

# Automotive Semi-Conductor Trend & Challenges

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## Abstract

The automotive electronics has been introduced with multiple waves over the time: powertrain, safety & vehicle dynamic, body & convenience, telematics. The future is already knocking at the door and revolutionary systems are currently developed: X-by-wire, E-safety, Hybrid vehicle. The increasing requirements for fuel economy, safety, emission reduction, and onboard diagnosis push the automotive industry for more innovative solutions with a rapid increase of complexity. The presentation will highlight the motivation to introduce high performance electronics in the car.

At the early time of electronic, ECUs (electronic control units) were seen as been the system, with the birth of networking the complete car was the system to be controlled, today with modern communication & services the car is just a node in the traffic, this last one is now the system to be considered. The innovation for the individual transportation is at 90% enabled by electronic. The development of such system shows three main challenges: dependable communication, dependable computation and dependable power.

The modern high-end cars are running more than 80 ECUs, the communication bandwidth and message determinism require the development of new busses such as Flexray. The increasing power demand is pushing for a different voltage class. The cost pressure and the time to market are forcing the automotive industry to re-invent processes, development cycle and to introduce standards.

This panel discussion will demonstrate the key elements to provide a powerful, scalable and configurable control solution that offer a migration pass to evolution and even revolution of automotive electronics.