

Memo



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Title: User guide for installing EasyStack
Distribution: Internal
Summary: Guide for installing and updating EasyStack firmware on Xilinx development boards, SP601/SP605

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1 Introduction

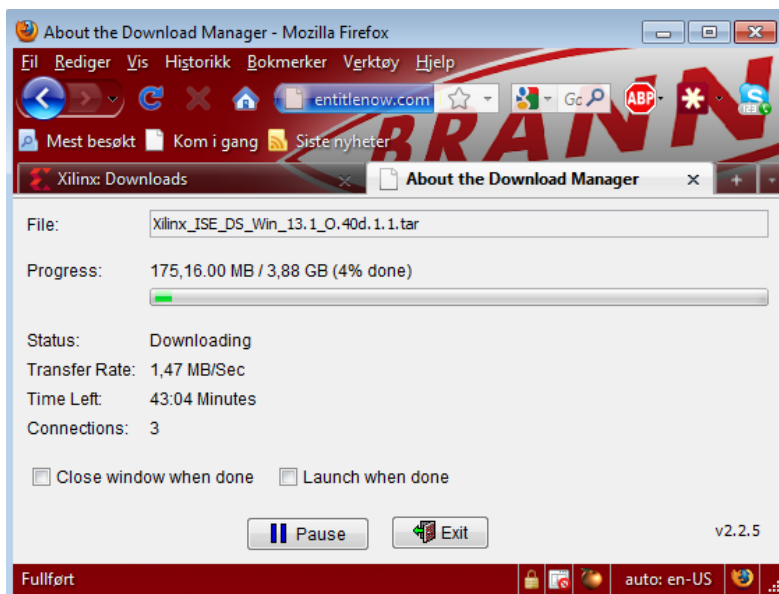
This guide will guide you through the programming of Xilinx Spartan 6 development board (SP601 or SP605) with the EasyStack firmware.

The process has the following steps:

- Download and install Xilinx' development tools
- Prepare the board for programming
- Start Impact, the Xilinx programming tool
- Program the device with the following configuration file

2 Download and install Lab tools from Xilinx

Lab tools can be downloaded from Xilinx' webpages. Go to <http://www.xilinx.com/support/download/index.htm> and download the latest version of Lab tools. It is located at the bottom of the page. In order to download the software, you have to create a Xilinx account. This is free of charge.



After logging in, the download manager will start up (you may have to enable pop-up windows) and download the software.

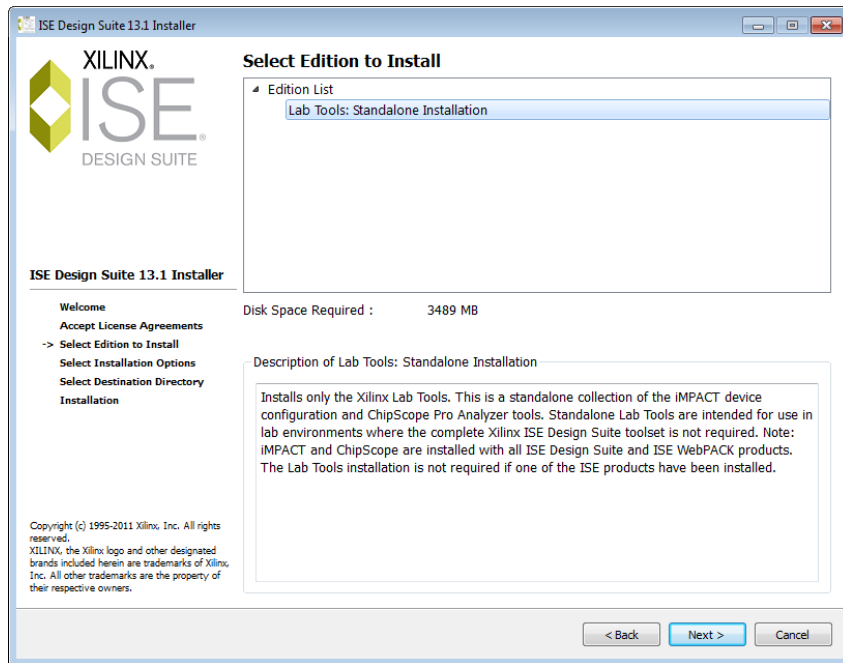
The software package is at around 800MB. A good Internet connection is advantageous. It is also possible to order a DVD from the Xilinx' webpages.

The downloaded file is a tar file, which must be extracted. You can use any extractor tool that extracts tar files, for instance PeaZip, <http://www.peazip.org/index.html>.

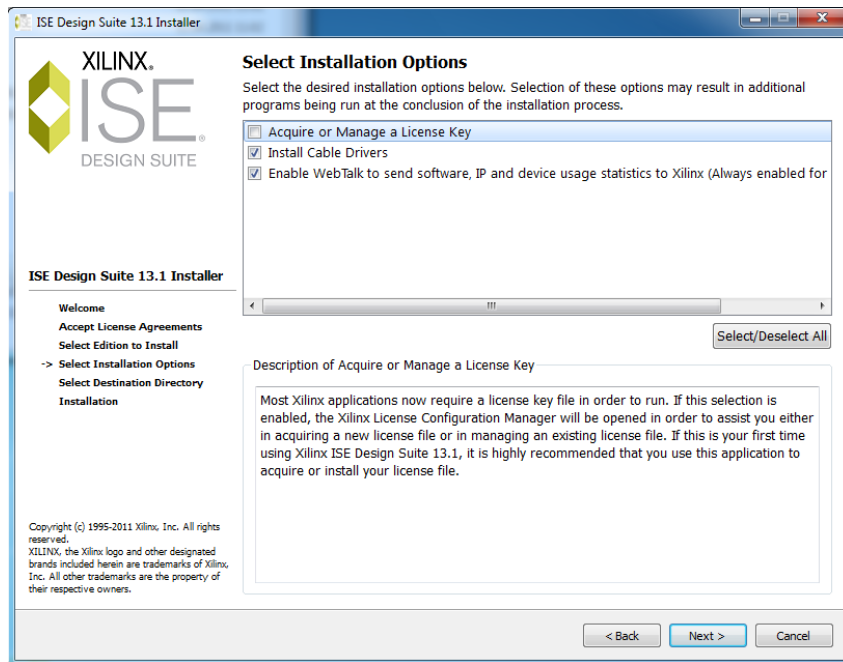
Extract the package to a temporary location on the local hard drive.

Navigate to the location where you extracted the package and start xsetup.

Follow the installation guide by accepting the license agreements. Select Lab Tools Standalone Installation as the edition to install and press Next.



Click Next in the Select Edition to Install dialog.

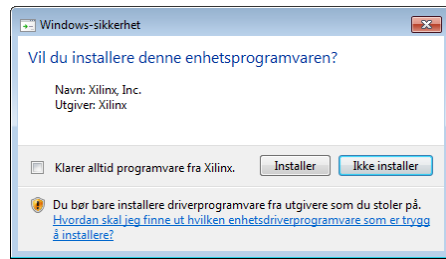
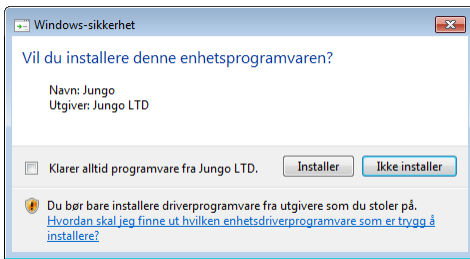


In the Select Installation Options window, check that Install Cable Drivers and Enable WebTalk... are enabled. Acquire or Manage a License Key should not be enabled.

Click Next.

Select a destination directory and press Next, and then press Install.

The tools will now be installed together with required cable drivers for using the USB JTAG interface.



Some Windows Security dialogs will appear, asking to install the device drivers for the USB cable. Press Install in these windows.

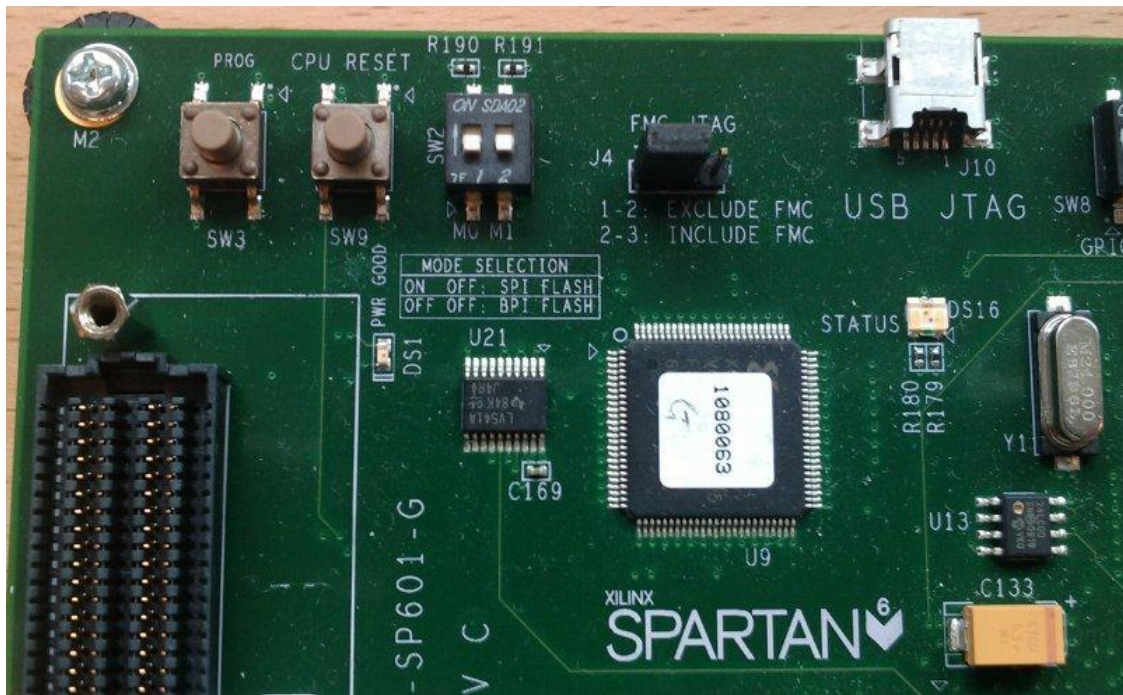
The Xilinx Lab Tools are now installed, and ready for use.



3 Preparing the board

There are a couple of things that needs to be checked on the board. First, the FMC JTAG selector needs to be set correctly. It should be set to jumper 1-2: exclude FMC.

The mode selection should be set to BPI flash. M0 and M1 on SW1 should be set to OFF (down).

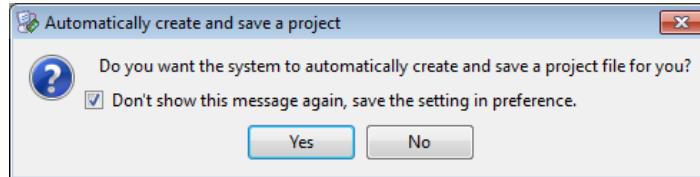




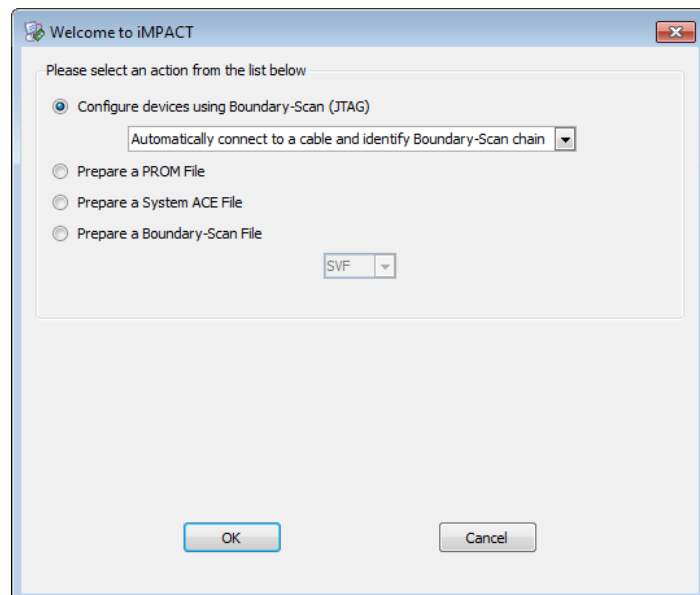
4 Using iMPACT

Connect a USB cable to the USB JTAG port on the Xilinx development board (SP601 or SP605) and plug the other end into the computer.

From the Start menu, start the tool from Xilinx ISE Design Suite → Lab Tools → iMPACT.



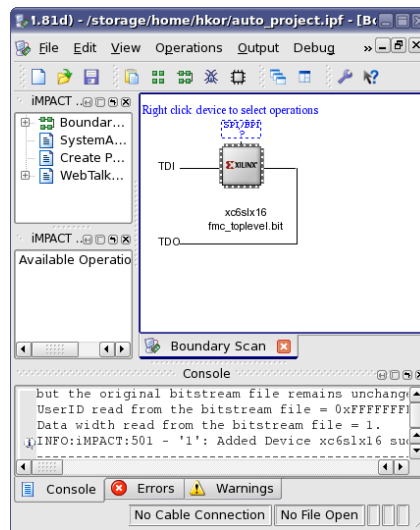
Click Yes on the dialog about Automatically create and save a project.



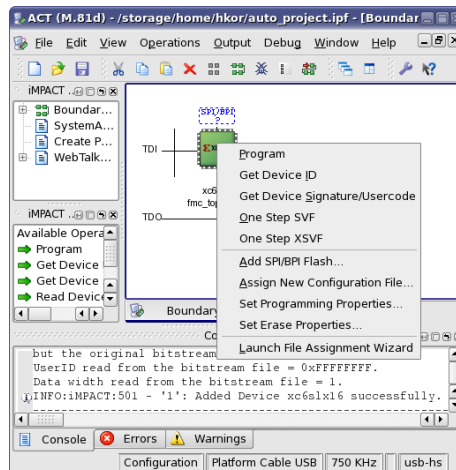
On the next screen, select Configure devices using Boundary-Scan (JTAG) and use Automatically connect to a cable and identify Boundary-Scan chain. Click OK.

iMPACT will now connect with the development board and scan the board for devices located on the board.

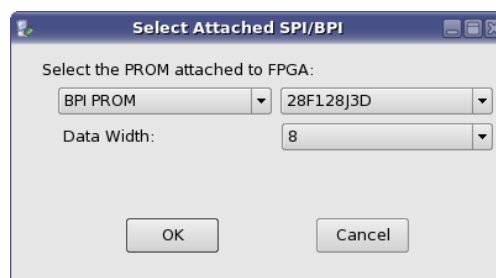
It will find one Spartan 6. xc6slx16 on SP601 and xc6slx45t on SP605.



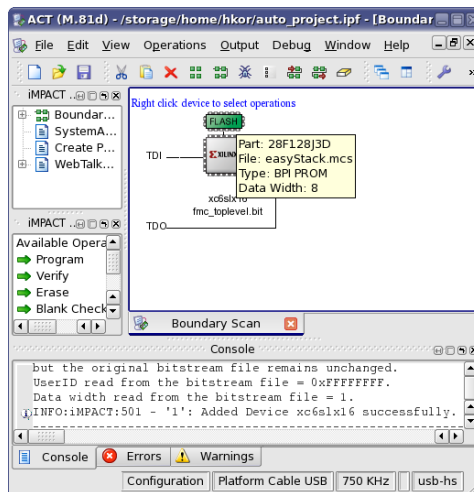
Right click on Xilinx chip in the Boundary Scan frame and click “Add SPI/BPI flash...”.



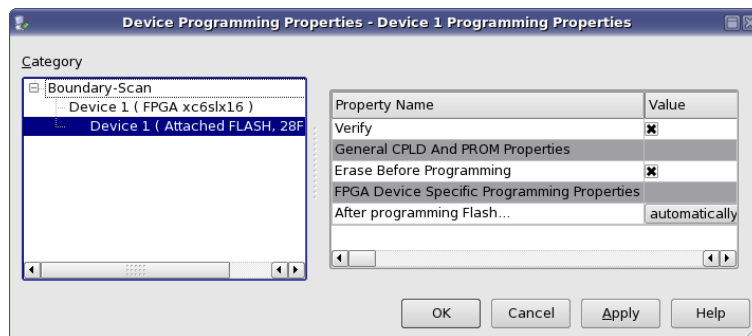
You now need to locate a bit file (.mcs) for the EasyStack firmware. The EasySuite package includes such a bit file. By installing EasySuite, you can find the bit file in C:\Program Files\EasySuite\EasyStack.mcs



In the dialog that appears, select BPI PROM, 28F128J3D, with Data Width: 8. Click OK.

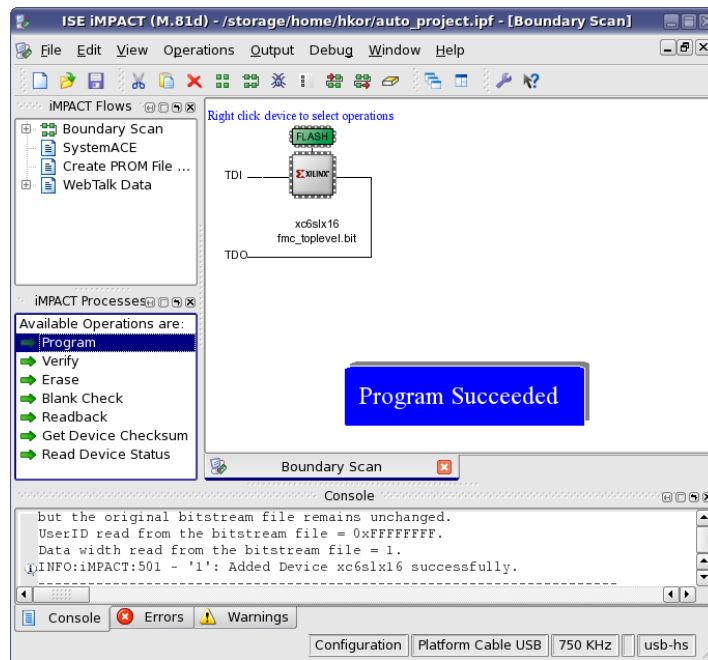


Select the FLASH located above the Xilinx chip, and hit Program under Available Operations in the left column.



In the Device Programming Properties, check that Verify and Erase Before Programming is enabled. Then hit OK.

The prom will now be programmed, and the operation should end with a label indicating Program Succeeded.



The board is now programmed with the EasyStack firmware. You can verify that the FPGA is loaded with the firmware by pressing the PROG button (SW3 on SP601). GPIO_LED0 should then be constantly lit.