

Samsung starts mass production of industry's first 8 gigabit LPDDR4 mobile DRAM

December 23 2014

Samsung Electronics announced today that it has started mass producing the industry's first 8 gigabit (Gb), low power double data rate 4 (LPDDR4) mobile DRAM based on the company's leading-edge 20-nanometer (nm) process technology. LPDDR memories are the most widely used "working memory" for mobile devices worldwide.

"By initiating production of 20nm 8Gb LPDDR4, which is even faster than the DRAM for PCs and servers and consumes much less energy, we are contributing to the timely launch of UHD, large-screen flagship [mobile devices](#)," said Joo Sun Choi, Executive Vice President of Memory Sales and Marketing at Samsung Electronics. "As this major advancement in mobile memory demonstrates, we will continue to closely collaborate with global mobile device manufacturers to optimize DRAM solutions, making them suitable for next-generation mobile OS environments."

The new 20nm 8Gb LPDDR4 offers twice the performance and density compared to 4Gb LPDDR3 which was based on 20nm-class process technology. The new 8Gb LPDDR4 chip allows a 4 gigabyte (GB) LPDDR4 package to be created.

Samsung's 4GB LPDDR4 package was chosen as an Honoree of the 2015 CES Innovation Awards in the Embedded Technologies category. In winning this award, Samsung became the only company that has won

CES Innovation Awards for three consecutive years with its mobile DRAM solutions, as the company's 2GB LPDDR3 and 3GB LPDDR3 were honored in 2013 and 2014, respectively.

Due to an I/O data rate of up to 3,200 megabits per second (Mbps), which is two times faster than a typical DDR3 DRAM used in PCs, the new 8Gb LPDDR4 can support UHD video recording and playback and continuous shooting of high-resolution images with over 20 megapixels.

The LPDDR4 mobile memory chip's operating voltage was reduced to 1.1V from that of LPDDR3 memory chips, which makes the new Samsung chip the lowest power [memory](#) solution available for large-screen smartphones and tablets, and high-performance network systems. For example, in case of a 2GB package, an 8Gb LPDDR4-based 2GB package can save up to 40 percent of power compared to a 4Gb LPDDR3-based 2GB package, due to low operating voltages and faster processing.

By adopting new proprietary low-voltage swing-terminated logic (LVSTL) for its I/O signaling, Samsung has also further reduced the new LPDDR4 chip's power consumption while enabling high-frequency operations at low voltages for optimal power efficiency.

Samsung started providing 2GB LPDDR4 and 3GB LPDDR4 DRAM packages this month based on 8Gb and 6Gb LPDDR4 dies, respectively, in support of global application processor vendors and mobile device manufacturers, and will provide 4GB LPDDR4 packages in early 2015.

Samsung expects to rapidly increase the production volume of its 20nm DRAM line-ups, including the new 8Gb LPDDR4 mobile DRAM and the recently introduced 8Gb DDR4 DRAM for servers, in order to better meet customer needs, while accelerating the growth rate of the high density DRAM market.

Provided by Samsung

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