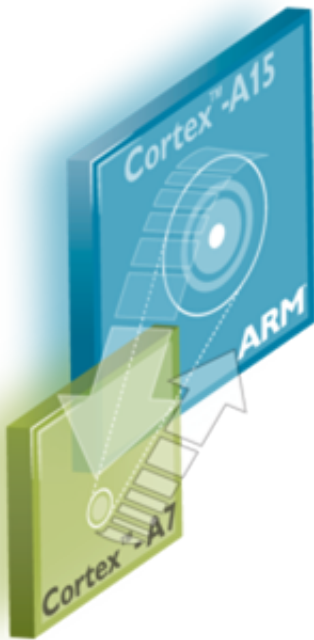# ARM deals efficiency ace with big.LITTLE and Cortex-A7

October 21 2011, by Nancy Owano

(PhysOrg.com) -- Intel has been slow playing catch-up to ARM in the mobile area, but, based on the latest announcement from ARM, Intel will need to work all the harder to upstage a show of innovation in the latest twin rollout from its rival.

ARM's chip designs dominate the smartphone market, but Intel has been working to catch up. Earlier this year, Intel announced that its

investment [arm](#) was putting $26 million in six companies, Borqs, CloudMade, InVisage Technologies, Kaltura, SecureKey Technologies and Vision OSS Solutions, to improve the [user experience](#) in the mobile space. In doing so, Intel showed interest in harnessing technologies to better secure its future in the [mobile ecosystem](#).

This week, though, belonged to ARM. On October 19. ARM announced its Cortex-A7 MPCore processor as being "the most energy-efficient application class processor ARM has ever developed."

The A7 is a new [processor architecture](#) for smartphones; it was developed expressly for energy efficiency. The A7 is one fifth of the size of the Cortex-A8 while offering a five-fold improvement in [energy efficiency](#). It is a smaller chip, using significantly less power, but at the same time offering a performance gain over today's mobile processors.

The real piece of news this week was how the A7 will be used, on its own in under-$100 smartphones in 2013 and also as a companion chip with the powerful A15 for higher-end devices.

ARM has taken on the technique of two processors working as one to deliver power gains as needed and energy savings as needed. ARM is calling the approach of running A7 and A15 its big.LITTLE processor concept.

"One of technology's most significant challenges is how to create a System on Chip (SoC) that meets the conflicting consumer demand for devices with both higher-performance and extended battery life." said ARM this week.

The big.LITTLE processing approach allows devices to seamlessly select the right processor for the right task, based on performance requirements.

With two processors, the right one is used for the right job. The A15 runs for performance tasks such as playing a game, and the A7 is used for lighter tasks such as composing text.

The switch from one processor to the other will translate into a fast-performing device with longer battery life.

ARM already has a number of manufacturers on board for the new processors.

The A7 will appear alongside the A15 in devices when the second generation of the A15 chip ships. The A15 devices are expected in the market in the second half of next year. By 2013 they are expected to be available across a range of mobile devices.

By developing big.LITTLE processing and the Cortex-A7 processor, ARM has addressed the big mobile-computing challenge facing the future of an always-on population accustomed to the digital life on the move and in the home and office. The war between battery power and computing power for mobile handset applications is waged every day by mobile users. ARM's solution addresses the need to extend battery life while using a mobile device for high-performance tasks.

"We were working at big.LITTLE technology in R&D for ten years and are now bleeding it into our product line," said an ARM spokesperson at the launch.

More information: Press release

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Citation: ARM deals efficiency ace with big.LITTLE and Cortex-A7 (2011, October 21)

retrieved 30 April 2024 from
https://phys.org/news/2011-10-arm-efficiency-ace-biglittle-cortex-a7.html