Abstract

This paper presents the novel design of half adder and full adder using reduced number of QCA gates. This design utilizes the unique characteristics of QCA to design a half and a full adder. The basic component of QCA is a cell consisting of two electrons and four logically interacting quantum dots. Simulation indicates a fast, efficient and very attractive performance (i.e., complexity, area and delay).

References

A Novel Design of Half and Full Adder using Basic QCA Gates

928-930, August 1997.

- Geza Toth*, Craig S. Lent. "Quantum computing with quantum-dot cellular automata";
- Pijush Kanti Bhattacharjee. "Use of Symmetric Functions Designed by QCA Gates for Next Generation IC";
S. Basu, S. Bhattacharjee. "Implementation of Symmetric Functions"

Index Terms

Computer Science
Circuits And Systems

Keywords
QCA half adder full adder