



ClaudiaMTFD

More Time For Design

Simulations control, reduction of circuit design time, optimization of the circuit quality

1. Abstract:

The Claudia MFTD software is a tools designed by designers for designers. Claudia provides more capabilities required to fully explore real time control, verify, and analyze a design.

Claudia allows designers to free up more time for a better design. It supports the simulations and it performs control and the verifications operating conditions against the user's desired goals.

2. Benefits

The demand on designers is to always Produce More, Better and Faster. Claudia MTFD® presents key driving forces to the reduction of circuit design time and optimization of the circuit quality.

- To win the wasted of time in "unproductive" simulations
- To automate complex and repetitive simulations therefore minimize the time for design
- To present the results of simulations in significant forms

- To provide to designer a microelectronic design support tools
- To verify the correct operation of the circuit

3. Features

- ❖ Real Time Control: Control and verify in real time the correct operation of your circuit:
 - RTDC, RTTr...
 - Provide a rapid and iterative verifications of proper operation of your circuit
 - You are accompanied by a verification tool during all phases of design
 - Design faster, more efficient with less risk
- ❖ Generation of circuit specifications: Provide the Specifications of your Circuit:
 - Rapid and simple Configuration
 - Run all simulations at the same time
 - Generate Automatically the Table of specifications with worst and best case
 - Represent the results in several forms 2D,3D,Tabel ...
 - Generate Automatically the Results Report
 - Send the results report by e-mail
- ❖ Web and mobile access :
 - You can access to the database of results from anywhere and any time
 - You can supervise the simulations progress and receive messages
 - You can manage the different simulations

4. Real Time Control

4.1 Real time control of dc operating of circuit:

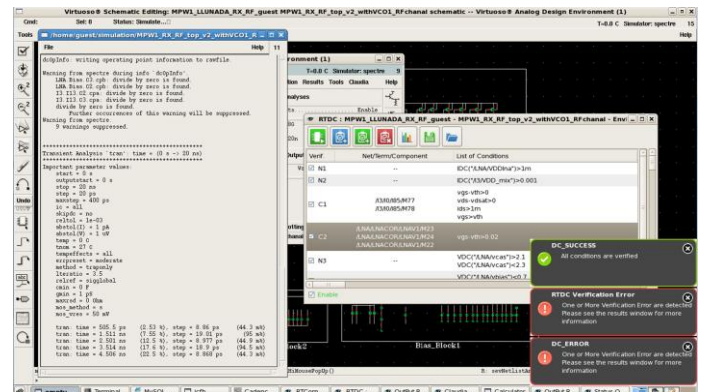
In designing analog integrated circuits, the step of selecting device biases is crucial to enhance the final performance, power, and yield of the circuits.

The control of the DC operating point of the circuit remain an ongoing challenge because there are always new process nodes with different characteristics (higher process variation, lower supply voltage, different MOS Behavior), new target functionality, and new topologies. Due to this challenge, Claudia MTFD® offer a tool called *Real Times DC* "RTDC" which allows the real time control of the operating point of all transistors of your circuit.

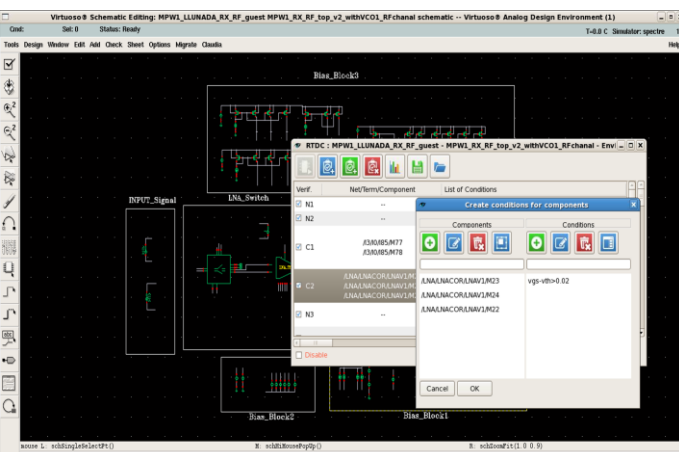
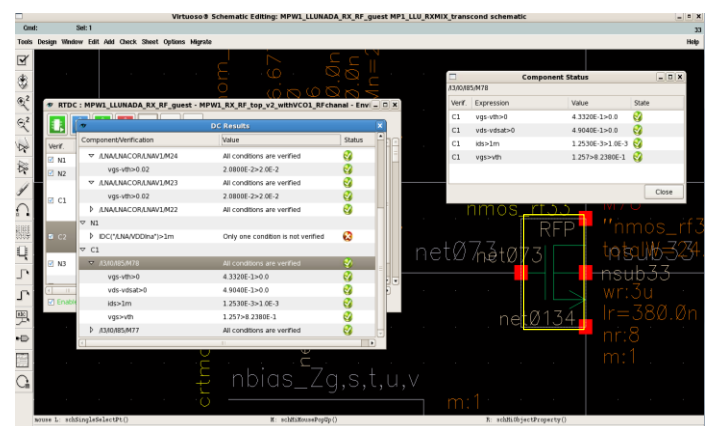
The configuration of the RTDC tool is done in three simple steps:

- Selecting the transistors to control
- Set manually or choose from a predefined list (for each group of transistors) the conditions to check.
- Validation of provided information

After the configuration step, Claudia starts a process to detect the launch of a DC simulation, when the simulation is finished the RTDC tool launches a series of checks. In cases where one or more conditions are not verified, an error notification is displayed to alert the user.



RTDC tool provides the user the ability to see the detailed results. A table is displayed that contains the names of transistors, conditions, results of calculations and state verification (true or false). Also, the User can access and display some information about the transistor with simple double clicks on her name.

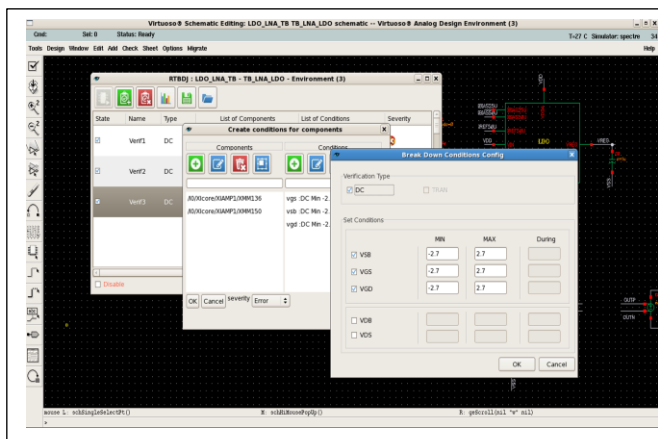


4.2 Real time control of Breakdown Junctions:

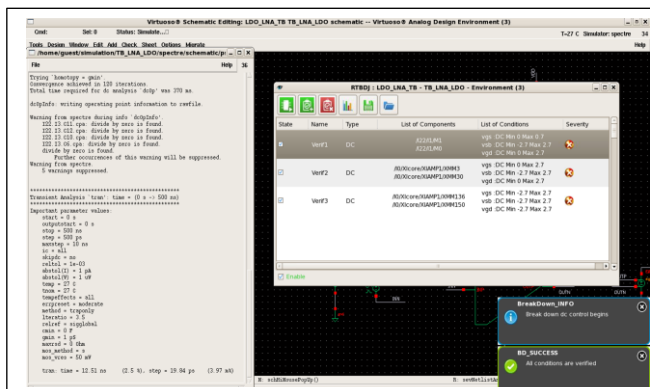
Claudia MTFD® offer a tool called *Real Times Breakdown Junction* “ RTBD ” which allows the real time control of the junctions of all transistors of your circuit.

The configuration of the RTBD is done in three simple steps:

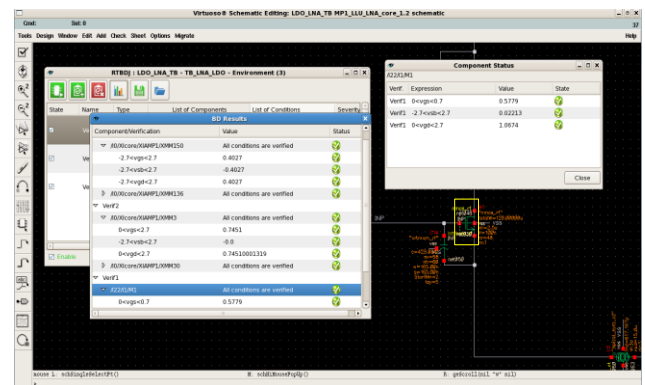
- Selecting the transistors to control
- Set manually the voltage interval of breakdown junctions of the different junction of MOS transistor (Vgs,Vbs,Vds
-
- Validation of provided information.



After the configuration step, Claudia starts a process to detect the launch of a DC simulation, when the simulation is finished the RTBD tool launches a series of checks. In cases where one or more conditions are not verified, an error notification is displayed to alert the user.



RTBD tool provides the user the ability to see the detailed results. A table is displayed that contains the names of transistors, conditions, results of calculations and state verification (true or false).Also, the User can access and display some information about the transistor with simple double clicks.



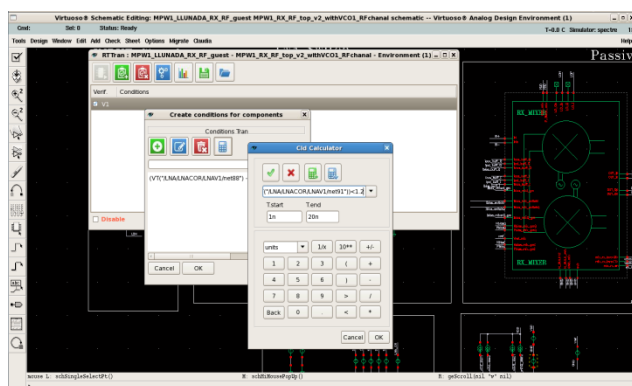
4.3 Real time control of transient signal:

In analog circuit simulation a lot of different analyses can be applied, the transient simulation is the analysis most heavily used.

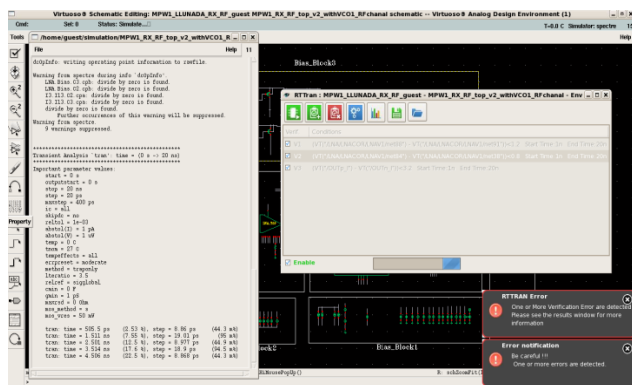
The complex mixture of profoundly different analog/digital parts in a modern IC gives rise to multi-time signals, where a fast changing signal arising from the digital section is modulated by a slower-changing envelope signal related to the analog part. A transient analysis of such a circuit is in general very time-consuming; it can take several hours which significantly increases the design time. To improve the efficient and reduce design time, Claudia MTFD® offer a tool called *Real Times Transient Signal Control*“ RTran ” which allows the real time control of transient signals.

The configuration of the RTran is done in few simple steps:

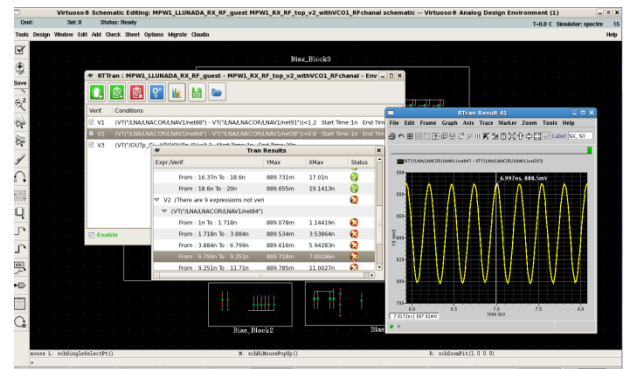
- Selecting the Net or Terminal to control
- Set the conditions to check.
- Set the start and stop time of control
- Set the Cyclic time of verification
- Set the action to do if the number of errors detected is $>$ of a number "nError" defined by the user.
- Validation of provided information



After the configuration step, Claudia starts a process to detect the launch of a transient simulation. The RTran tool launches for each period set by the user "Cyclic Time" a series of checks. In cases where the number of error detected $>$ of nError, the action will be executed (notification, stop simulation, restart the simulation with a new Design Variable).



RTran tool provides the user the ability to see the detailed results. A table is displayed that contains the different conditions to check, the User can plot the different signals with simple double clicks



4.4 Real time Corners:

Process voltage and temperature (PVT) variations are taken into account by individually varying P, V, and T over their allowable ranges and analyzing the subsequent combinations or so-called PVT corners.

The aim in PVT analysis is to find the worst-case performance values across all PVT corners, and the associated PVT corner that gives the worst-case performance. Furthermore, transistors are smaller, performance margins are smaller, voltages are lower, and there may be multiple supply voltages. To bracket these variations, more variables with more values per variable are needed.

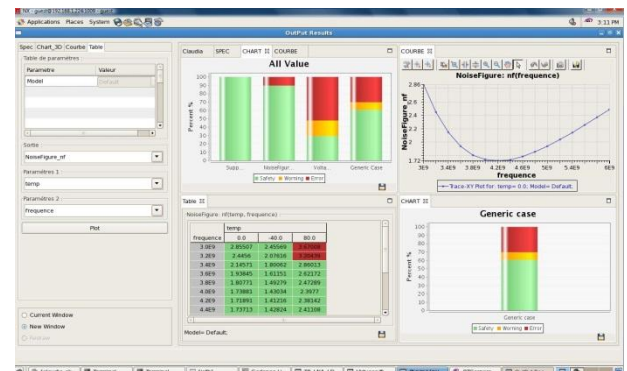
To simulate all possible corners and find the worst-case performance values could take hours or even days. To runs fast enough to facilitate both iterative design and verification within production timelines and find the worst-case corners with high confidence, Claudia MTFD® offer a tool called *Real Times Corners* "RTCorners" allowing:

- To automate the different simulations
- To control in real time of different simulations
- To present the results of simulations in significant forms

The configuration of the RTran is done in few simple steps:

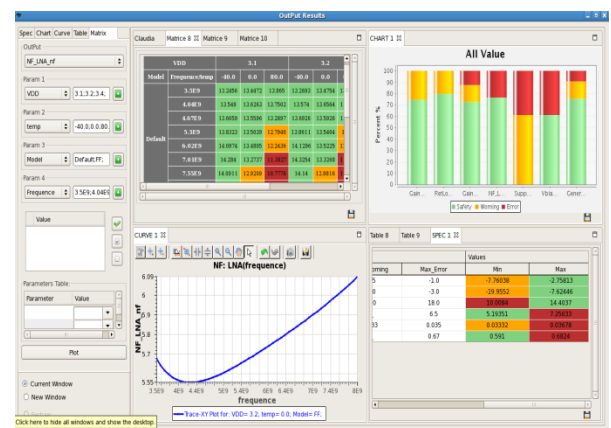
- Set the different Process Model
- Set the different temperatures values
- Set the different design variables values
- Set the output parameters or equations to simulate and controlling
- Set the specification value for each output.

Claudia launches various simulations required and control in real-time the simulation results.



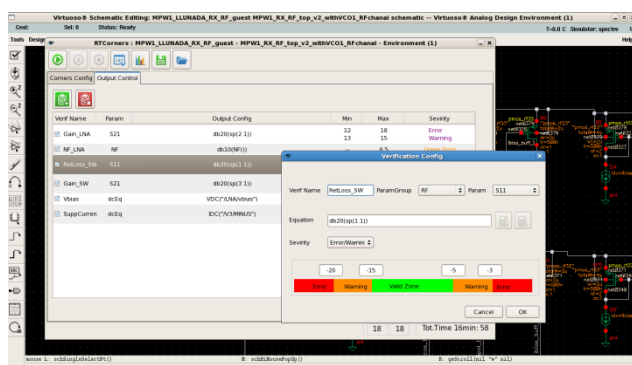
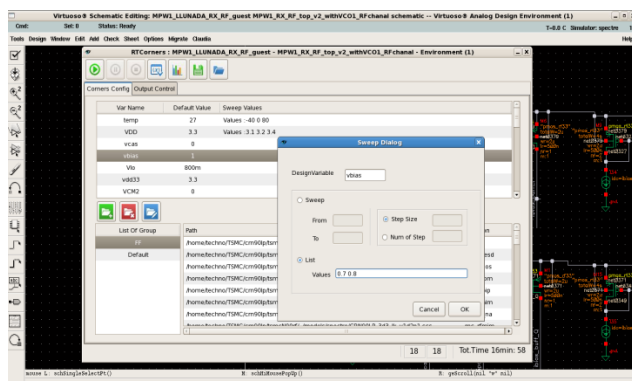
RTCorners tool provides the user the ability to see the detailed results with a different form:

- Specification table
- 2D curves
- Two-Variable Data Table of simulations results
- four-Variable Data Table of simulations results
- Statistical results



4.5 Real Time Log File

Real Time Log File "RTLogFile" is a smart tool that from a simple search in the output file can restart or stop in real time one or more simulations depending on user's configuration.



The configuration of the RTLogFile is done in few steps:

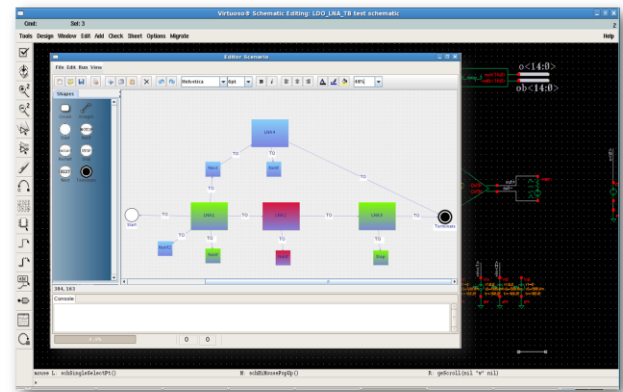
- Select the log files you want to monitor with RTLogFile (spectre.out)
- Configure the event to execute if RTLogFile find a specific search word or string in a log file.
- Run RTLogFile

5. MultiNetlist :

Verification and validation techniques applied throughout the design process enable you to find errors before they can derail your project. Most system design errors are introduced in the original specification, but aren't found until the test phase.

MULTINETLIST is a tool designed to help you understand and refine the design of your circuits. it enables you to :

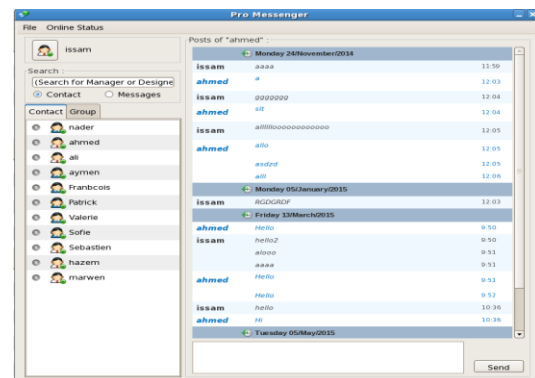
- Simulate one or more circuits to verify if it satisfies a given set of performance criteria
- Automates the iteration process for sweep/corner simulation of design variables
- Automatic comparison between target specification and simulation results
- Creates a scenario to schedule simulations for different circuits
- Store the simulation results in a Data Base
- Presented the simulation results with different forms (table, chart, curves, matrix ...)



6. StatusQuo :

6.1 *ProMessenger:*

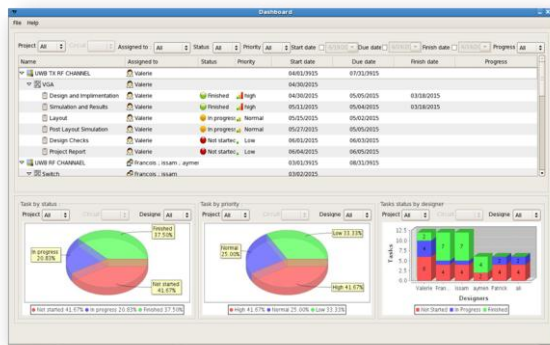
If your communications are still centered on email, or your team is using personal Skype, Google Talk or Twitter (direct message) accounts to chat internally, it's time to get a team chat application .ProMessenger makes it easier for your teams to talk, search through old messages, and stop hunting through a half dozen apps to find that snippet of information they need.



6.2 *DashBoard*

Project management dashboards provide a visual resource, allowing managers to make informed decisions based on "in process" feedback and to more effectively communicate project metrics. Schedule variance, resource utilization and quality are commonly monitored using dynamic project management dashboards.

The Claudia Dashboard provides you with a simple view of the progress, health, and risk level of a single project or the projects in your entire project portfolio. Automatically show your existing individual project summary data from multiple sites in the Project Portfolio Dashboard.



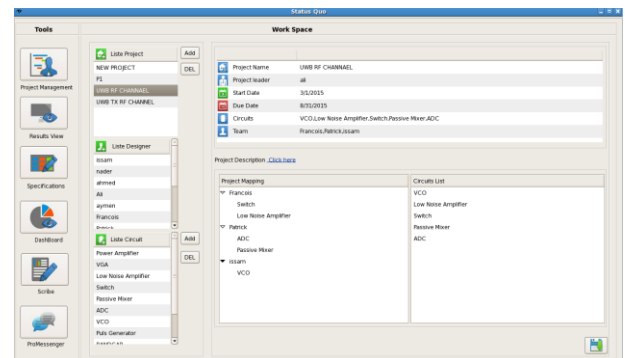
Claudia DashBoard can also display project charters and executive summaries side by side with the charts and graphs, providing a single, centralized location for stakeholders and management to get project descriptions and status. All of the graphs, charts and other summary information needed to track critical projects is automatically compiled and displayed in a customizable dashboard layout.

6.3 Project Management

Creating a project plan is the first thing you should do when undertaking any kind of project. Often we ignore a project plan in favor of getting on with the work. We fail to realize the value of a project plan in saving time, money, resources etc. Thorough planning is needed to reduce much of the uncertainty surrounding the execution of the project. Before you can build a project, the project plan helps you to decide what exactly the project is all about, what the scope is and how you can achieve this through your project. Claudia Project Management allows:

- Create Project
- Create team projects
- Project timeline

- Assign work to team members



6.4 Scribe

Reporting and document generation should be simple, but the most solutions that companies use or are forced to use are overly complex, tedious and technical. Why can't generating reports and documents from your company's data sources be as simple as creating a Microsoft Word document, Excel ...

Claudia Scribe is report builder and template design tool, lets you create your report and document templates. Design professional reports and documents that look exactly the way you want them to.

- Design and format report templates
- Customize the reports and documents your end users want
- Export document to the PDF format

