

QSFP-4x10G-AOC-xM

40GBase QSFP+ to 4x SFP+
AOC Cable
Up to 300m Reach

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Features

- Operating data rate 41.25/10.3125 Gb/s
- Maximum link length of 300m on OM3 MMF
- Active optical cable
- Hot pluggable QSFP+/SFP+ form factor
- QSFP+ mechanical specification compliant with SFF-8436
- SFP+ mechanical specification compliant with SFF-8432
- QSFP+ module compliant with IEEE 802.3ba 40GBASE-SR4 standard
- SFP+ module compliant with IEEE 802.3ae 10GBase SR
- Operating case temperature 0°C to 70°C
- 3.3V single power supply
- QSFP+ module power consumption <1.5W
- SFP+ module power consumption <0.35W
- Compliant with RoHS 2.0



Applications

- 40G SR4 breakout to 4x 10G SR
- Data center

Part number	Product description
QSFP-4x10G-AOC-xM	xm 40GBase QSFP+ to 4x SFP+ AOC x = value for meters (e.g. 7M = 7 meters length)

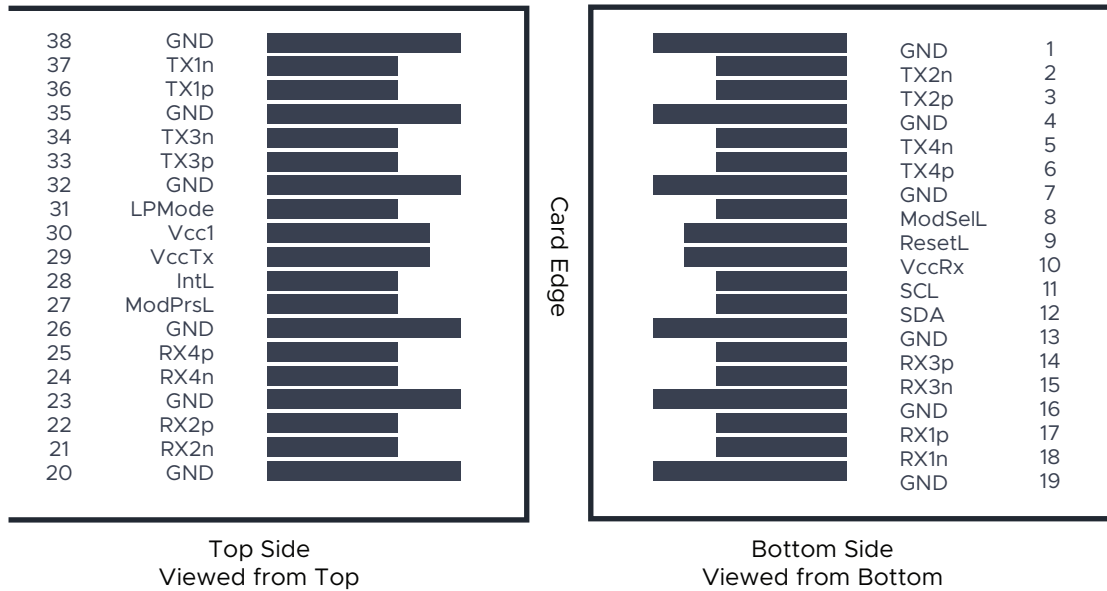
PIN Description (QSFP+)

Pin		Function/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data output	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted Data output	
7	GND	Transmitter Ground (Common with Receiver Ground)	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	2
10	VccRx	3.3V Power Supply Receiver	
11	SCL	2-Wire serial Interface Clock	2
12	SDA	2-Wire serial Interface Data	2
13	GND	Transmitter Ground (Common with Receiver Ground)	1
14	Rx3+	Receiver Non-Inverted Data Output	
15	Rx3-	Receiver Inverted Data Output	
16	GND	Transmitter Ground (Common with Receiver Ground)	1
17	Rx1+	Receiver Non-Inverted Data Output	
18	Rx1-	Receiver Inverted Data Output	
19	GND	Transmitter Ground (Common with Receiver Ground)	1
20	GND	Transmitter Ground (Common with Receiver Ground)	1
21	Rx2-	Receiver Inverted Data Output	
22	Rx2+	Receiver Non-Inverted Data Output	
23	GND	Transmitter Ground (Common with Receiver Ground)	1
24	Rx4-	Receiver Inverted Data Output	1
25	Rx4+	Receiver Non-Inverted Data Output	
26	GND	Transmitter Ground (Common with Receiver Ground)	1
27	ModPrsl	Module Present	
28	IntL	Interrupt	2
29	VccTx	3.3V power supply transmitter	
30	Vcc1	3.3V power supply	
31	LPMODE	Low Power Mode	2
32	GND	Transmitter Ground (Common with Receiver Ground)	1
33	Tx3+	Transmitter Non-Inverted Data Input	
34	Tx3-	Transmitter Inverted Data Output	
35	GND	Transmitter Ground (Common with Receiver Ground)	1
36	Tx1+	Transmitter Non-Inverted Data Input	
37	Tx1-	Transmitter Inverted Data Output	
38	GND	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7K Ω to 10K Ω pull-up resistor to VccHost.

Pin Assignment (QSFP+)



PIN Description (SFP+)

PIN	Symbol	Name - Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault. Not supported.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	1
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	1
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	1
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes:

- Open collector/drain output, which should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to 3.6V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
- Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
- LOS is open collector output. Should be pulled up with 4.7kΩ to 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
- RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
- TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Pin Assignment (SFP+)



Figure 1. Diagram of host board connector block pin numbers and names

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5	-	+4.0	V	
Storage Temperature	Ts	-40	-	+85	°C	
Relative Humidity	RH	5	-	95	%	1

Notes:

1. Non-condensing.

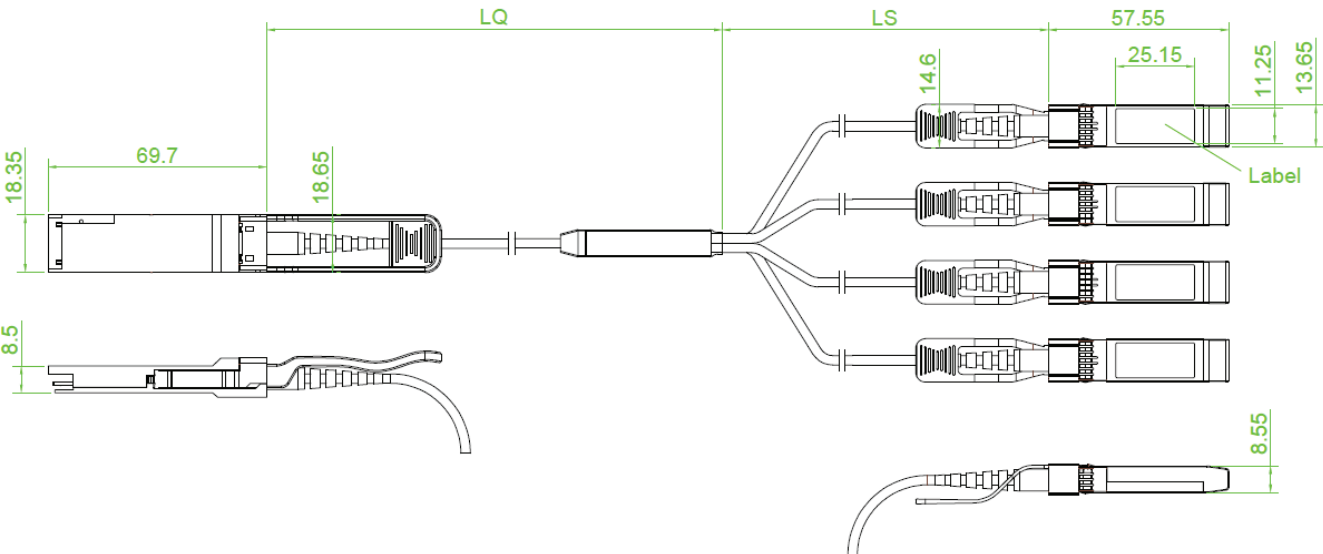
Recommend Operation Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Data Rate (per lane)	-	-	10.3125	-	Gb/s	
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
QSFP + Power Dissipation	Po	-	-	1.5	W	
SFP + Power Dissipation	Po	0	-	0.35	W	
Case Operating Temperature (com.)	Top	0	-	+70	°C	

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Input Differential Impedance	Zin	90	100	110	Ω	
Differential Input Voltage	Vppin	200	-	900	mV	
Receiver						
Output Differential Impedance	Zout	90	100	110	Ω	
Differential Output Voltage	Vppout	200	-	900	mV	

Block Diagram



Revision history

Revision	Date	Author	Description
V1.1	05-03-2020	JGN	Initial Document

Note : Nexgen A/S reserves the right to change this document without notice.