

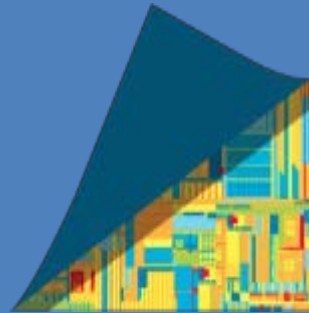


Allocating Rotating Registers by Scheduling

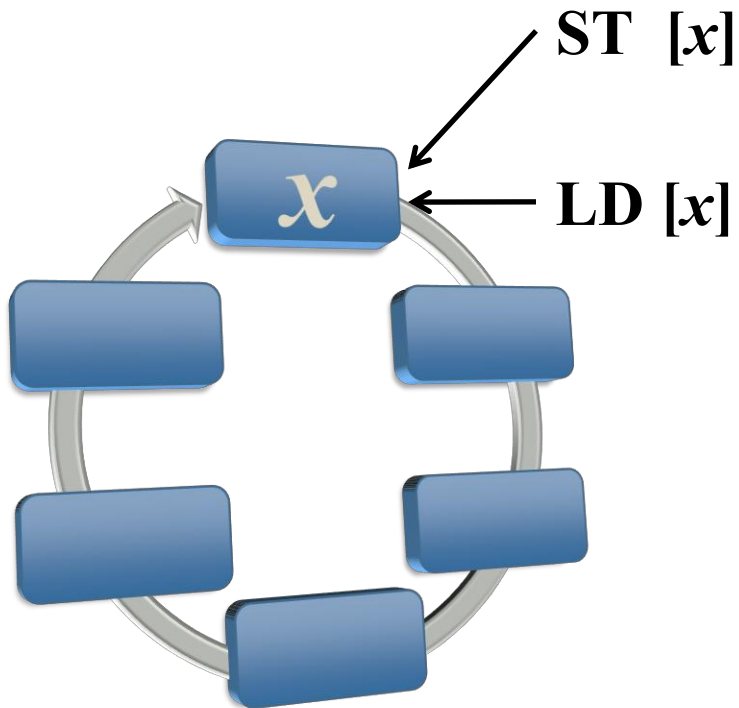
Hongbo Rong
Cheng Wang

Hyunchul Park
Youfeng Wu

Intel Labs



Rotating Registers for Alias Detection



- Given a software pipelined schedule of a loop, how to allocate registers?
 - Detect ALL aliases
 - No false positive
 - Minimal spilling
 - Minimal registers

Rotating Register Allocation = Scheduling!

- It is a software pipelining problem
 - A modulo schedule of lifetimes
- Contributions
 - Framework
 - A simple algorithm
 - Near-optimal results