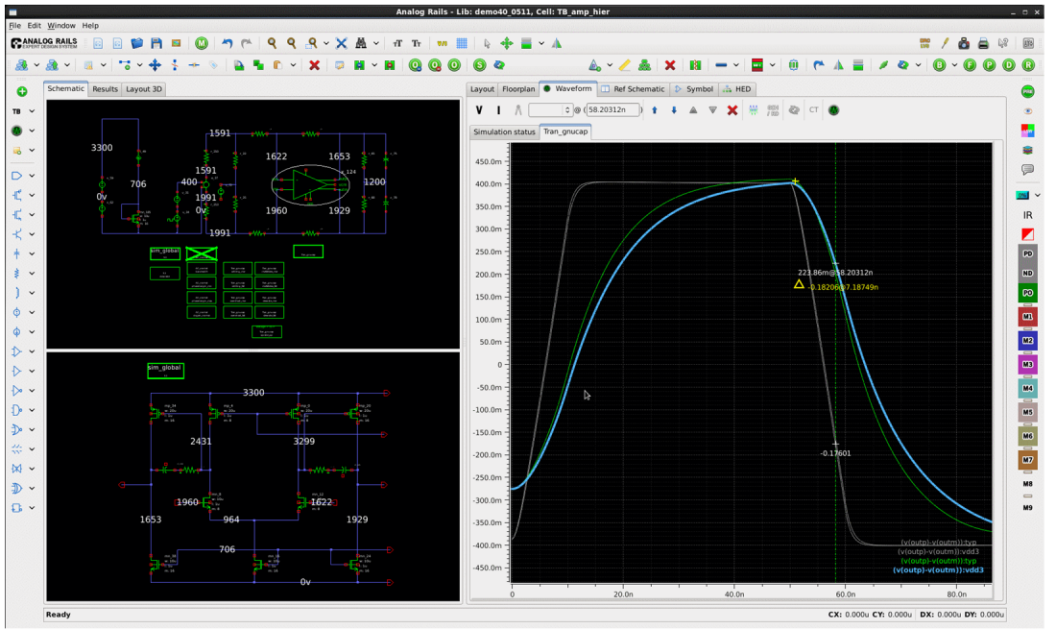
ANALOG RAILS

CORRECT BY CONSTRUCTION™

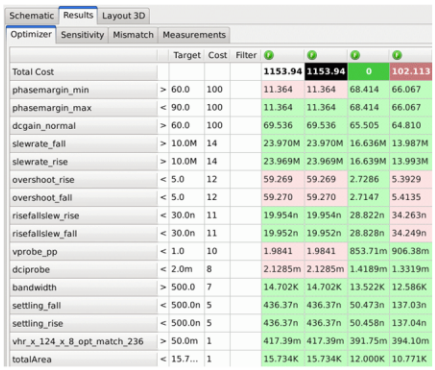
Precision Analog and Digital Automation

ANALOG RAILS™ is the key innovator in electronic design automation (EDA), accelerating silicon IP delivery by providing design teams with a unique automated parasitic-aware Correct By Construction™ approach which revolutionizes analog mixed-signal IC design. Customers using ANALOG RAILS™ will have a competitive edge in bringing the best analog mixed-signal products to market quickly while drastically reducing support costs and schedule creep. Design teams efficiently output precision, high-yield analog mixed-signal IP in hours, rather than days, weeks or months, enabling them to be first to market for their high-end integrated circuits and systems on a chip.



Migrate Existing IP For Re-use in Any Process!

Migration automation for accurate and easy porting of analog/mixed-signal designs to new technologies! Simply open any existing OpenAccess schematic in ANALOG RAILS™, select the desired new technology, and let ANALOG RAILS™ unified environment meet specs at that new node, all the while simultaneously optimizing devices in both the schematic and layout, including parasitics! With fully functional and physically verified Correct By Construction™ results in hours, you even gain the luxury of time to further improve on the original design.



		Target	Cost	Filter				
Total Cost					1153.94	1153.94	0	102.113
phasemargin_min	>	60.0	100		11.364	11.364	68.414	66.067
phasemargin_max	<	90.0	100		11.364	11.364	68.414	66.067
dcgain_normal	>	60.0	100		69.536	69.536	65.505	64.810
slewrate_fall	>	10.0M	14		23.970M	23.970M	16.636M	13.987M
slewrate_rise	>	10.0M	14		23.969M	23.969M	16.639M	13.993M
overshoot_rise	<	5.0	12		59.269	59.269	2.7286	5.3929
overshoot_fall	<	5.0	12		59.270	59.270	2.7147	5.4135
risefallslew_rise	<	30.0n	11		19.954n	19.954n	28.822n	34.263n
risefallslew_fall	<	30.0n	11		19.952n	19.952n	28.828n	34.249n
vprobe_pp	<	1.0	10		1.9841	1.9841	853.71m	906.38m
dciprobe	<	2.0m	8		2.1285m	2.1285m	1.4189m	1.3319m
bandwidth	>	500.0	7		14.702K	14.702K	13.522K	12.586K
settling_fall	<	500.0n	5		436.37n	436.37n	50.473n	137.03n
settling_rise	<	500.0n	5		436.37n	436.37n	50.458n	137.04n
vhr_x_124_x_8_opt_match_236	>	50.0m	1		417.39m	417.39m	391.75m	394.10m
totalArea	<	15.7...	1		15.734K	15.734K	12.000K	10.771K

How About Our Migration Services?

Pay 1/3 down, we migrate the design. Within days, have the final review. If you want it, pay the remaining 2/3.

Benefits of ANALOG RAILS™

Reduce Cycle Times

Hours instead of weeks! No more time-consuming repeated iteration between circuit and layout designer. Designers always simulate with parasitics from the start. Optimizer is parasitic aware. Place measurements and specs into the schematic and press the button. Migrator => Optimizer => Mr. Fixit => Compact => Automatic Router => RCx.

Easily Save Area

Be aggressive! Pack it in! No need to be conservative on layouts. Don't fear last-minute changes. Automation allows circuit designer to quickly try multiple options to determine best design specs. Flatten layout hierarchy to compact even further - without ever losing full intelligence! Additional area efficiency is gained by circuit designers adjusting the design by utilizing black space, improving mismatch/headroom.

Improve Precision and Quality

Focus on spec tradeoffs & bulletproofing! Full automation gains designers time to improve precision and quality. No more last-minute scrambling. The optimizer allows circuit design trade offs between specs (power, area, speed). Optimize AC, DC, and transients, operating points over multiple corners all at once. Sensitivity analysis identifies devices/parameters most affecting each measurement.

Gain Productivity While Reducing Cost

Comprehensive and simple! Layout is the immediate and natural result of circuit design! Why outsource your layouts? Protect valuable IP. Leverage analog into SoCs using fast process migration tools. Circuit designers gain productivity from synchronization coupled with powerful 3D IR drop and EM analysis, always with voltage and capacitance backannotation and never losing crossprobing!

CAD Made Easy: DM, PDK GUI, GARP Cells

Beyond data management with popular version control systems, see changes to the designs, design rules, even electrical specs down the hierarchy. Schematics show problems via color/notes.

PDK is so easy, a designer can do it. No more editing unsystematic tech files. Design rules are contained within a GUI.

Graphical Pcells: Just add stretch lines Create custom pcells in minutes.

Digital Place & Route

ANALOG RAILS™ places mixed-signal circuit designers in complete control of their circuits! No need to switch to a different design environment to handle gate-level digital placement and routing.

analograils.com

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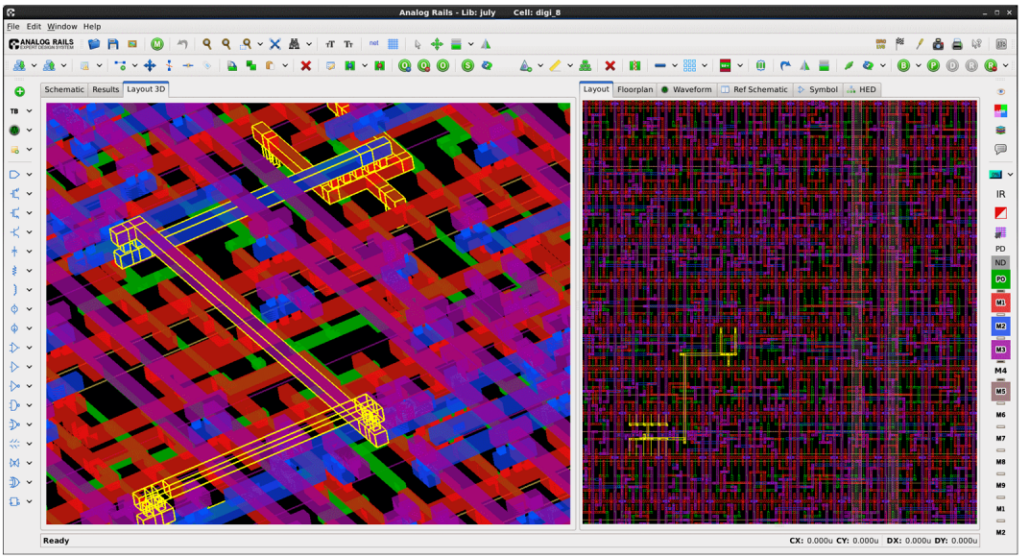

Synchronized Schematic & Layout Editor

Capture complete design intent including constraints, capacitance, and voltage backannotation. Schematic and 3D layout are always synchronized! Cross probe to the layout at all times. Store simulation test benches with schematics. Process migration tools easily import existing topologies from any node. Full hierarchical crossprobing and backannotation among schematic, 3D layout, and waveform keeps designers informed at all times.

Simulate Parasitics at All Times

Always simulating with parasitics makes your simulator the most accurate! ANALOG RAILS™ is simulator agnostic. Includes the TSMC-approved MSIM simulator, infinite GnuCap^{plus} licenses and easily integrates any HSPICE-compatible simulator into the flow. All simulators use accurate layout parasitics. STI LOD and WPE effects. Includes coupling Cx and selected-net RC extraction (faster simulations).

Analysis/Measurements in the Schematic

Streamline testing and simplify debugging! Place settling time, overshoot, bandwidth, phase margin, rise time, and precise custom measurements as on/off symbols directly into the schematic along with ac, dc, transient, and pss analysis components. Script using known languages of your simulator. Voltage and device backannotation tracks waveform time points.

Center Designs and Improve Reliability

Bulletproof your designs with optimization and sensitivity analysis options. Choose properties to optimize such as transistor operating regions. Devices are automatically sized over all corners. Run AC, DC, and transient analysis all at the same time on many machines without needing multiple testbench schematics. Run sensitivity analysis to pinpoint the largest contributors of measurement deviation to further immunize the design against variation.

Correct by Construction ™ Layout!

Manual and automatic layout! Both much more powerful than the competition. Place single ended and differential mosfets, fringecaps, mimcaps, resistors, & bipolars. Devices snap, repel, and permute based on schematic connectivity. Collision avoidance on all wiring. Built-in DRC and LVS (Mr. Checkit, Mr. Fixit, Mr. Nudgit) ensure correctness. Add differentially-aware density fill for yield. Don't trust us? Easily re-verify with any industry standard physical verification tool and foundry rule deck. Includes Calibre® physical verification interface.

Routing-Aware Placer

Your choice of placements! The placer easily handles just about anything thrown at it, especially analog core blocks such as PLLs and switched capacitor circuits. Preserve or flatten hierarchies. Automatically place common-centroid structures with guard rings, multiple dummies, and extended wells to reduce the STI stress and well-proximity effects. Iterate bottom up and top down.

Rigorous Automatic Routing

Manual and automatic routing! Manually route, if desired, and then let the automatic router finish the job. Not only does the router complete 100%, the router is RF aware, and sensitive signals are handled with care. ANALOG RAILS™ certainly knows differentials, and routes them with shielded walls, dummy extensions, and enforces symmetrical density fill. The power supply mesh reduces the IR drop where it counts. Need to make a schematic change? Blow away the routes, modify, then reroute.

Modern Approach

Built from the ground up for automation! ANALOG RAILS™ was designed for automation from the start using the industry compliant OpenAccess database. No legacy patches. Adaptive techfile. Member of Si2 since 2004.

ANALOG RAILS™ Premium

- Automatic differential structures
- Automatic analog placer
- Automatic digital place and route
- Automatic electrically aware router
- Differential route with shields
- Differential aware density filler
- Automatic power supply mesh
- Automatic compactor
- Delete, update, re-autoroute
- Optimize dc, ac, transient over corners
- Sensitivity pinpoints key culprits
- EM diagnostics on the layout
- Click two points for 3D IR drop
- Cx and RCx wiring extraction
- Plus all features of Basic & Front End
- Easily learned in just a day or two

ANALOG RAILS™ Basic

- Easy-to-use analog friendly system
- Schematic & 3D layout synchronized
- Crossprobing at all times
- Flatten with no information lost
- Primitives morph as needed
- Diodes generated back into schematic
- Handles analog and RF FETs
- Mr. Checkit, Mr. Fixit, Mr. Nudgit
- Interactive Calibre® PV interface
- Parasitics on the fly (e.g., sa, sb, sc)
- Mimic layout feature
- Three-dimensional layout viewer
- Plus all features of Front End
- Easily learned in a day

ANALOG RAILS™ Front End

- Process migration tool included
- Unified schematic, waveform and HED
- Infinite supply of simulator licenses
- Foundry-approved MSIM license
- Analysis/measures saved in schematic
- Built-in AC, DC, & trans measurements
- Customized measurements
- Backannotate waveform transients
- Easily learned in less than a day

Schedule a Demo Today

Seeing is believing!. Easy evaluation plan. No-hassle sales process. So easy, a circuit designer can test the tools in a day or two. Visit www.analograils.com to get started.

ANALOG RAILS
CORRECT BY CONSTRUCTION™
Main Office: Chandler, Arizona
Phone: 1.855.426.2564 (1.855.4ANALOG)
E-mail: sales@analograils.com
Web: www.analograils.com