

Detection of Hardware Trojans Hidden in Unspecified Design Functionality

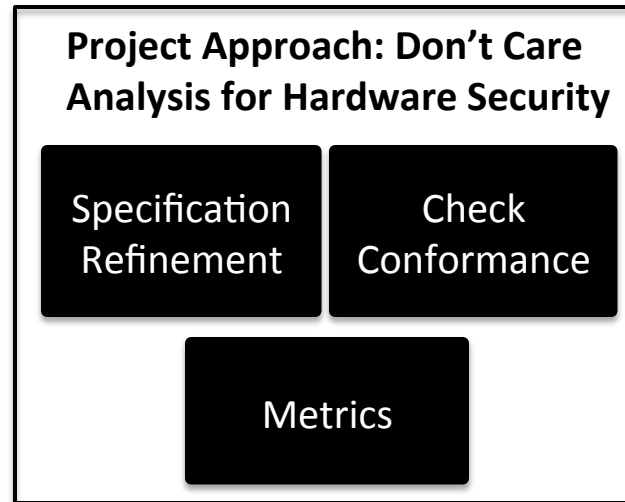


Challenge:

- Almost all designs are **incompletely** specified
- Malicious behavior can be hidden in unspecified functionality without affecting any specified functionality

Solution:

- Identify vulnerable functionality using precise guidelines based on information leakage
- Develop attack scenarios for Trojans modifying only unspecified functionality in on-chip bus systems, communication controllers, and encryption IP



Scientific Impact:

- Project identifies previously unexplored security threats and provides protective countermeasures
- Expands knowledge in verification and test field which traditionally excludes analysis of unspecified functionality

Broader Impact:

- Electronic hardware is vulnerable to Trojan insertion because the design, test, and manufacturing process involves many parties
- Project deliverables increase confidence in design correctness and prevent/detect inclusion of malicious circuitry

