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Mighty Oaks from Little Oak Trails Grow?

Intel has announced Oak Trail, its next iteration of the Atom processor targeted at tablets. In its quest to compete with the current ARM hegemony in smart phones and tablets, Intel is pushing hard to provide a competitive alternative with its own Intel Architecture. Can Intel overcome ARM's dominant position, offer Atom as a viable alternative and win significant market share? Yes, but it will take some time.

Although Atom has been in the market for a couple of years, the real battle between Intel and ARM is just getting started. To this point, Atom has not been competitive with ARM for use in smartphones, and barely so in tablets. And the tablet market, with the exception of Apple's iPad, has been a small opportunity until very recently (with the emergence of a viable Android competitor in Honeycomb). Atom has found success in netbooks over the past couple of years, but that category is really a subset of the notebook market, and not indicative of the growth of the tablet or smartphone categories.

Oak Trail represents the first Atom processor that might give ARM and its diverse ecosystem of chip suppliers some true tablet competition (it's not really targeted at smart phones, which will have to wait for a future Atom chip later this year). So the intense competition will commence later this year and into 2012. Intel claims 35 design wins for Oak Trail which is substantial (but some of which are likely not tablets). We expect to see dozens of new devices come to market in the next 12-18 months. And many will be Atom powered (although not the majority).

By 2015, tablets will be a 150M-200M unit market, and Apple will likely maintain a 35%-45% share. Its unlikely Intel can capture Apple's chip business, given its substantial investment in its own chip designs (built on ARM). That leaves an available market of 100M+ potential devices, primarily running the Android OS, with a mix of RIM's QNX and next generation Windows as well. Clearly this is a rapidly expanding and huge opportunity for processors (and other components like radios, memory, screens, etc.). Given Intel's stated roadmap and its ability to produce chips at a low cost in its own fabs, it could easily capture 20%-30% of this market (not including Apple products) over the next 3-4 years, especially if it became price aggressive. Smartphones will take longer for Intel to have much impact, as it will be 1-2 more generations before Intel has a powerful enough processor at low enough power to compete with current and future ARM processors

Intel certainly has prowess in the design and processing of chips. And although Oak Trail is relatively "older" chip process technology at 45 nm, the next version due later this year (Cedar Trail) will be implemented in 32 nm, and a 22 nm chip is looming for next year. This rapid progression will leave many ARM suppliers scrambling to keep up with the process wars Intel is initiating (much as it has done in the PC processors wars against AMD). Once Intel gets to 32nm, and then advances to 22nm, we expect them to be as energy efficient and effective as ARM (which is also moving to increasing power use with more cores, etc.). And Intel will add HW enabled functions that work well with their richer instruction sets (e.g., media encoders/decoders, security/DRM, synching). So far, the ARM ecosystem (especially NVIDIA and Qualcomm) have had superior graphics capability in their chips. It is not clear that Intel can neutralize this competitive advantage in the short term, which may represent a key vulnerability for Atom, but it's placing a lot of emphasis on this effort.

But it's not just an Android world. We expect that Microsoft will make a version of Windows Phone/Windows Next run well on Atom, even though it has said Windows Next will run on ARM processors. And of course Android, including Honeycomb in the not too distant future, will run on Atom (Intel has a lot of resources plugged in to making Android run well on their systems). And although MeeGo will not be a major force in tablets of smartphones now that Nokia has abandoned it, it will have a play in a diverse set of other embedded devices that offer a sizeable volume potential. So the tight hold ARM has in the market is about to be loosened substantially. It's not that the ARM vendors (e.g., NVIDIA, Qualcomm, TI) won't be successful. It's that they now have a formidable competitor with attractive products and huge manufacturing capability.

Bottom Line: ARM's competition with Intel is not intense yet, but will become so in 2012. That's when Intel has competitive silicon for phones to supplement its chips for tablets available this year. Intel has the manufacturing clout to make Atom chip prices attractive and potentially buy market share. We believe the marketplace which has often been skeptical of Atom's chance of success is discounting Intel much too heavily at this point, given that the battle is just now getting underway and there are no clear long term winners for next generation technology needs.

For more in-depth comments or analysis on this or other subjects, feel free to contact us.