***ASIC DESIGN***

***HomeWork1***

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***Semester: Spring 2024***

***Introduction:***For this HW, I have made use of Vivado 2023 software for Design and Simulation.

The HomeWork1 folder has two folders in it.

* Part 1: This folder contains both Behavioral and structural code along with the vivado file for you to run and check.
* Part 2: This folder contains the FSM and the add\_sub codes. For this part, I have divided the code into two different modules in two different files.

The FSM module, on the posedge of the clock, goes from state0 to state1 (where it makes select = 0) and from state1 to state2 (where it makes select = 1)

***2-Bit FULL ADDER:***

*Behavioral Code:*   
  
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*TestBench for Behavioral Code:*   
  
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*Simulation Results:*

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*Structural Code:*

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*TestBench for Structural Code:*

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*Simulation Results:*A screenshot of a computer

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*FSM Code:*

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*TestBench for FSM:*

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*Simulation Results:*

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*Add-Sub module the select input from FSM:*

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*TestBench for Add-Sub Module:*

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*Simulation Results:*

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*State Transition Diagram:*

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