

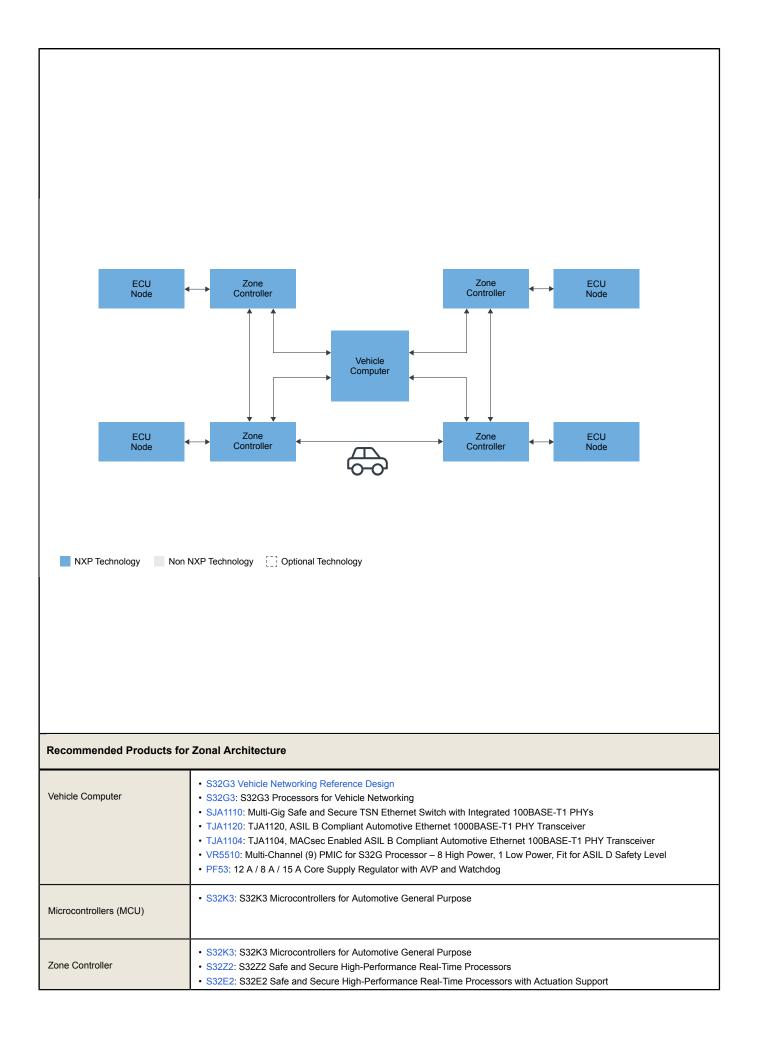
# **Automotive Zone Controller**

Last Updated: May 13, 2024

Zonal architectures enable efficient power and data distribution around the vehicle, while improving wire cost, weight, and manufacturing. A key component in this architecture is the zone controller, it is responsible for connecting the high number of actuators and sensors to a central compute ECU and, depending on application distribution, can have a significant role in strategy within a zone.

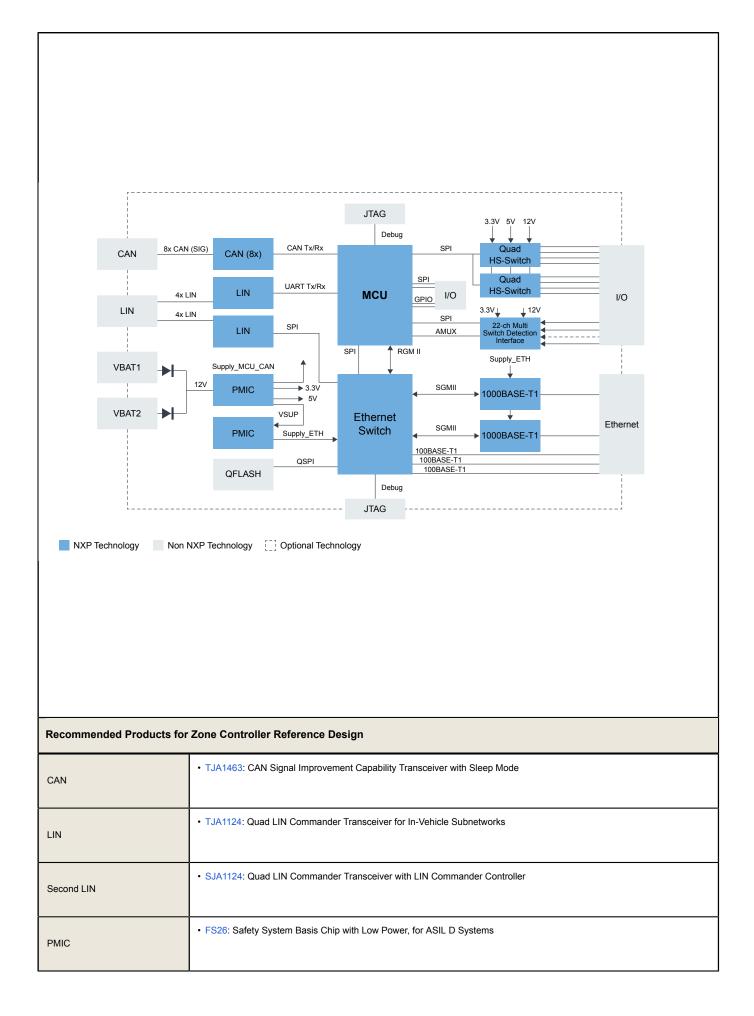
OEMs are looking for more scalable and cost-efficient solutions to evolve the E/E architecture and meet future requirements for connected, electric, self-driving vehicles, as the number of services/ECUs within the vehicle grows. This evolution can come via logical distribution of functions onto less diverse software/hardware platforms, and through physical changes to a zonal-based network.

Zonal Architecture Block Diagram



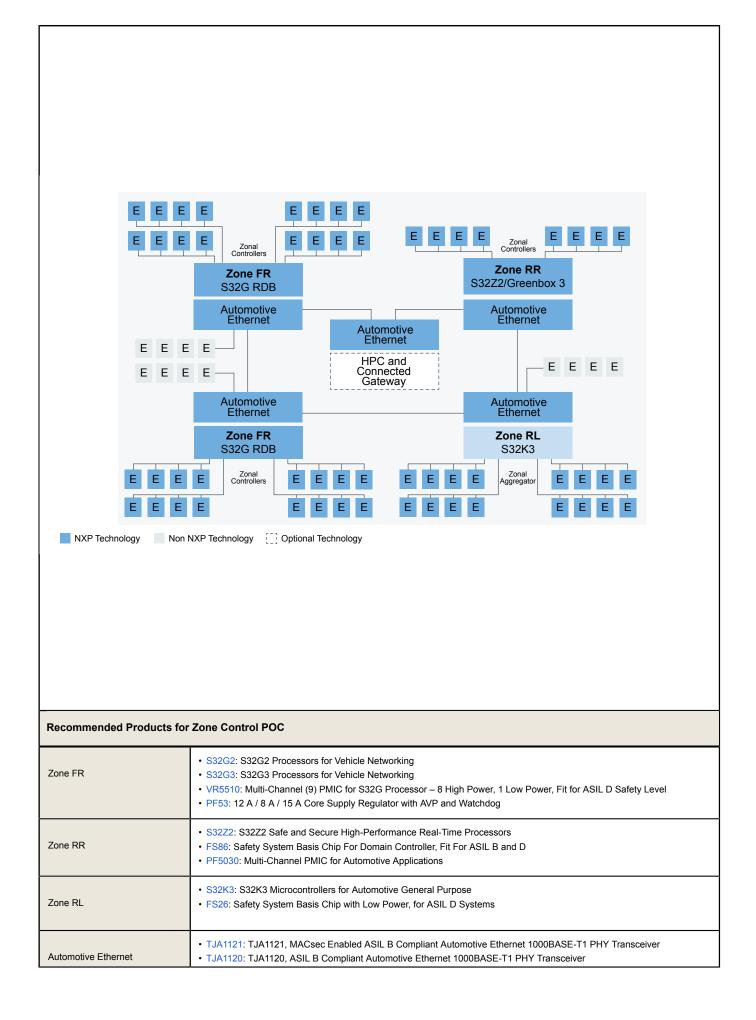
	<ul> <li>\$32G3: \$32G3 Processors for Vehicle Networking</li> <li>\$32G2: \$32G2 Processors for Vehicle Networking</li> <li>\$JA1110: Multi-Gig Safe and Secure TSN Ethernet Switch with Integrated 100BASE-T1 PHYs</li> <li>TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-T1 PHY Transceiver</li> <li>TJA1104: TJA1104, MACsec Enabled ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver</li> <li>\$JA1124: Quad LIN Commander Transceiver with LIN Commander Controller</li> <li>TJA1463: CAN Signal Improvement Capability Transceiver with Sleep Mode</li> <li>VR5510: Multi-Channel (9) PMIC for \$32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level</li> <li>PF53: 12 A / 8 A / 15 A Core Supply Regulator with AVP and Watchdog</li> <li>FS26: Safety System Basis Chip with Low Power, for ASIL D Systems</li> <li>PF5030: Multi-Channel PMIC for Automotive Applications</li> </ul>
	FIS050. Multi-Chamiler Filler for Additionate Applications     FS86: Safety System Basis Chip For Domain Controller, Fit For ASIL B and D
ECU Node	<ul> <li>S32M2: S32M2 Integrated Solution for 12V Motor Control</li> <li>S32K3: S32K3 Microcontrollers for Automotive General Purpose</li> <li>S32K1: S32K1 Microcontrollers for Automotive General Purpose</li> <li>S32K39-37: S32K39/37/36 Microcontrollers for Electrification Applications</li> <li>TJA1463: CAN Signal Improvement Capability Transceiver with Sleep Mode</li> <li>TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver</li> <li>TJA1104: TJA1104, MACsec Enabled ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver</li> <li>FS24: Safety Mini CAN FD SBC for Automotive Applications Fit for ASIL-B</li> <li>FS23: Safety System Basis Chip (SBC) Family with Power Management, CAN and LIN</li> <li>FS26: Safety System Basis Chip with Low Power, for ASIL D Systems</li> </ul>

## Zone Controller Reference Design Block Diagram



МСИ	S32K3: S32K3 Microcontrollers for Automotive General Purpose					
Quad HS-Switch	+ XS2410: Quad 100 m $\Omega$ / Dual 50 m $\Omega,$ 3.0 V to 60 V High-Side Switch					
22Ch MSDI	MC33978: 22 I/O MSDI Programmable Current Analog Mux					
1Giga Ethernet Phy	TJA1121: TJA1121, MACsec Enabled ASIL B Compliant Automotive Ethernet 1000BASE-T1 PHY Transceiver					
Ethernet Switch	SJA1110: Multi-Gig Safe and Secure TSN Ethernet Switch with Integrated 100BASE-T1 PHYs					

## Zone Control POC Block Diagram



#### View our complete solution for Automotive Zone Controller.

Note: The information on this document is subject to change without notice.

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