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## ARM Flexes Its Muscles, Sizes Up Intel

By Andy Patrizio  
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ARM, the UK semiconductor vendor known for its embedded chips used in devices like the iPhone, is going after the biggest fish in the CPU pond -- Intel.

The firm today began offering a faster dual-core processors for the netbook, the emerging "smartbook" market, and other devices.

The processors are available as "macros," one step short of a final chip. Licensees can then take the macro and mold it to their needs, so it can be an integrated system on a chip (SoC) design or a stand-alone processor.

The macros are called Cortex-A9 MPCore and built on a 40-nanometer manufacturing process. They will come in two forms: the 800MHz, 0.9-watt low-end processor and the 2GHz, 1.5W high-end part. Both processors will share a special technology to support symmetrical multiprocessing (SMP) and come with up to 8MB of Level 2 cache memory.

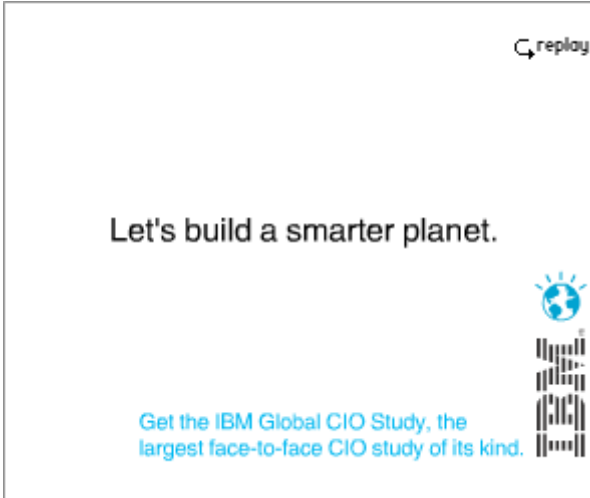
With these chips, ARM wants to pursue various embedded markets, like LCD TVs, settop boxes and handheld devices. It also sees the new processors further opening up the markets for netbooks and smartbooks, an emerging category of device with the guts of a smartphone but the larger screen and keyboard of a netbook.

This puts ARM on a direct collision course with Intel (NASDAQ: INTC), but Nandan Nayampally, director of CPU marketing for ARM, isn't sweating a battle with the chip giant.

"Intel has an established ecosystem, that's a given, but ARM's ecosystem where it's an integrated device is much stronger. We have a few decades of history with customers, including us in SoCs. So that's a big advantage for our customers," he told *InternetNews.com*.

While full Windows is not available for ARM, ARM-based devices will have a decent selection of alternatives from which to choose, including Google Android, Windows CE or Windows Mobile, Ubuntu and other versions of Linux.

The cores are designed to be implemented in various power domains, with the ability to switch on and off various power islands to conserve power. Nayampally said that customers have created designs with up to four cores, and due to the design, the software doesn't see four cores -- it sees one very fast, powerful core.



In addition to targeting higher-performing devices, Nayampally said ARM will be able to pursue devices that require higher horsepower but need more cooling in the form of bigger heat sinks and fans.

The macros will be available in the fourth quarter. Nayampally estimates products powered by the Cortex-A9 MPCore will hit the market in late 2010 or early 2011.

That may seem like a long lag, but given they will probably go into next-generation wireless devices running 4G and WiMax, that's not an problem, according to Tony Massmini, chief of technology for Semico Research.

"That's where these higher-performance netbooks will shine because of the higher bandwidth they can access," Massmini told *InternetNews.com*. "If you are going to do high-bandwidth things like video over wireless, you are going to need a high-performance part to handle all that, which this part does. Now, ARM doesn't do all the graphics, but their licensees do."

Intel may be cleaning house in the netbook space with Atom, but ARM is well equipped to match Intel in that space, he added.

"Anything in wireless space is dominated by ARM," Massmini said. "You have a huge ecosystem out there that supports ARM. If you've got enough volume out there, you will attract enough developers."

"ARM has enough of a track record that the ecosystem and developer community can trust it will come out on time and do what they say it will do."

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