



LIRTTm

Legacy Instrumentation Replacement Technology
Overview



LIRTTM

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- LIRTTM is a technology developed by MAR Inc. for purpose of replacing legacy test equipment in established ATE systems without the need to change or replace the existing test application code.
- LIRTTM is a service and software application and that operates under a Real-time Operating System (RTOS), or National Instruments MS-Windows ETX or RTX platforms.
- LIRTTM is a core software technology and service providing instrumentation messaging capture and translation on GPIB and RS-232/422/485 , IP communication buses.
- LIRTTM replaces instrumentation communicating on a GPIB, Serial and IP data buses with PXI, VXI, LXI, TCP/IP, CompaqPCI, and PCI-Express bus technologies.



LIRTTM

Legacy Instrumentation Replacement Technology



HP9825 Still Running on HPL

- No Changes to Host Computer
- No Changes to Test Application
- No Software Configuration Management Requirements
- Provides Upgrade Path to New Technologies

Replace all your legacy equipment with one modular chassis running embedded LIRTSM software.



For More Information on how to upgrade your legacy test systems without rewriting your application code
Please contact Alan Konkall at 561-989-0210 or akonkal@marinc.com
www.marinc.com





LIRT™

How It Works

LIRT™ software runs as an embedded application either as a dedicated process or as a shared process under MS-Windows™. The most common use of LIRT™ follows these basic steps:

LIRT™ software manages all aspects of the instrument bus communications and responds to the host computer as if the legacy instrument is still connected.

- LIRT™ monitors and responds appropriately to the address of each legacy instrument being replaced.
- Control messages sent to the legacy instrument are captured and translated to the new instrument.
- The corresponding measurement is executed by the new instrument and translated back to the host system.



LIRT™ Services

LIRT™ is both an application and a service. LIRT™ as a software application automates the process of controlling the replacement hardware and how it responds to the host system.

As a service LIRT™ engineers help select your replacement test hardware, integrate the new instruments into your existing test stand and implement the required translations.

The successful implementation of LIRT™ requires the messaging of the legacy instrumentation be documented. MAR has developed custom tools that allow a LIRT™ engineer to document instrumentation messaging without the need to view the users application source code.



LIRTTM

Services

An essential component of LIRTTM requires legacy instrumentation messages be translated into a process that the replacement instrumentation understands. The resulting measurement or control response is then translated back to the host computer exactly as the legacy instrument would have responded.

The LIRTTM development team is highly skilled and experienced in the test and measurement field. This experience and knowledge is a key component in the successful selection of new test equipment and duplicating the functions of the legacy system. This is often done with improved measurement accuracy with no loss in processing speed.



LIRTTM

Implementation

Replacing legacy test equipment with newer technology does not come without its challenges. Although LIRTTM eases the transition from a software point of view, integrating new hardware produces a different set of challenges.

These are a few of those challenges:

1. Re-cabling to match new hardware.
2. Test requirements to view signals on analyzer and oscilloscopes. *(Typically this is not a feature of the more cost effective modular test equipment).*
3. Tests requiring limited manual control of the test Instrument *(Again not a typical feature of modular test equipment).*
4. Increase costs for hardware configuration management..



LIRT™

Implementation

How does LIRT™ Engineering address these issues?

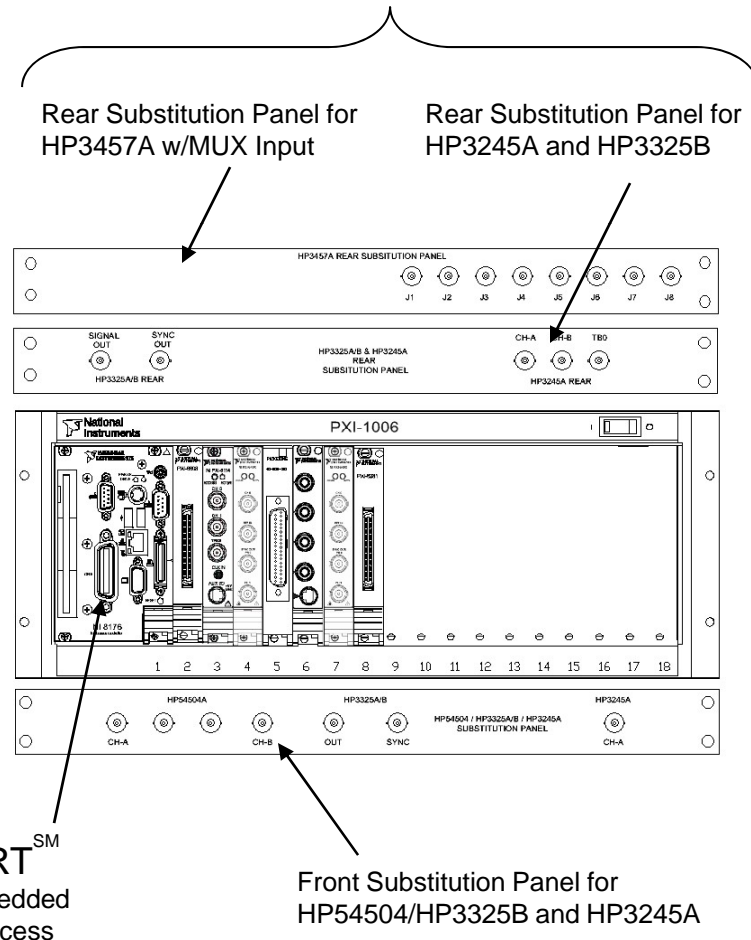
1. LIRT™ engineers are practiced at developing substitution hardware and cable adaptors that interface existing cabling to new hardware.
2. LIRT™ software runs on many hardware platforms; by utilizing integrated LCD display available on some of these platforms, signals acquired from modular instruments can be displayed similarly to the original equipment for visual verification.
3. Utilizing Touch Screen technology, soft-keys can be programmed to replace legacy hardware buttons for applications requiring manual involvement.
4. Utilization of the above techniques can effectively reduce the cost of documenting systems changes due to upgrades by maintaining as much of the systems form, fit and function as possible. Typically only changes in the part lists and systems overview illustrations are required to be documented.



LIRTTM

Typical LIRTTM Implementation

THIS → IS REPLACED WITH → THIS





LIRTTM

Summary

- **LIRTTM** Legacy Instrumentation Replacement Technologies strength is to facilitate upgrading automated test and measurement hardware without modifying the existing test application.
- **LIRTTM** is a Software product and Engineering Service.
- **LIRTTM** primary mission is the plug and play replacement of legacy automated test equipment.
- **LIRTTM** can be configured to provide manual display and control of modular instrumentation with the implementation of an integrated Touch Screen LCD display or external Video Monitor.
- **LIRTTM** will run as an embedded process on our hardware or on any WindowsTM based PC with qualifying hardware.



LIRT™

Contact Information

For additional information about **LIRT™** or to request an engineer contact you regarding solutions to your legacy application please contact:

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