



think SPEED think GiDEL™

PROC_SoC™ SoC/ASIC Verification System

Key PROC_SoC Features

- Scalable system: 3- 180 Million equivalent ASIC gates and more
- Up to 60 million ASIC gates capacity per module
- Supported by **PROC Developer's Kit** tools enabling advanced fast and thorough debug methodologies and real time co-verification
- World's fastest verification system: up to 300MHz
- Maximum direct FPGA interconnection flexibility for high speed operation and ASIC prototyping
- Multi-user access over the LAN
- Real time Hardware Software integration
- Supported by PSDB family: application specific daughter boards for easy prototyping
- 1,416 user I/Os per PROCessor board for internal or target system interconnect usage
- Up to 2.5GB of on board DDR II (128MB/FPGA)
- 8 global clocks in PROC_SoC 3 model

Overview

GiDEL's **PROC_SoC** Verification System provides **scalability** of multiple FPGA modules to be interconnected and used to verify SoC designs with 180 million+ equivalent ASIC gates. Each **PROC_SoC** module is itself a modular and scalable SoC verification system. Fast Gigabit Ethernet communication combined with GiDEL's development tools enable users to run regression tests on their SoC/ASIC designs and to debug the entire chip design including embedded software across their company's LAN.

The **PROC_SoC** is operated in an in-circuit emulation mode with high performance I/O's interfaced to a target or prototype system. The application software combined with the system debugging tools enable vast test suites with visibility to buses and internal nodes. A single **PROC_SoC** system comprises multiple reconfigurable **PROC6M™** or **PROC3M™** boards, each with two, interconnected high speed **Stratix III 340** or **Stratix II 180** FPGAs respectively.



PROC_SoC 3

PROC_SoC 10

The system modularity is supported by two chassis configurations, **PROC_SoC 3** and **PROC_SoC 10**, capable of supporting 3 and 10 **PROC6M/3M** boards accordingly. Each **PROC_SoC** system can perform as a single SoC device or partitioned to verify different design blocks or independent SoC designs. The **PROC_SoC**'s unique interconnect topology, enables any FPGA to directly connect to any other FPGA in the same **PROC_SoC** module or other **PROC_SoC** module.

Target Applications

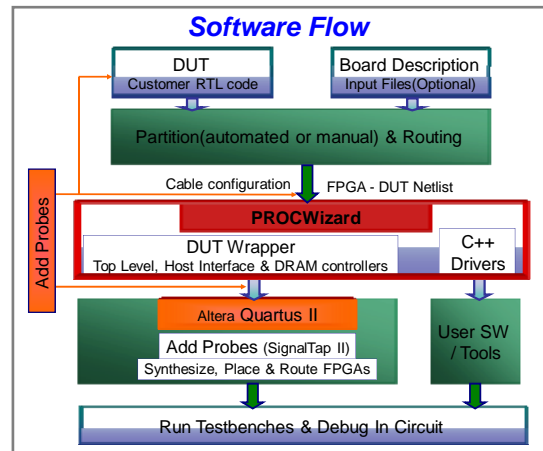
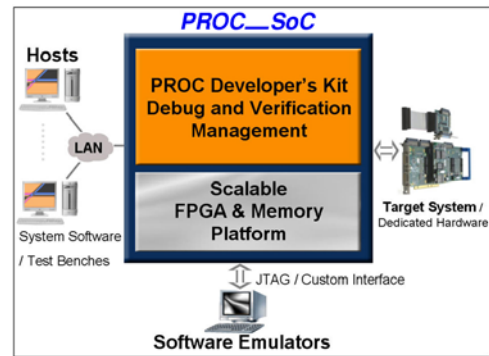
- Early hardware/software co-design ("co-verification" at hardware speed)
- Early ASIC/SoC and Intellectual Property (IP) block debugging
- Algorithm validation
- Regression tests
- ASIC/SoC in-circuit emulation
- System integration before silicon
- Prototyping combined with connections to external I/Os

Find and Resolve More Bugs Faster

The *PROC_SoC* offers new verification and debugging methodologies to enable finding and solving hidden corner-case bugs in highly complex designs.

This task is accomplished by:

- Phenomenal execution speed → large number of test vectors are quickly processed
- **PROCWizard™** → HW & SW automatic integration → real-time SW based simulation
- **PROC_HILs™** → Simulink and MATLAB high level testbench description and analysis
- **PROCMultiPort™** → Capture from thousands of probe points with virtually unlimited depth using on-board memories
- **SignalTap II** → Internal node visibility
- **Third-party partitioning** software → Automatic partitioning
- **Third-party debug tools** software.



PROC_SoC Module Configurations

Modules	<i>PROC_SoC 3-2S</i> (3 boards)	<i>PROC_SoC 10-2S</i> (10 boards)	<i>PROC_SoC 3-3S</i> (3 boards)	<i>PROC_SoC 10-3S</i> (10 boards)	3x <i>PROC_SoC 10-3S</i> (30 boards)
ASIC Gates	2-9M	5-30M	5-18M	10-60M	50-180M
No. of Stratix II 180-3	2-6	4-20	—	—	—
No. of Stratix III 340-3	—	—	2-6	4-20	22-60
I/O Connections	1,416 – 4,248	2,832 – 14,160	1,416 – 4,248	2,832 – 14,160	15,576-42,480
System Frequency	<=300 MHz	<=300 MHz	<=300 MHz	<=300 MHz	<=300 MHz
FPGA-FPGA LVDS Frequency	1 GHz	1 GHz	1 GHz	1 GHz	1 GHz
FPGA – FPGA Connectivity	<=300 MHz	<=300 MHz	<=300 MHz	<=300MHz	<=300 MHz
On-board DDR II DRAM	256 - 768 MB	512 – 2,560 MB	256 - 768 MB	512 – 2,560 MB	2,816 - 7,680MB
Total Internal RAM	18.7-563Mb	37.4-187.6Mb	41-123Mb	82-409.8Mb	901.6-1.3Gb
18*18 Multipliers	768 - 2,304	1536 - 7,680	1,152 - 3,456	2304-11,520	12,672-34,560



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