

## FRACTAL LISTED ON TOP 20 IP DESIGN & SOLUTION PROVIDER

We are very proud to be part of the TOP 20 IP design and solution provider published in embedded advisor.



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## A DAY IN THE LIFE OF A CROSSFIRE USER

This whitepaper illustrates how an IP-designer can be assisted by the Fractal Crossfire tool during a typical working day. Crossfire is the tool of choice for IP- and library-designers as well as users to ensure that all views, models and databases are consistent, complete and viable. The following is a quick illustration of these criteria by means of an example:

- **Consistent:** The condition of a timing arc in Liberty should match the functional model in Verilog
- **Complete:** A terminal shape with a label should be present in LEF and layout views for all schematic pins
- **Viable:** Power arcs should demonstrate consistently increasing power with increasing output load, operating temperature and supply voltage

By reviewing typical daily use, we demonstrate how the versatility and ease of use of Crossfire leads to both a higher quality design at the end of a day as well as a boost in productivity. As Crossfire detects IP quality issues before they become a problem, less time is spent chasing IP consistency issues introduced by suppliers or in-house design-groups.

Rule number	Description	Duration	waive	setup_warning	warning	error	fatal
15204	Checks if a layer is 1/2 the design rule within the boundary layer: Rule 15204	1.178 sec	0	0	0	252	0
8002	CCS peak position check: Rule 8002	1.652 sec	0	0	0	229	0
8004	Delay and transition values measured from integrated CCS current waveforms should be within 2%/10% of NLDM table: Rule 8004	1.547 sec	0	0	0	60	0
15201	Formats defined area vs actual area: Rule 15201	1.365 sec	0	0	0	32	0
66	arc presence check for 'Synop93-vs-verilog': Rule 66	0.128 sec	0	0	0	10	0
31.32	pin quantity check: Rule 31.32	0.304 sec	0	0	0	5	0
121	functionality check: Rule 121	0.554 sec	0	0	131	5	0
7210	Delays increase with increasing input transition times: Rule 7210	1.167 sec	0	0	0	4	0
171	routability check: Rule 171	0.083 sec	0	0	0	6	0
21.22	cell presence contents check:	1.929 sec	0	0	0	4	0

[Click on link to read white paper](#)

[Click on link to read related article on semiwiki](#)

## CROSSFIRE UPDATES

Recent Crossfire improvements:

- **New Rules and Features:**
  - New function to split setups of very large Crossfire runs in smaller runs
  - EM output related pin table check
  - EM arc related pin must not be output check
  - Support top/bottom abutment with left/right abutment
  - Support the LVLIB format
  - New algorithm for layout versus layout integrated, 3x speed up

## BEST WISHES FOR 2018

We wish you all a healthy and prosperous 2018; enjoy Christmas and New Year with family and friends.





## 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 (ECSSM, 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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