



QSFP-DR-100G

OPTICAL TRANSCEIVER MODULE

Scenario Application 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'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
Cisco Switch	C93180YC-EX	07.69
NVIDIA NICs	MCX623106AN-CDAT	22.43.1014
DELL Server	PowerEdge R860	/

3.2 Test Sample

Table 3-2: Test Sample

Product ID	P/N	Serial Number
#143516	QSFP-DR-100G	A2440004257

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.

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

```
Cisco_C93180YC-EX#
Cisco_C93180YC-EX# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under their own
licenses, such as open source. This software is provided "as is," and unless
otherwise stated, there is no warranty, express or implied, including but not
limited to warranties of merchantability and fitness for a particular purpose.
Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or
GNU General Public License (GPL) version 3.0 or the GNU
Lesser General Public License (LGPL) Version 2.1 or
Lesser General Public License (LGPL) Version 2.0.
A copy of each such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://opensource.org/licenses/gpl-3.0.html and
http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old-licenses/library.txt.
```

```
Software
  BIOS: version 07.69
  NXOS: version 10.2(5) [Maintenance Release]
  BIOS compile time: 04/07/2021
  NXOS image file is: bootflash:///nxos64-cs.10.2.5.M.bin
  NXOS compile time: 3/10/2023 12:00:00 [03/03/2023 12:00:11]
```

```
Hardware
  cisco Nexus9000 C93180YC-EX chassis
  Intel(R) Xeon(R) CPU @ 1.80GHz with 24617876 kB of memory.
  Processor Board ID FDO221418Y5
  Device name: Cisco_C93180YC-EX
  bootflash: 7906304 kB
```

Kernel uptime is 1 day(s), 4 hour(s), 33 minute(s), 57 second(s)

```
Last reset at 759734 usecs after Tue May 13 01:20:30 2025
Reason: Module PowerCycled
System version:
Service: HW check by card-client
```

```
plugin
  Core Plugin, Ethernet Plugin
```

Active Package(s):

```
Cisco_C93180YC-EX#
Cisco_C93180YC-EX#
Cisco_C93180YC-EX#
```

Cisco_C93180YC-EX# show interface status

Port	Name	Status	Vlan	Duplex	Speed	Type
mgmt0	--	notconnec	routed	auto	auto	--
Port	Name	Status	Vlan	Duplex	Speed	Type
Eth1/1	--	xcvrAbsen	routed	auto	auto	--
Eth1/2	--	xcvrAbsen	1	auto	auto	--
Eth1/3	--	xcvrAbsen	1	auto	1000	--
Eth1/4	--	xcvrAbsen	1	auto	auto	--
Eth1/5	--	xcvrAbsen	1	auto	1000	--
Eth1/6	--	xcvrAbsen	1	auto	auto	--
Eth1/7	--	xcvrAbsen	routed	auto	auto	--
Eth1/8	--	xcvrAbsen	1	auto	auto	--
Eth1/9	--	xcvrAbsen	1	auto	auto	--
Eth1/10	--	xcvrAbsen	1	auto	auto	--
Eth1/11	--	xcvrAbsen	1	auto	auto	--
Eth1/12	--	xcvrAbsen	1	auto	auto	--
Eth1/13	--	xcvrAbsen	1	auto	auto	--
Eth1/14	--	xcvrAbsen	1	auto	auto	--
Eth1/15	--	xcvrAbsen	1	auto	auto	--
Eth1/16	--	xcvrAbsen	1	auto	auto	--
Eth1/17	--	xcvrAbsen	1	auto	auto	--
Eth1/18	--	xcvrAbsen	2	auto	auto	--
Eth1/19	--	xcvrAbsen	1	auto	auto	--
Eth1/20	--	xcvrAbsen	2	auto	10G	--
Eth1/21	--	xcvrAbsen	1	auto	auto	--
Eth1/22	--	xcvrAbsen	1	auto	10G	--
Eth1/23	--	xcvrAbsen	1	auto	auto	--
Eth1/24	--	xcvrAbsen	1	auto	25G	--
Eth1/25	--	xcvrAbsen	1	auto	auto	--
Eth1/26	--	xcvrAbsen	1	auto	25G	--
Eth1/27	--	xcvrAbsen	1	auto	auto	--

Test Information

Eth1/28	--	xcvrAbsen 2	auto	auto	--
Eth1/29	--	xcvrAbsen 1	auto	auto	--
Eth1/30	--	xcvrAbsen 1	auto	auto	--
Eth1/31	--	xcvrAbsen 1	auto	auto	--
Eth1/32	--	xcvrAbsen 2	auto	auto	--
Eth1/33	--	xcvrAbsen 1	auto	auto	--
Eth1/34	--	xcvrAbsen 1	auto	auto	--
Eth1/35	--	xcvrAbsen 1	auto	auto	--
Eth1/36	--	xcvrAbsen 1	auto	auto	--
Eth1/37	--	xcvrAbsen 1	auto	auto	--
Eth1/38	--	xcvrAbsen 1	auto	auto	--
Eth1/39	--	xcvrAbsen 1	auto	auto	--
Eth1/40	--	xcvrAbsen 1	auto	auto	--
Eth1/41	--	xcvrAbsen 1	auto	auto	--
Eth1/42	--	xcvrAbsen 1	auto	auto	--
Eth1/43	--	xcvrAbsen 1	auto	auto	--
Eth1/44	--	xcvrAbsen 1	auto	auto	--
Eth1/45	--	xcvrAbsen 1	auto	auto	--
Eth1/46	--	xcvrAbsen 1	auto	auto	--
Eth1/47	--	xcvrAbsen 1	auto	auto	--
Eth1/48	--	xcvrAbsen 1	auto	auto	--
Eth1/49	--	xcvrAbsen 1	auto	auto	--
Eth1/50	--	connected 1	full	100G	QSFP-100G-D
R					
Eth1/51/1	--	xcvrAbsen 1	auto	auto	--
Eth1/51/2	--	xcvrAbsen 1	auto	auto	--
Eth1/51/3	--	xcvrAbsen 1	auto	auto	--
Eth1/51/4	--	xcvrAbsen 1	auto	auto	--
Eth1/52	--	connected 1	full	100G	QSFP-100G-D
R					
Eth1/53	--	xcvrAbsen 1	auto	100G	--
Eth1/54	--	xcvrAbsen 1	auto	100G	--

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

Cisco_C93180YC-EX# show interface ethernet 1/50

Ethernet1/50 is up

admin state is up, Dedicated Interface

Hardware: 1000/10000/25000/40000/50000/100000 Ethernet, address: 700f.6a4d.df74 (bia 700f.6a4d.df74)

MTU 1500 bytes, BW 1000000000 Kbit , DLY 10 usec

reliability 255/255, txload 1/255, rxload 1/255

Encapsulation ARPA, medium is broadcast

Port mode is access

full-duplex, 100 Gb/s, media type is 100G

Beacon is turned off

Auto-Negotiation is turned on FEC mode is Auto

Input flow-control is off, output flow-control is off

Auto-mdix is turned off

Rate mode is dedicated

Switchport monitor is off

EtherType is 0x8100

EEE (efficient-ethernet) : n/a

admin fec state is auto, oper fec state is off

Last link flapped 00:06:21

Last clearing of "show interface" counters never

16 interface resets

Load-Interval #1: 30 seconds

30 seconds input rate 0 bits/sec, 0 packets/sec

30 seconds output rate 0 bits/sec, 0 packets/sec

input rate 0 bps, 0 pps; output rate 0 bps, 0 pps

Load-Interval #2: 5 minute (300 seconds)

300 seconds input rate 0 bits/sec, 0 packets/sec

300 seconds output rate 0 bits/sec, 0 packets/sec

input rate 0 bps, 0 pps; output rate 0 bps, 0 pps

Test Information

Test Information

RX
0 unicast packets 0 multicast packets 1 broadcast packets
1 input packets 64 bytes
0 jumbo packets 0 storm suppression bytes
0 runts 0 giants 0 CRC 0 no buffer
0 input error 0 short frame 0 overrun 0 underrun 0 ignored
0 watchdog 0 bad etype drop 0 bad proto drop 0 if down drop
0 input with dribble 0 input discard
0 Rx pause
0 Stomped CRC

TX
0 unicast packets 0 multicast packets 0 broadcast packets
0 output packets 0 bytes
0 jumbo packets
0 output error 0 collision 0 deferred 0 late collision
0 lost carrier 0 no carrier 0 babble 0 output discard
0 Tx pause

3. Read the DDM information of the module

Cisco_C93180YC-EX#
Cisco_C93180YC-EX# show interface ethernet 1/50 transceiver details
Ethernet1/50
transceiver is present
type is QSFP-100G-DR
name is FS
part number is QSFP-DR-100G
revision is 01
serial number is A2310221386
nominal bitrate is 25500 MBit/sec
Link length supported for 9/125um fiber is 1 km
cisco id is 17
cisco extended id number is 206

Lane Number:1 Network Lane
SFP Detail Diagnostics Information (internal calibration)

	Current Measurement	Alarms		Warnings	
		High	Low	High	Low
Temperature	46.77 C	75.00 C	-5.00 C	70.00 C	0.00 C
Voltage	3.23 V	3.63 V	2.97 V	3.46 V	3.13 V
Current	89.01 mA	120.00 mA	20.00 mA	110.00 mA	30.00 mA
Tx Power	2.10 dBm	4.99 dBm	-4.90 dBm	3.99 dBm	-3.90 dBm
Rx Power	1.93 dBm	4.99 dBm	-7.90 dBm	3.99 dBm	-6.90 dBm
Transmit Fault Count = 0					

Note: ++ high-alarm; + high-warning; -- low-alarm; - low-warning

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

```
[root@localhost ~]#  
[root@localhost ~]# mlxfwmanager -d mlx5_8  
Querying Mellanox devices firmware ...  
  
Device #1:  
-----  
Device Type:      ConnectX6DX  
Part Number:      MCX623106AN-CDA_AX  
Description:      ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0/3.0 x16;  
PSID:             MT_0000000359  
PCI Device Name:  mlx5_8  
Base GUID:        e8ebd303009c65e0  
Base MAC:         e8ebd39c65e0  
Versions:  
  FW              22.43.1014    N/A  
  PXE             3.7.0500     N/A  
  UEFI            14.36.0016    N/A  
  
Status:           No matching image found
```

Test Information

```
[root@localhost ~]# mlxlink -d mlx5_8 -c

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.) : 0x000007f2 (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 : 22.43.1014
amBER Version : 3.2
MFT Version : mft 4.28.0-92

Physical Counters and BER Info
-----
Time Since Last Clear [Min] : 3.0
Effective Physical Errors : 0
Effective Physical BER : 15E-255
Raw Physical Errors Per Lane : 0,0,0,0
Raw Physical BER : 15E-255
```

5. Read the module basic information on NIC side

```
Module Info
-----
Identifier : QSFP28
Compliance : 100GBASE-DR, with CAUI-4 without FEC
Cable Technology : 1310 nm EML
Cable Type : Optical Module (separated)
OUI : Other
Vendor Name : FS
Vendor Part Number : QSFP-DR-100G
Vendor Serial Number : A2440004257
Rev : 01
Wavelength [nm] : 1310
Transfer Distance [m] : 0
Attenuation (5g,7g,12g) [dB] : N/A
FW Version : N/A
Digital Diagnostic Monitoring : Yes
Power Class : 4.5 W max
CDR RX : ON,OFF,OFF,OFF
CDR TX : ON,ON,ON,ON
LOS Alarm : N/A
Temperature [C] : 33 [-5..75]
Voltage [mv] : 3267.8 [2970..3630]
Bias Current [mA] : 78.364,0,0,0 [20..120]
Rx Power Current [dBm] : 1.752,-40,-40,-40 [-7.905..5]
Tx Power Current [dBm] : 2.636,-40,-40,-40 [-4.908..5]
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 : 2.2nm
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 : 22_10_24
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
```

Test Information

6. Read the module DDM on NIC side

```
[root@localhost ~]# 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.) : 0x000007F2 (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 : 22.43.1014  
amBER Version : 3.2  
MFT Version : mft 4.28.0-92
```

Cable DDM Information

```
-----  
Temperature : 34C  
Voltage : 3.2670V  
Channels : Channel 1 ,Channel 2 ,Channel 3 ,Channel 4  
RX Power : 2.000dBm , -40.000dBm , -40.000dBm , -40.000dBm  
TX Power : 2.000dBm , -40.000dBm , -40.000dBm , -40.000dBm  
TX Bias : 78.486mA , 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
```