# Adaptable OS Services for Distributed Reconfigurable Systems on Chip

Dissertation abstract
By
Sufyan Samara

The ever guest for more computational capabilities leads to embedded systems which consist of multiple computational elements integrated on a single chip. An example is the integration of a reconfigurable fabric (FPGA) with a number of general-purpose processors to form what so called a reconfigurable system on chip. These embedded systems are common to be distributed. This creates a flexible high performance distributed system. However, it is very complex when it comes to management.

Applications running on such systems are expected to be dynamic in regard of arriving and leaving the system. This increases the complexity as the resources and the demands would change unpredictably.

In this work, an OS service model, which efficiently adapts to the various changes in these systems, is presented. In addition, the algorithms and the methodologies, developed to allow this novel OS service model to interact with the application demands and the environment unpredictable dynamic variations, are discussed. Furthermore, the extensive evaluations of these algorithms are presented. Finally, a case study, which introduces the triple data encryption standard as prove of concept, is provided.