SOLUTION BRIEF

Modular zone controller design platform for automotive

Accelerate the transition to software-defined vehicles (SDVs) with a robust, scalable, and production-ready design platform

KEY BENEFITS

- Verified hardware platform ready for application development
- Building blocks for all relevant zone controller functions
- Best-in-class automotive grade components and electronic control unit integration
- Designed for manufacturing excellence across a broad range of factors to custom specifications
- Pre-validated to optimize costs and time to market

Consumer demand for more intelligent vehicles and the physical limitations of legacy electrical/electronic (E/E) architectures are driving a rapid transition to software-defined vehicles (SDVs). At the heart of this shift are zonal E/E architectures, where centralized computing utilizes zone controllers that act as intelligent hubs for power distribution, data routing, and load control. To excel at SDVs, automakers must manage complex systems where each zone controller can support hundreds of connected and powered peripherals. The Flex modular zone controller design platform is a game-changing solution for flexible, scalable implementation.

The optimal zone controller solution

In the rapidly evolving SDV market, variability, technical complexity, and long development timelines can hinder innovation and agility. The Flex modular zone controller design platform, featuring a customizable microcontroller unit (MCU) architecture and common hardware building blocks, streamlines implementation, accelerates time to market, and scales across vehicle models for significant cost savings and competitive advantage.

A powerful design platform for SDVs

An innovative approach to zone controller development, the Flex design platform simplifies a range of functions through a standardized hardware architecture with customizable building blocks that feature:

- Power distribution and management
- Sensor data aggregation, processing and analysis
- Actuation and control of various vehicle systems
- Communication with central computing, and other zone controllers or ECUs
- Diagnostic and fault detection capabilities

Features and capabilities

BUILDING BLOCK CONFIGURATION	Power and e-fuses	63 ECUs and actors
	Communication	49 busses*
	General-purpose IO	48 zone-typical, GPIO
POWER DISTRIBUTION CAPABILITY	Continuous current convection	85 amp
	Peak current capability	185 amp
	Sum of all current distribution	688 amp

*Can, Lin, Flexray, 10Base-T1s, 100M..1G Base-T1, SENT, PSI5, DSI3

Accelerate time to market with a development kit

Flex, Infineon, and Vector have partnered to deliver a zone controller development kit that enables rapid implementation in SDVs. Designed and manufactured by Flex using Infineon MCUs and components alongside embedded software and development tooling from Vector, the development kit empowers automakers to design zonal architectures with greater efficiency using a production-ready, automotive-grade design, advanced software testing and integration, and chipsets optimized for cost and performance.

- Quickly customize, test, and prototype zone controller configurations
- Rapidly adapt to automaker- and region-specific requirements
- Reduce engineering timelines and complexity
- Accelerate validation and development cycles
- Efficiently scale across vehicles, platforms, or entire lineups

ABOUT FLEX

Flex is at the forefront of automotive innovation, offering agile manufacturing services for individual projects as well as joint and full product development for tailored, next-generation mobility solutions.

The Flex advantage

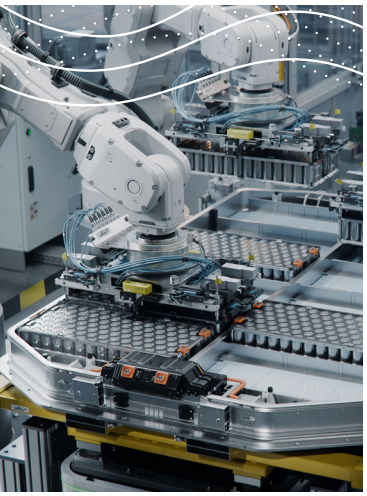
The Flex modular zone controller design platform offers a robust, scalable, and production-ready solution that empowers automakers to embrace the SDV revolution with confidence.

- **Scalable approach** – The zone controller can be configured with any combination of building blocks for maximum flexibility and integration across multiple vehicle platforms
- **System-wide benefits** – Simplifies wiring and enables key SDV benefits like over-the-air (OTA) updates, feature deployment via software, and new revenue opportunities
- **Development kit available** – Supports early prototyping and software development for rapid implementation of zone controllers across vehicle makes and models

Pave the way for next-generation mobility with the Flex modular zone controller design platform.

Learn more

Flex Automotive | Order a development kit



For more information, visit **flex.com/connect**

Flex (Reg. No. 199002645H) is the manufacturing partner of choice that helps a diverse customer base design and build products that improve the world. Through the collective strength of a global workforce across 30 countries and responsible, sustainable operations, Flex delivers technology innovation, supply chain, and manufacturing solutions to various industries and end markets.

©2025 FLEX LTD. All rights reserved. Flextronics International, LTD.