Status Report

P1500 Linking Task Force

Erik Jan Marinissen
Philips Research Laboratories
Eindhoven, The Netherlands

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Mission
Guarantee consistent P1500 standard, in particular between
– Core Test Language (CTL Task Force), and
– Scalable Architecture (CTAG Task Force)

Members
– Erik Jan Marinissen (LTF chair)
– Rohit Kapur (CTL chair)
– Tony Taylor (CTL member)
– Lee Whetsel (CTAG chair)
– Debashis Bhattacharya (CTAG member)
– Yervant Zorian (P1500 chair)

Progress
– Installed at P1500 WG meeting at ITC’98 (Washington, DC)
– Many conference call meetings in first half of 1999
– Private password-protected web page for internal discussion
– No LTF meetings since DAC’99
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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 Compliance’ guarantees fast and reliable route to ‘Level-2 Compliance’
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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.

• 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 draft standard:
  – 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
  - 1500-Ready
  - 1500-Prepared
  - Unwrapped
  - 1500 Compliant: Unwrapped
  - 1500 Wrapper Ready
  - 1500 Configurable
  - 1500 Satisfiable
- 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

- ‘Call for Name Proposals’ is still open
- Summary of proposals and motivations will be distributed via e-mail before VTS-2000
- Hopefully, at VTS-2000 we can reach a final decision
- If you want to contribute to this discussion, send an e-mail to Erik.Jan.Marinissen@philips.com