

Design and implementation of FPGA-based systems - A review

ABSTRACT

This paper reviews the state of the art of field programmable gate array (FPGA) with the focus on FPGA-based systems. The paper starts with an overview of FPGA in the previous literature, after that starts to get an idea about FPGA programming. FPGA-based neural networks also provided in this paper in order to highlight the best advantage by using FPGA with this type of intelligent systems, and a survey of FPGA-based control systems design with different applications. In this paper, we focus on the main differences between software-based systems with respect to FPGA-based systems, and the main features for FPGA technology and its real-time applications. FPGA-based robotics systems design also provided in this review, finally, the most popular simulation results with FPGA design and implementations are highlighted.

Keyword: Control systems; FPGA design and implementations; FPGA-based; Neural networks; Programming with FPGA; Robotics systems design