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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA**

Marc Garciguirre, Tyree Burnett Jr., Joseph Flores, Rodolfo Gurrola Jr., Brook Barclift, Theo Papulis, Jeff Ramirez Ochoa, Paul Henning, Troy’s Computers LLC, JB Tech Solutions LLC, Evan Feliciano, Wastenotime Developments Performance Fabrications, Brian Graber, Joseph Danson, John Prineas, Thomas Yu, and Donald Barber, individually and on behalf of all others similarly situated,

Plaintiffs,

v.

Samsung Electronics Co., Ltd.; Samsung Semiconductor, Inc.; SK Hynix Inc.; SK Hynix America Inc.; Micron Technology, Inc.,

Defendants.

Case No. 3:26-cv-6345

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

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INTRODUCTION

1
2 1. This lawsuit seeks to recover for—and stop—concerted anticompetitive behavior by three
3 oligopolists in the market for dynamic random access memory, more commonly called DRAM. DRAM
4 is the backbone of nearly every computing device on Earth, from smartphones, to laptop computers, to
5 data center servers. A processor reads from and writes to it constantly while a device runs; a smartphone
6 holds several gigabytes of it; and a data-center server holds far more. No general-purpose computer
7 functions without DRAM, and nothing substitutes for it. Three firms—Samsung, SK Hynix, and
8 Micron—make almost all of the world’s supply, together accounting for more than ninety percent of
9 DRAM revenue.

10 2. Since 2022, these firms have fixed supply and prices for DRAM, engaging in conduct that
11 makes no economic sense absent collusion and that has driven up the price of conventional DRAM
12 (sometimes called commodity DRAM) approximately 700% in a four-year period. The DRAM
13 oligopolists have simultaneously cut production, coordinated a pivot to HBM and exit from DDR3 and
14 DDR4, and otherwise decreased and locked up conventional DRAM supply while prices charged up with
15 mind-blowing scale and rapidity. Yet contrary to all economic and business logic, the DRAM oligopolists
16 each cut conventional DRAM supply *further*, with Micron going so far as to shutter its consumer DRAM
17 business, Crucial, at the most profitable price point in its history. Prices continued to rise, and still
18 Samsung, SK Hynix, and Micron continued to squeeze conventional DRAM supply, simultaneously and
19 publicly directing their resources toward less-profitable-per-die HBM—or in some cases, simply junking
20 conventional DRAM supply channels altogether.

21 3. This plan has thus far succeeded, as consumer purchasers of conventional DRAM and
22 devices incorporating it have paid supracompetitive prices and have otherwise suffered the impacts of a
23 distorted market crippled by the behavior of DRAM oligopolists that criminally fixed prices two decades
24 ago—then promoted the executives that did it when they got out of prison. And these price-fixing
25 oligopolists stand ready to recoup even more from American consumers absent intervention from this
26 court.

27 * * *

1 4. This case centers on conventional DRAM (sometimes called commodity DRAM)—
2 standardized memory built to industry specifications and sold for ordinary purposes, including the DDR4
3 and DDR5 modules in computers, the LPDDR memory in phones, and the server memory in data centers.
4 Because a part built to a given specification performs identically regardless of which of the three firms
5 made it, buyers treat commodity DRAM as fungible. There is a second, specialized form of DRAM—
6 high bandwidth memory, or HBM, built by stacking memory dies for artificial-intelligence accelerators.
7 Both forms are cut from the same scarce input: wafer capacity inside the fabrication plants, or fabs, that
8 make the chips. Each wafer devoted to HBM is a wafer unavailable for commodity DRAM, and because
9 HBM consumes several times the wafer area per bit, a modest shift toward HBM withdraws a
10 disproportionate share of commodity supply. The DRAM oligopolists, Samsung, SK Hynix, and Micron,
11 have used HBM to manipulate conventional DRAM supply, to facilitate their output- and price-fixing
12 conspiracy, and to strengthen entry barriers.

13 5. No new entrant can discipline these three firms in the conventional DRAM market. A
14 single modern DRAM fab costs fifteen to twenty billion dollars and takes years to build; the extreme-
15 ultraviolet lithography machines it requires come from one supplier in the Netherlands, committed years
16 ahead to the incumbents; the process recipes that make a fab yield usable chips comprise decades of
17 accumulated trade secrets; United States export controls bar the only other producers, in China, from
18 acquiring current-generation equipment; and even a finished chip must clear twelve to eighteen months
19 of customer qualification before a large buyer adopts it for a product. The practical consequence is that
20 when the three firms restrict supply, no outsider can expand output to undercut them.

21 6. These same three firms have in the past fixed the price of DRAM. Between 1998 and
22 2002, Samsung, Hynix (the predecessor of SK Hynix), and Micron, with other manufacturers, took part
23 in a criminal conspiracy to fix the prices of DRAM sold to major American computer makers. The
24 Department of Justice prosecuted it; Samsung pleaded guilty and paid a \$300 million criminal fine, SK
25 Hynix's predecessor pleaded guilty and paid \$185 million, total criminal penalties exceeded \$730 million,
26 and several executives went to prison. Micron took part but avoided a fine by reporting the conspiracy
27 and cooperating. Prices spiked again in 2016-2018, prompting a U.S. class action and a Chinese
28

1 government investigation into all three firms. The conduct alleged here is the third such cycle in the same
2 market, among the same firms.

3 7. The current conduct began in a downturn. In late 2022, DRAM demand was weak and
4 prices were falling. In October 2022, SK Hynix announced that it would cut production and reduce the
5 next year's investment by more than half. Micron contemporaneously announced an immediate twenty-
6 percent cut in wafer starts across all of its technology nodes, and later deepened it. The industry expected
7 Samsung—lowest in cost, deepest in resources—to hold or raise output and take share, as it had in prior
8 downturns. Instead, in April 2023, Samsung announced matching cuts after reporting a multibillion-dollar
9 quarterly loss in its semiconductor division. None of the three used the others' retreat to expand and win
10 customers. All three pulled back together.

11 8. Demand then returned in force. The growth of artificial intelligence drove buyers to
12 acquire memory in volumes the industry had not seen—both the HBM that accelerators require and the
13 commodity DRAM that every server, computer, and phone still needs. Meeting the supply the three firms
14 had withdrawn, conventional DRAM prices surged: by the third quarter of 2025, conventional DRAM
15 prices had risen roughly 171.8% year-over-year, and they rose a further 50% in Q4 2025 and
16 approximately 93% to 98% quarter-over-quarter in Q1 2026—a compounded price increase of
17 approximately 697% from Q3 2024 to Q1 2026. At retail, the price of consumer DDR5 memory modules
18 tripled, and in some cases quadrupled, with prices continuing to climb since.

19 9. In a competitive commodity market, prices climbing at that rate pull supply toward them.
20 At least one of three large producers, seeing record prices, would expand output of the product whose
21 price was rising, and the others would follow or lose customers. That did not happen.

22 10. TrendForce projected total DRAM-sector capital expenditure of \$53.7 billion in 2025 and
23 \$61.3 billion in 2026, but concluded that this spending would have minimal impact on 2026 bit-supply
24 growth, because the emphasis had shifted from capacity expansion toward process technology upgrades,
25 higher-layer stacking, hybrid bonding, and high-value products such as HBM.

26 11. The simultaneous pivot towards HBM and away from conventional DRAM was not
27 economically rational but for its anticompetitive effect of restricting supply and output of conventional
28 DRAM, driving up prices and margins. On Micron's own account of the technology, producing one bit

1 of HBM requires forgoing three bits of conventional memory. As Micron’s business chief told CNBC,
2 “[w]hen Micron makes one bit of HBM memory, it has to forgo making three bits of more conventional
3 memory for other devices.” Measured against the 76% operating margin Micron reported for its Mobile
4 and Client Business Unit, HBM is the better use of capacity only if its revenue premium per bit is large
5 enough to beat the profit from three commodity bits sold into the shortage, a threshold that requires an
6 HBM revenue premium of roughly two-and-a-half to nearly four times, depending on assumed HBM
7 margins.

8 12. By the spring of 2026, that premium had compressed so far that, according to
9 TrendForce’s per-wafer analysis, HBM wafer revenue had been overtaken by that of DDR5 64GB
10 RDIMM in the first quarter of 2026, and HBM profitability had fallen below that of DDR5 64GB
11 RDIMM. The conventional DRAM sales Defendants declined to make were not a low-margin
12 afterthought; they were, on Defendants’ own numbers, worth hundreds of millions to billions of dollars
13 in annual operating profit. Leaving that profit unclaimed, in unison, while commodity prices set records,
14 is difficult to reconcile with independent profit maximization.

15 13. In fact, rather than compete, the three converged. In 2024, Samsung and SK Hynix exited
16 DDR3 production while Micron continued only limited DDR3 output; in 2025, all three told customers
17 they would wind down mainstream DDR4 production, with final mainstream shipments clustered from
18 late 2025 into early 2026, even as many existing PCs and embedded systems still relied on DDR4. The
19 coordinated wind-down made older parts scarce, and their prices climbed until DDR4 cost more than the
20 newer DDR5 meant to replace it.

21 14. Micron’s own conduct sharpened the pattern, and it did so in a way that set Micron apart
22 from its co-Defendants. Micron sold conventional DRAM directly to consumers, under its Crucial
23 brand—the channel best suited to carry retail memory straight into a rising market. In approximately
24 October 2025, Samsung and SK Hynix announced strategic partnerships to supply OpenAI’s Stargate
25 initiative, targeting up to 900,000 DRAM wafer starts per month—a volume reported to be on the order
26 of forty percent of global DRAM output if fully implemented. The public announcements identified
27 Samsung and SK Hynix; they did not identify Micron.

1 15. Within about a month, in December 2025, with consumer memory prices at record highs,
2 Micron announced that it would close Crucial—one of the best-known consumer memory brands in the
3 world—and wind it down by the end of February 2026. A firm competing for the shortage would have
4 used Crucial to sell into those prices. Micron instead surrendered the channel, a choice that makes sense
5 only if Micron expected, by agreement, that Samsung and SK Hynix would not move aggressively to
6 serve the customers it abandoned.

7 16. Moreover, as supply tightened, the three turned customers away rather than competing to
8 serve them. In January 2026, industry reporting described all three manufacturers simultaneously
9 imposing the same heightened vetting on DRAM orders—questioning buyers about who the end user
10 would be, how much they truly needed, and whether their stated demand was real—on the stated ground
11 that some buyers would otherwise overbook or stockpile more than they needed. A customer described
12 it plainly, saying that “the three companies” had all grown stricter and asked the same questions. Sellers
13 in a competitive market compete to win orders; here, all three questioned buyers in the same way at the
14 same time.

15 17. The restraint proved highly profitable. SK Hynix posted record quarterly results driven by
16 HBM and high-end server memory and reported that its memory output for the following year was
17 effectively sold out. The memory divisions of Samsung and SK Hynix earned record profits at operating
18 margins above seventy percent. The two Korean producers were reported to have raised server DRAM
19 prices to major cloud customers, including Google and Microsoft, by 60% to 70% in a single quarter,
20 while declining the multi-year contracts those customers wanted—holding to quarterly pricing because
21 they expected prices to keep climbing.

22 18. The same restraint reached ordinary buyers. Common 32-gigabyte (2×16GB) DDR5 kits
23 that had cost roughly \$100 to \$200 in October 2025 climbed to a starting price of about \$350 by January
24 2026 (if in stock). Prices for higher capacity kits rose likewise—a 64-gigabyte DDR5 kit that sold for
25 about \$189 in March 2025 sold for more than \$425 by November and roughly \$1,080 by March 2026.
26 The prebuilt-computer seller CyberPowerPC told its customers it was raising prices because its memory
27 costs had risen 500% in a matter of months. Because memory is a component of nearly every device,
28 these increases flowed into finished products: CyberPowerPC raised its system prices in the United States

1 and United Kingdom, and Dell raised the prices of its commercial computers, adding \$130 to \$230 to
2 ordinary notebooks and desktops with 32 gigabytes of memory and far more to higher-capacity machines.
3 Consumers paid more not only for memory but for the computers and devices that contain it.

4 19. Plaintiffs bring this action on behalf of themselves and classes of indirect purchasers who
5 paid these inflated prices. Defendants' coordinated restriction of commodity DRAM supply violates
6 Section 1 of the Sherman Act, the California Cartwright Act, and other states' antitrust laws, and
7 Plaintiffs seek damages, including treble damages, together with injunctive relief requiring Defendants
8 to end their coordinated supply restriction and to restore competitive conditions in the commodity DRAM
9 market.

10 **PARTIES**

11 **I. PLAINTIFFS**

12 20. Marc Garciaguirre resides in Pasadena, California. During the Class Period, Plaintiff
13 Garciaguirre indirectly purchased conventional DRAM products manufactured by one or more
14 Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr.
15 Garciaguirre purchased the following products: a Corsair Vengeance 32GB DDR5 DRAM 6000MHz
16 CL36 for desktop from Micro Center on July 10, 2025; a Crucial 32GB DDR5 DRAM 5200MHz kit for
17 laptop purchased from Amazon on February 9, 2024; a 16GB DDR5 DRAM 4800MHz kit for laptop
18 purchased from Amazon on September 6, 2023; a Crucial 32GB DDR5 DRAM 5200MHz kit for laptop
19 purchased from Amazon on May 21, 2023; and a Crucial 32GB DDR5 DRAM kit for laptop purchased
20 from Amazon on May 9, 2023. Plaintiff Garciaguirre paid more for these products than he would have
21 paid absent Defendants' anticompetitive conduct.

22 21. Tyree Burnett Jr. resides in Carson, California. During the Class Period, Plaintiff Burnett
23 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
24 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Burnett purchased a
25 Corsair Vengeance RGB Pro 32GB (2×16GB) DDR4 3600MHz CL18 for desktop from Best Buy on
26 January 26, 2024. Plaintiff Burnett paid more for this product than he would have paid absent Defendants'
27 anticompetitive conduct.

1 22. Joseph Flores resides in Merced, California. During the Class Period, Plaintiff Flores
2 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
3 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Flores purchased a
4 Corsair Vengeance 32GB DDR5 DRAM 6000MHz CL30 for desktop from Newegg on March 16, 2026.
5 Plaintiff Flores paid more for this product than he would have paid absent Defendants' anticompetitive
6 conduct.

7 23. Rodolfo "Rudy" Gurrola Jr. resides in Lancaster, California. During the Class Period,
8 Plaintiff Gurrola indirectly purchased conventional DRAM products manufactured by one or more
9 Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Gurrola
10 purchased a Corsair Vengeance 64GB (2 x 32GB) DDR5 DRAM 6400MHz for desktop from Amazon
11 on July 7, 2025. Plaintiff Gurrola paid more for this product than he would have paid absent Defendants'
12 anticompetitive conduct.

13 24. Brook Barclift resides in Salinas, California. During the Class Period, Plaintiff Barclift
14 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
15 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Barclift purchased a
16 Corsair Vengeance 32GB (2 x 16GB) DDR5 DRAM 6000MHz CL30 for desktop from Amazon on
17 September 26, 2024. Plaintiff Barclift paid more for this product than he would have paid absent
18 Defendants' anticompetitive conduct.

19 25. Theo Papulis resides in El Monte, California. During the Class Period, Plaintiff Papulis
20 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
21 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Papulis purchased the
22 following products: a Vengeance Memory Foam Corsair 32GB (2 x 16GB) DDR5 DRAM 6000MHz for
23 desktop purchased from Amazon on July 12, 2023, and a Vengeance Memory Foam Corsair 32GB (2 x
24 16GB) DDR5 DRAM 6000MHz for desktop purchased from Amazon on May 4, 2023. Plaintiff Papulis
25 paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

26 26. Jeff Ramirez Ochoa resides in San Bernardino, California. During the Class Period,
27 Plaintiff Ochoa indirectly purchased conventional DRAM products manufactured by one or more
28 Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Ochoa

1 purchased a Crucial Pro 32GB DDR5 DRAM 6000MHz for desktop from Micro Center on April 15,
2 2026. Plaintiff Ochoa paid more for this product than he would have paid absent Defendants'
3 anticompetitive conduct.

4 27. Paul Henning resides in Naples, Florida. During the Class Period, Plaintiff Henning
5 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
6 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Henning purchased the
7 following products: a Kingston Fury Beast RGB 64GB DDR5 DRAM 6000MHz CL30 for desktop from
8 Newegg on March 6, 2025; a Crucial 8GB DDR4 DRAM 2666MHz CL19 for laptop from Amazon on
9 September 29, 2024; a Crucial 16GB DDR4 DRAM 2666MHz CL19 for laptop from Amazon on January
10 15, 2023; a Crucial 16GB DDR4 DRAM 3200MHz CL22 for laptop from Amazon on January 10, 2023;
11 and a Corsair Vengeance RGB Pro 32GB DDR4 DRAM 2933MHz CL16 for desktop from Amazon on
12 September 8, 2022. Plaintiff Henning paid more for these products than he would have paid absent
13 Defendants' anticompetitive conduct.

14 28. Troy's Computers LLC ("Troy's Computers") is a limited liability company registered in
15 Florida and managed by sole member Troy Butler. Troy's Computers operates as a brick-and-mortar
16 small business located in Summerfield, Florida. Troy's Computers offers custom computer builds for
17 customers. Toward that end, during the Class Period Plaintiff Troy's Computers indirectly purchased
18 conventional DRAM products manufactured by one or more Defendants by purchasing conventional
19 DRAM at artificially inflated prices. Troy's Computers purchased approximately 40 DDR4 or DDR5
20 DRAM products during the Class Period for inclusion in custom-built computers sold to customers.
21 Plaintiff Troy's Computers paid more for these products than it would have paid absent Defendants'
22 anticompetitive conduct.

23 29. JB Tech Solutions LLC d/b/a My Florida PC ("My Florida PC") is a limited liability
24 company registered in Florida and managed by sole member Jason Bonazoni. My Florida PC operates as
25 a brick-and-mortar small business located in Plantation, Florida. My Florida PC offers custom computer
26 builds for customers. Toward that end, during the Class Period Plaintiff My Florida PC indirectly
27 purchased conventional DRAM products manufactured by one or more Defendants by purchasing
28 conventional DRAM at artificially inflated prices. My Florida PC purchased dozens of DDR4 and/or

1 DDR5 DRAM products during the Class Period for inclusion in custom-built computers sold to
2 customers. Plaintiff My Florida PC paid more for these products than it would have paid absent
3 Defendants' anticompetitive conduct.

4 30. Evan Feliciano resides in Miami, Florida. During the Class Period, Plaintiff Feliciano
5 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
6 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Feliciano purchased the
7 following products: a KingBank 32GB DDR5 DRAM 6400MHz CL32 from Amazon in May 2026; a
8 Lexar 32GB DDR5 DRAM 6000MHz CL30 from Micro Center in October 2025; two kits of Crucial
9 16GB DDR4 DRAM 3200MHz CL16 from Micro Center in March or April 2025; and a TeamGroup T-
10 Force 32GB DDR5 DRAM 6000MHz CL30 from Amazon in February 2026. Plaintiff Feliciano paid
11 more for these products than he would have paid absent Defendants' anticompetitive conduct.

12 31. Wastenotime Developments Performance Fabrications d/b/a WNTD Fab LLC ("WNTD
13 Fab") is a limited liability company registered in Florida and managed by sole member Evan Feliciano.
14 WNTD Fab is a small business operating in Miami, Florida. WNTD Fab offers custom computer builds
15 for customers. Toward that end, during the Class Period Plaintiff WNTD Fab indirectly purchased
16 conventional DRAM products manufactured by one or more Defendants by purchasing conventional
17 DRAM at artificially inflated prices. WNTD Fab purchased at least the following conventional DRAM
18 products during the Class Period for inclusion in custom-built computers sold to customers: a TeamGroup
19 T-CREATE EXPERT 48GB DDR5 DRAM 7200MHz CL32 from Micro Center in November 2025; a
20 Kingston 96GB DDR5 DRAM 6400MHz CL32 from Amazon in September or October 2025; a Corsair
21 64GB DDR5 DRAM 6000MHz CL30 from Micro Center in April or May 2025; a G.SKILL 32GB DDR5
22 DRAM 6000MT/s CL28 from Micro Center in April 2025; a Kingston 32GB DDR5 DRAM 6000Mhz
23 CL36 from Amazon in April 2025; and a KLEVV DDR5 DRAM 32GB that was either 6000MHz CL30
24 or 6400MHz CL32 from Amazon in August 2025. Plaintiff WNTD Fab paid more for these products than
25 it would have paid absent Defendants' anticompetitive conduct.

26 32. Brian Graber resides in Big Lake, Minnesota. During the Class Period, Plaintiff Graber
27 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
28 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Graber purchased the

1 following products: a Team Group 16GB (2 x 8GB) DDR5 DRAM 6000MHz from Newegg on January
2 23, 2026; a Team Group 16GB (2 x 8GB) DDR5 DRAM 6000MHz from Newegg on November 3, 2025;
3 a G.SKILL Ripjaws V Series 32GB (2 x 16GB) DDR4 DRAM 3200MHz for desktop from Newegg on
4 December 7, 2025; a Team T-Force Delta RGB 48GB (2 x 24GB) DDR5 DRAM 7200MHz for desktop
5 from Newegg on September 15, 2025; and a Corsair Vengeance RGB 32GB DDR5 DRAM 6400MHz
6 for desktop from Newegg on November 26, 2025. Plaintiff Graber paid more for these products than he
7 would have paid absent Defendants' anticompetitive conduct.

8 33. Joseph Danson resides in Jamestown, New York. During the Class Period, Plaintiff
9 Danson indirectly purchased conventional DRAM products manufactured by one or more Defendants by
10 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Danson purchased a
11 Corsair Vengeance 96GB (2 x 48GB) DDR5 DRAM 6000MHz for server from Amazon on June 17,
12 2025. Plaintiff Danson paid more for this product than he would have paid absent Defendants'
13 anticompetitive conduct.

14 34. John Prineas resides in Newfield, New York. During the Class Period, Plaintiff Prineas
15 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
16 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Prineas purchased a
17 32GB (2 x 16GB) DDR5 DRAM 6200MHz CL36 for desktop from Newegg on March 23, 2023 and a
18 32GB (2 x 16GB) DDR5 DRAM 6200 MHz for desktop from Newegg on February 11, 2023. Plaintiff
19 Prineas paid more for these products than he would have paid absent Defendants' anticompetitive
20 conduct.

21 35. Thomas Yu resides in Brooklyn, New York. During the Class Period, Plaintiff Yu
22 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
23 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Yu purchased a G.SKILL
24 15GB (2 x 8GB) DDR4 DRAM 3200MHz CL16 from Micro Center on October 11, 2024; a Corsair
25 Vengeance 32GB (2 x 16GB) DDR5 DRAM 5600MHz CL36 from Micro Center on March 3, 2024; and
26 a Corsair 32GB (2 x 16GB) RGB DDR4 DRAM 3200MHz CL16 from Micro Center on April 3, 2022.
27 Plaintiff Yu paid more for these products than he would have paid absent Defendants' anticompetitive
28 conduct.

1 36. Donald Barber resides in Sheboygan, Wisconsin. During the Class Period, Plaintiff Barber
2 indirectly purchased conventional DRAM products manufactured by one or more Defendants by
3 purchasing conventional DRAM at artificially inflated prices. For example, Mr. Barber purchased two
4 Corsair 32GB DDR5 DRAM 6000MHz for desktop from Best Buy in or around April 2026. Plaintiff
5 Barber paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

6 **II. DEFENDANTS**

7 37. Defendant Samsung Electronics Co., Ltd. ("Samsung Electronics") is a South Korean
8 corporation with its principal place of business in Suwon, Gyeonggi Province, South Korea. Samsung
9 Electronics is one of the world's two largest DRAM manufacturers by revenue, holding approximately
10 32.6% of the global DRAM market as of Q3 2025. Samsung manufactures and sells DRAM products—
11 including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, HBM, and other memory products—
12 throughout the United States, directly and through its subsidiaries.

13 38. Defendant Samsung Semiconductor, Inc. ("Samsung Semiconductor") is a California
14 corporation headquartered at 3655 North First Street, San Jose, California 95134. Samsung
15 Semiconductor is a wholly-owned subsidiary of Samsung Electronics Co., Ltd. and serves as Samsung's
16 United States semiconductor sales, marketing, and distribution arm. Samsung Electronics and Samsung
17 Semiconductor are collectively referred to in this Complaint as "Samsung."

18 39. Defendant SK Hynix Inc. ("SK Hynix") is a South Korean corporation with its principal
19 place of business in Icheon, Gyeonggi Province, South Korea. SK Hynix is the world's largest DRAM
20 manufacturer by revenue as of Q3 2025, holding approximately 33.2% of the global market. SK Hynix
21 manufactures and sells DRAM products throughout the United States, directly and through its
22 subsidiaries.

23 40. Defendant SK Hynix America Inc. ("SK Hynix America") is a California corporation
24 headquartered at 3101 North First Street, San Jose, California 95134. SK Hynix America is a wholly-
25 owned subsidiary of SK Hynix Inc. and serves as SK Hynix's United States sales, marketing, and
26 technical support subsidiary.

27 41. Defendant Micron Technology, Inc. ("Micron") is a Delaware corporation headquartered
28 at 8000 South Federal Way, Boise, Idaho 83716. Micron is the world's third-largest DRAM

1 manufacturer, holding approximately 25.7% of the global DRAM market by revenue as of Q3 2025.
2 Micron manufactures and sells DRAM products throughout the United States directly and through its
3 subsidiaries and distribution channels, including its Crucial-branded consumer memory business.

4 42. Various persons and entities not named as Defendants herein participated as co-
5 conspirators in the violations alleged in this Complaint and performed acts and made statements in
6 furtherance thereof. Each Defendant acted as the principal, agent, or joint venturer of, or for, the other
7 Defendants with respect to the acts, violations, and common course of conduct alleged herein.

8 **JURISDICTION AND VENUE**

9 43. This Court has subject matter jurisdiction over Plaintiffs' federal claims pursuant to 28
10 U.S.C. §§ 1331 and 1337, and Sections 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15 and 26.

11 44. This Court has supplemental jurisdiction over Plaintiffs' state-law claims pursuant to 28
12 U.S.C. § 1367.

13 45. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a) and 22, and 28 U.S.C. §
14 1391(b), (c), and (d). Samsung Semiconductor, Inc. is headquartered at 3655 North First Street, San Jose,
15 California. SK Hynix America Inc. is headquartered at 3101 North First Street, San Jose, California. Both
16 are California corporations. A substantial part of the events giving rise to Plaintiffs' claims occurred in
17 this District, and a substantial portion of the affected interstate trade and commerce was carried out in
18 this District.

19 46. This Court has personal jurisdiction over each Defendant. Each Defendant, directly or
20 through its agents, subsidiaries, or affiliates: (a) transacted business in this District; (b) sold conventional
21 DRAM products in this District; (c) had substantial contacts with this District; and (d) is subject to
22 personal jurisdiction under 15 U.S.C. § 22 and Cal. Civ. Proc. Code § 410.10.

23 47. This Court has personal jurisdiction over Defendants Samsung Electronics Co., Ltd. and
24 Samsung Semiconductor, Inc. Samsung Semiconductor is incorporated in California (File No. C1145978)
25 and headquartered at 3655 North First Street, San Jose, within this District. Samsung Semiconductor
26 serves as Samsung's United States semiconductor sales, marketing, distribution, and technical-support
27 arm. Samsung Electronics is subject to personal jurisdiction through its wholly-owned subsidiary and its
28 direct sales into this District.

1 48. This Court has personal jurisdiction over Defendants SK Hynix Inc. and SK Hynix
2 America Inc. SK Hynix America is incorporated in California (File No. C1175976) and maintains its
3 principal office at 3101 North First Street, San Jose, within this District. SK Hynix America serves as SK
4 Hynix Inc.’s U.S. sales, marketing, and technical support subsidiary. SK Hynix Inc. is subject to personal
5 jurisdiction through its wholly-owned subsidiary and its direct sales into this District.

6 49. This Court has personal jurisdiction over Defendant Micron Technology, Inc. Micron
7 maintains an office in San Jose, California, within this District. Micron sells conventional DRAM
8 products directly and through distributors to major customers headquartered in the Northern District of
9 California, including Apple, Alphabet/Google, Meta Platforms, Cisco Systems, and Hewlett Packard
10 Enterprise. Micron is subject to personal jurisdiction under the Clayton Act, 15 U.S.C. § 22, and Cal. Civ.
11 Proc. Code § 410.10.

12 **DIVISIONAL ASSIGNMENT**

13 50. This is an antitrust class action for which “venue is proper in any courthouse in this
14 District” under General Order No. 44 § D.3 and Civil Local Rule 3-2(c).

15 **FACTS**

16 **I. THE DRAM INDUSTRY**

17 51. The DRAM industry has structural characteristics that make coordinated supply restriction
18 both feasible and durable. The following sections describe the product, how it is manufactured and sold,
19 its role in consumer devices, and the oligopolistic market structure in which Defendants operate.

20 **A. What Is DRAM?**

21 52. DRAM—Dynamic Random Access Memory—is a semiconductor chip that provides
22 temporary, high-speed data storage for electronic processors. Unlike NAND flash or hard drives, DRAM
23 retains data only while power is supplied. It is the “working memory” of every computing device: the
24 active workspace where processors read and write data during operation.

25 53. At the physical level, each bit of DRAM is stored in a memory cell consisting of a tiny
26 capacitor paired with a single transistor. The capacitor holds an electrical charge to represent a binary 1,
27 or no charge to represent a 0.

1 54. Because capacitors leak charge over time, the data would be lost within milliseconds
2 without intervention. DRAM circuits must therefore “refresh” every cell thousands of times per second—
3 rewriting the stored charge before it dissipates. This constant refresh cycle is what makes the memory
4 “dynamic.” It distinguishes DRAM from static RAM (SRAM), which retains data without refreshing but
5 requires four to six transistors per bit instead of one, making SRAM far more expensive and less dense.
6 SRAM is used in small, fast processor caches; DRAM is used for the large main memory that every
7 computing device requires.

8 55. In the memory hierarchy of a modern computer, DRAM sits between the processor and
9 long-term storage. It is roughly 100,000 times faster than a solid-state drive and roughly 100 times slower
10 than on-chip SRAM cache.

11 56. The amount of DRAM in a system directly determines how many applications can run
12 simultaneously, how large a dataset can be processed in memory, and how responsive the system feels to
13 its user. Adding more DRAM is one of the most cost-effective ways to improve the performance of any
14 computing device—which is precisely why inflated conventional DRAM prices cause such broad
15 consumer harm.

16 57. DRAM is present in virtually every electronic device manufactured today. A typical
17 smartphone contains 4-12 gigabytes of DRAM. A typical personal computer contains 8-32 gigabytes. A
18 modern data center server may contain 512 gigabytes to several terabytes. Without DRAM, none of these
19 devices can operate. There is no substitute.

20 58. DRAM chips are manufactured to technical specifications set by the Joint Electron Device
21 Engineering Council (JEDEC), a global standards body. Because chips conforming to a given JEDEC
22 standard are functionally interchangeable across manufacturers—one maker’s DDR5 for another’s
23 DDR5, one maker’s DDR4 for another’s DDR4—DRAM is a commodity. An OEM designing a laptop
24 can source DDR5 from Samsung, SK Hynix, or Micron and expect identical performance.

25 59. The principal types of DRAM at issue include: (a) DDR4, the previous mainstream
26 generation, still deployed across a large installed base of systems; (b) DDR5, the current mainstream
27 generation; (c) LPDDR5X, used in smartphones and ultraportable laptops; (d) GDDR6 and GDDR7, used
28

1 in graphics cards; and (e) HBM (High Bandwidth Memory), a specialized stacked-DRAM product used
2 in AI accelerators like Nvidia's H100 and Blackwell GPUs.

3 60. Commodity DRAM serves the mass market—every consumer, every business, every
4 device. HBM serves a narrow ultra-high-end segment of AI customers. HBM commands prices several
5 times higher per gigabyte and requires more than twice the silicon wafer area to manufacture. The
6 conspiracy alleged herein involves Defendants' coordinated decision to starve the commodity DRAM
7 market of supply while redirecting resources to HBM.

8 61. The global DRAM market generated revenues exceeding \$90 billion in 2024. DRAM
9 revenue is projected to reach \$136.5 billion in 2025, a 51 percent year-over-year increase, driven by rising
10 average prices and the growth of high-value products such as high-bandwidth memory.

11 **B. How DRAM Is Manufactured and Sold**

12 62. DRAM chips are manufactured in semiconductor fabrication facilities (“fabs”)—
13 specialized factories that process silicon wafers through hundreds of sequential steps. A single DRAM
14 chip contains billions of transistors and capacitors.

15 63. A modern DRAM fab costs \$15-20 billion to build and takes three to five years from
16 groundbreaking to volume production. The equipment is highly specialized: extreme ultraviolet (EUV)
17 lithography systems, manufactured almost exclusively by ASML of the Netherlands, cost approximately
18 \$200 million each, and a single fab may require dozens. These facilities cannot be readily converted to
19 produce other types of semiconductors.

20 64. DRAM production capacity is measured in “wafer starts per month”—the number of
21 300mm silicon wafers entering the fab each month. Total global DRAM capacity in 2025 was
22 approximately 2.25 million wafer starts per month, virtually all controlled by Defendants.

23 65. Wafer capacity is a zero-sum resource. Every wafer allocated to HBM is a wafer that
24 cannot produce commodity DDR5. Because HBM requires more than twice the wafer area per gigabyte,
25 even a modest reallocation from commodity DRAM to HBM has a disproportionate impact on
26 commodity supply.

27 66. Conventional DRAM is sold through several channels. Defendants sell directly to large
28 OEMs (Dell, HP, Lenovo, Apple) and data center operators (Amazon, Google, Microsoft, Meta) through

1 negotiated quarterly contracts. They also sell to memory module assemblers (Kingston, Corsair, G.Skill)
2 and distributors, who in turn sell to smaller OEMs, system builders, retailers, and consumers. Contract
3 prices are negotiated quarterly and are publicly tracked by TrendForce/DRAMeXchange, providing each
4 Defendant with near-real-time visibility into its competitors' pricing.

5 67. Consumers and small businesses—the indirect purchasers on whose behalf this action is
6 brought—purchase conventional DRAM in two forms: as standalone memory modules (e.g., a DDR5
7 upgrade kit from Corsair) and as a component embedded in electronic devices (e.g., a laptop, smartphone,
8 or gaming console). In both cases, the supracompetitive DRAM price is passed through the distribution
9 chain and borne by the end purchaser.

10 C. DRAM in Consumer Devices

11 68. Every smartphone sold worldwide contains DRAM. Apple's iPhone 16 Pro contains 8
12 gigabytes of LPDDR5X DRAM. Samsung's Galaxy S25 Ultra contains 12 gigabytes. Over 1.2 billion
13 smartphones shipped worldwide in 2024, and IDC projects approximately 1.25 billion units in 2025.
14 Every one of these devices contains DRAM manufactured by Samsung, SK Hynix, or Micron. For United
15 States purchasers that need current-generation smartphone DRAM at scale, the Chinese producers
16 discussed below are not a meaningful substitute.

17 69. Every personal computer and laptop contains DRAM. A typical 2024 laptop ships with 16
18 to 32 gigabytes of DDR5. Global PC shipments exceeded 240 million units in 2024. Every gaming
19 console contains DRAM: the PlayStation 5 uses 16 gigabytes of GDDR6, and the Xbox Series X uses 16
20 gigabytes of GDDR6. Sony has shipped over 75 million PlayStation 5 consoles since launch.

21 70. Data centers and cloud computing facilities are among the largest DRAM consumers. A
22 single server configured for AI training workloads may contain one to two terabytes of DRAM.
23 Hyperscale operators—Amazon Web Services, Google Cloud, Microsoft Azure, and Meta—collectively
24 purchase billions of dollars of DRAM annually. DRAM is also embedded in smart televisions,
25 networking equipment, and automobiles, where modern vehicles require multiple gigabytes of DRAM
26 for infotainment systems, advanced driver-assistance systems, and autonomous driving functions.

27 71. DRAM is embedded in virtually every electronic device manufactured today. When
28 Defendants coordinate to restrict DRAM supply and inflate prices, the cost increase is passed through to

1 consumers across every one of these product categories—smartphones, PCs, gaming consoles, servers,
2 automobiles, and consumer electronics. No device category escapes the impact.

3 **D. The DRAM Oligopoly**

4 72. Three companies control over 91% of global DRAM revenue. As of Q3 2025, SK Hynix
5 held 33.2%, Samsung held 32.6%, and Micron held 25.7%. The Herfindahl-Hirschman Index (“HHI”)
6 for the DRAM market is approximately 2,868—well above the 1,800 threshold that the DOJ and FTC
7 identify as presumptively “highly concentrated.” U.S. Dep’t of Justice & FTC, 2023 Merger Guidelines
8 § 2.1 (Dec. 18, 2023).

9 73. This was not always so. In the 1990s, approximately twenty firms manufactured DRAM.
10 Over the following two decades, a relentless cycle of capital-intensive competition drove consolidation:
11 Qimonda (Germany) went bankrupt in 2009; Elpida Memory (Japan) went bankrupt in 2012 and was
12 acquired by Micron; ProMOS Technologies and Powerchip Semiconductor (Taiwan) exited the market;
13 NEC, Hitachi, and Toshiba withdrew. The survivors—Samsung, SK Hynix, and Micron—absorbed the
14 fallen and emerged as an unassailable triopoly.

15 74. The only remaining DRAM producers outside the Big Three are specialty manufacturers
16 like Nanya, Winbond, and PSMC, which collectively have less than 3% of the market, and Chinese firms
17 Changxin Memory Technologies (“CXMT”) and Fujian Jinhua Integrated Circuit Company. These
18 Chinese firms collectively hold 5% or less of global capacity and are limited to older-generation DRAM.
19 United States export controls—promulgated by the Bureau of Industry and Security in October 2022 and
20 updated in October 2023—restrict their access to advanced chipmaking equipment, preventing them from
21 meaningfully manufacturing competing DDR5, LPDDR5X, GDDR7, or HBM. They are not a
22 competitive constraint on Defendants.

23 75. Barriers to entry are insurmountable. A new entrant would need \$15-20 billion for a single
24 fab, proprietary process technology, thousands of specialized engineers, 12-18 months of customer
25 qualification, and years of yield optimization. The total investment to reach competitive scale is estimated
26 at \$30-50 billion over five to seven years. No significant new entrant has achieved meaningful share in
27 over a decade.

1 76. A smartphone manufacturer cannot build a phone without DRAM. A server manufacturer
2 cannot build a server without DRAM. When prices rise—even by approximately 697%—purchasers do
3 not switch to other products. They pay, or they defer purchases.

4 77. The conventional DRAM market exhibits every structural feature that facilitates
5 coordination: extreme concentration; a homogeneous, commodity product standardized by JEDEC;
6 transparent pricing tracked by TrendForce on a quarterly basis; repeated interactions with the same
7 customers on the same quarterly cycle; symmetric cost structures across all three firms; and a proven
8 history of successful cartel activity.

9 **II. THE FABRICATION BARRIER TO ENTRY (“FBE”)**

10 78. The conventional DRAM market is protected by what this Complaint terms the
11 “Fabrication Barrier to Entry” (“FBE”)—a self-reinforcing combination of capital requirements,
12 equipment scarcity, proprietary process technology, regulatory restrictions, and customer qualification
13 cycles that makes meaningful new entry into conventional DRAM manufacturing virtually impossible.

14 **A. Capital Requirements**

15 79. A single modern DRAM fabrication facility costs \$15-20 billion to construct and equip.
16 A competitive DRAM operation requires multiple fabs, process development facilities, packaging and
17 testing lines, and global logistics infrastructure. The total investment to reach competitive scale is
18 estimated at \$30-50 billion over five to seven years.

19 80. For context, \$30-50 billion exceeds the GDP of approximately half the world’s nations.
20 No venture capital fund, private equity firm, or sovereign wealth fund has attempted this investment in
21 over a decade.

22 81. For comparison, the U.S. CHIPS and Science Act of 2022 authorized \$52.7 billion in
23 semiconductor subsidies—roughly the cost of building a single competitive DRAM operation. Micron
24 announced plans for its CHIPS Act-funded fab in Clay, New York in 2022 and broke ground, after a long
25 planning and permitting process, in January 2026. That fab is not expected to begin production until late
26 2030. The timeline from government commitment to first wafer illustrates the multi-year lag inherent in
27 DRAM capacity expansion.

1 82. TrendForce’s November 2025 analysis of memory-industry capital expenditure reflects
2 the scale of investment required merely to maintain leading-edge operations. TrendForce projected that
3 Samsung would invest \$20 billion in 2026 (up 11% year-over-year) to advance 1C-process HBM
4 production and slightly expand P4L wafer capacity; that SK Hynix spending would reach \$20.5 billion
5 (up 17%), driven by HBM4 capacity expansion at its M15x fab; and that Micron capital expenditure
6 would reach \$13.5 billion (up 23%), primarily for 1-gamma node adoption and TSV equipment. These
7 are TrendForce projections describing where investment was directed, not issuer-reported segment capital
8 expenditure.

9 83. TrendForce projected that total DRAM-sector capital expenditure would reach \$53.7
10 billion in 2025 and rise to \$61.3 billion in 2026, approximately 14% year-over-year growth. TrendForce
11 concluded that this investment “is unlikely to significantly affect bit output” because “the emphasis is
12 shifting from capacity expansion to advancements such as process technology upgrades, higher-layer
13 stacking, hybrid bonding, and high-value products such as HBM.” In other words, Defendants are
14 collectively spending more than \$60 billion per year without directing any material amount to commodity
15 DRAM supply. On TrendForce’s analysis, the additional capital expenditure would have a minimal
16 impact on bit supply growth in 2026, not a near-term ordinary DRAM supply response.

17 84. TrendForce further reported: “Cleanroom capacity in the DRAM industry remains limited.
18 Only Samsung and SK Hynix are able to slightly expand their production lines, whereas Micron is waiting
19 for its new ID1 fab in the United States to become operational. This is not expected to happen before
20 2027. Consequently, additional CapEx will have a minimal impact on bit supply growth in 2026.”

21 **B. Equipment Scarcity: The ASML Bottleneck**

22 85. Modern DRAM manufacturing at the leading edge requires extreme ultraviolet (“EUV”)
23 lithography systems, manufactured almost exclusively by ASML Holding N.V. of the Netherlands. Each
24 EUV system costs more than \$200 million, and a single advanced DRAM fab may require dozens of
25 them. ASML produces around 50 EUV systems per year, and its order backlog extends years into the
26 future.

27 86. ASML’s limited production capacity is already fully allocated to existing customers—
28 principally Samsung, SK Hynix, Micron, TSMC, and Intel. A new DRAM entrant would face multi-year

1 wait times for the most critical manufacturing equipment, during which it would earn zero revenue on a
2 multi-billion-dollar investment.

3 87. ASML’s current-generation EUV system, the TWINSCAN NXE:3600D, costs up to \$200
4 million per unit. ASML’s next-generation High-NA EUV system costs approximately \$370 million per
5 unit. As of 2022, ASML had shipped approximately 140 EUV systems worldwide. ASML’s annual
6 production capacity is limited, and all output is allocated to existing customers years in advance. A new
7 entrant would join a multi-year queue behind Samsung, SK Hynix, Micron, TSMC, and Intel—each of
8 which has contractual commitments with ASML for future EUV deliveries.

9 **C. Proprietary Process Technology**

10 88. DRAM manufacturing requires proprietary process technology that has been developed
11 over decades at a cost of tens of billions of dollars in cumulative R&D. Each of the three Defendants
12 maintains a unique process technology “node”—currently in the 1-alpha (1α) to 1-gamma (1γ) range—
13 that defines the density, power consumption, and performance of its DRAM chips. These process nodes
14 are protected by thousands of patents and trade secrets.

15 89. A new entrant would need to independently develop comparable process technology from
16 scratch or license it from an existing manufacturer. No existing manufacturer has any incentive to license
17 its core process technology to a potential competitor. The process technology gap between the Big Three
18 and any potential entrant is measured in years or decades.

19 90. Current leading-edge DRAM is manufactured at proprietary process nodes designated 1-
20 alpha (~15nm class), 1-beta (~13nm class), and 1-gamma (~10nm class). Each manufacturer maintains
21 its own version of these nodes—Samsung’s “1b” and “1c,” SK Hynix’s “1b,” and Micron’s “1-beta”—
22 developed through decades of accumulated know-how in high-aspect-ratio capacitor etching, cell
23 architecture design, and yield optimization. These process technologies are closely guarded trade secrets
24 that cannot be purchased or licensed.

25 91. The difficulty of developing competitive DRAM process technology is illustrated by the
26 yield challenges facing even incumbent manufacturers. In February 2026, TrendForce reported that
27 Samsung’s HBM4-bound 1c DRAM yields were still estimated below 60%, and that Samsung was
28 pushing to lift them toward 80% to serve key AI customers including Nvidia. SK Hynix, meanwhile, was

1 reportedly cutting HBM4 shipments by 20-30% from its original target. A new entrant starting from
2 scratch would need an estimated five to ten years to develop competitive process technology, even with
3 unlimited capital.

4 **D. U.S. Export Controls**

5 92. In October 2022—the same month the coordinated production cuts began—the U.S.
6 Bureau of Industry and Security (“BIS”) promulgated sweeping semiconductor export controls targeting
7 China. These controls, updated in October 2023, restrict Chinese firms’ access to advanced chipmaking
8 equipment, including EUV lithography systems, certain advanced deposition and etching tools, and
9 electronic design automation (“EDA”) software.

10 93. The export controls effectively cap Chinese DRAM manufacturers—principally CXMT
11 and Fujian Jinhua—at older-generation DRAM technology. These firms cannot meaningfully
12 manufacture competing DDR5, LPDDR5X, GDDR7, or HBM, as they cannot acquire the equipment
13 necessary to do so. They are therefore unable to serve as a competitive constraint on Defendants in the
14 product segments experiencing the most severe supply restriction and price inflation.

15 94. In early 2026, the MATCH Act was introduced in Congress, with significant support from
16 Micron. The MATCH Act would expand these same export controls to include not only EUV lithography
17 systems, but also DUV lithography systems. DUV is an older technology that China-based manufacturers,
18 blocked from using EUV, had turned to in order to manufacture older-generation DRAM. The MATCH
19 Act would further solidify the barrier to any competition to the oligopoly.

20 95. The practical effect is to cement the FBE. The only potential competitors are barred from
21 acquiring the equipment needed to manufacture current-generation DRAM.

22 **E. Customer Qualification Cycles**

23 96. Even if a new entrant could build a fab, acquire equipment, and develop process
24 technology, it would face an additional 12-18 months of customer qualification before any major OEM
25 or data center operator would purchase its DRAM in volume. Customer qualification involves extensive
26 testing of the new manufacturer’s chips for compatibility, reliability, and performance across thousands
27 of system configurations. During this qualification period, the entrant would be producing DRAM with
28 no guaranteed buyers.

1 97. The customer qualification barrier is particularly severe in the server and data center
2 market, where memory failures can cause catastrophic data loss. Enterprise customers—Amazon,
3 Google, Microsoft, Meta—maintain approved vendor lists and require months or years of validation
4 before adding a new DRAM supplier. A new entrant cannot shortcut this process.

5 98. Server OEMs such as Dell, HP, and Lenovo can require a year or more of qualification
6 testing before deploying memory from a new supplier. During qualification, the manufacturer must
7 demonstrate consistent yield, reliability, and performance across multiple production lots. No server
8 OEM will risk deploying unqualified memory in mission-critical systems—a single uncorrectable bit
9 error can crash an enterprise server, corrupt a database, or halt a cloud computing workload.

10 99. The qualification requirement creates a structural barrier: a new entrant cannot generate
11 revenue without completing qualification, but cannot justify the cost of qualification without committed
12 customers. Incumbent manufacturers, by contrast, have maintained continuous qualification status with
13 every major OEM for decades. Dell COO Jeff Clarke stated in November 2025 that he had “never seen
14 memory-chip costs rise this fast,” yet Dell continued to source exclusively from Defendants—illustrating
15 the absence of any qualified alternative supplier.

16 **F. Withholding of Conventional DRAM Production Capacity**

17 100. Defendants are likewise actively contributing to the FBE. At the same time Defendants
18 were implementing parallel production cuts and shifting investment and production to HBM, they stopped
19 reselling used DRAM fabrication equipment. In prior years, smaller market participants had relied on
20 buying Defendants’ used DRAM machinery in order to build their own production capabilities. But with
21 this equipment now sitting in Defendants’ warehouses, Defendants hamper the ability for non-Defendant
22 producers to react to Defendants’ supply cuts.

23 101. These are not obsolete tools, but functional production equipment capable of
24 manufacturing DDR4 and older DRAM products for which demand remains strong. The decision to stop
25 reselling the equipment eliminates smaller companies’ ability to restore sufficient and competitive
26 commodity DRAM supply.

G. Failed Entry and Industry Consolidation

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102. In the 1990s, more than a dozen firms manufactured DRAM worldwide, including Samsung, Hyundai (now SK Hynix), Micron, NEC, Hitachi, Toshiba, Mitsubishi, Infineon (formerly Siemens), Elpida, Qimonda, ProMOS Technologies, Nanya Technology, Powerchip Semiconductor, Winbond Electronics, and Inotera Memories. Today, three firms control over 91% of global DRAM revenue.

103. Qimonda AG was spun off from Infineon Technologies on May 1, 2006 as the world's second-largest DRAM manufacturer, according to Gartner Dataquest. At its peak in 2007, Qimonda employed approximately 13,500 people worldwide, operated four 300mm fabrication facilities, and maintained six major R&D centers across three continents. Infineon—itsself a spinoff of Siemens AG—controlled a 77.5% stake. Qimonda filed for bankruptcy in January 2009 and was dissolved by 2011.

104. Elpida Memory was formed in 1999 from the merger of NEC's and Hitachi's DRAM businesses. In 2003, Elpida absorbed Mitsubishi's DRAM business. Despite backing from the Japanese government, Elpida filed for bankruptcy in February 2012. Micron acquired Elpida in 2013 for approximately \$2.5 billion.

105. Fujian Jinhua Integrated Circuit Company was founded in February 2016 as a Chinese state-owned enterprise with \$5.6 billion in investment from the Chinese national government and Fujian provincial government. Its stated goal was to fill the gap in domestic DRAM production. In October 2018, the U.S. Department of Commerce placed Fujian Jinhua on the Entity List, cutting off its access to American technology. Fujian Jinhua has never achieved meaningful DRAM production.

106. ChangXin Memory Technologies (“CXMT”) is the only other Chinese DRAM producer of note. CXMT is limited to older DRAM technology and cannot acquire EUV lithography equipment due to U.S. export controls. It holds less than 5% of global DRAM capacity and is not a competitive constraint at the leading edge.

107. The graveyard of failed DRAM manufacturers—including firms backed by national governments and armed with billions in capital—demonstrates that the FBE is not theoretical. It has defeated every challenger for two decades.

1 108. The consolidation of the DRAM industry is among the most extreme in any major
2 technology market. In the 1990s, more than a dozen firms manufactured DRAM worldwide. Today, three
3 firms control approximately 92% of the DRAM market. Every other entrant—including companies
4 backed by national governments and armed with billions in capital—has either been acquired, gone
5 bankrupt, or been reduced to irrelevance.

6 109. The U.S. CHIPS and Science Act of 2022 appropriated \$52.7 billion in semiconductor
7 subsidies—the largest industrial policy investment in U.S. semiconductor history. Yet even this
8 unprecedented government intervention is being used to expand existing manufacturers' capacity, not to
9 create new DRAM entrants. Micron received CHIPS Act funding for its new Idaho fab, which will not
10 be operational before 2027 and will serve Micron's existing product lines. No portion of the CHIPS Act
11 has been directed toward enabling a new competitor in DRAM manufacturing.

12 **H. The FBE as a Coordination Facilitator**

13 110. The FBE ensures that no new entrant can appear to undercut Defendants' pricing. In
14 markets with low barriers to entry, coordinated supply restriction is self-defeating: elevated prices attract
15 new entrants who expand supply and drive prices back down. The FBE eliminates that discipline. Once
16 all three Defendants restrict supply, there is no market mechanism to restore competitive pricing.

17 111. The relationship between the FBE and Defendants' conduct is self-reinforcing.
18 Coordinated supply restriction generates supracompetitive profits, which fund R&D at levels no entrant
19 can match, which widens the process technology gap, which raises the barrier to entry further.

20 112. Defendants' mothballing of manufacturing equipment independently strengthens the FBE
21 by removing used tools from the secondary market that a potential entrant might otherwise acquire at
22 reduced cost.

23 113. Defendants' coordinated reallocation of existing DRAM capacity to HBM reduces the
24 available commodity DRAM supply without any entrant being able to fill the gap.

25 114. The anticompetitive feedback loop between the FBE and Defendants' coordinated conduct
26 is addressed further in Section V, *infra*.

1 III. THE RELEVANT MARKET

2 115. Plaintiffs' claims arise in a well-defined antitrust market. The following sections identify
3 the relevant product market, the participants and concentration levels within that market, and the relevant
4 geographic market affected by Defendants' conduct.

5 A. The Relevant Product Market

6 116. The relevant product market is conventional DRAM—encompassing DDR3, DDR4,
7 DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but
8 excluding HBM (High Bandwidth Memory). The market is defined by the buyers who depend on
9 commodity DRAM: the PC, server, smartphone, automotive, and memory-module purchasers who must
10 have JEDEC-standard DRAM to build their products and who have no substitute when its price rises.
11 This type of DRAM is referred to herein as conventional or commodity DRAM market.

12 117. The conventional DRAM market is a submarket within the overall DRAM market.

13 118. HBM falls outside the conventional DRAM market. It is sold to a narrow set of AI-
14 accelerator customers, manufactured through different stacking and advanced-packaging processes, and
15 priced several times higher per gigabyte; it cannot be installed in a PC, server, phone, or consumer
16 memory module, and its availability does nothing to discipline the price of commodity DRAM. HBM is
17 relevant here only because Defendants' diversion of wafer capacity to it reduces the supply of commodity
18 DRAM—not because it competes in the same market. The boundaries of the conventional DRAM market
19 are confirmed by the practical indicia set forth below.

20 119. ***Industry and Public Recognition.*** Overall DRAM is universally recognized as a distinct
21 product market by regulators, courts, industry analysts, trade associations, market participants, and
22 Defendants themselves.

23 120. Antitrust regulators on three continents have defined DRAM as a distinct product market.
24 The United States Department of Justice prosecuted the 1998-2002 DRAM cartel as a conspiracy to fix
25 the prices of “dynamic random access memory (DRAM),” identifying DRAM as a discrete product with
26 its own market.

27 121. The DOJ's one-count felony charge against Samsung alleged that Samsung “conspired
28 with other DRAM manufacturers to fix the prices of DRAM sold to certain computer and server

1 manufacturers.” The charging document did not define the product market to include NAND flash,
2 SRAM, hard drives, or any other memory or storage product.

3 122. The DOJ described DRAM as a product with independent market significance:

4 DRAM is the most commonly used semiconductor memory product,
5 providing high-speed storage and retrieval of electronic information for a
6 wide variety of computer, telecommunication, and consumer electronic
7 products.

8 123. The European Commission likewise identified “DRAM” as the relevant product market
9 in its 2010 cartel decision (Case COMP/38.511), fining nine manufacturers €331 million for participating
10 in a “single and continuous infringement” in the DRAM market. The Commission’s decision treated
11 DRAM as a distinct product category, separate from other semiconductor memory products including
12 NAND flash.

13 124. China’s State Administration for Market Regulation (“SAMR”) opened an antitrust
14 investigation in May 2018 targeting Samsung, SK Hynix, and Micron specifically for DRAM pricing.
15 The investigation followed sharply rising DRAM prices and sustained complaints from Chinese terminal-
16 device manufacturers about the cost of DRAM specifically, not memory products generally or
17 semiconductors as a whole. SAMR’s decision to investigate DRAM pricing as a distinct competitive
18 concern confirms regulatory recognition of the product market.

19 125. Industry analysts and research firms universally track DRAM as a separate product
20 market. TrendForce (formerly DRAMeXchange)—the world’s leading DRAM industry research firm—
21 publishes dedicated commodity DRAM contract and spot price indices on a weekly and quarterly basis,
22 separate from HBM, NAND flash, LED, LCD, and other semiconductors.

23 126. Statista publishes quarterly DRAM manufacturer market share data as a distinct product
24 category. IHS Markit and IDC likewise track and report DRAM separately. The very existence of
25 dedicated DRAM pricing indices, revenue trackers, and market share reports—separate from all other
26 semiconductor products—confirms that market participants and industry analysts treat DRAM as a
27 distinct product market.

1 127. JEDEC Solid State Technology Association—the global standards body for
2 semiconductor engineering—publishes DRAM-specific technical standards (e.g., JESD79-5B for DDR5,
3 JESD209-5B for LPDDR5X) that are distinct from its NAND flash standards (e.g., JESD230 for UFS).
4 The existence of separate standards bodies and specifications for DRAM and NAND confirms their
5 distinct nature.

6 128. Defendants themselves recognize DRAM as a distinct product market in their public
7 filings and investor communications. Micron Technology’s Annual Report on Form 10-K filed with the
8 SEC reports DRAM revenue separately from NAND revenue. In its most recent 10-K, Micron reported
9 that DRAM products represented approximately 77% of its total revenue, provided DRAM-specific data,
10 and discussed the “DRAM market.”

11 129. Samsung Electronics’ quarterly reports discuss results and plans for its DRAM and NAND
12 segments separately.

13 130. SK Hynix’s investor presentations and quarterly earnings calls likewise report DRAM
14 revenue, DRAM pricing trends, and DRAM market conditions separately from NAND and other
15 products.

16 131. Trade associations reinforce this recognition. For example, the Semiconductor Industry
17 Association (“SIA”) reports DRAM as a distinct semiconductor category.

18 132. Within overall DRAM, the distinction between conventional DRAM and HBM is likewise
19 recognized by the industry and the public.

1 133. Defendants themselves separate HBM out from conventional DRAM. For example, SK
2 Hynix treats HBM and DRAM as distinct segments.

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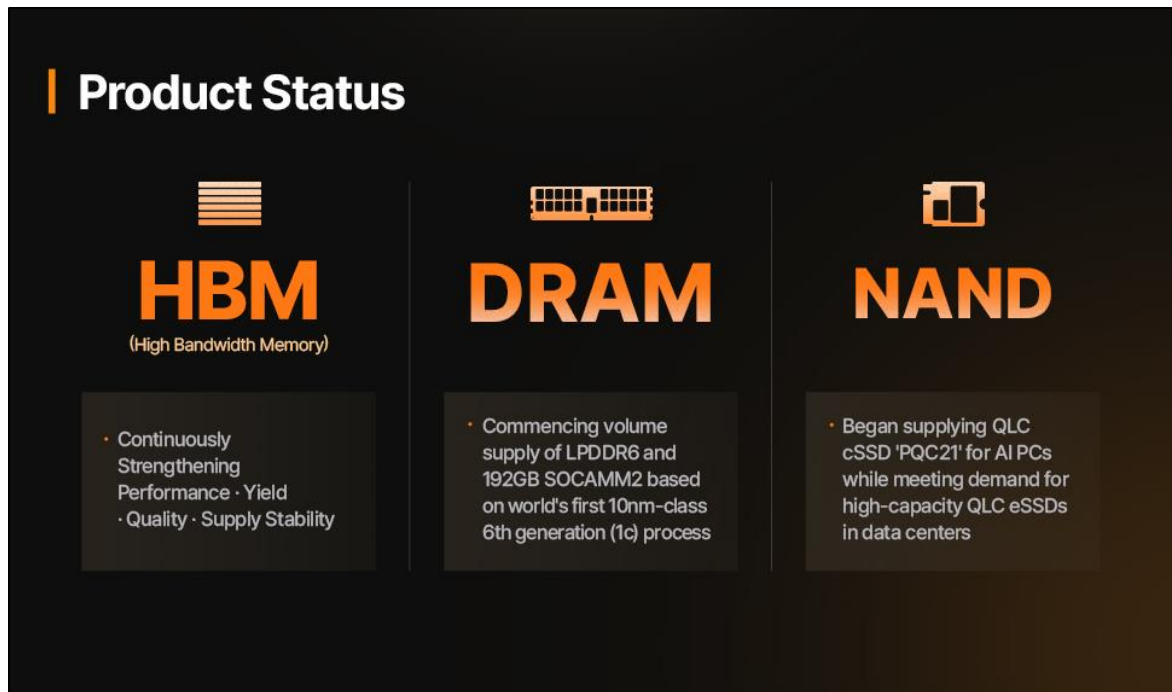


The slide features a title box with the text "Products /Tech Strategy" in orange and white. Below the title is a photograph of a semiconductor manufacturing facility. To the right of the image, the SK Hynix logo is in the top right corner. The slide is divided into three sections: HBM, DRAM, and NAND, each with a corresponding icon and a list of strategic points.

- HBM**
 - Concentrating efforts on further strengthening comprehensive execution capabilities encompassing performance, yield, quality & supply stability
 - For HBM4, working closely with customers from early stages of development for products that meet customers' required performance levels and plan to ramp up volume in line with agreed schedule
- DRAM**
 - Completed development of industry's 1st 1nm LPDDR6, with plans for full-scale market supply in second half starting with adoption in a major smartphone customer's next-generation flagship model
 - Mass production of 1nm 192GB SOCAMM2 optimized for NVIDIA's Vera Rubin platform
- NAND**
 - cSSD: started supply of PQC21 adopting CTF-based 321L QLC
 - eSSD: respond flexibly to broad-based AI demand through a balanced product lineup across entire enterprise market, spanning high-performance TLC and high-capacity QLC

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1 134. In public press releases, SK Hynix likewise distinguishes between HBM and DRAM,
 2 discussing future plans for “HBM” and “DRAM” separately, and listing “Product Status” for the different
 3 markets.



16 135. During its Q1 2026 earnings call, SK Hynix’s CFO reported on distinct demand and
 17 business guidance for “HBM” and “conventional DRAM.”

18 136. In its Q1 2026 report, Micron discussed “HBM demand” and “HBM supply” separately
 19 from generic DRAM. In its Q3 and Q4 2025 quarterly reports, Micron discussed Micron and “industry
 20 bit demand growth for non-HBM DRAM.” In Q2 2025, Micron discussed “the ramp of HBM . . .
 21 contributing to tightness at the leading edge and constraining non-HBM DRAM supply,” as well as
 22 “constrain[ed] capacity for non-HBM products.” Micron also tracks HBM specific revenue and margins
 23 separately from other DRAM. Micron recognized that commodity DRAM like DDR DRAM is separate
 24 from HBM, listing “HBM, LP, DDR DRAM, and SSD” as its portfolio of products. In its Q4 2025 report,
 25 Micron discussed the performance of “Our HBM business.” Micron discussed financial forecasts for
 26 “DRAM... excluding HBM.” Micron also discussed the “HBM customer base” and the “HBM market”
 27 separately from other DRAM.
 28

1 137. During its Q1 2026 earnings call, an executive from Samsung discussed the different
2 markets for “HBM” and “conventional DRAM” with an industry analyst.

3 138. Industry analysts such as Counterpoint research and Future Markets release reports that
4 discuss market trends and manufacturing separately for HBM and “conventional DRAM.” The
5 technology focused research firm AlphaTarget, in its March 2, 2026 report on “the AI Memory Boom,”
6 explained that “Conventional DRAM” and “HBM” are distinct “sub-types”: “Conventional DRAM
7 typically serves as CPU-attached system memory, while High-Bandwidth Memory (HBM) is a
8 specialised variant of DRAM used in AI GPUs. HBM provides much higher bandwidth than conventional
9 DRAM and is essential for keeping GPUs fed with data during active computation.”

10 139. Trendforce publishes reports detailing price trends in the market for “conventional
11 DRAM,” which is separate from and excludes HBM.

12 140. *Peculiar Characteristics and Uses.* DRAM has unique technical characteristics that
13 distinguish it from every other semiconductor product, including other types of memory.

14 141. DRAM is volatile memory: it retains data only while power is supplied. Each DRAM cell
15 consists of a single transistor and a single capacitor, and the charge in the capacitor dissipates within
16 milliseconds, requiring the memory to be continuously “refreshed” (hence “dynamic”). This fundamental
17 physical characteristic—volatility—distinguishes DRAM from NAND flash, which is non-volatile and
18 retains data indefinitely without power. Volatility enables DRAM’s speed.

19 142. DRAM operates at nanosecond-scale access times—typically 10-20 nanoseconds for a
20 random read. This is roughly 1,000 times faster than NAND flash (which operates at microsecond-scale
21 access times) and millions of times faster than hard disk drives (which operate at millisecond-scale access
22 times). This speed makes DRAM the only memory technology suitable for use as a processor’s active
23 working memory—the space where the operating system, running applications, and data being actively
24 processed reside during operation.

25 143. Every computing device requires DRAM to function. The DOJ recognized this in its 2005
26 prosecution, describing the breadth of DRAM-dependent products:

27 DRAM is used in personal computers, laptops, workstations, servers,
28 printers, hard disk drives, personal digital assistants (PDAs), modems,

1 mobile phones, telecommunication hubs and routers, digital cameras,
2 video recorders and TVs, digital set top boxes, game consoles, and digital
3 music players.

4 144. Since 2005, the universe of DRAM-dependent devices has expanded to include
5 automobiles, IoT devices, industrial automation equipment, medical devices, and AI training hardware.

6 145. No other product can substitute for DRAM:

- 7 • NAND flash is non-volatile and used for long-term data storage (SSDs, USB drives,
8 smartphone storage). It is approximately 1,000 times slower than DRAM and cannot serve
9 as working memory. No device uses NAND flash in place of DRAM.
- 10 • SRAM (Static RAM) is faster than DRAM but requires four to six transistors per bit
11 compared to DRAM's one transistor and one capacitor. This makes SRAM approximately
12 30-100 times more expensive per bit than DRAM, limiting its use to small processor caches
13 (typically measured in megabytes, not gigabytes). No device uses SRAM in place of DRAM
14 for main memory.
- 15 • Hard disk drives are mechanical storage devices operating at millisecond access times—
16 orders of magnitude slower than DRAM. They serve an entirely different function (long-
17 term bulk storage) and cannot substitute for DRAM in any application.
- 18 • Emerging technologies such as Intel's Optane (3D XPoint) persistent memory attempted to
19 bridge the gap between DRAM and NAND but were commercially unsuccessful. Intel
20 discontinued its Optane business in 2022, confirming that no alternative technology has been
21 able to substitute for DRAM.

22 146. DRAM chips are manufactured to technical specifications set by JEDEC. Because chips
23 conforming to a given JEDEC standard—DDR4, DDR5, LPDDR5X, GDDR6—are functionally
24 interchangeable regardless of manufacturer, commodity DRAM is a fungible product. An OEM designing
25 a laptop can source DDR5 modules from Samsung, SK Hynix, or Micron and expect identical
26 performance. This fungibility further distinguishes commodity DRAM as a distinct product market:
27 purchasers view DRAM from different manufacturers as substitutes for each other, but do not view
28 DRAM and NAND (or any other product) as substitutes.

147. HBM (High Bandwidth Memory) is excluded from the relevant conventional DRAM
market. Although HBM is technically composed of DRAM dies, it is a distinct product.

148. HBM consists of multiple DRAM dies vertically stacked and interconnected using
through-silicon vias ("TSVs"), requiring specialized advanced packaging technologies such as TSMC's
CoWoS (Chip-on-Wafer-on-Substrate).

1 149. Dies that will be packaged together to become HBM are manufactured differently than
2 dies that become conventional DRAM. For example, dies that become HBM must be manufactured with
3 the vias and bumps required to later stack the chips.

4 150. HBM requires approximately three to four times the silicon wafer area per gigabyte
5 compared to conventional DDR5 DRAM.

6 151. HBM is sold exclusively to a narrow set of AI accelerator customers—principally Nvidia
7 for its H100, H200, and Blackwell-series GPUs—and is not available for purchase by OEMs, consumers,
8 or other commodity DRAM customers.

9 152. HBM commands prices several times higher per gigabyte than commodity DRAM.

10 153. HBM is manufactured on different production lines using different processes and
11 equipment than commodity DRAM.

12 154. HBM cannot be used in place of DDR5 in a PC, server, smartphone, or any other
13 commodity DRAM application, and DDR5 cannot be used in place of HBM in an AI accelerator. The
14 two products are not interchangeable in any direction.

15 155. ***Unique Production Facilities.*** Conventional DRAM is manufactured in specialized
16 semiconductor fabrication facilities (“fabs”) that are purpose-built for DRAM production, cost \$15-20
17 billion to construct, and cannot be readily converted to produce other types of semiconductors.

18 156. DRAM fabs use process technologies, photolithography equipment, and manufacturing
19 flows that are distinct from those used for logic chips (CPUs, GPUs), NAND flash, analog
20 semiconductors, or any other semiconductor product. The production facilities required for DRAM
21 manufacturing are set forth in detail in Section II (The Fabrication Barrier to Entry), *supra*.

22 157. The specialized nature of DRAM fabs is confirmed by the industry’s structure. No DRAM
23 manufacturer produces logic chips on the same production lines, and no logic foundry (such as TSMC,
24 GlobalFoundries, or UMC) produces DRAM.

25 158. Samsung, which operates both a Memory division and a Foundry (logic) division,
26 maintains physically separate fabrication facilities for each. DRAM fabs and logic fabs use different
27 equipment configurations, different chemical processes, different mask sets, and different quality control
28 procedures.

1 159. DRAM fabs require extreme ultraviolet (“EUV”) lithography systems manufactured
2 almost exclusively by ASML Holding N.V., costing approximately \$200 million per system. A single
3 advanced DRAM fab may require dozens of EUV systems. ASML’s limited annual production capacity
4 (fewer than 100 EUV systems per year) is itself a constraint on DRAM production capacity, as discussed
5 in Section II.B, *supra*.

6 160. Furthermore, HBM and conventional DRAM are not produced together.

7 161. The dies for HBM are specifically made for HBM and not conventional DRAM. Those
8 chips (for HBM) then go through additional manufacturing, called packaging, where the chips are stacked
9 on top of each other. Additional materials and technology are needed for packaging. For example, “[a]
10 critical ingredient in HBM DRAMs is through-silicon vias (TSVs) - vertical wires used to electrically
11 connect the stacked chips.” Physical differences have to be made during the original processing of the
12 wafer for HBM as opposed to conventional DRAM to allow the packaging.

13 162. Defendants have to switch manufacturing lines from manufacturing HBM to
14 manufacturing conventional DRAM:

15 SK Hynix is planning to convert one of its main DRAM production lines to
16 manufacture high-bandwidth memory (HBM) instead SK Hynix is
17 planning to install the needed equipment in the first quarter of next year and
is aiming to start production of HBM3E in the fourth quarter.

18 163. The news source BusinessKorea reported that Samsung “convert[ed] DRAM production
19 lines to HBM lines.”

20 164. Packaging of the HBM is done in purpose-built facilities. In its Q1 2026 quarterly report,
21 Micron discussed the “HBM advanced packaging facility” it was constructing.

22 165. Industry sources explain that “[t]he structure and manufacturing process [for HBM] are
23 more complex than those for standard DRAM products.”

24 166. ***Distinct Customers.*** A defined and identifiable group of customers purchases
25 conventional DRAM specifically, distinct from customers of other semiconductor products.

26 167. Conventional DRAM is purchased by: (a) PC and server OEMs, including Dell, HP,
27 Lenovo, and others, who incorporate DRAM modules into computers and servers; (b) smartphone
28 manufacturers, including Apple and Samsung Mobile, who embed LPDDR DRAM into mobile devices;

1 (c) server operators; (d) memory module assemblers, including Kingston Technology, Corsair, G.Skill,
2 and TeamGroup, who purchase raw DRAM chips from Defendants and assemble them into consumer
3 and enterprise memory modules; (e) automotive manufacturers, who incorporate DRAM into vehicle
4 infotainment, driver assistance, and autonomous driving systems; and (f) distributors and retailers serving
5 system builders and individual consumers who purchase DRAM as upgrade components.

6 168. These customers purchase conventional DRAM as a named, specified product—not as a
7 generic “semiconductor” or “memory” input. Kingston Technology’s business model, for example, is
8 built entirely around the assembly and sale of conventional DRAM modules. Corsair’s consumer brand
9 identity was built around conventional DRAM products marketed to PC enthusiasts and gamers.

10 169. The distinct customer base is further confirmed by the downstream effects of the
11 conspiracy. When conventional DRAM prices rose 171% year of year for Q3 2025, the affected
12 customers were specifically identifiable: CyberPowerPC reported a 500% increase in “memory cost”;
13 Raspberry Pi CEO Eben Upton announced multiple rounds of price increases due to memory costs, with
14 some LPDDR4 components more than doubling in cost; Asus reported panic-buying of DRAM
15 specifically; and Dell raised commercial PC prices 10-30% as memory costs surged. Each of these
16 statements and actions refers to DRAM as a distinct input with distinct purchasers.

17 170. Consumers who purchase conventional DRAM as standalone memory upgrade kits—
18 DDR5 modules from Corsair, G.Skill, Kingston, or TeamGroup—are a distinct customer segment that
19 exists only because conventional DRAM is a distinct product. There is no comparable consumer market
20 for purchasing standalone NAND flash chips (as opposed to SSDs) or standalone SRAM.

21 171. HBM and conventional DRAM are sold to distinct customer groups. Conventional DRAM
22 is primarily purchased by manufacturers of personal computers, smartphones, consumer electronics,
23 enterprise servers, automotive systems, and memory modules for general-purpose computing
24 applications, or by individual customers or businesses to upgrade devices or build custom devices. By
25 contrast, HBM is a specialized memory product designed for use alongside high-performance processors
26 and AI accelerators, where extremely high memory bandwidth is required. HBM is primarily sold for use
27 in AI accelerators, custom AI processors, supercomputing systems, and other high-performance
28 computing applications requiring extremely high memory bandwidth..

1 172. ***Distinct Prices.*** Conventional DRAM prices are tracked, reported, and negotiated as a
2 distinct product category, separate from all other semiconductor products.

3 173. TrendForce publishes dedicated conventional DRAM contract price indices on a quarterly
4 basis, covering DDR4, DDR5, LPDDR, server DRAM, and mobile DRAM. TrendForce also publishes
5 daily conventional DRAM spot prices. These conventional DRAM-specific price indices are published
6 separately from TrendForce’s NAND flash, LED, LCD panel, and other semiconductor trackers, and
7 from reports regarding HBM prices and trends. The existence of dedicated conventional DRAM pricing
8 services—operated by multiple research firms over decades—confirms that DRAM prices are distinct.

9 174. These dedicated conventional DRAM pricing services are sold commercially and
10 disseminated on a recurring schedule. Through its DRAMeXchange membership products, TrendForce
11 offers subscribers downloadable conventional DRAM daily spot prices and monthly contract prices from
12 2017 to the present in Excel format, DRAM spot and contract price trends in chart form on a weekly,
13 monthly, quarterly, yearly, or customized basis, and the DRAMeXchange Index (DXI) from 2020 to the
14 present. The same products include a “Historical Daily Express” offering a daily look at DRAM spot
15 markets dating to November 28, 2003, and a monthly DRAM contract price early notice that TrendForce
16 states is sent to members before its website is updated. The breadth, granularity, and decades-long
17 continuity of these DRAM-specific pricing products confirm that DRAM prices are tracked, reported,
18 and sold as a distinct product category. TrendForce separately offers an “HBM Package” subscription
19 that offers HBM monthly and quarterly market reports and price updates.

20 175. Conventional DRAM contract prices increased 171.8% year-over-year as of Q3 2025 and
21 approximately 50% quarter-over-quarter in Q4 2025 and 95% quarter-over-quarter in Q1 2026—price
22 movements specific to DRAM and not observed in other semiconductor categories. The ADATA
23 chairman stated that Q4 2025 would mark the start of a “major DRAM bull market” with “severe DRAM
24 shortages” in 2026—using language that identifies DRAM as a distinct product with its own price
25 dynamics. Industry sources like Toms Hardware and Trendforce likewise report and make estimates of
26 price movements for “conventional DRAM” specifically.

1 176. Companies like TrendForce track granular price forecasts for conventional DRAM, which
2 further illustrate the distinct pricing dynamics within the conventional DRAM market. For example,
3 TrendForce’s forecasts for Q3 2025 were broken out like this:

- 4 • DDR4 (PC): 38-43% QoQ increase
- 5 • DDR4 (server): 28-33% QoQ increase
- 6 • DDR5 (client/server): 3-8% QoQ increase
- 7 • LPDDR5X (mobile): 5-10% QoQ increase
- 8 • GDDR6: ~30% QoQ increase

9 177. Quarterly contract price negotiations are conducted specifically for conventional DRAM.
10 These distinct pricing negotiations, tracked by an entire industry of research firms and analysts, confirm
11 that conventional DRAM is a distinct product with distinct prices.

12 178. Retail pricing further confirms the distinct market. Conventional DRAM is sold at retail
13 as a separately identified product category. Amazon, Newegg, Micro Center, and other retailers list
14 “RAM/Memory” as a distinct product category separate from “Storage/SSDs” (NAND), “Processors”
15 (logic), and other semiconductor products. Retail price data show the same DRAM-specific increase:
16 Conventional 32-gigabyte (2×16GB) DDR5 kits that sold for roughly \$100 to \$200 in October 2025 rose
17 to about \$350 by January 2026, if in stock, and current best-available U.S. prices for individual DDR5
18 kits stand at multiples of their lowest-ever prices—for example, a Corsair Vengeance RGB DDR5-6000
19 32GB kit at \$439 against an \$87 lowest-ever price—an increase specific to DRAM and not observed in
20 other product categories.

21 179. HBM and conventional DRAM contracts are negotiated differently. Samsung’s EVP of
22 Memory explained: “Per industry practice for HBM, we negotiate projected pricing in advance on an
23 annual basis, considering the lead time required to prepare back-end capacity for HBM. Whereas, for
24 conventional DRAM, the negotiations are done on a quarterly basis.”

25 180. ***Sensitivity to Price Changes (Cross-Elasticity of Demand)***. Cross-elasticity of demand
26 between DRAM and any other product is effectively zero. When DRAM prices rise—even by many
27 multiples—purchasers do not and cannot substitute any alternative product.

1 181. A smartphone cannot operate with NAND flash in place of DRAM. A server cannot
2 substitute SRAM at scale—SRAM costs approximately 30-100 times more per bit than DRAM, and no
3 server architecture uses SRAM for main memory. A PC manufacturer cannot build a computer without
4 DRAM, regardless of how high DRAM prices rise. There is no technological substitute for DRAM in
5 any of its thousands of applications.

6 182. At present, DRAM demand is almost perfectly inelastic with respect to price. On
7 December 18, 2025, Micron’s CEO Sanjay Mehrotra stated on the company’s Q1 FY2026 earnings call
8 that Micron was able to meet only approximately 55-60% of core customer demand—yet customers
9 continued purchasing at dramatically elevated prices rather than substituting any alternative product,
10 confirming that demand for DRAM is effectively perfectly inelastic.

11 183. The market’s response to the current price increases confirms this inelasticity. Despite an
12 approximately 697% increase in conventional DRAM contract prices since Q3 2024 and retail price
13 increases of 100-500%, purchasers have not substituted any alternative product. They have responded in
14 the only ways available to them: absorbing the costs and passing them through to consumers; deferring
15 purchases and reducing device configurations; or rationing available supply. None of these responses
16 involves substitution of another product for DRAM.

17 184. In Japan, Akihabara retailers limited purchases to two SO-DIMMs or four memory sticks
18 per customer, and distributors suspended deliveries of DRAM products. In Taiwan, distributors imposed
19 mandatory 1:1 DRAM-to-motherboard bundle purchase requirements—a practice described as
20 “unprecedented” and “never before seen” in the industry. In the United States, Micro Center removed
21 price tags from DRAM products and switched to spot pricing; Framework stopped selling standalone
22 RAM modules; and Asus reported holding only two months of DRAM inventory while panic-buying on
23 the spot market.

24 185. None of these customers responded to the DRAM shortage by purchasing more NAND
25 flash, more SRAM, or more hard drives. They rationed DRAM because there is no substitute for DRAM.
26 The zero cross-elasticity of demand between DRAM and all other products confirms that commodity
27 DRAM is a distinct relevant product market.
28

1 186. IDC projected a 5% decline in smartphone sales and a 9% decline in PC sales in 2026 due
2 to memory shortages—confirming that the market’s response to high DRAM prices is reduced device
3 purchases, not product substitution. An estimated 70% of all memory produced in 2026 will be consumed
4 by data centers, leaving only 30% for consumers, PCs, phones, automotive, and gaming.

5 187. The Hypothetical Monopolist Test further confirms that commodity DRAM is a properly
6 defined relevant product market. If a hypothetical monopolist of all commodity DRAM imposed a small
7 but significant non-transitory increase in price (SSNIP) of 5-10%, purchasers would have no alternative
8 to which they could turn. They would pay the increased price. Indeed, the actual price increase of
9 approximately 697% has been enormously profitable for Defendants—Micron reported total Q2 FY2026
10 revenue of \$23.9 billion, compared with \$8.1 billion in the same period the prior year, an increase of
11 about 195% year-over-year, with non-GAAP gross margin of 75%. And for DRAM specifically, Micron
12 reported \$18.8 billion in revenue, a 207% increase year-over-year, confirming that supracompetitive
13 DRAM pricing is sustainable because purchasers have no substitute. Micron further estimated its total
14 revenue in Q3 FY2026 would increase to \$33.5 billion with gross margin of approximately 81%.

15 188. SK Hynix reported full-year 2025 revenue of ₩97.1 trillion (with operating profit of
16 ₩47.2 trillion), up from ₩66.19 trillion total revenue in 2024 and ₩32.77 trillion in 2023. Samsung’s
17 Memory division earned ₩74.8 trillion in Q1 2026 compared to ₩37.1 trillion in Q1 2025 and ₩17.49
18 trillion in Q1 2024, with record margins driven by HBM and server DRAM.

19 189. Tom’s Hardware summarized the dynamic in a headline: “Major memory chipmakers rake
20 in profits.” All three Defendants are posting record or near-record financial results during the same period
21 that downstream customers face rationing, panic-buying, and double- and triple-digit price increases.

22 190. The real-world data confirms what the Hypothetical Monopolist Test predicts. Defendants
23 have imposed price increases far exceeding any 5-10% SSNIP—DRAM prices rose approximately 697%
24 since Q3 2024—and no purchaser has switched to a substitute product. OEMs absorbed the increases,
25 passed them to consumers, or reduced the amount of DRAM in their products. No buyer substituted
26 NAND flash, SRAM, or any other product for DRAM. The market did not break. It simply paid.

27 191. Likewise, customers cannot switch between HBM and conventional DRAM when prices
28 change. Manufacturers of AI accelerators, AI training systems, and other HBM-enabled computing

1 platforms cannot respond to an increase in HBM prices by purchasing conventional DRAM, because their
2 products are designed around HBM’s unique architecture and performance characteristics. Likewise,
3 purchasers of conventional DRAM for laptops, desktop computers, servers, and other traditional
4 computing devices cannot respond to increases in conventional DRAM prices by purchasing HBM, which
5 is not designed for those applications.

6 192. As researchers from Microsoft stated, “Unfortunately, there is currently no viable
7 alternative to HBM. Non-stacked DRAM does not have the required density [and] lack[s] the energy
8 efficiency required in package. . . . AI clusters will remain dependent on HBM.”

9 193. And as a director of engineering at chip-interface-technology company Rambus explained,
10 “HBM’s advanced packaging, higher cost per gigabyte, limited total capacity, lack of field upgrades, and
11 thermal challenges prevent it from replacing DDR5 in mainstream systems. As a result, DDR5 remains
12 the default for capacity- and cost-sensitive workloads, while HBM is reserved for bandwidth-critical
13 deployments where its premium is justified. Looking forward, both technologies will continue to advance
14 rather than converge.” “The industry’s response has been fascinating: rather than pursuing a single
15 solution, two distinct memory architectures have evolved to address fundamentally different
16 requirements. DDR5 optimizes for capacity, cost, and general-purpose computing. HBM (High
17 Bandwidth Memory) sacrifices everything for bandwidth.”

18 194. *Specialized Vendors.* The commodity DRAM market is served by a highly concentrated
19 group of specialized manufacturers. No general-purpose semiconductor company manufactures DRAM.

20 195. Samsung’s Memory Business division—which manufactures DRAM and NAND—is
21 organizationally and operationally separate from its Foundry division (which manufactures logic chips
22 for third-party customers such as Qualcomm and Nvidia) and its System LSI division (which designs
23 mobile processors). Samsung maintains physically separate fabrication facilities for memory and logic.
24 SK Hynix exclusively manufactures memory products—DRAM and NAND—and does not manufacture
25 logic chips, analog chips, or any other semiconductor product. Micron likewise manufactures exclusively
26 memory products. These are specialized DRAM vendors in the fullest sense.

27 196. The remaining DRAM vendors are also specialized memory manufacturers. Nanya
28 Technology Corporation (Taiwan) manufactures exclusively DRAM. Winbond Electronics Corporation

1 (Taiwan) manufactures specialty DRAM and NOR flash. Powerchip Semiconductor Manufacturing
2 Corporation (“PSMC”) (Taiwan) provides DRAM foundry services. Changxin Memory Technologies
3 (“CXMT”) (China) manufactures exclusively DRAM. Fujian Jinhua Integrated Circuit Company (China)
4 manufactures exclusively DRAM. No general-purpose semiconductor company—such as TSMC, Intel,
5 Broadcom, Qualcomm, Texas Instruments, or NXP—produces DRAM.

6 197. The consolidation described in Section I.C, *supra*, confirms the specialized nature of
7 DRAM manufacturing. Each of the twenty-plus firms that exited the DRAM market over the past two
8 decades was a specialized DRAM manufacturer; none transitioned to logic chips or other semiconductor
9 products.

10 198. Samsung, SK Hynix, and Micron have collectively dominated global DRAM revenue
11 since the industry consolidated to three major producers. As of Q3 2025, TrendForce reports that the Big
12 Three account for 91.5% of total DRAM revenue (including HBM). The modest remaining share outside
13 the Big Three reflects the entry of Taiwanese and Chinese commodity DRAM producers at older
14 technology nodes—producers that, as discussed in Section II, *supra*, are capped at DDR4 by U.S. export
15 controls and cannot manufacture DDR5, LPDDR5X, GDDR7, or HBM.

16 199. HBM is sold through specialized commercial channels distinct from those used for
17 conventional DRAM. HBM suppliers negotiate directly with a small number of qualified AI-accelerator,
18 supercomputing, and high-performance computing customers through lengthy qualification and co-
19 development processes. Conventional DRAM, by contrast, is sold through broader OEM, module-maker,
20 distributor, and channel networks serving traditional computing applications.

21 **B. Market Participants and Market Concentration**

22 200. TrendForce reported in November 2025 that global DRAM industry revenue reached
23 \$41.4 billion in Q3 2025 alone, a 30.9% increase quarter-over-quarter. The revenue shares of the principal
24 DRAM manufacturers were as follows:

- 25 • SK Hynix: \$13.75 billion revenue; 33.2% market share
- 26 • Samsung: \$13.50 billion revenue; 32.6% market share
- 27 • Micron: \$10.65 billion revenue; 25.7% market share

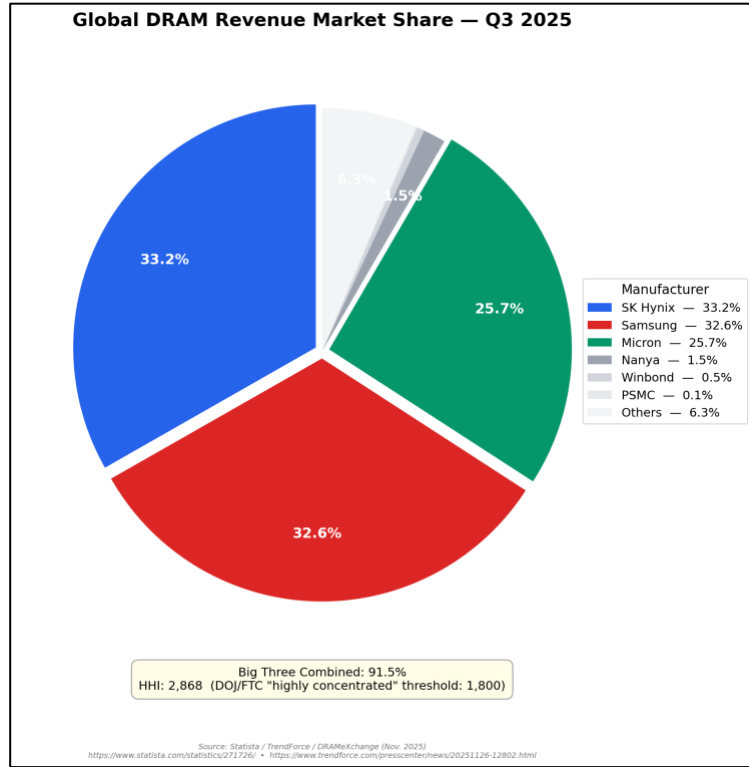
- 1 • Nanya Technology: \$627 million revenue; 1.5% market share
- 2 • Winbond: \$222 million revenue; 0.5% market share
- 3 • PSMC: \$33 million revenue; 0.1% market share
- 4 • Others (incl. CXMT): \$2.62 billion revenue; 6.3% market share
- 5 • Total: \$41.40 billion; 100%

6 201. TrendForce reported that SK Hynix “maintained its leading position in 3Q25,” with
7 “revenue grow[ing] by 12.4% QoQ to \$13.75 billion, driven by seasonal ASP increases and a significant
8 boost in total bit shipments.” Samsung “retained its position as the second-largest player with a 32.6%
9 market share.” Micron “experienced substantial growth in both ASP and bit shipments” with “revenue
10 jump[ing] to \$10.65 billion, reflecting a 53.2% QoQ increase.”

11 202. Measured by total DRAM revenue in Q3 2025, the three Defendants control 91.5% of
12 reported revenue, leaving every other producer in the low single digits.

13 203. Using the reported total DRAM revenue shares as a proxy for market structure, the
14 Herfindahl-Hirschman Index (“HHI”) for Q3 2025 is approximately 2,868 ($33.2^2 + 32.6^2 + 25.7^2 + 1.5^2$
15 $+ 0.5^2 + 0.1^2 + \text{residual}$). This is well above the 1,800 threshold that the DOJ and FTC identify as
16 presumptively indicating a “highly concentrated” market. U.S. DEP’T OF JUSTICE & FTC, 2023 MERGER
17 GUIDELINES § 2.1 (Dec. 18, 2023). The FBE set forth in Section II, *supra*, ensures that this concentration
18 is permanent and that no new entrant will emerge to challenge Defendants’ dominance.

19 204. Figure 1 below illustrates Q3 2025 DRAM market share by revenue, as reported by
20 TrendForce:



205. Figure 3 below presents TrendForce’s detailed Q3 2025 revenue and market share data for each DRAM manufacturer:

3Q25 DRAM Supplier Revenue Ranking

Ranking	Company	Revenue (US\$M)			Market Share	
		3Q25	2Q25	QoQ	3Q25	2Q25
1	SK hynix	13,750	12,229	12.4%	33.2%	38.7%
2	Samsung	13,500	10,350	30.4%	32.6%	32.7%
3	Micron	10,650	6,950	53.2%	25.7%	22.0%
4	Nanya	627	341	84.0%	1.5%	1.1%
5	Winbond	222	183	21.4%	0.5%	0.6%
6	PSMC	33	20	62.8%	0.1%	0.1%
	Others	2,617	1,561	67.6%	6.3%	4.9%
Total		41,399	31,634	30.9%	100.0%	100.0%

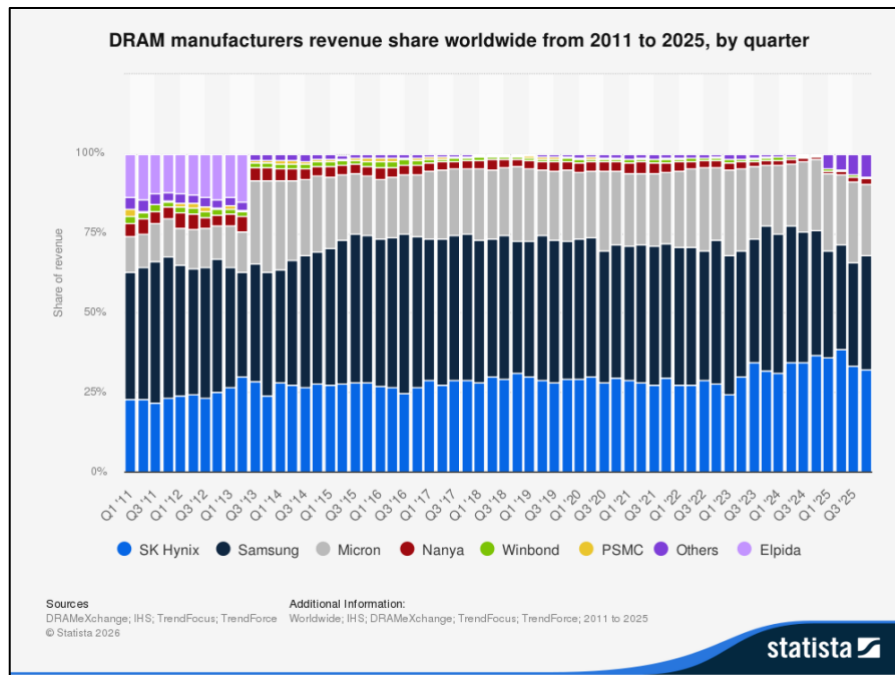
Notes:
 1. Supplier revenue figures include outsourced foundry production. Foundries do not include external DRAM sales in their revenue calculations.
 2. 2Q25 exchange rate—USD:KRW = 1:1,400;
 USD:TWD = 1:30.9
 3. 3Q25 exchange rate—USD:KRW = 1:1,387;
 USD:TWD = 1:29.9
 Source: TrendForce, Nov. 2025

TrendForce

For more information on reports and market data from TrendForce's Department of Semiconductor Research, please click here, or email the Sales Department at SR_MI@trendforce.com

For additional insights from TrendForce analysts on the latest tech industry news, trends, and forecasts, please visit <https://www.trendforce.com/news/>

1 206. Although total overall DRAM revenue from Q3 2025 includes profits from HBM,
 2 Defendants' dominance has been above 90% for many years, including before the boom of AI and HBM
 3 in the last few years. Figure 2 below illustrates Defendants' revenue share of the DRAM market from
 4 2011 to 2025 based on figures from DRAMeXchange and TrendForce.



207. Indeed, since Q3 2013, after Micron acquired Elpida Memory, Inc, Defendants Samsung, SK Hynix, and Micron have held more than 90% of the market share every single quarter.

208. Further, industry sources estimate that in 2025, revenue from HBM made up roughly 30% of all DRAM revenue. Furthermore, research firm Counterpoint reported that in Q3 2025, total DRAM market share was: Samsung 33%, SK Hynix 33%, Micron 26%, CXMT 6%, Nanya 2%, Others 1%. Counterpoint also reported that in Q3 2025, the Global HBM market share by revenue was: SK Hynix 56%, Samsung 23%, and Micron 21%. Weighing the market share numbers based on the assumption that 30% of revenue came from HBM and 70% of revenue came from non-HBM DRAM (ie, conventional DRAM) results in estimated conventional DRAM market share numbers as follows: Samsung 37.29%, SK Hynix 23.14%, Micron 28.14%, CXMT 8.57%, Nanya 2.86%, and others 1.43%. The three defendants therefore make up 88.5% of the conventional DRAM market under this estimation method.

1 209. Using this estimation of conventional DRAM market shares, the Herfindahl-Hirshman
2 Index is 2801.5 ($37.29^2 + 28.14^2 + 23.14^2 + 8.57^2 + 2.86^2 + 1.43^2 = 2801.5$). This is similar to the 2868
3 calculated using total DRAM revenue and is well above the 1,800 threshold that the DOJ and FTC
4 identify as presumptively indicating a “highly concentrated” market.

5 **C. The Relevant Geographic Market**

6 210. The relevant geographic market is the United States. The geographic market is defined by
7 where purchasers can practicably turn for supply and where Defendants sell DRAM and restrain trade,
8 and on both measures the market is the United States. United States purchasers buy DRAM from
9 Defendants on Defendants’ terms, and the challenged conduct raises the prices those purchasers pay.
10 Even if the relevant geographic market were treated as worldwide, the same three Defendants control the
11 overwhelming share of DRAM supply, and the challenged conduct has direct and substantial effects on
12 United States commerce.

13 211. DRAM is manufactured and priced globally, which deepens rather than dilutes United
14 States purchasers’ dependence on Defendants. Samsung manufactures DRAM primarily in Pyeongtaek
15 and Hwaseong, South Korea. SK Hynix manufactures primarily in Icheon and Cheongju, South Korea.
16 Micron manufactures in Hiroshima, Japan; Boise, Idaho; and Manassas, Virginia, with a new fabrication
17 facility under construction in Clay, New York that broke ground in January 2026 and is expected to begin
18 production around 2030.

19 212. Contract prices are negotiated quarterly between Defendants and their major customers
20 and are tracked by TrendForce as a single worldwide market. Defendants’ supply restriction decisions—
21 production cuts, HBM reallocation, and the DDR4 exit—are made at the level of global capacity, and a
22 cut made in South Korea or Japan raises the price every United States purchaser pays.

23 213. United States purchasers also cannot discipline Defendants by turning to producers outside
24 the Big Three. The remaining DRAM producers, principally the Chinese firms CXMT and Fujian Jinhua,
25 are capped by United States export controls. The Bureau of Industry and Security promulgated those
26 controls in October 2022 and updated them in October 2023, restricting the firms’ access to advanced
27 chipmaking equipment and limiting them to older-generation DRAM. They cannot manufacture
28 competing DDR5, LPDDR5X, GDDR7, or HBM, and they cannot acquire the equipment necessary to

1 do so. For United States purchasers that need current-generation DRAM, those producers are not a
2 meaningful substitute and impose no competitive constraint on Defendants.

3 214. Each Defendant sells DRAM products throughout the United States, directly and through
4 subsidiaries. Samsung Semiconductor, Inc. (San Jose, California) and SK Hynix America Inc. (San Jose,
5 California) serve as their respective parent companies' U.S. sales, marketing, and distribution arms.
6 Micron Technology, Inc. is a U.S.-headquartered company (Boise, Idaho) that sells directly throughout
7 the United States. The effects of Defendants' coordinated conduct are felt by every DRAM purchaser in
8 the United States.

9 **IV. DEFENDANTS' HISTORY OF DRAM PRICE-FIXING**

10 215. Defendants' current conduct must be understood against the backdrop of repeated
11 anticompetitive conduct in the same product market. The following sections describe the criminal DRAM
12 cartel of 1998-2002 and the subsequent 2016-2018 DRAM price spike involving the same three firms.

13 **A. The First DRAM Cartel (1998-2002)**

14 216. Between approximately July 1, 1998, and June 15, 2002, Defendants Samsung, Hynix
15 (now SK Hynix), and Micron—together with co-conspirators Infineon Technologies AG and Elpida
16 Memory—operated a criminal cartel to fix the prices of DRAM sold to six major American computer
17 manufacturers: Dell Inc., Compaq Computer Corporation, Hewlett-Packard Company, Apple Computer
18 Inc., International Business Machines Corporation (IBM), and Gateway Inc. There were approximately
19 \$7.7 billion in DRAM sales in the United States in 2004 alone.

20 217. The conspirators fixed prices through a straightforward mechanism. According to the
21 DOJ's charging documents, they participated in meetings, conversations, and communications with
22 competitors to discuss the prices of DRAM to be sold to specific customers; agreed during those meetings
23 to charge prices at certain levels; issued price quotations in accordance with the agreements reached; and
24 exchanged sales information for the purpose of monitoring and enforcing adherence to the agreed-upon
25 prices. The meetings took place at industry trade shows and in private; the phone calls were between
26 executives who were supposed to be competitors.

27 218. The DOJ's criminal investigation produced guilty pleas from four companies. Infineon
28 Technologies was the first to plead guilty, in October 2004, paying a \$160 million fine—then the third-

1 largest criminal antitrust fine in U.S. history. Hynix pleaded guilty in May 2005 and paid \$185 million.
2 Samsung pleaded guilty in October 2005 and paid \$300 million—the second-largest individual criminal
3 antitrust fine in American history at the time. Elpida Memory pleaded guilty in January 2006 and paid a
4 fine of approximately \$84 million.

5 219. Infineon’s guilty plea was accompanied by individual prosecutions. Four Infineon
6 executives—T. Rudd Corwin, Peter Schaefer, Gunter Hefner, and Heinrich Florian—each pleaded guilty
7 in December 2004. Each served a prison term of four to six months and paid a \$250,000 fine. Three of
8 the four were German citizens who traveled to the United States to serve their sentences.

9 220. Samsung’s executive prosecutions were the most extensive. Sun Woo Lee, Senior
10 Manager of DRAM Sales at Samsung Electronics, pleaded guilty on April 5, 2006 and was sentenced to
11 eight months in federal prison with a \$250,000 fine. Yeongho Kang, Associate Director of DRAM
12 Marketing at Samsung Semiconductor’s U.S. subsidiary, received a sentence of seven to eight months.
13 Young Woo Lee, Sales Director of Samsung Germany, also received seven to eight months.

14 221. In December 2006, Young Hwan Park—who had served as Vice President of Sales at
15 Samsung Electronics and later became President of Samsung Semiconductor’s U.S. subsidiary—was
16 sentenced to ten months in prison with a \$250,000 fine. Park agreed to assist the government in the
17 ongoing investigation. He was the fifth Samsung executive to agree to a prison sentence in the conspiracy.

18 222. In total, four companies and eighteen individuals were charged. Criminal fines exceeded
19 \$730 million—the second-largest total amount of fines ever imposed in a single DOJ criminal antitrust
20 investigation into a price-fixing conspiracy.

21 223. Micron participated in the cartel but received conditional immunity from the DOJ for
22 cooperating as a whistleblower. Its cooperation was imperfect. In December 2003, Micron Regional Sales
23 Manager Alfred P. Censullo was charged with obstruction of justice under 18 U.S.C. § 1503 for
24 withholding and altering documents that were responsive to a grand jury subpoena served on Micron in
25 June 2002. Censullo pleaded guilty and was sentenced to six months of home detention.

26 224. On May 19, 2010, the European Commission fined nine DRAM manufacturers a total of
27 €331 million for the same cartel—the first-ever settlement in an EU cartel proceeding. The fined
28 companies included Samsung, Hynix, Infineon, Elpida, NEC Electronics, Hitachi, Toshiba, Mitsubishi

1 Electric, and Nanya Technology. Micron received full immunity from EU fines for its role as the
2 whistleblower that exposed the conspiracy.

3 225. Samsung's treatment of its convicted executives speaks directly to the company's
4 institutional attitude toward antitrust law. Sun Woo Lee, who pleaded guilty to criminal price-fixing and
5 served eight months in federal prison, was subsequently promoted to President of Samsung Germany in
6 2009 and then to President of Samsung Europe in 2014. Samsung did not discipline Lee for his criminal
7 conduct. It promoted him. A company that rewards executives for serving prison time on antitrust charges
8 has made a corporate calculation: the profits from price-fixing outweigh the personal costs imposed on
9 the individuals who carry it out.

10 **B. The Second DRAM Price Spike (2016-2018)**

11 226. Over the two years preceding August 2018, DRAM prices surged dramatically for the
12 second time in two decades. According to IC Insights, the DRAM average selling price reached \$6.79 in
13 August 2018—a 165% increase from August 2016.

14 227. As in the current period, the 2016-2018 price spike was characterized by simultaneous
15 supply restraint. All three Defendants reported record or near-record profits during the spike, even as
16 customers protested that prices were disconnected from cost fundamentals. The price increases were
17 specific to DRAM and were not observed in other semiconductor categories, confirming that DRAM
18 pricing operates on its own supply-demand dynamics.

19 228. On April 27, 2018, a class action was filed in this District alleging that Samsung, SK
20 Hynix, and Micron had conspired to fix DRAM prices during the 2016-2018 period. The case was
21 captioned *In re DRAM Antitrust Litigation*, Case No. 4:18-cv-02518-JSW.

22 229. In May 2018, China's State Administration for Market Regulation launched an antitrust
23 investigation into Samsung, SK Hynix, and Micron over DRAM pricing, following sharply rising DRAM
24 prices and complaints from Chinese terminal-device manufacturers about the cost of DRAM. According
25 to contemporaneous reports, Chinese regulators visited Samsung's, SK Hynix's, and Micron's Chinese
26 offices. The investigation was significant: it marked the first time a major antitrust enforcement agency
27 outside the United States had launched a formal investigation into DRAM pricing coordination among
28 these three Defendants since the European Commission's prosecution of the 1998-2002 cartel.

1 230. The 2016-2018 litigation was ultimately unsuccessful. Unlike the present action, the 2018
2 complaint alleged only parallel pricing without identifying unlawful coordinated conduct as set forth
3 here: simultaneous production cuts, coordinated capacity reallocation, coordinated product-line exits,
4 used-equipment withdrawal by Samsung and SK Hynix, and parallel customer vetting, among other
5 specific facts and conduct explained in this Complaint.

6 231. The DRAM market has now produced three distinct cycles of supracompetitive pricing in
7 the same oligopolistic structure. In 1998-2002, a criminal cartel produced more than \$730 million in fines
8 and eighteen individuals charged. In 2016-2018, prices nearly tripled over eighteen months under
9 simultaneous supply restraint, prompting a U.S. class action and a Chinese government investigation.
10 Beginning in 2022, the same three companies—still controlling approximately 92% of global DRAM
11 production—again simultaneously restricted supply while contract prices surged 171.8% year-over-year
12 by Q3 2025 and rose another 50% quarter-over-quarter in Q4 2025 and approximately 93% to 98%
13 quarter-over-quarter in Q1 2026.

14 232. Against this backdrop of repeated anticompetitive conduct, the current conspiracy is set
15 forth below.

16 **V. THE CURRENT CONSPIRACY: COORDINATED SUPPLY RESTRICTION (2022-**
17 **PRESENT)**

18 233. Beginning in October 2022 and continuing to the present, Defendants have engaged in a
19 coordinated scheme to restrict the supply of commodity DRAM, artificially inflating prices throughout
20 the United States. The scheme has been executed through a series of parallel actions that, taken together,
21 constitute a comprehensive program of supply management by agreement.

22 234. The current conspiracy is a coordinated supply-restriction scheme in which Defendants
23 have collectively limited commodity DRAM output, knowing that reduced supply will produce higher
24 prices in a market with inelastic demand and no competitive alternatives. The evidence is set forth in the
25 sections that follow.

26 **A. Simultaneous Production Cuts (October 2022 - Mid 2023)**

27 235. In late 2022 and early 2023, all three Defendants announced and implemented cuts to
28 DRAM production. On October 26, 2022, SK Hynix announced substantial reductions in capital

1 expenditure—a planned reduction of more than 50% in 2023 capex—together with production cuts of
2 relatively low-margin products and a year-over-year reduction in DRAM and NAND wafer production
3 in 2023.

4 236. Roughly three weeks later, on November 16, 2022, Micron Technology announced that it
5 was reducing DRAM and NAND wafer starts “by approximately 20% versus fiscal fourth quarter 2022,”
6 and that these reductions would be made “across all technology nodes where Micron has meaningful
7 output.” Micron’s President and Chief Executive Officer, Sanjay Mehrotra, stated that “Micron is taking
8 bold and aggressive steps to reduce bit supply growth to limit the size of our inventory.” Micron further
9 stated that it expected its year-on-year bit supply growth to be negative for DRAM in calendar 2023.

10 237. Micron reaffirmed the reductions the following month. In its fiscal first quarter 2023
11 earnings presentation, Micron stated that “[a]s previously announced, Micron reduced wafer starts for
12 DRAM and NAND by ~20%.”

13 238. As of January 2023, Samsung had not announced production cuts and had said it would
14 maintain its 2023 capital spending at a level similar to 2022. Industry analysts expected that Samsung
15 might use the downturn to “draw on its deep pockets and superior profit margins to gain market share
16 from smaller peers.”

17 239. In the months that followed, SK Hynix confirmed that its 2023 capital expenditure would
18 be “reduced by 50%+ YoY” and reported reductions in wafer starts of legacy and low-margin products,
19 while Micron reported that it had “further reduced DRAM and NAND wafer starts, which are now down
20 by ~25%.”

21 240. Samsung announced its own production cuts in April 2023. On April 7, 2023, Samsung
22 said it was “lowering the production of memory chips by a meaningful level,” and it reported a KRW
23 4.58 trillion operating loss in its semiconductor (Device Solutions) division for the first quarter of 2023.

24 241. The losses the Defendants sustained around the time of the cuts were substantial. Samsung
25 reported a KRW 4.58 trillion operating loss in its semiconductor division for the first quarter of 2023. SK
26 Hynix reported an operating loss of KRW 3.402 trillion for the first quarter of 2023. Micron reported a
27 net loss of \$5.833 billion for its fiscal year ended August 31, 2023.
28

1 242. Contemporaneous reporting described Samsung’s reduction as an “unusual output cut,”
2 with “no previous announcement recalled by Samsung officials and analysts.” The staggered timing is
3 consistent with an unlawful agreement and conspiracy among the Defendants.

4 243. In its second quarter 2023 results, announced July 27, 2023, Samsung addressed industry-
5 wide production trends. Samsung stated:

6 Looking to the second half of the year, the market is expected to gradually
7 move toward stability considering increasing production cuts in the
8 industry.

9 244. Samsung further reported that “[t]he Memory Business saw results improve from the
10 previous quarter as its focus on High Bandwidth Memory (HBM) and DDR5 products in anticipation of
11 robust demand for AI applications led to higher-than-guided DRAM shipments.”

12 245. Samsung also reported that, by the second quarter of 2023, “the price decline was
13 considerably less than the previous quarter,” and that the market was expected to “gradually move toward
14 stability” in the second half of the year as production cuts in the industry took hold.

15 246. Defendants justified the cuts as inventory management. Micron’s November 16, 2022
16 announcement described “bold and aggressive steps to reduce bit supply growth to limit the size of our
17 inventory.” Its annual report for fiscal 2023 described “elevated levels of inventories for suppliers and
18 customers, and significant supply-demand mismatch,” and recorded \$1.83 billion in charges to write
19 down inventory, with hundreds of millions more for idled fab capacity.

20 247. The inventory those cuts were said to address peaked and then cleared. By January 2024,
21 Samsung reported that “inventory depletion of DRAM and NAND accelerated.” By March 2025, Micron
22 projected ending the fiscal year with tight DRAM inventory.

23 248. That same month, Tom’s Hardware reported that DRAM prices had begun increasing on
24 a monthly basis: “this is the second time in a row that prices jumped by over 20%.” The report attributed
25 the prices to the “drying up of supply.”

26 249. A few months later, industry news sources were reporting that “the global memory
27 shortage is real and accelerating.” At the same time, Micron itself reported that the DRAM market was
28 “extremely tight.”

1 250. The cuts that Defendants explained as a response to excess inventory remained in force
2 through normalization and tightening in 2024 and depletion in 2025, and Defendants now project the
3 output restraint going forward: “We continue to expect supply-demand conditions for both DRAM and
4 NAND to remain tight beyond calendar 2026.”

5 **B. The Coordinated Pivot to HBM (2023-2024)**

6 251. Beginning in approximately 2023, all three Defendants simultaneously redirected a
7 significant portion of manufacturing capacity and capital expenditure from commodity DRAM to High
8 Bandwidth Memory (“HBM”), a specialized high-margin DRAM product used in AI accelerators such
9 as Nvidia’s H100, H200, and Blackwell-series GPUs.

10 252. Because each gigabyte of HBM requires approximately three to four times the silicon
11 wafer area of DDR5, every wafer shifted to HBM production directly and proportionally reduces the
12 available supply of commodity DRAM. Bernstein analyst Stacy Rasgon confirmed that producing a
13 gigabyte of HBM takes “three or four times as many wafers” as DDR5.

14 253. In 2023, HBM represented approximately 8% of total DRAM revenue—but consumed a
15 far larger share of wafer capacity. This is because HBM manufacturing is uniquely resource-intensive:
16 each HBM stack requires premium process nodes for the individual DRAM dies, through-silicon via
17 (“TSV”) processing that reduces yields, and a multi-die stacking process (8-Hi to 16-Hi configurations)
18 that consumes multiple dies per finished unit. A single HBM3E 16-Hi package consumes the equivalent
19 wafer area of many commodity DDR5 modules. The result is that the HBM pivot withdrew
20 disproportionate manufacturing capacity from the commodity DRAM market relative to the revenue
21 HBM generated.

22 254. Samsung’s own earnings releases trace the progression of the HBM pivot in granular
23 detail. In its Q3 2023 earnings release, Samsung stated that its Memory Business “strived to reduce
24 inventory levels by production adjustment rather than by aggressive sales expansion,” and that in 2024,
25 the semiconductor business “plans to meet demand for high-performance, high-bandwidth products by
26 increasing sales of HBM3 and HBM3E with the industry-leading HBM production capacity in the
27 industry.”
28

1 255. In its Q4 2023 earnings release, Samsung confirmed that “[s]pending on memory was
2 concentrated on building out infrastructure at the facility in Pyeongtaek, Korea and expansion of
3 production capacity of HBM, DDR5 and other advanced nodes.” By Q1 2024, Samsung reported that
4 “[s]pending on memory was focused on facilities and packaging technologies to address demand for High
5 Bandwidth Memory (HBM), DDR5 and other advanced products.”

6 256. By 2024-2025, SK Hynix had sold out its HBM production, with its memory capacity
7 booked through 2026. Micron had presold substantially all of its HBM production through 2026.
8 Samsung reserved HBM capacity for its highest-tier cloud and AI customers through its combined
9 Foundry and Memory divisions. Each wafer devoted to HBM was a wafer removed from commodity
10 DRAM production.

11 257. Between March 2023 and March 2026, all three Defendants substantially reallocated
12 production capacity away from commodity DRAM and toward HBM, increasing the share of capacity
13 dedicated to HBM by approximately tenfold.

14 258. Defendants redirected scarce manufacturing capacity and capital to HBM at the same time
15 that all three held commodity DRAM supply constrained and refused to expand it. All three cut
16 production of commodity DRAM in unison, prices rose, and none stepped in to fill the gap. In a three-
17 firm oligopoly, when all three pivot in unison, the effect on the market is the same as a production quota.

18 **C. The Coordinated Exit from DDR4 and DDR3 (2024-2025)**

19 259. In 2024, Defendants Samsung and SK Hynix retired their DDR3 production lines,
20 reportedly ceasing to supply DDR3 to the market by the second half of 2024. Defendant Micron, by
21 contrast, continued to produce limited quantities of DDR3.

22 260. Then, in 2025, and all between approximately April and June, all three Defendants
23 announced they would wind down mainstream DDR4 production. Samsung reportedly stopped taking
24 DDR4 orders by June 2025 and planned to complete mainstream shipments by mid-December 2025;
25 Micron told customers that final shipments of mainstream DDR4 and LPDDR4 would occur in
26 approximately the first quarter of 2026; and SK Hynix planned to stop taking orders in October 2025 and
27 complete shipments by April 2026.

1 261. This wind-down came despite ongoing demand for DDR4, which remained in wide use
2 across existing PCs—some built as recently as 2023—as well as entry-level platforms, servers, and
3 embedded systems.

4 262. As mainstream DDR4 supply contracted, owners of existing DDR4 systems faced
5 dwindling compatible supply and higher prices, while buyers of new systems faced elevated DDR5
6 prices.

7 263. Defendants’ coordinated exit from the DDR3 and DDR4 market triggered immediate
8 panic buying. DDR3 and DDR4 prices surged.

9 264. The coordinated DDR4 exit occurred in the specific context of competitive pressure from
10 Chinese manufacturers. CXMT and Fujian Jinhua had ramped DDR4 production and priced their DDR4
11 chips at roughly half the cost of comparable South Korean products, with some Chinese DDR4 chips
12 priced about 5% below refurbished chips. In a competitive market, the response to a low-cost entrant is
13 to compete on price, improve manufacturing efficiency, or differentiate the product. Defendants did none
14 of these things. Instead, all three moved to cut production in the DDR4 segment at roughly the same time,
15 ceding the low end to Chinese manufacturers while the remaining supply of DDR4 from the Big Three
16 commanded higher prices as it wound down.

17 265. As a 2025 article in Tom’s Hardware titled “DDR4 Costs Soar as Manufacturers Pull the
18 Plug” reported:

19 This pricing surge is more about supply being deliberately throttled than
20 demand suddenly spiking.

21 266. The article further stated:

22 Every wafer shifted to feed Nvidia’s H100s or AMD’s Instinct accelerators
23 cuts into supply for DDR4. That deliberate reallocation throttles supply,
24 which in turn forces system builders and distributors to stockpile what’s
25 left. . . . In effect, mainstream builders are subsidizing the AI boom,
26 shouldering higher costs on legacy parts because memory makers know
27 they can extract maximum profit before pulling the plug.

28 267. The downstream effects of Defendants’ production cuts and the coordinated DDR4/DDR3
exit were immediate and severe. Major OEMs—including ASUS, MSI, and other leading motherboard

1 and PC manufacturers—engaged in panic buying of RAM stocks. These are among the largest and most
2 sophisticated technology companies in the world; when firms of this caliber resort to panic purchasing,
3 it is powerful evidence that the supply restriction is genuine, severe, and perceived as likely to persist.

4 268. In Japan, PC retail shops in Akihabara—Tokyo’s electronics district—imposed purchase
5 limits on SSDs, HDDs, and RAM modules to prevent stockpiling. Retailers limited customers to two SO-
6 DIMMs and four desktop memory sticks per transaction. Distributors suspended regular deliveries.
7 Japanese retailers reported that these rationing measures were unprecedented in their experience.

8 269. In Taiwan, distributors began enforcing mandatory DRAM-motherboard bundle sales—
9 requiring customers to purchase a motherboard in order to buy DRAM modules. Taiwan’s Economic
10 Daily News reported that this practice was “never before seen” in the memory distribution channel.

11 270. The result was a market inversion: older, slower DDR4 came to cost more per gigabyte
12 than newer, faster DDR5. By August 2025, DDR4 16GB (2Gx8) chips had risen to about \$9.17 each,
13 while comparable DDR5 (2Gx8) chips cost about \$5.99, widening the gap to nearly 50%. Samsung’s
14 DDR4 was produced on older 1z lines that were already fully depreciated and inexpensive to keep
15 running, yet its price climbed above that of the newer DDR5 meant to replace it.

16 271. If each Defendant were independently phasing out DDR4 as part of a routine technology
17 transition, the phase-outs would occur at different times, reflecting differences in product mix, customer
18 commitments, and manufacturing capabilities. Instead, all three announced plans to wind down
19 mainstream DDR4 within 2-3 months of each other and to complete the phase out in the same general
20 window of late 2025 to early 2026.

21 **D. The Refusal to Expand Conventional DRAM Supply (2025-2026)**

22 272. The result of Defendants’ simultaneous production cuts in commodity DRAM was
23 increased prices. As of Q3 2025, conventional DRAM contract prices had increased 171.8% year-over-
24 year. In Q4 2025, prices increased another approximately 50% quarter-over-quarter. The escalation
25 continued into 2026: conventional DRAM contract prices rose another approximately 93% to 98%
26 quarter-over-quarter in Q1 2026, and TrendForce expected conventional DRAM contract prices to rise a
27 further 58% to 63% quarter-over-quarter in Q2 2026. At the retail level, CyberPowerPC reported a 500%
28 increase in memory costs since early October 2025. High-capacity 64-gigabyte DDR5 kits carried best-

1 available U.S. prices of roughly \$679 to \$949. By 2026, Tom’s Hardware reported that DDR5 prices had
2 tripled, and in some cases quadrupled, over the prior months. Higher capacity kits rose likewise—a 64-
3 gigabyte DDR5 kit that sold for about \$189 in March 2025 sold for more than \$425 by November and
4 roughly \$1,080 by March 2026.

5 273. As a November 2025 article in *Tom’s Hardware* / CTEE (Commercial Times Electronic
6 Edition) titled “DRAM Prices Skyrocket 171% Year-Over-Year” reported:

7 DRAM contract prices have increased by a whopping 171.8% year over
8 year as of Q3 2025. In fact, DRAM prices have risen to the point that they
9 are now outpacing the recent price increases of gold. ADATA chairman
10 Chen Libai reportedly stated that Q4 of 2025 will mark the start of a major
11 DRAM bull market, with 2026 likely to see severe DRAM shortages.

12 274. As a December 2025 article in *Tom’s Hardware* reported regarding CyberPowerPC:

13 PC retailer CyberPowerPC has just announced that it will increase prices
14 for memory modules across the U.S. and the U.K. . . . [T]he retailer expects
15 the trend to continue well into 2026 and says that RAM prices have
16 increased by 500% in recent times, along with a 100% increase in SSD
17 prices.

18 275. But despite these extraordinary prices—the single most powerful supply signal the DRAM
19 industry has ever produced—not one of the three Defendants expanded or announced plans to
20 meaningfully expand commodity DRAM production capacity.

21 276. The capital expenditure data tells the story of the refusal to expand. Defendant Micron cut
22 capital expenditure from \$12.07 billion in fiscal year 2022 to \$7.68 billion in fiscal year 2023, a 36%
23 reduction, before it rose to \$8.39 billion in fiscal year 2024 and \$15.86 billion in fiscal year 2025. And
24 Micron estimates its 2026 capital expenditure at more than \$25 billion. But Micron’s renewed
25 investments have been directed to HBM and HBM processes like advanced packaging and process-node
26 transitions rather than expanded commodity DRAM capacity. SK Hynix similarly cut capital expenditure
27 by approximately 50% during the same period, and its subsequent capital-expenditure recovery was
28 directed toward HBM and HBM advanced packaging rather than commodity DRAM expansion.

29 277. TrendForce, the leading DRAM industry research firm, reported in November 2025 that
30 total DRAM-sector capital expenditure reached approximately \$53.7 billion in 2025 and was projected

1 to rise to \$61.3 billion in 2026. TrendForce found that the emphasis of this spending was shifting toward
2 HBM production, process technology upgrades, higher-layer stacking, hybrid bonding, and other “high-
3 value products” rather than expanding commodity DRAM output. TrendForce reported:

4 Despite higher ASPs boosting profitability across the memory industry,
5 capital spending on DRAM and NAND Flash is only anticipated to
6 increase modestly in 2026. This limited investment growth is unlikely to
7 significantly affect bit output. Instead, the emphasis is shifting from
8 capacity expansion to advancements such as process technology upgrades,
9 higher-layer stacking, hybrid bonding, and high-value products such as
10 HBM.

11 278. TrendForce’s supplier-specific projections gave the same picture, describing where each
12 Defendant’s 2026 investment was directed:

- 13 • Samsung: TrendForce projected \$20 billion in 2026 (up 11% year-over-year) to advance 1C-
14 process HBM production and slightly expand P4L wafer capacity.
- 15 • SK Hynix: TrendForce projected spending of \$20.5 billion in 2026 (up 17% year-over-year),
16 attributed to HBM4 capacity expansion at its M15x fabrication facility.
- 17 • Micron: TrendForce projected \$13.5 billion in 2026 (up 23% year-over-year), primarily for
18 1-gamma node adoption and through-silicon via (TSV) equipment.

19 279. TrendForce further reported that “cleanroom capacity in the DRAM industry remains
20 limited,” that “only Samsung and SK Hynix are able to slightly expand their production lines,” and that
21 Micron’s new ID1 fabrication facility in the United States “is not expected to become operational before
22 2027.” Consequently, TrendForce concluded, “additional CapEx will have a minimal impact on bit
23 supply growth in 2026.”

24 280. Industry analyst Ben Bjarin of Creative Strategies confirmed the absence of any
25 competitive supply response: “If you look at the forecasts for wafer capacity or substrate capacity,
26 nobody’s scaling up.”

27 281. The consequences of the coordinated refusal to expand are now being described by
28 Defendants themselves in catastrophic terms. In February 2026, *Digitimes* reported that Micron
29 characterized the current situation as the “most severe memory supply shortage in more than 40 years”—
30 pretextually framing a shortage that Micron and its co-Defendants created through coordinated supply
31 restriction as an exogenous market condition.

1 282. TrendForce further forecast that data centers will consume approximately 70% of all
2 memory chips produced in 2026, creating supply shortfalls that will spread to consumer, smartphone,
3 automotive, and other segments. The remaining 30% of global memory output must serve billions of
4 devices and hundreds of millions of users worldwide—a structural deficit that guarantees
5 supracompetitive pricing for the foreseeable future.

6 283. When HBM demand surged, Defendants raced to expand HBM capacity—investing
7 billions in new packaging lines, bonding technologies, and process development. SK Hynix built an entire
8 new HBM production line. Micron presold its HBM output through 2026. Samsung committed multiple
9 fab lines to HBM.

10 284. Defendants demonstrated that they are capable of rapid, aggressive expansion when they
11 choose to. They chose not to apply that capability to commodity DRAM, where prices have risen
12 dramatically.

13 285. TrendForce projected total DRAM-sector capital expenditure of \$53.7 billion in 2025,
14 rising to \$61.3 billion in 2026, yet expected that investment to have minimal impact on 2026 bit-supply
15 growth because the emphasis had shifted away from capacity expansion toward process upgrades and
16 high-value products such as HBM. That spending was not a near-term ordinary DRAM supply response
17 to the most extreme supply-demand imbalance in the industry’s history.

18 286. A 171% price increase in conventional DRAM between Q3 2024 and Q3 2025, which
19 then continued to increase to approximately 697%, is the single most powerful signal available to induce
20 supply expansion. The simultaneous decision by all three Defendants to forgo a material commodity-
21 supply response is rational only if each is confident the others will likewise refrain, and the Defendants
22 can therefore ride the surge in prices to record margins and profits.

23 **1. The supply Defendants withheld, measured against their own benchmarks**

24 287. The scale of the withheld supply can be measured from Defendants’ own statements and
25 the industry’s own projections. In August 2022, before the first cut announcement, TrendForce projected
26 2023 demand bit growth of 8.3%, “sub-10% for the first time in history, and far lower than supply-side
27 bit growth of approximately 14.1%.” That 14.1% was the supply path the industry had already planned
28 and funded when the coordinated cuts began.

1 288. By September 2023, however, Micron told investors: “We expect Micron's year-on-year
2 bit supply growth to be meaningfully negative for DRAM.” A planned expansion of roughly fourteen
3 percent became an industry-wide contraction.

4 289. The withholding was structural. Micron reported that “total wafer start reductions in both
5 DRAM and NAND are approaching 30% versus peak 2022 levels,” and that “[d]ue to this structural
6 reduction in capacity, our DRAM and NAND wafer starts will remain significantly below 2022 levels
7 for the foreseeable future.” Supply then stayed below demand by Defendants’ own account: “In calendar
8 2024, we expect industry DRAM and NAND supply growth to be below industry demand growth — and
9 meaningfully so for DRAM.”

10 290. No new fabs were needed to restore the withheld supply. As industry analysis explains,
11 “Memory supply can be expanded by migrating to more advanced process nodes with yield
12 improvements, which increases bit supply without requiring new” greenfield “wafer capacity additions”;
13 Samsung’s “leading-edge 1c DRAM process node delivers roughly ~70% higher bits output per wafer
14 compared with its 1a node.” Each Defendant held, inside its existing fabs, the means to expand. None
15 used it.

16
17 291. The coordinated HBM pivot compounded the withholding. TrendForce estimates that
18 “HBM wafer input among the top three suppliers will account for approximately 18%, 22%, and 30% of
19 total DRAM wafer input by the end of 2025, 2026, and 2027,” while “HBM bit supply is expected to
20 represent approximately 8%, 9%, and 13% of total DRAM bit supply during the same period.” Wafers
21 consumed at more than twice their bit yield are wafers withdrawn from the commodity market.

22 **2. Defendants shelved commodity capacity they had already announced**

23 292. Micron announced its New York megafab on October 4, 2022, committing that “Site
24 preparation work will start in 2023, construction will begin in 2024 and production output will ramp in
25 the latter half of the decade.” The official groundbreaking did not come until January 16, 2026. By then,
26 industry reporting stated that “the initial fabrication plant, previously scheduled for mid-2028, is now
27 projected to come online in late 2030.”
28

1 293. Micron’s Boise fab followed the same pattern. Micron broke ground in 2022, announcing
2 that “[c]onstruction on the new fab in Boise is expected to begin in early 2023.” In June 2025 Micron
3 told investors: “We expect first DRAM wafer output at ID1 to begin in the second half of calendar 2027,
4 with customer qualifications to follow.” Five years from groundbreaking to first output, through the
5 steepest price rise in the industry’s history.

6 294. Samsung reportedly suddenly paused what it had already started. Industry reporting in
7 2024 stated that “Samsung has further delayed construction and orders for its Pyeongtaek Phase 4 (P4)
8 facility,” and that in February 2024 Samsung had “partially halted the construction of its fifth
9 semiconductor plant in Pyeongtaek.”

10 **3. The equipment market confirms the coordinated restraint**

11 295. ASML, the sole supplier of the lithography systems that leading-edge DRAM requires,
12 reported in its 2024 annual report that memory “customers have limited their capacity additions, with
13 greater emphasis on the technology transition supporting high-bandwidth memory.” Its 2023 report had
14 described “lower overall lithography tool utilization in 2023” at memory customers; its 2025 report, after
15 defendants directed expenditures to HBM, states: “This resulted in semiconductor market growth of more
16 than 20% in 2025 and created a supply-demand imbalance.”

17 296. The other equipment makers made similar statements. Lam Research reported that
18 “memory WFE was down nearly 40% year on year” in calendar 2023, and Applied Materials described
19 memory spending as “technology upgrades, not necessarily new capacity.”

20 297. Put simply, a firm planning to expand orders the tools first, but the order books show no
21 Defendant was planning to expand commodity output.

22 298. Defendants also withheld the used tools through which smaller producers expand. In
23 March 2024, Reuters reported that “Chipmakers Samsung Electronics and South Korea’s SK Hynix Inc
24 have stopped selling used chipmaking equipment for fear of falling foul of U.S. export controls on China
25 and western sanctions on Russia.” Whatever the motive, the effect ran in one direction: the secondary
26 tool market that supplies legacy-DRAM capacity went dry while Defendants wound down their own
27 legacy output.

4. Every producer outside the conspiracy expanded

299. The producers with no stake in preserving the shortage behaved competitively. Winbond, a Taiwanese specialty-DRAM maker a fraction of any Defendant's size, immediately expanded its output: "Winbond's capacity for this year and next year is already fully sold out, with utilization running at full load." Its board approved record capital spending for 2026 to expand further.

300. Nanya Technology expanded into the same shortage, reporting first-quarter 2026 revenue of "NT\$49,087 million, a 63.1 percent increase compared to that in the fourth quarter of 2025."

301. China's producers, though barred from leading-edge tools by U.S. export controls, grew fastest of all: "According to various media reports, CXMT increased its production capacity from 70,000 wafer starts per month in 2022 to 120,000 WSPM in 2023," on its way to far more, and by 2026 CXMT and YMTC were reported to be "embarking on an unprecedented expansion spree." Chinese makers expanded DDR4 output and cut prices in the very segment Defendants were abandoning.

302. If expansion into record prices were infeasible, Winbond and CXMT could not have done so. If expansion were unprofitable, the smallest producers, with the highest costs, would not have posted record results doing so. The only firms for which continued output restraint was profitable were the three co-conspirator Defendants—so long as not one of them broke ranks and attempted to take market share from the others.

E. The Stargate Supply Lock-Up (October 2025)

303. Defendants' supply throttling for commodity DRAM did not stop there. In approximately October 2025, Defendants Samsung and SK Hynix reportedly signed preliminary agreements to supply OpenAI's "Stargate" data center project with up to 900,000 DRAM wafers per month. OpenAI announced the arrangements as strategic partnerships whose scope and specifics would be shared as plans progress, and Samsung described its participation as a letter of intent. Secondary industry reporting estimated global DRAM production capacity in 2025 at approximately 2.25 million wafer starts per month; on that reported figure, the Stargate commitment, if fully implemented, would represent up to approximately 40% of total worldwide DRAM output committed to a single customer.

304. The public Stargate announcements identified Samsung and SK Hynix; they did not identify Micron. Micron, however, simultaneously shuttered its consumer brand, Crucial

1 305. If implemented as reported, the commitment, along with the scuttling of Crucial, would
2 reserve a large share of worldwide DRAM output for one buyer, leaving less supply for consumer
3 electronics manufacturers, PC OEMs, automotive companies, smartphone manufacturers, memory
4 module assemblers, retailers, distributors, and consumers. The effect would be to intensify the scarcity
5 already created by Defendants’ coordinated commodity-DRAM restraint.

6 **F. Micron Sacrifices Its Crucial Direct-to-Consumer DRAM Channel**
7 **(December 2025)**

8 306. Micron sold conventional DRAM directly to consumers under a branded retail channel. In
9 December 2025, with consumer DRAM prices at historic highs, Micron announced that it would close
10 that channel—its Crucial business—and wind it down worldwide by the end of February 2026. A firm
11 competing for a shortage would have used such a channel to sell conventional DRAM into record prices.
12 Micron instead surrendered it.

13 **1. Crucial was Micron's direct-to-consumer DRAM channel**

14 307. Crucial was founded in 1996 “believing that everyday consumers can, and should,
15 improve their computers through do-it-yourself upgrades.” As a brand of Micron Technology, “Crucial
16 became the first company to sell memory directly to the consumer.” Micron describes Crucial as its
17 “global consumer brand” and “the only consumer brand owned by Micron Technology,” through which
18 it connects “millions of customers” to Micron’s memory and storage technology. Crucial offered a wide
19 range of memory and storage products worldwide, “from leading retail and e-tail stores to commercial
20 resellers and system integrators.”



27 308. Unlike most participants in the memory supply chain, Micron was not limited to selling
28 DRAM to OEMs, module assemblers, hyperscalers, and enterprise customers. Through Crucial, Micron

1 sold finished DRAM modules directly to individual consumers, gamers, content creators, system builders,
2 small businesses, and institutions. Micron itself drew the contrast with intermediaries: “Unlike module
3 assemblers, Crucial is trusted by consumers because of that unique relationship, which allows us to
4 deliver powerful products you can trust.” That direct-to-consumer position distinguished Micron’s sales
5 model from one limited to selling to OEMs, module assemblers, and other intermediaries.

6 **2. Crucial’s goodwill and commercial significance**

7 309. Over nearly three decades, Micron built Crucial into one of the most recognized retail
8 memory brands in the world, built on Micron’s underlying manufacturing. Crucial’s “reputation for
9 performance, reliability and compatibility is built on Micron's industry leadership.”

10 310. Over those decades, Micron developed substantial goodwill and brand recognition in the
11 Crucial name among consumers, system builders, and businesses.

12 311. Industry sources called Crucial “a fixture in PC building” and “synonymous with technical
13 leadership in retail memory.” Micron itself said its Crucial brand “is uniquely able to connect millions of
14 customers to the innovation and technology that Micron has been perfecting for more than four decades,”
15 serving “leading retail and e-tail stores [and] commercial resellers and system integrators.”

16 312. Crucial products were sold through Micron’s direct sales channels and through many of
17 the largest retailers and e-commerce platforms in the United States and internationally, including
18 Amazon, Newegg, Best Buy, B&H Photo, and numerous computer component distributors and resellers.

19 313. For decades, consumers seeking to upgrade or build personal computers regularly
20 encountered Crucial memory products in retail stores, online marketplaces, technology publications, and
21 computer hardware reviews.

22 314. Crucial memory products were consistently featured in product reviews, benchmark
23 testing, buying guides, and editor recommendations published by leading technology publications,
24 including Tom's Hardware, AnandTech, PC Gamer, PCMag, TechPowerUp, and other widely read
25 industry sources.

26 315. Independent reviewers reflected that reputation: Tom’s Hardware called the Crucial Pro
27 Overclocking DDR5-6400 kit “a reliable option” and described the DDR5-6000 line as delivering “the
28 performance you expect from high-end memory”; TechRadar praised Crucial Pro Overclocking DDR5

1 for “fantastic compatibility, great performance, cool style, and a fantastic price”; and PCMag named the
2 Crucial T500 an “Editors’ Choice.”

3 316. Crucial grew to offer more than 250,000 different memory upgrades.

4 317. To support Crucial, Micron invested in and developed industry-leading, comprehensive
5 online compatibility tools and product-selection resources that helped consumers identify appropriate
6 memory upgrades for specific computer systems. The resources included information on over 50,000
7 computer systems.

8 318. By virtue of its longstanding market presence, widespread distribution, strong consumer
9 recognition, and direct consumer relationships, the Crucial brand constituted a valuable competitive asset
10 for Micron.

11 319. Prior to the conduct alleged herein, Micron regularly highlighted the Crucial brand in
12 investor communications, marketing materials, and public statements as an important component of its
13 consumer-facing business.

14 320. The channel was commercially material to Micron. Crucial-branded products were sold
15 within Micron’s Mobile and Client Business Unit. Micron’s FY2025 Form 10-K states that MCBU sales
16 include “Crucial-branded SSDs and DRAM sold to the consumer market,” and that Micron offered
17 Crucial-branded products both through “a web-based customer-direct sales channel” and through
18 “channel and distribution partners.”

19 321. Micron reported total MCBU revenue of \$11.86 billion in fiscal 2025, \$11.67 billion in
20 fiscal 2024, and \$7.39 billion in fiscal 2023. Micron does not separately break out Crucial’s revenue.
21 MCBU—the segment that housed Crucial’s direct-to-consumer DRAM sales—reported multibillion-
22 dollar revenue and carried, as of Micron’s second fiscal quarter of 2026, a 79% gross margin and a 76%
23 operating margin, both segment-wide figures used here as a public proxy and not a separately reported
24 Crucial margin.

25 **3. The December 2025 exit, at the peak of the consumer shortage**

26 322. On December 3, 2025, Micron announced its decision to exit the Crucial consumer
27 business, including the sale of Crucial consumer-branded products “at key retailers, e-tailers and
28 distributors worldwide.” Micron stated that it would continue Crucial consumer shipments through the

1 consumer channel only until the end of its fiscal second quarter, in February 2026, after which it would
2 no longer supply the consumer channel under the Crucial name, while continuing warranty support and
3 its Micron-branded enterprise products for commercial customers.

4 323. Despite the vast demand and profitability available in conventional DRAM, Micron
5 attributed the decision to AI-data-center demand. “The AI-driven growth in the data center has led to a
6 surge in demand for memory and storage. Micron has made the difficult decision to exit the Crucial
7 consumer business in order to improve supply and support for our larger, strategic customers in faster-
8 growing segments,” said Sumit Sadana, Micron’s EVP and Chief Business Officer, in the company’s
9 announcement. Micron simultaneously acknowledged the goodwill it was abandoning, thanking
10 “millions of customers, hundreds of partners and all of the Micron team members who have supported
11 the Crucial journey for the last 29 years” and describing the brand as “synonymous with technical
12 leadership, quality and reliability.”

13 324. The trade press understood the move as a reallocation of supply away from consumers.
14 CNBC reported the exit under the headline “Micron stops selling memory to consumers as demand spikes
15 from AI chips”, noting that memory was facing “a global shortage” and that AI accelerators consume
16 large quantities of memory—Nvidia’s GB200 carries 192GB per GPU and Google’s Ironwood TPU
17 requires 192GB of HBM, against the roughly 16GB in an ordinary laptop. Ars Technica reported that
18 Micron was ending “nearly 30 years” of selling RAM and SSDs to PC builders under Crucial. Tom’s
19 Hardware reported that Micron was “killing Crucial” and “refocus[ing] on HBM and enterprise
20 customers,” winding the brand down worldwide by the end of February 2026 and “reallocating its output
21 and investments” to enterprise-grade products amid AI demand. Forbes and Windows Central reported
22 the same reallocation, the latter noting that once March 2026 began, consumers would no longer be able
23 to buy Crucial RAM and SSDs from PC-part retailers.

24 4. The exit cannot be reconciled with independent profit maximization

25 325. Micron exited the direct-to-consumer market at a time when consumer memory prices
26 were at historic highs. Consumer memory prices were up 100% to 500% over the preceding year, the
27 profitability of conventional DRAM had overtaken that of HBM beginning in the first quarter of 2026,
28

1 and the Mobile and Client Business Unit that housed Micron’s consumer and client sales reported a 76%
2 operating margin, a segment-wide figure used here as a public proxy.

3 326. In a competitive market, a firm does not abandon a high-margin segment at the peak of a
4 price spike, particularly where it has an established direct-to-consumer channel that its rivals lack; it
5 expands into it. Micron’s exit is rational only if Micron was confident, because of the existence of an
6 agreement and/or conspiracy, that Samsung and SK Hynix—neither of which operated a branded
7 consumer channel—would not aggressively compete for the customers Micron was surrendering.

8 327. Micron’s stated justification does not resolve the difficulty. That AI data-center demand
9 was strong explains why Micron might wish to sell more to data-center customers; it does not explain
10 why Micron eliminated its consumer channel rather than supplying it, when consumer prices were at
11 record highs and the channel was highly profitable. As shown in the preceding Section, the “HBM is
12 more profitable” rationale must overcome the three-to-one capacity cost that Micron itself has described,
13 and HBM profitability had fallen below that of DDR5 beginning in the first quarter of 2026. A firm acting
14 in its own self-interest—and lacking assurances that its rivals would refrain from seizing the
15 opportunity—would have leveraged its unique consumer channel to capitalize on the shortage. Micron
16 instead removed it.

17 **5. Micron’s scuttling of Crucial coincided with the Stargate supply lock-up by**
18 **Samsung and SK Hynix**

19 328. The timing of Micron’s exit aligns with the Stargate supply lock-up described above. In
20 approximately October 2025, Samsung and SK Hynix reportedly signed preliminary agreements to
21 supply OpenAI’s Stargate project with up to 900,000 DRAM wafers per month—a volume reported, if
22 fully implemented, to be on the order of 40% of global DRAM output committed to a single customer—
23 and the public announcements identified Samsung and SK Hynix, not Micron. Within several weeks, in
24 December 2025, Micron announced that it would wind down Crucial by February 2026.

25 329. The sequence is consistent with a division of approaches rather than independent
26 competition. The two Defendants without a direct-to-consumer brand reportedly committed a large share
27 of supply to the AI mega-project. The one Defendant with a direct-to-consumer brand—Micron, which
28

1 was not named in the public Stargate announcements and was uniquely positioned to monetize the
2 consumer shortage—then removed its own consumer channel instead of using it to sell conventional
3 DRAM into record retail prices. The effect of all three decisions was the same: less conventional DRAM
4 reaching consumers, and continued upward pressure on the prices they paid. The supply constraint also
5 reduced the number of vertically integrated DRAM manufacturers maintaining a branded consumer
6 channel, further tightening an already constrained market.

7 **G. Coordinated Customer Vetting and Order Policing (January 2026)**

8 330. Defendants’ actions did not stop at internal cuts. Defendants made sure customers felt the
9 cuts acutely. In approximately January 2026, Nikkei Asia reported that all three Defendants had
10 simultaneously implemented enhanced due diligence and customer vetting procedures for DRAM orders.
11 The report, based on interviews with industry participants, revealed that Defendants were questioning
12 customers about end-user identity, order quantities, and the “reality” of reported demand.

13 331. A GPU and server supplier executive—a customer of Defendants—confirmed the
14 coordinated nature of the policing. “The three companies became stricter and asked us about who we will
15 supply to, how much quantity, and if the demand of our customers are real,” the executive told the press.
16 The executive’s use of the phrase “the three companies”—describing identical behavior by all three
17 Defendants—is itself evidence of coordination.

18 332. Tom’s Hardware reported a memory-chipmaker employee’s explanation that, with
19 demand from AI chip developers already several times larger than everyone else’s, the leading memory
20 makers lacked the capacity to focus on smaller-brand customers:

21 That’s especially true for those [customers] that brutally cut prices and
22 slashed orders over the past few years when end markets were weak. It’s a
23 cruel reality, but relationships with memory suppliers matter in a crunch.

24 333. All three Defendants imposing stricter customer vetting at the same time, during a
25 shortage, is difficult to explain absent coordination. In a competitive market, firms differentiate on
26 customer service; they do not simultaneously adopt the same order-vetting questions—who the customer
27 will supply, how much, and whether its demand is real.

1 334. The vetting also gives each Defendant a structured view of who is purchasing DRAM and
2 in what quantities. The customer policing bears a direct resemblance to the monitoring mechanisms of
3 the 1998-2002 cartel, in which Defendants’ executives “exchang[ed] information on sales of DRAM to
4 certain customers, for the purpose of monitoring and enforcing adherence to the agreed-upon prices.” The
5 current vetting serves an analogous function, furnishing the same kind of customer-level visibility the
6 cartel used to monitor and enforce its agreement.

7 **H. “Supply Discipline” Signaling Through Public Communications**

8 335. Throughout 2023 and 2024, all three Defendants signaled through earnings calls and
9 statements that each Defendant would be cutting production.

10 336. When the executives from each of three firms that collectively control over 91% of a
11 market publicly commits to “supply discipline,” the message reaches not only investors but each other.
12 The statements communicate that the firms will not flood the market. In an oligopoly, such public
13 commitments serve the same function as a private agreement: they create mutual confidence that the
14 coordinated strategy will hold.

15 337. For example, in addition to announcing its “aggressive” production cuts, during its
16 quarterly earnings call in October 2022, SK Hynix spoke almost directly to the other memory suppliers,
17 stating “memory suppliers have begun taking actions, such as cutting back on CapEx and adjusting
18 utilization rates.”

19 338. In discussing its production cuts in February 2023, SK Hynix CFO Kim Woohyun spoke
20 about the “suppliers” collective actions (the defendants here making up more than 91% market share of
21 the “suppliers”). For example, Mr. Kim stated that, allegedly in response to lower memory demand, the
22 “suppliers have started CapEx reduction as well as utilization rate cuts,” that “the effects of suppliers’
23 response toward market condition will . . . eventually improve supply and demand conditions,” and that
24 “suppliers are taking actions to bring balance in the demand and supply situation.” Mr. Kim further stated,
25 “Once the industries’ efforts to lower production growth takes effect from the first quarter and production
26 capabilities are reduced following the CapEx cuts, we expect that not only will inventory levels normalize
27 this year but also a better-than-expected upturn may come next year.”
28

1 339. In announcing its correlating cuts, Micron publicly stated that it was committed to
2 “exercising supply discipline by making significant cuts to capex and wafer starts.”

3 340. Samsung’s Q3 2023 earnings release stated that its semiconductor business “strived to
4 reduce inventory levels by production adjustment rather than by aggressive sales expansion.” The phrase
5 “rather than by aggressive sales expansion” tells competitors that Samsung will not pursue the expansion
6 strategy it had employed in every prior downturn. Coming from the firm with the largest capacity and
7 lowest costs, the signal was clear.

8 341. Defendants went beyond announcing restraint. They publicly promised not to compete for
9 share. On September 29, 2022, nearly a month before SK Hynix announced the first cut, Micron told
10 investors and competitors alike:

11 Tool installation and production output will be ramped in line with industry
12 demand growth, which is consistent with our goal to maintain stable bit
13 supply share as well as supply discipline.

14 342. A commitment to hold “stable bit supply share” is a commitment not to take customers
15 from Samsung or SK Hynix. Made publicly, it assured them of exactly that. Micron repeated the
16 commitment throughout the conspiracy period: in December 2023, “Micron will continue to exercise
17 supply and capex discipline, aligned with our strategy to maintain our long-term bit market share for
18 DRAM and NAND”; in June 2024, “These investments support our objective to maintain our current bit
19 share over time and to grow our memory bit supply in line with long-term industry bit demand”; in
20 September 2024, a commitment to “exercise supply and capex discipline and focus on improving
21 profitability, including walking away from less profitable business”; and in March 2026, with prices at
22 records, “We expect Micron DRAM and NAND supply to grow approximately in line with the industry
23 in calendar 2026.”

24 343. Micron also narrated the industry’s collective restraint and forecast its result. In December
25 2023 it told the market that “Reports indicate that this redeployment of underutilized tools at the leading
26 edge is an industry-wide practice that is likely to constrain industry supply in 2024,” and that “We expect
27 calendar 2024 industry supply to be below demand for both DRAM and NAND, which will result in a
28 contraction of industry inventory levels.”

1 344. SK Hynix’s announcements carried the same collective framing. Its October 26, 2022
2 release stated: “Meanwhile, SK hynix predicted that supply will continue to exceed demand for the time
3 being. Given such consideration, the company has decided to reduce its investment next year by more
4 than 50% YoY.” By July 2023 it spoke of the cuts in industry-wide terms, telling investors that “a clearer
5 effect of production reduction by memory companies” would appear in the second half. In April 2026 it
6 confirmed the continuing posture: “investment aligned with demand.”

7 345. Wall Street analysts have adopted the framing. Phrases such as “rational supply
8 management,” “improved capital discipline,” and “more constructive industry dynamics” pervade sell-
9 side research reports on the memory sector.

10 346. Defendants’ signaling has continued throughout the conspiracy. For example, in Micron’s
11 2026 Q1 earnings report, under the heading “Supply efforts,” Micron stated,

12 As we make progress on our strategic manufacturing initiatives, we will
13 continue to be responsive to the market environment and disciplined with
14 our capex plans.

15 347. During Micron’s 2026 Q2 earnings call, Micron’s Chief Business Officer noted Micron’s
16 “focus on disciplined investing when it comes to our CapEx going forward.”

17 348. At the same time, SK Hynix’s Chief Financial Officer stated in public earning calls that
18 SK Hynix was “adhering to CapEx discipline,” and that “[t]he company’s policy is to execute investment
19 with CapEx discipline.” Likewise, in its 2026 Q1 earnings call, SK Hynix stated, “We will continue to
20 adhere to our CAPEX discipline.”

21 349. In a recent press release, SK Hynix stated, “In compliance with the ‘Capex Discipline’,
22 SK hynix will focus on products with demand feasibility and profitability to enhance investment
23 efficiency.”

24 350. Meanwhile, Samsung Electronics was likewise signaling. At its Q1 2026 earnings call,
25 Samsung Electronics’ head of global sales for its memory business stated that “the demand for DRAM
26 and SSD for conventional servers will increase more sharply than previously anticipated” and “we expect
27 that overall supply shortage situation will continue,” but that “we plan to expand HBM4 supply to
28 multiple key customers and keep increasing the portion of AI-related products.” Samsung Electronics

1 executives further stated that “because of the industry-wide constraints in expanding capacity, the supply
2 shortage has actually become more intense.”

3 351. And during the Q4 2025 earnings call, Samsung Electronics executives stated, “For the
4 DS division, in memory, we believe market conditions will remain favorable, driven by AI demand and
5 industry-wide supply constraints,” and “expansion of supply capacity remains constrained within the
6 memory sector. We expect a significant shortage of supply relative to demand to continue.”

7 **I. Defendants Abandoned Their Competitive Positioning Against Each Other**

8 352. When one firm in an oligopoly restricts output, the profit-maximizing response for rivals
9 is to expand and capture the demand being surrendered. Here, the opposite happened at every turn. When
10 Micron cut wafer starts 20% in October 2022, Samsung and SK Hynix contemporaneously made cuts of
11 their own. When all three pivoted to HBM, none exploited the commodity DRAM gap. When contract
12 prices rose 171% and then more, none raced to expand capacity. All three directed more than \$50 billion
13 in capital expenditure elsewhere.

14 353. Each Defendant’s decisions are rational only if it had assurance, because of an agreement
15 and/or conspiracy, that the other two would behave identically. The consistent deviation from the
16 competitive prediction—across multiple decisions, over multiple years—is among the most probative
17 evidence that Defendants’ conduct is the product of agreement rather than independent action.

18 354. Defendants’ divergent competitive positions confirm that independent market forces did
19 not produce their common response. AI demand explains why HBM became attractive. It does not explain
20 Samsung’s abandonment of its historical maverick strategy, Micron’s exit from Crucial at peak consumer
21 prices, or the uniform refusal by all three Defendants to expand commodity DRAM supply in response
22 to record commodity prices.

23 355. Instead, Defendants converged on a common scarcity-preserving response: restricting
24 commodity output, reallocating capacity toward HBM, exiting DDR4 and DDR3, tying up supply with
25 AI contracts, applying parallel customer-vetting procedures, and refusing to expand commodity DRAM
26 supply despite extraordinary prices. Micron scuttled its very successful Crucial brand. Samsung and SK
27 Hynix rejected two- to three-year long-term agreements with major server-DRAM customers, and
28 insisted on quarterly contracts while anticipating stepwise DRAM price increases through 2027.

1 356. Defendants’ actions indicate a conspiracy. Not only did each company refuse to fill the
2 gap in demand for commodity DRAM, each simultaneously abandoned its competitive positioning
3 against the other Defendants that each had built up over decades. Prior to the conspiracy, the DRAM
4 industry exhibited substantial strategic heterogeneity, with each Defendant pursuing a distinct
5 competitive strategy based on its unique resources, capabilities, and incentives. Economic theory predicts
6 that firms possessing different competitive advantages will seek to maximize profits by exploiting those
7 differences rather than converging on a common business strategy. Consistent with that principle,
8 Samsung leveraged its scale, vertical integration, and financial strength to invest aggressively through
9 industry cycles and pursue market-share gains in downturns. Micron emphasized capital discipline and
10 downstream participation through its Crucial consumer brand, while SK Hynix focused on relationships
11 with OEM customers. Although all three sold largely interchangeable DRAM products, they competed
12 through different dimensions because each firm’s assets and capabilities were distinct. As a result, each
13 company historically responded to market conditions in ways that reflected its own competitive
14 advantages and business objectives.

15 357. Against that backdrop, the post-2022 convergence in strategy is notable. Rather than
16 continuing to pursue their traditional competitive advantages, all three Defendants simultaneously
17 adopted a common approach of supply restriction. From an economic perspective, that convergence is
18 significant because competition among heterogeneous firms would ordinarily be expected to produce
19 differentiated strategies. Instead, Defendants abandoned their historically distinct approaches and adopted
20 the same supply cutting strategy, reflecting the incentives that arise in a highly concentrated oligopoly
21 where reductions in output can increase industry-wide prices and profitability. The shift from strategic
22 heterogeneity to strategic convergence is inconsistent with the manner in which Defendants historically
23 competed and supports the inference that Defendants were no longer acting independently.

24 358. As discussed above, Samsung abandoned its decades-long counter-cyclical strategy—
25 maintaining or increasing production during downturns to crush weaker competitors—and joined the cuts
26 in April 2023. That reversal is rational only if Samsung had assurance that its rivals would likewise
27 restrain rather than exploit Samsung’s sacrifice.

28

1 359. Samsung's history shows what its independent conduct looks like. In the 2008-2009
2 downturn, Samsung kept producing and investing while rivals collapsed. Qimonda, then among the
3 largest DRAM makers, "declared insolvency" in January 2009; Elpida, Japan's last DRAM maker,
4 followed into bankruptcy in 2012. Industry commentary described the strategy as "Winning a Game of
5 CAPEX Chicken." Samsung publicly refused production cuts in the 2019 downturn as well.

6 360. Samsung began this cycle the same way. In late January 2023 it said publicly that "there
7 will be no artificial production cut in its memory semiconductor production." In February 2023, the Korea
8 Herald reported that Samsung was not planning to seek such a cut, and that Samsung "said it will keep
9 spending at a similar level to last year." Tom's Hardware observed that "Samsung was the only major
10 memory maker that did not cut the output of DRAM and 3D NAND when demand for these commodity
11 ICs dropped."

12 361. Two months later Samsung reversed. The Korea Herald reported the April 7, 2023
13 announcement as "the first time the company has made it official, as it had maintained its position not to
14 seek an artificial cut in production." A firm that had used every prior downturn to take share from
15 weakened rivals surrendered that strategy at the moment it would have paid most. The surrender made
16 sense only if Samsung knew the share it declined to take would not be taken from it in turn.

17 362. Likewise, Micron was perfectly positioned to capture the soaring commodity DRAM
18 demand and prices through Crucial, its competitive differentiation. Instead, Micron abandoned its
19 downstream consumer strategy and shuttered Crucial.

20 363. SK Hynix likewise was ready to leverage its preexisting relationships with OEMs who
21 were desperate for DRAM and willing to pay increased prices. But instead, SK Hynix abandoned its
22 longstanding emphasis on OEM supply relationships and redirected resources away from the very
23 customers that had historically formed the core of its competitive strategy.

24 364. Each Defendant simultaneously abandoned the strategy that historically differentiated it
25 from its rivals, thereby eliminating the strategic heterogeneity that had characterized the DRAM industry
26 for decades. A rational firm ordinarily exploits its unique competitive advantages when market conditions
27 become favorable. Here, Defendants did the opposite. Rather than pursuing the distinct strategies that
28 historically defined their competition, all three agreed on the same output-restraint strategy. A rational

1 company would not abandon its own competitive advantages and leave multiple profitable avenues open
2 to rivals absent assurances that those rivals would do the same.

3 **J. Defendants Sacrifice Short-Term Profits to Maintain Supply Restriction**

4 365. The objective of Defendants' conspiracy was not to abandon commodity DRAM, but to
5 make commodity DRAM substantially more profitable. To achieve that objective, Defendants
6 collectively undertook the actions described herein, including accelerating the end-of-life of DDR3 and
7 DDR4 products, refusing to expand commodity DRAM supply despite soaring demand and prices,
8 directing capital expenditures and manufacturing resources toward HBM, committing significant
9 production capacity to long-term HBM arrangements, and reducing participation in downstream
10 consumer channels such as Micron's Crucial business.

11 366. Defendants understood that the extraordinary demand created by the AI boom, combined
12 with the industry's extreme concentration, high barriers to entry, and long lead times for new capacity,
13 created a unique opportunity to restrict commodity DRAM supply without fear that new entrants or fringe
14 competitors could quickly replace that supply. Rather than increasing production to satisfy demand,
15 Defendants pursued a strategy of supply discipline designed to increase prices and margins on the
16 commodity DRAM that remained available for sale while simultaneously capturing the growing profits
17 available from HBM.

18 367. This strategy depended on collective and coordinated action. If any Defendant had
19 continued to compete aggressively for market share by expanding commodity DRAM output, serving
20 customers abandoned by rivals, or investing to increase supply, the resulting increase in available DRAM
21 would have undermined the price increases and margin expansion sought by the others. In that
22 circumstance, the Defendants pursuing supply restraint would have sacrificed volume, customers, and
23 market share without obtaining the supracompetitive profitability they expected.

24 368. The following analysis shows that Defendants indeed sacrificed profits on commodity
25 DRAM, even taking into account the reportedly large profit margins from HBM—conduct that is not in
26 the interest of the individual companies absent coordination.

1 369. On Defendants’ own reported margins, the conventional DRAM sales that Defendants
2 declined to pursue carried very large operating profits. The figures below are a threshold analysis showing
3 that the profit Defendants forwent was economically material and empirically testable.

4 **1. Micron's reported margins on ordinary memory**

5 370. For its second fiscal quarter of 2026, Micron reported revenue of \$23.86 billion, a
6 company gross margin of 74.4%, and a company operating margin of 67.6%. Micron reported these
7 results by business unit. Its Mobile and Client Business Unit (“MCBU”)—the segment that includes
8 Crucial-branded DRAM and SSDs sold to consumers—generated \$7.711 billion in revenue at a 79%
9 gross margin and a 76% operating margin. Its Cloud Memory and Core Data Center units each reported
10 gross margins of approximately 74% and operating margins of 66% to 67%.

371. At the 76% operating margin Micron reported for its Mobile and Client Business Unit, used here as a public segment proxy for ordinary and client-memory economics, every \$100 million of additional segment revenue would carry approximately \$76 million of operating income. Measured against Micron’s \$7.711 billion quarterly MCBU base, the operating profit associated with capturing even a small additional share of that segment’s consumer and client demand is substantial:

Incremental sales (MCBU proxy)	Quarterly operating income	Annualized
1% of MCBU revenue	~\$58.6 million	~\$234 million
5%	~\$293 million	~\$1.17 billion
10%	~\$586 million	~\$2.34 billion
20%	~\$1.17 billion	~\$4.69 billion

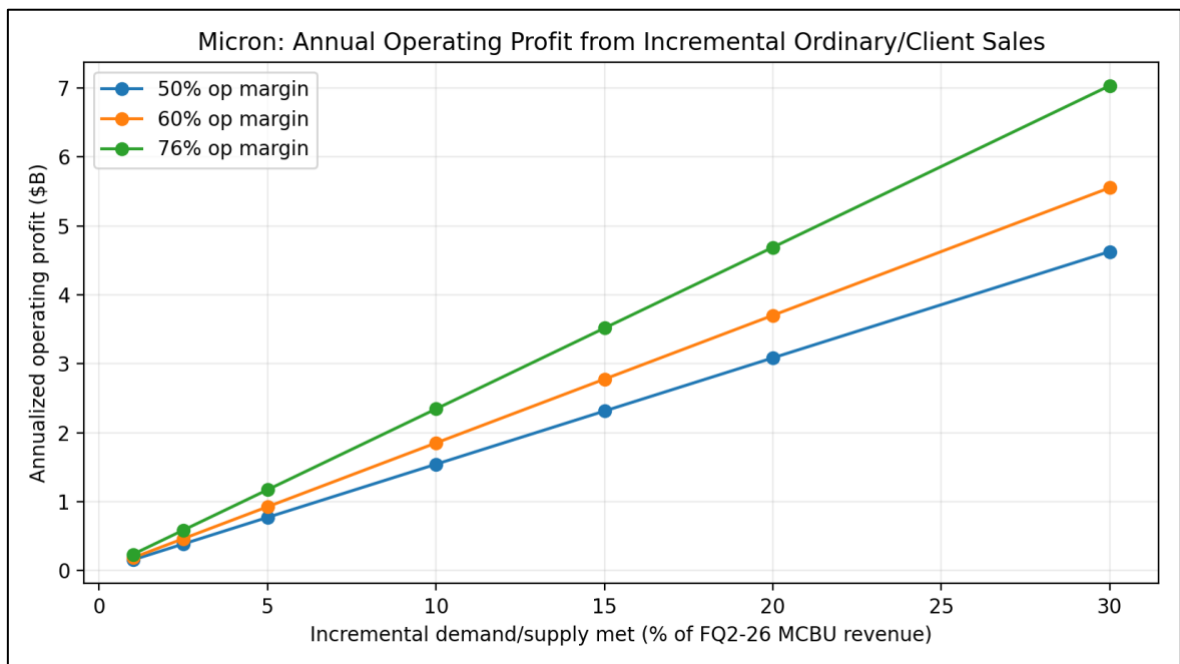


Figure 6—Micron annual operating profit from incremental ordinary/client memory sales, using Micron’s reported MCBU segment margin as a public segment proxy.

2. The Three-to-One Capacity Ratio

372. It is incorrect to compare one bit of HBM against one bit of commodity DRAM. The relevant comparison, on Defendants’ own description of the technology, is one bit of HBM against three bits of commodity DRAM.

1 373. Micron’s own business chief has described the trade-off. As CNBC reported, “[w]hen
2 Micron makes one bit of HBM memory, it has to forgo making three bits of more conventional memory
3 for other devices,” and Micron's Sumit Sadana explained: “As we increase HBM supply, it leaves less
4 memory left over for the non-HBM portion of the market, because of this three-to-one basis.” The same
5 reporting recorded that Sadana said Micron was “sold out for 2026,” that there “won’t be enough memory
6 to meet worldwide demand,” and that DRAM prices were expected to rise more than 50% in the quarter,
7 consistent with TrendForce's projection of a 50% to 55% quarter-over-quarter increase in average DRAM
8 prices.

9 374. The three-to-one ratio implies that HBM is the more profitable use of capacity only if the
10 profit from one HBM bit exceeds the profit from three conventional DRAM bits sold into the shortage.
11 Stated as a threshold: a bit of HBM is the better use of a unit of capacity only where the HBM revenue
12 premium per bit, multiplied by the HBM margin, exceeds three times the ordinary-margin proxy. Solving
13 for the break-even premium at the 76% operating margin Micron reported for its MCBU segment, used
14 here only as a public segment operating-margin proxy rather than a reported commodity-DRAM or
15 Crucial margin, yields the following required HBM revenue premiums:

Assumed HBM margin	Required HBM revenue premium per bit to beat three conventional DRAM bits
60%	3.80×
70%	3.26×
80%	2.85×
90%	2.53×

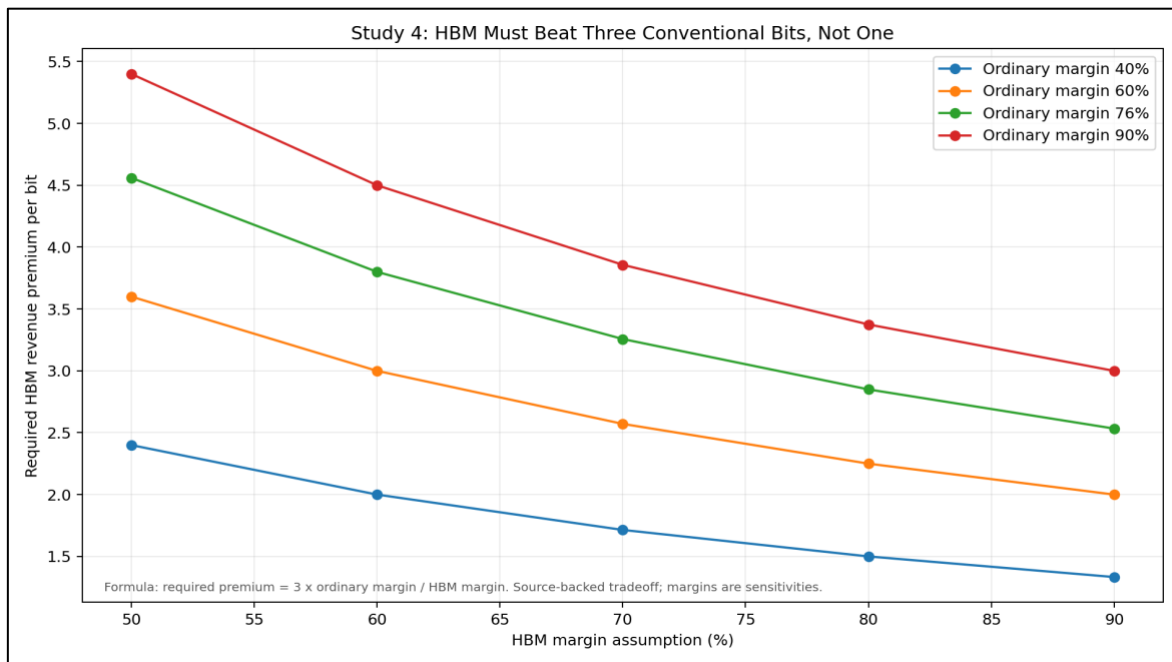


Figure 7—Required HBM revenue premium per bit to beat three conventional DRAM bits; margins shown are sensitivity assumptions, with 76% used only as Micron’s MCBU segment operating-margin proxy.

375. Once the three-to-one capacity cost is accounted for, HBM must clear a high bar—roughly a two-and-a-half to nearly four times revenue premium per bit, depending on the assumed HBM margin—before it beats the profit available from three commodity bits sold into a market where commodity prices had risen 171.8% year-over-year as of Q3 2025, 50% quarter-over-quarter in Q4 2025, and a further approximately 93% to 98% quarter-over-quarter in Q1 2026.

3. The erosion of HBM’s profitability advantage

376. During its Q2 2025 earnings call, Samsung recognized that “considering the upward price momentum for conventional DRAM, so far the second half, based on current signals and also near-term expectations, we believe the difference in margins between HBM3E and conventional DRAMs is expected to narrow sharply.”

377. By the spring of 2026, the premium HBM once commanded had compressed. In a report published June 2, 2026 analyzing per-wafer revenue for HBM and conventional DRAM, TrendForce stated:

Based on TrendForce’s analysis of per-wafer revenue for HBM and conventional DRAM—estimated using die size, yield rates, and per-Gb pricing—HBM wafer revenue was overtaken by DDR5 64GB RDIMM in

1 1Q26. This has led HBM profitability to also fall below that of DDR5
2 64GB RDIMM since 1Q26.

3 378. Early 2026 trade reporting and Defendants themselves confirmed that conventional
4 DRAM had surpassed HBM profitability by 2026.

5 379. Samsung confirmed that conventional DRAM is now more profitable than HBM.

6 380. Micron’s CEO stated that “non-HBM margins are currently higher than HBM.”

7 381. SK Hynix noted that standard memory now carries profit margins of 80% while HBM
8 stays around 60%.

9 382. Supplying commodity DRAM was not a low-margin alternative to HBM. Even where
10 HBM margins were higher per bit, HBM did not necessarily beat the profit from the three commodity
11 bits each HBM bit displaced, and any advantage in profitability HBM possessed began “narrow[ing]
12 sharply” by at least early 2025 and the profitability had flipped completely by 2026. The decision by all
13 three Defendants to leave that profit unclaimed, while commodity prices set records, is difficult to
14 reconcile with independent profit maximization and is economically probative of coordinated restraint.

15 **4. The proceeds went to shareholders, not to supply**

16 383. Capital was not a constraint on production, further indicating that Defendants’ conduct is
17 a coordinated restriction on supply and output.

18 384. On November 15, 2024, with DRAM prices climbing, Samsung announced that “it plans
19 to buy back a total of KRW 10 trillion in the Company’s shares to enhance shareholder value.” It
20 completed the program by September 2025 and in April 2026 paid its first special dividend in five years.
21 Samsung committed “an annual regular dividend of 9.8 trillion won as a part of total shareholder returns
22 of 50% of the free cash flow.”

23 385. SK Hynix wrote capacity restraint into its shareholder-return policy itself. Its November
24 27, 2024 program raised the dividend 25% and adopted what the company calls Capex Discipline:

25 The Capex Discipline from the plan stipulates that total amount of annual
26 investment has to stay at an average mid-30% range, compared with the
27 revenues to ease uncertainties of the future and enable a quick decision
28 making in accordance with market conditions.

1 386. A public, policy-level cap on investment is a standing assurance to rivals that SK Hynix
2 will not expand to take their share. In January 2026, alongside record results, SK Hynix announced “an
3 additional dividend of 1 trillion won, equivalent to 1,500 won per share.”

4 387. Micron followed the same pattern. Its fiscal 2025 annual report states: “No shares were
5 repurchased in 2025.” In December 2025, it reported “highest ever,” record quarterly free cash flow. In
6 March 2026, as consumer memory prices set records, Micron announced that “our board has approved a
7 30% increase in our quarterly dividend” and resumed buybacks, repurchasing \$650 million that quarter.

8 388. Each Defendant chose distribution over expansion while industry capital spending was
9 projected to have, in TrendForce’s words, “a minimal impact on bit supply growth in 2026.” These were
10 the choices of firms confident that no rival would use the shortage to take their customers.

11 **5. The same opportunity in the consumer channel**

12 389. The same arithmetic applied with particular force to Micron, the one Defendant that sold
13 conventional DRAM directly to consumers under the Crucial brand. The consumer and client demand
14 that Micron exited fell within its Mobile and Client Business Unit, the segment that reported the 76%
15 operating margin described above. Consumer conventional DRAM prices were at historic highs at the
16 moment of exit.

17 **K. Prior Criminal Antitrust Enforcement for Identical Conduct**

18 390. The same three firms—or their direct predecessors and subsidiaries—took part in a
19 criminal price-fixing cartel in the exact same product market within the past two decades. Samsung and
20 the predecessor of SK Hynix pleaded guilty and paid criminal fines; Micron took part in the same
21 conspiracy but avoided corporate prosecution and fines by reporting the cartel and cooperating with the
22 Department of Justice under its Corporate Leniency Policy.

23 391. Between approximately July 1, 1998 and June 15, 2002, Samsung, Hynix (now SK
24 Hynix), Micron, and others conspired to fix the prices of DRAM chips sold to major U.S. computer
25 manufacturers including Dell, Compaq, Hewlett-Packard, Apple, IBM, and Gateway. The DOJ’s
26 investigation resulted in criminal guilty pleas and fines totaling more than \$730 million—at the time, the
27 second-largest total fine ever imposed in a single U.S. criminal antitrust investigation.

28 392. The individual corporate penalties were as follows:

- 1 • Samsung Electronics: \$300 million criminal fine (October 2005)—at the time, the second-
- 2 largest criminal antitrust fine in DOJ history.
- 3 • Hynix Semiconductor (now SK Hynix): \$185 million criminal fine (May 2005).
- 4 • Infineon Technologies: \$160 million criminal fine (October 2004).
- 5 • Elpida Memory: \$84 million criminal fine (January 2006).
- 6 • Micron Technology: Received DOJ immunity as the cooperating witness that exposed the
- 7 cartel. However, Micron employee Alfred P. Censullo, a Regional Sales Manager, was
- 8 separately charged with obstruction of justice in December 2003 for withholding and
- altering documents responsive to a grand jury subpoena. Censullo pleaded guilty and was
- sentenced to six months of home detention.

9 393. Individual Samsung executives were imprisoned for their roles in the conspiracy. Young
 10 Hwan Park, Vice President of Sales at Samsung Electronics and later President of Samsung
 11 Semiconductor's U.S. subsidiary, was sentenced to ten months in federal prison and a \$250,000 fine. Sun
 12 Woo Lee, Senior Manager of DRAM Sales, was sentenced to eight months in prison and a \$250,000 fine.
 13 Yeongho Kang, Associate Director of DRAM Marketing at Samsung Semiconductor's U.S. subsidiary,
 14 was sentenced to seven to eight months in prison and a \$250,000 fine. In total, eighteen individuals were
 15 charged across all defendant companies.

16 394. The European Commission separately fined nine semiconductor manufacturers a total of
 17 €331 million (approximately \$405 million) in May 2010 for the same DRAM cartel. Samsung was fined
 18 €145.73 million. Hynix was fined €51.57 million. Micron received full immunity in the EU proceeding
 19 as well, having been the whistleblower that exposed the cartel.

20 395. Samsung and the predecessor of SK Hynix pleaded guilty to fixing DRAM prices in the
 21 identical product market within the past two decades, and Micron admitted its involvement in that same
 22 conspiracy and entered a corporate leniency agreement with the Department of Justice. Three cycles of
 23 coordinated conduct by the same three firms in the same market is a pattern, not a coincidence.

24 396. The pattern across three cycles is unmistakable:

- 25 • First Cycle (1998-2002): Coordinated price floors → DOJ criminal prosecutions; \$730M+ in
- 26 U.S. fines; €331M in EU fines; 18 individuals charged; Samsung executives imprisoned.
- 27 • Second Cycle (2016-2018): DRAM prices nearly tripled → Class action; China SAMR
- 28 investigation into all three Defendants.

- Third Cycle (2022-Present): Coordinated supply restriction → Prices up 171-500% → This action.

397. Three times in twenty-five years, the same three companies, in the same product market, have engaged in coordinated conduct producing supracompetitive prices.

398. In sum, Defendants have: (1) simultaneously cut production; (2) simultaneously pivoted to HBM; (3) simultaneously exited DDR4/DDR3; (4) unanimously refused to expand despite 171% price increases; (5) reportedly committed up to approximately 40% of global DRAM supply to a single customer; (6) eliminated a major consumer brand; (7) implemented identical customer policing; (8) publicly signaled coordinated restraint; and (9) previously taken part in a criminal conspiracy to fix the price of DRAM in the identical market within the past two decades, with Samsung and SK Hynix's predecessor pleading guilty and paying criminal fines and Micron admitting its involvement and cooperating under the Department of Justice's Corporate Leniency Policy.

L. Market Structure Facilitating Coordination

399. The conventional DRAM market possesses every structural feature that facilitates coordinated behavior: (a) extreme concentration (HHI of approximately 2,868; three firms control over 91% of revenue); (b) a homogeneous, JEDEC-standardized commodity product; (c) transparent pricing tracked by TrendForce on a quarterly basis; (d) effectively perfect demand inelasticity, as set forth in Section III, *supra*; (e) insurmountable barriers to entry, as set forth in Section II, *supra*; and (f) a proven history of successful collusion, as set forth in Section IV, *supra*.

M. Opportunity to Conspire

400. Defendants interact through numerous channels: JEDEC committee meetings; quarterly pricing negotiations with the same OEM customers; industry conferences (Flash Memory Summit, SEMICON West, SEMICON Korea, Hot Chips); the Semiconductor Industry Association; and customer qualification processes requiring technical exchanges among competitors.

401. Each Defendants' investor relations resource pages list numerous such events that Defendants are involved in.

402. Further, representatives from each Defendant are often grouped together for various conferences. For example, at the Future Memory Storage Conference 2024, Sui Wei Lim, Micron Head

1 of Memory Systems and DRAM Architecture, Kapil Sethi, Samsung Semiconductor Director of Product
2 Planning, and Hoshik Kim, SK Hynix Senior Vice Present of Memory Systems, were named together for
3 conference events. SEMICON Taiwan 2025 included a “Memory Executive Summit,” whose participants
4 were Jeff (Joonyong) Choi, VP of SK Hynix, Jangseok Choi, VP of Memory Product Planning at
5 Samsung Electronics, and Nirmal Ramaswamy, Corporate VP of Micron DRAM Technology
6 Development. SEMICON Taiwan 2025 likewise featured executives from each Defendant. As another
7 recent example, at least ten senior Micron executives attended SEMICON Korea 2026 with Samsung and
8 SK Hynix.

9 403. The JEDEC contacts follow a published, recurring schedule. JEDEC’s JC-42 committee,
10 whose scope states that “The products within JC-42’s scope include all memory integrated circuits,”
11 maintains a dedicated DRAM subcommittee, designated “JC-42.3 Subcommittee: Dynamic RAMs
12 (DDRx),” and publishes its meeting calendar: committee meetings ran, for example, August 29-
13 September 2, 2022, March 4-7, 2024, and June 2-5, 2025. Samsung, SK Hynix, and Micron all appear on
14 JEDEC’s public member list. The standards process placed Defendants’ memory executives and
15 engineers in scheduled, face-to-face contact throughout the conspiracy period.

16 404. The synchronized moves of 2022-2026 each followed identifiable industry gatherings.
17 SEMICON Taiwan ran September 14-16, 2022—five weeks before SK Hynix announced the first cut on
18 October 26 and nine weeks before Micron’s November 16 cut. SEMICON Korea ran February 1-3, 2023,
19 and ISSCC, at which both Samsung and SK Hynix presented, ran February 19-23, 2023—weeks before
20 Samsung’s April 7 capitulation. The Memory Executive Summit described above convened the three
21 Defendants’ executives in September 2025, weeks before the Stargate announcements of October 1 and
22 Micron’s December 3 exit from Crucial; TrendForce previewed it as the first time “the world’s top three
23 memory giants—SK Hynix, Samsung, and Micron—will share the stage in Taiwan.”

24 405. The two Korean Defendants also meet at the top. SK Hynix’s chief executive serves as
25 “Chairman, Korea Semiconductor Industry Association.” And when the Stargate partnerships were
26 announced, the chairmen of Samsung and SK arrived together: as the Korea Herald reported, “Later in
27 the day, Lee, Chey and Altman met with President Lee Jae Myung.”
28

1 406. The 1998-2002 conspiracy was carried out through precisely these types of contacts.
2 According to the DOJ, participants “participat[ed] in meetings, conversations, and communications in
3 the United States and elsewhere” and “exchang[ed] information on sales of DRAM to certain customers
4 for the purpose of monitoring and enforcing adherence to the agreed-upon prices.” The same forums exist
5 today. The same firms attend. The same product is at issue.

6 **N. Defendants Are Reaping the Benefits of Their Supply Cutting Conspiracy.**

7 407. Defendants’ supply cutting conspiracy has led to substantial profits for Defendants.

8 408. In Q1 2023, as Defendants’ simultaneous conduct was beginning, Micron recorded
9 approximately \$2.7B in revenue from its DRAM business. That number has risen to \$18.8B in revenue
10 for Micron’s DRAM business in Q2 2026.

11 409. SK Hynix earned KRW 52.58T in Q1 2026 compared to KRW 17.64T in Q1 2025 and
12 KRW 12.43T in Q1 2024. SK Hynix also reported an operating margin of approximately 72% in Q2
13 2026.

14 410. Samsung’s memory division earned KRW 74.8T in Q1 2026 compared to KRW 37.1T in
15 Q1 2025 and KRW 17.49T in Q1 2024. And the memory division’s Q2 operating margin was estimated
16 at 71% to 77%.

17 411. These record profits are not the result of the AI surge alone. According to those in the
18 industry, commodity DRAM profitability is nearing or now exceeds that of HBM. TrendForce reported
19 that HBM wafer revenue was overtaken by DDR5 64GB RDIMM in the first quarter of 2026, and that
20 HBM profitability has fallen below that of DDR5 64GB RDIMM since that quarter. This is the direct
21 result of Defendants’ conspiracy.

22 **VI. HARM TO COMPETITION AND ANTITRUST INJURY**

23 412. Defendants’ coordinated supply restriction has inflicted substantial harm to competition
24 in the conventional DRAM market and to all consumers and businesses that purchase conventional
25 DRAM or conventional DRAM-containing products.

26 **A. Supracompetitive Prices**

27 413. Conventional DRAM prices increased 171.8% year-over-year as of Q3 2025. Q4 of 2025
28 saw additional increases of approximately 50%. The surge continued into 2026: conventional DRAM

1 contract prices rose another approximately 93% to 98% quarter-over-quarter in Q1 2026, and were
2 expected to rise a further 58% to 63% quarter-over-quarter in Q2 2026. As alleged above, retail prices
3 rose 100-500% across product categories, and by January 2026 DDR5 retail prices had quadrupled over
4 the preceding months. Corsair Vengeance RGB DDR5-6000 32GB kits carried a best-available U.S. price
5 of \$439, against an \$87 lowest-ever price. Prices for higher capacity kits rose likewise—a 64-gigabyte
6 DDR5 kit that sold for about \$189 in March 2025 sold for more than \$425 by November and roughly
7 \$1,080 by March 2026.

8 414. As TrendForce reported on January 6, 2026:

9 Samsung Electronics and SK hynix . . . have reportedly pitched first-quarter
10 server DRAM prices up 60-70% from Q4 last year to major clients
11 including Microsoft and Google, while PC and smartphone DRAM buyers
12 are seeing comparable hikes. . . . [B]oth South Korean giants rejecting long-
13 term agreements (LTAs) of two to three years and sticking to quarterly
contracts, anticipating stepwise DRAM price increases each quarter
through 2027.

14 415. Samsung's and SK Hynix's reported refusal to enter two- to three-year long-term
15 agreements with major server-DRAM customers is itself evidence of coordination. In a competitive
16 market, sellers lock in long-term contracts to secure customer relationships. Here, both South Korean
17 producers are reported to be rejecting multi-year agreements with major server-DRAM customers
18 because they expect prices to continue rising—an expectation rational only if each is confident the other
19 will not undercut it.

20 416. Three years into the price surge, no supply expansion has occurred, no Defendant has
21 undercut its rivals, and prices continue to rise quarter over quarter. In a competitive commodity market,
22 price increases of 100-500% attract supply expansion within one to two business cycles. Here, none has
23 occurred.

24 417. Framework, a modular laptop manufacturer, raised RAM prices by more than 50% in
25 December 2025. A 16GB configuration rose from \$80 to \$120; a 32GB configuration rose from \$160 to
26 \$240; and a 96GB configuration rose from \$480 to \$720. By May 2026, those prices had nearly or more
27 than doubled, with 16GB selling for \$320, 32GB for \$470, and 96GB for \$1410.
28

1 418. Raspberry Pi CEO Eben Upton stated that “Memory costs roughly 120% more than it did
2 a year ago,” reflecting the impact of the DRAM shortage even on low-cost computing platforms.

3 419. Winbond Electronics, a Taiwan-based specialty DRAM manufacturer, expanded its
4 DDR4 and LPDDR4 shipments as contract prices surged, lifting its quarterly revenue 91.4% quarter-
5 over-quarter in the first quarter of 2026. Industry-wide, conventional DRAM contract prices rose
6 approximately 93% to 98% quarter-over-quarter in the first quarter of 2026 and were expected to rise a
7 further 58% to 63% quarter-over-quarter in the second quarter of 2026.

8 420. Winbond’ President Pei-Ming Chen stated that the DDR4 supply gap is “so large that it’s
9 hard to see how it can be filled.” Winbond’ capacity for 2026 and 2027 is already fully sold out.

10 421. The conventional DRAM price increases cascaded throughout the technology supply
11 chain. CyberPowerPC reported a 500% increase in memory costs since early October 2025 and raised
12 prices on prebuilt systems in the U.S. and U.K. SSD prices rose in tandem, as NAND Flash production
13 competes for the same fabrication resources that Defendants redirected to HBM. Dell raised prices not
14 only on PCs but on standalone monitors. The shortage affected every product category containing
15 memory, from smartphones to servers to gaming consoles.

16 422. Dell announced that starting December 17, 2025, its Pro and Pro Max notebooks and
17 desktops configured with 32GB of memory would see price increases of \$130 to \$230 per system. For
18 top-end configurations with 128GB of memory, prices would rise by \$520 to \$765 per system. Storage
19 upgrades to 1TB would add an additional \$55 to \$135. The increases also applied to AI laptops equipped
20 with NVIDIA Blackwell GPUs—models with 6GB of GPU memory rising \$66, and models with 24GB
21 of GPU memory rising \$530—and to standalone monitors, with the Dell Pro 55 Plus 4K Monitor
22 increasing by \$150.

23 423. IDC projects a 5% decline in global smartphone sales and a 9% decline in PC sales in
24 2026, driven by memory shortages.

25 424. TrendForce projects that data centers will consume 70% of all memory chips produced in
26 2026, leaving only 30% for consumer electronics, PCs, smartphones, automotive, gaming, industrial, and
27 medical devices. TrendForce’s Avril Wu stated: “This time really is different . . . It really is the craziest
28 time ever.”

1 425. Dell announced 10-30% price increases on commercial PCs. CyberPowerPC raised prices
2 on all systems. Minisforum raised prices on all DRAM-containing products. Small system builders and
3 repair shops face existential cost pressures. Schools, libraries, and government agencies on fixed budgets
4 face the choice of delaying technology purchases or reducing quality.

5 426. Lenovo began stockpiling RAM through forward-looking deals in an effort to insulate its
6 laptop prices from the shortage, a measure that itself reflects the distortion Defendants' conduct has
7 introduced into normal supply-chain relationships.

8 427. In June 2026, numerous industry associations submitted a joint letter to the U.S.
9 Departments of the Treasury and Commerce warning that the “unprecedented surge in the price of
10 memory chips and reduced supply of these chips” had already caused “price increases for a broad range
11 of everyday consumer electronics and information technology products [and] and risks to the production
12 and availability of automobiles, medical devices, and other manufactured goods.” The associations urged
13 the Departments to “[e]nsure that memory semiconductor capacity adequately serves all segments of the
14 market, including consumer-facing and manufacturing industries,” and to “[c]losely track conditions in
15 the memory market, including with respect to supply and demand.”

16 **B. Artificial Shortages and Rationing**

17 428. The shortages documented above—purchase limits in Japan, mandatory bundle sales in
18 Taiwan, panic buying by ASUS and MSI, and price tags removed from U.S. retail shelves—have
19 persisted and worsened for over a year with no supply response from any Defendant. The persistence of
20 rationing demonstrates that the supply constraint is artificial.

21 429. In Japan, retail shops in Akihabara imposed purchase limits on memory modules—
22 restricting buyers to two SO-DIMMs and four memory sticks per customer—because distributors had
23 suspended deliveries with no clear timeline for normalization.

24 430. In Taiwan, distributors began requiring the purchase of a motherboard with every DRAM
25 module—a bundling restriction that Taiwan's *Economic Daily News* described as unprecedented in the
26 industry.

1 431. In the United States, Micro Center—the country’s largest specialty PC retailer—removed
2 price tags from memory products and shifted to spot pricing, updating prices in real time as wholesale
3 costs fluctuated.

4 432. ASUS and MSI, two of the world’s largest motherboard and PC manufacturers, resorted
5 to panic-buying DRAM on the spot market to build stockpiles—a practice historically unprecedented for
6 Tier-1 OEMs, which ordinarily purchase through long-term contracts. ASUS disclosed that it held only
7 two months of DRAM inventory.

8 433. Framework, the modular laptop maker, stopped selling standalone RAM modules entirely
9 in order to prevent scalpers from buying up its limited supply, reserving available memory for customers
10 purchasing complete laptops. It subsequently raised RAM prices by dramatic amounts.

11 **C. Reduced Consumer Choice**

12 434. Micron’s exit from the direct-to-consumer market reduced the number of vertically
13 integrated DRAM manufacturers with a branded consumer channel. The reported phase-out of DDR4
14 and DDR3, discussed in Section V.C, *supra*, narrows the options available to owners of existing DDR4
15 systems, who face either paying elevated prices for dwindling supplies of compatible memory or
16 replacing otherwise-functional systems.

17 435. The simultaneous de-emphasis of DDR3 and DDR4 production, combined with
18 Defendants’ coordinated reallocation to HBM, leaves consumers with costly options. Those buying new
19 systems pay inflated prices for DDR5, the supply of which Defendants have constrained even as they
20 continue to produce it. Those who need replacement memory for existing DDR4-based systems face
21 dwindling supply and sharply rising costs, with no competitive alternative available.

22 436. TrendForce reported in December 2025 that notebook brands were shifting their product
23 portfolios toward lower-specification 8GB models to manage rising memory costs, and that shipments in
24 the mid-range segment were “increasingly shifting toward 8GB models.” In the high-end segment,
25 mainstream shipments centered on 16GB configurations—a reduction from prior generations.

26 **D. Strengthening of Barriers to Entry**

27 437. Defendants’ conduct does more than inflate today’s prices; it raises the very barrier that
28 shields those prices from competitive entry. The Fabrication Barrier to Entry described in Section II,

1 *supra*, was already formidable before the conspiracy. Each element of Defendants’ coordinated supply
2 restriction has since made that barrier higher, so that entry capable of disciplining Defendants’ pricing is
3 more remote now than when the coordinated conduct began.

4 438. First, the supracompetitive profits generated by the coordinated supply restriction permit
5 further process-technology development and specialization at a level no entrant can approach. Leading-
6 edge DRAM is built on proprietary process nodes like Samsung’s 1b and 1c, SK Hynix’s 1b, and
7 Micron’s 1-beta—developed through decades of accumulated know-how and guarded as trade secrets
8 that cannot be purchased or licensed. A new entrant starting from scratch would need an estimated five
9 to ten years to develop competitive process technology even with unlimited capital. Each additional
10 quarter of supracompetitive profit widens that gap.

11 439. The capital and equipment barriers have tightened over the same period. Reaching
12 competitive scale is estimated to require \$30 to \$50 billion over five to seven years, and no venture capital
13 fund, private equity firm, or sovereign wealth fund has attempted that investment in over a decade. Even
14 the \$52.7 billion authorized by the U.S. CHIPS and Science Act—roughly the cost of a single competitive
15 DRAM operation—has gone to expanding incumbents’ capacity rather than seeding a new competitor;
16 Micron broke ground on its CHIPS-funded megafab in Clay, New York in January 2026, with production
17 not expected before 2030. Leading-edge production also depends on extreme ultraviolet lithography
18 systems sold almost exclusively by ASML, which produces fewer than 100 systems per year, allocated
19 years in advance to Samsung, SK Hynix, Micron, TSMC, and Intel. Each Defendant already holds
20 contractual commitments with ASML for future EUV deliveries, and their increased 2026 capital
21 spending is directed to HBM capacity, advanced packaging, and process-node transitions, not to freeing
22 equipment for any new market participant.

23 440. Defendants’ conduct compounds a regulatory barrier that forecloses the only firms with
24 the scale to attempt entry. U.S. export controls promulgated in October 2022 and tightened in October
25 2023 cap Chinese manufacturers—principally CXMT and Fujian Jinhua—at older-generation DRAM,
26 and bar them from acquiring the equipment needed to make competing DDR5, LPDDR5X, GDDR7, or
27 HBM. By steering scarce capacity to HBM and advanced nodes that those producers are legally barred
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1 from making, Defendants have concentrated the supply restriction in the very segments insulated from
2 the only potential entrants.

3 441. The coordinated exit from DDR4 and DDR3 described in Section V.C, *supra*, reinforces
4 that division. Rather than compete on price when CXMT and Fujian Jinhua offered DDR4 at roughly
5 50% below Defendants' prices, all three moved away from DDR4 at roughly the same time, ceding the
6 low end to the export-controlled Chinese producers while retreating to leading-edge products those
7 producers cannot make. The effect is to confine the only would-be entrants to a shrinking legacy segment
8 and to wall off the advanced segments behind the Fabrication Barrier to Entry.

9 442. These reinforced barriers are not theoretical. Defendants' coordinated conduct—diverting
10 supracompetitive profits into an ever-widening process lead, claiming the scarce supply of EUV and other
11 critical equipment, capturing advanced-node and HBM capacity, and confining the only export-controlled
12 would-be rivals to the legacy segment they are themselves abandoning—makes the entry that might
13 discipline supracompetitive pricing more remote now than before the conspiracy began. The Fabrication
14 Barrier to Entry described in Section II, *supra*, has not merely persisted; Defendants' current conduct is
15 actively raising it.

16 **E. Diminished Innovation in Commodity DRAM**

17 443. Defendants' coordinated reallocation of research, development, and manufacturing
18 capacity away from commodity DRAM has suppressed innovation in the memory products used by
19 hundreds of millions of consumers. In a competitive market, the record prices documented in Section
20 VI.A, *supra*, would draw investment into faster, denser, more efficient, and cheaper memory. Because
21 all three Defendants simultaneously de-prioritized commodity DRAM, that competitive pressure has not
22 materialized.

23 444. Defendants' own disclosed priorities show where their investment has gone. Beginning in
24 approximately 2023, all three simultaneously redirected manufacturing capacity and capital expenditure
25 from commodity DRAM to High Bandwidth Memory for AI accelerators. TrendForce reported in
26 November 2025 that total DRAM-sector capital expenditure—about \$53.7 billion in 2025, rising to a
27 projected \$61.3 billion in 2026—was being directed to “process technology upgrades, higher-layer
28 stacking, hybrid bonding, and high-value products such as HBM,” and that this spending was “unlikely

1 to significantly affect bit output.” TrendForce projected that Samsung’s 2026 investment centered on 1C-
2 process HBM production, SK Hynix’s on HBM4 capacity at its M15x fab, and Micron’s on next-
3 generation process nodes and through-silicon-via equipment for HBM packaging, rather than on
4 expanding commodity DRAM for consumer devices.

5 445. The consumer-facing trajectory over the same period has been regression, not
6 advancement. As prices climbed, notebook brands shifted their product portfolios toward lower-
7 specification 8GB models to manage memory costs, with mid-range shipments “increasingly shifting
8 toward 8GB models” and high-end shipments centered on 16GB configurations, a reduction from prior
9 generations. Rather than competing to put faster or higher-capacity memory into consumer devices,
10 Defendants and the OEMs they supply moved consumers toward less.

11 446. Defendants also withdrew established commodity products without competitive
12 successors at comparable prices. Samsung ceased DDR3 production entirely in approximately 2024. By
13 2025, all three Defendants were moving to phase out or de-emphasize mainstream DDR4 despite ongoing
14 demand from the many existing PCs, servers, and embedded systems that still depend on it. As alleged
15 in Section V.C, *supra*, the result is a market inversion in which older, slower DDR4 costs more per
16 gigabyte than the newer DDR5 meant to replace it.

17 447. Consumers pay historically high prices without receiving improved memory or improved
18 availability. Conventional DRAM prices rose 171.8% year over year as of the third quarter of 2025, 50%
19 in Q4 2025, and rose another approximately 93% to 98% quarter over quarter in the first quarter of 2026.
20 Downstream, Dell raised configured-system prices by amounts ranging from \$130 to \$765, Framework
21 raised RAM prices by more than 50%, and Raspberry Pi reported that the cost of some parts had more
22 than doubled in a single quarter. These increases bought consumers no additional performance, density,
23 or efficiency; they reflect scarcity rather than advancement.

24 448. In a competitive market, the largest price signal in the industry’s history would have
25 triggered a race to deliver better and cheaper memory. Three years into the price surge, no Defendant has
26 expanded commodity supply or undercut its rivals, and the coordinated diversion of capacity to AI
27 memory is projected to leave only about 30% of global memory output for the consumer, PC, smartphone,
28 automotive, and other segments that serve billions of devices.

F. Distortion of Competitive Dynamics

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449. Defendants have replaced competition with coordination: identical pricing, identical supply decisions, parallel customer vetting, and similar market-exit strategies. The parallel customer vetting alleged above, considered together with Defendants' other parallel conduct, demonstrate Defendants were coordinating in monitoring and managing demand during the ongoing shortage. Samsung's and SK Hynix's refusal to enter two- to three-year long-term agreements with major server-DRAM customers, described in Section V.D, *supra*, maximizes their pricing power at the direct expense of customer planning and budgeting.

G. Injury to Plaintiffs and the Class

450. Plaintiffs and members of the Class purchased conventional DRAM and conventional DRAM-containing products at prices artificially inflated by Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as illustrated by the price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers documented above.

451. Plaintiffs and the Class have suffered antitrust injury. Absent the conspiracy, commodity DRAM supply would have expanded in response to rising prices, producing a competitive equilibrium. Instead, Defendants' coordinated refusal to expand has maintained supracompetitive prices.

452. Dell, CyberPowerPC, Framework, and Minisforum, as examples, each publicly attributed their price increases to DRAM costs, confirming that supracompetitive conventional DRAM pricing was passed through to end consumers. Dell cited "memory prices" in announcing 10-30% PC price hikes. CyberPowerPC cited a "500% increase in memory cost" when raising system prices in the U.S. and U.K. Framework's CEO explained the company's 50% RAM price increase as a direct consequence of the memory market. Minisforum raised prices on all products containing DRAM or storage.

453. Every consumer who purchased DRAM modules, a smartphone, laptop, desktop PC, gaming console, or server during the Class Period paid an overcharge traceable to Defendants' coordinated supply restriction. Because conventional DRAM is a component in virtually all computing devices, and because Defendants control more than 91% of the market, no consumer could avoid the price effects of the conspiracy.

CLASS ACTION ALLEGATIONS

1 454. Plaintiffs bring this action on behalf of themselves and all others similarly situated
2 pursuant to Rules 23(a), 23(b)(2), and 23(b)(3) of the Federal Rules of Civil Procedure.

3 455. Defendants’ anticompetitive conduct was uniform in nature and effect: Defendants
4 imposed the same coordinated supply restrictions, the same capacity reallocation decisions, the same
5 product discontinuations, and the same customer-vetting procedures across all conventional DRAM
6 products sold to all purchasers. Defendants did not materially differentiate in their actions or inactions
7 toward members of the Classes.

8 456. Each class member was subject to the same artificially constrained supply and the same
9 supracompetitive pricing, and each was injured in the same manner—by paying artificially inflated prices
10 for conventional DRAM and conventional DRAM-containing products as a direct result of Defendants’
11 coordinated conduct.

12 457. This action is appropriate for class treatment because Defendants’ anticompetitive conduct
13 was directed at, and had a common effect upon, all purchasers of conventional DRAM and conventional
14 DRAM-containing products. The questions of law and fact common to all Class members predominate
15 over any questions affecting only individual members, and a class action is superior to other available
16 methods for the fair and efficient adjudication of this controversy.

The Classes

17 458. Plaintiffs seek to represent the following classes:

18
19 **Nationwide Injunctive Relief Class:** All persons and entities in the United
20 States who indirectly purchased conventional DRAM products (including
21 DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM
22 conforming to JEDEC specifications, but excluding HBM) manufactured
23 by one or more Defendants, or electronic devices containing such DRAM,
24 during the period beginning October 26, 2022, through the present (the
25 “Class Period”).

26 459. Excluded from the Nationwide Injunctive Relief Class are Defendants and their parents,
27 subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly
28 or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members
and associated court staff assigned to this case.

1 **California Damages Class:** All persons and entities in the State of
2 California who indirectly purchased conventional DRAM products
3 (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all
4 other DRAM conforming to JEDEC specifications, but excluding HBM)
5 manufactured by one or more Defendants, or electronic devices containing
6 such DRAM, during the Class Period.

7 460. Excluded from the California Damages Class are Defendants and their parents,
8 subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly
9 or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members
10 and associated court staff assigned to this case.

11 **Florida Damages Class:** All persons and entities in the State of Florida
12 who indirectly purchased conventional DRAM products (including DDR3,
13 DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM
14 conforming to JEDEC specifications, but excluding HBM) manufactured
15 by one or more Defendants, or electronic devices containing such DRAM,
16 during the Class Period.

17 461. Excluded from the Florida Damages Class are Defendants and their parents, subsidiaries,
18 affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly
19 owned subsidiaries or affiliates; and the judicial officers and their immediate family members and
20 associated court staff assigned to this case.

21 **Minnesota Damages Class:** All persons and entities in the State of
22 Minnesota who indirectly purchased conventional DRAM products
23 (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all
24 other DRAM conforming to JEDEC specifications, but excluding HBM)
25 manufactured by one or more Defendants, or electronic devices containing
26 such DRAM, during the Class Period.

27 462. Excluded from the Minnesota Damages Class are Defendants and their parents,
28 subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly
or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members
and associated court staff assigned to this case.

New York Damages Class: All persons and entities in the State of New
York who indirectly purchased conventional DRAM products (including
DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM
conforming to JEDEC specifications, but excluding HBM) manufactured

1 by one or more Defendants, or electronic devices containing such DRAM,
2 during the Class Period.

3 463. Excluded from the New York Damages Class are Defendants and their parents,
4 subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly
5 or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members
6 and associated court staff assigned to this case.

7 **Wisconsin Damages Class:** All persons and entities in the State of
8 Wisconsin who indirectly purchased conventional DRAM products
9 (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all
10 other DRAM conforming to JEDEC specifications, but excluding HBM)
11 manufactured by one or more Defendants, or electronic devices containing
12 such DRAM, during the Class Period.

13 464. Excluded from the Wisconsin Damages Class are Defendants and their parents,
14 subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly
15 or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members
16 and associated court staff assigned to this case.

17 465. The Nationwide Injunctive Relief Class, California Damages Class, Florida Damages
18 Class, Minnesota Damages Class, New York Damages Class, and Wisconsin Damages Class are referred
19 to collectively as the “Classes.”

20 **Numerosity and Ascertainability**

21 466. The members of the Classes are so numerous that joinder of all members is impracticable.
22 Hundreds of millions of persons in the United States purchased conventional DRAM-containing
23 electronic devices during the Class Period. Over 240 million personal computers and over 1.2 billion
24 smartphones shipped worldwide in 2024 alone, each containing conventional DRAM manufactured by
25 one or more Defendants.

26 467. The Classes are ascertainable. The class definitions identify groups of unnamed plaintiffs
27 by describing a set of common characteristics sufficient to allow a member of that group to self-identify
28 as having a right to recover based on the description. Other than by direct notice, proper and sufficient

1 notice of this action may be provided to the class members through notice disseminated by electronic
2 means, through broadcast media, and published in newspapers or other publications.

3 468. There is a well-defined community of interest in questions of law and fact involving and
4 affecting all members of the Classes. Common questions of law and fact are substantially similar and
5 predominate over questions that may affect only individual class members. This action is amenable to a
6 class-wide calculation of damages, or the establishment of fair and equitable formulae for determining
7 and allocating damages, through expert testimony applicable to anyone in the Classes.

8 **Common Questions of Law and Fact**

9 469. Common questions of law and fact exist as to all members of the Classes and predominate
10 over any questions solely affecting individual members of the Classes, including:

- 11 i. Whether Defendants entered into a contract, combination, or conspiracy to restrict the
12 supply of conventional DRAM;
- 13 ii. Whether Defendants' coordinated supply restriction is per se anticompetitive and
14 unlawful, or in the alternative, whether it violates the rule of reason because the conduct
15 lacks procompetitive benefits or the anticompetitive effects of the conduct outweigh its
16 procompetitive benefits;
- 17 iii. Whether Defendants' conduct artificially inflated conventional DRAM prices during the
18 Class Period;
- 19 iv. Whether the overcharge resulting from Defendants' conspiracy was passed through to
20 indirect purchasers, including Plaintiffs and the Classes;
- 21 v. Whether the members of the Classes are entitled to trebled damages, attorneys' fees, costs,
22 and other monetary relief under the Cartwright Act;
- 23 vi. Whether the members of the Nationwide Injunctive Relief Class are entitled to injunctive
24 relief under Section 16 of the Clayton Act, 15 U.S.C. § 26;
- 25 vii. Whether Defendants should be enjoined from coordinating production levels, capacity
26 allocation, and product discontinuation in the conventional DRAM market, and from the
27 parallel customer vetting alleged as part of that coordinated course of conduct;
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1 476. Class treatment is also appropriate under Rule 23(b)(3) because the questions of law and
2 fact common to the members of the Classes predominate over any questions affecting only individual
3 members.

4 477. The damages suffered by individual Class members are relatively small compared to the
5 burden and expense that would be required to individually litigate their claims against Defendants. It
6 would be virtually impossible for members of the Classes individually to redress effectively the wrongs
7 done to them, such that most or all class members would have no rational economic interest in
8 individually controlling the prosecution of specific actions.

9 478. Even if Class members could afford such individualized litigation, the court system could
10 not. Individualized litigation would create the danger of inconsistent or contradictory judgments arising
11 from the same set of facts. Individualized litigation would also increase the delay and expense to all
12 parties and to the court system from the issues raised by this action. Class adjudication conserves judicial
13 resources, protects class members' rights, and is superior to piecemeal litigation.

14 479. There are no difficulties likely to be encountered in the management of this action that
15 would preclude its maintenance as a class action. Rule 23 provides the Court with authority and flexibility
16 to maximize the efficiencies and benefits of the class mechanism and reduce management challenges.
17 The Court may, on motion of Plaintiffs or on its own determination, certify nationwide and/or statewide
18 classes for claims sharing common legal questions; utilize the provisions of Rule 23(c)(4) to certify
19 particular claims, issues, or common questions of fact or law for class-wide adjudication; and utilize Rule
20 23(c)(5) to divide any class into subclasses.

21 **Reallegation and Incorporation by Reference**

22 480. Plaintiffs reallege and incorporate by reference all the preceding paragraphs and
23 allegations of this Complaint, as though fully set forth in each of the following Claims for Relief asserted
24 on behalf of the Classes.

CLAIMS FOR RELIEF

COUNT I

**Violation of Section 1 of the Sherman Act, 15 U.S.C. § 1
(On Behalf of Plaintiffs and the Nationwide Injunctive Relief Class)
(Injunctive and Equitable Relief Only)**

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481. Plaintiffs bring this count against all Defendants on behalf of themselves and the putative Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

482. Beginning in approximately October 2022 and continuing to the present, Defendants Samsung, SK Hynix, and Micron entered into and have maintained a continuing agreement, combination, or conspiracy in restraint of trade in the market for conventional DRAM, in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1.

483. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of conventional DRAM, including: (a) simultaneous production cuts by all three Defendants beginning in October 2022; (b) the coordinated reallocation of manufacturing capacity from commodity DRAM to High Bandwidth Memory; (c) the coordinated exit from DDR4 and DDR3 production despite ongoing demand; (d) the unanimous refusal to expand conventional DRAM production despite an approximately 697% increase in contract prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

484. Conventional DRAM is manufactured, distributed, and sold in a continuous and uninterrupted flow of interstate and international commerce. Defendants manufacture conventional DRAM in fabrication facilities located in South Korea, the United States, Japan, China, and Taiwan. They sell conventional DRAM products to customers located throughout the United States and the world, including OEMs, distributors, and module manufacturers. Conventional DRAM products manufactured by Defendants are incorporated into computers, smartphones, servers, automobiles, gaming consoles, and other electronic devices that are sold and shipped across state lines and international borders. Defendants'

1 conspiracy has had a direct, substantial, and reasonably foreseeable effect on interstate and international
2 commerce within the United States.

3 485. Each Defendant, through its U.S. subsidiary or directly, transacts business within the
4 United States and within this District. Defendants maintain sales offices, engineering facilities, and
5 distribution channels in the United States through which they sell conventional DRAM into the stream of
6 interstate commerce. Samsung Semiconductor, Inc. is headquartered in San Jose, California. SK Hynix
7 America Inc. is headquartered in San Jose, California. Micron Technology, Inc. is headquartered in Boise,
8 Idaho and maintains substantial operations throughout the United States. The volume of interstate
9 commerce affected by Defendants' conspiracy is substantial, exceeding tens of billions of dollars
10 annually.

11 486. Defendants' conspiracy constitutes a *per se* violation of Section 1 of the Sherman Act. An
12 agreement among horizontal competitors to restrict output is a naked restraint on trade that is *per se*
13 unlawful. The conspiracy here is an agreement among the only three significant producers of conventional
14 DRAM—a commodity product with no substitutes—to restrict production, exit product segments, and
15 refrain from expanding output. This is the functional equivalent of a production quota.

16 487. The *per se* characterization is further supported by the fact that the same firms previously
17 took part in a criminal conspiracy to fix the price of DRAM, within the past two decades. Samsung and
18 the predecessor of SK Hynix pleaded guilty, and Micron admitted its involvement and cooperated with
19 the Department of Justice under its Corporate Leniency Policy. The Department of Justice secured guilty
20 pleas and criminal fines totaling more than \$730 million. Samsung alone paid a \$300 million criminal
21 fine. Samsung executives were imprisoned. The current conspiracy is a continuation of Defendants'
22 demonstrated propensity to coordinate on DRAM supply and pricing.

23 488. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the
24 rule of reason. The anticompetitive effects of Defendants' conduct are severe and well-documented: (a)
25 conventional DRAM contract prices have increased by approximately 697% since Q3 2024, with retail
26 price increases nearing 500%; (b) artificial shortages have produced rationing in Japan, Taiwan, and the
27 United States—a phenomenon virtually unknown in the DRAM market outside of natural disaster; (c)
28 consumer choice has been reduced by Micron's exit from the consumer market and the coordinated

1 discontinuation of DDR4 and DDR3 products; (d) innovation in commodity DRAM has been diminished
2 by the coordinated reallocation of R&D spending to HBM; (e) barriers to entry have been strengthened
3 by the reported Stargate commitment of up to approximately 40% of global DRAM output to a single
4 customer; and (f) competitive dynamics have been distorted by the simultaneous adoption of identical
5 customer policing, identical rejection of long-term agreements, and identical pricing behavior.

6 489. Defendants cannot demonstrate any procompetitive justification for their coordinated
7 conduct. AI demand is an independent market development, not a procompetitive benefit of the
8 conspiracy. Defendants exploited it as a pretext to coordinate the restriction of commodity DRAM supply.
9 The conspiracy produces no efficiency, no innovation, no consumer benefit, and no competitive
10 improvement—only higher prices, less supply, and greater market power for Defendants. Any purported
11 justification is pretextual and is, in any event, far outweighed by the anticompetitive harm.

12 490. Plaintiffs and the Class have been injured by Defendants' violation of Section 1 of the
13 Sherman Act. Plaintiffs and the Class have paid supracompetitive prices for conventional DRAM and
14 conventional DRAM-containing products as a direct result of Defendants' conspiracy to restrict
15 commodity conventional DRAM supply.

16 491. The overcharge has been passed through the distribution chain—from Defendants to direct
17 purchasers (OEMs, distributors, and module manufacturers) and from direct purchasers to indirect
18 purchasers (retailers, system builders, and consumers)—as confirmed by the contemporaneous price
19 increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers.
20 Plaintiffs and the Class have suffered and will continue to suffer injury of the type the antitrust laws were
21 intended to prevent.

22 492. Plaintiffs and the Class seek injunctive relief under Section 16 of the Clayton Act, 15
23 U.S.C. § 26, requiring Defendants to cease their coordinated supply restriction and restore competitive
24 conditions in the conventional DRAM market, including: (a) enjoining Defendants from coordinating
25 production levels, capacity allocation, or product discontinuation; and (b) requiring Defendants to
26 maintain or expand conventional DRAM production capacity commensurate with demand.

COUNT II
Violation of the Cartwright Act
(CAL. BUS. & PROF. CODE § 16720 *et seq.*)
(On Behalf of Plaintiffs and the California Damages Class)

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3 493. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa bring this
4 count against all Defendants on behalf of themselves and the putative California Damages Class.
5 Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

6 494. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a
7 combination or conspiracy in restraint of trade in the market for conventional DRAM, constituting a trust
8 within the meaning of California Business and Professions Code §§ 16720, 16726, and 16727.

9 495. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of
10 conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous
11 production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit
12 from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production
13 despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of
14 global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer
15 vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and
16 investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j)
17 sacrificing short-term profits to maintain the supply restrictions.

18 496. Conventional DRAM products manufactured by Defendants are sold to purchasers located
19 in California, including OEMs, distributors, retailers, system builders, and consumers. Conventional
20 DRAM products and conventional DRAM-containing devices—including computers, smartphones,
21 servers, and other electronic products—are sold at retail throughout the State of California. California is
22 one of the largest markets for conventional DRAM and conventional DRAM-containing devices in the
23 United States.

24 497. Defendants' conspiracy constitutes a *per se* violation of the Cartwright Act. An agreement
25 among horizontal competitors to restrict output is *per se* unlawful under the Cartwright Act, which is at
26 least as broad as the Sherman Act in prohibiting restraints of trade. An output restriction agreement among
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1 the three firms that collectively control over 91% of global DRAM production is a naked restraint on
2 trade that admits of no procompetitive justification.

3 498. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the
4 rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices
5 (contract prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing
6 rationing in Japan, Taiwan, and the United States; reduced consumer choice through the elimination of
7 the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in commodity
8 DRAM; strengthened barriers to entry through the reported Stargate supply commitment; and distortion
9 of competitive dynamics through identical customer policing, identical rejection of long-term
10 agreements, and identical pricing behavior. These anticompetitive effects far outweigh any purported
11 procompetitive justification. Defendants cannot identify a single procompetitive benefit of their
12 coordinated conduct.

13 499. California's Cartwright Act permits indirect purchasers to recover damages. CAL. BUS. &
14 PROF. CODE § 16750(a). Unlike the Sherman Act, which limits damages recovery to direct purchasers,
15 the Cartwright Act provides a damages remedy to all purchasers injured by the conspiracy, including
16 indirect purchasers such as Plaintiffs Garciguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa
17 and the California Damages Class.

18 500. Plaintiffs Garciguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the
19 California Damages Class have been injured by Defendants' violation of the Cartwright Act. During the
20 Class Period, Plaintiffs Garciguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the
21 California Damages Class purchased conventional DRAM products and conventional DRAM-containing
22 electronic devices at prices that were artificially inflated as a direct result of Defendants' coordinated
23 supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as
24 confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum,
25 and other downstream purchasers. Plaintiffs Garciguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and
26 Ochoa and the California Damages Class have paid and continue to pay supracompetitive prices for
27 conventional DRAM and conventional DRAM-containing products.

28

1 501. As a result of Defendants' violations of the Cartwright Act, Plaintiffs Garciaguirre,
2 Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class are entitled to
3 recover treble damages, together with the costs of suit, including reasonable attorneys' fees. CAL. BUS.
4 & PROF. CODE § 16750(a). Damages will be established through common proof, including economic
5 modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs
6 Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class
7 are also entitled to prejudgment interest.

8 502. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the
9 California Damages Class also seek injunctive relief under the Cartwright Act, CAL. BUS. & PROF. CODE
10 § 16750(a), and CALIFORNIA'S UNFAIR COMPETITION LAW, CAL. BUS. & PROF. CODE § 17203, to prevent
11 Defendants from continuing their unlawful conduct and to restore competitive conditions in the
12 conventional DRAM market.

13 **COUNT III**
14 **Violation of the Florida Deceptive and Unfair Trade Practices Act**
15 **(FLA. STAT. § 501.201, *et seq.*)**
16 **(On Behalf of Plaintiffs and the Florida Damages Class)**

17 503. Plaintiffs Henning, Troy's Computers, and My Florida PC bring this count against all
18 Defendants on behalf of themselves and the putative Florida Damages Class. Plaintiffs incorporate by
19 reference all preceding paragraphs as though set forth fully herein.

20 504. FDUPTPA, Fla. Stat. § 501.201, *et seq.* generally prohibits "unfair methods of
21 competition, unconscionable acts or practices, and unfair or deceptive acts or practices in the conduct of
22 any trade or commerce," including practices in restraint of trade. FLA. STAT. § 501.204(1).

23 505. The primary policy of the FDUTPA is "[t]o protect the consuming public and legitimate
24 business enterprises from those who engage in unfair methods of competition, or unconscionable,
25 deceptive, or unfair acts or practices in the conduct of any trade or commerce." FLA. STAT. § 501.202(2).

26 506. A claim for damages under the FDUTPA has three elements: (1) a prohibited practice; (2)
27 causation; and (3) actual damages.
28

1 507. Florida Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida
2 Damages Class purchased conventional DRAM products within the State of Florida during the Class
3 Period.

4 508. Under Florida law, indirect purchasers have standing to maintain an action under the
5 FDUTPA based on the facts alleged in this Complaint. *See* FLA. STAT. § 501.211(1) (“anyone aggrieved
6 by a violation of this [statute] may bring an action . . .”). Unlike the Sherman Act, which limits damages
7 recovery to direct purchasers, the FDUTPA provides a damages remedy to all purchasers injured by the
8 conspiracy, including indirect purchasers such as Plaintiffs Henning, Troy's Computers, and My Florida
9 PC and the Florida Damages Class.

10 509. But for Defendants' conduct set forth in this Complaint, the price of conventional DRAM
11 products would have been lower, in an amount to be determined at trial.

12 510. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a
13 combination or conspiracy between two or more persons in restraint of, or to monopolize, trade or
14 commerce in the market for conventional DRAM, a substantial part of which occurred within Florida.

15 511. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of
16 conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous
17 production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit
18 from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production
19 despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of
20 global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer
21 vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and
22 investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j)
23 sacrificing short-term profits to maintain the supply restrictions.

24 512. Conventional DRAM products manufactured by Defendants are sold to purchasers located
25 in Florida, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM
26 products and conventional DRAM-containing devices—including computers, smartphones, servers, and
27 other electronic products—are sold at retail throughout the State of Florida.

28

1 513. Defendants established, maintained, or used a monopoly, or attempted to establish a
2 monopoly, of trade or commerce in the conventional DRAM market for the purpose of excluding
3 competition or controlling, fixing, or maintaining prices in Florida at a higher level than the competitive
4 market level, beginning at least as early as the beginning of the Class Period and continuing through the
5 date of this filing.

6 514. Accordingly, Defendants' conduct was an unfair method of competition, and an unfair or
7 deceptive act or practice within the conduct of commerce within the State of Florida.

8 515. Defendants' unlawful conduct substantially affected Florida's trade and commerce.

9 516. As a direct and proximate cause of Defendants' unlawful conduct, Florida Plaintiffs
10 Henning, Troy's Computers, and My Florida PC and the Florida Damages Class have been injured during
11 the Class Period in their business or property by virtue of overcharges for conventional DRAM
12 products—and are threatened with further injury. Specifically, Florida Plaintiffs Henning, Troy's
13 Computers, and My Florida PC and the Florida Damages Class purchased conventional DRAM products
14 and conventional DRAM-containing electronic devices at prices that were artificially inflated as a direct
15 result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution
16 chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell,
17 CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiffs Henning, Troy's Computers,
18 and My Florida PC and the Florida Damages Class have paid and continue to pay supracompetitive prices
19 for conventional DRAM and conventional DRAM-containing products.

20 517. As a result of Defendants' violations of the FDUTPA, Plaintiffs Henning, Troy's
21 Computers, and My Florida PC and the Florida Damages Class are entitled to seek all forms of relief,
22 including actual damages, declaratory judgment, and reasonable attorneys' fees and costs pursuant to
23 FLA. STAT. § 501.211. Damages will be established through common proof, including economic
24 modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs
25 Henning, Troy's Computers, and My Florida PC and the Florida Damages Class are also entitled to
26 prejudgment interest.

1 518. Plaintiffs Henning, Troy’s Computers, and My Florida PC and the Florida Damages Class
2 also seek injunctive relief under FLA. STAT. § 501.208 to prevent Defendants from continuing their
3 unlawful conduct and to restore competitive conditions in the conventional DRAM market.

4 **COUNT IV**
5 **Violation of the Minnesota Antitrust Law**
6 **(MINN. STAT. § 325D.49, et seq.)**
7 **(On Behalf of Plaintiffs and the Minnesota Damages Class)**

8 519. Plaintiff Graber bring this count against all Defendants on behalf of himself and the
9 putative Minnesota Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as
10 though set forth fully herein.

11 520. The Minnesota Antitrust Law makes unlawful any “contract, combination, or conspiracy
12 between two or more persons in unreasonable restraint of trade or commerce[.]” MINN. STAT. § 325D.51.

13 521. The Minnesota Antitrust Law also makes unlawful “[t]he establishment, maintenance, or
14 use of, or any attempt to establish, maintain, or use monopoly power over any part of trade or commerce
15 by any person or persons for the purpose of affecting competition or controlling, fixing, or maintaining
16 prices[.]” MINN. STAT. § 325D.52.

17 522. Defendants Samsung, SK Hynix, and Micron established or maintained a monopoly over
18 the trade or commerce of conventional DRAM products for the purpose of affecting competition or fixing
19 prices in the State of Minnesota, in violation of Minnesota Antitrust Law § 325D.52.

20 523. Defendants Samsung, SK Hynix, and Micron have established or maintained this
21 monopoly within the State of Minnesota by entering into and maintaining a combination or conspiracy
22 in the unreasonable restraint of trade or commerce in the market for conventional DRAM within the
23 meaning of Minnesota Antitrust Law §§ 325D.50 and 325D.51.

24 524. Conventional DRAM products manufactured by Defendants are sold to purchasers located
25 in Minnesota, including OEMs, distributors, retailers, system builders, and consumers. Conventional
26 DRAM products and conventional DRAM-containing devices—including computers, smartphones,
27 servers, and other electronic products—are sold at retail throughout the State of Minnesota.

28 525. Defendants’ conspiracy has consisted of a coordinated scheme to restrict the supply of
conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous

1 production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit
2 from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production
3 despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of
4 global DRAM output to a single customer; (f) Micron’s shuttering of Crucial; (g) coordinated customer
5 vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and
6 investor communications; and (i) abandonment of each Defendants’ competitive positioning; and (j)
7 sacrificing short-term profits to maintain the supply restrictions.

8 526. Defendants’ conspiracy constitutes a *per se* violation of the Minnesota Antitrust Law. An
9 agreement among horizontal competitors to restrict output is *per se* unlawful under the Minnesota
10 Antitrust Law. An output restriction agreement among the three firms that collectively control over 91%
11 of global DRAM production is a naked restraint on trade that admits of no procompetitive justification.
12 Defendants’ conspiracy also constitutes a *per se* violation of the Minnesota Antitrust Law because it
13 constitutes “[a] contract, combination, or conspiracy between two or more persons in competition” that
14 is “for the purpose or with the effect of affecting, fixing, controlling or maintaining the market price, rate,
15 or fee of any commodity or service,” MINN. STAT. § 325D.53, subd. 1(1)(a), and that is also “affecting,
16 fixing, controlling, maintaining, limiting, or discontinuing the production, manufacture, . . . sale or supply
17 of any commodity . . . for the purpose or with the effect of affecting, fixing, controlling, or maintaining
18 the market price, rate, or fee of the commodity[.]” MINN. STAT. § 325D.53, subd. 1(1)(b).

19 527. In the alternative, Defendants’ conspiracy is an unreasonable restraint of trade under the
20 rule of reason. The anticompetitive effects of Defendants’ conduct are severe: supracompetitive prices
21 (contract prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing
22 rationing in Japan, Taiwan, and the United States; reduced consumer choice through the elimination of
23 the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in
24 conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment;
25 and distortion of competitive dynamics through identical customer policing, identical rejection of long-
26 term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any
27 purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their
28 coordinated conduct.

1 528. Under Minnesota law, indirect purchasers have standing to maintain an action under the
2 Minnesota Antitrust Law based on the facts alleged in this Complaint. *See* MINN. STAT. § 325D.57. Unlike
3 the Sherman Act, which limits damages recovery to direct purchasers, the Minnesota Antitrust Law
4 provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers
5 such as Plaintiff Graber and the Minnesota Damages Class.

6 529. Plaintiff Graber and the Minnesota Damages Class have been injured by Defendants’
7 violation of the Minnesota Antitrust Law. During the Class Period, Plaintiff Graber and the Minnesota
8 Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic
9 devices at prices that were artificially inflated as a direct result of Defendants’ coordinated supply
10 restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed
11 by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other
12 downstream purchasers. Plaintiff Graber and the Minnesota Damages Class have paid and continue to
13 pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

14 530. As a result of Defendants’ violations of the Minnesota Antitrust Law, Plaintiff Graber and
15 the Minnesota Damages Class are entitled to recover treble damages, together with the costs and
16 disbursements, including reasonable attorneys’ fees. MINN. STAT. § 325D.57. Damages will be
17 established through common proof, including economic modeling of the overcharge using before-and-
18 after, yardstick, or econometric methods. Plaintiffs are also entitled to prejudgment interest.

19 **COUNT V**

20 **Violation of the New York Donnelly Act**

21 **(N.Y. GEN. BUS. LAW § 340, *et seq.*)**

22 **(On Behalf of Plaintiffs and the New York Damages Class)**

23 531. Plaintiffs Danson, Prineas, and Yu bring this count against all Defendants on behalf of
24 themselves and the putative New York Damages Class. Plaintiffs incorporate by reference all preceding
25 paragraphs as though set forth fully herein.

26 532. The New York Donnelly Act prohibits monopolies and contracts or agreements in restraint
27 of trade, with the policy of encouraging competition or the free exercise of any activity in the conduct of
28 any business, trade, or commerce in New York. *See* N.Y. Gen. Bus. Law § 340(1).

1 533. Defendants Samsung, SK Hynix, and Micron established or maintained a monopoly
2 within the intrastate commerce of New York for the trade or commerce of conventional DRAM products
3 and restrained competition in the free exercise of the conduct of the business of conventional DRAM
4 products within the intrastate commerce of New York, in violation of N.Y. GEN. BUS. LAW § 340, *et seq.*

5 534. Defendants have established or maintained a monopoly within the intrastate commerce of
6 New York through a coordinated agreement, arrangement, or combination to restrict the supply of
7 conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous
8 production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit
9 from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production
10 despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of
11 global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer
12 vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and
13 investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j)
14 sacrificing short-term profits to maintain the supply restrictions.

15 535. Conventional DRAM products manufactured by Defendants are sold to purchasers located
16 in New York, including OEMs, distributors, retailers, system builders, and consumers. Conventional
17 DRAM products and conventional DRAM-containing devices—including computers, smartphones,
18 servers, and other electronic products—are sold at retail throughout the State of New York. New York is
19 one of the largest markets for conventional DRAM and conventional DRAM-containing devices in the
20 United States.

21 536. Defendants' conspiracy constitutes a *per se* violation of the Donnelly Act. An agreement
22 among horizontal competitors to restrict output is *per se* unlawful under the Donnelly Act. An output
23 restriction agreement among the three firms that collectively control over 91% of global DRAM
24 production is a naked restraint on trade that admits of no procompetitive justification.

25 537. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the
26 rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices
27 (conventional DRAM prices up approximately 697%, retail prices up 100% to 500%); artificial shortages
28 producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the

1 elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation
2 in conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment;
3 and distortion of competitive dynamics through identical customer policing, identical rejection of long-
4 term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any
5 purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their
6 coordinated conduct.

7 538. Under New York law, indirect purchasers have standing to maintain an action under the
8 New York Donnelly Act based on the facts alleged in this Complaint. *See* N.Y. GEN. BUS. LAW § 340(6).
9 Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Donnelly Act provides
10 a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as
11 Plaintiffs Danson, Prineas, and Yu and the New York Damages Class.

12 539. New York Plaintiffs Danson, Prineas, and Yu and the New York Damages Class were and
13 continue to be injured with respect to purchases of conventional DRAM products in New York. During
14 the Class Period, Plaintiffs Danson, Prineas, and Yu and the New York Damages Class purchased
15 conventional DRAM products and conventional DRAM-containing electronic devices at prices that were
16 artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was
17 passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price
18 increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers.
19 Plaintiffs Danson, Prineas, and Yu and the New York Damages Class have paid and continue to pay
20 supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

21 540. As a result of Defendants' violations of the Donnelly Act, Plaintiffs Danson, Prineas, and
22 Yu and the New York Damages Class and are entitled to all forms of relief, including actual damages,
23 treble damages, costs not exceeding \$10,000, reasonable attorneys' fees, and all relief available under
24 N.Y. GEN. BUS. LAW § 340, *et seq.* Damages will be established through common proof, including
25 economic modeling of the overcharge using before-and-after, yardstick, or econometric methods.
26 Plaintiffs are also entitled to prejudgment interest.

27 541. Pursuant to New York General Business Law § 340(5), counsel for New York Plaintiffs
28 Danson, Prineas, and Yu has sent letters by certified mail, return receipt requested, to the Attorney

1 General of New York, informing the Attorney General of the existence of this Class Action Complaint,
2 identifying the relevant state antitrust provisions, and enclosing a copy of the original complaint filed by
3 New York Plaintiffs Danson, Prineas, and Yu.

4 **COUNT VI**
5 **Violation of the Wisconsin Antitrust Act**
6 **(WIS. STAT. § 133.01, *et seq.*)**
7 **(On Behalf of Plaintiffs and the Wisconsin Damages Class)**

8 542. Plaintiff Barber brings this count against all Defendants on behalf of himself and the
9 putative Wisconsin Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as
10 though set forth fully herein.

11 543. The Wisconsin Antitrust Act prohibits “[e]very contract, combination in the form of trust
12 or otherwise, or conspiracy, in restraint of trade or commerce” and penalizes “[e]very person who
13 monopolizes, or attempts to monopolize, or combines or conspires with any other person or persons to
14 monopolize any part of trade or commerce[.]” WIS. STAT. § 133.03(1), (2).

15 544. The intent of the Wisconsin Antitrust Act is “to safeguard the public against the creation
16 or perpetuation of monopolies and to foster and encourage competition by prohibiting unfair and
17 discriminatory business practices which destroy or hamper competition.” WIS. STAT. § 133.01.

18 545. Defendants Samsung, SK Hynix, and Micron are all “person[s]” within the meaning of
19 Wisconsin Antitrust Act § 133.02(3).

20 546. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a
21 combination in the form of trust or conspiracy in restraint of trade or commerce in the market for
22 conventional DRAM within the meaning of Wisconsin Antitrust Act § 133.03(1).

23 547. Defendants have established or maintained a monopoly within the intrastate commerce of
24 Wisconsin through a combination or conspiracy to restrict the supply of conventional DRAM, as set forth
25 in detail in Section V of this Complaint, including: (a) simultaneous production cuts; (b) coordinated
26 reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production;
27 (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported
28 Stargate supply commitment covering up to approximately 40% of global DRAM output to a single
customer; (f) Micron’s shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the

1 public signaling of coordinated conduct through earnings calls and investor communications; and (i)
2 abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to
3 maintain the supply restrictions.

4 548. Conventional DRAM products manufactured by Defendants are sold to purchasers located
5 in Wisconsin, including OEMs, distributors, retailers, system builders, and consumers. Conventional
6 DRAM products and conventional DRAM-containing devices—including computers, smartphones,
7 servers, and other electronic products—are sold at retail throughout the State of Wisconsin.

8 549. Defendants' conspiracy constitutes a *per se* violation of the Wisconsin Antitrust Act. An
9 agreement among horizontal competitors to restrict output is *per se* unlawful under the Wisconsin
10 Antitrust Act. An output restriction agreement among the three firms that collectively control over 91%
11 of global DRAM production is a naked restraint on trade that admits of no procompetitive justification.

12 550. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the
13 rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices
14 (conventional DRAM prices up approximately 697%, retail prices up 100% to 500%); artificial shortages
15 producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the
16 elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation
17 in conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment;
18 and distortion of competitive dynamics through identical customer policing, identical rejection of long-
19 term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any
20 purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their
21 coordinated conduct.

22 551. The Wisconsin Antitrust Act permits indirect purchasers to recover damages. WIS. STAT.
23 § 133.18. Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Wisconsin
24 Antitrust Act provides a damages remedy to all purchasers injured by the conspiracy, including indirect
25 purchasers such as Plaintiff Barber and the Wisconsin Damages Class.

26 552. Plaintiff Barber and the Wisconsin Damages Class have been injured by Defendants'
27 violation of the Wisconsin Antitrust Act. During the Class Period, Plaintiff Barber and the Wisconsin
28 Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic

1 devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply
2 restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed
3 by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other
4 downstream purchasers. Plaintiff Barber and the Wisconsin Damages Class have paid and continue to
5 pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

6 553. As a result of Defendants' violations of the Wisconsin Antitrust Act, Plaintiff Barber and
7 the Wisconsin Damages Class are entitled to recover treble damages, together with the costs of suit,
8 including reasonable attorneys' fees. WIS. STAT. § 133.18. Damages will be established through common
9 proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric
10 methods. Plaintiffs are also entitled to prejudgment interest.

11 554. Plaintiff Barber and the Wisconsin Damages Class also seek injunctive relief under
12 Wisconsin Antitrust Act § 133.16 to prevent Defendants from continuing their unlawful conduct and to
13 restore competitive conditions in the conventional DRAM market.

14 555. Pursuant to Wisconsin Antitrust Act § 133.16, counsel for Wisconsin Plaintiff Barber and
15 the Wisconsin Damages Class has served copies of all pleadings filed under this section upon the
16 Wisconsin Department of Justice.

17 **PRAYER FOR RELIEF**

18 WHEREFORE, Plaintiffs, on behalf of themselves and the proposed Classes, respectfully
19 request that this Court enter judgment against Defendants and grant the following relief:

20 A. Determine that this action may be maintained as a class action pursuant to Rules 23(a),
21 (b)(2), and/or (b)(3) of the Federal Rules of Civil Procedure, direct that reasonable notice be given to
22 the Classes, and declare Plaintiffs as the representatives of the Classes;

23 B. Enter judgment against Defendants in favor of Plaintiffs and the Classes;

24 C. Grant permanent injunctive relief under Section 16 of the Clayton Act, 15 U.S.C. § 26, to
25 remedy the ongoing effects of Defendants' unlawful and anticompetitive conduct, including requiring
26 Defendants to cease coordinated supply restriction and to restore competitive conditions in the
27 conventional DRAM market;

28 D. Award Plaintiffs and the Classes treble damages;

1 E. Award Plaintiffs and the Classes their costs of suit, including reasonable attorneys’ fees as
2 provided by law;

3 F. Award pre- and post-judgment interest as provided by law;

4 G. Award such further and additional relief as the case may require and the Court may deem just
5 and proper under the circumstances.

6 **JURY DEMAND**

7 Plaintiffs demand a trial by jury on all claims and issues so triable.

8
9 Dated: June 25, 2026

Respectfully submitted,

10 **BATHAEE DUNNE LLP**

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