



MAKING ANALYSIS ACCESSIBLE TO EVERY PCB DESIGNER

How do you prevent IR drop issues today? If you're like most designers, you're likely relying on experience and conservative rules of thumb to know how much metal to add to your boards. Or you might be strapped to an expensive analysis tool that requires specialist knowledge to use.

Worse yet, you may rely on a physical prototype and bench test approach to determine if adequate voltage is being supplied to all their loads. Are any of these methods as efficient and effective as you need them to be? Given the density of typical designs these days, board real estate is far too valuable to be wasted on overly conservative or expensive design practices.

MODERATELY COMPLEX PCB PROTOTYPES COST AN AVERAGE OF \$ 8,929

(Aberdeen 2011)

SHRINKING OPTIONS, RISING COSTS

As you progress through the typical phases of designing a product, the techniques you have available to implement a design change shrink dramatically while the associated cost per technique skyrockets out of control. To make a change to your design, it can cost:

\$1,984 to implement during development, and...

\$10,625 once a design has been released to manufacture - a factor of 5.4X.

Add to this the cost of physical prototypes and the potential for costly field failures and a case for Power Distribution Network Analysis can quickly be made. Consider a PDN analysis tool that will allow you to properly size the power delivery shapes directly in your PCB Design environment and significantly reduce your risk and overall development costs.

WHAT IF YOU COULD...

- Know definitively if you placed sufficient metal between the voltage sources and loads to deliver adequate voltage to every load
- Efficiently optimize your Power Delivery Shapes at design time without needing to rely on a simulation specialist?
- Know what part of your design is most likely to heat up before getting your prototype back?

THE POWER OF PDN ANALYSIS

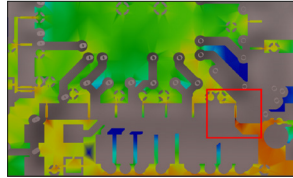
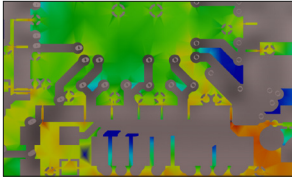
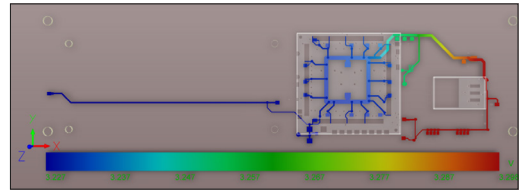
PDN Analyzer powered by CST® combines the Altium Designer unified design environment and over 30 years of simulation technology from CST® to resolve your power delivery issues at design time. With this easy-to-use extension you'll never have to rely on physical prototypes, best guesses, or simulation experts to optimize your PDN.

**69% OF BEST-IN-CLASS PRODUCT DEVELOPMENT COMPANIES
HAVE THEIR PRIMARY DESIGN ENGINEERS CONDUCT PCB ANALYSIS**

(Aberdeen 2010)



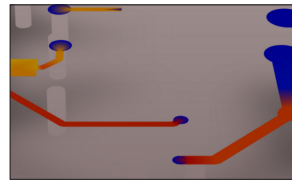
Graphically see voltage drop areas from sources to loads due to the resistivity of your power net. As designs shrink, the concept of power “planes” may not apply. While a layer may be primarily dedicated to power delivery, that layer will probably be broken into many sections (nets) delivering unique voltages around the design.



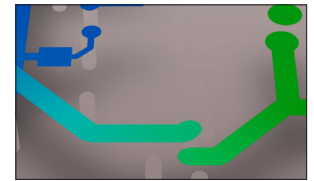
Pinch Points around Load

You can also visually see the current densities within the shapes of interest, allowing you to focus on making corrections to those areas with the highest current density and ensure that there are no “pinch points”.

A rule of thumb commonly used for power delivery is to have enough vias such that their cross-sectional area is the same as, or larger than, the power shapes they are connecting. Experience indicates this is sufficient, but using the PDN Analyzer can indicate whether this is necessary.

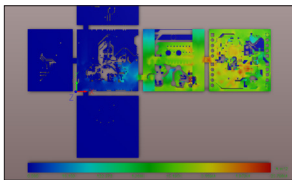


Current Density Issues Due to Narrow Vias



Current Density Issues Resolved with Larger Vias

Ground shapes can no longer be assumed to be infinite and today's designs usually force limits on how much area can be allocated to ground. Those restrictions on ground area can cause significant voltages on “ground” and it no longer can be assumed to be zero. With PDN Analyzer you can instantly see ground shape voltages without any cost or time penalty.



Current Density Across Rigid-Flex Design

Running PI-DC on designs can also reveal many imperfections that wouldn't otherwise be apparent. Plotting the current density of power and ground shapes, for instance, makes “peninsulas” and “islands” of those shapes readily apparent. Current “islands” and “peninsulas” are especially troublesome, possibly causing failures only when certain conditions exist. The failures may appear random and thus extremely hard to troubleshoot, a recipe for delayed validation.

PRECISE PDN ANALYSIS FOR EVERY PCB DESIGNER

With PDN Analyzer powered by CST®, it's easy to identify and resolve DC voltage and current density issues during your board layout process with an intuitive and easy-to-use PDN analysis tool. Quickly analyze every voltage on your board layout in native 3D with an automated analysis setup, and see results at design time when they have the least financial impact and when you have the most available options without ever interrupting your design workflow.

ABOUT ALTIUM

Altium LLC (ASX: ALU) is a multinational software corporation headquartered in San Diego, California, that focuses on electronics design systems for 3D PCB design and embedded system development. Altium products are found everywhere from world leading electronic design teams to the grassroots electronic design community.

With a unique range of technologies Altium helps organisations and design communities to innovate, collaborate and create connected products while remaining on-time and on-budget. Products provided are Altium Designer®, Altium Vault®, CircuitStudio®, PCBWorks®, CircuitMaker®, Octopart®, Ciiva® and the TASKING® range of embedded software compilers.

Founded in 1985, Altium has offices worldwide, with US locations in San Diego, Boston and New York City, European locations in Karlsruhe, Amersfoort, Kiev and Zug and Asia-Pacific locations in Shanghai, Tokyo and Sydney. For more information, visit www.altium.com. You can also follow and engage with Altium via Facebook, Twitter and YouTube.