



LXI Consortium – 2010 Report to the Test Industry

Von Campbell, LXI Consortium President

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Topics

- LXI Consortium Business Overview
 - New Members: The inside story
 - Continued Growth
 - Four Test Houses
 - New China Test House

- LXI Industry Report

- New Revision 1.3 of the LXI Standard

- New Products and Applications

- Outlook

Members

- New members reflect the global reach for LXI instruments
- Consortium membership is currently at 50 members
- 28 members have entered the market with LXI compliant products
- New members in 2009 and 2010:

- AAI
- Acery Technologies Co. Ltd.
- OOO "NPP "MERA"
- Good Will Instrument Co., Ltd.
- Automatic Test & Control Inst.
- Giga-tronics Incorporated
- Proft InFocus
- Chroma ATE Inc.



For updates: http://www.lxistandard.org/company_roster/

Elections/Changes



- New LXI Consortium President 2009 – Von Campbell
 - Oversees Agilent's involvement in multiple industry consortia, including LXI, IVI, VXI, PXI Systems Alliance, AXIe

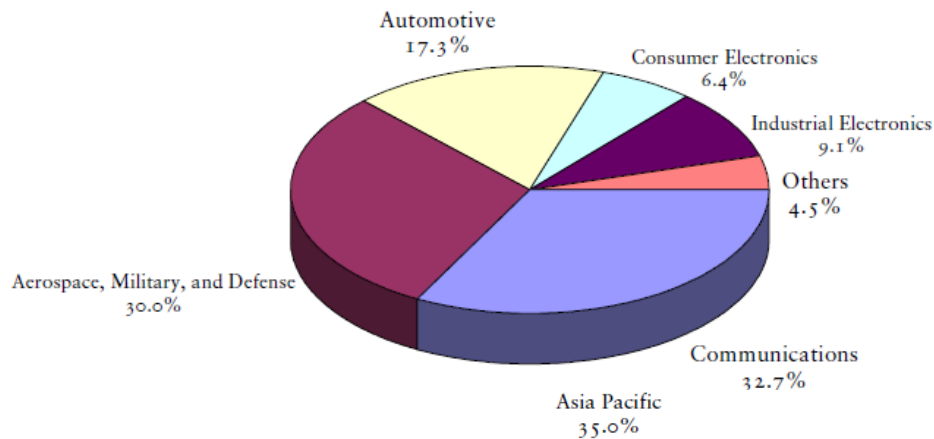
- Compliance Technical Working Group elevated to Board Committee Status
 - Responsible for certifying instruments as LXI-compliant
 - Chaired by Jochen Wolle, Head of Research and Development Software - Spectrum and Network Analyzers, Rohde & Schwarz
 - Reinforces the cornerstone principle of tested interoperability of LXI devices

Testing/Certification Facilities: Welcome China

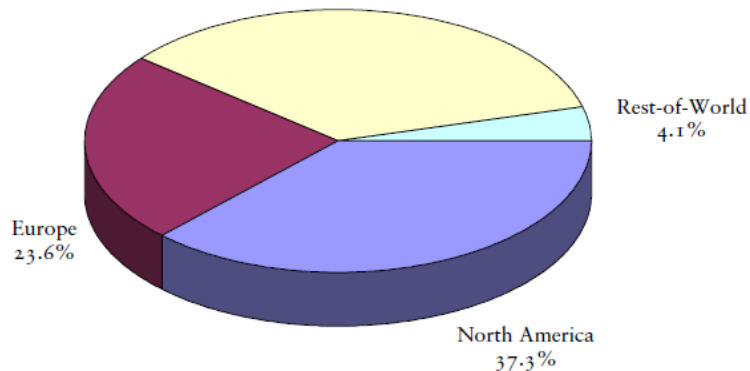


- **New Class C test house in China** (Rigol Technologies Inc.) allows local language compliance: Important for troubleshooting tasks
- The LXI Consortium provides four different test houses for certifying products as LXI-compliant: China, U.S. (via Wheelwright Enterprises and ProftInFocus) and Germany (via Agilent 's LXI Test Lab, Boeblingen, Germany)
- To learn more: How to Get a Product LXI Certified in Five Steps:
http://www.lxistandard.org/press/papers/HowToCertifyLXIProduct_final.pdf

LXI Industry Report: Frost & Sullivan, 2008




LXI Test and Measurement Equipment Market: Percent of Revenues by End User (World), 2007



LXI Test and Measurement Equipment Market: Percent of Revenues by Geographic Region (World), 2007

The world LXI-enabled test and measurement (T&M) equipment market generated \$220.0 million in 2007. This represents an 83.3 percent increase in revenues over 2006.

LXI Rev 1.3 Standard: Advanced Features

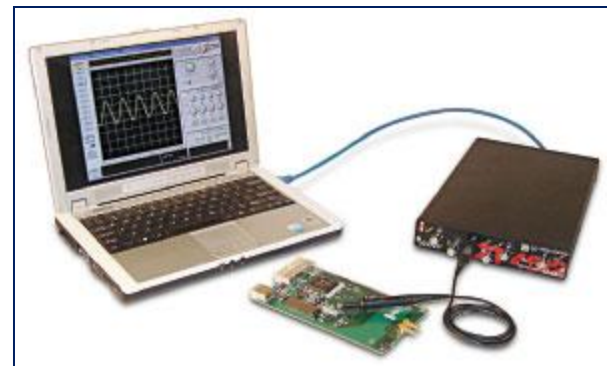
- Implementation of IEEE 1588-2008 
- Adoption of mDNS (Multi-cast Domain Name System) as an additional Discovery Protocol
- Revision 1.3 allows manufacturers to create customized Class C LXI instruments, beyond the standard Class C, tailored to customer needs and based on application requirements
 - Included features will be tested to assure that LXI interoperability will be maintained



LXI Standard: Advanced Features *(continued)*

Trigger Bus – standardized method of connecting LXI devices together in a way that allows them to exchange hardware trigger signals that have low timing uncertainty; particularly valuable for high speed applications such as aerospace

IEEE 1588 Synchronization -- Sub-microsecond synchronization of real-time clocks in a networked distributed measurement system



LXI Standard: Advanced Features *(continued)*

Time Stamped Data -- Samples can be correlated among many instruments so that you could, for example, see how a change in a power supply was reflected in a UUT

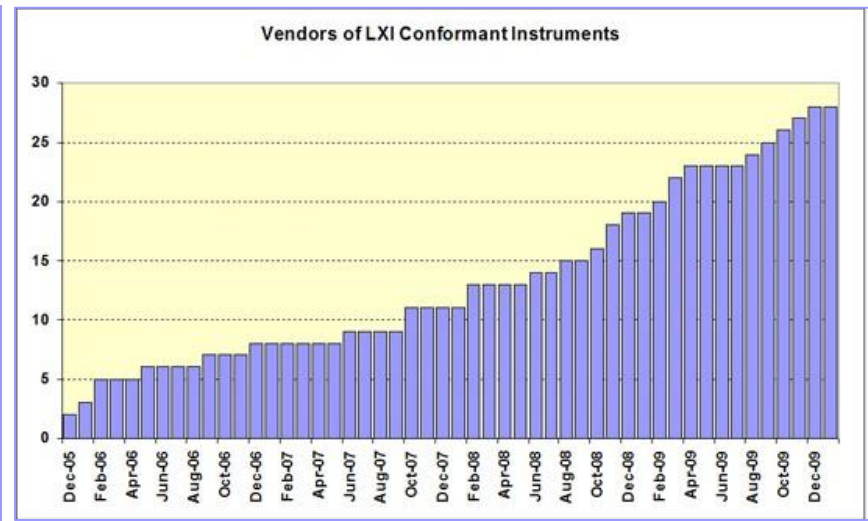
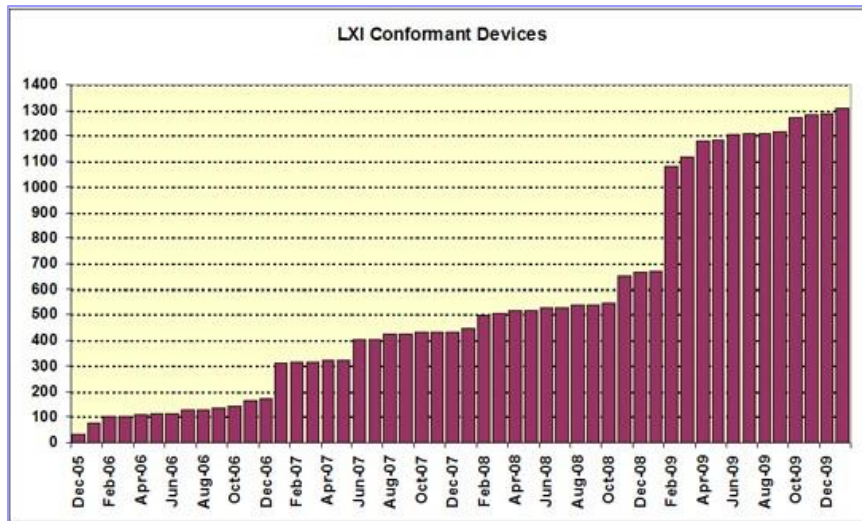
Event Logs -- Ideal for troubleshooting, this feature records actions in an instrument such as trigger received, alarm detected, measurements started, or error occurred

Event Messaging – Alarms or messages sent to other LXI devices



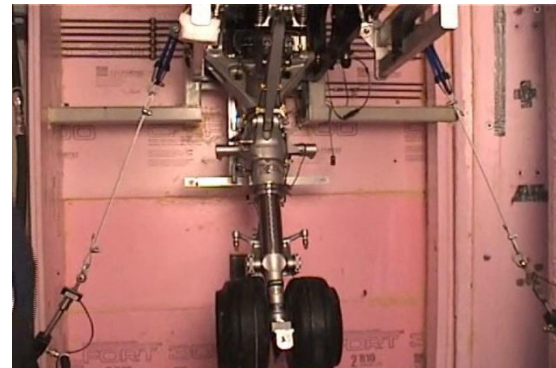
New Products

- Today, 1306 products in 162 product categories are certified as LXI-Compliant, a 51% increase from 12 months ago
- The product line today covers every major product category needed to build a high performance test system, with no holes or gap in instrument capability
- The breadth of support for LXI instrumentation even has grown to include software and connectivity tools



Common Applications Seen by LXI Members

- System Integrators
 - Com Dev, with applications such as Payload Test and Transmit Receive Module Test (Mil/Aero) that require integrated systems with tight timing and switching
 - TestForce – RF Power and Switching applications
- Messier-Dowty – multi-channel , high speed data acquisition application of landing gear testing



Common Applications Seen by LXI Members

- Pickering - Continuity/hi-pot test of cables in aircraft
 - Stimulus/ Measurement unit in tail – LXI matrix in nose – control via Wi-Fi
- Pickering – LXI High Voltage Matrix in Cell Testing in a Lithium Ion Battery Stack for Electric Vehicles



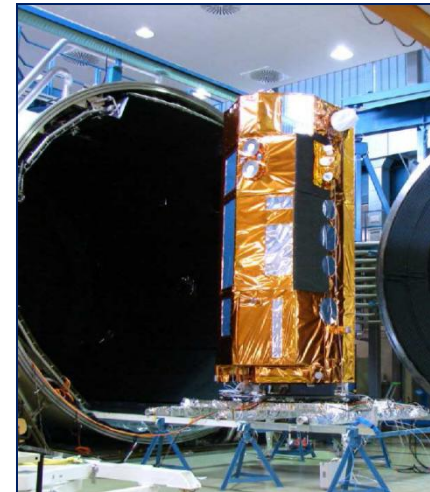
Common Applications Seen by LXI Members

- VTI Instruments – Rotorcraft Testing; LXI increases data throughput in application that requires 240 channels sensors
- VTI Instruments – Pavement Testing to characterize material properties of runway pavement



Common Applications Seen by LXI Members

- Agilent – Remote Antenna Testing Using Class B Instruments
- Keithley – Satellite Environmental Exposure Simulation – 10 instruments and thousands of channels collect data 24x7
- Accelerator Ring Application – uses Class B Level IEEE 1588 to sync system to GPS time, with each of 10 mainframes synced to within 1 msec and timestamp accuracy to within 0.1msec for each of 5000 channels



Roadmap and Outlook

- Preparing for future technologies
 - IPv6
 - GB Ethernet 10 GB Ethernet LAN
 - New LAN Protocol
 - Hi-SLIP
 - Clearer vision for LXI classes

- Ubiquitous LAN

- Continued desire for system interoperability

- Industry expansion

Conclusion

- Bright future
 - Continued growth and expansion

- Visit our web site at www.lxistandard.org

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Thank you!