

QSFP-LR4-100G TEST REPORT (Cisco)



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1. Test Purpose

By building test scenarios and simulating the customer's usage environment, we test whether the module performance meets the customer's requirements.

2. Test Results Summary

Table 2: Test Results

1st Items	Test Data	Test Result
Time Since Last Clear [Min]	0.6	Pass
Effective Physical Errors	0	Pass
Raw Physical Errors Per Lane	0,0,0,0	Pass
Effective Physical BER	15E-255	Pass
Raw Physical BER	15E-255	Pass
Link Down Counter	0	Pass
Link Error Recovery Counter	0	Pass

3. Test Environment

3.1 Test Equipment Used

Table 3- 1: Test Equipment Used

Vendor	Device	Soft Version	Number
Cisco Switch	Cisco-NCS-55A2-MOD-S-DR	7.7.21	1
NVIDIA NICs	MCX515A-CCAT	16.35.3502	1
GPU Server	DELL PowerEdge R860		1
Optic Transceiver	QSFP-LR4-100G		2

3.2 Test Sample

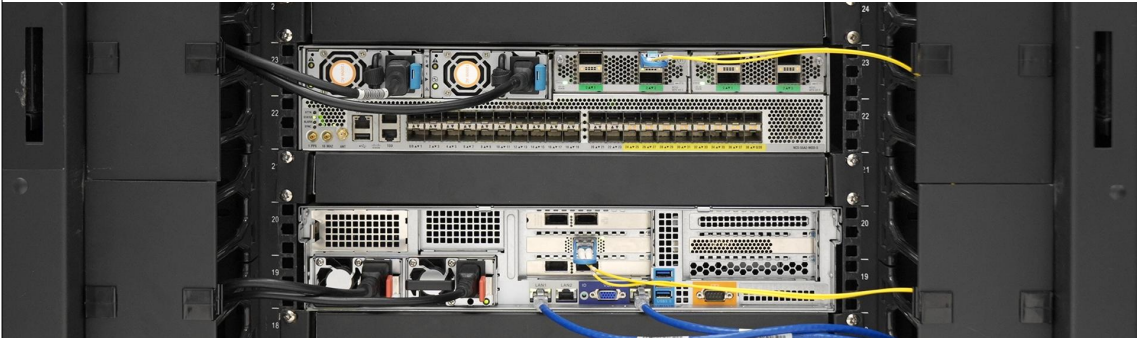
Table 3-2: Test Sample

Product ID	P/N	Serial N umber
102531	QSFP-LR4-100G	A2510001126

4. Test Data

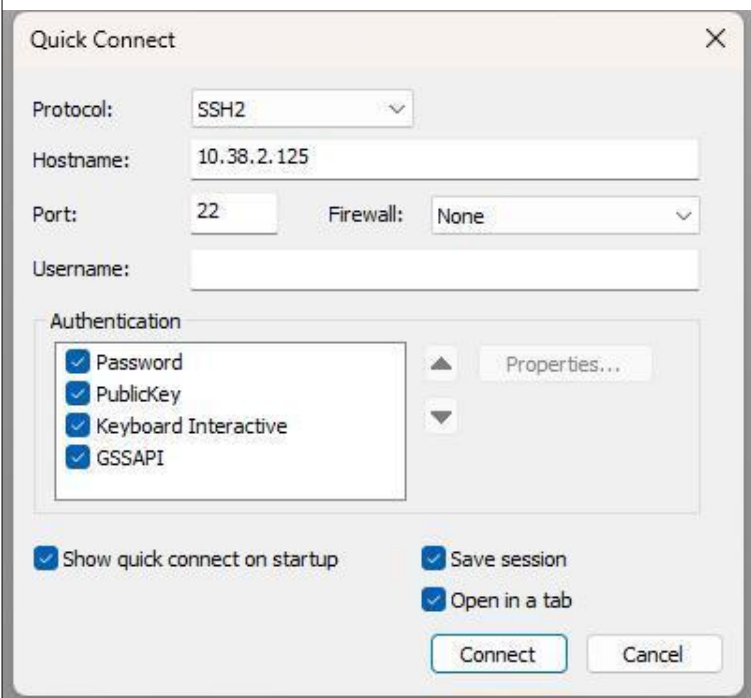
4.1 Product Performance Testing

Table 4- 1: Product Performance Testing

Test Topology	Network topology: 	
	Test scenario: 	
Test Premise	1. The equipment can be normally powered up and run normally. 2. According to the above networking to build a test environment.	
Test Equipment	Device	Model No.
	QSFP-LR4-100G	A2510001126
Test Method	1. Set up the environment remotely according to the above figure. The AAA server address is 10.38.2. 125; 2. Test the connectivity between the switch and the AAA server; 3. Use SSH2 to log in to the server username and password on the PC (fs1, admin@123). 4. Intercept modules with substandard performance by comparing with the test index.	

Test Information

1. Login to the server and enter root model



Quick Connect

Protocol: SSH2

Hostname: 10.38.2.125

Port: 22 Firewall: None

Username:

Authentication:

- ☒ Password
- ☒ PublicKey
- ☒ Keyboard Interactive
- ☒ GSSAPI

☒ Show quick connect on startup ☒ Save session ☒ Open in a tab



Enter Secure Shell Password

fs1@10.38.2.125 requires a password. Please enter a password now.

Username: fs1

Password: ••••••••

☒ Save password

Web console: <https://fs2-PowerEdge-R860:9090/> or <https://10.36.15.251:9090/>

Last login: Thu Feb 6 16:51:23 2025 from 10.36.117.156
 root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf0 -c

2. Use the NIC model and status read by the server

Read the NIC model

Activate the web console with: `systemctl enable --now cockpit.socket`

Last login: Tue Mar 11 09:51:09 2025 from 10.36.15.177
 [root@FS3110 ~]# mlxfirmware -u

Querying Mellanox devices firmware ...

Device #1:

Device Type:	ConnectX5
Part Number:	MCX515A-CCA-Ax_Bx
Description:	ConnectX-5 EN network interface card; 100GbE single-port QSFP28; PCIe3.0 x16; tall bracket; ROHS R6
PSID:	MT_000000011
PCI Device Name:	0000:01:00.0
Base GUID:	b8cef60300c2e44
Base MAC:	b8cef60c2e44
Versions:	Current Available
FW	16.35.3502 N/A
PXE	3.6.0902 N/A
UEFI	14.29.0015 N/A
Status:	No matching image found

Read the NIC status

```
[root@RS3110 ~]# mlxlink -d mlx5_0 -c
```

Operational Info

```
-----
State                               : Active
Physical state                     : LinkUp
Speed                              : 100GbE
Width                              : 4x
FEC                                 : No FEC
Loopback Mode                      : No Loopback
Auto Negotiation                   : ON
```

Supported Info

```
-----
Enabled Link Speed                  : 0x00f00000 (100G)
Supported Cable Speed              : 0x00800000 (100G)
```

Troubleshooting Info

```
-----
Status Opcode                      : 0
Group Opcode                       : N/A
Recommendation                     : No issue was observed
```

Tool Information

```
-----
Firmware Version                   : 16.35.3502
MFT Version                        : mft 4.30.0-139
```

3. Read the switch model name and software version, and read the status of all ports on the switch

```
RP/0/RP0/CPU0:ios#show version
Mon Mar 10 09:12:15.644 UTC
Cisco IOS XR Software, Version 7.7.21
Copyright (c) 2013-2023 by Cisco Systems, Inc.
```

Build Information:

```
Built By       : deenayak
Built On       : Thu Jun 29 03:55:49 PDT 2023
Built Host     : 8ef204814797
Workspace      : /auto/srcarchive16/prod/7.7.21/ncs5500/ws
Version        : 7.7.21
Location       : /opt/cisco/XR/packages/
Label          : 7.7.21
```

```
cisco NCS-5500 () processor
System uptime is 3 hours 15 minutes
```

```
RP/0/RP0/CPU0:ios#show interfaces brief
Mon Mar 10 09:12:24.221 UTC
```

Intf Name	Intf State	LineP State	Encap Type	MTU (byte)	Bw (Kbps)
Nu0	up	up	Null	1500	0
Te0/0/0/0	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/1	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/2	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/3	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/4	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/5	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/6	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/7	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/8	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/9	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/10	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/11	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/12	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/13	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/14	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/15	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/16	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/17	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/18	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/19	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/20	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/21	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/22	admin-down	admin-down	ARPA	1514	10000000
Te0/0/0/23	admin-down	admin-down	ARPA	1514	10000000
TF0/0/0/24	down	down	ARPA	1514	25000000
TF0/0/0/25	down	down	ARPA	1514	25000000
TF0/0/0/26	down	down	ARPA	1514	25000000
TF0/0/0/27	down	down	ARPA	1514	25000000
TF0/0/0/28	down	down	ARPA	1514	25000000
TF0/0/0/29	down	down	ARPA	1514	25000000
TF0/0/0/30	down	down	ARPA	1514	25000000
TF0/0/0/31	down	down	ARPA	1514	25000000
TF0/0/0/32	down	down	ARPA	1514	25000000
TF0/0/0/33	down	down	ARPA	1514	25000000
TF0/0/0/34	down	down	ARPA	1514	25000000
TF0/0/0/35	down	down	ARPA	1514	25000000
TF0/0/0/36	down	down	ARPA	1514	25000000
TF0/0/0/37	down	down	ARPA	1514	25000000
TF0/0/0/38	down	down	ARPA	1514	25000000
TF0/0/0/39	down	down	ARPA	1514	25000000
Hu0/0/1/2	up	up	ARPA	1514	100000000
Hu0/0/1/3	down	down	ARPA	1514	100000000
Te0/0/1/1/0	down	down	ARPA	1514	100000000
Te0/0/1/1/1	down	down	ARPA	1514	100000000
Te0/0/1/1/2	down	down	ARPA	1514	100000000
Te0/0/1/1/3	down	down	ARPA	1514	100000000
TF0/0/1/0/0	down	down	ARPA	1514	250000000
TF0/0/1/0/1	down	down	ARPA	1514	250000000
TF0/0/1/0/2	down	down	ARPA	1514	250000000
TF0/0/1/0/3	down	down	ARPA	1514	250000000
Hu0/0/2/0	down	down	ARPA	1514	100000000
Hu0/0/2/1	down	down	ARPA	1514	100000000
Hu0/0/2/2	down	down	ARPA	1514	100000000
Hu0/0/2/3	down	down	ARPA	1514	100000000
Mg0/RP0/CPU0/0	admin-down	admin-down	ARPA	1514	10000000

4. View post-test results to compare with test metrics

```
[root@RS3110 ~]# mlxlink -d mlx5_0 -c
```

Operational Info

```
State : Active
Physical state : Linkup
Speed : 100GbE
Width : 4x
FEC : Standard RS-FEC - RS(528,514)
Loopback Mode : No Loopback
Auto Negotiation : ON
```

Supported Info

```
Enabled Link Speed : 0x00f00000 (100G)
Supported cable Speed : 0x2024a101 (100G,56G,50G,40G,25G,10G,1G)
```

Troubleshooting Info

```
Status Opcode : 0
Group Opcode : N/A
Recommendation : No issue was observed
```

Tool Information

```
Firmware Version : 16.35.3502
MFT Version : mft 4.30.0-139
```

Physical Counters and BER Info

```
Time Since Last Clear [Min] : 0.6
Effective Physical Errors : 0
Raw Physical Errors Per Lane : 0,0,0,0
Effective Physical BER : 15E-255
Raw Physical BER : 15E-255
Link Down Counter : 0
Link Error Recovery Counter : 0
```

Test Conclusion	After testing, the results of all tested items meet the requirements of the inspection basis.
Remarks	