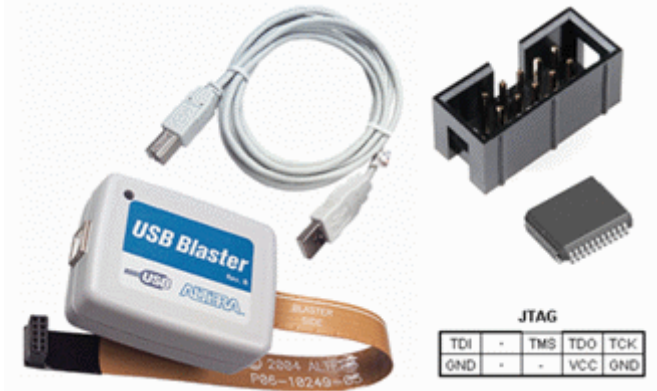


Chip-programing with Quartus

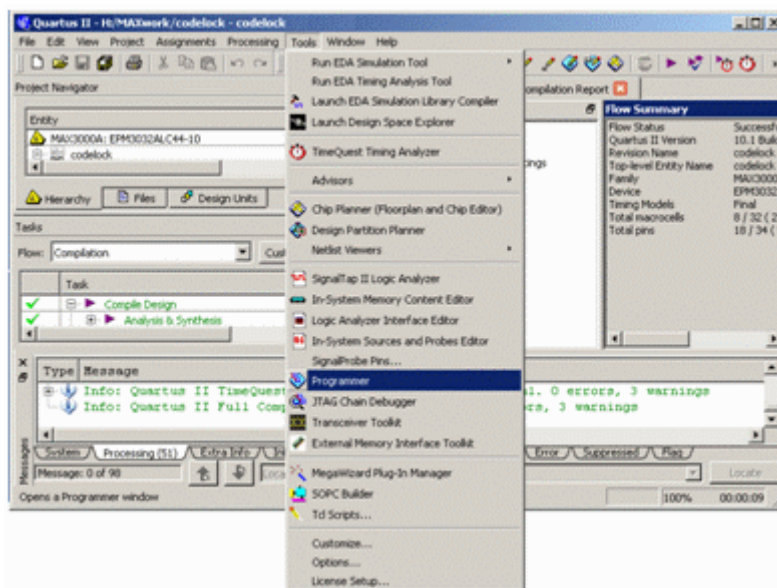
Choose chip programming equipment - USB-Blaster



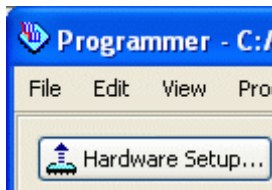
Connect the USB blaster to your computer. Connect the USB Blaster JTAG connector to lab equipment. Note! The lab equipment's voltage shall be off when plugging in or unplugging the JTAG connector. Lab equipment's voltage must be turned on when you program the chip - USB power alone is not enough for this.



From within Quartus, select the menu item **Tools** and **Programmer**, or you clic the icon Programmer.

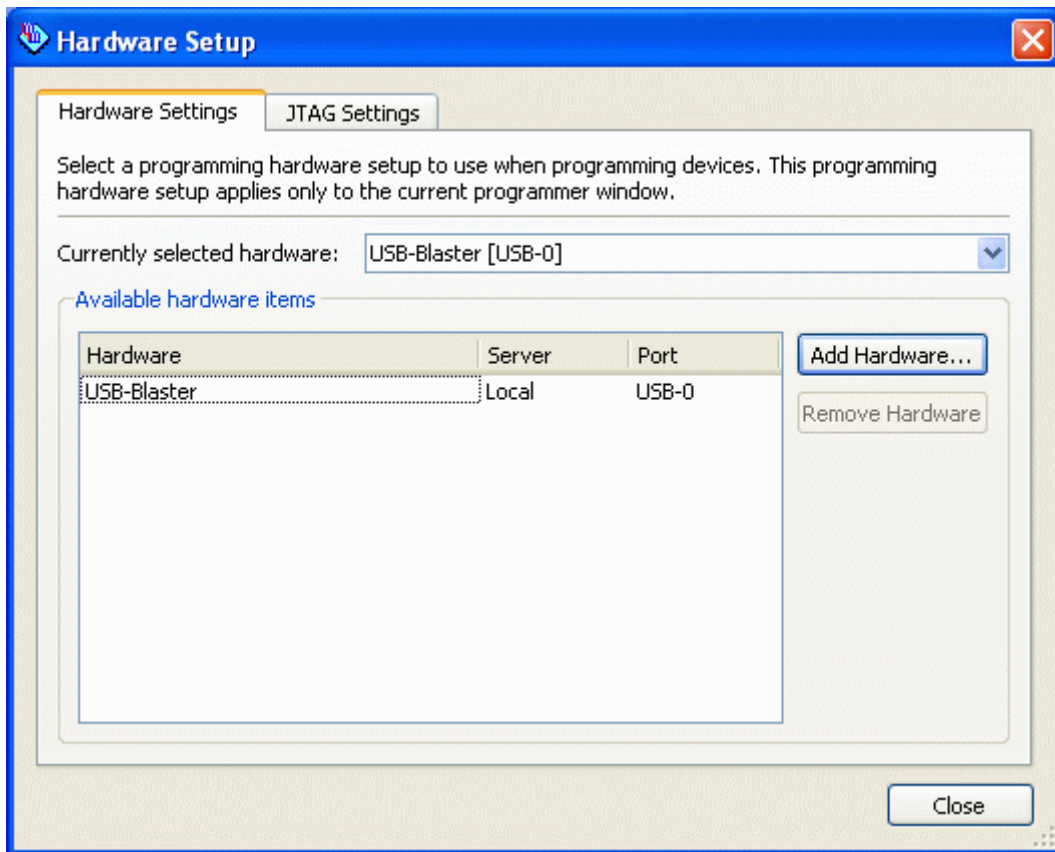


In the window **Programmer** you clic on **Hardware Setup** in order to select the USB blaster as the programming equipment. (The computer then remembers this setting)

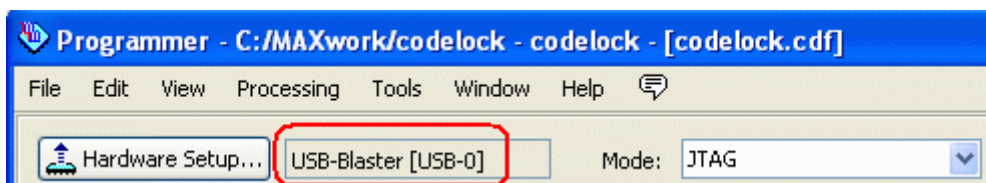


In the window **Hardware Setup** there is a list of "Available hardware items". There stands USB blaster. (If not then you may have forgotten to plug it?) Select USB-blaster and clic on **Add Hardware**.

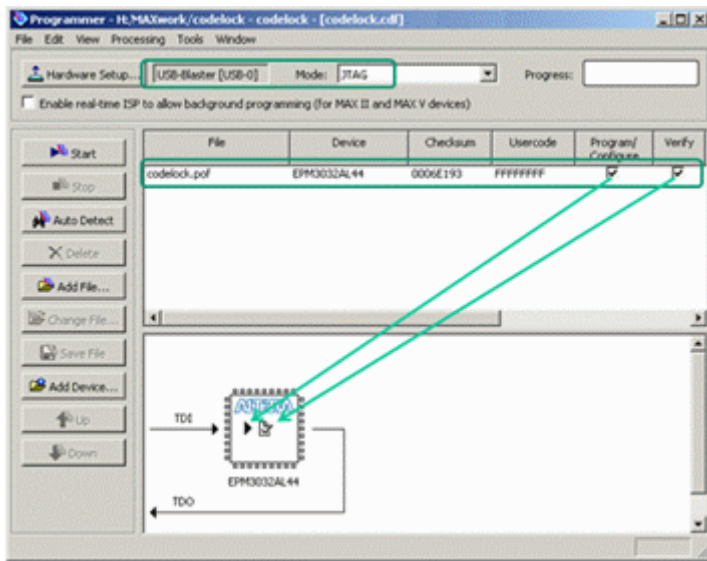
Now the USB-blast should be your "Currently selected hardware". click on **Close**. Quartus will remember your choice, so probably you do not need to repeat this one more time.



In the window **Programmer** you can see what hardware (chip) that is selected.



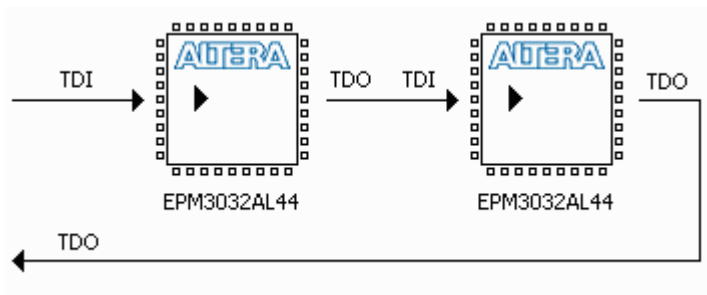
Download the code to the chip



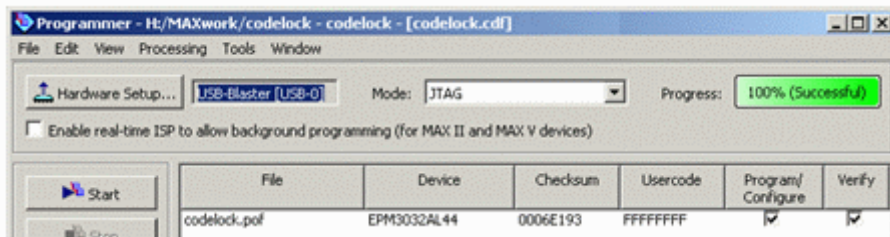
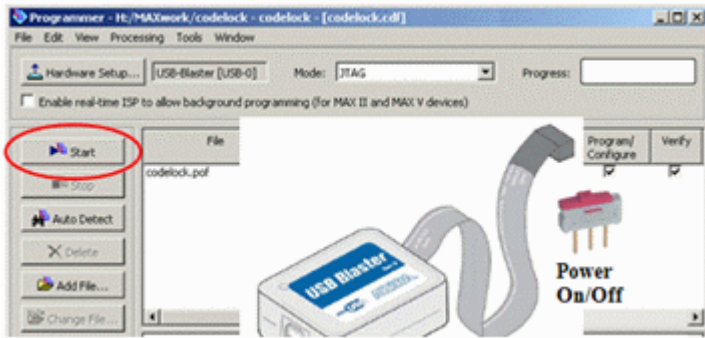
The compiled program is in a *.pof-file. Browse to it with **Add File ...** (it is probably in a subfolder `output_files`) and choose the file.
The compiled project name is now in the box **File**.

Check **Program/Configure** and **Verify**. In the picture with the chip there is now emerging symbols of your choices.

It is possible to program many chips in the same equipment. The picture then shows a daisy chain of the chips that can be programmed, one at a time with different code.



We only have one chip, and you start programming by clicking on the **Start** button.
Attention! Do not forget that the power to the lab card should be on during programming!



Try twice if it does not work - then contact the lab assistant.
The most common problem is a bad battery.

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