



May/June 2011 Newsletter

[Expert Joins DfR](#) | [Migrating to 45nm](#) | [DfR in Minneapolis](#)

Passing of "Mr. Reliability"

DfR Solutions would like to express our condolences on the passing of our good friend, Werner Engelmaier. Werner was recognized the expert on electronic packaging and solder joint fatigue. Often called "Mr. Reliability," Werner dedicated his career to teaching the importance of concurrent engineering and its effect on reliability. His expertise and experience made him an invaluable asset to our industry. He will be sorely missed.

Sherlock

Have you reserved your place for a free trial of [Sherlock](#)? Every two weeks, DfR gives a wide variety of companies an opportunity to test drive the [leading CAD tool](#) for design assurance and reliability prediction. Don't miss out; [contact our software team](#) for more details.

Package on Package: DfM / DfR, Part 1

After years of incubating inside short-life, high-volume consumer products, [package-on-package \(PoP\)](#) is ready to make the leap to mainstream products. Just like QFNs, this new part type can bring on [manufacturability and reliability challenges](#). For more information on solutions to these challenges, please contact [Cheryl Tulkoff](#).

Counterfeiting of Parts – Still Growing

As [counterfeiters](#) continue to be more sophisticated in their methods, proactive risk mitigation becomes critical. [Walt Tomczykowski](#), recently selected by [CNBC](#) as a leading expert on counterfeits is an industry leader in providing customers with cost effective complete lifecycle solutions tailored to their specific needs. Don't just test; get proactive!

How Cool is This?

Nathan Blattau will be presenting a webinar on the challenges of designing for temperature cycling. Whether your product is automotive, solar, or exposed to 'Free Air Cooling,' this insightful presentation will review the fundamentals of thermo-mechanical fatigue, use [Physics of Failure](#) to relate drivers to predictive algorithms, and demonstrate how to develop more

In This Issue

[Condolences](#)
[Sherlock](#)
[Package on Package](#)
[Counterfeits](#)
[Temp Cycling](#)
[Service of the Month](#)
[Early Warning](#)
[Translation](#)
[Upcoming Events](#)
[Employment](#)



Medical Electronics: Vital Technologies for Health
September 27-28, 2011
Arizona State University

Those involved in the medical electronics industry are well aware of the focus on advancing technology, with the main objectives of improving all aspects of human health. Plan to attend this event to hear from the experts on materials, integrated circuit fabrication, manufacturing and assembly processes, as well as end products and applications.

robust designs. To register, please contact [Brian Schieman](#). For more information, contact [Nathan Blattau](#).

Service of the Month: Critical Components/Sub-Systems

While DfR has the capability to test everything from a simple diode to multi-card boxes, the strongest demand has recently been to test critical components and sub-systems. Years of experience and development of extensive test equipment have resulted in DfR being able to test power supplies, hard drives, [motherboards](#), [solid state drives](#), [lithium ion batteries](#), [electrolytic capacitors](#) and [fans](#) faster, better and cheaper than anyone else. For more information, please contact [Ed Wyrwas](#).

Field Failure Early Warning Systems (EWS)

Given the number of organizational interfaces involved and costs required, many field reliability issues fester before the commitment is made to identify root cause. Implementing [a defined issue detection process](#) will provide data to decision makers, support the development of organizational knowledge databases, and enhance customer satisfaction. For more information on how DfR can help you develop your own EWS, please contact [Gregg Kittlesen](#).

Lost in the Translation

We recently learned [some new information](#) about our own Randy Schueller. Who knew Randy "leads bright Buddhist nuns"? To find out what else Randy does, feel free to contact [Randy](#) by [email](#) or phone.

DfR News

Motherboard Expert Joins DfR Solutions

DfR Solutions is proud to announce that Annie Drees, an experienced circuit designer with a concentration in high speed digital design, will be the newest member of the DfR Solutions team.

Annie spent eight years at Dell, where she led teams that designed, created, and delivered high-end motherboard solutions. Being on the frontlines of new technology, Annie has debugged silicon, circuit and software issues. Since being with Dell Computer, Annie has created custom engineering solutions for clients in a diverse range of industries. Annie's strengths in problem solving stem from her sharp analytical skills and methodical approach. Annie has a B.S. in Electrical and Computer Engineering from Carnegie Mellon.

AVSI Selects DfR Solutions for 45nm Solution

DfR is proud to announce that it has been selected by the leading avionics consortium, AVSI, to expand its [revolutionary physics-of-failure based](#)

[integrated circuit reliability prediction tool](#) into 65nm and 45nm technologies. Using algorithms developed by Prof. Joey Bernstein, this tool will allow OEMs to accurately predict the behavior of current generation technology specific to their use environment, without having to wait years for industry-gathered field data of questionable origins. For more information, please contact [Ed Wyrwas](#).

IMAPS High Reliability Microelectronics for Military

IMAPS is sponsoring an Advanced Technology Workshop on military high reliability packaging issues and applications. The [technical program](#), which is chaired by DfR's Greg Caswell, will focus on the latest military electronic devices, systems, and applications with particular emphasis on system level issues that have an impact on mission assurance. To register for this conference, please contact [Greg Caswell](#) or go to the [website](#).

SMT Publishes DfR Paper on Whisker Mitigation

DfR's [ground breaking publication](#) pushing the electronics industry towards an alternative approach to tin whiskers has been published by SMT Net. For more information on how DfR can help you cost effectively manage this risk, please contact [Gregg Kittlesen](#).

Cheryl Tulkoff Appers on Riverwood TV

While at IPC APEX, Cheryl Tulkoff appeared on [Riverwood TV](#) to explore the challenges facing product reliability as a result of the move to a more outsourced solution to manufacturing.

Craig Hillman Selected to Write Forward

The authors of the latest publication in the Wiley Series in Quality and Reliability Engineering, [Failure Analysis: A Practical Guide for Manufacturers of Electronic Components and Systems](#), requested that Craig Hillman write a forward to their book due to his experience and reputation in the field of electronic failure analysis. Dr. Hillman was honored by the request and found the book by Marius Bazu and Titu Bajenescu to be one of the more practical treatises in this area.

Google Calendar

Look for DfR at upcoming events, conferences, webinars, and sales visits that may be in your area on our new link to Google Calendar. Hunt for us on the [web](#). For more information on a specific activity, please contact [June Caswell](#).

Upcoming Events

Webinar - ASQ Spring Meeting (Spokane, WA: April 28)

Cheryl Tulkoff provided a webinar entitled "FMEA: the Good, the Bad, and

the Ugly" as an element of this meeting. For more information on the presentation please contact [Cheryl Tulkoff](#).

IMAPS New England Symposium & Expo (Boston, MA: May 3)

[Nathan Blattau](#) presented a paper entitled "Automated Design Analysis: Accurately Capturing Warranty and End-of-Life Risks Early in Product Development," at the IMAPS New England Symposium & Expo. For more information on this topic, please contact [Nathan Blattau](#).

DfR Solutions in New England (Boston, MA: May 2-5)

[Nathan Blattau](#) and [Walt Tomczykowski](#) visited several companies and government agencies and discussed a variety of topics, including Design for Sustainability (DfS), Lifecycle Management, and DfR's new Sherlock Automated Design Analysis. If you and your associates are interested in an onsite visit for the next time DfR is in the Boston area, please contact [June Caswell](#).

Conference on Soldering and Reliability (Toronto, Canada: May 3)

Cheryl Tulkoff presented two courses at the [International Conference on Soldering and Reliability](#) entitled [High Reliability: Solving Problems with Reliability in the Lead-Free Era](#) and [Second Generation Lead Free Alloys: Is SAC the Best We Can Do?](#) For more information on these topics and to arrange onsite training at your facility, please contact [Cheryl Tulkoff](#).

DfR Solutions in Toronto (Toronto, Canada: May 3-6)

[Cheryl Tulkoff](#) visited several companies in the Toronto, Canada area discussing a variety of topics related to design, manufacturing, and testing of electronic components, products, and systems. If you and your associates are interested in an onsite visit and/or presentation while Cheryl is in Canada, please contact [June Caswell](#).

DfR Solutions in San Diego (San Diego, CA: May 4-5)

[Craig Hillman](#) recently visited the San Diego area to support high-level design review activities. If you would like assistance in design activities or are interested in an onsite visit next time Craig is in Southern California, please contact [June Caswell](#).

IMAPS High Rel Microelectronics for Military (Baltimore, MD: May 17-19)

IMAPS is sponsoring an Advanced Technology Workshop on military high reliability packaging issues and applications. The [technical program](#), which is chaired by DfR's Greg Caswell, will focus on the latest military electronic devices, systems, and applications with particular emphasis on system level issues that have an impact on mission assurance. To register for this

conference, please contact [Greg Caswell](#) or go to the [website](#).

Electronic Equipment Rel & Test Seminar -MET Labs (Austin, TX: May 24)

[Craig Hillman](#) will be presenting "The Synergy Between Reliability and Safety in IT Equipment", [Greg Caswell](#) will be presenting "Quality, Reliability & Durability for Industrial Applications" and [Cheryl Tulkoff](#) will be presenting "Test Plan Development" as part of the seminar and open house for the new MET Labs facility in Austin. For more information or to register for the meeting [click here](#). For more information please contact [Greg Caswell](#).

How to Design for Thermal Cycling Webinar (Webinar: May 24)

In this webinar, [Dr. Blattau](#) will review the fundamental drivers for thermo-mechanical fatigue. Using physics of failure, Dr. Blattau will then relate these drivers to predictive algorithms in regards to creep and fatigue mechanisms. Having knowledge of these equations, Dr. Blattau will demonstrate how designers can be more proactive and confident of the ability of their designs to be sufficiently robust against thermal cycling environments. Click [here](#) to register.

ARS (San Diego, CA: June 7-9)

Randy Schueller will present "Physics of Failure in Five Minutes" at the [2011 International Applied Reliability Symposium](#). For more information, or to arrange a meeting during the conference, please contact [Randy Schueller](#).

DfR Solutions in Minneapolis (Minneapolis, MN: June 13-17)

[Randy Schueller](#), [Ed Dodd](#) and [Nathan Blattau](#) will be visiting companies in the Minneapolis area discussing a variety of topics related to design, manufacturing, and testing of electronic components, products, and systems. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

DfR Solutions in Knoxville (Knoxville, TN: June 13-15)

[Craig Hillman](#) and [Cheryl Tulkoff](#) will be available for onsite discussions and presentations on a variety of topics, including technology insertion, design for manufacturability and reliability, reliability prediction and root-cause analysis. If you would like to schedule a visit to your company, please contact [June Caswell](#).

How to Accelerate Automotive Product Development (Webinar: June 30)

Jim McLeish will present a webinar entitled "How to Accelerate Automotive

Product Development." [Registration](#) is now open. For more information, contact [Jim McLeish](#).

University of Arkansas EPSCoR Meeting (Little Rock, AR: July 26-28)

Greg Caswell will be in Little Rock supporting the EPSCoR meeting as an advisor to the University of Arkansas. He will have limited time for customer visits, but if you would like to meet with [Greg](#) at the meeting please [contact him](#).

Design for Manufacturability (Webinar: August 3)

Cheryl Tulkoff will be presenting a one hour webinar on Design for Manufacturability for IPC. For more information on how DfR can introduce DfM into your engineering teams and your supply chain, please contact [Cheryl](#).

Qualifying Pb-Free Electronics for Telecommunication and Enterprise Products (Webinar: September)

[Randy Schueller](#) will be giving a very insightful presentation, based on his direct experience in implementing successful Pb-free transitions in several companies in the telecommunications and enterprise markets. For more information, please contact [Tammy Smittenaar](#).

EMPC – IMAPS Europe (Brighton, UK: September 12-15)

[Greg Caswell](#) will be teaching a NEW course: High Brightness Light Emitting Diodes - Reliability Considerations. If you would like to schedule a visit to your company while Greg is in England, please contact [June Caswell](#).

IPC Midwest Conference (Schaumburg, IL: September 21-22)

[Craig Hillman](#) will be presenting Common Mistakes in Electronic Design as part of focused Design for Reliability session within the annual [IPC Midwest Conference](#).

SMTA International Conference (Ft Worth, TX: October 16-20)

[Randy Schueller](#) will be teaching a NEW course: Packaging and Reliability Considerations for High Brightness LEDs at [SMTAI](#).

Lockheed Martin Pb-free Electronics Workshop (College Park, MD: October 27)

Lockheed Martin has invited [Craig Hillman](#) to present on the broad range of Pb-free research and development activities being currently performed at DfR Solutions. If you would like a similar informative update at your facility, please contact [June Caswell](#).

Employment

Reliability Engineer

DfR Solutions is looking for full-time and part-time system engineers with 10+ years of DoD acquisition experience and a strong reliability and manufacturing background to work in the DC/MD area. Must have or be able to acquire a security clearance. Qualified individuals should [e-mail](#) their resume along with a cover letter.

Dell Computer

Opening to serve as a Reliability Engineer for Business Client products in Austin, TX. Will serve as reliability engineer for computer products from concept through prototype and into production. Participate in product development; perform Design Failure Modes and Effects Analysis (DFMEA), derating, physics-of-failure analysis, virtual qualification, and reliability prediction. Prepare schedules, statements of work, and functional plans. Analyze field failure data and initiate failure analysis to understand factors limiting the reliability of computer systems. Qualify computer products through validation testing. Develop new test methodologies and support global enablement of test capability. Define certification criteria & implement supplier reliability lab certification. Work with a multinational team of reliability engineers, development engineers, & suppliers to transition product reliability qualification to suppliers' site. Provide support to suppliers in reliability analysis and validation techniques. Review supplier design analysis and reports for compliance to product qualification requirements. Provide strategy & direction for qualification efforts on peripheral products (used in computer systems). Conduct design for reliability (DFR) analysis and accelerated life testing for computer products, and resolve reliability issues with lead-free electronics. Some International travel may be required. [Click here](#) for the full job description and application information.