eMMC Boot

Xilinx ZYNQ supports MMC/eMMC as secondary boot media. This can be enabled by FSBL settings, it is not required to make any changes to the FSBL generated by Xilinx SDK.

COM56 - PuTTY

```
Xilinx First Stage Boot Loader
Release 2014.4  Mar  3 2015-21:09:57
Devcfg driver initialized
Silicon Version 3.1
Booting Device is MMC
SD: rc= 0
MMC Init Done
Flash Base Address: 0xE0100000
Reboot status register: 0x60400000
Multiboot Register: 0x0000C000
Image Start Address: 0x00000000
Partition Header Offset:0x00000C80
Partition Count: 2
Partition Number: 0
Header Dump
Image Word Len: 0x00051818
Data Word Len: 0x00051818
Partition Word Len:0x00051818
Load Addr: 0x00000000
Exec Addr: 0x00000000
Partition Start: 0x000005C0
Partition Attr: 0x00000020
Partition Checksum Offset: 0x00000000
Section Count: 0x00000001
Checksum: 0xFFF0AF96
Bitstream
In FsblHookBeforeBitstreamDload function
PCAP:StatusReg = 0x40000A30
PCAP:device ready
PCAP:Clear done
Level Shifter Value = 0xA
Devcfg Status register = 0x40000A30
PCAP:Fabric is Initialized done
PCAP register dump:
PCAP CTRL 0xF8007000: 0x4C00E07F
PCAP LOCK 0xF8007004: 0x0000001A
PCAP CONFIG 0xF8007008: 0x00000508
PCAP ISR 0xF800700C: 0x5802300F
PCAP IMR 0xF8007010: 0xFFFFFFFF
PCAP STATUS 0xF8007014: 0x50000F30
PCAP DMA SRC ADDR 0xF8007018: 0x00100001
PCAP DMA DEST ADDR 0xF800701C: 0xFFFFFFFF
PCAP DMA SRC LEN 0xF8007020: 0x00051818
PCAP DMA DEST LEN 0xF8007024: 0x00051818
PCAP ROM SHADOW CTRL 0xF8007028: 0xFFFFFFFF
PCAP MBOOT 0xF800702C: 0x0000C000
PCAP SW ID 0xF8007030: 0x00000000
PCAP UNLOCK 0xF8007034: 0x757BDF0D
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PCAP MCTRL 0xF8007080: 0x30800100

DMA Done !

FPGA Done !
In FsblHookAfterBitstreamDload function
Partition Number: 1
Header Dump
Image Word Len: 0x00002003
Data Word Len: 0x00002003
Partition Word Len:0x00002003
Load Addr: 0x00100000
Exec Addr: 0x00100000
Partition Start: 0x00051DE0
Partition Attr: 0x00000010
Partition Checksum Offset: 0x00000000
Section Count: 0x00000001
Checksum: 0xFFDA7FB5
Application
Handoff Address: 0x00100000
In FsblHookBeforeHandoff function
SUCCESSFUL_HANDOFF
FSBL Status = 0x1
Hello World
```

Example debug log from MMC boot on TE0720-02 on TE0701, an MMC Card was inserted into SD Card slot. To enable TE0720 to boot from SD Card in the slot, a small piece of paper was used to disable the card detect switch.

> ⚠ Xilinx FSBL would always boot from SDIO0 also in MMC mode! On TE0720 the on-board eMMC is on SDIO1, so that small modification to FSBL is required to change the boot device.

In order to change the boot device to SDIO1 a change is needed in diskio.c in the FSBL_bsp:

- - - #define SD_DEVICE_ID XPAR_XSDPS_0_DEVICE_ID

+++ #define SD_DEVICE_ID XPAR_XSDPS_1_DEVICE_ID