Efficient Logic Encryptions for Hardware IP Protection

Challenge

- The Integrated Circuit (IC) supply chain is susceptible to security and privacy challenges including IP piracy, counterfeiting, and Trojans.

Scientific Impact

- We establish a framework that simultaneously addresses three requirements: I/O attacks resiliency, structural robustness, and key efficiency.
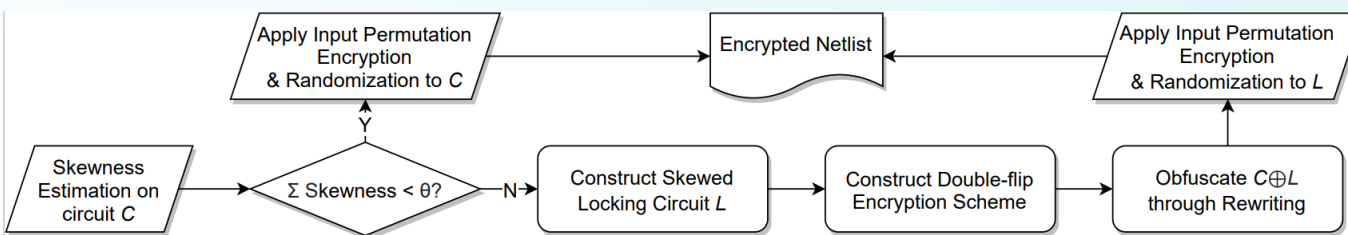

Fig. 1: The general workflow of ObfusLock.

Broader Impact and Participation

- IC design houses and EDA companies can protect their IP and ensure security for their customers.
- Has minimal overhead and is highly automatic.
- Be readily integrated into commercial EDA workflow.

Solution

- Utilize the skewness of internal signals to provide guaranteed security against I/O attacks.
- Use re-synthesis to thwart structural attacks.
- Employ input permutation to improve key efficiency and overhead.