Abstract

This paper presents a new 10T SRAM cell that has enhanced read speed along with good read and write stability. While the read access time of the proposed cell is 0.72x and 0.83x smaller as compared to the two most popular 10T SRAM cells at 500C; the read SNM is 1.16x and 1.05x higher compared to existing 10T cells. Though the read-write power of the proposed cell is higher with respect to the existing 10T cells; nevertheless, it consumes lower power as compared to the conventional 6T cell. Layout using 45nm technology rule shows that the proposed cell consumes 15% smaller area as compared to popular Schmitt-trigger based 10T SRAM cell. Also, the results of Monte-Carlo simulation show that the proposed cell is more robust against process variations. Therefore, the proposed 10T SRAM cell can be used where the speed and robustness are the primary requirements.

References

A Robust 10T SRAM Cell with Enhanced Read Operation

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Index Terms
Keywords

6T-SRAM, 10T-SRAM, Access Time, Monte-Carlo Simulation, Noise Margin, Variability.