

# Booth Demonstration Details

DesignCon 2019, January 30-31, 2018

## Keysight Technologies Booth 725

Keysight's technical experts and application engineers will demonstrate the most advanced design and test solutions, developed for solving today's most difficult high-speed digital measurement challenges. Keysight is proud to be the host sponsor of DesignCon 2019.

### DDR5 Tx Design and Test

Keysight will demo a **total solution approach to DDR5** transmitter test. We provide new measurement science for efficient and accurate measurement results that include: automated compliance test for speedy test time, BGA interposer for easy access to signal for testing, and seamless connection to data repository for quick test result analysis and fast decision-making process.

### DDR5 Rx Design and Test

Keysight will demo a total solution approach to DDR5 receiver test. Each new generation of the standard introduces new DDR physical layer test requirements. This is particularly true with DDR 5.0, which introduces **new receiver compliance tests** that were not required with previous generations of the standard. In collaboration with the Joint Electronic Devices Engineering Council (JEDEC) organization that defines DDR specifications, we develop measurement methods that test to precise industry specifications.

### PCIe 5.0 Tx Test

Keysight is the only T&M company on the PCI-SIG board. Keysight will demo our new PCIe 5.0 transmitter test solution. Technologies such as 400G Ethernet are driving I/O interconnect technologies, including PCI Express (PCIe), to 32 GT/s in the 5th generation of that standard. This increase in digital transmission speed and throughput introduces **significant signal integrity challenges**, issues such as connector crosstalk, receiver jitter sensitivity, and overall channel insertion loss, related to transmitter signal quality around the Nyquist frequency at which the PCIe 5.0 standard operates.

## PCIe 5.0 Rx Test

Keysight will demo our PCIe 5.0 receiver test solution that will help you design and validate a robust receiver that can tolerate **significantly attenuated signals at 32 GT/s**. PCIe 5.0 utilizes aggressive equalization techniques that help the receiver restore the quality of the transmitted signal allowing for error-free recovery of the digital information from the PCIe signal. Due to these high data transfer rates, PCIe receivers often receive a heavily degraded signal resulting from the channel's high-frequency loss characteristics, resulting in unacceptable bit error ratios (BERs).

## 110 GHz Oscilloscope

Keysight will demo its Infiniium UXR, the first series of real-time oscilloscopes to offer ultra-high performance acquisition with 10 bits of high-definition resolution. With four channels of simultaneous 13-110 GHz of bandwidth, each concurrently sampling at 256 GSa/s, the Infiniium UXR delivers world-leading performance. Featuring ultra-low noise and high signal fidelity necessary for engineers and scientists to truly see and understand even the fastest phenomena, Infiniium UXR enables you to quickly develop the next generation of technology.

## 400GE Tx Test

Keysight will demo a **total solution approach to 400GE** transmitter test. Next-generation data communication networks will use 4-level pulse amplitude modulation (PAM4), forward error correction (FEC), and equalizing receivers to achieve the increased bandwidth required by emerging technologies such as IoT and 5G. As a result, **engineers need to take a fresh new look at transceiver specifications and testing**. The result is transmitter dispersion and eye closure quaternary (TDECQ). TDECQ is the primary metric to assess PAM4 optical transmitter communication quality.

## 400GE Rx Test

Keysight will demo a total solution approach to 400GE receiver test. **Test procedures for 400G have changed significantly** over the last few years. As data rates increase, serial links no longer run error free. Forward error correction (FEC) is used to correct channel errors in PAM4 links and must be considered in PAM4 receiver (Rx) testing. Although it restores error-free data, certain conditions can overwhelm FEC, resulting in lost data. When FEC fails, you need to quickly debug the issues.

## 400GE Network Validation

Keysight will demo Ixia's AresONE 400GE **ultra-high-density test solution**. Traditional modular chassis/test card solutions cannot provide the port density nor cost-effectiveness required to validate the 32 ports and higher of 400GE we see coming to market. With a new "fixed chassis" form factor, AresONE meets customer requirements for ultra-high-density testing with less rack space, power, and cooling. AresONE is specifically designed to run **IxNetwork**, the industry's most powerful Layer 2/3 protocol emulation test software, at 400, 200, 100, and 50Gbps speeds.

## HDMI 2.1 Design and Test

Keysight will demo an HDMI source/sink solution. High-Definition Multimedia Interface (HDMI) is the digital audio and video interface for consumer electronics such as PCs, tablets, cellphones, video game consoles and audiovisual (AV) receivers. HDMI products must be tested according to a compliance test specification (CTS) defined by the HDMI Forum and verified for compliance and interoperability in authorized test centers (ATC) worldwide. As transmission speeds of the HDMI standard continue to increase, interoperability issues due to signal quality distortions introduce new technical requirements and test challenges.

## PathWave Design & Test Software

**PathWave** is a design and test software platform for agile and connected engineering workflows. It accelerates your product development workflow by connecting every step in your path — from design and simulation, to prototype and test, to manufacturing — connected and integrated.

**Memory Designer** cuts your setup, simulation and measurement time to the minimum. It uses Keysight's gold suite Compliance Apps to make measurements, giving you confidence in the measurement fidelity and the ability to compare simulation to measurement when the prototype is created.

## KeysightCare

KeysightCare offers the industry's first cloud-based customer experience with dedicated, proactive support through a single point of contact for instruments, software, and solutions. We help you improve your time to market and reduce costly unplanned downtime and project delays through proactive engagement, faster response times, faster access to specialized experts, and faster time to resolution.

## Signal Integrity Design and Test

Keysight will demo how a digital designer can develop intuitive insight into the transmission of digital data from the transmitter through the channel interconnects to the receiver. Hyperscale data centers are being developed all over the world, providing both the scale and the resource density needed to handle the massive workloads of big data and IoT. While much of the attention surrounding hyperscale is on its advanced server, storage, and internal networking architectures, it will also require extreme bandwidth over everything copper. Backplanes, line cards, ethernet cables, and even connectors become microwave transmission lines at 400G data rates.

## Power Integrity Design and Test

We will demo software and hardware for designing, measuring, and analyzing power distribution networks. **PIPro Software** provides power integrity analysis of power distribution networks (PDN), including DC IR drop analysis, AC impedance analysis and power plane resonance analysis. We will also be showing the **N7020A Power Rail Probe** and the **N8846A Power Integrity Analysis Application**, which together complement each other and provide a powerful means of measuring and analyzing power integrity

## Next Step

See you at DesignCon 2019!

Keysight will deliver eight complimentary, 40-minute education workshop sessions led by industry experts. [Click here for Keysight Education Forum](#) abstracts and additional details on all eight sessions.