# iBMC介绍及日志分析定位

董梦星
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目录

KUMTAI 神州鲲泰
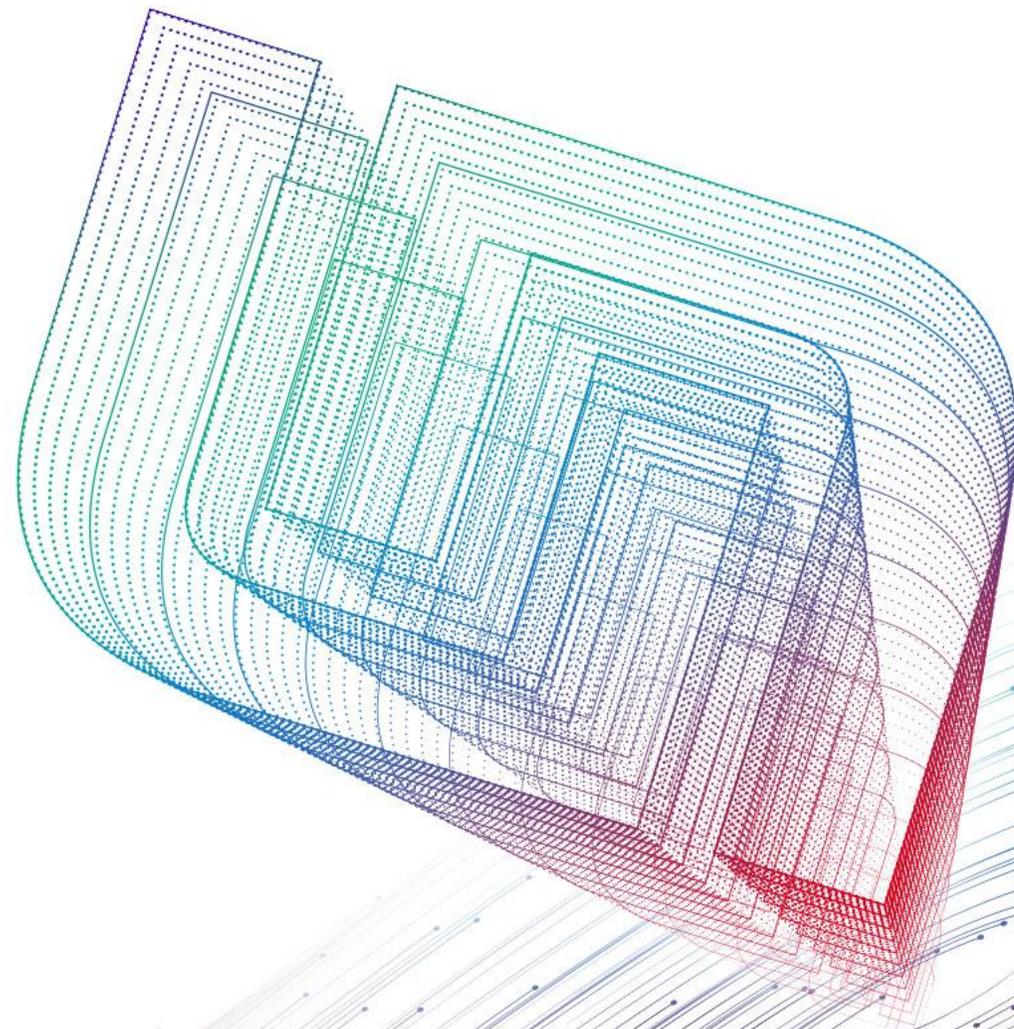
课程目标

- 了解iBMC的基本功能

- 掌握iBMC常用的操作

- 使用iBMC获取服务器基本信息

- 熟悉iBMC相关告警、解决告警问题

什么是BMC?

　　在介绍BMC之前需要了解一个概念，即平台管理（platform management）。平台管理表示的是一系列的监视和控制功能，操作的对象是系统硬件。比如通过监视系统的温度，电压，风扇、电源等等，并做相应的调节工作，以保证系统处于健康的状态。

　　同时平台管理还负责记录各种硬件的信息和日志记录，用于提示用户和后续问题的定位。以上的这些功能可以集成到一个控制器上来实现，这个控制器被称为基板管理控制器（Baseboard Manager Controller，简称**BMC**）。

　　BMC是一个独立的系统，由处理器、小系统、管理软件组成，可以独立工作。服务器才需要BMC，一般我们电脑是不带BMC的。BMC在系统中的位置如下。
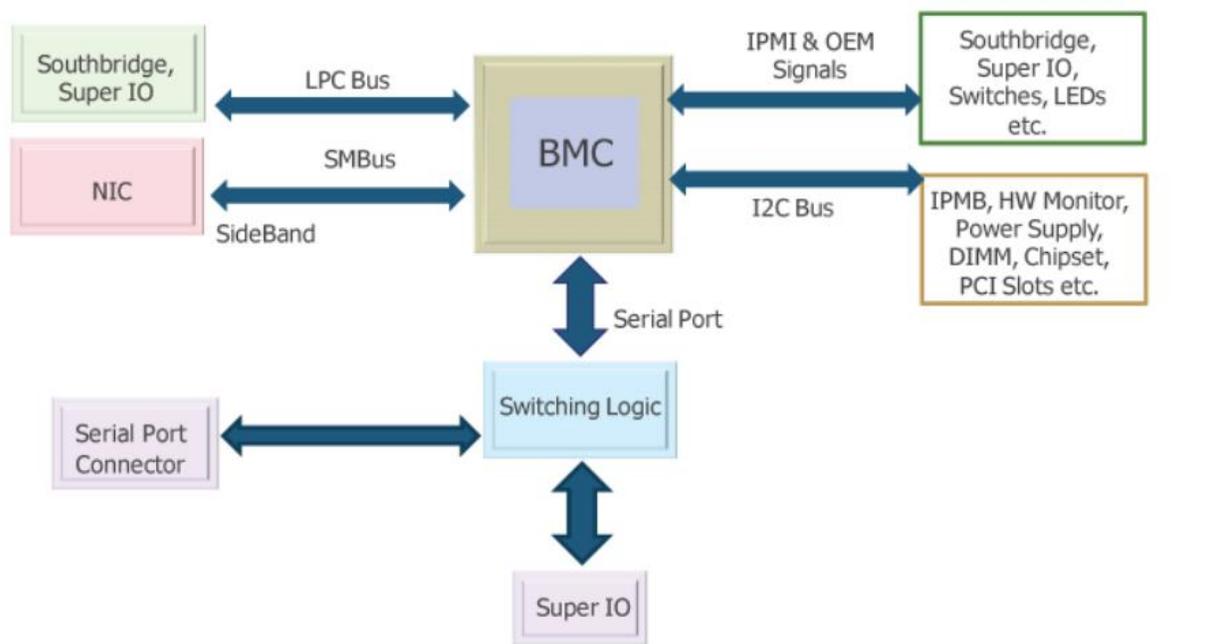
iBMC主要分2代，第一代是iBMC(CPU是华为自研芯片1710)，第二代CPU是1711。

设备管理

带外管理（out-of-band）：通过专门的网管通道实现对网络的管理，将网管数据和业务数据分开，为网管数据建立独立通道。在这个通道中，只传输管理数据，网管数据与业务数据分离，可以提高网管的效率和可靠性，也有利于提高网管数据的安全性。

带内管理（in-band）：网络的管理控制信息与用户数据信息使用统一物理通道进行传送。

带外管理口

1.iBMC WEB登录介绍

步骤1:打开兼容性列表中浏览器，
以输入IP地址，默认IP:192.168.2.10
步骤2:在弹出的"安全警报"对话
框中选择继续访问

你的连接不是专用连接

攻击者可能试图从 172.30.71.40 窃取你的信息(例如，密码、消息或信用卡)。

NET::ERR_CERT_AUTHORITY_INVALID

高级

返回

1.iBMC WEB登录介绍

步骤3:选择界面语言。输入用户名。默认用户名为"Admin输入密码。默认密码为"Admin@123"选择通过本地机器或用户域登录单击"登录",如果是第一次登录或者初始密码未修改,会进行安全提示

2.基本信息查看

3.iBMC日志搜集方法

登录iBMC Web界面，在快捷入口点击一键收集，收集完成后会生成dump_info.tar.gz压缩包
如下iBMC一键收集入口

3.iBMC日志搜集方法

通过SSH登陆iBMC命令模式，执行ipmcget -d diaginfo命令，收集完成后日志压缩包 dump_info.tar.gz 保存在 /tmp.   使用 SFTP、SCP 协议工具下载

```
iBMC:/->ipmcget -d diaginfo
Downloading...
100%
Download diagnose info to /tmp/ successfully.
iBMC:/->
```

鲲鹏服务器主板 iBMC (V561至V649) 用户指南 07

https://support.huawei.com/enterprise/zh/doc/EDOC1100157887?idPath=23710424%7C251364417%7C251364851%7C251168546

1. 基础知识

2.常用操作及日志解析

3.案例分享

4.从一键搜集的信息中获取服务器基本信息

1、获取服务器型号序列号

dump_info\RTOSDump\versioninfo\fruinfo.txt

```
FRU Device Description : Builtin FRU Device (ID 0, Mainboard)

Chassis Type           : Unspecified

Board Mfg. Date        : 2021/12/13 Mon 20:43:00

Board Manufacturer     : Yunke China

Board Product Name     : BC82AMDGK

Board Serial Number    : 029MUB10MC103323

Board Part Number      : 03029MUB

Board FRU File ID      : 3.03.00.23

Extend label           : Description=KunTai R522

                         IssueNumber=00

                         CLEICode=Null

                         BOM=Null

Product Manufacturer   : Yunke China

Product Name           : KunTai R522

Product Part Number    : 02312YTC

Product Serial Number  : KS001310N214000005

Product FRU File ID    : 3.03.00.23
```

4.从一键搜集的信息中获取服务器基本信息

2、获取iBMC的IP地址

dump_info\AppDump\NetConfig\net_info.txt

```
EthGroup ID            :  1
Net Mode               :  Manual
Net Type               :  Dedicated
IPv4 Information        :
IP Mode                :  static
IP Address             :  10.71.44.58
Subnet Mask            :  255.255.255.0
Default Gateway        :  10.71.44.1
Backup IP Address      :  192.168.2.100  (Deactivated)
Backup Subnet Mask     :  255.255.255.0  (Deactivated)
MAC Address            :  18:56:44:37:f1:d9
IPv6 Information        :
IPv6 Mode              :  static
IPv6 Address 1         :
Default Gateway IPv6    :
Link-Local Address     :  fe80::1a56:44ff:fe37:f1d9/64
VLAN Information        :
VLAN State             :  disabled
```

4.从一键搜集的信息中获取服务器基本信息

3、获取服务器固件版本信息

dump_info\RTOSDump\versioninfo\
app_revision.txt
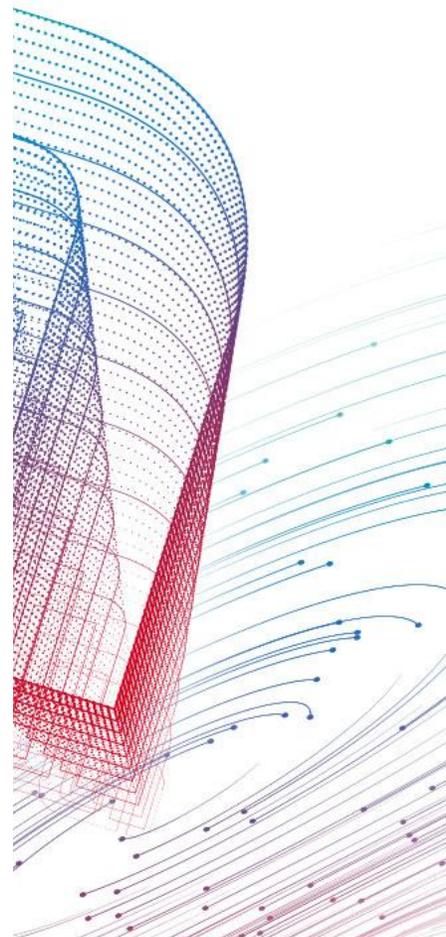
4.从一键搜集的信息中获取服务器基本信息

4、获取服务器单板信息dump_info\AppDump\card_manage\card_info

```
Pcie Card Info
Slot | Vender Id | Device Id | Sub Vender Id | Sub Device Id | Bus Number | Device Number | Function Number | Card Desc
1    | 0x19e5    | 0x1822    | 0x19e5        | 0xd136        | 0x03       | 0x00          | 0x00            | Hi1822 Family (4*25GE)
2    | 0x19e5    | 0x1822    | 0x19e5        | 0xd136        | 0x09       | 0x00          | 0x00            | Hi1822 Family (4*25GE)


HDD Backplane Info
Slot | BoardId   | Name      | Manufacturer              | PCB Ver   | Logic Ver | Type                       | Part Num
1    | 0x73      | BC11THBQ  | Huawei                    | .A        | 1.11      | 12*3.5 SAS/SATA, Expander  | 03024MSG


RAID Card Info
Slot | BoardId   | ProductName   | Manufacturer          | PCB Ver   | Logic Ver | Type          | Mode                     | Part Num
1    | 0x2a      | SR450C-M 2G   | Huawei                | .B        | 0.02      | LSI SAS3508   | RAID(0/1/10/5/50/6/60)   | 03024JMY


Riser Card Info
Slot | BoardId   | Name      | Manufacturer          | Type          | PartNum
1    | 0x94      | BC82PRUA  | Huawei                | Riser(X8*3)   | 03025VYK


Main board Info
BoardId   | Name          | PCB Ver   | Bom Id    | Location      | Device Name   | Part Number
0xb9      | Mainboard     | .A        | 0         | chassis       | Mainboard     | 02312NFF
```

4.从一键搜集的信息中获取服务器基本信息

5、获取服务器内存信息：dump_info\AppDump\CpuMem\mem_info
可以根据内存助手查询内存所在槽位：http://support.huawei.com/onlinetoolsweb/smca/

```
Memory000 , mainboard, DIMM000, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2E9FB, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory001 , mainboard, DIMM001, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory010 , mainboard, DIMM010, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2E87A, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory011 , mainboard, DIMM011, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory020 , mainboard, DIMM020, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C30219, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory021 , mainboard, DIMM021, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory030 , mainboard, DIMM030, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2EA00, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory031 , mainboard, DIMM031, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory040 , mainboard, DIMM040, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C30A0F, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory041 , mainboard, DIMM041, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory050 , mainboard, DIMM050, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory051 , mainboard, DIMM051, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory060 , mainboard, DIMM060, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory061 , mainboard, DIMM061, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory070 , mainboard, DIMM070, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory071 , mainboard, DIMM071, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory100 , mainboard, DIMM100, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2EAF4, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory101 , mainboard, DIMM101, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory110 , mainboard, DIMM110, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2E872, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory111 , mainboard, DIMM111, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory120 , mainboard, DIMM120, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2EA54, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory121 , mainboard, DIMM121, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory130 , mainboard, DIMM130, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2EA45, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory131 , mainboard, DIMM131, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory140 , mainboard, DIMM140, Micron,   32768 MB, Unknown,  Unknown, DDR4, 0x23C2EA58, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, 36ASF4G7
Memory141 , mainboard, DIMM141, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory150 , mainboard, DIMM150, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory151 , mainboard, DIMM151, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory160 , mainboard, DIMM160, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory161 , mainboard, DIMM161, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory170 , mainboard, DIMM170, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
Memory171 , mainboard, DIMM171, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A
```

4.从一键搜集的信息中获取服务器基本信息

6、获取cpu信息：dump_info\AppDump\CpuMem\CPU_info

```
slot(col 1), presence(col 2),version(col 3), processor ID(col 4), core count(col 5), thread count(col 6), memory technology(col 7), L1 cache(col 8), L2 cache(col 9), L3 cache(col 10),
Cpu1 , present , Kunpeng 920-4826, 10-D0-1F-48-00-00-00-00, 48 cores, 48 threads, 64-bit Capable| Multi-Core| Execute Protection| Enhanced Virtualization| Power/Performance Control, 6
Cpu2 , present , Kunpeng 920-4826, 10-D0-1F-48-00-00-00-00, 48 cores, 48 threads, 64-bit Capable| Multi-Core| Execute Protection| Enhanced Virtualization| Power/Performance Control, 6
```

7、获取风扇信息：dump_info\AppDump\cooling_app\ fan_info.txt

Fan	Presence	PWM	Speed(RPM)	Maximum rpm range	Model	PartNum	DeviceName	Location
Fan Module1	present	44%	5850	15000	02311VSF 8038+	02311VSF	Fan1	chassis
Fan Module2	present	44%	5850	15000	02311VSF 8038+	02311VSF	Fan2	chassis
Fan Module3	present	44%	5925	15000	02311VSF 8038+	02311VSF	Fan3	chassis
Fan Module4	present	44%	5850	15000	02311VSF 8038+	02311VSF	Fan4	chassis

4.从一键搜集的信息中获取服务器基本信息

8、获取传感器信息：dump_info\AppDump\sensor_alarm\sensor_info.txt

sensor id	sensor name	value	unit	status	lnr	lc	lnc	unc	uc	unr
0x1	Inlet Temp	21.000	degrees C	ok	na	na	na	46.000	48.000	na
0x2	Outlet Temp	35.000	degrees C	ok	na	na	na	75.000	na	na
0x4	CPU1 Core Rem	44.000	degrees C	ok	na	na	na	105.000	na	na
0x5	CPU2 Core Rem	46.000	degrees C	ok	na	na	na	105.000	na	na
0xe	CPU1 MEM Temp	36.000	degrees C	ok	na	na	na	95.000	na	na
0xf	CPU2 MEM Temp	41.000	degrees C	ok	na	na	na	95.000	na	na
0x25	Power	312.000	Watts	ok	na	na	na	na	na	na
0x3	Disks Temp	36.000	degrees C	ok	na	na	na	na	na	na
0x6	NIC OM Temp	na	degrees C	na	na	na	na	75.000	na	na
0x7	RAID Temp	70.000	degrees C	ok	na	na	na	105.000	na	na
0x8	Raid BBU Temp	23.000	degrees C	ok	na	na	na	60.000	na	na
0x9	RearDisk1 Temp	27.000	degrees C	ok	na	na	na	53.000	na	na
0xa	NIC1 Temp	38.000	degrees C	ok	na	na	na	115.000	na	na
0x21	Power1	312.000	Watts	ok	na	na	na	na	na	na
0xb	PS1 VIN	230.000	Volts	ok	na	na	na	na	na	na
0xc	PS1 Inlet Temp	37.000	degrees C	ok	na	na	na	na	na	na
0x22	Power2	0.000	Watts	ok	na	na	na	na	na	na
0xd	PS2 VIN	0.000	Volts	ok	na	na	na	na	na	na
0x10	PS2 Inlet Temp	33.000	degrees C	ok	na	na	na	na	na	na
0x11	SYS 12V_2	12.120	Volts	ok	na	10.800	na	na	13.200	na
0x13	SYS 12V_3	12.120	Volts	ok	na	10.800	na	na	13.200	na
0x14	SYS 12V_4	12.180	Volts	ok	na	10.800	na	na	13.200	na
0x15	SYS 12V_5	12.060	Volts	ok	na	10.800	na	na	13.200	na
0x16	SYS 12V_6	12.180	Volts	ok	na	10.800	na	na	13.200	na
0x17	CPU1 VDDQ_AB	1.230	Volts	ok	na	1.080	na	na	1.320	na
0x18	CPU1 VDDQ_CD	1.230	Volts	ok	na	1.080	na	na	1.320	na
0x23	CPU2 VDDQ_AB	1.230	Volts	ok	na	1.080	na	na	1.320	na
0x24	CPU2 VDDQ_CD	1.230	Volts	ok	na	1.080	na	na	1.320	na
0x26	CPU1 VDDQ Temp	29.000	degrees C	ok	na	na	na	120.000	na	na
0x27	CPU2 VDDQ Temp	31.000	degrees C	ok	na	na	na	120.000	na	na
0x28	CPU1 VRD Temp	33.000	degrees C	ok	na	na	na	120.000	na	na
0x29	CPU2 VRD Temp	35.000	degrees C	ok	na	na	na	120.000	na	na
0x2a	CPU1 VDDAVS	0.900	Volts	ok	na	0.730	na	na	1.050	na
0x2b	CPU2 VDDAVS	0.910	Volts	ok	na	0.730	na	na	1.050	na
0x2c	CPU1 HVCC	1.190	Volts	ok	na	1.080	na	na	1.320	na
0x2d	CPU2 HVCC	1.190	Volts	ok	na	1.080	na	na	1.320	na
0x2e	CPU1 N_VDDAVS	0.900	Volts	ok	na	0.770	na	na	0.990	na
0x2f	CPU2 N_VDDAVS	0.900	Volts	ok	na	0.770	na	na	0.990	na
0x30	CPU1 VDDFIX	0.790	Volts	ok	na	0.720	na	na	0.880	na
0x31	CPU2 VDDFIX	0.790	Volts	ok	na	0.720	na	na	0.880	na
0x19	FAN1 Speed	4200.000	RPM	ok	na	na	na	na	na	na
0x1b	FAN2 Speed	4125.000	RPM	ok	na	na	na	na	na	na
0x1d	FAN3 Speed	4125.000	RPM	ok	na	na	na	na	na	na

例：从表格中可以看出当传感器获取到的值超过门限值时，服务器则会下发告警信息

lnr：紧急低门限　　　　lc：严重低门限　　　　lnc：一般低门限
unc：一般高门限　　　　uc：严重高门限　　　　unr：紧急高门限

4.从一键搜集的信息中获取服务器基本信息

9、获取硬盘信息：dump_info\AppDump\StorageMgnt\RAID_Controller_Info.txt

```
Logical Drive Information
-----------------------------
Target ID                        : 0
Name                             : N/A
Type                             : RAID5
State                            : Optimal
Default Read Policy              : Read Ahead
Default Write Policy             : Write Back with BBU
Default Cache Policy             : Direct IO
Current Read Policy              : Read Ahead
Current Write Policy             : Write Through
Current Cache Policy             : Direct IO
Access Policy                    : Read Write
Span depth                       : 1
Number of drives per span        : 4
Strip Size                       : 256 KB
Total Size                       : 4.909 TB
Disk Cache Policy                : Disk's Default
Init State                       : No Init
Consistency Checking             : No
BGI Enabled                      : Yes
Bootable                         : Yes
Used for Secondary Cache         : No
SSCD Caching Enable              : No
PD participating in LD (ID#)      : 0,1,2,3
```

```
===============================
RAID Controller #0 Information
===============================
Controller Name                  : SAS3508
Controller Type                  : LSI SAS3508
Component Name                   : RAID Card1
Support Out-of-Band Management   : Yes
Controller Mode                  : RAID
Controller Health                : Normal
Firmware Version                 : 5.060.00-2262
NVDATA Version                   : 5.0600.03-0013
Memory Size                      : 2048 MB
Device Interface                 : SAS_12G
SAS Address                      : 5e0008475e209000
Physical Drives Information
-----------------------------
ID                               : 0
Device Name                      : Disk0
Manufacturer                     : SEAGATE
Serial Number                    : WBN2EFY9
Model                            : ST1800MM0129
Firmware Version                 : C004
Health Status                    : Normal
Firmware State                   : ONLINE
Power State                      : Spun Up
Media Type                       : HDD
Interface Type                   : SAS
Capable Speed                    : 12.0 Gbps
Negotiated Speed                 : 12.0 Gbps
Drive Temperature                : 30
Capacity                         : 1.636 TB
```

4.从一键搜集的信息中获取服务器基本信息

11、获取服务器系统功耗信息： 在dump_info\OptPme\pram中，查看ps_web_view.dat

4.从一键搜集的信息中获取服务器基本信息

10、获取服务器配置汇总信息：dump_info\RTOSDump\versioninfo\server_config.txt

```
-----------------------------------------------------------------------Cpu info-----------------------------------------------------------------------
slot(col 1), presence(col 2),version(col 3), processor ID(col 4), core count(col 5), thread count(col 6), memory technology(col 7), L1 cache(col 8), L2 cache(col 9), L3 cache(col 10), part number(col 11), device name(col 12), lo
Cpu1 , present , Kunpeng 920-4826, 10-D0-1F-48-00-00-00-00, 48 cores, 48 threads, 64-bit Capable| Multi-Core| Execute Protection| Enhanced Virtualization| Power/Performance Control, 6144 K, 24576 K, 49152 K, N/A, CPU1, mainboard
Cpu2 , present , Kunpeng 920-4826, 10-D0-1F-48-00-00-00-00, 48 cores, 48 threads, 64-bit Capable| Multi-Core| Execute Protection| Enhanced Virtualization| Power/Performance Control, 6144 K, 24576 K, 49152 K, N/A, CPU2, mainboard
-----------------------------------------------------------------------Memory info-----------------------------------------------------------------------
slot(col 1), dimm location(col 2), dimm name(col 3),manufacturer(col 4),    size(col 5), speed(col 6), current speed(col 7), memory type(col 8), SN(col 9),    minimum voltage(col 10), rank(col 11), bit width(col 12), memory t
Memory000 , mainboard, DIMM000, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC7FF, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory001 , mainboard, DIMM001, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE916, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory010 , mainboard, DIMM010, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE61B, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory011 , mainboard, DIMM011, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE8CA, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory020 , mainboard, DIMM020, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE8C9, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory021 , mainboard, DIMM021, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC65B, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory030 , mainboard, DIMM030, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC669, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory031 , mainboard, DIMM031, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC600, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory040 , mainboard, DIMM040, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC846, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory041 , mainboard, DIMM041, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC658, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory050 , mainboard, DIMM050, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE9E9, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory051 , mainboard, DIMM051, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC7FC, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory060 , mainboard, DIMM060, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE67E, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory061 , mainboard, DIMM061, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC7A6, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory070 , mainboard, DIMM070, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE712, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory071 , mainboard, DIMM071, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CCB82, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory100 , mainboard, DIMM100, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC773, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory101 , mainboard, DIMM101, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC6F2, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory110 , mainboard, DIMM110, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CCB81, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory111 , mainboard, DIMM111, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE491, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory120 , mainboard, DIMM120, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE3B9, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory121 , mainboard, DIMM121, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE61E, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory130 , mainboard, DIMM130, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC770, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory131 , mainboard, DIMM131, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CC7FD, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory140 , mainboard, DIMM140, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE61C, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory141 , mainboard, DIMM141, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CCB23, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory150 , mainboard, DIMM150, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, Critical
Memory151 , mainboard, DIMM151, Unknown, Unknown, Unknown,  Unknown, Unknown, NO DIMM, Unknown, Unknown, Unknown, Unknown, Unknown| Synchronous, Unknown, NO DIMM, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, Critical
Memory160 , mainboard, DIMM160, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE9E6, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory161 , mainboard, DIMM161, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE9ED, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory170 , mainboard, DIMM170, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CDD1F, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
Memory171 , mainboard, DIMM171, Samsung,  16384 MB, Unknown,  2666 MHz, DDR4, 0x125CE0B1, 1200 mV, 2 rank, 72 bit, Synchronous| Registered (Buffered), Unknown, M393A2K43CB2-CVF, Unknown, N/A, 0.00, 0.00, Unknown, Unknown, OK
-----------------------------------------------------------------------Card info-----------------------------------------------------------------------
Pcie Card Info
Slot | Vender Id  | Device Id  | Sub Vender Id | Sub Device Id | Bus Number | Device Number | Function Number | Card Desc            | Board Id  | PCB Version | CPLD Version | Sub Card Bom Id
1    | 0x19e5     | 0x1822     | 0x19e5        | 0xd136        | 0x03       | 0x00          | 0x00            | Hi1822 SP580 (4*25GE) | 0x00da    | .A          | N/A          | N/A

HDD Backplane Info
Slot | BoardId | Name     | Manufacturer | PCB Ver | Logic Ver | Type                    | Part Num
1    | 0x48    | BC11THBS | Huawei       | .A      | 1.07      | 8*2.5 SAS/SATA + 12*2.5 NVME | 03025EUL

RAID Card Info
Slot | BoardId | ProductName | Manufacturer | PCB Ver | Logic Ver | Type         | Mode         | Part Num
1    | 0xa     | SR150-M     | Huawei       | .C      | N/A       | LSI SAS3408  | RAID(0/1/10) | 03024JNF
```

5.iBMC日志分析

1.常见的需要分析的事件记录的文件主要集中在：
dump_info\LogDump
dump_info\OSDump
dump_info\AppDump\sensor_alarm\sel.tar

2.系统事件日志（SEL）（dump_info\AppDump\sensor_alarm\sel.tar）

Sel 日志主要记录的是服务器出现的硬件告警以及服务器的告警时间记录。

sel日志告警处理指南参考《鲲鹏服务器主板 iBMC 告警处理》：
https://support.huawei.com/enterprise/zh/doc/EDOC1100157888?idPath=23710424%7C251364417%7C251364851%7C251168546
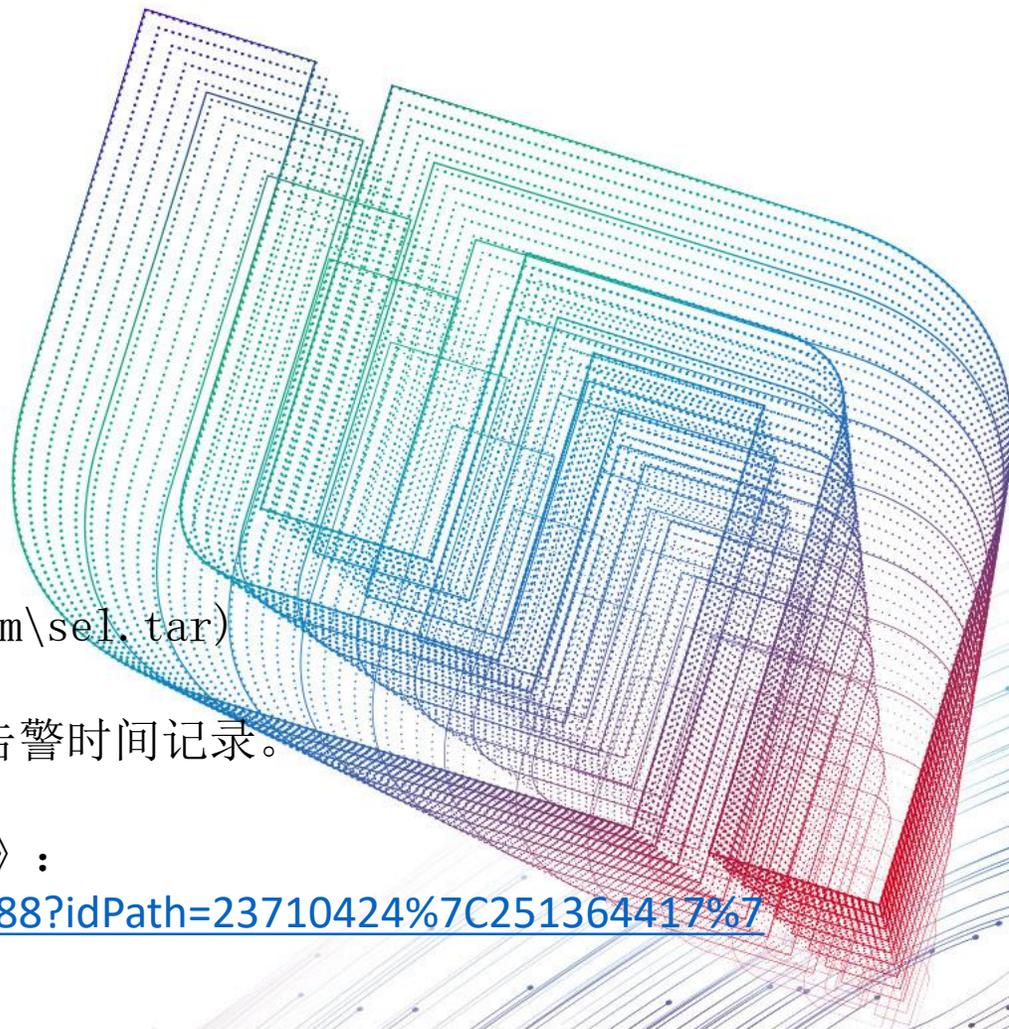
5.iBMC日志分析—sel日志

根据sel日志判断硬件是否有故障:
系统事件日志（SEL）(dump_info\AppDump\sensor_alarm\sel.tar)
sel日志主要记录的是服务器出现的硬件告警以及服务器的告警时间记录。

```
1    eo_sel.csvNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNULNUL
2    "45","Normal","Memory","DIMM120 health status degradation detected by PFAE (SN:45310BB2).","2023-05-16 17:01:37","Deasserted","0x0100002E","N/A"
3    "44","Normal","Memory","DIMM120 memory correctable ECC (SN:45310BB2).","2023-05-16 17:01:31","Deasserted","0x0100000E","N/A"
4    "43","Normal","System","The host was restarted due to unrecognized reason.","2023-05-16 17:01:30","Asserted","0x2C00000F",""
5    "42","Critical","Memory","DIMM120 triggered an uncorrectable error, (SN:45310BB2).","2023-05-16 17:01:30","Deasserted","0x01000018","N/A"
6    "41","Normal","Mainboard","NoSensor: OEM SEL Record.","2023-05-16 17:00:59","Asserted","0xFF7FFFFF","(null)."
7    "40","Normal","Mainboard","NoSensor: OEM SEL Record.","2023-05-16 17:00:59","Asserted","0xFF7FFFFF","(null)."
8    "39","Critical","Memory","DIMM120 triggered an uncorrectable error, (SN:45310BB2).","2023-05-16 04:39:32","Asserted","0x01000017","1. Power off the server and check whether there i
9    "38","Normal","Memory","DIMM120 memory correctable ECC (SN:45310BB2).","2023-05-16 01:30:32","Asserted","0x0100000D",""
10   "37","Normal","Memory","DIMM120 health status degradation detected by PFAE (SN:45310BB2).","2023-05-16 01:30:29","Asserted","0x0100002D","1. Perform maintenance according to the ma
11   "36","Normal","Memory","DIMM120 health status degradation detected by PFAE (SN:45310BB2).","2023-05-15 22:57:01","Deasserted","0x0100002E","N/A"
12   "35","Normal","Memory","DIMM120 memory correctable ECC (SN:45310BB2).","2023-05-15 22:56:59","Deasserted","0x0100000E","N/A"
13   "34","Normal","System","The host was restarted due to unrecognized reason.","2023-05-15 22:56:54","Asserted","0x2C00000F",""
14   "33","Critical","Memory","DIMM120 triggered an uncorrectable error, (SN:45310BB2).","2023-05-15 22:56:54","Deasserted","0x01000018","N/A"
15   "32","Critical","Memory","DIMM120 triggered an uncorrectable error, (SN:45310BB2).","2023-05-15 22:56:25","Asserted","0x01000017","1. Power off the server and check whether there i
16   "31","Normal","Mainboard","NoSensor: OEM SEL Record.","2023-05-15 22:56:22","Asserted","0xFF7FFFFF","(null)."
17   "30","Normal","Mainboard","NoSensor: OEM SEL Record.","2023-05-15 22:56:22","Asserted","0xFF7FFFFF","(null)."
18   "29","Normal","Memory","DIMM120 memory correctable ECC (SN:45310BB2).","2023-05-13 14:29:17","Asserted","0x0100000D",""
19   "28","Normal","Memory","DIMM120 health status degradation detected by PFAE (SN:45310BB2).","2023-05-13 14:29:16","Asserted","0x0100002D","1. Perform maintenance according to the ma
20   "27","Normal","Port","PCIe Card 6 (SP333) Port 1 disconnected.","2023-03-29 09:40:00","Deasserted","0x29000002","N/A"
21   "26","Normal","Port","PCIe Card 6 (SP333) Port 1 disconnected.","2023-03-29 09:36:51","Asserted","0x29000001","1. Remove and reconnect the network cable.2. Check whether the networ
22   "25","Normal","Port","PCIe Card 3 (SP333) Port 1 disconnected.","2023-03-29 09:31:03","Deasserted","0x29000002","N/A"
23   "24","Normal","Port","PCIe Card 3 (SP333) Port 1 disconnected.","2023-03-29 09:27:49","Asserted","0x29000001","1. Remove and reconnect the network cable.2. Check whether the networ
24   "23","Normal","BMC","iBMC is restarted after AC power supply is restored.","2023-03-29 08:09:53","Asserted","0x1A00000D",""
```

5.iBMC日志分析—sel日志

根据sel日志判断硬件是否有故障:
系统事件日志（SEL）(dump_info\AppDump\sensor_alarm\sel.tar)

关于sel 日志里面记录到各类重启的动作汇总参考如下：

事件描述	iBMC告警优化后的新描述	iBMC传感器事件描述		此类事件的处理说明
主机系统因未知原因重启。	The host restarts due to unrecognized reason.	System Restart [Unknown][IPMB]		1、检查系统重启的时候是否存在硬件告警（CPU、内存、硬盘、PCIE卡等），通过SEL、fdm_log、maintence_log来确认 2、收集OS日志，检查是否业务软件故障/OS异常等触发的OS自发性复位，同时检查是否操作人员直接发命令让OS复位的。
已通过命令重启主机系统。	The host is restarted by a command.	System Restart [Chassis control][LOCAL]	BMC控制系统启动（WEB/KVM页面按钮或ipmcset命令）	这个一定是有命令/操作触发BMC执行的重启动作，所以检查操作日志，看命令来自web还是网络还是HMM板即可确认。
		System Restart [Chassis control][SYS]	通过系统发ipmi命令给BMC控制系统启动	
		System Restart [Chassis control][LAN]	通过网络发ipmi命令给BMC控制系统启动	
		System Restart [Chassis control][IPMB ETH]	通过SMM发命令控制系统启动	
BMC控制主机系统重启。	The host was restarted by the BMC.	System Restart [OEM][LOCAL]	fdm故障诊断等导致BMC自己触发系统重启	这条命令使BMC自己触发系统重启。如：BIOS在3分钟内没有期待启动成功，IERR 带外收集失败等都会触发系统重启，CH220V3升级8795固件等
已通过电源按钮重启主机系统。	The host is restarted by pressing the power button.	System Restart [Power button][LOCAL]		这个一定是物理上按了机器面板的电源按键（非物理接触的，只可能是命令，不会记录此日志）。同时，操作日志也会记录
看门狗超时导致主机系统重启。	The host is restarted due to the watchdog timeout.	System Restart [Watchdog expiration][SYS]		此为上层软件没有及时喂看门狗导致的复位，需检查OS日志，看业务是否故障、OS卡死
	The host is restarted after being			机器通电后自动开机

5.iBMC日志分析—操作日志

操作日志分析（dump_info\LogDump\operate_log）

记录BMC以及BIOS下所做的更改动作，可以用来配合SEL日志分析出问题时的场景。如：异常下电是否人为操作；BIOS下作的设置何时操作的等等。

常见的操作日志分为几种打印，具体如下：

IPMI,N/A@HOST,BMC,Set XXXXXX successfully   服务器重启自检的提示

IPMI,bmcUSER@bmcip,BMC,Set XXXX successfully   使用ipmitool等工具触发的动作

KVM, bmcUSER@bmcip,KVM,XXXXX   通过KVM远程控制台访问

WEB, bmcUSER@bmcip,User,XXXXX   通过BMC web界面访问

CLI, bmcUSER@bmcip:49680,CLI,root(10.44.88.148:49680) xxxx successfully   通过BMC CLI界面访问,

SNMP, bmcUSER@bmcip,sensor_alarm,Set SNMP xxx successfully   通过snmp协议访问BMC
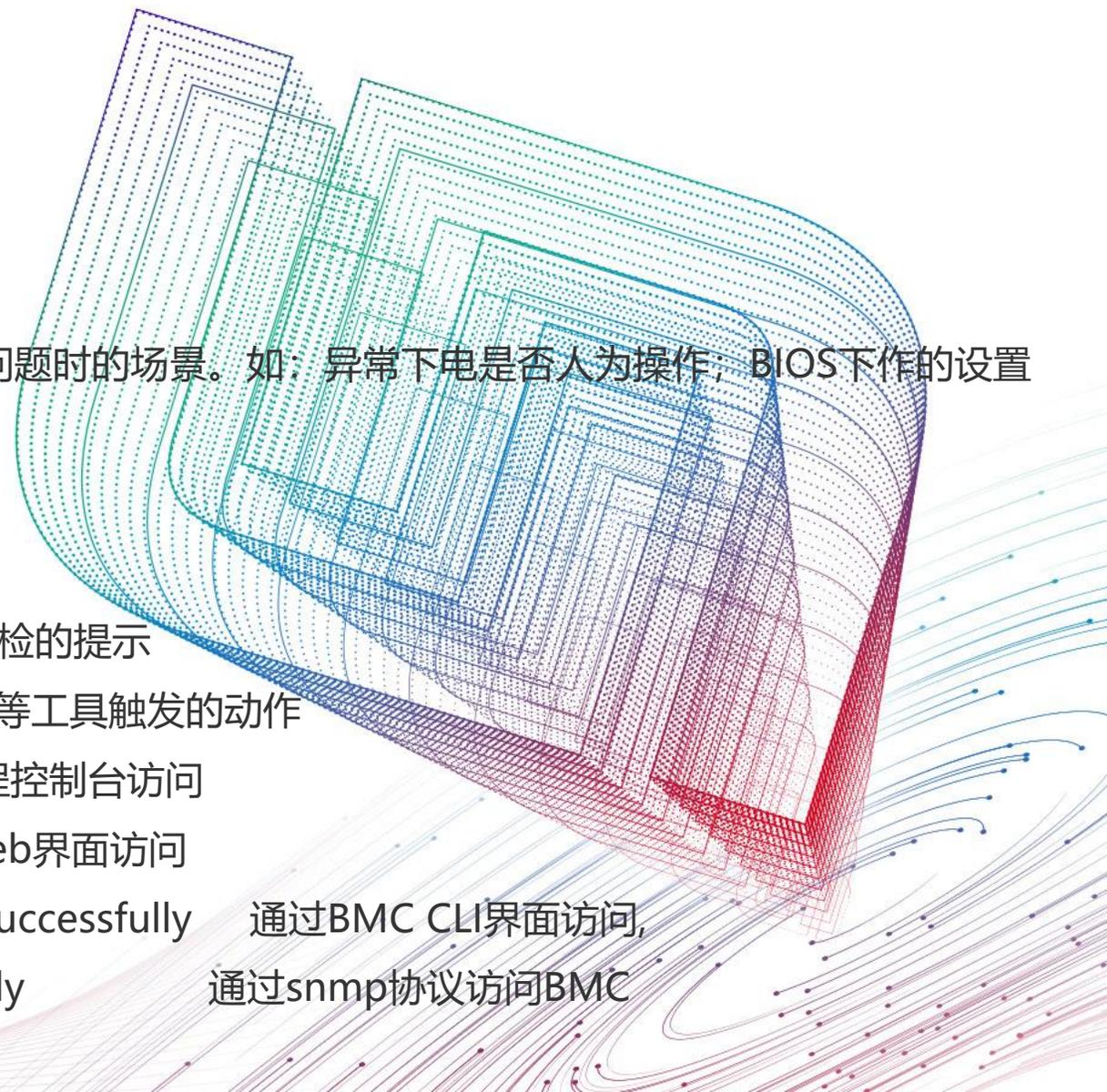
5.iBMC日志分析—维护日志

维护日志分析（dump_info\LogDump\maintenance_log）

重点关注：上下电、电源、raid。维护日志有一般主板相关的电流电压告警，可以用于定位异常掉电类问题，日志中一般有电源模块的告警(在非上下电出现)，在告警出现的时候，伴随系统异常的上下电，一般是主板或者电源模块异常。

维护日志也会记录服务器的硬件异常信息

```
2023-05-16 09:54:44 INFO : SVR-0029020,BIOS, mainboard DIMM120 Failure detected by Memory_CE_Bucket.
2023-05-16 10:12:46 WARN : SVR-0029017,BIOS, Memory, mainboard DIMM120 CE overflow, rank num is 0.
2023-05-16 10:12:46 INFO : SVR-0029020,BIOS, mainboard DIMM120 Failure detected by Memory_CE_Bucket.
2023-05-16 10:13:46 WARN : SVR-0029017,BIOS, Memory, mainboard DIMM120 CE overflow, rank num is 0.
2023-05-16 10:13:46 INFO : SVR-0029020,BIOS, mainboard DIMM120 Failure detected by Memory_CE_Bucket.
2023-05-16 10:49:13 WARN : SVR-0029017,BIOS, Memory, mainboard DIMM120 CE overflow, rank num is 0.
2023-05-16 10:49:13 INFO : SVR-0029020,BIOS, mainboard DIMM120 Failure detected by Memory_CE_Bucket.
2023-05-16 10:50:13 WARN : SVR-0029017,BIOS, Memory, mainboard DIMM120 CE overflow, rank num is 0.
2023-05-16 10:50:13 INFO : SVR-0029020,BIOS, mainboard DIMM120 Failure detected by Memory_CE_Bucket.
```

```
2020-04-23 11:51:09 ERROR: SVR-0080014,Physical drive Disk7 state is UNCONFIGURED BAD - Asserted
2020-04-23 11:51:11 INFO : SVR-0000000,Start to diagnose physical drive Disk7.
2020-04-23 11:51:23 ERROR: SVR-0080004,Physical drive Disk7 failed to respond scsi command.
2020-04-23 11:51:23 ERROR: SVR-0080004,[OOB] Physical drive Disk7 is fault - Asserted
2020-04-23 11:51:23 INFO : SVR-0000000,End to diagnose physical drive Disk7.
2020-04-23 11:52:34 INFO : SVR-0000000,[OOB] Physical drive Disk7 capacity identification inconformity(less than 5 GB) - Asserted
```

```
2020-04-07 16:42:47 WARN : SVR-0000000,CPU 1 VDDAVS voltage (0.950 V) exceeds the overvoltage threshold (0.950 V). 0x00000067 1. Exchange the positions of the alarmed
2020-04-07 16:42:47 WARN : SVR-0000000,CPU 2 VDDAVS voltage (0.950 V) exceeds the overvoltage threshold (0.950 V). 0x00000067 1. Exchange the positions of the alarmed
2020-04-07 16:43:05 WARN : SVR-0000000,CPU 1 VDDAVS voltage (0.920 V) exceeds the overvoltage threshold (0.950 V). 0x00000068 1. Exchange the positions of the alarmed
2020-04-07 16:43:05 WARN : SVR-0000000,CPU 2 VDDAVS voltage (0.920 V) exceeds the overvoltage threshold (0.950 V). 0x00000068 1. Exchange the positions of the alarmed
2020-04-07 16:45:33 ERROR: SVR-0000000,Unrecoverable errors are detected on PCIe card 1 (SP580). Error code: 3. 0x08000061 1. Restart the OS and check whether the fau
```

5.iBMC日志分析—FDM日志

FDM 故障诊断日志分析（dump_info\LogDump）

名称	修改日期	类型	大小
storage	2020/1/15 7:11	文件夹	
agentless_driver_log	2020/4/13 11:44	文件	1 KB
app_debug_log_all	2020/4/13 11:44	文件	53 KB
app_debug_log_all.1.gz	2020/4/13 11:44	WinRAR archive	10 KB
app_debug_log_all.2.gz	2020/4/13 11:44	WinRAR archive	10 KB
app_debug_log_all.3.gz	2020/4/13 11:44	WinRAR archive	10 KB
fdm.bin	2020/4/13 11:44	BIN 文件	127 KB
fdm_log	2020/4/13 11:44	文件	183 KB
fdm_log.tar.gz	2020/4/13 11:44	WinRAR archive	15 KB
fdm_output	2020/4/13 11:44	文件	165 KB

fdm日志文件功能说明：

1. fdm_log文件，记录是的iBMC收到的错误的发生时间、收集来源、原始错误信息及部分寄存器的解析信息（如错误的级别）

2. fdm_output一般记录的是诊断结果及一些辅助定位的信息，FDM产生的产生的告警时都会有fdm_output中有记录的
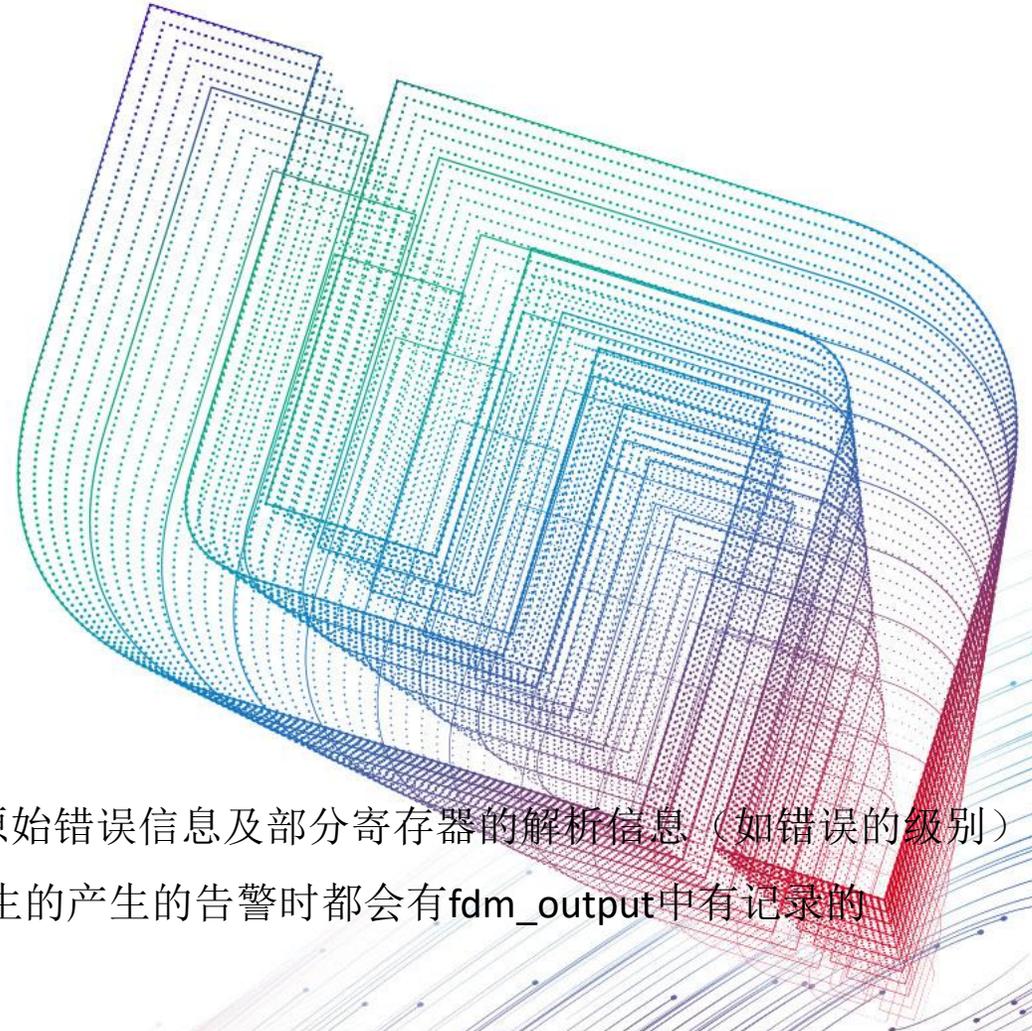
5.iBMC日志分析—FDM日志

FDM故障诊断日志（dump_info\LogDump\fdmlog） - 故障举例：DIMM

```
[Hardware Error Lo    ...   273    Time: 2000-01-05 17:47:44 GMT
Collect: IMU(INT)        Serial Number: 1      Collect Integrity: Validate(0X00)
CPU: 0(Socket: CPU1)       DIE: TotemB      Module: DDRC1
------------------------- ARM ARER REPORTING ERROR -------------------------
Error Type:At least one error was corrected.(CE)
SERRCODE: 0X0C (Re...
IERRCODE: 0X0F (HA...ess correct error.)
Arer_Status: Bit(31)ADDRValid      Bit(27)Over...
Arer_Address: 0X4080000000 [DIMM020](Rank 0, BankGroup 1, Bank 0, Column 0, Row 8192)
------------------------- ARM ARER DDRC REGISTER DUMP -------------------------
BaseAddr: 0X0000000094D30000
ERR_FR: 0X0000000000000AA2
ERR_CTL: 0X0000000000000515
ERR_STATUS: 0X00000000CA000F0C
ERR_ADDR: 0X0000004080000000
ERR_MISC0: 0X0000000000000000
ERR_MISC1: 0X0000000000000000
```

内存所挂CPU
内存控制器
故障级别
海思给出的错误码解释
故障内存的丝印信息
寄存器原始数据

5.iBMC日志分析—串口日志

日志文件分析 — systemcom以及服务器最后3屏截图（dump_info\OSDump）

串口日志主要记录服务器重启自检的信息以及服务器关机前的记录信息。

最后3屏截图主要记录服务器关机或者重启前的3次记录

img1.jpeg
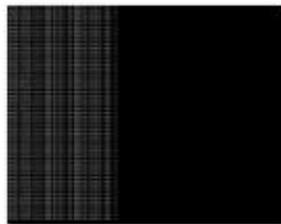
img2.jpeg

img3.jpeg
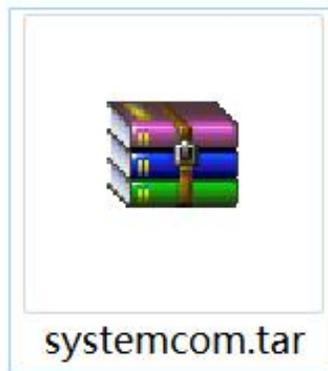
systemcom.tar

1、串口日志打印含义
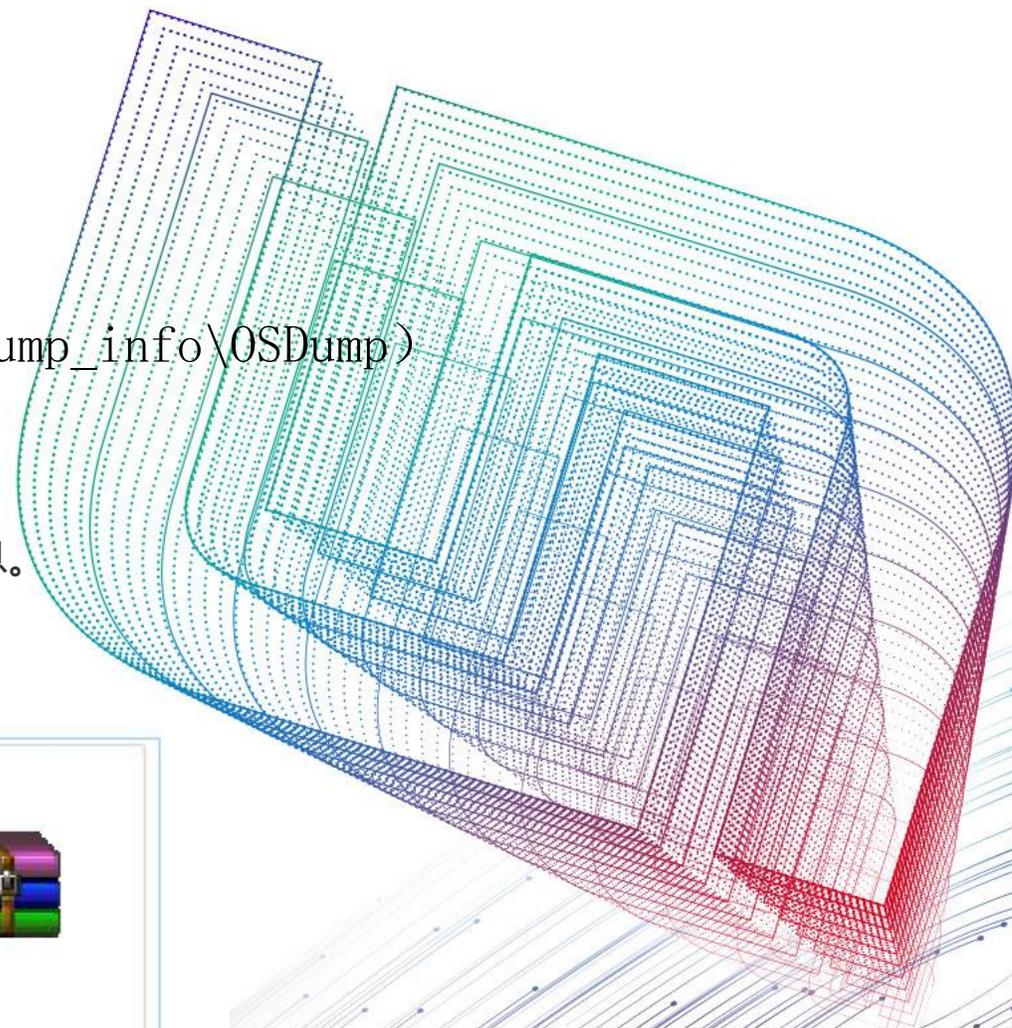
```
...n_2209_V2a]BIOS串口自检打印的为值:0x0 (114 bits)
...ig: 1          //BIOS串口打印状态，为1则以下信息可以打印出来，为0则不会输出
...IOS Log @ 2019.8.24 07:38:22 =~=~=~=~=~=~=~=~=~=~=~=    //从RTC获取的时间，协助定位用
Line 6: start Main Chip TB Mbist                    //CPU0 TB自检
Line 9: diePgInfo.goodClusterNum=0x8    //PG信息：正常64核芯片分为TA/TB各为8个cluster，现在做每个cluster的core0和core1的自检
Line 26: start Main Chip TA Mbist                   // CPU0 TA自检
Line 75: HydraInit start                            //两个CPU之间跨片HCCS初始化
Line 85: Macro 3 Download Firmware Success!!    //各hilink初始化
Line 159: [LPC] SMMU Init......[LPC] Done                //两个CPU之间跨片初始化结束
Line 161: #########print efuse info about PLL and PG for socket0 #########    //获取CPU1内部EFUSE信息
Line 170: #########print efuse info about PLL and PG for socket1 #########    //取CPU2内部获取EFUSE信息
Line 173: Socket 1 Support 64 Core                              //CPU能力，支持多少个核
Line 175: TB Speed Grade value = 0x0    Max Speed = 2.6G        //CPU能力，支持最大主频
Line 178: start Sub Chip TA Mbist                               //从片L3 Mbist开始，CPU L3自检启动
Line 181: diePgInfo.goodClusterNum=0x8          //从片TA
Line 198: start Sub Chip TB Mbist               //从片TB
Line 221: Hil620HhaMbist start                          //从片内存HHA Mbist开始，从片内存通道自检
Line 235: Hil620HhaMbist end                            //从片内存HHA Mbist结束
Line 237: [OemGetSlotWidth][906L]Riser1CardId:0,Riser2CardId:0,Riser3CardId:0    //获取 riser1、riser2、riser3的3张提升 Riser卡 的类型
Line 335: init BMC.  //与BMC交互的IPMI通道的初始化
Line 345: Loading PEIM at 0x0005F187F38 EntryPoint=0x0005F198B38 MemoryInit.efi    //内存初始化驱动加载
Line 353: [GetMemoryInitType][1138]MemoryInitType is 5A5A5A5A    //内存初始化类型，并行还是串行，5A5A5A5A为并行，4B4B4B4B串行
Line 359: DetectDimmPopulation.........................Start    //内存条的SPD检测，获取各内存条信息
Line 363: >>>S0-C0-D0 is empty or dram device not support.    // 没有插内存条则为空，每个通道每个DIMM槽位
Line 367: Read SPD [Skt:0 Port:1 SlaveAddr:0x50]    //获取插内存条的信息
Line 523: DetectDimmPopulation.........................Done    // 以上读内存条SPD信息的完成的标识
Line 525: CheckDimmPopulation.........................Start    // 确认是否内存条有不同规格（比如不同频率，不同容量等等）的内存混差场景，
Line 526: CheckDimmPopulation.........................Done    // 检查结束
Line 528: InitDdrFrequence.........................Start    // 初始化DDR内存条的频率；
Line 529: GetMinTckFromAllDimms Start    //收集各个DDR内存条的频率，并进行最小频率适配
Line 545: ----------------------------    //结束收集各个DDR内存条的频率，并进行最小频率适配
Line 547: g_PORFreqTable result(max system ddr frequency):    //收集完后最终的内存频率配置。
Line 551: pGblData->Freq          = 2933    // 内存频率2933M
Line 556: DdrFreqSet.........................Start    //配置DDR内存频率
Line 558: -------------- CPU info for Socket 0 TB--------------    //CPU1 的TB各PLL频率信息
Line 567: -------------- CPU info for Socket 0 TA--------------    //CPU1 的TA各PLL频率信息
Line 576: -------------- CPU info for Socket 0 NA--------------    //CPU1的 NA 各PLL频率信息
Line 583: -------------- CPU info for Socket 1 TB--------------    //CPU2 TB PLL频率信息
Line 592: -------------- CPU info for Socket 1 TA--------------    //CPU2 TA PLL频率信息
Line 601: -------------- CPU info for Socket 1 NA--------------    //CPU2 NA PLL频率信息
Line 625: MultiProcessorParallelExecuteMemoryInit.........................Start    //内存初始化开始，包括内存控制器、内存条training等
Line 652: [Skt:0 Ch:1] PreConfig.........................Start    //channel 1 检测
Line 660: [Skt:0 Ch:3] PreConfig.........................Start    //channel 3 检测
Line 732: Bye-S1C7    // training 测试
Line 1212: DisplayDimmInfo.........................Start    //内存信息汇总打印
Line 1363: [175L]RiserPrsnt:C0    //提升卡Riser卡在位信息
```
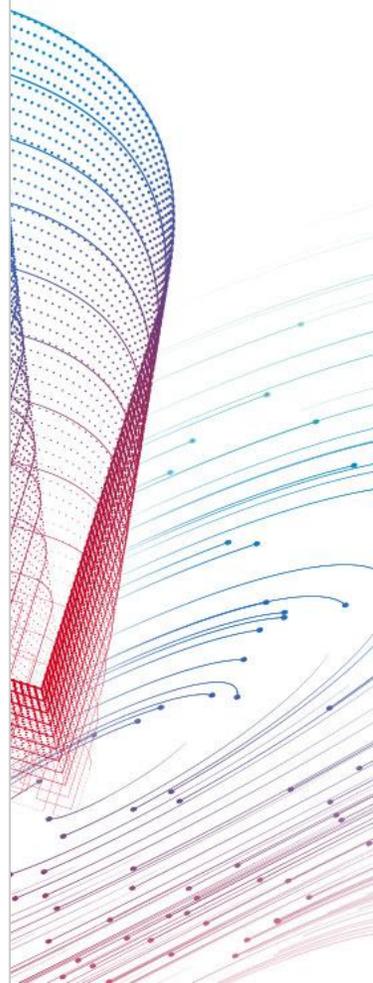
```
Line 1404: IpmiLibGetPcieCardBoardId = 0x4E          //提升卡Riser卡类型获取
Line 1418: IpmiLibGetPcieCardBoardId = 0x0           //SDI Riser卡类型获取，如果有SDI卡的话
Line 1421: Accelerators Status                        //加速器license状态
Line 1473: Loading driver at 0x0003EFF1000 EntryPoint=0x0003EFF35A0 GetInfoFromBmc.efi    //从BMC获取基本信息
Line 1476: g_InfoFromBmc.SerialNum To be filled by O.E.M.        //OEM代表可以定制化的
Line 1488: Loading driver at 0x0003EFE8000 EntryPoint=0x0003EFEC158 TcgDxe.efi        //TPM模块驱动加载
Line 1509: Loading driver at 0x0003EF99000 EntryPoint=0x0003EF9C5A0 TaishanPowerCtrl.efi    //不用模块时钟关闭的模块，为了降功耗
Line 1532: VerStr:0.96                    //BIOS版本号
Line 1544: Loading driver at 0x0003EEEF000 EntryPoint=0x0003EEF2390 ReportTPMToBmc.efi    //上报BMC TPM卡信息
Line 1565: M7 CONFIG Start.                            //M7配置
Line 1566: [OemGetSlotWidth][906L]Riser1CardId:90,Riser2CardId:90,Riser3CardId:4E    //riser类型信息打印，包括riser1和riser2，riser3的
Line 1574: Macro 4 Download Firmware Success!!          //CPU1的hilink4通道初始化
Line 1579: Macro 9 Download Firmware Success!!          //CPU1的hilink9通道初始化
Line 1649: M7Buffer location is (0x2F870000)         //M7配置
Line 1654: chip 0 NCL Present                   //CPU0板载灵活网卡是否在位，NIC1 灵活插卡
Line 1655: chip 1 NCL not Present               //CPU1板载灵活网卡是否在位，NIC2 灵活插卡，不在位的话不会打印
Line 1659: [OemGetMac]:[533L]  Port:0 - 0.10.54.C7.E7.E3.      //NIC1的板载灵活网口1的MAC地址
Line 1669: [OemGetMac]:[533L]  Port:1 - 0.10.54.C7.E6.3B.      //NIC1的板载灵活网口2的MAC地址
Line 1679: [OemGetMac]:[533L]  Port:2 - 0.10.54.C7.0.9.        //NIC1的板载灵活网口3的MAC地址
Line 1689: [OemGetMac]:[533L]  Port:3 - 0.10.54.C7.3.A7.       //NIC1的板载灵活网口4的MAC地址
Line 1695: Before Clear HCCS: Base:0x2000817C0  0x0            //清除HCCS误码
Line 1714: PCIe Init Start:                         //PCIe标卡的PCIE链路建链开始
Line 3226: [ETH_EnableRecvXmit] cmd_data0 = 0xFE68C0       //板载网卡驱动结束
Line 3239: Loading driver at 0x0002ECE6000 EntryPoint=0x0002ECEA3C8 ReportPciePlugDidVidToBmc.efi    //上报 PCIe外置卡、SSD硬盘的信息给BMC，包括did
Line 3260: [792L]SKT1 4NVME riser3                  //有4NVME的盘的时候，进行的上报，包括BDF号，did V
Line 3335: ReportPcieMMIOToBmc.Start 111111         //BIOS的启动项，
Line 3341: BeValidOsBootOption (),Get Bootable file :\EFI\centos\grubaa64.efi.    //硬盘内的系统启动项加载
Line 3384:                                          //BIOS 启动项信息汇总
Line 3442:   ProductBdsPolicyAfterSetup,            //进SETUP界面
Line 3444: InitializeByoMainFormset(208) SETUP size: 0xD2    //Smbios
Line 3470: External Clock Frequency:   100MHz  |    100MHz    //外部100M时钟，对应的CPU 输入的100M时钟
Line 3491: [FormsetHwPxeMacDisInit2281C][988L][854L] SetupData.PortNum:0x1    //NCL代表板载灵活插卡的在位信息
Line 3538: No TPM2 instance required!               // TPM信息显示
Line 3541: GetEfiDeviceType(86): DEVICE PATH :PciRoot(0x4)/Pci(0x0,0x0)/Pci(0x0,0x0)/MAC(001054C7E7E3,0x1)/IPv4(0.0.0.0).    //网卡启动项
Line 3607: |||
Line 3623: |||
Line 3642: |||
Line 3897: [Bds]Booting Uefi CentOS Grub Boot            //引导os，从启动项启动
Line 3898: Loading driver at 0x0002EBDC000 EntryPoint=0x0002EBDC400  //加载OS grub文件运行
Line 3904:   EFI stub: Booting Linux Kernel...  //OS 内核早期打印
Line 3905: EFI stub: Using DTB from configuration table //OS 内核早期打印
Line 3906: EFI stub: Exiting boot services and installing virtual address map...//OS 内核早期打印
Line 3908: //以下是即将退出BIOS时的exitbootservice服务的打印
Line 3972: BIOS boot completed.          //BIOS结束标记
Line 3975:  //后续os继续打印
```

Linux 启动过程简述

1 硬件自检

Power on

BIOS 检测系统外围关键设备 初始化硬件

查找启动介质
根据我们在BIOS中设置的启动顺序搜索启动驱动器

这里以硬盘为例，自检完成后
读取硬盘第一个扇区(MBR扇区)

2 系统引导

系统引导相当于桥梁，将磁盘上的内核镜像加载到内存

MBR 是硬盘的主引导记录，包含主引导程序和硬盘分区

这里主引导程序我们以grub为例。

446 bytes	Bootloader 主引导程序	
64 bytes	Partition table 分区表	Partition 1*
		Partition 2
		Partition 3
2 bytes	Magic number 结束标识字	Partition 4
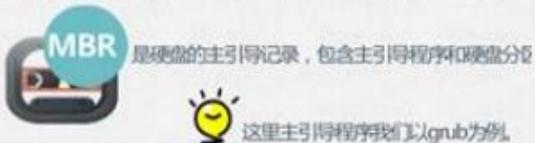
GRUB 阶段

将MBR中的stage1载入内存

加载 stage1 → 用于定位和装载stage2。 → 加载 stage2

解析/boot/grub/grub.conf
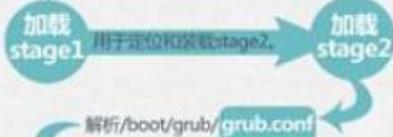
加载内核镜像到内存中，并将控制权转交给内核。

3 启动内核

启动内核阶段会加载设备驱动，创建根设备并将rootfs以只读的方式挂载，类似于建房子搭好基础的结构框架。

kernel kernel会立即初始化系统中各设备并做相关的配置，包括CPU、I/O、存储设备等。

initrd
执行 initrd 文件
创建一个根设备
执行真正的根文件系统

4 初始化系统

初始化系统阶段完成系统所有的配置，如设置键盘、字体，设置网络等。类似于完成房子厨房、卧室等所有的装修。

/sbin/init
读取/etc/inittab

/etc/rc.d/rc.sysinit
执行系统初始化脚本，对系统进行基本的配置。

rc /etc/rc.d/rcn.d（n=0~6）
确定运行级别，并按顺序启动相应的服务。

/etc/rc.d/rc.local
执行用户自定义开机启动程序。

/sbin/mingetty

login

2、串口日志关键字

]Search "bios log" (1 hit in 1 file)
] ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓BIOS串口日志分析方法.txt (1 hit)
    Line 2: ▬~▬~R~▬~▬~▬~▬~▬~▬ BIOS Log @ 2019.8.24 07:38:22 ▬~▬~▬~▬~▬~▬~▬~▬~▬   //从RTC获取的时间，协助定位用

OS 日志打印：
Call trace 、Oops、panic

29416   [1080104.613152] Call trace:
29417   [1080104.613157] dump_backtrace+0x0/0x198
29418   [1080104.613159] show_stack+0x24/0x30
29419   [1080104.613162] dump_stack+0xa4/0xcc
29420   [1080104.613748] amdgpu_job_run+0x2f4/0x2f8 [amdgpu]
29421   [1080104.613755] drm_sched_job_recovery+0xfc/0x370 [gpu_sched]
29422   [1080104.613848] amdgpu_device_gpu_recover+0x368/0x640 [amdgpu]
29423   [1080104.613909] amdgpu_job_timedout+0xc8/0x248 [amdgpu]
29424   [1080104.613913] drm_sched_job_timedout+0x48/0xc0 [gpu_sched]
29425   [1080104.613918] process_one_work+0x1b4/0x3f8
29426   [1080104.613919] worker_thread+0x54/0x470
29427   [1080104.613922] kthread+0x134/0x138
29428   [1080104.613925] ret_from_fork+0x10/0x18
29429   [1080104.613931] CPU: 93 PID: 339364 Comm: k
29430   [1080104.613933] Hardware name: Huawei TaiSh
29431   [1080104.613950] Workqueue: events drm_sched
29432   [1080104.613954] Call trace:

29378   ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ Internal error: Oops - BUG: 0 [#1] SMP
29379   [1080104.564743] amdgpu 0000:83:00.0: sdma1 IB test timed out
29380   [1080104.574866] Process kworker/32:2 (pid: 355143, stack limit = 0x0000000010fb1387)
29381   [1080104.574868] CPU: 32 PID: 355143 Comm: kworker/32:2 Kdump: loaded Tainted: GF   W IOE   4.19.36.0082 #1
29382   [1080104.574869] Hardware name: Huawei TaiShan 2280 V2/BC82AMDD, BIOS 1.40 04/03/2020
29383   [1080104.574874] Workqueue: events drm_sched_job_timedout [gpu_sched]
29384   [1080104.574876] pstate: 00c00009 (nzcv daif +PAN +UAO)
29385   [1080104.574966] pc : amdgpu_job_run+0x2f4/0x2f8 [amdgpu]
29386   [1080104.575026] lr : amdgpu_job_run+0x2f4/0x2f8 [amdgpu]
29387   [1080104.586352] amdgpu 0000:83:00.0: sdma1 IB test failed (0xCAFEDEAD)
29388   [1080104.599835] sp : ffff000c5d43bb30
29389   [1080104.599836] x29: ffff000c5d43bb30 x28: ffff807f46967e60
29390   [1080104.599838] x27: ffff807dfff19800 x26: ffff807ce16e7100
29391   [1080104.599840] x25: ffff807f46968048 x24: ffff807ce16e71c0
29392   [1080104.599842] x23: 0000000000000000 x22: ffff807ce16e7100
29393   [1080104.599844] x21: ffff0000811d9000 x20: ffff807f46967e60
29394   [1080104.599846] x19: ffff807dfff19800 x18: ffffffffffffffff
29395   [1080104.599848] x17: 0000000000000000 x16: ffff0000809eeaac

?ind result - 3 hits
Search "call trace" (3 hits in 1 file)
    ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓
    Line 29416: [1080104.613152] Call trace:
    Line 29432: [1080104.613954] Call trace:

3、结合message日志，对齐BMC时间线

结合bios log 时间和call trace （单位s）时间，计算call trace时系统异常的时间点。

1. 基础知识

2.常用操作及日志解析

3.案例分享

iBMC案例分析 – 硬盘告警

Ibmc告警硬盘状态UNCONFIGURED BAD，需要分析原因

```
"840","Minor","Disk","The disk Disk9 state is abnormal.","2023-06-15 03:09:29","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server, handle the problem
"839","Normal","Port","NIC 1 (TM210) Port 2 disconnected.","2023-06-15 03:08:58","Deasserted","0x29000002","N/A"
"838","Normal","Port","NIC 1 (TM210) Port 1 disconnected.","2023-06-15 03:08:55","Deasserted","0x29000002","N/A"
"837","Normal","System","The host was restarted by power button.","2023-06-15 03:07:29","Asserted","0x2C000013",""
"836","Normal","System","ACPI is in the working state.","2023-06-15 03:07:25","Asserted","0x2C000009",""
"835","Normal","Button","The power button on the panel is pressed.","2023-06-15 03:07:22","Asserted","0x31000001",""
"834","Normal","Disk","The disk Disk9 installed.","2023-06-14 09:36:17","Asserted","0x02000003",""
"833","Normal","Disk","The disk Disk9 removed.","2023-06-14 09:36:14","Asserted","0x02000005",""
"832","Normal","Port","NIC 1 (TM210) Port 2 disconnected.","2023-06-14 08:24:31","Asserted","0x29000001","1. Remove and reconnect the network cable.2. Check whether the network
"831","Normal","Port","NIC 1 (TM210) Port 1 disconnected.","2023-06-14 08:24:31","Asserted","0x29000001","1. Remove and reconnect the network cable.2. Check whether the network
"830","Minor","Disk","The disk Disk9 state is abnormal.","2023-06-14 08:24:30","Deasserted","0x02000028","N/A"
"829","Normal","System","ACPI is in the soft-off state.","2023-06-14 08:24:27","Asserted","0x2C00000B",""
"828","Normal","Button","The power button on the panel is pressed.","2023-06-14 08:24:20","Asserted","0x31000001",""
"827","Minor","Disk","The disk Disk9 state is abnormal.","2023-06-14 08:16:22","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server, handle the problem
```

```
Controller ID : 0
Registration ID : 0
Persistent
Event Sequence Number : 19437
Message Timestamp : 6/13/2023 ; 6:55:39
Local Timestamp : 2023-06-13 06:55:43
Event code : 114
Locale : PD event
Class : Information
Description of the event : State change on PD 08(e0xfb/s9) from FAILED(11) to UNCONFIGURED_BAD(1)
Argument Type Value: 15
Argument Type : MR_EVT_ARGS_PD_STATE
    Physical Device ID : 0x8
    Enclosure Index : 251
    Slot Number : 9
    Previous State : 11
    New State : 1
```

KUNTAI 神州鲲泰

问题现象：系统异常宕机，当前BMC无告警

查看fdm_log信息，发现大量内存DIMM120报错

因此可以判断，系统异常可能是内存条DIMM120导致。

iBMC案例分析 - 链路误码

问题现象：硬盘告警，现场更换硬盘后未解决

e5_sel.csv
2   "480","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 11:55:23","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
3   "479","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-30 11:55:23","Deasserted","0x0200000C","N/A"
4   "478","Normal","Disk","The disk Disk3 installed.","2023-06-30 11:55:03","Asserted","0x02000003",""
5   "477","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-30 11:54:59","Asserted","0x0200000B","1. If a member disk is removed, reinstall the dis
6   "476","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 11:54:43","Deasserted","0x02000028","N/A"
7   "475","Normal","Disk","The disk Disk3 removed.","2023-06-30 11:54:38","Asserted","0x02000005",""
8   "474","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 11:52:59","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
9   "473","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-30 11:52:58","Deasserted","0x0200000C","N/A"
10 "472","Normal","Disk","The disk Disk3 installed.","2023-06-30 11:52:36","Asserted","0x02000003",""
11 "471","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-30 11:52:34","Asserted","0x0200000B","1. If a member disk is removed, reinstall the dis
12 "470","Major","Disk","The disk Disk3 is missing.","2023-06-30 11:52:18","Deasserted","0x0200002E","N/A"
13 "469","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 11:52:18","Deasserted","0x02000028","N/A"
14 "468","Normal","Disk","The disk Disk3 removed.","2023-06-30 11:52:17","Asserted","0x02000005",""
15 "467","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 10:23:38","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
16 "466","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 10:20:17","Asserted","0x02000027","N/A"
17 "465","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 08:41:45","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
18 "464","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-30 08:38:16","Deasserted","0x02000028","N/A"
19 "463","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 21:18:10","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
20 "462","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 21:16:18","Deasserted","0x02000028","N/A"
21 "461","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 18:53:42","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
22 "460","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 18:50:06","Deasserted","0x02000028","N/A"
23 "459","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 14:54:31","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
24 "458","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 14:52:15","Deasserted","0x02000028","N/A"
25 "457","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 13:51:37","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
26 "456","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 13:49:45","Deasserted","0x02000028","N/A"
27 "455","Major","Disk","The disk Disk3 is missing.","2023-06-29 12:12:32","Asserted","0x0200002D","1. If more than two hard disks are lost, check whether the S
28 "454","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 12:00:47","Asserted","0x02000027","1. If a hard disk failure alarm exists on the server,
29 "453","Major","Disk","The PHY bit errors of the link between Disk BP1 (SAS Expander) and Disk3 increased too fast.","2023-06-29 11:58:46","Deasserted","0x020
30 "452","Normal","Disk","The disk Disk3 installed.","2023-06-29 11:58:40","Asserted","0x02000003",""
31 "451","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-29 11:58:22","Deasserted","0x0200000C","N/A"
32 "450","Major","Disk","The disk Disk3 RAID array is invalid.","2023-06-29 11:57:50","Asserted","0x0200000B","1. If a member disk is removed, reinstall the dis
33 "449","Major","Disk","The disk Disk3 is missing.","2023-06-29 11:57:34","Deasserted","0x0200002E","N/A"
34 "448","Minor","Disk","The disk Disk3 state is abnormal.","2023-06-29 11:57:34","Deasserted","0x02000028","N/A"

2023-06-25 18:37:36 ERROR: SVR-0080021,Physical drive Disk3 detected link phy error, e0(PHY3):1523881>10000.
2023-06-25 18:37:36 INFO : SVR-0000000,End to diagnose physical drive Disk3.
2023-06-25 18:49:01 INFO : SVR-0000000,[OOB] Physical drive Disk3 capacity identification inconformity(less than 5 GB) - Asserted
2023-06-25 21:27:09 ERROR: SVR-0080015,Physical drive Disk3 state is FOREIGN - Asserted
2023-06-25 21:33:51 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Asserted
2023-06-25 21:33:54 INFO : SVR-0000000,Start to diagnose physical drive Disk3.
2023-06-25 21:34:05 ERROR: SVR-0080021,Physical drive Disk3 detected link phy error, e0(PHY3):2687201>1000.
2023-06-25 21:34:05 INFO : SVR-0000000,End to diagnose physical drive Disk3.
2023-06-26 00:33:34 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Deasserted
2023-06-26 00:39:52 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Asserted
2023-06-26 00:39:53 INFO : SVR-0000000,Start to diagnose physical drive Disk3.
2023-06-26 00:40:02 ERROR: SVR-0080021,Physical drive Disk3 detected link phy error, e0(PHY3):3559839>1000.
2023-06-26 00:40:02 INFO : SVR-0000000,End to diagnose physical drive Disk3.
2023-06-26 01:24:12 ERROR: SVR-0080015,Physical drive Disk3 state is FOREIGN - Asserted
2023-06-26 01:36:42 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Asserted
2023-06-26 01:36:44 INFO : SVR-0000000,Start to diagnose physical drive Disk3.
2023-06-26 01:36:53 ERROR: SVR-0080021,Physical drive Disk3 detected link phy error, e0(PHY3):3412010>1000.
2023-06-26 01:36:53 INFO : SVR-0000000,End to diagnose physical drive Disk3.
2023-06-26 01:40:41 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Deasserted
2023-06-26 01:44:08 ERROR: SVR-0080014,Physical drive Disk3 state is UNCONFIGURED BAD - Asserted
2023-06-26 01:44:09 INFO : SVR-0000000,Start to diagnose physical drive Disk3.
2023-06-26 01:44:18 ERROR: SVR-0080021,Physical drive Disk3 detected link phy error, e0(PHY3):3412010>1000.