

Exercise 12:

a) Pong Completion

The last task is to implement the complete Pong game. Therefore you have to set up an ISE project with the following files you designed:

- random_number_generator
- sync_pulse_generator
- graphic_buffer
- graphic_buffer_controller
- graphic_output
- ram_controller
- event_trigger
- input_decoder

To start ISE from the application servers, run:

```
setup-lm xilinx ise14.6  
ise &
```

You can find all the missing files you must include for the complete Pong game in the directory of this task. You can also find the *.ucf file you will need.

If you do not want to use the ISE GUI to set up your project, you can find a .tcl file (setup_pong_synth.tcl) in the syn directory. Like the *.do files in ModelSim, these files are used to automate your synthesis. You can start this file with the **source** command in the ISE command shell. If you used the correct directories, it should automatically include all the necessary files and set up the project. You can now start the synthesis with the GUI, or also with a script. The commands required to start the synthesis using a script can be easily found in the ISE help.

If your game is running, the main task of this lab is finished.