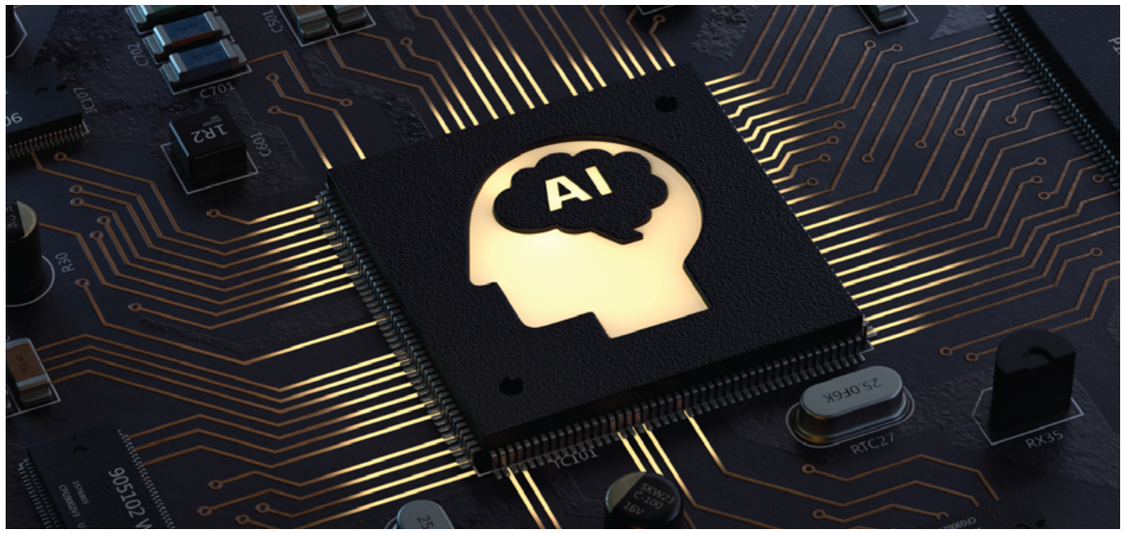
SUPPLY CHAIN connect™

By BRIDGET MCCREA



AI Boom Drives a Memory Shortage

From HBM to hard drives, AI's infrastructure boom is pushing memory markets to the breaking point.

For procurement teams focused on electronic components, shortages have become part of life. Over the past several years, buyers have moved from scrambling for microcontrollers and analog chips to managing tight supply of power devices, memory and specialty semiconductors. Lead times expand, then contract. Allocation eases in one category while another tightens, and stability never seems to last long.

And just when one issue clears up, five more pop up in its place. A supplier finally catches up, but a different component on the board goes on allocation. Pricing stabilizes, but lead times stretch again. A backlog clears, and demand from another sector soaks up the extra capacity. "A significant shortage of memory products across the board is expected to continue for the time being," a Samsung spokesperson said on a recent earnings call, *Reuters* reports. He went on to say that expansion of supply is expected to remain "limited" right into 2027 as AI-related demand remains strong.

That statement is the latest development procurement teams have to factor into their planning. As demand for AI accelerates across data centers, cloud infrastructure and edge devices, it isn't just GPUs that feel the strain. Memory sits at the center of that buildout, and tighter supply there has ripple effects across boards, systems and finished products.

What's Going on?

The world is hungry for more AI, and its infrastructure is consuming a large amount of specialized memory. AI chips rely on high-bandwidth memory (HBM), a fast, specialized type of DRAM that sits alongside the GPU and feeds it data at very high speeds.

Unlike memory used in laptops or smartphones, HBM is built by stacking multiple layers of memory into a single package, which makes it more complex to produce. The tradeoff is significant: When manufacturers increase HBM output to support AI systems, they divert production away from conventional DRAM.

Now, the few companies that make that memory can't expand capacity fast enough to keep up. "We have seen a very sharp, significant surge in demand for memory, and it has far outpaced our ability to supply that memory and, in our estimation, the supply capability of the whole memory industry," Micron business chief Sumit Sadana told *CNBC*, which adds that it's produced in a complicated process where Micron stacks 12 to 16 layers of memory on a single chip, turning it into a "cube."

"As we increase HBM supply," Sadana added, "it leaves less memory left over for the non-HBM portion of the market, because of this three-to-one basis." To address the issue, *WSJ* says Micron is spending $50 billion to more than double the size of its 450-acre campus in Boise, Idaho, including the construction of two new chip factories (fabs).

"The first fab's inaugural silicon wafers are expected to roll off the factory line in mid-2027, making DRAM, a type of memory used to make the [HBM chips], that are increasingly essential to advanced [AI] computing," WSJ reports, nothing that both plants should be in production by the end of 2028.

"Behind the frenetic manufacturing arms race is the AI boom," the publication notes. "As large language models have become increasingly complex and firms such as OpenAI, Oracle, xAI and Anthropic have announced lofty plans to build trillions of dollars' worth of data centers, demand has far outpaced capacity in the memory-chip market."

Not Limited to HBMs

Micron isn't the only producer on the memory hot seat right now. According to *Mashable*, Western Digital has already sold out of its storage capacity for 2026 with more than 10 months still left in the year. CEO Irving Tan said most of that storage space has been allocated to its top seven customers, three of which already have agreements with Western Digital for 2027 and even 2028.

"With this latest news from Western Digital, it appears the ever-increasing demands from AI companies for memory and storage will continue to grow, with no end in sight," the publication adds. "Unless, of course, investors decide to pull back from AI over fears that AI's promises may not come to fruition. But, for now at least, the shortages and price hikes for consumers will continue."