Considerations for the CDAUI-8 chip-to-chip p_{max}/v_f limit

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Problem statement (comment #93)

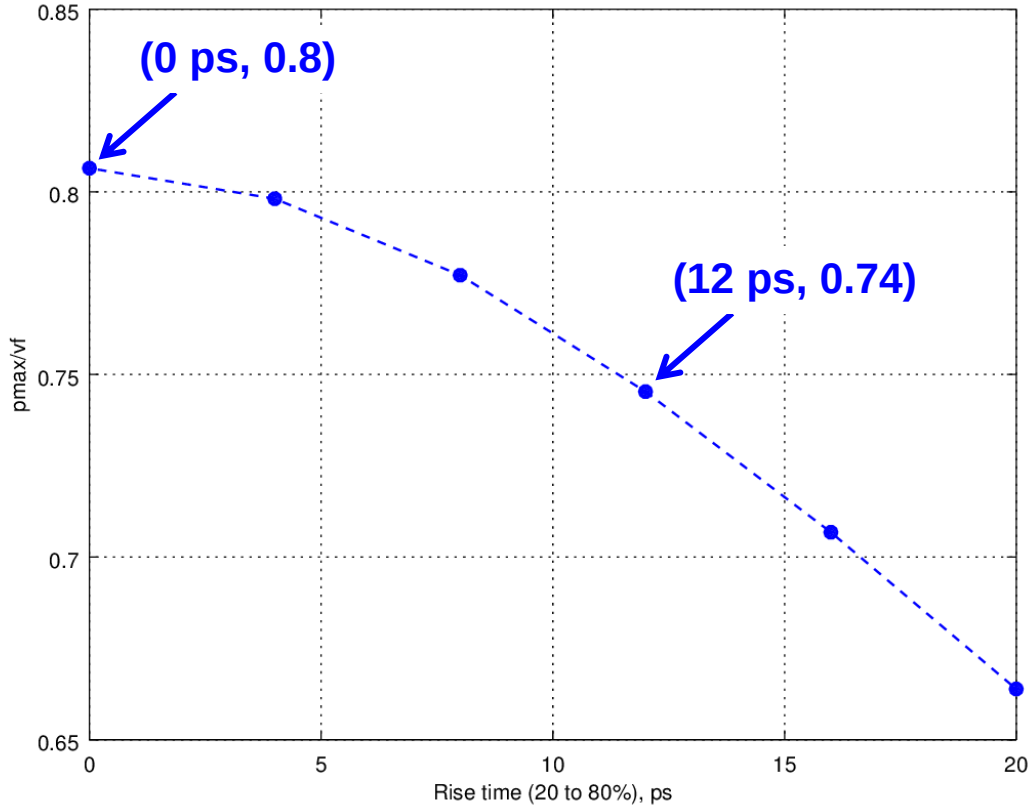
- The transmitter modeled by COM implies the p_{max}/v_f ratio limit should be 0.8
  - Rise time that drives the device termination and package model = 0 ps
  - There is optimism in the calculation that may not be realized with practical transmitters
  - See http://www.ieee802.org/3/by/public/adhoc/architecture/ran_021716_25GE_adhoc.pdf

- Comment #r01-16 against IEEE P802.3by proposes the inclusion of a Gaussian filter at the transmitter for the calculation of COM
  - Rise time that drives the device termination and package model > 0 ps

- Should something similar should be done for CDAUI-8 chip-to-chip?

A simple experiment

- Table 120D–7 parameter values, z_p = 30 mm
- TP0-TP0a model is 38 mm of host PCB trace
- Include a Gaussian filter and calculate p_{max}/v_f at TP0a versus its 20 to 80% rise time



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Summary

- In the context of 25GBASE-KR, it has been observed a p_{max}/v_f limit of 0.8 will be difficult to achieve
- If true, one can assume such a limit will be difficult to meet for CDAUI-8 as well
- Inclusion of a Gaussian filter in the COM calculation enables the relaxation of the limit while maintaining a closed budget
- The impact of such a change on COM needs to be assessed