

Single Event Upsets Analysis of CMOS SRAM cell for Space Applications

This paper concentrates on SRAM cell response in LEO radiation environment. The SEU rates of 65nm, 45nm and 32nm bulk CMOS technology based Static RAM cells were evaluated. The impact of technology scaling on SEU rates, LET threshold and cross-section per bit/device were compared with SOI CMOS SRAM cells. Dose-Depth analysis has been performed for various orbital inclinations and shield thicknesses. To characterize the robustness of scaled SRAM cells, state of the art visual TCAD/Genius, GSEAT/VisualParticle toolkit, Microwind3.1 have been utilized whereas LEO radiation environment was determined with OMERE-Trad software.

Primary authors: Mr SAJID, Muhammad (CIIT Islamabad); Prof. FRANK, Torres (DEE UFMG Brazil)

Co-authors: Dr SHAHRUKH, Agha (CIIT Islamabad); Prof. EHSAN ULLAH, Khan (CESET Islamabad); Prof. CHECHENIN, Nikolay (SINP MSU Russia)

Presenters: Mr SAJID, Muhammad (CIIT Islamabad); Prof. CHECHENIN, Nikolay (SINP MSU Russia); Prof. FRANK, Torres (DEE UFMG Brazil)