QSFP-BX10-100G

OPTICAL TRANSCEIVER MODULE

Scenario Application Test Report (Arista)

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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
Arista Switch	DCS-7060SX2-48YC6-R	4.30.1F
NVIDIA NICs	MCX755106AS-HEAT	28.43.1014
DELL Server	PowerEdge R860	/

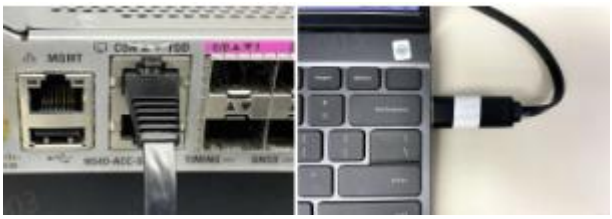
3.2 Test Sample

Table 3-2: Test Sample

Product ID	P/N	Serial Number
#175136	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

```
DCS-7060SX2-48YC6-R#
DCS-7060SX2-48YC6-R#show version
Arista DCS-7060SX2-48YC6-R
Hardware version: 11.50
Serial number: SSJ18236106
Hardware MAC address: 7483.efd7.78a7
System MAC address: 7483.efd7.78a7

Software image version: 4.30.1F
Architecture: i686
Internal build version: 4.30.1F-32315456.4301F
Internal build ID: e459ae2a-b8aa-4673-b865-e0936c7b6ebf
Image format version: 3.0
Image optimization: Strata-4GB

Uptime: 5 days, 1 hour and 18 minutes
Total memory: 8062968 kB
Free memory: 6371716 kB

DCS-7060SX2-48YC6-R#show interfaces status
Port       Name   Status       Vlan     Duplex Speed  Type          Flags Encapsulation
Et1              notconnect   1        full   1G     Not Present
Et2              notconnect   1        full   1G     Not Present
Et3              errdisabled  1        full   25G    Not Present
Et4              errdisabled  1        full   25G    Not Present
Et5              notconnect   1        full   100M   Not Present
Et6              errdisabled  1        full   25G    Not Present
Et7              notconnect   1        full   100M   Not Present
Et8              errdisabled  1        full   25G    Not Present
Et9              notconnect   1        full   100M   Not Present
Et10             errdisabled  1        full   25G    Not Present
Et11             errdisabled  1        full   25G    Not Present
Et12             errdisabled  1        full   25G    Not Present
Et13             notconnect   1        full   25G    Not Present
Et14             notconnect   1        full   25G    Not Present
Et15             notconnect   1        full   25G    Not Present
Et16             notconnect   1        full   25G    Not Present
Et17             notconnect   1        full   25G    Not Present
Et18             notconnect   1        full   25G    Not Present
Et19             notconnect   1        full   25G    Not Present
Et20             notconnect   1        full   25G    Not Present
Et21             notconnect   1        full   25G    Not Present
Et22             notconnect   1        full   25G    Not Present
Et23             notconnect   1        full   25G    Not Present
Et24             notconnect   1        full   25G    Not Present
Et25             notconnect   1        full   25G    Not Present
Et26             notconnect   1        full   25G    Not Present
Et27             notconnect   1        full   25G    Not Present
Et28             notconnect   1        full   25G    Not Present
Et29             notconnect   1        full   25G    Not Present
Et30             notconnect   1        full   25G    Not Present
Et31             notconnect   1        full   25G    Not Present
Et32             notconnect   1        full   25G    Not Present
Et33             notconnect   routed   full   1G     Not Present
Et34             notconnect   1        full   1G     Not Present
Et35             errdisabled  1        full   25G    Not Present
Et36             errdisabled  1        full   25G    Not Present
Et37             notconnect   1        full   10G    Not Present
Et38             notconnect   1        full   10G    Not Present
Et39             notconnect   1        full   10G    Not Present
Et40             notconnect   1        full   10G    Not Present
Et41             notconnect   10       full   10G    Not Present
Et42             notconnect   10       full   10G    Not Present
Et43             errdisabled  1        full   25G    Not Present
Et44             errdisabled  1        full   25G    Not Present
Et45             notconnect   1        full   25G    Not Present
Et46             notconnect   1        full   25G    Not Present
Et47             notconnect   1        full   25G    Not Present
Et48             notconnect   1        full   25G    Not Present
Et49/1           connected    1        full   100G   100GBASE-LR
Et50/1           connected    1        full   100G   100GBASE-LR
Et51/1           notconnect   1        full   100G   Not Present
Et52/1           notconnect   1        full   100G   Not Present
Et53/1           notconnect   1        full   100G   Not Present
Et54/1           notconnect   1        full   10G    Not Present
Et54/2           errdisabled  1        full   25G    Not Present
Et54/3           errdisabled  1        full   25G    Not Present
Et54/4           errdisabled  1        full   25G    Not Present
Ma1              connected    routed   a-full a-1G   10/100/1000
```

Test Information

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

```
DCS-7060SX2-48YC6-R#show interfaces ethernet 49/1
Ethernet49/1 is up, line protocol is up (connected)
  Hardware is Ethernet, address is 7483.efd7.78d8 (bia 7483.efd7.78d8)
  Ethernet MTU 9214 bytes, BW 100000000 kbit
  Full-duplex, 100Gb/s, auto negotiation: off, uni-link: n/a
  Up 1 minute, 19 seconds
  Loopback Mode : None
  2 link status changes since last clear
  Last clearing of "show interface" counters 5 days, 1:19:09 ago
  5 minutes input rate 16 bps (0.0% with framing overhead), 0 packets/sec
  5 minutes output rate 131 bps (0.0% with framing overhead), 0 packets/sec
     4 packets input, 726 bytes
     Received 0 broadcasts, 4 multicast
     0 runts, 0 giants
     0 input errors, 0 CRC, 0 alignment, 0 symbol, 0 input discards
     0 PAUSE input
     43 packets output, 5601 bytes
     Sent 0 broadcasts, 43 multicast
     0 output errors, 0 collisions
     0 late collision, 0 deferred, 0 output discards
     0 PAUSE output
```

3. Read the DDM information of the module

```
DCS-7060SX2-48YC6-R#show interfaces ethernet 49/1 transceiver detail
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
A2D readouts (if they differ), are reported in parentheses.
The threshold values are calibrated.
                    High Alarm  High Warn   Low Alarm   Low Warn
          Temperature  Threshold  Threshold  Threshold  Threshold
Port      (Celsius)    (Celsius)  (Celsius)  (Celsius)  (Celsius)
--------  -----------  ---------- ---------- ---------- ----------
Et49/1    47.32        75.00      70.00      -5.00      0.00
                    High Alarm  High Warn   Low Alarm   Low Warn
          Voltage     Threshold  Threshold  Threshold  Threshold
Port      (Volts)     (Volts)    (Volts)    (Volts)    (Volts)
--------  ----------- ---------- ---------- ---------- ----------
Et49/1    3.23        3.63       3.46       2.97       3.14
                    High Alarm  High Warn   Low Alarm   Low Warn
          Current     Threshold  Threshold  Threshold  Threshold
Port      (mA)        (mA)       (mA)       (mA)       (mA)
--------  ----------- ---------- ---------- ---------- ----------
Et49/1    81.00       120.00     110.00     30.00      40.03
                    High Alarm  High Warn   Low Alarm   Low Warn
          Tx Power    Threshold  Threshold  Threshold  Threshold
Port      (dBm)       (dBm)      (dBm)      (dBm)      (dBm)
--------  ----------- ---------- ---------- ---------- ----------
Et49/1    3.17        6.80       5.80       -3.90      -1.90
                    High Alarm  High Warn   Low Alarm   Low Warn
          Rx Power    Threshold  Threshold  Threshold  Threshold
Port      (dBm)       (dBm)      (dBm)      (dBm)      (dBm)
--------  ----------- ---------- ---------- ---------- ----------
Et49/1    2.95        5.80       4.80       -11.20     -8.20
```

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 HHHL 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

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
```

Test Information

```
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
```

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	/