

Technical Feasibility

- Three component companies have presented to the ad-hoc on a duplex SMF 10km interface.
- All three showed similar approach using a 4x10G CWDM multiplexed onto a single fiber. One also showed a 40G serial proposal.
- Adapting the 10GE link model for 40Gb, draft specifications have been proposed to achieve 10km specification with margin
- By utilizing off the shelf optical components and IC's, it can be said with a high confidence that the reliability should be similar to that of a 10Gbase-LX-4 module.

ExceLight

Summary

- ➔ Feasibility of 40GE SMF 10km is investigated. CWDM grid DML is expected to be the most viable solution
- ➔ Both 1310nm band and 1550nm band CWDM are feasible. 1550nm band shows small advantage in optical power output
- ➔ Recommend more discussions on wavelength to consider other possible applications:
 - ➔ Longer distance support such as 25 or 40km reach on SMF
 - ➔ OM3 duplex 100m support with 4x10G CWDM using similar architecture as 10Gbase-LX4

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40GbE SMF: Serial *opnext*

| Wavelength | 1300 to 1324 | nm |
|------------|--------------|-------|
| SMSR | 35 | dB |
| TX OMA | +2.5 | dBm |
| TX Avg. | +0.73 | dBm |
| ER | 8.5 | dB |
| RIN | -132 | dB/Hz |
| RX OMA | -6.5 | dBm |

| Basics | Input= | Bold | 7.04 | Ts(20-80) | 10 ps |
|--------------------|--------------------|-------|------|---------------|--------------|
| Base Rate= | Q= | 41250 | MBd | Ts(10-90) | 15 ps |
| Transmitter | Wavelength | 1300 | nm | RIN at MinER | -132 dB/Hz |
| Wavelength | Uc | 0.10 | nm | RIN Coef= | -134.5 dB/Hz |
| Uc (see notes) | TX pwr OMA= | 2.50 | dBm | Dist. Jitter | 1.0 ps inc |
| TX pwr OMA= | Min. Ext Ratio= | 8.50 | dB | Effect DJ= | 0.00 (UI) ex |
| Min. Ext Ratio= | WorstCase TxPwr | 0.73 | dBm | MPN k(OMA) | 0 |
| WorstCase TxPwr | Ext. ratio penalty | 1.24 | dB | Tx eye height | 62.7% |
| Ext. ratio penalty | | | | Ref Tx | -12 dB |
| | | | | ModalNoisePen | 0 dB |
| | | | | Tx mask top | 0.2 UI |

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