Animate™ Preview

Analog IC Design: The Productivity Problem

The job of an analog circuit engineer has never been more difficult. The accelerating number of IoT applications is driving large numbers of design starts, specifications are ever more demanding, process layout dependent effects make design closure more difficult than ever, and schedules are constantly being squeezed by market pressures.

In a traditional design flow, the circuit engineer creates a schematic and runs multiple simulations to size devices and adjust their circuit. The engineer typically sends a schematic and constraints to a layout designer, who in turn will manually generate the layout that the circuit engineer can use to verify the design. Each layout iteration often takes several hours and can take days or even weeks. Circuits often need several changes that require multiple iterations, which can have a significant impact on the schedule.
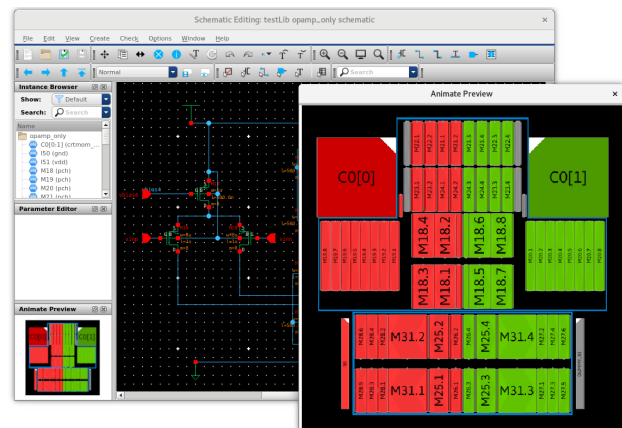
Animate Preview

Animate Preview accelerates your analog design flow by giving you quick, easy, and accurate physical information about your analog circuit while you develop your schematic, providing detailed visualizations of your circuit, and helping you to spot problems, so you can make better decisions earlier in your flow and reduce design iterations.

Animate Preview is designed for analog circuit engineers and features the first fully automatic layout system built from the ground up for analog transistor-level design. Animate Preview understands analog circuit features and employs Pulsic's unique Polymorphic technologies to produce a hand-crafted quality layout preview in seconds. Animate Preview is presented as an easy-to-use schematic plugin that works inside your existing schematic editor.

Bring Your Schematic to Life

Animate Preview works while you edit your circuit schematic, automatically keeping up to date with your changes.Physical previews are generated when you load a schematic and each time you check and save. The layout preview is displayed in the Animate Preview assistant window. Animate Preview automatically recognizes common analog circuit structures, e.g. current mirrors and differential pairs, then intelligently places devices to achieve matching symmetry and flow of the critical paths in your circuit. The Animate Preview assistant window is embedded in your existing schematic editor and shows the results as you work.

You can expand the window to see more detail and information. Selecting instances in the schematic cross probes to the preview, allowing you to see their position. An area report shows the Animate Preview area, width, height, and aspect ratio.

Layout preview displayed in the schematic editor and in the enlarged view.
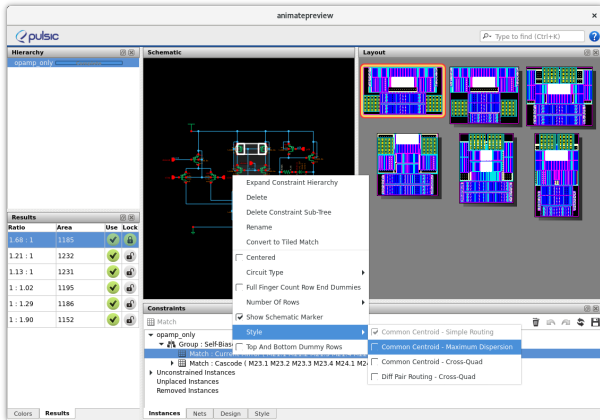
Accelerate Your Design Flow

Simplify your design flow with Animate Preview and remove costly iterations between circuit design and layout. Automatically generated, physical previews enable you to optimize circuit device parameters for layout without needing to iterate with your layout team to draw a layout view. Spot sub-optimal parameterizations, accidentally mismatched devices, and devices with bad layout shapes in seconds. Animate Preview obeys your process DRC rules and inserts dummy devices, guard-rings, and taps where necessary. Communicate clearly with your layout teams by saving a preview image which helps communicate design intent. Animate Preview allows you to save a black-box layout view of the preview to OpenAccess. The black-box layout contains the design outline and pin positions for your circuit, providing designers working on the chip floorplan with detailed information about the circuit as soon as you have a circuit schematic.

Animate Your Time

Accelerate your timeline with Animate Preview. Physical information that would normally take hours or days to generate is automatically available to the circuit engineer in seconds. Animate Preview accelerates your design process by removing slow iterations from your flow and giving you

instant feedback on your design decisions. Don't wait for layout teams, often working on multiple competing projects, to find the time to create an initial layout. Get accurate size, width, height, and area estimations in seconds. Check your design, catch the problems and optimize your circuit parameters ready for layout the first time around.

Easily modify the placement pattern of matching and symmetrical devices.

Get the Results That You Need

Fine-tune the layout preview and add your expertise using Animate Preview's easy-to-use customization feature. Animate Preview allows you to modify the layout with an intuitive, high-level editor, quickly achieving the results you need. Animate Preview automatically handles all the design rules and ensures the result is DRC clean. Choose between common placement topologies with just a few clicks, e.g. common-centroid, cross-quad, or maximum-dispersion. A drag and drop interface enables fine level control giving you precise control of device positioning and placement patterns. Its high level, abstract view of devices makes editing much easier while maintaining DRC correctness.

Go Further with Animate Preview Plus

Animate Preview Plus provides the ability to export the layout preview directly to OpenAccess. The exported layout contains all circuit design instances, parameterized cells, and dummy instances. The layout features full connectivity, pin positions, all base-layer geometry including well shapes, guard rings, and poly heads. This OpenAccess layout is fully compatible with your existing schematic driven layout flow. The layout obeys your fab's default pdk rules, follows the recommended rules, and is DRC correct. Animate Preview Plus accelerates your layout, providing high-quality initial placement that is ready for final routing. Animate Preview Plus enables rapid turn around of layout extraction and simulation, not only reducing design iterations but also ensuring that each iteration takes less time when compared with design traditional flows. Animate Preview Plus also enables rapid LDE analysis, giving circuit engineers the information they need faster than ever before.

Benefits

- Visualize your circuit. Animate Preview enables circuit engineers to quickly see the physical effects of their design decisions.
- Accelerate your design process. Reduce design iterations between circuit engineers and layout.
- Area estimates you can trust. Animate Preview obeys your DRC and process rules to give you early and accurate physical previews of your design.
- Animate Preview Plus accelerates your layout team, enabling rapid LDE analysis and cutting overall layout time.

Features

- Pulsic's unique Polymorphic layout engine produces DRC correct layout previews in seconds.
- Layout previews are displayed in your existing schematic editor.
- Zoom in and cross probe between schematic and the preview.
- Automatic recognition of common analog structures.
- Automatic symmetry and matching, including common analog placements, e.g. common centroid.
- Automatic creation of essential analog structures like dummy devices and guard rings to produce an electrically correct layout while adhering to DRC rules.
- Customize the layout preview, with an easy-to-use GUI and high-level editing tools.
- Area report showing design area, width, height, and aspect ratio.
- Save the black-box layout.
- Save initial layout (requires Animate Preview Plus).

Supported Flows

- Animate Preview supports design teams using the Cadence® Virtuoso™ schematic editor and layout editor.
- Full DRC support for TSMC 180 nm - 22 nm.
- OA technology rules for other processes.

Animate Preview reduces design time by removing design iterations.

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