

Asynchronous circuit performance analysis, fundamentals and efficient tools

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Abstract— Asynchronous designs are usually composed of conditional circuits. The analysis of these circuits is complex especially when delay variability is considered. In this paper, we design and implement a model-based Statistical Static Timing Analysis “SSTA” framework that is able to analyze conditional asynchronous circuits in efficient time. First, the paper introduces how the conditional circuits can be modeled; and then it shows how this model can be used to realize the SSTA analysis.

Keywords—Conditional Asynchronous Circuits; Performance Analysis; SSTA for Asynchronous Circuits; STA; Delay Variability

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