Implementation of Reversible Logic Gate in Quantum Dot Cellular Automata

Abstract

Quantum Dot Cellular Automata (QCA) is a nanotechnology with many attractive features such as higher speed, smaller size, higher switching frequency, higher scale integration and low power consumption. There are many researches have been reported on the design of reversible logic gates compared to the reversible TR. This paper proposes a modified design of the reversible Feynman gate and also propose reversible TR gate, then design 1-bit comparator using reversible TR gates and Feynman Gate. The result shows an efficient technique to design Feynman gate and one bit comparator. The proposed gates can be easily used to design complex circuits which are used in the Central Processing Unit (CPU) and microcontrollers.

References


**Index Terms**

Computer Science    Circuits And Systems
Keywords
QCA  Reversible logic gates  Feynman gate  TR Gate  Majority Voter.