Spectrum's versatile Digital I/O card shrinks size and cost

A new economical solution for automated logic analysis and pattern generation

Grosshansdorf, Germany - April 21th, 2021. **The release of a new Digital I/O card from Spectrum Instrumentation offers engineers and scientists a cost-effective way to generate and acquire fast digital signals. The model M2p.7515-x4 is a half-length PCIe card that measures just 168 x 107 mm (6.6 x 4.2 inches) in size. The tiny form factor means that it can be inserted into almost any desktop PC, turning it into a powerful tool for applications such as logic analysis or pattern generation. The card features 32 parallel channels that can be clocked at speeds up to 125 MHz.**

The channels are accessed from two standard Hirose FX2 connectors located on the front panel. When set for digital acquisition, the channels offer 3.3 V and 5 V TTL compatibility, making them suitable for use with a wide range of digital signals. In generation mode, the cards typically deliver output levels of 0.2 V for low states and 2.8 V for high states into high impedance.

Designed for maximum versatility, the cards come with 1 GByte of on-board memory as standard and a variety of different acquisition and replay modes. For example, when generating patterns, the cards can operate in Single-shot, Multiple Replay (Burst), Gated Replay, Sequence and FIFO modes. These modes make it possible to generate almost any signal pattern. It's even possible to load new data to the on-board memory while replaying previously stored signals. Furthermore, the ability of the cards to use FIFO streaming, with a top transfer speed over the PCIe bus of 700 MB/s, enables users to generate constantly changing digital patterns for very long periods of time.

The new Digital I/O card with 32 channels and 125 MS/s for logic analysis or pattern generation

Similarly, when acquiring digital signals, the cards support Single-shot, Multiple Recording, Gated Sampling and FIFO modes. Combining the different modes with the large on-board memory makes it easy to capture and monitor long and complex digital signal patterns. To ensure timing precision, the cards feature a flexible internal clock design with an on-board reference that's accurate to better than 1 ppm. If required, they also support the use of a direct external clock or an external clock reference.

The model M2p.7515-x4 is fully programmable and comes with drivers for Windows and Linux operating systems, as well as programming examples for C++, LabVIEW, MATLAB, Visual Basic.NET, Python and other popular programming languages. The choice lets users create their own test programs in whatever language they're most comfortable with, speeding up development and efficiency. If a turnkey solution is required, Spectrum offers its own control software -- SBench 6 -- that allows signal generation, acquisition, display, processing, storage and reporting. Data can be acquired and stored with SBench 6 and then sent back to the M2p.7515-x4 at a later time for replay. Data sharing with other programs or devices, such as oscilloscopes, is also possible using built in import/export functions for transferring data in Binary, ASCII or Wave formats.

Carsten Gralla, Managing Director at Spectrum Instrumentation, says: "The M2p.7515-x4 is our smallest Digital I/O card to date. It's been designed to deliver a nice balance between price and performance, giving users a cost-effective solution whenever fast digital signals need to be acquired, generated and analysed. It

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also compliments our analogue signal acquisition and generation products, fitting in perfectly with the mid-range M2p.59xx Digitizer-series with 5 to 125 MS/s and 16-bit, plus the AWGs of the M2p.65xx series with 40 to 125 MS/s and 16-bit. These Digitizers and AWGs of the M2p family offer up to 8 channels per card."

For applications that require synchronization between multiple cards, the M2p.7515-x4 also supports Spectrum's unique Star-Hub clock and trigger distribution system. This option allows up to 16 cards of the M2p-family (Digitizers, AWGs and Digital I/O cards) to all share a common clock and trigger. For example, using Star-Hub together with 16 of the new M2p.7515-x4 cards could create a single system with 512 fully synchronized Digital I/O channels!

With over 30 years of knowledge in designing and building fast Digitizers, AWGs and Digital I/O products Spectrum offers an industry-leading 5-year warranty for customer's peace of mind. This includes free software and firmware updates for each unit's lifetime. Additionally, customers get support directly from Spectrum's hardware and software engineers. The M2p.7515-x4 is available now, with typical delivery being 2-3 weeks after the receipt of a purchase order. Further information can be found on the Spectrum Instrumentation website at www.spectrum-instrumentation.com

The M2p family now consists of 24 digitizer models, 14 AWG variants and the new Digital I/O card. Any 16 cards can be synchronized in a PC using the Star Hub option.

About Spectrum Instrumentation

Spectrum Instrumentation, founded in 1989, uses modular design to create a wide range of 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, and known for its 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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