

# Full Adder using 28nm CMOS Technology

Anuj Agrawal

Department of Electrical and Electronics Engineering

NIT Trichy

Trichy , Tamil Nadu

aanuj727@gmail.com

**Abstract**—CMOS stand for Complementary Metal Oxide Semiconductor. CMOS is the semiconductor technology used to manufacture transistor. CMOS use two MOS which include PMOS and NMOS in which NMOS act as discharging Capacitor while PMOS act as charging Capacitor. This paper present basic design of Full adder using 28 transistor which include implementation of basic gate using transistor.

**Keywords**—Digital logic design, CMOS

## I. REFERENCE CIRCUIT DETAILS

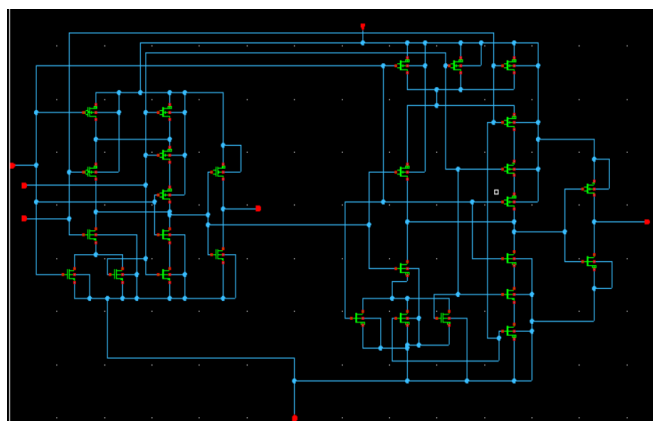
Full adder is basic circuit which takes 3 input which include Input 1(A) and Input 2(B) a Carry (C<sub>in</sub>). It performs addition and produce 2 output Sum and Carry. Since these are 2-bit digital Signal so can be 0 or 1.

The above Boolean expressions is:

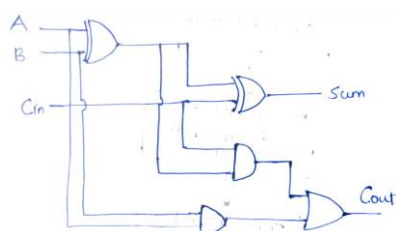
$$\text{sum} = A \text{ XOR } B \text{ XOR } C_{in} \quad (1)$$

$$\text{carry} = AB + BC_{in} + AC_{in} \quad (2)$$

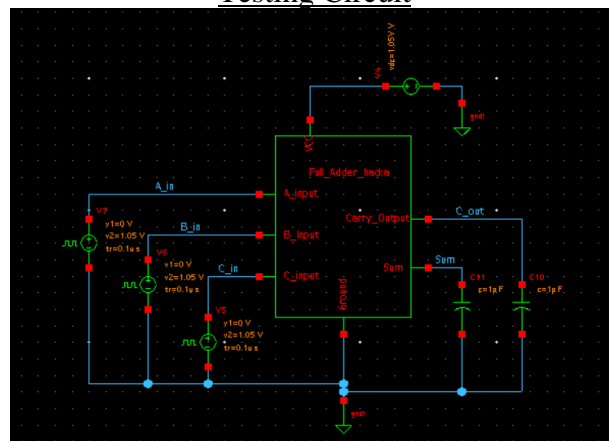
## II. IMPLEMENTED CIRCUIT DESIGN



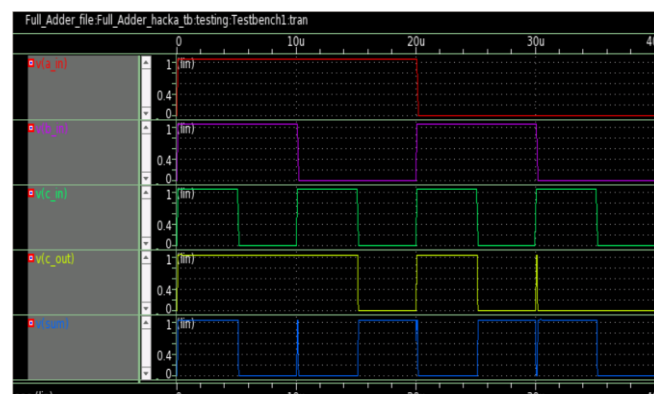
## III. TRUTH TABLE AND DESIGN



## Testing Circuit



## IV. FINAL WAVEFORM AND ESTIMATION



## V. REFERENCES

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- [2] [Geek for Geeks](#) - Digital Full Adder logic
- [3] [Design A 1Bit Low Power Full Adder Using Cadence Tool](#)
- [4] [Inderjit Singh Dhanjal – Youtube Channel](#)