

Fractional Residue Number System

Authors : Parisa Khoshvaght, Mehdi Hosseinzadeh

Abstract : During the past few years, the Residue Number System (RNS) has been receiving considerable interest due to its parallel and fault-tolerant properties. This system is a useful tool for Digital Signal Processing (DSP) since it can support parallel, carry-free, high-speed and low power arithmetic. One of the drawbacks of Residue Number System is the fractional numbers, that is, the corresponding circuit is very hard to realize in conventional CMOS technology. In this paper, we propose a method in which the numbers of transistors are significantly reduced. The related delay is extremely diminished, in the first glance we use this method to solve concerning problem of one decimal functional number some how this proposition can be extended to generalize the idea. Another advantage of this method is the independency on the kind of moduli.

Keywords : computer arithmetic, residue number system, number system, one-Hot, VLSI

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