

119. DESIGN OF LOW POWER AND HIGH SPEED BARREL SHIFTER USING CONTROLLED GATES

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History is witness to the fact that the Power density of the integrated circuit increases exponentially with every technology development. Here by using Reversible logic is the concept of digital circuit design with minutest power dissipation to implement Barrel shifter. Reversible logic is the hopeful technology in low power design and quantum computing. Barrel Shifter is an important block of the ARM architecture which is used in embedded digital signal processors and micro controllers. Fredkin and Feynman gates are the controlled swap gate used to implement the barrel shifter, with minimum power by repetitive block and high speed achieved by reversible logic. The design was simulated by using Xilinx ISE, Tanner EDA tool and the average power consumption was estimated. The delay has been found to be reduced when compared to existing circuits. And also to finding leakage current and reduce leakage power by using some reduction techniques.

Index Terms—Garbage output, nanotechnology, reversible RLM gate, universal reversible barrel shifter, quantum computing.

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