

In-Vehicle Networking

Lecture 11 Introduction to FlexRay

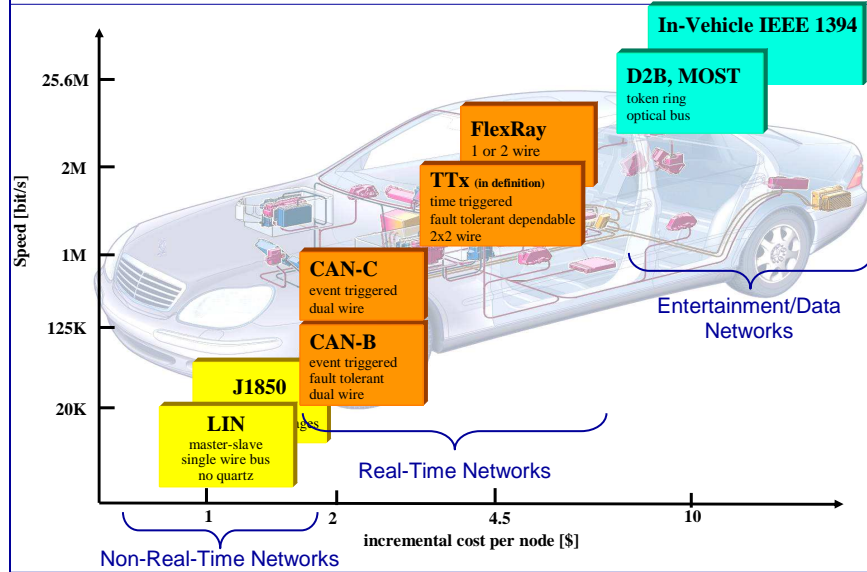
BAE 5030 - 353
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Costs and Speeds for Automotive Networks



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Comparison of FlexRay to other automotive protocols

| | LIN | CAN | FlexRay |
|-------------------|-------------|------------|---------------|
| Channels | Single | Single | Single / Dual |
| Time Triggered | No | No | Yes |
| Arbitration | Master | CSMA/CR | TDMA |
| Devices available | Yes | Yes | Yes |
| Speed | 20 Kbit/sec | 1 Mbit/sec | 10 Mbits/sec |

- Role of FlexRay in vehicle network systems
 - Enables
 - Higher speed systems
 - Better determinancy in systems
 - Complements existing network protocols

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FlexRay characteristics

- Physical Layer
 - Bus or star based topologies
 - Single or redundant dual channel
- Data Link Layer
 - TDMA
 - Both assigned time slot messages
 - and shared time slot messages
 - Definable message priorities
 - Error handling and error signalling
 - Deterministic message transport
 - Synchronized common time base
- Session Layer
 - Autonomous startup procedure
 - Wakeup service

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- [Temple/Motorola presentation – Protocol Overview](#)
- [Elend/Phillips presentation – Physical Layer Overview](#)



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