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Information and Communication Technologies

IJCA Proceedings on National Conference on

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NCICT 2015 - Number 1

Year of Publication: 2015

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{bibtex}ncict1541.bib{/bibtex}

Abstract

The increasing industrial growth needs its system to be fully controllable. Such control systems are almost composed of VLSI components such as adders, multipliers and accumulators. This paper analyzes two MAC units with array, booth algorithms and those blocks are incorporated in PID controller architecture. Comparisons are made with power consumption of each architecture. The simulations are done in Modelsim and power results are synthesized using Xilinx ISE. The results suggest that the PID controller with booth based MAC unit and PID architecture consumes less power when compared to array based architectures.

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Index Terms

Computer Science

Control Systems

Keywords

Multiply-accumulate (mac) Array Multiplier Booth Multiplier
Proportional-integral-derivative Controllers (pid)

