



ide for TRK-MPC5604P

Starter *TRAK*



**TRK-MPC5604P**  
Motor control applications





# Get to Know the TRK-MPC5604P

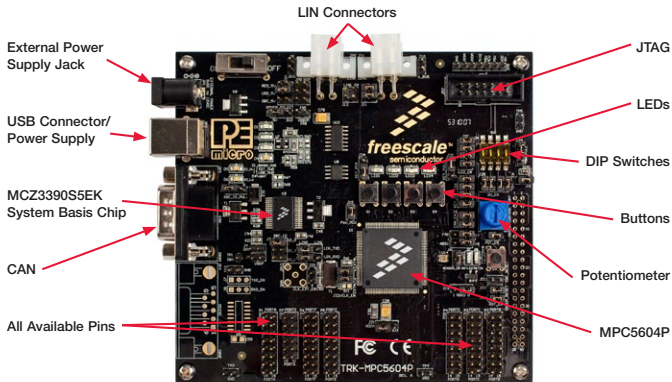


Figure 1: TRK-MPC5604P Board\*



## TRK-MPC5604P Freescale StarterTRAK

The TRK-MPC5604P board is part of the Freescale StarterTRAK series, a development platform that enables rapid prototyping and tool re-use. Take your design to the next level and begin constructing with your StarterTRAK system today.



## TRK-MPC5604P Features

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- MPC560xP series microcontroller (144-pin LQFP)
- On-board JTAG connection via open source OSBDM circuit using the MPC9S08JM microcontroller
  - See [pemicro.com/osbdm](http://pemicro.com/osbdm) for source code
- MCZ3390S5EK system basis chip with advanced power management and integrated CAN transceiver and LIN 2.0 interface
- CAN interface
- LIN interface
- Analog interface with potentiometer
- High-efficiency LEDs
- SCI serial communication interface

## Step-by-Step Installation Instructions

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In this Quick Start Guide, you will learn how to set up the TRK-MPC5604B board and run the default low-power lab exercise.

STEP  
1

### Install Software and Tools

- Install CodeWarrior Development Studio for 55xx/56xx Architectures v2.7 or later
  - Install RAppID initialization tool
- Install in the order listed. These programs are included on the DVD. CodeWarrior and RAppID included offers a 30-day evaluation license. For updates, please visit [freescaling.com/StarterTRAK](http://freescaling.com/StarterTRAK).



STEP  
2

## Connect the USB Cable

Connect one end of the USB cable to the PC and the other end to the mini-B connector on the TRK-MPC5604P board. Allow the PC to automatically configure the USB drivers if needed.

STEP  
3

## Open Supporting Documentation

Open the MPC5500 and MPC5600 Simple Cookbook and TRK-MPC5604P User Manual from the Documentation and Training tab on the included DVD.

STEP  
4

## Explore Further with the MPC5500 and MPC5600

### Simple Cookbook: Low-Power Lab Exercise

To run a demonstration using the TRK-MPC5604P, follow the instructions for the low power lab exercise for MPC560xP in the MPC5500 and MPC5600 Simple Cookbook. The Cookbook is located under the documentation tab on the DVD.

STEP  
5

## Learn More About the MPC5604P

Read the release notes and documentation located on the DVD and at [freescale.com/StarterTRAK](http://freescale.com/StarterTRAK).

- The MPC5500 and MPC5600 Simple Cookbook provides simple code examples for manipulating different peripherals on the MPC5604P
- The RAppID graphical initialization software will help you get to market faster
- CodeWarrior for 55xx/56xx with examples from the Simple Cookbook

**Note:** The lab exercise to use low power is located on p.110 in section 13.3.1. Check [freescale.com/TRK-MPC5604P](http://freescale.com/TRK-MPC5604P) for the latest training and labs.



## TRK-MPC5604P Jumper Options

The following is a list of all jumper options.

Jumper	Option	Setting	Description
J1	System Power Source Select	1-2	External Power 9V DC to 12V DC Regulated Down to 5V DC
		3-4	USB OSJTAG Supplies 5V DC
		5-6	SBCMC33905 Supplies 5V DC
J2	SBC I/O LED Pull Up/Down	1-2	Pull Up
		2-3	Pull Down
J3	SBC I/O Signal	1-2	I/O-0
		3-4	I/O-3
		5-6	I/O-1
J4	SBC DBG Short to GND (default: OFF)	1-2	Short SBC DBG Pin to GND, Bypass R21 and D11
J5	SBC DBG Pull Up (default: OFF)	1-2	Pull Up SBC DBG Pin to SBC Power Supply via 330 Ohm Resistor
J6	CAN Signals to Transceiver Enable	1-2, 3-4	Enables TXD and RXD signals to CAN Transceiver
J7	RS232 TXD Signal	1-2	MCU TXD to Virtual Serial Port
		2-3	MCU TXD to RS232 Transceiver
J8	RS232 RXD Signal	1-2	MCU RXD to Virtual Serial Port
		2-3	MCU RXD to RS232 Transceiver
J9	LIN1 VBus Enable (default: OFF)	1-2	Provides Power to LIN1 Connector
J10	LIN0 VBus Enable (default: OFF)	1-2	Provides Power to LIN0 Connector
J11	LIN0 Signals to Connector Enable	1-2, 3-4	Connects LIN0 Signals to LIN0 Connector



## FR11000J4P Jumper Options *(continued from previous page)*

Jumper	Option	Setting	Description
J12	LIN1 Signals to Connector Enable (default: OFF)	1-2, 3-4	Connects LIN1 Signals to LIN1 Connector
J13	LIN TXD Signal	1-2	MCU LIN0TX to Transceiver
		2-3	MCU LIN1TX to Transceiver
J14	LIN RXD Signal	1-2	MCU LIN0RX to Transceiver
		2-3	MCU LIN1RX to Transceiver
J15	MCU VDD Enable	1-2	Provides Power to MCU, Current Measurement
J16	VMOT_EN Enable	1-2	Provides Power to VMOT_EN
J17	FAB	1-2	FAB Pulled Up High
		2-3	FAB Pulled Down Low
J18	ABS0	1-2	ABS0 Pulled Up High
		2-3	ABS0 Pulled Down Low
J19	ABS2	1-2	ABS2 Pulled Up High
		2-3	ABS2 Pulled Down Low
J20	System Power Voltage Select	1-2	5V
		2-3	3.3V
J21	VDDA Enable	1-2	Provides 5V Power to VDDA; Current Measurement
		2-3	Provides 3.3V Power to VDDA; Current Measurement
J22	External Crystal Circuitry Enable (default: ALL ON)	1-2	XTAL
		3-4	EXTAL
J23	External Oscillator via SMA Enable (default: OFF)	1-2	EXTAL

TRK-MPC5604P Jumper Options *(continued from previous page)*

Jumper	Option	Setting	Description
J24	Push Button Active High or Low, Opposite of J25	1-2	Active Low
		2-3	Active High
J25	Push Button Pull Up/Down Enable, Opposite of J24	1-2	Pull Up
		2-3	Pull Down
J26	Push Button Signals Enable (default: ALL ON)	1-2, 3-4, 5-6, 7-8	Connects MCU Port D0, D1, D2, and D3 to Push Buttons Correspondingly
J27	LED Signals Enable (default: ALL ON)	1-2, 3-4, 5-6, 7-8	Connects MCU Port D4, D5, D6, and D7 to LEDs Correspondingly
J28	DIL Switch Signals Enable (default: ALL ON)	1-2, 3-4, 5-6, 7-8	Connects MCU Port D8, D9, D10, and D11 to DIL Switch Correspondingly
J29	DIL Switch Active High or Low	1-2	Active High
		2-3	Active Low
J30	Analog Input Enable	1-2	Connects MCU PE0 to Potentiometer
J31	Photo Sensor Enable	1-2	Connects MCU PE1 to Photo Cell
J32	SBC Reset to MCU Enable (default: OFF)	1-2	Enables SBC Reset Signal to Trigger MCU Reset
J33	OSJTAG Reset to MCU Enable	1-2	Enables OSJTAG Reset Signal to Trigger MCU Reset
J34	System Reset Enable	1-2	Connects Reset Sources to MCU Reset Signal
J35	OSJTAG Bootloader Enable (default: OFF)	1-2	Forces OSJTAG to start up in bootloader mode for firmware updates



To learn more, please visit [freescale.com/StarterTRAK](http://freescale.com/StarterTRAK).

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Doc Number: TRKMPC5604PQSG / REV 0  
Agile Number: 926-78569 / REV A

