

Digital circuit design on Xilinx Spartan 3E FPGA platform

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Abstract: This topic focuses on designing digital circuits using the Xilinx Spartan 3E FPGA platform. In the context of the rapid development of information technology, optimizing the functionality and performance of FPGA-based digital systems is necessary to meet practical requirements. The main objective is to build a flexible, reconfigurable solution for processing a variety of digital tasks. The research methodology includes analyzing the technical characteristics of the FPGA, simulating and synthesizing logic code on the Xilinx ISE platform. The expected result is an efficient digital circuit design system applicable to many real-world applications such as digital signal processing, distributed computer networks, or automatic control systems. Thus, the topic not only contributes to improving knowledge about FPGAs but also expands the ability to solve complex engineering problems.

Keywords: FPGA Spartan 3E, Xilinx, Digital circuit, System design, Reconfiguration