

Quick Start Guide

MPC5748G-GW-RDB

A secure Ethernet-based automotive gateway solution using NXP's MPC5748G gateway microcontroller

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GET TO KNOW THE MPC5748G-GW-RDB

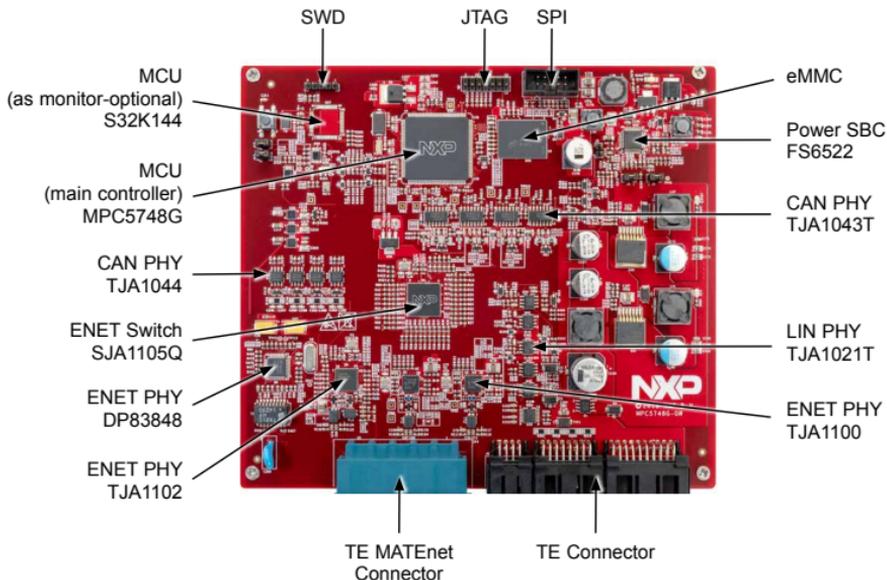


Figure 1: Front side of MPC5748G-GW-RDB

MPC5748G-GW-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
- 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

Optional S32K144 Automotive Microcontroller

- As monitor MCU, raise ASIL level of this gateway reference design board
- ISO 26262 ASIL B Functional Safety

Power SBC FS6522

- ISO 26262 ASIL D Functional Safety
- Configurable and programmable outputs to power the core processor and a wide range of peripherals.

SJA1105Q Automotive Ethernet Switch

- AEC-Q100, Grade 2
- 5 ports, Layer 2 store and forward switch
- each configurable as MII, RMII, RGMII
- Support AVB, TSN and Deterministic Ethernet
- Port mirroring and VLAN

TJA1100 & TJA1102 Ethernet PHY

- Fully automotive qualified, 100 Mbps OABR PHY
- Robust automotive grade EMC/ESD

TJA1043 & TJA1044GT CAN PHY

- Support up to 5 Mbps CAN FD
- Sleep and Wakeup Function

SOFTWARE

MPC5748G: AUTOSAR OS, MCAL,
Bare-metal S32 SDK

STEP-BY-STEP INSTRUCTIONS

1 Install Software and Tools

Install S32 Design Studio IDE for Power Architecture with the right version of S32 SDK for MPC5748G. See Software Installation Guide (SWIG) for detailed procedure

2 Connect the Debugger and Cables

Connect cables to the board. Connect debugger (such as PE Multilink) to JTAG port onboard and the computer.

Keep Jumper J4,J5 onboard, and remove Jumper J3, J12,J13.

STEP-BY-STEP INSTRUCTIONS CONTINUED

3 Setup the Power Supply

For power supply, refer to the board schematic and cables schematic. Connect power supply wires to the DC power supplier. Set the Voltage at 12 V, current limit > 600 mA.

- Board BATT+ pins connects to DC power supplier 12 V+
- Board GND pins connects to DC power supplier GND

4 Program example code and see result

Open S32DS IDE and load example projects from MPC5748G-GW-RDB software package. Power up the board, then compile and program. Use debug function to see the status and results of the example code. More details, please refer Example Codes User Guide (ECUG).

CONNECTOR SIGNALS DESCRIPTION

CONNECTOR	OPTION	SETTING	DESCRIPTION
MATenet Part No. 9-2305390-9			5-port 100BASE-T1 Ethernet connector. The RDB uses 4 ports as 100BASE-T1 Ethernet port.
Part No. 2311621-1			DoIP Port, 100BASE-TX with 4 PINs used for TX/RX
Part No. 2311622-1			8 x CAN/CAN FD Channels: CAN0-CAN7 8 x 2 PINs
Part No. 2329531-1			Used for Power supply, LIN, UART, ADC, PWM, IO etc. 10 x 2 PINs

DEFAULT JUMPER SETTINGS

JUMPER	OPTION	SETTING	DESCRIPTION
J3		Leave it open.	Power SBC configuration.
J4		1-2	Put the jumper on to enable SBC to reset MPC5748G. More details please refer to the schematic.
J5		1-2	Put the jumper on to set SBC into DEBUG mode. In this mode, SBC will work as a common power supplier. For more information, please refer to nxp.com/SBC
J12		1-2	Put the jumper on to enable User Switch to reset MPC5748G
J13		Leave it open.	This jumper can enable User Switch to reset S32K. Keep it open and don't use this Jumper.

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 under **“Jump Start Your Design”** at nxp.com/MPC5748G-GW-RDB.

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