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TSMC making DRAM for Nvidia?

Not much flesh to the story.

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The Information reported today that TSMC is drawing up plans to manufacture 3D DRAM at Nvidia's request. Keep reading for key facts and our take.

Key facts

TSMC weighing 3D DRAM for Nvidia. According to two people with direct knowledge, TSMC recently started drawing up plans to make 3D DRAM at the request of Nvidia, its largest customer. The memory shortage has pushed chip designers, Nvidia and Apple included, to look for additional sources of supply.

A next-generation memory technology. 3D DRAM stacks several layers of memory cells vertically on a single die, where conventional DRAM uses a single layer of cell per die (and stacks for HBM) . Samsung, SK Hynix and Micron are all developing 3D DRAM, but have not yet been very specific about insertion window yet, and mostly refer to it as a technology for the next decade.

No timeline, no site. Options include building new fabs or acquiring and converting an existing plant, as Micron did in March with PSMC's Taiwan fab for $1.8bn.

A packaging executive in charge. The initiative is led by Hsu Kuo-chin, the vice president overseeing advanced packaging, who previously ran Micron's Taiwan operations. TSMC made standard memory chips until the late 2000s and holds several patents on vertical DRAM designs.

TSMC reaffirms its focus on logic. "We don't comment on market rumors or speculation. TSMC focuses on our core business at all times, which is dedicated foundry. Our mission is to be the trusted technology and capacity provider of the global logic industry for years to come."

TSMC is already part of the HBM stack. It partnered with SK Hynix in 2024 to make the base die of its next-generation HBM, and Nvidia reportedly asked its three suppliers in October to build the base die of its custom NVHBM parts on TSMC's 3nm process as well.

Our take

TSMC's statement says it all. TSMC does not deny looking into the topic, but it took care to restate that its mission is logic foundry "for years to come". With no timeline, no capacity and no site, we suspect *The Information* turned an exploratory exercise into a plan. There is not much flesh to the story.

A mix-up with the other 3D DRAM? Fabless chip designers are working on stacking DRAM dies directly on top of the logic die, using TSMC's SoIC packaging technology, and some of them call it "3D DRAM". This is a packaging play, distinct from 3D DRAM as memory makers define it, where layers of memory cells are stacked on a single die. It is very possible: Nvidia discussed stacking DRAM on compute at GTC, Qualcomm validated its first HBC silicon this week, and the initiative The Information refers to is led by TSMC's head of advanced packaging. The Information unmistakably claims TSMC has ambitions to manufacture actual DRAM cells. Would it be an

extension of the packaging effort, or simply a misunderstanding by the authors?

3D DRAM is a technology for the next decade. Samsung, SK Hynix and Micron are still developing it, and we don't expect volume production before 2030. As we wrote in our recent CXMT note, DRAM density gains will increasingly rely on stacking as planar scaling runs out of steam, but this is a post-2030 transition, and the incumbents are the ones best positioned to drive it. 3D DRAM could also help ease the structural supply imbalance we expect to persist through 2030, especially as HBM consumes >3x more wafer capacity per bit than conventional DRAM.

We don't see TSMC developing an edge in memory. Leadership in logic and packaging does not magically translate into a decisive advantage in memory, which is a different job: Samsung, SK Hynix and Micron have spent decades refining how to make DRAM cheaply and consistently. Memory is also a very different business model from logic, and a less appealing one. Prices and margins can swing severely through the cycle, while TSMC's business is far more stable. We therefore see little interest for TSMC. It is already on track to benefit massively from the AI buildout, with AI revenue growing >60% CAGR between 2024 and 2029, at comfortable gross margins above 60%.

Broadening supply base is sensible but odd with TSMC. Nvidia has every reason to look for more memory supply: HBM is scarce and becoming increasingly expensive. But companies usually diversify suppliers to avoid depending too much on any one of them, and TSMC already makes all of Nvidia's datacenter GPUs, packages them on CoWoS and is set to make the base die of custom HBM stacks. Adding TSMC as a DRAM source would increase Nvidia's dependence on its largest and most critical supplier.

Maybe a message to memory makers. A possible read is Nvidia, TSMC's largest customer, asking its supplier to help drive change at memory supplier, towards more aggressive capacity additions, faster innovation, and more reasonable pricing – something with which TSMC would probably happily help, as it is in the interest of the whole supply chain.

A way to support broader change in Memory? DRAM was a commodity: many end markets, violent swings as long-lead supply met volatile demand. AI memory is different – leading-edge, highly integrated, co-designed with a handful of customers who increasingly lead the design.

Nvidia talking to TSMC may also be a signal to Memory: time to change. We see that as highly beneficial – and we called for it in recent work. HBM economics should track TSMC more than the old memory cycle.

Same idea in Elon Musk's Terafab: logic, memory and packaging under one roof... or at least one highly integrated supply chain.

Conclusion

We see little substance behind TSMC becoming a DRAM manufacturer. The more likely story is TSMC stacking memory dies on Nvidia's logic, a packaging play that builds on SoIC. Producing DRAM cells would be a much bigger step, for which TSMC would have no edge over the incumbents and see limited benefits. An alternative read could also be that Nvidia is leaning on its largest supplier to encourage memory makers to invest, innovate and adapt their business model.

The more important takeaway is not that TSMC might become a DRAM manufacturer, but that Nvidia wants memory to behave increasingly like logic: customized, co-designed, integrated ever closer to the compute and secured through long-term commitments rather than purchased as a cyclical commodity. This is consistent with our post-2030 HBM framework.

Today's news does not change our view on memory: we still see supply below demand through 2030, and we are buyers of the current dip in Micron.

Relevant Research

- Datacenter moratorium? We call the bluff and buy the dip. – (6 November 2026) – Link
- Is CXMT a threat to western memory manufacturers? – (20 October 2026) – Link
- Here we are: $4tn AI capex in 2030? – (18 September 2026) - Link
- Financing the AI infrastructure build-out? Much ado about nothing – (15 September 2026) – Link
- Memory: Margins keep expanding; demand destruction plays out as expected – (2 September 2026) – Link
- Nvidia price hike proves healthy pricing power and 50% HBM price increase – (27 August 2026) – Link
- Nvidia price increase in context – Positive Nvidia & Memory! – (24 August 2026) – Link
- Memory - Different this time? (IV): The valuation question Upgrading Micron to buy; $1,250 target price. – (14 August 2026) - Link
- Memory - Different this time? (III): How do things play out beyond 2030? – (7 August 2026) - Link
- Memory - Different this time? (II): How do things play out between now and 2030? – (28 July 2026) - Link
- Memory - Different this time? (I): The supply and demand view – (21 July 2026) - Link
- Micron 3FQ26: Are we the only ones seeing this? – (25 June 2026) - Link
- Bible 1Q26 – Memory: Demand escapes capacity, prices shoot up, demand destruction looms – (2 June 2026) – Link
- Who will spend all this money on WFE equipment? – (28 April 2026) – Link
- Hynix 1Q26 – COGS beat; gross margins doesn't expand as much as consensus expected – (23 April 2026) – Link
- Grasping the AI Infra Buildout & GTC takeaways – (25 March 2026) – Link
- Bible 4Q25 - Memory: Firing on all cylinders. Risk of demand destruction looming? – (26 February 2026) – Link
- Hyperscalers to nearly double AI capex again in 2026. Implications. – (6 February 2026) – Link
- Bible 2Q25 – Memory: margins of conventional DRAM to expand as HBM growth pressures capacity – (28 August 2025) - Link
- Hynix 2Q25: Pressure on HBM pricing and margins still far from being around the corner – (25 July 2025) - Link
- Micron: the Street gets HBM, but misses the broader rebound and capacity squeeze. – (23 June 2025) - Link
- Tariffs & Memory: the baseline & what's next. – (8 May 2025) – Link
- AI infrastructure growth, 2024-2027: Who wins inside the chip? – (25 March 2025) – Link
- Micron 2FQ25: Thesis playing out. Buy, $145 TP. – (21 March 2025) – Link
- Memory in 2025: Can Chinese DRAM derail our thesis? – (17 January 2025) - Link

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