

PLACEMENT AND DEFRAGMENTATION IN RECONFIGURABLE COMPUTING SYSTEMS

Parag K. Lala

Department of Electrical
Engineering/ Texas A&M
University-Texarkana, USA
E-mail: plala@tamut.edu

ABSTRACT

This paper begins with a short discussion of the basic concepts of reconfigurable computing . Configuration is the process of programming a field-programmable gate array(FPGA) device for implementing a certain logic function . Configuration can be either static or dynamic. In static configuration the FPGA device retains its configuration state till the task is completed. In dynamic configuration the device is reconfigured repeatedly. In full reconfiguration the previous configuration state of the device is erased completely and the entire device is reconfigured. In partial reconfiguration only one part of the device is reconfigured while the other parts continue their normal operations. The advantage of partially reconfigurable devices is that they can retain more than one configuration provided the total size of these configurations does not exceed the available hardware resources.

Keywords: FPGA, Reconfiguration, Run-time placement, Prefetching.