Lab 2-2 Prepare Boot Medium of Xilinx ZC702

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2018-9-21

In this lab, we will practice using two kinds of boot media: SD card and QSPI flash to boot up ZC702 with the image that we prepared in previous part.

1 SD Boot

Use SD card as boot medium is the most convenient way to test your boot image.

- Format the sd card with FAT format.
- Put all the files that you have generated into the card.
  - boot.bin
  - uImage
  - uramdisk.image.gz
  - devicetree.dtb
- Check `SW16 setting. (Figure 2)`

2 QSPI Boot

Because there is nothing in QSPI flash now, we cannot boot from it directly now. There are several ways to write something to the QSPI flash, such as JTAG(with Xilinx SDK), Linux driver, u-boot. In this lab, we provide a way which requires the well prepared SD card in last section and write things to flash through u-boot, which is similar to what we have done in previous lab.

- Use SD boot to boot into u-boot.
  After booting into u-boot, you will see the screen shows `Zync> as following.`

```
Zync>
```

- `Load the files from SD card to Ram.`

```
Zync> load mmc 0 0x6000000 ${boot_image}
Zync> load mmc 0 ${kernel_load_address} ${kernel_image}
Zync> load mmc 0 ${devicetree_load_address} ${devicetree_image}
Zync> load mmc 0 ${ramdisk_load_address} ${ramdisk_image}
```

- Init flash device on given SPI bus and chip select.

```
Zync> sf probe 0 20000000 0
```

- Write boot.bin from ram to flash.

```
Zync> sf protect unlock 0 ${boot_size}
Zync> sf erase 0 ${boot_size}
Zync> sf write 0x6000000 0 ${boot_size}
```

- Write uImage from ram to flash.

```
Zync> sf protect unlock 0x100000 ${kernel_size}
Zync> sf erase 0x100000 ${kernel_size}
Zync> sf write ${kernel_load_address} 0x100000 ${kernel_size}
```

- Write devicetree.dtb from ram to flash.

```
Zync> sf protect unlock 0x600000 ${devicetree_size}
Zync> sf erase 0x600000 ${devicetree_size}
Zync> sf write ${devicetree_load_address} 0x600000 ${devicetree_size}
```

- Write uramdisk.image.gz from ram to flash.

```
Zync> sf protect unlock 0x620000 ${ramdisk_size}
Zync> sf erase 0x620000 ${ramdisk_size}
Zync> sf write ${ramdisk_load_address} 0x620000 ${ramdisk_size}
```

- Reboot it with the QSPI boot SW16 setting (Figure 2).

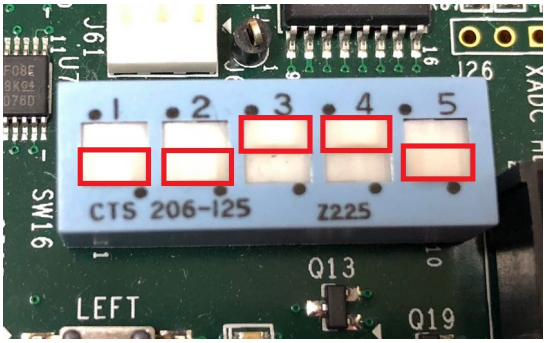

Figure 1: SD boot mode switch setting

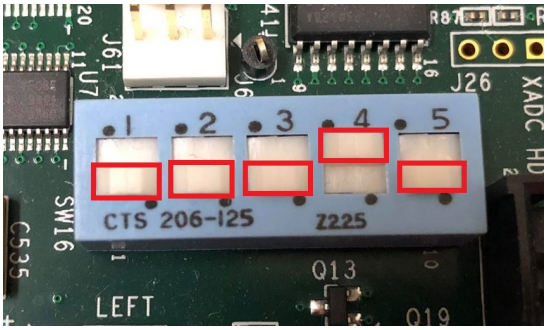

Figure 2: QSPI boot mode switch setting