The IEEE 802.15 working group specifies standards targeting the wireless personal area network (WPAN). Task group 3 of the working group focuses on high data rates within WPAN. The task group 3c defined a new millimeter-wave-based alternative physical layer (PHY) for the IEEE 802.15.3-2003 standard. This standard (IEEE 802.15.3c-2009) operates at 60 GHz and offers data rates of multiple Gbit/s for applications such as high speed internet access or streaming content download. The task group adopted LDPC codes for these high data rate modes within the single carrier (SC) mode and the high speed interface (HSI) mode.

The Creonic IEEE 802.15.3c LDPC Decoder IP supports all LDPC codes with a codeword size of 672 bits as defined by the standard.

Benefits

- Low-power, high-throughput, and low-latency design.

- Block-to-block on-the-fly configuration.

- Early stopping criterion for iterative LDPC decoder, saving a considerable amount of energy.

- Configurable amount of LDPC decoding iterations for trading-off throughput and error correction performance.

- Collection of statistic information (number of iterations, decoding success).

- Available for ASIC and FPGAs (Xilinx, Intel).

Related Products

802.11ad (WiGig) LDPC Decoder

WiMedia 1.5 UWB LDPC Decoder

802.11n/ac LDPC Decoder

DVB-RCS2 Turbo Decoder

DVB-S2 LDPC/BCH Encoder and Decoder

Features

- Compliant with IEEE 802.15.3c-2009 standard.

- Suitable for single carrier (SC) mode and high speed interface (HSI) mode.

- Support for all short LDPC codes (672 bits, code rates 1/2, 5/8, 3/4, 7/8).

Applications

- Wireless Personal Area Networks (WPAN)

- Ultra-wideband (UWB)

- Microwave Links

- Optical Links

- TeleCare / TeleHealth

- Further High-throughput Applications

Deliverables

- VHDL source code or synthesized netlist

- HDL simulation models e.g. for Aldec's Riviera-PRO

- VHDL testbench

- bit-accurate Matlab, C or C++ simulation model

- comprehensive documentation

About Creonic

Creonic is an ISO 9001:2015 certified provider of ready-for-use IP cores for several algorithms of communications such as forward error correction (LDPC, Turbo, Polar), modulation, and synchronization. The company offers the richest product portfolio in this field, covering standards like 5G, 4G, DVB-S2X, DVB-RCS2, DOCSIS 3.1, WiFi, WiGig, and UWB. The products are applicable for ASIC and FPGA technology 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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