

## User Solution

### Telectronics Tests Defibrillators Remotely

At the end of it all, there is the “document.” For Telectronics, an Australia-based leader in the design and manufacture of implantable cardiac defibrillators (ICDs), the “document,” or report, verifies the meticulous test and measurement procedures that are carried out during the design and development of an ICD. The ICD must undergo an extensive test program of stimulation and measurement, in which much of the data to be documented comes from a Tektronix TDS Series oscilloscope screen.

Incorporating the data from the oscilloscope into a report always presented a problem. Telectronics used to photograph the screen, photocopy it, then paste it into the document. This procedure resulted in poor reproduction of documentation and was very expensive. In response to the need for a better system, Ralph Dick, the Telectronics Product Support Group manager, implemented an entirely new test and measurement culture based on technologies from the “Open Measurement Solutions” alliance of National Instruments, Sun Microsystems, and Tektronix.

#### The Task

Operators needed to control the system without additional training and without leaving their desks. Thus, the group sought a turn-key system that would set up test instruments, initiate tasks, collect data in a useful format, and incorporate that data into the reports.

The solution brings together National Instruments GPIB-ENET interface kits, Sun SPARCstations, and Tektronix TDS Series oscilloscopes. The fully operational system can control 32 test benches, each containing up to 16 test instruments. In this multitasking environment, Telectronics engineers use the GPIB-ENET interface kit to connect the workstations to the oscilloscopes in a system that tests ICDs on any test bench. Operators can also control and monitor tests from home via a modem, or from overseas via satellite.

#### The Vital Link

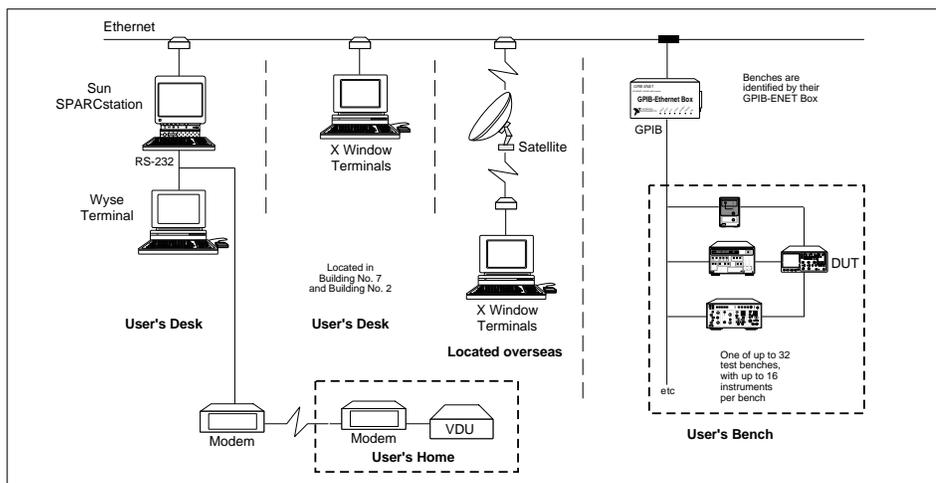
The National Instruments GPIB-ENET interface kit connects Sun SPARCstations to GPIB instruments via an Ethernet network. The kit includes the GPIB-ENET controller and high-level NI-488.2M™ multitasking driver software for SunOS. Telectronics engineers involved in the development and beta testing of the GPIB-ENET use the interface to access GPIB instruments throughout the system. They can now test ICDs without leaving their desks, or review data from anywhere in the world via Ethernet. By using the GPIB-ENET kit, Telectronics engineers successfully developed the vital link between test instrumentation and operators. The GPIB-ENET has proven a very useful tool in a wide range of test and measurement applications in a networking environment.

#### System Power

The Sun SPARCstation runs the SunOS multitasking software. The SPARCstation, when connected to the rest of the system through an Ethernet local area network, gives operators the required number-crunching power and easy access to control the various tests and the results they obtain. The TDS Series oscilloscope is easy to operate and employs the sophistication of digitizing technology. Telectronics operators can allocate part of the instrument menu to user-definable functions, selecting functions such as “Oscilloscope screen dump to file and printer,” “Generate a tri-wave,” and “Test set up.” In this arrangement, the oscilloscope not only makes the measurements, but also sets up the other instrumentation involved, such as the various function generators. All this is implemented via the GPIB-ENET interface kit under command from a workstation or terminal.

#### The Future

Telectronics is assessing the impact of the system on product development and verification – the system has already reduced the time needed to set up tests and procedures. In addition to saving time and money, operators have more confidence in the quality and integrity of the end product, the all important design document. The system’s application software programs were written in C by Product Support Group staff – however, the group plans to replace the system C code with the LabVIEW® graphical programming instrumentation software. It has been an exciting experience for Telectronics to participate in the development and beta testing of a new technology, a new culture in test and measurement, and to have had such close cooperation with the three leading companies in the instrumentation field. 🦋



By integrating the GPIB-ENET interface kit into the ICD test and measurement system, Telectronics operators can test ICDs without leaving their desks, or review data from anywhere in the world via Ethernet.



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