The new LXI Standard „1.5 LXI Device Specification 2016"

LXI, i.e. LAN eXtensions for Instrumentation, is an open specification which allows measuring devices and systems to connect with each other via Ethernet (LAN). To define an LXI Standard, a non-profit consortium was founded in 2004. Since then this standard was continuously refined and in addition from 2013 onwards a reference implementation was created. Nowadays more than 50 T&M companies worldwide are represented in this consortium (with Keysight, Pickering and Rohde & Schwarz as strategic members). More than 3500 devices from 41 member companies are LXI certified! On November the 8th, the LXI Consortium published the new standard "1.5 LXI Device Specification 2016". From the technical view, the mandatory support of the VXI-11 protocol has been degraded to an optional support. The VXI-11 protocol has been replaced by the modern implementations of mDNS and HiSLIP, which also support the IPv6 functionalities. VXI-11 is now to be treated as an "Extended Function". Also the mechanical specifications underwent modifications, here old and no more relevant requirements were removed. Additionally the documentation structure was fundamentally revised to easily realise future modifications and adaptations. The monolithic main document was split into several subdocuments. Therefore each extended function, including VXI-11 obtains its own specification document.

Device manufacturers which already support the 1.4 standard and are contemplating on upgrading to 1.5, can do this without any major effort as the functional changes are marginal. Additionally the LXI Consortium has defined a transitional period in which 1.4 conform devices can further be certified.The LXI Reference Design was released simultaneously to the standard and supports in the Version 1.10 the LXI Standard 1.5. In the current version CMake is used as toolchain, which simplifies the process for device manufacturers to switch to their platform. The complete network configuration can happen via the LXI Reference Design, as the necessary interface is provided in this version. The LXI Reference Design Version 1.10 implements the standard "1.5 LXI Device Specification 2016" as well as following "Extended Functions": "LXI IPv6", "LXI HiSLIP", "LXI Event Messaging", "LXI Event Logging". Yet not only the existing functionalities have been improved, it is also being worked on new extensions and improvements. Cybersecurity is talked about all the time. As the LXI Standard includes a web interface, this topic can no longer be unhandled. To determine the requirements and expectations of the members. An "LXI Working Group" was created, which shall gather these in the next weeks. From this, concrete extensions of the standard can be deduced, which will eventually be incorporated into the "LXI Reference Design". Also the rarely encountered „LXI Clock Synchronization" will be revived, with the introduction of the new Intel I21x and I350 network chips. These network chips embody a native support of the IEEE 1588 standard. Currently investigations are being made to what extent these components can be utilised. Maybe a cheap realization of this "Extended Function" can be achieved with these components. The first investigations were by all means positive, so that it might be possible to reveal a pre-version at the plug fest in February 2017.