1. A chip architecture for compressive sensing based detection of IC trojans

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Abstract: We present a chip architecture for a compressive sensing based method that can be used in conjunction with the JTAG standard to detect IC Trojans. The proposed architecture compresses chip output resulting from a large number of test vectors applied to a circuit under test (CUT). We describe our designs in sensing leakage power, computing random linear combinations under compressive sensing, and piggybacking these new functionalities on JTAG. Our architecture achieves approximately a 10× speedup and 1000× reduction in output bandwidth while incurring a small area overhead. © 2012 IEEE.
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