If this stuff is so great, then why isn’t everybody doing it?

Harry Foster
Chief Verification Scientist
An Optimistic View of the Productivity Gap

Let's assume…

- Number of transistor doubles every 18 months (58% / yr)
- Amount of logic we can design doubles every 2 years (41% / yr)
- Amount of logic we can verify doubles every 2.5 years (25% per year)

Functional Verification Technique Adoption

- CODE COVERAGE ANALYSIS: 48%
- FUNCTIONAL COVERAGE: 40%
- ASSERTIONS: 37%
- FORMAL PROPERTY CHECKING: 19%

Farwest Research and Mentor Graphics, 2008
Transistors Produced per Hardware Developer Nearly 4-Orders of Magnitude since 1985

Need for Software Development Automation

System Design Has Shifted to the Semiconductor Suppliers

To solve the rising cost of complex chip design will require more automation in the software development process!

How can formal help here?
Needed Solutions and Research…

- Lack of confidence metrics…
  - Industry wants solutions that allow them to merge and analyze coverage(?) across many different system domains…