

A Comparison of Modular Self-Timed Design Styles

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Abstract

State-machine sequencing methods in modular 2-phase and 4-phase asynchronous handshake control are compared. Design styles are discussed, and the sequencers are tested against each other using a medium-scale minicomputer test design implemented in FPGAs. Seven 4-phase sequencers are tested. In these comparisons, 2-phase control is faster than 4-phase. Within the 4-phase designs, speed is enhanced when work is overlapped with handshake restoration. Performance of asynchronous and synchronous designs is compared.