

QSFP-LR4-100G

TEST REPORT (Juniper)



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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
Juniper Switch	Juniper QFX5200-32C	20.2R2.11 flex	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

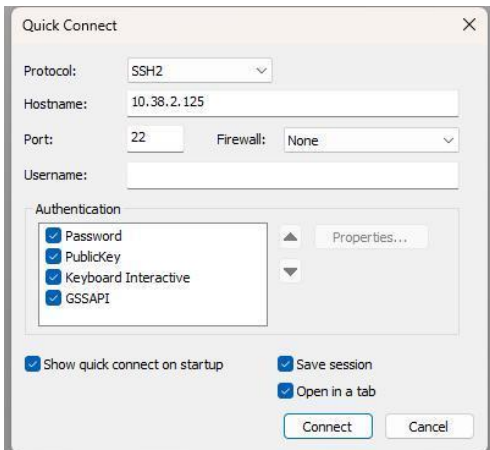
Table 3-2: Test Sample

Product ID	P/N	Serial N umber
88667	QSFP-LR4-100G	A2510001137

4. Test Data

4.1 Product Performance Testing

Table 4- 1: Product Performance Testing

Test Topology	Network topology:  Juniper QFX5200-32C QSFP-LR4-100G QSFP-LR4-100G MCX515A-CCAT Server	
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	A2510001137
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 	

Enter Secure Shell Password

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

OK

Cancel

Username: fs1

Password: ●●●●●●●●

☒ Save password

Skip

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@RS3110 ~]# mlxfwmanager -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_0000000011
PCI Device Name:  0000:01:00.0
Base GUID:        b8cef603000c2e44
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
```

Test Information

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

```
{master:0}
root> show version
localre:
-----
Model: qfx5200-32c-32q
Junos: 20.2R2.11 flex
JUNOS OS kernel 64-bit FLEX [20200922.4042921_builder_stable_11]
JUNOS OS libs [20200922.4042921_builder_stable_11]
JUNOS OS runtime [20200922.4042921_builder_stable_11]
JUNOS OS time zone information [20200922.4042921_builder_stable_11]
JUNOS OS libs compat32 [20200922.4042921_builder_stable_11]
JUNOS OS 32-bit compatibility [20200922.4042921_builder_stable_11]
JUNOS py extensions2 [20201028.081005_builder_junos_202_r2]
JUNOS py extensions [20201028.081005_builder_junos_202_r2]
JUNOS py base2 [20201028.081005_builder_junos_202_r2]
JUNOS py base [20201028.081005_builder_junos_202_r2]
JUNOS OS vmguest [20200922.4042921_builder_stable_11]
JUNOS OS crypto [20200922.4042921_builder_stable_11]
JUNOS OS boot-ve files [20200922.4042921_builder_stable_11]
JUNOS network stack and utilities [20201028.081005_builder_junos_202_r2]
JUNOS libs [20201028.081005_builder_junos_202_r2]
JUNOS libs compat32 [20201028.081005_builder_junos_202_r2]
JUNOS runtime [20201028.081005_builder_junos_202_r2]
JUNOS na telemetry [20.2R2.11]
JUNOS Web Management Platform Package [20201028.081005_builder_junos_202_r2]
JUNOS qfx runtime [20201028.081005_builder_junos_202_r2]
JUNOS Routing Protocol Services Daemons [20.2R2.11]
JUNOS common platform support [20201028.081005_builder_junos_202_r2]
JUNOS qfx platform support [20201028.081005_builder_junos_202_r2]
JUNOS Openconfig [20.2R2.11]
JUNOS dcp network modules [20201028.081005_builder_junos_202_r2]
JUNOS modules [20201028.081005_builder_junos_202_r2]
JUNOS qfx modules [20201028.081005_builder_junos_202_r2]
JUNOS qfx Data Plane Crypto Support [20201028.081005_builder_junos_202_r2]
JUNOS daemons [20201028.081005_builder_junos_202_r2]
JUNOS qfx daemons [20201028.081005_builder_junos_202_r2]
JUNOS SDN Software Suite [20201028.081005_builder_junos_202_r2]
JUNOS Extension Toolkit [20201028.081005_builder_junos_202_r2]
JUNOS Packet Forwarding Engine Support (DC-PFE) [20201028.081005_builder_junos_202_r2]
JUNOS Packet Forwarding Engine Support (M/T common) [20201028.081005_builder_junos_202_r2]
JUNOS Juniper Malware Removal Tool (JMRT) [1.0.0+20201028.081005_builder_junos_202_r2]
JUNOS J-insight [20201028.081005_builder_junos_202_r2]
JUNOS jfirmware [20201028.081005_builder_junos_202_r2]
JUNOS Online Documentation [20201028.081005_builder_junos_202_r2]
JUNOS jail runtime [20200922.4042921_builder_stable_11]
JET app chef [11.10.4_3.0]
JUNOS Host Software [3.14.52-rt50-WR7.0.0.9_ovp:3.1.0]
JUNOS Host qfx-5e host-control package [20.2R2.11]
JUNOS Host qfx-5e host-platform package [20.2R2.11]
JUNOS Host qfx-5e control-plane flex package [20.2R2.11]
JUNOS Host qfx-5e platform package [20.2R2.11]
JUNOS Host qfx-5e base package [20.2R2.11]
JUNOS Host qfx-5e data-plane package [20.2R2.11]
Junos for Automation Enhancement

root> show interfaces et-0/0/8
Physical interface: et-0/0/8, Enabled, Physical link is up
  Interface index: 665, SNMP ifIndex: 541
  Link-level type: Ethernet, MTU: 1514, LAN-PHY mode, Speed: 100Gbps,
  BPDU Error: None, Loop Detect PDU Error: None, Ethernet-Switching Error: None,
  MAC-REWRITE Error: None, Loopback: Disabled, Source filtering: Disabled,
  Flow control: Disabled, Media type: Fiber
  Device flags : Present Running
  Interface flags: SNMP-Traps Internal: 0x4000
  Link flags : None
  CoS queues : 10 supported, 10 maximum usable queues
  Current address: b8:f0:15:df:84:b1, Hardware address: b8:f0:15:df:84:b1
  Last flapped : 2025-03-10 16:27:52 UTC (00:06:18 ago)
  Input rate : 0 bps (0 pps)
  Output rate : 0 bps (0 pps)
  Active alarms : None
  Active defects : None
  Pre-emphasis(reg 236/237)
    Register-value 0
  CtlE(reg 234/235)
    Register-value 0
  Differential-amplitude(reg 238/239)
    Register-value 0
  PCS statistics
    Bit errors 0
    Errored blocks 0
  Ethernet FEC Mode : FEC91
  Ethernet FEC statistics
    Errors
      FEC Corrected Errors 1
      FEC Uncorrected Errors 3
      FEC Corrected Errors Rate 0
      FEC Uncorrected Errors Rate 0
  PRBS Statistics : Disabled
  Interface transmit statistics: Disabled

Logical interface et-0/0/8.16386 (Index 558) (SNMP ifIndex 542)
  Flags: up 0x4004000 Encapsulation: ENET2
  Input packets : 13
  Output packets : 15
```


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	: 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

Physical Counters and BER Info

Time Since Last Clear [Min]	: 926.2
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.
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Remarks	
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