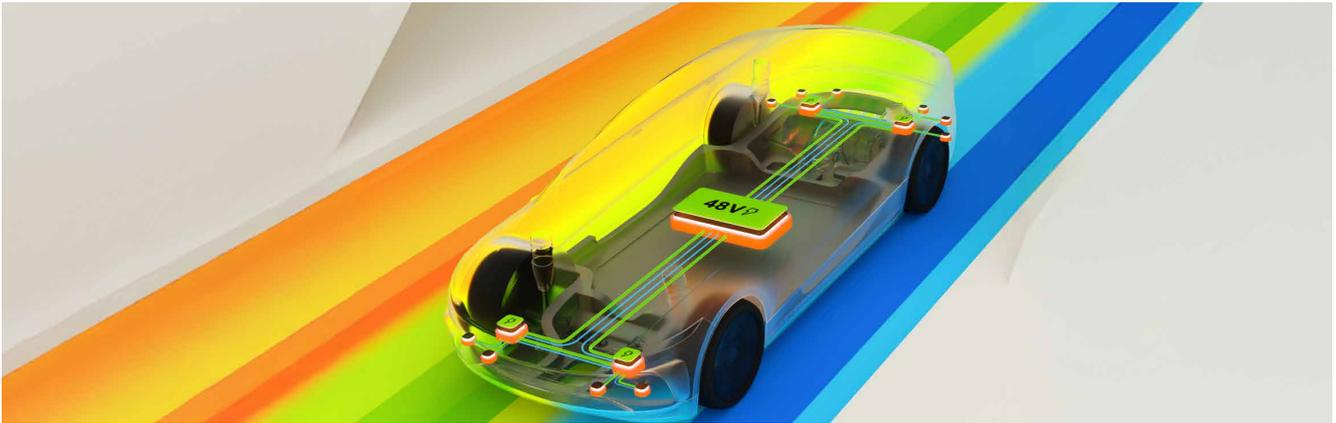# NXP CoreRide Z248 Zonal Reference System

Features

- Optimized chipset for zonal architectures
- Pre-integrated SW and proven system KPIs
- 48 V/12 V Hybrid Power Distribution with latest eFuse technology
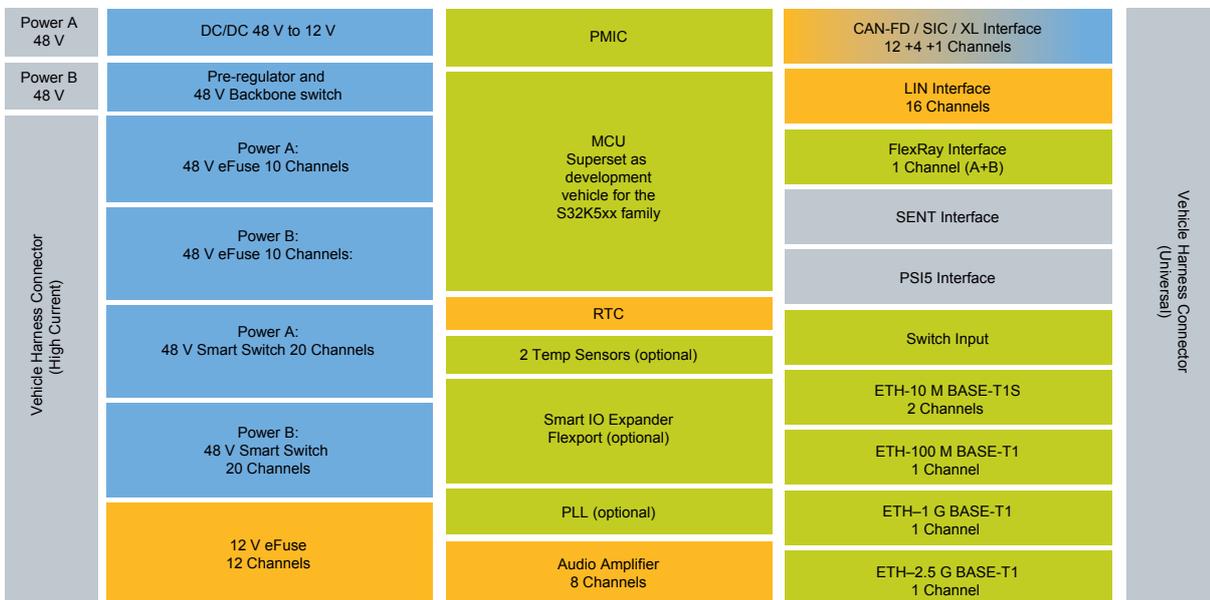- Audio amplifier

S32K5

- 5–25 K DMIPS compute performance
- Integrated NPU for AI
- 9 MB–41 MB MRAM with up to 1 million write cycles
- <9mW low power standby
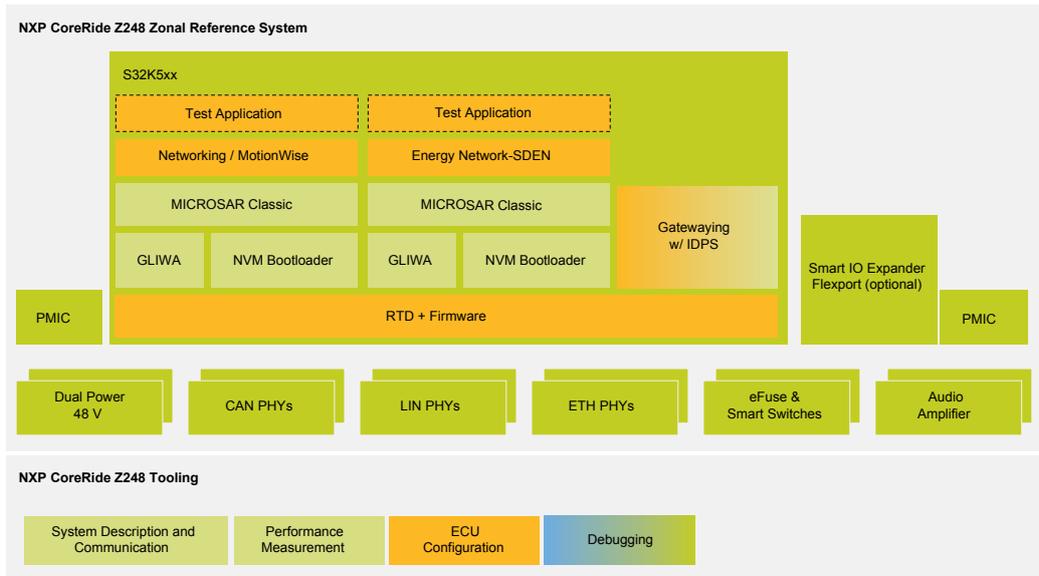- 5 Port switch with up to 6 Gbit/s L2 switching

ECU

- Robust Reference design with wiring loom and housing
- CI/CD development frame work
- Tool assisted configuration
- Large partner ECO System

NXP CoreRide Z248 Zonal Reference System HW block diagram

Vehicle Harness Connector (High Current)				
Power A 48 V	DC/DC 48 V to 12 V	PMIC	CAN-FD / SIC / XL Interface 12 +4 +1 Channels	Vehicle Harness Connector (Universal)
Power B 48 V	Pre-regulator and 48 V Backbone switch	MCU Superset as development vehicle for the S32K5xx family	LIN Interface 16 Channels	
	Power A: 48 V eFuse 10 Channels		FlexRay Interface 1 Channel (A+B)	
	Power B: 48 V eFuse 10 Channels:		SENT Interface	
	Power A: 48 V Smart Switch 20 Channels	RTC	PSI5 Interface	
		2 Temp Sensors (optional)	Switch Input	
	Power B: 48 V Smart Switch 20 Channels	Smart IO Expander Flexport (optional)	ETH-10 M BASE-T1S 2 Channels	
			ETH-100 M BASE-T1 1 Channel	
	12 V eFuse 12 Channels	PLL (optional)	ETH–1 G BASE-T1 1 Channel	
		Audio Amplifier 8 Channels	ETH–2.5 G BASE-T1 1 Channel	

Power Domains: 48 V   12 V   ≤5V

NXP CoreRide Z248 Zonal Reference System SW architecture

NXP CoreRide Z248 Zonal Reference System

S32K5xx

Test Application	Test Application
Networking / MotionWise	Energy Network-SDEN
MICROSAR Classic	MICROSAR Classic

GLIWA	NVM Bootloader	GLIWA	NVM Bootloader	Gatewaying w/ IDPS

Smart IO Expander Flexport (optional)

PMIC | RTD + Firmware | **PMIC**

Dual Power 48 V	CAN PHYs	LIN PHYs	ETH PHYs	eFuse & Smart Switches	Audio Amplifier

NXP CoreRide Z248 Tooling

System Description and Communication	Performance Measurement	ECU Configuration	Debugging

■ 3rd Party SW   ■ NXP SW   ■ NXP HW   ⬚ Optional

Main core KPIs (KPIs at zonal use case level, demonstrating optimized NXP CoreRide footprint)	
Safe and secure boot	Wake-up from Low power modes
Power consumption of low-power modes	M7 core CPU load (in idle and on gatewaying modes)
Memory footprint (MRAM, SRAM, TCM)	Gatewaying (CAN/CAN, Eth/CAN, Eth/Eth)
eFuses power distribution	Flashing time (MRAM)
Ethernet throughput and QoS	Audio latency zone to zone, micro to loudspeaker

Use cases	NXP CoreRide Z248 key enablers
Vehicle mode driving, living, parking, car access	• Low power mode support • Fast power up with secured boot • Low latency • HSE2 security engine
Gatewaying sensors fusion	• Eth2Eth NETC4 L2 routing offloading • Eth2Eth/CAN2Eth • Secured communication (MACsec, SecOC)
Body control (wipers, seat, windows)	• Power distribution (12 V and 48 V eFuse) • Wakeup from eFuse
Audio	• 8 channels sound at 48 Hz/32-bits • Sound playback on AVB protocol • Traffic shaper IEEE 802.1 Qbv

Software continuous delivery	NXP CoreRide Z248 key enablers
SW pre-integrated with partners (Vector, GLIWA, Green Hills Software), optimized and fully validated	Continuous integration with complete automatic tests environment (inc. KPIs)
Quarterly releases	System quality with stepping approach (from early release to product validated)
1 software package, 2 bundles (one for Z248 drivers, one for complete NXP CoreRide SW)	Integration of NXP drivers at "Ready For Production" quality level
Delivery of full set of artefacts to replicate NXP CoreRide environment	Partners SW at production quality level

NXP CoreRide partners:

Inventec   **VECTOR >**

GLIWA embedded systems   **Green Hills SOFTWARE**

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