ALESSIO, a Research Project on Updatable Security Components of Persistent Industrial Embedded Systems
(5 Minute Presentation)

Abstract

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Security is an inevitable precondition for the smart factory. The required security mechanisms can either be implemented in dedicated hardware or in software. As industrial devices tend to be used for longer periods of time than consumer products, and as security requirements are getting stricter in the course of time, the updatability of security components is indispensable for industrial embedded systems.

This need was acknowledged by the German Federal Ministry of Education and Research, which is funding the project ALESSIO investigating solutions for this problem. ALESSIO started in January 2017.

In addition to the evident approach to achieve more demanding security requirements by updating software components, ALESSIO also analyses the usage of modified FPGA configurations to improve security for products in the field. For a secure update of an FPGA, a secure bitstream update mechanism is required. This aspect is investigated in ALESSIO for SOCs containing both hard processors and an FPGA.

The participants in the ALESSSIO project are Infineon Technologies AG (prime), Giesecke & Devrient, Fraunhofer Institute for Applied and Integrated Security, Technical University of Munich, WIBU Systems AG, and Siemens AG.

Keywords: smart factory, security, longevity, updatability, FPGA