Issues related to on-line testing are increasingly important in modern electronic systems. In particular, the huge complexity of electronic systems has led to growth in reliability needs in several application domains as well as pressure for low cost products. There is a corresponding increasing demand for cost-effective on-line testing techniques. These needs have increased dramatically with the introduction of very deep submicron and nanometer technologies which adversely impact noise margins, process, voltage and temperature variations, aging and wear-out and make integrating on-line testing and fault tolerance mandatory in many modern ICs. The International On-Line Testing Symposium (IOLTS) is an established forum for presenting novel ideas and experimental data on these areas. The symposium also emphasizes on-line testing in the continuous operation of large applications such as wired, cellular and satellite telecommunication, as well as in secure chips. The Symposium is sponsored by the IEEE Council on Electronic Design Automation (CEDA) and the 2015 edition is organized by the IEEE Computer Society Test Technology Technical Council, the University of Athens, and the TIMA Laboratory.
Sunday July 5, 2015
18:00 – 19:00: Symposium Registration

Monday July 6, 2015
08:00 – 09:00: Symposium Registration
09:00 – 10:15: Opening Session
09:00 – 09:15: Welcome Message
M. Nicolaidis (TIMA Lab), A. Paschalis (U Athens), General Chairs
D. Gizopoulos (U Athens), D. Alexandrescu (IoPc), Program Chairs
09:15 – 10:15: Keynote Talk
10:15 – 10:35: Break
10:35 – 11:35: Session 1 – Reliability Evaluation
1.1 Efficient Multilevel Formal Modeling, Analysis, and Estimation of Design Vulnerability to Soft Error, G. Bany Hamad (Ecole Polytechnique de Montreal), O. A. I. Mohamed (Concordia), Y. Savaria (Ecole Polytechnique Montreal)
1.2 Bayesian Network Early Reliability Evaluation Analysis for both Permanent and Transient Faults, A. Valler, S. Avino, G. Poltano, S. Di Carlo (Politecnico di Torino), S. Tselonis, M. Kallorakis, N. Foutris, D. Gizopoulos (University of Athens)
11:35 – 13:00: Session 2 – Posters & Coffee Break
2.1 A Call for Cross-Layer and Cross-Domain Reliability Analysis and Management, D. Alexandrescu, A. Evans, E. Costenaro, M. Glorieux (IoPc Technologies)
2.2 An Accurate Soft Error Propagation Analysis Technique Considering Temporal Masking Disablement, Y. Kim, G. Matsukawa, S. Yoshiida, S. I. mum, H. Kawaguchi, M. Yoshimoto (Kobe University)
2.4 Fault Modeling and Testing Through Silicon Via Interconnections, V. Gerasil, A. Hatzopoulos (Aristotle University of Thessaloniki)
2.5 Identifying Aging-Aware Representative Paths in Processors, C. Sandionigi, O. Heron (CEA LIST)
2.6 On the Maximization of the Sustained Switching Activity in a Processor, R. Cantoro (Politecnico di Torino), H. Kerkhoff (University of Twente), A. Rohani (University of Twente), M. Sonza Reorda (Politecnico di Torino)
2.7 Optimization of SEU Emulation on SRAM FPGAs Based on Sensitiveness Analysis, A. Souari, C. Thibeault (E. Tech. Sup. Montreal), Y. Biaièrie (University of Quebec, Montreal), R. Velazco (TIMA Laboratory)
13:00 – 14:00: Lunch
14:00 – 15:00: Session 3 – Reliable Filters and Sensors
3.1 Concurrent Error Detection in Nonlinear Digital Filters Using Checksum Linearization and Residue Prediction, S. Banerjee, M. Mottaz, A. Chatterjee (Georgia Institute of Technology)
3.2 Adaptive Healing Procedure for Lifetime Improvement in Wireless Sensor Networks, E. Simeu (TIMA Laboratory), D. Tchuani Tchakante, M. Tchuente (LRMA Laboratory)
3.3 Fault-Tolerant System for Catastrophic Faults in ARM Sensors, A. Zambrano, H. Kerkhoff (University of Twente)
15:00 – 15:20: Break
15:20 – 16:20: Session 4 – Fault Tolerant On-Chip Networks
4.1 MUGEN: A High-Performance Fault-Tolerant Routing Algorithm for Unreliable Networks on-Chip, A. Charif, N. E. Zergainoh, M. Nicolaidis (TIMA Laboratory)
4.2 Timing-Resilient Network-on-Chip Architectures, A. Panteloukas, A. Psarras (Democritus University of Thrace), C. Nicopolous (University of Cyprus), G. Dimitrakopoulos (Democritus University of Thrace)
4.3 Defect Diagnosis Algorithms for a Field Programmable Interconnect Network Embedded in a Very Large Area Integrated Circuit, G. Sion (UQAM), Y. Blaquièire (University of Quebec, Montreal), Y. Savaria (Ecole Polytechnique Montreal)
16:20 – 16:45: Break
16:45 – 17:45: Session 5 – Fault Tolerance
5.1 Design Space Exploration and Optimization of a Hybrid Fault-Tolerant Architecture, I. Wall, A. Bariel, L. L. Lillo, P. Girard (LRMA), M. Sonza Reorda (Politecnico Di Torino)
5.2 Efficient On-Line Fault-Tolerance for the Preconditioned Conjugate Gradient Method, A. Schol, C. Braun, M. Kochte, H. J. Wunderlich (University of Stuttgart)
5.3 Mitigation of Fail-Stop Failures in Integer Matrix Products via Numerical Packing, L. Anarado, Y. Andreopoulos (UCL)
17:45 – 18:00: Break
18:00 – 19:30: Special Session 1
20:00: Welcome Reception

Tuesday July 7, 2015
09:00 – 10:00: Session 6 – Error Tolerance and Prediction
6.1 Toward Efficient Check-Pointing and Rollback Under On-Demand SBST in Chip Multiprocessors, M. Skiticas, C. Nicopolous, M. Michael (University of Cyprus)
6.2 Workload Characterization and Prediction: A Pathway to Reliable Multi-core Systems, M. Zaman, A. Ahmadi, Y. Makris (UT Dallas)
6.3 Failure Mitigation in Linear, Sesquilinear and Bijective Operations on Integer Data Streams via Numerical Entanglement, M. Anam, Y. Andreopoulos (UCL)
10:00 – 10:20: Break
10:20 – 11:20: Special Session 2
11:20 – 11:50: Break
Wednesday July 8, 2015

09:00 – 10:00: Session 9 – Secure and Reliable Design

9.1 Experimental Validation of a Bulk-Built-In Current Sensor in Detecting Laser-Induced Currents of an Hybrid Well-taps Target, C.Chameix, N.Borreli (STMicroelectronics), J.-M.Dutertre (ENSMSE), B.Robisson (CEA), M.Lisart, A.Sarafianos (STMicroelectronics)
9.2 OPUF: Obfuscation Logic Based Physical Unclonable Function, J.Ye, Y.Hu, X.Li (Institute of Computing Technology, Chinese Academy of Sciences)
9.3 Flip-Flop SEU Reduction through Minimization of the Temporal Vulnerability Factor (TVF), A.Evans, E.Costenaro (iRoC), A.Bramnik (Intel)

10:00 – 10:20: Break

10:20 – 11:20: Special Session 3

11:20 – 11:50: Break

11:50 – 13:00: Special Session 4

13:00 – 14:00: Lunch

14:00 – 15:00: Session 10 – Failure Prediction and Diagnosis

10.1 Efficient Observation Point Selection for Aging Monitoring, C.Liu, M.Kochte, H.-J.Wunderlich (University of Stuttgart)
10.2 Mining Simulation Metrics for Failure Triage in Regression Testing, Z.Poulos, A.Veneris (University of Toronto)
10.3 Real-time On-chip Supply Voltage Sensor and Its Application to Trace-based Timing Error Localization, M.Ueno, M.Hashimoto, T.Onoye (Osaka University)

15:00 – 15:15: Break

15:15 – 16:15: Session 11 – Memory Reliability

15.1 BTI and Leakage Aware Dynamic Voltage Scaling for Reliable Low-Power Cache Memories, D.Rossi, V.Tenentes (University of Southampton), S.Khursheed (University of Liverpool), B.Al-Hashimi (University of Southampton)
15.2 New Byte Error Correcting Codes with Simple Decoding for Reliable Cache Design, L.Bu, M.Karpovsky (Boston University), Z.Wang (MathWorks)
15.3 Low-Leakage Radiation-Tolerant CAM/TCAM Cell, N.Eftaxiopoulos Sarris, N.Axelos, G.Zervakis, K.Tsoumanis, K.Pekmestzi (National Technical University of Athens)

16:15: Symposium Closing Remarks
The location
IOLTS 2015 will be held at Elia in the middle leg Sithonia of Halkidiki peninsula, where lush green forests reach right down to turquoise waters. Sithonia is home to the ancient city of Olynthus with its unique mosaics. It also has beaches that will take your breath away! The vegetation on Sithonia is dense. The forests - pine chiefly - reach down to the beaches - a real treat for the senses.

Halkidiki offers unique sightseeing like the ancient city of Olynthus where the rich villas that were excavated in the aristocratic suburb of the city are considered very important for the archaeological research since there faw as found some of the earliest floor mosaics in Greek art; and the Petralona cave which besides its importance for the natural beauty and size, is very important, as it presents anthropological and paleontological interest. In 1960, during the exploration works, the most important finding was the cranium of a primitive man who lived about 200,000 years ago, belongs to a transitional form, between Homo Erectus (the Standing Man) and Homo Sapiens (the Wise Man) and is the oldest testimony to the presence of humans in Greece. The cranium was covered with an encrustation of stone or bones, used by the primitive inhabitant of the cave, are exhibited at the Paleontological Museum, located only a few steps away from the cave.

The 21st IEEE International On-Line Testing Symposium will be held in the Athena Pallas Village Resort. The Athena Pallas Village is located at “Akti Elia” in Sithonia peninsula in Halkidiki, at a beautiful serene with private beach. All the rooms are completely furnished and equipped with with bathroom, air condition, direct telephone connection, mini bar, balcony, and satellite TV. The hotel amenities include among others mini market, gift shop, 3 outdoor swimming pools, bar, restaurants, kids’ club, bowling, billiard, movie theatre, internet access, mini golf, tennis court, spa, gym, rent a car, conference facilities. Onsite parking is complimentary. Its distance from the airport is approximately 97 km.

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