



OSCI DATE 07 TLM Panel

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(thanks to James Aldis)

TI VP experiences and OSCI TLM expectations

- Experiences with VP delivery

- TI delivers CPU/DSP models to ASIC customer: working well
- SOC Virtual Platforms (Virtio/Synopsys): very successful but limited to the TI-SOC
- Delivery of a SOC component VP for integration into customer environment: is proving difficult, expensive and time-consuming so far: **lack of standards** means either
 - Wrapping every existing SOC component model
 - Re-writing everything
 - Providing a black-box SOC; slower and less valuable to customer

- Expectations from OSCI TLM

- OSCI-TLM-2.0 should come in 2007
 - Content must be the **memory-mapped-bus**
 - Little-to-no performance accuracy for SW development
 - Use generic memory-mapped-busses. Model does not care if it is AXI or OCP or PCI, it's just read/write
 - Need full **interoperability** without details of specific RTL protocol. We can not afford to be instantiating bridges all the time
 - Need no compromise on **simulation speed**
- OSCI should then look at configuration, stimulation, debug, that is **TLM infrastructure** rather than specific interfaces

What is needed in addition to OSCI-TLM?

- System C API's

- OSCI is working on generic TLM technology, memory-mapped busses, maybe registers, configuration, memory-maps, but the components in our products have many more interfaces like **USB, GSM, keyboard, camera, screen, RS232, Ethernet**, ...
- These need to connect to infrastructure in our customer's SystemC environment
- They are too specific to be of interest to OSCI
- ***A lightweight process of defining such APIs and putting them in the public domain*** is required

- OSCI interfaces wrapped in IP_XACT

- System C components need to be wrapped in machine-readable documentation to enable efficient reuse. Close cooperation between OSCI-TLM and SPIRIT is required
- OSCI interfaces need to be represented in IP-XACT
- Common understanding of model types (*levels of abstraction*)
- IP-XACT needs a powerful system of multiple views of the same component

Other non technical issues

- We don't just supply our model to customers
 - We also source component models from IP vendors
 - IP vendors and EDA companies are resistant to redistribution
 - And they often want royalties for their models
 - IP vendors don't want to expose source code
 - But no binary compatibility between SystemC versions
 - And small IP vendors can't support multiple System C versions
- Can't involve every IP Vendor in a 3-way deal with TI and TI's customer