On the in-field test of safety-critical systems

Matteo SONZA REORDA,
Full Professor, Dipartimento di Automatica e Informatica, Politecnico di Torino

Περίληψη – Abstract

In-field test of safety-critical systems is becoming increasingly important mainly due to the growing usage of electronic systems even in areas where safety is an issue and to the higher chances of failures in new devices.

Standards and regulations are also pushing the adoption of effective test solutions both at the device and at the system level. These often include the requirement of detecting new faults arising during the system life (in-field test). While Design for Testability is definitely an effective solution, there are situations in which alternative or complementary ways have to be explored (e.g., because DfT solutions are not usable and/or documented), and functional testing stands as a viable solution. The presentation will overview the state of the art and the main open issues in this area (e.g., in terms of achievable defect coverage, test time, and costs), emphasizing in particular the role that could be played by the functional approach, reporting about recent advancements that could allow its easier and wider adoption in practice.

Matteo SONZA REORDA was born in Ivrea (close to Torino, Italy) in 1961. He attended the Liceo Classico C. Botta in Ivrea, and then the Politecnico di Torino (Torino, Italy), where he took his Master degree in Electronics in 1986. In 1990 he took his PhD degree in Computer Engineering at the Politecnico di Torino. Since 1990 he is with the Dipartimento di Automatica e Informatica of the Politecnico di Torino, where he currently is a Full Professor. He is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). From 2009 to 2013 he has been the Chair of the European branch of the IEEE Test Technology Technical Council (eTTTC). From 2010 to 2012 he has been Vice-Rector for Open and Distance Learning of Politecnico di Torino. Currently, he is the Chair of the Advisory Board of the PhD in Computer and Control Engineering of Politecnico di Torino. He is the leader of the CAD Group working within the Dipartimento di Automatica e Informatica of the Politecnico di Torino.