1. A clock sweeping technique for detecting hardware trojans impacting circuits delay

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Abstract: Clock sweeping can be used to generate signatures for the purpose of detecting hardware Trojans. Clock sweeping is used to obtain the critical and noncritical path delay and then generate signatures for ICs for the purpose of detecting hardware Trojans. Two payload gates were inserted at two positions. One is physically very close to the node and the other is remote from the node. Next, a Trojan gate is placed at four different locations, with one input connecting to the node D on the sensitized path. The first location is very close to node D with locations 2, 3, and 4 being successively further away from node D. Although the increased delay is still relatively small at the location 1, the Trojans with only triggers (TT) effects at locations 2 through 4 are comparable to the effects of the payload. Clock sweeping can guarantee that all sensitized long paths will fail at a particular clock frequency. Hence, the node coverage on long paths is dependent on the TDF (Trojans with triggers and payloads) coverage.
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