Chip Complexity is Growing Exponentially

![Graph showing cost (in $M) vs. feature dimension (transistor count) for different stages of development (Software, Prototype, Validation, Physical, Verification, Architecture). The graph illustrates the exponential growth in cost as feature dimensions shrink.]
Simulators are single threaded
The cache becomes useless

“Maybe Grandma doesn’t remember because her memory is maxed out.”
A Brute-Force Approach

How Intel Manages 100,000 Servers
February 17th, 2010: Rich Miller

A look at the dense server configurations in one of the 97 data centers operated by Intel Corp, which runs more than 100,000 servers.

Chipmaker Intel has one of the largest data center management challenges on earth, with more than 100,000 servers housed in 97 data centers around the globe. About 70 percent of those servers support Intel staffers designing microprocessors, with the remainder dedicated to Intel's own IT and network operations. The company's mission...

Uri Tal
How about GPU?
Unique Scheduling Algorithms
Helping to Design Better GPUs
Summary

- Verification is becoming a bottleneck
- GPUs hold great promise
  - But parallelization is the challenge
- Rocketick enables to extract parallelism from complex graphs and run it over GPUs
- Our technology is broadly applicable
  - Chip simulation is only our first application
Thank you!