Reconfigurable Design of Rectangular to Polar Converter using Linear Convergence

Abstract

In recent years, the growth of multimedia services and applications in digital data transmission has led to ever increasing demands of effective data transmission over the wired as well as wireless communication systems. Since digital communication systems need to deal with multimode and multiband operations on complex signals many-a-times, there is always a requirement of an efficient method for rapid phase and magnitude extraction. The proposed Rectangular to Polar Converter (RPC) has been implemented using fully parallel CORDIC, a Linear Convergence Algorithm, in vectoring mode. The design is synthesized with ISE 10. 1 software, and implemented on 2v3000fg676-4. Synthesis results show that the design is able to work at 177. 620 MHz with less hardware requirements.
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Index Terms

Computer Science

Integrated Circuits
Keywords

RPC  CORDIC  coordinate conversion  vectoring mode  atan2  FPGA