

Low-power, 8-bit Digitizers Add Options for 2 GS/s Rates



Agilent Technologies introduced two options for its compact, low-power (<15 W), high-speed Acqiris 8-bit PCI digitizer. The U1071A-002 model option is an entirely new version of the PCI digitizer product introduced in 2007. It provides the 8-bit, dual-channel data conversion operation of its original, with up to 2 GS/s sampling rates and a reduced analog bandwidth of 500 MHz. Designed for applications with intense data-acquisition requirements, the memory options provide up to 256 Msample of acquisition memory, or 128 Msample per channel in two-channel mode. This enables the acquisition of up to 130 ms of data at the full 2 GS/s data rate. At the slowest acquisition rate of 100 S/s, the card provides up to four weeks of continuous data acquisition. Two additional memory options are available: 256 MSample and 64 MSample, which are compatible with the original 1 GHz version and the new 500 MHz version of the digitizer. Specific uses of the Agilent U1071A include time-of-flight measurements for ranging and inspection applications such as lidar and ultrasound, as well as production testing of semiconductor components and systems including hard disk drive testing. Designed in a short PCI-card format, the digitizer can be used in all standard PCI bus slots, whether long or short. By combining data-converter ASIC technology with a high level of component integration, the board, without memory options, consumes <15 W. The 1 GHz version of the digitizer incorporates a unique option for simultaneous acquisition and readout (U1071A-SAR). This digital data-handling mode significantly improves measurement throughput. By separating the on-board memory into multiple buffers, data is acquired into one buffer while previously acquired data can be read out through the 32-bit/66 MHz PCI interface. In applications where the total data rate of the acquisition is below the PCI data bandwidth, the U1071A with SAR mode can continuously acquire, missing zero events. According to the company, the U1071A was the first PCI product to feature the proprietary, high-bandwidth auto-synchronization bus system that distributes both the clock and trigger signals

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among all the digitizers that participate in the system. This enables the synchronization of multiple digitizers when more than two data-acquisition channels are required. Any digitizer channel within the system can then be used to accept a trigger for acquisition across the whole system. Software drivers for Windows(tm), Linux, LabViewRT and VxWorks enable the U1071A to easily integrate into existing measurement systems as well as to be exchanged, replaced or upgraded to the latest high-speed Acqiris digitizer with minimal software adjustments. In addition, application code examples are included for MATLAB(r), C++, VisualBasic, LabView and LabWindows.

Agilent Technologies

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