

# Do You Believe in Magic?

BY BOB RENNARD, PRESIDENT, LXI CONSORTIUM

The recent Consumer Electronics Show in Las Vegas unveiled by far the biggest display of electronic gadgets imaginable. Enormous video screens, booming stereos, flashy computers, and powerful cell phones emerge from every corner. The scale and variety are unbelievable.

But behind all the flash and glitz are some serious engineering and test challenges. Huge volumes, rising complexity, and brutal cost pressures put particular emphasis on test.

Many engineers designing these consumer products also develop the underlying technologies that fuel LXI. By tapping into the enormous consumer electronics industry, LXI is the beneficiary of thousands of engineers working to make Ethernet faster and more powerful. I have heard there are more engineers working on Ethernet today than in the entire test and measurement industry. That's a lot of leverage.

Today, 1-Gb Ethernet is standard, a tenfold increase in speed from 100-Mb Fast Ethernet just three years ago when we started LXI. And some vendors are working on 10-Gb and 40-Gb PHY chips today.

Several semiconductor manufacturers now supply IEEE 1588 silicon; they are aiming at the larger entertainment and telecom industries, but the new silicon significantly lowers barriers to adoption for timing-enabled test systems. None of this would have occurred without the economic muscle of the consumer electronics industry. By using standard Ethernet, LXI taps into capabilities that never would have been developed for the test and measurement industry.



We are beginning to see engineers tackle tough test problems with LXI capabilities never before available. For example, some new products with IEEE 1588 allow test engineers to tie multiple instruments to a common time base, expanding the number of available channels. There are test systems where synchronized instruments are used in solar array time sequences and others where peer-to-peer communications coupled with time synchronization simplify shutdown sequences.

Other test engineers are working on cross-domain measurements that combine digital and analog instruments to test cellular telephones. Engineers testing jet engines use timestamped event logs to give them unprecedented visibility into system troubleshooting and diagnosis. In a common stimulus-response application, time triggers and peer-to-peer communications reduced communication latency *below* zero by overlapping instrument settling times.

2007 was an important year for LXI. More than 430 products now are certified as LXI compliant from a growing list of vendors, and we have great support from software vendors National Instruments, The Mathworks, and Data Translation. In addition to consortium-sponsored PlugFests at several venues throughout the world, test facilities in the United States and Germany have been authorized to help vendors certify products, and Release 1.2 was approved in October.

A full slate of new activities is lined up for 2008. Attend our next LXI general meeting and PlugFest Feb. 11-13. Discuss test challenges with the engineers behind the LXI specification, learn how LXI can improve your test system cost and performance, and help us define the future of test.