Innovative Low Power Transposition Memory using Double Edge Triggered Flip-flop

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 128
Number 4

Year of Publication: 2015

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10.5120/ijca2015906517
{bibtex}2015906517.bib{/bibtex}

Abstract

Transposition memory (TRAM) is one of the most important matrix processing block. This paper presents the design of a transposition memory implemented using 1V 45nm CMOS technology in Cadence® Virtuoso® Design Environment. A new double edge triggered flip-flop based on clock-gated pulse suppression technique is developed. This new double edge triggered flip-flop evolved from clock-gating pulse suppression technique reduces the power dissipation in the clocking system. This new clock-gated pulse suppressed double edge triggered flip-flop (CGPSDFF) is used to design the D flip-flop based architecture of a high speed TRAM and power reduction of the CGPSDFF-based TRAM is 20% better than conventional TRAM.

References

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Index Terms
Keywords

Low power, TRAM, clock system, clock-gated pulse suppression technique, CGPSDFF