Program ML605 PowerOn flash

From e-Lab Wiki

The ML605 board can be configured to load a bitstream from the BPI flash during power on and thus allowing a self contained device.

What is needed:

1. Bitstream (.bit) file generated and proven to work on the ML605 board.
2. Xilinx iMPACT program (tested using 14.4)
3. ML605 board

Set Dip Switch MODE

Set S1 to 0XXX (X = Don't care, Position 4 → Position 1)

Set S2 to 001010 (1 = on, Position 6 → Position 1)

To see a picture of the switches follow the "ml605_multiboot_pdf" link at the bottom of the page.

Generate a MCS file to program the BPI flash

Note: The BPI in the ML605 board uses a 32MB Linear BPI from a Numonyx JS28F256P30 model.

1. Start iMPACT
2. Select from the iMPACT Flows panel -> "Create PROM File (PROM File Formatter)"
3. Dialog "PROM File Formatter Step 1." -> BPI Flash, Configure Single FPGA
4. Dialog "PROM File Formatter Step 2." -> Target FPGA: "Virtex 6" > Storage Device (Bytes): "32M"
5. Dialog "PROM File Formatter Step 3." -> File Format: "MCS" > DATA Width: "x16" > Add Non-Configuration Data Files: "No"
6. Dialog "Add Device" asks for the bitstream file (.bit) and no need to add another.
7. Dialog "MultiBoot BPI Revision and Data File Assignment" leave as default and select "OK".
8. Select from the iMPACT Processes panel -> "Generate File..."

...and should get a "Generate succeeded".

Write BPI flash with bitstream config

1. Power cycle the ML605 board
2. Select from the iMPACT Flows panel -> "Boundary Scan"

3. Right Click on the xc6vlx240t
4. Select from drop down menu -> "Add SPI/BPI Flash..."
5. Dialog "Add PROM File" is used to find and select the MCS file generated in the last set of instructions.
6. Dialog "Select Attached SPI/BPI" -> "BPI PROM" > "28F256P30" > DATA Width: "16" > Select RS[1:0]b Pin Address Bits: "NOT USED"
7. Right Click on the FLASH
8. Select from the drop down menu -> "Program"
9. Dialog "Device Programming Properties - Device 2 Programming Properties" select "OK" with the defaults.

ML605 board flash programming:
http://www.xilinx.com/support/documentation/boards_and_kits/ml605_multiboot_pdf_xtp043_12.3_c.pdf

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