DRA7XX BOOTSWITCH USER GUIDE

October 23, 2016

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1 Purpose

This document is the user guide of the DRA7xx Bootswitch tool. Bootswitch can be used to

1. Load `MLO` to a DRA7xx EVM via peripheral boot. (or)
2. Control the boot media from which the DRA7xx EVM boots.

This document uses the term `MLO` to refer to the first stage bootloader as this tool was developed while working with U-Boot. However it can be used with other first stage boot loaders as well.

This tool runs on Linux but is based on libusb which is cross platform. It *should* be possible to run this on Windows as well.

Please refer to manifest.html for license information.

2 Usage

1. Clone the dra7xx-bootswitch git repository. Run ./install.sh inside the cloned repository.

   ```
   host $ git clone git://git.ti.com/glsdk/dra7xx-bootswitch.git
   host $ cd dra7xx-bootswitch
   host $ ./install.sh
   Installing dependencies
   Building
   Build successful
   Setting up udev rules
   Reloading udev rules
   Copying default settings to /tmp/bootsetting.txt
   ```

   The script install.sh does the following.

   1. Install build dependencies.
   2. Build the software
   3. Setup udev rules to autotrigger bootswitch on detecting a DRA7xx EVM.
   4. Setup default settings in /tmp/bootsetting.txt

2. Place the DRA7xx EVM in USB peripheral boot mode.

   SYSBOOT[5:0] = 0b010000.

3. Connect a USB cable from the boot USB port(P2) to your PC.

4. Reboot the EVM. In peripheral boot mode, the EVM waits for a command from the PC to determine how to obtain MLO. bootswitch binary provides this command to the EVM.

   The tool expects a configuration file to be found at /tmp/bootsetting.txt. If no configuration file is found, the default is to boot the EVM from SD card. The default configuration setup by install.sh is also setup for SD boot.

3 Controlling the boot

The tool expects configuration file to be found at /tmp/bootsetting.txt. This configuration file contains information on how to control the boot. A default should be setup by the install.sh script. If not, please copy the sample configuration file bootsetting.txt to /tmp on the host PC. The file bootsetting.txt contains documentation as well. The below commands strips the documentation when copying it to the final location.

```
host $ sed -e '/^#/d' bootsetting.txt > /tmp/bootsetting.txt
```

or create /tmp/bootsetting.txt with just the below two lines.

```
0:5
/home/user/u-boot/spl/u-boot-spl.bin
```

This configuration tells the tool that we will not be transferring the binary over USB and that the EVM should boot from the SD card. The second line containing the file path is a dont care. Reboot the EVM and observe it booting from SD card.

To change the boot modes, please refer to the documentation in bootsetting.txt in the bootswitch git repository. Please make sure that any setting changes are performed in /tmp/bootsetting.txt and not in './bootsetting.txt'.

4 Transferring MLO from PC

To send the first stage boot loader (MLO/SPL) from the PC to the EVM, modify `/tmp/bootsetting.txt` as follows.

```
1:5
/home/user/u-boot/spl/u-boot-spl.bin
```

This setting tells the tool that we are using peripheral boot and that the MLO/SPL binary should be picked up from the described path. The value after `:` on the first line is a dont care when transferring MLO from PC. Please note that the binary to be supplied is `u-boot-spl.bin` and not `MLO`.

4.1 Important points

a) The binary is loaded to 0x40300000 as per the TRM.
b) The binary is expected to be in the .bin format. For MLO, you need to point to u-boot-spl.bin and **not** the MLO.
c) The size of the binary should be less than 504 KB.

For more information, please refer to the documentation in `bootsetting.txt` in the `bootswitch` git repository.

5 Debug traces

The tool generates debug output in `/tmp/bootswitch_log.txt`. Please use this for debugging any issues.

6 Support

For support, please post any questions to

https://e2e.ti.com/support/arm/automotive_processors/f/1020

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