TI DSP, MCU 및 Xilinx Zynq FPGA 프로그래밍 전문가 과정

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목차

FPGA 프로그래밍

1) Vivado 환경설정 1

An internal exception error

Re: Vivado 2017.1 Crashed When Opening Implemented Design Options

04-26-2017 01:14 PM

There are two protobuf JAR files installed with Vivado 2017.1 which can lead to a conflict on some Linux machines. To work around the issue you can rename or remove the protobuf-java-3.1.0.jar file under <Vivado Install Folder>/lib/classes. Removing this file does not have any negative effect on Vivado, and will be fixed in Vivado 2017.2.

Don't forget to reply, kudo, and accept as solution.

진짜 이거 때문에 엄청 고생함... 리눅스 재설치... 환경설정 등등 아오...

에러 원인 : 두 개의 java 파일이 어떤 리눅스 상에서는 충돌이 일어나 에러를 만든다 함.
그래서 lib/classes 밑으로 가서 중복된 거 하나 지워야 됨.

1) Vivado 환경설정 2

Zybo 보드 드라이버 설치

```
hyunwoopark@hyunwoopark-P65-P67SG:~/xilinx/Vivado/2017.1/data/xicom$ cd cable_drivers/lin64/install_script/install_drivers/
hyunwoopark@hyunwoopark-P65-P67SG:~/xilinx/Vivado/2017.1/data/xicom/cable_drivers/lin64/install_script/install_drivers$ sudo ./install_drivers
[sudo] password for hyunwoopark:
INFO: Installing cable drivers.
INFO: Script name = ./install_drivers
INFO: HostName = hyunwoopark-P65-P67SG
INFO: Current working dir = /home/hyunwoopark/xilinx/Vivado/2017.1/data/xicom/cable_drivers/lin64/install_script/install_drivers
INFO: Kernel version = 4.13.0-36-generic.
INFO: Arch = x86_64.
Successfully installed Digilent Cable Drivers
--File /etc/udev/rules.d/52-xilinx-ftdi-usb.rules does not exist.
--File version of /etc/udev/rules.d/52-xilinx-ftdi-usb.rules = 0000.
--Updating rules file.
--File /etc/udev/rules.d/52-xilinx-pcusb.rules does not exist.
--File version of /etc/udev/rules.d/52-xilinx-pcusb.rules = 0000.
--Updating rules file.

INFO: Digilent Return code = 0
INFO: Xilinx Return code = 0
INFO: Xilinx FTDI Return code = 0
INFO: Return code = 0
INFO: Driver installation successful.
CRITICAL WARNING: Cable(s) on the system must be unplugged then plugged back in order for the driver scripts to update the cables.
hyunwoopark@hyunwoopark-P65-P67SG:~/xilinx/Vivado/2017.1/data/xicom/cable_drivers/lin64/install_script/install_drivers$
```

드라이버 설치가 제대로 안될 수 있기 때문에 드라이버 설치 권장.

1) Vivado 환경설정 3

Vivado 이미지 파일 만들기

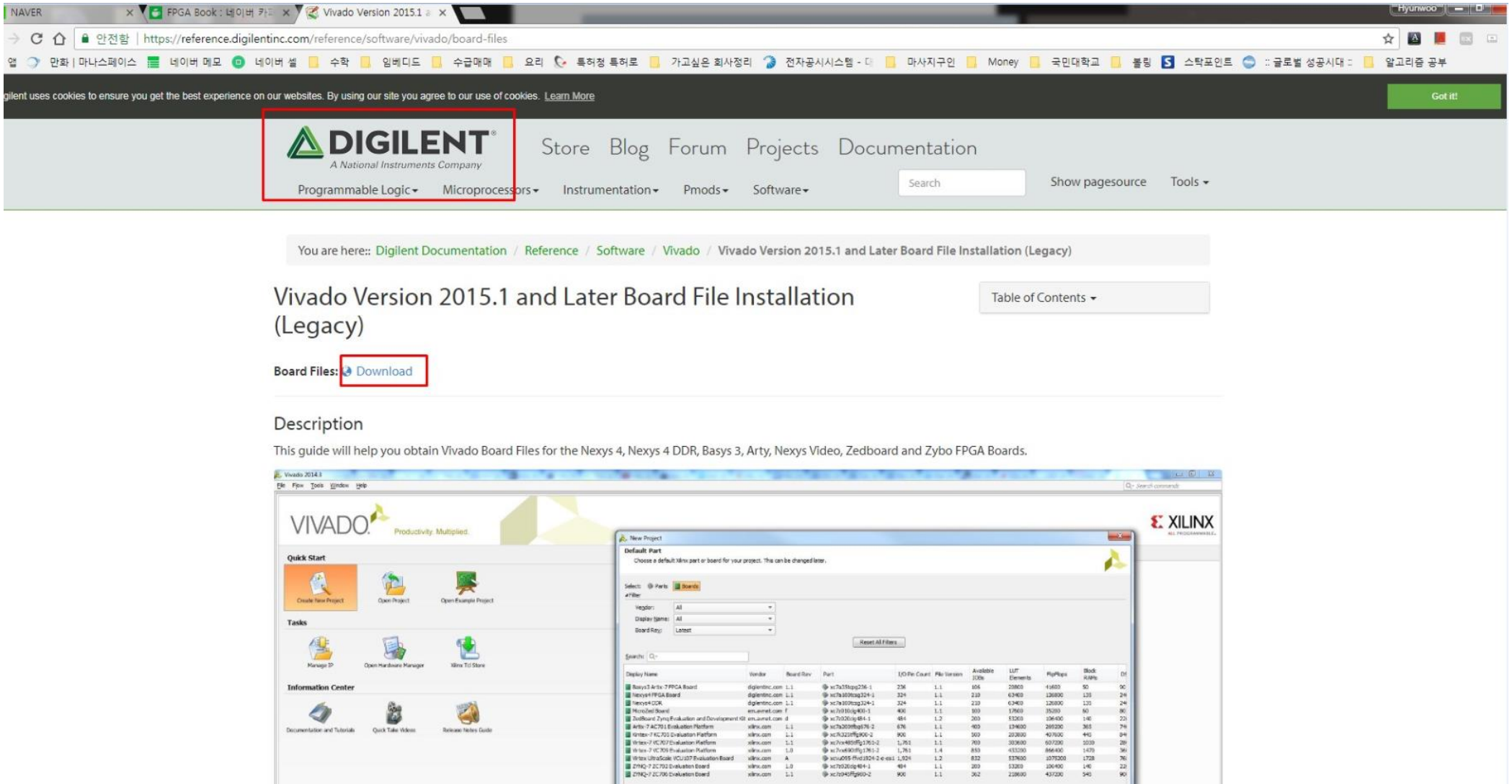
```
1 #! /usr/bin/env xdg-open
2 [Desktop Entry]
3 Name=Xilinx Vivado
4 Type=Application
5 Exec=/home/hyunwoopark/xilinx/Vivado/2017.1/bin/vivado
6 Terminal=false
7 Icon=/home/hyunwoopark/xilinx/Vivado/2017.1/common/icons/CS1056_Vivado_HSL_I
  con_64x64.ico
8 Comment=Xilinx Vivado Program
9 NoDisplay=false
10 Categories=Development;IDE;
11 Name[en]=Vivado
```

Icon 위치 바꿔야 됨.

1) Vivado 환경설정 4

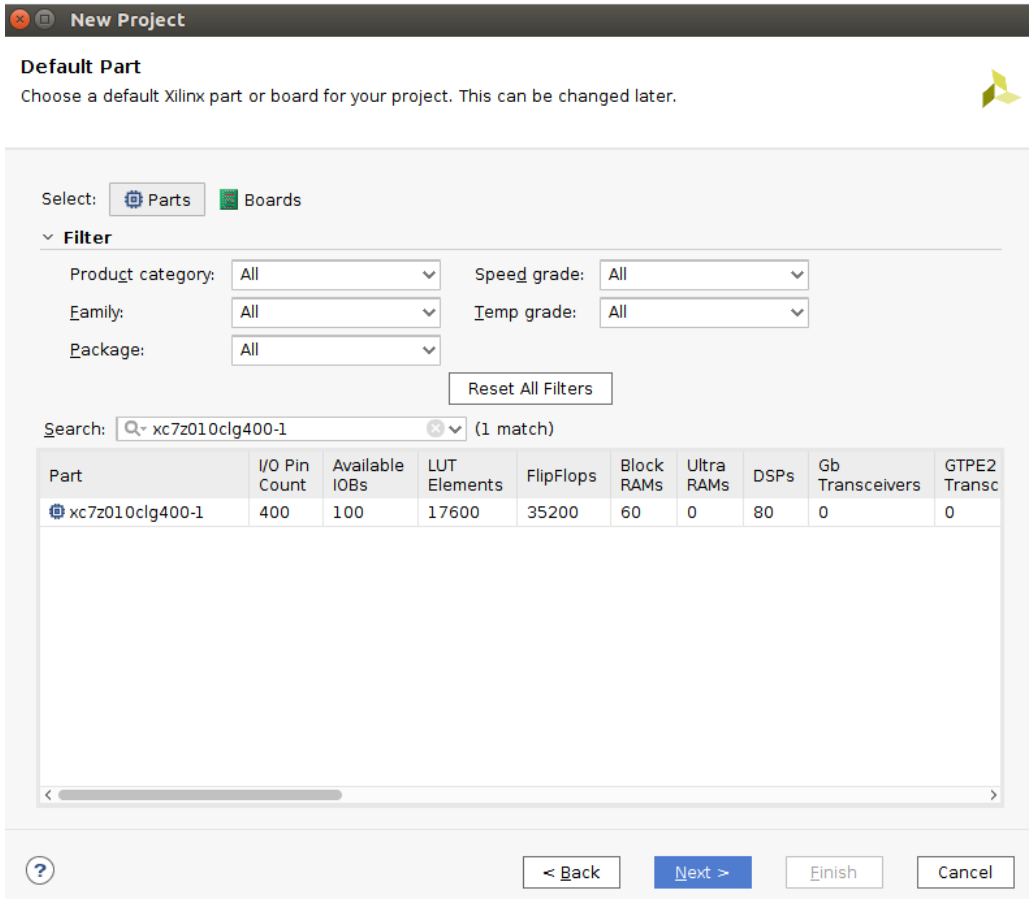
FPGA 회로 프로그래밍 하려면 보드 파일 추가 설치 해야 함. (full version 제외)

https://reference.digilentinc.com/_media/zybo:zybo_rm.pdf (GPIO 핀 확인)



2) GPIO 프로그래밍 VHDL 1

1



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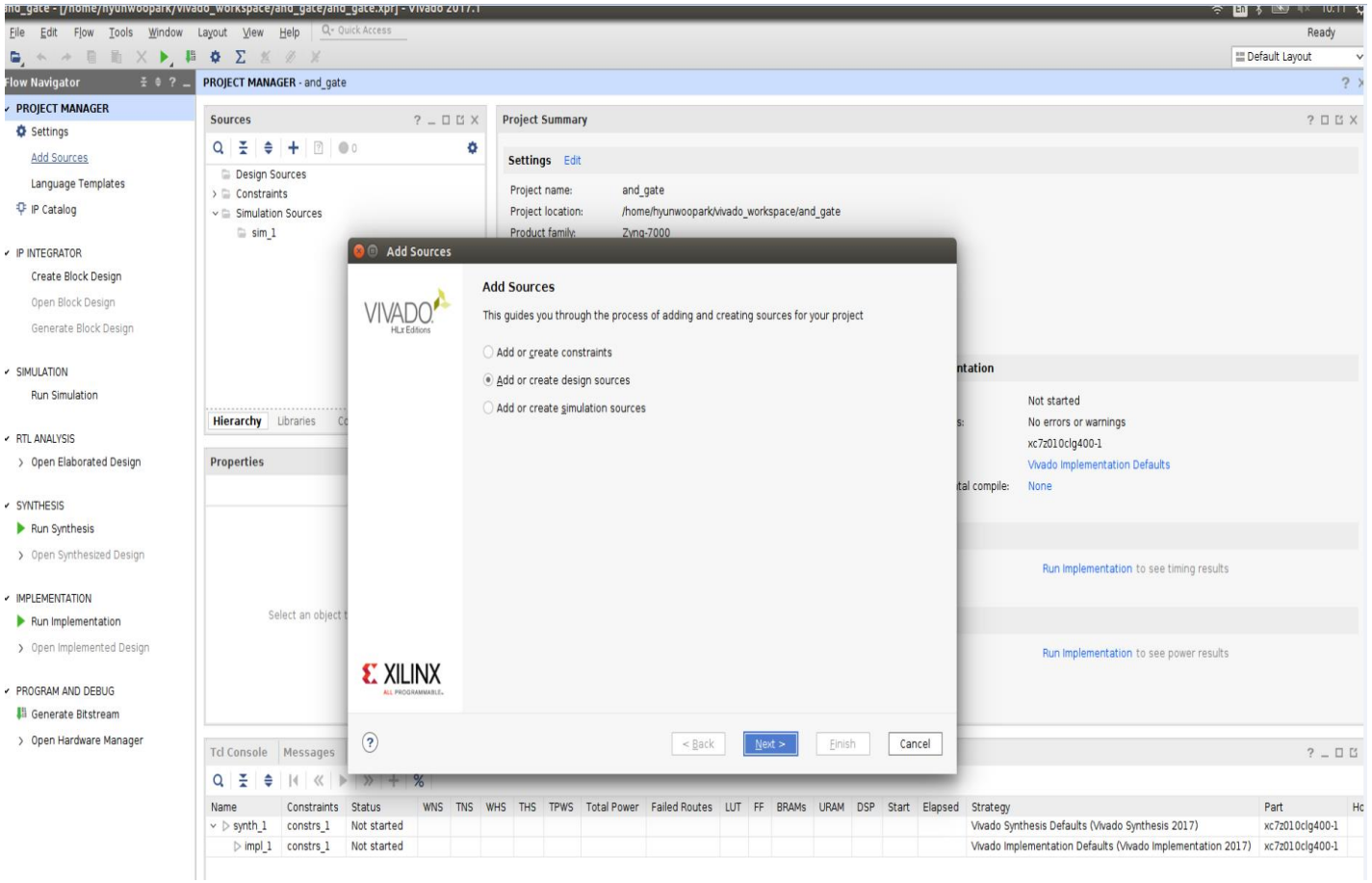

2) GPIO 프로그래밍 VHDL 2

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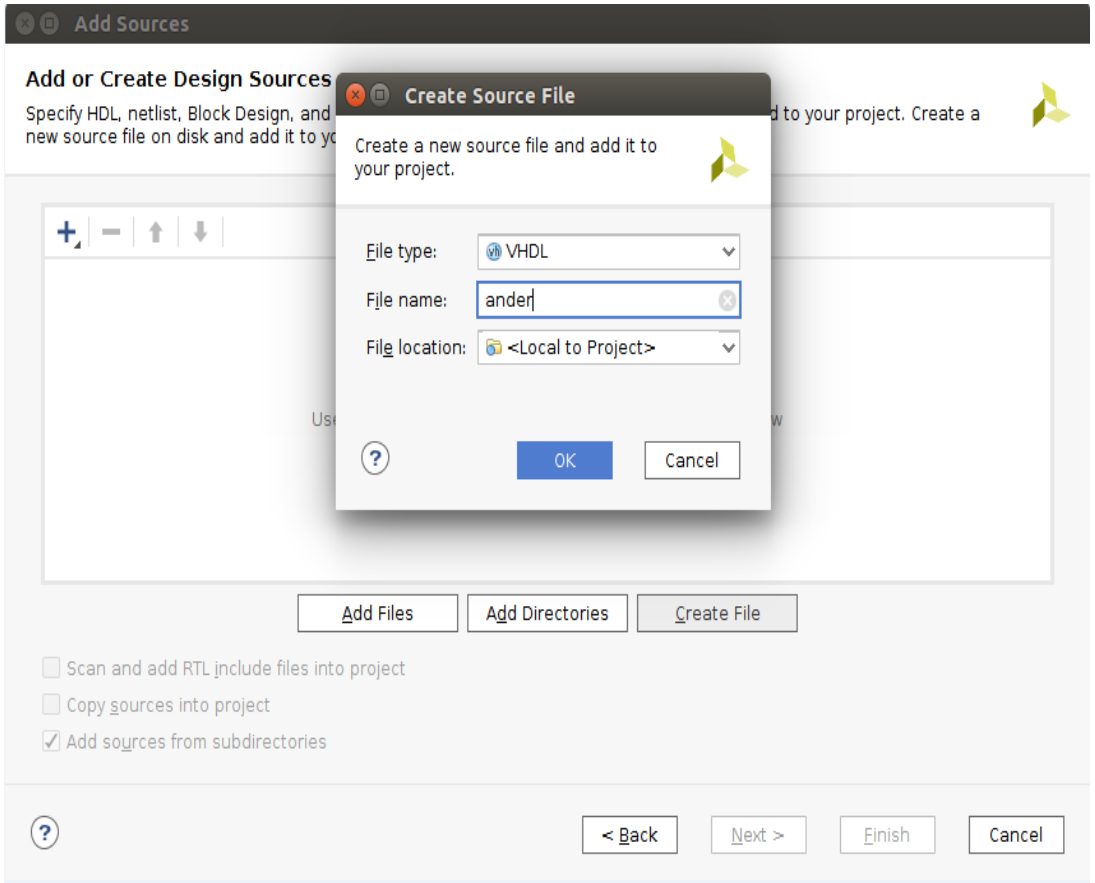

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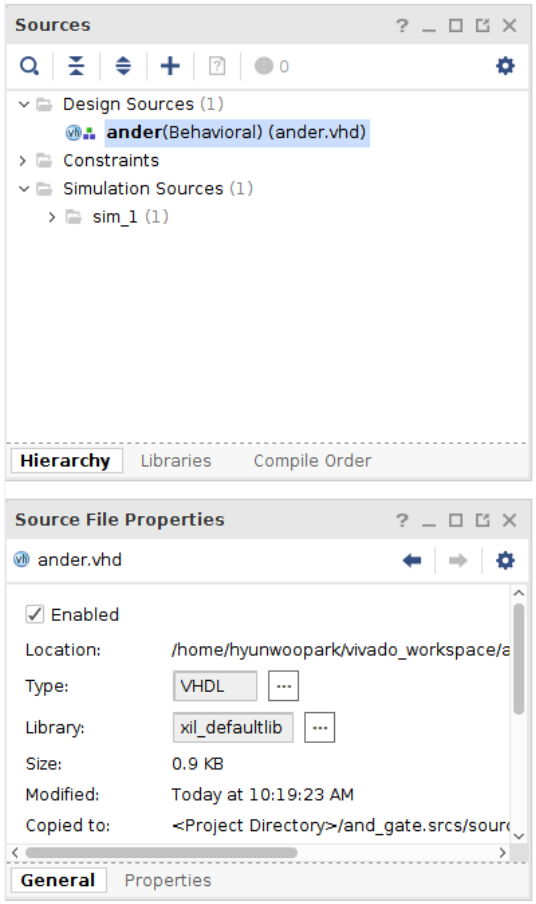

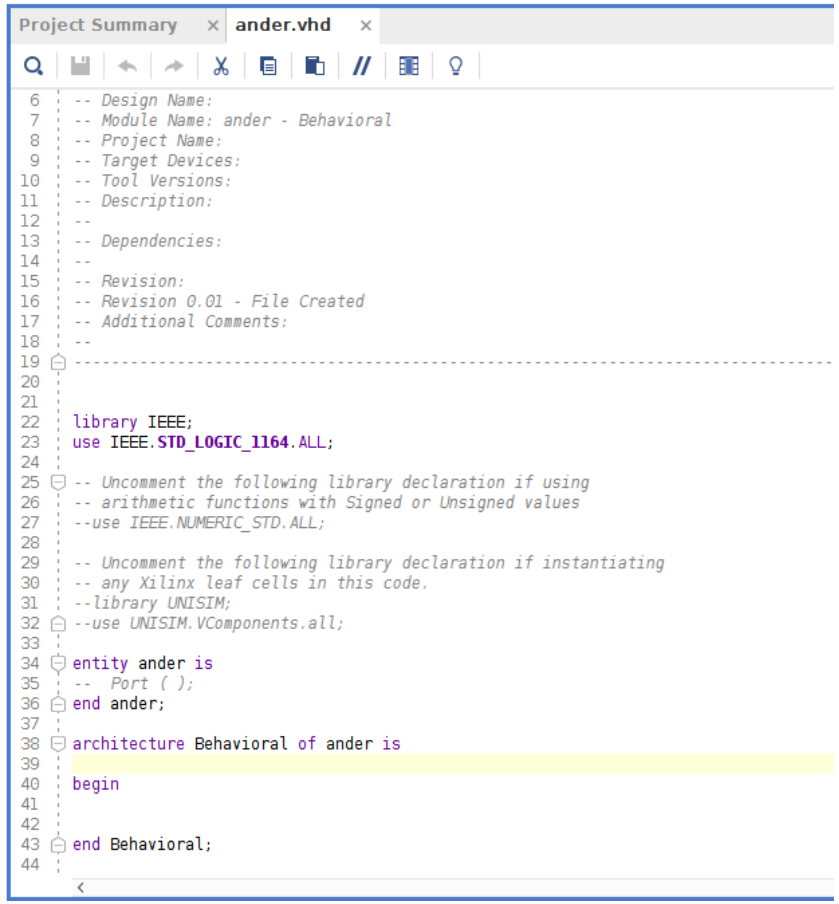

2) GPIO 프로그래밍 VHDL 3

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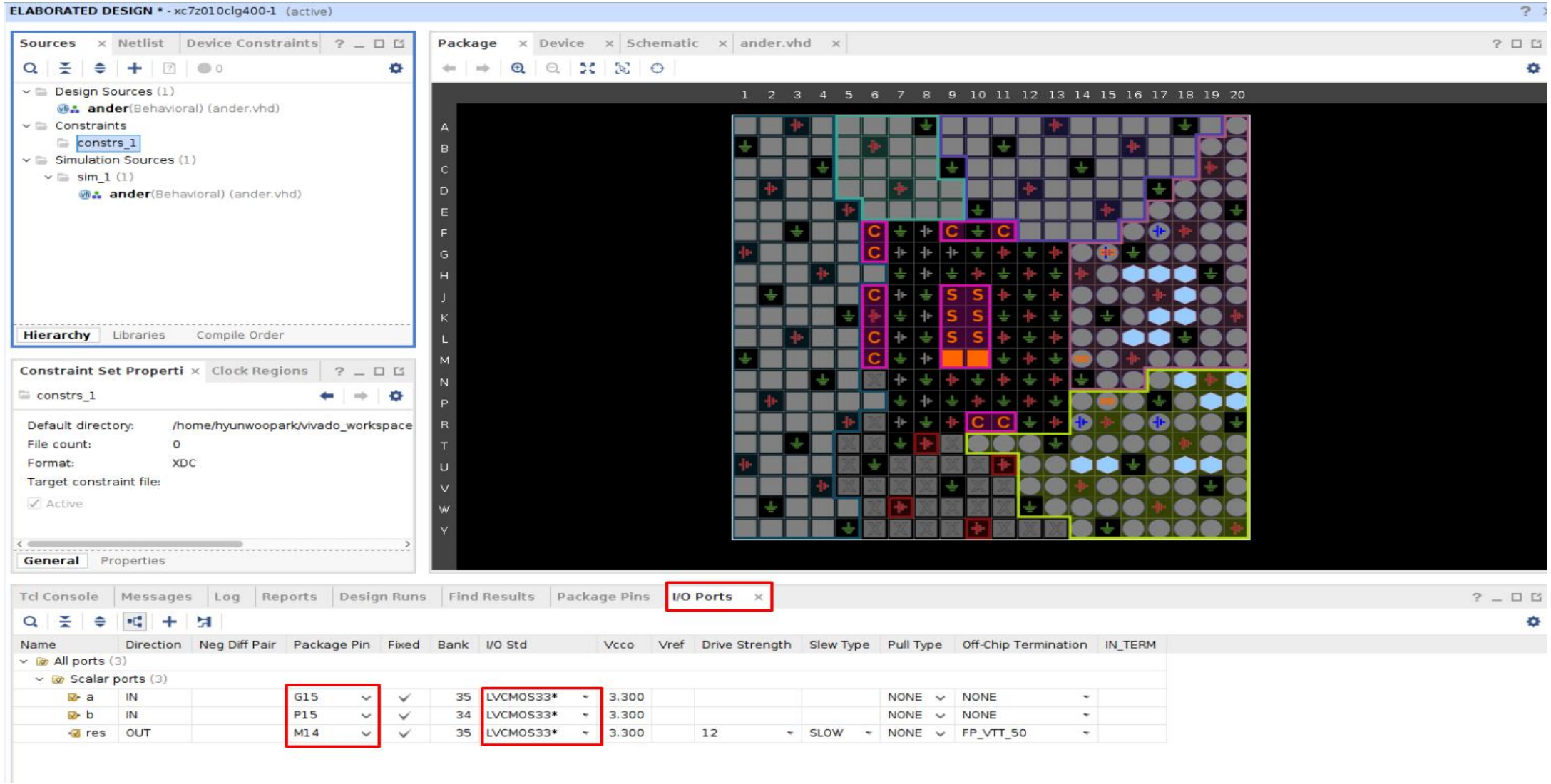

2) GPIO 프로그래밍 VHDL 4

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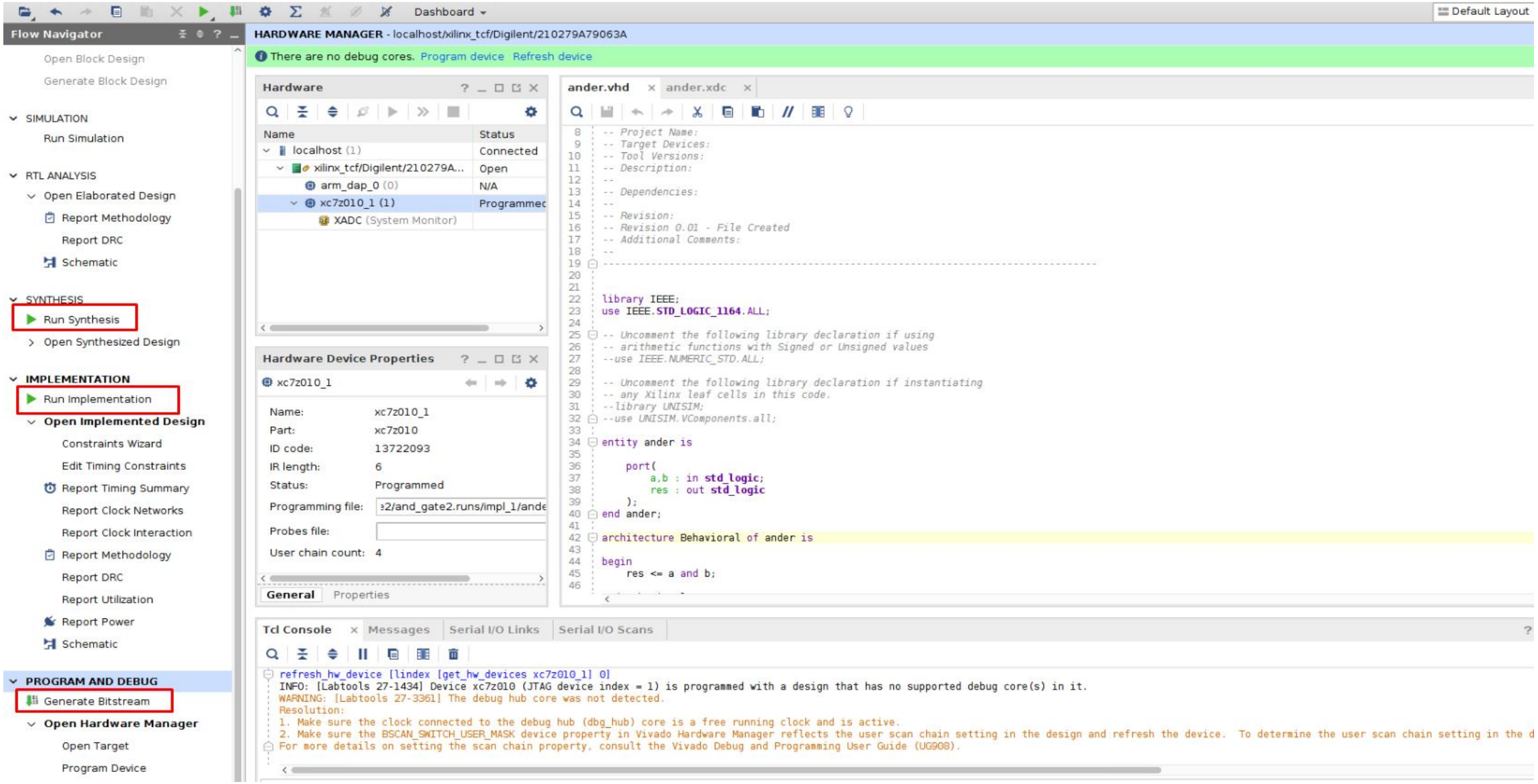

3) GPIO 회로 프로그래밍 Verilog 1

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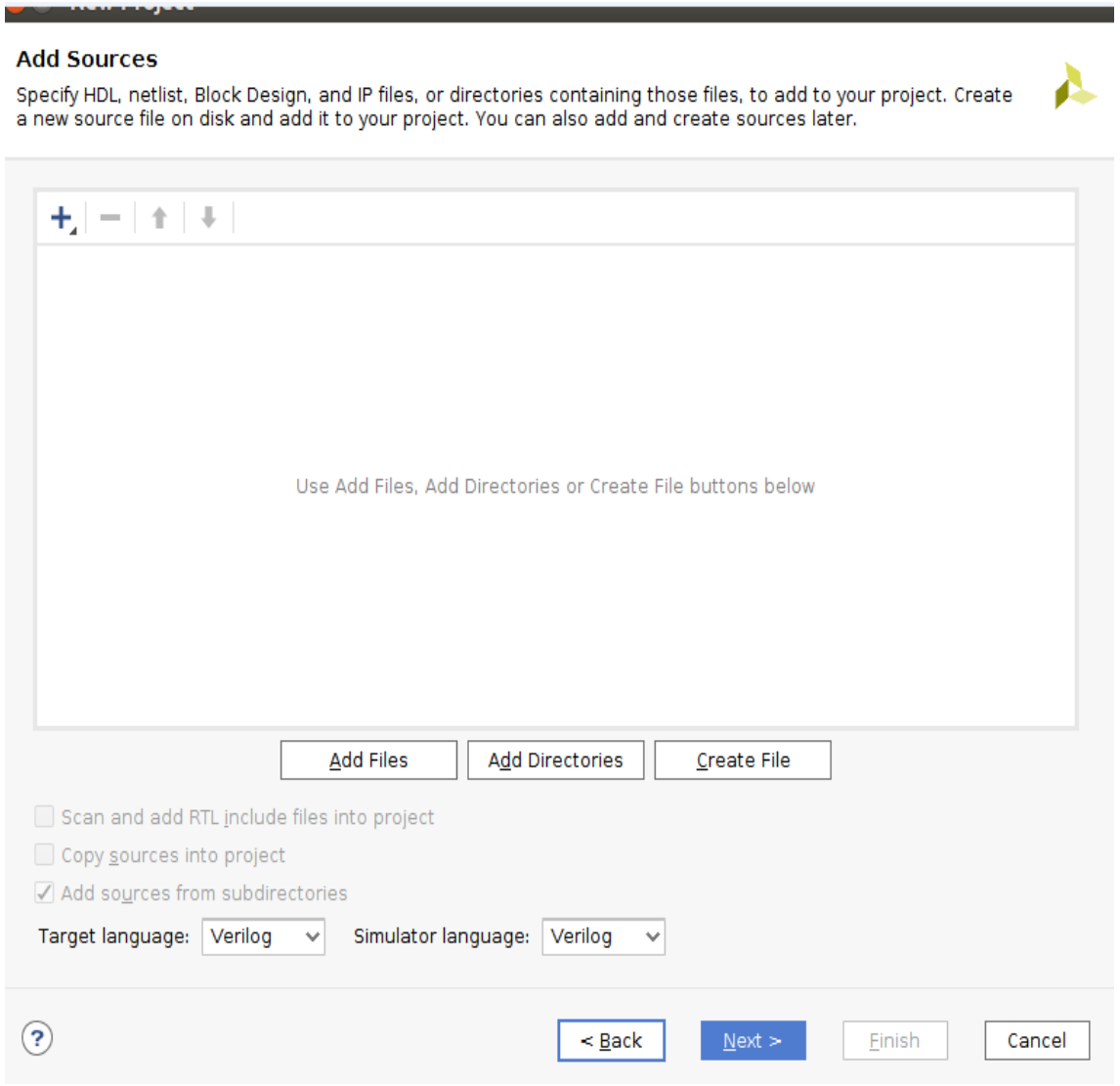

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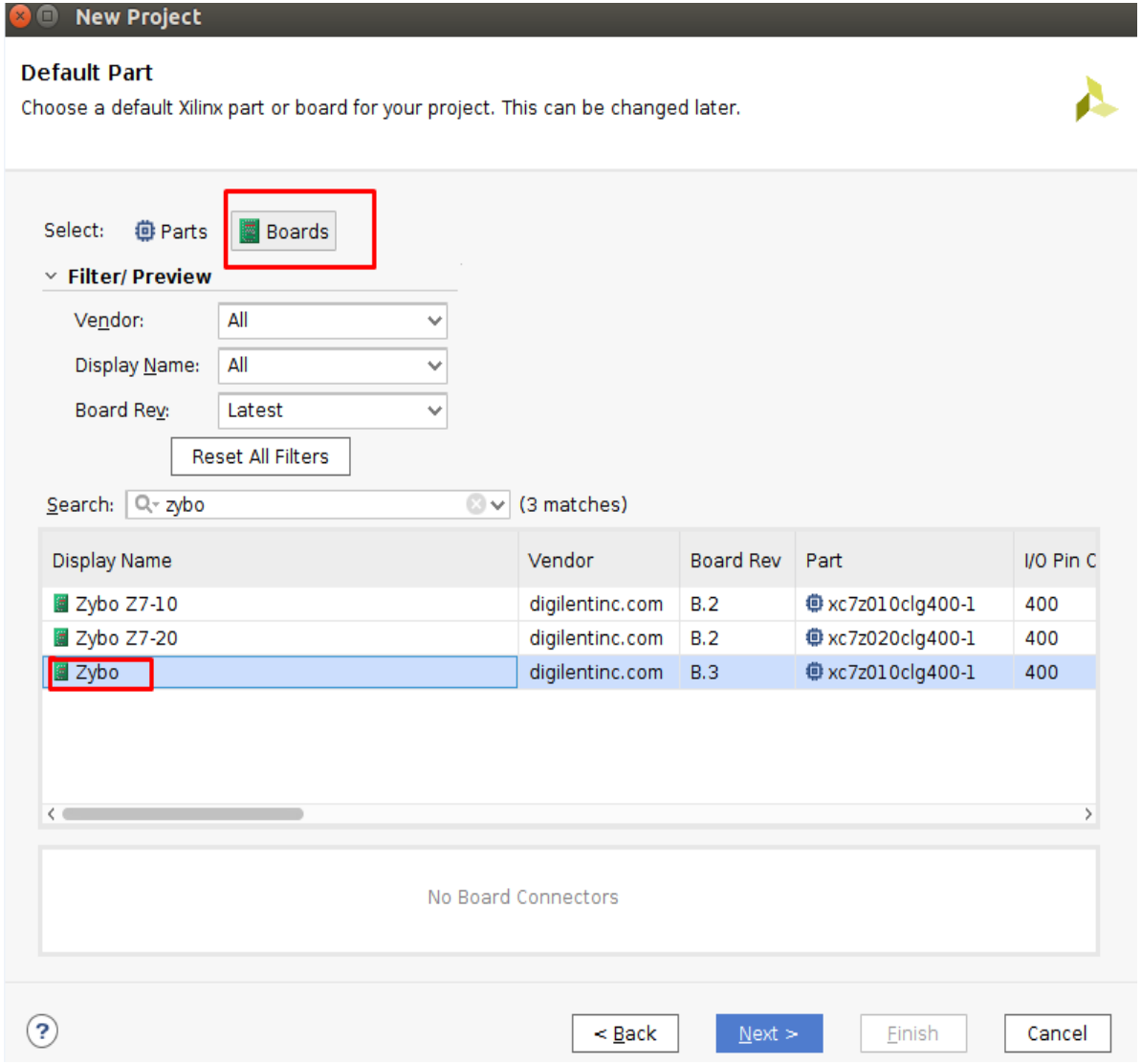

3) GPIO 회로 프로그래밍 Verilog 2

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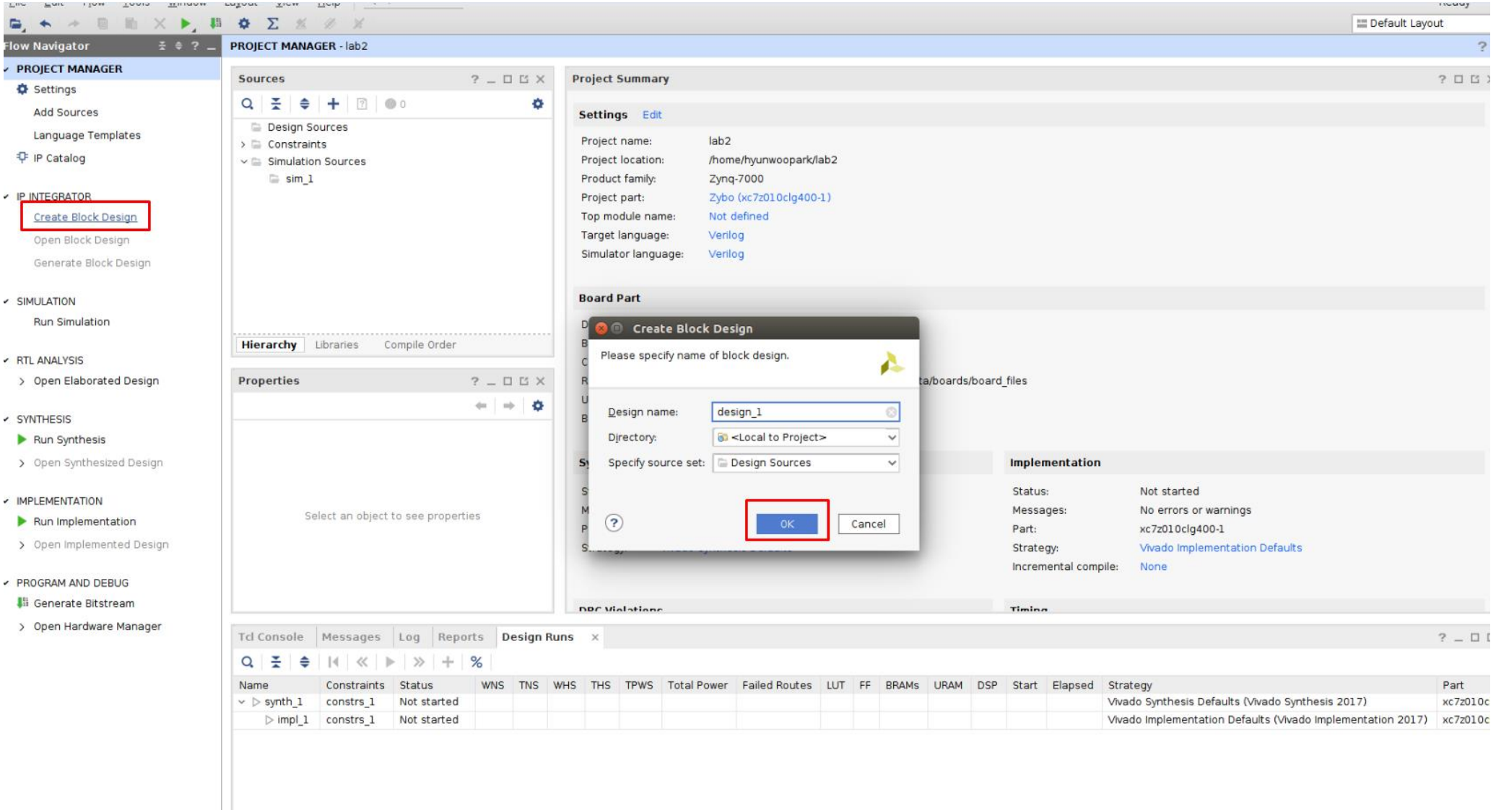

3) GPIO 회로 프로그래밍 Verilog 3

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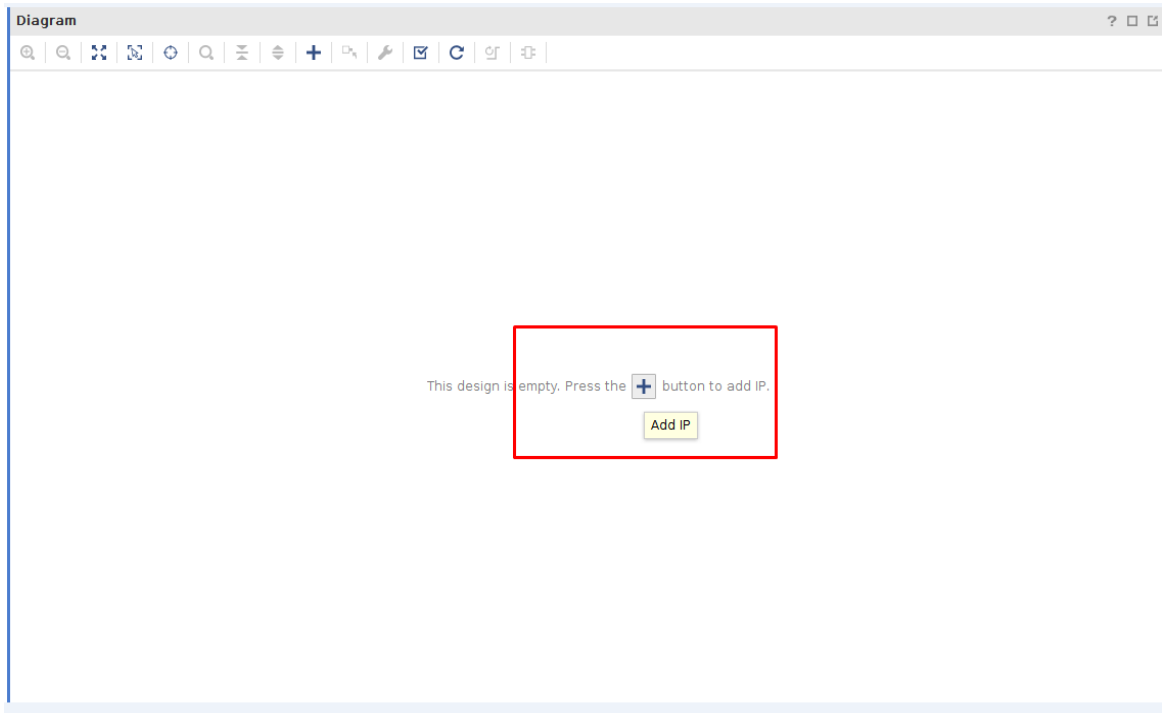

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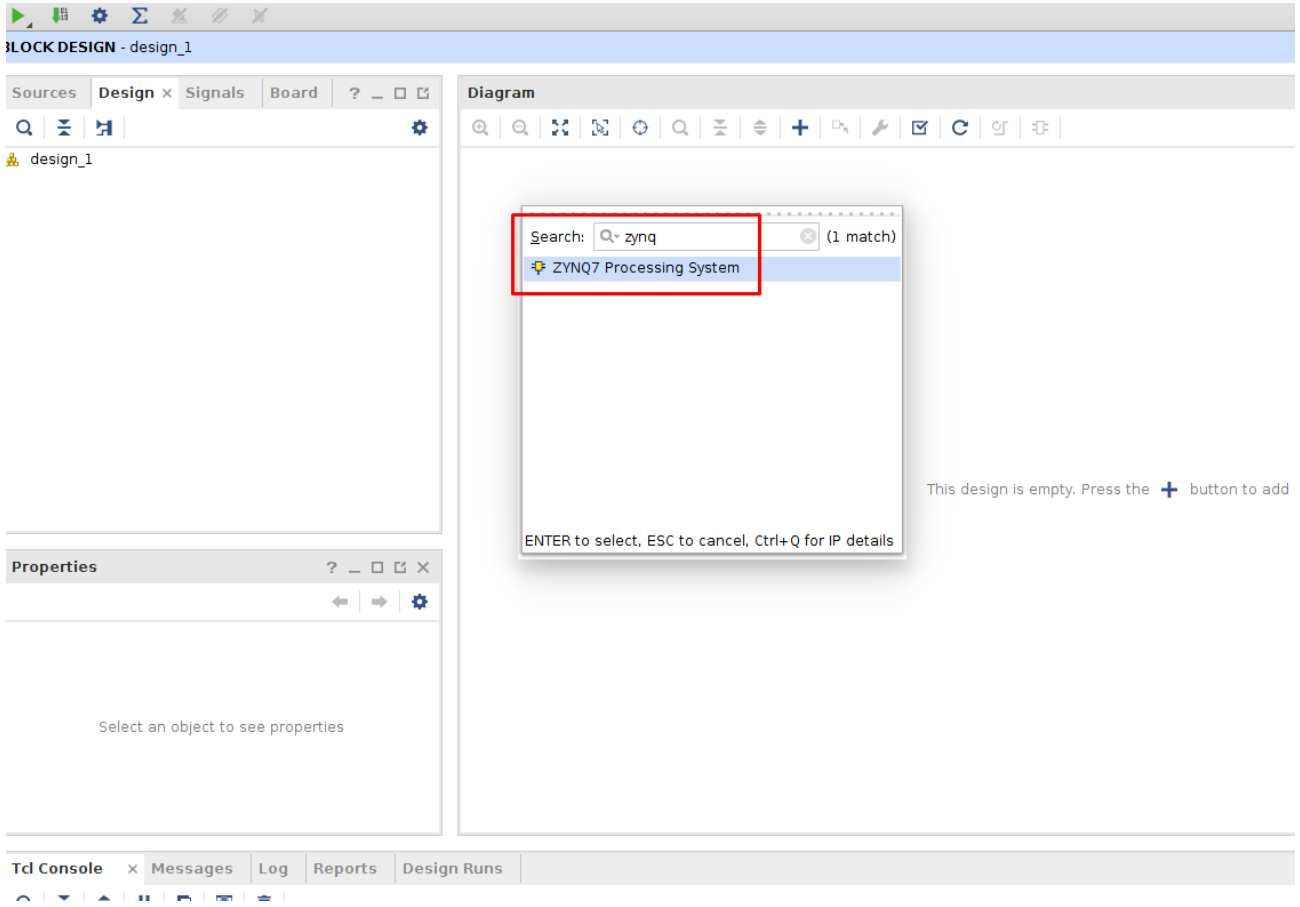

3) GPIO 회로 프로그래밍 Verilog 4

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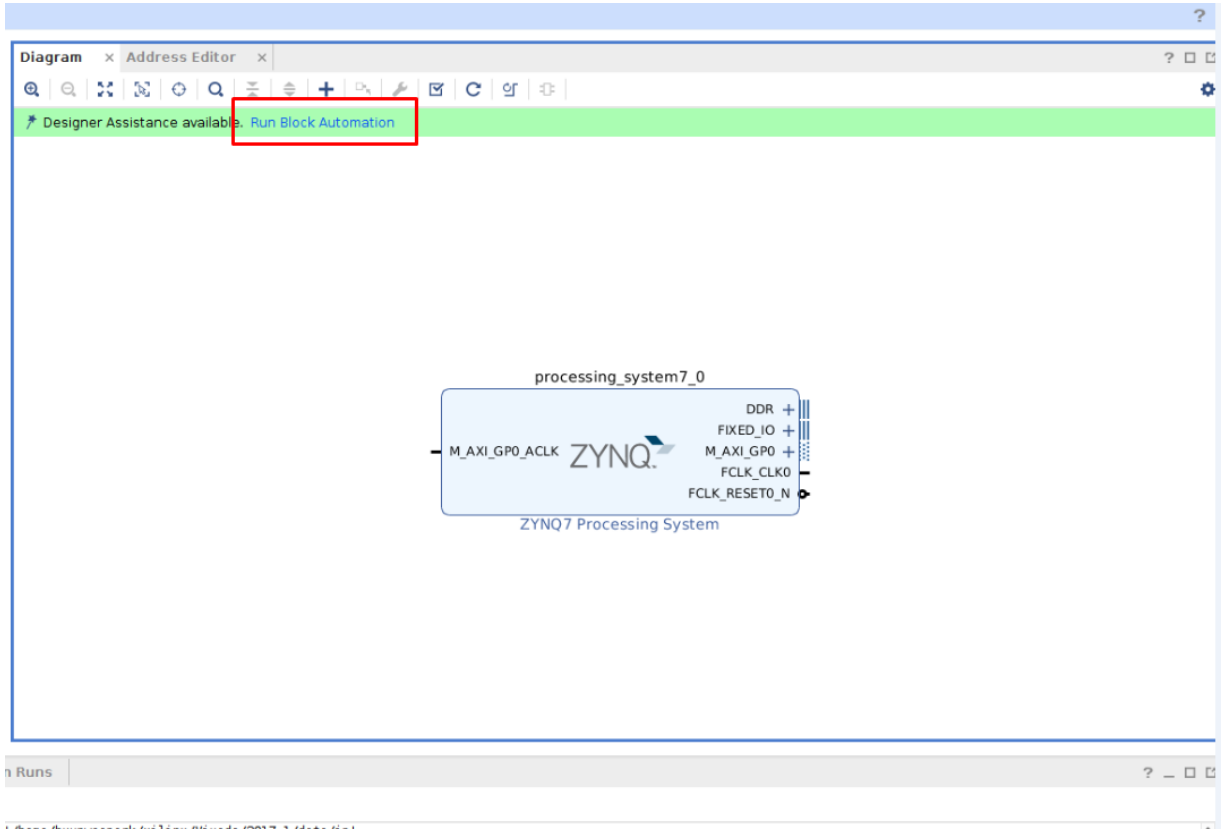

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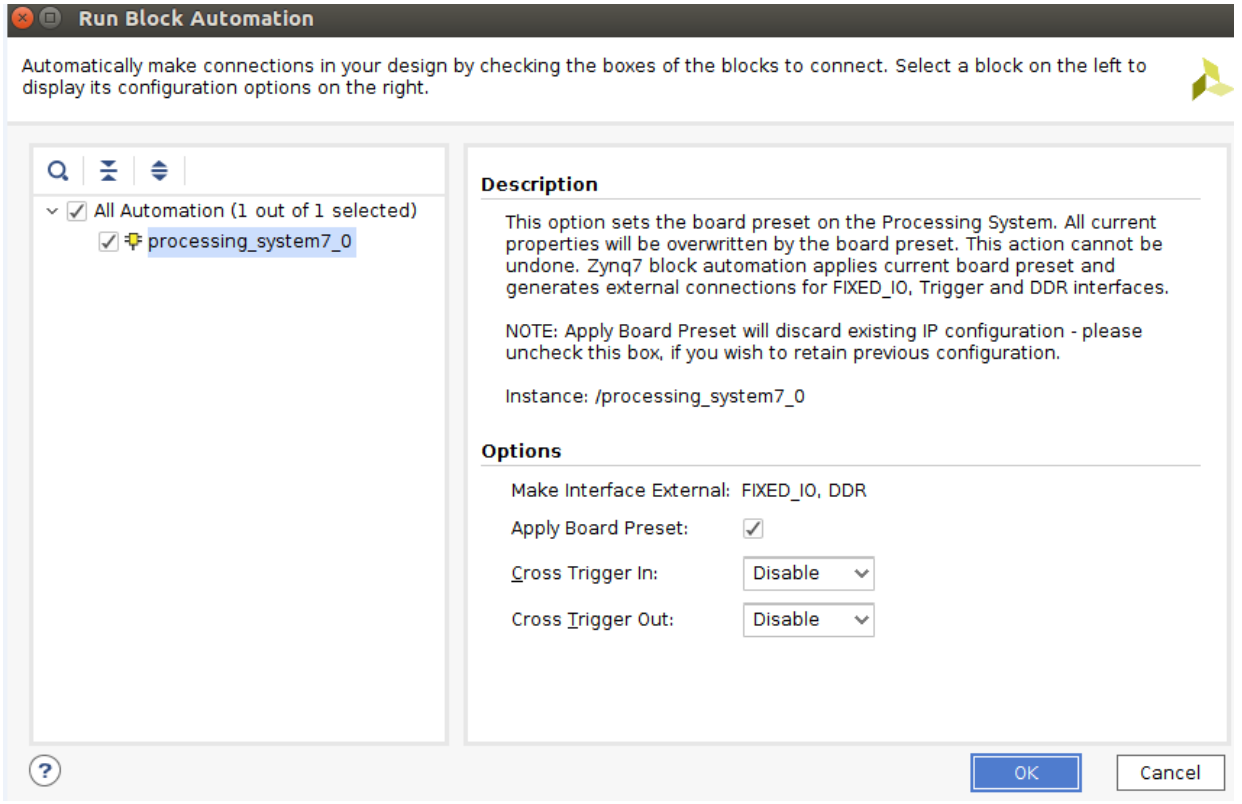

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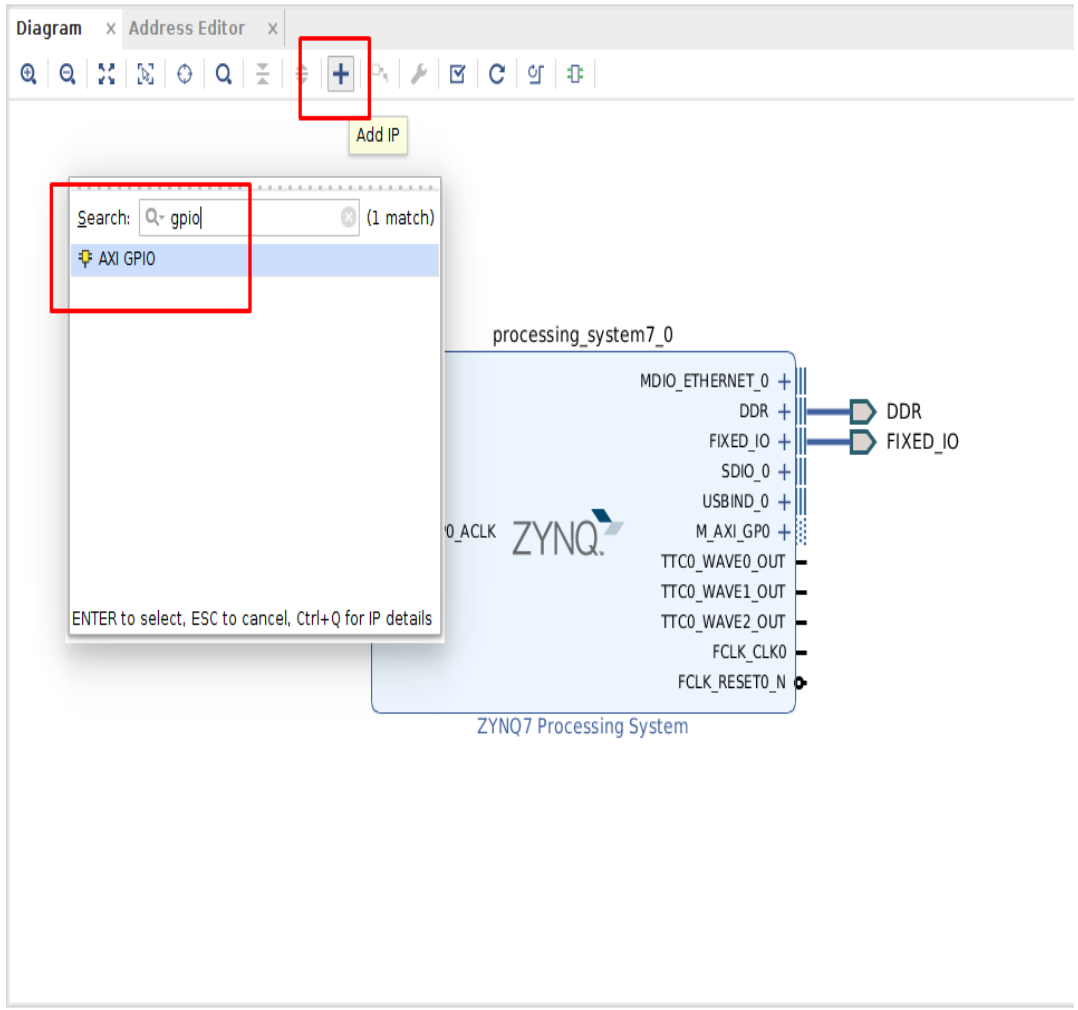

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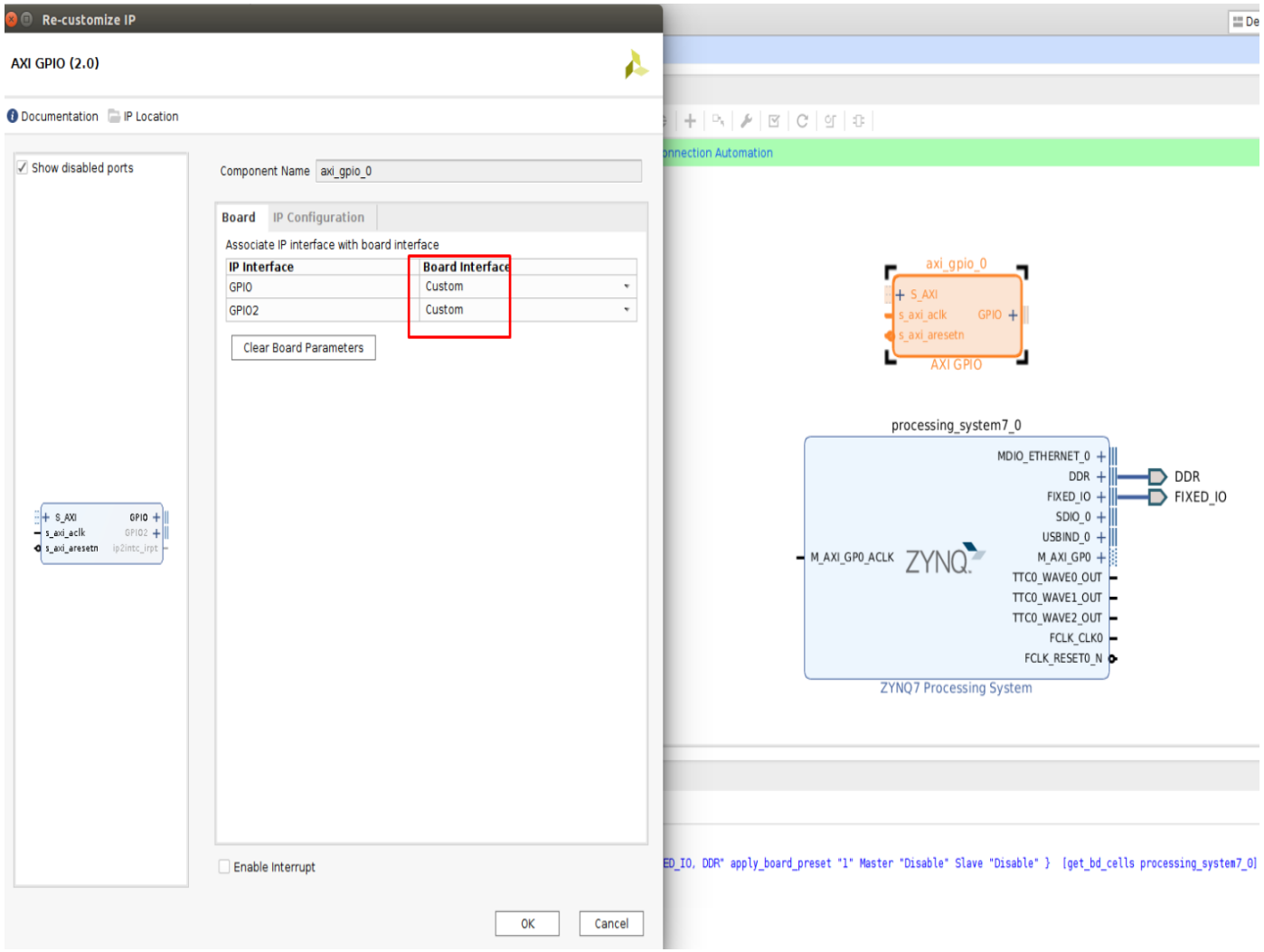

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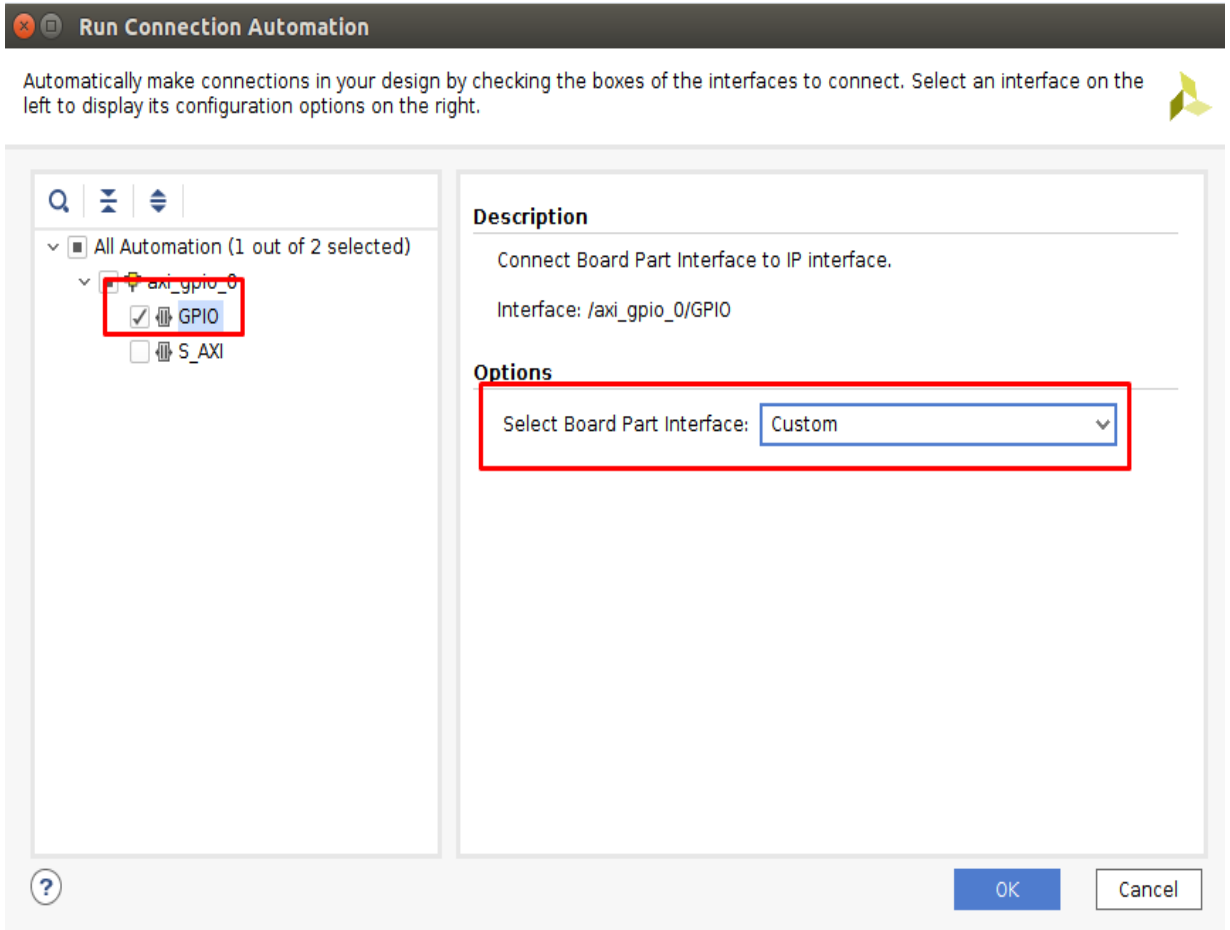

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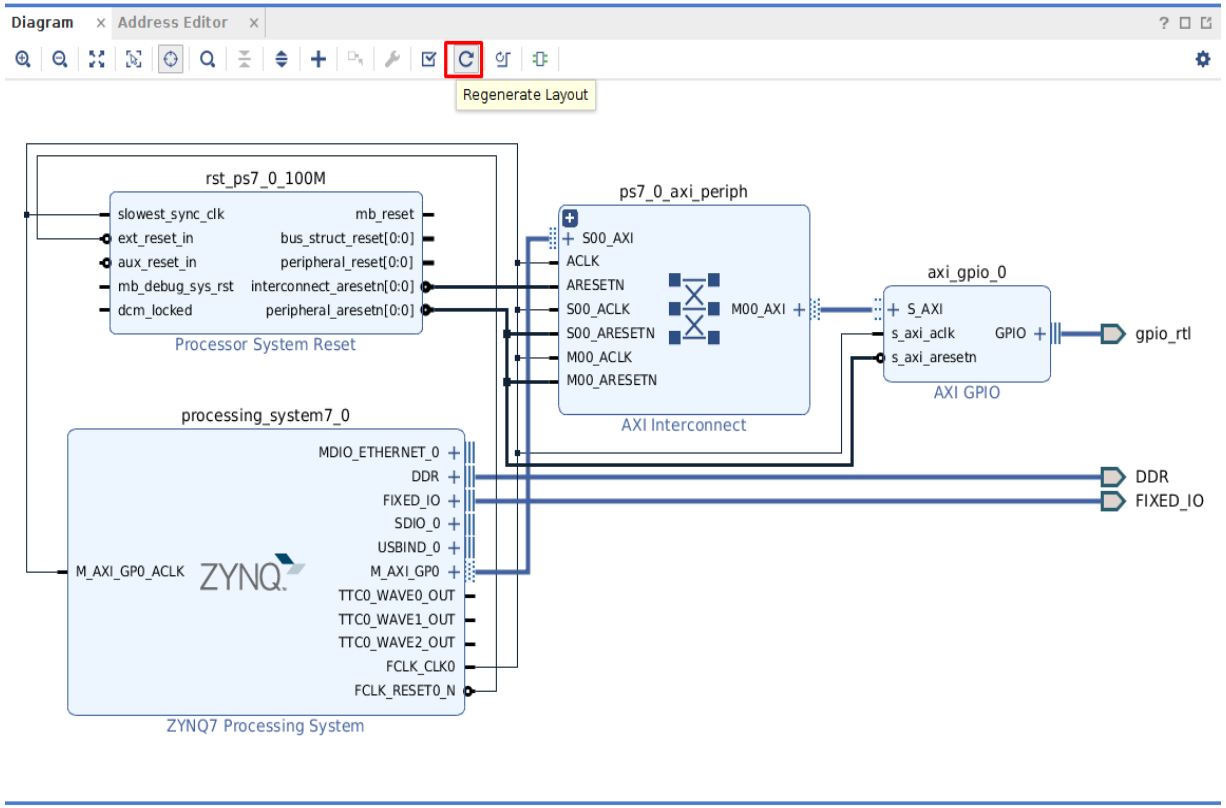

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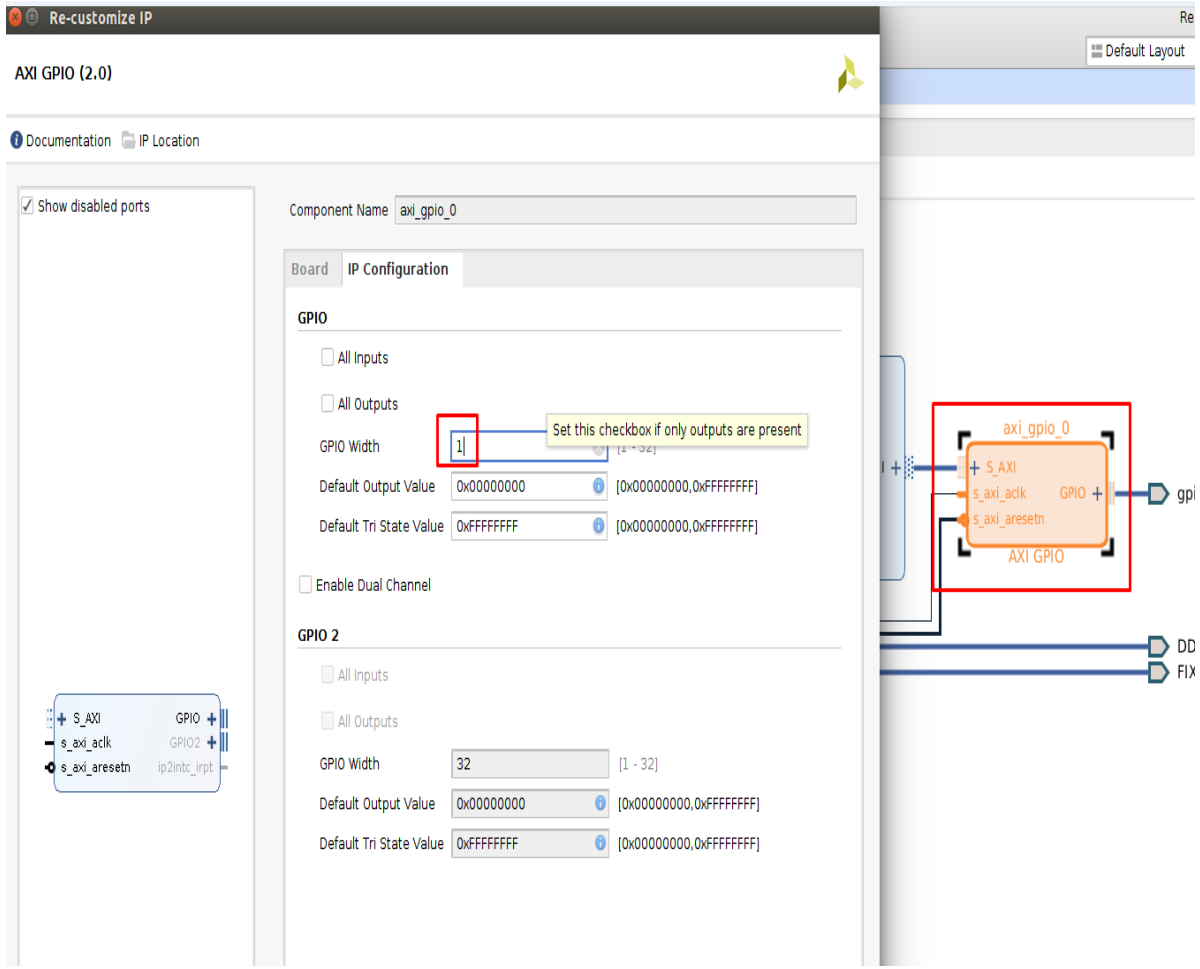

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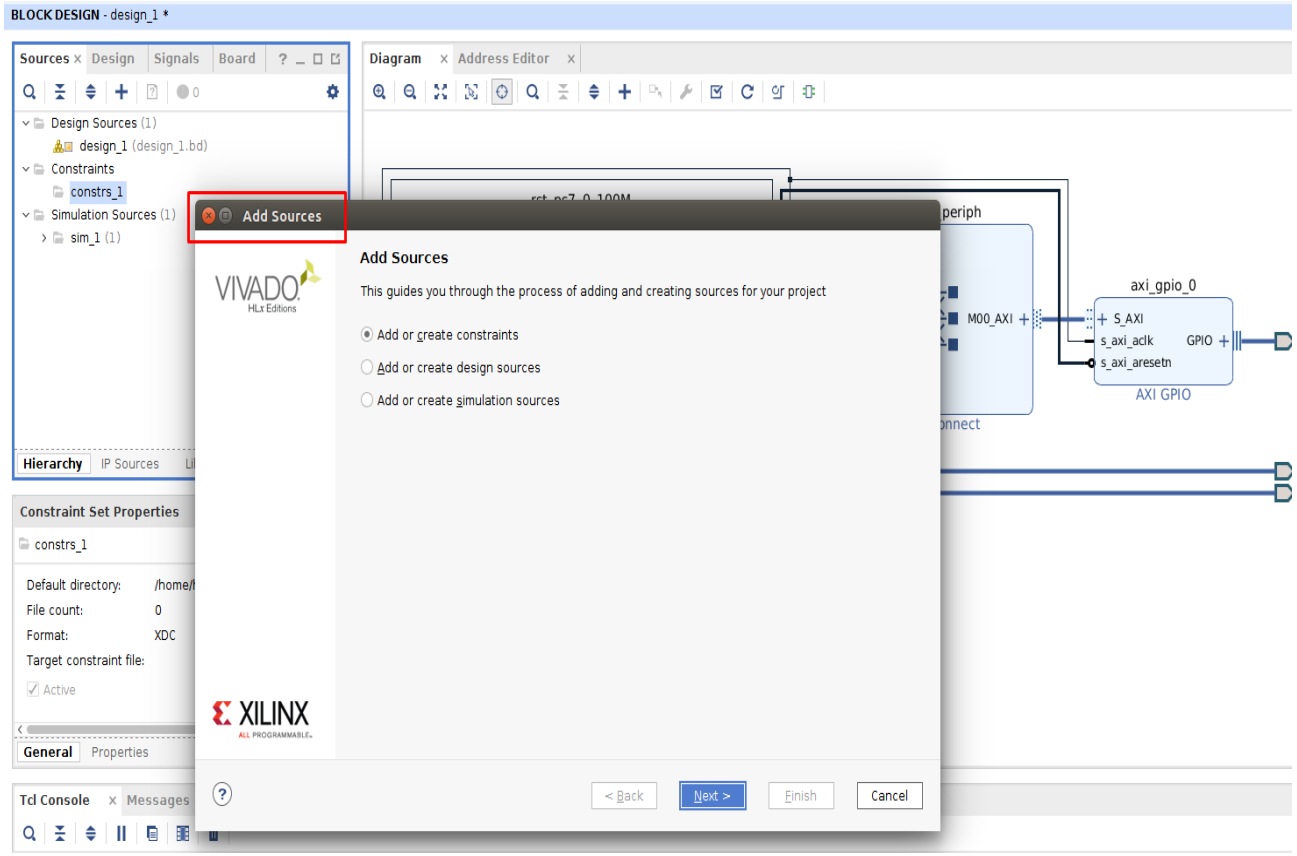

3) GPIO 회로 프로그래밍 Verilog 8

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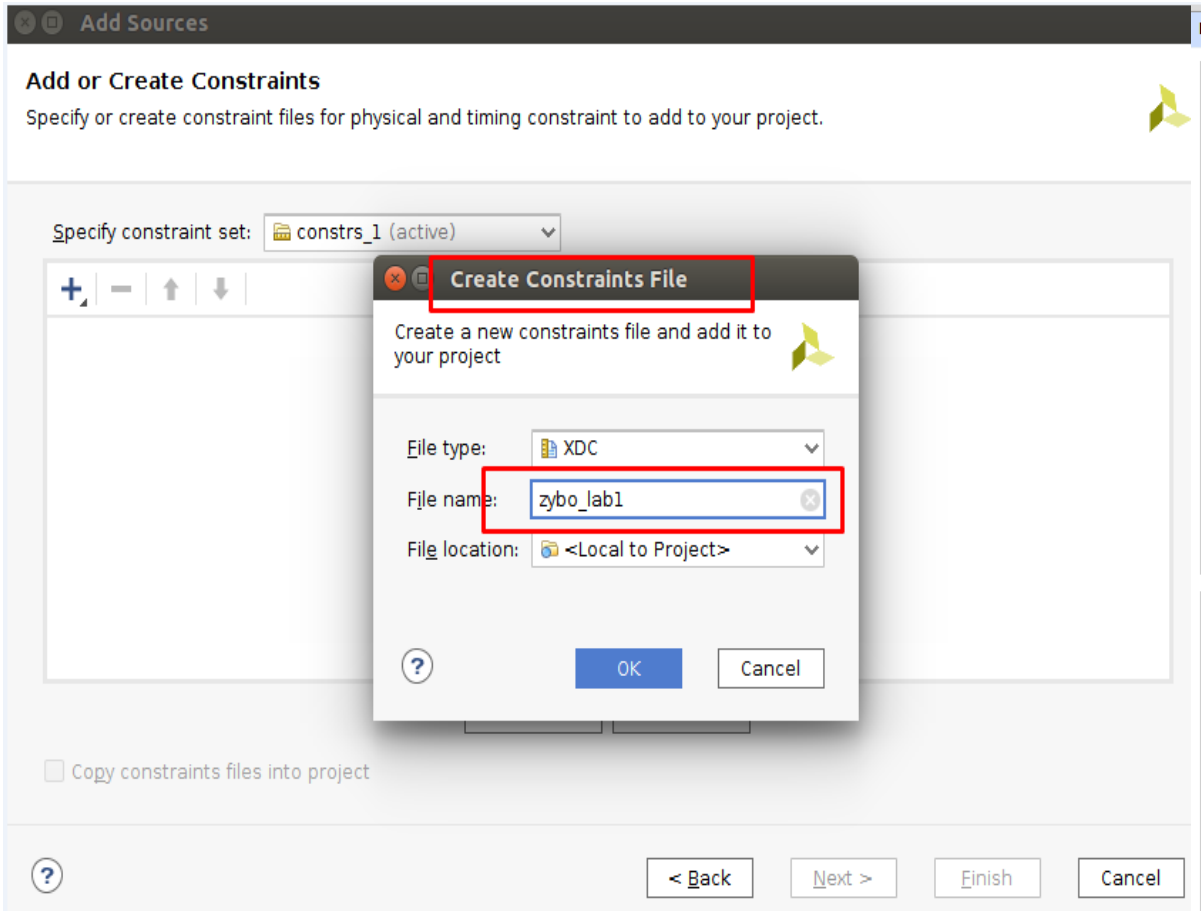

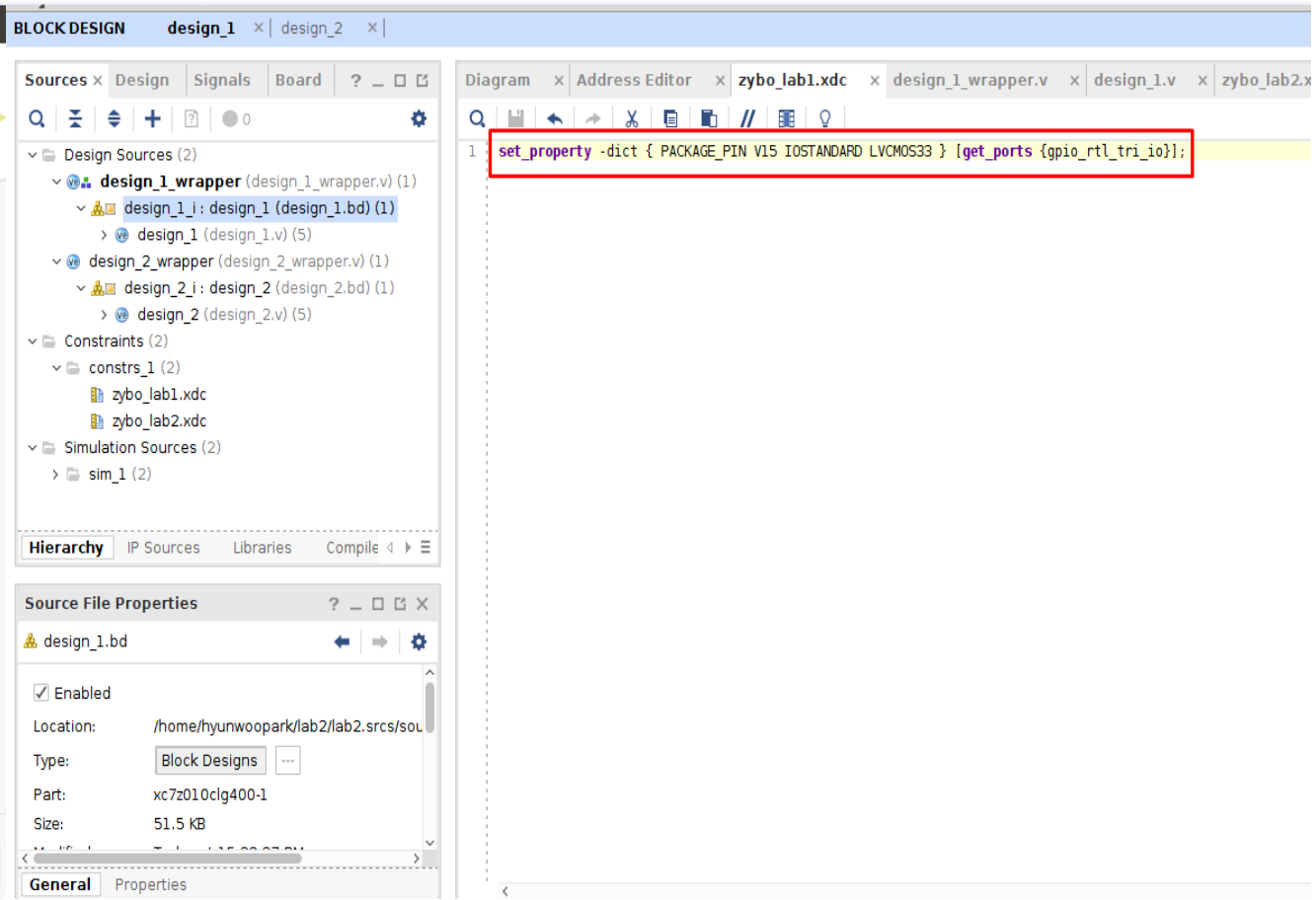

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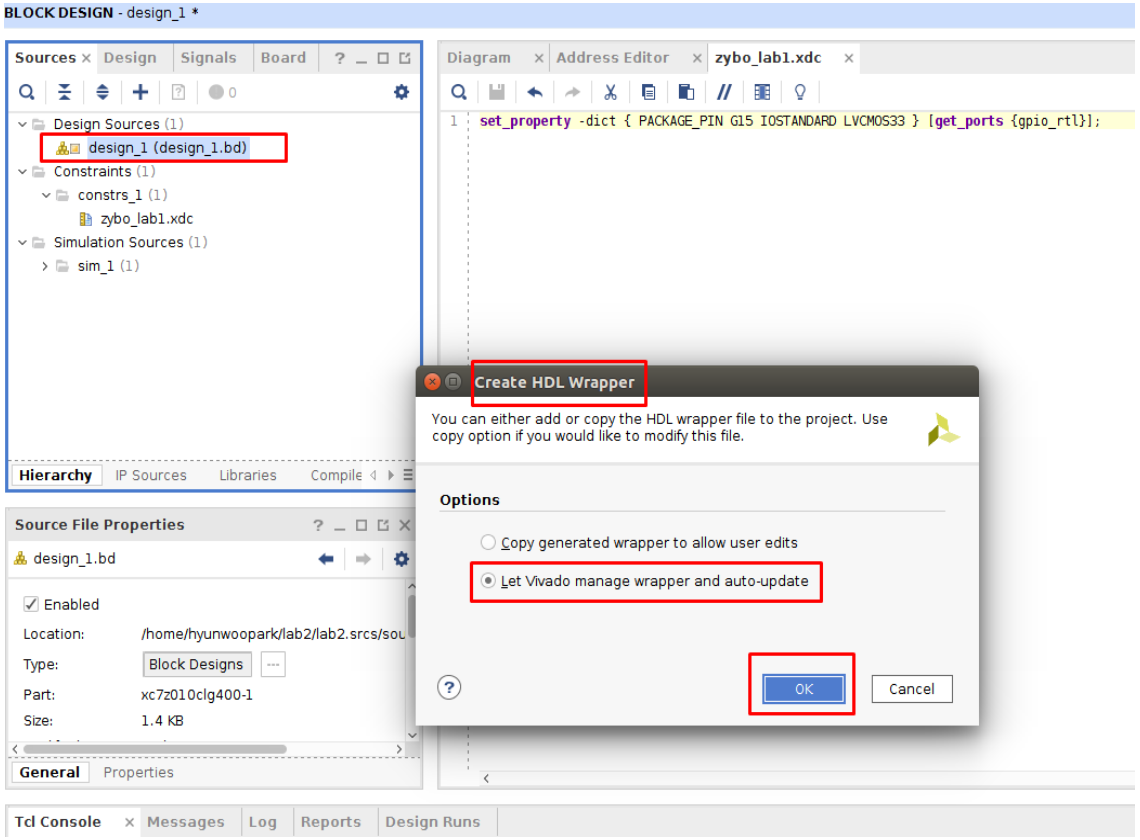

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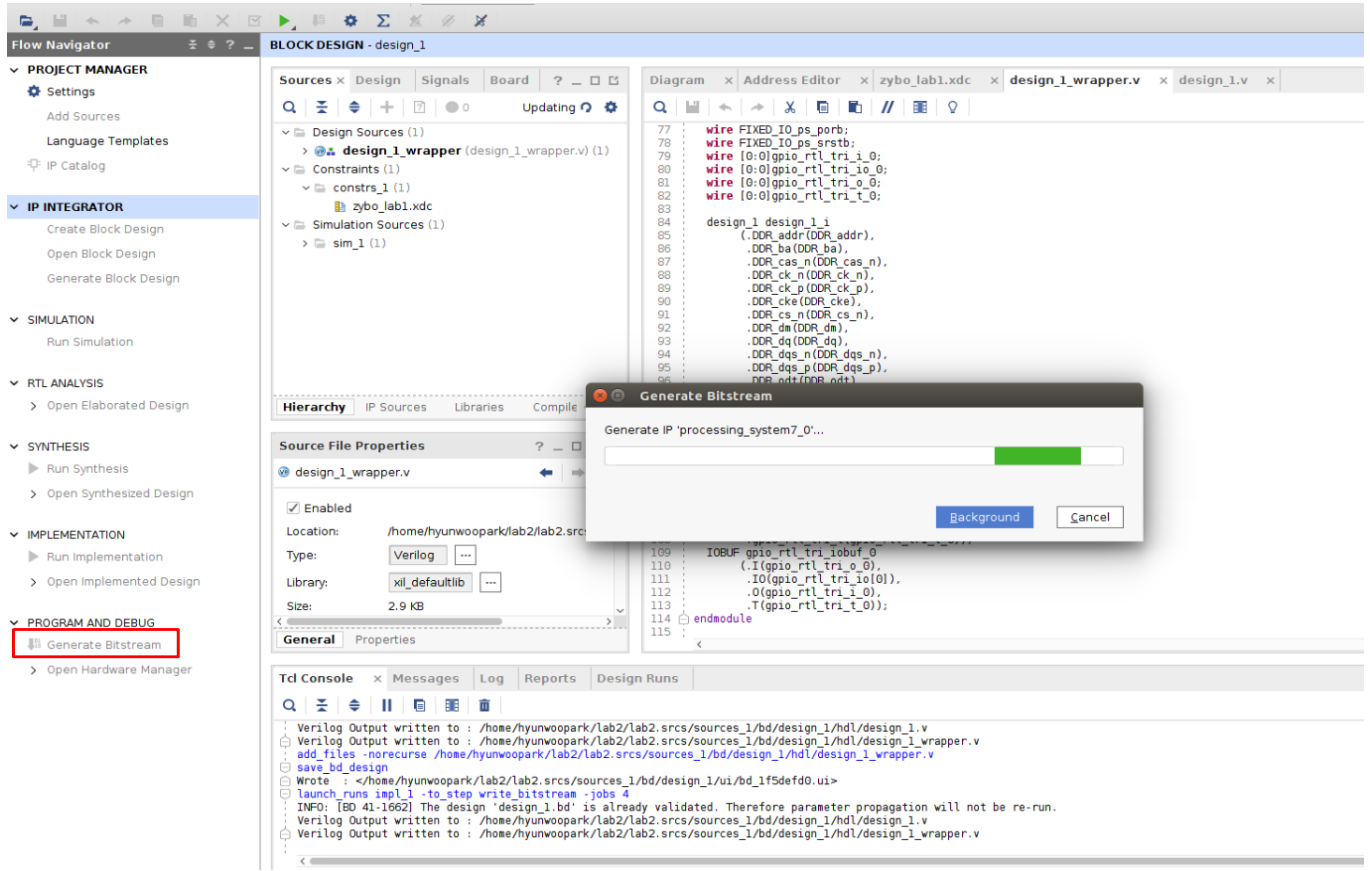

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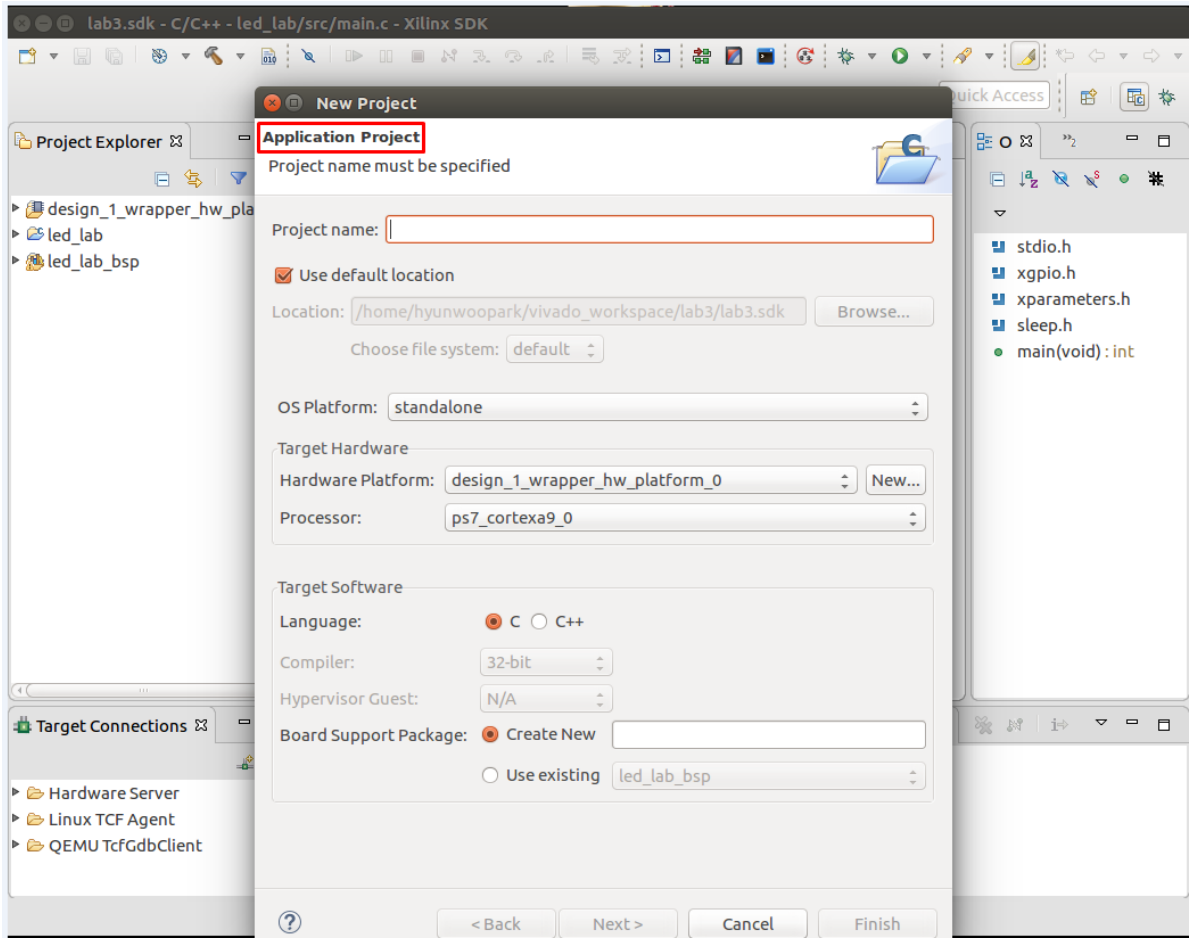

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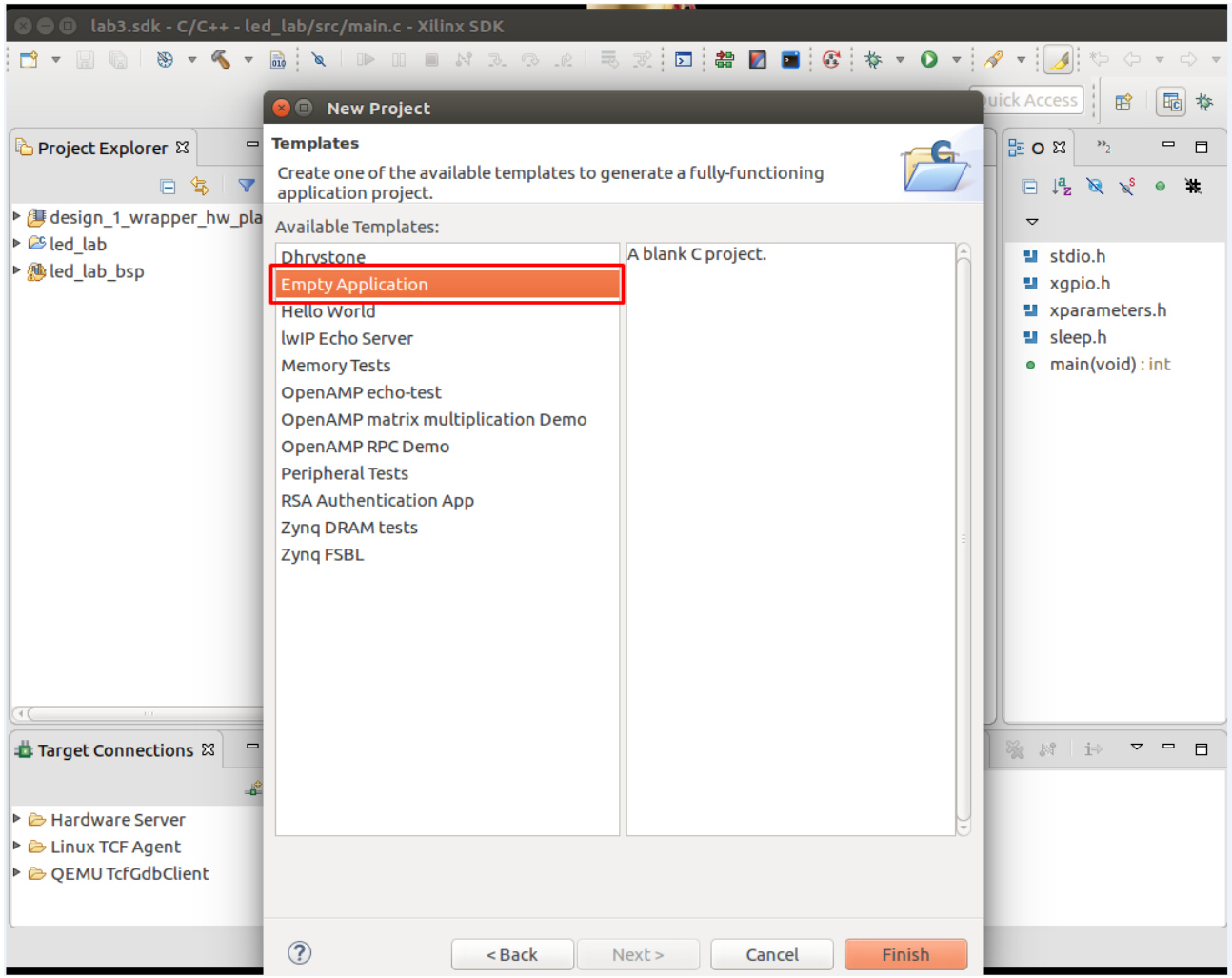

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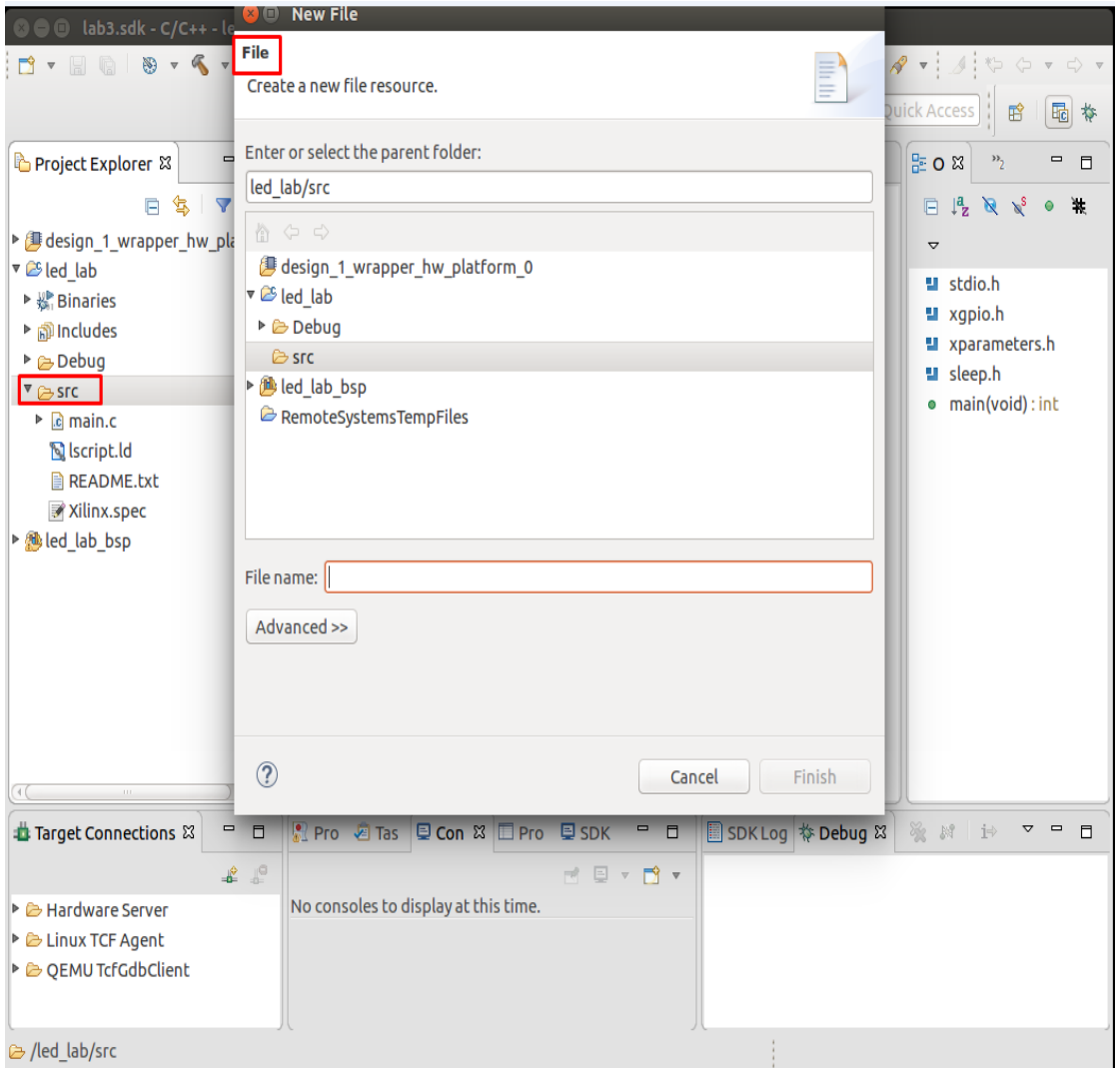

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