SIX - TRANSISTOR CMOS TG IMPLEMENTATION OF THE XOR FUNCTION

THEORY:

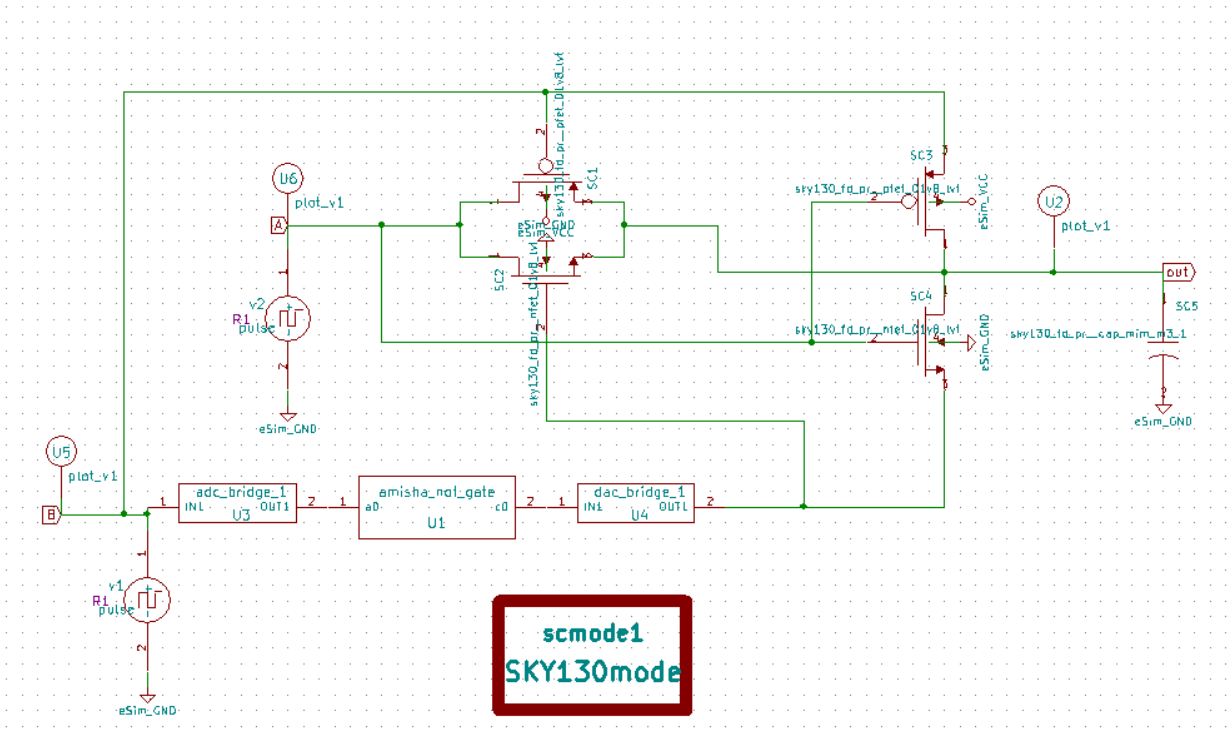
The implementations of CMOS transmission gate in logic design usually result in compact circuit structures which may even require a smaller number of transistors than their standard CMOS counterparts. In an XOR circuit, the output is logic 1 when one and only one input is logic 1. Hence the output is logic 0 when both inputs are logic 1 or logic 0 simultaneously.

Applications of XOR function:

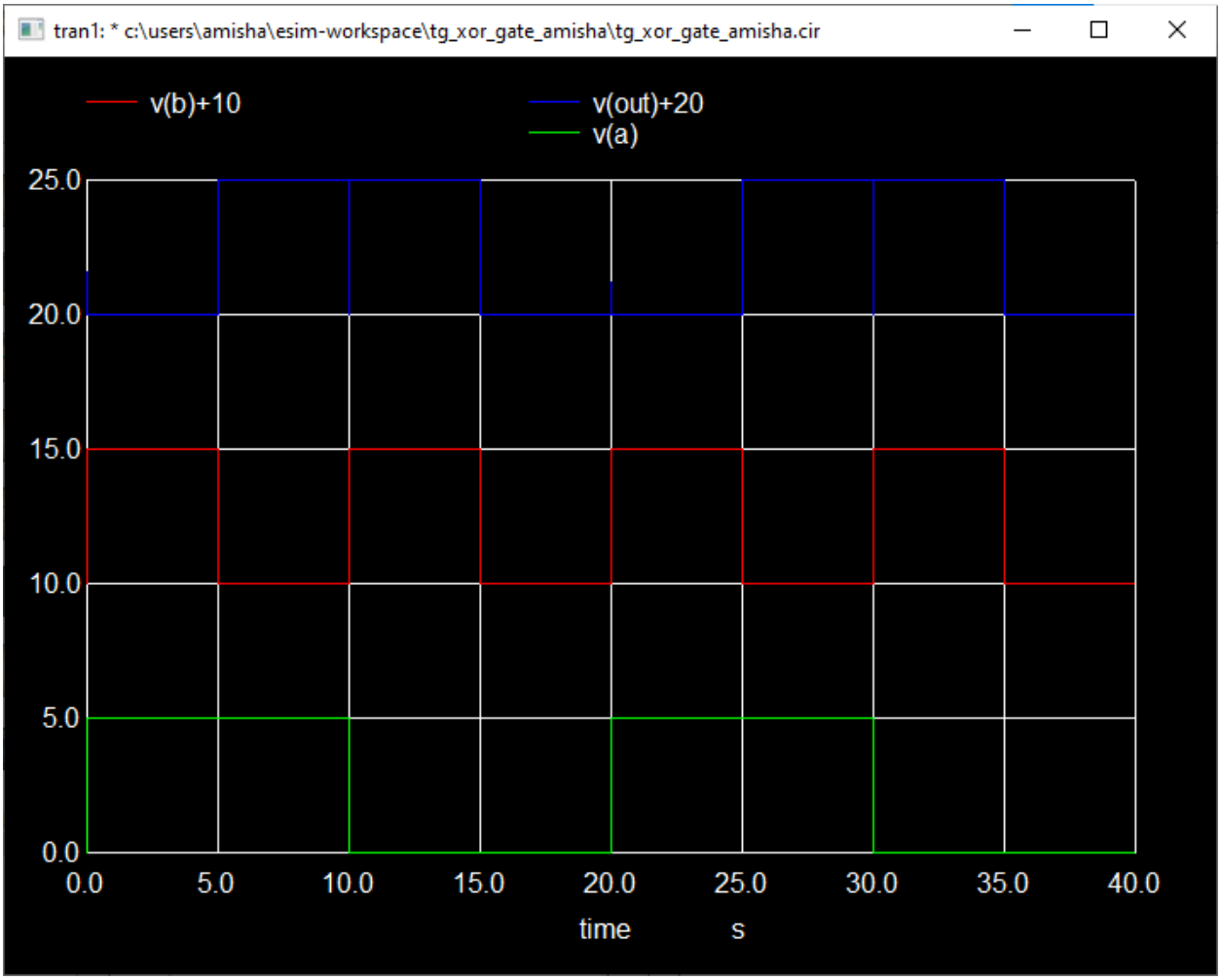
1. Uses in addition
2. Pseudo-random number generator
3. Correlation and sequence detection
4. Phase detectors

SCHEMATIC DIAGRAM:

The circuit schematic of the Six - Transistor CMOS TG Implementation of the XOR Function using Sky130PDK in eSim is as shown below:



SIMULATION RESULTS:



CONCLUSION:

Thus, we have implemented Six - Transistor CMOS TG Implementation of the XOR Function Using Sky130PDK in eSim and the appropriate waveforms are obtained.

REFERENCES:

1. https://en.wikipedia.org/wiki/XOR_gate
2. CMOS digital integrated circuits: Sung-Mo Kang, Yusuf Leblebici