CDFP MSA

Frequently Asked Questions

December 2013

Q1: What will the CDFP MSA Group define and the CDFP Specification support? (Optical interfaces and copper?)

A1: The CDFP MSA Group will define a compact module form factor, like the SFP+ or QSFP form factors, that can be used for a variety of 400 Gbs applications. The CDFP Specification can support direct attach cables (DACs), active optical cables (AOCs), and connectorized optical modules. Enabling high port density, the compact CDFP module is well suited for low power applications within the data center including copper, VCSEL or Silicon Photonics (SiP) based technology. CDFP modules are not well suited for high power applications that extend links outside of the data center. As a rule of thumb, CDFP modules will not support links over two kilometers, but as technology improves and the relative power decreases, longer reach applications up to 10km may be possible.

Q2: Why now? What is driving this development?

A2: There are a number of issues driving the formation of the CDFP MSA. The development of the OIF's CEI-28G VSR electrical interface and IEEE's 802.3bm optical interfaces enable easy re-use of existing electrical and optical link definitions that can enable a 400Gb/s solution. The only item missing was a mechanical definition for the connector and module. At the same time, equipment OEMs and operators alike have pent-up demand for "fat pipe" links that support next generation bandwidth requirements in proprietary links. This is also evidenced by the formation of the IEEE 802.3 400Gb/s study group which is addressing the current demand for higher bandwidth, high density interconnections. Similar efforts are anticipated by other industry standards.

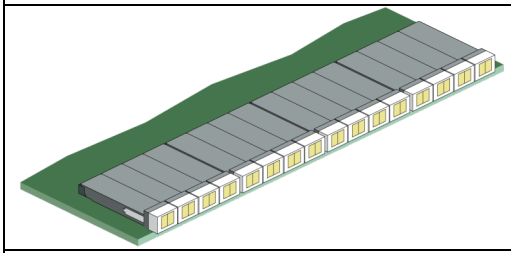
Q3: Is this a form factor for client-side interfaces or line-side (long distance) interfaces?

A3: The CDFP MSA Specification will define a high-density, pluggable, 16-lane form factor that supports signaling up to 26 GBaud. Either direct attach cables or optical transceivers can be implemented. Given the high-density of the CDFP module it is unlikely to be used for long-haul line-side applications. The most likely application will be client-side interfaces inside the data center that support up to 100 meters on MMF and 500 meters on SMF.

Q4: How does the port density of the 16x25G CDFP form factor compare with present 4x25G QSFP or CFP4 form-factor density?

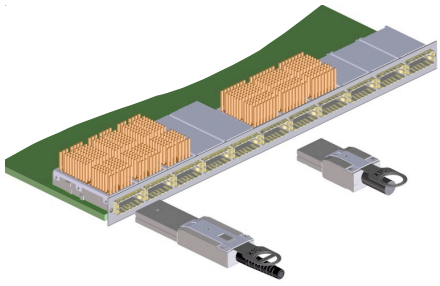
A4: The CDFP form factor will more than double the bandwidth density of current form factors. 16 CFP4 or 18 QSFP28 ganged modules can be accommodated on a line card having a width of approximately 14 inches (365mm). The CDFP line card would be able to accommodate a total of 11 modules in a row. The CDFP line card could support 4.4 Tb/s of bandwidth while the CFP4 can support 1.6Tb/s and the QSFP28 would support 1.8Tb/s.

CDFP to CFP4 Solution Comparison



16 CFP4 Modules - 1.6 Tb/s

11 CDFP Modules - 4.4 Tb/s



Bandwidth and Port Density

	# of Ports within 365mm	Bandwidth/ Port (Gbps)	Bandwidth/ Faceplate
CFP4	16	100	1.6
QSFP28	18	100	1.8
CDFP	**11**	**400**	**4.4**

Q5: Does the CDFP MSA Group rely on outside standards activity?

A5: This work is independent of standards activities. The current data center demands higher bandwidth and low latency interfaces. The CDFP MSA Group was formed to develop a 400G interface using existing technology based on 25G per lane to meet the current demand. This work can be used by standards if they choose to.

Q6: Does the CDFP MSA Group have a roadmap planned?

A6: The CDFP MSA Group is defining two form factors that use a common interface for very low power (4-5W) and low power (8-10W) applications. Additional form factors or capabilities could be designed if the market requires them.