

Status Report

P1500 Linking Task Force

Erik Jan Marinissen

Philips Research Laboratories
Eindhoven, The Netherlands

IEEE P1500 WG Meeting
VTS-2000 - Montreal, Canada
May 5, 2000

P1500 Linking Task Force

Linking Task Force

- **Mission**

Guarantee consistent P1500 standard, in particular between

- Core Test Language (CTL Task Force), and
- Scalable Architecture (CTAG Task Force)

- **Members**



Saman Adham (CTAG co-chair)

- Debashis Bhattacharya (CTAG member)
- Rohit Kapur (CTL chair)
- Erik Jan Marinissen (LTF chair)



– Tony Taylor (CTL member)

– Jon Udell (CTAG member)

– Lee Whetsel (CTAG co-chair)

– Yervant Zorian (P1500 chair)

- **Progress**

- Installed at P1500 WG meeting at ITC'98 (Washington, DC)
- Private password-protected web page for internal discussion
- Many conference call meetings first half of 1999 - No meetings in second half
- Recent conference call meeting on April 25, 2000

Dual Compliance Concept

- **Compliance Level 1**

- Core which does not have a complete IEEE 1500 wrapper, but does have an IEEE 1500 CTL program on the basis on which the core could be made 'Level-2 Compliant' (either manually or automatically by tools)

- **Compliance Level 2**

- Incorporates complete IEEE 1500 wrapper function
- Complete IEEE 1500 CTL program describing how to test the core (including how to operate the wrapper)

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P1500 Use Models

- **Scenario 1**

- Core Provider delivers ‘Level-1 Compliant’ core.
CTL program that comes with it contains all relevant core test knowledge, including core-related data for generation of the IEEE 1500 wrapper.
- Core User makes core ‘Level-2 Compliant’.
 - Adding IEEE 1500 wrapper
 - Upgrading CTL program from bare core terminals to wrapper terminals
- Can take data specific to particular system-chip into account while instantiating the wrapper (e.g., #TAMs, width of TAMs, ‘safe’ state).
- ‘Level-1 Compliant’ guarantees fast and reliable route to ‘Level-2 Compliant’

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P1500 Use Models

- **Scenario 2**

- Core Provider delivers ‘Level-2 Compliant’ core, of which the wrapper is built-to-order on customer specification.
- Similar to Scenario 1, except that the work of converting a ‘Level-1 Compliant’ core into a ‘Level-2 Compliant’ core is done by the Core Provider.
- Requires cooperative information exchange between Core Provider and Core User; this is required any way!
- Core Provider might have experts for which to ‘Level-1 to Level-2’ conversion is daily work and hence are very good at it and/or do have special tools

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P1500 Use Models

- **Scenario 3**

- Core Provider offers a catalogue of off-the-shelf ‘Level-2 Compliant’ cores with fixed wrapper parameters.
- Core User selects the core which best matches the system chip needs.
- This scenario allows to integrate the design of the wrapper with that of the core, in order to minimize silicon area and/or performance impact. Hence, this scenario might be popular for cores with strict requirements in those domains.
- Large catalogue:
more work for Core Provider, but more choice for Core User.

Two Levels Offer Flexibility

- **‘Soft’ Wrapper**
 - Scenarios 1 & 2
 - More flexibility, because wrapper parameters are defined at wrapper instantiation on the basis of system chip needs
- **‘Hard’ Wrapper**
 - Scenario 3
 - Integration of wrapper and core allow for better optimization for area and/or speed

Names for Compliancy Levels

- Two compliancy levels is a new phenomenon in an IEEE (test) standard
- Well-chosen, intuitive names for the two compliancy levels will help in proper understanding of the concept
- Original names (also used in ITC'99 paper):
 - 1: 1500-Ready
 - 2: 1500-Compliant
- Used in P1500/D0.1 + D0.2 draft standards:
 - 1: Level-1 Compliant
 - 2: Level-2 Compliant
- Current names are subject to criticism

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Call for Name Proposals

- March 11, a 'Call for Name Proposals' was distributed to P1500 members via e-mail
- Proposals so far
 - Level-1 Compliant
 - Level-2 Compliant
 - 1500-Ready
 - 1500-Compliant
 - 1500-Prepared
 - 1500-Compliant
 - Unwrapped
 - Wrapped
 - 1500 Compliant: Unwrapped
 - 1500 Compliant: Wrapped
 - 1500 Wrapper Ready
 - 1500 Wrapped
 - 1500 Configurable
 - 1500 Compliant
 - 1500 Satisfiable
 - 1500 Compliant
- Other names proposed
 - 1500 Compatible: e.g. 1149.1-wrapped + CTL
 - 1500 DfT Compliant: does not need wrapper, but adheres to IEEE1500 core DfT requirements for soft or firm cores
 - 1500 Compliant Test Patterns

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