

DfR Solutions

reliability designed, reliability delivered

DfR Solutions May/June 2010 Newsletter

[NEW! On-Demand Webcasts: Learn Any Time, All the Time](#)

[DfR Now Does Software Reliability](#)

The Flip Side of Moore's Law

Looking forward to 45nm or even 32nm semiconductor devices? Think again. The silicon industry has [started to acknowledge](#) that the reliability of integrated circuits is [likely to suffer](#) as features continue to shrink. Actions to deal with this issue have ranged from minor modifications, such as widening of operational parameters, to major changes such as [separate circuits](#) that monitor aging and damage. Regardless of the approach, OEMs need to be [aware of and manage this risk](#). For more information on how DfR can help, please contact [Ed Wyrwas](#).

PoP Goes the...Package

The need for innovative packaging to maintain Moore's Law has become increasingly necessary and Package on Package (PoP) has become a [popular solution](#). While there are numerous advantages to PoP, including higher densities and yields, few are aware of PoP's limitations. In our [insightful white paper](#), DfR details some of the advantages and challenges of this wrinkle in 3D packaging. For more information, please contact [Randy Kong](#).

Paying the Price for SnPb

Staying with SnPb? It's going to cost you. Forget that the latest technology is not even available SnPb (DDR2 and DDR3 SDRAM are only RoHS-compliant) and will require reprocessing (at \$15 to \$60 per part). Even parts that are still SnPb come with a 50% (512MB SDRAM) to 800% (2N222A NPN Transistors) price premium. Pb-free looking more enticing? Contact [Cheryl Tulkoff](#) to learn about DfR's turnkey Pb-free services, including BOM scrub, process review, construction analysis, product qualification, and reliability predictions.

The Risk of Flashing

"Can we use less gold?" is a question being frequently asked in today's economy where the focus is on cost reduction. Thinner gold is definitely cheaper, but will it be just as reliable? As discussed in this [white paper](#), the value of flash gold plating is relatively limited. DfR Solutions has extensive experience in helping companies implement reliable cost-effective solutions and avoiding those that are not. For more information, contact [Randy Schueller](#).

The Future of Combat: Unmanned

As spelled out in the [National Defense Authorization Act](#), the future of combat systems will be increasingly unmanned. While philosophical questions remain, this movement will require the rapid introduction of commercial off the shelf (COTS) technology in a manner not compatible with current military qualification practices. Failure to manage this process could result in [insufficient reliability](#). For more information on how to successfully accelerate COTS qualification for UAV and other unmanned systems, please contact [Nathan Blattau](#).

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Qualifying for Moisture-Containing Environments

Designing and qualifying electronic systems for uncontrolled environment is a challenging task and one of the most difficult is capturing the risks of moisture. Depending upon the location, electronics can be subjected to a range of humidity and even condensation. This [white paper](#) by DfR Solutions provides guidance on selecting the right test for your use environment. For more information on test plan development, please contact [Jim McLeish](#).

Is Tin Plating Going Obsolete?

Two years ago, DfR Solutions brought you [The Tin Myth](#), a penetrating insight into how the Hi-Rel Industry was influencing the use of tin plating in fine-pitch components. It seems the battle is continuing to be won. There are indications that Analog Devices will shortly transition to NiPdAu and several memory manufacturers have suggested to DfR Solutions that they are also planning on introducing NiPdAu into Alloy 42 leadframes. Who's left? Oh, right: Freescale and NXP. Why?! For more information on managing tin whisker risks, please contact [Craig Hillman](#).

Did You Know?

In the July 2009 edition of [Electronic Design Magazine](#), the top 50 employers in the electronic industry were listed. It's not surprising to read that companies such as Apple, Cisco, IBM, and Microsoft are thriving despite the current recession. What you may not know is that [37 of those 50](#) highlighted companies are DfR customers! If you are one of the remaining 13 and want to know what you are missing, please contact [Ed Dodd](#) or [Tom O'Connor](#).

The MegaCorporation Company announces firing of all engineers

"We have had great success with aggressive cost reduction," said CEO John Doe, "and at some point we determined that there was no real use for engineers." When asked if engineers provided innovation, Mr. Doe mentioned he had not taken Latin in college. "It is much more effective to outsource these tasks to suppliers in low-cost countries," COO Jane Smith pointed out. "As clearly demonstrated in my Harvard case study, [experience is constant](#): one engineer with 30 years experience is equivalent to 30 engineers with one year of experience." During the call, John Q. Public pointed out executive salaries were 100 times more than technical staff and wondered if more cost saving was possible by off-shoring executives. "You make a good point," stated CFO Curly Marx, "but that's not [what Wall Street wants](#)."

DfR News

DfR's On-Demand Webcasts: Learn Any Time, All the Time

Does your schedule or budget prevent you from attending one of DfR's courses in a classroom setting? That will no longer prevent you from getting up-to-date training. DfR now has several of its popular courses available online for download at any time that is convenient for you. Professional Development Hour (PDH) certificates are available for paid webcasts. Click [here](#) to see the list of currently available webinars. Don't see what you are looking for? Contact [Cheryl Tulkoff](#).

DfR Adds Software Reliability Capability

DfR is proud to announce the addition of Ann Marie Neufelder to our reliability team. Ann Marie has benchmarked more than 115 organizations with regards to software reliability. She has invented and refined a revolutionary model to predict software defects before the code is written based on an ongoing benchmarking study. Since graduating from Georgia Tech in 1983, she has been a software engineer, manager, tester, test manager and software reliability engineer. Ann Marie has published a textbook, numerous articles and co-authored a military guidebook on the subject. DfR welcomes her support to our team.

DfR Solutions and ARINC Form Partnership

DfR Solutions and ARINC have created a [partnership](#) to provide combined reliability and DMSMS support to the commercial government and defense industries. By bringing together ARINC's DMSMS experience with the resolution and predictive power of DfR Solutions' new Automated Design Analysis tool, ARINC and DfR are revolutionizing performance-based logistics by providing customers with the ability to design in reliability and obsolescence mitigation techniques at a lower total cost of ownership. For more information, contact [Nathan Blattau](#).

Randy Kong Receives Outstanding Paper Award

Kudos to DfR's Dr. Randy Kong for receiving the "[Outstanding Paper of the Technology Conference](#)" for his presentation entitled "[The Reliability Challenges of QFN Packaging](#)," recently presented at the SMTA China East conference. Read the [full paper](#) (in English) or view the [presentation slides](#) (in Chinese). For more information, contact [Randy Kong](#).

DfR Solutions Published: Twice

DfR is proud to announce the publication of two of our articles in leading publications. Melissa Keener's paper entitled "[MEMS Reliability and Testing](#)" was published in the May/June issue of *Advancing Microelectronics* magazine. The paper, co-authored with Greg Caswell and Randy Schueller, discusses the factors influencing the reliability of MEMS devices. Read the full paper here or contact [Greg Caswell](#) for more information.

Dr. Randy Schueller's paper entitled, "[Second Generation Pb-Free Alloys](#)" was published in the January-March 2010 issue of the *SMTA Journal of Surface Mount Technology*. For more information, contact [Randy](#).

Upcoming Events

DfR Solutions in Ft. Collins (May 10-14)

Randy Schueller will be working with clients in the Ft. Collins, CO, area. If you and your colleagues are interested in a visit, please contact [Tammy Smittenaar](#).

Aircraft and Airworthiness and Sustainment Conference (Austin, TX: May 10-14)

Cheryl Tulkoff will be meeting with companies at the [2010 Aircraft Airworthiness & Sustainment \(AA&S\) Conference](#) in Austin, Texas. Look for her in the [ARINC](#) booth. For more information, contact [Cheryl Tulkoff](#).

DfR Solutions in Wisconsin (May 13-14)

Randy Kong will be working with clients in the Appleton, WI, area. If your company is located in this area or around Madison or Milwaukee and are interested in a visit, please contact [Tammy Smittenaar](#).

SMTA Lead-Free Academy (**Toronto, Canada: May 17-18**)

Randy Schueller will be teaching two tutorials at the upcoming [Lead-Free Academy](#): "True Design for Reliability - Understanding What Is and What Is Not DfR" and "The Reality of Pb-Free Reliability." For more information or to register for the courses, please contact [Melissa Serres Marx](#).

IMAPS Nordic Conference and Exhibition (Gothenburg, Sweden: June 6 - 9)

Craig Hillman and Greg Caswell will be presenting a course and a technical paper at the [IMAPS Nordic Conference](#) in early June. The seminar is "Contamination and Cleanliness: Developing Practical Responses to a Challenging Problem." The technical paper to be presented is entitled "[Manufacturing and Reliability Challenges With QFN](#)." For more information please contact [Greg Caswell](#). To register for the course, please go to the [conference website](#).

DfR Solutions in Europe (June 7-11)

Craig Hillman will be traveling through several countries in Europe giving presentations on cleanliness, Pb-free, design for reliability, physics of failure and giving demonstrations of DfR's new automated design analysis tools. If you and your colleagues are interested in a visit, please contact [Tammy Smittenaar](#).

Embedded Systems Conference - Midwest (Chicago, IL: June 8)

Jim McLeish will be presenting "Common Hardware Mistakes by Embedded Systems Designers" at ESC Chicago 2010. For more information, or to register for the conference, please visit the [event website](#).

DfR Solutions in Chicago (June 7-9)

Jim McLeish will be in the Chicago area presenting to several companies. If you and your colleagues are interested in a visit, please contact [Tammy Smittenaar](#).

PERM Conference (Arlington, VA: June 8-10)

Nathan Blattau and Joelle Arnold will be attending the PERM Conference. If you are interested in meeting up with Nathan or Joelle to discuss Pb-free or other topics of interest, please contact [Nathan Blattau](#).

Reliability Seminar (Austin, TX: June 8)

DfR Solutions will be partnering with DLI Labs and Ops A La Carte to present a Reliability Seminar in Austin. For more information, contact [Cheryl Tulkoff](#).

SMTA Symposium on Counterfeit Electronic Parts (West) (Phoenix, AZ: June 10-11)

Randy Kong will be presenting "Counterfeit Prevention & Detection Strategies: Cost versus Risk Assessment" at the [Symposium](#). For more information or to register, contact [Melissa Serres](#).

DfR Solutions in Arizona (June 9-12)

Randy Kong will be in Arizona presenting to several companies in the areas of package-on-package and QFN, implementing reliability programs and auditing overseas suppliers. If you and your colleagues are interested in a visit, please contact [Tammy Smittenaar](#).

Mid-Atlantic Microelectronics Conference and Exhibition (Atlantic City, NJ: June 17-18)

Greg Caswell will be presenting "QFN Challenges" at the [IMAPS Mid-Atlantic Microelectronics Conference and Exhibition](#). For more information, contact [Greg](#).

Nistec Seminar (***Petach Tikva, Israel: July 6-7***)

Craig Hillman will be presenting one-day seminars entitled "Next Generation Technologies in Electronic Packaging and Production" and "Design for Excellence" in collaboration with Nistec. For more information, please click [here](#). If you would like to register, please contact [Arbel Nissan](#).

DfR Solutions in Israel (***July 5-9***)

Craig Hillman will be in Israel giving presentations on cleanliness, Pb-free, design for reliability, physics of failure and giving demonstrations of DfR's new automated design analysis tools. If you and your colleagues are interested in a visit, please contact [Tammy Smittenaar](#).

16th ISSAT International Conference (***Washington, DC: August 5-7***)

Jim McLeish will be presenting "Transitioning to Physics of Failure Reliability Assessments for Electronics" at the [16th ISSAT International Conference on Reliability and Quality in Design](#). For more information, contact [Jim McLeish](#) or visit the [event website](#).

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](#).

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.

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