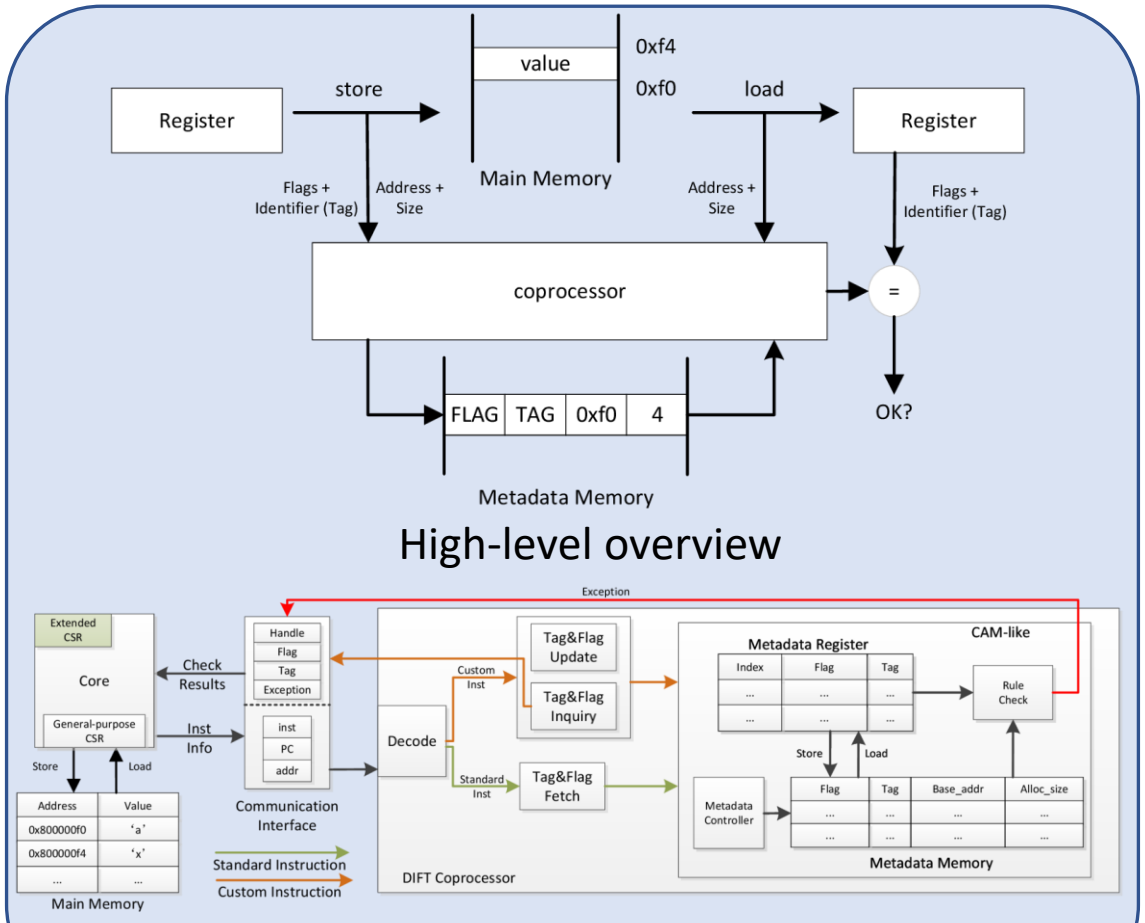
SaTC: CORE: Medium: Collaborative: REVELARE: A Hardware-Supported Dynamic Information Flow Tracking Framework for IoT Security and Forensics

Challenges:

- False aliasing issues in information-flow tracking
- Coarseness of rules introduce vulnerabilities
- Storage overhead for metadata

Solutions:

- Per-variable unique identifier, alias transferred on assignments
- Per-variable rules and checks
- Region-based metadata storage conserves space
- Fast lookups using CAM-like memory structure



Intellectual Merit:

- Hardware-based DIFT mechanism with little software instrumentation
- Addresses shortcomings of previous approaches
- Can be extended into a hierarchical protection mechanism for rich OS platforms

Broader Impacts:

- Providing IoT security and Forensics education opportunities
- Usable on embedded devices of critical importance, such as medical devices or cyber-physical systems
- Requires no end-user setup or interaction, making it readily deployable to the general population

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