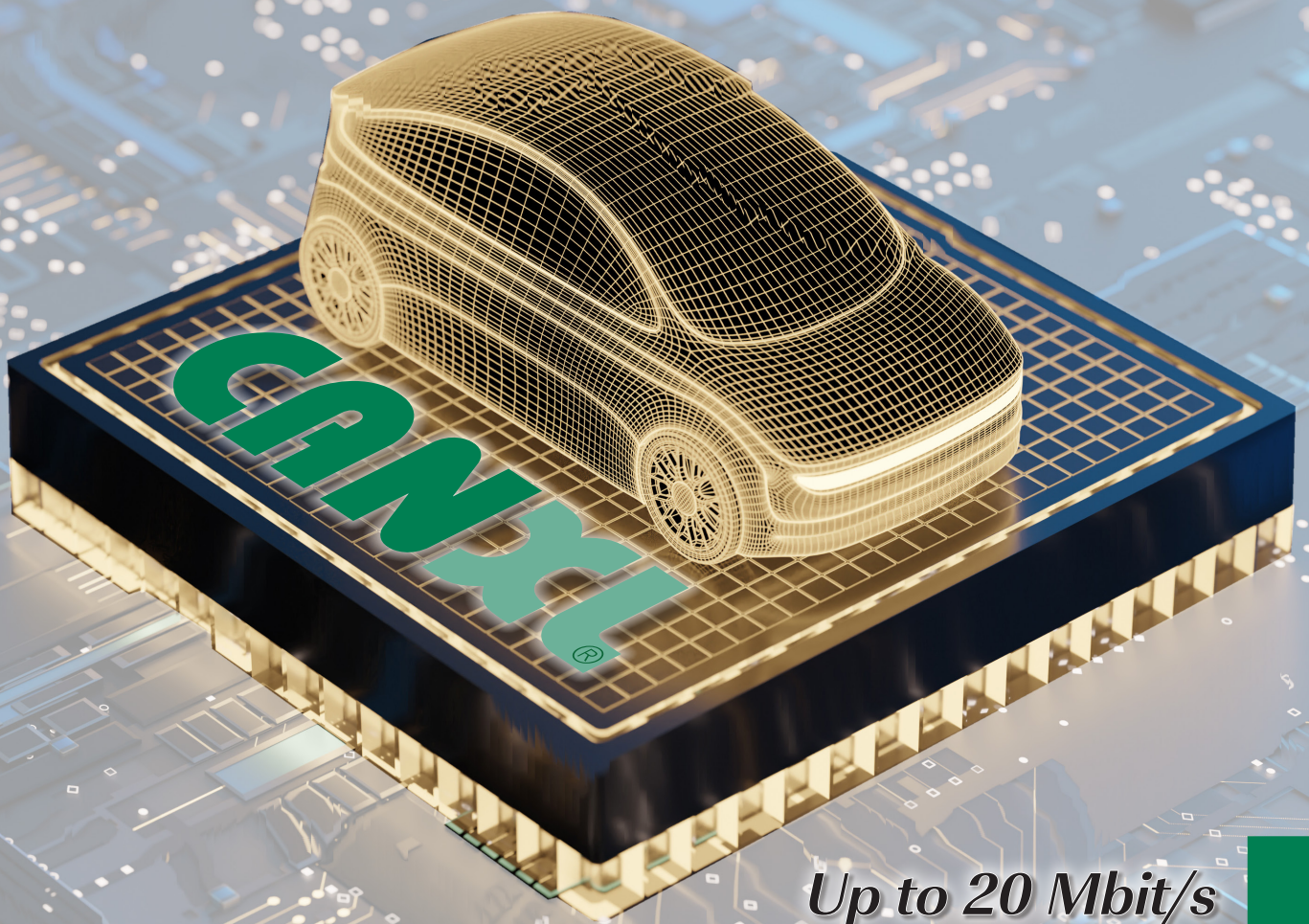


CAN XL ²⁰²⁴

The third CAN generation



Up to 20 Mbit/s

Up to 2048-byte data field

CANsec security at line-speed

Ethernet frames embedded in CAN XL frames

Supported by Autosar specifications

Bright future

CAN XL – Features and functions

Up to 20 Mbit/s

Originally, CAN XL has been developed for high-volume passenger cars to enable zonal network architectures. Those architectures allow the reduction of wiring harnesses, which saves weight. CAN XL is suitable to run several CAN CC and even CAN FD networks on one single physical network. This is supported by new protocol functions. Using CAN SIC XL transceivers, data bit rates up to 20 Mbit/s are possible.

CANsec and frame fragmentation

The optional CANsec security protocol is a building block to meet future cybersecurity requirements. The optional CAN XL frame fragmentation improves the real-time demands in control applications.

Robust and reliable

CAN XL communication is at least as robust and reliable as CAN CC and CAN FD. The probability of undetected errors is even lower, by means of using two CRCs in the frame. The error detection performance has been evaluated independently by two universities.

Key features

- ◆ Up to 20 Mbit/s data phase bit rate
- ◆ 1-byte to 2048-byte data field size
- ◆ CANsec security protocol at line-speed
- ◆ Support of virtual CAN networks
- ◆ 11-bit priority identifier intended for bus access
- ◆ 32-bit acceptance field intended for addressing
- ◆ Simultaneous support of multiple higher-layer protocols

CAN XL – Application fields and availability

Vehicles and non-vehicles

In automotive applications and heavy-duty commercial vehicles, CAN XL fills the gap between legacy CAN networks (CAN CC and CAN FD) and high-performance network solutions. In non-automotive applications, CAN XL provides sufficient payload capability to be used as backbone network and to support functional safety and cybersecurity.

Chips and tools

Different micro-controller families provide CAN XL protocol controllers. Several chipmakers announced CAN SIC (signal improvement capability) XL transceivers. These integrated circuits will be available for reasonable prices as for CAN FD. Some vendors already offer hardware and software tools including oscilloscopes.

Autosar and CiA

The two organizations cooperate in the development of specifications. The latest Autosar specifications support the new CAN XL features like longer payload as well as CAN CC, CAN FD, and Ethernet frame mapping.

CAN XL status

- ◆ ISO 11898-1 specifies data link layer protocol
- ◆ ISO 11898-2 specifies CAN SIC XL transceiver
- ◆ Conformance test plans under development
- ◆ IP available for ASIC/FPGA and MCU/SoC
- ◆ MCU “samples” with CAN XL available
- ◆ CiA website provides latest news

CAN classic (CAN CC), CAN with flexible data-rate (CAN FD)

Ready to use

Join now!

CiA fosters CAN XL

SIG CAN XL

In the CiA special interest group (SIG) CAN XL, CiA members develop and maintain the CAN XL ecosystem. This covers the data link and the physical layer, as well as higher-layer functions. Additionally, the SIG takes care of related conformance test plans.

MG CAN XL

In the CiA marketing group (MG) CAN XL, automakers, suppliers and semiconductor manufacturers develop, initiate, and coordinate joint marketing initiatives to pave CAN XL the road to future application fields.



CiA plugfests

CAN XL plugfests allow the verification of CAN XL features to increase the interoperability of CAN XL implementations.

Additionally, they are a good opportunity for social networking. The participants learn from each other and together they solve interoperability issues.



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