ECAD Systems

John C. Shovic

ECAD Systems

• Electronic Computer Aided Design
• You HAVE to use a ECAD system today!
• Huge Software - Tons of Software, Lots of Software

ECAD Choice

• The choice of a design system is a KEY decision
  – Just like a compiler debugger
  – Just like the choice of HW
  – Just like the writing of a Spec
**Where’s the Beef?**

- What is important?
  - Software is complete
  - One Vendor? Maybe
  - One Framework? Good
  - Tech Support
  - Libraries
  - References

**What’s in a ECAD System**

- Flow from Start to Finish of Design
- Verified Libraries
- Verification Aids and Tools

**System Design**

```
Design entry \[\rightarrow\] Logical Verification \[\rightarrow\] Timing Verification \[\rightarrow\] Implementation \[\rightarrow\] System Test!
```

Feedback Everywhere!
Design Entry

- Schematic
- VHDL (Text editing)
- Libraries

Logical Verification

- Logic Simulation
- Not necessarily with timing
- Validation of algorithms

- What is an “X” versus a “1” or “0”?

Timing Verification

- Add timing to simulation
- Estimates on timing
- Feedback from layout
- Clocks!!!!!!!!!!!!!!!!!!!!!
Implementation

- Often before timing verification
- Feedback from “layout” important
- Synthesis “gotcha’s”

System Test

- Sometimes System is ready, sometimes not
- Behavioral Models for ROS (Rest of System)
- Plug in the system as early as possible

Upcoming Changes

- High speed hardware simulation
- ASP model for design tools
- 4GL languages for real systems
- Better Standards
- More IP Modules, better cells, better support
Homework Assignment

• Read Computer Society Handout