Power Optimization of 8:1 MUX using Transmission Gate Logic (TGL) with Power Gating Technique

Abstract

This paper aims at reducing power and energy dissipation in Transmission Gate Logic (TGL) Multiplexer CMOS circuits comprise of reducing the power supply voltages, power supply current and delay with economical charge recovery logic. This paper designs an 8:1 Multiplexer with CMOS Transmission Gate Logic (TGL) using the Power Gating Technique, which reduces the leakage power and leakage current in active mode. Power Gating Technique uses Transmission Gate Logic (TGL) based an 8:1 multiplexer circuit which removes the degraded output. The PMOS and NMOS transistors are connected together for strong output level. Power gating technique achieves 36% reduction of leakage current and 43% reduction of leakage power in active mode, A the results of this paper are simulated on cadence virtuoso tool realized in 45nm technology with reduction of 4.021fW power, 7.381pA current and 0.7V supply voltage.
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Index Terms

Computer Science  Circuits And Systems

Keywords

Power Gating Technique  Transistor Gate Logic (TGL)  Low Power  Leakage

Circuit