Rapidly prototype ARM® Cortex™-M4 and Cortex™M0+ processors

Freescale Freedom Development Platform

Features

- Cost effective (starting at $12.95)
- Small size (approximately 3.25" x 2"), fits within a mint tin
- Arduino™ footprint-compatible with support for a rich-set of third-party expansion boards ("shields")
- Easy access to the MCU I/O pins
- Integrated open-standard serial and debug adapter (OpenSDA) with support for several industry standard debug interfaces

Software Enablement and Support

mbed
Enabled

- Rich ARM ecosystem includes Keil, IAR, SEGGER, CodeWarrior, mbed and more
- Freescale MQX™ Lite RTOS: Very light MQX kernel for resource-limited MCUs that allows applications to run with less than 4 KB RAM
- Processor Expert software and embedded components
- FRDM-KL25Z is mbed-enabled through the built-in USB flash programming interface (OpenSDA). Simply plug it in, drop on an "mbed interface" program binary and it's up and running
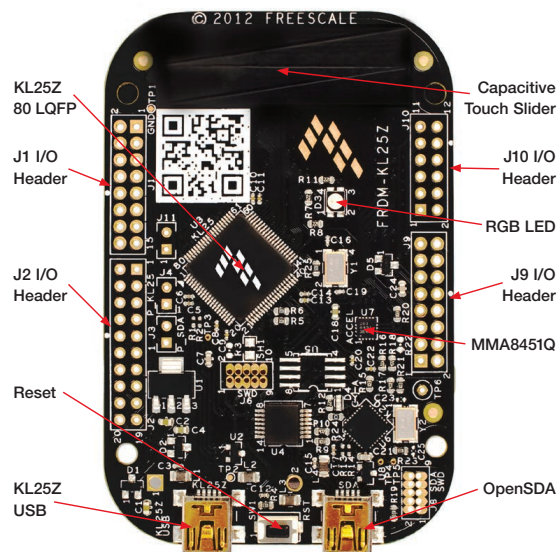
Overview

The Freescale Freedom development platform is a small, low-power, cost-effective evaluation and development system for quick application prototyping and demonstration of Kinetis MCU families.

Each platform offers an easy-to-use mass-storage device mode flash programmer, virtual serial port and classic programming and run-control capabilities.

It's easy to get started. Simply choose your preferred Freescale Freedom development hardware, select compatible software, connect with the community, and go.

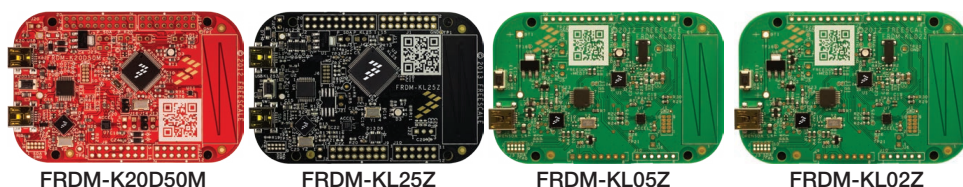### Example Freescale Freedom Development Platform: FRDM-KL25Z

FRDM-KL02Z Features

- MKL02Z32VFM4 MCU – 48 MHz, 32 KB Flash, 4 KB SRAM, 32QFN

- Capacitive touch slider, MMA8451Q accelerometer, tri-color LED

- Flexible power supply options –coin cell battery, external source

- Easy access to MCU I/O

- Battery-ready, power-measurement access points

- New, OpenSDA debug interface:

- Mass storage device flash programming interface (default); no tool installation required to evaluate demo apps

- P&E debug interface provides run-control debugging and compatibility with IDE tools

- CMSIS-DAP interface: New ARM standard for embedded debug interface

OpenSDA: Open-Standard Serial And Debug Adapter

The integrated debug circuit, OpenSDA, bridges serial and debug communications between a USB host and an embedded target processor. OpenSDA features a mass storage device bootloader, which provides a quick and easy mechanism for loading different OpenSDA applications such as flash programmers, run-control debug interfaces, serial-to-USB converters and more including:

- Freescale mass storage device flash programming interface eliminates tool installation for quick evaluation of demonstration applications

- P&E Multilink interface provides run-control debugging and compatibility with IDE tools

- SEGGER™ OpenSDA firmware makes OpenSDA compatible to J-Link Lite

FRDM-K20D50M   FRDM-KL25Z   FRDM-KL05Z   FRDM-KL02Z

Freedom Development Hardware

	FRDM-K20D50M	FRDM-KL25Z	FRDM-KL05Z	FRDM-KL02Z
Kinetis MCU	MK20KX128VLH5 MCU - 50 MHz, 128 KB Flash, 16 KB RAM, 32 KB FlexNVM, low power, 64 LQFP package	MKL25Z128VLK4 MCU - 48 MHz, 128 KB Flash, 16 KB SRAM, USB OTG (FS), 80LQFP	MKL05Z32VFM4 MCU - 48 MHZ, 32 KB Flash, 4 KB SRAM, 32QFN	MKL02Z32VFM4 MCU – 48 MHz, 32 KB Flash, 4 KB SRAM, 32QFN
USB interface	Dual role USB interface with mini-USB connector	Dual role USB interface with mini-USB connector		
Sophisticated OpenSDA debug interface	√	√	√	√
Capacitive touch slider	√	√	√	√
Ambient light sensor	√			
Accelerometer	√	√	√	√
Tri-color (RBG) LED	√	√	√	√
Easy access to MCU I/O	√	√	√	√
Arduino R3 compatibility for expansion possibilities	√	√	√	√
Additional enablement and support		mbed-enabled with online compiler, code cookbook and community (mbed.org) mbed Enabled		

- mbed interface application provides connection to mbed online tools and supports a virtual serial port, CMSIS-DAP, and a mass-storage programming interface

- CMSIS-DAP interface (stand alone): New ARM standard for embedded debug interface

Get Started

Learn more at **freescale.com/freedom**
Get your FRDM-KL25Z mbed-enabled from **mbed.org**
Enable your OpenSDA as a Segger J-Link Lite at **segger.com/opensda.html**

Get Connected

Join the Freescale community **freescale.com/community**

Visit Freescale on Facebook **facebook.com/freescale**

Follow Freescale on Twitter **twitter.com/freescale**

For a complete list of boards offered as part of the Freescale Freedom development platform, please visit freescale.com/Freedom