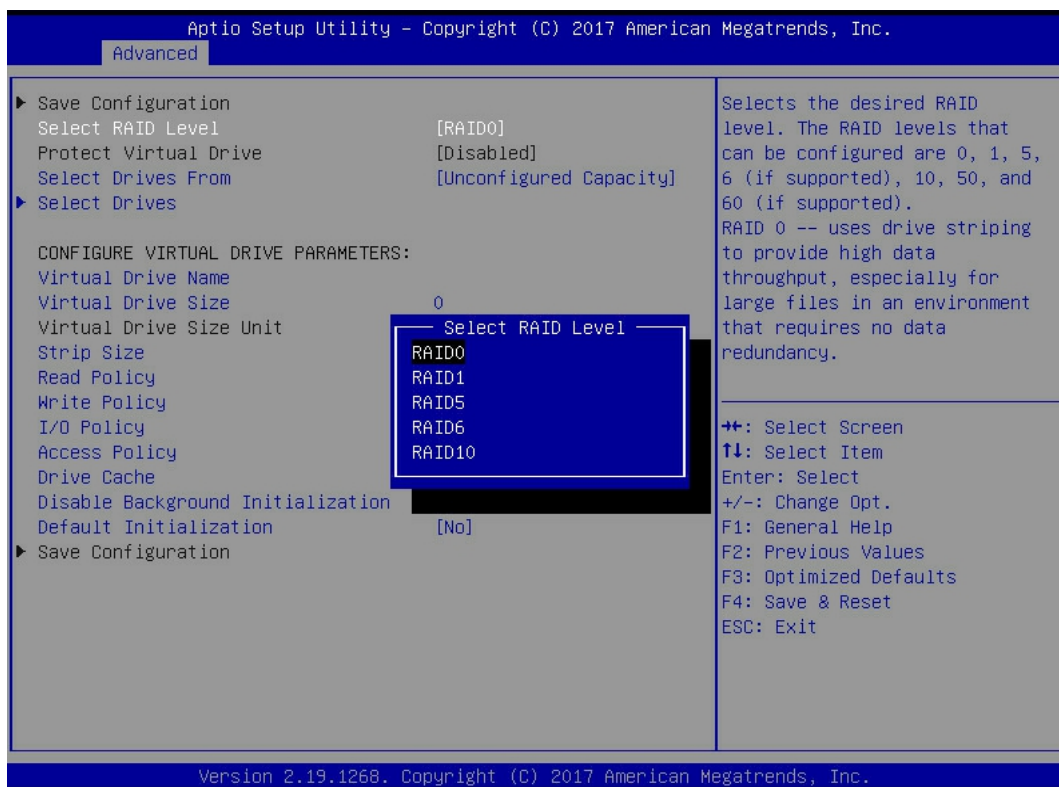


Figure 6- 33

- d) Enter the interface shown in figure 6-34, select select drives from, set the source of RAID disk capacity, and press enter.
- ✧ [unconfigured capacity] indicates the remaining capacity of the disk from which the raid has been configured.
- ✧ [free capacity] indicates that the capacity comes from an empty disk.
- ✧ Figure 6-34 setting RAID disk capacity source

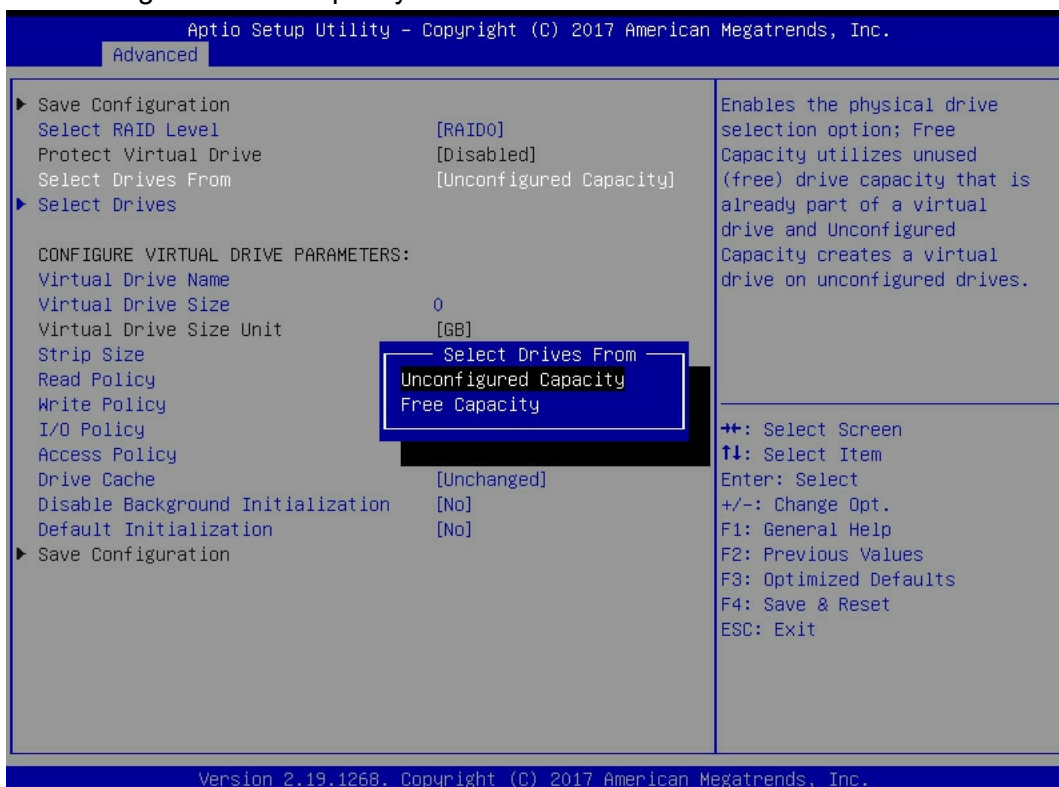


Figure 6- 34

- e) Enter the interface shown in Figure 6-35, select select drives and press enter.

✧ Figure 6-35 select drives

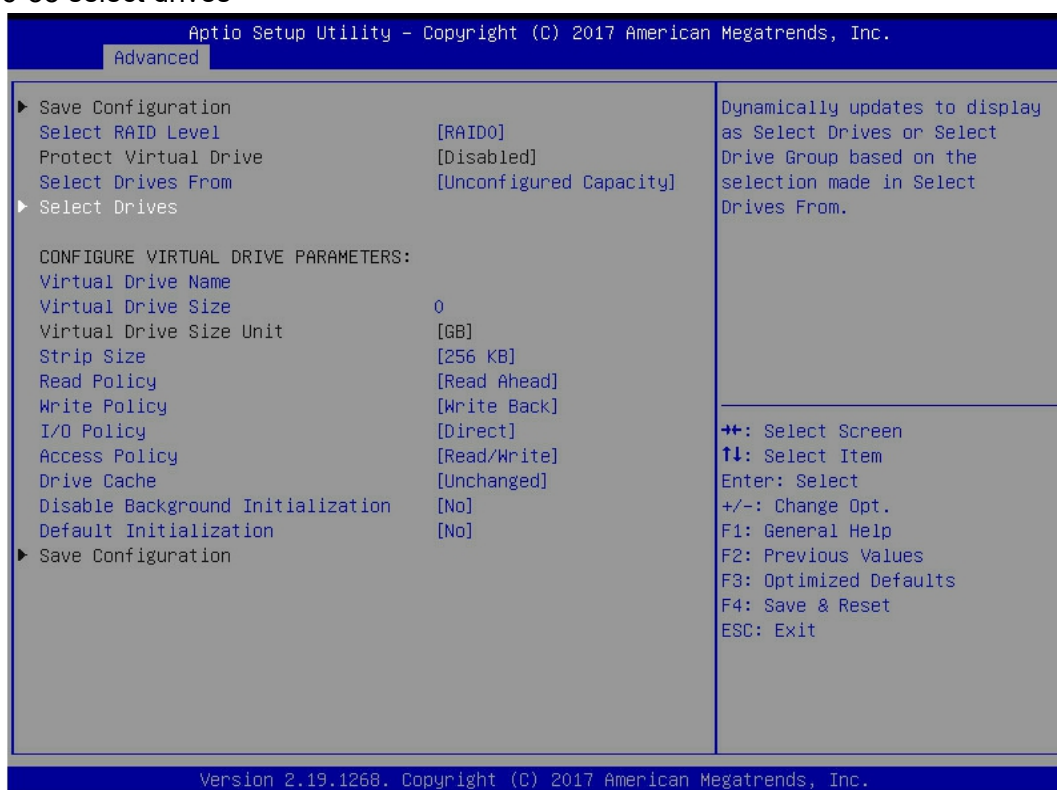


Figure 6- 35

- f) Enter the interface shown in Figure 6-36, select the disk to be used to configure raid, [enabled] indicates that it is selected, then select apply changes and press enter. If the state of the disk is JBOD or unconfigured bad, it cannot be selected.

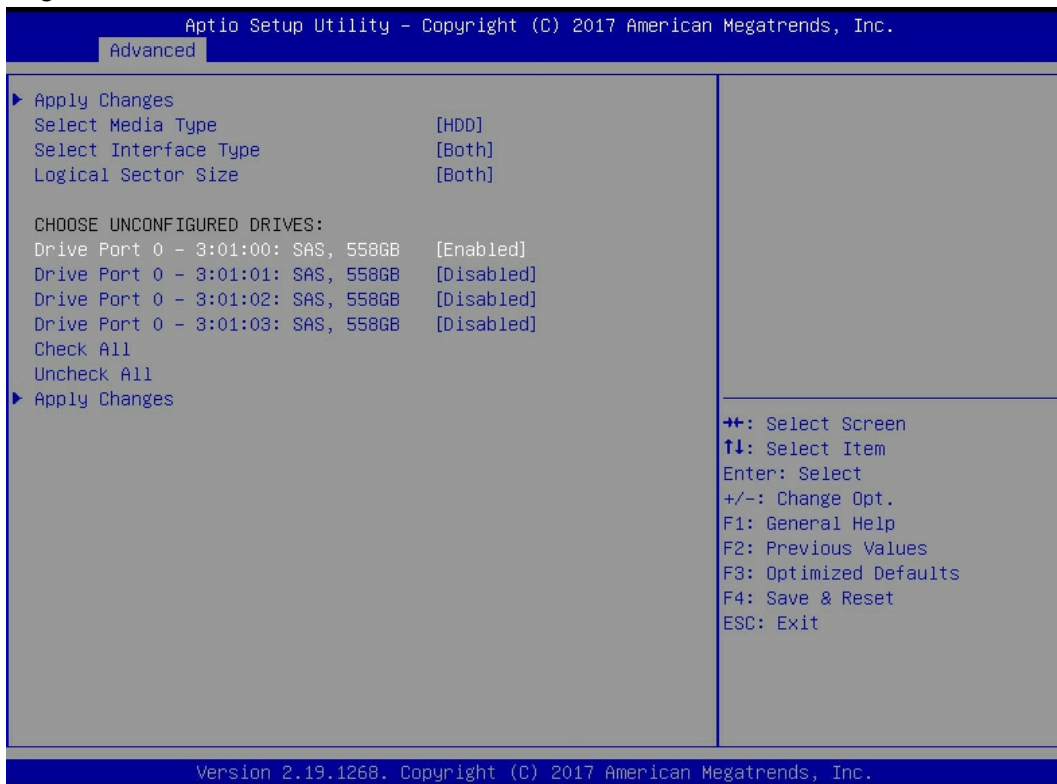


Figure 6- 36

- g) Enter the interface shown in figure 6-37, make corresponding settings (see table 1-28 for parameter description), then select save configuration and press enter.

✧ Figure 6-37 setting raid parameters



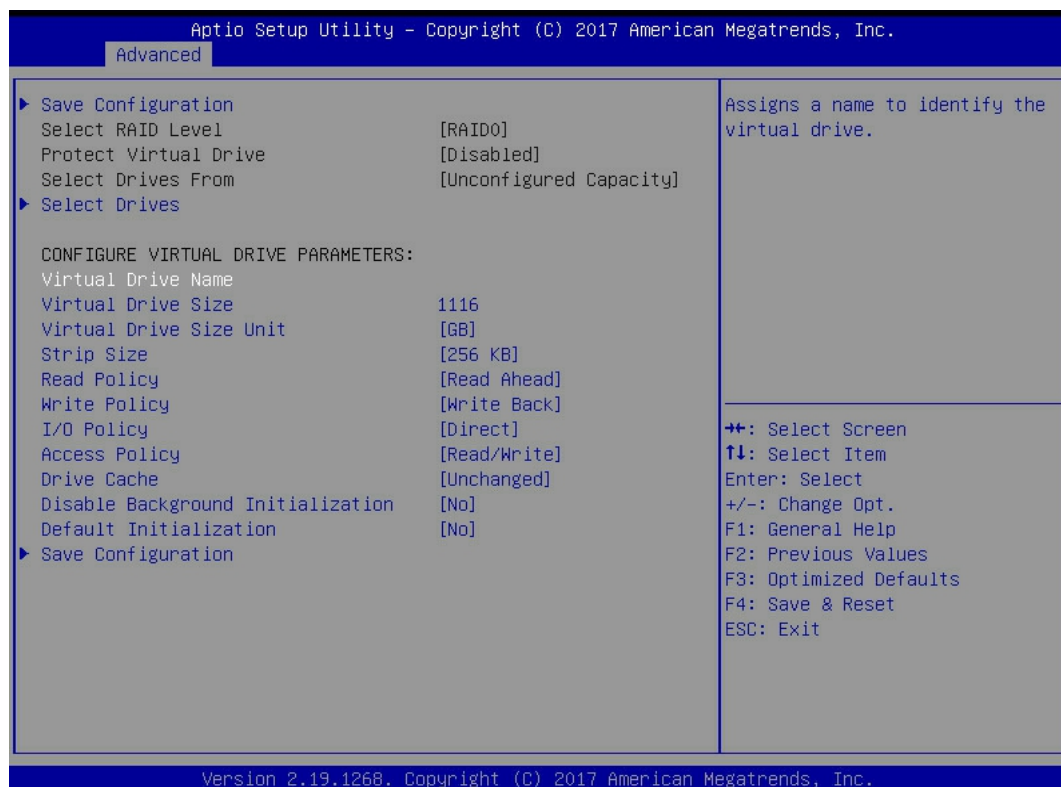



Figure 6- 37

✧ Parameter description

Parameter	Explain
Virtual Drive Name	The name of raid. Only letters, numbers and underscores are supported, and case is not sensitive
Virtual Drive Size	Capacity size of raid
Virtual Drive Size Unit	Capacity unit of raid
Stripe Size	Stripe size, the size of the stripe data block written on each disk
Read Policy	Read cache strategy, divided into read ahead and no read ahead
Write Policy	The write cache strategy is divided into write through, always write back and write back
I/O Policy	I / O strategy, divided into cached (cache mode) and direct (direct read-write mode)
Access Policy	Read / write policies are divided into read / write, read only and blocked
Drive Cache	The disk cache policy is divided into enable, disable and unchanged
Default Initialization	Default initialization method
Save Configuration	Save the configuration created by the wizard

Table 1- 28

 Instruction

- ✧ Do not use special characters as RAID names.
  - ✧ Compared with no read ahead, write through and direct, the performance of read ahead, write back and cached is improved, but the data consistency cannot be guaranteed.
  - ✧ If the super capacitor is abnormal, when "write back" is selected as the write cache policy, the "write through" is implemented for the firmware write data; when "always write back" is selected for the write cache policy, the "write back" is implemented for the firmware write data.
- h) Enter the interface shown in figure 6-38, select confirm to enable it, select Yes, and press enter.
- ✧ Figure 6-38 confirm configuration



Figure 6- 38

i) Enter the interface shown in figure 6-39, complete the RAID configuration operation, and select OK to return to the raid card configuration interface.

✧ Figure 6-39 complete configuration of raid



Figure 6- 39

j) As shown in figure 6-40, select virtual drive management in the raid card configuration interface and press enter.

✧ Figure 6-40 raid card configuration interface

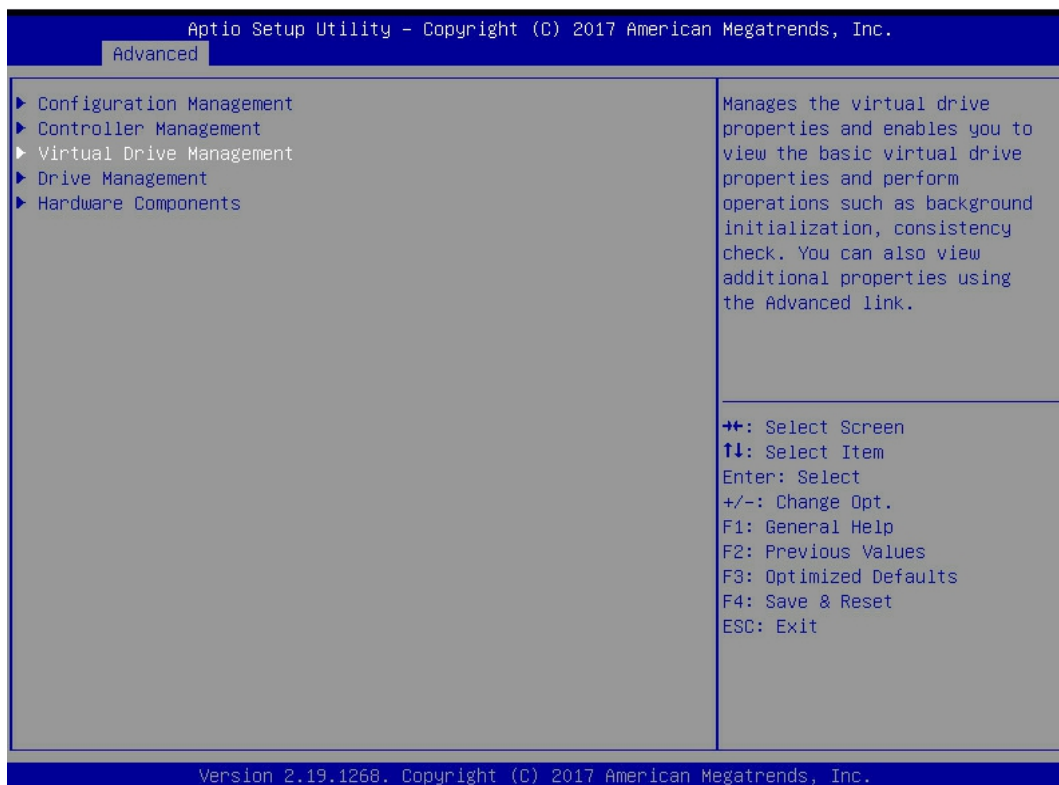


Figure 6- 40

- k) Enter the interface shown in figure 6-41, you can see the created raid, select the raid you want to view, and press enter.

❖ Figure 6-41 virtual drive management interface

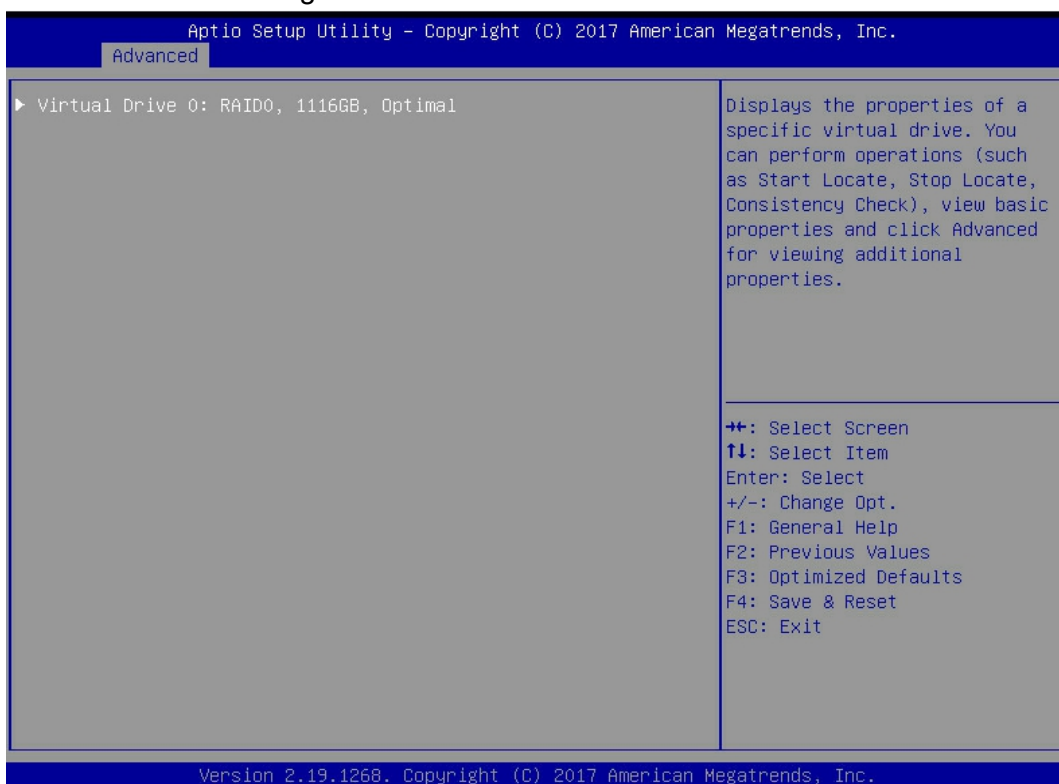


Figure 6- 41

- l) Enter the interface shown in figure 6-42, select view associated drives, and press enter to view the detailed information of the raid (including raid name, level, disk information, etc.).

❖ Figure 6-42 select view associated drives

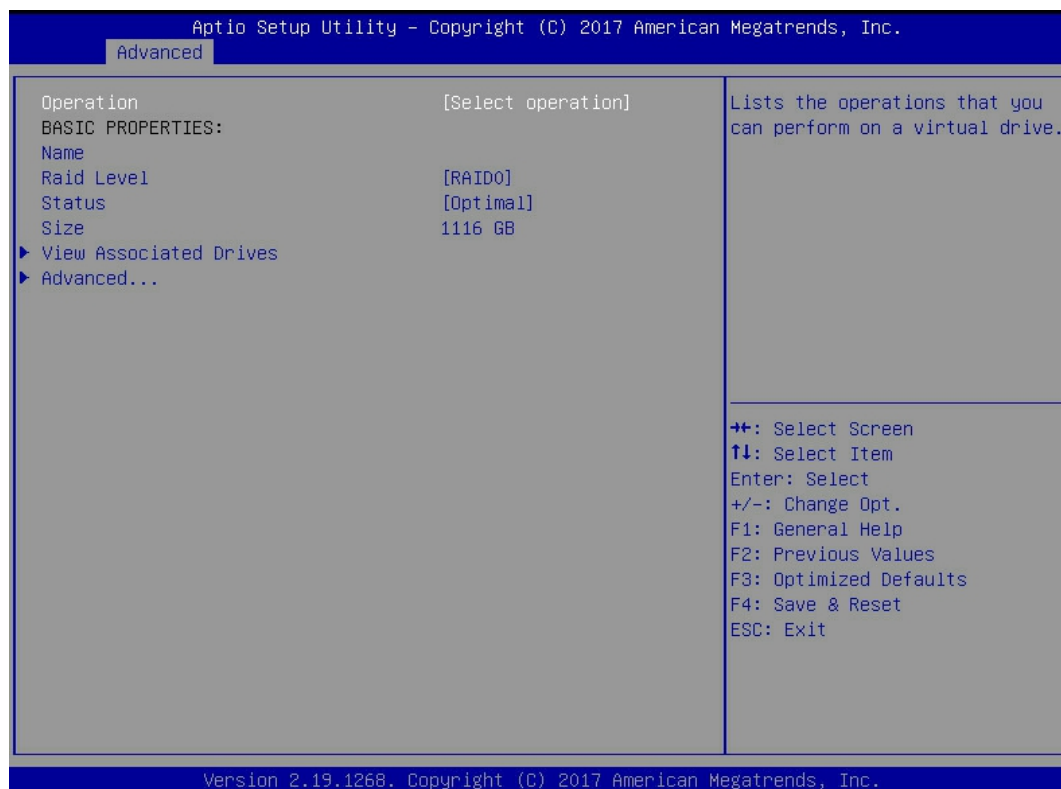
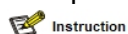


Figure 6- 42

### To configure a hot spare:

After the raid is configured, the hot spare disk is generally configured to improve the data security. Global hot spare or dedicated hot spare can be configured as required.



- ✧ heat
- ✧ Spare disks are used only for RAID levels with redundancy.
- ✧ The capacity of the hot spare disk is larger than the capacity that a single member disk of a raid contributes to the raid.
- ✧ Only disks with unconfigured good configuration mode are supported as hot spare disks.
- ✧ Configure global hot spare
  - a) As shown in figure 6-43, select drive management in the raid card configuration interface and press enter.
    - ✧ Figure 6-43 raid card configuration interface

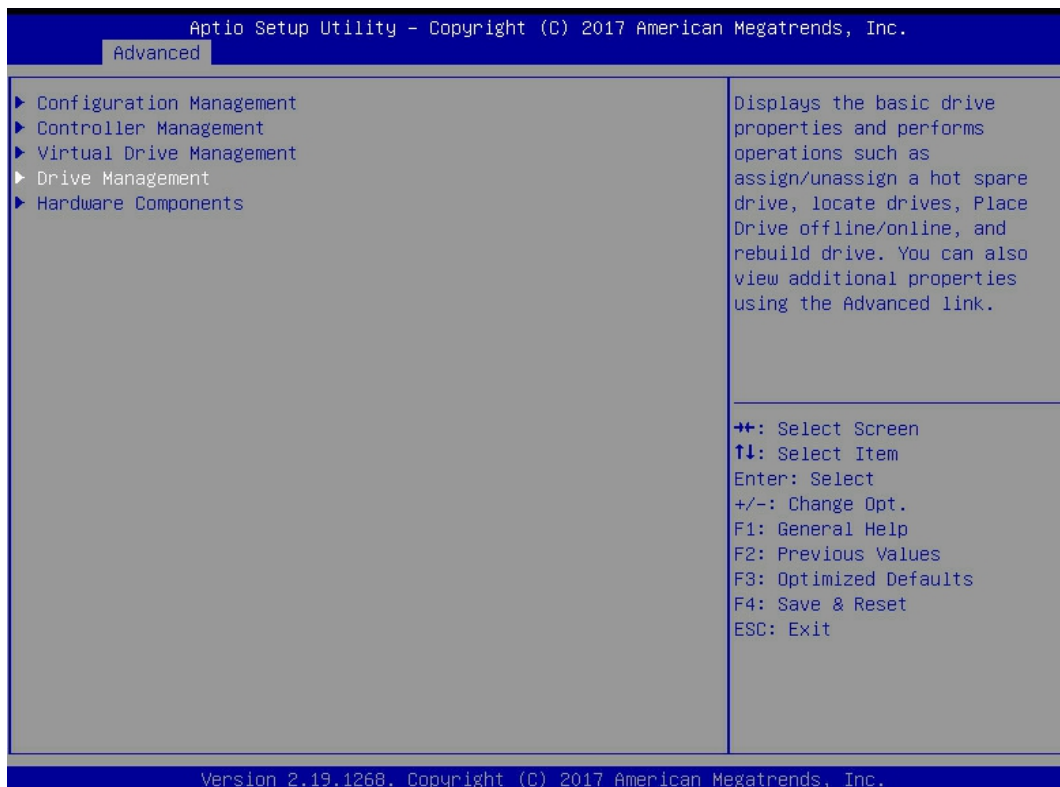


Figure 6- 43

b) Enter the interface shown in figure 6-44, select the disk to be configured as global hot spare, and press enter.

✧ Figure 6-44 drive management interface

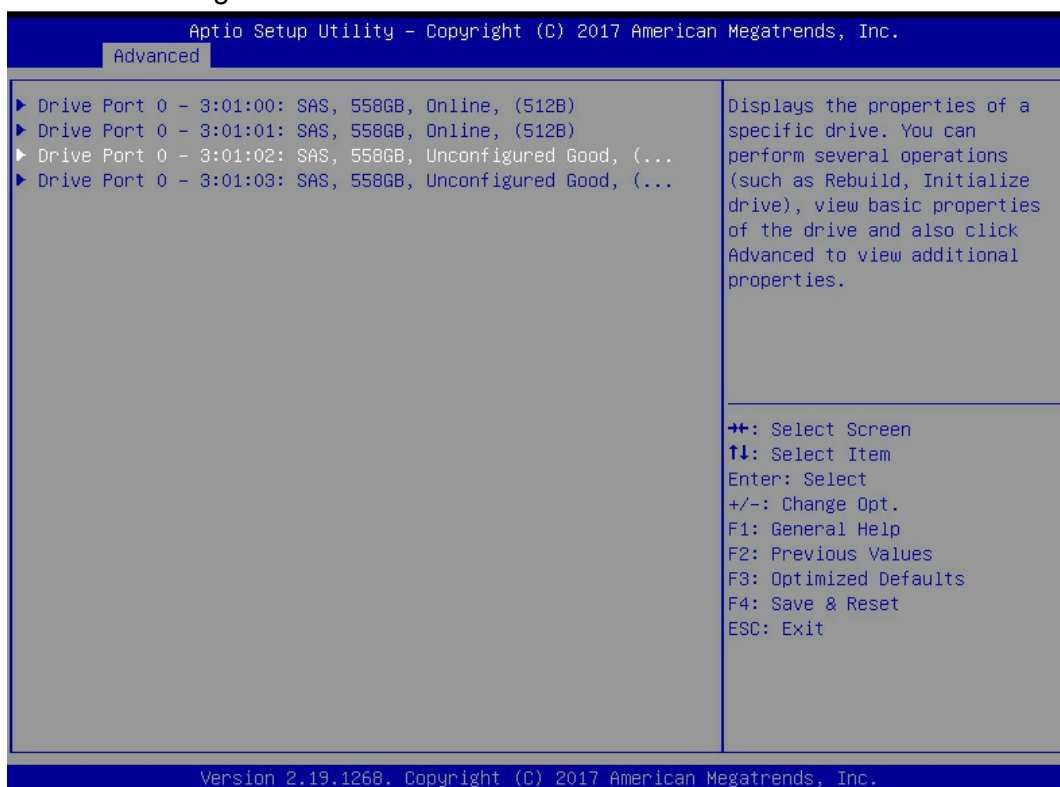


Figure 6-44

c) Enter the interface shown in figure 6-45, select operation, press enter, then select assign assigned hot spare drive and press enter.

✧ Figure 6-45 operation interface

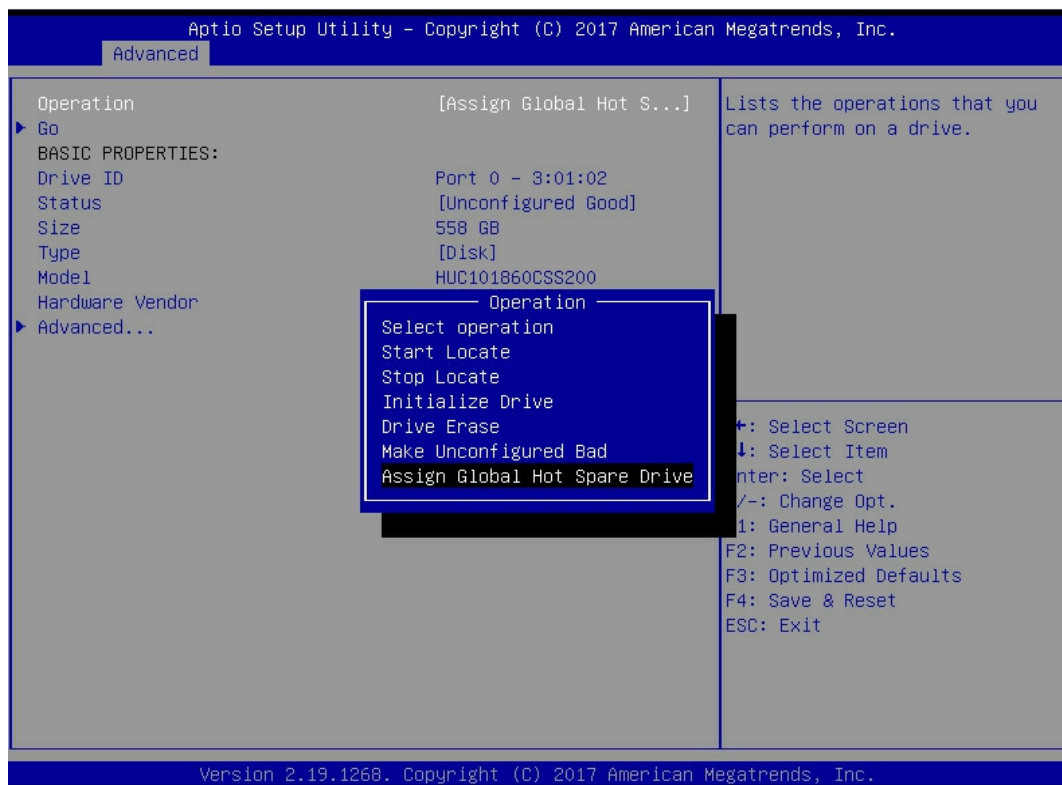


Figure 6-45

d) Enter the interface shown in figure 6-46, select go and press enter.

✧ Figure 6-46 select go



Figure 6-46

e) Enter the interface shown in figure 6-47, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-47 confirm configuration

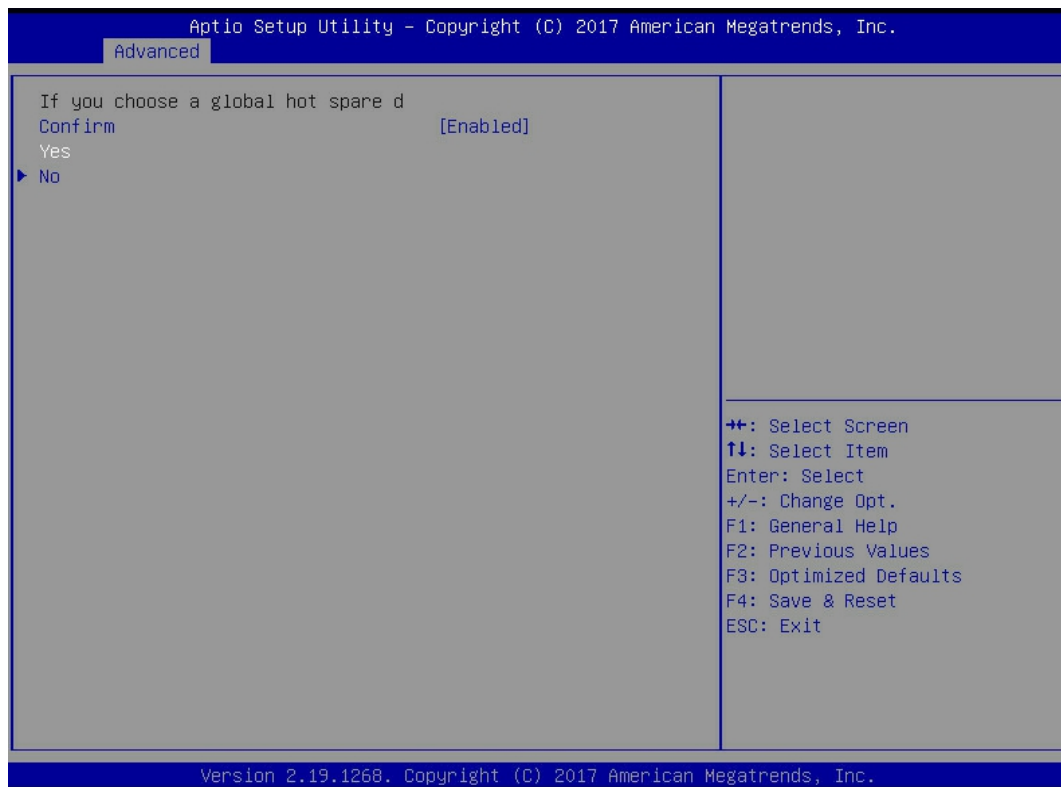


Figure 6-47

- f) Enter the interface shown in Figure 6-48 to complete the configuration of global hot spare.
- ✧ Figure 6-48 complete configuration of global hot spare



Figure 6-48

**Delete Raid:**

- a) As shown in figure 6-49, select virtual drive management in the raid card configuration interface and press enter.
- ✧ Figure 6-49 raid card configuration interface

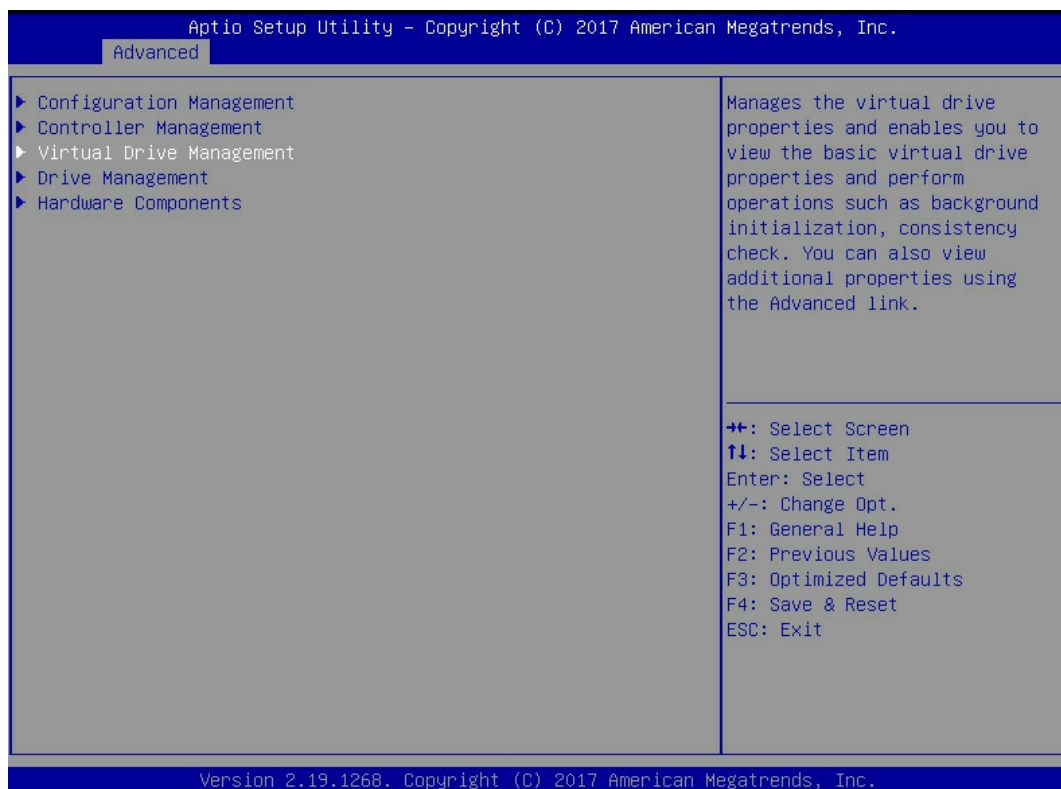


Figure 6-49

b) Enter the interface shown in Figure 6-50, select the logical disk to be deleted, and press enter.

✧ Figure 6-50 logical disk management interface



Figure 6-50

c) Enter the interface shown in figure 6-51, select operation, press enter, and then select Delete virtual drive in the pop-up dialog box, and press enter.

✧ Figure 6-51 operation interface



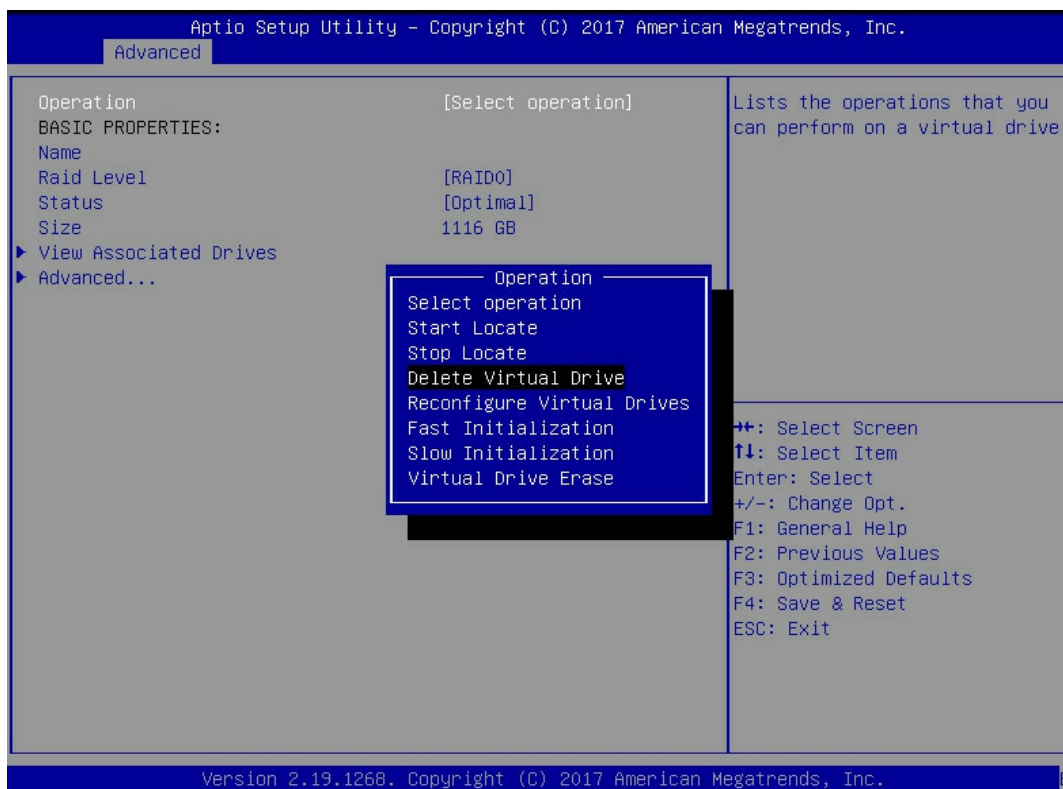


Figure 6-51

d) Enter the interface shown in figure 6-52, select go and press enter.

❖ Figure 6-52 select go

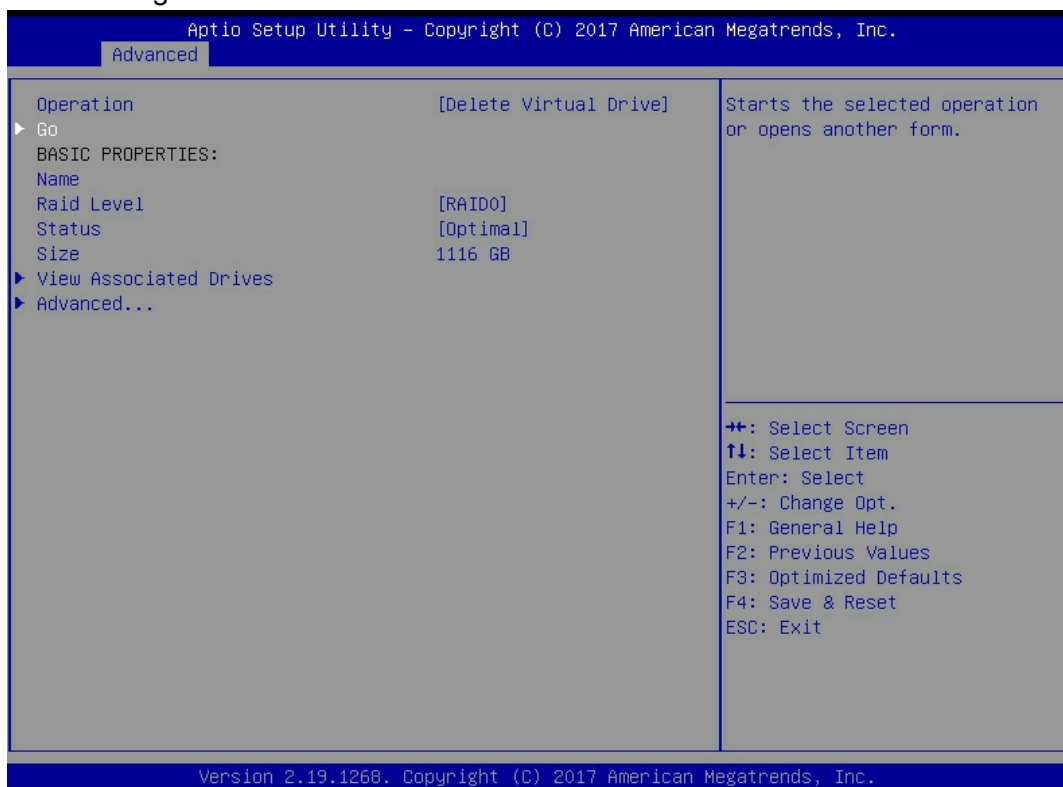


Figure 6-52

e) Enter the interface shown in figure 6-53, select confirm to enable it, select Yes, and press enter.

❖ Figure 6-53 confirm deletion

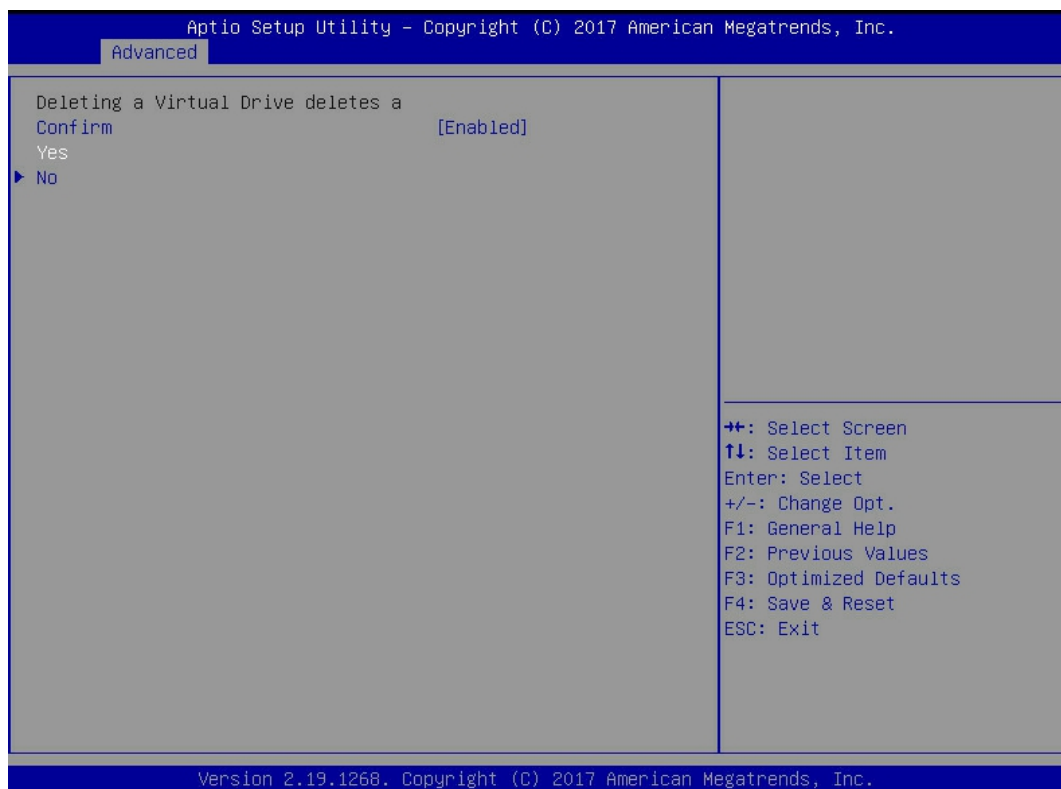


Figure 6-53

f) Enter the interface shown in figure 6-54 to complete the raid deletion operation.

✧ Figure 6-54 complete raid removal



Figure 6-54

**Locate the disk location:**

1. Locating physical disks

a) As shown in figure 6-55, select drive management in the raid card configuration interface and press enter.

✧ Figure 6-55 select drive management

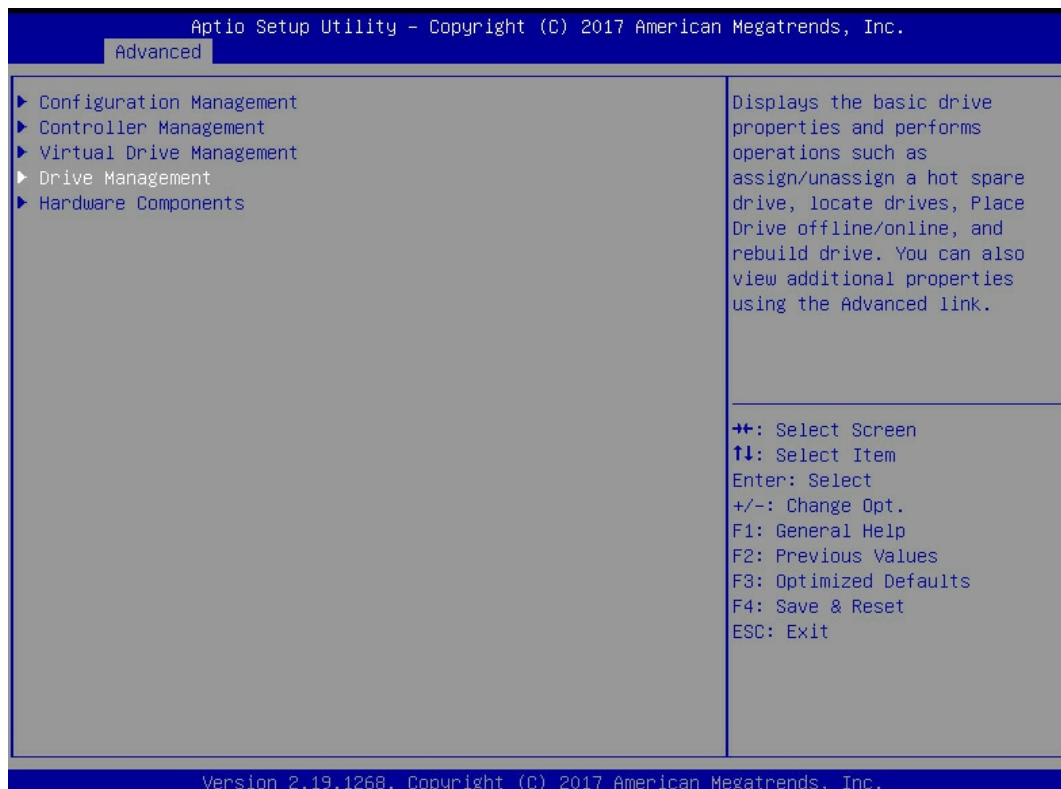


Figure 6-55

b) Enter the interface shown in figure 6-56, select the disk to be located and press enter.

✧ Figure 6-56 selecting the disk to be located

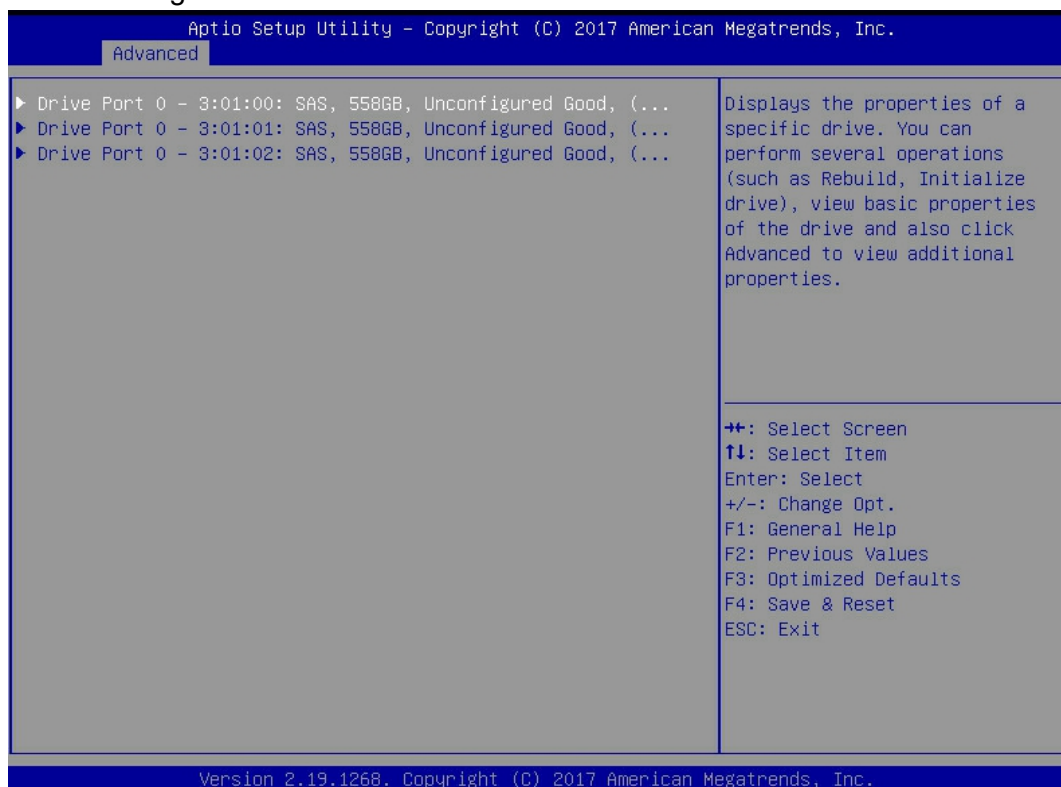


Figure 6-56

c) Enter the interface shown in figure 6-57, select operation, press enter, and then select Start locate in the pop-up dialog box and press enter.

✧ Figure 6-57 operation interface

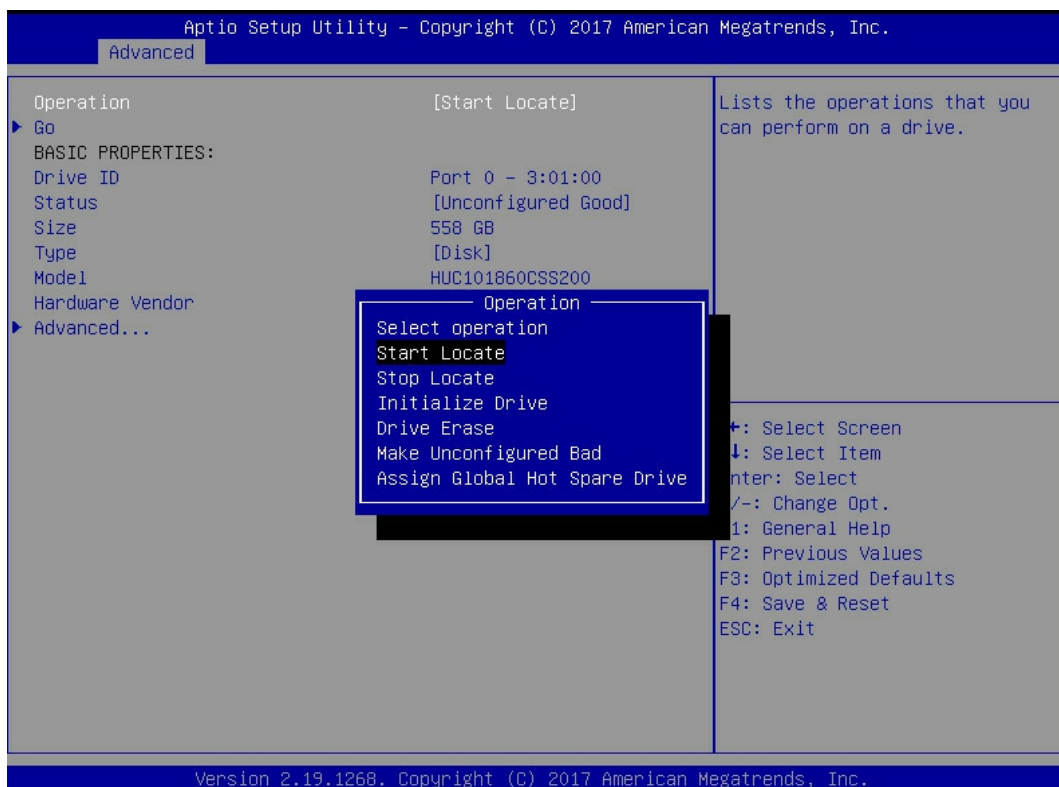


Figure 6-57

d) Enter the interface shown in figure 6-58, select go and press enter.

❖ Figure 6-58 select go

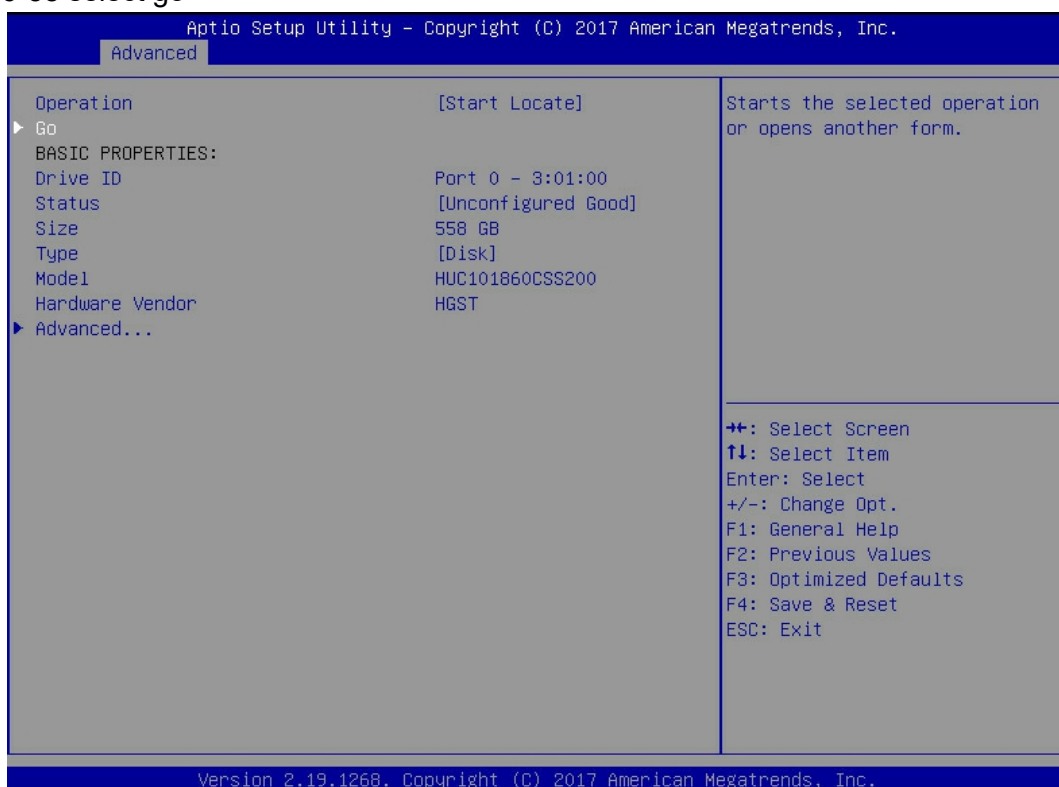


Figure 6-58

e) Enter the interface shown in figure 6-59 to complete the location operation of the physical disk.

❖ Figure 6-59 complete positioning of physical disk

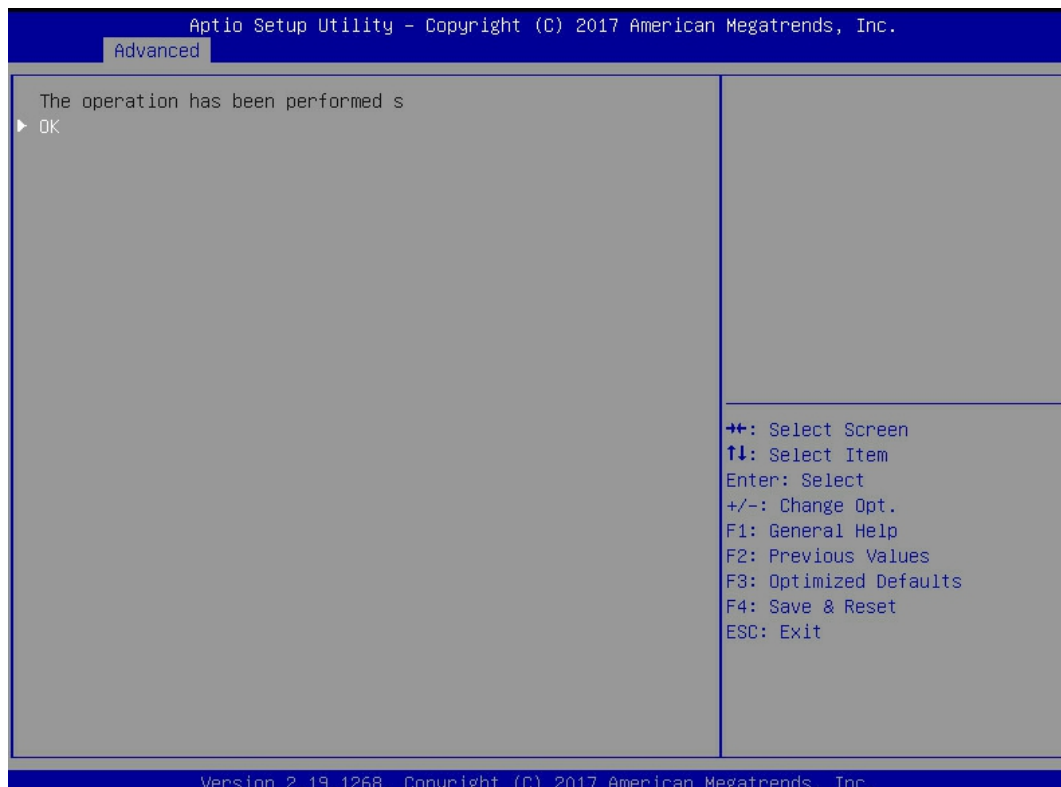


Figure 6-59

2. Locate all disks in the logical drive

a) As shown in Figure 6-60, select virtual drive management in the raid card configuration interface and press enter.

✧ Figure 6-60 raid card configuration interface

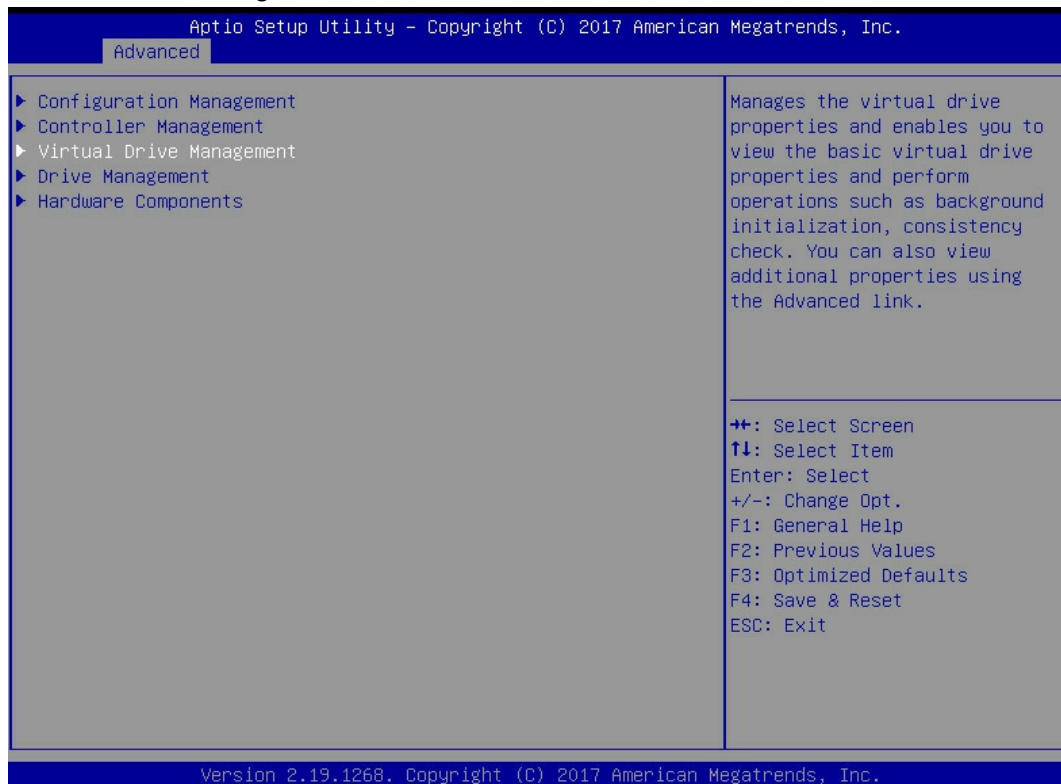


Figure 6-60

b) Enter the interface shown in figure 6-61, select the logical disk to be located, and press enter.

✧ Figure 6-61 selecting the logical drive to be located

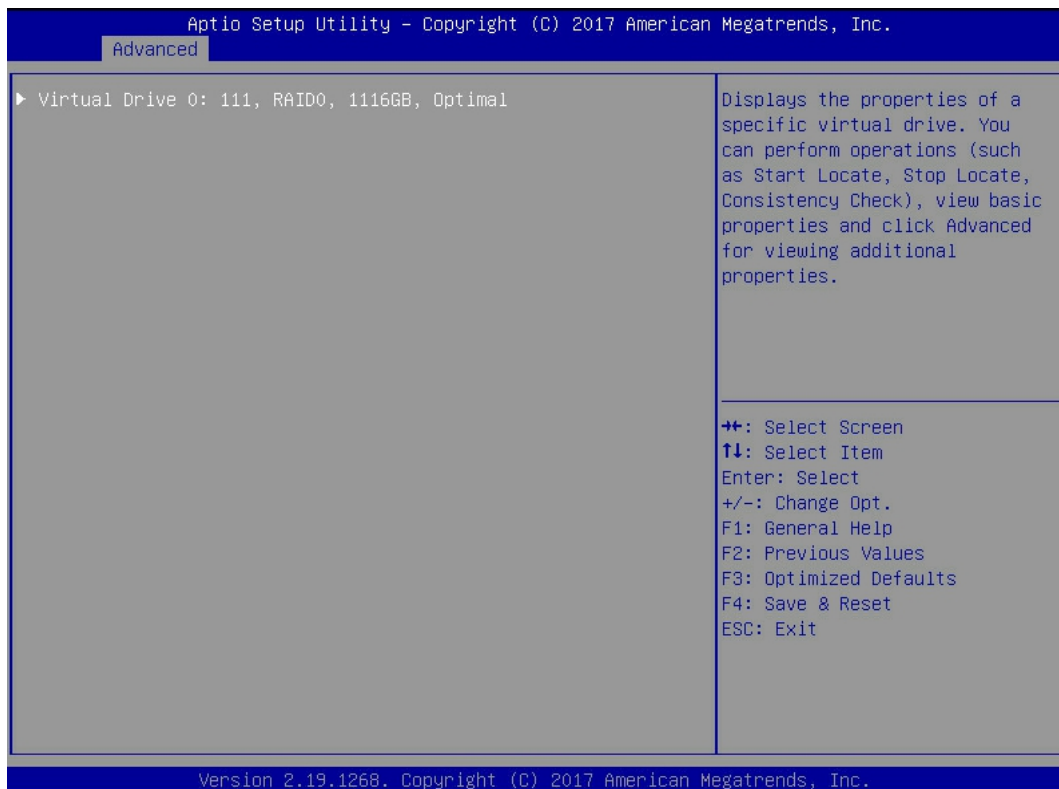


Figure 6-61

- c) Enter the interface shown in figure 6-62, select operation, press enter, and then select Start locate in the pop-up dialog box and press enter.

✧ Figure 6-62 operation interface

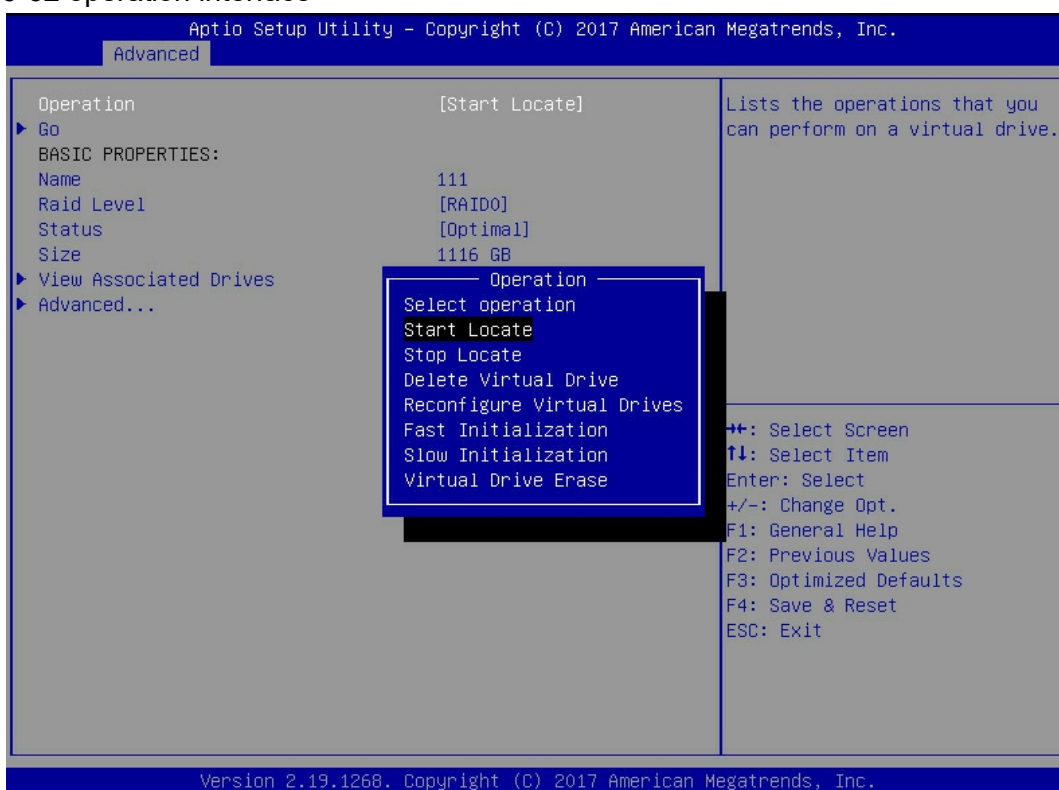


Figure 6-62

- d) Enter the interface shown in figure 6-63, select go and press enter.

✧ Figure 6-63 select go

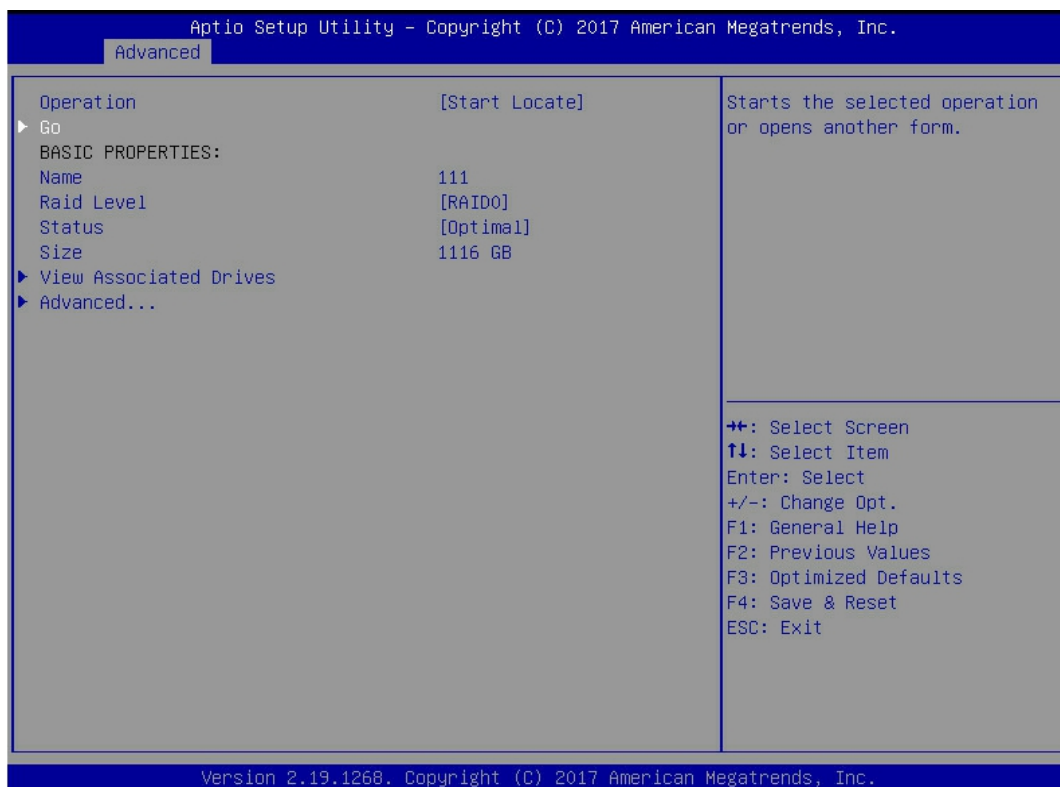


Figure 6-63

- e) Enter the interface shown in figure 6-64 to locate all the disk positions in the logical disk.
- ✧ Figure 6-64 complete positioning of all disks in logical drive

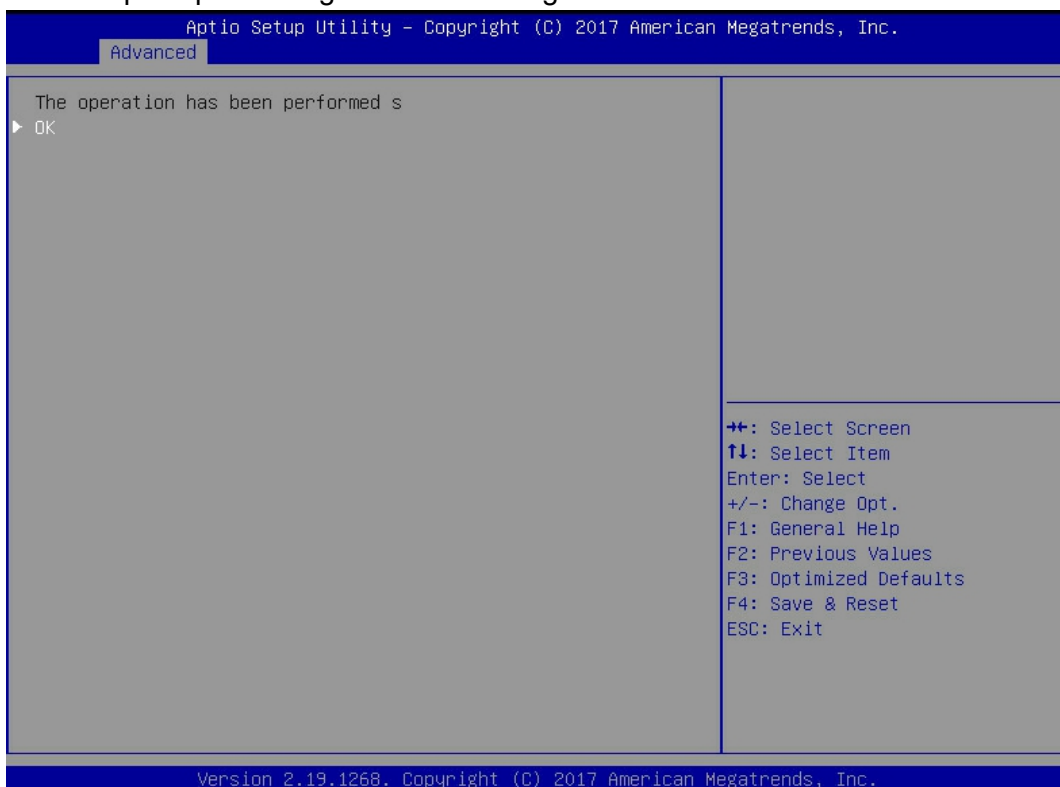


Figure 6-64

### Initialize logical drive:

This function is used to initialize the internal data space of logical disk so that it can be recognized and used by the operating system.

- a) As shown in figure 6-65, select virtual drive management in the raid card configuration interface and press enter.

✧ Figure 6-65 raid card configuration interface

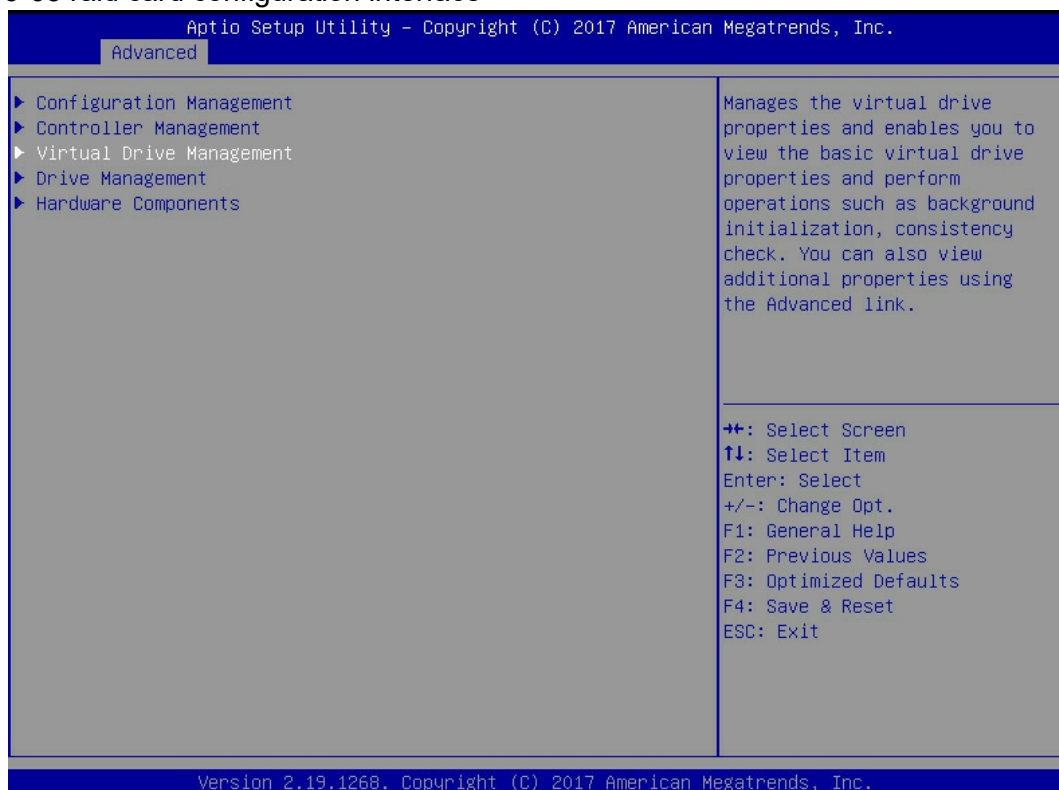


Figure 6-65

- b) Enter the interface shown in figure 6-66, select the logical disk to be initialized, and press enter.

✧ Figure 6-66 logical disk management interface





Figure 6-66

- c) Enter the interface shown in figure 6-67, select operation, press enter, and then select fast / slow initialization in the pop-up dialog, and press enter.

✧ Figure 6-67 operation operation interface

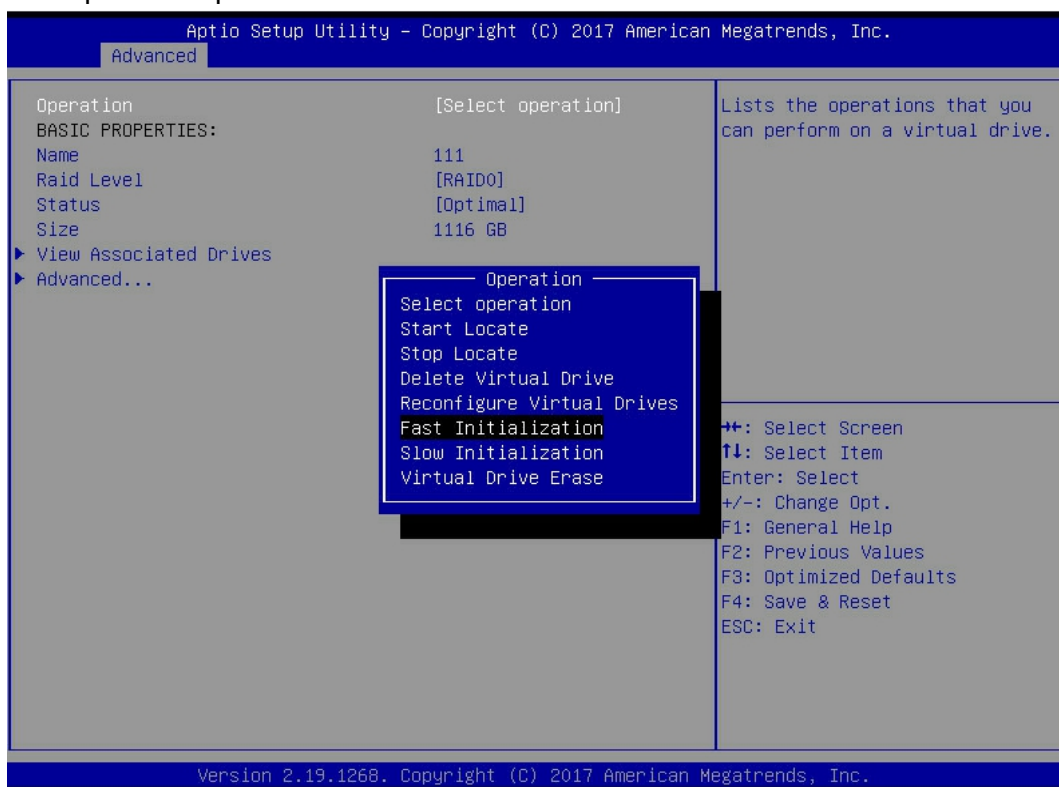


Figure 6-67



The difference between fast initialization and slow initialization is that the former can write data immediately, while the latter needs to wait for the initialization of all disk space before writing data

- d) Enter the interface shown in figure 6-68, select go and press enter.

✧ Figure 6-68 select go

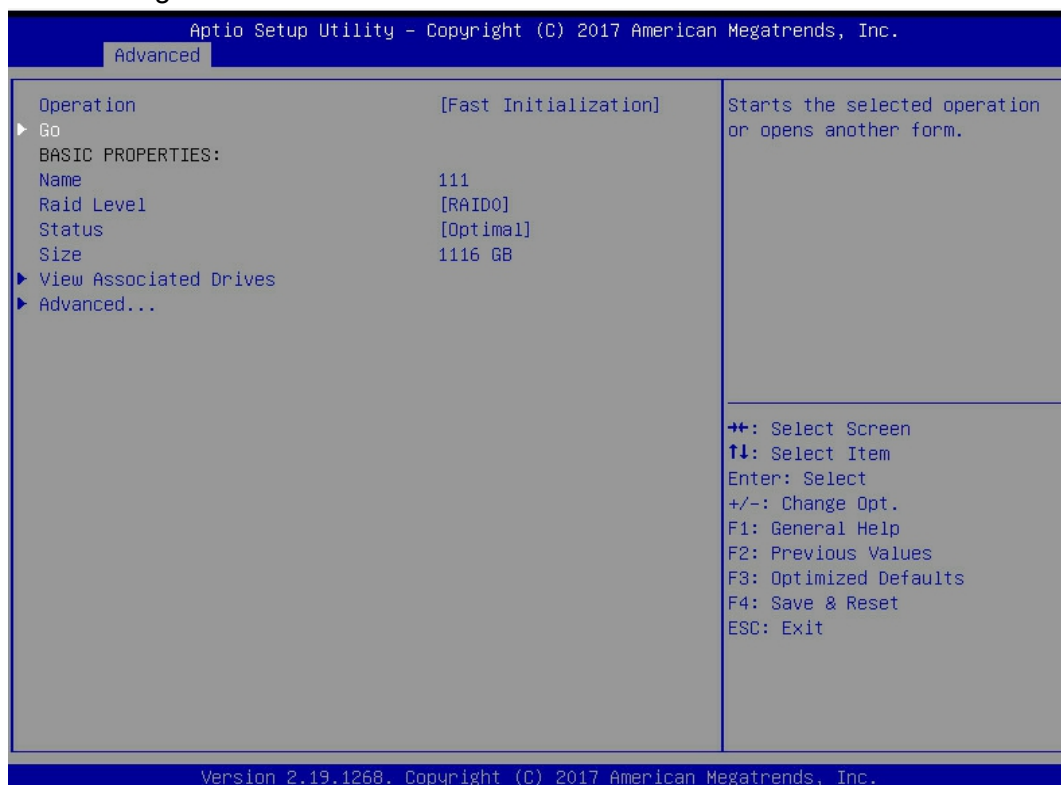


Figure 6-68

e) Enter the interface shown in figure 6-69, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-69 confirm initialization

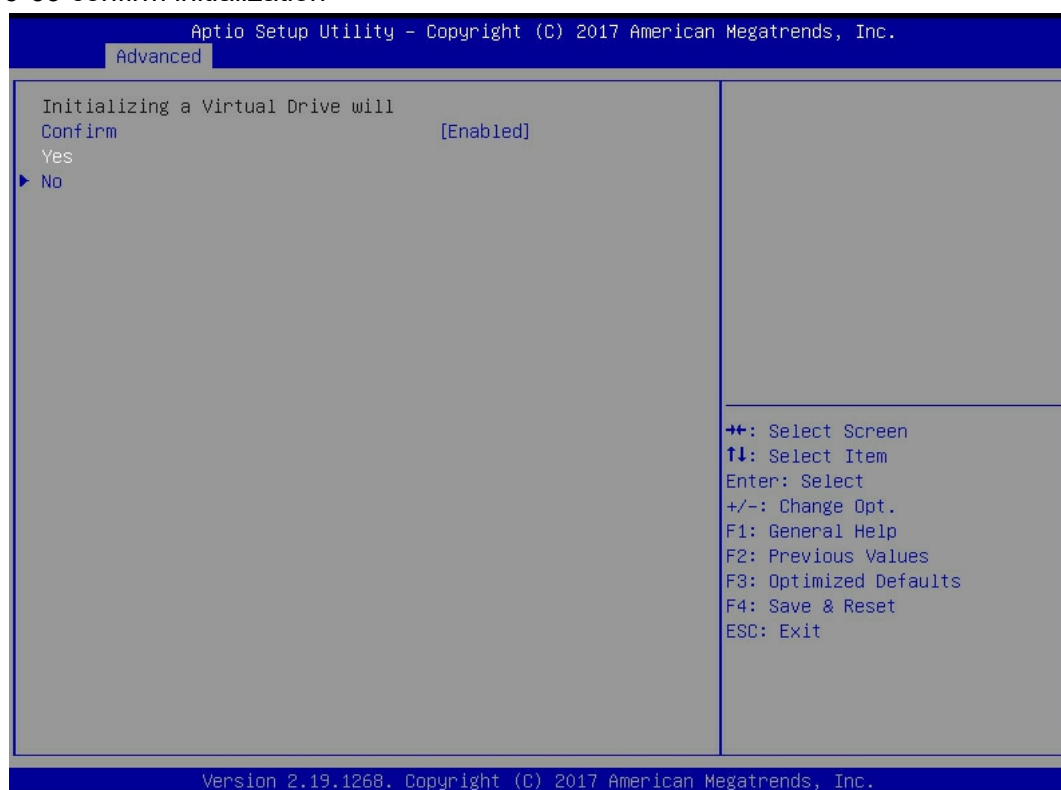


Figure 6 - 69

f) Enter the interface shown in figure 6-70 to complete the initialization of logical disk.

✧ Figure 6-70 completing initialization of logical drive

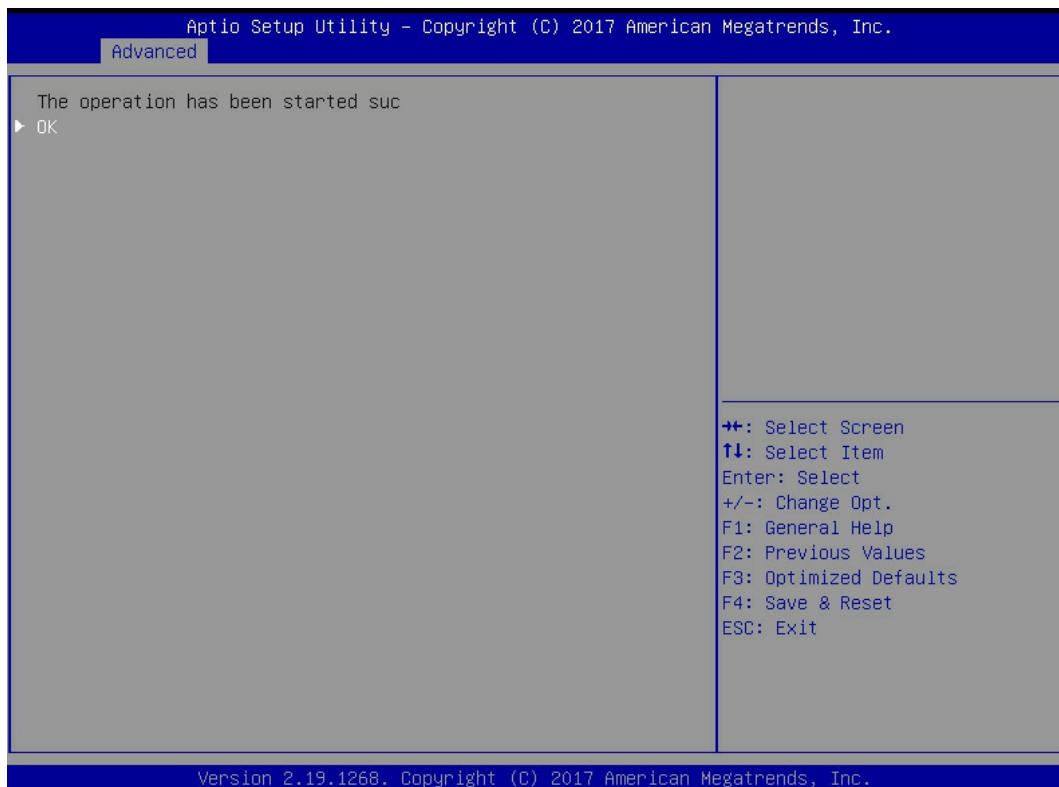


Figure 6-70

**Initialize physical disk:**

a) As shown in figure 6-71, select drive management in the raid card configuration interface and press enter.

✧ Figure 6-71 raid card configuration interface

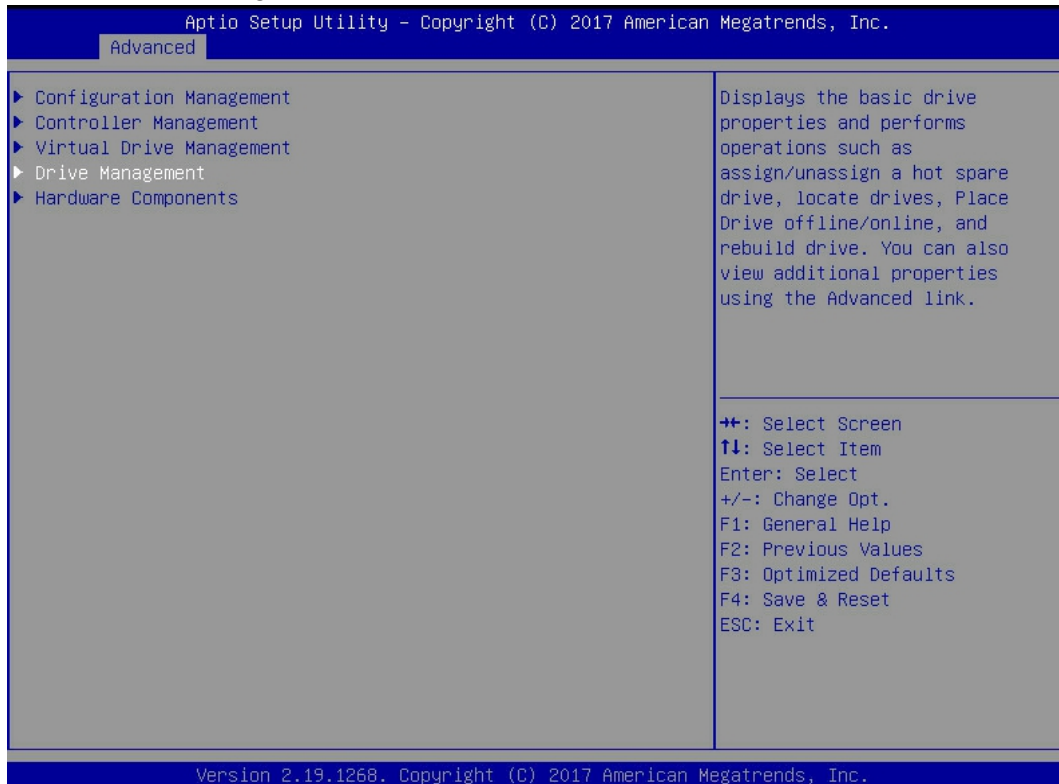


Figure 6-71

b) Enter the interface shown in figure 6-72, select the disk to be initialized, and press enter.

✧ Figure 6-72 disk management interface

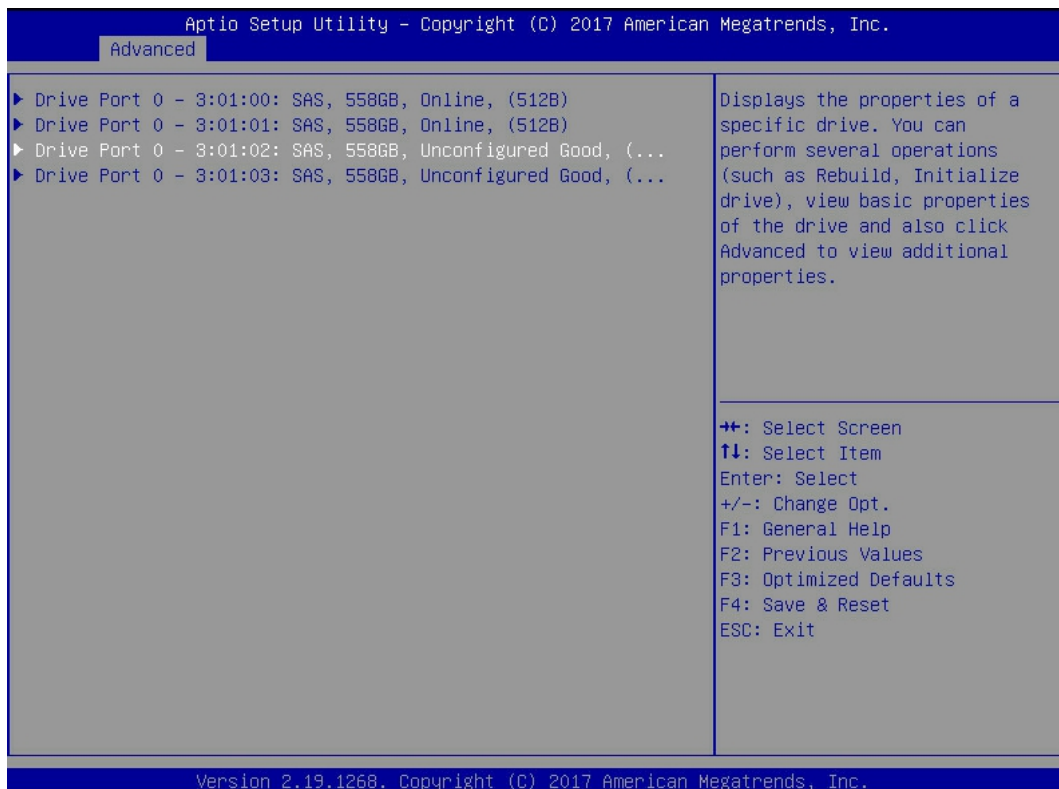


Figure 6-72

- c) Enter the interface shown in figure 6-73, select operation, press enter, and then select initialize drive in the pop-up dialog box, and press enter.

✧ Figure 6-73 operation management interface

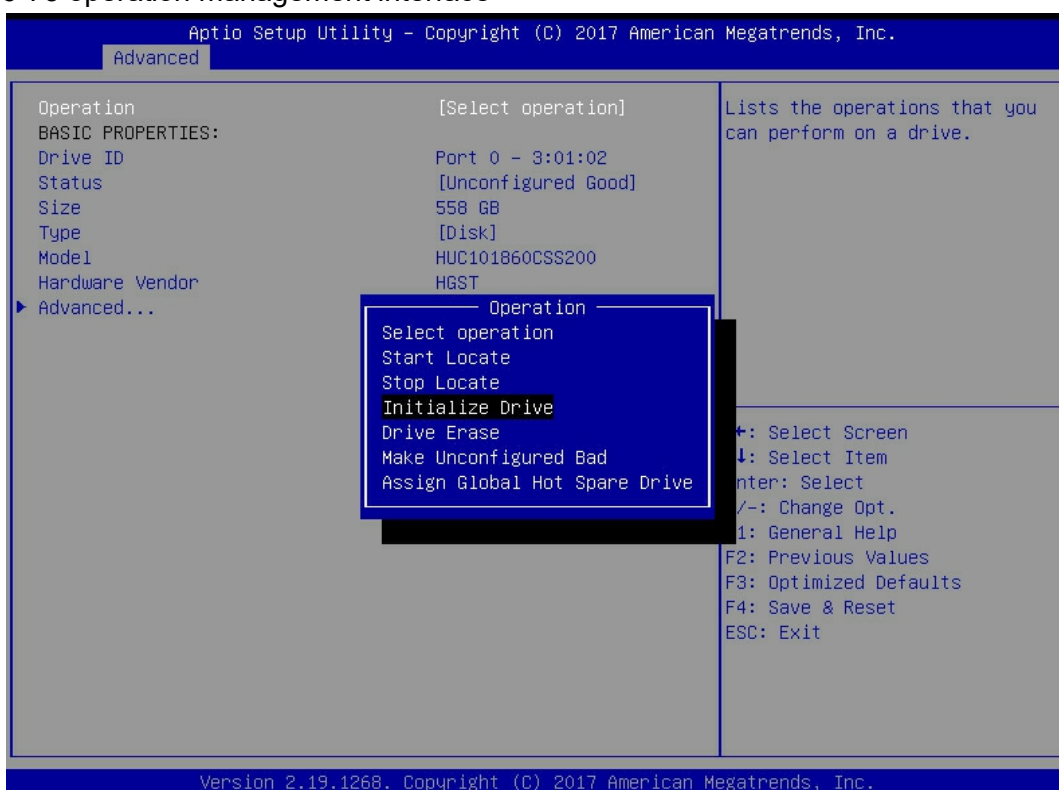


Figure 6-73

- d) Enter the interface shown in figure 6-74, select go and press enter.

✧ Figure 6-74 select go



Figure 6-74

e) Enter the interface shown in figure 6-75, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-75 confirm initialization

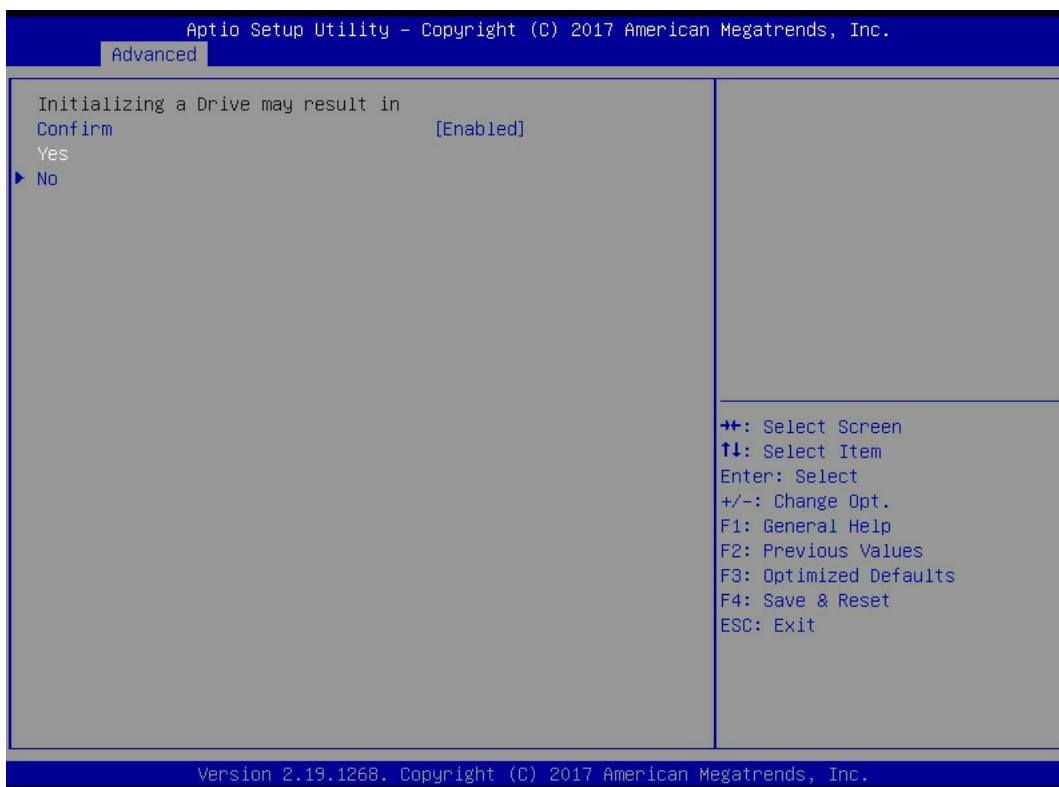


Figure 6-75

f) Enter the interface shown in figure 6-76 to complete the initialization of the physical disk.

✧ Figure 6-76 completing initialization of physical disk

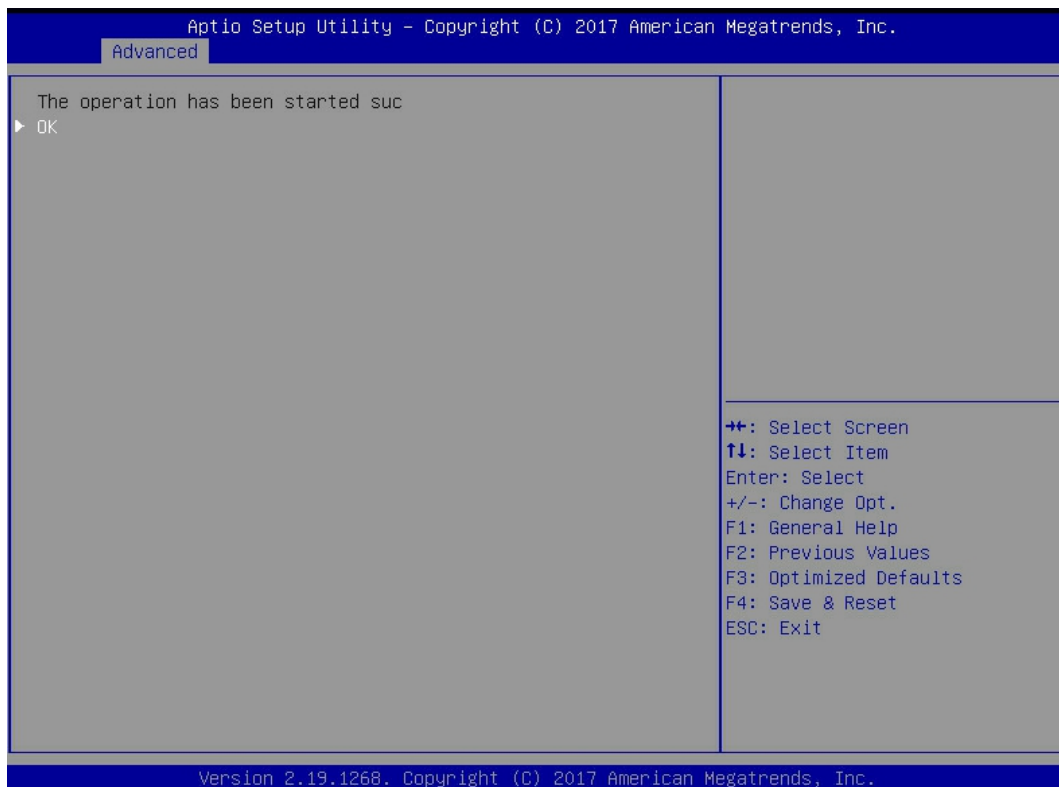


Figure 6- 76

### Erase disk data:

This function is used to delete the data inside the disk, including erasing physical disk data and logical disk data.

#### 1. Erasing physical disk data

a) As shown in figure 6-77, select drive management in the raid card configuration interface and press enter.

✧ Figure 6-77 raid card configuration interface

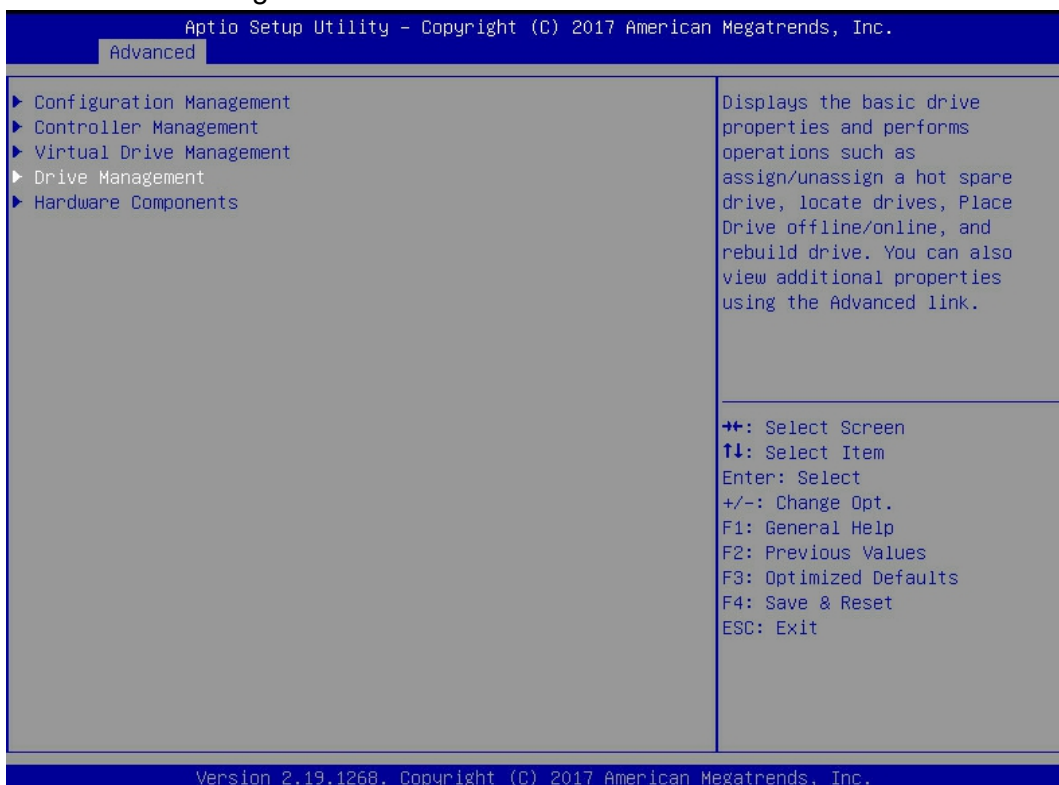


Figure 6-77

b) Enter the interface shown in figure 6-78, select the disk to be erased, and press enter.

✧ Figure 6-78 disk management interface

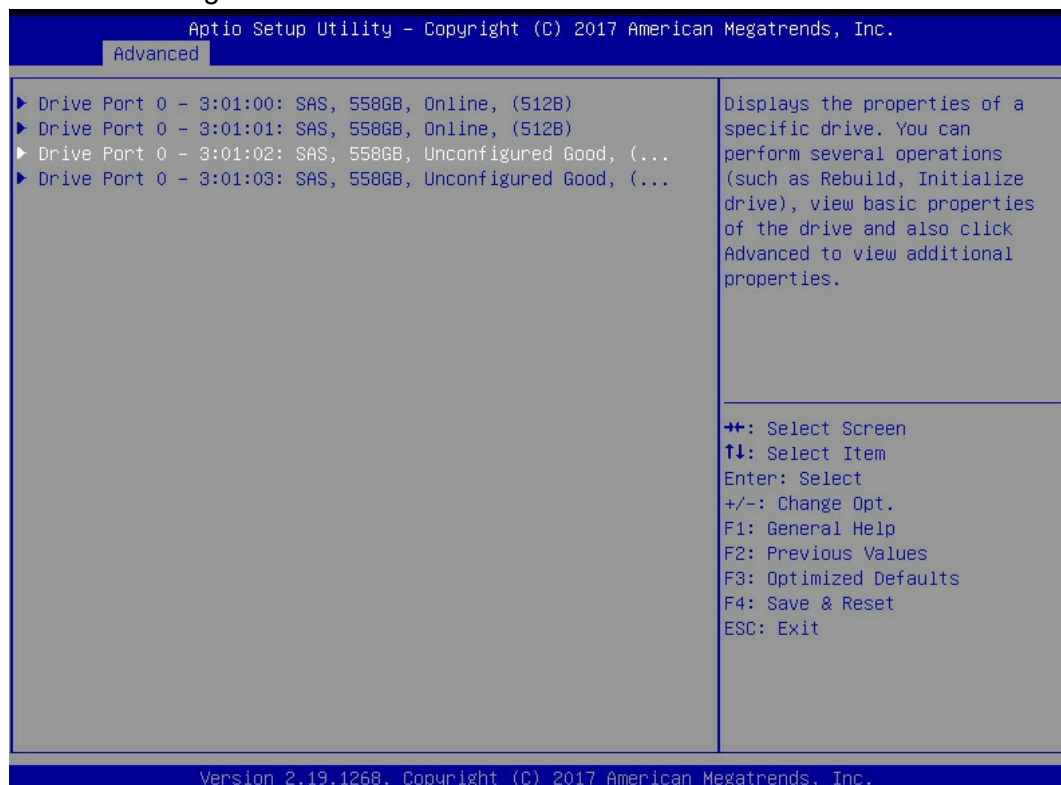


Figure 6-78

c) Enter the interface shown in figure 6-79, select operation, press enter, and then select drive erase in the pop-up dialog box and press enter.

✧ Figure 6-79 operation interface

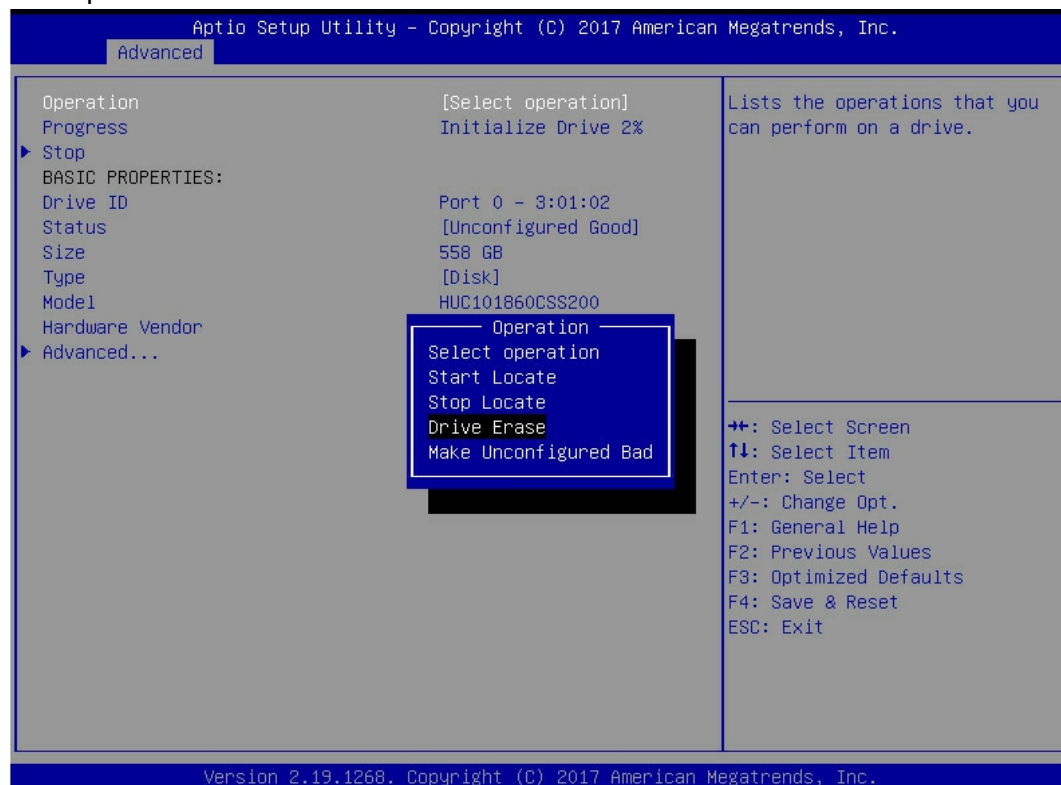


Figure 6-79

d) Enter the interface shown in figure 6-80, press enter, and then select erase mode in the pop-up dialog box (simple is recommended as the default mode).

✧ Figure 6-80 erase mode interface

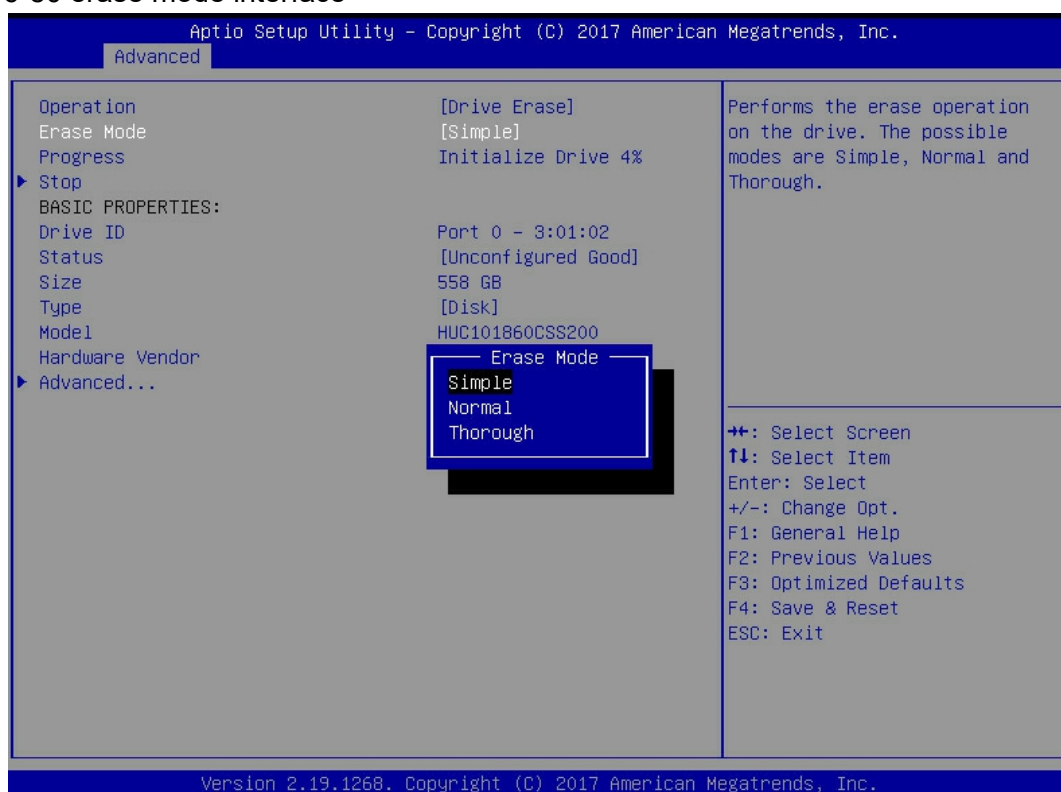


Figure 6-80

e) Enter the interface shown in figure 6-81, select go and press enter.

✧ Figure 6-81 select go



Figure 6-81

f) Enter the interface shown in figure 6-82, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-82 confirm erase



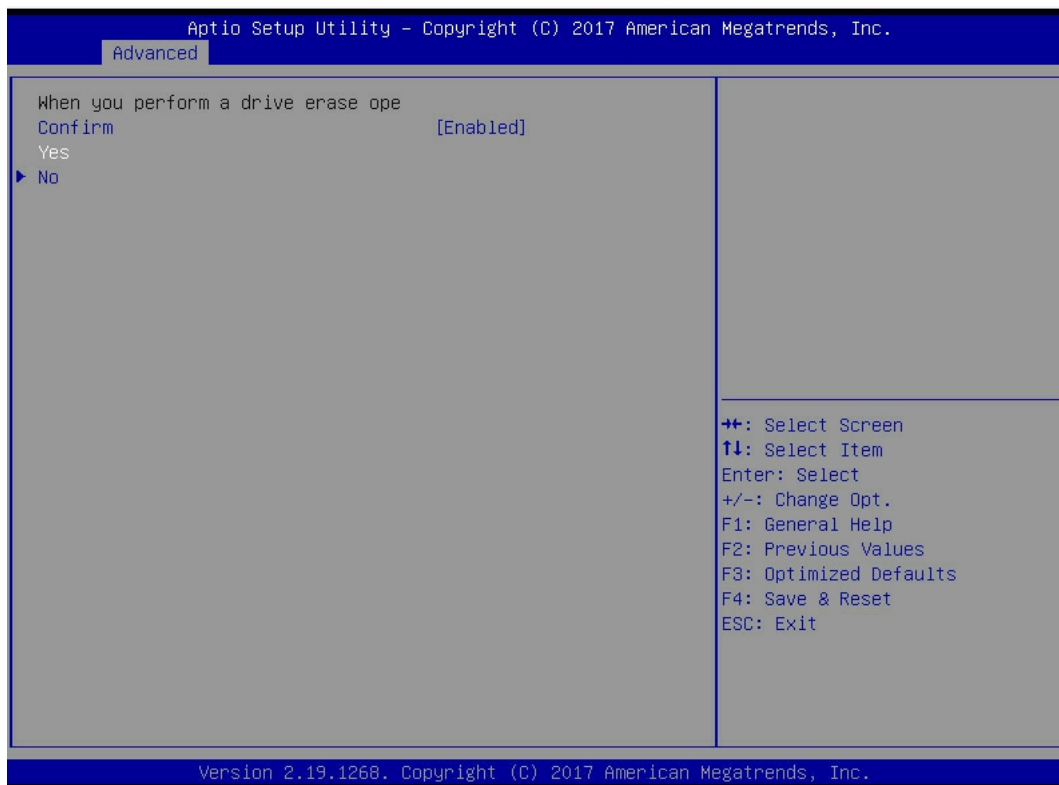


Figure 6-82

- g) Enter the interface shown in figure 6-83 to complete the operation of erasing physical disk data.
- ✧ Figure 6-83 complete erasing physical disk data

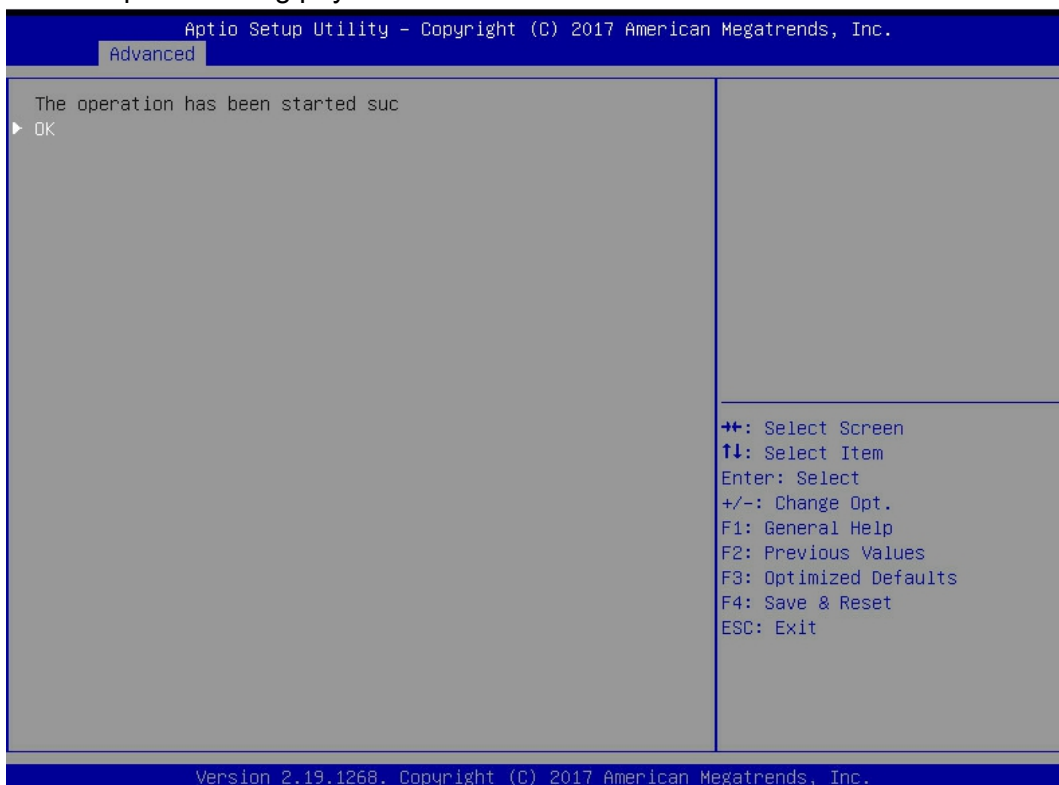



Figure 6-83

 **Instruction** : to avoid disk failure, do not perform other operations during erasing physical disk data.

## 2. Erasing logical disk data

a) As shown in figure 6-84, select virtual drive management in the raid card configuration interface and press enter.

✧ Figure 6-84 raid card configuration interface

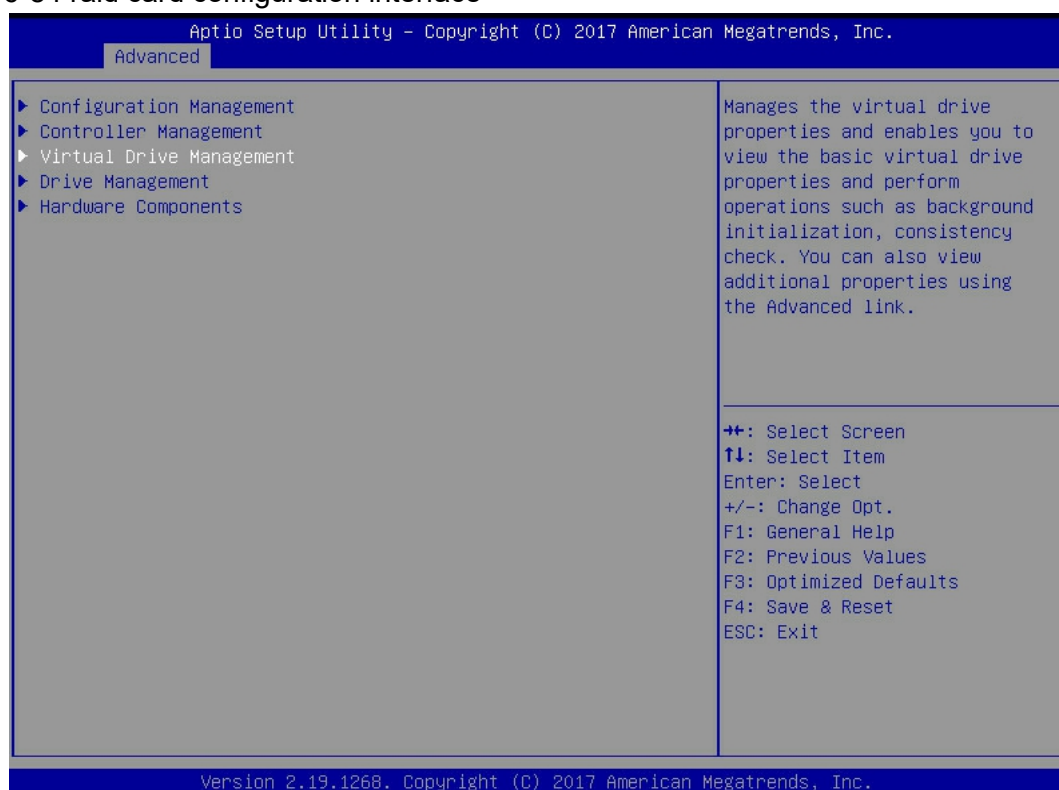


Figure 6-84

b) Enter the interface shown in figure 6-85, select the logical disk to be erased, and press enter.

✧ Figure 6-85 logical disk management interface



Figure 6-85

- c) Enter the interface shown in figure 6-86, select operation, press enter, and then select virtual drive erase in the pop-up dialog box, and press enter.

✧ Figure 6-86 operation interface

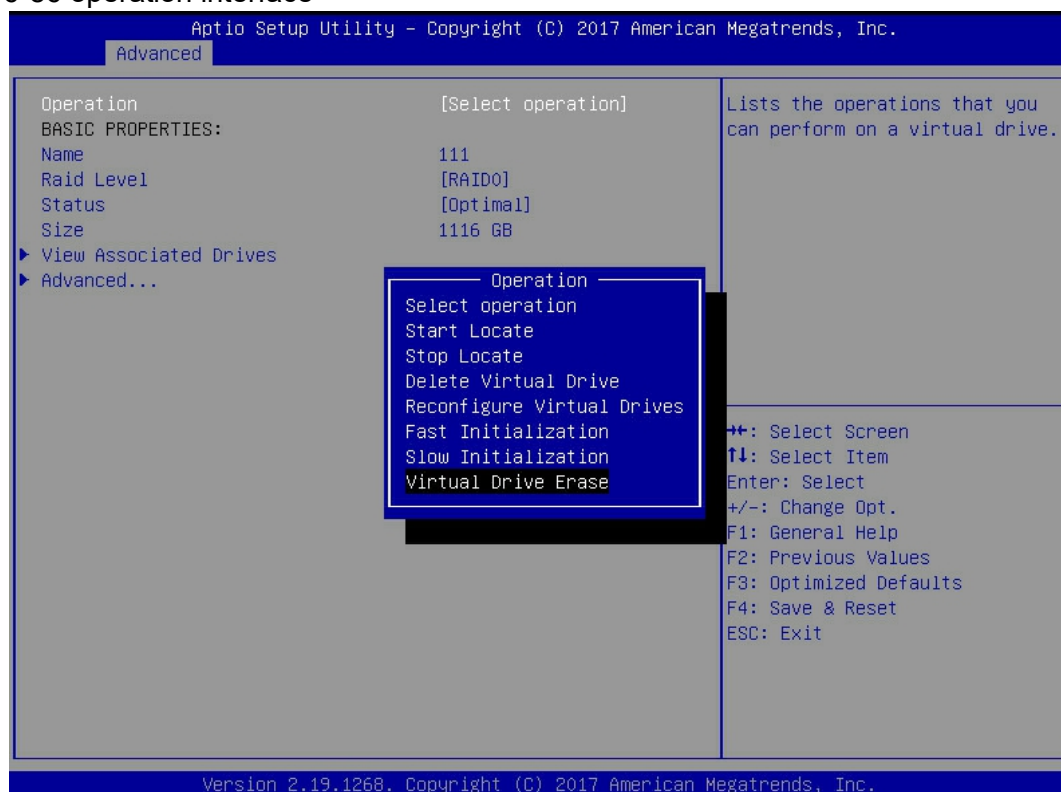


Figure 6-86

- d) Enter the interface shown in figure 6-87, press enter, and then select erase mode in the pop-up dialog box (simple is recommended as the default mode).

✧ Figure 6-87 erase mode interface

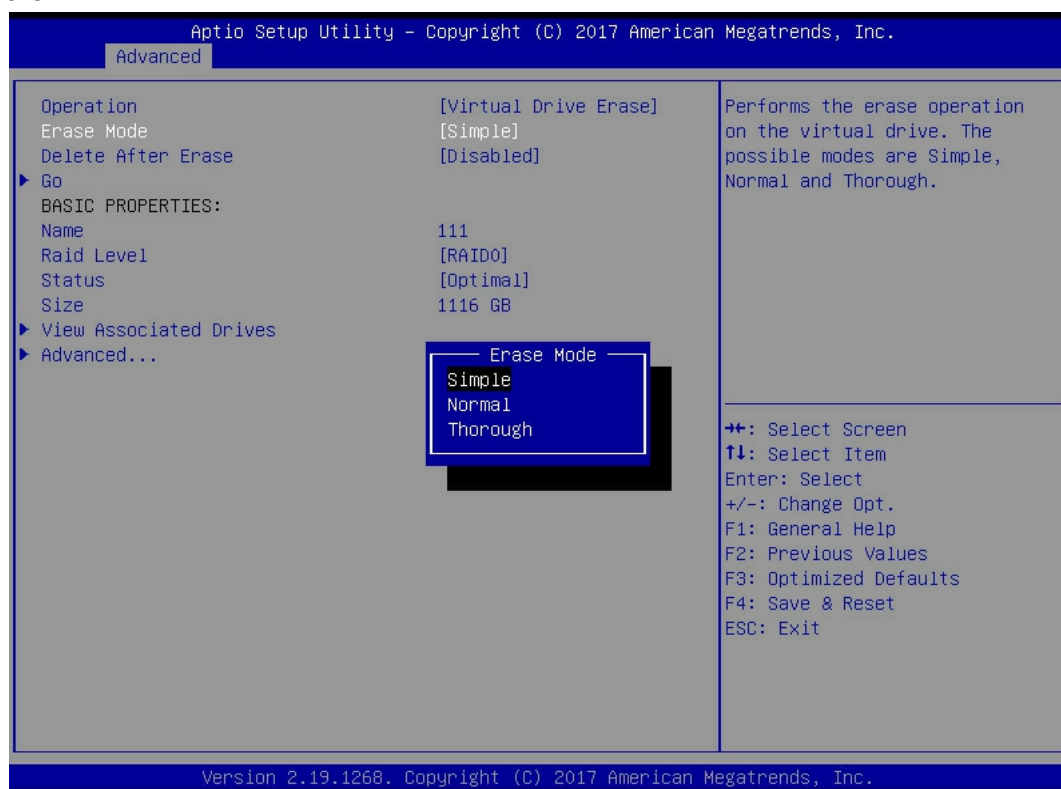


Figure 6-87

- e) Enter the interface shown in figure 6-88, select go and press enter.

✧ Figure 6-88 select go

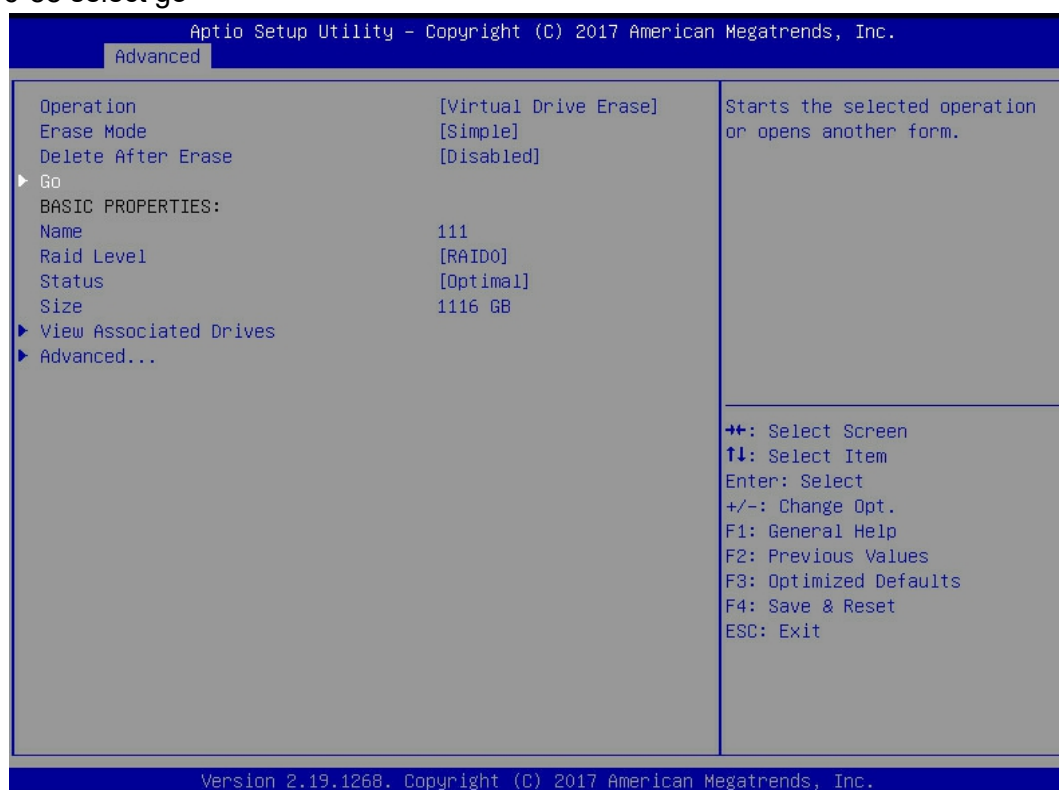


Figure 6-88

f) Enter the interface shown in figure 6-89, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-89 confirm erase

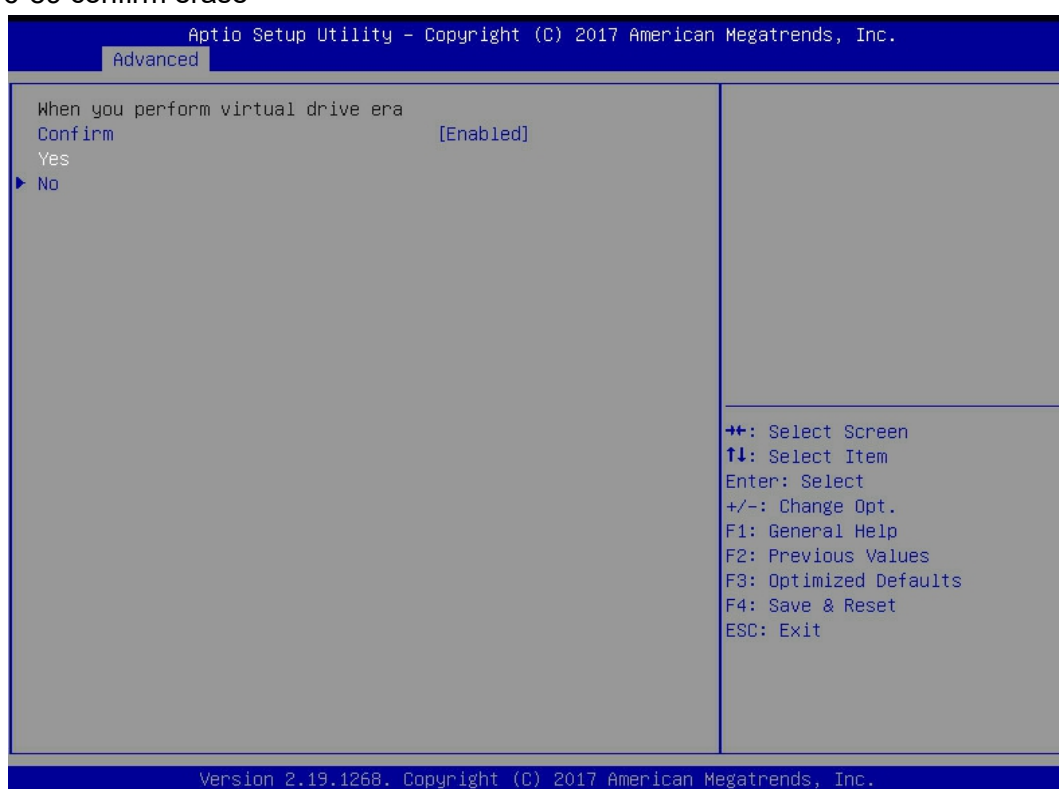


Figure 6-89

g) Enter the interface shown in figure 6-90 to complete the operation of erasing logical disk data.

✧ Figure 6-90 complete erasing logical disk data



Figure 6-90

### Migration RAID level:

This function is used to modify the RAID level to meet the configuration requirements without affecting the current data integrity.

- a) As shown in figure 6-91, select virtual drive management in the raid card configuration interface and press enter.

✧ Figure 6-91 raid card configuration interface

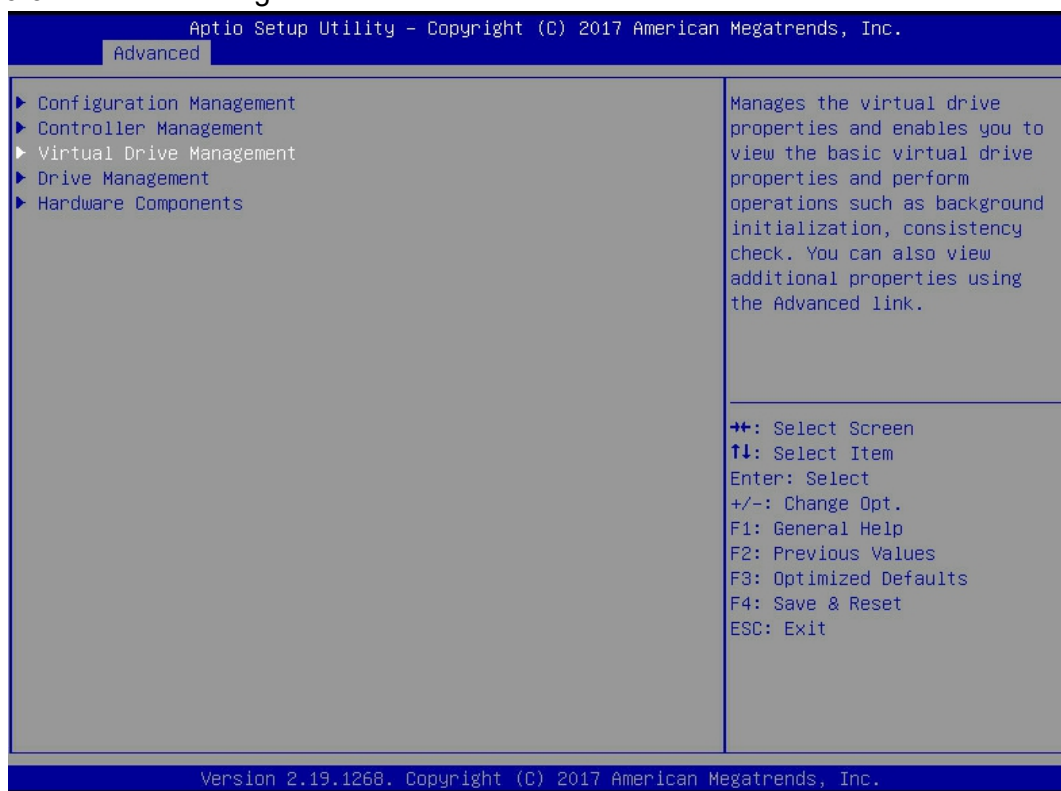


Figure 6-91

- b) Enter the interface shown in figure 6-92, select the logical disk to be rebuilt, and press enter.

✧ Figure 6-92 virtual drive management interface

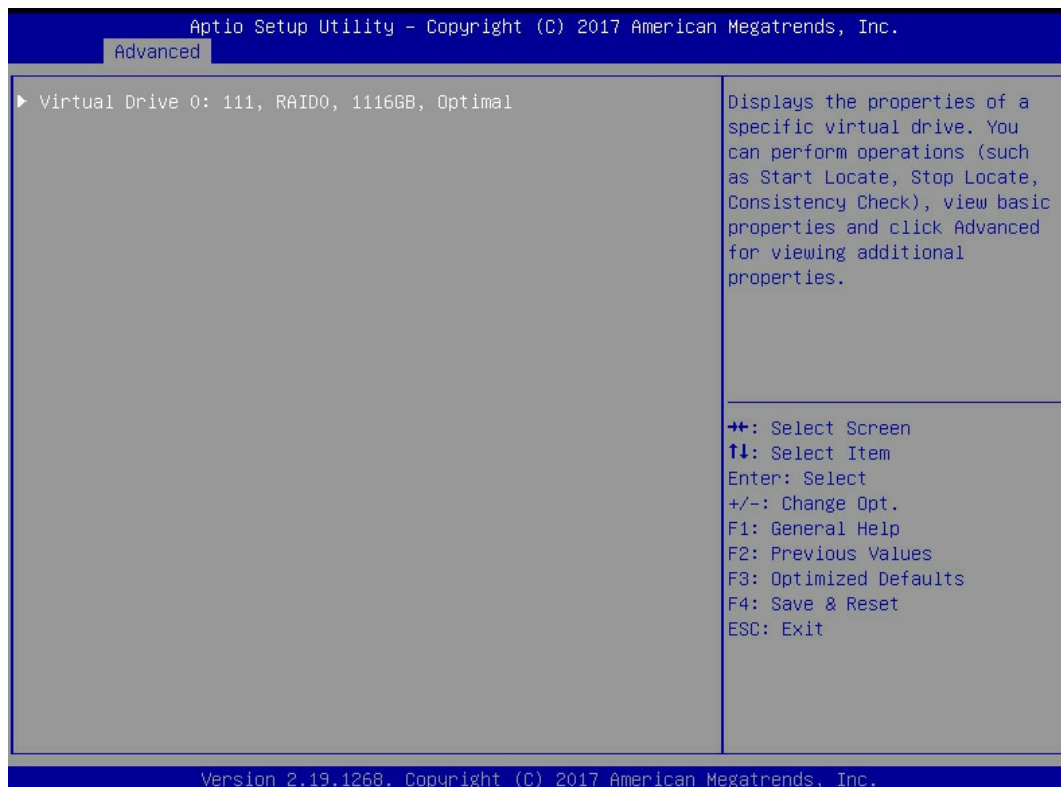


Figure 6-92

- c) Enter the interface shown in figure 6-93, select operation, press enter, and then select configure virtual drive in the pop-up dialog box, and press enter.

✧ Figure 6-93 operation interface

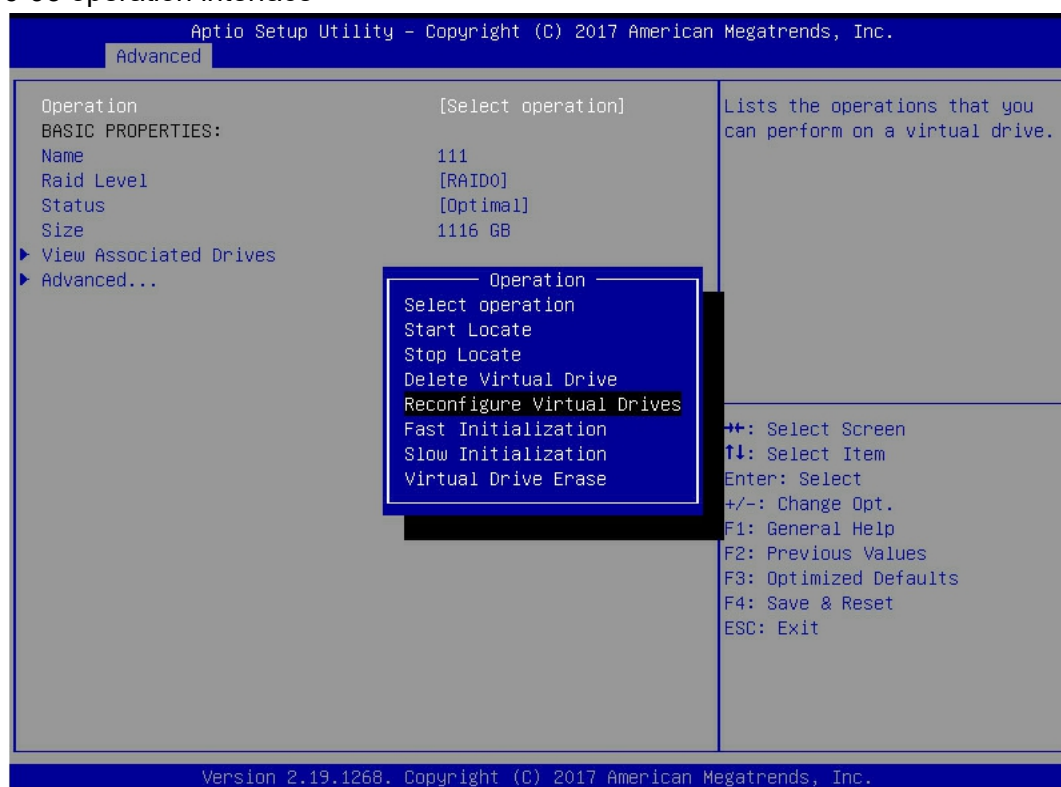


Figure 6-93

- d) Enter the interface shown in figure 6-94, select go and press enter.

✧ Figure 6-94 select go

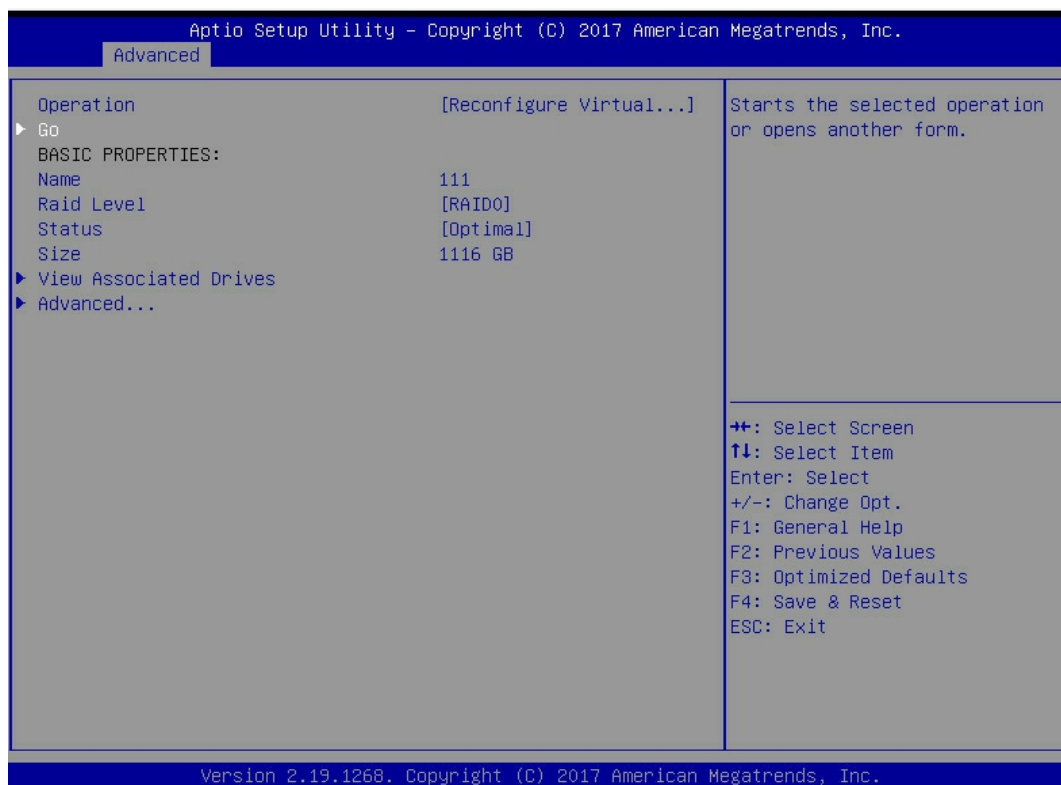


Figure 6-94

e) Enter the interface shown in figure 6-95, set the RAID level, select Add drives, and press enter.

✧ Figure 6-95 advanced interface

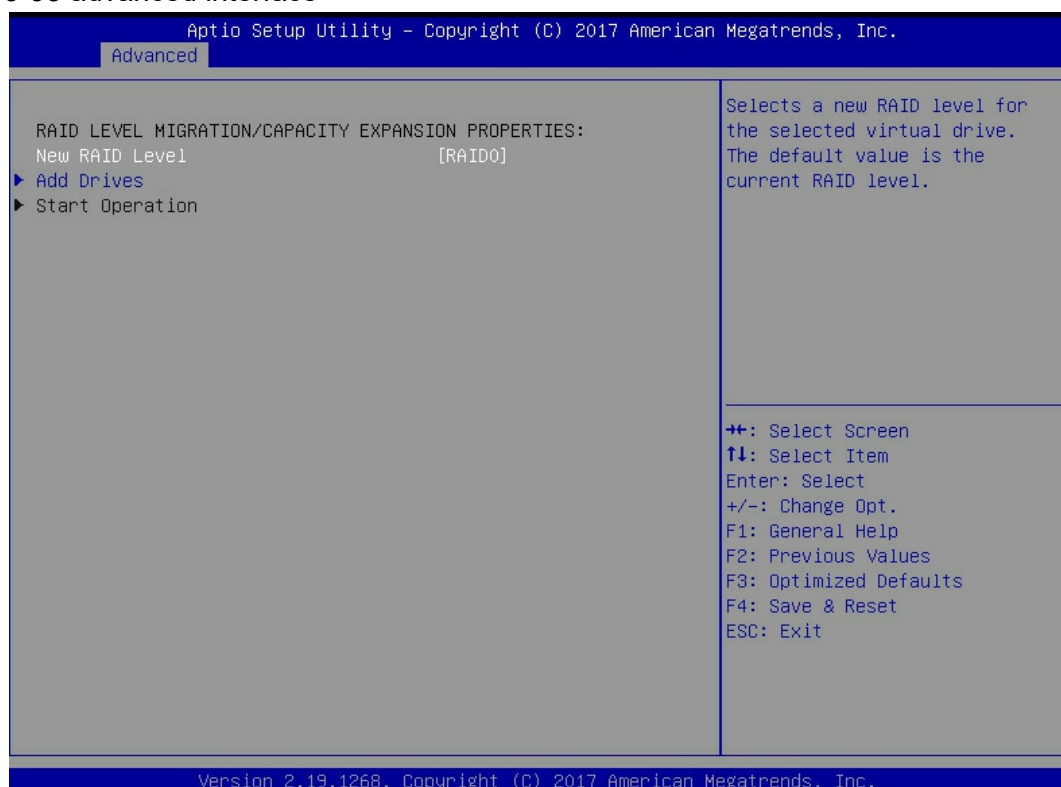


Figure 6-95

f) Enter the interface shown in figure 6-96, select the disk to be added, make it enabled, select apply changes, and press enter.

✧ Figure 6-96 add drives interface



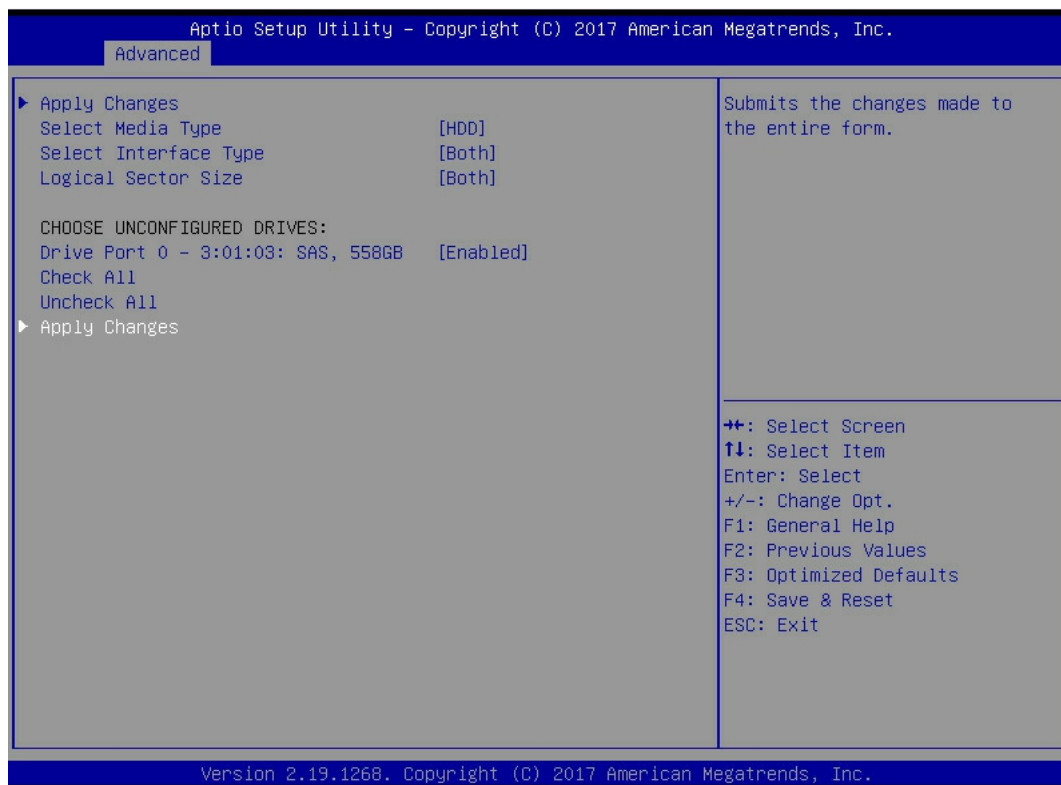


Figure 6-96

g) Enter the interface shown in figure 6-97, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-97 confirm migration



Figure 6-97

h) Enter the interface shown in figure 6-98, select start operation and press enter.

✧ Figure 6-98 start operation interface



Figure 6-98

i) Enter the interface shown in figure 6-99, select OK and press enter.

✧ Figure 6-99 select OK



Figure 6-99

j) Enter the interface shown in figure 6-100 to view the current migration progress.

✧ Figure 6-100 raid information interface

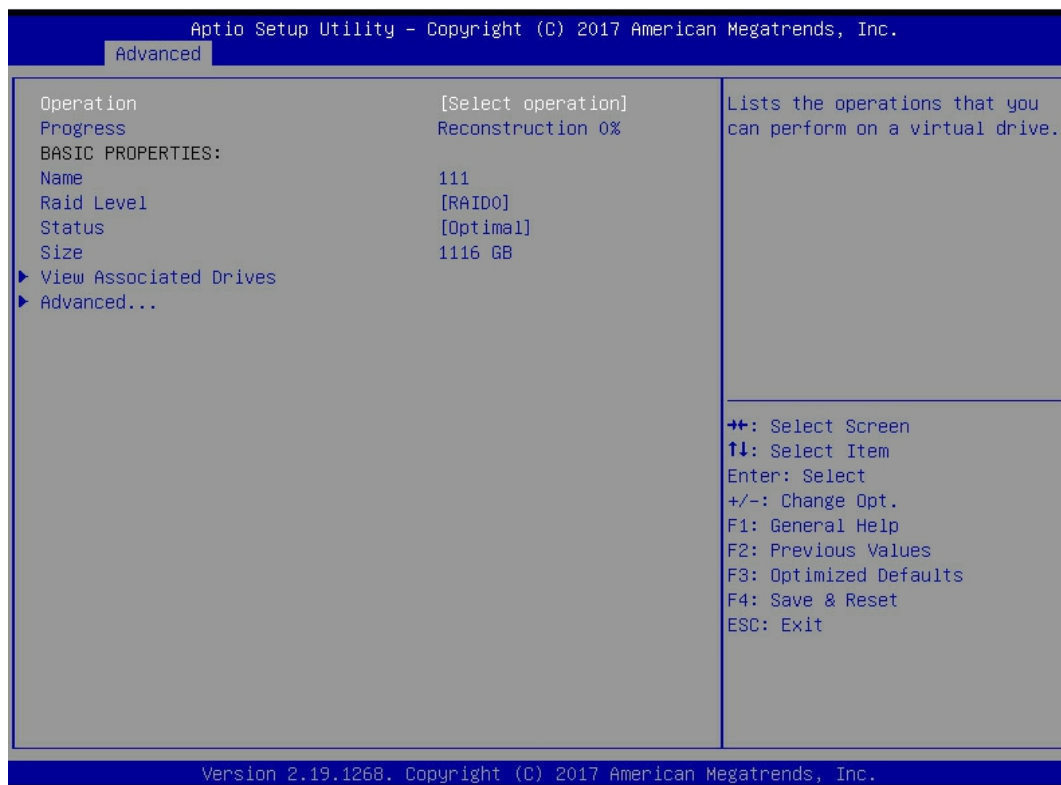


Figure 6-100

### Clear disk raid information:

This function is used to clear the residual raid information in the disk, so that the disk can be reused to configure raid. This function is commonly used for disks with unconfigured bad mode.

- a) Switch the disk mode from unconfigured bad to unconfigured good
- b) As shown in figure 6-101, select configuration management in the raid card configuration interface and press enter.

✧ Figure 6-101 raid card configuration interface

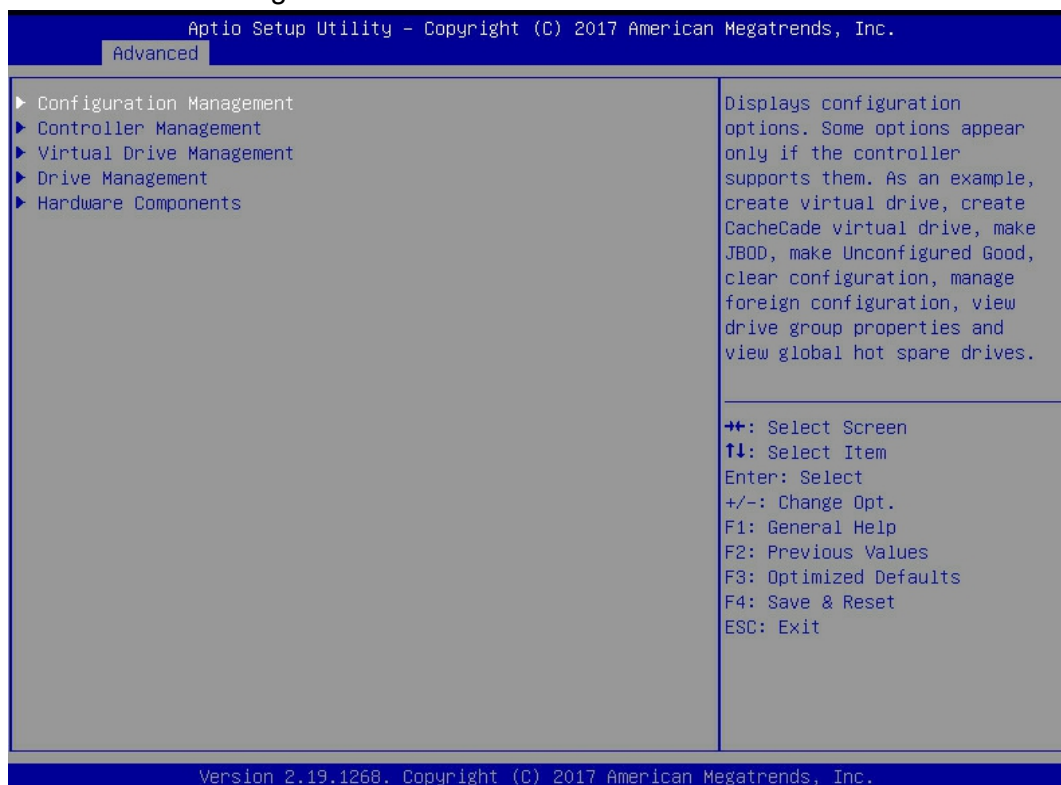


Figure 6-101

c) Enter the interface shown in figure 6-102, select manage foreign configuration, and press enter.

✧ Figure 6-102 select manage foreign configuration

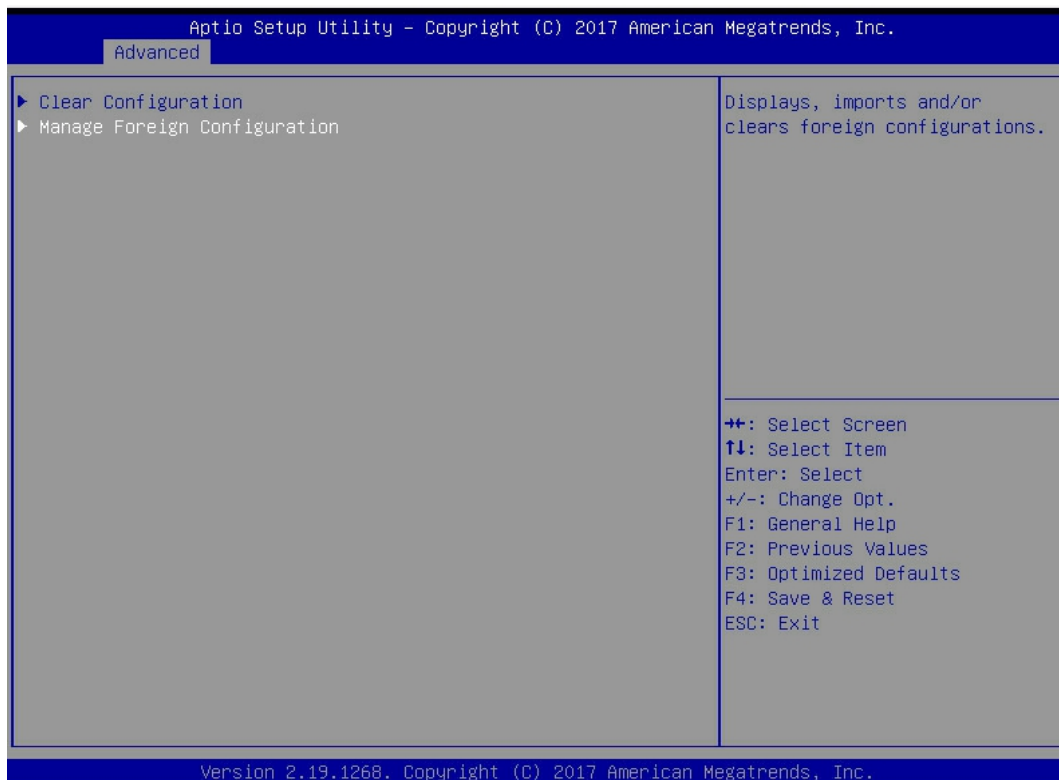


Figure 6-102

d) Enter the interface shown in figure 6-103, select clear foreign configuration, and press enter.

✧ Figure 6-103 select clear foreign configuration

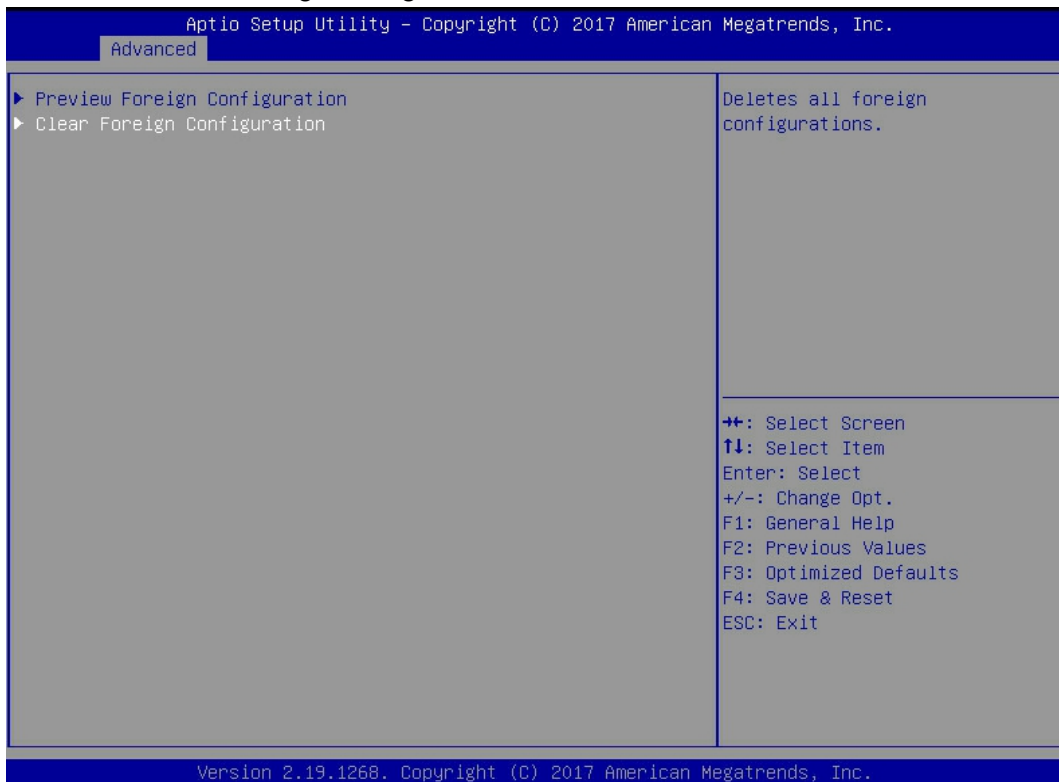


Figure 6-103

e) Enter the interface shown in figure 6-104, select confirm to enable it, select Yes, and press enter.

✧ Figure 6-104 confirm clear

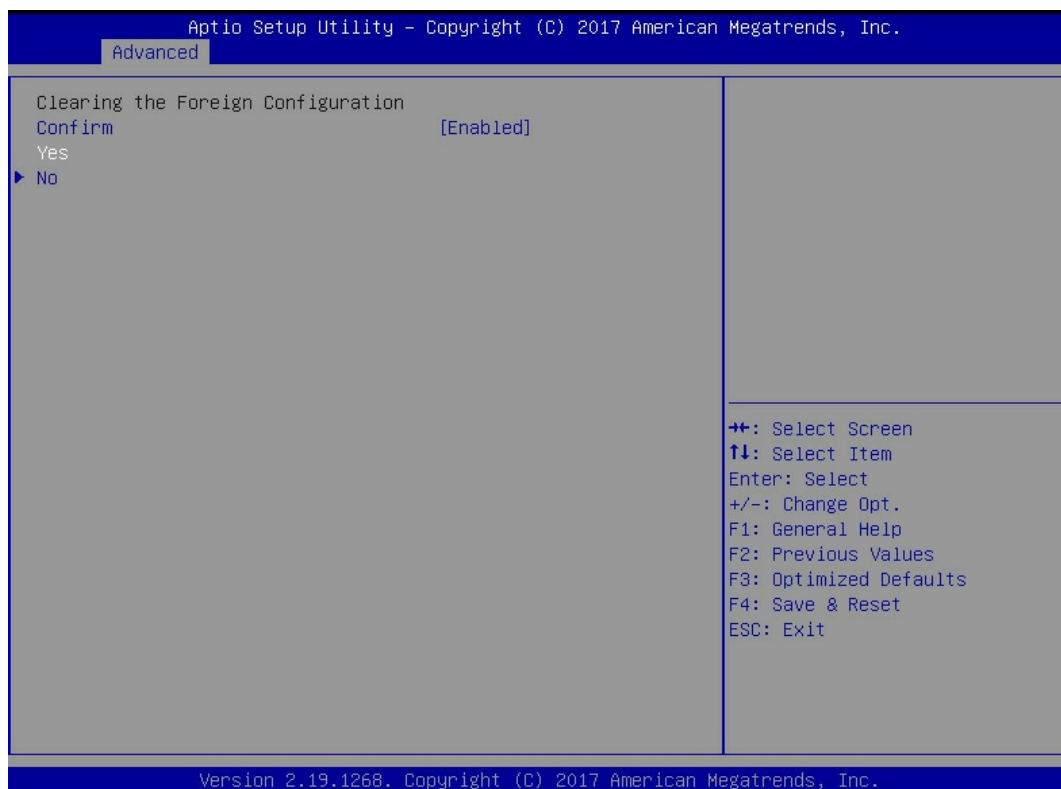


Figure 6-104

- f) Enter the interface shown in figure 6-105 to complete the operation of clearing disk raid information.  
 ✧ Figure 6-105 finish cleaning disk raid



Figure 6-105

## 6.2.2 configuring raid in legacy boot mode

### ➤ Enter the raid card configuration interface

- a) In the BIOS startup process, after the interface as shown in figure 6-105 appears, press Ctrl + R.  
 ✧ Figure 6-106 pressing Ctrl + R during BIOS startup

```

AVAGO MegaRAID SAS-MFI BIOS
Version 6.31.03.0 (Build January 25, 2016)
Copyright(c) 2016 AVAGO Technologies
F/W Initializing Devices 100%
HA -0 (Bus 2 Dev 0) AVAGO MegaRAID SAS 9361-8i
Battery Status: Missing
PCI Slot Number: 4

ID LUN VENDOR   PRODUCT                REVISION                CAPACITY
-----
00 0  AVAGO      AVAGO MegaRAID SAS 9361-8i  4.650.00-6121          1024MB
08 0  ATA        MM1000GBXAL             HPGC                    953869MB
1030 ATA        MM1000GBXAL             HPGC                    953869MB
1040 ATA        MM1000GBXAL             HPGC                    953869MB
1200 HP         EG0300FBVFL             HPDC                    286102MB
1290 HP         EG0300FCVBF             HPD5                    286102MB
1300 HP         EG0300FBVFL             HPDC                    286102MB
   0  AVAGO      Virtual Drive            RAID0                    5120MB

1 Virtual Drive(s) found on the host adapter.
1 Virtual Drive(s) handled by BIOS

Press <Ctrl><R> to Run MegaRAID Configuration Utility

```

Figure 6-106

- b) Enter the interface shown in figure 6-107. Please refer to the key operation tips at the bottom border of the interface to realize navigation and modify settings in the interface.

✧ Figure 6-107 LSI RAID management interface

```

UD Mgnt  PD Mgnt  Ctrl Mgnt  Properties
-----
Virtual Drive Management
[-] LSI MegaRAID 9361-8i (Bus 0x02, Dev 0x00)
  [-] No Configuration Present !
  [-] Unconfigured Drives
    |--:--:00: Ready: 278.07 GB
    |--:--:01: Ready: 278.07 GB
    |--:--:04: Ready: 278.07 GB
    |--:--:05: Ready: 278.07 GB
    |--:--:06: Ready: 278.07 GB
    |--:--:07: Ready: 931.00 GB
  Controller:
  Drive Groups: 0
  Virtual Drives: 0
  Drives: 6

F1-Help F2-Operations F5-Refresh Ctrl-N-Next Page Ctrl-P-Prev Page F12-Ctrl

```

Figure 6-107

➤ **Common tasks**

**Configure Raid:**

- c) As shown in figure 6-108, on the VD MGMT interface, press F2 and select create virtual drive.
- ✧ Figure 6-108 select Create Virtual Drive

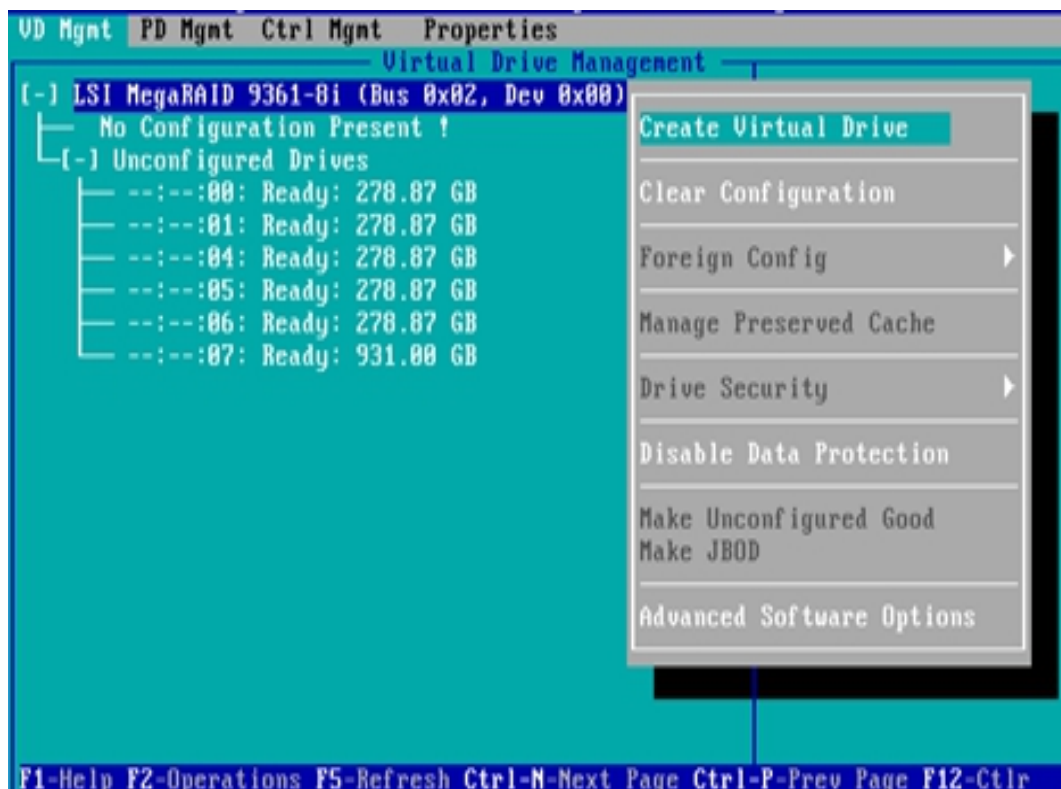


Figure 6-108

- d) Enter the interface shown in figure 6-109, set the RAID level, and press enter.
- ✧ Figure 6-109 setting RAID level

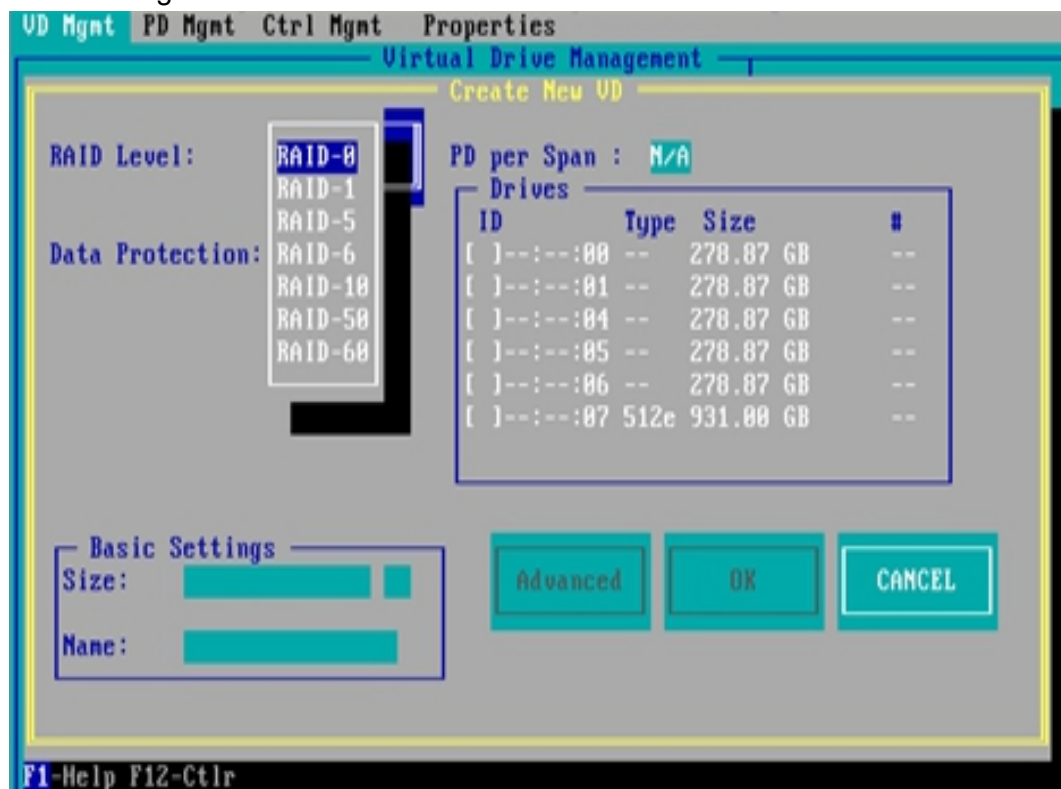


Figure 6-109

- e) Enter the interface shown in figure 6-110, select the disk to configure raid, and press enter.

✧ Figure 6-110 selecting disks

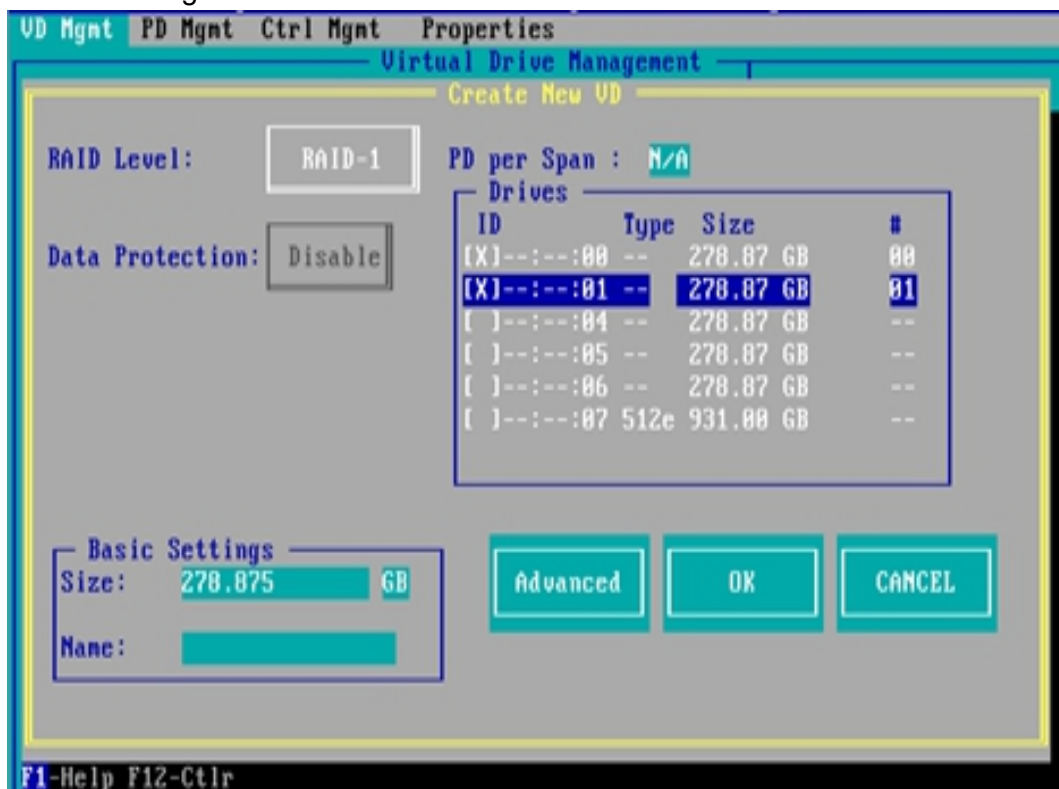


Figure 6-110

f) Enter the interface shown in figure 6-111, set the size and name, select advanced and press enter.

✧ Figure 6-111 setting raid name and capacity size

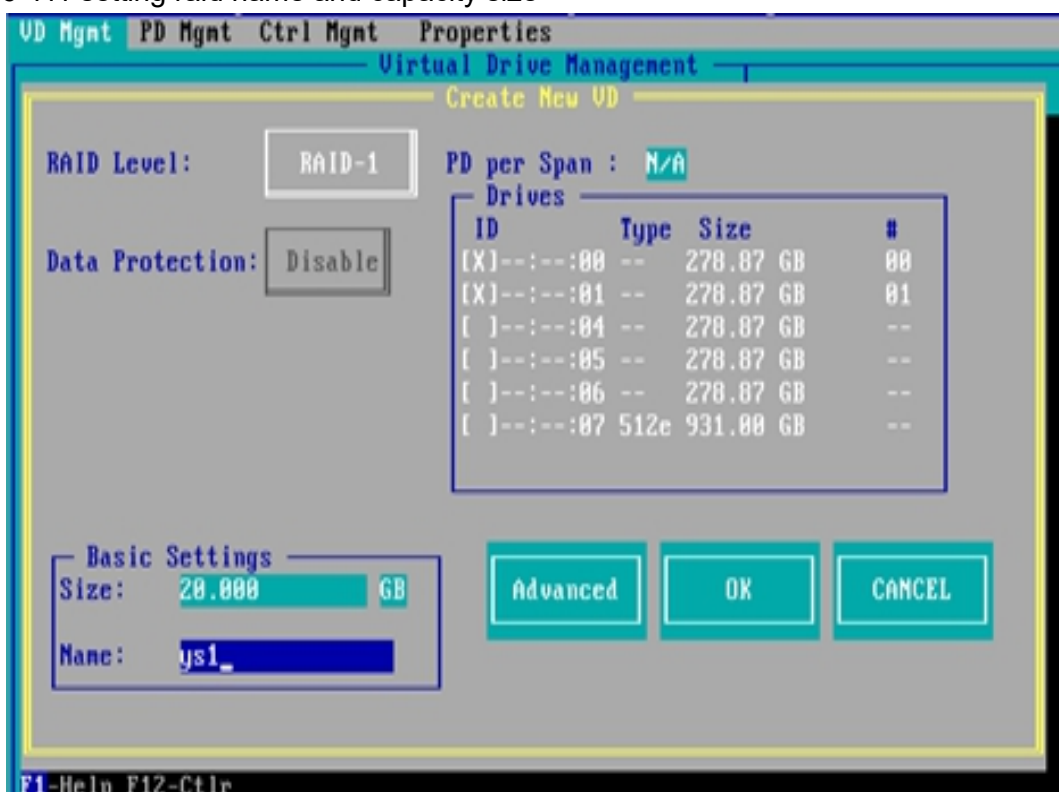


Figure 6 - 111

g) Enter the interface shown in figure 6-112, set relevant parameters, then select OK and press enter.

✧ Figure 6-112 setting advanced parameters



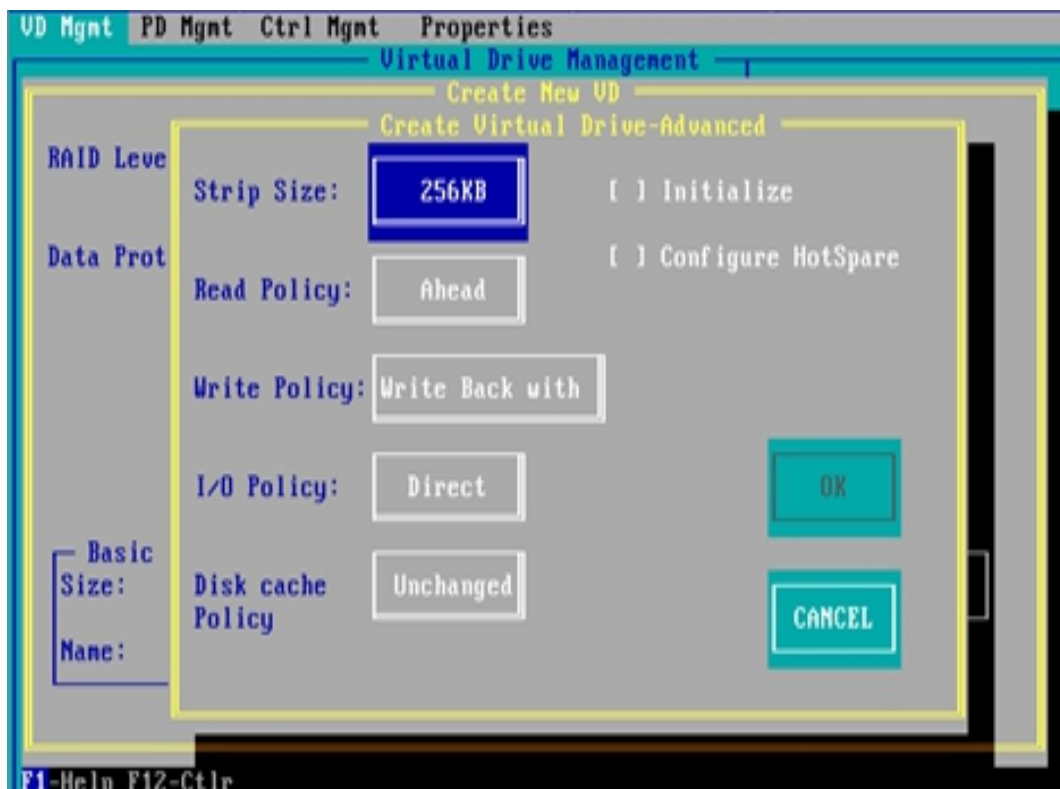


Figure 6-112

h) Enter the interface shown in figure 6-113, select OK, and press enter to complete the RAID configuration operation.

✧ Figure 6-113 confirm creation



Figure 6-113

i) Select the raid to be viewed and press enter to view the detailed information of the raid (including raid name, level, disk information, etc.), as shown in figure 6-114.

✧ Figure 6-114 viewing raid information

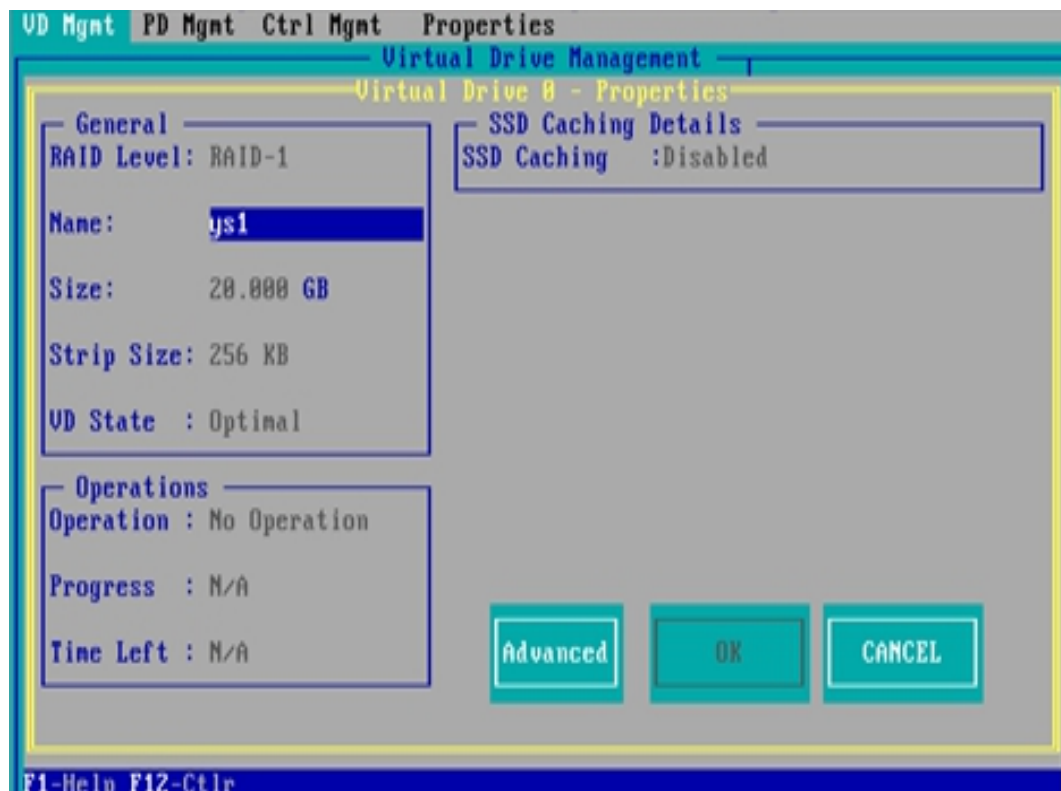
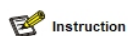


Figure 6-114

### To configure a hot spare:

After the raid is configured, the hot spare disk is generally configured to improve the data security. Global hot spare and dedicated hot spare can be configured as required.



- ✧ The hot spare is only used for RAID levels with redundancy.
  - ✧ The capacity of the hot spare disk is larger than the capacity that a single member disk of a raid contributes to the raid.
  - ✧ Only disks with unconfigured good configuration mode are supported as hot spare disks.
1. Configure global hot spare
    - a) As shown in figure 6-115, select the disk to be configured as a global hot spare in the PD MGMT interface, and press F2.
- ✧ Figure 6-115 selecting disks to be configured as global hot spare

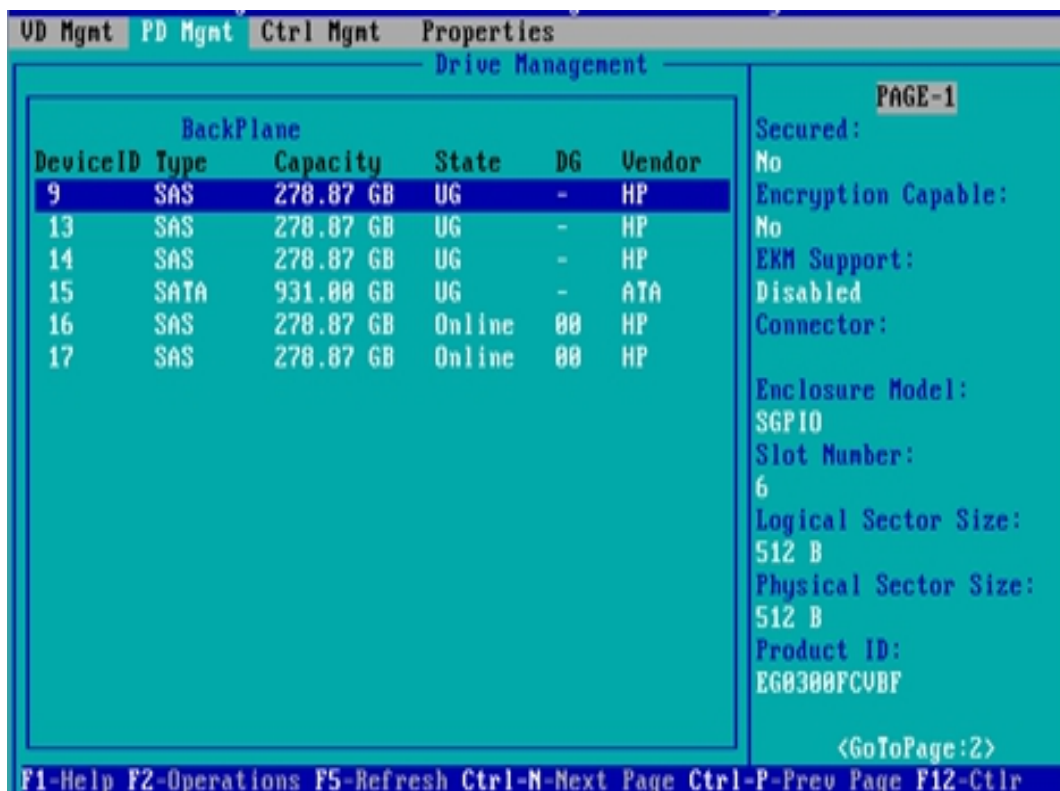


Figure 6-115

- b) Enter the interface shown in figure 6-116, select make global HS, and press enter to complete the configuration of global hot spare.

✧ Figure 6-116 select make global HS

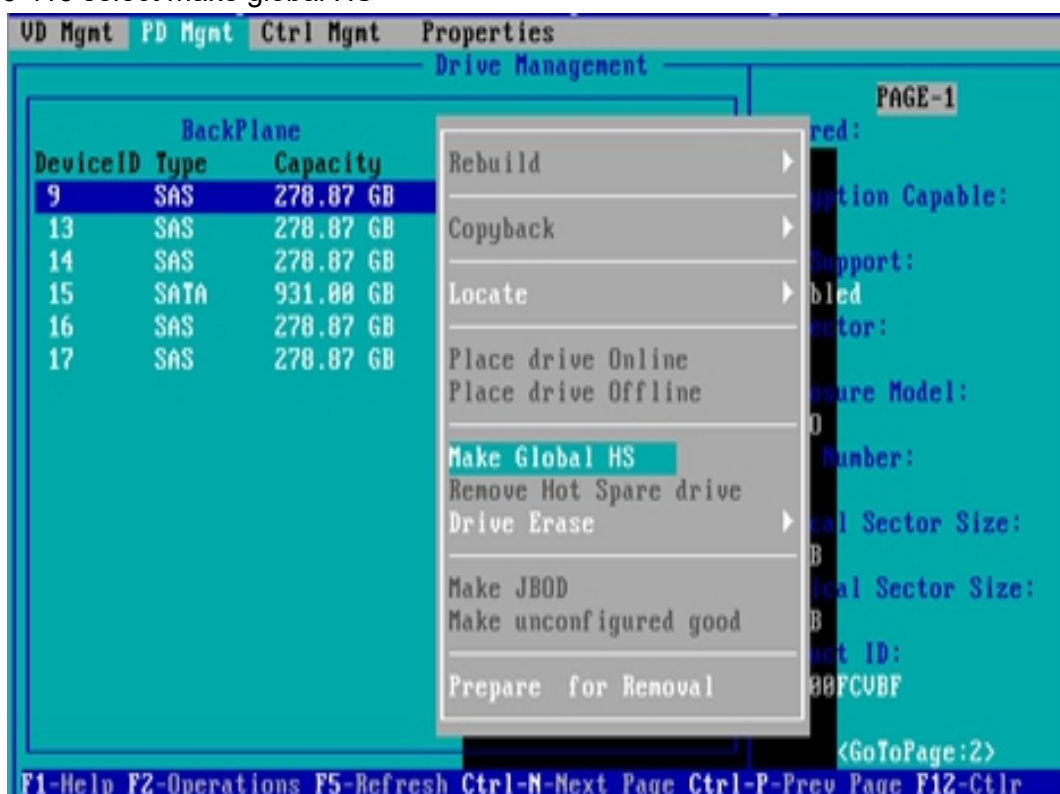


Figure 6-116

- c) Return to the interface shown in figure 6-117 and select the hot spare to view the global hot spare information.

✧ Figure 6-117 viewing global hot spare information

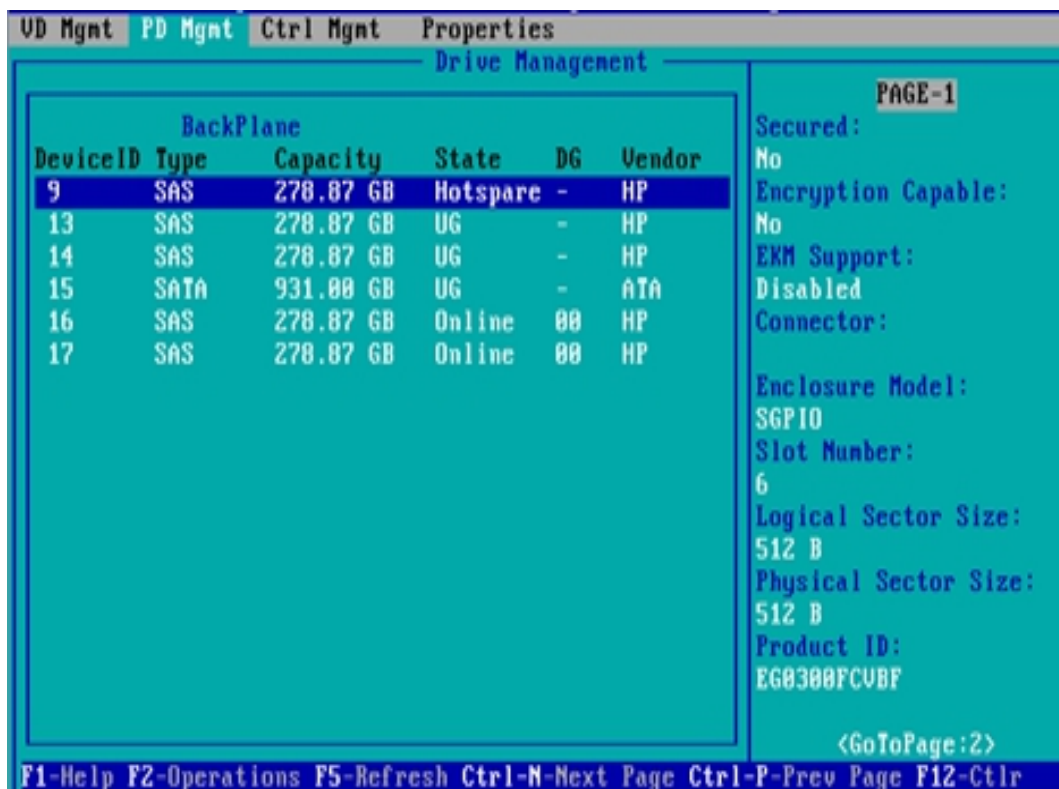


Figure 6-117

### Delete Raid:

This function is used to delete raid that is damaged or difficult to meet the requirements.

- a) As shown in figure 6-118, select the logical disk to be deleted in the VD MGMT interface and press F2.
- ✧ Figure 6-118 selecting the logical drive to be deleted

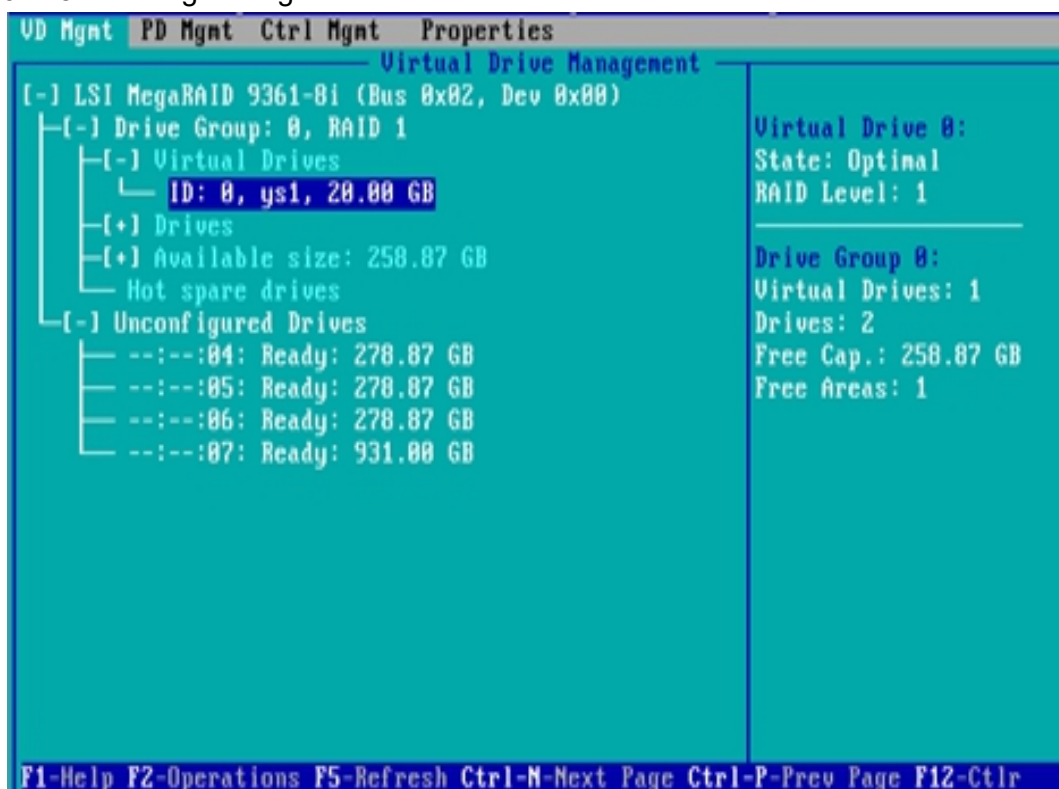


Figure 6-118

- b) Enter the interface shown in figure 6-119, select Delete VD and press enter.

✧ Figure 6-119 select Delete VD

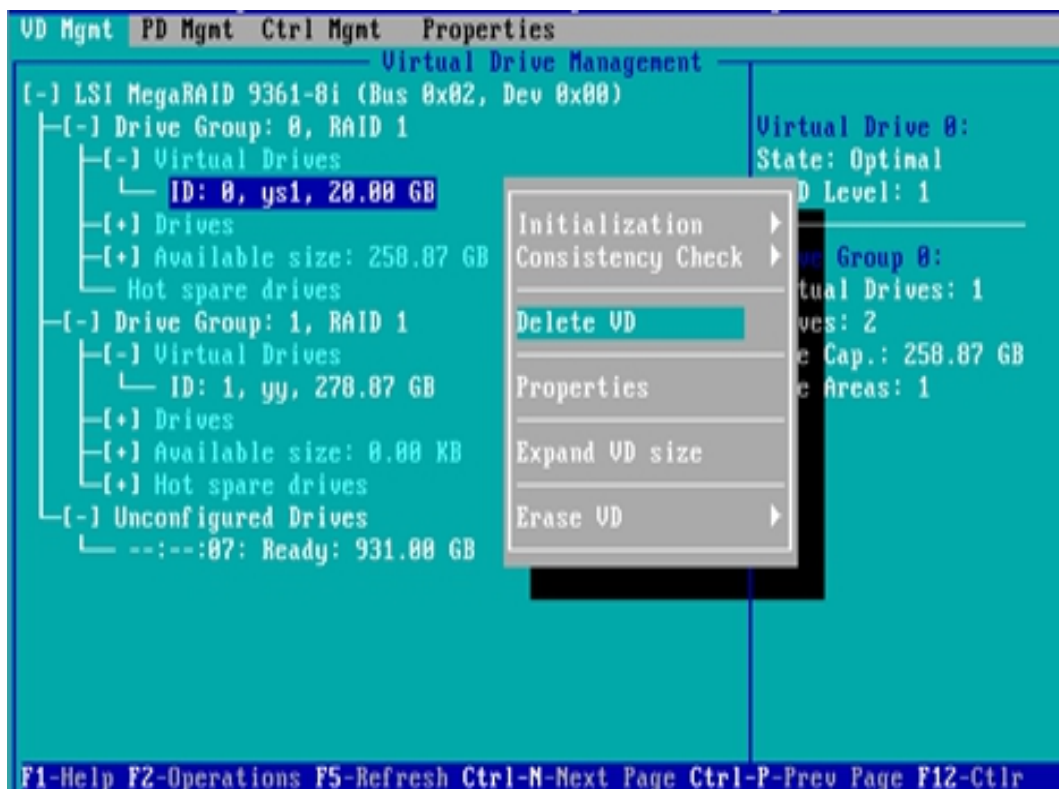


Figure 6-119

c) Enter the interface shown in figure 6-120, select Yes, and press enter to complete the raid deletion operation.

✧ Figure 6-120 confirm deletion

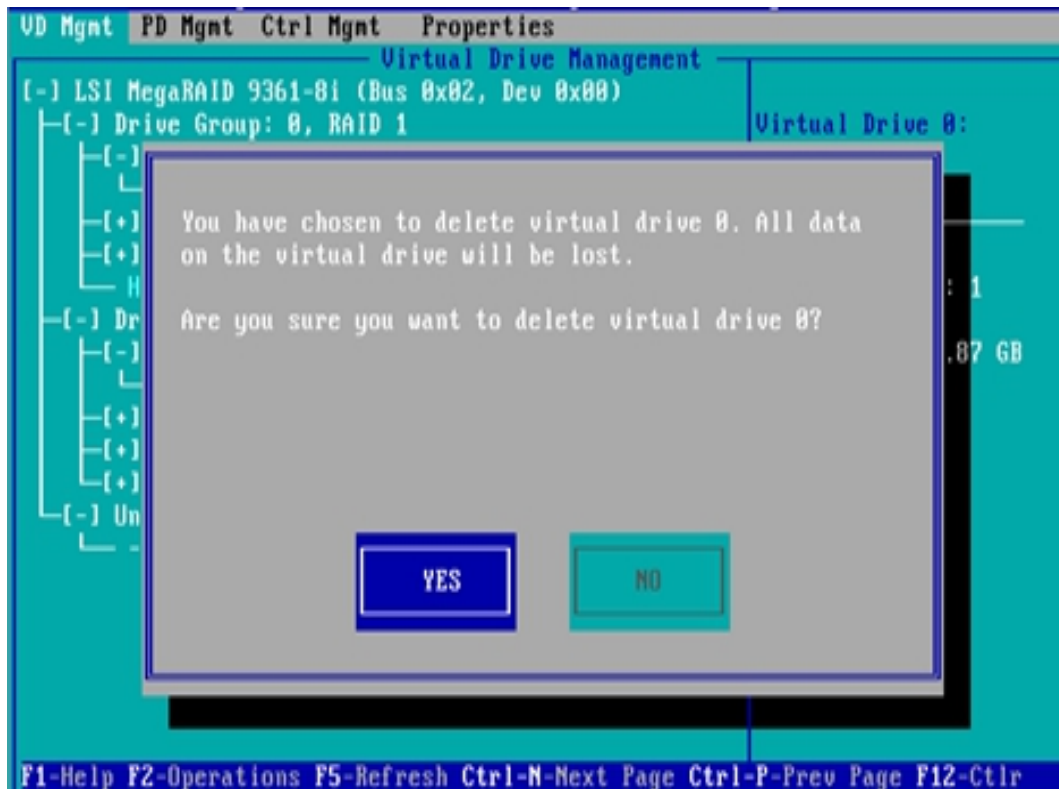


Figure 6-120

**Locate the disk location:**

This function lights up the blue indicator of the corresponding slot of the disk, so that you can quickly find the disk. You can locate all member disks contained in a single physical disk or a logical disk.

a) As shown in figure 6-121, select the disk to be located in the PD MGMT interface and press F2.

✧ Figure 6-121 selecting the disk to be located

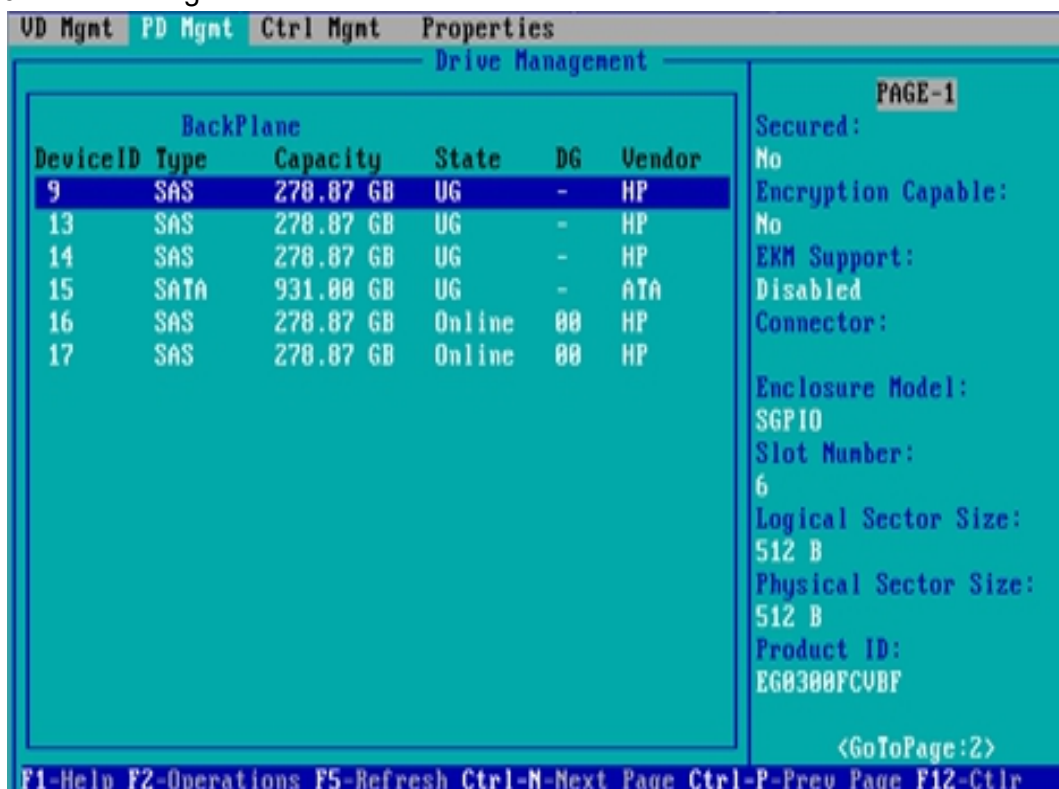


Figure 6-121

b) Enter the interface shown in figure 6-122 and select locate - ) start to complete the disk positioning operation.

✧ Figure 6-122 select locate - ) start

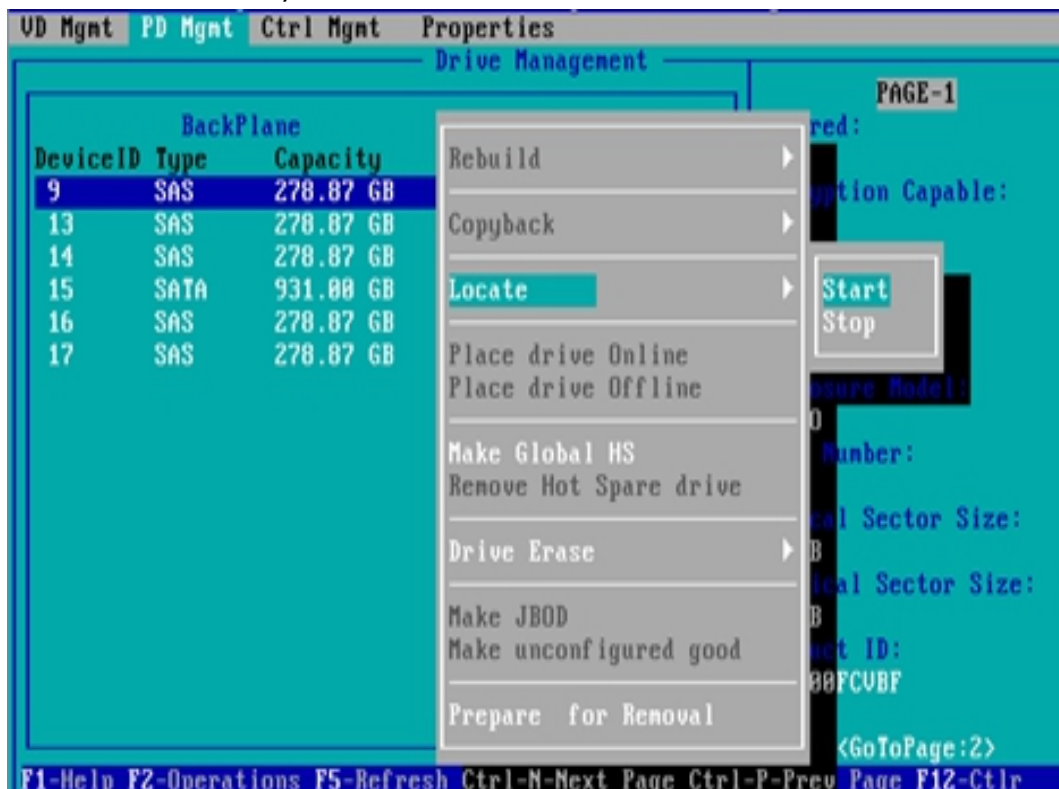


Figure 6-122

- ✧ Locate - > start: start the disk location operation.
- ✧ Locate - > stop: stop locating the disk.

### Initialize logical drive:

This function is used to initialize the disk internal data space, so that it can be recognized by the operating system.

- a) As shown in figure 6-123, select the disk to be initialized in the VD MGMT interface and press F2.
- ✧ Figure 6-123 selecting the disk to be initialized

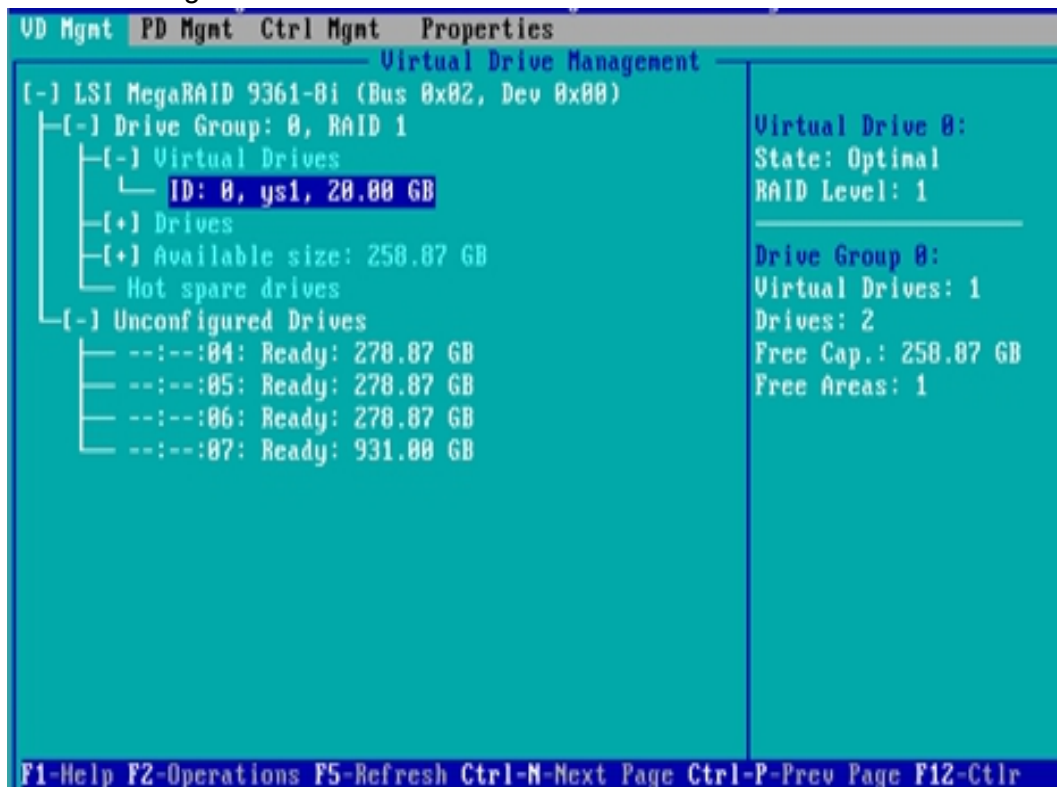


Figure 6-123

- b) Enter the interface shown in figure 6-124 and select initialization - > start FGI.
- ✧ Figure 6-124 select initialization - > start FGI

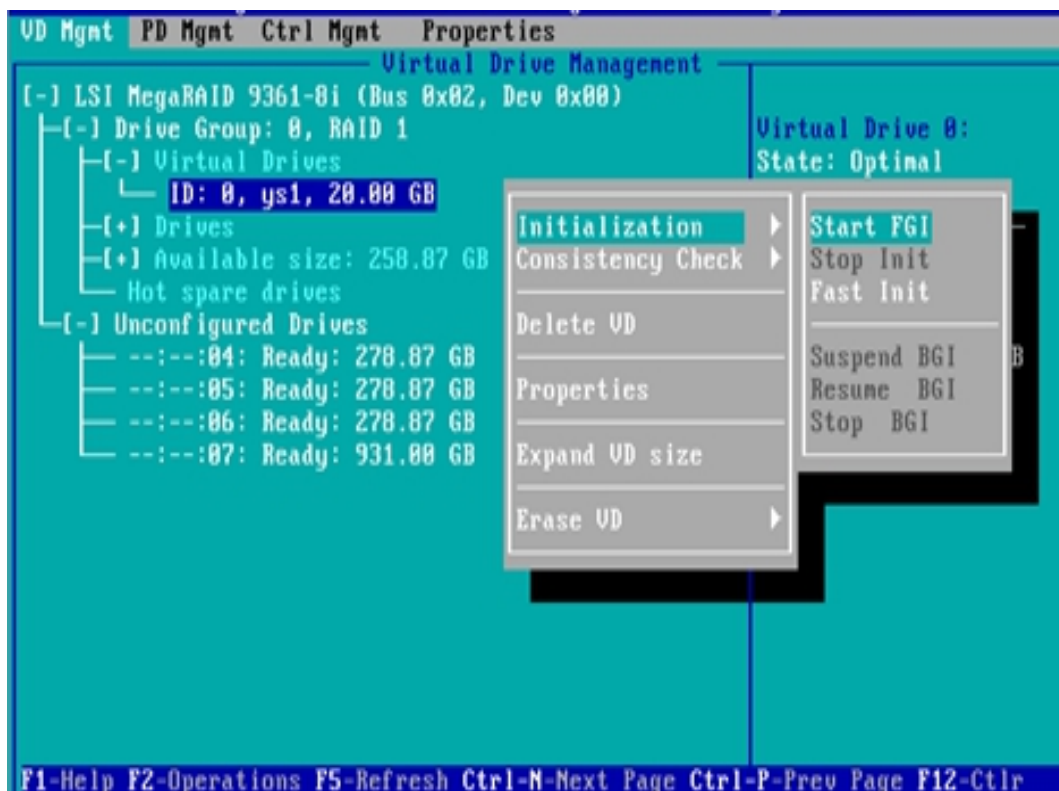



Figure 6-124

 Instruction

- ✧ BGI: background initialization, initialization in the background. Part of the raid space is initialized for writing data, and the rest space is initialized in the background.
- ✧ FGI: full gross initialization, which initializes all the space of raid, and writes data after initialization.
- c) Enter the interface shown in figure 6-125, select Yes and press enter to complete the initialization operation.
- ✧ Figure 6-125 confirm initialization



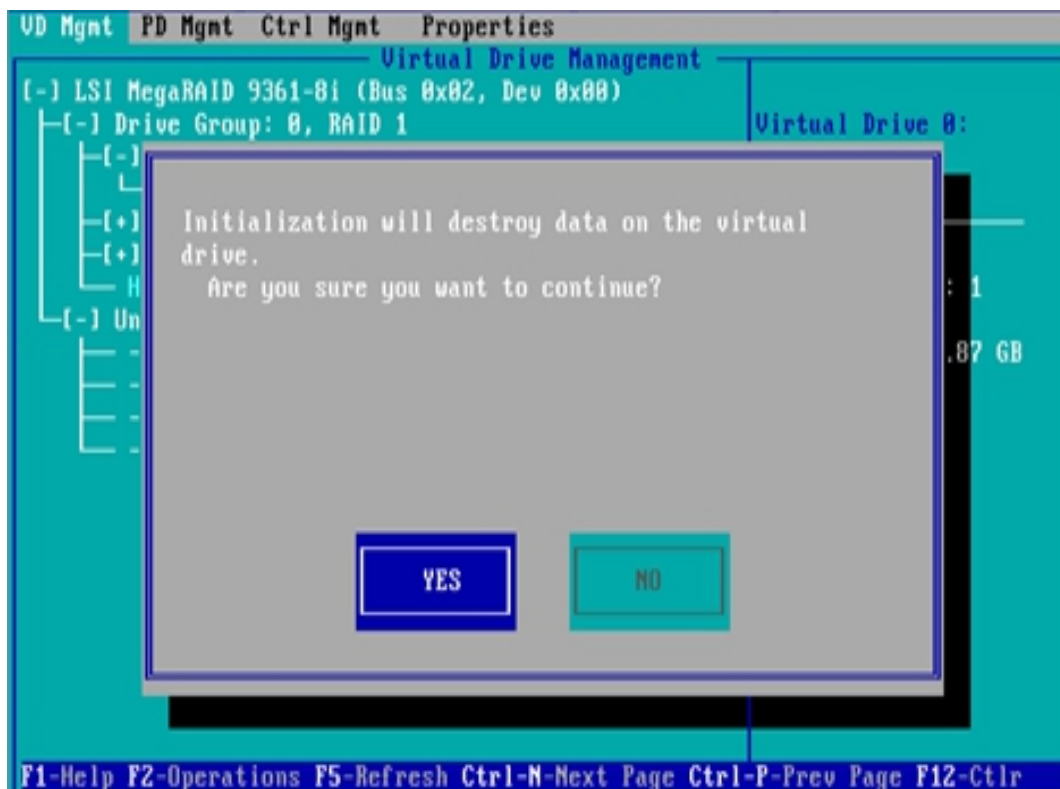


Figure 6-125

### Erase disk data:

This function is used to delete the data inside the disk, including erasing physical disk data and logical disk data.

#### 1. Erasing physical disk data

a) As shown in figure 6-126, select the physical disk to be erased in the PD MGMT interface, and press F2.

✧ Figure 6-126 selecting the physical disk to be erased

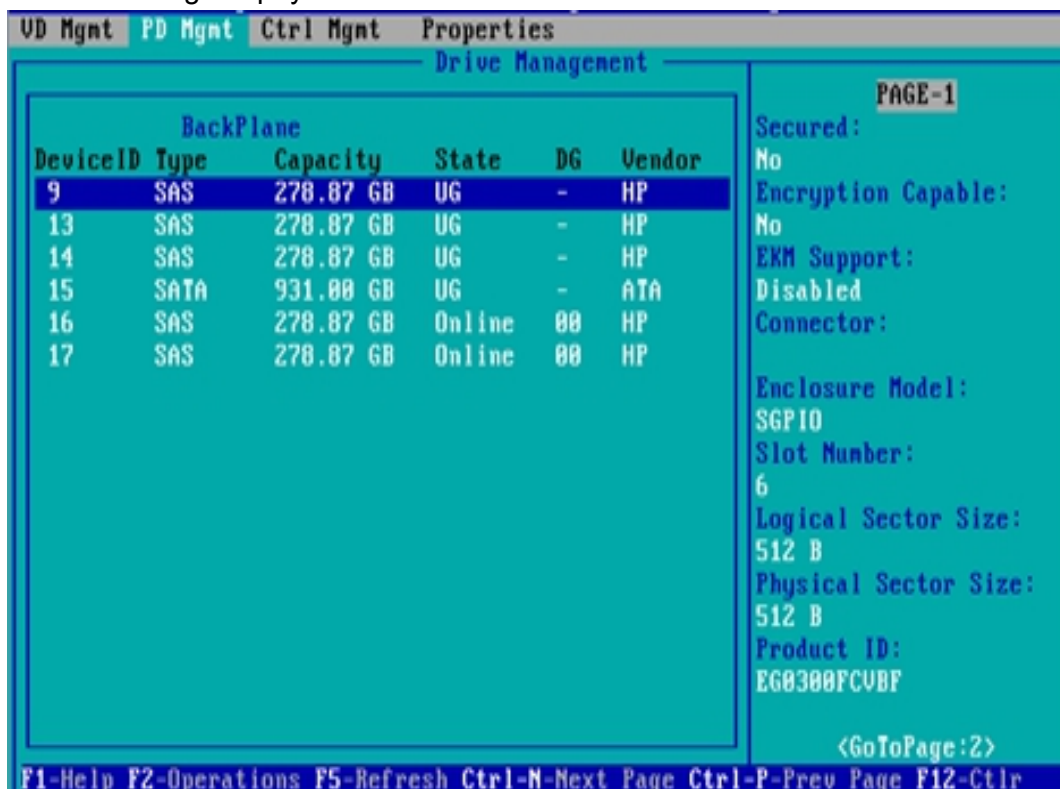


Figure 6-126

b) Enter the interface shown in figure 6-127, select erase mode (the default mode is recommended: simple), and press enter.

✧ Figure 6-127 select erase mode

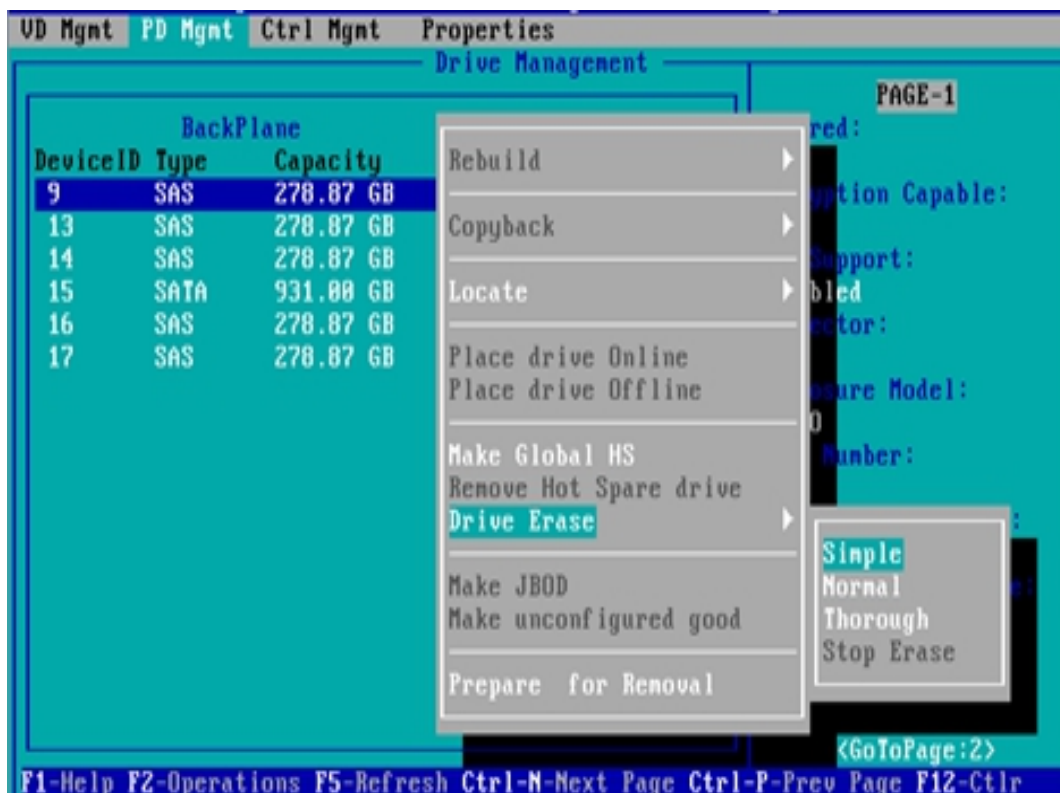


Figure 6-127

c) Enter the interface shown in figure 6-128, select Yes, and press enter to complete the operation of erasing the physical disk data.

✧ Figure 6-128 confirm erase

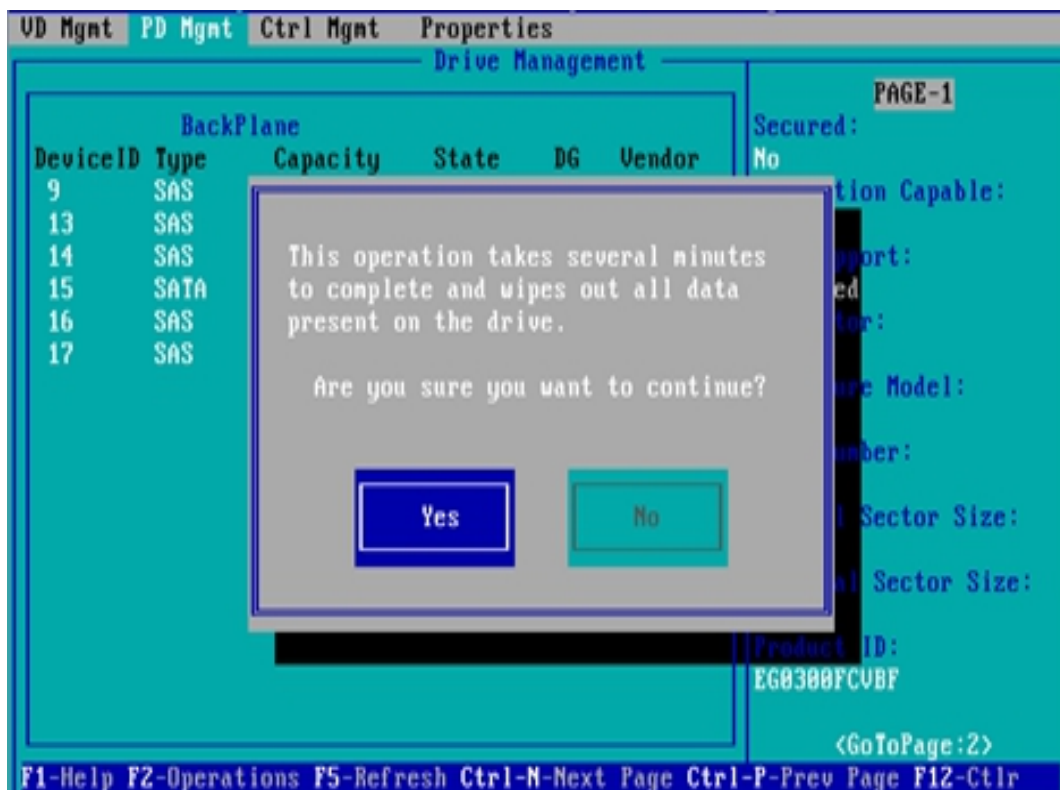


Figure 6-128

To avoid disk failure, do not perform other operations during erasing physical disk data.

2. Erasing logical disk data

a) As shown in figure 6-129, select the logical disk to be erased on the VD MGMT interface, and press F2.

✧ Figure 6-129 select the logical disk to be erased.

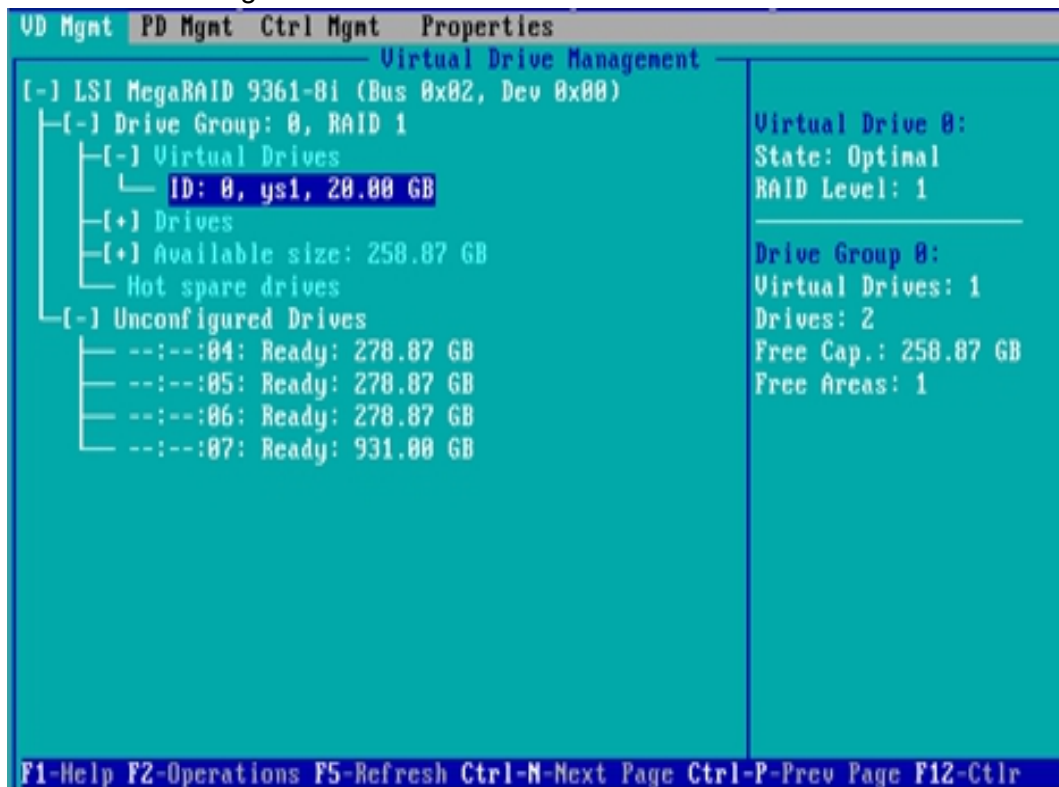


Figure 6 - 129

b) Enter the interface shown in figure 6-130, select erase mode (the default mode is recommended: simple), and press enter.

✧ Figure 6-130 select erase mode

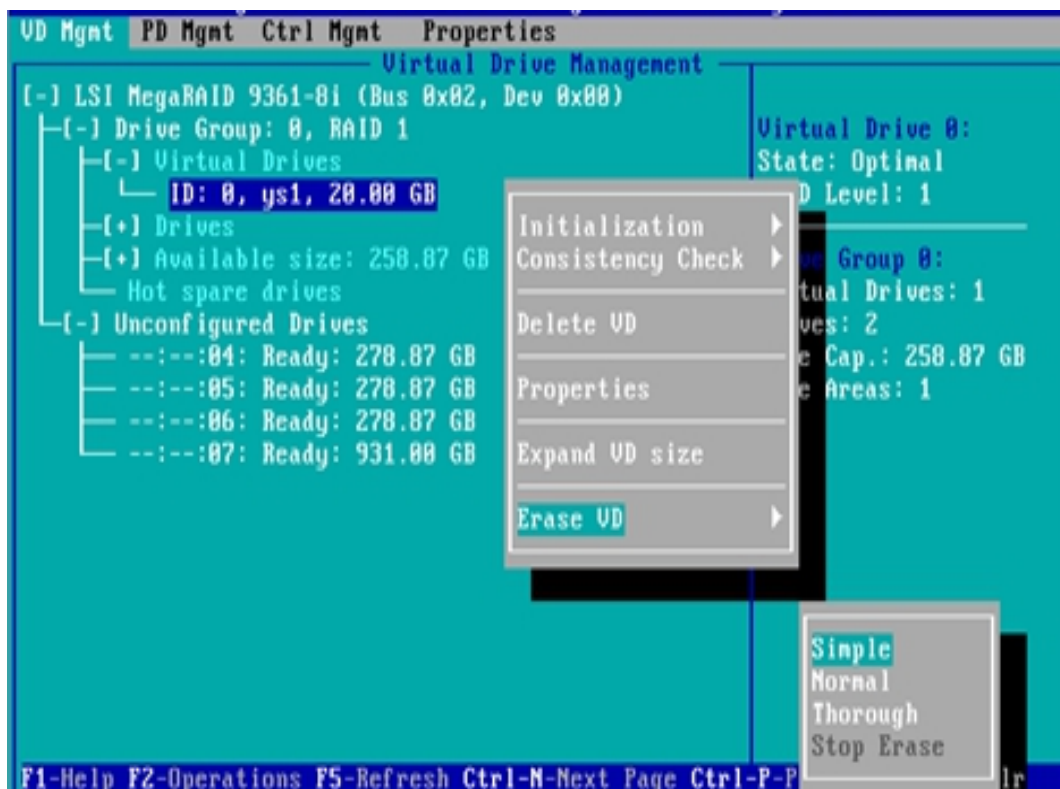


Figure 6-130

- c) Enter the interface shown in figure 6-131, select Yes, and press enter to complete the operation of erasing logical disk data.
- ✧ Figure 6-131 confirm erase

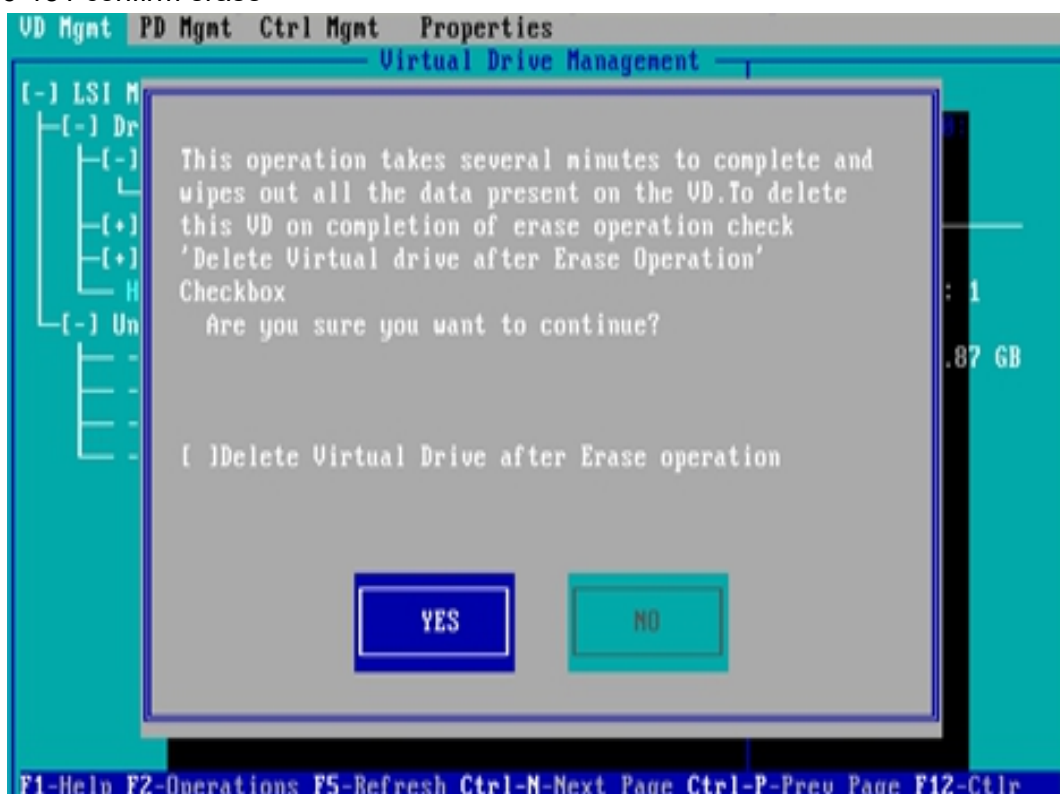


Figure 6-131

**Clear disk raid information:**

This function is used to clear the residual raid information in the disk, so that the disk can be reused to configure raid. This function is commonly used for disks with unconfigured bad mode.

- a) Switch the disk mode from unconfigured bad to unconfigured good

b) As shown in figure 6-132, in the foreign view interface, select raid card, press F2, select foreign config > clear, and press enter.

✧ Figure 6-132 select foreign config > clear

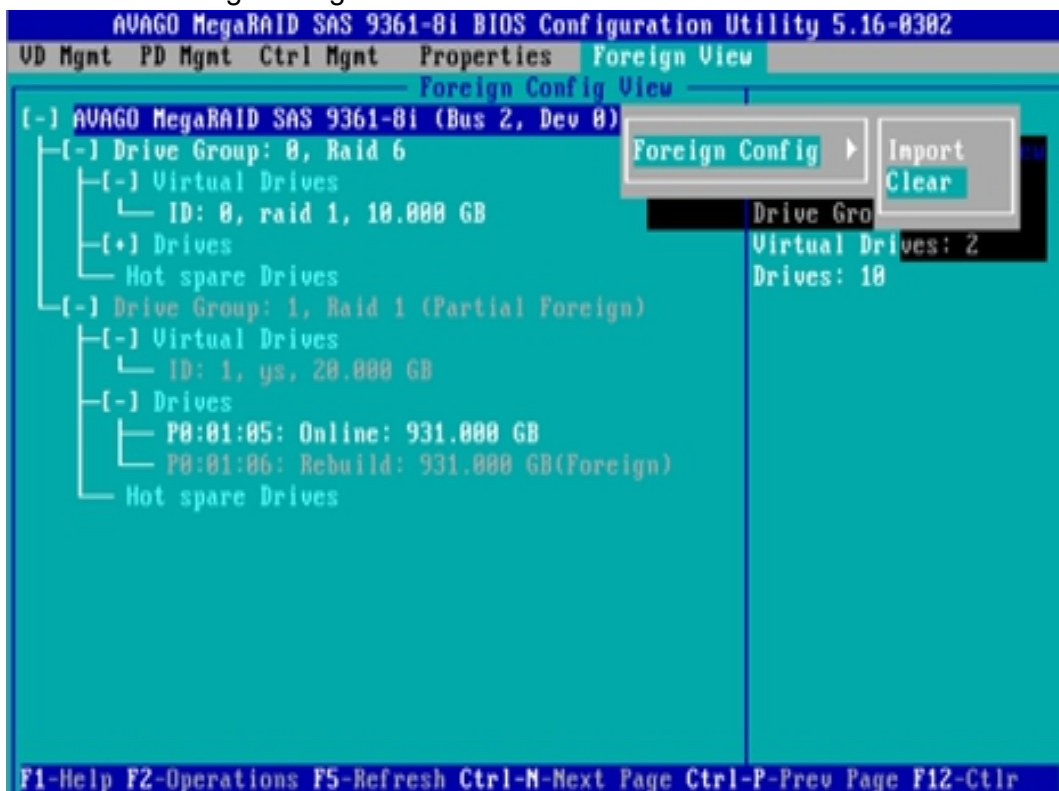


Figure 6-132

c) In the pop-up dialog box shown in figure 6-133, select OK and press enter to complete the operation of clearing disk raid information.

✧ Figure 6-133 confirm clear



Figure 6-133

## Chapter 7 IPMI Rapid Deployment

### 7.1 rapid deployment of IPMI process

How to quickly deploy the IPMI function of the server is shown in Figure 7-1.

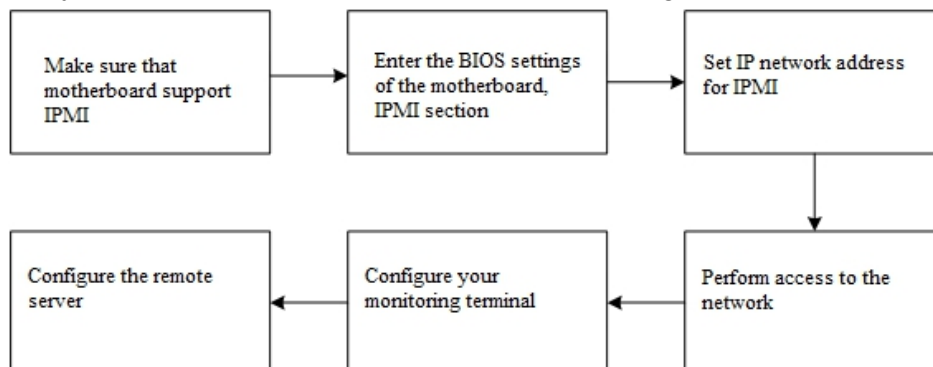


Figure 7-1 IPMI deployment process

#### 7.1.1 confirm that the motherboard supports IPMI function

Check your motherboard manual and confirm that your motherboard supports IPMI, and then find the dedicated IPMI network port of the motherboard, or select the shared network port, as shown in Figure 7-2.

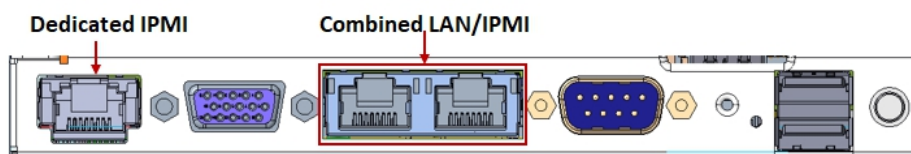


Figure 7-2 special network port of main board

## 7.1.2 enter BIOS to set IPMI function

Restart your system. Press ESC or del to enter the BIOS system of the motherboard while the device is booting. The BIOS setting interface is shown in Figure 7-3.

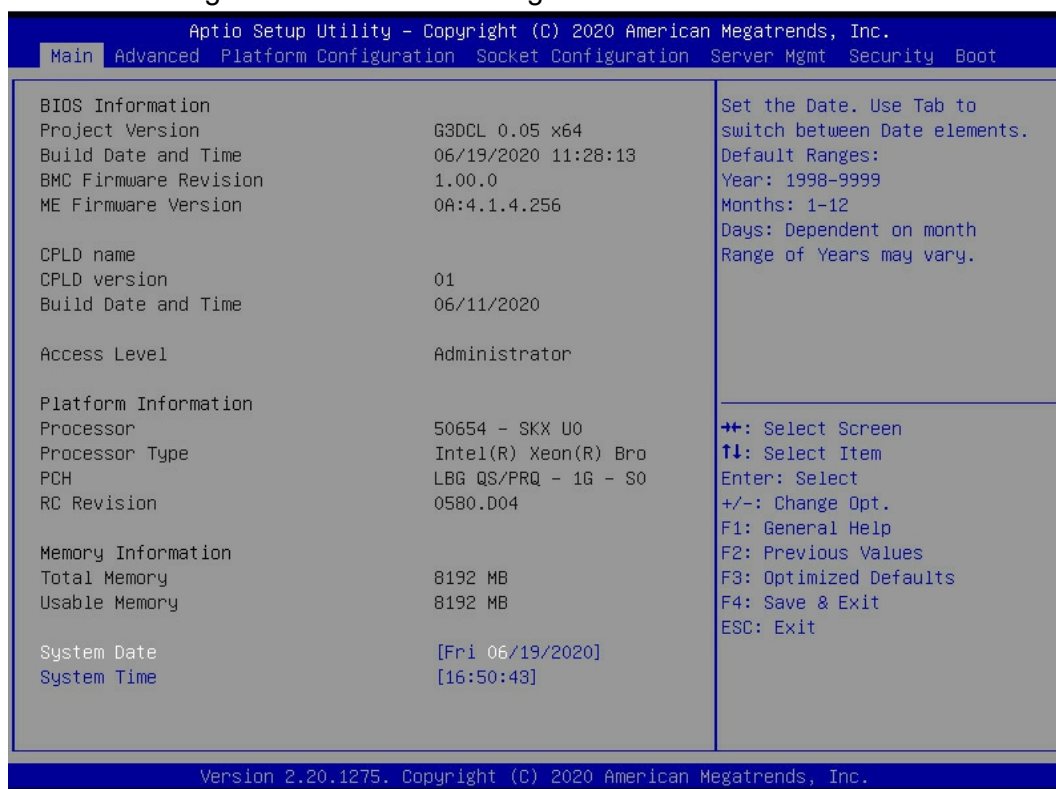


Figure 7-3 BIOS setting interface of motherboard

After entering the interface, switch the menu item to the server MGMT option by pressing the left and right keys on the keyboard, and you will see the page as shown in Figure 7-4.

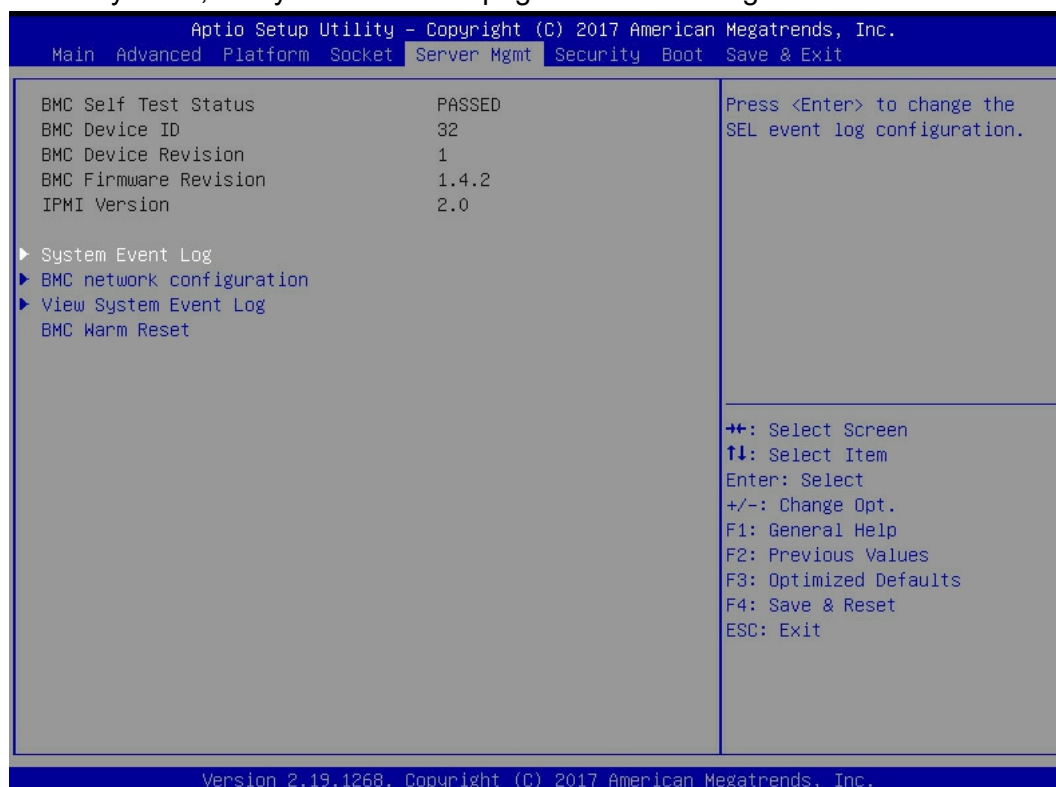


Figure 7-4 server MGMT interface

After entering the interface, enter the BMC network configuration option through the keyboard to enter the following interface, as shown in Figure 7-5.

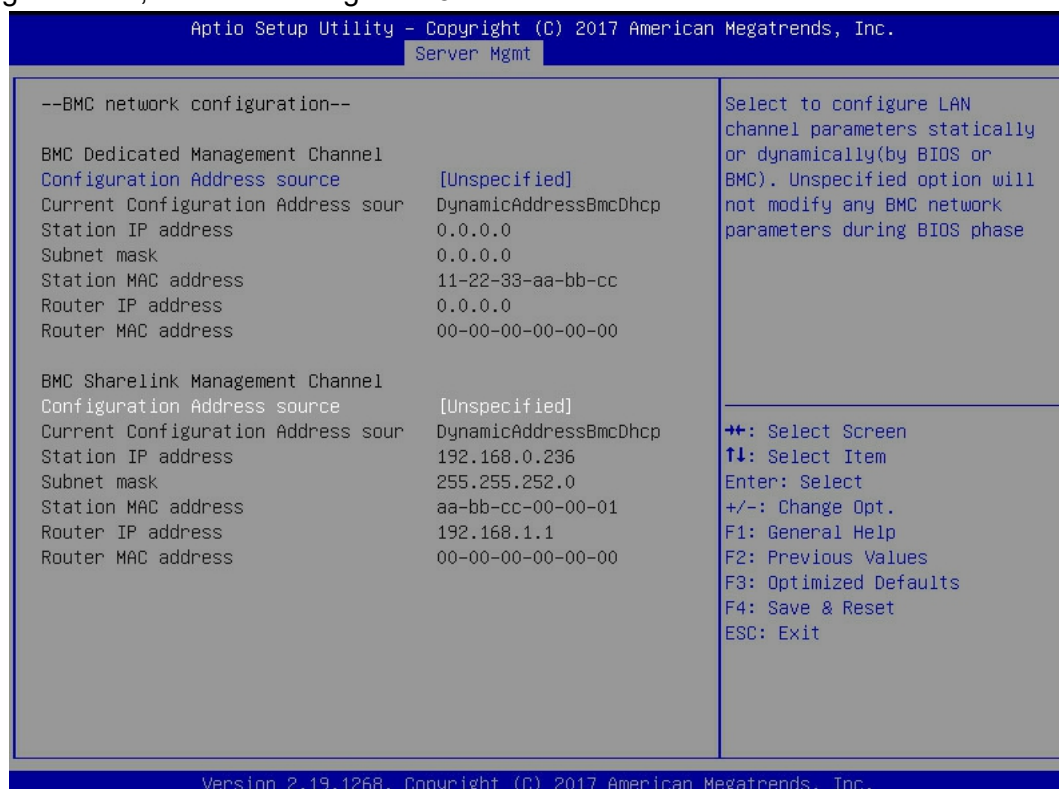


Figure 7-5 BMC network configuration option interface

On this page, you can see two configurable network ports, one is dedicated network port, and the other is sharelink shared network port. Take the shared network port as an example. If you connect a private network port, the setting method is the same as that of the shared network port. Switch to the configuration address source option and press enter to set the network mode of the network port, as shown in Figure 7-6.



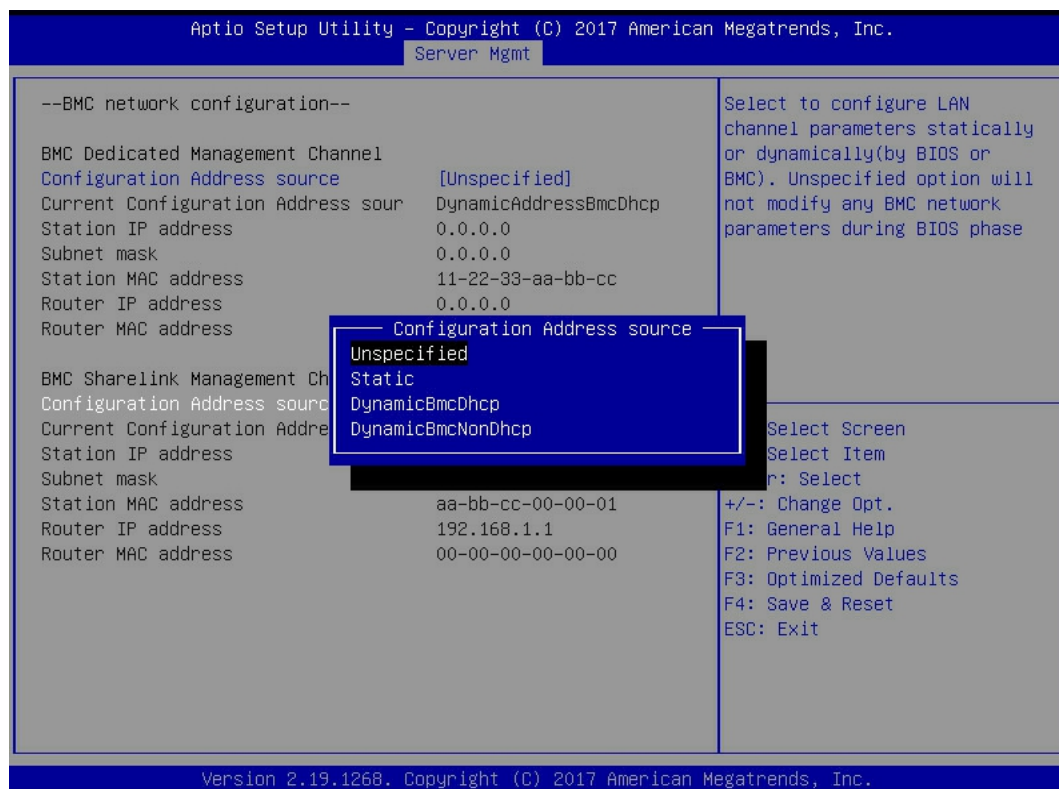


Figure 7-6 configuration of network port network mode

There are four network modes that can be configured in the interface, namely unspecified, static, dynamic BMC DHCP and dynamic BMC on DHCP. Static mode is static mode, you can manually set IP address, and DHCP is dynamic mode. Setting this option can make BMC automatically obtain IP address from DHCP server.

### 7.1.3 IPMI interface configuration static mode

If you choose to configure static mode for IPMI interface, you should pay attention to the following issues:

- (1) If there are multiple IPMI devices in your LAN, it should be noted that the IP addresses between devices cannot be duplicated, otherwise communication cannot be established.
- (2) If the IP address of your IPMI device is an intranet address, the terminal device communicating with it must be in the same network segment as the address of the IPMI device.
- (3) The IP address of IPMI device can be mapped to Wan through routing device to realize remote management.
- (4) IPMI port has the function of obtaining IP address through DHCP.
- (5) IPMI supports TCP / IP V4 and TCP / IP V6.

Configure the IP address and subnet mask according to your actual situation. For example, we set the IP address to 192.168.0.236 and the subnet mask to 255.255.252.0, as shown in Figure 7-7. After setting, press F4 to save and exit BIOS interface.

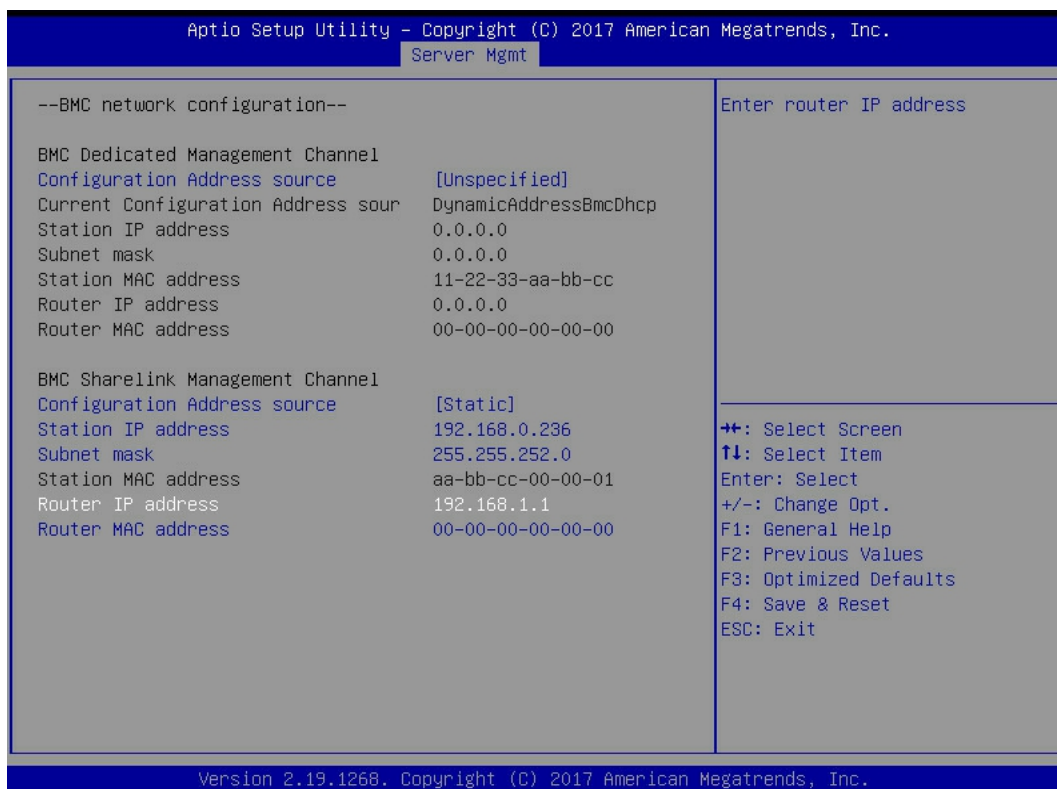


Figure 7-7 Satic mode setting

So far, we have completed the operation of configuring IPMI function.

### 7.1.4 IPMI configuration Java sol

1. When the system starts, press the < del > key to enter the BIOS setting interface.
2. Switch to the Advanced menu, select serial port console redirection and press the < ENTER > key.
3. Make sure that the console redirection of COM0 is in [enabled] state. If not, select console redirection and press < ENTER > to set the status to [enabled]. In order to ensure the normal operation of IBMC, the factory has set this option to [enabled] by default.

## 7.2 introduction of IPMI function

After completing the previous configuration steps, we can start to log in to the IPMI management interface. The IPMI management interface can be accessed by using a standard web browser. Here, we recommend using Google Chrome browser, firebox fox browser and IE browser (ie 11 or above) to get the best browsing experience. Since the new version of the operating interface is based on HTML5, which costs a lot of computer resources, we recommend that the client configure more than 8g of memory when using KVM.

### 7.2.1 enter the operation interface

Take Google Chrome as an example. Enter the IPMI access address in the address bar of the browser and press enter to access the IPMI management interface. Since the HTTP links have been converted to encrypted links of HTTPS, the privacy setting error page as shown in Figure 7-8 will be entered, and the contents of other browsers may be different.

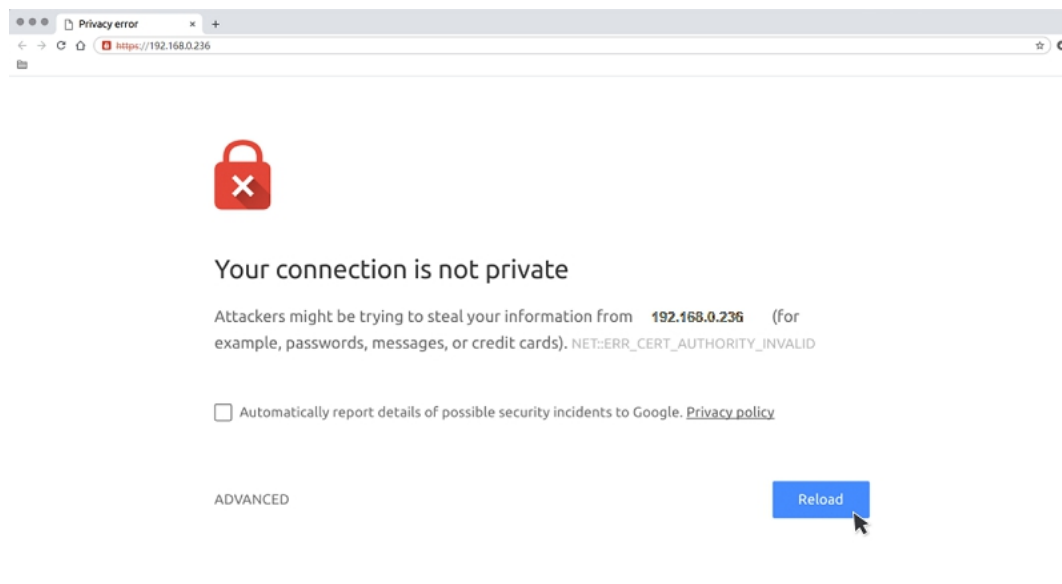


Figure 7-8 Google Chrome privacy settings error page

On this page, click "advanced" >> "continue to go" to access the IPMI management page normally and enter the login page, as shown in Figure 7-9.

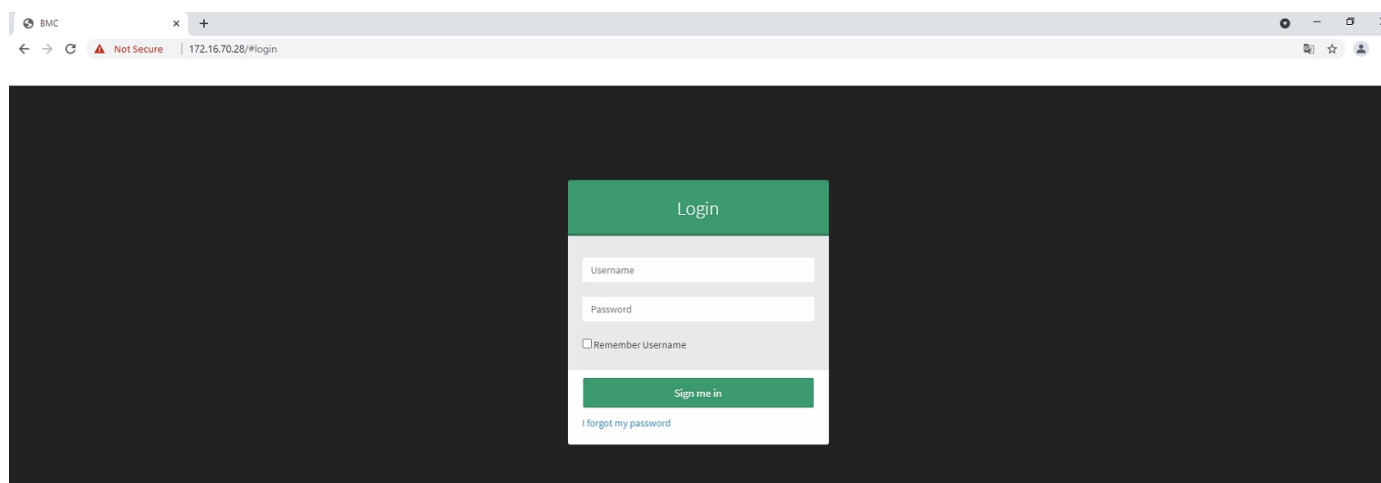


Figure 7-9 IPMI management login interface

## 7.2.2 default user name and password

Factory default user name: admin

Factory default password: admin

When you log in with this user name, you will get all administrator rights. It is recommended that you change your password after logging in.

## 7.2.3 contents of IPMI management system

When you log in to the IPMI management system correctly, you can see the page shown in Figure 7-10.

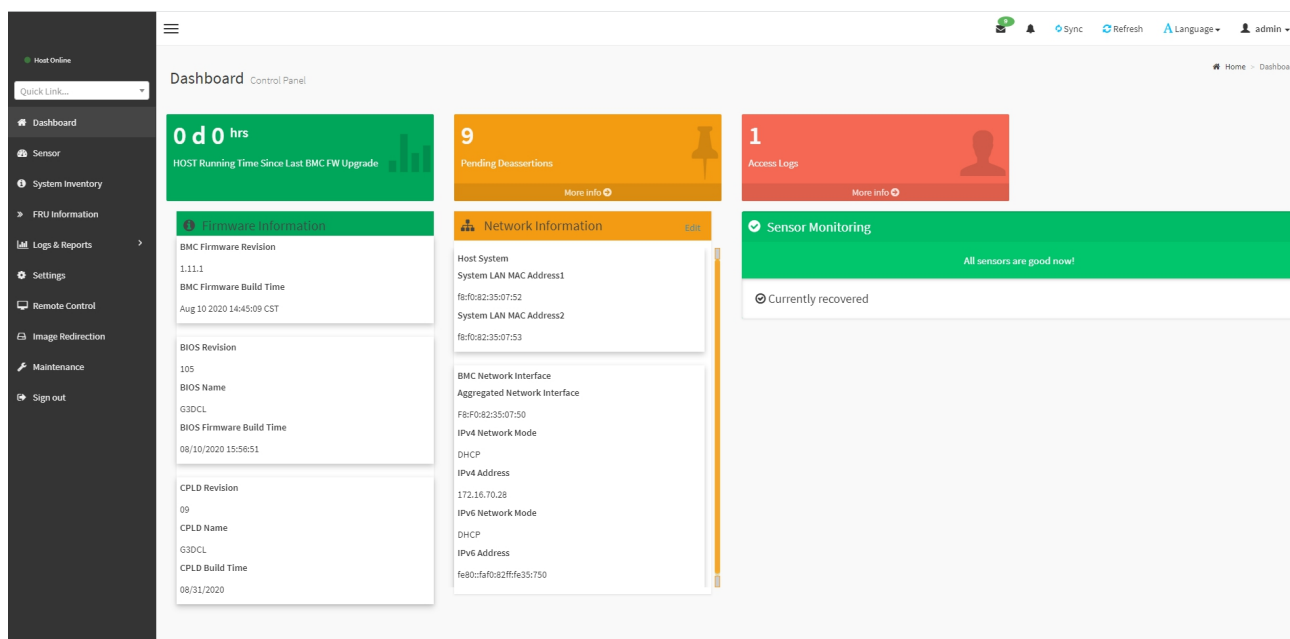


Figure 7-10 home page of IPMI management system

### IPMI management interface menu description

#### (1) Dashboard

On this page, users can view the basic information of IPMI management system. It includes firmware information, network information and sensor monitoring information.

The firmware information includes BMC firmware version information, BIOS version information, mainboard CPLD version information, backplane CPLD version information and BMC firmware compilation time information.

Network information includes MAC address of system network and BMC network information. You can choose to view the shared network port or private network port of BMC. BMC network information includes BMC network MAC address information, IPv4 network mode information, IPv4 address information, IPv6 network mode information and IPv6 address information.

Sensor monitoring information will display the current alarm sensor information in real time, including sensor name, sensor reading value, real-time curve change of sensor reading value and alarm status.

#### (2) Sensors

This page displays the status of all sensors. When there is a sensor alarm, the sensor will be displayed in the key sensor field. When the alarm is cleared, the sensor will be automatically removed from the key sensor column.

#### (3) System list

This page can view server CPU and memory information. In the block diagram, click the CPU box to view the CPU information. If the memory block is displayed in green, it means that the memory exists. Click the memory block to view the memory information.

#### (4) Fru information

Select this menu to view the basic information of fru.

#### (5) Log & Report

Under this menu, you can view IPMI time log, audit log and video log.

(6) Settings

The BMC can be configured under this menu. Including BSOD, date & time, network, etc

(7) Remote control

In this page, you can start KVM, sol, power control, uid (server flag light) control.

(8) Image redirection

On this page, you can get the latest image files on the remote storage device.

(9) Maintenance

You can perform basic maintenance operations on the server, such as BMC firmware update and BIOS firmware update.

(10) Write off

Click to log off the current user's login.

## 7.2.4 introduction to KVM remote management

### Start KVM remote management

As shown in Figure 7-11, KVM can be started under remote control KVM & Java sol remote control menu.

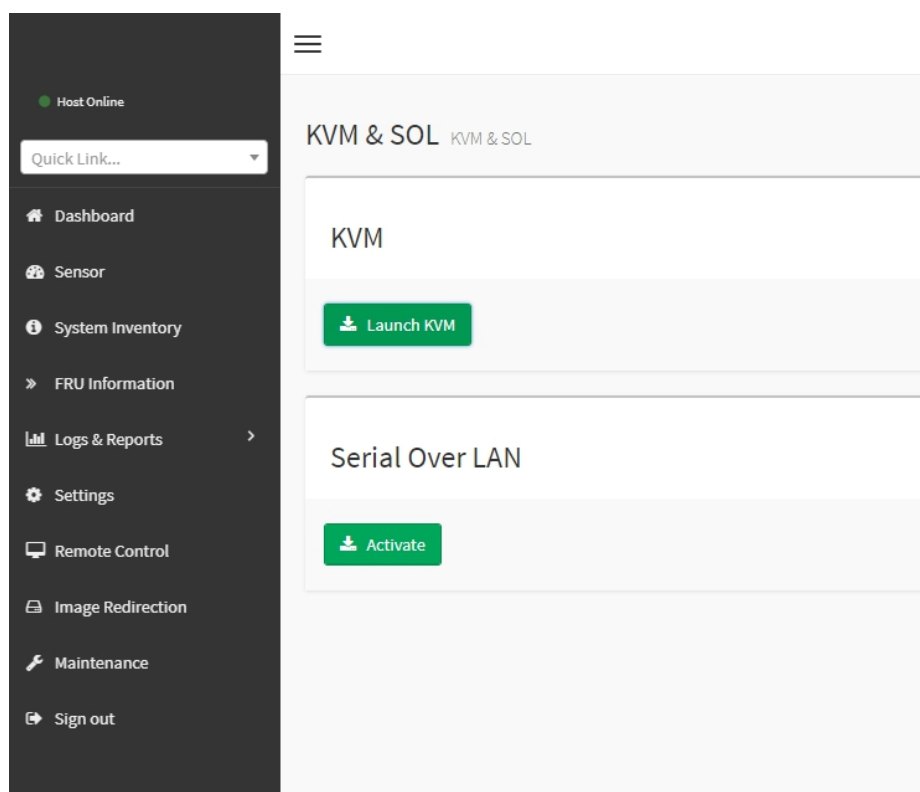


Figure 7-11 start KVM

## 7.2.5 KVM page introduction

Figure 7-12 shows the KVM interface after starting KVM.

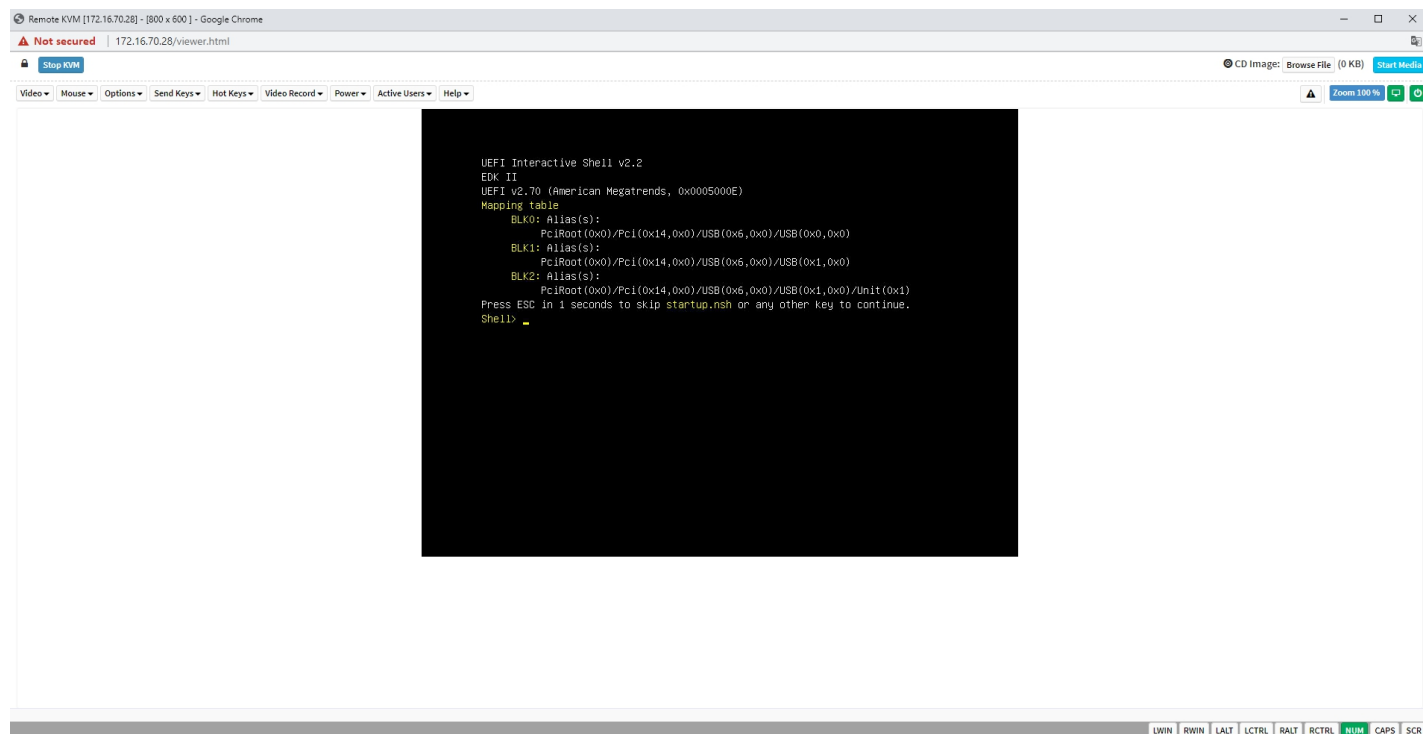


Figure 7-12 KVM interface

As shown in Figure 7-13, the KVM interface includes two parts: one is the menu and shortcut button, the other is the window of remote desktop, that is, the server desktop information returned remotely.

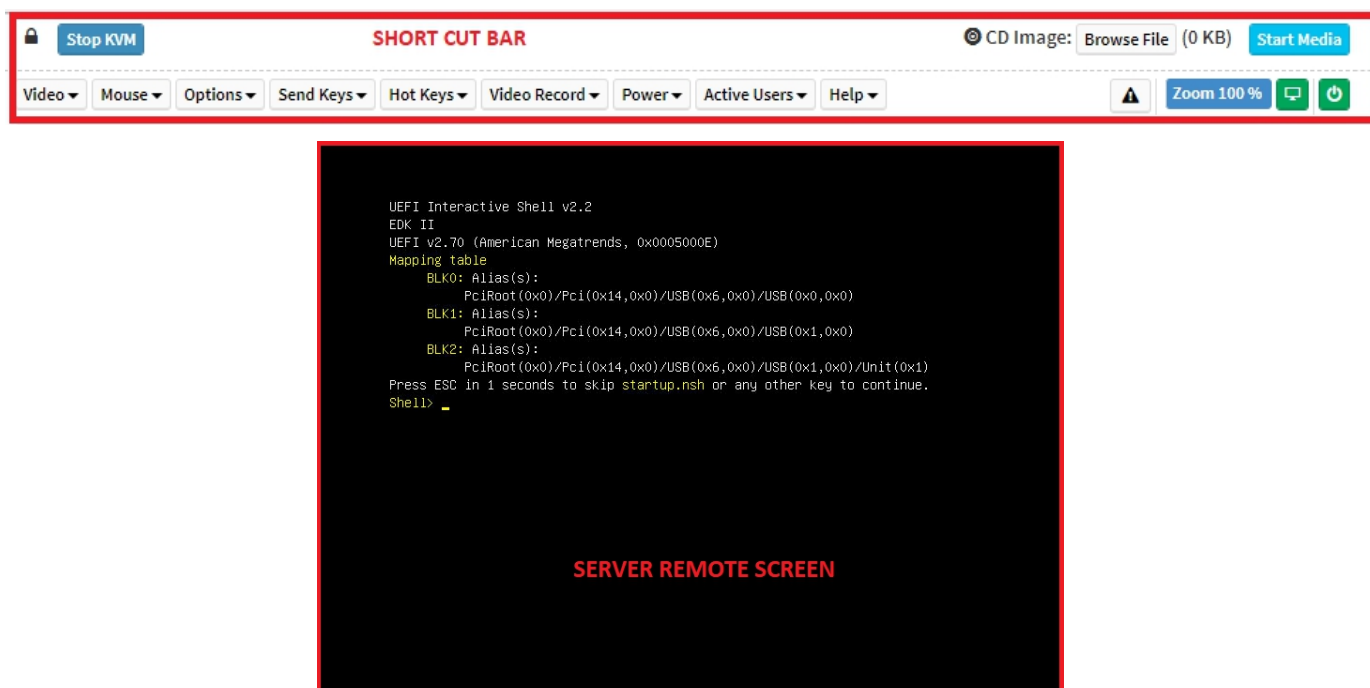


Figure 7-13 KVM interface composition

## 7.2.6 quick operation of remote control

 <a href="#">Stop KVM</a>	Stop KVM
 CD Image: <input type="text" value="Browse File"/> (0 KB) <a href="#">Start Media</a>	Hanging on CD image, usually used for remote installation of operating system
 <a href="#">Zoom 100 %</a>  	The host display is unlocked and the server is switched on and off

Table 1- 29

## 7.2.7 introduction to sol

Click to activate Java sol under the page shown in Figure 7-14 to open the interface as shown in the figure below.

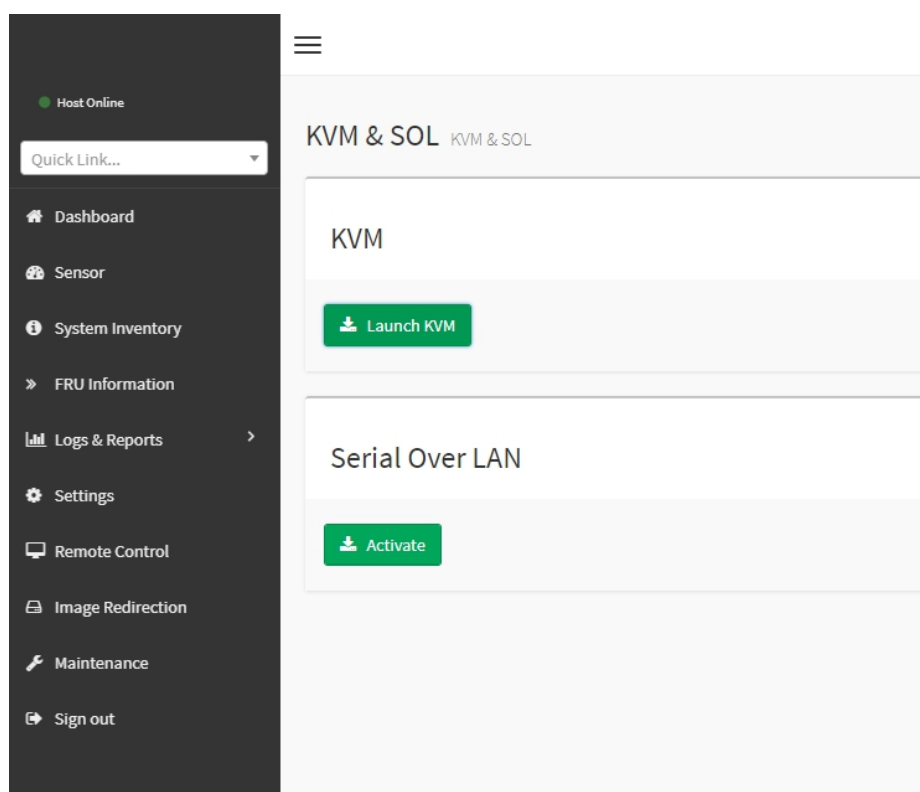


Figure 7-14 enable Java sol

1. After clicking activate, the sol interface as shown in Figure 7-15 will appear.
2. Press enter to activate the screen.



Figure 7-15 sol operation interface

Note: only BIOS screen synchronization has been tested for sol interface operation function, and other interfaces have not been tested. This is an operation demonstration without specific description.

## 7.3 other ways to connect IPMI

AST2500 firmware meets IPMI 2.0 specification, so users can use the standard IPMI driver assigned by the operating system.

### 7.3.1 IPMI drive

AST2500 supports Intel referenced drivers, which can be obtained from the following websites: <https://www.intel.com/content/www/us/en/servers/ipmi/ipmi-technical-resources.html> Through Windows Server 2003 R2, Microsoft also provides IPMI driver package. You can also use the open IPMI driver in the system.

AST2500 supports open IPMI driver of Linux kernel. Use the following command to load IPMI driver: "modprobe IPMI\_devintf" "modprobe ipmi\_If you are using an older version of the Linux kernel, you need to use IPMI\_KCs "replace" IPMI\_Si "component.

### 7.3.2 IPMI tools and other open source software

AST2500 supports open source IPMI tools. You can also use other software, such as open IPMI, IPMI utility, etc.

The above documents are designed to help you quickly understand and deploy the IPMI functions of the system. We will provide other help documents for the detailed functional operation manual of IPMI.



## Chapter VIII Technical Specifications of Products

### 8.1 technical specification sheet

Function	Technical specification
Form-factor	1U
Size	748X433.4X43.6 mm
Processor	Supports 1 or 2 Intel Xeon scalable family processors (TDP 205w)
Chip set	Intel c621 / c622 series server specific chipsets
Memory	Support DDR4 ECC RDIMM / LRDIMM server memory, memory frequency support 1866 / 2133 / 2400 / 2666mhz Support 12 DDR4 channels, each channel supports 2 DIMMs, a total of 24 DDR4 slots; support Intel 2933mhz memory
Storage controller	Internal storage controller: PCH supports RAID 0 External HbAS (non-RAID): 12 Gbps SAS HbAS Internal storage: 2 pcs pcie3.0 x4 M.2 slots, 2 Mini SSD slots (SATA DOM)
Driver	Supports 4 / 10 hot swap SAS / SATA (HDD / SSD)
Power Supply	Platinum 500W, 800W, 1200W, 1600W hot swap redundant power supply (selected according to actual power)
External port & PCIe	Front port: 1 VGA, 2 USB3.0 Post: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 network ports PCIe expansion: up to 10 PCIe expansion slots OCP slot: 1 OCP 3.0 (x8)
System fan	7 pcs 4056 hot swap fans as standard
Network	On board two 1GbE or 10GbE (RJ45)
Security	TPM / TCM (optional) Intrusion detection of case cover opening Lock the upper cover of the chassis
Management	On-board iBMC management module supports IPMI, SOL, KVM Over IP, virtual media and other management features
Operating system support	Windows 10 x64, Windows server 2012 R2, Windows server 2016 Windows server 2019 x64, CentOS7.5/7.6, RHEL7.4/7.6 SLES12 SP3, Ubuntu 16.04 LTS, Fedora28
Virtualization support	VMware ESXi, VMware Citrix, Hyper-V
Temperature	Standard operating temperature: 10°C - 40°C (without direct light) Extended operating temperature: 5°C - 40°C (limited configuration meets) Transportation storage temperature: 10°C - 40°C
Humidity	Operating humidity: 30% - 80% (non-condensing) Storage humidity: 5% - 95% (non-condensing)

Table 1-30