MICROCHIP

Automotive Network and Connectivity Solutions
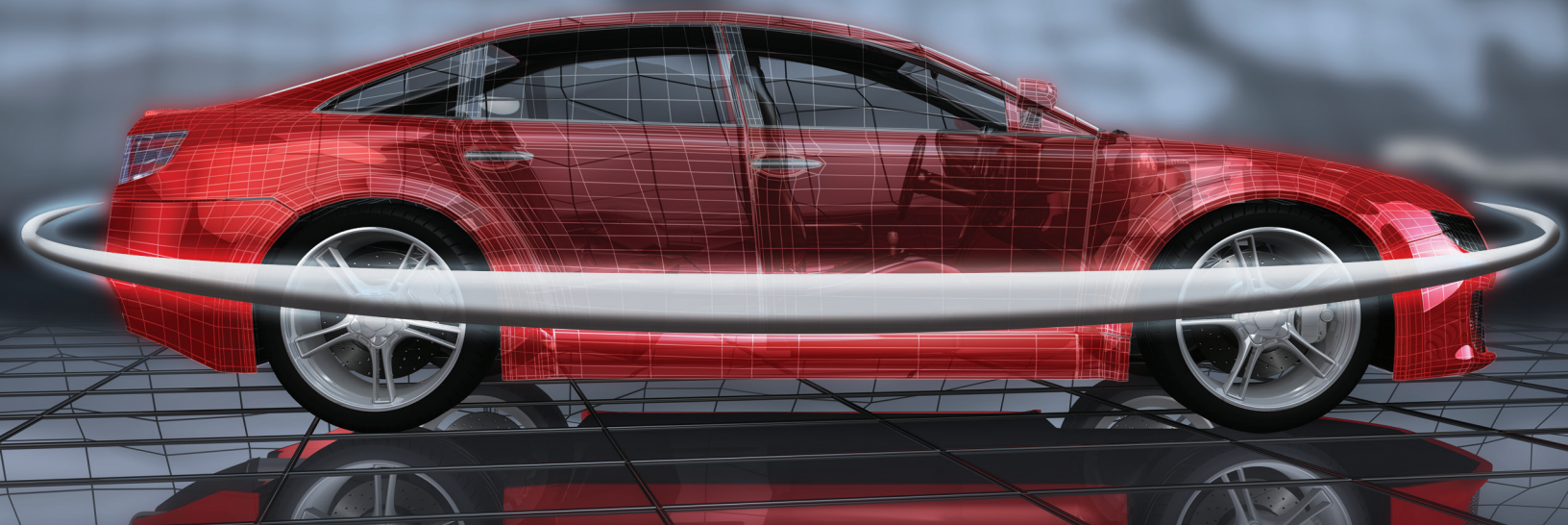Driving the Connected Vehicle

Ethernet lin
LOCAL INTERCONNECT NETWORK MOST CAN FD CERTIFIED USB
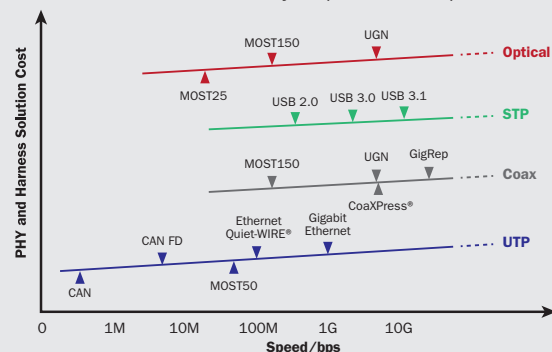
www.microchip.com/automotive

Microchip's Automotive Networking and Connectivity Solutions

Offering many years of experience in delivering embedded solutions to automotive customers around the world, Microchip is focused on being the expert and leading supplier of real-time automotive networking and connectivity solutions. We offer a broad and in-depth knowledge of a host of optical and electrical physical layer technologies that are proven in the automotive field. Our goal is to deliver high-value, high-quality products and services to continuously improve all aspects of connecting vehicles to the outside world.

Through recent acquisitions, Microchip now owns a broad portfolio of world-leading automotive networking solutions, including Media Oriented Systems Transport (MOST®) technology, Ethernet and USB products from SMSC; coaxial technology from Eqcologic; Ethernet products from Micrel; and most recently, CAN and LIN products from Atmel. All products are AEC-Q100 qualified, PPAP supported and have a track record of delivering high quality and reliability via Microchip's zero-PPM quality program. Microchip is also TS16949 certified.

Microchip develops, markets and supports components for real-time automotive networking technology, interconnected through optical and electrical physical layer options. You benefit from Microchip's broad and in-depth knowledge of many physical layer technolgies proven in the automotive field.
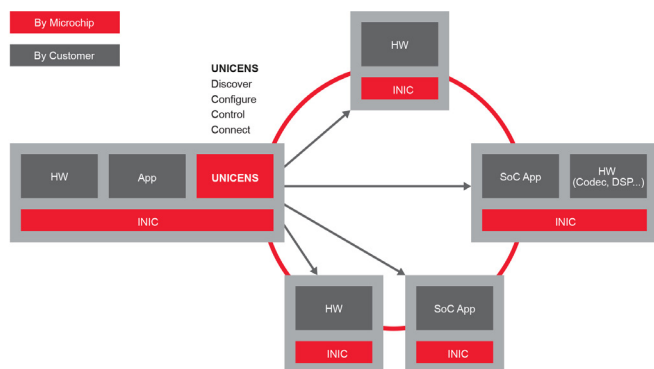
MOST Technology

As a leading provider of MOST technology, the de facto standard for high-bandwidth automotive multimedia networking for over 15 years, Microchip has shipped over 200 million MOST network interface ICs to provide excellent quality of service and seamless connectivity for audio/video streaming through a variety of multimedia interfaces. Microchip's MOST technology solutions address all aspects of your design challenges.

Unified Centralized Network Stack

The Unified Centralized Network Stack (UNICENS) is a centralized way to operate an in-vehicle infortainment network. It offers powerful capabilities with less complexity. Using UNICENS eliminates the need for an MCU and software management in so-called slim nodes, which results in cost savings and faster time to market.

Ethernet

Microchip is also a leader in providing solutions for automotive Ethernet, with more than 50 million ports shipped to date. While Ethernet is successfully being used in series production cars today, its exceptional capabilities will also allow you to develop leading-edge applications in the future.

- Energy efficient
  - Robust Energy Efficient Ethernet
  - Ultra low-power Ethernet PHY, EtherGREEN™ advanced power management, ultra deep sleep µA standby
  - Highly integrated, reduced BOM and small packages
- Deterministic
  - EtherSynch® technology
  - Low-latency transmission
  - AVB and Time Sensitive Networking
- Reliability
  - Quiet-WIRE® technology-enhanced EMC
  - LinkMD® diagnostics (Signal Quality Indicator)
  - Fault recovery

USB Consumer Device Connectivity

USB has become a ubiquitous interface to transfer data, charge and control the operation of portable consumer devices. As an active member in USB-IF standardization, Microchip is a leading supplier of USB components in consumer, industrial and automotive applications and has shipped more than 50 million USB hub solutions for use in the automotive market. Microchip's USB solutions support CarPlay, Android Auto and CarLife. The product portfolio includes solutions for hubs, card-readers, switches, battery charging BC 1.2 (DCP, CDP and DSP), Type-C™ charging support and power delivery.

LIN

Microchip's LIN products provide you a reliable and low-cost networking solution.
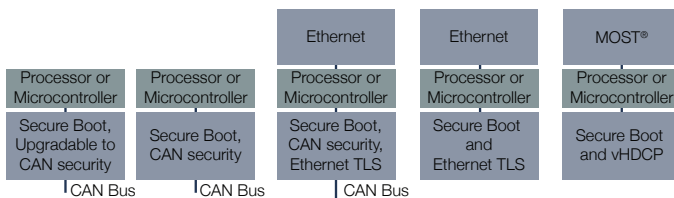
- High level of integration: embed a large number of functions into LIN devices, including LIN transceiver, voltage regulator, watchdog and microcontroller
- Broad portfolio: the broadest In-Vehicle Networking (IVN) product portfolio on the market with modular families at all integration levels
- Proven reputation: approval of all major car manufacturers
- Best-in-class EMI protection: the LIN IP serves as the foundation for all members of the LIN family, delivery excellent Electromagnetic Interference (EMI) and Electrostatic Discharge (ESD) protection

Automotive Security

With a rapidly increasing number of wired and wireless interfaces built into modern vehicles, cars have become vulnerable to local and remote in vehicle network attacks. Microchip has worked early on this topic and is offering a large and flexible portfolio of automotive security solutions for:

- Wireless entry key
- Fast to market ECU security upgrade
- Secure boot and secure firmware update
- CAN message authentication
- Content protection (DTCP, HDCP)
- Secure key storage, symmetric and asymmetric cryptography
- Key generation, IC provisioning, certificate chain and ecosystem management

CAN/CAN FD

Microchip's family of CAN transceivers offers many features including:

- Compliant with ISO11898-2, ISO11898-5 and SAEJ2284
- High Electromagnetic Compatibility (EMC) and Electrostatic Discharge (ESD) performance
- Ideal passive behavior to the CAN bus when the supply voltage is off
- Various operating modes and dedicated fail-safe features
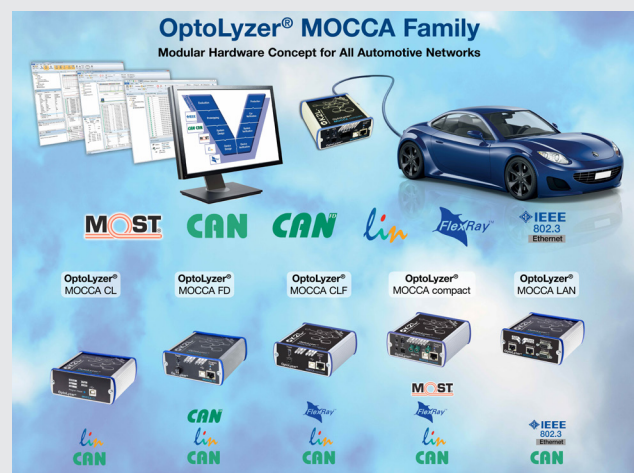
CAN Controllers

- Increase design flexibility
  - Enable CAN on FPGA or MCU
  - Add extra CAN interface to MCU
- MCP2515 CAN 2.0 external controller
- MCP25625 CAN 2.0 external controller with high-speed transceiver

Supporting the High-Speed CAN FD Standard

- Data rate up to 5 Mbps/8 Mbps
- Fully ISO 11898-2.-5, SAE J2284-compliant
- Supports 12V and 24V systems
- Low EME and high EMI
- Remote wake-up capability via CAN bus
- Transmit data (TxD) dominant time-out function
- CANH/CANL short-circuit and over-temperature protected
- ATA6560: silent mode (receive only)
- ATA6561: compatible to 3.3V and 5V control signals

Ethernet	Ethernet	MOST®
Processor or Microcontroller	Processor or Microcontroller	Processor or Microcontroller	Processor or Microcontroller	Processor or Microcontroller
Secure Boot, Upgradable to CAN security	Secure Boot, CAN security	Secure Boot, CAN security, Ethernet TLS	Secure Boot and Ethernet TLS	Secure Boot and vHDCP
CAN Bus	CAN Bus	CAN Bus		

Tools Support from K2L: Automotive Development and Networking Tools

OptoLyzer® MOCCA Family
Modular Hardware Concept for All Automotive Networks

www.k2l.tools

Support

Microchip is committed to supporting its customers in developing products faster and more efficiently. We maintain a worldwide network of field applications engineers and technical support ready to provide product and system assistance. For more information, please visit www.microchip.com:

- Technical Support: www.microchip.com/support
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- Knowledge base and peer help: www.microchip.com/forums
- Sales and Global Distribution: www.microchip.com/sales

Training

If additional training interests you, Microchip offers several resources including in-depth technical training and reference material, self-paced tutorials and significant online resources.

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- MASTERs Conferences: www.microchip.com/masters
- Developer Help Website: www.microchip.com/developerhelp
- Technical Training Centers: www.microchip.com/seminars

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