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Ideas for Objective 5 “Support for optional single-pair Autonegotiation”

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Supported by:

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Previous presentations

- David Brandt: Use Cases for Autonegotiation
  http://www.ieee802.org/3/cg/public/adhoc/brandt_012517_3cg_01_adhoc.pdf
- Brett McClellan: xBase-T1 Auto-Negotiation
  http://www.ieee802.org/3/cg/public/Jan2017/McClellan_3cg_01a_0117%20xBASE-T1%20Autoneg.pdf

2 Questions…

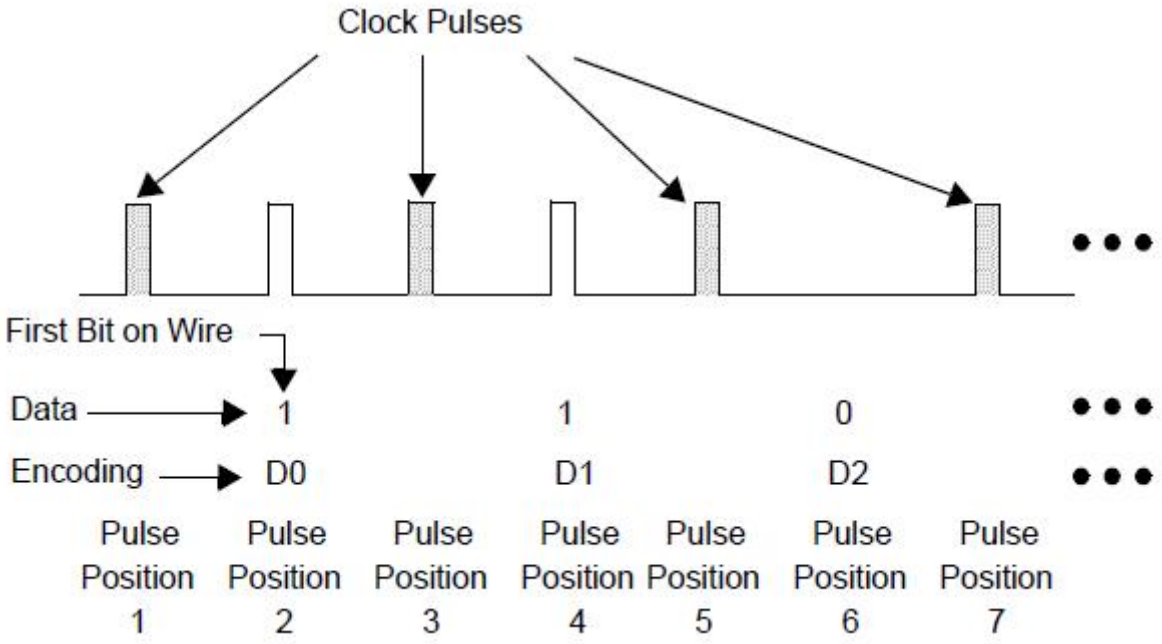
- How?
  - Signaling over 1000m?
  - Reuse of available Autonegotiation Signaling possible?
  - If not: Modify the available or invent a new?
- What?
  - Speed?
  - Master / Slave?
  - Power profiles?

How? Available Signaling Schemes

- Usage of Signaling of Auto-Negotiation as defined in Clause 28 (10/100/1000BaseT)
  - For example with TDM
- Usage of Signaling of Auto-Negotiation as defined in Clause 98 (Single Pair Autonegotiation)
  - Differential Manchester Coded

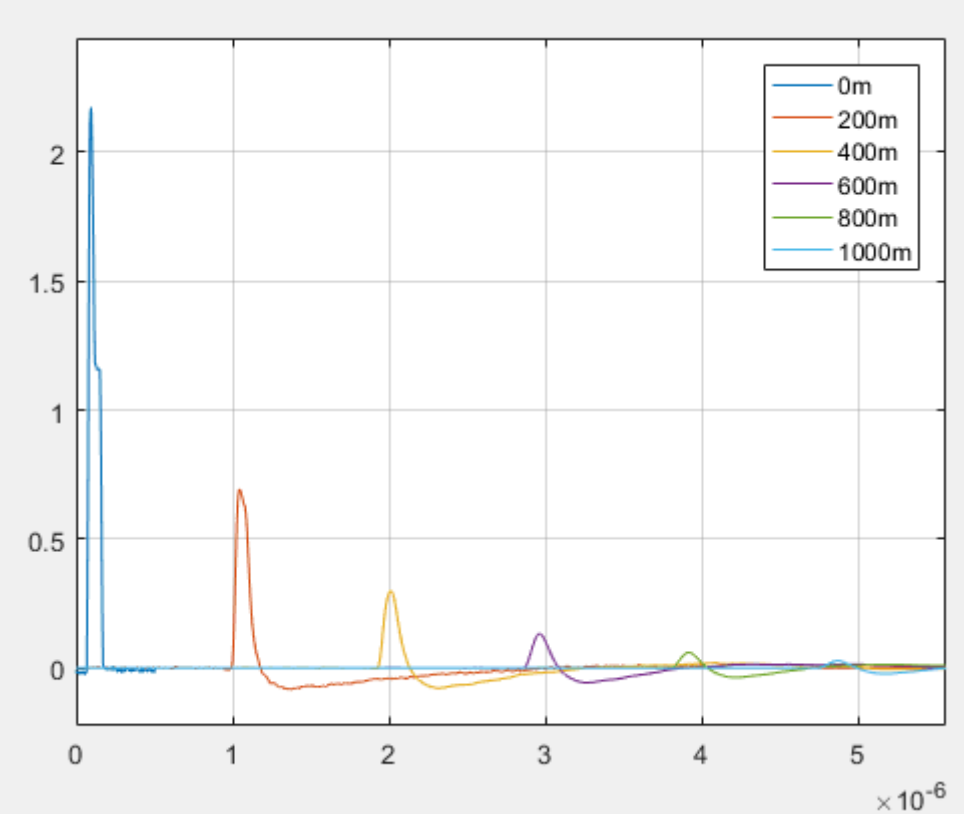
Signaling Clause 28

- T_Pulse = 100ns, Bandwidth > 5MHz
- IL approx. 30dB @5MHz



Signaling Clause 28

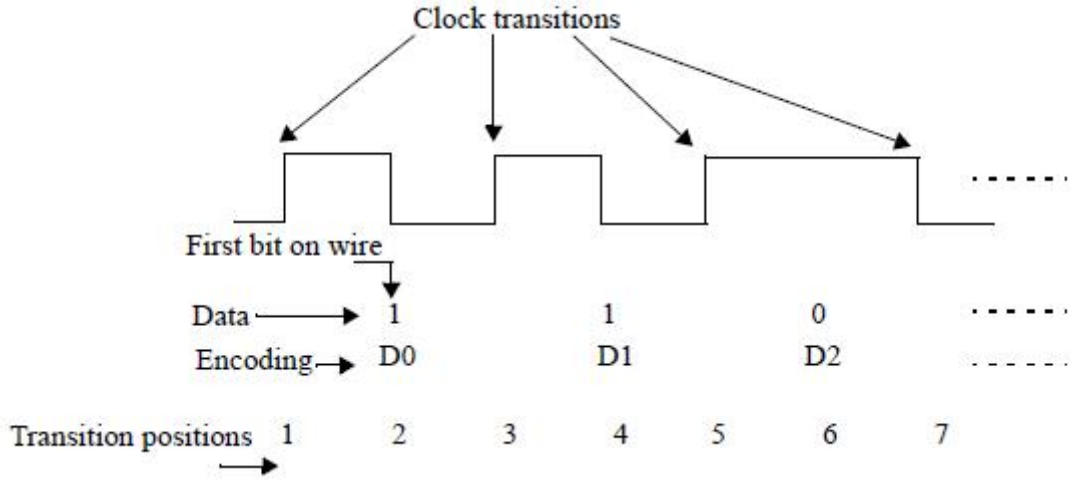
- Simulation (provided by M. Wucher, E&H)



-> not suitable: Insertion Loss

Signaling Clause 98

- Suitable for single Twisted pair
- Differential Manchester Coded



- T_Period = 60ns, Bandwidth > 16,7MHz
- IL approx. 52dB -> not suitable

Using Modified Clause 98

- Modify clause 98 by decreasing frequency
- T_Period = 600ns
- Bandwidth > 1,67MHz
- Insertion Loss @ 1,67MHz ≈ 17dB
- Would be suitable… to be discussed!

But… What for?

- Speed:
  - Because of the need for a new signaling, there will be no compatibility to available PHYs
  - Speed can only be „autonegotiated“ between 10SPE and future SPE-versions
  - If future SPE-Versions are not capable of 1000m it will NOT be handled by the Autonegotiation Process (like 4wires @ Gigabit Ethernet is not handled) …everybody agree?

But… What for?

- Master/Slave:
  - Master Priority:
    - Multiport Device before Singleport Device
    - Powering Device before Powered Device
    - Higher random value
- Power:
  - Starting Autonegotiation at lowest Power Profile
  - Slave advertises demand, Master advertises capability

But… What for?

- Vendor Information:
  - Options for vendor specific functionalities
- Transmitter Output Voltage
  - Low Power or normal operation
- What else? To be discussed!

Questions? Comments?

Thank you!