

G2SERO-B Single Server Motherboard (EATX Standard Motherboard)

User Manual

V1.1

Preface

This manual is the product technical manual of single processor G2SERO-B. It mainly introduces and illustrates the parameters, system architecture, installation and basic operation of this type of product.

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

About this manual

Chapter 1: Product Introduction

This chapter describes specification of the motherboard and main characteristics.

Chapter 2: Hardware Installation

This chapter describes main components and installation of the motherboard and main connectors.

Chapter 3: BIOS

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

Chapter 4: RAID Setting Instruction

This chapter mainly introduces how to set RAID.

Chapter 5: IPMI

This chapter focus on how to quickly deploy IPMI.

Statement

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Glossary:

Name	Meaning
AMD ЕРҮС™ 7002	ROME series processor
MO	M. 2 interface is a new generation interface standard tailored for Ultrabook,
111.2	which is Intel® pushed a new interface specification to replace mSATA
RJ45	Standard 8-bay modular interface
AST2500	Aspeed [®] BMC chip
8038 Fan	Dimension: 80x80x38mm
LGA4094	Whole name is Land Grid Array, LGA4094 represents 4094 contactors
CR2032	3V CR2032 lithium manganese battery in the form of button
RS-232	One of the communication interfaces on computer. Asynchronous
	transmission standard interface, called COM interface
Jtag	Joint Test Action Group. Mainly used for chip internal test
NC Pin	No internal connection Pin

Abbreviation:

The full English name and Chinese explanation of each abbreviation are provided as follows:

Abbreviation	English Name	Chinese Name
GbE	Gigabit Ethernet	千兆以太网
BMC	Baseboard Management Controller	基板管理控制器
IPMI	Intelligent Platform Management Interface	智能平台管理接口
CPU	Central Processing Unit	中央处理器
SATA	Serial Advanced Technology Attachment	串行 ATA 接口规范
SAS	Serial Attached SCSI	串行 SCSI
sSATA	secondary SATA	扩展 SATA 接口
LAN	Local Area Network	局域网
VGA	Video Graphics Array	视频传输标准
MB	Mother Board	主板
BP	Backplane	背板
PCIE	Peripheral Component Interconnect Express	高速串行计算机扩展总线标准
USB	Universal Serial Bus	通用串行总线
FW	Firmware	固件
TPM	Trusted Platform Module	可信赖平台模块
IO	Input/Output	输入输出
BIOS	Basic Input-Output System	基本输入输出系统
CMOS	Complementary Metal Oxide Semiconductor	互补金属氧化物半导体
ME	Management Engine	管理引擎
DDR4	Double Data Pate 4 SDP AM	第四代双倍数据速率同步动态随
		机存储器
DIMM	Dual-Inline-Memory-Modules	双列直插式存储模块

RDIMM	Registered DIMM	带寄存器的双线内存模块
LRDIMM	Load-Reduced DIMM	低负载 DIMM
KVM	Keyboard Video Mouse	通过直接连接键盘、视频、鼠标 端口,能够访问和控制计算机
CPLD	Complex Programmable Logic Device	复杂可编程逻辑器件
ECC	Error Correcting Code	错误检查和纠正
CFM	Cubic Feet Per Minute	立方英尺每分钟
RPM	Revolution Per Minute	转每分

Conventions:

Caution: It is used to deliver equipment or environmental safety warning messages. If it is not avoided, it may lead to equipment replacement, data loss, equipment performance degradation or other unpredictable results.

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

Red arrow: point to a position

Blue arrow: action of pulling out or inserting downward or tilting in.

White arrow: represents the next action or result.

Dark blue rotation arrow 1: represents the action of turning the screw clockwise or pulling outward.

> Dark blue rotation arrow 2: represents the action of turning the screw clockwise or turning it inward.

Revision Record:

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V1.0	May-26-2020	First Release
V1.1	June-10-2021	Optimized Description

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Chapter 1 Product Introduction

1.1 System Introduction

Gooxi G2SERO-B is a single CPU standard E-ATX server motherboard which supports AMD EPYC 7002 (Rome series) processor. It is compatible with AMD EPYC 7003 (Milan series) and 7001 series (Naples series) and Hygon7100, 7200, 5100, 5200 series processors. The motherboard configured 16* DDR4 memory slots, onboard 2* MiniSAS SFF-8643 connectors, 1* M.2 port, 2* Gigabyte net ports, 1* RJ45 management net port, 10* PCIe4.0 expansion slots. It can be widely used in distributed storage, artificial intelligence and other server industries.

1.2 Product Specification

Processor	Supports 1* AMD EPYC 7002 (Rome series) processor It is compatible with AMD EPYC 7003 (Milan series), AMD EPYC 7001 (Naples series), Hygon7100, 7200, 5100/5200 series (user can choose SKU CPU for needs)		
Memory	Supports DDR4 ECC RDIMM, LRDIMM, 3DS DIMM, NVDIMM-N, memory frequency supports up to 2933MHz. 8* DDR4 channels per CPU, each channel supports 2* DIMMs. 16* DDR4 slots and per DIMM max. supports 256GB, max. 4TB memory capacity		
Storage Controller	Onboard two MiniSAS SFF-8643 connectors. One M.2 SSD (PCIe 4.0x4)		
Ю	1* RJ45 management port, link and speed light 2* 1GBASE-T RJ45 1* VGA port, 1* VGA pin. Rear 2* USB3.0, onboard 1* USB3.0, 1* USB3.0 20PIN & 1* USB2.0 9Pin, 1* serial port		
PCIe Expansion	$^{\text{on}}$ 6* PCIe 4.0 x8 (in PCIe 4.0 x16 slot) and 4* PCIe 4.0x16 (2/6/7/10 slots), PCIe 3 slot designed as x8 or no signal, PCIe 4 slot designed as x8 or x16		
BMC	ASPEED AST2500		
Security	TPM		
Management	Onboard iBMC management module, IPMI, SOL, KVM Over IP, virtual media, etc.		
OS	Microsoft Windows Server, Linux		
Working Temperature	10°C~35°C		
Working Humidity	35%~80%		
Storage Condition	Temperature: -40°C~70°C; Humidity: 20%~90% (including package)		
Safety Authentication	CCC		

1.3 Product Features

G2SERO-B motherboard main features are as follows:

- Single SP3 Socket, supports AMD EPYCTM 7002 series processors.
- 8* DDR4 channels per CPU, each channel supports 2* DIMMs, 16* DDR4 slots in total. Per DIMM supports 16GB, 32GB, 64GB, 128GB, 256GB, the whole system supports 4TBmemory capacity.
- DDR4 type: DDR4 2133/2400/2666/2933MHz ECC-RDIMM/LRDIMM/3DS LRDIMM/NVDIMM-N.
- 10 PCIE RISER slots in single board, among them: 6* PCIe 4.0 X8 (in PCIe 4.0 x16 slot) and 4* PCIe

4.0 x16 (2, 6, 7 and 10 slots) are supported. PCIe 3 slot designed as X8 or no signal, and PCIe 4 slot designed as X8 or x16.

- G2SRO-B provides 1* M.2 Key M SSD slot, only for 2280 size and PCIe4.0 X4 signal.
- 2* Gigabit network ports are integrated on the motherboard, adopting I350-AM2 chip.
- The BMC chip in the motherboard adopts AST2500 control chip of ASPEED company, which is used

for IPMI remote management, VGA output port and special Gigabit RJ45 management LAN port.



1.4 Motherboard Structure Diagram

Figure 1-1

S/N	Module Name
1	Chassis fan-controlled 4pin interface
2	Chassis fan-controlled 4pin interface
3	ATX 8PIN power supply connector
4	ATX 8PIN power supply connector
5	PMBUS
6	ATX 24PIN power supply connector
7	M.2 slot
8	Mini SAS HD1/HD2 8643 connector
9	LPC TPM/80Port 2x10PIN Header
10	FP USB3.0*2 Header
11	FP VGA Header
12	SPI TPM Header
13	BMC button
14	USB 3.0*2+IPMI LAN
15	RJ45 Gigabyte network port
16	COM port and VGA
17	UID button
18	1350

19	VR I2C
20	JSTBY
21	IPMB
22	Front panel pin
23	Onboard system power button
24	Onboard system power button
25	CPLD JTAG
26	USB3.0
27	Lithium battery
28	SLOT10 PCIE4.0 X16
29	SLOT9 PCIE4.0 X8
30	SLOT8 PCIE4.0 X8
31	SLOT7 PCIE4.0 X16
32	SLOT6 PCIE4.0 X16
33	SLOT5 PCIE4.0 X8
34	SLOT4 PCIE4.0 X8 or X16
35	SLOT3 PCIE4.0 X8 or null
36	SLOT2 PCIE4.0 X16
37	SLOT1 PCIE4.0 X8
38	SP3 Socket
39	DDR4 memory slot
40	DDR4 memory slot

1.5 The motherboard block diagram:



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Chapter 2 Installation of System Components

2.1 Removing and installing CPU

Before installing CPU, read these guides:

- Make sure MB supports CPU
- Before installing CPU, please turn off computer and unplug the power cord from the power socket to prevent damage to the hardware.
- Unplug all cables from the power socket.
- Disconnect all communication cables from their ports.
- Place the system unit on a flat and stable surface.
- Open the system according to the instructions.

Caution! Wrongly turning off server may cause serious damages. Only qualified technician can

follow the steps.

Follow these steps to install CPU:

- 1. Loosen the three screws for fixing the CPU cover in sequence $(3 \rightarrow 2 \rightarrow 1)$.
- 2. Flip to open the CPU cover.
- 3. Use the handle on the CPU bracket to remove the CPU bracket from the CPU rack.

4. Use the handle on the CPU bay to insert the new CPU bracket with the CPU installed into the CPU rack.

Note: Make sure CPU is installed in the correct direction in the CPU bracket, and the triangle is

aligned with the upper left corner of the CPU carrier on the CPU.

- 5. Flip the CPU rack with the installed CPU to the appropriate position in the CPU slot.
- 6. Flip the CPU cover to the appropriate position above the CPU slot.

7. Tighten the CPU cover screws in sequence $(1 \rightarrow 2 \rightarrow 3)$ to fix the CPU cover in place. Torque force: 16.1 kgf-cm (14.0 lbf-in)

- 8. Repeat steps 1-7 for the second CPU.
- 9. To remove the CPU, perform steps 1-7 in reverse order.



Figure 2-1



Figure 2-2



Figure 2-3

2.2 Removing and installing heatsink

Before you start installing the heatsink, read the following guidelines:

Be sure to turn off the computer and unplug the power cord from the power socket to avoid damaging the hardware.

Unplug all cables from the power socket.

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.

Caution! If you do not shut down the server before you start installing components, serious damages

may come. Only qualified technician can follow the steps.

Note: When installing the heatsink on CPU, use Phillips screwdriver to tighten four fixing nuts in the order of 1-4.

Steps to remove and install the heatsink:

1. Loosen the screws fixing heatsink in place in reverse order $(4 \rightarrow 3 \rightarrow 2 \rightarrow 1)$.

2. Lift the heatsink and remove it from the system.

3. To install the heatsink, reverse steps 1-2 and make sure that the fixing screws are tightened in sequence $(1 \rightarrow 2 \rightarrow 3 \rightarrow 4)$, as shown in the figure below.

(The picture of heatsink is for reference only, and the details shall be subject to the real object.)



Figure 2-4

2.3 Installing memory

Motherboard supports 8* DDR4 channels, each channel supports 2* DIMM, 1* CPU supports 16* DDR4 slots (when only one memory is inserted, it is preferred to insert the socket in the red box in the figure below. The plastic color of the socket on the board is blue).

Note: For system's stability, it is recommended to use AND AVL Memory List.



Figure 2-5

Note that the memory gap is consistent with the DIMM slot gap, and each DIMM module is vertically clamped in place to prevent incorrect installation.



Figure 2-6



Figure 2-8

2.4 Installing M.2 SSD module

Follow the steps below to install the M.2 SSD module on the motherboard (Note: the motherboard only supports M.2 of 2280 specification)

Step 1: insert the M.2 SSD module into the slot on the motherboard. Step 2: tighten the fixing screws to fix the M.2 SSD module in place.



Figure 2-9

2.5 Rear panel connector



Figure 2-10

① Reset button: BMC reset.

⁽²⁾ RJ45 Gigabit LAN port: the dedicated IPMI management interface provided by the motherboard supports IPMI remote management.

- ③ USB port: 2* USB ports, supporting USB 3.0 specification.
- ④ RJ45 Gigabit LAN port: the 2* service network ports provided by the motherboard use RJ45 connectors stacked up and down.
- ⑤ COM port: serial communication port, used to connect serial mouse and communication equipment.
- ⁽⁶⁾ VGA port: used to connect the monitor.
- ⑦ UID button: when the system ID is active, the ID led on the front / rear panel will light blue.

2.6 Internal connector



Figure 2-11



The motherboard has eight 4Pin fan connectors, which are placed near the backplane of the motherboard to connect the system fan. The fan pin signals are 1 TACH detection speed, 1 PWM control speed, 1 POWER and 1 GND.



Pin NO.	Definition
1	GND
2	+12V
3	FG
4	PWM

Figure 2-12

3/4/6) Power supply connector (J51/J53/J54)

J51 is a 2x12pin ATX power connector with a spacing of 4.2mm. When the wire diameter is 18AWG, a single pin supports 6A. J53 and J54 are 2x4 ATX power connectors with a spacing of 4.2mm. When the wire diameter is 18AWG, a single pin supports 7A. When the motherboard is working at full load, both need to be connected.

Note: the connector connection method meets the ATX power supply specification, and the ATX power supply can be directly used for power supply in the commissioning stage.





5) PMBUS interface

The motherboard supports power PMBUS management protocol

6) M.2 slot

The motherboard supports the installation of M.2 SSD of 1* 2280 specification. It only supports PCIe protocol and does not support SSD of SATA protocol.

7) 2 MiniSAS SFF-8643 interfaces

Motherboard supports connecting 8* SATA HDD through 2* MiniSAS SFF-8643 interfaces.

8) LPC TPM expansion interface

The motherboard provides an LPC TPM expansion interface with 2x10pin NC Pin4 2.54mm pin. The detailed signal definitions are as follows:



Figure 2-14

9) Front USB3.0 connector/header

The side USB3.0 connector is a 2x10pin 2.0mm spacing fenced pin. The detailed signal definition is as follows:



Figure 2-15

10) Front VGA connector

The motherboard provides a VGA interface that can be connected to the front panel to access the VGA screen and output the host information.

11) SPI TPM expansion interface

The motherboard provides an SPI TPM expansion interface with 2x5pin NC pin4 2.54mm pin. The detailed signal definitions are as follows:





12) Front panel connector/header

The front panel connector is a pin with a spacing of 2x9pin and 2mm (the 18th pin is empty). The detailed signal definition is as follows:





Figure 2-17

14/15) Onboard power switch and restart button

The motherboard contains a system power switch and restart button.

16) Onboard USB3.0 connector

One USB3.0 interface is provided inside the motherboard.

17/18/19/20/21/22/23/24/25/26) PCIE SLOT

10* standard X16 PCIE slots on motherboard J1/J2/J3/J4/J8/J9/J10/J11/J12/J13, from which 6* PCIe 4.0 x8 (in PCIe 4.0 x16 slot) and 4* PCIe 4.0x16 (The 2^{nd} , 6^{th} , 7^{th} , 10^{th} slot). Through PCIe Switch, the third slot is designed as X8 or no signal, and the fourth slot is designed as X8 or x16.

27) SP3 SOCKET

The motherboard supports 1 SP3 Socket, 1 AMD EPYC 7002 series (Rome) processor, is compatible with AMD EPYC 7003 series (Milan), AMD EPYC 7001 series (Naples), Hygon7100, 7200, 5100/5200 (can choose the different SKU CPU for needs) series.

29/30) DDR4 memory slot

CPU DIMM_A1/B1/C1/D1/E1/F1/G1/H1 Channel DDR4 memory slot 0, black CPU DIMM_A2/B2/C2/D2/E2/F2/G2/H2 Channel DDR4 memory slot 1, blue, advanced priority slot.

Chapter 3 BIOS

3.1 Enter the BIOS setup interface

Operation steps:

- 1. Power on the server motherboard and connect the keyboard;
- In the process of POST (Power-On Self-Test), pay attention to the prompt of entering BIOS Setup interface at the bottom left of LOGO picture, "Press or <ESC> to enter setup, <F7> to enter Boot Menu.";
- 3. Press the or <ESC> keyboard to enter the BIOS Setup interface.

3.2 Setup menu parameters

3.2.1 BIOS Setup Interface Control Key

Select Screen
Select Item
Select
Change Opt.
General Help
Previous Values
Optimized Defaults
Save & Reset
Exit

3.2.2 Main menu description

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

Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc. Main Advanced Server Mgmt Event Logs Security Boot Save & Exit			
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time	American Megatrends 5.14 UEFI 2.7; PI 1.6 G2SER 0.01 x64 09/04/2020 10:53:34	Choose the system default language	
CPLD name CPLD version Build Date and Time	G2SERO 01 08/28/2020		
Access Level	Administrator		
CPU Information Processor 0 Processor 1	@ 3000MHz 11 N/A	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.	
Memory Information Total Memory	Total Memory: 64 GB (DDR4)	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	
	[English]	ESC: Exit	
System Date System Time	[Fri 09/04/2020] [14:31:27]		
Version 2.20.1275.	Copyright (C) 2020 American	Megatrends, Inc.	

Figure 3-1

BIOS Information

Project Version

Displays the version information of the single board BIOS.

Build Date and Time

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

CPLD Name

Display the name information of single board CPLD.

CPLD Version

Display the name information of single board CPLD.

Build Date and Time

Display the compilation date and time of single board CPLD.

Access Level

Displays the permissions of the current user of the single board.

CPU Information

Processor x

CPU type information.

Memory information

Total Memory

Displays the total memory capacity of the system.

System Language

Select the current system language.

System Date:

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

- Press "+": The value is increased by 1.
- Press"-": The value decreased by 1.
- Press the number key to change the value directly.

System Time:

Display and set the current system time. The system time is 24-hour, 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 is increased by 1
- Press"-": The value decreased by 1
- Press the number key to change the value directly.

3.2.3 Advanced Menu description

Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc. Main Advanced Server Mgmt Event Logs Security & Exit Trusted Computing Settings PSP Firmware Versions Boot Feature NB Configuration PCIE Port Bifurcation ACPI Settings Serial Port Console Redirection CPU Configuration SIO Configuration PCI Subsystem Settings USB Configuration CSM Configuration NVMe Configuration SATA Configuration ↔: Select Screen ↑↓: Select Item Tls Auth Configuration Enter: Select Network Stack Configuration +/-: Change Opt. AMD Mem Configuration Status F1: General Help F2: Previous Values iSCSI Configuration Intel(R) I350 Gigabit Network Connection - 00:A0:C9:00:00:00 F3: Optimized Defaults ▶ Intel(R) I350 Gigabit Network Connection - 00:A0:C9:00:00:01 F4: Save & Exit ESC: Exit Version 2.20.1275. Copyright (C) 2020 American Megatrends,

Advanced menu contains advanced configuration items of BIOS system.

Figure 3-2

- •Trusted Computing (Trusted execution module configuration)
- •PSP Firmware Versions (Platform security processor firmware version)
- •Boot Feature (Boot Feature configuration page)
- •NB Configuration
- •PCIE Port Bifurcation
- ACPI Settings
- •Serial Port Console Redirection
- •CPU Configuration
- •SIO Configuration
- •PCI Subsystem Settings
- •CSM (Compatibility Support Module) Configuration
- •NVMe Configuration
- SATA Configuration
- Network Stack Configuration
- •iSCSI Configuration
- •Intel(R) I350 Gigabit Network Connection- XX:XX:XX:XX:XX:XX

3.2.4 Trusted Computing

Aptio Setup Utility - Advanced	· Copyright (C) 2020 Americar	n Megatrends, Inc.
TPM20 Device Found Firmware Version: Vendor: Security Device Support Active PCR banks Available PCR banks SHA-1 PCR Bank SHA256 PCR Bank Pending operation	7.62 IFX [Enable] SHA-1,SHA256 SHA-1,SHA256 [Enabled] [Enabled] [None]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
Platform Hierarchy Storage Hierarchy Endorsement Hierarchy TPM2.0 UEFI Spec Version Physical Presence Spec Version TPM 20 InterfaceType Device Select	[Enabled] [Enabled] [TCG_2] [1.3] [TIS] [Auto]	++: Select Screen †1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. C	Copyright (C) 2020American M	legatrends, Inc.

Figure 3-3

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

3.2.5 PSP Firmware Versions

Aptio Setup Utility Advanced	– Copyright (C) 2020 America	n Megatrends, Inc.
PSP Firmware Versions		
PSP Directory Level 1 (Fixed) PSP Recovery BL Ver SMU FW Version ABL Version	FF.C.0.79 0.36.100.0 10072013	
PSP Directory Level 2 (Updateable) PSP BootLoader Version SMU FW Version ABL Version	0.C.0.79 0.36.100.0 10072013	<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275.	Copyright (C) 2020 American	Megatrends, Inc.

Figure 3-4

Display the PSP firmware version and related information.

3.2.6 Boot Feature

Aptio Setup Uti: Advanced	lity – Copyright (C) 2020 Am	merican Megatrends, Inc.
Quiet Boot Option ROM Messages Bootup NumLock State INT19 Trap Response Ac Loss Control	[Enabled] [Force BIOS] [On] [Immediate] [Always On]	Enables or disables Quiet Boot option
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.12	275. Copyright (C) 2020 Amer	rican Megatrends, Inc.

Figure 3-5

Quiet Boot

Disable and enabled Quiet Boot function, and the menu options are:

- •Disabled: now shows POST information
- •Enabled : now shows OEM Logo

Default value: Enabled

Option ROM Messages

Use this function to set Option ROM display model, and the menu options are:

- •Force BIOS:Option ROM display model set by BIOS
- •Keep Current: Option ROM display model set by ROM

Default value: Force BIOS

Bootup Numlock State

During the startup process, the keyboard NumLock indicator status switch is set, and the menu options are: •On

●OFF

Default value: On

INT19 Trap Response

Interrupt, capture signal response settings, and the menu options are: •Immediate •Postponed Default value: Immediate

3.2.7 NB Configuration

Aptio Setup Utili Advanced	ty – Copyright (C) 202	0 American Megatrends, Inc.
cTDP Control IOMMU ACS Enable Package Power Limit Control APBDIS DF Cstates 4-link xGMI max speed Preferred IO Memory Configuration	[Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto]	Auto = Use the fused TDP Manual = User can set customized TDP ****TDP is used to define the RC thermal model only***
Useralas 0.00.407	E Comunicht (0) 0000	Anoniaan Hadataanda Taa

Figure 3-6

cTDP Control

Set cTDP Control, and the menu options are:

- Manual
- •Auto

Default value: Auto

IOMMU

IOMMU switch, and the menu options are:

- •Enabled
- •Disabled
- •Auto

Default value: Auto

ACS Enable

ACS switch, and the menu options are:

•Enabled



•Disabled

•Auto

Default value: Auto

Package Power Limit Control

Set Package Power Limit Control, and the menu options are:

- Manual
- •Auto

Default value: Auto

APBDIS

Set APBDIS, and the menu options are:

- •0
- •1

•Auto

Default value: Auto

DF Cstates

DF Cstates switch, and the menu options are:

- •Disabled
- •Enabled
- •Auto

Default value: Auto

4-link xGMI max speed

Menu options are:

- •10.667Gbps
- •13Gbps
- •16Gbps
- •18Gbps

•Auto

Default value: Auto

Preferred IO

Menu options are:

Manual

•Auto

Default value: Auto

Memory Configuration

3.2.8 Memory Configuration

Aptio Setup Utility - Advanced	– Copyright (C) 2020 Amer	rican Megatrends, Inc.
Memory interleaving Memory interleaving size Chipselect Interleaving BankGroupSwap DRAM scrub time > Socket 0 Information > Socket 1 Information	[Auto] [Auto] [Auto] [Auto] [Auto]	Allows for disabling memory interleaving. Note that NUMA nodes per socket will be honored regardless of this setting.
		<pre></pre>
Version 2.20.1275. 0	Copyright (C) 2020 Americ	can Megatrends, Inc.

Figure 3-7

Memory interleaving

Memory interleaving switch, and the menu options are:

- •Disabled
- •Auto

Default value: Auto

Memory interleaving size

Menu options are:

- •256 Bytes
- •512 Bytes
- •1 KB
- •2 KB
- •Auto

Default value: Auto

Chipselect interleaving

Set the interleaving memory block on the DRAM chip of control node 0, and the menu options are:

- •Disabled
- •Auto

Default value: Auto

BankGroupSwap



Menu options are:

- •Enabled
- Disabled
- •Auto

Default value: Auto

DRAM scrub time

Set the time to scrub the memory, menu options:

- •Disabled
- •1 hours
- •4 hours
- •8 hours
- •16 hours
- •24 hours
- •48 hours
- •Auto

Default value: Auto

•Socket 0 Information

3.2.9 Socket 0/1 Information

Aptio Setup Utility – Copyright (C) 2020 American Advanced	Megatrends, Inc.
Socket 0 Information	
DIMM A0: Not Present DIMM A1: Not Present DIMM B0: Not Present DIMM B1: Not Present DIMM C0: Not Present DIMM C1: Not Present DIMM D0: Not Present DIMM D1: Not Present DIMM E1: Not Present DIMM F1: Not Present DIMM F1: Not Present DIMM G1: Not Present DIMM G1: Not Present DIMM H1: Ramaxel Technology, Size 16 GB, Speed 2400 MT/s	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275. Copyright (C) 2020 American Me	gatrends, Inc.

Figure 3-8

Display system memory information

3.2.10 ACPI Settings

Aptio Setup Utility – Copyrigh Advanced	t (C) 2020 American Megatrends, Inc.
ACPI Settings Enable AER Cap [Auto] NUMA nodes per socket [Auto] ACPI SRAT L3 Cache As NUMA Domain [Auto]	Enables Advanced Error Reporting Capability
	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275. Copyright	(C) 2020 American Megatrends, Inc.

Figure 3-9

Enable AER Cap

PCI AER configuration switch

- •Disabled
- •Enabled
- •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

Default value: Auto

ACPI SRAT L3 Cache As NUMA Domain

Use this option to disable or enable ACPI SRAT L3 Cache as NUMA Domain.

- •Disabled
- •Enabled
- •Auto

Default value: Auto

3.2.11 Serial Port Console Redirection

Aptio Setup Utility – Copyri Advanced	ght (C) 2020 American I	Megatrends, Inc.
COMO Console Redirection [Disa Console Redirection Settings Legacy Console Redirection Legacy Console Redirection Settings Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS Console Redirection [Disa Console Redirection Settings	pled]	Console Redirection Enable or Disable.
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275. Copyrigh	: (C) 2020 American Me	gatrends, Inc.

Figure 3-10

Console Redirection

The information output from the Console (such as GPU) to the screen is redirected to the serial port.

- •Disabled
- •Enabled

Default value: Disabled

- •Console Redirection Settings
- •Legacy Console Redirection Settings

Windows Emergency Management Service (EMS)

Console Redirection

The console redirection function switch redirects the information output from the Console (such as graphics card) to the screen to the serial port.

- •Disabled
- ●Enabled

Default value: Disabled

•Console Redirection Settings
3.2.12 Console Redirection Settings

Aptio Setup Utility Advanced	– Copyright (C) 20:	20 American Megatrends, Inc.
COMO Console Redirection Settings Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Putty KeyPad	[VT100+] [115200] [0] [None] [1] [None] [Enabled] [Disabled] [Disabled] [VT100]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Version 2.20.1275.	Copyright (C) 2020	American Megatrends, Inc.

Figure 3-11

Terminal Type

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

- $\bullet VT100 \; (\text{ASCII character set})$
- •VT100+ (Extended VT100 that supports color and function keys)
- •VT-UTF8 (UTF8 encoding is used to map Unicode chars onto 1 or more bytes)
- $\bullet ANSI \ (\text{Extended ASCII character set})$

Default value: VT100+

Bits per second

Value ranges: 9600 ~ 115200 Default value: 115200 Data Bits Serial port redirection data bit length, menu options are:

•8

•7

Default value: 8

Parity

Serial port redirection Parity switch, menu options are:

- •None: no parity
- •Even: even parity

- •Odd: odd parity
- •Mark: parity is always 1
- •Space: parity is always 0
- Default value: None
- Mark and Space parity are not allowed for error detection.

Stop Bits

Serial port packets stop flag bit, menu options are:

- •1
- •2

Default value: 1

Flow Control

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

- •None: disable Serial port redirection control flow
- •Hardware RTS/CTS: Hardware Request To Send/Clear To Send

Default value: None

VT-UTF8 Combo key support

ANSI/VT100 Terminal VT-UTF8 Combo key support switch, menu options are:

- •Disabled: disable ANSI/VT100 Terminal VT-UTF8 Combo key support
- •Enabled: enable ANSI/VT100Terminal VT-UTF8 Combo key support

Default value: Enabled

Recorder Mode

Recorder mode switch, enable this function, only text information will be sent, menu options are:

- •Enabled
- •Disabled

Default value: Disabled

3.2.13 Legacy Console Redirection Settings



Figure 3-12

Redirection COM Port

Menu options are: •COM0 Default value: COM0

Resolution

Menu options are: •80x24 •80x25 Default value: 80x24

Redirect After POST

Menu options are:

•Always Enable

BootLoader

Default value: Always Enable

3.2.14 CPU Configuration

Aptio Setup Advanced	Utility – Copyright (C) 2020 Ame	erican Megatrends, Inc.
Advanced CPU Configuration SMT Control Core Performance Boost Global C-state Control L1 Stream HW Prefetcher L2 Stream HW Prefetcher SVM Mode SMEE Node 0 Information	[Auto] [Auto] [Auto] [Auto] [Auto] [Enabled] [Enabled]	Can be used to disable symmetric multithreading. To re-enable SMT, a POWER CYCLE is needed after selecting the 'Auto' option. WARNING - S3 is NOT SUPPORTED on systems where SMT is disabled. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.2	10 1275 - Popuniaht (P) 2020 Ameni	can Magataando. Too

Figure 3-13

SMT Control

Changing this option will take a power cycle to ensure that the setting takes effect. The menu options are: •Disabled

•Auto

Default value: Auto

Core Performance Boost

The menu options are:

- •Disabled
- •Auto

Default value: Auto

Global C-state Control

The menu options are:

- •Disabled
- •Enabled
- •Auto

Default value: Auto

L1 Strean HW Prefetcher

The menu options are:

- •Enabled
- •Disabled

•Auto

Default value: Auto

L2 Strean HW Prefetcher

- The menu options are:
- •Enabled
- •Disabled
- •Auto

Default value: Auto

SVM Mode

CPU Virtualization switch.DisabledEnabledDefault value: Enabled

SMEE

Secure memory encryption control switch. •Disabled

•Enabled

Default value: Enabled

•Node 0/1 Configuration

3.2.15 Node 0/1 Configuration



Figure 3-14

Display some details of CPU detected by motherboard.

3.2.16 SIO Configuration



Figure 3-15

3.2.17 [*Active*] Serial Port



Figure 3-16

Use This Device

- The menu options are:
- •Enabled
- •Disabled
- Default value: Enabled

Possible

Select the optimal setting for the serial port according to the demand. The menu options are:

- •Use Automatic Settings
- •IO=3F8h; IRQ=4; DMA;
- •IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;
- •IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;
- •IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;
- •IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;
- Default value: Use Automatic Settings

3.2.18 PCI Subsystem Settings

Aptio Setup U Advanced	tility – Copyright (C) 2020 American	Megatrends, Inc.
AMI PCI Driver Version :	A5.01.19	Globally Enables or Disables
PCI Settings Common for all Above 4G Decoding	Devices: [Enabled]	Decoded in Above 4G Address Space (Only if System Supports
SR-IOV Support	[Disabled]	64 bit PCI Decoding).
BME DMA Mitigation	[Disabled]	
Hot-Plug Support	[Enabled]	
OnBrd/Ext VGA Select	[Onboard]	
Change Settings of the Foll	owing PCI Devices:	
Slot # 1 Empty [FROM BRG	(NOT FOUND)]	
Slot # 4 Empty [FROM BRG	(NOT FOUND)]	
▶ Slot # 5 Empty [FROM BRG	(NOT FOUND)]	
▶ Slot # 6 Empty [FROM BRG	(NOT FOUND)]	↔+: Select Screen
Slot # 7 Empty [FROM BRG	(NOT FOUND)]	↑↓: Select Item
Slot # 8 Empty [FROM BRG	(NOT FOUND)]	Enter: Select
Slot # 9 Empty [FROM BRG	(NOT FOUND)]	+/-: Change Opt.
Slot #10 Empty [FROM BRG	(NOT FOUND)]	F1: General Help
Slot #11 Empty [FROM BRG	(NOT FOUND)]	F2: Previous Values
Slot #12 Empty [FROM BRG	(NOT FOUND)]	F3: Optimized Defaults
Slot #13 Empty [FROM BRG	(NOT FOUND)]	F4: Save & Exit
Slot #14 Empty [FROM BRG	(NOT FOUND)]	ESC: Exit
Slot #15 Empty [FROM BRG	(NOT FOUND)]	
Slot #16 Empty [FROM BRG	(NOT FOUND)]	
Slot #17 Empty [FROM BRG	(NUT FUUND)]	
Version 2.20	.1275. Copuright (C) 2020 American M	egatrends. Inc.
	terrest select solution as a summit assess to	

Figure 3-17

Above 4G Decoding

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

- •Enabled
- •Disabled

Default value: Enabled

SR-IOV Support

SR-IOV support switch configuration. The menu options are:

- •Enabled
- •Disabled

Default value: Enabled

BME DMA Mitigation

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

- •Enabled
- •Disabled

Default value: Disabled

Hot-Plug Support

Global hot-plug switch. When the system has a slot with hot-plug capability and this option is enabled, a setting interface will be provided to select the PCI resources to be reserved for hot-plug. The menu options

Version: V1.1



are:

- ●Enabled
- Disabled

Default value: Enabled

OnBrd/Ext VGA Select

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

- Onboard
- •External

Default value: Onboard

•Slot #X

Modify the onboard PCI device or PCI slot settings.

3.2.19 USB Configuration



Figure 3-18

Display USB controller and USB device information.

Legacy USB Support

Legacy USB support controller switch, and the menu options are:

- •Enabled
- •Disabled

Default value: Enabled

XHCI Hand-off

XHCI (eXtensible Host Controller Interface). Select whether to enable the XHCI hand-off feature.

Version: V1.1

This feature specifies the owner of the control over USB 3.0 ports.

- •Enabled
- •Disabled

Default value: Enabled

USB Mass Storage Driver Support

- The menu options are:
- •Enabled
- •Disabled

Default value: Enabled

Port 60/64 Emulation

60/64 port emulation switch, menu options are:

- •Enabled
- •Disabled

Default value: Enabled

3.2.20 CSM Configuration



Figure 3-19

CSM Support

Enable or disable Compatibility Support Module. The menu options are:

- •Disabled
- •Enabled

Default value: Enabled

GateA20 Active

A20 Control mode setting of address line, menu options are:

•Upon Request

•Always

Default value: Upon Request

Boot option filter

The menu options are: •UEFI and Legacy: UEFI (Unified Extensible Firmware Interface) and Legacy boot option •UEFI only: UEFI boot option •Legacy only: Legacy boot option Default value: UEFI and Legacy

Option ROM execution

Select Option ROM execution mode

Network

NIC. The menu options are:UEFI: UEFI modeLegacy: Legacy modeDefault value: UEFI

Storage

NIC. The menu options are:UEFI: UEFI modeLegacy: Legacy modeDefault value: UEFI

Video

NIC. The menu options are:UEFI: UEFI modeLegacy: Legacy modeDefault value: Legacy

Other PCI devices

NIC. The menu options are:UEFI: UEFI modeLegacy: Legacy modeDefault value: UEFI

3.2.21 NVMe Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2020 American	Megatrends, Inc.
NVMe Configuration		
▶ TOSHIBA-RC100		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275. Co	pyright (C) 2020 American Me	egatrends, Inc.
Antio Satur Utilitu -	Figure 3- 20	Wedstrends Inc
Advanced	500031 1811 (67 2020 Hiller 1941)	negati chus, inc.
Seg:Bus:Dev:Func Model Number Total Size Vendor ID Device ID Namespace: 1 Namespace: 1	00:01:00:00 TOSHIBA-RC100 120.0 GB 1179 0113 Size: 120.0 GB Size: 120.0 GB	<pre>++: Select Screen t4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Figure 3-21

Displays the details of the NVMe hard disk.

3.2.22 SATA Configuration

SATA Configuration SATA Enable	[Auto]	Disable or enable OnChip SATA controller
SATA Controller (S:00 B:83 D: Port 0 Port 1 Port 2 Port 3 Port 4 Port 5 Port 6 Port 7	00 F:00) Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Figure 3-22

Displays information about the current system SATA.

SATA Enable

The internal SATA controller switch of the chip has the following menu options:

- •Disabled
- •Enabled
- •Auto

Default value: Auto

3.2.23 Tls Auth Configuration



Figure 3-23

Tls Certification Configuration

3.2.24 Network Stack Configuration

Aptio Setup Advanced	Utility – Copyright (C) 2020 Ame	rican Megatrends, Inc.
Network Stack Ipv4 PXE Support Ipv4 HTTP Support Ipv6 PXE Support Ipv6 HTTP Support IPSEC Certificate PXE boot wait time Media detect count	[Enabled] [Disabled] [Disabled] [Disabled] [Disabled] [Enabled] 0 1	Enable/Disable UEFI Network Stack
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.2	20.1275. Copyright (C) 2020 Ameri	can Megatrends, Inc.

Figure 3-24

Network Stack

Network Stack control switch. The menu options are:

- •Enabled
- •Disabled

Default value: Disabled

Ipv4 PXE Support

Ipv4 UEFI PXE function control switch, and the menu options are:

- •Enabled
- •Disabled

Default value: Disabled

Ipv4 HTTP Support

Ipv4 HTTP function control switch, and the menu options are:

- •Enabled
- •Disabled

Default value: Disabled

Ipv6 PXE Support

Ipv6 UEFI PXE function control switch, and the menu options are:

- •Enabled
- •Disabled

Default value: Disabled

Ipv6 HTTP Support

Ipv6 HTTP function control switch, and the menu options are:

- •Enabled
- •Disabled

Default value: Disabled

PXE boot wait time

PXE boot wait time, user can input the waiting time of PXE startup, and press "ESC" to give up PXE startup during the waiting process, which is 0 by default.

Media detect count

The user can enter the number of device detection times of the device NIC. The default value is 1

3.2.25 iSCSI Configuration



Figure 3-25

iSCSI Configuration

3.2.26 Server Mgmt menu

Aptio Setup Utilit Main Advanced Server Mgmt Ev	y – Copyright (C) 2020 Ameri ent Logs Security Boot Sa	ican Megatrends, Inc. ave & Exit
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version BMC Interface(s) BMC Support Wait For BMC > System Event Log > Bmc self test log	FAILED 32 1 1.00 2.0 KCS, USB [Enabled] [Disabled]	Enable/Disable interfaces to communicate with BMC
 View System Event Log BMC User Settings BMC Warm Reset 		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275	. Copyright (C) 2020 America	an Megatrends, Inc.

Figure 3-26

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

BMC Support

Link BMC port switch settings, and the menu options are:

- •Enabled
- •Disabled

Default value: Enabled

Wait For BMC

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

- •Enabled
- •Disabled

Default value: Disabled

- •System Event Log menu
- •BMC network configuration menu
- •View System Event Log menu
- •BMC User Settings menu
- •BMC Warm Reset

Press <Enter> to start BMC Warm Reset

3.2.27 System Event Log

Aptio Setup Utility	y – Copyright (C) 2020 A	merican Megatrends, Inc. Server Mgmt
Enabling/Disabling Options SEL Components	[Enabled]	Change this to enable or disable event logging for
Erasing Settings Erase SEL	[No]	boot.
When SEL is Full Custom EFI Logging Options	[Do Nothing]	
Log EFI Status Codes	[Error code]	
effect until computer is re	estarted.	the Colort Concer
		↑↓: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit FSC: Fxit
version 2.20.12/5	. Copyright (C) 2020 Ame	rican Megatrends, inc.

Figure 3-27

SEL Components

Control switch of system event log function in startup process, menu options:

- •Enabled
- •Disabled

Default value: Enabled

Erase SEL

Clear the system event log control switch, menu options:

- •No
- •Yes, On next reset
- •Yes, On every reset
- Default value: No

When SEL is Full

When the storage space of system event log is full, operate the control switch and the following menu options are:

- •Do Nothing
- •Erase Immediately
- Default value: Do Nothing

Log EFI Status Codes

Configurate log EFI Status Codes. The menu options are:

Version: V1.1



- •Disabled
- •Both: record Error code & Progress code
- •Error code: only record Error code
- Progress code: only record Progress code

Default value: Error code

3.2.28 BMC network configuration

Aptio Setup Utility –	Copyright (C) 2020 Americ	can Megatrends, Inc. Server Mgmt
——BMC network configuration—— жажажжажажажажажажа Configure IPV4 support жажажажажажажажажа		 Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will pot modify any BMC network
BMC Sharelink Management channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address Router IP address Bouter MAC address	[Unspecified] DynamicAddressBmcDhcp 0.0.0.0 00-24-EC-F2-7D-DD 0.0.0.0 00-00-00-00-00-00	parameters during BIOS phase
BMC Dedicated Management channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address Router IP address Router MAC address	[Unspecified] DynamicAddressBmcDhcp 192.168.1.210 255.255.255.0 00-24-EC-F2-7D-DE 192.168.1.1 9C-A6-15-57-5B-D9	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
жжжжжжжжжжжжжжжж Configure IPV6 support		

Figure 3-28

Aptio Setup Utility -	Copyright (C) 2020 American	Megatrends, Inc. Server Mgmt
BMC Dedicated Management channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address Router IP address Router MAC address	[Unspecified] DynamicAddressBmcDhcp 192.168.1.210 255.255.255.0 00-24-EC-F2-7D-DE 192.168.1.1 9C-A6-15-57-5B-D9	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase
Configure IPV6 support		
BMC Sharelink Management channel		↔: Select Screen ↑↓: Select Item
IPV6 Support	[Enabled]	Enter: Select +/-: Change Opt.
Configuration Address source Current Configuration Address sour	[Unspecified] DynamicAddressBmcDhcp	F1: General Help F2: Previous Values F3: Optimized Defaults 54: Sous & Evit
FE80::224:ECFF:FEF2:7DDD		ESC: Exit
Prefix Length 64		
United as 0.00 (0.00 0.00		

Figure 3-29

Aptio Setup Utility -	Copyright (C) 2020 Americ	can Megatrends, Inc. Server Mgmt
IPV6 Router1 IP Address ::		 Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will
IPV6 address status IPV6 DHCP Algorithm	Active SLAAC	not modify any BMC network parameters during BIOS phase
BMC Dedicated Management channel		
IPV6 Support	[Enabled]	
Configuration Address source Current Configuration Address sour	[Unspecified] DynamicAddressBmcDhcp	
Station IPV6 address FE80::224:ECFF:FEF2:7DDE		++: Select Screen f↓: Select Item Enter: Select +/-: Change Ont
Prefix Length 64		F1: General Help F2: Previous Values F3: Ontimized Defaults
IPV6 Router1 IP Address ::		F4: Save & Exit ESC: Exit
IPV6 address status IPV6 DHCP Algorithm	Active SLAAC	
Version 2.20.1275. C	opyright (C) 2020 Americar) Megatrends, Inc.

Figure 3-30

Configure IPV4 support

BMC sharelink Management Channel

Configuration Address source

Configurate BMC IP Address source, and the menu options are:

- •Unspecified: do not change BMC parameter
- •Static: BIOS static IP configuration
- •DynamicBmcDhcp: BMC runs Dynamic Host Configuration Protocol dynamically to allocate IP

•DynamicBmcNonDhcp: BMC runs Non-DHCP dynamically to allocate IP

Default value: Unspecified

Change the parameters from Unspecified to other parameters. After saving the restart execution, the option will restore the unspecified value. There is no need to configure BMC IP every time the startup process.

When Configuration Address Source option is Unspecified, the network parameter information (IPV4), current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP and routing MAC of the shared network interface of the system will be displayed;

BMC Dedicated Management Channel

Configuration Address source

Configurate BMC IP Address source, and the menu options are:

- •Unspecified: do not change BMC parameter
- •Static: BIOS static IP configuration
- •DynamicBmcDhcp: BMC runs Dynamic Host Configuration Protocol dynamically to allocate IP

•DynamicBmcNonDhcp: BMC runs Non-DHCP dynamically to allocate IP

Default value: Unspecified

Change the parameters from Unspecified to other parameters. After saving the restart execution, the option will restore the unspecified value. There is no need to configure BMC IP every time the startup process.

When Configuration Address Source option is Unspecified, the network parameter information (IPV4), current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP and routing MAC of the shared network interface of the system will be displayed;

Configure IPV6 support

BMC Sharelink Management Channel

IPV6 Support

Select to support IPV6 or not. The menu options are:

- •Enabeld: support IPV6
- •Disabled: do not support IPV6

Default value: Enabeld

Change the parameters from Unspecified to other parameters. After saving the restart execution, the option will restore the unspecified value. There is no need to configure BMC IP every time the startup process.

When the Configuration Address Source option is Unspecified, the network parameter information (IPV6) of the shared network interface of the system will be displayed;

BMC Dedicated Management Channel

IPV6 Support

Select to support IPV6 or not. The menu options are:

•Enabeld: support IPV6

•Disabled: do not support IPV6

Default value: Enabeld

Change the parameter from unspecified to other parameters. After saving the restart execution, the option will restore the unspecified value. There is no need to configure BMC IP every time the startup process.

When the Configuration Address Source option is Unspecified, the network parameter information (IPV6) of the shared network interface of the system will be displayed.

3.2.29 View System Event Log

No. of log entries in SEL : 1364 HEX: DATE TIME SENSOR TYPE 04/28/20 15:35:17 Button/Switch 96 02 35 4D A8 04/28/20 15:35:22 Button/Switch 96 02 FF FF 04/28/20 15:35:32 System Event 96 02 FF FF 04/28/20 15:35:32 System Event 98 08 07 02 SCSI 04/28/20 15:35:32 System Event 98 08 07 02 SCSI 04/28/20 15:35:32 System Event 98 08 07 02 SCSI 04/28/20 15:35:32 System Event 98 08 07 02 SCSI 04/11/18 05:27:46 System Event 99 02 Scsisi 01/11/18 05:28:31 0S Boot 179e-0x02. Assertion Event. 01/11/18 05:41:12 0E Record DD 11: Select Screen 01/11/18 05:41:14 Voltage 11: Select Item 01/11/18 05:41:14 Voltage 12: Select Screen 01/11/18 05:41:14 Voltage 14: Select Screen 01/11/18 05:41:14 Voltage 14: Select Screen </th <th>f</th> <th>aptio Setup Utility – Copyright</th> <th>(C) 2020 American Megatrends, Inc. Server Mgmt</th>	f	aptio Setup Utility – Copyright	(C) 2020 American Megatrends, Inc. Server Mgmt
DATE TIME SENSOR TYPE 48 00 02 35 40 A8 04/28/20 15:35:17 Button/Switch 04 02 FF FF 04/28/20 15:35:22 Button/Switch Generator ID: BMC - LUN #0 04/28/20 15:35:32 System Event Sensor Number: 0x32 SCSI 04/28/20 15:35:32 System Event Bus(Parallel) 01/11/18 05:27:46 System Event Bus(Parallel) 01/11/18 05:28:31 OS Boot Type-0x02. Assertion Event. 01/11/18 05:41:12 OE Record DC The event The event. 01/11/18 05:41:14 Voltage The event The event. 01/11/18 05:41:14 Voltage The event The event. 01/11/18 05:41:14 Voltage The event The event 01/11/18 05:41:14 Voltage The event The event 01/11/18 05:41:14 Voltage The event The event 01/11/18 05:41:14 Voltage The event The evolus Values 04/15	No. of log entr	ries in SEL : 1364	HEX:
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	01/11/18 05:47	7:00 Button/Switch	T
Vencion 2 20 1275 Comuniant (C) 2020 American Medathenda The		Vencion 2 20 1275 Conumight () 2020 American Wegatherde The

Figure 3-31

View System Event Log information

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

3.2.30 BMC User Setting

Aptio Setup Utility – Copyright (C) 2020American	Megatrends, Inc. Server Mgmt
BMC User Settings	Press <enter> to Add a User.</enter>
▶ Add User	
▶ Delete User	
▶ Change User Settings	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1275. Copyright (C) 2020 American Me	egatrends, Inc.

Figure 3-32

- •Add User
 - Add User submenu
- •Delete User

Delete User submenu

- •Change User Setting
 - Change User Setting submenu

3.2.31 Add User

Aptio Setup Utility — (Copyright (C) 2020 American	Megatrends, Inc. Server Mgmt
BMC Add User Details User Name User Password User Access Channel No User Privilege Limit	[Disable] O [Reserved]	Enter BMC User Name ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. Cop	oyright (C) 2020 American M	egatrends, Inc.

Figure 3-33

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

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

Channel No: BMC channel setting, enter 1 or 8

User Privilege Limit

User permission settings, the menu options are:

- •Reserved
- $\bullet Callback$
- •User
- •Operator
- •Administrator

After setting successfully, "Set User Access Command Passed" will be prompted and BMC User will take effect immediately.

3.2.32 Delete User



Figure 3-34

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

User Password: enter the password of the user to be deleted. When the password is correct, a prompt "User Delete!!!" will pop up, The successful deletion of the user will take effect immediately in BMC, and the user will not be able to log in to BMC Web interface.

3.2.33 Change User Setting

Aptio Setup Utility – (Copyright (C) 2020 American	Megatrends, Inc. Server Mgmt
BMC Change User Settings User Name User Password Change User Password User Access Channel No User Privilege Limit	[Disable] O [Reserved]	Enter BMC User Name **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. Cop	oyright (C) 2020 American M	egatrends, Inc.

Figure 3-35

User Name: enter the user name to 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 permission switch settings. The menu options are as follows:

- •Enabled
- •Disabled

Default value: Disabled

Change User Password: to modify the user's 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 user permission settings. The menu options are:

- •Reserved
- Callback
- •User



•Operator

•Administrator

3.2.34 Event Logs

 Change Smbios Event Log Settings View Smbios Event Log **: Select Screen **: Select Screen **: Select Item Enter: Select */-: Change Opt. F1: General Help F2: Breakings Volume 	
++: Select Screen †1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Breatings Volume	ange the nfiguration.
F3: Optimized Default F4: Save & Exit ESC: Exit	lts

Figure 3-36

- Change SMBIOS Event Log Settings
- View SMBIOS Event Log

3.2.35 Change SMBIOS Event Log Settings

Aptio Setup Utility – (Copyright (C) 2020 American	Megatrends, Inc. Event Logs
Enabling/Disabling Options Smbios Event Log	[Enabled]	Change this to enable or disable all features of Smbios Event Logging during boot.
Erasing Settings Erase Event Log When Log is Full	[No] [Do Nothing]	
Smbios Event Log Standard Settings Log System Boot Event MECI METW	[Enabled] 1 60	
Custom Options Log EFI Status Code Convert EFI Status Codes to Standard Smbios Type	[Enabled] [Disabled]	++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt.
NOTE: All values changed here do not effect until computer is resta	take rted.	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. Co	pyright (C) 2020 Ame <mark>rican</mark> M	egatrends, Inc.

Figure 3-37

Smbios Event Log

Smbios event logging switch, menu options:

- •Enabled
- •Disabled

Default value: Enabled

Erase SEL

Clear the system event log control switch, menu options:

- •No
- •Yes, On next reset
- •Yes, On every reset
- Default value: No

When SEL is Full

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

- •Do Nothing
- •Erase Immediately
- Default value: Do Nothing

Log System Boot Event

Set to start recording system startup events, menu options:

Version: V1.1

•Disabled: do not record •Enabled: record

Default value: Enabled

MECI

Enter a value 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.

3.2.36 Security menu

Aptio Setup Ut. Main Advanced Server Mgmt	lity – Copyright (C) 2020 Event Logs Security Bo	American Megatrends, Inc. ot Save & Exit
 Password Description If ONLY the Administrator's particular theory is a constrained of the second of t	assword is set, to Setup and is Setup. .s set, then this ist be entered to the User will 3 20	Set Administrator Password **: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.	275. Copyright (C) 2020 A	merican Megatrends, Inc.

Figure 3-38

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 there is an administrator password in the system, Installed is displayed. If there is no administrator password, Not Installed is displayed;

User Password

The status of user password is displayed. If there is a user password in the system, Installed is displayed. If there is no user password, Not Installed is displayed;

•Secure Boot

3.2.37 Secure Boot

Aptio	Setup Utility – Copyright (C) 2 Security	020 American Megatrends, Inc.
System Mode	Setup	Secure Boot feature is Active
Secure Boot	[Disabled] Not Active	Platform Key(PK) is enrolled and the System is in User mode.
Secure Boot Mode ▶ Restore Factory Keys ▶ Reset To Setup Mode ▶ Key Management	[Custom]	The mode change requires platform reset
		<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Versi	on 2.20.1275. Copyright (C) 202	0 American Megatrends, Inc.

Figure 3- 39

Secure Boot

Secure Boot switch, the menu options are:

- •Enabled
- •Disabled

Default value: Disabled

Secure Boot Mode

The menu options are:

- \bullet Standard
- ●Custom

Default value: Custom

•Restore Factory Keys

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

•Key Management

Allow professional users to modify the security startup policy variables without full authentication.

3.2.38 Boot menu



Figure 3-40

Setup Prompt Timeout: Setup prompts 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

This list is dynamic display and is determined by the number of startup options in the system. When there is no startup item, it will not be displayed.

XXXX Driver BBS Priorities

3.2.39 Save & Exit menu

Aptio Setup Utility – Copyright (C) 2020 Ameri Main Advanced Server Mgmt Event Logs Security Boot Sa	ican Megatrends, Inc. ave & Exit
Save Options Save Changes and Exit Discard Changes and Exit	 Exit system setup after saving the changes.
Save Changes and Reset Discard Changes and Reset	
Save Changes Discard Changes	
Default Options Restore Defaults Save as User Defaults	
Restore User Defaults Boot Override	<pre>++: Select Screen \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$</pre>
UEFI: SanDisk, Partition 1 (SanDisk)	+/-: Change Opt.
AMI VIPTUAL CORUMO 1.00 AMI Viptual COROMI 1.00	F1: General Help F2: Previous Values
AMI Virtual CDROM2 1.00	F3: Optimized Defaults
AMI Virtual CDROM3 1.00	F4: Save & Exit
AMT Virtual HDisko 1 00	ESU: EXIT
AMI Virtual HDiski 1.00	
AMI Virtual HDisk2 1.00	
Version 2.20.1275. Copyright (C) 2020 America	an Megatrends, Inc.

Figure 3-41

Save Changes and Exit

Save the settings and exit the BIOS Setup menu;

Discard Changes and Exit

Discard the save settings and exit the BIOS Setup menu;

Save Changes and Reset

Save the settings and restart the system;

Discard Changes and Reset

Discard saving settings and restart the system;

Save Changes Save settings;

Discard Changes Discard saving settings

Restore Defaults Load BIOS factory settings;

Save as user Defaults

Version: V1.1

Save as user default settings;

Restore user Defaults

Restore user default configuration;

Boot Override

Boot list of options, select boot options here.

3.3 Caution

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

Chapter 4 RAID Setting Instruction

4.1 LSI 9361-8i builds RAID

4.1.1 Configuring RAID in UEFI boot mode

Enter RAID card configuration interface

- a) During the server startup, 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, press Enter.
- c) Enter the interface shown in Figure 4-1, where five types of configuration tasks are displayed (see Table for related instructions).



Figure 4-1

Parameter	Description
Configuration Management	Select configuration management to perform tasks such as creating logical disks, viewing disk group properties, viewing hot backup information, and clearing configuration.
Controller Management	Select controller management to view and manage controller properties and perform tasks such as clearing controller events, scheduling and running controller events, and running patrol read.
Virtual Drive Management	Select logical disk management to perform tasks such as viewing logical disk properties, locating logical disks, and running consistency checks.
Drive Management	Select disk management to view the physical disk properties and perform tasks such as locating the disk, initializing the disk, and rebuilding the disk after failure.
Hardware Components	Select hardware components to view supercapacitor properties, manage supercapacitors and peripheral components.

♦ Table of Parameter description

> 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 there is residual RAID information on the physical disk, which needs to be cleared manually.
- 3. JBOD: Just a Bunch Of Disks, which means only connects the disks in series to expand the capacity, but it has no RAID function.
- Here we take the example of switching from Unconfigured Good mode to Unconfigured Bad mode.
- a) As shown in Figure 4-2, in the RAID card configuration interface, select Drive Management and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
 Configuration Management Controller Management Virtual Drive Management Drive Management Hardware Components 	Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link. ++: Select Screen fl: 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 Ma	egatrends, Inc.

Figure 4-2

b) Enter the interface shown in Figure 4-3, select the disk to be configured, and press Enter.





c) Enter the interface shown in Figure 4-4, select Operation, press Enter, then select Make Unconfigured Bad in the pop-up dialog box, and press Enter.





d) Enter the interface shown in Figure 4-5, select Go and press Enter.
Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Operation Go BASIC PROPERTIES: Drive ID Status Size Type Model Hardware Vendor Advanced	[Make Unconfigured Bad] Port 4 - 7:01:04 [Unconfigured Good] 558 GB [Disk] HUC101860CSS200 HGST	Starts the selected operation or opens another form. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.1268. C	opyright (C) 2017 American M	egatrends, Inc. B4

Figure 4-5

e) Enter the interface shown in Figure 4-6 to complete the operation of switching disk mode.



Figure 4-6

Configure RAID:

a) As shown in Figure 4-7, in the RAID card configuration interface, select Configuration Management and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
 Configuration Management Controller Management Virtual Drive Management Drive Management Hardware Components 	Displays configuration options. Some options appear only if the controller supports them. As an example, create virtual drive, create CacheCade virtual drive, make JBOD, make Unconfigured Good, clear configuration, manage foreign configuration, wiew drive group properties and view global hot spare drives. ++: Select Screen 14: 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 M	egatrends, Inc. <mark>84</mark>

Figure 4-7

b) Enter the interface shown in Figure 4-8, select Create Virtual Drive and press Enter.



c) Enter the interface shown in Figure 4-9, select Select RAID Level, set RAID level, and press Enter.



Figure 4-9

- d) Enter the interface shown in Figure 4-10, select Select Drives From, set the RAID disk capacity source, and press Enter.
- ☆ [Unconfigured Capacity] represents the remaining capacity of the disk from which the RAID has been configured.
- \diamond [Free Capacity] represents that the capacity comes from an empty disk.



Figure 4-10

e) Enter the interface shown in Figure 4-11, select Select Drives and press Enter.

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
 Save Configuration Select RAID Level Protect Virtual Drive Select Drives From Select Drives 	[RAIDO] [Disabled] [Unconfigured Capacity]	Dynamically updates to display as Select Drives or Select Drive Group based on the selection made in Select Drives From.
CONFIGURE VIRTUAL DRIVE PARAMETERS: Virtual Drive Name Virtual Drive Size Virtual Drive Size Unit Strip Size Read Policy Write Policy I/O Policy Access Policy Drive Cache Disable Background Initialization Default Initialization Save Configuration	0 [GB] [256 KB] [Read Ahead] [Write Back] [Direct] [Read/Write] [Unchanged] [No] [No]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.1268. Co	pyright (C) 2017 American M	legatrends, Inc.

Figure 4-11

f) Enter the interface shown in Figure 4-12 and select the disk to configure RAID. [Enabled] means selected, then select Apply Changes and press Enter. If the state of the disk is JBOD or Unconfigured Bad, it cannot be selected.

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
 Apply Changes Select Media Type Select Interface Type Logical Sector Size 	[HDD] [Both] [Both]	
CHOOSE UNCONFIGURED DRIVES: Drive Port 0 - 3:01:00: SAS, 558GB Drive Port 0 - 3:01:01: SAS, 558GB Drive Port 0 - 3:01:02: SAS, 558GB Drive Port 0 - 3:01:03: SAS, 558GB Check All Uncheck All	[Enabled] [Disabled] [Disabled] [Disabled]	
▶ App1y Changes		<pre> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. Co	pyright (C) 2017 American M	egatrends, Inc.

Figure 4-12

g) Enter the interface shown in Figure 4-13, set the corresponding parameters (see Table for parameter description), then select Save Configuration and press Enter.

Aptio Setup Utility - Advanced	Copyright (C) 2017 American) Megatrends, Inc.
 Save Configuration Select RAID Level Protect Virtual Drive Select Drives From Select Drives 	[RAIDO] [Disabled] [Unconfigured Capacity]	Assigns a name to identify the virtual drive.
CONFIGURE VIRTUAL DRIVE PARAMETERS: Virtual Drive Name Virtual Drive Size Virtual Drive Size Unit Strip Size Read Policy Write Policy	1116 [GB] [256 KB] [Read Ahead] [Write Back]	
 I/O Policy Access Policy Drive Cache Disable Background Initialization Default Initialization ► Save Configuration 	[Direct] [Read/Write] [Unchanged] [No] [No]	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>
		F4: Save & Reset ESC: Exit



♦ Parameter description

Parameter	Description
Vintual Drive Nome	The name of RAID, only supports letters, numbers and
vintual Drive Name	underscores, but not case sensitive
Virtual Drive Size	RAID capacity
Virtual Drive Size Unit	RAID capacity unit
Stripe Size	The size of the Striped data block written to each disk
Read Policy	Divided into Read Ahead and No Read Ahead
Write Deliev	Divided into Write Through, Always Write Back and Write
while Policy	Back
I/O Policy	Divided into Cached and Direct
Access Policy	Divided into Read/Write, Read Only and Blocked
Drive Cache	Divided into Enable, Disable and Unchanged
Default	Default initialization method
Initialization	
Save Configuration	Save the configuration created by the guide



- \diamond Do not use special characters as RAID names.
- ♦ Read Ahead, Write Back and Cached compared with No Read Ahead, Write Through and Direct, the performance is improved, but the data consistency cannot be guaranteed.
- ☆ If the super capacitor is abnormal, when the write cache strategy is "Write Back", the firmware implements "Write Through" to write data; "Always Write Back" is selected as the write cache strategy, and "Write Back" is implemented for firmware write data.
- h) Enter the interface shown in Figure 4-14, select Confirm, make it Enabled, select Yes, and press Enter.



i) Enter the interface shown in Figure 4-15, complete the RAID configuration operation, select OK and return to the RAID card configuration interface.



Figure 4-15

j) As shown in Figure 4-16, select Virtual Drive Management in the RAID card configuration interface and press Enter.



k) Enter the interface shown in Figure 4-17 to see the created RAID. Select the RAID you want to view and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
▶ Virtual Drive O: RAIDO, 111668, Optimal	Displays the properties of a specific virtual drive. You can perform operations (such as Start Locate, Stop Locate, Consistency Check), view basic properties and click Advanced for viewing additional properties. ++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Varaian 2 19 1969 : Comunisht (C) 2017 American Ma	rationdo Tro
Version 2.15.1266. copyright (c) 2017 Hilerican Me	gatrenus, INC.

Figure 4-17

1) Enter the interface shown in Figure 4-18, select View Associated Drives, and press Enter to view the details of the RAID (including RAID name, level, disk information, etc.).

Aptio Setup Util Advanced	Lity – Copyright (C) 2017 Amer	ican Megatrends, Inc.
Operation BASIC PROPERTIES: Name Raid Level Status Size View Associated Drives Advanced	[Select operation] [RAIDO] [Optimal] 1116 GB	Lists the operations that you can perform on a virtual drive.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.12	268. Copyright (C) 2017 America	an Megatrends, Inc.

Configure hot spare disk:

After configuring RAID, hot spare disk is usually configured to improve data security. You can configure a global hot spare or a dedicated hot spare as needed.



- \diamond The hot spare disk is only used for redundant RAID level.
- ☆ The capacity of the hot spare disk is larger than the capacity contributed to the RAID by a single RAID member disk.
- ♦ Only supports hot spare disk of Unconfigured Good mode disk.
- \diamond Configure global hot spare disk.

a) As shown in Figure 4-19, select Drive Management in the RAID card configuration interface and press Enter.



Figure 4-19

b) Enter the interface shown in Figure 4-20, select the disk to be configured as global hot spare, and press Enter.



Figure 4-20

c) Enter the interface shown in Figure 4-21, select Operation and press Enter, then select Assign Dedicated Hot Spare Drive and press Enter.





d) Enter the interface shown in Figure 4-22, select Go and press Enter.

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Operation ▶ Go BASIC PROPERTIES:	[Assign Global Hot S]	Starts the selected operation or opens another form.
Drive ID Status Size	Port 0 – 3:01:02 [Unconfigured Good] 558 GB	
Type Model Hardware Vendor	[Disk] HUC101860CSS200 HGST	
▶ Advanced		
		<pre>++: Select Screen f↓: Select Item Enter: Select</pre>
		+/-: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.1268. Co	ppyright (C) 2017 American M	egatrends, Inc.

Figure 4- 22

e) Enter the interface shown in Figure 4-23, select Confirm, make it Enabled, select Yes, and press Enter.



Figure 4-23

f) Enter the interface shown in Figure 4-24 to complete the global hot spare configuration.



Figure 4-24

Delete RAID:

a) As shown in Figure 4-25, in RAID card configuration interface, select Virtual Drive Management and press Enter.



b) Enter the interface shown in Figure 4-26, select the logical disk to be deleted, and press Enter.



Figure 4-26

c) Enter the interface shown in Figure 4-27, select Operation and press Enter, then select Delete Virtual Drive in the pop-up dialog box and press Enter.



Figure 4-27

d) Enter the interface shown in Figure 4-28, select Go and press Enter.

Aptio Setup Utility Advanced	– Copyright (C) 2017 Americar	n Megatrends, Inc.
Operation > Go BASIC PROPERTIES: Name	[Delete Virtual Drive]	Starts the selected operation or opens another form.
Raid Level Status Size	[RAIDO] [Optimal] 1116 GB	
 View Associated Drives Advanced 		
		++: Select Screen 11: 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) 2017American M	Megatrends, Inc.

Figure 4-28

e) Enter the interface shown in figure 4-29, select Confirm, make it Enabled, select Yes, and press Enter.



Figure 4-29

f) Enter the interface shown in Figure 4-30 to complete the RAID deletion operation.



Figure 4-30

Locate disk location:

- 1. Locate physical disks
- a) As shown in Figure 4-31, select Drive Management in the RAID card configuration interface and press Enter.



b) Enter the interface in Figure 4-32, select the disk to be located, and press Enter.



Figure 4-32

c) Enter the interface shown in Figure 4-33, select Operation and press Enter, then select Start Locate in the pop-up dialog box and press Enter.



Figure 4-33

d) Enter the interface in Figure 4-34, select Go and press Enter.

Aptio Setup Utility Advanced	– Copyright (C) 2017 Americar	n Megatrends, Inc.
Operation ▶ Go BASIC PROPERTIES:	[Start Locate]	Starts the selected operation or opens another form.
Drive ID Status Size	Port 0 – 3:01:00 [Unconfigured Good] 558 GB	
Type Model Hardware Vendor	[Disk] HUC101860CSS200 HGST	
Advanced		
		++: Select Screen f↓: 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 M	Megatrends, Inc.

Figure 4-34

e) Enter the interface in Figure 4-35 to complete the operation of locating the physical disk.



Figure 4-35

- 2. Locate all the disks in the logical disk
- a) As shown in Figure 4-36, in RAID card configuration interface, select Virtual Drive Management and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
 Configuration Management Controller Management Virtual Drive Management Drive Management Hardware Components 	Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.
	<pre> ++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. Copyright (C) 2017 American M	egatrends, Inc.

Figure 4-36

b) Enter the interface in Figure 4-37, select the logical disk to be located, and press Enter.



c) Enter the interface shown in Figure 4-38, select Operation and press Enter, then select Start Locate in the pop-up dialog box and press Enter.

Aptio Setup Utili Advanced	lty – Copyright (C) 2017 Ameri	can Megatrends, Inc.
Operation > Go BASIC PROPERTIES: Name Raid Level Status Size > View Associated Drives > Advanced	[Start Locate] 111 [RAIDO] [Optimal] 1116 GB Operation Start Locate Stop Locate Delete Virtual Drive Reconfigure Virtual Drives Fast Initialization Slow Initialization Virtual Drive Erase	Lists the operations that you can perform on a virtual drive. ++: Select Screen 14: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.126	8. Copyright (C) 2017 America	n Megatrends, Inc.

Figure 4-38

d) Enter the interface in Figure 4-39, select Go and press Enter.

Aptio Setup Uti Advanced	lity – Copyright (C) 2017 Am	erican Megatrends, Inc.
Operation ≻ Go BASIC PROPERTIES:	[Start Locate]	Starts the selected operation or opens another form.
Name Raid Level Status Size ▶ View Associated Drives	111 [RAIDO] [Optimal] 1116 GB	
► Hovanced		
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values E3: Optimized Defaults</pre>
		F4: Save & Reset ESC: Exit
Version 2.19.1	268. Copyright (C) 2017 Amer	ican Megatrends, Inc.

Figure 4- 39

e) Enter the interface in Figure 4-40 to complete the operation of locating all the disk positions in the logical disk.



Figure 4-40

Initialize logical disk:

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

a) As shown in Figure 4-41, in the RAID card configuration interface, select Virtual Drive Management and press Enter



Figure 4-41

b) Enter the interface shown in Figure 4-42, select the logical disk to be initialized, and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
▶ Virtual Drive O: 111, RAIDO, 1116GB, Optimal	Displays the properties of a specific virtual drive. You can perform operations (such as Start Locate, Stop Locate, Consistency Check), view basic properties and click Advanced for viewing additional properties. ++: Select Screen tl: 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 Me	egatrends, Inc.



c) Enter the interface shown in Figure 4-43, select Operation and press Enter, then select Fast/Slow Initialization in the pop-up dialog and press Enter.



Figure 4-43

The difference between Fast Initialization and Slow Initialization is that the former can write data immediately, while the latter needs to wait until all disk space is initialized before writing data d) Enter the interface shown in Figure 4-44, select Go and press Enter.

Aptio Setup Utili Advanced	ty – Copyright (C) 2017 America	an Megatrends, Inc.
Operation Go BASIC PROPERTIES: Name Raid Level Status Size View Associated Drives Advanced	[Fast Initialization] 111 [RAIDO] [Optimal] 1116 GB	Starts the selected operation or opens another form.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.126	8. Copyright (C) 2017 American	Megatrends, Inc.

Figure 6-44

e) Enter the interface shown in Figure 6-45, select Confirm, make it Enabled, select Yes, and press Enter.

Aptio Setup Utility Advanced	– Copyright (C) 2017 Americar	h Megatrends, Inc.
Initializing a Virtual Drive will Confirm Yes ▶ No	[Enabled]	<pre>**: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268.	Copyright (C) 2017 American M	legatrends, Inc.

Figure 4-45

f) Enter the interface shown in Figure 4-46 to complete the initialization of logical disk.





Initialize physical disk:

a) As shown in Figure 4-47, select Drive Management in the RAID card configuration interface and press Enter.



Figure 4-47

b) Enter the interface shown in Figure 4-48, select the disk to be initialized, and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
 Drive Port 0 - 3:01:00: SAS, 558GB, Online, (512B) Drive Port 0 - 3:01:01: SAS, 558GB, Online, (512B) Drive Port 0 - 3:01:02: SAS, 558GB, Unconfigured Good, (Drive Port 0 - 3:01:03: SAS, 558GB, Unconfigured Good, (Displays the properties of a specific drive. You can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.
	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. Copyright (C) 2017 American Me	gatrends, Inc.

Figure 4-48

c) Enter the interface shown in Figure 4-49, select Operation and press Enter, then select Initialize Drive in the pop-up dialog box and press Enter.

Aptio Setup Util Advanced	ity – Copyright (C) 2017 Americar	n Megatrends, Inc.
Operation BASIC PROPERTIES: Drive ID Status Size Type Model Hardware Vendor Advanced	[Select operation] Port 0 - 3:01:02 [Unconfigured Good] S58 GB [Disk] HUC101860CSS200 HGST Operation Select operation Start Locate Stop Locate Initialize Drive Drive Erase Make Unconfigured Bad Assign Global Hot Spare Drive	Lists the operations that you can perform on a drive.
Version 2.19.12	68. Copyright (C) 2017American M	Megatrends, Inc.

Figure 4-49

d) Enter the interface in Figure 4-50, select Go and press Enter.

Aptio Setup Ut Advanced	ility – Copyright (C) 2017 Americ	can Megatrends, Inc.
Operation ▶ Go BASIC PROPERTIES:	[Initialize Drive]	Starts the selected operation or opens another form.
Drive ID Status Size	Port 0 – 3:01:02 [Unconfigured Good] 558 GB	
Type Model Hardware Vendor	[Disk] HUC101860CSS200 HGST	
▶ Hovanced		
		<pre>++: Select Screen ↑↓: Select Item Enter: Select</pre>
		+/-: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.	1268. Copyright (C) 2017_Americar	n Megatrends, Inc.

Figure 4- 50

e) Enter the interface shown in Figure 4-51, select Confirm, make it Enabled, select Yes, and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced) Megatrends, Inc.
Initializing a Drive may result in Confirm [Enabled] Yes No	++: Select Screen 1: 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 ⊧	legatrends, Inc.

Figure 4- 51

f) Enter the interface in Figure 4-52 to complete the initialization of physical disk.



Figure 4- 52

Erase disk data:

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

- 1. Erase physical disk data
- a) As shown in Figure 4-53, select Drive Management in the RAID card configuration interface and press Enter.

Aptio Setup Uti. Advanced	Copyright (C) 2017 American Megatrends, Inc.
 Configuration Management Controller Management Virtual Drive Management Drive Management Hardware Components 	Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link.
Version 2.19.12	opyright (C) 2017 American Megatrends, Inc.

Figure 4-53

b) Enter the interface shown in Figure 4-54, select the disk to erase data, and press Enter.



c) Enter the interface shown in Figure 4-55, select Operation and press Enter, then select Drive Erase in the pop-up dialog box and press Enter.

Aptio Setup Utili Advanced	ty – Copyright (C) 2017 America	n Megatrends, Inc.
Operation Progress Stop BASIC PROPERTIES: Drive ID Status Size Type Model Hardware Vendor Advanced	[Select operation] Initialize Drive 2% Port 0 - 3:01:02 [Unconfigured Good] 558 GB [Disk] HUC101860CSS200 Operation Select operation Start Locate Stop Locate Drive Erase Make Unconfigured Bad	Lists the operations that you can perform on a drive.
Version 2.19.126	8. Copyright (C) 2017 American H	Megatrends, Inc.



d) Enter the interface shown in Figure 4-56, press Enter, and then select the erase mode in the pop-up dialog box (recommended to use the default mode: simple).



e) Enter the interface shown in Figure 4-57, select Go and press Enter.

Aptio Setup Ut Advanced	ility – Copyright (C) 2017 Ameri	can Megatrends, Inc.
Operation Erase Mode Do BASIC PROPERTIES: Drive ID Status Size Type Model Hardware Vendor Downeed	[Drive Erase] [Simple] Port 0 – 3:01:02 [Unconfigured Good] 558 GB [Disk] HUC101860CSS200 HGST	Starts the selected operation or opens another form.
		<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.		

Figure 4- 57

f) Enter the interface shown in Figure 4-58, select Confirm, make it Enabled, select Yes, and press Enter.

Aptio Setup Utility – (Advanced	Copyright (C) 2017 American	Megatrends, Inc.
When you perform a drive erase ope Confirm Yes ▶ No	[Enabled]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.19.1268. Co	oyright (C) 2017 American M	egatrenas, inc.

Figure 4-58

g) Enter the interface shown in Figure 4-59 to complete the operation of erasing physical disk data.



Figure 4- 59

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

- 2. Erase logical disk data
- a) As shown in Figure 4-60, in RAID card configuration interface, select Virtual Drive Management and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.	
 Configuration Management Controller Management Virtual Drive Management Drive Management Hardware Components 	Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.	
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>	
Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.		

Figure 4-60

b) Enter the interface shown in Figure 4-61, select the logical disk to be erased, and press Enter.



c) Enter the interface shown in Figure 4-62, select Operation and press Enter, then select Virtual Drive Erase in the pop-up dialog box and press Enter.





d) Enter the interface shown in Figure 4-63, press Enter, and then select the erase mode in the pop-up dialog box (the default mode is recommended: simple).



e) Enter the interface shown in Figure 4-64, select Go and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc. Advanced			
Advanced Operation Erase Mode Delete After Erase Go BASIC PROPERTIES: Name Raid Level Status Size View Associated Drives Advanced	[Virtual Drive Erase] [Simple] [Disabled] 111 [RAIDO] [Optimal] 1116 GB	Starts the selected operation or opens another form.	
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>	
Version 2.19.1268. Co	pyright (C) 2017 American M	egatrends, Inc.	

Figure 4-64

f) Enter the interface shown in Figure 4-65, select Confirm, make it Enabled, select Yes, and press Enter.



Figure 4-65

g) Enter the interface shown in Figure 4-66 to complete the operation of erasing logical disk data.



Figure 4-66

Migrate RAID Level:

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

a) As shown in Figure 4-67, in RAID card configuration interface, select Virtual Drive Management and press Enter.



b) Enter the interface shown in Figure 4-68, select the logical disk to be rebuilt, and press Enter.



Figure 4-68

c) Enter the interface shown in Figure 4-69, select Operation, press Enter, and then select Reconfigure Virtual Drive in the pop-up dialog box, and press Enter.



Figure 4-69

d) Enter the interface shown in Figure 4-70, select Go and press Enter.

Aptio Setup Utility - Advanced	· Copyright (C) 2017 American	Megatrends, Inc.
Operation Bo BASIC PROPERTIES: Name Raid Level Status Size View Associated Drives Advanced	[Reconfigure Virtual] 111 [RAIDO] [Optimal] 1116 GB	Starts the selected operation or opens another form.
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. C	Copyright (C) 2017 American M	legatrends, Inc.

Figure 4-70

e) Enter the interface shown in Figure 4-71, set the RAID Level, select Add Drives, and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc. Advanced		
<pre>RAID LEVEL MIGRATION/CAPACITY EXPANSION PROPERTIES: New RAID Leve1 [RAIDO] ▶ Add Drives ▶ Start Operation</pre>	Selects a new RAID level for the selected virtual drive. The default value is the current RAID level.	
	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>	
Version 2.19.1268. Copyright (C) 2017 American	Megatrends, Inc.	

Figure 4-71
f) Enter the interface shown in Figure 4-72, select the disk to be added, make it Enabled, select Apply Changes, and press Enter.

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
 Apply Changes Select Media Type Select Interface Type Logical Sector Size 	(HDD) [Both] [Both]	Submits the changes made to the entire form.
CHOOSE UNCONFIGURED DRIVES: Drive Port 0 - 3:01:03: SAS, 5586B Check All Uncheck All ▶ Apply Changes	[Enabled]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2.19.1268. Co	pyright (C) 2017 American M	egatrends, Inc.

Figure 4-72

g) Enter the interface shown in Figure 4-73, select Confirm, make it Enabled, select Yes, and press Enter.



Figure 4-73

h) Enter the interface shown in Figure 4-74, select Start Operation and press Enter.



Figure 4-74

i) Enter the interface shown in Figure 4-75, select OK and press Enter.



Figure 4-75

j) Enter the interface shown in Figure 4-76 to view the current migration progress.

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Operation Progress BASIC PROPERTIES: Name Raid Level Status Size View Associated Drives Advanced	[Select operation] Reconstruction 0% 111 [RAIDO] [Optimal] 1116 GB	Lists the operations that you can perform on a virtual drive.
Version 2.19.1268. C	opyright (C) 2017 American M	egatrends, Inc.

Figure 4-76

Clear RAID information of disk:

The function is used to clear the residual RAID information in disk, so the disk can be used to configure RAID again. The function is often used for disks in Unconfigured Bad mode.

- a) Change the disk mode from Unconfigured Bad to Unconfigured Good.
- b) As the Figure 4-77 shown, in RAID card configuration interface, select Configuration Management and press Enter.



c) Enter the interface shown in Figure 4-78, select Manage Foreign Configuration, and press Enter.



d) Enter the interface shown in Figure 4-79, select Clear Foreign Configuration, and press Enter.

Aptio Setup Utility – Copyright (C) 2017 American Advanced	Megatrends, Inc.
Advanced > Preview Foreign Configuration > Clear Foreign Configuration	Deletes all foreign configurations. ++: Select Screen fl: 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 Ma	egatrends, Inc.

Figure 4-79

e) Enter the interface shown in Figure 4-80, select Confirm, make it Enabled, select Yes, and press Enter.



f) Enter the interface shown in Figure 4-81 to complete the operation of clearing RAID information.



Figure 4-81

6.1.2 Configure RAID in Legacy boot mode

> Enter RAID card configuration interface

a) During BIOS startup, press Ctrl + R after the interface shown in Figure 4-82 appears.

```
AVAGO MegaRAID SAS-MFI BIOS
Version 6.31.03.0 (Build January 25, 2016)
Copyright(c) 2016 AVAGO Technologies
F/W Initializing Devices 100%
HA -0 (Bus 2 Dev 0) AVAGO MegaRAID SAS 9361-8i
Battery Status: Missing
PCI Slot Mumber: 4
ID LUN VENDOR
                                               REVISION
                 PRODUCT
                                                                    CAPACITY
       AVAGO
                 AVAGO MegaRAID SAS 9361-81 4.650.00-6121
                                                                    1024MB
88 0
       ATA
                 MM1000GBKAL
                                              HPGC
                                                                    953869HB
1030
                 MM1000GBKAL
                                              HPGC
                                                                    953869MB
       ATA
1848
       ATA
                 MM1000GBKAL
                                              HPGC
                                                                    953869HB
1280
       HP
                 EG0300FBVFL
                                              HPDC
                                                                    286102MB
1290
                                                                    286102MB
       HP
                 EG0300FCVBF
                                              HPD5
1300
                                              HPDC
       HP
                 EG0300FBVFL
                                                                    286102MB
   8
       AVAGO
                 Virtual Drive
                                              RAIDO
                                                                   5120MB
1 Virtual Drive(s) found on the host adapter.
 Virtual Drive(s) handled by BIOS
Press <Ctrl><R> to Run MegaRAID Configuration Utility
```

```
Figure 4-82
```

b) Enter the interface shown in Figure 4-83 Please refer to the key operation prompt at the bottom border of the interface to realize navigation and modify settings in the interface.



Common tasks

Configure RAID:

c) As shown in Figure 4-84, in the VD Mgmt interface, press F2 and select Create Virtual Drive.



Figure 4-84

d) Enter the interface shown in Figure 4-85, set the RAID Level and press Enter.

ID Level:	RAID-0 RAID-1	PD per Span	: <u>N/A</u>	
	RAID-5	ID	Type Size	
ta Protection:	RAID-6	L J::08	278.87 68	
	RAID-16	[]::01	278 87 GB	
	BOID-68	[]::85	278.87 68	
		[]::86	278.87 68	
		[]::07	512e 931.88 GB	
Basic Setting	s			
ilze:		nevance	a un	CANCEL
lana t	_			

Figure 4-85

e) Enter the interface shown in Figure 4-86, select the disk used to configure RAID, and press Enter.

	- Greate New UD	
ID Level: Rain-1	rD per Span : 120	
	ID Type Size	
ita Protection: Disable	[X]::88 278.87 GB	
	[]::84 278.87 GB	
	I 1::05 278.87 GB	322
	[1::86 278.87 GB	
- Basic Settings	Advanced DX	CANCEL
fanc :		

Figure 4-86

f) Enter the interface shown in Figure 4-87, set Size and Name, select Advanced, and press Enter.

AID Level: RAID-1	PD per Span : NZA	
ata Protection: Disable	1D Type Size [X]:-:00 278.87 GB [X]:-:01 278.87 GB []]:-:01 278.87 GB []]:-:01 278.87 GB []]]:-:084 278.87 GB []]]:-:085 278.87 GB []]]]]] 1:-:06 278.87 GB []]]] 1:-:06 278.87 GB []]] 1:-:06 278.87 GB	80 01
- Basic Settings	Advanced OX	CANCEL

Figure 4-87

g) Enter the interface shown in Figure 4-88, set relevant parameters, then select OK and press Enter.

ngnt PD	Hgnt Ctrl Hgnt Propertie Virtual Driv	s e Management
2010101	Create Create Victu	New VD
RAID Leve	Strip Size: 256KB	[] Initialize
Data Prot	Read Policy: Ahead	E 1 Configure HotSpare
	Write Policy: Write Back w	lith
	I/O Policy: Direct	OK
Basic Size:	Disk cache Unchanged	CANCEL

Figure 4-88

h) Enter the interface shown in Figure 4-89, select OK, and press Enter to complete the RAID configuration operation.

NID Level: RAID-1	PD per Span : M/A	
	ID Type Size	
ata Protection: Disable	[X]:-:80 278.87 GB	88
in the second second	[X]::01 278.87 GB	81
	[1::04 278.87 GB	888
	I 1::05 278.87 GB	
	[1::86 278.87 GB	
	I 1::87 512e 931.00 GB	
- Basic Settings	Advanced OK	CANCEL

i) Select the RAID to be viewed and press Enter to view the details of the RAID (including RAID name, level, disk information, etc.), as shown in Figure 4-90.



Figure 4-90

Configure hot spare disk:

After configuring RAID, hot spare disk is usually configured to improve data security. The global hot spare and the dedicated hot spare can be configured as needed.



- ♦ The hot spare is used only for redundant RAID Level.
- ☆ The capacity of the hot spare disk is larger than the capacity contributed to the RAID by a single RAID member disk.
- ♦ Support onlyfor hot spare disk of Unconfigured Good configuration mode.
- 1. Configure global hot spare disk
- a) As shown in Figure 4-91, in PD Mgmt interface, select the disk to be configured as a global hot spare and press F2.

VD Mgnt	PD Mgnt	Ctrl Mgnt	Propertie	es		
		Internet (Internet of State	- Drive M	anage	ent	TAOP 4
Louiseus	BackF	lane	Saucers		URWESSES.	Secured :
Devicel	D Type	Capacity	State	DG	Vendor	No
9	SAS	278.87 GB	UG		HP	Encryption Capable:
13	SAS	Z78.87 GB	UG		HP	No
14	SAS	278.87 GB	UG		HP	EKM Support:
15	SATA	931.00 GB	UG		ATA	Disabled
16	SAS	278.87 GB	Online	88	HP	Connector:
17	SAS	278.87 GB	Online	88	HP	Enclosure Model: SGP10 Slot Mumber: 6 Logical Sector Size: 512 B Physical Sector Size: 512 B Product ID: EG0300FCUBF (CoToPace:7)

Figure 4-91

b) Enter the interface shown in Figure 4-92, select Make Global HS, and press Enter to complete the configuration of global hot spare.

/D Hynt	PD Mgat	Ctrl Mgnt	Properties	
l.			1	PAGE-1
Device	Back ID Type	Capacity	Rebuild	red:
13	SAS SAS	278.87 GB	Copyback	Panaet:
15 16	SATA SAS	931.00 GB 278.87 GB	Locate	bled
17	SAS	278.87 68	Place drive Online Place drive Offline	nare Model:
			Make Global HS Remove Hot Spare drive Drive Erase	lunber: I Sector Size:
			Make JBOD Make unconfigured good	al Sector Size:
			Prepare for Removal	BBFCVBF
				(GoToPage :2)
1-Help	P2-Opera	tions F5-Refr	esh Ctrl-N-Next Page Ctrl-	P-Prev Page F12-Ctlr

Figure 4-92

c) Return to the interface shown in Figure 4-93 and select hot spare to view the global hot spare information.

VD Mgnt	PD Mynt	Ctrl Mgmt	Properties	3		the second s
	11-540-524466953		- Drive Man	nage	nent —	PACE-1
	BackP	lane				Secured:
Devicel	D Type	Capacity	State	DG	Vendor	No
9	SAS	278.87 GB	Hotspare	-	HP	Encryption Capable:
13	SAS	278.87 GB	UG		IIP	No
14	SAS	278.87 GB	UG		HP	EKN Support:
15	SATA	931.80 GB	UG		ATA	Disabled
16	SAS	278.87 68	Online	88	HP	Connector:
17	SAS	278.87 GB	Online	88	HP	An all the second second second second
1000 A						Enclosure Model:
						SGP10
						Slot Number:
						6
						Logical Sector Size:
						512 B
						Physical Sector Size:
						512 B
						Product ID:
						EG0300FCV8F
						<pre>- <gotopage:2></gotopage:2></pre>
F1-Help	F2-Operat	ions F5-Refr	esh Ctrl-N	Nex	t Page Ctr	1-P-Prev Page F12-Ctlr

Figure 4-93

Delete RAID:

This function is used to delete damaged or difficult to meet the requirements of RAID.

a) As shown in Figure 4-94, select the logical disk to be deleted in the VD Mgmt interface and press F2.

VD Mgnt PD Mgnt Ctrl Mgnt Properties	
Virtual Drive Management -	
I-1 LSI MegaRAID 9361-8i (Bus 0x02, Dev 0x00) -I-1 Drive Group: 0, RAID 1 -I-1 Virtual Drives -ID: 0, ys1, 20.00 GB	Virtual Drive 8: State: Optimal BAID Level: 1
L+1 Available size: 258.87 GB Hot spare drives L-1 Unconfigured Drives ::84: Ready: 278.87 GB ::85: Ready: 278.87 GB ::86: Ready: 278.87 GB ::87: Ready: 931.88 GB	Drive Group 8: Virtual Drives: 1 Drives: 2 Free Cap.: 258.87 GB Free Areas: 1
F1-Help F2-Operations F5-Refresh Ctrl-M-Mext Page Ctr	1-P-Prev Page F12-Ctlr

Figure 4-94

b) Enter the interface shown in Figure 4-95, select Delete VD and press Enter.



Figure 4-95

c) Enter the interface shown in Figure 4-96, select Yes, and press Enter to complete the RAID deletion operation.



Figure 4-96

Locate disk location:

The function lights up the blue indicator of the corresponding slot of the disk to facilitate you to quickly find the disk. You can locate a single physical disk or all the member disks including a logical disk. a) As shown in Figure 4-97, select the disk to be located on the PD Mgmt interface and press F2.

e ngat	ro light	ceri ngue	- Drive M	anager	nent —	PAOP 4
Device 9 13 14 15 16 17	BackF D Type SAS SAS SAS SAS SAS SAS	lane Capacity 278.87 68 278.87 68 278.87 68 931.00 68 278.87 68 278.87 68	State UG UG UG Online Online	DG - - - 00 00	Vendor HP HP ATA HP HP	PHORE-1 Secured: No Encryption Capable: No EKM Support: Disabled Connector: Enclosure Model: SGP10 Slot Mumber: 6 Logical Sector Size: 512 B Physical Sector Size: 512 B Physical Sector Size: 512 B Product ID: EG9300FCUBF
						<gotopage:2></gotopage:2>

Figure 4-97

b) Enter the interface shown in Figure 4-98, select Locate-> Start to finish the operation of locating disks.

			Drive Management	PAGE-1
Device	Back ID Type	Plane Capacity	Rebuild	red:
9 13	SAS	278.87 GB 278.87 GB	Copyback	Ttion Capable:
15	SATA	931.88 G8	Locate	> Start
17	SAS	278.87 GB	Place drive Online Place drive Offline	Stop
			Nake Global HS Remove Hot Spare drive	unber:
			Drive Erase	B
			Make JBOD Make unconfigured good	t ID:
			Prepare for Nemoval	<pre>GoToPage:2></pre>

Figure 4-98



- ♦ Locate-> Start: start locating disks
- ♦ Locate-> Stop: stop locating disks

Initialize logical disk:

The function is used to initialize the internal data space of the disk so it can be recognized and used by the OS.

a) As shown in Figure 4-99, select the disk to be initialized in the VD Mgmt interface and press F2.



Figure 4- 99

b) Enter the interface shown in Figure 4-100, select Initialization-> Start FGI.

1 Drives 1 Available size: 258.87 GB Hot spare drives Inconfigured Drives :-:04: Ready: 278.87 GB :-:05: Ready: 278.87 GB :-:06: Ready: 278.87 GB :-:07: Ready: 931.00 GB	Initialization Consistency Check Delete VD Properties Expand VD size Erase VD	 Start FGI Stop Init Past Init Suspend BGI Resume BGI Stop BGI
--	--	--

Figure 4- 100



- ♦ BGI: Backgroud Initialization. First initialize part of the RAID space for writing data, then initialize the rest in the background.
- ♦ FGI: Full Groud Initialization. Initialize all the RAID space, and write data after initialization.

c) Enter the interface shown in Figure 4-101, select Yes, and press Enter to complete the disk initialization operation.

LSI MegaRA -[-] Drive Gr	D 9361-8i (Bus 8x82, Dev 8x88) Houp: 0, RAID 1	Virtual Drive 8:
-[-] -[+] Ini	itialization will destroy data c	m the virtual
-[+] dr] H f	ive. The you sure you want to continu	10? 1
		.87 GB
E:		
	YES	80

Figure 4- 101

Erase disk data:

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

- 1. Erase physical disk data
- a) As shown in Figure 4-102, select the physical disk to be erased on the PD Mgmt interface and press F2.

/D Agat	PD Agat	Ctrl Mgmt	- Drive M	es anage	ment —	
Device 9 13 14 15 16 17	Back SAS SAS SAS SATA SAS SATA SAS SAS	lane Capacity 278.87 GB 278.87 GB 278.87 GB 931.00 GB 278.87 GB 278.87 GB	State UG UG UG Online Online	DG - - - 88 88	Vendor HP HP ATA HP HP	PAGE=1 Secured: No Encryption Capable: No EKM Support: Disabled Connector: Enclosure Model: SGP10 Slot Mumber: 6 Logical Sector Size: 512 B Physical Sector Size: 512 B Physical Sector Size: 512 B Product ID: EG0300FCUBF
						<gotopage:2></gotopage:2>

Figure 4- 102

	Back	lane	1	red:
eviceID	Type	Capacity	Rebuild	
9 13	SAS	278.87 GB 278.87 GB	Copyback	> The capable:
14 15	SAS	278.87 GB 931.00 GB	Locate	<pre>bled</pre>
16 17	6 SAS 278.87 GB 7 SAS 278.87 GB	Place drive Online Place drive Offline	ure Model:	
			Nake Global HS Remove Hot Spare drive Drive Erase) unber:
			Make JBOD Make unconfigured good	Nornal Thorough
			Prepare for Removal	Stop Lrase

b) Enter the interface shown in Figure 4-103, select the erase mode (the default mode is recommended to use Simple), and press Enter.

Figure 4- 103

c) Enter the interface shown in Figure 4-104, select Yes and press Enter to erase the physical disk data.

VD Mgnt PD Mgnt Ctrl Mgnt Properties Drive Management PAGE-1 BackPlane Secured: DeviceID Type State Capacity DG Vendor No 9 13 14 15 16 SAS tion Capable: SAS This operation takes several minutes to complete and wipes out all data present on the drive. SAS SATA SAS 17 SAS Hodel: ber: Sector Size: Yes No Sector Size: ID: EG0300FCVBF (GoToPage:2) F1-Help F2-Operations F5-Refresh Ctrl-N-Next Page Ctrl-P-Prev Page F12-Ctlr

Figure 4- 104



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

- 2. Erase logical disk data
- a) As shown in Figure 4-105, select the logical disk to be erased on the VD Mgmt interface and press F2.



Figure 4- 105

b) Enter the interface shown in Figure 4-106, select the erase mode (the default mode is recommended to use Simple), and press Enter.



Figure 4- 106

c) Enter the interface shown in Figure 4-107, select Yes, and press Enter to erase the logical disk data.



Figure 4- 107

Clear disk RAID information:

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

- a) Switch the disk mode from Unconfigured Bad to Unconfigured Good.
- b) As shown in Figure 4-108, in Foreign View interface, select RAID card, press F2, select Foreign Config->Clear, and press Enter.



Figure 4- 108

c) In the pop-up dialog box shown in Figure 4-109, select OK and press Enter to complete the operation of clearing disk RAID information.



Figure 4- 109

Chapter 5 IPMI Deployment

5.1 Fast development of IPMI

How to fast deploy the IPMI function of the server is shown in Figure 5-1.



Figure 5-1 Development of IPMI process

5.1.1 Confirm 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 5-2.



Figure 5-2 motherboard dedicated net port

5.1.2 Enter BIOS to set IPMI function

Restart your system hard and press ESC or DEL key to enter the BIOS system of the motherboard when the device starts. The BIOS setting interface is shown in Figure 5-3 below.



Figure 5-3 motherboard BIOS setting interface

After entering the interface, switch the menu item to the Server Mgmt option through the left and right buttons of the keyboard, and you will see the page as shown in Figure 5-4.

Aptio Setup Uti. Main Advanced Server Mgmt	lity – Copyright (C) 2020 An Event Logs Security Boot	merican Megatrends, Inc. Save & Exit
Main Advanced Server Mgmt BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version BMC Interface(s) BMC Support Wait For BMC System Event Log BMC self test log BMC network configuration View System Event Log BMC User Settings BMC Warm Reset	Event Log Security Boot FAILED 32 1 1.09 2.0 KCS, USB [Enabled] [Disabled]	Save & Exit Configure BMC network parameters ++: Select Screen 14: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20-12	275 Conunight (P) 2020 Ame	rican Megatrends. The
VBPS10N 2.20.1/	era, copyright (c) 2020 Hile	riuan negatrenus, inc.

Figure 5-4 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 5-5.

BMC network configuration BMC network configuration Configuration Address source Current Configuration Address sour Station IP address Subnet mask Current Configuration Address Subnet mask Station IP address Subnet mask Current Configuration Address BMC Sharelink Management Channel Configuration Address source Current Configuration Address source Current Configuration Address source Station IP address Subnet mask Subnet	Aptio Setup Utility - S	Copyright (C) 2017 American Server Mgmt	n Megatrends, Inc.
BMC Sharelink Management Channel Configuration Address source[Unspecified]Current Configuration Address sourceDynamicAddressBmcDhcpStation IP address192.168.0.236Subnet mask255.255.252.0Station MAC addressaa-bb-cc-00-00-01Router IP address192.168.1.1Router MAC address00-00-00-00-00F2: Previous ValuesF3: Optimized DefaultsF4: Save & ResetESC: Exit	BMC network configuration BMC Dedicated Management Channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address Router IP address Router MAC address	[Unspecified] DynamicAddressBmcDhcp 0.0.0.0 0.0.0.0 11-22-33-aa-bb-cc 0.0.0.0 00-00-00-00-00	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase
	BMC Sharelink Management Channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address Router IP address Router MAC address	[Unspecified] DynamicAddressBmcDhcp 192.168.0.236 255.255.252.0 aa-bb-cc-00-00-01 192.168.1.1 00-00-00-00-00	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Figure 5-5 BMC net configuration option interface

In this page, you can see two configurable network ports, one is Dedicated network port and the other is Sharelink network port. Take the shared network port as an example. If you connect a dedicated network port, the setting method is the same as that of the shared network port. Switch to the configuration address source option and enter to set the network mode of changing network port, as shown in Figure 5-6.

	Server Mgmt	
BMC network configuration- BMC Dedicated Management Cha Configuration Address source Current Configuration Address Station IP address Subnet mask Station MAC address Router IP address	annel (Unspecified) s sour DynamicAddressBmcDhcp 0.0.0.0 0.0.0.0 11-22-33-aa-bb-cc 0.0.0.0	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase
Router MAC address BMC Sharelink Management Ch Configuration Address sourc Current Configuration Addre Station IP address Subnet mask Station MAC address Router IP address Router MAC address	Configuration Address source Unspecified Static DynamicBmcDhcp DynamicBmcNonDhcp aa-bb-cc-00-00-01 192.168.1.1 00-00-00-00-00	Select Screen Select Item r: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit

Figure 5-6 Configure net mode of network port

Here are four network modes that can be configured in this interface, which are Unspecific, Static, Dynamic BMCDHCP and DynamicBMCNonDHCP. Static is static mode, you can set IP address

manually, and DHCP is dynamic mode. Setting this option allows BMC to automatically obtain IP address from DHCP server.

5.1.3 IPMI interface configuration Static mode

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

(1) If there are multiple IPMI devices in your LAN, you should pay attention to the IP address between devices can not be repeated, otherwise communication can not 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 IP address of the IPMI device.

(3) IP address of IPMI device can be mapped to WAN by 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, here we set the IP address to 192.168.0.236 and the subnet mask to 255.255.252.0, as shown in Figure 5-7. After setting, press F4 to save and exit the BIOS interface.

Aptio Setup Utility -	Copyright (C) 2017 America Server Mgmt	an Megatrends, Inc.
BMC network configuration BMC Dedicated Management Channel Configuration Address source Current Configuration Address sour Station IP address Subnet mask	[Unspecified] DynamicAddressBmcDhcp 0.0.0.0 0.0.0.0	Enter router IP address
Router IP address Router MAC address BMC Sharelink Management Channel Configuration Address source	11-22-33-aa-00-CC 0.0.0.0 00-00-00-00-00-00	
Station IP address Subnet mask Station MAC address Router IP address Router MAC address	192.168.0.236 255.255.252.0 aa-bb-cc-00-00-01 192.168.1.1 00-00-00-00-00-00	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Figure 5-7 Static mode setting

We have finished the operation of configuring IPMI function.

5.1.4 IPMI configuring Java SOL

1. When the system starts up, press the key to enter the BIOS Setup interface.

2. Switch to the Advanced menu, select serial port console redirection, and press the < ENTER > key.

3. Make sure that the Console Redirection of COM0 is in [Enabled] state. If not, select Console

Redirection and press < ENTER > to set the state to [Enabled]. In order to ensure the normal operation of IBMC, this option has been set to [Enabled] by default.

5.2 IPMI quick introduction of functions

After completing the previous configuration steps, we can start to log in the IPMI management interface. The IPMI management interface can be accessed by using standard web browser. Here we recommend using Google Chrome, Firfox and IE browser (above IE 11) to get the best browsing experience. Since the new version of the operation 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.

5.2.1 Enter the operation interface

Take Google Chrome browser 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 all HTTP links have been converted into encrypted links of HTTPS, you will enter the privacy setting error page as shown in Figure 5-8, and the contents of other browsers may be different.



Figure 5-8 Google Chrome privacy settings error page

On this page, click "Advanced" >> continue to" to access the IPMI management page normally and enter the login page, as shown in Figure 5-9.

	🕒 вмс	× +				-	٥	×
\leftarrow	$\rightarrow \ \ C$	A Not secure https://192.168.0.120/#login		to	£∕≡	œ		
			Login					
			LOGIN					
			Username					
			Deserved					
			Passworu					
			Remember Username					
			Sign me in					
			I forgot my password					

Figure 5-9 IPMI management login interface

5.2.2 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 the privileges of the administrator. It is recommended that you modify your password after logging in.

5.2.3 IPMI Management system content

When you log in to the IPMI management system correctly, you can see the page as shown in Figure 5-10.



Figure 5-10 IPMI Home page of management system

IPMI Management interface menu description

(1) Instrument panel

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

Firmware information includes BMC firmware version information, BIOS version information, motherboard 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 read value, real-time curve change of sensor read value and alarm status.

(2) Sensors

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

(3) System list

This page can view the server CPU and memory information. In the block diagram, click the CPU block to view the CPU information. If the memory block is 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 box indicates that the hard disk is in place, otherwise it is not. The status of the hard disk can be viewed on the right or under the hard disk box. Left click the green box to view the details of the hard disk, 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

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

(8) Settings

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

(9) Remote control

On this page, you can start KVM and sol, as well as power control and UID control.

(10) Image redirection

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

(11) Maintenance

Basic maintenance operations can be performed on the server, such as BMC firmware update and BIOS firmware update.

(12) Log off

Click to log off the current user's login.

5.2.4 KVM remote management

Start KVM remote management

As shown in Figure 5-11, KVM can be started under the remote control menu KVM & Java SOL.





5.2.5 KVM interface introduction

Figure 5-12 shows the KVM interface after starting KVM.



Figure 5-12 KVM interface

As shown in Figure 5-13, the KVM interface consists of two parts: one is the menu and shortcut button, the other is the remote desktop window, that is, the server desktop information returned remotely.



Figure 5-13 Composition of KVM interface

5.2.6 Remote control shortcut operation

Stop KVM	Stop KVM
O CD Image: Browse File (0 KB) Start Media	On CD image, usually used for remote installation of operating system
🛕 Zoom 100 % 🖵 🙂	Host displays unlocking and server on / off



5.2.7 SOL introduction

Click activate Java SOL under the page shown in Figure 5-14 to open the interface shown in Figure

Gooxi 国鑫		
Host Online	14/14/4 6 6 01	
Quick Link 🔻	KVM & SOL KVM & SOL	
🖶 Dashboard	KVM	
🚳 Sensor		
System Inventory	📥 Launch KVM	
» FRU Information		
Logs & Reports >	Serial Over LAN	
Settings		
Remote Control	± Activate	
Image Redirection		
🗲 Maintenance		
🗭 Sign out		

Figure 5-14 Enable Java SOL

- 1. Click activate to display the SOL interface as shown in Figure 5-15.
- 2. Press Enter to activate the screen.

BIOS Information		Choose the system default
BIOS Vendor	American Megatrends	language
Core Version	5.14	
Compliancy	UEFI 2.7; PI 1.6	
Project Version	G2SER 0.01 ×64	
Build Date and Time	09/04/2020 10:53:34	
CPLD name	G2SERO	
CPLD version	01	
Build Date and Time	08/28/2020	
Access Level	Administrator	
CPU Information		↔+: Select Screen
Processor 0	@ 3000MHz 11	↑↓: Select Item
Processor 1	N/A	Enter: Select
		+/-: Change Opt.
Memory Information		F1: General Help
Total Memory	Total Memory: 64 GB	F2: Previous Values
	(DDR4)	F3: Optimized Defaults
		F4: Save & Exit
	[English]	ESC: Exit
System Date	[Fri 09/04/2020]	
System Time	[14:31:27]	

Figure 5-15 SOL Operation interface

Note: the operation function of SOL interface has only been tested for BIOS screen synchronization, and

other interfaces have not been tested. This is an operation demonstration without specific description.

5.3 Other ways to connect to IPMI

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

5.3.1 IPMI Drive

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

AST2500 supports the open IPMI driver of Linux kernel. Use the following command to load the IPMI driver: "modprobe ipmi_devintf" "modprobe ipmi_si" If you are using an older version of Linux kernel, you need to use "IPMI"_ "KCs" instead of "IPMI"_ "Si" component.

5.3.2 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 function of the system. We will provide other help documents about the detailed function operation manual of IPMI.