



Software-based 3G baseband promises multi-standard handset connections

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Today in "Chip start-ups battle to provide network flexibility for cellphones," the Wall Street Journal reported that Sandbridge Technologies has developed a handset chip that relies purely on software for the baseband function. Presumably, a software baseband implementation would allow one hardware design to support multiple wireless standards – potentially both multiple cellular standards and other standards such as Wi-Fi and WiMAX. A phone equipped with such capability could roam between say a 3G cellular connection and a Wi-Fi link using the fastest or cheapest connection at any given time. Moreover, a software baseband would allow phone upgrades to be deployed over the wireless link according to Sandbridge.

The product in question -- Sandbridge Technologies SB3010 (PDF) – is being termed a platform because it includes a processor chip, the algorithms that implement the baseband, and other elements such as a specialized C compiler. The processor integrates an ARM 9 RISC core along with Sandbridge's own Sandblaster DSP technology. The company claims the processors cumulatively can deliver 10 billion MAC operations per second. Sandbridge states that they are sampling the platform now.

The Sandbridge approach appears to differ from that of Quorum Systems that I reported on in "Single radio time slices GSM and Wi-Fi air interfaces." Quorum uses hardware-based state machines to implement the compute intensive portions of the baseband task, although software certainly controls the ability to swap from say GSM to Wi-Fi. The hardware acceleration allows a single processor to time slice and keep two radios active at all times. Sandbridge did not make that claim explicitly in their press release, although I'll try and find out if the SB3010 can handle two live radios at once.