

DfR Solutions September/October 2010 Newsletter

[DfR is Hiring!](#) | [Solving Shock and Vibration of Pb-free](#)

DfR is Hiring!

DfR is looking for two senior members of the technical staff. The first should have 10+ years of mechanical engineering experience and an operational knowledge of Abacus modeling software. The second should have 10+ years of experience in a technical discipline (SMT, Solar, LED, etc.). Both will be expected to manage and assist on DfR projects, write technical reports, make presentations at conferences, and provide guidance to staff engineers. In addition, DfR is looking for a staff engineer to support our laboratory team. Send your resume and cover letter to [Tammy Smittenaar](#).

BGA Reballing - A High Reliability Necessity

The military and high reliability market segment has maintained a higher level of [stability](#) over the past couple of years. Military manufacturers are, for the most part, still using Sn/Pb materials. The commercial industry has used Pb-free for several years and the medical industry will be following in the next couple of years. Military suppliers are using approaches such as reballing of BGAs with Sn/Pb to utilize them. DfR has extensive experience regarding the reliability of the reballing of BGA packages. [Joelle Arnold](#) recently presented a [joint paper](#) with Stephan Meschter of BAE at the IMAPS Advanced Technology Workshop on High Reliability Microelectronics for Military Applications.

Counterfeit watchdog!

DoD watchdogs are stating that the military is wide [open for intrusion](#) by counterfeit parts. Crackdowns are occurring, but the [boldness of counterfeiters is increasing](#). DfR has a complete understanding of how we can help you with this dilemma. [Greg Caswell](#) will be presenting a paper entitled "Counterfeit Detection Strategies-When to Do It/How to Do It" at the IMAPS Symposium on November 2. In addition, a new and unique methodology, "[Using DNA to Safeguard Electronic Components](#)," for obviating counterfeit parts will be presented by [Janice Meraglia](#) from Applied DNA Sciences.

Fill 'er up!!

Increased circuit board densities coupled with the need for higher electrical performance have resulted in a new reliability challenge, that of vias in close proximity to either SMT or BGA pads. In an effort to reduce inductance, increase density or employ finer pitch array packages, via pads are being placed close to the SMT/BGA lands. Thicker PWBs, due to higher I/O array packages exacerbate these issues as larger holes and pads may be required to maintain through-hole reliability. DfR has extensive experience in both [modeling the filled via](#) concept and analyzing failures associated with this defect. For more information contact, [Nathan Blattau](#).

If at First You Don't Succeed, Triac, Triac Again!!

DfR engineers have definitive experience in electrical characterization and skill in developing the parameters for proper operation of specialized components in

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their application environment. Triacs are one such component type and this [white paper](#) describes the step by step methodology followed to provide this level of insight to our customer. For more information regarding electrical characterization, please contact [Robert Manzanares](#).

0201-01005 Survey

DfR recently completed a project to acquire industry wide data on the utilization of 0201 and 01005 size components. All participants will receive our report on the program. If you have an interest in the information, please contact [Cheryl Tulkoff](#).

Dilbert on the Mark

[Dilbert](#) hits the mark again with regard to recalls.

Circuit Board Quilt

[Greg Caswell](#)'s wife is a quilter and has produced some interesting designs over the years. This article about a "circuit board" [quilt](#) brings art and technology together.

Remote Monitoring and Control

A recent survey by [Atenga, Inc.](#) pointed out that buyers of remote monitoring and control systems were unhappy with the reliability of the products. Solving this type of problem is right up DfR's alley. DfR can work with design engineers to facilitate enhanced reliability in a product during the design stage. Don't let your product end up in surveys like this one; call [Craig Hillman](#) for more information.

Buyer Beware!!!

SquareTrade provides failure percentage information on a variety of electronic products with VERY SCARY figures; some with failure rates as high as 26% within the first two years of a product's life. Recently, they have examined [iPhones](#), [digital cameras](#), [laptop/netbook computers](#), and [computer game boxes](#). Understanding failure mechanisms is what DfR does best and working with customers to improve their products so that warranty issues are not a problem is a focus. Please contact [Tom Johnston](#) for more information.

Say Goodbye to Reliability?

Taiwan's Contract Electronics Manufacturers to Benefit from [Freer Outsourcing Atmosphere](#). For a long time, Intel, which commands over 80% of world's market for computer microprocessors, has demanded notebook-computer manufacturers using its microprocessors to build the processors packed with its designated wireless-network modules into their notebook computers. Five Taiwanese CMs can now choose their own modules for inclusion. Will they chose the most reliable or will they choose the least expensive? With the margins the way they are for CMs, this is not a tough question. What does that bode for notebook computers? Ask [Cheryl Tulkoff](#).

DfR News

Shock and Vibration of Pb-free

DfR has announced it is building upon its successful SBIR Phase I Partnership Program. Where SBIR Phase I Partnership focused on capturing the behavior of Pb-free solder under shock and vibration, the [SBIR Phase II Partnership](#) will focus on quantifying the value of various mitigation strategies, including staking, underfill, dummy ball / ball removal, and cutouts. Participants will not only have exclusive access to the largest investigation into Shock and Vibration of Pb-free solder ever performed, they will also finally be able to capture the cost / risk tradeoffs necessary for a successful product launch. For more information, please contact [Craig Hillman](#).

Upcoming Events

MDA Parts, Materials, and Processes Board (**San Diego, CA: September 9**)

Greg Caswell represented DfR Solutions at 7th Meeting of the MDA Parts, Materials, and Processes Board which focused on several topics, including PMAP revision B status, Pb-Free activities, various parts issues and MDA advisories.

IEEE Solar Technology Workshop (**Austin, TX: September 16**)

[Cheryl Tulkoff](#) and Paul Parker of [SolarBridge](#) presented "Reliability Challenges for Solar Microinverters" at this critical [IEEE workshop](#). For more information on DfR services for the photovoltaic (PV) inverter industry and their customers, please contact [Cheryl Tulkoff](#).

ESTC Conference (**Berlin, Germany: September 13-16**)

[Cheryl Tulkoff](#) presented "Managing Reliability Expectations and Warranty Costs in Medical Electronics" at the [Electronics System Integration Technology Conference](#). For more information on this topic, please contact [Cheryl Tulkoff](#).

Pb-Free Electronics Risk Management (**Bloomington, IN: September 21-23**)

[Jim McLeish](#) attended the [PERM](#) meeting in Bloomington. For more information on the topics discussed, contact [Jim McLeish](#).

DfR Solutions at the University of Arkansas (**Fayetteville, AR: September 22**)

Greg Caswell was the invited keynote speaker for the University of Arkansas IMAPS student chapter graduate seminar. He spoke on Reliability Issues with Advanced Packaging Technologies. For more information on the topic, contact [Greg Caswell](#).

IPC Midwest (**Chicago, IL: September 28-30**)

[Randy Schueller](#) presented "Design for Reliability: The Next Generation" at the [IPC Midwest Conference](#). For more information on this topic, please contact [Randy](#).

IMAPS Chesapeake Chapter (**Laurel, MD: October 5**)

[Nathan Blattau](#) presented "Tensile Ratcheting in Solder Bumps" at the Fall Symposium of the IMAPS Chesapeake Chapter. For more information, please contact [Nathan Blattau](#).

SMTA/IMAPS (**Austin, TX: October 6-7**)

[Randy Schueller](#) was in Austin Texas presenting "Primary Reliability Risks on Pb-Free Products" at the joint SMTA/IMAPS meeting. For more information, please contact [Randy Schueller](#).

Design for Excellence (DfX) (**Austin, TX: October 11-15**)

DfR Solutions, in collaboration with Ops Ala Carte, is proud to announce that the DfX training session will be held in Austin, Texas, in October. This one-of-a-kind collaborative effort will provide designers, reliability personnel, and engineering management with tools on how to meet time-to-market deadlines and reduce warranty issues. Areas to be covered include Design for Reliability, Design for Manufacturability, and Design for Testability, just to name a few. For a full schedule of courses and information on registration, please click [here](#) or contact [Tammy Smittenaar](#).

IEC Technical Committee 107 Meeting (**Seattle, WA: October 12**)

[Ed Wyrwas](#) presented to the [IEC Technical Committee](#) regarding his work on physics-of-failure based reliability and durability modeling of current and future generations of integrated circuits. For more information on DfR's ability to eliminate the current empirical approach to reliability prediction, contact [Ed](#)

[Wyrwas](#).

Space Simulation Conference (Annapolis, MD: October 20)

[Ed Wyrwas](#) and [Nathan Blattau](#) will present "Integrated Circuit Reliability Simulation in Space Environments" at the [Space Simulation Conference](#). For more information on this topic or to arrange a meeting during the conference, please contact [Nathan Blattau](#).

AIMS/Harsh Environments Symposium (Orlando, FL: October 25)

[Jim McLeish](#) will be presenting "Overview of the New DoD Reliability Revitalization Initiatives," at the [AIMS conference](#). For more information or to arrange a meeting during the conference, please contact [Jim McLeish](#).

SMTA International (Orlando, FL: October 24-28)

DfR Solutions will be presenting two workshops at the [SMTA](#). [Randy Schueller](#) will present "The Reality of Pb-Free Reliability" on Monday, October 25 at 1:30p.m. [Craig Hillman](#) will present "Contamination and Cleanliness: Developing Practical Responses to a Challenging Problem" on Monday, October 25 at 1:30p.m.

DMSMS (Las Vegas, NV: October 25-28)

[Craig Hillman](#) and [Walt Tomczykowski](#) of [ARINC](#) will be presenting "Can the DoD Rent/Borrow the Design? A New Method to Mitigate the Impact of DMSMS and Improve Reliability" at the [Diminishing Manufacturing Sources and Material Shortages Conference](#). For more information or to arrange a meeting during the conference, please contact [Craig Hillman](#).

IMAPS (Research Triangle, NC: October 31 - November 4)

DfR Solutions will be presenting two workshops at the [IMAPS Conference](#). [Greg Caswell](#) will present "Understanding Failure and Root-Cause Analysis in Pb-Free Electronics" on Sunday, October 31 and [Nathan Blattau](#) will present "An Electronics Expert Reliability Analysis Tool" on Monday November 1. [Greg](#) will also be presenting "Counterfeit Detection Strategies: When to Do It / How to Do It" during the technical program on Tuesday, November 2. For more information or to arrange a meeting at the conference, contact [Greg Caswell](#).

IPC / SMTA Cleaning Conference (Chicago, IL: November 16-18)

DfR Solutions will be presenting on a number of topics at this joint industry conference. [Randy Schueller](#) will provide updates on sulfur attack of silver and other board platings. [Seth Binfield](#) will present on recent work on flux chemistry and voiding, performed in collaboration with [Jeannette Plante](#) of NASA's Goddard Space Flight Center.

IPC Tin Whiskers Conference (Chicago, IL: December 6-7)

[Craig Hillman](#) has been invited to give a half-day workshop on Tin Whisker Prediction and a half-day workshop on Tin Whisker Mitigation and Risk Assessment at this unique [industry conference](#) focused on practical methodologies. For more information or to arrange a meeting during the conference, please contact [Craig Hillman](#).

IPC (Anaheim, CA: December 8)

[Cheryl Tulkoff](#) will be presenting the full-day workshop: "High Reliability: Solving Problems with Reliability, Repair and Rework in the Lead-Free Era." For more information, please contact [Tammy Smittenaar](#) or [Susan Filz](#) of IPC.

Employment

Looking to hire? [Click here](#) to visit the "seeking employment" section of our website where we highlight engineering professionals who are currently looking

for job placement.

Patrick Boulden, a well-recognized name in the electronics industry, is currently seeking work in Program Management. If you have an opening this area or know an organization that does, please [contact Patrick](#) directly.

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For more information, contact [Tammy Smittenaar](#).

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5110 Roanoke Place, Suite 101, College Park, MD 20740