Simulation of Hamming Coding and Decoding for Microcontroller Radiation Hardening

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Abstract : This paper presents a method of hardening the 8051 microcontroller, that able to assure reliable operation in the presence of bit flips caused by radiation. Aiming at avoiding such faults in the 8051 microcontroller, Hamming code protection was used in its SRAM memory and registers. A VHDL code and its simulation have been used for this hamming code protection.