Next-Generation Power Device Analyzer

Keysight Technologies, Inc. has introduced the new PD1550A Advanced Dynamic Power Device Analyzer, a next-generation Double-Pulse Tester (DPT) with enhanced capabilities that enable customers to test entire power modules faster and easier than ever before.

Power modules are used in various applications such as electric vehicles (EV), solar power inverters, trains, home appliances and aircraft due to ease of design, high energy density and reliability.

The new PD1550A expands beyond the PD1500A’s capabilities to offer the first complete integrated solution that tests entire power modules (up to 1360 V, up to 1000 A).

Keysight’s PD1550A delivers an off-the-shelf, turn-key system that easily tests discrete devices and power modules with minimal setup requirements. It is fully certified to worldwide safety regulations and is calibrated and tested as a system, offering customers the following key benefits:

- Delivers repeatable, reliable measurements while simplifying and automating the testing processes.
- Eliminates the need for customers to build, test, certify and maintain an in-house system.
- Provides accurate gate voltage characteristics on high-side device using True Pulse Isolated Probe Technology.
- Ensures accurate high current measurement with high-bandwidth RF compensation.
- Includes interface board with solderless contact and exchangeable gate resistor technologies.
- Minimizes costs and accelerates time to market by reducing design time and number of prototypes needed.

For more information visit, http://www.keysight.com.

High-Resolution Module for 3D Depth Sensing and Vision Systems

Analog Devices, Inc. claims the industry’s first high-resolution, industrial quality, indirect Time-of-Flight (iToF) module for 3D depth sensing and vision systems. Enabling cameras and sensors to perceive 3D space in one megapixel resolution, the new ADTF3175 module offers highly accurate +/-3mm iToF technology available for machine vision applications ranging from industrial automation to logistics, healthcare, and augmented reality.

The ADTF3175 offers designers a scalable, fully engineered, and calibrated depth system that can be integrated into 3D sensing and vision systems, eliminating the need to design specialized optics or address electromechanical integration challenges. This in turn speeds time to market by simplifying the complex sensor design process.

The ADTF3175 features an infrared illumination source with optics, laser diode and driver, and a receiver path with a lens and an optical band-pass filter. The module also includes flash memory for calibration and firmware storage plus power regulators to generate local supply voltages. It comes pre-programmed with several operating modes that are optimized for long and short range.

Find more information at https://www.analog.com/en/products/adtf3175.

Performance and Portability in Mixed Signal Oscilloscope

Tektronix, Inc. has unveiled the 2 Series Mixed Signal Oscilloscope (MSO), reimagining what is possible in test and measurement. The new 2 Series MSO can go seamlessly from the bench to the field and back, enabling workflows previously unimagined on a scope. It is the first portable oscilloscope...
new products continued

to offer benchtop performance and the Tektronix user interface. Weighing less than four pounds and 1.5 inches thin, the 2 Series MSO can fit into a small backpack, delivering unmatched performance and portability.

With the 2 Series MSO, engineers can achieve things not possible on previous oscilloscopes. The easy to use 10.1 inch touchscreen display makes working on the go easier and faster. The built-in capabilities of the optional Arbitrary Function Generator (AFG), pattern generator, voltmeter and frequency counter mean users have versatility built into one instrument—increasing what they can do while reducing the number of instruments to carry or purchase. With up to eight hours of battery power engineers will discover a new level of freedom on the job.

With a variety of integrated options, the 2 Series MSO is equipped for advanced debugging in a single instrument, including:

- Bandwidths from 70 MHz–500 MHz
- Two or four analog channel inputs
- 16 digital channels (available with future software release)
- 2.5 GS/s sample rate
- Optional 50 MHz Arbitrary Function Generator
- Built-in pattern generator, voltmeter, and frequency counter (available with future software release)
- Optional battery provides up to eight hours of power

More information is available at http://www.Tek.com.

Updated Digitizers

Spectrum Instrumentation claims to have the world’s first digitizers to use the full 16 lane PCIe interface (Gen 3) for massive data streaming. The cards can stream acquired data over the bus at 12.8 GB/s, which is a transfer rate nearly twice as fast as any other PCIe digitizer currently on the market. Now Spectrum Instrumentation has released a cost-effective variant, specifically designed for dual-channel applications. The new model boasts the same streaming speed and matches it with synchronous 3.2 GS/s, 12-bit sampling on each channel. This means no data needs to be lost, even when the card is acquiring data with both channels running at their maximum sampling rate. The ultrafast bus allows all the data to be transferred directly to PC memory for storage, or even to Compute Unified Device Architecture (CUDA) based GPUs for processing and analysis.

The new model M5i.3321-x16 is designed to handle a wide variety of signals. The unit’s fast sampling rate and high resolution are supported by fully functional front-end electronics with 1 GHz bandwidth, programmable full-scale ranges from ±200 mV to ±2.5 V and variable offset.

With 12-bit resolution, the M5i.3321-x16 card offers wide dynamic range. Measurements are made with improved precision and better signal-to-noise ratio when compared to those made with more conventional 8-bit test instruments. Importantly, the extra resolution allows users to capture small signals that may ride on larger ones, revealing the fine signal details that are often missed by lower resolution devices.

The capability to stream data directly to a CUDA GPU is possible using the company’s Spectrum’s CUDA Access for Parallel Processing (SCAPP) package, which is available as a low-cost option. SCAPP includes the necessary drivers for CUDA GPU support and allows users to develop their own processing routines. To help getting started, the package includes working examples that can be modified and built upon.

The cards come with all the tools necessary to use them in a PC running either a Windows or Linux operating system. Alternatively, for users who don’t want to write their own code, the company offers SBench 6 Professional.

For more information, please visit http://www.spectrum-instrumentation.com.

3D Printable Dielectric Material

Radix Printable Dielectric (Dk) material is the first UV-curable 3D printing resin designed for RF applications, enabling designers to leverage the design freedom of additive manufacturing for greater performance and flexibility.

Radix Printable Dielectric materials are a ceramic-filled, UV-curable polymer designed for use with photopolymer 3D-printing processes like stereolithography (SLA) and digital light processing (DLP) printing. These materials and printing processes enable the use of high-resolution, scalable 3D-printing for complex RF dielectric components such as gradient index (GRIN) lenses or three-dimensional circuits. The 2.8 Dk printable dielectric is designed to have low loss characteristics through millimeter wave (mmWave) frequencies and low moisture absorption for end-use applications. The materials are also available directly from Radix 3D-printing processing partners.

Features:
- Lowest loss UV-curable material at 24 GHz for 3D printing
Low moisture absorption
- Feature size capability down to 225 um
- Rigid mechanical properties for finely featured parts

Benefits:
- Enables new designs that cannot be made with traditional fabrication processes
- Enables volumetric/3D circuits
- Use of gradient index (GRIN) designs in a one-material system
- Utilizes a scalable, high-resolution 3D-printing process, enabling end-use manufacturing of complex and finely featured dielectric parts

Find more information at http://www.rogerscorp.com.

Software Expands IQ Measurement and Analysis Capabilities of Field Spectrum Analysis Solutions

Anritsu Company introduces the IQ Signal Master MX280005A Vector Signal Analysis software that delivers expanded post processing measurements and analysis of IQ data files captured on Anritsu Field Master Pro™ MS2090A, Remote Spectrum Monitor MS27201A, and Remote Spectrum Monitor MS2710xA spectrum analyzers. Designed for challenging field environments, the software assists government regulators inspect the RF spectrum, security agencies track illegal or nefarious signals, spectrum owners protect their licensed spectrum, and defense electronics companies analyze radar and EW signals.

A comprehensive suite of enhanced functions in the new VSA software allows users to analyze the modulation of captured signals or replay the captured IQ data with enhanced resolution. It includes an IQ file browser with a detailed view of IQ file metadata, as well as an IQ data capture control that allows users to configure the spectrum analyzer quickly and easily for IQ data capture. A basic IQ data viewer that provides a quick and easy method to interpret images of any captured IQ data file to validate that the file contains information of interest is also included in the software.

An optional IQ file format converter enables IQ data captured using an Anritsu spectrum analyzer to be converted to the format required by the Anritsu Vector Signal Generator MG3710E and downloaded for playback to enable simulation of captured signals in a controlled lab environment. The VSA mode of the new MX280005A features the same modulation quality measurements included in the initial release of the software.

With the expanded MX280005A, Anritsu offers a complete end-to-end solution for IQ capture and analysis. It enhances the Field Master Pro MS2090A, and Remote Spectrum Monitors MS27201A and MS2710xA. The MS2090A with continuous frequency coverage from 9 kHz to 54 GHz and a 110 MHz real-time option delivers a displayed average noise level (DANL) of -164 dBm, and Third Order Intercept (TOI) of +20 dBm (typical).

To learn more, visit http://www.anritsu.com.

16 Channel PXI Device Power Supply

The Marvin Test Solutions GX3116e Device Power Supply (DPS) delivers a high density, flexible, isolated semiconductor device power supply solution. Each of the 16 independent, isolated, power supply channels provide four-quadrant source-measure unit (SMU) functionality, making this a solution for many existing and emerging multisite semiconductor test applications.

The GX3116e is a precision four-quadrant, 16 channel Device Power Supply (DPS) capable of forcing and measuring both voltage and current on all 16 channels independently. It incorporates two electrically isolated groups of eight programmable voltage/current source and measurement channels.

Three programmable current ranges are available: 2.56 mA, 25.6 mA and 512 mA; the voltage output range is determined by the current range selection. In low current ranges the DPS can force between -2 V and 10.5 V, and in high current mode (>25.6 mA), the DPS can force between 0 V and 9.5 V. Multiple channels can be ganged together to achieve higher current levels, with a maximum current output of 2 A per bank; additionally, both banks can be ganged together to extend the total available output current to 4 A.

In constant voltage mode, the DPS forces a voltage whose current output is determined by the programmable source/sink current limits. The output voltage can be sensed either locally or remotely utilizing Kelvin connections available on a per channel basis. Kelvin connections provide the best voltage accuracy at the device under test (DUT), ensuring that the DUT receives the required excitation levels independent of cabling and other interconnects.

In constant current mode the DPS forces a current, and the voltage output is limited by programmable high/low voltage limits. Output voltage and current levels are set with 16 bits of resolution, and measurement readback with 24 bits of resolution. Each channel can be protected and disabled when an over current, over voltage or over temperature condition is detected.
The instrument is supplied with the GXSMU software package that includes a virtual instrument panel, and a Windows 32/64-bit DLL driver library and documentation. The virtual panel can be used to interactively program and control the instrument from a window that displays the instrument’s settings and status.

Find more information at http://www.marvintest solutions.com.

**Life Cycle Assessment Solution Helps Companies Determine Environmental Impact**

Dassault Systèmes has announced the launch of “Sustainable Innovation Intelligence,” its life cycle assessment solution that enables companies to minimize the environmental impacts of the products, materials and processes they create and help drive the circular economy. Fully embedded in Dassault Systèmes’ 3DEXPERIENCE platform and covering the entire value chain, the cloud-based solution uniquely integrates the ecoinvent database on the impacts of more than 18,000 industrial and agricultural processes, into virtual design, product development, manufacturing engineering, operations, and logistics.

Many businesses are working to reduce emissions in line with climate science and are aiming to develop more circular business models by 2030 by redesigning their product lines and manufacturing systems. However, most business solutions on the market today are still focused on measuring the footprint of yesterday’s economy, retroactively. To drive disruptive sustainable innovation, companies need to integrate ecodesign principles in the upstream thinking about their future products and processes before there is any environmental impact in the real world.

By combining LCA data with virtual twin technology, “Sustainable Innovation Intelligence” will empower LCA specialists, industrial designers, product engineers and manufacturing engineers to create circular life cycles by setting up sustainability requirements early on and collaboratively driving them throughout the design, product development and manufacturing engineering phases. It integrates supply of materials, design, manufacturing, operations, logistics, sales, marketing, and end-of-life management, providing real-time insights that allow teams to identify problems or improvements virtually before acting on them, and ensure traceability and reliability.

“Sustainable Innovation Intelligence” relies on the life cycle inventory database of the not-for-profit ecoinvent Association, whose datasets measure and provide information on the natural resources withdrawn from the environment, the pollution released into water and soil, the emissions released into air, the products demanded from other processes, and the products, co-products and waste produced in diverse sectors on global and regional levels.

For more information, visit https://www.3ds.com.

**End-of-Line System Tests Automobile Radar**

doSPACE expands its range of Automotive Radar Test Systems (DARTS) and launches a solution for automatic end-of-line testing of automotive radar sensors. The new test solution was developed in cooperation with NOFFZ Technologies GmbH and helps ensure that radar-based driver assistance systems are reliable and precise.

The modern end-of-line test system will be used especially in high-volume production and is based on the compact antenna test range (CATR) method, which uses a parabolic reflector to generate a plane wavefront. This enables the calibration of sensors with a large far-field distance in a particularly compact setup. The test system therefore requires only a small footprint compared to conventional ‘direct far-field’ test systems.

In the extremely low-reflection absorber chamber, the radar sensor is calibrated with the support of the integrated radar target simulator. This is done in a predefined test sequence, during which the radar sensors are rotated around their radiation center in both the horizontal and vertical directions, using high-precision drives.

Find further information on doSPACE please visit http://www.dSpace.com.

**6 GHz USB Vector Network Analyzer**

The Mini-Circuits’ eVNA-63+ is a high performance, software-controlled vector network analyzer (VNA). By moving the complex data processing and calculation required of vector network measurements out of the instrument and into an advanced software package, Mini-Circuits can offer a fully-featured but cost effective VNA for every test bench.

The product ships with Mini-Circuits’ eVNA View software, providing a powerful user interface which will feel familiar to any engineer with experience of VNA measurements. eVNA View also includes a full API with SCPI support, allowing automation of VNA calibrations, measurements, trace displays and data exports from a custom control program.
Full support for the S11, S12, S21, S22 measurements of 2 port devices. Phase and magnitude data can be visualized in rectangular, Smith chart, or polar pilots formats, or exported as a Touchstone s2p data file.

You can extend your measurement capabilities to include TDR (time domain reflectometry), a process for determining distance or time to impedance changes in a transmission line. These changes could include shorts, opens, connectors or other areas where impedance can change. An excellent method for fault finding in PCB assemblies.

Automated power sweep sequence at a fixed frequency can be configured, ideal for measurement of linearity or compression of amplifiers and other 2 port devices. Power accuracy can be calibrated with support for external USB power meters.

The eVNA View software suite incorporates an API which allows custom automation programs to be created for the eVNA. Most common programming environments are supported, including Python, LabVIEW, C# and MatLab. Supports SCPI & Host or Remote Computer Control

Find more information at http://www.minicircuits.com.

Motorized Optical Mounts for Laser Applications

PI offers a compact motorized mirror mount family, for applications where large angles, high stability, and lower dynamics are required. Motorized kinematic mirror mounts provide a means to control the pitch and yaw axes of a mirror, usually to direct or deflect a laser beam. To achieve large angles up to 16 degrees while keeping the dimensions as small as possible, the N-480 series kinematic motorized optical mirror mounts are equipped with long travel, high resolution piezo motors. The miniature motors are capable of 20 nm steps which translates into angular resolution as small as 0.3 μrad. Another advantage of PI’s compact piezo motor actuator concept is the versatility of control—manual or conveniently through software.

Piezo motors are self-locking and provide very high stability, a prerequisite for many kinematic mirror mount applications, such as optical path alignment, where excellent long-term angular stability is required. Piezo motors are available for open-loop and closed-loop control. Closed-loop control provides higher accuracy and better repeatability. For most applications, open-loop actuators are sufficient, especially when an independent signal, such as optical power, can be used to close the loop externally.

Find more information at https://www.pi-usa.us/en.

Robert Goldberg (r.goldberg@ieee.org) has over 35 years’ experience with over 25 years in management of the design and development of hardware and software for a broad range of military electronic products involving digital, RF/Microwave, electro-optical and electromechanical systems. He is retired from ITT Aerospace Communications Division in Clifton, NJ, where he was responsible for Sensor Communication programs utilizing the application of sensor radios developed by ITT as a result of work with DARPA on the Small Unit Operations Situation Awareness System (SUOSAS). Prior to joining ITT, he held positions in systems test and systems engineering with Northrop Grumman in programs related to RF and IR electronic warfare systems. He is a Fellow of the IEEE and is currently chairman of the Fellows Evaluation Committee of the IEEE Instrumentation and Measurement Society.