

## **Generating and Downloading a PROM file to a Nexys 2 Board**

(Guide written for Xilinx ISE 10.1 and Digilent Adept Suite v1.10.0)

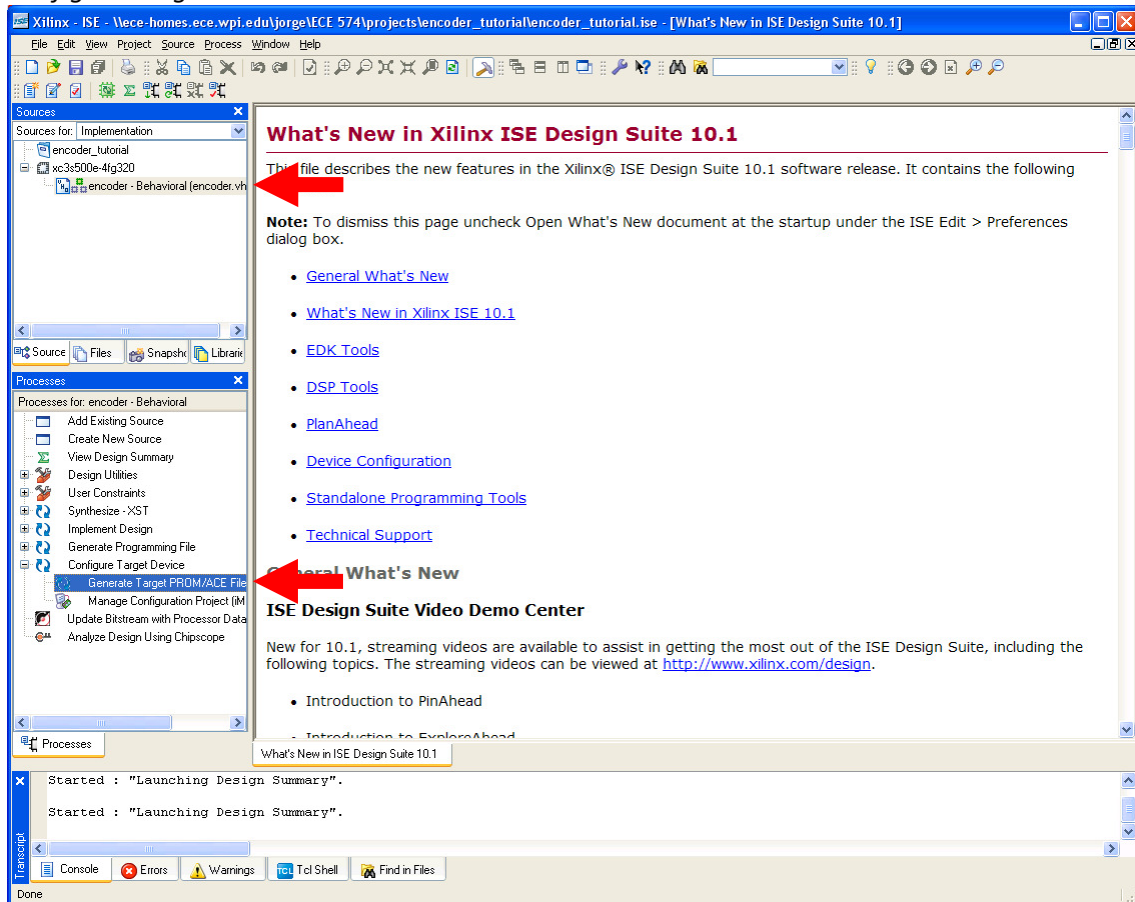
(updated by Jorge Alejandro, September 2008)

When you power off your Nexys 2 board, any design you have downloaded to the FPGA is lost (the FPGA is like volatile RAM). In order for your board to retain a design, you must generate a special file and download it to the on-board PROM (programmable read-only memory). When the Nexys2 board is powered up, your design is automatically read from the PROM and downloaded to the FPGA.

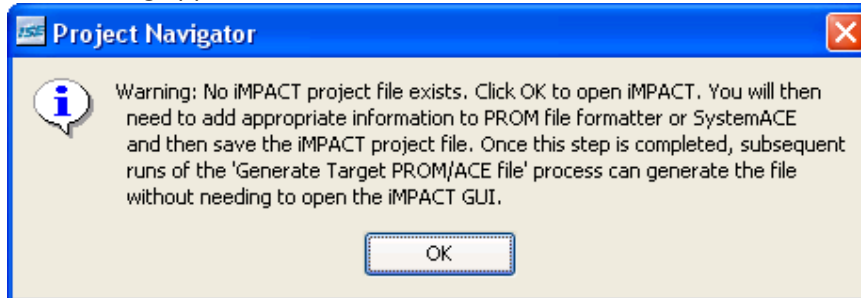
The first part of this guide will walk you through the steps of generating a PROM file (using *Xilinx ISE*). The second part will walk you through the steps of downloading the file to your Nexys 2 board (using Digilent Adept Suite).

### **Part 1: Generating a PROM file**

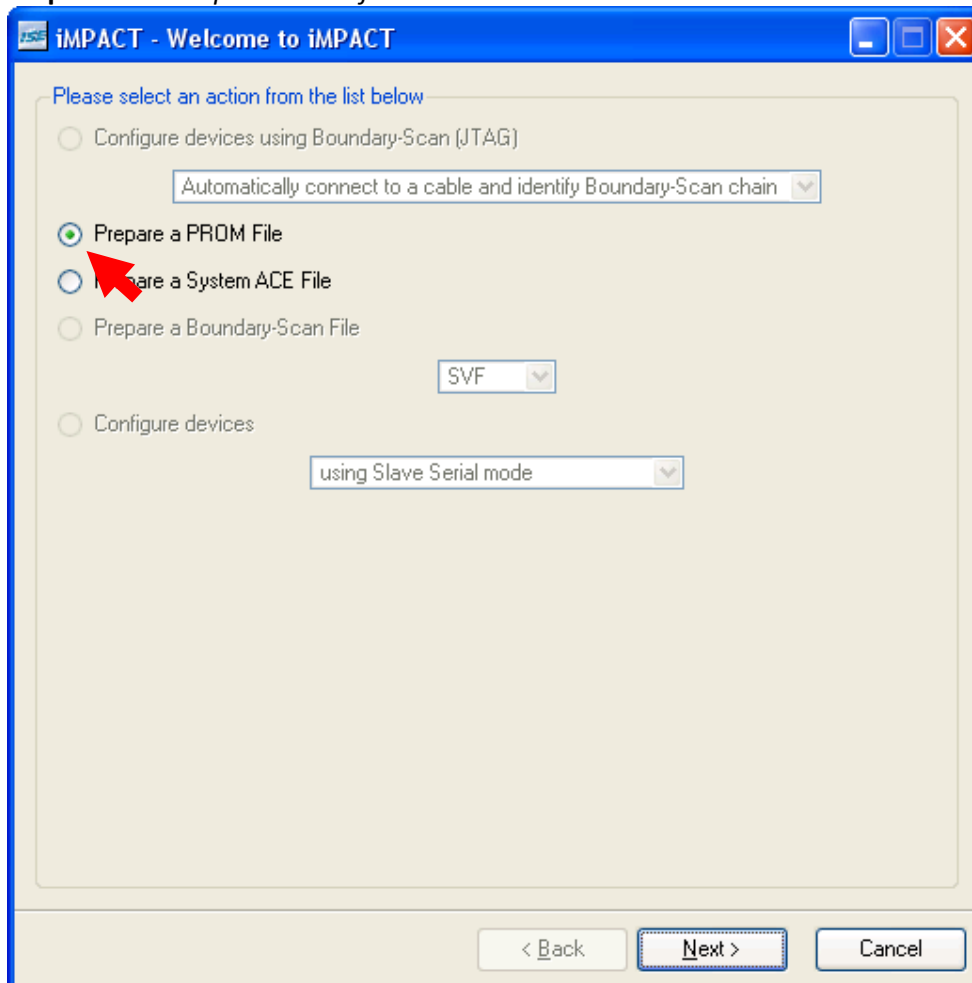
**Step 1:** With the project navigator open, first select your top-level module in the Sources panel. Next, in the Processes panel, double-click *Generate Target PROM/ACE File* under *Configure Target Device*.



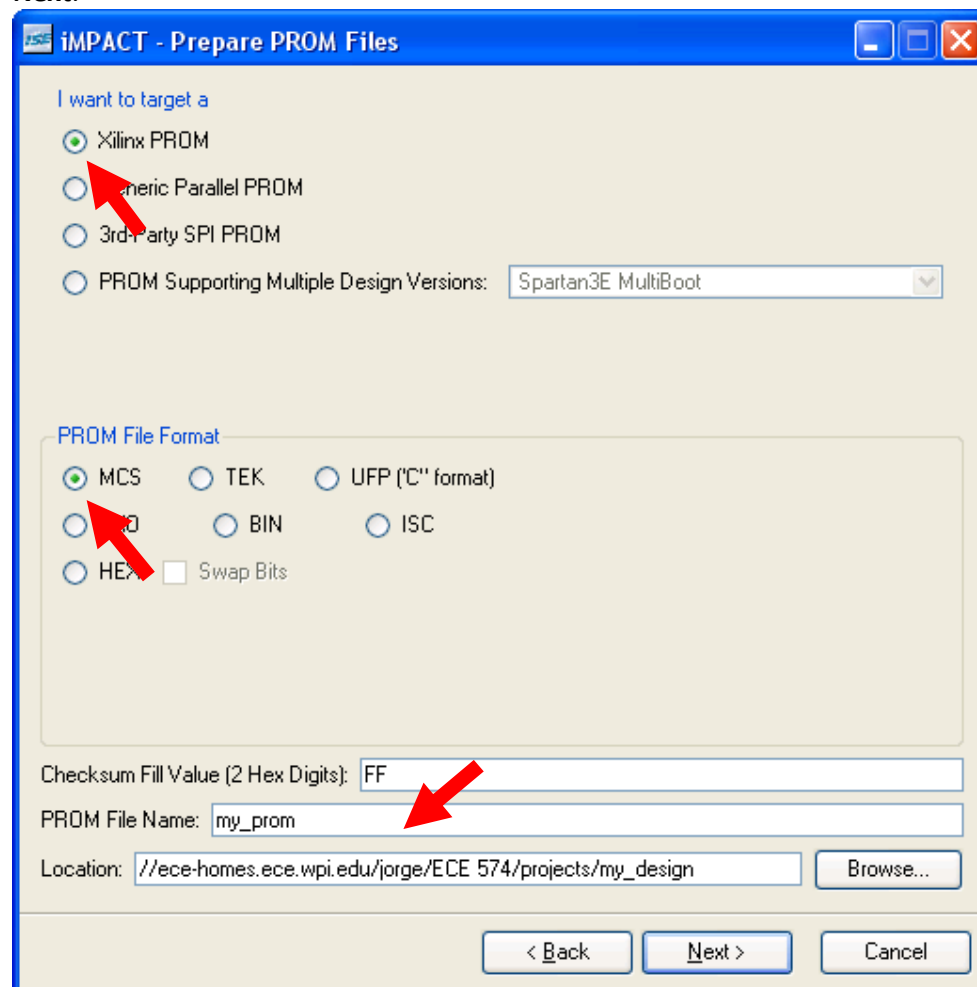
If this dialog appears, click **Ok**.



**Step2:** Select *Prepare PROM file* and click **Next**.



**Step 3:** Choose *Xilinx PROM*, *MCS File Format*, and choose a file name and location. Click **Next**.



The image shows the "IMPACT - Prepare PROM Files" dialog box. It has a blue title bar with the ISE logo and window controls. The main area is light beige. At the top, it says "I want to target a" followed by four radio button options: "Xilinx PROM" (selected), "Generic Parallel PROM", "3rd-Party SPI PROM", and "PROM Supporting Multiple Design Versions:" (which has a dropdown menu showing "Spartan3E MultiBoot"). Below this is a section titled "PROM File Format" containing six radio button options: "MCS" (selected), "TEK", "UFP ('C' format)", "JED", "BIN", and "ISC". There is also a checkbox for "HEX" which is unchecked, and a "Swap Bits" checkbox which is also unchecked. At the bottom, there are three text input fields: "Checksum Fill Value (2 Hex Digits):" with "FF" entered, "PROM File Name:" with "my\_prom" entered, and "Location:" with "//ece-homes.ece.wpi.edu/jorge/ECE 574/projects/my\_design" entered. To the right of the location field is a "Browse..." button. At the very bottom are three buttons: "< Back", "Next >", and "Cancel". Three red arrows point to the "Xilinx PROM" radio button, the "MCS" radio button, and the "PROM File Name" text field.

IMPACT - Prepare PROM Files

I want to target a

☒ Xilinx PROM

☐ Generic Parallel PROM

☐ 3rd-Party SPI PROM

☐ PROM Supporting Multiple Design Versions: Spartan3E MultiBoot

PROM File Format

☒ MCS ☐ TEK ☐ UFP ('C' format)

☐ JED ☐ BIN ☐ ISC

☐ HEX ☐ Swap Bits

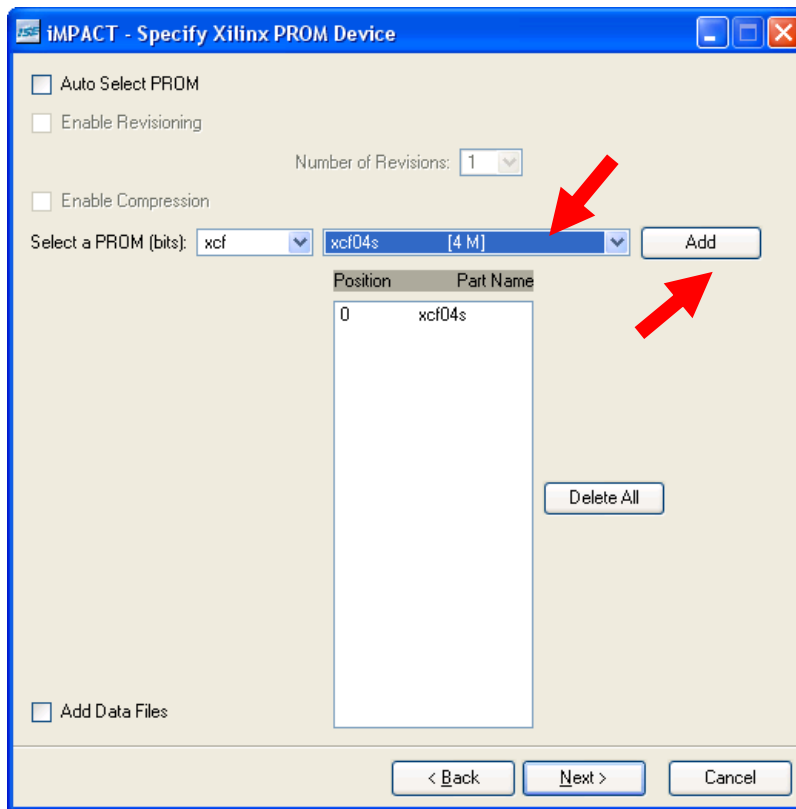
Checksum Fill Value (2 Hex Digits): FF

PROM File Name: my\_prom

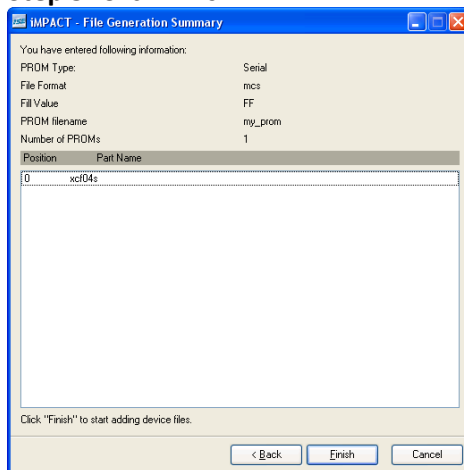
Location: //ece-homes.ece.wpi.edu/jorge/ECE 574/projects/my\_design Browse...

< Back Next > Cancel

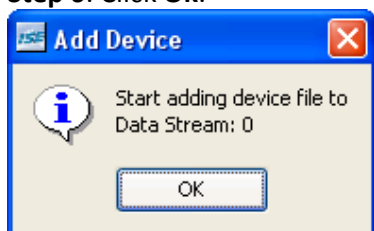
**Step 4:** Select *xcf04s* (This specifies which type of PROM is located on the Nexys 2 board) and then click **Add**. Click **Next**.



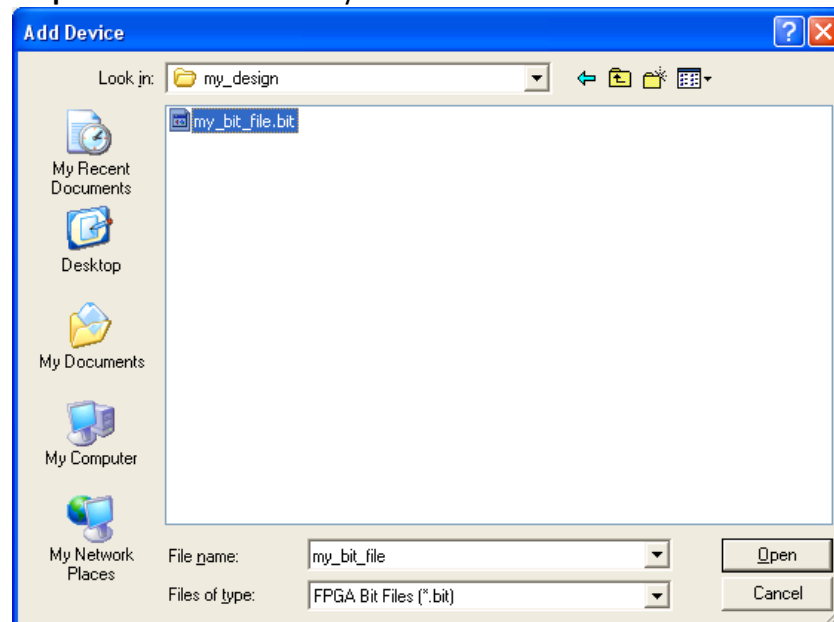
**Step 5:** Click Finish.



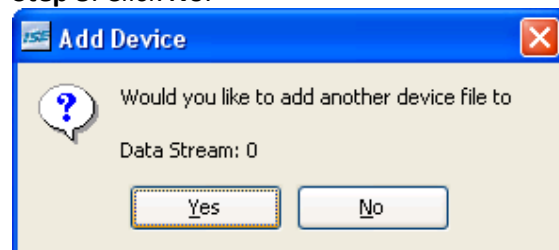
**Step 6:** Click Ok.



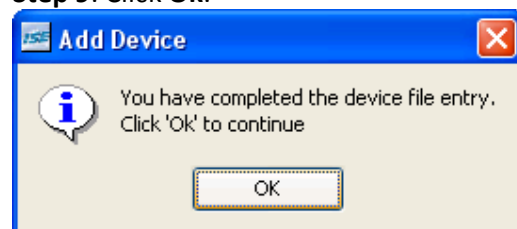
**Step 7:** Choose the .bit file you would like to encode as a PROM file. Click **Open**.

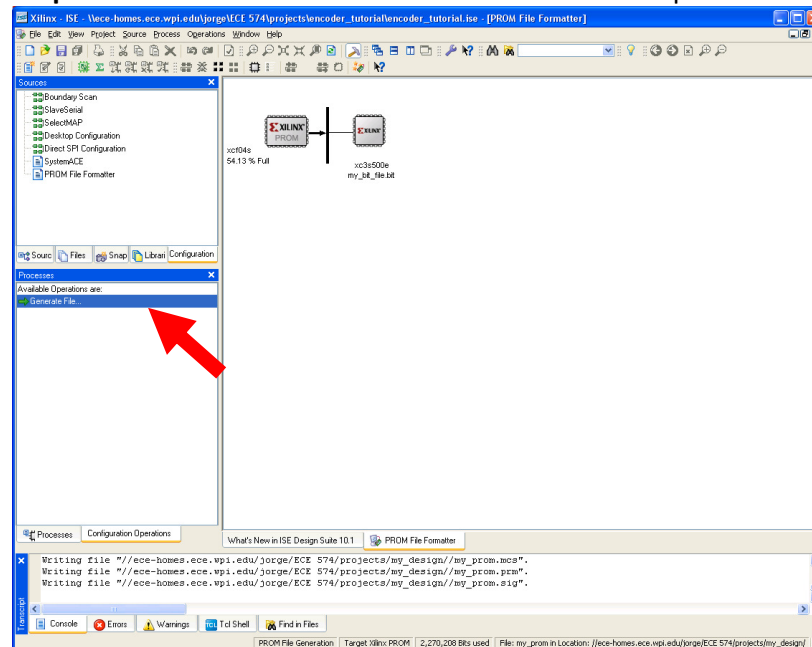


**Step 8:** Click **No**.

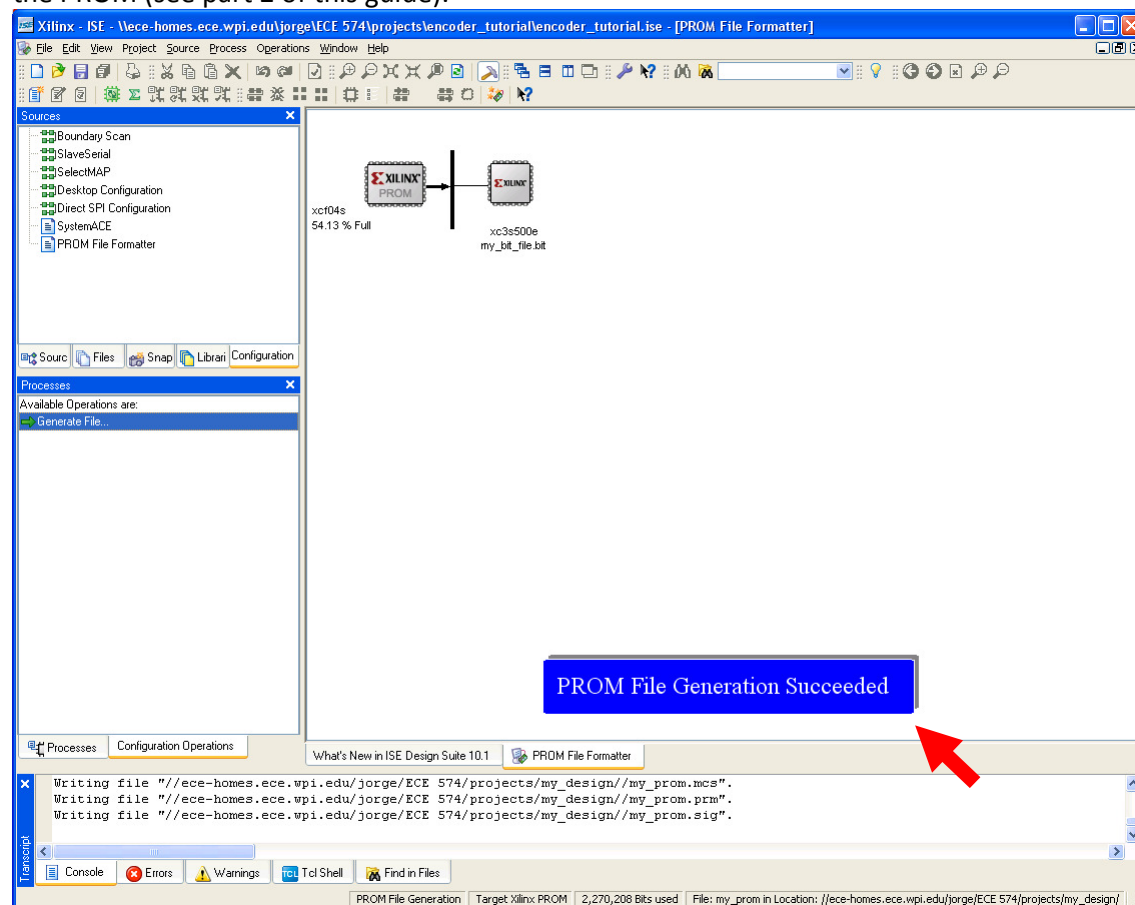


**Step 9:** Click **Ok**.



**Step 10:** Double-click *Generate File...* in the Processes panel.

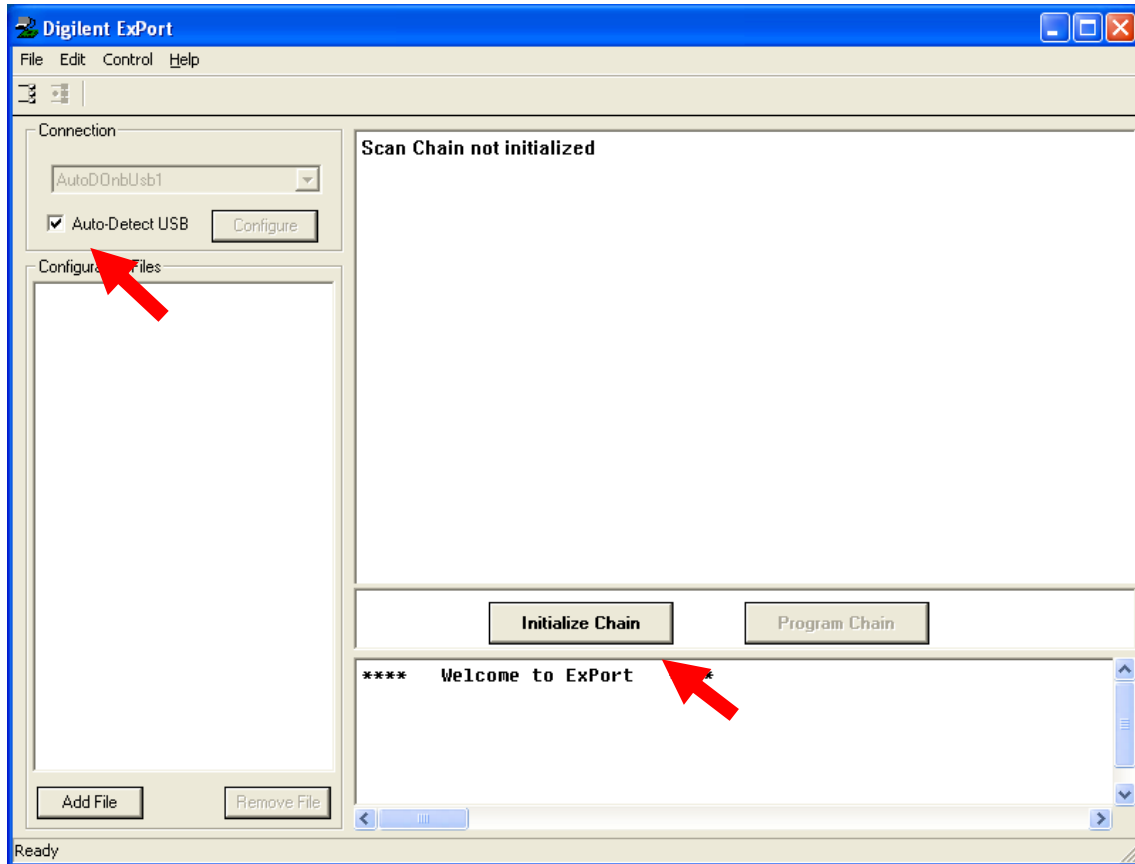
Your PROM file has been successfully generated! You are now ready to download the file to the PROM (see part 2 of this guide).



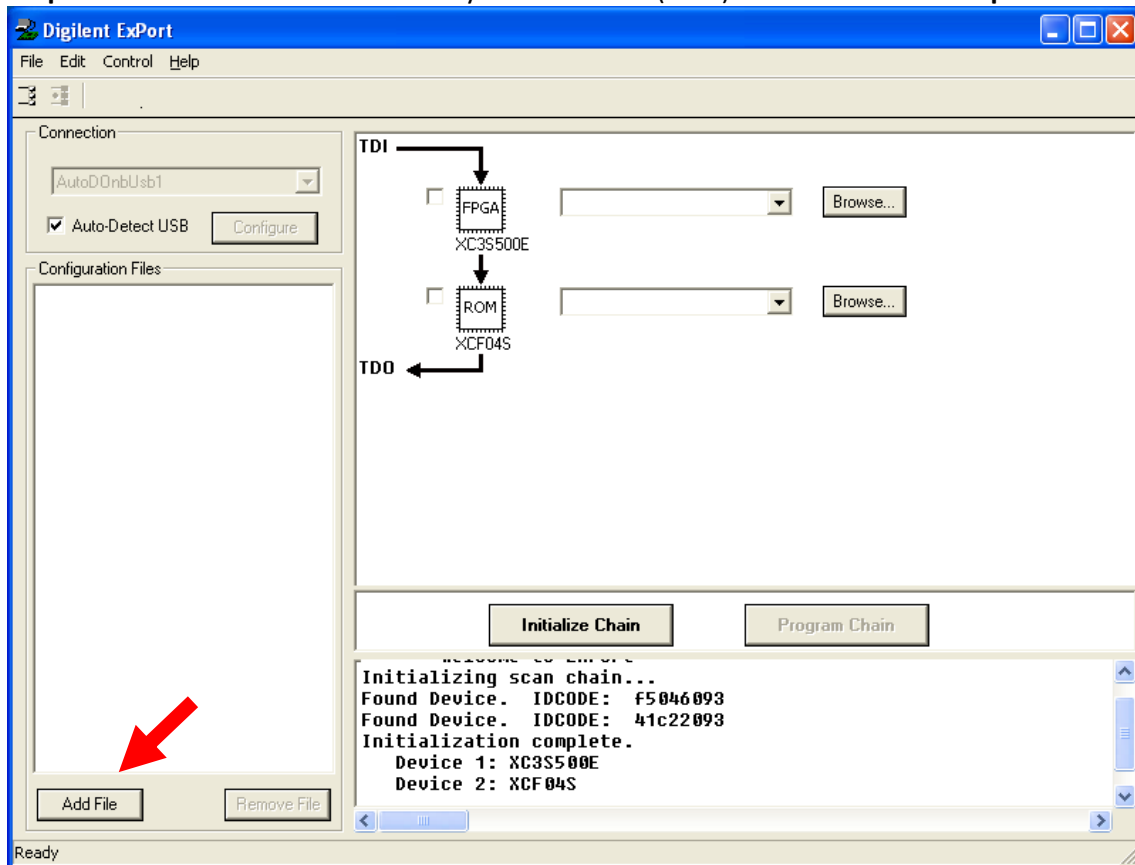
## **Part 2: Downloading a PROM file**

Before continuing, verify that your Nexsys 2 board is connected to your computer via USB cable and powered on. Also, *Digilent Adept Suite* must be installed on your computer.

**Step 1:** Launch *Digilent ExPort*. Verify that **Auto-Detect USB** is checked and then click **Initialize Chain**.

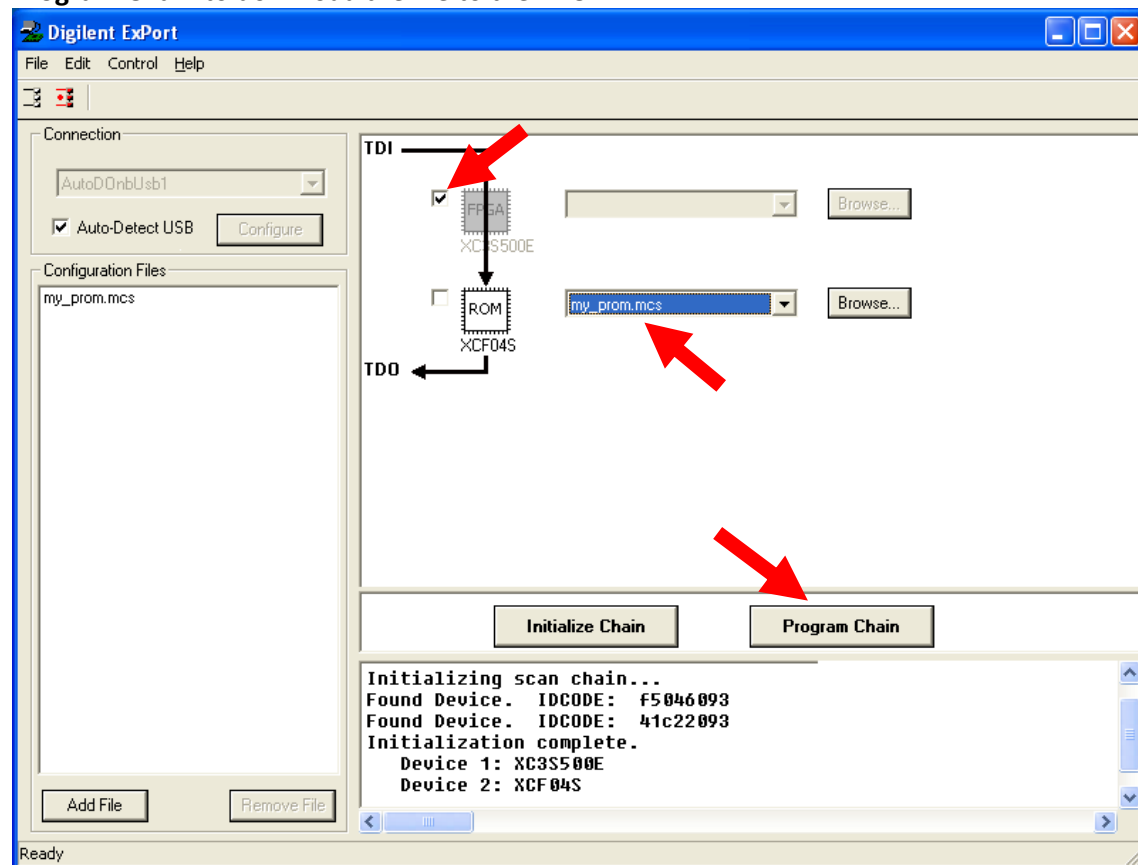


**Step 2:** Click **Add File** then browse to your PROM file (.mcs) and select it. Click **Open**.

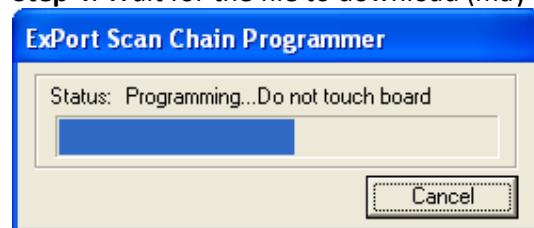




**Step 3:** Click on the checkbox by the FPGA to bypass and disable programming of that device. Select your PROM file from the drop-down menu next to the PROM icon. Click **Program Chain** to download the file to the PROM.



**Step 4:** Wait for the file to download (may take a minute or two).



**Step 5:** Download finished, click **Ok**. You may now close *Digilent ExPort*.

