Quantum dot cellular automata (QCA) shows promise as a post silicon CMOS, low power computational technology. Nevertheless, to generalize QCA for next generation digital devices, the ability to implement conventional programmable circuits based on NOR, AND and OR gates is necessary. We devise a new QCA structure, the QCA multiplier, employing the five quantum dot QCA cell. The structure can multiply two 4 bit binary number. This work is motivated by the fact that implementing combinational multiplier using QCA will reduce its area and consequently its heat dissipation. The efficacy of our framework is that it uses QCA majority gates as its primitives.

References


- Mostafa Rahimi Azghadi*, O. Kavehei, K. Navi. &quot;A Novel Design for Quantum-dot Cellular Automata Cells and Full Adders&quot;.


- C. Rovetta, M. Mouffron. &quot;De Bruijn sequences and complexity of symmetric


**Index Terms**

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**Keywords**

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