Major upcoming verification challenges

Olivier Haller
Verification Methodology Manager
Functional Verification Group
STMicroelectronics, Grenoble, France
Main challenges for next years

**Scalability**
- How long will exhaustive RTL simulation remain affordable?
- Incredible amount of data generated by simulation runs

**Systems Complexity**
- Nobody can have full understanding of full system
- Systems tests too complex to be hand written
- Heterogeneous multi-core systems introducing new level of complexity

**Productivity**
- Human efforts and IT resources (CPU, licenses, disk) cannot grow linearly
- Expense driven context: we must do more with same budget
- Enable fast verification of derivative projects
Some ideas of solutions

- **Ease the abstraction mix**
  - Mixing RTL of some components with faster models

- **Verification Intelligence**
  - Rely on Business Intelligence techniques to optimize regressions and enable multi-team collaboration

- **Scenario Model Based Verification**
  - Generate complex use cases for HW/SW systems
  - Knowledge sharing and reuse

- **Debug automation**
  - Providing tools to get automatic hints on bug locations