## Digital Sandbox Website

www.ece.cmu.edu/~sandbox

The website is now live and contains information about
- Sandbox courses
- CAD tools used
- Industry participation
- Support available
- Computing facilities
- News and Team info

Thanks to the ECE Multimedia team for the design

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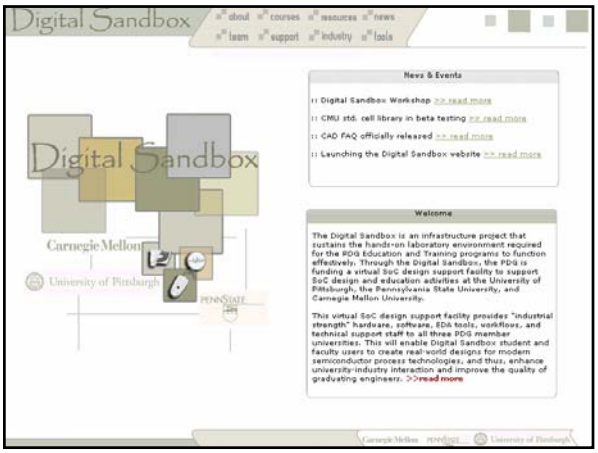


## CAD FAQ, Intro

- Purpose:
  - To ease CAD tools learning curve
    - VLSI CAD tools are notoriously "user-hostile", script-based, with thousand pages of documentation
  - Provide a central access point
    - Typically, this help info is scattered on the web, CAD companies restricted sites (SourceLink, SolvNet), academic websites
  - Lessen the burden on ECE Gripe and us
    - FAQ covers actual issues students in 18-725 ran into and accounts for significant portion of software-related issues

Knowledge base for Computer Aided Design Tools used in the Sandbox courses and available at Carnegie Mellon, ECE.

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## CAD FAQ, Coverage

Primary emphasis put on semi-custom ASIC design flow, but full-custom, FPGA, possibly mixed-signal flows will follow.

- Mentor Graphics ModelSim - HDL simulation
- Open Verification Library – Functional Verification
- Synopsys Design Compiler - Synthesis
- Cadence Silicon Ensemble – Place and Route
- Monterey Dolphin –Place and Route
- Cadense Virtuoso and ICFB – Full-custom layout
- Silicon Metrics Cell Rater – Standard Cell Library design

- On the waiting list: Synplify FPGA, Synplify ASIC, Vera/Specman, Synopsys FPGA Express, First Encounter, Caliber

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## CAD FAQ, Coverage, cont.

- Support for middleware as well:

- Process Design Kits (Full-custom, Analog, MEMS)
  - North Carolina State (SCMOS, 0.18um and up)
  - Cadence Generic PDK (demo PDK)
- Standard cell libraries – Semi-custom ASIC
  - Carnegie Mellon CMUlib18 – TSMC 0.18
  - VirginiaTech VTVTlib25 – TSMC 0.25
  - GSClib – Cadence Generic

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## CAD FAQ, Contents

- FAQ for each CAD application typically includes:
  - Unix Environment setup (license, path, libs)
  - Short hands-on tutorials
  - Most common problems running the tools (actual questions from the students)
  - Design tips and tricks
  - Links to Help Documentation

Currently, contains over 50 articles and growing

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## CAD FAQ, Website

www.ece.cmu.edu/~sandbox/cadfaq

- Dynamically generated, updated periodically
- Full searchable by keyword or can be browsed by CAD application
- Access is restricted to the following domains because CAD FAQ contains proprietary documentation
  - cmu.edu
  - pitt.edu
  - psu.edu
  - digitalgreenhouse.com

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## Sandbox Infrastructure

- Sandbox Server Farm
  - 8 Sun Fire 280R, dual-CPU 750/900 MHz with 4 GB RAM
  - Server farm for VLSI CAD applications demanding high-performance processing power and memory bandwidth
    - Synthesis
    - Place-and-route
    - Verilog simulations
    - Spice simulations
  - Looking into adding Sun Grid Engine load-balancing and job scheduling software as the big players add support for it
  - Currently have scripts that show real-time cluster load

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## Questions

- Questions
  - Comments
    - » Suggestions
- Any Pitt/PennState resources can be added to CAD FAQ?
- Possible CAD training sessions for Faculty and Staff?
- Should we consider using AFS for file exchange, tools support or CVS was sufficient?

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