Creonic GmbH Introduces Doppler Channel IP Core

Kaiserslautern, Germany, January 14, 2025 – Creonic GmbH, the leading provider of cutting-edge communications IP cores, proudly announces the release of its Doppler Channel IP core. Designed to meet the growing demand for efficient and accurate Doppler shift emulation in Low Earth Orbit (LEO) communication systems, this innovative solution accelerates system performance evaluation while maintaining exceptional accuracy.

The Creonic Doppler Channel IP core generates Doppler shift frequencies by precisely adjusting the phase of signal samples in real-time. The IP core supports orbital heights ranging from 200 to 2000 km and accommodates carrier frequencies in L-band (S-band, X-band and Ka-band on request) making it ideal for modern LEO communication scenarios.

With a throughput of up to 0.62 GSPS at 620 MHz and a latency of just 78.98ns, the Doppler Channel IP core ensures fast and reliable processing. Its design-time configuration and use of the fast inverse square root algorithm enhance accuracy while keeping complexity and power consumption low.

Applications for this IP core include LEO digital communication systems where accurate Doppler channel modeling is required. The hardware-based approach significantly reduces runtime compared to traditional software-based methods, achieving results in a fraction of the time.

Seamless integration is made possible through AXI4-Stream handshaking interfaces, and the core is compatible with ASIC and FPGA technologies, including platforms from AMD Xilinx, Intel Altera and Microchip.

For more information, visit **www.creonic.com** or contact sales@creonic.com.

About Creonic GmbH

Creonic is an ISO 9001:2015 certified provider of ready-for-use IP cores for wired, wireless, fiber, and free-space optical communications.

All relevant digital signal processing algorithms are covered, including, but not limited to, forward error correction, modulation, equalization, and demodulation.

The company offers the richest product portfolio in this field, covering standards like 3GPP 5G, DVB-S2X, DVB-RCS2, CCSDS, and WiFi.

The products are applicable for ASIC and FPGA technologies and comply with the highest requirements with respect to quality and performance.

For more information please visit our website at www.creonic.com.

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