

# TILS

*technology insertion into legacy systems*

No matter which way you look at it, the service life of test instruments is invariably far shorter than that of the test systems in which they operate – and the replacement of these instruments becomes an expensive necessity. Re-writing, updating and revalidation of test programs run by these legacy test systems jeopardises the high-value investment of the ATE.

EADS Test & Services has pioneered a technology to counter this, called Technology Insertion into Legacy

Systems, or TILS. This Windows-based PC software intercepts commands sent from the test program which were originally destined for the now-obsolete equipment. The program incorporates specific translators which dynamically convert the 'old' commands to those understood by the new, upgraded instrumentation. This process not only intelligently accommodates timing idiosyncracies, it actually processes instrument responses to replicate those of the originals.



## THE CHALLENGE

*To maintain a service life of 25 years for your military and aerospace test equipment*

## THE PROBLEM

*To replace individually obsolete test instruments without leaving your whole system uselessly incompatible with new units.*

## THE SOLUTION

*Technology Insertion into Legacy Systems, from EADS Test & Services.*



There are three main hardware configurations into which TILS can easily be fitted.

**1** With a traditional rack-and-stack GPIB (bus-based) system, TILS is hosted on a PC which resides directly on the bus. This allows new instrumentation to be added, by including further command translator packages while maintaining existing instrumentation, so ensuring no changes to existing test programs or drivers.

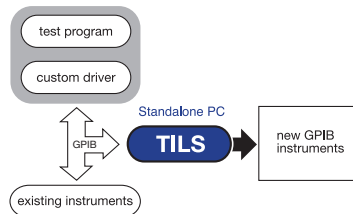
**2** Where GPIB instruments are upgraded to VXI instruments, TILS can reside in a VXI Slot 0 embedded PC running Windows, to intercept and translate the necessary commands and

communicate directly with the new VXI instrumentation. Again, an upgrade path is established such that further VXI instruments can be added to the chassis but existing test programs and drivers need no modification. This configuration could also satisfactorily use PXI instruments as the upgrade path architecture.

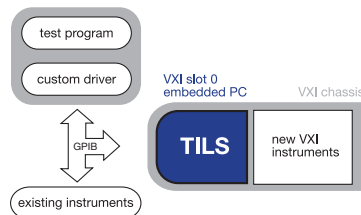
**3** The 'in-controller' TILS solution allows the software suite to co-reside with the Test Executive, assuming the system controller's technical platform is, or can be upgraded to be, compatible. Commands to existing instruments are 'passed through' while interception and translation of commands to the upgraded instrument is undertaken.

The TILS software suite comprises two components – the TILS infrastructure environment, or System Software, and the Command Translator Pair Software. The System Software, which resides on the host controller, is the 'engine' which performs the interception of commands and determines which ones require translation. This environment also interfaces between the TILS host controller and the Command Translator Pair Software. This Command Translator Pair Software is the specific language translator for each instrument's command set, which performs the translation and provides for any timing or synchronisation requirements between the test programs and the instruments. Using the extra features incorporated within the TILS environment and the Command Translator Pair infrastructure – provided that the chosen replacement instruments can adequately perform the same measurement functions as the original – accurate mapping and translation of the required functionality is easily effected. Once TILS is seamlessly installed into the ATE architecture, existing test programs can be used with little or no modification, and a structured path to future instrument upgrade is safeguarded.

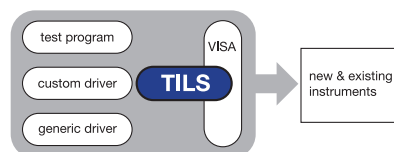
## THE THREE MAIN HARDWARE CONFIGURATIONS



**1** With traditional rack-and-stack systems with separate controller, TILS can be conveniently hosted in a standalone PC with appropriate control bus inputs and outputs.



**2** Replacement instruments don't have to strictly replicate the originals – eg, GPIB bus types could be replaced by VXI/PXI. Hybrid systems can also be used.



**3** Depending on the implementation already in place, TILS can be co-resident with the system controller. This also applies to VXI/PXI systems with Embedded Controllers.

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