

Implementation of High Performance Reconfigurable 2D Fir Filter Using Farrow Structure and Modified Booth Algorithm

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Abstract:

This paper presents the implementation of a high speed reconfigurable 2-Dimensional (2D) Finite impulse Response (FIR) filter using park-McClellan transformation and Farrow structures. The 2D filter coefficients are multiplied with a tuning parameter ω_j to obtain N number of 2D filter responses using the modified booth multiplier. The 2D filter implemented in this work uses reduced number of multipliers compared to traditional and existing 2D FIR filters. The design is coded in verilog and synthesized in FPGA board in Xilinx vivado. The synthesized results indicate that the slice registers required can be proportionally reduced with the number of filters used in the design. These instructions give you guidelines for preparing papers for the International conference ICCSE). Use this document as a template if you are using Microsoft Office Word 6.0 or later. Otherwise, use this document as an instruction set. The electronic file of your paper will be formatted further at International Journal of Computer Theory and Engineering. Define all symbols used in the abstract. Do not cite references in the abstract. Do not delete the blank line immediately above the abstract; it sets the footnote at the bottom of this column.

Keywords:

2D FIR Filter, Booth Multiplier, Farrow structure, Park-McClellan transformation, Reconfigurable FIR filters, Embedded systems.