Quick Start Guide

MPC-LS Vehicle Network Processing Evaluation Board

An advanced automotive gateway solution using NXP's MPC5748G gateway microcontroller and LS1043A communications processor SoCs

MPC-LS-VNP-EVB

GET TO KNOW THE MPC-LS-VNP-EVB

CAN 4x2 TJA1048T

LIN x4 TJA1024HG

SPI2CAN breakout connector

FlexRay x2 TJA1081

MPC-LS Processor Module

Platform Board Power Jack

MPC5748G Micro USB Port

RGMII_C ENET

SJA1105Q

RGMII_A x2

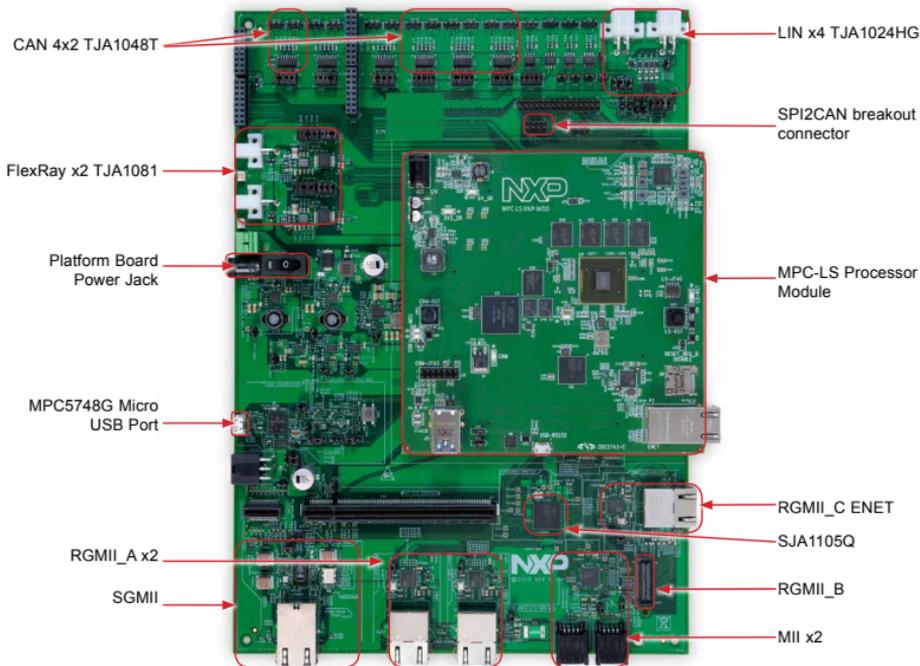SGMII

RGMII_B

MII x2

Figure 1: Front side of MPC-LS-VNP-EVB
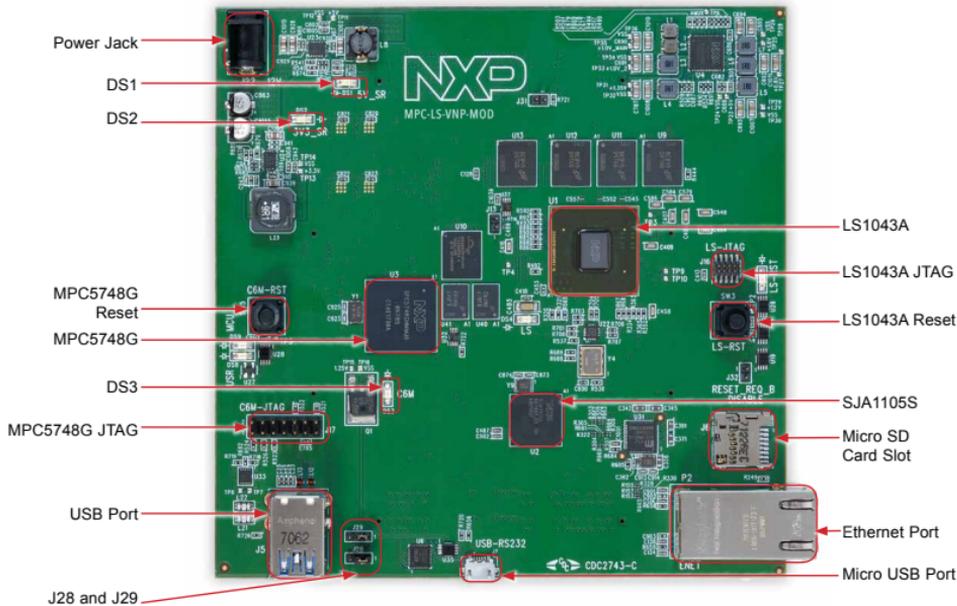
MPC-LS PROCESSOR MODULE

Figure 2: Front side of MPC-LS-VNP-MOD

MPC-LS-VNP-EVB

The NXP MPC-LS VNP EVB brings an advanced automotive gateway solution using NXP's MPC5748G gateway microcontroller and LS1043A communications processor SoCs. The combination of a real-time microcontroller with microprocessor application pro-cessing enables new gateway use cases and service-oriented gateways. The complete MPC-LS VNP EVB solution consists of two boards - a Processor Module and a Platform Board with automotive and Ethernet interfaces. The modular design of the MPC-LS VNP EVB enables the processor module to be swapped out in the future to support future gateway solutions using the same platform board.

MPC-LS-VNP-EVB FEATURES

Hardware

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

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

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

LS1043A Layerscape 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 100Mbps, 5x 1Gbps, 1x 10Gbps Ethernet, IEEE 1588
- 2x USB 3.0

Software
- MPC5748G: AUTOSAR, MCAL, Bare-metal
- LS1043A: Linux, fast path packet forwarding
- Inter-Platform Communications Framework (IPCF)

STEP-BY-STEP INSTRUCTIONS

1 Connect the processor module and platform board

For connecting, refer to the orientation of boards shown in Figure 1.Refer to the MPC-LS-VNP-EVB User Manual Section 5.1 for board interconnectivity details.

2 Connect the Power Supply

Connect power supply to the power jack of the Platform Board and micro USB cable to micro USB port on the MPC-LS Processor Module. Make sure the DS1 and DS2 LEDs for voltage levels 5V and 3.3V respectively are glowing on the MPC-LS Processor Module.

3 Install FTDI Driver

Install the FTDI CDM v2.12.28 WHQL driver as below:

Download the driver from **FTDI Driver**

Connect the micro USB cable from MPC-LS Processor module to your Windows machine.

Go to the Device Manager and right-click the COM port detected and select Update Driver Software.

Select Browse my computer for driver software and select the FTDI driver that has been downloaded.

Restart your machine.

4 Setup Tera Term Console

Open Tera Term on Windows PC. Select the serial port to which the micro USB of the MPC-LS Processor Module is connected and click OK. Go to Setup>Serial Port and select 115200 as the baud rate.

5 Reset the Board

Press the LS reset button on the MPC-LS Processor Module. Do not press any key while the counter goes down from 10 to 0. Enter "root" as login and press Enter.

6 Application Startup

The getting started IPCF application is auto executed on login.

DEFAULT JUMPER SETTINGS

JUMPER	OPTION	SETTING	DESCRIPTION
J28	UART to USB Rx pin	1-2	LS1043A console
J29	UART to USB Tx pin	1-2	LS1043A console

SUPPORT

Visit **www.nxp.com/support** for a list of phone numbers within your region.

WARRANTY

Visit **www.nxp.com/warranty** for complete warranty information.

Get Started

Download installation software and documentation at **www.nxp.com/MPC-LS-VNP-EVB**.