

Student reg.no: 19BCE0298

Student Name: Dhanush Kumaar J

Course Code: CSE1003

Course Name: Digital Logic and Design

Due Date: 28-10-2021

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Slot & Semester: L5+L6

FALL-2021-2022

Faculty: Dr. N.Sangeetha

DA-4

Learning Objective

To prove KMAP and Tabular Method in LTSpice

Electronic design Software/Tool

LTSpice

Theory Overview

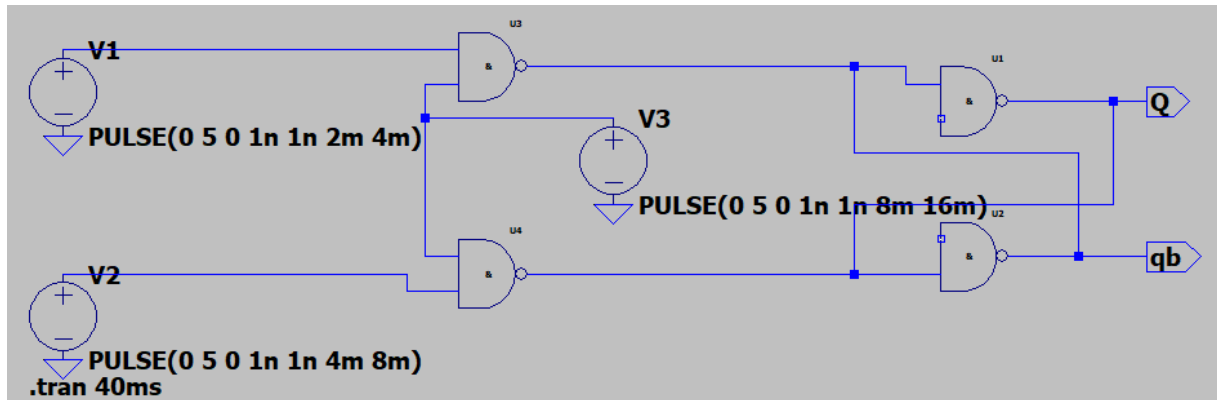
A flip flop is an electronic circuit with two stable states that can be used to store binary data. The stored data can be changed by applying varying inputs. Flip-flops and latches are fundamental building blocks of digital electronics systems used in computers, communications, and many other types of systems. Both are used as data storage elements. It is the basic storage element in sequential logic. But first, let's clarify the difference between a latch and a flip-flop.

Procedure

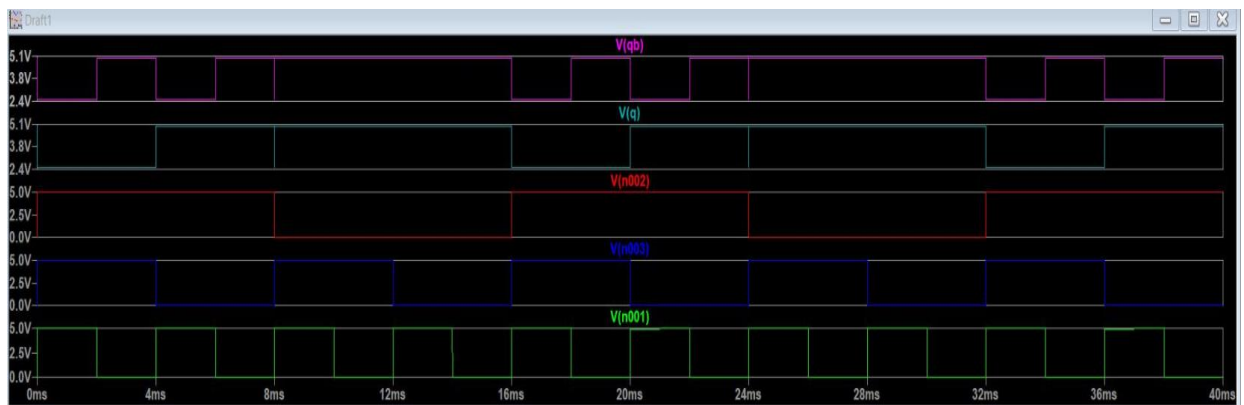
1. Deploy the flip flop circuit in LTSpice
 3. Simulate and plot the output function.
 4. Verify the practical results with theoretical results.
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1. Construct SR flipflop and verify its truth table in the results using LT spice.

S	R	Q	Q'
0	0	0	1
0	1	0	1
1	0	1	0
1	1	∞	∞

Simulation Circuit



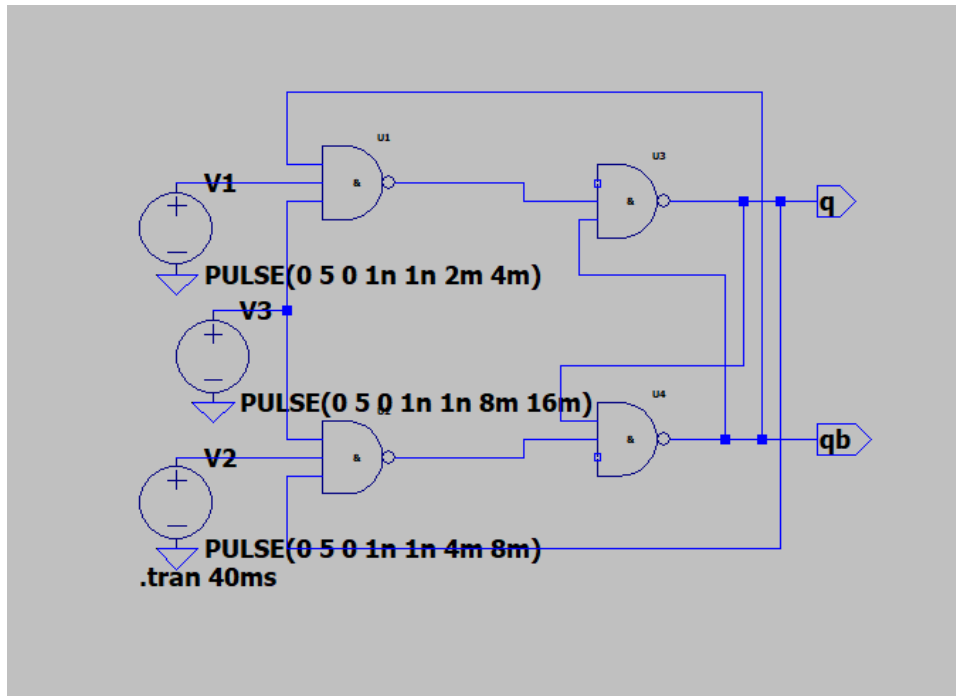
Output waveform



2. Construct JK flipflop and verify its truth table in the results using LT spice.

J	K	Q	Q'
0	0	0	0
0	1	0	0
1	0	0	1
1	1	0	1
0	0	1	1
0	1	1	0
1	0	1	1
1	1	1	0

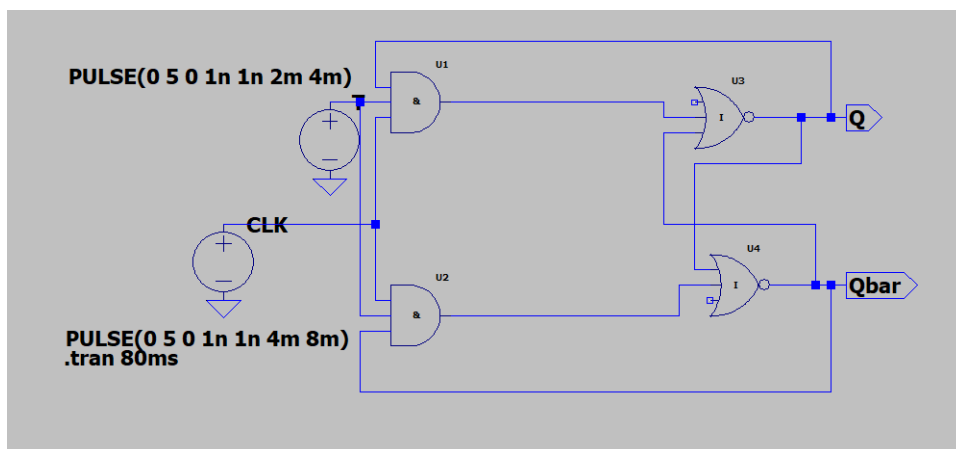
Simulation Circuit



3. Construct T flipflop and verify its truth table in the results using LT spice.

T	Q	Q (t+1)
0	0	0
1	0	1
0	1	1
1	1	0

Simulation Circuit



Result:

The output from the LTspice matches the truth table hence our simulation is correct.