Toward Trusted 3rd-Party Microprocessor Cores: A Proof Carrying Code Approach

Challenges:

- Increasing number of third-party vendors have raised security concerns in soft IP industry.
- Existing formal methods are often not scalable.

Solutions:

- Hardware-Software Boundary Elimination
- Hierarchy-Preserving Formal Verification
- Theorem Proving and Model Checking Integration

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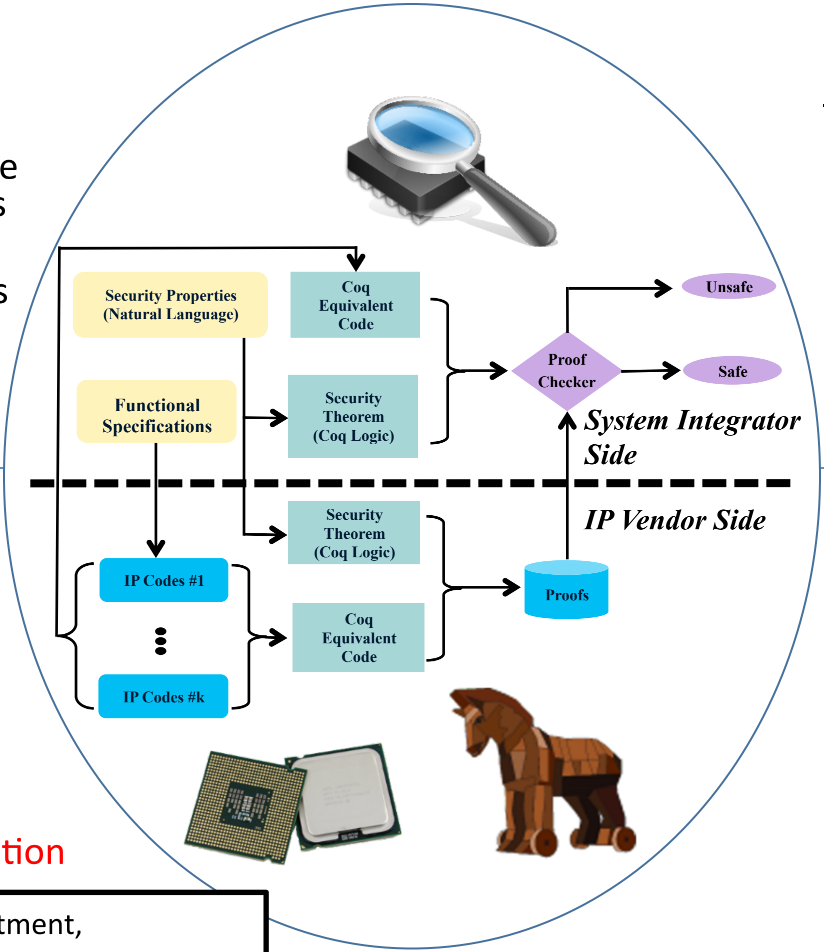

Scientific Impact:

- Provide formal proofs for microprocessors and SoCs security validation.
- Prevent various hardware-level attacks.

Broader Impact:

- Protect the whole SoC design flow from malicious attacks.
- Increase the security awareness of IP/IC users.
- Undergraduate research opportunities and hardware security courses development (graduate and undergraduate).