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[Hello, Mr. Chips](#)

Posted by Carl Weinschenk on December 9, 2008 at 5:01 pm

The word was that 4G chips were likely to become available in early 2009. That prediction seems to be about right, as LG announced that it has developed what it says is the first usable chip for Long Term Evolution (LTE).

[The announcement, covered in Electronista](#) and elsewhere, says that the chips, small enough to be used in a cell phone, will offer theoretical speeds of 100 Megabits per second (Mbps) downstream and 50 Mbps upstream. A test device running Windows Mobile driven by the chip achieved real speeds of 60 Mbps downstream and 20 Mbps upstream. Thus, the story says, the chips will enable devices to match the better landline connections available today. The story says commercial phones with the chips will be produced in 2010, which is about the same time frame as the rollout of LTE networks.

An optimistic note, sort of, on the emergence of LTE chips was sounded by Enrico Salvatori, the senior vice president and general manager for Qualcomm Europe at a company conference last week. [Salvatori was quoted in EE Times as saying](#) that samples will soon become available of the MDM9000, a chip that combines LTE with High Speed Packet Access+ (HSPA+) 3G functionality. Salvatori said that commercial availability is dependent on a number of factors outside Qualcomm's control. The outstanding issues are both technical and financial. On the tech side, the Third General Partnership Project (3GPP) needs to finalize elements of the standard. On the financial side, carriers' investment and rollout plans are not yet in focus.

Another vendor, [Sandbridge Technologies, last month announced](#) the SB3500 flexible baseband processor, which the company says can provide LTE capabilities entirely in software. The ability to work entirely in software, the company says, reduces power consumption – a big roadblock to device miniaturation – and reduces time-to-market. In addition to LTE, the chip can provide HSPA, WiMax, Wi-Fi, GPS, multimedia, Digital Video Broadcast-H (DVB-H) and GPS, the release says. Perhaps the most interesting thing about the release is that the company chose to feature LTE from the long list of formats that it claims the chip supports.

One of the unique features of the ramp-up to 4G is that it is impossible to say to what extent LTE and WiMax will compete. Like chimps and humans, the two approaches to high-speed wireless IP networking share most of their DNA. Indeed, [IMS Research analyst Bob Perez told me last week](#) that he hears that there is 80 percent overlap. These similarities start at the chip level. [Last month, ABI Research said dual-mode chipsets](#) capable of operations in WiMax or LTE mode will be introduced next year. WiMax is ahead in the development cycle, and so vendors of chips in this sector are taking the lead in producing the dual-mode chips. It says that Vodafone and KDDI have feet in both camps and, thus, are potential users of the chips.

The cost of the chips is a vital element of the success or failure of LTE and WiMax. This post outlines the steep drop these prices will need to experience. [Wavesat CEO Raj Singh told Telephony Online](#) that a \$2 chip will be necessary. This, the piece says, is a bit more than Bluetooth and a bit less than Wi-Fi. The industry is nowhere near that level now: Singh

says a \$3 chip won't happen through the end of next year no matter how high demand is. He says a "4G-lite" chip will be necessary. The good news is that chipset makers will "future-price" chips — charge a bit less — in expectations of future success, and vendors will pay more if they think the higher speeds improve the value of their products.

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