Getting Started Guide
MOTIX™ Motor Control Kit

September 2021

restricted

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General Safety Information



This Kit contains a spinning motor. Keep your fingers, hair, clothes and jewellery away from moving parts!



This Kit is only to be used by trained and educated personnel, such as engineers.

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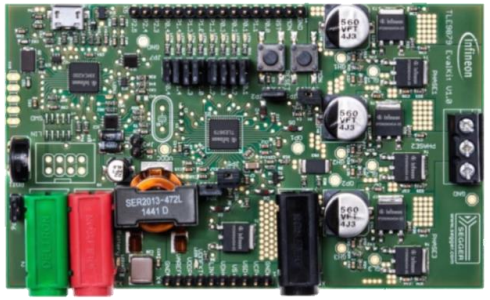
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MOTIX™ Motor Control Kit

TLE9879 Evalkit



Motor

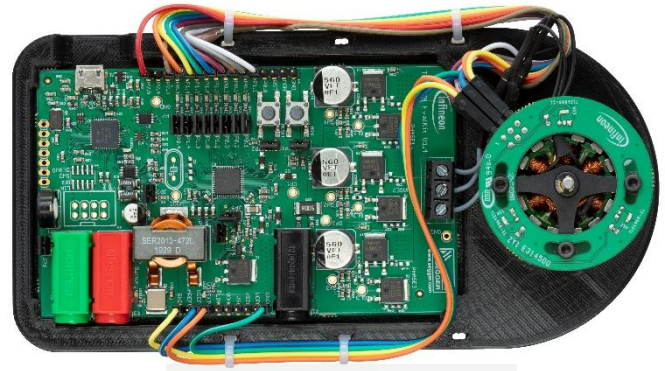


Angle & Hall-Switch PCBs



3D printed housing





Motor Control Kit

Scope

It is a PnP motor control kit for rapid prototyping of 3-phase brushless DC motors.

Kit Content

- TLE9879 Evalkit
- Angle & Hall Switch PCBs
- Motor
- Cables
- 3D printed housing

Main Components

- **MOTIX™ MCU:**
- TLE9879QXA40 → TLE9879 EVALKIT

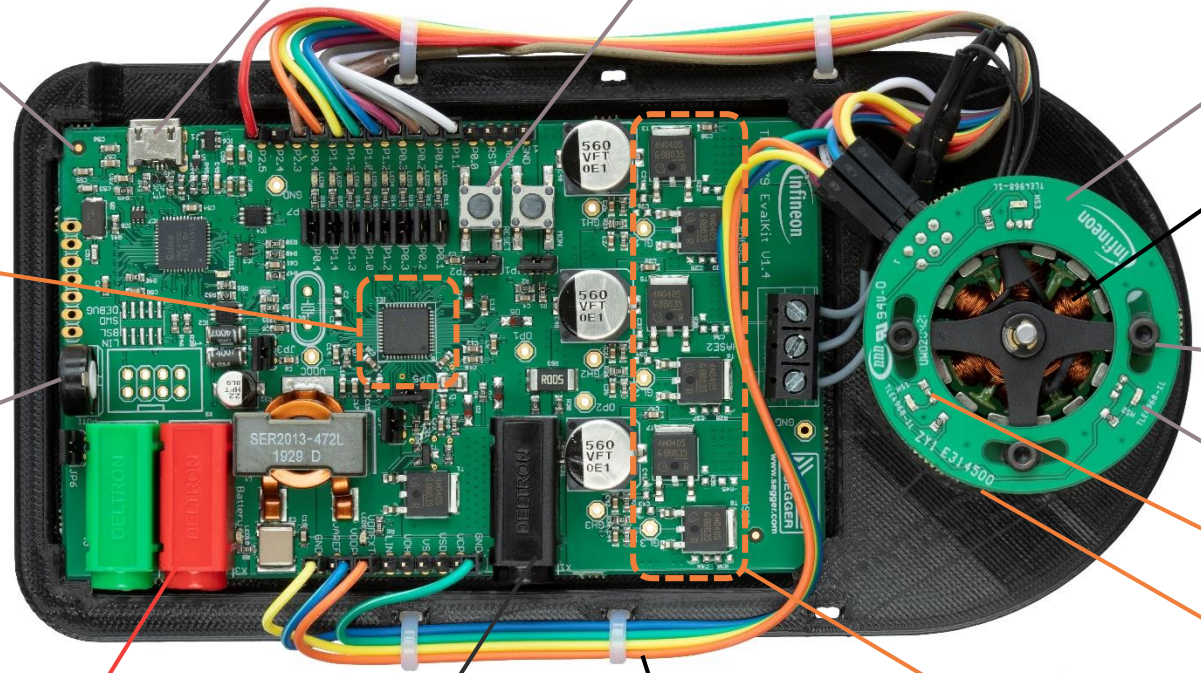
- **Sensors:**
- TLE5012B-E1000
- TLE4968-1L

Target Applications

- Automotive 12V BLDC Applications
  - HVAC Blower
  - Cooling Fan
  - Water Pump
- Consumer BLDC Applications
  - Drones / Multicopter
  - Battery Power Tools
  - Robot Vacuums

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MOTIX™ Motor Control Kit



MOTIX™ MCU TLE9879 Evalkit

USB Interface for onboard debug linker

Reset Button

BLDC Motor + Sensors

Warning: don't touch! turning BLDC Motor

MOTIX™ MCU TLE9879QXA40

Adjustment screws for hall sensor alignment

Potentiometer for speed control

LED for hall sensor

Hall Sensors

Absolute Angle Senor

Supply typ. +12V

Supply GND

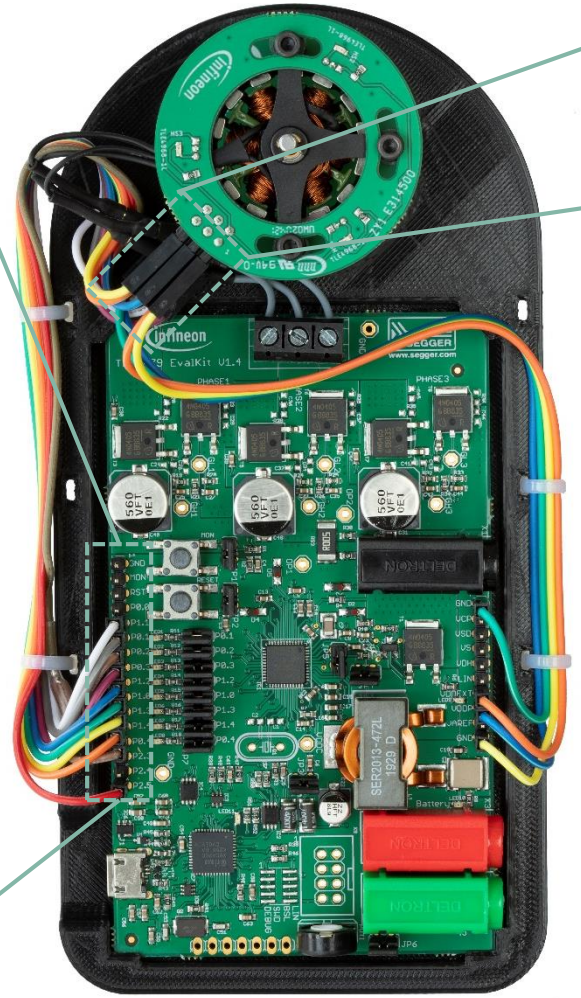
Wire colors may differ between different Kits expect the pinout

3-phase inverter with Infineon MOSFETs IPD90N04S4-05

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Pinout and Signals

Signals	Pins
Not connected	GND
Not connected	MON
Not connected	RST
Not connected	P0.0
SPI Chip Select (CSQ)	P1.1
Incremental C (IFC)	P0.1
SPI Data	P0.2
SPI Clock (SCK)	P0.3
Hall 1	P1.2
Incremental A (IFA)	P1.0
Hall 2	P1.3
Hall 3	P1.4
SPI Data	P0.4
Not connected	P2.3
Potentiometer	P2.4
Incremental B (IFB)	P2.5



Hall Switch PCB connector		
5: Hall 2	3: Hall 1	1: GND
6: Hall 3	4: n.c.	2:VDDEXT

Angle Sensor 5012B PCB connector			
1: GND	3: SPI DATA	5: CSQ	7: SCK
2: VDDP	4: IFA	6: IFB	8: IFC

Pins TLE9879	Function	Pins 5012B PCB	Hall PCB
VDDEXT	5V Supply		2
VDDP	5V Supply	2	
GND	GND	1	1
P1.0	Incremental A (IFA)	4	
P2.5	Incremental B (IFB)	6	
P0.1	Incremental C (IFC)	8	
P0.2 + P0.4 (shorted)	SPI Data	3	
P1.1	SPI Chip Select (CSQ)	5	
P0.3	SPI Clock (SCK)	7	
P1.2	Hall 1		3
P1.3	Hall 2		5
P1.4	Hall 3		6

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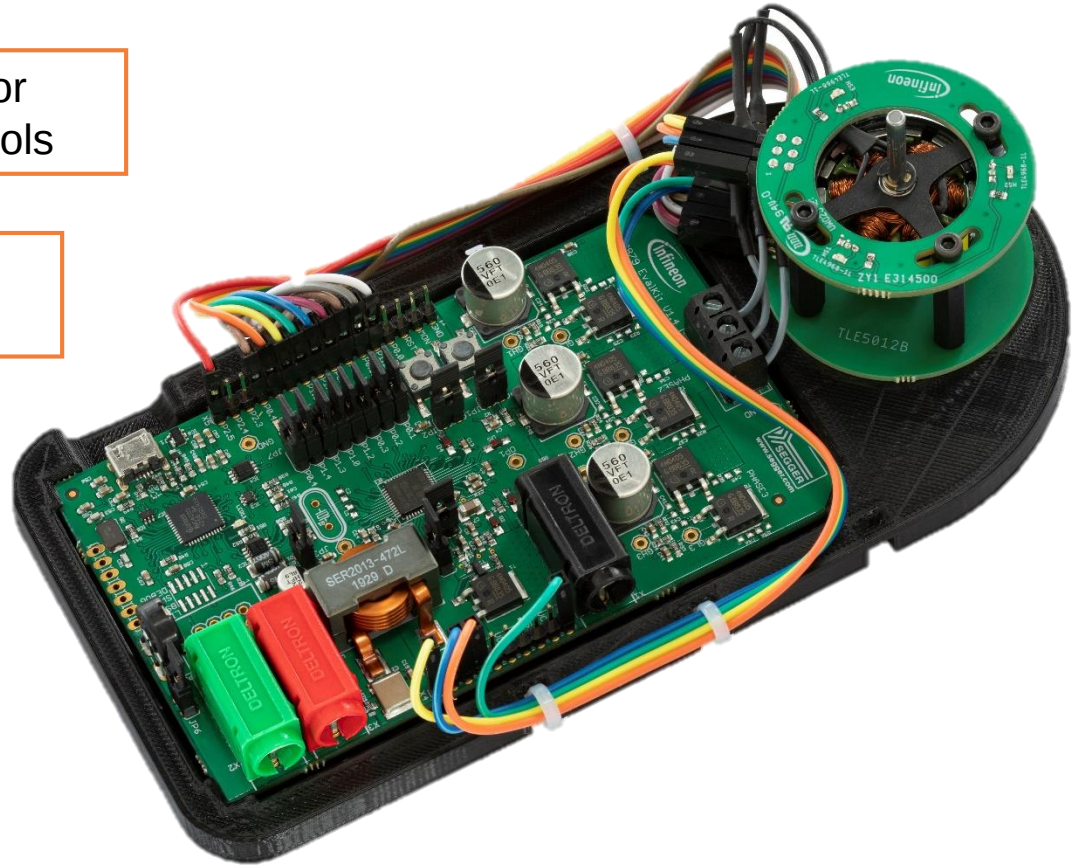
Getting Started



Box Content:
MOTIX™ Motor Control Kit
Micro USB Cable

Scan the QR code for documentation and tools

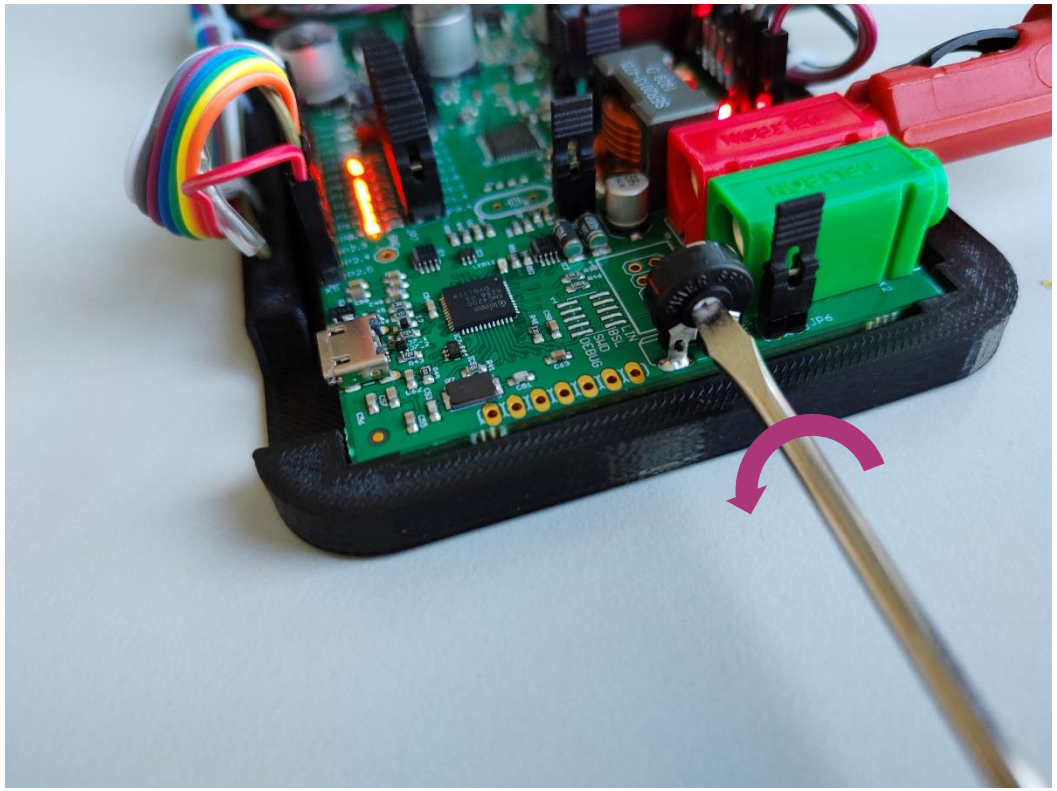
Simplified Block diagram



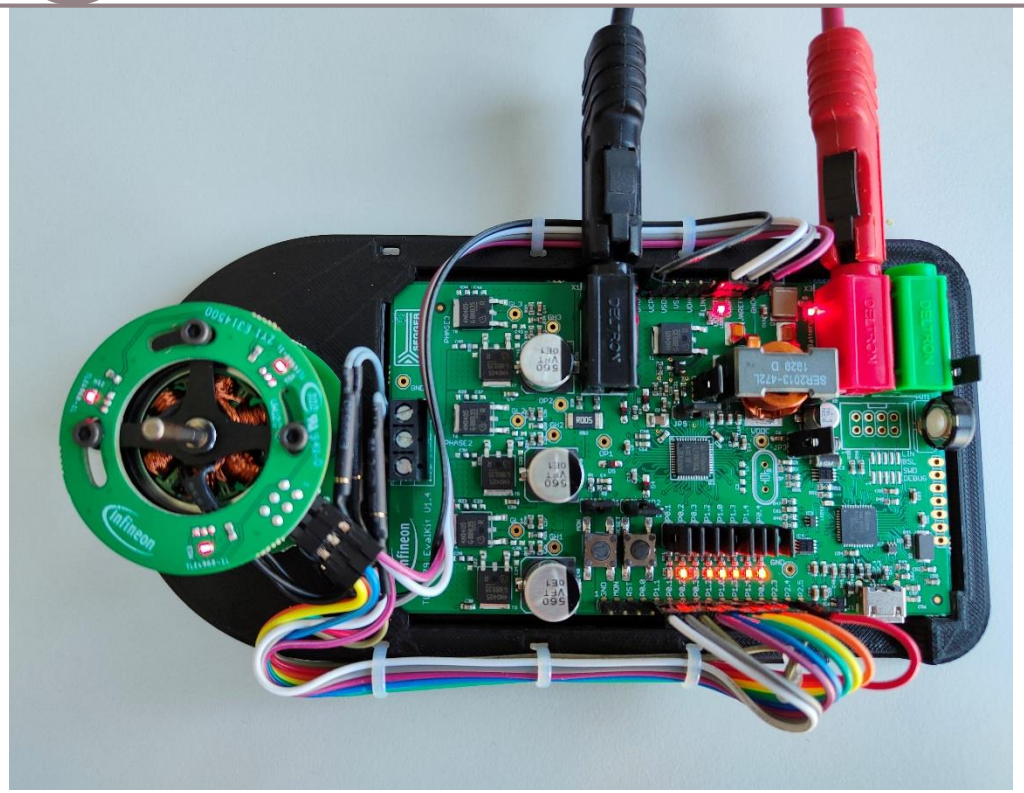
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Getting Started

1 Turn Potentiometer to the left



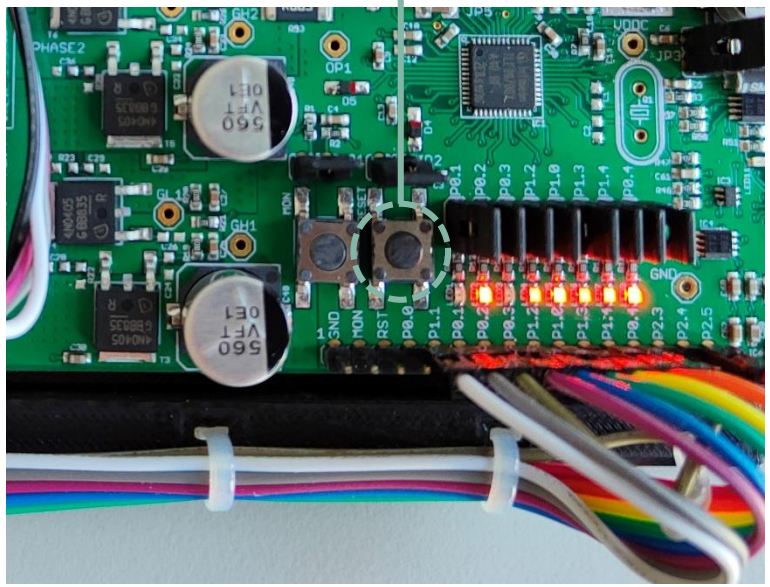
2 Supply the Kit with 12V



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Getting Started

3 Press the Reset Button



4 Motor Control Kit starts calibration



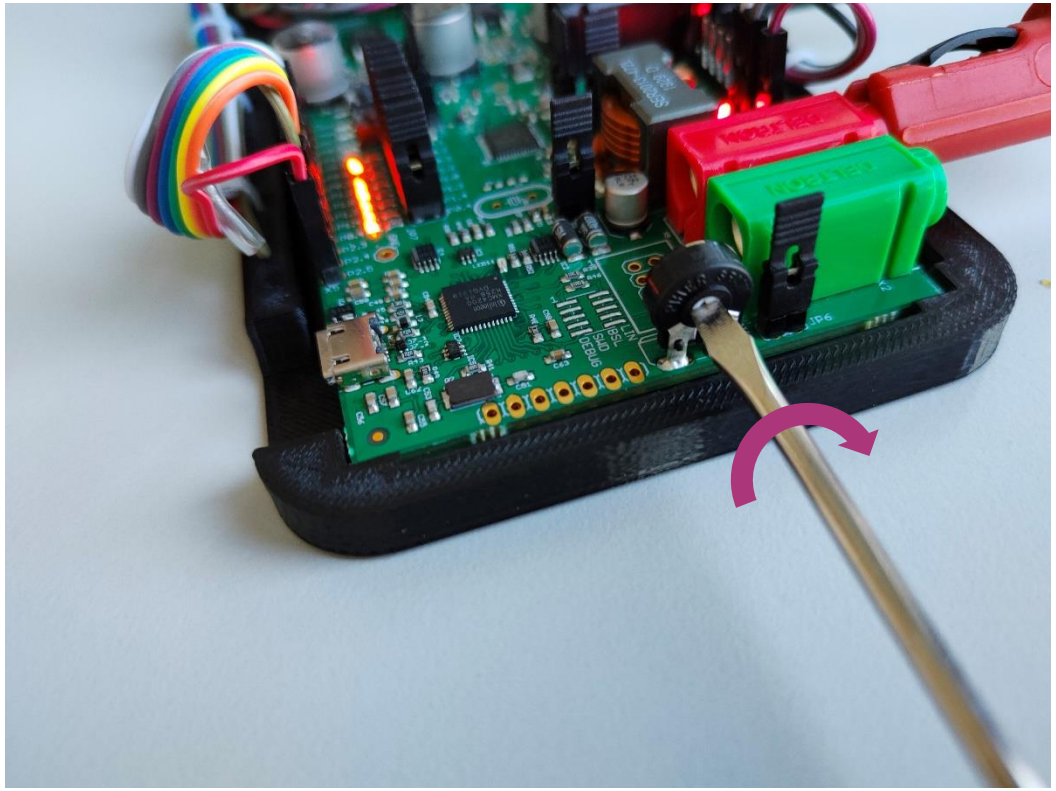
- The hall switch LEDs light up, showing the commutation pattern
- The Motor starts spinning slowly
- The calibration needs ~1min



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Getting Started

5 Use Potentiometer to change the motor speed



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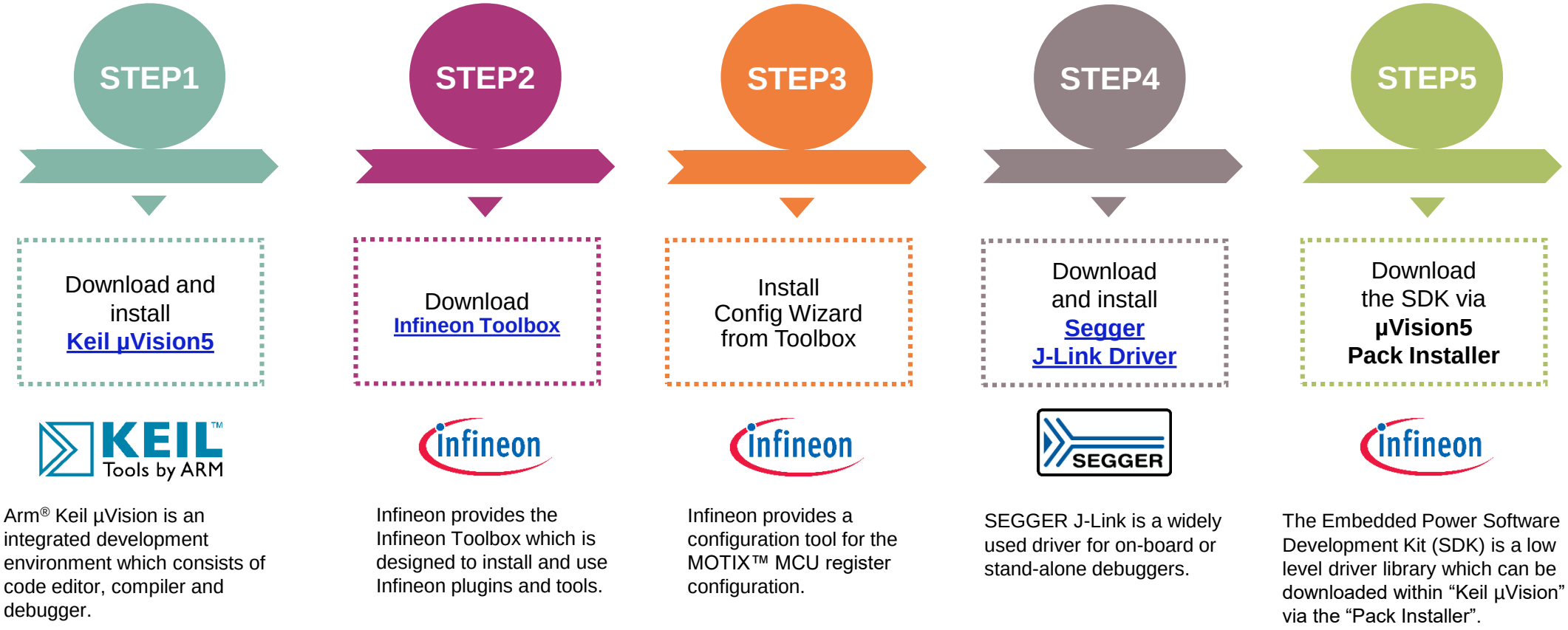
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Toolchain installation: General Overview

Infineon MOTIX™ MCUs are supported by a complete development tool chain provided by Infineon and third party vendors. The tool chain includes compilers, debuggers, evaluation boards, communication low level drivers and configuration tools as well as a variety of example software code.



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Part of your life. Part of tomorrow.