Lab 1: Verilog HDL

Objective

- ✓ Review fundamental logic components.
- ✓ Introduce Verilog HDL modeling and verification.

Prerequisite

- ✓ Fundamentals of logic gates and Verilog HDL.

Experiments

1 Design and implement a full adder. (***s***+***cout***=***x***+***y***+***cin***)
- 1.1 Write the logic equation.
- 1.2 Draw the related logic diagram.
- 1.3 Verilog RTL representation with verification.

2 Design a 3-to-8-line decoder with enable (input ***in***[2:0], enable ***en*** and output ***d***[7:0]).
- 2.1 Logic equation,
- 2.2 Logic schematic,
- 2.3 Verilog RTL representation with verification.

3 For two 3-bit unsigned numbers ***a*** ($a_2a_1a_0$)and ***b*** ($b_2b_1b_0$), build a logic circuit to output the larger number.

4 (Bonus) Design a single digit decimal adder with input A($a_3a_2a_1a_0$), B($b_3b_2b_1b_0$), C_{in}(ci), and output S($s_3s_2s_1s_0$) and C_{out}(co).

