

Enabling secure, connected vehicles and service-oriented gateways

# MPC-LS Vehicle Network Processing Evaluation Board

The MPC-LS-VNP-EVB is an evaluation and development board for vehicle network processing applications. Used by carmakers, suppliers, and software ecosystem partners, it helps accelerate development of next-generation service-oriented gateways.

## OVERVIEW

High performance service-oriented gateways enable the automotive industry to unlock the value of connected vehicle data and offer new vehicle services and edge data analytics. The MPC-LS Vehicle Network Processing (VNP) evaluation and development board combines automotive and enterprise networking technology to offer high levels of compute, real-time network performance, multi-Gigabit packet acceleration, and security for new service-oriented gateways.

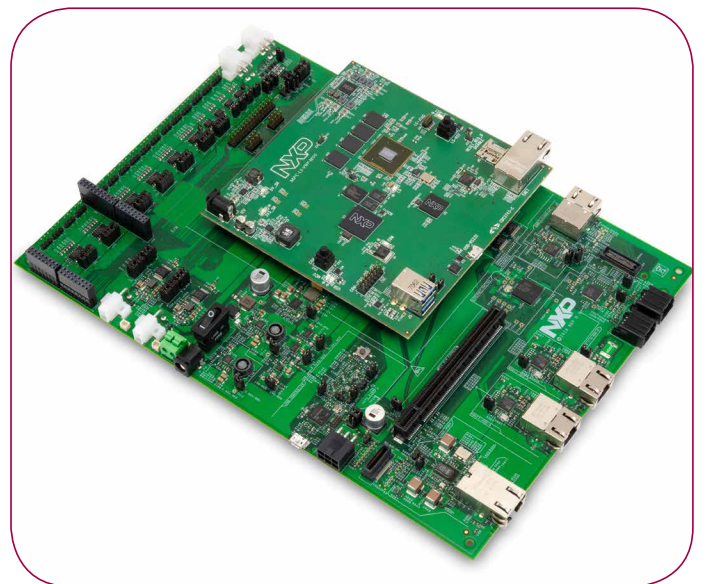
## EVALUATION SOLUTION

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 (~15k 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 VEHICLE NETWORK PROCESSING EVALUATION BOARD



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 + 4 (Non FD) w/SPI expansion
- ▶ 2x AVB Ethernet (w/switch)
- ▶ 2x FlexRay, 4x LIN
- ▶ Embedded Hardware Security Module (HSM)
  - Supports SHE and EVITA standards

### LS1043A Microprocessor

- ▶ (4x) Arm® Cortex-A53 64-bit processors
  - Up to 1.6 GHz
- ▶ Gigabit Ethernet Data Path Acceleration
- ▶ 10 Gbps Crypto Acceleration
- ▶ 2 GB DDR4 @ up to 1.6 GT/s
- ▶ 16 Gb NAND flash
- ▶ 1 Gb Serial NOR flash
- ▶ Micro SD card slot
- ▶ 2x 100 Mbps, 5x 1 Gbps, 1x 10 Gbps Ethernet, IEEE 1588
- ▶ 2x USB 3.0

### SJA1105 Automotive Ethernet Switches

- ▶ AEC-Q100, Grade 2
- ▶ SJA1105S: 4x MII/RMII RGMII, 1x SGMII
- ▶ SJA1105Q: 5x MII/RMII/RGMII
- ▶ 1024-entry MAC address learning table
- ▶ Hardware support for IEEE 802.1AS and IEEE 802.1Qav for AVB networks

### PMIC

- ▶ PF8200 PMIC
- ▶ Configurable and programmable outputs to power the core processor, memory and a wide range of peripherals

### Software

- ▶ MPC5748G: AUTOSAR® OS, MCAL, Bare-metal
- ▶ LS1043A: Linux, fast path packet forwarding
- ▶ Inter-Platform Communications Framework (IPCF)
- ▶ Demo applications
  - 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

