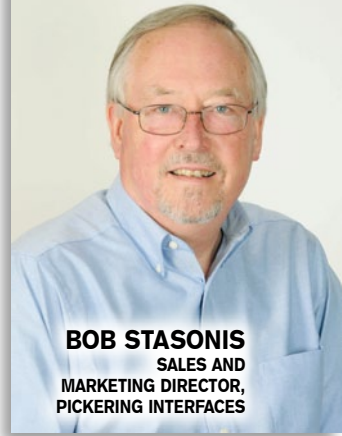


## Modular T&M Instrumentation:

# In the automated test market... speed is usually the most important specification



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To meet the requirements of automated test equipment (ATE), modular instruments play an important role and are poised to change the industry in the future. A modular approach allows customisation of requirements and reduced time-to-market. Abhishek Mutha of EFY got in touch with Bob Stasonis, sales and marketing director of Pickering Interfaces, to discuss the latest demand trends in modular instrumentation industry

### Q. What are the latest trending requirements under modular T&M instrumentation?

A. In the automated test market for consumer goods, speed is usually the most important specification. Parametric testing, in this niche segment, is more or less obsolete because of time and cost. In areas that are more safety-conscious or defence-related, accuracy and repeatability are critical.

Having laid this groundwork for a test strategy, we see that bandwidths are increasing. But more importantly, protocols and modulation schemes are areas where T&M instrumentation needs to generate such signals as well as capture and decrypt these. From NFC to 4G LTE, it is the ability to communicate with the devices quickly and accurately that is important. For switch manufacturers, we are driven to improve switching density and do it with lower insertion losses and better voltage standing wave ratio (VSWR).

### Q. Have there been any latest technological or architectural advancements in PXI and LXI?

A. PCI eXtensions for Instrumentation (PXI) express has just started moving to Gen3 express lanes for greater data bandwidth to and from instrumentation. There is not a lot of instrumentation yet to take advantage of this speed.

National Instruments and Keysight have PXI instruments working in the 20GHz region, an area thought impossible ten years ago. In the last year, LAN based eXtensions for Instrumentation (LXI) specification added HiSLIP protocol, allowing for faster data transfers. With over 2700 instruments available from over 30 vendors, virtually any aspect of test can be addressed by LXI.

### Q. What about PCI; is it still in demand?

A. Believe it or not, good old Peripheral Component Interconnect (PCI), not PCI Express, is seeing resurgence in the test market. Industrial PC manufacturers are still supporting PCI; my contacts at ADlink indicated that PCI will remain available for the foreseeable future. Electronics manufacturers are discovering that there are enough vendors (including Pickering) providing PCI instruments and switching, so that companies can assemble low-cost test systems for many basic functional tests.

### Q. On a global scale, which standard is chosen by military and aerospace for high-reliability applications, PXI, LXI or PCI?

A. The military, in general, picks the form/factor of their instruments and switching, depending on the test strategy. Pickering sells all three forms/factors to military and defence contractors. PXI is overwhelmingly the top standard chosen. In fact, the military were the first adopters of VXI back in the 1990s. So modular test is something that they understand well and so they implement it.

LXI has a strong following as well, especially in applications where general-purpose interface bus instruments were formerly implemented. There are some instruments that cannot yet get packed into the 3U form factor of PXI. LXI also allows for remote access, which has other advantages as well. PCI still has some usage in the military for simple benchtop testing. It is not robust enough to go in the back of a truck for field test support, so customers tend to look for PXI and LXI in field applications.

### Q. How do you see Indian military and aerospace market for modular T&M products?

A. Indian military works closely with its allies and adapts the same or similar programmes, so it makes sense to have a similar test strategy. We see a strong desire to use commercial off-the-shelf solutions as well as modular tests in most applications. The aerospace industry including the space organisation has been a big user of modular instrumentation.

### Q. How do you see the future of modular T&M instrumentation shaping up?

A. Modular instrumentation will always have a place in test for most industries. The modular form factor eliminates front panels, which in an automated test environment is somewhat redundant. This also helps create a more compact test system footprint, which is important in almost every application.

Finally, for highly-synchronous applications, the ability of modular instruments to easily trigger and synchronise test steps is a must. So whether the form factor is PXI, the newer AXIe or something else not yet defined, count on modular test to be part of many test strategies. ●