

Chapter 10: Memory and HBM

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CHAPTER

10

STAGE 10 OF 15

Memory and HBM

SK hynix, Samsung and Micron make nearly all high bandwidth memory (HBM), the stacked memory beside AI chips. SK hynix took 63.2 percent of HBM revenue in 2025.

IN PLAIN TERMS

High bandwidth memory, or HBM, is where an AI chip keeps the numbers it is working on, and it is built to hand them over fast. A memory maker etches tiny holes into each memory wafer, fills them with copper and grinds the wafer until the copper shows through its back. It tests each of the wafer's chips and stacks up to sixteen good ones into a cube, with every layer wired to the ones below. The cube then sits beside the processor, the chip that does the calculating. Stacking is the hard part because each chip is ground thinner than a human hair and the finished cube has to stay within a set height. One chip that fails after stacking can scrap the whole cube. Only SK hynix, Samsung and Micron make HBM in volume, and a single entry in the US export rules covers HBM from all three.

IN SHORT

US-based Micron went from 5.8 percent of HBM revenue in 2024 to 23.1 percent in the first quarter of 2026, according to IDC figures in SK hynix's US prospectus ¹. Over the same period, Samsung's share fell from 37.8 percent to 20.5 percent ¹.

Since December 2024, a US license has been required, unless an exception applies, to export to China any HBM moving more than 2 GB per second per square millimeter of its area ⁶. The Institute for Progress reported in October 2025 that China's CXMT planned to produce HBM3 in 2026 ³. Even so, working from TrendForce's estimate of world HBM shipments, the institute projected that producers outside China would make 70 times as much HBM as China in 2026 ³. In June 2026 SemiAnalysis judged that CXMT was still struggling to stabilize supply of eight-high HBM3 ²⁴.

¹ SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 [\[A\]](https://www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm) www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

⁶ Foreign-Produced Direct Product Rule Additions, and Refinements to Controls for Advanced Computing and Semiconductor Manufacturing Items. Federal Register (Commerce Department; Industry and Security Bureau) · 5 December 2024 [\[A\]](https://www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing) www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing

³ Should the US Sell Blackwell Chips to China?. Institute for Progress · 25 October 2025 [\[A\]](https://ifp.org/the-b30a-decision/) ifp.org/the-b30a-decision/

²⁴ China's CXMT Is Set to Challenge DRAM Incumbents. SemiAnalysis · 23 June 2026 [\[B\]](https://newsletter.semianalysis.com/p/chinas-cxmt-is-set-to-challenge-dram) newsletter.semianalysis.com/p/chinas-cxmt-is-set-to-challenge-dram

CHOKEPOINT CARD		EXTREME CONCENTRATION	HARD TO SUBSTITUTE
CONCENTRATION	SUBSTITUTABILITY		PRICE OR MARKET SIZE
Extreme	Hard		About \$35B
	Three firms took nearly all HBM revenue in 2025 ¹ .		HBM market in 2025, Micron's December 2025 estimate ²
WHO LEADS	KR SK hynix 63.2% of HBM revenue in 2025¹ KR Samsung 19.3% of HBM revenue in 2025¹ US Micron 17.4% of HBM revenue in 2025¹		
WHERE IT IS MADE	KR South Korea SK hynix in Cheongju and Icheon, Samsung in Pyeongtaek and Hwaseong US United States Micron headquarters and R&D, and an SK hynix packaging plant under construction in Indiana TW Taiwan Micron DRAM and HBM production JP Japan Micron Hiroshima, 1-gamma DRAM SG Singapore Micron HBM advanced packaging plant, adding capacity from 2027		
WHY SUBSTITUTION IS SLOW	SK hynix says only a few firms have the expertise and resources to design, make and package memory chips ¹ . It says HBM also needs advanced processes such as TSV packaging and must pass customers' rigorous testing and approval ¹ .		
WHERE CHINA STANDS	WHERE THE US STANDS		
The Institute for Progress estimated in October 2025 that China would make virtually no HBM that year ³ . Huawei said in September 2025 that its Ascend 950 chips would use two HBM designs of its own, without saying who would manufacture the memory ⁴ .	Micron is the only American HBM maker ¹ . As of October 2026, exporters headquartered in the United States or a Country Group A:5 ally can ship HBM below 3.3 GB per second per square millimeter under License Exception HBM ⁵ .		

1 SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

2 Fiscal Q1 2026 Earnings Call Prepared Remarks. Micron Technology · 17 December 2025 s25.q4cdn.com/621799436/files/doc_financials/2026/q1/Micron_Q1-2026-Prepared-Remarks.pdf

3 Should the US Sell Blackwell Chips to China?. Institute for Progress · 25 October 2025 ifp.org/the-b30a-decision/

4 Groundbreaking SuperPoD Interconnect: Leading a New Paradigm for AI Infrastructure. Huawei · 18 September 2025 www.huawei.com/en/news/2025/9/hc-xu-keynote-speech

5 15 CFR 740.25 -- License Exception High Bandwidth Memory (HBM).. Electronic Code of Federal Regulations · 5 December 2024 www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-740/section-740.25

An AI accelerator moves numbers from memory to its arithmetic units and back. The cost of arithmetic has fallen faster than the cost of moving numbers. The US export control office wrote in December 2024 that a processor cannot reach its full capabilities unless its memory capacity and bandwidth rise with its speed ⁶.

How it works

Each layer in the cube is a DRAM chip, the ordinary kind of computer memory. Each layer is ground thin and bonded to the one below through tiny metal bumps called microbumps. The whole stack sits on a base die, a chip that manages it. The copper-filled holes are called through-silicon vias, or TSVs. They let a signal reach any layer without a wire running around the outside.

An HBM3E cube has a 1,024-bit interface, meaning it exchanges data with the processor over 1,024 wires at once ⁷. That is sixteen times wider than a standard DDR5 memory module, the memory stick in a PC ⁷. HBM4 doubles that to 2,048 wires ⁸. Ordinary memory cannot be made that wide, because the pins would not fit on a circuit board. The stack can, since its wires run down through the TSVs and across a silicon interposer to the processor beside it, with no board in the way ⁷.

A chip needs the width most when it answers a prompt. Training reuses each stored number across a huge multiplication, so a chip can fetch little and compute a lot. But to generate one word of an answer, the chip reads the whole model from memory, plus the whole record of the conversation so far. Then it does a little arithmetic and waits for the next read. That record grows with the length of the conversation and the number of users served at once. So memory size and speed usually set how many people one chip can serve.

Variants and trade-offs

GENERATION	INTERFACE	BANDWIDTH PER STACK	CAPACITY PER STACK
HBM3E	1,024-bit, 16 channels (32 pseudo-channels)	over 1.2 TB/s	24 GB (8 chips), 36 GB (12 chips)

6 Foreign-Produced Direct Product Rule Additions, and Refinements to Controls for Advanced Computing and Semiconductor Manufacturing Items. Federal Register (Commerce Department; Industry and Security Bureau) · 5 December 2024 [A](https://www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing)

7 High-bandwidth memory (HBM). Micron Technology · Accessed 9 September 2026 [A](https://www.micron.com/products/memory/hbm)

8 JEDEC® and Industry Leaders Collaborate to Release JESD270-4 HBM4 Standard: Advancing Bandwidth, Efficiency, and Capacity for AI and HPC. JEDEC Solid State Technology Association · 16 April 2025 [A](https://www.jedec.org/news/pressreleases/jedec%C2%AE-and-industry-leaders-collaborate-release-jesd270-4-hbm4-standard-advancing)

HBM4	2,048-bit, 32 channels	over 2.0 TB/s, up to 3.3 TB/s	up to 64 GB (16 chips, 32 Gb dies)
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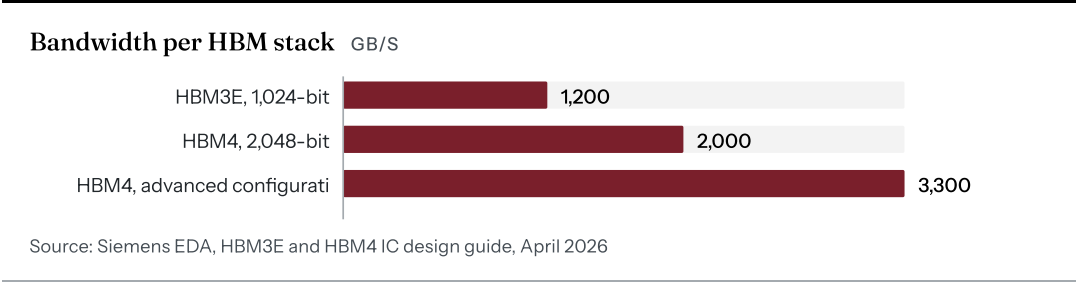
HBM3E

Micron's HBM3E comes in two sizes, 24 GB with eight chips stacked and 36 GB with twelve ⁹.

HBM4

The standards body JEDEC published JESD270-4 in April 2025, setting the 2,048-bit interface and 2 TB/s per stack at 8 Gb/s per pin ⁸. SK hynix says it was first to complete HBM4 development, in September 2025, at over 10 Gb/s per pin ¹⁰. Samsung says it began mass production and shipped the first commercial HBM4 in February 2026, at 11.7 Gb/s per pin, with a 4 nm logic base die ¹¹. Micron's parts run above 11 Gb/s for more than 2.8 TB/s per stack ¹². Micron says it began volume production of its 36 GB twelve-high HBM4 in fiscal 2026 and expects to ramp volume of HBM4E, the next generation, in calendar 2027 ¹³.

Through HBM3E, SK hynix made its own base dies, the chips at the bottom of each stack ¹⁴. For HBM4 it chose TSMC's advanced logic process, so the base die can hold more functions ¹⁴. As a result, TSMC, which does not make HBM, makes the base die for SK hynix's HBM4.



9 Micron, HBM3E product page. Micron Technology · Accessed 9 September 2026 www.micron.com/products/memory/hbm/hbm3e

8 JEDEC® and Industry Leaders Collaborate to Release JESD270-4 HBM4 Standard: Advancing Bandwidth, Efficiency, and Capacity for AI and HPC. JEDEC Solid State Technology Association · 16 April 2025 www.jedec.org/news/pressreleases/jedec%C2%AE-and-industry-leaders-collaborate-release-jesd270-4-hbm4-standard-advancing

10 SK hynix Completes World's First HBM4 Development and Readies Mass Production. SK hynix · 12 September 2025 news.skhynix.com/en/sk-hynix-completes-worlds-first-hbm4-development-and-readies-mass-production/

11 Samsung Ships Industry-First Commercial HBM4 With Ultimate Performance for AI Computing. Samsung Global Newsroom · 12 February 2026 news.samsung.com/global/samsung-ships-industry-first-commercial-hbm4

12 Micron, HBM4 product page. Micron Technology · Accessed 9 September 2026 www.micron.com/products/memory/hbm/hbm4

13 MICRON TECHNOLOGY INC, Form 10-K annual report for the period ended 2026-09-03 (10-K). U.S. Securities and Exchange Commission (filing by MICRON TECHNOLOGY INC) · 9 October 2026 www.sec.gov/Archives/edgar/data/723125/000072312526000023/mu-20260903.htm

14 SK hynix Partners with TSMC to Strengthen HBM Technological Leadership. SK hynix · 19 April 2024 news.skhynix.com/sk-hynix-partners-with-tsmc-to-strengthen-hbm-technological-leadership/

How a stack is built

- **Etch and thin.** Etch vertical holes, the through-silicon vias, into a memory wafer, fill them with copper, then grind the wafer from behind until the copper comes through.
- **Stack and join.** Thermocompression bonding joins the chips through metal bumps under heat and pressure, and it comes in several forms ¹⁶. SK hynix uses Advanced MR-MUF, which stacks the chips, injects a liquid protective material between them and hardens it ¹⁰. SK hynix says the process controls warping and dissipates heat well ¹⁰. Samsung said in February 2024 that its twelve-high HBM3E uses TC-NCF, thermocompression with a thin non-conductive film between the chips ¹⁷. Samsung expected TC-NCF to help limit warping as chips get thinner ¹⁷.
- **Stay under the height limit.** HBM4 raised the height allowed for a finished cube from 720 micrometers to 775, still under a millimeter ¹⁶.

Hybrid bonding is the next step, but it is not ready. It would join the chips copper to copper and insulator to insulator, with no solder and no filler ¹⁶. In chip packaging generally, microbumps sit about 20 micrometers apart, and hybrid bonds can sit less than 1 micrometer apart ¹⁶. A tech note on SK hynix's newsroom says full-scale adoption in HBM is most likely at HBM4E or HBM5, where stacks are projected to pass twenty layers ¹⁶. Heat builds up in the stack, and removing it becomes a major challenge at 16 to 20 layers ¹⁶.

Who makes it

Three firms took more than 90 percent of the revenue from ordinary computer memory, or DRAM, in the first quarter of 2026, according to IDC figures in SK hynix's US prospectus ¹. HBM comes from the same three, SK hynix, Samsung and Micron ¹. No other company has both leading-edge DRAM and a stacking line of its

¹⁶ [Tech Note] Hybrid Bonding: Evolving into a Foundational Technology for Improving Semiconductor Performance. SK hynix · 25 August 2026 [\[A\]](https://news.skhynix.com/en/tech-note-series-ep2/) news.skhynix.com/en/tech-note-series-ep2/

¹⁰ SK hynix Completes World's First HBM4 Development and Readies Mass Production. SK hynix · 12 September 2025 [\[A\]](https://news.skhynix.com/en/sk-hynix-completes-worlds-first-hbm4-development-and-readies-mass-production/) news.skhynix.com/en/sk-hynix-completes-worlds-first-hbm4-development-and-readies-mass-production/

¹⁷ Samsung Develops Industry-First 36GB HBM3E 12H DRAM. Samsung Global Newsroom · 27 February 2024 [\[A\]](https://news.samsung.com/global/samsung-develops-industry-first-36gb-hbm3e-12h-dram) news.samsung.com/global/samsung-develops-industry-first-36gb-hbm3e-12h-dram

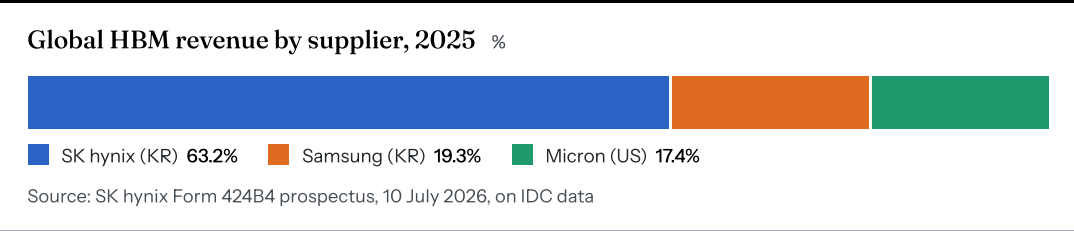
¹ SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 [\[A\]](https://www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm) www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

own. SK hynix says only a few firms have the expertise and resources to design, make and package memory chips ¹.

SK hynix says it was the first company to mass-produce several generations of HBM, including HBM3 and HBM3E ¹.

SK hynix broke ground in August 2026 on an advanced packaging plant in West Lafayette, Indiana, an investment of over \$4 billion ¹⁸. Micron is modernizing and expanding its DRAM and HBM production capacity in Taiwan ¹³. It has also broken ground on an HBM advanced packaging plant in Singapore to expand its packaging capacity from early 2027 ¹³.

Of 2025 HBM revenue, SK hynix took 63.2 percent, Samsung 19.3 and Micron 17.4 ¹. The split is public because SK hynix registered shares in the United States ¹. Its US prospectus credits the research firm IDC. Market shares move fast. In 2024 the same three stood at 56.4, 37.8 and 5.8 percent ¹. In the first quarter of 2026 they stood at 56.4, 20.5 and 23.1 percent, which put SK hynix back at its 2024 share ¹.

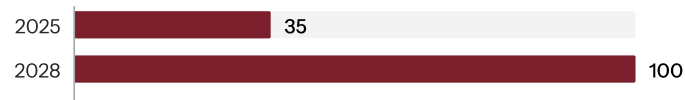


¹ SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 [\[A\]](https://www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm) www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

¹⁸ SK hynix breaks ground on \$4 billion advanced packaging production facility in Purdue Research Park. Purdue University · 27 August 2026 [\[A\]](https://www.purdue.edu/newsroom/2026/Q3/sk-hynix-breaks-ground-on-4-billion-advanced-packaging-production-facility-in-purdue-research-park/) www.purdue.edu/newsroom/2026/Q3/sk-hynix-breaks-ground-on-4-billion-advanced-packaging-production-facility-in-purdue-research-park/

¹³ MICRON TECHNOLOGY INC, Form 10-K annual report for the period ended 2026-09-03 (10-K). U.S. Securities and Exchange Commission (filing by MICRON TECHNOLOGY INC) · 9 October 2026 [\[A\]](https://www.sec.gov/Archives/edgar/data/723125/000072312526000023/mu-20260903.htm) www.sec.gov/Archives/edgar/data/723125/000072312526000023/mu-20260903.htm

HBM market, Micron's estimate for 2025 and forecast for 2028 \$B



Source: Micron prepared remarks, fiscal first quarter 2026, 17 December 2025

In December 2025 Micron put the HBM market at about \$35 billion in 2025 and forecast that it would reach around \$100 billion in 2028 ². Micron says HBM needs more wafers than traditional DRAM, the kind used in PCs and phones, to make the same number of bits ¹³. SK hynix says the industry's shift of production capacity to HBM has left traditional DRAM undersupplied ¹. The shortage, it says, helped drive a significant price recovery for that DRAM from the third quarter of 2025 ¹.

The chokepoint

The leading accelerators made outside China use HBM from SK hynix, Samsung or Micron. Nvidia's GB300 NVL72 rack carries 20 TB of HBM3E at up to 576 TB/s ¹⁹. Each Nvidia Rubin GPU carries up to 288 GB of HBM4 at up to 22 TB/s ²⁰. AMD's MI355X carries 288 GB of HBM3E at 8 TB/s ²¹.

On 5 December 2024 the Bureau of Industry and Security (BIS), the US export control office, published a rule at 89 FR 96790. It added an export classification, ECCN 3A090.c, for "High bandwidth memory (HBM) having a 'memory bandwidth density' greater than 2 gigabytes per second per square millimeter". Its technical note defines that density as the memory bandwidth in gigabytes per second divided by the area of the package or stack in square millimeters. The rule also covers stacks made outside the United States, through a foreign direct product rule, which applies US controls to goods made abroad with American technology ⁶. BIS stated in the rule that all HBM stacks then in production exceeded that threshold ⁶.

² Fiscal Q1 2026 Earnings Call Prepared Remarks. Micron Technology · 17 December 2025 [A](https://s25.q4cdn.com/621799436/files/doc_financials/2026/q1/Micron_Q1-2026-Prepared-Remarks.pdf)
s25.q4cdn.com/621799436/files/doc_financials/2026/q1/Micron_Q1-2026-Prepared-Remarks.pdf

¹³ MICRON TECHNOLOGY INC, Form 10-K annual report for the period ended 2026-09-03 (10-K). U.S. Securities and Exchange Commission (filing by MICRON TECHNOLOGY INC) · 9 October 2026 [A](https://www.sec.gov/Archives/edgar/data/723125/000072312526000023/mu-20260903.htm)
www.sec.gov/Archives/edgar/data/723125/000072312526000023/mu-20260903.htm

¹ SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 [A](https://www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm)
www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

¹⁹ NVIDIA GB300 NVL72. Nvidia · 23 July 2026 [A](https://www.nvidia.com/en-us/data-center/gb300-nvl72/)
www.nvidia.com/en-us/data-center/gb300-nvl72/

²⁰ Inside NVIDIA Rubin GPU Architecture: Powering the Era of Agentic AI. Nvidia · 21 July 2026 [A](https://developer.nvidia.com/blog/inside-nvidia-rubin-gpu-architecture-powering-the-era-of-agentic-ai/)
developer.nvidia.com/blog/inside-nvidia-rubin-gpu-architecture-powering-the-era-of-agentic-ai/

²¹ AMD Instinct™ MI355X GPUs. AMD · Accessed 9 September 2026 [A](https://www.amd.com/en/products/accelerators/instinct/mi350/mi355x.html)
www.amd.com/en/products/accelerators/instinct/mi350/mi355x.html

⁶ Foreign-Produced Direct Product Rule Additions, and Refinements to Controls for Advanced Computing and Semiconductor Manufacturing Items. Federal Register (Commerce Department; Industry and Security Bureau) · 5 December 2024 [A](https://www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing)
www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing

Under 15 CFR 742.6(b)(10)(ii), BIS reviews license applications to send 3A090.c items to Macau or a Country Group D:5 destination such as China ²². It reviews them with a presumption of approval when neither the buyer nor its ultimate parent is headquartered in one of those places, and with a presumption of denial otherwise ²².

Two provisions narrow the control. License Exception HBM, at 15 CFR 740.25, applies to exporters headquartered in the United States or a Country Group A:5 ally ⁵. It lets them ship HBM below 3.3 GB per second per square millimeter without a license ⁵. The HBM must be bought directly by the designer of the chip it will be packaged into and must go straight to the packaging site ⁵. The rule also excludes co-packaged chips that combine HBM and logic and whose main function is processing, which other chip controls may cover instead ⁶.

The think tank CSIS said in December 2024 that the rules still allowed HBM2, a generation introduced in 2016, to go to China, with limits on who could buy it and what for ²³. It also said Nvidia's H20, whose HBM3 is packaged with the processor, was then still exportable under the performance limits for AI chips ²³.

In December 2024 CSIS called China's strongest DRAM maker, CXMT, one of only two Chinese firms with a credible path to producing advanced HBM ²³. The Institute for Progress reported in October 2025 that CXMT was planning to produce HBM3 in 2026 ³. It also estimated that China would make virtually no HBM in 2025 ³. In June 2026 SemiAnalysis judged that CXMT was still struggling to stabilize supply of eight-high HBM3, with even greater challenges at twelve-high ²⁴.

22 15 CFR 742.6, Regional stability. Electronic Code of Federal Regulations · 23 July 2026 [A] www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-742/section-742.6

5 15 CFR 740.25 -- License Exception High Bandwidth Memory (HBM).. Electronic Code of Federal Regulations · 5 December 2024 [A] www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-740/section-740.25

6 Foreign-Produced Direct Product Rule Additions, and Refinements to Controls for Advanced Computing and Semiconductor Manufacturing Items. Federal Register (Commerce Department; Industry and Security Bureau) · 5 December 2024 [A] www.federalregister.gov/documents/2024/12/05/2024-28270/foreign-produced-direct-product-rule-additions-and-refinements-to-controls-for-advanced-computing

23 Understanding the Biden Administration's Updated Export Controls. Center for Strategic and International Studies · 11 December 2024 [A] www.csis.org/analysis/understanding-biden-administrations-updated-export-controls

3 Should the US Sell Blackwell Chips to China?. Institute for Progress · 25 October 2025 [A] ifp.org/the-b30a-decision/

24 China's CXMT Is Set to Challenge DRAM Incumbents. SemiAnalysis · 23 June 2026 [B] newsletter.semianalysis.com/p/chinas-cxmt-is-set-to-challenge-dram

Huawei said in September 2025 that its Ascend 950 chips would use two HBM designs of its own, HiBL 1.0 and HiZQ 2.0 ⁴. It said the 950DT, due in the fourth quarter of 2026, would carry 144 GB of HiZQ 2.0 at 4 TB/s ⁴. The announcement did not say who would manufacture the memory ⁴. SK hynix says HBM needs advanced production processes, such as TSV packaging, and must pass the rigorous testing and approval processes its customers set ¹.

FOUR THINGS TO REMEMBER

- HBM is memory stacked into a cube beside the processor and wired to pass data fast.
- An AI chip reads its whole model from memory for each word, so memory speed limits it.
- SK hynix, Samsung and Micron make nearly all HBM.
- Since December 2024 US controls have covered the HBM stacks then in production, with two exceptions. The Institute for Progress estimated that China made virtually no HBM in 2025.

Made by **Yashvardhan Sharma** with Claude. Corrections and questions: contact@chipsupplychain.org.

UPDATED 20 OCTOBER 2026

A company filings, governments, standards bodies, universities and research institutions; **B** SemiAnalysis, Reuters, the Financial Times and Nikkei Asia.

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⁴ Groundbreaking SuperPoD Interconnect: Leading a New Paradigm for AI Infrastructure. Huawei · 18 September 2025 **A**
www.huawei.com/en/news/2025/9/hc-xu-keynote-speech

¹ SK hynix Inc., Form 424B4 prospectus for the period ended 2026-07-10 (424(B)(4)). U.S. Securities and Exchange Commission (filing by SK hynix Inc.) · 10 July 2026 **A** www.sec.gov/Archives/edgar/data/2120882/000119312526299963/d32785d424b4.htm

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  month      = {October},
  note       = {Edition of 20 October 2026},
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