Quick Start Guide

TRK-USB-MPC5643L

StarterTRAK USB for
Automotive Safety Applications

freescale

Get to Know the TRK-USB-MPC5643L

OSBDM Debugger and Serial Link through USB

Qorivva MPC5643L MCU

Primary Tower System Connector

User-Programmable LEDs

Temperature Sensor

User-Programmable Push Buttons

OSJTAG Flexis MC9S08JM60
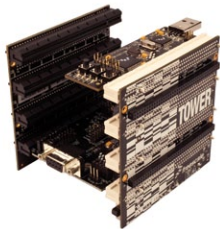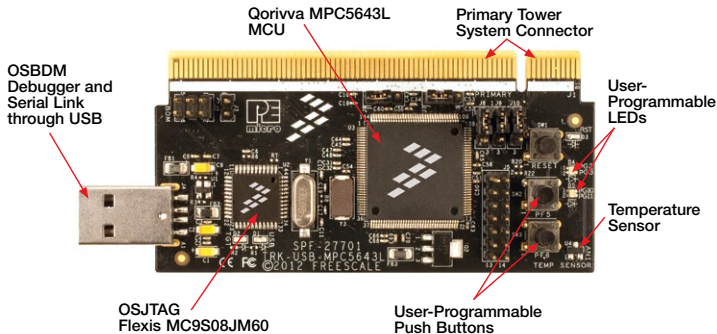
TRK-USB-MPC5643L
Freescale StarterTRAK USB

The TRK-USB-MPC5643L kit is part of our StarterTRAK USB development platform. It is designed for you to easily and inexpensively give Freescale 32-bit Qorivva MCUs a test drive. This board can also be used in conjunction with the Freescale Tower System, allowing you to rapidly prototype designs with a growing portfolio of reconfigurable, modular tools.

TRK-USB-MPC5643L Features

- Qorivva MPC5643L MCU

- Temperature sensor

- Primary Tower System connector

- Two bi-color, user-programmable LEDs

- Two user-programmable push buttons

- OSBDM debugger and serial connection through USB

Step-by-Step Installation Instructions

This quick start guide details how to set up the TRK-USB-MPC5643L board and run some demo projects on the device.

1 Install Software and Tools

- Download and install the CodeWarrior Development Studio for MPC55xx/MPC5xx V2.9 (Classic). Available at **freescale.com/TRK-USB-MPC5643L.**

2 Connect Device to Computer

- Connect the USB board into an available port and allow the computer to automatically install the device drivers for the OSBDM module. CDC device drivers are required and may be obtained via the P&E Micro website (see Note 1 on next page). Once installed, you are ready to start coding and using the device.

3 Download Supporting Documentation

• Download the Qorivva Simple Cookbook and the MPC5643L reference manual from the downloads tab at **freescale.com/TRK-USB-MPC5643L.**

4 Explore Further

• Download the example projects and applications located under the downloads tab. These include the Qorivva Simple Cookbook examples, a TRK-USB-MPC5643L specific project and supporting Windows application. This application code utilizes the on-board temperature sensor switches and LEDs, as well as many on-chip peripherals. P&E CDC drivers will be required for this application.

Note 1: Updated drivers are required for full device functionality and are available on the P&E OSBDM website at **pemicro.com/osbdm/index.cfm**.

On-Board Connections

The following tables show the available signals and connections of the TRK-USB-MPC5643L board.

Jumpers

Jumper	Option	Setting	Description
J6	LIN Tx	1-2	LIN Tx to USB
		2-3	LIN Tx to Tower
J7	LIN Rx	1-2	LIN Rx to USB
		2-3	LIN Rx to Tower
J3	OSBDM Flash	1-2	Allows Flashing of New OSBDM Firmware

Other Connections

MCU Pin	Signal
Pin 5 (GPIO_PTF5)	Switch SW2
Pin 8 (GPIO_PTF6)	Switch SW3
Pin 47 (ADC_AN1)	Temp Sensor
Pin 102 (GPIO_PTG2)	Bi-Color LED D4
Pin 104 (GPIO_PTG3)	
Pin 77 (GPIO_PTG10)	Bi-Color LED D5
Pin 75 (GPIO_PTG11)	

Tower System Interface Connections

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A1	N/A	5 V		B1	N/A	5 V
A2	N/A	GND		B2	N/A	GND
A3	N/A	3.3 V		B3	N/A	3.3 V
A4	N/A	3.3 V		B4	N.C	
A5	N/A	GND		B5	N/A	GND
A6	N/A	GND		B6	N/A	GND
A7	N.C			B7	Pin 2	DSPI1_SCK
A8	N.C			B8	Pin 79	DSPI1_CS1
A9	Pin 26	GPIO_PTD9		B9	Pin 14	DSPI1_CS0
A10	Pin 32	GPIO_PTD8		B10	Pin 10	DSPI1_SOUT
A11	Pin 37	GPIO_PTD7		B11	Pin 12	DSPI1_SIN
A12	N.C			B12	N.C	
A13	N.C			B13	N.C	
A14	N.C			B14	N.C	

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A15	N.C			B15	N.C	
A16	N.C			B16	N.C	
A17	N.C			B17	N.C	
A18	N.C			B18	N.C	
A19	N.C			B19	N.C	
A20	N.C			B20	N.C	
A21	N.C			B21	Pin 101	GPIO_PTC13
A22	N.C			B22	Pin 103	GPIO_PTC14
A23	N.C			B23	Pin 124	GPIO_PTC15
A24	N.C			B24	N.C	
A25	N.C			B25	N.C	
A26	N/A	GND		B26	N/A	GND
A27	Pin 45	ADC_AN3		B27	Pin 42	ADC_AN7
A28	Pin 41	ADC_AN2		B28	Pin 48	ADC_AN6
A29	Pin 47	ADC_AN1		B29	Pin 49	ADC_AN5
A30	Pin 43	ADC_AN0		B30	Pin 46	ADC_AN4
A31	N/A	GND		B31	N/A	GND
A32	N.C			B32	N.C	
A33	Pin 74	ETIMER0_ETC1		B33	Pin 82	ETIMER0_ETC5

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A34	Pin 73	ETIMER0_ETC0		B34	Pin 80	ETIMER0_ETC4
A35	Pin 34	GPIO_PTD6		B35	Pin 129	GPIO_PTD4
A36	N/A	3.3 V		B36	N/A	3.3 V
A37	Pin 122	FLEXPWM0_B2_A2		B37	Pin 83	FLEXPWM0_B3
A38	Pin 120	FLEXPWM0_A2_A0		B38	Pin 98	FLEXPWM0_A3
A39	Pin 118	FLEMPWM0_B0_X2		B39	Pin 85	FLEXPWM0_X3
A40	Pin 134	FLEXPWM0_B3_FAULT		B40	Pin 100	FLEXPWM0_B2
A41	N.C			B41	Pin 110	CAN0_RXD
A42	N.C			B42	Pin 109	CAN0_TXD
A43	Pin 116	LIN0_RXD		B43	N.C	
A44	Pin 114	LIN1_TXD		B44	Pin 15	DSPI0_SIN
A45	VSSA			B45	Pin 142	DSPI0_SOUT
A46	VDDA			B46	Pin 11	DSPI0_CS0
A47	VDDA			B47	Pin 81	DSPI0_CS1
A48	VDDA			B48	Pin 13	DSPI0_SCK
A49	N/A	GND		B49	N/A	GND
A50	Pin 76	GPIO_PTD10		B50	N.C	
A51	Pin 78	GPIO_PTD11		B51	N.C	
A52	Pin 99	GPIO_PTD12		B52	Pin 33	GPIO_PTD5

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A53	Pin 105	GPIO_PTD14		B53	N.C	
A54	N.C			B54	N.C	
A55	N.C			B55	Pin 112	EIRQ31_PTF13
A56	N.C			B56	Pin 106	EIRQ30_PTF12
A57	N.C			B57	Pin 119	EIRQ26_PTE14
A58	Pin 128	ETIMER1_ETC4		B58	Pin 117	EIRQ25_PTE13
A59	Pin 140	ETIMER1_ETC3		B59	Pin 62	EIRQ20_PTB15
A60	Pin 3	ETIMER1_ETC2		B60	Pin 64	EIRQ19_PTB14
A61	Pin 125	ETIMER1_ETC1		B61	Pin 143	EIRQ13_PTA14
A62	Pin 31	MCU_RESET		B62	Pin 136	EIRQ12_PTA13
A63	Pin 31	MCU_RESET		B63	N.C	
A64	N.C			B64	N.C	
A65	N/A	GND		B65	N/A	GND
A66	N.C			B66	N.C	
A67	N.C			B67	N.C	
A68	N.C			B68	N.C	
A69	N.C			B69	N.C	
A70	N.C			B70	N.C	
A71	N.C			B71	N.C	

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A72	N.C			B72	N.C	
A73	N.C			B73	N.C	
A74	N.C			B74	N.C	
A75	N.C			B75	N.C	
A76	N.C			B76	N.C	
A77	N.C			B77	N.C	
A78	N.C			B78	N.C	
A79	N.C			B79	N.C	
A80	N.C			B80	N.C	
A81	N/A	GND		B81	N/A	GND
A82	N/A	3.3 V		B82	N/A	3.3 V

Support

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

Warranty

Visit **freescale.com/warranty** for complete warranty information.

For more information, visit
freescale.com/TRK-USB-MPC5643L