

# Proposed MAC and PCS Sublayer Delay

**IEEE P802.3bs 400 Gb/s Ethernet Task Force**

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# Introduction

- The various sublayer delays in the current draft are TBD for the MAC and PCS sublayers
- The goal of this presentation is to choose the values for these fields
- Note that these values are used as the worst case value in sizing buffers for pause operation, and include 1 TX + 1 RX
- Pause delays are often dominated by fiber length

# Values for the MAC Sublayer

- The various sublayer delays in the current draft are TBD for the PCS and MAC sublayers
- Proposed value for 400GbE is 4\* the quanta of 100G, but the same overall delay in ns remains the same
- This is supportable in FPGAs and ASIC/ASSPs

Rate	Standard	Max (Bit Time)	Pause Quanta	Delay (ns)
10G	802.3ae	8192	16	819.2
40G	802.3ba	16384	32	409.6
100G	802.3ba	24576	48	245.76
100G	802.3bj	24576	48	245.76
400G	802.3bs	98304	192	245.76

# Past Values for the PCS Sublayer

- The various sublayer delays in the current draft are TBD for the PCS and MAC sublayers

Rate	Standard	Max (Bit Time)	Pause Quanta	Delay (ns)
10G	802.3ae	3584	7	358.4
40G	802.3ba	11264	22	281.6
100G	802.3ba	35328	69	353.28*
100G	802.3bj	35328	69	353.28

\* Value set with no lane to lane skew: shafai\_01\_1108.pdf

# Past Values for the FEC Sublayer

- The various sublayer delays in the current draft are TBD for the PCS and MAC sublayers

Rate	Standard	Max (Bit Time)	Pause Quanta	Delay (ns)
10G	802.3ae	6144	12	614.4
40G	802.3ba	24576	48	614.4
100G	802.3ba	122880	240	1228.8
100G	802.3bj	40960	80	409.6*

\* No distinction made between KR4 and KP4 FEC

# Proposed Value for the PCS Sublayer

- 802.3bs has FEC included in the PCS which is different from past projects, 100G reference has both added together
- Proposed value for 400GbE is a little bit higher than 4\* the quanta of 100G

Rate	Standard	Max (Bit Time)	Pause Quanta	Delay (ns)
100G	802.3bj	76288	149	762.88
400G	802.3bs	320000	625	800

# Summary

- The proposed numbers keep the same maximum delay in ns as 802.3bj for both the MAC and PCS (with FEC) sublayers

**Thanks!**