ECSEL JU

Auto Drive

AutoDrive

Advancing fail-aware, fail-safe, and fail-operational electronic components, systems, and architectures for highly and fully automated driving to make future mobility safer, more efficient, affordable, and end-user acceptable

Objectives

AutoDrive will provide: fail-aware, fail-safe, and fail-operational integrated electronic components, Electrical/Electronic architectures as well as (deeply) embedded software systems for highly and fully automated driving to make future mobility safer, more efficient, affordable, and end-user acceptable. Advancing towards fail-operational systems will require increased reliability and availability of components, new redundancy schemes as well as architectures, and methodologies to appropriately manage and balance complexity, cost, robustness, and flexibility.

The AutoDrive project will advance the current level of safety and reliability by considerably driving forward fail-operational technologies and by making use of safety and security concepts from the aviation domain.
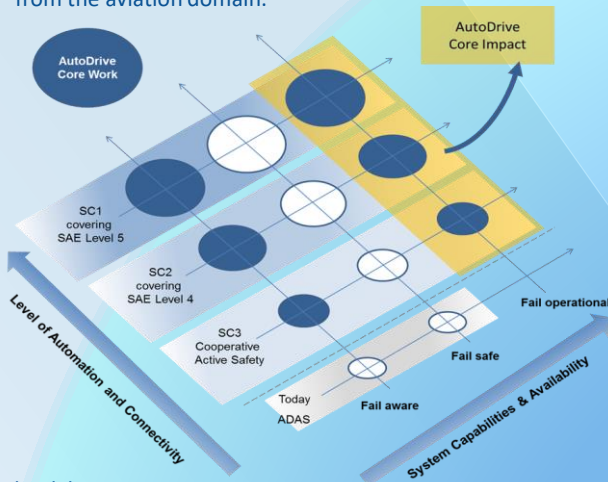
Auto Drive

Project Coordinator:
Reiner John
INFINEON TECHNOLOGIES AG

Project Dissemination Manager:
Gintare Marine
METIS BALTIC

Project website:
www.autodrive-project.eu

Project Twitter:
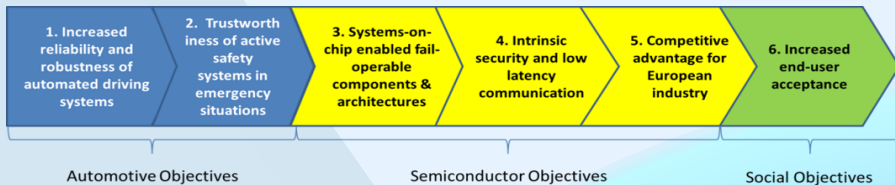@ECSEL_AutoDrive

Acknowledgment

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Relevance and Impact

Automated driving and connected active safety and advances ADAS-Systems based on fail-aware sensor systems, fail-operational powertrains and control systems and functional integrated actuators.

1. Increased reliability and robustness of automated driving systems	2. Trustworthiness of active safety systems in emergency situations	3. Systems-on-chip enabled fail-operable components & architectures	4. Intrinsic security and low latency communication	5. Competitive advantage for European industry	6. Increased end-user acceptance

Automotive Objectives	Semiconductor Objectives	Social Objectives

AutoDrive with 10 key impacts as technology driver for EU industries and society:

- **Adds** novel technology properties for **fail-operational systems** with **high robustness and availability** based on **novel semiconductors** for **functional integrated actuators**, **fail-aware sensor-systems** and **fail-operational control systems** at **reasonable costs** which are required but currently missing;
- **Fosters the market introduction** of this new and for Europe's industry very important technology of **automated systems**;
- **Enables** Europe to gather forces in order to **take advantage of business and societal opportunities** and to **maintain European leadership** regarding trustworthy automated driving;
- **Strengthens European leadership in electronics and smart embedded computer** systems, but also strengthen Europe's role as a frontrunner for innovation and engineering quality in the automotive and aviation;
- **Covers** with the very strong consortium of 60 partner the whole automotive, aviation and semiconductor value chain based on roughly 67 Mio€ budget which give the critical mass;
- **Allows** Europe to advance to global leadership for the pivotal industry automotive, aviation, ECS and semiconductors;
- **Drives the standardization** for fail-operational and redundancy levels, which are not yet defined;
- **Involves** for the first time in a research project **certification bodies** (EASA, Luftfahrtbundesamt) to **facilitate the introduction of technologies** and at the same time **insurance companies** to cover the unavoidable residual risk to get the license to drive the automated cars on public roads. Europe's largest insurance company will join the project during the GA process.