Components, Packaging, and Manufacturing Technology Society Newsletter

IEEE

CPMT

The Global Society for Microelectronics Systems Packaging

Vol. 30 No. 3, September 2007 (ISSN 1077-2999)

www.cpmt.org
www.ewh.ieee.org/soc/cpmt/newsletter

President's Column…..

Dr. William T. Chen
IEEE Fellow
President, IEEE CPMT Society
Santa Clara, CA, USA
wt-chen@ieee.org

Greetings!!!

Thoughts at the Sixtieth Anniversary

The year 2007 marks the 60th year anniversary of the singular invention that ushered in the electronics age. On December 23rd 1947, Walter Brattain and John Bardeen, two scientists in Bell Telephone Laboratory in New Jersey, demonstrated point-contact germanium transistor operated as a speech amplifier with a power gain of 18. In January 1948, William Shockley, another Bell Lab scientist leading the semiconductor research group, documented his invention for the Junction Transistor. The 1956 Nobel Prize for Physics was awarded to William Shockley, John Bardeen and Walter Brattain for their discovery of the transistor effect. Over ten years later, Texas Instrument engineer Jack Kilby successfully demonstrated a speech amplifier with his integrated circuit invention in 1959. Robert Noyce at Intel, independently invented the integrated circuit around the same time. In the short history of our industry these scientists and engineers and their inventions laid the foundations for the electronic age.

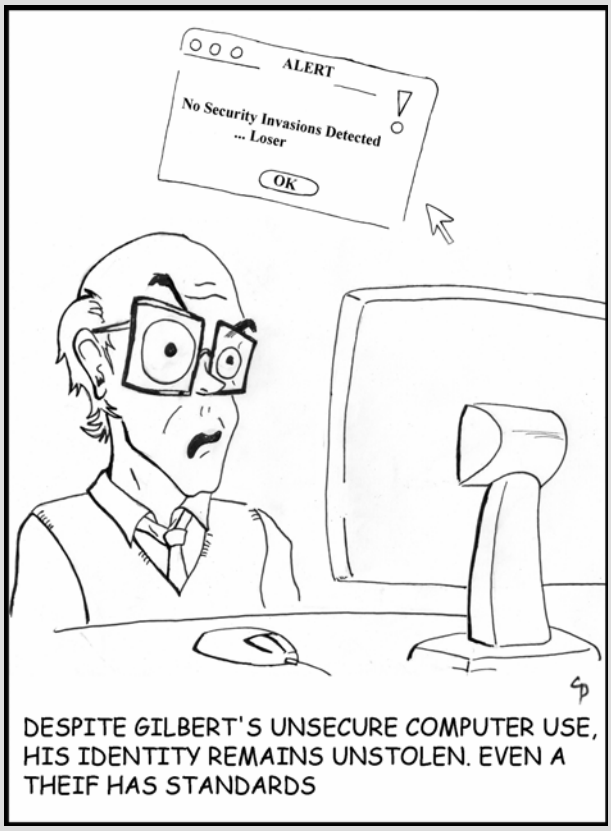
At the 60th year anniversary of the discovery of transistor, I would like to offer some thoughts on the technology, the market, the profession and us.

Technology

It was Gordon Moore, in his 1965 article in Electronics Magazine, April 19, 1965 "Cramming more components onto Integrated Circuits", who set the stage and ground rule for periodic invention and innovation for our industry with the prescient prediction of doubling the amount of transistors on an integrated circuit device every 12 months. Moore later modified the doubling period to 18 months. The 40-year track record following "Moore's Law" to the 65 nm node today testifies to the numerous inventions and innovations in many branchs of science and technology that made up our industry, as well as to the achievements of the men and women behind these inventions and innovations.

(Continued on Page 3)

Cartoon of the Month:



… By Dave Palmer

IEEE CPMT Society Newsletter
September, 2007

Index

JOIN AND SUPPORT CPMT SOCIETY
WWW.CPMT.ORG

President's Column (Continued from Page 1)

There is belief that the traditional Moore's Law Scaling will become more difficult in the outer technology nodes, and Packaging Technologies will play a strong role to take up the slack. The ITRS More than Moore initiative shows the importance of broadening innovations and inventions in Packaging and other Technologies to keep the industry moving ahead in the long run.

Market

Sixty years ago the standard electronic component was the vacuum tube. In application it was bulky, expensive, power hungry, very hot and had limited wear-out life. The market challenge that the Bell Lab research team set out to solve was for the growing interstate long distance telephone communication market requiring reliable solid state components for telephone switch systems. We have come a long way in product applications, markets and technology. Consumer applications dominate the market. From telephone communication alone, over a billion cell phones were sold in 2006. And those cell phones have many more functions than the landline phone of 60 years ago. At a tap of the key, we play music, shoot video and connect to the internet.

Profession

In my last message I mentioned that the traditional roles for an electronic packaging engineer have been: signal integrity, power delivery, heat removal and mechanical reliability. Today our profession is broadening beyond the traditional roles. We are covering all those roles and much more. From technological perspective, the traditional Moore's Law Scaling is becoming more difficult, and packaging professionals are stepping up to take up the slack. The consumer market imperatives - cost, time to market, function, weight, size and look - add new dimensions to the electronic packaging profession. The packaging community is experiencing a rich outpouring of "out of box thinking " from industry, academia, and research institutes. At conferences, trade shows, and other industry gatherings in US, Europe and Asia, new ideas and fresh concepts – coined in phrases such as System in Package (SiP), Wafer Level Packaging, and 3D Packaging – are being hotly debated and tested.

The ways that engineering is being done - from research, development, quality, manufacturing, marketing and sales - are very much collaborative in a competitive environment. Internet enables working across geographical lines. Business models require collaborative engineering across traditional business boundaries.

A Global Community

In the early 1950's Western Electric (the manufacturing arm of AT&T) set up the first factory to build transistors in Allentown, Pennsylvania. Fifty plus years later the semiconductor and electronic industries are spread worldwide.

With the global industry, IEEE CPMT professionals are everywhere around the globe: some are IEEE CPMT members, some are IEEE members, some belong to other professional societies or belong to none at all. Recently I was greatly encouraged to learn of the formation of the CPMT Chapter in Poland, and of the initiative to form a chapter in Austin, Texas. I attended the ICEPT conference in Shanghai last month meeting many fellow electronic packaging professionals from industry, academia, and research institutes.

We are a truly global community.

A Vital and Dynamic Global Professional Society

At the 60th anniversary of the discovery of the transistor, it is time to reflect on the science and technology created from this remarkable discovery; the globally based profession that has risen from it. Today we stand st the cusp of more changes in technology, market and the profession itself. How do we shape and grow the IEEE CPMT Society and the value propositions to be a vital and dynamic force for our membership and for our professionals at this time of change?

We are scheduling some workshops prior to the November CPMT Board of Governor's meeting to examine, debate and address some of these questions. We are at the planning stage. Your input will be welcome.

CPMT Society News:

IEEE-CPMT Society Awards for Year 2008

(Nomination Due Date: January 31, 2008)

Submitted by Dr. Kitty Pearsall, Strategic Director, IEEE CPMT Society

The CPMT Strategic Awards Director announces the call for nominations for their five, 2008 Society awards. The CPMT Society offers these awards for the purpose of recognizing outstanding service and contributions to furthering the professional purposes of IEEE and CPMT Society. While a nominee may have a specific award in mind when applying, the Awards Recognition Committee reserves the right to consider any nomination for awards other than the award suggested when, in its opinion, the support and justification may more appropriately apply to a different CPMT Society award. Winners will be notified by 28 February 2008 and the awards will be presented at the 58th Electronic Components and Technology Conference, May 27- My 30th, 2008, in Lake Buena Vista, Florida, USA.

After reviewing the high level summaries presented below, you will find a list of nomination submission requirements. The awards nomination form can be found on the CPMT Society Home page (**www.cpmt.org/awards**).

- **David Feldman Outstanding Contribution Award:** This award recognizes outstanding contributions to the fields encompassed by the CPMT Society through executive or managerial directions.
  Prize: $2,500 and Certificate
  Basis for Judging: Contributions to the organization or enterprises connected with the field, to CPMT Chapter, Section or Board of Governors activities, and to the fields encompassed by the CPMT Society.
  Eligibility: Recipient must have been a member of IEEE and CPMT for the past five (5) years, including 2007.
- **Outstanding Sustained Technical Contributions Award:** This award recognizes outstanding sustained and continuing contributions to the technology in fields encompassed by the CPMT Society.
  Prize: $2,500 and Certificate
  Basis for Judging: Technical contributions must be sustained and continuing over a period of at least five (5) and preferably