

## عنوان مقاله:

Low Power XOR/XNOR-based TGPL flip flop in submicron technology

## محل انتشار:

هشتمین کنفرانس بین المللی مهندسی برق، الکترونیک و شبکه های هوشمند (سال: 1401)

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## نویسندگان:

Seyed Reza Talebiyan - Assistant Professor of Electrical Engineering department, Imam Reza International University

Ali asghar Hassanzadeh - Master of Electrical Engineering, Imam Reza International University

Hossain Hassanzade - Bachelor of Electrical Engineering, Eqbal Lahoori Institute of Higher Education

## خلاصه مقاله:

Flip-flops are widely used as one of the main units in the design of digital circuits and are the main factor in the power loss of the clock network. Therefore, having a flip-flop with low power and high speed leads to the creation of an optimal digital system. One of the families of fast flip-flops is explicit pulsed flip flop such as: TGPL. Therefore, in this paper, two explicit pulsed flip flops with low power consumption in submicron technologies are presented. These new pulsed flip-flops have an external pulse generator circuit based on XOR and XNOR gates, which provided better performance than the NAND-based pulse generator circuit. Comparing these flip-flops with TGFF had these results. In 90 nm technology, XOR-based TGPL and XNOR-based TGPL flip-flops have reduced dynamic power consumption by 18.18% and 14%, respectively. Also, in 45 nm technology, XNOR-based TGPL and then XOR-based TGPL flip-flop have reduced the dynamic power consumption by 20.97% and 19%, respectively. Also, due to very low power consumption, the lowest value of the PDPD\_Q parameter corresponds to the proposed XNOR-based TGPL flip-flop and this parameter has been reduced by 48.37% and 45.67% in 90 and 45 nm technology, respectively, compared to TGFF flip-flop

## کلمات کلیدی:

pulsed flip-flop, explicit, power consumption, PDP

## لینک ثابت مقاله در پایگاه سیویلیکا:

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