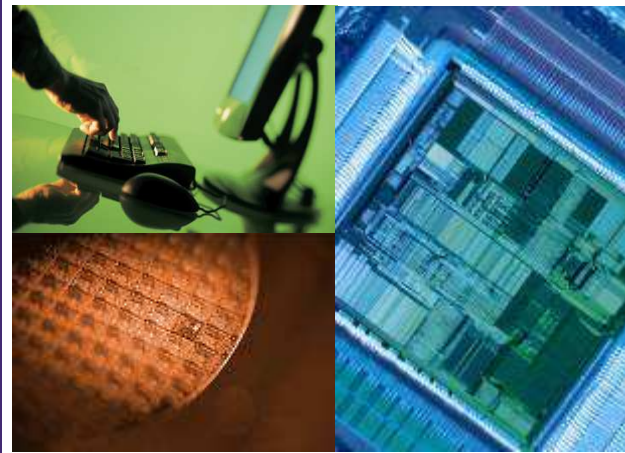


Liberty™ Si2 Technical Advisory Board (TAB)

Overview

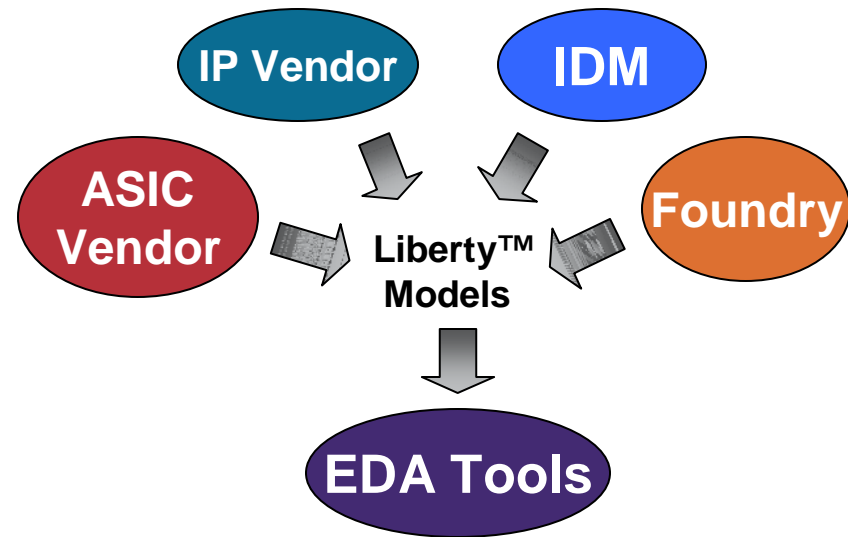


SYNOPSYS
Predictable Success

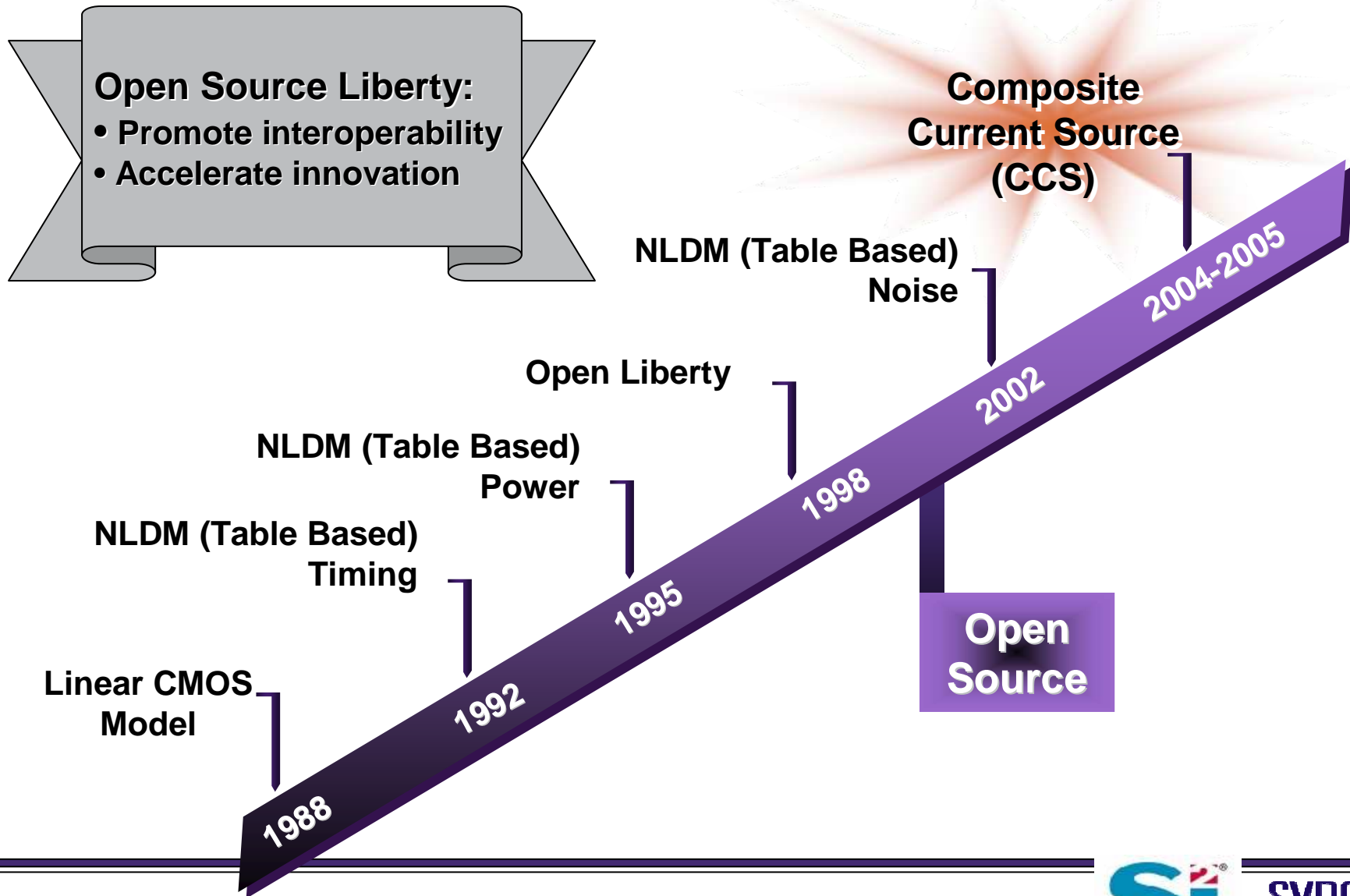
Liberty™ Models: *At the heart of Semiconductor Design*

Wide Industry Support:

- 100+ Semiconductor Vendors
- Over 750 Libraries
- 30+ EDA Vendors
- More than 75 EDA Tools
- All major IP providers
- Top Foundries, IDMs and Fabless



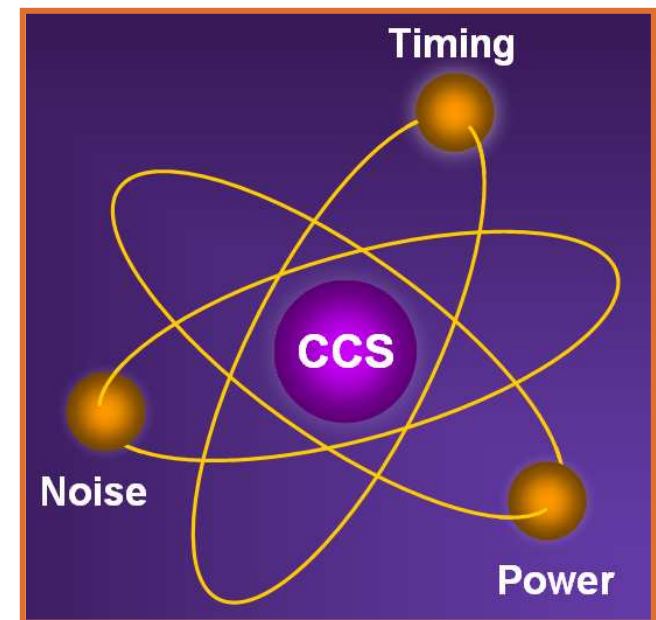
Liberty: A History of Innovation



CCS Modeling Technology

Latest Extension to Liberty

- Addresses modeling challenges for 90-nanometers (nm) & below
- Industry's only complete current-based model for timing, SI & power
- In use on 90-nm, 65-nm designs at leading IDMs & fabless companies
- Supported by key IP providers and foundry:
 - ARM, Virage Logic, TSMC

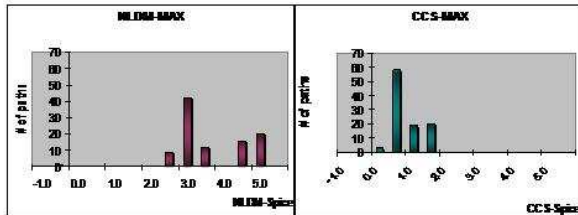


Significant Momentum Behind CCS

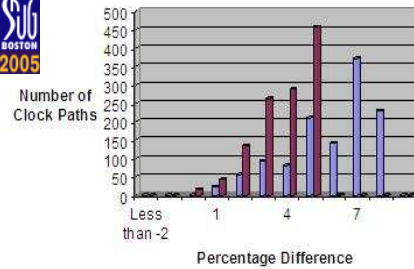
TEXAS INSTRUMENTS INNOVATE. CREATE. MAKE THE DIFFERENCE.



Accuracy: NLDM v/s CCS v/s Spice on critical paths (65nm)



Spice Correlation



CCS Advantages

- Simplicity adding the additional characterization
- Extends ARM's general purpose libraries to user-specific PVT points beyond standard characterization.
- Increased accuracy of the driver/receiver model
 - CCS Voltage Scaling
 - Reduced interpolation
- CCS available now for TSMC 90nm
 - Contact ARM for availability on other processes, foundries
- CCS noise planned for later in 2006



Clock tree path correlation results (65nm)

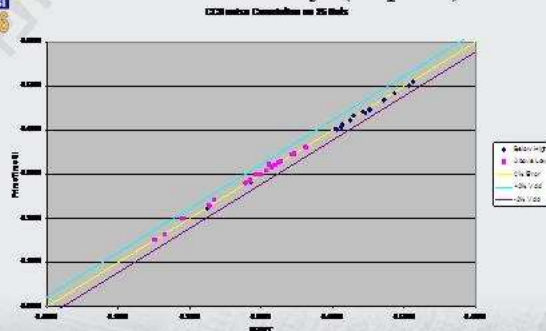


12

- 220 clock tree path test cases *with parasitics* generated. Path length ranges from 6 to 50. Average length is 28.

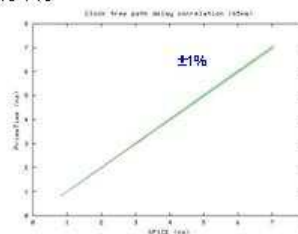


Noise accuracy (hspice)



delay correlation:

to 1.51%
%



Artisan ARM Physical IP THE ARCHITECTURE FOR THE DIGITAL WORLD[®] Confidential 9 ARM

IP Provider's View

- CCS Model is easier to characterize and more accurate compared to previous generation models
- CCS is necessary for 65nm, and below, process technologies
 - Need to add voltage and temperature scaling for complete solution
- CCS support roadmap
 - FCS in Q3-2006

Slide 5

© 2006 Virage Logic Corporation – COMPANY CONFIDENTIAL



The Next Step in Liberty

- Build on CCS to address future modeling requirements with guidance from the entire semiconductor ecosystem:
 - EDA companies, IP vendors, Foundries, ASIC vendors, IDMs and Fabless companies

**Synopsys and Silicon Integration Initiative (Si2) form
Liberty Technical Advisory Board (TAB)**

Who is Si2?

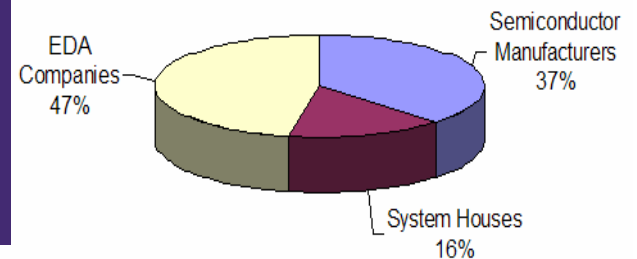


- Si2 is an independent non-profit organization of 99 industry-leading companies in the semiconductor, electronic systems and EDA tool industries.

Si2 Mission

Achieve industry adoption of collaborative technology and services that deliver higher levels of silicon design integration, enabling compelling advantages for our members through reduced costs, faster time to market, and improved IC design capability.

Si2 Membership Distribution



- Partial list of members:

AMD, ARM, ATI, Cadence, Ericsson, Freescale, HP, Infineon, Intel, LSI Logic, Mentor Graphics, Philips, Renesas, Samsung, ST, Sun, Synopsys

Si2's Role in Liberty TAB

- TAB's Objective: Provide guidance for Liberty evolution
- TAB is established under Si2
 - It is subject to Si2 by-laws
- Si2 is tasked with staffing the TAB, facilitating meetings, voting on enhancements and changes, etc.
- TAB will consist of up to 12 members, both from EDA & user community (IP providers, Foundry, IDM, Fabless, etc.)

Liberty TAB Membership

- Candidate Companies:
 - EDA Vendors: Synopsys, Cadence, Mentor, Sequence
 - Library Vendors: ARM, Virage Logic
 - Leading foundries
 - Major IDMs and Fabless Companies
- Benefits to members:
 - Shape the future of Liberty
 - Represent the viewpoint/interests of member's industry segment when modeling changes are being considered

Summary

- Liberty has a 15+ year history of success
- It is the defacto standard at the heart of the semiconductor industry
- Latest CCS extension to Liberty has enjoyed significant industry momentum
- The next step is to form the Liberty TAB under Si2
- Liberty TAB will guide future evolution of the standard