BoT - A LOW POWER CUSTOMIZABLE FLEXIBLE 10 ISSUE SLOT DSP FOR WIRELESS BASEBAND

HIGHLIGHTS:

- Highly efficient, flexible DSP for wireless baseband processing
- C-programmable
- Commercial compiler support (Target toolsuite)
- Customizable instruction set

KEY FEATURES:

- Templatized model
  - Design time parameters define instance
  - Instructions selectable per Functional Unit (FU) (broadband) wireless supports
  - LTE Cat4 instance available in 28nm
  - Architecture WLAN 802.11n and 11ac ready
  - World-wide digital broadcasting
- High performance operation
  - VLIW design: Instruction Level Parallelism (ILP)
  - Vector units: Data Level Parallelism (DLP)
- 10-issue slot VLIW design includes:
  - 32-bit scalar units
  - 256-bit vector units
- Minimal program memory footprint
  - Instruction compression
  - Optimized instruction format
- C-programmable
  - Commercial compiler and debugger support
  - Based on Target toolsuite
- Ready for implementation in deeply scaled technology
- Fully optimized for 40m and 28nm

A LOW POWER CUSTOMIZABLE FLEXIBLE 10 ISSUE SLOT DSP FOR WIRELESS BASEBAND

Developed to meet and exceed the high throughput and low power consumption requirements of the latest wireless standards, the BoT features an advanced DSP architecture with an instruction set tuned for low power wireless baseband processing.

FLEXIBLE SUPPORT FOR MULTIPLE STANDARDS

The BoT is a flexible, C-programmable DSP core with extended support for wireless baseband processing. Using the BoT DSP in your SoC will give you the possibility to support cellular standards like LTE Cat4 and Cat5, connectivity standards such as WLAN IEEE802.11ac and also others such as DVB. It is the latest generation of imec’s wireless DSP, building on the imec ADRES processor to deliver unprecedented performance and energy efficiency in deeply scaled CMOS (40m-28nm), complemented with a mature compilation and debug tool chain.

EXACTLY FITTING YOUR NEEDS, ALSO BEYOND EXISTING STANDARDS

The scalable architecture allows for flexibility at design time as well as at run time (supporting many algorithms, modes and throughputs). Built using the Target tool suite, the architecture is easy to adapt and extend. Extra and/or custom instructions can be added easily to the core. Compiler, RTL code and SystemC models are automatically regenerated when changes are made to the model or the instruction set.

Imec’s expert team can help you optimizing BoT for your use case for best performance versus power, and reduce your TTM.

MORE INFORMATION:

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Min Li et al., “A C-Programmable Baseband Processor With Inner Modem Implementations For Lte Cat-4/5/7 And Gbps 80mhz 4×4 802.11ac (Invited),” GlobalSIP, Austin, Texas, USA, December 3–5, 2013
KEY SPECIFICATIONS

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IP AVAILABLE FOR LICENSING AND R&D COOPERATION

This technology is available for licensing. A Technology License Agreement (TLA) includes the following:

- 'White box' license on imec technology
- Technology transfer: matlab models, designs, RTL database and software, and documentation
- Support during the transfer phase

The BOT can be customized to your needs through an R&D cooperation.

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