MDI Types and 802.3dj Timeline

Comments #145, 434, 435, 436, 437, 438, and 483

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Joint Ad-hoc 250626

Background

- The 802.3dj Draft specification calls out a number of MDI connector types used in the CR Clauses for copper cable assemblies
  - At this time, some of the MDI connector types have not shared specifications for consideration of the Task Force

- Offline conversation is continuing towards coordinating development efforts for all MDI types currently included in the D2P0 Draft, but this contribution may serve as documented Call-to-Action
  - Materials need to be shared/available for the Task Force by Jan 2026
    - Otherwise references may be removed or modified to a non-specific manner

Call to Action

- The status of MDI connector type development progress is currently:
  - OSFP1600 <PUBLISHED Rev5.21>
  - QSFP-DD1600 <PUBLISHED Rev7.1>
  - QSFP224 (SFF-TA-1027) <DRAFT>
    - SFF-8665 <DRAFT>
    - REF-TA-1011 <DRAFT>
  - *SFP224 <TBD>*
  - *SFP-DD224 <TBD>*

Backup

1.3 Normative references

Insert the following references in alphanumeric order:

IEC 61753-021-02, Fibre optic interconnecting devices and passive components – Performance standard – Part 021-02: Single-mode fibre optic connectors terminated as pigtails and patchcords for category C – Controlled environment.

IEC 61753-1, Fibre optic interconnecting devices and passive components - Performance standard - Part 1: General and guidance.

IEEE Std 1241™-2010, IEEE Standard for Terminology and Test Methods for Analog-to-Digital Converters

OSFP Octal Small Form Factor Pluggable Module, Rev 5.1, September 12, 2024.[6]

QSFP-DD/QSFP-DD800/QSFP-DD1600 Hardware Specification for QSFP Double Density 8x Pluggable Transceivers, Rev 7.1, June 25, 2024.[7]

SFF-8665, Rev 1.9.4, April 1, 2022, QSFP+ 4X Pluggable Transceiver Solutions.

SFF-TA-1011 Rev 1.1, April 19, 2024, Cross Reference to Select SFF Connectors and Modules.

[6] OSFP1600 specifications are available from OFSP MSA (http://osfpmsa.org/).

[7] SFP-DD224, QSFP224, and QSFP-DD1600 specifications are available from QSFP-DD MSA (http://www.qsfp-dd.com/).

SFF-TA-1027, Rev 1.0, April 16, 2024, QSFP2 Connector, Cage, & Module Specification.

SFF-TA-1031, Rev 1.0, June 11, 2023, SFP2 Cage, Connector, & Module Specification.

179.12 MDI specifications

The MDI couples the PMD (specified in 179.8 and 179.9) to the cable assembly (specified in 179.11).

Annex 179C specifies the MDIs for 200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, and 1.6TBASE-CR8.

- 200GBASE-CR1 has five specified MDI connectors: SFP224, SFP-DD224, QSFP224, QSFP-DD1600, and OSFP1600.
- 400GBASE-CR2 has four specified MDI connectors: SFP-DD224, QSFP224, QSFP-DD1600, and OSFP1600.
- 800GBASE-CR4 has three specified MDI connectors: QSFP224, QSFP-DD1600, and OSFP1600.
- 1.6TBASE-CR8 has two specified MDI connectors: QSFP-DD1600 and OSFP1600.

MDIs for 200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, and 1.6TBASE-CR8

179C.1 Overview

This annex defines the Medium Dependent Interface (MDI) for 200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, and 1.6TBASE-CR8. The MDI couples the PMD (specified in 179.8 and 179.9) to the cable assembly (specified in 179.11). The PMDs supportable for each MDI connector type are given in Table 179C–1. The SFP-DD224, QSFP224, QSFP-DD1600, and OSFP1600 are also referred to as multi-lane connectors.

In all MDIs, the plug connector is used on the cable assembly and the receptacle is used on the PMD.

Table 179C–1—Number of PMDs supportable for each connector type

MDI types	200GBASE-CR1	400GBASE-CR2	800GBASE-CR4	1.6TBASE-CR8	Reference
SFP224	1	—	—	—	179C.2.1
SFP-DD224	1,2	1	—	—	179C.2.2
QSFP224	1, 2, 4	1, 2	1	—	179C.2.3
QSFP-DD1600	1, 2, 4, 8	1, 2, 4	1, 2	1	179C.2.4
OSFP1600	1, 2, 4, 8	1, 2, 4	1, 2	1	179C.2.5