QDD-ZR-400G

OPTICAL TRANSCEIVER MODULE

Scenario Application Test Report (Cisco)

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
Cisco Switch	C9316D-GX	05.51

3.2 Test Sample

Table 3-2: Test Sample

Product ID	P/N	Serial Number
#193134	QDD-ZR-400G	2431WOJWD

4. Test Data

4.1 Test Scenario

Table 4-1: Test Scenario

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.

4.2 Test Result

Table 4-2: Test Result

Test Information	1. Read the switch model name and software version, and read the status of all ports on the switch N9K-9316D# show version Cisco Nexus Operating System (NX-OS) Software TAC support: http://www.cisco.com/tac Copyright (C) 2002-2024, Cisco and/or its affiliates. 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 05.51 NXOS: version 10.5(1) [Feature Release] Host NXOS: version 10.5(1) BIOS compile time: 11/29/2023 NXOS image file is: bootflash:///nxos64-cs.10.5.1.F.bin NXOS compile time: 7/31/2024 12:00:00 [07/26/2024 02:00:41] NXOS boot mode: LXC Hardware cisco Nexus9000 C9316D-GX Chassis Intel(R) Xeon(R) CPU D-1526 @ 1.80GHz with 32803124 kB of memory. Processor Board ID FDO23430E7Z Device name: N9K-9316D bootflash: 115805708 kB Kernel uptime is 3 day(s), 0 hour(s), 22 minute(s), 17 second(s) Last reset at 900994 usecs after Mon Oct 9 18:33:13 2000 Reason: Reset Requested due to Fatal Module Error System version: 10.5(1) Service: app_mts_queue num 15:

plugin
Core Plugin, Ethernet Plugin

Active Package(s):

N9K-9316D# show inventory
NAME: "Chassis", DESCR: "Nexus9000 C9316D-GX Chassis"
PID: N9K-C9316D-GX , VID: V01 , SN: FDO23430E7Z

NAME: "Slot 1", DESCR: "16x400G/100G/40G QSFP-DD Ethernet Module"
PID: N9K-C9316D-GX , VID: V01 , SN: FDO23430E7Z

NAME: "Slot 27", DESCR: "16x400G/100G/40G QSFP-DD Ethernet Module"
PID: N9K-C9316D-GX , VID: V01 , SN: FDO23430E7Z

NAME: "Power Supply 1", DESCR: "Nexus9000 C9316D-GX Chassis Power Supply"
PID: NXA-PAC-1100W-PE2 , VID: V03 , SN: ART2413FBNV

NAME: "Power Supply 2", DESCR: "Nexus9000 C9316D-GX Chassis Power Supply"
PID: NXA-PAC-1100W-PE2 , VID: V03 , SN: ART2413FBP3

NAME: "Fan 1", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

NAME: "Fan 2", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

NAME: "Fan 3", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

NAME: "Fan 4", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

NAME: "Fan 5", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

NAME: "Fan 6", DESCR: "Nexus9000 C9316D-GX Chassis Fan Module"
PID: NXA-FAN-35CFM-PE , VID: V01 , SN: N/A

N9K-9316D# show interface status

Port	Name	Status	Vlan	Duplex	Speed	Type
mgmt0	--	connected	routed	full	1000	--

Port	Name	Status	Vlan	Duplex	Speed	Type
Eth1/1/1	--	xcvrAbsen	1	auto	100G	--
Eth1/1/2	--	xcvrAbsen	1	auto	100G	--
Eth1/2/1	--	xcvrAbsen	1	auto	auto	--
Eth1/2/2	--	xcvrAbsen	1	auto	auto	--
Eth1/3	--	connected	1	full	400G	QSFP-DD-400G-ZR-S
Eth1/4	--	connected	1	full	400G	QSFP-DD-400G-ZR-S
Eth1/5	--	xcvrAbsen	1	auto	100G	--
Eth1/6	--	xcvrAbsen	1	auto	100G	--
Eth1/7	--	xcvrAbsen	1	auto	auto	--
Eth1/8	--	xcvrAbsen	1	auto	auto	--
Eth1/9	--	xcvrAbsen	1	auto	auto	--
Eth1/10	--	xcvrAbsen	1	auto	200G	--
Eth1/11	--	xcvrAbsen	1	auto	200G	--
Eth1/12	--	xcvrAbsen	1	auto	auto	--
Eth1/13	--	xcvrAbsen	1	auto	auto	--
Eth1/14	--	xcvrAbsen	1	auto	400G	--
Eth1/15	--	xcvrAbsen	1	auto	auto	--
Eth1/16	--	xcvrAbsen	1	auto	auto	--

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

```
N9K-9316D# show interface ethernet 1/3 transceiver
Ethernet1/3
   transceiver is present
   type is QSFP-DD-400G-ZR-S
   name is FS
   part number is QDD-ZR-400G
   revision is A
   serial number is CS250609002
   nominal bitrate is 425000 MBit/sec per channel
   cisco id is 24
   cisco extended id number is 21
   firmware version is 2.11
   Link length SMF is 12 km
   Nominal transmitter wavelength is 1547.70 nm
   Wavelength tolerance is 166.550 nm
   host lane count is 8
   media lane count is 1
   max module temperature is 80 deg C
   min module temperature is 0 deg C
   min operational voltage is 3.12 V
   vendor OUI is 0x7cb25c
   date code is 250609
   clei code is INUIANYEAA
   power class is 8 (>14 W maximum)
   max power is 19.50 W
   near-end lanes used none
   far-end lane code for 8 lanes Undefined
   media interface is unknown value 0x10
   Advertising code is Optical Interfaces: SMF
   Host electrical interface code is 400GAUI-8 C2M (Annex 120E)

N9K-9316D#
N9K-9316D# show interface ethernet 1/4 transceiver
Ethernet1/4
   transceiver is present
   type is QSFP-DD-400G-ZR-S
   name is FS
   part number is QDD-ZR-400G
   revision is A
   serial number is CS250609001
   nominal bitrate is 425000 MBit/sec per channel
   cisco id is 24
   cisco extended id number is 21
   firmware version is 2.11
   Link length SMF is 12 km
   Nominal transmitter wavelength is 1547.70 nm
   Wavelength tolerance is 0.015 nm
   host lane count is 8
   media lane count is 1
   max module temperature is 70 deg C
   min module temperature is 0 deg C
   min operational voltage is 3.14 V
   vendor OUI is 0x7cb25c
   date code is 250609
   clei code is INUIANYEAA
   power class is 8 (>14 W maximum)
   max power is 19.50 W
   near-end lanes used none
   far-end lane code for 8 lanes Undefined
   media interface is unknown value 0x10
   Advertising code is Optical Interfaces: SMF
   Host electrical interface code is 400GAUI-8 C2M (Annex 120E)
```

3. Read the DDM information of the module

```
N9K-9316D# show interface ethernet 1/3 transceiver details
Ethernet1/3
   transceiver is present
   type is QSFP-DD-400G-ZR-S
   name is FS
   part number is QDD-ZR-400G
   revision is A
   serial number is CS250609002
   nominal bitrate is 425000 MBit/sec per channel
   cisco id is 24
   cisco extended id number is 21
   firmware version is 2.11
   Link length SMF is 12 km
   Nominal transmitter wavelength is 1547.70 nm
   Wavelength tolerance is 166.550 nm
   host lane count is 8
   media lane count is 1
   max module temperature is 80 deg C
   min module temperature is 0 deg C
   min operational voltage is 3.12 V
   vendor OUI is 0x7cb25c
   date code is 250609
   clei code is INUIANYEAA
   power class is 8 (>14 W maximum)
   max power is 19.50 W
   near-end lanes used none
   far-end lane code for 8 lanes Undefined
   media interface is unknown value 0x10
   Advertising code is Optical Interfaces: SMF
   Host electrical interface code is 400GAUI-8 C2M (Annex 120E)

   FEC State: FEC cFEC
   Optics Status
      Optics Type: QSFP-DD-400G-ZR-S
      DWDM carrier Info: Frequency: 193.70 THz

      Alarm Status
      ------------
      DAC Rate: 1x1

   THRESHOLD VALUES
   ----------------
   Configured Tx Power: -89 dBm
   Modulation Type: 16QAM
   Muxponder Type: 1x400
   Configured CD-MIN: 0 ps/nm     CD-MAX: 0 ps/nm

Lane Number:1 Network Lane
  ------------------------------------------------------------------------------
             Current          Alarms                Warnings
             Measurement    High       Low        High        Low
  ------------------------------------------------------------------------------
  Temperature   64.16 C       75.00 C     -5.00 C     70.00 C       0.00 C
  Voltage        3.26 V        3.60 V      3.00 V      3.46 V        3.13 V
  Current          N/A           N/A         N/A         N/A           N/A
  Tx Power      -8.99 dBm      -4.00 dBm  -16.02 dBm   -5.00 dBm    -15.08 dBm
  Rx Power      -9.39 dBm       3.99 dBm  -23.01 dBm    2.99 dBm    -22.21 dBm
  Transmit Fault Count = 0
  ------------------------------------------------------------------------------
  Note: ++  high-alarm; +  high-warning; --  low-alarm; -  low-warning

  *** This QSFP support partial diagnostic data! ***
```

```
N9K-9316D#
N9K-9316D# show interface ethernet 1/4 transceiver details
Ethernet1/4
    transceiver is present
    type is QSFP-DD-400G-ZR-S
    name is FS
    part number is QDD-ZR-400G
    revision is A
    serial number is CS250609001
    nominal bitrate is 425000 MBit/sec per channel
    cisco id is 24
    cisco extended id number is 21
    firmware version is 2.11
    Link length SMF is 12 km
    Nominal transmitter wavelength is 1547.70 nm
    Wavelength tolerance is 0.015 nm
    host lane count is 8
    media lane count is 1
    max module temperature is 70 deg C
    min module temperature is 0 deg C
    min operational voltage is 3.14 V
    vendor OUI is 0x7cb25c
    date code is 250609
    clei code is INUIANYEAA
    power class is 8 (>14 W maximum)
    max power is 19.50 W
    near-end lanes used none
    far-end lane code for 8 lanes Undefined
    media interface is unknown value 0x10
    Advertising code is Optical Interfaces: SMF
    Host electrical interface code is 400GAUI-8 C2M (Annex 120E)

    FEC State: FEC cFEC
    Optics Status
        Optics Type: QSFP-DD-400G-ZR-S
        DWDM carrier Info: Frequency: 193.70 THz

        Alarm Status
        ------------
        DAC Rate: 1x1

    THRESHOLD VALUES
    ----------------
    Configured Tx Power: -89 dBm
    Modulation Type: 16QAM
    Muxponder Type: 1x400
    Configured CD-MIN: 0 ps/nm     CD-MAX: 0 ps/nm

Lane Number:1 Network Lane
  --------------------------------------------------------------------------------
            Current              Alarms                Warnings
            Measurement     High       Low        High         Low
  --------------------------------------------------------------------------------
  Temperature   65.05 C       75.00 C     -5.00 C     70.00 C       0.00 C
  Voltage       3.26 V        3.60 V      3.00 V      3.46 V        3.13 V
  Current         N/A           N/A         N/A         N/A           N/A
  Tx Power      -8.99 dBm     -4.00 dBm  -16.02 dBm   -5.00 dBm    -15.08 dBm
  Rx Power      -9.39 dBm      3.99 dBm  -23.01 dBm    2.99 dBm    -22.21 dBm
  Transmit Fault Count = 0
  --------------------------------------------------------------------------------
  Note: ++  high-alarm; +  high-warning; --  low-alarm; -  low-warning

  *** This QSFP support partial diagnostic data! ***
```

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