The PXI (PCI eXtensions for Instrumentation) architecture is relatively new as far as instrumentation standards go. However, in its short history, market acceptance has been excellent. According to estimates from Prime Data in 2002, the PXI market grew 35% in terms of sales and 55% in terms of new product introductions, when compared to 2001 figures. Granted, the market is small when compared to, for example, GPIB and VXI based instrumentation. But such market figures indicate that this will change over time.

As the president of the PXI Systems Alliance, and working for a vendor of ATE, I have several perspectives that I must support. As the PXISA President, I want to see broad support and acceptance of the PXI architecture. In my marketing role at Teradyne, I recognize that there are many different instrument architectures for several reasons. First, the markets are broad and diverse. Applications will vary depending on whether they are destined for the lab, manufacturing, or a service depot. Budgets will vary by company and product tested. It is definitely the case of one size does not fit all.

PXI is seeing acceptance in many areas, including data collection, PCB and system test, academia, monitoring, diagnostics, and portable applications. PXI fits applications that have one or more of the following requirements; small system size/portability, high-speed data transfer (PXI’s 132 MB/s transfer rates is many times faster than either VXI or GPIB instrumentation), coherent testing requirements, portability, and system footprint/instrument density.

GPIB instruments have a long successful history and will continue to be favored in markets where ergonomics are a factor (applications that need a large amount of human interaction can more easily use the larger front panel I/O of these instruments) and specifications demanded by the particular market require more physical real estate than can be easily accommodated in the PXI form/factor.

Likewise, VXI instrumentation is favored for applications that require feature sets that do not presently fit very well in the PXI form/factor. In addition, the legacy of instrumentation available in the VXI form/factor, as well as GPIB, means that there will be times when the appropriate instrumentation is not yet available in PXI.

In order to better serve the markets, hybrid systems are often an option, where the best of all architectures are utilized. Bus adapters allow a PXI chassis to work with GPIB-based instruments as well as a VXI chassis. Basically, a developer of a functional test system can develop a system around a test specification and match the best instruments and form/factors in terms of price, specifications, and system footprint to the application.

Now, will this hybrid situation last forever? Probably not, when you consider how fast technology moves forward, in terms of bandwidth and size. However, I can see a relative co-existence of all three architectures for a very long time.

In conclusion, PXI is becoming broader in it’s capabilities and subsequent expansion of the markets and applications it can support. But it is important to makes sure that the architecture fits the application.