

## AXIe Innovation Enhances Test System Security

Test system security is a unique challenge that many Aerospace and Defense (AD) customers face, specifically when the test system is used for classified work. A lot of overhead goes along with ensuring that the test system is secure. The open operating systems found in current test equipment, become a vulnerability point that needs to be considered.

The AXIe platform enables high performance and high channel density solutions, making it a platform of choice for many AD customers. Currently, the basic building blocks of an AXIe test system include the AXIe chassis, the AXIe based cards, and either an external computer for control or an AXIe based controller running Windows (Figure 1).

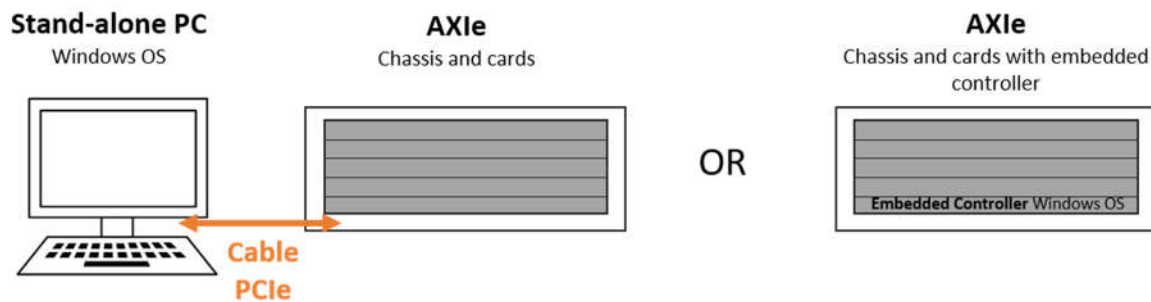


Figure 1: Traditionally AXIe systems have been deployed with Windows OS, either in in the form of a stand-alone PC or embedded AXIe PC

Many times, this type of configuration is acceptable for classified AD applications because only 1 chassis is needed for the entire test system. However, in the case of [single shot physics applications](#), many chassis are required. The overhead associated with managing an additional 5 to 10 hard drives associated with the Windows OS greatly increases the number of security vulnerability points that need to be managed, thus increasing the overall cost of test. Yet, the benefits of AXIe, specifically performance, channel density, and power and cooling requirements, are still desirable. Thus, an innovation in the control method for AXIe test systems was developed to provide these customers with a closed OS option for AXIe.

The AXIe platform provides enough structure to get the benefits of the standard platform, while leaving open areas for customization, making it an ideal platform for developing solutions that truly match customer requirements. It is in this vein that Keysight developed a new control implementation of AXIe based systems. By leveraging the LAN connector on the Embedded System Module (ESM) found in AXIe mainframes, with a closed, instrument-grade, Linux-based controller option, for the first time ever, customers can experience the benefits of modular with the ease of use of benchtop, and the security required by ever-tightening security standards.

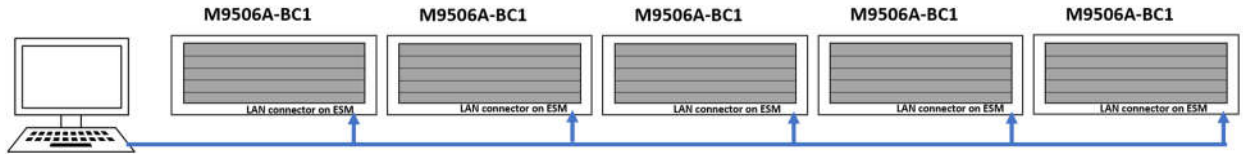


Figure 2: New control implementation for AXIe systems. Use of an instrument grade closed Linux controller to remove open OS from test system.

In addition to the closed, instrument-grade, Linux-based controller, SW was developed that includes a VISA / HiSLIP Server, and SCPI parser to communicate with existing Linux instrument driver for the digitizers. While, the first release of this new option supports the following AXIe digitizers (M9703B, M9709A, M9710A) which already had Linux instrument driver support, supporting future AXIe cards simply requires additional SW to be developed. Specifically, a Linux instrument driver and SCPI parser is needed (Figure 3).

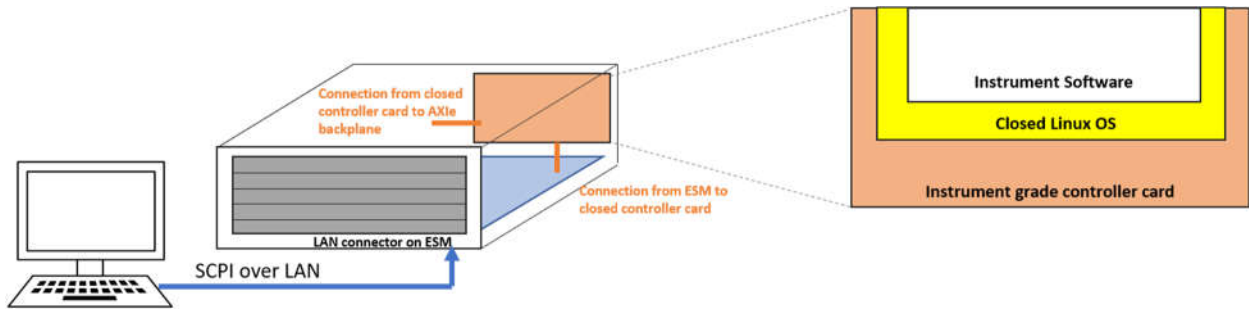


Figure 3: Conceptual block diagram for M9506A-BC1. Support of additional HW simply requires additional software