



1. Power supply signal calibration techniques for improving detection resolution to hardware trojans

Accession number: 20085211818829

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Source title: IEEE/ACM International Conference on Computer-Aided Design, Digest of Technical Papers, ICCAD

Abbreviated source title: IEEE ACM Int. Conf. Comput. Des. Dig. Tech. Pap. ICCAD

Monograph title: 2008 IEEE/ACM International Conference on Computer-Aided Design Digest of Technical Papers,

ICCAD 2008 Issue date: 2008 Publication year: 2008

Pages: 632-639

Article number: 4681643 Language: English ISSN: 10923152 CODEN: DICDFD

ISBN-13: 9781424428205

Document type: Conference article (CA)

Conference name: 2008 International Conference on Computer-Aided Design, ICCAD

Conference date: November 10, 2008 - November 13, 2008

Conference location: San Jose, CA, United states

Conference code: 74849

Sponsor: IEEE CAS/CANDE; IEEE Circuits and Systems Society; CANDE; ACM; SIGDA; CEDA

Publisher: Institute of Electrical and Electronics Engineers Inc., 3 Park Avenue, 17th Floor, New York, NY

10016-5997, United States

Abstract: Chip design and fabrication is becoming increasingly vulnerable to malicious activities and alternations with globalization. An adversary can introduce a Trojan designed to disable and/or destroy a system at some future time (Time Bomb) or the Trojan may serve to leak confidential information covertly to the adversary. This paper proposes a taxonomy for Trojan classification and then describes a statistical approach for detecting hardware Trojans that is based on the analysis of an ICs power supply transient signals. A key component to improving the resolution of power analysis techniques to Trojans is calibrating for process and test environment (PE) variations. The main focus of this research is on the evaluation of four signal calibration techniques, each designed to reduce the adverse impact of PE variations on our statistical Trojan detection method.

Number of references: 17

Main heading: Electric power distribution

Controlled terms: Calibration - Computer aided design - Electric power transmission networks - Electric power utilization - Integrated circuits - Taxonomies

Uncontrolled terms: Chip designs - Confidential informations - Detection methods - Key components - Malicious activities - Power analysis - Power supplies - Signal calibrations - Statistical approaches - Test environments - Transient signals - Trojans

Classification code: 943 Mechanical and Miscellaneous Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 903 Information Science - 902.2 Codes and Standards - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 723.5 Computer Applications - 706.1.2 Electric Power Distribution - 706.1.1 Electric Power Transmission - 706.1 Electric Power Systems - 703.1 Electric Networks - 714.2 Semiconductor Devices and Integrated Circuits

DOI: 10.1109/ICCAD.2008.4681643

Database: Compendex

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Data Provider: Engineering Village