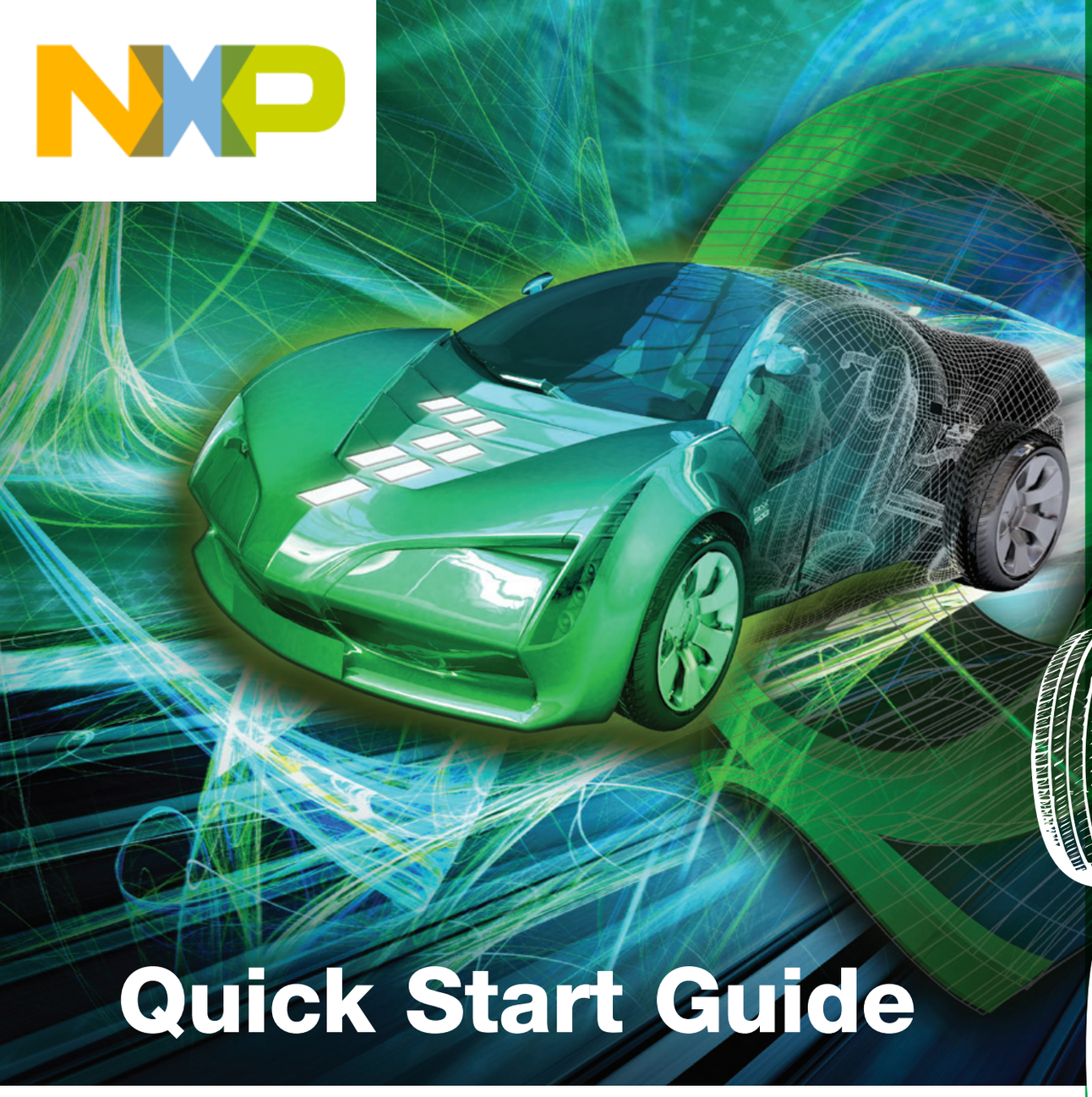


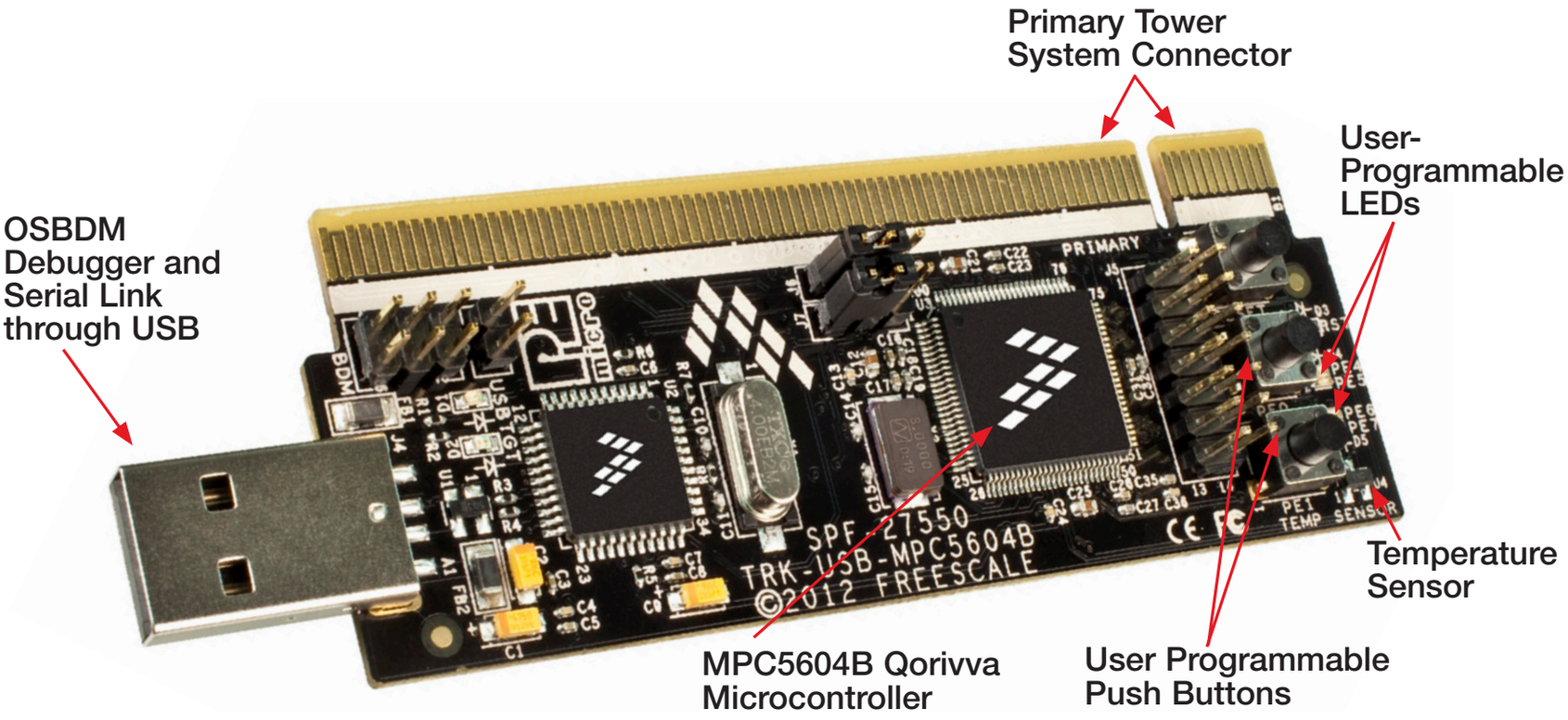
Quick Start Guide

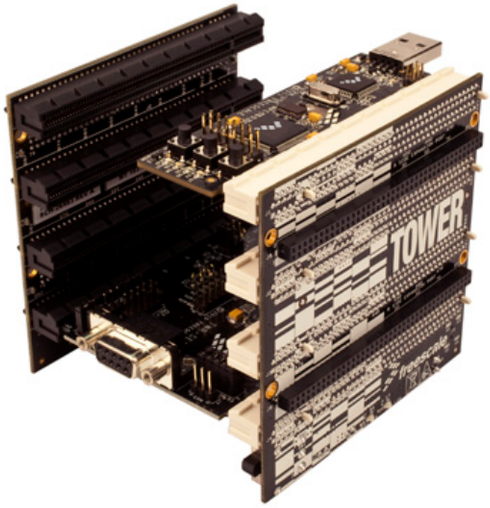
TRK-USB-MPC5604B

StarterTRAK USB
for Automotive Applications

freescale™

Get to know the TRK-USB-MPC5604B





TRK-USB-MPC5604B
Freescale StarterTRAK USB

The TRK-USB-MPC5604B kit is part of Freescale's StarterTRAK mini USB development platform. It is designed for you to easily and inexpensively give Freescale's 32-bit Qorivva microcontrollers 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-MPC5604B Features

- MPC5604B Qorivva microcontroller
- Temperature sensor
- Primary Tower System connector
- Two user-programmable bi-colored LEDs
- Two user-programmable push buttons
- OSBDM debugger through USB

Step-by-Step Installation Instructions

This quick start guide details how to set up the TRK-USB-MPC5604B 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-MPC5604B**

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 MPC5500/5600 Simple Cookbook and the MPC5604B reference manual from the downloads tab at **freescale.com/TRK-USB-MPC5604B**

4 Explore Further

- Download the example projects and applications located under the downloads tab. These include the MPC5500/5600 Simple Cookbook examples, a TRK-USB-MPC5604B-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-MPC5604B 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 6 (PE0)	Switch SW2
Pin 8 (PE1)	Switch SW3
Pin 53 (PB5/AN0_ANP1)	Temp Sensor
Pin 93 (PE4)	Green LED
Pin 94 (PE5)	Red LED
Pin 95 (PE6)	Green LED
Pin 96 (PE7)	Red LED

Tower System Interface Connections

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A1	N/A	5V		B1	N/A	5V
A2	N/A	GND		B2	N/A	GND
A3	N/A	3.3V		B3	N/A	3.3V
A4	N/A	3.3V		B4	N.C	
A5	N/A	GND		B5	N/A	GND
A6	N/A	GND		B6	N/A	GND
A7	N.C			B7	Pin 78	DSPI1_SCK
A8	N.C			B8	Pin 64	DSPI1_CS1
A9	Pin 22	GPIO_PTC10		B9	Pin 61	DSPI1_CS0
A10	Pin 2	GPIO_PTC9		B10	Pin 91	DSPI1_SOUT
A11	Pin 99	GPIO_PTC8		B11	Pin 92	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 39	GPIO_PTB8
A22	N.C			B22	Pin 38	GPIO_PTB9
A23	N.C			B23	Pin 40	GPIO_PTB10
A24	N.C			B24	N.C	
A25	N.C			B25	N.C	
A26	N/A	GND		B26	N/A	GND
A27	Pin 55	ADC0_AN3		B27	N.C	ADC_AN7
A28	Pin 54	ADC0_AN2		B28	Pin 41	ADC_AN6
A29	Pin 53	ADC0_AN1		B29	Pin 44	ADC_AN5
A30	Pin 50	ADC0_AN0		B30	Pin 42	ADC_AN4
A31	N/A	GND		B31	N/A	GND
A32	N.C			B32	N.C	
A33	Pin 7	TMR1_PTA1		B33	Pin 64	TMR3_PTA4

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A34	Pin 12	TMR0_PTA0		B34	Pin 5	TMR2_PTA2
A35	Pin 26	GPIO_PTC7		B35	Pin 59	GPIO_PTB11
A36	N/A	3.3V		B36	N/A	3.3V
A37	Pin 97	PWM3_PTC12		B37	Pin 66	PWM7_PTD15
A38	Pin 67	PWM2_PTB15		B38	Pin 60	PWM6_PTD12
A39	Pin 65	PWM1_PTB14		B39	Pin 4	PWM5_PTC15
A40	Pin 63	PWM0_PTB13		B40	Pin 98	PWM4_PTC13
A41	N.C			B41	Pin 24	CAN0_RXD
A42	N.C			B42	Pin 23	CAN0_TXD
A43	Pin 1	Lin0RX (via J7 in 2-3 pos)		B43	N.C	
A44	Pin 100	Lin0TX (via J6 in 2-3 pos)		B44	Pin 31	DSPI0_SIN
A45	VSSA			B45	Pin 30	DSPI0_SOUT
A46	VDDA			B46	Pin 27	DSPI0_CS0
A47	VDDA			B47	Pin 62	DSPI0_CS1
A48	VDDA			B48	Pin 28	DSPI0_SCK
A49	N/A	GND		B49	N/A	GND
A50	Pin 86	GPIO_PTD4		B50	N.C	
A51	Pin 3	GPIO_PTD5		B51	N.C	
A52	Pin 21	GPIO_PTD6		B52	Pin 25	GPIO_PTC6

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A53	Pin 48	GPIO_PTD7		B53	N.C	
A54	N.C			B54	N.C	
A55	N.C			B55	Pin 76	EIRQ11_PTE12
A56	N.C			B56	Pin 11	EIRQ10_PTE10
A57	N.C			B57	Pin 3	EIRQ8_PTC14
A58	Pin 75	TMR7_PTA11		B58	Pin 77	EIRQ6_PTC3
A59	Pin 74	TMR6_PTA10		B59	Pin 72	EIRQ3_PTA8
A60	Pin 73	TMR5_PTA9		B60	Pin 71	EIRQ2_PTA7
A61	Pin 79	TMR4_PTA5		B61	Pin 80	EIRQ1_PTA6
A62	Pin 17	MCU_RESET		B62	Pin 68	EIRQ0_PTA3
A63	Pin 17	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.C			B82	N.C	

Quick Start Guide

For more information, visit
freescale.com/TRK-USB-MPC5604B

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