

## Spectrum General Purpose Digitizers now 50% faster

*Maximum sampling rate increased from 80 to 125 MS/s*

**Grosshansdorf, Germany - 14 March 2018.** Spectrum Instrumentation has announced the addition of five new models to its general purpose M2p.59xx series of PCIe 16-bit digitizer cards. The new versions extend the performance range by increasing the maximum sampling rate from 80 MS/s up to 125 MS/s. The increased sampling rate, together with higher overall bandwidth, enables the new cards to capture a wider range of electronic signals. It makes them ideal for use in applications where signals in the DC to 50 MHz frequency range need to be acquired and analyzed with speed and accuracy.

Based on the latest 16-bit analog to digital (ADC) technology, the new M2p-596x series includes models that provide 1, 2, 4 or 8 input channels. Multi-channel models each have their own ADC and signal conditioning circuitry to allow fully synchronous acquisitions on all the inputs. Importantly, the high-resolution 16-bit ADCs deliver sixteen times more resolution than digitizers using older 12-bit technology and 256 times more resolution than what is available from digital scopes that commonly use 8-bit ADCs. The extra resolution translates directly into improved measurement capabilities and superior dynamic performance. It delivers a higher Signal-to-Noise Ratio (SNR), better Spurious Free Dynamic Range (SFDR) and less distortion than 12- or 14-bit products.

Oliver Rovini, CTO at Spectrum, said: "We're delighted to expand our mid-range digitizer lineup with these new 125 MS/s, 16-bit models. They offer a great combination of speed, accuracy and performance, all at a very affordable price. We expect they will be very popular in a diverse number of applications such as Ultrasound, Laser, Lidar, Radar, Power, Automotive, Medical Science and even big Physics experiments."

### Compact and Powerful

The complete product has been packed into a half-length PCIe card, yet it still offers a full set of digitizer features. Each channel has its own programmable input amplifier with ranges between  $\pm 200$  mV and  $\pm 10$  V, programmable input offset for unipolar measurements, programmable input termination of 50  $\Omega$  and 1 M $\Omega$  and an integrated calibration circuit. Models are available with up to 8 single-ended and up to 4 differential channels.

To match nearly every application requirement, the units come with a variety of signal triggering techniques, an impressive on-board memory of 1 GByte and a number of intelligent acquisition modes, such as multiple recording, gated sampling or ABA (the combination of fast and slow continuous acquisitions). At just 167 mm long, these multi-function digitizers fit into much smaller PC systems – making them perfect for compact OEM solutions.

### A Revolution in Signal Processing

Incorporated into the digitizers is a PCIe x4 lane interface that enables lightning fast, data streaming at rates of more than 600 MByte/s – or more than 80 MS/s continuous streaming for 4 channels. The cards also support Spectrum's new SCAPP software option – the Spectrum CUDA Access for Parallel Processing – that opens an easy-to-use yet extremely powerful way to digitize, process and analyze electronic signals. SCAPP allows a CUDA-based Graphical Processing Unit (GPU) to be used directly between any Spectrum digitizer and the PC. The big advantage is that data is passed directly from the digitizer to the GPU, where high-



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speed parallel processing is possible using its multiple (up to 5000) processing cores. Fast data streaming and SCAPP can both improve overall measurement speeds and free up vital PC resources – creating a revolutionary approach to advanced signal processing and imaging.

### **Multi-channel Systems**

For high-density, multi-channel acquisitions, up to 16 digitizer cards can be fully synchronized using Spectrum's proven Star-Hub technology. Star-Hub allows systems to be built with up to 128 channels, all sharing a common clock and trigger in one single chassis. For synchronization with other external equipment, clock and trigger inputs and outputs are also standard. Further flexibility is provided via four individually programmable, front panel connectors that offer additional trigger inputs, status outputs, synchronous digital input lines, asynchronous I/O or a reference clock input for an integrated time stamping unit.

### **Extensive Software Support**

The software design of the new cards is based on Spectrum's own general driver API that was introduced in 2006. Nowadays more than 400 different products share this common driver library allowing easy switching from slow to fast products and combining PCIe, PXIe or Ethernet/LXI products with one common software interface. A complete SDK based on Windows and Linux is included in the delivery. Drivers and examples for nearly every programming language on the market are included leaving the decision of the preferred programming interface to the customer. The current SDK includes C, C++, C#, Delphi, VB.NET, J#, Python, Java, LabVIEW, MATLAB and LabWindows/CVI.

All units are shipped factory tested and include a base version of Spectrum's SBench 6 software for first tests and simple measurement tasks. The Professional license of the software adds full support for all the acquisition modes, a large number of calculations, additional displays, project control and reporting.

"The M2p series products represent the culmination of nearly 30 years of digitizer design and production. As a result, we're proud to give an industry-leading, five year warranty on our products," stated CEO Gisela Hassler. "Furthermore, software and firmware updates are free of charge for the lifetime of the product. Support is done directly by our skilled in-house team of engineers – normally within a couple of hours after receiving the request."

### **About Spectrum Instrumentation**

Founded in 1989 as Spectrum Systementwicklung Microelectronic GmbH and renamed to Spectrum Instrumentation GmbH in 2017, the company is a pioneer in using modular design to create over 500 digitizer and generator products in the most popular industry standards; PCIe, LXI and PXIe. These high-performance PC-based test and measurement designs are used for electronic signal capture, generation and analysis. The company is headquartered in Grosshansdorf, Germany and sells its products worldwide via an extensive sales network offering outstanding support directly from the design engineers. More information about Spectrum can be found at <https://spectrum-instrumentation.com>

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