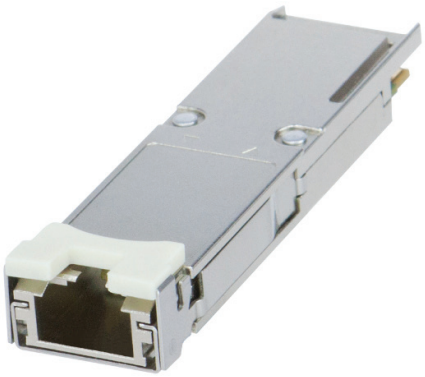
Product Brief
Intel® Ethernet Modular Optics and Cabling Solution
Network Connectivity

Intel® Ethernet Modular Optics and Cabling Solution (Intel® Ethernet MOCS)

Low-Cost, High Performance Optics, for QSFP+ 4x10 Gb/s or 1x40 Gb/s Ethernet Applications



Key Features

- Support for 40GBASE Ethernet
- Hot-pluggable QSFPf+ footprint
- Supports 4 lane, full-duplex Ethernet
- Supports bit rates up to 10.3 Gb/s per lane
- Typical power dissipation < 0.5W
- Supports 64b/66b or 8b/10b encoded data
- RoHS2 compliant
- 0 °C – 70 °C operational range
- Single 3.3VDC power supply
- Link length up to 100 m on MOCS cables
- Reliable 850 nm VCSEL array laser
- Unretimed XLPPI electrical interface
- Meets Class 1 Laser safety regulations

Product Overview

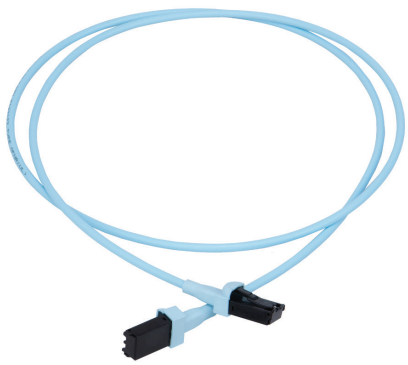
Intel is introducing a new alternative to high-cost, traditional fiber optics.

With every speed step in Ethernet performance, the industry seeks to find the lowest cost connection at the latest data rate. Historically, fiber optics are the first connection type available but are very expensive. The high cost of fiber optics often makes them a barrier to broad adoption of the latest Ethernet data rate. As the industry continues to move to faster Ethernet speeds, the industry will become more dependent on fiber optics. At higher speeds copper becomes less viable as a transport media.

Intel recognizes that for data rates starting with 40GbE Ethernet, fiber optics becomes a feasible connectivity media for broader adoption. But the industry needs a lower-cost approach to fiber optics.

Intel® Ethernet MOCS transceivers are a new low-cost alternative to 40GBASE-SR4 QSFP+ for End-of-Row (EoR) connection distances, including switch-to-switch connections. They are also a robust and reliable alternative for 40GBASE-CR4 for Top-of-Rack (ToR) connections.

Intel® Ethernet MOCS reduce costs through an innovative approach to optical transceiver design for the rack. Since there is no need to use expensive optics that have 300m reach in a rack that is only 30 meters in length, Intel's approach to delivering an optical connection for the rack begins by simplifying the design of a transceiver. By reducing the reach to 100 meters, it means you can reduce the component count and cost of a transceiver. And being cost conscious, Intel designed a new connector that eliminates high cost licensing or royalties. The result? The transceiver's power consumption is less than 0.5W for a 40 Gb/s connection, using a standard XLPPI compliant electrical interface, and can reach up to 100 meters[1] at a fraction of the cost of traditional optical transceivers.



PRODUCT SPECIFICATIONS

Module Form Factor	QSFP+
Application	40 Gigabit Ethernet
Product Code	MOT40G

TRANSCEIVER SPECIFICATIONS

PARAMETER	MIN	NOMINAL	MAX	UNIT
Electrical Interface		XLPPI (IEEE 802.3ba Annex 86A)		
Number of Lanes (Electrical)		4 Tx and 4 Rx pairs		
Number of Lanes (Optical)		4 Tx and 4 Rx pairs		
Data Rate	1		12.5	Gb/s
Operating Temperature	0		70	°C
Power Consumption		0.5	TBD	Watts
Fiber Length[2]	0.5		100	m
Storage Temperature	-40°C		85°C	°C
QSFP+ Module Specifications	• INF-8438i Specification for QSFP (Quad Small Form factor Pluggable) Transceiver • SFF-8436 – Specification for QSFP+ Copper and Optical Transceiver			

COMPATIBLE INTEL® ETHERNET CONVERGED NETWORK ADAPTER PRODUCT CODES

CONFIGURATION	PORTS	SINGLE PACK	BULK 5 PACK
Intel® Ethernet Converged Network Adapter X520-QDA1	1	X520QDA1	
Intel® Ethernet Converged Network Adapter XL710-QDA1	1	XL710QDA1	XL710QDA1BLK
Intel® Ethernet Converged Network Adapter XL710-QDA2	2	XL710QDA2	XL710QDA2BLK

ORDERING INFORMATION

TYPE	BRAND NAME	PRODUCT CODE	MM#	DESCRIPTION
Optics	Intel® Ethernet 40G Modular Optical Transceiver	MOT40G	934346	40GbE QSFP+ MOT Optic, 1 Pack
Optics	Intel® Ethernet 40G Modular Optical Transceiver	MOT40GG1P10	934347	40GbE QSFP+ MOT Optic, 10 Pack
Optics	Intel® Ethernet 40G Modular Optical Transceiver	MOT40GG1P20	934348	40GbE QSFP+ MOT Optic, 20 Pack
Cables	Intel® Ethernet Modular Optical Cable 1m	MOCBL1M	934351	40GbE MOC Cable, 1 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 3m	MOCBL3M	934352	40GbE MOC Cable, 3 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 5m	MOCBL5M	934353	40GbE MOC Cable, 5 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 10m	MOCBL10M	934354	40GbE MOC Cable, 10 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 15m	MOCBL15M	934355	40GbE MOC Cable, 15 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 30m	MOCBL30M	934356	40GbE MOC Cable, 30 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 40m	MOCBL40M	934357	40GbE MOC Cable, 40 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical Cable 50m	MOCBL50M	934358	40GbE MOC Cable, 50 Meter, 1 Pack
Cables	Intel® Ethernet Modular Optical MTP Patch Cable 1m	MOMTPCBL1M	TBD	40GbE MOC MTP Patch Cable, 1 Meter, 1 Pack

For more information visit: **intel.com/go/Ethernet**

[1] To achieve 100m reach, MOCS transceivers can be used with standard OM3 ribbon fiber with MTP connections, such as a permanently installed OM3 cable plant with an MTP patch panel. The MOCS-to-MTP patch cord is required to make the connection from the transceiver to MTP patch panel.

[2] With MOCS cable system (OM3 fiber).

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