

# Introduction to the Fables Semiconductor Association (FSA) and the Modeling Committee Activities

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# FSA Mission Statement

*“In support of the fabless model, the FSA will encourage the ongoing, symbiotic relationship between fabless semiconductor companies and suppliers; facilitate productive business partnerships; create awareness and promote the acceptance of the fabless business model; disseminate relevant data; and nurture the creation, adoption, and implementation of standards and policies vital to the fabless model.”*



# FSA Background

- Founded in 1994
  - Fabless approach considered “strange” then
- Fabless business model is now dominant in N. American/Asian semiconductor industry
- “Action” is no longer at the old “name” companies
- FSA now has 300 member companies of various sizes
- Web site is: <http://www.fsa.org>

# Fabless “Ecosystem”

- Design houses are small, nimble, innovative – attract and retain best engineering talent
- Foundries provide most advanced fab technology at good cost and availability
- Barriers-to-entry are virtually non-existent
  - E.g., roughly one new design house a week in San Jose alone!
  - E.g., new foundries in Malaysia, China



# Some Fabless Stars

Company	2000 Revenue (mil)
Altera	\$836
ATI Technology	\$1317
Broadcom	\$1126
Nvidia	\$732
PMC-Sierra	\$691
Qualcomm	\$1216
Xilinx	\$1609

# FSA Events of Note

- SOC Technical Workshop (February)
- Wafer/Packaging Demand Survey (April)
- Modeling Workshop (October)
- Suppliers' Expo (October)
- Annual Dinner and Awards (December)
- CEO Breakfast (quarterly)
- Luncheon Panel (quarterly)



# Modeling Subcommittee

*“The mission of the Modeling Subcommittee is to improve the quality of circuit models used by FSA member companies, including SPICE and interconnect models. The Subcommittee is dedicated to news and the discussion of current topics closely related to model generation, extraction, validation, comparison, etc.”*

# Modeling Subcommittee

- Goals
  - Improve the modeling capabilities of all fabless designers
  - Encourage innovative methods
  - **Not** pick winners and losers – let “marketplace” decide that
  - Make information available on current and future topics



# Annual Modeling Workshop

- Two-day event, held annually (autumn)
- One day on interconnect modeling, one day on transistor modeling
  - Evolves based on industry interests
- October 2000 event in Santa Clara had some 120 attendees
- October 2001 event in planning

# “Brownbag” Lunch Events

- Committee sponsors lunchtime talks in Sunnyvale on modeling topics of interest
- No formal schedule; talks are created at the convenience of speakers
- Upcoming topics include high-frequency bipolar transistor modeling (HiCUM),  $g_m/I_d$  design issues, a new MOS model from Japan (HiSIM)
- Goal: “Service to the profession.”



# Summary

- Fabless business model is the cutting-edge of the present-day semiconductor industry
- Wonderful ecosystem in place (fabless design houses and foundries) for innovation, low barriers-to-entry, creation of high-value-add intellectual property
- FSA and modeling committee work to support and encourage these trends