How to program Nano Board with Quartus

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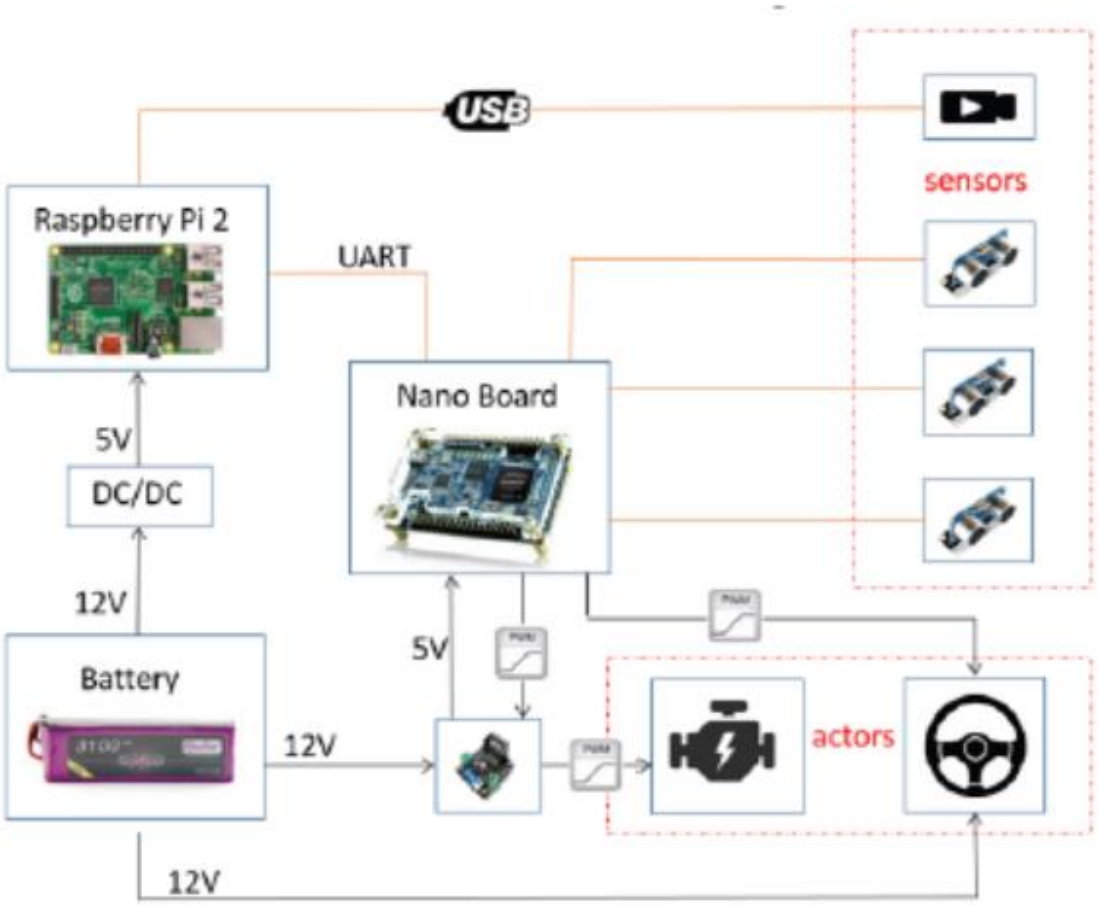
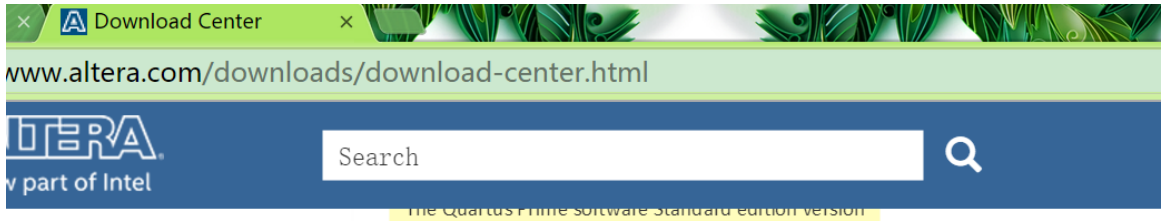
Structure of the LEGO Car

- The basic use of the DE0-Nano board is providing an interface for the Raspberry Pi to control the car.

Name	Type
Raspberry Pi 2	ECU
DE0-NANO	ECU
Ultrasound	sensor
USB-Camera	sensor
engine	actor
steering	actor
battery	power
H-Bridge	converter
USB-HUB	converter



Download software



15.1 supports the following device families: Arria II, Arria 10, Arria V, Arria V GZ, Cyclone IV, Cyclone V, MAX II, MAX V, MAX 10 FPGA, Stratix IV, and Stratix V.

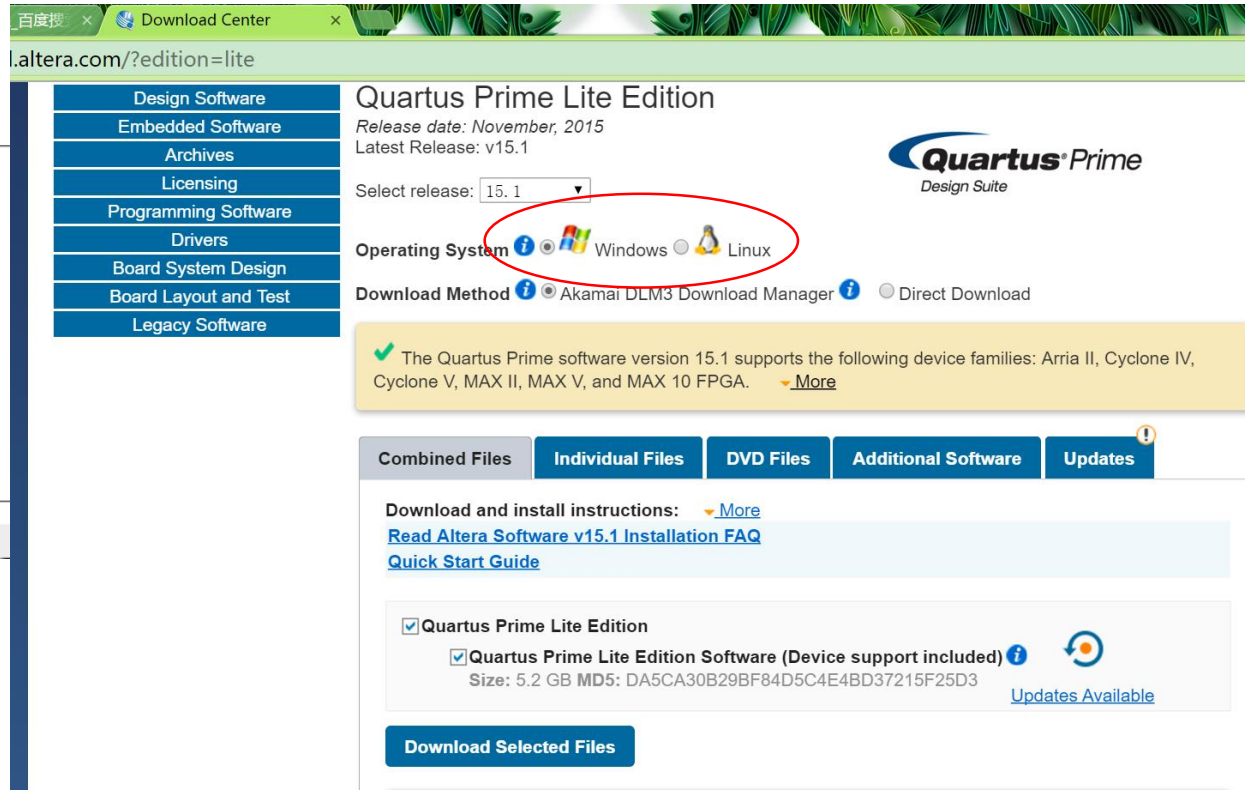
Starting with version 15.1, Quartus II Subscription Edition is now Quartus Prime Standard Edition.

Quartus Prime software Lite edition*
FREE, no license file required
Includes MegaCore IP Library
IP available for purchase

Download

*The Quartus Prime software Lite edtion version 15.1 supports the following device families: Arria II, Cyclone IV, Cyclone V, MAX II, MAX V, and MAX 10 FPGA.

Starting with version 15.1, Quartus II Web Edition is now Quartus Prime Lite Edition.



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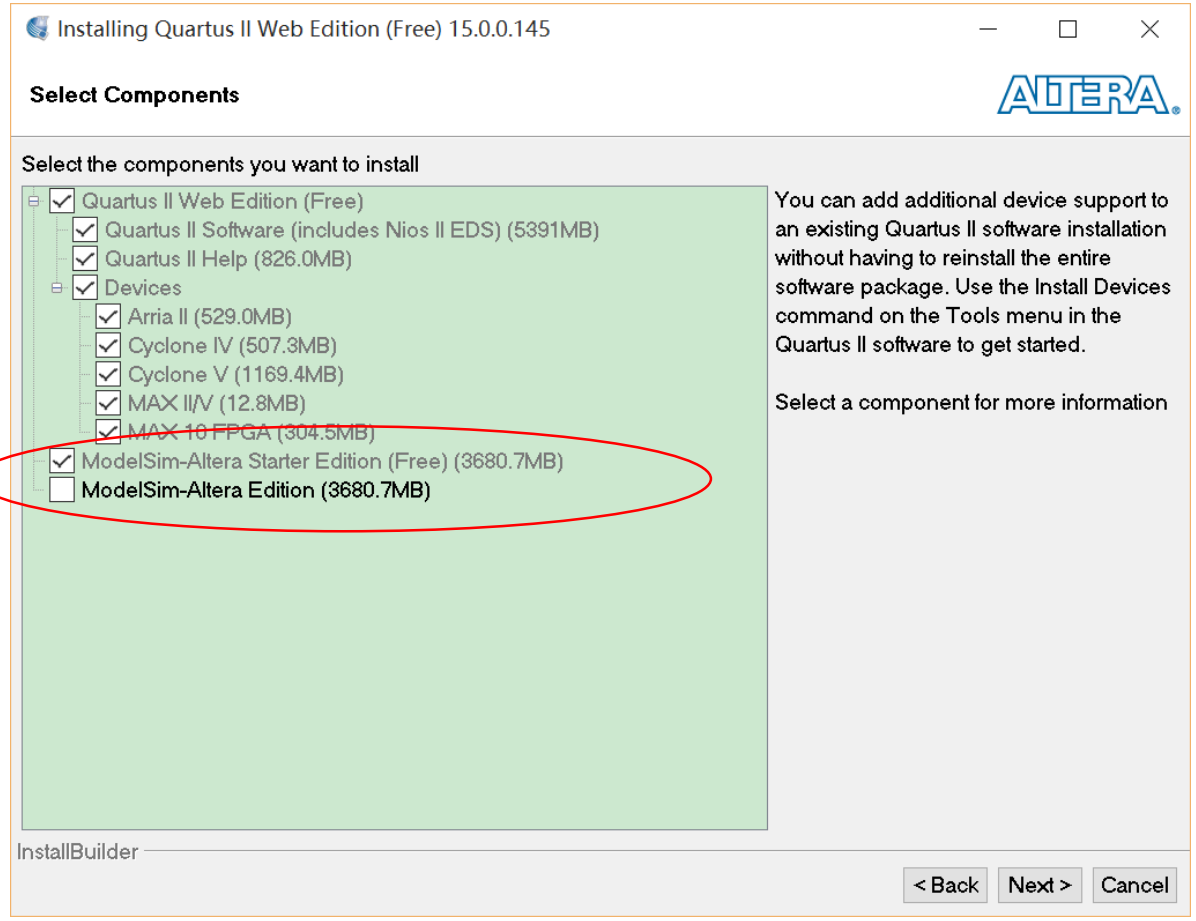


During installation the ModelSim application is not required.

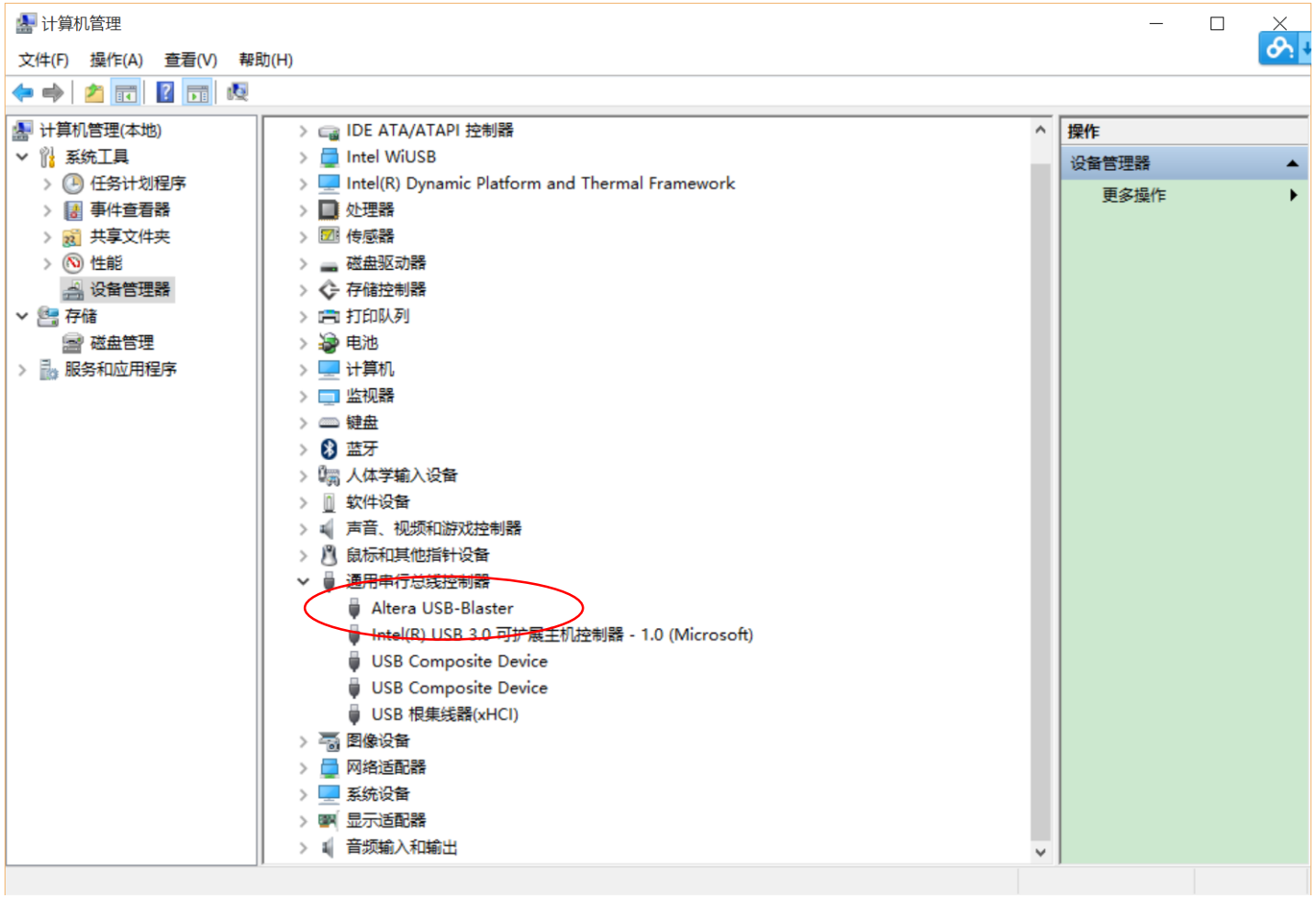
Connect board with PC

- Connect the Nano board USB-output with your computer.
- Check the driver is correctly installed.

1. For Linux users, refer in this link: *https://www.altera.com/content/dam/altera-www/global/en_US/pdfs/literature/ug/ug_usb_blstr.pdf*

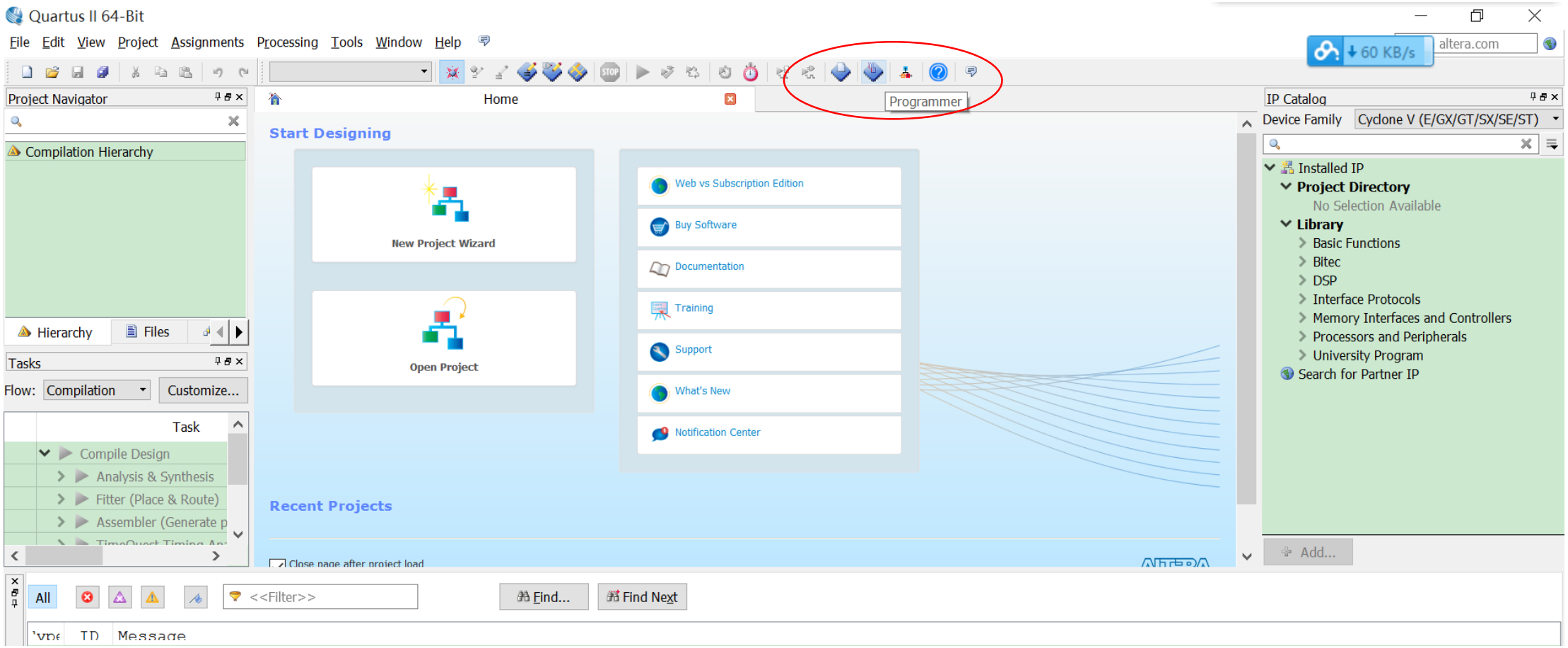
*Use **sudo udevadm control --reload-rules** and **sudo udevadm trigger** to make the configuration take effect.*

2. For Windows users, please choose the default driver directory in the Quartus installation path and update the driver.



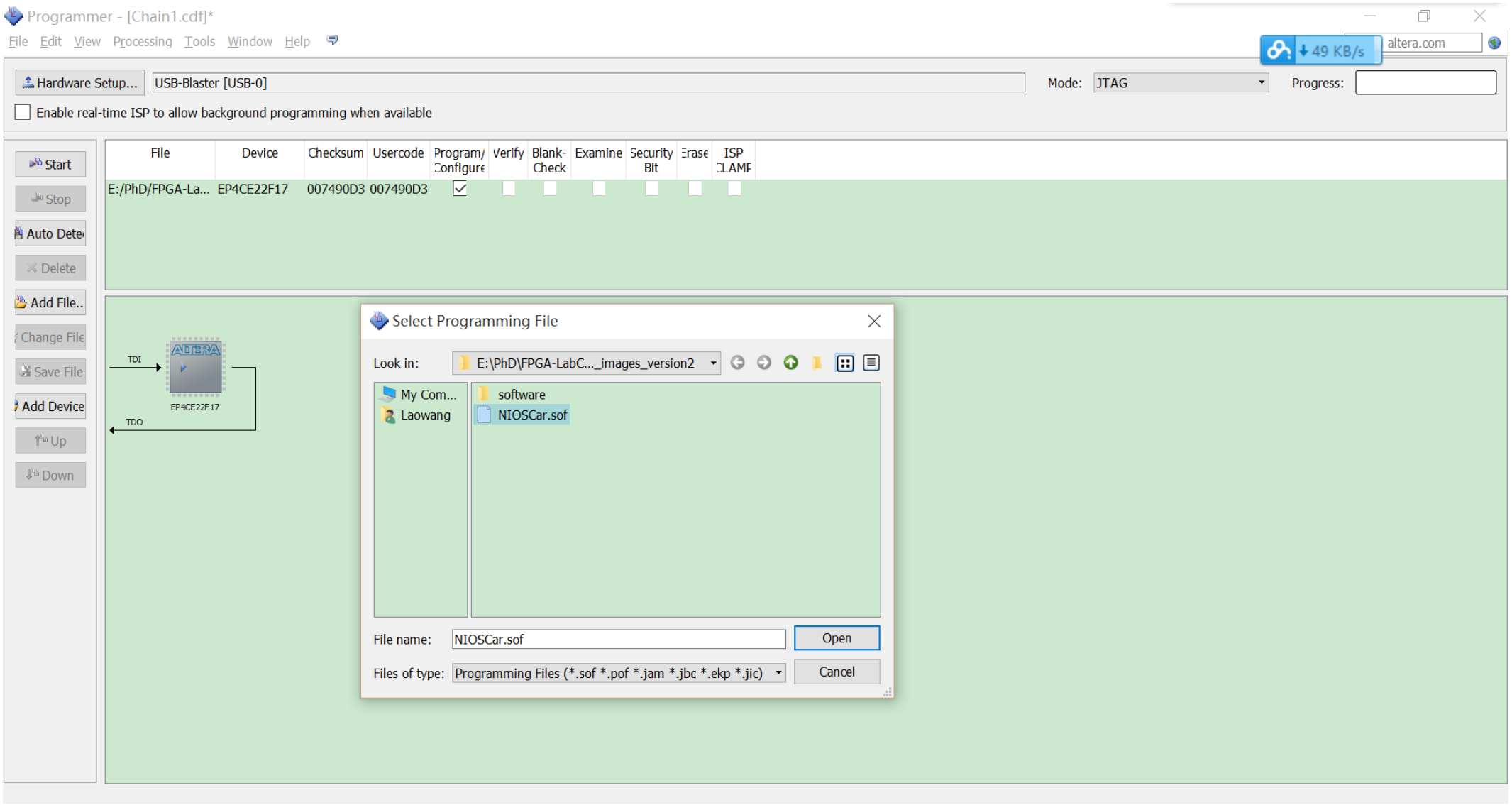
Flash board with images

Click the “Programmer” icon to start software programming interface.

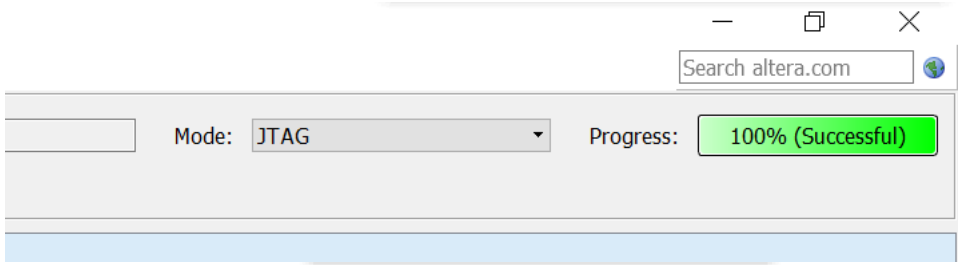


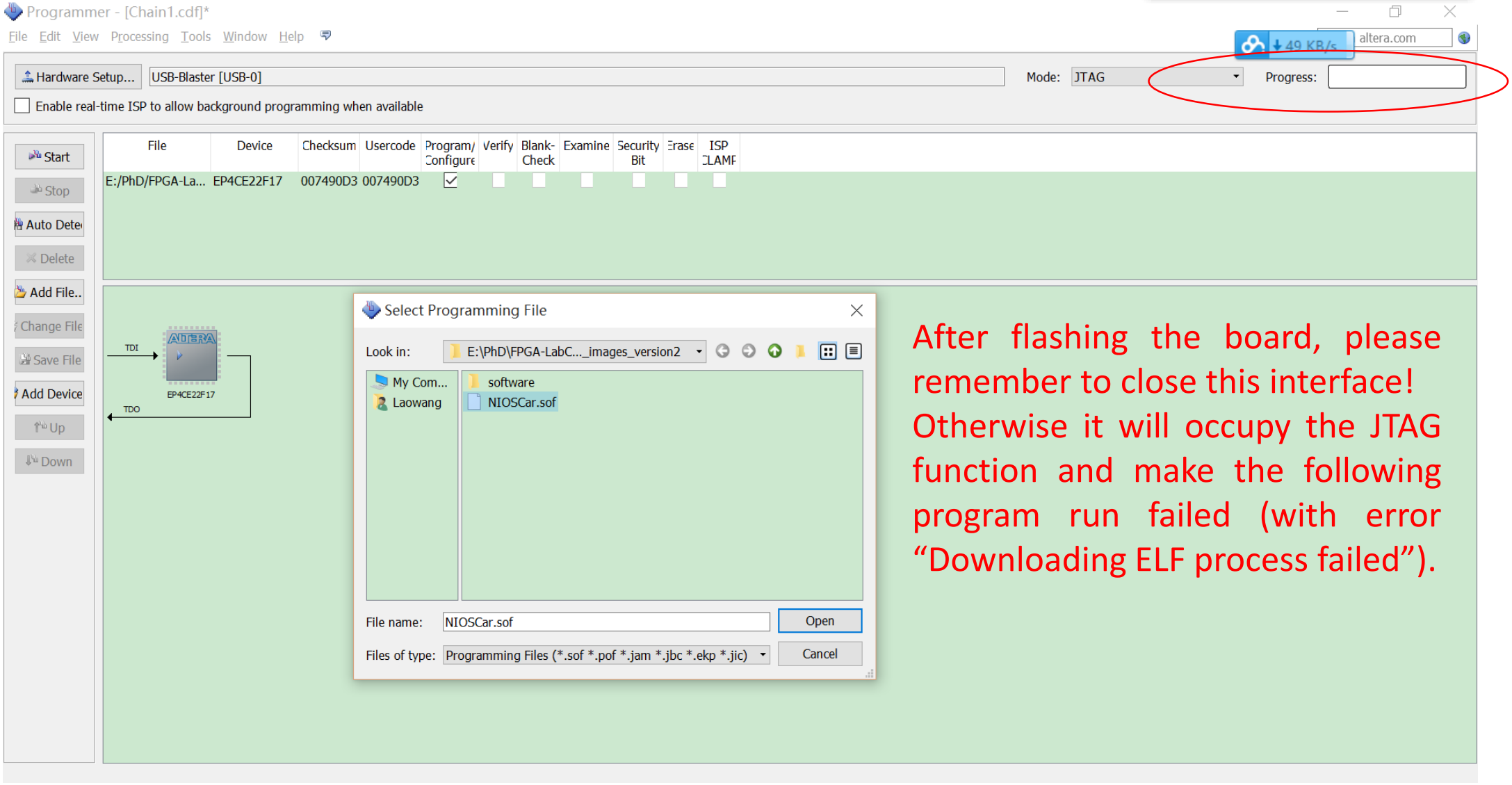
Flash board with images

Use the .sof file that you downloaded from our website.



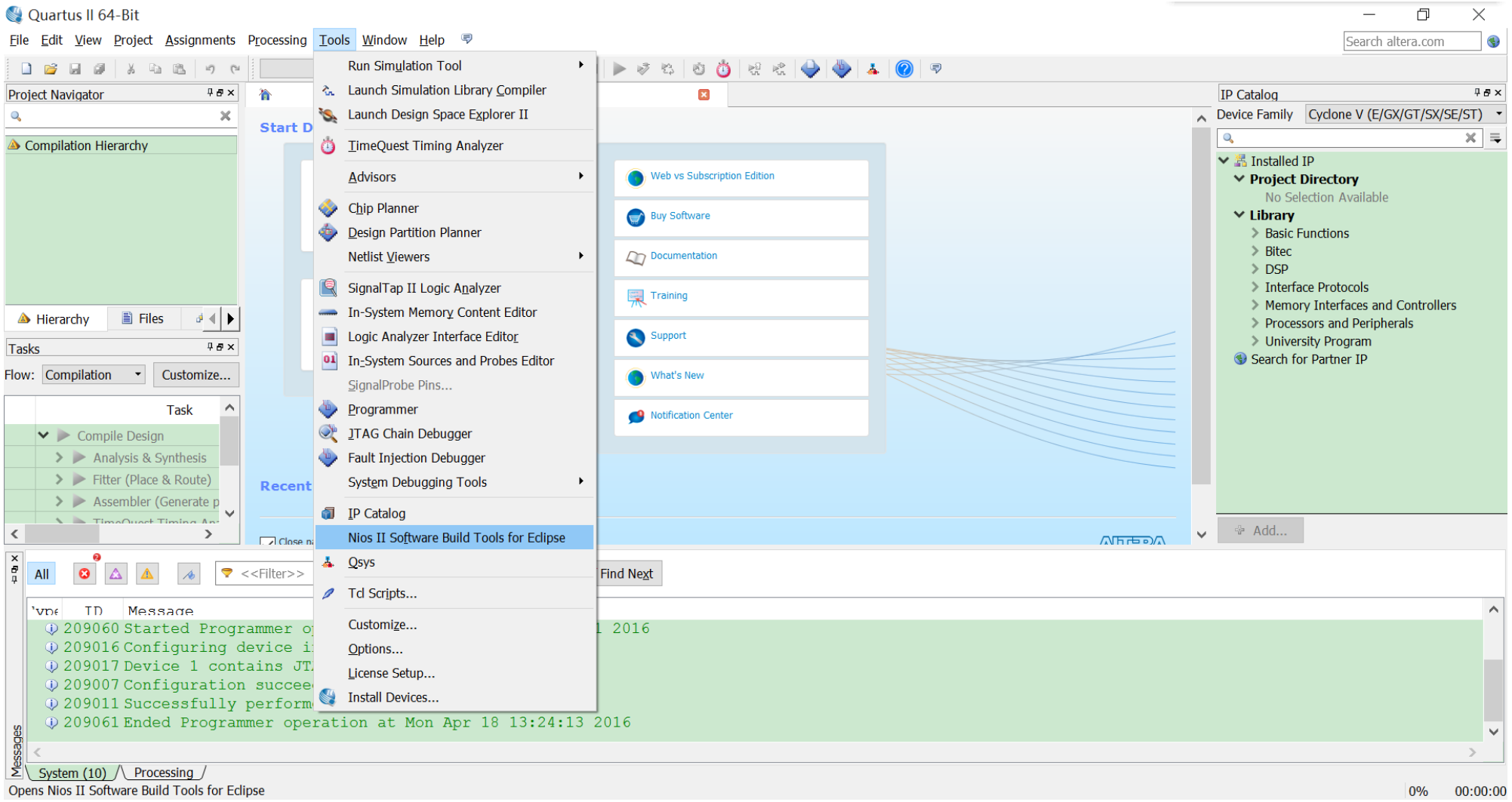
Flash board with images



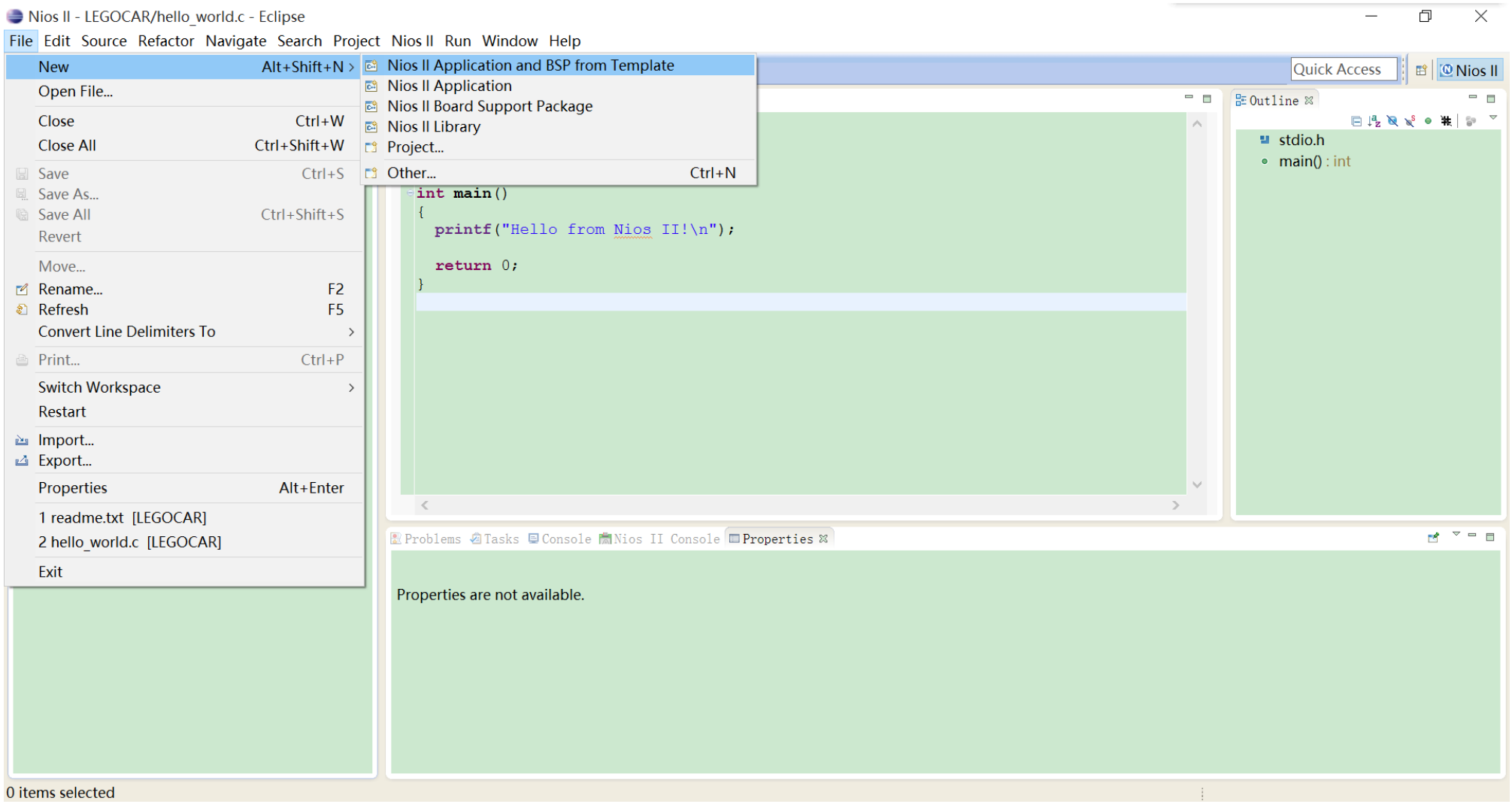


After flashing the board, please remember to close this interface! Otherwise it will occupy the JTAG function and make the following program run failed (with error “Downloading ELF process failed”).

Program the board

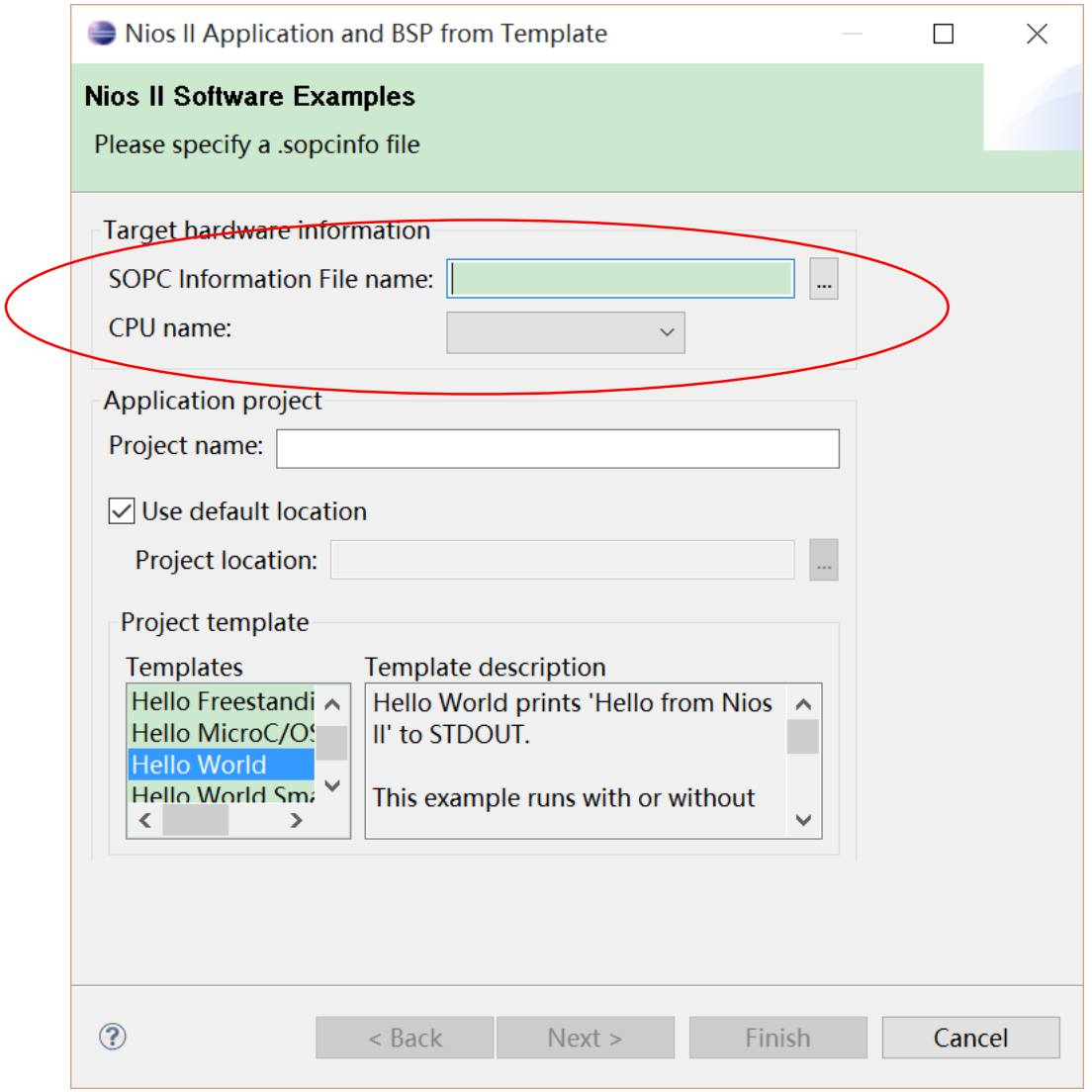


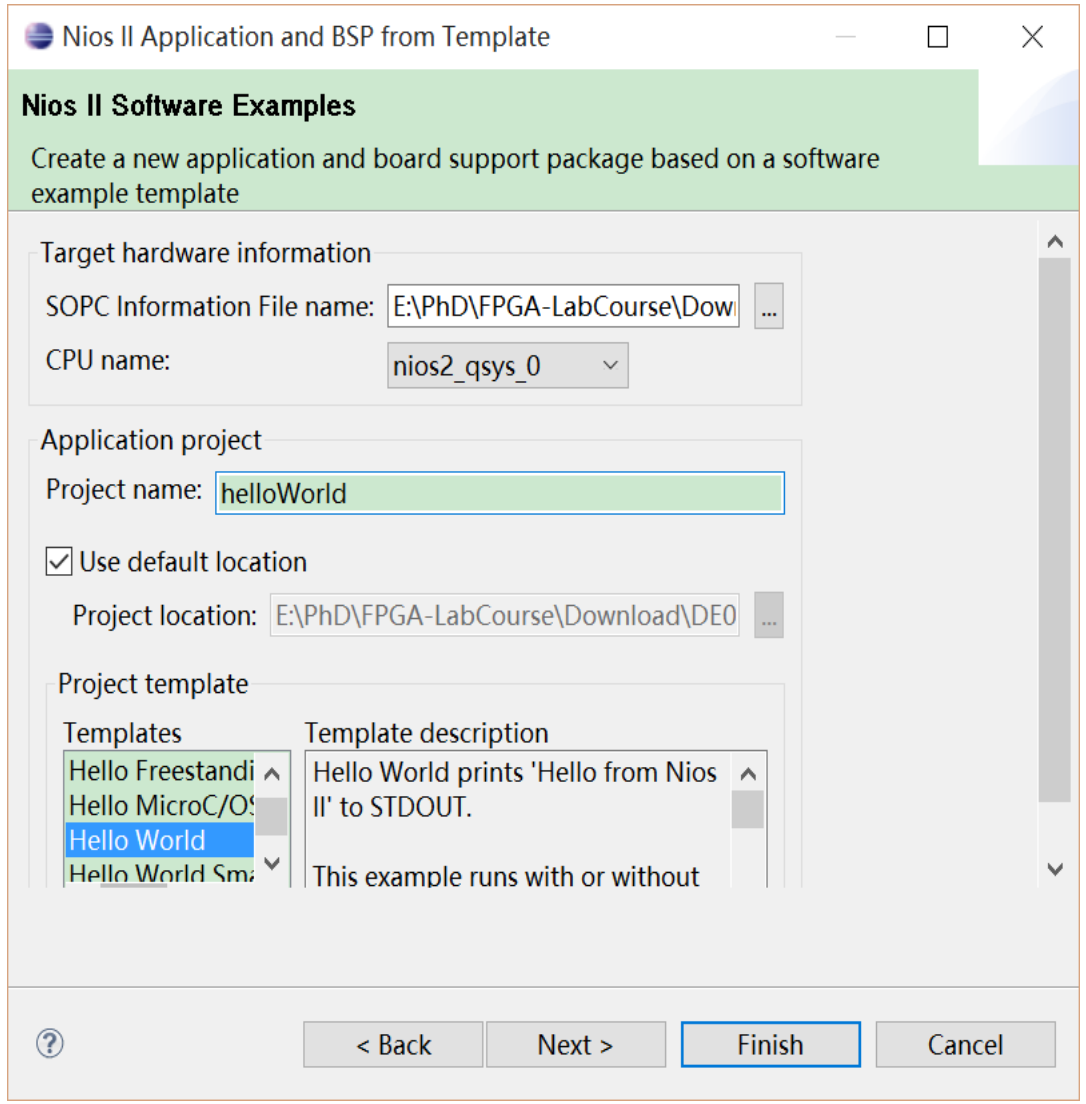
Program the board



Program the board

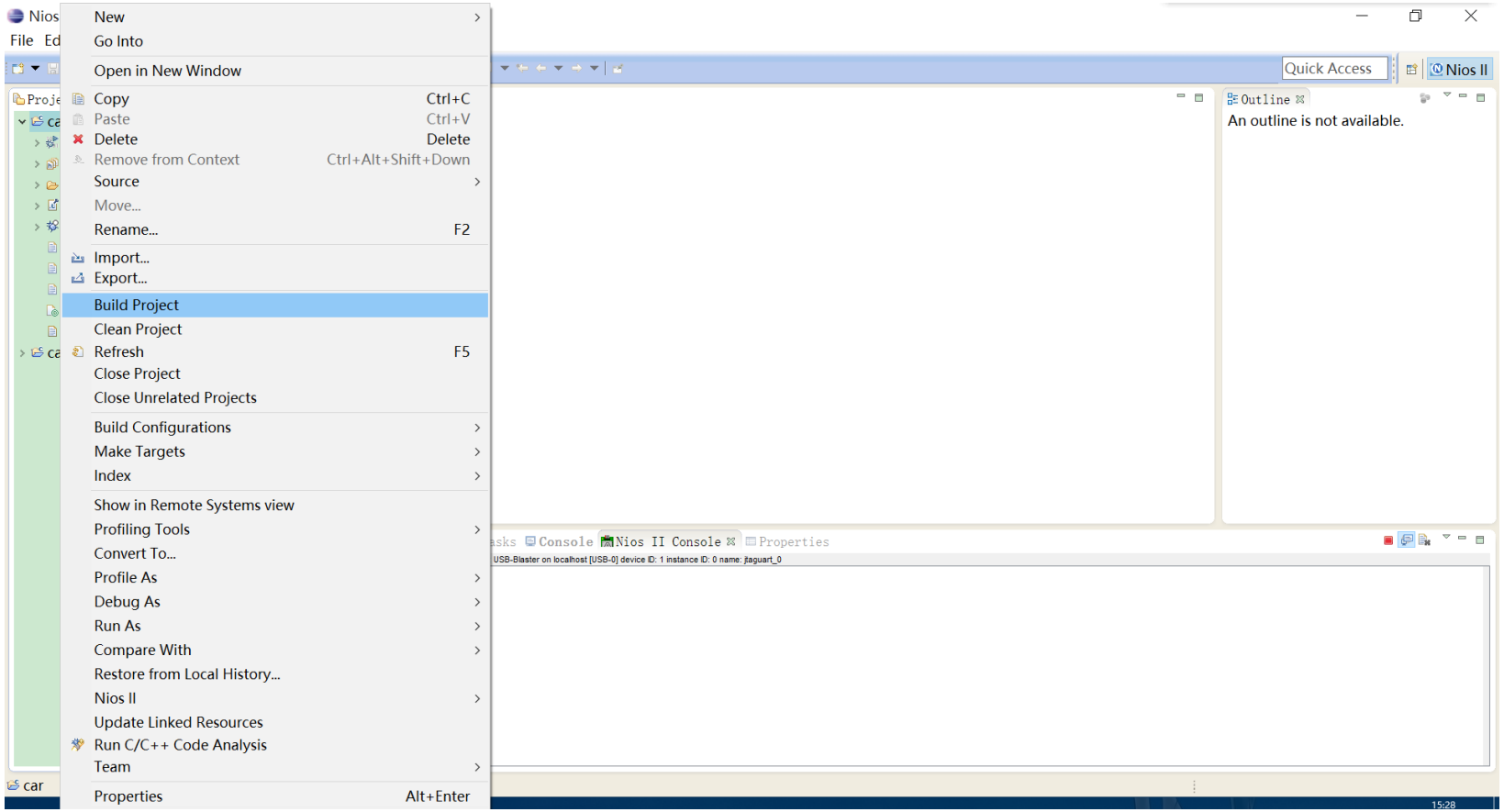
Use the .sopc file that you downloaded from our website.



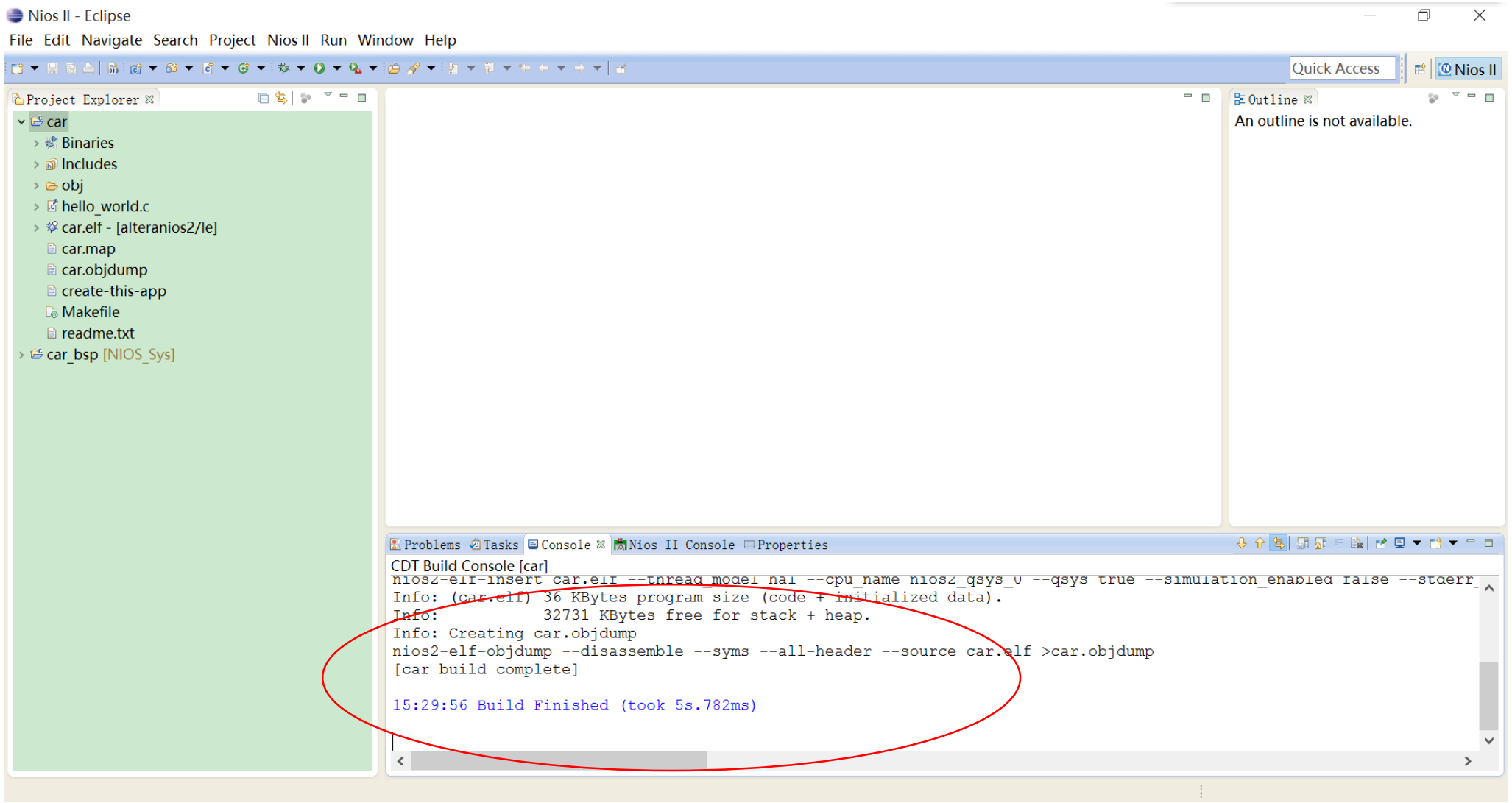


Program the board

- Before running the program, you need to build the project.

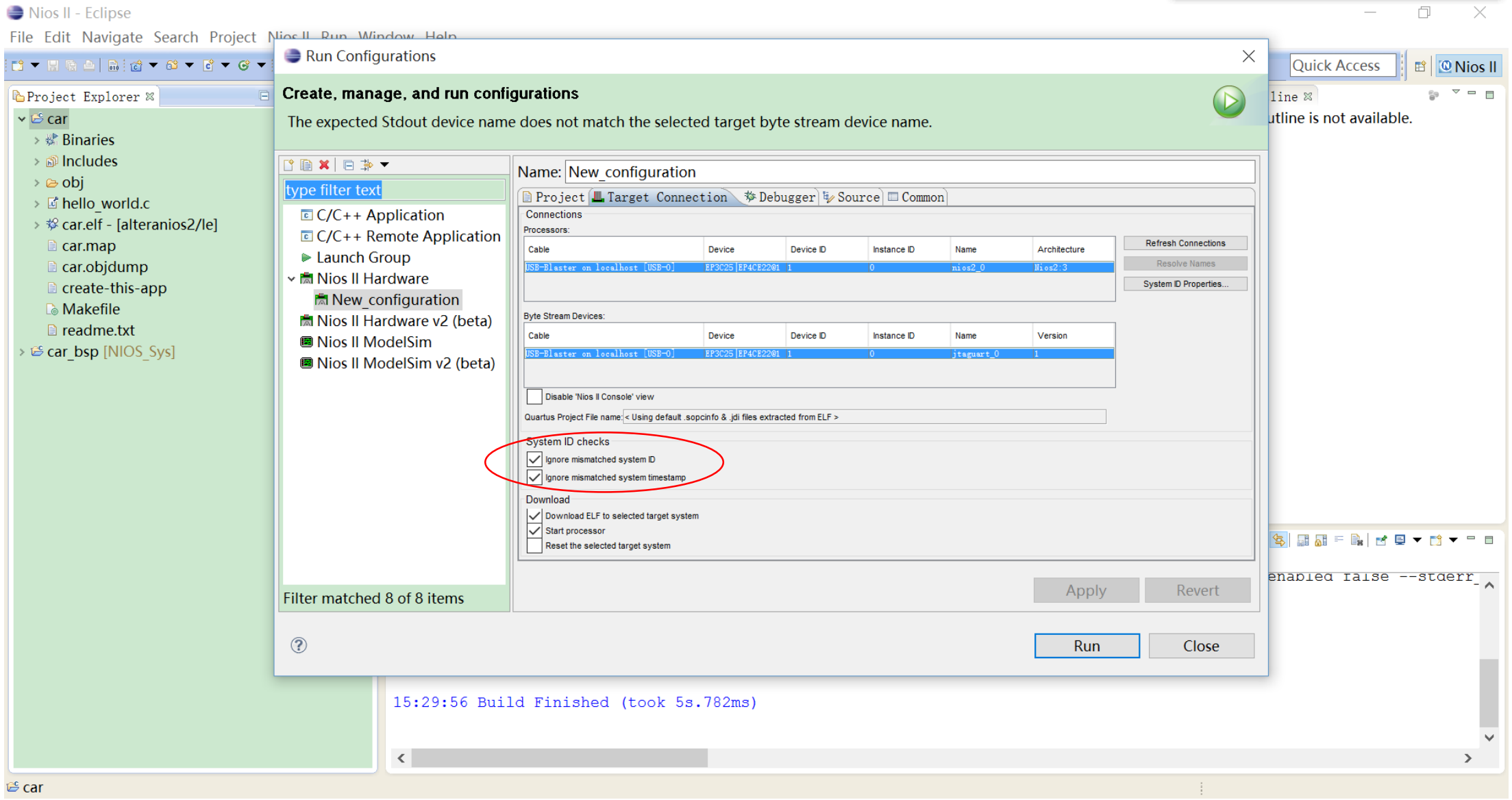


Program the board



Program the board

Remember to select the two check boxes under “System ID checks” and press Apply.



Program the board

If successful, the results will be shown on the Nios II console tab.