

Application for a Short Term Scientific Mission (STSM)

Project

ICT COST Action IC1204: Trustworthy Manufacturing and Utilization of Secure Devices

Involved Institutions

Home institution: Paolo Prinetto, Politecnico di Torino, Torino, Italy

Host institution: Tiziana Margaria, LERO, Limerick, Ireland

Visit Details

Visiting Researcher: Marco Indaco Ph.D.

Visiting Period: January 15 – February 15, 2015.

Mission Statement

The goal of this research visit is a preliminary investigation of traceability issues concerning trust, privacy, and security spanning from reconfigurable HW devices to SW applications.

The rapid evolution of embedded system require improvement in the range of system quality metrics (e.g., security, trust, privacy) via cost-effective and seamless integrated security strategies.

We will focus on system level aspects of traceability with particular emphasis on system requirements in particular concerning the needs of PLCs and NC machines in automation for highly regulated vertical markets, like the healthcare and food industries. We will discuss potential link existing between such different systems when dealing with traceability of system requirements when security, safety and privacy properties are strongly required.

The final goal is turning traceability from the Hardware and device level into the Software stack into an inherent part of a new SW development methodology. This methodology is foundational and by nature independent of a specific sector. The traceability need is inherent in the link between any software and the hardware it runs on and communicates with. This line of research in Lero is linked to the core topics of the just recently approved Lero3 SRC (Science and Research Center - 2015/20), a 30 Mio Euro grant from SFI, Science Foundation Ireland, that establishes Lero as The Irish Software Research Center, including all 7 universities and over 40 partner companies. The work program of Lero3 foresees as Research Hub A on Methods and Standards for High Integrity Systems. Traceability is a central aspect in this methods and standards.

For this research visit we plan to work on a joint activity related to WG4 and WG5.

[1] Di Carlo, S.; Gambardella, G.; Indaco, M.; Prinetto, P.; Rolfo, D.; Trotta, P., "Dependable Dynamic Partial Reconfiguration with minimal area & time overheads on Xilinx FPGAS," Field Programmable Logic and Applications (FPL), 2013 23rd International Conference on , vol., no., pp.1,4, 2-4 Sept. 2013

[2] Bertozzi D., Di Carlo S., Galfano S., Indaco M., Oliveo P., Prinetto P., Zambelli C. Performance and Reliability Analysis of Cross-Layer Optimizations of NAND Flash Controllers. In: ACM TRANSACTIONS ON EMBEDDED COMPUTING SYSTEMS. - ISSN 1539-9087 (In Press)

Budget

Accommodation: 700 euro

- Travel by Flight+Train (Return): 300 (Turin - Dublin) + 50 (Dublin Limerick) = 350 €
- Meals: 30 * 30 euro/day = 900 € (7 days/week, 30 days)

Total = 1950 €