

# QA Project

Rajeev Srivastava

Email : [rajeev.srivastava@gmail.com](mailto:rajeev.srivastava@gmail.com)

# Problem Statement

- Today, QA for EDA tools is adhoc, manual and time consuming process
- EDA tools are complex, QA of EDA tools is as hard as the verification of a complex digital design.
- Design testcases are manually created as an after-effect of encountering real-design problem
- Manual QA has very low command coverage

# EDA vendor's care abouts

- Improve Quality of Results
- Shorten Evaluation/Benchmark Cycle
- Increase Customer satisfaction
- Minimize “JIT” development cost
- Reduce Post deployment bug-fix cost
- Proliferation support cost
- Maintenance cost

# EDA Customer's needs...

- Stable Design methodology
- Maturity / Stability of EDA tool
- QoR predictability
- Known behavior reference data

# EDA business

- EDA revenue follows semiconductor industry R&D expense curve
- Mature tools are profitable, but it takes many years for a EDA tool to mature
- Reduced profits for EDA because of maintenance cost over duration of maturity
- Customers part of QA-process, bargain on cost, hence overall slow growing market

# Increase EDA worth for Semiconductor Inc

- Reduce time-to-maturity
- An independent, automated QA environment
- QA during development, not deployment
- Find customers, not QA partners

# EDA tool maturity

- 3 cash cow tools in EDA have maximum users and over period of many years has matured with on-the-job QA
  - Virtuoso(Cadence),
  - Calibre(Mentor)
  - Primetime(Synopsys)
- Stat-QA provides accelerated maturity in <3 months vs years

# QA solution

- Fully automated Statistical QA system “Stat-QA”
- Automatic testcase generation
  - Broad design space coverage
- Automated and self correcting flow generation system
  - Extensive command coverage
- Automated result verification
  - Customizable performance metric
  - Asymptotic results validation
- Maximize hardware usage and minimize manual QA



# Stat-QA Features

- Automated Design Analysis
- Flow Qualification
- Library Qualification
- QOR Improvement metric w/ customization
- Closed loop feedback with known solution
- Comprehensive command coverage
- Standards Compatibility Analysis

# Product offerings

- LSF/Grid based Stat-QA system using client/server architecture, includes (Standard Test Suite)
- Benchmark Suites
- Test Suites
  - Basic package
  - Advanced package
  - Premium package
  - Turbo package
- Corner case analysis suite
- Knowledge base to cross reference issues to known solutions

# Current Status

- Prototype system ready
- Ready to deploy within weeks
- software with service to jump start the QA-system
- Further discuss the engagement model