

Study alternatives for 100GE 10km SMF Optical and Electrical Interfaces

IEEE 802.3 HSSG Fiber Optic Ad Hoc

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Previous HSSGFO Ad Hoc study alternatives

- Data rate alternatives
 1. 80Gb/s
 2. 100Gb/s
 3. 120Gb/s
- Signal rate alternatives (corresponding number of channels)
 1. 10GB to 14GB (12, 10, 8)
 2. 20GB to 28GB (6, 5, 4)
 3. 40GB to 56GB (3, 2)
- Reach alternatives (applications)
 1. 100m (data center)
 2. 10km (metro)
 3. 40km (extended metro)
- Channel technology alternatives (implementation)
 1. Wavelength multiplexing (CWDM, DWDM)
 2. Quadrature multiplexing (DQPSK)
 3. Multiple fibers (parallel optics)

Proposed HSSGFO Ad Hoc SMF study alternatives

- Data rate
 1. 100Gb/s
- Signal rate alternatives (corresponding number of channels)
 1. 10GB (10)
 2. 21GB (5)
- Reach alternatives (applications)
 1. 10km (metro)
 2. *40km best effort only (extended metro)*
- Channel technology alternatives (implementation)
 1. CWDM
 2. DWDM
- Wavelengths
 1. 1310nm
 2. 1550nm
- 10x10GB 850nm multi-fiber (parallel optic) solutions are under separate study for 100m OM3 MMF data center applications.
- 2x56GB 1550nm DQPSK alternatives should be studied in the future for longer reach (80km) and DWDM applications.

Proposed specific SMF study alternatives

- 1x technology (10G) optical interface alternatives

1. 1550nm 10x10G cooled EML DWDM array / 200GHz ITU G.694.2 grid (1531.12, 1532.68, 1534.25, 1535.82, 1537.40, 1538.98, 1540.56, 1542.14, 1543.73, 1545.32nm)
2. 1550nm 10x10G un-cooled DML CWDM array / 20nm ITU G.694.2 grid (1431, 1451, 1471, 1491, 1511, 1521, 1541, 1571, 1591, 1611 nm)

Electrical interface alternatives

1. 10x10G

- 2x technology (20G) optical interface alternatives

1. 1310nm 5x21G cooled EML DWDM array / 200GHz ITU consistent grid (1310.28, 1311.43, 1312.58, 1313.73, 1314.89 nm)
2. 1310nm 5x21G un-cooled DML CWDM array / 20nm ITU G.694.2 grid (1271, 1291, 1311, 1331, 1351 nm) (1st version may be cooled.)

Electrical interface alternatives

1. 10x10G
2. 5x21G

- For all alternatives, a PIN receiver array is assumed.

- It is proposed that the HSSGFO agree on a short list of specific SMF study alternatives and then investigate and compare each alternative in detail.