Reliability Threats to CMPs

- Manufacturing defects
- Age-related wearout

Fault Detection and Reconfiguration

- Fault Detection in Hardware
  - online periodic testing is promising
  - component-level approaches provide high-coverage at low area and performance cost

Cardio: Dynamic Introspection

- Cardio treats hardware as a sea of software-configurable components:
  - hardware detectors to recognize faults in individual components
  - components monitored by a lightweight distributed resource-manager running on the general purpose cores
  - triggers hardware reconfiguration to work around faulty components

Cardio: Reliable CMPs through Dynamic Introspective Operation
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