

A High-Performance/Low-Power Mixed Static/Dynamic Circuit Synthesizer

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ABSTRACT

Because domino logic design offers smaller area and higher speed than complementary CMOS design, it has been very popularly used to design high-performance processors. There are several research works on high-performance mixed static/dynamic circuit; but most of the works focus on the theory discussion without practical results are presented. In this thesis we try to establish the cell based design flow of the mixed/merged static/dynamic circuit synthesis, which has skew tolerant, low-power and high-performance characteristics. And, the real chip implementation and silicon proven will be validated finally. In this work, there is three major targets are got: Target-one, we propose a static-dynamic-static(SDS)high-performance/low-power mixed/merged static/dynamic circuit design techniques. Target-two: the supported synthesizable design flow has been established for Target-one; we focus on the skew-tolerant issue of this target by using current CAD tools. Target-three, two noise-alleviation (charge sharing, crosstalk) domino cell libraries are generated to support the cell-based synthesis CAD design tools. Key word : mixed/merged , static circuit , dynamic circuit , cell base

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