

# **HIGH THROUGHPUT AND EFFICIENT MEMORY VLSI STRUCTURE USING 2-D DWT IN MULTILEVEL LIFTING TECHNIQUE**

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## **ABSTRACT**

This paper presents the VLSI structure using 2-D DWT in multilevel lifting technique. The discrete wavelet transform (DWT) has the applications in image and video compression. It has advantage over the discrete cosine transform (DCT) in image compression, so the 2-D DWT is proposed for JPEG applications. The high complexity frame and link buffer are removed in the multilevel lifting. The local registers and RAM can be used instead of link and frame buffer. Pyramid algorithm and recursive pyramid algorithm are involved in the design. The design reduces the overall area-delay product and also has high throughput. The output latency is very low compared to latency of existing structures. The design has less slice delay product (SDP) and it has low value of power per output (PPO) compared to the existing structures.

**KEYWORDS:** Convolution Method, Discrete Wavelet Transform (DWT), Frame and Link Buffer, Multilevel Lifting Technique