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The Center for Cyber Defenders

Expanding computer security knowledge

Securest Architecture

Peripheral Locks

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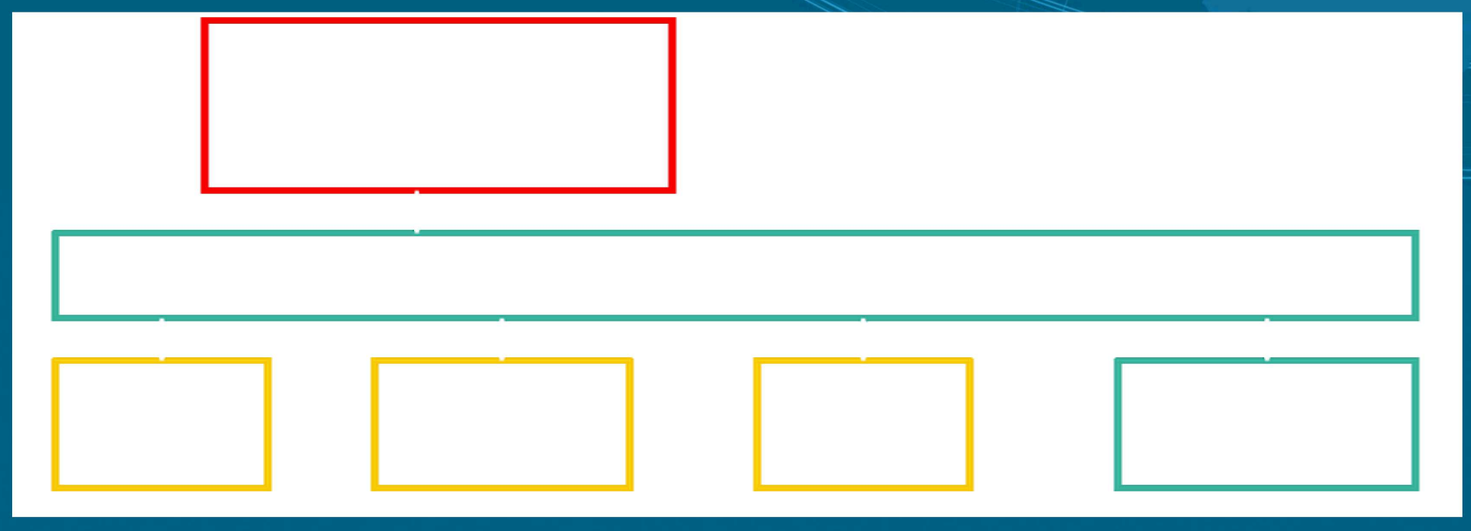
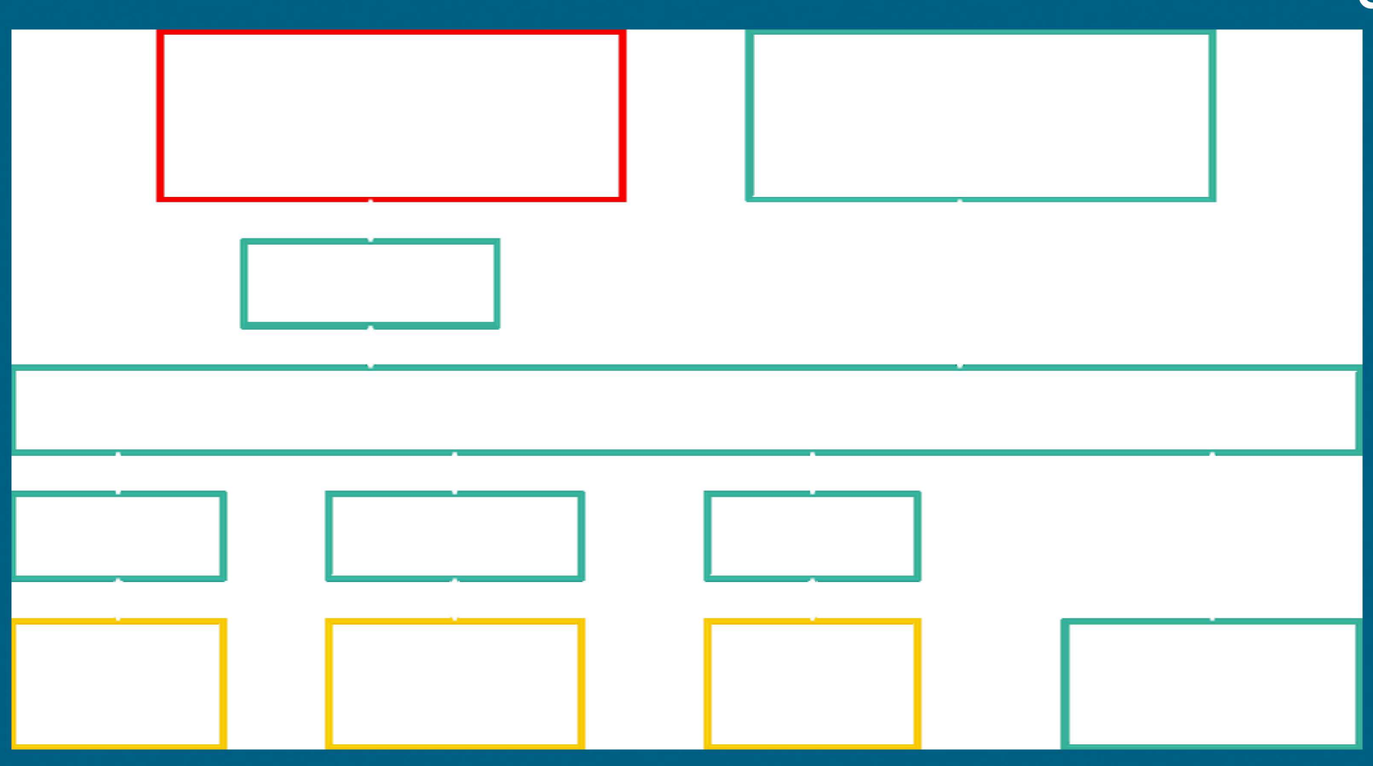


Problem Statement:

State-of-art System-on-Chips (SoCs) are becoming faster and more efficient. Although different techniques verify the security of SoC, a growing number of sophisticated attacks leverage cross-layer bugs, which in most systems, there is no defense against such cross-layer attacks.

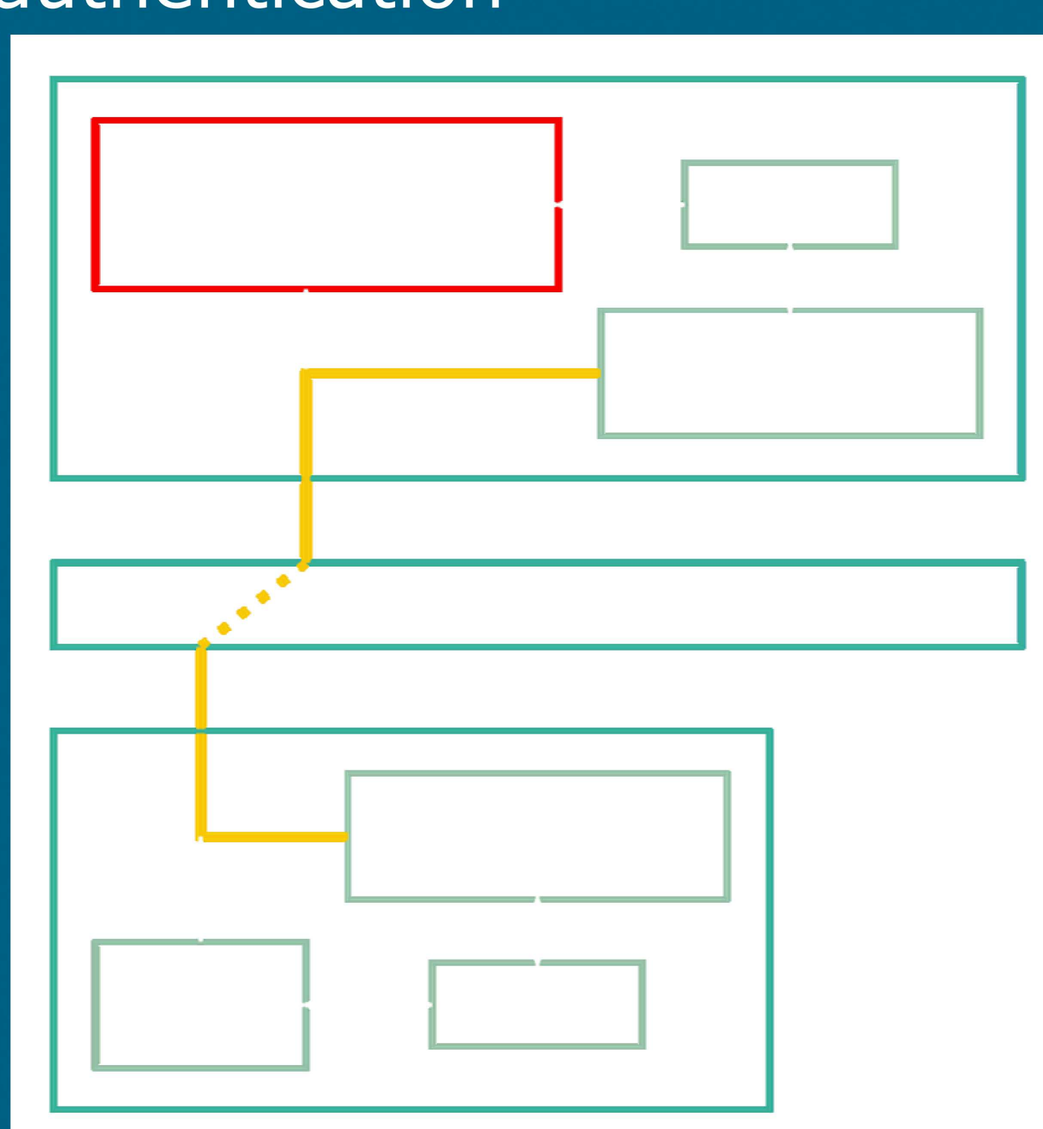


Objectives:

- Use Vivado toolset to design a proof of concept to securely read/write a block memory.
- Evaluate the overhead of implementing an AXI firewall protocol.

Approach:

- Peripheral locks
  - Limit memory ranges
  - Read-only & write-only registers
- AXI bus transaction authentication



Future Work:

- Scalable hardware techniques to design broad secure computing architectures.

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