Quaternion multipliers based paraunitary filter banks for transform image coding with fixed point arithmetic constraints

N. A. Petrovsky

Abstract: In this work, we have introduced a systematic design of the integerto-integer invertible quaternionic multiplier based on a generalized block-lifting structure using two alternative techniques: CORDIC architectures and distributed arithmetic (DA) as a block of M-band linear phase paraunitary filter banks LP Q-PUFB for the lossless-to-lossy (L2L) image coding. The low latency separable image processing in real-time is implemented on the Xilinx Zynq.