

the SOLUTIONSreport

DfR Solutions
reliability designed, reliability delivered
Visit our website now!

Happy Holidays!

Merry Christmas and a Happy New Year

From all of us to all of you!!! We wish you a very Merry Christmas, Happy Hannukah, Feliz Navidad, Joyeux Noel, Froehliche Weihnachten, and Hauskaa joulua ja onnellista uutta vuotta, wherever you are in the world and a Special New Year.



Annual Open House

Save the Date

Monday, March 16, 2015

8:15am to 3:30pm

Attend high level technical presentations, meet with DfR Solutions experts, and participate in a free Sherlock Automated Design Analysis™ Software demonstration.

RSVP

Sherlock Technical Training

Reserve your spot now!

Intermediate: Monday, March 16, 2015

1:30pm to 5:30pm

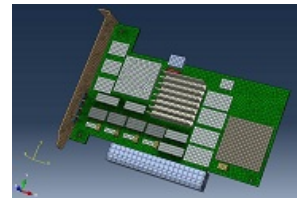
Advanced: Monday, March 17, 2015

9:00am to 4:30pm

Learn More and Register.

Sherlock Spotlight

See how Sherlock seamlessly integrates with Abaqus.



For more information please contact
Tom O'Connor.

Message from the CEO

As 2014 draws to a close, I want to thank all of our colleagues and customers for an amazing year. We continue to grow rapidly and we believe our consistent success comes from a high number of returning customers, who recognize the quality and value of our services, and our continued expansion into new and exciting opportunities, including our unrivaled Automated Design Analysis software, Sherlock.

We look forward to assisting you with your design and reliability needs in the new year.

Craig

Craig Hillman, CEO, DfR Solutions

Easier to Find

The last section of MD-200 (aka the Intercounty Connector) has opened. Visitors traveling eastbound on MD-200 should take exit 20, Konterra Drive, and turn right (south) at the end of the ramp. Turn right at the next light onto Muirkirk Rd. Turn left in the first driveway and our office will be on your right.

Notes:

- Konterra Drive is a newly re-named section of road and some GPS/mapping systems may not reflect this change until the next update.
- There is no exit from westbound MD-200 onto Konterra Drive.

For point to point directions please visit our [website](#).

Reliability of Thermal Battery Technology

Upcoming Webinars

Try Sherlock Free

Sign Up Now for a Free Trial!

Sherlock Automated Design Analysis™ software

Thermal batteries are known by different names: molten salt batteries, or liquid sodium batteries. All these refer to the fact that the electrolyte is a mixture of solid sodium or lithium salt that becomes liquid when heated. The batteries are designed for a specific application so that the electrical characteristics, activation time, environmental conditions, and mounting conditions are satisfied. This type of battery is useful in applications that need a long shelf life with no maintenance, high power density, or ruggedization. [Read more here](#). For more information please contact [Melissa Keener](#).

Temperature Cycling of Coreless Ball Grid Arrays

This paper, written jointly with Dan Cavesin of AMD, presents an approach for the utilization of coreless BGA substrates as a means of enhancing the ability of the package to withstand thousands of thermal cycles. Standard flip chip substrates are constructed with a 200-800 micron thick core laminate layer with build-up layers on either side. A coreless substrate does not have the core laminate and is only comprised of the build-up layers. The assemblies saw 8027 thermal cycles from -40C to 85C. For more information please contact [Gil Sharon](#).

2014 Top Picks

Below is a list of the most interesting newsletter articles as indicated by reader interest. See if your favorite is on the list.

- [17 Equations That Changed the World, Part 1 and Part 2](#)
- [Suitability of Cu wire bonded ICs for automotive applications](#)
- [REACH Update](#)
- [Using Physics of Failure to Predict System Level Reliability in Avionic Electronics](#)
- [Replacing MTBF](#)
- [Temperature Cycling Fatigue in Electronics](#)

Other Interesting Items

SQUID Microscopy: SQUID or Superconducting Quantum Interference Device is a failure analysis technique often used by DfR Solutions to assess the location of failure sites in printed circuit boards by measuring the magnetic fields around the defect site. SQUID can detect a magnetic field only a millionth as strong as the human brain's or less than 5 quintillionths of a tesla. **This interesting article** provides the history of this interesting technology and how Ford Motor Company invented the approach 50 years ago. For more information please contact [Jim McLeish](#).

3-D ICs: Progress Updates, Reliability Concerns, and Failure Mechanisms was published in **EDFA** magazine. This article was jointly written by Jan Vardaman of Techsearch International and Greg Caswell and Craig Hillman. For more information please contact [Greg Caswell](#).

On Location

At DfR Solutions we still believe that personal relationships are best. Our Senior Staff spend a lot of time visiting clients in order to personally ensure that their projects are going well and discussing their overall reliability needs.

If you would like a personal visit from DfR Solutions, please

[Contact Us](#).

Sherlock User Forum

To better accommodate the users of Sherlock Automated Design Analysis™ software, DfR Solutions has established a User Forum which will provide insight in FAQs, discussions on Sherlock releases, Feature requests, Tips and Tricks, and also where you, the user, can input your experiences.

Please go to [Sherlock User Forum](#). Once you enter your information you will need to wait for DfR confirmation.

Defining Sherlock Life Cycle Environments

Presented by Gil Sharon

Thursday, December 11, 2014

11am EST Session [Register](#)

2pm EST Session [Register](#)

Reballing Process Controls and Cleanliness

Presented by Greg Caswell

Thursday, December 18, 2014

11am EST Session [Register](#)

2pm EST Session [Register](#)

See You There!

2015

Jan 8 and Jan 15: Joint webinar with the SMTA

Jan 26-29: RAMS, Palm Harbor, FL

Feb 22-26: IPC APEX, San Diego, CA

March 16: DfR Solutions Open House

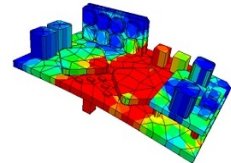
March 16: Sherlock Intermediate

Training

March 17: Sherlock Advanced Training

SHERLOCK in 3D!

Click the image below to view a short video about **Sherlock's New 3D Capabilities**.



[View short video](#)

SHERLOCK Demo

sherlock

AUTOMATED DESIGN ANALYSIS™

[Take the Sherlock Demo](#)

Reach Your Colleagues

Learn how your business can reach more than 12,000 electronics professionals.

[Contact Us](#).

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