EVB-KSZ9477 Image Programming Guide

Rev 1.1

July 20, 2017

Table of Contents

1 Revision History

| Revision	Date	Summary of Changes
1.0	02/23/2017	Initial revision.
1.1	07/20/2017	Added SD card preparation instructions

2   Introduction

The EVB-KSZ9477 (UNG8071) board can boot either from NAND flash or SD card. If SD card is present the EVB-KSZ9477 boots with SD card else boots with NAND flash.

This document describes how to program the EVB-KSZ9477 on board NAND flash and how to prepare bootable SD card. Any one of the method can be used to boot the EVB-KSZ9477.

The image binaries and scripts package EVB-*KSZ9477_Demo_Images_Vxx.xx.xx.zip* required for the image programming needs to be downloaded from Microchip.com KSZ9477 product page. The xx.xx.xx is the version of the switch software.

3   Evaluation Board – EVB-KSZ9477
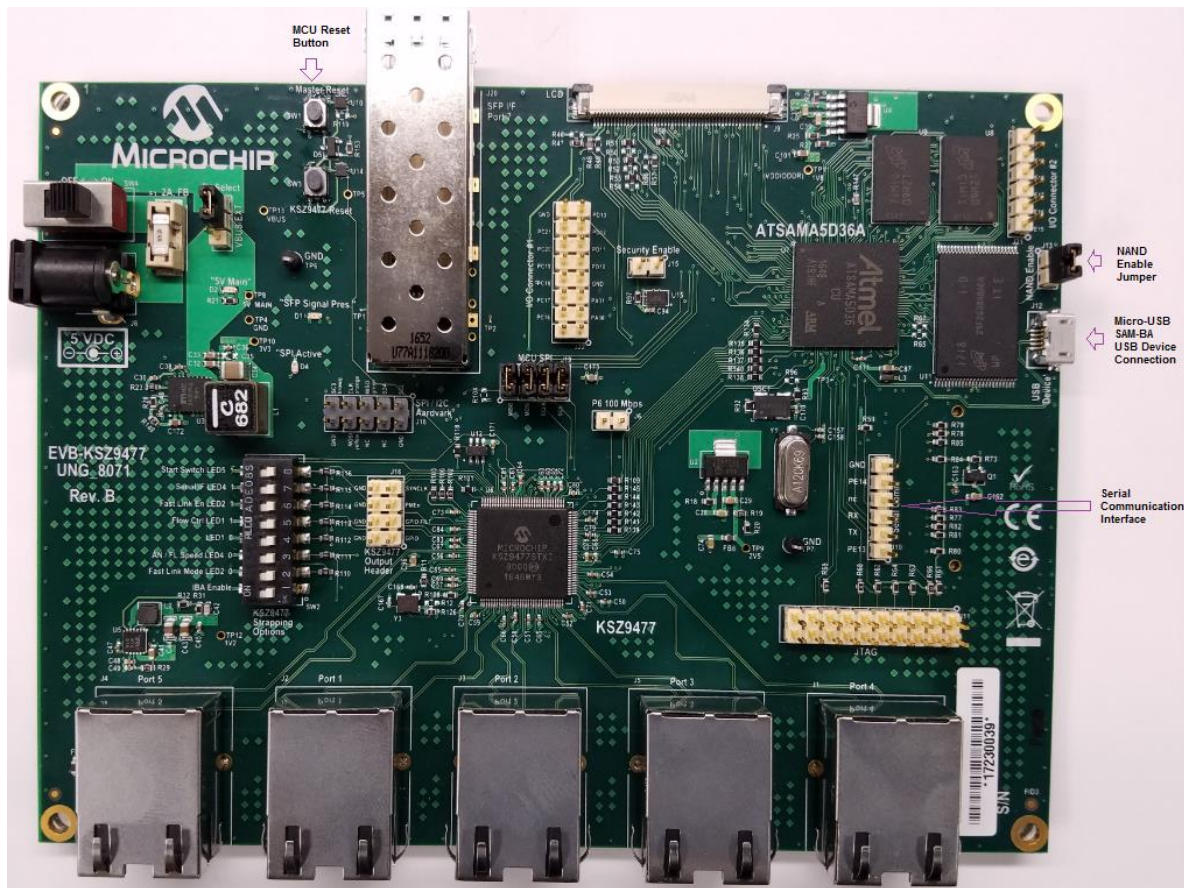
4   NAND Flash Programming

4.1   NAND Flash Programming on Linux

The procedure below is tested with the Ubuntu x64 14.04.05 LTS distribution.

1. Open a terminal window and unzip file to a folder (ex: /home)

   $ unzip EVB-KSZ9477_Demo_Images_Vxx.xx.xx.zip
   $ cd EVB-KSZ9477_Demo_Images/linux
2. Connect the micro-USB (J12) connector of the EVB-KSZ9477 to the Linux PC.
3. Connect the 5V power to EVB-KSZ9477 board
4. Remove the NAND enable (J13) jumper and hit the MCU Reset button (the /dev/ttyACM0 created. You can see this by executing command '$ tail –f /var/log/kernel.log')
5. Insert NAND enable (J13) jumper
6. If you are using x86 system then run the 'flash_board' script in the terminal window. If you are using x64 system then run execute 'flash_board_x64' script.

   $ sudo flash_board
   Or
   $ sudo flash_board_x64

7. Once you see "=== DONE. ===" message you hit the MPU Reset button to reboot the EVB-KSZ9477 board.

4.2   Flash Programming on Windows

This procedure is tested on Win7 x64 and Win10 x64 versions of Windows.

1. Unzip the zip file to a folder (ex: C:\tmp)
2. Open "Command Prompt" and change the EVB-KSZ9477_Demo_Images\windows folder (ex: c:\tmp\EVB-KSZ9477_Demo_Images\windows)
3. Connect the micro-USB (J12) connector of the EVB-KSZ9477 to the Windows PC.
4. Connect the 5V power to EVB-KSZ9477 board.
5. Remove the NAND enable (J13) jumper and hit the reset MCU Reset button.
6. When PC has internet connection, it will install "Bossa Program Port" automatically. (Port number may be different on the system.)
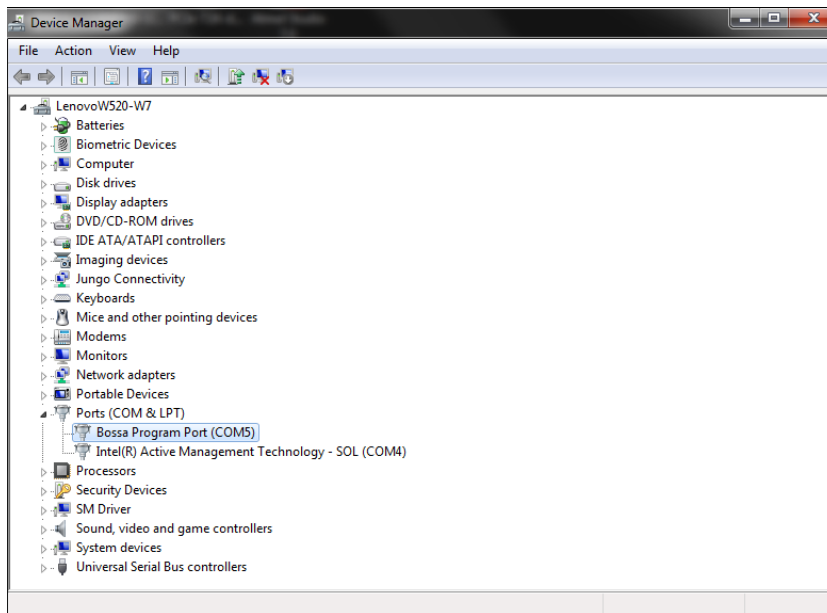
7. When PC doesn't have internet connection, find "Unknown device" under Other devices in Device Manager and install driver from EVB-KSZ9477_Demo_Images\windows\sam-ba_3.1.4\driver folder (ex: c:\tmp\EVB-KSZ9477_Demo_Images\windows\sam-ba_3.1.4\driver).
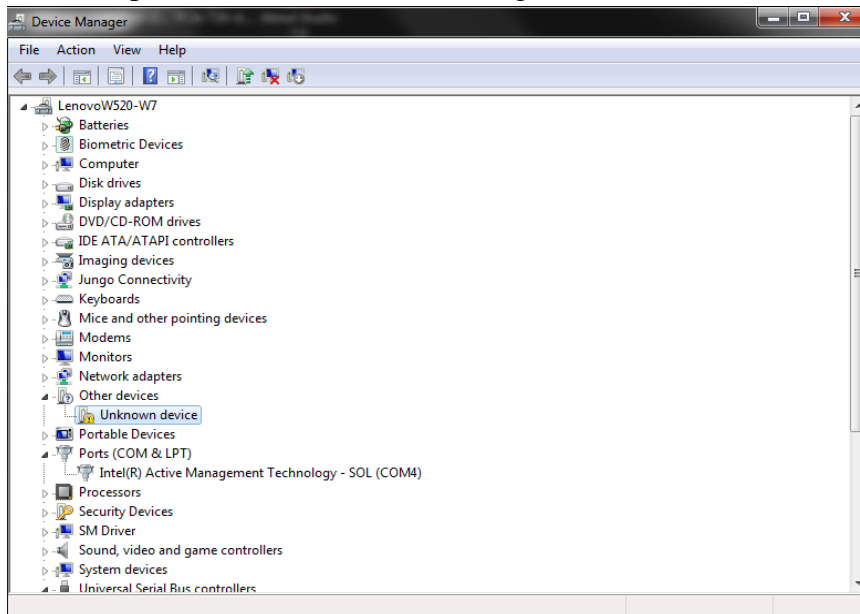
8. After successful installation the device manager will show "AT91 USB to Serial Converter" under Ports.
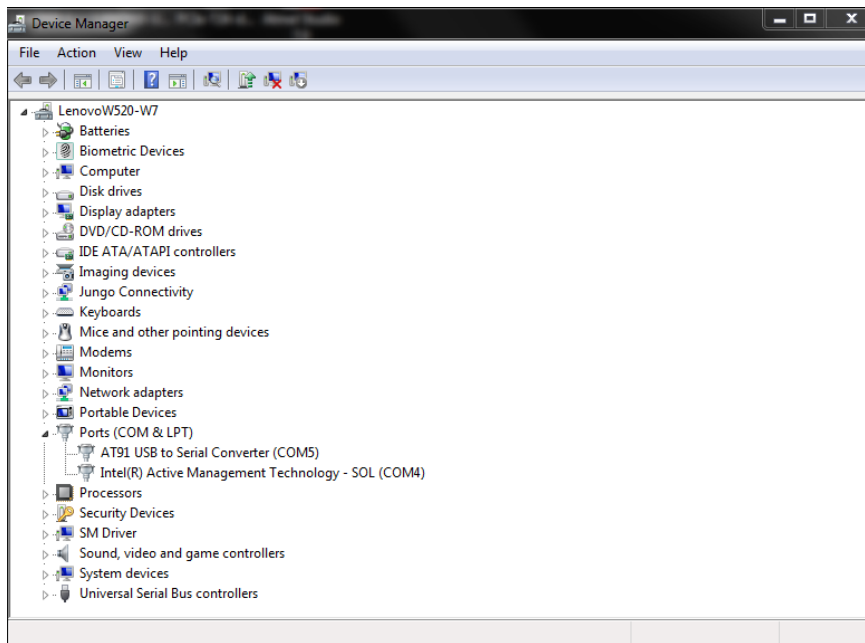
9. Please wait for few seconds before executing below command after power-up the board. Make sure the device driver installation is complete.

10. Insert NAND enable (J13) jumper

11. Execute "flash_board.bat" under EVB-KSZ9477_Demo_Images\windows from "Command Prompt" to program the NAND flash.
> cd EVB-KSZ9477_Demo_Images\windows
> flash_board.bat

If you see the below error please try re-running flash_board.bat

5   SD card Image Programming

The EVB-*KSZ9477_Demo_Images_Vxx.xx.xx.zip* contains SD card image that needs to be flashed to SD card. The image is present in EVB-KSZ9477_Demo_Images/images folder.

To flash images to SD card it is easier to use the Etcher tool. The tool can be downloaded from https://etcher.io. The Etcher tool provides same GUI interface on Windows as well as on Linux.

On Windows please download and install 32bit installer package. This procedure is tested on Win7x64.

On Linux please download x86 or x64 package depending on your Linux system. This procedure is tested on Ubuntu x64 14.04.05 LTS distribution.

5.1   SD card Programming

Note: SD card size 16GB or greater is required

1. Unzip the zip file to a folder (ex: C:\tmp)
2. The SD card image (sdcard.img) is located in EVB-KSZ9477_Demo_Images\images folder
    (c:\tmp\EVB-KSZ9477_Demo_Images\images\sdcard.img) folder
3. Start the Etcher tool and select the image (sdcard.img). Please make sure appropriate SD card is selected. All the content of SD card will be erased.
4. Select flash! to program the SD card.
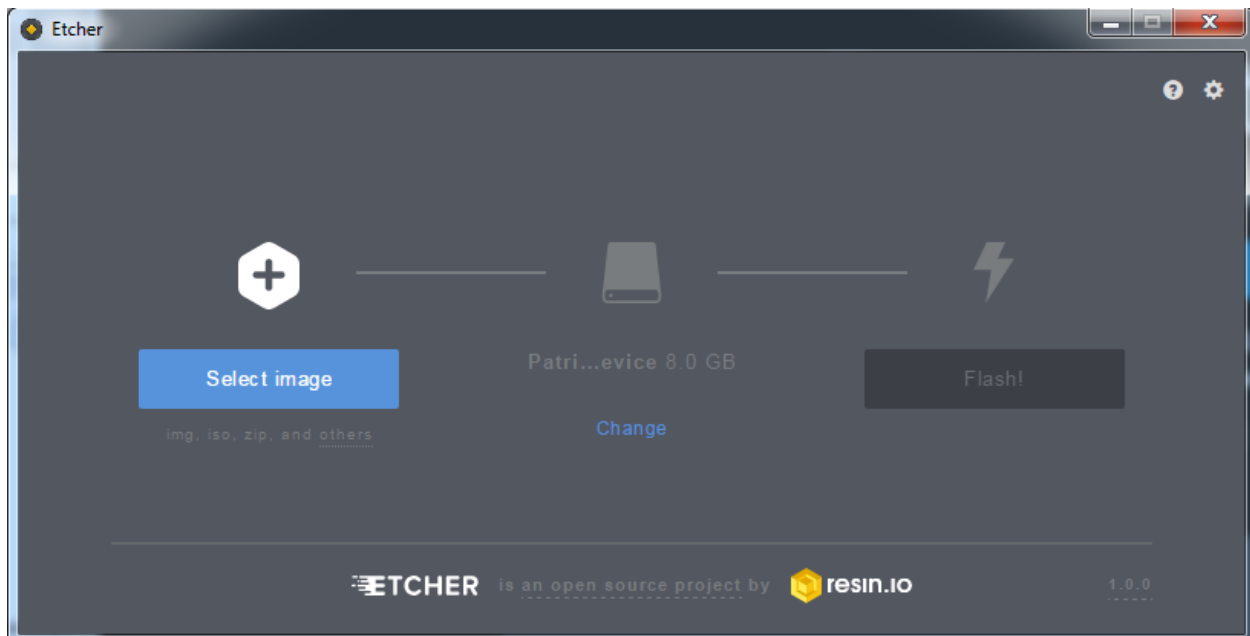
5. After successful completion of the programming the SD card can be used to boot the EVB-KSZ9477.

6   Booting the EVB-KSZ9477

The serial communication interface needs to be connected to PC using FTDI USB to serial (TTL-232R-3V3) cable. Also, connect the 5V power to EVB-KSZ9477 board.

6.1   Booting from NAND flash

After programming the NAND flash, if you hit MCU reset or power off/on the board boots with new image. The 'buildroot login:' will be prompted. You can enter 'root' and press enter to get command prompt.

6.2   Booting from SD card

After burning the SD card, insert the SD card in to the SD slot of EVB-KSZ9477. Reset the board either using MCU reset button or power off/on the board. The board boots with SD card and 'buildroot login:' will be prompted. You can enter 'root' and press enter to get command prompt.