IEEE 802.3ap
Signaling Ad Hoc Report Out

IEEE 802.3ap Task Force

Jan'05

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Summary

- **Signaling ad hoc work item review**
  - **Established August'04**
  - **To work toward a simulation and evaluation model for 10Gb serial BP signaling solutions**
- **Work Items for ad hoc to address**
  - **Channel elements for simulation**
    - Channel ad hoc defines link between TP1 and TP4
    - Define component edge to TP1, TP4 to component edge
    - Incorporation of channel loss, reflections, NEXT & FEXT
  - **Solution Comparison Metrics**
    - Power consumption
    - BER and Reach performance
    - Complexity & relative cost
    - Robustness
  - **Treatment & modeling of aggressors**
    - NEXT, FEXT
    - Noise

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Conf Calls

- **The Signaling ad hoc held 3 conference calls**
  - Attendance between 21~26
- **Conf Call Overview**
  - 3 Dec'04
    - Data patterns for main and NEXT/FEXT channels – coded vs. un-coded PRBS and pattern length
    - Interference characteristics – scaling NEXT/FEXT to mask
    - Other noise sources – Environmental and thermal/device noise
  - 17 Dec'04
    - Re-examined Rx jitter impairments
    - Closed discussions on Receiver sampling points and other impairments (offsets) and reporting (settled tap values)
    - Discussed cap model for the TP4-TP5 segment. Frequency-dependent models provided our use
  - 14 Jan'05
    - Updated signaling spreadsheet to v4.3
    - Closed TP4-TP5 and package model needs for link simulations for the Jan interim mtg

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Straw Polls

- Several straw polls were held to clarify the preferences of the ad hoc group.

3 Dec'04 Conf Call

#1: Should we fix a required data pattern?
   passed by acclamation: (20 people on the call)

#2: What forward channel data pattern should we simulate with as a common data pattern?
   PRBS7: 0   PRBS9: 0   PRBS15: 19   No Preference: 2

#3: Do we want to use the same data pattern for crosstalk pattern?
        Yes: 16   No: 3   Abstained: 1

#4: Should we add RJ and DJ and DCD parameters for the Tx output?
        RJ: Yes: 19   No: 1   Abstained: 2
        DJ: Yes: 18   No: 2   Abstained: 2
        DCD: Yes: 16   No: 3   Abstained: 3

#5: Should we require a minimum input-referred offset?
        Yes: 3   No: 9   Abstained: 8

#6: Should we require an input-referred environmental noise?
        Yes: 9   No: 6   Abstained: 4

Also:

By acclamation it was agreed to drop the Rx RJ and DJ parameters

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Straw Polls

17 Dec'04 Conf Call

 # 1: Should we require a specific amount of Rx-allocated jitter (RJ and DJ)?

Yes: 12   No: 5   Abstained: 3

 # 2: How do we want to fix our timing and voltage margin sampling point?

Maximized*: 4   (*maximized symmetric diamond)

Optimized: 12

Centered: 0

Abstained: 0

 # 3: Should we normalize the overall path gain?

Yes: 1   No: 7   Abstained: 8

 # 4: Do we report settled tap values?

Yes: 0   No: 9   Abstained: 5

 # 5: Do we report highest, typical and lowest power across all channels?

Yes: 7   No: 3   Abstained: 5

 # 6 : Capacitor use for simulations

Freq-Dependent Model: 7

Ideal Capacitor: 3

Nothing: 5

Open, but must be reported:6

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Straw Polls

14 Jan'05 Conf Call

1: Should we linearly scale NEXT/FEXT until a given solution breaks (fails to meet the BER requirements) and report the result?

Yes: 4   No: 5   Abstained: 14

2: Should we use a model for TP4-TP5?

Yes: 10   No: 5   Abstained: 5

3: Should we use Shannon's 4.7 nF model for simulation work to be presented to January meeting?

Yes: 5   No: 8   Abstained: 7

3a: should we use at all a model for TP4-Tp5 for sim results to be reported in January?

No by acclamation

4: should sims for Interim meeting in January use a package model?

No by acclamation