

Structure for Packaging, Integrating and Reusing IP within Tool Flows



John A. Swanson
Senior Manager
Synopsys Solutions Group



What is SPIRIT



SPIRIT is a consortium consisting of leading EDA, IP and SoC integrators aiming at increasing the efficiency of SoC integration by defining new standards for support in EDA environments and IP packaging



Why SPIRIT



The industry needs a standard mechanism for the importing of IP into any EDA tooling environment, and for describing IP in such a manner that IP integration can be automated



The Two SPIRIT Standards



IP meta-data description. The meta-data standard will create a common way to describe IP, compatible with automated integration techniques and enabling integrators to use IP from multiple sources with SPIRIT-compliant tools.

IP tool integration API. The tool integration API will provide a standard method for linking tools into an IP framework, enabling a more flexible, optimized development environment. SPIRIT-compliant tools will be able to interpret, configure, integrate and manipulate IP blocks that comply with the proposed IP meta-data description.



SPIRIT Goals and Status



Meeting the design ecosystem needs

- **As an IP developer**
 - Enable choice of design and verification environments supporting SPIRIT-compatible IP from multiple sources
- **As an IP vendor**
 - Support multiple end-user design and verification flows with a single SPIRIT-compatible IP design package
 - Enable EDA GUIs to provide front-end to configurable SPIRIT-compatible IP
- **As an EDA provider**
 - Enable automatic interpretation of SPIRIT-compatible IP for efficient: import, configuration, and integration



ARM

cadence

Mentor
Graphics

PHILIPS

ST

SYNOPSYS

5

SPIRIT Goals and Status



Meeting the design ecosystem needs

- As an
- En
- su
- As an
- Su
- with
- En
- SF
- As an
- En
- for

SPIRIT provides the critical standard

• SPIRIT Meta-data:

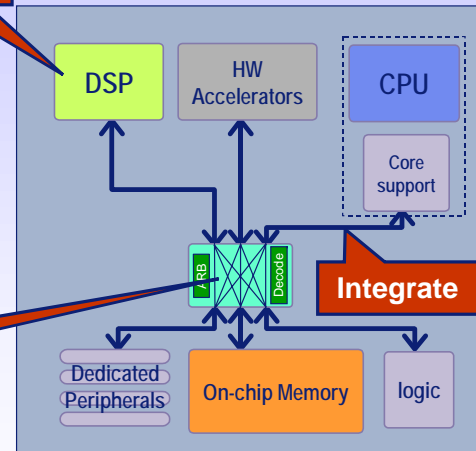
- Machine-interpretable design IP
- Specifies integration requirements
- Consistent across abstractions
- Consistent SoC design and verification IP configuration

Import

• SPIRIT generators:

- Point-tool launch
- IP configuration launch
- Interface for integration with SPIRIT compatible tools

Configure



4

SPIRIT Goals and Status



Meeting the design ecosystem needs

- As an
- En
- SU
- As an
- Su
- wit
- En
- SF
- As an
- En
- for



SPIRIT provides the critical standard

• SPIRIT

- Mach
- Spec
- Cons
- Cons
- verific

• SPIRIT

- Point
- IP co
- Interf
- comp



Revision Date: June 7th 2004

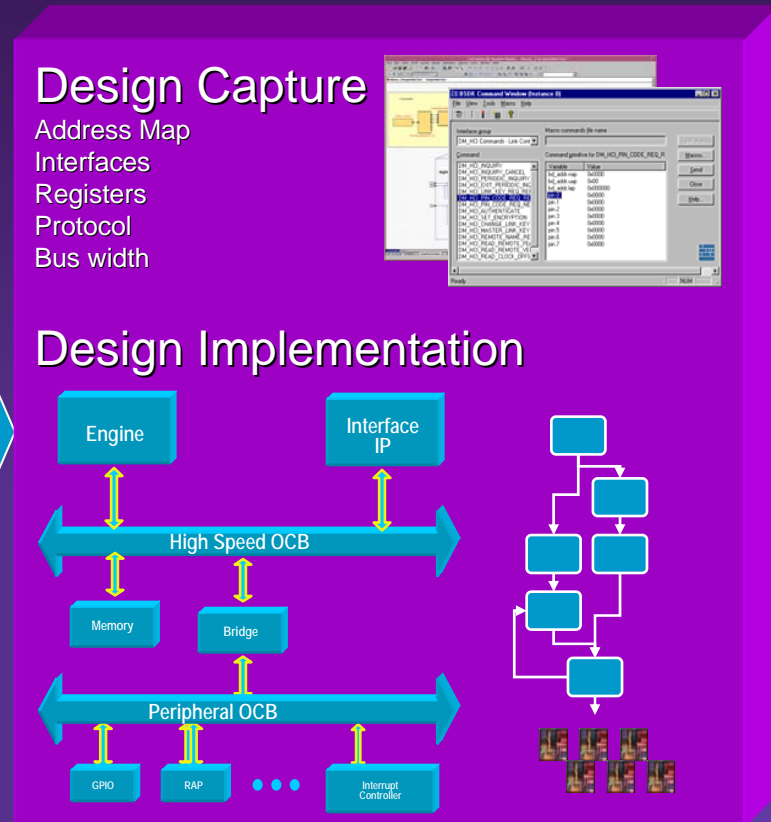
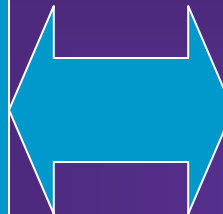
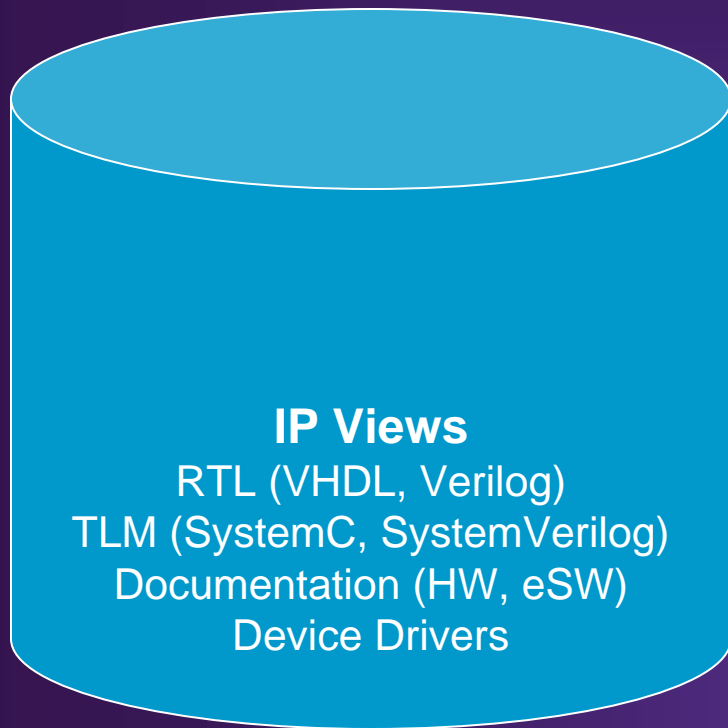
SPIRIT Schedule (Detail)

- **New Member Sign-Up: Ongoing!**
 - Reviewing and contributing members
- **SPIRIT 1.0: Scope – RTL / Loose Generators**
 - Proposed Standard (Full Member Review): **NOW!**
 - Validated Public Release: Early Q4, 2004
- **SPIRIT 2.0: Scope – ESL / Verification / Tight Generators**
 - Requirements: Q3 2004
 - Development: Q4 2004 / Q1 2005
 - Review and Release: Q2 / Q3 2005
- **SPIRIT deliverables roll into major industry standards body**
 - Presented as a validated, defacto industry standard

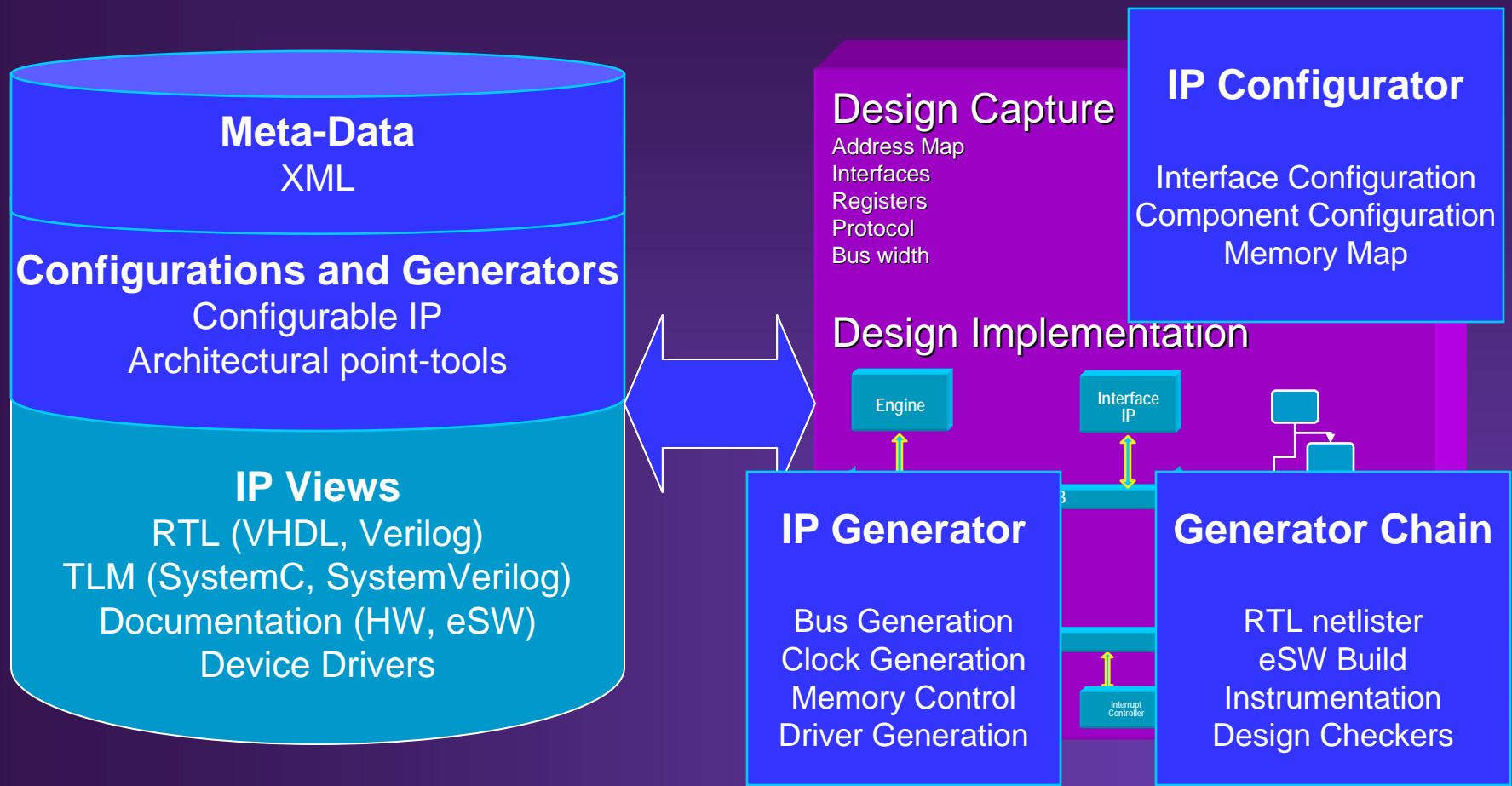


14

A Closer Look at SPIRIT



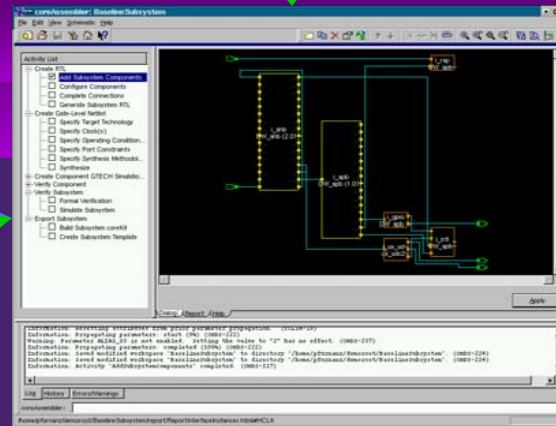
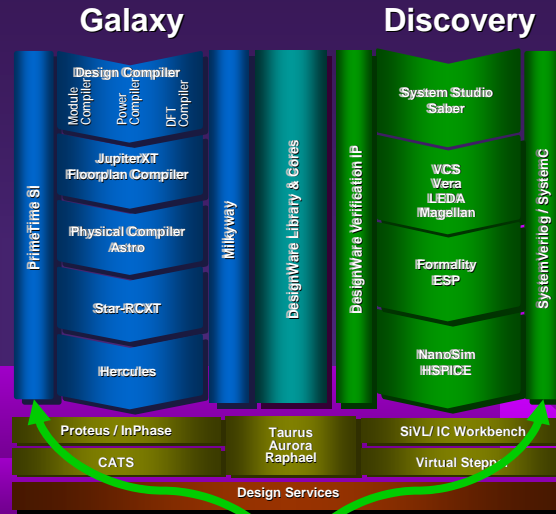
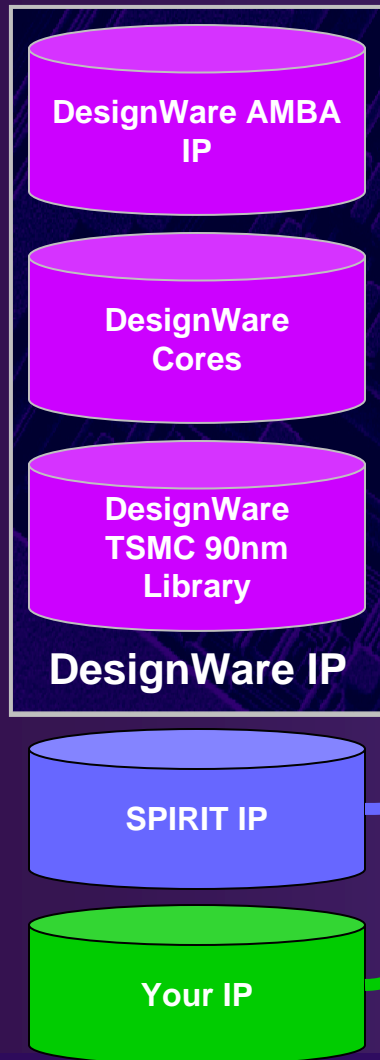
A Closer Look at SPIRIT



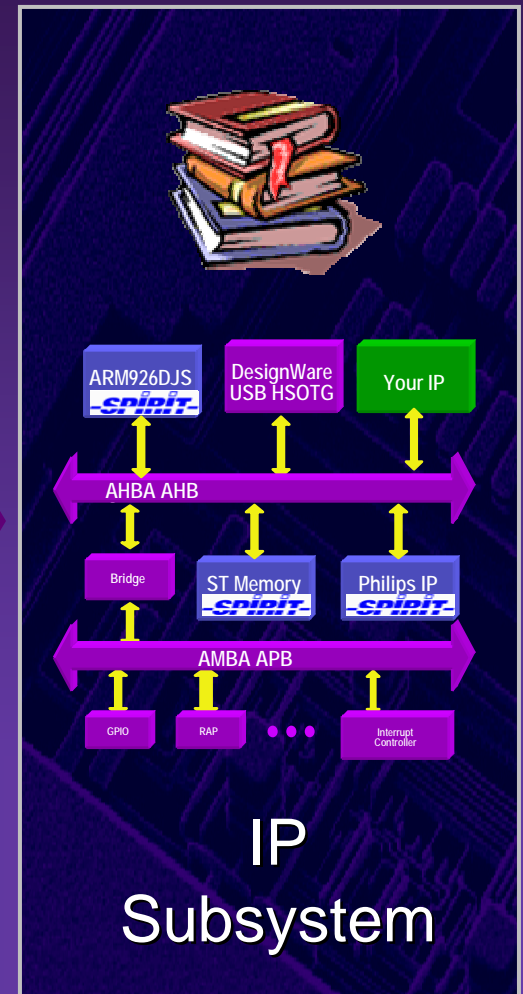
SPIRIT Schema and Generator Interface

Synopsys coreAssembler™

Validating the Standard with IP from Multiple Vendors



coreAssembler



About SPIRIT



You can learn more about the SPIRIT consortium, its members and its goals, or request to join the consortium by visiting the SPIRIT consortium web site at:

<http://www.spiritconsortium.com>

ARM

cadence

**Mentor
Graphics**

PHILIPS



SYNOPSYS

Design

Thank You!

