An Efficient VLSI Linear Array for DCT/IDCT Using Subband Decomposition Algorithm

宋志雲, 謝曜式, 辛錫進
Microelectronics Engineering
Engineering
ysdaniel@chu.edu.tw

Abstract

Discrete Cosine Transform (DCT) and its inverse DCT (IDCT) have been widely used in many image processing systems and real-time computation of nonlinear time series. In this paper, a novel lineararray of DCT and IDCT is derived from the data flow of subband decompositions representing the factorized coefficient matrices in the matrix formulation of the recursive algorithm. The linear array DCT/IDCT processor with the computation complexity $O(5N/8)$ and hardware complexity $O(5N/8)$ is fully pipelined and scalable for variable-length DCT/IDCT computation

Keyword：DCT/IDCT, subband decomposition, pipeline