

FRDM-KL25Z

Overview

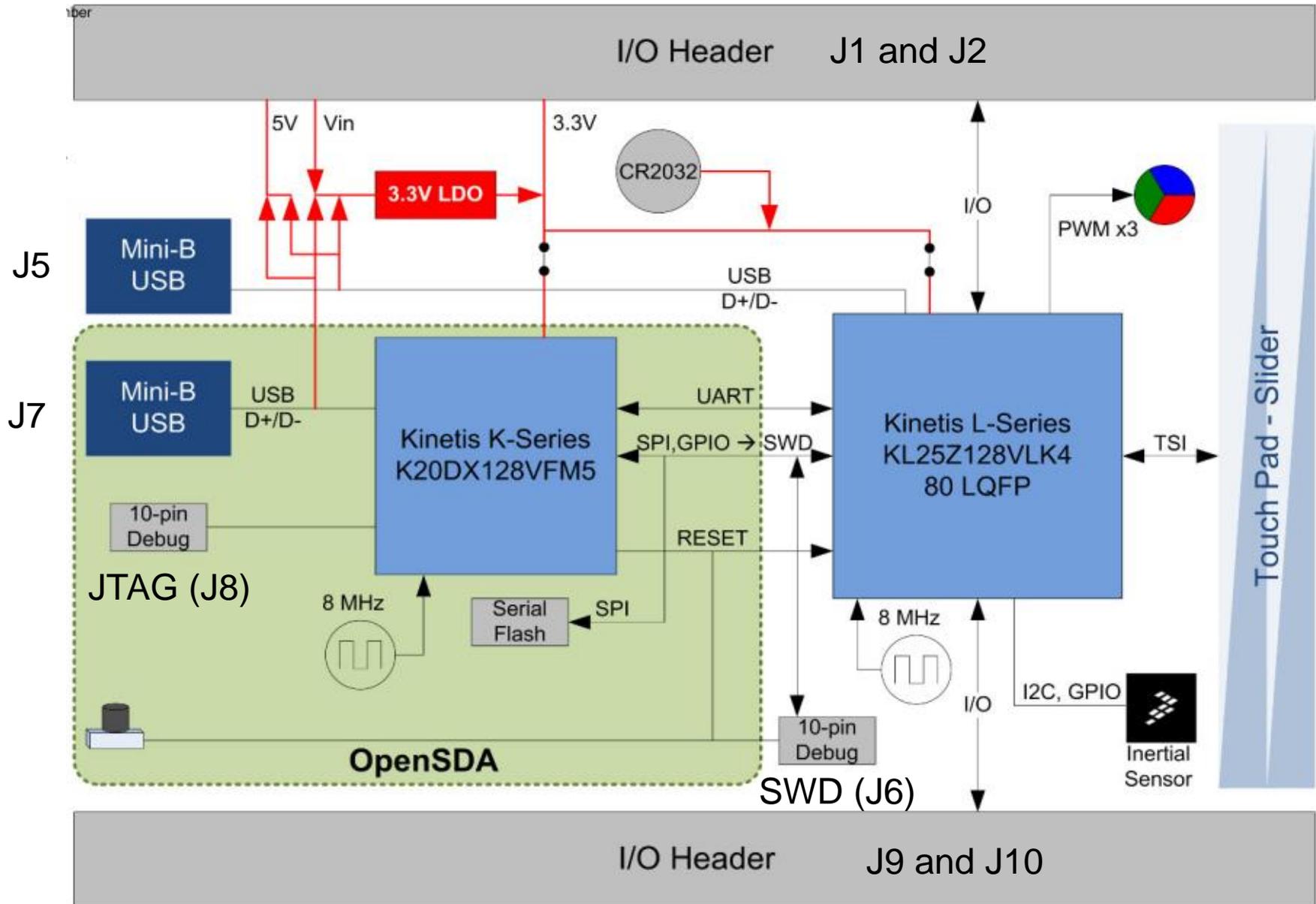
- Development platform for Kinetis® L Series KL2x microcontrollers (MCUs) built on Arm® Cortex®-M0+ processor
- standard form factor with expansion board options
- built-in debug interface for flash programming and run-time control
- supported by a range of NXP® and third-party development software (mbed.org included)



Features

- MKL25Z128VLK4 MCU – 48 MHz, 128 KB flash, 16 KB SRAM, USB OTG, 80LQFP
- capacitive touch "slider", MMA8451Q accelerometer, tri-color LED
- easy access to MCU I/O
- sophisticated OpenSDA debug interface

Block diagram



Top view

KL25Z 80 LQFP

© 2013 FREESCALE

Capacitive Touch Slider

J1 I/O Header

J10 I/O Header

J2 I/O Header

RGB LED

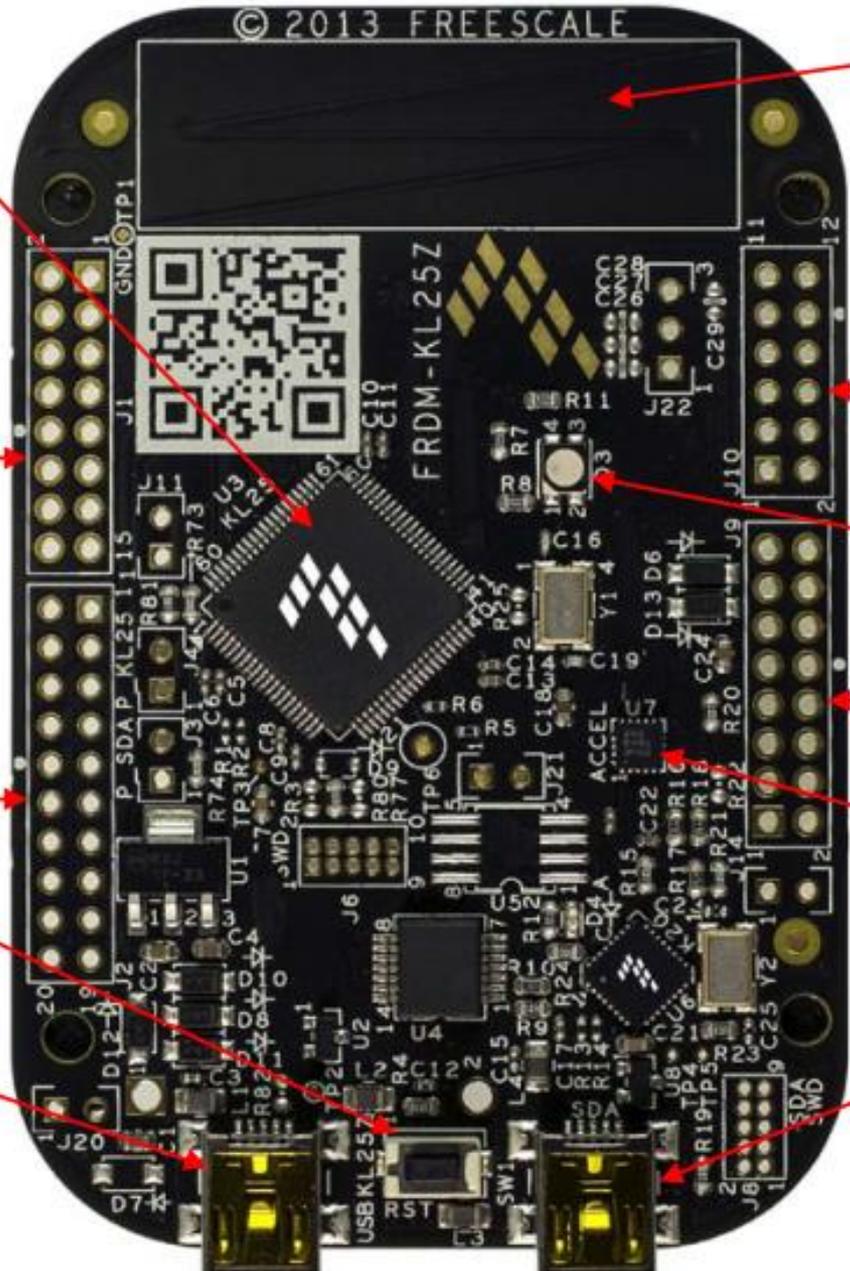
Reset

J9 I/O Header

KL25Z USB

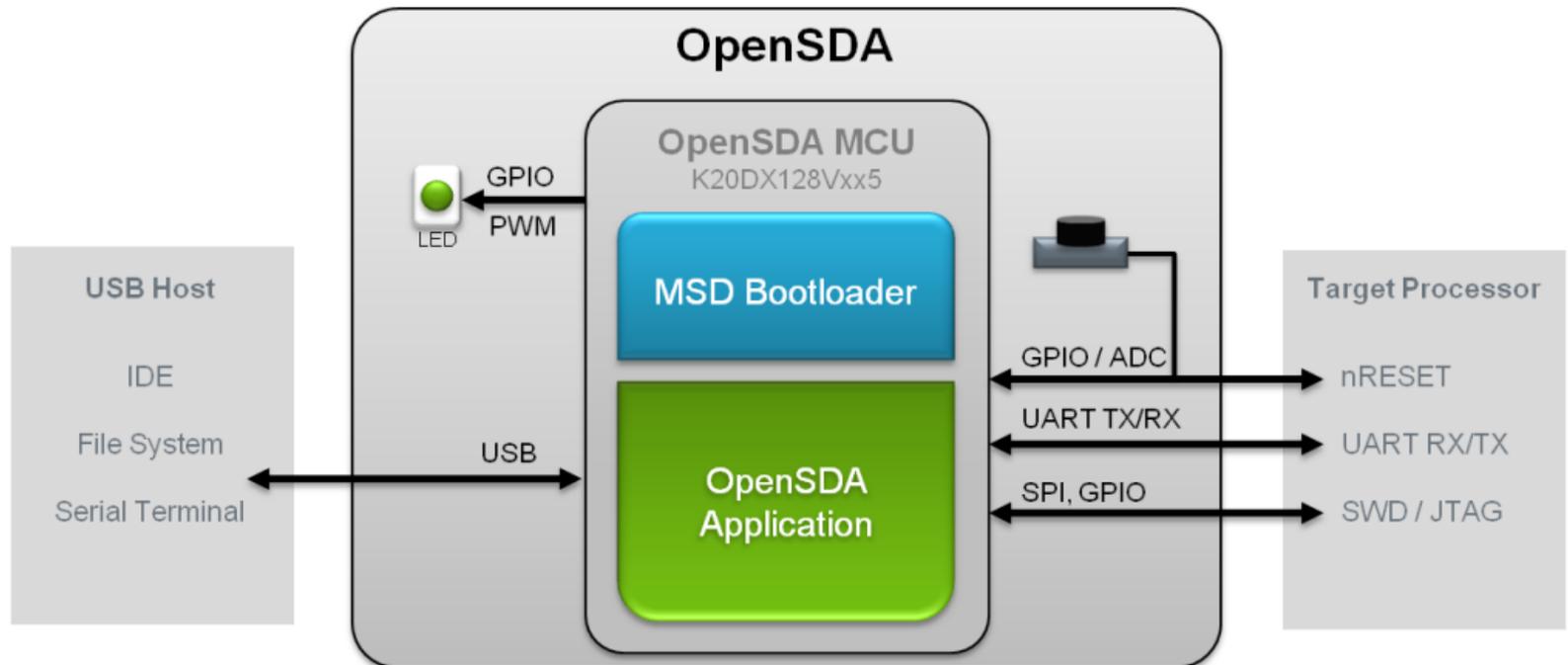
MMA8451Q

OpenSDA



Serial and Debug Adapter (OpenSDA)

- Open-standard serial and debug adapter
- serial and debug communications between a USB host and an embedded target processor
- based on a Freescale Kinetis K20 family microcontroller with 128 KB of embedded flash and integrated USB controller
- features a mass storage device (MSD) bootloader



I/O

- USB Interface
- serial Port
 - SPI (2)
 - I²C (2)
 - UART (3)
- ADC (16 bit)
- DAC (1x12 bit)
- touch sensor
- GPIO (66)
- 3-axis Accelerometer (Freescale MMA8451Q low-power, three-axis accelerometer interfaced through an I²C bus)
- 3 PWM-capable signals connected to an RGB LED
- pins on the KL25Z microcontroller are named for their general purpose input/output port pin function
 - e.g., 1st pin on Port A is referred to as PTA1

I/O

(usb) uart0_RX
(usb) uart0_TX

PTA1 - 2
PTA2 - 4
PTD4 - 6
PTA12 - 8
PTA4 - 10
PTA5 - 12
PTC8 - 14
PTC9 - 16



1 - PTC7
3 - PTC0
5 - PTC3
7 - PTC4
9 - PTC5
11 - PTC6
13 - PTC10
15 - PTC11

PTE30 - 11
PTE29 - 9
PTE23 - 7
PTE22 - 5
PTE21 - 3
PTE20 - 1



12 - PTC1
10 - PTC2
8 - PTB3
6 - PTB2
4 - PTB1
2 - PTB0

(spi CS)
spi MOSI
spi MISO
spi SCK

PTA13 - 2
PTD5 - 4
PTD0 - 6
PTD2 - 8
PTD3 - 10
PTD1 - 12
GND - 14
VREFH - 16



1 - PTC12
3 - PTC13
5 - PTC16
7 - PTC17
9 - PTA16
11 - PTA17
13 - PTE31
15 - NC

PTE5 - 15
PTE4 - 13
PTE3 - 11
PTE2 - 9
PTB11 - 7
PTB10 - 5
PTB9 - 3
PTB8 - 1



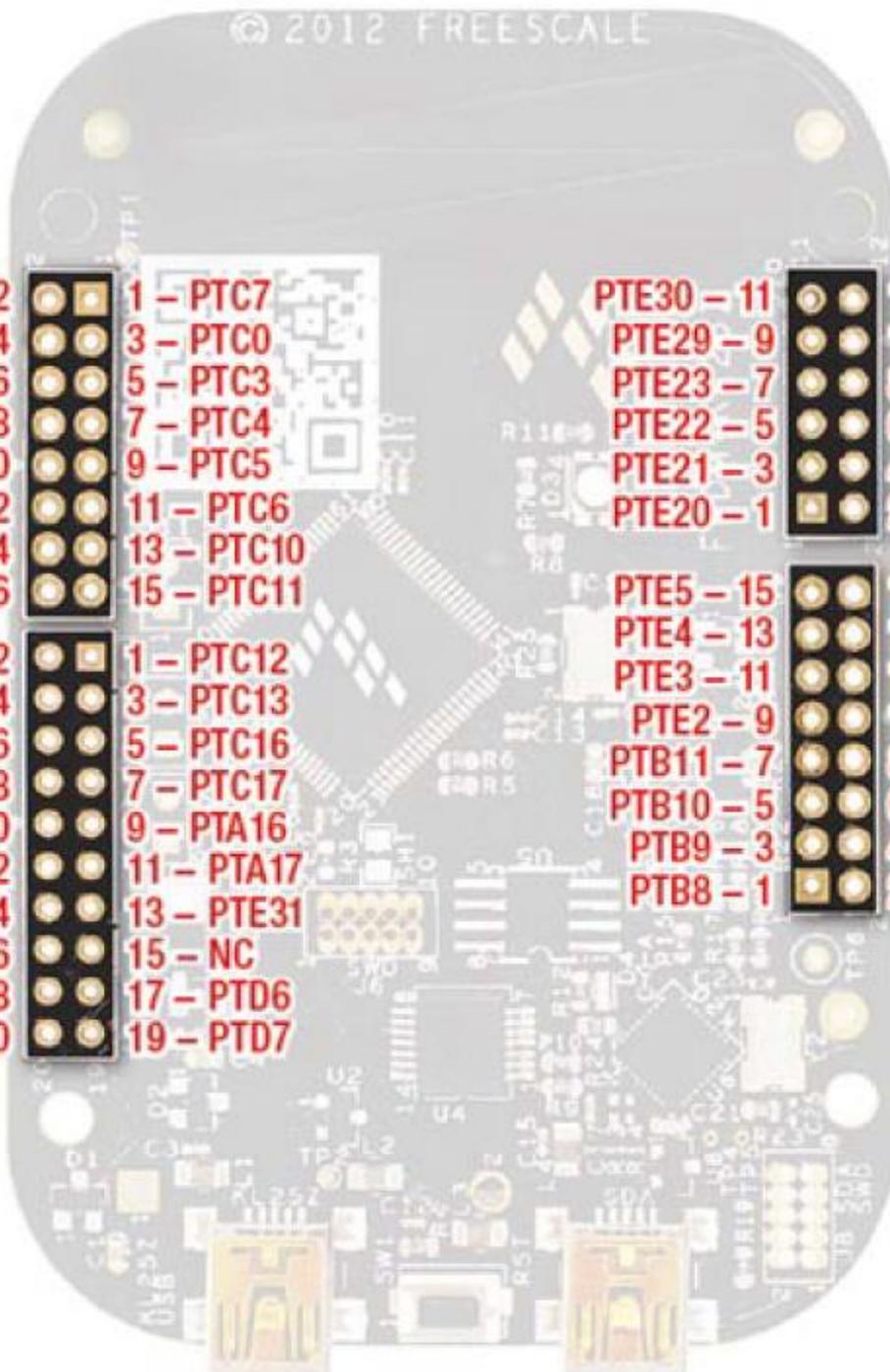
16 - P5-9V_VIN
14 - GND
12 - GND
10 - P5V_USB
8 - P3V3
6 - RESET/PTA20
4 - P3V3
2 - SDA_PTD5

uart1 TX; i2c SDA
uart1 RX; i2c SCL

PTE0 - 18
PTE1 - 20



17 - PTD6
19 - PTD7



Programming

Several different tools can be used for programming and debugging

- Keil Studio Cloud

- good and easy online tool, no debugging (at least with Firefox)

- Mbed Studio

- debugging available

- Mbed CLI

- command-line tool

- Keil uVision

- with debugger and tracing; full version needs a license

- MCUX

- with debugger, proprietary (NXP)