

1. 测试环境

服务器型号	CPU 型号	OS	内核版本
TG225 B1, BC82AMDGK	Kunpeng-920	UnionTech OS Server 20 1050a 20220214 aarch64	5.10.0-4.uelc20.aarch64
华硕主板	Intel(R) Core(TM) i5-9600K CPU @ 3.70GHz	CentOS Linux release 7.9.2009 (Core)	3.10.0-1160.90.1.el7.x86_64
NF5280M6	Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz	CentOS Stream release 9	Linux INSPUR 5.12.17-200.el8.x86_64

测试平台：x86（海光，intel）和 arm（鲲鹏）

测试驱动：txgbe-1.3.5

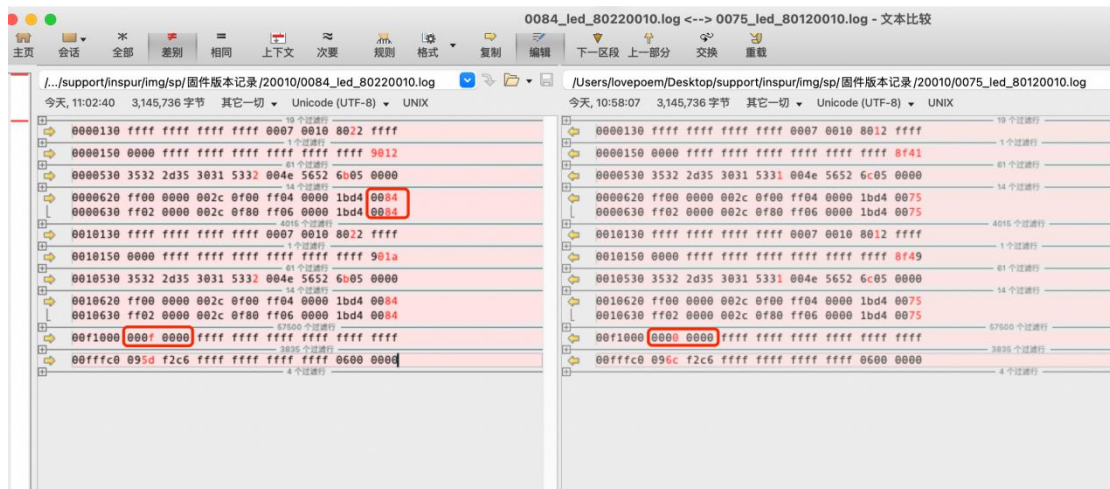
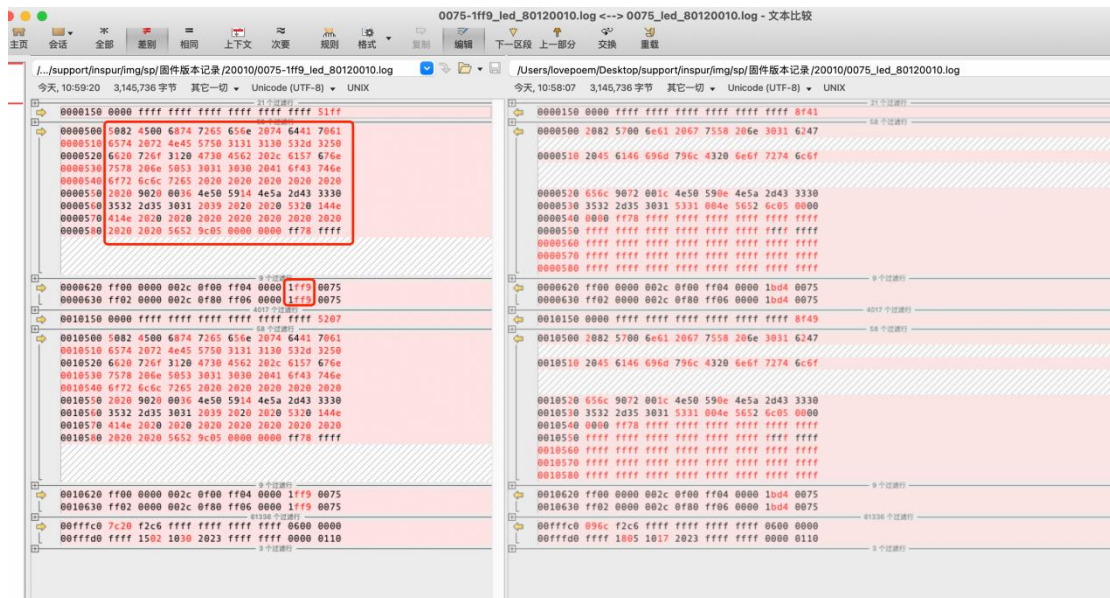
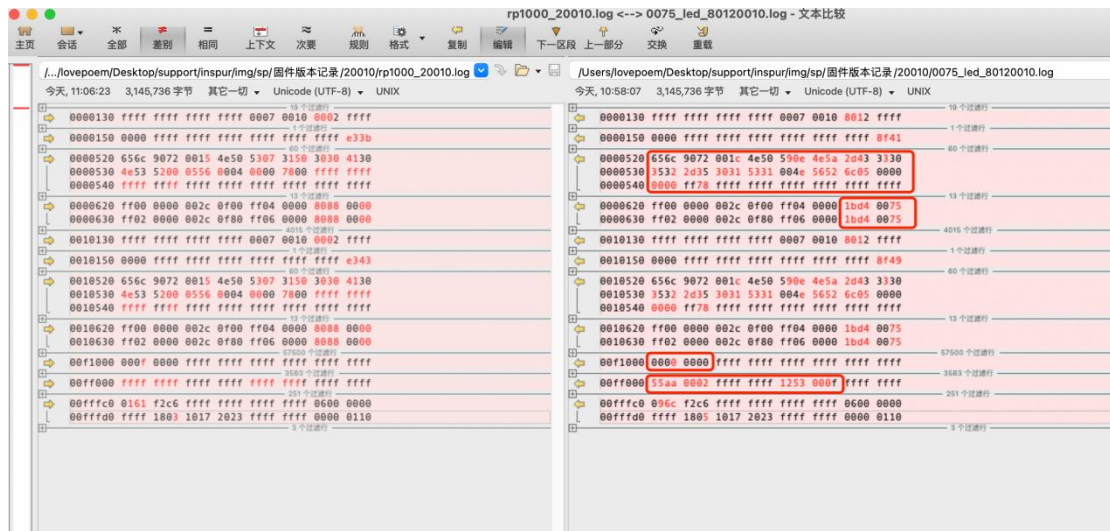
测试固件：

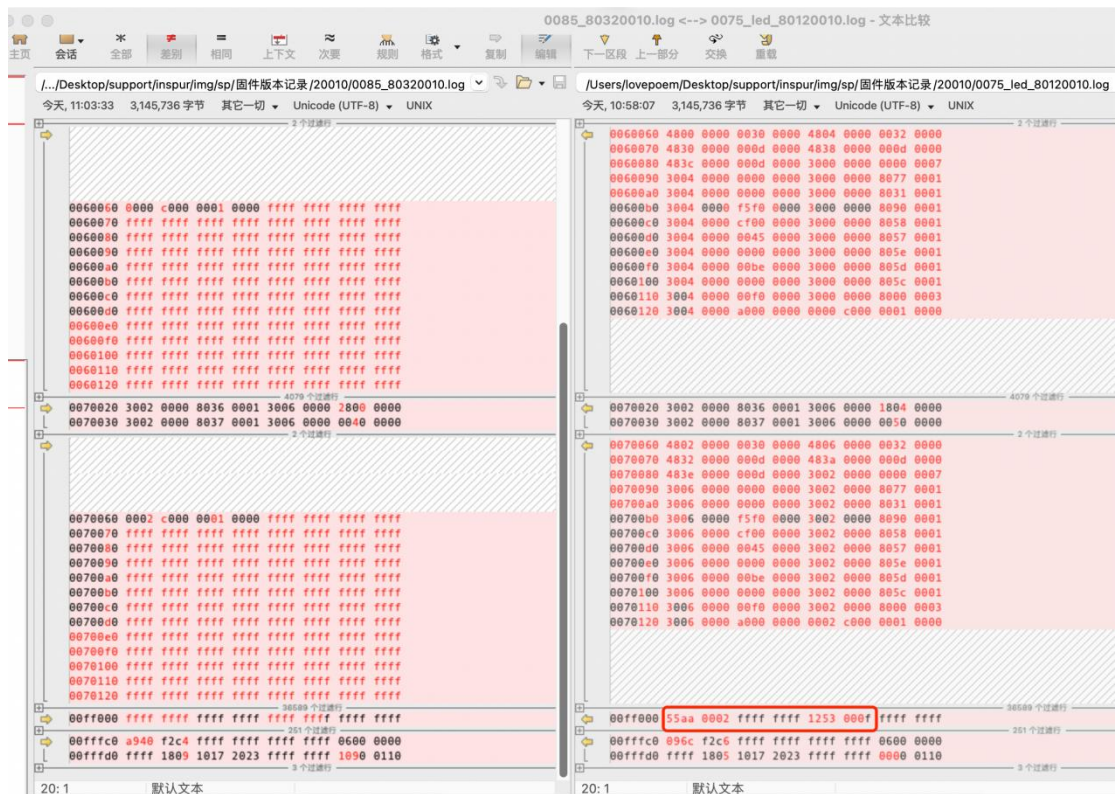
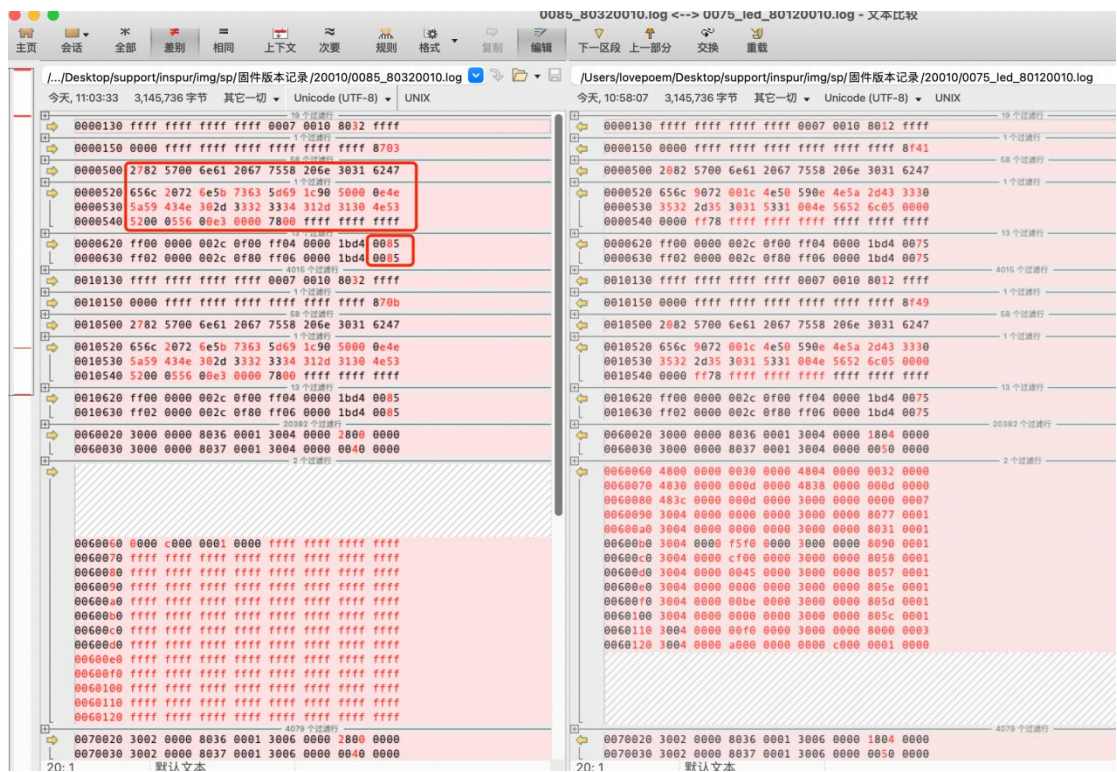
固件名称：RP0075-1FF9_LED_80120010.img MD5sum 值: ab03c2bd4a749ea542b20f2af00155ab
固件名称：RP0085-1FF9_80320010.ncsi.img MD5sum 值: c7e48b0b1e232814708a0760e66781ae
固件名称：RP0075_LED_80120010.img MD5sum 值: 8ee066ded8f5e8c29b632e5f6da316b8
固件名称：RP0084_LED_80220010.img MD5sum 值: 9866b95ddff3fbff1ccd8cb77b600a67
固件名称：RP0085_80320010.ncsi.img MD5sum 值: 0ac6baf5ff1cf6d337d1f76af9fb177b
固件名称：RP0095P2SFP-SW_LED_80420010.img MD5sum 值: 1c028c974022deb2dda76576e6cfb284
固件名称：RP0097-OCP_80520010.ncsi.img MD5sum 值: 6507e94c186129ad1fe962248e2d9100

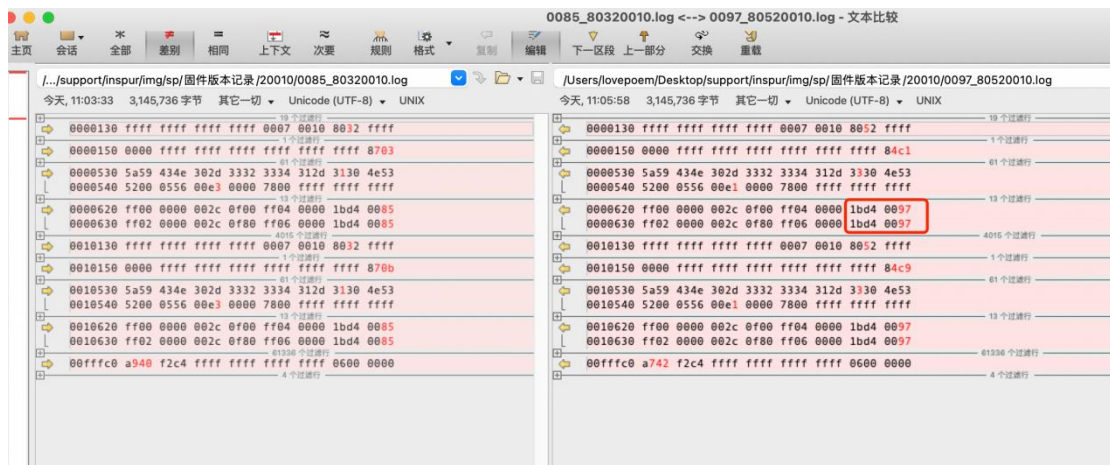
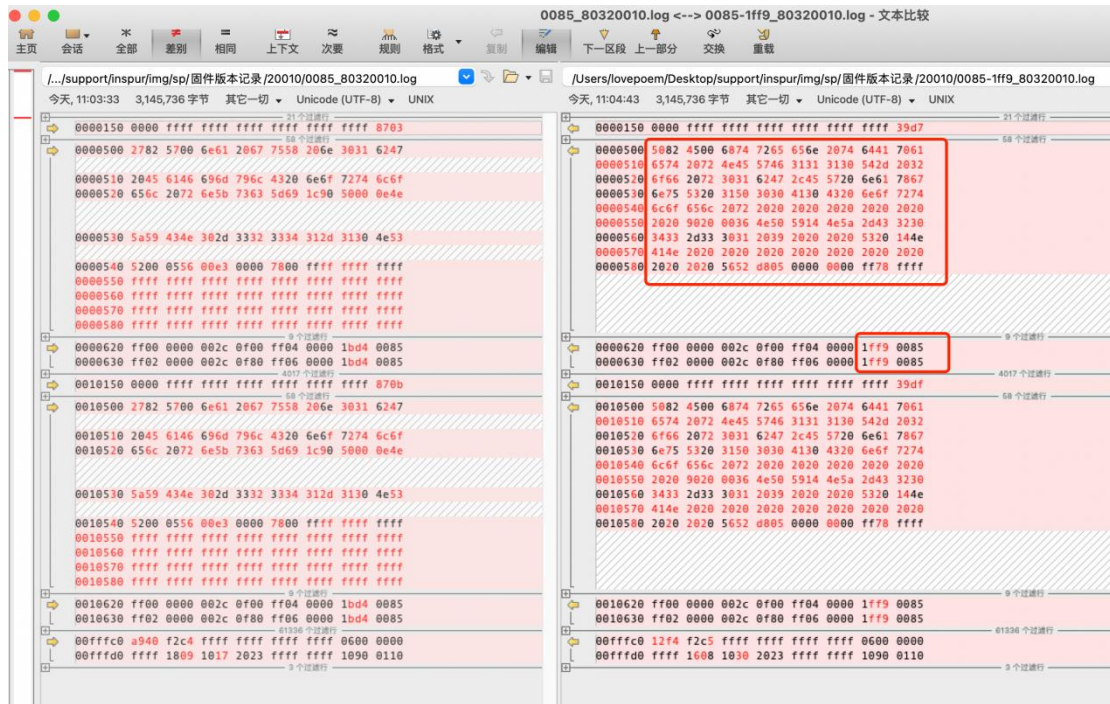
2. 测试用例

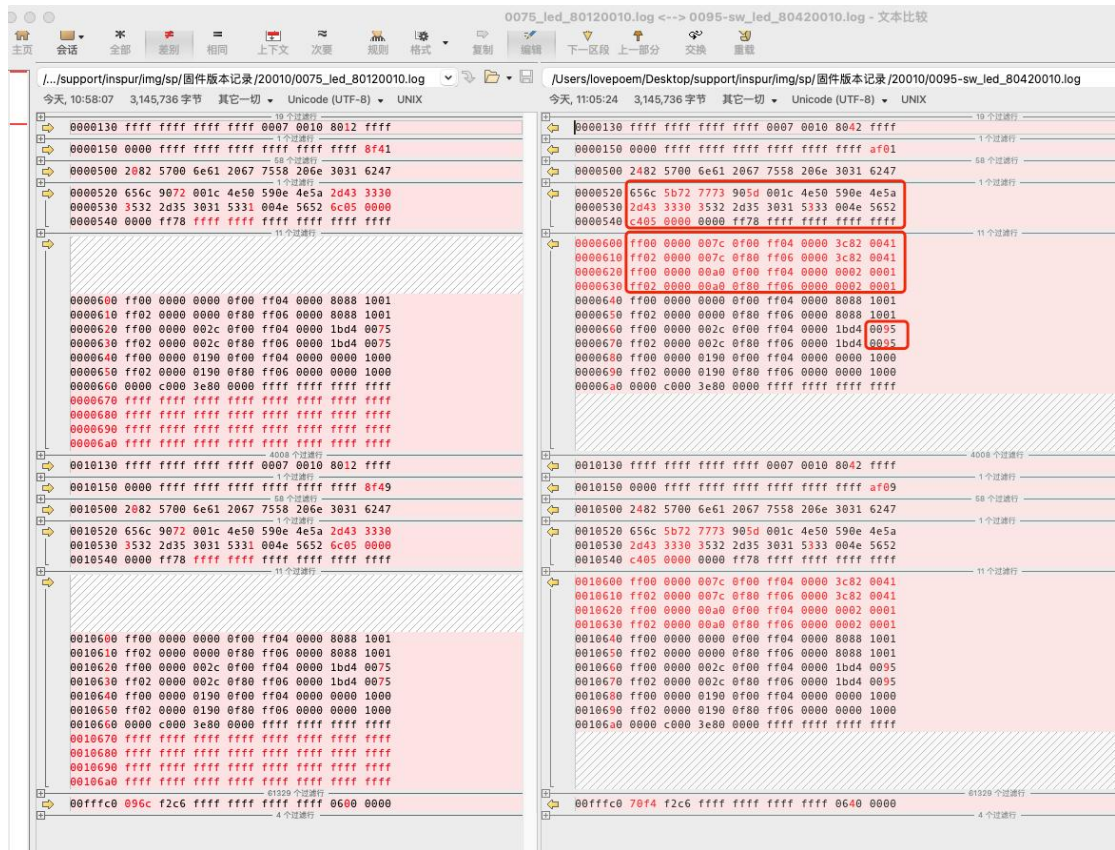
2.1 固件 img 检查

2.1.1. img 内容检查









2.2 烧录测试

2、涉及两款网卡，10G光口PCIe卡（原YZNC-03255-101）、10G电口PCIe卡（原YZNC-02343-101）。其余定制分支版本后续另行触发。

3、定制内容涉及PCIe ID、PN、VPD格式变更，详细信息见下表：

芯片	描述	旧物料编码PN	新物料编码PN	VID	DID	SVID	SSID	目标固件版本	VPD Product Name
SP1000A	10G PCIe 2光口	YZNC-03255-101	YZNC-03255-109	8088	1001	1FF9	0075	0x**120010	Ethernet Adapter ENFW1101-SP2 for 10GbE, Wangxun SP1000A Controller
	10G OCP 2电口	YZNC-02343-101	YZNC-02343-109	8088	1001	1FF9	0085	0x**320010	Ethernet Adapter ENFW1101-T2 for 10GbE, Wangxun SP1000A Controller

4、由于涉及SVID的变更，请协助检查带来的影响，如linux/windows/Esxi等驱动适配、烧录/维护工具、固件分支处理等内容（如wtxtool加入新ID支持、windows驱动加入新ID支持、linux驱动中对点灯行为的分支处理等）。

5、VPD遵循格式如下，保证 "Product Name"、"PN"、"SN"的Offset值固定为0、86、109：

Offset	length(byte)	Item Value
0	1	Large Resource Type ID String Tag (02h) 82h "Product Name"
1	2	Product Name length 0x50
3	80	自研网卡产品名称，固定80个字符长度，末尾以空格填充。 Data示例"Ethernet Adapter ENPB2251-SP2 for 25GbE, Intel E810 controller"
83	1	Large Resource Type VPD-R Tag (10h) 90h
84	2	只读VPD信息的总长度 Length
86	2	VPD Keyword "PN"
88	1	PN Length 14h
89	20	网卡指定PN号，固定20个字符长度，末尾以空格填充。 Data示例"YZNC-03255-109"
109	2	VPD Keyword "SN"
111	1	SN Length 14h
112	20	网卡SN号，固定20个字符长度，缺省全部为"NA"，可通过维护工具烧写SN号，且掉电能保存。 Data示例"NCP220K50024Y01"
132	2	厂商自定义VPD Keyword 或 Checksum and Reserved(RV)字段。
.....		
n	2	VPD Keyword "RV", Checksum and Reserved(RV)
n+2	1	RV length 255-(n+2)
n+3	1	Data checksum
n+4		all 00h
...		

1. RP0075_LED_80120010.img

```
[root@localhost 3.7.2]#
[root@localhost 3.7.2]# ./wxttool_x86 -F 20010/RP0075_LED_80120010.img -S
Please Select which kind of NIC to upgrade:
1. 1000M_nics_1ports
2. 1000M_nics_2ports
3. 1000M_nics_4ports
4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0075_LED_80120010.sig

FILE SHA256 sum:
0ecd2b964bda669bd82e4824b63bccfbcaed1fec6f9be74bd5d374fa7984830a 20010/RP0075_LED_80120010.sig
e0573bc8b1893ebb29ae4200424eff77186ff072561e66b3648a093cc437c9b4 20010/RP0075_LED_80120010.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 1

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0075
The card's sub_id : 0075
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.1 adaptor card [ 0000:02:00.0 ]:
Old: MAC Address0 is: b4055dac63ab
MAC Address1 is: b4055dac63ac
Old: SN is SN-12345670000
vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller
pn_str: YZNC-03255-101
sn_str: SN-12345670000

Erase sector1 command, return status = 0
Retore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 1804 - 0x18037 : 0050
lan0 : main: 24 - pre: 4 - post: 16
lan1 - 0x18036 : 1804 - 0x18037 : 0050
lan1 : main: 24 - pre: 4 - post: 16
New: MAC Address0 is: 0xb4055dac63ab
MAC Address1 is: 0xb4055dac63ac
New SN is SN-12345670000
Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#
```

```
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0075"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0075"
61:00.0 "0200" "8088" "1001" -r03 "1ff9" "0085"
61:00.1 "0200" "8088" "1001" -r03 "1ff9" "0085"

[root@localhost ~]# ethtool -i p12p1
driver: txgbe
version: 1.3.5
firmware-version: 0x80120010
expansion-rom-version:
bus-info: 0000:02:00.0
supports-statistics: yes
supports-test: yes
supports-eeprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
```



```

[root@localhost ~]# lspci -s 02:00.0 -vvv
02:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Inspur Electronic Information Industry Co., Ltd. Device 0075
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 89
NUMA node: 0
Region 0: Memory at ec900000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at ec940000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at ec880000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
        Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold-)
        Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
        Address: 0000000000000000 Data: 0000
        Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
        DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
        ExtTag+ AttnBtm- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
        DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
        RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
        MaxPayload 512 bytes, MaxReadReq 256 bytes
        DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr- TransPend-
        LnkCap: Port #0, Speed 8GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
        ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
        LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
        ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
        LnkSta: Speed 8GT/s (ok), Width x4 (downgraded)
        TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
        DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
        AtomicOpsCap: 32bit- 64bit- 128bitCAS-
        DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
        AtomicOpsCtl: ReqEn-
        LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
        Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
        Compliance De-emphasis: -6dB
        LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
        EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
        Vector table: BAR=4 offset=00000000
        PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
        Product Name: Wang Xun 10GbE Family Controller
        Read-only fields:
                [PN] Part number: YZNC-03255-101
                [SN] Serial number: SN-12345670000
                [RV] Reserved: checksum good, 4 byte(s) reserved
        End
Capabilities: [100 v2] Advanced Error Reporting
        UESta: DLP- SDES- TLP- FCP- CmpltTo- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
        UEMsk: DLP- SDES- TLP- FCP- CmpltTo- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
        UESvrt: DLP+ SDES+ TLP- FCP+ CmpltTo- CmpltAbrt- UnxCmplt- RxOF+ MalfTLP+ ECRC+ UnsupReq- ACSViol-

```

2.RP0075-1FF9_LED_80120010.img

```

[root@localhost 3.7.2]# ./wxtool_x86 -F 20010/RP0075-1FF9_LED_00120010.img -S
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0075-1FF9_LED_00120010.sig

FILE SHA256 sum:
8ef0ae3e915f6e328bfa826f546e6524a154bbcd4b38b8cd4745de655aa9ad64  20010/RP0075-1FF9_LED_00120010.sig
3dfad0528b89b091fb180298bbeaa03e6e82d567690c3ca6c5e2440028b0a904  20010/RP0075-1FF9_LED_00120010.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 1

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0075
The card's sub_id : 0075
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.1 adaptor card [ 0000:02:00.0 ]:
Old: MAC Address0 is: b4055dac63ab
    MAC Address1 is: b4055dac63ac
Old: SN is SN-12345670000
vpd_sn_change_t
id_str: Ethernet Adapter ENPW101-SP2 for 10GbE, Wangxun SP1000A Controller
pn_str: YZNC-03255-109
sn_str: SN-12345670000

Erase sector1 command, return status = 0
Retore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 1004 - 0x18037 : 0050
lan0 - main: 24 - pre: 4 - post: 16
lan1 - 0x18036 : 1004 - 0x18037 : 0050
lan1 - main: 24 - pre: 4 - post: 16
New: MAC Address0 is: 0xb4055dac63ab
    MAC Address1 is: 0xb4055dac63ac
New SN is SN-12345670000
Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

[root@localhost ~]# ethtool -i p12p1
driver: txgbe
version: 1.3.5
firmware-version: 0x80120010
expansion-rom-version:
bus-info: 0000:02:00.0
supports-statistics: yes
supports-test: yes
supports-eprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1ff9" "0075"
02:00.1 "0200" "8088" "1001" -r03 "1ff9" "0075"
61:00.0 "0200" "8088" "1001" -r03 "1ff9" "0085"
61:00.1 "0200" "8088" "1001" -r03 "1ff9" "0085"
[root@localhost ~]#

```



```

3 [root@localhost ~]# lspci -s 02:00.0 -vvv
02:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Device 1ff9:0075
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 89
NUMA node: 0
Region 0: Memory at ec900000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at ec940000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at ec800000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold-)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtn- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr- TransPend-
LnkCap: Port #0, Speed 8GT/s, Width x8 ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 8GT/s (ok), Width x4 (downgraded)
TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00002000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Ethernet Adapter ENPW1101-SP2 for 10GbE, Wangxun SP1000A Controller
Read-only fields:
(PN) Part number: YZNC-03255-109
(SN) Serial number: SN-12345670000
(RV) Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UCMak- DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-

```

```

12@ (base) [root@177-0-0-1 ~]# python
13 Python 3.9.12 (main, Apr 5 2022, 06:56:58)
14 [GCC 7.5.0] :: Anaconda, Inc. on linux
15 Type "help", "copyright", "credits" or "license" for more information.
16 >>>
17 >>> len("Ethernet Adapter ENPW1101-SP2 for 10GbE, Wangxun SP1000A Controller")
18 80
19 >>> len("YZNC-03255-109")
20 20
21 >>> len("SN-12345670000")
22 20
23 >>>

```

3.RP0085-1FF9_80320010.ncsi.img

```

[root@localhost 3.7.2]# ./wxtool_x86 -F 20010/RP0085-1FF9_80320010.ncsi.img -S
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0085-1FF9_80320010.ncsi.sig

FILE SHA256 sum:
2ce4e37b3dd40cc676573c20208c7cf5b2c5393857ae024cb754ee9387d0ac2c 20010/RP0085-1FF9_80320010.ncsi.sig
a5761e7d9d051f9dd510d4d0b59ba497692baeb3e1a0c6dbad38592d87a12d02 20010/RP0085-1FF9_80320010.ncsi.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 0

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0085
The card's sub_id : 0085
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.0 adaptor card [ 0000:61:00.0 ]:
Old: MAC Address0 is: 3009f9123456
    MAC Address1 is: 3009f9123457
Old: SN is SN-123456700000
vpd_sn_change_t
id_str: Ethernet Adapter ENFW1101-T2 for 10GbE, Wangxun SP1000A Controller
pn_str: YZNC-02343-109
sn_str: SN-123456700000

Erase sector1 command, return status = 0
Retore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 2000 - 0x18037 : 0040
lan0 : main: 40 - pre: 0 - post: 0
lan1 - 0x18036 : 2000 - 0x18037 : 0040
lan1 : main: 40 - pre: 0 - post: 0
New: MAC Address0 is: 0x3009f9123456
    MAC Address1 is: 0x3009f9123457
New SN is SN-123456700000
Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

8 [root@localhost ~]#
9 [root@localhost ~]# lspci -d 8088: -nm
0 01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
1 01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
2 02:00.0 "0200" "8088" "1001" -r03 "1ff9" "0075"
3 02:00.1 "0200" "8088" "1001" -r03 "1ff9" "0075"
4 61:00.0 "0200" "8088" "1001" -r03 "1ff9" "0085"
5 61:00.1 "0200" "8088" "1001" -r03 "1ff9" "0085"
6 [root@localhost ~]#
7 [root@localhost ~]#
8 [root@localhost ~]# ethtool -i p120p1
9 driver: txgbe
0 version: 1.3.5-20231101
1 firmware-version: 0x80320010
2 expansion-rom-version:
3 bus-info: 0000:61:00.0
4 supports-statistics: yes
5 supports-test: yes
6 supports-eprom-access: yes
7 supports-register-dump: yes
8 supports-priv-flags: yes
9 [root@localhost ~]#

```

```

[root@localhost ~]# lspci -s 61:00.0 -vvv
61:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Device 1ff9:0085
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 158
NUMA node: 3
Region 0: Memory at e3c00000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at e3c40000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at e3b80000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold+)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtn- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr+ TransPend-
LnkCap: Port #0, Speed 8GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled- RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 8GT/s (OK), Width x8 (OK)
Err- Irain- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00000000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Ethernet Adapter ENFW1101-T2 for 10GbE, Wangxun SP1000A Controller
Read-only fields:
[PN] Part number: YZNC-02343-109
[SN] Serial number: SN-1234567000000
[RV] Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting

```

```

4 @ (base) [root@177-0-0-1 ~]# python
5 Python 3.9.12 (main, Apr 5 2022, 06:56:58)
6 [GCC 7.5.0] :: Anaconda, Inc. on linux
7 Type "help", "copyright", "credits" or "license" for more information.
8 >>>
9 >>> len("Ethernet Adapter ENFW1101-T2 for 10GbE, Wangxun SP1000A Controller")
10 80
1 >>>
2 >>> len("YZNC-02343-109")
3 20
4 >>>
5 >>> len("SN-1234567000000")
6 20
7 >>>
8 >>>

```

4. RP0084_LED_80220010.img


```

[root@localhost ~]# ./wxtool_x86 -F 20010/RP0084_LED_80220010.img -S
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0084_LED_80220010.sig

FILE SHA256 sum:
6257b357ce2ee64374403ed8b757ef4bfe1658ba498f0988b1d1c45980c59f11 20010/RP0084_LED_80220010.sig
4692e152148a24200d8e9acd0c06d5561b959e750c4f779e16ab60d06ae891c9 20010/RP0084_LED_80220010.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00:00 [ 1 ] 0000:02:00:00 :
Please select slot index: 1

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0084
The card's sub_id : 0084
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.1 adaptor card [ 0000:02:00.0 ]:
Old: MAC Address0 is: b4055dac63ab
MAC Address1 is: b4055dac63ac
Old: SN is SN-12345670000
vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller
pn_str: YZNC-03255-102
sn_str: SN-12345670000

Erase sector1 command, return status = 0
Restore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 1804 - 0x18037 : 0050
lan0 : main: 24 - pre: 4 - post: 16
lan1 - 0x18036 : 1804 - 0x18037 : 0050
lan1 : main: 24 - pre: 4 - post: 16
New: MAC Address0 is: 0xb4055dac63ab
MAC Address1 is: 0xb4055dac63ac
New SN is SN-12345670000
Download Complete 100
[ ^.^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0084"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0084"
61:00.0 "0200" "8088" "1001" -r03 "1ff9" "0085"
61:00.1 "0200" "8088" "1001" -r03 "1ff9" "0085"
[root@localhost ~]# ethtool -i p12p1
driver: txgbe
version: 1.3.5-20231101
firmware-version: 0x80220010
expansion-rom-version:
bus-info: 0000:02:00.0
supports-statistics: yes
supports-test: yes
supports-eprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes

```

```

[root@localhost ~]# lspci -s 02:00.0 -vvv
02:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Inspur Electronic Information Industry Co., Ltd. Device 0084
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >Abort- <Abort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 90
NUMA node: 0
Region 0: Memory at ec900000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at ec940000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at ec800000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold-)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtn- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr- TransPend-
LnkCap: Port #0, Speed 8GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 8GT/s (ok), Width x4 (downgraded)
TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00000000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Wang Xun 10GbE Family Controller
Read-only fields:
[PM] Part number: YZNC-03255-102
[SN] Serial number: SN-12345670000
[RV] Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UEMsk: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UESvrt: DLP+ SDES+ TLP- FCP+ CmpltTO- CmpltAbrt- UnxCmplt- RxOF+ MalfTLP+ ECRC+ UnsupReq- ACSViol-
CESta: RxErr- BadTLP- BadDLLP- Rollover- Timeout- AdvNonFatalErr+
CEMsk: RxErr- BadTLP- BadDLLP- Rollover- Timeout- AdvNonFatalErr+

```

5. RP0095P2SFP-SW_LED_80420010.img

```

[root@localhost 3.7.2]# ./wxttool_x86 -F 20010/RP0095P2SFP-SW_LED_80420010.img -S
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0095P2SFP-SW_LED_80420010.sig

FILE SHA256 sum:
11fdd52af10614e368380aaf8ad31dd841b5d66f7df882ef3c6a5f866441a6cc 20010/RP0095P2SFP-SW_LED_80420010.sig
df4083f6461395518ea5b57c0f9adbb90841eea11267835638d89631d0b62ff7 20010/RP0095P2SFP-SW_LED_80420010.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 1

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0095
The card's sub_id : 0095
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.1 adaptor card [ 0000:02:00.0 ]:
Old: MAC Address0 is: b4055dac63ab
MAC Address1 is: b4055dac63ac
Old: SN is SN-12345670000
vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller[sw]
pn_str: YZNC-03255-103
sn_str: SN-12345670000

Erase sector1 command, return status = 0
Restore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 1804 - 0x18037 : 0050
lan0 : main: 24 - pre: 4 - post: 16
lan1 - 0x18036 : 1804 - 0x18037 : 0050
lan1 : main: 24 - pre: 4 - post: 16
New: MAC Address0 is: 0xb4055dac63ab
MAC Address1 is: 0xb4055dac63ac
New SN is SN-12345670000
Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0095"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0095"
61:00.0 "0200" "8088" "1001" -r03 "1bd4" "0097"
61:00.1 "0200" "8088" "1001" -r03 "1bd4" "0097"

[root@localhost ~]#
[root@localhost ~]# ethtool -i p12p1
driver: txgbe
version: 1.3.5-20231101
firmware-version: 0x80420010
expansion-rom-version:
bus-info: 0000:02:00.0
supports-statistics: yes
supports-test: yes
supports-eprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
[root@localhost ~]#

```



```

[root@localhost ~]# lspci -s 02:00.0 -vvv
02:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Inspur Electronic Information Industry Co., Ltd. Device 0095
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 90
NUMA node: 0
Region 0: Memory at ec900000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at ec940000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at ec800000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold-)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtn- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr- TransPend-
LnkCap: Port #0, Speed 5GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 5GT/s (ok), Width x4 (downgraded)
TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 5GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete-, EqualizationPhase1-
EqualizationPhase2-, EqualizationPhase3-, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00000000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Wang Xun 10GbE Family Controller[sw]
Read-only fields:
[P] Part number: YZNC-83255-103
[SN] Serial number: SN-12345670000
[RV] Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UEMsk: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UESvrt: DLP+ SDES+ TLP- FCP+ CmpltTO- CmpltAbrt- UnxCmplt- RxOF+ MalfTLP+ ECRC+ UnsupReq- ACSViol-

```

6. RP0097-OCP_80520010.ncsi.img

```

[root@localhost 3.7.2]#
[root@localhost 3.7.2]# ./wxttool_x86 -F 20010/RP0097-OCF_80520010.ncsi.img -S
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0097-OCF_80520010.ncsi.sig

FILE SHA256 sum:
891b55099b931be05b149134fbfd1a710076af37add97ecc6bc5155173be70a9 20010/RP0097-OCF_80520010.ncsi.sig
945df9ba1f26aa371ec3c48e4ac9187c09f76a7adafd29f3d8916c2105b3b7a 20010/RP0097-OCF_80520010.ncsi.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 0

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0097
The card's sub_id : 0097
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.0 adaptor card [ 0000:61:00.0 ]:
Old: MAC Address0 is: 3009f9123456
MAC Address1 is: 3009f9123457
Old: SN is SN-1234567000000
vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller [ncsi]
pn_str: YZNC-02343-103
sn_str: SN-1234567000000

Erase sector1 command, return status = 0
Restore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 2800 - 0x18037 : 0040
lan0 : main: 40 - pre: 0 - post: 0
lan1 - 0x18036 : 2800 - 0x18037 : 0040
lan1 : main: 40 - pre: 0 - post: 0
New: MAC Address0 is: 0x3009f9123456
MAC Address1 is: 0x3009f9123457
New SN is SN-1234567000000
Download Complete 100
[ ^.^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

[root@localhost ~]# ethtool -i p120p1
driver: txgbe
version: 1.3.5-20231101
firmware-version: 0x80520010
expansion-rom-version:
bus-info: 0000:61:00.0
supports-statistics: yes
supports-test: yes
supports-eeprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
[root@localhost ~]#
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0095"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0095"
61:00.0 "0200" "8088" "1001" -r03 "1bd4" "0097"
61:00.1 "0200" "8088" "1001" -r03 "1bd4" "0097"
[root@localhost ~]#
[root@localhost ~]#

```

```

[root@localhost ~]# lspci -s 61:00.0 -vvv
61:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Inspur Electronic Information Industry Co., Ltd. Device 0097
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- >SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 158
NUMA node: 3
Region 0: Memory at e3c00000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at e3c40000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at e3b00000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold+)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtm- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RixdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr+ TransPend-
LnkCap: Port #0, Speed 8GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 8GT/s (ok), Width x8 (ok)
TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00000000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Wang Xun 10GbE Family Controller [ncsi]
Read-only fields:
[PN] Part number: YZNC-02343-103
[SN] Serial number: SN-1234567000000
[RV] Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-

```

7. RP0085_80320010.ncsi.img


```

[root@localhost 3.7.2]#
[root@localhost 3.7.2]# ./wxttool_x86 -F 20010/RP0085_80320010.ncsi.img -S
Please select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:20010/RP0085_80320010.ncsi.sig

FILE SHA256 sum:
41a09db4726a2626ba07bd7c30e9add4ebce9353d0e0ef227a5a0df97b30344f 20010/RP0085_80320010.ncsi.sig
cf6d9762b6c4fcad3e4930b46a29c0ac66ff49bdfb825485d326482fb19bda2 20010/RP0085_80320010.ncsi.img

Verified OK

More than one of our networking adaptor cards were found, but without of '-A' option specified. Please select a adaptor to
download.
[ 0 ] 0000:61:00.00 [ 1 ] 0000:02:00.00 :
Please select slot index: 0

Raptor PCI Utils tool is started.
We will download 2 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0085
The card's sub_id : 0085
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.0 adaptor card [ 0000:61:00.0 ]:
Old: MAC Address0 is: 3009f9123456
MAC Address1 is: 3009f9123457
Old: SN is SN-1234567000000
vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller [ncsi]
pn_str: YZNC-02343-101
sn_str: SN-1234567000000

Erase sector1 command, return status = 0
Restore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 2000 - 0x18037 : 0040
lan0 : main: 40 - pre: 0 - post: 0
lan1 - 0x18036 : 2000 - 0x18037 : 0040
lan1 : main: 40 - pre: 0 - post: 0
New: MAC Address0 is: 0x3009f9123456
MAC Address1 is: 0x3009f9123457
New SN is SN-1234567000000
Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

[root@localhost 3.7.2]#

```

```

[root@localhost ~]#
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0095"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0095"
61:00.0 "0200" "8088" "1001" -r03 "1bd4" "0085"
61:00.1 "0200" "8088" "1001" -r03 "1bd4" "0085"

[root@localhost ~]#
[root@localhost ~]# ethtool -i p120p1
driver: txgbe
version: 1.3.5-20231101
firmware-version: 0x80320010
expansion-rom-version:
bus-info: 0000:61:00.0
supports-statistics: yes
supports-test: yes
supports-eeprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
[root@localhost ~]#
[root@localhost ~]#

```

```

[root@localhost ~]# lspci -s 61:00.0 -vvv
61:00.0 Ethernet controller: Beijing Wangxun Technology Co., Ltd. Ethernet Controller RP1000 for 10GbE SFP+ (rev 03)
Subsystem: Inspur Electronic Information Industry Co., Ltd. Device 0085
Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B- DisINTx+
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=fast >TAbort- <TAbort- <MAbort- <SERR- <PERR- INTx-
Latency: 0
Interrupt: pin A routed to IRQ 158
NUMA node: 3
Region 0: Memory at e3c00000 (64-bit, non-prefetchable) [size=128K]
Region 4: Memory at e3c40000 (64-bit, non-prefetchable) [size=16K]
Expansion ROM at e3b00000 [disabled] [size=512K]
Capabilities: [40] Power Management version 3
Flags: PMEClk- DSI- D1- D2- AuxCurrent=375mA PME(D0+,D1-,D2-,D3hot+,D3cold+)
Status: D0 NoSoftRst- PME-Enable- DSel=0 DScale=0 PME-
Capabilities: [50] MSI: Enable- Count=1/1 Maskable+ 64bit+
Address: 0000000000000000 Data: 0000
Masking: 00000000 Pending: 00000000
Capabilities: [70] Express (v2) Endpoint, MSI 00
DevCap: MaxPayload 512 bytes, PhantFunc 0, Latency L0s unlimited, L1 unlimited
ExtTag+ AttnBtn- AttnInd- PwrInd- RBE+ FLReset+ SlotPowerLimit 0.000W
DevCtl: CorrErr+ NonFatalErr+ FatalErr+ UnsupReq-
RlxdOrd+ ExtTag+ PhantFunc- AuxPwr- NoSnoop+ FLReset-
MaxPayload 512 bytes, MaxReadReq 256 bytes
DevSta: CorrErr+ NonFatalErr- FatalErr- UnsupReq+ AuxPwr+ TransPend-
LnkCap: Port #0, Speed 8GT/s, Width x8, ASPM L0s L1, Exit Latency L0s <512ns, L1 <4us
ClockPM- Surprise- LLActRep- BwNot- ASPMOptComp+
LnkCtl: ASPM Disabled; RCB 64 bytes Disabled- CommClk+
ExtSynch- ClockPM- AutWidDis- BWInt- AutBWInt-
LnkSta: Speed 8GT/s (ok), Width x8 (ok)
TrErr- Train- SlotClk+ DLActive- BWMgmt- ABWMgmt-
DevCap2: Completion Timeout: Not Supported, TimeoutDis+, LTR-, OBFF Not Supported
AtomicOpsCap: 32bit- 64bit- 128bitCAS-
DevCtl2: Completion Timeout: 50us to 50ms, TimeoutDis+, LTR-, OBFF Disabled
AtomicOpsCtl: ReqEn-
LnkCtl2: Target Link Speed: 8GT/s, EnterCompliance- SpeedDis-
Transmit Margin: Normal Operating Range, EnterModifiedCompliance- ComplianceSOS-
Compliance De-emphasis: -6dB
LnkSta2: Current De-emphasis Level: -3.5dB, EqualizationComplete+, EqualizationPhase1+
EqualizationPhase2+, EqualizationPhase3+, LinkEqualizationRequest-
Capabilities: [b0] MSI-X: Enable+ Count=64 Masked-
Vector table: BAR=4 offset=00000000
PBA: BAR=4 offset=00002000
Capabilities: [d0] Vital Product Data
Product Name: Wang Xun 10GbE Family Controller [ncsi]
Read-only fields:
[PW] Part number: YZNC-02343-101
[SN] Serial number: SN-1234567000000
[RV] Reserved: checksum good, 4 byte(s) reserved
End
Capabilities: [100 v2] Advanced Error Reporting
UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UEMsk: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
UEA0: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-

```

2.3 烧录稳定性测试

1. 固件在线升级多次，升级过程无报错，网卡的版本信息、PCIe 信息、VPD 信息检查测试等正常。
2. 固件异常测试
烧录过程多次中断，再重复烧录，均可成功。

```
[root@localhost wxtool]# ./wxtool -F RP1000P2SFP_20010.img
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:RP1000P2SFP_20010.sig

FILE SHA256 sum:
af9297997f1b7244a3c4a8cd3c799e80cacd82d40c1564e72673bcb9403ef074  RP1000P2SFP_20010.sig
c14e35de2d6e0e519226a303aac944589a3c4979310fb46e261cccd0a0c24916  RP1000P2SFP_20010.img

Verified OK

Raptor PCI Utils tool is started.
We will download 1 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0000
The card's sub_id : 0000
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.0 adaptor card [ 0000:09:00.0 ]:
Old: MAC Address0 is: 020303030303
    MAC Address1 is: 020303030304
    SN is: 001123334455667788

vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller
pn_str: SP1000A
sn_str: 001123334455667788
Erase sector1 command, return status = 0
Retore mac addr in backup area
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 15^C 中断
[root@localhost wxtool]#
```



```

[root@localhost wxtool]# ./wxtool -F RP1000P2SFP_20010.img
Please Select which kind of NIC to upgrade:
  1. 1000M_nics_1ports
  2. 1000M_nics_2ports
  3. 1000M_nics_4ports
  4. 10_Gigabit_nics
please input choose number: 4
SIG_FILE:RP1000P2SFP_20010.sig

FILE SHA256 sum:
af9297997f1b7244a3c4a8cd3c799e80cacd82d40c1564e72673bcb9403ef074  RP1000P2SFP_20010.sig
c14e35de2d6e0e519226a303aac944589a3c4979310fb46e261cccd0a0c24916  RP1000P2SFP_20010.img

Verified OK

Raptor PCI Utils tool is started.
We will download 1 in 1 cards depends on the configuration.

Checking sub_id .....
The image's sub_id : 0000
The card's sub_id : 0000
It is a right image
Checking dev_id .....
The image's dev_id : 1001
The card's dev_id : 1001
flash write-protect register val : 0
Start to download No.0 adaptor card [ 0000:09:00.0 ]:
Old: MAC Address0 is: ffffffff
    MAC Address1 is: ffffffff
Get backup mac addr in backup area.
Old backup:
    MAC Address0 is: 020303030303
    MAC Address1 is: 020303030304
    SN is: ffffffff

vpd_sn_change_t
id_str: Wang Xun 10GbE Family Controller
pn_str: SP1000A
sn_str: ffffffff
Start to erase flash ..... complete 100%
Start to download image to adaptor ..... complete 99%
lan0 - 0x18036 : 1804 - 0x18037 : 0050
lan0 : main: 24 - pre: 4 - post: 16
lan1 - 0x18036 : 1804 - 0x18037 : 0050
lan1 : main: 24 - pre: 4 - post: 16
New: MAC Address0 is: 0x020303030303
    MAC Address1 is: 0x020303030304
    SN is: ffffffff

Download Complete 100
[ ^_^ ] Raptor PCI Utils upgrading is succeeded! 1 cards are upgraded!!

```

重新烧录完成

2.4 MAC 设置

```

[root@localhost 3.6.10]# ./wxtool_arm64 -s 07:00.1 -l 0
[root@localhost 3.6.10]# ifconfig eno4
eno4: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 10.10.10.10  netmask 255.255.255.0  broadcast 10.10.10.255
    inet6 fe80::2:3ff:fe04:508  prefixlen 64  scopeid 0x20<link>
    ether 02:02:03:04:05:08  txqueuelen 1000  (Ethernet)
    RX packets 26111487  bytes 1566689258 (1.4 GiB)
    RX errors 0  dropped 551  overruns 0  frame 0
    TX packets 26110953  bytes 1096660654 (1.0 GiB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

```

```
[root@localhost 3.6.10]# ./wxtool_arm64 -s 07:00.1 -m 020203040588
flash write-protect register val : 0
New:MAC Address1 is: 0x020203040588
[root@localhost 3.6.10]# ifconfig eno4
eno4: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 10.10.10.10  netmask 255.255.255.0  broadcast 10.10.10.255
    inet6 fe80::2:3ff:fe04:508  prefixlen 64  scopeid 0x20<link>
    ether 02:02:03:04:05:08  txqueuelen 1000  (Ethernet)
    RX packets 26111490  bytes 1566689438 (1.4 GiB)
    RX errors 0  dropped 554  overruns 0  frame 0
    TX packets 26110953  bytes 1096660654 (1.0 GiB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

-----重启后-----

```
[root@localhost 3.6.10]# ./wxtool_arm64 -s 07:00.1 -i
show nic info
adaptor card [ 07:00.1 ] info:
MAC Address1 is: 0x020203040588
    SN is: ffffffffffffffff
The chip version is B
[root@localhost 3.6.10]# ifconfig eno4
eno4: flags=4098<BROADCAST,MULTICAST>  mtu 1500
    ether 02:02:03:04:05:88  txqueuelen 1000  (Ethernet)
    RX packets 0  bytes 0 (0.0 B)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 0  bytes 0 (0.0 B)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

2.5 PXE

UEFI (x86&arm) &Legacy(x86)

1. 点灯测试: BIOS 界面 Blink LEDS 设置为 5s, 对应网口 LED 灯闪烁 5s, Blink LEDS 变为 0。
2. 网卡信息检查: BIOS 高级选项中可以查看所有网卡的信息。
3. 10M (电口卡)、100M (电口卡)、1000M、10000M 速率下 ipv4/ipv6 安装系统测试。
Legacy:

```
ipXE (PCI 01:00.0) starting execution...ok
ipXE initialising devices...ok

ipXE 1.1.7+ -- Open Source Network Boot Firmware -- http://ipxe.org
Features: DNS HTTP iSCSI TFTP AoE ELF MBOOT PXE bzImage Menu PXEXT

net0: 30:09:f9:20:08:58 using RP1000 on 0000:01:00.0 (open)
[Link:up, TX:0 TXE:0 RX:0 RXE:0]
Configuring (net0 30:09:f9:20:08:58)..._
```

UEFI:



4. 稳定性测试: 反复测试 50 次以上, 网卡无异常。
5. 多网卡兼容性测试: 光口卡和电口卡能同时在线, 任何一个网口的 PXE 功能都正常。

2.6 网卡稳定性测试

1. 服务器 reboot 1000 次, 网卡 link 状态, 端口数量, pcie 不降带宽不掉卡, 网络正常连通。

部分脚本内容:

```
def reboot_test(self):
    if self.link_stat():
        if self.pcie_link():
            print("os will reboot in 3 s")
            time.sleep(3)
            os.system("reboot")
```

测试日志:

```
root@ LS3A5000:~ # tail -5 /root/reboot_ifcon.log
the 1631 time test is ok
the 1632 time test is ok
the 1633 time test is ok
the 1634 time test is ok
the 1635 time test is ok
```

2. Ifconfig ethx down/up 1000 次, 插拔网线测试, 无异常现象。部分脚本示例如下:

```
##Sapphire dual Ports check, and return status, result
os.system("ifconfig %s down" % sp_net_devs[0])
os.system("ifconfig %s 10.10.10.5/24 up"%sp_net_devs[0])
time.sleep(3)

status, result = subprocess.getstatusoutput("ping 10.10.10.10 -c 2")
if status == 0:
    result = result.split("\n")
    #print(result)
else:
    print("DEBUG: ping cmd failed")
    os.system("echo 'ping cmd failed..' >> test_result.log")
    break

ping_flag = 0
os.system("ethtool %s"%sp_net_devs[0])
for i in result:
    print(i)
    if "64 bytes from" in i:
        ping_flag = 1
if ping_flag == 1:
    print("eth0 ping passed...")
    os.system("echo 'eth0 ping pass..' >> test_result.log")
    os.system("echo `ethtool %s` >> linstatus.log" % sp_net_devs[0])
else:
    print("eth0 ping failed...")
    os.system("echo `ethtool %s` >> linstatus.log" % sp_net_devs[0])
```

3. 卸载加载驱动 1000 次, 无异常现象。部分脚本示例如下:

```
for i in range(1000):
    print "====This is ",i,"times===="
    os.system("rmmod %s" % driver_name)
    time.sleep(2)
    os.system("modprobe %s" % driver_name)
    time.sleep(1)
```

4. 长时间 iperf 测试: 连续测试 12h, 流量稳定, 网卡无异常。测试结果如下:

```
[root@localhost ~]# tail -5 iperf_rx_eth.txt
[  4] 62970.0-62980.0 sec  10.9 GBytes  9.37 Gbits/sec
[  4] 62980.0-62990.0 sec  10.9 GBytes  9.37 Gbits/sec
[  4] 62990.0-63000.0 sec  10.9 GBytes  9.38 Gbits/sec
[  4] 63000.0-63010.0 sec  10.9 GBytes  9.38 Gbits/sec
[  4]  0.0-63010.3 sec   0.00 (-0.36 Gbits/sec
```


5. 万兆 ocp 电口卡, down/up,卸载加载驱动 3000 次后插拔网线 link, 能再次正常 link。
reboot 1000 次后也正常

2.7 LLDP

1. 万兆网卡固件默认网口 LLDP 状态是 on。命令 “ethtool --show-priv-flags ethx” 可以查看 lldp 状态, “ethtool --set-priv-flags ethx lldp off/on” 可以修改 lldp 的状态。

```
root@zhaoxin-PC:/home# ethtool --show-priv-flags enp3s0f0
Private flags for enp3s0f0:
lldp: on
root@zhaoxin-PC:/home# ethtool --set-priv-flags enp3s0f0 lldp off
root@zhaoxin-PC:/home# ethtool --show-priv-flags enp3s0f0
Private flags for enp3s0f0:
lldp: off
```

```
36 [root@localhost 3.7.2]# lspci -d 8088: -nm
37 01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
38 01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
39 02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0095"
40 02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0095"
41 61:00.0 "0200" "8088" "1001" -r03 "1bd4" "0085"
42 61:00.1 "0200" "8088" "1001" -r03 "1bd4" "0085"
43 [root@localhost 3.7.2]# ethtool --show-priv-flags p12p1
44 Private flags for p12p1:
45 lldp: off
46 [root@localhost 3.7.2]# ethtool --show-priv-flags p12p2
47 Private flags for p12p2:
48 lldp: off
49 [root@localhost 3.7.2]# ethtool --show-priv-flags p120p1
50 Private flags for p120p1:
51 lldp: off
52 [root@localhost 3.7.2]# ethtool --show-priv-flags p120p2
53 Private flags for p120p2:
54 lldp: off
55 [root@localhost 3.7.2]#
```

```
[root@localhost ~]#
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 "0200" "8088" "0101" -r01 "8088" "c201"
01:00.1 "0200" "8088" "0101" -r01 "8088" "c201"
02:00.0 "0200" "8088" "1001" -r03 "1bd4" "0084"
02:00.1 "0200" "8088" "1001" -r03 "1bd4" "0084"
61:00.0 "0200" "8088" "1001" -r03 "1ff9" "0085"
61:00.1 "0200" "8088" "1001" -r03 "1ff9" "0085"
[root@localhost ~]# ethtool --show-priv-flags p12p1
Private flags for p12p1:
lldp: on
[root@localhost ~]# ethtool --show-priv-flags p12p2
Private flags for p12p2:
lldp: on
[root@localhost ~]# ethtool --show-priv-flags p120p1
Private flags for p120p1:
lldp: off
[root@localhost ~]# ethtool --show-priv-flags p120p2
Private flags for p120p2:
lldp: off
[root@localhost ~]#
```

```
[root@localhost ~]# lspci -d 8088: -nm
01:00.0 '0200' '8088' '0101' -r01 '8088' 'c201'
01:00.1 '0200' '8088' '0101' -r01 '8088' 'c201'
02:00.0 '0200' '8088' '1001' -r03 '1ff9' '0075'
02:00.1 '0200' '8088' '1001' -r03 '1ff9' '0075'
61:00.0 '0200' '8088' '1001' -r03 '1bd4' '0097'
61:00.1 '0200' '8088' '1001' -r03 '1bd4' '0097'

[root@localhost ~]# ethtool --show-priv-flags p12p1
Private flags for p12p1:
lldp: off

[root@localhost ~]# ethtool --show-priv-flags p12p2
Private flags for p12p2:
lldp: off

[root@localhost ~]# ethtool --show-priv-flags p120p2
Private flags for p120p2:
lldp: off

[root@localhost ~]# ethtool --show-priv-flags p120p1
Private flags for p120p1:
lldp: off

[root@localhost ~]#
```

2. OS 下, 当网口 lldp 为 on 时, 会发送 lldp 报文, 对端 lldp 为 off 时可以收到对应的 lldp 报文; 而 lldp 为 on 时 lldp 报文被固件过滤掉, 无法抓到。

```
root@zhaoxin-PC:/home # tcpdump -nei enp3s0f0 ether proto 0x88CC
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on enp3s0f0, link-type EN10MB (Ethernet), capture size 262144 bytes
02:02:03:04:05:06 > 01:80:c2:00:00:0e, ethertype LLDP (0x88cc), length 60: LLDP, length 46:
WangXun_SP_firmware
02:02:03:04:05:06 > 01:80:c2:00:00:0e, ethertype LLDP (0x88cc), length 60: LLDP, length 46:
WangXun_SP_firmware
```

3. lldp on/off 时, iperf 测试无异常。
4. 先不插网线, 20 分钟后, 插上网线, lldp 报文收发正常。
5. LLDP 报文始终获取实际物理 mac 地址, 不受 bond 操作影响

```
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/21)
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/22)
Connection successfully activated (master waiting for slaves) (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/23)
Currently Active Slave: None
[root@localhost ~]# ip netns exec ifconfig
bond0: flags=5187<UP,BROADCAST,RUNNING,MASTER,MULTICAST> mtu 1500
inet 10.1.1.1 netmask 255.255.255.0 broadcast 10.1.1.255
inet6 fe80::cfc3:300a:ef27:35 profile=64 scope=0x20<link>
ether 02:02:03:04:05:06 txqueuelen 1000 (Ethernet)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 10 bytes 1870 (1.8 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eml1s0f0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
17:35:05.204750 IP6 (Flowlabel 0xb1d59, Mtu 255, next-header ICMPv6 (58) payload
> ff02::2: [icmp6 sum ok] ICMP6, router solicitation, length 8
17:35:07.691601 LLDP, length 46
Chassis ID TLV (1), length 7
Subtype MAC address (4): 30:09:f9:22:99:5f (oui Unknown)
Port ID TLV (2), length 7
Subtype MAC address (3): 30:09:f9:22:99:5f (oui Unknown)
Time to Live TLV (3), length 2: TTL 120s
System Name TLV (5), length 20: WangXun_EM_firmware
System Name TLV (5), length 20: WangXun_EM_firmware
End TLV (0), length 0
```

2.8 NCSI

1、设备初始化测试:

测试步骤:

- a. 不插电源, 网卡网口不插网线, 插上电源, 等待 bmc 初始化完成, 网口 0/1 插上网线, 查看 ip 通信情况;
- b. 不插电源, 网卡网口 0 插上网线, 插上电源, 等待 bmc 初始化完成, 观察现象;
- c. 不插电源, 网卡网口 1 插上网线, 插上电源, 等待 bmc 初始化完成, 观察现象;
- d. 不插电源, 所有网口都插网线, 插上电源, 等待 bmc 初始化完成, 网口 0/1 插上网线观察现象。

测试结果:

Bmc 可以识别到网卡，有虚拟网口 eth0/1； bmc 对应的板载卡的网口，能获取到动态 ip，或者手动配的静态 ip，可以 ping 通

```
[root@localhost ~]# ifconfig eno4 192.168.14.121
[root@localhost ~]#
```

```
[root@localhost ~]# ping 192.168.14.121
PING 192.168.14.121 (192.168.14.121) 56(84) bytes of data.
64 bytes from 192.168.14.121: icmp_seq=1 ttl=128 time=2.06 ms
64 bytes from 192.168.14.121: icmp_seq=2 ttl=128 time=1.17 ms
64 bytes from 192.168.14.121: icmp_seq=3 ttl=128 time=1.12 ms
64 bytes from 192.168.14.121: icmp_seq=4 ttl=128 time=1.60 ms
64 bytes from 192.168.14.121: icmp_seq=5 ttl=128 time=1.22 ms
```

2、网口插拔测试

测试步骤:

在系统初始化完成的基础上，长 ping BMC 上的 eth1 的 ip 地址，然后循环 0-1 插拔换口。

测试结果:

插拔网口中间会断 ping 几秒，然后恢复正常。

3、系统启动测试

测试步骤:

- OS 下执行 reboot;
- BMC 远程登录，网页上点击硬重启;
- OS 下重启，在 BIOS 界面重启 (ctrl+alt+del);
- OS 下执行 poweroff。

测试结果:

关机的整个过程，BMC eth1（板载卡对应的网口）的 ip 地址可以一直 ping 通。

4、OS 下驱动测试

测试步骤:

- 加载/卸载驱动: rmmod txgbe, modprobe txgbe;
- down/up 网口;
- 强制切换速率。

测试结果:

BMC eth1 的 ip 地址可以一直 ping 通。

5、BIOS 界面切换 UEFI/Legacy 测试

测试步骤:

- 设备上电，进入 BIOS 界面，配置启动方式为 UEFI，保存，断电重启，BMC 初始化完成，远端一直 ping BMC 地址，直到进入 uefi 启动界面;
- 设备上电，进入 BIOS 界面，配置启动方式为 legacy，保存，断电重启，BMC 初始化完成，远端一直 ping BMC 地址，直到进入 legacy 启动界面;

测试结果:

可以正常完成启动初始化，期间 bmc 可以 ping 通，无丢包。

6、arp 压力测试

测试步骤:

BMC 设备与另一台 linux 设备直连，在另一台设备上运行 arp.py，持续发 arp 报文，并且对端一直 ping bmc 共享口 ip。

测试结果:

在持续长时间发送 arp 包的时候, ping 有丢包; 停止 arp 发包后, ping 没有丢包, 网卡未出现其他异常。

7、共享口 ip 更新 bmc 固件

测试步骤: 用共享口的 ip, 登录 bmc 网页, 升级更新 bmc 的固件。

测试结果: 可以更新成功

2.9 SMBUS

2.9.1. NCSI command 测试 (光口卡 RP0075)

查看当前网卡 list:

```
~ # ncsiCmdTest list
```

Index	VendorName	DeviceName	Type	Location
1	NETSWIFT	NIC_Inspur_Change_SP1000A_10G_LC_PCIE_2	PCIE	#CPU1_PE1_P0_R7_SL0
#	NETSWIFT	0X0103	ULP	

```
~ #
```

设置 comand 延迟时间:

```
~ # ncsiCmdTest set_time 50 ms
Info : Set time interval 50 ms successfully!
~ #
```

获取网口 link 状态:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x0a

网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x0a

```
this is 0 time test:
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0xa
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x00 0x07 0x00 0x20
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0xa
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x00 0x07 0x00 0x20
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
```

获取 version id, 版本号:

ncsiCmdTest mctp pcie 1 0x92 0x0 raw 0x15

ncsiCmdTest mctp pcie 1 0x92 0x1 raw 0x15


```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0xf1 0xf0 0xf1 0x00
0x00 0x00 0x00 0x00
0x57 0x78 0x6b 0x6a
0x53 0x70 0x49 0x63
0x00 0x00 0x00 0x00
0x80 0x12 0x00 0x10
0x10 0x01 0x80 0x88
0x00 0x75 0x1b 0xd4
0x57 0x58 0x4b 0x4a
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0xf1 0xf0 0xf1 0x00
0x00 0x00 0x00 0x00
0x57 0x78 0x6b 0x6a
0x53 0x70 0x49 0x63
0x00 0x00 0x00 0x00
0x80 0x12 0x00 0x10
0x10 0x01 0x80 0x88
0x00 0x75 0x1b 0xd4
0x57 0x58 0x4b 0x4a
0x00 0x00 0x00 0x00

```

获取 SN:

ncsiCmdTest mctp pcie 1 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10
ncsiCmdTest mctp pcie 1 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

OEM cmd : Get SN
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x12 0x34
0x56 0x78 0x91 0x23
0x45 0x67 0x89 0x00
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

OEM cmd : Get SN
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x12 0x34
0x56 0x78 0x91 0x23
0x45 0x67 0x89 0x00
0x00 0x00 0x00 0x00

```

获取 LLDP 状态:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11
网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

OEM cmd : Get LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x00 0x00
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

OEM cmd : Get LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x00 0x00
0x00 0x00 0x00 0x00

```

设置 LLDP 状态:

网口 0 LLDP off: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a
0x1 0x12 0x00

网口 1 LLDP off: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

网口 0 LLDP on: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

网口 1 LLDP on: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00 0x00

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00 0x00
```

获取网口 mac:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x04
0x06 0x08 0x09 0x05
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x04
0x06 0x08 0x09 0x06
0x00 0x00 0x00 0x00
```

获取芯片温度:

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

OEM cmd : Get Temperature
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x37
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

OEM cmd : Get Temperature
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x37
0x00 0x00 0x00 0x00
```

如上图：0x55 位置为最大温度 85℃，0x37 位置为实时温度 55℃。

获取网卡 VPD:

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

OEM cmd : Get VPD
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x15 0x82 0x20
0x00 0x57 0x61 0x6e
0x67 0x20 0x58 0x75
0x6e 0x20 0x31 0x30
0x47 0x62 0x45 0x20
0x46 0x61 0x6d 0x69
0x6c 0x79 0x20 0x43
0x6f 0x6e 0x74 0x72
0x6f 0x6c 0x6c 0x65
0x72 0x90 0x2e 0x00
0x50 0x4e 0x0e 0x59
0x5a 0x4e 0x43 0x2d
0x30 0x33 0x32 0x35
0x35 0x2d 0x31 0x30
0x31 0x53 0x4e 0x12
0x31 0x32 0x33 0x34
0x35 0x36 0x37 0x38
0x39 0x31 0x32 0x33
0x34 0x35 0x36 0x37
0x38 0x39 0x52 0x56
0x05 0x8e 0x00 0x00
0x00 0x00 0x78 0xff
0xff 0xff 0xff 0xff
```

获取网卡 phy-mac:

在 os 下修改网口 mac 后，使用命令 0x13 读取当前寄存器 mac 地址，0x16 读取 phy 地址（与未修改前一致）

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

```
[root@INSPUR ~]# ifconfig ens25f0 hw ether 00:22:33:44:55:66
[root@INSPUR ~]# ifconfig ens25f1 hw ether 00:22:33:44:55:77
[root@INSPUR ~]#
```

```

~ # ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x22
0x33 0x44 0x55 0x66
0x00 0x00 0x00 0x00

~ # ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x22
0x33 0x44 0x55 0x77
0x00 0x00 0x00 0x00

~ #
~ # ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

Info : Unknown OEM Command.
Info : The OEM Command:0x16 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x04
0x06 0x08 0x09 0x05
0x00 0x00 0x00 0x00

~ # ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

Info : Unknown OEM Command.
Info : The OEM Command:0x16 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x04
0x06 0x08 0x09 0x06
0x00 0x00 0x00 0x00

```

获取网卡 SFF Info:

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

```

Info : Unknown OEM Command.
Info : The OEM Command:0x17 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00

```

lan number: 1

CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

```

Info : Unknown OEM Command.
Info : The OEM Command:0x17 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00

```


2.9.2. NCSI command 测试 (光口卡 RP0084)

查看当前网卡 list:

```
~ # ncsiCmdTest list
```

Index	VendorName	DeviceName	Type	Location
1	NETSWIFT	NIC_Inspur_Change_SP1000A_10G_LC_PCIE_2	PCIE	#CPU1_PE1_P0_R7_SL0
#	NETSWIFT	0x0103	ULP	

```
~ #
```

设置 comand 延迟时间:

```
~ # ncsiCmdTest set_time 50 ms
Info : Set time interval 50 ms successfully!
~ #
```

获取网口 link 状态:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x0a

网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x0a

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0xa
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x00 0x07 0x00 0x20
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
|
lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0xa
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x00 0x07 0x00 0x20
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
```

获取 version id, 版本号:

ncsiCmdTest mctp pcie 1 0x92 0x0 raw 0x15

ncsiCmdTest mctp pcie 1 0x92 0x1 raw 0x15

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0xf1 0xf0 0xf1 0x00
0x00 0x00 0x00 0x00
0x57 0x78 0x6b 0x6a
0x53 0x70 0x49 0x63
0x00 0x00 0x00 0x00
0x80 0x22 0x00 0x10
0x10 0x01 0x80 0x88
0x00 0x84 0x1b 0xd4
0x57 0x58 0x4b 0x4a
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0xf1 0xf0 0xf1 0x00
0x00 0x00 0x00 0x00
0x57 0x78 0x6b 0x6a
0x53 0x70 0x49 0x63
0x00 0x00 0x00 0x00
0x80 0x22 0x00 0x10
0x10 0x01 0x80 0x88
0x00 0x84 0x1b 0xd4
0x57 0x58 0x4b 0x4a
0x00 0x00 0x00 0x00
```

获取 SN:

ncsiCmdTest mctp pcie 1 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

ncsiCmdTest mctp pcie 1 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

OEM cmd : Get SN
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x12 0x34
0x56 0x78 0x91 0x23
0x45 0x67 0x89 0x00
0x00 0x00 0x00
|
lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

OEM cmd : Get SN
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x12 0x34
0x56 0x78 0x91 0x23
0x45 0x67 0x89 0x00
0x00 0x00 0x00
```

获取 LLDP 状态:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

```
lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

OEM cmd : Get LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x01 0x00
0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11

OEM cmd : Get LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x01 0x00
0x00 0x00 0x00
```

设置 LLDP 状态:

网口 0 LLDP off: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

网口 1 LLDP off: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

网口 0 LLDP on: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

网口 1 LLDP on: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1

OEM cmd : Set LLDP
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00

```

获取网口 mac:

网口 0: ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

网口 1: ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x04
0x06 0x08 0x09 0x05
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x04
0x06 0x08 0x09 0x06
0x00 0x00 0x00 0x00

```

获取芯片温度:

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

OEM cmd : Get Temperature
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x36
0x00 0x00 0x00 0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

OEM cmd : Get Temperature
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x37
0x00 0x00 0x00 0x00

```

如上图：0x55 位置为最大温度 85℃，0x28 位置为实时温度 40℃。

获取网卡 VPD:

```

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15
ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

```

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

OEM cmd : Get VPD
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x15 0x82 0x20
0x00 0x57 0x61 0x6e
0x67 0x20 0x58 0x75
0x6e 0x20 0x31 0x30
0x47 0x62 0x45 0x20
0x46 0x61 0x6d 0x69
0x6c 0x79 0x20 0x43
0x6f 0x6e 0x74 0x72
0x6f 0x6c 0x6c 0x65
0x72 0x90 0x2e 0x00
0x50 0x4e 0x0e 0x59
0x5a 0x4e 0x43 0x2d
0x30 0x33 0x32 0x35
0x35 0x2d 0x31 0x30
0x32 0x53 0x4e 0x12
0x31 0x32 0x33 0x34
0x35 0x36 0x37 0x38
0x39 0x31 0x32 0x33
0x34 0x35 0x36 0x37
0x38 0x39 0x52 0x56
0x05 0x8d 0x00 0x00
0x00 0x00 0x78 0xff
0xff 0xff 0xff

```

获取网卡 phy-mac:

在 os 下修改网口 mac 后，使用命令 0x13 读取当前寄存器 mac 地址，0x16 读取 pty 地址（与未修改前一致）

```

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16
ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

```

```

[root@INSPUR ~]# ifconfig ens25f0 hw ether 00:22:33:44:55:66
[root@INSPUR ~]# ifconfig ens25f1 hw ether 00:22:33:44:55:77
[root@INSPUR ~]#

```



```

~ # ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x22
0x33 0x44 0x55 0x66
0x00 0x00 0x00 0x00

~ # ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

OEM cmd : Get Mac
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x22
0x33 0x44 0x55 0x77
0x00 0x00 0x00 0x00

~ #
~ # ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

Info : Unknown OEM Command.
Info : The OEM Command:0x16 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x04
0x06 0x08 0x09 0x05
0x00 0x00 0x00 0x00

~ # ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

Info : Unknown OEM Command.
Info : The OEM Command:0x16 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x04
0x06 0x08 0x09 0x06
0x00 0x00 0x00 0x00

```

获取网卡 SFF Info:

ncsiCmdTest mctp pcie 2 0x92 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

ncsiCmdTest mctp pcie 2 0x92 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

```

lan number: 0
CMD: ncsiCmdTest mctp pcie 2 0x92 0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

Info : Unknown OEM Command.
Info : The OEM Command:0x17 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00

lan number: 1
CMD: ncsiCmdTest mctp pcie 2 0x92 1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

Info : Unknown OEM Command.
Info : The OEM Command:0x17 or Parameter may not be correct.
Info : The Ncsi OEM Command seems incorrect!
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00

```

2.9.3. NCSI command 测试 (电口卡 RP0085)

查看当前网卡 list:

```
X11 forwarding request failed on channel 0
~ # ncsiCmdTest list
Index VendorName DeviceName Type Location
1 Intel Corporation I350 Gigabit Network Connection PCIe #CPU1_PE1_P0_R7_SL0
2 NETSWIFT NIC_Inspur_Change_SP1000A_10G_LC_PCIE_2 PCIe #CPU1_PE2_P1_R7_SL1
7 Intel Corporation Ethernet Network Adapter E810-C-Q2 PCIe #CPU0_PE1_P6_R5_SL1
8 NETSWIFT 0x4001 PCIe #CPU0_PE2_P7_R5_SL0
# NETSWIFT 0x1001 OCP
```

设置 comand 延迟时间:

```
~ # ncsiCmdTest set_time 50 ms
Info : Set time interval 50 ms successfully!
~ #
```

获取网口 link 状态:

网口 0: ncsiCmdTest rbt 0x0 raw 0xa

网口 1: ncsiCmdTest rbt 0x1 raw 0xa

```
CMD: ncsiCmdTest rbt 0x0 raw 0xa
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x00 0x07 0x00 0x30
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
```

获取 version id, 版本号:

ncsiCmdTest rbt 0x0 raw 0x15

ncsiCmdTest rbt 0x1 raw 0x15

```
CMD: ncsiCmdTest rbt 0x0 raw 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0xf1 0xf0 0xf1 0x00
0x00 0x00 0x00 0x00
0x57 0x78 0x6b 0x6a
0x53 0x70 0x49 0x63
0x00 0x00 0x00 0x00
0x80 0x32 0x00 0x10
0x10 0x01 0x80 0x88
0x00 0x85 0x1b 0xd4
0x57 0x58 0x4b 0x4a
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
```

获取 SN:

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x11 0x11
0x11 0x22 0x22 0x22
0x33 0x33 0x33 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

CMD: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x10
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x10 0x11 0x11
0x11 0x22 0x22 0x22
0x33 0x33 0x33 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

获取 LLDP 状态:

网口 0: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x1

网口 1: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x1

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x01 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

CMD: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x11
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x11 0x01 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

设置 LLDP 状态:

网口 0 LLDP off: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12
0x0

网口 1 LLDP off: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12
0x0

网口 0 LLDP on: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12
0x1

网口 1 LLDP on: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12
0x1

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x0
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

lan number: 0

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x12 0x1
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x12 0x01 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

获取网口 mac:

网口 0: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

网口 1: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x02
0x03 0x04 0x05 0x06
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

CMD: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x02 0x02
0x03 0x04 0x05 0x07
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

获取芯片温度:

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14


```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x30
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
|
CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x14
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x14 0x55 0x31
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

如上图：0x55 位置为最大温度 85℃，0x30 位置为实时温度 48℃。

获取网卡 VPD:

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x15
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x15 0x82 0x27
0x00 0x57 0x61 0x6e
0x67 0x20 0x58 0x75
0x6e 0x20 0x31 0x30
0x47 0x62 0x45 0x20
0x46 0x61 0x6d 0x69
0x6c 0x79 0x20 0x43
0x6f 0x6e 0x74 0x72
0x6f 0x6c 0x6c 0x65
0x72 0x20 0x5b 0x6e
0x63 0x73 0x69 0x5d
0x90 0x2e 0x00 0x50
0x4e 0x0e 0x59 0x5a
0x4e 0x43 0x2d 0x30
0x32 0x33 0x34 0x33
0x2d 0x31 0x30 0x31
0x53 0x4e 0x12 0x31
0x31 0x31 0x31 0x31
0x31 0x32 0x32 0x32
0x32 0x32 0x32 0x33
0x33 0x33 0x33 0x33
0x33 0x52 0x56 0x05
0x3b 0x00 0x00 0x00
0x00 0x78 0xff 0xff
0xff 0xff 0x00 0x00
0x00 0x00

```

获取网卡 phy-mac:

在 os 下修改网口 mac 后，使用命令 0x13 读取当前寄存器 mac 地址，0x16 读取 pty 地址（与未修改前一致）

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16

```

[root@INSPUR ~]# ifconfig ens17f0 hw ether 00:11:33:22:55:66
[root@INSPUR ~]# ifconfig ens17f1 hw ether 00:11:33:22:55:77
[root@INSPUR ~]#

```

```

~ # ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x11
0x33 0x22 0x55 0x66
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
~ # ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x13
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x13 0x00 0x11
0x33 0x22 0x55 0x77
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
~ #
~ # ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x02
0x03 0x04 0x05 0x06
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
~ # ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x16
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x16 0x02 0x02
0x03 0x04 0x05 0x07
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

获取网卡 SFF Info:

ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17

```

CMD: ncsiCmdTest rbt 0x0 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00
CMD: ncsiCmdTest rbt 0x1 raw 0x50 0x57 0x58 0x4b 0x4a 0x1 0x17
ResponseCode: 0x0000
ReasonCode: 0x0000
Response Data:
0x57 0x58 0x4b 0x4a
0x01 0x17 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
0x00 0x00

```

2.10 LED 测试

- 1、link down 时，不插网线（或者对端 down 掉），link 灯全灭；默认 LLDP 开启时，插上网线，os 下 ifconfig ethx down，只能 down 掉 os 下的 link 逻辑，不能 down 掉 phy，link 灯，速率灯常亮。
- 2、link up 时，link/act 灯常亮绿色；
- 3、默认速率 10G link up 时，速率灯绿色，link/act 灯亮绿色；
- 4、速率为 1G 时，速率灯亮橙色，link/act 灯亮绿色；
- 5、有流量时，link/act 灯闪烁；ethtool -p ethx 点灯，速率灯闪烁。
- 6、oem 工具定制 led；使用 oem 工具，分别修改四个 led 灯的颜色（置 0，切换速率表现），重新烧录固件重启后，led 表现与定制内容一致，且切换速率/运行流量/点灯行为均有对应表现。

```
ethtool -p 点灯测试： 速率灯闪烁
1ff9: 0085: 测试 ok
1bd4: 0085: 测试 ok
1bd4: 0075: 测试 ok
1ff9: 0075: 需要 txgbe-1.3.5-20231101 版本才可以
1bd4: 0084: 测试 ok
1bd4: 0095: 测试 ok
1bd4: 0097: 测试 ok
```

2.11 兼容性测试

在下表主流国产平台及 OS 上，使用固件 20010 版本分别搭载驱动 txgbe-1.3.5、功能正常。

平台	操作系统
kunpeng920	Kylin-Server-V10-SP3-General-Release-2303-arm64-2023-03-24
kunpeng920	UnionTech OS Server 20 1040d 20210524 aarch64
FT2000+	Kylin Linux Advanced Server release V10 (SP1)
SW3231	UnionTech OS Server 20 Military
龙芯 3A3000	Kylin Linux Advanced Server V10 (Tercel)

3. 遗留问题

SAP-237 未插光模块时 dmesg 打印 SWESMBI Software EEPROM semaphore not granted, 不影响功能使用

4. 测试总结

基于固件 20010 版本的功能测试、稳定性测试和兼容性测试均符合预期，测试通过。