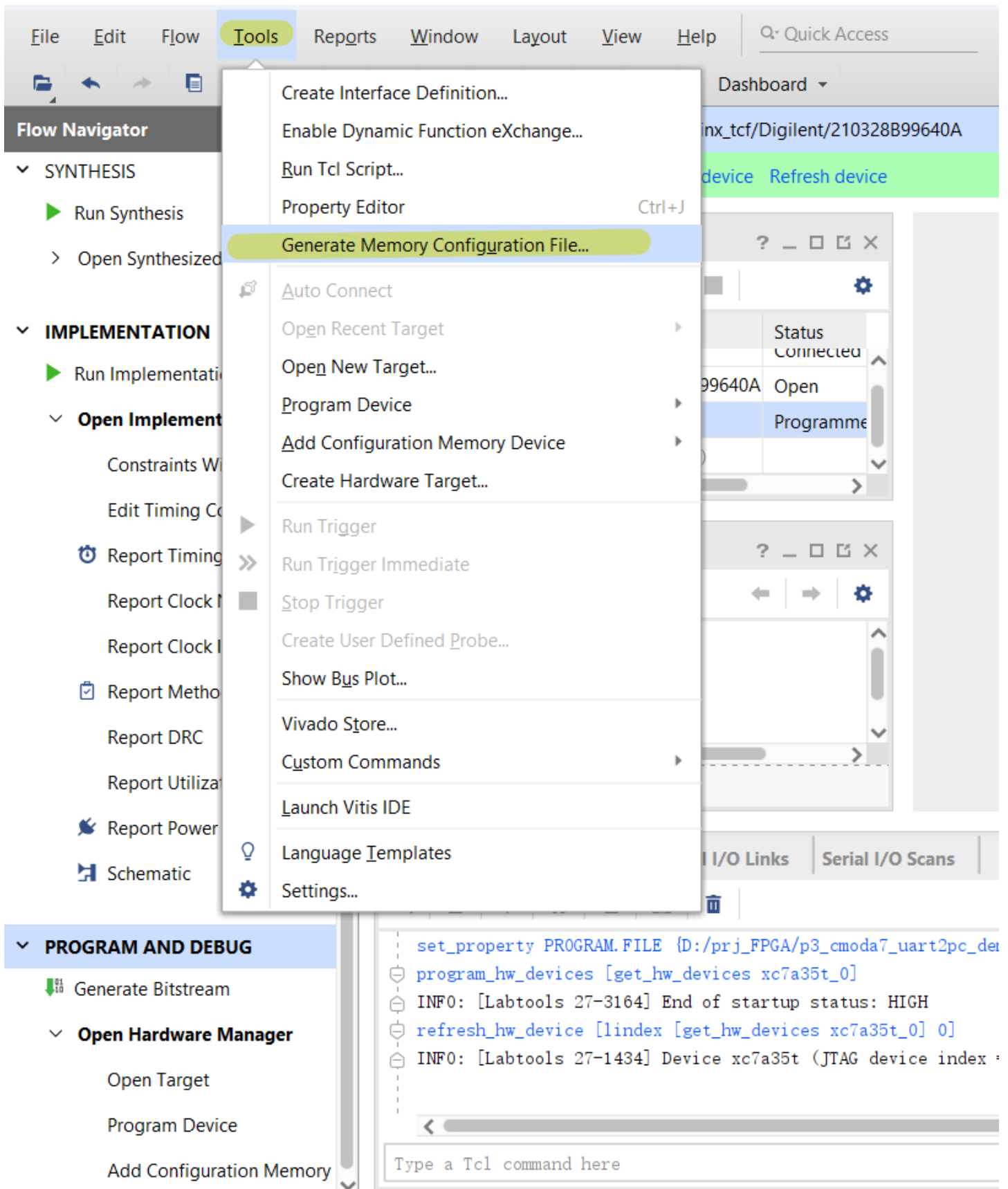


# CMOD A7 Program Flash Tutorial

FPGAs do not inherently retain their configuration after power is removed. Flash memory provides non-volatile storage for the FPGA configuration bitstream. When the FPGA powers up, it loads its configuration from this flash memory, allowing it to "know" how to function according to the design it has been programmed with.

## Recommended Steps

1. After generating the bitstream file, "Tools" -> "Generate Memory Configuration File"



2. Config as following:

- Memory Part : mx25l3273f
- Filename: Create a file under your project folder;
- Enable "Load bitstream files";
- Select the BitFile from "<Project\_Folder>/<Project\_Name>.runs/impl\_1/top\_module.bit"

- e. For Basys3 Board, Interface should be "SPIx4";

Create a configuration file to program the device



Format: MCS

☒ Memory Part: mx25l3273f-spi-x1\_x2\_x4

☐ Custom Memory Size (MB): 4

Filename: D:/prj\_FPGA/p3\_cmoda7\_uart2pc\_demo/FLASH\_CM0D\_UART.mcs

**Options**

Interface: SPIx1

☒ Load bitstream files ☐ Daisy chain configuration file

Start address: 00000000 Direction: up Bitfile: p3\_cmoda7\_uart2pc\_demo/p3\_cmoda7\_uart2pc\_demo.runs/impl\_1/top\_module.bit

☐ Load data files

Start address: 00000000 Direction: up Datafile:

☐ Write checksum

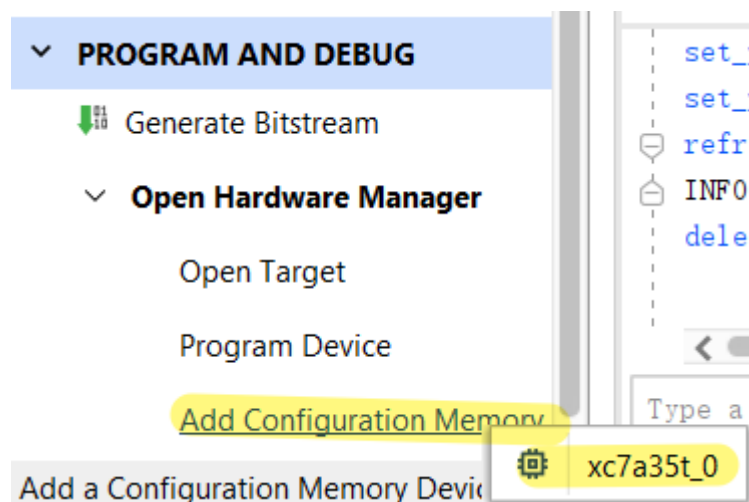
☐ Disable bit swapping

☐ Overwrite

**Command:** `write_cfgmem -format mcs -size 4 -interface SPIx1 -file "D:/prj_FPGA/p3_cmoda7_uart2pc_demo/FLASH_CM0D_UART.mcs"`

? OK Cancel

3. "Program and Debug" -> "Open Hardware Manager" -> "Add Configuration Memory"



4. Search "mx25l3273f" -> select the part;

**Add Configuration Memory Device** [X]

**i** Choose a configuration memory part.

Device: xc7a35t\_0

**Filter**

Manufacturer	All	Type	All
Density (Mb)	All	Width	All

[Reset All Filters](#)

**Select Configuration Memory Part**

Search:  (1 match)

Name	Part	Manufacturer	Alias
mx25l3273f-spi-x1_x2_x4	mx25l3273f	Macronix	mx25l3233f-spi-x1_x2_x4

[?] [OK] [Cancel]

5. "OK"

**Add Configuration Memory Device Completed** [X]

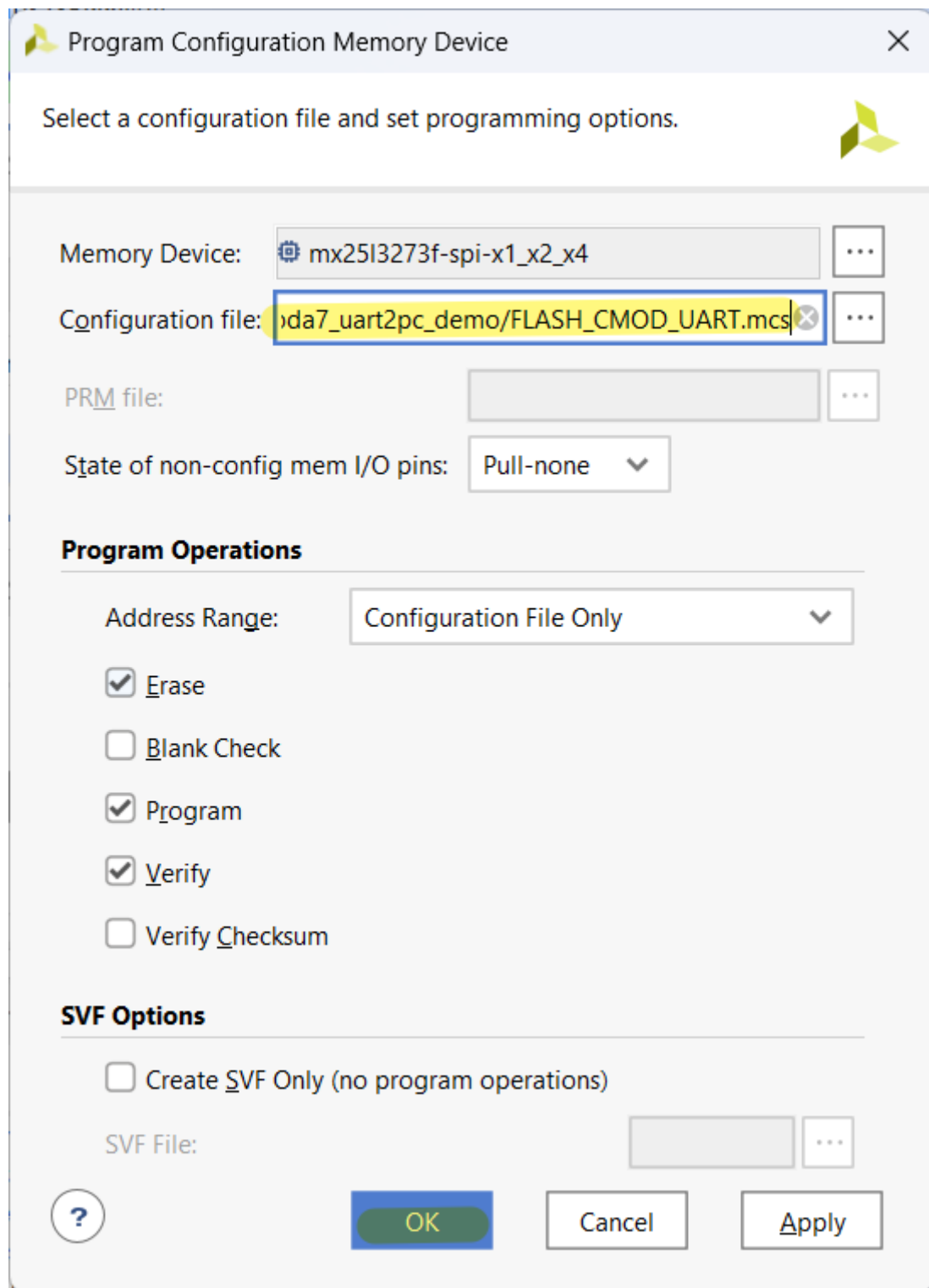
**?** Do you want to program the configuration memory device now?

☐ Don't show this dialog again

**OK** [Cancel]

6. Program Configuration Memory Deive

7. Select the MCS file which generates in Step2



8. Close the Vivado and reconnect the FPGA to your PC;
9. Check the "Done" LED;