



**TSEP**

Technical  
Software  
Engineering  
Plazotta

# LXI Reference Design V 1.0

We proudly announce that the testing phase of LXI Reference Design has been finished by the end of 2015. During the year 2015, the completed code was modified and refined, as feedback was given by the members of the LXI Consortium. After this process, the LXI Reference Design was given over to testing where all tests have been passed successfully. The documents for the LXI Reference Design have been modified and completed for the launch of version 1.0. Meanwhile work was started on the LXI Standard 1.5, which is currently in the review phase.

Now, at the beginning of 2016, we are glad to be able to launch the LXI Reference Design Version 1.0. At this point, it is now up to the LXI members to use the LXI Reference Design, we are pretty curious about the upcoming feedback from the LXI members.

## LXI Vendor Forum

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To help LXI members with integrating the LXI Reference Design into the vendor's firmware, the LXI Consortium has established a forum for discussing the basic questions. TSEP monitors and takes care about this forum. If a LXI member has more detailed questions about the LXI Reference Design, a direct support from TSEP is possible, even if it concerns the vendor's firmware.

## TSEP LXI Support

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Now LXI members can begin to integrate the LXI Reference Design into their firmware. We are happy to offer support according to your needs:

- On a consultancy basis we can offer training for vendor developers. This can cover understanding the concepts, configuring the LXI Reference Design, introducing unit tests and giving an overview of the Conformance Test Suite. After that, vendor developers will
- be in charge of their respective projects, with TSEP assistance on demand.
- We can also offer premium support: Vendors may contact TSEP directly in case support is needed for integrating LXI Reference Design into their firmware.
- Alternatively, we can take over the integration of the LXI Reference Design into vendor firmware.

### Who is TSEP?

TSEP is a software and hardware development company, which was founded at 1988 and employs more than 20 staff members with different skills.

TSEP develops complete solutions for measurement devices and test systems.

TSEP had the first experiences with LXI in 2005 implementing the LXI Standard 1.0 for an instrument manufacturer.

TSEP has been working on the LXI Reference Design for the LXI Consortium since 2014.



## LXI Reference Design Benefits

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For migrating to a new software product, there must be some good reasons to do this.

The LXI Reference Design gives you a lot of good reasons to use it:

- The LXI Reference Design is ready to use on Windows and Linux platforms. It is also prepared to run on lower ended devices.
  - The LXI Reference Design is already certificated, so certification of LXI vendors firmware should be simple and without any big surprises.
  - The LXI Reference Design will be adopted to future LXI Standard changes, Operating System Changes or other changes. This reduces the maintenance costs for the LXI support in your firmware dramatically.
  - HiSLIP is included in the LXI Reference Design. LXI members can use this high performance communication channel for their firmware. HiSLIP is a communication method optimized for measurement devices.
  - LAN Events are also part of the LXI Reference design. This extended function offers many new opportunities to the LXI Reference Design users. With this extended function intercommunication between instruments, becomes very easy. Currently only a few measurement instrument uses this feature, but hopefully with the LXI Reference Design it will become a frequently used feature.
  - A small and very fast embedded web server is included in the LXI Reference Design. In addition, an easy mechanism to integrate vendor's own web sites are part of the LXI Reference Design.
- For heavy instruments, the LXI Reference Design also supports one of the big three web servers (Nginx).
  - For vendors that like to use their own web server, the LXI Reference Design offers a standardized interface.
  - The LXI Reference Design is scalable. This means all resources can be controlled and modified by the vendor. This mechanism makes it easy to configure the LXI Reference Design for the vendor hardware.
  - Many vendors use the LXI Reference Design, so problems and errors will be reported from numerous users and will be fixed very quickly. For a limited time, the fixing of errors will done by TSEP. This also reduces the vendors maintenance costs.
  - The LXI Standard is now implemented in more than 2.700 measurement instruments. So adopting the standard will increase the value of your instrument.
  - The LXI Reference Design supports IPv6, so using the LXI Reference design allows your instrument to communicate over the Ethernet via IPv6.
  - The LXI Reference design is designed as a single source code solution. All OS depending API calls are encapsulated in an Operating System Abstraction Layer. This concept makes it simply to use the LXI Reference design on different operating systems.



## LXI Certified Test House

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TSEP is a LXI certified test house. This enables TSEP to test vendor's firmware against the LXI standard. TSEP is doing this already for some LXI members. TSEP offers the following support:

- Continuous Testing of vendor's firmware against the LXI standard to ensure the conformance compliance.
- Helping vendors to make their firmware LXI conformant. This could be done with testing of

early bird versions of the firmware, analyzing problems found during testing phase or helping vendors to solve problems within the firmware.

- TSEP can also provide consulting support for making the vendor's firmware LXI compliant. This means that TSEP implements the complete LXI functionality within the vendor's firmware.

## What is next in the LXI Reference Design?

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During the last Plug Fest in February, new features have been discussed and will be added to the next version of the LXI Reference Design:

- Port the build process to CMake covering Visual Studio, Eclipse and gmake.
- Implement the web server module as a separate shared object.
- Implement the persistent data module as a shared object, too.

- Add network configuration functionality to the firmware interface. This will give vendor's firmware access to network settings or actions like LCI.
- Support Windows 10 IoT Enterprise including Bonjour

During the up-coming Munich Plug Fest in June 2016, it is planned to test and release these features.

## Can we help you?

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If you have any questions about the LXI Reference Design, the support or anything else, please feel free to contact us:

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