

Enabling secure, connected vehicles and service-oriented gateways

## MPC-LS Vehicle Network Processing Evaluation Board (EVB)

The MPC-LS VNP EVB is an evaluation board for vehicle network processing that can be leveraged by OEMs, Tier 1s, and software ecosystem partners to significantly shorten their design cycles and reduce time-to-market. It provides a platform for innovations that will drive next-generation vehicle service-oriented gateways.

### OVERVIEW

The vehicle gateway's central location in the increasingly hierarchal domain network architectures makes it the logical node for implementing advanced network security functions, as well as cloud-connected services and vehicle management. The MPC-LS Vehicle Network Processing (VNP) evaluation board implements the hardware and software features required for next-generation vehicle service-oriented gateways that can unlock the value of connected vehicles.

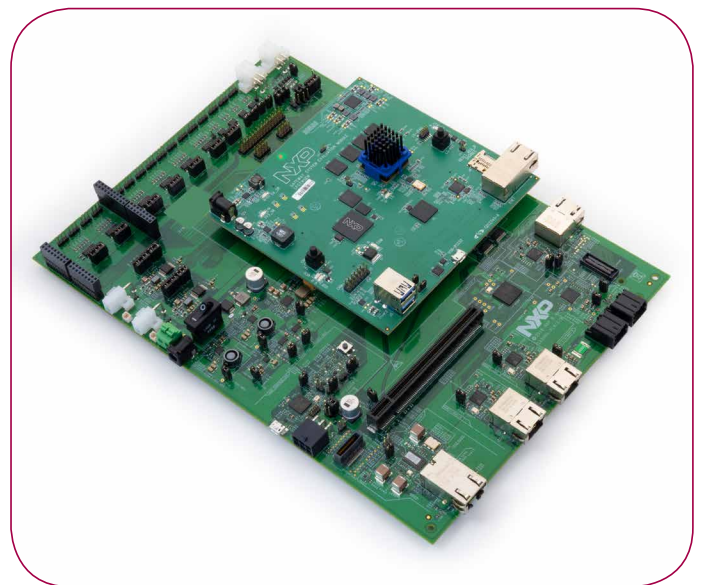
### EVALUATION SOLUTION

The MPC-LS VNP evaluation board combines standards-based, open source software together with feature-rich hardware, to establish a common, open framework for secure service delivery within a vehicle network.

This evaluation board includes multiple production NXP components, including a functionally safe microcontroller supporting traditional automotive interfaces (CAN, LIN, & FlexRay) and Ethernet, a high-performance (~20 K DMIPS) applications processor with multiple high speed interface ports (Gigabit Ethernet, PCIe Gen 2.0, and USB 3.0), an automotive Ethernet switch and PHYs, and power management ICs (PMICs).

The EVB is modular with common connectors to support future processor upgrades to extend its usage and streamline roadmap migration.

### MPC-LS VNP EVALUATION BOARD (EVB)



Ordering Information: MPC-LS-VNP-EVB



## KEY FEATURES:

### MPC5748G Automotive Microcontroller

- ▶ AEC-Q100, Grade 2
- ▶ ISO 26262 ASIL B Functional Safety
- ▶ Processors
  - (2x) Power Architecture® e200z4 @ 160 MHz
  - (1x) Power Architecture® e200z2 @ 80 MHz
- ▶ 6 MB embedded flash, 768 KB SRAM
- ▶ 8x CAN FD (12x w/SPI expansion)
- ▶ 2x AVB Ethernet (w/switch)
- ▶ 2x FlexRay, 7x LIN
- ▶ Embedded Hardware Security Module (HSM)
  - Supports SHE and EVITA standards

### LS1043A Layerscape Microprocessor

- ▶ (4x) Arm® Cortex-A53 64-bit processors
  - Up to 1.6 GHz
- ▶ Gigabit Ethernet Packet Forwarding Engine
- ▶ 10 Gbps Crypto Acceleration
- ▶ DDR3L/4 @ up to 1.6 GT/s
- ▶ 4 GB DDR
- ▶ Up to (4x) 1 Gb Ethernet, 10 Gb option, IEEE 1588
- ▶ (3) PCI Express® Gen2 Controllers
- ▶ (3) USB 3.0

### SJA1105A Automotive Ethernet Switch

- ▶ AEC-Q100, Grade 2
- ▶ 5 ports, each configurable as MII, RMII, RGMII
- ▶ 1024-entry MAC address learning table
- ▶ Hardware support for IEEE 802.1AS and IEEE 802.1Qav for AVB networks

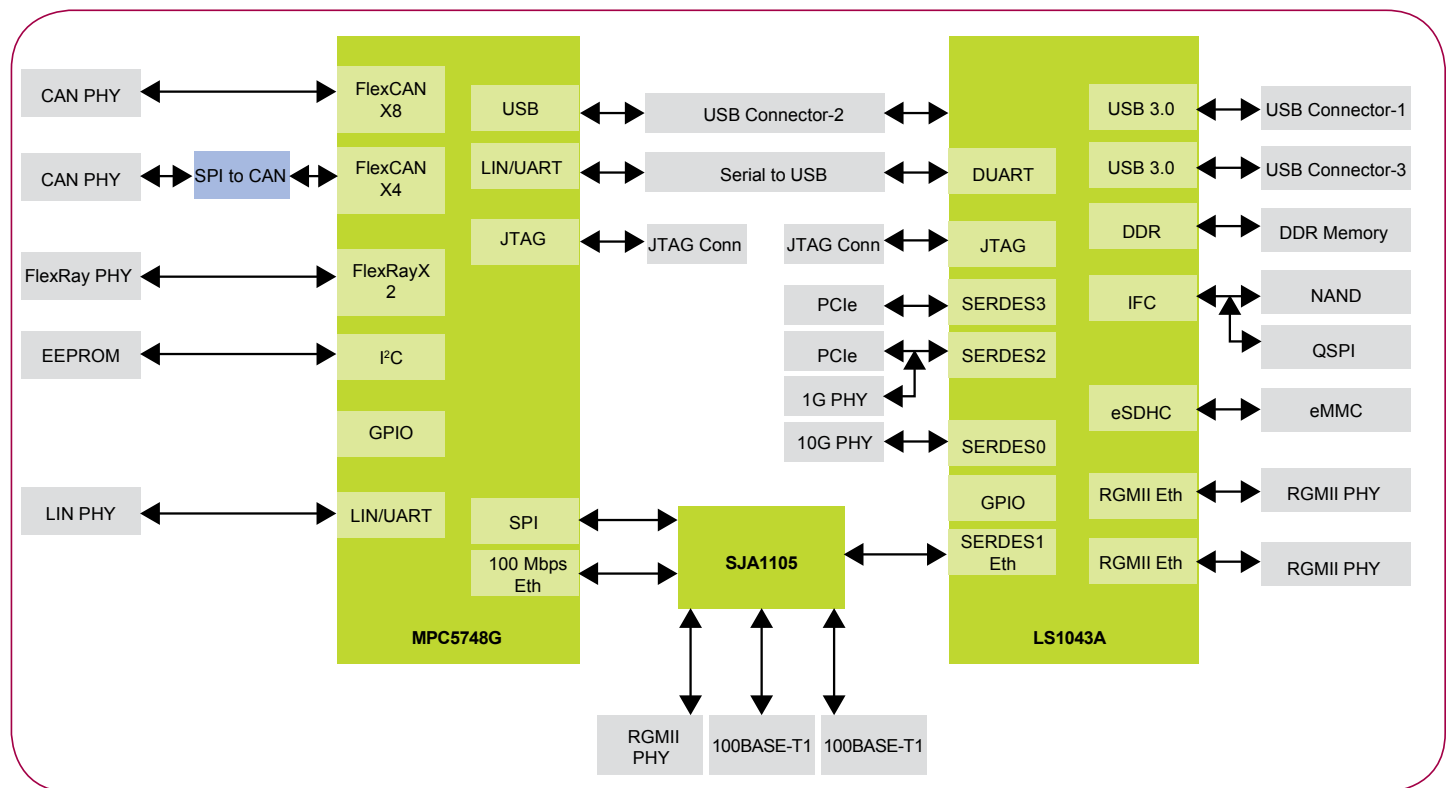
### PMICs

- ▶ PF0100 + PF5024
- ▶ Configurable and programmable outputs to power the core processor, memory and a wide range of peripherals

### Software

- ▶ MPC5748G: AUTOSAR, MCAL, Bare-metal
- ▶ LS1043A: Linux, fast path packet forwarding
- ▶ Inter-Processor Communications (IPCF)
- ▶ Demo applications
  - Secure Over-The-Air (OTA) updates
  - Datalogging to cloud for Vehicle Health
  - Ethernet Packet Acceleration
  - Software-Defined Networking
- ▶ Certification: FCC Class B and CE

## MPC-LS VNP EVB LOGICAL BLOCK DIAGRAM



[www.nxp.com/MPC-LS-VNP-EVB](http://www.nxp.com/MPC-LS-VNP-EVB)

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