

TLE9273QX Evaluation Board

DCDC SBC Family

Getting Started

Rev 1.0, Dec 2018

Revision History: 1

Previous Version: none

Page	Subjects (major changes since last revision)
1.0	Initial Release, All.

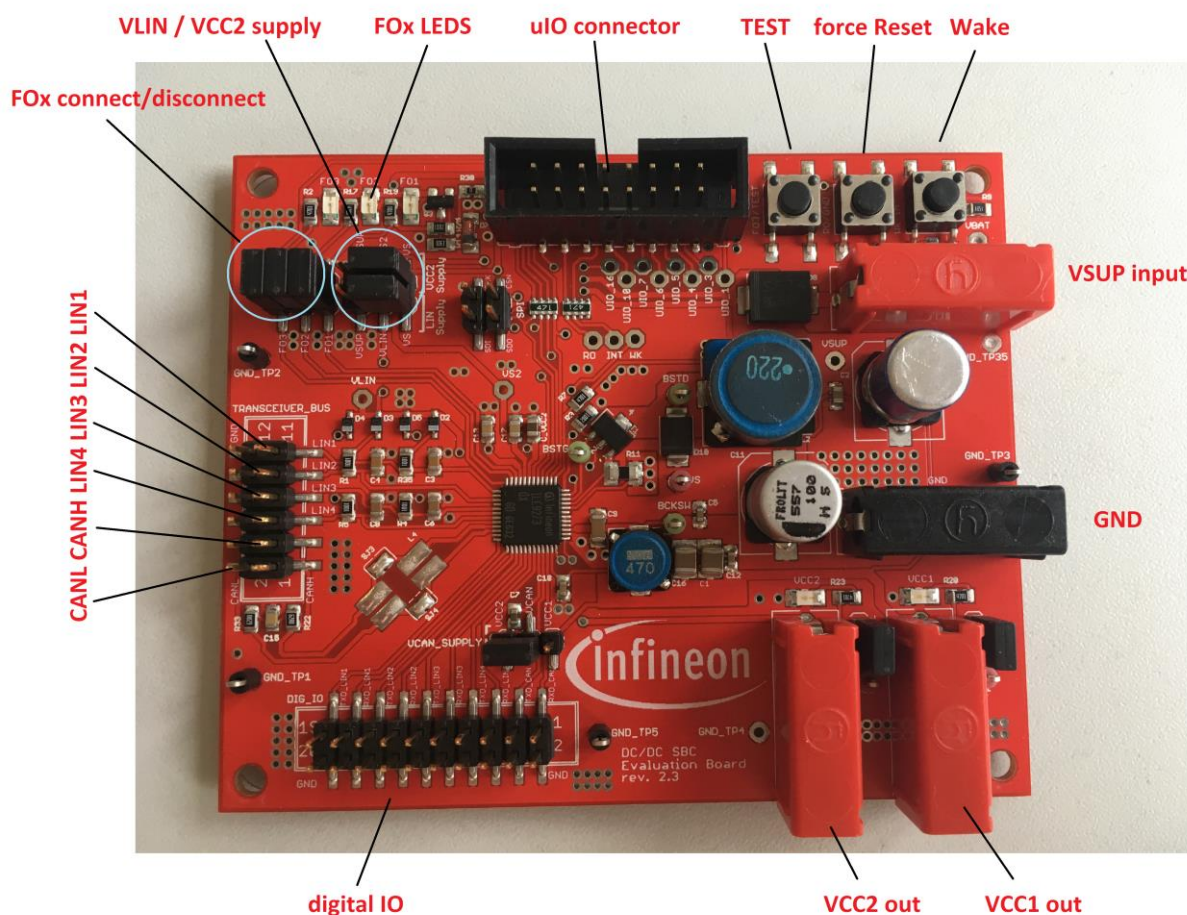
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Schematic and Layout can be seen on the last pages of this PDF document.

1. Evaluation Board Overview

There are 4 banana sockets, 5 LEDs, three buttons, one connector for the uIO and a set of headers for jumper configuration in the evaluation board. The functionalities will be explained in the next chapters. The distribution of these elements in the board can be observed in the following figure:



2. Banana Sockets

The SBC is usually supplied through the VSUP input and GND banana sockets.

The VCC1 output (5 V or 3.3 V, depending on the SBC's version) and VCC2 (5 V) banana sockets provide the regulated voltages from the SBC. The voltages VCC1 and VCC2 are used to supply the VCC1 and VCC2 supply indication LEDs which can be disconnected via the jumpers directly next to the banana outputs of VCC1 and VCC2.

3. Buttons

In the upper right corner there are three buttons.

- **Test Button** for enabling test mode (press during SBC Init-Mode when sending arbitrary SPI command)
- **Reset Force** this button is connected in parallel to RO output of SBC and will connect RO line to GND when pressing to force a low signal on RO
- **Wake** this buttons will do a voltage transition on the wake input of SBC to trigger an external wake

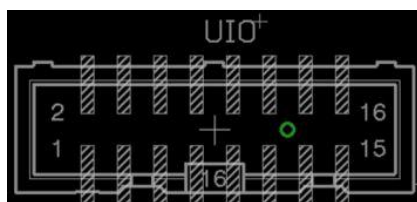
4. LEDs

In the upper left corner are 3 LEDs to indicate the state of the Fail-Outputs. The LEDs can be disconnected via the jumper directly under the LEDs. There are also two indication LEDs for the status of VCC1 and VCC2 (see behind the banana sockets for VCC1 and VCC2) which can be also disconnected via the jumpers directly next to the banana connectors of VCC1 and VCC2

5. Connectors

5.1. uIO Connector

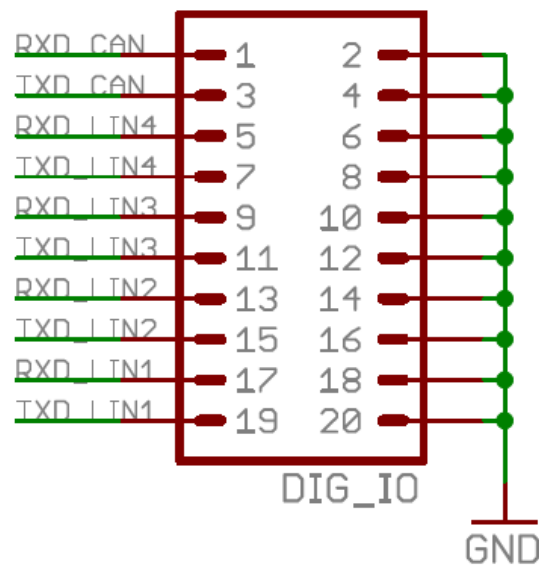
The uIO Connector is used for connecting to the uIO stick, but can be also used to access the uC interfacing pins. The pin distribution of the connector is shown in the following figure:



Pin	Functionality	Pin	Functionality
1	NC	2	GND
3	NC	4	NC
5	NC	6	VS_UIO
7	NC	8	INTN
9	CSN	10	NC
11	CLK	12	FO_UC
13	SDO	14	RSTN
15	SDI	16	ADC_UIO

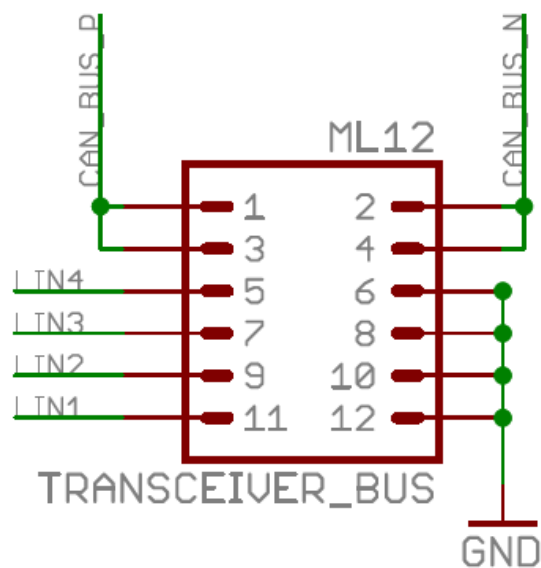
5.2. Digital IO Connectors

This connector can be used to access the RXD and TXD pins of the appropriate CAN and LIN transceivers



5.3. Transceiver Connectors

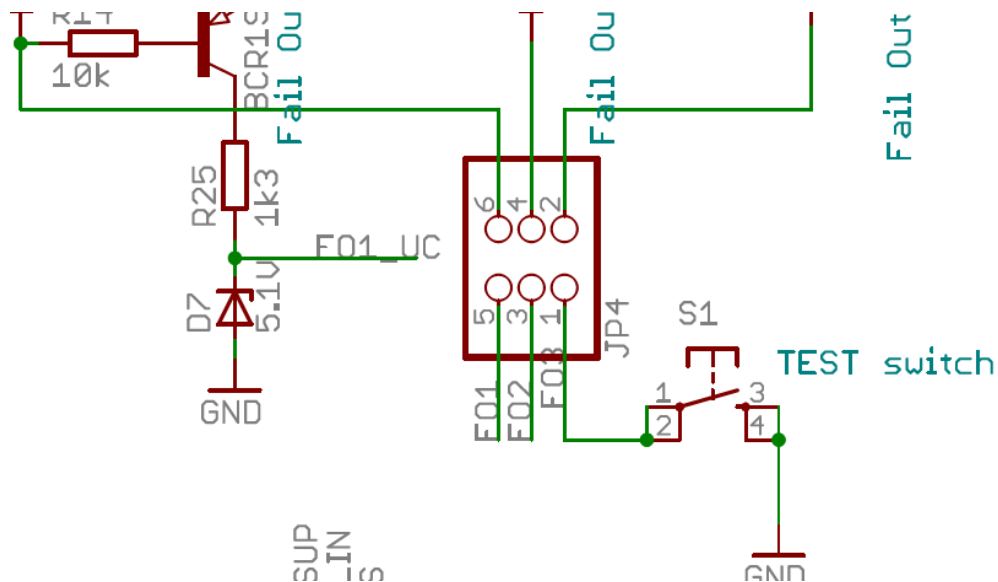
Those connectors can be used to connect to the transceiver outputs LIN1-LIN4 and to CAN.



6. Jumper Configurations

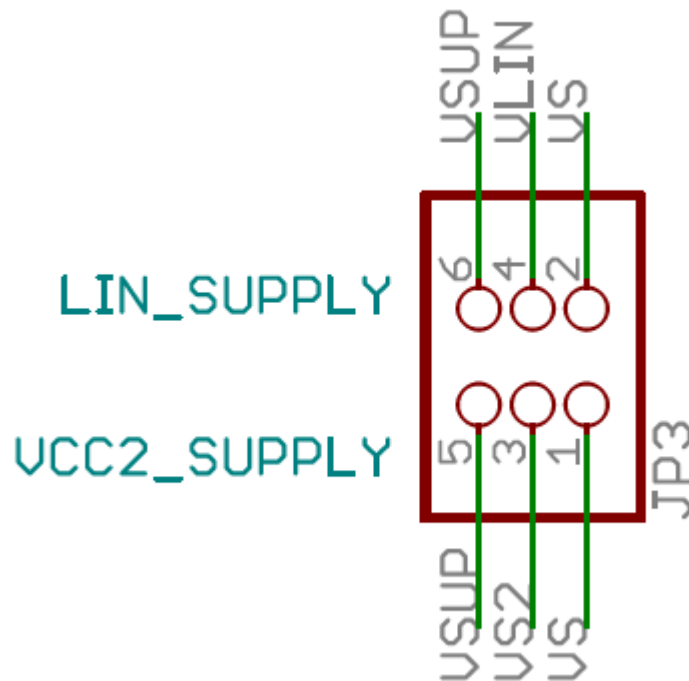
6.1. FO connect / disconnect jumpers

The appropriate FOx LEDs can be connected / disconnected from / to the FOx pins to indicate its status. Also the jumpers can be used to connect an external fail circuitry.



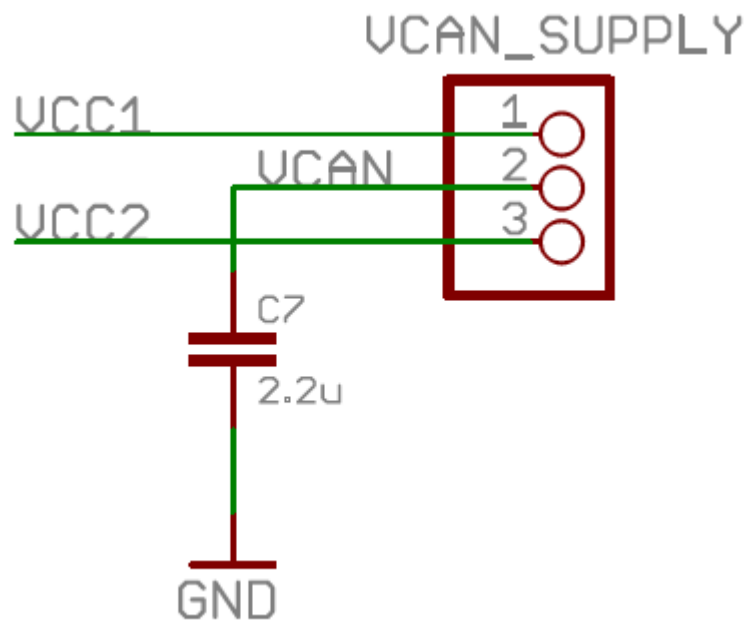
6.2. VCC2 / VLIN jumpers

Those jumpers are located directly next to the jumpers of the fail outputs LEDs (see overview picture). Depending on the configuration you can select the input supply of VCC2 regulator and the VLIN supply to either VSUP (which is directly the banana socket input) or to VS (which is the output of boost-converter).



6.3. VCAN jumper

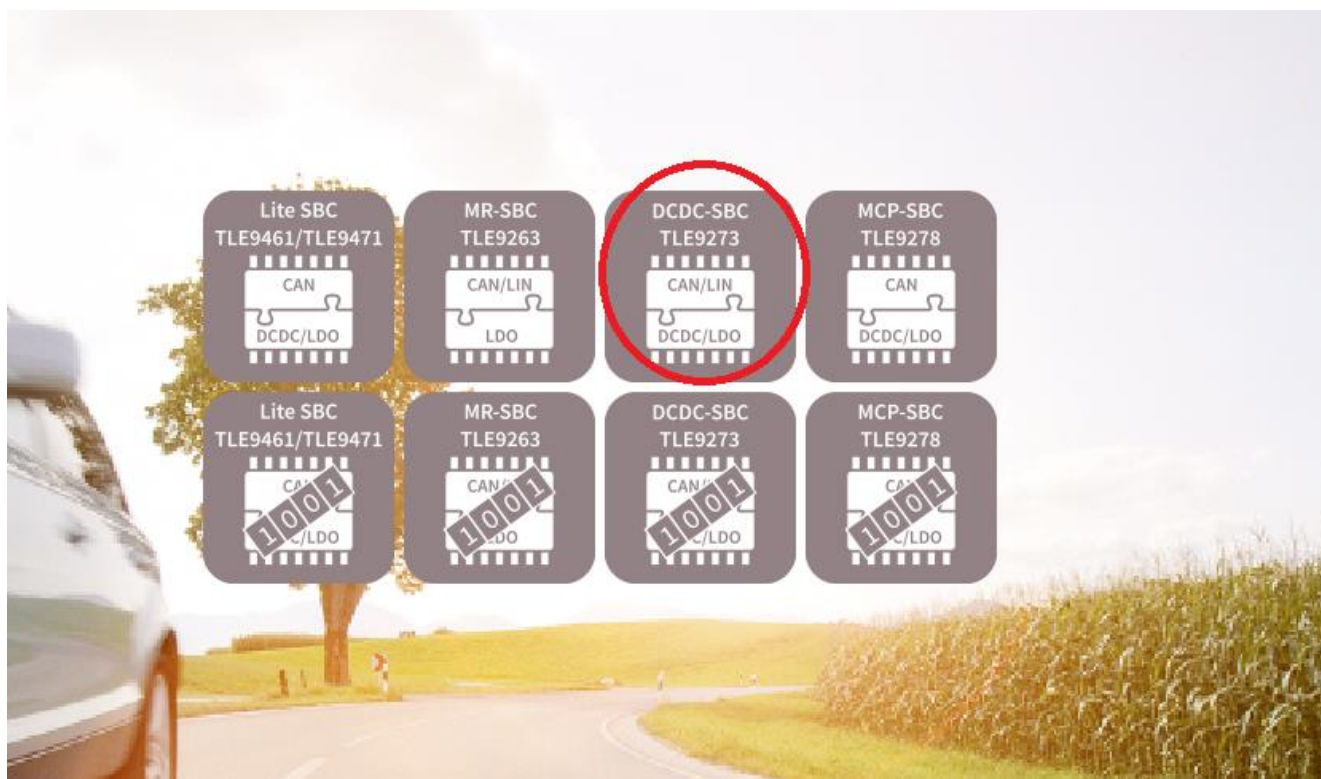
This jumper can be used to select the supply of the VCAN input. It can be connected either to VCC1 or VCC2. VCAN must be supplied with 5V. Therefore – in case of DCDC SBC V33 type, this jumper must be connected to VCC2.



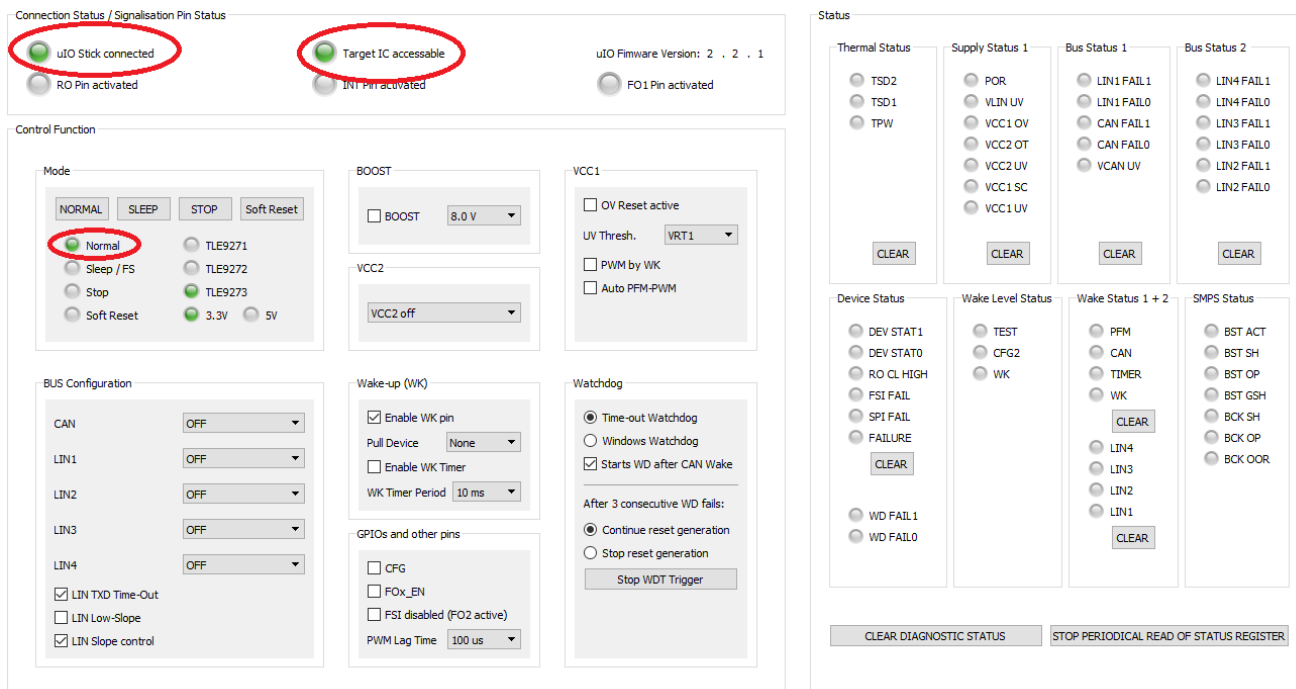
7 Usage of ConfigWizard

Please connect your uIO stick to the uIO interface header and supply the evaluation board with e.g. 12V.

After this, please open “Config Wizard for SBC” inside Infineon Toolbox and select “TLE9273”. In case it has problems to connect please refer to the uIO stick user manual which can be also downloaded under <http://www.infineon.com/SBC>



After this, when the user interface is opening, then the SBC should be in SBC normal mode and SPI should be accessible. This is indicated by green status flags.



The screenshot displays the user interface for the TLE9273QX Evaluation Board, organized into several sections:

- Connection Status / Signalisation Pin Status:** Located at the top left, it shows the status of various pins. Two green status flags are circled in red: "uIO Stick connected" and "Target IC accessible". Other pins shown include RO Pin activated, IN1 Pin activated, and FO1 Pin activated. The uIO Firmware Version is 2.2.1.
- Control Function:** This section contains multiple sub-panels:
 - Mode:** Includes buttons for NORMAL, SLEEP, STOP, and Soft Reset. The "Normal" mode is selected and circled in red. Below these are radio buttons for TLE9271, TLE9272, TLE9273, and voltage selection (3.3V, 5V).
 - BOOST:** Features a checkbox for BOOST and a voltage selector set to 8.0 V.
 - VCC1:** Includes checkboxes for OV Reset active, UV Thresh. (set to VRT1), PWM by WK, and Auto PFM-PWM.
 - VCC2:** Features a dropdown menu currently set to "VCC2 off".
 - BUS Configuration:** Contains dropdown menus for CAN, LIN1, LIN2, LIN3, and LIN4, all set to "OFF". It also has checkboxes for LIN TXD Time-Out, LIN Low-Slope, and LIN Slope control.
 - Wake-up (WK):** Includes checkboxes for Enable WK pin, Pull Device (set to None), and Enable WK Timer. The WK Timer Period is set to 10 ms.
 - GPIOs and other pins:** Includes checkboxes for CFG, FOx_EN, and FS1 disabled (FO2 active), along with a PWM Lag Time selector set to 100 us.
 - Watchdog:** Features radio buttons for Time-out Watchdog and Windows Watchdog, a checkbox for Starts WD after CAN Wake, and options for what to do after 3 consecutive WD fails (Continue reset generation or Stop reset generation).
- Status:** Located on the right side, it displays various diagnostic status indicators:
 - Thermal Status:** TSD2, TSD1, TPW.
 - Supply Status 1:** POR, VLIN UV, VCC1 OV, VCC2 OT, VCC2 UV, VCC1 SC, VCC1 UV.
 - Bus Status 1:** LIN1 FAIL1, LIN1 FAIL0, CAN FAIL1, CAN FAIL0, VCAN UV.
 - Bus Status 2:** LIN4 FAIL1, LIN4 FAIL0, LIN3 FAIL1, LIN3 FAIL0, LIN2 FAIL1, LIN2 FAIL0.
 - Device Status:** DEV STAT1, DEV STAT0, RO CL HIGH, FSI FAIL, SPI FAIL, FAILURE.
 - Wake Level Status:** TEST, CFG2, WK.
 - Wake Status 1 + 2:** PFM, CAN, TIMER, WK.
 - SMPS Status:** BST ACT, BST SH, BST OP, BST GSH, BCK SH, BCK OP, BCK OOR.

At the bottom of the Status section, there are two buttons: "CLEAR DIAGNOSTIC STATUS" and "STOP PERIODICAL READ OF STATUS REGISTER".

All functionalities of the SBC are live controllable then by just clicking or selecting the appropriate functions.

8 Additional Information

For further information you may contact <http://www.infineon.com> or your regional FAE.

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