

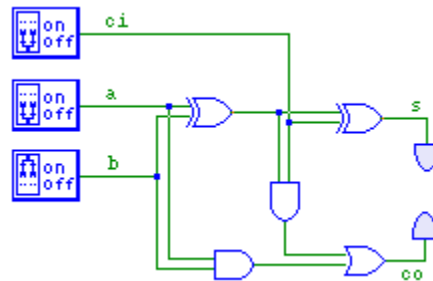
The LNM Institute of Information Technology, Jaipur

Computer Organization and Architecture

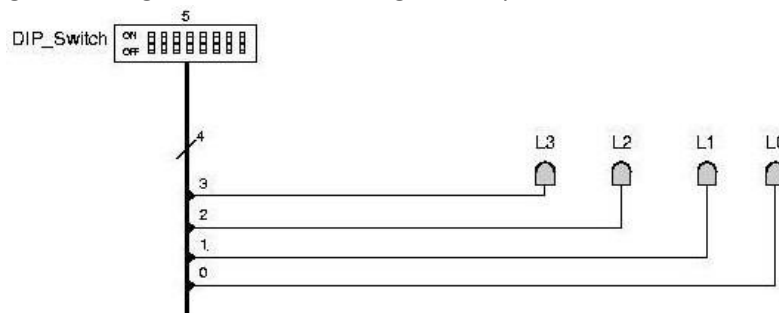
Lab Assignment: Circuit Simulation using TkGate

1. Part 1: Simple circuit design

- a. Design and simulate a full adder circuit.

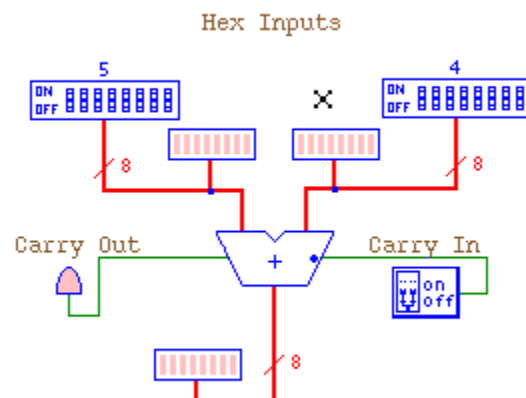


- b. Design following circuit, which manages multiple bits in a circuit.

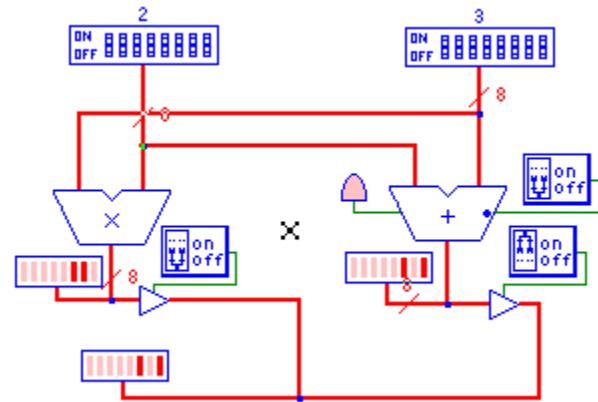


2. Part 2: ALU Design

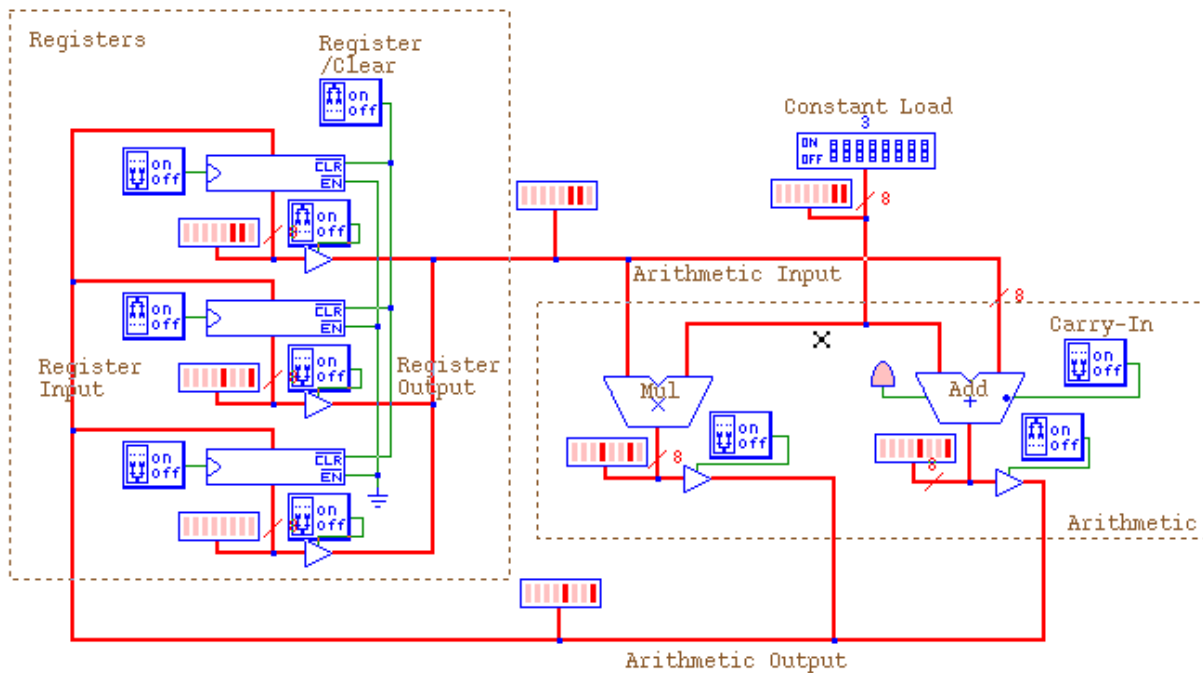
- a. An adder circuit: set up two 8-bit hex input devices (DIP Switches) in TkGate, connect them to a Make -> ALU -> Adder, and displayed both input and output binary data in 8-LED arrays.



- b. Simple ALU with Adder and Multiplier functionality circuit



- c. Simple ALU with Register input circuit: Using the following circuit one can insert input values to respective registers and perform an ALU operation.



Assignment

3. Part 3:

Instruction execution: Design an instruction execution system by modifying simple ALU circuit, using one DIP switch for Instruction input and three decoder switch to control ALU function and register read & write operations.