ROME platform 2U two-way server quasi-system

User operation manual V1.0

Foreword

This manual is the user's operation manual of SNR RE series of ROME dual-channel high-density server quasi-system, which mainly introduces and explains the characteristic parameters, system architecture, installation mode and basic operation of this product. This ROME dual-channel high-density server of SNR is divided into various models, such as 2U8, 2U12, 2U25, 4U24 and 4U36. This product has low energy consumption and flexible expansion This manual is mainly for 2U models (model: SNR-SR2208RE; SNR-SR2212RE; SNR-SR2225RE).

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 framework

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 SNR RE series.

Chapter III Installation of System Components

This section describes the installation methods and main precautions of various main system components using Rome 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 provided with Rome dual-channel 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 Rome 2-socket server quasi-system

Explanation:

noun	interpretation
AMD EPYC™ 7002	ROME series processors
White gold medal efficiency power supply	The white gold certified power supply is the "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% load is over 91%
M.2	M.2 interface is a new generation interface standard tailored for Ultrabook, which is Intel® A new interface specification introduced to replace mSATA
RJ45	Common name of standard 8-bit modular interface
AST2500	Aspeed® BMC chip
8038 fan	A fan measuring 80x80x38mm
LGA4094	The full name is Land Grid Array, grid array package, and LGA4094 represents 4094 contacts
CR2032	It is 3V CR2032 lithium manganese battery, which is shaped like a button, referred to as button cell or lithium manganese button battery for short
RS-232	One of the communication interfaces on the computer is the asynchronous transmission standard interface, which is called COM port
Jtag	Joint Test Action Group, a joint test working group, is mainly used for chip internal testing
NC Pin	Empty pin

Abbreviation

Explain the abbreviations used in this paper, and provide the full English name and Chinese explanation of each abbreviation, as shown in the following table:

abbreviation	original text	Chinese meaning
GbE	Gigabit Ethernet	gigabit Ethernet
BMC	Baseboard Management Controller	baseboard management controller
IPMI	Intelligent Platform Management Interface	intelligent platform management interface
CPU	Central Processing Unit	CPU
SATA	Serial Advanced Technology Attachment	Serial ATA interface specification
SAS	Serial Attached SCSI	Serial SCSI
sSATA	secondary SATA	Expand SATA interface
LAN	Local Area Network	local area network
VGA	Video Graphics Array	Video transmission standard
MB	Mother Board	mainboard
BP	Backplane	rear panel

PCIE	Peripheral Component Interconnect Express	Extended bus standard for high-speed serial computers
USB	Universal Serial Bus	Universal serial bus
FW	Firmware	firmware
TPM	Trusted Platform Module	Trusted platform module
IO	Input/Output	in-out
BIOS	Basic Input-Output System	Basic Input/Output System
CMOS	Complementary Metal Oxide Semiconductor	complementary metal oxide semiconductor
ME	Management Engine	Management engine
DDR4	Double Data Rate 4 SDRAM	The fourth generation double data rate synchronous dynamic random access memory reservoir
DIMM	Dual-Inline-Memory-Modules	Dual in-line memory module
RDIMM	Registered DIMM	Two-wire memory module with register
LRDIMM	Load-Reduced DIMM	Low load DIMM
KVM	Keyboard Video Mouse	By directly connecting the keyboard, video and mouse ports, Ability to access and control computers
CPLD	Complex Programmable Logic Device	Complex programmable logic device
ECC	Error Correcting Code	error correcting code
CFM	Cubic Feet Per Minute	Cubic feet per minute
RPM	Revolution Per Minute	Turn every 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: used to warn of potential dangerous situations, which may lead to death or serious personal injury. 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 arrow 2: It represents the action of turning the screw counterclockwise or screwing it inward

Catalogue

Chapter one 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 for advice if you need to route the winch 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 ℃ ~ 35 ℃, and the humidity is 35% ~ 80%.

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

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

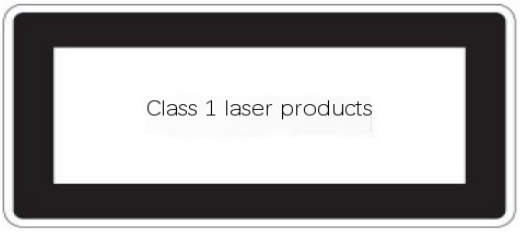


Figure 1-1

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 ethers (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

Table 1-1

Part name	Harmful substances					
	Lead (PB)	Mercury (Hg)	Cadmium (CD)	Hexavalent chromium (CR VI)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (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

O - It means that the content of the toxic and harmful substance in all homogeneous materials of the component is below the limit requirement 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 ℃ - 40 ℃; the maximum indoor environment temperature of the equipment is 45 ℃.
- 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 (41 ° f to 104 ° f) with a maximum temperature gradient of 10 ° C per hour
Continuous operating temperature range (below altitude 950 M or 3117 ft)	5 ° C to 40 ° C (41 ° f to 104 ° f) without direct light on the equipment.
Storage temperature range	- 40 ° C to 70 ° C (- 40 ° f to 158 ° 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	When the maximum dew point is 26 ° C (78.8 ° f), the relative humidity is 10% To 80%.

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. NAG is not responsible for the maintenance of server failures caused by operating system and software.
- Please do not disassemble the chassis or increase or decrease the server hardware configuration. 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 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. 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. Therefore, it is only suitable for safe use below 2000m, and there may be potential safety hazards when it is used above 2000m".

"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 two Product introduction

2.1 System introduction

SNR RE series dual channel server quasi system is a dual channel cabinet server which is widely used by SNR for Internet, IDC (Internet Data Center), cloud computing, enterprise market and telecom business application. It is suitable for it 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 RE series server quasi system includes 2u8 disk, 2u12 disk and 2u25 disk. In addition to different hard disk connection mode and compatible maximum number of hard disk, other specifications are the same.

2.2.1 system parameter

System Unification	
System model	SNR-SR2208RE; SNR-SR2212RE; SNR-SR2225RE
Chassis	SNR 2U cabinet chassis
mainboard	G1DLRO—B
CPU	Support 2 AMD epyc™ 7002 processor
Memory	Support DDR4 rdimm / lrdimm / 3dslrdimm / nvdimm-n server Memory and memory frequency support 2666 / 2933 / 3200mhz; A single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support a total of 32 DDR4 slots; the single capacity is 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb. Note: in order to make the system more stable, it is recommended to use amd compatibility list memory
Hard disk	Front support 8 / 12 / 25 3.5 or 2.5-inch hot swap hard disks The rear supports four 3.5-inch and four 2.5-inch hot swappable hard disks or eight 2.5-inch hot swappable hard disks Plug in hard disk
Network function	Support two RJ45 gigabit network ports
Management interface	1 RJ45 IPMI management network port
Display function	Aspeed®ast2500 64MB, with 1 standard VGA extended by custom high density connector Interface
M.2	Support two m.2 interfaces
USB	Two standard USB3.0 interfaces are extended by custom high-density connectors, and one is built-in USB3.0
Expansion	Supports up to 11 PCIe expansion slots

Slots	
Power Supply	The system supports 550W, 800W, 1200W, 1300W, 1600W hot swap redundant white Gold efficiency power supply
System fan	The system supports 4 8038 temperature control fans (8056 temperature control fans are optional)
System size	798mm * 433.4mm * 87.6mm (L * w * h)
System weight	2u8 net weight 17.8kg, gross weight 24.55kg The net weight and gross weight of 2u12 are 17.4kg and 28.55kg respectively 2u25 net weight 18.5 kg, gross weight 29.55 kg
System board	
Motherboard model	G1DLRO－B
processor	AMD EPYC™ 7002 Series CPU dual socket P (lga4094)
Number of memory slots	Supports 32 DDR4 DIMM sockets with 16 memory modules per CPU
Memory support types	Support DDR4 2666 / 2933 / 3200 rdimm / lrdimm / 3ds-lrdimm/ Nvdimm-n server memory
Memory size	16GB, 32GB, 64GB（RDIMM） 32GB, 64GB（LRDIMM） 64GB, 128GB, 256GB（LRDIMM 3DS）
Hard disk interface	Two sata3.0 DOM ports (7pin), two sata3.0 (7pin), three minisas 8643 interface

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
Expansion of PCIe	2 pcies4.0 X32; 1 pcie4.0 x16; 1 pcie4.0 X8; 2 pcies4.0 x2; 2 slimline X8;
VGA	Extend a standard VGA interface with custom high-density connector
USB	One built-in USB3.0 interface and two USB3.0 extensions through custom high-density connectors
System power supply	
Quantity of power supply	Support 2
Power supply characteristics	The system supports 550W, 800W, 1200W, 1300W, 1600W hot swap redundant white Gold efficiency power supply
input voltage	100-127Vac/200-240Vac 47Hz ~ 63Hz / 240vdc (mainland China only)

output voltage	+12Vdc
System fan	
Number of fans	The system supports 4 8038 temperature control fans (8056 temperature control fans are optional)
Fan voltage	12(10.8-12.6) Vdc
Fan current	4A (4.4A Max)
Fan speed	14000 + / - 10% RPM maximum
Fan airflow	3.2m 3 / min (141.9 CFM), minimum 2.63m m3 / min (125.8 CFM)
Fan pressure	Minimum 657.5 PA, maximum 800 pa
Operating system support	
Support operating system	Windows Server 2016/2019 Vmware vSphere 6.7 u3 Vmware vSphere 6.5 EP15 Citrixt Hyperxisor 8.1 Redhat RHEL 8.0.2 Redhat RHEL 7.6.6 Suse SLES 15 SP1 Suse SLES 14 SP4 Canonical Ubuntu 18.04.3 LTS Canonical Ubuntu 16.04.6 LTS
System ambient temperature	
System operating temperature	Operating temperature: 10 ℃ ~ 40 ℃; non-operating temperature: - 40 ℃ ~ 70 ℃
System temperature and humidity	Operating humidity: 35% - 80%; non-operating humidity: 20% - 90%
Safety certification	
authentication	UL CE CCC ROHS

Table 1 - 4

2.2.2 system architecture

SNR RE series server is a server quasi system based on AMD Rome platform. The system supports 2U height and the maximum support is 280W

CPU, supporting up to 32 memories. The system uses a general motherboard, the motherboard name is g1dlro-b, and the front panel can support 8 / 12 / 25 SATA / SAS hard disks, of which 8 disks are referred to as 2u8, 12 disks are referred to as 2u12, and 25 disks are referred to as 2u25.

The main board features are as follows:

- The CPU adopts AMD epyc™ 7002 series processor, lga4094 seat, TDP power consumption 280W;
- A single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support a total of 32 DDR4 slots; a single CPU supports a single capacity of 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb;
- DDR4 type: DDR4 2666 / 2933 / 3200mhz ecc-rdimm / lrdimm / 3ds lrdimm / nvdimm-n;
- There are three groups of PCIe riser slots on the board, including: riser1 32 PCIe lanes from cpu0, 32 PCIe lanes of riser2 from CPU1, and 16 PCIe lanes of riser3 from CPU1;
- The g1dlro-b motherboard provides two m.2 key m SSD slots, supports 2280 size, and only supports pcie4.0 x2 signal;
- Two gigabit network ports are integrated on the motherboard, using i350-am2 chip;
- The BMC chip in the board adopts ast2500 control chip of a speed company, which is used for IPMI remote management, VGA output port and dedicated Gigabit RJ45 management network port.

The main board diagram of system architecture is as follows:

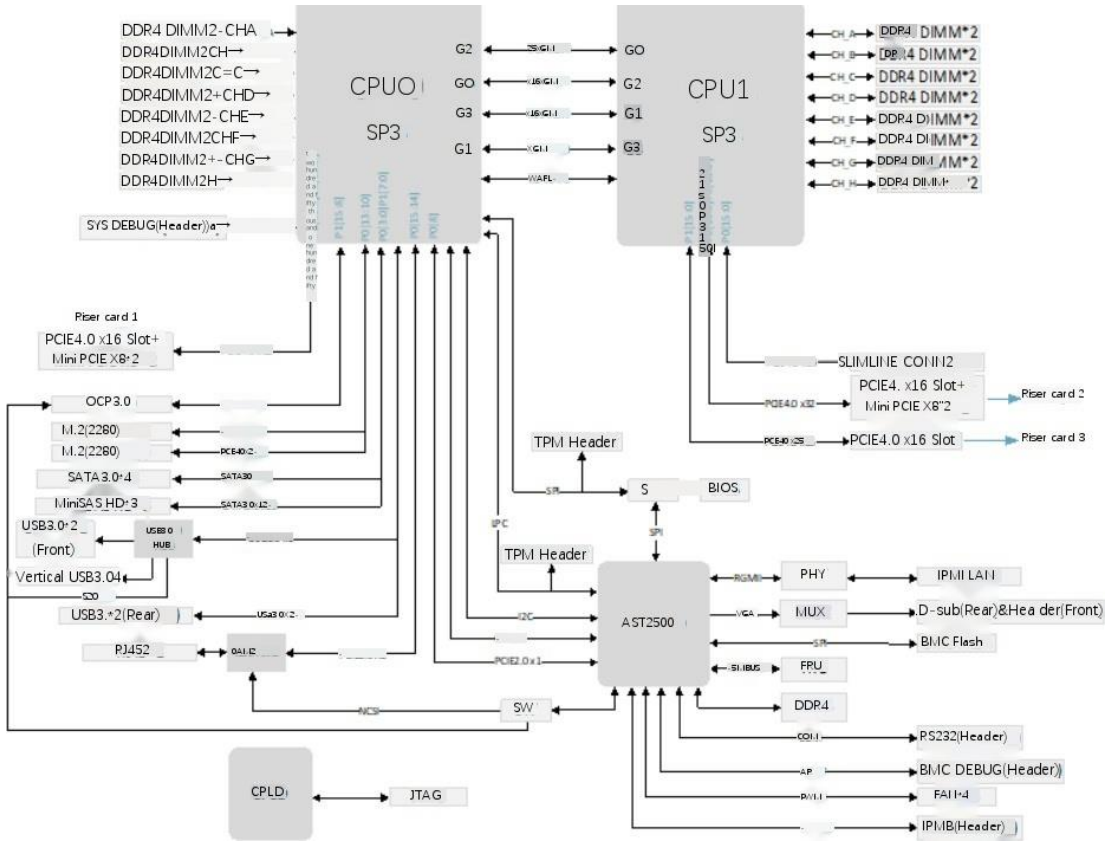


Figure 2-1

2.3 Introduction of system model specifications

SNR-SR2208RE

Figure 2-2

Product name	SNR-SR2208RE
processor	Supports two AMD epyc 7002 series processors Up to 280W
Motherboard model	G1DLRO-B
Memory (system)	Support DDR4 rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory; Memory frequency supports 2666 / 2933 / 3200mhz; A single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support a total of 32 DDR4 slots; a single CPU supports a single capacity of 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb Note: in order to make the system more stable, it is recommended to use amd compatibility list memory
Expansion card	1 PCIe 4.0 X32 from cpu0 1 PCIe 4.0 X32 from CPU1 1 1 PCIe 4.0 x16 from CPU1 1 Pcie4.0 X8 from cpu0 (ocp3.0 interface) 2 Pcie4.0 X8 from CPU1 (slimline)
Hard disk	Front end supports up to 8 3.5 / 2.5-inch SAS / SATA (HDD / SSD) The rear supports up to four 2.5-inch and four 3.5-inch SAS / SATA (HDD / SSD) or eight 2.5-inch Inch SAS / SATA (HDD / SSD); on board 3 * 8643 interface, 2 * SATA DOM, 2 * sata3.0
M.2 SSD	2 x m.2 pcie4.0 X2 (2280)
LAN	Two Gigabit RJ45 data network ports on board
External port	Front port: 2 USB3.0 Post port: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 data network ports, 1 DB-9 COM ports

Administration	The onboard IBMC management module supports IPMI, sol, KVM over IP, virtual media and other management features
System fan	Support up to 4 8038 fans (optional 8056 fans)
Power Supply	Platinum grade 550W, 800W, 1200W, 1300W, 1600W hot swap redundant power supply International power adaptation)
Dimensions	2U cabinet type, 798 * 433.4 * 87.6mm

Table 1-5

SNR-SR2212RE

Figure 2-3

Product name	SNR-SR2212RE
processor	It supports two AMD epyc 7002 series processors with a maximum support of 280W
Motherboard model	G1DLRO-B
Memory (system)	Support DDR4 rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory; Memory frequency supports 2666 / 2933 / 3200mhz; A single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support a total of 32 DDR4 slots; a single CPU supports a single capacity of 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb Note: in order to make the system more stable, it is recommended to use amd compatibility list memory
Expansion card	1 PCIe 4.0 X32 from cpu0 1 PCIe 4.0 X32 from CPU1 1 1 PCIe 4.0 x16 from CPU1 Pcie4.0 X8 from cpu0 (ocp3.0 interface); 0 x 8 from CPU1 (slimline);
Hard disk	Up to 12 3.5 / 2.5 inch SAS / SATA (HDD / SSD) The rear supports four 2.5-inch and four 3.5-inch SAS / SATA (HDD / SSD) or eight 2.5-inch Inch SAS / SATA (HDD / SSD); on board 3 * 8643 interface, 2 * SATA DOM, 2 * sata3.0
M.2 SSD	2 x m.2 pcie4.0 X2 (2280)
LAN	Two Gigabit RJ45 data network ports on board
External port	Front port: 2 USB3.0 Post port: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 data network ports, 1

	DB-9 COM ports
Administration	The onboard IBMC management module supports IPMI, sol, KVM over IP, virtual media and other management features nature
System fan	Support up to 4 8038 fans (optional 8056 fans)
Power Supply	Platinum grade 550W, 800W, 1200W, 1300W, 1600W hot swap redundant power supply (according to Actual power adaptation)
Dimensions	2U cabinet type, 798 * 433.4 * 87.6mm

Table 1 - 6

SNR-SR2225RE

Figure 2-4

Product name	SNR-SR2225RE
processor	It supports two AMD epyc 7002 series processors with a maximum support of 280W
Motherboard model	G1DLRO-B
Memory (system)	Support DDR4 rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory; Memory frequency supports 2666 / 2933 / 3200mhz; A single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support a total of 32 DDR4 slots; a single CPU supports a single capacity of 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb Note: in order to make the system more stable, it is recommended to use amd compatibility list memory
Expansion card	1 PCIe 4.0 X32 from cpu0 1 PCIe 4.0 X32 from CPU1 1 1 PCIe 4.0 x16 from CPU1 1 Pcie4.0 X8 from cpu0 (ocp3.0 interface) 2 Pcie4.0 X8 from CPU1 (slimline)
Hard disk	Up to 25 2.5 inch SAS / SATA (HDD / SSD) The rear supports four 2.5-inch and four 3.5-inch SAS / SATA (HDD / SSD) or eight 2.5-inch Inch SAS / SATA (HDD / SSD); on board 3 * 8643 interface, 2 * SATA DOM, 2 * sata3.0
M.2 SSD	2 x m.2 pcie4.0 X2 (2280)
LAN	Two Gigabit RJ45 data network ports on board
External port	Front port: 2 USB3.0 Post port: 1 VGA, 2 USB3.0, 1 management network port, 2 RJ45 data network ports, 1 DB-9 COM ports
Administration	The onboard IBMC management module supports IPMI, sol, KVM over IP, virtual media and other management features nature

System fan	Support up to 4 8038 fans (optional 8056 fans)
Power Supply	Platinum grade 550W, 800W, 1200W, 1300W, 1600W hot swap redundant power supply (according to Actual power adaptation)
Dimensions	2U cabinet type, 798 * 433.4 * 87.6mm

Table 1-7

2.4 Introduction of system components

2.4.1 Front panel assembly

SNR-SR2208RE

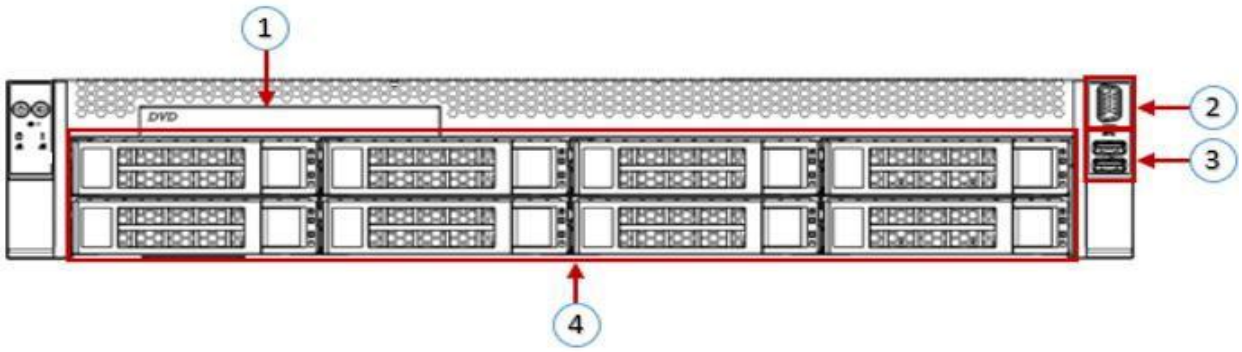


Figure 2-5

Serial number	name	Serial number	name
1	Built in DVD drive	3	USB3.0 interface
2	VGA interface	4	3.5 inch hard disk

Table 1 - 8

SNR-SR2212RE

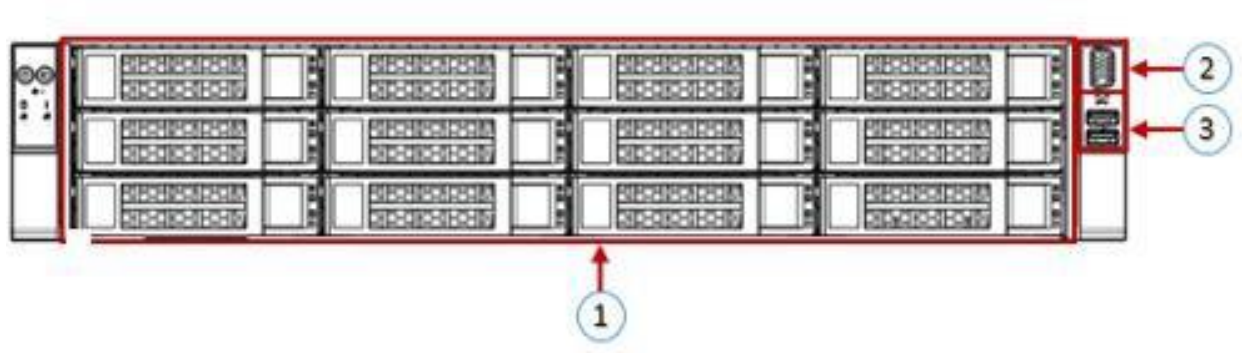


Figure 2-6

Serial number	name	Serial number	name
1	3.5-inch hard disk	3	USB3.0 interface
2	VGA interface		

Table 1 - 9

SNR-SR2225RE

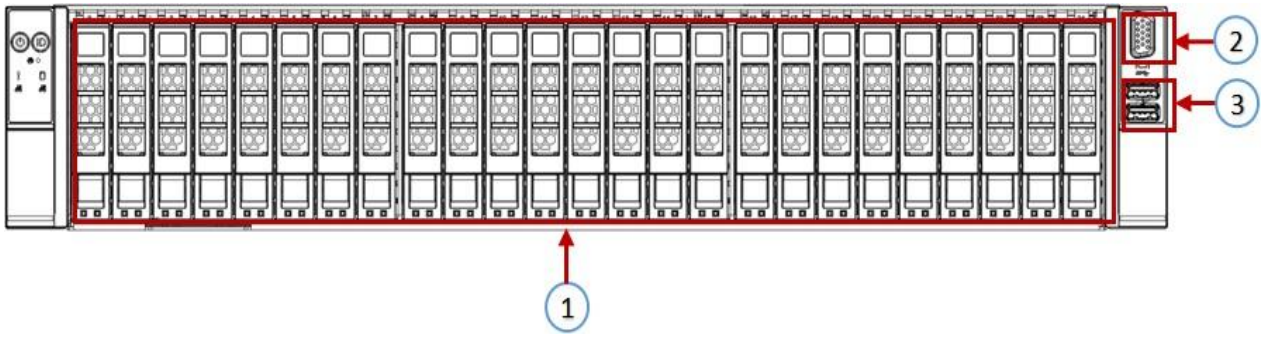


Figure 2-7

Serial number	name	Serial number	name
1	3.5-inch hard disk	3	USB3.0 interface
2	VGA interface		

Front panel interface description Table 1-10

name	type	explain
VGA interface	DB15	Used to connect a display terminal, such as a display or KVM.
USB interface	USB 3.0	The USB interface is provided, through which the USB device can be connected. Note: please make sure the USB device is in good condition when using the external USB device Good, otherwise it may cause the server to work abnormally.

Table 1 - 11

Description of front panel indicator lights and buttons

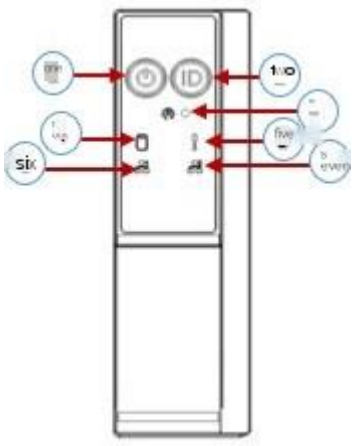


Figure 2-8

Serial number	Indicator light / button	Serial number	Indicator light / button
1	Power switch button / indicator	5	System alarm indicator
2	Uid button / indicator	6	Network port 1 connection status indicator
3	Reset restart server button	7	Network port 2 connection status indicator
4	Hard disk indicator		

Table 1-12

LED status description		
identification	Indicator light / button	Status description
	Power indicator	Power indicator Description: Green (always on): indicates that the device has been powered on normally. Green (flashing): indicates that the device is in standby mode. Green off: indicates that the device is not powered on. Description of power button: Press the button briefly in the power on state, and the OS will shut down normally. Press and hold the button for 6 seconds in the power on state Forced power down.
		When the power is on, press the button briefly to start the machine.
	Uid button / indicator	The uid button / indicator is used to locate the server to be operated conveniently. It can be remotely controlled by pressing the uid button or BMC command to turn off or light on. Description of uid indicator light: Blue (on / off): indicates that the server is located. Off: indicates that the server is not located. Uid button Description: short press the button to open / close Positioning lamp.
	Reset restart server button	Press to restart the server
	Hard disk indicator	Flashing green light: hard disk is running normally
	System alarm indicator	System alarm indicator. Including system alarm, fan alarm, power alarm, etc., which can be viewed through IPMI management software
	Network port connection status indicator	The Ethernet port indicator of the corresponding network card. Green (always on): indicates that the network port is connected normally. Off: indicates that the network port is not in use or fails. Note: it corresponds to two 1ge network ports on the motherboard.

	Network port connection status indicator	The Ethernet port indicator of the corresponding network card. Green (always on): indicates that the network port is connected normally. Off: indicates that the network port is not in use or fails. Note: it corresponds to two 1ge network ports on the motherboard.

Table 1 - 13

2.4.2 Back panel assembly

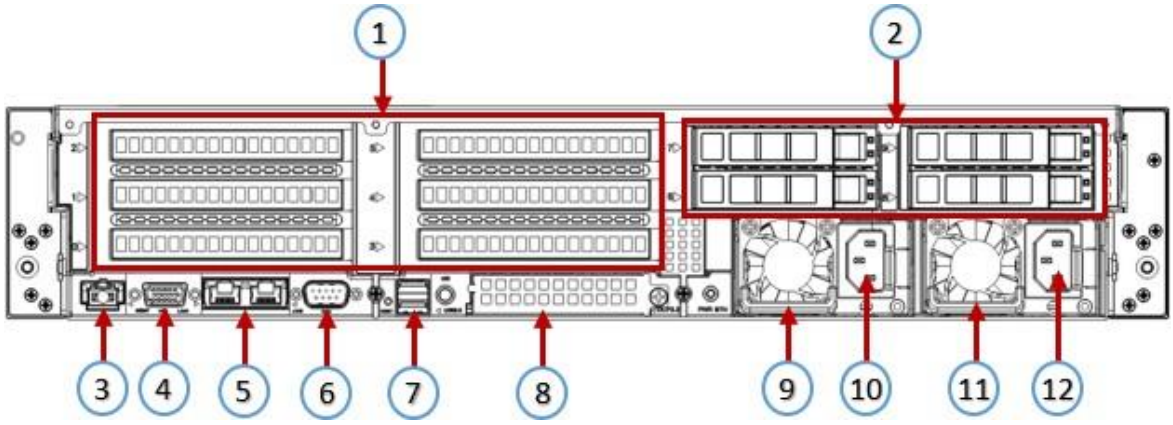


Figure 2-9

✧ explain:

Serial number	name	Serial number	name
1	Riser module	7	USB 3.0 interface
2	Hard disk module	8	Ocp3.0 interface
3	Management network port	9	Power module 1
4	VGA interface	10	AC interface of power module 1
5	RJ45 gigabit network port	11	Power module 2
6	COM port	12	AC interface of power module 2

Table 1-14

Both 1 and 2 can be equipped with rear hard disk module or rice module. This drawing is for reference only, and the actual configuration shall prevail.

Description of rear panel interface

name	type	number	explai n
VGA interface	DB15	1	Used to connect a display terminal, such as a display or KVM.
Management network port	GE BASE-T	1	Provide 1000mbit / s Ethernet port. Through this interface, the server can be managed.
USB interface	USB 3.0	2	The USB interface is provided, through which the USB device can be connected. be careful: Please confirm USB device status when using external USB device Good, otherwise the server may work abnormally.
RJ45 Gigabit Network mouth	GEBASE-T	2	Server service network port.
AC interface of power module	/	1 or 2	You can choose the number of power supply 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 Rate.
COM port		1	Serial communication port
Ocp3.0 interface		1	Installing ocp3.0 network card

Table 1-15

Description of rear panel indicator lights and buttons

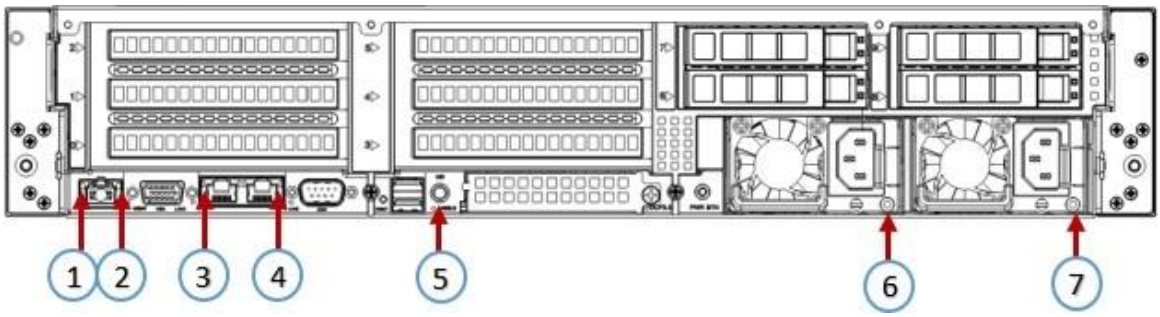


Figure 2-10

Serial numb er	name	Serial numb er	name
1	Connection status indicator	5	Uid indicator
2	Data transmission status indicator	6	Power module indicator
3	Connection status indicator	7	Power module indicator
4	Data transmission status indicator		

Table 1 - 16

Indicator light / button	Status description
Power module indicator	Green (always on): indicates that the input and output are normal. Red (always on): indicates that the input is normal, and there is no output due to power over temperature protection, power output over-current / short circuit, output over-voltage, short-circuit protection, device failure (excluding all device failures). Green (1Hz / flashing): it indicates that the input is normal, the power supply is turned off due to power on or on position; the input voltage is too low. Green (4Hz / flashing): indicates that firmware is in the process of online upgrade. Off: indicates no AC power input.
Connection status indicator	Long green light: indicates Gigabit link. Orange long light: it means 100MB link. Off: 10 mega link.
Data transmission status indicator	Yellow (flashing): indicates that data is being transmitted. Off: indicates no data transmission.
Uid indicator	When it is on, the blue light will be on; if it is off, it will be off. You can use the IPMI page Or the uid button on the server

Table 1-17

2.4.3 Motherboard assembly

All models share the motherboard components, and the interface description is shown in Figure 2-11

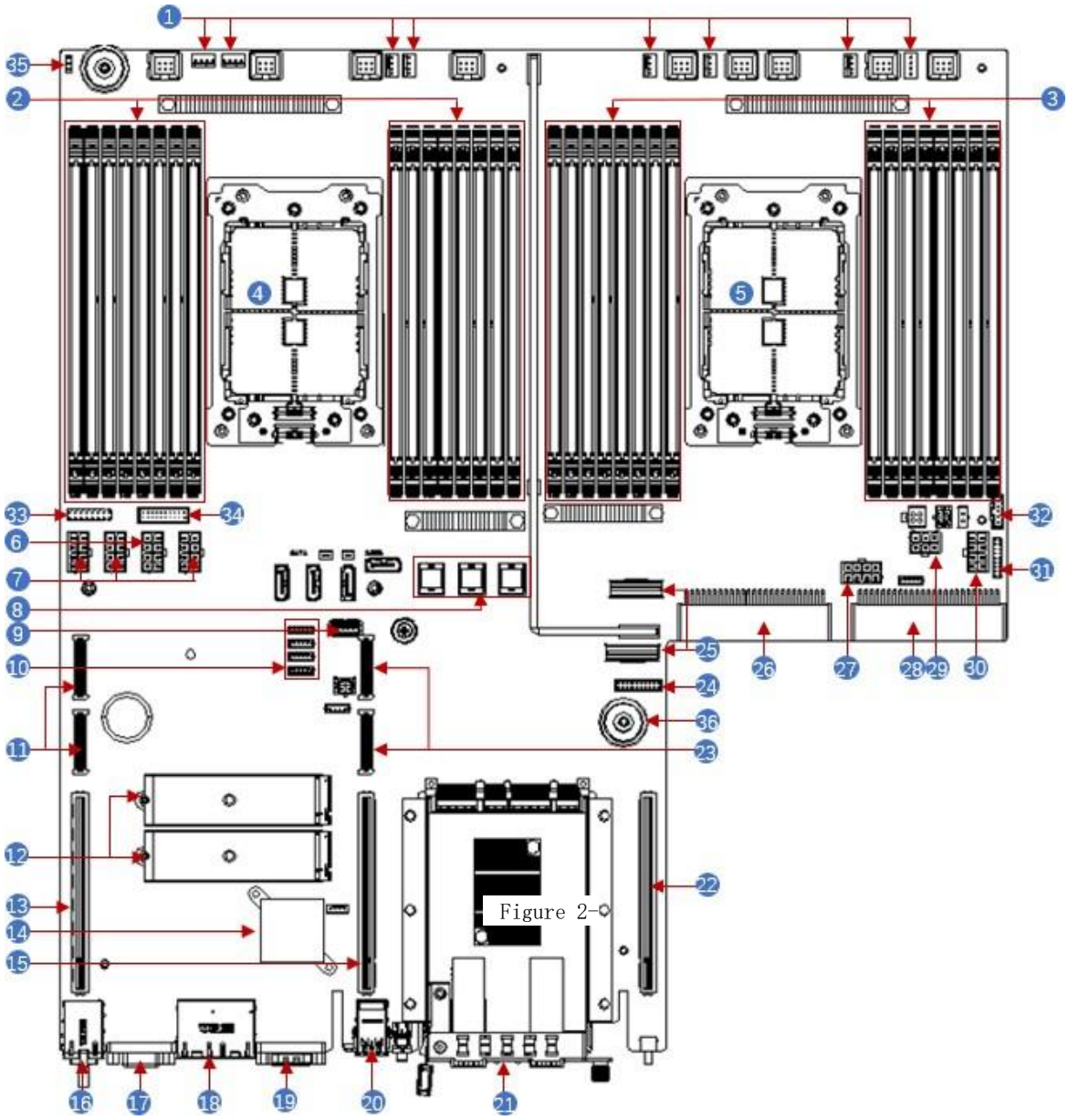


Figure 2-11

number	Module name
1	4Pin interface for 4U chassis fan control
2	Memory slot (corresponding to cpu0)
3	Memory slot (corresponding to CPU1)
4	CPU0
5	CPU1
6	GPU power 2 * 4 pin interface
7	BP power 2 * 4 pin interface
8	Sff8643 SATA interface
9	USB3.0 interface
10	BP I2C interface

11	PCIE4.0 X8
12	M.2
13	PCIE4.0 X16
14	I350
15	PCIE4.0 X16
16	IPMI RJ45 1Gb
17	VGA
18	LAN RJ45 1Gb*2
19	DB-9 COM port
20	USB3.0
21	OCP 82599
22	CPU1 PCIE4.0 X16
23	CPU1 PCIE4.0 X8
24	BP HDD LED
25	Slimline PCIE4.0 X8
26	CPRS PSU
27	GPU Power
28	CPRS PSU
29	RISER POW
30	BP Power
31	FP BIN LED
32	PMBUS/BP5 I2C
33	FP VGA
34	FP USB3.0
35	Chassis Infrusion
36	Motherboard handle

Table 1-18

2.4.4 Hard disk backplane assembly

SNR-SR2208RE expansion backplane is shown in the figure

Top surface

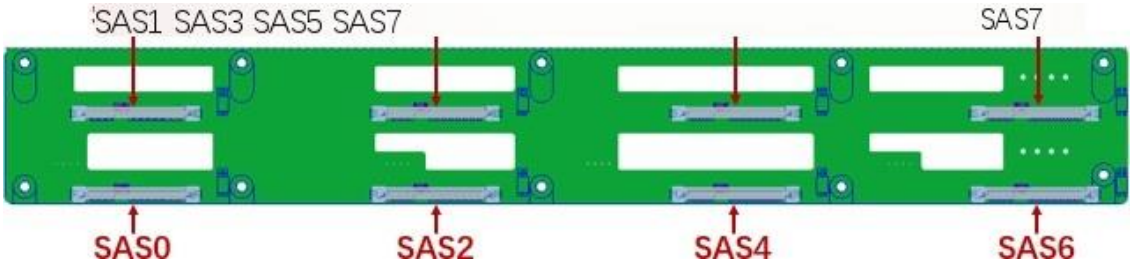


Figure 2-12

Serial number	desc ribe	funct ion
SAS0~7	SAS / SATA hard disk connector	1. The maximum support is 12g / b SAS hard disk; 2. Support 6G / b SATA hard disk at most; 3. Support SAS / SATA hard disk hot swap.

Table 1 - 19

Bottom surface

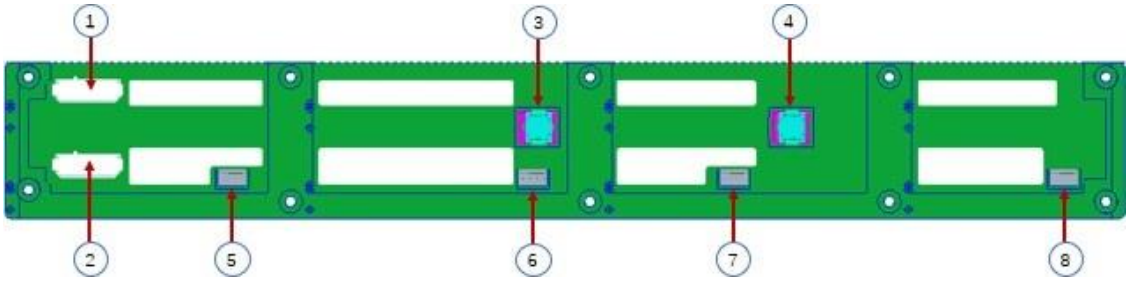


Figure 2-13

Serial number	desc ribe	funct ion
1、2	ATX power input	Backplane power transmission connector for 12V power transmission
3、4	Sff-8643 12gb SAS interface	Backplane panel signal interface
5、6、7、8	Temperature control fan socket	For 4Pin fan interface

Table 1-20

SNR-SR2212RE expansion backplane is shown in the figure

Top surface

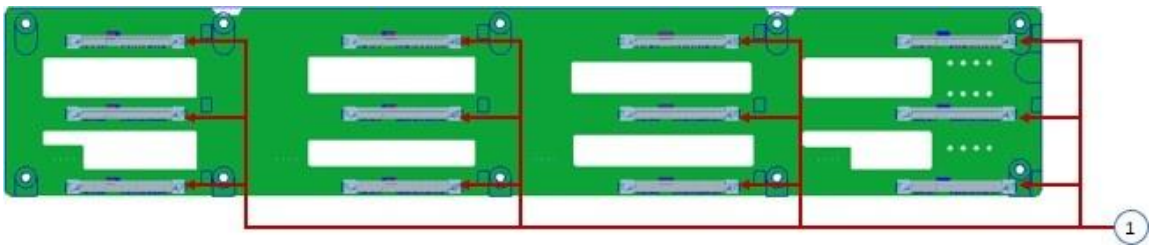


Figure 2-14

Serial number	describe	function
1	SAS / SATA hard disk connector	1. The maximum support is 12g / b SAS hard disk; 2. Support 6G / b SATA hard disk at most; 3. Support SAS / SATA hard disk hot swap.

Table 1-21

Bottom surface

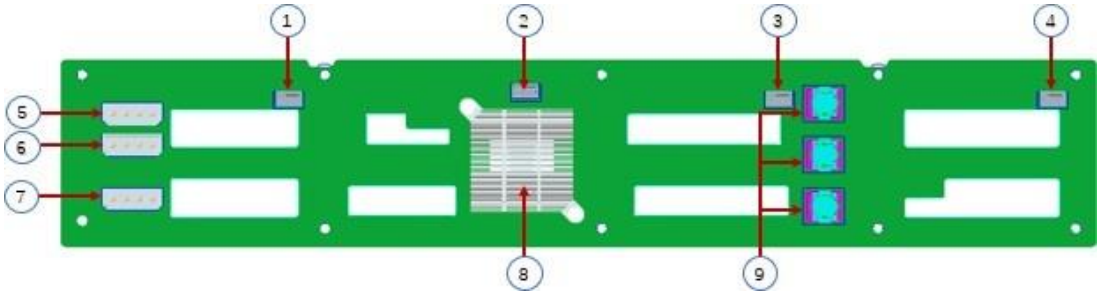


Figure 2-15

Serial number	describe	function
1、2、3、4	Temperature control fan socket	For 4Pin fan interface
5、6、7	Power connector	Backplane power transmission connector for 12V power transmission
8	Expander chip	PM8043 SXP 24Sx12G 24-port 12G SAS Expander
9	Mini SAS HD high speed connection Connector	Used for 12g / b SAS or 6G / b SATA signal transmission

Table 1 - 22

SNR-SR2225RE expansion backplane is shown in the figure

Top surface

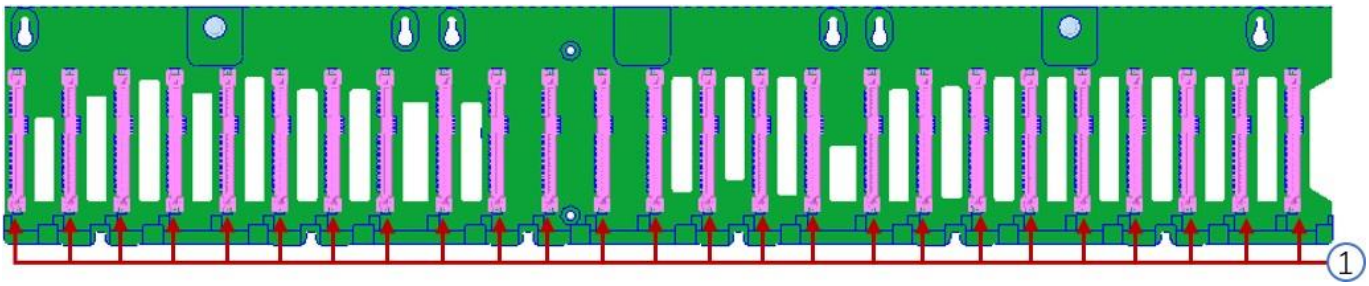


Figure 2-16

Serial number	describe	function
1	SAS / SATA hard disk connector	1. The maximum support is 12g / b SAS hard disk; 2. Support 6G / b SATA hard disk at most; 3. Support SAS / SATA hard disk hot swap.

Table 1 - 23

Bottom surface

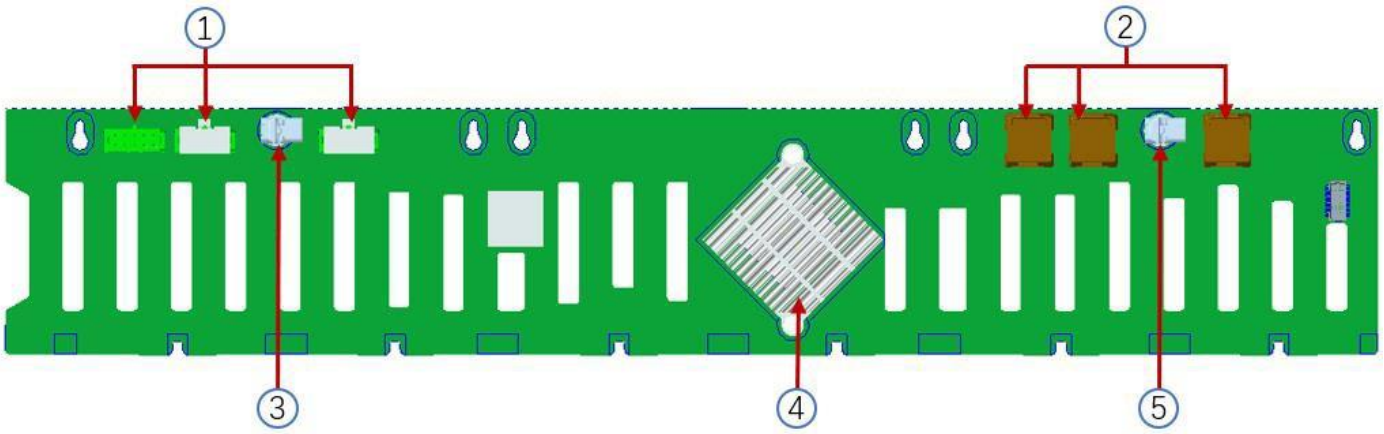


Figure 2-17

Serial number	describe	function
1	Power connector	Backplane power transmission connector for 12V power transmission
2	Mini SAS HD high speed connector	Used for 12g / b SAS or 6G / b SATA signal transmission
3、5	Back plate buckle	Secure the backplane to the backplane bracket
4	Expander chip	PM8043 SXP 24Sx12G

Table 1-24

The SAS / SATA backplane is shown in the figure

Top surface

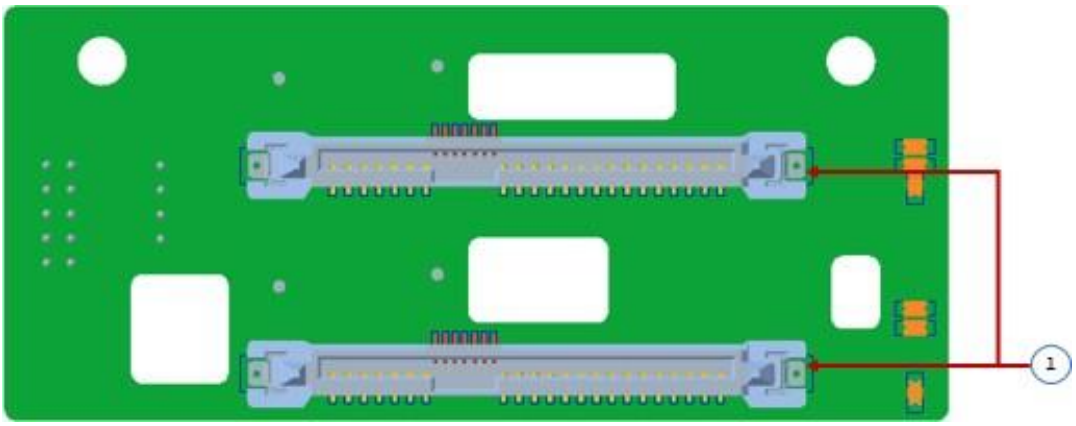


Figure 2-18

Serial number	describe	function
1	SAS / SATA connector	1. The maximum support is 12g / b SAS hard disk; 2. Support 6G / b SATA hard disk at most; 3. Support SAS / SATA hard disk hot swap.

Table 1-25

Bottom surface

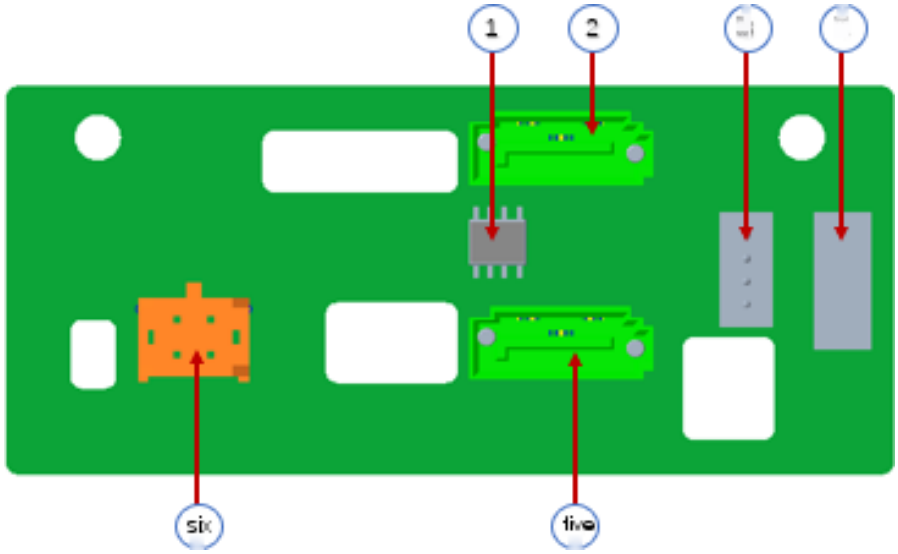


Figure 2-19

Serial number	describe	function
1	Temperature sensor IC	Temperature sensor chip
2、5	7pin SATA interface	Signal line interface of SATA disk
3	I2C interface	For I2C signal interface
4	Sgpio lighting signal	For hard disk led positioning light and fault LED indication function
6	Power interface	Backplane power transmission connector for 12V power transmission

Table 1 - 26

U. 2 the back plate is shown in the figure

Top surface

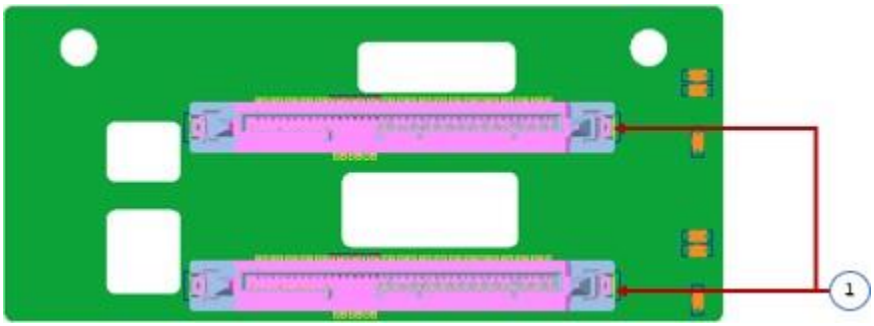


Figure 2-20

Serial number	describe	function
1	Sff-8639 connector	U.2 interface supporting pciex4 for connecting nvme SSD

Table 1-27

Bottom surface

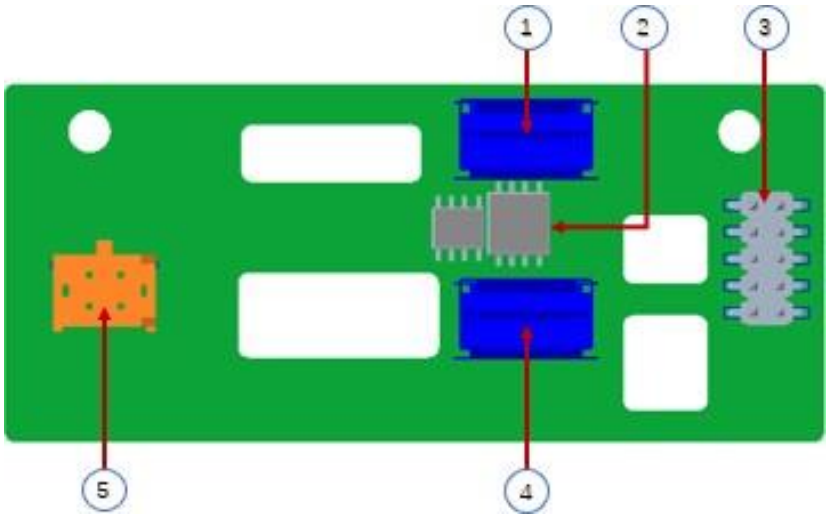


Figure 2-21

Serial number	describe	function
1、4	Slimline 4I connector	Provide PCIe × 4 interface to connect CPU and nvme ssd1 (package Including CPU pehp I2C and BMC I2C signals)
2	CPLD chip	For data logic processing
3	JATG debug interface	JTAG debug interface for CPLD programming and version
5	Power supply socket	4 pin power socket for docking PSU or MB 4 Pin The plug supplies power to the board

Table 1-28

Riser 1 / 2 backplane is shown in the figure

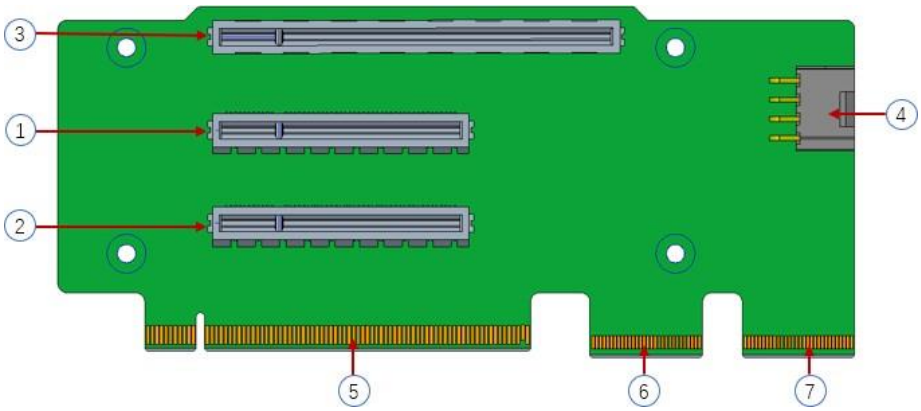


Figure 2-22

Serial number	describe	function
1、2	PCIe 4.0 X8 slot	For connecting pcie4.0 X8 devices
3	PCIe 4.0 x16 slot	For connecting pcie4.0 x16 devices
4	Power supply port	Riser card power transmission connector for 12V power transmission
5	PCI x16 specification gold finger	Used to connect the PCIe x16 interface
6/7	PCI X8 specification gold finger	Used to connect the PCIe X8 interface

Table 1 - 29

Riser 3 backplane is shown in the figure

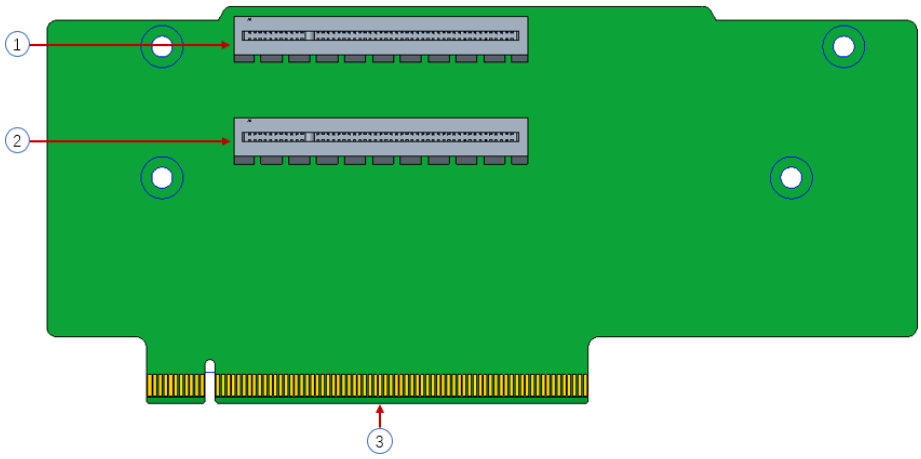


Figure 2-23

Serial number	describe	function
1	PCIe x16 slot	Used to connect pcie4.0 x16 devices
2	PCIe X8 slot	Used to connect pcie4.0 X8 devices
3	PCI x16 specification gold finger	Used to connect the mainboard's PCIe x16 interface

Table 1-30

Riser 4 backplane is shown in the figure

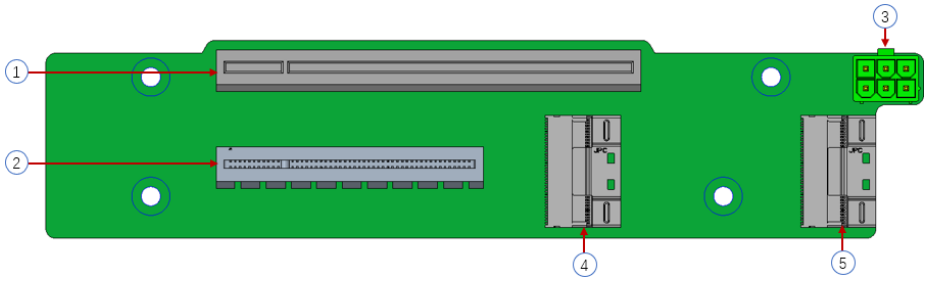


Figure 2-24

Serial number	describe	function
1	PCIe x16 slot	Used to connect the PCIe 4.0 x16 device
2	PCIe X8 slot	Used to connect the PCIe 4.0 X8 device
3	Power interface	Riser card power transmission connector for 12V power transmission
4、5	Slimline interface	Used to connect slimline cable

Table 1-31

2.4.5 DIMM slot location

The motherboard adopts the Rome platform, with two amd SP3 Rome CPUs, and supports 8 DDR4 channels, each channel supports 2 DIMMs, and the two CPUs support 32 DDR4 slots (if only one memory is inserted, the socket in the red box below is preferred, and the plastic color of the socket on the board is blue), DDR4 rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory is supported, and the memory frequency supports 2666 / 2933 / 3200mhz;

Note: to make the system more stable, it is recommended to use amd compatibility list memory. The location is shown in the following figure:

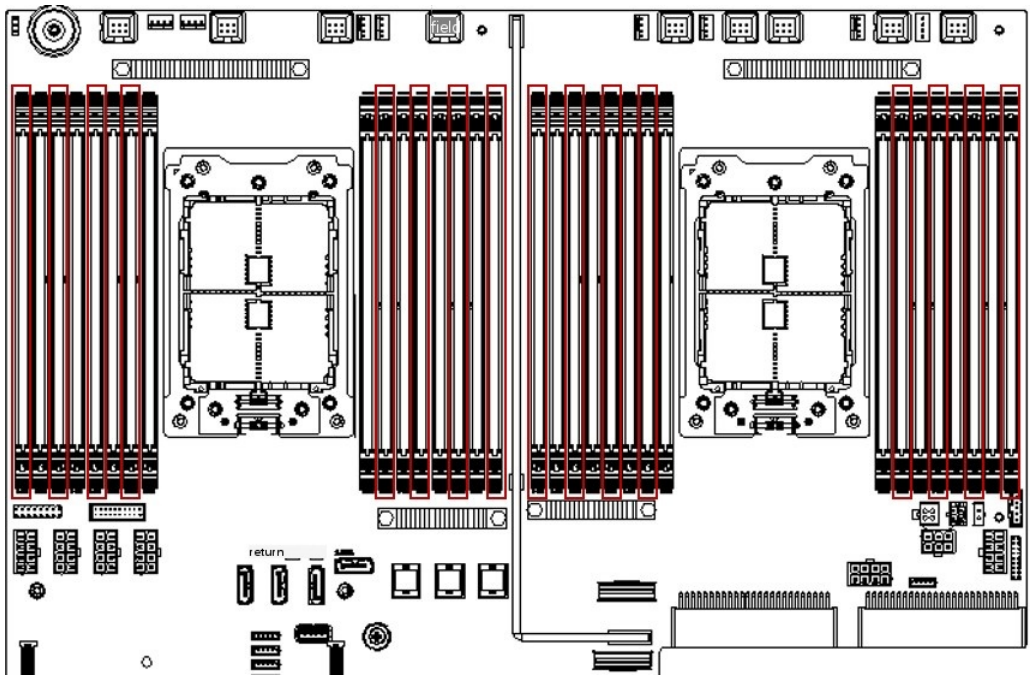


Figure 2-25

2.4.6 Hard disk label

SNR-SR2208RE

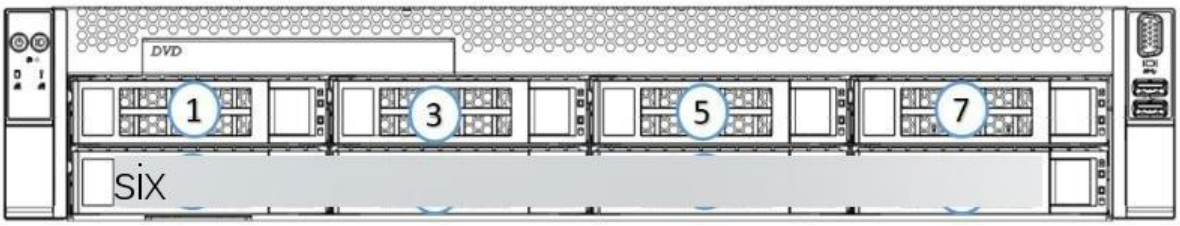


Figure 2-26

SNR-SR2212RE

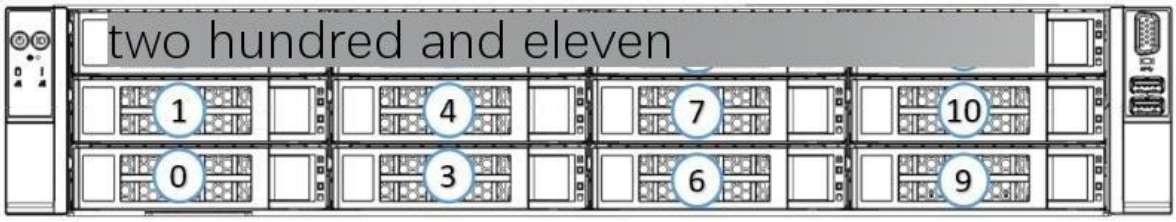


Figure 2-27

SNR-SR2225RE

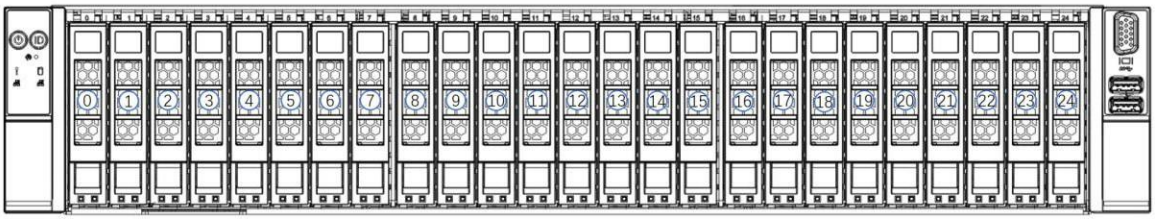


Figure 2-28

2.4.7 Hard disk indicator

8-bay / 12 Bay hard disk indicator:

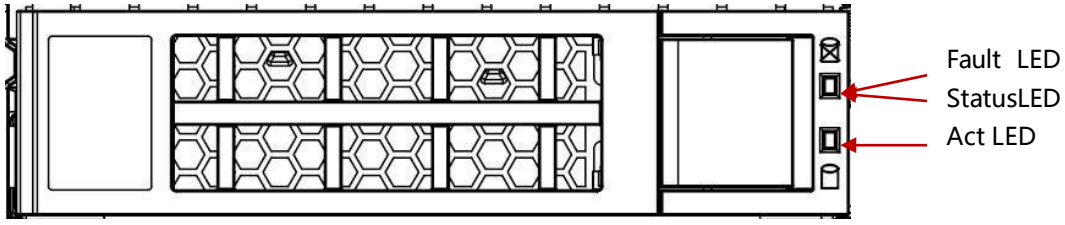
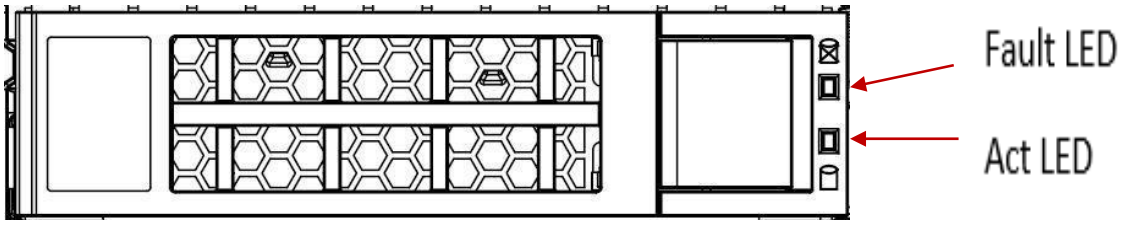


Figure 2-29

function	Activity indicator (green)	Positioning indicator (blue)	Error indicator (yellow)
Hard disk in place	Everb right	OFF	OFF
Hard disk activity	Flicker 4Hz / S	OFF	OFF
Hard disk positioning	Everb right	Flicker 4Hz / S	OFF
Hard disk error	Everb right	OFF	Everb right
Raid rebuild	Everb right	OFF	Flash 1 Hz / sec

Table 1 - 32

25 Bay hard disk indicator:



Hard disk status	Activity indicator (green)	Error indicator (yellow)
Hard disk not in place	OFF	OFF
Hard disk in place, but no data activity	ON	OFF
The hard disk is in place and active	Flash rate of hard disk itself	OFF
hard disk failure	N/A	ON
Hard disk is located	N/A	4Hz flicker
Hard disk in rebuild state	N/A	1 Hz flicker

Table 1 - 33

2.4.8 PCIe slot distribution rear view

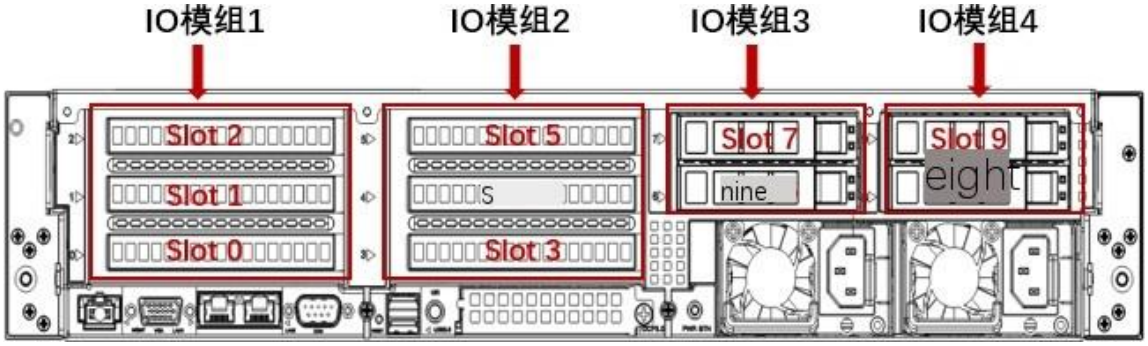


Figure 2-30

IO module 1 provides slot slot slot 0-2, IO module 2 provides slot slot slot 3-5, IO module 3 provides slot slot slot 6-7, and IO module 4 provides slot slot slot 8-9.

IO module 1 can be equipped with two 3.5-inch hard disk modules / full height expansion modules.(1 out of 2)

When selecting a 3.5-inch hard disk module (the module supports up to two 3.5-inch SAS / SATA hard disks), slot0-2 can not access any devices.

IO module 2 is the same as IO module 1.

IO module 3 can be configured with two 2.5-inch hard disk modules / half height expansion modules.(1 out of 2)

When you select the PCIe expansion module, slot6 can connect to the pciex8 device, slot7 can connect the pciex16 device.

Note: (the motherboard location is 1 PCIe x16, and the PCIe expansion module is an x16 and an x8); when a 2.5-inch hard disk module is selected (the module supports two 2.5-inch SAS / SATA hard disks at most), slot6-7 cannot be connected to any device.

IO module 4 is optional: two 2.5-inch hard disk modules / half height expansion modules for PCIe.(1 out of 2)

When you select the PCIe expansion module, slot8 can connect to the pciex8 device, slot9 can connect the pciex16 device.

Note: (this motherboard is located in two silmline X8, and the PCIe expansion module is an x16 and an x8); when selecting a 2.5-inch hard disk module

(the module can support two 2.5-inch SAS / SATA hard disks at most). Slot8-9 cannot be connected to any device.

2.4.9 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.

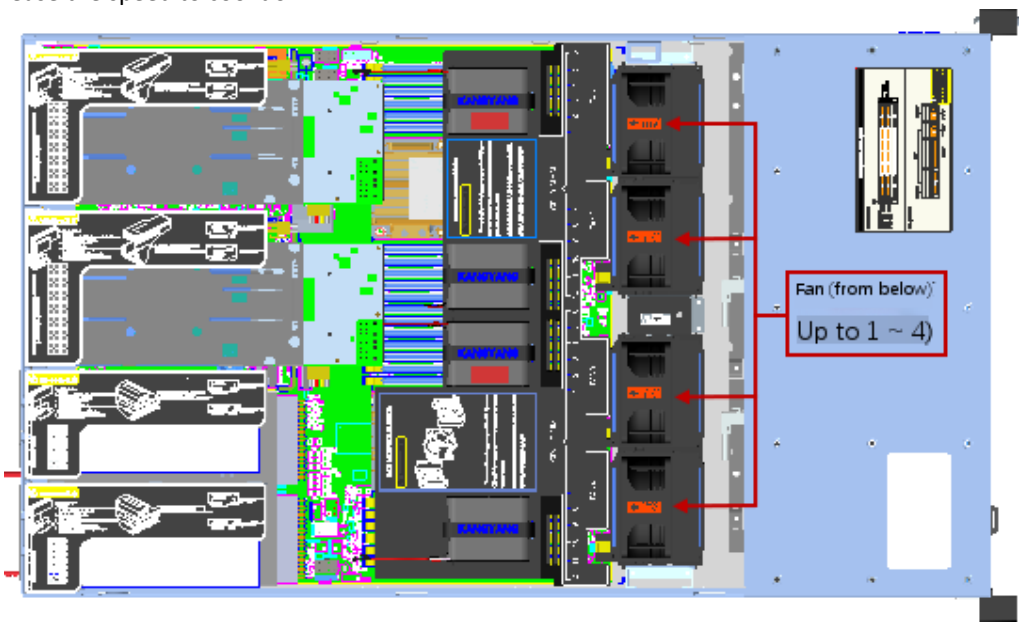


Figure 2-31

Chapter three Installing system components

3.1 Removing and installing the CPU

Before you begin installing the CPU, read the following guidelines:

- Make sure the motherboard supports the CPU.
- Before installing the CPU, be sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the hardware.
- Remove all cables from the power outlet.
- Disconnect all communication cables from their ports.
- Place the system unit on a flat and stable surface.
- Follow the instructions to turn on the system.

⚠ **warning!**

Serious damage can result if the server is not shut down properly before you start installing components.Do not attempt the steps described in the following sections unless you are a qualified service technician.

Install the CPU as follows:

1. Loosen the three fixing screws of the CPU cover in sequence (1 → 2 → 3).
2. Flip to open the CPU cover.
3. Use the handle on the CPU bay to remove the CPU Bay from the CPU cabinet.
4. Using the handle on the CPU Bay, insert the new CPU bay with the CPU installed into the CPU frame.

⚠ note: make sure that the CPU is installed in the CPU Bay in the correct direction, with triangles aligned on the CPU with the upper left corner of the CPU carrier.5. Turn the CPU cabinet with the CPU installed into the appropriate position in the CPU slot.

6. Flip the CPU cover into place over the CPU slot.
7. Tighten the CPU cover screws in sequence (1 → 2 → 3) to fix the CPU cover in place.
8. Repeat steps 1-7 for the second CPU.
9. To remove the CPU, perform steps 1-7 in the reverse order.

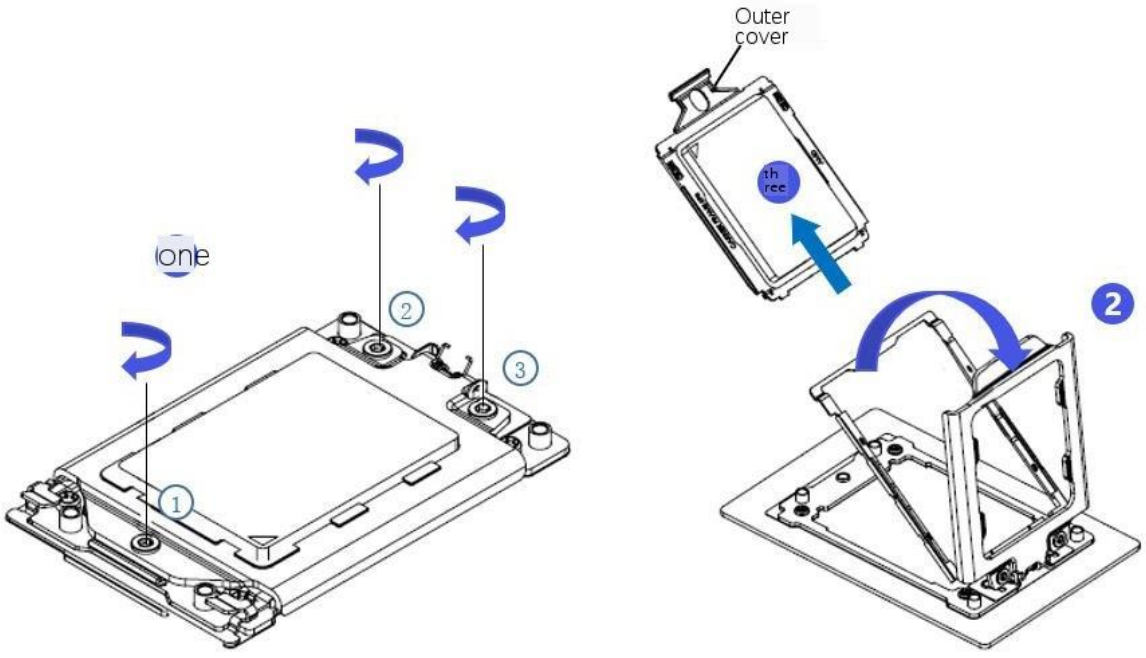


Figure 3-1

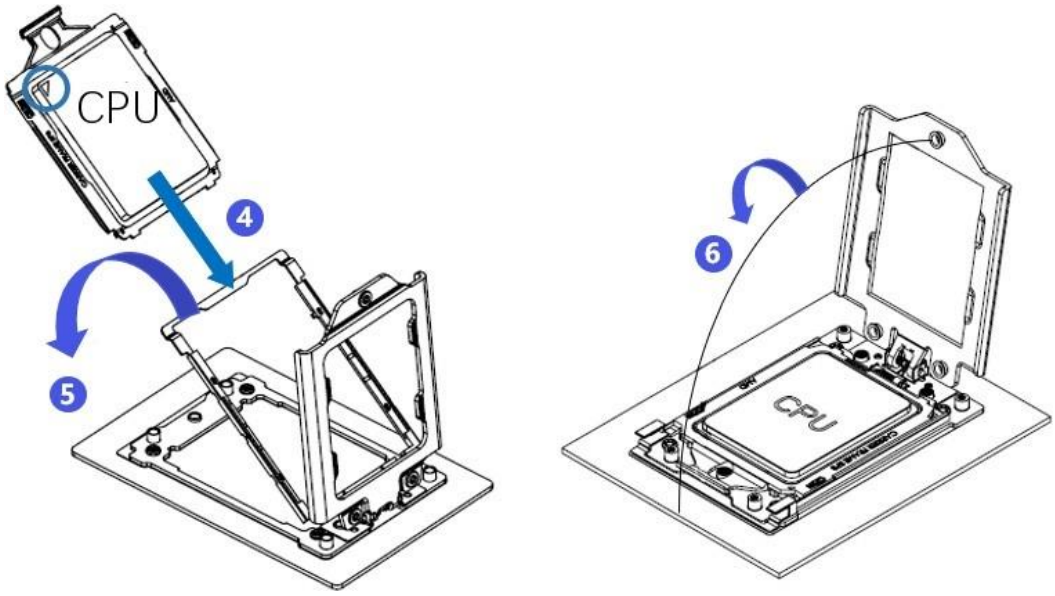


Figure 3-2

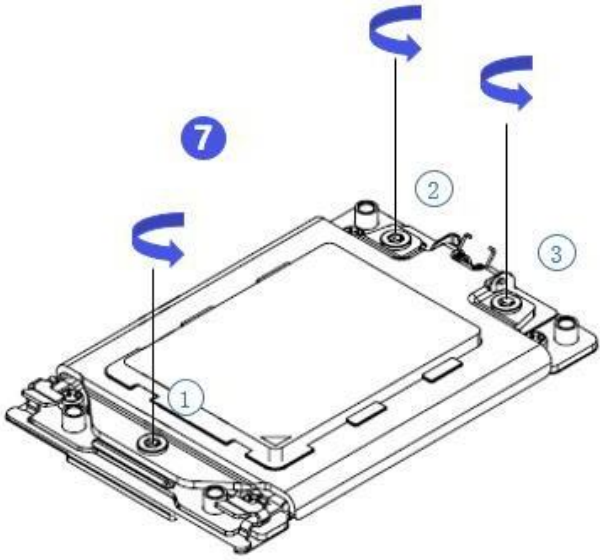


Figure 3-3

3.2 Removing and installing radiator

Before you begin installing the heat sink, read the following guidelines:

- Before installing the heat sink, be sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the hardware.
- Remove all cables from the power outlet.
- Disconnect all communication cables from their ports.
- Place the system unit on a flat and stable surface.
- Follow the instructions to turn on the system.

Warning!

If you do not shut down the server before you start installing components, you can cause serious damage.Do not attempt the steps described in the following sections unless you are a qualified service technician.

Note: when installing the heat sink to the CPU, use Philips ○ɔ 2-lobe screwdriver to tighten the 4 fixing nuts in 1-4 order.

Screw tightening torque: 0 ± 0.5 KGF cm (22.0 ± 1.0 LBF in).

Install the radiator as follows:

1. Loosen the screws that hold the radiator in place in the reverse order (4 → 3 → 2 → 1).
2. Lift and remove the heat sink from the system.
3. To install the radiator, reverse steps 1-2, while ensuring that the set screws are tightened in sequence (1 → 2 → 3 → 4), as shown in the figure below.

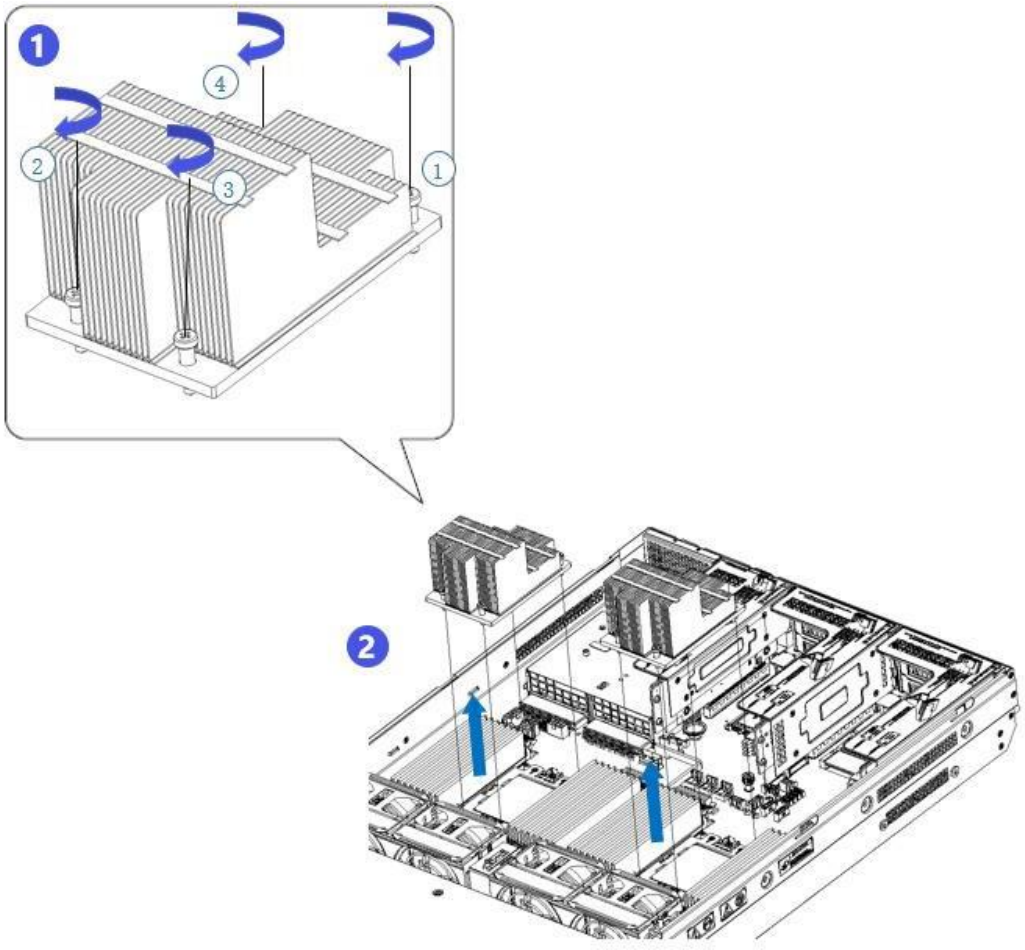


Figure 3-4

3.3 Installation of memory

3.3.1 Memory support specifications

The motherboard supports DDR4 Rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory, memory frequency support 1866 / 2133 / 2400 / 2666 / 3200mhz; support single capacity of 16GB, 32GB, 64GB, 128GB, 256gb, the maximum support of the whole machine 8tb memory capacity..

note: in this motherboard, please use the memory module with the same CAS delay value. It is recommended that you use the memory with the same capacity and frequency produced by the same manufacturer. The recommended settings are shown in table 1-34

Access principle of memory module: (1 CPU)																	
processor	passage way	Memory location	Amount of memory (recommended: √ not recommended: 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
CPU0	A	A1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		A0									●	●	●	●	●	●	●	●
	B	B1		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		B0											●	●	●	●	●	●
	C	C1			●		●	●	●	●	●	●	●	●	●	●	●	●
		C0													●	●	●	●
	D	D1							●	●	●	●	●	●	●	●	●	●
		D0															●	●
	E	E1				●	●	●	●	●	●	●	●	●	●	●	●	●
		E0										●	●	●	●	●	●	●
	F	F1				●	●	●	●	●	●	●	●	●	●	●	●	●
		F0												●	●	●	●	●
	G	G1						●	●	●	●	●	●	●	●	●	●	●
		G0														●	●	●
	H	H1								●	●	●	●	●	●	●	●	●
		H0																●

Table 1-34

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:

- memory. This configuration is not recommended
- Root memory: this configuration is not recommended
- Root memory: this configuration is not recommended
- Root memory: cpu0_A1 / CPU0_B1 / CPU0_E1 / CPU0_F1
- Root memory: this configuration is not recommended
- Root memory: cpu0_A1 / CPU0_B1 / CPU0_C1 / CPU0_D1 / CPU0_E1 / CPU0_F1
- Root memory: this configuration is not recommended
- Root memory: cpu0_A1 ,CPU0_B1,CPU0_C1,CPU0_D1,CPU0_E1,CPU0_F1,CPU0_G1,CPU0_H1
- Root memory / 11 root memory / 13 root memory / 15 root memory: this configuration is not recommended
- Root memory: cpu0_A1/A0 ,CPU0_B1,CPU0_C1,CPU0_D1,CPU0_E1/E0,CPU0_F1,CPU0_G1,CPU0_H1
- memory: cpu0_A1/A0,CPU0_B1/B0,CPU0_C1,CPU0_D1,CPU0_E1/E0,CPU0_F1/F0,CPU0_G1, CPU0_H1
- memory: cpu0_A1/A0 ,CPU0_B1/B0,CPU0_C1/C0,CPU0_D1,CPU0_E1/E0,CPU0_F1/F0,CPU0_G1/G0, CPU0_H1
- memory: full

Note: in case of the first / 2 / 3 / 5 / 7 / 9 / 11 / 13 / 15 root memory, the following rules must be followed:

- A single number of memory inserted into the motherboard above the blue;
- For double root memory, you can refer to the configuration of the most recent memory, and then increase the memory;

In addition, it should be noted that:

◆ In the same channel, the memory with large capacity must be inserted into the first one (such as A1 / B1 / C1 / D1 / E1 / F1 / G1 / H1): blue; it is not allowed to mix rdimm and lrdimm.

Note: when installing two CPUs, in order to achieve optimal performance, it is recommended to install dual memory and keep the same amount of memory per CPU.

3.3.2 How to install memory

The 16 memory slots controlled by CPU 0 on the motherboard are: Dimma1, A2, dimmb1, B2, DIMM C1, C2, DIMM D1, D2, DIMM E1, E2, DIMM F1, F2, DIMM G1, G2 and DIMM H1, H2; the 16 memory slots controlled by CPU 1 are dimma3,

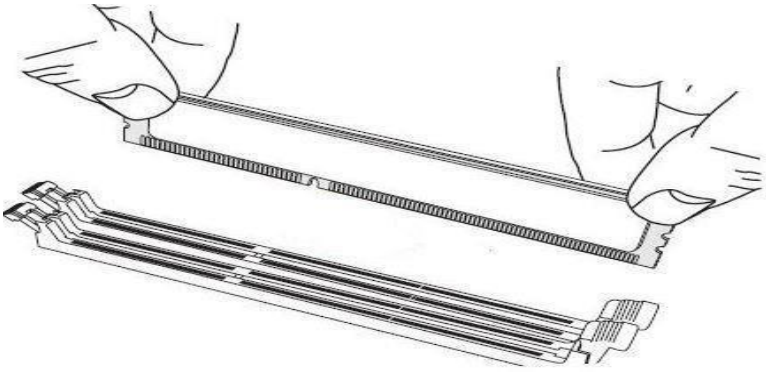


Figure 3-5

A4, dimmb3, B4, dimmc3, C4, dimmd3, D4, DIMM E3, E4, DIMM F3, F4, DIMM G3, G4 and DIMM H3, H4. Pay attention to the memory gap consistent with the DIMM slot gap, and snap each DIMM module into place vertically to prevent incorrect installation.

note: be careful when installing or removing DIMM memory modules to prevent any possible damage to the DIMMs or their respective sockets.

Installation: insert the memory module vertically and press the location of the memory slot snap, taking care to align the bottom of the notch. The simulation of inserting a memory module is as follows:

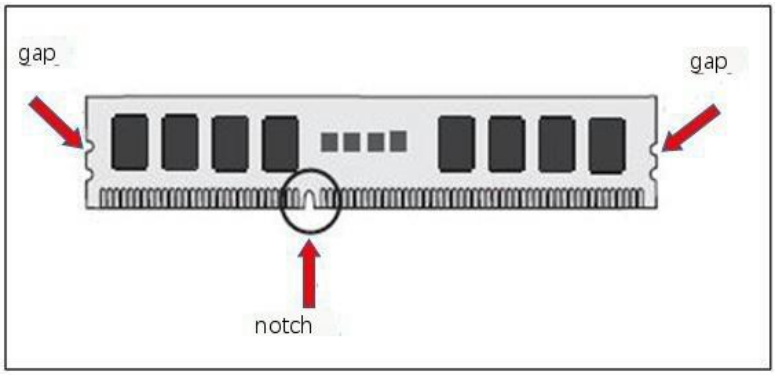


Figure 3-6

Use your thumb to push inward the release tabs near both ends of the memory module socket to secure the memory in the socket. As shown in Figure 3-7:

Figure 3-7

Remove: gently push the release tabs near both ends of the memory module socket with your thumb. This should free memory from the socket. The demonstration of removing memory module is shown in Figure 3-8

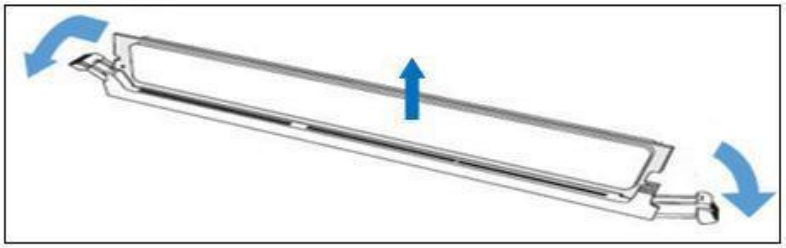


Figure 3-8

3.4 Installation of hard disk

- **Installation of 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 head must not protrude from the slide surface on both sides of the tray)

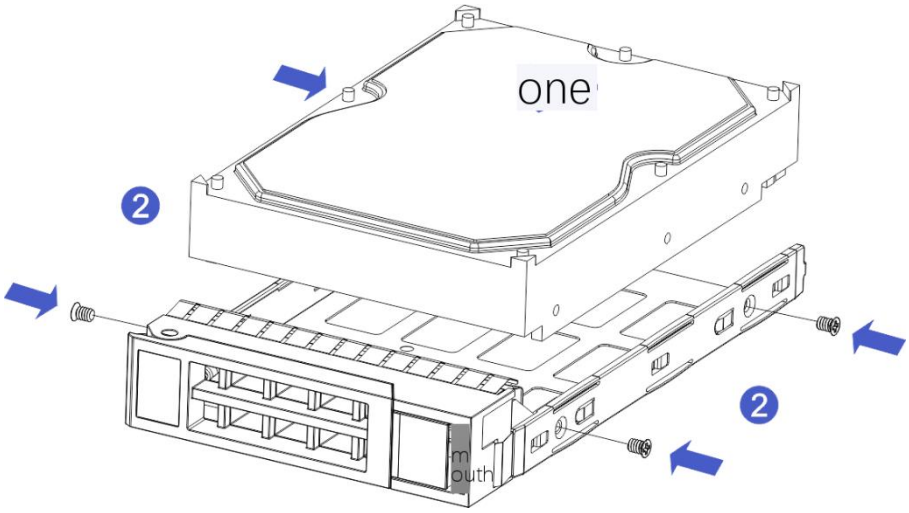


Figure 3-9

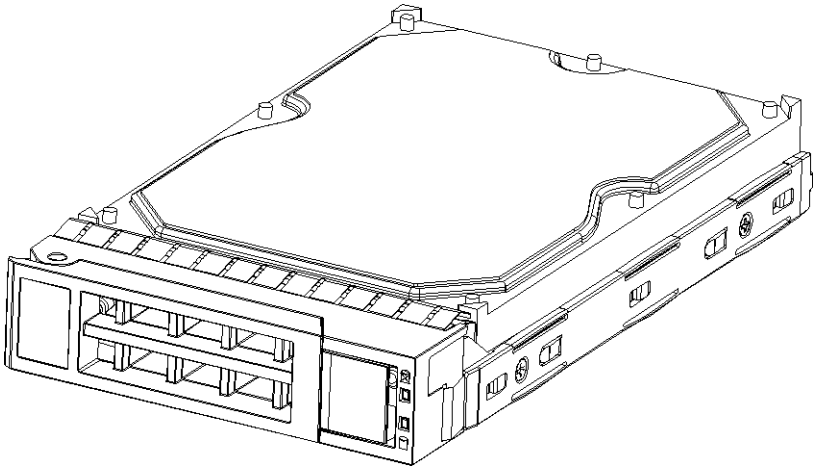


Figure 3-10

- **Installation of 2.5-inch hard disk**

1. Place the hard disk in the tray
2. Four countersunk screws at the bottom lock the hard disk (the screw head protrudes from the bottom of the tray)

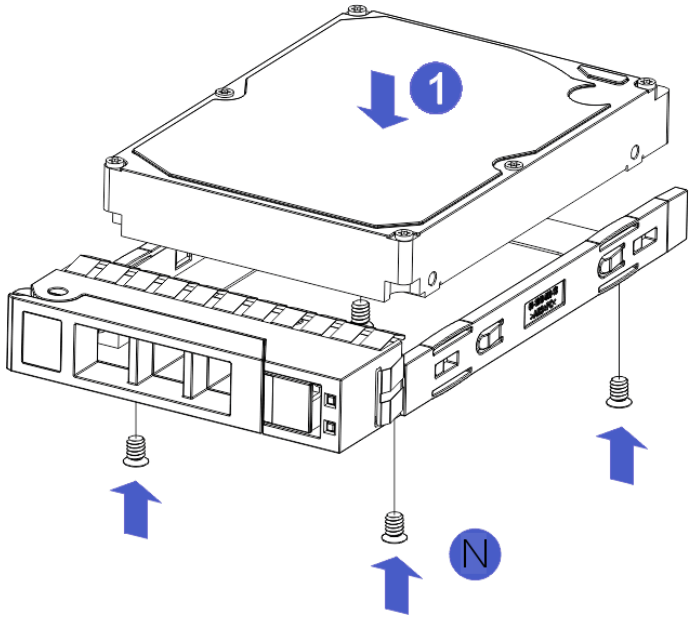


Figure 3-11

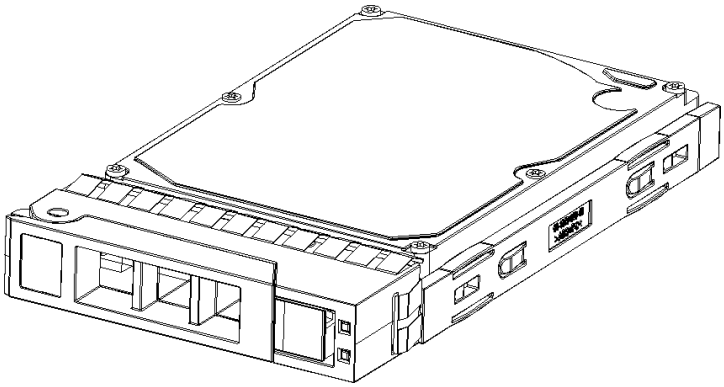


Figure 3-12

The hard disk tray assembly is installed in the chassis

1. With the hard disk wrench on, 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 the arrow
3. Schematic diagram of hard disk installation in place

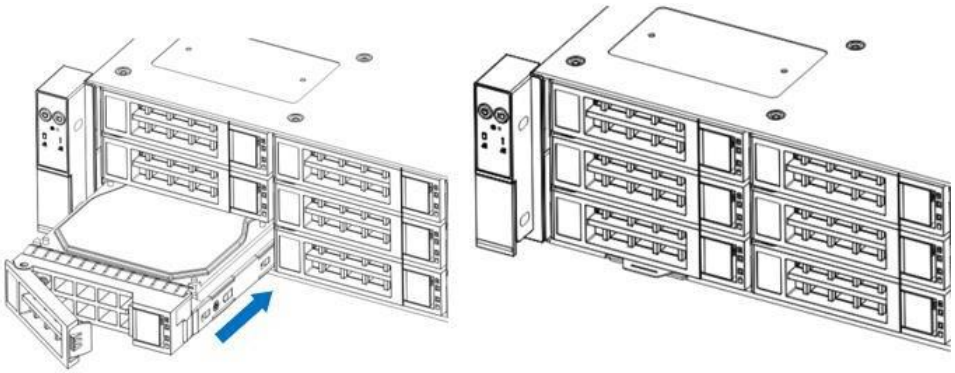


Figure 3-13

3.5 Installation of front hard disk backplane

- **Front hard disk backplane installation:**

1. First, take out the hard disk frame, align the screw hole on the top of the hard disk backplane with the screw hole of the hard disk frame, and then install and fix the hard disk frame and hard disk backplane with screws.
2. Put the hard disk frame installed with the hard disk backplane down to the corresponding position of the chassis, move the hard disk frame appropriately, make the screw holes at the bottom of the frame align with the protruding screw holes of the chassis, and then install the screws to fix them.

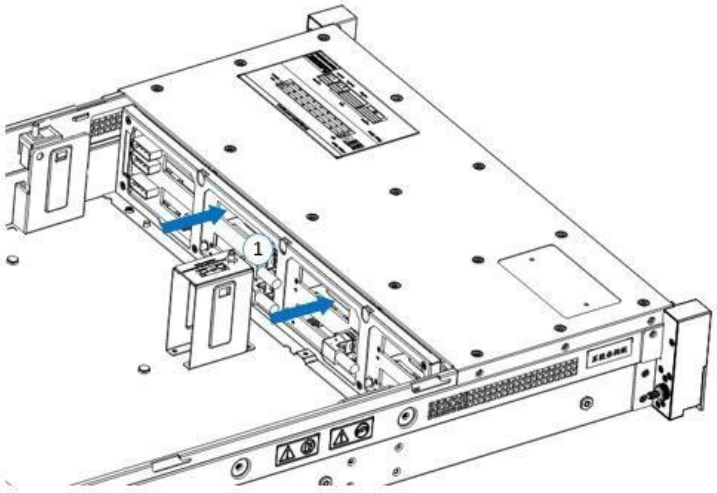


Figure 3-14

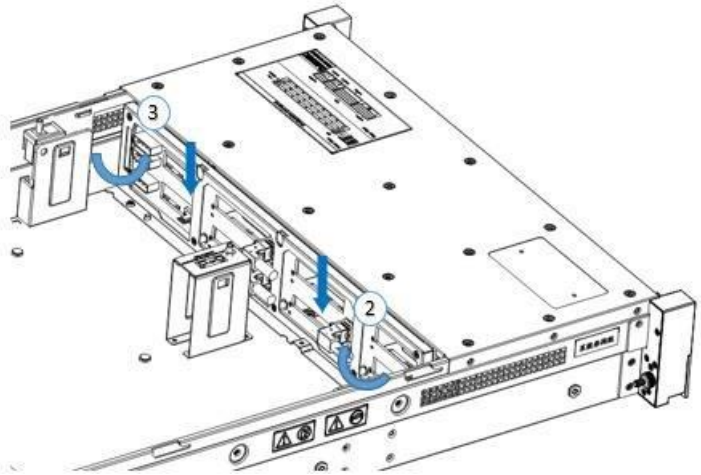
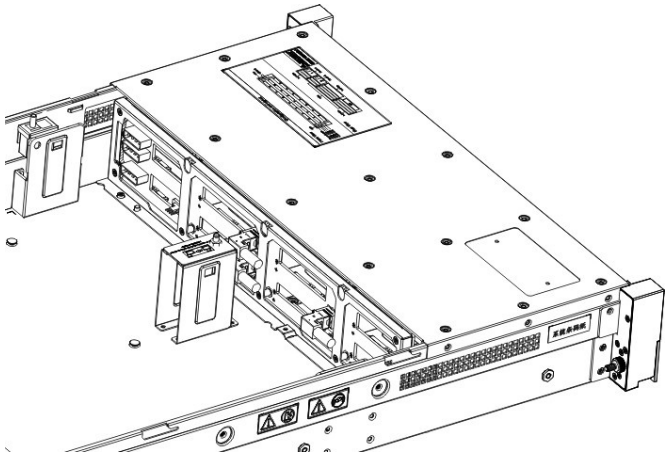


Figure 3-15



3.6 M. 2 SSD installation

Step 1: install the positioning stud according to the length of m.2 card to be installed.

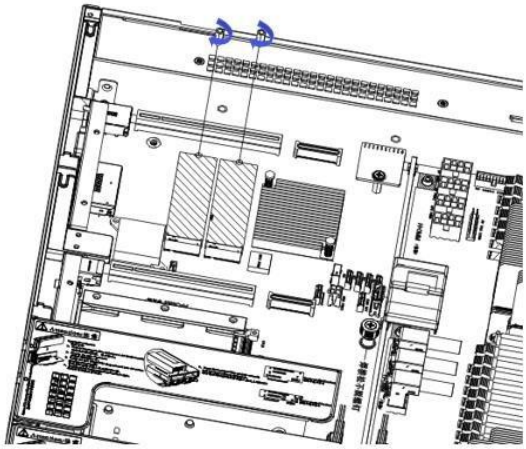


Figure 3-17

Step 2: install the m.2 card

1. Insert the m.2 card connector into the motherboard connector as shown in the figure.
2. Press the other end of the m.2 card to the alignment stud plane in step 1.

Step 3: install the fixing screws of the m.2 card.

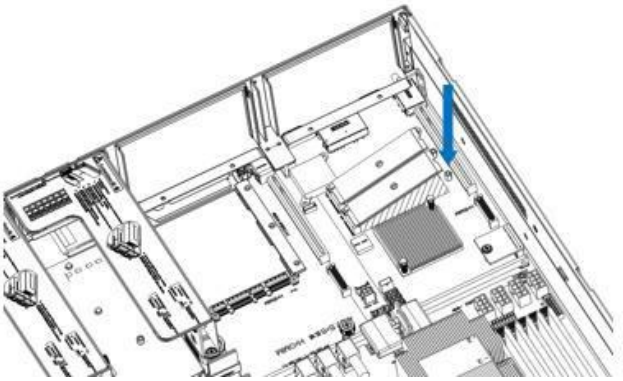


Figure 3-18

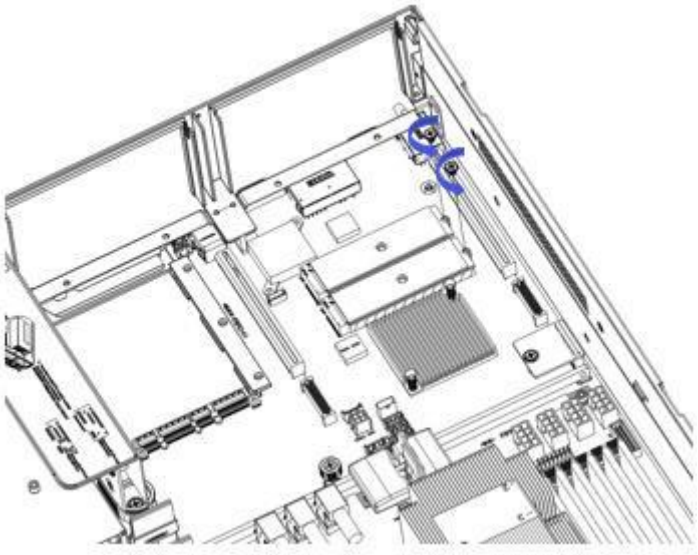


Figure 3-19

3.7 PCI-E expansion card installation

Step: install the PCIe card

1. Install the PCIe card in the direction shown in the figure
2. Rotate the PCIe card latch
3. According to the arrow scheme, lock the lock of the PCIe card

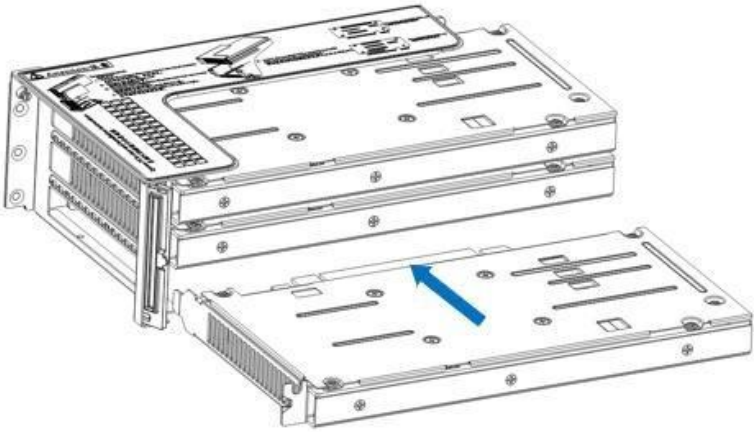


Figure 3-20

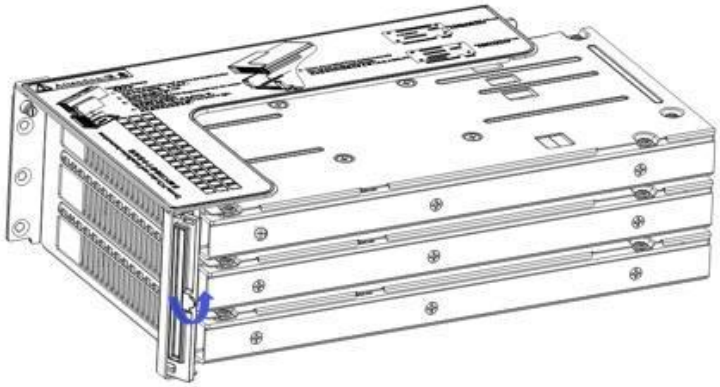


Figure 3-21

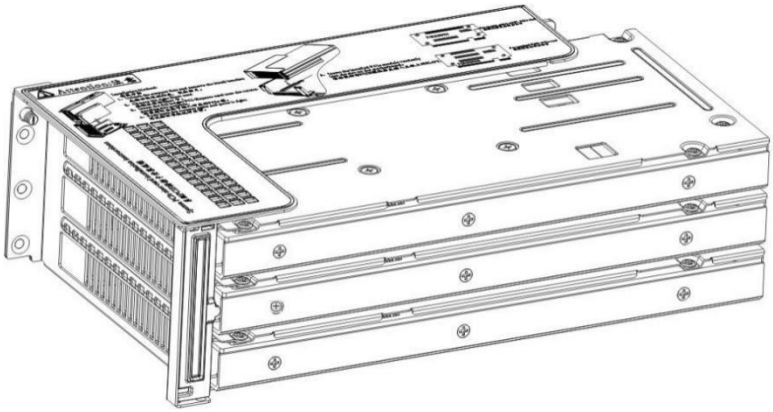


Figure 3-22

3.8 PCI-E module installation

Installation steps of riser1-3 module: place the rear window PCIe component vertically and downward - align the PCIe slot, align the positioning hole, and place it flush with the rear window.

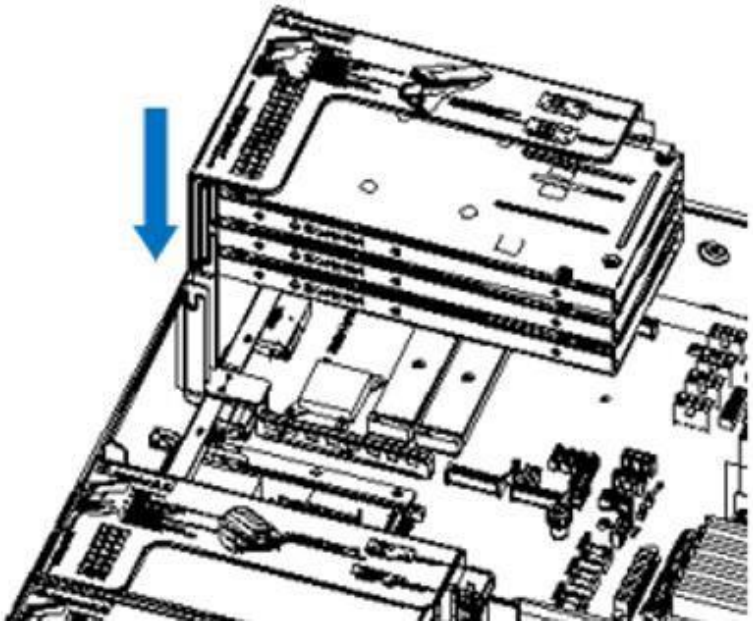


Figure 3-23

Installation steps of riser4 module: place the rear window PCIe component vertically and downward - align the PCIe slot with the positioning hole, place it flush with the rear window, and then lock the side screw

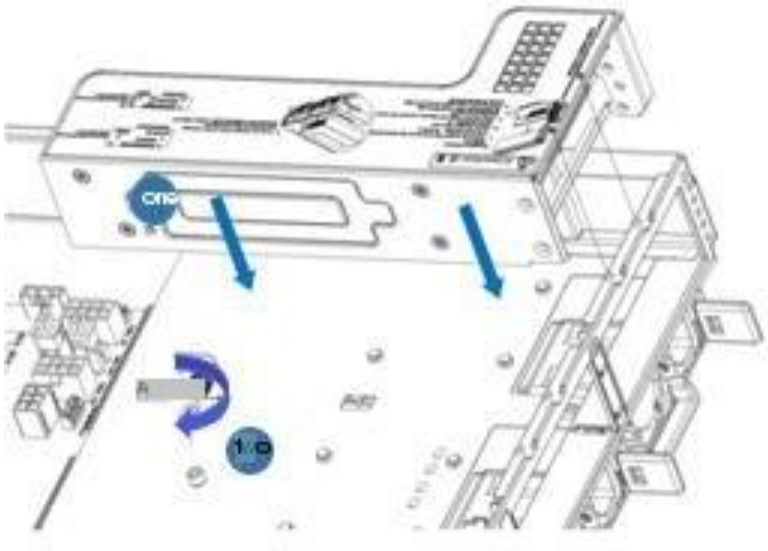


Figure 3-24

Step 1: rear hard disk module backplane installation

1. Move the back-plate limit shrapnel outward with your hand, and hold the shrapnel with your hand -- keep the shrapnel open
2. After aligning the pin hole of the hard disk backplane with the pin of the hard disk module bracket, push it forward, and then put it down in place, release the limit spring piece of the hard disk, and the spring piece will automatically spring back to its original position;
3. Turn over the fixed parts on the hard disk backplane and follow the diagram -- the fixed parts can be placed flat.

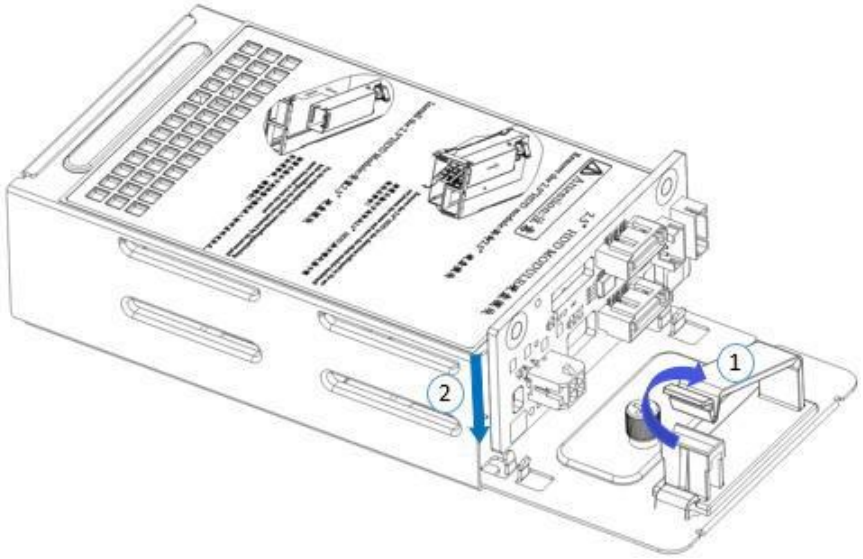


Figure 3-25

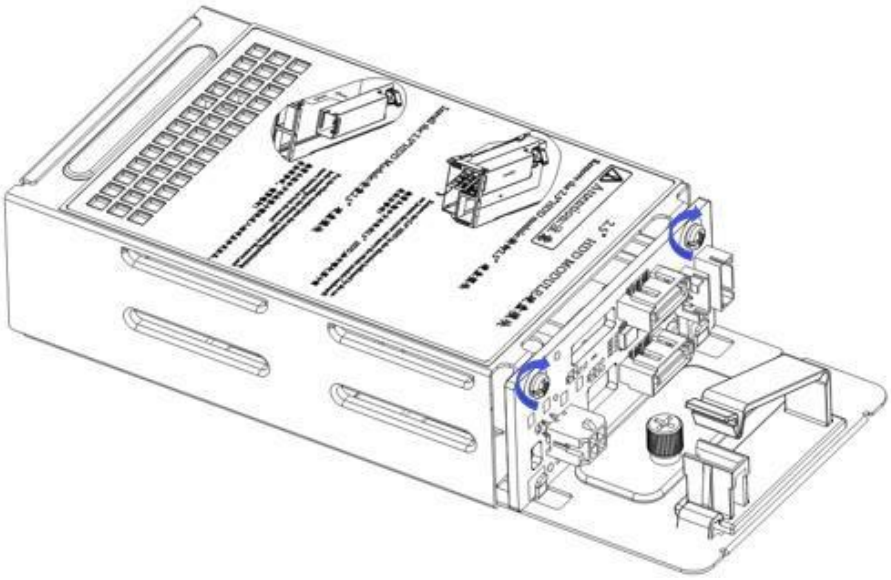


Figure 3-2

3.10 installation of rear hard disk module

- **Installation of rear 3.5 inch hard disk module**

Step 1. Place HDD tray vertically down and
flush with the rear window
step 2. Fix the rear HDD tray assembly

Step 3. Lock a loose screw

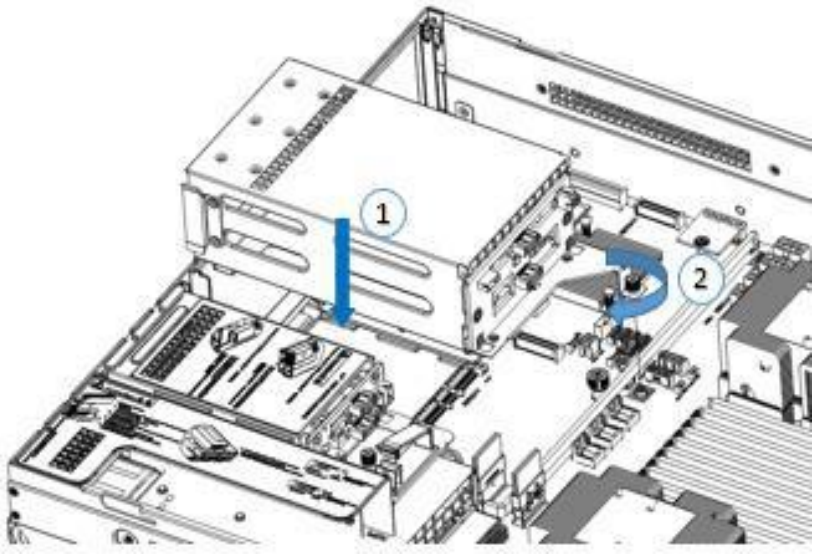


Figure 3-27

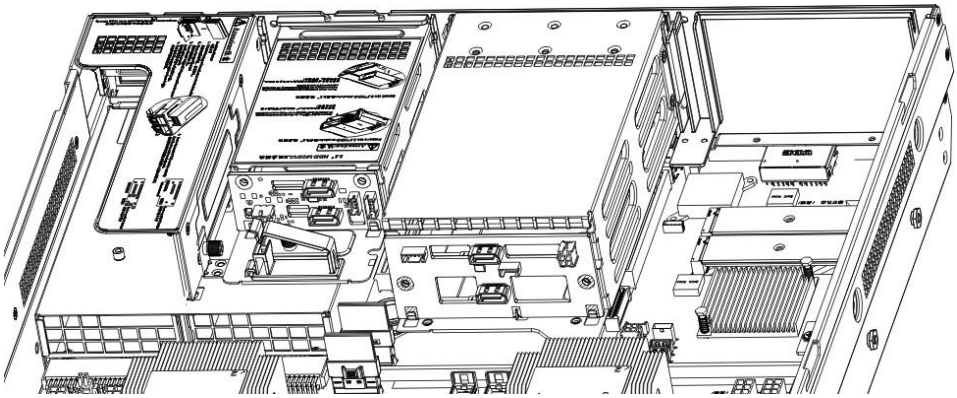


Figure 3-28

- **Installation of rear 2.5 inch hard disk module**

1. Place vertically downward and align with the guide pin at the lower end
2. After leveling, push it to the end in the direction of the arrow,
3. Lock the screw

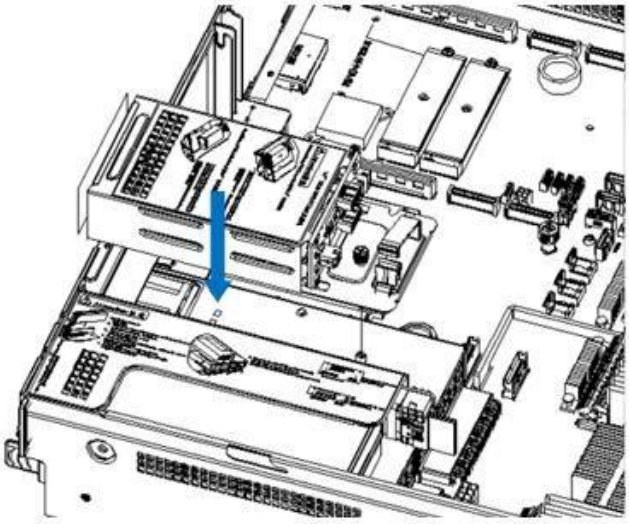


Figure 3-29

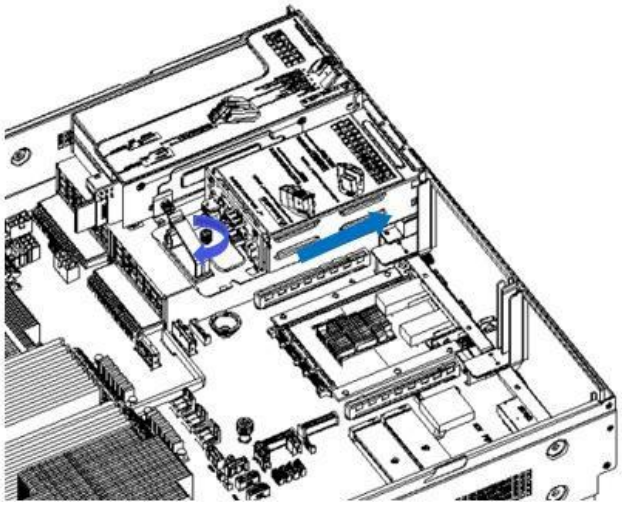


Figure 3-30

3.11 Installation of power supply module

Step: push the power supply to the bottom in the direction of the arrow, and the spring wrench on the right side makes a click sound, indicating that it is installed in place;

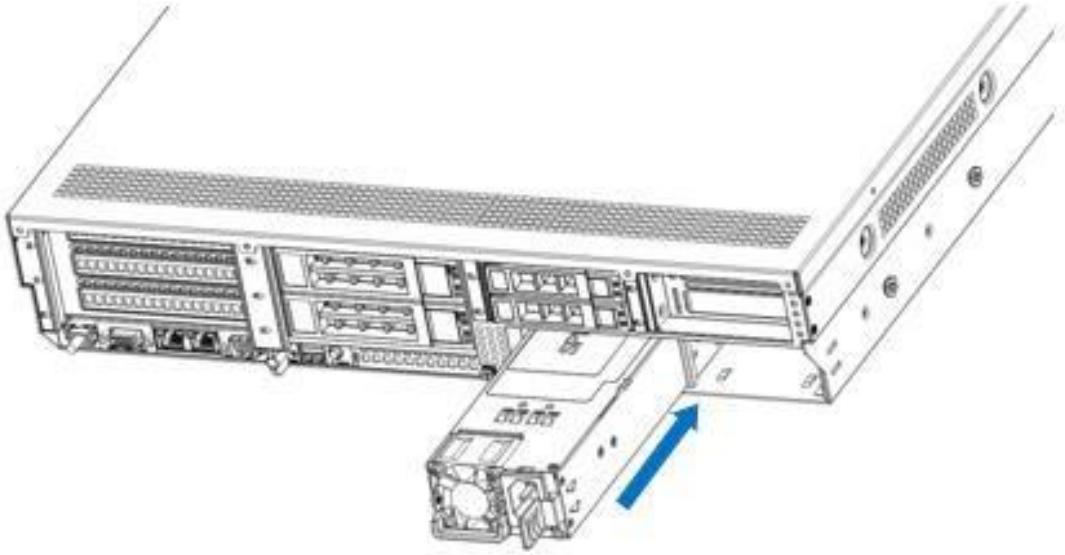


Figure 3-31

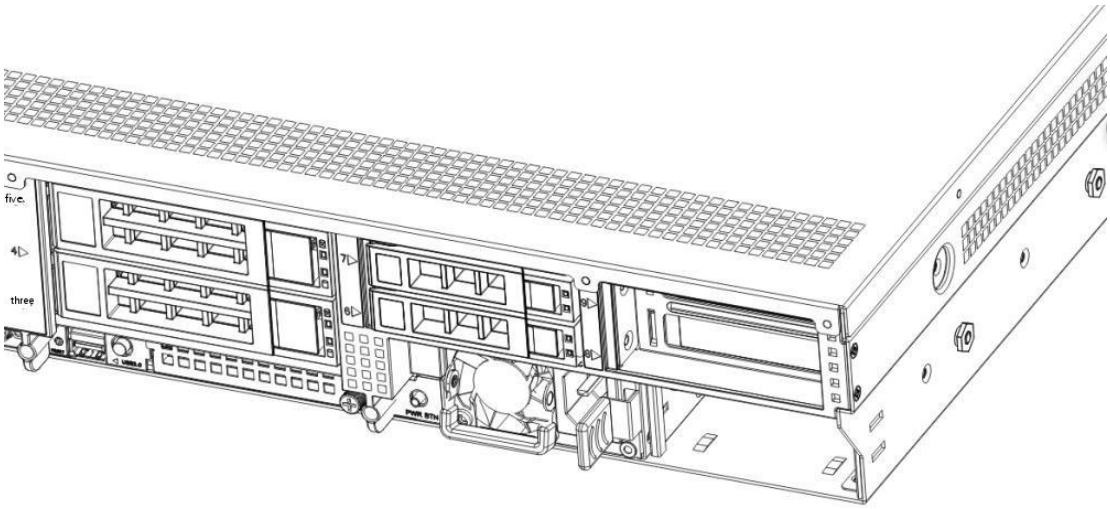


Figure 3-32

3.12 Installation of fan module

Step: place the fan module vertically downward in the direction of the arrow (note that the fan module faces)

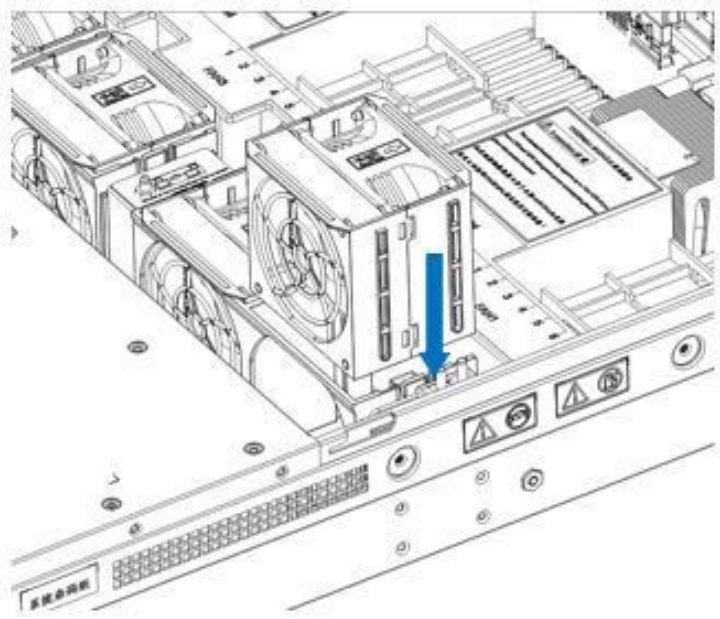


Figure 3-33

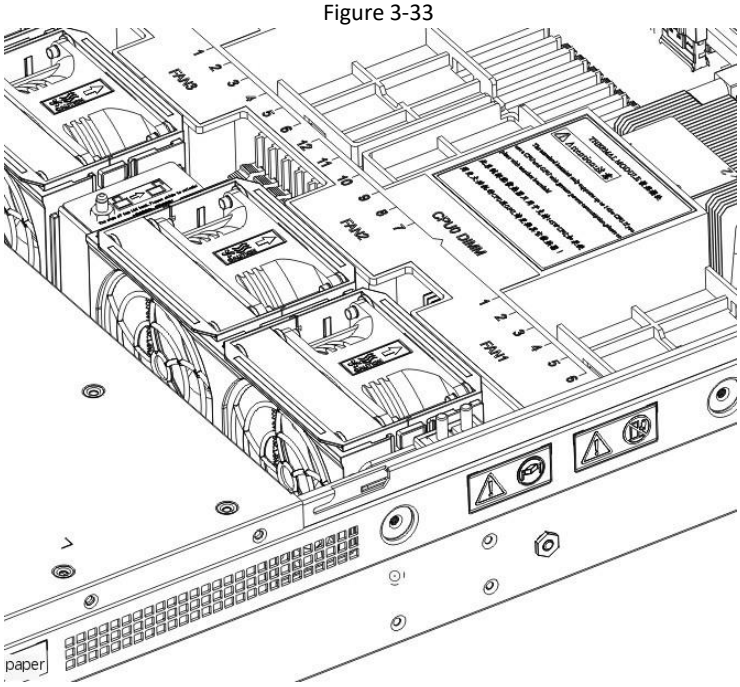


Figure 3-34

3.13 Installation of wind deflector

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

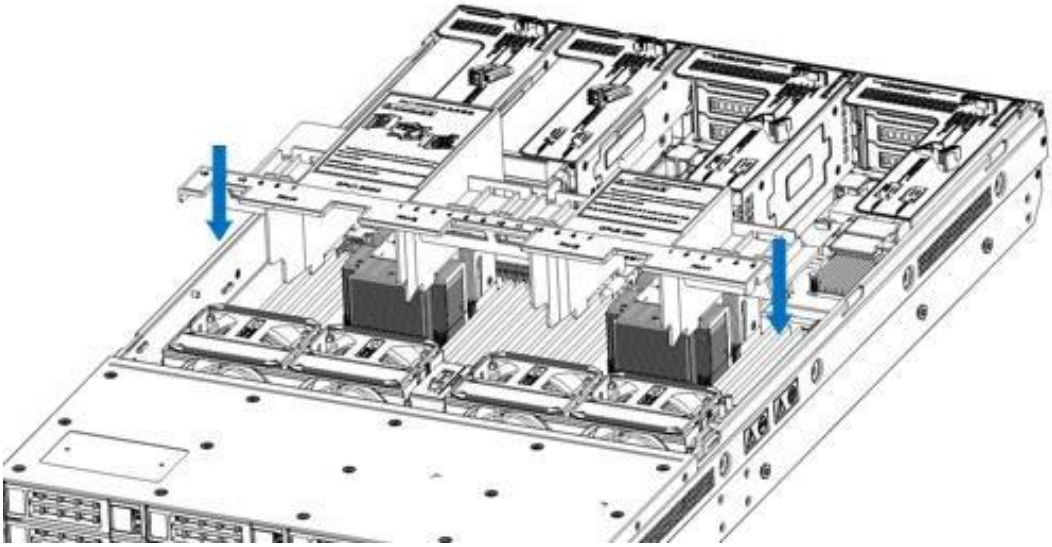


Figure 3-35

3.14 Installation of optical drive

Step: install the optical drive

1. Install the fixing part of the optical drive in the direction of the arrow, and lock the pan head screw

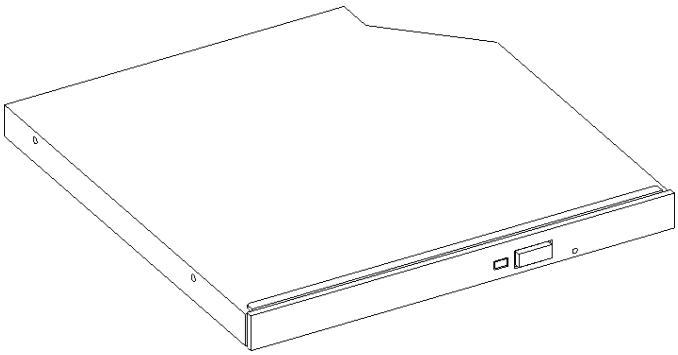


Figure 3-36

2. Align the opening of the optical drive position on the chassis, and push the optical drive in the direction of the arrow until the fixed parts are locked automatically.

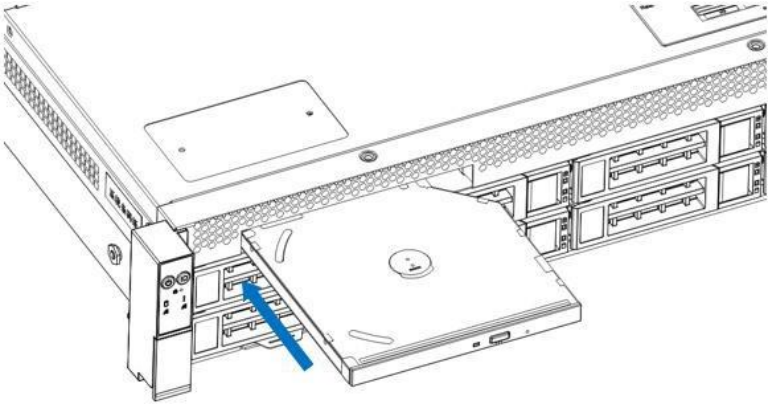


Figure 3-37

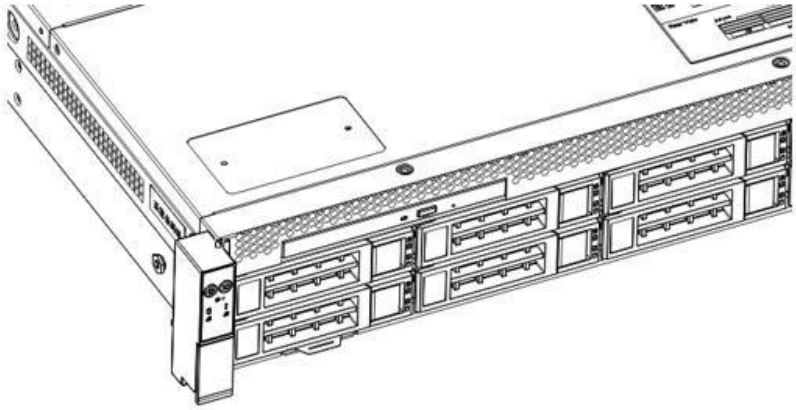


Figure 3-38

3.15 Installation of upper cover of chassis

Step 1: install the rear upper cover of the chassis

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

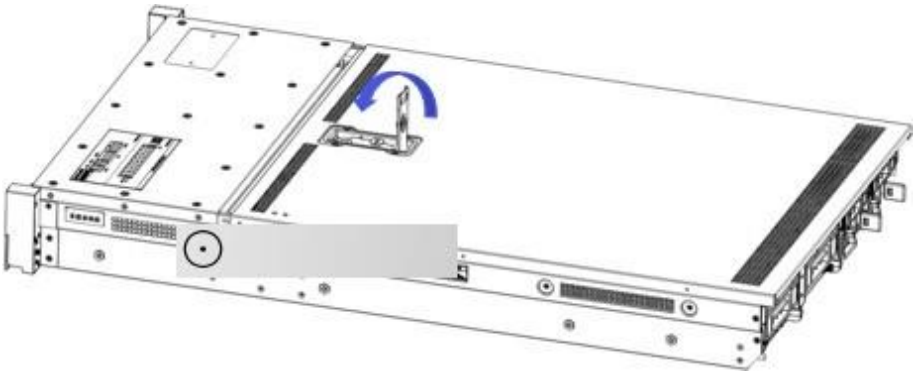


Figure 3-39

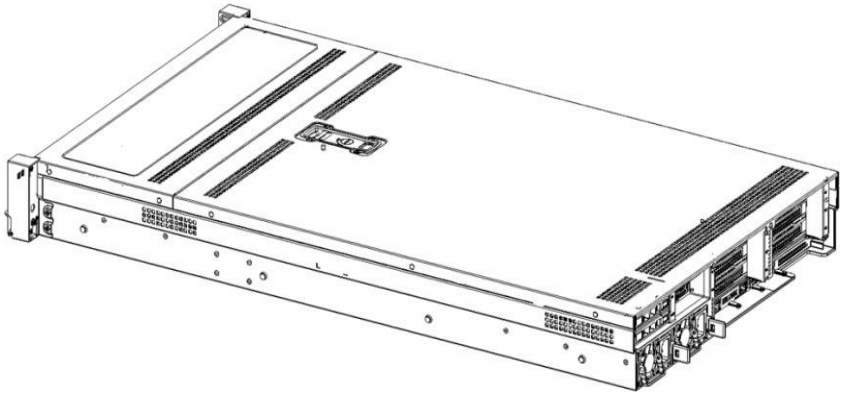


Figure 3-40

Chapter four System cabinet installation

4.1 Installation of inner rail of guide rail

Step 1. Prepare two sliding rail and pull out the inner rail.

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

Figure 4-1

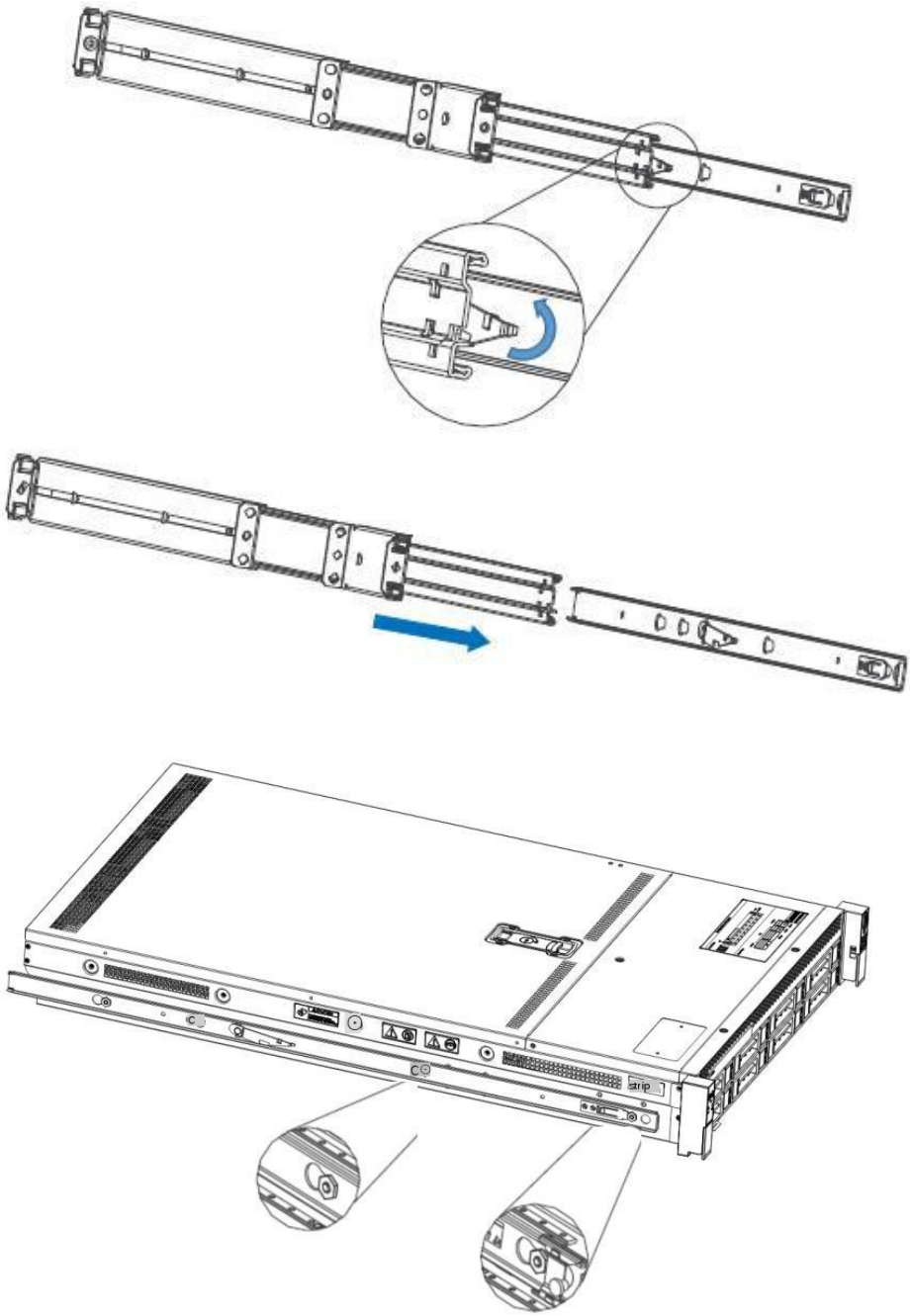


Figure 4-2

4.2 Install the outer rail to cabinet

Step 3. Install the outer rail on the cabinet bracket and tighten the screws.
Note: when installing the guide rail, align with the U-Mark, and install it in place with a snap, and use M5 screw to firm it.

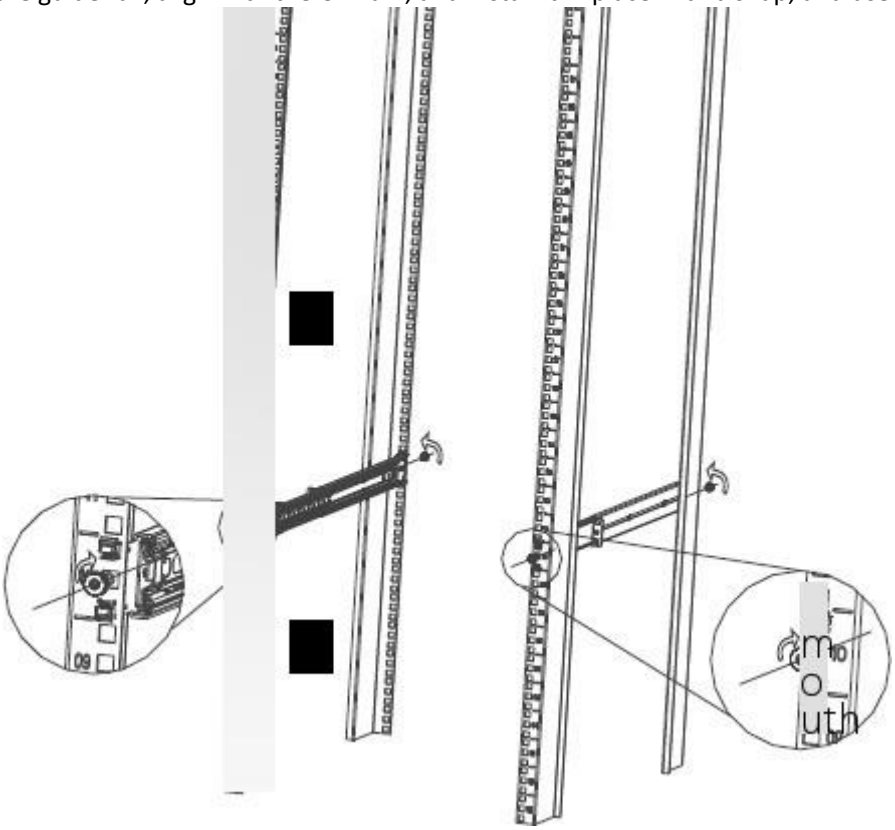


Figure 4-3

4.3 Install the server to cabinet

Step 4. Align the chassis with the inner rail to the outer rail for installation.
Note: when you can push the chassis forward, you can hear a crack. If you can't push it, you need to pull down the inner rail buckle to continue to push the chassis gently.

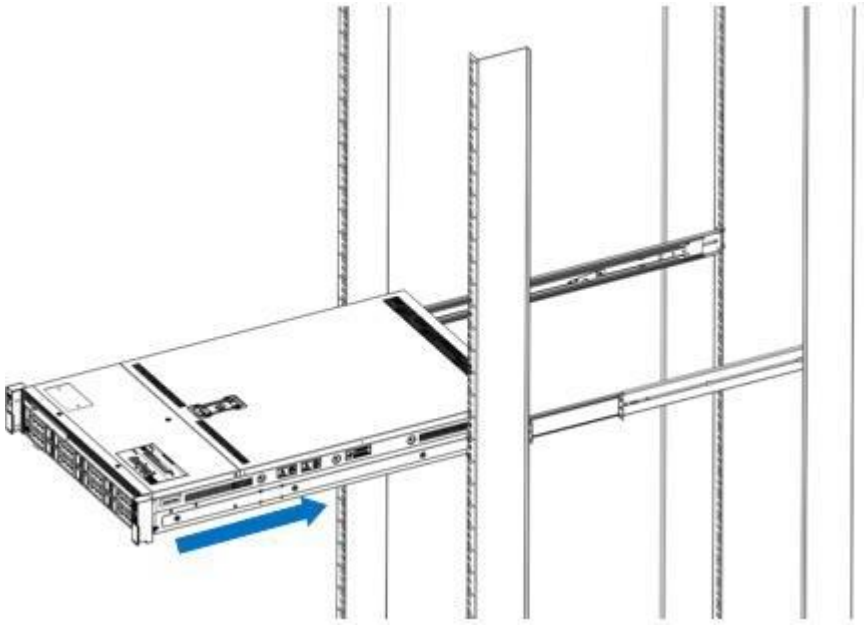


Figure 4-4

Step 5. When the chassis cannot slide forward, the screws shall be firmly fixed and installed.
Note: when maintaining the equipment, loosen the panel screws and pull the chassis gently. Do not push and pull the chassis casually to avoid damaging the equipment.

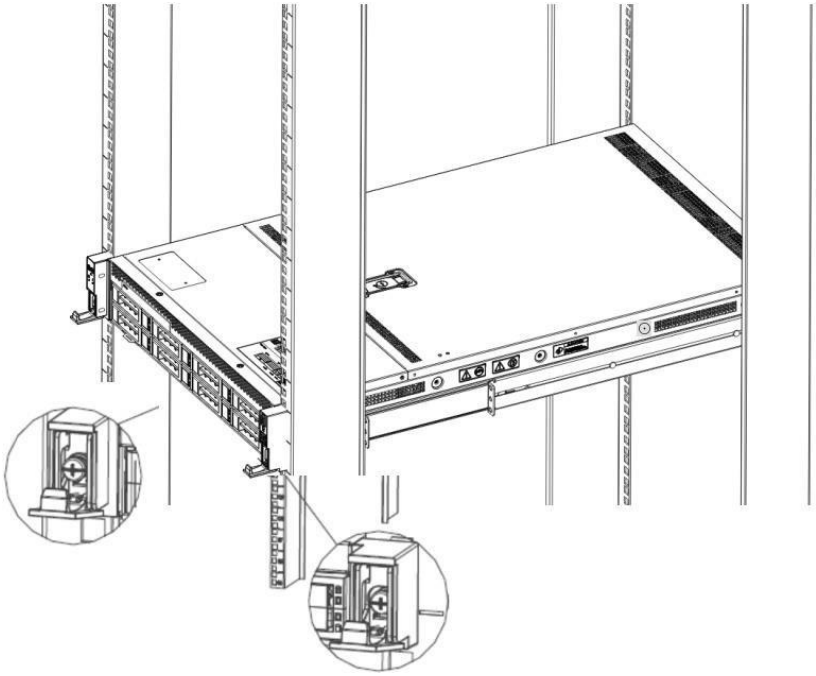


Figure 4-5

Chapter five BIOS parameter setting description

5.1 Enter the BIOS Setup interface

Operation steps:

1. Power on the server motherboard and connect the keyboard;
2. During the post process, pay attention to the prompt of entering BIOS Setup interface at the bottom left of the logo screen, "press < del > or < ESC > to enter setup, < F7 > to enter boot menu.";
3. Press the < del > or < ESC > key on the keyboard to enter the BIOS Setup interface;

5.2 Setup menu parameter description

5.2.1 Navigation key description

→←:	Menu switch (select screen)
↑↓:	Item switch (select item)
Enter:	Select
+/-:	Change opt
F1:	General help
F2:	Previous values
F3:	Optimized defaults F4: Save & reset
ESC:	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. The system time can be set.

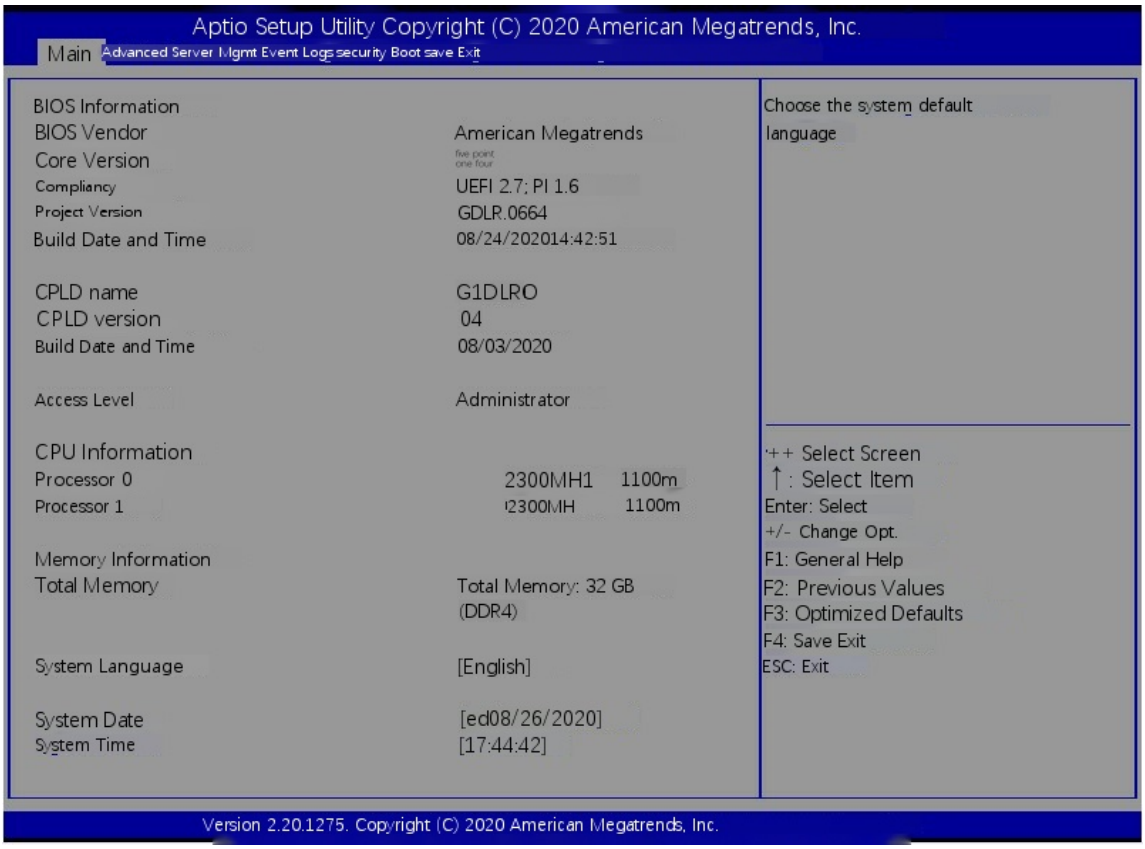


Figure 5-1

BIOS Information

Project Version:

Displays the version information of the board BIOS.

Build Date and Time:

Displays the compilation date and time of the board BIOS.

CPLD Name:

Display the name information of the board CPLD.

CPLD Version:

Display the version information of CPLD.

Build Date and Time:

Display the compilation date and time of the board CPLD.

Access Level:

Display the current user permission of the board.

CPU Information

Processor x:

CPU model information.

Memory information

Total Memory：

Displays the total 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 "weekday / day / year". Press enter to switch between month, day, and year. You can change the value in the following ways:

- Press "+": the value increases by 1.
- Press "- to decrease the value by 1.
- Press the number key: change the value directly.

System Time:

Displays and sets the current system time. The system time is in 24-hour format and the format is "hour: minute: second". Press enter to switch between hours, minutes and seconds. You can change the value in the following ways:

- Press "+": the value increases by 1.
- Press "- to decrease the value by 1.
- Press the number key: change the value directly.

5.2.3 Advanced menu description

The advanced interface contains advanced configuration items of BIOS system.

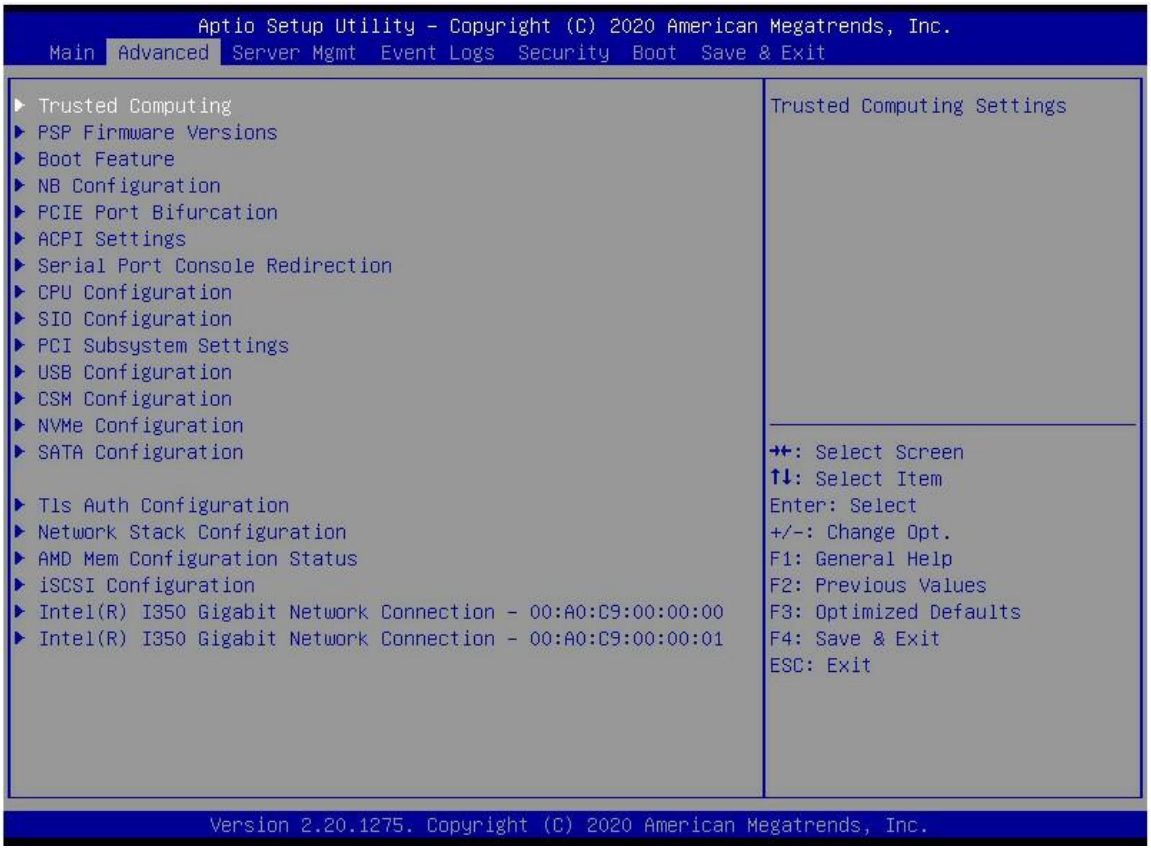


Figure 5-2

- Trusted computing can be trusted to perform module configuration.
- PSP firmware versions platform security processor firmware version.
- Boot Feature

Start the function configuration page.

- NB configuration NB configuration.
- The branch of the PCIe port bifurcation.
- ACPI settings ACPI settings.
- Serial port console redirection configuration.
- CPU configuration CPU configuration.
- SiO configuration SiO configuration.
- PCI subsystem settings PCI subsystem settings.
- CSM configuration CSM configuration.
- Nvme configuration nvme configuration.
- SATA configuration SATA configuration.

- Network stack configuration.
- ISCSI configuration.
- Intel (R) i350 gigabit network connection - XX: XX: XX: XX: XX: XX: XX Intel network card UEFI OPROM configuration

5.2.4 Trusted Computing

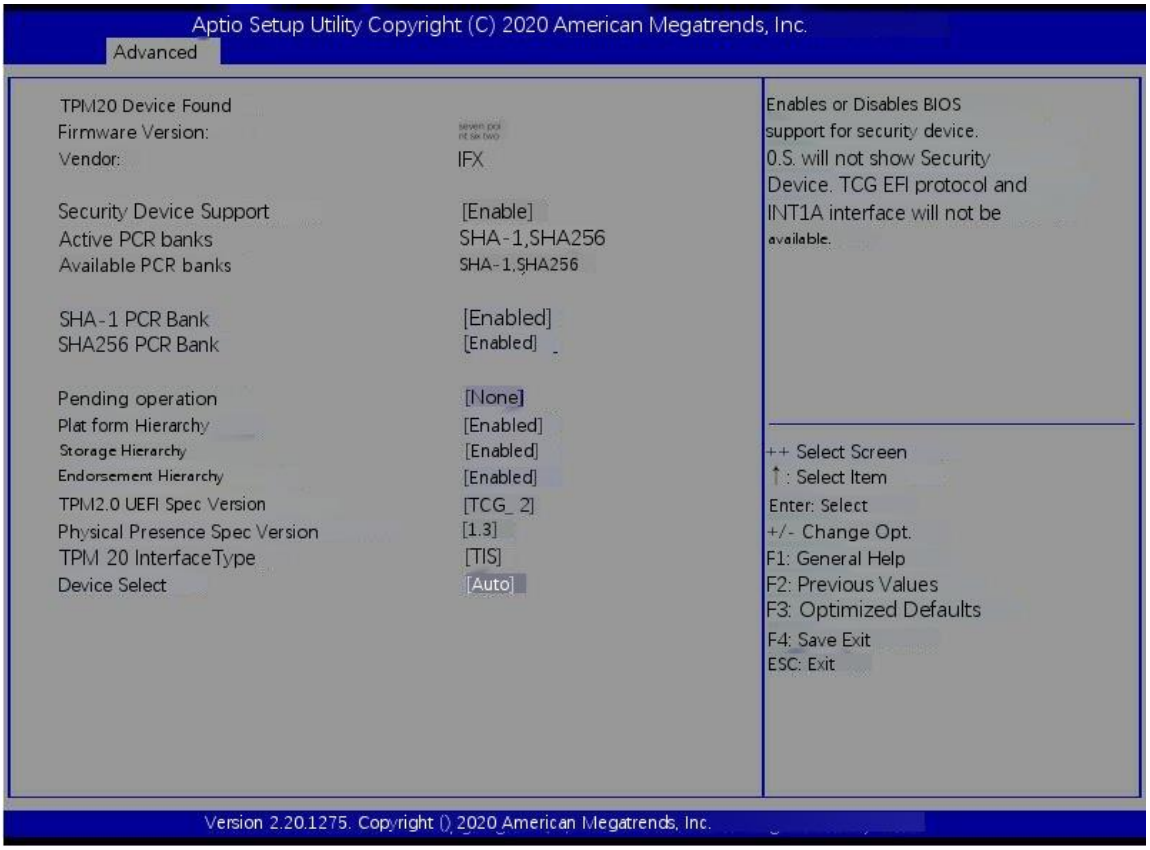


Figure 5-3

Display and set TCM / TPM module information. Different module options have different settings. Users can set them according to the setup help instructions.

5.2.5 PSP Firmware Versions

Displays the PSP firmware version and related information.

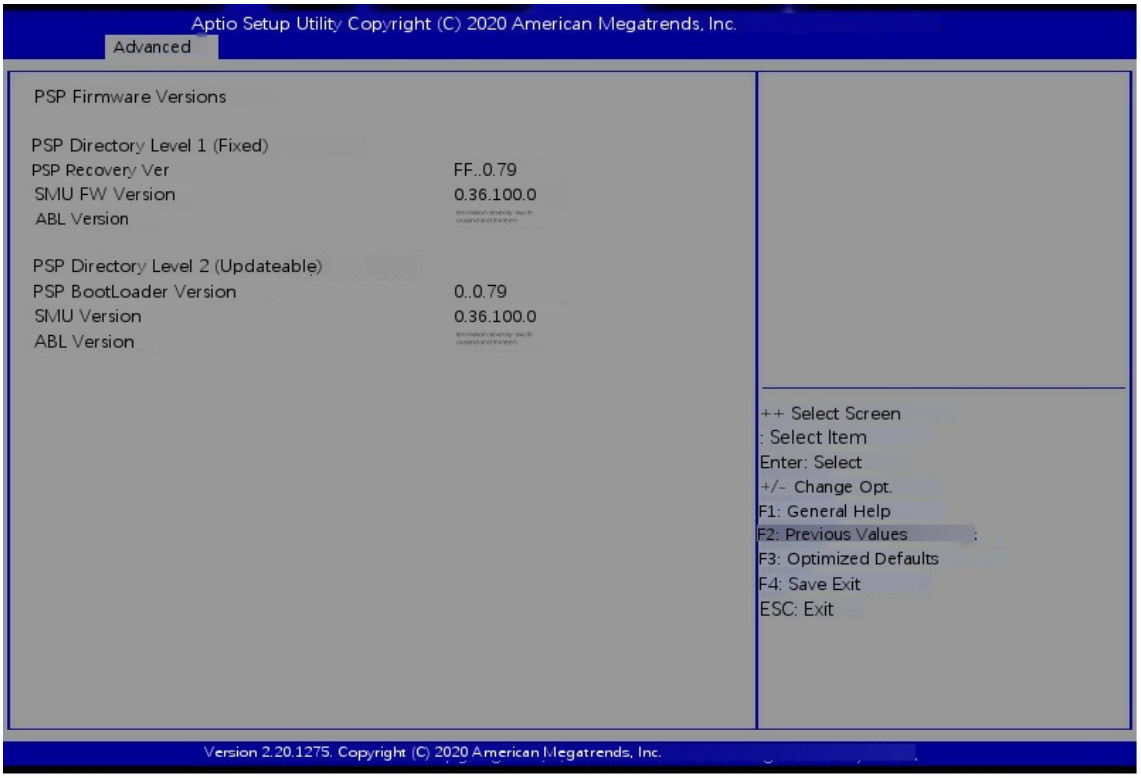


Figure 5-4

5.2.6 Boot Feature

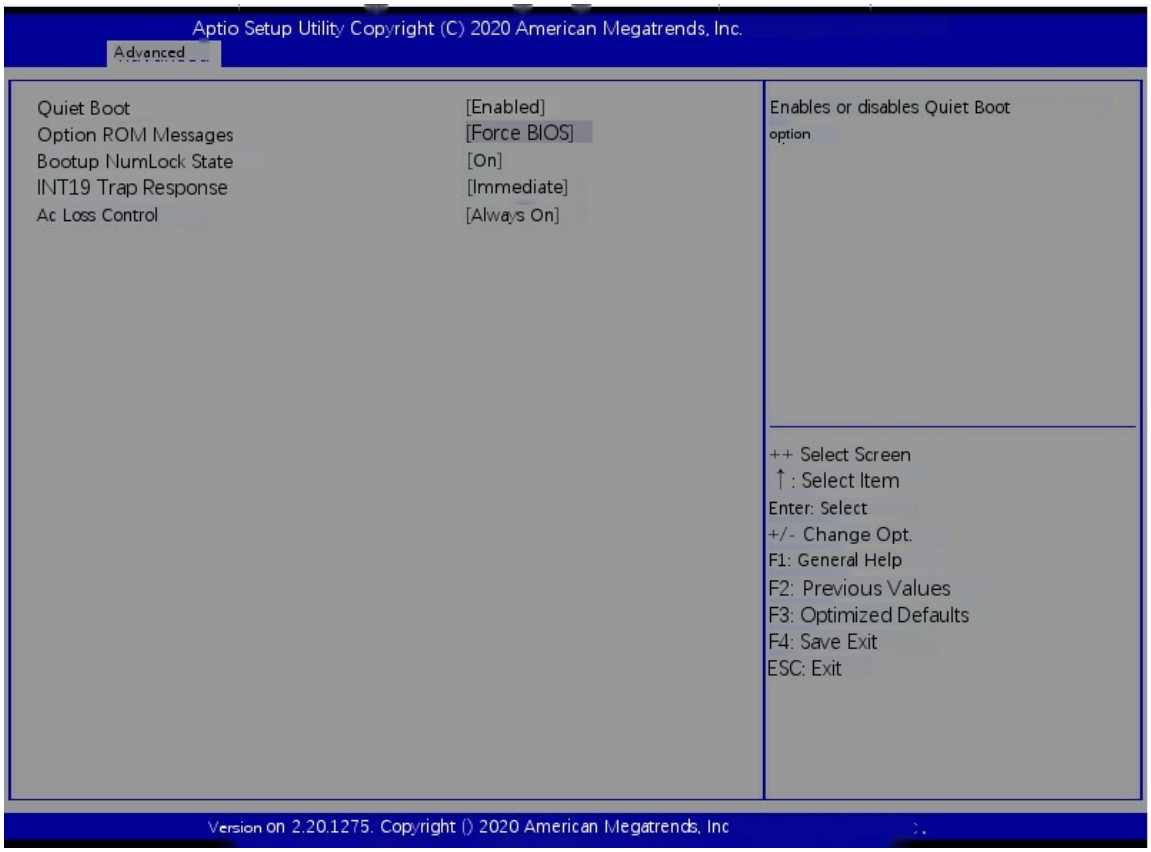


Figure 5-5

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. The default value is enabled

Option ROM Messages

Use this function to set the option ROM display mode. The menu options are:

- Force BIOS: Option ROM display mode is set by BIOS
- Keep Current: Option ROM display mode is set by the current Rom. the default value is force BIOS

Bootup Numlock State

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

- On : open
- OFF : Off

default: on

INT19 Trap Response

Interrupt, capture signal response settings, menu options are:

- Immediate: be prompt in responding

- Postponed: Default value of delayed response: immediate

5.2.7 NB Configuration

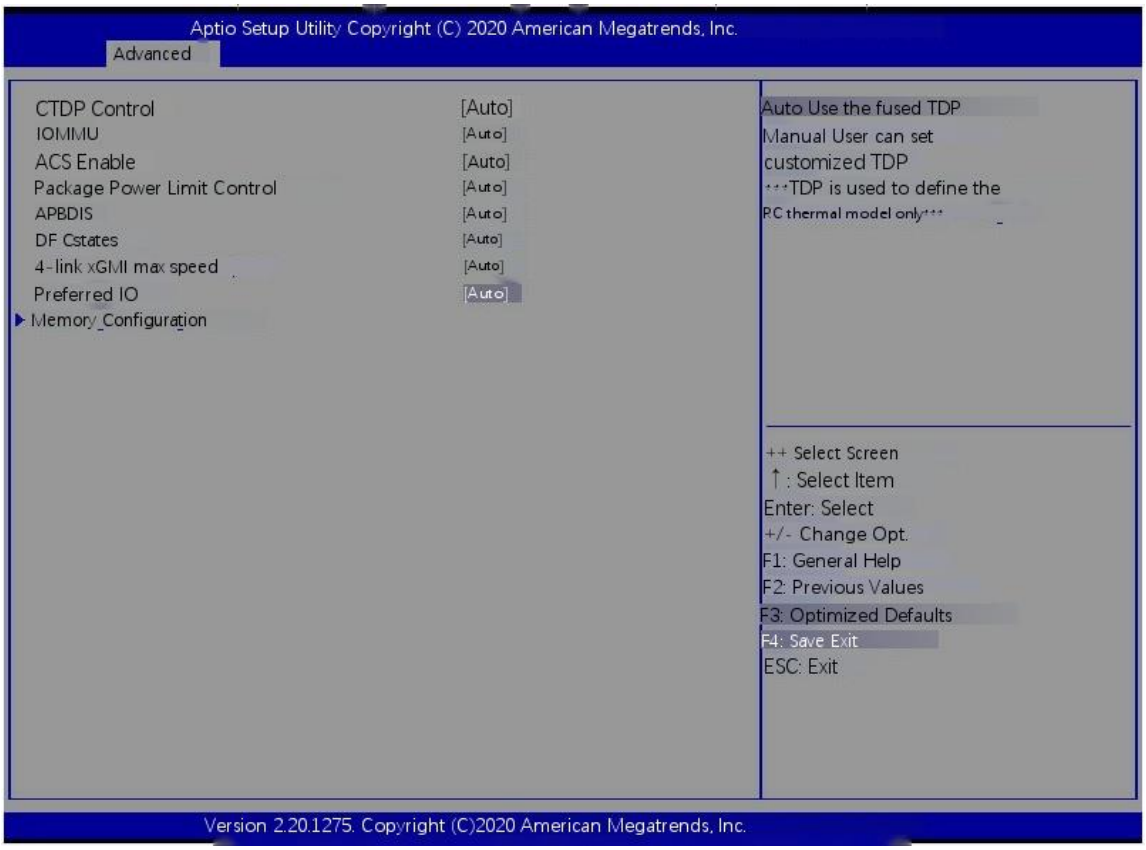


Figure 5-6

cTDP Control

Set CTDP control, menu options:

- Manual: Manual
- Auto: Auto

default: Auto

IOMMU

IOMMU switch, menu options:

- Enabled: enabled
- Disabled: off
- Auto: Auto

default: Auto

ACS Enable

ACS switch, menu options:

- Enabled: enabled

- Disabled: off
- Auto: Auto

default: Auto

Package Power Limit Control

Set package power limit control, menu options:

- Manual: Manual
- Auto: Auto

default: Auto

APBDIS

Set apbdis, menu options:

- 0
- 1
- Auto: Auto

default: Auto

DF Cstates

DF cstates switch, menu options:

- Disabled: off
- Enabled: enabled
- Auto: Auto

default: Auto

4-link xGMI max speed

4-way XGMI maximum speed, menu options:

- 10.667Gbps
- 13Gbps
- 16Gbps
- 18Gbps
- Auto: Auto

default: Auto

Preferred IO

Set priority IO, menu options:

- Manual: Manual
- Auto: Auto

default: Auto

- Memory configuration.

5.2.8 Memory Configuration

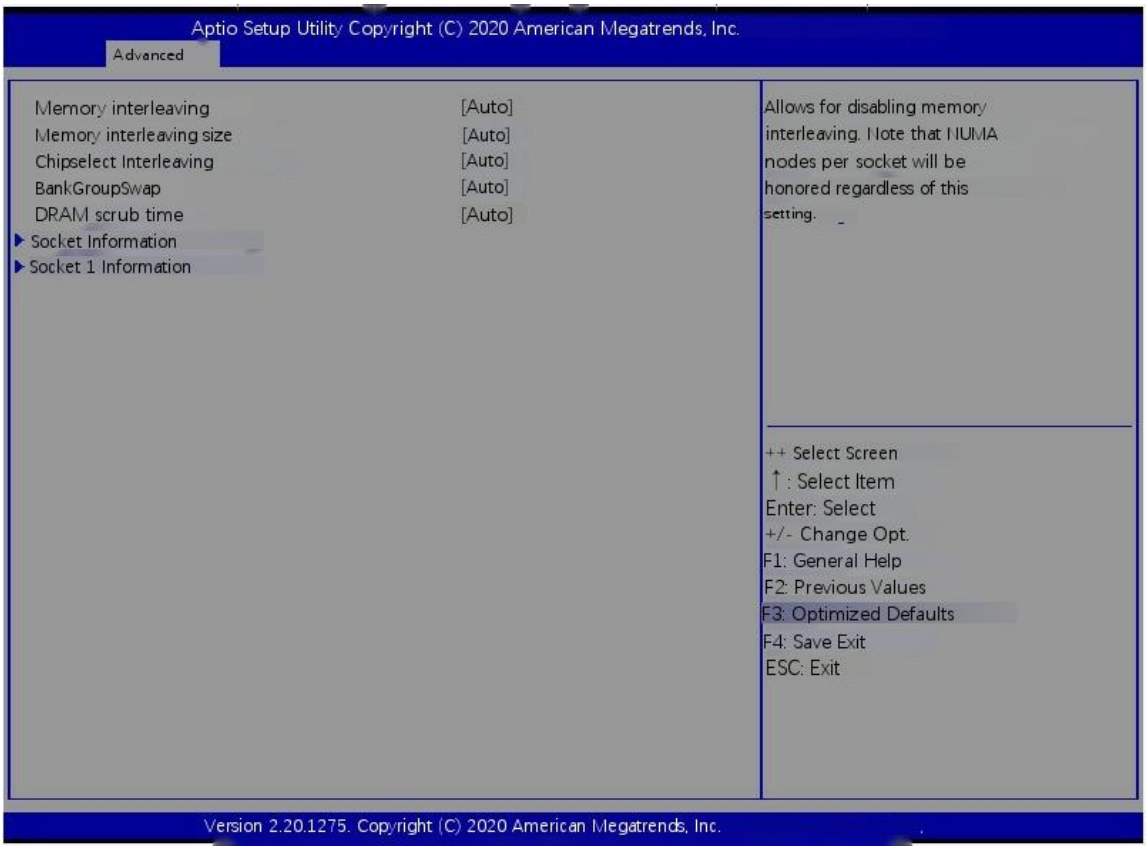


Figure 5-7

Memory interleaving

Memory cross access switch, menu options:

- Disabled: off
- Auto: Auto

default: Auto

Memory interleaving size

Memory cross access specification, menu options:

- 256 bytes: 256 bytes
- 512 bytes: 512 bytes
- 1 KB
- 2 KB
- Auto: Auto

default: Auto

Chipselect interleaving

Set the cross memory block on DRAM chip of control node 0, menu options:

- Disabled: off
- Auto: Auto

default: Auto

BankGroupSwap

Bank group switch, menu options:

- Enabled: enabled
- Disabled: off
- Auto: Auto

default: Auto

DRAM scrub time

Set the time to wipe the memory, menu options:

- Disabled: off
- 1 hours: 1 hour
- 4 hours: 4 hours
- 8 hours: 8 hours
- 16 hours: 16 hours
- 24 hours: 24 hours
- 48 hours: 48 hours
- Auto: Auto

default: Auto

- Socket 0 / 1 information

slot 0 / 1 information;

5.2.9 Socket 0/1 Information

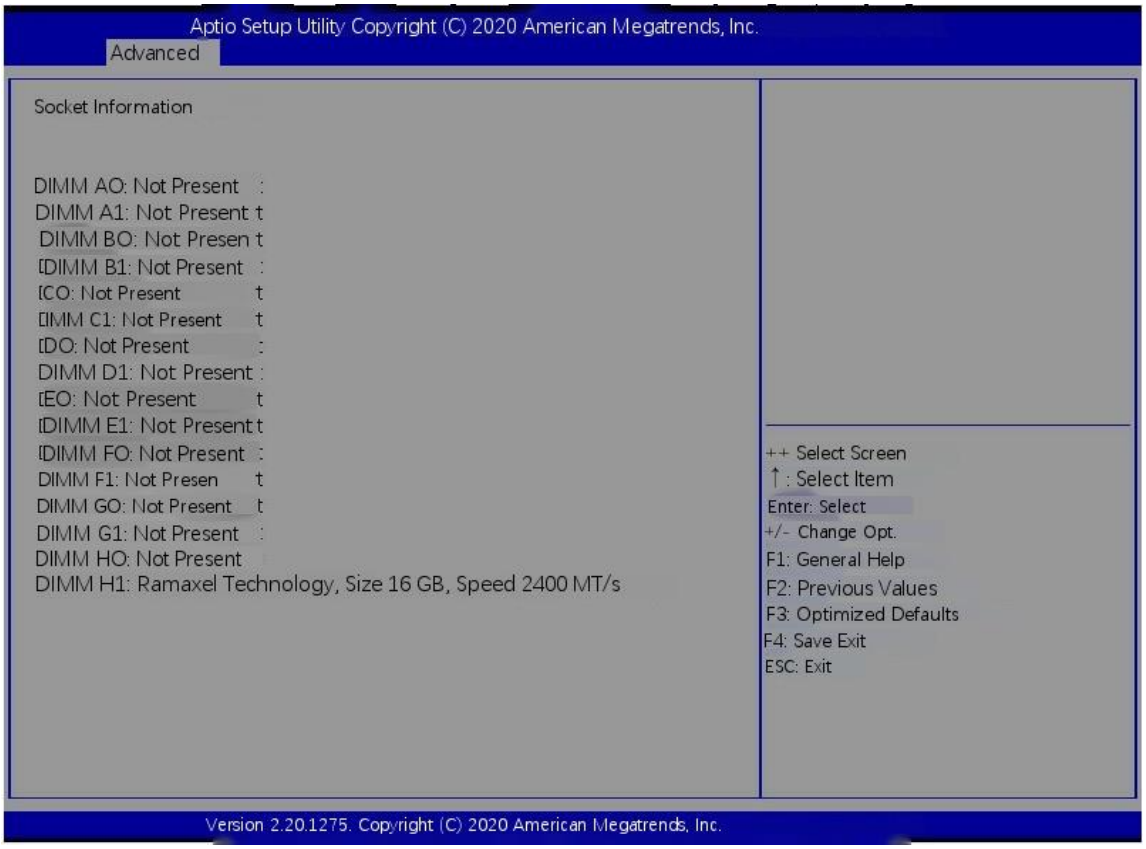


Figure 5-8

Display system memory related information

5.2.10 PCIE Port Bifurcation

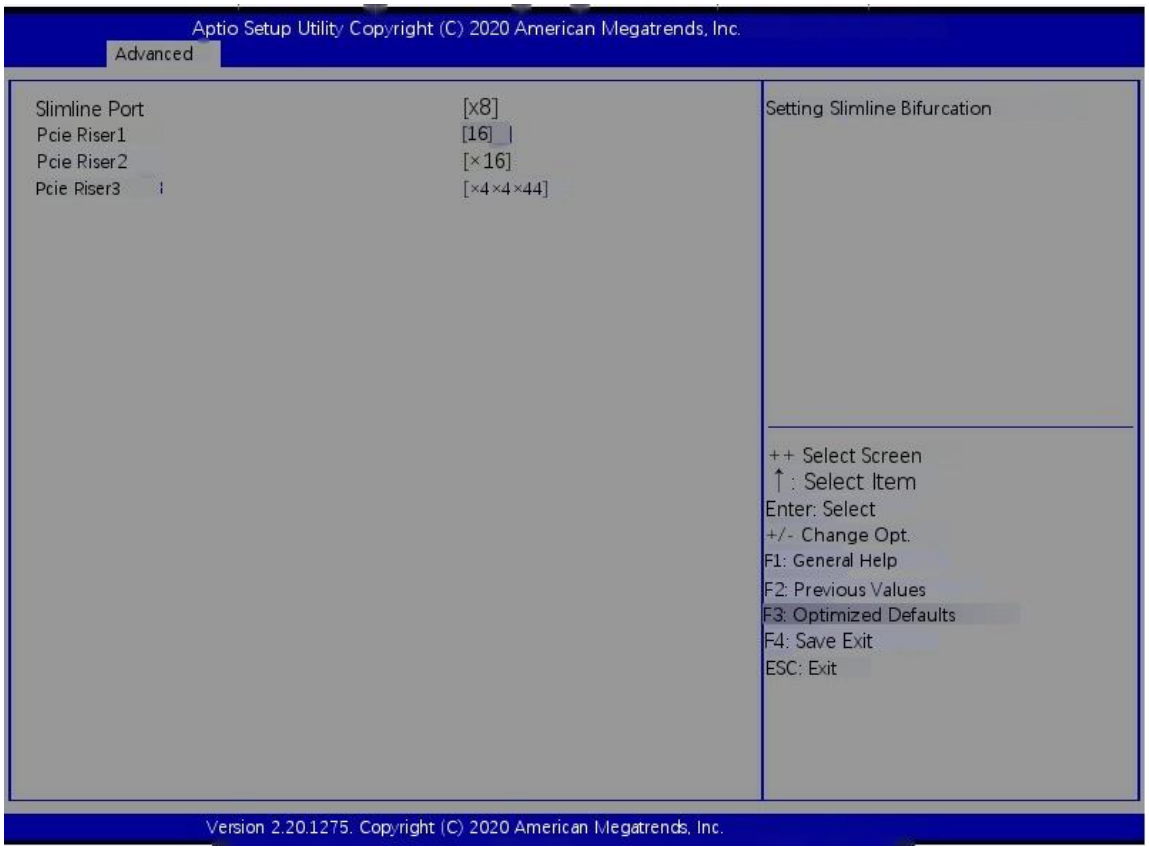


Figure 5-9

Slimline Port

Set the slimline branch, and the menu options are as follows:

- X4X4
- X8

Default value: x8

Pcie Riser1

Set the branch of PCIe riser1, and the menu options are as follows:

- X8X8
- X16

Default: x16

Pcie Riser2

Set the branch of PCIe riser2, and the menu options are as follows:

- X8X8
- X16

Default: x16

Pcie Riser3

Set the branch of PCIe riser3, and the menu options are as follows:

- X8X8
- X16
- X4X4X4X4

Default value: x4x4x4x4

5.2.11 ACPI Settings

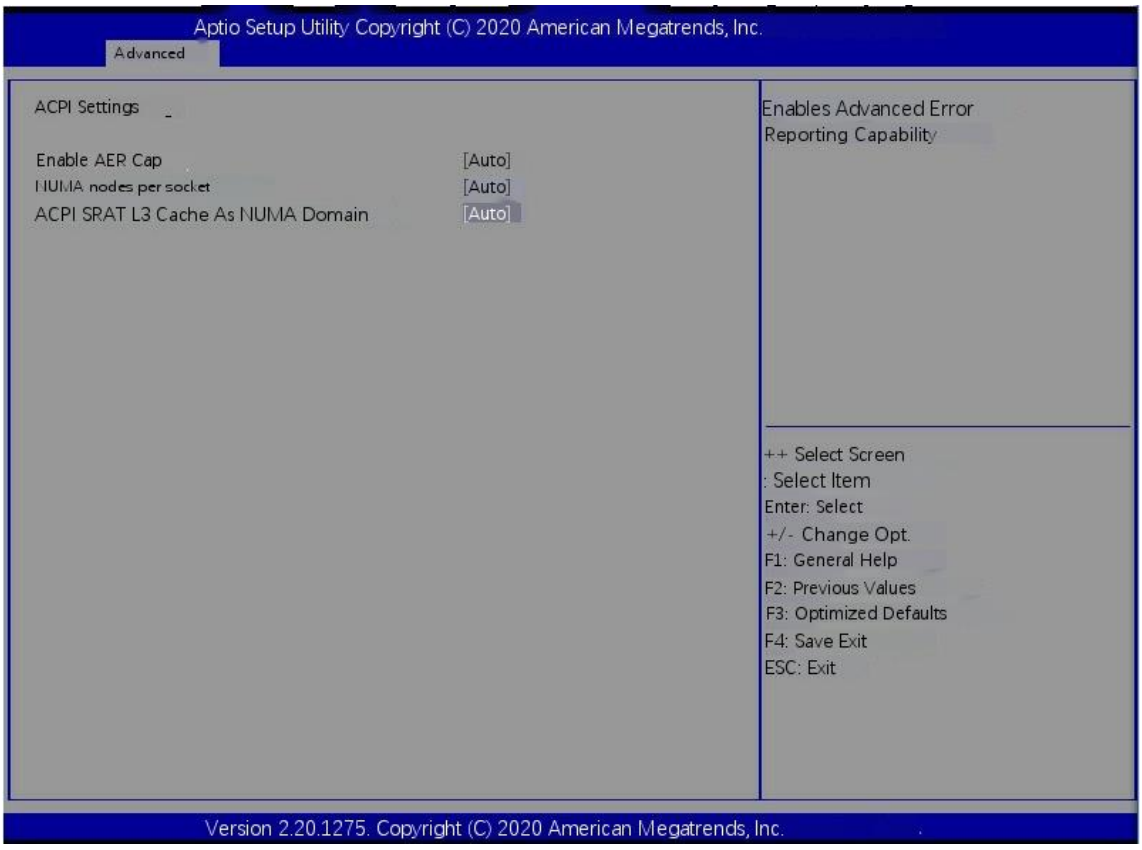


Figure 5-10

Enable aer cap PCI aer configuration switch.

- Disabled: off.
- Enabled: enabled.
- Auto:
  Auto.Default value: Auto

NUMA Nodes Per Socket

This function specifies the expected number of NuMA nodes for each slot.

- NPS0
- NPS1
- NPS2
- NPS4

- Auto:
Auto.Default
value: Auto

ACPI SRAT L3 Cache As NUMA Domain

Use this option to turn ACPI SRAT L3 cache on or off as a NUMA domain.

- Disabled: off.
- Enabled: enabled.
- Auto:
Auto.Default
value: Auto

5.2.12 Serial Port Console Redirection

Console Redirection

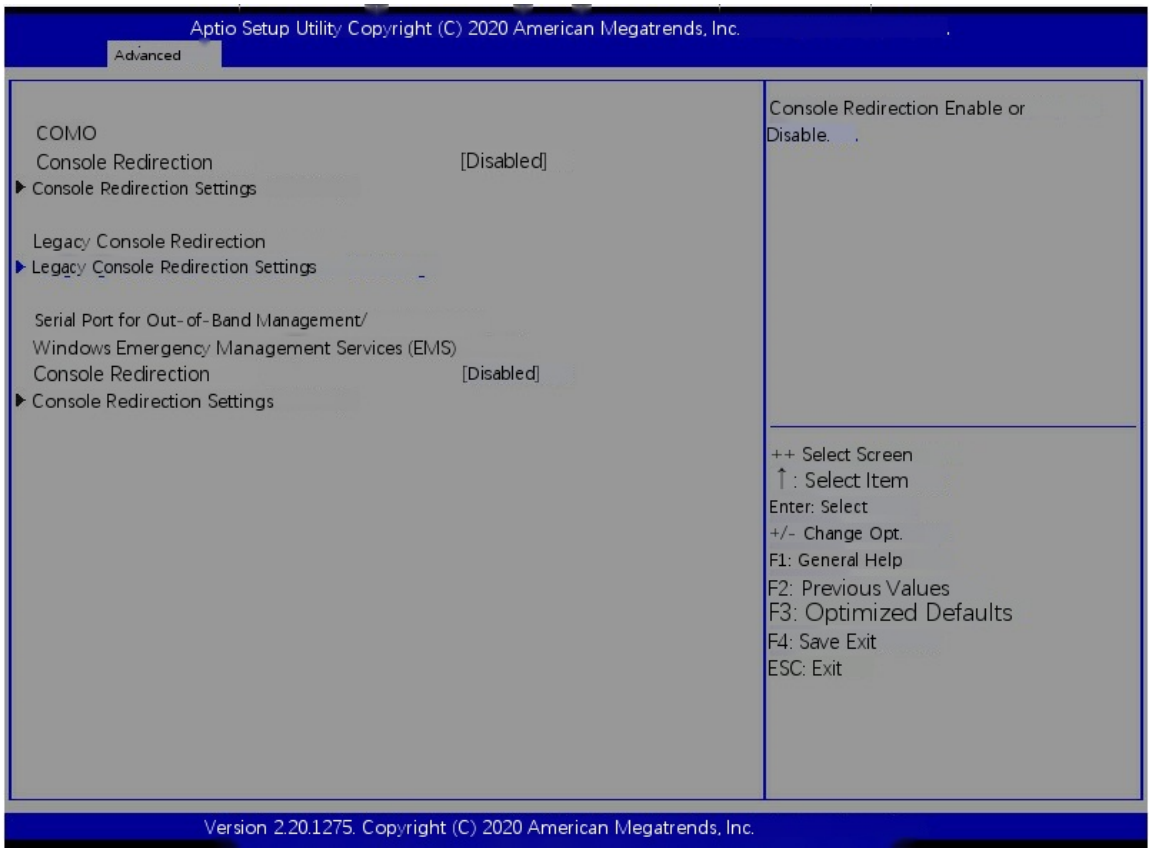


Figure 5-11

The console redirection function switch can redirect the information output from the console (such as graphics card) to the serial port.

- Disabled: turns off redirection.
- Enabled: enables
redirection.Default value: disabled
- Console redirection settings console
redirection settings.
- Legacy console redirection settings
traditional console redirection settings.

Serial port for out of band management / windows emergency management service (EMS).

Console Redirection

The console redirection function switch can redirect the information output from the console (such as graphics card) to the serial port.

- Disabled: turns off redirection.
- Enabled: enables redirection. Default value: disabled

- Console redirection settings console redirection settings.

5.2.13 Console Redirection Settings

Terminal Type

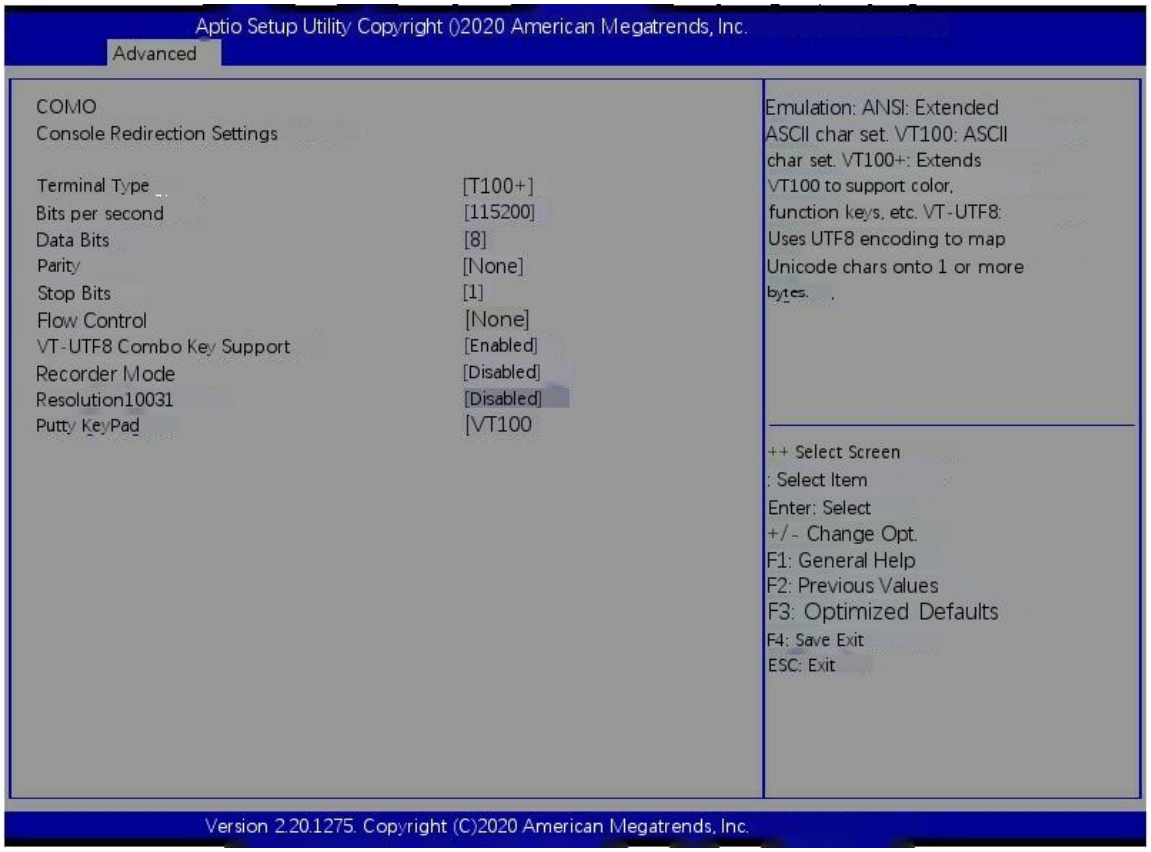


Figure 5-12

This option allows you to select the emulation type, which must match the mode selected in the terminal program. The menu options are:

- VT100
- VT100+
- VT-UTF8
- ANSI

Default value: VT100+

Bits per second
Serial port redirection rate, the value range is 9600 ~ 115200, the default value is 115200

Data Bits

Serial port redirection data bit length, menu options are:

●8

●7

Default: 8

Parity

Serial port redirection check switch, menu options are:

- None: no check
- Even: even check
- Odd check
- Mark: the check bit is always 1
- Space: check bit is always

0 default: None


Mark and space checks are not allowed to detect errors.

Stop Bits

The end flag bit of serial port data packet. The menu options are as follows:

●1

●2

Default value: 1

Flow Control

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

- None: turn off serial port redirection control flow
- Hardware RTS / CTS: Request send / clear

send default: None

VT-UTF8 Combo key support

ANSI / VT100 terminal vt-utf8 combination key support switch, menu options are:

- Disabled: turn off vt-utf8 key combination support of ANSI / VT100 terminal
- Enabled: enable ANSI / VT100 terminal vt-utf8 key

combination support. Default value: enabled

Recorder Mode

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

- Enabled: enabled
- Disabled: off

default: Disabled

5.2.14 Legacy Console Redirection Settings

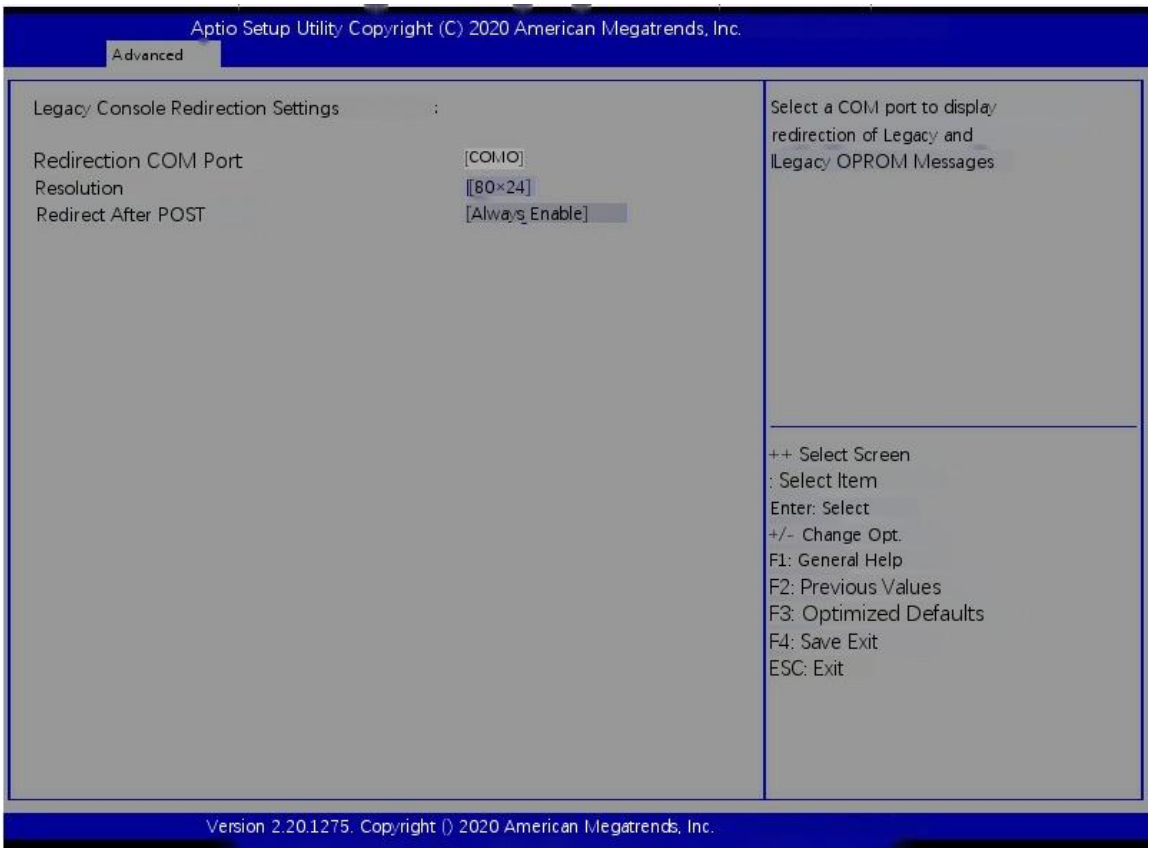


Figure 5-13

Redirection COM Port

Select redirect COM port, and the menu options are:

- COM0

Default value: COM0

Resolution

Resolution, menu options are:

- 80x24
- 80x25

Default value: 80x24

Redirect After POST

Redirect after post. The menu options are:

- Always Enable
- BootLoader

Default value: always enable

5.2.15 CPU Configuration

SMT Control

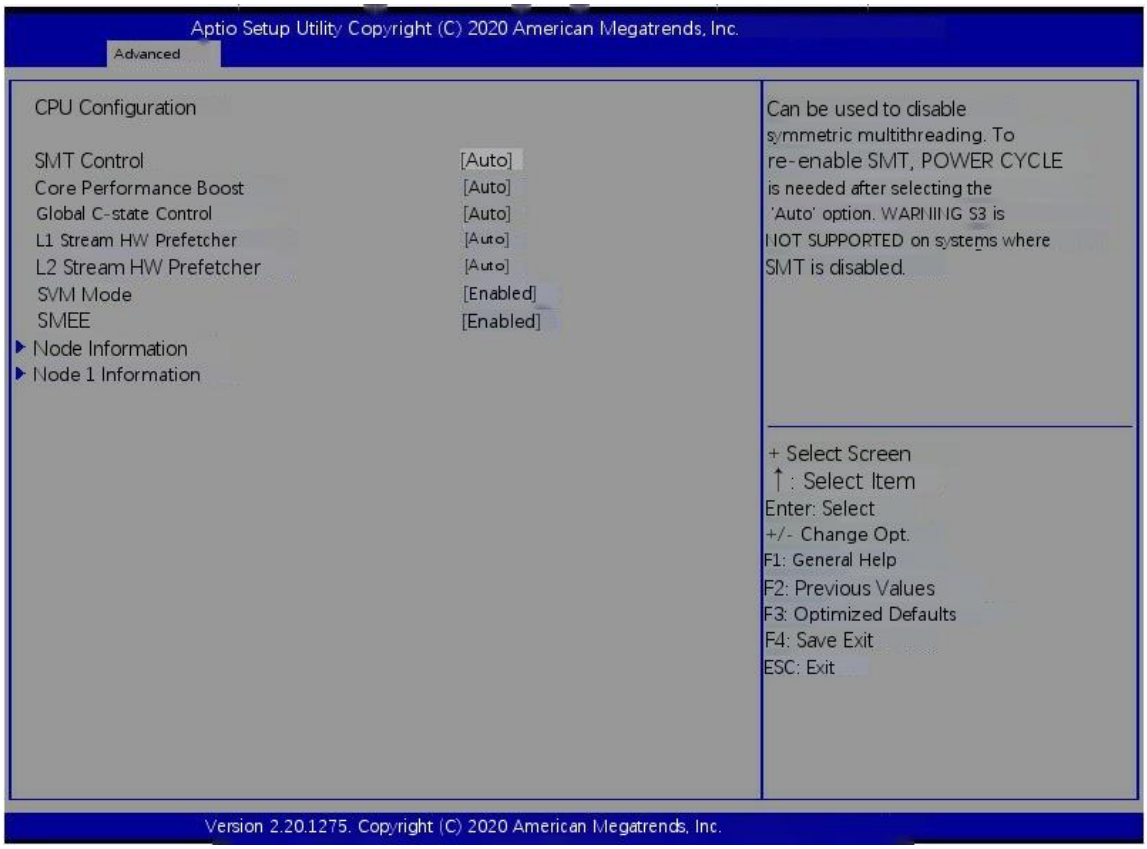


Figure 5-14

Symmetrical multithreading switch. Changing this option will make a power cycle to ensure that the setting takes effect

- Disabled: off
- Auto: Auto

default: Auto

Core Performance Boost

Global C state control switch, menu options:

- Disabled: off
- Auto: Auto

default: Auto

Global C-state Control

Core performance improvement switch, menu options:

- Disabled: off
- Enabled: enabled
- Auto: Auto

default: Auto

L1 Strean HW Prefetcher

L1 stream HW prefetch switch, menu options:

- Enabled: enabled

- Disabled: off
- Auto: Auto
default: Auto

L2 Strean HW Prefetcher

L2 stream HW prefetch switch, menu options:

- Enabled: enabled
- Disabled: off
- Auto: Auto
default: Auto

SVM Mode

CPU virtualization switch.

- Disabled: off.
- Enabled:
enabled.Default
value: enabled

SMEE

Secure memory encryption control switch.

- Disabled: off.
- Enabled:
enabled.Default
value: enabled

- Node 0 / 1 configuration
node 0 / 1 configuration;

5.2.16 Node 0/1 Configuration

Display some details of CPU detected by motherboard.

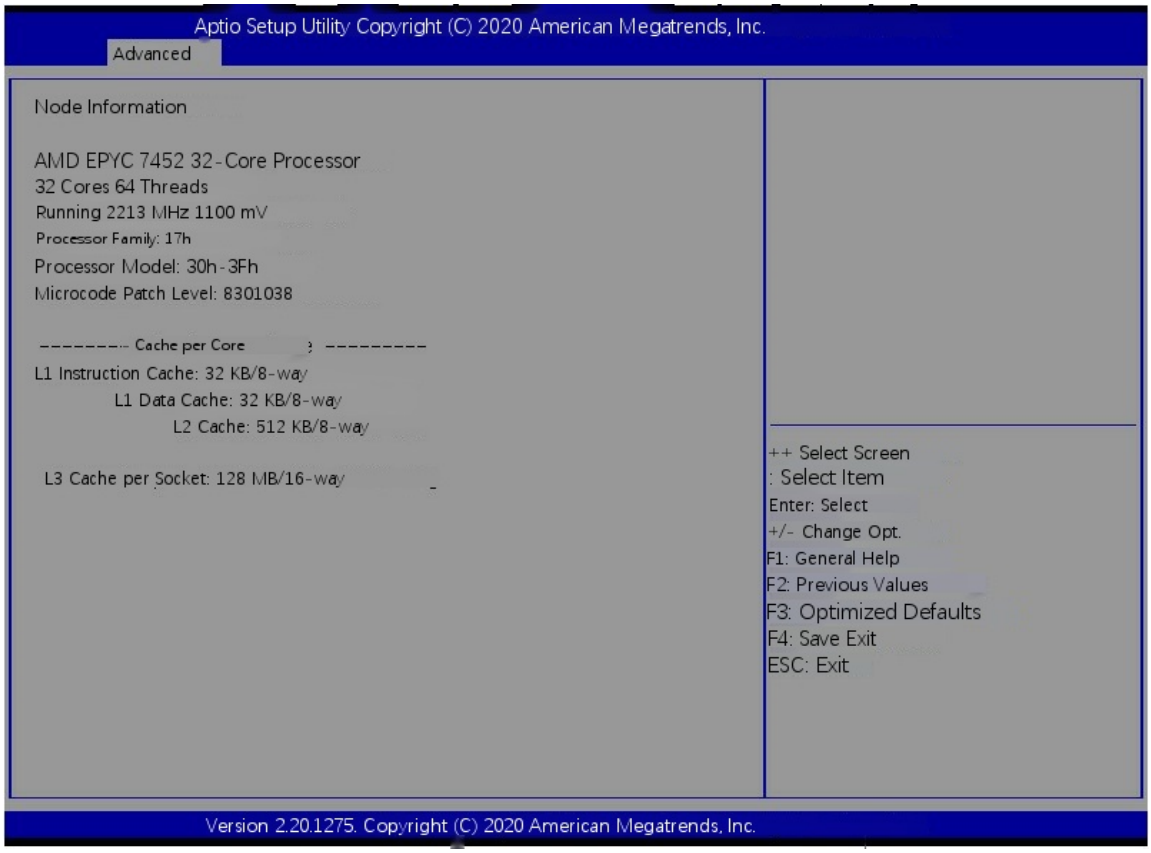


Figure 5-15

5.2.17 SIO Configuration

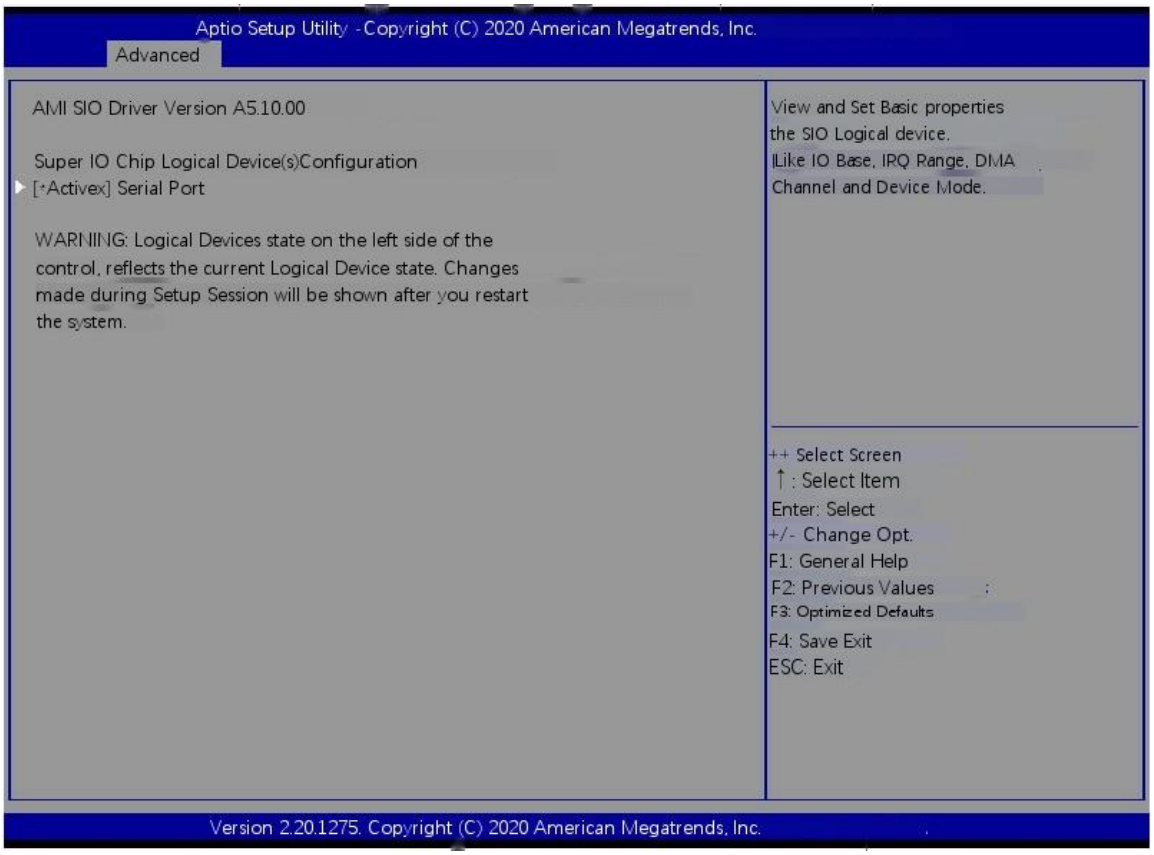


Figure 5-16

5.2.18 [*Active*] Serial Port

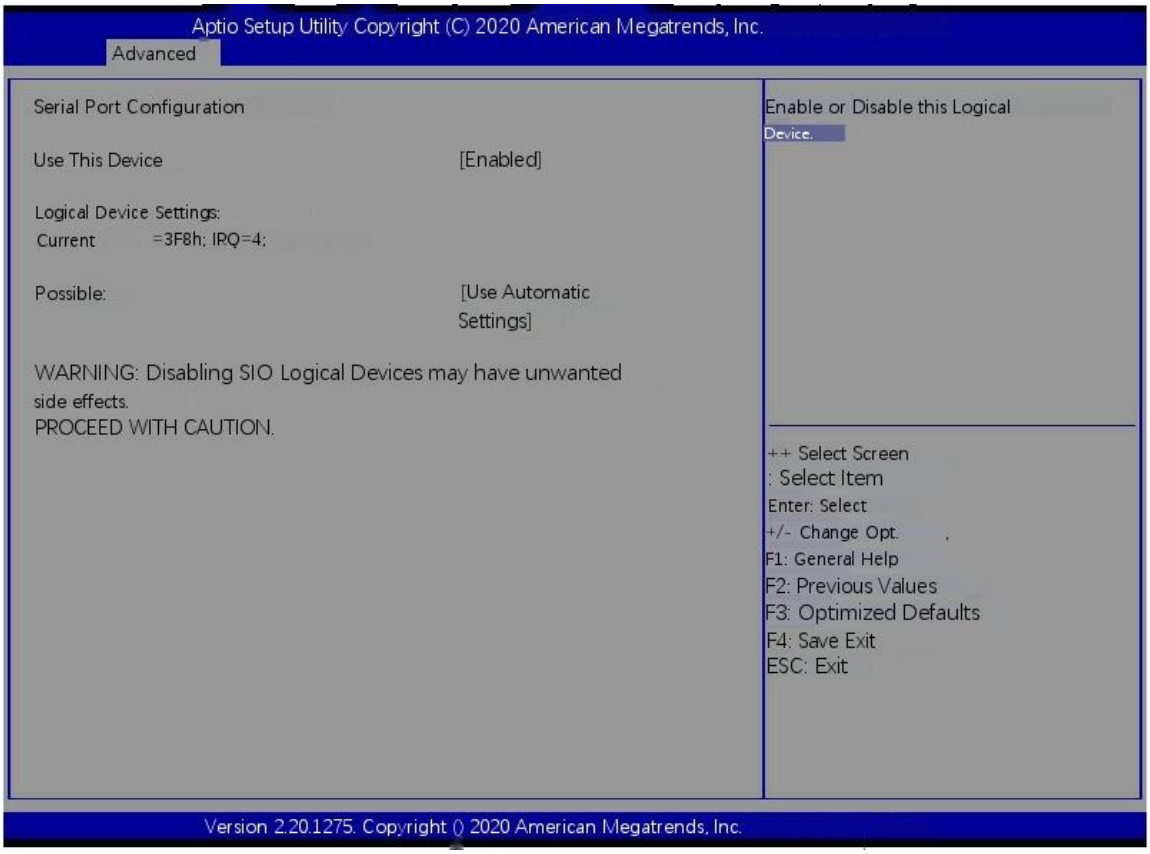


Figure 5-17

Use This Device

With this device, the menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

Possible

Select the optimal setting for the serial port according to the demand, and the menu options are as follows:

- 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: use automatic settings

5.2.19 PCI Subsystem Settings

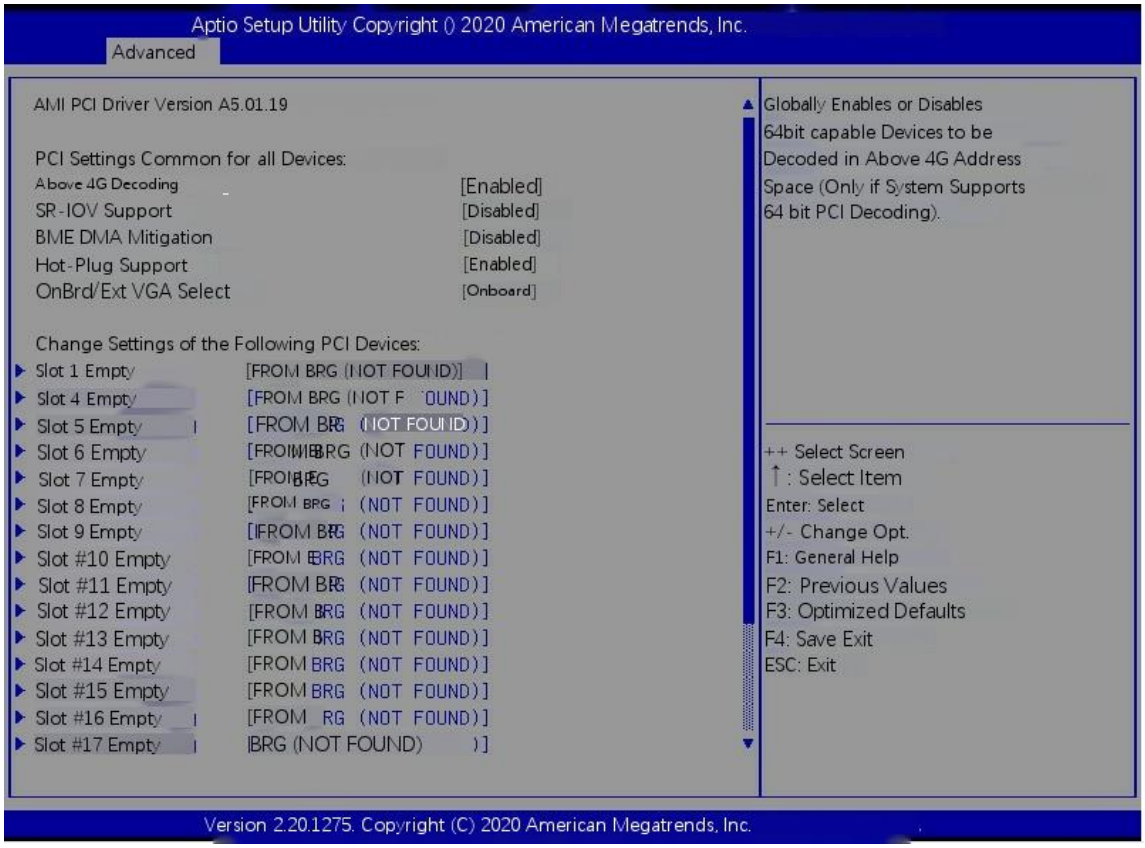


Figure 5-18

Above 4G Decoding

4G memory space resource decoding control switch, menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

SR-IOV Support

SR-IOV supports switch setting, menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

BME DMA Mitigation

After the SMM is locked, reopen the PCI bridge and close the bus control attribute during PCI enumeration. The menu options are:

- Enabled: enabled
- Disabled: off

default: Disabled

Hot-Plug Support

Global hot swap switch: when the system has a slot with hot swap capability and this option is on, a setting interface will be provided to select the PCI resources reserved for hot swap. The menu options are:

- Enabled: enabled

- Disabled: turn off

the default value:
enabled

OnBrd/Ext VGA Select

Select the VGA output port, and the menu options are:

- Onboard: onboard
- External: external

default: onboard

- Slot #X ……

Modify the on-board PCI device or PCI slot settings.

5.2.20 USB Configuration

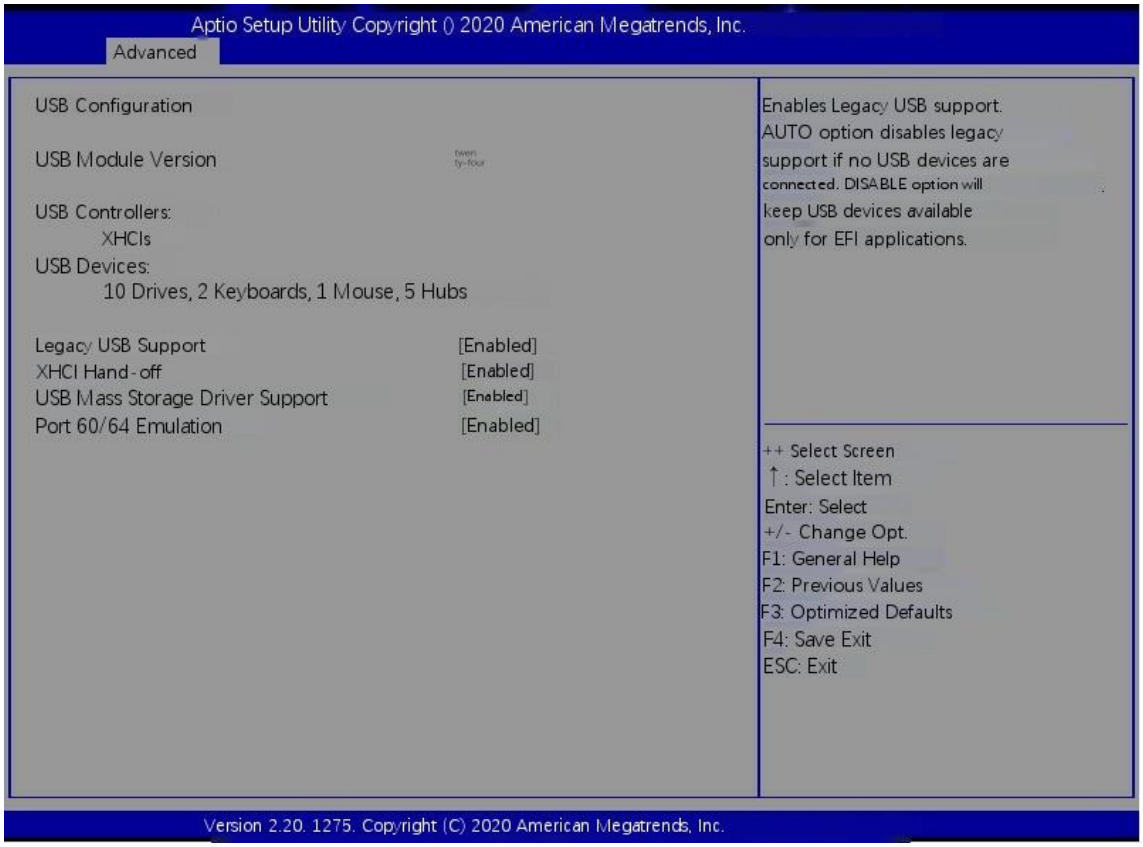


Figure 5-19

Display USB controller and USB device information.

Legacy USB Support

USB in legacy environment supports control switch, menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

XHCI Hand-off

Change the xhci control switch. This function is effective for operating systems that do not support changing xhci control.It is generally driven by xhci to change the control of xhci.

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

USB Mass Storage Driver Support

USB storage device drive control switch, menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

Port 60/64 Emulation

60 / 64 port analog switch, menu options are:

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

5.2.21 CSM Configuration

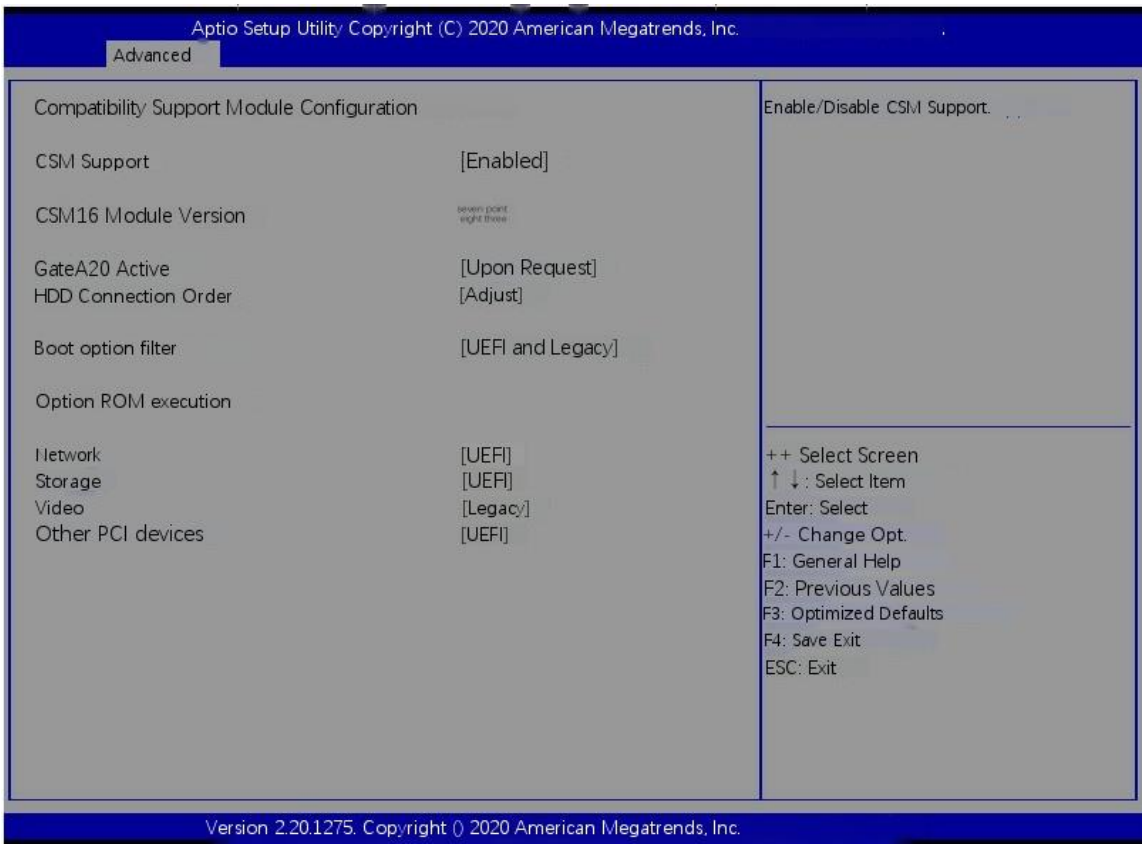


Figure 5-20

CSM Support

To turn on or off the compatible support module, the menu options are:

- Disabled: close

- 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

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 startup entry
- Legacy only: Legacy boot entry
default: UEFI and legacy

Option ROM execution

Select option ROM execution mode

Network

Network card, menu options are:

- UEFI: UEFI mode
- Legacy: legacy mode
default: UEFI

Storage

Network card, menu options are:

- UEFI: UEFI mode
- Legacy: legacy mode
default: UEFI

Video

Network card, menu options are:

- UEFI: UEFI mode
- Legacy: legacy mode
default: Legacy

Other PCI devices
network card, menu
options are:

- UEFI: UEFI mode
- Legacy: legacy mode
default: UEFI

5.2.22 NVMe Configuration

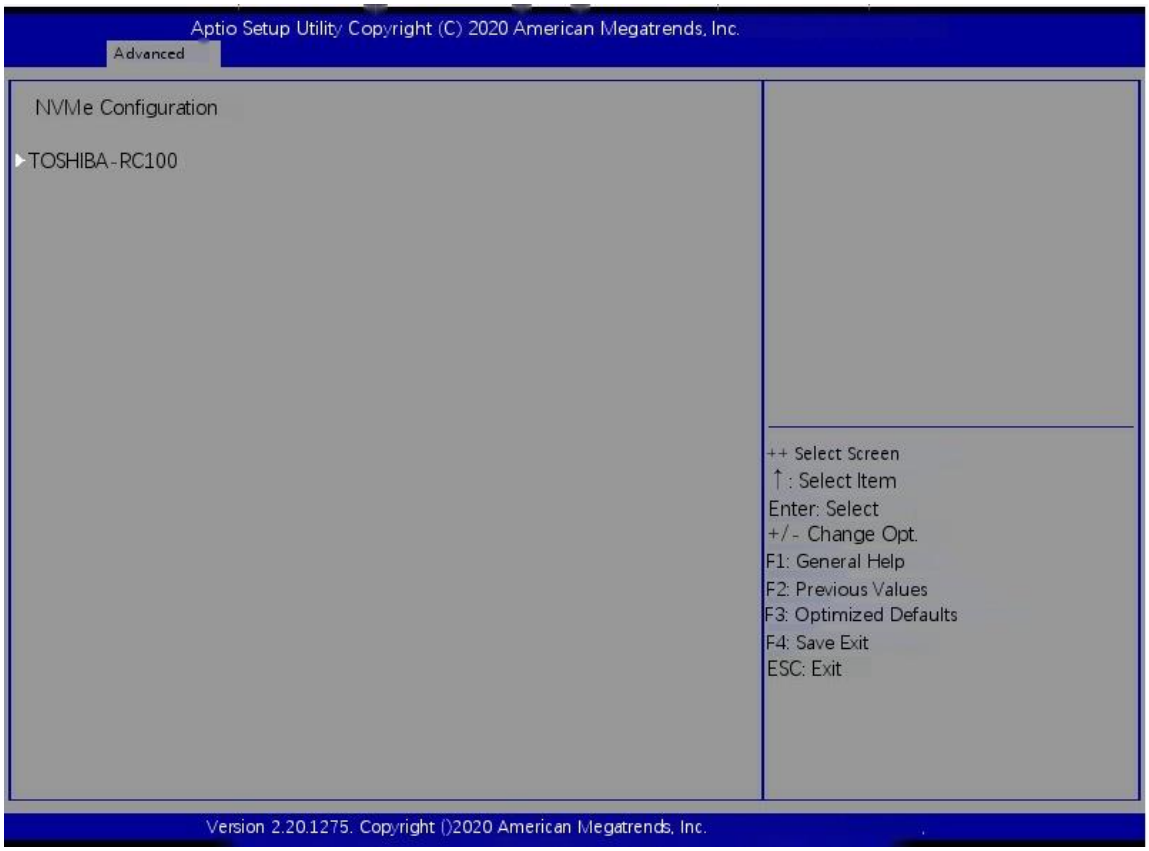


Figure 5-21

Figure 5-22

Displays the details of the nvme hard disk.

5.2.23 SATA Configuration

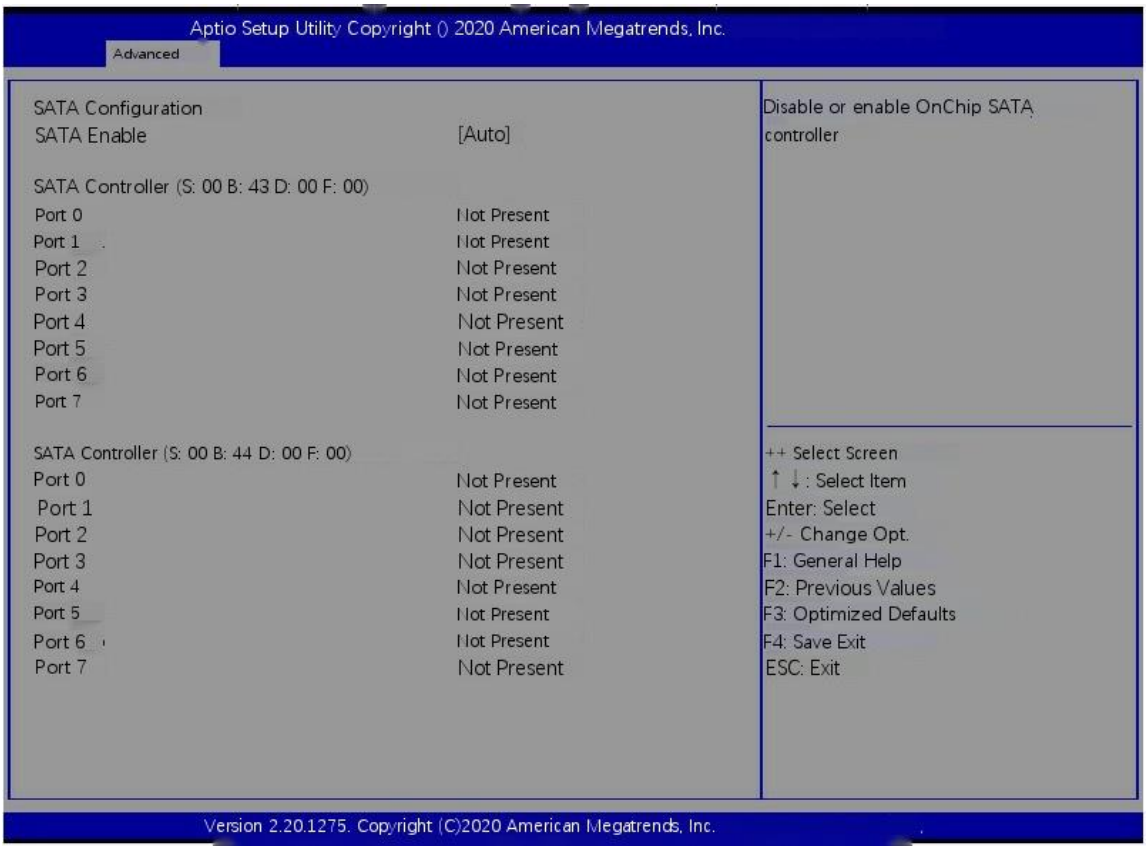


Figure 5-23

Display the current system SATA related information. SATA Enable

On chip internal SATA controller switch, menu options are:

- Disabled: close
- Enabled: open
- Auto: Auto

default: Auto

5.2.24 Tls Auth Configuration

TLS authentication configuration

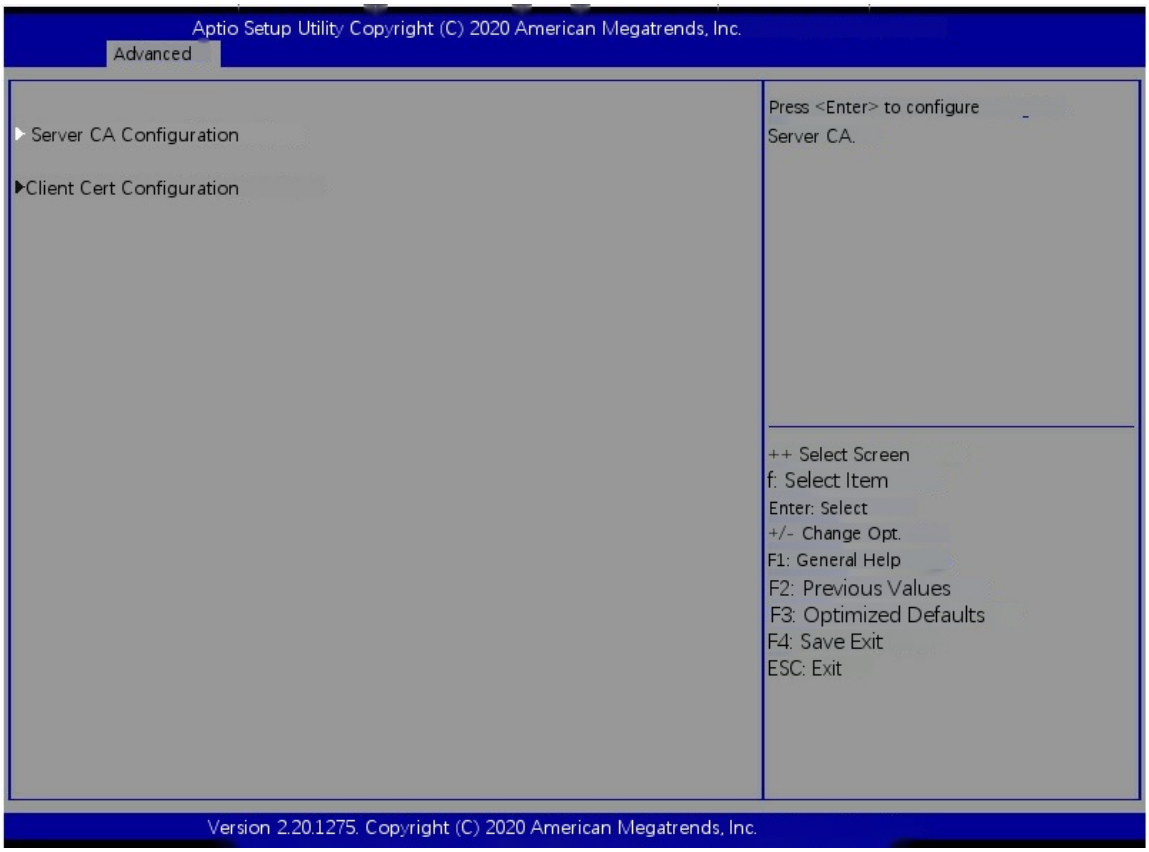


Figure 5-24

5.2.25 Network Stack Configuration

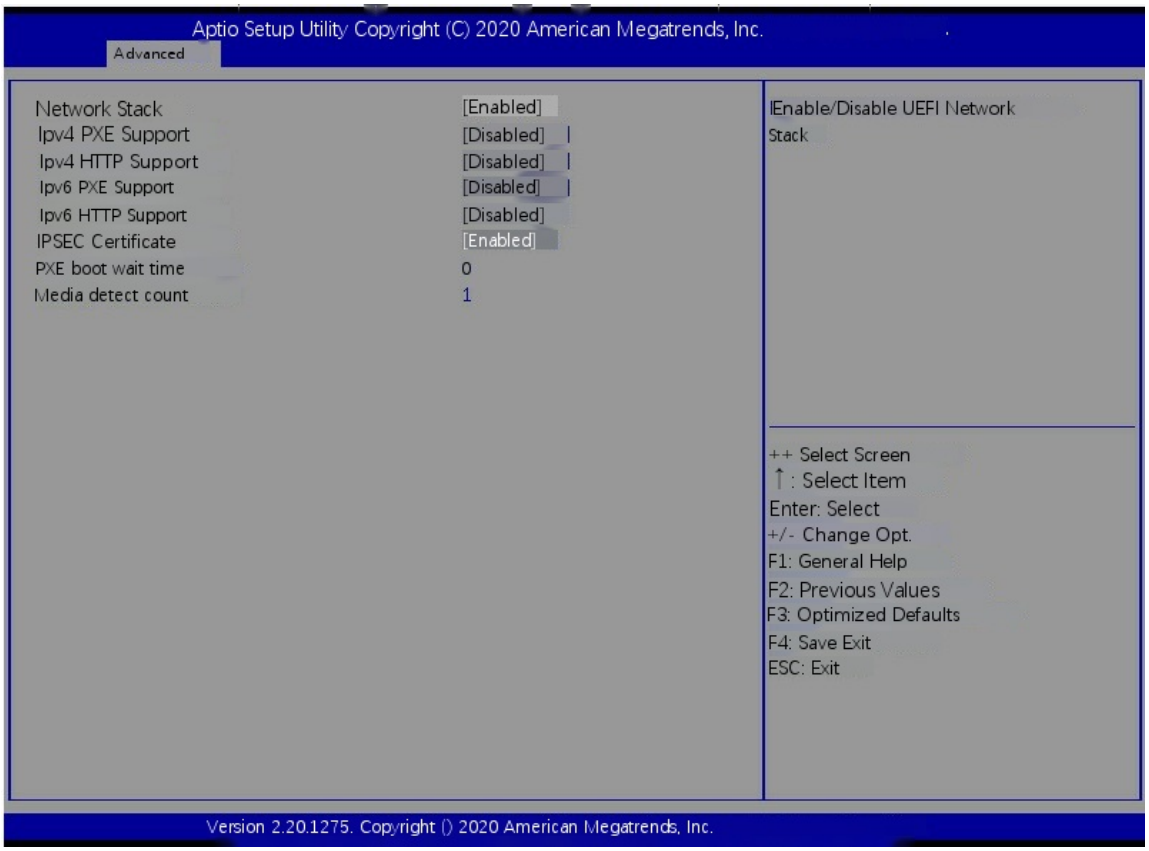


Figure 5-25

Network Stack

Network stack control switch, menu options are:

- Enabled: enabled
- Disabled: off

default: Disabled

Ipv4 PXE Support

IPv4 UEFI PXE function control switch, menu options are:

- Enabled: enabled
- Disabled: off

default: Disabled

Ipv4 HTTP Support

IPv4 HTTP function control switch, menu options are:

- Enabled: enabled
- Disabled: off

default: Disabled

Ipv6 PXE Support

IPv6 UEFI PXE function control switch, menu options are:

- Enabled: enabled
- Disabled: off

Default value: disabled

Ipv6 HTTP Support

IPv6 HTTP function control switch, menu options are:

- Enabled: enabled
- Disabled: off

default: 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

5.2.26 iSCSI Configuration

ISCSI configuration

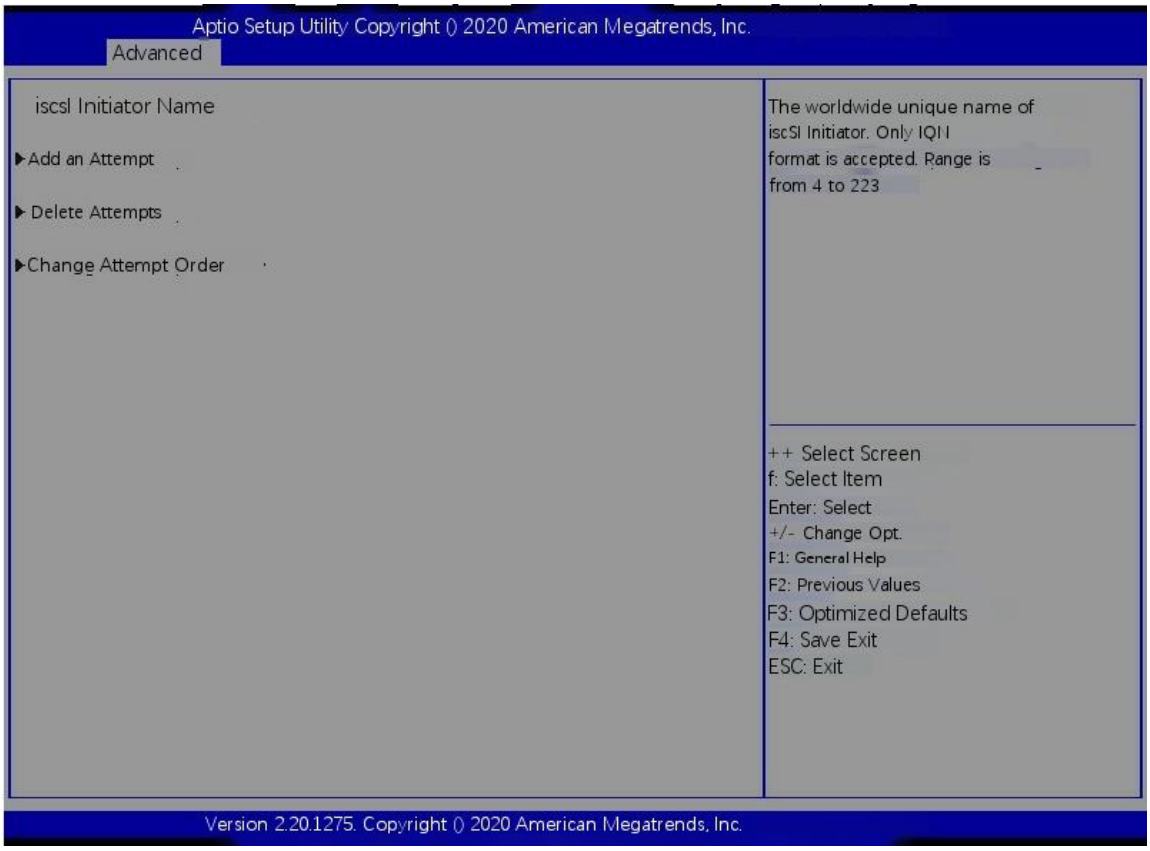


Figure 5-26

5.2.27 Server MGMT menu

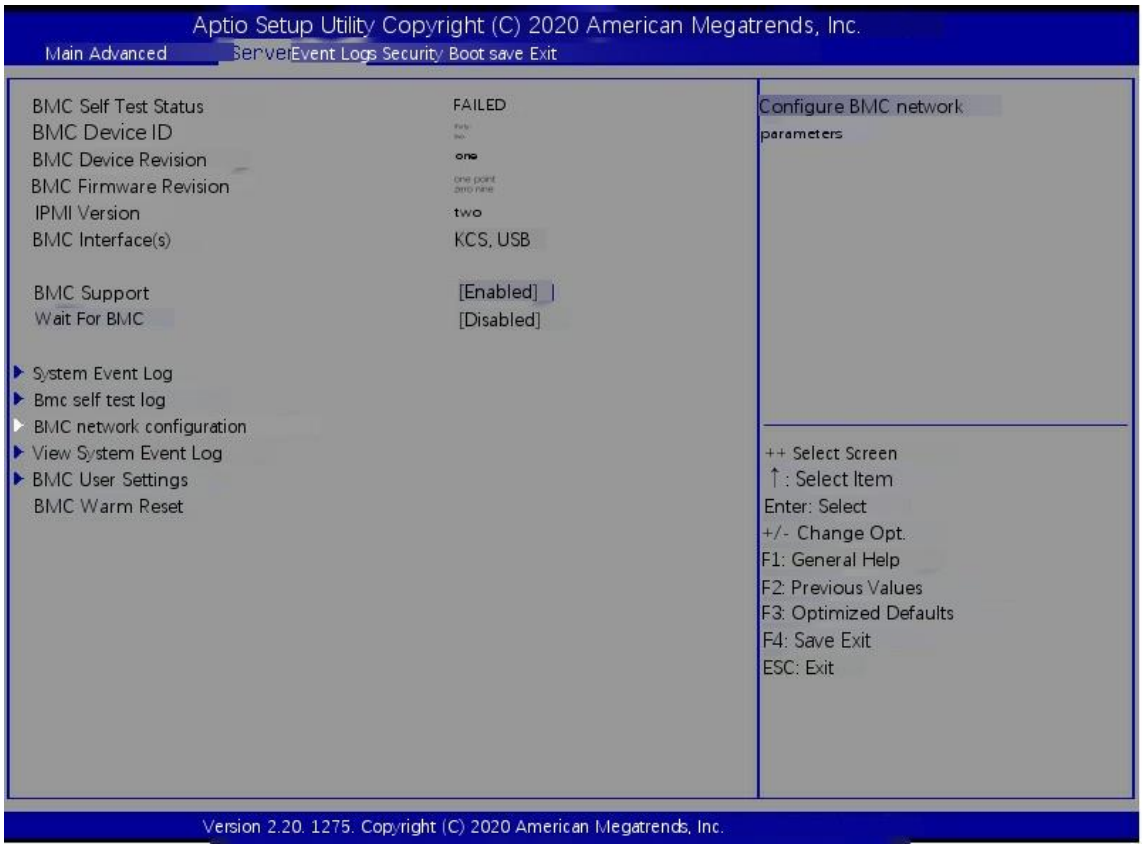


Figure 5-27

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

BMC Support

Link BMC interface switch settings, menu options are:

- Enabled : open
- Disabled : Turn off

the default value:
enabled

Wait For BMC

Specify the time to wait for BMC. The menu options are:

- Enabled : open
- Disabled : Turn off the

default value: disabled

- System event log menu system event log 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

- BMC Warm Reset

Press < ENTER > for BMC hot restart

5.2.28 System Event Log

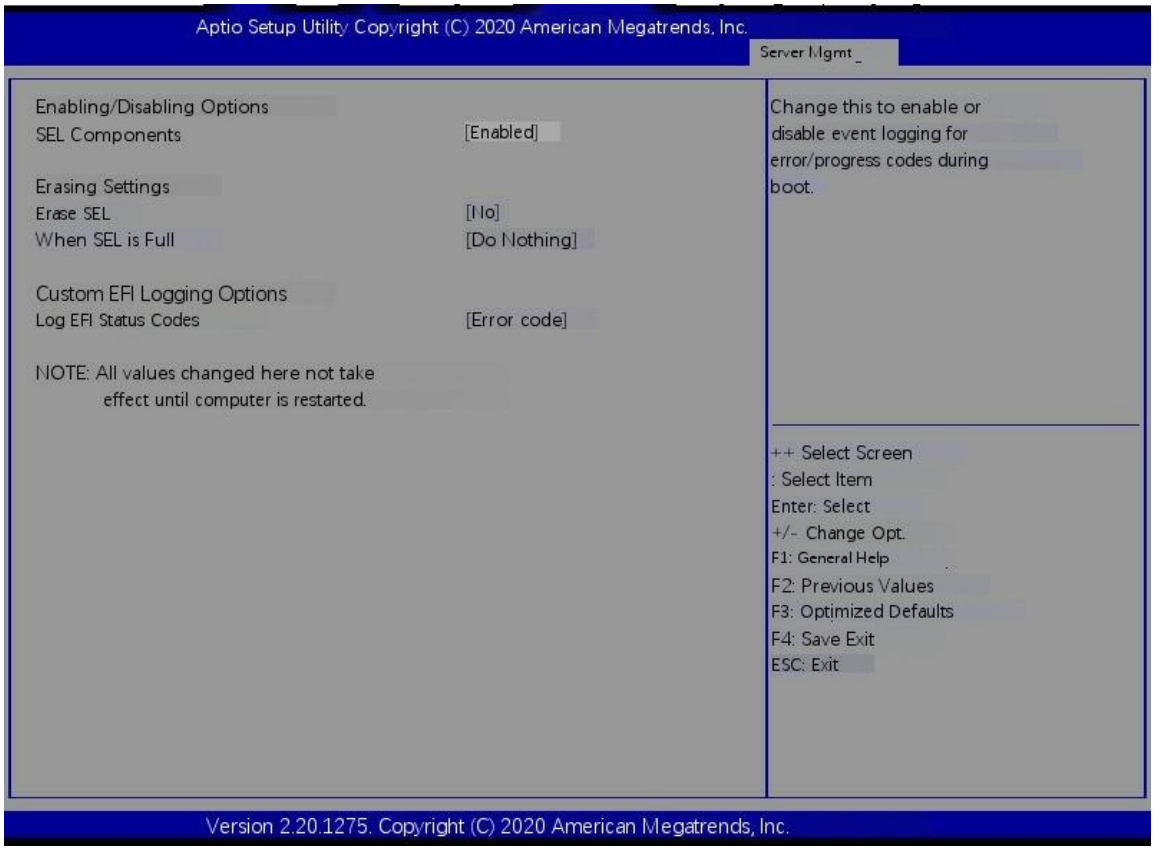


Figure 5-28

SEL Components

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

- Enabled: enabled
- Disabled: turn off

the default value:
enabled

Erase SEL

Clear system event logging control switch, menu options:

- No: No
- Yes, on next reset
- Yes, on every reset: clear the default value

every time you restart: 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 the

default value immediately: 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 progress code is recorded. Default value: error code

5.2.29 BMC network configuration

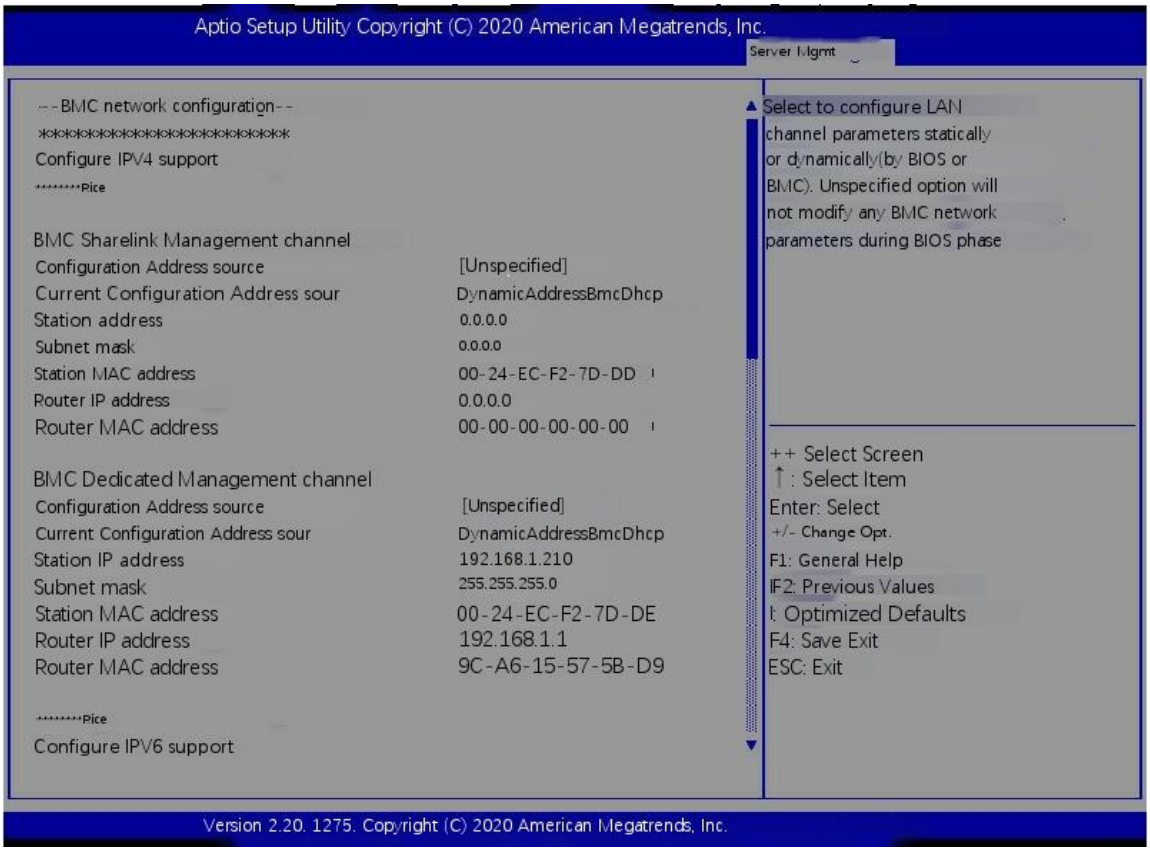


Figure 5-29

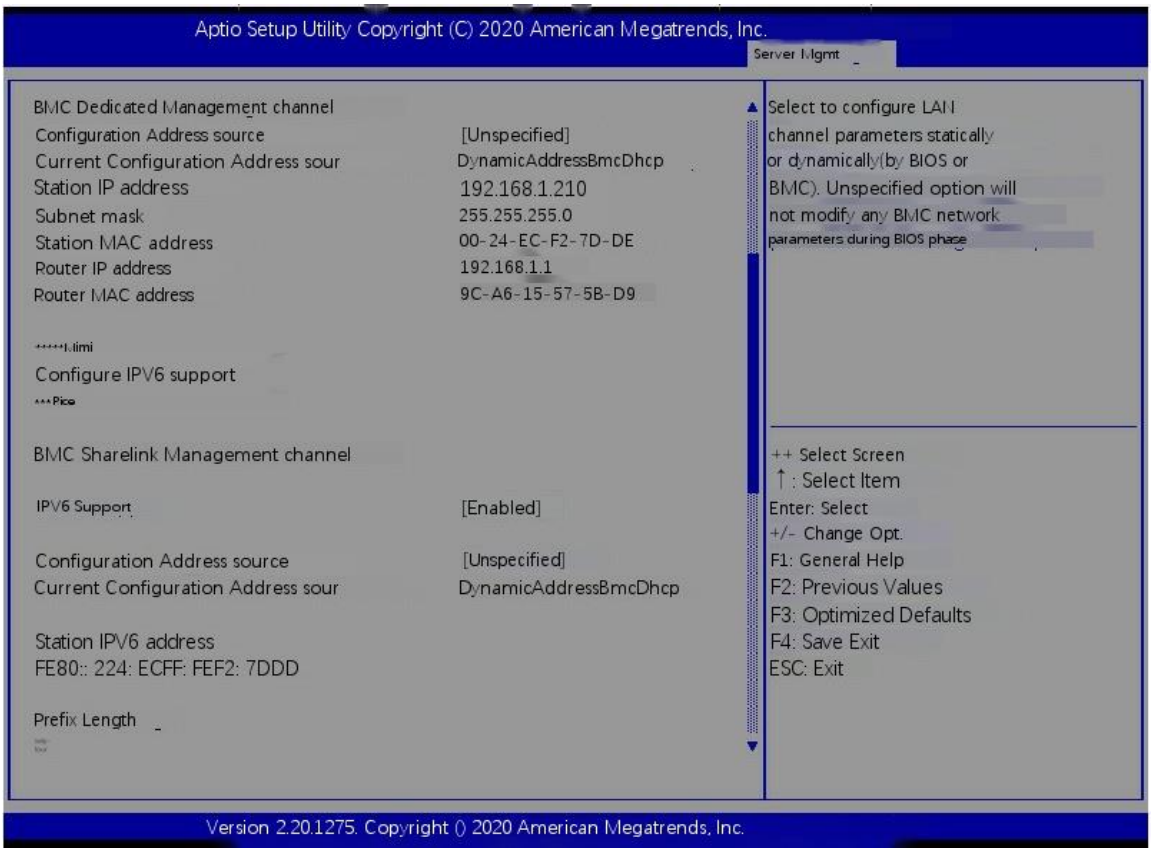


Figure 5-30

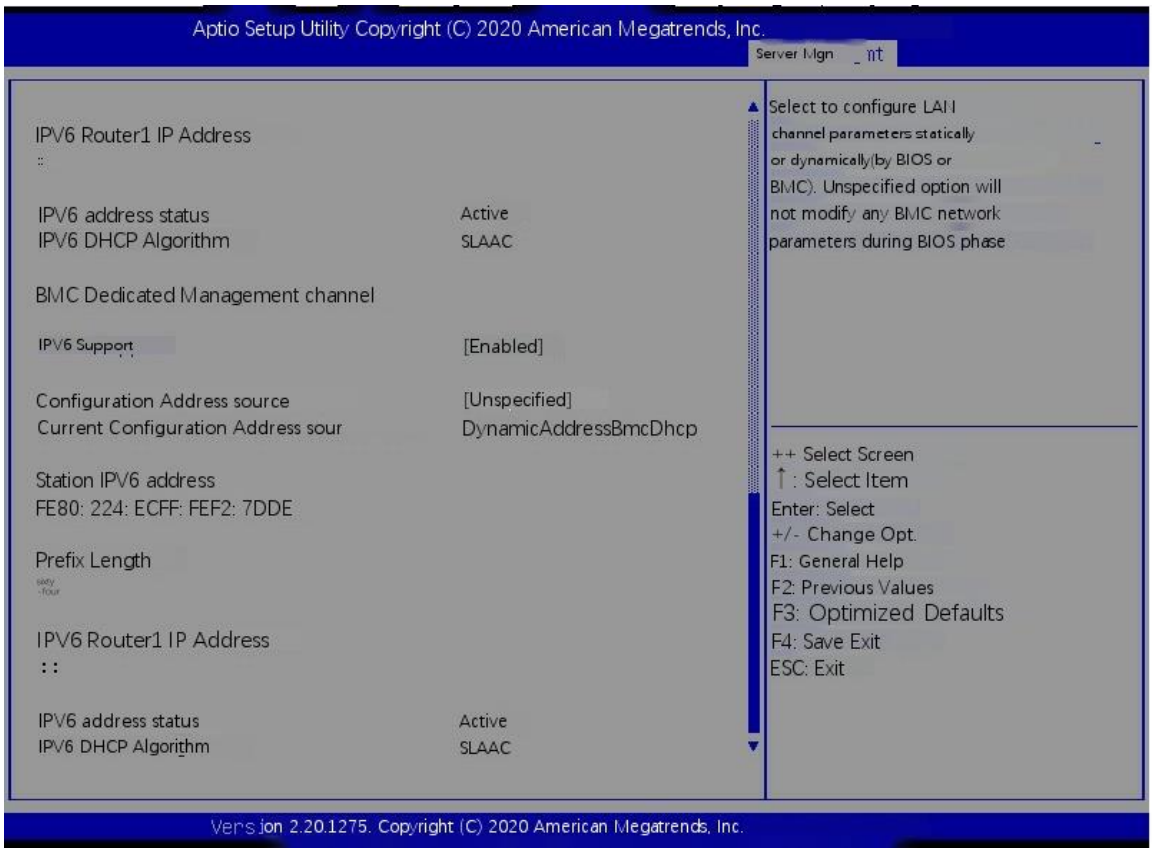


Figure 5-31

Configure IPV4 support

BMC sharelink Management Channel

Configuration Address source

Configure BMC IP address assignment mode, menu options are:

- Unspecified: does not change BMC parameters
- Static: BIOS static IP settings
- Dynamic bmcdhcp: BMC runs DHCP to allocate IP dynamically
- Dynamic bmcnondhcp: BMC runs non DHCP protocol to dynamically allocate IP.

Default value: unspecified

change from unspecified to other parameters. After saving and restarting the execution, the option will restore the unspecified value. It is not necessary to configure BMC IP every time the boot process is started.

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:

- Unspecified: does not change BMC parameters
- Static: BIOS static IP settings
- Dynamic bmcdhcp: BMC runs DHCP to allocate IP dynamically
- Dynamicbmcnondhcp: BMC runs non DHCP protocol to dynamically allocate IP.

Default value: 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: enabled

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 (IPv6) of the shared network port of the

system will be displayed; BMC classified management channel

IPV6 Support

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

- Enable: support IPv6
- Disabled: IPv6 is not

supported. Default: enabled

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;

5.2.30 View System Event Log

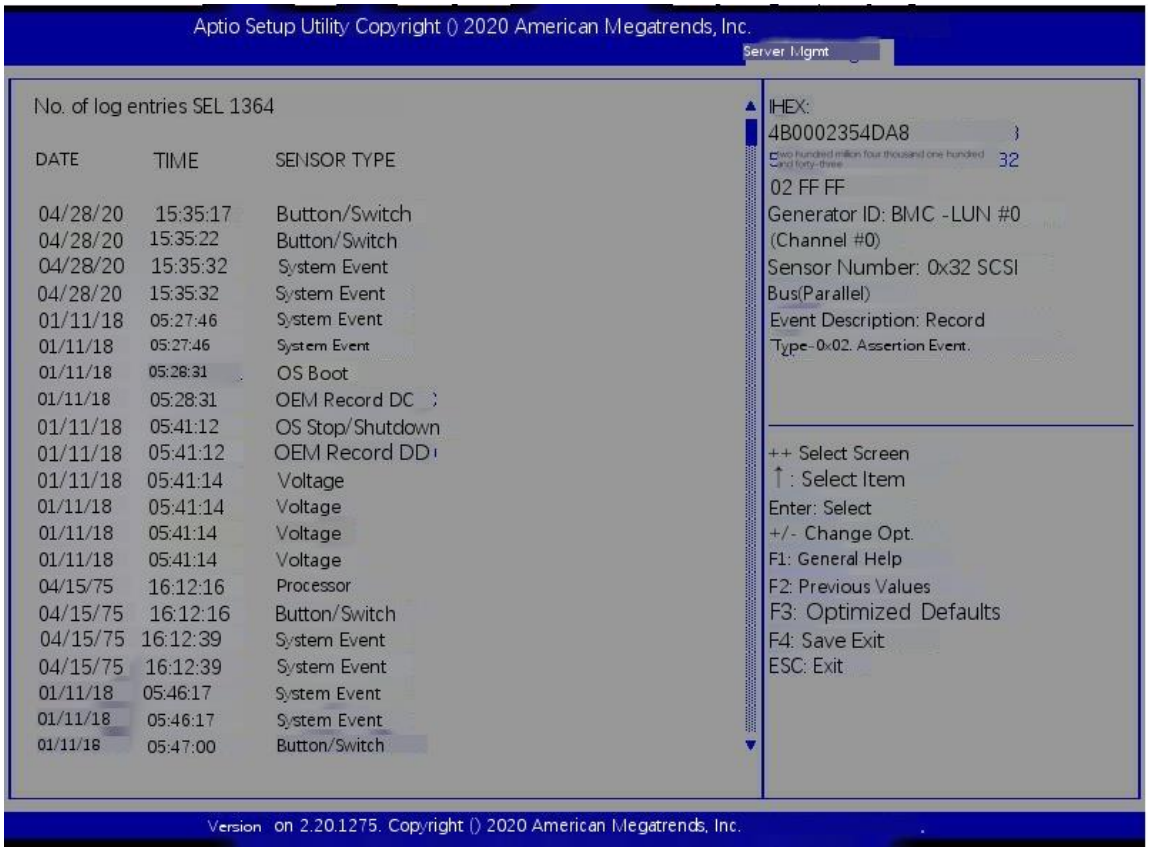


Figure 5-32

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.

5.2.31 BMC User Setting

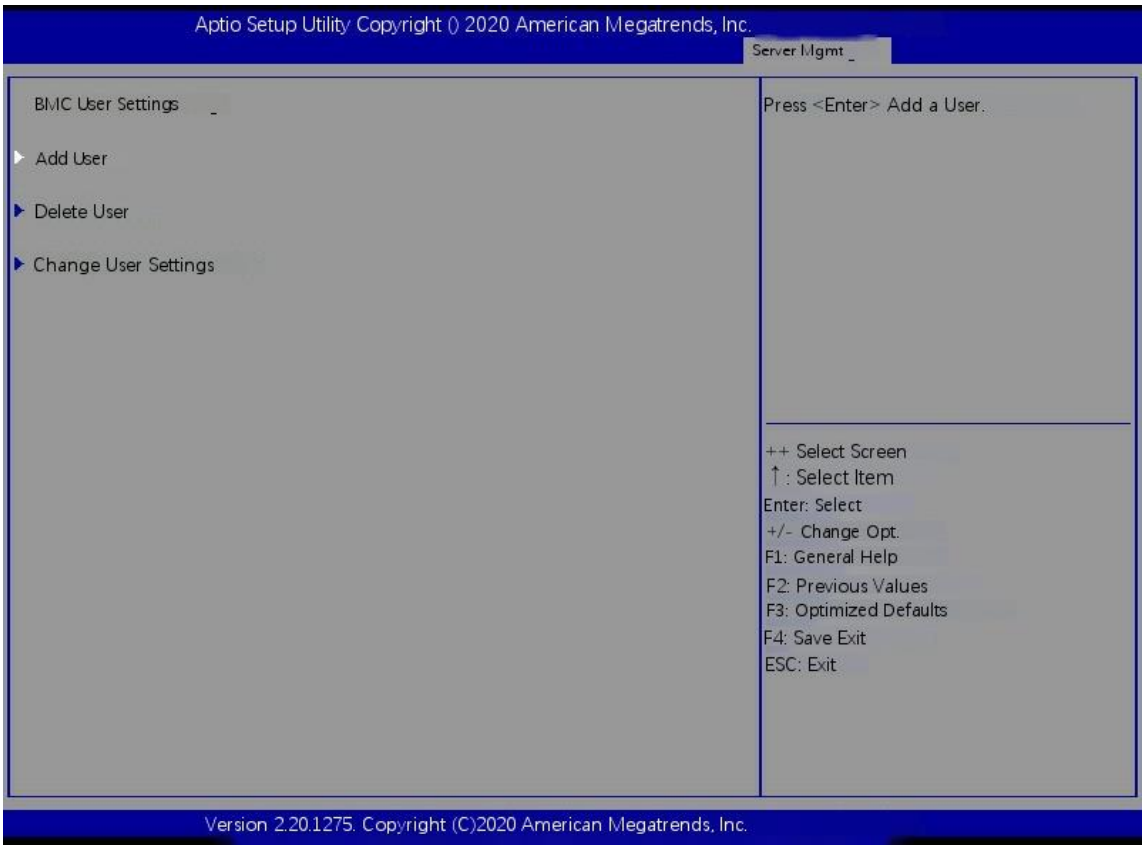


Figure 5-33

- Add User

Add user submenu

- Delete user
delete user
submenu
- Change user setting
modify user settings
submenu

5.2.32 Add User

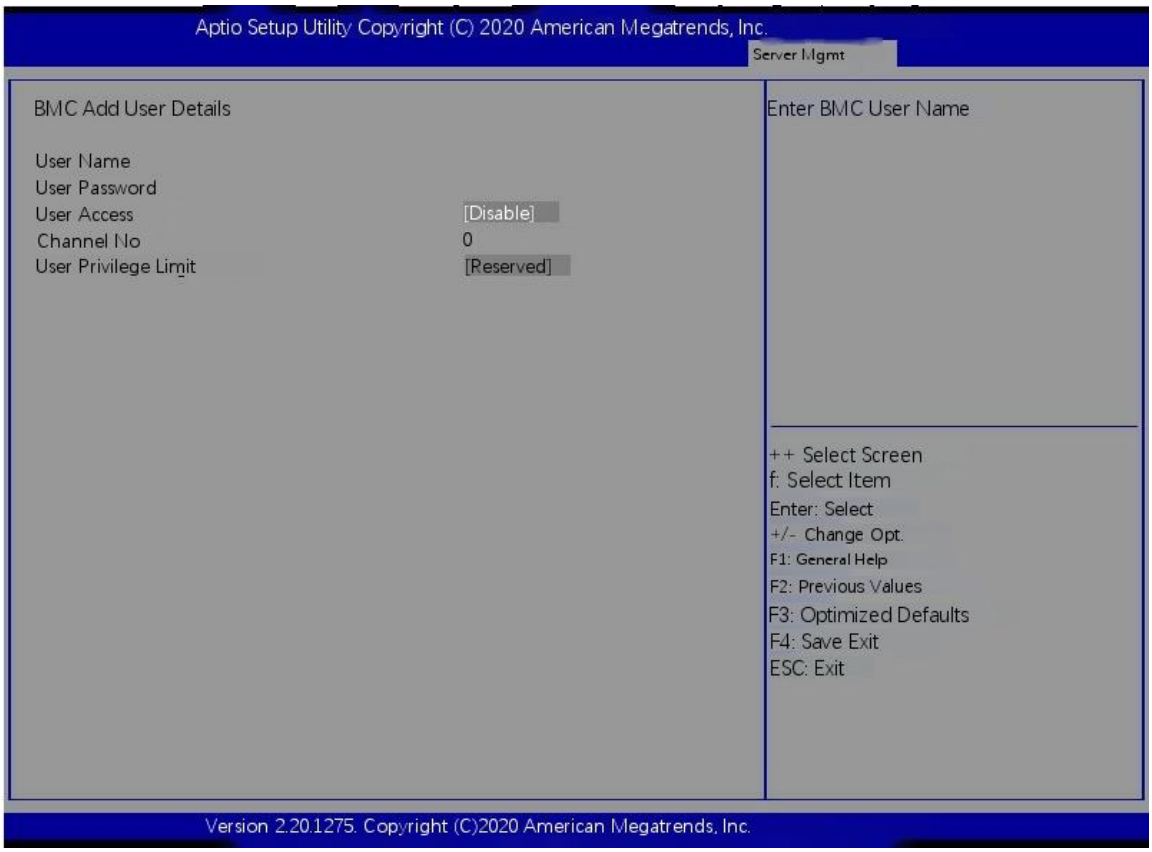


Figure 5-34

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

5.2.33 Delete User

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.

Channal 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.

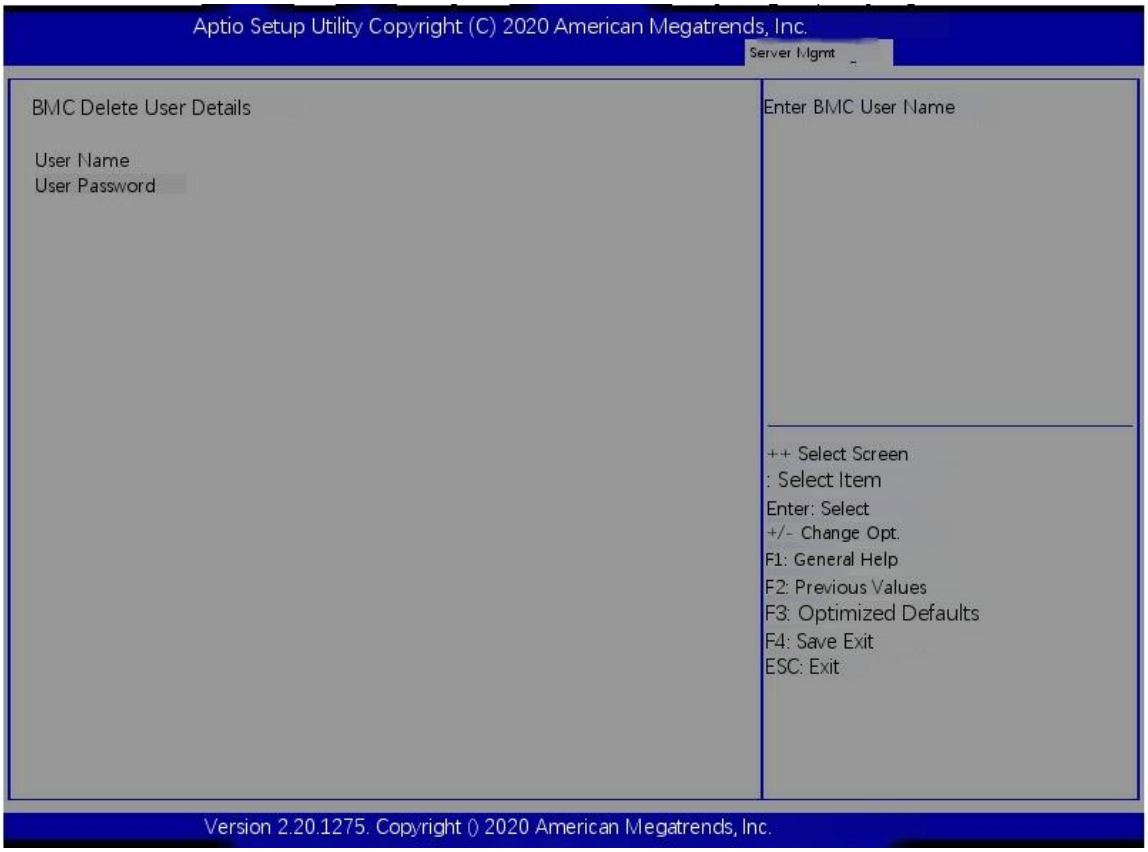


Figure 5- 35

User Name : Ent that name of the user to be delete.

User Password : Enter the password of the user to be deleted. After entering the password correctly, the prompt "User Delete! ! !" , the deleted user will take effect immediately in BMC, and the user will not be able to log in to BMC Web interface.

5.2.34 Change User Setting

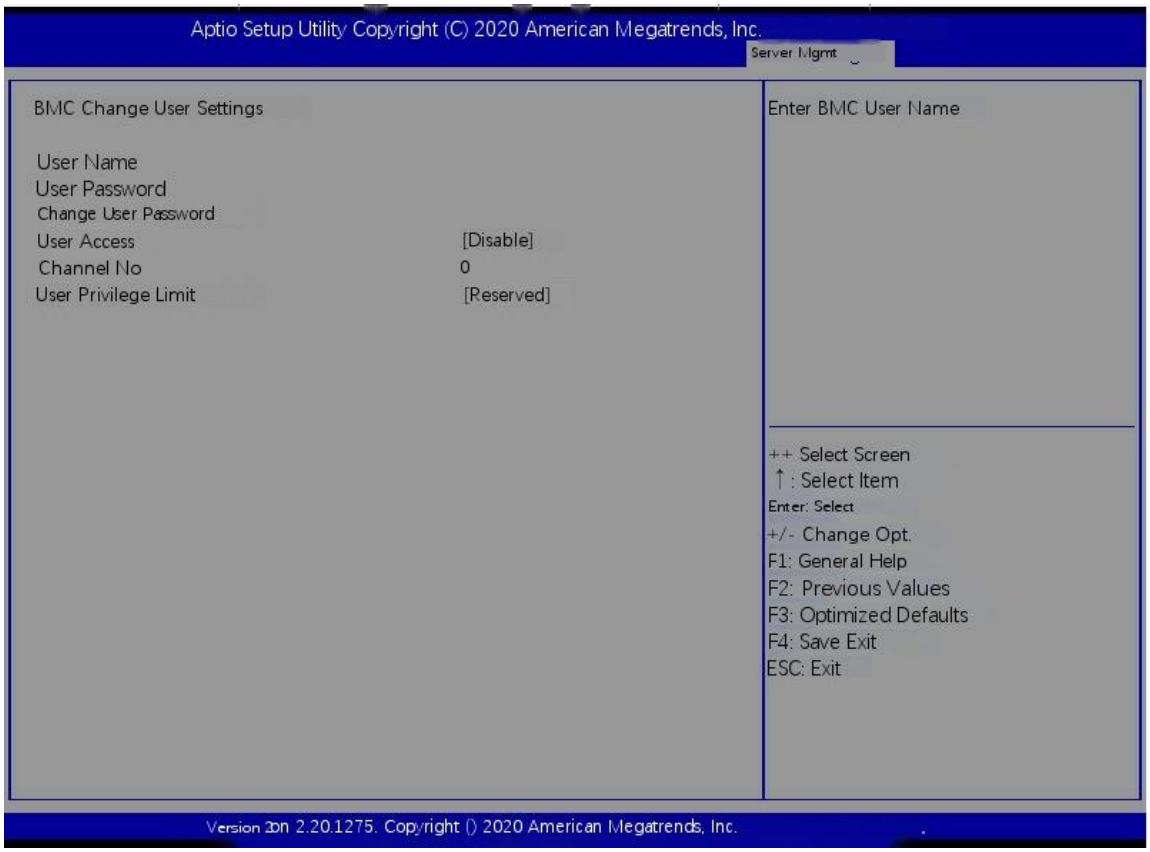


Figure 5- 36

User Name : Ent that user name to be modify.

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

User

User rights switch settings, menu options are:

- Enabled : Open it
- Disabled :

Closing default
value: Disabled

Change User Password :To modify the user password, the input password characters 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

Modify the user permission settings, menu options are:

- Reserved
- Callback
- User
- Operator
- Administrator

5.2.35 Event Logs

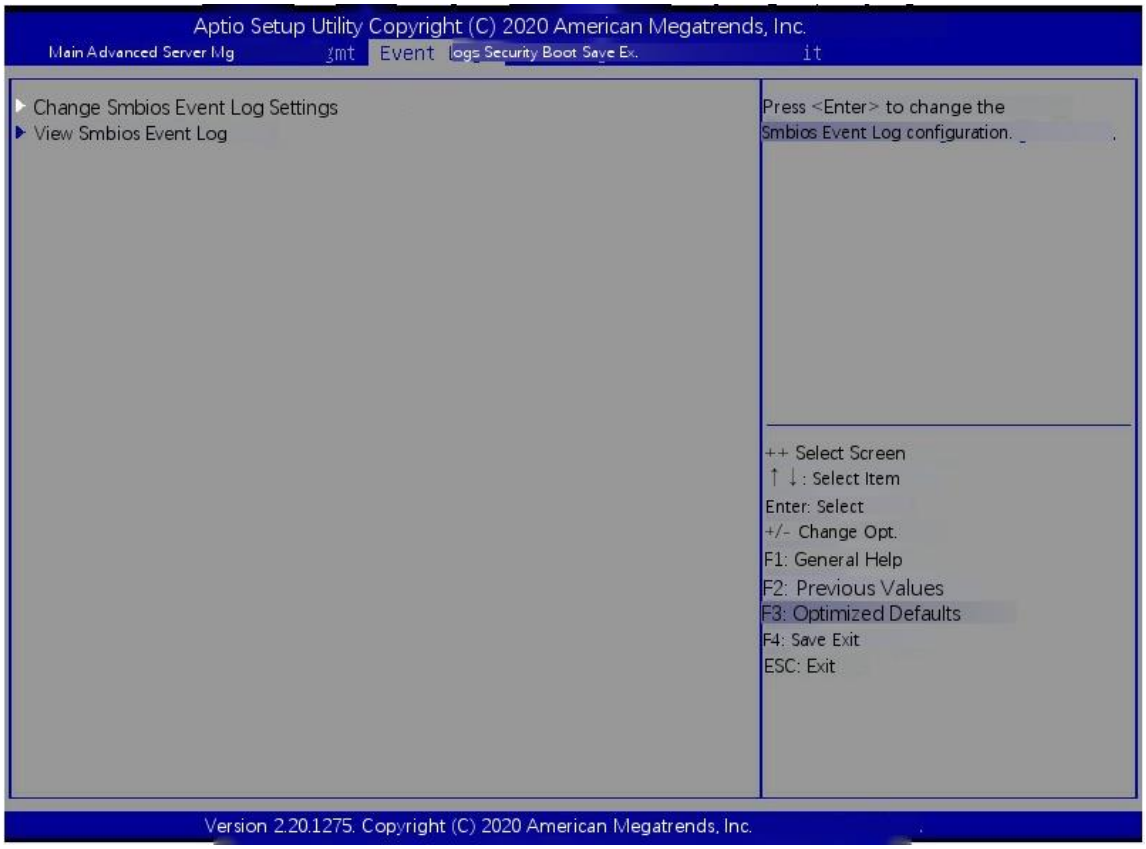


Figure 5- 37

- Change SMBIOS Event Log Settings to change SMBIOS event logging settings.
- View SMBIOS Event Log to view SMBIOS event log.

5.2.36 Change SMBIOS Event Log Settings

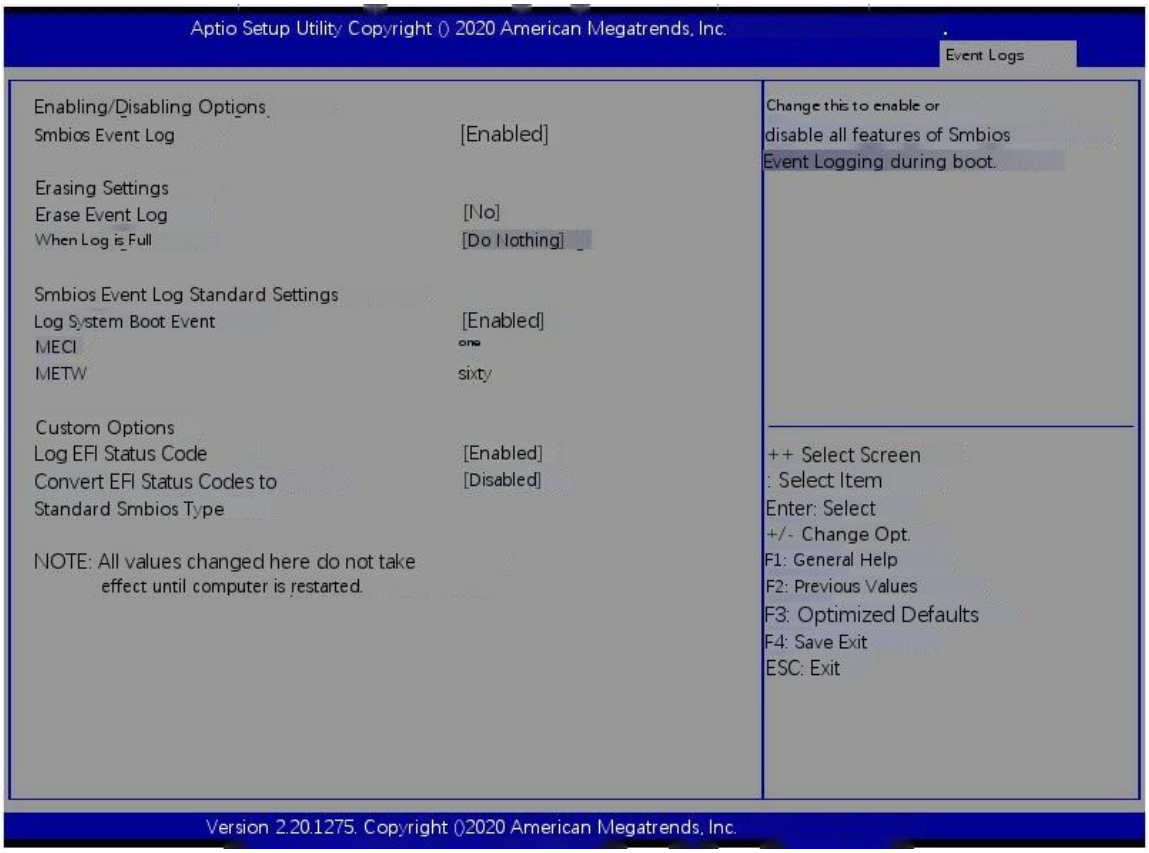


Figure 5- 38

Smbios Event Log

Smbios event logging switch, menu options:

- Enabled: on
- Disabled: turn off the default value: Enabled

Erase SEL

Clear the system event record control switch, menu options:

- No: No
- Yes, On next reset: clear next restart
- Yes, On every reset: clear the 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 the default value immediately: do nothing

Log System Boot Event

Set to start recording system startup events, menu options:

- Disabled: do not record

●Enabled:
record default:
enabled

MECI

Enter increment for multiple event counters.Enter a number between 1 and 255.The default setting is 1.

METW
This is used to determine how long (in minutes) multiple event counters should wait before generating a new event log.Enter a number between 0 and 99.The default setting is 60.

5.2.37 Security menu

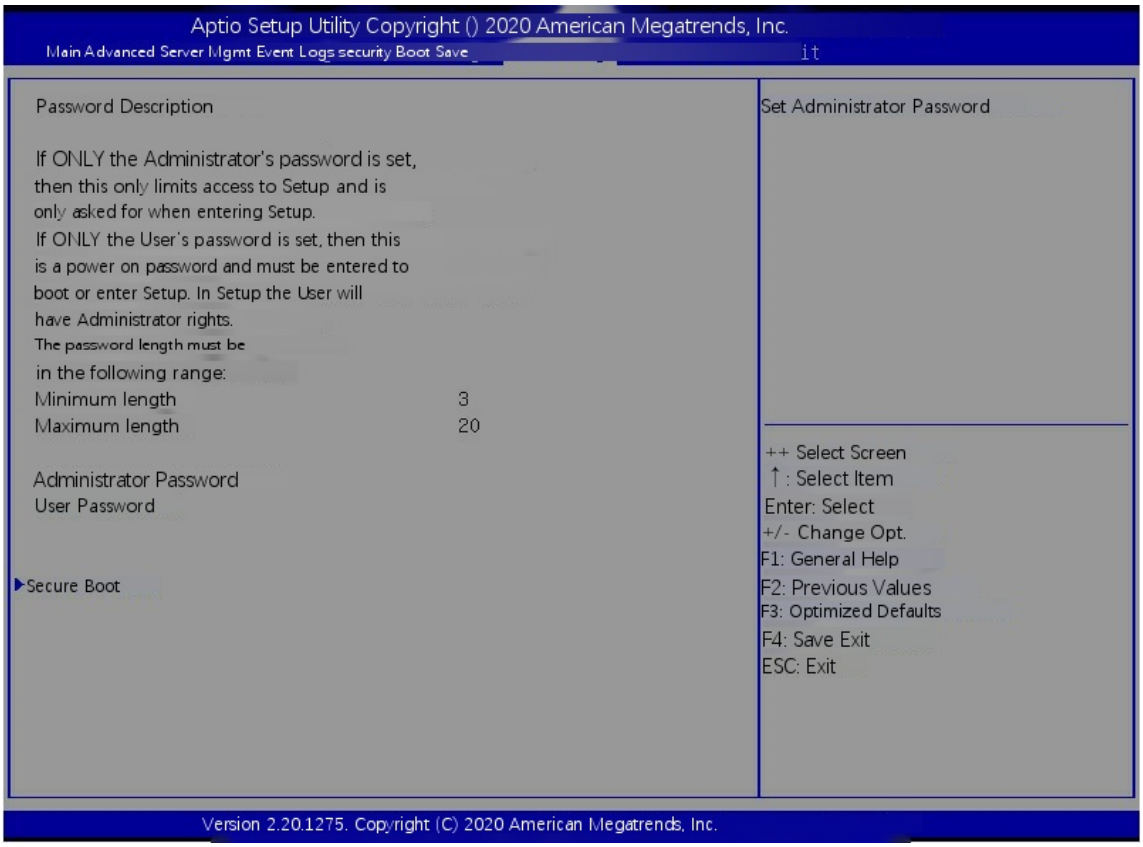


Figure 5-39

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;

5.2.38 Secure Boot

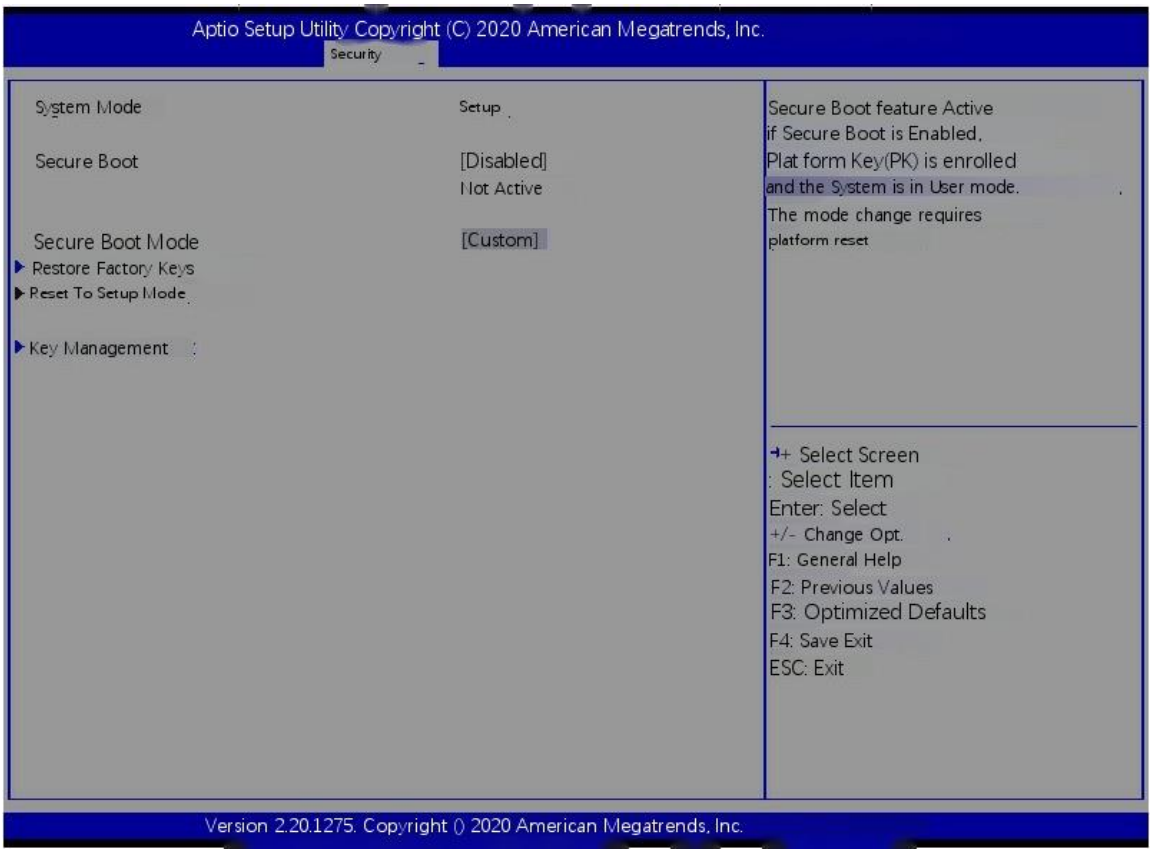


Figure 5-40

Secure Boot

Safety start switch, menu options are:

- Enabled: on
- Disabled: off

default:
Disabled

Secure Boot Mode

Safe start mode, menu options are:

- Standard: Standard
- Custom:

custom default
value: Custom

- Restore Factory Keys

Force the system into user mode.Install the factory default secure boot key database.

- Key Management

It allows professional users to modify security startup policy variables without full authentication.

5.2.39 Boot menu

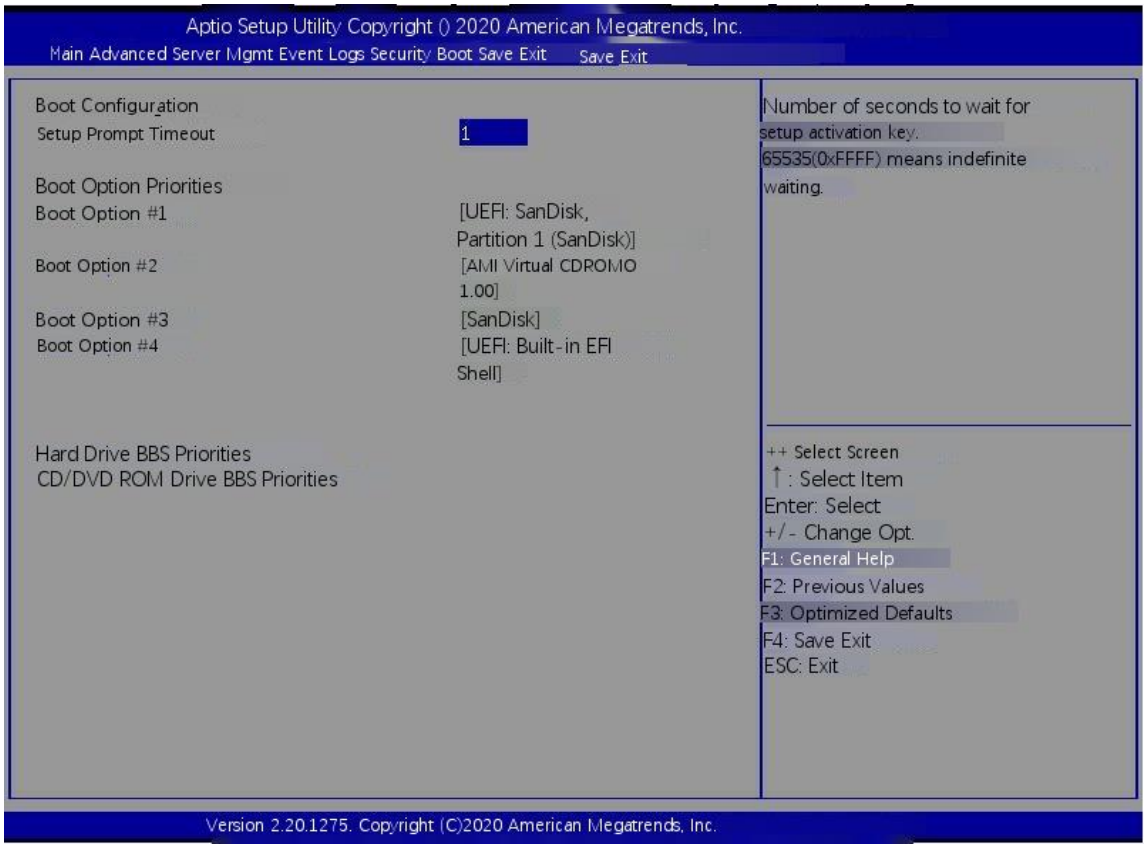


Figure 5-41

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.

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.

XXX driver BBS priorities

5.2.40 Save & Exit menu

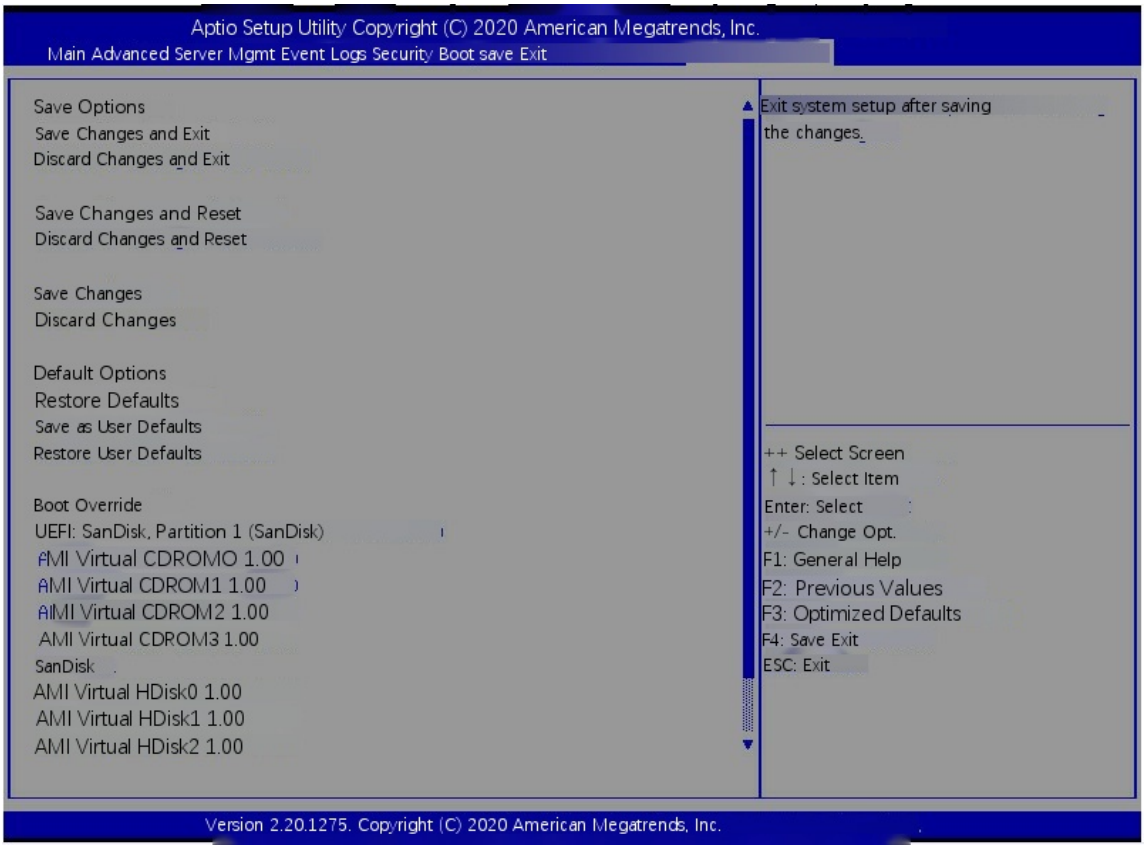


Figure 5-42

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 to
discard the saved settings
and restart the system;

Save
changes
saves the
settings;

Discard changes
discards the
save settings;

Restore Defaults

Load BIOS factory settings;

Save as user Defaults

Save as user default settings;

Restore user defaults overloads the user default configuration;

Boot Override

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

5.3 User operation reminder

1. With  option, you need to understand the operation specification in detail when you need to operate.
2. When operating the options, please understand the meaning of the options in combination with the operating manual and BIOS Setup interface options.

Chapter six Description of raid settings

6.1 LSI 9361-8i group raid

6.1.1 Configuring raid in UEFI boot mode

➢ **Enter the raid card configuration interface**

a) During the server startup process, press Delete / ESC according to the prompt to enter the BIOS Setup interface.

b) Select advanced > Avago MegaRAID < Avago MegaRAID SAS 91311-8i > configuration utility and press enter.

Enter the interface shown in Figure 6-1, which shows five categories of configuration tasks (see table 1-35 for related instructions).

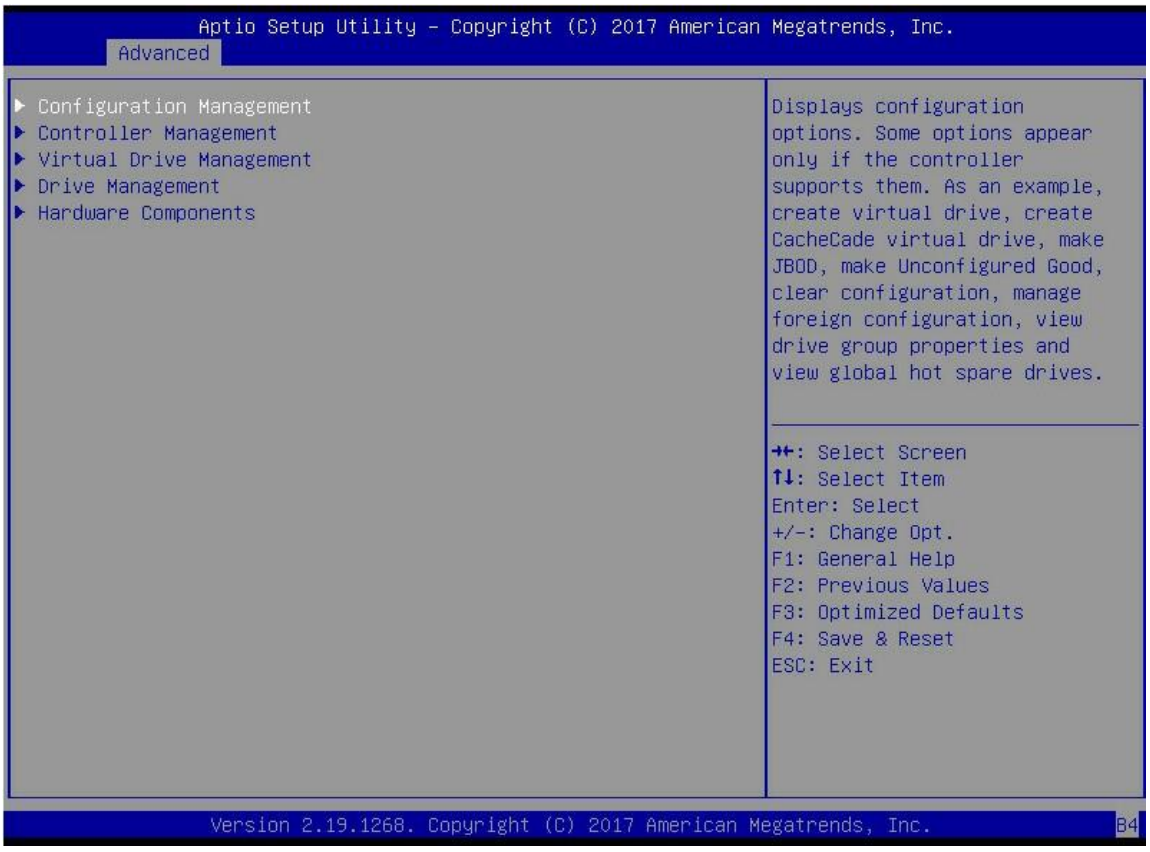


Figure 6-1

✧ Table 1-35 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 clear the configuration.
Controller Management	Select controller management to view and manage controller properties and perform tasks such as clearing controller events, scheduling And run controller events, and run patrol read.
Virtual Drive Management	Select logical drive management to perform tasks such as viewing logical drive properties, locating logical drive, and running a Sex test.

Drive Management	Select disk management to view physical disk properties and perform tasks such as locating disks, initializing disks and disks Rebuild after failure.
Hardware Components	Select hardware components to view super capacitor properties, manage supercapacitors and manage peripheral components.

➢ 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 6-2, select drive management in the raid card configuration interface and press enter.

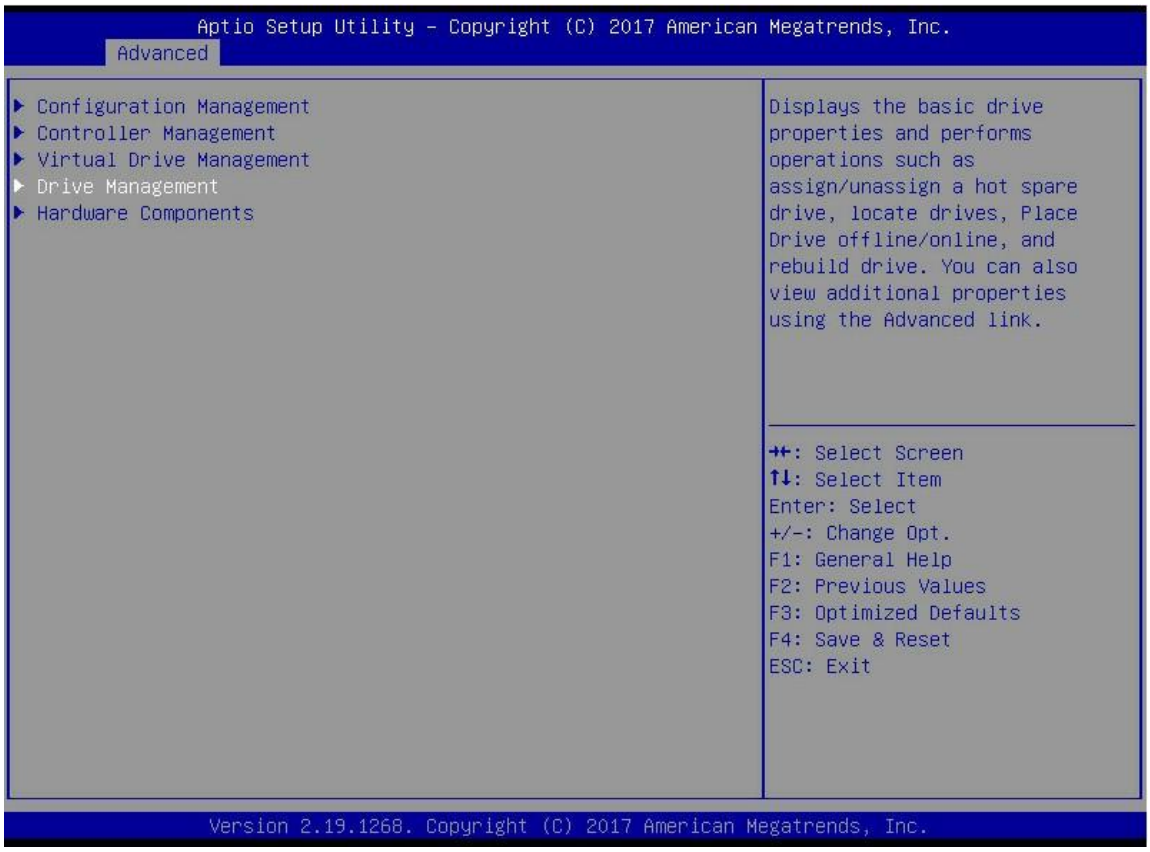


Figure 6-2

b) Enter the interface shown in Figure 6-3, select the disk to be configured, and press enter.

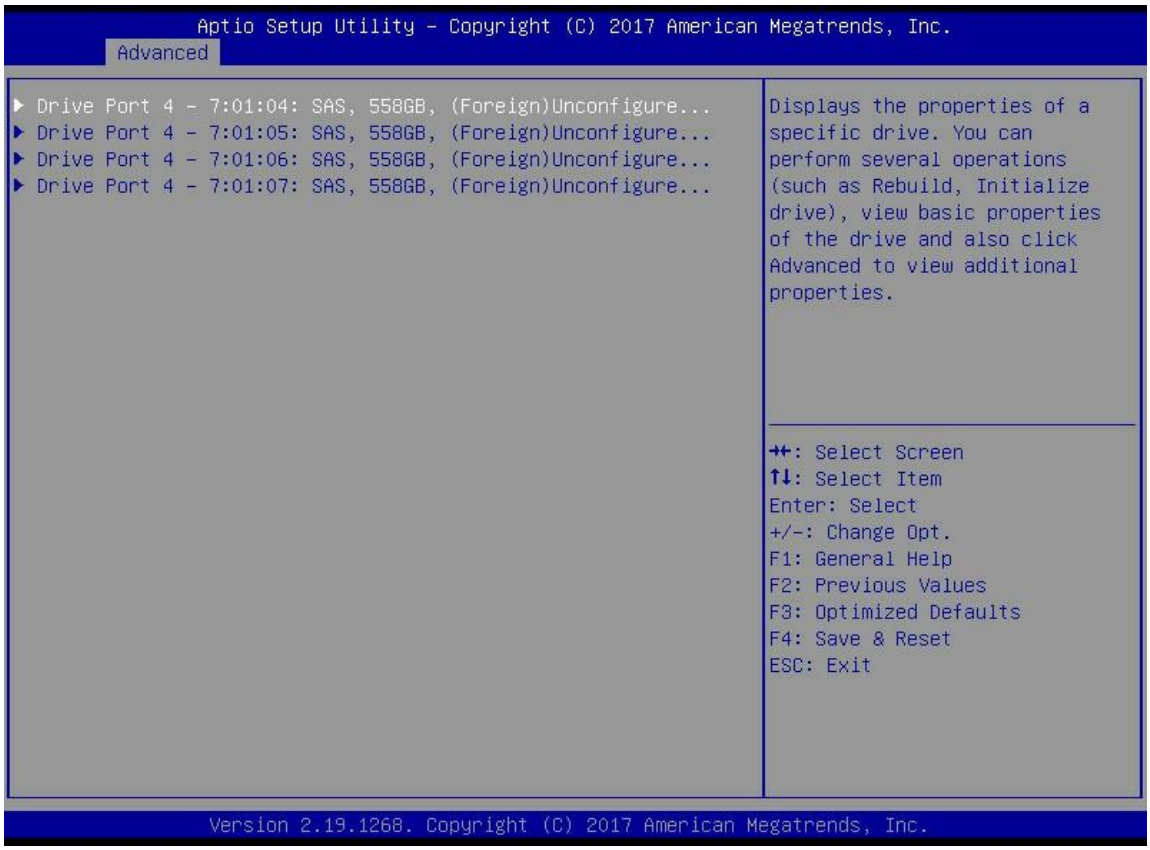


Figure 6-3

c) Enter the interface shown in Figure 6-4, select operation, press enter, and then select make unconfigured bad in the pop-up dialog box, and press enter.

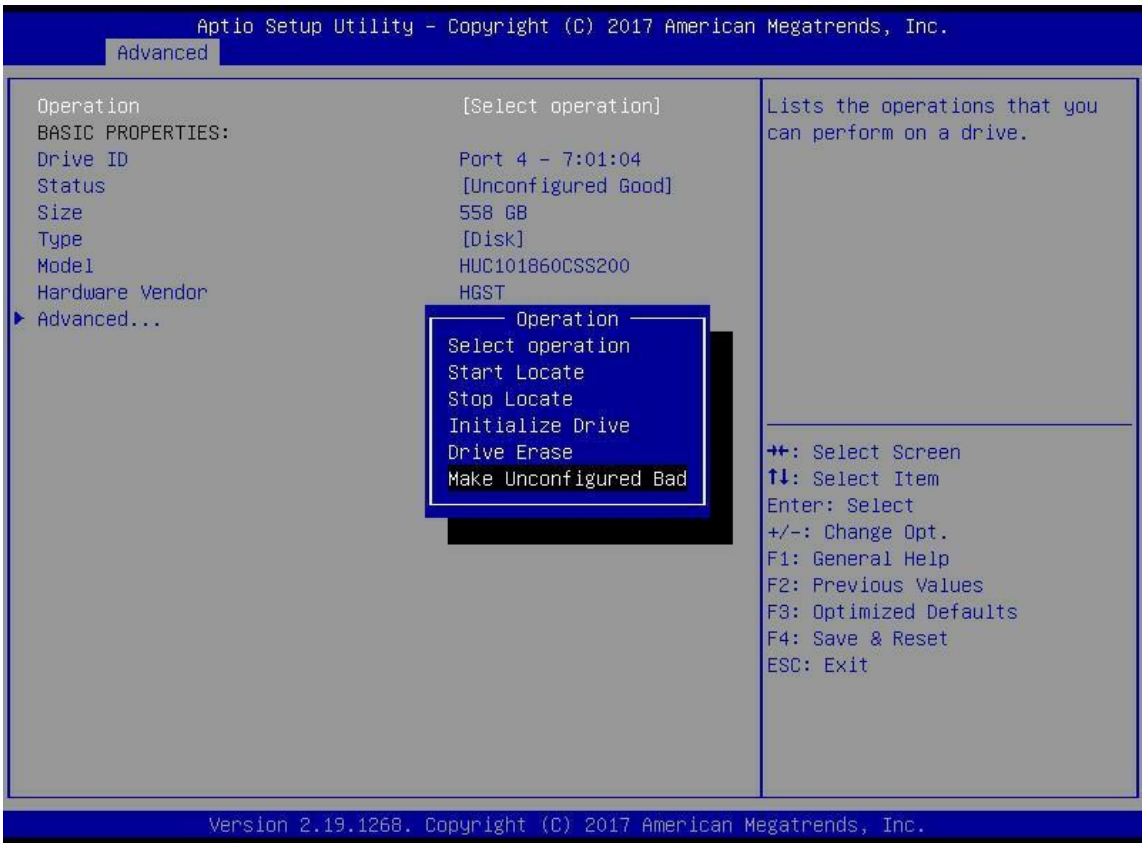


Figure 6-4

d) Enter the interface shown in Figure 6-5, select go and press enter.

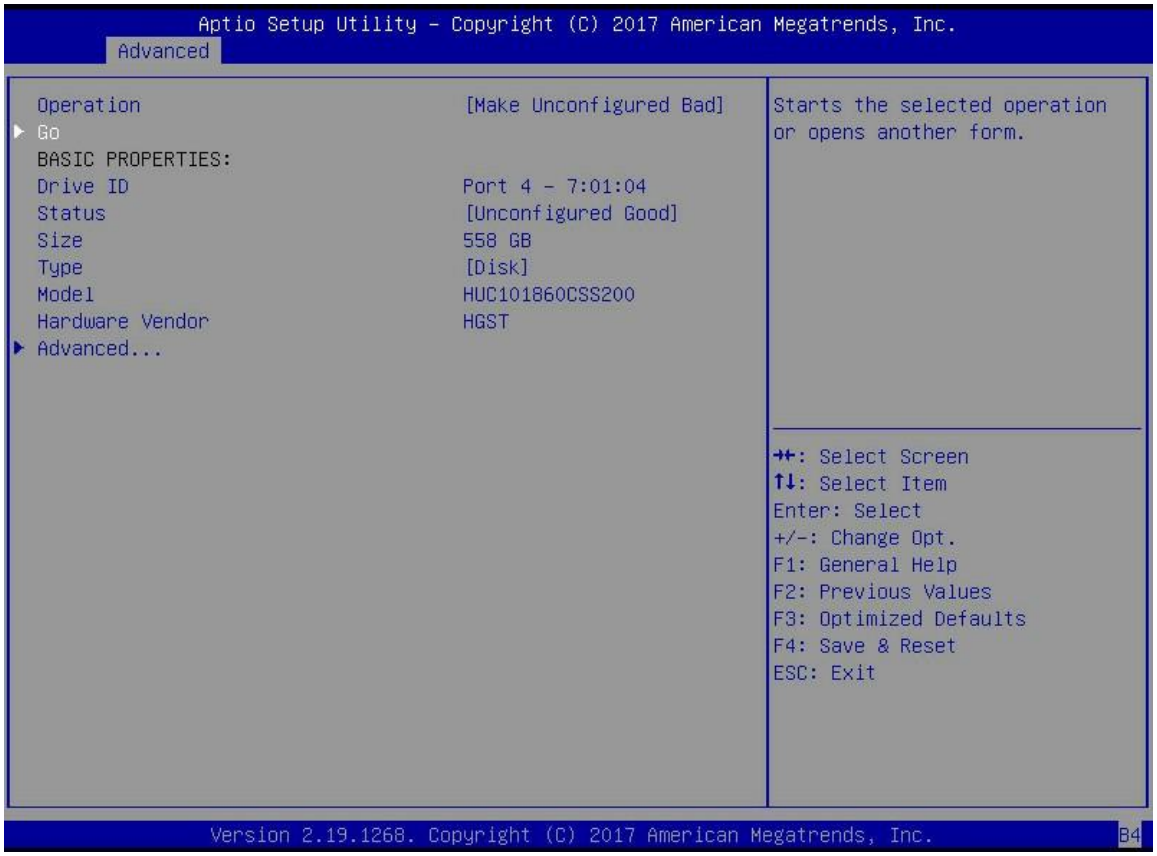


Figure 6-5

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

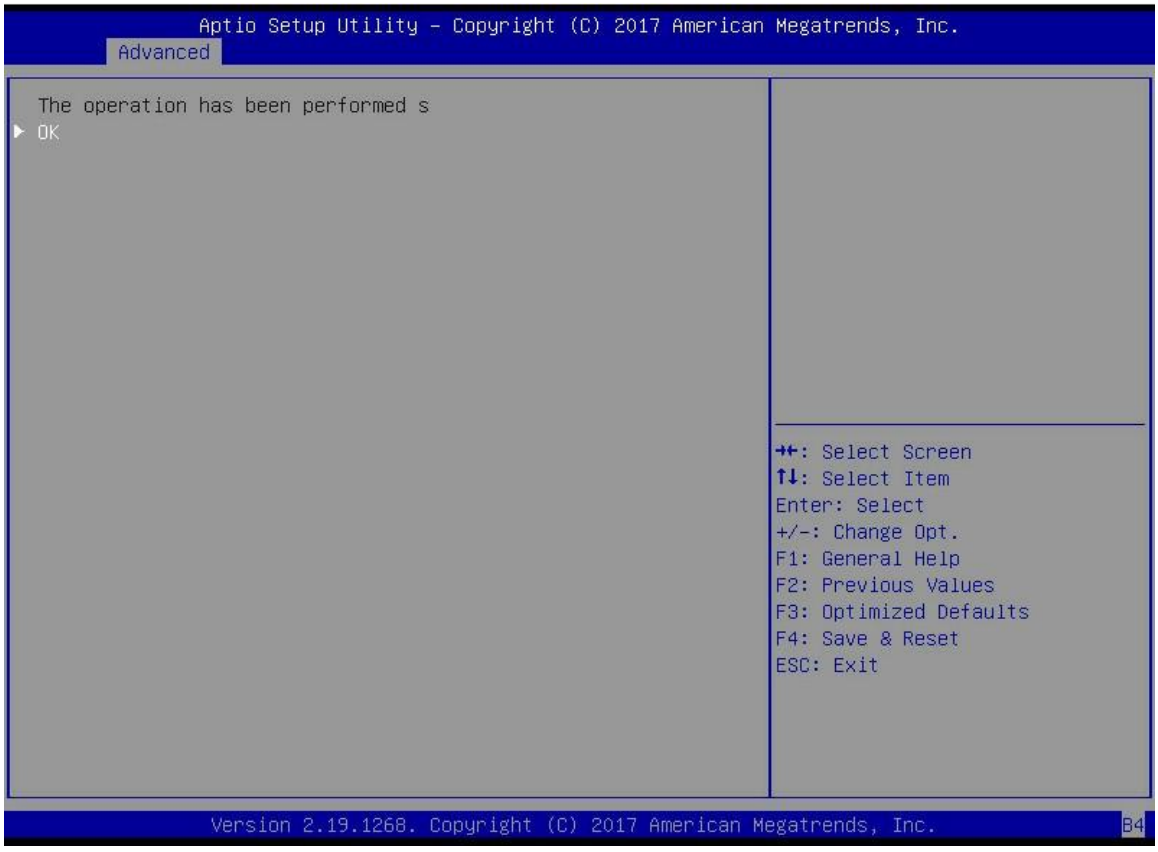


Figure 6-6

Create Raid:

a) As shown in Figure 6-7, select configuration management in the raid card configuration interface and press enter.

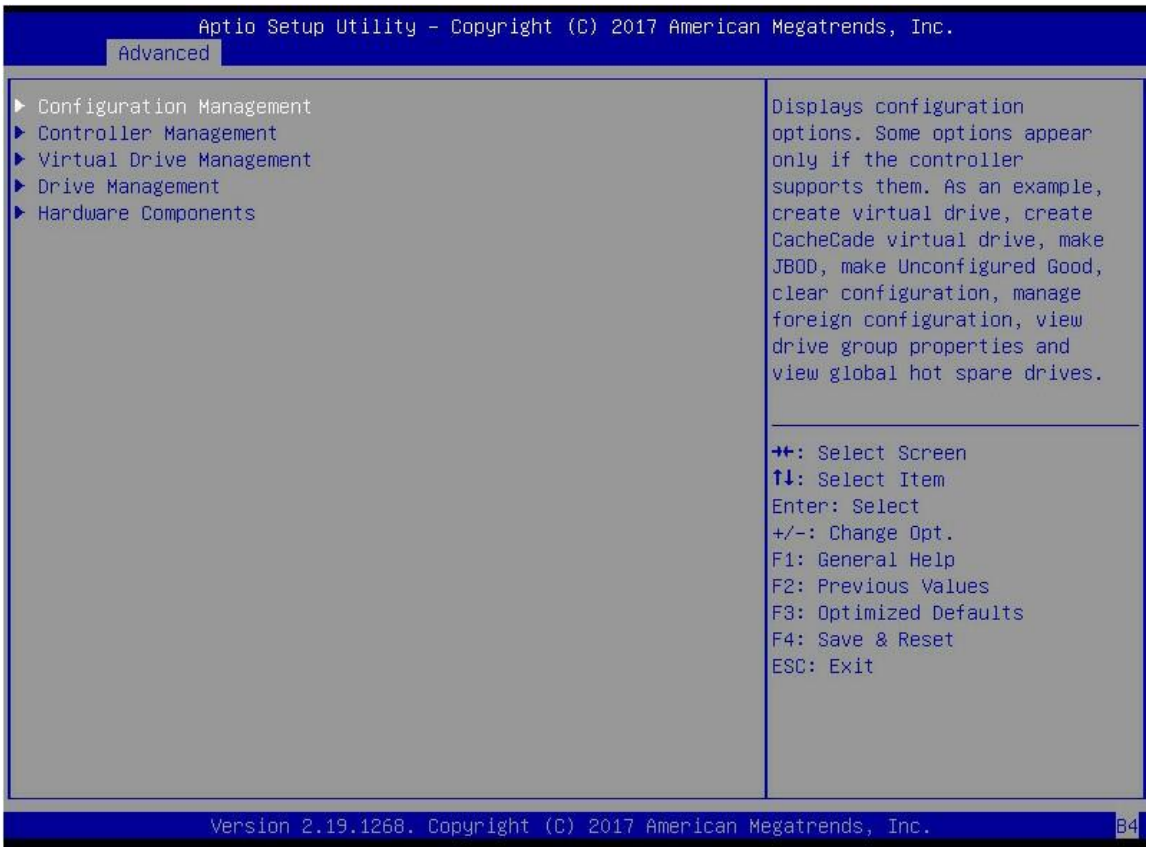


Figure 6-7

b) Enter the interface shown in Figure 6-8, select create virtual drive, and press enter.

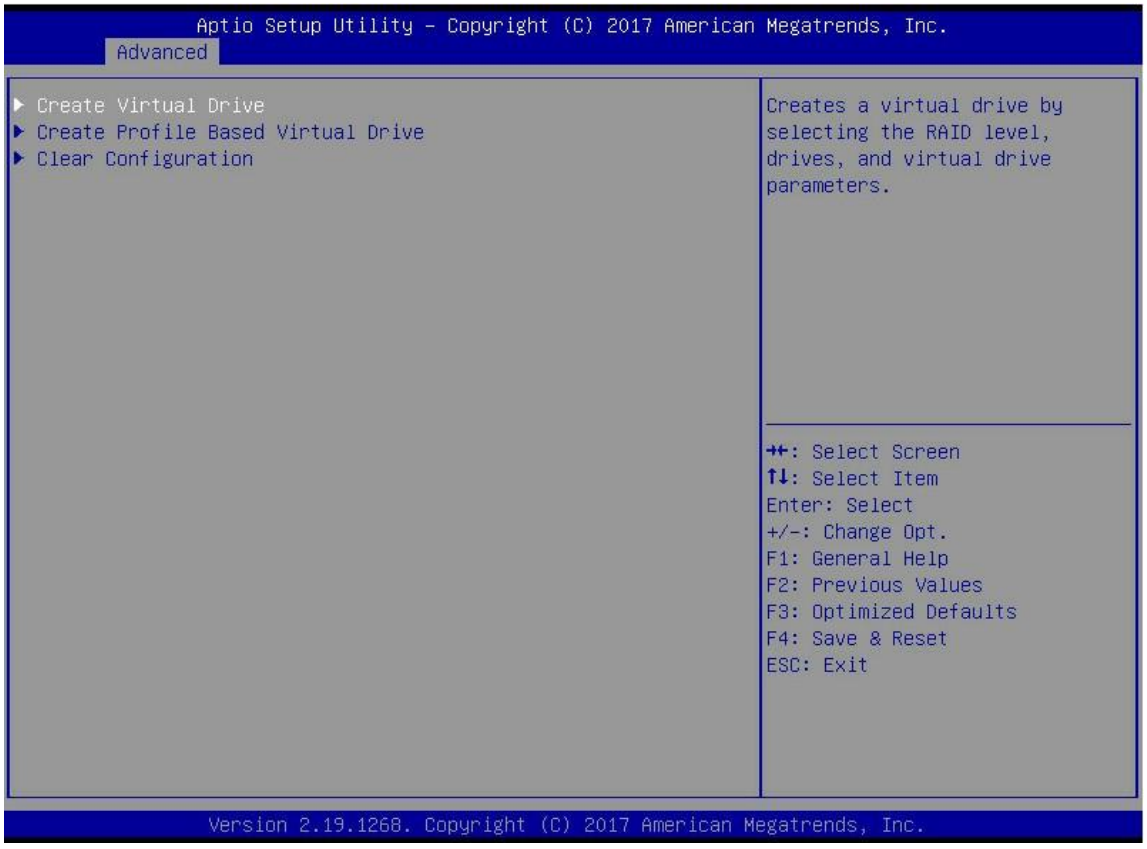


Figure 6-8

c) Enter the interface shown in Figure 6-9, select select RAID level, set RAID level, and press enter.

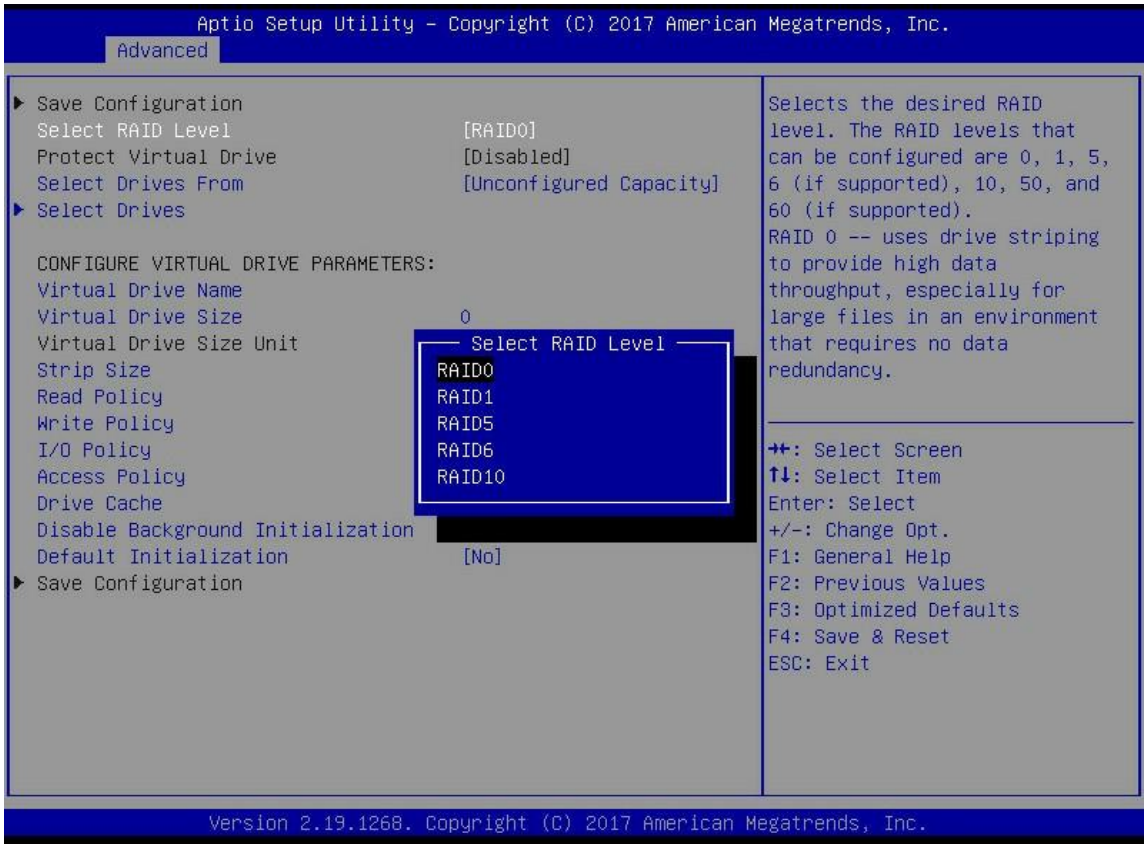


Figure 6-9

d) Enter the interface shown in Figure 6-10, 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.

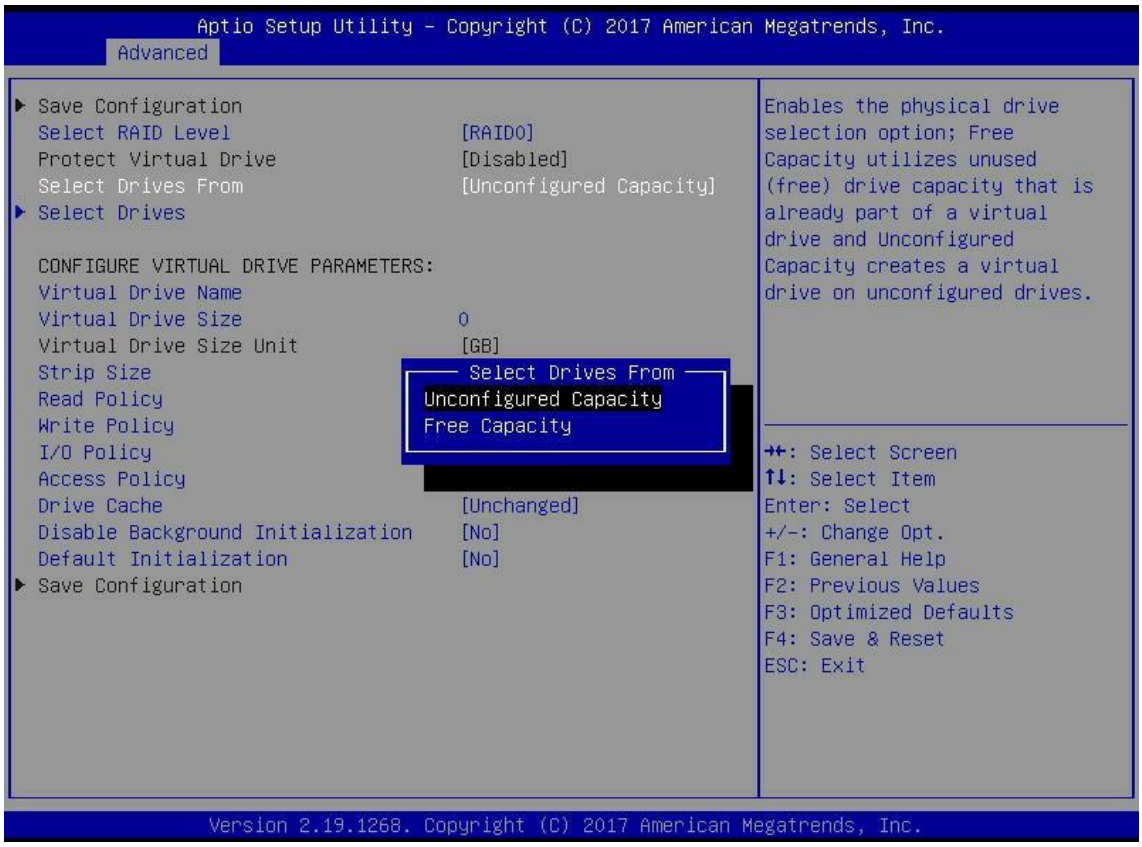


Figure 6-10

e) Enter the interface shown in Figure 6-11, select select drives and press enter.

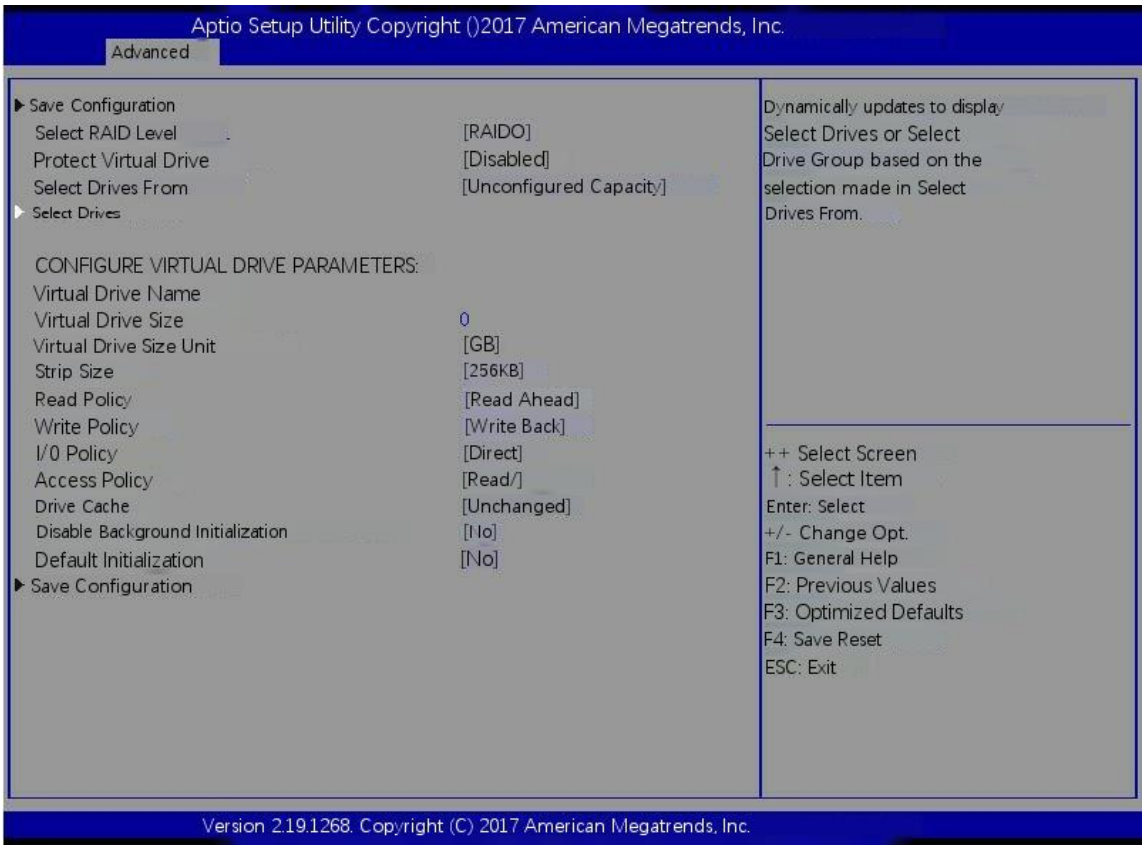


Figure 6-11

f) Enter the interface shown in Figure 6-12, 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.

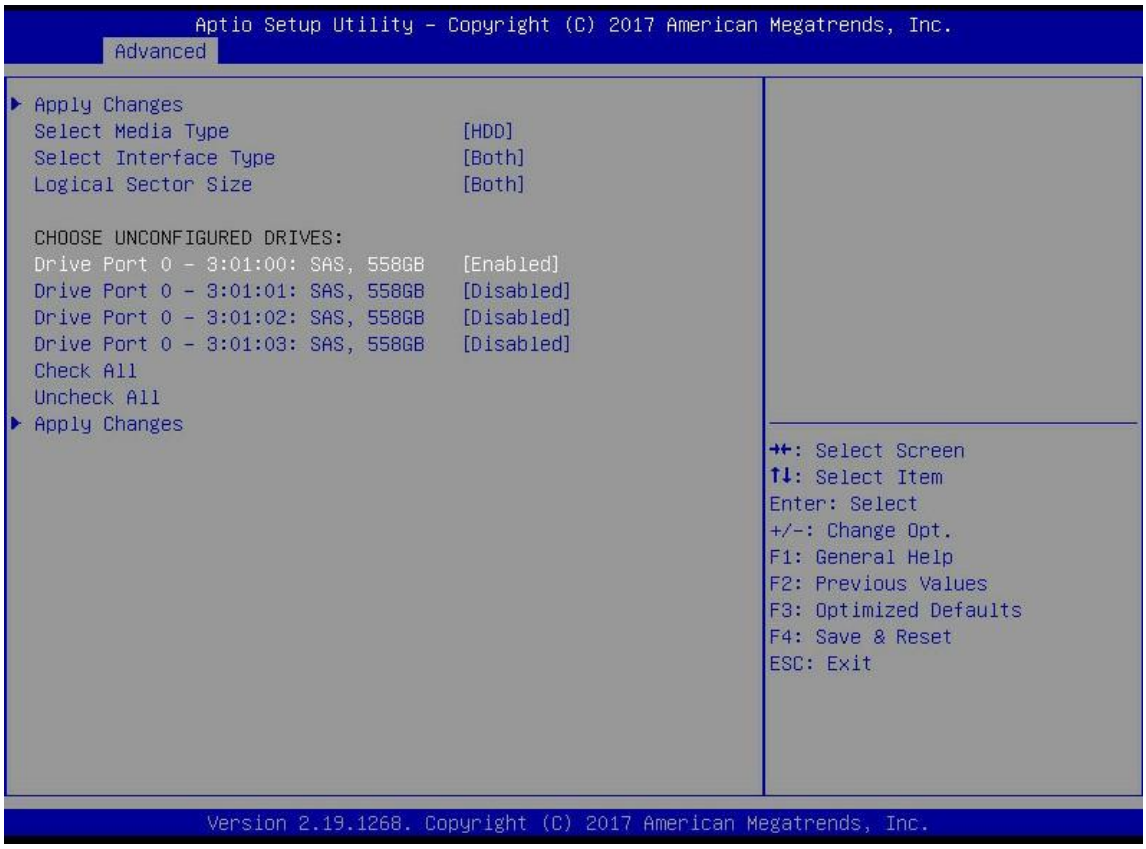


Figure 6-12

g) Enter the interface shown in Figure 6-13, make corresponding settings (see table 1-36 for parameter description), then select save configuration and press enter.

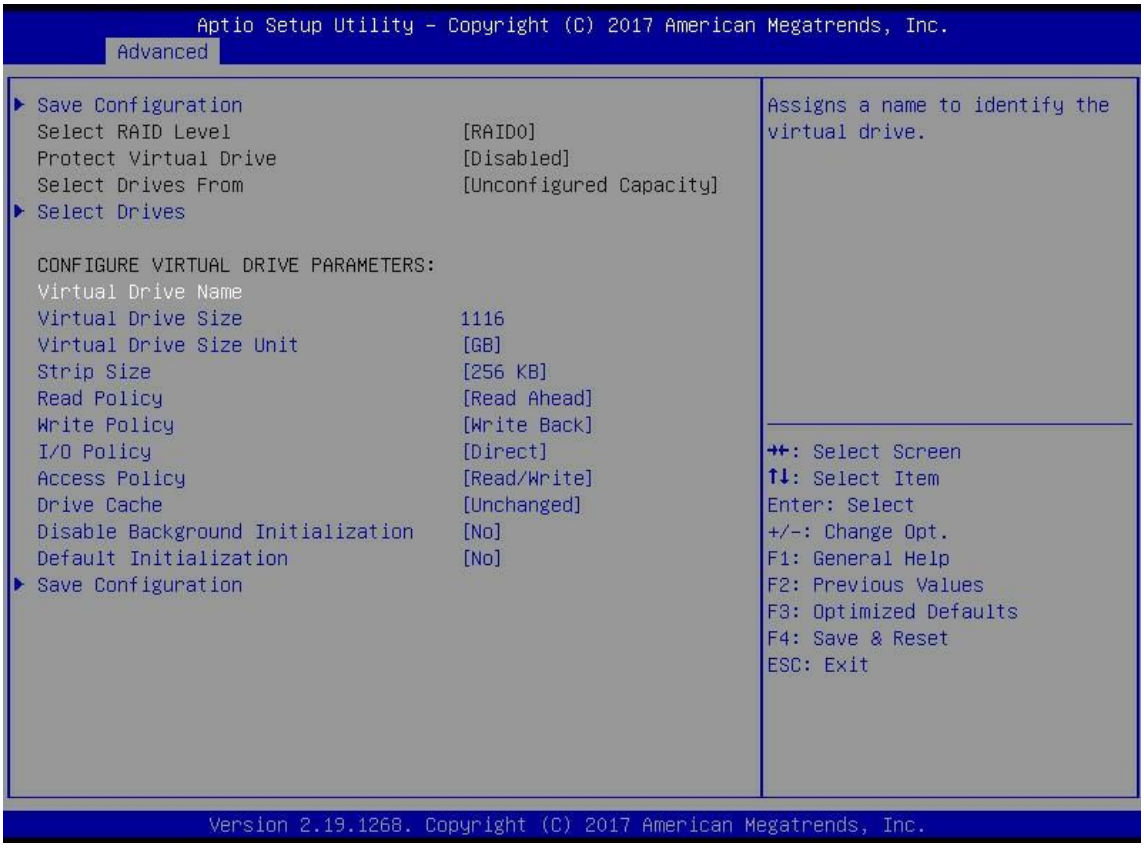


Figure 6-13

✧ 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	The read cache strategy is divided into read ahead and no read ahead (turn off read caching)
Write Policy	The write cache policy is divided into write through and 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 (automatic)
Default Initialization	Default initialization method
Save Configuration	Save the configuration created by the wizard

Table 1 - 36


说明

✧ 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 6-14, select confirm to enable it, select Yes, and press enter.

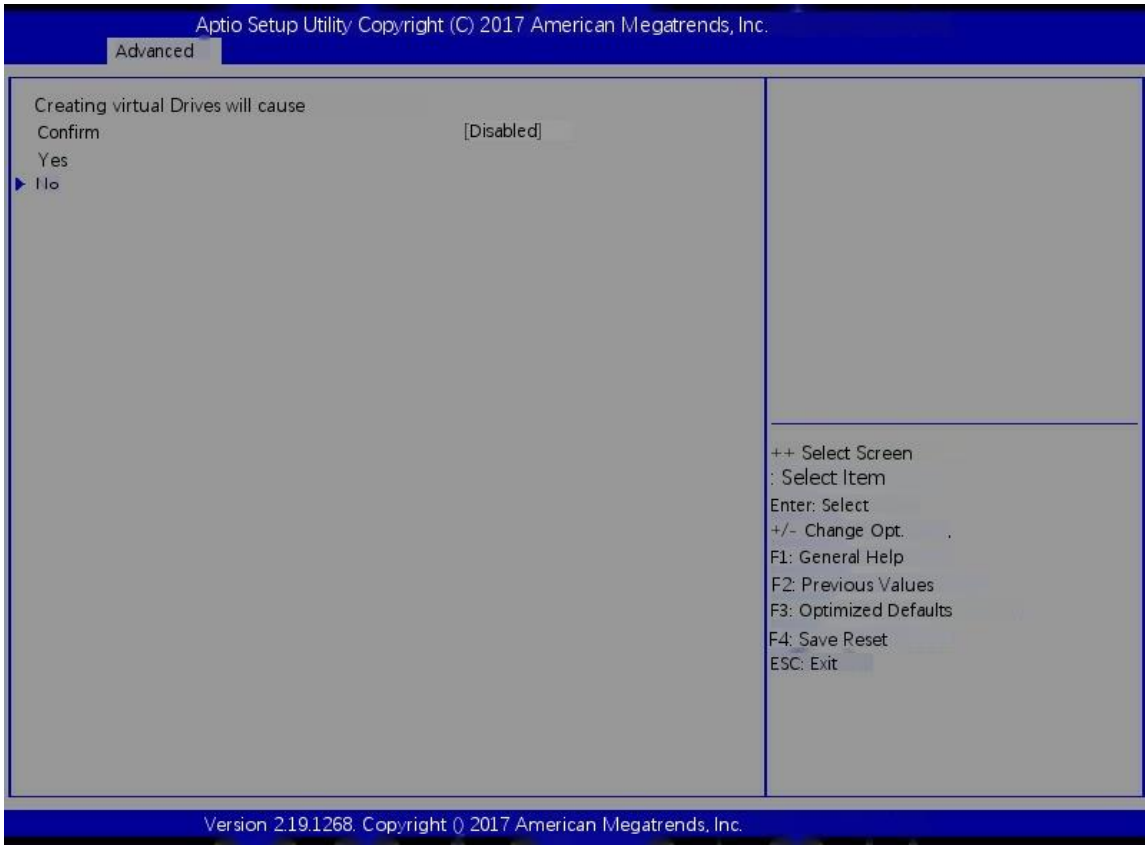


Figure 6-14

i) Enter the interface shown in Figure 6-15, complete the RAID configuration operation, and select OK to return to the raid card configuration interface.

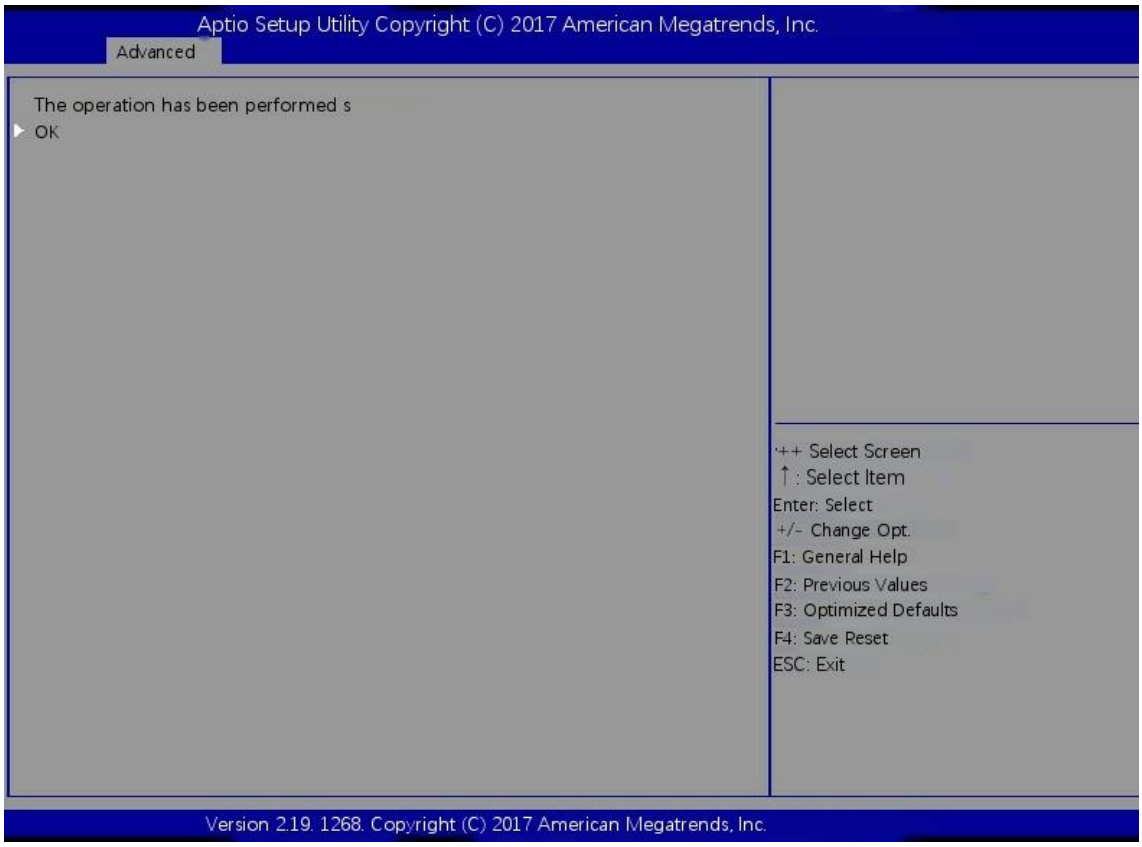


Figure 6-15

j) As shown in Figure 6-16, select virtual drive management in the raid card configuration interface and press enter.

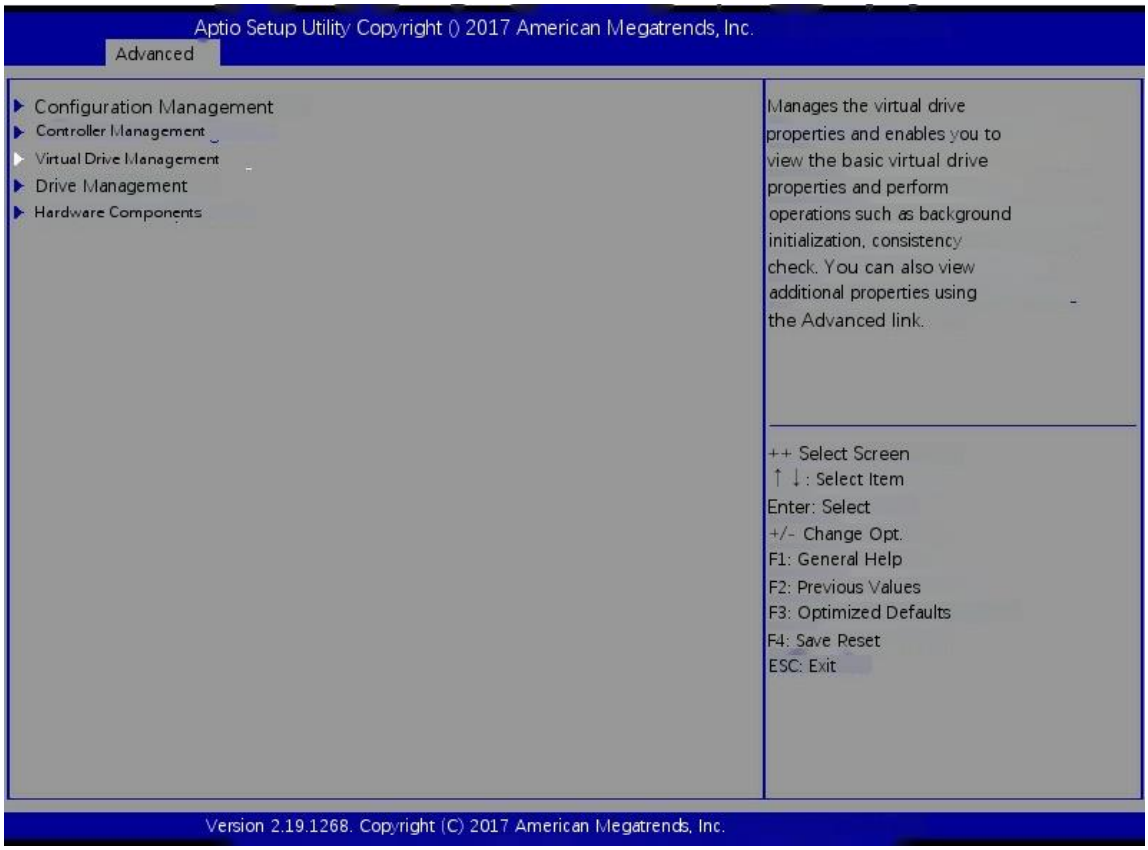


Figure 6-16

k) Enter the interface shown in Figure 6-17 to see the created raid. Select the raid to view and press enter.

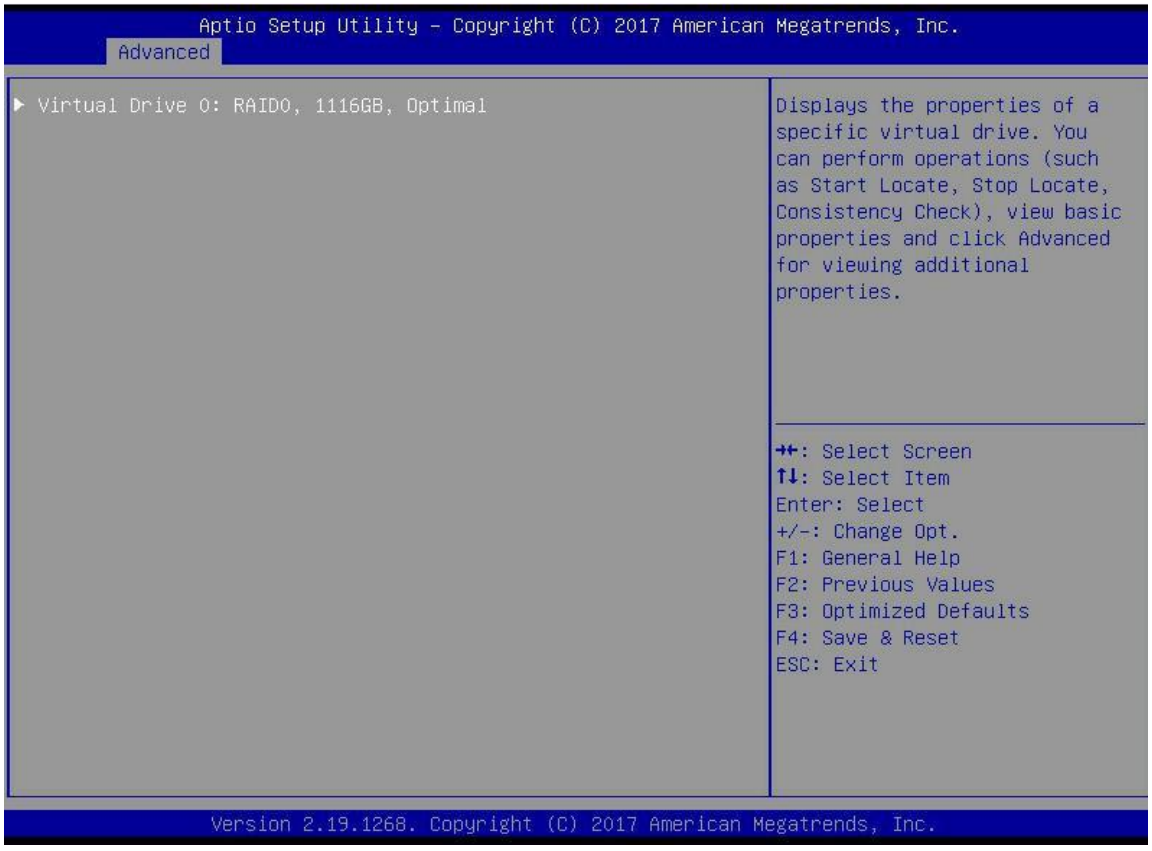


Figure 6-17

l) Enter the interface shown in Figure 6-18, select view associated drives, and press enter to view the detailed information of the raid (including raid name, level, disk information, etc.).

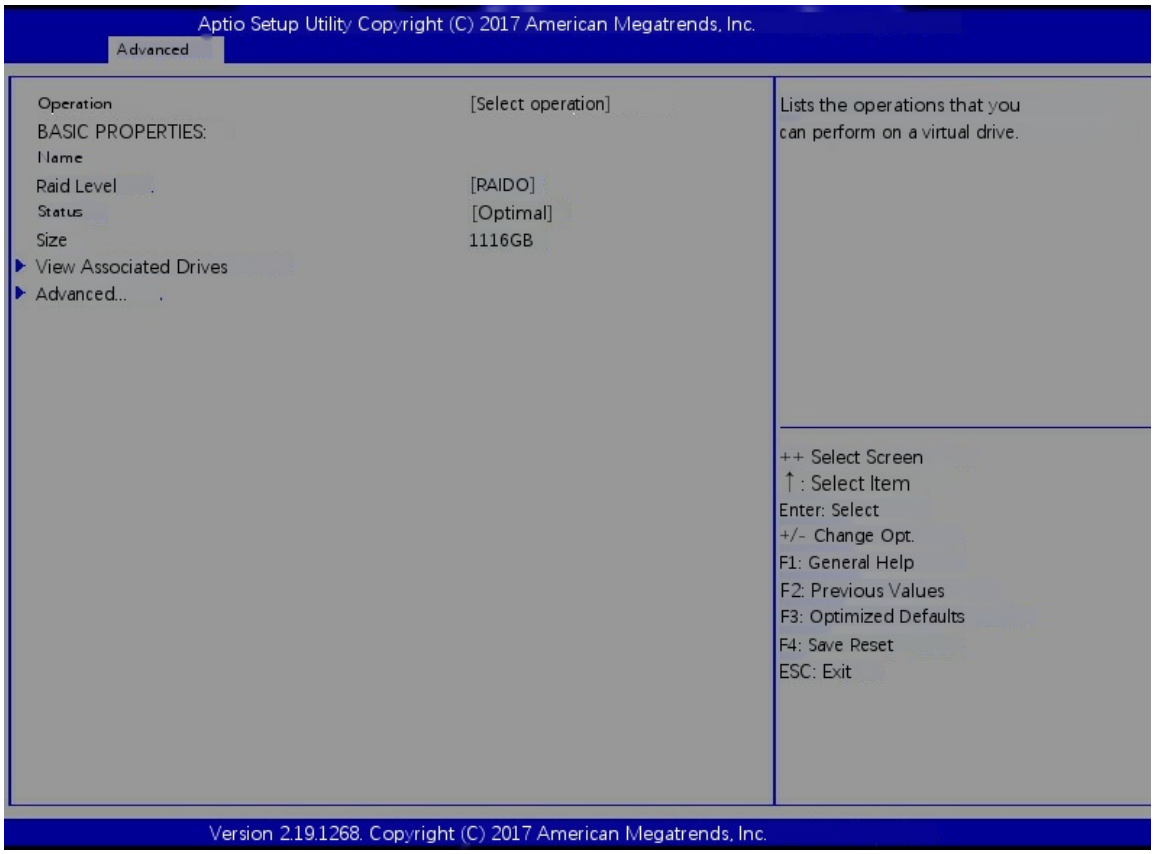

Aptio Setup Utility Copyright (C) 2017 American Megatrends, Inc.
Advanced
Operation
[Select operation]
BASIC PROPERTIES:
Name
Raid Level
[RAID0]
Status
[Optimal]
Size
1116GB
View Associated Drives
Advanced...
Lists the operations that you can perform on a virtual drive.
++ Select Screen
↑: Select Item
Enter: Select
+/- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save Reset
ESC: Exit
Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.

Figure 6-18

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.

说明

- ✧ 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.
- ✧ Configure global hot spare

a) As shown in Figure 6-19, select drive management in the raid card configuration interface and press enter.

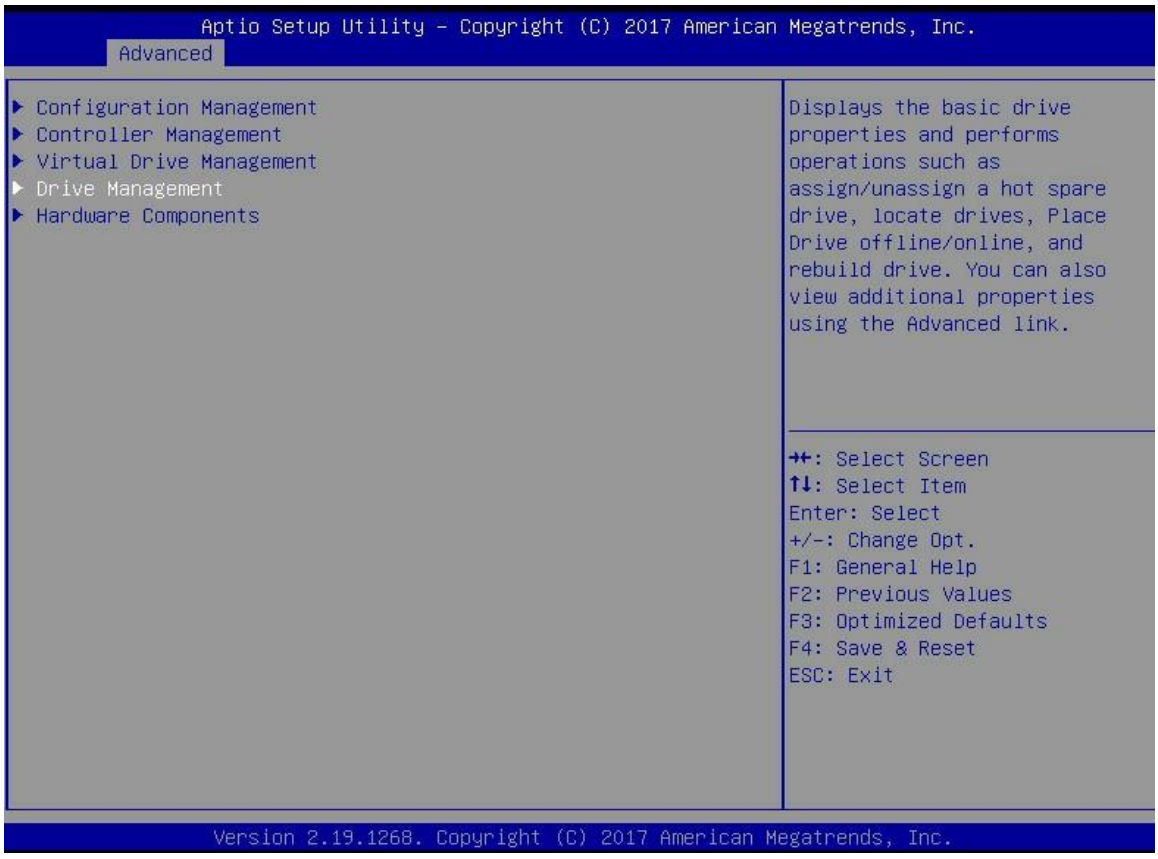


Figure 6-1

b) Enter the interface shown in Figure 6-20, select the disk to be configured as global hot spare, and press enter.

Figure 6-20

c) Enter the interface shown in Figure 6-21, select operation, press enter, then select assign assigned hot spare drive and press enter.

d) Enter the interface shown in Figure 6-22, select go and press enter.

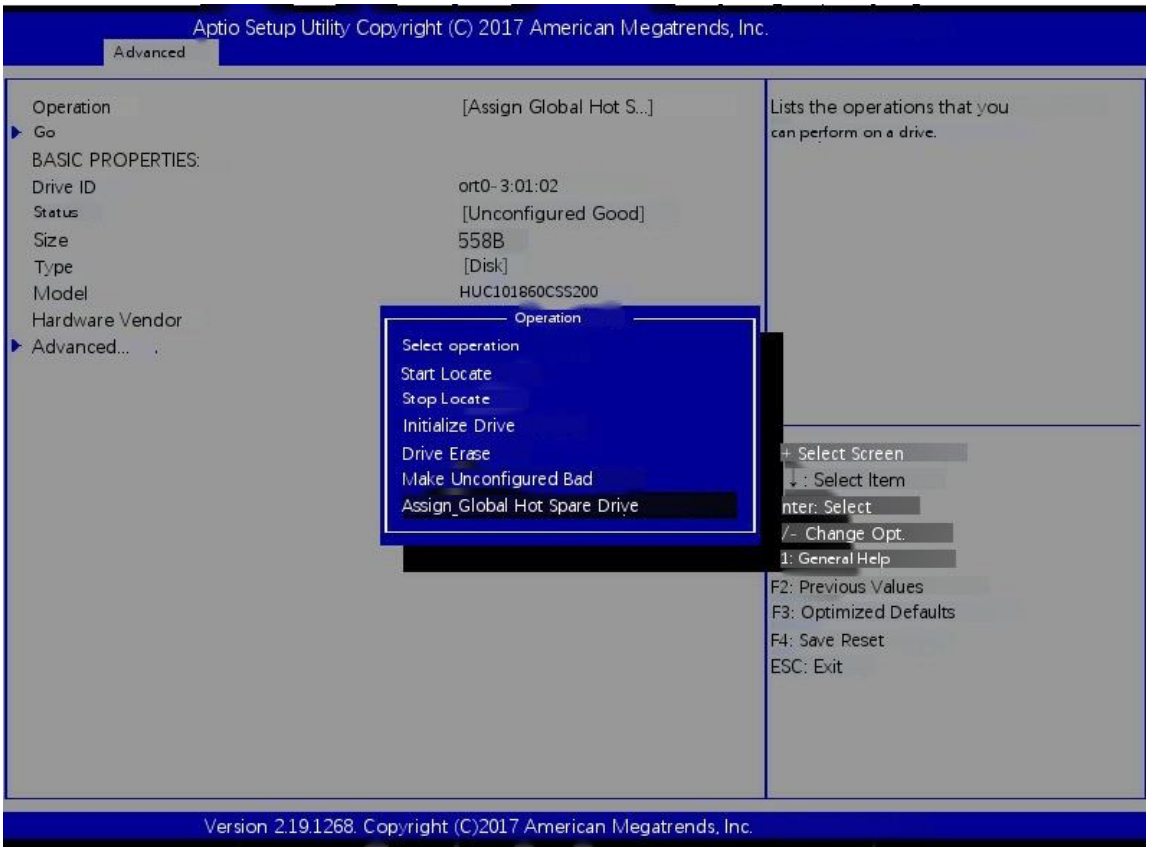


Figure 6-21

Figure 6-22

e) Enter the interface shown in Figure 6-23, select confirm to enable it, select Yes, and press enter.

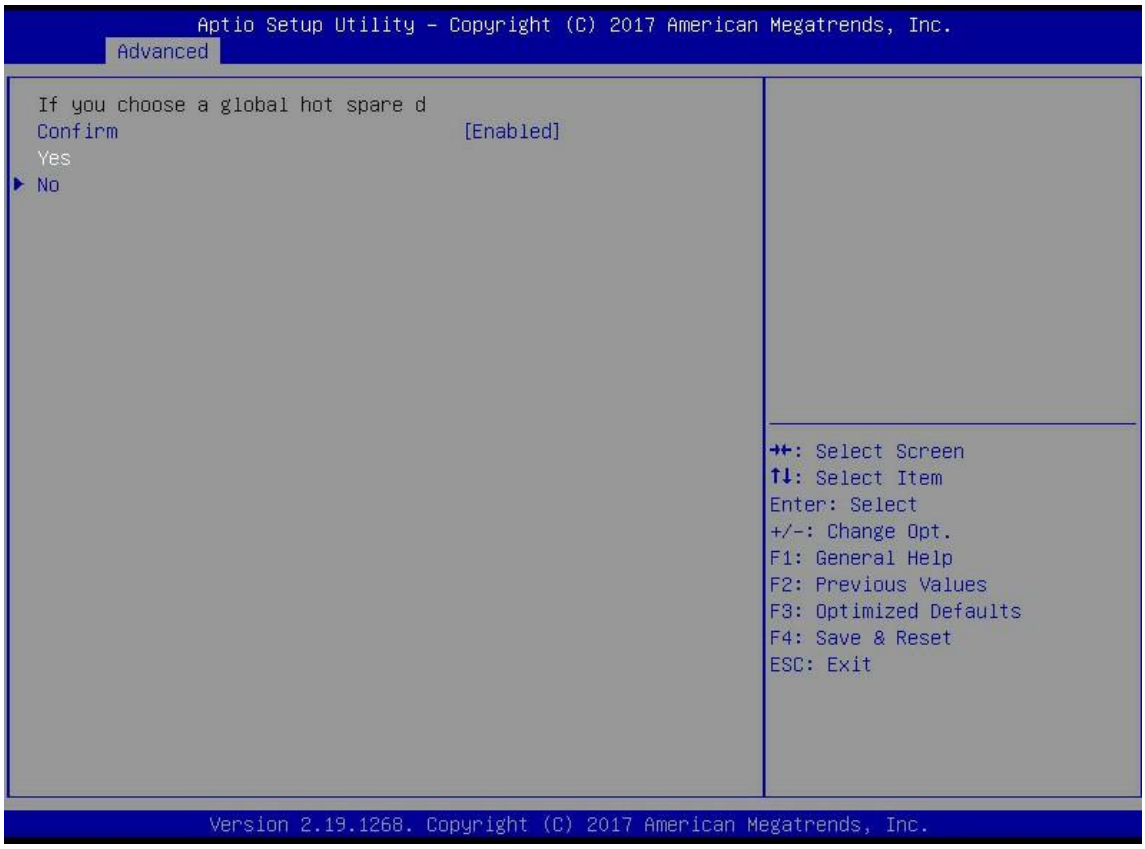


Figure 6-23

f) Enter the interface shown in Figure 6-24 to complete the configuration of global hot spare.

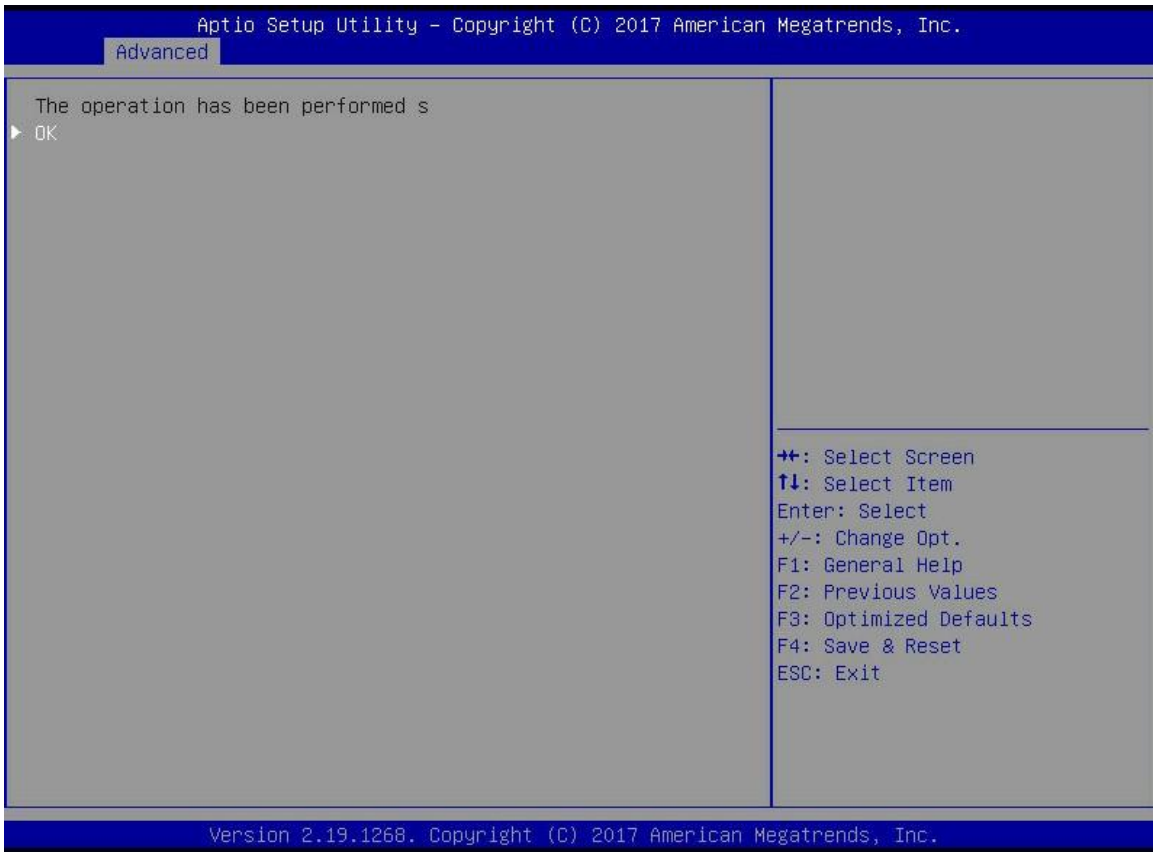
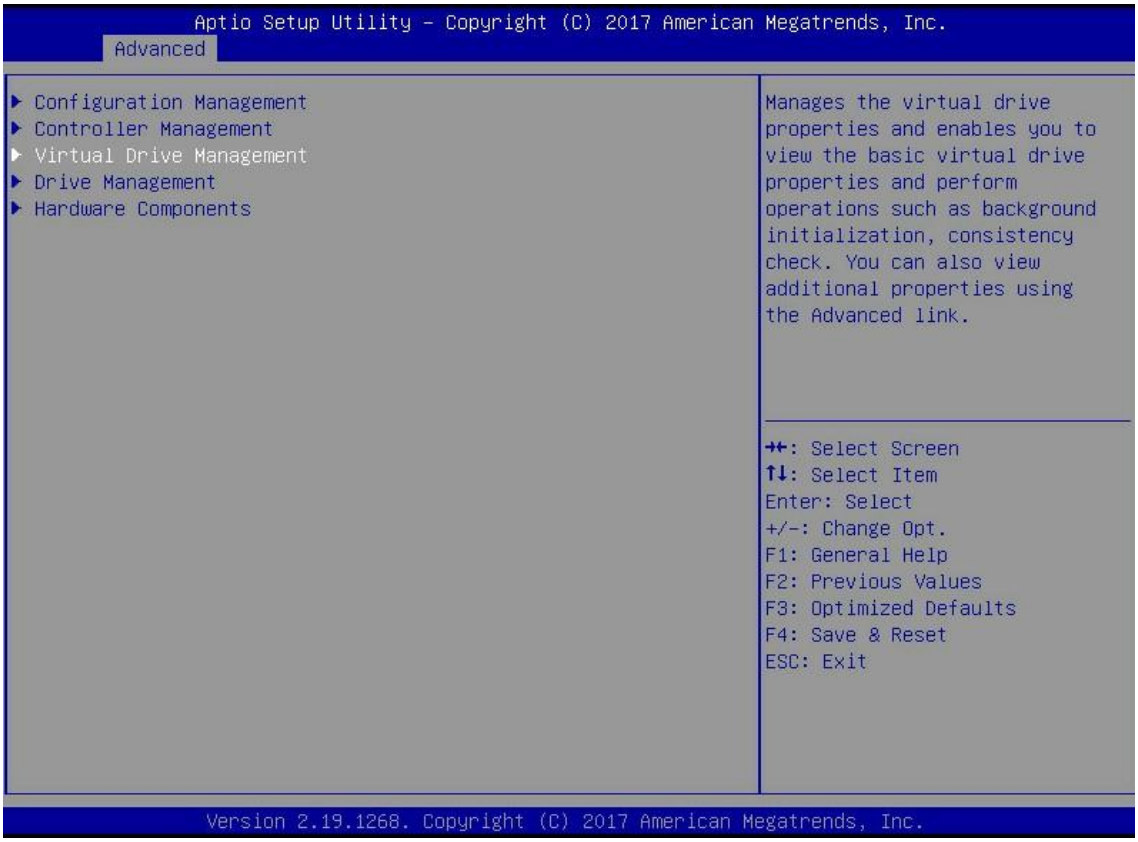


Figure 6-24

Delete Raid:

a) As shown in Figure 6-25, select virtual drive management in the raid card configuration interface and press enter.



b) Enter the interface shown in Figure 6-26, select the logical disk to be deleted, and press enter.

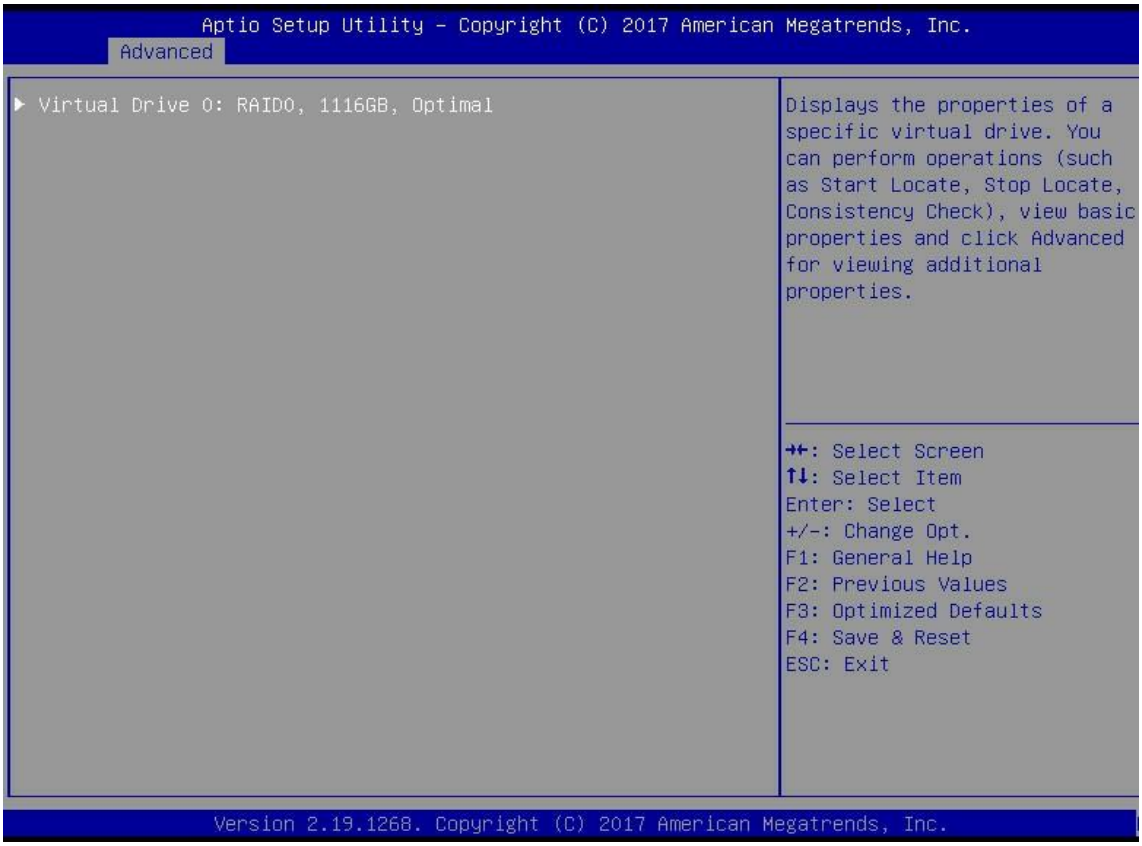
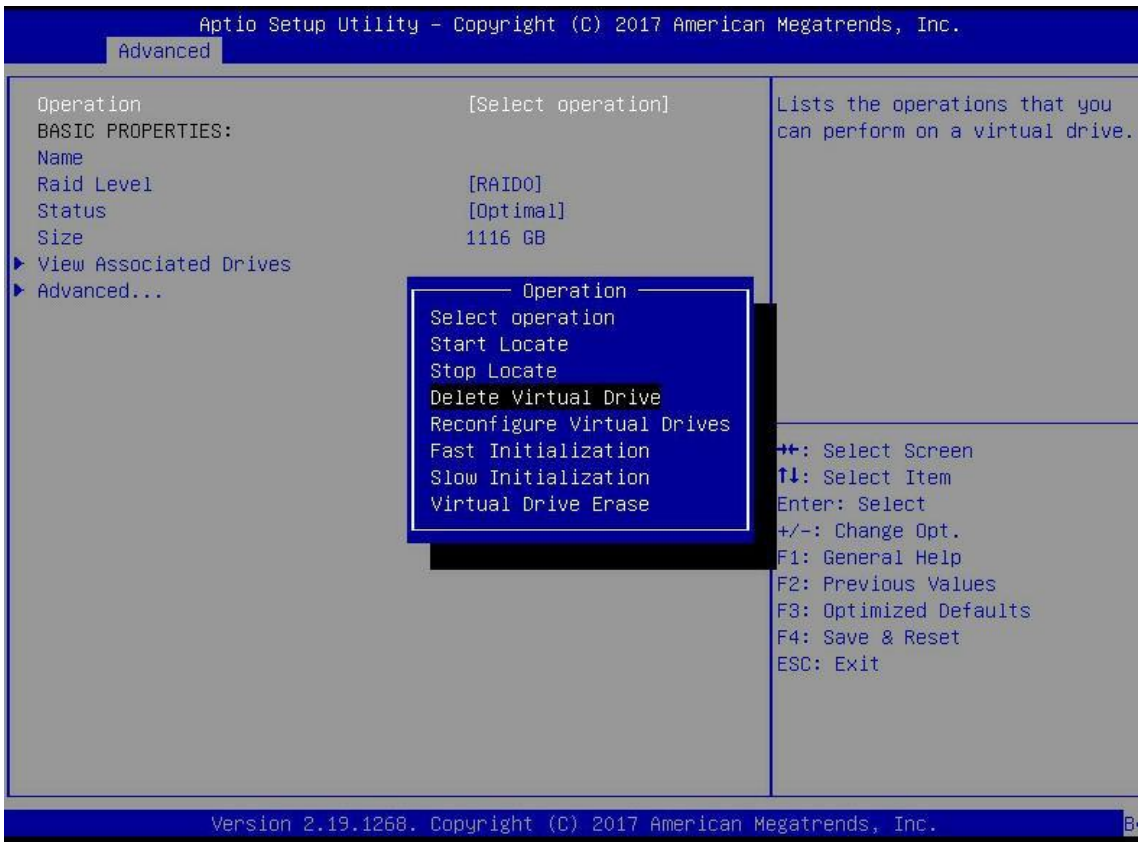


Figure 6-26

c) Enter the interface shown in Figure 6-27, select operation, press enter, and then select Delete virtual drive in the pop-up dialog box, and press enter.



d) Enter the interface shown in Figure 6-28, select go and press enter.

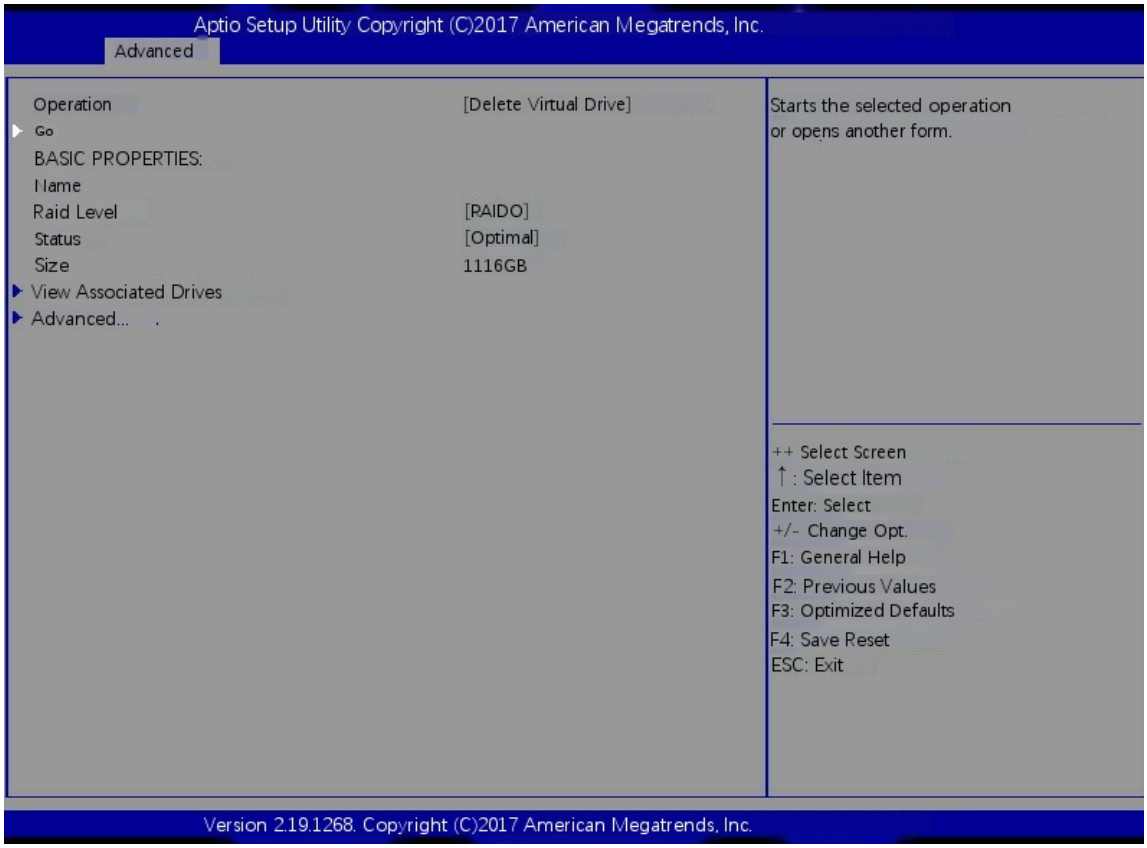


Figure 6-28

e) Enter the interface shown in figure 6-29, select confirm to enable it, select Yes, and press enter.

f) Enter the interface shown in Figure 6-30 to complete the raid deletion operation.

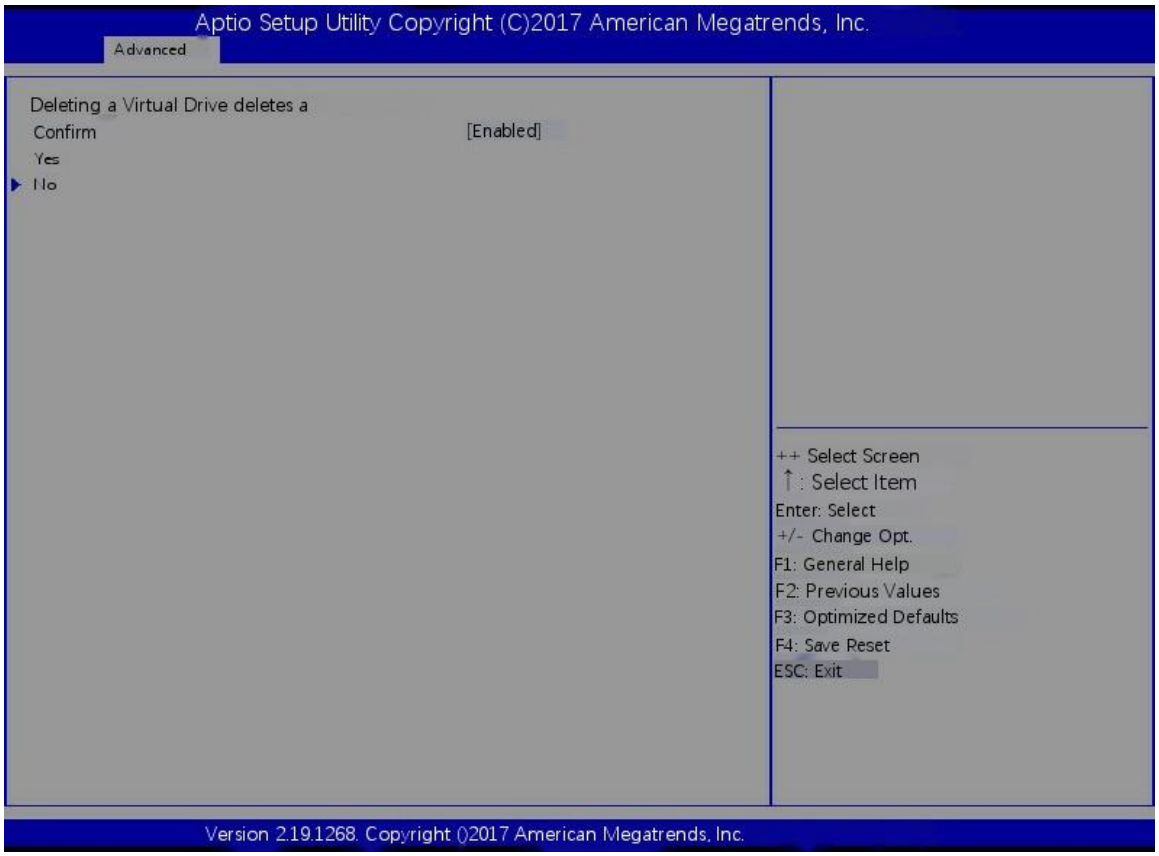


Figure 6-29

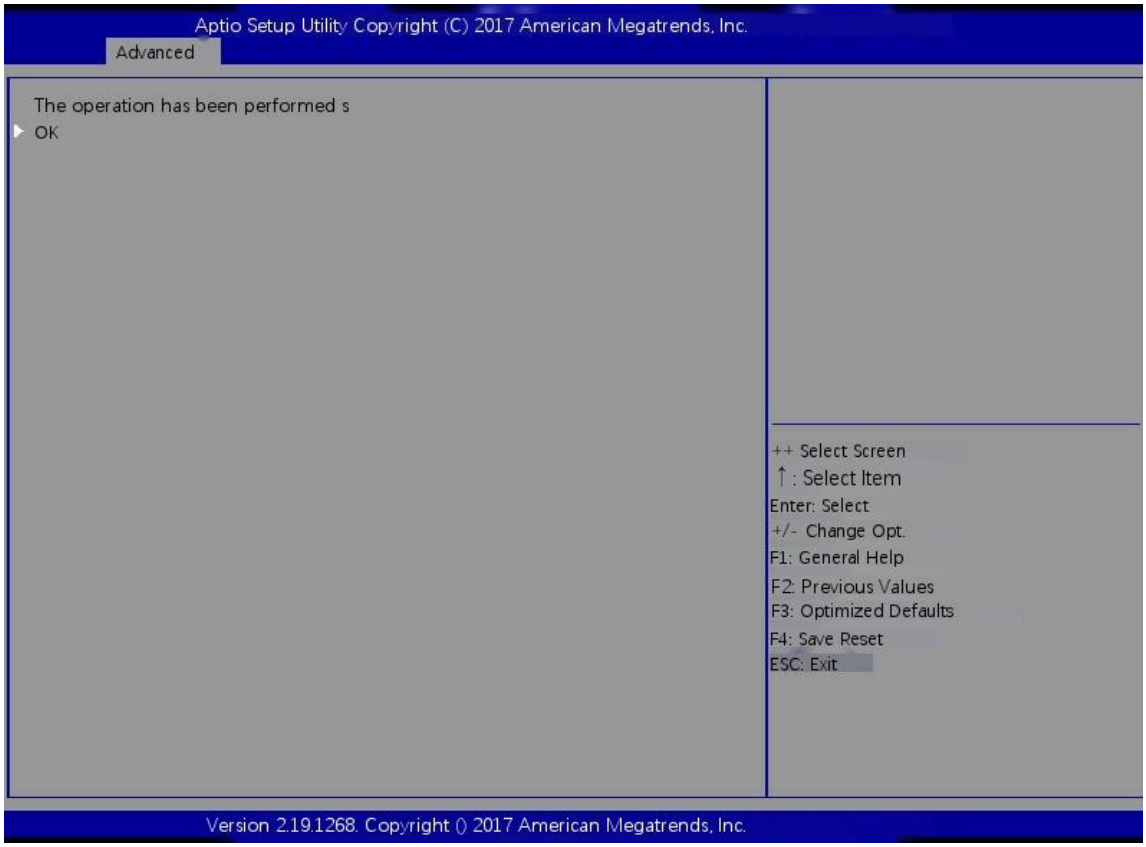


Figure 6-30

Locate the disk location:

1. Locating physical disks

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

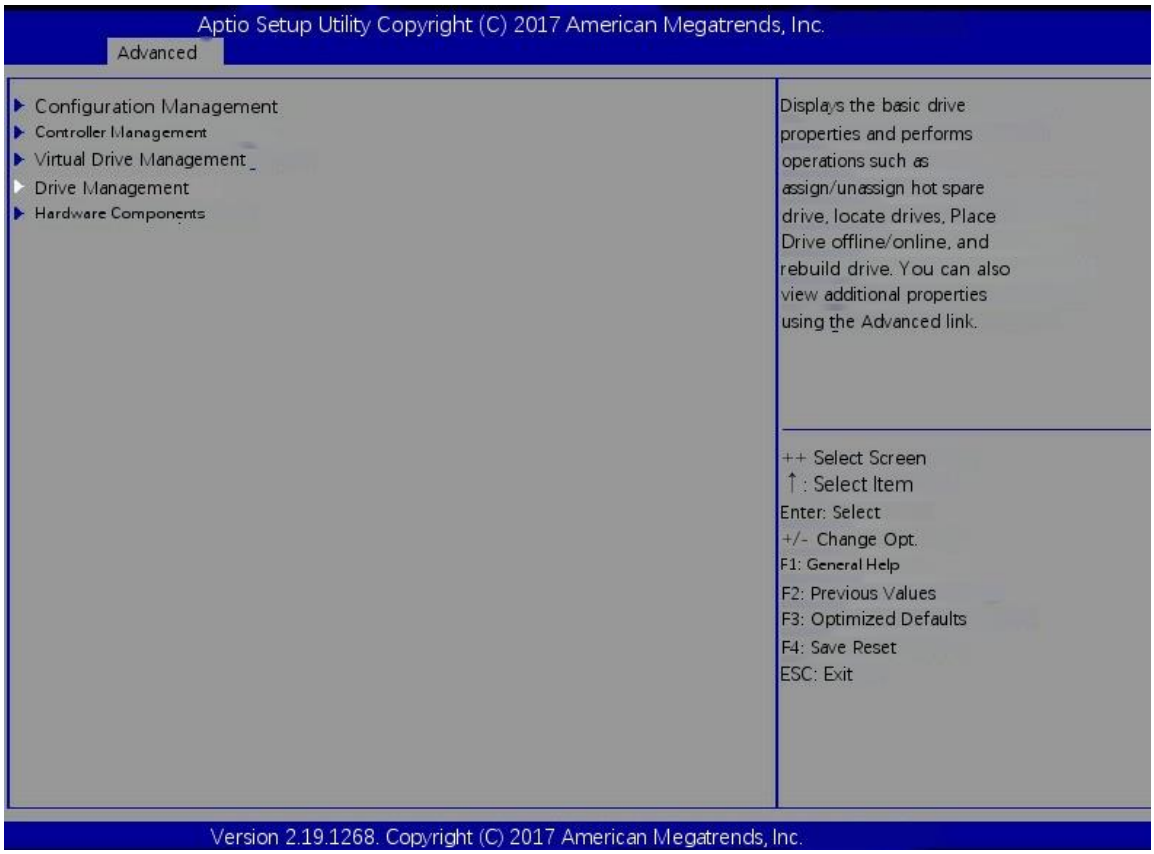


Figure 6-31

b) Enter the interface shown in figure 6-32, select the disk to be located and press enter.

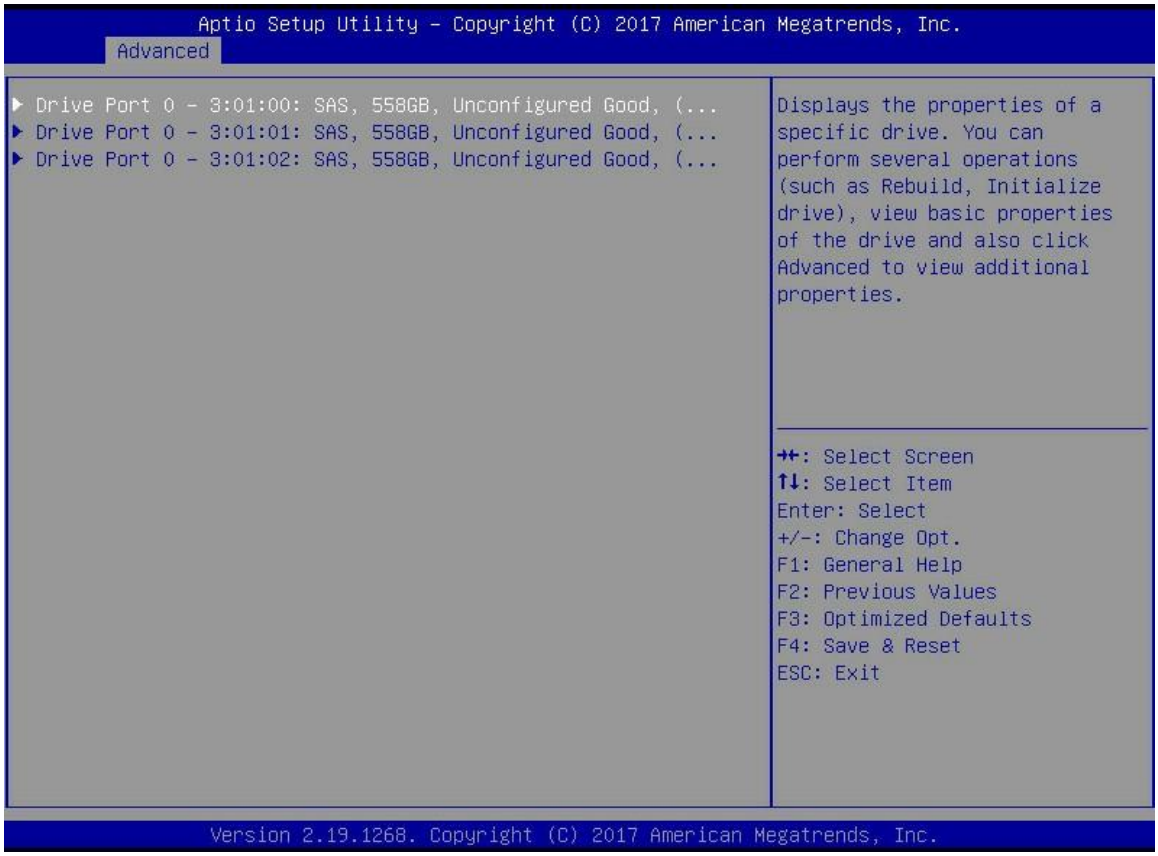
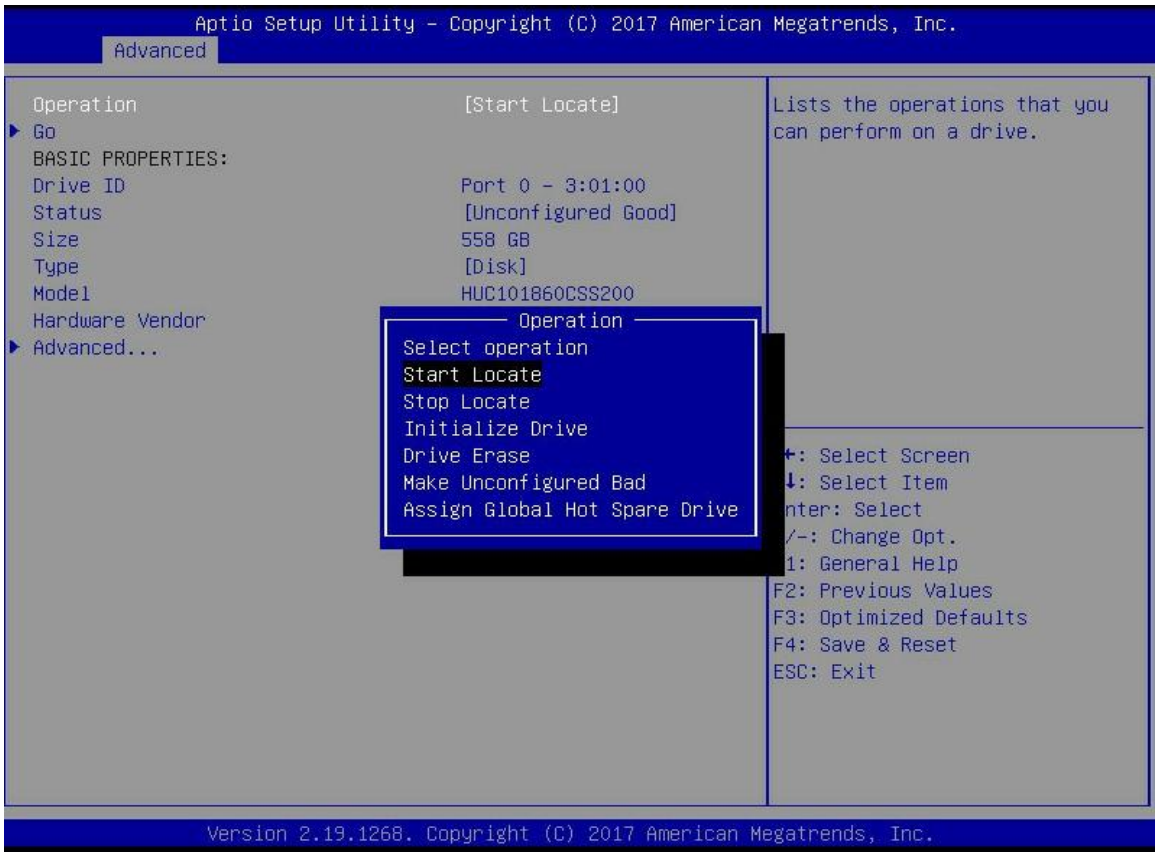


Figure 6-32

c) Enter the interface shown in figure 6-33, select operation, press enter, and then select Start locate in the pop-up dialog box and press enter.



d) Enter the interface shown in figure 6-34, select go and press enter.

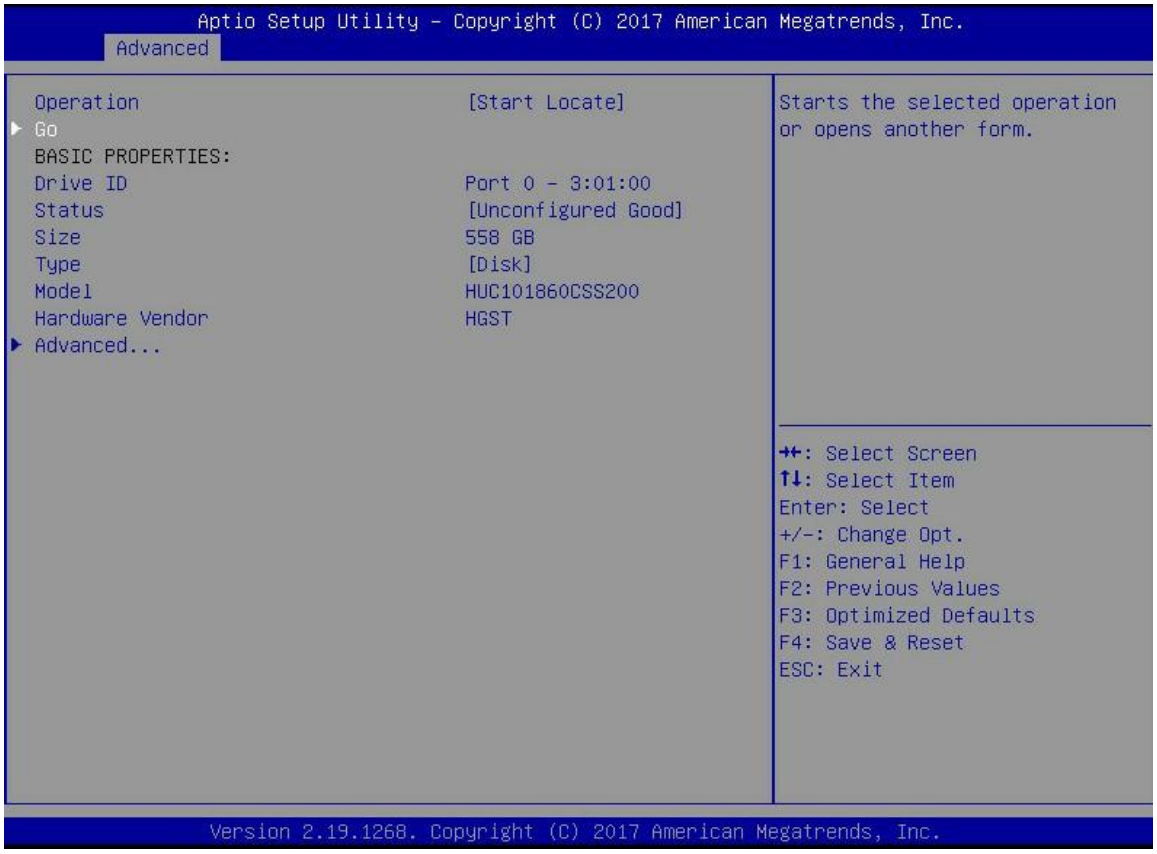


Figure 6-34

e) Enter the interface shown in Figure 6-35 to complete the operation of locating the physical disk.

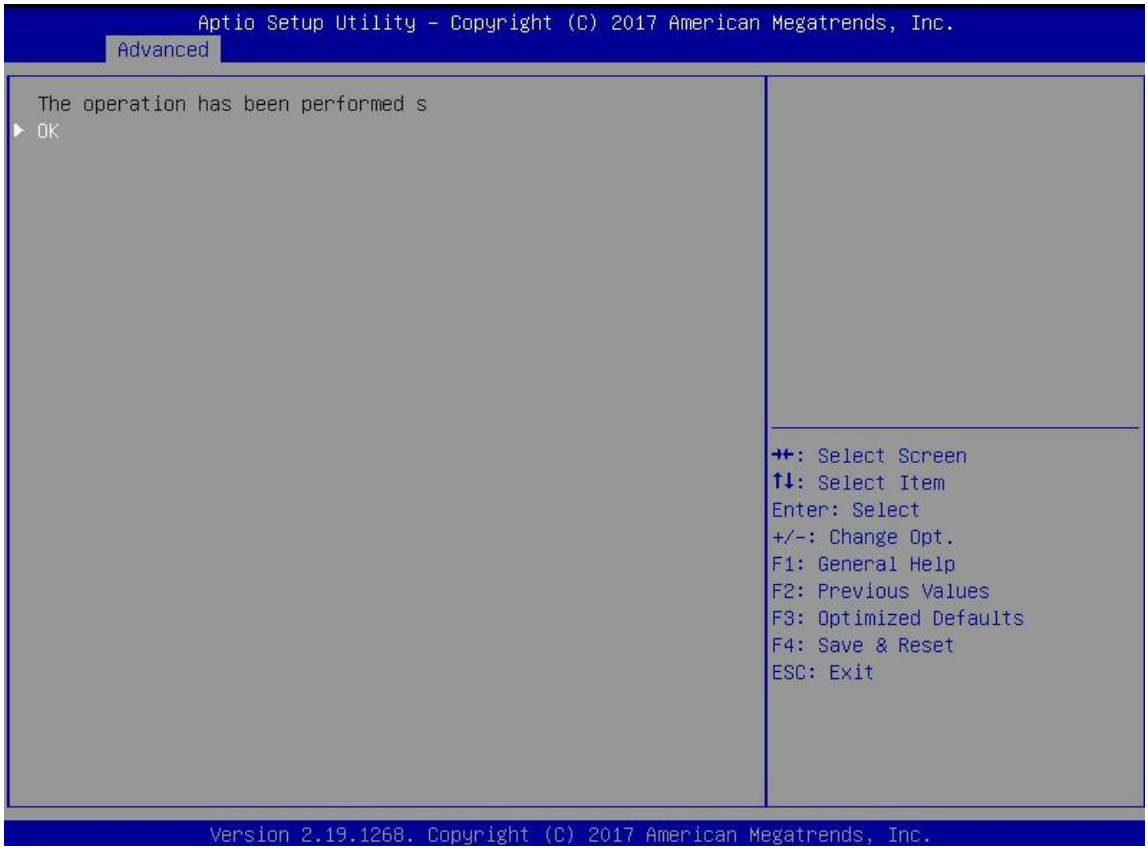


Figure 6-35

2. Locate all disks in the logical drive

a) As shown in Figure 6-36, select virtual drive management in the raid card configuration interface and press enter.

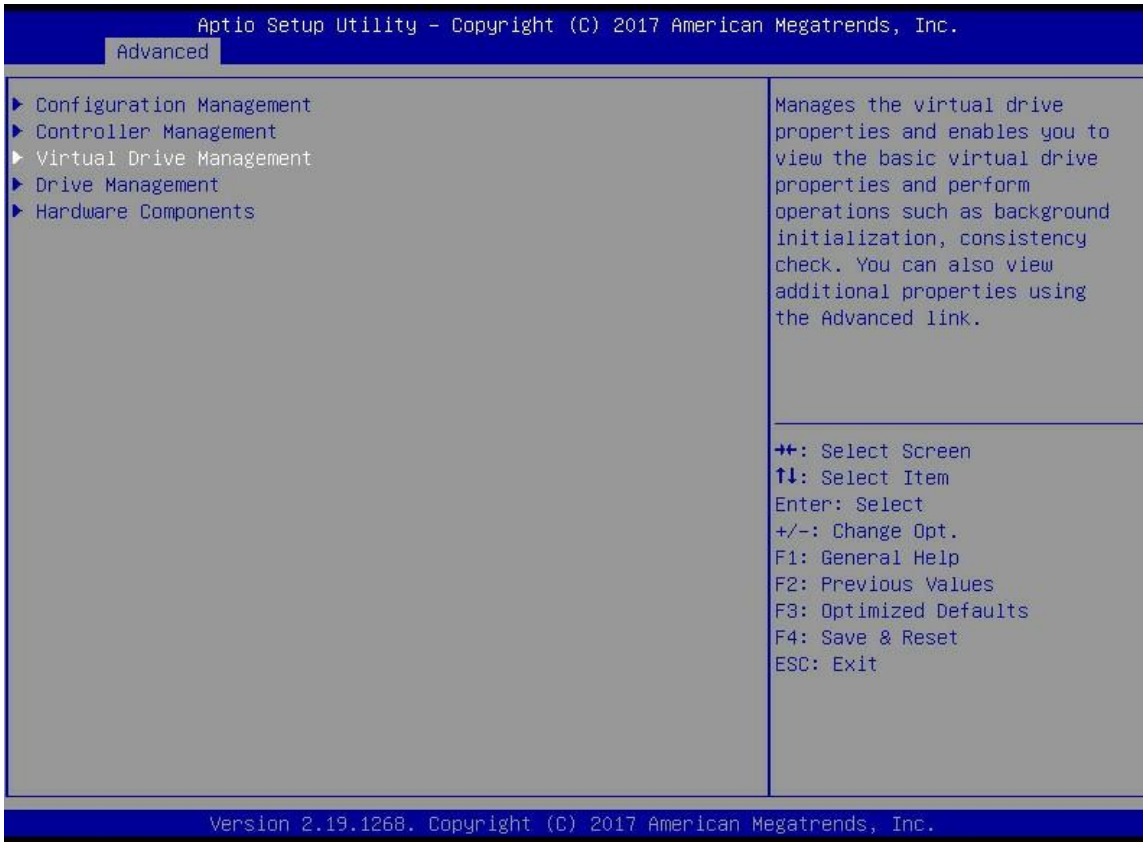


Figure 6-36

b) Enter the interface shown in figure 6-37, select the logical disk to be located and press enter.

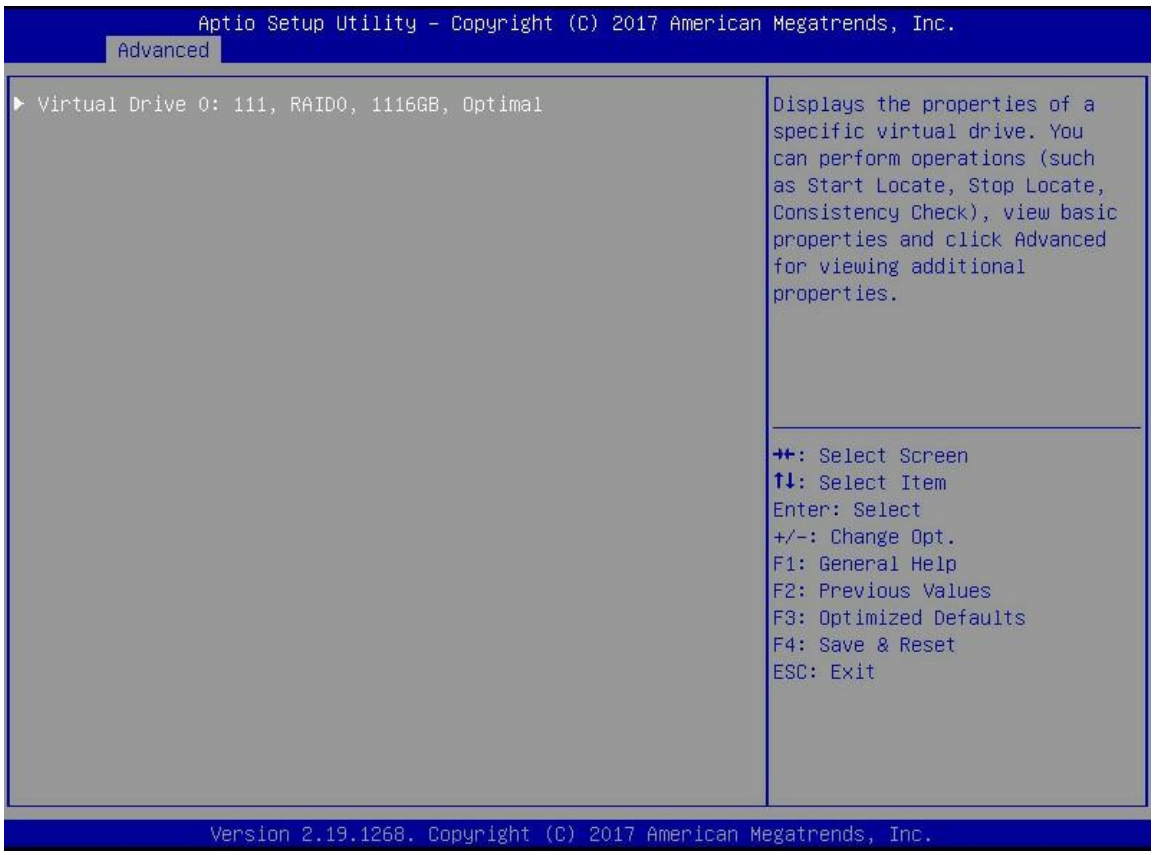


Figure 6-37

c) Enter the interface shown in figure 6-38, select operation, press enter, and then select Start locate in the pop-up dialog box and press enter.

d) Enter the interface shown in figure 6-39, select go and press enter.

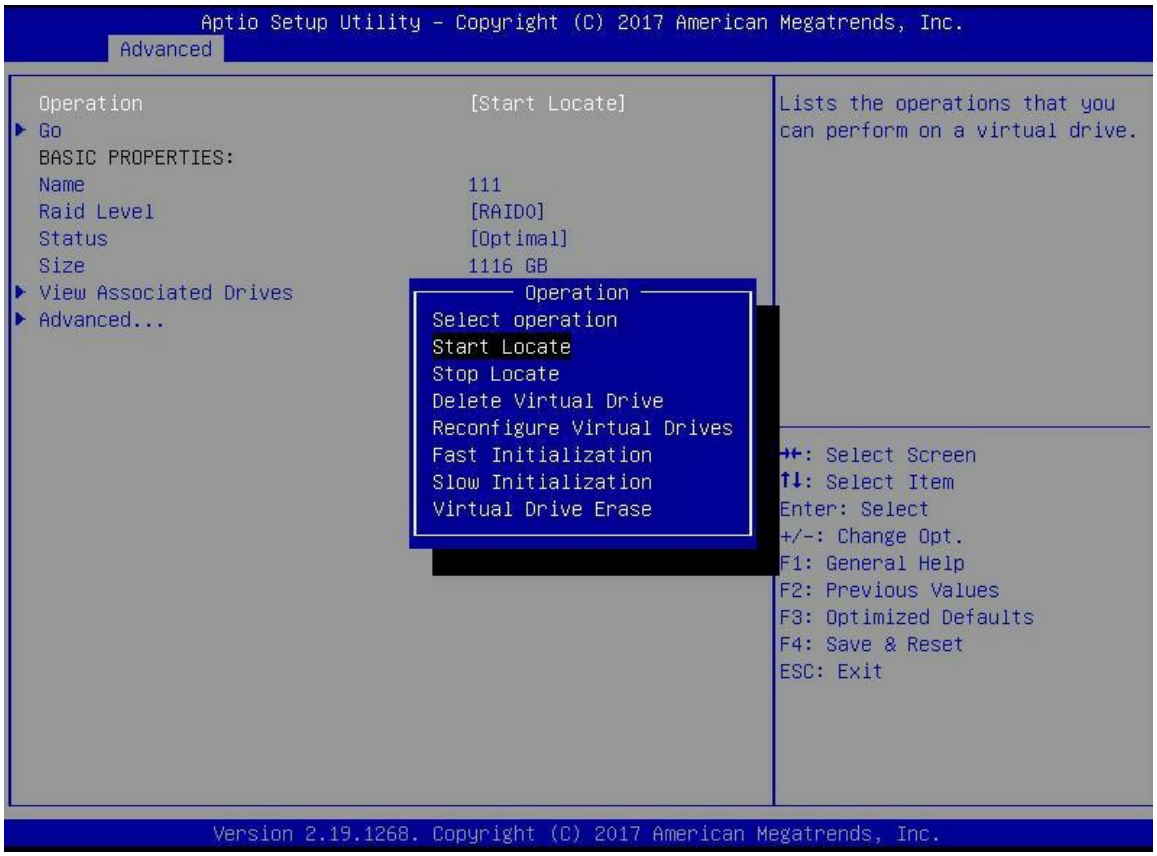


Figure 6-38

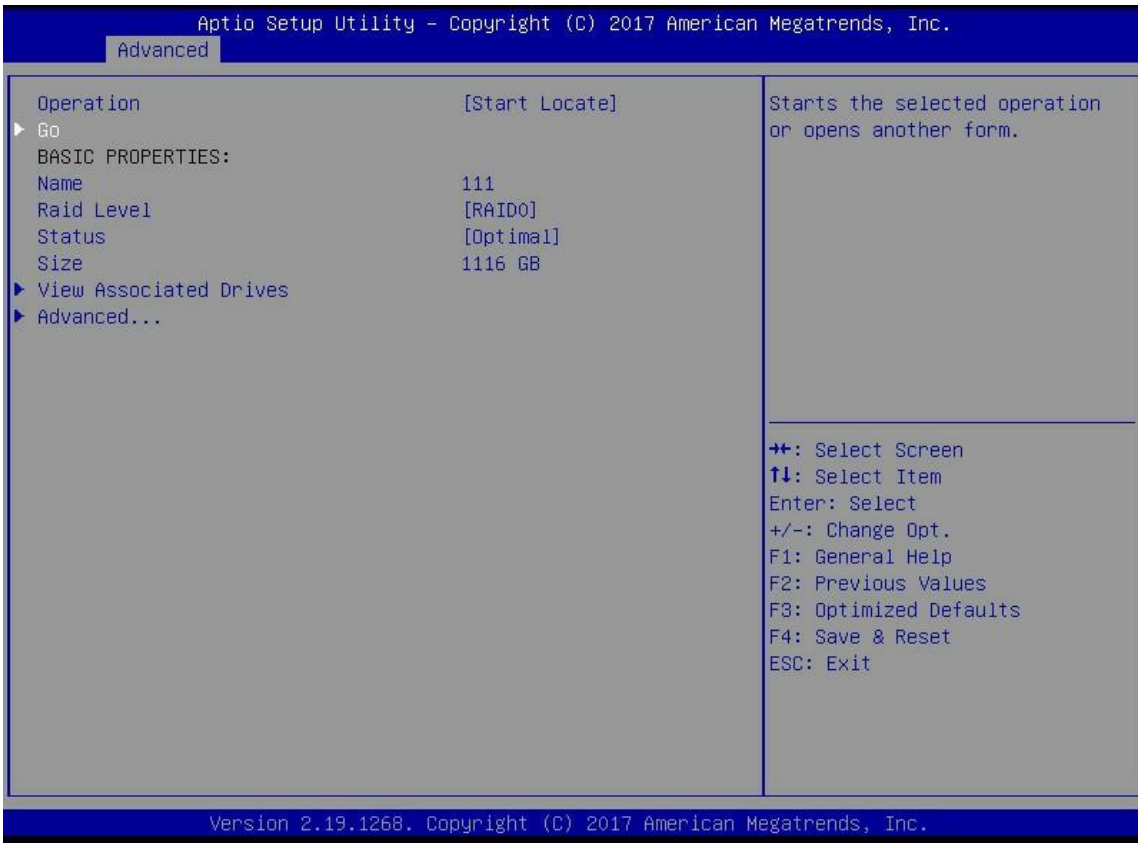


Figure 6-39

e) Enter the interface shown in figure 6-40 to complete the operation of locating all the disk positions in the logical disk.

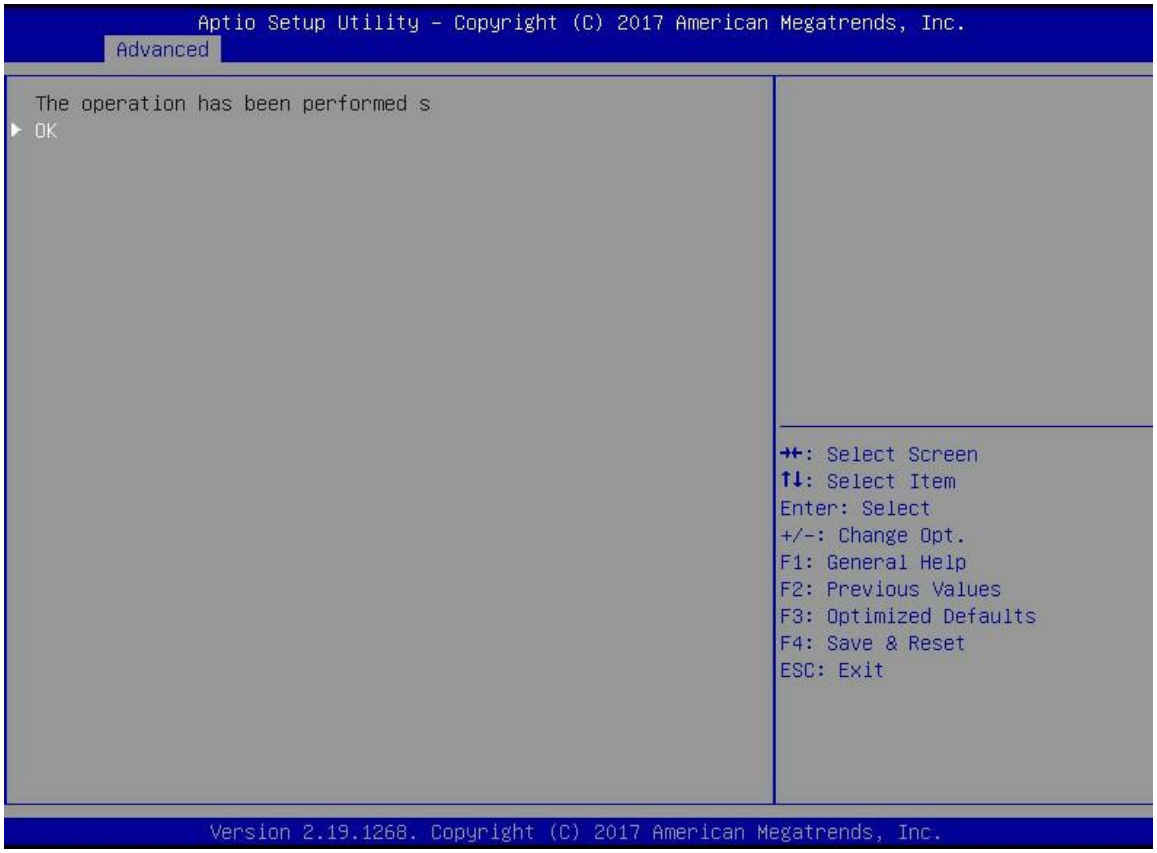


Figure 6-40

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 6-41, select virtual drive management in the raid card configuration interface and press enter.

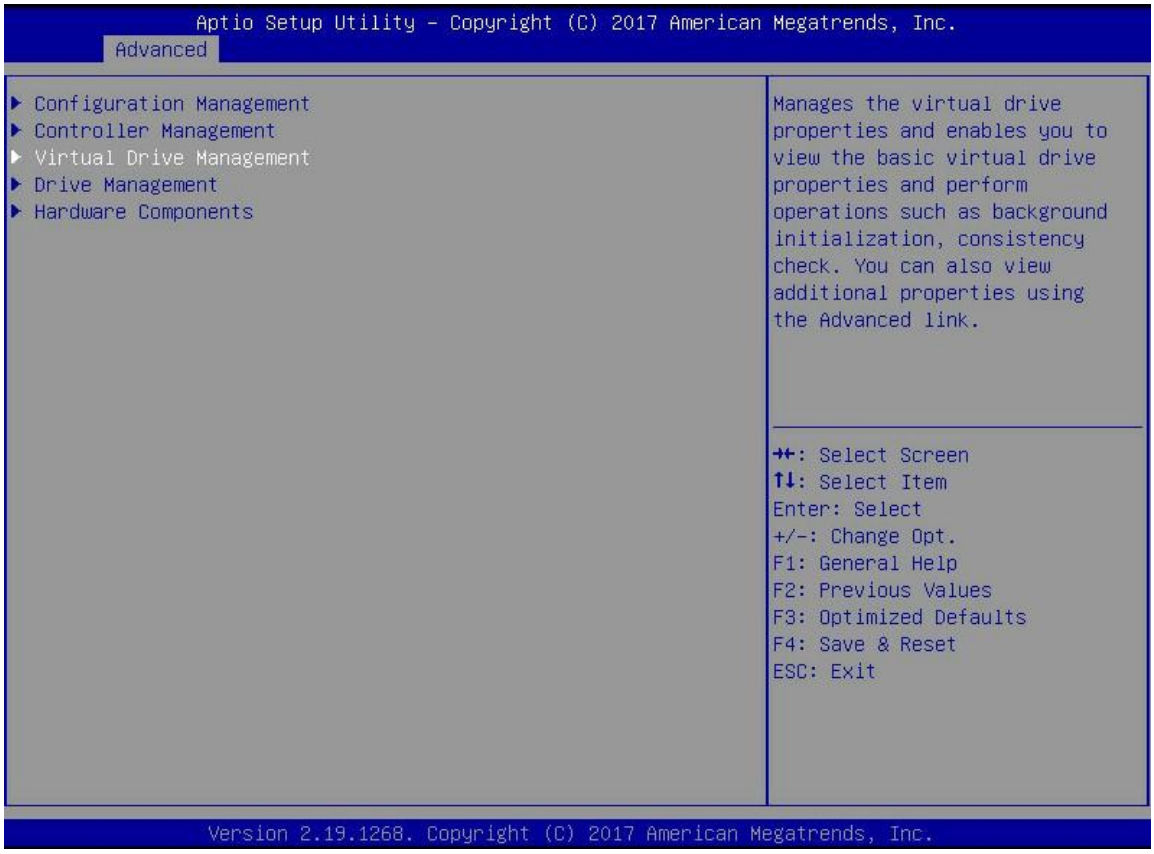


Figure 6-41

b) Enter the interface shown in figure 6-42, select the logical disk to be initialized, and press enter.

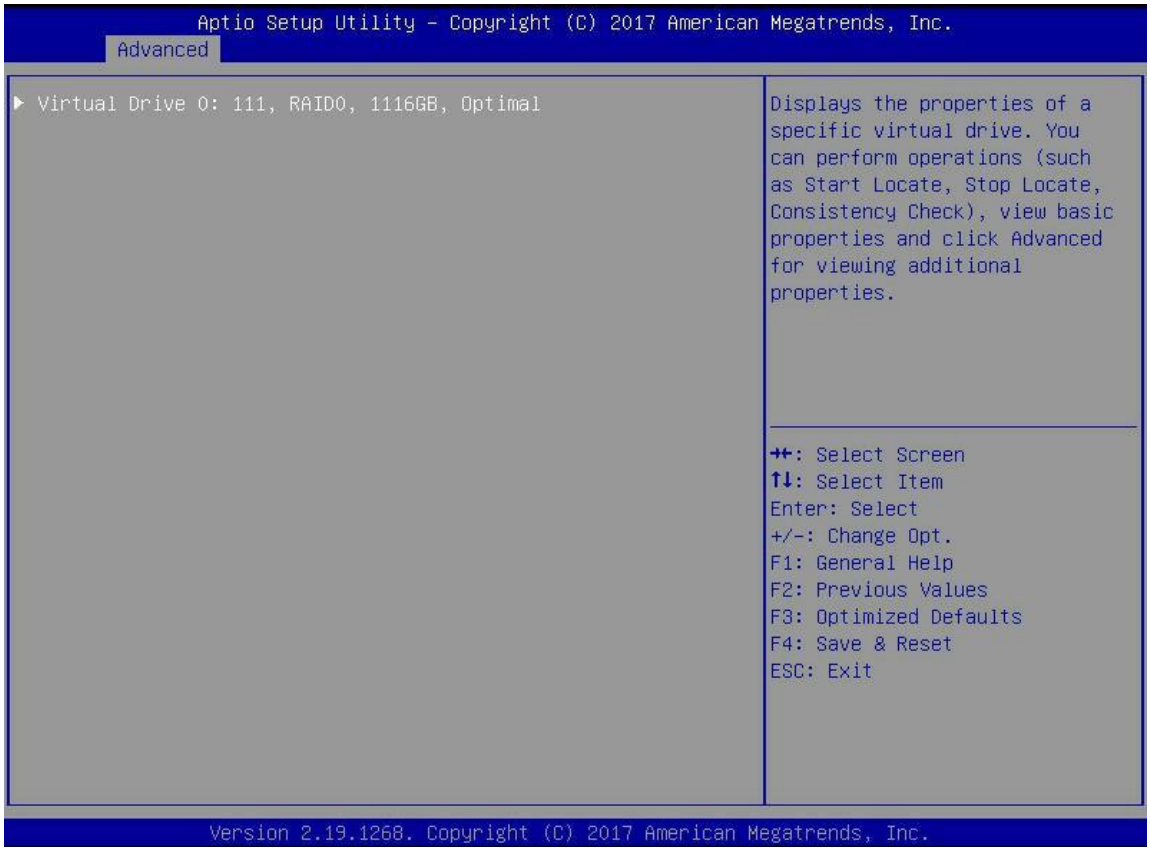


Figure 6-42

c) Enter the interface shown in figure 6-43, select operation, press enter, and then select fast / slow initialization in the pop-up dialog, and press enter.

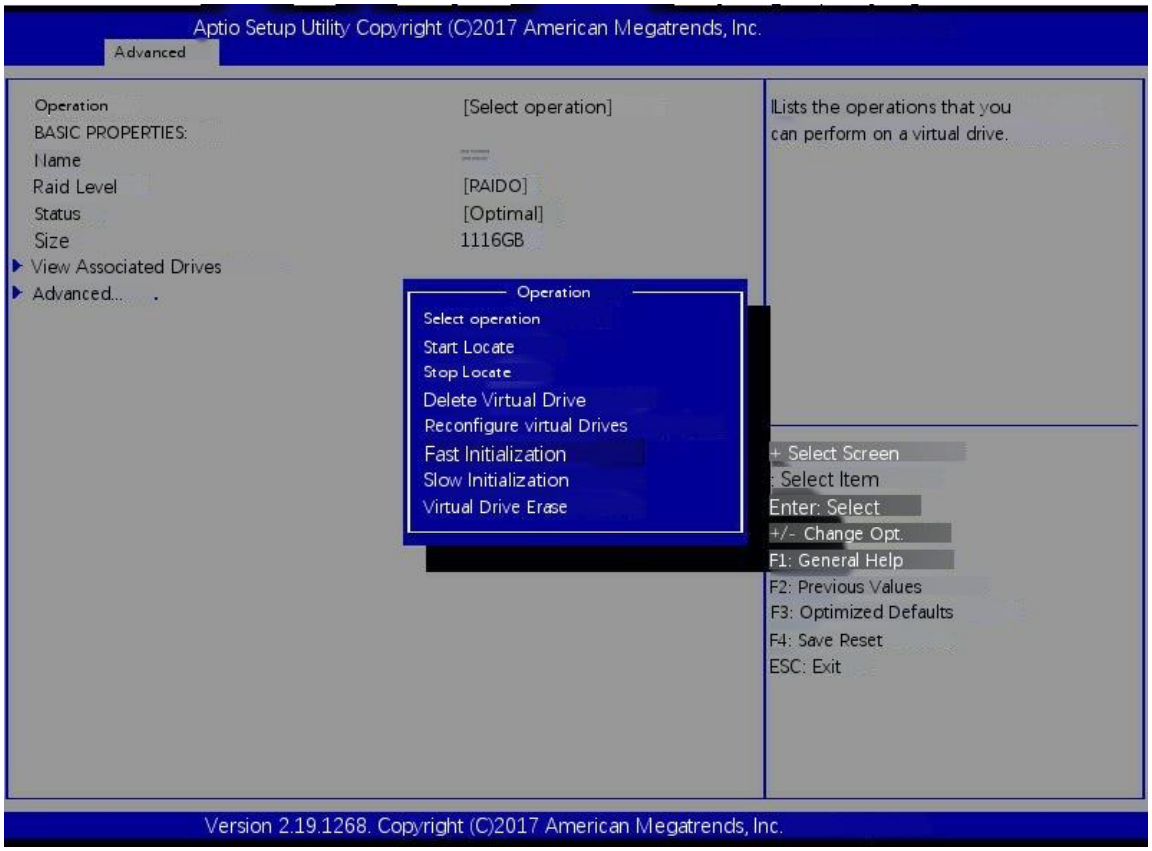


Figure 6-43

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

Data cannot be written until initialization is complete

d) Enter the interface shown in figure 6-44, select go and press enter.

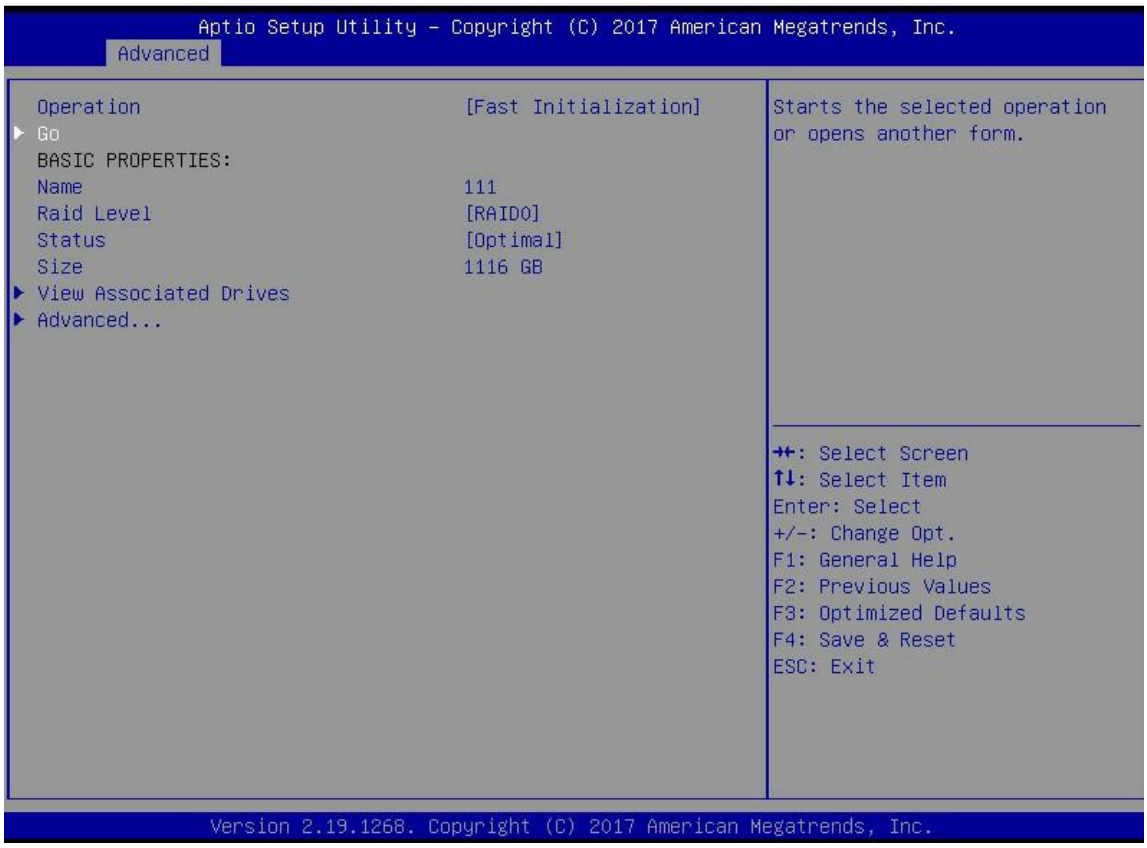


Figure 6-44

e) Enter the interface shown in figure 6-45, select confirm to enable it, select Yes, and press enter.

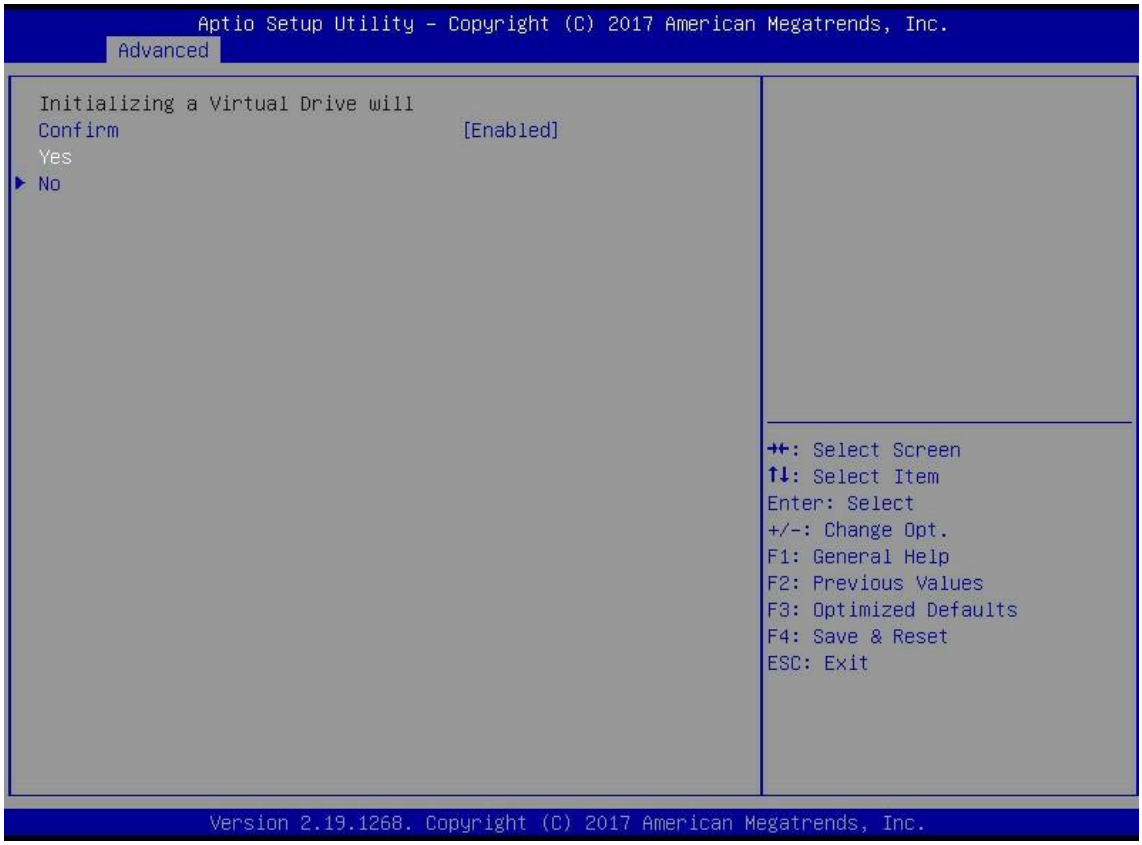


Figure 6-45

f) Enter the interface shown in figure 6-46 to complete the initialization of logical disk.

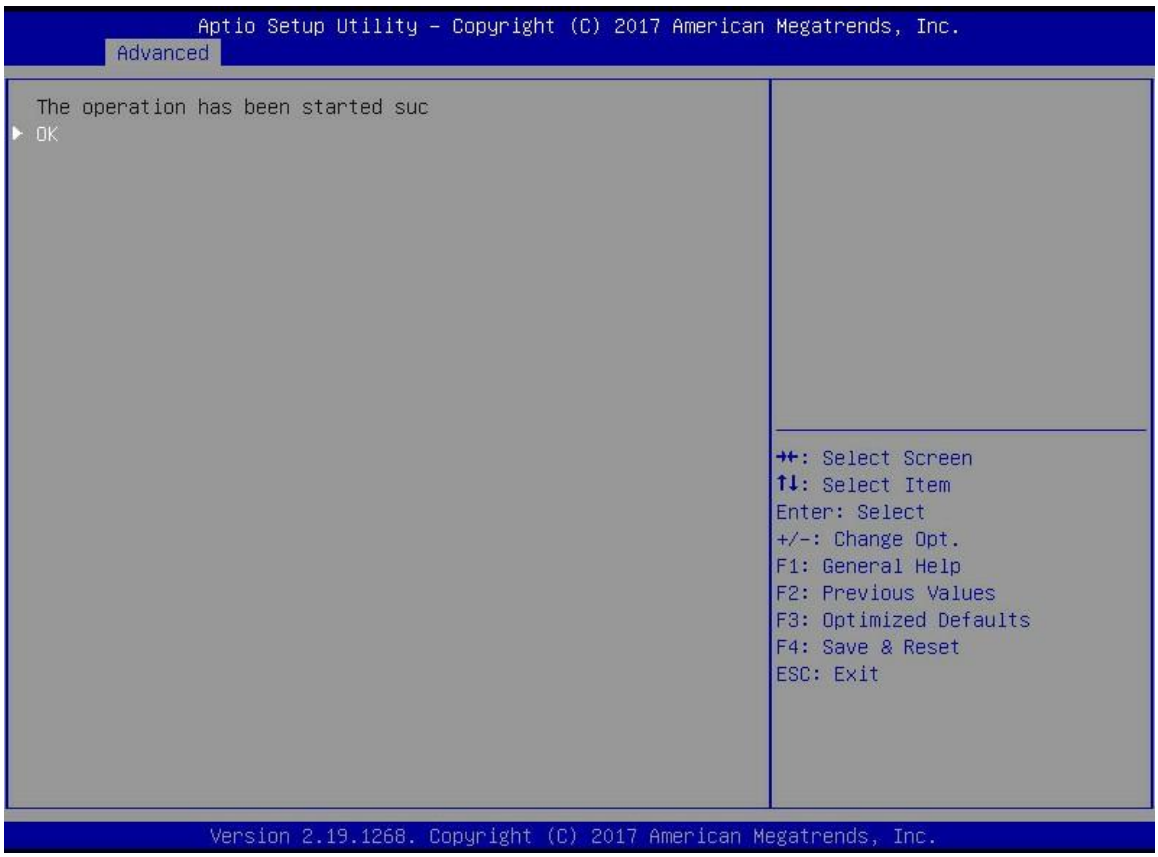


Figure 6-46

Initialize physical disk:

a) As shown in figure 6-47, select drive management in the raid card configuration interface and press enter.

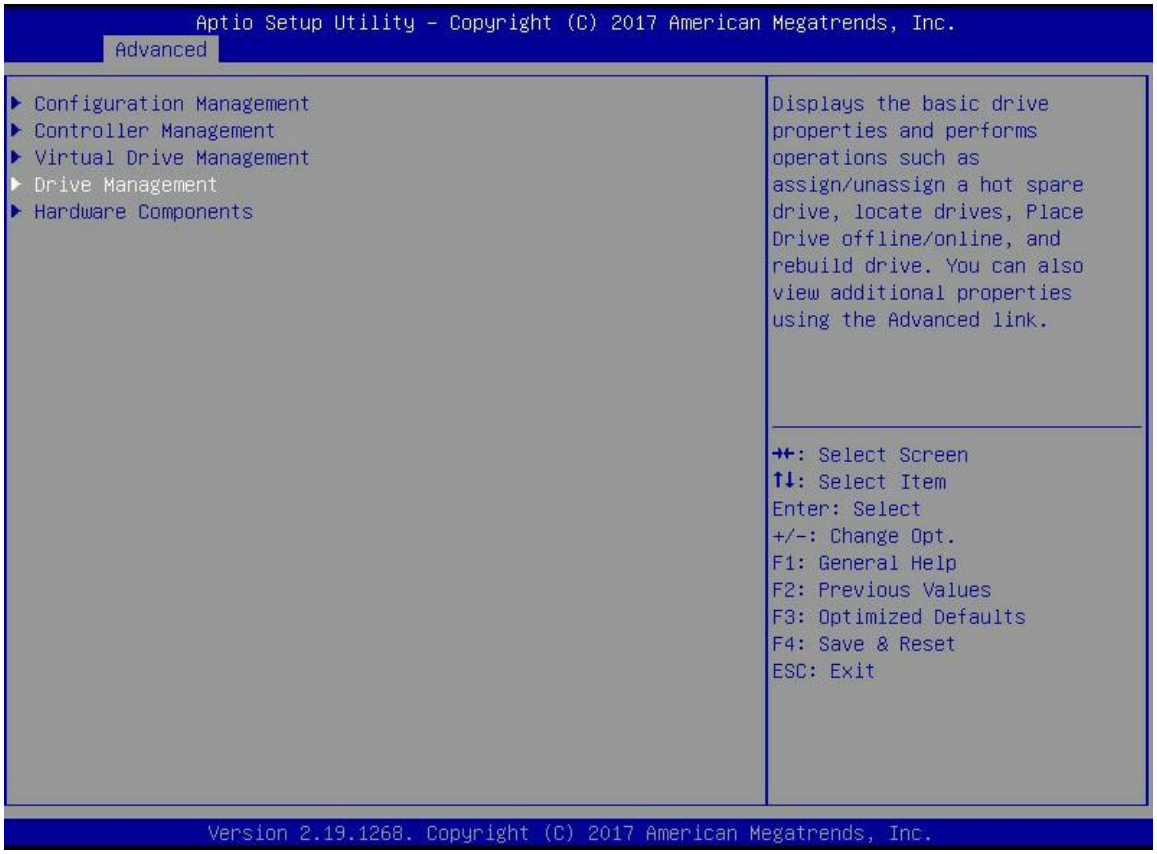


Figure 6-47

b) Enter the interface shown in Figure 6-48, select the disk to be initialized, and press enter.

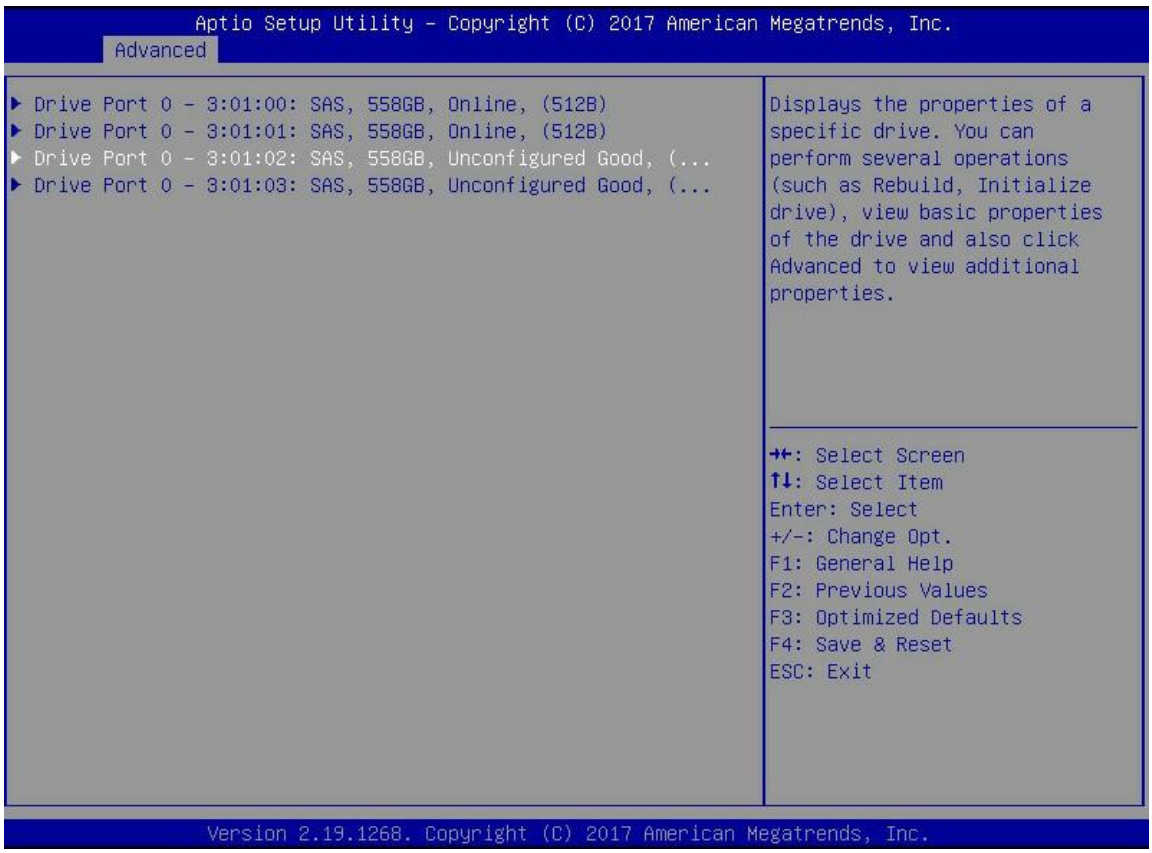


Figure 6-48

c) Enter the interface shown in figure 6-49, select operation, press enter, and then select initialize drive in the pop-up dialog box, and press enter.

d) Enter the interface shown in Figure 6-50, select go and press enter.

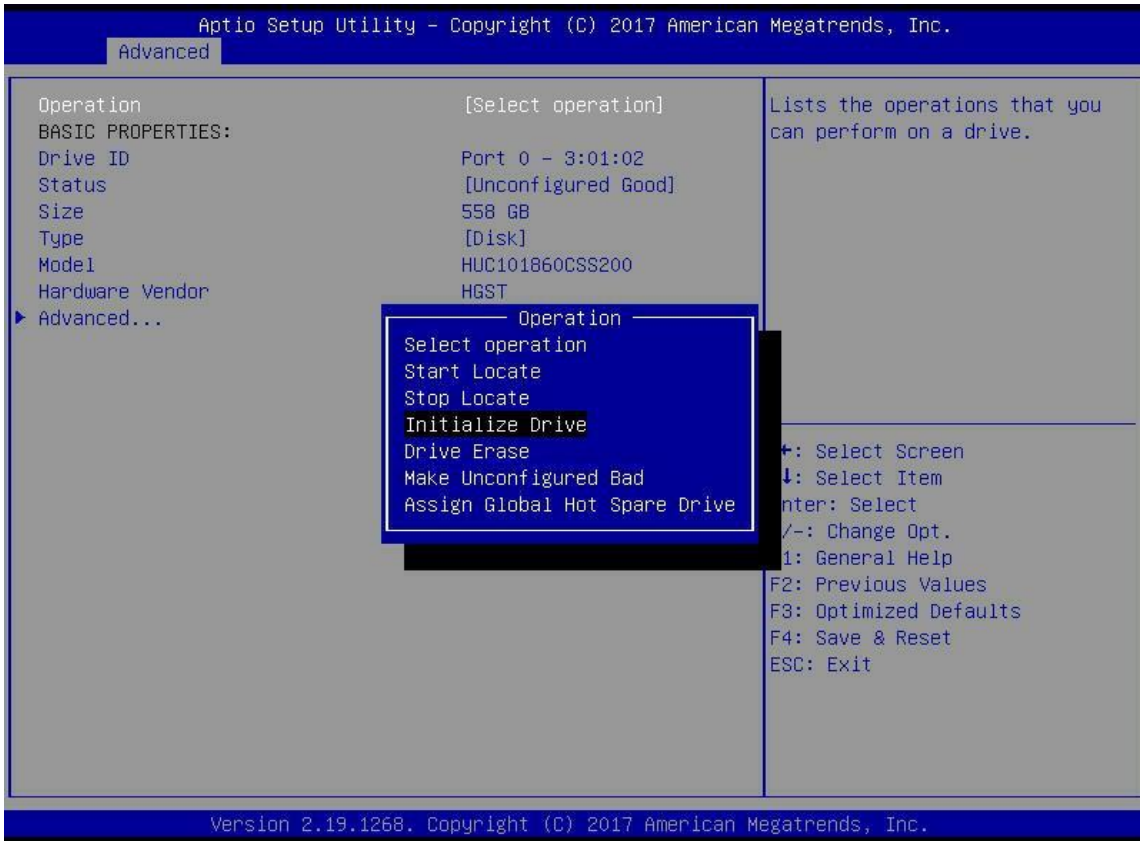


Figure 6-49

Figure 6-50

e) Enter the interface shown in figure 6-51, select confirm to enable it, select Yes, and press enter.

f) Enter the interface shown in figure 6-52 to complete the initialization of the physical disk.

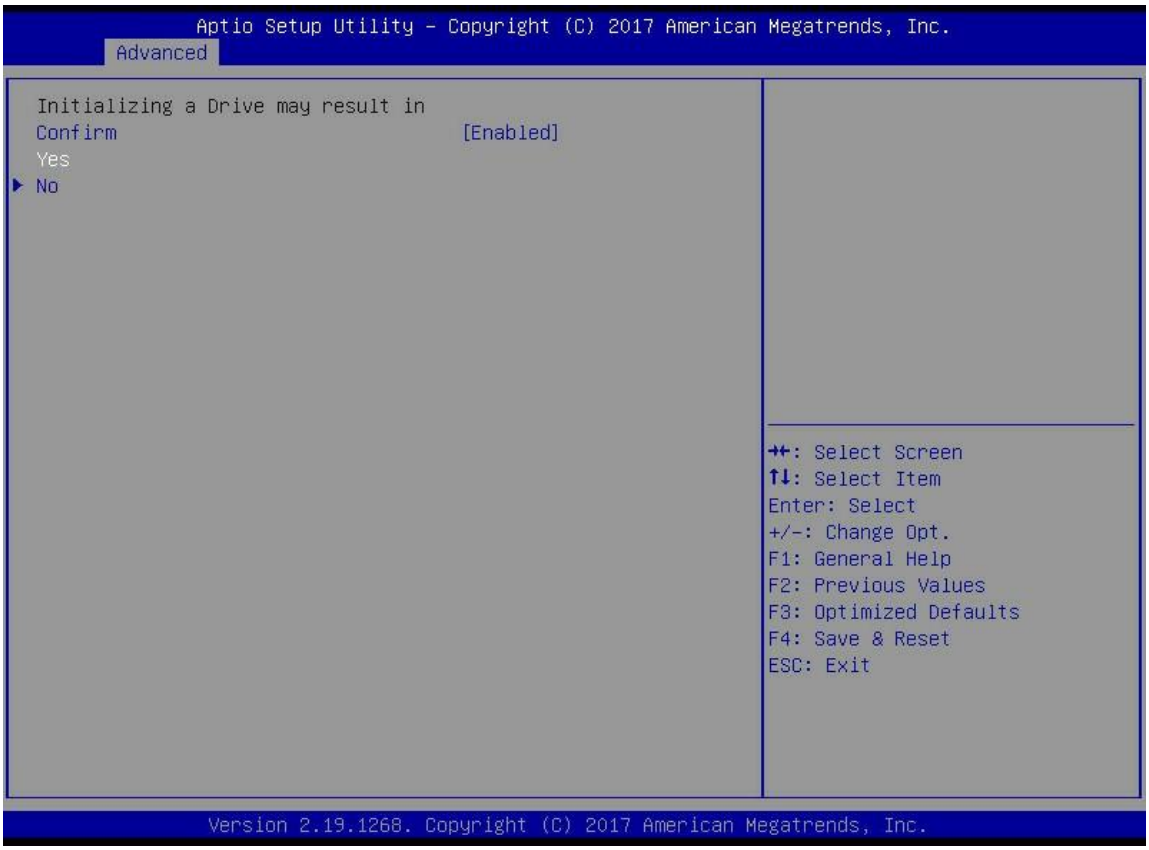


Figure 6-51

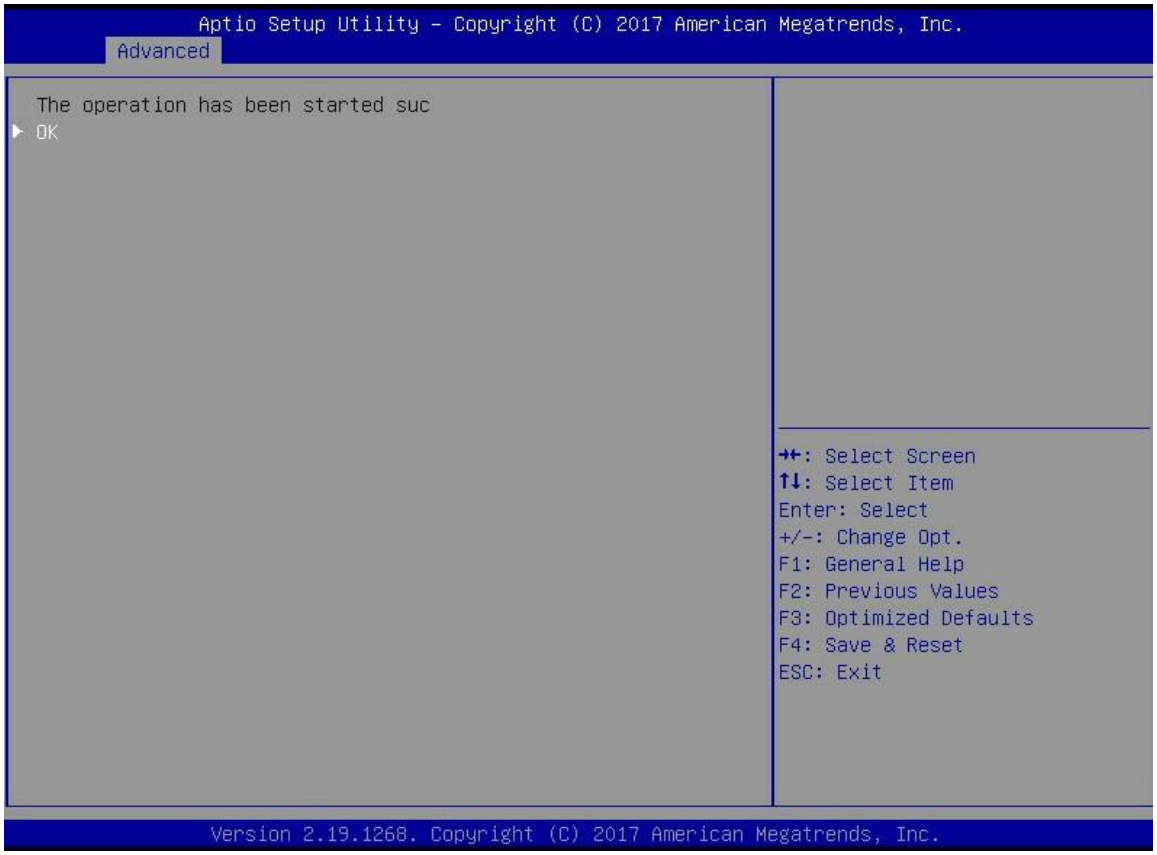


Figure 6-52

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 6-53, select drive management in the raid card configuration interface and press enter.

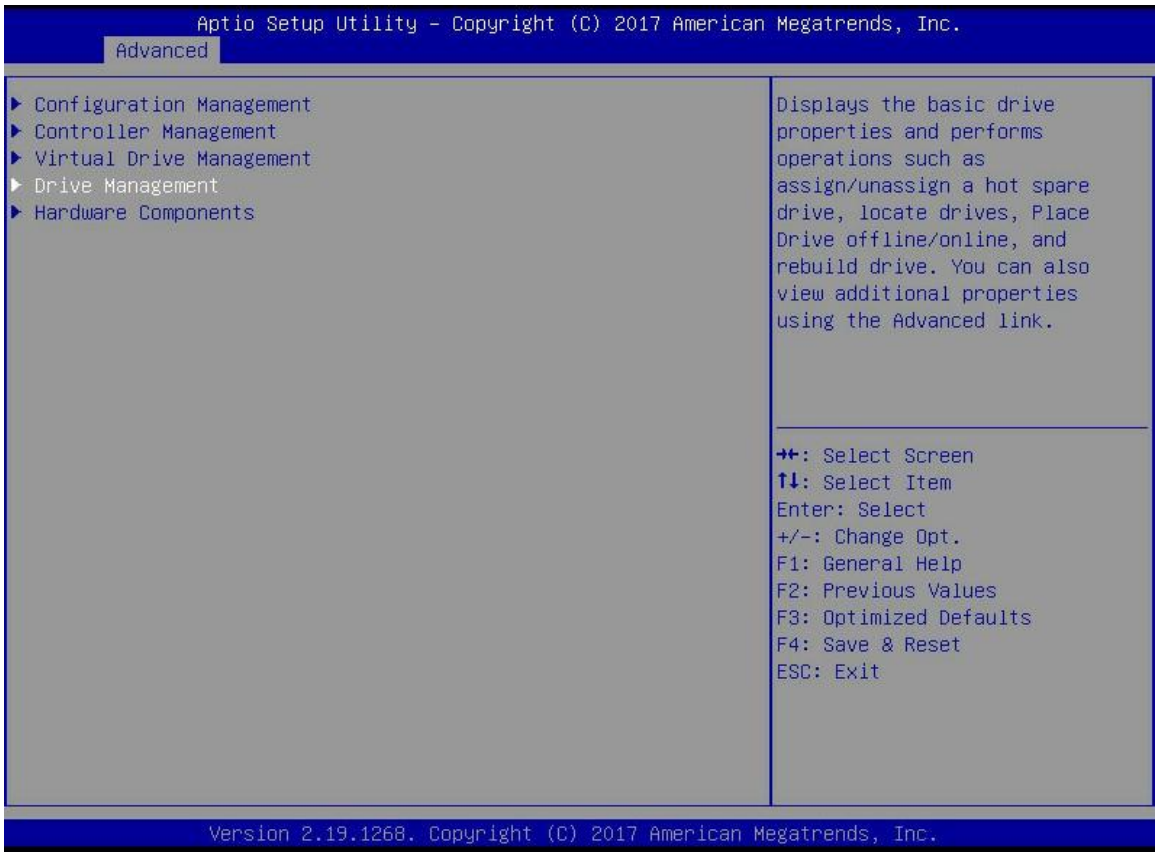


Figure 6-53

b) Enter the interface shown in figure 6-54, select the disk to be erased, and press enter.

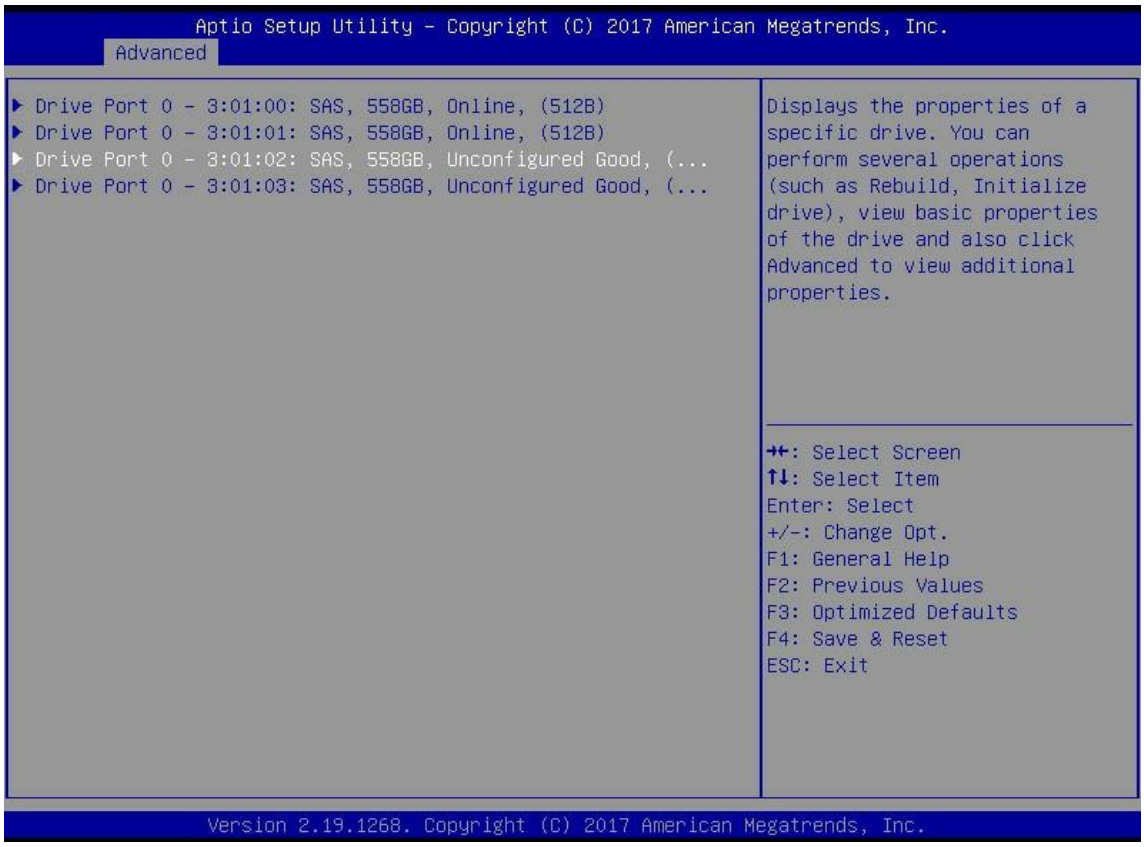


Figure 6-54

c) Enter the interface shown in figure 6-55, select operation, press enter, and then select drive erase in the pop-up dialog box and press enter.

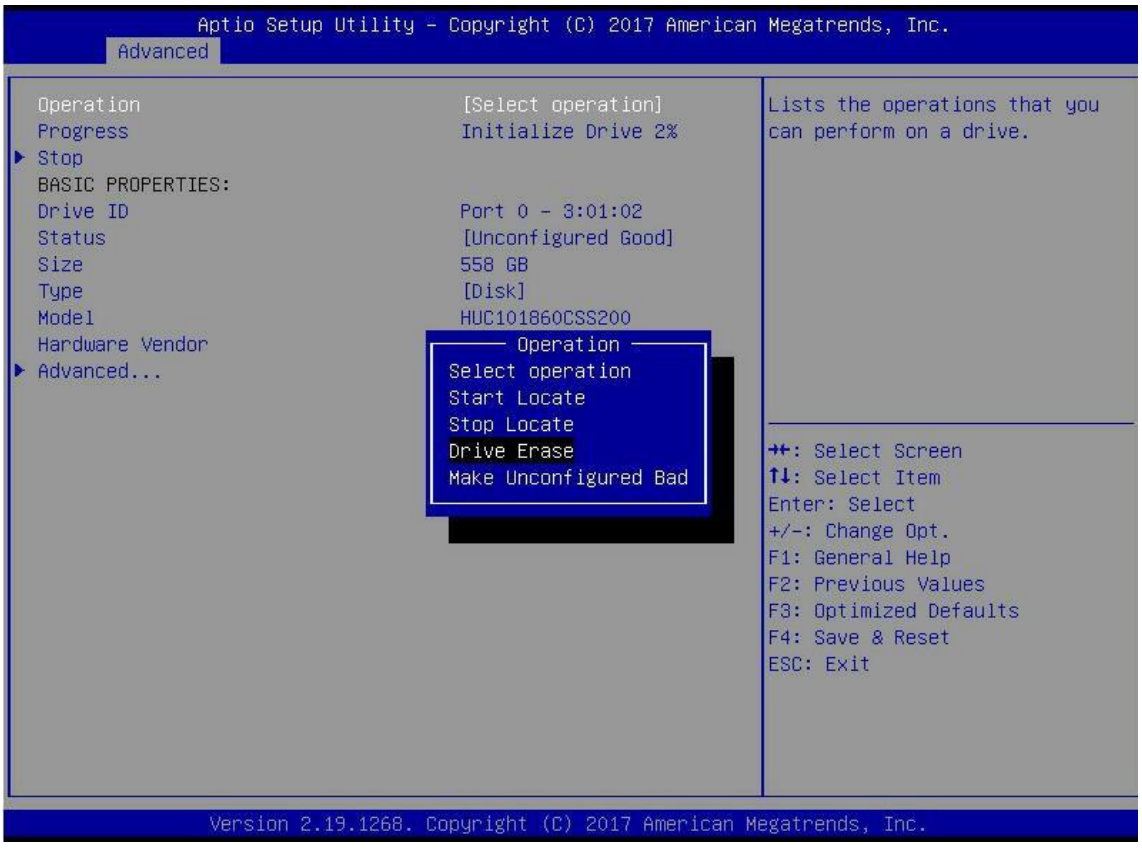


Figure 6-55

d) Enter the interface shown in figure 6-56, press enter, and then select erase mode in the pop-up dialog box (simple is recommended as the default mode).

e) Enter the interface shown in figure 6-57, select go and press enter.

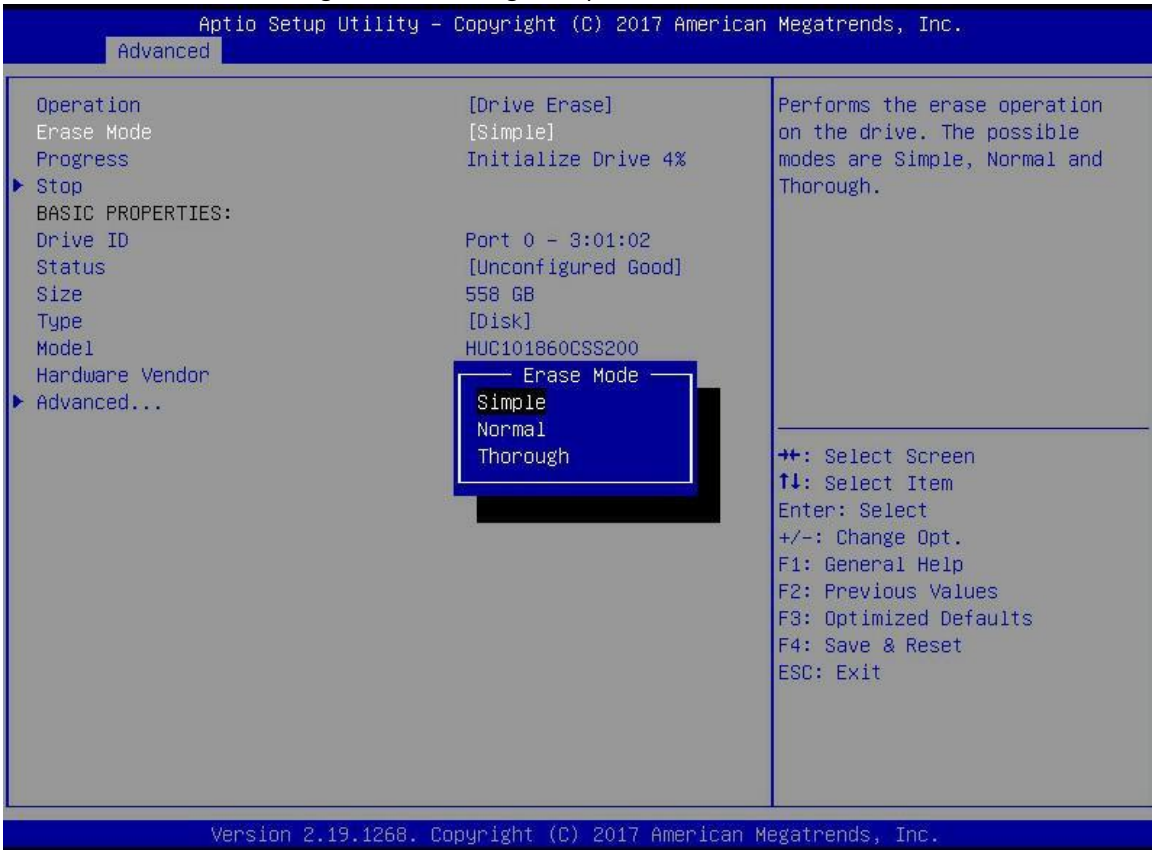


Figure 6-56

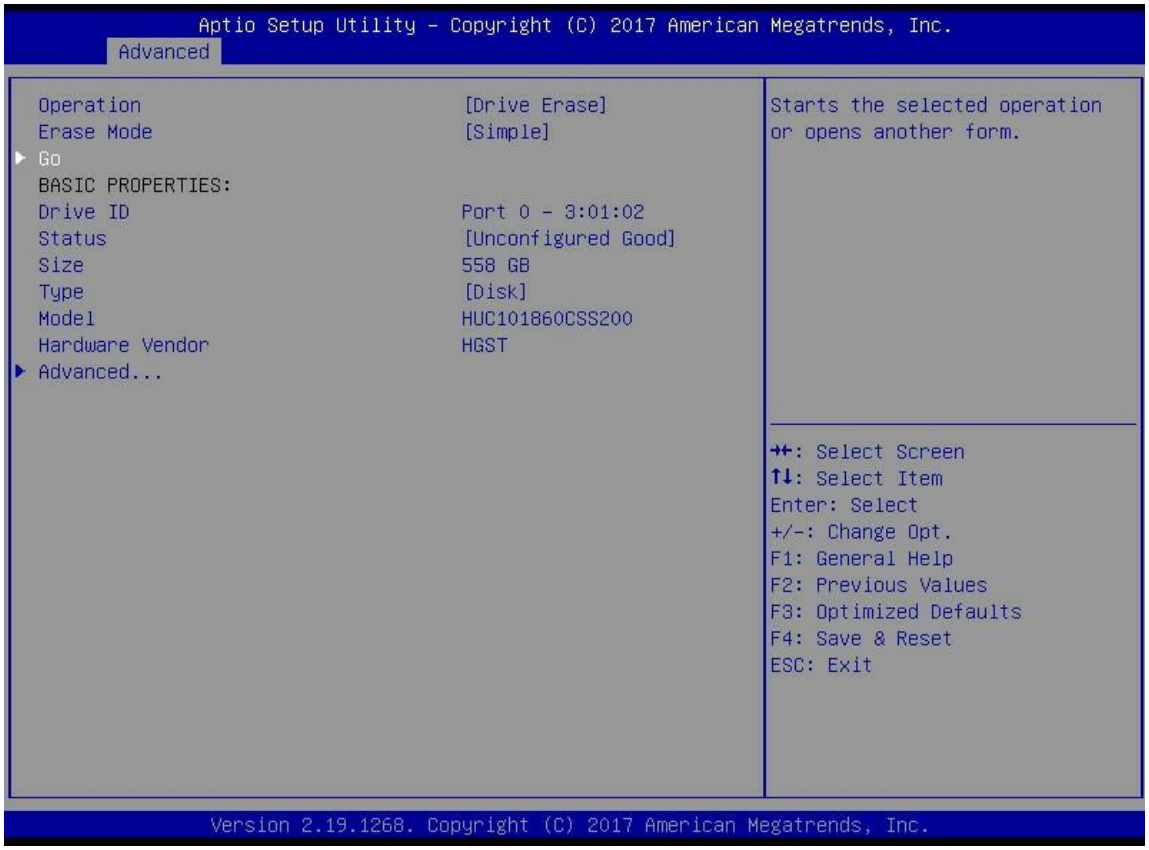


Figure 6-57

f) Enter the interface shown in figure 6-58, select confirm to enable it, select Yes, and press enter.

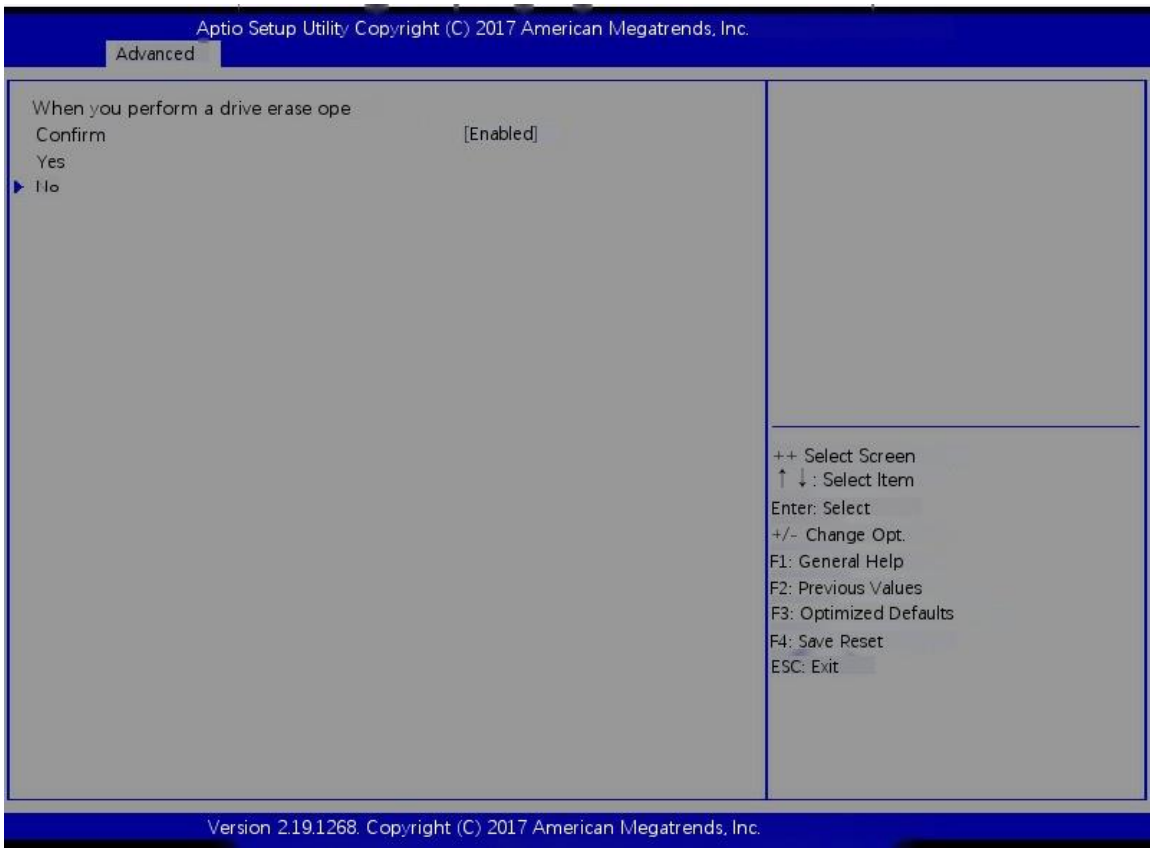
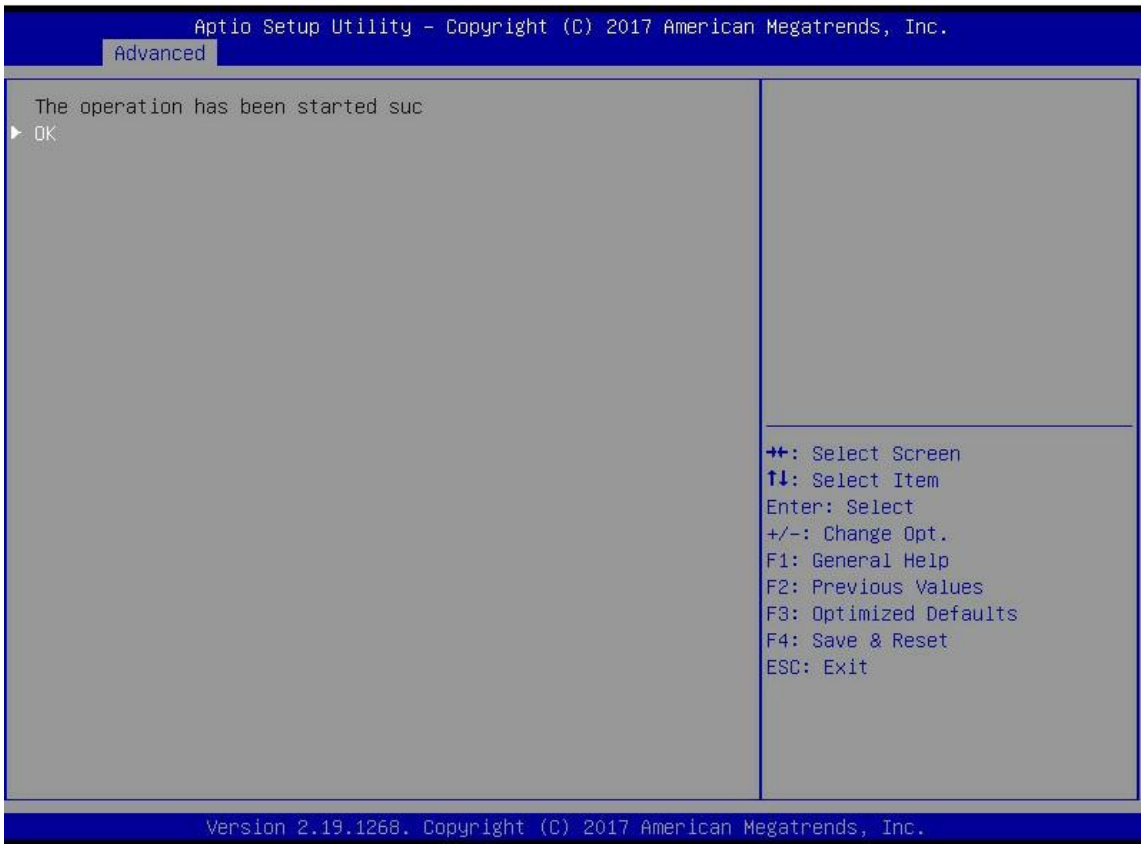


Figure 6-58

g) Enter the interface shown in figure 6-59 to complete the operation of erasing physical disk data.



Figures 6-59

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

2. Erasing logical disk data

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

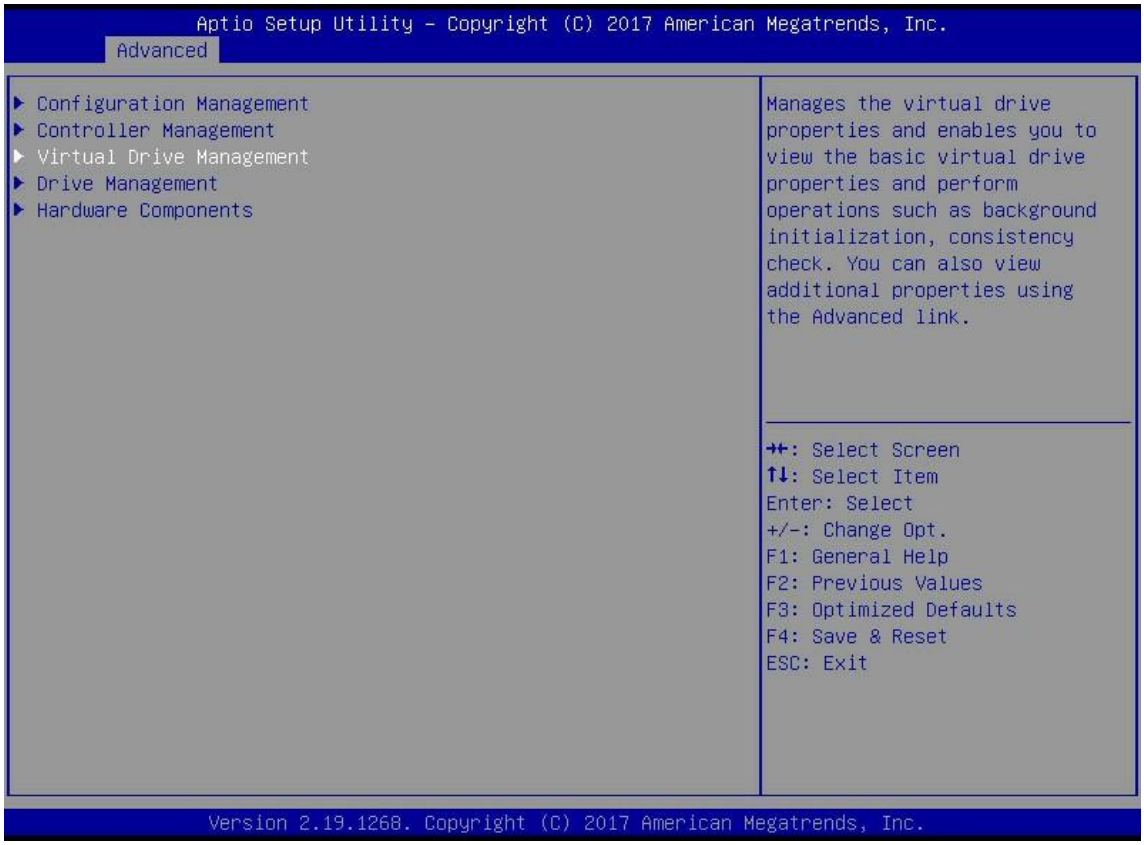
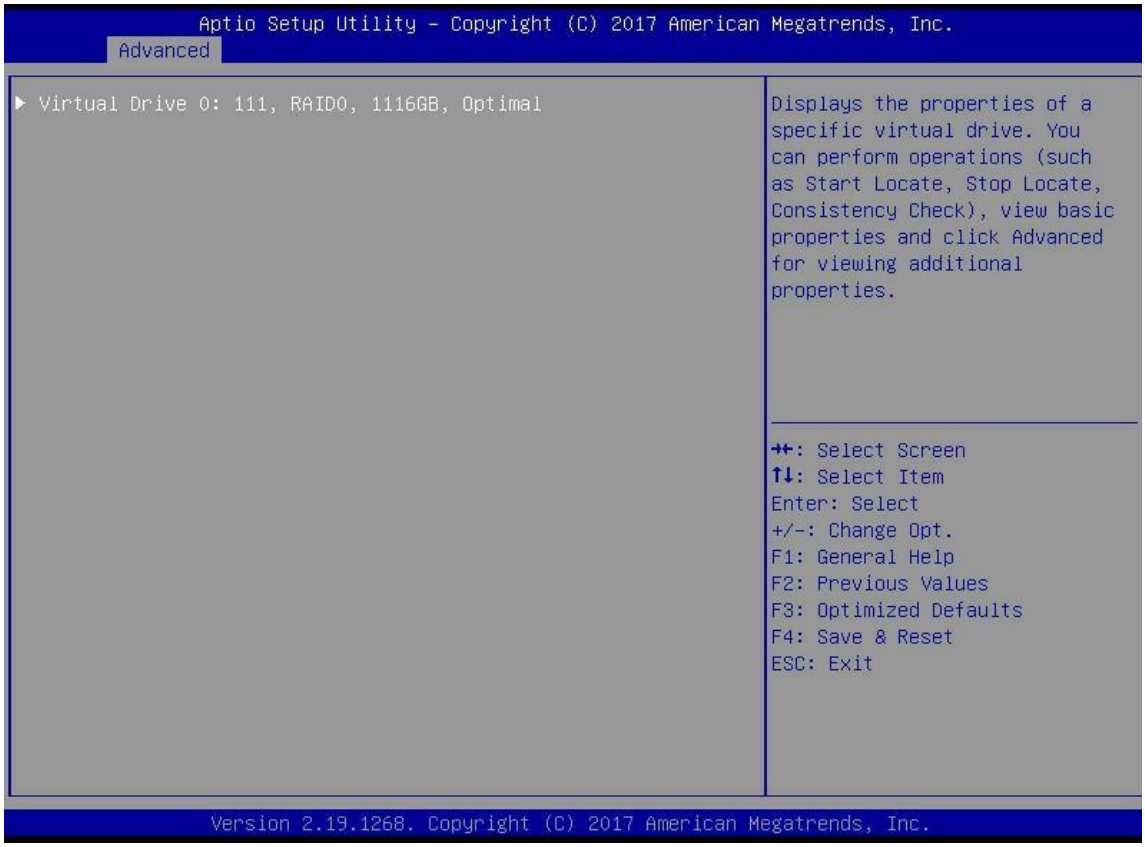


Figure 6-60

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



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

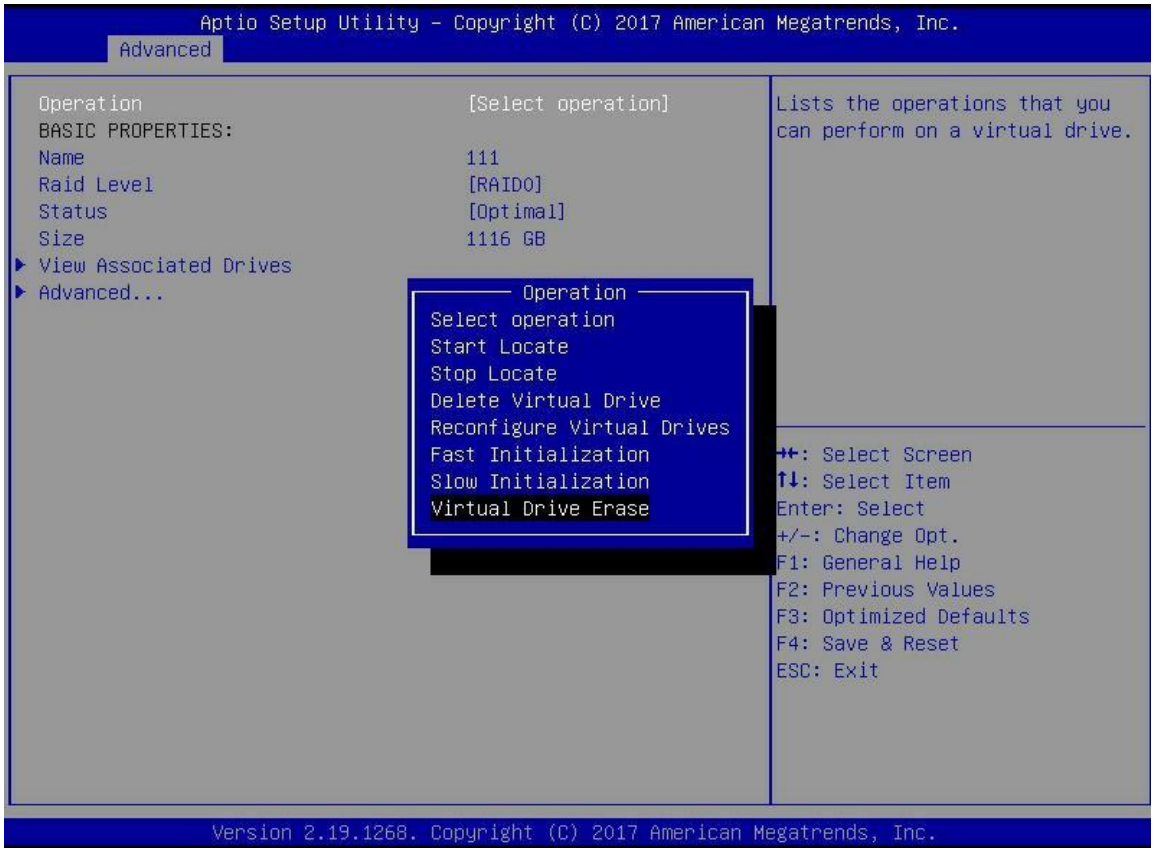
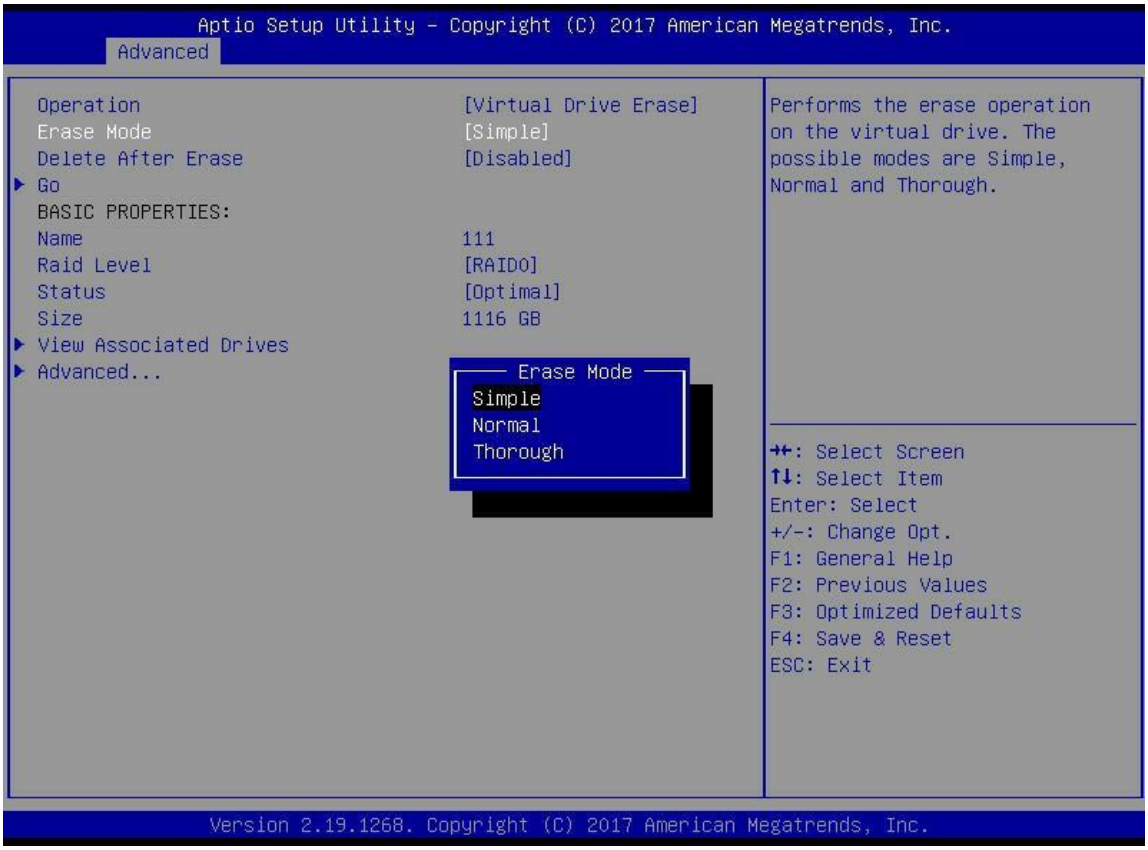


Figure 6-62

d) Enter the interface shown in figure 6-63, press enter, and then select erase mode in the pop-up dialog box (simple is recommended as the default mode).



e) Enter the interface shown in figure 6-65, select go and press enter.

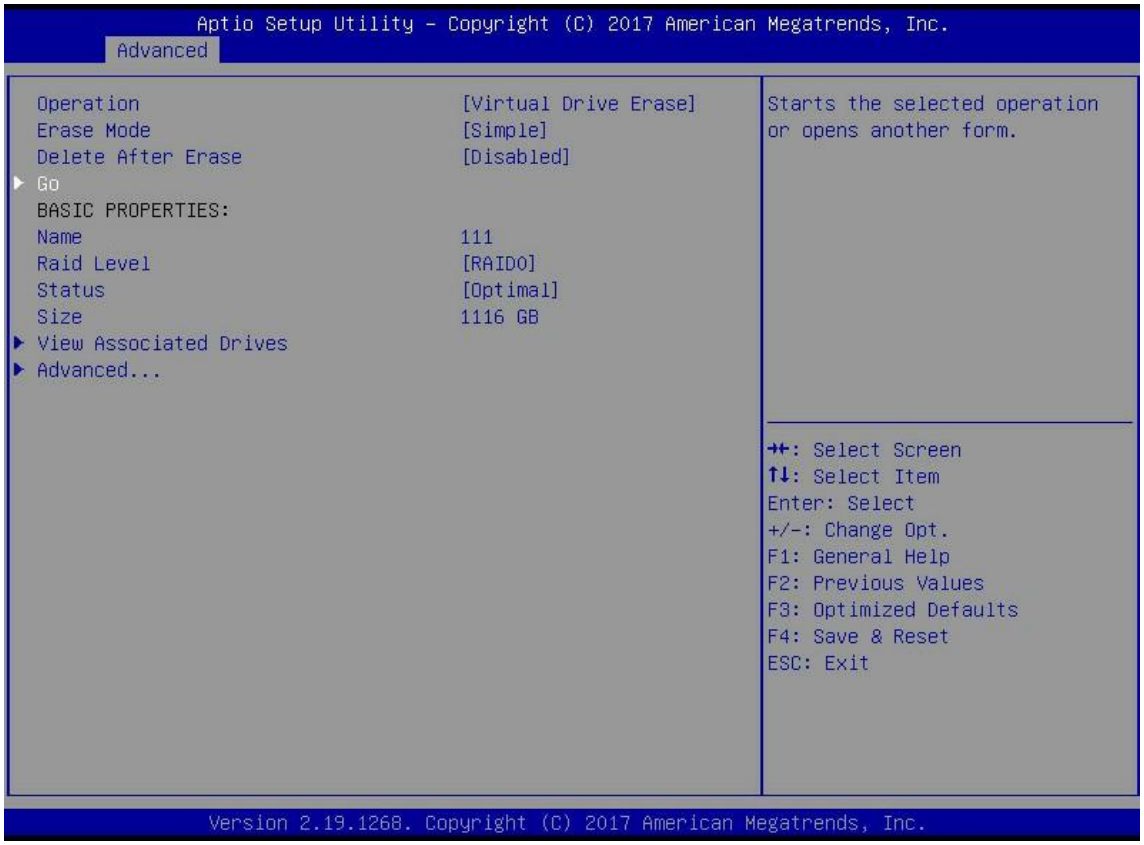


Figure 6-65

f) Enter the interface shown in figure 6-66, select confirm to enable it, select Yes, and press enter.

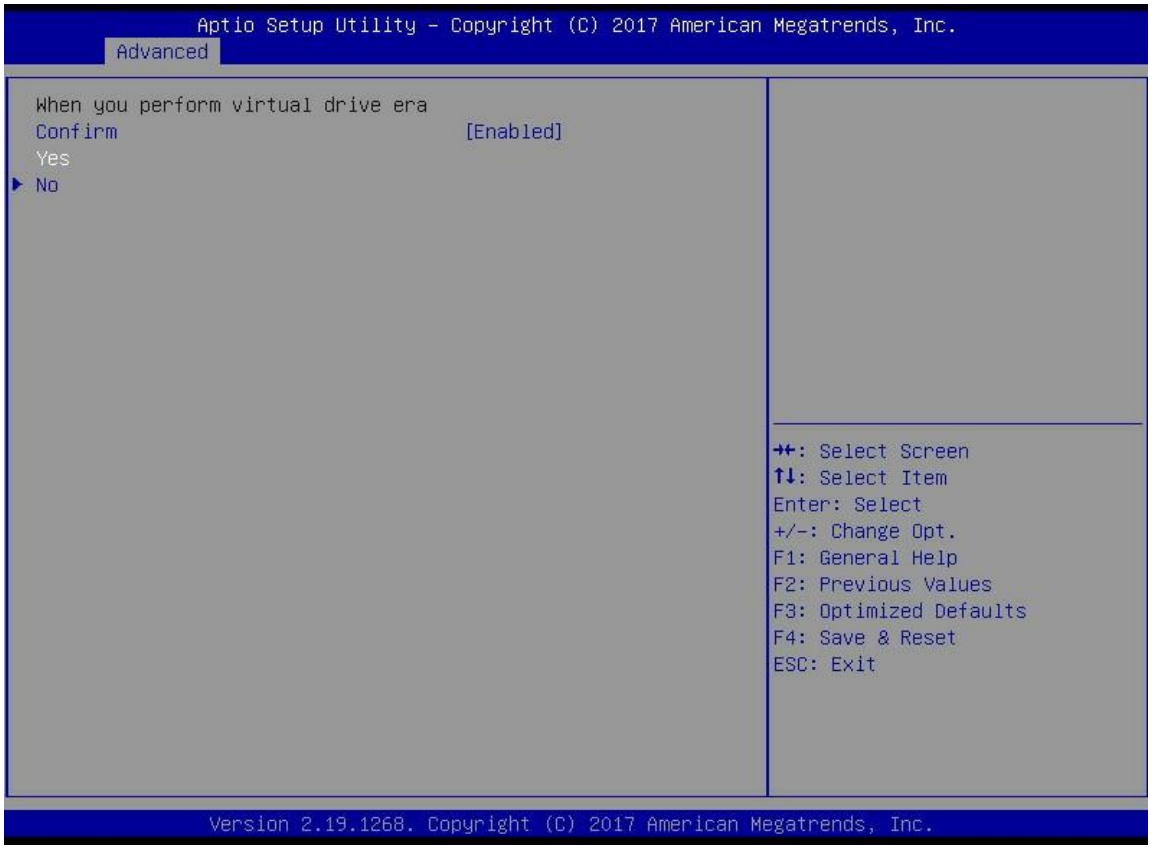


Figure 6-66

g) Enter the interface shown in figure 6-67 to complete the operation of erasing logical disk data.

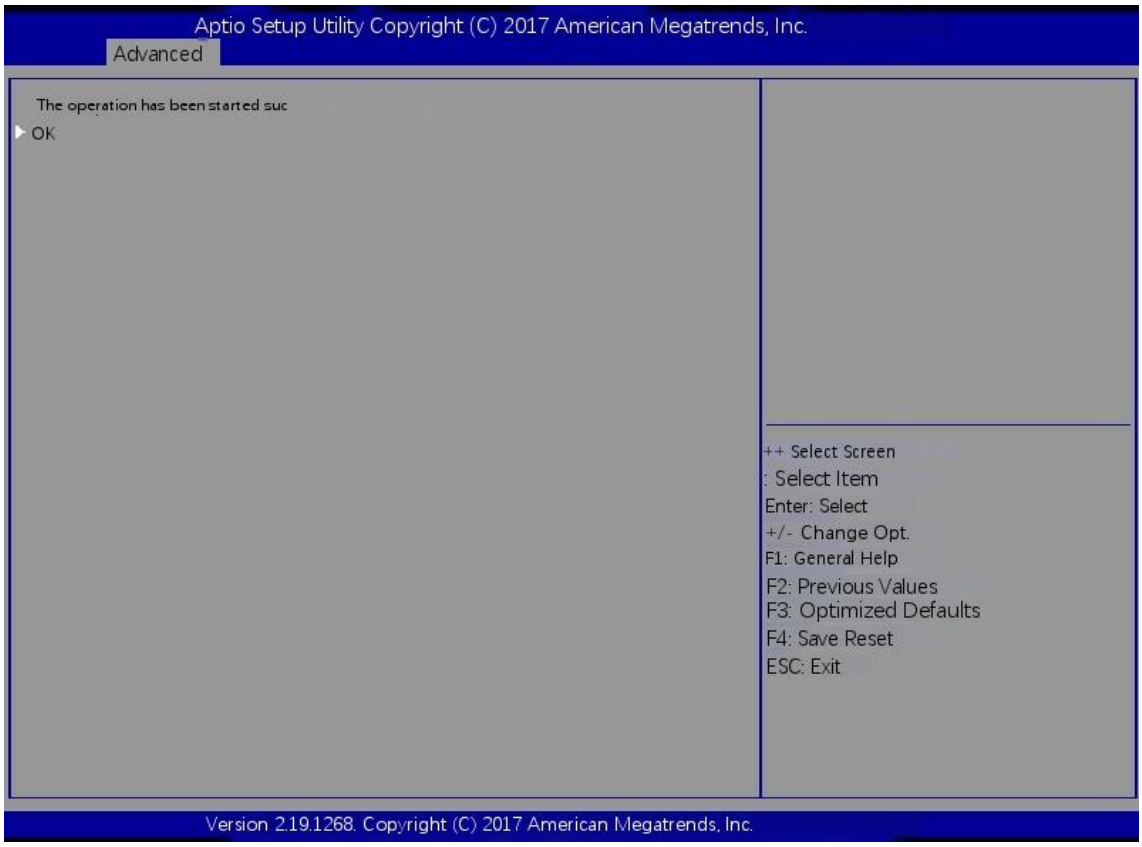


Figure 6-67

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 6-68, select virtual drive management in the raid card configuration interface and press enter.

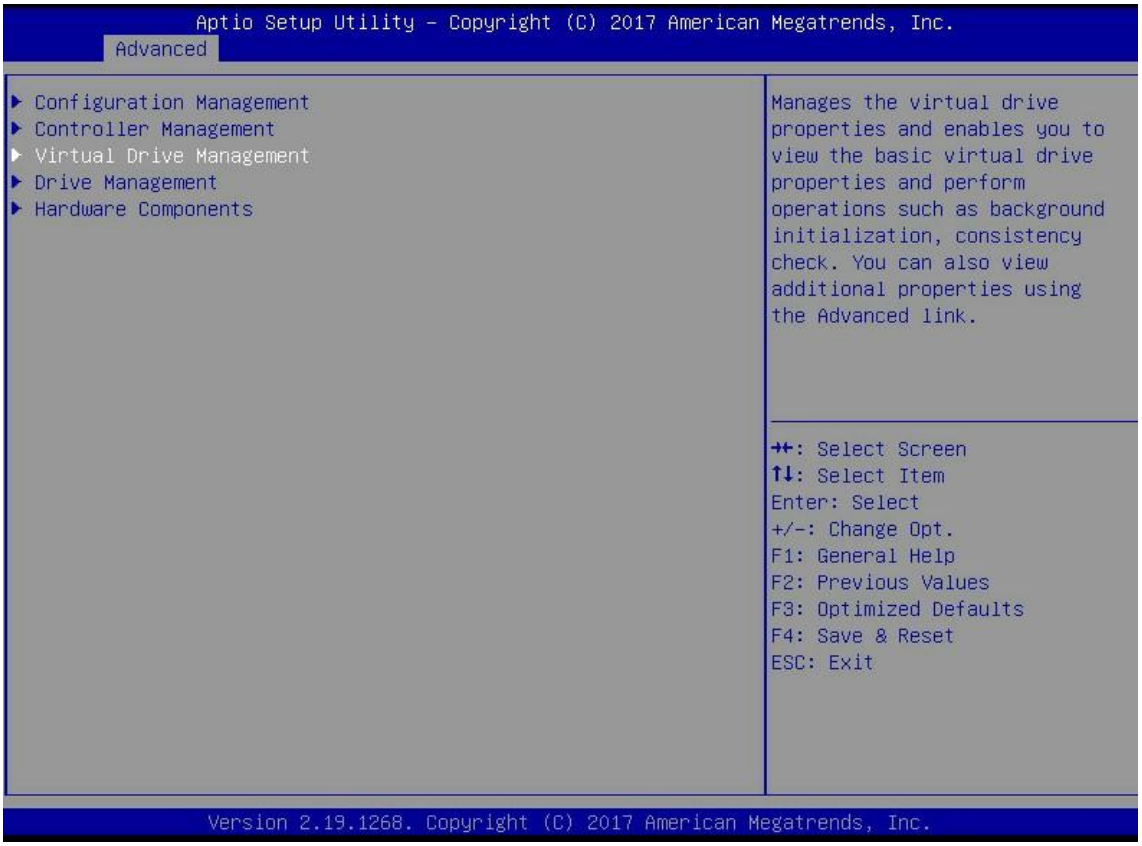


Figure 6- 68

b) Enter the interface shown in figure 6-69, select the logical disk to be rebuilt, and press enter.

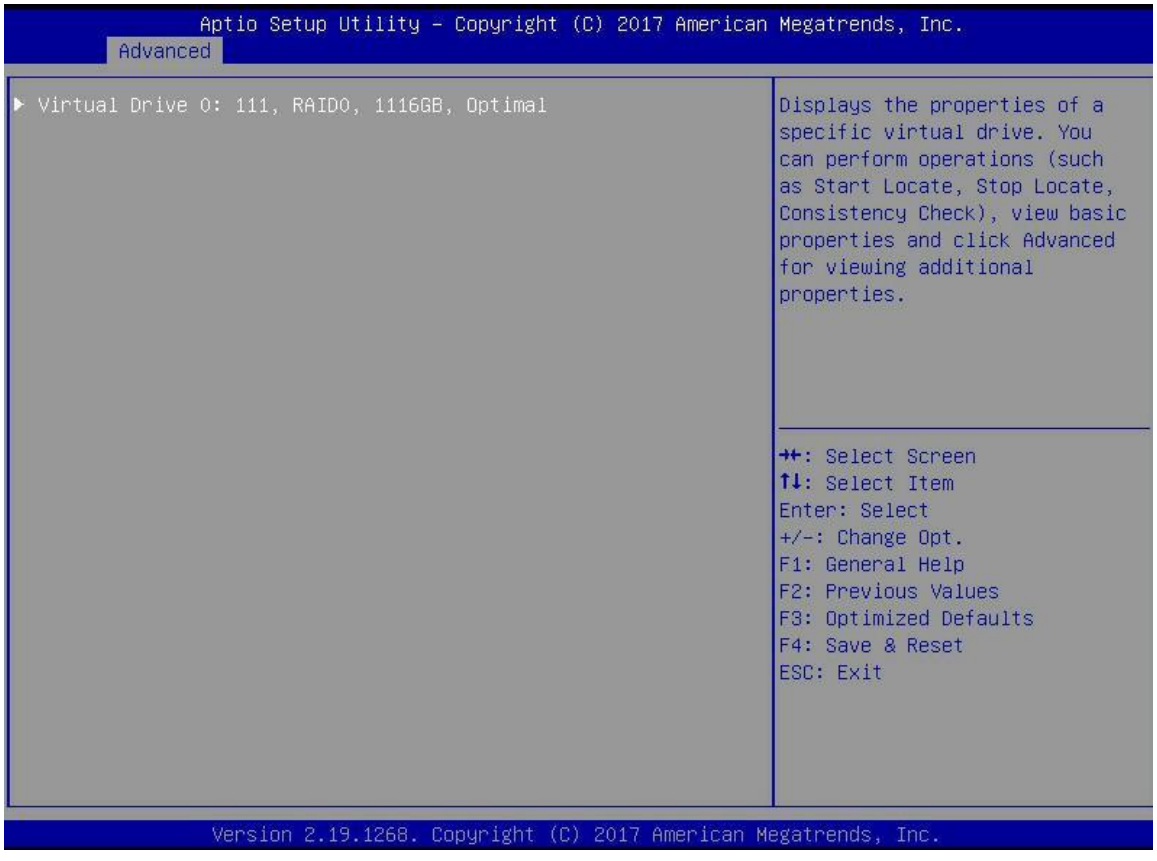


Figure 6- 69

c) Enter the interface shown in figure 6-70, select Operation and press Enter, then select Reconfigure Virtual Drive in the pop-up dialog box and press enter.

d) Enter the interface shown in figure 6-71, select Go and press enter.

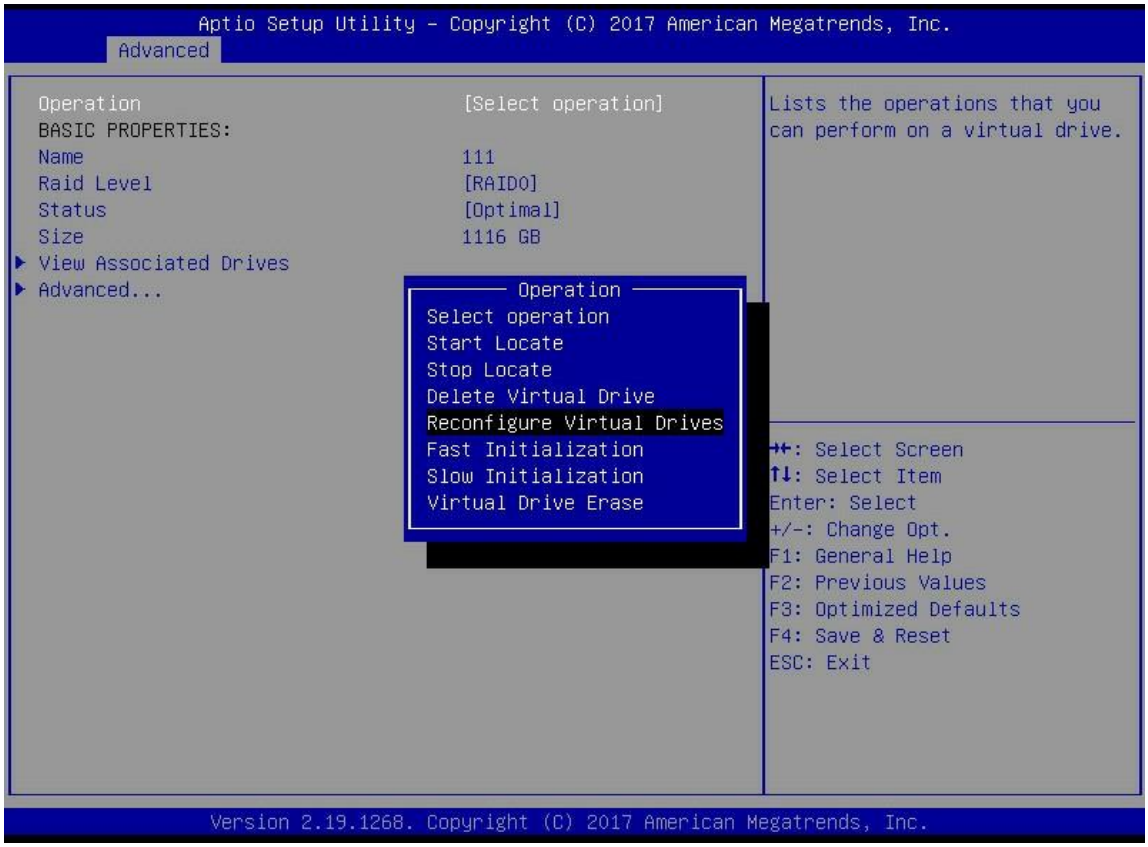


Figure 6- 70

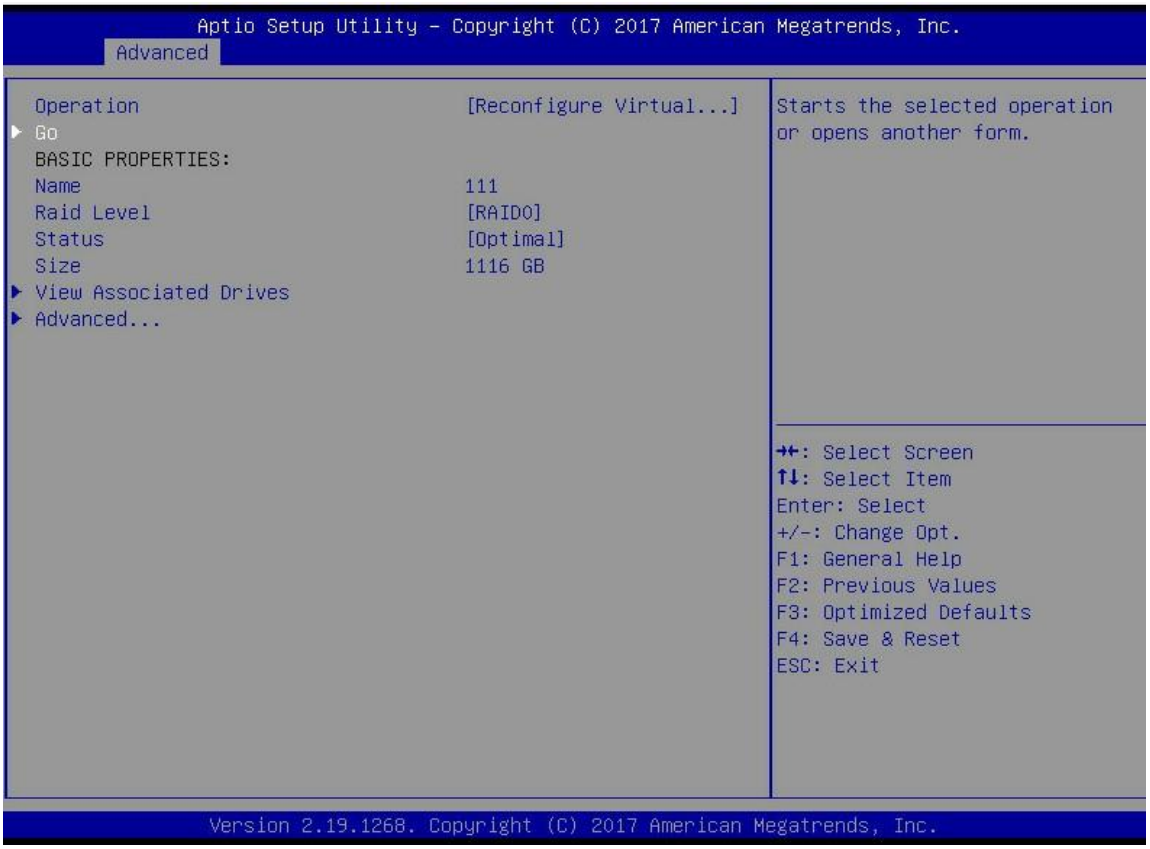


Figure 6- 71

e) Enter the interface shown in figure 6-72, set RAID level, select Add Drives and press enter.

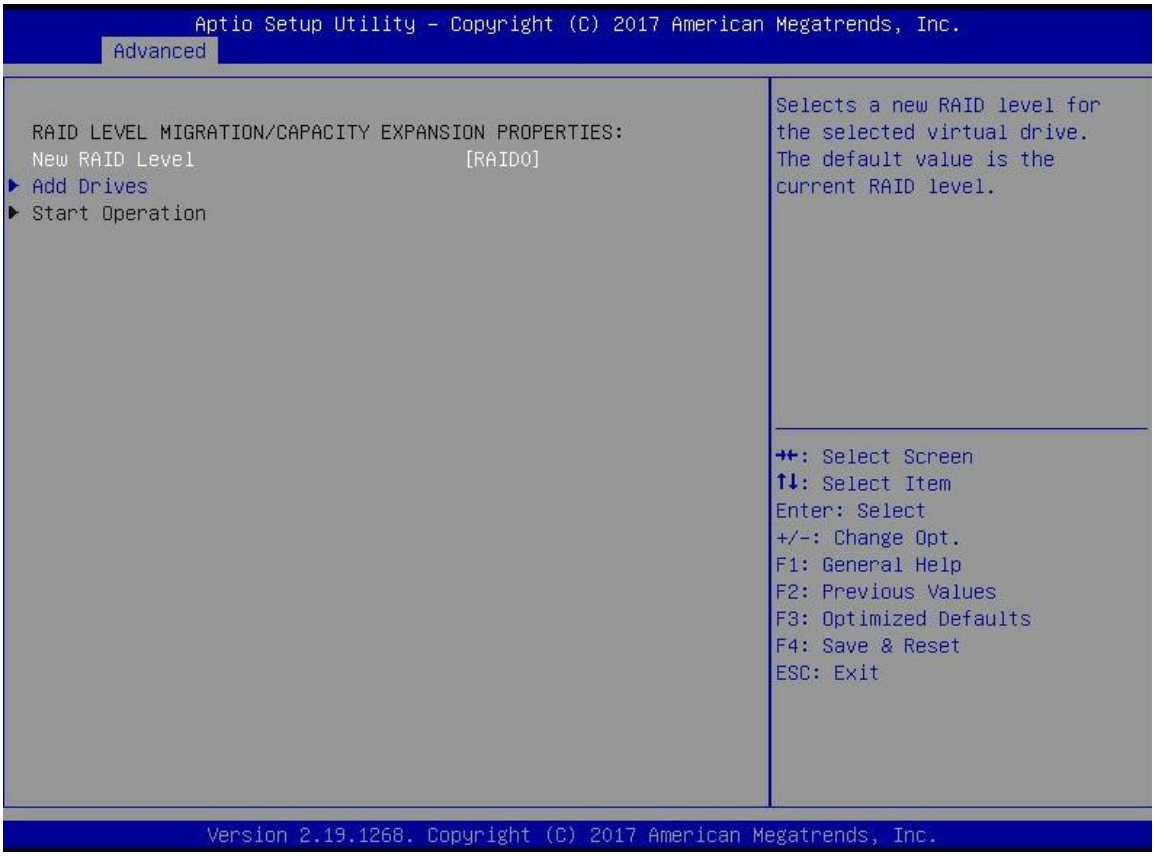


Figure 6- 72

f) Enter the interface shown in figure 6-73, select the disk to be added, make it Enabled, select Apply Changes, and press enter.

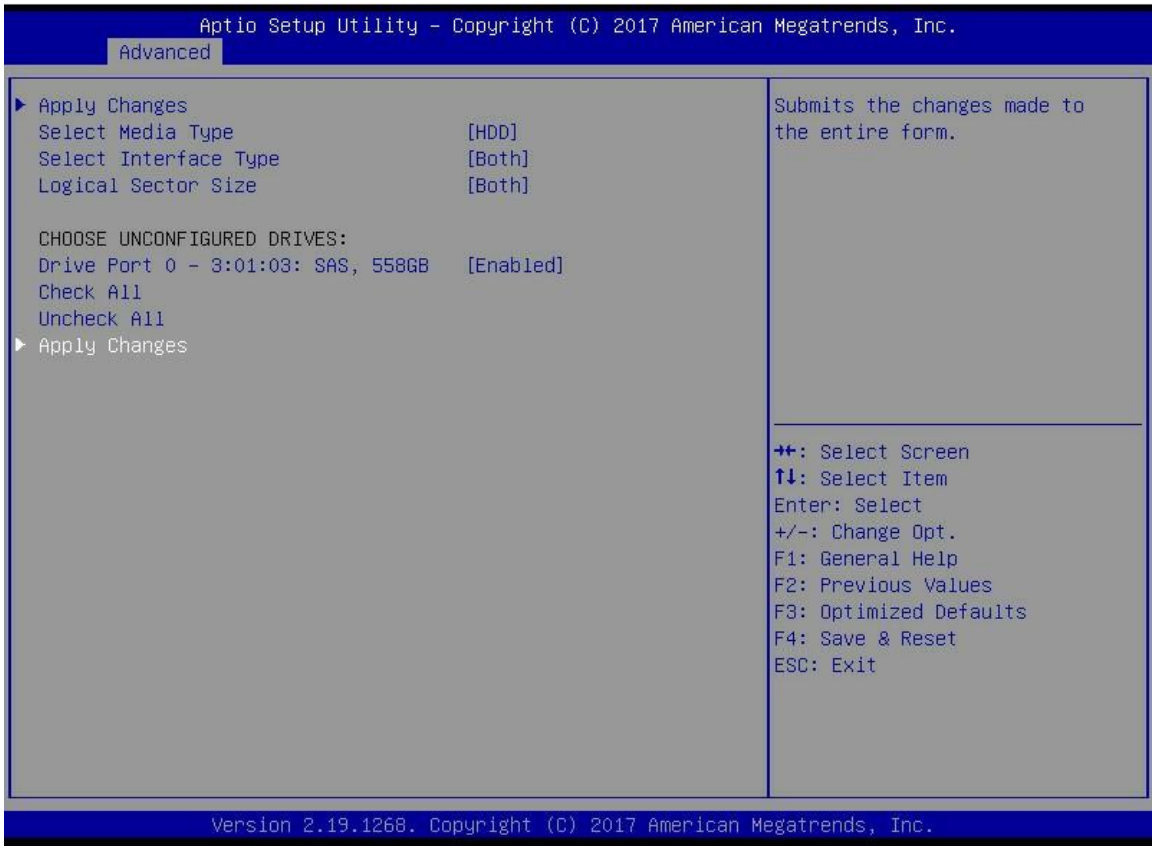


Figure 6- 73

g) Enter the interface shown in figure 6-74, select Confirm to Enabled it, select Yes and press enter.

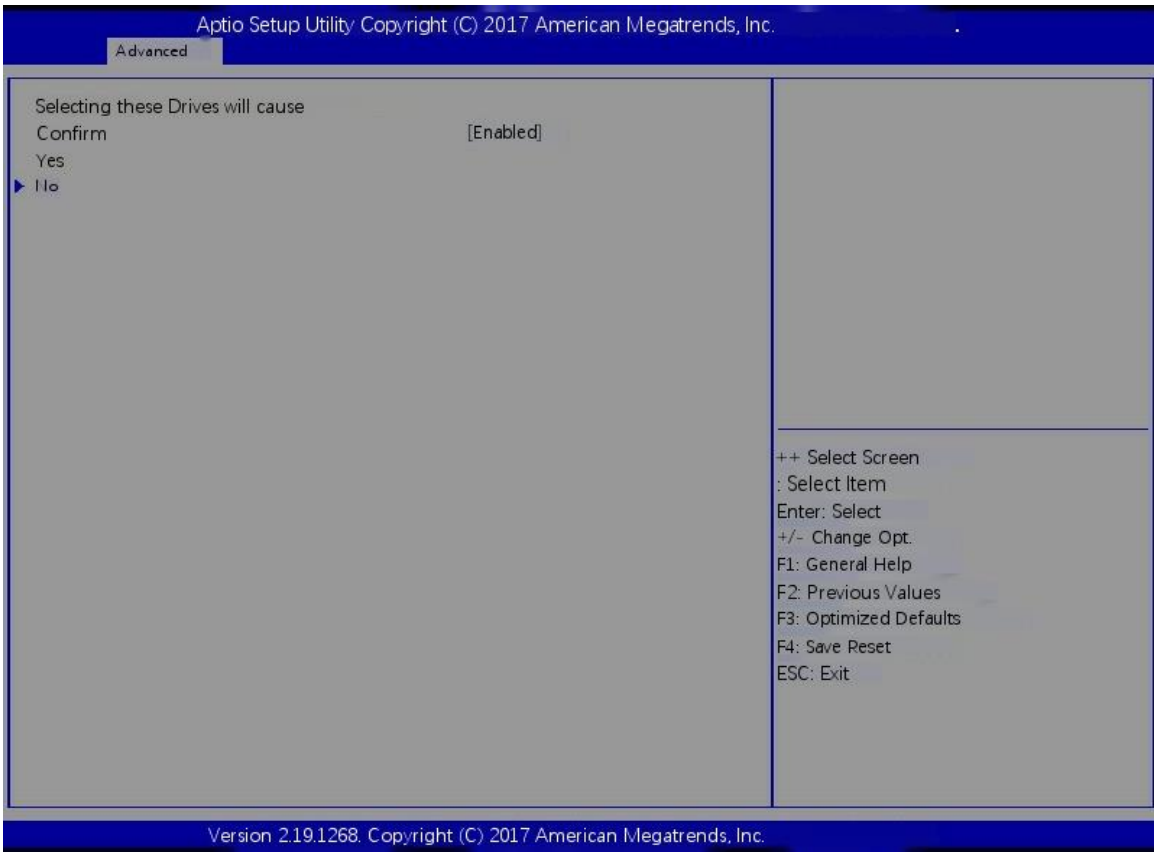


Figure 6- 74

h) Enter the interface shown in figure 6-75, select Start Operation and press enter.

i) Enter the interface shown in figure 6-76, select OK and press enter.

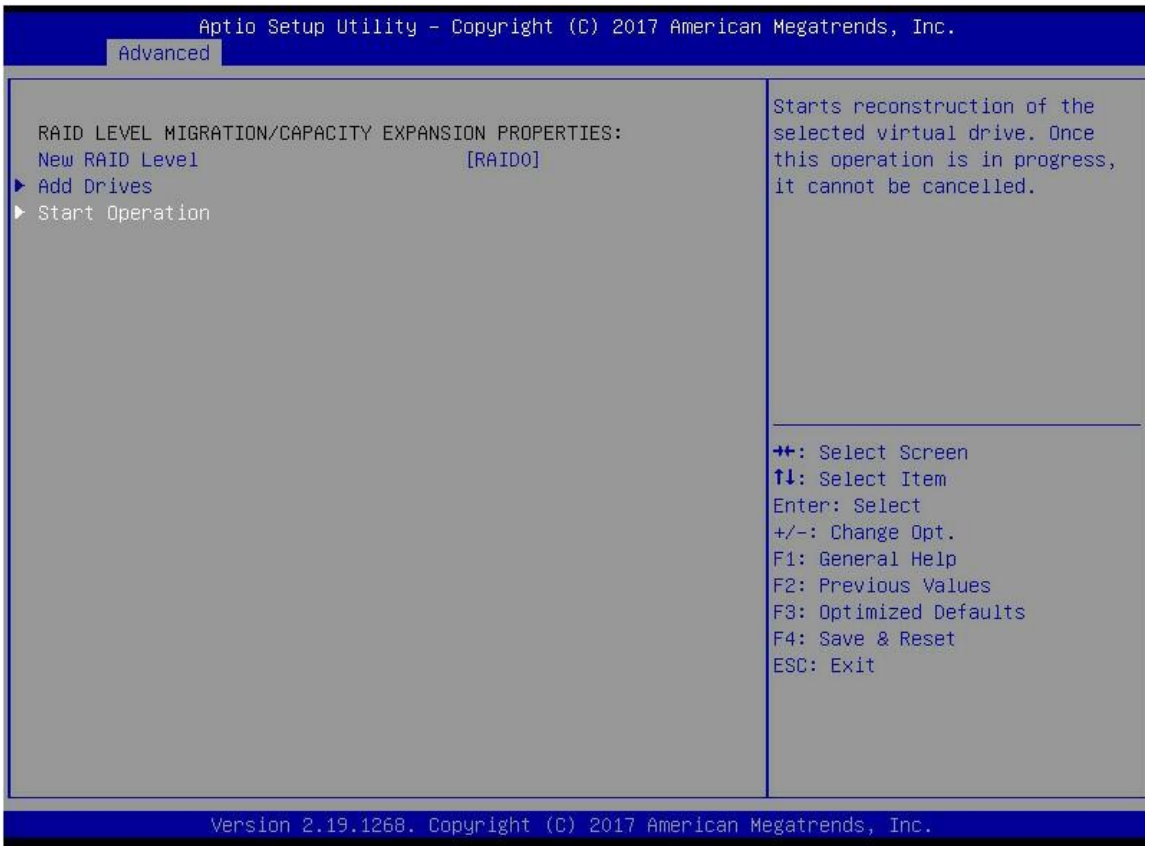


Figure 6- 75

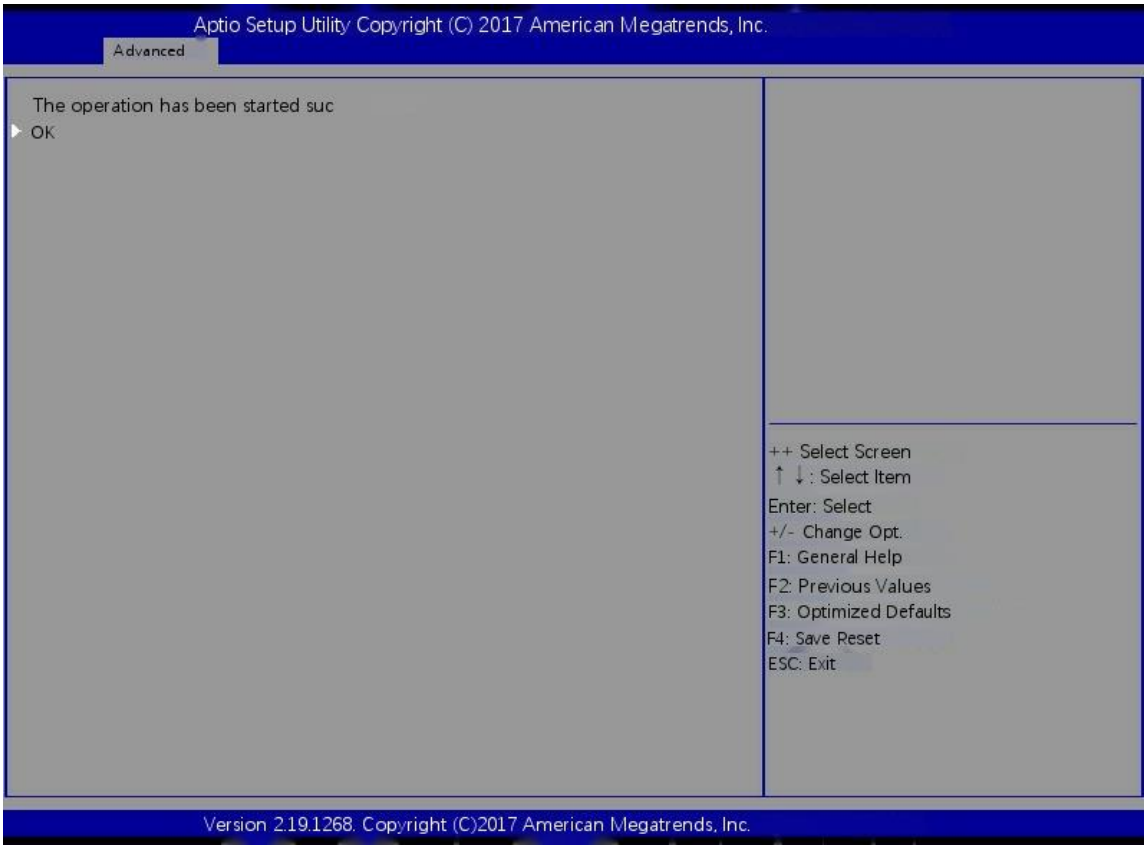


Figure 6- 76

j) Enter the interface shown in Figure 6-77 to view the current migration progress.

Figure 6- 77

Clear disk RAID information:

This function is used to clear the RAID residual information in the disk, so that the disk can be reused to configure RAID. This function is often used for disks with Unconfigured Bad mode.

a) Switch the disk mode Unconfigured Bad to Unconfigured Good.

b) Select Configuration Management in the RAID card configuration interface as shown in figure 6-78, and press Enter.

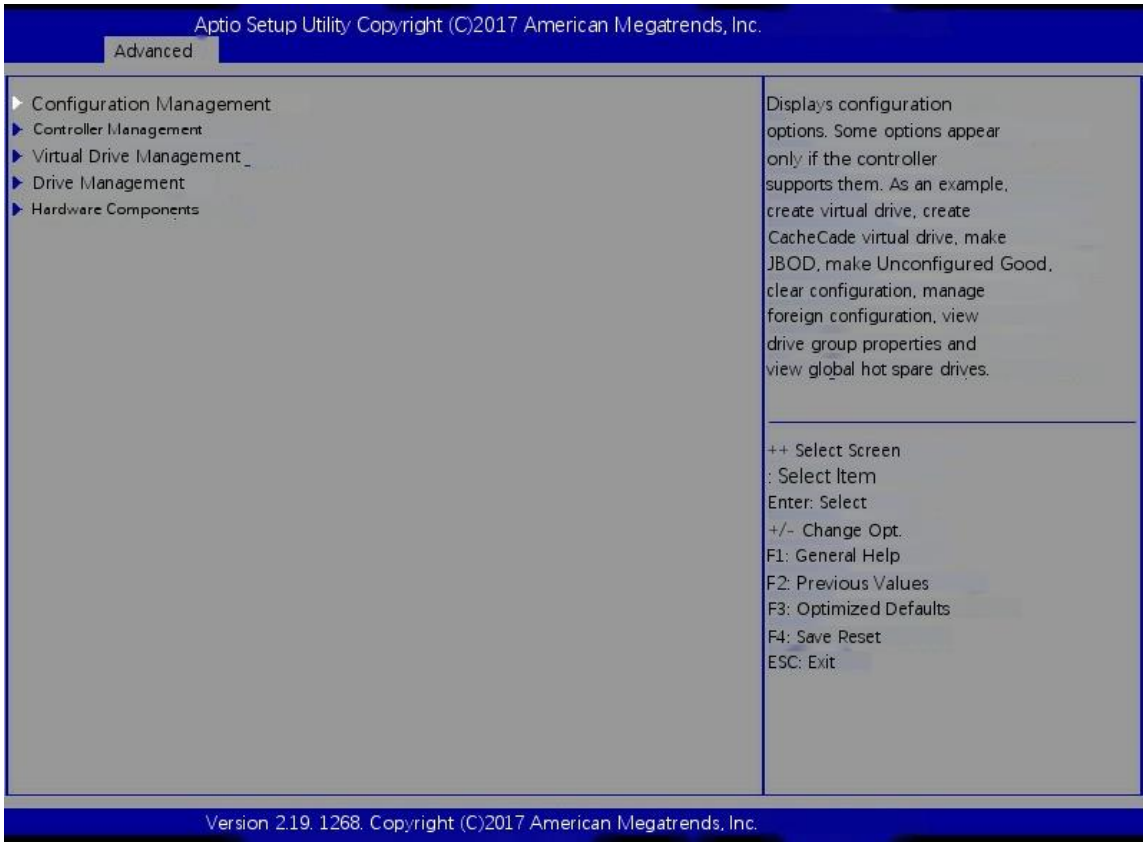


Figure 6- 78

c) Enter the interface shown in figure 6-79, select manage foreign configuration, and press enter.

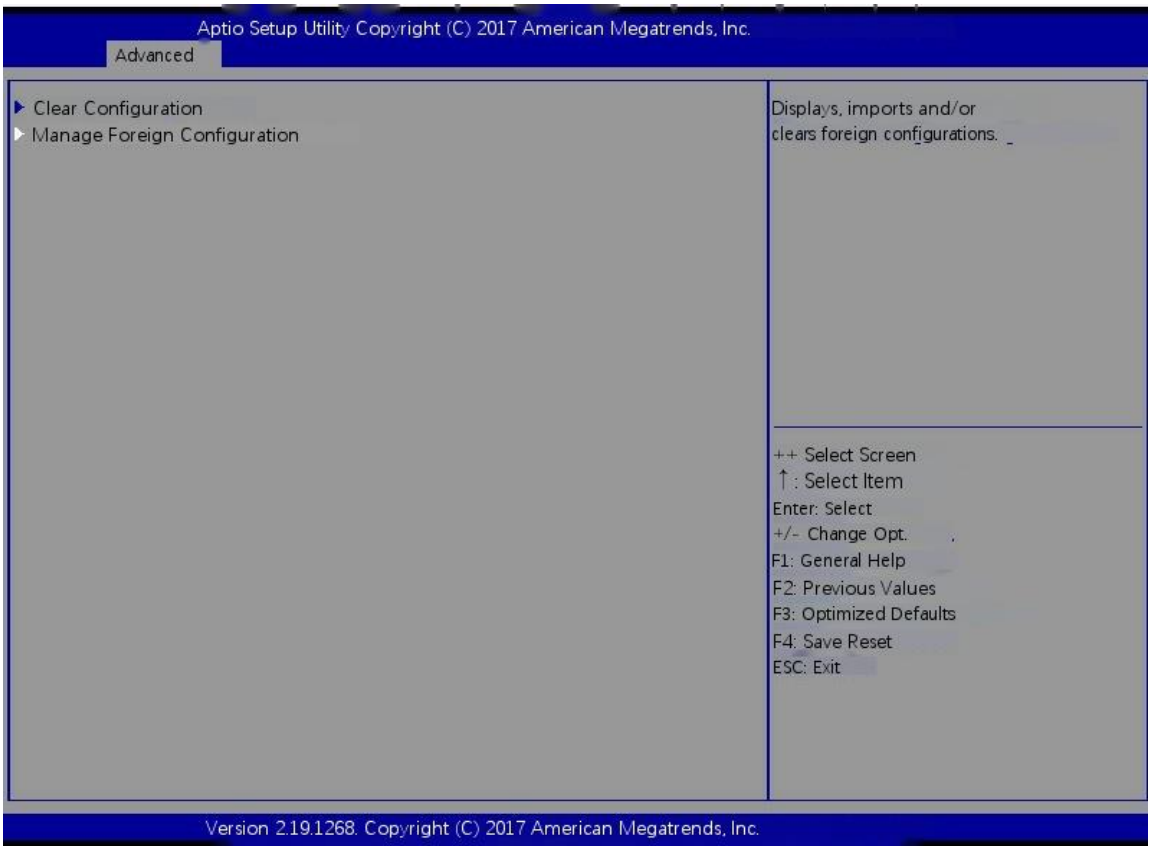


Figure 6-79

d) Enter the interface shown in figure 6-80, select clear foreign configuration, and press enter.

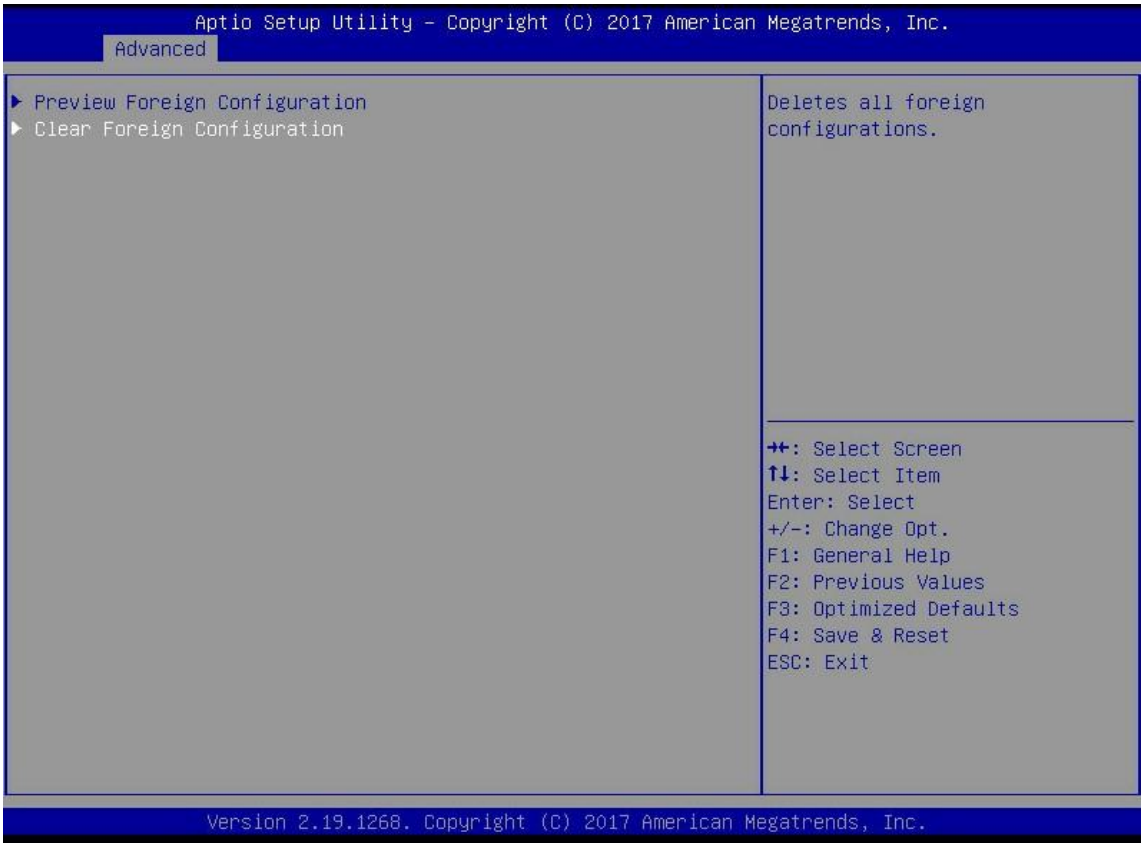


Figure 6-80

e) Enter the interface shown in figure 6-81, select confirm to enable it, select Yes, and press enter.

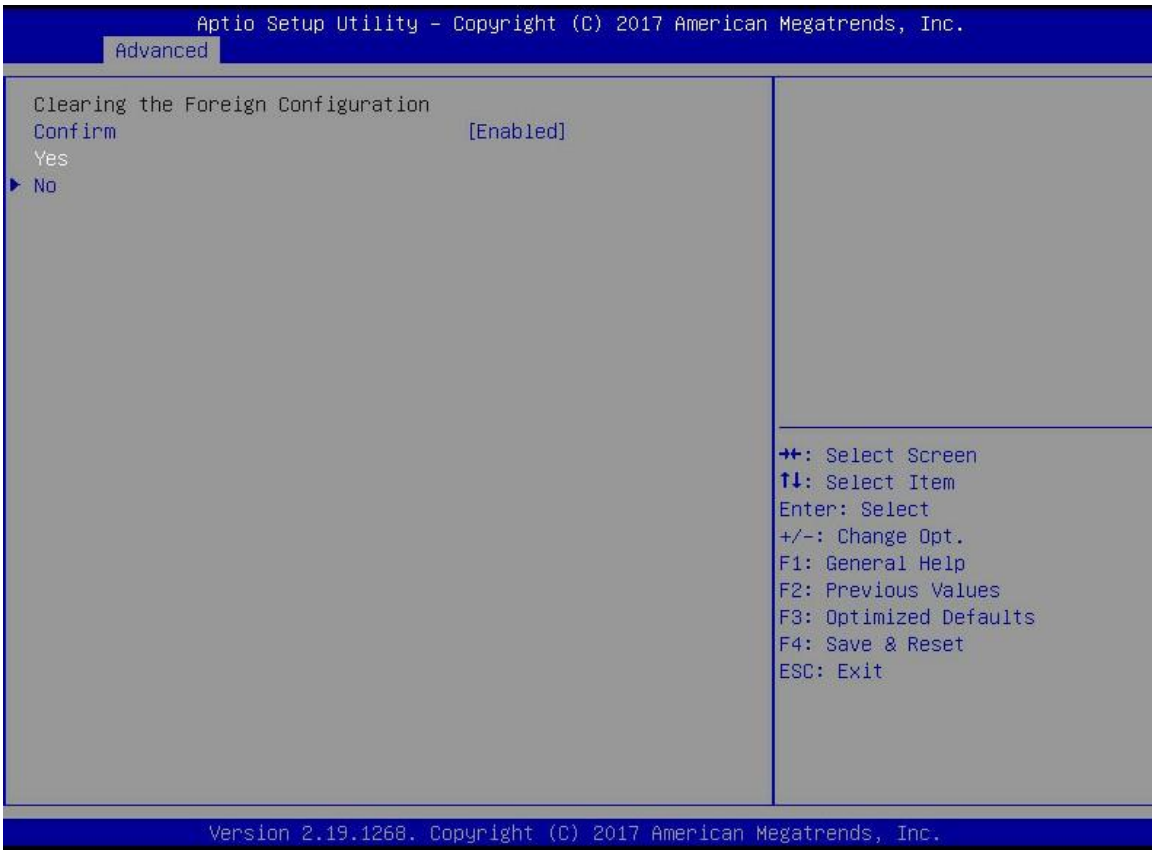


Figure 6-81

f) Enter the interface shown in Figure 6-8 to complete the operation of clearing disk raid information.

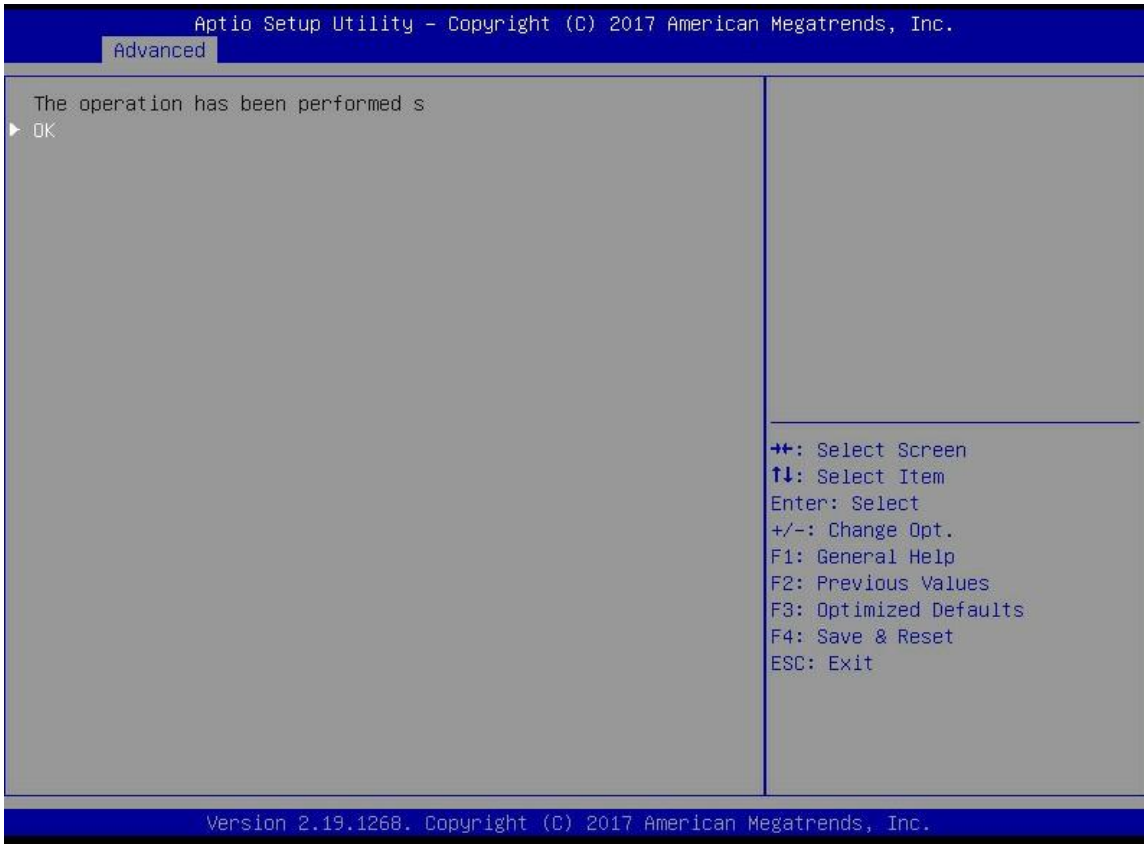


Figure 6-82

6.1.2 Configuring raid in legacy boot mode

- **Enter the raid card configuration interface**

a) During BIOS startup, after the interface as shown in figure 6-83 appears, press Ctrl + R.

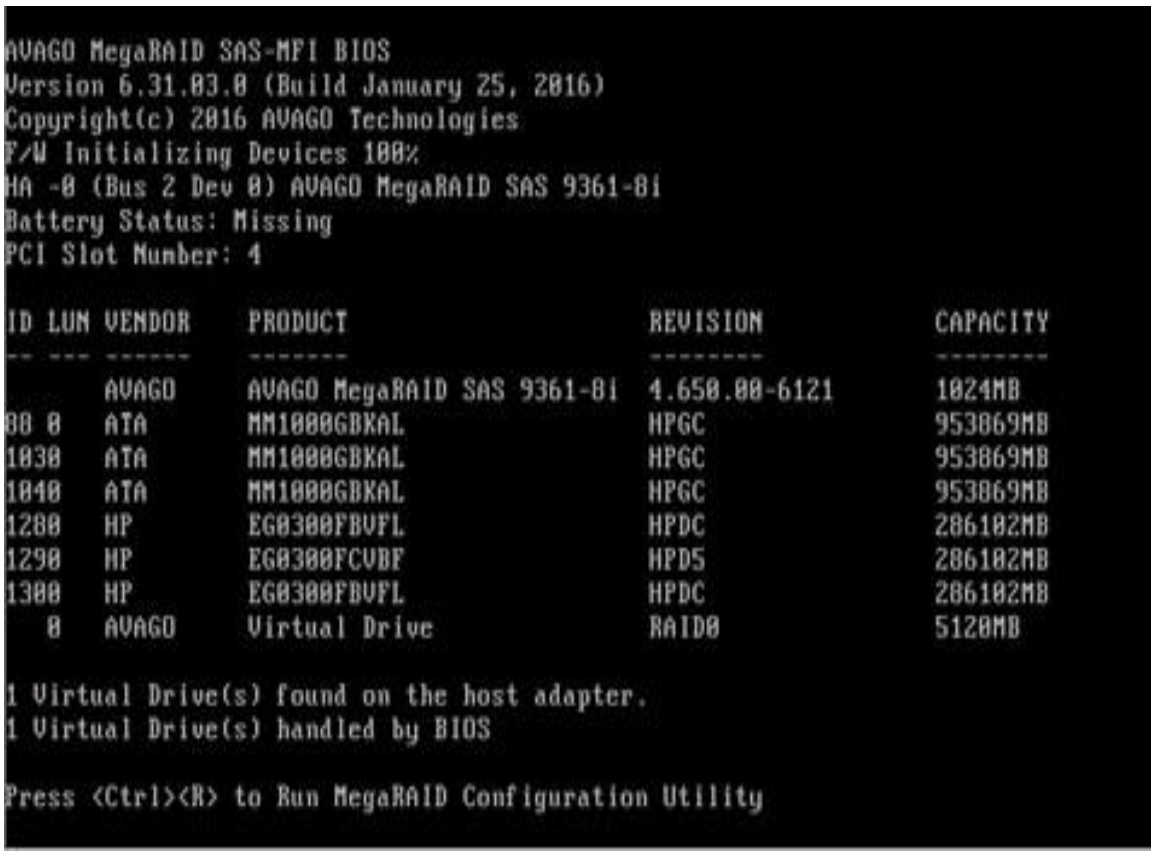


Figure 6-83

b) Enter the interface shown in figure 6-84.Please refer to the key operation tips at the bottom border of the interface to realize navigation and modify settings in the interface.

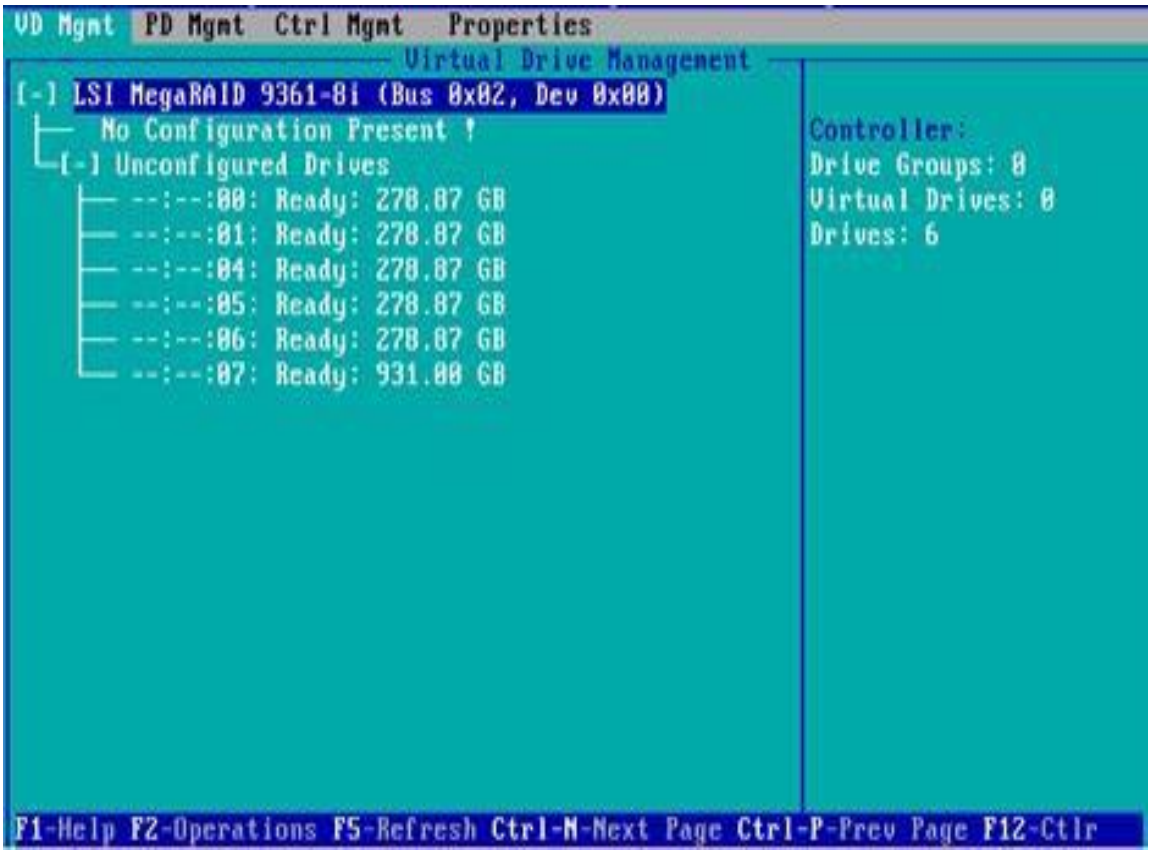

VD Mgmt
PD Mgmt
Ctrl Mgmt
Properties
Virtual Drive Management
[-] LSI MegaRAID 9361-8i (Bus 0x02, Dev 0x00)
No Configuration Present !
[-] Unconfigured Drives
--:--:00: Ready: 278.87 GB
--:--:01: Ready: 278.87 GB
--:--:04: Ready: 278.87 GB
--:--:05: Ready: 278.87 GB
--:--:06: Ready: 278.87 GB
--:--:07: 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-Ctlr

Figure 6-84

- **Common tasks**

Configure Raid:

c) As shown in figure 6-85, on the VD MGMT interface, press F2 and select create virtual drive.

Figure 6-85

d) Enter the interface shown in figure 6-86, set the RAID level, and press enter.

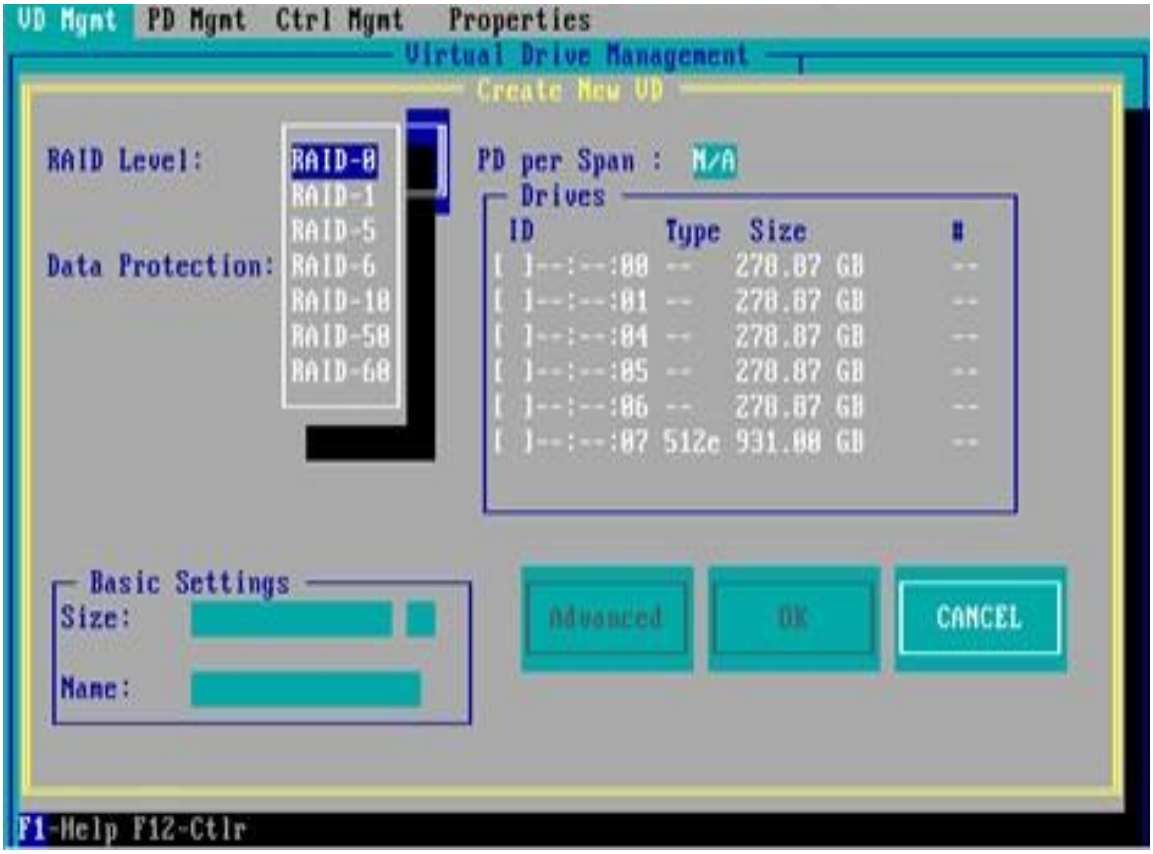


Figure 6-86

e) Enter the interface shown in figure 6-87, select the disk to configure raid, and press enter.

Figure 6-2

f) Enter the interface shown in figure 6-88, set the size and name, select advanced and press enter.

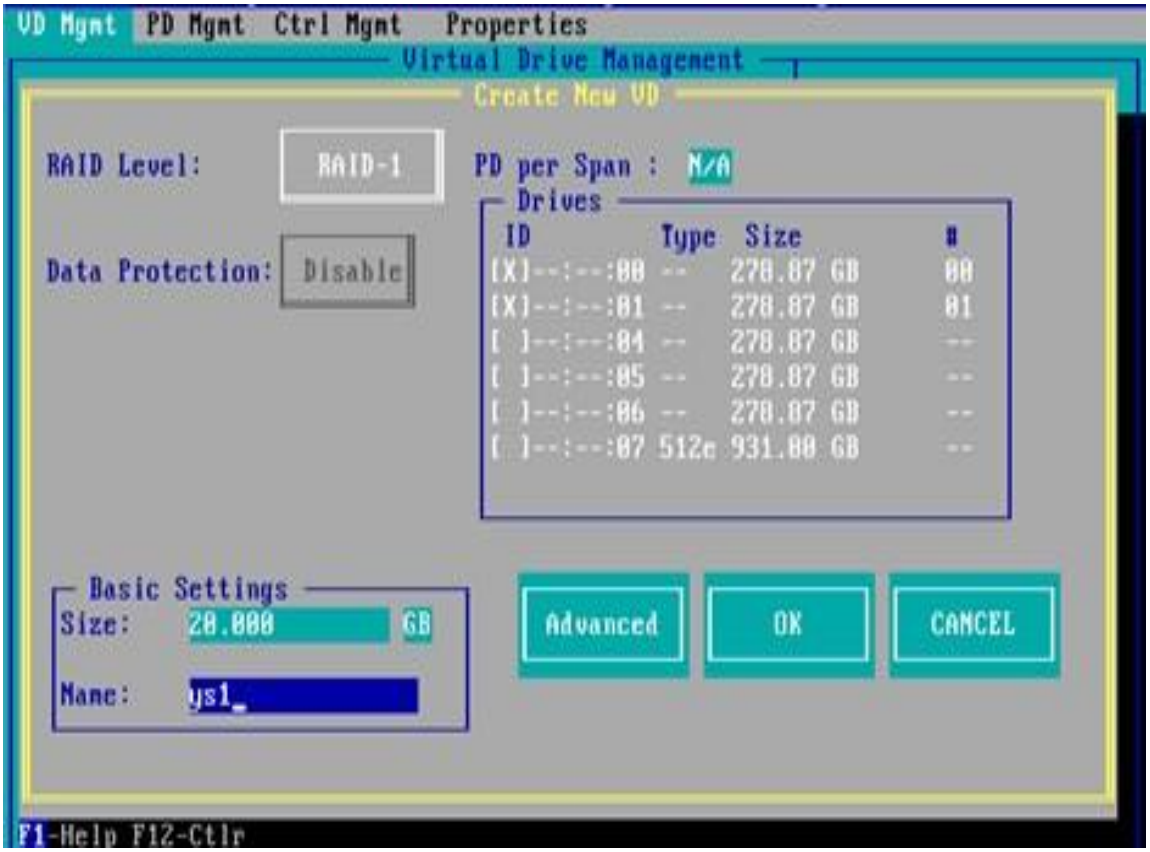


Figure 6-88

g) Enter the interface shown in figure 6-89, set relevant parameters, then select OK and press enter.

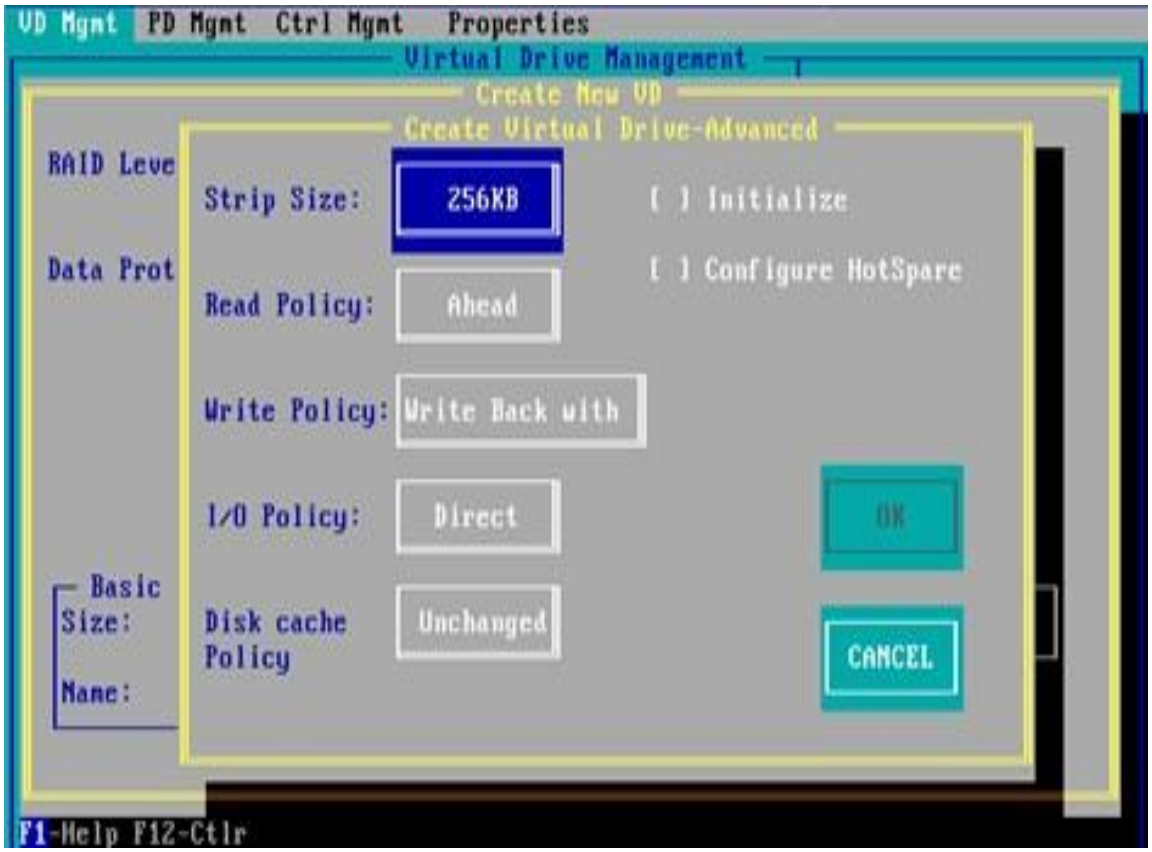


Figure 6-89

h) Enter the interface shown in figure 6-90, select OK, and press enter to complete the RAID configuration operation.

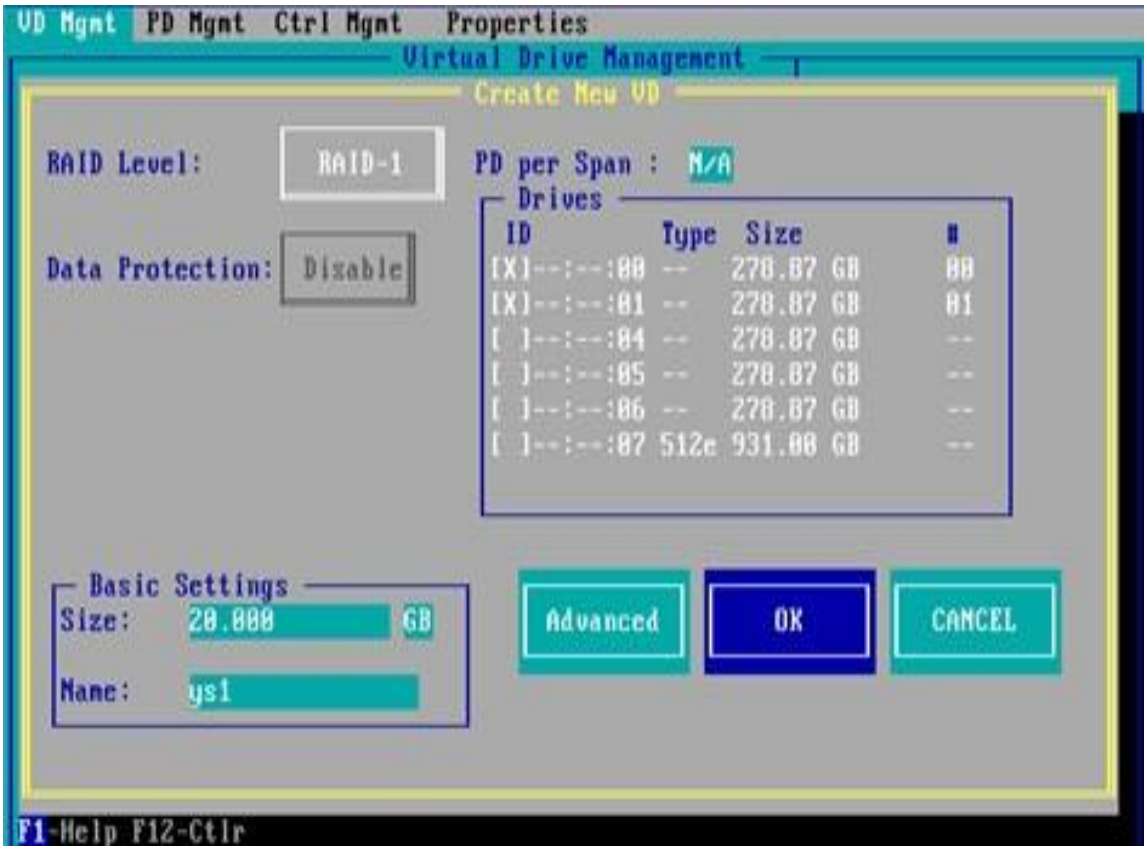


Figure 6-90

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 6-91.

To configure a hot spare:

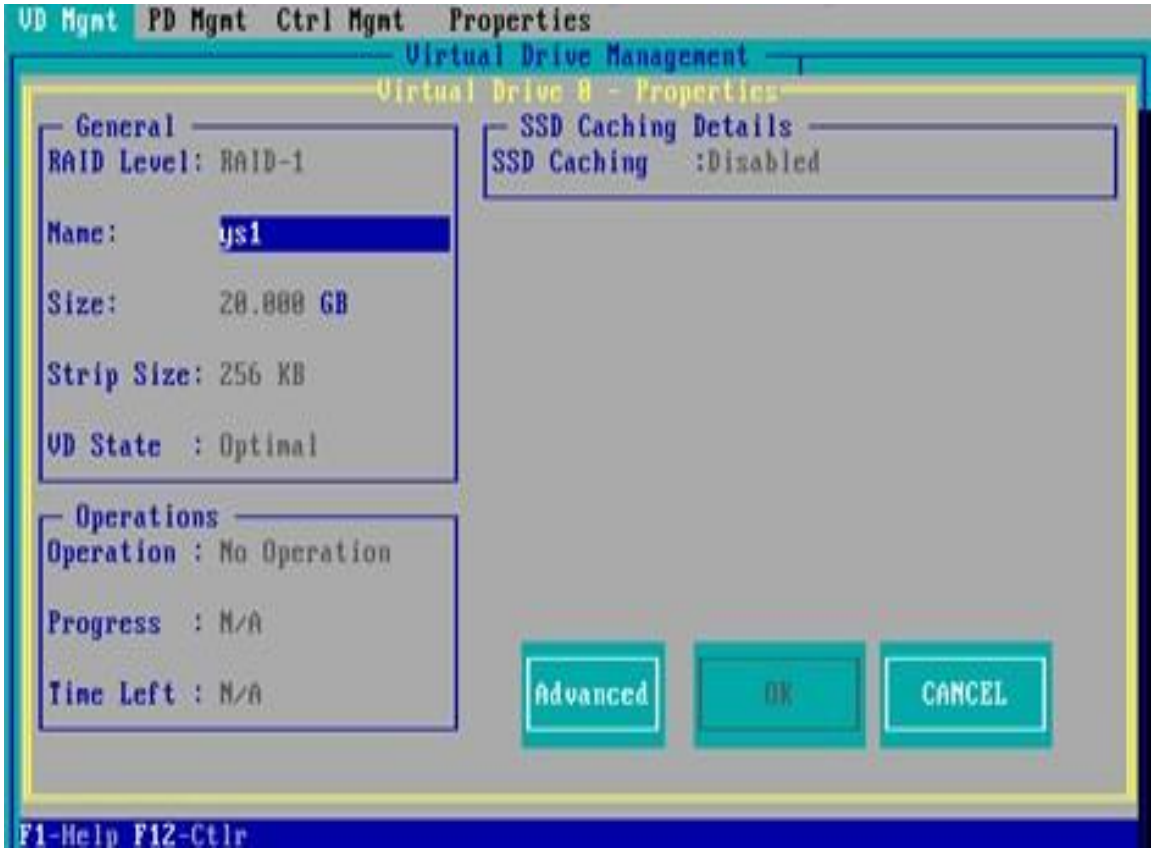


Figure 6-91

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.

说明

- ✧ 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 6-92, select the disk to be configured as a global hot spare in the PD MGMT interface, and press F2.

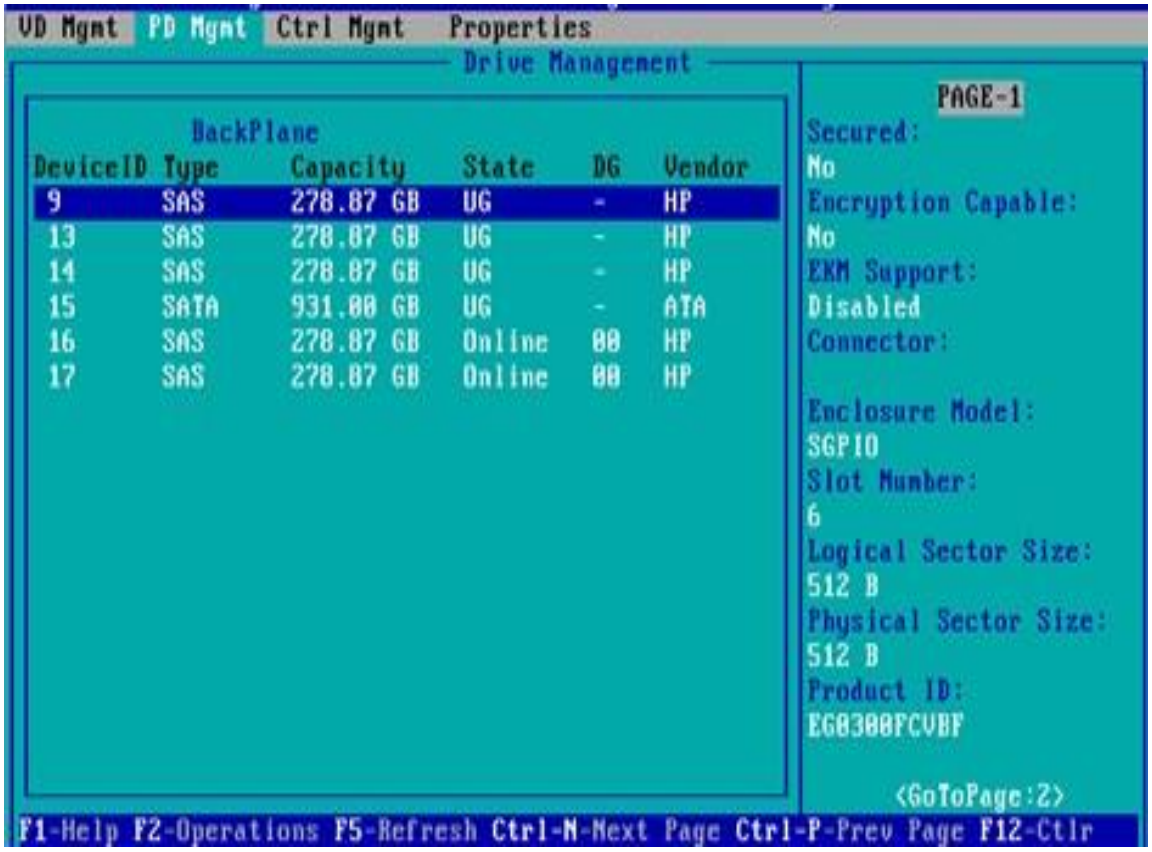


Figure 6-92

b) Enter the interface shown in figure 6-93, select make global HS, and press enter to complete the configuration of global hot spare.

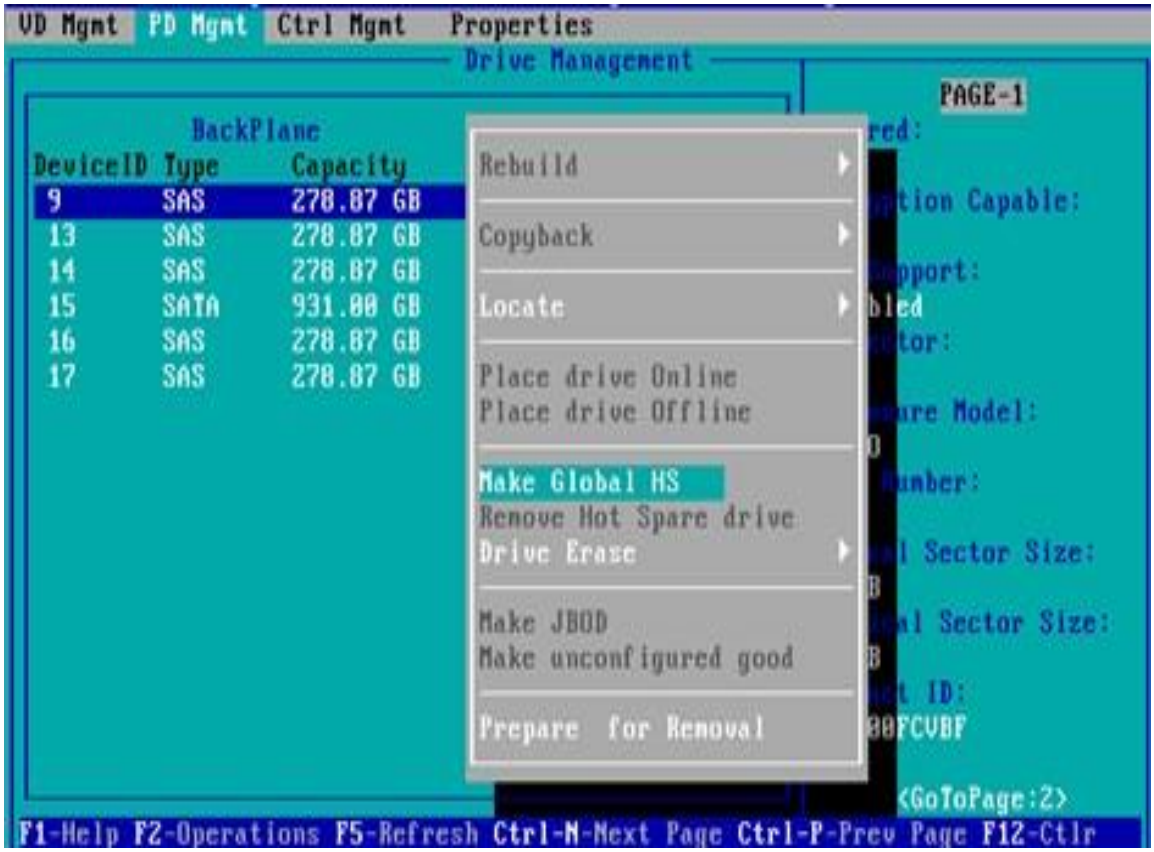


Figure 6-93

c) Return to the interface shown in figure 6-94 and select the hot spare to view the global hot spare information.

Delete Raid:

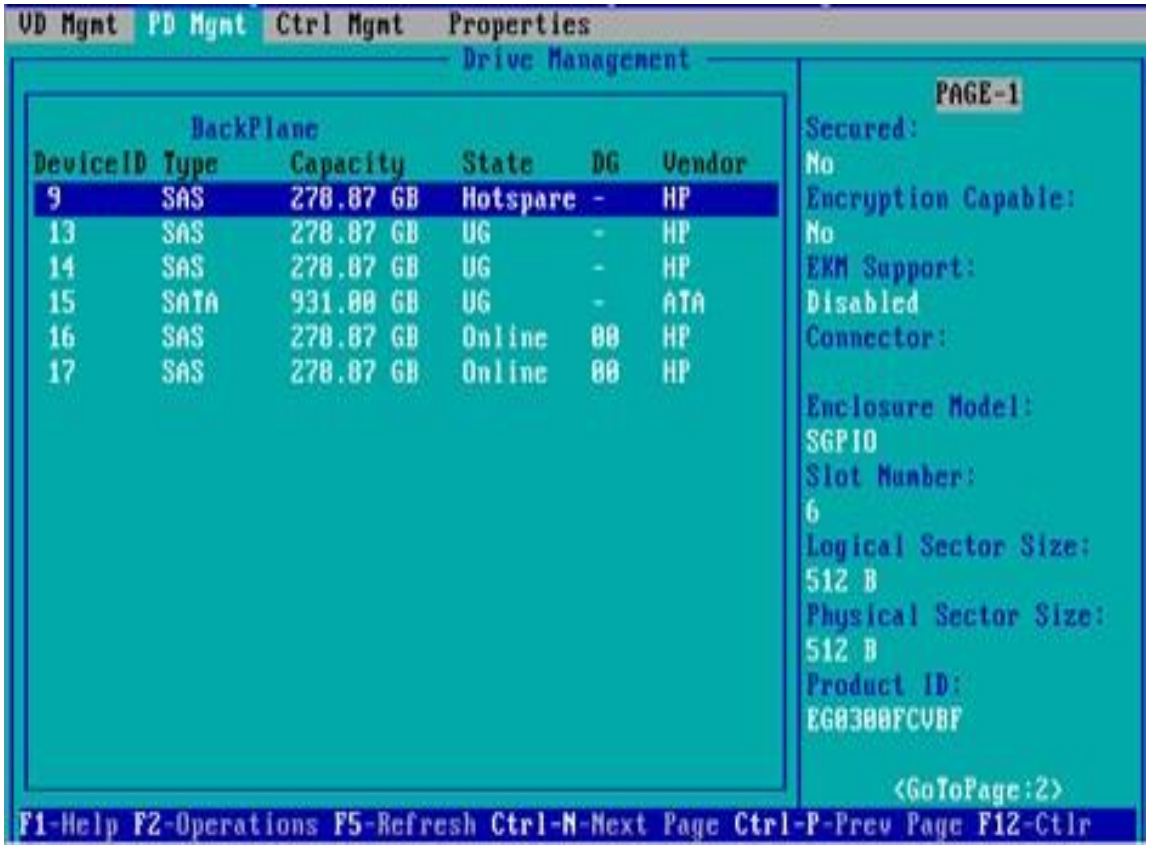


Figure 6-94

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

a) As shown in figure 6-95, select the logical disk to be deleted in the VD MGMT interface and press F2.

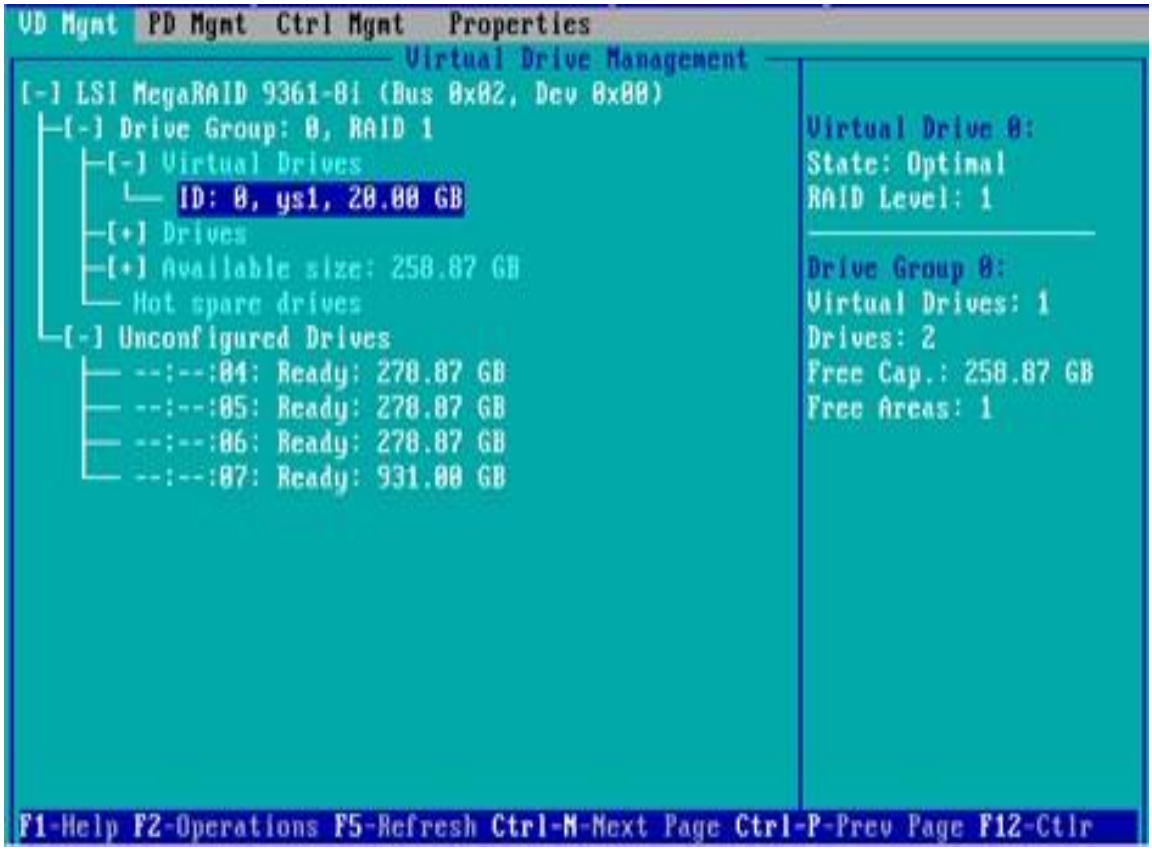


Figure 6-95

b) Enter the interface shown in figure 6-96, select Delete VD and press enter.

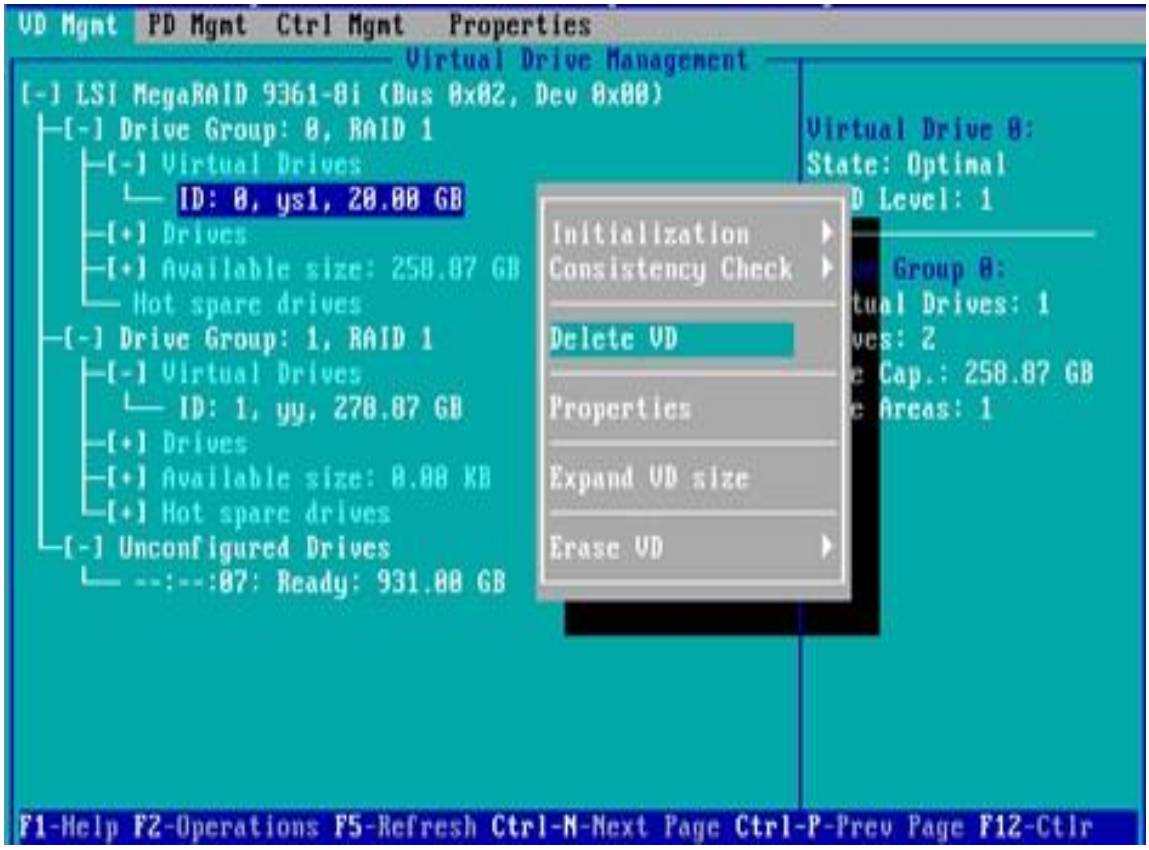


Figure 6-96

c) Enter the interface shown in figure 6-97, select Yes and press enter to complete the raid deletion operation.

Figure 6-97

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 6-98, select the disk to be located in the PD MGMT interface and press F2.

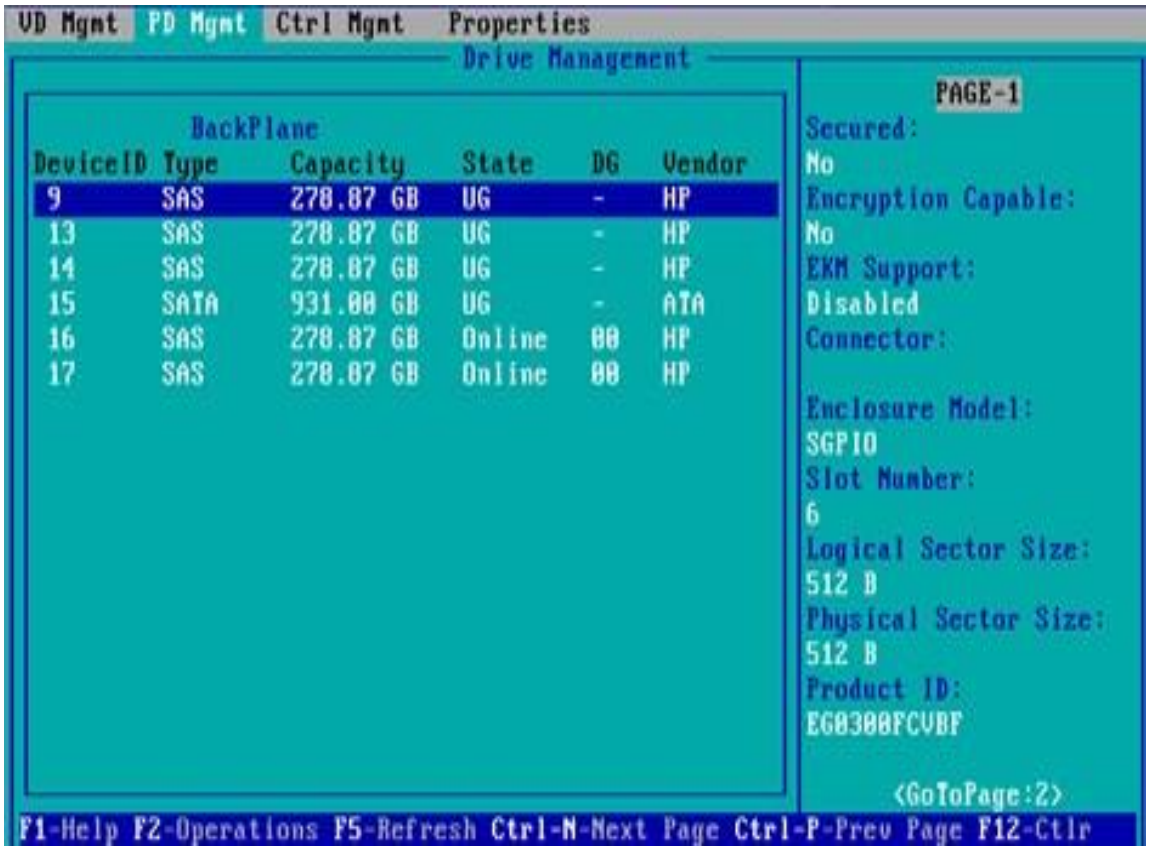


Figure 6-98

b) Enter the interface shown in figure 6-99 and select locate - 〉 start to complete the disk positioning operation.

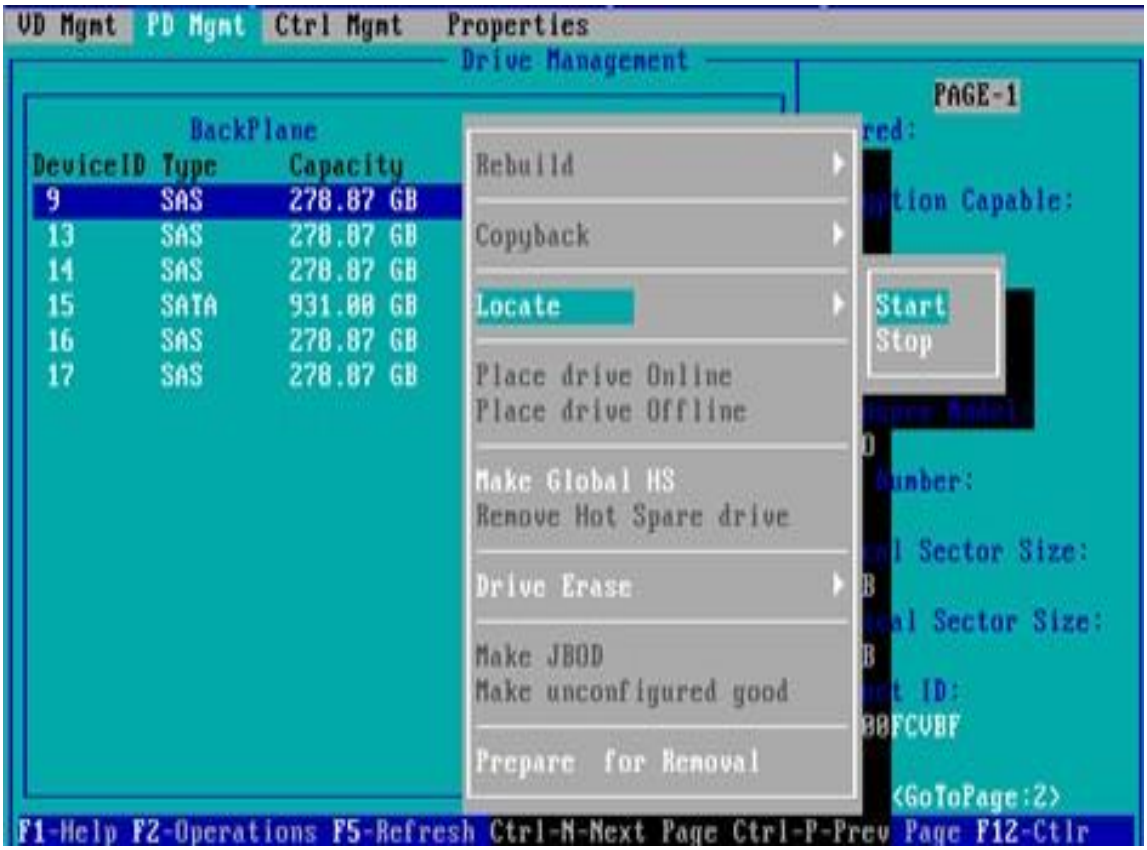


Figure 6-99

说明

- 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 6-100, select the disk to be initialized in the VD MGMT interface and press F2.

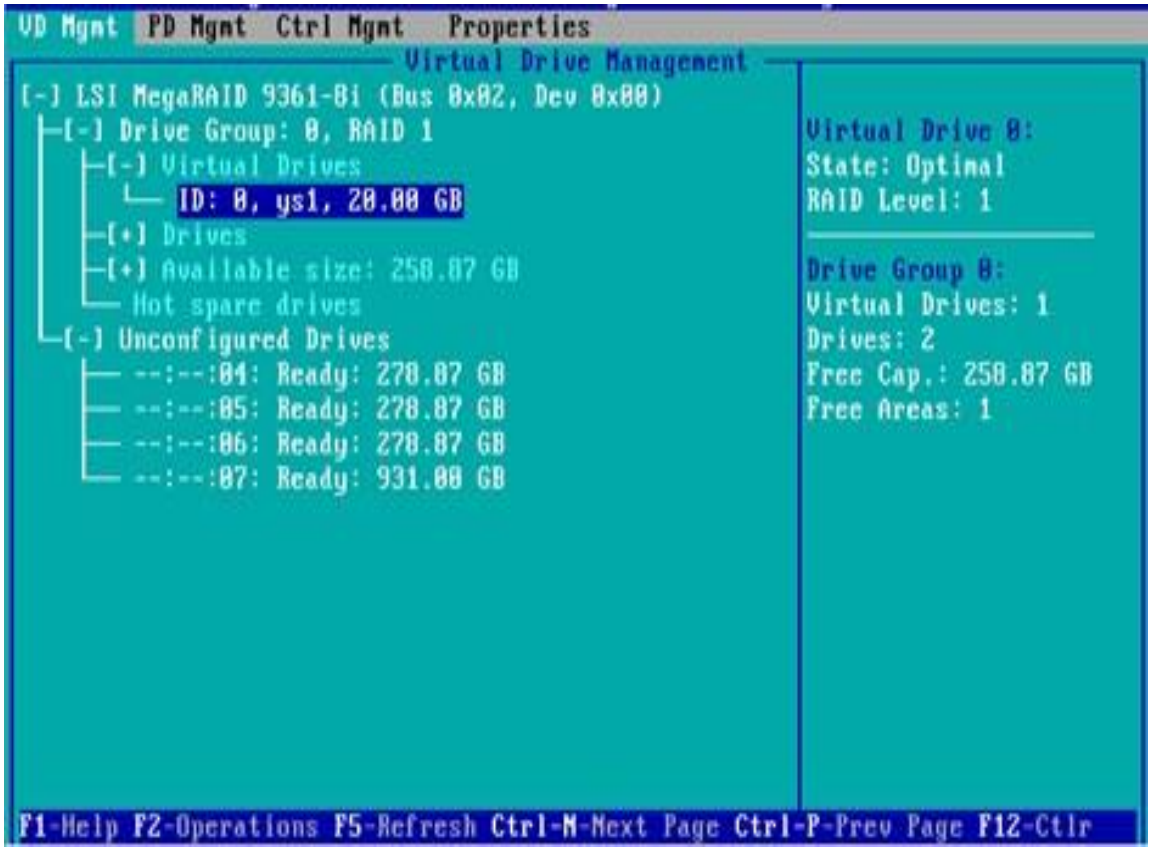


Figure 6-100

b) Enter the interface shown in figure 6-101 and select initialization - 〉 start FGI.

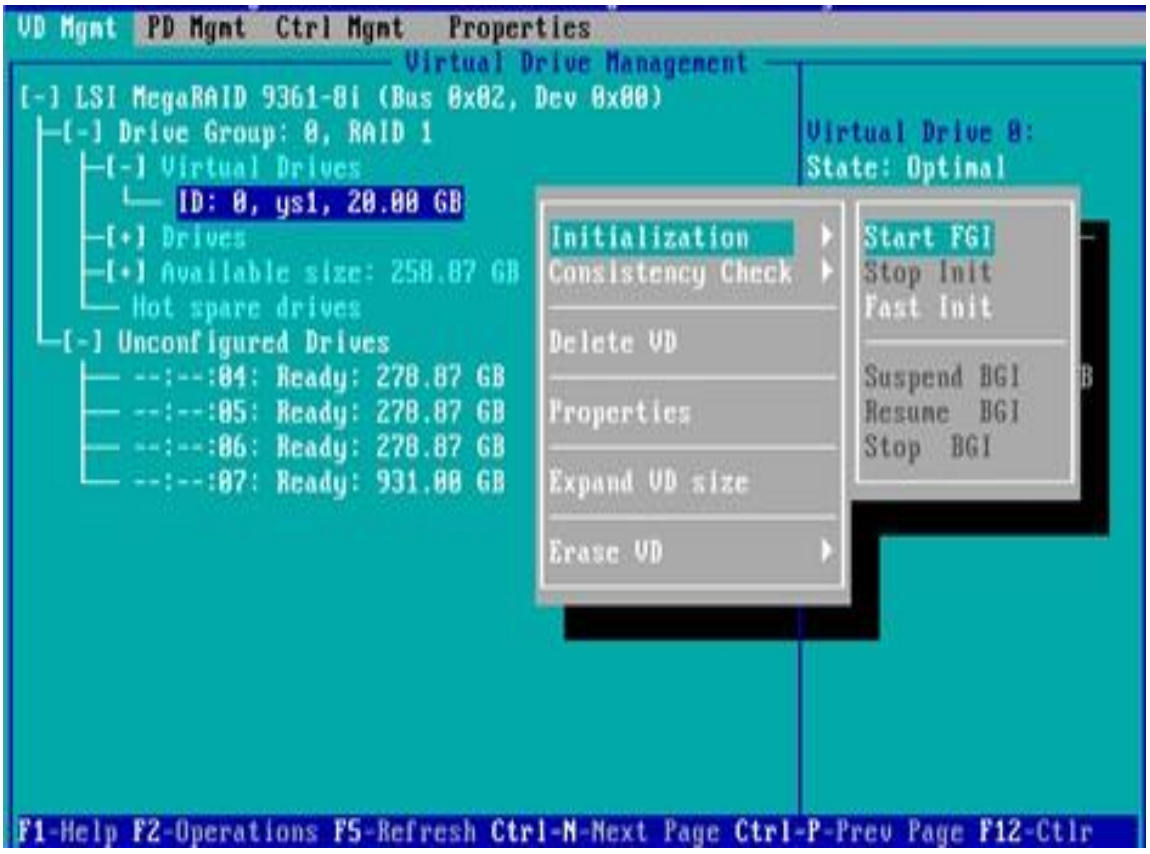


Figure 6-101

说明

- ✧ 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 6-102, select Yes, and press enter to complete the initialization operation.

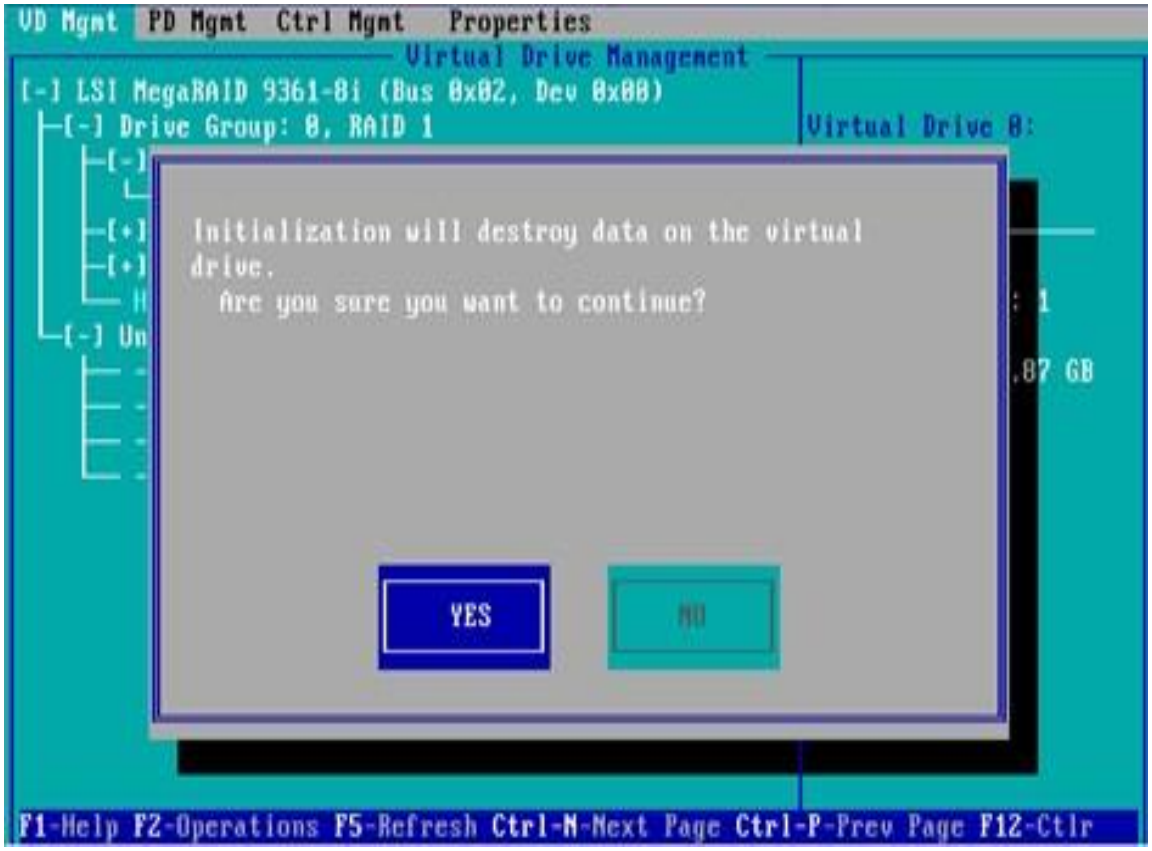


Figure 6-102

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 6-103, select the physical disk to be erased on the PD MGMT interface, and press F2.

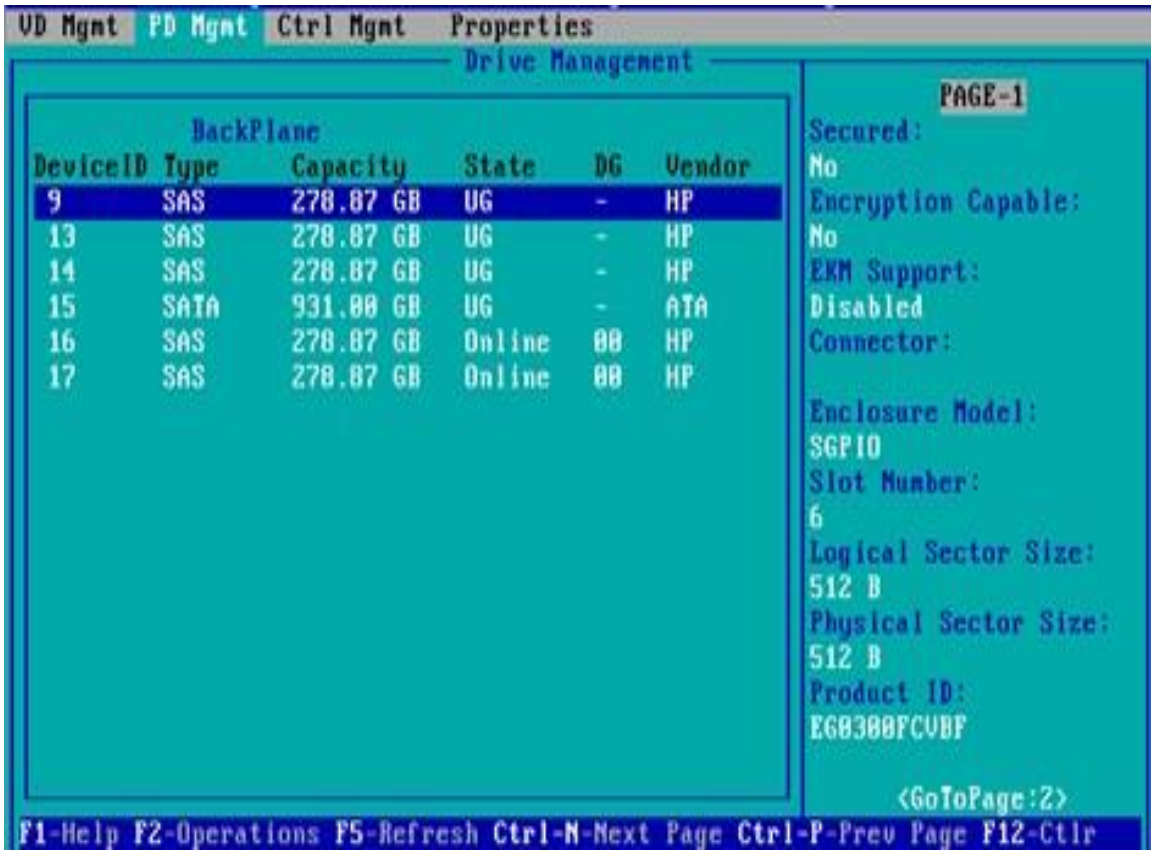


Figure 6-103

b) Enter the interface shown in figure 6-104, select erase mode (the default mode is recommended: simple), and press enter.

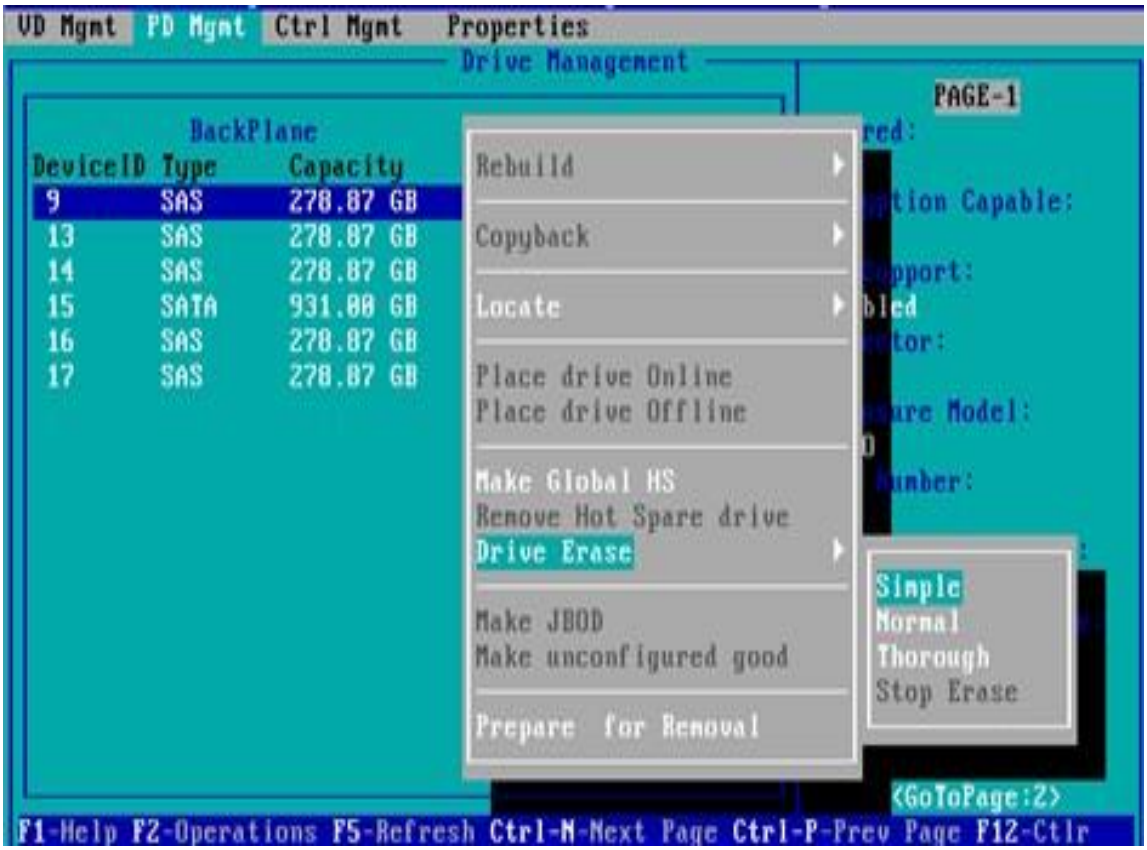


Figure 6-104

c) Enter the interface shown in figure 6-105, select Yes, and press enter to complete the operation of erasing the physical disk data.

Figure 6-105

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

2. Erasing logical disk data

a) As shown in figure 6-106, select the logical disk to be erased in the VD MGMT interface, and press F2.

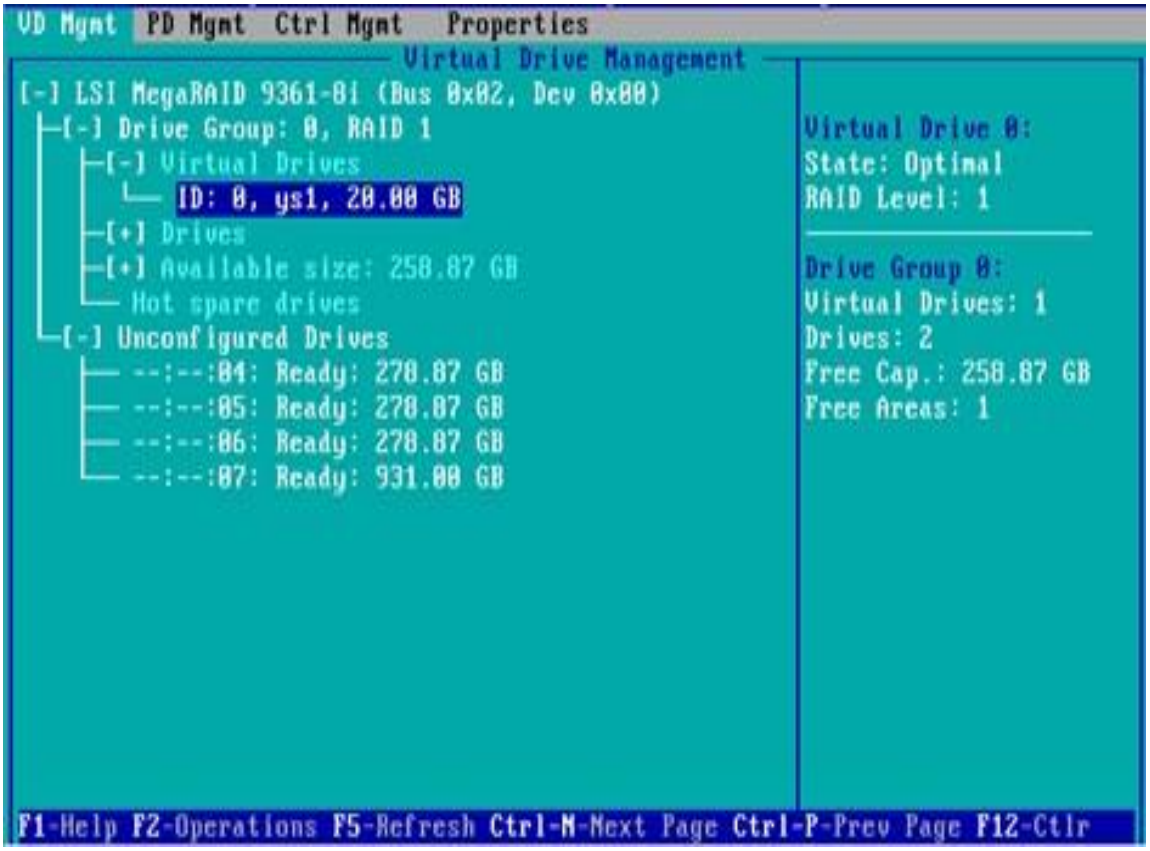


Figure 6-106

b) Enter the interface shown in figure 6-107, select erase mode (the default mode is recommended: simple), and press enter.

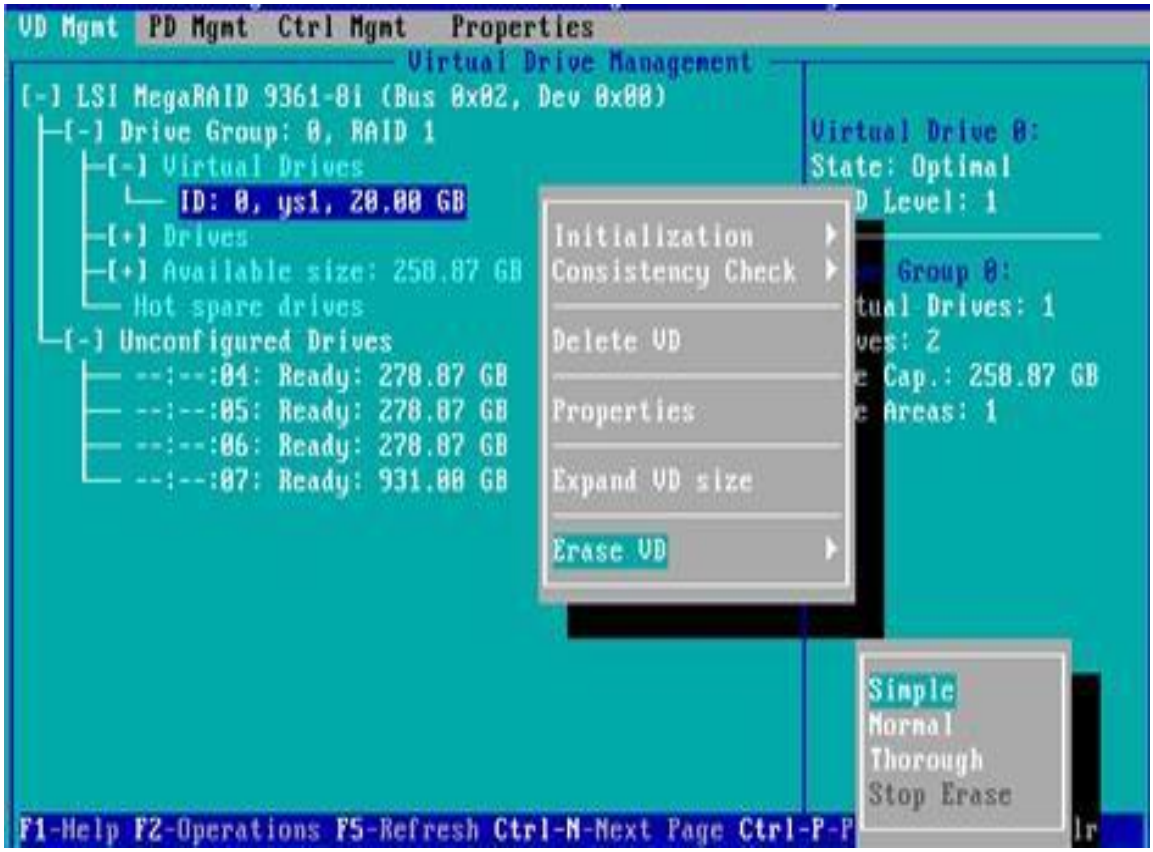


Figure 6-107

c) Enter the interface shown in figure 6-108, select Yes, and press enter to complete the operation of erasing logical disk data.

Figure 6-108

Clear disk RAID information:

This function is used to clear the RAID residual information in the disk, so that the disk can be reused to configure RAID. This function is often used for disks with Unconfigured Bad mode.

a) Switch the disk mode Unconfigured Bad to Unconfigured Good.

b) As shown in figure 6-109, in the foreign view interface, select raid card, press F2, select foreign config > clear, and press enter.

Figure 6-109

c) In the pop-up dialog box shown in figure 6-110, select OK and press enter to complete the operation of clearing disk raid information.

Figure 6-11

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.

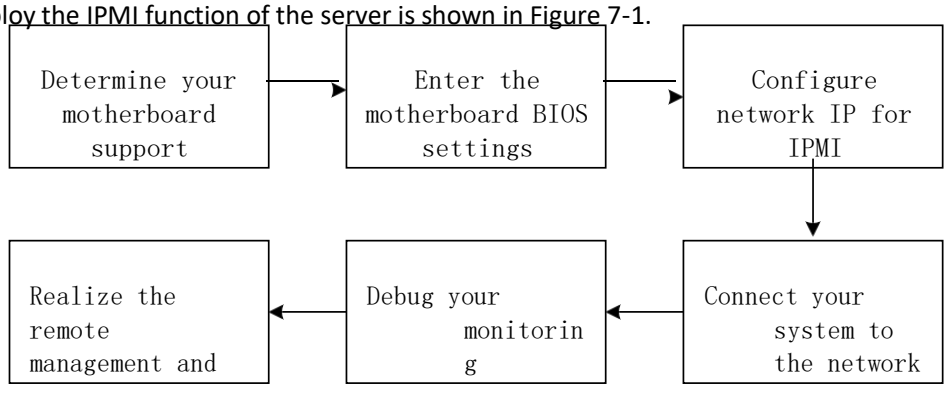


Figure 7-1 IPMI deployment process

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.

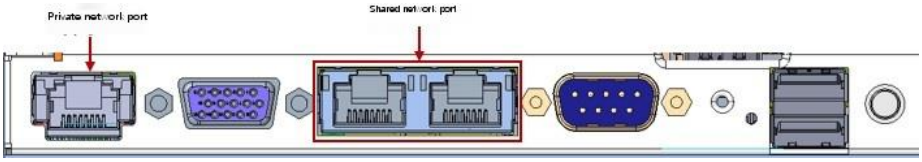


Figure 7-2 special network port of main board

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.

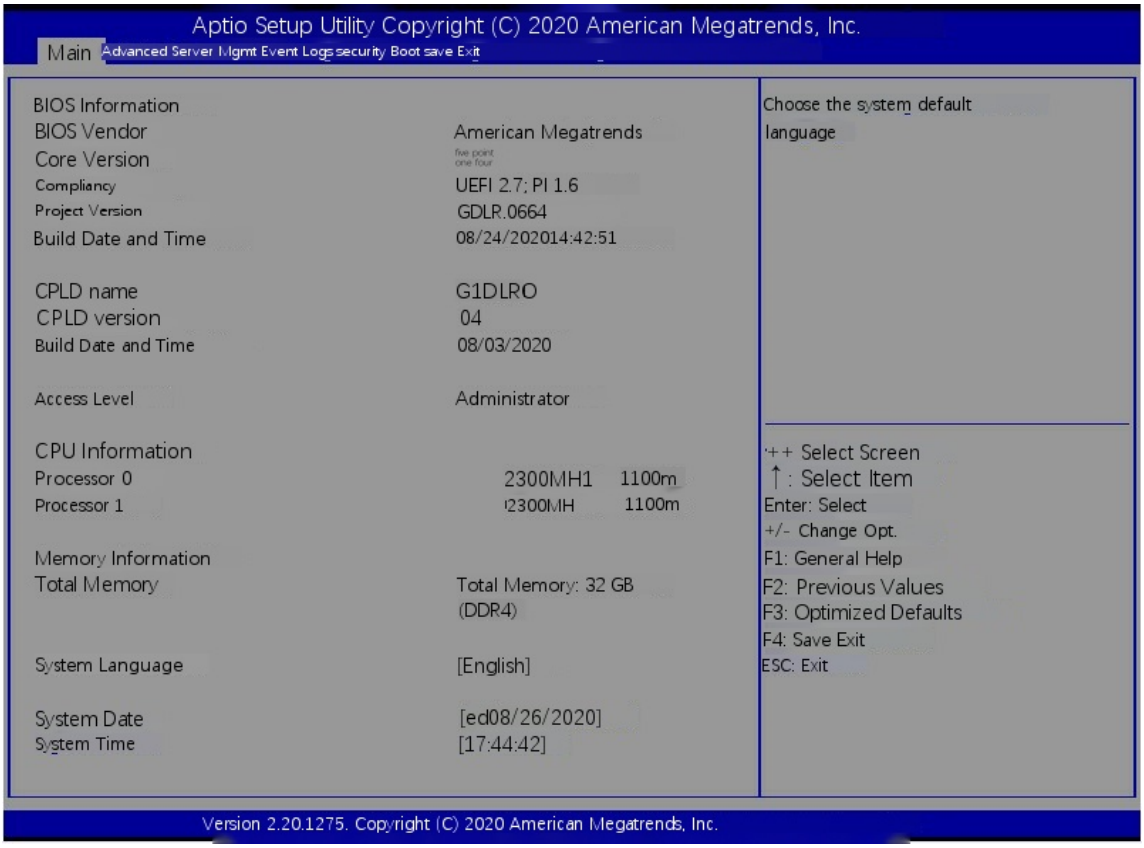


Figure 7-3 BIOS setting interface of motherboard

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.

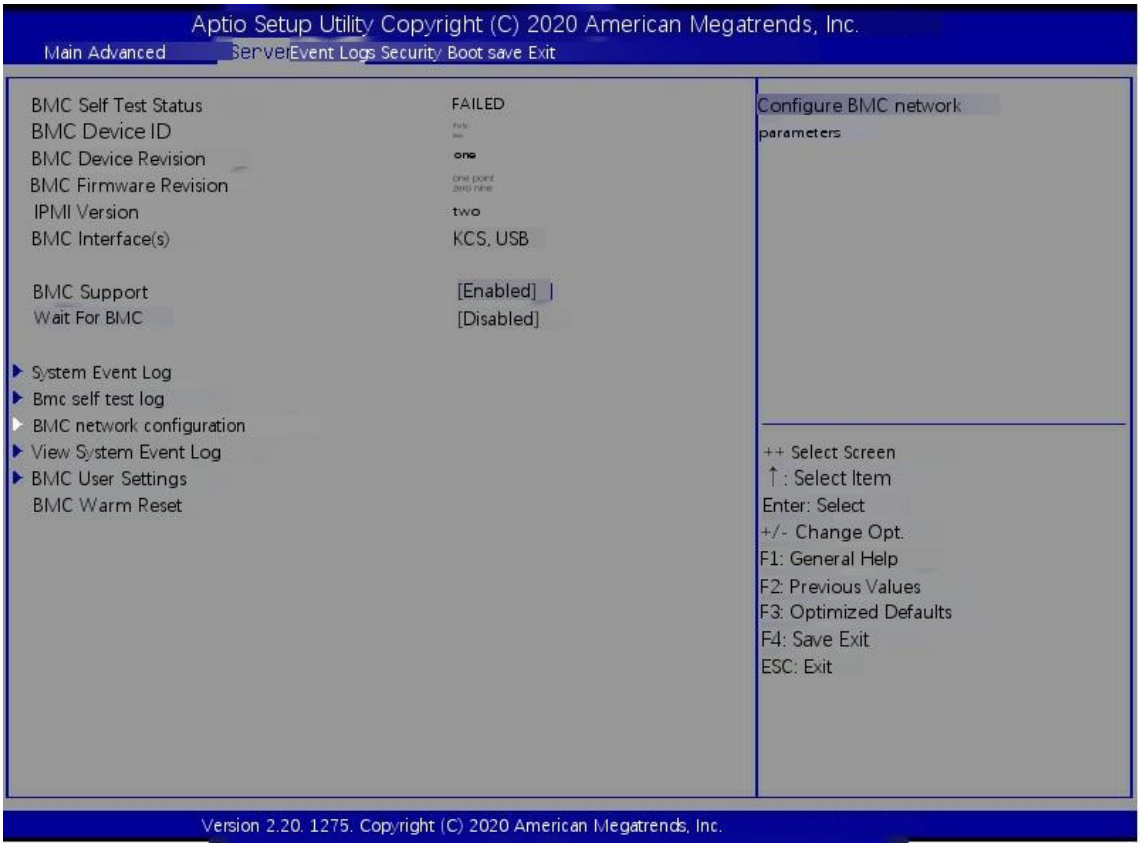


Figure 7-4 server MGMT interface

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

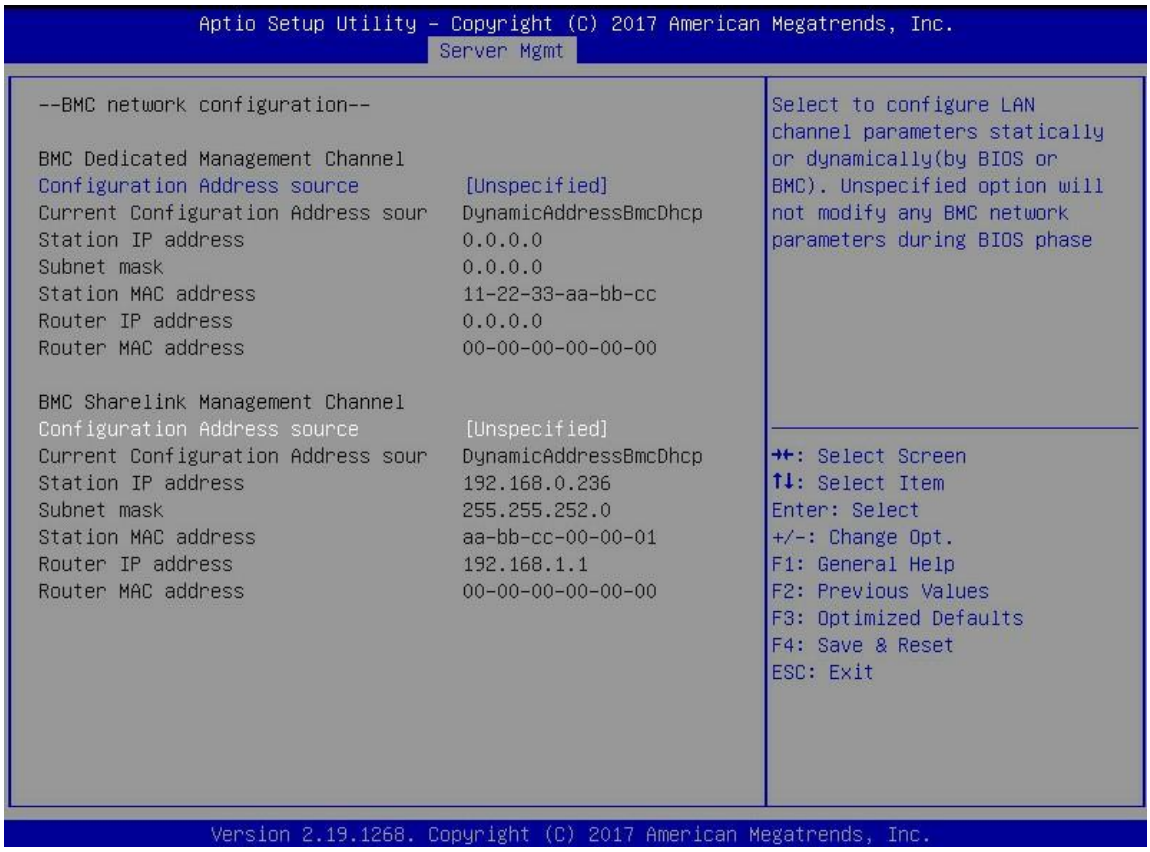


Figure 7-5 BMC network configuration option interface

On this page, you can see two configurable network ports, one is dedicated network port, and the other is sharelink shared network port. Here with

For 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.

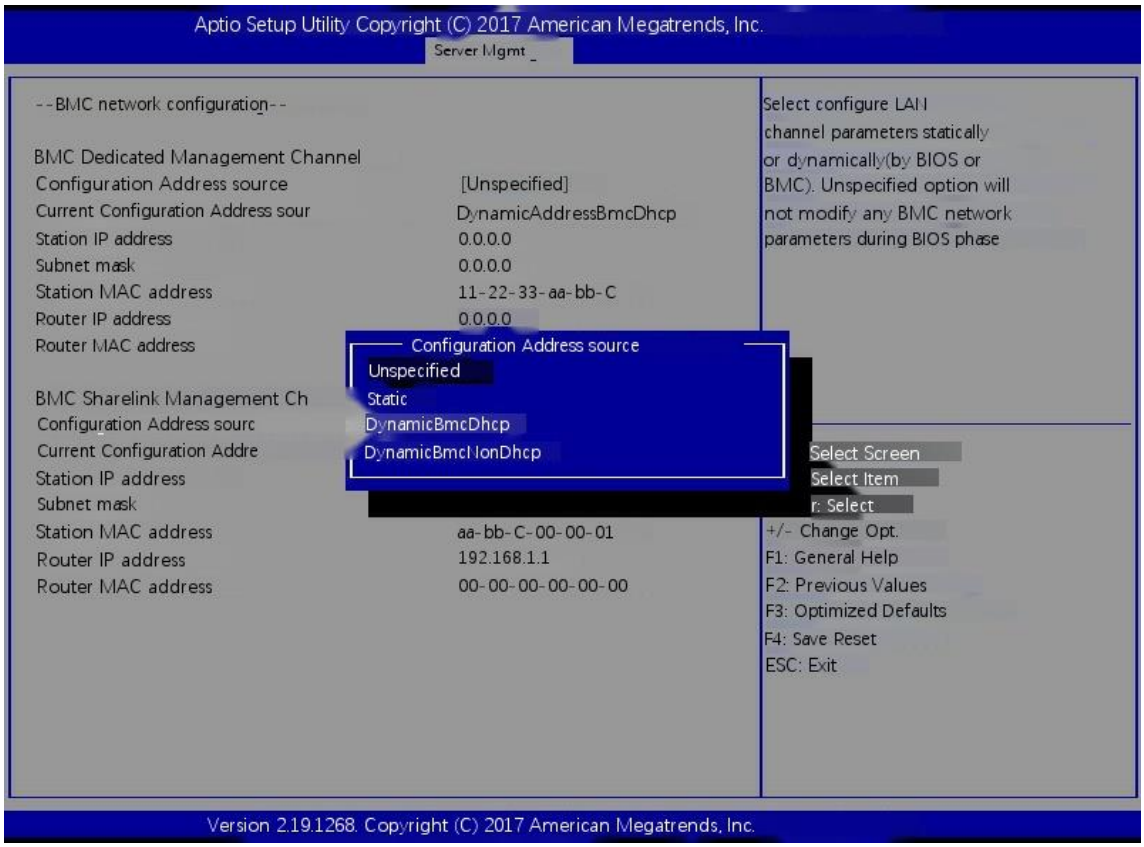


Figure 7-6 configuration of network port network mode

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.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.

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

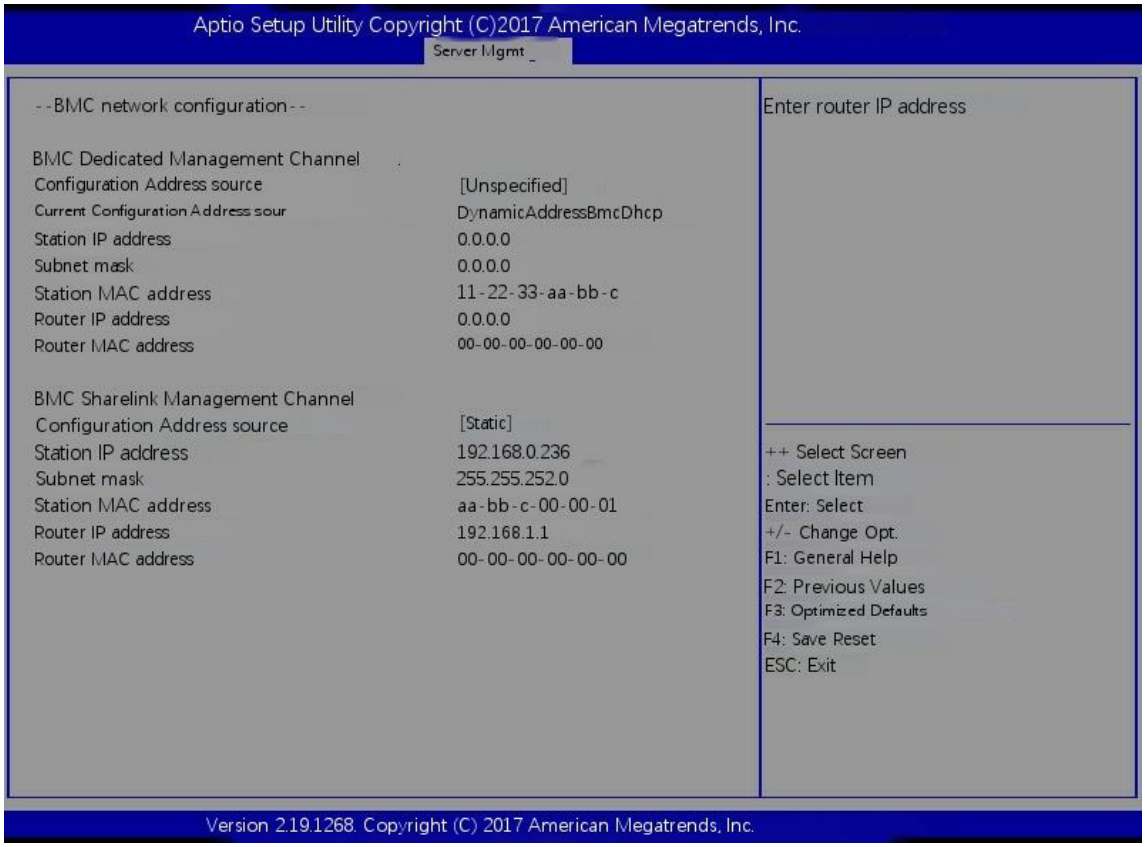


Figure 7-7 Satic mode setting

7.1.3 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 the [enabled] state. If not, select console redirection and press < ENTER > key 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.

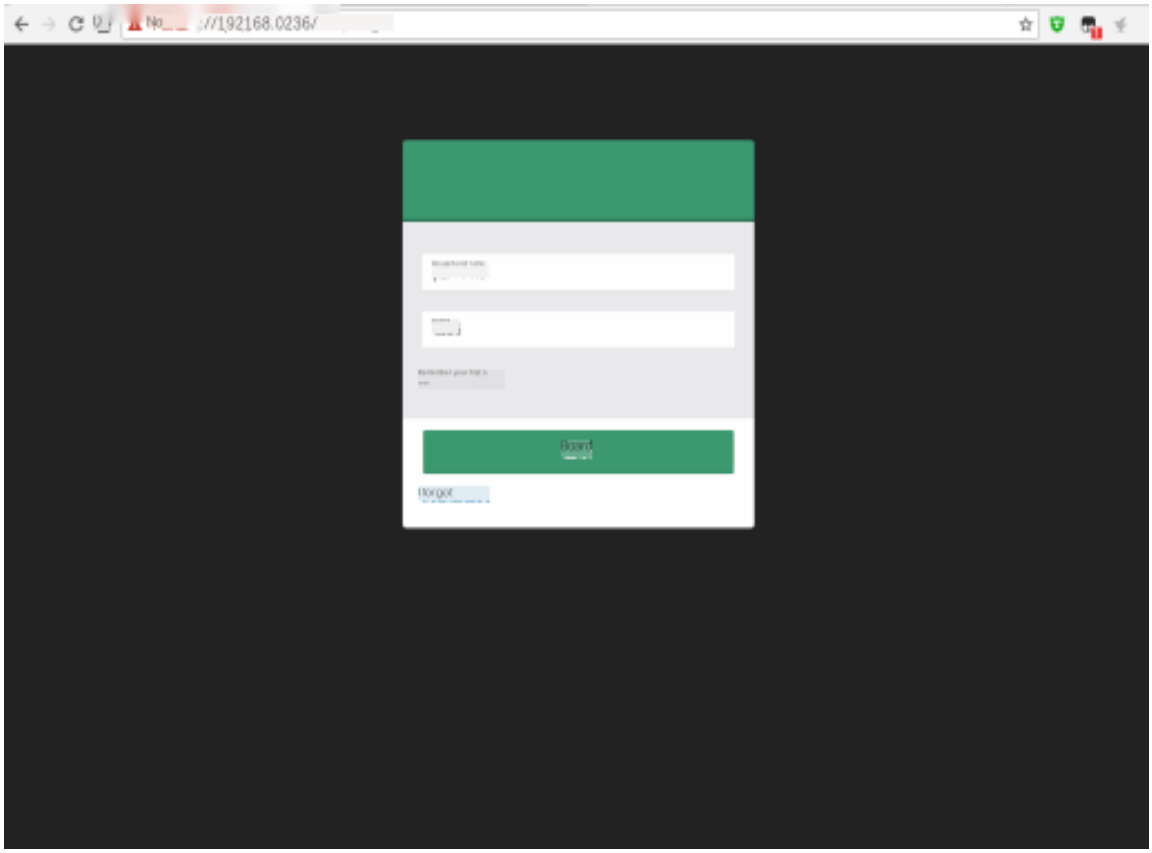


Figure 7-9 IPMI management login interface

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 Content of IPMI management system

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

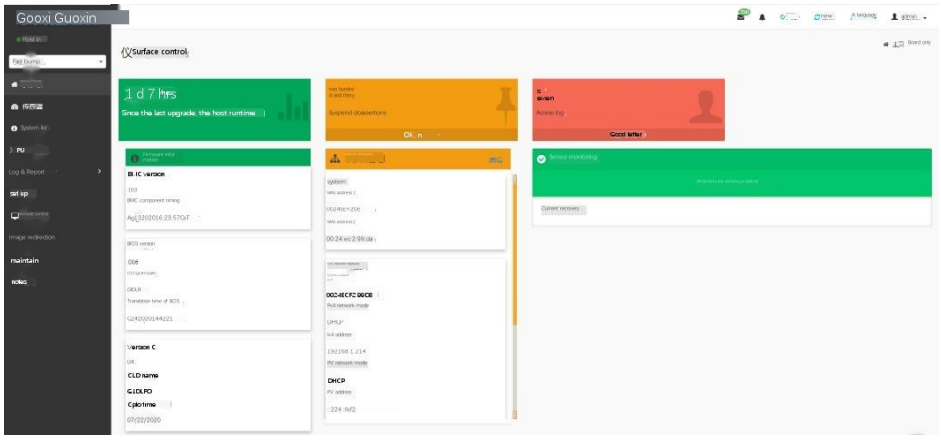


Figure 7-10 home page of IPMI management system

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) sensor

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) Hard disk information

For the backplane with expander, the green square indicates that the hard disk is in place, otherwise it is not. The status of the hard disk can be viewed at the right or bottom of the hard disk box .Left click on the green box to view the details of the hard disk, and right click to locate the hard disk.

(5) Power consumption

In this menu, the power consumption can be capped and the latest power consumption can be viewed.

(6) Fru information

Select this menu to view the basic information of fru.

(7) Log & Report

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

(8) set up

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

(9) Remote control

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

(10) Image redirection

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

(11) maintain

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

(12) cancellation

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.

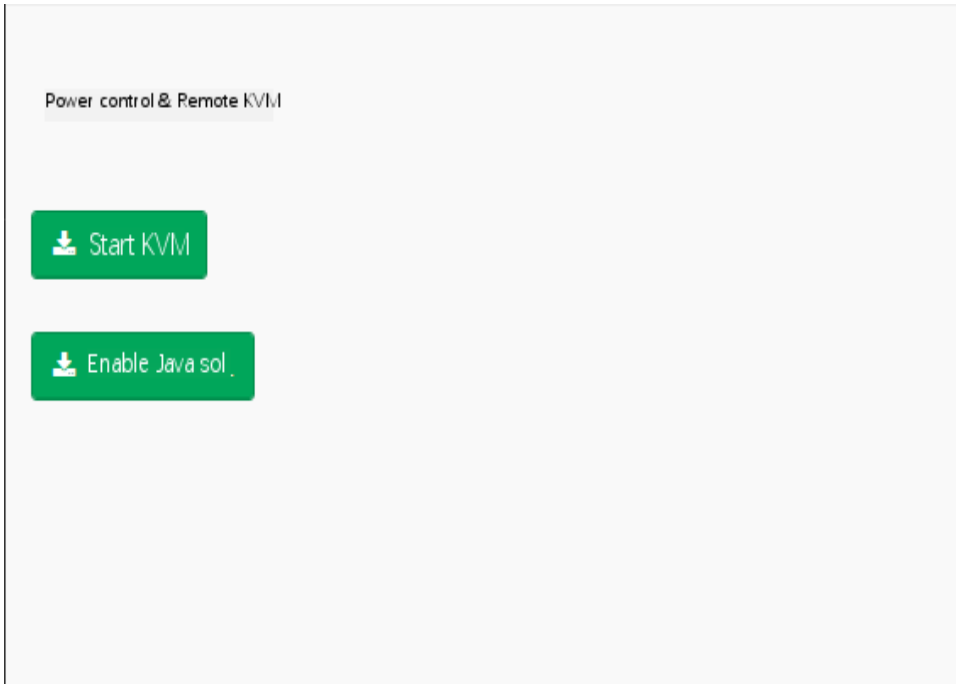


Figure 7-11 start KVM

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

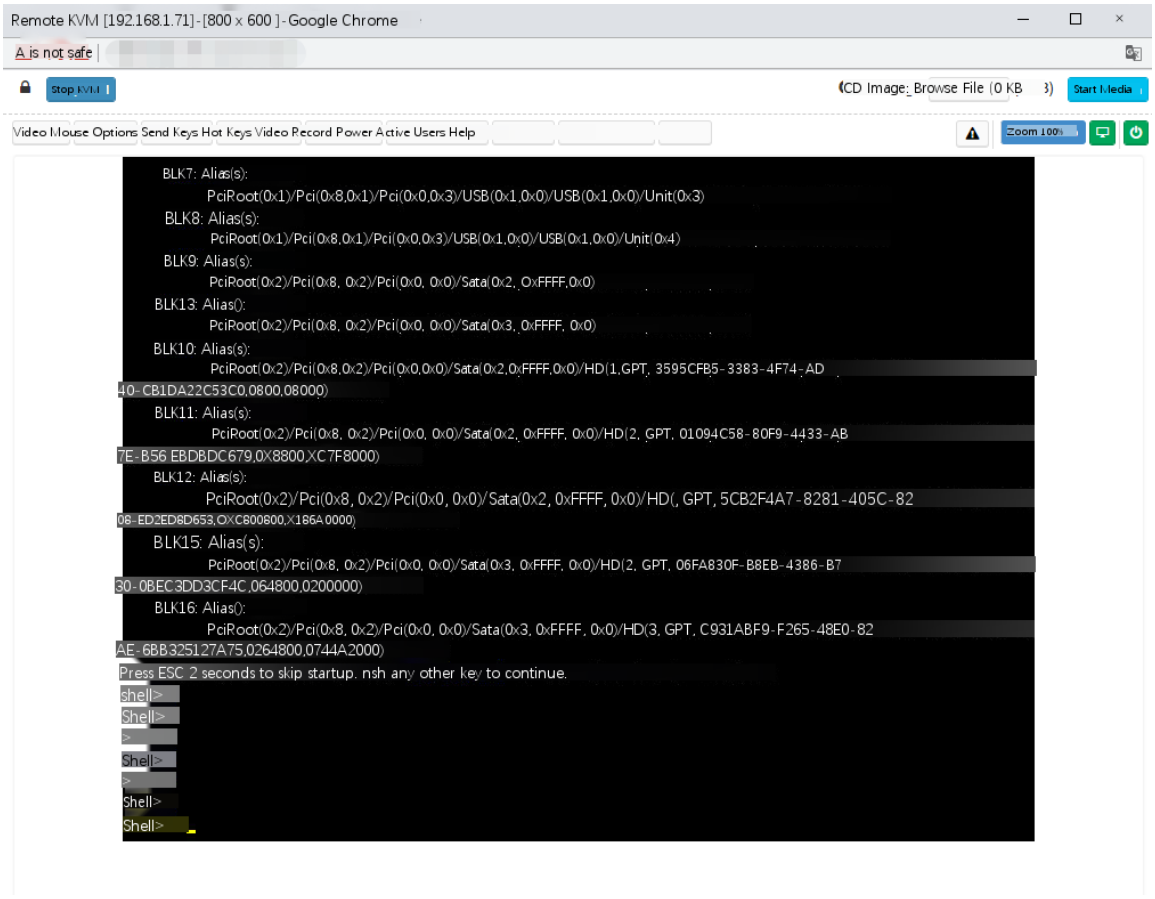


Figure 7-12 KVM interface

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.

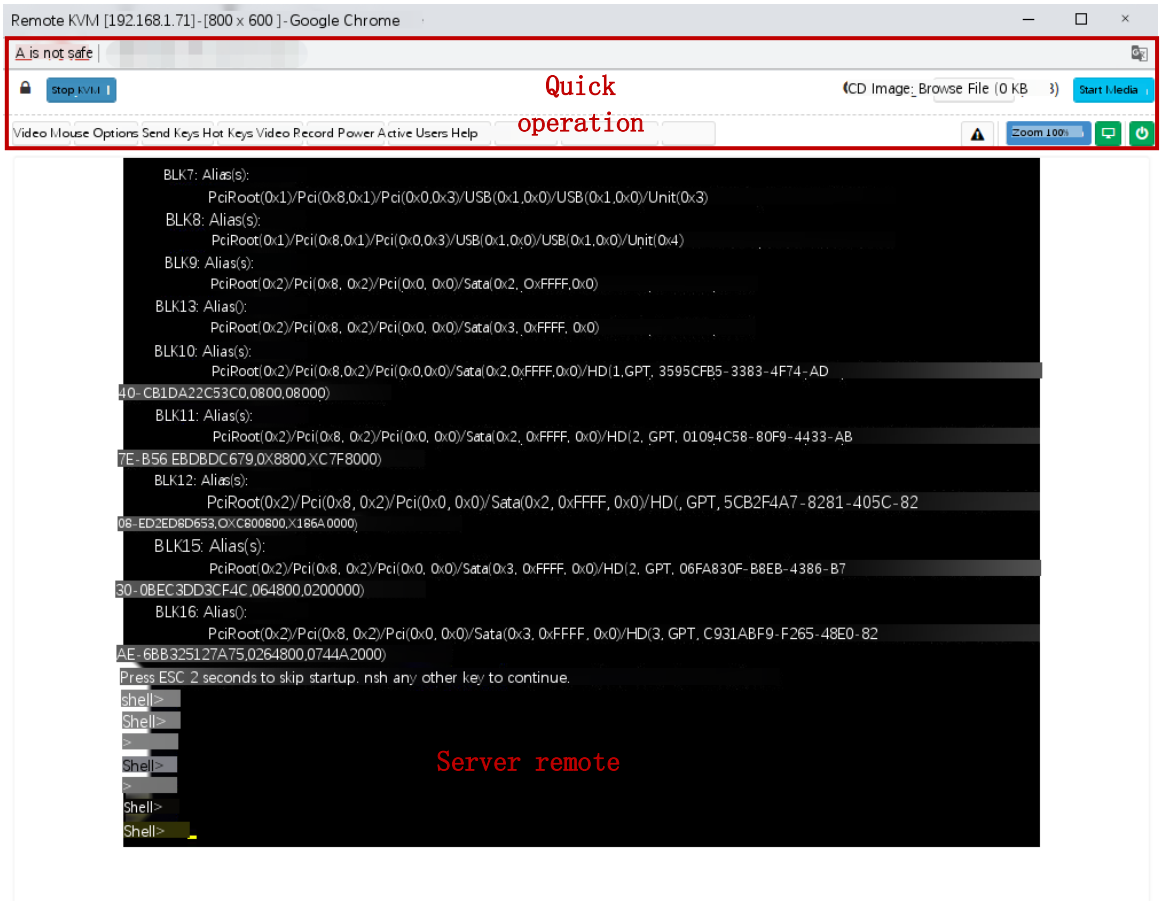


Figure 7-13 KVM interface composition

7.2.5 Remote control shortcut operation

Stop KVM	Stop KVM
CD image: Browse File (0KB) Start media	Hanging on CD image, usually used for remote installation of operating system
Zoom 100%	The host display is unlocked and the

Table 1 - 37

7.2.6 Introduction to sol

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

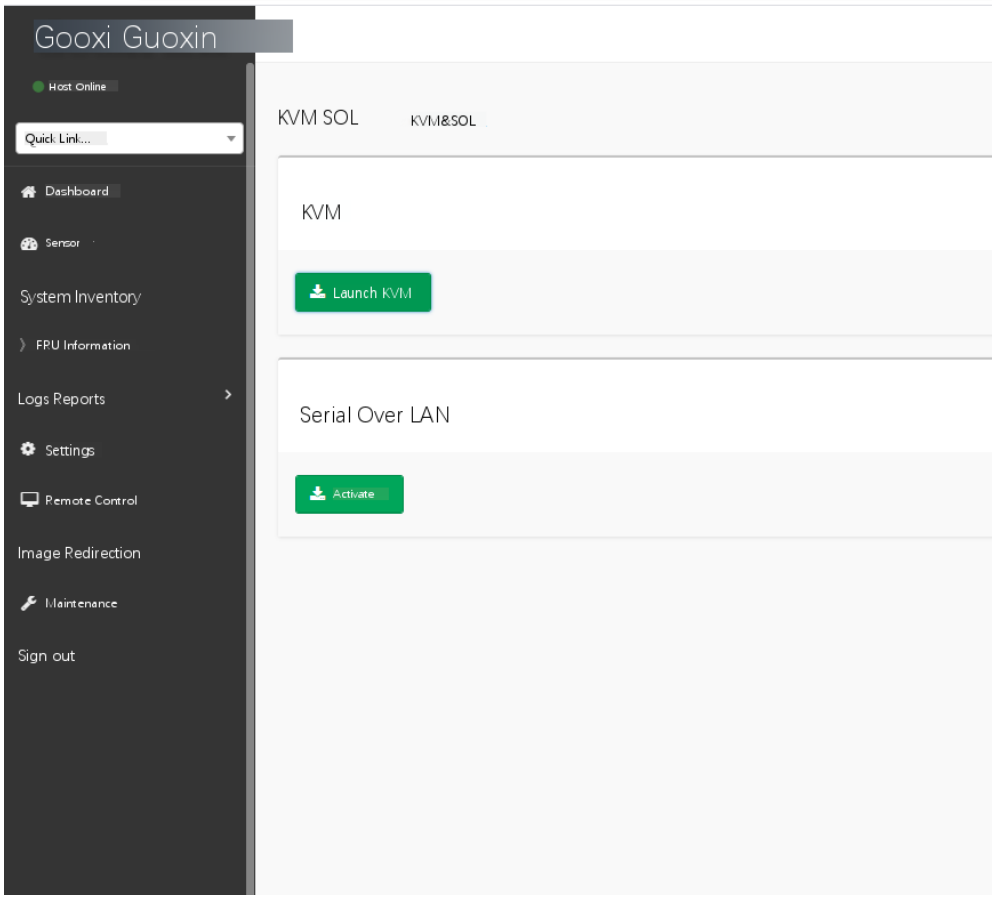


Figure 7-14 enable Java sol

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

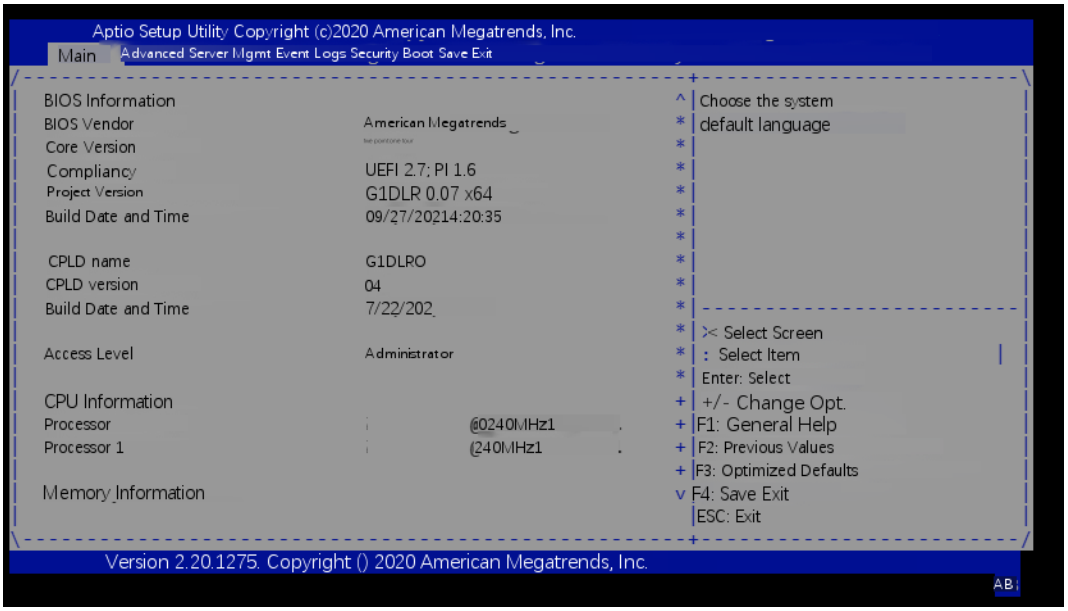


Figure 7-15 sol operation interface

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 to 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 driver

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 8 Product specifications

function	technical specifications
Series models	2u8, 2u12, 2u25 disk server quasi system
size	2U：798*433.4*87.6mm
processor	Supports two AMD epyc 7002 series processors, with a maximum of 240W (TDP) / 64 cores
Memory type	Support DDR4 rdimm / lrdimm / 3ds lrdimm / nvdimm-n server memory, internal The storage frequency supports 1866 / 2133 / 2400 / 2666 / 3200mhz; a single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and two CPUs support 32 DDR4 slots; the single capacity is 16GB, 32GB, 64GB, 128GB, 256gb, and the maximum memory capacity of the whole machine is 8tb.
Storage controller	Internal storage: 4 SATA ports, 2 pcie4.0 x2 m.2 interfaces, 3 minisas 8643 interfaces, and 2 slimline X8 interfaces
Driver	Front panel supports up to 8 / 12 / 25 hot swap 3.5 / 2.5 inch SAS / SATA (HDD / SSD) The rear supports 4 2.5 inch and 4 3.5 inch hot swap SAS / SATA (HDD / SSD) or 8 2.5 inch hot swap SAS / SATA (HDD / SSD)
External port	Front port: 1 VGA, 2 USB3.0
	Post: 1 VGA, 1 db-9com port, 2 USB3.0, 1 RJ45 Gigabit management network port, 2 Gigabit RJ45 service network port
BMC	ASPEED AST2500
PCIe extension	2 pcies4.0 X32; 2 pcies4.0 x16 1 x 4.0 x 8; 2 x 4.0 x 2
TPM	support
Power Supply	Platinum grade 550W, 800W, 1200W, 1600W hot swap redundant power supply (adapted according to actual power
BMC chip	ASPEED AST2500
IPMI compatible	IPMI2.0
Management	1 dedicated RJ45 management network port
operating system	Windows Server 2016/2019 Vmware vSphere 6.7 u3 Vmware vSphere 6.5 EP15 Citrixt Hyperxisor 8.1 Redhat RHEL 8.0.2 Redhat RHEL 7.6.6 Suse SLES 15 SP1 Suse SLES 14 SP4 Canonical Ubuntu 18.04.3 LTS Canonical Ubuntu 16.04.6 LTS
Energy saving certification	CECP、CELP

Security certification	CCC、CE、FCC
RoHS	Meet the requirements
working temperature	10℃ ~ 40℃
Working humidity	35%~80%
Storage temperature	-40℃ ~ 70℃
Storage humidity	Humidity: 20% ~ 90% (including packaging)

Table 1 - 38