Clause 45 issues

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Introduction

On Friday 13 February 2015, there was an informal call held between a group of editors for various IEEE 802.3 projects to try to resolve a number of clashes in proposed allocations in Clause 45 registers.

The remaining pages are the proposed resolution for these clashes.

Register 1.4 PMA/PMD speed ability

	P802.3bx D2.1	P802.3bn D1.3	P802.3by D0.1
1.4.15	Reserved for future speeds		
1.4.14	Reserved for future speeds		
1.4.13	Reserved for future speeds		
1.4.12	Reserved for future speeds		
1.4.11	Reserved for future speeds		
1.4.10	Reserved for future speeds	10GPASS-XR capable	25G capable
1.4.9	100G capable		
1.4.8	40G capable		
1.4.7	10/1G capable		
1.4.6	10M capable		
1.4.5	100M capable		
1.4.4	1000M capable		
1.4.3	Reserved		
1.4.2	10PASS-TS capable		
1.4.1	2BASE-TL capable		
1.4.0	10G capable		

Register 1.4 proposal

	P802.3bx D2.1	P802.3bn	P802.3by	P802.3bs
1.4.15	Reserved for future speeds			
1.4.14	Reserved for future speeds			
1.4.13	Reserved for future speeds			
1.4.12	Reserved for future speeds			400G capable
1.4.11	Reserved for future speeds		25G capable	
1.4.10	Reserved for future speeds	10GPASS-XR capable		
1.4.9	100G capable			
1.4.8	40G capable			
1.4.7	10/1G capable			
1.4.6	10M capable			
1.4.5	100M capable			
1.4.4	1000M capable			
1.4.3	Reserved			
1.4.2	10PASS-TS capable			
1.4.1	2BASE-TL capable			
1.4.0	10G capable			

Register 1.7 PMA/PMD speed ability

- P802.3bq D1.1.1 has 100101 as 40GBASE-T PMA/PMD, but this is already allocated to 40GBASE-ER4 in P802.3bx D2.1

- P802.3bw D1.2 has 011100 as 100BASE-T1, but this is already allocated to 10GBASE-PR-D4 in P802.3bx D2.1

- P802.3bn is proposing two new allocations.

- P802.3by is proposing three new allocations

- P802.3bp will need one for 1000BASE-T1

- P802.3bs is expected to need 3 (or possibly 4) new allocations

- P802.3bq is expected to need one for 25GBASE-T

Register 1.7 proposal

Label	6	5	4	3	2	1	0	P802.3bn	P802.3by
	1	0	0	1	0	0	0		
	1	0	0	0	1	1	1		
	1	0	0	0	1	1	0		
	1	0	0	0	1	0	1		
	1	0	0	0	1	0	0		
400GBASE-SR16 PMA/PMD	1	0	0	0	0	1	1		
400GBASE-??? PMA/PMD	1	0	0	0	0	1	0		
400GBASE-??? PMA/PMD	1	0	0	0	0	0	1		
	1	0	0	0	0	0	0		
	1	1	1	1	1	1	1		
1000BASE-T1 PMA/PMD ?	1	1	1	1	1	1	0		
100BASE-T1 PMA/PMD	1	1	1	1	1	0	1		
10BASE-T1 Long PMA/PMD ?	1	1	1	1	1	0	0		
	1	1	1	0	1	1	1		
25GBASE-SR PMA/PMD	1	1	1	0	1	0	0		25GBASE-SR
25GBASE-KR PMA/PMD	1	1	1	0	0	0	1		25GBASE-KR
25GBASE-CR PMA/PMD	1	1	1	0	0	0	0		25GBASE-CR
25GBASE-T PMA/PMD ?	1	1	0	1	1	1	1		
	1	1	0	1	1	1	0		
1000BASE-RH?	1	1	0	1	0	1	1		
	1	1	0	1	0	0	0		
10GPASS-XR-U PMA/PMD	1	1	0	0	1	1	1	10GPASS-XR-U	
10GPASS-XR-D PMA/PMD	1	1	0	0	1	1	0	10GPASS-XR-D	
	1	1	0	0	0	0	1		
	1	1	0	0	0	0	0		
100GBASE-SR4 PMA/PMD	1	0	1	1	1	1	1		
100GBASE-CR4 PMA/PMD	1	0	1	1	1	1	0		
100GBASE-KR4 PMA/PMD	1	0	1	1	1	0	1		
100GBASE-KP4 PMA/PMD	1	0	1	1	1	0	0		
100GBASE-ER4 PMA/PMD	1	0	1	0	1	1	1		
100GBASE-LR4 PMA/PMD	1	0	1	0	1	1	0		
100GBASE-SR10 PMA/PMD	1	0	1	0	0	0	1		
100GBASE-CR10 PMA/PMD	1	0	1	0	0	0	0		
	1	0	0	1	1	1	1		
40GBASE-T PMA/PMD	1	0	0	1	1	1	0		
40GBASE-ER4 PMA/PMD	1	0	0	1	0	1	1		
40GBASE-FR PMA/PMD	1	0	0	1	0	0	0		
40GBASE-LR4 PMA/PMD	1	0	0	0	1	1	1		
40GBASE-SR4 PMA/PMD	1	0	0	0	1	1	0		
40GBASE-CR4 PMA/PMD	1	0	0	0	0	0	1		
40GBASE-KR4 PMA/PMD	1	0	0	0	0	0	0		
10/1GBASE-PRX-U4	0	1	1	1	1	1	1		
10GBASE-PR-U4	0	1	1	1	1	1	0		
10/1GBASE-PRX-D4	0	1	1	1	1	0	1		
10GBASE-PR-D4	0	1	1	1	1	0	0		
	0	1	1	0	1	1	1		
10GBASE-PR-U3	0	1	1	0	1	1	0		
10GBASE-PR-U1	0	1	1	0	0	0	1		

Register 1.11 PMA/PMD speed ability

	P802.3bx D2.1	P802.3bq D1.1.1	P802.3bw D1.2	P802.3by D0.1
1.11.15	Reserved			
1.11.14	Reserved			
1.11.13	Reserved			
1.11.12	Reserved			
1.11.11	Reserved	40GBASE-T ability	100BASE-T1 ability	25G extended abilities
1.11.10	40G/100G extended abilities			
1.11.9	P2MP ability			
1.11.8	10BASE-T ability			
1.11.7	100BASE-TX ability			
1.11.6	1000BASE-KX ability			
1.11.5	1000BASE-T ability			
1.11.4	10GBASE-KR ability			
1.11.3	10GBASE-KX4 ability			
1.11.2	10GBASE-T ability			
1.11.1	10GBASE-LRM ability			
1.11.0	10GBASE-CX4 ability			

Register 1.11 proposal part 1

	P802.3bx D2.1	P802.3bq
1.13.15	PMA remote loopback ability	
1.13.14	100GBASE-CR4 ability	
1.13.13	100GBASE-KR4 ability	
1.13.12	100GBASE-KP4 ability	
1.13.11	100GBASE-ER4 ability	
1.13.10	100GBASE-LR4 ability	
1.13.9	100GBASE-SR10 ability	
1.13.8	100GBASE-CR10 ability	
1.13.7	100GBASE-SR4 ability	
1.13.6	Reserved	40GBASE-T ability
1.13.5	40GBASE-ER4 ability	
1.13.4	40GBASE-FR ability	
1.13.3	40GBASE-LR4 ability	
1.13.2	40GBASE-SR4 ability	
1.13.1	40GBASE-CR4 ability	
1.13.0	40GBASE-KR4 ability	

Register 1.11 proposal part 2

	P802.3bx D2.1	P802.3bw	P802.3by	P802.3bs
1.11.15	Reserved			
1.11.14	Reserved			
1.11.13	Reserved			400G extended abilities
1.11.12	Reserved		25G extended abilities	
1.11.11	Reserved	BASE-T1 extended abilities		
1.11.10	40G/100G extended abilities			
1.11.9	P2MP ability			
1.11.8	10BASE-T ability			
1.11.7	100BASE-TX ability			
1.11.6	1000BASE-KX ability			
1.11.5	1000BASE-T ability			
1.11.4	10GBASE-KR ability			
1.11.3	10GBASE-KX4 ability			
1.11.2	10GBASE-T ability			
1.11.1	10GBASE-LRM ability			
1.11.0	10GBASE-CX4 ability			

Register 1.17

- P802.3bn D1.3 has register 1.17 as EPoC PMA/PMD ability in 45.2.1.14a

- P802.3by D0.1 has register 1.17 as 25G PMA/PMD extended ability in 45.2.1.14a

- Propose that:
  - P802.3bw creates BASE-T1 PMA/PMD extended ability register 1.18 in 45.2.1.14b and Table 45-17b
  - P802.3by moves to register 1.19 in 45.2.1.14c and Table 45-17c
  - P802.3bs creates 400G PMA/PMD extended ability register 1.20 in 45.2.1.14d and Table 45-17d

Register 1.17 proposal

	Register name	802.3bx	Table	802.3bn	802.3bq	802.3bs	802.3bw	802.3by
1. 0	PMA/PMD control 1	45.2.1.1	45-4			45.2.1.1	45.2.1.1	45.2.1.1
1. 1	PMA/PMD status 1	45.2.1.2	45-5					
1. 2	PMA/PMD device identifier	45.2.1.3						
1. 3	PMA/PMD device identifier	45.2.1.3						
1. 4	PMA/PMD speed ability	45.2.1.4	45-6	45.2.1.4		45.2.1.4		45.2.1.4
1. 5	PMA/PMD devices in package	45.2.1.5	45-2					
1. 6	PMA/PMD devices in package	45.2.1.5	45-2					
1. 7	PMA/PMD control 2	45.2.1.6	45-7	45.2.1.6	45.2.1.6	45.2.1.6	45.2.1.6	45.2.1.6
1. 8	PMA/PMD status 2	45.2.1.7	45-8			45.2.1.7		45.2.1.7
1. 9	PMA/PMD transmit disable 1	45.2.1.8	45-11			45.2.1.8		45.2.1.8
1. 10	PMD receive signal detect	45.2.1.9	45-13					
1. 11	PMA/PMD extended ability register	45.2.1.10	45-14		45.2.1.10		45.2.1.10	45.2.1.10
1. 12	10G-EPON PMA/PMD ability register	45.2.1.11	45-15					
1. 13	40G/100G PMA/PMD extended ability register	45.2.1.12	45-16					
1. 14	PMA/PMD package identifier	45.2.1.13						
1. 15	PMA/PMD package identifier	45.2.1.13						
1. 16	EEE capability	45.2.1.14	45-17					45.2.1.14
1. 17	Epoc PMA/PMD ability		45-17a	45.2.1.14a				
1. 18	BASE-T1 PMA/PMD extended ability		45-17b				45.2.1.14b	
1. 19	25G PMA/PMD extended ability		45-17c					45.2.1.14c
1. 20	400G PMA/PMD extended ability		45-17d			45.2.1.14d		
1. 21	Reserved							
1. 22	Reserved							
1. 23	Reserved							
1. 24	Reserved							
1. 25	Reserved							
1. 26	Reserved							
1. 27	PMA/PMD transmit disable 2		45-17e			45.2.1.14e		
1. 28	Reserved							
1. 29	Reserved							
1. 30	10P/2B PMA/PMD control	45.2.1.15	45-18					
1. 31	10P/2B PMA/PMD status	45.2.1.16						
1. 32	10P/2B link partner PMA/PMD control	45.2.1.17						
1. 33	10P/2B link partner PMA/PMD status	45.2.1.18						
1. 34	Reserved							

Register 3.7 PCS control 2

2	1	0	P802.3bx D2.1	P802.3bq D1.1.1	P802.3by D0.1
1	1	1	Reserved		
1	1	0	Reserved	Select 40GBASE-T PCS type	Select 25GBASE-R PCS type
1	0	1	Select 100GBASE-R PCS type		
1	0	0	Select 40GBASE-R PCS type		
0	1	1	Select 10GBASE-T PCS type		
0	1	0	Select 10GBASE-W PCS type		
0	0	1	Select 10GBASE-X PCS type		
0	0	0	Select 10GBASE-R PCS type		

Register 3.7 proposal

3	2	1	0	P802.3bx D2.1	P802.3bq	P802.3by	P802.3bs
1	0	0	0	Reserved			Select 400GBASE-R PCS type
0	1	1	1	Reserved		Select 25GBASE-R PCS type	
0	1	1	0	Reserved	Select 40GBASE-T PCS type		
0	1	0	1	Select 100GBASE-R PCS type			
0	1	0	0	Select 40GBASE-R PCS type			
0	0	1	1	Select 10GBASE-T PCS type			
0	0	1	0	Select 10GBASE-W PCS type			
0	0	0	1	Select 10GBASE-X PCS type			
0	0	0	0	Select 10GBASE-R PCS type			

Register 3.8 PCS status 2

	P802.3bx D2.1	P802.3bq D1.1.1	P802.3by D0.1
3.8.15	Device present		
3.8.14	Device present		
3.8.13	Reserved		
3.8.12	Reserved		
3.8.11	Transmit fault		
3.8.10	Receive fault		
3.8.9	Reserved		
3.8.8	Reserved		
3.8.7	Reserved		
3.8.6	Reserved	40GBASE-T capable	25GBASE-R capable
3.8.5	100GBASE-R capable		
3.8.4	40GBASE-R capable		
3.8.3	10GBASE-T capable		
3.8.2	10GBASE-W capable		
3.8.1	10GBASE-X capable		
3.8.0	10GBASE-R capable		

Register 3.8 proposal

	P802.3bx D2.1	P802.3bq	P802.3by	P802.3bs
3.8.15	Device present			
3.8.14	Device present			
3.8.13	Reserved			
3.8.12	Reserved			
3.8.11	Transmit fault			
3.8.10	Receive fault			
3.8.9	Reserved			
3.8.8	Reserved			400GBASE-R capable
3.8.7	Reserved		25GBASE-R capable	
3.8.6	Reserved	40GBASE-T capable		
3.8.5	100GBASE-R capable			
3.8.4	40GBASE-R capable			
3.8.3	10GBASE-T capable			
3.8.2	10GBASE-W capable			
3.8.1	10GBASE-X capable			
3.8.0	10GBASE-R capable			

Register 3.20 EEE control and capability

	P802.3bx D2.1	P802.3bq D1.1.1	P802.3by D0.1
3.20.15	Reserved		
3.20.14	Reserved		
3.20.13	100GBASE-R deep sleep		
3.20.12	100GBASE-R fast wake		
3.20.11	Reserved		25GBASE-R deep sleep
3.20.10	Reserved	40GBASE-T EEE	25GBASE-R fast wake
3.20.9	40GBASE-R deep sleep		
3.20.8	40GBASE-R fast wake		
3.20.7	Reserved		
3.20.6	10GBASE-KR EEE		
3.20.5	10GBASE-KX4 EEE		
3.20.4	1000BASE-KX EEE		
3.20.3	10GBASE-T EEE		
3.20.2	1000BASE-T EEE		
3.20.1	100BASE-TX EEE		
3.20.0	LPI_FW		

Register 3.20 proposal

	P802.3bx D2.1	P802.3bq	P802.3by
3.20.15	Reserved		
3.20.14	Reserved		
3.20.13	100GBASE-R deep sleep		
3.20.12	100GBASE-R fast wake		
3.20.11	Reserved		25GBASE-R deep sleep
3.20.10	Reserved		25GBASE-R fast wake
3.20.9	40GBASE-R deep sleep		
3.20.8	40GBASE-R fast wake		
3.20.7	Reserved	40GBASE-T EEE	
3.20.6	10GBASE-KR EEE		
3.20.5	10GBASE-KX4 EEE		
3.20.4	1000BASE-KX EEE		
3.20.3	10GBASE-T EEE		
3.20.2	1000BASE-T EEE		
3.20.1	100BASE-TX EEE		
3.20.0	LPI_FW		

Thanks!