



### Opening Up to Touch

It seems hard to believe, but 2006 has come to an end. It has been an adventurous year for the staff of *Information Display* magazine. We have seen our share of challenges with schedules and deadlines, as well as many very rewarding experiences working with all the great authors that have shared their time and skills with *ID*. We're happy to report that beginning in January, most of the 2007 issues will be guest edited by well-known industry experts who will bring their experiences and insights to the selection and creation

of the articles. We believe this will further "raise the bar" for *ID* and bring the highest quality and most relevant display-industry innovations to you.

This month our topic is touch-screen technology, where I have spent much of my professional efforts the past few years. Our chosen stories reveal the theory behind the so called "bending wave" technology being introduced both by 3M Touch Systems and Elo TouchSystems, the very real and tangible efforts by Fujitsu and others to replace indium tin oxide (ITO) as a transparent conductor, and how to significantly improve the optical performance of resistive touch screens through innovations by Gunze USA. We are also very fortunate to present an overview of these and many other touch-technology innovations compiled by Geoff Walker, a frequent industry observer and consultant. Geoff was active in developing much of the content in this month's issue and we appreciate his hard work.

Touch-screen technology appears fairly simple on the outside, but in many cases, what is under the hood is very complex. Multiple technical disciplines including signal processing, material science, optics, and VLSI electronics are all employed by the engineers that toil over these systems. The results they achieve and the challenges they have overcome to make these systems work in extremely difficult real-world situations continually amazes me.

Touch screens, however, rarely perform perfectly – what technology does? – and manufacturers go to great lengths to improve and differentiate their offerings. Unfortunately, these same manufacturers are extremely resistant to discussing their innovations or publishing the details of their new developments in technical literature. Often this leads to the impression that very little is going on in the industry when, in fact, there is a lot happening. Some companies even hesitate to file patent applications in order to guard trade secrets. Reasons cited include discouraging reverse engineering or preventing competitors from cloning products that will cut into their market dominance. While these concerns are, of course, well-founded, I believe the secrecy has had an equally negative effect by making it too easy to propagate misinformation about how various technologies operate, hence slowing the amount of innovation in the industry. When you compare this mindset to the development of other display technologies, such as liquid-crystal displays (LCDs) or plasma-display panels (PDPs), the difference is startling. LCD manufacturers routinely publish a great deal of their technical advances. For example, a large body of work recently was circulated on response-time and motion-artifact reduction, driver integration and interface schemes, and novel LC-cell structures and their associated manufacturing challenges, to name just a few – all disclosures that could help their competitors. Going through the annals of past SID Symposia, you can review the vast majority of all major developments in PDP technology, which played a large role in the current state of the art in that field.

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## editorial

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Publishing these developments helps the entire industry and rewards all the participants with more rapid advancement of the technology, which in turn leads to faster commercial adoption of the products and a larger market for everyone.

I believe a greater willingness to publish the details of new developments would benefit the touch-screen industry significantly. Estimates today place the market for touch components somewhere between \$1 and \$3 billion annually, but three potential high-volume applications for touch – portable computers, desktop monitors, and ATMs – have failed to drive sales growth. Opening any of these applications up to pervasive touch adoption by collectively developing better solutions faster would generate enough new sales to reward everyone. By working together, it is conceivable the market could approach \$10 billion or more, and that's justification enough for trying a different strategy.

As we close this year, I want to take this opportunity to thank the *ID* magazine staff for their extremely hard work, willingness to try new ideas, and total professionalism at their tasks. I am proud to be part of this enterprise and wish everyone a great Holiday Season.

– Stephen Atwood