

## R7MK2/R7HEMK2 Firmware upgrade guide

**Upgrade tools:** Altera USB blaster ( For FPGA upgrade, shipping includes )

Xilinx USB blaster ( For CPLD upgrade, you need to buy it yourself )

You can search the keyword " Xilinx USB blaster" on ebay to buy one.

**Upgrade software:** Quartus II 12.1 or above version

Xilinx.ISE.Design.Suite.14.6 or above version

**FPGA update steps:**



### 10-pin UPDATE PORT:

To connect the Altera Blaster and proceed with an FPGA firmware update from Windows, using the Altera programming software. These updates are meant for upgrading the functionality and/or sound quality .

1, Update tool download (Thanks Headfi member "DACladder" support the download link.)

Altera 16.0 Programming SW. Choose Quartus 64 or 32-bit installation...

<https://onedrive.live.com/?id=636DC4E8060D66A1!321&cid=636DC4E8060D66A1>

2, When finished the Quartus II software install, don't open the Quartus II , connect the USB Blaster, the Windows request the driver install, select the driver to install .

If the Windows has not request the driver install, open the Windows device manager, pull off and push into the blaster , there will appear an unknown USB hardware, right click it and select the driver update, browse to below path.

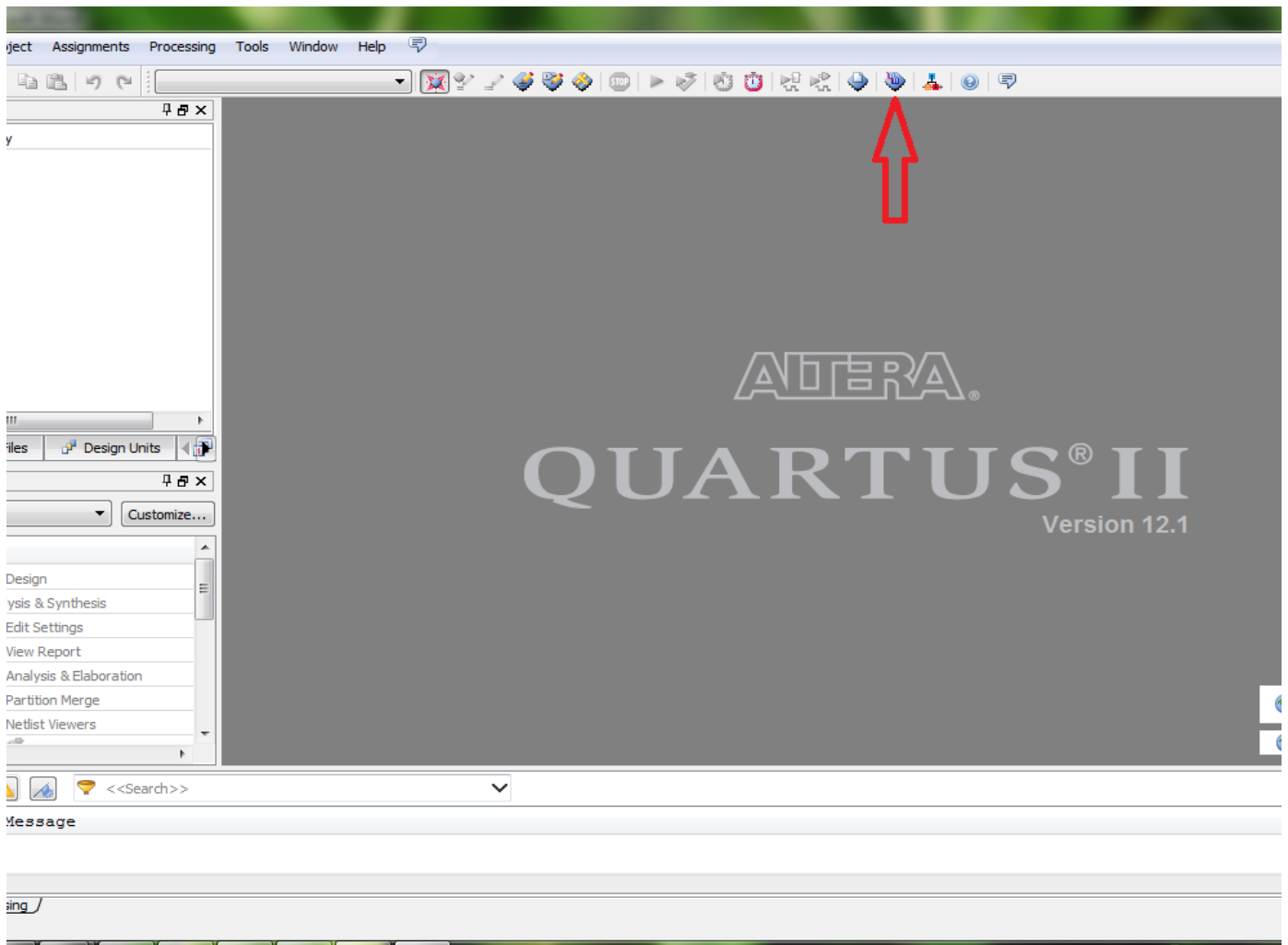
Driver browse path: C \ altera \ 12.1 \ quartus \ drivers

If you can not find the upon path, download the driver  
(Blaster driver.rar)

3, Power off the DAC, connect the USB Blaster to the DAC, then connect the USB Blaster to the computer . ( Be note : if the DAC had power on then connect the USB Blaster, you may damage the chip of the DAC and want to pay the charge to replace. )

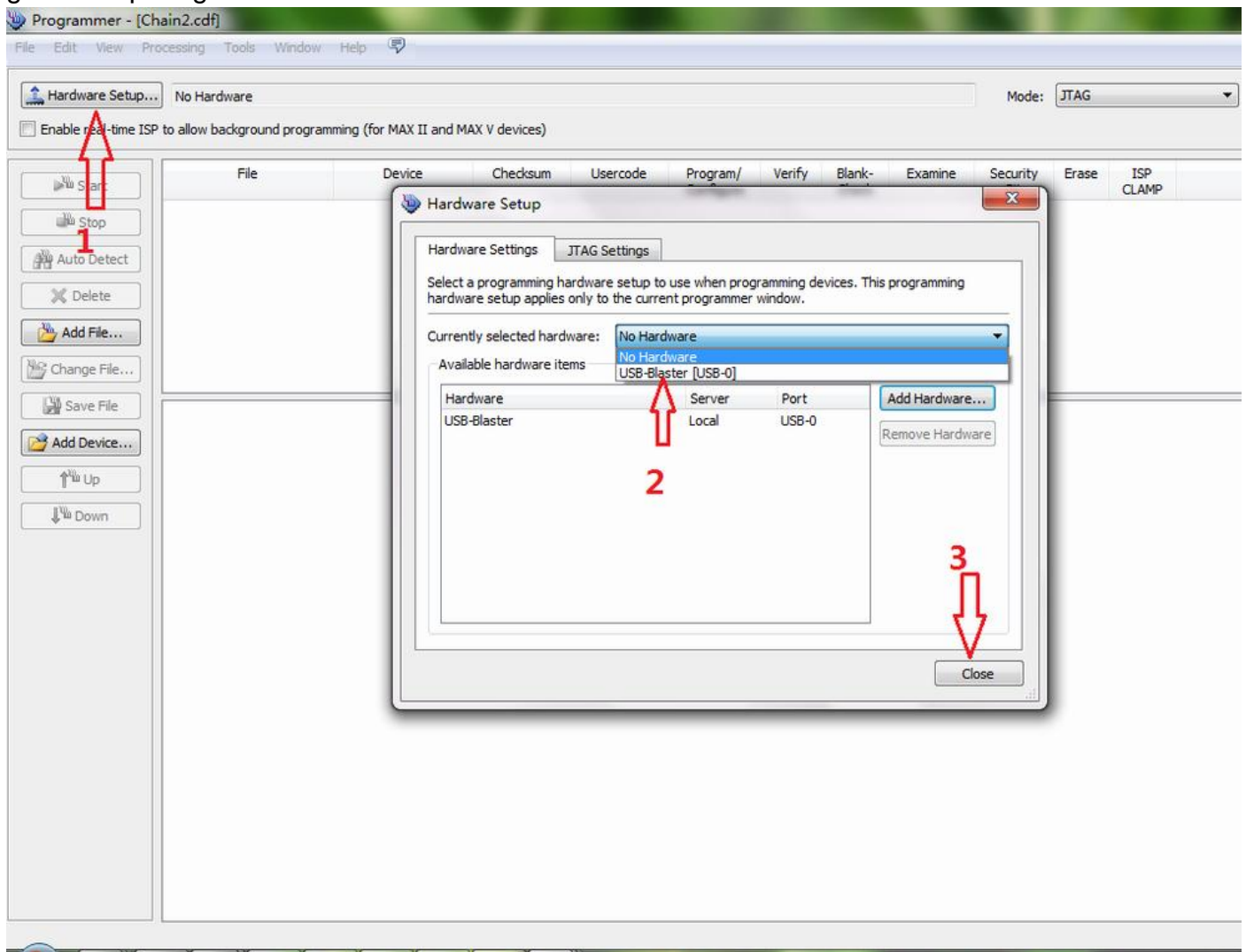
4, Power on the DAC, open the Quartus software , and select “Perform automatic web license retrieval “ then click “OK”. During update, you must keep your computer had the good web connect . If there is no option of “Perform automatic web license retrieval “, just running the software as below step.

5, Click the iron as below

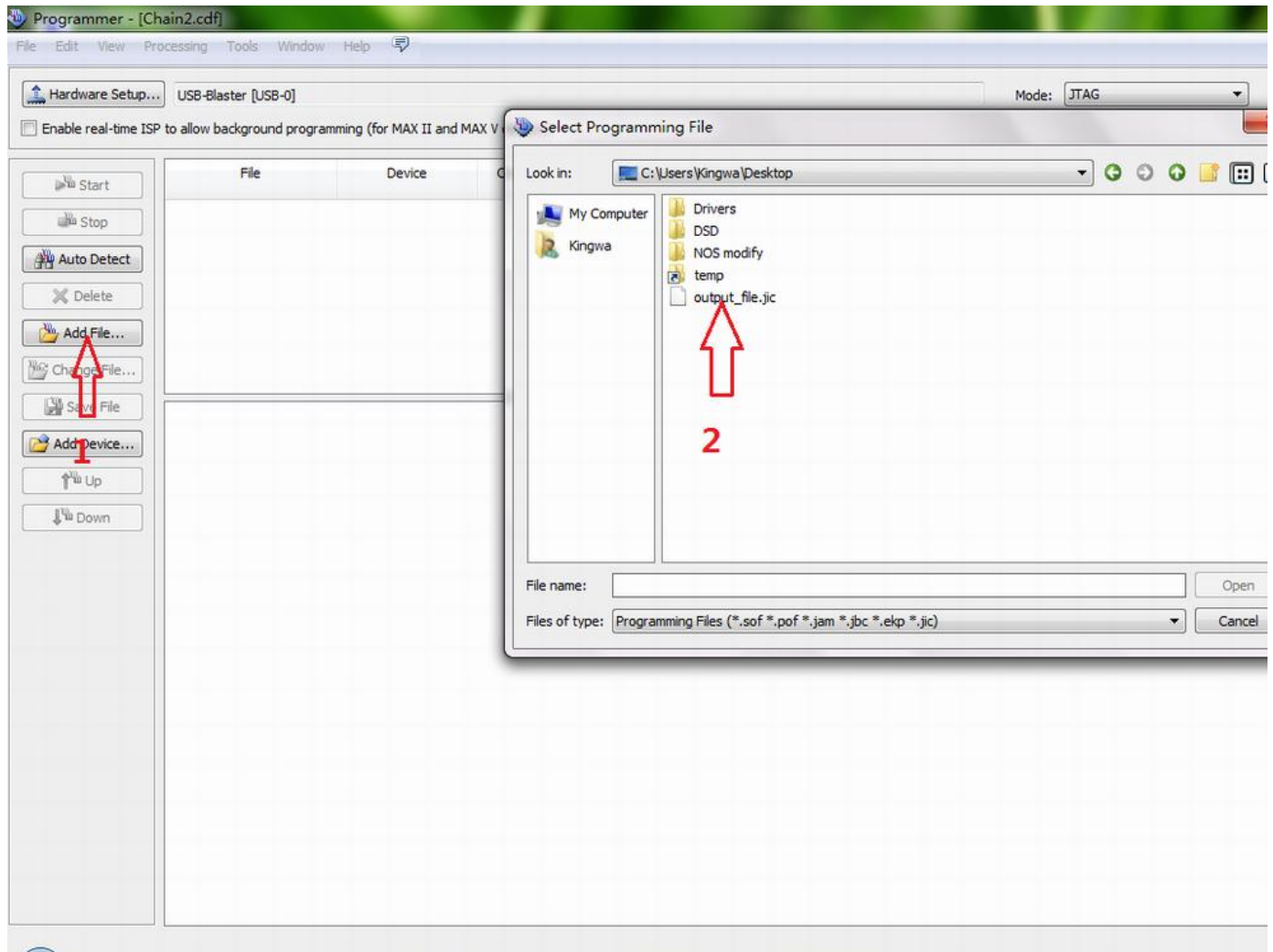


6, Follow the steps select as below . (If there is no USB -Blaster device show here,close the Hardware Setup window, pull off the USB cable from computer, then push into again, and operate

go to step 6 again.



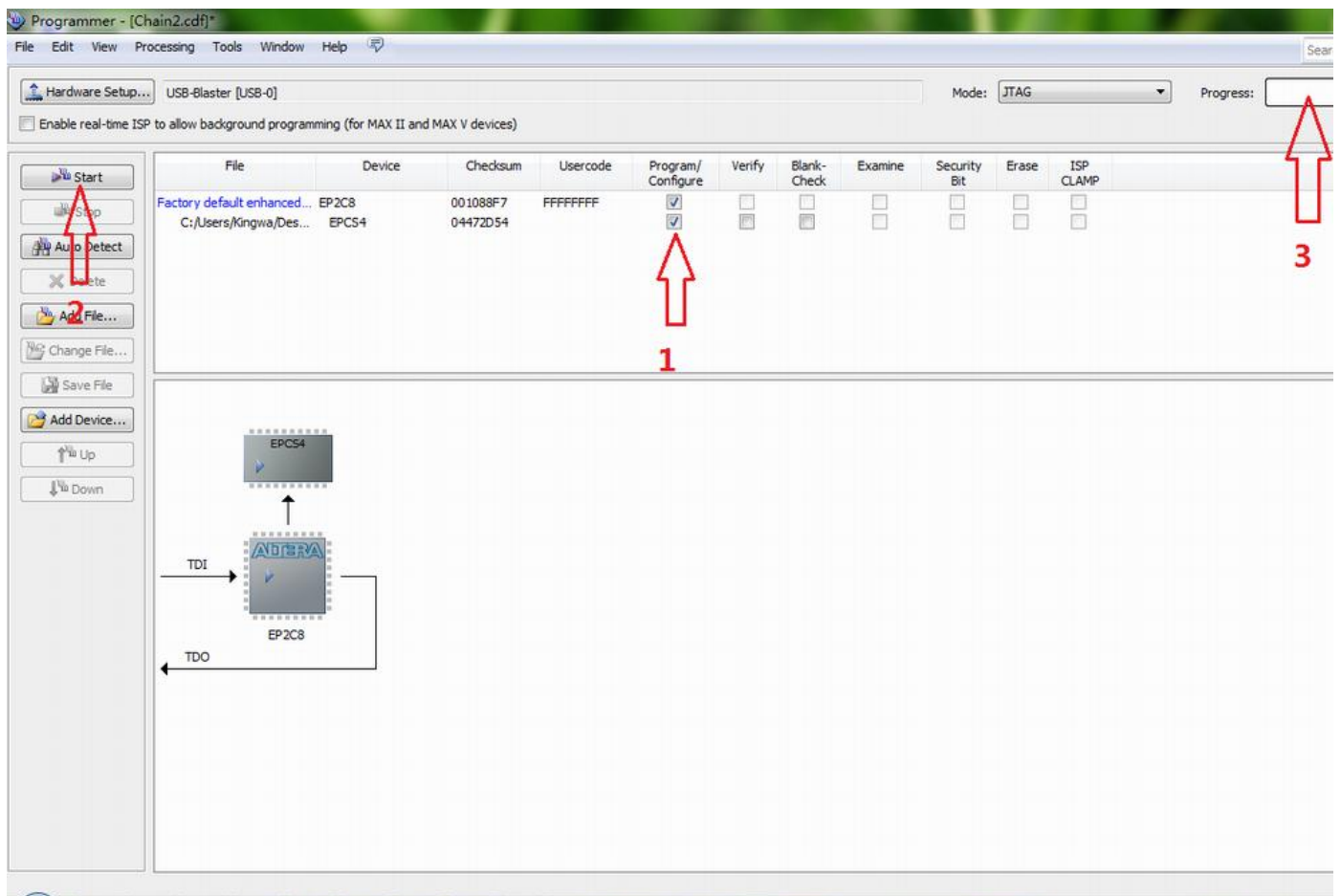
7, Follow the steps select **R7MK2\_PLL\_N.jic**.update firmware file as below .(Please note the firmware name may different to the picture .)



8, Follow the steps select as below , you can see the two chip diagrams in the bottom window, the chips should show their model name , like "EPCS4 and EP2C8 or EP4C10 " . (If the chips' name unshow , it most like the blaster output wires has bad connect, you had to power off the DAC, pull and push the blaster output wires , then power on the DAC)

Click "Start " and waiting one minute while the "Program" show "Succeed" . (If click the "Start " but show error message, pull off the USB cable of the blaster from the computer, and push into

again. If still can not work, go to step 6 check if the USB-Blaster device if still exist.)

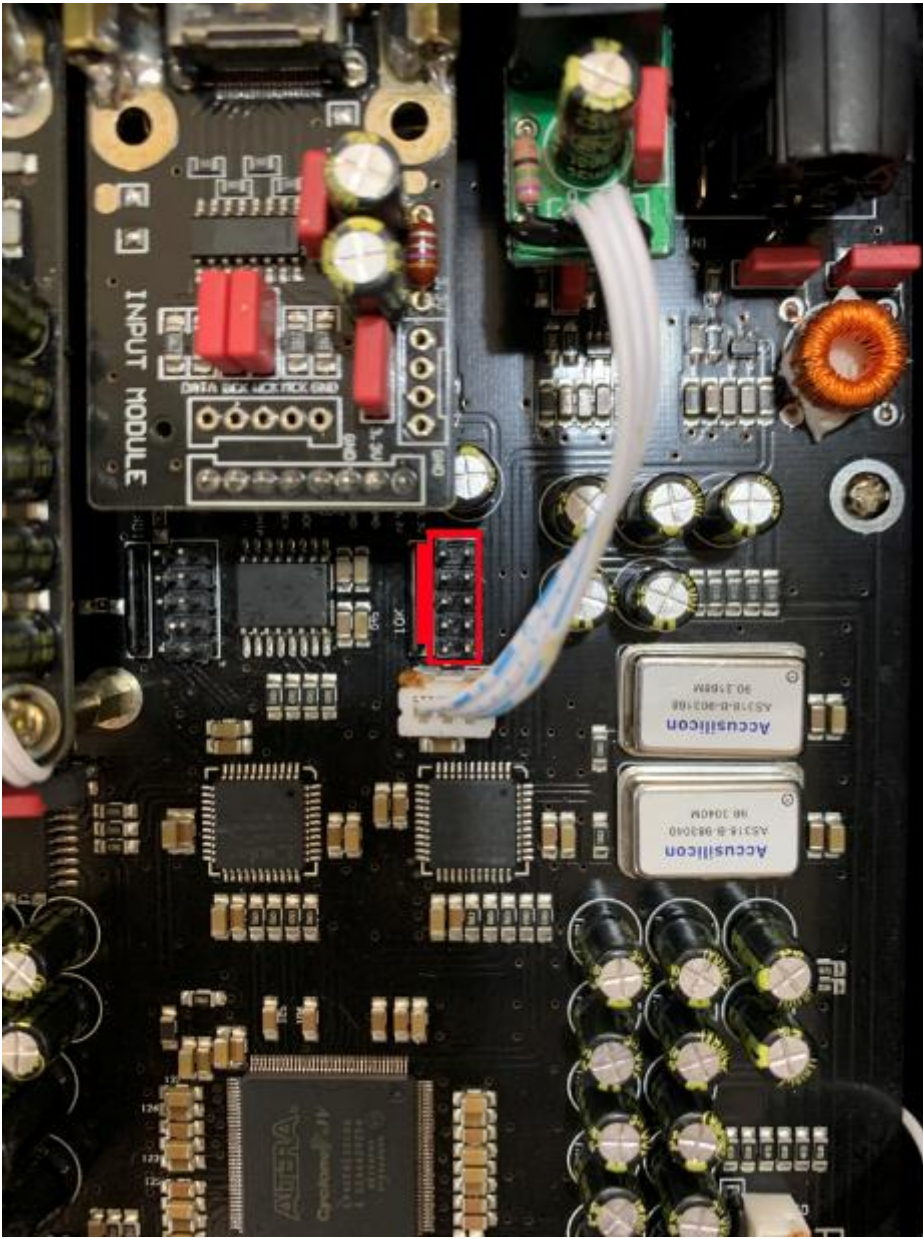


9, Power off the DAC, pull off the USB Blaster from the DAC, then pull off the connect from the computer.

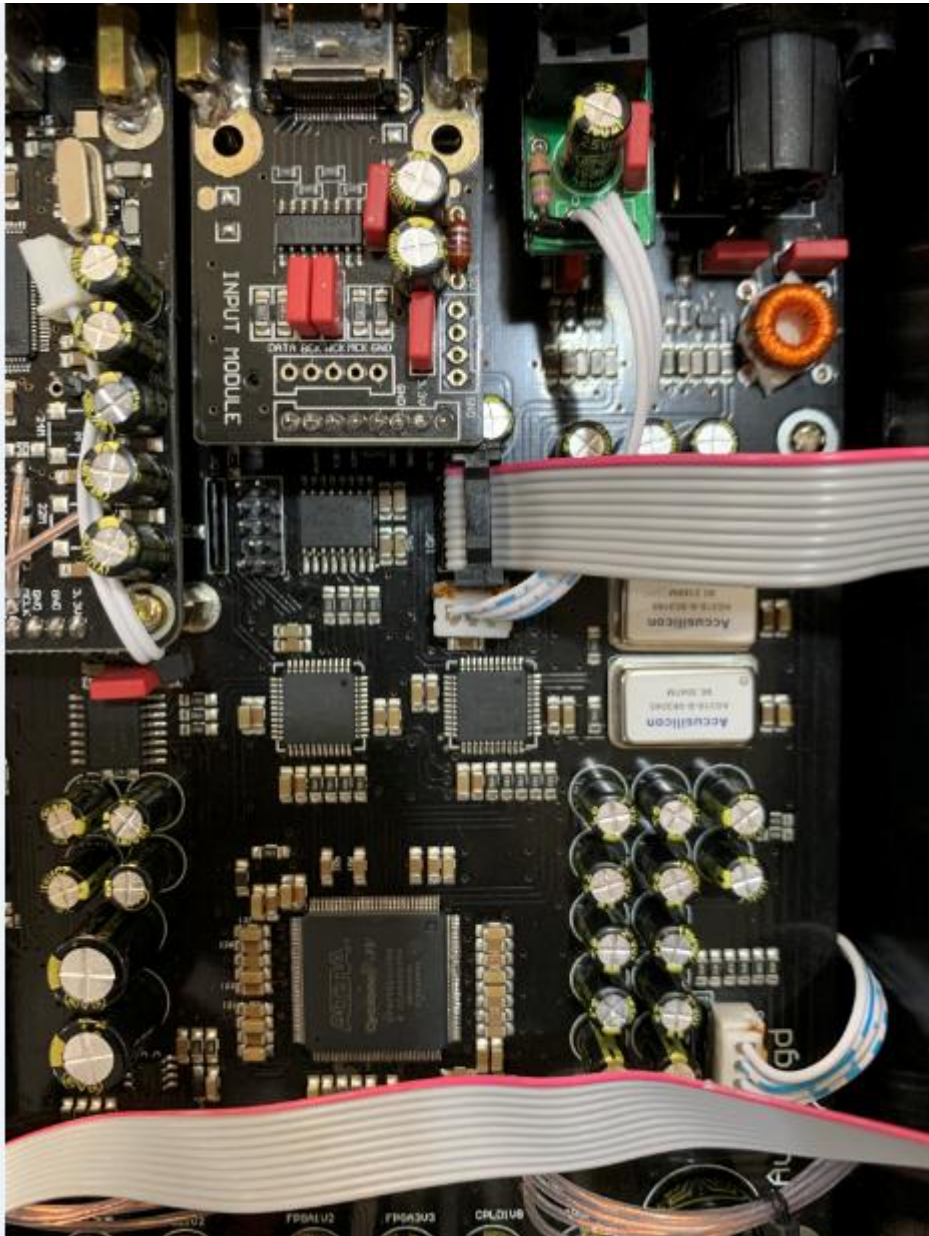
The update is finished.

If the update cause the sound with noise or distortion, connect the blaster and update again.

**CPLD update steps:**







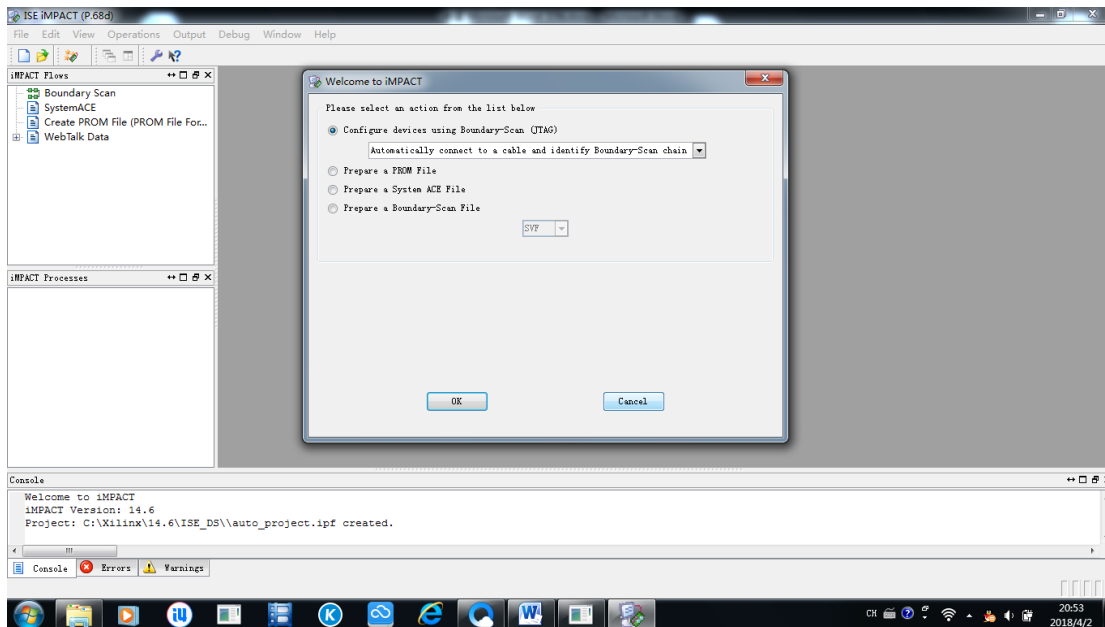
To connect the Xilinx Blaster and proceed with an Xilinx firmware update from Windows, using the Xilinx.ISE.Design.Suite 14.6 software. These updates are meant for upgrading the functionality and/or sound quality .

1. After installing the Xilinx.ISE.Design.Suite.14.6 software, open the "Impact"

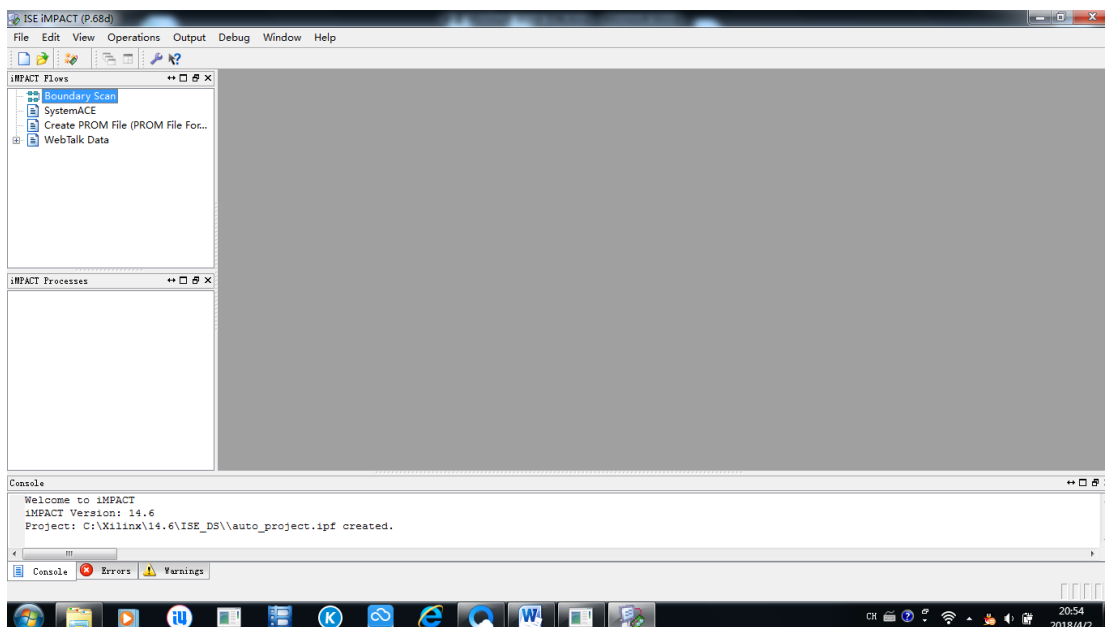


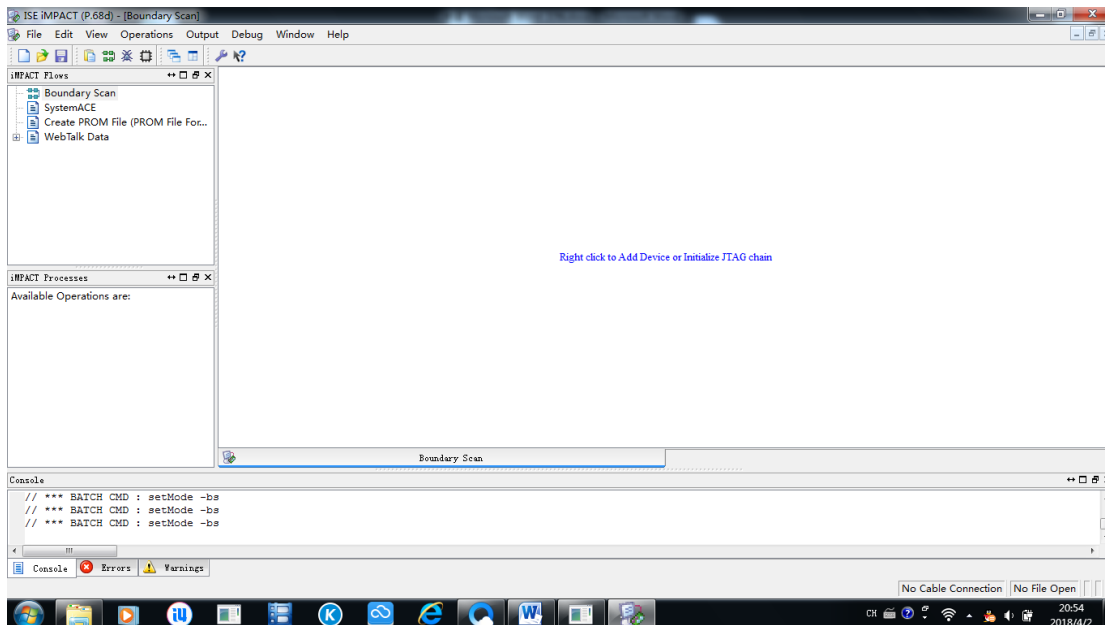


2. After opening the software, the following dialog box will pop up: click Cancel

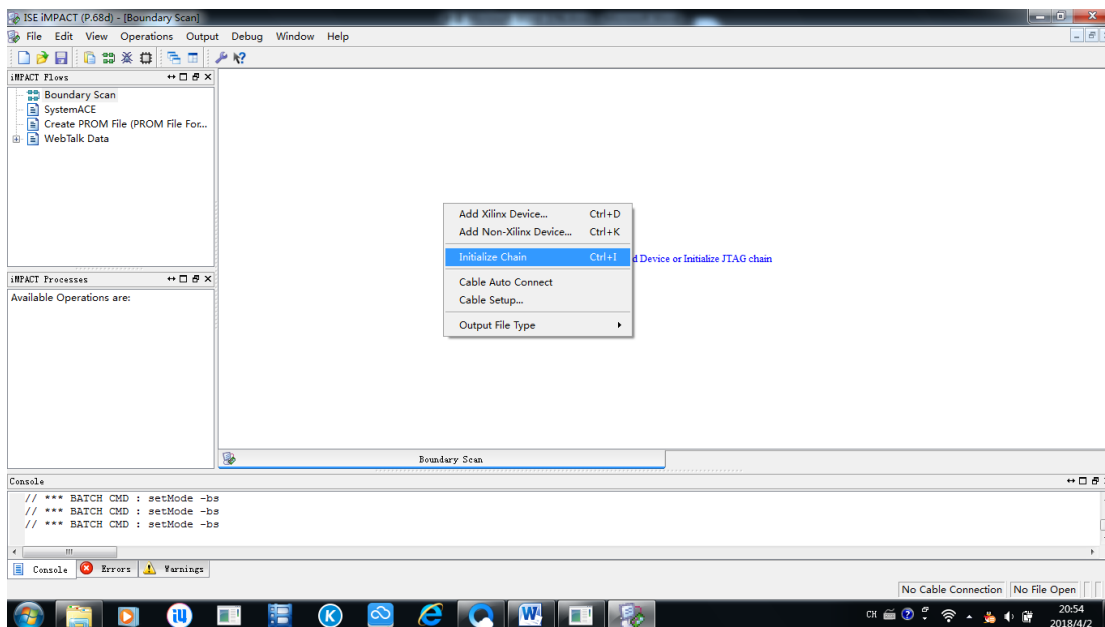


### 3. The left key double clicking the upper left corner Icon : Boundary Scan

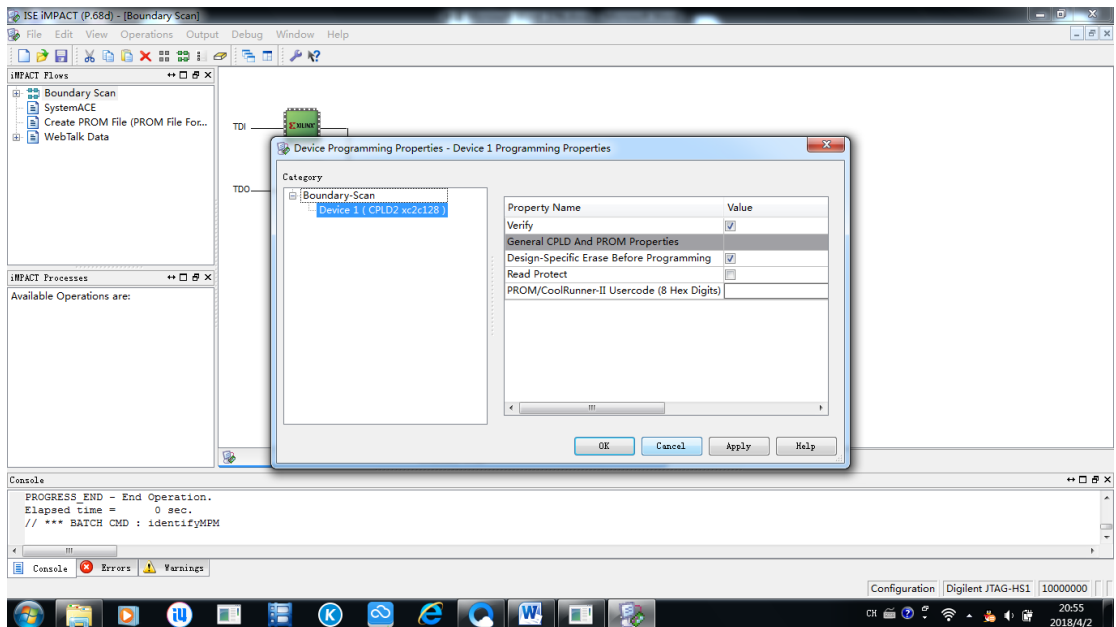




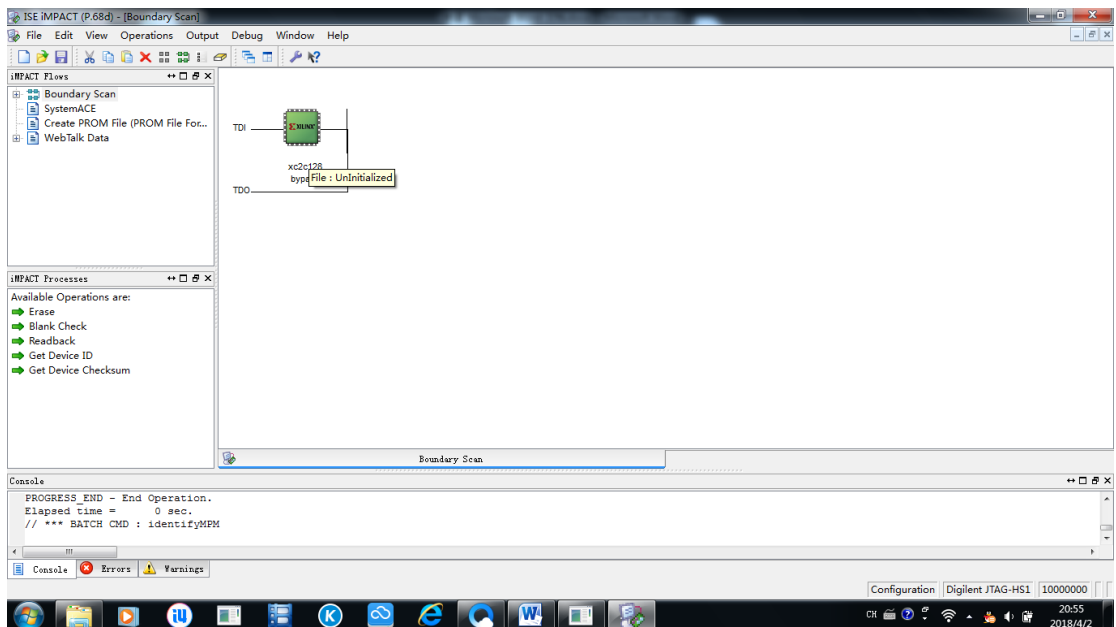
4. The right button in the right button selects third options

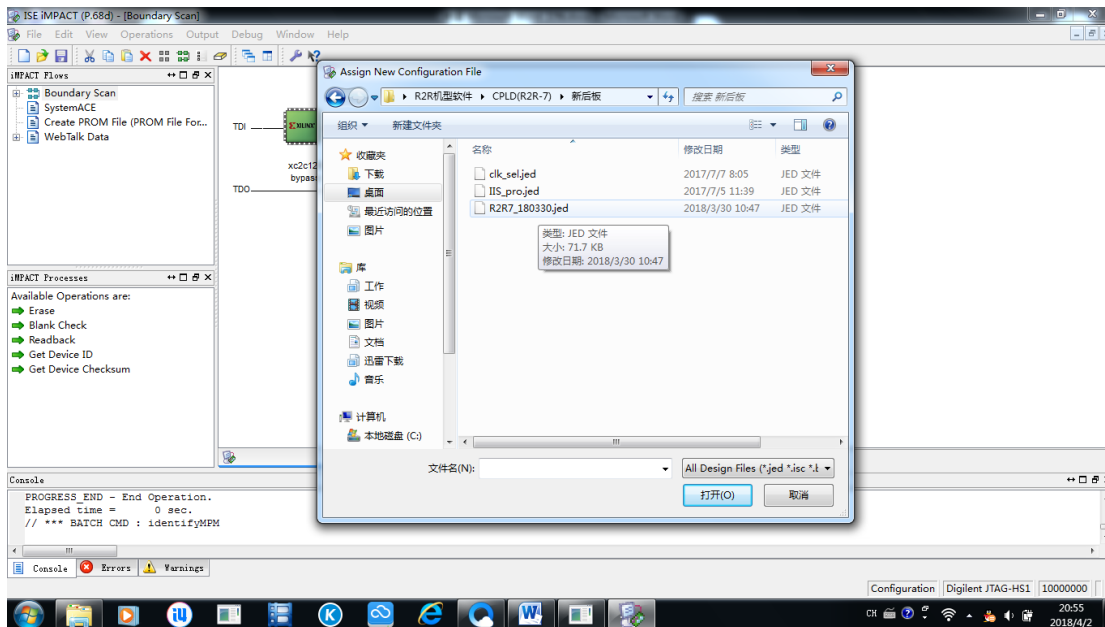


5. Then close the pop-up settings page

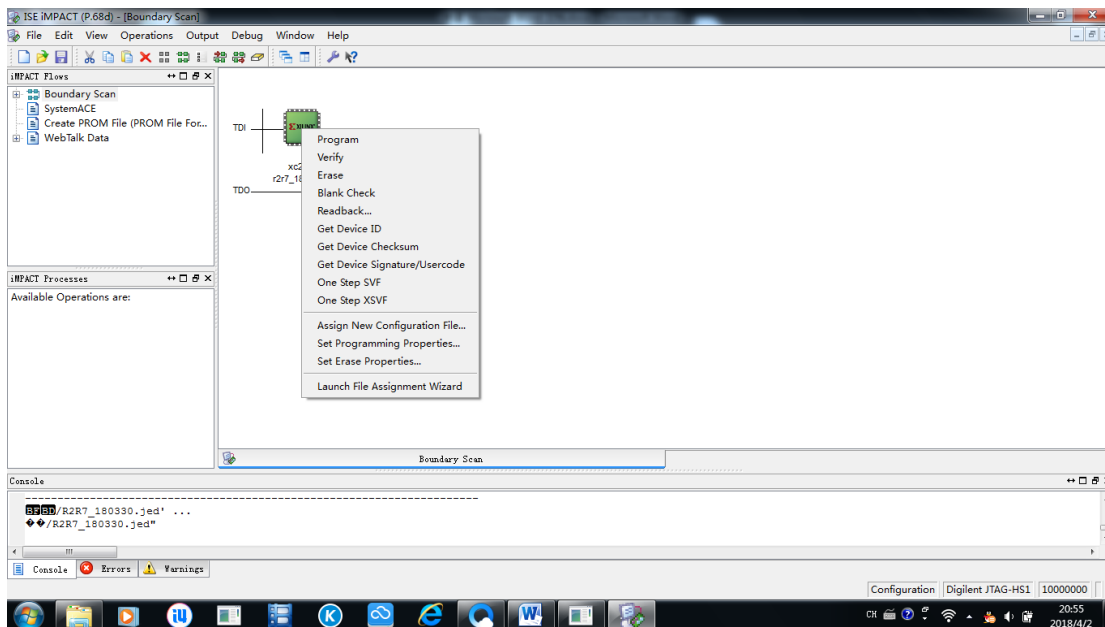


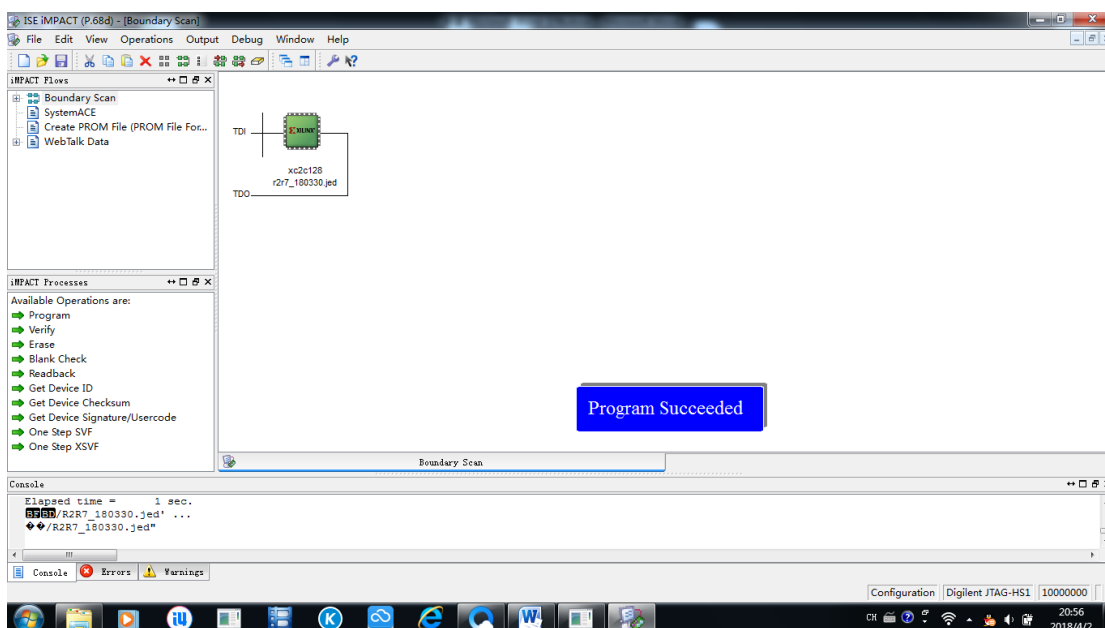
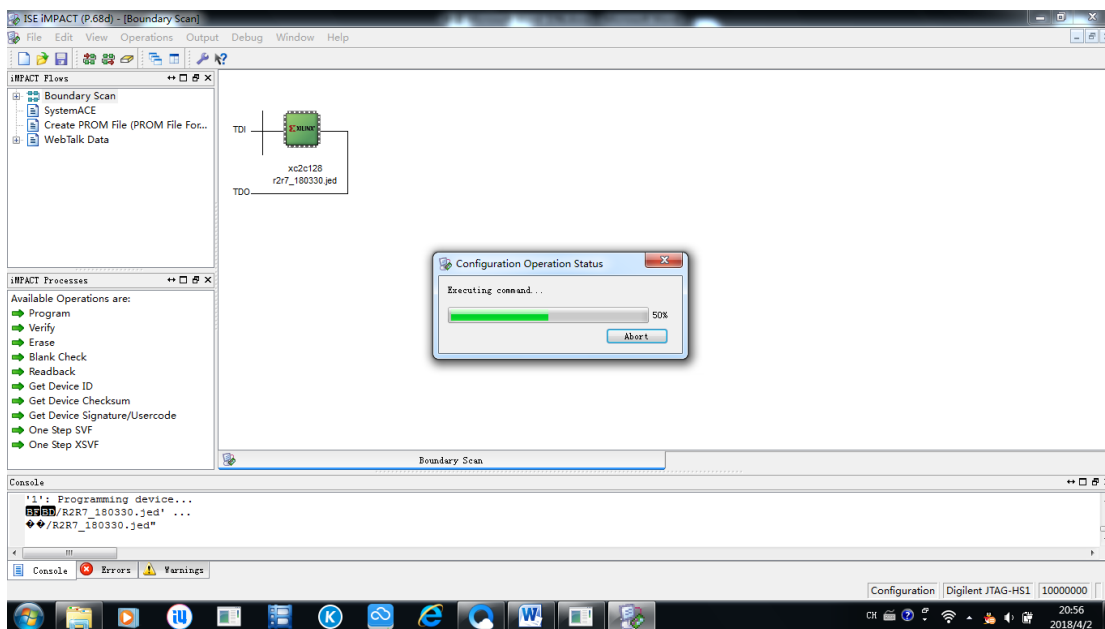
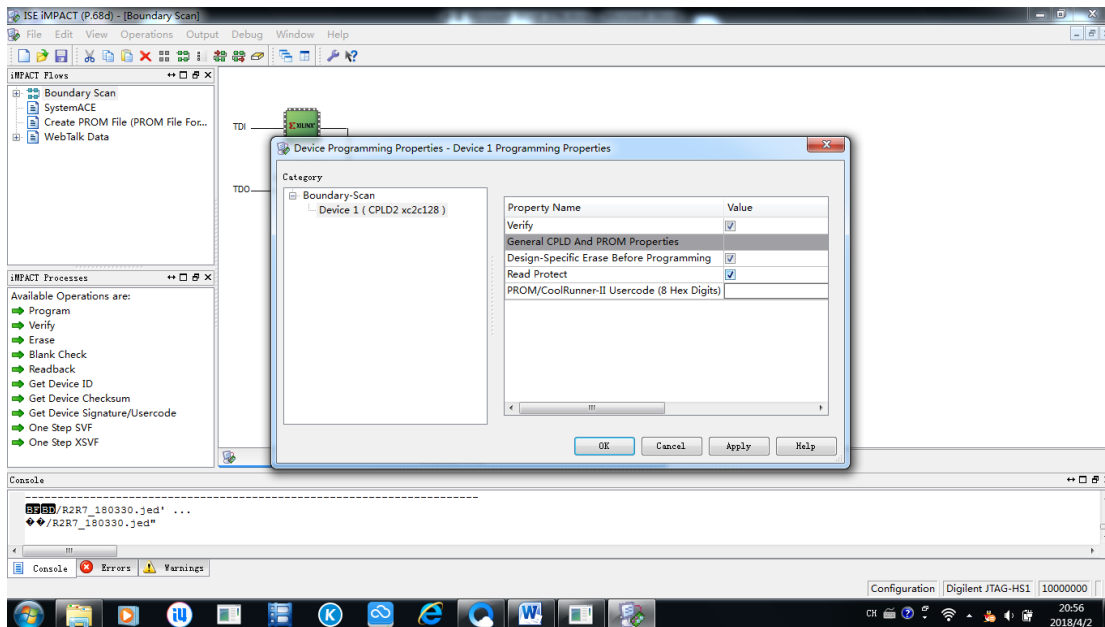
6. The left key double click green IC to select the write program **clk\_sel\_R7MK2\_PLL\_N.jed**





7. Then click the right mouse button to select Program, and select third read protect,clickOK





8. After update the program, you can turn off the DAC and pull out the USB blaster.