

ASPECT – a Subsystem of Event Analysis of Self-Timed Circuits

Abstract

This report deals with a method of asynchronous circuits analysis examining their functionality independence on gate's delays. The method is based on event models of circuit's behavior. A circuit is defined by logic equations satisfying Muller's hypothesis on delays of logic gates. Suggested method theoretically bases on transition diagrams (in global states) with their following equivalent transforming into the event models. Developed algorithms of analysis have a strict fundamentality of global states method but do not need in full probing of achievable states of a circuit. As a result, task's complexity became a polynomial instead of an exponential one. Subsystem ASPECT is a software complex implementing an event method of analysis.