Wideband Digital Module Enables Real-time Processing in Radar Applications

GE Intelligent Platforms today announced the SPR870A 3U VPX Wideband Digital Receiver/Exciter Module. Building on GE's legacy of industry-leading digital receiver families and extending still further the growing ecosystem of GE 3U VPX solutions, it features Xilinx Virtex-6 FPGA technology to enable its deployment in wideband signal acquisition and conversion applications such as radar ECM (electronic counter measures), pulse intercept and analysis (ELINT) and RF (radio frequency) test applications.

The type of highly demanding, sophisticated ECM applications for which the SPR870A is ideal include spoofing hostile radar – allowing the host to change its perceived characteristics, for example, to confuse enemy intelligence – or for jamming remote control IED (improvised explosive device) signals, enabling bombs to be defused more safely.

"The SPR870A features a combination of capabilities that are, at the present time, unique," said Rob McKeel, President, Military & Aerospace Embedded Computing, GE Intelligent Platforms. "Its performance and wide bandwidth make it far more capable than typical software defined radio platforms, while offering significant flexibility in the breadth of applications it can address. In the hands of our customers, the SPR870A can make a significant contribution to troop safety."

"Legacy systems use carefully tuned analog components to determine key transmitter identification parameters such as instantaneous frequency, and modulation rate," he continued. "The SPR870A allows these parameters to be measured using DSP techniques rather than analog circuits, making them much faster, more accurate and more flexible. Waveforms can now be stored as they are

received, used as raw data to generate false returns, and played back on demand. Anyone who has tried to design or tune a wide band analog frequency discriminator knows how important this is.”

Fully rugged and conduction-cooled, the SPR870A is capable of digitizing analog input signals from below 50MHz to over 1.5GHz, using a dual channel 10-bit ADC (analog to digital converter) and two 12-bit DACs. (digital to analog converters), and (re)creating analog output waveforms over a similar frequency range. In near real time the ADC input pass band is 10 MHz to 3.0 GHz (3dB) to allow for second Nyquist applications. An open source Xilinx Virtex-6 FPGA is provided which, when combined with up to four banks of DDR3 SDRAM, will enable skilled users to create massively parallel processing algorithms. For the most demanding, sophisticated applications a second Virtex-6 FPGA provides a Gen 2 PCI Express® interface to the system controller. Other protocols, such as Serial RapidIO®, can be provided on request.

More information can be found at: www.defense.ge-ip.com/products/3582 [1]

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