

Comment #5  
Increase Max Delay Constrain for  
40GBaseR PMA by 200ns

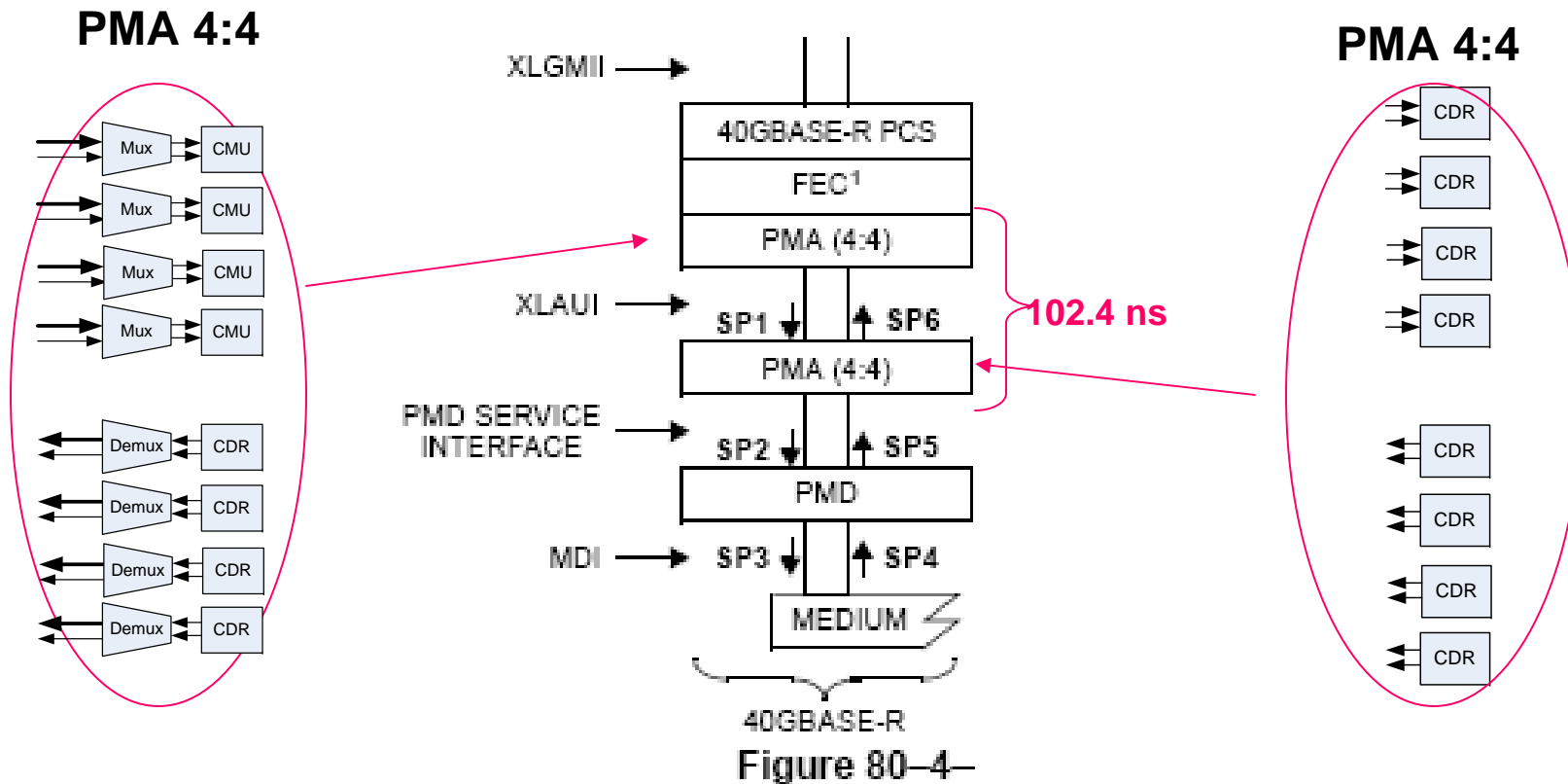
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# Issue

- In 802.3ba the 40G PMA delay constrain was specified assuming an LR4 PMD
- 40GBaseFR requires additional electrical circuitry in the PMA, therefore the max delay constrain in the PMA to support 802.3bg needs to be increased

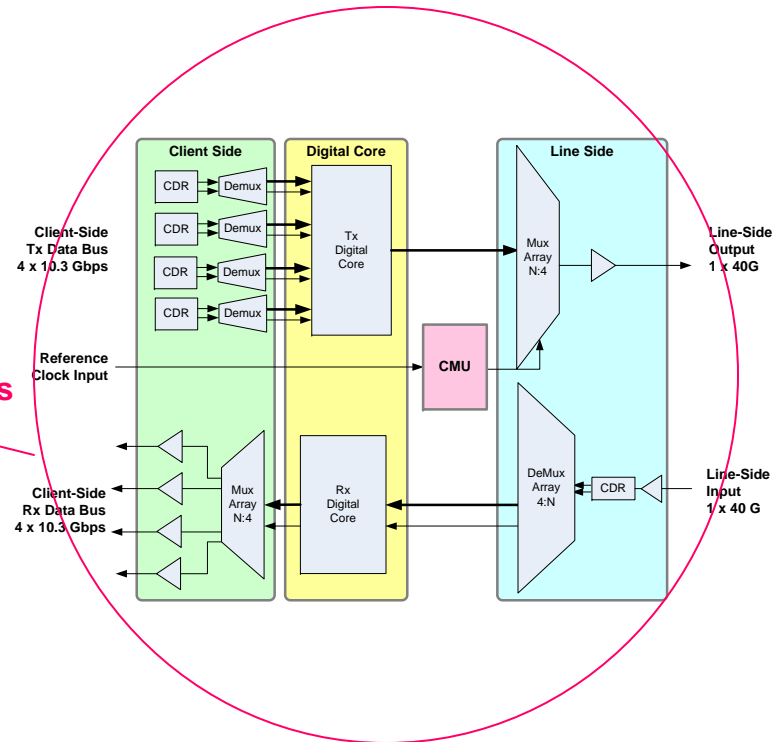
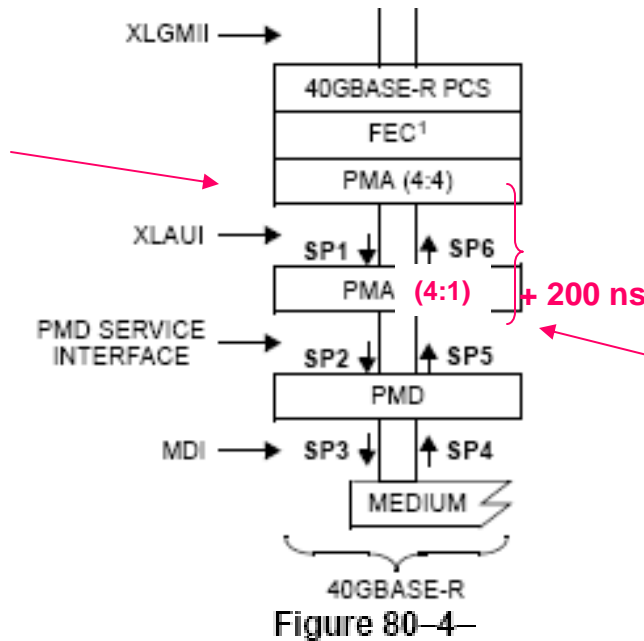
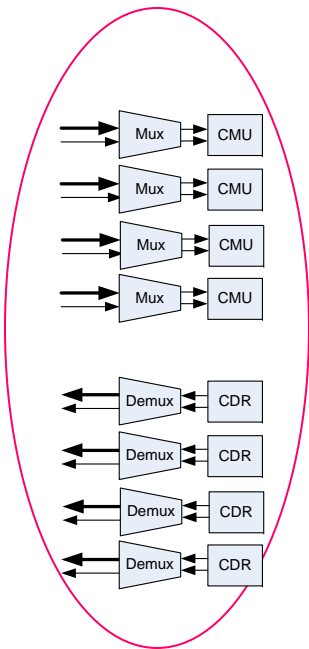
# Current 802.3ba PMA delay constrain for 40G Base-LR4



**Typical LR4 PMA implementation includes 10Gmux/demux and at least 2 CDRs**  
**102.4ns max. delay budget is reasonable**  
***The delay contribution is primarily from the 1<sup>st</sup> PMA***

# Proposed 802.3bg PMA delay constrain must accommodate 40G Base-FR PMA 4:1

PMA 4:4



Typical FR implementation includes 2x10Gmux/demux, 1x40G mux/demux, at least 2 x10G CDRs and 1 x40G CDR, and a digital core w/ FIFO

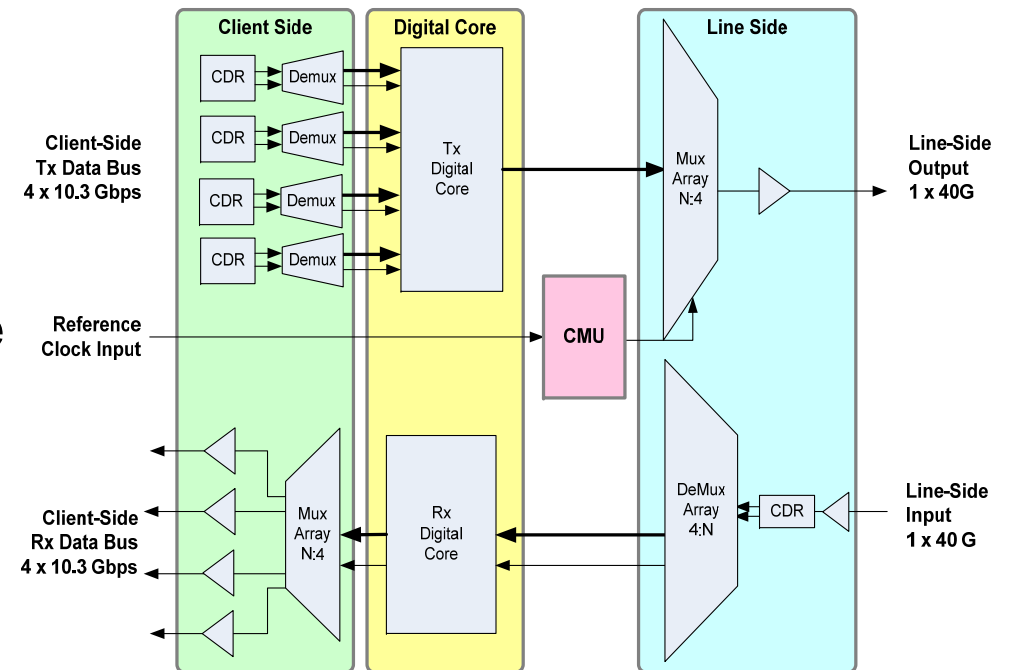
*The 4:1 PMA implementation looks like a two-stages of 1<sup>st</sup> PMA (4:4). The delay from 4:1 PMA should be budgeted as twice as existing PMA*

7/13/2010

# 40GBase-FR PMA delay constrain

PMA 4:1

- Digital core is needed for rate adjust FIFO and deskew logic
- The width of the digital core defines the speed and power of the implementation
- Small delay constrain will force high speed, high power implementations
- The max delay constrain should allow for low power implementation



# Proposal

- Increase the 40GBaseR PMA max delay constrain by 200ns
  - Allows vendors to optimize implementations for low power or low latency