QSFP-LR-100G

OPTICAL TRANSCEIVER MODULE

Scenario Application Test Report (Arista)

CONTENTS

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	MCX516A-CCAT	16.35.4030
DELL Server	PowerEdge R860	/

3.2 Test Sample

Table 3-2: Test Sample

Product ID	P/N	Serial Number
#143541	QSFP-LR-100G	A2310221612

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#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: 1 day, 1 hour and 45 minutes
Total memory: 8062968 kB
Free memory: 6451316 kB
```

```
DCS-7060SX2-48YC6-R#show interfaces status
Port      Name   Status       Vlan     Duplex Speed  Type          Flags Encapsulation
Et1              notconnect   1          full   10G    Not Present
Et2              errdisabled  1        a-full a-25G  Not Present
Et3              notconnect   1          full   10G    Not Present
Et4              errdisabled  1        a-full a-25G  Not Present
Et5              notconnect   1          full   10G    Not Present
Et6              notconnect   1          full   10G    Not Present
Et7              notconnect   1          full   10G    Not Present
Et8              notconnect   1          full   10G    Not Present
Et9              notconnect   1          full   25G    Not Present
Et10             notconnect   1          full   25G    Not Present
Et11             notconnect   1          full   25G    Not Present
Et12             notconnect   1          full   25G    Not Present
Et13             notconnect   1          full   25G    Not Present
Et14             notconnect   1          full   25G    Not Present
Et15             errdisabled  1          full   10G    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   1          full   25G    Not Present
Et34             notconnect   1          full   25G    Not Present
Et35             notconnect   1          full   25G    Not Present
Et36             notconnect   1          full   25G    Not Present
Et37             notconnect   1          full   25G    Not Present
Et38             notconnect   1          full   25G    Not Present
Et39             errdisabled  1          full   10G    Not Present
Et40             errdisabled  1          full   10G    Not Present
Et41             notconnect   1          full   10G    Not Present
Et42             notconnect   1          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           notconnect   10         full   40G    Not Present
Et50/1           notconnect   10         full   100G   Not Present
Et51/1           notconnect   1          full   40G    Not Present
Et52/1           connected    1          full   100G   100GBASE-LR
Et53/1           notconnect   1          full   100G   Not Present
Et54/1           connected    1          full   100G   100GBASE-LR
Ma1              notconnect   routed     auto   auto   10/100/1000
```

Test Information

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

```
DCS-7060SX2-48YC6-R#show interfaces ethernet 52/1
Ethernet52/1 is up, line protocol is up (connected)
  Hardware is Ethernet, address is 7483.efd7.78e4 (bia 7483.efd7.78e4)
  Ethernet MTU 9214 bytes, BW 100000000 kbit
  Full-duplex, 100Gb/s, auto negotiation: off, uni-link: n/a
  Up 59 seconds
  Loopback Mode : None
  2 link status changes since last clear
  Last clearing of "show interface" counters 1 day, 1:45:31 ago
  5 minutes input rate 17 bps (0.0% with framing overhead), 0 packets/sec
  5 minutes output rate 99 bps (0.0% with framing overhead), 0 packets/sec
     4 packets input, 732 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
     32 packets output, 4096 bytes
     Sent 0 broadcasts, 32 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 52/1 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)
-------  ------------ ---------- ---------- ----------  ----------
Et52/1     41.42        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)
-------  ------------ ---------- ---------- ----------  ----------
Et52/1     3.27        3.63       3.46       2.97        3.13
                    High Alarm  High Warn   Low Alarm   Low Warn
         Current     Threshold  Threshold  Threshold   Threshold
Port       (mA)        (mA)       (mA)       (mA)        (mA)
-------  ------------ ---------- ---------- ----------  ----------
Et52/1     89.72       120.00     110.00      20.00       30.00
                    High Alarm  High Warn   Low Alarm   Low Warn
         Tx Power    Threshold  Threshold  Threshold   Threshold
Port       (dBm)       (dBm)      (dBm)      (dBm)       (dBm)
-------  ------------ ---------- ---------- ----------  ----------
Et52/1     3.49        5.50       4.50       -3.40       -2.40
                    High Alarm  High Warn   Low Alarm   Low Warn
         Rx Power    Threshold  Threshold  Threshold   Threshold
Port       (dBm)       (dBm)      (dBm)      (dBm)       (dBm)
-------  ------------ ---------- ---------- ----------  ----------
Et52/1     3.80        5.50       4.50       -9.70       -8.70
```

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

```
root@fs2-PowerEdge-R860:~# mlxfwmanager -u
Querying Mellanox devices firmware ...

Device #3:
----------

  Device Type:      ConnectX5
  Part Number:      MCX516A-CCA_Ax
  Description:      ConnectX-5 EN network interface card; 100GbE dual-port QSFP28; PCIe3.0 x16; tall bracket; ROHS R6
  PSID:             MT_0000000012
  PCI Device Name:  /dev/mst/mt4119_pciconf1
  Base GUID:        b8599f03001d04d2
  Base MAC:         b8599f1d04d2
  Versions:         Current       Available
     FW             16.35.4030    N/A
     PXE            3.6.0902      N/A
     UEFI           14.29.0015    N/A

  Status:           No matching image found
```

Test Information

```
root@fs2-PowerEdge-R860:~#
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1

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              : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)
Supported Cable Speed           : 0x00800000 (100G)

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

Tool Information
----------------
Firmware Version                : 16.35.4030
MFT Version                     : mft 4.28.0-92
```

5. Read the module basic information on NIC

```
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1 -c -m

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              : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)
Supported Cable Speed           : 0x00800000 (100G)

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

Tool Information
----------------
Firmware Version                : 16.35.4030
MFT Version                     : mft 4.28.0-92

Physical Counters and BER Info
------------------------------
Time Since Last Clear [Min]     : 10.6
Effective Physical Errors       : 0
Raw Physical Errors Per Lane    : 0,0,0,0
Effective Physical BER          : 15E-255
Raw Physical BER                : 15E-255

Module Info
-----------
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-LR-100G
Vendor Serial Number            : A2310221612
```

Test Information

```
Rev                         : 01
Wavelength [nm]             : 1311
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
Temperature [C]             : 48 [-5..75]
Voltage [mV]                : 3260.5 [2970..3630]
Bias Current [mA]           : 89.624,0,0,0 [20..120]
Rx Power Current [dBm]      : 4,-40,-40,-40 [-10..6]
Tx Power Current [dBm]      : 4,-40,-40,-40 [-4..6]
```

6. Read the module DDM on NIC

```
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1 --cable --ddm

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         : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)
Supported Cable Speed      : 0x00800000 (100G)

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

Tool Information
----------------
Firmware Version           : 16.35.4030
MFT Version                : mft 4.28.0-92

Cable DDM Information
---------------------
Temperature                : 48C
Voltage                    : 3.2610V
Channels                   : Channel 1    ,Channel 2    ,Channel 3    ,Channel 4
RX Power                   : 4.000dBm    ,-40.000dBm    ,-40.000dBm    ,-40.000dBm
TX Power                   : 4.000dBm    ,-40.000dBm    ,-40.000dBm    ,-40.000dBm
TX Bias                    : 89.654mA    ,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 ,5.500dBm ,5.500dBm ,120.000mA High warning threshold : 70C ,3.460V ,4.500dBm ,4.500dBm ,110.000mA Low warning threshold : 0C ,3.130V ,-8.700dBm ,-2.400dBm ,30.000mA Low alarm threshold : -5C ,2.970V ,-9.698dBm ,-3.400dBm ,20.000mA
Test Conclusion	After completing the above test content, all the test information should be copied and pasted into a TXT document.
Remarks	/