

NIOS II Starting Guide

Jounsup Park

3/30/2016

Start from the technical package

- Download the technical package (EE443.zip) from the class website
→ You need EE account in addition to your UW ID

The screenshot shows a web browser window with the address bar displaying <https://www.ee.washington.edu/class/443/2016spr/>. The page title is "EE 443 Design & Application of DSP Spring 2016". On the left side, there is a navigation menu with links: [Home](#), [Contact Info](#), [Syllabus](#), [Notes](#), [Assignments](#), [Project](#), and [Discussion Board](#). The main content area is titled "Assignments" and contains the following text: "Submission instructions: Submit all your work (including CCS and MATLAB code) in PDF only." followed by "NOTE: Name your file in this form LastFirstLAB#.pdf other wise it will NOT be graded. Ex: Shian-RuKeLAB1.pdf". Below this, it states "Demos must be presented to a TA by appointment, between 1-3 pm on Thursdays." and "*Submit labs using Internet Explorer. There is NOT a 'submit' button so hit 'Enter' on the keyboard and refresh the page. You should the". At the bottom of the main content area, there is a blue link: [SUBMIT YOUR LAB REPORTS HERE](#). Below the main content area, there is a section titled "Project Packages" with a link: [Download here](#). Finally, there is a section titled "Labs" with a link: [Lab1 \(Due 11:50pm Apr. 7\)](#).

EE 443 Design & Application of DSP Spring 2016

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Assignments

Submission instructions: Submit all your work (including CCS and MATLAB code) in PDF only.

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[SUBMIT YOUR LAB REPORTS HERE](#)

Project Packages

- [Download here](#)

Labs

- [Lab1 \(Due 11:50pm Apr. 7\)](#)

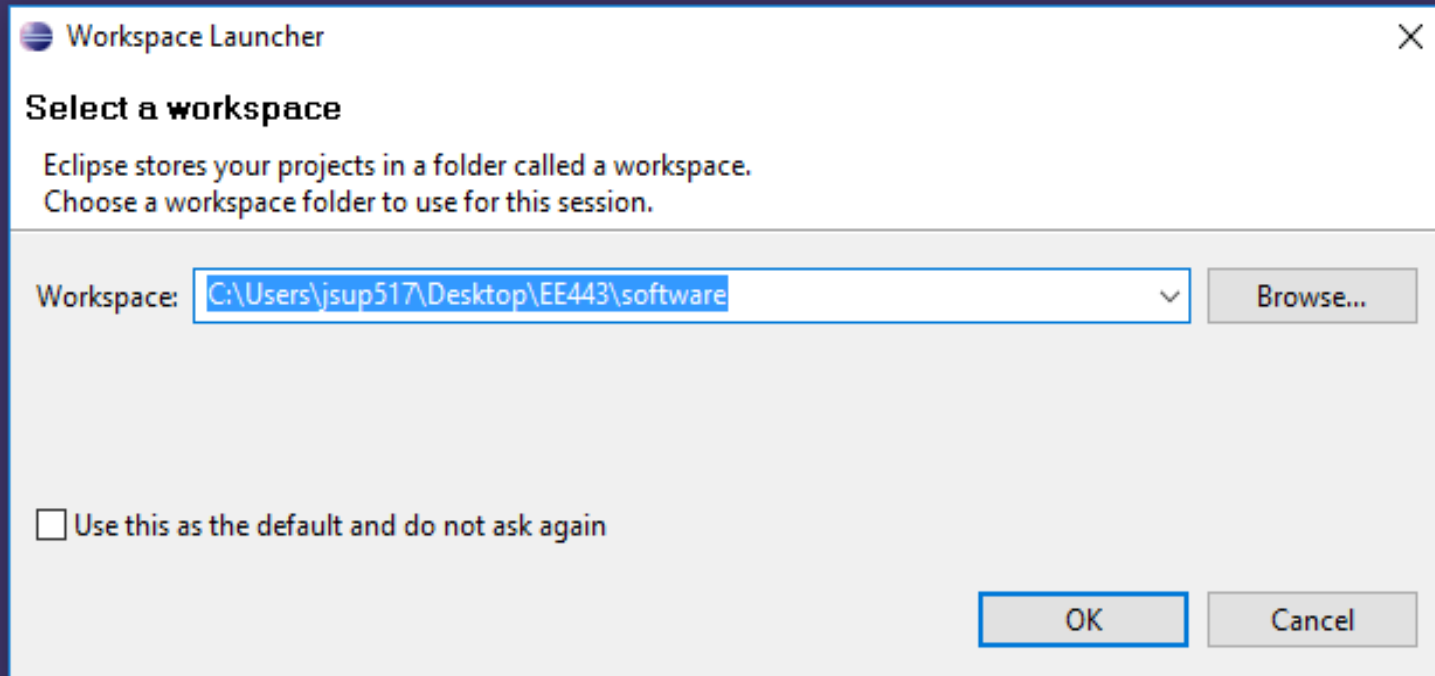
Extract the EE443.zip on the Desktop



Start the NIOS II

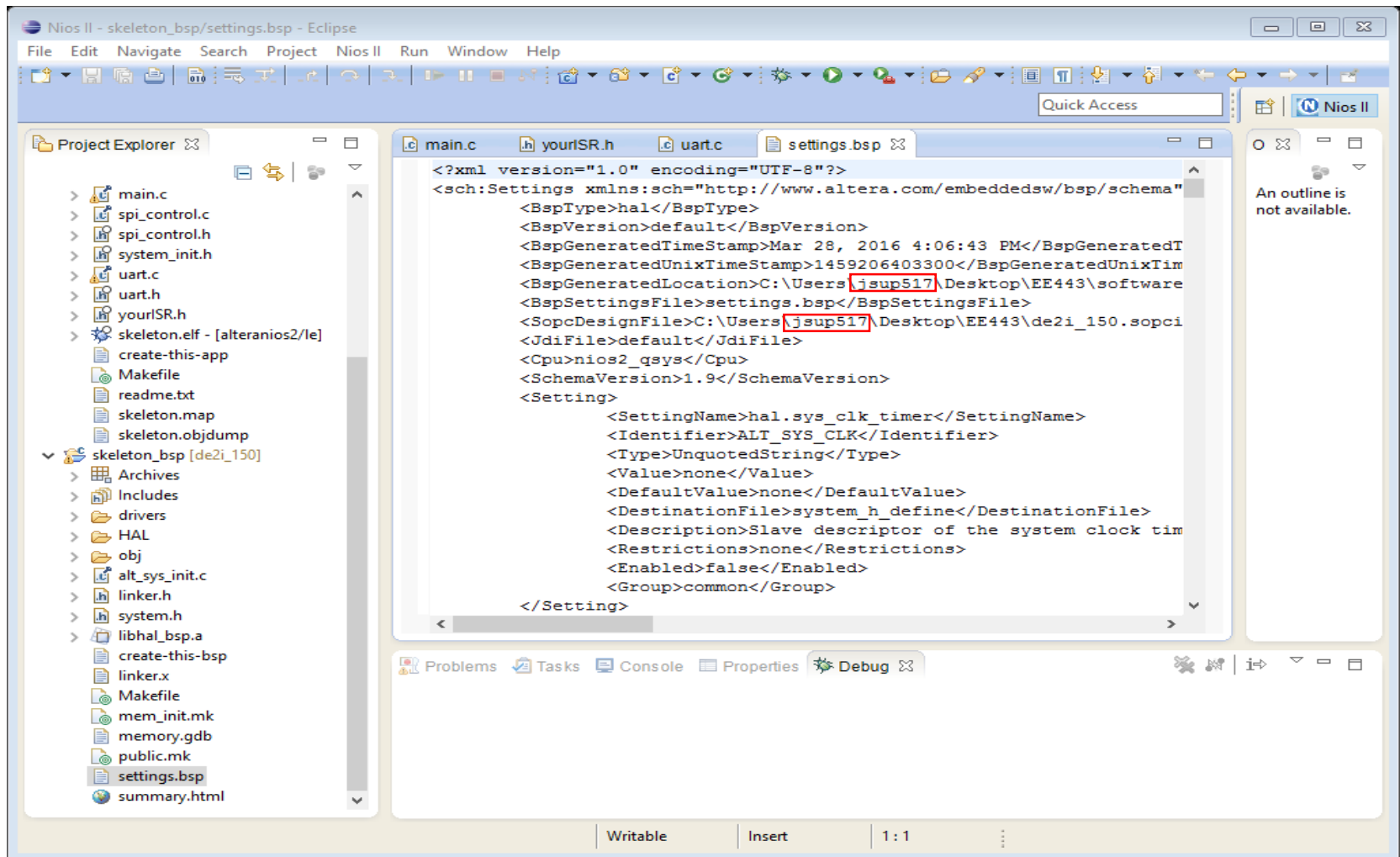


Selection the workspace as
C:\Users\NetID\Desktop\EE443\software

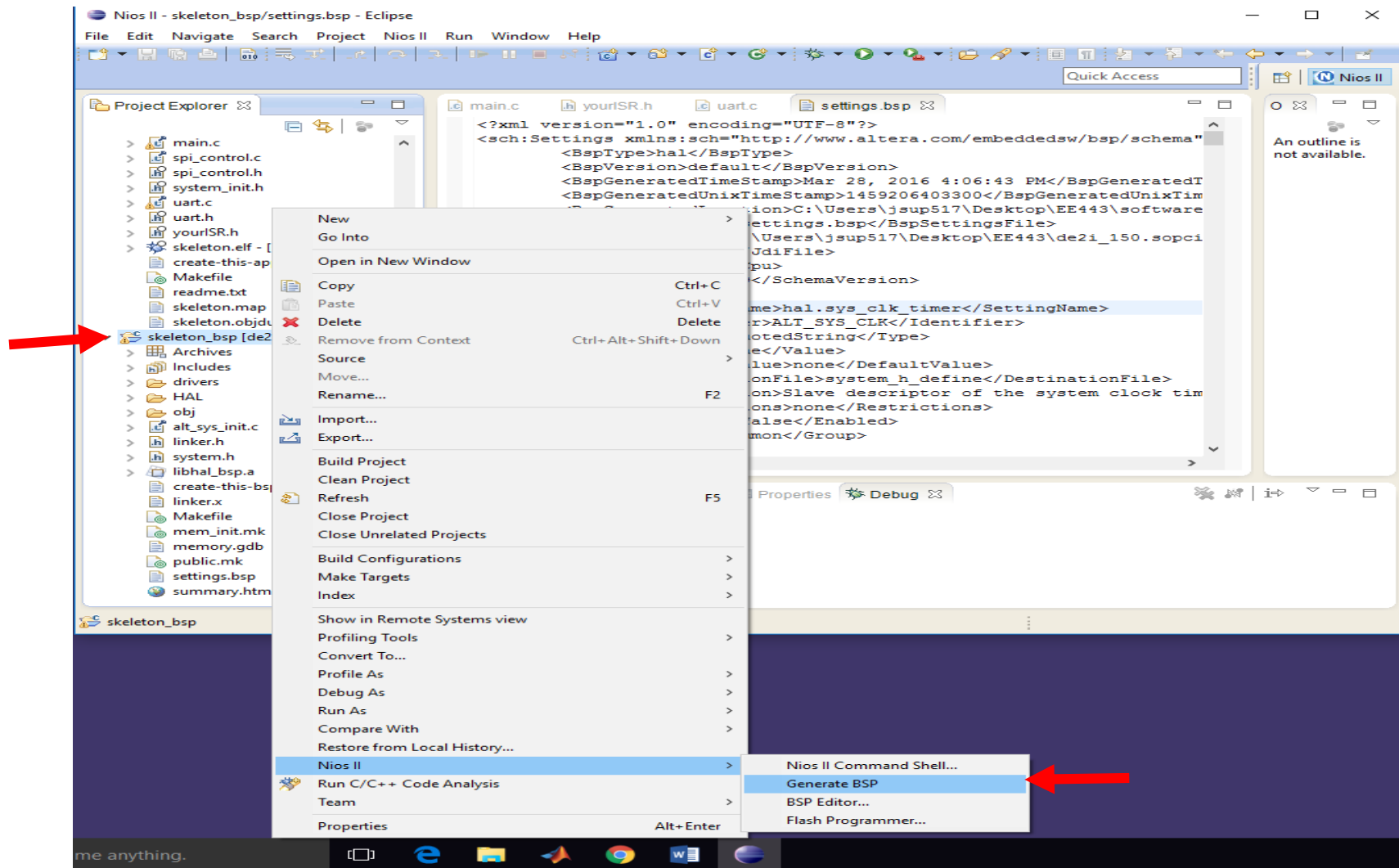


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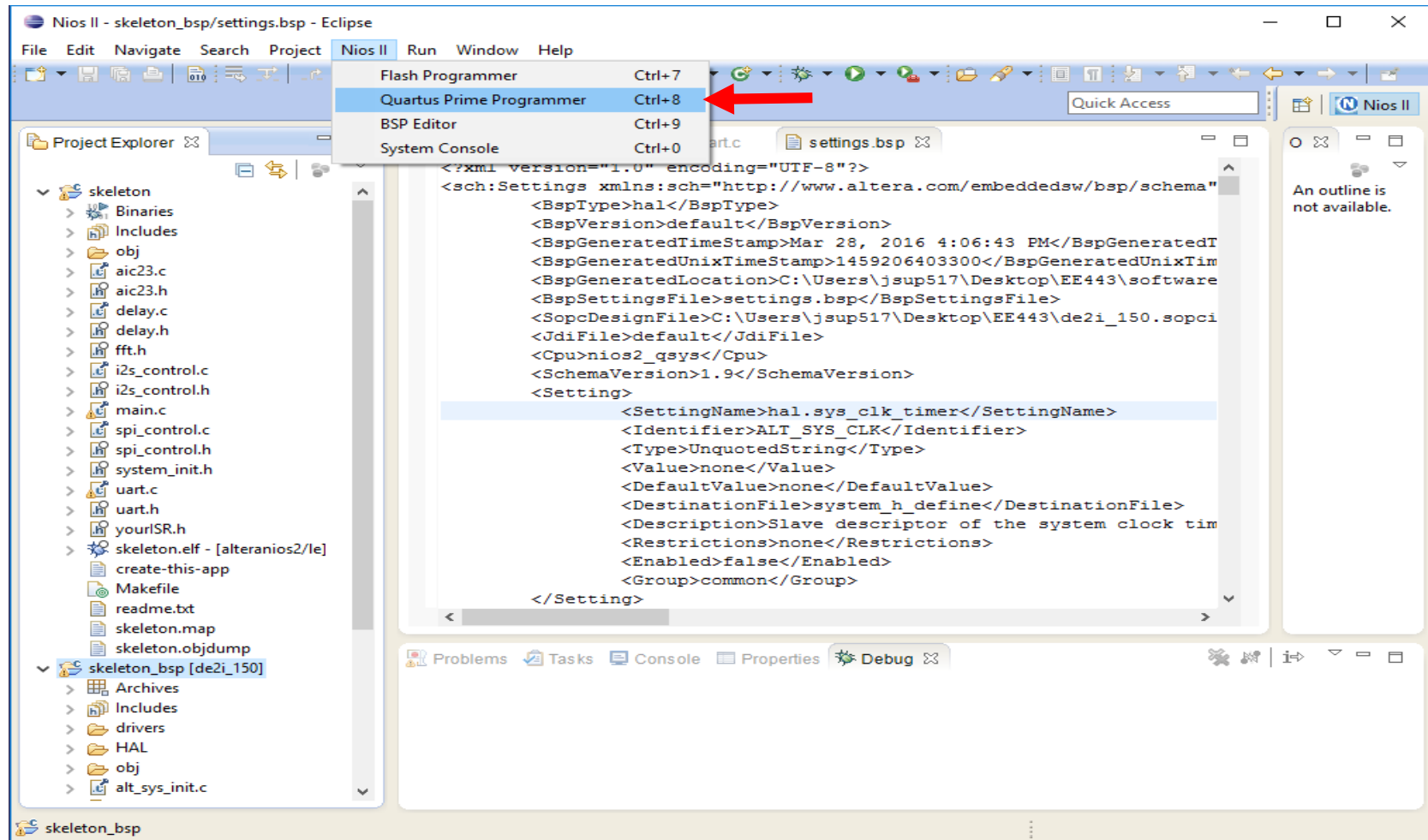
Change the setting.bsp file, change the path of the files



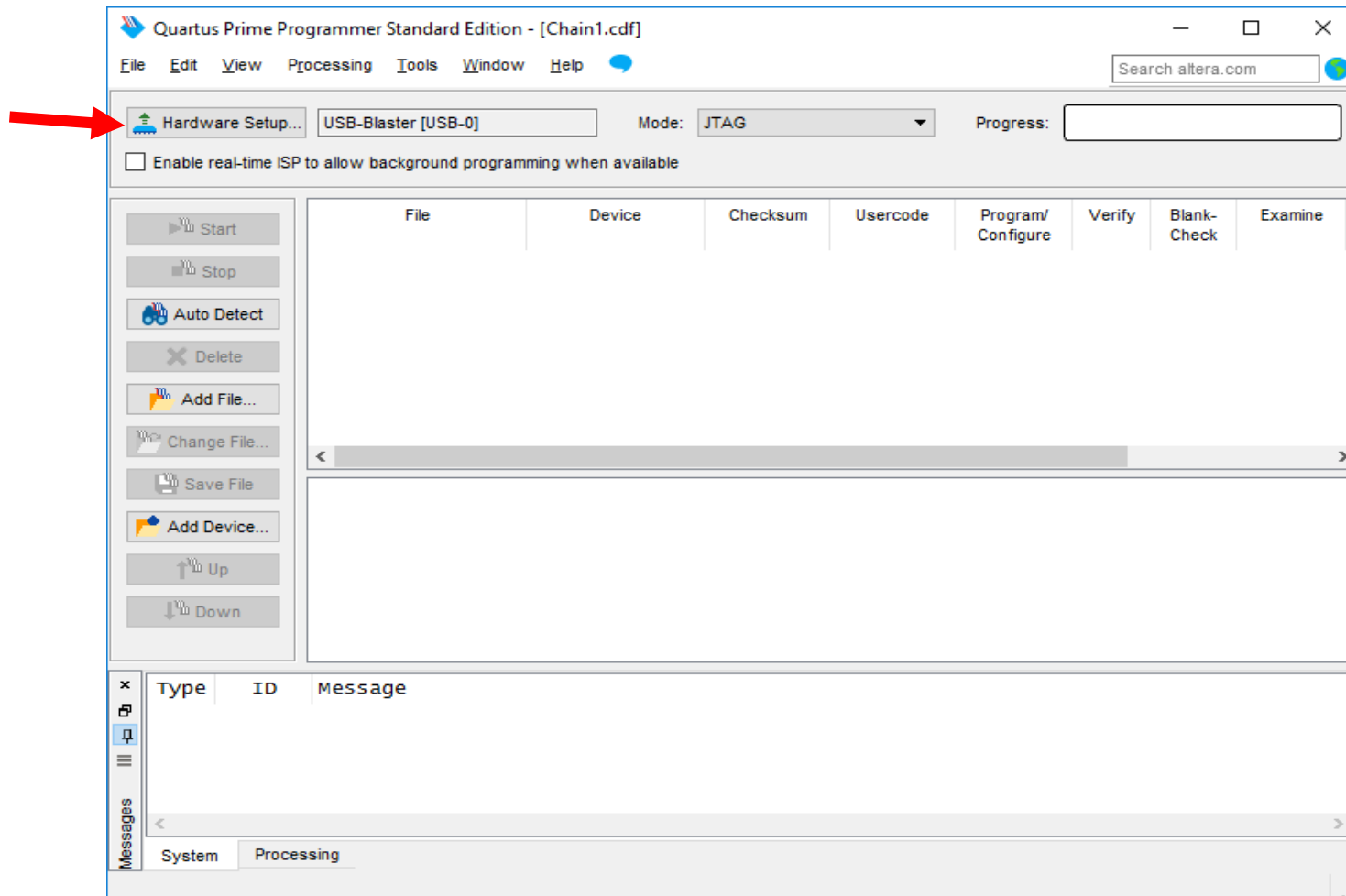
Right click on the skeleton_bsp, then go to Nios II -> Generate BSP



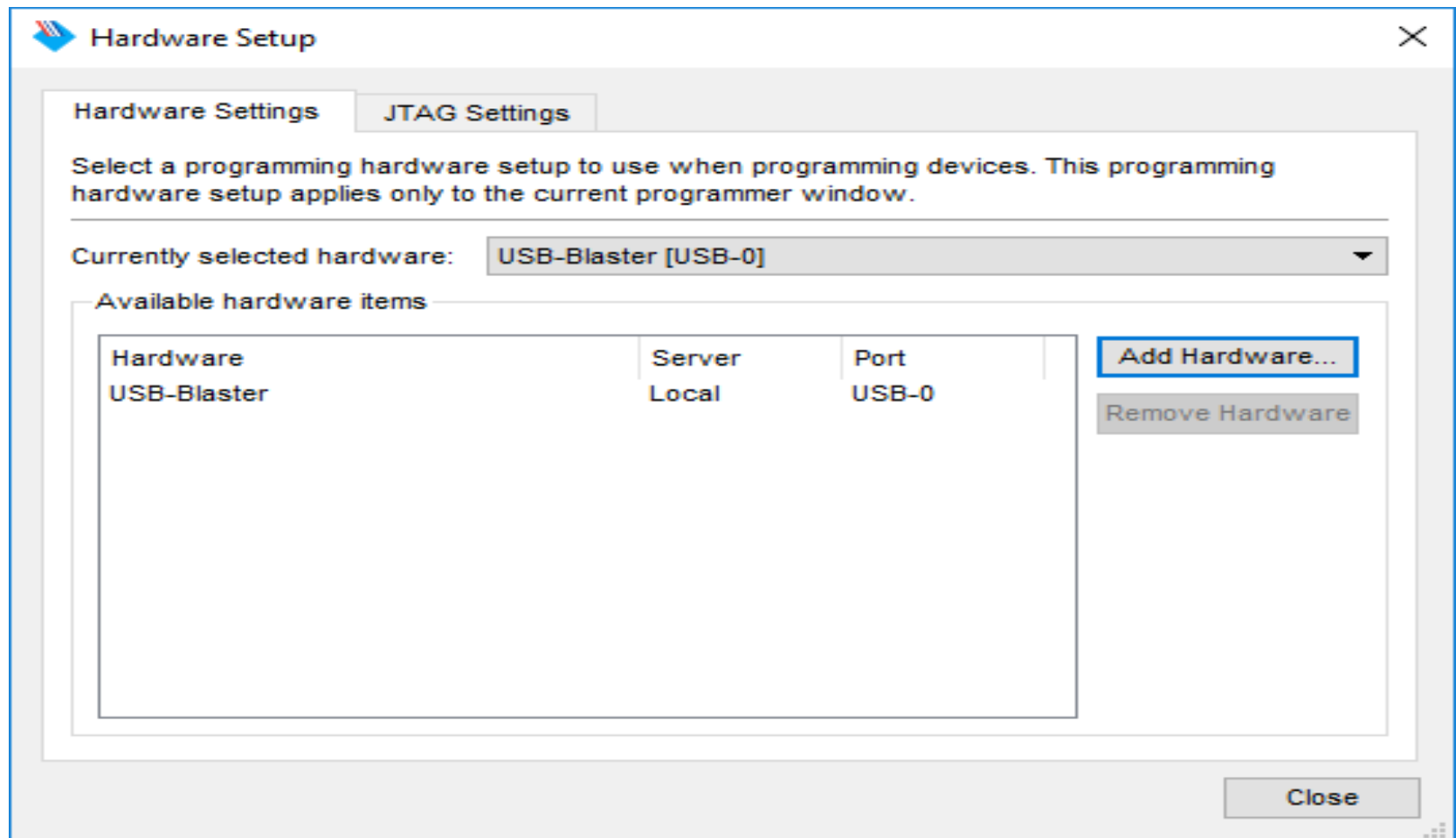
Start the Quartus Programmer. Nios II->Quartus Prime Programmer



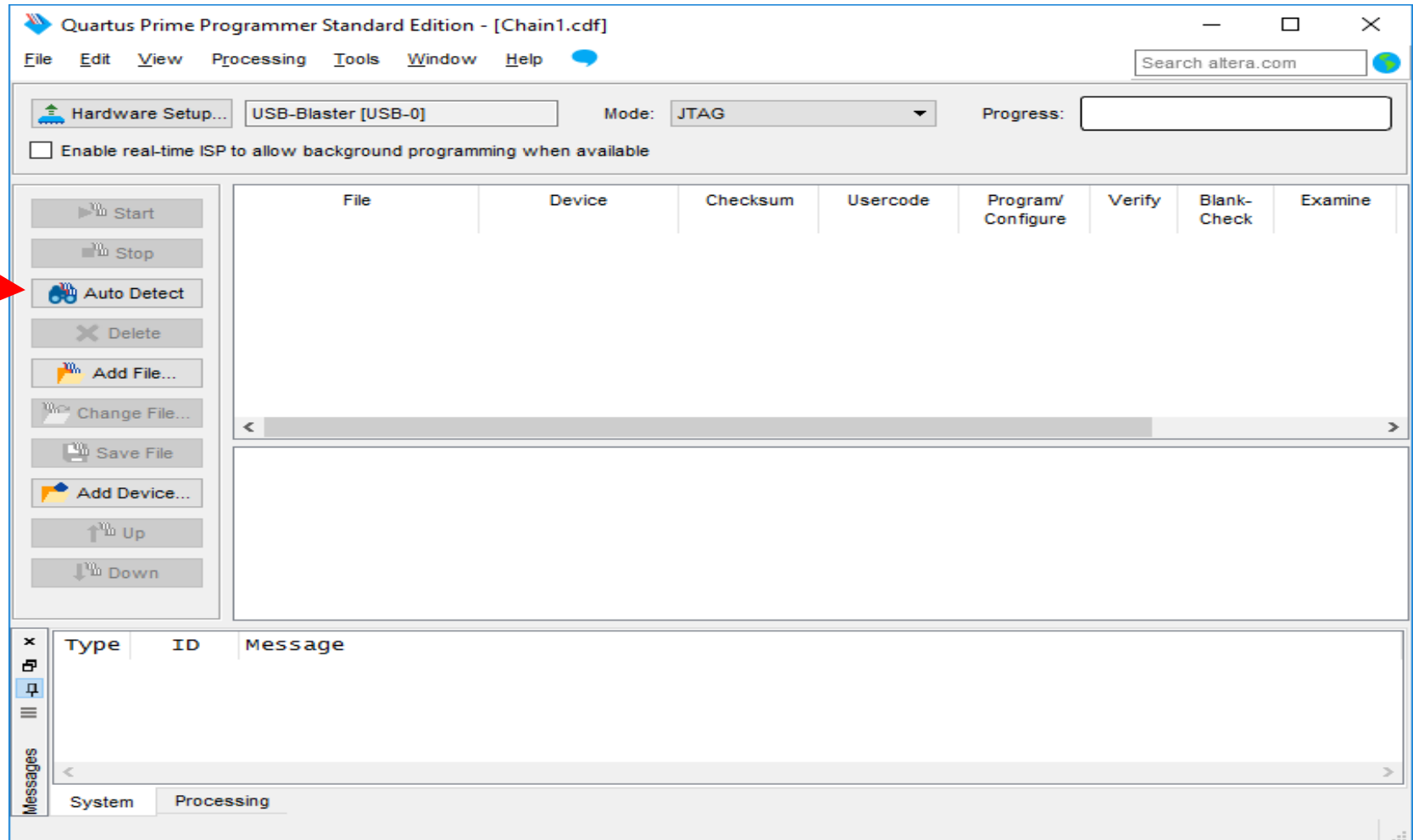
Quartus Prime Programmer



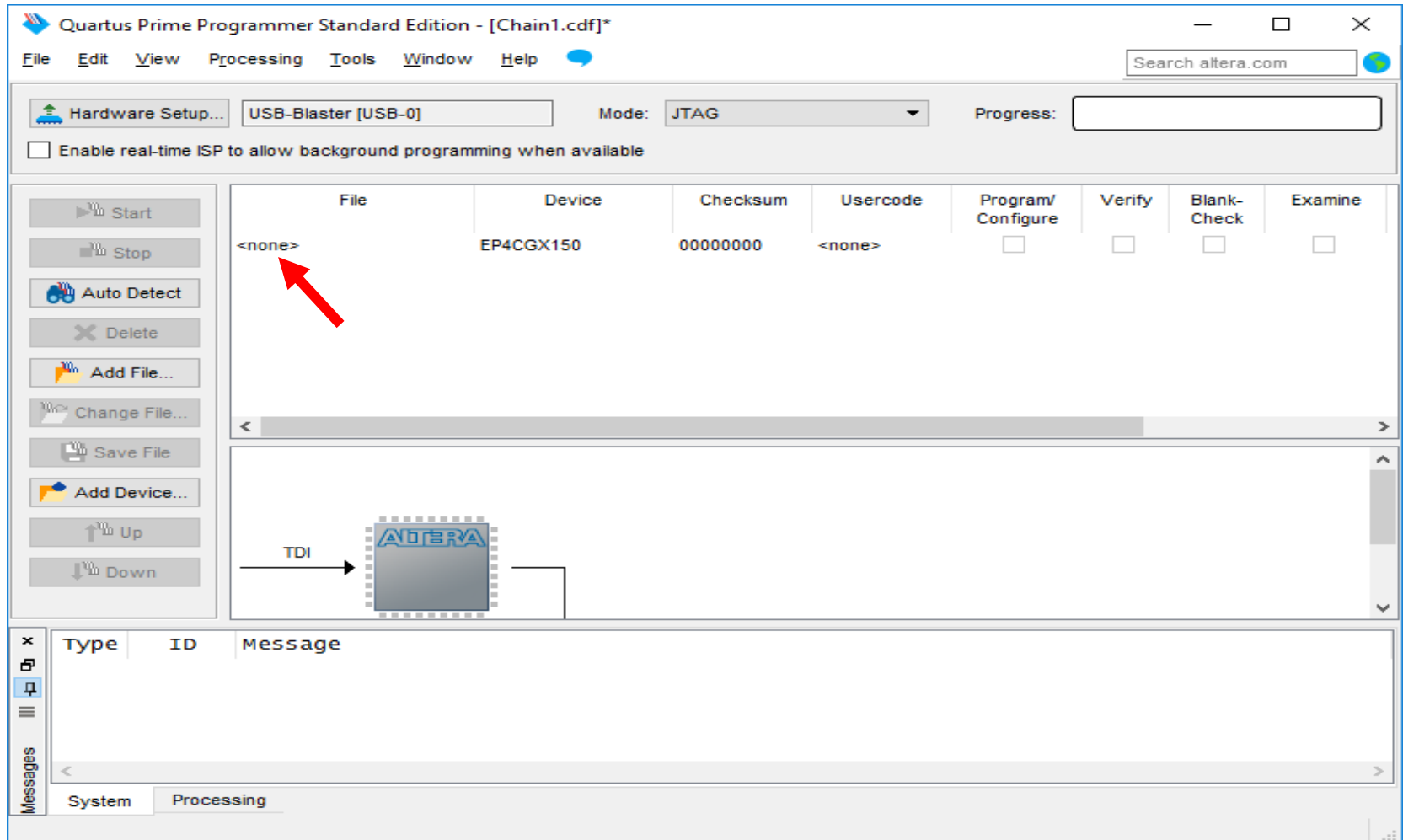
Click on the Hardware Setup, and select the USB-Blaster



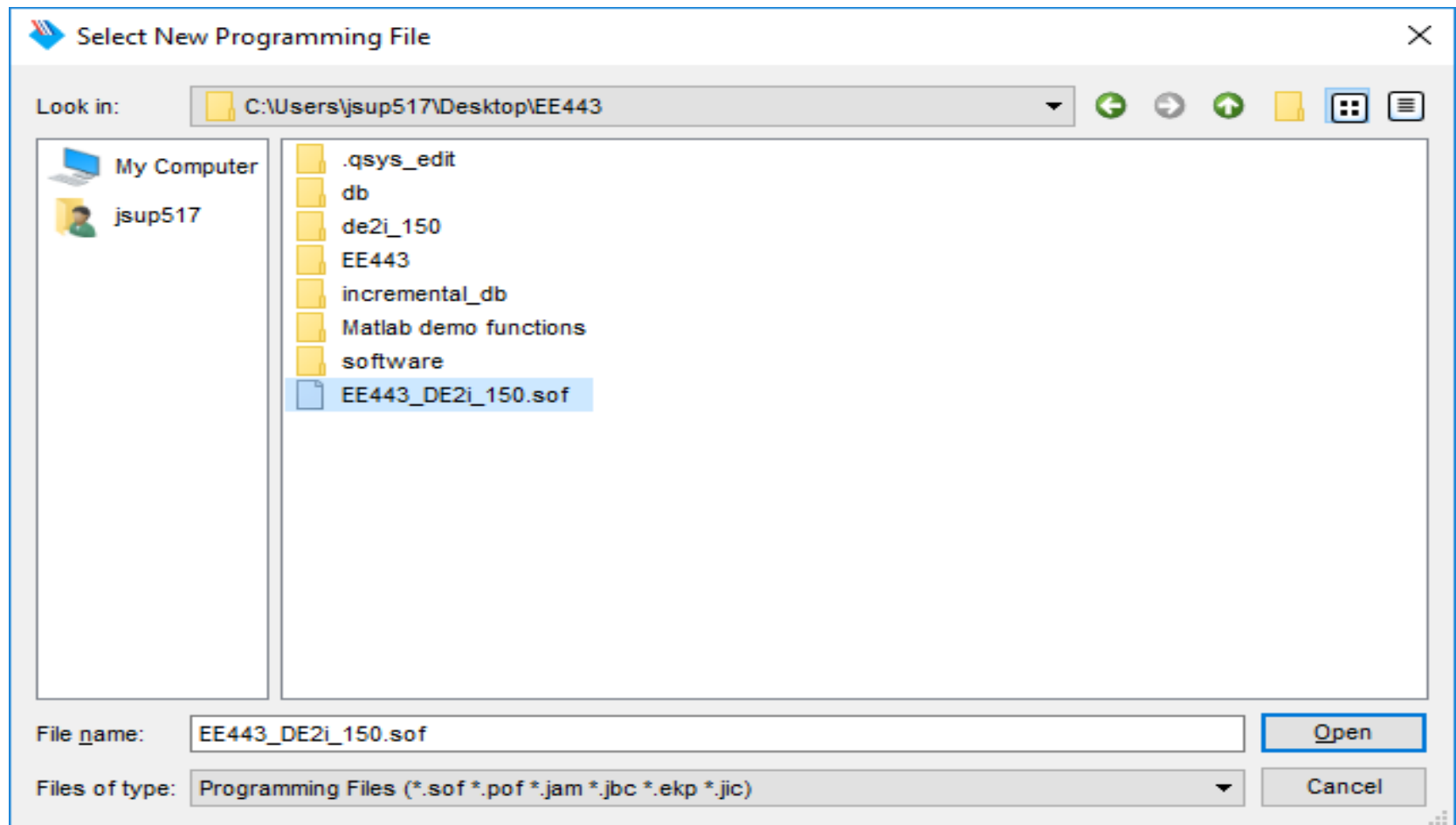
Click on the Auto Detect



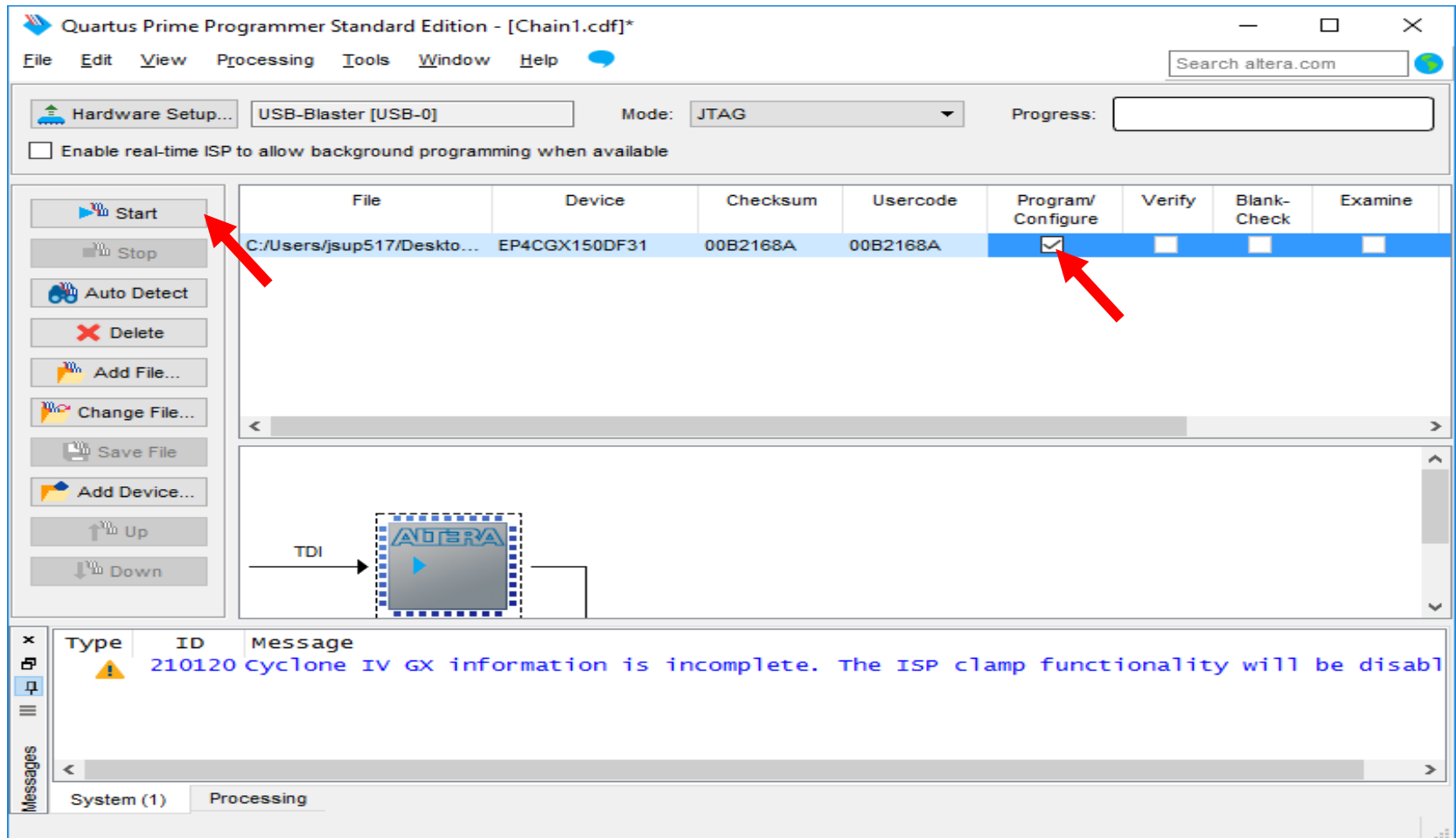
Double click the file



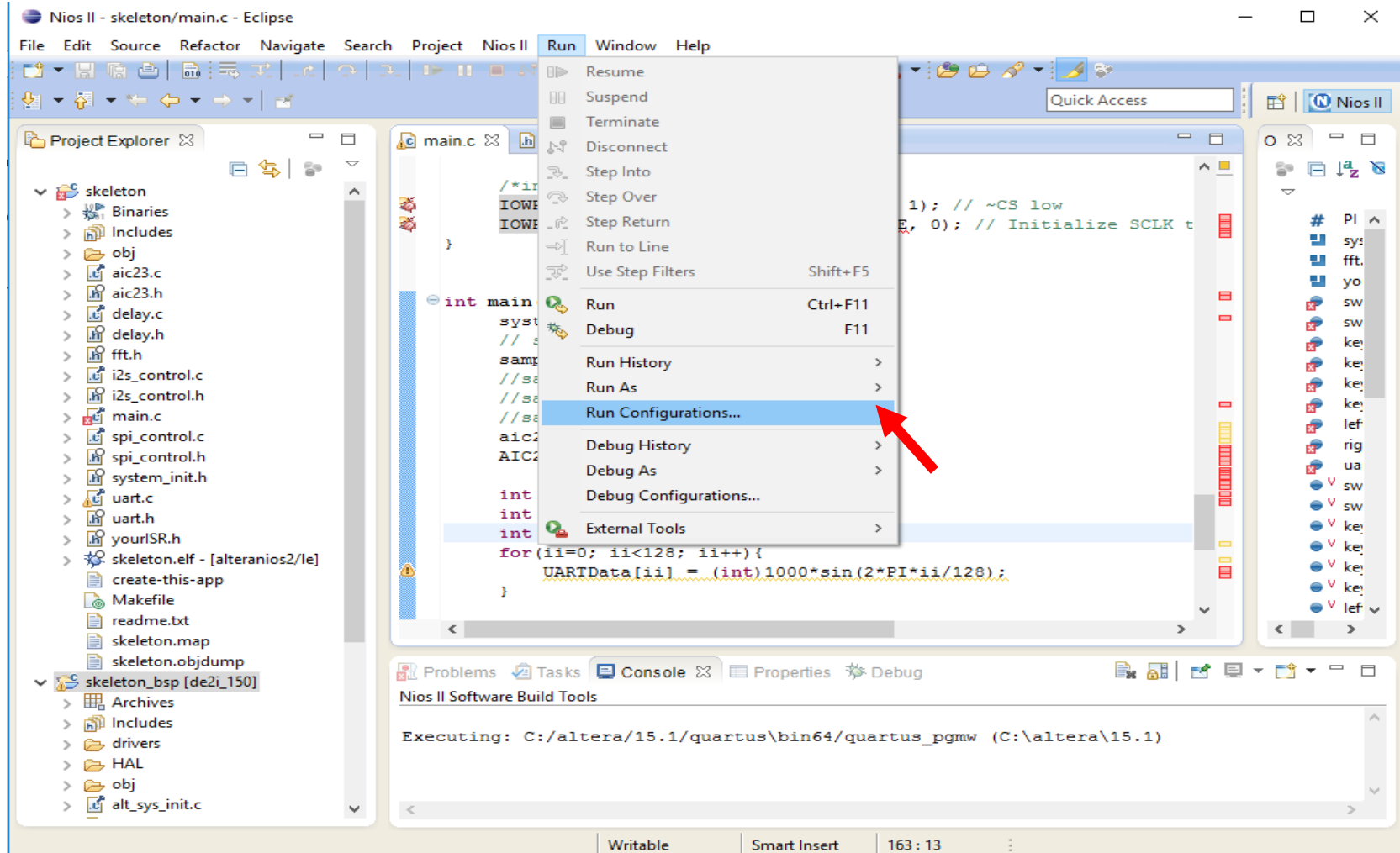
Choose the EE443_DE2i_150.sof file, which is on the EE443 folder



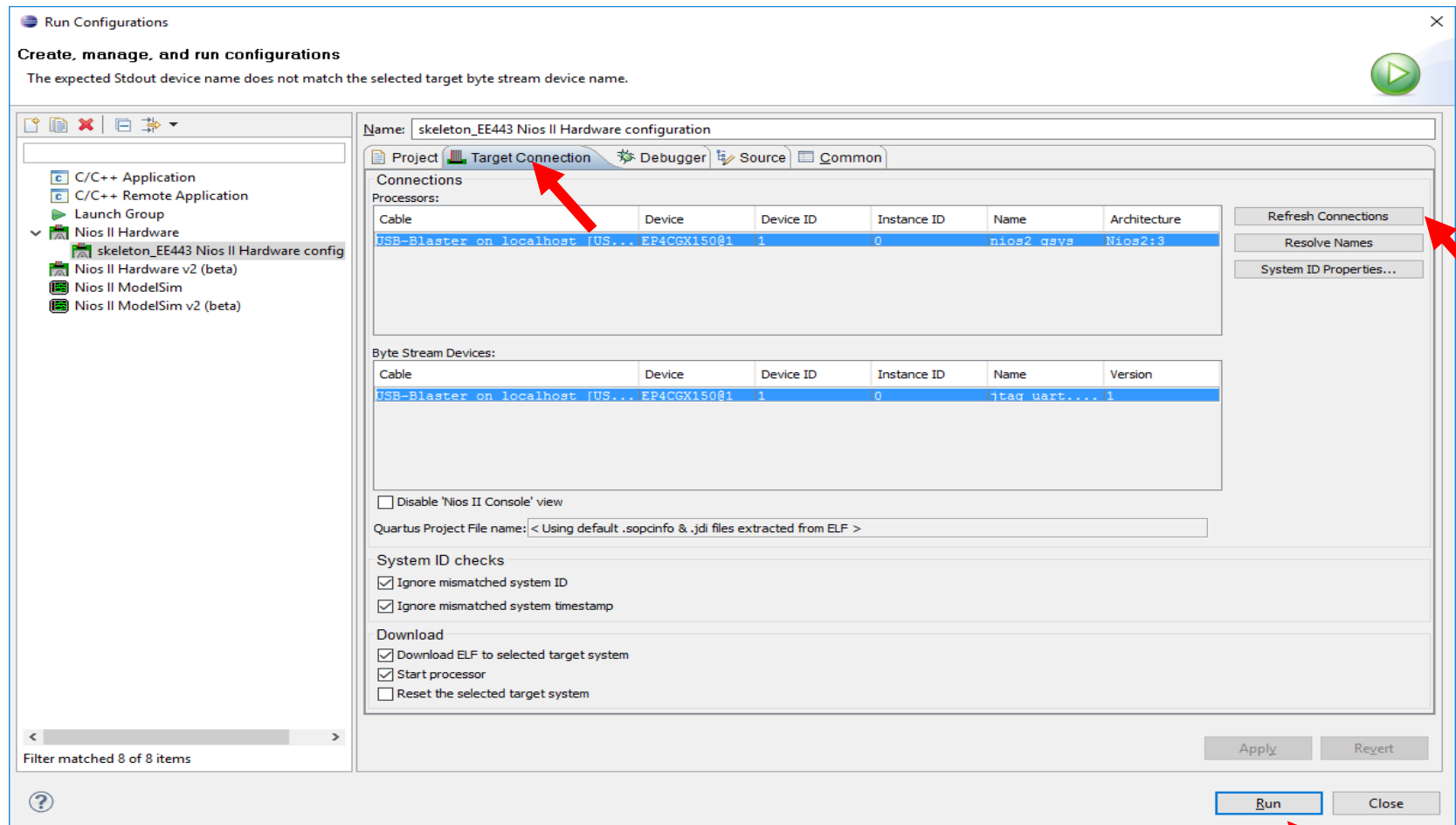
Check the Program/Configure box and click on the Start button



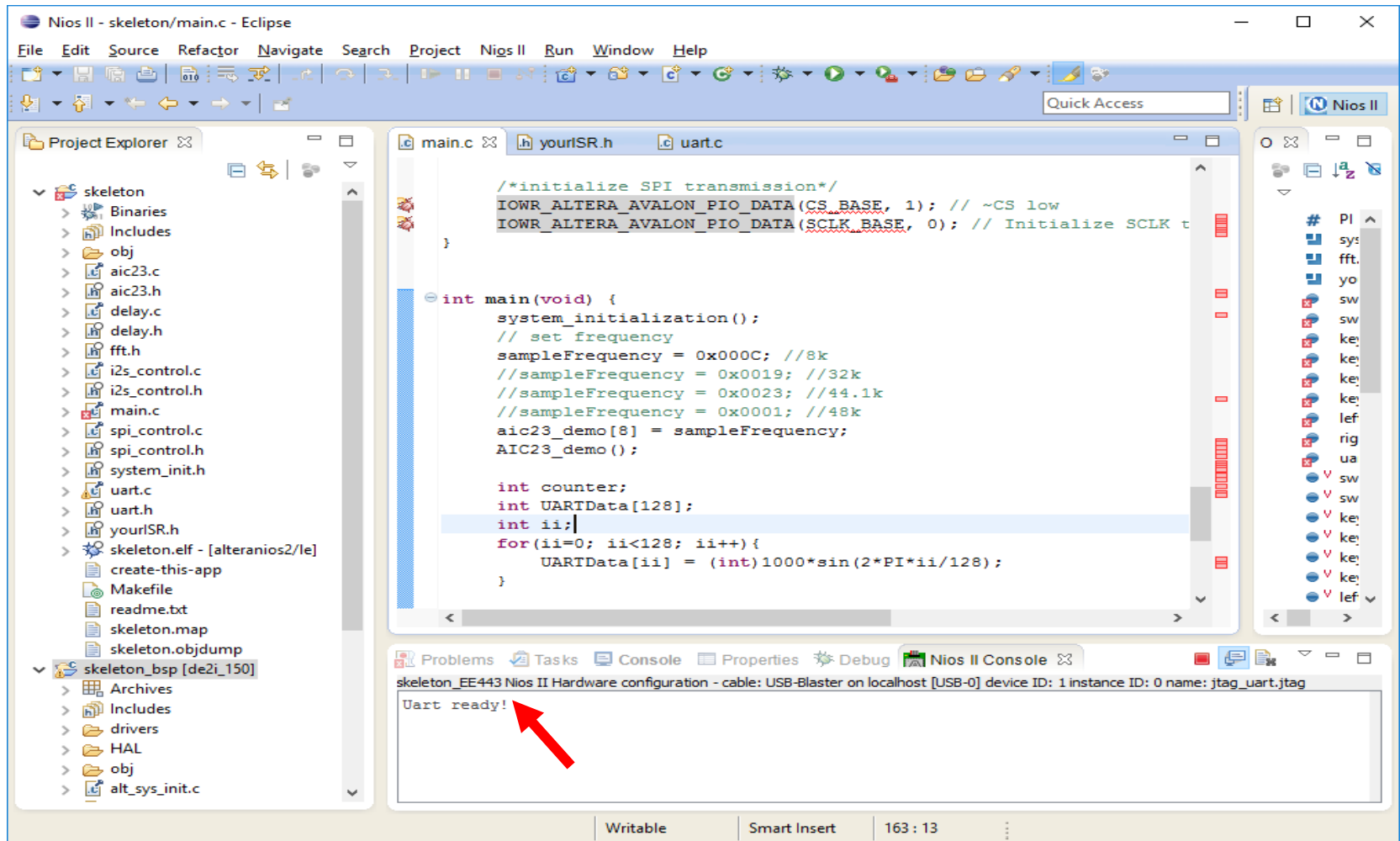
Go to Run configuration



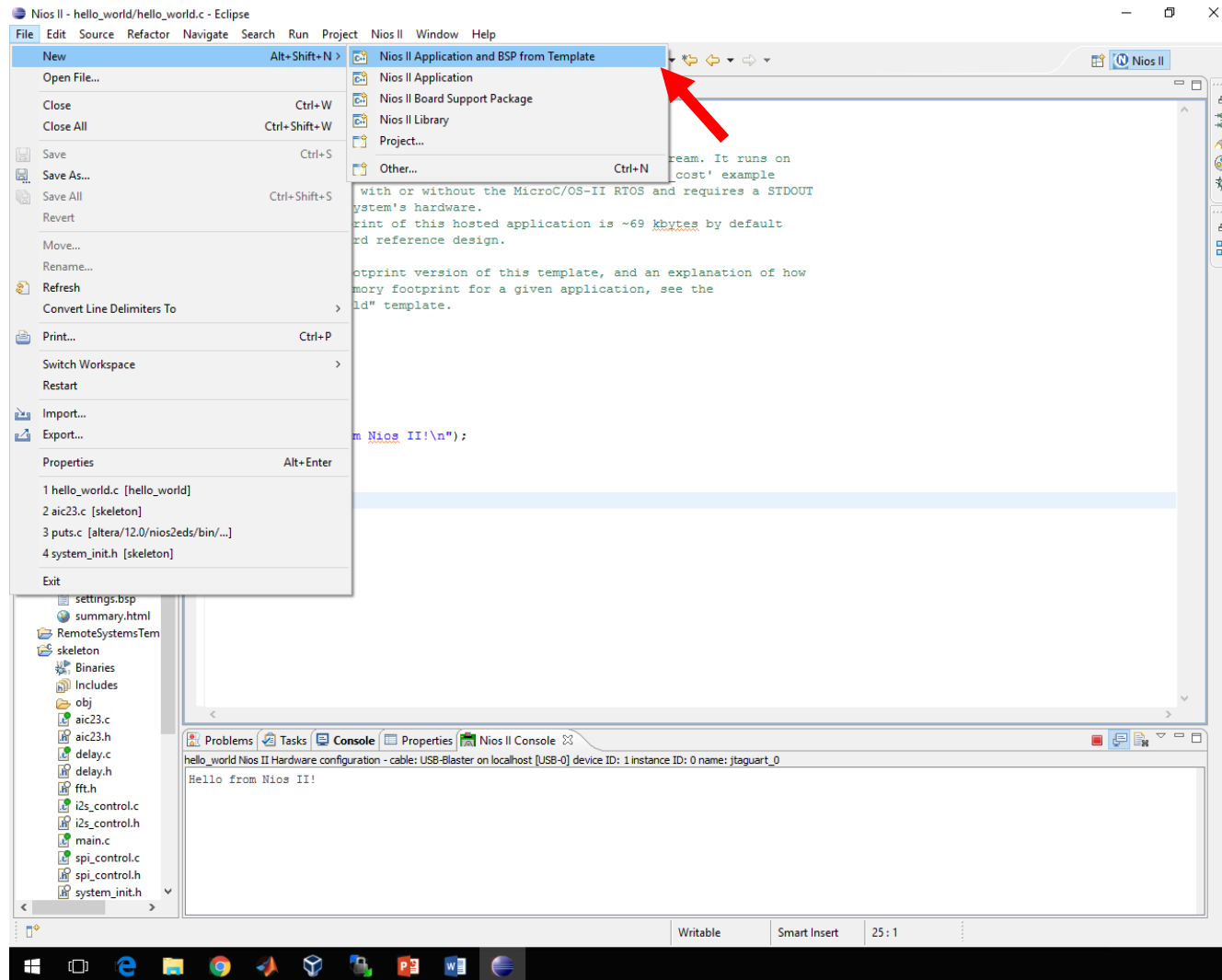
Refresh the connection. Go to Target Connection tap, and click on the Refresh Connections



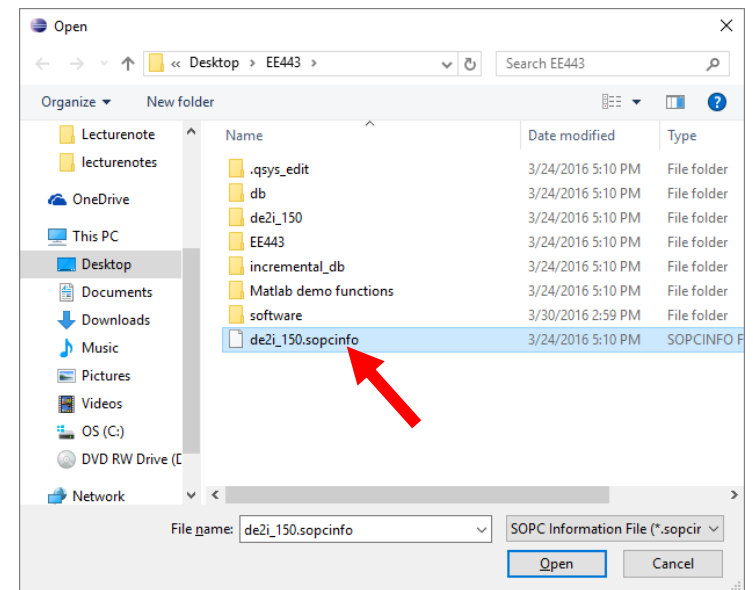
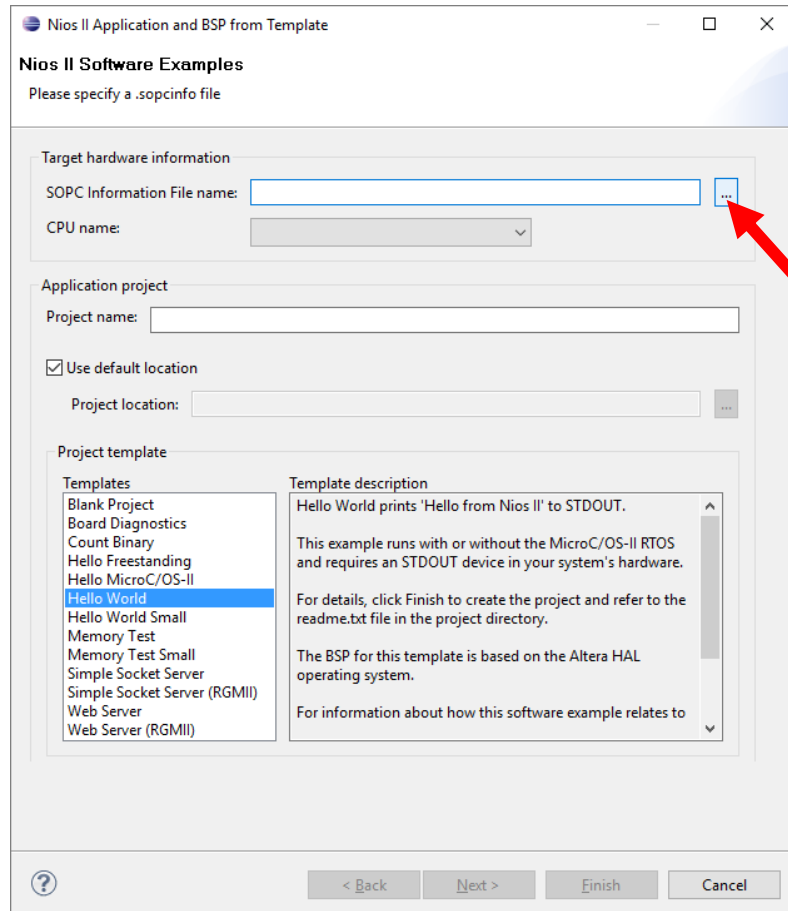
Run the program by clicking the Run



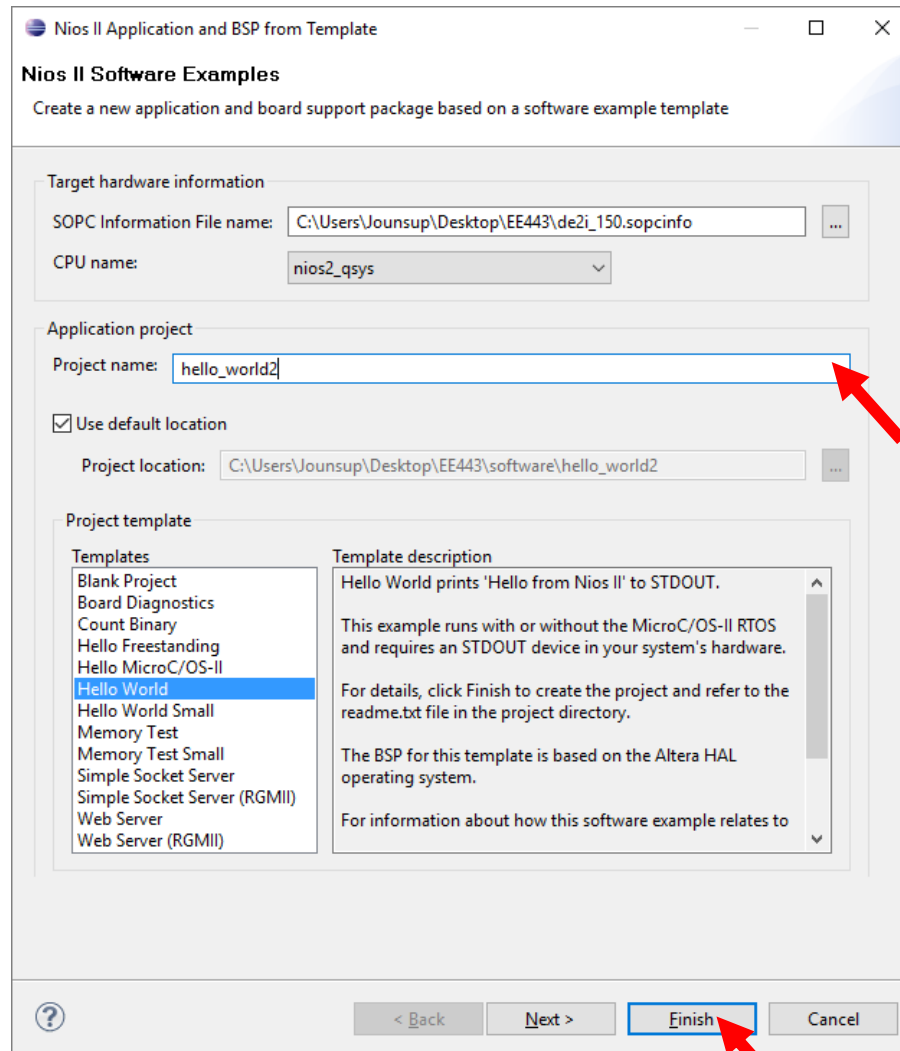
Generate “Hello World!!” project



Select the SOPC info file



Write a project name and finish



Nios II Application and BSP from Template

Nios II Software Examples
Create a new application and board support package based on a software example template

Target hardware information

SOPC Information File name: C:\Users\Jounsup\Desktop\EE443\de2i_150.sopcinfo ...

CPU name: nios2_qsys

Application project

Project name: hello_world2

☒ Use default location

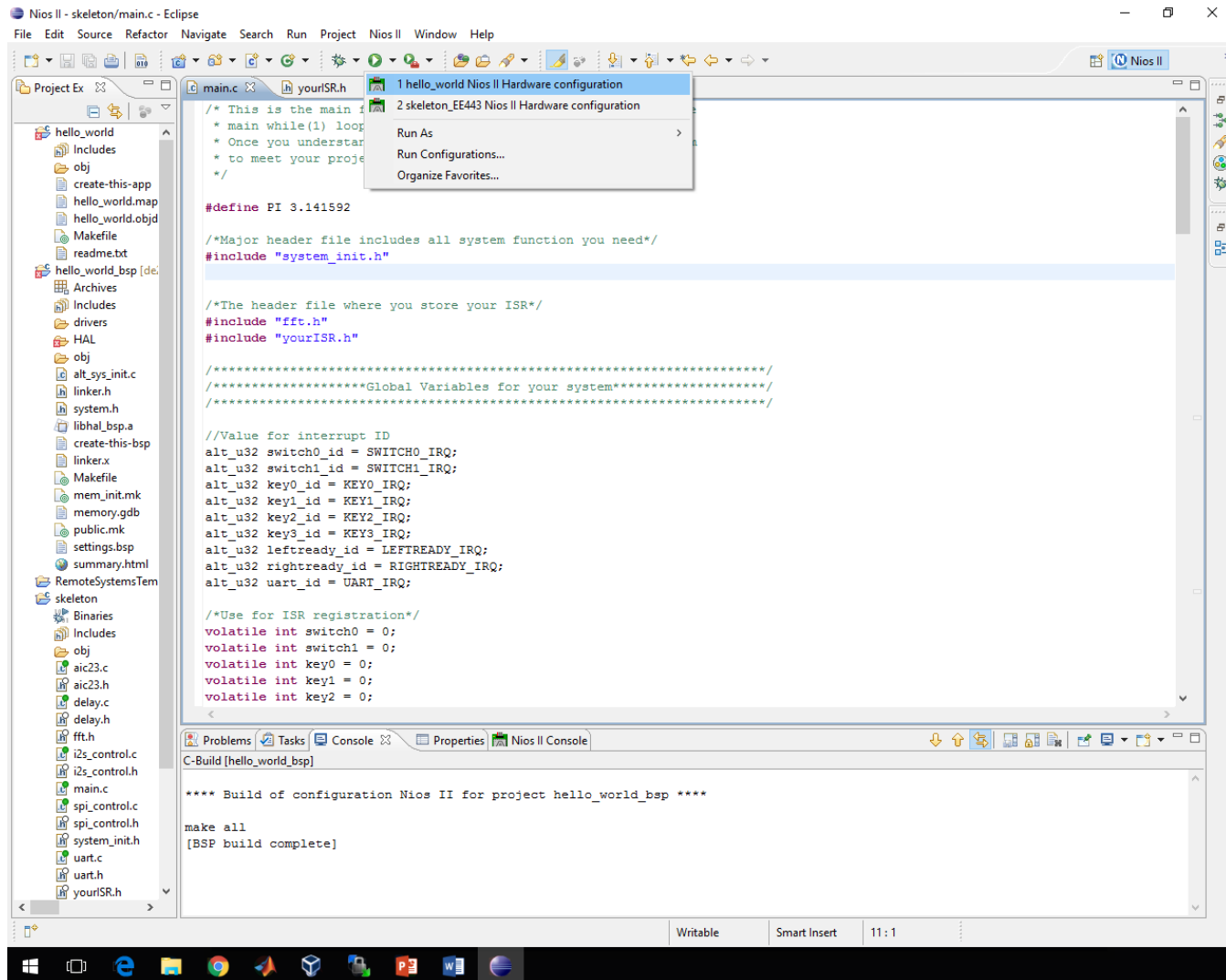
Project location: C:\Users\Jounsup\Desktop\EE443\software\hello_world2 ...

Project template

Templates	Template description
Blank Project	<p>Hello World prints 'Hello from Nios II' to STDOUT.</p> <p>This example runs with or without the MicroC/OS-II RTOS and requires an STDOUT device in your system's hardware.</p> <p>For details, click Finish to create the project and refer to the readme.txt file in the project directory.</p> <p>The BSP for this template is based on the Altera HAL operating system.</p> <p>For information about how this software example relates to</p>
Board Diagnostics	
Count Binary	
Hello Freestanding	
Hello MicroC/OS-II	
Hello World	
Hello World Small	
Memory Test	
Memory Test Small	
Simple Socket Server	
Simple Socket Server (RGMII)	
Web Server	
Web Server (RGMII)	

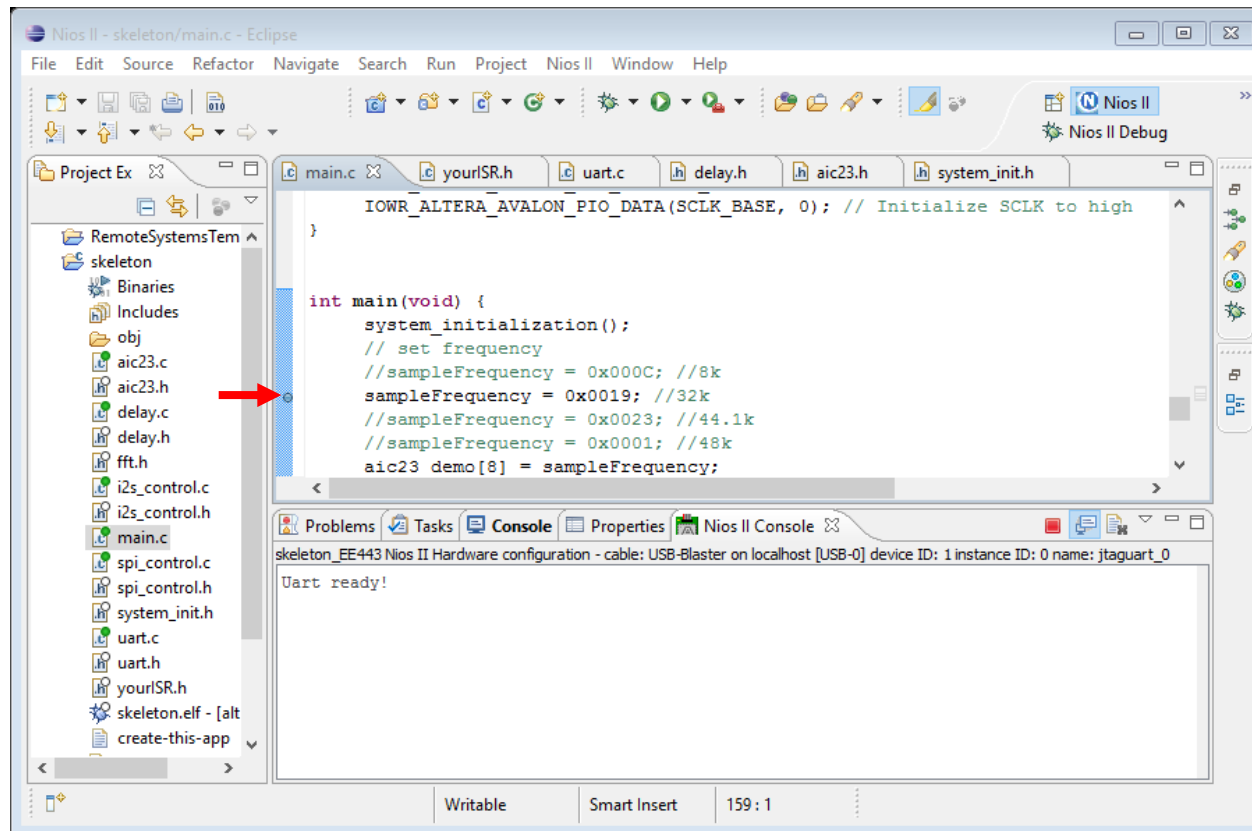
Buttons: ? < Back Next > **Finish** Cancel

Build and run the program



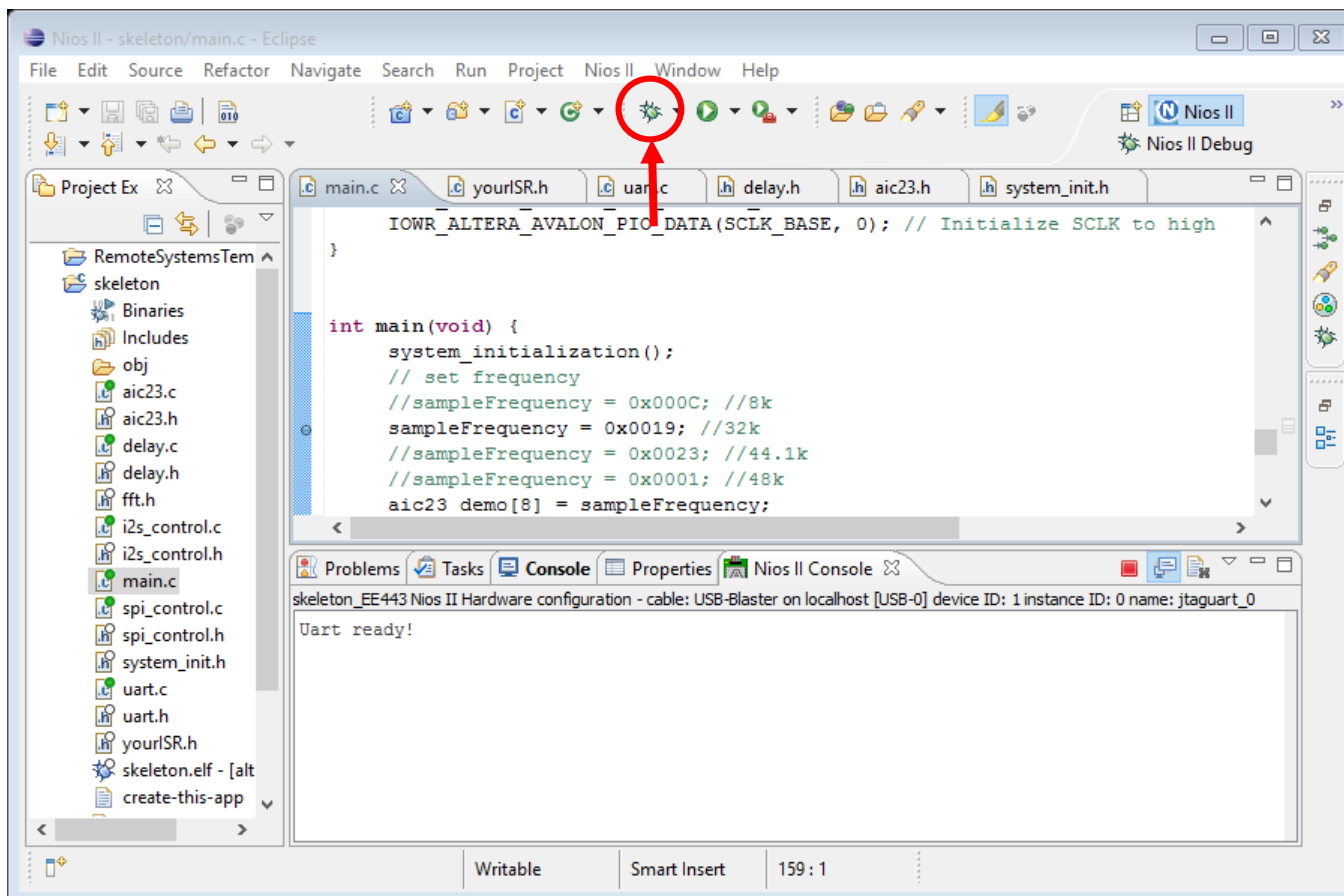
Debugging

- Right click or double click on the left bar of the main window to set a breakpoint



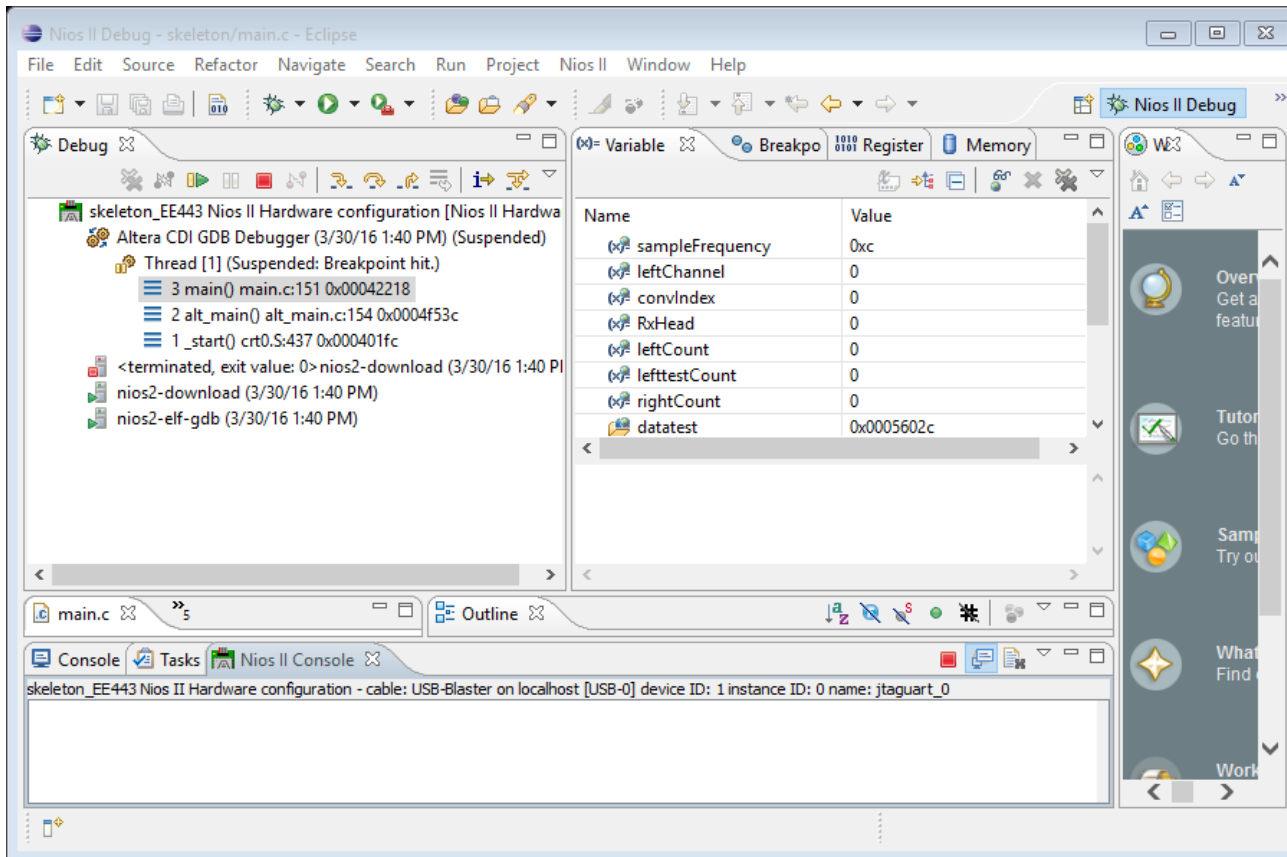
Debugging

- Click the debug button



Debugging

- Debugging mode



Debugging

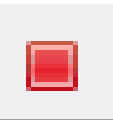
- Control



Resume : go to the next breakpoint



Suspend : pause the process



Terminate : quit from the debugging mode



Step into : step into the function



Step over : skip the details of the function



Step return : return to the main function