APPLICATION 1: RECONFIGURABLE RADIOS

In imec’s reconfigurable radio frontend program a cost-, performance- and power-competitive reconfigurable radio transceiver has been developed which is programmable to operate with all current and future cellular, WLAN, WPAN, broadcast and positioning standards in the frequency range between 174MHz and 6GHz. Successive-approximation (SAR) ADCs are a perfect match for this reconfigurable radio front-end. This ADC architecture realizes the resolution and speed requirements at very low power consumption. This is of utmost importance for next-generation handheld and battery-powered devices. The recent high-speed ADC uses an innovative architecture to realize a further impressive improvement in power efficiency and speed, targeting wireless receivers for next-generation high-bandwidth standards such as LTE-advanced and the emerging generation of Wi-Fi (IEEE802.11ac).

RECORD-BREAKING ANALOG TO DIGITAL CONVERTERS

Imec’s ultra low power analog to digital converters (ADC) with record figures of merit target wireless reconfigurable radio and millimeter wave applications.

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RECORD-BREAKING SDR ADCS IN ADVANCED CMOS TECHNOLOGY

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APPLICATION 2: MILLIMETER WAVE APPLICATIONS

A number of recent standards target high data-rate communication at relatively short distances, such as the IEEE802.11ad/aj standard in the unlicensed 60GHz frequency band. Typical applications are cable replacement for high data-rate applications such as video streaming, wireless docking, …

Millimeter wave frequencies are also be used for high-resolution radar systems (e.g. in the unlicensed 79GHz frequency band) enabling small, low-cost and low-power solutions.

All these applications have in common that they use relatively simple modulation schemes and very wide channel bandwidths, resulting in low-resolution and very high-sample-rate requirements for the analog-to-digital converters.

AVAILABLE FOR TRANSFER, PARTNERING FOR NEXT GENERATION SCALDIO

Imec has a broad white-box portfolio available:

- 0-400MS/s up to 13 bit
- 0-3.5GS/s up to 7 bit
- from 90nm to 28nm CMOS

Imec licenses the mature ADC IP to industry in a package including:

- design database
- evaluation board
- documentation (design reports, measurement reports,...)
- training and support (including tutorial & hands-on workshop,...)

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