Design of full adder using Cmos

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19 FEBRUARY 2022

***Abstract*— In this paper, I will design full adder circuit Using Cmos 28nm Technology. Design and Implementation will be done using Esim Software. Full adder is the functional building block and basic component in several architectures found in VLSI and DSP applications, Adder is a versatile component and mainly used in addition and multiplication as the basic processing element; Adder in a VLSI application is used in ALU design, Address generation in processors, Multipliers and so on. In DSP applications it is used code for conversion, Signed addition and Signed multiplication, Transformations and signal processing applications. This defines the need and importance of designing an adder block in effective way**

Keywords— Esim software, DSP application.

Reference circuit details

A CMOS network consists of pull up network (PMOS transistors) and pulldown network (NMOS transistors). The PMOS transistor passes good logic „1" and weak logic „0" whereas the NMOS transistor passes good logic „0" and weak logic „1" to the next level. The output of this network is having full swing and the voltage levels are not degraded

Full adder adds the incoming inputs and gives the result along with a carry. A 1-bit full adder takes three inputs and gives two outputs which are sum and carry. A full adder contains two half adders which are being connected to input A and B of one-half adder and other is being connected to sum (output)which have the one input as Cin and other is the output of XNOR.

1-bit full adder which has three 1-bit inputs (A, B and Cin) and two 1-bit outputs (Sum and Cout). The relations between the inputs and the outputs are expressed as:

Sum = A exor B exor Cin

Cout = AB + BCin + ACin

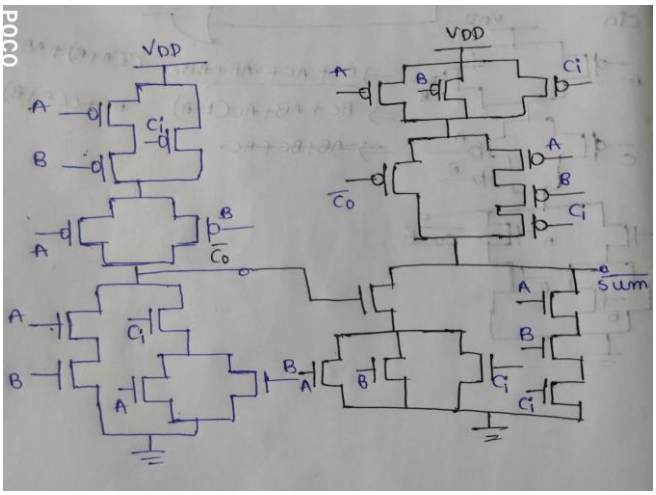

Figure 1 Reference circuit design

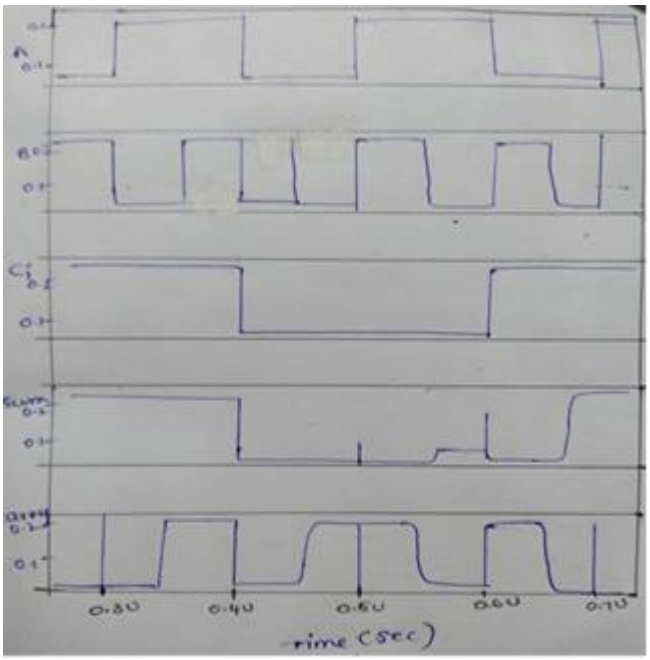

Figure 2 Reference circuit waveforms

References

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