4-Bit CMOS Arithmetic Logic Unit (ALU)
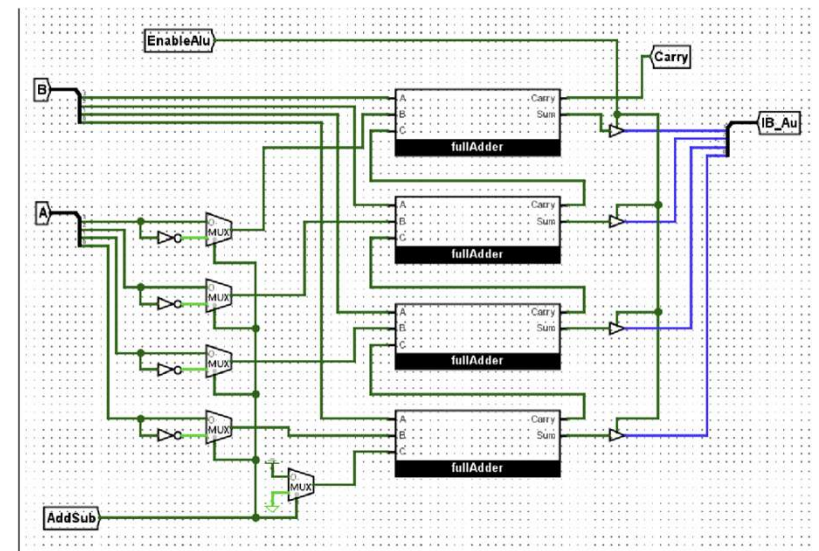
Braidyn Sheffield

# Objective

Design and simulate a **4-bit CMOS ALU** that performs **addition and subtraction** using **full adder and multiplexer logic.**
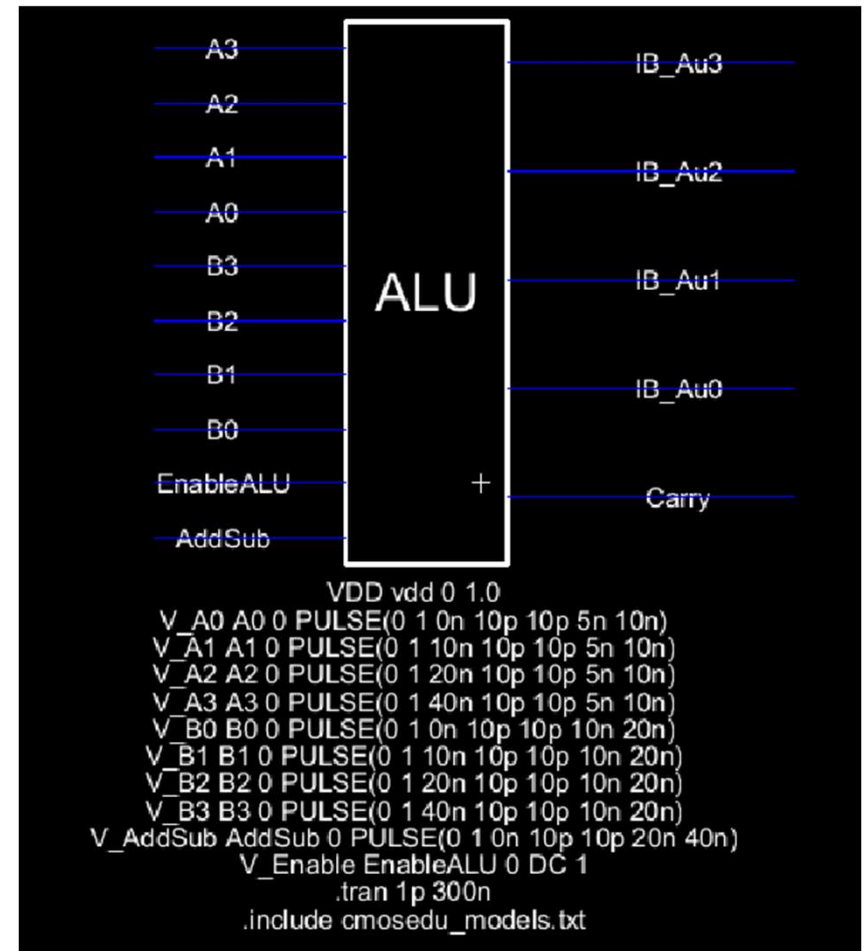
Where I started

- The Logisim model defined the logical behavior of the ALU.

- It performed A + B or A – B based on the AddSub control.

- Output bits: [IB_Au3:0] and Carry.

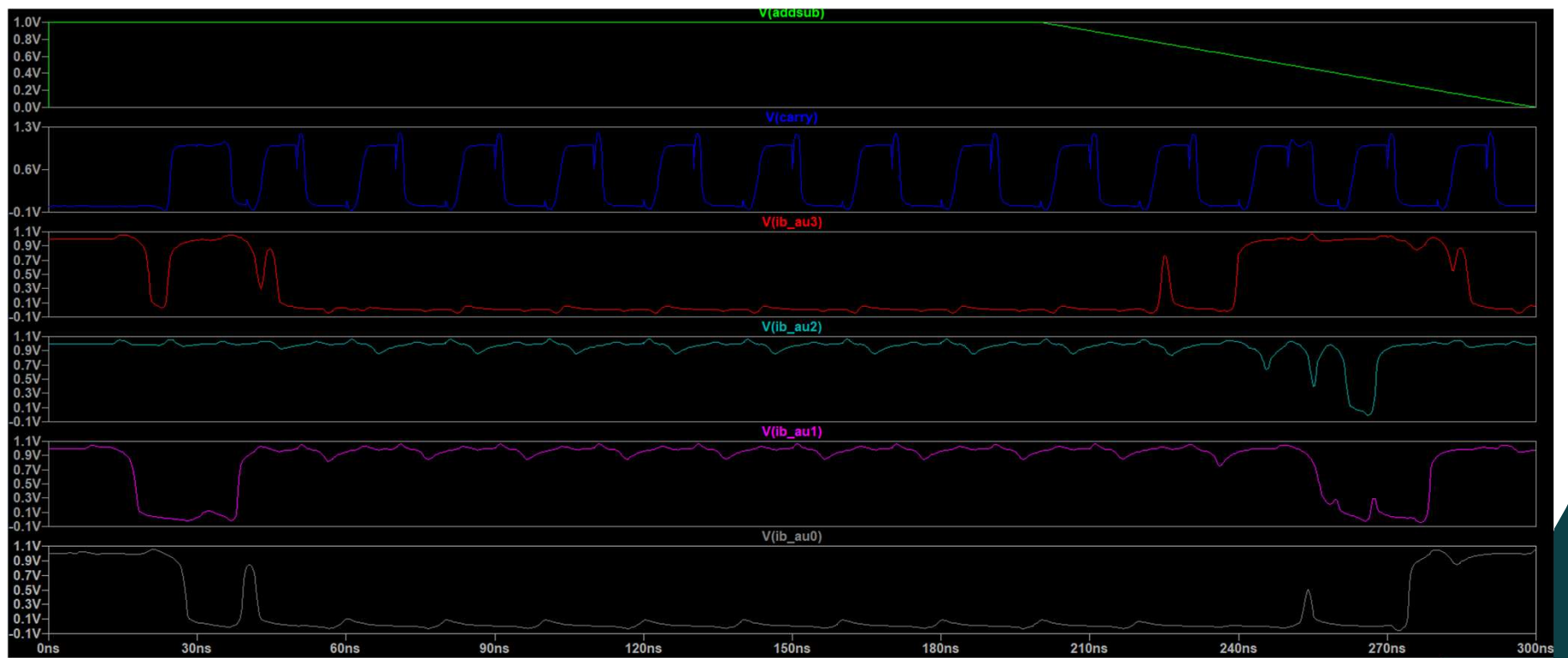- Served as the blueprint for transistor-level schematic design.
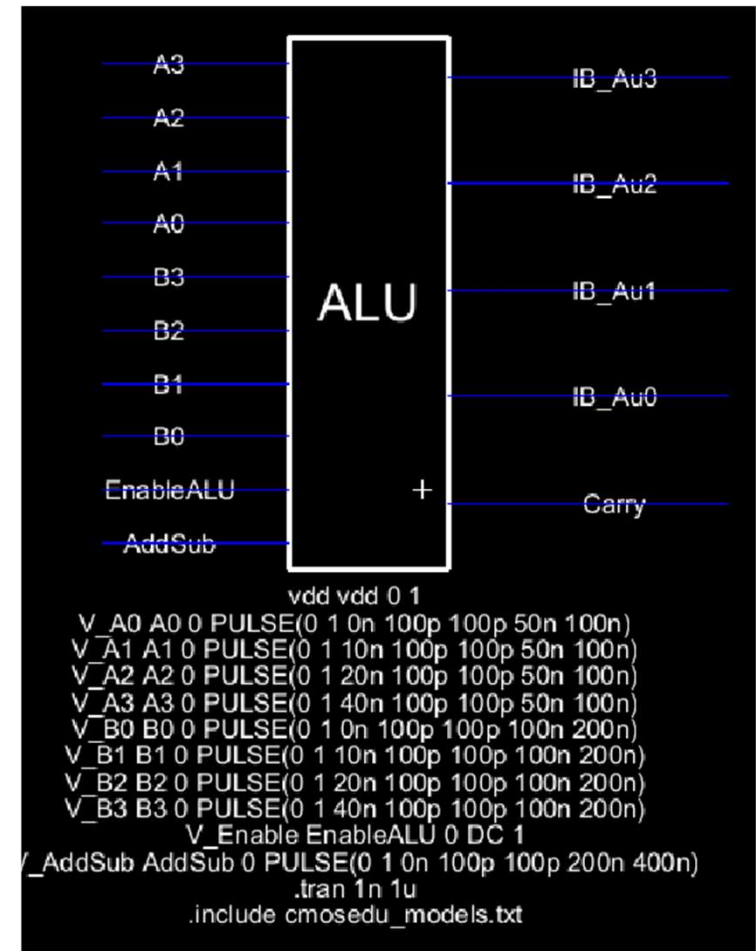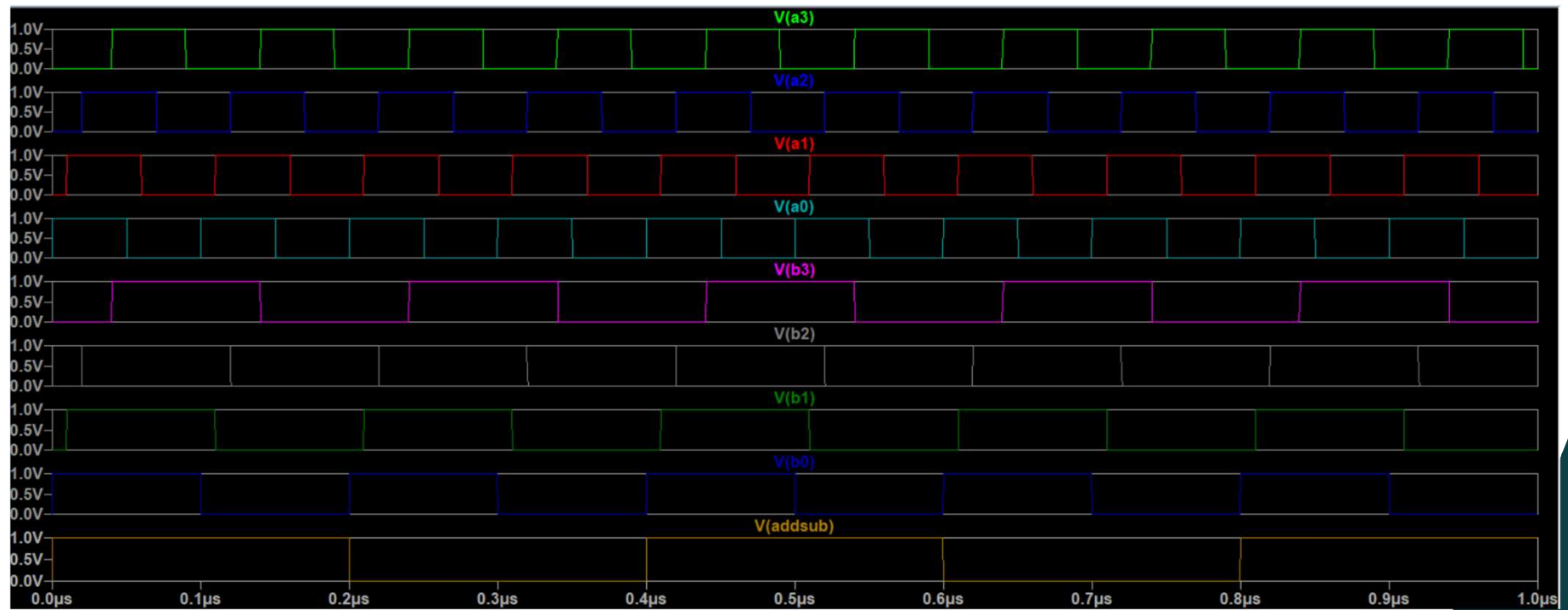
Building the Schematic
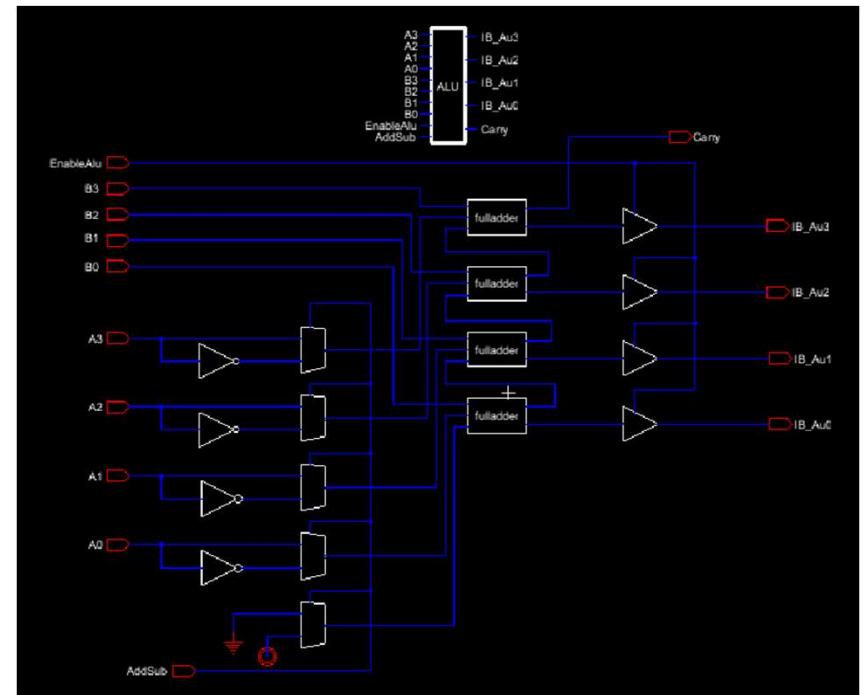
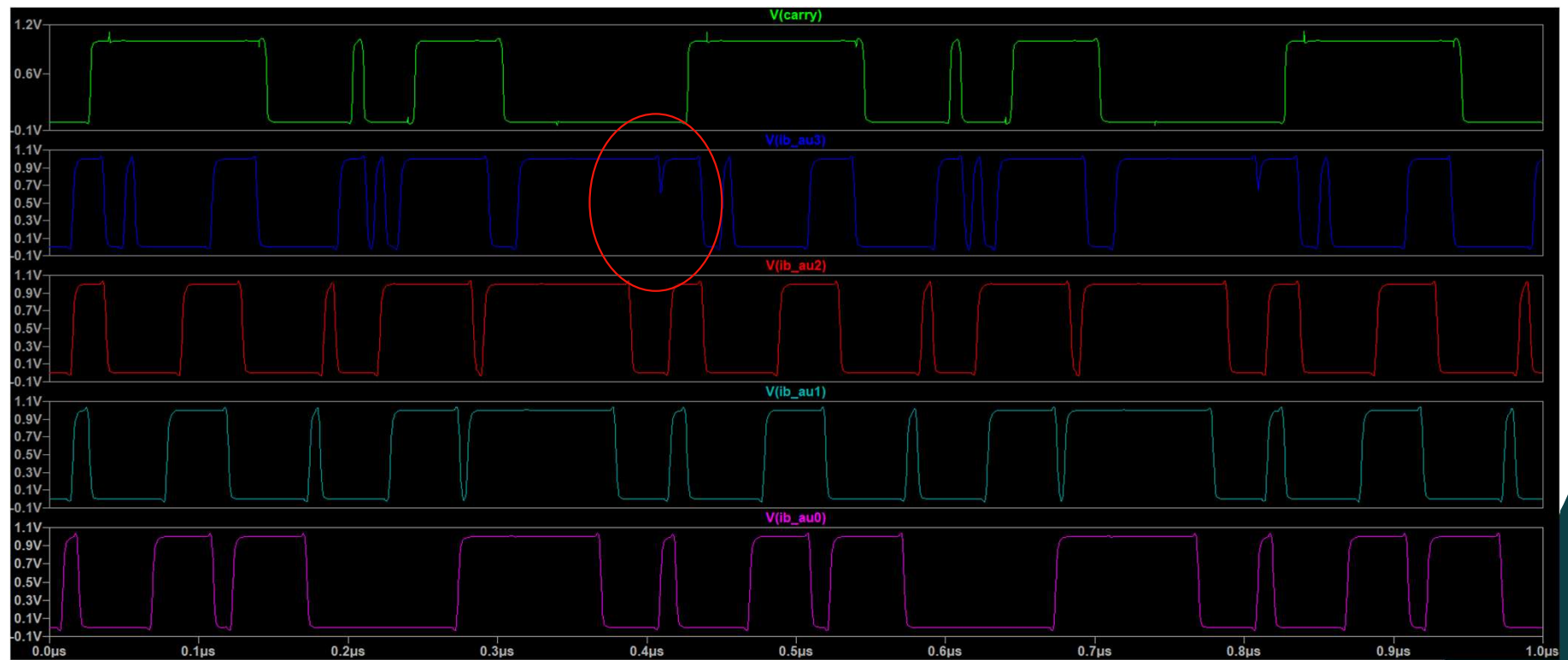# Simulating the Circuit

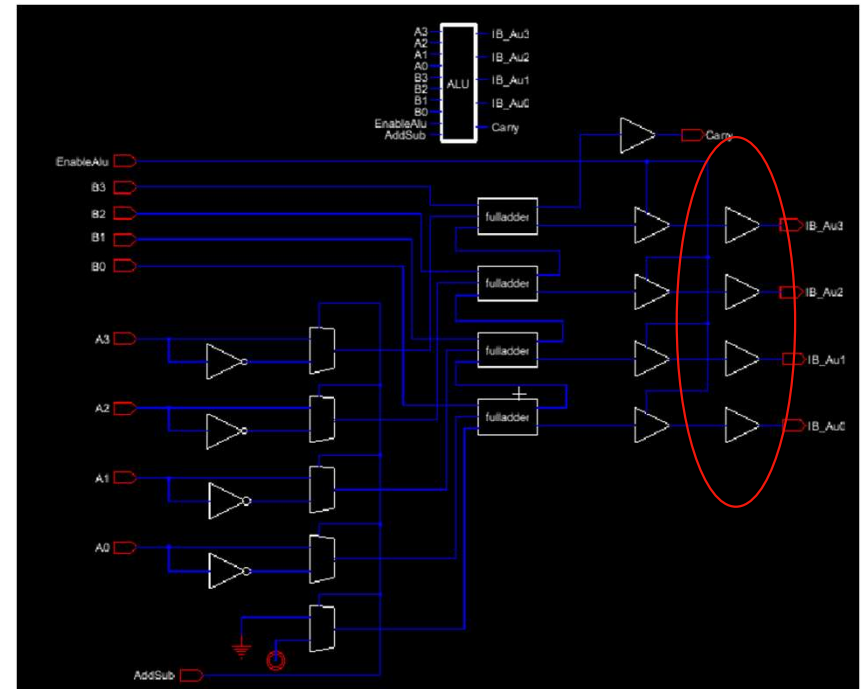# Simulating the Circuit

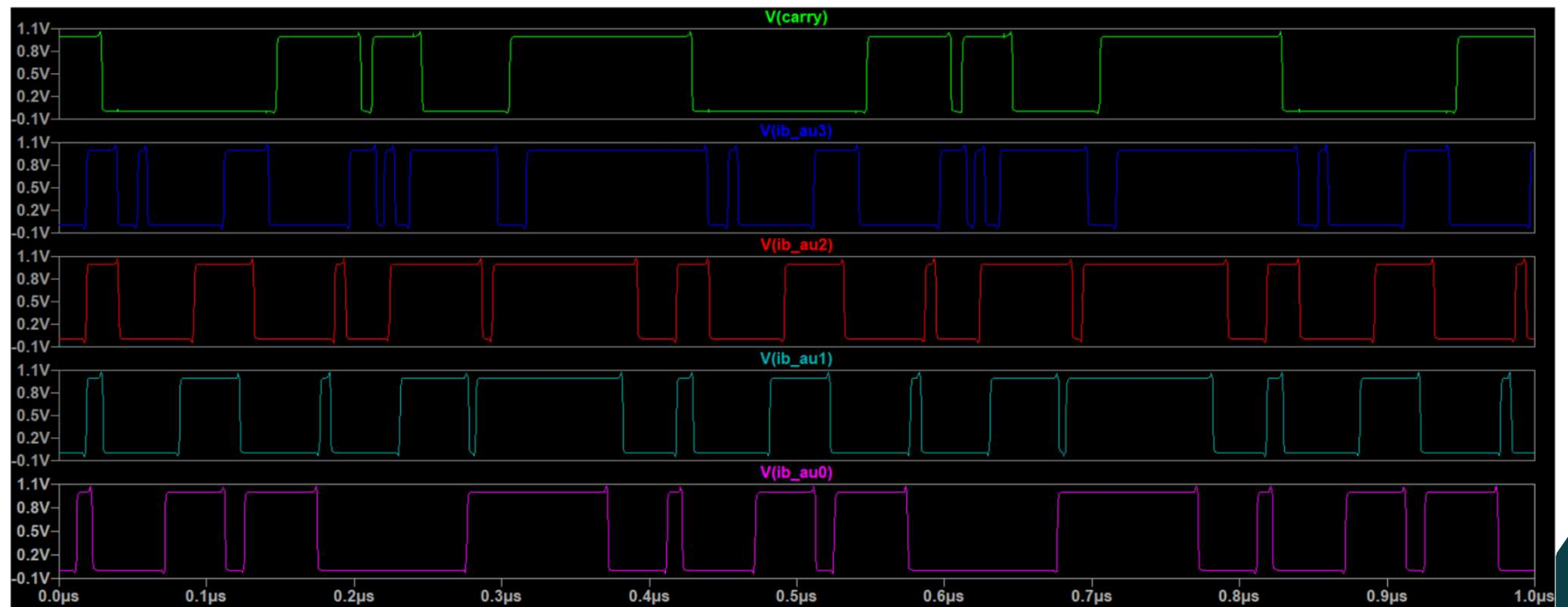# Simulating the Circuit

Simulating the Circuit

Simulating the Circuit

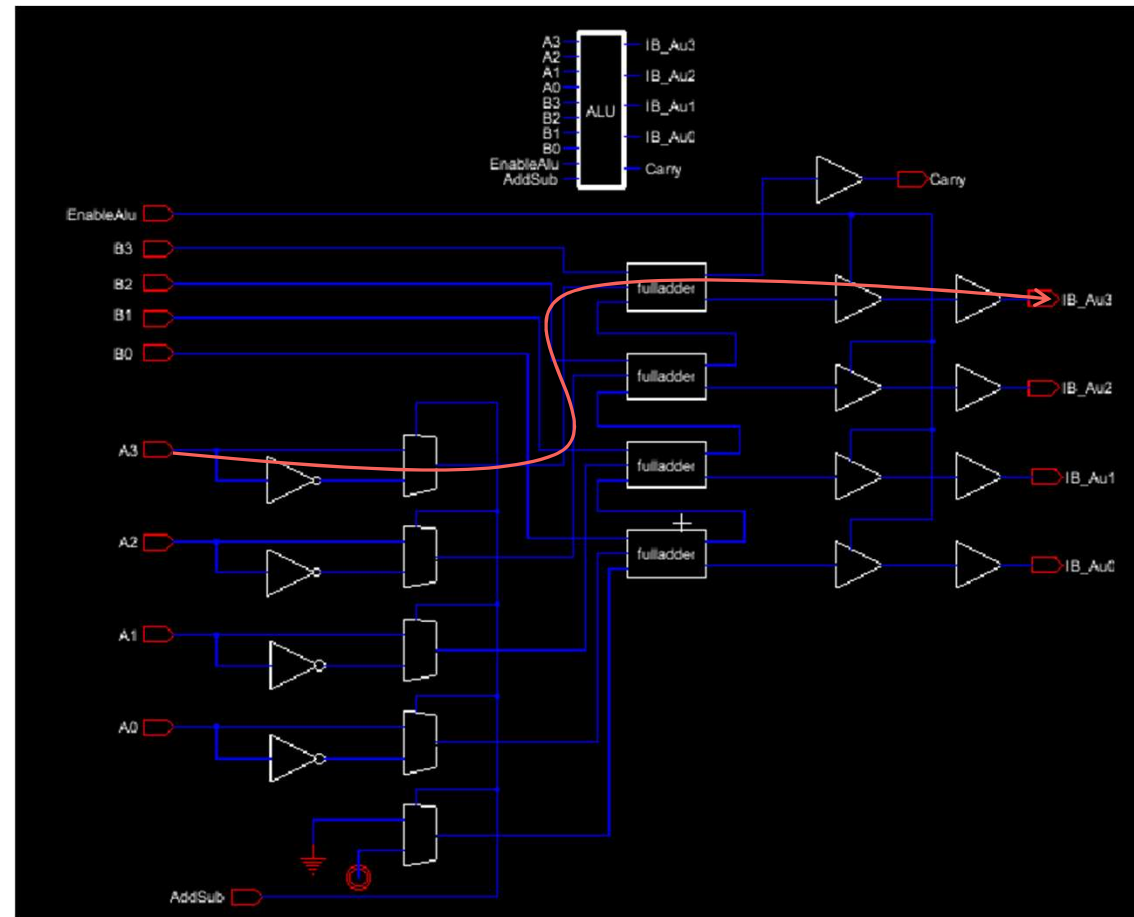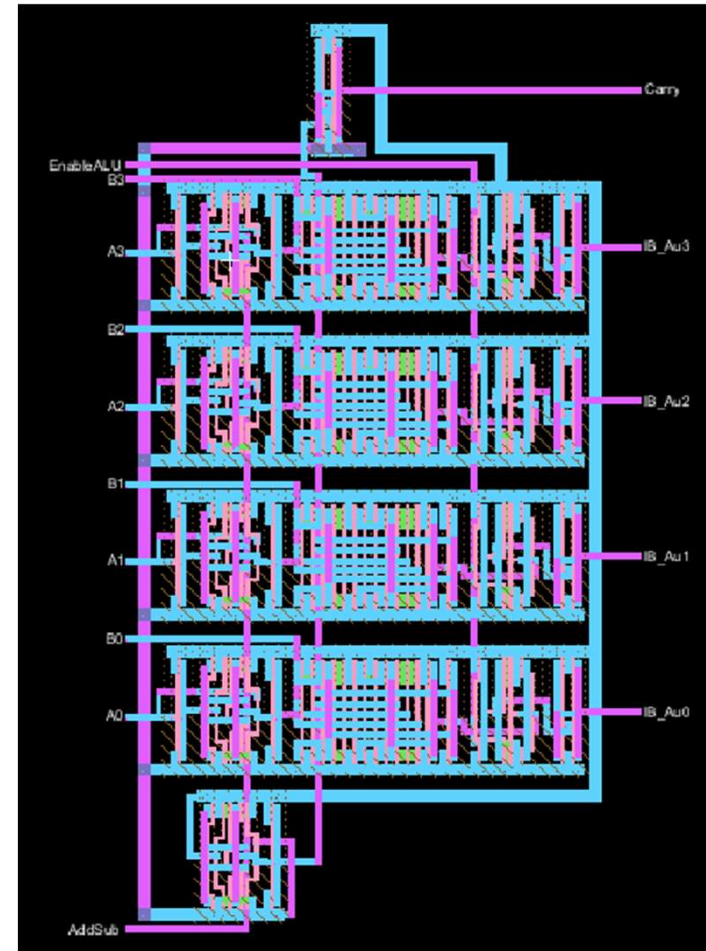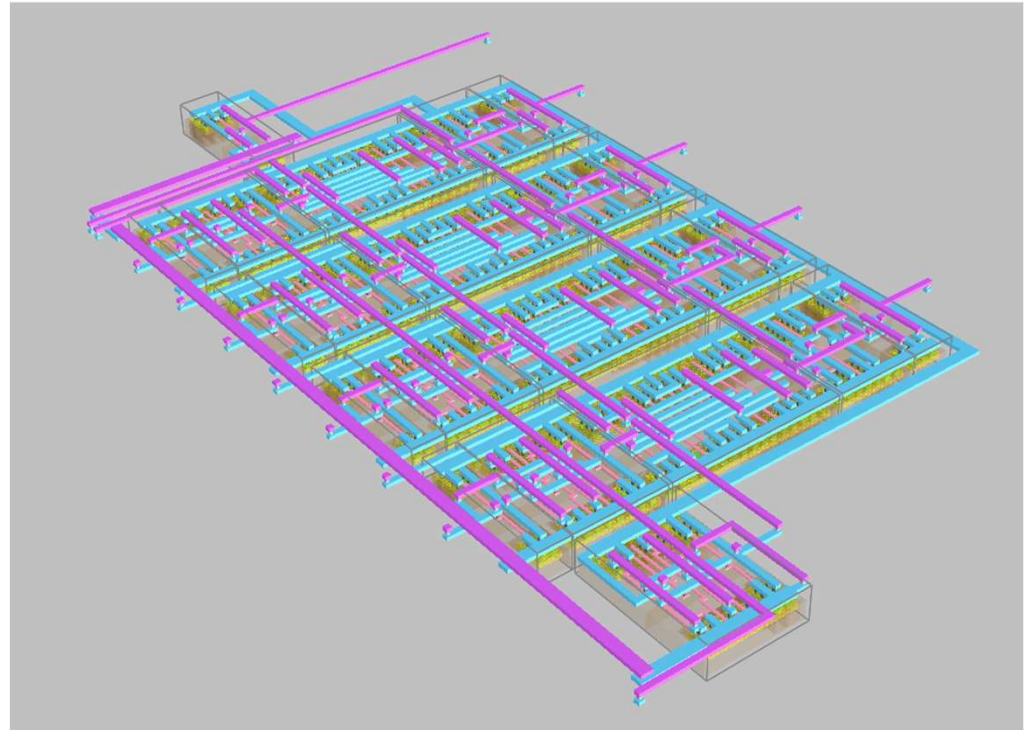# Adjusting the Schematic

Simulating the Circuit

Building the Layout

Building the Layout

3D View of Layout

Thank you