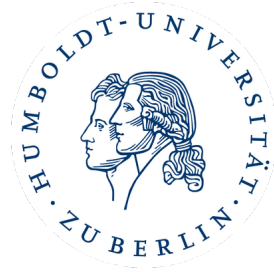

Bosch's CAN bus
Investigation of the standard

Meryem Can
Stephan Fahrenkrog-Petersen
Jakob Rüßler
Thomas Schlegel
Daniel Titz
Duc Anh Tran

July 19, 2016

Introduction and Basic Concepts

- Controller Area Network
- Serial communications protocol/bus system
- Supports distributed realtime control with a very high level of security [1]

PURPOSE AND CONTEXT

- Created by BOSCH
- Used automotive industry
- Automotive electronics, engine control units, sensors, anti-skid-systems
- High speed networks to low cost multiplex wiring

RELATED STANDARDS

- standardized after ISO 11898
- ISO 11898-2 (Highspeed-CAN) - related
- ISISO 11898-3 (Lowspeed-CAN)- related
- Not compitable with each other

HIGHER STANDARDS

-
-
-
-

Message Transfer and Validation

Coding and Error Handling – 1

Overview:

- Bit stuffing → control mechanism
- Distortions etc. → error handling to achieve error tolerance
- 5 different error types (Bit, Stuff, CRC, Form, ACK)

Coding and Error Handling – 2

- Message passing mechanism, no additional structure needed
- Errors broadcasted when detected
- Semantics important for correct transmission
- Drivers: reliability, error limitation
- Problem: new error types?

Fault Confinement

Bit Timing Requirements

CAN Improvements

Conclusion

References

Robert Bosch GmbH.
CAN Specification.
http://www.bosch-semiconductors.de/media/ubk_semiconductors/pdf_1/canliteratur/can2spec.pdf.
Last accessed: July 16, 2016.