

Supported AUI interfaces of 100GBASE-BRx

Relating comments to 802.3dk D2.0 #87,88

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Introduction

- Comment 87 and 88 address table 157-6 and Table 168-1, which list the clauses related to 100GBASE-BRx PMDs.
- The electrical interfaces that an optical module of 100G Bidi PMD could use are listed by the series clauses of 100G-AUIx. These should be corresponding to the electrical lane speed of the host equipment. E.g., optionally supporting 100G-AUI4 indicates that a 100G Bidi PMD could be used with 4x25Gbps/lane electrical signaling.
- The current draft is missing a key use case of 100G Bidi optics with 1x100Gbps/lane electrical signaling.

Other optical PMDs using 100G-PAM4 signaling

All optical PMDs using 100G-PAM4 are defined to be optionally supporting 100Gbps/lane AUI interfaces.

Updated by 802.3ck

Table 80-5—Nomenclature and clause correlation (100GBASE-P optical)

Nomenclature	Clause ^a																							
	78	81	82	83	83A	83B	83D	83E	91	120E	120G	135	135D	135E	135F	135G	138	140	167					
	EEE	RS	CGMII	PCS	100GBASE-R PMA	CAUI-10 C2C	CAUI-10 C2M	CAUI-4 C2C	CAUI-4 C2M	RS-FEC	100GAUI-1 C2C	100GAUI-1 C2M	100GBASE-P PMA	100GAUI-4 C2C	100GAUI-4 C2M	100GAUI-2 C2C	100GAUI-2 C2M	100GBASE-SR2	100GBASE-DR	100GBASE-FR1	100GBASE-LR1	100GBASE-VR1	100GBASE-SR1	
100GBASE-VR1	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O					M		
100GBASE-SR2	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O	M						
100GBASE-SR1	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O						M	
100GBASE-DR	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O		M					
100GBASE-FR1	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O			M				
100GBASE-LR1	O	M	O	M	O	O	O	O	O	M	O	O	M	O	O	O	O					M		

^aO = Optional, M = Mandatory.

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Defined in 802.3df

Table 116-5—PHY type and clause correlation (400GBASE optical)

PHY type	Clause ^a																						
	78	117	118	119	120	120B	120C	120D	120E	120F	120G	167	123	138	150	124	122	151	122				
	EEE	RS	400GMII	400GMII Extender	400GBASE-R PCS	400GBASE-R PMA	400GAUI-16 C2C	400GAUI-16 C2M	400GAUI-8 C2C	400GAUI-8 C2M	400GAUI-4 C2C	400GAUI-4 C2M	400GBASE-VR4 PMA	400GBASE-SR16 PMA	400GBASE-SR16 PMA	400GBASE-SR4.2 PMA	400GBASE-DR4 PMA	400GBASE-DR4.2 PMA	400GBASE-FR4 PMA	400GBASE-LR4 PMA	400GBASE-LR8 PMA	400GBASE-ER8 PMA	
400GBASE-VR4	O	M	O	O	M	M	O	O	O	O	O	M											
400GBASE-SR16	O	M	O	O	M	M	O	O	O	O	O	M		M									
400GBASE-SR8	O	M	O	O	M	M	O	O	O	O	O	M			M								
400GBASE-SR4	O	M	O	O	M	M	O	O	O	O	O	M											
400GBASE-SR4.2	O	M	O	O	M	M	O	O	O	O	O	M				M							
400GBASE-DR4	O	M	O	O	M	M	O	O	O	O	O	M					M						
400GBASE-DR4.2	O	M	O	O	M	M	O	O	O	O	O	M					M						
400GBASE-FR8	O	M	O	O	M	M	O	O	O	O	O	M							M				
400GBASE-FR4	O	M	O	O	M	M	O	O	O	O	O	M							M				
400GBASE-LR4-6	O	M	O	O	M	M	O	O	O	O	O	M								M			
400GBASE-LR8	O	M	O	O	M	M	O	O	O	O	O	M									M		
400GBASE-ER8	O	M	O	O	M	M	O	O	O	O	O	M										M	

^aO = Optional, M = Mandatory.

Table 169-3—PHY type and clause correlation (800GBASE optical)

PHY type	Clause ^a									
	170	171	172	173	120E	120G	124	167		
	RS	800GMII	800MII Extender	800GBASE-R PCS	800GAUI-8 C2C	800GAUI-8 C2M	800GBASE-DR8 PMA	800GBASE-DR8-2 PMA	800GBASE-VR8 PMA	800GBASE-SR8 PMA
800GBASE-VR8	M	O	O	M	M	O	O		M	
800GBASE-SR8	M	O	O	M	M	O	O			M
800GBASE-DR8	M	O	O	M	M	O	O	M		
800GBASE-DR8-2	M	O	O	M	M	O	O	M		

^aO = Optional, M = Mandatory.

Considering the implementation of 100GBASE-BRn spec

Form Factors	CFP	CFP2	CFP4	CXP	QSFP28	SFP
Electrical interface	10 x 10 Gbps 4 x 25 Gbps	10 x 10 Gbps 4 x 25 Gbps	4 x 25 Gbps	Up to 12 Tx-Rx pairs	Up to 4 Tx-Rx pairs	1 pair of Tx and Rx
Optical MDI	Dual-LC	Dual-LC	MPO	MPO	Dual-LC	Dual-LC
DSP/Retimer	10:1 Unclear availability 4:1, 2:1 however will be a waste of space to use these form factors				4:1 or 2:1 Widely available	1:1 Widely available
Application	Very unlikely			unclear	Likely to be the majority In OLT/ONU, or front haul and back haul of wireless carrier network.	

Conclusion

- Suggest to add 100G-AUI1 C2C and 100G-AUI1 C2M into the supported electrical interface of 100GBASE-BRn, as suggested in comment 87 and 88.