Multi-gig Automotive Ethernet PHY Study Group Proposed Objectives

NATALIE WIENCKOWSKI

GENERAL MOTORS

JANUARY 11, 2017

HUNTINGTON BEACH, CA, USA

Non-controversial Objectives

1. Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface.
2. Preserve minimum and maximum frame size of the current IEEE 802.3 standard.
3. Support full duplex operation only.
4. Define optional startup procedure which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms.
5. Support a BER better than or equal to 10^{-12} at the MAC/PLS service interface.
6. Support a data rate of 10 Gb/s at the MAC/PLS service interface
7. Support optional Auto-Negotiation
8. Support optional Energy Efficient Ethernet

Objectives with broad consensus and appropriate levels of data presented

9. Define the performance characteristics of a link segment and a PHY to support 10 Gb/s operation over this link segment with a single pair supporting up to four inline connectors using shielded balanced copper cabling for up to at least 15 m reach
10. Support operation at 10Gb/s in automotive environments (e.g., EMC, temperature) over single pair shielded balanced copper cabling.
11. Do not preclude meeting FCC and CISPR EMC requirements.

Objectives with broad consensus and appropriate levels of data presented

9. Define the performance characteristics of a link segment and a PHY to support 10 Gb/s operation over this link segment with a single pair supporting up to four inline connectors using shielded ~~balanced~~ copper cabling for up to at least 15 m reach
10. Support operation at 10Gb/s in automotive environments (e.g., EMC, temperature) over single pair shielded ~~balanced~~ copper cabling.

Objectives requiring additional support / documentation of feasibility/CSDs

12. Specify an optional power distribution technique to be used with the Copper PHY
13. Support point-to-point topologies

Objectives requiring additional support / documentation of feasibility/CSDs

14. Define the performance characteristics of a link segment and a PHY to support 2.5 Gb/s operation over this link segment with a single twisted-pair supporting up to four inline connectors using balanced copper cabling for up to at least 15 m reach.
15. Define the performance characteristics of a link segment and a PHY to support 5 Gb/s operation over this link segment with a single twisted-pair supporting up to four inline connectors using balanced copper cabling for up to at least 15 m reach.

NOTE: These objectives have been proposed by Helge Zinner (Continental) and Olaf Grau (Robert Bosch). They plan to show broad market support, technical feasibility and build consensus by the next meeting which may be an ad-hoc meeting.

Objectives requiring additional support / documentation of feasibility/CSDs

16. Support 2.5, 5, 10 Gb/s operation in harsh environments (e.g. EMC, temperature) in vehicular environments.
17. Define the performance characteristics of a link segment and a PHY to support <rate> point-to-point operation 1-pair link segment up to at least 15 m including 4 inline connectors based on Category 8 cabling with suitable augmentation.
18. Define the performance characteristics of a link segment and a PHY to support <rate> operation over this link segment with a single twisted pair and supporting up to 4 inline connectors using balanced copper cabling based-on Category 8 up to at least 15 m reach.

NOTE: These objectives were proposed by Masood Shariff (Comscope).

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt the objectives as shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 2.

M: Natalie Wienckowski

S: Peter Jones

Technical (≥ 75%)

Y: 26 N: 0 A: 6

Motion passes at 8:31

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt the objectives as shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 3.

M: Natalie Wienckowski

S: George Zimmerman

Technical (≥ 75%)

Y: 14 N: 6 A: 16

FAIL 8:48 am

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt objective 9 as shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 3.

M: Natalie Wienckowski

S:

Technical (≥ 75%)

Y: N: A:

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt objective 10 as shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 3.

M: Natalie Wienckowski

S: Peter Jones

Technical (≥ 75%)

Y: 21 N: 3 A: 10

Motion passes at 9:13 am

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt objective 11 as shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 3.

M: Natalie Wienckowski

S: Peter Jones

Technical (≥ 75%)

Y: 28 N: 0 A: 8

Motion passes at 9:14 am

Motion

Move that the IEEE Multi-Gig Automotive Ethernet PHY Study Group (NGAUTO) adopt objectives 9 and 10 as amended and shown in Wienckowski_3NGAUTO_03a_0117.pdf, slide 4.

M: Natalie Wienckowski

S: Peter Jones

Technical (≥ 75%)

Y: 20 N: 7 A: 12

Motion