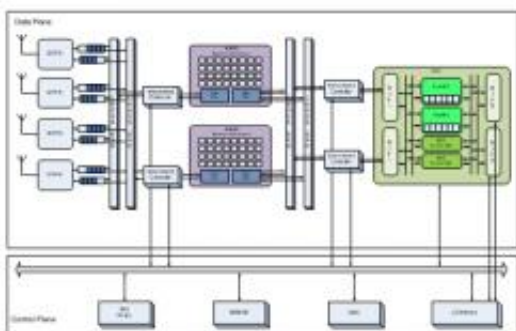


Imec's cognitive baseband radio to support 4G and broadband access to multiple services

June 9 2010



COBRA - imec's reconfigurable baseband platform architecture.

Imec introduces a cognitive baseband radio (COBRA) architecture targeting 4G requirements at up to 1Gbit/s throughput and multiple asynchronous concurrent streams (for instance simultaneous digital broadcasting reception and high-speed internet access). The low-cost, flexible architecture answers a new trend in wireless communication where terminals give their users ubiquitous broadband access to a multitude of services.

COBRA is an interesting architecture for future mobile handsets and all kinds of battery-powered wireless connectivity devices, as well as for base-stations for small cells. The [COBRA](#) architecture can be customized to meet the requirements for many standards (WLAN (IEEE802.11n to .11ac), cellular (LTE to LTE-advanced), and

broadcasting (DVB-T/H to DVB-T2)) and dedicated needs.

COBRA contains imec's energy-efficient high-performance ADRES reconfigurable baseband processor featuring multi-threading and wide SIMD (single instruction, multiple data) capabilities. The associated tools enable C-based compilation, as well as assisted parallelization over multiple cores and/or threads. This speeds up the design leading to shorter time-to-market and more energy-efficient radios. Imec's low-power flexible forward-error correction (FlexFEC) processor template achieving high-speed turbo & LDPC is also included. An LDPC-specific instance for multi-standard broadcasting has also been derived to further optimize power and area. Moreover, COBRA features a novel ASIP (application-specific integrated processor)-based digital front-end enabling flexible filtering synchronization and spectrum sensing. This component also enables hierarchical platform activation, resulting in idle power in the range of 2mW in 65 low-power CMOS technology for the baseband platform.

In its green radio program, imec partners up with industrial players to design the next generation cognitive radios, targeting increased integration and improved power efficiency radios. The COBRA platform, which is being designed together with the industrial partners of imec's green radio program, is now available for licensing. The reconfigurable radio architecture and related cores can be evaluated and tested at imec.

Liesbet Van Der Perre, Program Director [Wireless Communication](#), said: "With every new generation of mobile communication devices we expect more flexibility and more intelligence. Devices that can negotiate and switch between frequencies to optimally use the available spectrum. Devices that switch between standards, choosing the best option depending on location, user environment and user application. Imec's COBRA technology is an answer to that need, offering high flexibility

combined with the energy efficiency needed in mobile devices.”

Source: IMEC

Citation: Imec's cognitive baseband radio to support 4G and broadband access to multiple services (2010, June 9) retrieved 27 April 2024 from <https://phys.org/news/2010-06-imec-cognitive-baseband-radio-4g.html>

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