Abstract

This work presents the implementation of dynamically reconfigurable system with operating system support specifically Linux. The presented work combines both HW and SW flows where the complex parts of the architecture are designed to HW modules. These HW modules can be reconfigured on the fly by using partial dynamic reconfiguration. In our work, we are using floating point computation unit as partial reconfiguration module. Our aim is to show the idea how an operating system can be involved in the area of reconfiguration computing. The application that manages the reconfiguration can be developed either as standalone software that is specific for the system or with an operating system support, to achieve code reusability and code portability. Finally, a prototype is implemented on Xilinx ML507 board, where a general Linux open source kernel has been used to handle dynamic reconfigurable hardware recourses.
Implementation of Dynamically Reconfigurable Systems on Chip with OS Support


Index Terms

Computer Science
Architecture

Keywords
Partial reconfiguration Embedded Linux Floating point arithmetic units