

### FRACTAL AT TSMC 2018 OIP ECOSYSTEM FORUM, BOOTH 919

October 3, Santa Clara Convention Center, 5001 Great America Pkwy, Santa Clara

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### SEMIWIKI ARTICLE “55 DAC TRIP REPORT IP QUALITY”

“This year I signed books in the Fractal booth (compliments of Fractal) and let me tell you it was quite an experience. IP quality is a very touchy subject and the source of many more tape-out delays than I had imagined.”

[Click link to read article](#)

### WEBINAR: IP QUALITY IS A SERIOUS PROBLEM

There is no industry where the need for early bug detection is more paramount than in SoC design. Consequences like design re-spins, missed tape outs and hence missed market opportunities make the cost of late bug detection prohibitive. Where earlier generations of SoC designs could be crafted by a team of limited size that could oversee the entire design process, design in the latest process nodes requires a different strategy.

Designer productivity is lagging behind Moore’s law which drives the increase of transistor density. Thus design teams are becoming larger and are comprised of multiple groups spread over the globe. Outsourcing of design tasks by integrating third-party IP is mandatory to get the job done, but it reduces oversight of the SoC design process and leaves companies at the mercy of the quality strategy implemented by their suppliers. At the same time, modelling of new physical effects using current-driver, variation and electro-migration models paired with an increased amount of PVT corners generate an explosion of data to be analyzed prior to sign-off.

It is clear that QA needs to be a shared responsibility by all partners in the SoC design flow, from library and IP providers to foundry and SoC integrators. Each of these partners needs an integrated QA solution in their part of the design flow. Never should QA be an afterthought to be checked off right before IP delivery. This webinar intends to cover how the Fractal Technologies Crossfire solution addresses these QA challenges from both backend and frontend perspectives, and why its standardized and scalable QA methodology is superior to homebrew validation solutions.



[Click link to review webinar](#)

### CROSSFIRE UPDATES

Recent Crossfire improvements:

- New Rules and Features:
  - Check that max\_transition attribute ratio for clock vs data pins is within specific range
  - Ensure the same top metal exists between layouts
  - Check for miller\_cap\_rise\_fall range
  - Check LVF/OCV delay table values within a user defined range
  - Check LVF/OCV transition table values within a user defined range
  - Check LVF/OCV constraint table values within a user defined range



## ABOUT CROSSFIRE

Crossfire reports mismatches or modeling errors for Libraries and IP that can seriously delay an IC design project.

Library and IP integrity checking has become a mandatory step for a "state of the art" deep submicron design due to the following challenges:

- The sheer number of different views
- The complexity of the views (ECSM, CCS)
- The loss of valuable design time
- Time to market

Crossfire helps CAD teams and IC designers achieving a high quality of design data in a short time.

Crossfire assures that the information represented across the various views is consistent and does not contain anomalies.

## CROSSFIRE USABILITY FEATURES

Graphical setup creation & run environment as well as batch runs

Powerful hierarchical configuration language supporting macro functions

- Graphical debugging (message > double click > open relevant views)
- Graphical output filtering (zoom in on cells/formats/error-types)
- Waiving mechanism
- HTML and CSV reports
- Automatic setup generation
- Setup API
- Generic setups
- Parallel Parsing feature

## FRACTAL TRANSPORT

Transport™ serves as an input format to Crossfire, describing what checks Crossfire needs to execute on which IP databases, as specified by the IP integrator.



Fractal Crossfire and Transport

Read the [Fractal White Paper](#) online!

## CROSSFIRE INTEGRATION FEATURES

API for creating database independent checks, available in: Perl, Tcl and Python

Existing customer validation scripts can be integrated

Visualization messages/results from customer scripts (double click opens message)

## CROSSFIRE INTERVIEW

Visualization and browsing of database contents Opens e.g. LEF, GDS, CDB, OA and Milkyway views in a single window

## CROSSFIRE DIAGNOSE

Diagnose is the Crossfire GUI designed for users that to only analyze Crossfire results. The setup and test definition sections of Crossfire are completely shielded from the user. The user can see, report, filter wish, waive and analyze the generated Crossfire messages.

## ABOUT FRACTAL TECHNOLOGIES

Fractal Technologies is a privately held company with offices in Los Gatos, California and Eindhoven, the Netherlands. The company was founded by a small group of highly recognized EDA professionals.



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