

Exercise 00

Install software

- Lattice Diamond
Follow instructions in `lattice.pdf` to create your first VHDL project.
 - Simulation (GHDL and gtkwave)
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VHDL

- <https://en.wikipedia.org/wiki/VHDL>
 - “VHDL Golden Reference Guide”
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MachXO3LF

- <https://www.latticesemi.com/en/Products/DevelopmentBoardsAndKits/MachXO3LFStarterKit.aspx>
 - <https://www.latticesemi.com/-/media/LatticeSemi/Documents/UserManuals/MQ/FPGA-EB-02036-1-4-MachXO2-MachXO3-Starter-Kit-User-Guide.ashx>
 - <https://www.latticesemi.com/-/media/LatticeSemi/Documents/DataSheets/MachXO23/FPGA-DS-02032-3-1-MachXO3-Family-Data-Sheet.ashx>
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Combinational logic

Implement entities which produces the **AND** of two `std_logic` inputs and one for the **XOR** (exclusive or).

Place them in the provided top level file, connect the inputs to switches and the output to LEDs.

Try your own logic

Combine input switches in your own logic combination and observe results on LEDs.

The lab takes place in [TBD].

Send your solutions through MOODLE (<https://moodle.uni-mainz.de>).

The solution should include:

- Source code (only **your** .vhd files)
 - Brief description if applicable, questions, etc.
 - Screen shot of the simulation (use simulation range of 1 microsecond)
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