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15 **UNITED STATES DISTRICT COURT**
16 **FOR THE NORTHERN DISTRICT OF CALIFORNIA**

18 SK HYNIX INC. and SK HYNIX AMERICA
19 INC.,

20 Plaintiffs,

21 v.

22 LONGHORN IP LLC, TRENCHANT BLADE
23 TECHNOLOGIES LLC, and HAMILCAR
24 BARCA IP LLC,

25 Defendants.

Case No. 22-cv-03915-EJD

**AMENDED COMPLAINT FOR
DECLARATORY JUDGMENT**

DEMAND FOR JURY TRIAL

1 Plaintiffs SK hynix Inc. and SK hynix America Inc. (collectively, “Plaintiffs” or “SK hynix”) file
2 this Amended Complaint for Declaratory Judgment (“Complaint”) against Defendants Longhorn IP LLC
3 (“Longhorn IP”), Trenchant Blade Technologies LLC (“Trenchant Blade”), and Hamilcar Barca IP LLC
4 (“Hamilcar”) (collectively, “Defendants”). By and through this Complaint, SK hynix seeks a declaration
5 that SK hynix does not directly or indirectly infringe United States Patent Nos. 7,056,821 (the “’821
6 patent”), 7,494,846 (the “’846 patent”), 9,379,079 (the “’079 patent”), 8,848,462 (the “’462 patent”),
7 8,086,938 (the “’938 patent”), 9,147,664 (the “’664 patent), and 8,669,619 (the “’619 patent”)
8 (collectively, the “Patents-in-Suit”), either literally or under the doctrine of equivalents.

9 **NATURE OF THE ACTION**

10 1. This is an action for a declaratory judgment of non-infringement of the Patents-in-Suit
11 pursuant to the Declaratory Judgment Act, 28 U.S.C. §§ 2201–2202, and the patent laws of the United
12 States, Title 35 of the United States Code.

13 2. SK hynix requests this relief based on Defendants’ infringement assertions and licensing
14 demands to SK hynix, in which Defendants have accused SK hynix and its subsidiaries and affiliates of
15 infringing the Patents-in-Suit and made unreasonable demands that SK hynix take a license to patent
16 portfolios that include the Patents-in-Suit.

17 3. An actual and justiciable controversy therefore exists between SK hynix and Defendants
18 concerning the Patents-in-Suit under 28 U.S.C. §§ 2201–2202 and as to whether SK hynix’s products
19 infringe the Patents-in-Suit.

20 **THE PARTIES**

21 4. SK hynix Inc. is a corporation organized and existing under the laws of the Republic of
22 Korea, with its principal place of business at 2091, Gyeongchung-daero, Bubal-eub Icheon-si,
23 Gyeonggi-do, South Korea.

24 5. SK hynix America Inc. is a corporation organized and existing under the laws of the State
25 of California, with its principal place of business at 3101 North First Street, San Jose, California 95134.
26 SK hynix America Inc. is a subsidiary of SK hynix Inc.

27 6. On information and belief, Longhorn IP is a limited liability company existing under the
28 laws of the state of Texas having its principal place of business at 5204 Bluewater Drive, Frisco, Texas

1 75036. On information and belief, Longhorn IP is a privately owned IP management and patent portfolio
2 licensing company, which engages in efforts to license the patent portfolios of Trenchant Blade and
3 Hamilcar, among others. On information and belief, Tanit Ventures, Inc. (“Tanit”), a corporation
4 existing under the laws of the state of Texas, is the sole member of Longhorn IP. On information and
5 belief, Mr. Khaled Fekih-Romdhane is the sole Director and President of Tanit.

6 7. On information and belief, Trenchant Blade is a limited liability company existing under
7 the laws of the state of Texas having its principal place of business at 1700 Pacific Ave, Suite 4650,
8 Dallas, Texas 75201. On information and belief, Trenchant Blade, an affiliate of Longhorn IP, is a non-
9 practicing entity, which aims to license its patent portfolio to others. On information and belief, Mr.
10 Khaled Fekih-Romdhane is the sole Member and Director of Trenchant Blade.

11 8. On information and belief, Hamilcar is a limited liability company existing under the
12 laws of the state of Texas having its principal place of business at 5204 Bluewater Drive, Frisco, Texas
13 75036. On information and belief, Hamilcar, an affiliate of Longhorn IP, is a non-practicing entity,
14 which aims to license its patent portfolio to others. On information and belief, Mr. Khaled Fekih-
15 Romdhane and Tanit are the only managers of Hamilcar. On information and belief, Mr. Khaled Fekih-
16 Romdhane is the sole Director and President of Tanit.

17 **JURISDICTION AND VENUE**

18 9. This action arises under the Declaratory Judgment Act, 28 U.S.C. § 2201 *et seq.*, and
19 under the patent laws of the United States, Title 35 of the United States Code.

20 10. This Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331,
21 1338(a), 2201(a), 2202, and the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

22 11. An immediate, real, and justiciable controversy exists between SK hynix and Defendants
23 as to whether SK hynix has infringed the Patents-in-Suit. As described in detail below, this controversy
24 arises out of Defendants’ infringement assertions and licensing demands to SK hynix, in which
25 Defendants broadly and repeatedly alleged that SK hynix and its subsidiaries and affiliates infringe the
26 Patents-in-Suit and that SK hynix requires a license to the Trenchant Blade and Hamilcar patent
27 portfolios. SK hynix accordingly requests a judicial determination of its rights regarding the Patents-in-
28

1 Suit. Because this action presents an actual controversy with respect to the Patents-in-Suit, the Court
2 may grant the declaratory relief sought pursuant to 28 U.S.C. § 2201 *et seq.*

3 12. This Court has personal jurisdiction over Defendants by virtue of their sufficient
4 minimum contacts with this forum. On information and belief, Defendants, directly or through their
5 agents and alter egos, have regularly conducted business activities in California, and this action arises
6 out of and relates to activities that Defendants have purposely directed at California and this District.

7 13. Among other things, Defendants purposefully directed allegations of patent infringement
8 to SK hynix and its subsidiaries and affiliates, which includes SK hynix America Inc., a resident of this
9 District. SK hynix America Inc. provides technical support, marketing, and sales activities in the United
10 States, including for customers headquartered in this District, with respect to the allegedly infringing SK
11 hynix products. Longhorn IP and its associated entities, Trenchant Blade and Hamilcar, sent five letters
12 to SK hynix Inc. explicitly asserting that SK hynix and its “subsidiaries” and/or “affiliates” infringe
13 various U.S. Patents allegedly owned by Trenchant Blade or Hamilcar. The substance of these letters
14 directly implicate the activities of SK hynix America Inc. in this District with respect to the allegedly
15 infringing SK hynix products. On information and belief, Longhorn IP, Trenchant Blade, and Hamilcar
16 made these infringement allegations and license demands with the goal of coming to a business
17 arrangement with SK hynix Inc. and its subsidiaries and affiliates, including SK hynix America Inc.

18 14. In addition, the allegations of infringement made by Longhorn IP and Hamilcar, with
19 respect to at least the '938 patent, implicate memory controller devices designed and developed by SK
20 hynix Memory Solutions America Inc. (“SKHMS”). SKHMS is a wholly-owned subsidiary of SK hynix
21 Inc., with its principal place of business at 3103 North First Street, San Jose, California 95134. SKHMS
22 designs memory controller devices for SK hynix Inc., including with respect to certain SK hynix solid
23 state drive products that are accused of infringing the '938 patent. *See infra*, Count Five. SKHMS
24 witnesses and documents located in this District are accordingly likely to be the subject of discovery in
25 this action.

26 15. The present declaratory judgment action arises out of and relates to Defendants’
27 purposeful direction of activities at residents of this District, as described throughout this Complaint.
28 Such activities include, without limitation, Defendants’ patent enforcement activities, the notice letters

1 and allegations of infringement directed at SK hynix and its “subsidiaries” and/or “affiliates” (which
2 Defendants knew, or should have known¹, necessarily includes subsidiaries located in this District), and
3 the subsequent negotiations described herein, because Defendants engaged in these activities specifically
4 to assert the alleged patent rights that are the subject of this Complaint.

5 16. Longhorn IP describes itself as “a major player in the Intellectual Property world.”
6 Longhorn IP, LLC, “Longhorn IP Celebrates Its Five-Year Anniversary With A Major Revenue
7 Milestone” (Apr. 15, 2021), *available at* [https://www.longhornip.com/post/longhorn-ip-celebrates-its-](https://www.longhornip.com/post/longhorn-ip-celebrates-its-five-year-anniversary-with-a-major-revenue-milestone)
8 [five-year-anniversary-with-a-major-revenue-milestone](https://www.longhornip.com/post/longhorn-ip-celebrates-its-five-year-anniversary-with-a-major-revenue-milestone). On information and belief, Longhorn IP’s
9 pattern and practice is to (1) negotiate agreements with third parties to acquire patents; (2) form holding
10 companies (“affiliates” or “portfolio” entities) incorporated in the State of Texas that ultimately acquire
11 and hold title to patents purchased from third parties; (3) establish a “management agreement” between
12 Longhorn IP and each holding company, authorizing Longhorn IP to “manage” the portfolio (e.g., by
13 engaging in patent licensing and enforcement on behalf of the holding company); and (4) affirmatively
14 seek to license the patents to companies in the relevant industries and, if necessary, bring patent
15 infringement lawsuits filed in the name of the applicable holding company. On information and belief,
16 while Longhorn IP and its various holding companies are, on paper, distinct corporate entities
17 (<https://www.longhornip.com/portfolios>), Longhorn IP—through its principals—manages and controls
18 all of the activities of its portfolio entities, ranging from broad policy decisions to routine matters of day-
19 to-day operation.

20 17. On information and belief, Longhorn IP and its commonly controlled, associated entities
21 have directed concerted activities toward this District in furtherance of a patent acquisition, licensing,
22 and assertion scheme run and managed by a single individual: Mr. Khaled Fekih-Romdhane.

23 _____
24 ¹ In April 2019, Longhorn IP and its affiliate, Katana Silicon Technologies LLC, entered into a patent
25 license agreement with SK hynix Inc. That agreement extended to cover SK hynix and its subsidiaries
26 and affiliates—including SK hynix America Inc. The existence of SK hynix America Inc., and its status
27 as a subsidiary of SK hynix Inc., are publicly known facts. Thus, Longhorn IP, Trenchant Blade, and
28 Hamilcar knew or should have known that their allegations of infringement of *United States* patents—
directed at SK hynix *and its “subsidiaries” and/or “affiliates,”* and based on products allegedly
imported into and sold or offered for sale *in the United States*—would *necessarily implicate* the SK
hynix subsidiaries and affiliates headquartered in this District.

1 18. Mr. Fekih-Romdhane is the Founder, CEO, and President of Longhorn IP. On his
2 LinkedIn page, Mr. Fekih-Romdhane states that as a founder of Longhorn IP, he is involved in
3 “[m]anaging *every step* of the patent acquisition and licensing process,” including “[c]onducting
4 settlement discussions and negotiating licensing deals.” See *Khaled Fekih-Romdhane*, LinkedIn profile
5 (2022), available at <https://www.linkedin.com/in/khaledfekih> (emphasis added).

6 19. On information and belief, Mr. Fekih-Romdhane controls Longhorn IP through Tanit;
7 Mr. Fekih-Romdhane is Tanit’s sole Director and President, and Tanit is the sole member of Longhorn
8 IP. On information and belief, Mr. Fekih-Romdhane also controls Trenchant Blade as its sole Member
9 and Director and controls Hamilcar through himself and Tanit, who are the only managers of Hamilcar.

10 20. On information and belief, Longhorn IP and its associated entities engage in licensing,
11 patent acquisition, and litigation activities in this District, which activities Longhorn IP announces and
12 advertises on Longhorn IP’s website, www.longhornip.com/news.

13 21. On information and belief, Mr. Fekih-Romdhane is the common representative of
14 Longhorn IP’s associated entities, and he acts and negotiates on their collective behalf. For example, Mr.
15 Fekih-Romdhane uses Longhorn IP letterhead and his Longhorn IP email address when communicating
16 on behalf of Longhorn IP’s alter ego entities, including Trenchant Blade and Hamilcar.

17 22. On information and belief, Mr. Fekih-Romdhane manages Trenchant Blade and
18 Hamilcar, and Trenchant Blade and Hamilcar have no employees or offices of their own. For example,
19 Longhorn IP and Hamilcar are both registered to do business at 5204
20 Bluewater Drive, Frisco, Texas 75036, which, on information and
21 belief, is a residence owned by Mr. Fekih-Romdhane. See
22 [https://www.zillow.com/homedetails/5204-Bluewater-Dr-Frisco-TX-](https://www.zillow.com/homedetails/5204-Bluewater-Dr-Frisco-TX-75034/120758682_zpid/)
23 [75034/120758682_zpid/](https://www.zillow.com/homedetails/5204-Bluewater-Dr-Frisco-TX-75034/120758682_zpid/).



24 23. On information and belief, Trenchant Blade and Hamilcar each executed a “management
25 agreement” with Longhorn IP, authorizing Longhorn IP to act on their behalf to monetize the Patents-in-
26 Suit. On information and belief, the “management agreements” between Trenchant Blade and Longhorn
27 IP, and Hamilcar and Longhorn IP, were not arms-length transactions.

28

1 24. On information and belief, Longhorn IP’s portfolio entities, including Trenchant Blade,
2 Hamilcar, Katana Silicon Technologies LLC (“Katana”), Lone Star Silicon Innovations LLC (“Lone
3 Star”), and others, are alter egos and agents of Longhorn IP. On information and belief, Longhorn IP
4 dominates and controls the actions of its associated entities and, specifically, directs and controls their
5 patent acquisition, licensing, and enforcement activities. Longhorn IP’s associated entities do not appear
6 to have separate websites, and are identified on Longhorn IP’s website, www.longhornip.com, merely as
7 “Portfolio” entities holding intellectual property assets for the benefit of Longhorn IP.

8 25. Disregarding the fact that Longhorn IP, Trenchant Blade, and Hamilcar are mere alter
9 egos of each other would result in fraud or injustice.

10 26. On information and belief, Mr. Fekih-Romdhane and Longhorn IP create holding
11 companies for the purpose of assigning these holding companies intellectual property rights, widely
12 licensing such rights to companies in relevant industries, and bringing infringement suits in their
13 preferred fora by and through these holding companies. On information and belief, Longhorn IP has
14 created its portfolio entities to allow its alter egos to assert infringement claims nationally or globally
15 while attempting to limit or insulate itself and its portfolio entities from being subject to personal
16 jurisdiction outside of Texas.

17 27. On information and belief, Longhorn IP’s portfolio entities are insufficiently capitalized
18 to pay any judgments against them and/or have assets that are commingled with those of Longhorn IP.
19 For example, Longhorn IP’s press releases suggest that revenues from licensing transactions and
20 settlements involving the portfolio entities are recognized by Longhorn IP. *See, e.g.*, Longhorn IP,
21 “Longhorn IP Celebrates Its Six Year Anniversary With Several New Licenses And A Revenue
22 Milestone” (May 3, 2022) (“In April, several new licenses were concluded on behalf of our affiliates,
23 both in the semiconductor division as well as in the wireless technologies’ division. We also hit a new
24 revenue milestone.”), *available at* <https://www.longhornip.com/post/longhorn-ip-celebrates-its-six-year-anniversary-with-several-new-licenses-and-a-revenue-milestone>.

26 28. Longhorn IP and its associated entities have previously accused companies residing in
27 this District of patent infringement. For example, Katana brought an action for patent infringement
28 against Taiwan Semiconductor Manufacturing Company, Ltd. and two of its California subsidiaries

1 residing in this District, TSMC North America, Inc. and TSMC Technology, Inc. (collectively,
2 “TSMC”), in the U.S. District Court for the Western District of Texas. *See* No. 6:19-cv-00695. On
3 information and belief, Longhorn IP and Trenchant Blade obtained the ’821 and ’846 patents in a
4 settlement of that lawsuit. As part of the settlement, Longhorn announced an IP collaboration and
5 service agreement with TSMC that, on information and belief, establishes an ongoing relationship
6 between TSMC and Longhorn IP / Trenchant Blade in this District. The collaboration agreement
7 between TSMC and Longhorn IP / Trenchant Blade allows TSMC and its California subsidiaries to
8 license the ’821 and ’846 patents (among others), is governed by California law, and requires that
9 disputes arising from it are heard in federal and state courts in Santa Clara County. *See Samsung*
10 *Electronics Co., Ltd. et al v. Trenchant Blade Technologies LLC et al.*, No. 3:20-cv-08205, Dkt. No. 55.

11 29. Further, Longhorn IP, by and through its subsidiary Lone Star, filed lawsuits in this
12 District in 2017 against STMicroelectronics, Inc., No. 3:17-cv-07206, and in 2018 against Micron
13 Technology, Inc., Case No. 3:18-cv-01680. In addition, Lone Star consented to transfer of cases to this
14 District from the U.S. District Court for the Eastern District of Texas on several occasions. *See Lone*
15 *Star Silicon Innovations LLC v. Renesas Electronics Corp. et al.*, No. 3:17-cv-03971 (N.D. Cal.), Dkt.
16 No. 43; *Lone Star Silicon Innovations LLC v. Semiconductor Mfg. Int’l Corp. et al.*, No. 3:17-cv-03980
17 (N.D. Cal.), Dkt. No. 33; *Lone Star Silicon Innovations LLC v. United Microelectronics Corp. et al.*, No.
18 3:17-cv-04033 (N.D. Cal.), Dkt. No. 28; *Lone Star Silicon Innovations LLC v. Toshiba Corp. et al.*, No.
19 3:17-cv-04034 (N.D. Cal.), Dkt. No. 153; *Lone Star Silicon Innovations LLC v. Nanya Tech. Corp. et*
20 *al.*, No. 3:17-cv-04032 (N.D. Cal.), Dkt. No. 28. On information and belief, Longhorn IP representatives
21 traveled to California for these matters in furtherance of their patent licensing business.

22 30. On information and belief, Defendants and their agents and alter egos have charged
23 infringement and threatened litigation against numerous companies residing and conducting business in
24 this District. For example, in at least one patent assertion letter directed to SK hynix giving rise to this
25 matter, discussed *infra*, Defendants Longhorn IP and Trenchant Blade stated their intent to negotiate and
26 enter into license agreements for some of the Patents-in-Suit with companies either residing in this
27 District or having operations and/or subsidiaries located in this District, including “Samsung, Intel,
28 Micron, Global Foundries, UMC, and SMIC.”

1 31. On information and belief, Defendants sent such a patent assertion letter to at least
2 Samsung Electronics Co., Ltd. (“Samsung”) and Intel Corporation (“Intel”) alleging that Samsung and
3 Intel each infringe patents in the Trenchant Blade patent portfolio, including at least the ’846 and ’821
4 patents that are the subject of this Complaint. As a result, Samsung filed a declaratory judgment action
5 in this District. *See Samsung Electronics Co. Ltd. et al v. Trenchant Blade Technologies LLC et al.*, No.
6 3:20-cv-08205 (N.D. Cal. Nov. 20, 2020), Dkt. No. 1. In that complaint, Samsung alleged that, prior to
7 filing the complaint, Samsung and Mr. Fekih-Romdhane engaged in licensing negotiations that included
8 Samsung representatives participating from this District. Likewise, Intel also filed a declaratory
9 judgment action in this District. *See Intel Corp. v. Trenchant Blade Technologies LLC et al.*, No. 3:21-
10 cv-3398 (N.D. Cal. May 6, 2021), Dkt. No. 1. In that complaint, Intel alleged that, prior to filing the
11 complaint, Intel and Mr. Fekih-Romdhane engaged in licensing negotiations that included Intel
12 representatives participating from this District. In the Samsung declaratory judgment action, the Court
13 denied a motion to dismiss for lack of personal jurisdiction filed by Longhorn IP and Trenchant Blade,
14 and held that “[t]he Court clearly has personal jurisdiction over the defendants.” No. 3:20-cv-08205,
15 Dkt. No. 55.

16 32. Venue is proper in this District under 28 U.S.C. §§ 1391(b)–(c) at least because a
17 substantial part of the events giving rise to the claims presented in this Complaint occurred in this
18 District and Defendants are subject to personal jurisdiction in this District.

INTRADISTRICT ASSIGNMENT

19 33. Pursuant to Civil L.R. 3-2(c) and 3-5(b), this is an Intellectual Property Action subject to
20 assignment on a district-wide basis.

FACTUAL ALLEGATIONS

PATENTS-IN-SUIT

21 34. The ’821 patent is entitled “Method for Manufacturing Dual Damascene Structure with a
22 Trench Formed First.” The ’821 patent states on its cover that it was issued on June 6, 2006, and names
23 as its inventors Chin-Tien Yang of Hsinchu, Taiwan; Juan-Jann Jou of Tainan Hsien, Taiwan; Yu-Hua
24 Lee of Hsinchu, Taiwan; and Chia-Hung Lai of Hsinchu, Taiwan. The ’821 patent also states that the
25 initial assignee of the ’821 patent was Taiwan Semiconductor Manufacturing Co., Ltd. of Hsinchu,
26
27
28

1 Taiwan. Trenchant Blade purports to own by assignment the '821 patent. A copy of the '821 patent is
2 attached hereto as Exhibit A.

3 35. The '846 patent is entitled "Design Techniques for Stacking Identical Memory Dies."
4 The '846 patent states on its cover that it was issued on February 24, 2009, and names as its inventors
5 Chao-Shun Hsu of San-Shin, Taiwan; Louis Liu of Hsinchu, Taiwan; Clinton Chao of Hsinchu, Taiwan;
6 and Mark Shane Peng of Hsinchu, Taiwan. The '846 patent also states that the initial assignee of the
7 '846 patent was Taiwan Semiconductor Manufacturing Co., Ltd. of Hsinchu, Taiwan. Trenchant Blade
8 purports to own by assignment the '846 patent. A copy of the '846 patent is attached hereto as
9 Exhibit B.

10 36. The '079 patent is entitled "Flip Chip Scheme and Method of Forming Flip Chip
11 Scheme." The '079 patent states on its cover that it was issued on June 28, 2016, and names as its
12 inventors Jia-Wei Fang of Hsinchu, Taiwan; and Shen-Yu Huang of Taipei, Taiwan. The '079 patent
13 also states that the initial assignee of the '079 patent was Mediatek Inc. of Hsinchu, Taiwan. Hamilcar
14 purports to own by assignment the '079 patent. A copy of the '079 patent is attached hereto as
15 Exhibit C.

16 37. The '462 patent is entitled "Low Power Memory Controllers." The '462 patent states on
17 its cover that it was issued on September 30, 2014, and names as its inventors Yan-Bin Luo of Taipei,
18 Taiwan; Chih-Chien Hung of Hualien, Taiwan; Qui-ting Chen of Sanchong, Taiwan; and Shang-Ping
19 Chen of Tai-Chung, Taiwan. The '462 patent also states that the initial assignee of the '462 patent was
20 Mediatek Inc. of Hsinchu, Taiwan. Hamilcar purports to own by assignment the '462 patent. A copy of
21 the '462 patent is attached hereto as Exhibit D.

22 38. The '938 patent is entitled "Method for Processing Noise Interference." The '938 patent
23 states on its cover that it was issued on December 27, 2011, and names as its inventors Pao-Ching Tseng
24 of Hsin Chu, Taiwan; Shu-Fang Tsai of Hsin Chu, Taiwan; and Chuan Liu of Jen Te Hsiang, Taiwan.
25 The '938 patent also states that the initial assignee of the '938 patent was Mediatek Inc. of Hsinchu,
26 Taiwan. Hamilcar purports to own by assignment the '938 patent. A copy of the '938 patent is attached
27 hereto as Exhibit E.

28

1 39. The '664 patent is entitled "Semiconductor Package." The '664 patent states on its cover
2 that it was issued on September 29, 2015, and names as its inventor Nan-Jang Chen of Hsinchu, Taiwan.
3 The '664 patent also states that the initial assignee of the '664 patent was Mediatek Inc. of Hsinchu,
4 Taiwan. Hamilcar purports to own by assignment the '664 patent. A copy of the '664 patent is attached
5 hereto as Exhibit F.

6 40. The '619 patent is entitled "Semiconductor Structure with Multi-Layer Contact Etch Stop
7 Layer Structure." The '619 patent states on its cover that it was issued on March 11, 2014, and names as
8 its inventors Tien-Chang Chang of Hsinchu, Taiwan; Jing-Hao Chen of Singapore, Singapore; and
9 Ming-Tzong Yang of Hsinchu County, Taiwan. The '619 patent also states that the initial assignee of the
10 '619 patent was Mediatek Inc. of Hsinchu, Taiwan. Hamilcar purports to own by assignment the '619
11 patent. A copy of the '619 patent is attached hereto as Exhibit G.

12 **DISPUTE BETWEEN SK HYNIX AND DEFENDANTS**

13 A. **The Trenchant Blade Patent Portfolio**

14 41. On information and belief, Mr. Fekih-Romdhane caused Trenchant Blade to be created in
15 January 2020, and caused TSMC to assign the '821 and '846 patents (among others) to Trenchant Blade
16 on March 24, 2020, in connection with the settlement of Katana's patent infringement lawsuit against
17 TSMC, W.D. Tex. Case No. 6:19-cv-00695. On information and belief, Mr. Fekih-Romdhane exercised
18 control over the settlement between Katana and TSMC, allocating obligations and benefits among
19 Longhorn IP, Katana, and Trenchant Blade. Mr. Fekih-Romdhane signed the Patent Assignment
20 agreement on behalf of Trenchant Blade.

21 42. On May 8, 2020, Mr. Fekih-Romdhane, as President and CEO of Longhorn IP, sent a
22 letter by email to Jinho Lee, Director of SK hynix, alleging that "SK hynix and its affiliates" infringe
23 "one or more" patents owned by Trenchant Blade, including at least the '846 patent. The letter states
24 that Trenchant Blade executed a licensing service agreement with Longhorn IP. The letter further alleges
25 that "SK hynix sells and offers to sell in the United States, and imports into the United States, integrated
26 circuit devices that infringe one or more of the [Trenchant Blade] patents," and that Longhorn IP
27 "believe[s] that SK hynix induces other companies, such as distributors, resellers and end-users, to
28 perform one or more of these infringing acts in the United States." The letter offers to discuss terms for

1 SK hynix to license the referenced patents. A true and correct copy of the May 8, 2020 letter is attached
2 as Exhibit H.

3 43. On February 12, 2021, Mr. Scott Breedlove, as counsel for Longhorn IP and Trenchant
4 Blade and at the direction of Mr. Fekih-Romdhane, sent a letter to Jinho Lee, Director of SK hynix,
5 alleging that “SK hynix and its subsidiaries/affiliates” infringe “one or more” patents owned by
6 Trenchant Blade, including at least the ’821 and ’846 patents. The letter states that it “will serve to
7 follow up on and supplement Mr. Fekih-Romdhane’s letter to you of May 8, 2020.” The letter further
8 alleges that “SK hynix at a minimum makes, sells, and imports integrated circuit devices that infringe
9 one or more of Trenchant Blade’s patents,” and that “SK hynix induces others, such as distributors,
10 resellers, and end users, to perform one or more of these infringing acts.” The letter offers to discuss
11 terms for SK hynix to license the referenced patents. A true and correct copy of the February 12, 2021
12 letter is attached as Exhibit I.

13 44. On April 27, 2021, representatives of Longhorn IP and Trenchant Blade, including Mr.
14 Fekih-Romdhane and Mr. Breedlove, presented claim charts regarding SK hynix’s alleged infringement
15 of the ’821 and ’846 patents.

16 45. On June 23, 2021, SK hynix presented responses to the infringement allegations
17 concerning the ’821 and ’846 patents, raising multiple grounds for non-infringement and identifying
18 prior art that would likely invalidate the asserted claims in the ’821 and ’846 patents. SK hynix delivered
19 this presentation to representatives of Longhorn IP and Trenchant Blade, including Mr. Breedlove.

20 46. On March 8, 2022, representatives of Longhorn IP and Trenchant Blade, including Mr.
21 Fekih-Romdhane and Mr. Breedlove, presented a response to SK hynix’s non-infringement and
22 invalidity positions with respect to the ’821 and ’846 patents.

23 47. On May 18, 2022, SK hynix presented sur-rebuttal to the infringement allegations
24 concerning the ’821 and ’846 patents, which refuted the arguments made by representatives of Longhorn
25 IP and Trenchant Blade during the March 2022 meeting. SK hynix delivered this presentation to
26 representatives of Longhorn IP and Trenchant Blade, including Mr. Fekih-Romdhane and Mr.
27 Breedlove.

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1 48. Throughout the aforementioned discussions, SK hynix consistently denied any
2 infringement of the '821 and '846 patents. SK hynix has reasonably concluded that further discussions
3 concerning the merits of the infringement allegations would be unproductive. Accordingly, discussions
4 have concluded without a resolution of the infringement allegations presented by Longhorn IP and
5 Trenchant Blade.

6 **B. The Hamilcar Patent Portfolio**

7 49. On information and belief, Mr. Fekih-Romdhane caused Hamilcar to be created in
8 November 2021, and caused Hamilcar to acquire the '079, '462, '938, '664 and '619 patents (among
9 others) by assignment. Mr. Fekih-Romdhane signed the Patent Assignment agreement on behalf of
10 Hamilcar.

11 50. On March 4, 2022, Mr. Scott Breedlove, as counsel for Longhorn IP and Hamilcar, sent a
12 letter to Jinho Lee, Director of SK hynix, alleging that "SK hynix and its subsidiaries/affiliates" infringe
13 "one or more" patents owned by Hamilcar, including at least the '079 patent and '462 patent. The letter
14 further alleges that "SK hynix is making, selling, offering to sell in the United States, importing or
15 causing to be imported into the United States, devices that infringe one or more of Hamilcar's patents,"
16 and that "SK hynix is inducing other companies, such as distributors, resellers and end-users, to perform
17 one or more of these acts in the United States." The letter offers to discuss terms for SK hynix to license
18 the referenced patents and states that "Hamilcar has retained [Longhorn IP] to assist" it with its patent
19 portfolio licensing program. A true and correct copy of the March 4, 2022 letter is attached as Exhibit J.

20 51. On March 11, 2022, Mr. Scott Breedlove, as counsel for Longhorn IP and Hamilcar, sent
21 a second letter to Jinho Lee, Director of SK hynix, referencing the earlier March 4, 2022 letter and
22 alleging that SK hynix also infringes at least the '938 patent. The letter offers to discuss terms for SK
23 hynix to license the referenced patents. A true and correct copy of the March 11, 2022 letter is attached
24 as Exhibit K.

25 52. On March 30, 2022, representatives of Longhorn IP and Hamilcar, including Mr. Fekih-
26 Romdhane and Mr. Breedlove, presented claim charts regarding SK hynix's alleged infringement of the
27 '079, '462, and '938 patents.

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1 53. On June 21, 2022, Mr. Scott Breedlove, as counsel for Longhorn IP and Hamilcar, sent a
 2 third letter to Jinho Lee, Director of SK hynix, referencing the earlier March 4, 2022 and March 11,
 3 2022 letters and alleging that SK hynix also infringes at least the '664 and '619 patents. The letter offers
 4 to discuss terms for SK hynix to license the referenced patents. A true and correct copy of the June 21,
 5 2022 letter is attached as Exhibit L.

6 54. On June 21, 2022, shortly after Mr. Breedlove transmitted the letter asserting
 7 infringement of the '664 and '619 patents, SK hynix presented responses to the infringement allegations
 8 concerning the '079, '462, and '938 patents, raising multiple grounds for non-infringement and
 9 identifying prior art that would likely invalidate the asserted claims in the '079, '462, and '938 patents.
 10 Representatives of SK hynix delivered this presentation to representatives of Longhorn IP and Hamilcar,
 11 including Mr. Fekih-Romdhane and Mr. Breedlove.

12 55. During the discussions on June 21, 2022, the representatives of Longhorn IP and
 13 Hamilcar took remarkable positions—including by stating at one point that the language of a particular
 14 asserted claim need not be considered or discussed in evaluating SK hynix's non-infringement position.

15 56. Throughout the aforementioned discussions, SK hynix consistently denied any
 16 infringement of the '079, '462, and '938 patents. As discussed herein, SK hynix also has come to the
 17 conclusion that it does not infringe the asserted claims of the '664 and '619 patents. SK hynix has
 18 reasonably concluded that further discussions concerning the merits of the infringement allegations
 19 would be unproductive. Accordingly, discussions have concluded without a resolution of the
 20 infringement allegations presented by Longhorn IP and Hamilcar.

COUNT ONE

(Declaration of Non-Infringement of the '821 Patent)

23 57. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through
 24 49 of this Complaint as if fully set forth herein.

25 58. The '821 patent has one independent claim. Independent claim 1 reads as follows:

Element	Claim Language
Pre	A method for manufacturing dual damascene structure with a trench formed first, comprising the steps of:

Element	Claim Language
(a)	providing a substrate having a plurality of semiconductor devices;
(b)	forming a first metal layer on the substrate;
(c)	forming a first etching stop layer on the first metal layer;
(d)	forming a dielectric layer on the first etching stop layer;
(e)	forming a second etching stop layer on the dielectric layer;
(f)	forming a first patterned photoresist layer on the second etching stop layer;
(g)	forming a trench by etching through the second etching stop layer and stopping in the dielectric layer at a predetermined depth;
(h)	filling with a sacrificial layer into the trench;
(i)	planarizing the sacrificial layer;
(j)	forming a second patterned photoresist layer on the sacrificial layer;
(k)	forming a via by etching the sacrificial layer and the dielectric layer;
(l)	removing the sacrificial layer and the second patterned photoresist layer;
(m)	etching the first etching stop layer to expose the first metal layer;
(n)	filling with a second metal layer; and
(o)	planarizing the second metal layer.

59. Longhorn IP and Trenchant Blade have alleged and continue to allege that “SK hynix products and fabrication technologies” infringe one or more claims of the ’821 patent. For example, Longhorn IP and Trenchant Blade have alleged that “at least all integrated circuit devices made using the Hynix 21 nm process node such as, for example, the H9TQ18ABJTMC LPDDR3 DRAM memory chip” infringe claims 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, and 14 of the ’821 patent.

60. SK hynix has not infringed and does not infringe any claim of the ’821 patent directly or indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix’s DRAM chips with dual damascene structure (“’821 Products”) do not infringe the ’821 patent at least because the ’821 Products do not employ, incorporate, or otherwise make use of, for example, the step of “planarizing the sacrificial layer,” as required by claim 1 and every other claim of the ’821 patent. For example, in the manufacture of the ’821 Products, no sacrificial layer is filled into a trench and planarized.

61. A substantial, immediate, and real controversy exists between SK hynix, on the one hand, and Longhorn IP and Trenchant Blade, on the other hand, regarding whether SK hynix infringes the

1 '821 patent by making, using, selling, and/or offering for sale the '821 Products in the United States, by
 2 importing the '821 Products into the United States, or by inducing others to perform one or more of
 3 these allegedly infringing acts. A judicial declaration is necessary to determine the parties' respective
 4 rights regarding the '821 patent.

5 62. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
 6 infringe, either literally or under the doctrine of equivalents, any claims of the '821 patent, either
 7 directly or indirectly.

8 COUNT TWO

9 **(Declaration of Non-Infringement of the '846 Patent)**

10 63. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through
 11 55 of this Complaint as if fully set forth herein.

12 64. The '846 patent has two independent claims: 1 and 12. Exemplary independent claim 1
 13 reads as follows:

14 Element	Claim Language
15 pre	A method of forming a semiconductor structure, the method comprising:
16 (a)	forming a first semiconductor die and a second semiconductor die identical to 17 the first semiconductor die, wherein each of the first and the second semiconductor dies comprises:
18 (b)	an identification circuit; and
19 (c)	a plurality of input/output (I/O) conductive paths connected to memory circuits 20 in the respective first and second semiconductor dies, wherein the plurality of I/O conductive paths comprises through-silicon vias;
21 (d)	programming the identification circuit of the second semiconductor die to a 22 different state from the identification circuit of the first semiconductor die; and
23 (e)	bonding the second semiconductor die onto the first semiconductor die, wherein 24 the first and the second semiconductor dies are vertically aligned, and wherein each of the plurality of I/O conductive paths in the first semiconductor die is connected to a respective I/O conductive path in the second semiconductor die.

25 65. Longhorn IP and Trenchant Blade have alleged and continue to allege that "SK hynix
 26 products and fabrication technologies" infringe one or more claims of the '846 patent. For example, in
 27 Mr. Fekih-Romdhane's May 8, 2020 letter, Longhorn IP and Trenchant Blade have alleged that "[a]t
 28 least all integrated circuit devices made using the TSV manufacturing process in which the second

1 semiconductor die is identical to the first semiconductor die and is vertically aligned to and bonded on
2 the first semiconductor die to provide ability for stacking identical dies without the need of
3 redistribution lines and/or interposers as shown, for example, in the SK hynix MD29X2GQH HBM
4 package with TSVs” infringe “[c]laims 1, 2, 3, 4 (or 7), 5 (or 6), 8, 9, and 11, 12, 13, 14, 15 (or 16) of
5 [the ’846 patent].” As another example, in Mr. Breedlove’s February 12, 2021 letter, Longhorn IP and
6 Trenchant Blade have alleged that “[a]t least all integrated circuit devices made using the TSV
7 manufacturing process in which the second semiconductor die is identical to the first semiconductor die
8 and is vertically aligned to and bonded on the first semiconductor die to provide ability for stacking
9 identical dies without the need of redistribution lines and/or interposers as shown, for example, in the
10 SK hynix MD29X2GQH HBM package with TSVs” infringe “[c]laims 1, 2, 4, 6, 7, 8, 9, 11, 12, 13, 14,
11 and 15 of [the ’846 patent].”

12 66. SK hynix has not infringed and does not infringe any claim of the ’846 patent directly or
13 indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix’s HBMs (“’846
14 Products”) do not infringe the ’846 patent at least because the ’846 Products do not employ, incorporate,
15 or otherwise make use of, for example, the step of “programming the identification circuit,” as required
16 by claim 1 and every other claim of the ’846 patent. For example, the ’846 Products are not comprised
17 of identification circuits that include any programmable elements.

18 67. A substantial, immediate, and real controversy exists between SK hynix, on the one hand,
19 and Longhorn IP and Trenchant Blade, on the other hand, regarding whether SK hynix infringes the
20 ’846 patent by making, using, selling, and/or offering for sale the ’846 Products in the United States, by
21 importing the ’846 Products into the United States, or by inducing others to perform one or more of
22 these allegedly infringing acts. A judicial declaration is necessary to determine the parties’ respective
23 rights regarding the ’846 patent.

24 68. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
25 infringe, either literally or under the doctrine of equivalents, any claims of the ’846 patent, either
26 directly or indirectly.

COUNT THREE**(Declaration of Non-Infringement of the '079 Patent)**

69. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through 61 of this Complaint as if fully set forth herein.

70. The '079 patent has four independent claims: 1, 6, 13, and 18. Exemplary independent claim 13 reads as follows:

Element	Claim Language
pre	A method of forming a flip chip scheme comprising a plurality of bumps, the method comprising:
(a)	arranging some of the bumps in a first pattern, respectively, and
(b)	arranging some of the bumps in a second pattern different from the first pattern, respectively;
(c)	wherein the first pattern is an equilateral triangle arranged by three bumps, and the second pattern is a square arranged by four bumps.

71. Longhorn IP and Hamilcar have alleged and continue to allege that certain SK hynix products infringe one or more claims of the '079 patent. For example, Longhorn IP and Hamilcar have alleged that "SK hynix H5WE16ECM 2GB HBM2E DRAM and other memory products using a flip-chip configuration with similar bump patterns" infringe claims 1, 2, 3, 13, 14, and 15 of the '079 patent.

72. SK hynix has not infringed and does not infringe any asserted claims of the '079 patent directly or indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix's HBMs ("'079 Products") do not infringe claims 1, 8, 13, and 20 and every claim that depends on claims 1, 8, 13, and 20 of the '079 patent at least because the '079 Products do not employ, incorporate, or otherwise make use of, for example, a "first pattern [that] is an equilateral triangle arranged by three bumps." For example, the '079 Products do not include bumps that are arranged to form an equilateral triangle.

73. A substantial, immediate, and real controversy exists between SK hynix, on the one hand, and Longhorn IP and Hamilcar, on the other hand, regarding whether SK hynix infringes the '079 patent by making, using, selling, and/or offering for sale the '079 Products in the United States, by importing the '079 Products into the United States, or by inducing others to perform one or more of these allegedly

1 infringing acts. A judicial declaration is necessary to determine the parties' respective rights regarding
2 the '079 patent.

3 74. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
4 infringe, either literally or under the doctrine of equivalents, any claims of the '079 patent, either
5 directly or indirectly.

6 **COUNT FOUR**

7 **(Declaration of Non-Infringement of the '462 Patent)**

8 75. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through
9 67 of this Complaint as if fully set forth herein.

10 76. The '462 patent has one independent claim. Independent claim 1 reads as follows:

Element	Claim Language
Pre	A memory system comprising:
(a)	a memory controller packaged in a first die and powered by a first power source and a second power source, wherein the memory controller comprises:
(b)	a first input/output pin;
(c)	a first driver circuit, coupled to the first input/output pin, for providing to a writing signal to the first input/output pin;
(d)	a first terminal resistor coupled between the first input/output pin and the first power source; and
(e)	a first input buffer, coupled to the first input/output pin, for receiving a reading signal from the first input/output pin;
(f)	wherein the first terminal resistor is disposed on the inside of the first die, no terminal resistor is coupled between the first input/output pin and the second power source;
(g)	a memory device packaged in a second die and comprising:
(h)	a second input/output pin coupled to the first input/output pin;
(i)	a memory array for storing data;
(j)	a controlling circuit for accessing the memory array;
(k)	a second driver circuit coupled to the second input/output pin, wherein the controlling circuit reads data from the memory array to generate the reading signal, and the second driver circuit drives the reading signal and provides the driven reading signal to the second input/output pin; and

Element	Claim Language
(l)	a second input buffer, coupled to the second input/output pin, for receiving the writing signal from the second input/output pin and buffering the writing signal to the controlling circuit, wherein the controlling circuit writes data to the memory array according to the writing signal.

77. Longhorn IP and Hamilcar have alleged and continue to allege that certain SK hynix products infringe one or more claims of the '462 patent. For example, Longhorn IP and Hamilcar have alleged that "SK hynix HBM5 memory, DDR4 memory modules, DDR5 memory modules, and any other systems with Pseudo Open Drain (POD) signaling and architecture" infringe claims 1, 9, and 10 of the '462 patent.

78. SK hynix has not infringed and does not infringe any claim of the '462 patent directly or indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix's HBMs, DRAM chips, DDR4 Dual Inline Memory Modules ("DIMMs"), and DDR5 DIMMs ("462 Products") do not infringe the '462 patent at least because the '462 Products do not employ, incorporate, or otherwise make use of, for example, "a memory controller packaged in a first die," as required by claim 1 and every other claim of the '462 patent. For example, the '462 Products do not include a memory controller.

79. A substantial, immediate, and real controversy exists between SK hynix, on the one hand, and Longhorn IP and Hamilcar, on the other hand, regarding whether SK hynix infringes the '462 patent by making, using, selling, and/or offering for sale the '462 Products in the United States, by importing the '462 Products into the United States, or by inducing others to perform one or more of these allegedly infringing acts. A judicial declaration is necessary to determine the parties' respective rights regarding the '462 patent.

80. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not infringe, either literally or under the doctrine of equivalents, any claims of the '462 patent, either directly or indirectly.

COUNT FIVE**(Declaration of Non-Infringement of the '938 Patent)**

81. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through 73 of this Complaint as if fully set forth herein.

82. The '938 patent has one independent claim. Independent claim 1 reads as follows:

Element	Claim Language
pre	A method for processing noise interference in a data accessing device with a SATA (Serial Advanced Technology Attachment) interface, the method comprising:
(a)	an error detecting step for detecting whether there is a CRC (Cyclic Redundancy Check) error, whether an reception error primitive (R_ERR primitive) is received, whether an improper primitive is received, or whether a LINK layer error is detected, and repeating this step if there is no any error;
(b)	a type detecting step for detecting whether an FIS (Frame Information Structure) is a data type FIS;
(c)	a responding step for asserting the CHECK bit of the ATAPI Status Register when the FIS is data type; and
(d)	sending back the response.

83. Longhorn IP and Hamilcar have alleged and continue to allege that certain SK hynix products infringe one or more claims of the '938 patent. For example, Longhorn IP and Hamilcar have alleged that "SK hynix products, devices, and systems supporting Serial ATA Revision 3.x interface and later, including but not necessarily limited to solid state drives such as SK hynix Gold S31 1TB, Gold S31 500 GB, and Gold S31 250 GB SSDs" infringe claim 1 of the '938 patent.

84. SK hynix has not infringed and does not infringe any claim of the '938 patent directly or indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix's Solid State Drives ("SSDs") that support Serial ATA Revision 3.0 interface ("'938 Products") do not infringe the '938 patent at least because the '938 Products do not employ, incorporate, or otherwise make use of, for example, "a responding step for asserting the CHECK bit of the ATAPI Status Register when the FIS is data type," as required by the claim 1 and every other claim of the '938 patent. For example, the '938 Products are not ATAPI devices.

1 85. A substantial, immediate, and real controversy exists between SK hynix, on the one hand,
2 and Longhorn IP and Hamilcar, on the other hand, regarding whether SK hynix infringes the '938 patent
3 by making, using, selling, and/or offering for sale the '938 Products in the United States, by importing
4 the '938 Products into the United States, or by inducing others to perform one or more of these allegedly
5 infringing acts. A judicial declaration is necessary to determine the parties' respective rights regarding
6 the '938 patent.

7 86. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
8 infringe, either literally or under the doctrine of equivalents, any claims of the '938 patent, either
9 directly or indirectly.

COUNT SIX

(Declaration of Non-Infringement of the '664 Patent)

12 87. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through
13 79 of this Complaint as if fully set forth herein.

14 88. The '664 patent has two independent claims: 1 and 8. Exemplary independent claim 8
15 reads as follows:

Element	Claim Language
pre	A semiconductor package, comprising:
(a)	a substrate;
(b)	a first pad formed on the substrate;
(c)	a second pad formed on the substrate;
(d)	a via-plug formed in the substrate, covered by a solder resistance layer, located in a space between the first pad and the second pad, and electrically connected to the second pad;
(e)	a surface mount device mounted on the first pad and the second pad; and
(f)	a molding compound layer encapsulating the substrate, the first pad, the second pad, the solder resistance layer and the surface mount device.

25 89. Longhorn IP and Hamilcar have alleged and continue to allege that certain SK hynix
26 products infringe one or more claims of the '664 patent. For example, Longhorn IP and Hamilcar have
27 alleged that "SK hynix H25BFTMGAM9R-BDJ NAND Flash Memory; SK hynix
28 H9HQ15AFAMADARKEM DRAM/NAND Memory; SK hynix HFB1M8MQ331A0MR NAND Flash

1 Memory (128GB); and similar surface-mounted devices mounted on a first pad and a second pad having
2 a via-plug located in a space between the first pad and the second pad” infringe claim 8 of the ’664
3 patent.

4 90. SK hynix has not infringed and does not infringe any claim of the ’664 patent directly or
5 indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix’s Multi-Chip
6 Packages (“MCPs”), Universal Flash Storages (“UFSs”), and SSDs (“’664 Products”) do not infringe
7 independent claim 8 of the ’664 patent and each claim that depends on claim 8 of the ’664 patent at least
8 because the ’664 Products do not employ, incorporate, or otherwise make use of, for example, any via-
9 plugs that are “formed in the substrate, covered by a solder resistance layer, located in a space between
10 the first pad and the second pad, and electrically connected to the second pad;” or any “molding
11 compound layer encapsulating the substrate, the first pad, the second pad, the solder resistance layer and
12 the surface mount device.” For example, the ’664 Products do not include any via-plugs located between
13 pads and covered by a solder resistance layer, or any molding compound layer that encapsulates each of
14 “the substrate, the first pad, the second pad, the solder resistance layer and the surface mount device,” as
15 required by claim 8.

16 91. In addition, the ’664 Products do not infringe independent claim 1 of the ’664 patent and
17 each claim that depends on claim 1 of the ’664 patent at least because the ’664 Products do not employ,
18 incorporate, or otherwise make use of, for example, a “bonding wire electrically connecting a first
19 bonding area of the first conductive element and a second bonding area of the first pad.” For example,
20 the ’664 Products do not include any bonding wire electrically connecting “a first bonding area of the
21 first conductive element” and “a second bonding area of the first pad,” wherein the “first conductive
22 element” and the “first pad” are each “formed on the substrate,” as required by claim 1.

23 92. A substantial, immediate, and real controversy exists between SK hynix, on the one hand,
24 and Longhorn IP and Hamilcar, on the other hand, regarding whether SK hynix infringes the ’664 patent
25 by making, using, selling, and/or offering for sale the ’664 Products in the United States, by importing
26 the ’664 Products into the United States, or by inducing others to perform one or more of these allegedly
27 infringing acts. A judicial declaration is necessary to determine the parties’ respective rights regarding
28 the ’664 patent.

1 93. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
2 infringe, either literally or under the doctrine of equivalents, any claims of the '664 patent, either
3 directly or indirectly.

4 **COUNT SEVEN**

5 **(Declaration of Non-Infringement of the '619 Patent)**

6 94. SK hynix restates and incorporates by reference the allegations in paragraphs 1 through
7 86 of this Complaint as if fully set forth herein.

8 95. The '619 patent has two independent claims: 1 and 9. Exemplary independent claim 1
9 reads as follows:

Element	Claim Language
pre	A semiconductor device structure, comprising:
(a)	a substrate comprising a transistor thereon;
(b)	a bi-layer contact etching stop layer (CESL) structure covering the transistor, the bi-layer CESL structure comprising a first CESL and a second CESL on the first CESL, wherein the second CESL is in direct contact with the first CESL, the first CESL is in direct contact with the substrate and the transistor, and wherein the second CESL acts as a plasma discharging layer; and
(c)	a dielectric layer on the second CESL, wherein the dielectric layer is in direct contact with the second CESL;
(d)	wherein the first CESL is made of a material different from that of the second CESL, and the second CESL is made of a material different from that of the dielectric layer, and wherein the second CESL has stronger plasma immunity than that of the first CESL.

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20 96. Longhorn IP and Hamilcar have alleged and continue to allege that certain SK hynix
21 products infringe one or more claims of the '619 patent. For example, Longhorn IP and Hamilcar have
22 alleged that the "SK hynix Hi-1332 CMOS Image Sensor used in, for example, the Huawei RNE-AL00
23 Front-Facing Camera Module, and other similar SK hynix semiconductor devices containing a multi-
24 layer CESL structure comprising a first CESL and a second CESL" infringe claims 1, 2, 3, and 5 of the
25 '619 patent.

26 97. SK hynix has not infringed and does not infringe any claim of the '619 patent directly or
27 indirectly, either literally or under the doctrine of equivalents. In particular, SK hynix's CMOS Image
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1 Sensors (“’619 Products”) do not infringe independent claim 1 and each claim that depends on claim 1
2 of the ’619 patent at least because the ’619 Products do not employ, incorporate, or otherwise make use
3 of, for example, “a bi-layer contact etching stop layer (CESL) structure covering the transistor, the bi-
4 layer CESL structure comprising a first CESL and a second CESL on the first CESL, wherein the
5 second CESL is in direct contact with the first CESL, the first CESL is in direct contact with the
6 substrate and the transistor.” For example, the ’619 Products do not include any bi-layer structure that
7 covers the transistor, wherein one layer of the bi-layer structure directly contacts the substrate and the
8 transistor.

9 98. In addition, the ’619 Products do not infringe independent claim 9 and each claim that
10 depends on claim 9 of the ’619 patent at least because the ’619 Products do not employ, incorporate, or
11 otherwise make use of, for example, “a bi-layer contact etching stop layer (CESL) structure covering
12 both of the NMOS transistor and the PMOS transistor, the bi-layer CESL structure comprising a first
13 CESL and a second CESL on the first CESL, wherein the second CESL is in direct contact with the first
14 CESL, the first CESL is in direct contact with the substrate, the NMOS transistor and the PMOS
15 transistor.” For example, the ’619 Products do not include any bi-layer structure that covers the
16 transistors, wherein one layer of the bi-layer structure directly contacts the substrate and the transistors.

17 99. A substantial, immediate, and real controversy exists between SK hynix, on the one hand,
18 and Longhorn IP and Hamilcar, on the other hand, regarding whether SK hynix infringes the ’619 patent
19 by making, using, selling, and/or offering for sale the ’619 Products in the United States, by importing
20 the ’619 Products into the United States, or by inducing others to perform one or more of these allegedly
21 infringing acts. A judicial declaration is necessary to determine the parties’ respective rights regarding
22 the ’619 patent.

23 100. SK hynix seeks a judgment declaring that SK hynix has not infringed and does not
24 infringe, either literally or under the doctrine of equivalents, any claims of the ’619 patent, either
25 directly or indirectly.
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PRAYER FOR RELIEF

WHEREFORE, SK hynix prays for judgment and relief as follows:

- A. Declaring that SK hynix has not infringed and is not infringing any claims of the Patents-in-Suit;
- B. Permanently enjoining Defendants and all those acting through or for them, directly and indirectly, from asserting the Patents-in-Suit against any third party based on any alleged use of SK hynix’s accused products;
- C. Declaring that judgment be entered in favor of SK hynix and against Defendants on each of SK hynix’s claims;
- D. Finding that this is an exceptional case under 35 U.S.C. § 285;
- E. Awarding SK hynix its costs, expenses, and attorneys’ fees in connection with this action; and
- F. Such further and additional relief as the Court deems just and proper.

JURY DEMAND

SK hynix demands a jury trial on all issues and claims so triable.

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1 DATED: September 21, 2022

2 By: /s/ Nitin Subhedar

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