

**2012 DHS S&T/ASD(R&E)  
CYBER SECURITY SBIR WORKSHOP**



Homeland  
Security  
Science and Technology



# Secure Coprocessor Based Architectural Resilience

SiCore

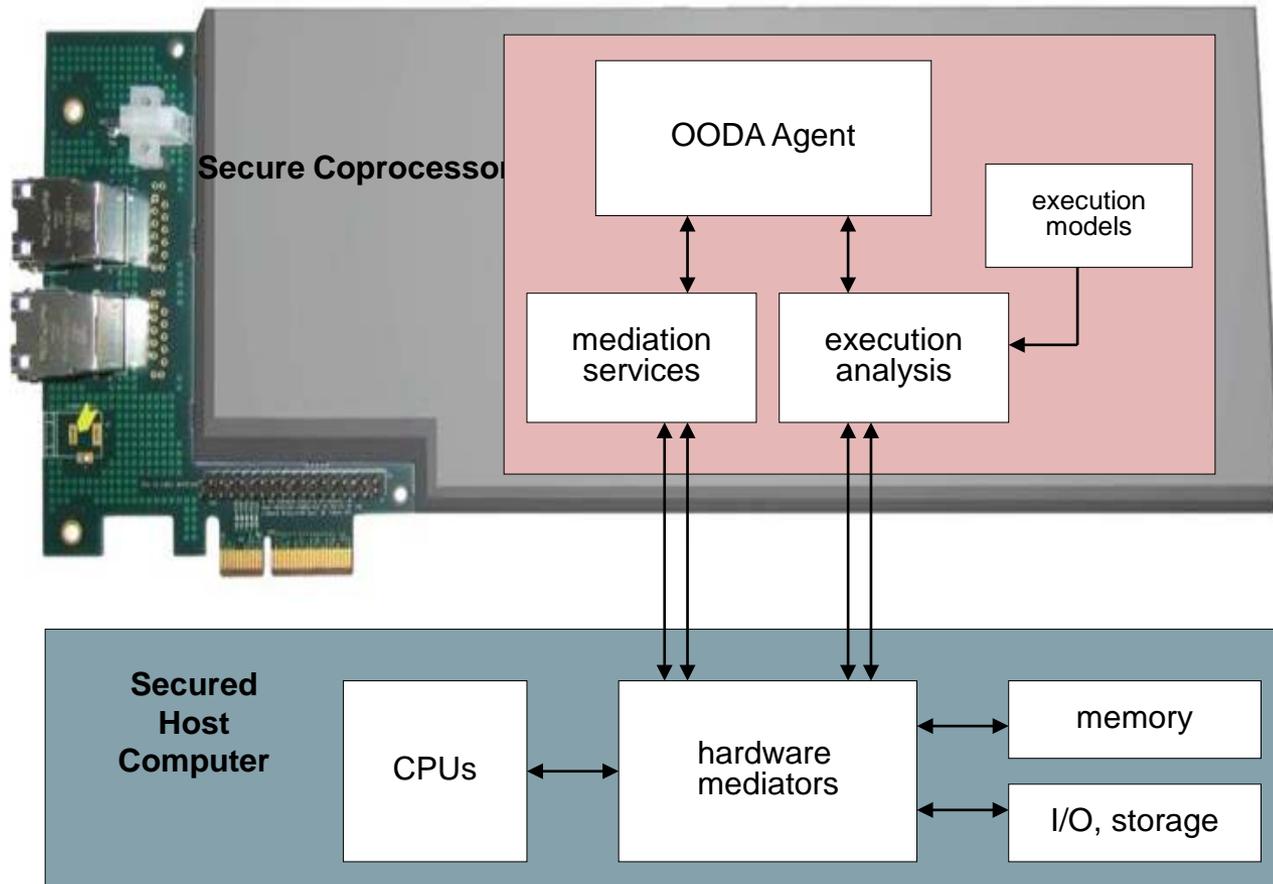
Godfrey Vassallo

# What could you do if?

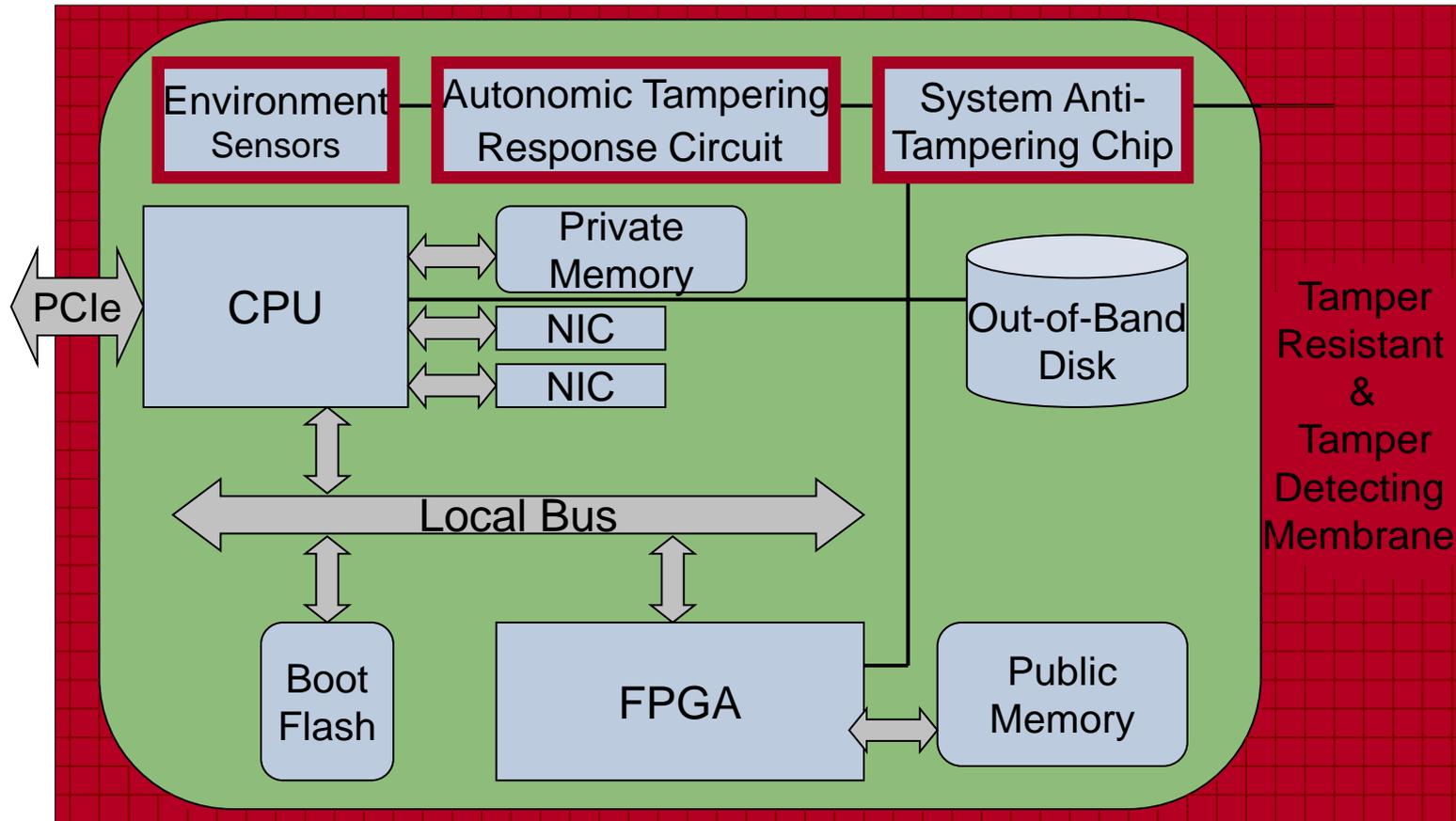
- You had the ability to transparently read or write host memory (independent of its IOMMU).
- Had the ability to transparently interact with the host's disk operations (monitor, block, or inject data).
- Had the ability to pre and post process all Ethernet packets.
- Had a large out-of-band repository.
- Finally these capabilities can be used without consuming any host machine cycles.



# SHIELD Provides Host Resilience



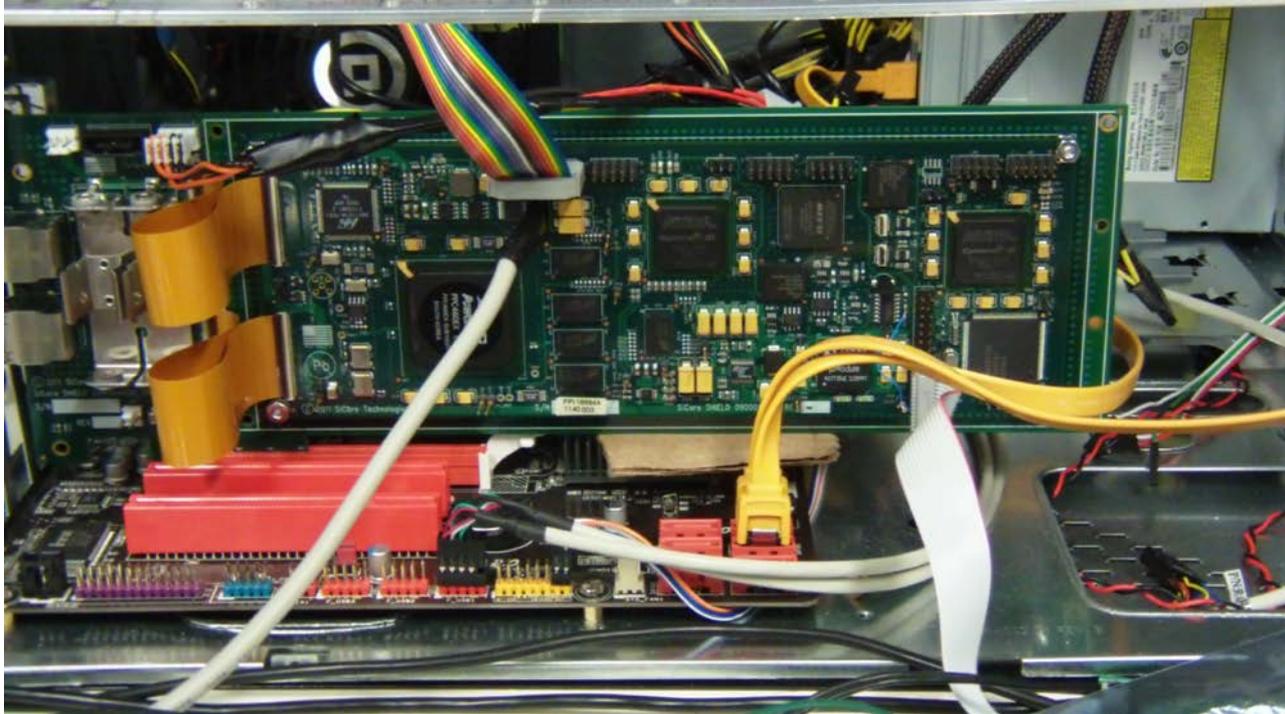
# SHIELD Secure Coprocessor



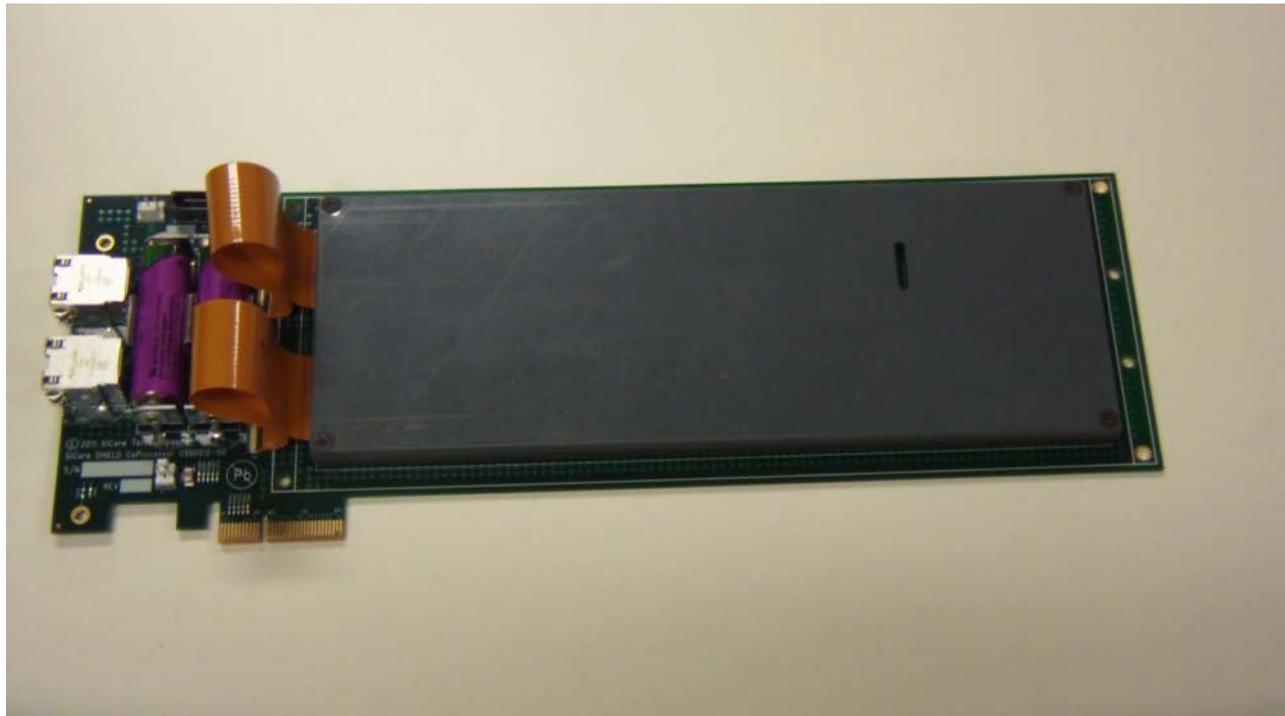
Legend:  Out-of-Band (inaccessible to adversaries)  Anti-Tamper elements



# SHIELD Secure Coprocessor



# SHIELD Full Size Production Version Coprocessor



# Avionics System SEM-E Modules



- Standard Electronic Module Format E (SEM-E)
- Liquid Flow Through (LFT) cooled
- Used in supporting radar, and electronic warfare



- Contain SEM-E modules
- The racks contain modules that are used in communication and electronic warfare.
- Liquid cooled



# Contact Information

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