



Premium
Partner

Partner Use Case

Fully integrated automotive-grade safety solution for automated driving

TTTechAuto

Second generation of fully integrated automotive-grade safety solution for automated driving based on Infineon's AURIX™ TC397XM microcontroller and TTTech Auto's MotionWise safety software platform.



Products

AURIX™ – TC397XM



Use case

Infineon and TTTech Auto have released the second generation of their fully integrated automotive-grade safety solution for automated driving use cases. It is based on Infineon's AURIX™ TC397XM microcontroller and TTTech Auto's MotionWise safety software platform. It delivers full support and scalability for level 2+ solutions up to the advanced levels 4 and 5 of automated driving. It helps customers achieving faster time-to-market, improved software integration and validation thus reducing overall cost.

The first generation of Infineon's AURIX™ microcontroller and TTTech Auto's safety software platform MotionWise are an integral part of zFAS, Audi's centerpiece for piloted driving, that premiered in the Audi A8. TTTech Auto optimized its series-proven product MotionWise for the new and even more powerful second generation of Infineon's AURIX™ microcontroller called TC397XM. The MotionWise safety software platform and underlying hardware are powerful to match the requirements of up to level 5 automated driving functions.

Residing on an ASIL-D safety hardware, the second generation of the solution is optimized for safety-critical applications. It is offering an increased ISO 26262 ASIL-D computing performance capability, a richer set of peripherals and advanced security measures. MotionWise enables fail-operational performance, freedom from interference and safety by design with highest ASIL levels for the whole platform. Each application hosted by MotionWise will run encapsulated from its peers, resulting in a safe environment where applications with different safety and real-time requirements can coexist and interact. This allows for seamless integration of applications.

Implementation

Infineon and TTTech Auto automotive-grade safety solution for automated driving has been a key-component in more than 25 car models with production start since 2017. The first generation of this solution creates valuable synergies for series production. Several customers have already evaluated the second generation of this software/hardware combination and decided to use it in their ADAS series production programs with start of production in 2019.

Benefits for the user

- › full support and scalability for level 2+ solutions up to the advanced levels 4 and 5 of automated driving
- › achieving faster time-to-market, improved software integration and validation thus reducing overall cost
- › series-proven
- › enabling fail-operational performance, freedom from interference and safety by design with highest ASIL levels for the whole platform by MotionWise safety software platform
- › seamless integration of applications (each application hosted by MotionWise runs encapsulated from its peers, resulting in a safe environment where applications with different safety and real-time requirements can coexist and interact)

Solution

TTTechAuto

MotionWise is a series-proven, fully integrated, automotive-grade safety software platform suitable for automated driving use cases level 2 to 5, advanced driver assistance systems, chassis and electric or hybrid drivetrain control systems, infotainment and beyond. It acts as the safety mastermind within a vehicle architecture, handling the high complexity of electrical and electronic systems (E/E systems).

With its platform-centric approach, MotionWise helps organizations move away from slow, costly and complex 'closed loop' systems with inefficient 'self-integrated' practices. As a result, this speeds up the time-to-market for new automated driving functionality. It is designed to ensure the seamless shift towards a highly modular, service-oriented architecture. Using the MotionWise platform, OEMs can integrate, test, validate and schedule any number of components and applications, helping them to reduce development, testing and validation complexity and to ensure that essential safety and mission-criticality requirements can be met in both single and multi-SoC environments.

Main benefits of the Infineon product

Real-time orchestration

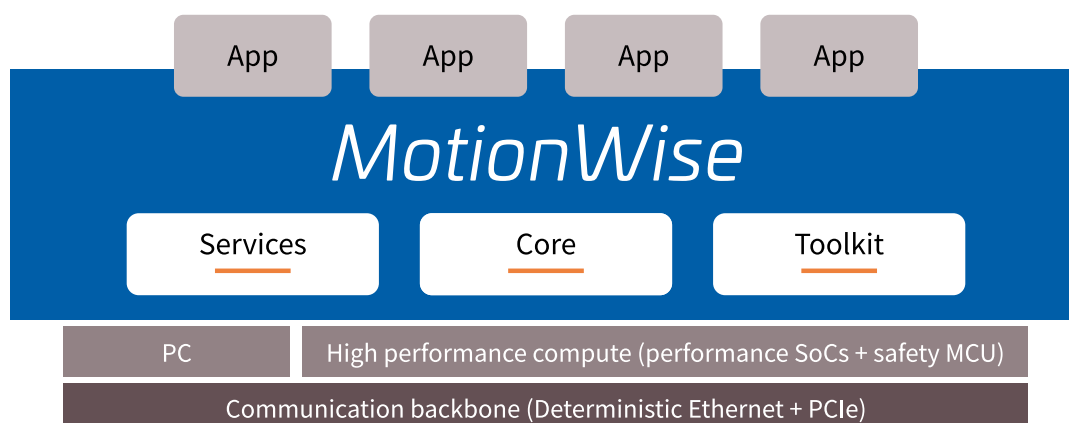
The MotionWise time-aware platform architecture uses innovative global scheduling technologies and algorithms, together with design tools to support smooth application and communications network traffic scheduling in order to fulfil E2E real-time guarantees. Built on deterministic technologies, MotionWise delivers always available services with guaranteed latency across a highly heterogeneous environment – regardless of the system load.

Open integration platform

MotionWise provides a future-ready software architecture that abstracts hardware and operating systems. This provides the modularity, portability and standardized interfaces required to deploy, test, validate and centrally manage all of the software components needed for any level of automation, resulting in versatility and great flexibility of the solution which is fit-for-purpose.

Safety by design

Built on fail-operational principles, MotionWise delivers constant availability and the highest levels of performance for mission-critical functions in line with ASIL -D safety requirements according to the ISO26262 standard. By ensuring freedom from interference for all safety-critical functions with encapsulating applications from their peers, a safe environment is created, where applications with different safety and real-time requirements coexist and interact.



Partner



TTTech Auto AG

TTTech Auto provides solutions for the challenges of future vehicle generations. The company specializes in safe software and hardware platforms for automated driving and beyond, applicable in series production programs. With our leading technology solutions, we ensure safety and electronic robustness for a more automated world.

TTTech Auto operates under the umbrella of the TTTech Group, a technology leader in robust networking and safety controls, with cross-industry experience from more than 20 years of operation. TTTech Auto's MotionWise is a vital part of the Audi A8 computer architecture, the first series-production car capable of automated driving level 3.

The TTTech Group is headquartered in Vienna, Austria and present in several locations in Europe, the United States and Asia.

Partner contribution to the Infineon Ecosystem

TTTech Auto designs and implements safety-critical and future-proof platform-centric solutions for the automotive industry. TTTech Auto supports OEMs and Tier 1 suppliers in maximizing their opportunities and streamlining their journey to highly automated driving by adopting a platform-centric approach, which helps them accelerate time-to-market for new functionality, guarantee safety compliance, and allow software investments to be re-used for highly automated driving projects in the future, as well as supporting software re-use across multiple SoCs, different vehicle lines and models.

The flagship product of TTTech Auto is MotionWise, a series-proven software platform for automated driving, providing unique integration and real-time orchestration of applications, global scheduling logic and tools. Using the platform, OEMs and Tier 1 suppliers can reduce their development, testing and validation complexity and ensure that essential safety and mission-criticality requirements can be met in both single or multi-SoC environments at reduced costs.

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