FS25 High-performance System Basis Chip (SBC) for zonal controllers

Designed to support NXP's S32K5 and S32J devices

Overview

The software-defined vehicle (SDV) is transforming automotive architectures by enabling efficient power and data distribution within the vehicle. A key component of this architecture is the zonal controller—a layer positioned between the central compute unit and the end nodes. It is responsible for connecting a large number of actuators and sensors to the central ECU.

Power management plays a critical role in addressing the challenges faced by zonal controllers, such as boot-up time, low power operation, functional safety and predictive maintenance. NXP's power management solutions are designed to optimize both processor and system performance.

The new FS25 System Basis Chip (SBC) family supports zonal controller design by offering a differentiated value proposition and innovative features, while also optimizing the bill of materials (BOM). It contributes significantly to energy management trends and provides robust protection, predictability and fault condition management.

The FS25 SBC family is tailored to power the S32K5 family, delivering high value and design flexibility. It is compatible with multiple architectural concepts and scalable use cases. Additionally, this power management solution can be extended to support the S32J device.

To accelerate development cycles, the solution includes power management software drivers that streamline integration and implementation.

Features

- 1 single PMIC powering MCU and networking (ETH + CAN)
- "Instant-on" performance
- Low power strategies for energy saving
- Input battery switch for energy management
- Safety concept with proven HW architecture fit for ASIL B/D
- Independent power supply for the MCU and connectivity
- Multiple wake up features
- Predictive maintenance and mission profile definition

Target applications

- Zonal controller ECU
- Cross-domain controller ECU
- Zonal IO aggregator ECU (Instrument Panel IO, Console IO, Headliner IO, Drive/Passenger Door IO)
- Body control modules