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Intel lost the tablet war -- is the desktop next?

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Intel is losing the multi-billion-dollar tablet war. Tied to Microsoft and its second-rate mobile architecture (currently Windows Phone "Mango" [1]), it's way behind the transformation sweeping the computing world. I'd never count Intel out, but the ARM architecture and its related ecosystem are ideally positioned to win a major share of the desktop of tomorrow.

The latest sign of Intel's woes is contained in a forecast by DisplaySearch [2], a research firm focused on displays and related supply chains. The company foresees tablet sales of approximately 325 million in 2017, up from about 50 million this year. That's significantly lower than forecasts by groups like Gartner, perhaps due to counting methodology. However, the really interesting point is this: Only about 17 million, or a bit more than 5 percent of those tablets, will be powered by Intel x86 CPUs.

[Intel is betting on its planned revamped Core i5 chips in 2013 [3] and the success of Windows 8 [4] to reverse ARM's momentum. | Compare the security and management capabilities of iOS, Windows Phone 7, Android, and more [5] in InfoWorld's Mobile Management Deep Dive PDF report.]

"Unlike notebook and netbook PCs, where consumers have chosen products based on the processor or PC vendor, consumers of new mobile devices care more about what they can do with the devices, which is associated more with the device applications and services," says Jim McGregor, chief technology strategist for research firm In-Stat and a co-author of the report.

Exactly. The days when anyone really cared about the battle between Intel and AMD are long over. People want their devices to help them work or play, and increasingly that's a function of a mobile device. Neither McGregor nor anyone else is saying that the desktop is disappearing. It's not. But it is being redefined.

The post-PC future has already begun, using ARM chips

Several of my colleagues at InfoWorld have posited a future in which the desktop or laptop computer becomes specialized [6], taking the same place in the personal computing hierarchy that the workstation used to occupy: a tool for performing calculation-intensive work in which weight, battery life, and heat are nonissues. In the spot now occupied by the laptop will be a mobile device of some kind, probably an improved version of the tablet or even a smartphone [7].

We got a glimpse of that earlier this year, when Motorola Mobility launched the Atrix 4G [6], which uses Nvidia's dual-core Tegra 2, a powerful ARM-based chip. When docked, the Atrix becomes a light desktop PC, complete with an 11.6-inch display and a full keyboard. Sure, the Atrix has many limitations [6], but who would have thought just a couple of years ago that a pocket-sized device would ever have so much power? And then there's the iPad, which has some desktop-level apps such as Keynote and iMovie already available.

Less heat, more developers

Richard Shim, the other author of the DisplaySearch report, makes a great point: As we all know, developers are the lifeblood of any platform. Windows, of course, has the largest developer community in the world. But moving them to Windows Phone will be problematic. "If you're used to developing a $20 (or more) application, why do you want to develop one that sells for 99 cents?" he asks.

By contrast, iOS has thousands of developers who are used to developing cheap apps; to lesser extent, so does Android. What's more, developers want to work with a platform that has critical mass, and it doesn't look like Windows Phone will be there for some time. The DisplaySearch forecast shows a combined iOS/Android share of 92 percent of the tablet market in 2017, which doesn't leave much for Windows. You'll notice that the Windows share is a bit bigger than the x86 share I mentioned above. That's because Microsoft will support ARM in Windows 8 [8], but the expectation is that ARM-based tabets won't account for many Windows 8 devices because the ARM versions won't be able to run traditional Windows apps.

Fundamentally, the issue comes down to the nature of the chips themselves. The ARM architecture offers much better performance per watt than does the x86. That difference becomes even more pronounced when you realize that mobile chips are becoming more and more integrated, and the system-on-a-chip (SOC) is where the future lies. "SOCs can power just about anything," says McGregor. "ARMs and its partners are very well positioned. It's the richest ecosystem in the industry," he adds, noting it includes companies like Samsung, Nvidia, Freescale Semiconductor, and Texas Instruments -- oh, and Apple.

ARM has a processor-partitioning technology it calls Big Little. Using that technology, processing tasks can be switched from a lower-performance, but more power-efficient, core to a higher-performance core using an interconnect fabric called CCI-400. ARM demoed that technology in London recently using an unmodified Android OS on its Cortex -A7 and A15 cores. "The mobile OS will not know, does not need to know, which processor is being used for specific tasks," ARM CEO Warren East told ElectronicsWeekly.

That's a huge step that could well raise the ceiling on the kind of tasks a tablet or smartphone could perform. After all, even fairly large and processor-intensive applications

need the CPU to crank at full power only intermittently. If that happens on one core, and the other lower-power core runs the rest of the time, you still have plenty of power left to keep the device ticking.

McGregor points out, correctly I think, that ARM will probably never replace x86 at the high end. And Intel is working hard to develop lower-power Core i5 and Atom chips and SOCs for tablets and even smartphones [9].

But McGregor is skeptical that Intel can reverse the trend: "It's difficult for Intel to move down and for ARM to move up."

Ultimately, if most of our work can get done on a less powerful mobile platform, there's a real likelihood that Intel will be a much smaller presence in our computing life.

I welcome your comments, tips, and suggestions. Post them here (Add a comment [10]) so that all our readers can share them, or reach me at bill.snyder@sbcglobal.net [11]. Follow me on Twitter at BSnyderSF [12].

This article, "Intel lost the tablet war -- is the desktop next? [13]," was originally published by InfoWorld.com [14]. Read more of Bill Snyder's Tech's Bottom Line blog [15] and follow the latest technology business [16] developments at InfoWorld.com. For the latest business technology news, follow InfoWorld.com on Twitter [17].

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