MCS File Creation with Xilinx® ISE Tutorial

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Overview

This tutorial provides instruction for creating an .mcs file for a given project using Xilinx iMPACT.

Getting Started

You will first need to install Xilinx ISE WebPACK on your PC or laptop. The latest version of the software is currently 11.1, which is what we use in this tutorial. It is available as a free download from www.xilinx.com.

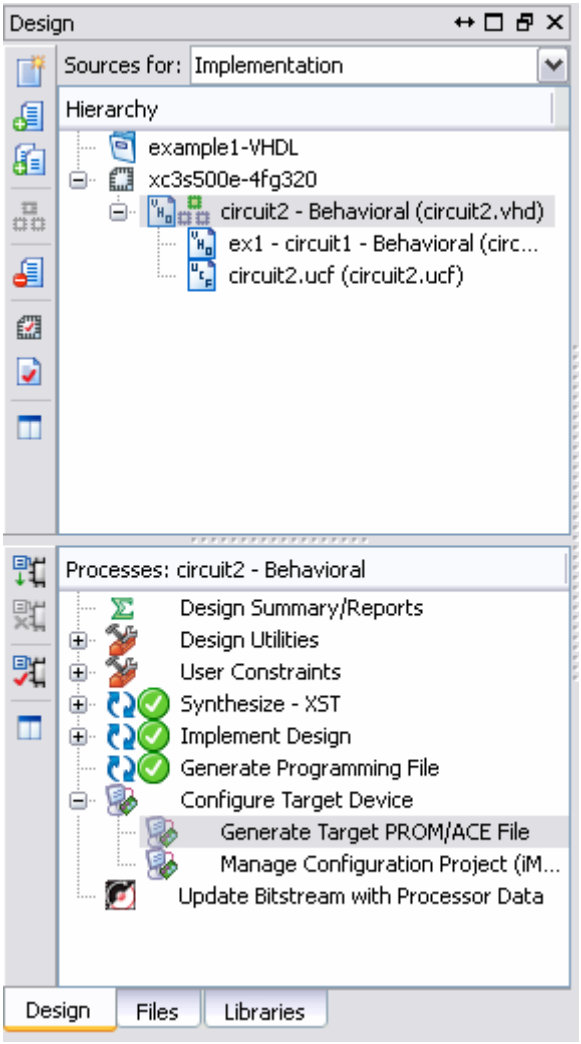
This tutorial uses the project example1-VHDL, from another Digilent tutorial on the Xilinx ISE tools. This project is available as a free download from www.digilentinc.com.

This tutorial uses settings for the Nexys2 500k board, which can be purchased from www.digilentinc.com.

Creating an MCS file

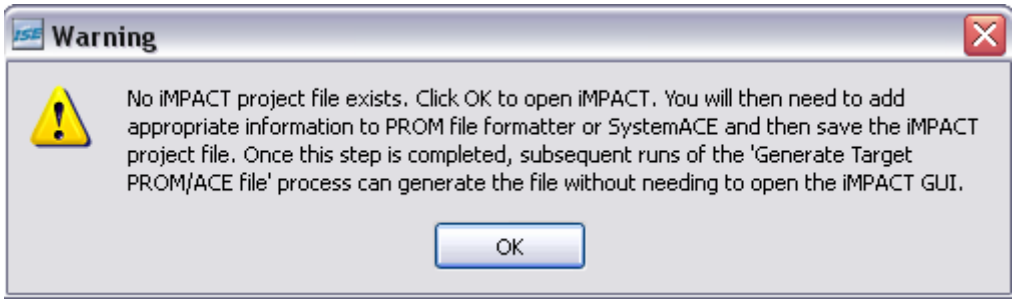
An .mcs file can be used by Xilinx's iMPACT or Digilent's Adept software to program a Digilent FPGA system board indirectly via platform flash (PROM).

Xilinx's iMPACT utility is used to generate a .mcs file from a given .bit file. To open iMPACT directly from ISE, first make sure that the programming file has been successfully generated. Then expand the Configure Target Device process and double-click Generate Target PROM/ACE File.

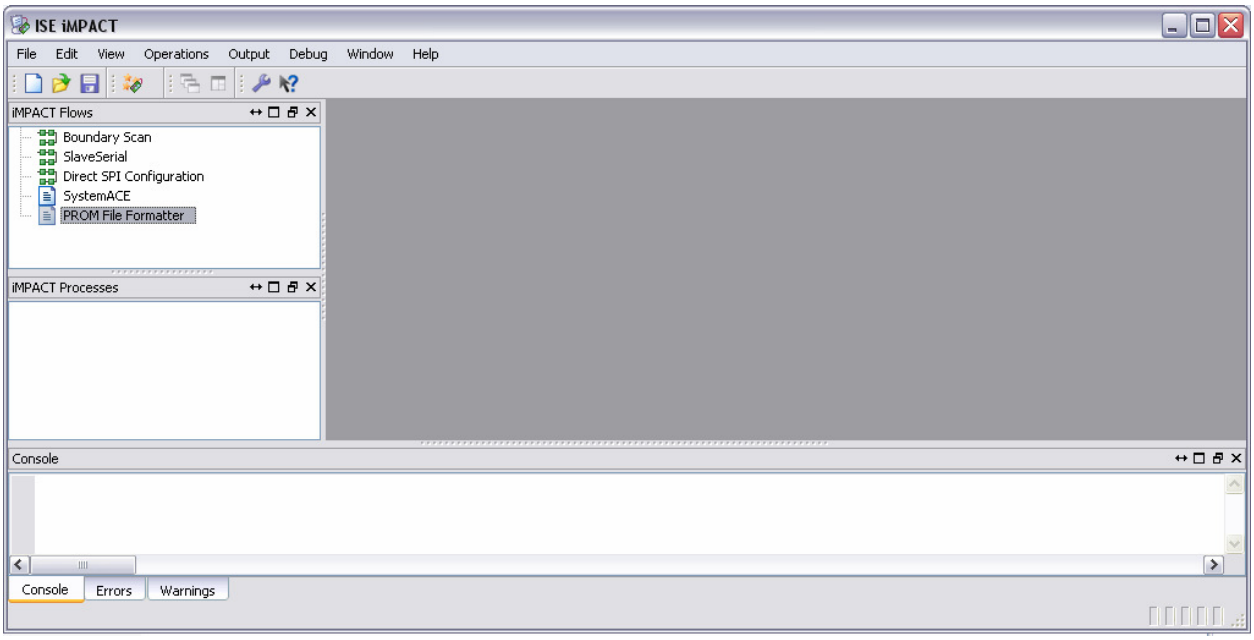


iMPACT can also be opened from the start menu: Start > Programs > Xilinx ISE Design Suite > ISE > Accessories > iMPACT.

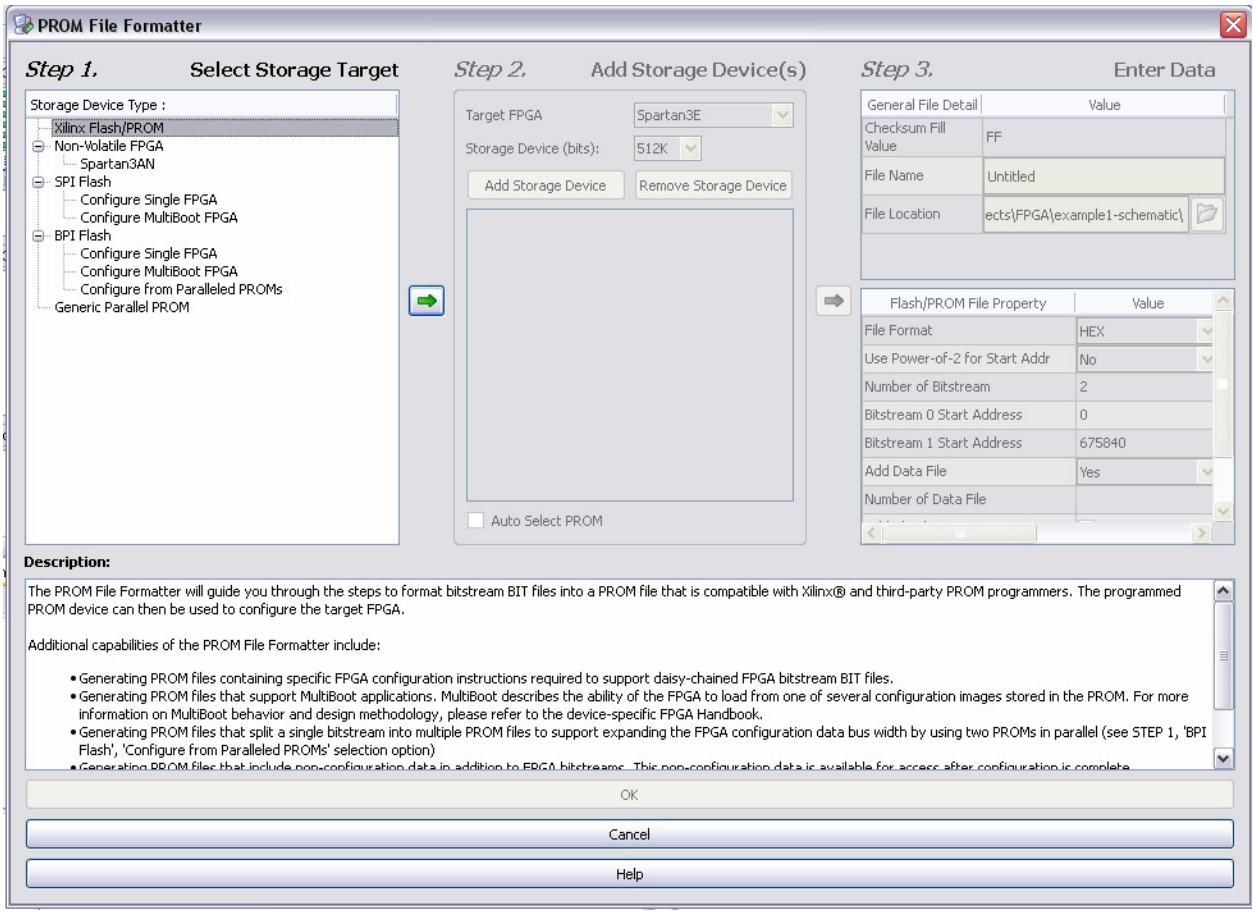
When the following warning appears, click OK to continue.



The ISE iMPACT utility appears.



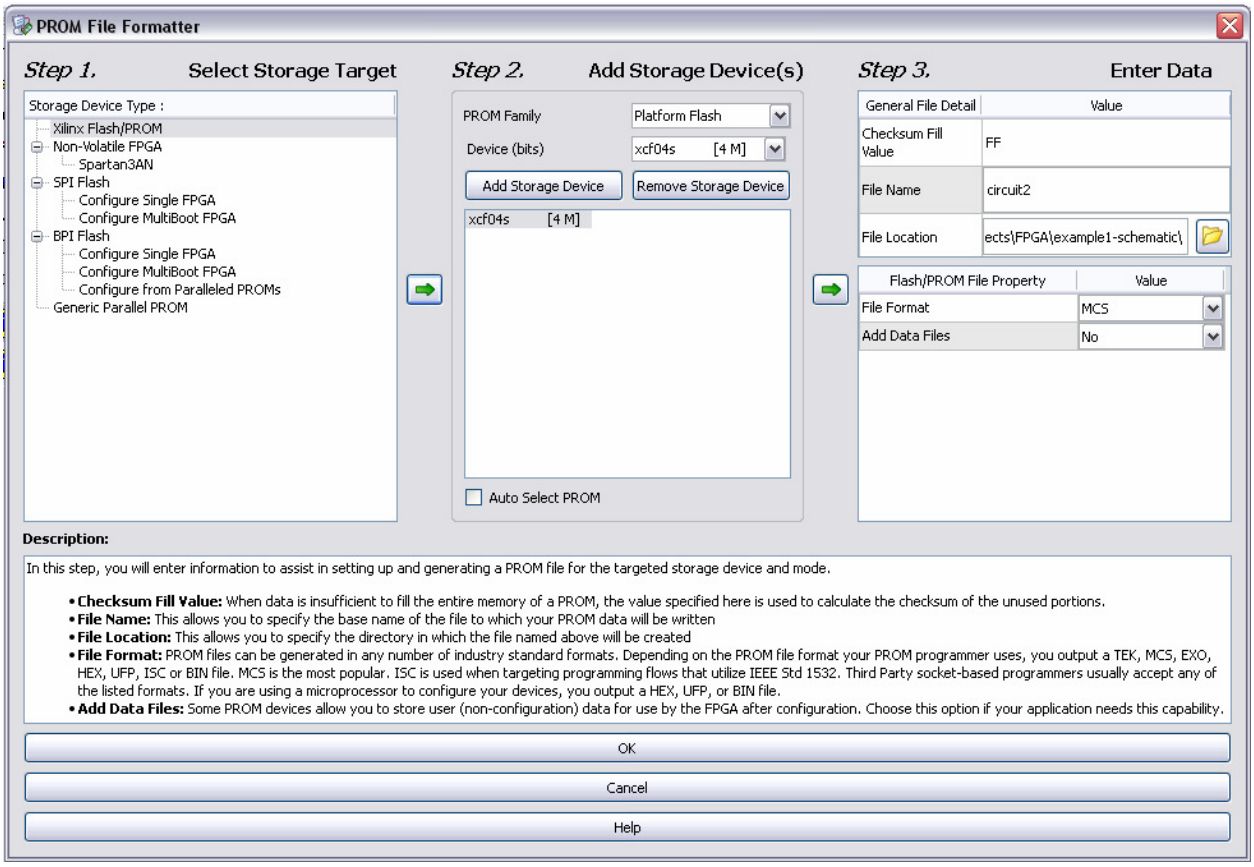
In the iMPACT Flows panel, double-click PROM File Formatter. The following appears:



In Step 1, we choose the proper storage device type. Since we are creating a file for a Platform Flash, select Xilinx Flash/PROM and click the right arrow button to move on to Step 2.

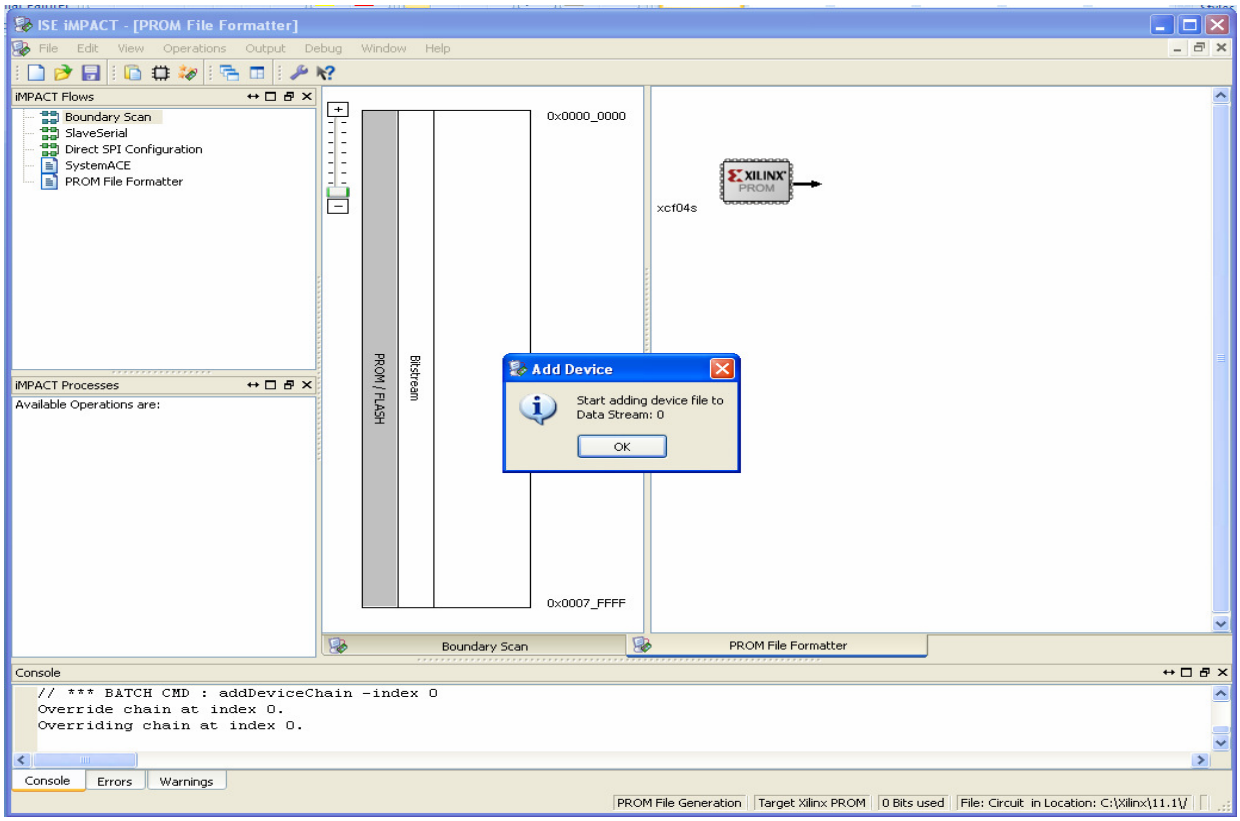
In Step 2, we choose the actual storage device. For PROM Family, select "Platform Flash". The Nexys2 board contains the XCF04S PROM device; set the Device (bits) to "xcf04s [4M]". After specifying the Family and Device, click the Add Storage Device button to add the device to the list below. Click the right arrow to move to Step 3.

In Step 3 we finalize settings for the MCS file. Enter a meaningful File Name and File Location for the MCS file to be created. The File Format option does not need to be changed since it defaults to MCS. The MCS file settings should look similar to the following:

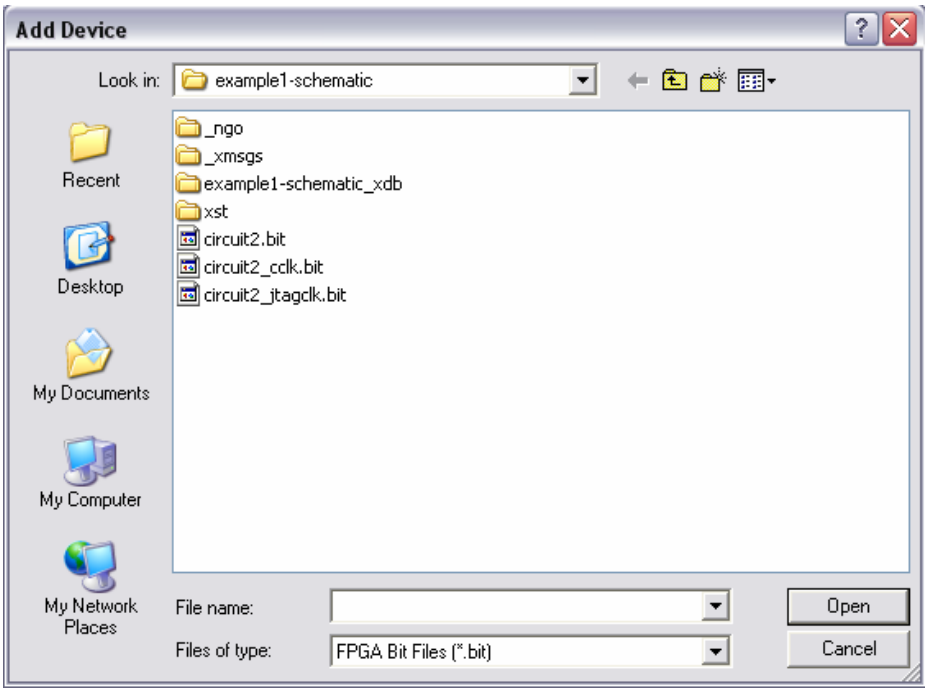


Click OK at the bottom of the dialog box.

The following dialog box appears, asking you to add a device file to the Data Stream:

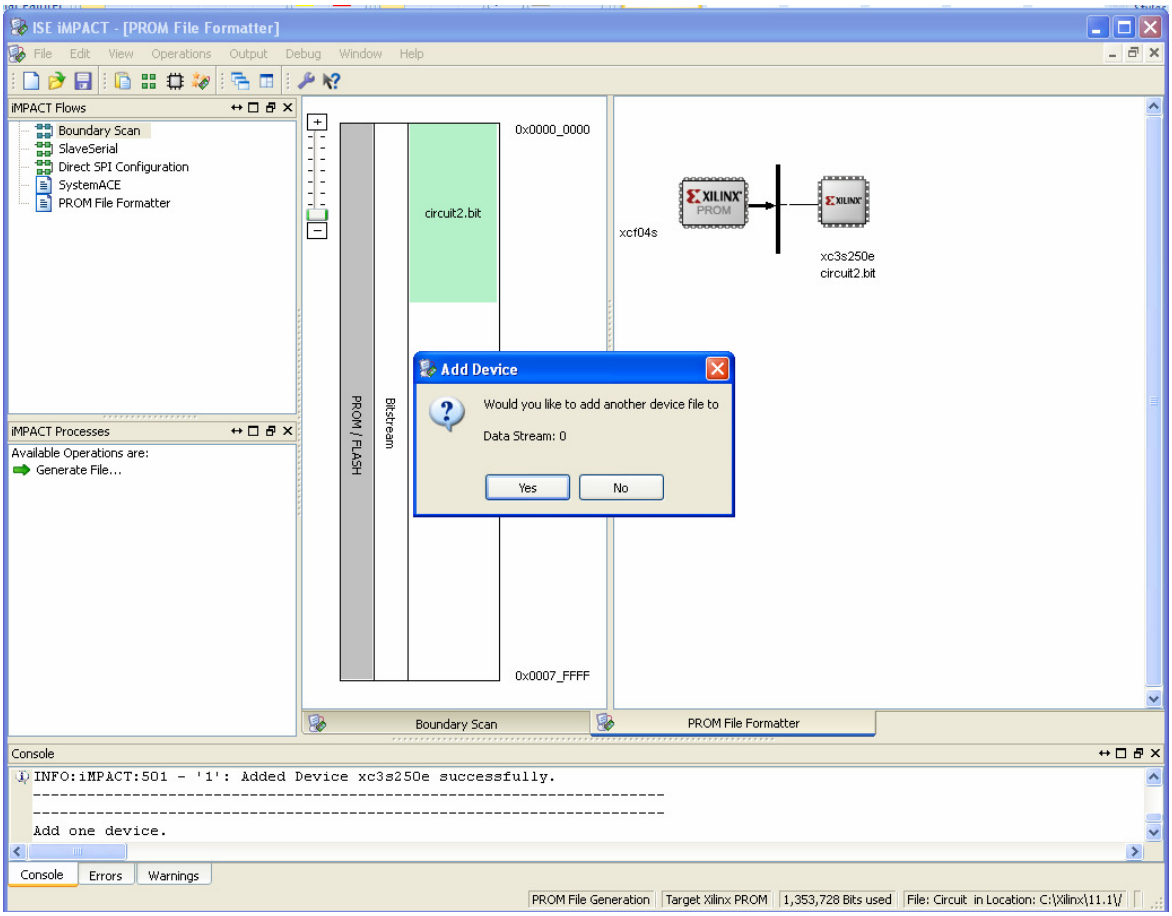


Click OK and the following window appears:

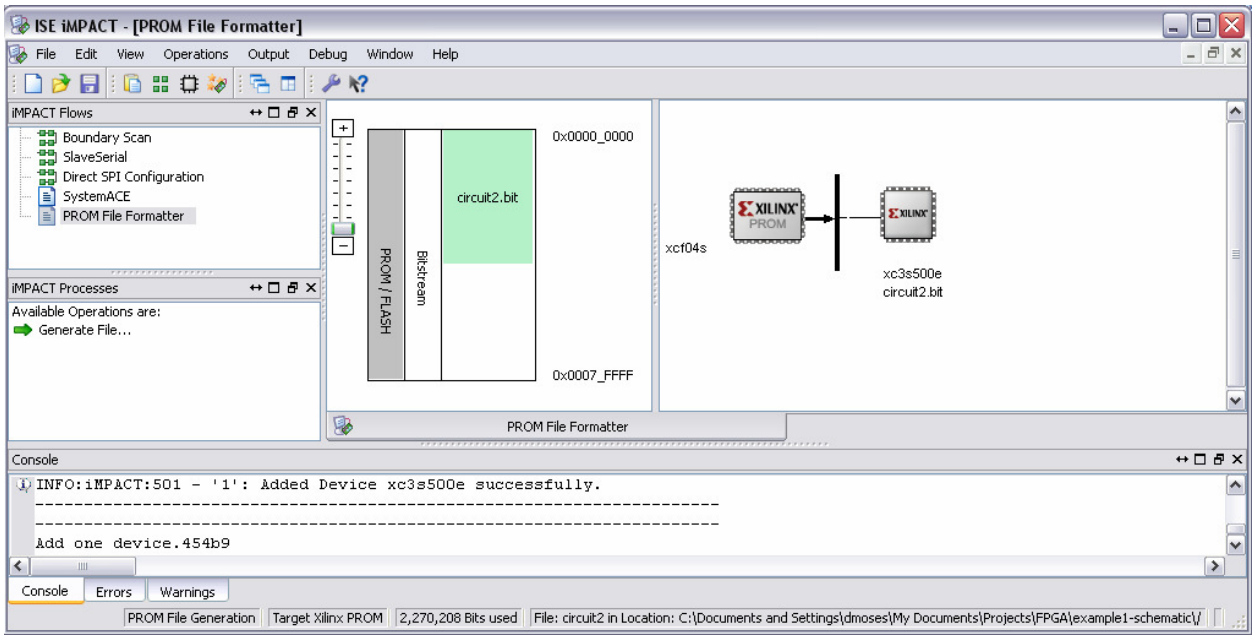


Select the .bit file you want to create the .mcs file from. For this tutorial, the file is circuit2.bit. Select that file and click Open.

When asked to add another device, click No and then OK.



iMPACT should now look similar to the following:



Under the iMPACT Processes panel, double-click the Generate File… option. iMPACT creates the .mcs file along with several other files. These other files can be ignored. The .mcs file is used by the Adept application or iMPACT to configure the platform flash on a Digilent system board.