



Release of 10X10-2km Specification and Start of New Standards

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- **Agenda**
- 9:05-9:15 – Release of 10X10 Optical Specification, Forming new MSA for Higher Density Form Factor and 10km Link standard
- 9:15-9:30 – Huawei presents on 1310nm 10X10 solution
- 9:30-9:45 -Santur presentation on High Density 10X10 Module
- 9:45-9:55 – Discussion on Higher Density From Factor
- 9:55-10:00 – Closing remarks



Open Standards

- Only optical standards for 100GbE were at 100 meters and 10km – no 40 km solutions available still
- Large data centers didn't have a low cost and low power solution to go beyond 100 meters
- The 10X10 MSA formed and 20 companies have signed up including end users, systems vendors, module vendors and component vendors



Release of 10X10-2km Specification

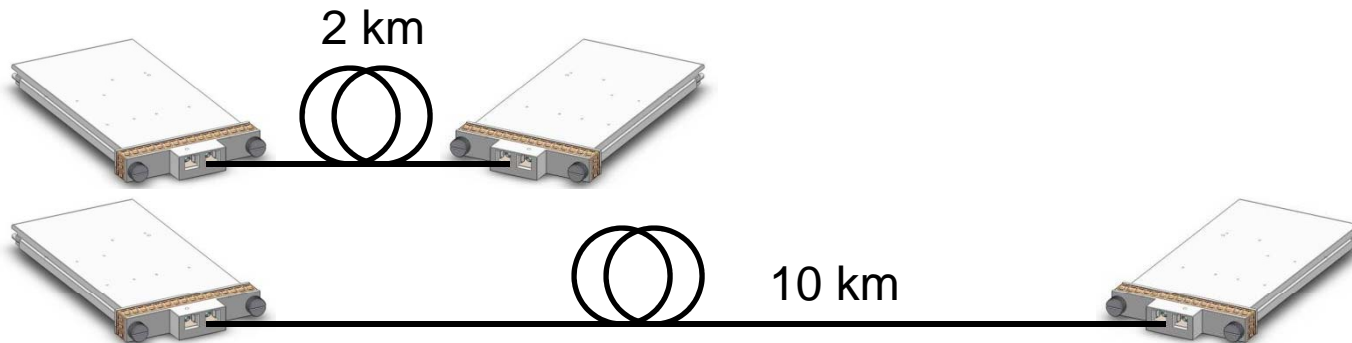
- The 2km specification enables low cost links that can be over \$100,000 less than 100GBASE-LR4 links
- The 10X10 solution is designed for the CFP MSA, the CAUI electrical interface and single-mode fiber
- Santur, JDSU and Oplink plan to support 10X10 modules





Extending to 10km

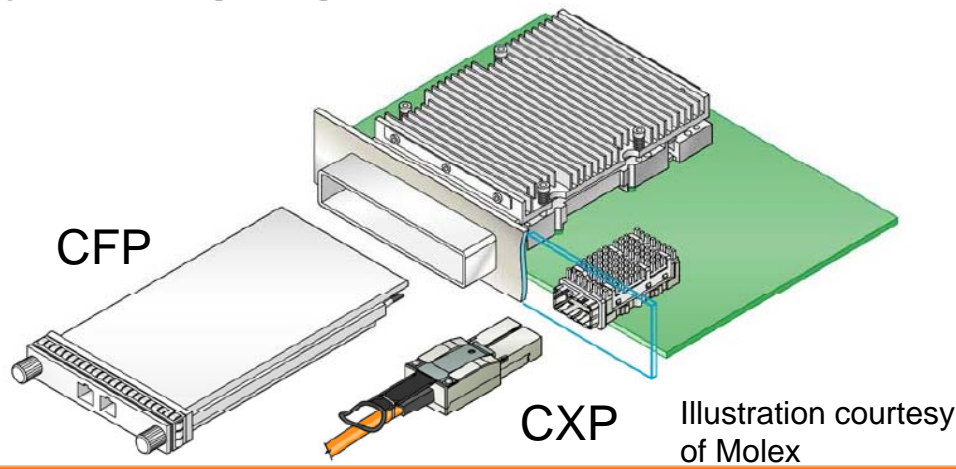
- The next task that the 10X10 MSA has agreed to is to extend the reach to 10km
- The new standard will be the 10X10-10km
- The low loss of fiber at 1550nm is helpful





Shrinking the Module

- The 10X10 MSA is also moving beyond the CFP to a smaller form factor
- Integrated photonics is enabling much smaller packaging and lower cost



12 channel TOSA



Photo from Santur



Moving to 1310nm

- Huawei and Cyoptics propose a new solution that is based on 1310nm optics
- Lower power consumption and cost are two drivers of this approach