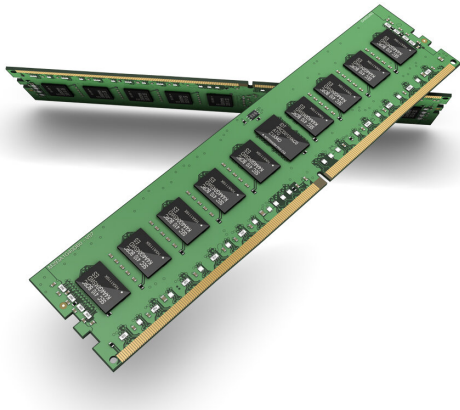


Samsung brings cutting-edge ultraviolet light technology to DRAM production

25 March 2020, by Peter Grad



Credit: Samsung Electronics

Samsung Electronics today announced it will be introducing the first DRAM memory modules in the industry designed with cutting-edge Extreme Ultraviolet Technology (EUV).

One of the world's leading memory manufacturers, Samsung says that response to a million evaluation units of its first line of 10nm-class DDR4 DRAM modules has been positive and that it will soon begin processing orders for worldwide distribution.

EUV technology allows memory modules to be manufactured more accurately and more quickly. It speeds up the lithography process by reducing the number of repetitive steps and facilitates the production of complex chip patterns. It means greater performance accuracy and a shortened development time.

EUV places a chip blueprint onto silicon, just as laser technology does, but uses light at much shorter wavelengths, enabling highly accurate replication of minuscule design features.

It also means ever-tinier features can be etched at lower cost.

"With the production of our new EUV-based DRAM, we are demonstrating our full commitment toward providing revolutionary DRAM solutions in support of our global IT customers," said Jung-bae Lee, executive vice president of Samsung's DRAM division.

Samsung is not the only company to focus on EUV technology. The Taiwan Semiconductor Manufacturing Company (TSMC) last year began manufacturing its 7nm N7+ chips with EUV technology. Those chips, according to company tests, accommodate up to 20 percent greater transistor density utilizing 10 percent less power consumption than older N7 chips created with lithography technology using argon fluoride lasers.

Intel began exploring EUV processes nearly 20 years ago. It is now preparing production for its new line of chips. Last summer, Britt Turkot, a fellow and director of EUV at Intel, said engineers faced challenges designing a production system that uses EUV because of its complexity and cost. Chip manufacturing companies will require construction of new facilities to handle the new technology.

Consumers should not expect to see new products with the new chip designs until later this year at earliest. Samsung is completing a new facility in Pyeongtaek, South Korea, for chip production expected to be operational after summer.

Samsung will use 10nm EUV technology for all future generations of DRAM chips. This will include D1a-based 16GB DDR5 and LPDDR5 memory chips for computers, expected to roll off production lines in 2021. It also includes the LPDDR4X RAM [chip](#) used for smartphones.

"This major advancement underscores how we will continue contributing to global IT innovation

through timely development of leading-edge process technologies and next-generation memory products for the premium [memory](#) market," said Samsung's Lee.

More information:

news.samsung.com/global/samsung-brings-cutting-edge-ultraviolet-light-technology-to-dram-production

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