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 resources.
- Zhou Qingguo; Yao Qi; Li Chanjuan; Hu Bin; "Port embedded Linux to XUP Virtex-II Pro development board", IT in Medicine & Education, 2009. ITIME'09.

**Index Terms**

Computer Science  
Architecture

**Keywords**  
Partial reconfiguration  
Embedded Linux  
Floating point arithmetic units