Session 1: Microprocessor selection

The objective of this session is to select an available microprocessor (either written in Verilog or VHDL) to use throughout the course.

You may use the one you did in PA-MIRI or any other.

1. Define Selection Criteria

You have already designed your own CPU in PA-MIRI. By now, you know it is not straight forward and it requires a lot of expertise and good coding practice.

To select your microprocessor, you may want to first make a list of selection criteria such as:

a. Source code (VHDL or Verilog)
b. Complexity (5 stage pipelined is enough)
c. ISA (variable width ISAs vs. fixed width ISAs)
d. Code clarity
e. Easiness to insert new modules
f. Compiles with the software available
g. …

2. Define Baseline Processor

Look for a baseline processor in the web. You may look at “opencores” or any other source.

Test the CPU, make sure it runs with the Altera software.

Analyze a subset of the cores you have found according to the criteria you have defined.

REPORT

Write a report that contains:

1. Selection criteria definition
2. Comparison of different designs
3. Table summarizing the comparison (i.e. design vs. criteria)
4. Final decision on CPU used and justification
5. References