IPL Alliance
and
Interoperable PDK Overview

September 2010

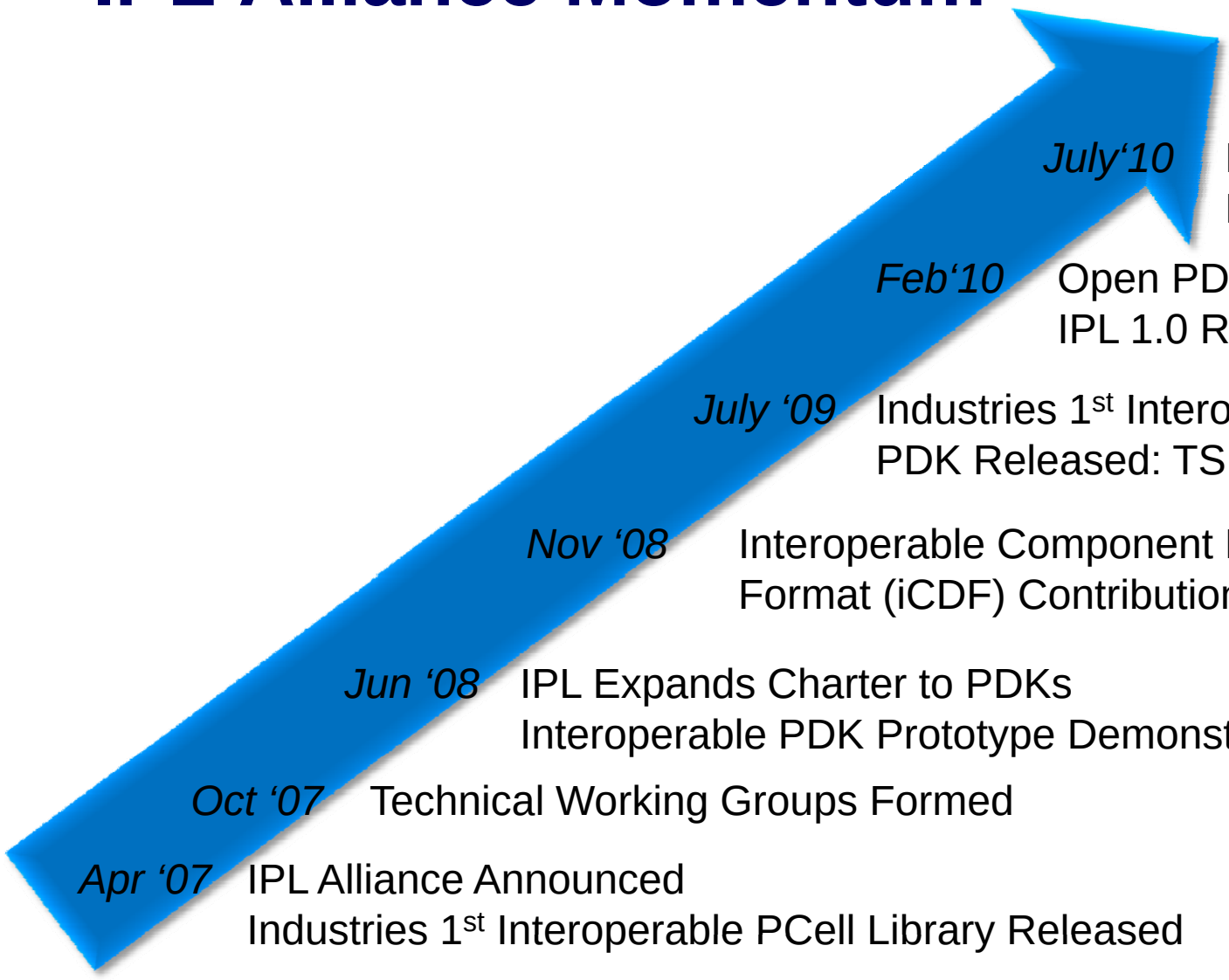
PDK Trend

Past	Now
Private databases	OpenAccess database
Single vendor centric	Virtuoso + Custom Designer + Laker + Titan + Others
Main Stream processes and basic PCells	Advanced processes and complex PCells
Basic design flows	Complex design flows and IP reuse

IPL Alliance Established in 2007

- Charter
  - Create and promote standards for Interoperable Process Design Kits (PDKs) and flows
- Goal
  - Enable a single PDK to support any OpenAccess tool
- Benefits:
  - Reduce PDK development and support costs
  - Create choices in building your analog flow
  - Increase design reuse and portability

IPL Alliance Momentum



July'10 Design Constraint WG Established

Feb'10 Open PDK Standard
IPL 1.0 Released

July '09 Industries 1st Interoperable PDK Released: TSMC 65-nm

Nov '08 Interoperable Component Description Format (iCDF) Contribution

Jun '08 IPL Expands Charter to PDKs
Interoperable PDK Prototype Demonstrated

Oct '07 Technical Working Groups Formed

Apr '07 IPL Alliance Announced
Industries 1st Interoperable PCell Library Released

IPL Alliance

One PDK Works in Multiple Vendor Environments

Growing Membership

Go to www.IPLNow.com for more information

IPL's Approach To Achieving PDK Interoperability

- Involve EDA vendors, foundries and users
- Use existing standards where feasible
- Validate standards with prototype interoperable PDK's and flows
- Target modern process technology nodes
  - Collaborate with a foundry to implement production interoperable PDK
- Release open standard for industry adoption

IPL 1.0 Available

Open Standard For Interoperable PDK (iPDK)

- IPL 1.0 90nm reference iPDK download package
  - Available for public download at www.iplnow.com
  - iPDK developer & User guide
  - Generic 90nm sample iPDK including source code
  - Generic 90nm OpenAccess-based reference design
- IPL 1.0 standard documents
  - Available for IPL Alliance members
  - iCDF and Tcl callbacks
- Benefits
  - Test drive IPL iPDK with multiple custom design flows
  - Learn, review and comply with IPL 1.0 standard
  - Create and provide iPDK using IPL 1.0 standard

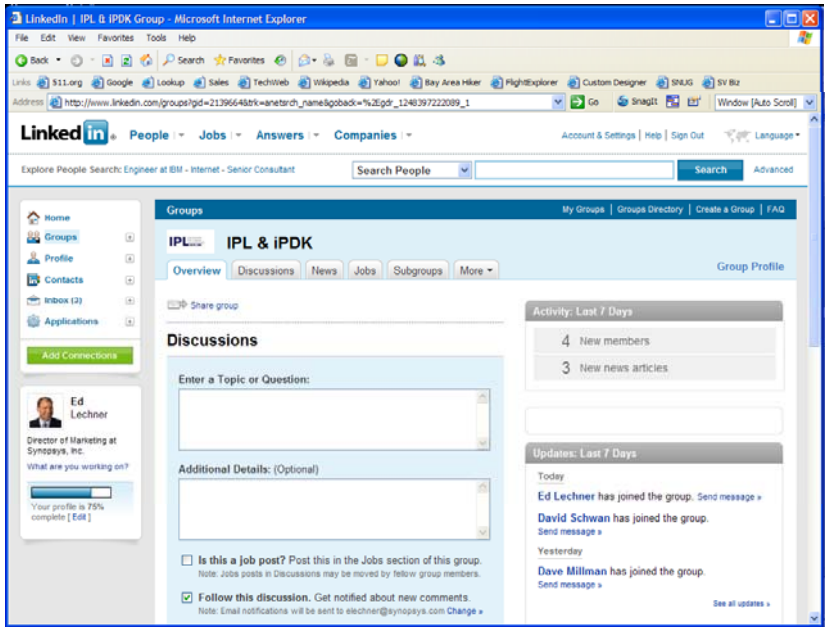
Next Steps for IPL Alliance

- Collaborate with Si2's OpenPDK coalition to avoid multiple standards for PDK
- Maintain and improve IPL 1.0 standard
- Work on standards for analog constraints
- Educate the industry
- Grow IPL Alliance membership

Get Involved

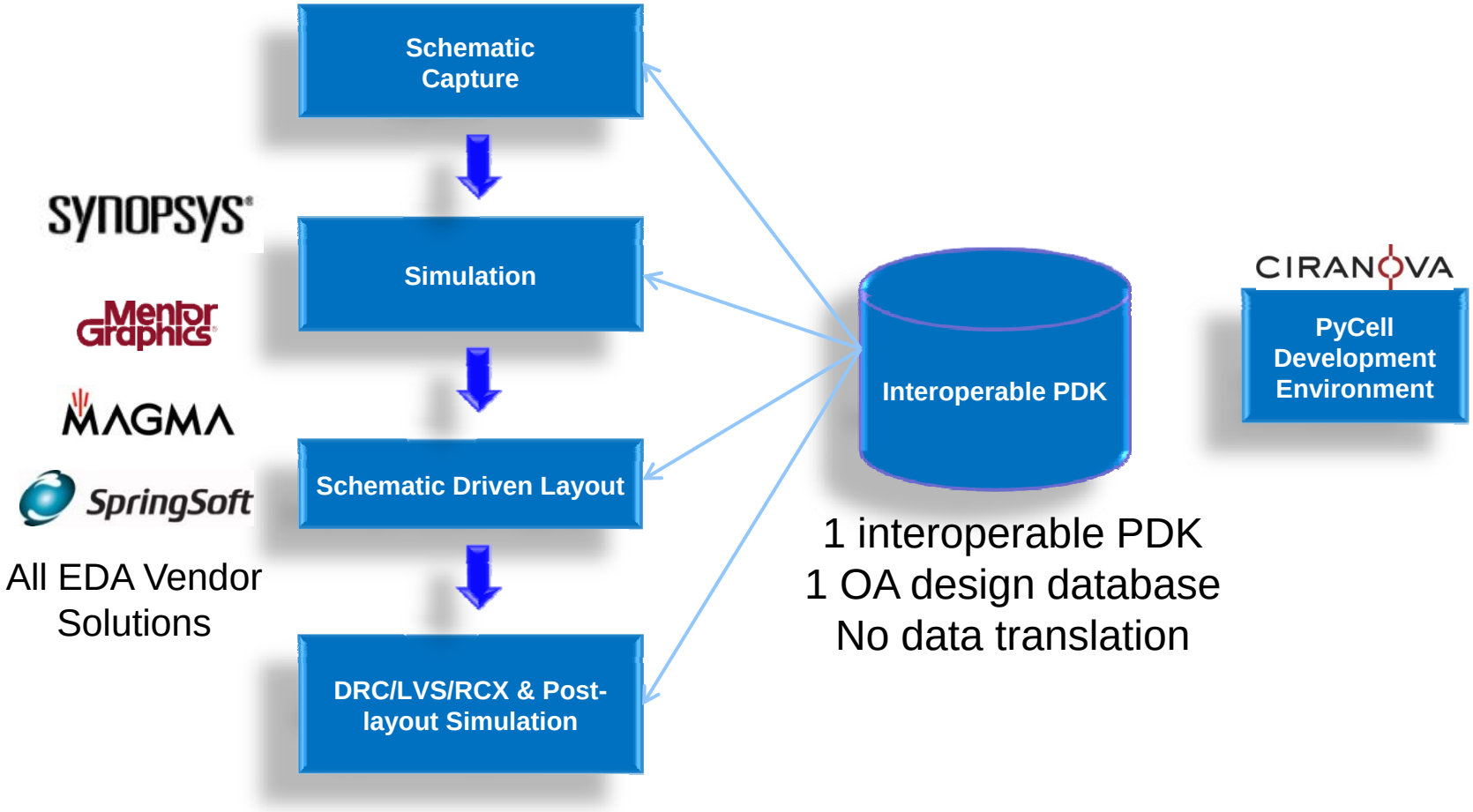
LinkedIn
IPL & iPDK Group

www.IPLnow.com

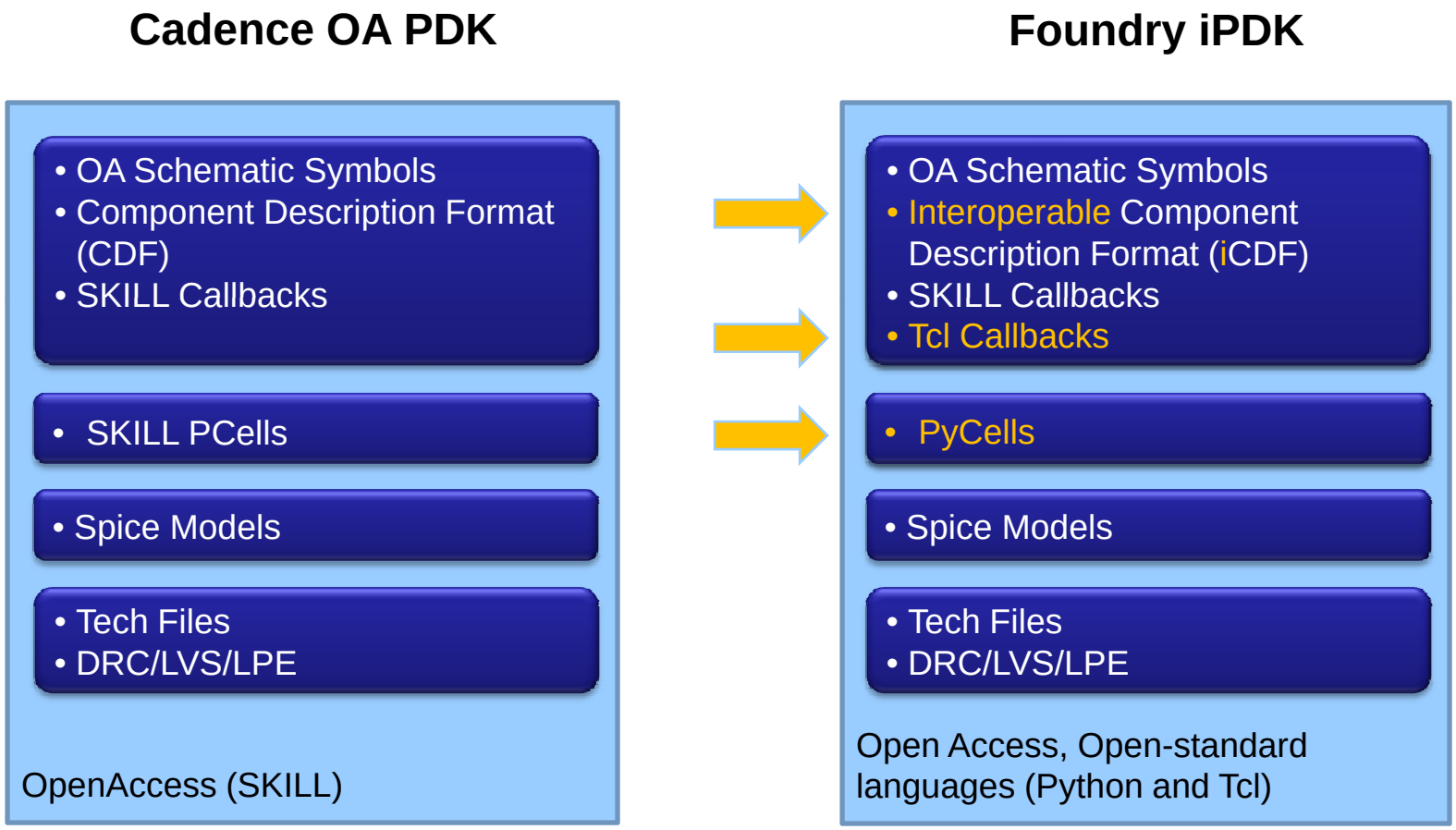


Interoperable Multi-Vendor Flow

One Interoperable PDK for All EDA Vendor Solutions



Foundry iPDK Content



One Foundry iPDK for all EDA vendors

Modern Architecture Improves PDK Productivity

- Less PyCell code: ¼ to ½ the code vs. Tcl/ SKILL™
- Faster PyCell runtime: 2X to 10X faster
  - ROD like APIs without the performance penalty
- Reuse
  - PyCells and iCDF are process independent
  - Can be re-used by rebinding to a new-node tech file
- Platform independent
  - Not dependent on OS, hardware and compiler
- 45/32/28nm Rules supported
  - PyCells can easily support DFM rules such as fixed pitches, conditionals etc.
- Interactive development environment improves development efficiency

Interoperable PDK have all features supported by SKILL™ based PDK and more

Industry Support

"There's a significant benefit to interoperable programmable layout cells usable across several Layout EDA environments."

*- Vincent Ross, Sr. Manager, Analog Mixed Signal Circuit CAD at **AMD***

"In some cases, using Ciranova's API and PyCells have helped in reducing cycle time by several weeks in generating differentiated RF and analog elements, such as inductors, into ST's first advanced 32/28nm RF PDKs."

*- Vincent Varo, CMOS and Derivative PDK Manager, Technology R&D, at **STMicroelectronics***

"The iPDK standard allows us to provide our customers with accelerated access to our advanced specialty technologies in a flexible way, resulting in fast product design timelines."

*- Ori Galzur, Vice President, VLSI Design Center at **TowerJazz***

"Ciranova's PyCell technology and advanced architecture provides native support of interoperable PDKs"

*- Fu-Chieh Hsu, vice president of Design & Technology Platform at **TSMC**.*

Summary

- IPL Alliance continue collaborating with industry leaders to standardize Interoperable PDK

- Interoperable OA PDK is gaining momentum
  - Multiple EDA tools support iPDK standard
  - Multiple foundries developing and providing iPDKs for customers