

Why a Large Military Customer Uses a VXI 4.0 Interface

VXI-1 Rev. 4.0 Slot-0 Interface Reduces Test Time and Provides Backward Compatibility

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All new military programs face the problem that new systems need to maintain backward compatibility with existing test program sets (TPSs). At the same time, they want to implement new features and makes their systems ready for the next 20 years.

Therefore, a large military programm selected the Bustec ProDAQ 3030 VXIbus Slot-0 interface, providing a direct connection from a PC to a VXIbus mainframe using the high-speed PCI Express serial. With the ProDAQ 3030 controller, the manufacturer can deliver a test system capable of testing modern electronics, reducing test time, and maintaining compatibility with existing hardware and software of the previous-generation system.

In this case it is a hybrid test system including several VXI instruments in multiple VXI chassis, where high-speed data transfers between instruments and the PCI Express host PC, as well as very low first-byte latency were top priorities. A PCI Express host PC was selected since this standard is replacing the PCI bus used in previous systems. Significant changes to either software or test procedures traditionally result in high costs and delays, but here the engineers were able to optimize their system for capability and compatibility using this VXIbus Slot-0 interface.

Unified LXI Trigger Bus Delivers Reliable Solution

The engineers chose the PCI Express VXI slot-0 interface to meet the compatibility and performance needs. It has LXI triggering, offering engineers one unified trigger bus for all instruments that gives a highly accurate, synchronized way to link all system instruments together and maintain system reliability.

Hot-plug Capabilities Support Arbitrary Power-Off, –On Cycles

Other PCI Express slot-0 interfaces that were evaluated required test system components to be powered on in a particular order, and would cause the system to crash if portions were powered off. By supporting the PCIe hot-plug standard, the ProDAQ 3030 interface allows test operators to power up the PC and VXI chassis in any order, as well as power cycle the VXI chassis without requiring shutdown of the host PC.

First-to-Market Support for VXI-1 Rev. 4.0 Standard

As the first VXI controller to support the new VXI-1 Rev. 4.0 standard, the ProDAQ 3030 interface fully supports 2eSST transfers, delivering up to 320 MB/s of throughput and latency of less than 1 μ s for single word transfers.

By using the ProDAQ 3030 interface with the ProDAQ 3261 host interface function card to connect multiple VXI chassis to the PCI Express host PC, the customer was able to design a high-performance system that preserved existing test procedures and compatibility with existing TPSs while meeting new testing needs and reducing test time requirements.

For more information, visit the [Bustec ProDAQ 3030 VXI slot-0 interface product page](#).