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Inspiration from Two Creative Artists of Analog Design

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Gary Breed
Editorial Director

Thoughts on the Passing of Jim Williams and Bob Pease

Two chip design and applications legends of Silicon Valley died eight days apart in late June: Jim Williams of Linear Technology and Bob Pease, retired from National Semiconductor. Although the quiet Williams and flamboyant Pease had different personalities, both had an unshakable vision of engineering as a creative art form, not just a number-crunching exercise in problem solving. I will gladly admit to being a fan of both men—with an appreciation for their quality work and interesting attitudes toward the profession.

The message of this month's column is that we should assume that the work of any engineer can be both challenging *and* creative, whether he or she is an experienced chip designer, a mid-career test engineer, or a beginning circuit designer. Of course, hard study and a good head for calculations is a requirement for any engineer, but an open mind that embraces outside-the-box thinking can be difference between simply having a good job and enjoying a truly productive and fulfilling career.

I want to emphasize the need for thorough, hard work. Creativity needs to begin with a solid knowledge of the fundamentals of any craft. In the art world, there are a number of famous failures in this regard—artists with interesting and unique talents, but whose works simply didn't survive because they didn't use proper materials and techniques. Great art that falls apart before it gets to the museum isn't going to have an impact. Neither is a fascinating new approach to electronic device fabrication that has poor common mode noise rejection or insufficient resistance to electrostatic discharge (ESD). Get the basics right!

Although creativity usually requires some innate ability, those of us with less built-in talent in our DNA can learn many lessons from our mentors and from experience. At some point in their careers, most engineers reach the simple realization that design solutions don't always appear after a literature search and computer simulation. Somewhere in our collection of past projects, we must find clues that point to a new solution.

And sometimes, a thorough and systematic re-thinking of the problem from the ground up will reveal a new direction of investigation. Going back to basics can be a good way to move forward.

The other part of creative engineering is appreciating that there is a tangible result—engineers *make* things! A product that is intended to fulfill a specific function has many opportunities for unique contributions,

starting with the circuit architecture and moving through the system design, manufacturing, production test, and even customer training and support.

As you look at your own role in the engineering profession, remember Williams, Pease and other top-tier designers—then try to make your own job creative, interesting and rewarding.



Notes on the MTT-S IMS 2011

The annual International Microwave Symposium is the primary gathering sponsored by the IEEE Microwave Theory and Techniques Society. Combining a high-level technical conference and a large commercial trade show, this event draws well over 10,000 participants to every event.

This year's IMS in Baltimore was, by most people's assessment, the best in several years. The conference and its companion workshops and tutorials covered important topics for today's researchers and designers. The affiliated conferences (RFIC, ARFTG) had strong participation as well.

On the exhibit floor, the effects of the 2008-2009 economic damage showed only a few residual effects. Wireless, military communications, radar and remote sensing, and other parts of the RF/microwave marketplace are some of the strongest economic activities right now. Let's hope for greater improvement in the overall economy, which will further boost our markets.

The RF/microwave specialty is as congenial as any professional group, so one of the pleasures of an

IMS is the chance to see business colleagues and friends. I am no exception—many of my conversations combined “how's business” with personal topics like family, upcoming retirement, or shared hobby activities.

The photo above represents this type of connection. Nearly 25 years ago, Les Besser's new company,

Besser Associates, provided training courses at the RF Expo trade shows I was involved in. Now the company is run by President Jeff Lange and VP of Engineering Rex Frobenius (right and left in the photo), and I'm pleased to say that our professional—and personal—connection has continued to the present day.