



You know us because you depend on our technology every day.

10X10HD MSA Introduction

David Lewis

1st March, 2011

- Introductions – record of participants
- Objectives for the 10X10HD MSA – presentation and discussion. Straw poll to gauge consensus on objectives.
- CXP2 presentation.
- New proposed MSA agreement – overview.
- Wrap up – action items

Objectives

1. Optical interface compliant with 10X10-2km and/or 10X10-10km optical specifications
2. Module footprint and faceplate density to support a standard 1U x 19" card with > 1,000 Gb/s aggregate throughput
3. Electrical interface to comply with CPPI (IEEE802.3ba Annex 86A)
4. Electrical connector and cage to be based on existing designs, e.g., CXP or extended QSFP+
5. Module power dissipation of 6-8 W in support of < 60 W per line card
6. Module operating case temperature at least from 0 to 70 °C
7. Module-to-cage latch mechanism similar to XFP

1. Optical interface compliant with 10X10-2km and/or 10X10-10km optical specifications
2. Module footprint and faceplate density to support a standard 1U x 19" card with > 1,000 Gb/s aggregate throughput

Notes:

3. Electrical interface to comply with CPPI (IEEE802.3ba Annex 86A)
4. Electrical connector and cage to be based on existing designs, e.g., CXP or extended QSFP+

Notes:

5. Module power dissipation of 6-8 W in support of < 60 W per line card
6. Module operating case temperature at least from 0 to 70 °C

Notes:

7. Module-to-cage latch mechanism similar to XFP
Notes:

- Do you support objectives 1 and 2 for the 10X10 High Density module, namely:
 1. Optical interface compliant with 10X10-2km and/or 10X10-10km optical specifications
 2. Module footprint and faceplate density to support a standard 1U x 19" card with > 1,000 Gb/s aggregate throughput

YES _____

NO _____

- Do you support objectives 3 and 4 for the 10X10 High Density module, namely:
 3. Electrical interface to comply with CPPI (IEEE802.3ba Annex 86A)
 4. Electrical connector and cage to be based on existing designs, e.g., CXP or extended QSFP+

YES _____

NO _____

- Do you support objectives 5 and 6 for the 10X10 High Density module, namely:
 5. Module power dissipation of 6-8 W in support of < 60 W per line card
 6. Module operating case temperature at least from 0 to 70 °C

YES _____

NO _____

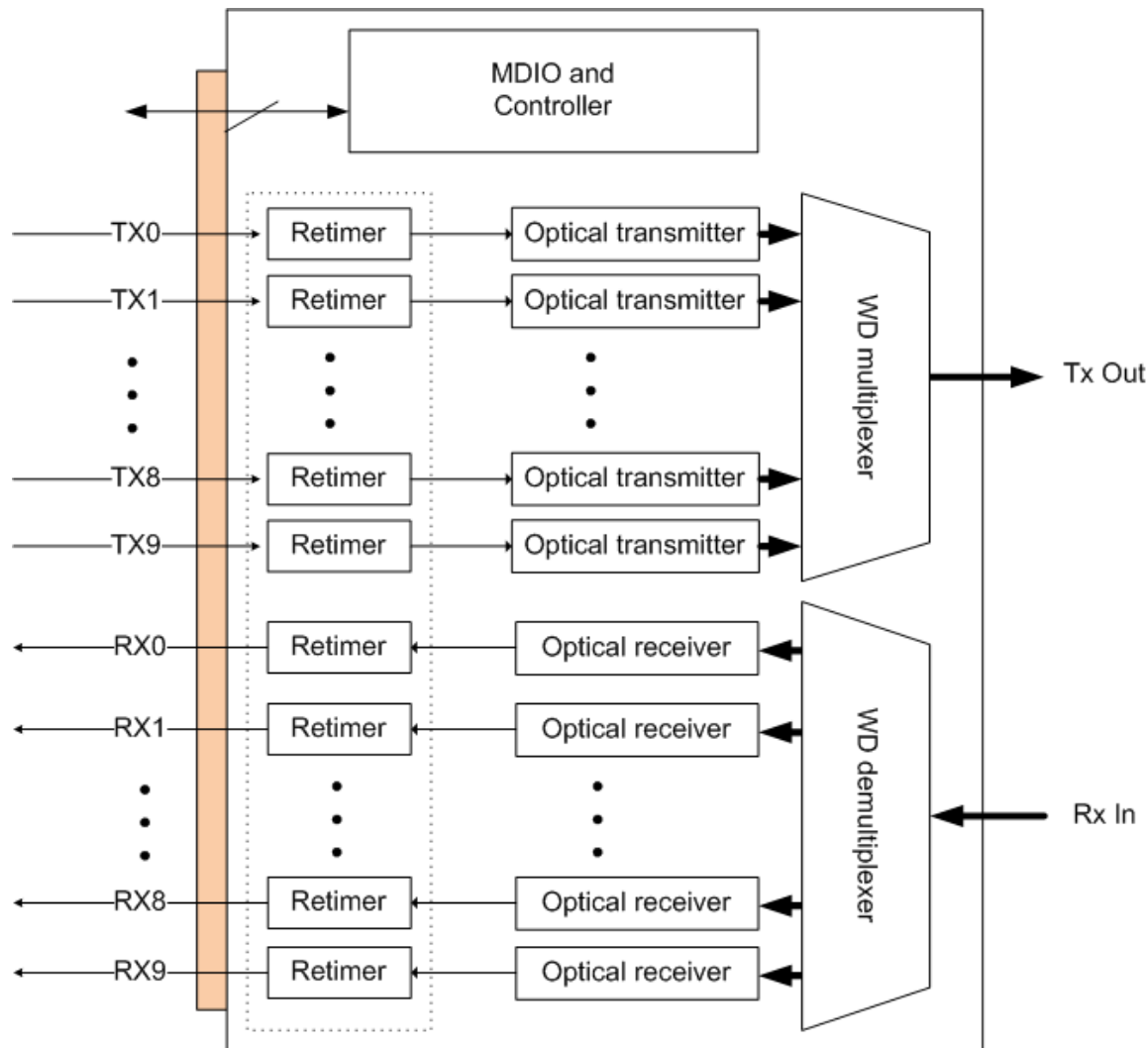
- Do you support objective 7 for the 10X10 High Density module, namely:
 7. Module-to-cage latch mechanism similar to XFP

YES _____

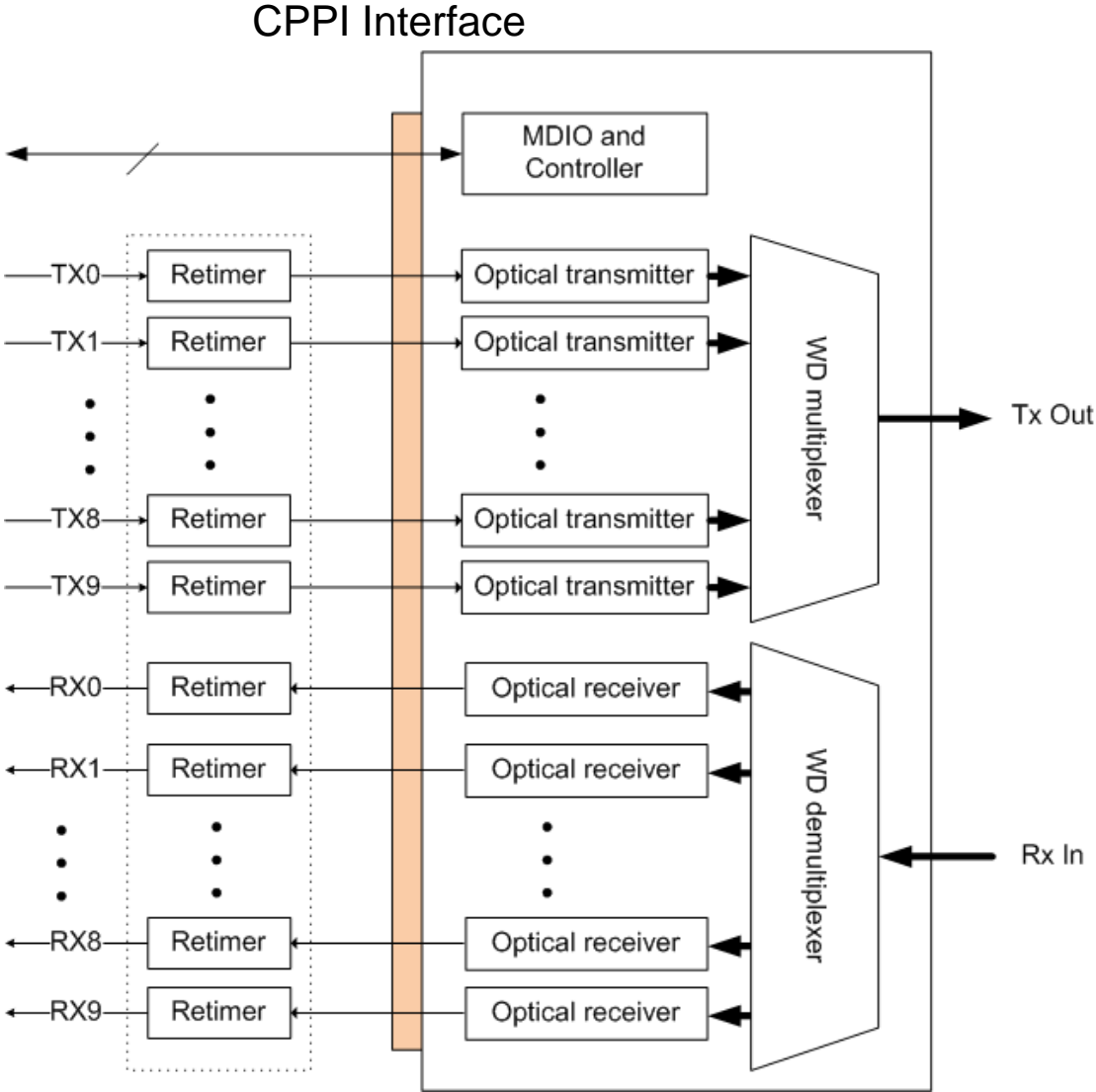
NO _____

CXP2 Ideas

CAUI Interface



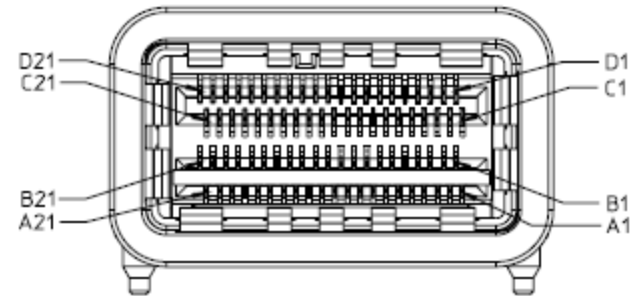
10X10 Block Diagram – Retimers on Host Card



Proposed 10X10 CXP2 Pin Connections

Module Card Edge Contacts

CXP Connector

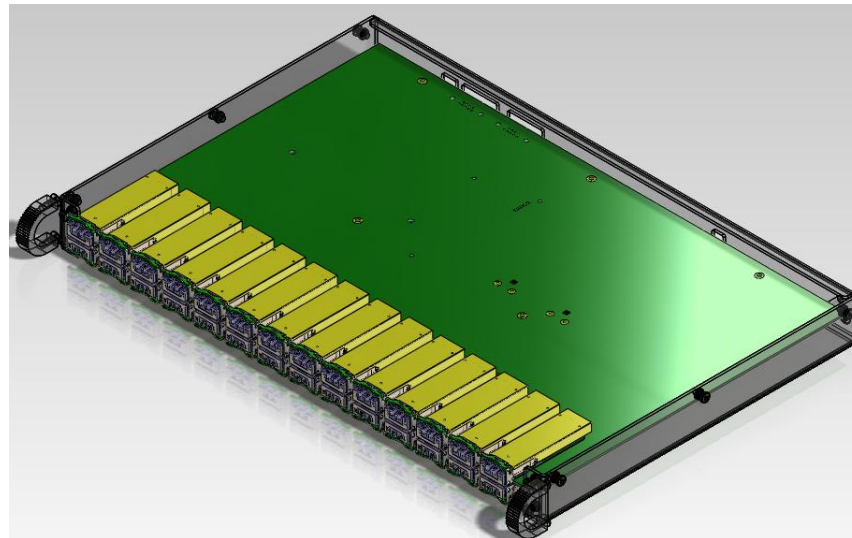
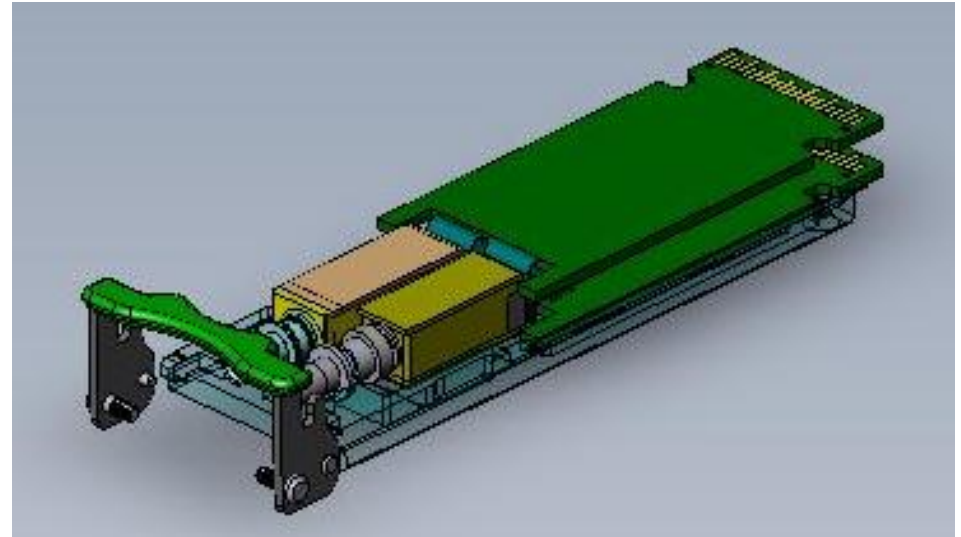
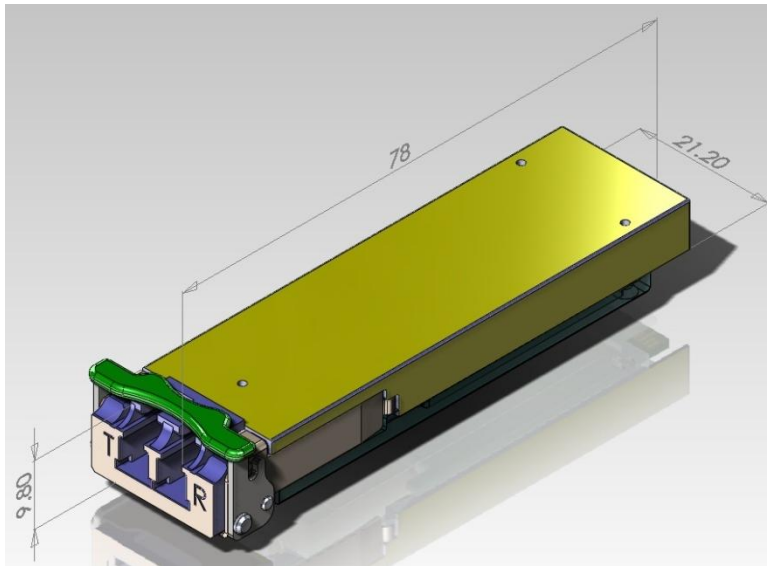


Bottom side			Top Side		
I/O #	Name	Contact Length	Contact Length	Name	I/O #
Receiver -- Top Card					
C1	GND			GND	D1
C2	Rx1p			Rx0p	D2
C3	Rx1n			Rx0n	D3
C4	GND			GND	D4
C5	Rx3p			Rx2p	D5
C6	Rx3n			Rx2n	D6
C7	GND			GND	D7
C8	Rx5p			Rx4p	D8
C9	Rx5n			Rx4n	D9
C10	GND			GND	D10
C11	Rx7p			Rx6p	D11
C12	Rx7n			Rx6n	D12
C13	GND			GND	D13
C14	Rx9p			Rx8p	D14
C15	Rx9n			Rx8n	D15
C16	GND			GND	D16
6 spare contacts					
C20	PRSNT_L			Vcc3.3-Rx	D20
C21	Int_L/Reset_L			Vcc12-Rx	D21
Transmitter -- Bottom Card					
A1	GND			GND	B1
A2	Tx1p			Tx0p	B2
A3	Tx1n			Tx0n	B3
A4	GND			GND	B4
A5	Tx3p			Tx2p	B5
A6	Tx3n			Tx2n	B6
A7	GND			GND	B7
A8	Tx5p			Tx4p	B8
A9	Tx5n			Tx4n	B9
A10	GND			GND	B10
A11	Tx7p			Tx6p	B11
A12	Tx7n			Tx6n	B12
A13	GND			GND	B13
A14	Tx9p			Tx8p	B14
A15	Tx9n			Tx8n	B15
A16	GND			GND	B16
6 spare contacts					
A20	SCL			Vcc3.3-Tx	B20
A21	SDA			Vcc12-Tx	B21

Switch Receiver to bottom card, Transmitter to top card

Source: Supplement to InfiniBand Architecture Specification, Vol. 2 Release 1.2.1 Annex A6: 120 Gb/s 12x Small Form-factor Pluggable (CXP)

CXP2 Module Dimensions – with same width as CXP



- This was presented at the last meeting.
- Unfortunately at 6-8 W per module it will not meet the $< 60\text{W}$ per linecard with more than 7 to 10 modules

- Since we expect to achieve as low as 6W per module, we can make the module wider, keeping the same connector, and improve the heat removal capability
- Increase module width from 21.2 mm to ~ 50 mm but keep the same electrical connector
- Surface area increases from $< 3 \text{ in}^2$ to $\sim 6 \text{ in}^2$
- Modules per line card drops to ~ 10
- At 6W per module this achieves the 60W limit set by objective #5

Proposed 10X10HD MSA Agreement

- Based on existing 10X10 MSA document but with language modified to encourage participation by connector / cage suppliers
- Draft is currently under review by the 10X10 MSA charter members and is expected to be finalized during March 2011
- Potential members can request a copy from the MSA chair, David Lewis of JDSU.
- Agreement details will be in the document but in general new members, after signing the agreement, will be entitled to attend meetings, make presentations and vote in ballots.

- The next meeting will be announced for a date in late March
- Action Items: