SPECTRUM Digitizers and AWGs now support NVIDIA Clara™

Huge variety of 64 different PCIe-cards available to tool up the NVIDIA Clara developer PC

Pic 1: NVIDIA Clara

GROSSHANSDORF, GERMANY, April 27, 2022 /EINPresswire.com/ -- Spectrum Instrumentation now offers driver support for the NVIDIA Clara AGX™, a universal computing architecture for the next generation of AI medical instruments. The new drivers enable scientists and developers to choose from 64 different Spectrum Digitizers, Arbitrary Waveform Generators (AWGs) and Digital I/O cards, letting the NVIDIA Clara AGX kit perform high-speed electronic signal acquisition and generation for analog and digital signals. With the big variety of cards to choose from, users can exactly match their electronic signal requirements.

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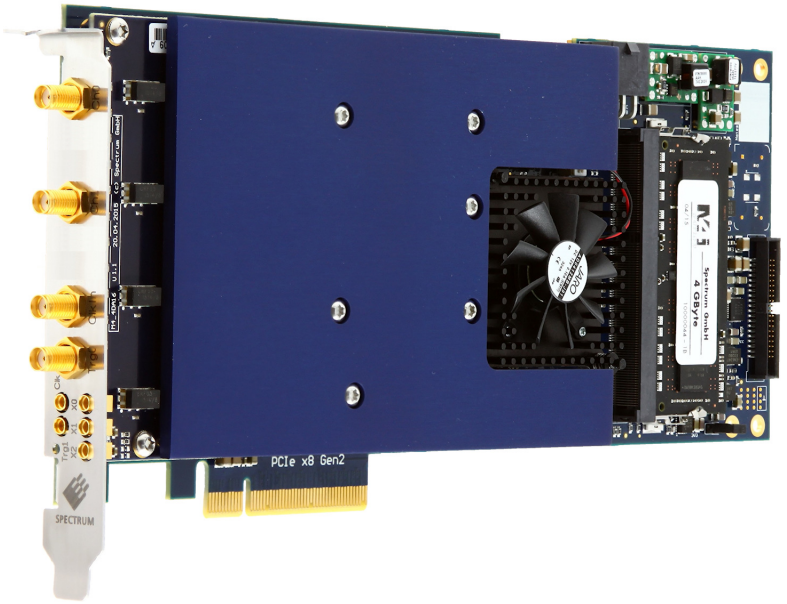
> *Oliver Rovini, Chief Technical Officer at Spectrum*

For example, the digitizer cards can be used to acquire signals in the DC to GHz frequency ranges by sampling them at rates from 5 MS/s up to a maximum of 5 GS/s. Similarly, the AWG cards can be used to produce signals with almost any wave shape and frequency content, from DC to 400 MHz, by outputting samples at speeds from 40 MS/s up to 1.25 GS/s. Individual analog cards offer one, two, four or eight channel capability. Digital I/O cards and Digital Data Acquisition cards allow the acquisition of digital data at rates up to 720 MS/s and can generate digital patterns at up to 125 MS/s. There are different interface options for TTL and LVDS available.

The NVIDIA Clara AGX developer kit provides an easy-to-use platform for developing software-defined, AI-enabled, real-time, point-of-care medical devices. It delivers real-time streaming connectivity and AI inference by combining the flexibility of the NVIDIA® Jetson AGX Xavier™

embedded Arm® system on a chip (SoC), the performance of the integrated NVIDIA RTX™ 6000 GPU, and the 100 GbE connectivity of the NVIDIA ConnectX® SmartNIC, Clara AGX. The kit also includes full-stack GPU-accelerated libraries, SDKs, and reference applications for developers, data scientists, and researchers to create real-time, secure, and scalable solutions.

Pic 2: NVIDIA Clara equipped with two SPECTRUM cards: 4 channel signal generation plus 8 channel signal acquisition with 125 MS/s



Pic 3: AWG-bestseller: The M4i.6631-x8 is used by many quantum scientists to move single atoms, thanks to the low-noise and high-speed signals generated by this PCIe card.

Adding a Spectrum card to the Clara system allows sensor signals to be acquired, generated, stored and processed. Data can be streamed between the cards, the processor and the GPU. In fact, the high-speed parallel processing capabilities of the GPU make it the perfect platform for handling the large volumes of data that can be acquired and generated by the Spectrum products. Spectrum already offers SCAPP (Spectrum's CUDA Access for Parallel Processing) to make GPU-based data processing easily achievable, even at the fastest streaming rates.

Looking at some examples: One or two cards of the M2p-series (5 MS/s to 125 MS/s) can be installed into the kit, as in Pic 2. The AWG signal generator card with 4 channels and the digitizer with 8 channels are running fully synchronized at a speed of 125 MS/s on all channels. Choosing one card of the ultra-fast M4i-series, such as the popular M4i.6631-x8 in Pic 3, turns the kit into an extremely low-noise AWG with signal generation up to 1.25 GS/s output speed on two channels. Another example uses the M4i.2212-x8 digitizer card that is already a core part of the world's first, high-throughput cell sorter created by the University of Tokyo in 2019. It allows signal acquisition up to 1.25 GS/s on four channels, with up to 3.4 GBytes per second streaming and high-speed processing via Spectrum's SCAPP drivers and the internal NVIDIA RTX 6000 GPU of the Clara kit.

The NVIDIA Clara is already being used in a number of biomedical research programs and next generation of medical devices. Applications include imaging, genomics, patient monitoring, and drug discovery. It can be found everywhere the healthcare industry is innovating and accelerating the journey to precision medicine. Now, by installing a Spectrum card, or cards, this powerful platform has an easy way to acquire and generate the fast electronic sensor signals that are often found in this cutting-edge field.

Oliver Rovini, Chief Technical Officer at Spectrum, said: "We were delighted to be approached by NVIDIA, and partner with them to develop drivers for their NVIDIA Clara platform. Spectrum already has many customers using our technology in medical science. Now, together with the NVIDIA Clara, they have an easy way to create very small, low power systems, that offer some of the most advanced data processing tools available today."

Like all products by Spectrum Instrumentation, the 64 different M2p- and M4i-series cards carry a 5-year product warranty, with free software and firmware updates, as well as customer support directly from the engineering team, for the whole lifetime of the product. For more information, please visit:
www.spectrum-instrumentation.com

About Spectrum Instrumentation
Spectrum Instrumentation, founded in 1989, uses a unique modular concept to design and produce a wide range of more than 200 digitizers and generator products as PC-cards (PCIe and PXIe) and stand-alone Ethernet units (LXI). In 30 years, Spectrum has gained customers all around the world, including many A-brand industry-leaders and practically all prestigious universities. The company is headquartered near Hamburg, Germany, known for its 5-year warranty and outstanding support that comes directly from the design engineers. More information about Spectrum can be found at www.spectrum-instrumentation.com

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