New Products

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of the product description.

Lawrence G. Rubin

Focus on Data Acquisition

Multichannel Acquisition Systems

Acqiris USA has introduced the MAQbox series of compact, multichannel data acquisition systems. The low-power, portable, modular packages can accommodate multiple digitizers, including 8-, 10-, and 12-bit units, and feature an oscilloscope-like graphical user interface (GUI). The series comprises the MAQbox3000, 5000, and 8000 models, which provide up to 8, 16, and 28 high-speed acquisition channels, respectively. The MAQbox software, when linked to a screen or networked PC, offers a multiwaveform, single-screen display. Recently acquired waveforms and saved data can be dragged and dropped into a display window and analyzed or compared with other waveforms. The MAQbox GUI features a vertical auto setup that can automatically adjust the gain and offset of the digitizer. *Acqiris USA, P.O. Box 2203, 234 Cromwell Hill Road, Monroe, NY 10950, http://www.acqiris.com*

See www.pt.ims.ca/7372-131

What is LXI?

LXI, an acronym for LAN eXtensions for Instrumentation, is an instrumentation platform based on LAN (Ethernet) technology and designed to deliver modularity, flexibility, and performance to small- and medium-sized systems. LXI builds on industry protocols, particularly those supported by the IEEE, to provide a standardized method for controlling instruments and devices through a LAN interface while offering a capability similar to or exceeding the IEEE-488 Standard. Instruments that have strictly LAN interfaces are not LXI compliant. At present, the LXI Standard does not support a wireless connection to an LXI device. Many of the leading companies in test and measurement are supporting the LXI Standard, a publicly available version of which is available on the LXI website, *http://www.lxistandard.org*. As of October 2005, 39 companies have joined an LXI consortium, a not-for-profit corporation whose primary purpose is to promote the development and adoption of the LXI Standard.

Analog I/O Modules

Acromag's line of new PMC-AX modules now includes I/O units for specialized signal processing. They perform high-speed, high-resolution A/D and D/A functions under the control of a user-programmable field-programmable gate array (FPGA). Application-specific logic routines can be downloaded into the onboard FPGA, a Xilinx Virtex-II; a variety of

models are available with FPGAs featuring 12 000, 17 000, or 24 000 logic cells. Inputs are sampled and processed by the FPGA without CPU intervention. The board also has 1 MB of dual-ported random-access memory for data storage and 2 MB of flash memory for the FPGA code. A choice of 14-bit A/D converters provides four channels with either 20- or 65-MHz sampling. Two channels of 900-kHz 16-bit D/A are standard on all models. *Acromag Inc, 30765 South Wixom Road, P.O. Box 437, Wixom, MI 48393-7037, http://www.acromag.com*

See www.pt.ims.ca/7372-132

Enhancement to I/O Subsystems

United Electronic Industries has upgraded its line of PowerDNA cubes—compact I/O subsystems that can be distributed via the Ethernet. The models DNA-PPC5 and DNA-PPC8 include a 400-MHz PowerPC processor that can deliver 760 million floating-point instructions per second; the floating-point-execution unit performs most commands in one or two clock cycles. The new models also accept a secure-digital (SD) card that can store many hours of data and thus allow the cube to operate as a standalone data logger for analog, digital, temperature, or strain measurements. The PowerPC cube fully supports internal and external synchronization interfaces, which synchronize data acquisition across multiple cubes. Within the cube, I/O layers are populated with factory-installed modules. There are five layers in the DNA-PPC5 and eight layers in the PPC8. *United Electronic Industries Inc, 611 Neponset Street, Canton, MA 02021, http://www.ueidaq.com*

See www.pt.ims.ca/7372-133

Isolated Signal Conditioners

Dataforth Corp has developed three new input modules for its family of SensorLex 8B isolated analog signal conditioners. The 8B34 isolates, filters, amplifies, and linearizes a single channel of temperature input from two- or three-wire resistance temperature detectors (RTDs) and provides an analog voltage output. The 8B35 performs the same operations but is used for four-wire RTDs to allow higher precision because errors due to lead resistance are greatly reduced. The 8B36 interfaces to potentiometers and slidewires using a two- or three-wire connection. In all three models, excitation currents are small—0.25 mA in the 8B34 and 8B35 and equal to or less than 0.25 mA in the 8B36. Signal filtering in the modules is accomplished with a three-pole filter that provides 70 dB of normal-mode rejection at 60 Hz. *Dataforth Corporation, 3331 East Hemisphere Loop, Tucson, AZ 85706, http://www.dataforth.com*

See www.pt.ims.ca/7372-134

Synchronized Data Acquisition

The DAQ-2500X data acquisition module from Fiberbyte is the initial product that uses the company's synchronous universal serial bus technology, USB-inSync. The new module features four 16-bit-resolution,

simultaneous-sampling analog-input channels. The four discrete A/D converters provide true synchronous acquisition at 100 kilosamples per second per channel with 400 kSa/s continuous data throughput. The DAQ-2500X incorporates programmable digital I/O and triggers. Each USB-inSync device is equipped with a local clock that is accurately phase-locked to that of every other USB-inSync device attached to a given host PC. The DAQ-2500X is completely compatible with other USB devices, but only USB-inSync-enabled units will have multidevice synchronous and deterministic features. *Fiberbyte USA, 599 3rd Street, #301, San Francisco, CA 94107, http://www.fiberbyte.com*

See www.pt.ims.ca/7372-135

Multifunction Analog Input Modules

Data Translation Inc has announced the DT9836 series of analog-input multifunction data-acquisition modules for USB 2.0. There are six or twelve 16-bit analog inputs and two 16-bit analog outputs for waveform generation at 500 kHz per channel. Each input has its own A/D converter to eliminate phase shift between channels, a common problem with a multiplexed architecture in which all inputs share one converter. The analog- and digital-subsystem functions are sampled simultaneously to yield a data throughput of 225 kHz per channel; all subsystems operate synchronously at 36 MHz. The DT9836 includes 16 digital inputs and outputs, two 32-bit counter-timers, three quadrature decoders, and a USB 2.0 interface for transferring data at rates up to 480 Mbits/s. The device provides 500-V isolation. *Data Translation Inc, 100 Locke Drive, Marlboro, MA 01752-1192, http://www.datx.com*

See www.pt.ims.ca/7372-136

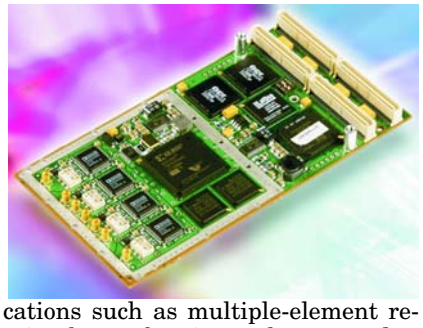
Data Acquisition Devices

National Instruments (NI) has introduced the NI PCIe-6251 and -6259 multifunction data acquisition (DAQ) devices that combine the high-performance PCI Express bus with the advancements of NI's M series DAQs. The PCI Express is a point-to-point serial interconnect with a scalable architecture that provides bandwidth from 2 to 30 times that of traditional PCI. The new DAQ devices offer 16-bit, 1.25 megasamples per second maximum sampling speed, and two 32-bit counter-timers. The NI PCIe-6251 includes 16 analog inputs, two 16-bit analog outputs, and 24 digital I/Os; the 6259 model has 32 analog inputs, four 16-bit analog outputs, and 48 digital I/Os. All examples and applications originally written for PCI-based M series devices are fully compatible with their new PCI Express counterparts. *National Instruments Corporation, 11500 North Mopac Expressway, Austin, TX 78759-3504, http://www.ni.com*

See www.pt.ims.ca/7372-137

A/D Converter Module

ICS has developed the ICS-8554 ADC PMC module for A/D conversion solutions. Designed for intermediate frequency, software-defined radio appli-



cations such as multiple-element receive beam forming, coherent radar, and secure communications, the new device combines digital signal processing and A/D converter technologies. The ICS-8554 is based on the Analog Devices AD6645 high-performance bipolar A/D converter that can sustain its 80-MHz sample rate at temperatures from –40 °C to +85 °C. The module also includes a 3M-gate Xilinx Virtex II field-programmable gate array that allows processing to occur closer to the antenna for higher system throughput. The ICS-8554 features a 70-dB signal-to-noise ratio and an 80-dB spur-free dynamic range. *Interactive Circuits and Systems Ltd, 5430 Canotek Road, Ottawa, Ontario K1J 9G2, Canada, http://www.ics-ltd.com*

See www.pt.ims.ca/7372-138

Digital I/O Module

KineticSystems has released the CP387 digital I/O module. The new device is a single-width, 6U, CompactPCI/PXI unit with a baseboard provision for 128 TTL-level digital I/O channels. Expansion up to 128 additional channels is made possible by four mezzanine-card sites that offer an assortment of options such as isolated inputs and outputs, relay or AC switch outputs, and differential I/O. Data transfers to and from the module are programmable and support 16- and 32-bit data words. The CP387 contains flash memory that can be used to restore a number of basic digital input and output configuration parameters on power-up. Patter recognition and change-of-state operations are supported by both the baseboard and mezzanine plug-in cards. *KineticSystems Company, LLC, 900 North State Street, Lockport, IL 60441, http://www.kscorp.com*

See www.pt.ims.ca/7372-139

New Literature

Pickering Interfaces has published the fourth edition of a book explaining PXI hardware and software. It also includes an overview of the merging LXI and PXI Express standards. The book, available free of charge, provides useful data on test systems with switching and RF test requirements. *Pickering Interfaces Inc, 2900 NW Vine Street, Grants Pass, OR 97526, http://www.pickeringtest.com*

See www.pt.ims.ca/7372-140

The third edition of IOtech's *Signal Conditioning and PC-Based Data Acquisition Handbook* may be purchased from the company. With expanded coverage on new sensor types, the book includes material on A/D conversion, multiplexing, electrical, temperature, and strain measurement, noise reduction and isolation, and many other topics. *IOtech Inc, 25971 Cannon Road, Cleveland, OH 44146, http://www.iotech.com*

See www.pt.ims.ca/7372-141

Fluke Biomedical is distributing its 400-plus-page, full-color, 2005–2006 *Radiation Management Services Product Catalog*. The book serves as a quality assurance reference volume for medical imaging and radiation oncology applications. *Fluke Biomedical, Radiation Management Services, 6045 Cochran Road, Cleveland, OH 44139-3303, http://www.flukebiomedical.com/rms*

See www.pt.ims.ca/7372-142 ■