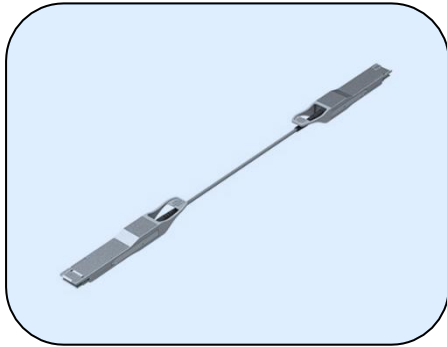




## XCE-QDQDNxx

400G QSFP56 DD SR8  
Active Optical Cable

XCE-QDQDNxx 400G QSFP56 DD SR8 AOC



### Applications

IEEE 802.3cd 200GBASE-SR4

### Features

- 8 channels full-duplex transceiver modules
- Transmission data rate up to 53 Gbps per channel
- 8x53 Gbps PAM4 transmitter and PM4 receiver
- 8 channels 850 nm VCSEL array
- 8 channels PIN photo detector array
- Internal CDR circuits on both receiver and transmitter channels
- Power consumption <10 W per end
- Hot Pluggable QSFP DD form factor and Compliant with CMIS
- Maximum link length of 70 m on OM3 Multimode Fiber (MMF) and 100 m on OM4 MMF with FEC
- Built-in digital diagnostic functions
- Operating case temperature 0°C to +70°C
- 3.3 V power supply voltage
- RoHS compliant (lead free)

### Description

The XenOpt XCE-QDQDNxx is an Eight-Channel, Pluggable, Parallel, Fiber-Optic QSFP Double Density module for 2x200 Gigabit Ethernet Applications. This AOC is a high performance module for short-range multi-lane data communication and interconnect applications. It integrates eight data lanes in each direction with 8x 26.5625 GBd. Each lane can operate at 53.125 Gbps up to 70 m using OM3 fiber or 100 m using OM4 fiber with FEC. These modules are designed to operate over multimode fiber systems using a nominal wavelength of 850 nm. The electrical interface uses a 76 contact edge type connector. The Common Management Interface Specification (CMIS) for QSFP DD modules incorporates XenOpt Technologies proven circuit and VCSEL technology to provide reliable long life, high performance, and consistent service.

Module Block Diagram

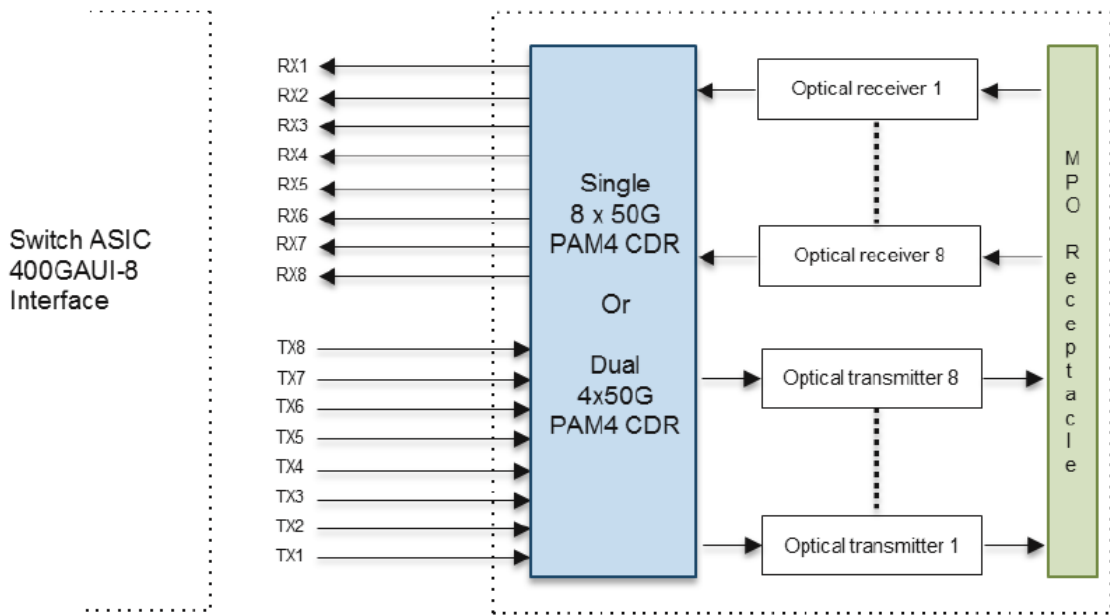


Figure 1. Module Block Diagram

2x200GBASE-SR4 QSFP DD is one kind of parallel transceiver. VCSEL and PIN array package is key technique, through I2C system can contact with module.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-20	85	°C
Case Operating	Top	0	70	°C
Humidity (non-condensing)	Rh	5	95	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case temperature	Tca	0		70	°C
Data Rate Per Lane	fd		26.5625		GBd
Humidity	Rh	5		85	%
Power Dissipation	Pm			10	W

## Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	100	110	ohm
Differential Output impedance	Zout	90	100	110	ohm
Differential input voltage amplitude	$\Delta V_{in}$			900	mVp-p
Differential output voltage amplitude	$\Delta V_{out}$			900	mVp-p
Skew	Sw			300	ps
Bit Error Rate	BER			2.4E-4	-
Near-end Eye Width at 10 <sup>-6</sup> probability (EW6)		0.265			UI
Near-end Eye Height at 10 <sup>-6</sup> probability (EH6)		70			mV
Far-end Eye Width at 10 <sup>-6</sup> probability (EW6)		0.20			UI
Far-end Eye Height at 10 <sup>-6</sup> probability (EH6)		30			mV
Near-end Eye Linearity		0.85			-

### Note

1. BER=2.4E-4; PRBS31Q@26.5625GBd. Pre-FEC
2. Differential input voltage amplitude is measured between TxnP and TxnN.
3. Differential output voltage amplitude is measured between RxnP and RxnN.

## Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda_c$	840	850	860	nm	-
RMS spectral width	$\Delta\lambda$	-	-	0.6	nm	-
Average launch power, each lane	P <sub>out</sub>	-6.5	-	4	dBm	-
Optical Modulation Amplitude (OMA <sub>outer</sub> ), each lane	OMA	-4.5		3	dBm	-
Transmitter and dispersion eye closure (TDEC), each lane	TDEC			4.5	dB	
Extinction Ratio	ER	3	-	-	dB	-
Average launch power of OFF transmitter, each lane				-30	dB	-
<b>Receiver</b>						
Centre Wavelength	$\lambda_c$	840	850	860	nm	-
Receiver Sensitivity in OMA <sub>out</sub>	RX <sub>sen</sub>			(-6.5, -3.4)	dBm	1
Stressed Receiver Sensitivity in OMA <sub>out</sub>				-3	dBm	1
Maximum Average power at receiver, each lane input				4	dBm	-
Minimum Average power at receiver, each lane		-7.9			dBm	
Receiver Reflectance				-12	dB	-
LOS Assert		-10			dBm	-
LOS De-Assert – OMA				-7.5	dBm	-
LOS Hysteresis		0.5			dB	-

### Note

1. Measured with conformance test signal at TP3 for BER = 2.4E-4 Pre-FEC

## Ordering information

Part number	Product Description
XCE-QDQDNxx	QSFP DD, 2x 200GBASE-SR4 AOC, 70 m on OM3 Multimode Fiber (MMF) and 100 m on OM4 MMF, DSP Power consumption <10 W xx = 05 - 5 m, 20 - 20 m, 50 - 50 m, C0 - 100 m

### Notes

<sup>1</sup> For accurate order specification please contact XenOpt reseller before placing an order. The content of this document is subject to change without notice.

These modules are available in multiple customized compatible versions. **Please specify any compatibility requirements at time of ordering.** Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices. Pluggable components compatible with one type of communications equipment may not work in other type of communications equipment.

### Important Notice

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