SystemC TLM Kit Datasheet

Create Interoperable Transaction Level Models of OCP-Based Components

The OCP Modeling Kit provides a full interoperability standard for SystemC models of SOC components with OCP interfaces. The Kit is built on top of OSCI's TLM 2.0 technology, adding support for OCP protocol features and providing a wealth of support for code development and testing. All use cases for TLM modeling are supported, including verification, architecture exploration and software development.

The combination of a standard TLM interface for the OCP protocol, and the support code provided within the kit, permits a major saving in development costs. It reduces the critical time interval between SOC specification availability and TLM model delivery. Models can be developed faster and better, reused more effectively, or sourced from external suppliers with confidence.

OCP Modeling Kit Key Features

OCP Protocol Support
- Versions 2.0, 2.1, 2.2 and 2.2.1 of OCP-IP supported in full
- All OCP protocol features implemented using OSCI TLM 2.0 Generic Payload extensions
- All OCP flow control options supported
- OCP configuration management
    - May be hard-coded or supplied to a generic component model at run-time
    - Run-time resolution of master and slave OCP configurations
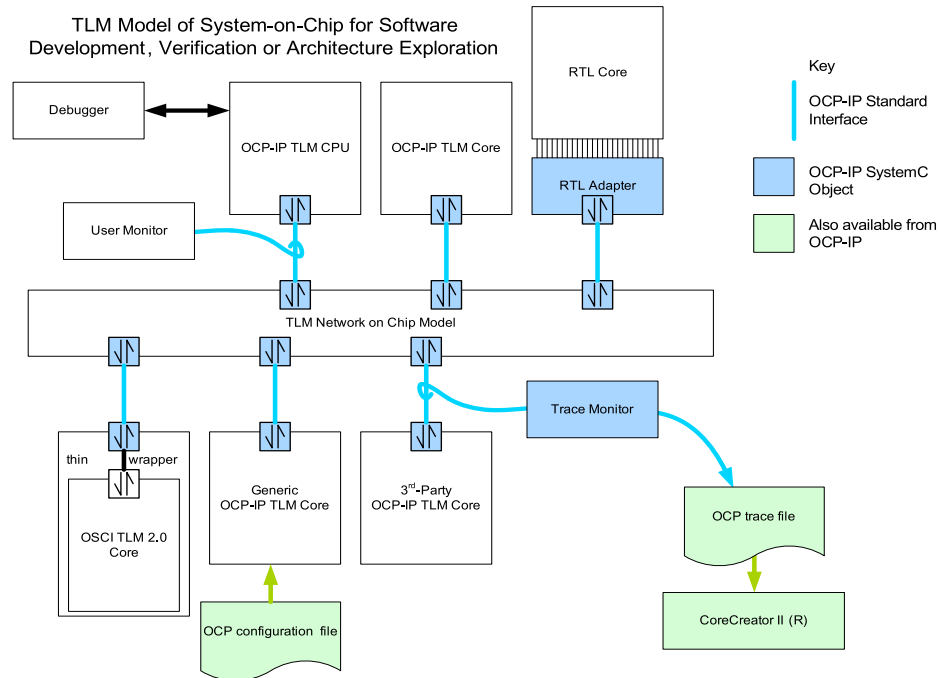
Levels Of Abstraction Supported
- Combined TL3 and TL4: inter-burst or no timing, equivalent to OSCI's Base Protocol
- TL2: intra-burst timing
- TL1: fully cycle-accurate, including support for clock cycle synchronization and combinatorial paths

Content of Kit
- Documentation
- Examples
- Performance and trace monitors
- OCP TLM interoperability interface, including
    - TLM 2.0 extensions
    - Run-time OCP configuration resolution function
- OCP master and slave sockets, providing
    - Memory management for extensions and payload objects
    - Payload event queues for timing annotation support or clock cycle synchronization
    - Convenience API for user code
    - Direct bind to OSCI TLM 2.0 sockets where functionally possible
- Legacy adapters
- RTL adapters

Compatibility
- CoreCreator II tools for OCP disassembly and performance analysis (optional)
- OSCI TLM 2.0
- GreenSocs GreenSocket project (www.greensocs.com) (optional)

TLM Model of System-on-Chip for Software
Development, Verification or Architecture Exploration

RTL Core

Key

OCP-IP Standard
Interface

OCP-IP SystemC
Object

Also available from
OCP-IP

Debugger

OCP-IP TLM CPU

OCP-IP TLM Core

RTL Adapter

User Monitor

TLM Network on Chip Model

Trace Monitor

thin wrapper

OSCI TLM 2.0
Core

Generic
OCP-IP TLM Core

3rd-Party
OCP-IP TLM Core

OCP trace file

OCP configuration file

CoreCreator II (R)

Membership Benefits

OCP-IP members receive free training and support, software tools, enabling them to focus on the challenges of SoC design. Leveraging OCP-IP's infrastructure eliminates the need to internally manage, document, train and evolve a proprietary standard and acquire accompanying support tools, freeing up critical resources for the real design work ensuring enormous cost savings. . The OCP TLM Modeling Kit is available to members of OCP-IP and can be downloaded at www.ocpip.org. A version of the Kit, fully functional but containing no monitor components, is available to non-members via click-thru research license agreement at www.ocpip.org.

Upgrading from Previous SystemC Code from OCP-IP

OCP-IP has provided SystemC OCP models for many years based on OCP-IP proprietary technology. These (supported up to OCP version 2.2.0) are replaced by the OCP Modeling Kit and are now deprecated. The Kit contains *backwards compatibility adapters* to allow legacy models to be easily integrated into a TLM 2.0 simulation environment. The backwards compatibility adapters cover all possible OCP configurations.

Simulator and Platform Support

The OCP-IP TLM Modelling Kit is compatible with all IEEE 1666-compliant implementations of the SystemC language, including the OSCI proof-of-concept implementation versions 2.1v1 and 2.2.

About OCP-IP®
Formed in 2001, OCP-IP is a non-profit corporation promoting, supporting and delivering the only openly licensed, core-centric protocol comprehensively fulfilling integration requirements of heterogeneous multicore systems. The Open Core Protocol (OCP) facilitates IP core reusability and reduces design time, risk, and manufacturing costs for all SoC and electronic designs by providing a comprehensive supporting infrastructure. For additional background and membership information, visit www.OCPIP.org.

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