Before software can be loaded into the KL25Z target processor on a FRDM-KL25Z development board, the OpenSDA application program must be loaded into a Kinetis K20 processor on the FRDM-KL25Z board. This program implements a Serial Wire Debug (SWD) adapter. The Keil uVision software communicates via USB with the SWD adapter which in turn communicates with the target KL25Z processor. The Keil development software can thus download programs into the target processor, control debugging such as break point setting, start/stop programs, and when in debug mode look at control registers and memory content in the target processor.
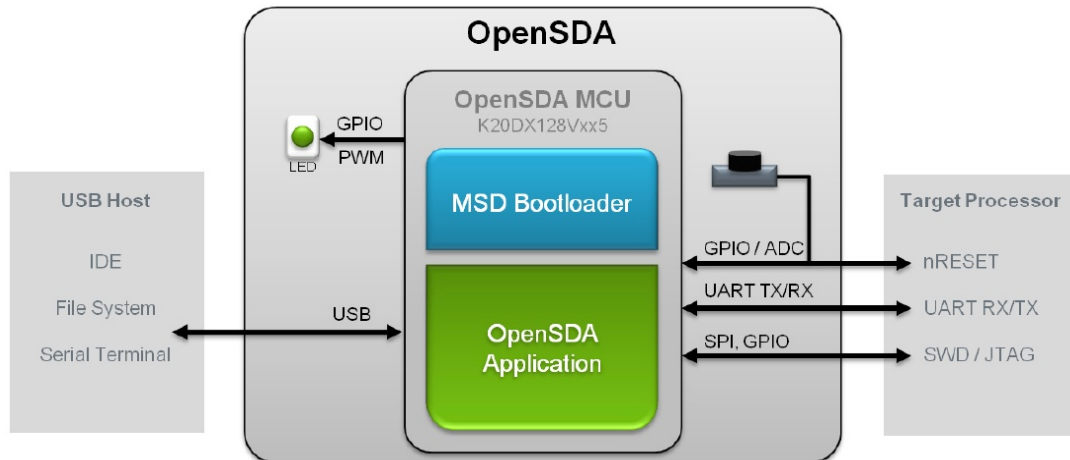
How to download the SWD Debugging program (file CMSIS-DAP.S19) as described in [5])

Program the K20 processor with the CMSIS-DAP application file CMSIS-DAP.S19:
A) Locate the file CMSIS-DAP.S19:
    1. Download CMSIS-DAP.S19 from the class webpage to your development computer. You will copy this file into the Freedom board USB device as described below
B) Put the Freedom Board into Bootloader: Mode:
    2. Hold RESET button SW1 on the Freedom board down and connect a USB cable to the USB connector with SDA beside it.
    3. When you hear the USB dual-tone (if PC audio is on), release RESET.
    4. The green led D4 will blink about once per second. The Freedom is now ready to be programmed with the CMSIS-DAP application.
    5. The Freedom will act as a USB mass storage device called BOOTLOADER connected to your PC. Open this USB device with Windows Explorer.
C)   Copy CMSIS-DAP.S19 onto the Freedom Board:
    6. Copy and paste or drag and drop CMSIS-DAP.S19 into the Bootloader USB device.
D) Exit Bootloader Mode:
    7. Cycle the power to the Freedom boardwhile not holding RESET button down. The green led will blink once and then stay off.
    8. The Freedom board is now ready to be used with the µVision debugger and Flash programmer