



QSFP-BX10-100G

**OPTICAL TRANSCEIVER
MODULE**

Scenario Application 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's performance meets the customer's requirements.

2. Test Results Summary

Table 2: Test Results

Items	Test Data	Remarks
Multi-Version	Pass	/
Connectivity	Pass	/
Module Basic Information	Pass	/
Digital Diagnostic Monitoring	Pass	/

3. Test Environment

3.1 Test Equipment Used

Table 3-1: Test Equipment Used

Vendor	Device	Soft Version
Juniper Switch	PTX10001-36MR	24.4R1-S2.8-EVO
NVIDIA NICs	MCX755106AS-HEAT	28.43.1014
DELL Server	PowerEdge R860	/

3.2 Test Sample

Table 3-2: Test Sample

Product ID	P/N	Serial Number
#175145	QSFP-BX10-100G	A2440002406

4. Test Data

Table 4: Scenario Application Testing

Test Topology	
Test Premise	1. Confirm the brand, quantity and placement of the switches to be tested. 2. Prepare control cables, test software and optical fiber patch cords. Power on the switches in advance. 3. Locate the Console port on the switch, which is usually marked as "CON" on the switch, although some switches may display it as "IOIOI" or a computer monitor icon, etc. Use a control cable to connect the switch to the computer.  4. Before connecting the software, it is necessary to confirm the connection port of the control cable. Go to the computer device manager, click on the ports (COM and LPT) to view the ports. After confirming the ports, proceed with the next step.
Test Method	Click to open the SecureCRT Portable software and enter the quick connection interface. ① Protocol selection: Serial ② Port selection: The same as the port you viewed in the previous step ③ Baud rate selection: The same as the baud rate of the port on the target switch ④ Flow control: Do not check this option The remaining configurations can keep the default values.
Test Steps	① Insert the module into the corresponding rate port of the switch, and connect the TX-RX ends with an optical fiber jumper or an MTP self-loop device. Observe whether the module is connected. If not connected, please check the jumper connection or the switch port configuration (login to the switch is required). ② Enter the test interface, input the account and password, log in to the switch and enter privileged mode. ③ According to the switch command configuration table, input the corresponding test command and view the relevant information: port status (connectivity), connection rate, alarm status, module basic information, DDM information, etc. Determine whether it meets the requirements.

Test Information

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

```
root@re0> show version
Hostname: re0
Model: ptx10001-36mr
Junos: 24.4R1-S2.8-EVO
Yocto: 4.0.20
Linux Kernel: 5.15.142-10.22.33.14-yocto-standard-juniper-12583-g6c6fc3aaaaea8
JUNOS-EVO OS 64-bit [junos-evo-install-ptx-fixed-x86-64-24.4R1-S2.8-EVO]

root@re0> show interfaces brief

Physical interface: et-0/0/4, Enabled, Physical link is Up
Link-level type: Ethernet, MTU: 1514, LAN-PHY mode, Speed: 100Gbps, Loopback: Disabled, Source filtering: Disabled,
Flow control: Enabled, Auto-negotiation: Disabled, Media type: Fiber
Device flags : Present Running
Interface flags: SNMP-Traps
Link Degraded :
Link Monitoring : Disable

Logical interface et-0/0/4.16386
Flags: Up SNMP-Traps Encapsulation: ENET2 DF
multiservice

Physical interface: et-0/0/5, Enabled, Physical link is Up
Link-level type: Ethernet, MTU: 1514, LAN-PHY mode, Speed: 100Gbps, Loopback: Disabled, Source filtering: Disabled,
Flow control: Enabled, Auto-negotiation: Disabled, Media type: Fiber
Device flags : Present Running
Interface flags: SNMP-Traps
Link Degraded :
Link Monitoring : Disable

Logical interface et-0/0/5.16386
Flags: Up SNMP-Traps Encapsulation: ENET2 DF
multiservice
```

2. Read the module's basic information from the switch side

```
root@re0> show interfaces et-0/0/4
Physical interface: et-0/0/4, Enabled, Physical link is Up
Interface index: 1224, SNMP ifIndex: 515
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: Enabled,
Auto-negotiation: Disabled, Media type: Fiber
Device flags : Present Running
Interface flags: SNMP-Traps
CoS queues : 8 supported, 8 maximum usable queues
Current address: 80:43:3f:77:46:f4, Hardware address: 80:43:3f:77:46:f4
Last flapped : 2025-08-04 09:25:03 UTC (00:00:55 ago)
Input rate : 0 bps (0 pps)
Output rate : 0 bps (0 pps)
Active alarms : None
Active defects : None
PCS statistics
  Bit errors : 0
  Errored blocks : 0
Ethernet FEC Mode : NONE
  FEC Codeword size : 0
  FEC Codeword rate : 0.000
Ethernet FEC statistics
  FEC Corrected Errors : 0
  FEC Uncorrected Errors : 0
  FEC Corrected Errors Rate : 0
  FEC Uncorrected Errors Rate : 0
PRBS Mode : Disabled
Interface transmit statistics: Disabled
Link Degraded :
Link Monitoring : Disable

Logical interface et-0/0/4.16386 (Index 1007) (SNMP ifIndex 594)
Flags: Up SNMP-Traps Encapsulation: ENET2 DF
Input packets : 6
Output packets : 5
Protocol multiservice, MTU: Unlimited
Flags: None
```

Test Information

3. Read the DDM information of the module

```

root@re0> show interfaces diagnostics optics et-0/0/4
Physical interface: et-0/0/4
  Module temperature      : 31 degrees C / 87 degrees F
  Module voltage          : 3.197 V
  Module max power        : 3.5 W
  Module temperature high alarm : Off
  Module temperature low alarm  : Off
  Module temperature high warning : Off
  Module temperature low warning : Off
  Module voltage high alarm : Off
  Module voltage low alarm  : Off
  Module voltage high warning : Off
  Module voltage low warning : Off
  Module temperature high alarm threshold : 75 degrees C / 167 degrees F
  Module temperature low alarm threshold  : -5 degrees C / 23 degrees F
  Module temperature high warning threshold : 70 degrees C / 158 degrees F
  Module temperature low warning threshold : 0 degrees C / 32 degrees F
  Module voltage high alarm threshold : 3.63 V
  Module voltage low alarm threshold  : 2.97 V
  Module voltage high warning threshold : 3.464 V
  Module voltage low warning threshold : 3.134 V
  Laser bias current high alarm threshold : 120 mA
  Laser bias current low alarm threshold  : 30 mA
  Laser bias current high warning threshold : 110 mA
  Laser bias current low warning threshold : 40.029 mA
  Laser output power high alarm threshold : 4.786 mW / 6.79 dBm
  Laser output power low alarm threshold  : 0.407 mW / -3.90 dBm
  Laser output power high warning threshold : 3.801 mW / 5.79 dBm
  Laser output power low warning threshold : 0.645 mW / -1.90 dBm
  Laser rx power high alarm threshold : 3.801 mW / 5.79 dBm
  Laser rx power low alarm threshold  : 0.075 mW / -11.20 dBm
  Laser rx power high warning threshold : 3.019 mW / 4.79 dBm
  Laser rx power low warning threshold  : 0.151 mW / -8.20 dBm
  Laser temperature high alarm threshold : 75 degrees C / 167 degrees F
  Laser temperature low alarm threshold  : -5 degrees C / 23 degrees F
  Laser temperature high warning threshold : 70 degrees C / 158 degrees F
  Laser temperature low warning threshold : 0 degrees C / 32 degrees F
Lane 0
  Laser bias current      : 90 mA
  Laser output power       : 1.986 mW / 2.98 dBm
  Laser temperature       : 31 degrees C / 87 degrees F
  Laser receiver power    : 2.196 mW / 3.41 dBm
  Laser bias current high alarm : Off
  Laser bias current low alarm  : Off
  Laser bias current high warning : Off
  Laser bias current low warning : Off
  Laser temperature high alarm : Off
  Laser temperature low alarm  : Off
  Laser temperature high warning : Off
  Laser temperature low warning : Off
  Laser receiver power high alarm : Off
  Laser receiver power low alarm  : Off
  Laser receiver power high warning : Off
  Laser receiver power low warning : Off
  Laser output power high alarm : Off
  Laser output power low alarm  : Off
  Laser output power high warning : Off
  Laser output power low warning : Off
  Tx loss of signal functionality alarm : Off
  Rx loss of signal alarm : Off
  Tx laser disabled alarm : Off

```

4. Read the NIC model and the status of all ports

```

root@fs1-PowerEdge-R860:~# mlxfwmanager -u
Querying Mellanox devices firmware ...

Device #2:
-----
Device Type:   ConnectX7
Part Number:   MCX755106AS-HEA_Ax
Description:   NVIDIA ConnectX-7 HHHH Adapter Card; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe 5.0 x16 with x16 PCIe extension option; Cry
PSID:          MT_0000000834
PCI Device Name: /dev/mst/mt4129_pciconf3
Base MAC:      a088c2d55882
Versions:      Current Available
FW             28.43.1014 N/A
PXE            3.7.0500 N/A
UEFI           14.36.0016 N/A

Status:        No matching image found

```

Test Information

```
root@fs1-PowerEdge-R860:~#  
root@fs1-PowerEdge-R860:~# mlxlink -d mlx5_7
```

Operational Info

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

Supported Info

```
-----  
Enabled Link Speed (Ext.) : 0x00003ff2 (200G_2X,200G_4X,100G_1X,100G_2X,100G_4X,50G_1X,50G_2X,40G,25G,10G,1G)  
Supported Cable Speed (Ext.) : 0x00000200 (100G_4X)
```

Troubleshooting Info

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

Tool Information

```
-----  
Firmware Version : 28.43.1014  
amBER Version : 3.6  
MFT Version : mft 4.30.1-113
```

```
root@fs1-PowerEdge-R860:~# mlxlink -d mlx5_8
```

Operational Info

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

Supported Info

```
-----  
Enabled Link Speed (Ext.) : 0x00003ff2 (200G_2X,200G_4X,100G_1X,100G_2X,100G_4X,50G_1X,50G_2X,40G,25G,10G,1G)  
Supported Cable Speed (Ext.) : 0x00000200 (100G_4X)
```

Troubleshooting Info

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

Tool Information

```
-----  
Firmware Version : 28.43.1014  
amBER Version : 3.6  
MFT Version : mft 4.30.1-113
```

5. Read the module basic information on NIC

```
root@fs1-PowerEdge-R860:~#  
root@fs1-PowerEdge-R860:~# mlxlink -d mlx5_7 -c -m -e
```

Operational Info

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

Supported Info

```
-----  
Enabled Link Speed (Ext.) : 0x00003ff2 (200G_2X,200G_4X,100G_1X,100G_2X,100G_4X,50G_1X,50G_2X,40G,25G,10G,1G)  
Supported Cable Speed (Ext.) : 0x00000200 (100G_4X)
```

Troubleshooting Info

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

Test Information

Tool Information

Firmware Version : 28.43.1014
amBER Version : 3.6
MFT Version : mft 4.30.1-113

Physical Counters and BER Info

Time Since Last Clear [Min] : 2.3
Effective Physical Errors : 0
Effective Physical BER : 15E-255
Raw Physical Errors Per Lane : 0,0,0,0
Link Down Counter : 9
Link Error Recovery Counter : 0
Raw Physical BER : 15E-255

Module Info

Temperature [C] : 40 [-5..75]
Voltage [mV] : 3246 [2970..3630]
Bias Current [mA] : 81,0,0,0 [30..120]
Rx Power Current [dBm] : 3.098,-40,-40,-40 [-11.249..5.799]
Tx Power Current [dBm] : 3.164,-40,-40,-40 [-3.904..6.8]
Identifier : QSFP28
Compliance : 100G-LR, with CAUI-4 without FEC
Cable Technology : 1310 nm EML
Cable Type : Optical Module (separated)
OUI : Mellanox
Vendor Name : FS
Vendor Part Number : QSFP-BX10-100G
Vendor Serial Number : A2440002406
Rev : 01
Wavelength [nm] : 1271
Transfer Distance [m] : 0
Attenuation (5g,7g,12g)[dB] : N/A
FW Version : 81.83.18000
Digital Diagnostic Monitoring : Yes
Power Class : 4.0 W max
CDR RX : N/A
CDR TX : N/A
LOS Alarm : N/A
SNR Media Lanes [dB] : N/A
SNR Host Lanes [dB] : N/A
IB Cable Width : 1x,2x,4x
Memory Map Revision : 8
Linear Direct Drive : 0
Cable Breakout : Channels implemented [1,2,3,4]/Far end is unspecified
SMF Length : N/A
MAX Power : 0
Cable Rx AMP : 0
Cable Rx Emphasis : 0
Cable Rx Post Emphasis : 0
Cable Tx Equalization : 0
Wavelength Tolerance : 6.5nm
Module State : N/A
DataPath state [per lane] : N/A,N/A,N/A,N/A
Rx Output Valid [per lane] : 0,0,0,0
Nominal bit rate : 25.750Gb/s
Rx Power Type : Average power
Manufacturing Date : 21_02_25
Active Set Host Compliance Code : N/A
Active Set Media Compliance Code : N/A
Error Code Response : N/A
Module FW Fault : N/A
DataPath FW Fault : N/A
Tx Fault [per lane] : 0,0,0,0
Tx LOS [per lane] : 0,0,0,0
Tx CDR LOL [per lane] : 0,0,0,0
Rx LOS [per lane] : 0,0,0,0
Rx CDR LOL [per lane] : 0,0,0,0
Tx Adaptive EQ Fault [per lane] : 0,0,0,0

EYE Opening Info

FOM Mode : SLRG_FOM_MODE_EYEO
Lane : 0, 1, 2, 3
Initial FOM : 200, 190, 188, 202
Last FOM : 201, 194, 190, 195

6. Read the module DDM on NIC

```
root@fs1-PowerEdge-R860:~# mlxlink -d mlx5_8 -cable -ddm

Operational Info
-----
State                : Active
Physical state       : ETH_AN_FSM_ENABLE
Speed                : 100G
Width                : 4x
FEC                  : No FEC
Loopback Mode        : No Loopback
Auto Negotiation     : ON

Supported Info
-----
Enabled Link Speed (Ext.) : 0x00003ff2 (200G_2X,200G_4X,100G_1X,100G_2X,100G_4X,50G_1X,50G_2X,40G,25G,10G,1G)
Supported Cable Speed (Ext.) : 0x00000200 (100G_4X)

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

Tool Information
-----
Firmware Version     : 28.43.1014
amBER Version        : 3.6
MFT Version          : mft 4.30.1-113

Cable DDM Information
-----
Temperature          : 38C
Voltage              : 3.2520V
Channels              : Channel 1 ,Channel 2 ,Channel 3 ,Channel 4
RX Power              : 4.000dBm , -40.000dBm , -40.000dBm , -40.000dBm
TX Power              : 2.000dBm , -40.000dBm , -40.000dBm , -40.000dBm
TX Bias               : 90.000mA , 0.000mA , 0.000mA , 0.000mA

DDM Flags
-----
Temperature Alarm high : 0
Temperature Warning high : 0
Temperature Warning low : 0
Temperature Alarm low : 0

Voltage Alarm high : 0
Voltage Warning high : 0
Voltage Warning low : 0
Voltage Alarm low : 0

Channel 1 Flags
-----
RX Power Alarm high : 0
RX Power Warning high : 0
RX Power Warning low : 0
RX Power Alarm low : 0

TX Power Alarm high : 0
TX Power Warning high : 0
TX Power Warning low : 0
TX Power Alarm low : 0

TX Bias Alarm high : 0
TX Bias Warning high : 0
TX Bias Warning low : 0
TX Bias Alarm low : 0

Channel 2 Flags
-----
RX Power Alarm high : 0
RX Power Warning high : 0
RX Power Warning low : 0
RX Power Alarm low : 0

TX Power Alarm high : 0
TX Power Warning high : 0
TX Power Warning low : 0
TX Power Alarm low : 0

TX Bias Alarm high : 0
TX Bias Warning high : 0
TX Bias Warning low : 0
TX Bias Alarm low : 0

Channel 3 Flags
-----
RX Power Alarm high : 0
RX Power Warning high : 0
RX Power Warning low : 0
RX Power Alarm low : 0

TX Power Alarm high : 0
TX Power Warning high : 0
TX Power Warning low : 0
TX Power Alarm low : 0

TX Bias Alarm high : 0
TX Bias Warning high : 0
TX Bias Warning low : 0
TX Bias Alarm low : 0

Channel 4 Flags
-----
RX Power Alarm high : 0
RX Power Warning high : 0
RX Power Warning low : 0
RX Power Alarm low : 0

TX Power Alarm high : 0
TX Power Warning high : 0
TX Power Warning low : 0
TX Power Alarm low : 0

TX Bias Alarm high : 0
TX Bias Warning high : 0
TX Bias Warning low : 0
TX Bias Alarm low : 0

DDM Thresholds
-----
Thresholds : Temperature ,Voltage ,RX Power ,TX Power ,TX Bias
High alarm threshold : 75C ,3.630V ,5.800dBm ,6.800dBm ,120.000mA
High warning threshold : 70C ,3.465V ,4.800dBm ,5.800dBm ,110.000mA
Low warning threshold : 0C ,3.135V ,-8.202dBm ,-1.900dBm ,40.030mA
Low alarm threshold : -5C ,2.970V ,-11.203dBm ,-3.901dBm ,30.000mA
```

Test Conclusion	After completing the above test content, all the test information should be copied and pasted into a TXT document.
Remarks	/