

# Initial Host Backplane Channel Models & Development Plans

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January 2018 Interim Meeting

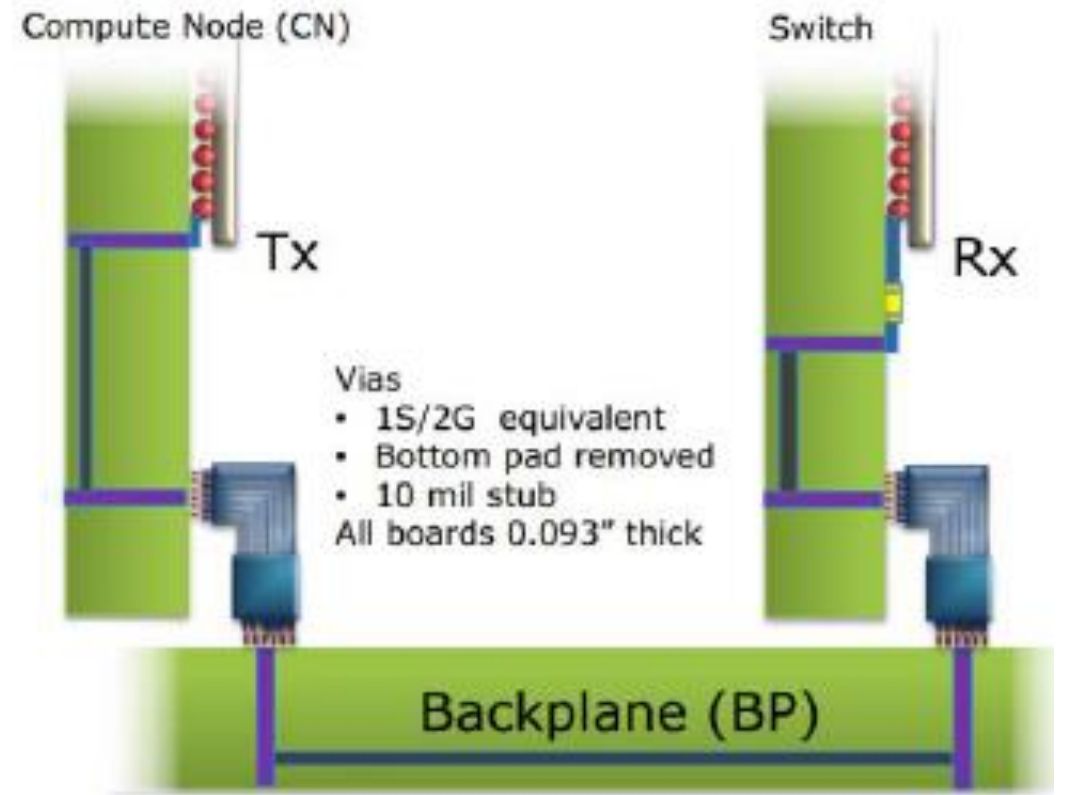
IEEE 802.3 100Gb/s per Lane Electrical Study Group

# Summary

- Models for traditional backplane
  - Initial models for baseline
  - 85ohm nominal impedance
  - Impedance variation included
- Follow-on plans
  - Traditional backplane with ultra-low loss
  - Cabled backplane

# Physical Description

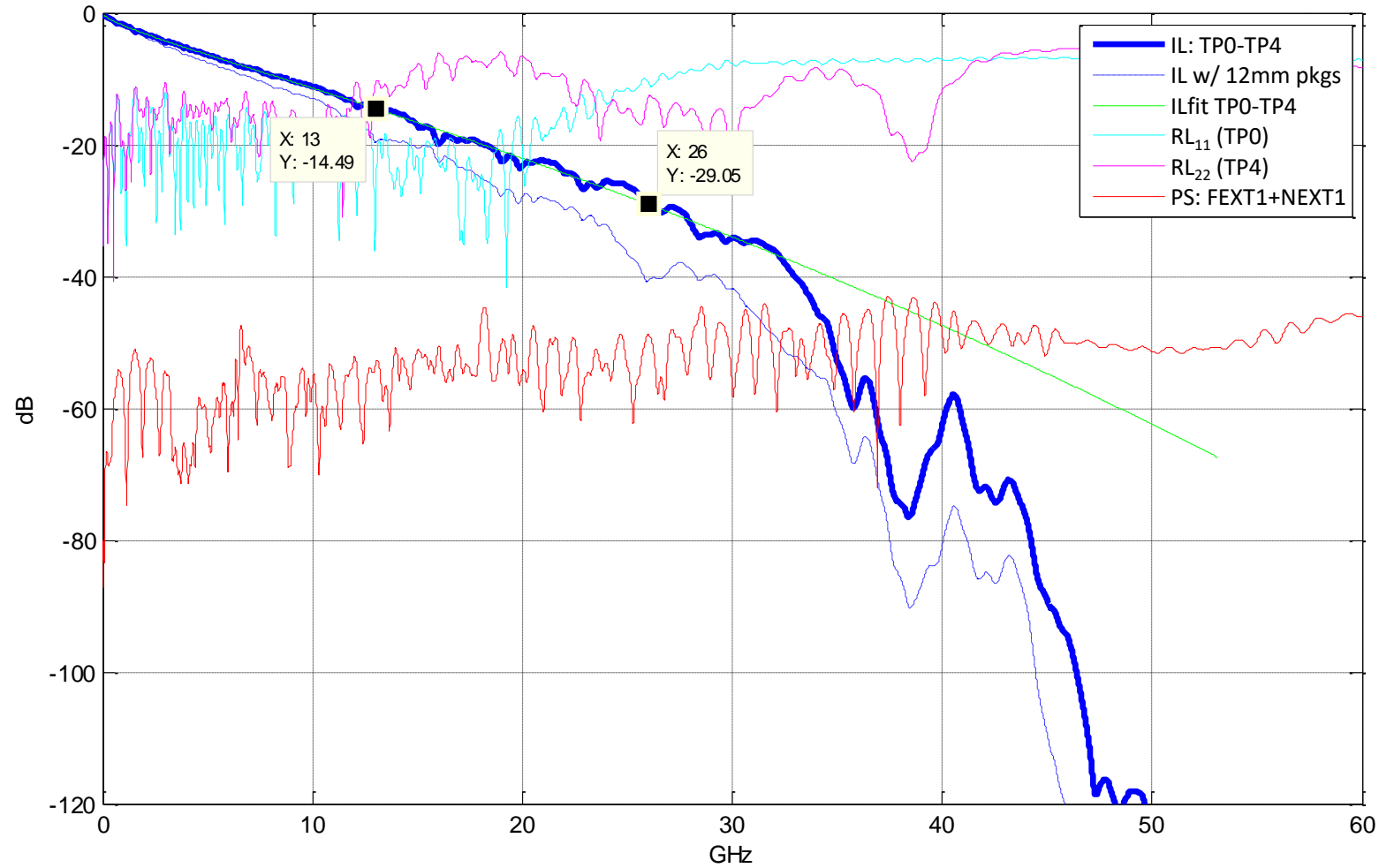
- Trace Route
  - CN: 2" mid-loss
  - Switch 3" mid-loss
  - BP: 3.25" low loss
- 85ohm nominal impedance
- 3 FEXT, 4 NEXT
- Routes include breakout, vias
- More work to be done to optimize
  - Crosstalk
  - Vias



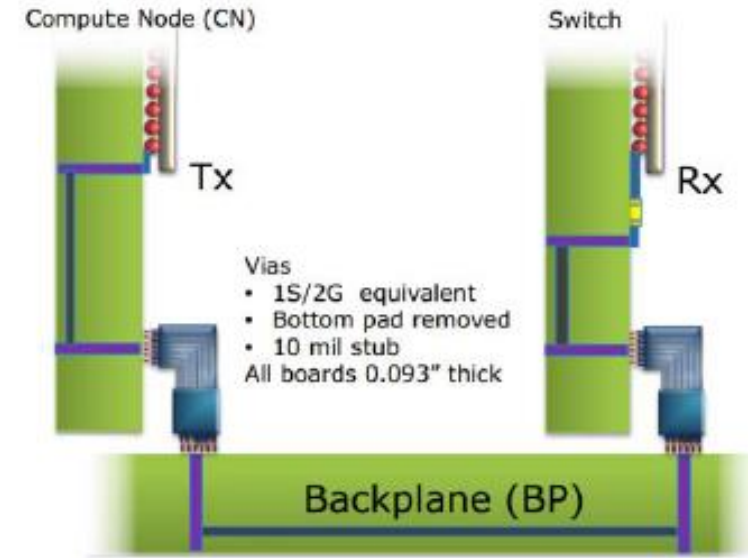
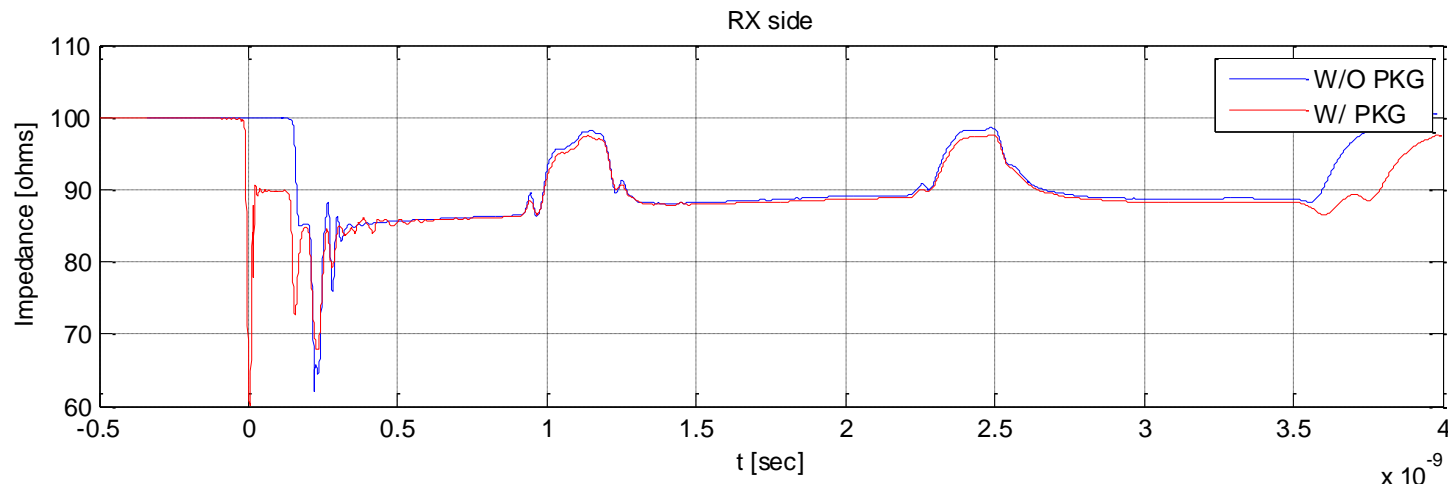
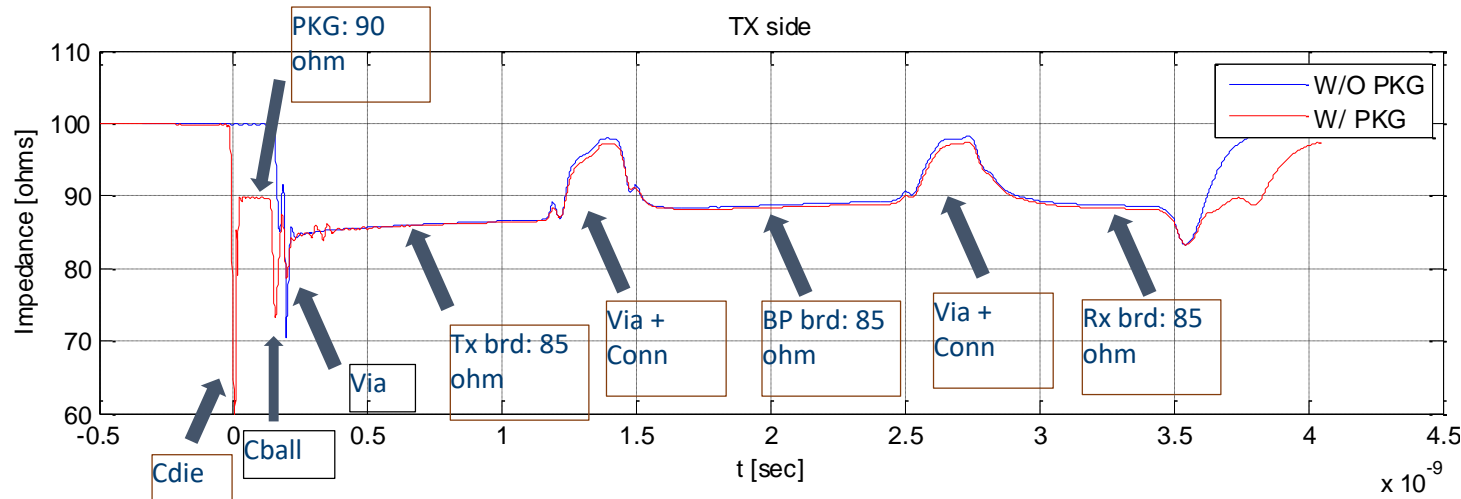
Mid-loss: ~3.6dB/in @ 26GHz

Low loss: ~1.9dB/in @ 26GHz

# Frequency Response

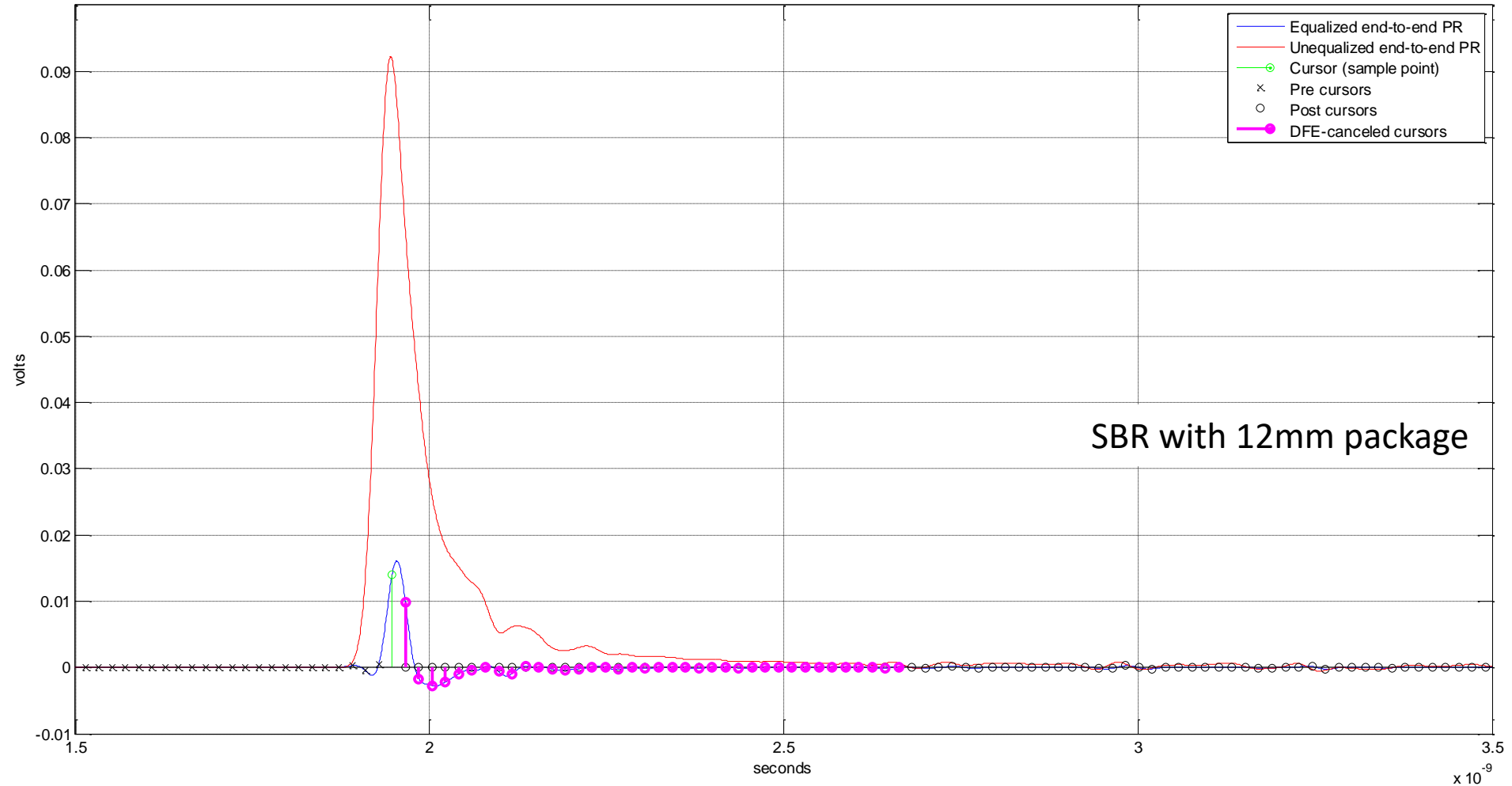


# TDR Response



\* Note: TP0-TP4 response is shifted to align to response with 12mm package

# Single Bit Response



# Follow-on Work

- Add to traditional backplane channels
  - 100ohm channels
  - Optimizations
    - Lower loss PCB materials
    - Crosstalk
    - Higher performance connector
- Generate cabled backplane channels
  - Cabled connectors with high perf cables

# Files

<b>heck_100GEL_85ohm_hlh_01_011718.zip</b>	<b>heck_100GEL_85ohm_lhl_01_011718.zip</b>	<b>heck_100GEL_85ohm_nom_01_011718.zip</b>
BP_2conn_85ohm_30dB_HzLzHz_thru.s4p	BP_2conn_85ohm_30dB_LzHzLz_thru.s4p	BP_2conn_85ohm_30dB_Nom_thru.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk1_Fext	BP_2conn_85ohm_30dB_LzHzLz_xtalk1_Fext	BP_2conn_85ohm_30dB_Nom_xtalk1_Fext.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk2_Fext	BP_2conn_85ohm_30dB_LzHzLz_xtalk2_Fext	BP_2conn_85ohm_30dB_Nom_xtalk2_Fext.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk3_Fext	BP_2conn_85ohm_30dB_LzHzLz_xtalk3_Fext	BP_2conn_85ohm_30dB_Nom_xtalk3_Fext.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk4_Next	BP_2conn_85ohm_30dB_LzHzLz_xtalk4_Next	BP_2conn_85ohm_30dB_Nom_xtalk4_Next.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk5_Next	BP_2conn_85ohm_30dB_LzHzLz_xtalk5_Next	BP_2conn_85ohm_30dB_Nom_xtalk5_Next.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk6_Next	BP_2conn_85ohm_30dB_LzHzLz_xtalk6_Next	BP_2conn_85ohm_30dB_Nom_xtalk6_Next.s4p
BP_2conn_85ohm_30dB_HzLzHz_xtalk7_Next	BP_2conn_85ohm_30dB_LzHzLz_xtalk7_Next	BP_2conn_85ohm_30dB_Nom_xtalk7_Next.s4p