Frequently Asked Questions for HaHa v3.0 Board

Contents

Instructor: Dr. Swarup Bhunia

Co-Instructor: Reiner Dizon-Paradis

FAQ about the Microcontroller

1. Q: After I program the Microcontroller and turn off the board, will the program remain in the Microcontroller?
   A: Yes.

2. Q: Why is my program for the Microcontroller not working as soon as I succeeded in programming it?
   A: Your program will not be running until you reboot the board.

3. Q: Why cannot I program the Microcontroller?
   A: You could have made these mistakes:

      You are using the wrong USB port. You must use J4, instead of J14.
      Or, you turned the switch next to MCU RST button to APP.

4. Q: Why is the Microcontroller not running the code I programmed after I reboot the board?
   A: To run the code, you should:
   a. Turn the switch next to MCU RST button to APP. Then, press the MCU RST button a couple of times.

5. Q: Why cannot I re-program the Microcontroller? It seems it is always running the code I programmed last time.
   A: To re-program the chip, you should:
   a. Turn the switch next to MCU RST button to BOOT.
   b. Press the MCU RST button a couple of times.

FAQ about the FPGA

1. Q: Which version of GOWIN FPGA Installer should I install to program the FPGA?
   A: Version 1.9.8 or higher. You can download it from GOWIN website.

2. Q: I created the bitstream file, but why I cannot program with it?
   A: You should make sure you chose the correct device part number when you were building the project. You can find the number on the marking of the chip.

3. Q: After I program the FPGA and turn off the board, will the program remain in the FPGA?
   A: It depends. If you programmed it to the SRAM, it would be lost after the power is off. If it is programmed to the embedded Flash, it would stay. Refer to the next answer for more details.

4. Q: Which kind of file is recommended to program the FPGA?
   A: GOWIN only has the FS file to program the FPGA. The GOWIN Programmer has settings that can send the bitstream either to SRAM (volatile) or embedded Flash (non-volatile, survives power down). You should only program to the embedded Flash if you are 100% sure your design will do no harm to the board. Each of the I/O ports of your design should be assigned to a pin number. It is highly recommended to use the gowin_pin_assignments.cst file to help assign the FPGA pins correctly.

5. Q: Why cannot I see any output from the FPGA?
   A: You may forget to assign signals to the pins.

6. Q: Why am I getting the following error?
   `Directory "<some/directory/to/file>" has null character.`
   A: The directory or path contains a space or dashes, which can stop any of the processes. Please move your project to conform to this naming standard.

FAQ about the Experiments

1. Q: For a variable in Verilog, where is the LSB?
   A: LSB means least significant bit. No matter how the variables are declared, the LSB is always on the right side. For example, the LSB for aaa [1:8] is aaa[8], and the LSB for bbb [63:0] is bbb[0].

2. Q: When I am trying to see the power up values in the SRAM of the Microcontroller, I find every time they stay the same. Why?
   A: You have to totally power off the board before you power up. Plug out both the USB cables.

3. Q: Why I cannot write or read from the EEPROM on the board.
   A: You may forget to configure the 'hold' pin of the EEPROM. Please refer to its datasheet for details.

4. Q: In the bus snooping experiment, why do I not see any signal in the Waveforms software?
   A: You may try zooming in with a higher time base.

5. Q: Why is the ADC on the Microcontroller not working well?
   A: Make sure the ADC is set up correctly on the Microcontroller. Refer to its datasheet for more information.

6. Q: Do I need to use the FPGA to implement the ADC?
   A: You do not. This is done in the microcontroller and then sent to the FPGA via the chip interconnection if needed.