NGAUTO – Objectives
Uses Cases + speedgrades

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Supporters

• Looking for supporters at the next interim meeting on Feb 21./22. ...
Cameras categories in cars
Different cameras/resolutions for different use cases

• Viewing and Warning
  • e.g. rear-view, surround view, dash board, driver monitoring, mirror replacement
  • 30fps is enough for most of cameras
  • start up time > 2 seconds
  • compression is ok for most use cases

Surround view for parking

Mirror replacement

Driver monitoring
Cameras categories in cars
Different resolutions for different use cases

• Assist
  • front (mono, stereo camera)
  • machine vision for automated driving
  • raw video processing

Lane departure warning  Traffic sign recognition  Object detection
### Uncompressed video transmission

**Camera & Display**

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- **100BASE-T1**
- **1000BASE-T1**
- **Multi-Gig Ethernet 2.5 Gbit/s**
- **Multi-Gig Ethernet 5 Gbit/s**
- **Multi-Gig Ethernet 10Gbit/s**

**In Gbps**

- No use case
- Available
- Speed grades which are currently discussed

- Ethernet with 2.5 and 5 Gbit/s covers many video related use cases
Link operation
Camera & Display

- Camera/Display link are asymmetric links
  - reverse channel for configuration only
  - symmetric only in the case of rings
Ethernet vs. SerDes camera

- Ethernet in cameras is still a huge component overhead (independent of speed grade)
The relative costs*)

* The cost values are very dependent on the exact topology that is being compared, this chart gives an indication only.
Car connectivity

• Connectivity is need for almost all future vehicles
  • over the air update
  • Infotainment and multimedia
  • precise navigation

• European Parliament makes eCall mandatory from 2018
  • all cars need mobile (data) interface by then
  • 1 Gbps is not enough to support 802.11ac + LTE + ...
  • but more than 2,5gbps wouldn’t be needed
Connectivity solutions
Versatile & scalable future technologies for cars

Development of mobile data rates

Dr. Kirsten Matheus, BMW AG, Automotive Ethernet Congress, February 2017
Conclusion

- Broad market potential can only be achieved by multiple speed grades > 1Gbps & <= 10Gbps
- There are many applications which do not require 10Gbps, but slightly more than 1Gbps
- The approach for lower speeds less than 10Gbps does not exclude a 10Gbps solution

Proposal: Adopt objectives to allow for other speed grades than 10 Gbps
  - 2.5 Gbps and optional 5 Gbps