



Case Study

VERIFICATION OF FUNCTIONAL SAFETY MECHANISM FOR AUTOMOTIVE ASIC

Executive Summary

The client, an American consumer electronics company, is a leading provider of MEMS sensor chips for various consumer electronics such as wearables, smart homes, industrial, and automotive. The client focuses on market segments such as automotive, industrial equipment and energy, and information and communications technology, targets sensors and actuators, energy units, and next-generation electronic components as key product areas, and works towards innovation in the Internet of Things. The motion sensor system was based on gyro and accelerometer sensors, SPI, OTP, and multilayer AHB interconnect.

The client was looking for a partner who has strong experience in verification, especially in soc sensor verification. eInfochips took responsibility for functional safety mechanism verification and power verification of different features and interfaces of the SoC.



Motion sensor SoC targeted for Automobile market

99%

Achieved above 99% accuracy



Chips supplies Gyro, Accelerometer data to Host via SPI interface



Verification of motion sensor SoC and IP for Automobile



Gyro & Accelerometer Sensors, SPI, OTP, Multilayer AHB Interconnect technology based



Client

The US-based client is an industry-leading consumer electronics company. They are the provider of motion tracking sensor chips that function as gyroscopes for consumer electronic devices such as smartphones, tablets, wearables, gaming devices, optical image stabilization systems, and remote controls for smart TVs.



Challenge

The client needed a technology partner with expertise in silicon verification and prior experience in hardware verification and description languages such as SystemVerilog and Verilog.



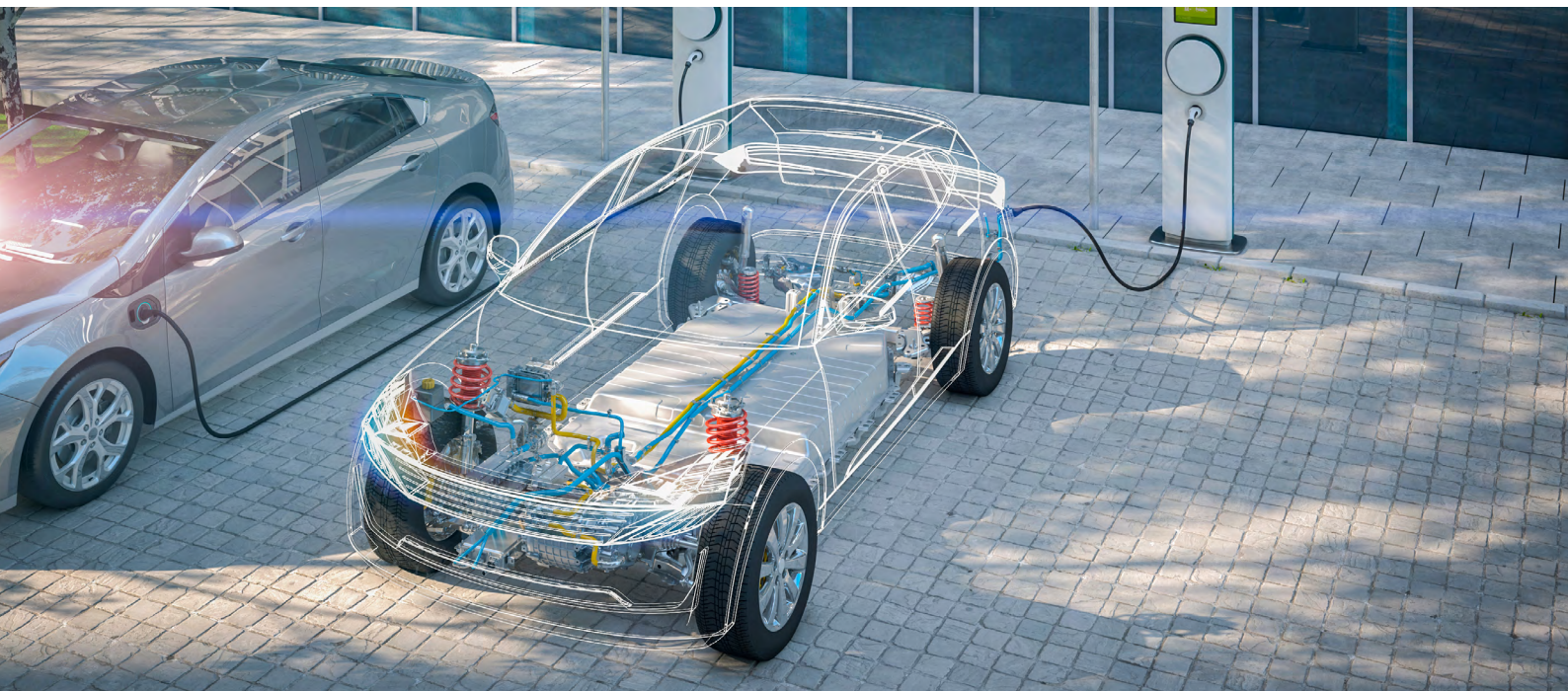
Solution

- Digital Fault Safety Verification, along with Functional Verification of IPs and System
- Functional Safety Model Development & Integration across Digital Safety Mechanisms @ IP & System Level
- Fault Safety Controller Verification at IP & System Level; Gate Level Simulation
- Power Sequence Bring-up with Bias IPs SPICE + PADS SPICE + Digital RTL and Digital Gate (GLS)
- SPI testing with PADS SPICE + Digital RTL & Digital Gate (GLS)
- Power Mode testing
- Soft reset feature testing
- DFT Scan pattern test (GLS) with PADS SPICE
- Scan Mode Entry test with PADS SPICE + Digital RTL
- Test mode testing



Benefits

Leveraging eInfochips' strong silicon engineering expertise, we successfully helped the client in verification of motion sensor SoC and IP for Automobile and successfully able to achieve above 99% accuracy.



About eInfochips

eInfochips, an Arrow Electronics company, is a leading provider of digital transformation and product engineering services. eInfochips accelerates time to market for its customers with its expertise in the areas of IoT, AI/ML, security, sensors, wireless, cloud, and power. eInfochips has been recognized as a leader in Engineering R&D services by many top analysts and industry bodies, including Gartner, Zinnov, ISG, IDC, Nasscom and others.

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