

# EE214 Combinational Circuits: Four bit adder

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1. You have been given a full adder description in the reference design. Using this full adder as a component, describe a 4-bit ripple carry adder in VHDL.

Note that it is a simple binary adder that can be implemented by cascading four 1-bit full adders such that the the carry generated by the addition of lower significant bits forms the incoming carry for addition of the next significant bits. You may ignore input carry of LSB full adder.

2. Simulate the adder using the generic testbench to confirm the correctness of your description. To do this, note that you need to generate the tracefile for all 256 combinations and modify the testbench given to you appropriately.
3. Map your logic circuit to the Krypton board. You will use the on-board 8 switches to input the bits to your circuit, and 5 on-board LED's to observe the outputs of your circuit. Confirm that the post-synthesis gate level netlist functions correctly.
4. Program the Krypton board and demonstrate to the TA the working of the 4-bit adder.....To be done once you receive the board!!