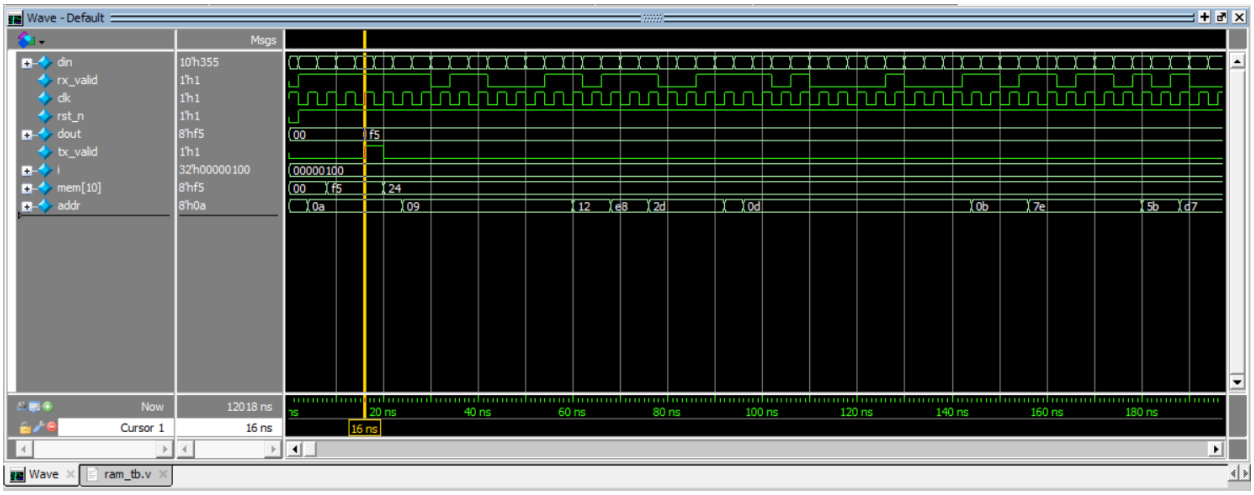
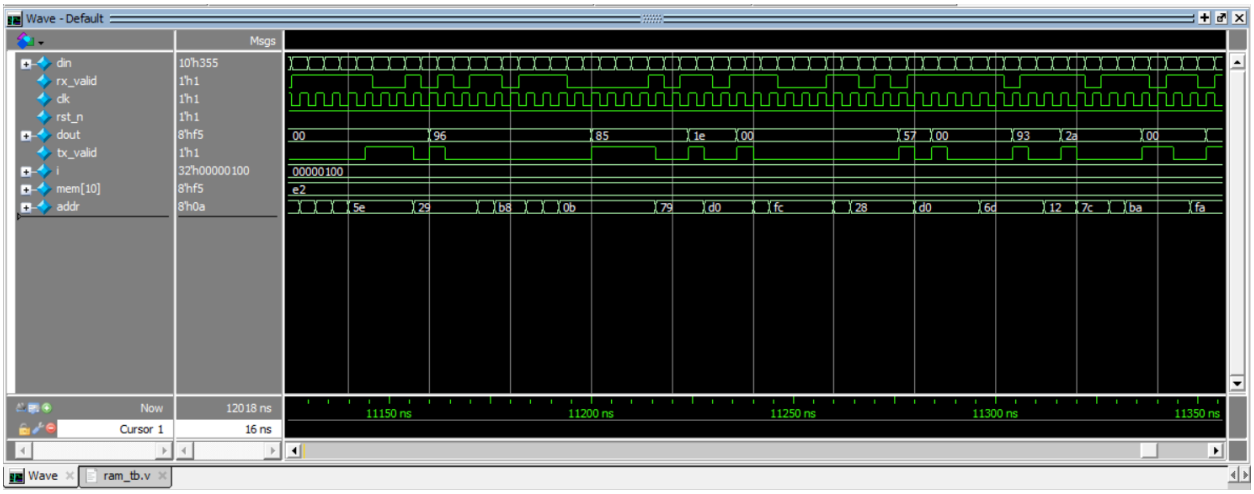
SPI Slave Interface Project

- QuestaSim Waveform

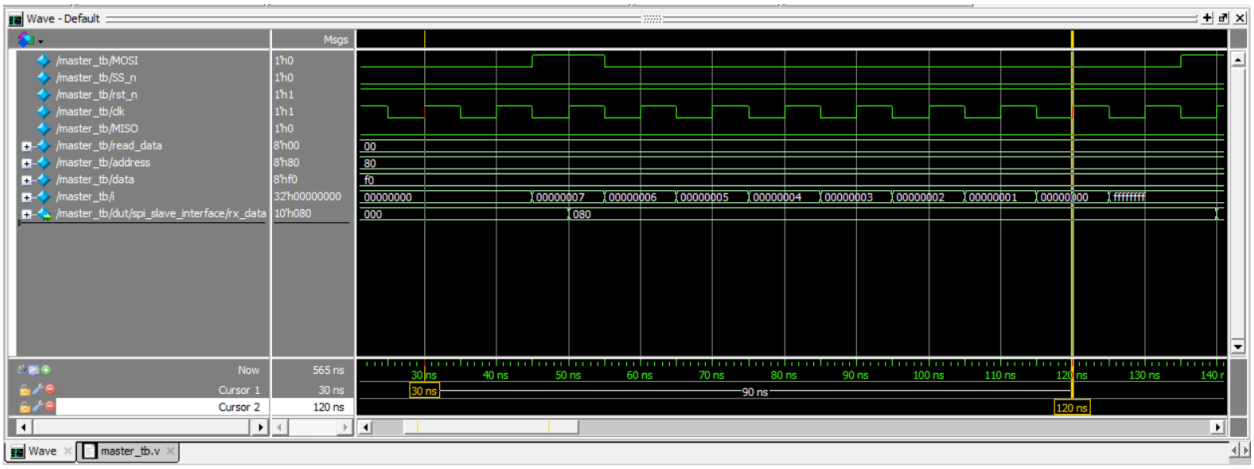
RAM testbench:



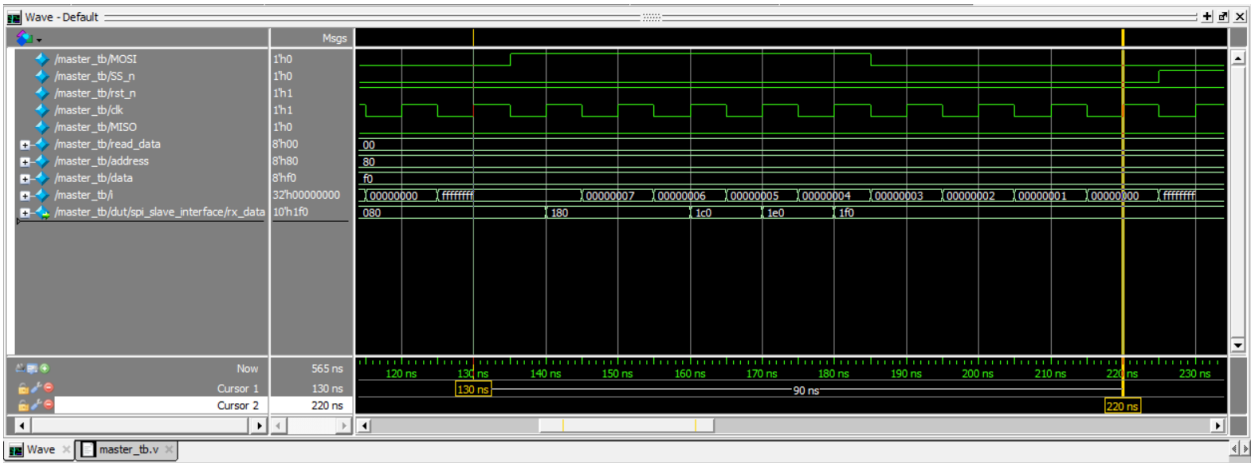


Master testbench 1:

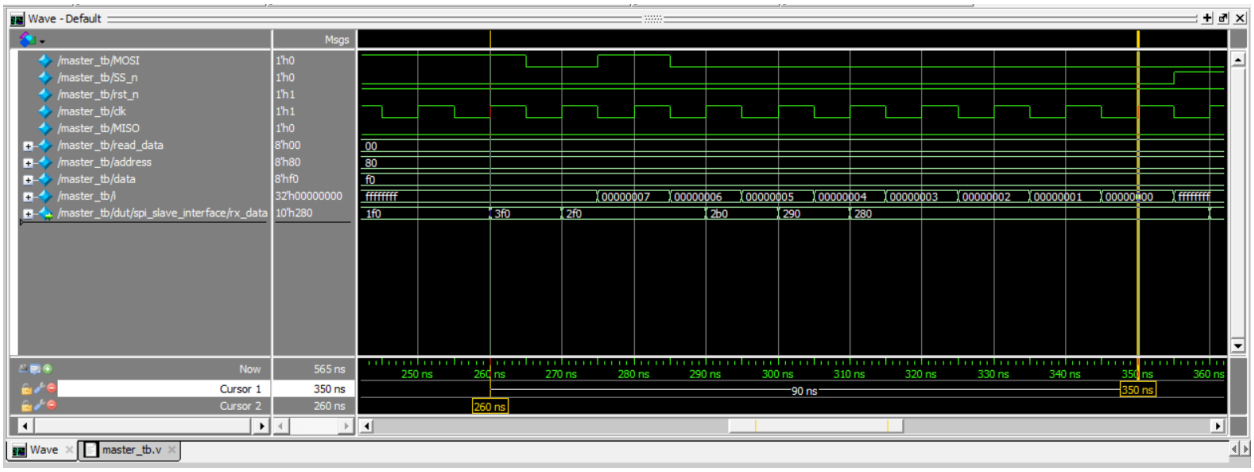
Write address: 8’b1000_0000



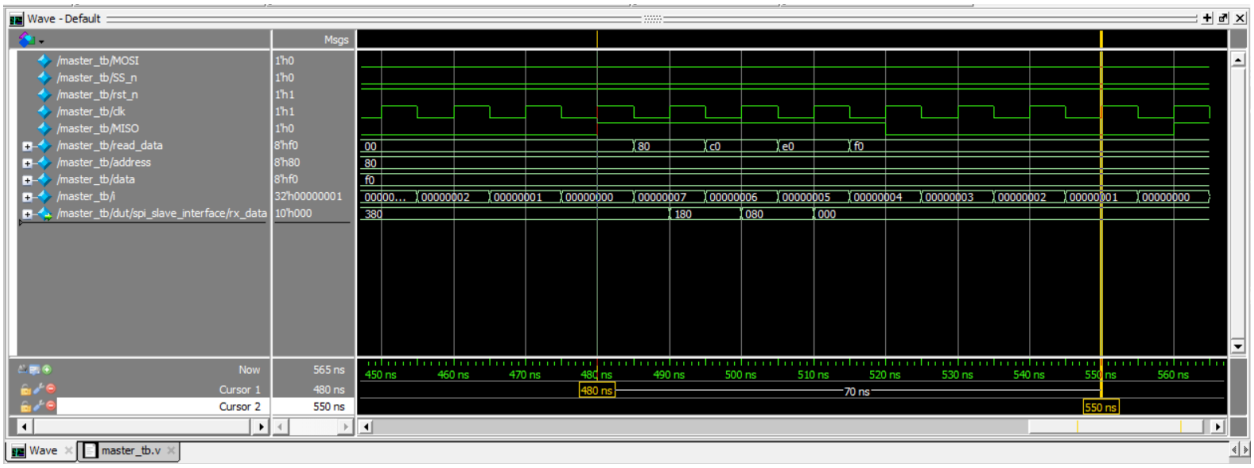
Write data: 8’hf0



Read address: 8’b1000_0000

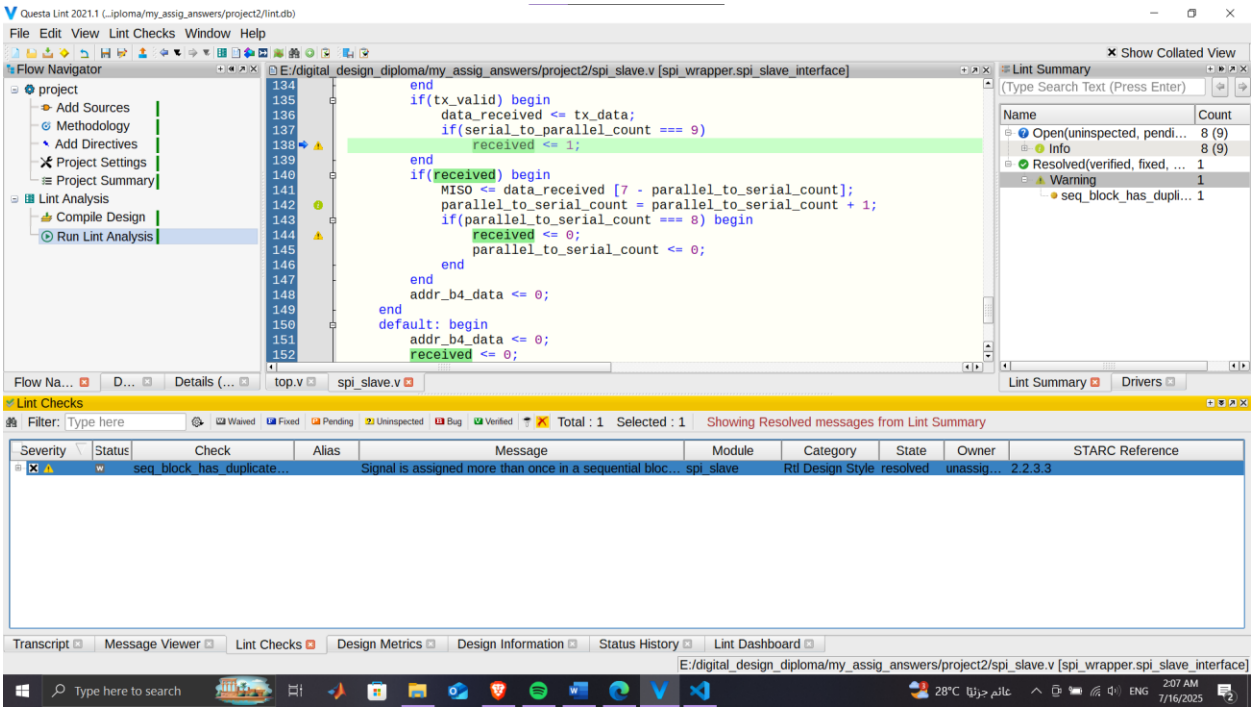


Read data: 8’hf0



- QuestaLint

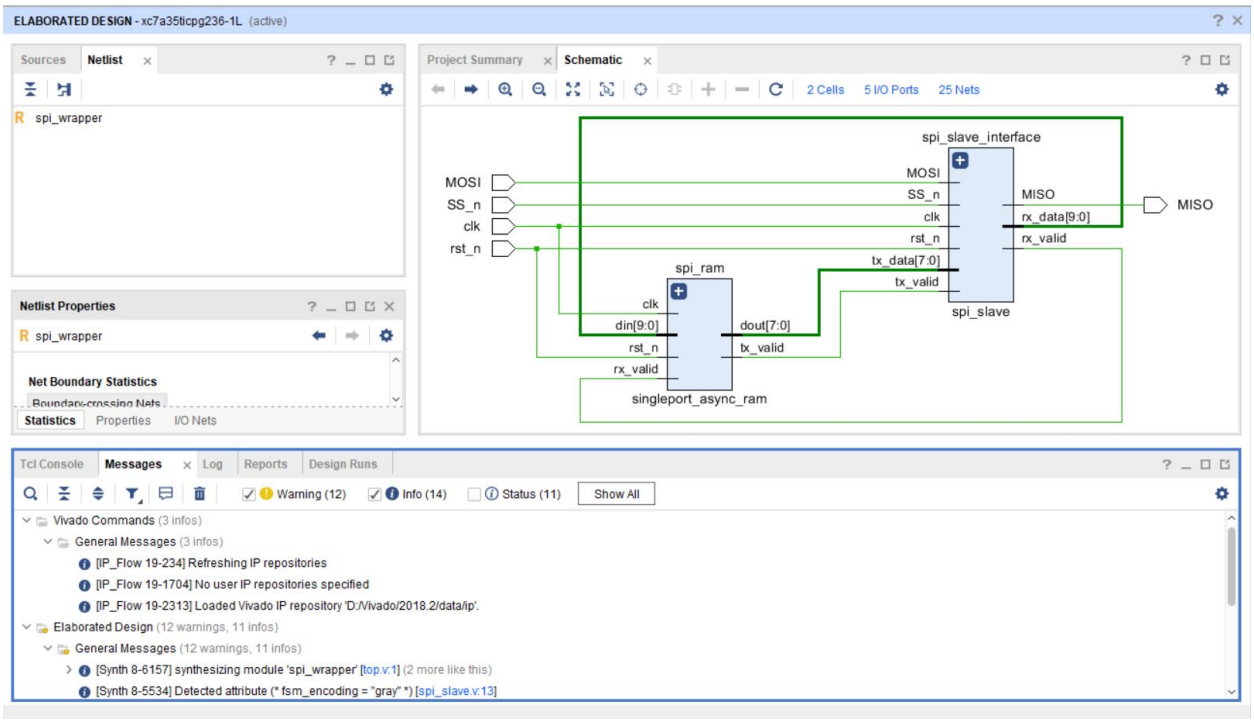
Warning is waived because serial_to_parallel_count = 9 and parallel_to_ serial _count = 8 will not happen at the same time



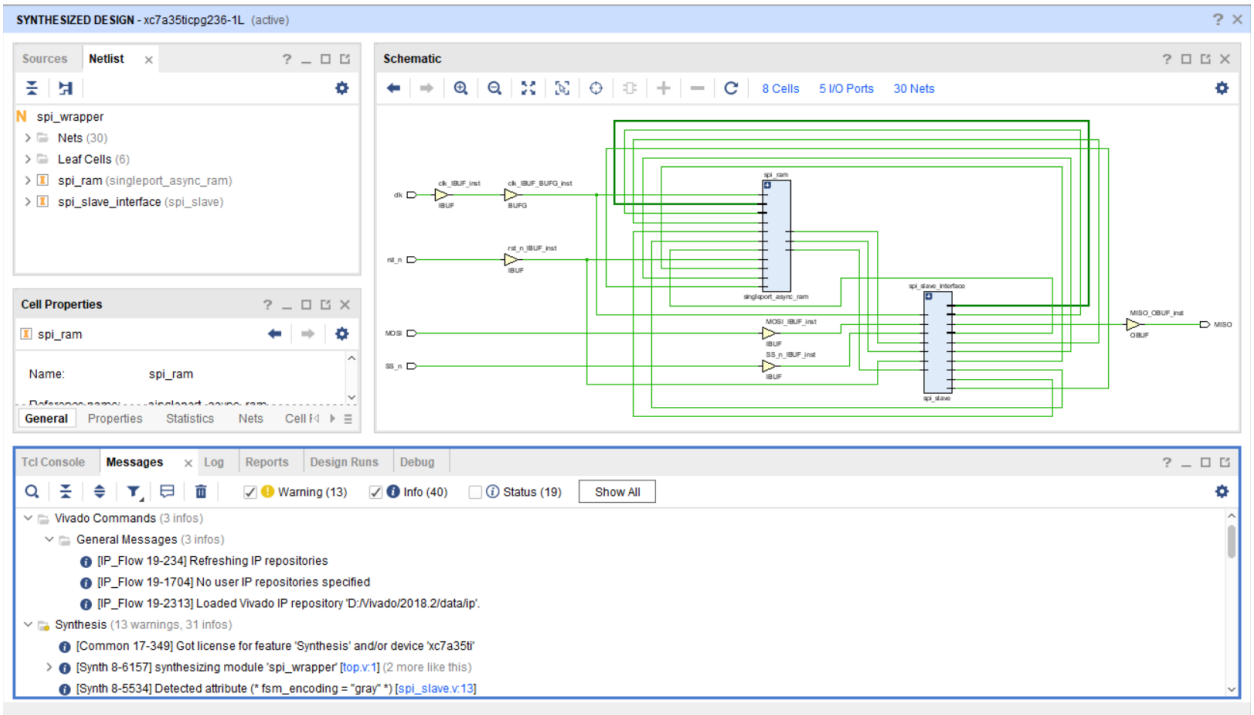
Synthesis tool

For gray encoding

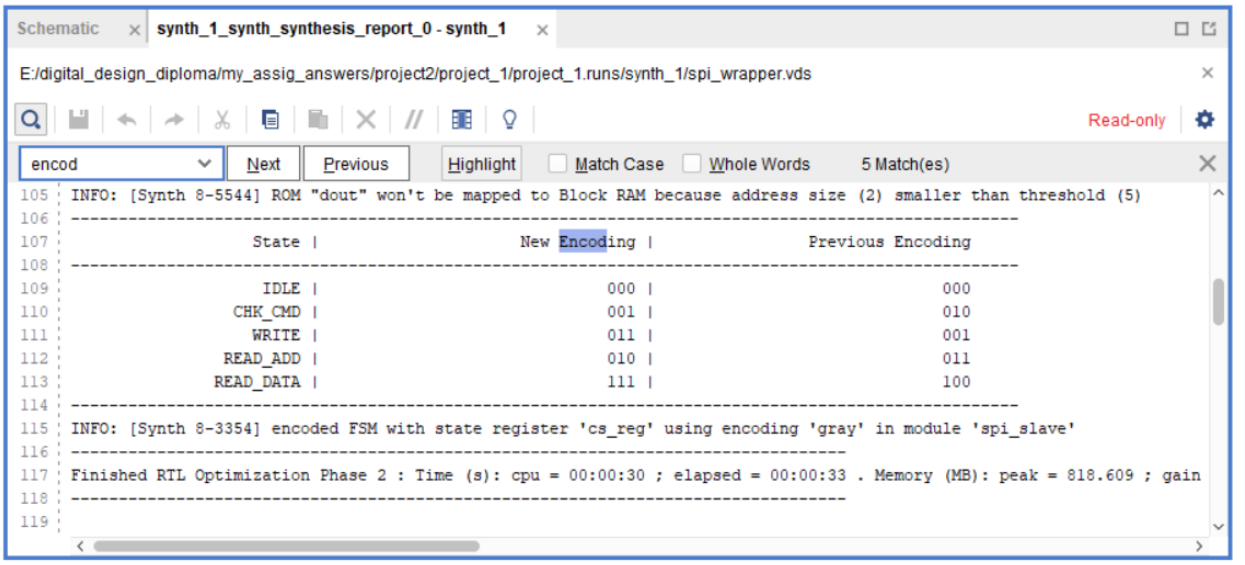
Elaboration:



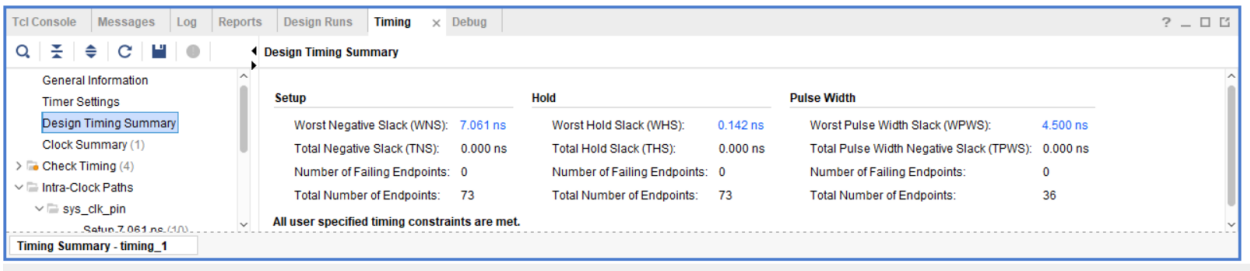
Synthesis



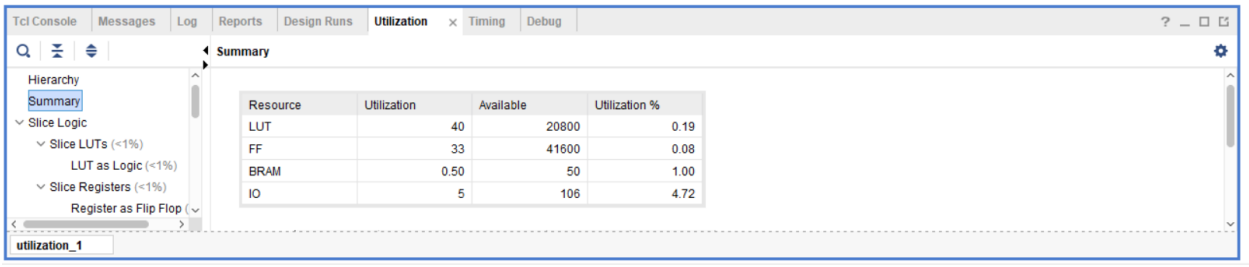
Synthesis report



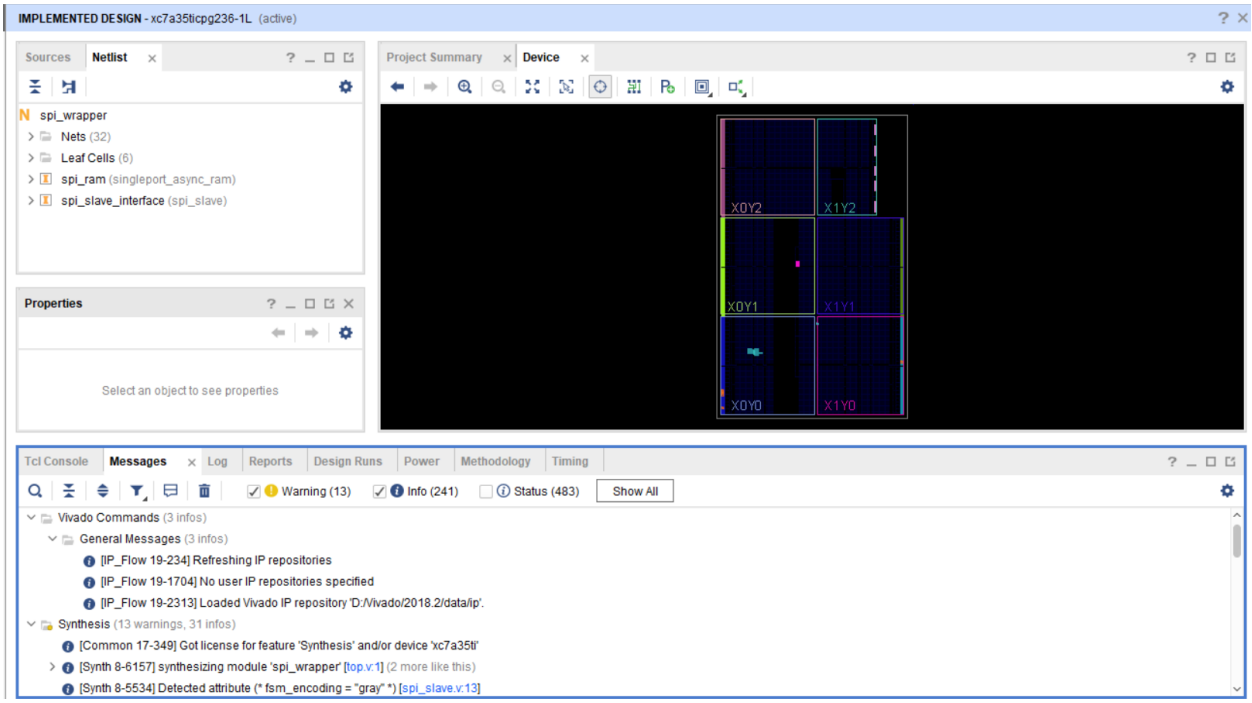
Timing report



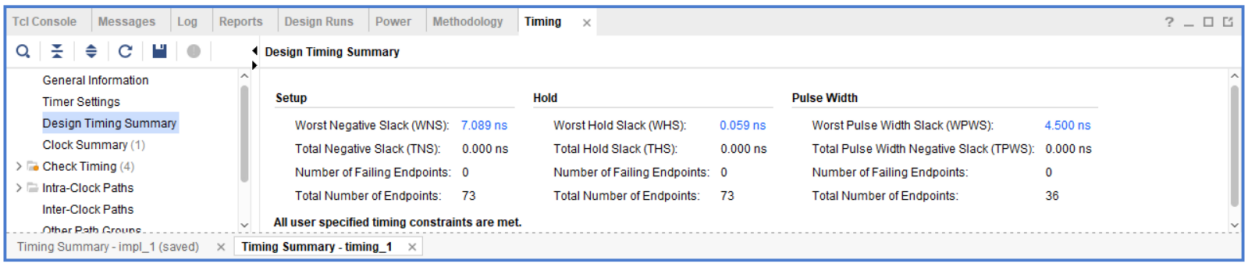
Utilization



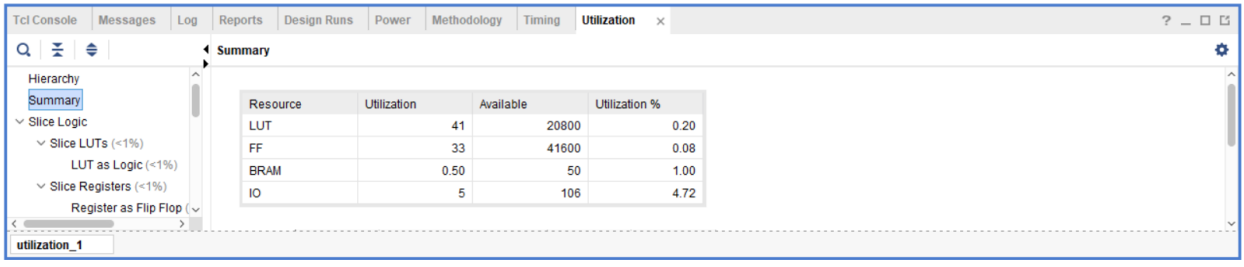
Implementation



Timing report

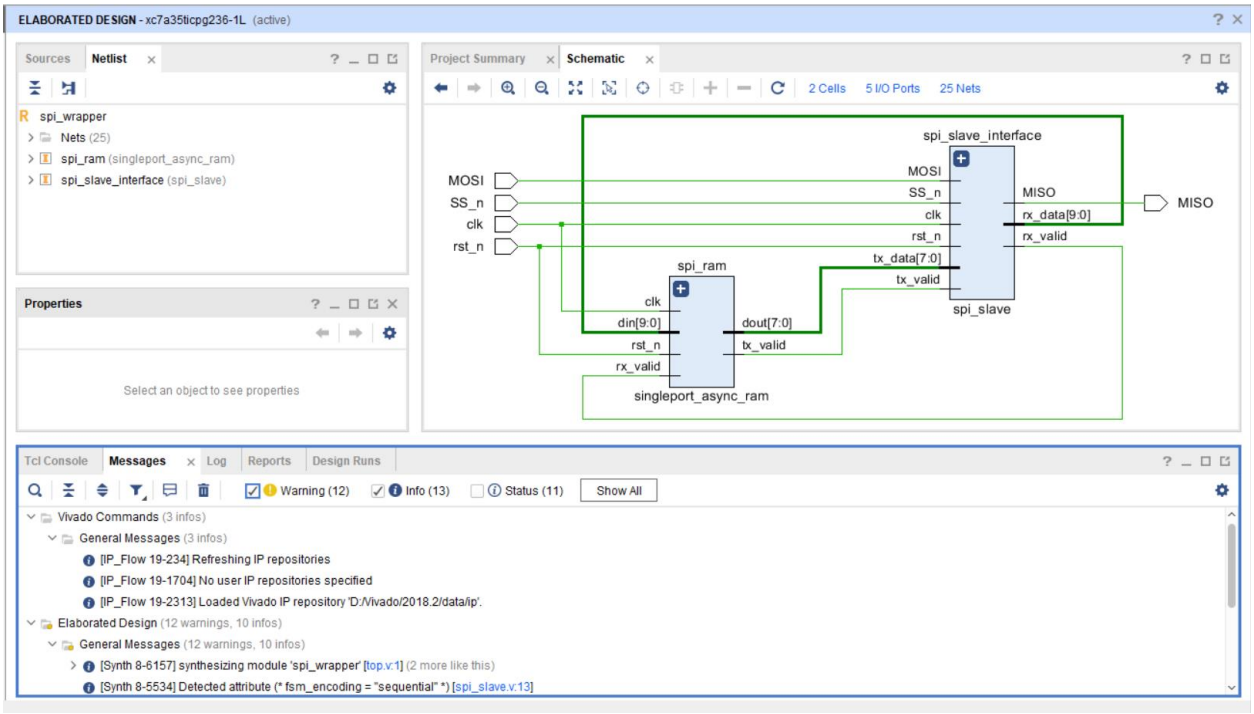


Utilization

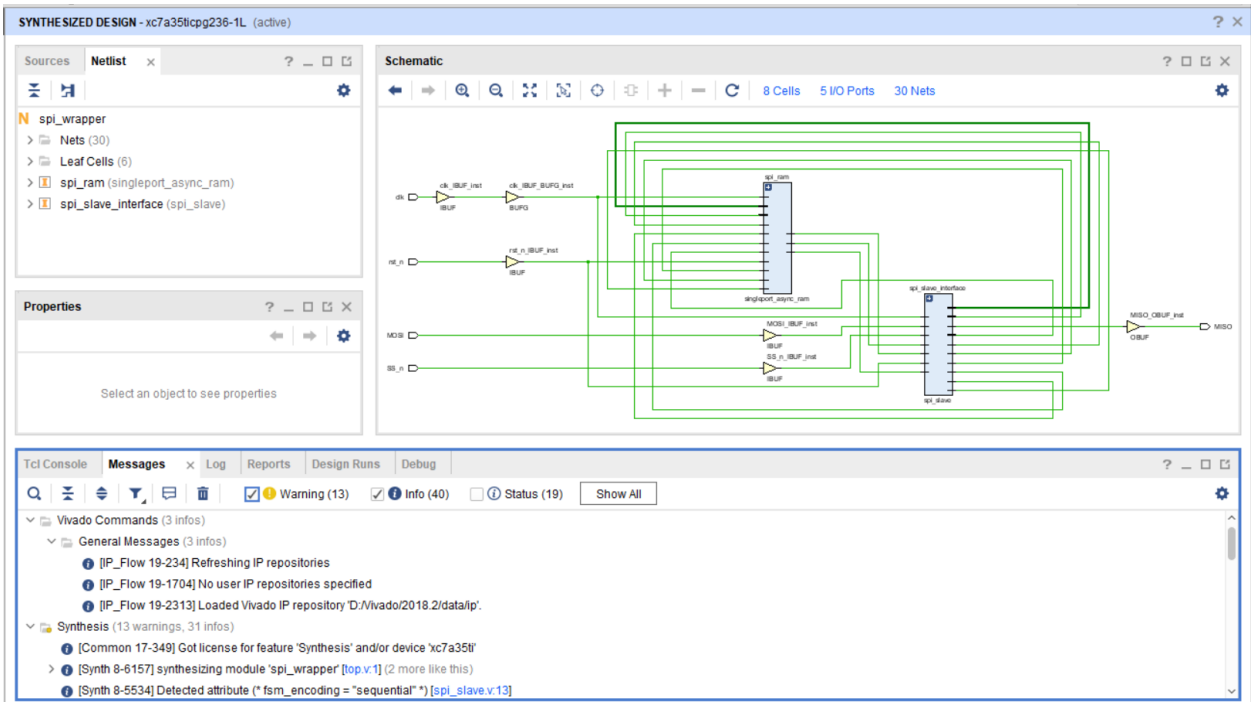


For sequential encoding

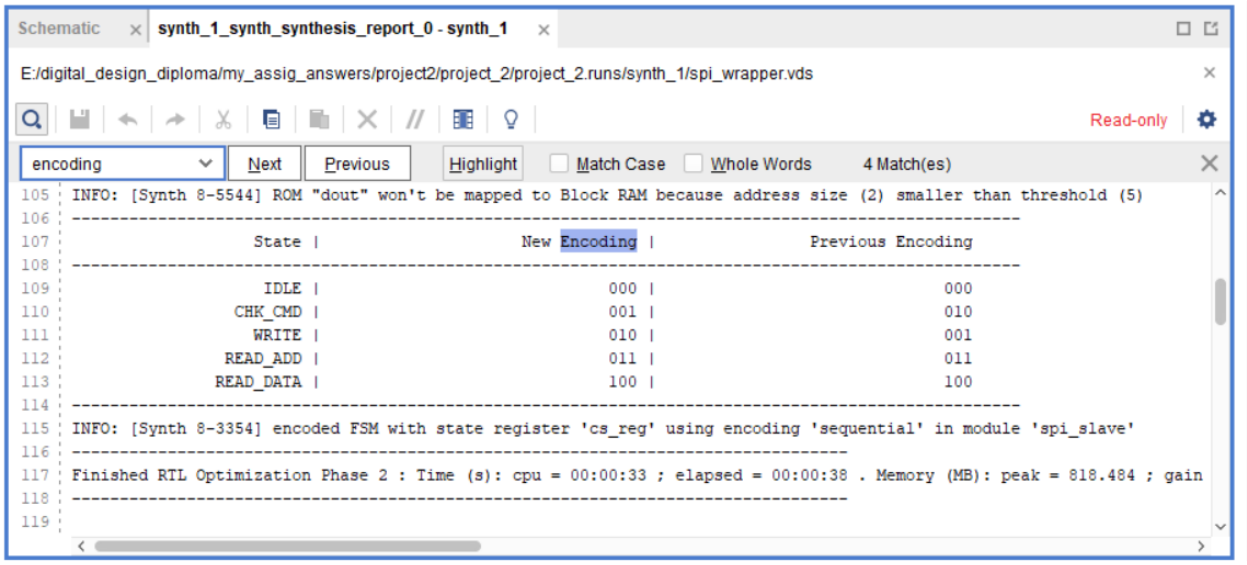
Elaboration:



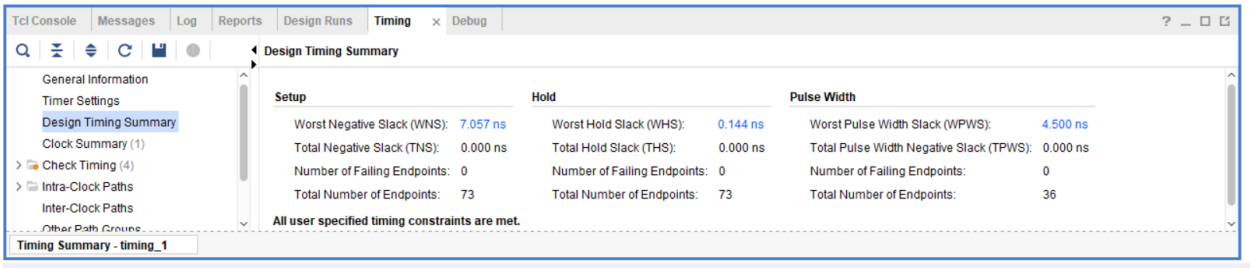
Synthesis



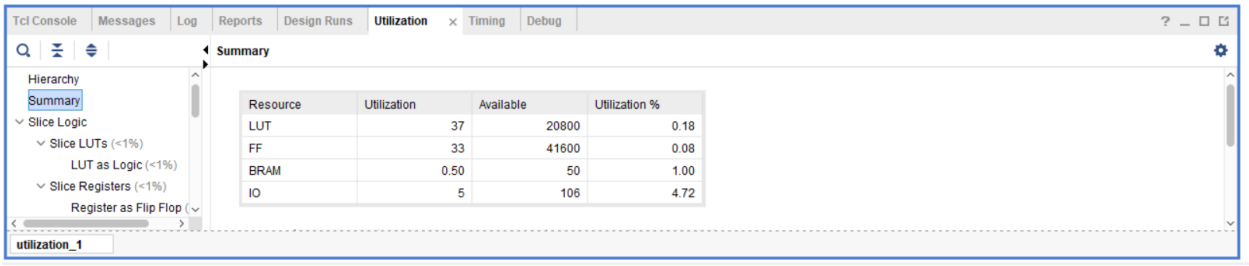
Synthesis report



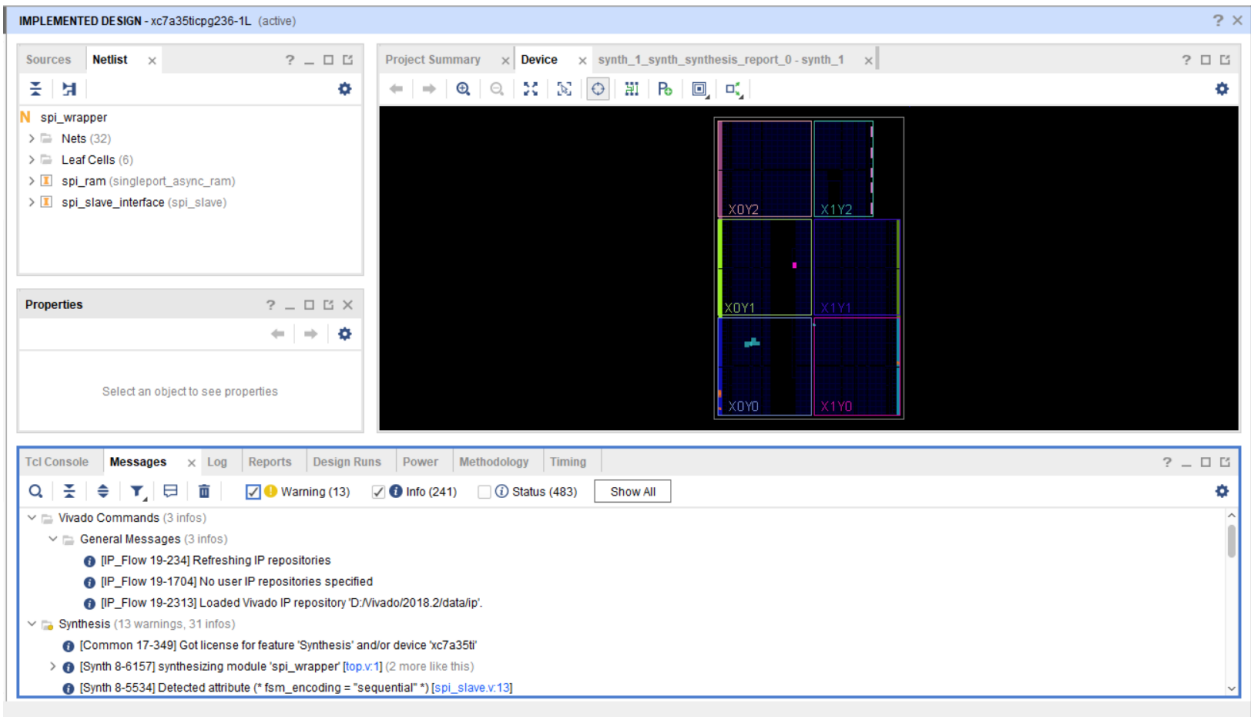
Timing report



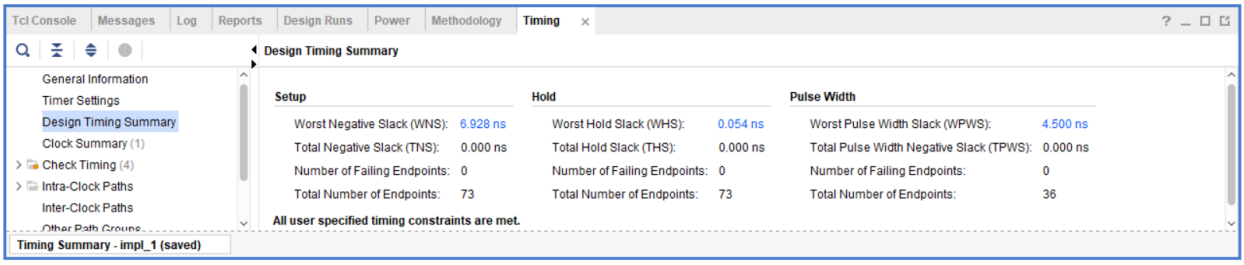
Utilization



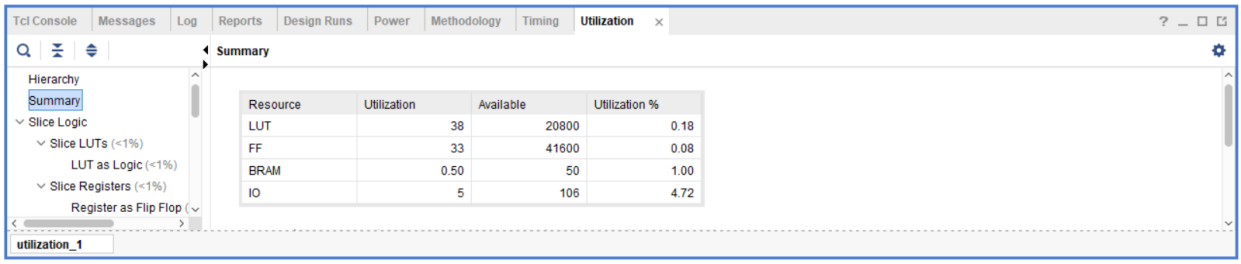
Implementation



Timing report

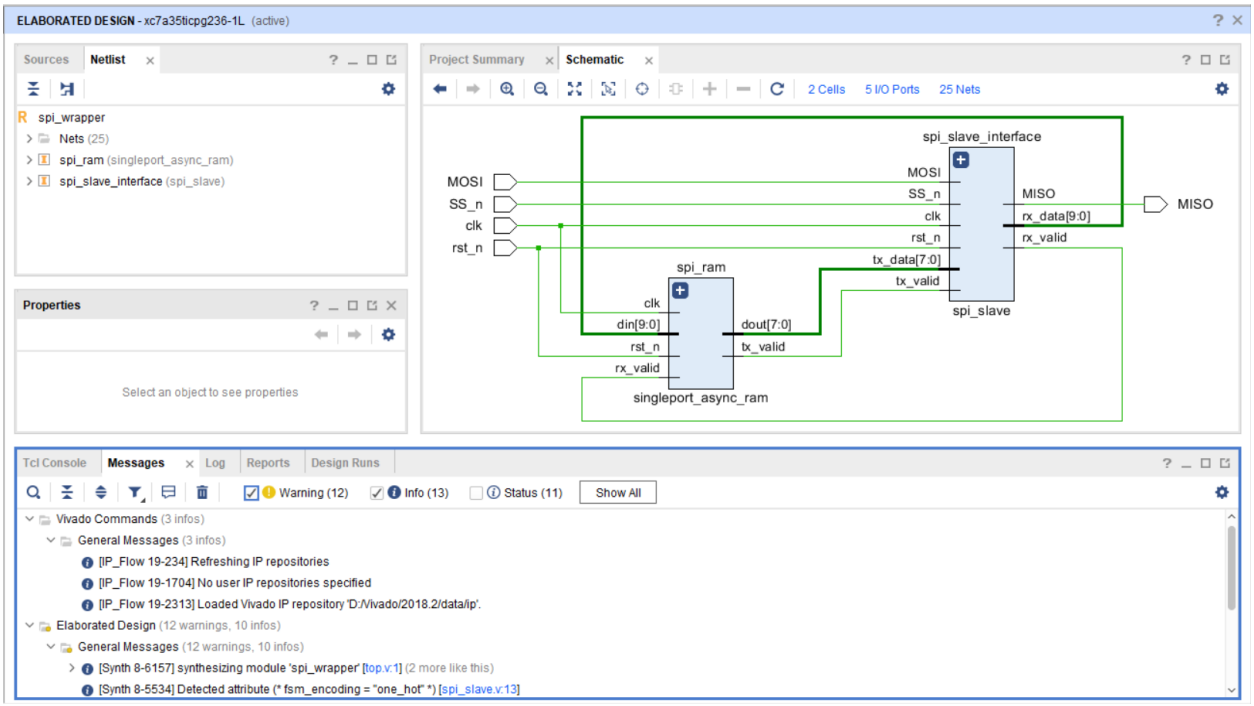


Utilization

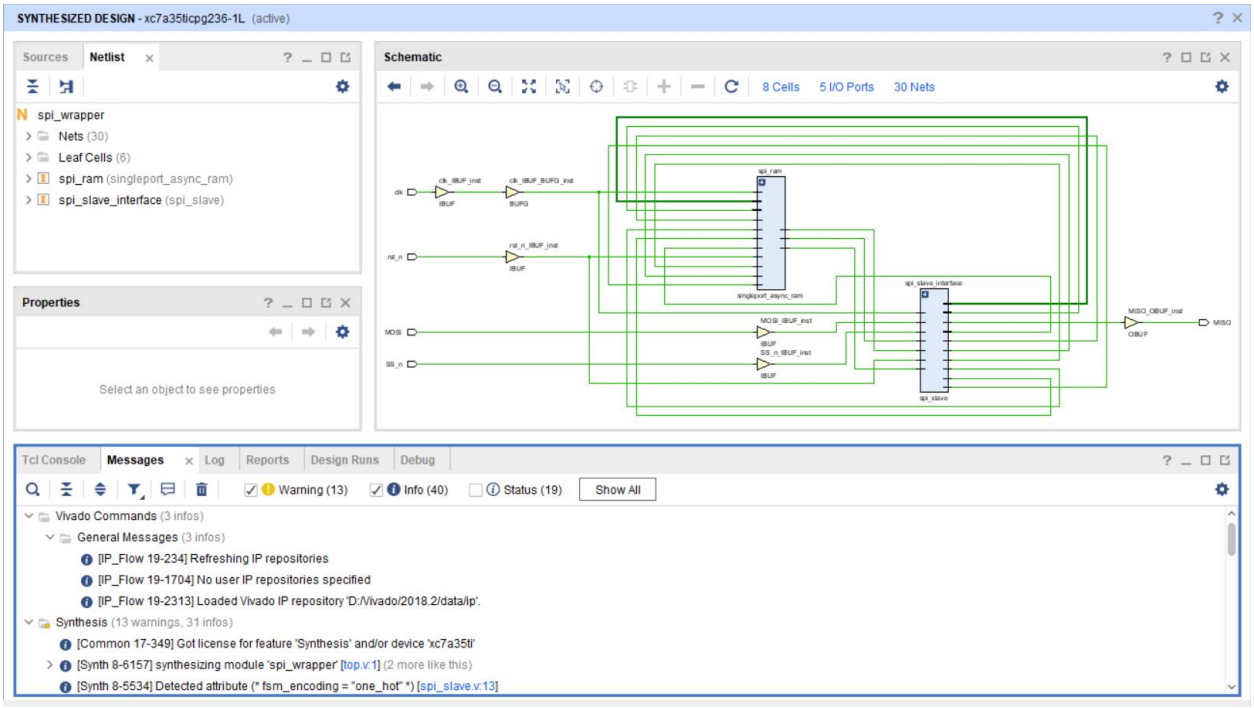


For one hot encoding

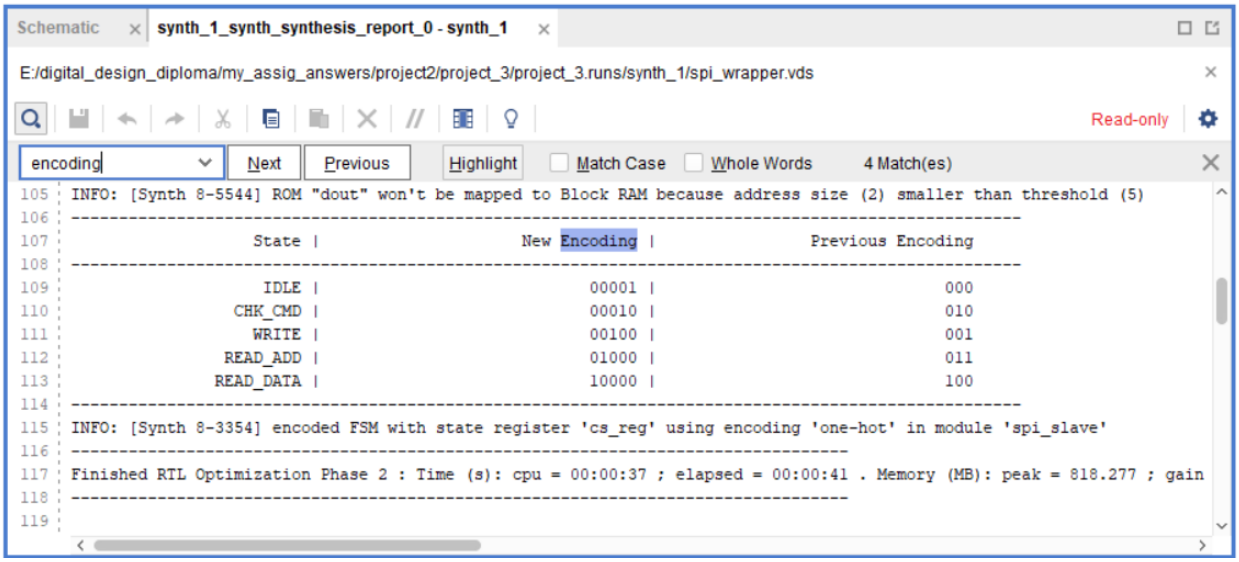
Elaboration:



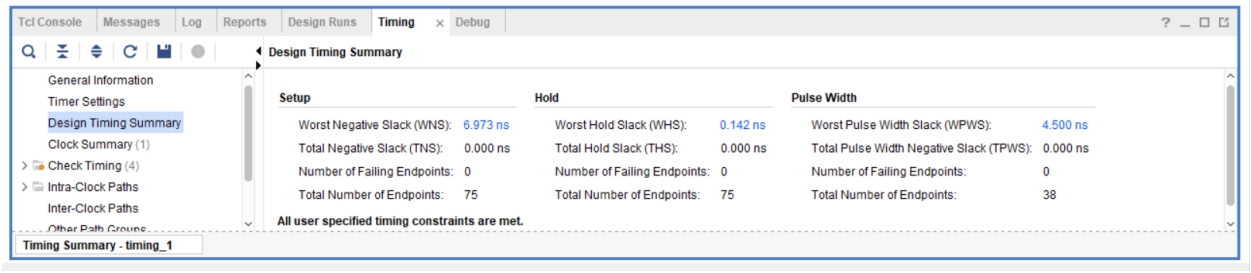
Synthesis



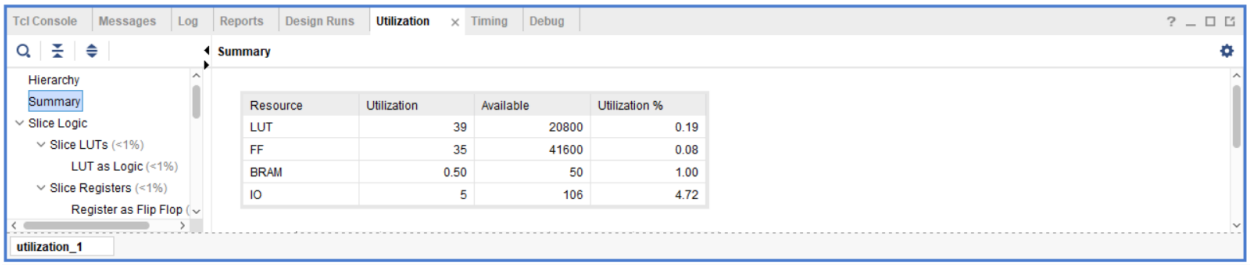
Synthesis report



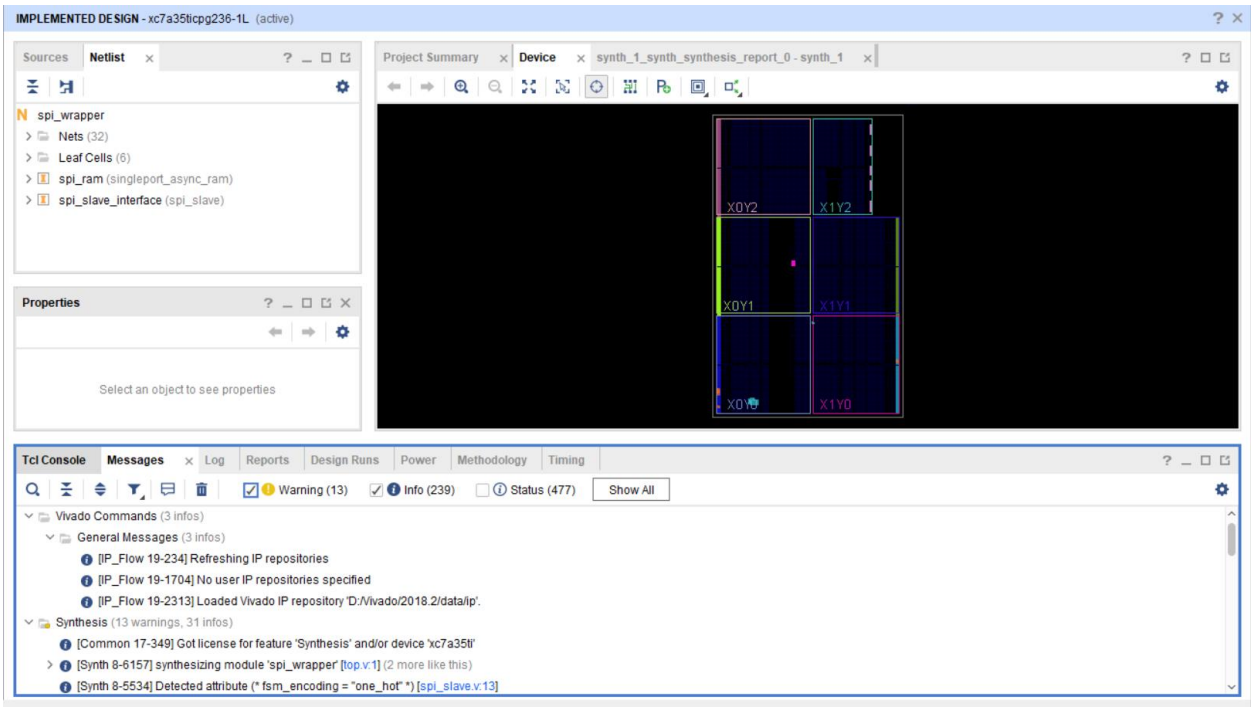
Timing report



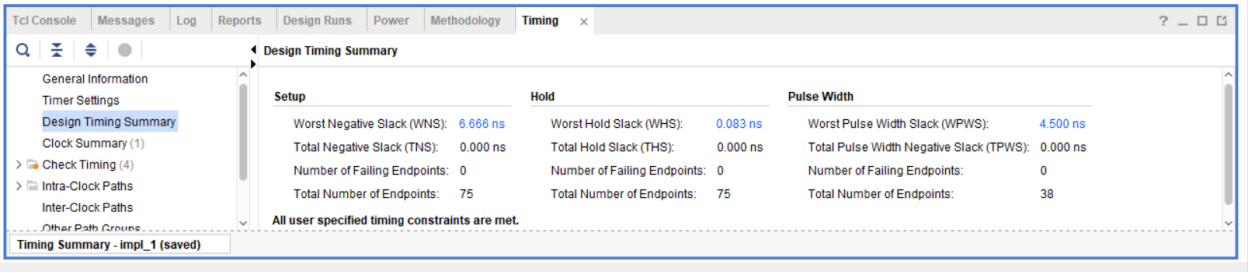
Utilization



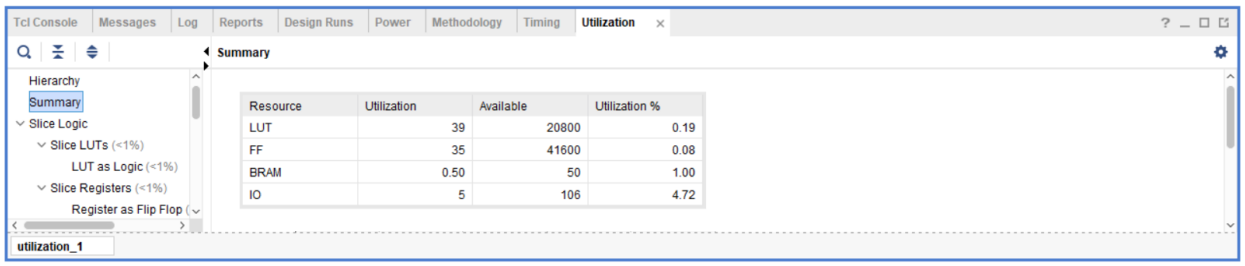
Implementation



Timing report



Utilization



To operate at the highest frequency possible, we should one hot encoding as it gives the best setup time slack and hold time slack.