
IEEE 802.3ap Signaling Ad Hoc

IEEE 802.3ap Task Force
14 Jan'05

Today's Agenda

- Schedule discussion – 15 min
- Channel Simulation Model
- Signaling Spreadsheet Update – 30min
 - Updated to v4.2 previous Signaling Ad Hoc straw polls and directions
- Link elements – 30 min
 - TP4→TP5 link
 - Package parasitics
- Simulation Input Parameters – 30min
 - Tx params
 - Rx params

Schedule Discussion

- **From Original Plan (completed tasks in grey)**

Spreadsheet input deadlines to Signal Ad Hoc

Nov. 30 - Specific parameters for extension to spreadsheet

Dec. 10 - Specific values for all parameters in spreadsheet

Signaling ad hoc Conference Call Topics

Dec. 3 - Define specific parameter changes, TP4 - TP5 link details & packaging effects

Dec. 17 - Define specific simulation parameter values

Dec. 10 - Provide complete test case channel data - all data means through and crosstalk

Jan. 19 - Submit simulation results for entry into spreadsheet

- **Expectations for Interim mtg**

- **Simulation results**

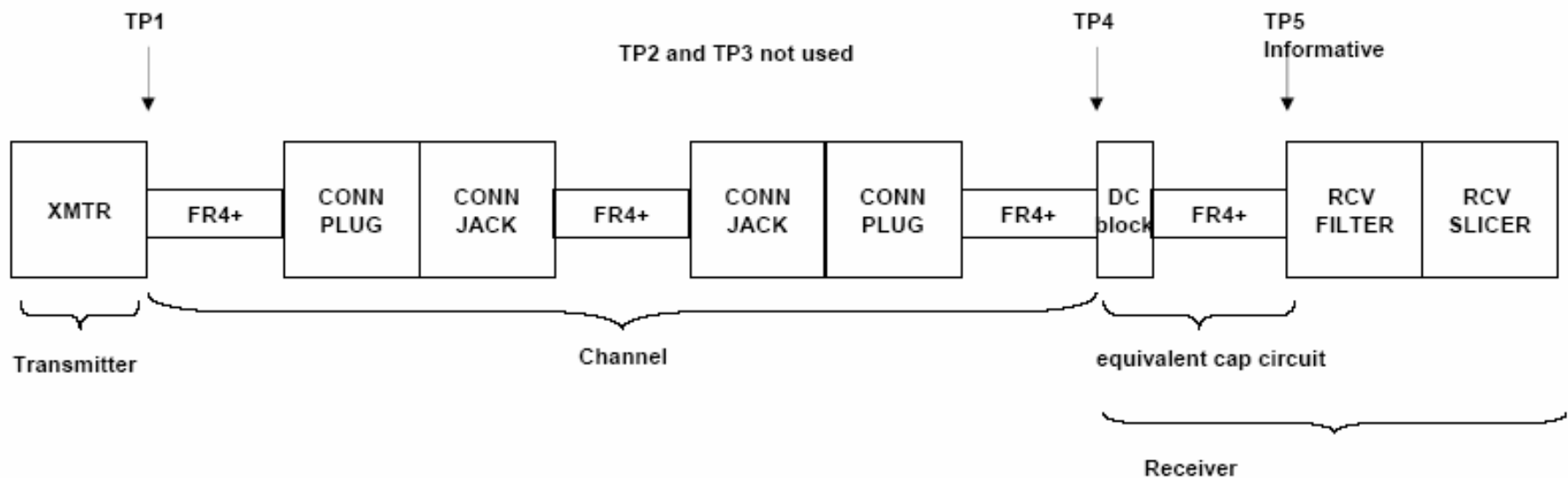
- How many expect to provide results for Jan mtg?

- **Missing Info**

- Simulation conditions?
- Simulation elements?

Channel Simulation Model

- Current model with TPs from the channel ad hoc



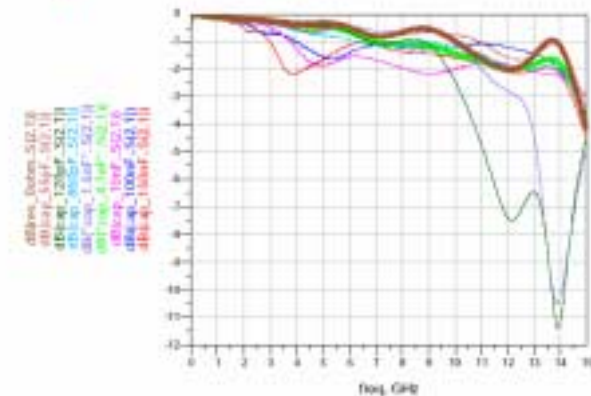
Signaling Spreadsheet Update

- Spreadsheet updated to version 4.2 (*IEEE Coding Table v4-2.xls*) from prev. conf call input
 - Distributed with mtg announcement
 - Will be posted to .3ap web site
- Changes from version 4.1
 - Added environmental noise (3/12/04) – split poll
 - Rx allocated Rj and Dj (17/12/04)
 - Crosstalk properties
 - Type is random/deterministic (3/12/04)
 - Crosstalk scaling is on or off (5/11/04) – split poll
 - Voltage & timing margin notes changed to indicate the optimized sampling point (17/12/04)

Link Elements

- TP4→TP5 link (+ coupling cap)
 - Only cap data we have is in *sawyer_m1_0105.pdf (.zip)*
 - Good performance found for ~4.7nF (file: *4_7nf.s4p*)
 - TF has not fixed a Cap value yet – can we use this?

AC Coupled Path Insertion Loss



- 4.7nF cap (thick green) provides S21 comparable to DC coupling (thick brown)
- <860pF has worst loss <500MHz
- >4.7nF has worst loss >2GHz

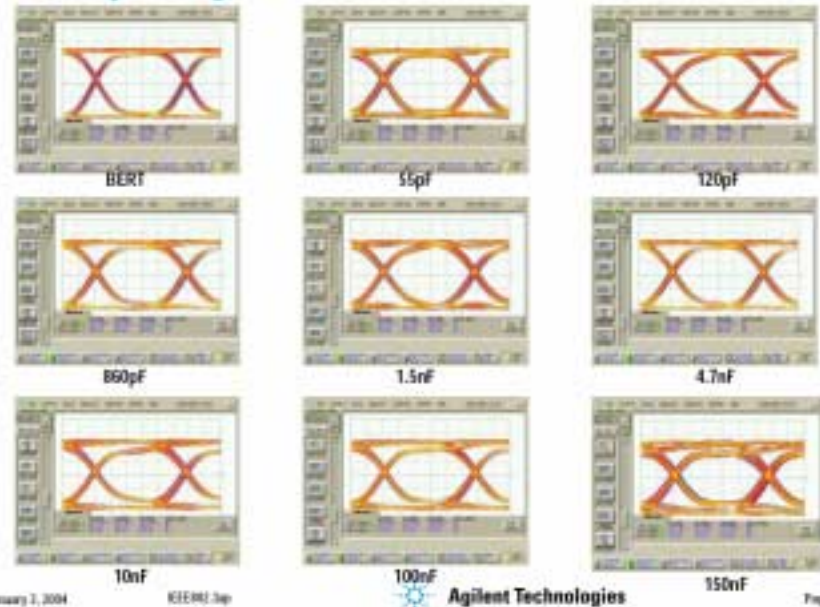
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AC Coupled Eyes (PRBS7, 10.3125Gbps)



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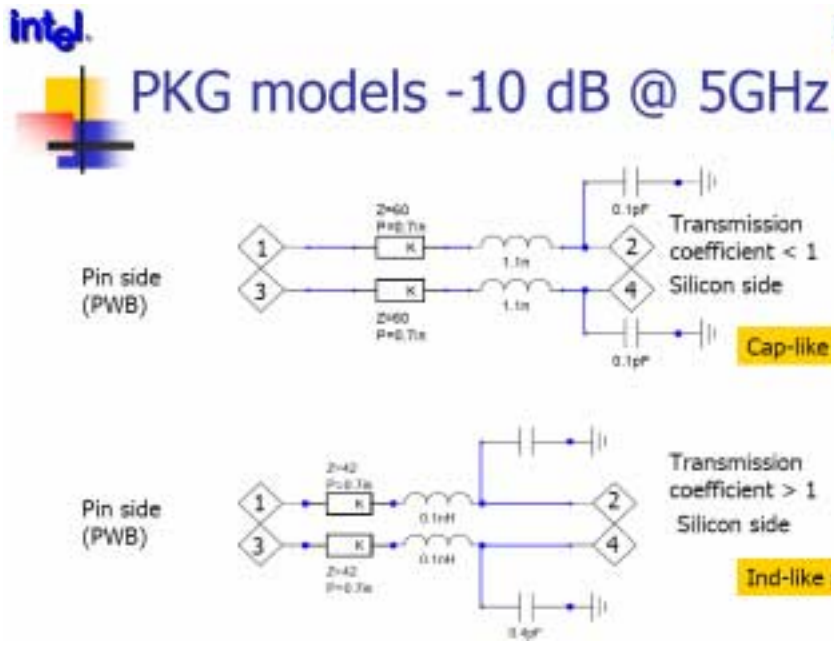


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Link Elements

- Package model
 - Only package models submitted for discussion are in *mellitz_m1_0105.pdf (.zip)*
 - *Spec_RL_cap_like.s4p*
 - *Spec_RL_ind_like.s4p*
- Is there sufficient info here to define:
 - A simulation channel for our purposes?
 - Simulation conditions for our purposes?



Link Elements – Straw polls

- TP4-TP5 link straw polls
 1. Should we use a model for TP4-TP5?
 2. Should we use a cap model from the selection in *sawyer_m1_0105.zip*?
 3. Should we use the 4.7nF model (4_7nf.s4p)?
- Package model straw polls
 1. Should our simulations use package models?
 2. Should we use the package models presented in *mellitz_m1_0105.pdf*?

Simulation Input Parameters

- What values still need to be set?
 - Tx Jitter
 - Suggest we use simple values – ex. 0.05/0.1/0.25 UI_{p-p}
 - Parameters needed:
 - Tx Dj
 - Tx DCD
 - Tx Rj
 - Rx-allocated Jitter parameters:
 - Rx-allocated Rj
 - Rx-allocated Dj

Simulation Input Parameters – Straw

Polls

1. Should the Tx and Rx-allocated jitter numbers be fixed, or just reported?

If yes, then ...

2. What values should we use for Tx Rj?
 - $0.005UI_{RMS}$
 - $0.01UI_{RMS}$
 - $0.025UI_{RMS}$
 - Other
3. What value should we use for Tx Dj?
 - $0.01UI_{p-p}$
 - $0.025UI_{p-p}$
 - $0.05UI_{p-p}$
 - Other
4. What values should we use for Tx DCD?
 - $0.01UI_{p-p}$
 - $0.025UI_{p-p}$
 - $0.05UI_{p-p}$
 - Other
5. What value should we use for Rx-allocated Rj?
 - $0.005UI_{RMS}$
 - $0.01UI_{RMS}$
 - $0.025UI_{RMS}$
 - Other
6. What value should we use for Rx-allocated Dj?
 - $0.01UI_{p-p}$
 - $0.025UI_{p-p}$
 - $0.05UI_{p-p}$
 - Other