



iPROVE SystemC Coemulation

Overview

iPROVE SystemC Coemulation Package provides an easy of use design flow for co-running synthesized hardware blocks with SystemC simulation environment. With this coemulation environment, designers can verify SystemC based design along with hardware IP and can refine SystemC modules from functional level to gate-level through RT-level.

iPROVE (intelligent PROtotype Verification Engine) is a design verification tool that verify DUT (Design Under Test) by mapping into FPGA. Thus, iPROVE helps designers to verify their designs prior to fabrication in silicon.

iPROVE tool set consists of hardware and software; iPROVE hardware is a PCI card and iPROVE software includes device driver for various platforms, a set of API/PLI/VPI/FLI/VHPI libraries and GUI based design environment. iPROVE provides BILA (Built-In Logic Analyzer) which monitors signals of DUT with various triggering conditions. iPROVE also provides DPP (Data Pumping Port) through which the external hardware can be connected.



Coemulation Highlights

- **SystemC Version 2.0.1 supported**
- **Cycle-accurate coemulation**
- **Port and internal node probing**
- **Various platforms supported:** PC Windows 2000, PC Windows XP, PC Linux RedHat, Sun Solaris
- **Various compilers supported:** GNU GCC, VisualC++
- **In, out, and inout ports supported**
- **Multiple clocks supported**

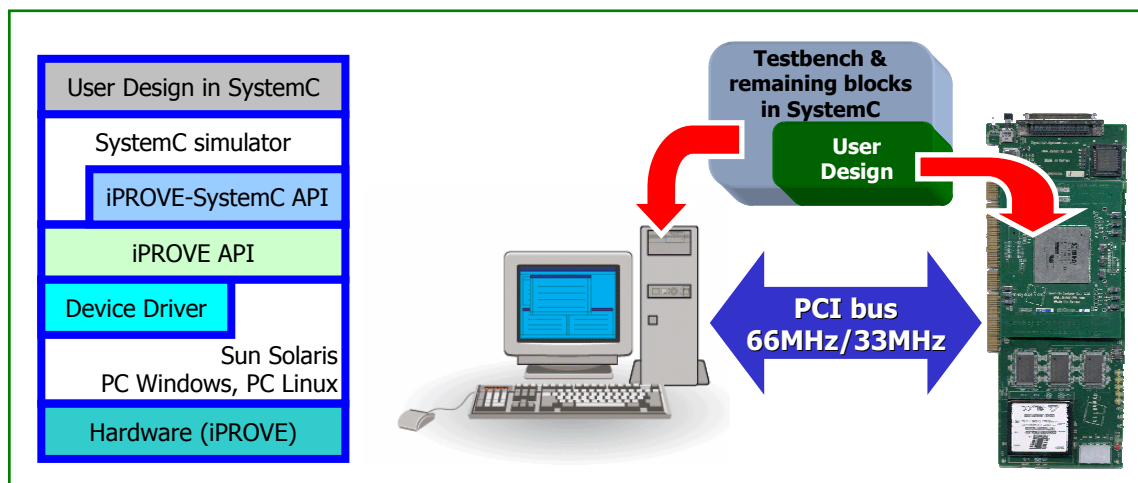
iPROVE Features

Hardware

- PCI controller block for 66MHz/33MHz, 64bit/32bit with DMA capability
- BILA for hardware debugging
- On-board memory
- DPP as an external interfacing port
- Xilinx/Altera support
- Reconfiguration through PCI

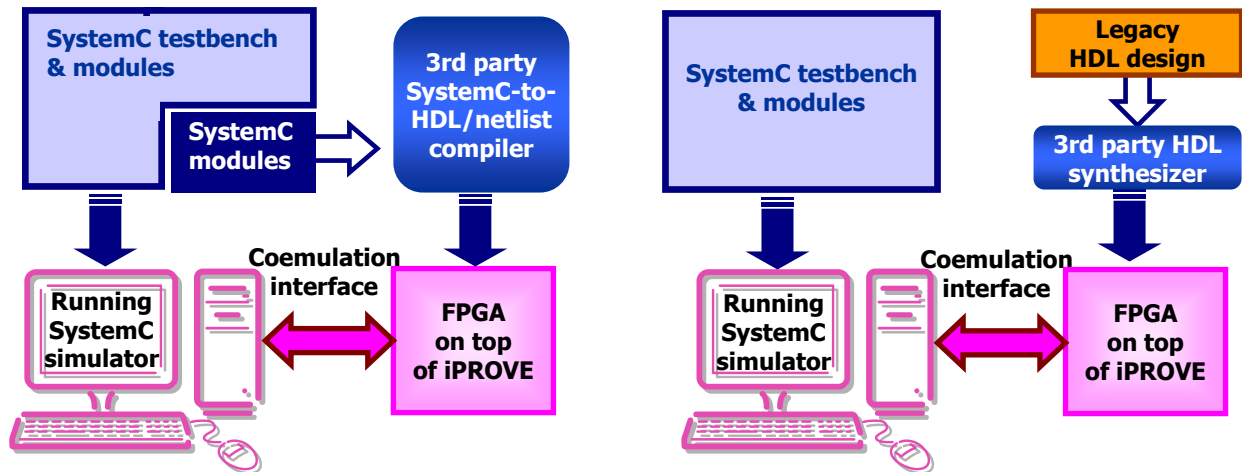
Software

- Device drivers for various platforms
- Various APIs for C/C++ and Verilog/VHDL co-simulation or testing
- FPGA netlist builder for Xilinx/Altera
- Supporting cycle-level and transaction-based verification modes



Benefits of iPROVE SystemC Coemulation

- **Co-running of SystemC modules and HW blocks:** Ready-verified synthesizable IP can be run with SystemC.
- **Simulation acceleration:** Simulation can be accelerated due to hardware aided coemulation.
- **Seamless refinement:** SystemC modules can be refined from UTF (UnTimed Functional) level to gate-level through RT (Register Transfer) level within a single simulation environment.
- **Virtual prototyping** without making FPGA hardware
- **Mixed abstractions** within C based simulation environment from functional, behavioral and RT to gate levels



iPROVE SystemC Coemulation package provides a unified verification environment where SystemC modules can be replaced with FPGA-running gate-level design and coemulation interface is generated automatically.

SystemC and OSCI

SystemC is the standard design and verification language built in C++ that spans from concept to implementation in hardware and software. The SystemC platform, that includes the SystemC specification source code and reference manual, can be downloaded at <http://www.systemc.org>. The Open SystemC Initiative (OSCI) is an independent, not-for-profit organization composed of a broad range of companies, universities and individuals dedicated to supporting and advancing SystemC as an open source industry standard for system-level design.

Deliverables

- **Prerequisites**
 - ▶ **iPROVE system** including iPROVE hardware and software
 - ▶ **New iPROVE software:** iPROVE SystemC Coemulation feature added iPROVE software version 3.0 build 45 or later
 - ▶ **SystemC package:** open source from OSCI
 - ▶ **SystemC compiler (optional):** May required for SystemC synthesis
- **New license feature:** iPROVE SystemC Coemulation feature added
- **Documentation:** user guide

• H.Q.: Dyalith Systems Co., Ltd.

14-2, Yangjae-dong, Taejin Bldg. 2nd Fl.,
Seocho-gu, Seoul 137-888, KOREA (R.O.K.)
Tel: +82-2-556-0020
Fax: +82-2-556-2252

• R&D Center:

373-1 Guseong-Dong, Yuseong-Gu
CHIPS B/D 3rd Fl., KAIST,
Daejeon 305-701, Korea (ROK)
Tel: +82-42-862-6411
Fax: +82-42-862-6410

• USA Office: Dyalith Systems, Inc.

10130 Firwood Dr., Cupertino,
CA 95054, USA
Tel: +1-408-517-8917
Fax: +1-408-517-8917

Copyright © 2003-2006 by Dyalith Systems Co., Ltd. All rights reserved.

Dyalith is registered trademark of Dyalith Systems Co., Ltd., The Dyalith logo, iPROVE, the iPROVE logo, BILA and DPP are trademarks of Dyalith Systems Co., Ltd.

All other brand or product names may be trademarks or registered trademarks of their respective holders.

Web: www.dyalith.com

E-mail: info@dyalith.com