Abstract

Reversible logic is one of the latest technologies having promising applications in Quantum Computing. Reversible code converters are a class of reversible circuits that are used to convert one type of code into another. Code conversion is a widely used process in digital systems for reasons such as enhancing security of data, reducing the complexity of arithmetic operations and thereby reducing the hardware required. This paper presents the design of reversible code converters such as converting Binary to BCD code, BCD to excess-3 code, Binary to Gray code and BCD to Gray code. Circuits have been designed and synthesized using QCViewer. The circuits are evaluated in terms of number of qubits, ancilla inputs,
Design of Reversible Code Converters for Quantum Computer based Systems

garbage outputs and quantum cost.

References

- Alex Parent and Jacob Parker, May 2012, QCviewer0. 8, http://qcirc. iqc. uwaterloo. ca
Index Terms

Computer Science  VLSI Design

Keywords

Code Converters  Quantum Computer  Quantum Gates  Qubit  Reversible Logic