

## Cooperation to protect central gateway

Infineon and Argus have demonstrated an integrated cyber security solution based on an Infineon's Aurix micro-controller and the Intrusion Detection and Prevention System and remote cloud platform from Argus.



(Photo: Aurix)

Real-time cyber security is key for the connected and automated car. As cyber-attacks on vehicles should be mitigated in real-time, cyber security solutions must recognize malicious messages and prevent their propagation over the in-vehicle network. As cyber threats are dynamic in nature, cyber security solutions need to be updated over the air in order to help vehicle fleets stay immune to the latest threats and attack methods.

At the VDI Kongress, which took place October 19 to 20 in Baden-Baden (Germany), Infineon Technologies and Argus demonstrated an integrated cyber security solution. It is based on an Aurix multicore micro-controller from Infineon combined with the Intrusion Detection and Prevention System (IDPS) and remote cloud platform from Argus. At the heart of a vehicle's central gateway, the cyber security solution protects the vehicle's internal network from remote cyber-attacks.

The central gateway is crucial in the automotive security architecture. It interconnects all electronic control units (ECU) of in-vehicle domains, such as those used in the powertrain, driver assistance, chassis, as well as body and convenience control. The central gateway routes and controls the complete data communication between the ECUs. In addition, it is the central access point for software updates over the air (Sota) and for diagnostics processes and maintenance updates via the on-board diagnostics (OBD) port.

### Integrated cyber security solution with Aurix and IDPS

The Aurix micro-controllers will be a key element in the vehicle's central gateway. They control processes and handle monitoring and security tasks. In safety-related systems, the micro-controllers support security protocols as well as the required security functions in hardware. Their built-in hardware security module (HSM) protects in-vehicle software and data communication supporting high security levels. These include security classifications up to Evita "high" that is used to protect critical vehicle functions against a variety of attack scenarios; via direct cable access to the car network and via radio interface. Thus, Aurix micro-controllers provide protection against hackers trying to infiltrate the on-board systems. They offer up to six cores and scalability in memory in combination with a feature set supporting latest connectivity, such as up to 12 CAN FD channels, eMMC interface, and Ethernet functionality.

"With more connectivity embedded into a vehicle, the protection of critical system functions from cyber threats is paramount," said Thomas Boehm, Senior Director of Chassis and ADAS Micro-controllers at Infineon. "The team-up of Aurix with Argus IDPS provides a major building block of that protection enabling automotive system suppliers to benefit from an enhanced cyber security solution."

Argus developed its Intrusion Detection and Prevention System (IDPS) to specifically detect anomalous messages and prevent their propagation over the in-vehicle network in real-time. As a high-performance, low latency, and small footprint system, the IDPS uses context-aware heuristic and learning algorithms that enable optimal detection rate as a stand-alone solution. Combined with Argus Lifespan Protection, Argus' remote cloud platform, it provides car manufacturers with situational awareness to their fleets' cyber health via a cloud-based intuitive dashboard as well as with the means to analyze attacks and take preventive action. The IDPS supports different communication protocols, operating systems, and deployment options.

"Joining forces with Infineon is a natural next-step in ensuring that today's connected cars and the vehicles of the future are protected against cyber threats", said Yoni Heilbronn, Vice President of Marketing at Argus Cyber Security. "Cyber security needs to be integrated into the entire design and manufacturing processes of vehicles. The Argus IDPS constitutes one significant protection layer out of our multi-layered solution suites for the automotive industry."

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