Preparations and Precautions

1. Student Development Board power supply (5V power supply, USB power supply)

   After the development board is in hand, you can power it up and try it out. There are two ways to power the development board: USB power supply or 5V power adapter power supply. Only one of the two power supply methods can be used.

   Note that the blue and white button in the picture below is the main switch of the power supply of the whole board. When the power is turned on, the power indicator D1 lights up on the development board. If there is a running program, you can see the running result.

   Press switch K: USB power supply ;
   Lift the switch K: external 5V power adapter for power supply

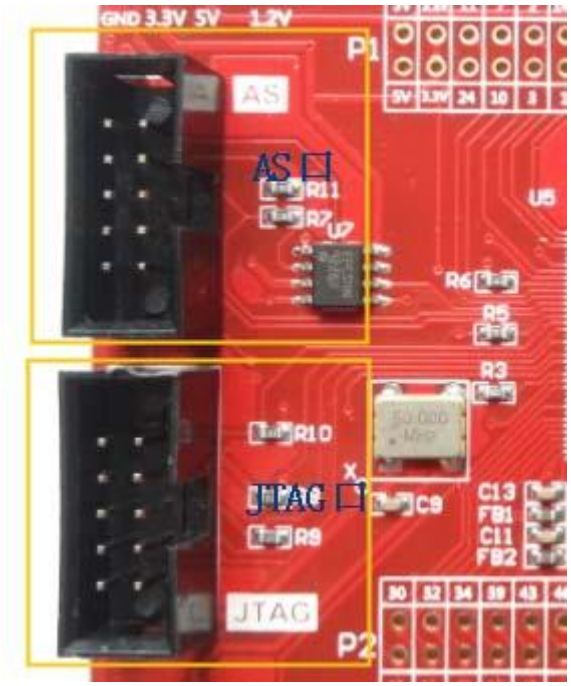
   The default standard configuration of the student aid board provides a USB cable. You can directly use it as a power supply for the development board. Plug one end of the USB cable into the computer USB interface and the other end into the square port USB of the student aid board.
   If you use other power supplies, please confirm whether the output voltage is 5V to avoid damage to the development board due to different voltages!

2. Safe plug-in and unplugging of JTAG and AS

The development board has JTAG and AS download interfaces, and it is strictly forbidden to un-plug and plug-in JTAG and AS download cables with live power! A live operation can easily cause fatal damage to part of the circuit of the internal configuration of the FPGA chip, and it cannot be repaired after damage! Moreover, the main chip is the most easily damaged, and there is no warranty. Please remember that you must power off when plugging in and unplugging the download cable!

Here are a few more wordy words: ”Don’t say that we didn’t remind everyone. Since we mentioned it, please respect it strictly. This is for your benefit. Don’t do anything improper. If the development board is damaged due to misoperation, we will not be responsible for maintenance.”

When debugging normally, it is recommended that you use the JTAG download socket, as shown in the figure below.



3. Software and environment

Altera's software version is constantly being upgraded. At present, we recommend using Quartus II 11.0. This version of the software has been used, and believes that all functions are the best, and it supports Chinese annotations (this feature is very convenient for beginners). A software installation package is included on the CD. The versions of Quartus II software and NIOS software must be the same and installed in the same directory. There should be no Chinese or Spaces in the installation directory. For details, please refer to the installation instructions in the following sections.

There are detailed step-by-step instructions later regarding the installation and cracking of Quartus II software. Please read patiently and follow the instructions carefully. Don't take it for granted. At present, it has been found that many customers have received development boards. The most complicated thing is the installation and cracking of the software. The manual provides detailed instructions for installation, but some people just don't want to read it. They are messing around there by themselves, so the software is not installed well, and the cracking is unsuccessful. It should be emphasized here that beginners still follow the instructions carefully. Installation and cracking are not technical activities, and there is no technical content. If you follow the instructions on the document and operate carefully, you will be able to succeed.

4. Please set the unused IO of the project to three states

For any program (including those written by yourself, given by others, or downloaded from the Internet), please set the undetermined pin to a tri-state input (as input tri-state)

How to set unused pins to tri-state?

Quartus → Menu Assignments → Device → Device and Pin Options → Unused Pins → Reserve All Unused Pins change to As Input Tri-Stated

Make a habit before downloading each routine. First, check if the settings are correct, if not, change it and recompile. If the program is downloaded and the digital tube and LED lights are lit up randomly, it must be that it is not set up. Please follow the above changes and recompile!

5. Please take care of your development board

   Any fault of any circuit or component of the development board can lead to an abnormality. For example, the distance between the main chip of the FPGA is very small. If the conductor is lost, it will directly lead to a short circuit between the two pins, seriously burning the main chip. A customer once reported that the 3.3V of the board was shorted to GND after a few months of purchase. After inquiring about the last normal use, he just moved the board, and the result was abnormal. After sending it back for testing, it was found that a small metal particle (probably the residual solder on the workbench) had fallen between the two pins, and it was immediately restored to normal by removing it with the needle tip.

   Do not touch the circuit board components with your hands, especially the pins, to prevent electrostatic hazards.