Introduction to OpenSDA: 1 of 2

OpenSDA is an open-standard serial and debug adapter. It bridges serial and debug communications between a USB host and an embedded target processor. OpenSDA software includes a flash-resident USB mass-storage device (MSD) bootloader and a collection of OpenSDA Applications. S32K144 EVB comes with the MSD Flash Programmer OpenSDA Application preinstalled.
Follow these instructions to run the OpenSDA Bootloader and update or change the installed OpenSDA Application.

Enter OpenSDA Bootloader Mode

1. Unplug the USB cable if attached
2. Set J104 on position 1-2.
3. Press and hold the Reset button (SW5)
4. Plug in a USB cable (not included) between a USB host and the OpenSDA USB connector (labeled “SDA”)
5. Release the Reset button

A removable drive should now be visible in the host file system with a volume label of BOOTLOADER. You are now in OpenSDA Bootloader mode.
IMPORTANT NOTE: Follow the “Load an OpenSDA Application” instructions to update the MSD Flash Programmer on your S32K144 EVB to the latest version.

Load an OpenSDA Application

1. While in OpenSDA Bootloader mode, double-click ***SDA_INFO.HTML*** in the ***BOOTLOADER*** drive. A web browser will open the OpenSDA homepage containing the name and version of the installed Application. This information can also be read as text directly from ***SDA_INFO.HTML***
2. Locate the ***OpenSDA Applications***
3. Copy & paste or drag & drop the MSD Flash Programmer Application *to the* ***BOOTLOADER*** *drive*
4. Unplug the USB cable and plug it in again. The new OpenSDA Application should now be running and a ***S32K144 EVB*** drive should be visible in the host file system

You are now running the latest version of the MSD Flash Programmer. Use this same procedure to load other OpenSDA Applications.

Introduction to OpenSDA: 2 of 2

The MSD Flash Programmer is a composite USB application that provides a virtual serial port and an easy and convenient way to program applications into the KEA MCU. It emulates a FAT16 file system, appearing as a removable drive in the host file system with a volume label of EVB-S32K144. Raw binary and Motorola S-record files that are copied to the drive are programmed directly into the flash of the KEA and executed automatically. The virtual serial port enumerates as a standard serial port device that can be opened with standard serial terminal applications.

Using the MSD Flash Programmer

1. Locate the .srec file of your project , file is under the Debug folder of the S32DS project.
2. Copy & paste or drag & drop one of the .srec files to the EVB-S32K144 drive

The new application should now be running on the S32K144 EVB. Starting with v1.03 of the MSD Flash Programmer, you can program repeatedly without the need to unplug and reattach the USB cable before reprogramming.

Drag one of the .srec code for the S32K144 the S32K144 EVB board over USB to reprogram the preloaded code example to another example.

NOTE: Flash programming with the MSD Flash Programmer is currently only supported on Windows operating systems. However, the virtual serial port has been successfully tested on Windows, Linux and Mac operating systems.

Using the Virtual Serial Port

1. Determine the symbolic name assigned to the EVB-S32K144 virtual serial port. In Windows open Device Manager and look for the COM port named “PEMicro/Freescale – CDC Serial Port”.
2. Open the serial terminal emulation program of your choice. Examples for Windows include Tera Term, PuTTY, and HyperTerminal
3. Press and release the Reset button (SW0) at anytime to restart the example application. Resetting the embedded application will not affect the connection of the virtual serial port to the terminal program.
4. It is possible to debug and communicate with the serial port at the same time, no need to stop the debug.

NOTE: Refer to the OpenSDA User’s Guide for a description of a known Windows issue when disconnecting a virtual serial port while the COM port is in use.