PMD Naming Proposal Update

Chris Cole, Finisar
Kenneth Jackson, Sumitomo Electric
15 July 2019

IEEE P802.3cu Task Force

Summary

- At the Salt Lake City, May 2019 meeting, the following were adopted:

  - 100 Gb/s, single-wavelength, 2km: 100GBASE-FR

  - 100 Gb/s, single-wavelength, 10km: 100GBASE-LR

  - 400 Gb/s, four-wavelength, 2km: 400GBASE-FR4

  - 400 Gb/s, four-wavelength, 10km: 400GBASE-LR4
  (http://www.ieee802.org/3/cu/public/May19/minutes_3cu_0519_unapproved.pdf#pages=6)

- Since the meeting, we have received new information about End User Preferences, all in favor of adding a "1" after single lane PMD name

- As there were few strong preferences expressed for not including a "1" (the most common refrain is "I don't really care"), it is proposed that the Task Force reconsider the adopted single lane PMD naming convention

Single and Multi-Lane PMD Names

- For single lane optics, having no digit after the letters was unambiguous when there was no multi-lane alternatives

- 10GBASE-LR and -SR were clear because there was no LR4 and SR4

- The 10G four lane standard used different encoding and was named 10GBASE-LX4, so there was no confusion with LR

- If there are single and multi-lane solutions, they need to be differentiated

- DR, FR, LR names are used generically for any PMD with that reach

- If same names are used for the corresponding single lane PMDs there is then an ambiguity whether the names are generic or specific

- The table on the next page shows this for FR and LR names

Generic & Single Lane PMD Names

PMD # of lanes	2km alt. A	10km alt. A	2km alt. B	10km alt. B
generic any # of lanes	**FR**	**LR**	FR	LR
1	**FR**	**LR**	FR1	LR1
2	FR2	LR2	FR2	LR2
4	FR4	LR4	FR4	LR4
8	FR8	LR8	FR8	LR8

802.3 PMD Naming Consistency

- 802.3ck Task Force, during the January 2019 interim meeting adopted 100GBASE-CR1 and 100GBASE-KR1 as names for 100G single lane copper PMDs.

- 802.3cu Task Force, during the May 2019 interim meeting adopted 100GBASE-FR and 100GBASE-LR as names for 100G single lane optical PMDs.

- We now have inconsistent 100G PMD naming conventions in 802.3

Naming Preferences

Presented during 3 July 2019 802.3cu Ad Hoc conference call

End User affiliation of individual expressing preference	Single lane 500m, 2km, 10km PMD naming convention preference
Alibaba	DR1, FR1, LR1
Amazon	DR1, FR1, LR1
Apple	DR1, FR1, LR1
Facebook	DR1, FR1, LR1
Google	DR1, FR1, LR1
Microsoft	DR1, FR1, LR1
Tencent	DR1, FR1, LR1

Naming Convention Alternatives

Alternatives presented to End User affiliated individuals who expressed a naming convention preference, after the 3 July 2019 Ad Hoc

100G PMD # of lanes	Alternative A						Alternative B					
	"LR"	3 m	100 m	500 m	2 km	10 km	"LR"	3 m	100 m	500 m	2 km	10 km
Generic (any # of lanes)	KR	CR	SR	DR	FR	LR	KR	CR	SR	DR	FR	LR
1	KR1	CR1	n/a	DR	**FR**	**LR**	KR1	CR1	n/a	DR	**FR1**	**LR1**
2	KR2	CR2	SR2	n/a	n/a	n/a	KR2	CR2	SR2	n/a	n/a	n/a
4	KR4	CR4	SR4	DR4	FR4	LR4	KR4	CR4	SR4	DR4	FR4	LR4
8	n/a	n/a	n/a	n/a	FR8	LR8	n/a	n/a	n/a	n/a	FR8	LR8

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End User affiliation of Individual expressing preference	Alternative Preference
Alibaba	B
Amazon	no response received
Apple	B
Facebook	B
Google	B
Microsoft	B
Tencent	B

What to do about 100G DR

Possible path suggested by David Law, 7/14/2019 email:

- Submit a maintenance request to change name from DR to DR1 to the 802.3 Maintenance Task Force
- The TF would assess if the request is in scope, i.e. can the name DR be classified as an error. If in scope, than it would be changed as part of the Maintenance process.
- If ruled not in scope of Maintenance, the it would be proposed to the next 802.3 Revision Project, which can consider any changes. This is a few years out.
- Either way, long term, the nomenclature would be consistent across all copper and optical single lane PMDs.

Proposed Motion For July Plenary

- Move to adopt the following nomenclature:

100GBASE-FR1	100 Gb/s operation on a single wavelength capable of at least 2 km of SMF
100GBASE-LR1	100 Gb/s operation on a single wavelength capable of at least 10 km of SMF

- Moved by: Chris Cole
- Seconded by: Kenneth Jackson
- Technical (>= 75%)
- Y: N: Abstain:
- Motion Passes/Fails

Thank you

IEEE P802.3cu Task Force Ad Hoc