Closing the gaps for 1000BASE-T1L

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Agenda

Current status of the Objectives

What was discussed?

Proposal for the Objectives

Conclusion

Current status of the Objectives

Objectives_11102021_out states:

Should consider all the 100 Mb/s rewording on the previous page, and need presentations supporting these & the CSDs (especially reach & tech feasibility from a PHY SME perspective)

1. Support a speed of 1000 Mb/s at the MAC/PLS service interface.
2. Support 1000 Mb/s single-pair Ethernet operation in industrial environments (e.g., EMC, temperature).
3. Define performance characteristics of a link segment with a single balanced pair of conductors supporting up to 10(TBD)inline connectors for up to at least (TBD: 100m/300m/500m (TBD, ≥ 100m) reach, and a PHY supporting point-to-point full duplex operation over the link segment.
4. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to TBD (10^{-10}) or the frame loss ratio equivalent
5. Latency objective?

What was discussed?

1. Number of connectors: 10(TBD)inline connectors

For 1000Base-T1L the number of inline connectors was not explicitly discussed. From point 2 below and the discussions about 100Base-T1L a number of 4 connectors makes most sense, as the model for the feasibility calculation consisted also 4 connectors, as shown in the presentation of 29th September: Schicketanz_Technical feasibility study: Supported reach of 100Mbit/s and 1000 Mbit/s.

2. Link length: (TBD: 100m/300m/500m (TBD, ≥ 100m)

For 1000Base-T1L the length was not discussed in detail. However, several similar applications were mentioned reaching 75m to 90m, therefore a length of 100m makes most sense. This is in line with the presentation hold on May 12th, Fritsche_Use Cases for 100/1000BASE-T1 with longer link length.

3. Bit error rate: TBD (10^{-10}) or the frame loss ratio equivalent

For 100Base-T1L the same bit error rate make sense as for 100Base-T1L as it is used in a similar environment.

4. Latency objective?

For 100Base-T1L the same latency requirement make sense as for 100Base-T1L as it is used in a similar environment.

Proposal for the Objectives

Objectives_11102021_out state:

Should consider all the 100 Mb/s rewording on the previous page, and need presentations supporting these & the CSDs (especially reach & tech feasibility from a PHY SME perspective)

1. Support a speed of 1000 Mb/s at the MAC/PLS service interface.
2. Support 1000 Mb/s single-pair Ethernet operation in industrial environments (e.g., EMC, temperature).
3. Define performance characteristics of a link segment with a single balanced pair of conductors supporting up to 4 inline connectors for up to at least 100m reach, and a PHY supporting point-to-point full duplex operation over the link segment.
4. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to 10^{-10} or the frame loss ratio equivalent
5. The same latency objective shall be adopted as for 100Base-T1L

Conclusion

The current status of the objectives were presented with marked sections where information is missing.

A short summary is given to show what numbers were on the table during the last months. The most feasible numbers were listed following the use cases and the technical feasibility.

A new proposal for the objectives was given with the numbers from above put in the usually used text.

Appendix

Presentations market relevance:

- https://www.ieee802.org/3/SPEP2P/public/Fritsche_3SPEP2P_01_05122021.pdf
- https://www.ieee802.org/3/SPEP2P/public/Fritsche_3SPEP2P_01_09012021.pdf
- https://www.ieee802.org/3/SPEP2P/public/xu_3SPEP2P_01a_04282021.pdf

Presentations technical feasibility:

- https://www.ieee802.org/3/SPEP2P/public/ISOchannelsJune%2021-schicketanz.pdf
- https://www.ieee802.org/3/SPEP2P/public/ISOchannels%20September%201-schicketanz.pdf
- https://ieee802.org/3/GT10MSPE/public/schicketanz_fischer_3GT10M_01_09292021.pdf