PROJECT IDEA

Project Title:

Efficient design and analysis of secure CMOS logic through logic encryption.

Group Information:

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Objective:

The objective of this experiment is to design a CMOS logic through logic encryption which is an efficient method to protect circuits from IP piracy, reverse engineering, and malicious tampering of IC for Trojan insertion. The primary concern in the present-day world is all about hardware trust. The security of computer hardware, in particular, Integrated Circuits (IC), is an important aspect of the overall security of computer systems. The circuit functional behavior has 2 cases and those depends on the value of K (0/1). Here K is the 'key' input which encrypts the circuit. In this project, various types of logical transistor circuits will be designed by the help of Cadence.
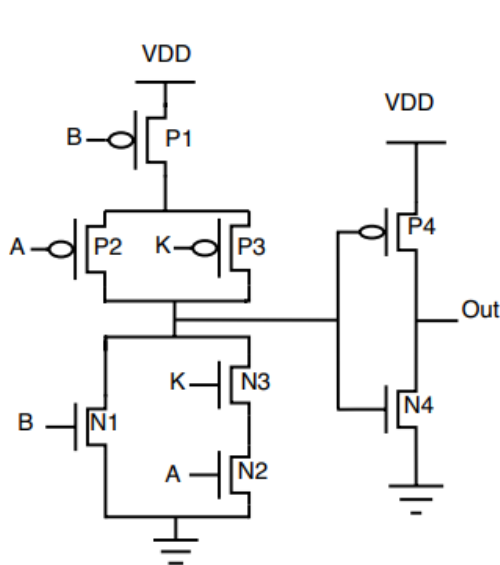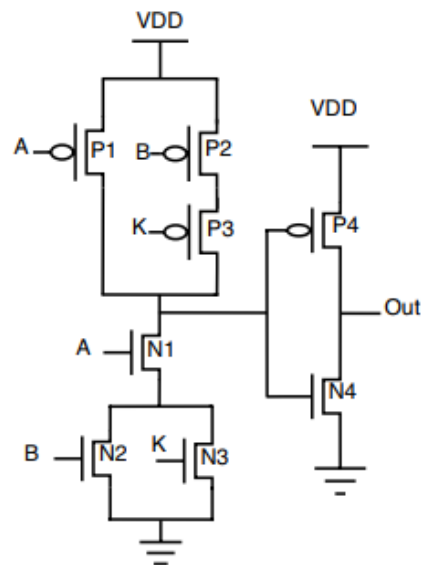
Circuit Diagram:

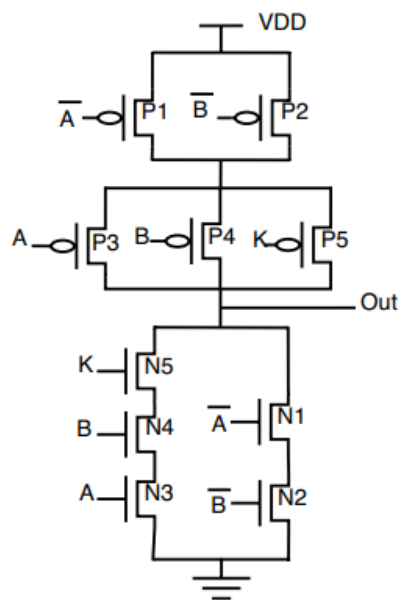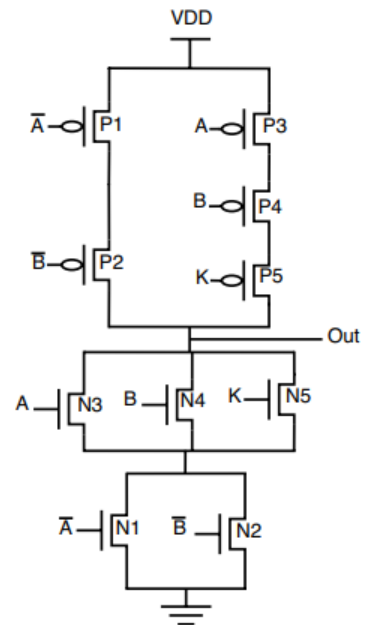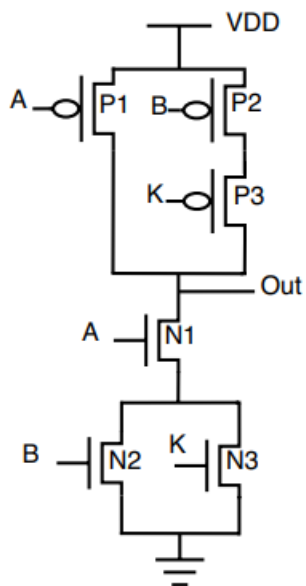Fig: Secure OR   Fig: Secure AND

Fig: Secure XOR

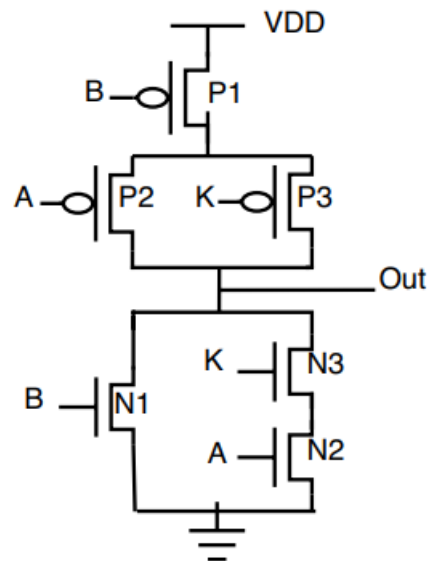Fig: Secure XNOR

Fig: Secure NAND

Fig: Secure NOR

Reference: https://doi.org/10.1038/s41598-023-28007-2