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22 SUPERIOR COURT OF THE STATE OF CALIFORNIA
23 COUNTY OF SAN FRANCISCO

24 RAMBUS INC.,
25
26 Plaintiff,
27
28 vs.
29 MICRON TECHNOLOGY, INC.,
30 et al.,
31 Defendants.
32
33 AND RELATED CROSS-ACTIONS.

CASE NO. 04-431105
**RAMBUS'S SEPARATE STATEMENT OF
DISPUTED FACTS IN OPPOSITION TO
DEFENDANTS' MOTION FOR SUMMARY
ADJUDICATION DISMISSING RAMBUS'
PURE PRICE-FIXING CAUSE OF ACTION**
Hearing Date: February 23, 2009
Hearing Time: 1:30 p.m.
Department: 304
Judge: Hon. Richard A. Kramer
Complaint filed: May 5, 2004
Trial Date: March 16, 2009

PUBLIC-REDACTED VERSION

1 Pursuant to California Code of Civil Procedure Section 437c(b)(3) and California Rules
 2 of Court 3.1350(h), Plaintiff Rambus Inc. ("Rambus") hereby submits this Response to
 3 Defendants' Separate Statement of Undisputed Material Facts In Support of Defendants' Motion
 4 for Summary Adjudication Dismissing Rambus' Pure Price-Fixing Cause of Action.

5 ISSUE: PLAINTIFF LACKS STANDING TO MAINTAIN A CAUSE OF ACTION FOR
 6 PRICE FIXING BECAUSE ITS ALLEGED INJURY IS NOT PART OF THE INJURY TO
 7 COMPETITION CAUSED BY PURE PRICE FIXING.

	Defendants' Material Facts and Supporting Evidence	Rambus's Response and Supporting Evidence
1. 9 10 11 12	Rambus Inc. designs chip-to-chip memory interface technology for use in computers, consumer electronics and network systems. Complaint (Solouki Decl. Ex. B), ¶ 19. Prospectus, Rambus Inc., May 13, 1997 (Solouki Decl. Ex. C), p. 3.	Undisputed. <i>But see</i> Rambus's Objections To Evidence Submitted In Support Of Defendants' Motion For Summary Adjudication Dismissing Rambus's Pure Price Fixing Cause Of Action ("Rambus's Evidentiary Objections").
2. 14 15 16 17 18	In the early 1990s, Rambus designed a technology called Rambus Dynamic Access Memory, or "RDRAM". Complaint (Solouki Decl. Ex. B) ¶ 5.	Disputed, because some of the technology incorporated into RDRAM was invented during the 1980s. <i>See</i> Exh. 314 (R154183-154201); Exh. 315 (1/22/04 Farmwald Depo. at 53:22-55:23); Exh. 316 (3/5/08 Trial Testimony of Horowitz at 4078:21-4081:24, 4091:9-4095:10); Exh. 317 (3/20:08 Trial Testimony of Farmwald at 5489:23-5490:6).
3. 19 20 21 22 23	Rambus entered into license agreements with certain semiconductor manufacturers, granting them rights to produce and sell memory chips using the RDRAM design. Complaint (Solouki Decl. Ex. B), ¶¶ 45, 46. Deposition of Victor Lee, Feb. 20, 2008 (Solouki Decl. Ex. D), p. 106:12-22.	Undisputed. <i>But see</i> Rambus's Evidentiary Objections.

	Defendants' Material Facts and Supporting Evidence	Rambus's Response and Supporting Evidence
4.	<p>DRAM manufacturers paid Rambus royalties and/or licensing fees for the right to produce and sell memory chips using the RDRAM design.</p> <p>Complaint (Solouki Decl. Ex. B), ¶¶ 45, 46.</p> <p>Report of Richard T. Rapp, Nov. 7, 2008 (Solouki Decl. Ex. E), pp. 17-19.</p>	Undisputed.
5.	<p>Rambus did not manufacture, distribute, or sell DRAM chips.</p> <p>Prospectus, Rambus Inc., May 13, 1997 (Solouki Decl. Ex. C), p. 6.</p> <p>Deposition of Victor Lee, Feb. 20, 2008 (Solouki Decl. Ex. D), p. 169:20-23.</p> <p>Deposition of Steve Chen, Nov. 14, 2007 (Solouki Decl. Ex. F), pp. 354:22-355:6.</p> <p>Deposition of Steven Woo, March 19, 2008 (Solouki Decl. Ex. G), p. 335:5-6.</p> <p>Deposition of Laura Stark, Aug. 21, 2008 (Solouki Decl. Ex. H), p. 246:8-15.</p>	Undisputed. <i>But see</i> Rambus's Evidentiary Objections.
6.	<p>DRAM manufacturers made RDRAM chips and sold them to OEMs and other customers.</p> <p>Complaint (Solouki Decl. Ex. B), ¶ 20.</p> <p>Deposition of Laura Stark, Aug. 21, 2008 (Solouki Decl. Ex. H), pp. 246:8-15.</p>	Undisputed. <i>But see</i> Rambus's Evidentiary Objections.
7.	<p>Rambus considered the DRAM manufacturers to be "consumers" of its technology.</p> <p>Complaint (Solouki Decl. Ex. B), ¶ 20.</p> <p>Trial Testimony of Joel Karp, Micron Technology, Inc. v. Rambus, Inc., Nov. 9, 2007 (Solouki Decl. Ex. I), p. 347:11-17 (DRAM manufacturers operated "downstream" from Rambus).</p>	Undisputed. <i>But see</i> Rambus's Evidentiary Objections.

	Defendants' Material Facts and Supporting Evidence	Rambus's Response and Supporting Evidence
1 2 3 4 5 6	<p>8. In its boycott claim, Rambus alleges that defendants agreed to sabotage RDRAM in order to prevent it from succeeding in the marketplace.</p> <p>Complaint (Solouki Decl. Ex. B), ¶¶ 50, 101, 106.</p>	<p>Undisputed, except for the characterization of Rambus's Complaint as setting forth a "boycott claim." The Complaint speaks for itself.</p>
7 8 9 10 11 12 13 14 15 16 17	<p>9. Rambus has represented in various filings that it also independently relies on a theory of liability predicated on "price fixing in and of itself."</p> <p>Joint Statement of Issues to be Tried, Feb. 5, 2008 (Solouki Decl. Ex. J), p. 11. ("Defendants also purport to complain that 'Rambus has not specified ... whether its claims are predicated on an alleged conspiracy to fix prices in and of itself, as opposed to an alleged conspiracy to fix prices in order to boycott RDRAM.' But Rambus is entitled to pursue both.").</p> <p>Joint Case Management Conference Statement, April 10, 2008 (Solouki Decl. Ex. K), p.2, n.1.</p> <p>Rambus Inc.'s Opposition to Motion for Judgment on the Pleadings, June 19, 2008 (Solouki Decl. Ex. L), pp. 1-2, 6, 8.</p>	<p>Undisputed.</p>
18 19 20 21 22 23 24 25 26 27	<p>10. In its "price-fixing in and of itself" cause of action, Rambus does not seek to recover for any artificially high prices it allegedly paid for DRAM.</p> <p>Complaint (Solouki Decl. Ex. B), ¶¶ 12, 102, 104.</p> <p>Rambus Inc.'s Opposition to Motion for Judgment on the Pleadings, June 19, 2008 (Solouki Decl. Ex. L), pp. 1-2, 6, 8.</p> <p>Rambus Inc.'s Responses to Samsung's Form Interrogatories (Set One) ("Responses to Form Interrogatories") (Solouki Decl., Ex. M), p. 4</p>	<p>Disputed, because Rambus's price-fixing theory does not constitute a cause of action separate from its other theories of liability.</p>

	Defendants' Material Facts and Supporting Evidence	Rambus's Response and Supporting Evidence
11.	<p>In its "price-fixing in and of itself" cause of action, Rambus asserts that it was injured because the allegedly higher prices for RDRAM, and lower prices for alternative technologies, allegedly caused by collusion, resulted in lower demand for RDRAM by defendants' customers, which resulted in lower royalties than Rambus would have received had there been no alleged price-fixing.</p> <p>Complaint (Solouki Decl. Ex. B), ¶¶ 12, 102, 104.</p> <p>Rambus Inc.'s Opposition to Motion for Judgment on the Pleadings, June 19, 2008 (Solouki Decl. Ex. L), pp. 1-2, 6, 8.</p> <p>Responses to Form Interrogatories (Solouki Decl. Ex. M), pp. 3-4, 19-20.</p>	<p>Disputed, because Rambus's price-fixing theory does not constitute a cause of action separate from its other theories of liability.</p>
12.	<p>DRAM purchasers have filed lawsuits against Defendants, alleging that they (the purchasers) paid supracompetitive prices for DRAM as a result of Defendants' alleged price-fixing.</p> <p>E.g., Consolidated Amended Class Action Complaint, In re Dynamic Random Access Memory (DRAM) Antitrust Litigation, M:02-cv-01486-PJH (N.D. Cal. filed Oct. 1, 2003) (Solouki Decl. Ex. O).</p>	<p>Undisputed.</p>

Pursuant to C.C.P. § 437c(b)(3), Rambus sets forth the following additional facts that are material to this motion:

I. Intel's Announcement of RDRAM as the Next Mainstream Memory Standard

1. The DRAM industry tends to adopt a single "mainstream" memory standard at any point in time, *i.e.* a standard that makes up the majority of memory sales. Exh. 89 (12/19/08 Elzinga Supp. Report at 5-6). *See also* Exh. 159 (1/23/09 Elzinga Decl. at 5).

2. Tipping toward one standard is driven in part by the steep decline in costs of manufacturing a particular technology as the manufacturer expands output and gains experience

1 in that technology. Exh. 89 (12/19/08 Elzinga Supp. Report at 5-6). *See also* Exh. 159 (1/23/09
2 Elzinga Decl. at 5).

3 3. Intel, as the dominant seller of chipsets and computer processing units (CPUs),
4 plays a critical role in the choice of the next mainstream memory standard. Exh. 89 (12/19/08
5 Elzinga Supp. Report at 6).

6 4. Because of the prevalence of Intel CPUs, OEM manufacturers demand memory
7 chips that are compatible with Intel CPUs. Consequently, memory manufacturers, seeking to
8 make sales to these OEM manufacturers have a compelling incentive to build chips based on the
9 memory technology that Intel chooses. Basileo Decl., Exh. 29 (11/6/08 Elzinga Report at 16).

10 5. In 1996, Intel announced that its “next generation” microprocessors would be
11 engineered to take advantage of Rambus’s revolutionary DRAM technology, Direct RDRAM,
12 expected to be available in the late 1990’s. Exh. 277 (1/26/09 Declaration of Craig Hampel
13 (“Hampel Decl.”), ¶ 2). *See also* Exh. 8 (Appleton Dep. Exh. 614); Exh. 215 (5/7/08 Appleton
14 Depo. at 20:8-23:20).

15 6. Intel selected Direct RDRAM [REDACTED]
16 [REDACTED] Exh. 27 (Williams Depo. Exh. 2939 at 906DOC00002);
17 Exh. 270 (Williams Depo. at 291:4-294:11).

18 7. In 2000 and 2001, Intel supplied the processors used in roughly 80% of personal
19 computers, and an estimated 60% of *all* DRAM whether deployed in personal computers or other
20 devices. Basileo Decl., Exh. 29 (11/6/08 Elzinga Report at 16). *See also* Exh. 7 (11/20/02
21 Tabrizi Depo Ex. 29) (noting that “PCs are about 70% of the DRAM market); Exh. 263
22 (11/20/02 Tabrizi Depo at 133:1-25).

23 8. Rambus would have earned substantial revenues flowing from RDRAM’s
24 adoption as the next *de facto* memory standard, had that occurred. Exh. 94 (Supplemental
25 Report of Avram S. Tucker at 9-12, 15-23).

26 9. Intel’s announcement that it had selected Direct RDRAM for its “next
27 generation” microprocessors caused industry analysts, DRAM manufacturers and computer
28 makers to predict that RDRAM would capture the majority of DRAM sales. *See, e.g.*, Exh. 91

1 (Bromley Depo. Exh. 3376 at 4) [REDACTED]

2 [REDACTED]; Exh. 217 (8/20/08 Bromley Depo. at 183:3-184:14).

3 10. Industry analysts projected that after the RDRAM became widely used in
4 personal computers, economies of scale would lead to its widespread use in other applications
5 such as consumer electronics, graphics, communications equipment and larger scale servers. *See*
6 Exh. 12 (RF 0161440-69 at RF0161440) (3/13/98 CIBC Oppenheimer report predicting "Direct
7 RDRAM appears most likely to become the mainstream standard."); Exh. 20 (RF 0153103-38 at
8 RF 0153103) (12/2/98 SG Cowen report opining that it was RDRAM's "destiny" to become "the
9 mainstream DRAM technology."); *id.* at RF 0153117 ("Historically, [] one dominant DRAM
10 type emerges and captures the bulk of the market. Thus, if [Rambus] becomes the mainstream
11 PC desktop technology, we would expect, based on historical precedent, that it will also
12 eventually dominate other DRAM markets.").

13 11. In September 1996, Farhad Tabrizi, Hynix's Worldwide Vice President of
14 Marketing, predicted:

15 If Intel implements Rambus, all other applications will move that
16 direction to leverage the strength and volume of the PC market . . .
17 I urge you to please educate others and get their agreement to say
18 "NO TO RAMBUS AND NO TO INTEL DOMINATION[.]"

19 Exh. 1 (Tabrizi Depo. Exh. 24); Exh. 263 (11/20/02 Tabrizi Depo. at 116:11-120:19). *See also*
20 Exh. 265 (7/17/08 Tabrizi Depo. at 42:8-44:2).

21 12. At a January 1997 meeting of the SynchLink Consortium (also attended by
22 DRAM manufacturers Hynix, Micron, Samsung, and Infineon, among others), a Hynix
23 representative stated:

24 [The Rambus-Intel relationship is] a dooms day scenario for
25 DRAM business: If Intel/Rambus [allowed to] control all IP,
26 DRAM suppliers will be nothing more than foundries, with profits
27 going into Rintel's [Rambus + Intel's] pockets.

28 Exh. 6 (FTC Trial Exh. RX-0850 at 2). Andreas von Zitzewitz, Infineon's [then Siemens'] Vice
President and General Manager of the Memory Products Division, stated: "[This] doomsday
scenario is *not* paranoid." *Id.* at 3 (emphasis added).

1 **II. Defendants' Agreement to Say No to Rambus and Intel Domination**

2 13. Following Intel's announcement, Samsung communicated with its competitors
3 that it would prefer not to make "Rambus II," what it had been calling Direct RDRAM. For
4 example, in September 1996, [REDACTED]
5 [REDACTED] Exh. 215 (Appleton Depo. Exh. 616 at MR0129753); Exh.
6 154 (5/7/08 Appleton Depo. at 40:11-44:7).

7 14. Samsung also shared at a January 1997 DRAM manufacturer meeting that it had
8 not signed a license for "Rambus II," favored a non-RDRAM standard, and emphasized business
9 model concerns as "most important." Exh. 120 (Tabrizi Depo. Exh. 18 at HR905_145071); Exh.
10 264 (11/10/03 Tabrizi Depo. at 123:12-124:9).

11 15. Between 1997 and 1999, the Defendants undertook concerted efforts to lay the
12 groundwork necessary to keep the price of Direct RDRAM high and supply low once Intel's
13 RDRAM-enabled chipsets launched in late 1999, knowing that, as Desi Rhoden put it, "Intel
14 won't change course unless Rambus fails." Exh. 155 (11/20/02 Tabrizi Depo. Exh. 31 at 1).

15 16. Hynix's Worldwide Vice President of Marketing has acknowledged under oath
16 [REDACTED]
17 [REDACTED] See Exh. 265
18 (7/17/08 Tabrizi Depo. at 32:9-34:4). See also *id.* at 39:6-12 (acknowledging that [REDACTED]
19 [REDACTED]
20 Mr. Tabrizi similarly testified [REDACTED]
21 [REDACTED] *Id.* at
22 34:13-16. [REDACTED]

23 [REDACTED]
24 [REDACTED]
25 ...
26 [REDACTED]
27 *Id.* at 32:3-8. See also *id.* at 159:20-160:6 (testimony by Tabrizi [REDACTED]
28 [REDACTED]

1 [REDACTED].

2 17. A Micron marketing executive named Jeffrey Mailloux informed Hynix Vice
3 President Tabrizi on February 20, 1998 that he had called a reporter and had told him that
4 RDRAM was “at least 30%” more expensive to manufacture than SDRAM. Mr. Mailloux urged
5 Mr. Tabrizi to make a similar call to the reporter, warned Mr. Tabrizi not to forward his email to
6 anyone, and asked Mr. Tabrizi to “please visit me if I end up in jail. . . .” Exh. 11 (Mailloux
7 Depo. Exh. 415); Exh. 244 (11/17/08 Mailloux Depo at 58:1-59:18).

8 18. Beginning at least by 1998, the Defendants [REDACTED]
9 [REDACTED] See, e.g.,
10 Exh. 156 (Tabrizi Depo. Exh. 735); Exh. 265 (7/17/08 Tabrizi Depo. at 115:17-116:19).

11 19. In the fall of 1998, the conspirators also discussed a proposal to agree to, and
12 monitor compliance with, a “common” roadmap that excluded RDRAM. An October 1998
13 report by Infineon employee Alexander Benedix discusses a Micron proposal to sign “a common
14 roadmap for the big DRAM manufacturers” that did not include RDRAM. Exh. 92 (FTC Trial
15 Exh. RX-2192 at INF-FTC 014425); Exh. 216 (5/12/04 Benedix Depo at 48:14-49:19, 49:25-
16 52:15).

17 20. Hynix Vice President Farhad Tabrizi reported that Hynix presented Intel with
18 inflated projected prices and production volumes for RDRAM and “encourage[d] every DRAM
19 manufacturer to do the same in order to let Intel not generate a Rambus oversupply.” Exh. 92
20 (FTC Trial Exh. RX-2192 at INF-FTC 014424). See also Exh. 16 (FTC Trial Exh. RX-1295 at
21 HR905_122741) (10/18/98 email describing Hynix’s intention to “overstate our Direct Rambus
22 production. . . .”); Exh. 246 (1/19/2005 Martinez Depo at 98:13-100:4); Exh. 19 (Byrd Depo.
23 Exh. 668 at HR905_442286) (Hynix meeting summary [REDACTED]
24 [REDACTED]
25 [REDACTED]); Exh. 218 (5/29/08 Byrd Depo at 130:2-131:22).

26 21. In the fall of 1998, Samsung’s high ranking executives were regularly holding
27 secret meetings with its purported competitors. In September 1998, for example, [REDACTED]
28 [REDACTED] Exh. 122 (Appleton Depo. Exh.

1 623 at MUP00002161); Exh. 215 (5/7/08 Appleton Depo. at 89:13-91:5, 95:17-25). *See also*
2 Exh. 123 (Tabrizi Depo. Exh. 732) (10/21/98 email from Hynix to Samsung, Micron, Infineon
3 and other DRAM manufacturers [REDACTED]
4 [REDACTED]; Exh. 265 (7/17/08 Tabrizi Depo at 107:24-
5 109:4).

6 22. In March 1999, [REDACTED]
7 [REDACTED] *See* Exh. 21 (Appleton Depo. Exh. 624); Exh. 215 (5/7/08 Appleton Depo. at
8 96:1-98:2).

9 23. On April 14, 1999, [REDACTED]
10 [REDACTED] Exh. 157 (Tabrizi Depo. Exh. 737).

11 24. The Defendants also undertook substantial efforts to monitor and “police” one
12 another’s RDRAM-related activities throughout the late 1990’s. *See, e.g.*, Exh. 9 (Appleton
13 Depo. Exh. 618 at 1) (September 1997 email from Micron forcefully criticizing Infineon (then
14 called Siemens) because it had “joined the ‘Dark Side’” and entered into an agreement to license
15 and manufacture Direct RDRAM); Exh. 10 (Tabrizi Depo. Exh. 718A) (12/10/97 email [REDACTED]
16 [REDACTED]); Exh. 264 (7/17/08 Tabrizi Depo. at 35:6-36:5); Exh. 13
17 (Tabrizi Depo. Exh. 719A) (4/11/98 email from Micron to Hynix [REDACTED]
18 [REDACTED]); Exh.
19 265 (7/17/08 Tabrizi Depo. at 39:13-45:3).

20 25. In April 1999, Micron similarly became very concerned about published reports
21 that Samsung was planning to manufacture RDRAM in large volumes. A Micron marketing
22 manager alerted a group of Micron officers and senior managers about one such article that, he
23 said, showed that Samsung had “broken ranks with the other suppliers and sold their soul to the
24 devil,” meaning Rambus. Exh. 22 (Appleton Depo. Exh. 620 at 1); Exh. 258 (10/30/07 Siebert
25 Depo. at 148:2-149:5, 152:13-19); Exh. 244 (1/17/08 Mailloux Depo. at 87:3-88:14). A Micron
26 sales executive responded:

27 These guys are big trouble for us all. If this thing gets into an
28 oversupply mode with RDRAM things could get really ugly. Bob
[Donnelly, Micron Vice President] and Jeff [Mailloux, Micron

1 marketing manager], do these idiots (Samsung in this case)
2 understand what the Rambus/Intel biz-model will do to our
autonomy??!!

3 Exh. 22 (Appleton Depo. Exh. 620 at 1). Mr. Donnelly responded that he had, in fact, made this
4 point with “the officers” of Samsung. *Id.*

5 26. In June 1999, Samsung and the other DRAM suppliers gave Intel substantially
6 higher price projections for RDRAM (and did so in unison). *See* Exh. 110 (Fahey Depo.
7 Exh. 3067 at 219DOC006462) (6/1/99 Intel email [REDACTED]
8 [REDACTED]); Exh. 225 (8/26/08 Fahey
9 Depo. at 391:17-392:12).

10 27. As stated by an industry analyst retained in this case by Micron to provide
11 opinion testimony, the *expectations* of OEMs and others about future DRAM pricing “are
12 important in motivating the PC OEM to adopt [a] new DRAM technology.” Exh. 109 (Expert
13 Report of De Dios at ¶¶ 15-16). Moreover, OEMs form pricing expectations in part by asking
14 the DRAM manufacturers for price projections. *Id.* In this way, high future price projections,
15 especially if coordinated among DRAM manufacturers, will have a substantial impact on the
16 OEMs’ design roadmaps.

17 28. In the period between 1999 and 2002, [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 Exh. 257 (4/25/08 Sadler Depo. at 57:18-20; 57:23-58:3; 58:6-7).

21 **III. Samsung Seeks To Be The Industry Leader in Both DDR And RDRAM**

22 29. As early as 1997, Samsung was developing and promoting DDR. *See* Exh. 6
23 (FTC Trial Exh. RX-850 at 4); Exh. 158 (April 3, 1997 Samsung presentation on SDRAM-II
24 Forum (DDR SDRAM) at FTC/SEC005456). In September 1997, [REDACTED]
25 [REDACTED]
26 [REDACTED] Exh. 137
27 (Quinn Depo. Exh. 376).

1 30. In October 1998, [REDACTED]
2 [REDACTED] Exh. 123 (Tabrizi Depo. Exh. 732); Exh. 265 (7/17/08
3 Tabrizi Depo. at 101:9-105:12, 107:24-109:4, 108:2-109:8).

4 31. On October 19, 1998, members of MX, including C.H. Park and Mian Quddus
5 of Samsung, discussed "noise-creating ideas" aimed to promote DDR and discourage a design
6 win for RDRAM. Those ideas included "carefully planted rumors" to sow doubt about
7 RDRAM, including rumors of a shortage of Rambus parts from DRAM suppliers, shortage of
8 Rambus testers, shortage of Rambus packaging capacity, and Intel's secret plan to control the
9 DRAM market. Exh. 17 (Tabrizi Depo. Exh. 731 at 2); Exh. 265 (7/17/08 Tabrizi Depo. at
10 101:9-106:16).

11 32. Samsung prepared to support both RDRAM and DDR. [REDACTED]
12 [REDACTED] Exh. 93 (Kim Depo. Exh.
13 802); Exh. 238 (9/9/08 I.U. Kim Depo. at 45:14-47:8, 59:19-22).

14 33. In 2001, [REDACTED]
15 [REDACTED]
16 [REDACTED] Exh. 128 (Kang Depo. Exh. 49); Exh. 235 (7/20/07 Kang
17 Depo. at 149:10-150:10, 150:23-151:14). [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED] Exh. 128 at 11.

21 34. Samsung was positioned to succeed no matter which memory technology was
22 chosen. Indeed, from 1999 through the end of 2002, Samsung led in sales of both RDRAM and
23 DDR. For example, Samsung led with 53% of DDR sales by revenue in 2001 and 42% in 2002.
24 Exh. 89 (12/19/08 Elzinga Supp. Report at 26-27, Exh. 1).

25 35. Given Samsung's leading position in both RDRAM and DDR, participation in a
26 conspiracy to limit RDRAM could have been expected to increase Samsung's profitability
27 relative to a Samsung strategy of pushing RDRAM as the main standard. Exh. 89 (12/19/08
28

1 Elzinga Supp. Report at 24-31). *See also* Exh. 159 (1/23/09 Elzinga Decl. at 2-5); *supra* RSS ¶
2 212.

3 36. Samsung's lead in both DDR and RDRAM, and the opportunity it gained to sell
4 RDRAM as a near monopolist, made Samsung's participation in a cartel to relegate RDRAM to
5 a niche product economically rational. Exh. 89 (12/19/08 Elzinga Supp. Report at 24-31). *See*
6 *also* Exh. 159 (1/23/09 Elzinga Decl. at 2-5); *supra* RSS ¶ 212.

7 **IV. The Defendants Had Frequent And Numerous High-Level Discussions About**
8 **Future DRAM Prices In The 1999-2002 Time Period.**

9 37. By May 1999, with the official launch of RDRAM coming closer, Hynix
10 employees and sales executives were discussing a plan to keep Hynix's RDRAM prices high, but
11 they recognized the need to "get the rest of the suppliers to do the same" in order for the scheme
12 to be effective. Exh. 24 (Byrd Depo. Exh. 643); Exh. 218 (5/29/08 Byrd Depo at 22:17-24:2;
13 25:3-27:8). *See also* Exh. 25 (Kim Depo. Exh. 596) (5/24/99 recommendation by Hynix
14 manager Andy Ha that Hynix "get together with Samsung and ask them to suggest [to] Micron to
15 have a joint management meeting for price control in the future."); *id.* (5/24/99 email by Hynix
16 manager D.W. Kim stating that "[o]ne of the advantage of being a big three is to have the
17 controlling power over the price and we need to exercise this" by opening "a communication
18 channel . . . among the big three or four."); Exh. 237 (4/30/08 Kim Depo at 57:9-59:4).

19 38. Michael Sadler, [REDACTED]
20 [REDACTED]
21 [REDACTED] Exh. 257 (4/25/08 Sadler Depo.
22 at 22:25-23:16). As Mr. Sadler testified, [REDACTED]
23 [REDACTED]
24 [REDACTED] *Id.* at 25:3-17; 25:20.

25 39. In the 1999-2002 time period, [REDACTED]
26 [REDACTED]
27 [REDACTED] Exh. 257 (4/25/08 Sadler Depo. at 26:12-16; 26:19-21; 27:1-
28 3; 27:6-14; 27:16-28:17).

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[REDACTED]

Exh. 257 (4/25/08 Sadler Depo. at 27:1-3; 27:6-11; 28:18-20; 28:22-29:2; 29:5; 30:5-9; 30:12-17; 30:20-25; 31:3-15; 31:18-25; 32:3-8; 32:18-33:10; 33:13-22; 33:25-34:3; 39:7-10; 39:14-17; 39:19-23; 40:1-7; 40:9-23; 41:1) (objections omitted).

41. Micron's Vice President of Sales, Michael Sadler, [REDACTED]

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[REDACTED]

Exh. 257 (4/25/08 Sadler Depo. at 61:18-23; 61:25; 62:24-63:1; 63:4-5; 64:18-21; 64:23-65:5)
(objections omitted).

V. **DRAM Manufacturers Agree To Restrict RDRAM Supply And/Or Keep RDRAM Prices High With Knowledge That Price And Availability Concerns Would Inhibit RDRAM's Widespread Adoption**

42. Samsung worked with other DRAM manufacturers to restrict RDRAM supply and/or keep RDRAM prices high, with the knowledge and expectation that price and availability concerns would inhibit RDRAM's widespread adoption as the dominant DRAM device. See Exh. 89 (12/19/08 Elzinga Supp. Report at 24-31). See also Exh. 159 (1/23/09 Elzinga Decl. at 4-5).

A. **Summer/Fall 1999: Hynix and Samsung Meet To Reach Agreement "To Limit the Supply [of RDRAM] in the Market;" Hynix and Micron Agree To Suspend Efforts To Produce RDRAM.**

43. On July 20, 1999, the Hynix Marketing Manager responsible for RDRAM, Mario Martinez, proposed to a group of senior Hynix managers that Hynix meet with Samsung and "work with them to limit the supply [of RDRAM] in the market." Exh. 28 (Chung Depo. Exh. 2); Exh. 221 (5/10/07 Chung Depo. at 24:9-25:16); Exh. 18 (Tabrizi Depo. Exh. 645); Exh. 265 (7/17/08 Tabrizi Depo. at 83:10-84:17). Mr. Martinez explained: "With Samsung building significant amounts of product, we need to work with them to limit the supply in the market, otherwise we both will be competing for market share which will result in an oversupply. We

1 have to meet with Samsung and discuss our and their production plan, TAM analysis, and
2 targeted market share (WW and Strategic Account) and reach consensus.” Exh. 29 (Chung
3 Depo. Exh. 3 at 2); Exh. 221 (5/10/07 Chung Depo. at 29:18-30:12). A Hynix manager based in
4 Korea responded that he had a “connection in Samsung” and that Samsung “actually” had the
5 “same idea for [R]ambus business compare with you.” *Id.* Hynix’s Worldwide Vice President
6 of Marketing Farhad Tabrizi [REDACTED] Exh. 30 (Chung
7 Depo. Exh. 4 at 3); Exh. 221 (5/10/07 Chung Depo. at 33:25-34:14).

8 44. Samsung subsequently provided Hynix with its internal production and pricing
9 projections. Exh. 33 (Chung Depo. Exh. 5); Exh. 221 (5/10/07 Chung Depo. at 36:5-38:1); Exh.
10 32 (Kim Depo. Exh. 592); Exh. 237 (4/30/08 Kim Depo. at 46:20-47:10); Exh. 38 (Choi Depo.
11 Exh. 150). Micron and Samsung [REDACTED]
12 [REDACTED]
13 [REDACTED] Exh. 126 (Mailloux Depo. Exh. 428); Exh. 244 (1/17/08 Mailloux
14 Depo. at 95:17-96:14).

15 45. At the same time, Micron and Samsung [REDACTED]
16 [REDACTED]
17 [REDACTED] Exh. 160 (Turner Depo. Exh. 321); Exh. 268 (12/13/07 Turner Depo. at
18 92:23-95:3). And on August 9, 1999, Infineon’s DRAM marketing executives “had a very
19 successful meeting with the marketing people of Hyundai,” including Deputy General Manager
20 K.C. Suh, and discussed, *inter alia*, RDRAM volumes. Exh. 125 at 1 (Ho Depo. Exh. 2460);
21 Exh. 231 (8/14/08 Ho Depo. at 287:5-288:25). Hynix told Infineon at the meeting that “[t]hey
22 meet quarterly with Samsung, the top 5 Japanese and top five Taiwanese vendors.” *Id.*

23 46. In addition to these information exchanges about future prices and production
24 volumes, the Defendants also continued to monitor each other’s conduct closely and to exchange
25 assurances that they were “still on board” the conspiracy. On October 1, 1999, for example,
26 Hynix Vice President Tabrizi prepared a draft press release announcing Hynix’s intention to halt
27 its RDRAM production in response to a delay in the launch of Intel’s “Camino” chipset. Exh. 34
28 (Tabrizi Depo. Exh. 748); Exh. 265 (7/17/08 Tabrizi Depo. at 160:16-161:18). The draft was

1 harshly critical of RDRAM. *See* Exh. 24 (Tabrizi Depo. Exh. 748). Mr. Tabrizi then forwarded
2 the Hynix press release, in draft form, to Micron and asked for Micron's comments. *Id.* Mr.
3 Tabrizi has admitted that he sent the draft press release to Micron because he "wanted to see if
4 they can make the same announcement." Exh. 265 (7/17/08 Tabrizi Depo. at 162:14-17). In
5 fact, that same day, Micron executive Jeff Mailloux wrote back to Mr. Tabrizi, provided him
6 with suggested edits for the Hynix press release, and confirmed that Micron would "be giving a
7 similar message" about RDRAM. Exh. 35 (Tabrizi Depo. Exh. 749); Exh. 265 (7/17/08 Tabrizi
8 Depo. at 162:25-163:5; 164:11-165:4).

9 47. In late October 1999, Mr. Tabrizi objected to a statement attributed to Micron in
10 a news article that "the introduction of Direct Rambus DRAM chips will substantially increase
11 the supply of memory chips and drive prices down." Exh. 37 (Byrd Depo. Exh. 646); Exh. 218
12 (5/29/08 Byrd Depo. at 34:1-36:4). Mr. Tabrizi forwarded the offending article to Micron
13 executives and urged them to "shoot that guy who said this." Exh. 37 (Byrd Depo. Exh. 646).
14 Micron responded the same day with an assurance that "[w]e did not say that Rambus would
15 increase supply." *Id.*

16 48. In November 1999, Intel released the Camino and Carmel chipsets allowing
17 RDRAM memory to be used with Pentium III processors. Exh. 277 (1/26/09 Hampel Decl., ¶ 5).
18 At this point, supply and pricing were critical to how RDRAM would be accepted by the market.
19 Basileo Decl., Exh. 29 (11/6/08 Elzinga Report at 83).

20 49. Micron and Hynix were not in a position to sell RDRAM to OEMs upon the
21 release of Intel chipsets supporting RDRAM. At the time, Micron and Hynix were the second
22 and third largest DRAM manufacturers in the world. Basileo Decl., Exh. 29 (11/6/08 Elzinga
23 Report at 34, n. 70 & Exh. 4).

24 50. At the time of and after the November 1999 launch of Intel chipsets supporting
25 RDRAM, [REDACTED]
26 [REDACTED]
27 [REDACTED] Exh. 270 (8/13/08 Williams Depo. at 299:25-300:23). *See also* Exh. 56
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1 (Williams Depo. Exh. 2940); Exh. 270 (8/13/08 Williams Depo. at 295:17-296:3, 325:6-24);
2 Exh. 277 (1/26/09 Hampel Decl., ¶ 5).

3 **B. Spring/Summer 2000: The Defendants Work Together To Ensure That Dell**
4 **Moves Away From RDRAM Because Of High Prices**

5 51. The Defendants were aware in December 1999 that Dell, IBM and Compaq had
6 launched new computer products that included RDRAM memory chips and were experiencing a
7 surge in demand for their RDRAM-based product line. In December 1999, [REDACTED]

8 [REDACTED]
9 [REDACTED]
10 [REDACTED] Exh. 40 (Morrissey Depo. Exh. 173); Exh. 250 (10/4/07
11 Morrissey Depo. at 89:20-92:11).

12 52. Hynix also learned in December 1999 [REDACTED]
13 [REDACTED]
14 [REDACTED] Exh. 36 (Byrd Depo. Exh. 647); Exh. 218
15 (5/29/08 Byrd Depo. at 37:1-38:25).

16 [REDACTED]
17 [REDACTED] Exh. 36 (Byrd Depo. Exh. 647). The Hynix sales representative
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 53. Despite continued pressure from Dell and other customers who needed large
22 quantities of RDRAM at competitive prices, Samsung led efforts to coordinate prices with other
23 manufacturers and made sure that RDRAM prices did not fall substantially. For example, [REDACTED]

24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED] Exh. 39 (Byrd Depo. Exh. 648); Exh. 218 (5/29/08 Byrd Depo at 47:7-51:3).
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54. Samsung

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[REDACTED]
[REDACTED]
Exh. 41 (Byrd Depo. Exh. 649); Exh. 218 (5/29/08 Byrd Depo. at 56:5-57:3; 58:14-59:5). *See also* Exh. 48 (Byrd Depo. Exh. 651); Exh. 218 (5/29/08 Byrd Depo. at 67:24-69:16).

55. Compaq and IBM were also suffering from limited RDRAM supply and high RDRAM prices in early 2000. A Hynix salesman

[REDACTED]
[REDACTED]
[REDACTED]
Exh. 42 (Chung Depo. Exh. 6); Exh. 221 (5/10/07 Chung Depo. at 43:22-44:18; 45:9-16). In a January 25, 2000 email, a Hynix employee

[REDACTED]
[REDACTED]
Exh. 45 (Chung Depo. Exh. 7); Exh. 237 (4/30/08 DS Kim Depo. at 62:7-64:7); Exh. 221 (5/10/07 Chung Depo. at 46:20-47:19; 48:19-49:15).

56. Hynix recognized in early 2000 that in order for RDRAM to become the mainstream memory device, one or more of the DRAM manufacturers needed to break ranks and engage in price competition.

[REDACTED]
[REDACTED]
Exh. 48 (Byrd Depo. Exh. 651); Exh. 218 (5/29/08 Byrd Depo. at 67:24-69:24).

57. Samsung was giving assurances to other manufacturers that it would *not* price RDRAM at a level that would lead to substantial marketplace penetration.

[REDACTED]
[REDACTED]
[REDACTED]
Exh. 43 (Radford Depo. Exh. 206); Exh. 254 (10/10/07 Radford Depo. at 101:17-103:6).

58. Dell's

[REDACTED]
[REDACTED]
[REDACTED]

1 [REDACTED]
2 [REDACTED] Exh. 46 (Sadler Depo. Exh. 547); Exh. 222 (8/28/08 Culp Depo. at 236:21-237:19);
3 Exh. 257 (4/25/08 Sadler Depo. at 136:23-137:23). Shortly thereafter, [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED] Exh. 49 (Sadler
7 Depo. Exh. 548); Exh. 257 (4/25/08 Sadler Depo. at 144:3-145:16, 147:8-22). Rather than
8 meeting customer demand, [REDACTED]
9 [REDACTED] Exh. 44 (Lauer Depo.
10 Exh. 358) (1/20/00 email [REDACTED]
11 [REDACTED]); Exh.
12 241 (12/19/07 Lauer Depo. at 116:10-117:9); Exh. 257 (4/25/08 Sadler Depo. at 150:20-151:24).

13 59. In a February 16, 2000 email, another Micron sales representative reported that
14 he had “just talked to someone from Samsung who said that Compaq is pressing hard for
15 Rambus support” and that Compaq had made a “sooner than expected technology switch
16 (towards Rambus) based on the apparent success Dell is having.” Exh. 161 (Addie Depo. Exh.
17 99); Exh. 213 (8/23/07 Addie Depo. at 106:18-108:3).

18 60. In response to customer demands for RDRAM, the Defendants chose collusion
19 rather than competition. A February 8, 2000 email by Hynix sales representative Charles Byrd,
20 for example, reported that he had learned *from Samsung* that Infineon “apparently did a stupid
21 thing on RDRAM pricing” to Compaq by offering a “lower price” than Samsung. Exh. 47 (Byrd
22 Depo. Exh. 650); Exh. 218 (5/29/08 Bryd Depo. at 63:6-64:20); Exh. 257 (4/25/08 Sadler Depo.
23 at 136:23-137:23). Infineon’s “stupid” mistake was in “quot[ing] pricing *without first checking*
24 *with*” Samsung. Exh. 47 (Byrd Depo. Exh. 650) (emphasis added). The Samsung representative
25 also told Mr. Byrd that unlike Infineon, NEC *had* “checked with” Samsung and was “in line with
26 [Samsung] pricing.” *Id.*

27 61. Hynix’s internal emails from early 2000 repeatedly refer to the “need to
28 confirm[] Samsung’s price” in order to determine Hynix’s RDRAM pricing. *See, e.g.*, Exh. 50

1 (Byrd Depo. Exh. 652 at 1); Exh. 218 (5/29/08 Bryd Depo. at 71:4-72:8). *See also* Exh. 50 at 2
2 (“can we find out what SS says their pricing is with your contact”); Exh. 51 (Byrd Depo. Exh.
3 653) (2/23/00 Hynix email [REDACTED])
4 [REDACTED]; Exh. 218 (5/29/08 Bryd Depo. at
5 75:1-77:16).

6 62. Hynix and Samsung also held regular meetings in spring 2000 to discuss the
7 respective companies’ “Rambus status” and “production plan,” as memorialized in a March 30,
8 2000 Hynix memorandum. Exh. 162 (Tabrizi Depo. Exh. 743); Exh. 265 (7/17/08 Tabrizi Depo.
9 at 137:22-139:5). The Hynix memorandum listed two Samsung employees who were acting as
10 “contact person[s]” with respect to RDRAM issues who would be “contact[ed] whenever there
11 are some issues by voice or meeting.” Exh. 162 at 2. The memorandum also stated that “[i]f
12 possible, [Hynix and Samsung] will have a meeting month after month.” *Id.* at 1.

13 63. In April 2000, the Hynix sales representative at Dell wrote an email describing
14 the “competitive pricing” for six RDRAM modules. For one of these modules, he reported that
15 Samsung had established a “reference price” for RDRAM that Samsung “does not want anyone
16 to go below.” Exh. 53 (Byrd Depo. Exh. 655); Exh. 218 (5/29/08 Bryd Depo. at 86:23-88:19).
17 Samsung’s “reference price” was *above* Dell’s “target” price. Exh. 53. No sales were made
18 below Samsung’s reference price of \$250 for the indicated part in either April or May 2000.
19 Basileo Decl., Exh. 29 (11/6/08 Elzinga Report at 84).

20 64. High RDRAM prices were seen as a threat to the widespread adoption of
21 RDRAM. For example, in May 2000, [REDACTED]

22 [REDACTED]
23 Exh. 163 at 5009DOC02167-68. *See also* Exh. 164 (Everett Depo. Exh. 3902)
24 [REDACTED]

25 [REDACTED] Exh. 224 (8/29/08 Everett Depo. at
26 204:19-205:2, 205:10-208:5).

27 65. In late May 2000, Dell informed Samsung and other DRAM manufacturers that
28 RDRAM prices were too high and that unless the manufacturers provided Dell with future

1 RDRAM price projections that showed substantial declines, Dell would alter its future product
2 roadmap to include more SDRAM and DDR and less, if any RDRAM. See Exh. 55 (Culp Depo.
3 Exh. 3862) (“[S]o the message to them is drop prices or we will continue to decrease our
4 RDRAM forecasts and we will architect next generation systems around DDR.”); Exh. 222
5 (8/28/08 Culp Depo. at 261:8-266:22); Exh. 236 (1/15/03 Kettler Depo. at 133:6-134:19); Exh.
6 165 (Culp Depo. Exh. 3863) [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 Exh. 222 (8/28/08 Culp Depo. at 264:5-265:22, 266:8-22); Exh. 224
10 (8/29/08 Everett Depo. at 208:15-17, 209:7-210:19).

11 66. An internal Samsung summary [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]

16 Exh. 143 (Kim Depo. Exh. 803); Exh. 238 (9/9/08 I.U. Kim Depo. at 62:1-65:18). Dr. Il Ung
17 Kim, Samsung’s Vice President of Memory Marketing, [REDACTED]
18 [REDACTED]

19 *Id.* at 70:5-16.

20 67. In a May 22, 2000 email, [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

25 Exh. 58 (Sadler Depo. Exh. 554); Exh. 257 (4/25/08 Sadler Depo. at 167:25-168:7); Exh. 213
26 (8/23/07 Addie Depo. at 113:1-24).
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1 68. Upon learning of Dell's position, and even though Micron was not then selling
2 RDRAM to Dell, Micron manager Bill Lauer instructed Micron sales representative Tom Addie
3 to "check with [his] Sammy contacts about price targets." Exh. 58 (Sadler Depo. Exh. 554).

4 Addie agreed to contact "Sammy." *Id.* On the very same day, May 22, 2000, [REDACTED]

5 [REDACTED]
6 [REDACTED] Exh. 59 (Sadler Depo. Exh. 553); Exh. 257
7 (4/25/08 Sadler Depo. at 165:8-166:15); Exh. 258 (10/30/07 Seibert Depo. at 80:14-82:3).

8 Micron [REDACTED]

9 [REDACTED] See Exh. 144 (Sadler Depo. Exh. 557) (5/16/00
10 expense report [REDACTED]; Exh.
11 257 (4/25/08 Sadler Depo. at 176:2-177:1).

12 69. On May 31, 2000, [REDACTED] Exh. 166
13 (Kim Depo. Exh. 804); Exh. 238 (9/9/08 I.U. Kim Depo. at 65:19-66:17, 68:14-70:4). Two days
14 later on June 2, 2000, [REDACTED]

15 [REDACTED]
16 [REDACTED] Exh. 60 (Sadler Depo. Exh. 556); Exh. 257 (4/25/08 Sadler Depo. at 171:6-172:10);
17 Exh. 250 (10/4/07 Morrissey Depo. at 147:11-148:14). Samsung [REDACTED]
18 [REDACTED] Exh. 60 (Sadler Depo. Exh. 556).

19 70. Hynix was also communicating with Samsung and other memory vendors in
20 June 2000 about Dell's price targets. Hynix and Samsung [REDACTED]
21 [REDACTED] Exh. 68 (Kang
22 Depo. Exh. 37); Exh. 235 (7/20/07 Kang Depo. at 69:6-70:12, 70:23-73:25, 76:14-77:16).

23 71. When Hynix Vice President Tabrizi learned of Dell's request, he recommended
24 to Hynix's CEO that Hynix reject the request in an effort to put Rambus out of business by
25 "clos[ing] their income revenue" from RDRAM royalties. Exh. 66 (Chung Depo. Exh. 14); Exh.
26 265 (7/17/08 Tabrizi Depo. at 217:17-218:4). Mr. Tabrizi knew that Hynix could not alone
27 "kill" RDRAM, so he communicated directly to Infineon and Micron seeking their support. In
28 separate emails sent on June 7, 2000, Mr. Tabrizi informed top executives at Infineon and

1 Micron that Hynix would not meet Dell's targets, and he asked them to join Hynix in sending a
2 message to Dell to remove its head from its posterior with respect to RDRAM. Exh. 62 (6/7/00
3 Tabrizi-du Preez email discussing Dell's price targets and attaching an obscene photograph at
4 HR905_435635); Exh. 61 (6/7/00 Tabrizi email to five Micron executives, including Micron's
5 Vice President of Sales, regarding Dell's price targets at HR905_435633).

6 72. On June 7, 2000, [REDACTED]
7 [REDACTED]
8 [REDACTED] Exh. 283 (Kim Depo. Exh.
9 805); Exh. 238 (9/9/08 Kim Depo. at 75:1-15); Exh. 60 (Sadler Depo. Exh. 556).

10 73. As a result of the above-described conduct, the DRAM suppliers collectively
11 refused to meet Dell's targets. [REDACTED]

12 [REDACTED]
13 [REDACTED]
14 Exh. 64 (DEL-RAMB 016951); Exh. 223 (11/13/07 Everett Depo. at 137:11-144:14).

15 74. As a direct consequence of the Defendants' efforts to keep RDRAM prices high
16 and supplies low, Intel announced in late July of 2000 that it would add an SDRAM chipset to its
17 2001 chipset roadmap. [REDACTED]

18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 Exh. 67 (Williams Depo. Exh. 2943); Exh. 270 (8/13/08 Williams Depo. at 307:24-308:18). See
24 also Exh. 69 (Fahey Depo. Exh. 3073) (9/12/00 email [REDACTED]
25 [REDACTED]; Exh.
26 225 (8/26/08 Fahey Depo. at 405:11-406:12).

27 75. Samsung and Hynix met regularly in the summer and fall of 2000. For example,
28 a June 30, 2000 report by a Hynix employee responsible for product planning described a "call

1 with SEC guys” to discuss RDRAM pricing and production. Exh. 167 (Tabrizi Depo. Exh. 744);
2 Exh. 265 (7/17/08 Tabrizi Depo at 142:10-143:3). On October 3, 2000, [REDACTED]
3 [REDACTED]
4 [REDACTED] Exh. 168 (Kang Depo. Exh. 40); Exh. 235 (7/20/07 Kang Depo at 82:14-
5 84:2); Exh. 238 (9/9/08 Kim Depo. at 93:9-20) (testifying that [REDACTED]
6 [REDACTED]).

7 C. Spring/Summer 2001: The Defendants Continue To Conspire To Keep
8 RDRAM Prices High

9 76. In late 2000, Intel launched its new Pentium 4 chipset, which was optimized to
10 take advantage of the enormous bandwidth offered by RDRAM. Exh. 277 (1/26/09 Hampel
11 Decl., ¶ 6). Meanwhile, [REDACTED]
12 [REDACTED] Exh. 73 (Sadler Depo. Exh. 567). See also Exh. 287 11/21/00 Dataquest Tactical
13 Memories Newsletter, stating that “no two vendors’ DDR DRAMs are completely compatible
14 with each other’s,” and concluding that “we can expect to see RDRAM as the dominant DRAM
15 technology by 2003.”).

16 77. Intel, Dell and other OEMs urged the Defendants to take advantage of these
17 favorable market conditions by cutting RDRAM prices in order to spur the RDRAM ramp. For
18 example, [REDACTED]
19 [REDACTED] Exh. 74 (Byrd Depo. Exh.
20 683); Exh. 218 (5/29/08 Byrd Depo. at 170:3-174:8). Samsung [REDACTED]
21 [REDACTED] Exh. 77
22 (Kang Depo. Exh. 50); Exh. 235 (7/20/07 Kang Depo. at 152:2-153:6, 153:10); Exh. 253
23 (10/27/07 Quinn Depo. at 64:5-25). [REDACTED]
24 [REDACTED] Exh. 77 (Kang Depo. Exh.
25 50). Lower prices depended, however, on price competition by and between RDRAM suppliers.

26 78. Instead of engaging in price competition, Samsung continued to share
27 information about DRAM production with its competitors. For example, [REDACTED]
28 [REDACTED]

1 Exh. 284 (Kim Depo. Exh. 809); Exh. 238 (Kim Depo. at 85:19-86:10, 87:10-11, 87:17-88:3)
2 (testifying that [REDACTED]).

3 On March 22, 2001, Samsung and Infineon met to discuss DRAM pricing and production. Exh.
4 169 (ITNA01118006). The participants agreed on quarterly meetings. *Id.* at 1.

5 79. On January 4, 2001, [REDACTED]
6 [REDACTED]
7 [REDACTED] Exh. 70 (Lee Depo. Exh. 692);
8 Exh. 242 (6/12/08 Lee Depo. at 41:17-45:17).

9 [REDACTED]
10 [REDACTED]
11 [REDACTED] Exh. 70 (Lee
12 Depo. Exh. 692); Exh. 242 (6/12/08 Lee Depo. at 41:21-45:1, 45:14-47:7).

13 80. Samsung continued to produce RDRAM in volume in 2001, and it earned
14 substantial profit from those sales. *See, e.g.*, Exh. 76 (Park Depo. Exh. 479) [REDACTED]

15 [REDACTED]
16 Exh. 252 (4/16/08 Park Depo. at 49:18-50-21).

17 81. The evidence also shows [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED] Exh. 72 (Kim Depo. Exh. 816); Exh. 239 (9/10/08
21 Kim Depo. at 143:15-145:24).

22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED]
28 *Id.*; Exh. 239 (9/10/08 Kim Depo. at 145:25-146:19).

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82. Samsung

Exh. 75 (Kim Depo. Exh. 819); Exh. 239 (9/10/08 Kim Depo. at 158:15-

161:13).

Exh. 75 (Kim Depo. Exh. 819 at 3).

Id. at 3 (emphasis in original).

83. Once again, Samsung responded not with aggressive price competition but with

unlawful price fixing.

that:

Exh. 76 (Park Depo. Exh. 479); Exh. 252 (4/16/08 Park Depo. at 49:18-52:13, 52:23-53:3).

84. In the 2001-2002 time period, the combined DRAM market share of Micron,

Samsung, Hynix and Infineon was approximately Exh. 257 (4/25/08 Sadler Depo. at 24:9-

12; 24:15-17). As Michael Sadler, Micron's Vice President of Sales, testified,

Id. at 13:16-20; 23:25-24:2; 24:5-8.

85. Samsung

See Exh. 83 (Lee Depo. Exh. 702) (9/19/01 Samsung email

Exh. 242 (6/12/08

Lee Depo. at 72:4-22); Exh. 80 (Kim Depo. Exh. 822) (8/01 Samsung email

Exh. 239 (9/10/08 Kim

Depo. at 169:15-171:10, 172:14-20); Exh. 82 (Kim Depo. Exh. 823) (9/01 Samsung email

); Exh. 239

1 (9/10/08 Kim Depo. at 173:4-174:24); Exh. 170 (Quinn Depo. Exh. 383) (9/18/01 Samsung
2 email [REDACTED]
3 [REDACTED]); Exh. 253 (12/20/07 Quinn Depo. at 105:24-108:18).

4 **D. The Defendants Agree to Price DDR Low In Order To Encourage Design**
5 **Wins for DDR and to Drive Rambus Away Completely**

6 86. In contrast with RDRAM pricing, the Defendants agreed to keep DDR prices
7 and price projections low in order to encourage design wins for DDR chips and modules instead
8 of RDRAM. [REDACTED]

9 [REDACTED]
10 [REDACTED] Exh. 265 (7/17/08 Tabrizi Depo. at 112:15-16).

11 87. Internal Micron emails from 2000 and 2001 [REDACTED]

12 [REDACTED]
13 [REDACTED] See, e.g., Exh. 171 (Lauer Depo. Exh. 360) (October 11, 2000 Micron email
14 [REDACTED]

15 [REDACTED] Exh. 145

16 (Lauer Depo. Exh. 367) (October 2001 Micron email
17 [REDACTED]

18 [REDACTED]); Exh. 241 (12/19/07 Lauer Depo. at 119:7-12, 124:17-24, 141:2-14).

19 88. Samsung's [REDACTED]

20 [REDACTED]
21 [REDACTED]
22 [REDACTED] Exh.

23 146 (Kang Depo. Exh. 46); Exh. 235 (7/20/07 Kang Depo. at 138:24-140:8).

24 [REDACTED]
25 [REDACTED] Exh. 149 (Kang Depo. Exh. 47); Exh. 235 (7/20/07 Kang Depo. at 140:9-142:3).
26 [REDACTED]

27 [REDACTED] Exh. 147 (Kang

28 Depo. Exh. 48); Exh. 235 (7/20/07 Kang Depo. at 143:18-144:25). Samsung [REDACTED]

1 [REDACTED] Exh. 149 (Kang Depo. Exh. 47); Exh. 147
2 (Kang Depo. Exh. 48); Exh. 235 (7/20/07 Kang Depo. at 140:9-142:3, 143:18-144:25).

3 89. On March 29, 2001, Hynix executive C.K. Chung instructed his subordinate to
4 "have a last minute coordination with [Samsung]" regarding, among other things, DDR prices.
5 Exh. 148 (Gary Swanson Exh. 2/11/08 at HSA: Klausner, R. 012104).

6 90. On June 26, 2001, Samsung [REDACTED]
7 [REDACTED] Exh. 172 (Park Depo. Exh. 488A);
8 Exh. 252 (4/16/08 Park Depo. at 96:9-23).

9 91. The Manufacturers [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]

17 Exh. 52 (Lauer Depo. Exh. 359); Exh. 241 (12/19/07 Lauer Depo. at 118:11-119:3). *See also*
18 Exh. 85 (Turner Depo. Exh. 336) (9/21/01 Turner-Thomas email [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]; Exh. 268 (12/13/07 Turner Depo. at 133:21-25, 134:13-135:23).

22 92. This joint strategy was explained in a June 5, 2001 email written by Micron
23 Managing Director of International Sales Linda Turner. Ms. Turner was responding to reports
24 by her staff that Hynix was lowering its DDR pricing. Rather than view this price competition
25 with alarm, Ms. Turner explained how low DDR price projections could tip the market away
26 from RDRAM:

27 No problem! We want DDR to explode into the marketplace so
28 have actually been requesting Infineon, Samsung, and Hynix to
lower their DDR pricing to help it become a standard (*and drive*

1 *Rambus away completely).*

2 Exh. 79 (Turner Depo. Exh. 328) (emphasis added); Exh. 268 (12/13/07 Turner Depo. at 13:19-
3 14:3, 119:19-120:21).

4 E. **Defendants Agree to Fix Prices of DRAM to Reap Profits While Preventing**
5 **Resurgence of RDRAM**

6 93. In the summer of 2001, even before the conspiracy to block RDRAM's
7 successful launch met complete success, the DRAM manufacturers started discussing ways to
8 reap the benefits of their conspiratorial efforts by agreeing to fix and raise the price of their
9 SDRAM and DDR devices. In July 2001, for example, [REDACTED]

10 [REDACTED]
11 [REDACTED] Exh. 173 (Chung Depo. Exh. 81); Exh. 221 (5/10/07 Chung
12 Depo. at 103:4-104:11). Hynix executives agreed to (and did) meet in San Jose with their
13 Micron counterparts, and they were pleased to learn that what they called their "diplomacy" on
14 DRAM pricing was working. Exh. 173. Mr. Sadler continued these discussions in October
15 2001, [REDACTED]
16 [REDACTED] Exh. 257 (4/25/08 Sadler Depo. at 48:8-57:17). *See also* Exh. 174 (Sadler
17 Depo. Exh. 574) [REDACTED]; Exh. 257
18 (4/25/08 Sadler Depo at 234:8-18).

19 94. Shortly after Mr. Sadler's world tour, [REDACTED]
20 [REDACTED] Exh.
21 119 (Lauer Depo. Exh. 368); Exh. 243 (7/18/08 Lim Depo. at 82:14-83:2). *See also* Exh. 175
22 (FTC Trial Exh. RX-1883) (statement by Micron Vice President of Sales that "we can declare
23 victory" for "DDR memory" over "other memory interfaces, ie RDRAM. . ."); Exh. 257
24 (4/25/08 Sadler Depo. at 226:22-228:8).

25 95. After getting an indication of RDRAM's absence as a competitive threat, Micron
26 and Samsung led a series of dramatic price increases with respect to both SDRAM and DDR.
27 On November 14, 2001, [REDACTED]
28

1 [REDACTED]
2 [REDACTED] Exh. 176-177 (Sadler Depo.
3 Exhs. 575-576); Exh. 257 (4/25/08 Sadler Depo. at 235:12-236:7, 238:4-6). Two weeks later, a
4 Micron sales executive announced to her sales force that Micron "will be increasing prices to all
5 of the OEM customers." Exh. 178 (Radford Depo. Exh. 225); Exh. 254 (10/10/07 Radford
6 Depo. at 159:18-160:20). Micron was confident that it could successfully raise DRAM prices
7 because it had obtained a "consensus from all suppliers. . . that if Micron makes the move, all of
8 them will do the same and make it stick." Exh. 178 (Radford Depo. Exh. 225).

9 96. Samsung's [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]

14 Exh. 180 (Park Depo. Exh. 489B) (11/30/01 Oh email) (translation); Exh. 252 (4/16/08 Park
15 Depo. at 99:17-100:23). See also Exh. 179 (Chung Depo. Exh. 22) (12/01 Hynix email
16 confirming based on lunch with Samsung employees that "Samsung agrees to the gap based
17 DDR pricing"); Exh. 221 (5/10/07 Chung Depo. at 116:3-117:7); Exh. 262 (7/26/07 Suh Depo. at
18 120:4-124:21).

19 97. The conspirators were highly successful in their coordinated efforts to raise
20 SDRAM and DDR prices (by several hundred percent) and to create a premium for DDR over
21 SDRAM. By January 2002, prices for DDR had more than doubled for many sizes. Basileo
22 Decl., Exh. 29 (11/6/08 Elzinga Report at 93, Exhs. 7 & 8).

23 98. Micron and Samsung executives and sales representatives remained in close
24 contact in early 2002. For example, on January 3, 2002, a Samsung sales representative called
25 Micron to get "direction" on the appropriate prices for Samsung to charge. Exh. 138 (Lauer
26 Depo. Exh. 343); Exh. 241 (12/19/07 Lauer Depo. at 35:21-37:13).

27 99. Infineon and Micron also continued to coordinate pricing. See Exh. 139
28 (Radford Depo. Exh. 227); Exh. 254 (10/10/07 Radford Depo. at 163:2-6; 163:18-164:16)

1 (1/8/02 email [REDACTED])

2 [REDACTED] Exh. 182 (Radford Depo. Exh. 228) (4/5/02 Radford

3 email [REDACTED]; Exh.

4 254 (10/10/07 Radford Depo. at 165:2-166:1).

5 100. [REDACTED]

6 [REDACTED]

7 See, e.g., Exh. 141 (Quinn Depo. Exh. 392);

8 Exh. 253 (12/20/07 Quinn Depo. at 146:15-147:13, 148:21-25) (2/15/02 email [REDACTED])

9 [REDACTED] Exh. 142 (Kang Depo.

10 Exh. 60); Exh. 235 (7/20/07 Kang Depo. at 171:21-172:12).

11 101. The Defendants nevertheless became concerned in January and February 2002
12 that their coordinated price increases on DDR SDRAM would lead a renewed marketplace
13 interest in the RDRAM device. For example, an email by a Micron sales manager warned that
14 because of “price premium of DDR over SDR,” orders for chipsets using RDRAM had increased
15 at both Dell and Intel. Exh. 183 (Lauer Depo. Exh. 369); Exh. 241 (12/19/07 Lauer Depo. at
16 144:11-145:2).

17 102. A January 16, 2002 news article entitled “DDR Fumbles, RDRAM Scores”
18 noted that “rising DDR prices spur Rambus resurgence.” Exh. 197 at 1 (Sadler Depo. Exh. 534);
19 Exh. 257 (4/25/08 Sadler Depo at 80:5-82:9). The article pointed out that “swiftly rising” DDR
20 prices had called “into question the validity of tech articles written when you could buy 512 MB
21 of DDR for under \$60. . . .” Exh. 197 at 2. The article concluded:

22 [I]n the rush to the DDR promised land, we may have lost track of
23 the reason we started – price/performance. As of today, RDRAM
gets a higher rating in this regard. . . .

24 *Id.* at 3.

25 103. In light of this “threat” caused by “the DDR/SDR price gap,” Micron’s
26 Worldwide Vice President of Sales Mike Sadler asked a direct report, Bill Lauer, to “educa[te]”
27 other DRAM manufacturers about the “virtues” of price parity between SDRAM and DDR.
28 Exh. 303 (Lauer Depo. Exh. 370); Exh. 241 (12/19/07 Lauer Depo. at 155:21-156:15). In a

1 similar vein, Mr. Lauer [REDACTED]

2 [REDACTED]
3 [REDACTED]
4 [REDACTED] Exh. 184 (Lauer Depo. Exh. 371); Exh. 241

5 (12/19/07 Lauer Depo. at 164:20-165:11).

6 104. In March 2002, Hynix manager Chung reported that Hynix was quoting "DDR
7 pricing in parity" with SDRAM and that this price "must be from Micron," thus acknowledging
8 that Hynix, like Samsung and Infineon, was taking direction from Micron regarding DRAM
9 pricing. Mr. Chung also stated that he had "[i]ntentionally leaked this information to my buddy
10 at [Samsung] and asked them to hold tight." The Hynix executive reported that Samsung had
11 agreed to "stay firm at \$42 for both Sync and DDR." Exh. 140 (Quinn Depo. Exh. 393); Exh.
12 237 (4/30/08 Kim Depo. at 98:4-21).

13 105. Throughout the spring and summer of 2002, [REDACTED]

14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED] Exh.
18 129 (Seibert Depo. Exh. 274); Exh. 258 (10/30/07 Seibert Depo. at 97:5-21). *See also* Exh. 129
19 (Quinn Depo. Exh. 394) (3/02 emails [REDACTED]); Exh.
20 253 (12/20/07 Quinn Depo. at 151:20-152:22); Exhs. 131, 132 (Quinn Depo. Exhs. 395-96)
21 (3/02 emails [REDACTED]); Exh. 253 (12/20/07 Quinn
22 Depo. at 154:6-20; 157:12-158:9); Exh. 133 (Quinn Depo. Exh. 399) (3/02 report [REDACTED]
23 [REDACTED]); Exh. 253 (12/20/07 Quinn Depo. at 163:20-164:15);
24 Exh. 134 (Waddel Depo. Exh. 236) (4/24/02 email [REDACTED]
25 [REDACTED]); Exh. 269 (10/18/07 Waddel Depo. at 94:25-96:22); Exh. 135 (Lauer Depo.
26 Exh. 349) (5/7/02 email [REDACTED]); Exh. 241 (12/19/07
27 Lauer Depo. at 79:19-80:6); Exh. 136 (Kang Depo. Exh. 64) (Samsung expense report [REDACTED]
28

1 [REDACTED]; Exh.
2 235 (7/20/07 Kang Depo. at 180:5-181:18).

3 106. In May of 2002, [REDACTED]
4 [REDACTED] Exh. 185 (Waddel
5 Depo. Exh. 234); Exh. 269 (10/18/07 Waddel Depo. at 87:8-88:12; 89:16-25). Micron and
6 Infineon [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED] Exhs. 186-187 (Seibert Depo. Exhs. 275-76); Exh. 258 (10/30/07 Seibert Depo.
10 at 101:25-102:10; 103:4-19).

11 **VI. Samsung Pled Guilty to Participating in a Conspiracy to Suppress and Eliminate**
12 **Competition With Respect To RDRAM**

13 107. Beginning in the summer of 2002, the United States Department of Justice
14 (“DOJ”) initiated a criminal investigation with respect to price fixing in the DRAM industry.
15 See Exh. 257 (4/25/08 Sadler Depo. at 25:3-7; 25:10-17; 25:20-23; 26:1-11).

16 108. Micron took part in the DOJ’s amnesty program, which provided participants
17 with amnesty from criminal sanctions in exchange for full cooperation in the DOJ’s investigation
18 of the DRAM industry. Exh. 188 (Appleton Depo. Exh. 641); Exh. 215 (5/7/08 Appleton Depo.
19 at 198:8-199:2).

20 109. Micron publicly admitted that the DOJ had evidence that some of Micron’s
21 employees and certain DRAM manufacturers had engaged in DRAM price fixing. Exh. 189
22 (Appleton Depo. Exh. 640); Exh. 215 (5/7/08 Appleton Depo. at 191:1-192:17).

23 110. Infineon pled guilty to participating in a criminal conspiracy to fix the prices of
24 DRAM and agreed to pay a fine of \$160 million. Exh. 190 (10/20/04 Infineon Plea Agreement
25 at ¶¶ 2-4, 8).

26 111. Hynix pled guilty to participating in a criminal conspiracy to fix the prices of
27 DRAM and agreed to pay a fine of \$185 million. Exh. 111 (5/11/05 Hynix Plea Agreement at
28 ¶¶ 2-4, 9).

1 112. Hynix agreed to cooperate with the United States in the federal investigation of
2 violations of federal antitrust and related criminal laws involving the production or sale of
3 DRAM, including RDRAM. Exh. 111 (5/11/05 Hynix Plea Agreement at ¶ 14).

4 113. Several months after Hynix agreed to cooperate in the investigation of violations
5 of laws in conjunction with RDRAM, Samsung pled guilty to participating in a criminal
6 conspiracy to fix the prices of DRAM, *including RDRAM*, and agreed to pay a fine of \$300
7 million. Exh. 115 (11/30/05 Samsung Plea Agreement at ¶¶ 2-4, 8).

8 114. Elpida pled guilty to participating in a criminal conspiracy to fix the prices of
9 DRAM, including RDRAM, and agreed to pay a fine of \$84 million. Exh. 191 (3/22/06 Elpida
10 Plea Agreement at ¶¶ 2-4, 8).

11 115. Six Samsung executives Il Ung Kim, Vice President of Marketing; Young Woo
12 Lee, Sales Director; Sun Woo ("Sunny") Lee, Senior Manager of DRAM Sales; Yeongho Kang,
13 Associate Director, DRAM Marketing; Young Hwan Park, Vice President of Sales; and Thomas
14 Quinn, V.P. of Marketing for Memory Products pled guilty to a criminal conspiracy with respect
15 to DRAM price fixing. Exh. 192 (I.U. Kim Plea Agreement); Exh. 193 (Y.W. Lee Plea
16 Agreement); Exh. 194 (S.W. Lee Plea Agreement); Exh. 127 (Kang Plea Agreement); Exh. 198
17 (Park Plea Agreement); Exh. 195 (Quinn Plea Agreement).

18 116. The Samsung executives [REDACTED]
19 [REDACTED] Exh. 235 (7/20/07 Kang Depo. at
20 49:21-50:1, 52:5-53:7, 171:12-13, 171:15-20); Exh. 242 (6/12/08 Lee Depo. at 30:21-31:18,
21 70:10-71:18).

22 117. Samsung [REDACTED]
23 [REDACTED] Exh. 235 (7/20/07 Kang Depo. at 53:14-23,
24 55:15-17, 55:20); Exh. 252 (4/16/08 Park Depo. at 104:12-14, 105:6-21); Exh. 253 (12/20/07
25 Quinn Depo. at 98:11-19); Exh. 238 (9/9/08 Kim Depo. at 36:3-6, 36:9, 36:24-37:15).

26 118. Samsung admitted that, "[i]n furtherance of the conspiracy, [Samsung] . . .
27 engaged in discussions and attended meetings with representatives of certain other DRAM
28 producers and sellers. During these discussions and meetings, agreements were made to fix the

1 price of DRAM . . . ,” including RDRAM. Exh. 115 (11/30/05 Samsung Plea Agreement at 3:3-
2 4:8). Other companies [REDACTED]

3 See Exh. 196 (Kang Depo. Exh. 35 at 1).

4 119. Micron [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

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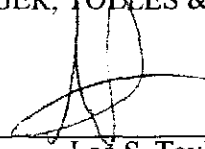
17 [REDACTED]

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Exh. 257 (4/25/08 Sadler Depo. at 65:15-19; 65:24-67:4; 67:7-8; 67:12-14; 67:16-17) (objections omitted).

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