



# Transformation Techniques for Compensating Memory Errors in Jpeg2000

G. James Samuel<sup>1</sup>, J. Sam Suresh<sup>2</sup>

P.G. Scholar, Department of VLSI Design, ACET, Tirupur, Tamil Nadu<sup>1</sup>

Assistant Professor, Department of ECE, ACET, Tirupur, Tamil Nadu<sup>2</sup>

**Abstract:** This paper presents novel techniques to mitigate the effects of SRAM memory failures caused by low voltage operation in JPEG2000 implementations. We investigate error control coding schemes; specifically single error correction double error detection code based schemes, and proposes an unequal error protection scheme tailored for JPEG2000 that reduces memory overhead with minimal effect in performance. Furthermore, we propose algorithm-specific techniques that exploit the characteristics of the discrete wavelet transform coefficients to identify and remove SRAM errors. These techniques do not require any additional memory, have low circuit overhead, and more importantly, reduce the memory power consumption significantly with only a small reduction in image quality.

**Keywords:** Error compensation, error control coding, JPEG2000, SRAM errors, voltage scaling.

