TLE9263 Evaluation Kit EVB2
Getting Started

Abstract

This Evaluation Kit documentation is intended to provide an overview to the hardware and software operation of the TLE9263 Evaluation Kit.
The Demokit is available with the superset devices TLE9263-3BQX or TLE9263-3BQX3V3 devices which cover all variants of the Mid-Range+ SBC Family

For simplification reasons, the document always refers to the TLE9263 Evaluation Board.

In case of question, please contact your local sales person for support.

Note: The following information is given as a hint for the implementation of the device only and shall not be regarded as a description or warranty of a certain functionality, condition or quality of the device.

1 Introduction

The TLE9263 device belongs to the new generation SBC Mid-Range+ family designed specifically for automotive applications such as Body control modules, Gateway, Climate control, Seat control, Door control and closures, Light control modules, Engine management systems.

The TLE9263 Evaluation Kit is intended to provide a simple, easy-to-use tool to become familiar with the device and to perform first application tests. The evaluation kit contains a TLE9263 application board, which is equipped with a 16-pin connector (uIO connector) to interface to the uIO stick (to be ordered separately), The TLE9263 SPI communication is emulated by the uIO stick which is controlled by a PC-Software (see also installation instructions).

Mid-Range+ SBC Product Features:

- Very low quiescent current consumption in Stop- and Sleep Mode
- Periodic cyclic sense in Normal-, Stop- and Sleep Mode
- Periodic cyclic wake in Normal- and Stop Mode
- Linear Voltage Regulator 3.3V or 5V, 250mA
- Linear Voltage Regulator 5V, 100mA, robust against short to Vbat
- Linear Voltage Regulator with external PNP transistor (configurable)
- CAN FD Transceiver ISO11898-2:2016 & SAE J2284 with up to 5Mbit/s and Partial Networking
- LIN Transceiver LIN2.2, J2602
- Four High-Side Outputs 7Ω typ., e.g. for LED lighting, cyclic sensing, etc.
- Two independent PWM generators and two On/Off Timers
- Three universal High-Voltage Wake Inputs for voltage level monitoring with cyclic sense functionality
- Alternate High-Voltage Measurement Function, e.g. for battery voltage sensing
- Reset Output and Fail Outputs
- Over temperature and short circuit protection feature
- Wide input voltage and temperature range
- Green Product (RoHS compliant) & AEC Qualified
- PG-VQFN-48 leadless exposed-pad power package with Lead Tip Inspection (LTI) feature to support Automatic Optical Inspection (AOI)

2 Hardware

The TLE9263 Evaluation Kit is designed to be compatible with the µIO USB stick, which plugs into the Evaluation Board via a standard 16-pin connector and allows easy interface to the PC via USB for SPI, CAN, and LIN communication.

2.1 Evaluation Kit Contents

The following items are included in the TLE9263 Evaluation Board box:

- Application Evaluation Board
- Infocard

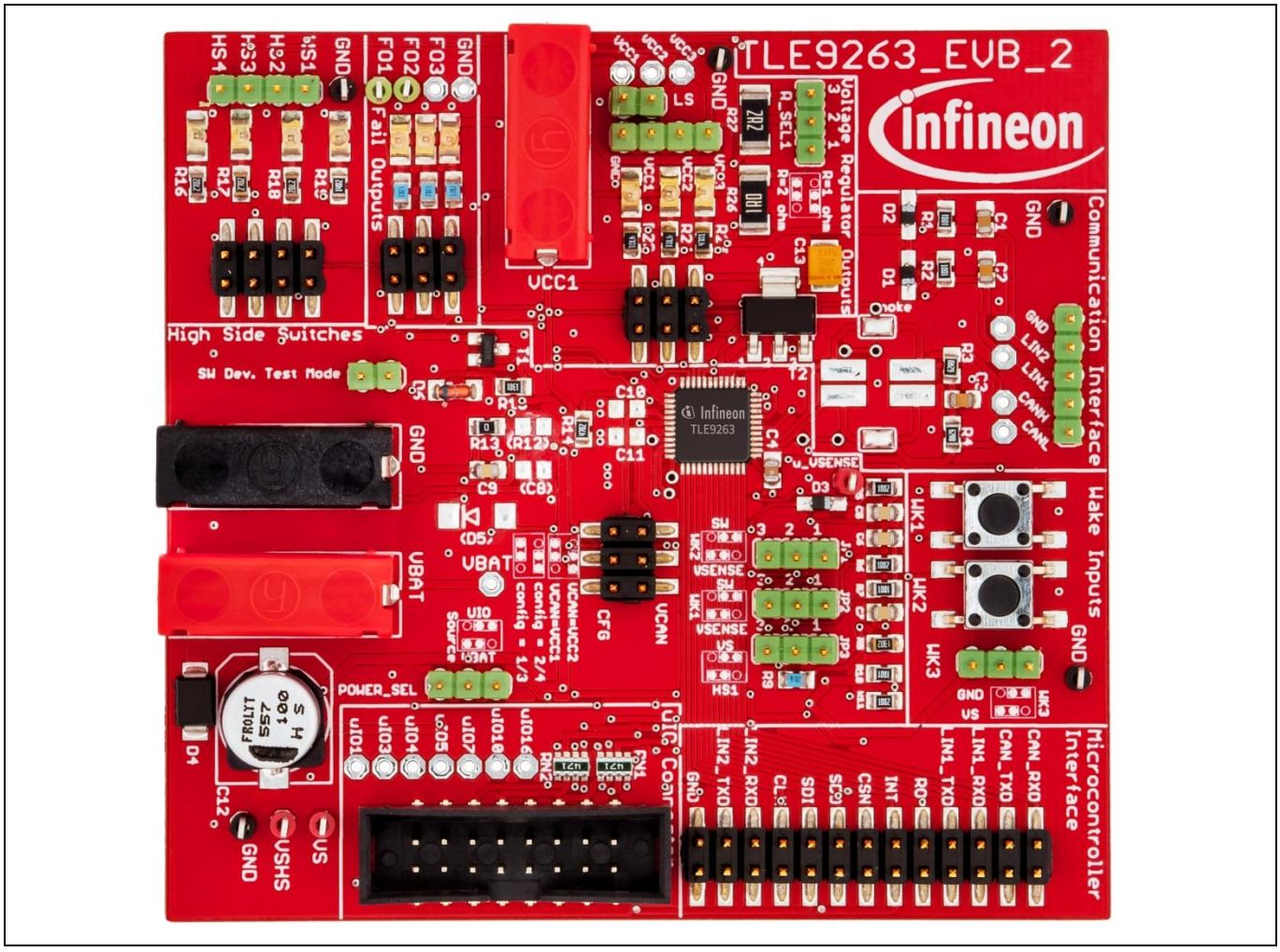


Figure 1 TLE9263 Evaluation Board with µIO USB stick Control

2.2 Evaluation Board Overview

The Evaluation board is a 2 layer PCB, using 35µm Cu metalization.

The PG-VQFN-48 package has an exposed pad. Hence, for better thermal performance it is soldered on the PCB. Overall 16 thermal vias are placed directly below the exposed pad island. The most obvious heat flow is via the exposed pad through the thermal vias. The footprint is an absolute minimal with no additional copper area.

2.2.1 Power Settings

Connect VBAT and GND via standard power supply, with a nominal voltage of 13.5V. This is the default board supply configuration.

2.2.2 Jumper Overview & Settings

For configuration purposes, there are several jumpers on the application board that can be used as follows:

Jumper Name	Description	Default configuration
JP1	WK2 Sensing voltage (switch or sense output)	WK2 connected with SW (button)
JP2	WK1 Sensing voltage (switch or Sense input =Vbat)	WK1 connected with SW (button)
JP3	WK1 Supply voltage (from VS or HS1)	WK1 connected with VS
JP4	HS4 state signalization via LED	closed
JP5	HS3 state signalization via LED	closed
JP6	HS2 state signalization via LED	closed
JP7	HS1 state signalization via LED	closed
JP8	FO1 state signalization via LED	closed
JP9	FO2 state signalization via LED	closed
JP10	FO3 state signalization via LED	closed
JP11	VCC1 state signalization via LED	closed
JP12	VCC2 state signalization via LED	closed
JP13	VCC3 state signalization via LED	closed
CFG	SBC configuration mode (Config 1/3 or 2/4)	Config 1/3
VCAN	Choosing CAN power supply (VCAN = VCC1 or VCC2)	VCAN = VCC1
SW Dev. Test Mode	Running SBC in Dev. mode (connect to GND or open)	opened
R_SEL1	Selecting VCC3 shunt Resistor (1 Ohm or 2 Ohm)	2 Ohm selected
POWER_SEL	Selection of power source of the evaluation board	Power from VBAT
LS	Load sharing for VCC1 and VCC3 (closed = activated)	Opened = deactivated
WK3	Choosing the level for WK3 input (GND or VS)	WK3 = VS

3 The µIO-Stick

The µIO-stick is a testing and development platform that connects the Infineon Evaluation Board with the computer. This kit uses a 32-bit microcontroller of the XMC4000 processor family featuring the ARM Cortex-M4 processor high performance core. The µIO-stick is especially designed for board extension test capability, i.e. to interface with an application board such as the TLE9263 Evaluation Board. More information can be found at https://www.infineon.com/cms/de/product/evaluation-boards/uio-stick/ .

The TLE9263 SPI communication is emulated by the µIO-stick which is controlled by a PC-Software named Config Wizard. The µIO-stick firmware can be updated in the Config Wizard (Extras) to the most current version.

Table 1 Pinout of the uIO stick for usage with the TLE9263 Evaluation Board

Pin	µIO Name	Type	TLE9263 Assignment
1	TXD1	Out	TXDLIN1 not connected
2	GND	GND	GND
3	RXD1	In	RXDLIN1 not connected
4	VDD5	Supply	not assigned
5	LIN	I/O	LIN1 not connected
6	VS	Supply	VS not connected
7	RESET_5V	Out	not connected
8	GPIO3_5V	I/O	INT (used as an output from the TLE9263)
9	SCS_5V	Out	CSN (used as an input for the TLE9263)
10	GPIO2_5V	I/O	not assigned not connected
11	SCLK_5V	Out	CLK (used as an input for the TLE9263)
12	GPIO1_5V	I/O	FO (used as an output from the TLE9263)
13	MISO_5V	In	SDO (used as an output from the TLE9263)
14	GPIO0_5V	I/O	RO (used as an output from the TLE9263)
15	MOSI_5V	Out	SDI (used as an input for the TLE9263)
16	AD0	In	not assigned not connected

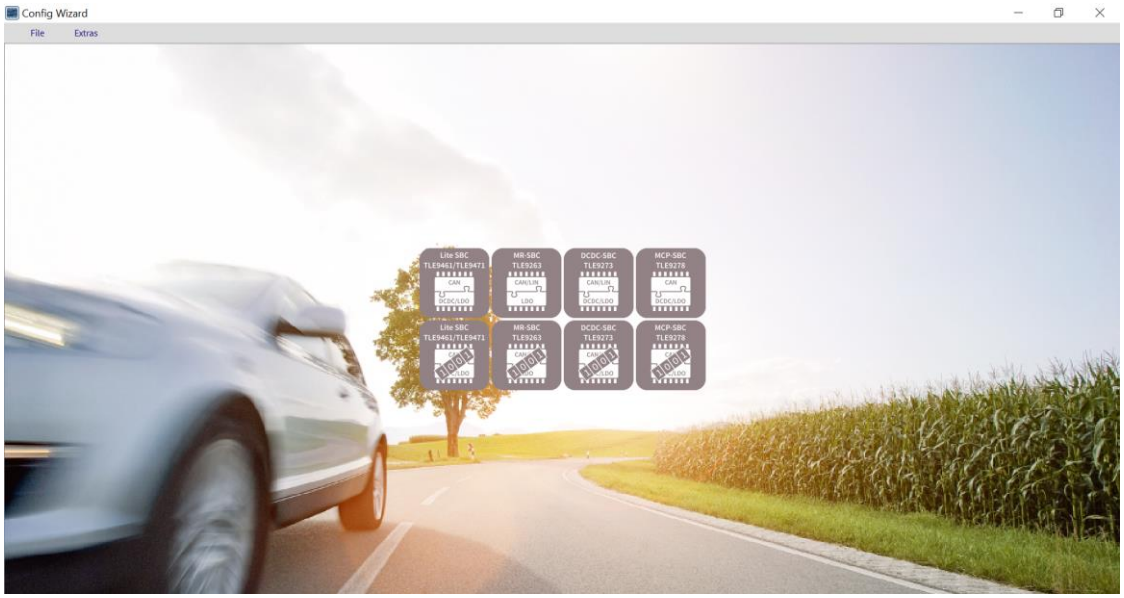
4 SBC Config Wizard

4.1 Software Installation

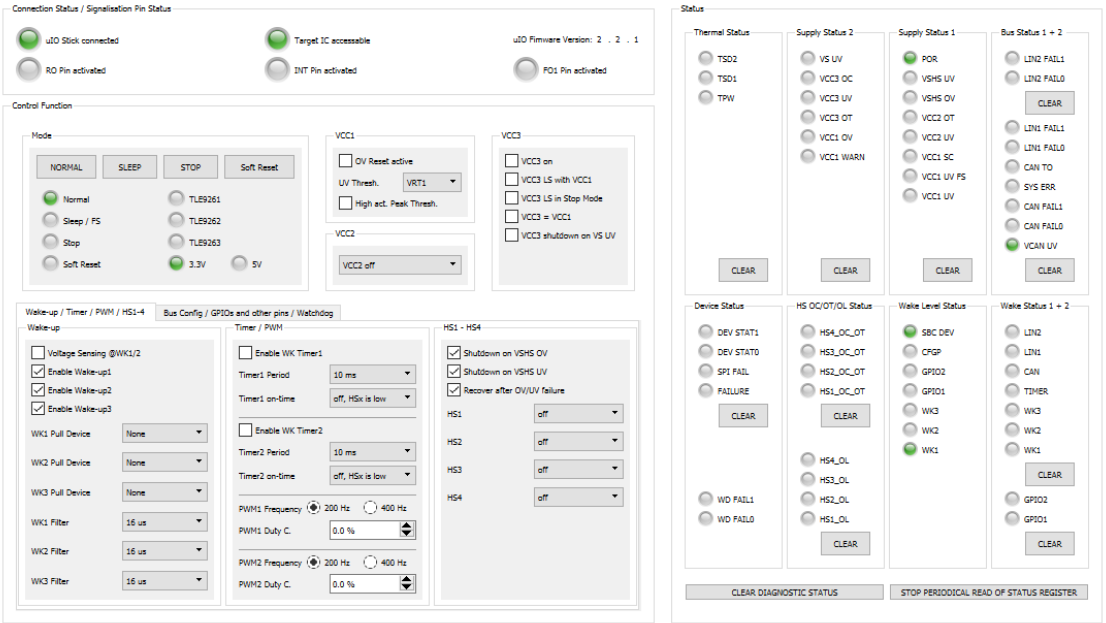
Before getting started, please install the Config Wizard software that can be downloaded via the Infineon Toolbox. After successful installation, search for "*Config Wizard for SBC"* in Manage Tools and press Install. After that, the tool symbol appears under My Tools and can be started.

4.2 How the GUI looks like

Starting:



Choosing the MR-SBC TLE9263 (having the evaluation board connected via µIO-stick):



5 Additional Information

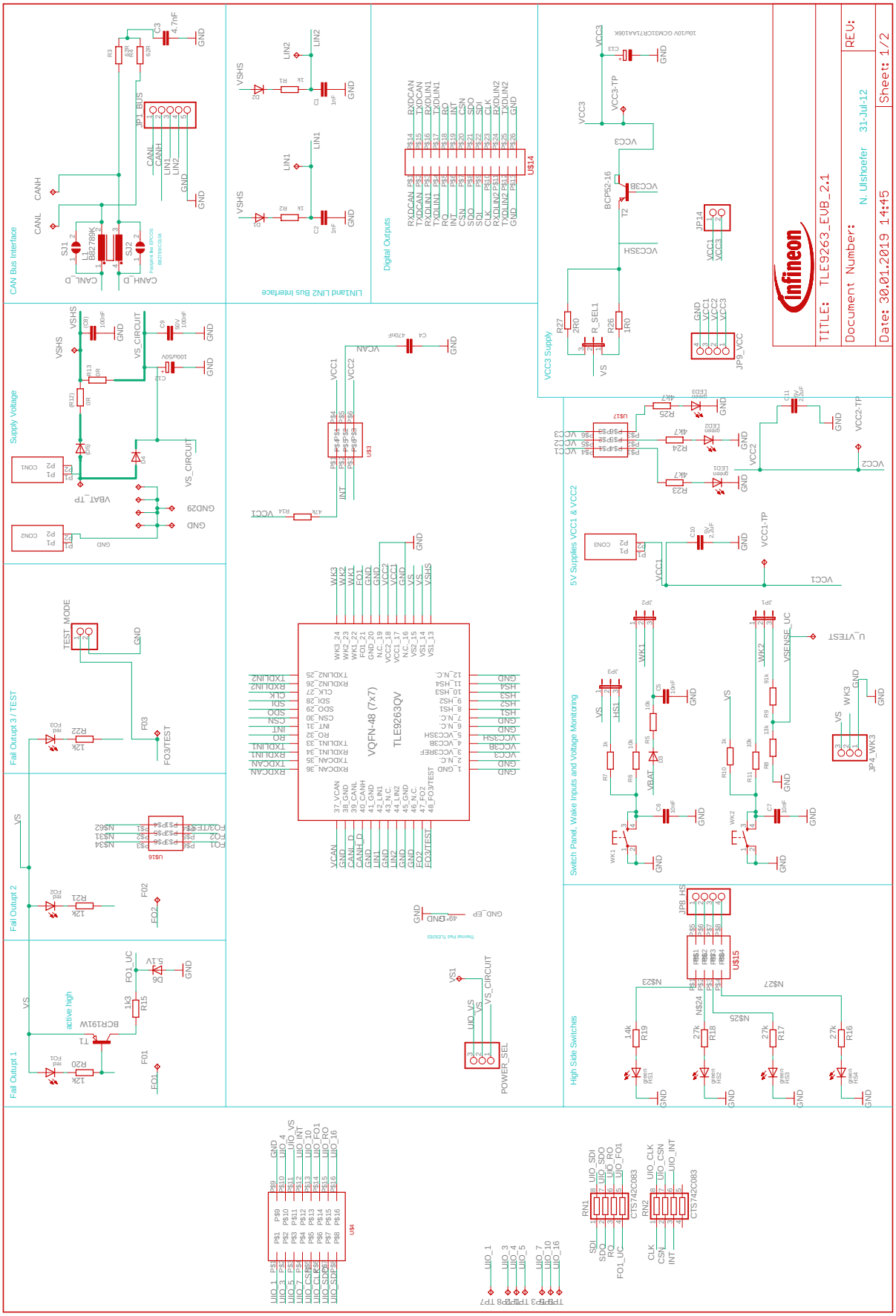
A short video tutorial how to setup the board can be found at:
https://www.infineon.com/cms/de/product/evaluation-boards/mid-range-sbc-board/#!videos

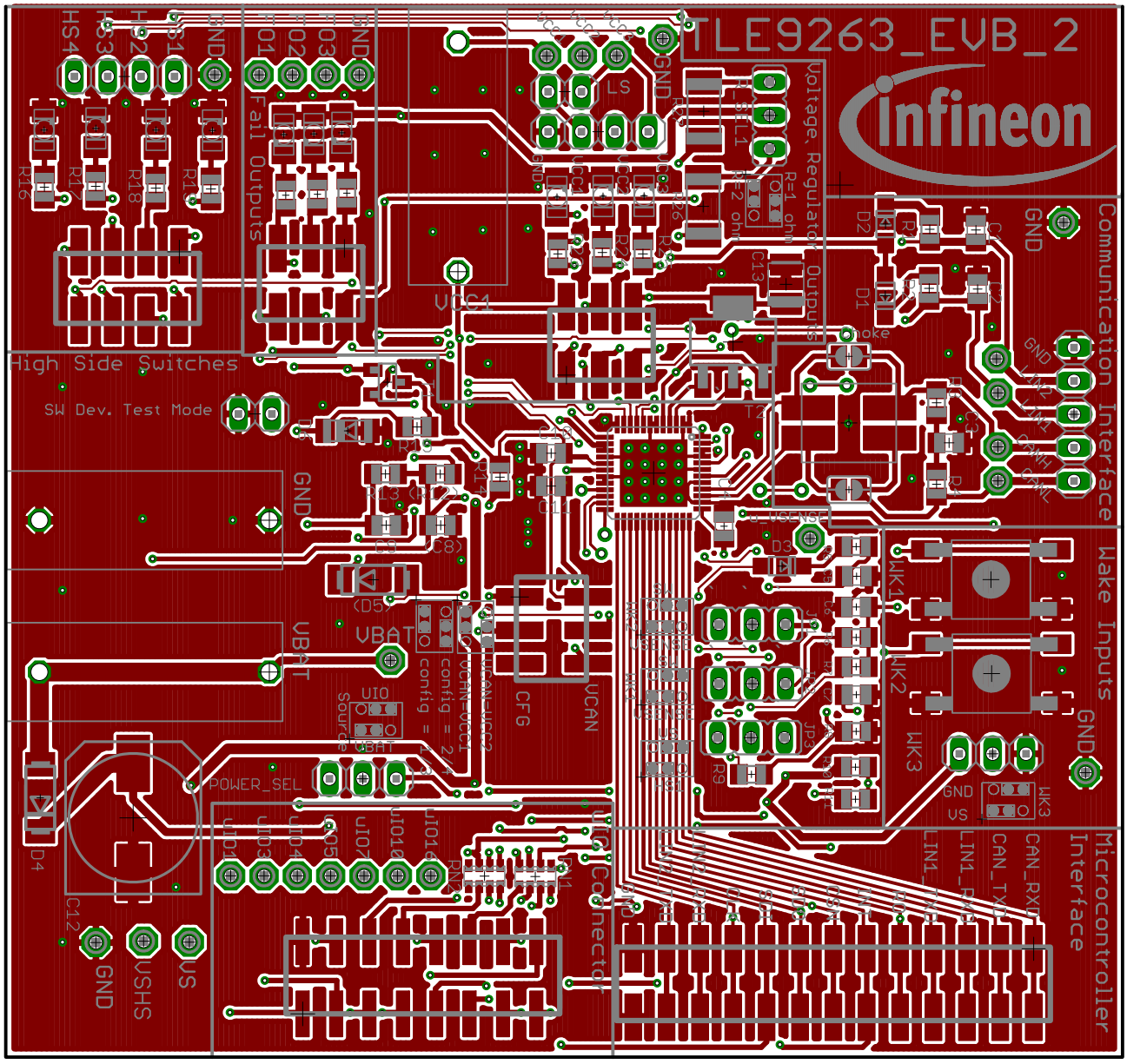
For further information you can contact http://www.infineon.com/sbc or your regional FAE.

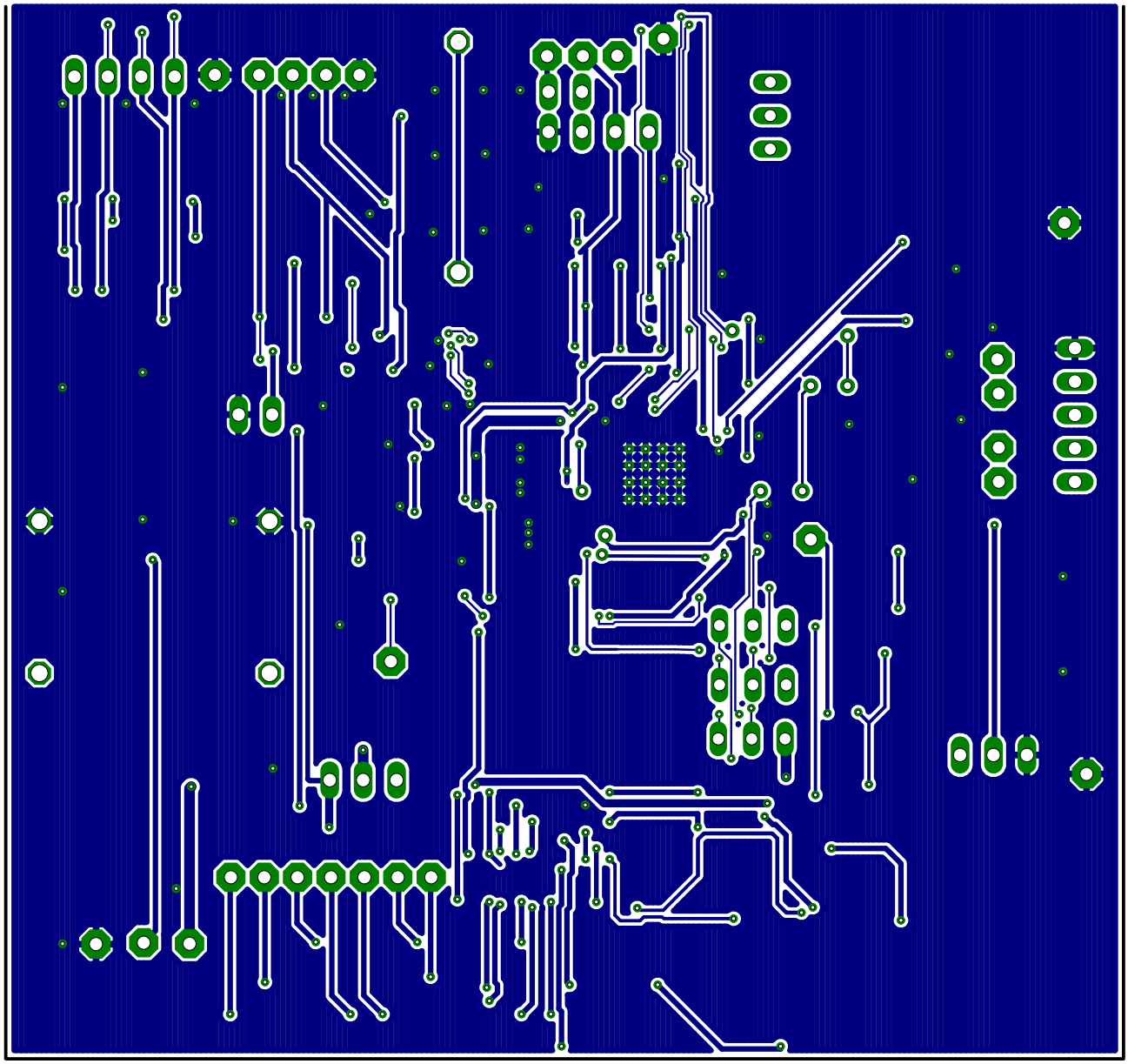
Revision History

Major changes since the last revision

Page or Reference	Description of change
Rev 2.0	Initial Release for the TLE9263 EVB2
Rev 2.1	Update with Config Wizard GUI description


CAN Bus Interface
LIN1and LIN2 Bus Interface
Digital Outputs
VCC3 Supply
Supply Voltage
5V Supplies VCC1 & VCC2
Switch Panel, Wake Inputs and Voltage Monitoring
High Side Switches
Fail Output 3 / TEST
Fail Output 2
Fail Output 1
TITLE: TLE9263_EVB_2.1
Document Number:
N. Ulshoefer
31-Jul-12
REV:
Date: 30.01.2019 14:45
Sheet: 1/2
VQFN-48 (7x7)
TLE9263QV


TLE9263_EVB_2
High Side Switches
SW Dev. Test Mode
Fail Outputs
Voltage Regulator Outputs
Communication Interface
Wake Inputs
Microcontroller Interface
LIN Connector
CFG
VCAN
POWER_SEL
VBAT
GND
VS
VSHS



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