CHENNAI INSTITUTE OF TECHNOLOGY
(Autonomous)

Design of CMOS Based Voltage Mode Sense Amplifier

Name of the Participant: PRAVEEN R

Project Guide: Dr.R.M Bommi

Institute: Chennai Institute of Technology (CIT)

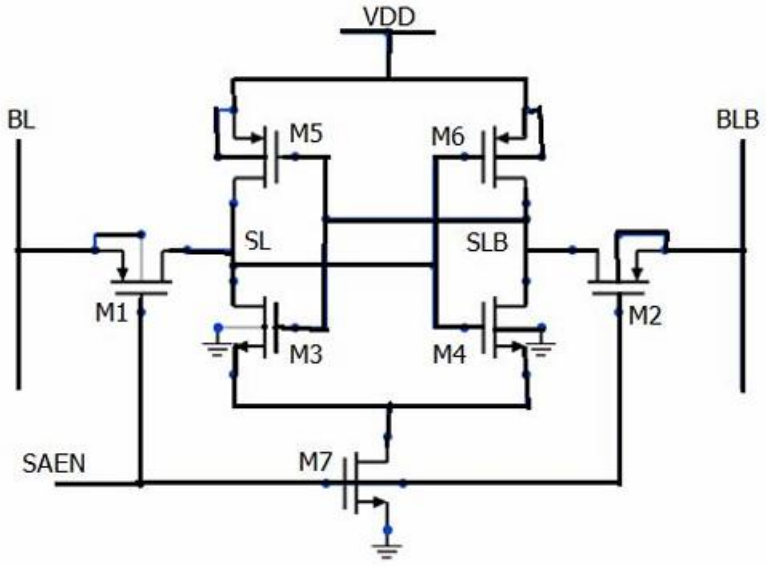
University: Anna University

Problem Statement:

Develop a low-power CMOS-based Voltage Mode Sense Amplifier (VMSA) circuit to overcome the challenges of power consumption and scaling limitations in modern CMOS-based VLSI designs. The solution focuses on leakage current mitigation, static power dissipation reduction, and performance enhancement through optimized circuit techniques.

Theory/Description:

This study discusses the design and simulation of a low-power application CMOS-based Voltage Mode Sense Amplifier with the aim of handling differential bit-line signals. It overcomes traditional problems associated with VMSAs in the presence of high leakage currents and static power dissipation caused by CMOS circuit techniques by guaranteeing minimum delay and energy efficiency. It makes the system validate reliable as well as a low-power design and fit into the requirement for high-performance SRAMs for modern VLSI systems. Stable operation with good robustness guarantees meeting power and performance requirements in memory technologies.



Reference:

Title of the paper: A Comparative Performance Analysis of CMOS and FinFET Based Voltage Mode Sense Amplifier

Link: https://ieeexplore.ieee.org/document/8082704