Configuring 800G Optics

The Cisco 800G QSFP-DD modules deliver high-capacity 800 Gigabit Ethernet connectivity for data center and enterprise networks, supporting enhanced scalability and flexibility.

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Configure 2x400G and 8x100G breakout modes

The Cisco QSFP-DD800 modules offer advanced high-density 800 Gigabit Ethernet connectivity for modern data centers and enterprise networks, featuring:

- Increased density and flexibility to support web customer deployments.
- Utilization of QSFP-DD800 optics technology for efficient, high-density ethernet connections.
- Enhanced scalability for seamless data center interconnection and network growth.

Table 1: Feature History Table

Feature Name	Release Information	Feature Description
Configure 2x400G and 8x100G breakout modes	Release 25.3.1	Introduced in this release on: Fixed Systems (8200 [ASIC: Q200, P100],(select variants only*); ; Modular Systems (8800 [LC ASIC: Q100, Q200, P100])(select variants only*) You can now configure 2x400G and 8x100G breakout modes on the 8212-32FH-M routers and 88-LC1-36EH line cards using the QSFP-DD800 optical modules. This feature introduces these changes: CLI: • **mode 800** keyword in **hw-module port-range** command • **breakout 8X100** keyword in **controller optics** command. *This feature is supported on: • 8212-32FH-M • 88-LC1-36EH

Guidelines for using Cisco QSFP-DD800 optical modules

Use these guidelines to operate Cisco QSFP-DD800 optical modules:

- When operating 800G optical modules in supported port pairs, only the first port in each pair (e.g., Port 0, 1, 4, 8, 9, 12, 13, 16) is active, while the second port in the pair (e.g., Port 2, 3, 6, 10, 11, 14, 15, 18) remains inactive.

  For example, in the first port pair (ports 0 and 2), port 0 is enabled, whereas port 2 is disabled.

- The major alarm `hw_optics: OPTICS Module is not supported on this port`does not appear when a Cisco 800G optical module is installed in a port configured with `mode 800`.

Supported port pairings on Cisco 8212-48FH-M Router

800G optics are supported on these port pairings of the Cisco 8212-48FH-M Router:

Port 1	Port 2
0	2
1	3
4	6
8	10
9	11
12	14
13	15
16	18
17	19
20	22
21	23
24	26
25	27
28	30
29	31
32	33
34	35
36	37
38	39
40	41
42	43
44	45
46	47

Configure 800G optics

To support 800G modules, configure the mode as 800 on the designated port pairings. This setup activates the primary port for 800G module insertion while disabling the secondary port in each pair.

Procedure

Step 1 Enter the global configuration mode.

Example:

```
Router# configure terminal
```

Step 2 Configure **mode 800** using the **hw-module port-range mode 800** command for the desired port pairing. Insert the module into the *first* port number of the pair.

Example:

```
Router(config)# hw-module port-range  0 0 instance 0 location 0/RP0/CPU0 mode 800
```

Step 3 Commit the configuration.

Example:

```
Router(config)# commit
```

Configure 8x100G breakout mode

You can configure the Cisco QDD-8X100G-FR optical module for 8x100G breakout mode to operate as eight separate 100 Gigabit Ethernet interfaces. The Cisco QDD-2X400G-FR4 optical module operates by default in 2x400G mode and does not require a breakout configuration.

Procedure

Step 1 Enter global configuration mode.

Example:

```
Router# configure terminal
```

Step 2 Access the controller optics configuration for the port where the QDD-8X100G-FR optical module is inserted.

Example:

```
Router(config)# controller optics 0/0/0/13
```

Step 3 Apply the breakout 8x100.

Example:

```
Router(config-Optics)# breakout 8x100
Router# commit
```

Step 4 Verify the installed 800 GbE modules and their configurations using the **show inventory | include 8x100.**

Example:

```
Router#show inventory | i 8x100
NAME: "EightHundredGigE0/0/0/13", DESCR: "Cisco QSFPDD 8x100G FR Pluggable Optics Module"
NAME: "EightHundredGigE0/0/0/38", DESCR: "Cisco QSFPDD 8x100G FR Pluggable Optics Module"
```

Support for DP08QSDD-ZRB-19B optics on 88-LC1-36EH line card

A DP08QSDD-ZRB-19B optic is a QSFP-DD800 coherent pluggable module that

- delivers 800-Gbps ZR/ZR+ transmission over amplified C-band DWDM networks
- enables high-capacity long-haul and data center interconnect (DCI) optical links directly from the router port, and
- eliminates the need for external transponders for long-distance DWDM connections.

Starting with Cisco IOS XR Release 25.4.1, the DP08QSDD-ZRB-19B optical module is supported in 88-LC1-36EH line cards.

Table 2: Feature History Table

Feature Name	Release Information	Feature Description
Support for DP08QSDD-ZRB-19B optics on 88-LC1-36EH line card	Release 25.4.1	Introduced in this release on: Fixed Systems (8200 [ASIC: Q200, P100], 8700 [ASIC: P100, K100], 8010 [ASIC: A100]); Centralized Systems (8600 [ASIC: Q200]); Modular Systems (8800 [LC ASIC: Q100, Q200, P100]) We have introduced support for the DP08QSDD-ZRB-19B 800G-ZR+ C-band coherent QSFP-DD module on the Cisco 88-LC1-36EH line card. This module enables 800G ZR/ZR+ coherent transmission over amplified C-band DWDM systems, providing high-capacity routed optical networking directly from the router port.