Approximate Adder Circuits: A Comparative Analysis and Evaluation

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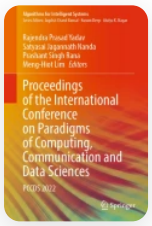

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Abstract

Approximate Computing has emerged as a
and less complex designs for circuits. Appr
that achieves power and area efficiency by i
circuit's output behavior. In arithmetic circ
become essential to understand the approx
performance and efficiency. This paper aim

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approximate adders and comparatively asse on speed, area and power. Arithmetic circuits are implemented and synthesized using HDLs and design compiler and error characterization is done by using MATLAB. In this paper power, speed and area are compared with respect to error distance, normalized mean error distance and mean relative error distance. The comparative result conveys that equal segmentation adder has low accuracy but it is a hardware efficient design. After evaluation analysis conveys that equally accurate adders are error-tolerant adder type II, Speculative carry select adder and the accuracy configurable approximate adder. In this most power consuming adder is almost the correct adder. Among all adders, the slowest and extremely efficient adder is the lower part OR adder.

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