GEO-Mobile Radio (GMR) is an ETSI standard for satellite phones. The Creonic GMR Decoder IP core supports the PNB2 burst packets that were added in GMR Release 2 (GMPRS-1) and use LDPC codes for the first time. The same burst modes and LDPC codes are also in GMR Release 3 (GMR-3G). The Creonic GMR LDPC decoder IP core is a field-proven solution.

Benefits

- FPGA-proven design, validated with satellite data.
- Soft-decision demapper, LLR-descrambler, block deinterleaver, and LDPC decoder included.
- Low-power and low-complexity design.
- Burst-to-burst on-the-fly configuration.
- Design-time configuration of throughput for optimal resource utilization.
- Faster convergence due to layered LDPC decoder architecture.
- 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 modified information bits, number of iterations, decode success).
- Available for ASIC and FPGAs (Xilinx, Altera).
- The software model includes the corresponding transmitter part.

Features

- Compliant with GMR Release 2, ETSI TS 101 376-5-3 V2.3.1 (2008-07) (GMPRS-1 05.003)
- Compliant with GMR Release 3, ETSI TS 101 376-5-3 V3.1.1 (2009-07) (GMR-3G 45.003)
- Support for return and forward link
- Support for short PNB2 (5,3) bursts and long PNB2 (5,12) bursts
- Support for all PNB2 modulation schemes (Pi/4-QPSK, 16-APSK, 32-APSK)
- Support for all PNB2 shortening, repeating, and puncturing schemes
- Support for all PNB2 LDPC codes (approximate channel coding rates 1/2, 2/3, 4/5, 9/10)

Applications

- Satellite Telephony
- Further Low-throughput Applications

Deliverables

- VHDL source code or synthesized netlist
- HDL simulation models e.g. for Aldec's Riviera-PRO
- VHDL or SystemC testbench
- bit-accurate Matlab, C or C++ simulation model
- comprehensive documentation

Related Products

DVB-S2 LDPC/BCH Encoder and Decoder

DVB-RCS2 Turbo Decoder

DVB-RCS Turbo Decoder

DVB-C2 LDPC/BCH Decoder

WiMedia 1.5 UWB LDPC Decoder

About Creonic

Creonic is an ISO 9001:2008 certified provider of ready-for-use IP cores for several algorithms of communications such as forward error correction (LDPC and Turbo coding), synchronization, and MIMO. The company offers the richest product portfolio in this field, covering standards like DVB-S2X, LTE-A, DVB-RCS2, DOCSIS 3.1, CCSDS, 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 www.creonic.com.

Contact

Creonic GmbH	Phone:	+49 631 3435 9880	Twitter:	Creonic_IPCores
Bahnhofstr. 26-28	Fax:	+49 631 3435 9889	Facebook:	Creonic
67655 Kaiserslautern	Web:	www.creonic.com		
Germany	E-mail:	sales@creonic.com		