**Lab. 4 Interpolator\_2**

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# The time-domain impulse response of interpolator

## Word-length of input.



## Word-length of 𝜇.

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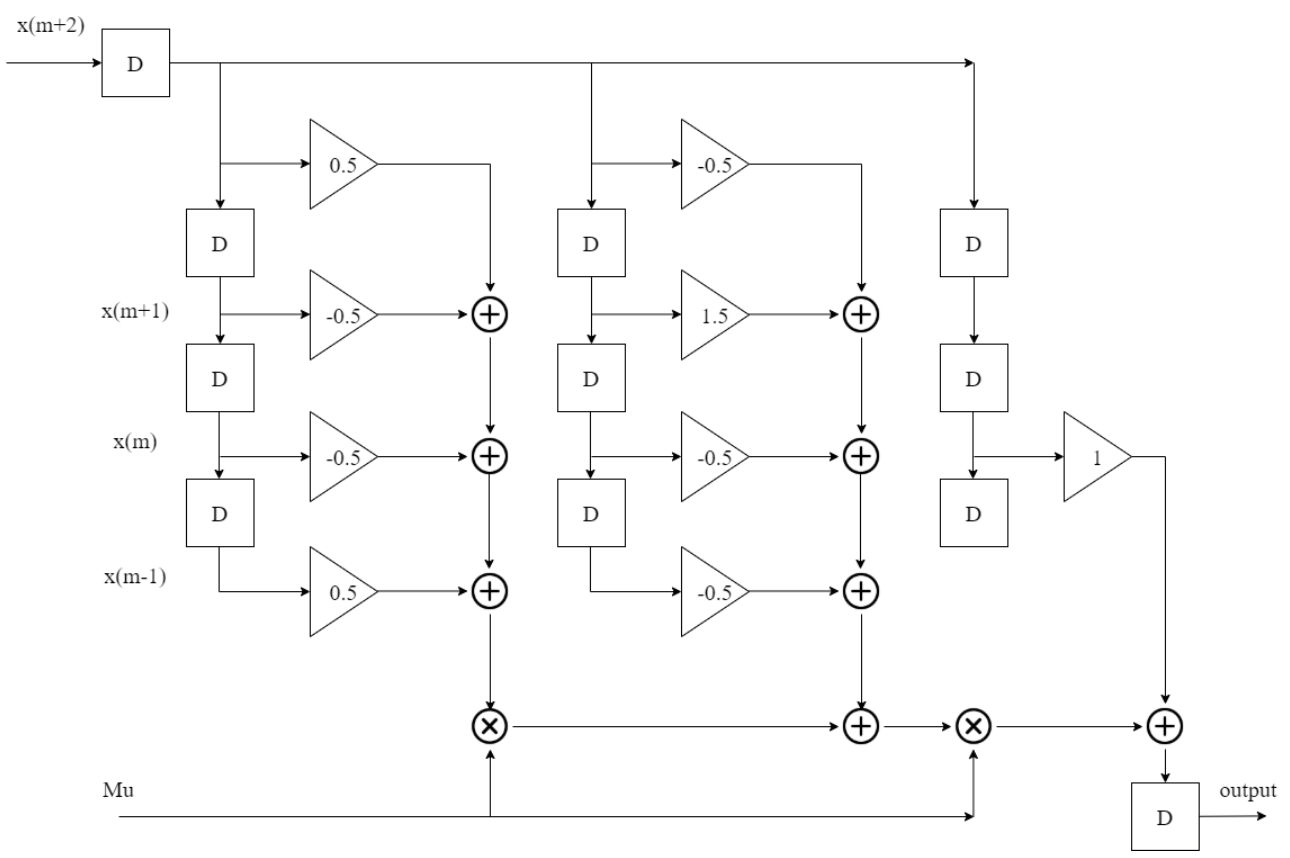
## Word-length of multiplier (by 𝜇).



## Word-length of adder



## Final architecture of the piece-wise parabolic interpolator



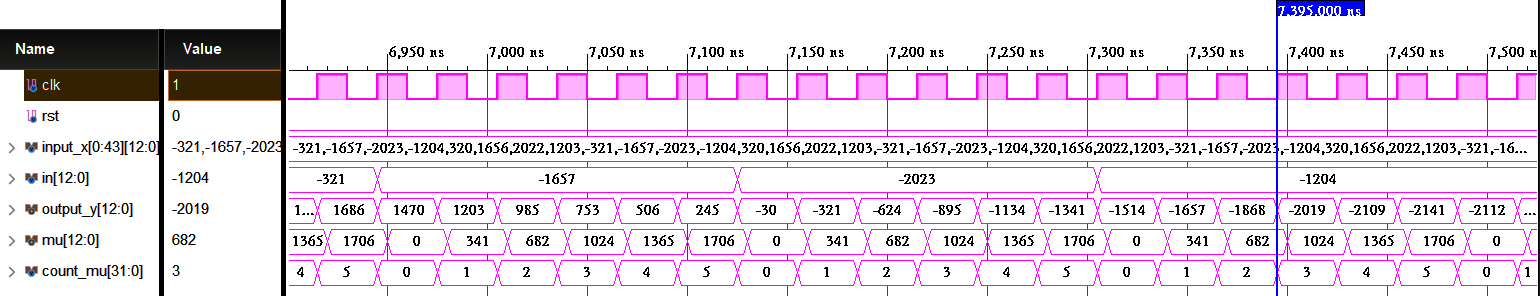
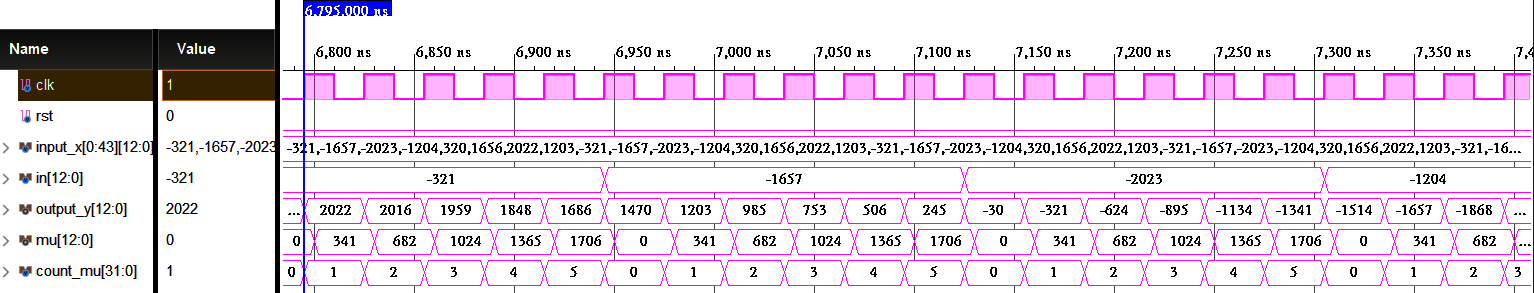
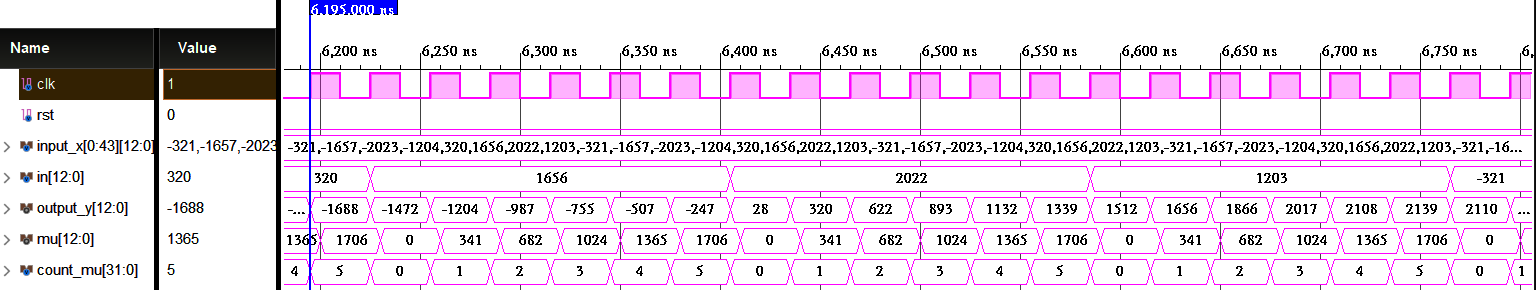
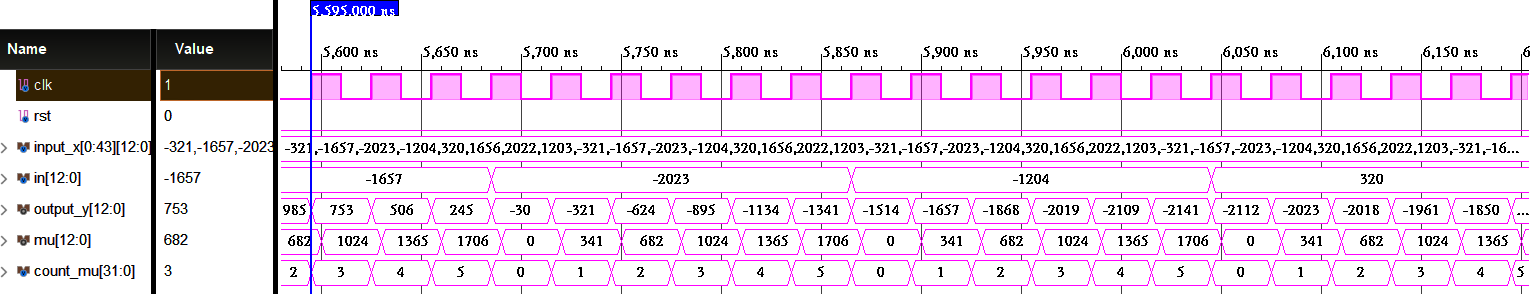
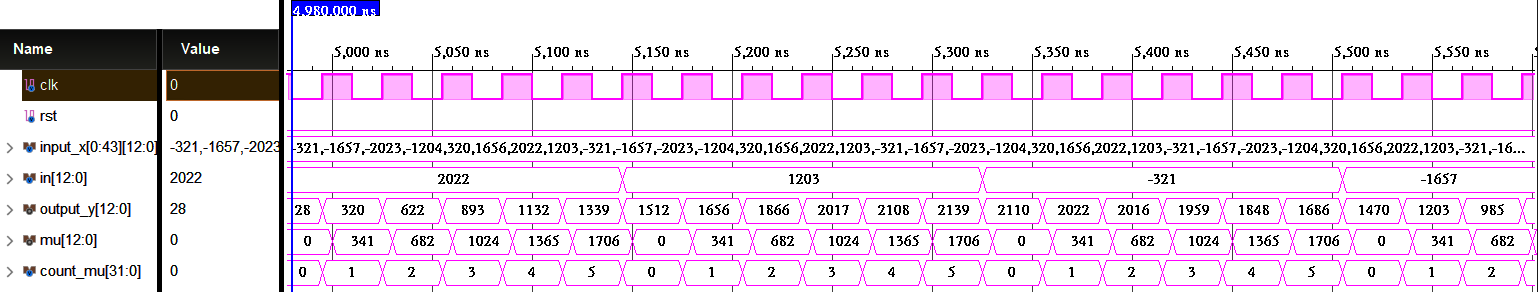
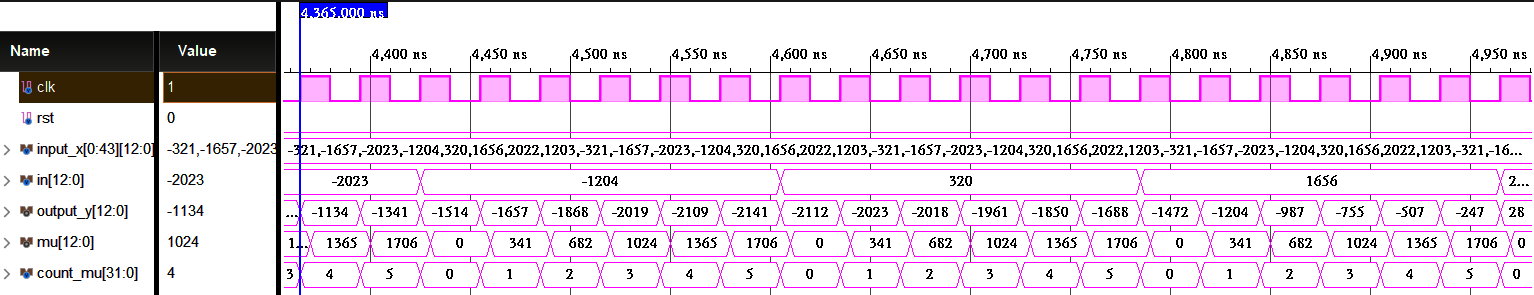
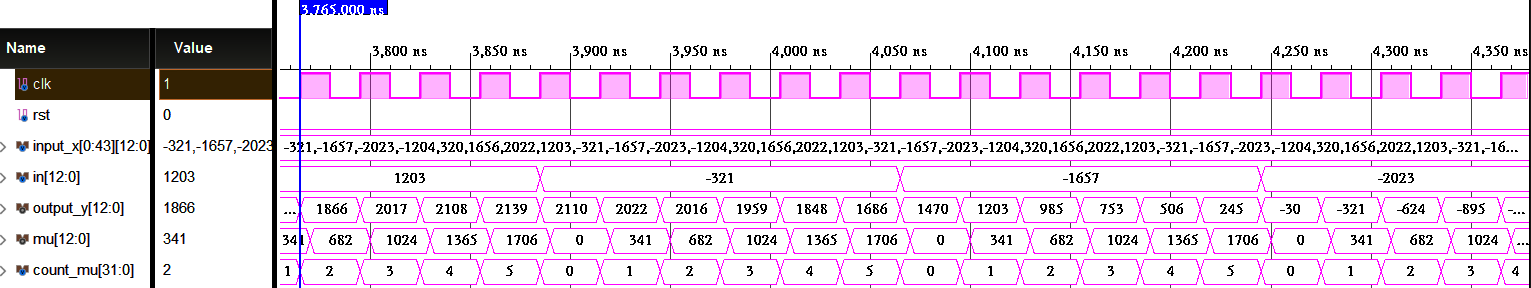
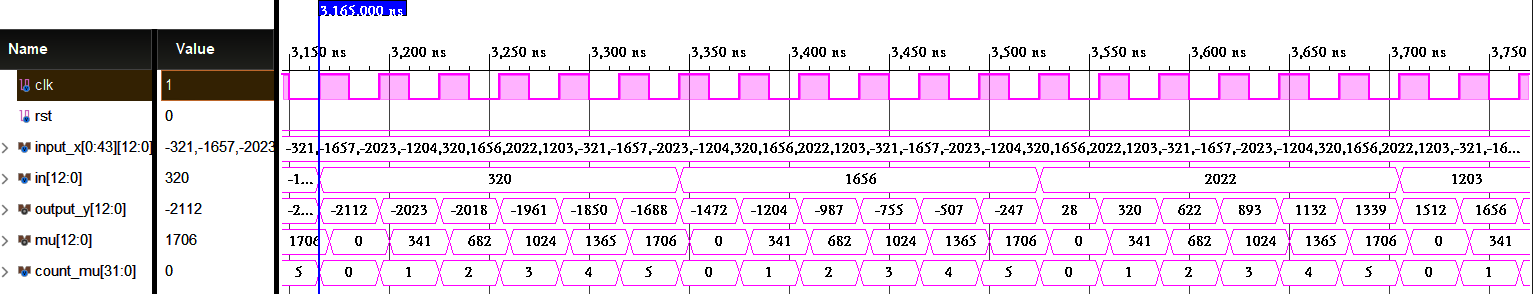
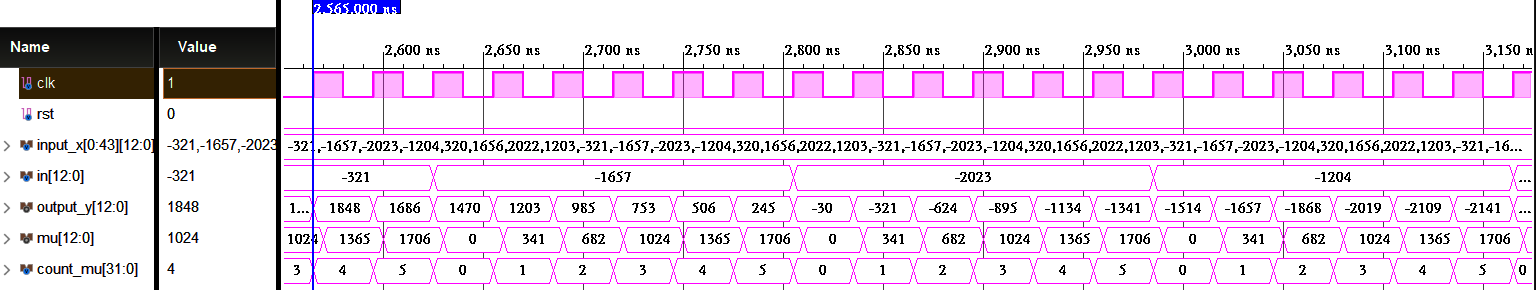
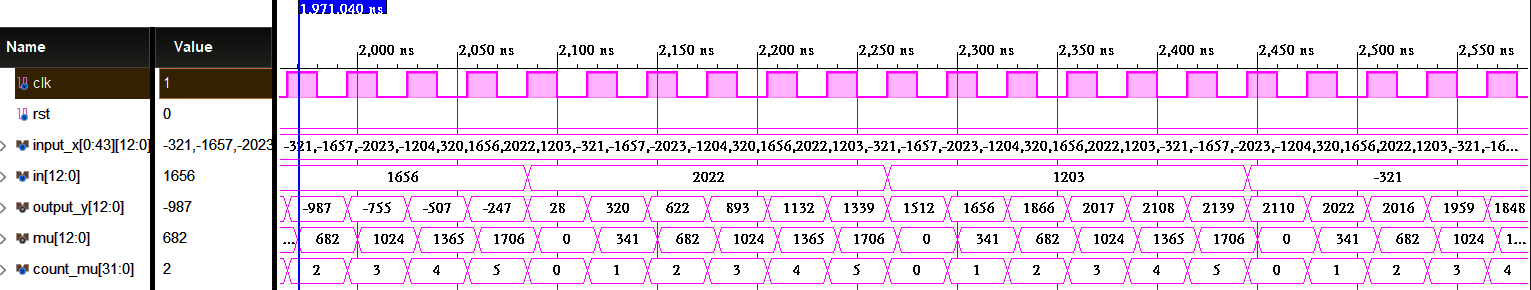
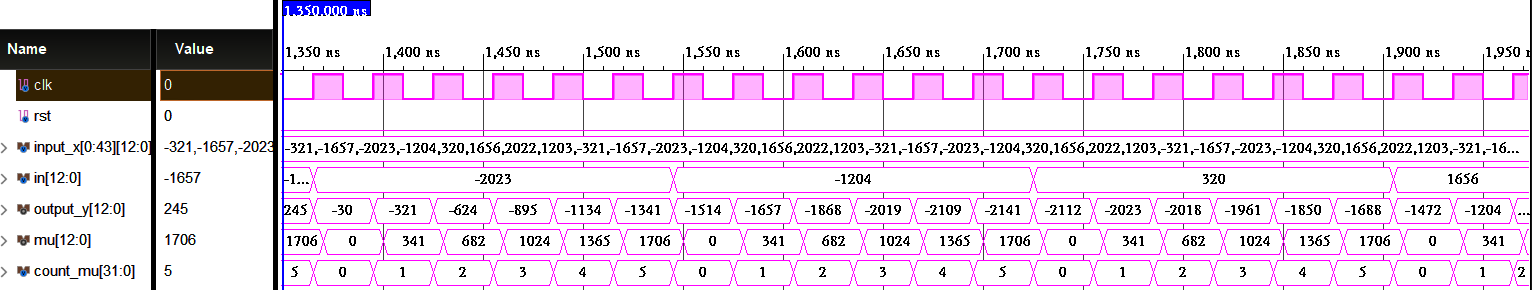
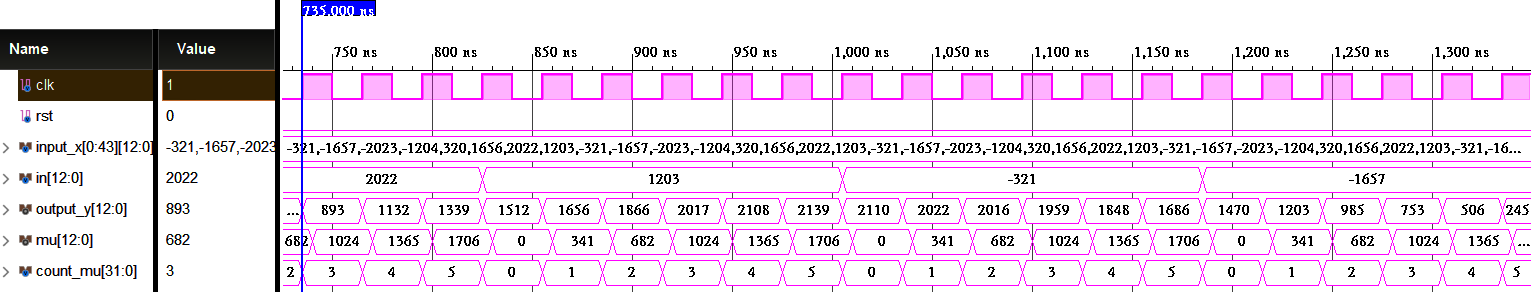
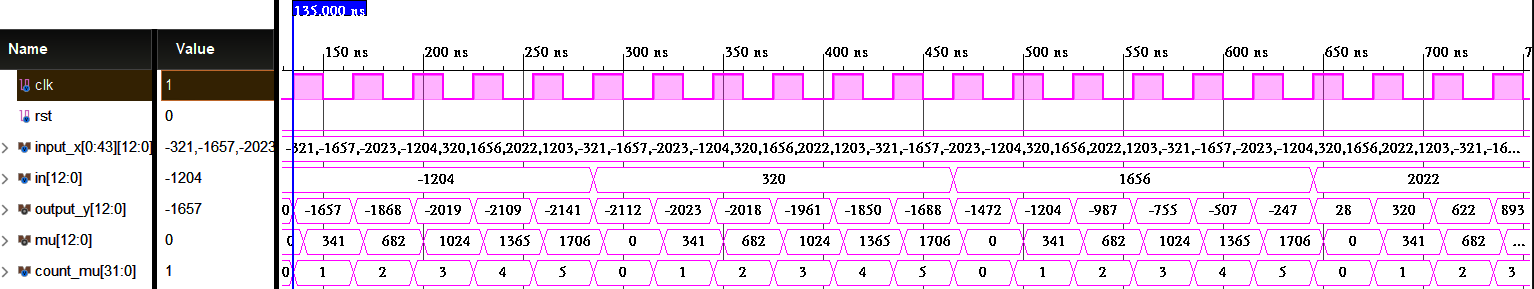
S1.11

S1.11

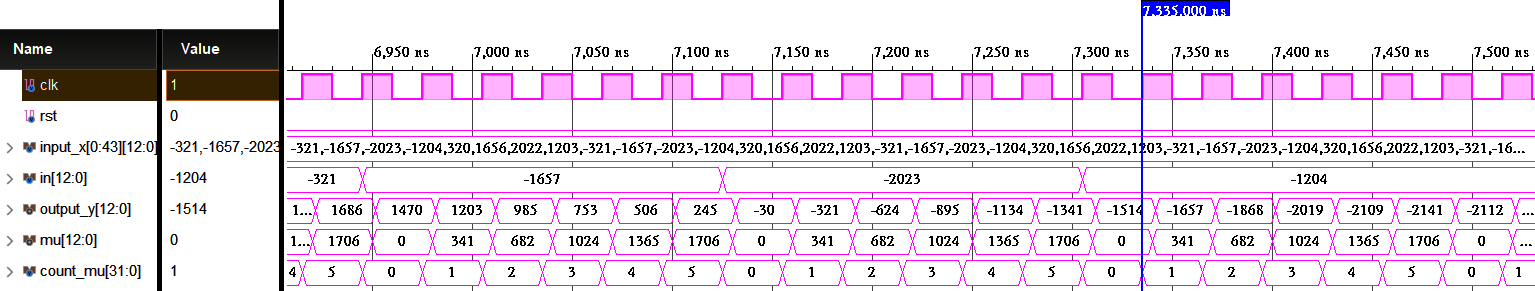
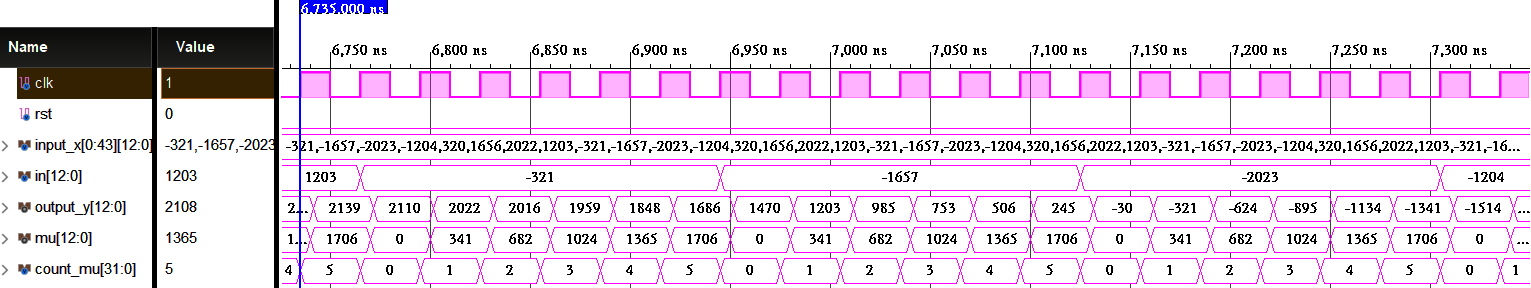
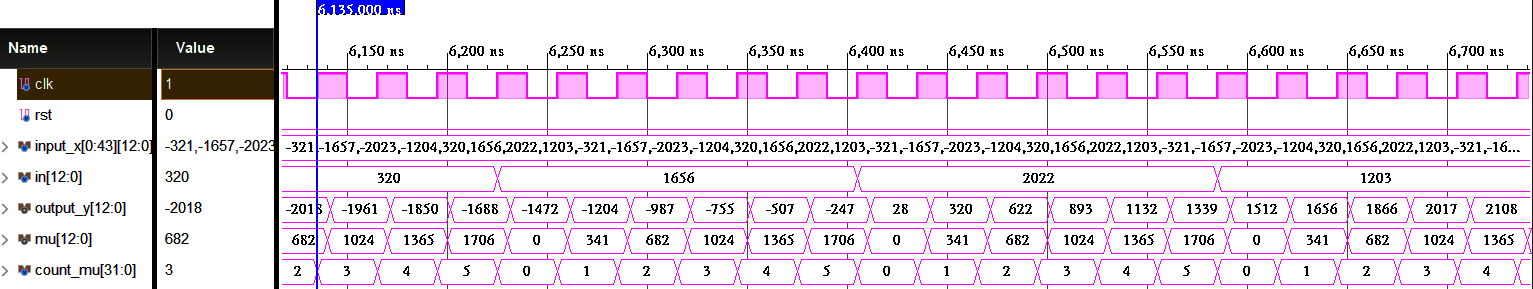
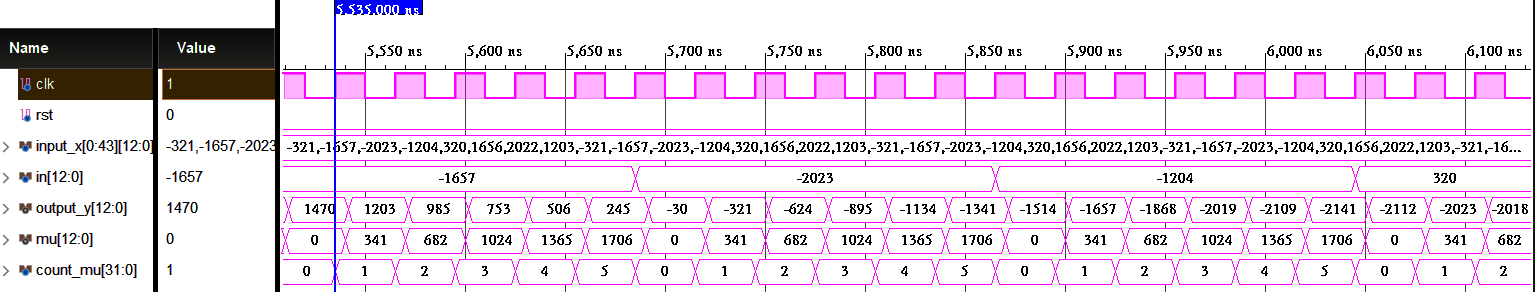
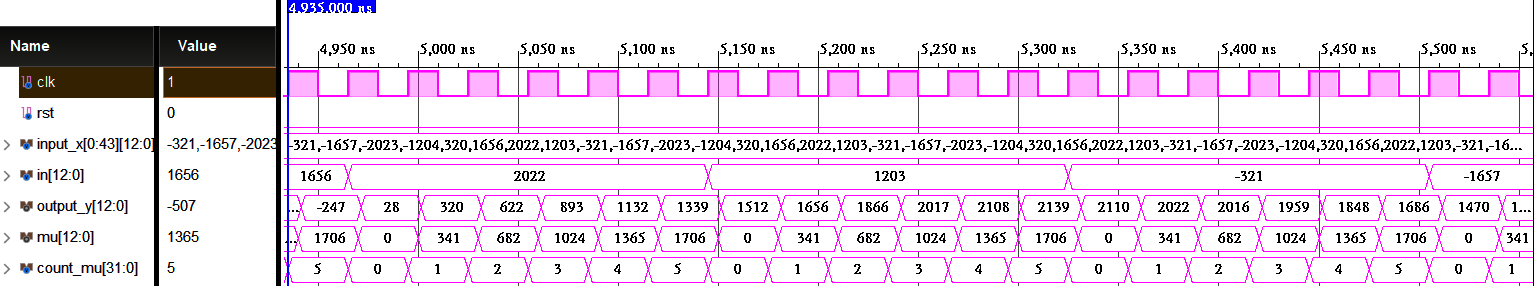
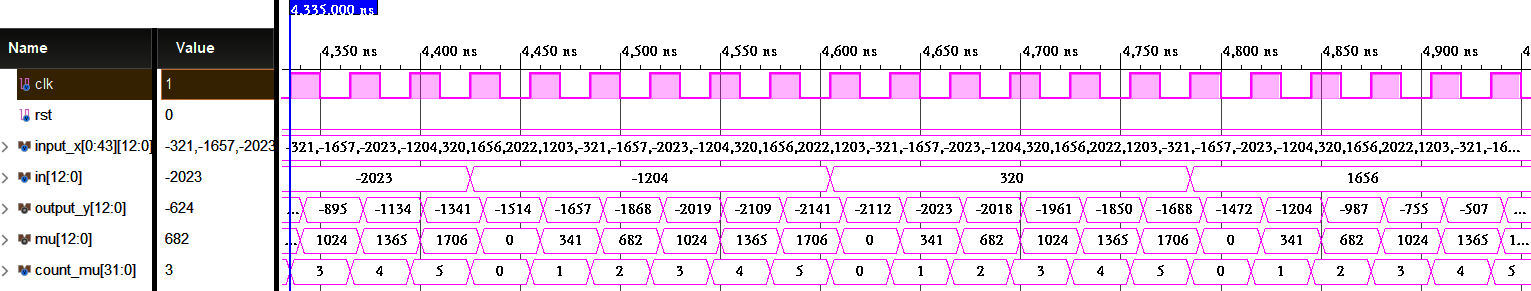
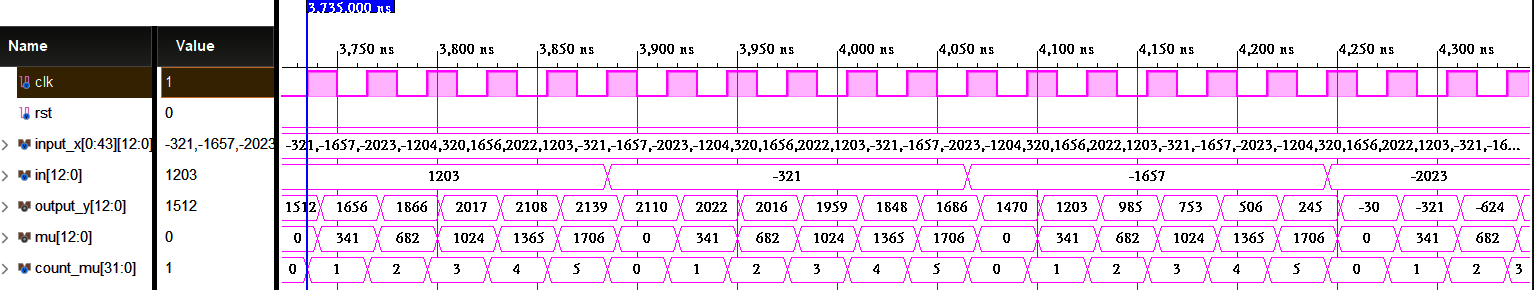
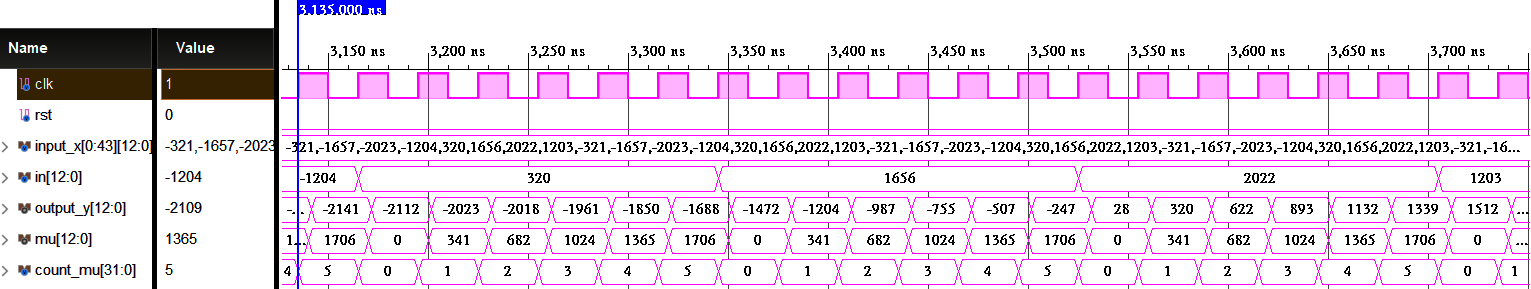
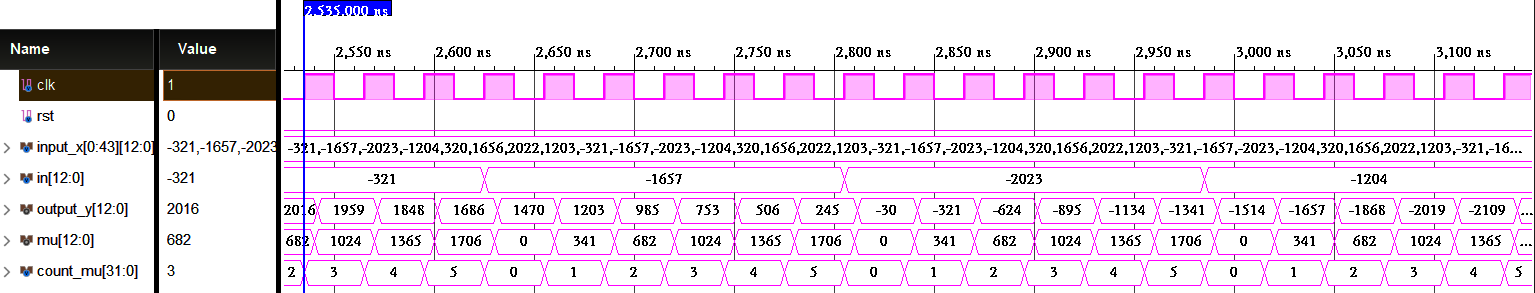
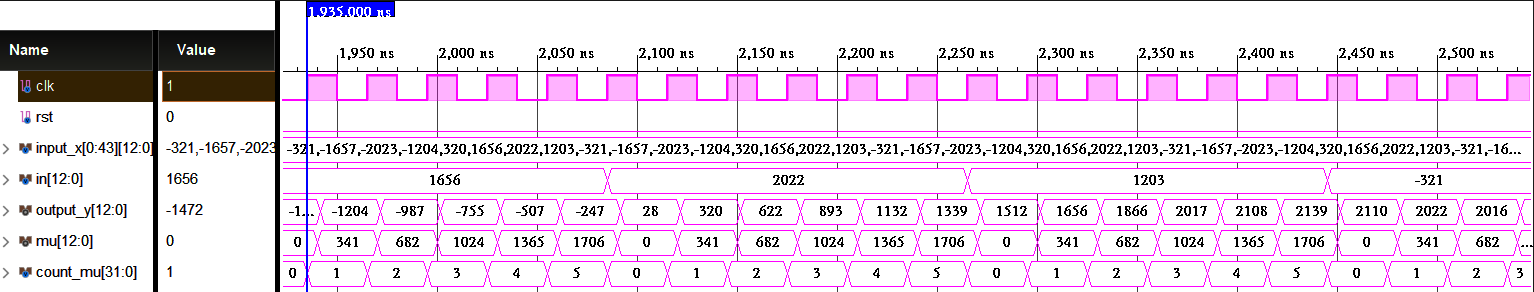
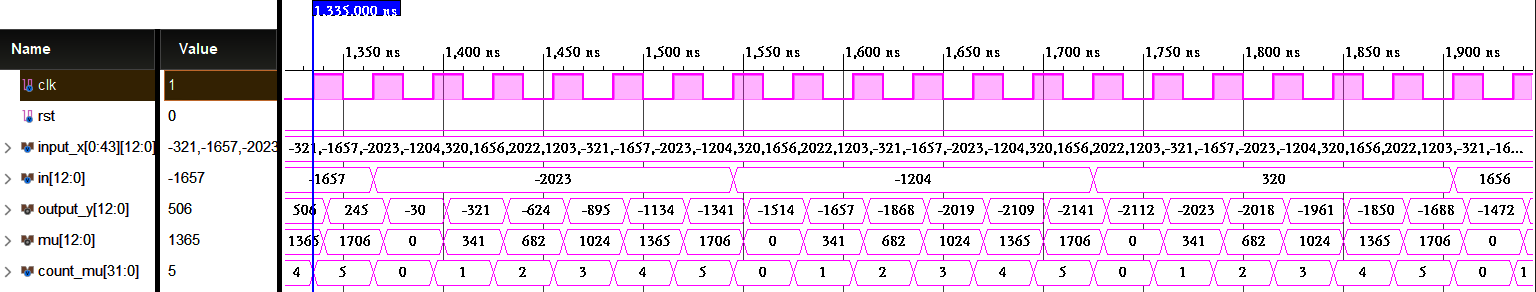
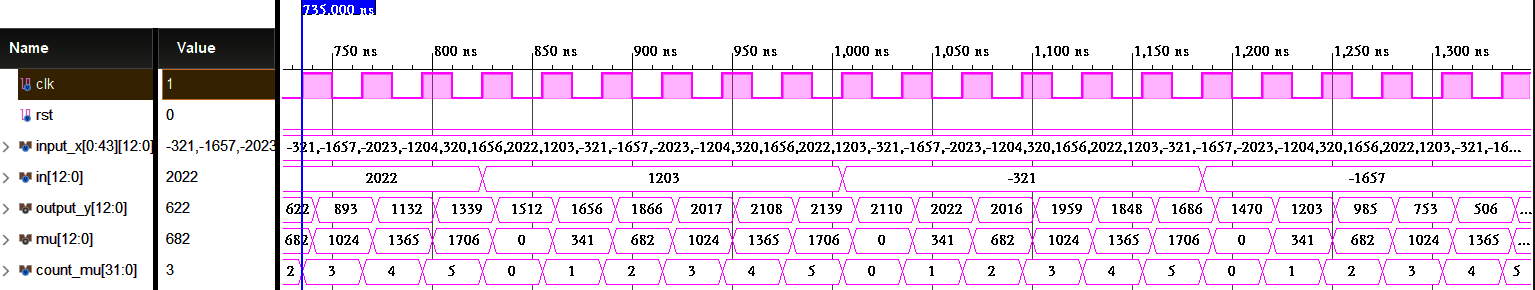
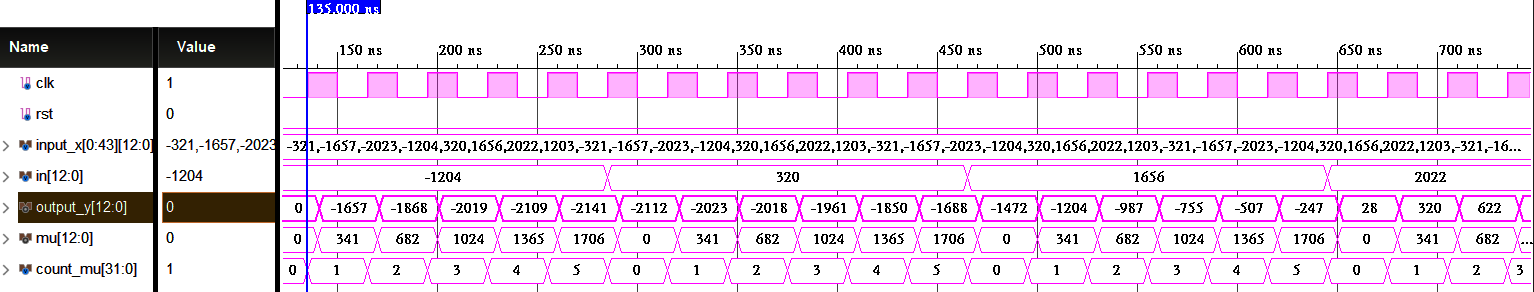
S1.11

S1.11

## Behavior simulation result.



## Post-route simulation results.

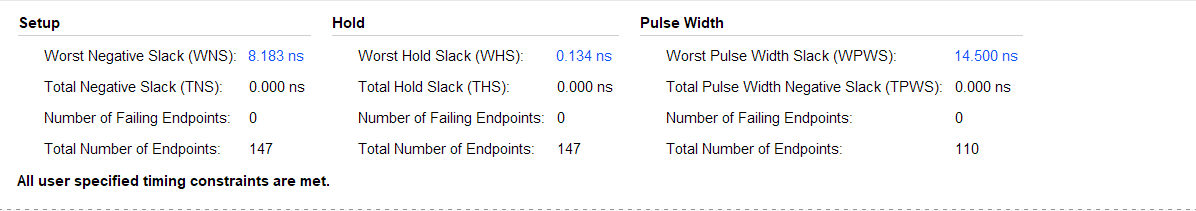


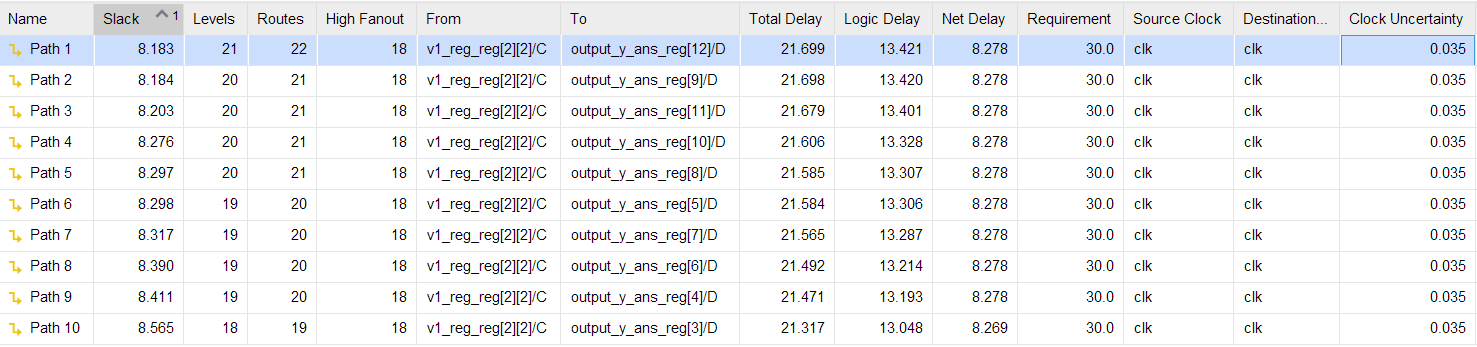
## The error between the Verilog outputs and Matlab floating-point outputs.

RMSE (log2): -10.8853

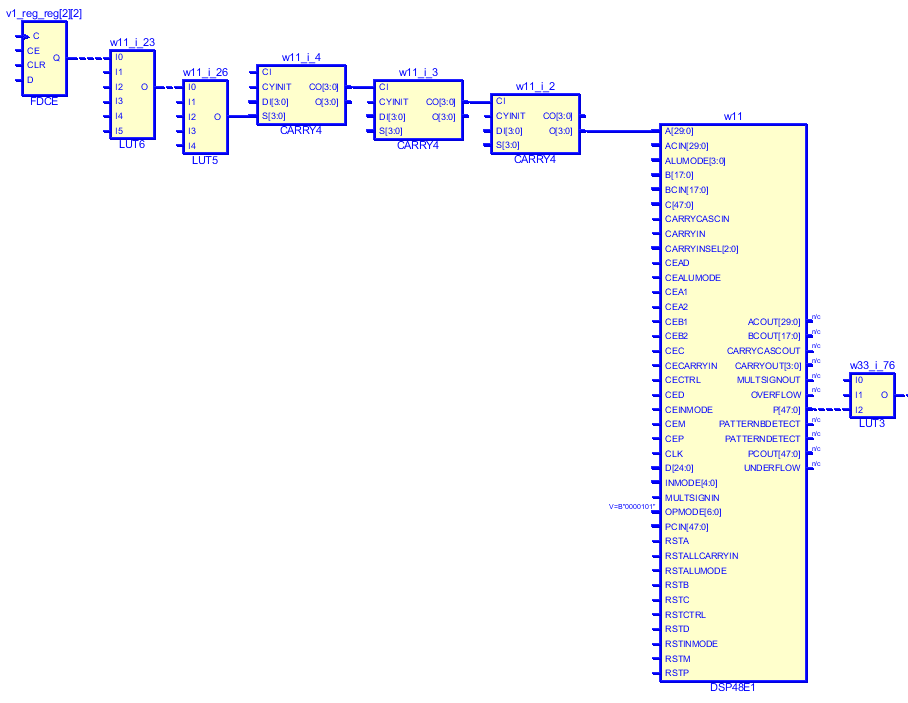


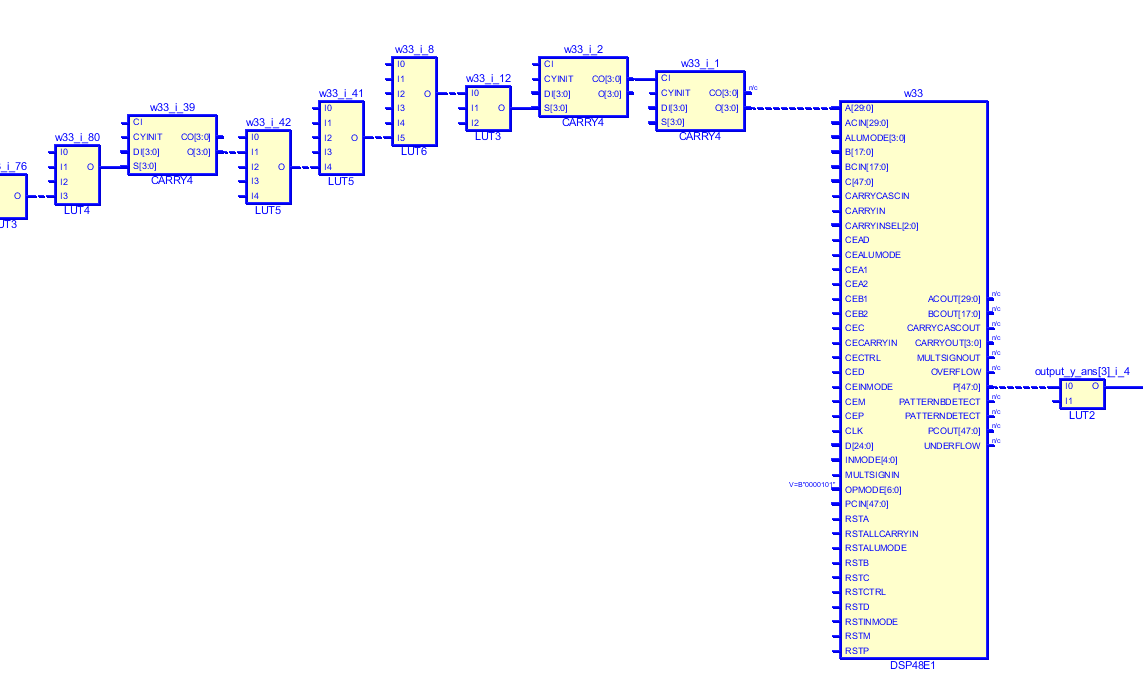
## Timing report.

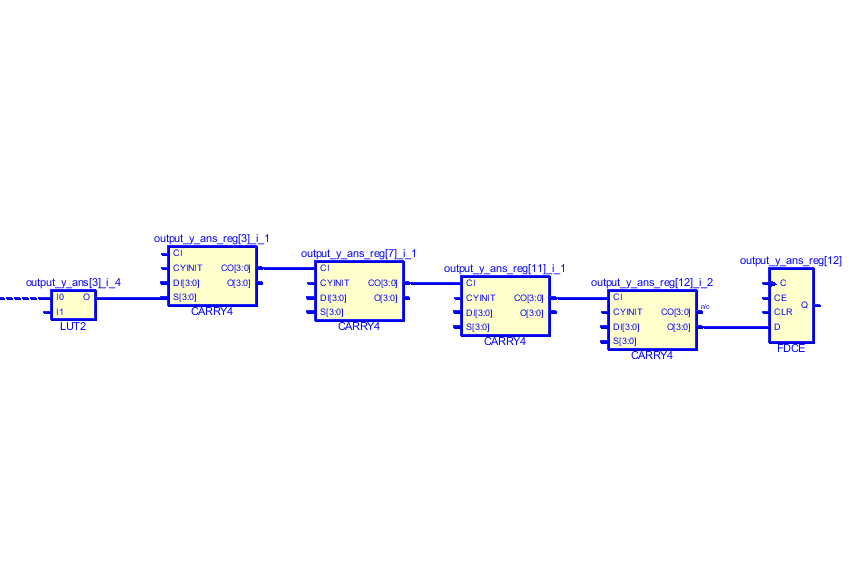


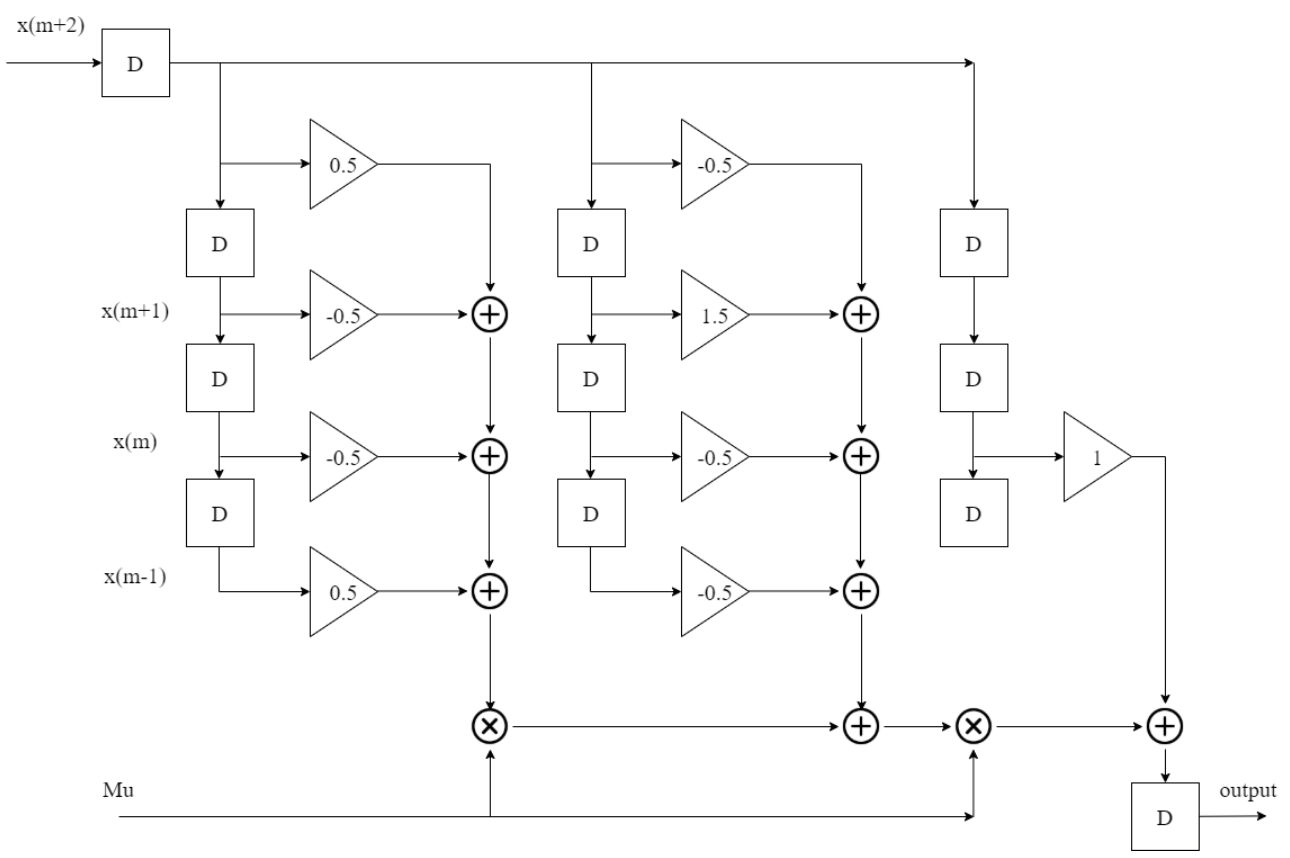


## Critical path









**v0\_reg[0]**

**v0\_reg[1]**

**v0\_reg[2]**

**v1\_eg[0]**

**v1\_reg[1]**

**v1\_reg[2]**

**v2\_reg[0]**

**v2\_reg[1]**

**v2\_reg[2]**

**Reg[3]**

**w11**

**w33**

**v0\_out**

**v1\_out**

**v2\_out**

**Output\_y\_ans**

