

Apple's chip plans stir industry speculation

April 28 2010, By Steve Johnson

One intriguing mystery surrounding Apple's iPad centers on something few consumers will ever see: the microprocessor that serves as its brain.

The decision by the trend-setting Cupertino, Calif., company to custom-make the [chip](#) itself, after hiring scores of semiconductor specialists in recent years, has piqued considerable interest among industry observers. And among those paying particular attention are executives at Santa Clara, Calif.-based Intel.

After all, Intel supplies the microprocessors for Apple's computers and wouldn't want to lose that high-profile business. Moreover, Apple's chip is based on a design that competes with Intel's for the fast-growing market of small to mid-size consumer devices, ranging from smartphones to tablets such as the [iPad](#). So if Apple prompts other tablet manufacturers to use a similar chip in their products, Intel could be left scrambling.

That's not all Intel may have to worry about. Rumors percolated through the blogosphere last week that Apple may be considering outfitting its Macintosh personal computers with microprocessors from [Advanced Micro Devices](#), instead of from its current supplier, Intel. Some bloggers have even speculated that Apple might customize a PC [microprocessor](#) the way it did the iPad chip.

What all this means for Apple and the [chip industry](#) remains murky. The hyper-secretive company -- which didn't respond to a San Jose Mercury News request for comment -- has said little about its semiconductor

activities. But given its passion for creating unconventional products, some analysts said, no one should be shocked that Apple is experimenting with the chips it uses.

"I don't think it's a big surprise," said Jim McGregor, chief technology strategist for market research firm In-Stat. "Apple is going to do what Apple wants to do."

The iPad chip, dubbed the A4, is believed to incorporate a design by the small United Kingdom company, ARM, which many cell-phone makers license largely because it uses little power and extends the phone's battery life.

Apple put a similar chip in its iPhone and has used that technology since at least 1993, when it stuck an ARM chip in its first hand-held device, the Newton Message Pad.

Meanwhile, Apple uses different chips in its Mac computers. Its PCs relied on a version made by IBM until Apple announced in June 2006 that it was switching to those made by Intel, the world's biggest chipmaker.

It's unclear whether Apple is really considering switching from Intel's processors to ones made by AMD, which already supplies graphics chips for Macs. Like Apple, AMD wouldn't comment on the recent blog speculation.

As for the rumors that Apple may want to design its own microprocessor, that would be risky if the company tried to create one from scratch, according to Mercury Research analyst Dean McCarron. Such chips are so complex and expensive to make, he said, "it ends up simply not being cost effective."

Manufacturers of PCs, cell phones or other gadgets generally don't tinker with the chips they use, some experts noted. But Apple -- which acquired semiconductor expertise by buying PA Semi of Santa Clara two years ago and which reportedly just bought a Texas chip firm -- prides itself on being different.

By customizing the A4, which Samsung reportedly helped make, Apple can better insure its iPad offers unique features that are hard to copy, analysts say. Moreover, because the iPad's functions are similar to the iPhone's, the experts added, it made sense to use ARM's technology in both gadgets.

In addition to excluding Intel's chips from its two highly popular products, Apple's infatuation with ARM heats up the battle between Intel and other chipmakers using the ARM design. For years, the two sides rarely intruded on each others' turf, with Intel owning the PC market and ARM chipmakers dominating cell phones. But they have begun to clash as Intel has sought to get its chips into smaller gadgets and the ARM camp has pushed into larger devices, such as tablets.

How all this will shake out remains to be seen. But Intel spokesman Bill Calder sounded unconcerned.

While praising the iPad as a "beautiful device," he added, "we're very confident that the Intel architecture is going to fuel broad growth in a wide range of products."

Indeed, Intel's chips already are in a [smartphone](#) by LG Electronics of Dubai, as well as in the JooJoo tablet and a tablet soon-to-be-sold by OpenPeak. Hewlett-Packard's yet-to-be-unveiled Slate tablet also reportedly contains an Intel chip, though HP spokeswoman Marlene Somsak wouldn't comment on that. And in announcing first quarter earnings last week, Intel officials said several tablets with their chips

would be unveiled in June.

Another plus for Intel is that despite a claim by [Apple](#) CEO Steve Jobs that the A4 is "the most advanced chip" his company has ever used, the reaction from others has been reserved.

"While it's been positioned as the next best thing to sliced bread, I think it's far from that," said Northeast Securities analyst Ashok Kumar. "They don't have the silicon-know-how to go toe to toe with Intel."

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