Product of the Month

LabVIEW 8.20 includes design/test capabilities

This month, on the 20th anniversary of LabVIEW, National Instruments unwrapped a more sophisticated version that promises to take the novel software product to new heights to serve the industry efficiently and effectively for the next 20 years. Created by National Instruments’ co-founder Jeff Kodosky, this tool has undergone constant change and innovation in the last two decades to evolve from a desktop instrument control and data acquisition tool into an integrated design, control and test platform for desktop, industrial, embedded and communications applications. Now, the latest version LabVIEW 8.20 vows to do for design and test what PCs did for desktop computing.

The new LabVIEW 8.20 is an open, integrated software and hardware platform with new communications design, simulation and test capabilities to meet the needs of telecom design and test engineers. To more easily design and maintain large, advanced test systems, the new version introduces object-oriented programming structures and an XML-based reporting standard for test data management.

Another significant improvement is the addition of MathScript, a math-oriented textual programming language generally compatible with the m-file scripts created using MATLAB software. With MathScript, engineers can reuse their existing m-file scripts created using the MATLAB software, or create new scripts with LabVIEW. By doing this, they can mix and match graphical and text-based approaches for generating stimulus signals or performing measurements on complex communications signals.

For communications design and test, the LabVIEW 8.20 platform includes a new modulation toolkit, a flexible software-defined approach to communications system design and test that builds on the intuitive LabVIEW dataflow programming language. Examples included with the modulation toolkit for LabVIEW 8.20 demonstrate orthogonal frequency-division multiplexing (OFDM), a communications technique to increase bandwidth and signal immunity that is being used in the latest IEEE 802.11n Wi-Fi and 4G cellular applications. The toolkit for LabVIEW 8.20 makes it possible to develop models to simulate communications systems and evaluate parameter and design decisions, as well as reuse and integrate this code with RF test equipment to perform signal measurements and bit-error rate tests (BERT) for complete product testing.

“New high-bandwidth buses, such as PCI Express, are giving virtual instrumentation and desktop computers the power to process enormous amounts of complex IF and RF data in communications applications,” said James Truchard, NI president, CEO and co-founder. “With LabVIEW 8.20, engineers can intuitively develop design models and measurement applications through a graphical programming notation that naturally represents the data flow of communications systems.”

Plus, it offers an FPGA-based hardware design and prototyping platform and provides open connectivity for advanced test system development. As a result, it offers more than 5000 instrument drivers. It can import wizards for DLLs and .NET web services. The new FPGA Wizard automates the development of FPGA code for building custom, user-defined measurement devices. Engineers can implement FPGA-based measurement devices on plug-in boards in a standard desktop PC for fast, low-cost system prototyping or in a National Instruments PXI module for rugged, high-performance production test systems. For example, the new IF-RIO (intermediate frequency reconfigurable I/O) device incorporates two IF digitizers, two IF generators and an FPGA that is programmed with LabVIEW on a single PCI board. With IF-RIO, engineers can prototype communications systems in LabVIEW and run them with real-time performance, all using a standard PC.

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