

(54) Title of the invention : EFFICIENT VLSI ARCHITECTURE FOR SOBEL EDGE DETECTION WITH KOGGE-STONE ADDER

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(57) Abstract :
 ABSTRACT Efficient VLSI Architecture for Sobel Edge Detection with Kogge-Stone Adder The present invention relates to a VLSI architecture designed for efficient Sobel edge detection utilizing Kogge-Stone Adder. Sobel edge detection plays a crucial role in image processing for object identification, with this architecture offering enhanced performance in terms of speed and power efficiency. The architecture involves the computation of horizontal and vertical gradients followed by the detection of edge pixels through threshold comparison. Key components include Kogge-Stone Adders, multiplexers, and 2's Complementers, ensuring optimal processing of image data. The utilization of Kogge-Stone Adder minimizes carry computation delay and power dissipation, resulting in a high-speed and energy-efficient edge detection system.

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