

On Quantifying Observability for Fault Diagnosis of VLSI Circuits

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Abstract

Fault diagnosis is conventionally conducted with primary outputs and scan flip-flops as observation points. Its diagnostic resolution, however, is increasingly becoming insufficient as circuit sizes increase and feature sizes shrink. Generally, diagnostic resolution can be improved by inserting additional observation points into the circuit under diagnosis. However, there is no efficient method available for determining where observation points should be inserted due to lack of a quantitative measure of observability for fault diagnosis. We address this problem in this paper by discussing and defining the quantity issue on the diagnostic observability of logic circuits.