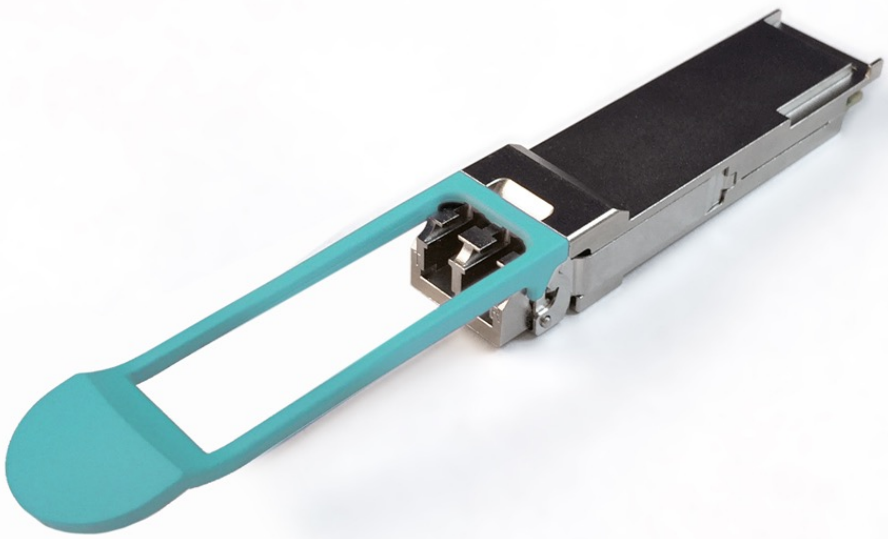
Smart photonic integration



KEY FEATURES

Operates over duplex multimode or single mode fiber

Reach: 140m on OM3, 160m on OM4, or 1km on SMF

Uncooled CWDM DFB lasers, directly modulated

Compliant with 40G Ethernet IEEE 802.3ba (XLPPI)

LC duplex connector

Receiver monitoring, receiver signal strength indicator (RSSI)

Transmitter optical power monitoring (TPM)

AC coupling caps are placed inside the module in both transmitting and receiving paths

Hot pluggable

Max Power of <2.5W

XQX3200 QSFP+ 40G-UNIV

Optimized for Data Center

Kaiam's novel hybrid integration technology allows components to be optimized for performance that fits the application, achieving best-in-class results built upon flexible, scalable platforms that grow with the market and customer needs.

The **QSFP+ 40G-UNIV** module is a highly integrated 4x10G transceiver focused on reach, bandwidth, density and cost for data center 40GE applications over **duplex multimode or single mode fiber**. The module incorporates 4 independent channels, on ITU G.694.2 CWDM (near 1300nm) wavelength grid, operating between 9.95 and 11.318 Gb/s per channel.

The transmitter path incorporates 4 laser drivers and DML lasers together with an optical multiplexer. On the receiver path, an optical demux is coupled with 4-channel photodiodes and limiting TIAs. The electrical interface is compliant with IEEE 802.3ba XLPPI in the transmitting and receiving directions.

KAIAM

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OPTICAL TRANSMITTER PERFORMANCE

PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Lane Wavelengths	1264.5	1271	1277.5	nm	ITU +/- 6.5nm
	1284.5	1291	1297.5		
	1304.5	1311	1317.5		
	1324.5	1331	1337.5		
Modulation Bandwidth	9.95328	10.3125	11.318	Gb/s	
Extinction Ratio	3.5			dB	
Tx OMA, each lane, MMF	-3		4.8	dBm	at TP2
Tx OMA, each lane, SMF	-6		3.5	dBm	at TP2
Difference in Launch Power between any two lanes			6.5	dB	OMA
Side Mode Suppression Ratio	30			dB	modulated
-20 dB Spectral Width			1	nm	modulated
Relative Intensity Noise			-128	dB/Hz	RIN20 OMA
Transmitter Reflectance			-12	dB	
Total Jitter Generation			0.2	UI	
Transmitter Optical Mask	Compliant with 40GBASE-LR4				5% mask margin 5 x 10^{-5} hit ratio
Transmitter OPM Accuracy	-3		+3	dB	

OPTICAL RECEIVER PERFORMANCE

PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Lane Wavelengths	1264.5	1271	1277.5	nm	ITU +/- 6.5nm
	1284.5	1291	1297.5		
	1304.5	1311	1317.5		
	1324.5	1331	1337.5		
Receiver Sensitivity (OMA) per Channel		-13.5	-10.5	dBm	10.3Gb/s @ BER=10^{-12} and PBRS 2^{31}-1
Receiver Saturation	3.5			dBm	per channel
LOS Assert	-30	-20	-15	dBm	per channel
LOS De-Assert	-28	-18	-14	dBm	per channel
RSSI Accuracy	-3		+3	dB	per channel
Receiver Reflectance			-26	dB	

OPERATING CONDITIONS

PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Operating Case Temperature	0		70	°C	
Storage Temperature	-40		85	°C	
Relative Humidity	5		85	%	
Supply Voltage	3.135	3.3	3.465	V	+/- 5%

QSFP+ MODULE MECHANICAL OUTLINE

(all dimensions are in mm)