

MotionWise

communication

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The comprehensive Communication Middleware for the Software-Defined Vehicle

MotionWise Communication is the unified solution for in-vehicle and V2X communication for the automotive market by TTTech Auto.

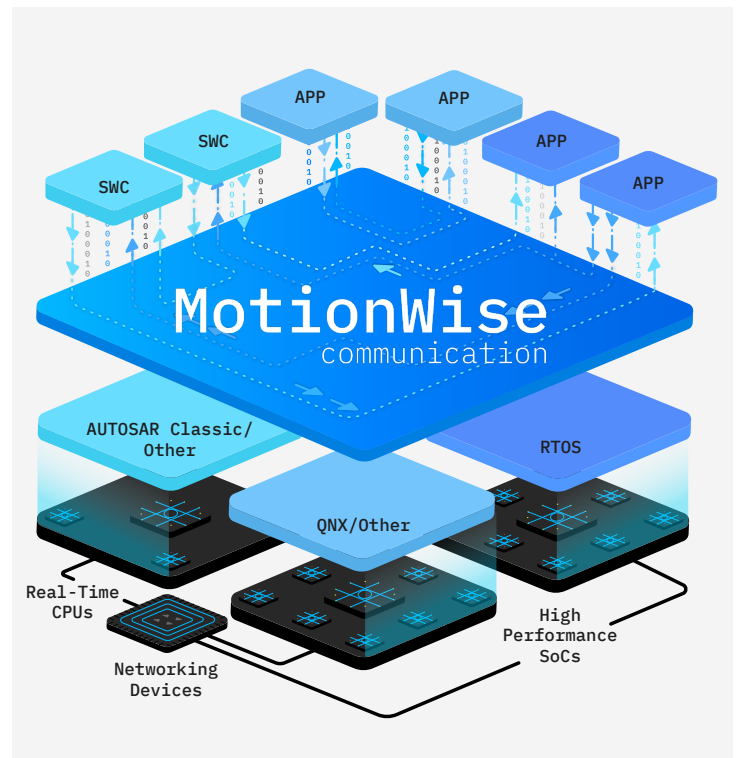
MotionWise Communication delivers SDV features with Freedom from Interference and Mixed Criticality safety properties at ASIL-D quality, compliant with ISO 26262 certification.

Targeting data-centric architectures and support for service-oriented architectures (SOA), for in-vehicle communication, MotionWise Communication builds upon ZettaScale's open core Eclipse Cyclone DDS, a proven, performant, interoperable, scalable and real-time capable implementation of OMG Data Distribution Service (DDS) and Eclipse Zenoh, a next generation pub/sub/query protocol with incredible high performance and scalability as well as exceptionally low resource usage.

MotionWise Communication extends these core technologies with automotive features to provide end-to-end communication properties and compatibility with AUTOSAR Classic RTE communication on Microcontrollers (MCUs).

MotionWise Communication Certified furthermore offers an ISO 26262 ASIL-D certified version of the in-vehicle stack.

Looking beyond the vehicle, developers at numerous automotive companies currently find it technically challenging to communicate and manage data in the cloud-to-microcontroller continuum. This is due to the diverse set of environments, requirements, and technical solutions. Thanks to the interoperability with the Zetta Platform, MotionWise Communication will make it possible to seamlessly manage and communicate data between the cloud and the vehicle.



FEATURES

Vehicle-Wide Communication

- Enables seamless connectivity from powerful HPCs to small microcontrollers, supporting data-centric, service-oriented, and signal communication paradigms.

Built on DDS, Extended for Automotive

- Implements an OMG DDS standards-based solution, fully compliant with DDS v1.4, IDL4 v4.2, and DDS-RTPS v2.5 specifications.
- Delivers a best-in-class developer experience with C, C++, and Python APIs.

Zenoh: An Optimized Protocol for Automotive Systems

- Leverages Zenoh's flexibility to optimize resource consumption and performance KPIs, while enabling key automotive features in both high-performance and resource-constrained environments.

Off-the-Shelf Integration with AUTOSAR Classic

- Optimized deployment on microcontrollers (MCUs) using Zenoh-Pico, seamlessly integrated with AUTOSAR Classic through automated tooling.

Fast Development Cycles and Smooth Transition to Production-Grade Deployment

- Development can start with minimal upfront configuration, while the transition to safety is straightforward thanks to automatically generated configuration.

Highest Standards of Automotive Safety and Security

- Delivers SDV features with Freedom from Interference and Mixed Criticality safety properties at ASIL D quality, compliant with ISO 26262 certification.
- Certified to ISO 21434, ensuring protection against cybersecurity threats in vehicle communication.

Improved Determinism and Real-Time Behavior

- Delivers vehicle-level QoS with full Time-Sensitive Networking (TSN) support, providing end-to-end timing functionality and complemented by integrated TSN tooling.

DELIVERY PACKAGE

In-Vehicle MPU Stack

- MotionWise Communication DDS stack binaries for Linux, QNX and Android on ARM. (Source code delivery option available)
- IDL compilers for C, C++ and Python
- User Manual for Application Developers and System Integrators
- Zenoh transport plugin for DDS stack

In-Vehicle MCU Stack

- Complex Device Driver binaries incl. gateway and gateway API for mapping between RTE and DDS communication. (Source code delivery option available)
- Generators for gateway and model integration
- Zenoh Pico binaries. (Source code delivery option available)
- Integration Manual for AUTOSAR Classic

DDS + Zenoh Tooling

- ZettaC2
- ZettaC2 User Manual