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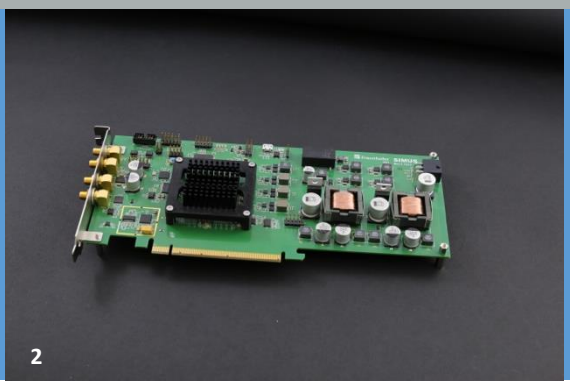
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1 / 2 *Full ultrasound system as plug-in card.*

High Frequency 1-Ch System

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System description

This single-channel ultrasound device is specially developed for high-frequency applications in a range between 20 and 40 MHz. The system is capable of generating tri-state burst signals with adjustable frequency, number of cycles and amplitudes of up to +/- 75 V. In order to optimally excite a narrow-band transducer the transmit frequency can be defined in 100 kHz steps. On the receiving side, the incoming signal is amplified with low noise and digitized with a sampling rate of 480 MSPS and a resolution of 12 bit. The system was designed as a plug-in card for integration into a conventional PC. It can be powered by an ATX supply. The entire signal processing is done GPU-based in the PC. A PCIe interface guarantees the transfer of large amounts of data from the measuring card to the PC within a very short time.

The system properties listed in the table are for orientation only. On request, the device can be adapted to individual requirements.

Standard specifications

Transmitter TX	
Channels:	1
Transmit voltage:	+/- 75 V (adjustable)
Transmit current:	2.5 A max.
Signals:	Tri-state burst signals (programmable)
Resolution:	2 ns (480 MHz)
Signal length:	10 cycles
Receiver RX	
Channels:	1
Noise:	0.75 nV/√Hz
Amplification:	Max. 55 dB 48 dB adjustable
Sampling frequency:	480 MSPS
Resolution:	12 bit
Local memory:	2 MByte
System	
Frequency range:	1 MHz – 40 MHz
Input voltage:	12 V (DC)
Power consumption:	Approx. 10 W
FPGA / SoC:	Virtex-6 XC6VLX315T
Signal processing:	External
Data interface:	PCIe 2.0, 8 Lanes, typ. 12 Gbit/s
Trigger:	Input, Output (SMA)
Transducer interface:	2x SMA (Tx & Rx)
Dimensions:	242 x 112 x 20 mm