



Quick Start Guide

MPC-LS Vehicle Network Processing Reference Design Board

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

MPC-LS-VNP-RDB



Quick Start Guide

GET TO KNOW THE MPC-LS-VNP-RDB

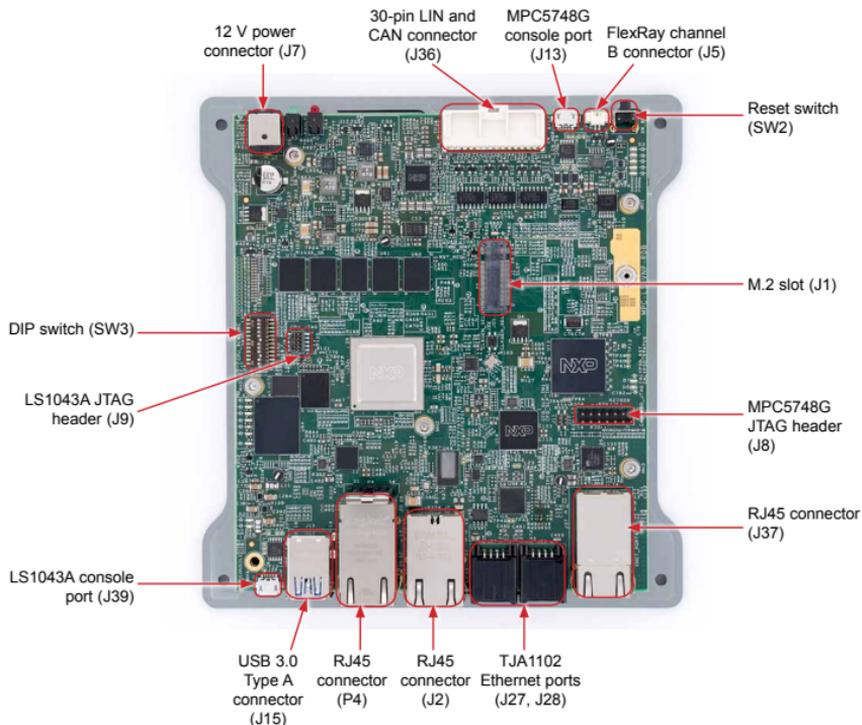


Figure 1: Front side of MPC-LS-VNP-RDB

MPC-LS-VNP-RDB

The NXP MPC-LS VNP RDB brings an advanced automotive gateway solution using NXP's MPC5748G gateway microcontroller and LS1043A communications processor. The combination of a real-time microcontroller with microprocessor application processing enables new gateway use cases and service-oriented gateways.



MPC-LS-VNP-RDB 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
- 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 1.4 GHz
- Gigabit Ethernet Data Path Acceleration
- 10 Gbps Crypto Acceleration
- 2 GB DDR3L @ up to 1.6 GT/s
- 1 GB NAND flash
- 64 MB Serial NOR flash
- Micro SD card slot
- 10/100/1000 Mbit/s Ethernet
- 2x USB 3.0

MPC-LS-VNP-RDB FEATURES CONT.

Software

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

STEP-BY-STEP INSTRUCTIONS

1 Installing Software

1. Download and Install the Tera Term terminal emulator, if not installed already

Go to http://download.cnet.com/Tera-Term/3001-2094_4-75766675.html and download the executable file. Execute the file and proceed with the default configurations that the installation wizard recommends. At the end of the installation process you should have Tera Term on your Windows PC.

2. Download and Install the MCP2221A USB-to-UART driver, if not installed already

Go to <https://www.microchip.com/www-products/en/MCP2221A>. Scroll down and click Documents. In the Software section, click “MCP2200/MCP2221 Windows Driver & Installer”. Install the driver.

2 Booting the LS1043A

1. Connect the power supply

Connect power supply to the power jack of the MPC-LS-VNP-RDB board and micro-B USB cable to the LS1043A USB3 console port. Make sure the power status LED is glowing green on the board.

2. Setup Tera Term Console

Open Tera Term on Windows PC. Select the COM port to which the USB3 console port is connected and click OK. Go to Setup>Serial Port and select 115200 as the baud rate. If no COM port is detected automatically, make sure the MCP2221A driver is downloaded and installed correctly.

3. Reset the Board

Press the reset button on the chassis back panel to reboot the board. The boot log appears in the console window.

STEP-BY-STEP INSTRUCTIONS—CONT.

4. Application Startup

After the boot completes you will be prompted for a TinyDistro Login.

Type "root" and then press enter.

The getting started IPCF (Inter-Platform Communications Framework) application is automatically executed on login.

3 Booting the MPC5748G

1. Connect the power supply

Connect power supply to the power jack of the MPC-LS-VNP-RDB board and micro-B USB cable to the MPC5748G USB4 Console port. Make sure the power status LED is glowing green on the board.

2. Setup Tera Term Console

Open Tera Term on Windows PC. Select the COM port to which the USB4 console port is connected and click OK. Go to Setup>Serial Port and select 115200 as the baud rate.

If no COM port is detected automatically, make sure the MCP2221A driver is downloaded and installed correctly.

3. Reset the Board

Press the reset button on the chassis back panel to reboot the board.

The boot log appears in the console window.

4. Application Startup

The getting started IPCF (Inter-Platform Communications Framework) application is auto executed on login.

WARNING

The RDB enclosure provides thermal management. Do not run the RDB with the enclosure open without proper cooling. Refer to the user manual for cooling recommendations.

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-RDB.

www.nxp.com/MPC-LS-VNP-RDB

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. © 2019 NXP B.V.

Document Number: MPC-LS-VNP-RDBQSG REV 0