The Last Byte

Baseball and Testing?

Cheng-Wen Wu
National Tsing Hua University and
National Cheng Kung University

If you are curious about the title, you may not be alone. When I was invited to give a keynote speech at the 2019 International Test Conference in Asia (ITC-Asia), I was helping my colleagues at National Tsing Hua University (NTHU) establish the Center for Sport Science and Technology. So I thought, why not combine the two things that have shaped my entire life? The United States, which has a vision of "all children have the opportunity to be active through sports" and a policy of "sport for all, play for life," is where baseball was born. And, of course, we all know it is where transistors and integrated circuits were invented. Therefore, there may be more people than we know who live in the two worlds simultaneously. I do. I played in the 1971 Little League World Series, and when I mentioned this once, Rob Aitken immediately disclosed that he also played Little League Baseball (LLB). Bill Lowd in the Steering Committee of ITC is also an administrator of LLB. Today, it is becoming clear that the two worlds have more to share than before.

On 21 August, the front page of *USA Today US Ed.* reported the seemingly successful experiment of robot umpires in the Atlantic League as part of its partnership with Major League Baseball (MLB). I believe few people in the semiconductor industry have ever thought about how big the sports industry is, which, in fact, is bigger than the semiconductor industry. In SEMICON Taiwan this year, I helped organize the Advanced Testing Forum, stressing 5G and artificial intelligence (AI)-assisted testing, as requested by member companies. However, people might be intrigued if I tell them that the 5G industries will benefit a lot from sports, which are heavy users of sensors and AI. So, why robot umpires? Because the market might love them. In addition to 5G, the success of AI and the Internet of Things (IoT) in sports also relies on advanced sensor technologies, e.g., microchip Doppler radar, high-speed, high-resolution cameras with video stitching, wearable devices, and RF-ID tags and sensors that monitor athletes and other moving objects. For the huge amount of data generated by all the sensors to be processed online and offline, data analytics backed by AI will be inevitable. Therefore, semiconductors for sports will continue to gain momentum in the future, where the trends are clear—smart venue, immersive media, quantified athlete, next-generation sponsorship, e-sport, and so on.

Given that heterogeneous integration and system-level testing are already hot topics in addition to 5G and AI, as far as semiconductor testing is concerned, the rapidly growing sports industry—as a target market—can play a key role in the future. As hinted by the recent establishment of the popular Sport Zone at the Consumer Electronics Show (CES), and the fact that all major 5G players and cloud/AI companies are rushing to showcase their products and services in the upcoming Tokyo Olympics, we have reason to believe that a growing portion of semiconductors are being shipped to the sports market. So, come join me in stitching the two worlds! ■

Cheng-Wen Wu is a professor and EVP of National Cheng Kung University (NCKU), Tainan, Taiwan.

■ Direct questions and comments about this article to Cheng-Wen Wu, Department of Electrical Engineering, National Tsing Hua University, Hsinchu 30013, Taiwan; cww@ee.nthu.edu.tw

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