

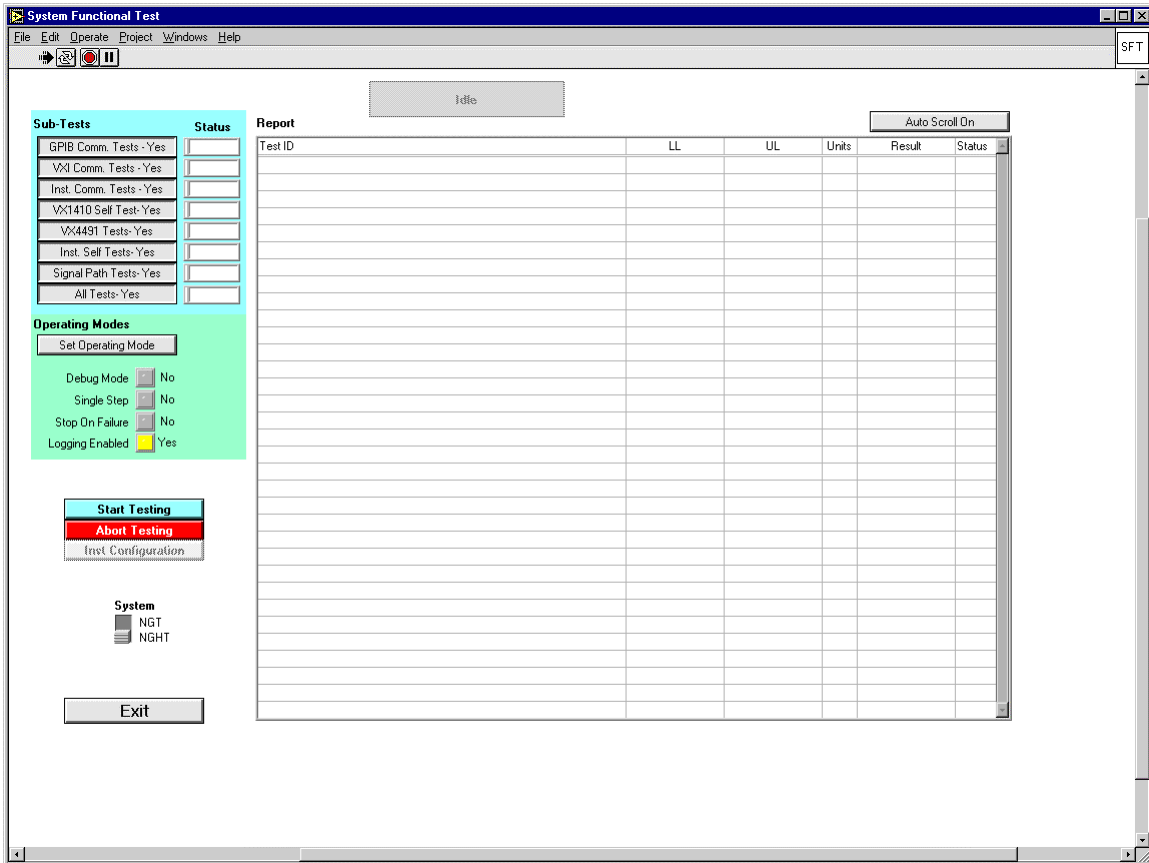
The Problem:

Provide a comprehensive test of a VXI test system to validate instrument functionality and to confirm interconnects between all instruments and a fixture interface.

The Solution:

National Instruments' LabVIEW had been selected as the application program development platform. Of the eight VXI and GPIB instruments installed in the system, only one did not have LabVIEW driver already written. LabVIEW makes the creation of new instrument drivers simple and using VIs (virtual instruments) from a driver library allows the rapid creation of test sequences.

In this case, the communication test (either VXI or GPIB) and instrument self-test VIs that are part of a standard LabVIEW instrument driver library were utilized as is and integrated into a system self test program. A fixture was then designed that would wrap around instrument outputs to other instrument inputs and test sequences written to verify signal path integrity. The user interface was designed for flexible execution options so that an ordinary operator is required to run a full set of tests with data logging but a technician or engineer could log on with a password to perform troubleshooting tasks. Before the software was delivered to the customer, all code underwent unit validation to meet FDA requirements.



Hardware Used:

HP E1420B
HP E1429A
HP E1465A
HP E3631A
Keithley 236
Keithley 2400
NI VXI-MXI-2
NI PCI-MXI-2
NI AT-GPIB/TNT
Tek 73A-308
Tek VX1410
Tek VX4491
Wavetek 1395

Software Used:

LabVIEW
LabVIEW Unit Test and Validation
Procedures Toolkit
LabVIEW Application Builder