Abstract

A scheme for reducing the number of cells in Quantum dot Cellular Automata circuit is presented. In this paper, an effective approach to analysis and design of code converter circuit using quantum dot cellular automata is explored in nanotechnology. This paper three input majority gate is the fundamental component of the QCA circuit implementation. It provides a considerable reduction in hardware cost compared to the other accessible methods. All other type of combinational circuits like adder, subtractor, decoder, and encoder etc can be constructed by the three input majority gate circuit only. The proposed code converter circuit is designed and replicated using quantum dot cellular automata designer tool for the four input levels. Finally, these proposed QCA circuits are compared with the other established and conservative circuits in terms of area and cell counts.

References

- P. D. Tougaw, C. S. Lent, "Dynamic behavior of quantum cellular
Nanotechnology based Effective Design Approach for Code Converter Circuits using QCA


Index Terms

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Code converter Digital Circuits Quantum Dot Cellular Automata Majority gate

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