Quartus Project Setup

Last updated 3/7/20

Quartus Project Setup

- Quartus Prime – Project Setup
  - Before creating your first Quartus project:
    - Install the Quartus software – see “Quartus Software Setup”
    - Projects are created for a top level design
      - Create a project directory to keep all of your projects organized
        - Eg. …/HDL/Quartus_Projects
  - Your project folder should be placed somewhere in your personal folder path – Not in the Quartus installation directory

Quartus Project Setup

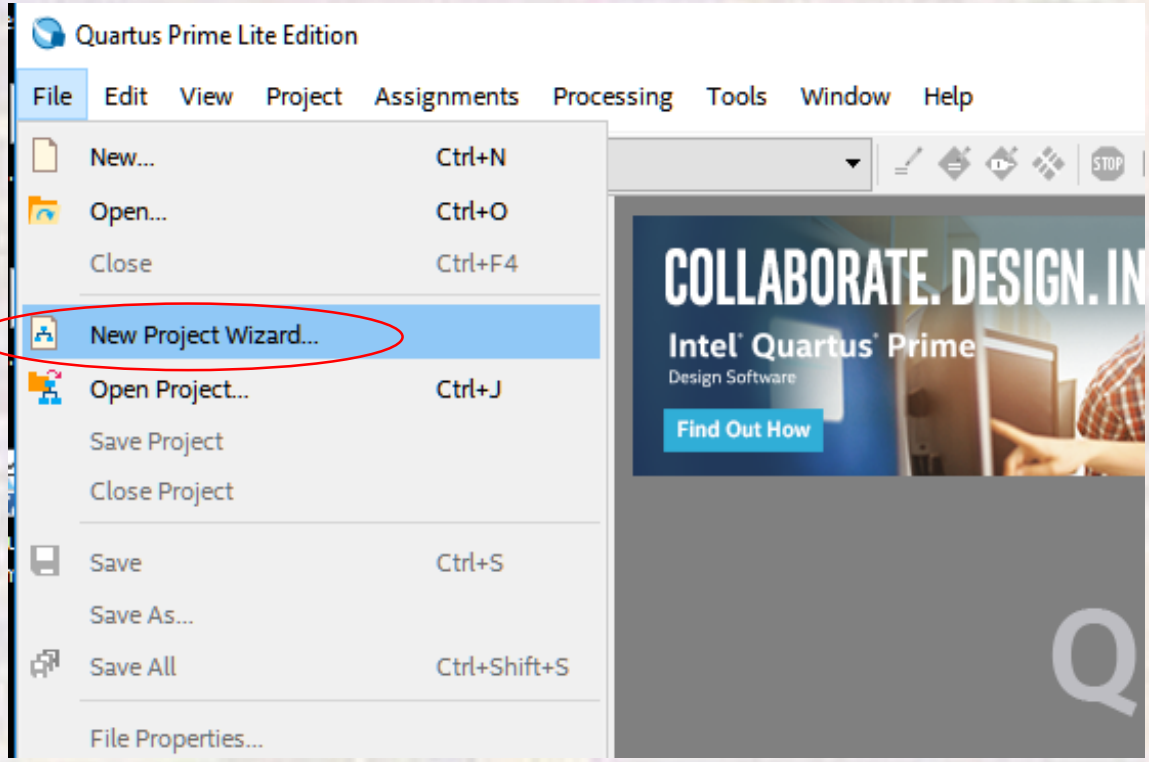
- Quartus Prime – Project Setup
  - Quartus uses directories to store projects in
    - Create a separate directory for each project
      - Eg. …/HDL/Quartus_Projects/MyFirstDE10Project

No spaces in the directory path

It's best to not use any special characters in the project folder name

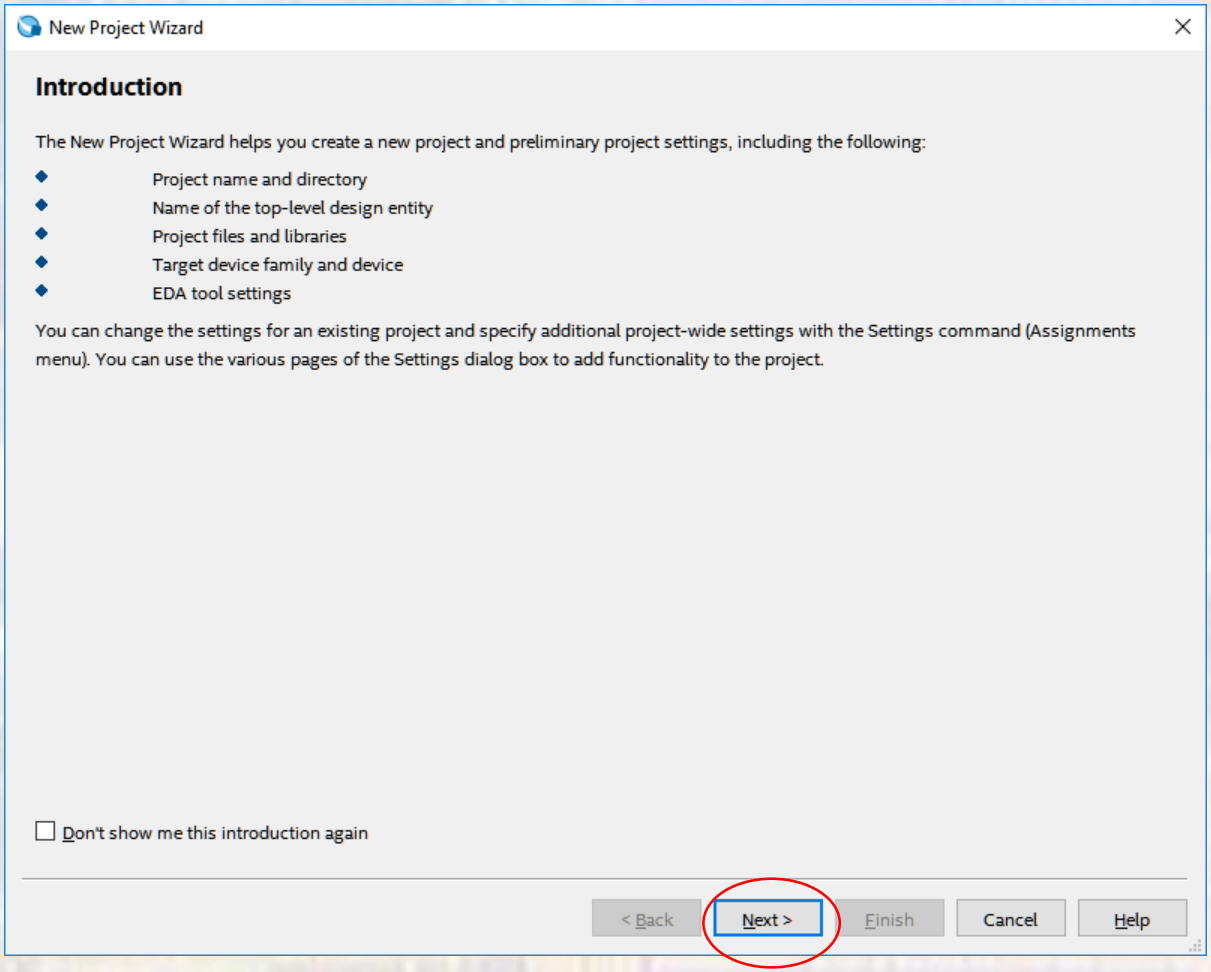
Quartus Project Setup

- Quartus Prime – Project Setup
  - Start the Quartus software
  - Under File – select New Project Wizard …



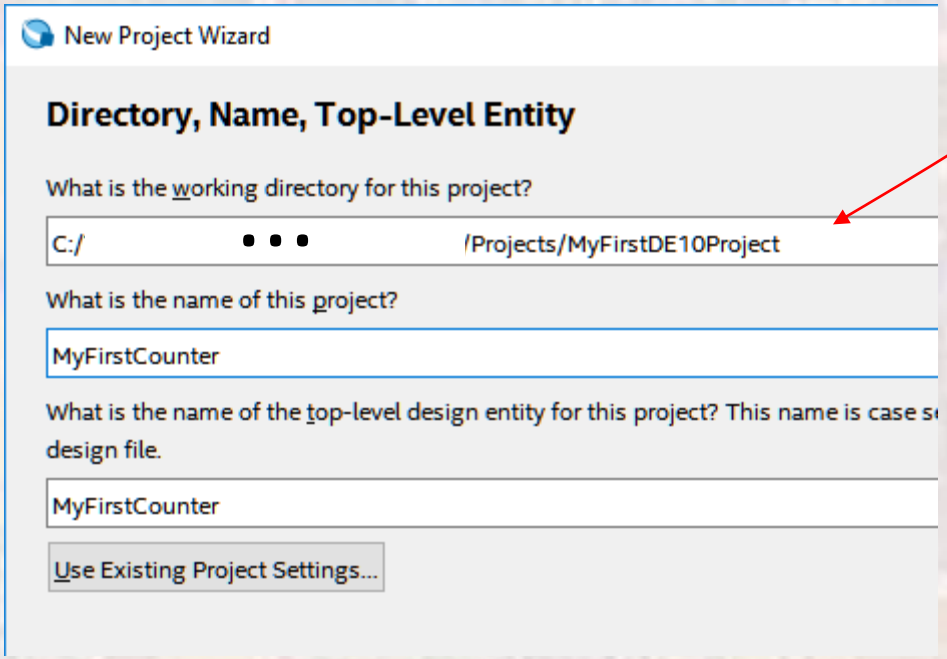
Quartus Project Setup

- Quartus Prime – Project Setup
  - Select Next



Quartus Project Setup

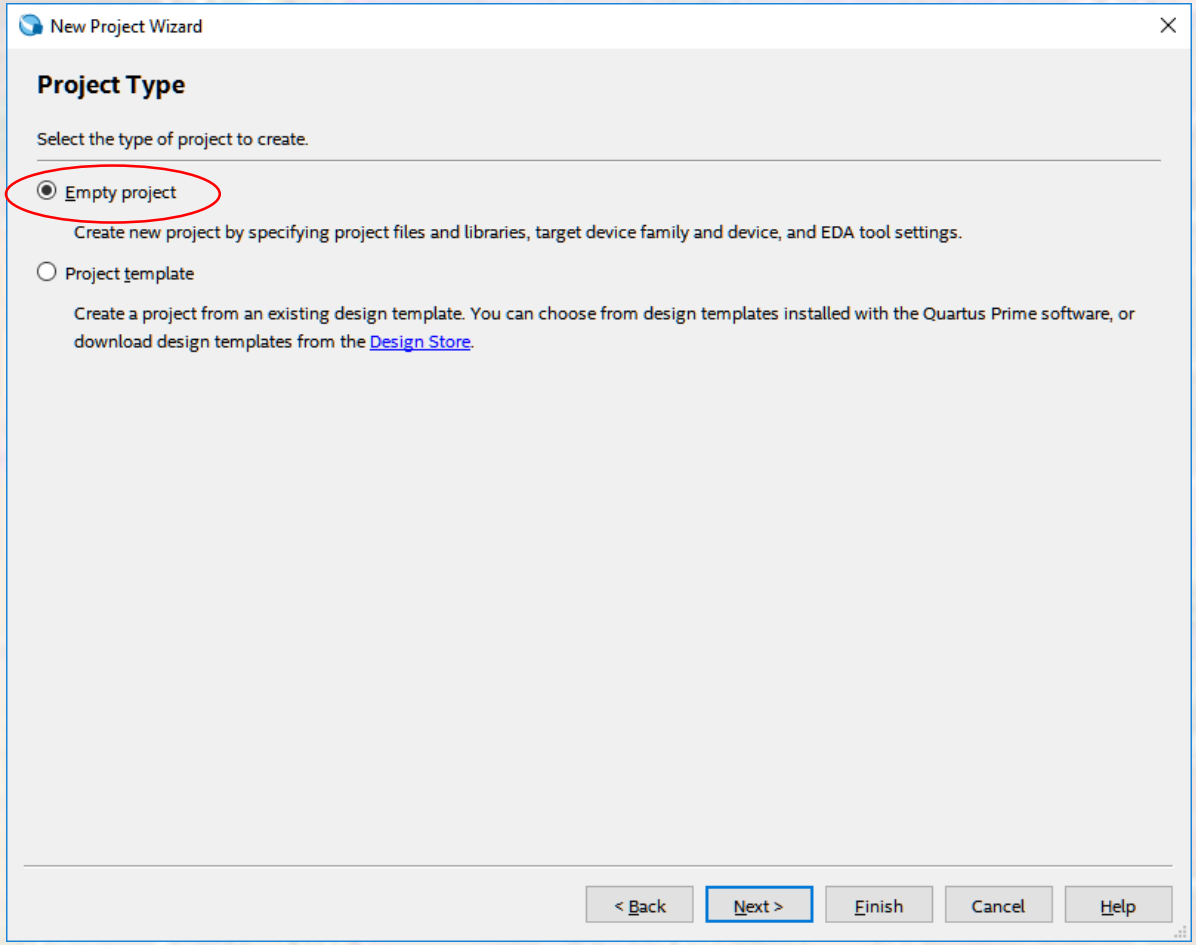
- Quartus Prime – Project Setup
  - Select your project directory
  - Name your project
  - Your project name and top level entity name should be the same



  - Click Next

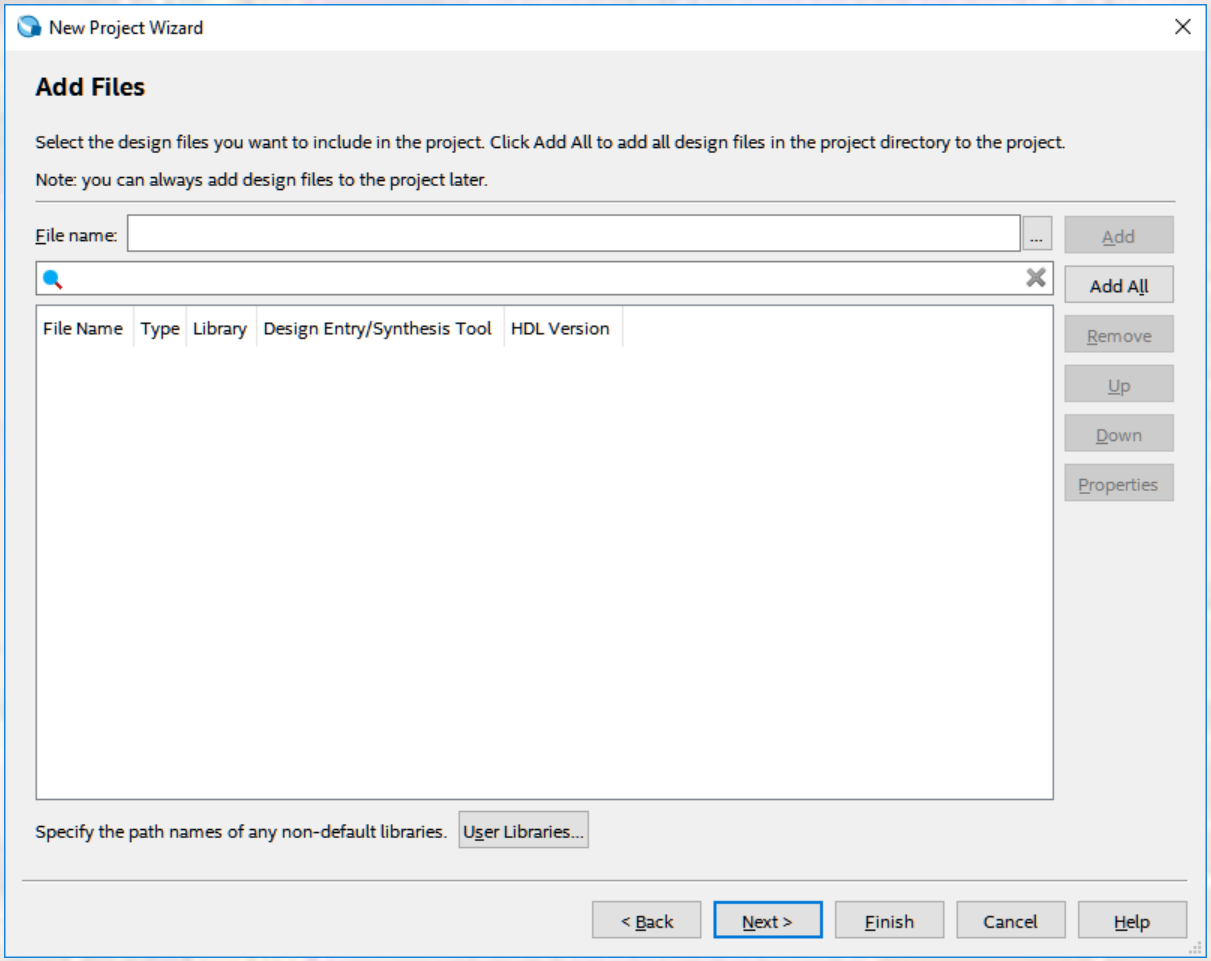
Quartus Project Setup

- Quartus Prime – Project Setup
  - Select Empty project
  - Click Next



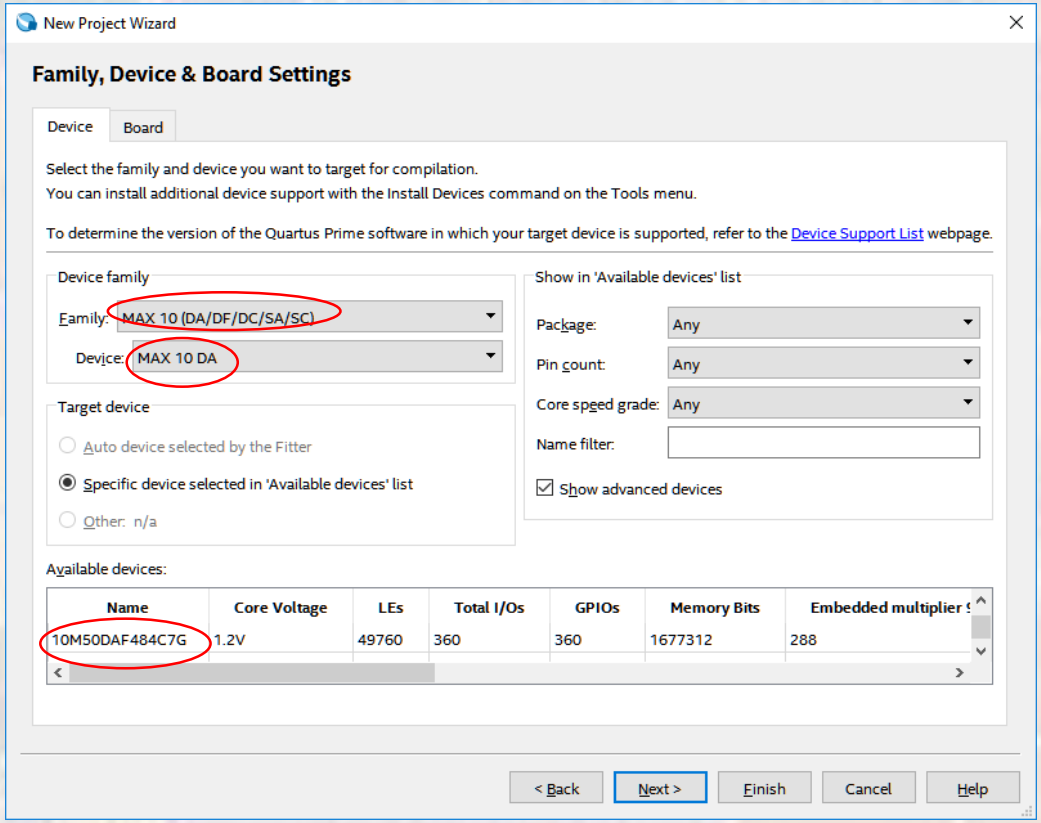
Quartus Project Setup

- Quartus Prime – Project Setup
  - We will not add any files right now
  - Click Next



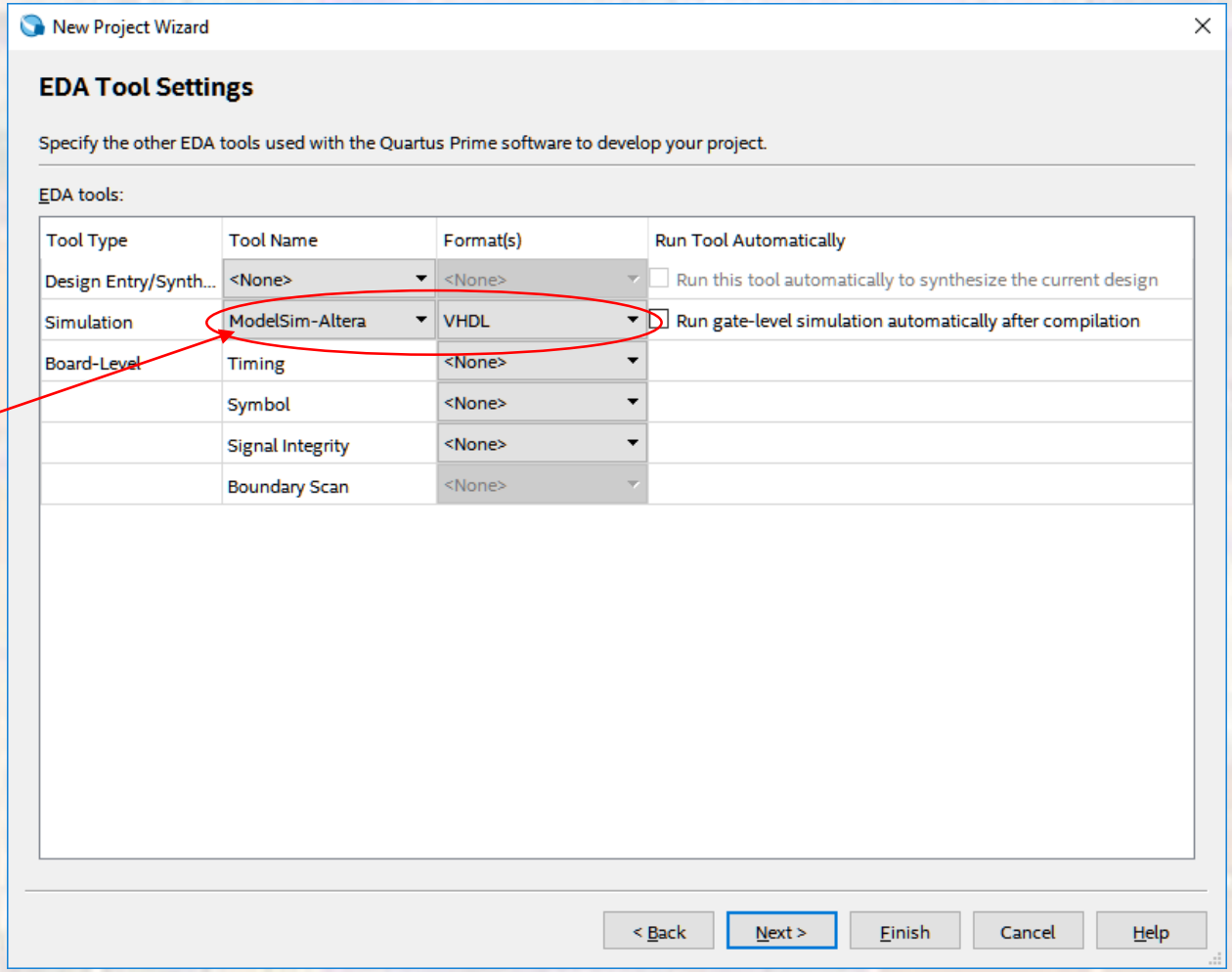
Quartus Project Setup

- Quartus Prime – Project Setup
  - Select Max 10 (DA/DF/DC/SA/SC) under Family
  - Select Max 10 DA under Device
  - Select 10M50DAF484C7G under Available devices
  - Click Next



Quartus Project Setup

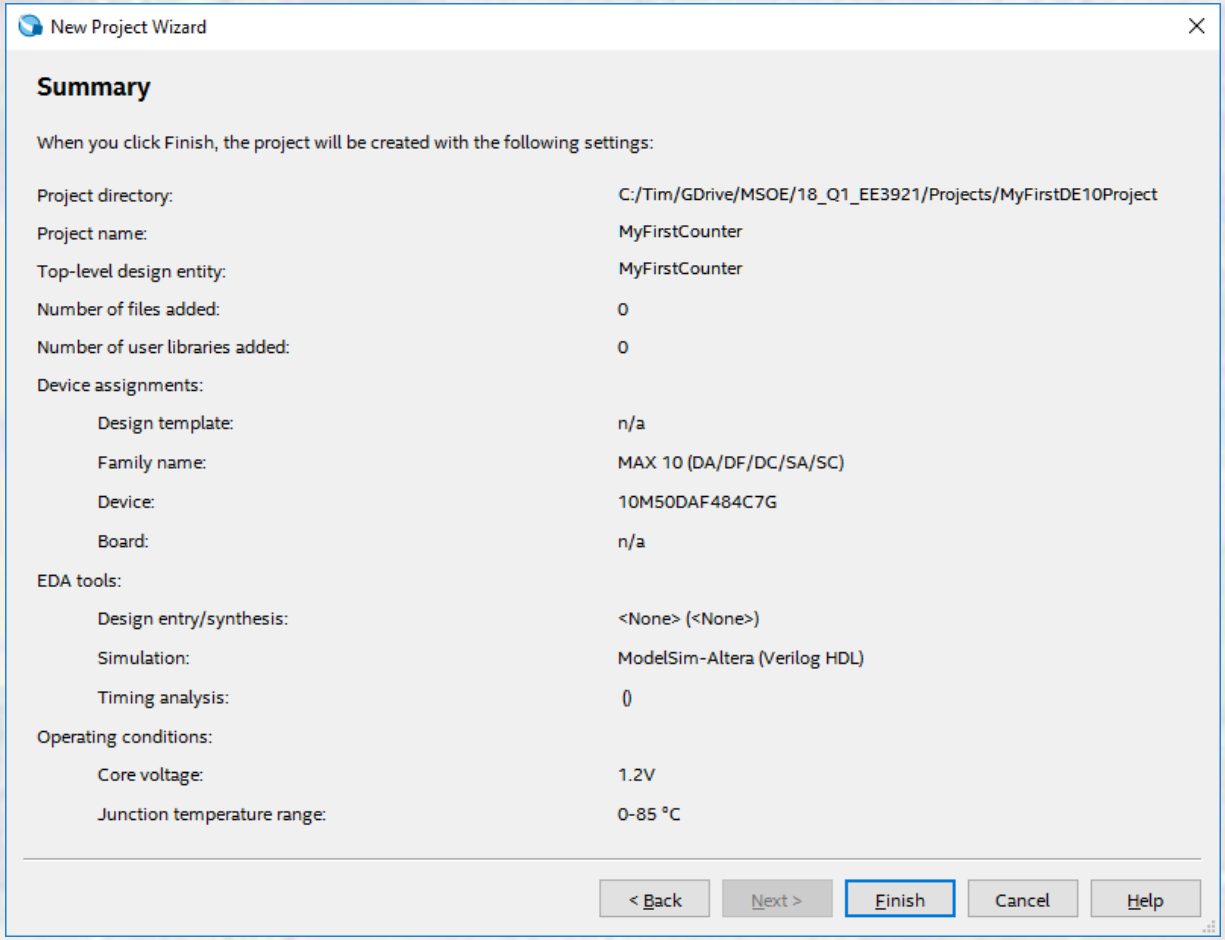
- Quartus Prime – Project Setup
  - Under simulation – select ModelSim-Altera and VHDL
  - Click Next



Note: ModelSim-Altera not ModelSim

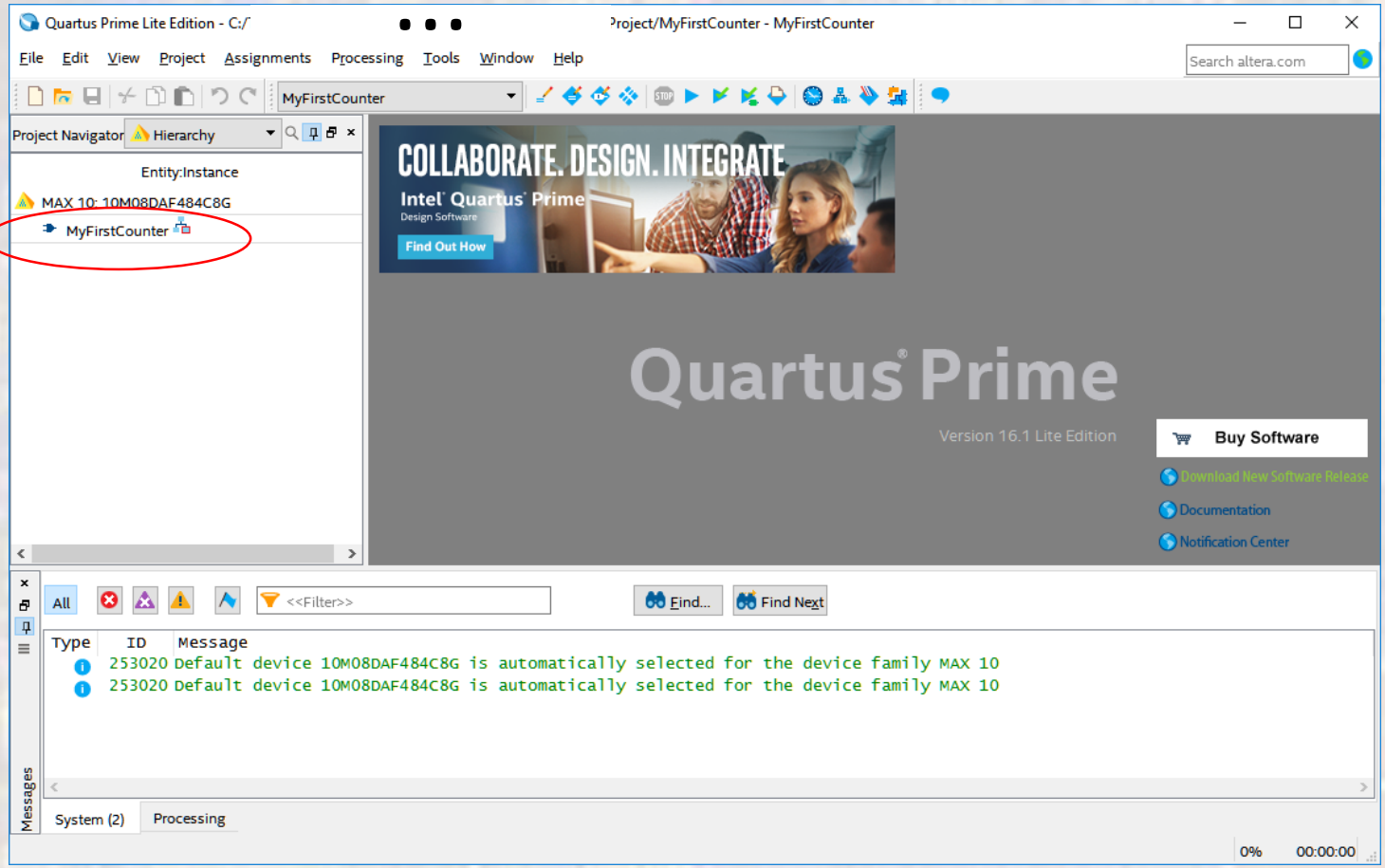
Quartus Project Setup

- Quartus Prime – Project Setup
  - You will get a summary window
  - Click Finish



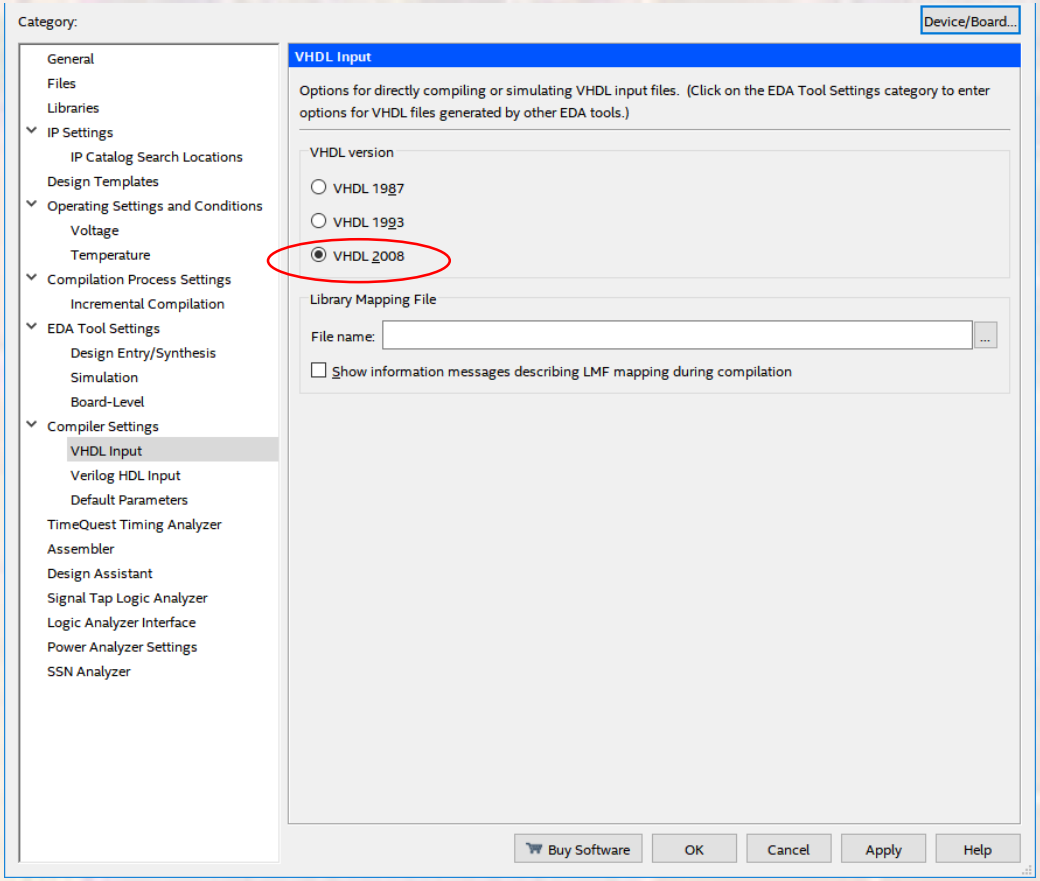
Quartus Project Setup

- Quartus Prime – Project Setup
  - Your project will now appear in the Project Navigator window



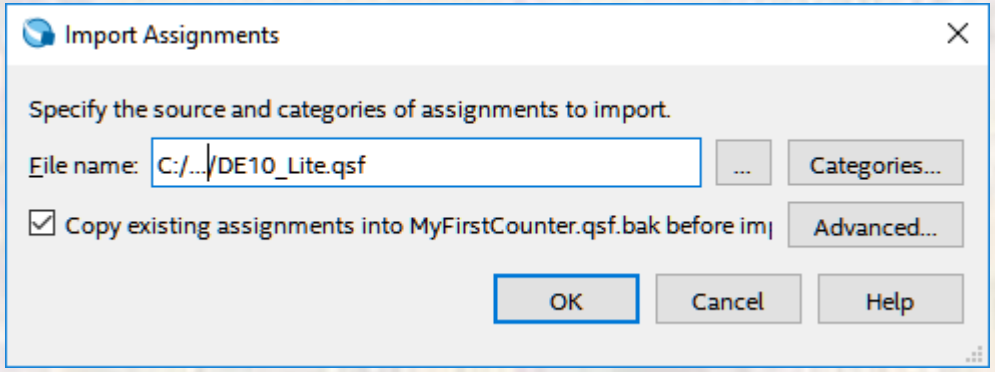
Quartus Project Setup

- Quartus Prime – Project Setup
  - We will be using the 2008 version of VHDL
  - Assignments -> Settings -> Compiler Settings -> VHDL Input
    - Select VHDL 2008



Quartus Project Setup

- Quartus Prime – Project Setup
  - If you plan to run the project on the DE10
    and
  - you want to use the assigned pin names (recommended)
    - you need to import the DE10_Lite.qsf file from the web page
    - right click the link and save link as (DE10_Lite.qsf, QSF file type) in the project directory
  - Assignments -> Import Assignments
    - Point to your downloaded DE10_Lite.qsf file

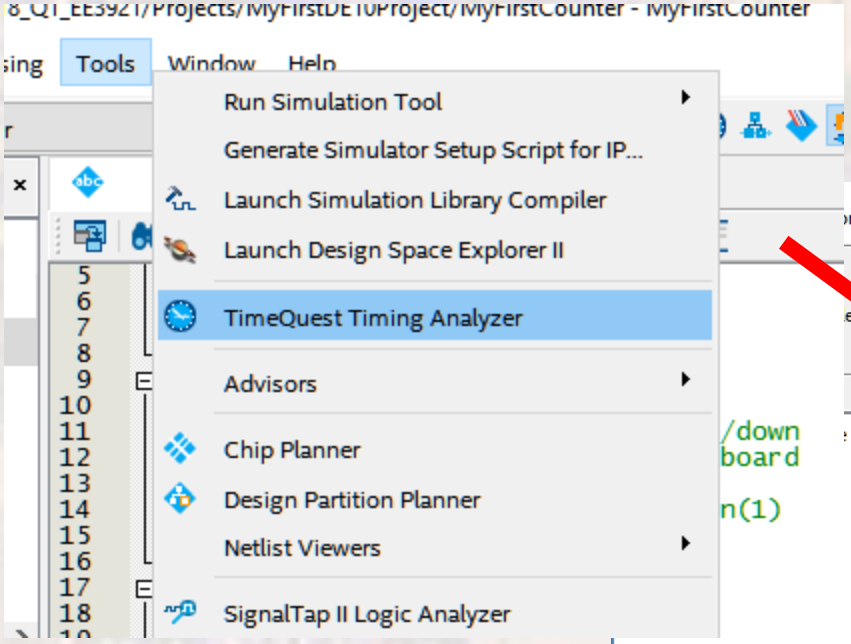


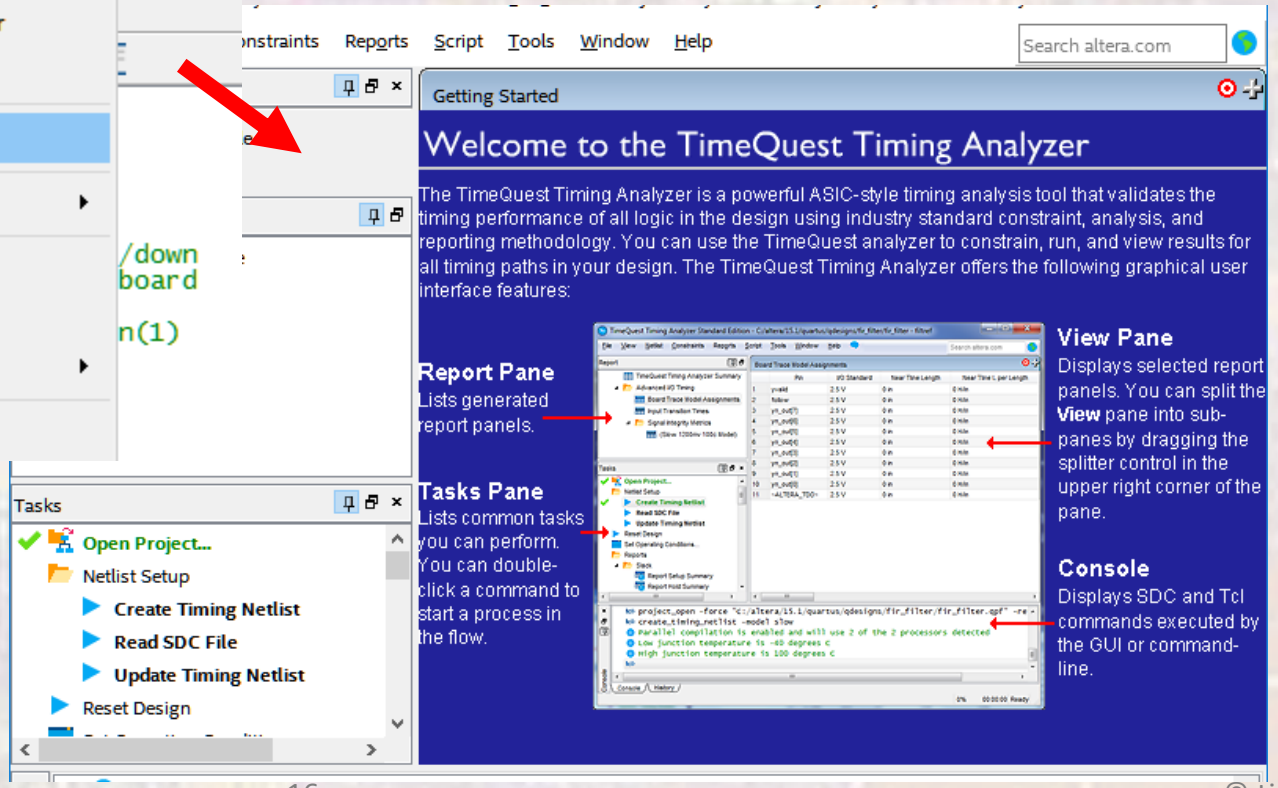
Quartus Project Setup

- Quartus Prime – Project Setup
  - Proper placement and routing requires that the design meets a set of timing requirements
  - A very basic set of timing requirements is available in the file Basic_SDC.sdc on the web site
  - You will use this as a starting point for each project you create

Quartus Project Setup

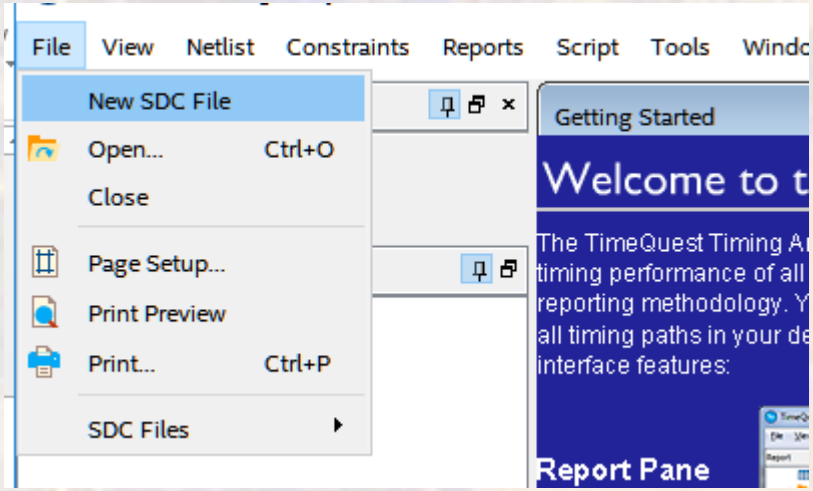
- Quartus Prime – Project Setup
  - Select Tools -> TimeQuest Timing Analyzer

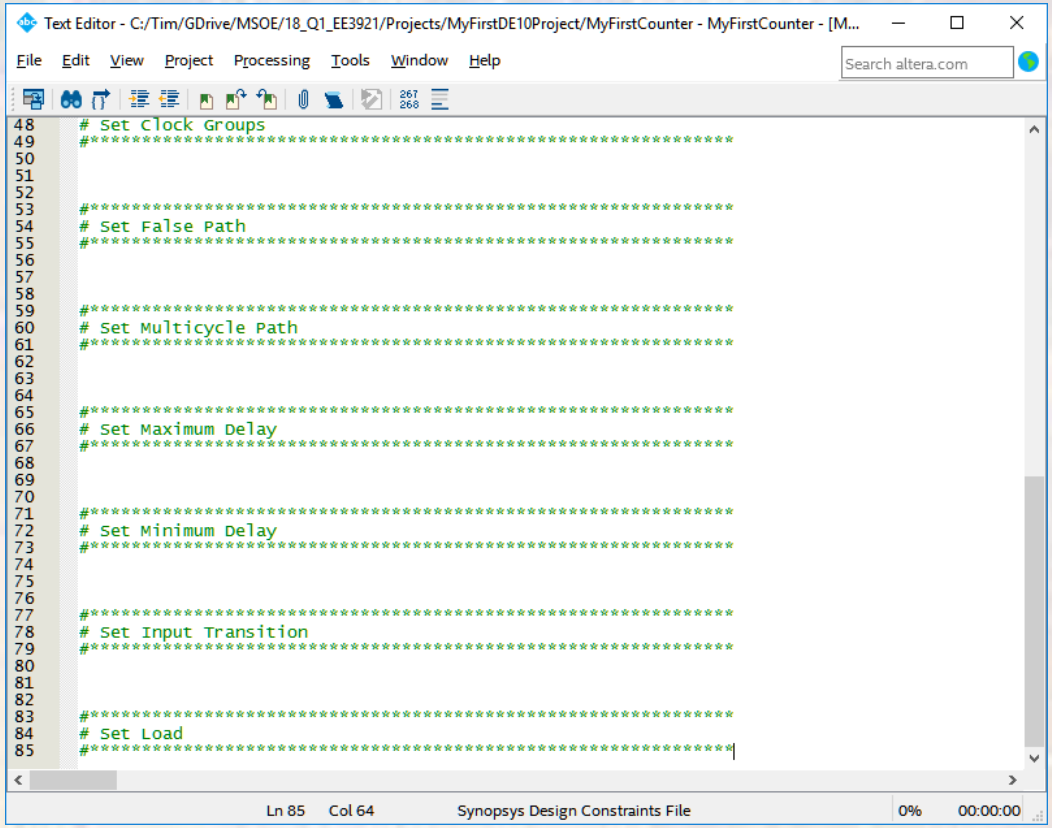




Quartus Project Setup

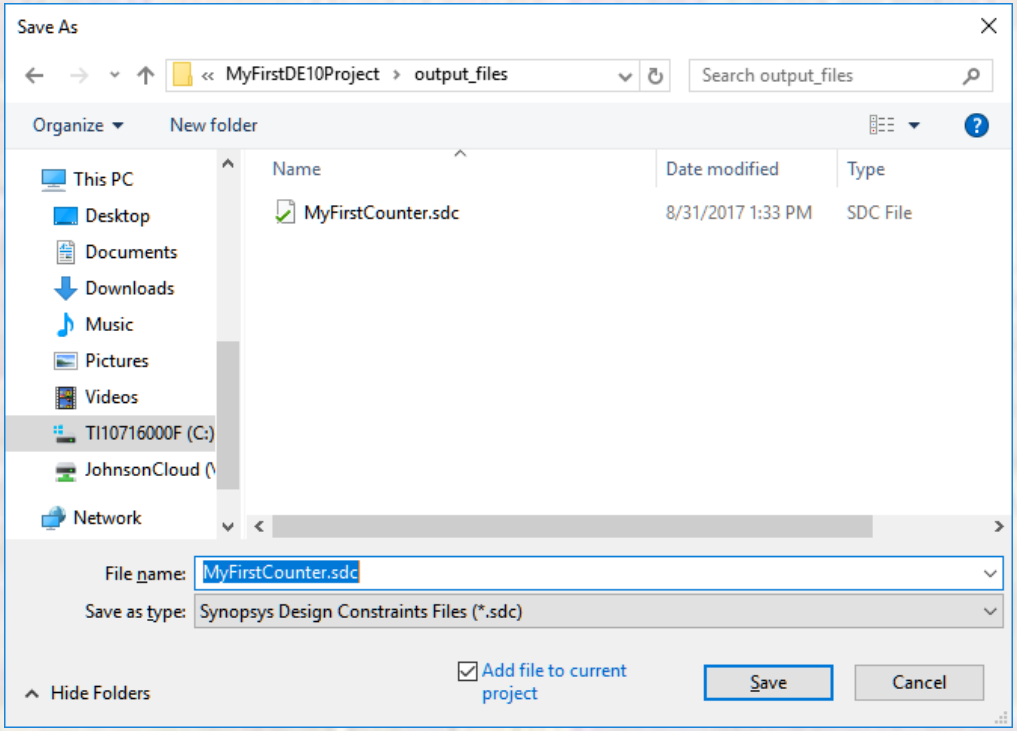
- Quartus Prime – Project Setup
  - Select File -> New SDC File
  - Copy and paste the contents of Basic_SDC.sdc into the file





Quartus Project Setup

- Quartus Prime – Project Setup
  - Select File -> Save As
  - Name the file the same as your project name
    - It should default to your output files directory
  - Save and close the TimeQuest window



Quartus Project Setup

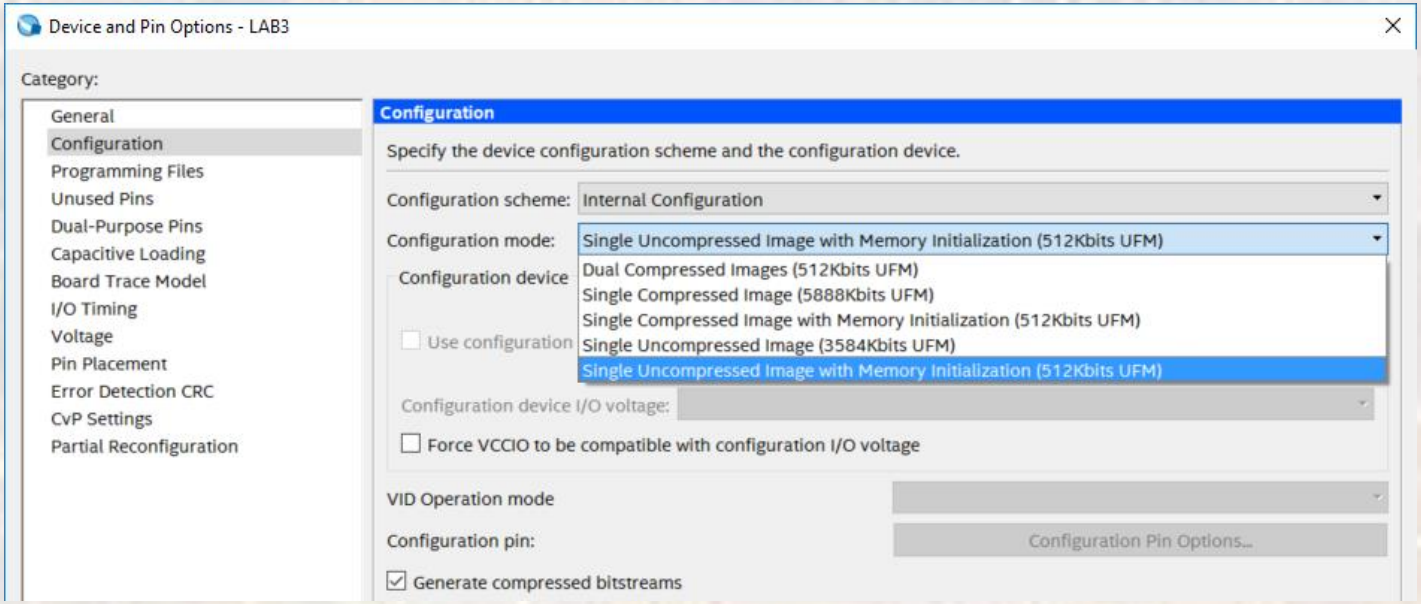
- Quartus Prime – Project Setup
  - Configure the tools for the DE10_Lite board

    Assignments -> Device -> Device and Pin Options ->

    Configuration -> Configuration Mode

    and select

    single uncompressed Image with Memory Initialization



Quartus Project Setup

- Quartus Prime – Project Setup

  - Your project is ready to use