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SIGNALS Flash!

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Intel and Nokia converge the two Cs

Once bitten twice shy?

- ◆ Intel and Nokia announce a collaborative mobile computing + communications effort – the two Cs.
- ◆ Collaboration includes advancement of the Intel Atom architecture, further development of Linux-based (non-Android) operating systems, and Intel's licensing of Nokia's 3G modem IP.
- ◆ If successful, the collaboration is a game-changer for both companies, not to mention the future of mobile computing.
- ◆ Intel hasn't had great success in the cellular industry and access to Nokia's modem IP doesn't make it a slam dunk.
- ◆ By no means the kiss of death for WiMAX, but two years ago such an action on the part of Intel would have been hard to imagine.

Thoughts and Implications

Yesterday Intel and Nokia announced a strategic relationship to further advance the mobile computing market segment. The strategic relationship includes the development and introduction of new devices with new form factors, technology development involving some open source Linux-based software initiatives, and Intel's licensing of Nokia's 3G modem intellectual property.

Although neither company pre-announced the relationship, there was enough industry buzz and innuendos coming from both companies that the announcement didn't come as a surprise. That said, we couldn't predict the timing of the announcement so we are making some modifications to an upcoming *Signals Ahead* issue that is currently in the works.

From Nokia's perspective, the collaboration helps the development and advancement of innovative applications that can leverage a widely recognized Intel architecture, while minimizing the dependency that exists when an application processor and communications modem are always procured from a single source. Likewise, Nokia benefits financially through Intel's licensing of its 3G modem, and in the event Intel is successful, it has another source for its chipset requirements.

Most importantly, the collaboration helps address a critical missing element in Nokia's portfolio; that being the burgeoning MID and netbook market segments. Nokia has a commanding market share of the overall handset market, but its success at the higher end of the scale has been less remarkable. Further, it was unclear to us how Nokia planned to go after the computing platform space on its own since it would be competing with the traditional computing industry who are

coming at the market from an entirely different angle. All things being equal, we would bet on those companies having success over Nokia in that particular market segment.

The collaboration fills a critical element that has been missing from the Nokia portfolio of devices.

From Intel's perspective, the strategic relationship provides them with a new market opportunity for its Atom-based family of processors. The unfolding Goliath versus Goliath battle between Qualcomm's Snapdragon and Intel's Atom is just entering the first inning of play and who wins the power versus performance argument is yet to be determined. However, if one believes – as we do – that connectivity will be a key part of these emerging device types, then Qualcomm had the race run before the starting gun even fired (apologies for mixing two sports euphemisms in a single paragraph). This outcome is no longer a certainty.

There is also an interesting angle, which we are still in the process of thinking through, involving the underlying operating systems. Qualcomm is largely focused, at least for now, on Android, Intel was almost entirely devoted to Microsoft's Windows operating system, and Nokia leveraged Symbian for its smartphone products while looking to more advanced Linux-based systems for its high-end products, such as its N810 tablet. With the new collaboration, the advantages of Android on the Snapdragon platform for certain types of devices is less apparent since we would argue that many of the advantages associated with Android, such as a faster boot time, are equally attributable to Linux.

There may still be nuances in how applications are developed for Android versus Moblin or Maemo – the platforms that Nokia endorses, but those nuances can be overcome with the efforts of a large and powerful backer (e.g., Nokia). The net result is that Snapdragon's focus on Android is now less of a differentiator. Further, there has to be some implied pressure on Microsoft now that Intel is also

committed to supporting Nokia's chosen operating systems while one of Microsoft's biggest weaknesses in the mobile industry is the lack of a powerful hardware manufacturer as a partner. HTC is the best that it can claim.

Unfortunately, before the gloves come off (third sport's euphemism), Intel will have to demonstrate success in an area where it has failed to impress in the past, and this is said with an optimistic/revisionist look back at history. Before launching a fullscale effort to advance WiMAX – more on this in a bit – Intel had its own 2G/3G cellular baseband business, and for a time it was even promoting an internally-developed RF transceiver.

Intel will have to demonstrate success in an area where it has failed to impress in the past.

Like the just announced relationship with Nokia, Intel was licensing the protocol stack from a third party, which in this case was TTPCom, but it was responsible for commercially launching the product on its own silicon. However, despite a few commercially-launched products that were shortlived, Intel couldn't find any traction in the market and it ended up selling its cellular business (modem and mobile application processor) and transferring its assets, including nearly 1,400 Intel employees, to Marvell.

To be fair, and as Intel pointed out to us, there is a big difference between the TTPCom stack and the Nokia stack as the latter stack is commercially validated and it is far more mature than the TTPCom solution ever was. That said, other companies, including ADI and Icera, were able to commercialize the TTPCom solution and our recollection of past events is that it was more far more than stack issues that precluded Intel from achieving market success.

Intel, in effect, is starting from scratch and it will need to completely rebuild its 3G modem team – something we believe it is just starting to do.

Further, having a Wolfgang Puck cookbook and cooking food that tastes like Chef Puck prepared it are entirely two different matters. We note that Nokia is not transferring any engineering resources to Intel although it transferred ~200 ASIC engineers to STM (now ST Ericsson) when that organization licensed its stack.

Intel will have to completely rebuild its 3G modem team, while Nokia is not transferring any resources to assist.

Another concern with Intel's licensing of Nokia's 3G stack is that Nokia's solution isn't necessarily designed to target mobile computing devices where throughput and performance mean everything. No doubt, Nokia has a good modem solution, but its solution, not to mention its overall product roadmap, is specifically tailored for Nokia handheld devices. As an example, Nokia seems less interested in throughput enhancers, such as 64QAM, and more interested in performance improvements, such as the improved battery life and faster response times that can be gained from CPC and Enhanced_FACH – other HSPA+ features that seldom make it into the spotlight.

Finally, Intel's success with the Nokia solution will probably be relegated to Nokia or to Nokia-branded products that are manufactured by ODMs. The same can be said for ST Ericsson or Broadcom who are also licensing the Nokia solution. Our concern in all instances is that we do not believe that a major competitor to Nokia would want to rely on the Nokia stack since it could place them at an inherent disadvantage.

In the past Intel has indicated that it finds nothing wrong with the traditional 3G cellular industry versus WiMAX, but that it just didn't like the IPR royalty payments that it would be forced to pay. As we will discuss in an upcoming issue, the whole IPR tax landscape is far from resolved and we are not convinced that when the final whistle blows (that's number four if you are counting) there will be much,

if any, differences between the two technology camps.

That said, Intel may have stumbled into an attractive arrangement with Nokia as a partner. In particular, Nokia has a strong 2G/3G patent portfolio and it has a new licensing deal with Qualcomm. To the extent that Intel is developing a communications + application processor solution for Nokia branded products that is based on the Nokia modem, the two companies may be able to claim "have made" rights whereby the tax burden would fall on Nokia [and not Intel] and with a royalty rate that is probably far more attractive than what Intel could achieve on its own.

If "have made" rights apply then the IPR tax burden for Nokia branded products falls on Nokia who has a much stronger 2G/3G IPR position.

Our final thoughts pertain to the implications for WiMAX. It is hard to envision the popular press not picking up on this angle to the story since the announcement suggests Intel could be backing away from its WiMAX commitment or that it could signify Intel's recognition that its WiMAX strategy will not prove to be successful. From our interactions with Intel over the last few years we have always concluded that Intel wasn't married to WiMAX but that it was married to its application processor. If its application processor went into a 3G netbook – great. If it went into a Mobile WiMAX MID – even better.

Still, following Intel's sale of its cellular group and its massive WiMAX effort, including R&D, chipset development, and marketing, one would have to conclude that the company isn't necessarily thrilled with the WiMAX success that it has achieved. There are a number of markets, such as Western Europe, where WiMAX, and, in turn a WiMAX-enabled MID or netbook with an Intel solution inside would have very little traction. There are also a number of markets, including Developed Asia and North America, where both technologies will coexist

to varying degrees. However, given the stated or implied intent of most mobile operators, the preponderance of the market over the long-term will be won by HSPA/HSPA+ and eventually LTE. Intel recognizes that situation and it is taking a pragmatic approach.

The Nokia-Intel collaborative effort can be a game changer and even if certain aspects of it fail to materialize, it will still benefit both companies and put additional pressure on those companies that compete in the space. Based on comments from Nokia, the collaboration will largely focus on new types of devices and less so on embedded solutions for notebook PCs, so we imagine that the dynamics of that particular market segment will remain largely intact, especially for the next several years.

Biography

Michael Thelander is the founder of Signals Research Group, LLC (SRG), a research consultancy that offers thought-leading field research and consulting services on the wireless telecommunications industry. SRG's primary research focus is on emerging wireless technologies and the services, applications and content that these technologies will enable.

Its flagship research product is a research newsletter entitled "Signals Ahead," which has attracted a strong following across the entire wireless ecosystem with corporate subscribers on five continents.

Previously, Mr. Thelander was an analyst with Deutsche Bank Equity Research, a consultant with KPMG (now known as BearingPoint), and a communications officer with the United States Army. Mr. Thelander has also published numerous articles for leading trade publications and engineering journals throughout his career.

He has been an invited speaker at industry conferences and company-sponsored events around the world and he is frequently quoted by major news sources and industry newsletters, including The Economist, BusinessWeek, The Wall Street Journal, Investors Business Daily, Reuters, Bloomberg News, and The China Daily.

Mr. Thelander earned a Masters of Science in Solid State Physics from North Carolina State University and a Masters of Business Administration from the University of Chicago, Graduate School of Business.

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