IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GODO KAISHA IP BRIDGE 1, Plaintiff, v. QUALCOMM INCORPORATED, and QUALCOMM TECHNOLOGIES, INC., Defendants.	C.A. No. 18-485-JFB-SRF **JURY TRIAL DEMANDED**

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Godo Kaisha IP Bridge 1 ("IP Bridge") hereby brings this First Amended Complaint for Patent Infringement ("First Am. Complaint") against Qualcomm Incorporated ("Qualcomm Inc.") and Qualcomm Technologies, Inc. ("QTI") (collectively, "Qualcomm"). IP Bridge, on personal knowledge as to its own acts, and on information and belief as to all others based on investigation, alleges as follows:

NATURE OF THE ACTION

1. This is an action brought by IP Bridge against Qualcomm for infringement of U.S. Patent Nos. 8,354,726 ("the '726 Patent"), 6,387,824 ("the '824 Patent"), 6,602,802 ("the '802 Patent"), 6,967,409 ("the '409 Patent"), RE41,980 ("the RE'980 Patent"), 6,794,677 ("the '677 Patent"), 6,346,736 ("the '736 Patent"), and 6,873,052 ("the '052 Patent") (collectively, "the Asserted Patents").

2. IP Bridge currently is asserting one of the Asserted Patents, the '677 Patent, in an action now pending in this District before the Honorable Joseph F. Bataillon, *Godo Kaisha IP Bridge 1 v. OmniVision Technologies, Inc.*, C.A. No. 16-290-JFB-SRF (D. Del.) ("the

OmniVision Action"). In addition, IP Bridge is asserting in the instant action the '409 Patent, a divisional of U.S. Patent No. 6,709,950, which is asserted in the OmniVision Action.

THE PARTIES

3. Plaintiff IP Bridge is a Japanese entity with its principal place of business located at c/o Sakura Sogo Jimusho, 1-11 Kanda Jimbocho, Chiyoda-ku, Tokyo, 101-0051, Japan. IP Bridge owns the Asserted Patents.

4. Upon information and belief, Defendant Qualcomm Inc. is a Delaware corporation with its principal place of business at 5775 Morehouse Drive, San Diego, California 92121-1714. Qualcomm Inc. may be served through its registered agent, The Prentice-Hall Corporation System, Inc., 251 Little Falls Drive, Wilmington, Delaware 19808.

5. Upon information and belief, Defendant QTI is a wholly owned subsidiary of Qualcomm Inc. Upon information and belief, QTI is a Delaware corporation with its principal place of business at 5775 Morehouse Drive, San Diego, California 92121-1714. QTI may be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808.

JURISDICTION AND VENUE

6. This is an action arising under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 (federal question) and 1338(a) (action arising under an Act of Congress relating to patents).

7. This Court has personal jurisdiction over Qualcomm Inc. and QTI at least because each is at home in the State of Delaware, where each is incorporated and has a registered agent for service of process. In addition, each transacts and conducts business in and with residents of the State of Delaware. IP Bridge's causes of action arise, at least in part, from Qualcomm's

contacts with and activities in the State of Delaware. Upon information and belief, Qualcomm has committed acts of infringement within the State of Delaware by, *inter alia*, directly and/or indirectly making, selling, offering for sale, importing, and/or using products that infringe one or more claims of the Asserted Patents. Qualcomm, directly and/or through intermediaries, uses, sells, ships, distributes, imports into, offers for sale, and/or advertises or otherwise promotes its products throughout the United States, including in the State of Delaware. *See, e.g.*, www.qualcomm.com; Exhibit 1. Further, Qualcomm has office locations in nearby Philadelphia, Pennsylvania, and Bridgewater, New Jersey (*see, e.g.*, Exhibit 2), and maintains highly interactive and commercial websites, accessible to residents of the State of Delaware, through which Qualcomm promotes and facilitates sales of its products and services, including products that infringe the Asserted Patents. *See, e.g.*, www.qualcomm.com.

8. Upon information and belief, Qualcomm regularly conducts and solicits business in, engages in other persistent courses of conduct in, and/or derives substantial revenue from goods and services provided to, residents of the State of Delaware.

9. Qualcomm has a number of subsidiaries that, upon information and belief, are involved in making, using, selling, offering for sale, and/or importing into the United States Qualcomm's semiconductor products, and that Qualcomm directs and controls, including, but not limited to, Qualcomm CDMA Technologies and Qualcomm Technology Licensing. *See, e.g.*, Exhibit 5 at 5, 10-14.

10. Venue is proper pursuant to 28 U.S.C. §§ 1391(b), (c), and 1400(b) at least in part because Qualcomm resides in this judicial District. Both Qualcomm Inc. and QTI are incorporated in the State of Delaware. *See, e.g.*, Exhibit 5 at 1, 4, 10-K (Ex. 21).

QUALCOMM'S INFRINGING PRODUCTS AND ACTIVITIES

11. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-10 of this First Am. Complaint.

12. Qualcomm is a global manufacturer and supplier of semiconductor components and products for use in consumer and enterprise products, systems, and services.

13. Qualcomm designs, makes, uses, sells, offers for sale, and/or imports into the United States, and provides support for, semiconductor chips, including products with the part name or number MSM8660 Snapdragon S3, and other semiconductor chips that have the same or similar structures, features, or functionalities, and/or are made by the same or similar manufacturing processes, as the aforementioned product, including, but not limited to, those identified in Exhibit 3 and other Qualcomm 40 nm and 45 nm process node semiconductor chips (the "40/45 nm Accused Products"). An exemplary technical analysis of the MSM8660 Snapdragon S3 is available for purchase at https://techinsights.com/reports-and-subscriptions/open-market-reports/Report-Profile/?ReportKey=7822 ("S3 Tech Insights").[1]

14. Qualcomm also designs, makes, uses, sells, offers for sale, and/or imports into the United States, and provides support for, semiconductor chips, including products with the part name or number MSM8960 Snapdragon S4 and MSM8916 Snapdragon 410, and other semiconductor chips that have the same or similar structures, features, or functionalities, and/or are made by the same or similar manufacturing processes, as the aforementioned product, including, but not limited to, those identified in Exhibit 4 and other Qualcomm 28 nm (Gate First) process node semiconductor chips (the "28 nm Gate First Accused Products"). An exemplary technical analysis of the MSM8960 Snapdragon S4 is available for purchase at

[1] Images from the Tech Insights reports provided in Exhibit H (filed separately under seal) may be annotated and/or cropped for clarity.

http://www.techinsights.com/reports-and-subscriptions/open-market-reports/Report-Profile/?ReportKey=8315 ("S4 Tech Insights"). An exemplary technical analysis of the MSM8916 Snapdragon 410 is available for purchase at https://techinsights.com/reports-and-subscriptions/open-market-reports/Report-Profile/?ReportKey=ACE-1606-801.

15. In addition, Qualcomm designs, makes, uses, sells, offers for sale, and/or imports into the United States, and provides support for, semiconductor chips, including products with the part name or number MSM8974 Snapdragon 800, and other semiconductor chips that have the same or similar structures, features, or functionalities, and/or are made by the same or similar manufacturing processes, as the aforementioned product, including, but not limited to, those identified in Exhibit 4 and other Qualcomm 28 nm (Gate Last) process node semiconductor chips (the "28 nm Gate Last Accused Products"). An exemplary technical analysis of the MSM8974 Snapdragon 800 is available for purchase at http://techinsights.com/reports-and-subscriptions/open-market-reports/Report-Profile/?ReportKey=9624 ("800 Tech Insights").

16. The 40/45 nm Accused Products, 28 nm Gate First Accused Products, and 28 nm Gate Last Accused Products collectively are the "Accused Semiconductor Products."

17. The Accused Semiconductor Products are integrated into devices made, used, sold, offered for sale, and/or imported into the United States by among others, Qualcomm, Qualcomm's customers, original equipment manufacturers ("OEMs"), original design manufacturers ("ODMs"), foundry suppliers, distributors, and other third parties. *See, e.g.*, Exhibits 1, 6, 8-9; Exhibit 5 at 11 (for example, foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company). Qualcomm's Accused Semiconductor Products are essential, non-trivial components of the products into which they are integrated. For example, a purchaser cannot remove or disable

Qualcomm's Accused Semiconductor Products from the downstream products incorporating them without rendering such products inoperable.

18. Qualcomm also conducts research, development, and testing of Accused Semiconductor Products in the United States, including through its Qualcomm Developer Network ("QDN") and/or by means of Mobile Development Platforms ("MDPs") and similar development and testing tools that Qualcomm provides, including via the QDN. Upon information and belief, MDPs and similar development and testing tools are made and used in the United States at Qualcomm's facilities, and incorporate Qualcomm's modems, processors, and other chipsets, along with third-party chips into physical devices and/or software solutions used for testing and analysis. For example, Qualcomm provides MDPs and QDN tools to its customers, and shares designs and test results with potential and existing customers via MDPs and QDN tools. *See, e.g.*, Exhibit 10.

19. Upon information and belief, Qualcomm works closely with its customers, OEMs, ODMs, foundry suppliers, distributors and/or other third parties to design integrated circuit layouts, masks and other aspects of the manufacture of the Accused Semiconductor Products, such that the manufacturing process is optimized for the Accused Semiconductor Products, and the Accused Semiconductor Products are optimized for integration into downstream products. Qualcomm's affirmative acts in furtherance of the manufacture of Accused Semiconductor Products include, but are not limited to, any one or a combination of: (i) designing specifications for manufacture of Accused Semiconductor Products; (ii) collaborating on and/or funding the development of processes for the manufacture of Accused Semiconductor Products; (iii) soliciting and/or sourcing the manufacture of Accused Semiconductor Products; (iv) licensing and transferring technology and know-how to enable the manufacture of Accused

Semiconductor Products; (v) enabling and encouraging the use, sale, or importation of Accused Semiconductor Products in the United States; and (vi) advertising Accused Semiconductor Products and/or downstream products incorporating them in the United States.

20. Upon information and belief, Qualcomm also provides marketing and/or technical support services for the Accused Semiconductor Products from its facilities in the United States. For example, Qualcomm maintains a website that advertises the Accused Semiconductor Products, including identifying the applications for which they can be used and specifications for the Accused Semiconductor Products. *See, e.g.*, www.qualcomm.com. Website pages describing Qualcomm's Snapdragon products state "Qualcomm Snapdragon is a product of Qualcomm Technologies, Inc." *See, e.g.*, Exhibit 7. The website also includes a list of United States distributors for purchasing the Accused Semiconductor Products, including Arrow Electronics, Inc.; Pacific Component Xchange; and Semi Source Inc. *See, e.g.*, Exhibits 1, 8.

21. Upon information and belief, Qualcomm's development, sales, marketing, and manufacturing activities in the United States, including within this judicial District, directly contributed to Qualcomm's net revenue in the United States, which, according to Qualcomm's 2017 Form 10-K, was $513 million for the year of 2017 as of September 24, 2017. *See, e.g.*, Exhibit 5 at 39, 10-K (F-35).

IP BRIDGE'S LICENSE DISCUSSIONS WITH QUALCOMM

22. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-21 of this First Am. Complaint.

23. Prior to filing this action, IP Bridge engaged in detailed and lengthy discussions with Qualcomm regarding a license to IP Bridge's patents, including the Asserted Patents, but Qualcomm refused to take a license on appropriate and reasonable terms, and decided instead to continue using IP Bridge's patented technologies without authorization.

24. IP Bridge contacted Qualcomm by letter dated January 9, 2015, informing Qualcomm that IP Bridge owns a large semiconductor patent portfolio covering various aspects of semiconductor products, and that products Qualcomm manufactures and sells, such as the Accused Semiconductor Products, require a license to certain of IP Bridge's patents. That January 9, 2015 letter specifically referenced and enclosed a copy of at least one of the Asserted Patents, the RE'980 Patent, and identified at least three types of products, all of which are the Accused Semiconductor Products in the present action. Specifically, the January 9, 2015 letter identified the gate-last structure products made in the 28 nm process node (*e.g.*, the MSM8974 Snapdragon 800), the gate-first structure products made in the 28 nm process node (*e.g.*, the MSM8960 Snapdragon S4), and the gate-first structure products made in the 40 nm / 45 nm process node (*e.g.*, the MSM8660 Snapdragon S3).

25. By letter dated February 12, 2015, Mr. Jonathan Weiser, SVP, Division Counsel for QTI, responded that Qualcomm was, among other things, reviewing the RE'980 Patent enclosed with IP Bridge's January 9, 2015 letter.

26. Representatives from IP Bridge and Qualcomm communicated through letter as early as January 9, 2015, and also met in-person several times, including as early as March 30, 2016. During the course of these communications, IP Bridge identified portions of its patent portfolio to Qualcomm, including at least each of the Asserted Patents. In addition, IP Bridge provided to Qualcomm evidence of use showing Qualcomm's infringement of IP Bridge's patents. In particular, IP Bridge provided to Qualcomm evidence of use for the RE'980 Patent, the '726 Patent, and U.S. Patent No. 7,126,174 (a divisional of the '409 Patent), with reference to the MSM8974 Snapdragon 800, the MSM8960 Snapdragon S4, and the MSM8660 Snapdragon S3 as exemplary products.

27. These negotiations between IP Bridge and Qualcomm were conducted by and/or on behalf of Qualcomm Inc. and QTI, as well as Qualcomm CDMA Technologies ("Qualcomm CDMA"). Qualcomm Inc.'s 2017 Form 10-K states that Qualcomm conducts its business primarily through its Qualcomm CDMA semiconductor business, as well as its Qualcomm Technology Licensing business, and that Qualcomm CDMA develops and supplies semiconductor chips. Qualcomm Inc.'s 2017 Form 10-K further states that substantially all of its products and services business, including Qualcomm CDMA, is operated by QTI. Despite diligent efforts, IP Bridge has been unable to identify further information about the nature of Qualcomm CDMA's operations, including information about its incorporation or other corporate form, its location, or its officers. IP Bridge may seek to add Qualcomm CDMA as a party to this suit if and when necessary, including if Qualcomm contends Qualcomm CDMA is an indispensable party or if discovery reveals that Qualcomm CDMA engages in infringing conduct.

28. IP Bridge and Qualcomm were unable to agree on the terms of a license to IP Bridge's semiconductor patents. Nevertheless, Qualcomm has not ceased its infringing conduct, and continues to use IP Bridge's patented technologies without authorization.

FIRST CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 8,354,726)

29. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-28 of this First Am. Complaint.

30. On January 15, 2013, the United States Patent and Trademark Office ("USPTO") duly and legally issued the '726 Patent, titled "Semiconductor Device and Method for Fabricating the Same," naming Masafumi Tsutsui as inventor and Panasonic Corporation as assignee. A true and correct copy of the '726 Patent is attached hereto as Exhibit A.

31. IP Bridge owns by assignment the entire right, title, and interest in and to the '726 Patent, including the right to sue and recover damages, including damages for past infringement.

32. Qualcomm has had knowledge of the '726 Patent since at least as early as February 19, 2016 when Qualcomm was in possession of an evidence of use presentation for the '726 Patent provided by IP Bridge. In addition, on February 19, 2016, IP Bridge provided Qualcomm with an evidence of use presentation for a Chinese patent in the same family as the '726 Patent. The '726 Patent was listed on the cover of that evidence of use presentation. Qualcomm also has had knowledge of its infringement of the '726 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

33. Qualcomm has infringed and is infringing, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the '726 Patent in violation of at least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products and the 40/45 nm Accused Products ("the '726 Accused Products").

34. On information and belief, the '726 Accused Products meet each and every limitation of at least claim 1 of the '726 Patent. For example, the '726 Accused Products are each a "semiconductor device." *See, e.g.*, S4 Tech Insights at pg. x ("The Qualcomm MSM8960 is a mobile applications processor integrating the Snapdragon processor. The device is fabricated with 8 metal layers and a single polysilicon layer at the 28 nm process node . . . ."); S3 Tech Insights at pg. x ("The [Qualcomm MSM8660 applications processor] is fabricated with 8 metal layers and a single polysilicon layer at the 40/45 nm process node. The 6T SRAM cell area, the standard cell track height and the minimum pitch of the metal one layer are typical of the 40/45 nm process node.").

35. For example, the '726 Accused Products comprise a first active region **(A)** surrounded with an isolation region **(G)** of a semiconductor substrate; and a first gate electrode **(B)** formed over the first active region and having a protrusion protruding on the isolation region. *See, e.g.*, Exhibit H[2], First Am. Compl. Figs. 1-2.

36. The '726 Accused Products further comprise a first side-wall insulating film **(C)** formed on the side surface of the first gate electrode, as shown in Exhibit H, First Am. Compl. Figs. 3-4.

37. The '726 Accused Products further comprise an auxiliary pattern **(D)** formed over the semiconductor substrate to be spaced apart in the gate width direction from the protrusion of the first gate electrode; and a second side-wall insulating film **(E)** formed on the side surface of the auxiliary pattern. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 5-8.

38. The '726 Accused Products further comprise a stress-containing insulating film **(F)** containing internal stress and formed to cover the first gate electrode, the first side-wall insulating film, the auxiliary pattern, and the second side-wall insulating film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 1-12.

39. The '726 Accused Products are further arranged wherein the distance between the first gate electrode and the auxiliary pattern is smaller than the sum total of: the sum of the thicknesses of the first and second side-wall insulating films; and the double of the thickness of the stress-containing insulating film, as shown in Exhibit H, First Am. Compl. Figs. 1-2, 9-10.

40. The '726 Accused Products further comprise a first side-wall insulating film that includes a first sidewall formed on the side surface of the first gate electrode, and having an L-shaped cross section, and a second sidewall formed on the first sidewall, the first sidewall is

[2] Filed separately under seal.

made of an oxide film, and the second sidewall is made of a nitride film, as detailed in the following images. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 3-4, 11-12; S4 Tech Insights at 12; S3 Tech Insights at 51.

41. Qualcomm's actions alleged herein have actively induced and/or are continuing to actively induce infringement of at least claim 1 of the '726 Patent by actively encouraging acts of direct infringement, and Qualcomm knows (or believes that there is a high probability, but is taking deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions are inducing infringement and intend to induce infringement. For example, on information and belief, Qualcomm encourages, trains, instructs, and provides support and technical assistance to others to infringe the '726 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the '726 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the '726 Accused Products and products that incorporate the '726 Accused Products. For example, Qualcomm publishes and provides technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the '726 Accused Products that instruct and encourage Qualcomm's customers and other third parties to integrate the '726 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

42. Qualcomm's infringement of the '726 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys' fees.

43. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm's infringement of the '726 Patent, including, without limitation, not less than a reasonable royalty.

SECOND CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,387,824)

44. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-43 of this First Am. Complaint.

45. On May 14, 2002, the USPTO duly and legally issued the '824 Patent, titled "Method of Forming Porous Forming Film Wiring Structure," naming Nobuo Aoi as inventor and Matsushita Electric Industrial Co., Ltd. as assignee. A true and correct copy of the '824 Patent is attached hereto as Exhibit B.

46. IP Bridge owns by assignment the entire right, title, and interest in and to the '824 Patent, including the right to sue and recover damages, including damages for past infringement.

47. Qualcomm has had knowledge of the '824 Patent since at least as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the '824 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

48. Qualcomm has infringed and is infringing, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the '824 Patent in violation of at least 35 U.S.C. § 271(a), (b), and/or (g) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products ("the '824 Accused Products").

49. On information and belief, the ’824 Accused Products meet each and every limitation of at least claim 1 of the ’824 Patent. For example, the wiring structure in the ’824 Accused Products is formed by a method comprising the steps of depositing, on a substrate, an organic-inorganic hybrid film having a siloxane skeleton. *See, e.g.*, Exhibit 15 at col. 5:5-38, Fig. 1 (describing forming a porous film consisting of organic silicate glass (OSG)); Exhibit 12 at 6 (stating that PECVD OSG is commonly deposited from alkyl silanes and siloxanes, resulting in a solid silica-based siloxane network); *see also* Exhibit 13 at 181; Exhibit 14 at 3.A.2.1; Exhibit 11 at col. 1-3; Exhibit 16 at 94-95; Exhibit 17 at 66; Exhibit 18 at 583; Exhibit 19 at 12.

50. On information and belief, the wiring structure of the ’824 Accused Products is further formed by a method comprising forming a resist pattern on said organic-inorganic hybrid film; performing etching with respect to the organic-inorganic hybrid film masked with said resist pattern to form a depressed portion composed of a wire groove **(A)** or a contact hole in said organic-inorganic hybrid film; and performing a plasma process using a plasma derived from a gas containing a reducing gas with respect to said resist pattern and said organic-inorganic hybrid film to remove said resist pattern and form an inter-layer dielectric which is a porous film **(C)** (800 Tech Insights at 79 (SiCO (porous)); S4 Tech Insights at pg. x (porous ultra-low k dielectric (CDO)); S3 Tech Insights at pg. x (porous ultra-low k dielectric (SiCO))) composed of said organic-inorganic hybrid film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 13-15; Exhibit 15 at col. 5:5-38 (describing, after depositing the porous film, subjecting the porous film to a pore formation treatment (PECVD porogen approach)); Exhibit 20 at Abstract, F147 (describing curing a porous, siloxane based film, with such reducing gases as Nitrogen and Ammonia); *see also* Exhibit 13 at 181; Exhibit 14 at 3.A.2.1; Exhibit 11 at col. 1-3; Exhibit 16 at 94-95; Exhibit 17 at 66; Exhibit 18 at 583; Exhibit 19 at 12.

51. On information and belief, the wiring structure of the ’824 Accused Products is further formed by a method comprising filling a metal film in the depressed portion of said inter-layer dielectric to form a buried wire **(B)** or contact composed of said metal film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 13-15.

52. Qualcomm’s actions alleged herein have actively induced and/or are continuing to actively induce infringement of at least claim 1 of the ’824 Patent by actively encouraging acts of direct infringement, and Qualcomm knows (or believes that there is a high probability, but is taking deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions are inducing infringement and intend to induce infringement. For example, on information and belief, Qualcomm encourages, trains, instructs, and provides support and technical assistance to others to infringe the ’824 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the ’824 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the ’824 Accused Products and products that incorporate the ’824 Accused Products. For example, Qualcomm publishes and provides technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the ’824 Accused Products that instruct and encourage Qualcomm’s customers and other third parties to integrate the ’824 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

53. Qualcomm's infringement of the '824 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys' fees.

54. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm's infringement of the '824 Patent, including, without limitation, not less than a reasonable royalty.

THIRD CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,602,802)

55. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-54 of this First Am. Complaint.

56. On August 5, 2003, the USPTO duly and legally issued the '802 Patent, titled "Method of Forming a Porous Film on a Substrate," naming Nobuo Aoi as inventor and Matsushita Electric Industrial Co., Ltd. as assignee. A true and correct copy of the '802 Patent is attached hereto as Exhibit C.

57. IP Bridge owns by assignment the entire right, title, and interest in and to the '802 Patent, including the right to sue and recover damages, including damages for past infringement.

58. Qualcomm has had knowledge of the '802 Patent at least since as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the '802 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

59. Qualcomm has infringed and is infringing, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the '802 Patent in violation of at least 35 U.S.C. § 271(a), (b), and/or (g) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products ("the '802 Accused Products").

60. On information and belief, the ’802 Accused Products meet each and every limitation of at least claim 1 of the ’802 Patent. For example, the porous film **(element C in Exhibit H, First Am. Compl. Figs. 13-15)** of the ’802 Accused Products is formed by a method comprising the step of depositing, on a substrate, an organic-inorganic hybrid film having a siloxane skeleton. *See, e.g.*, Exhibit 15 at col. 5:5-38, Fig. 1 (describing forming a porous film consisting of organic silicate glass (OSG)); Exhibit 12 at 6 (stating that PECVD OSG is commonly deposited from alkyl silanes and siloxanes, resulting in a solid silica-based siloxane network); *see also* Exhibit 13 at 181; Exhibit 14 at 3.A.2.1; Exhibit 11 at col. 1-3; Exhibit 16 at 94-95; Exhibit 17 at 66; Exhibit 18 at 583; Exhibit 19 at 12.

61. On information and belief, the porous film **(element C in Exhibit H, First Am. Compl. Figs. 13-15)** of the ’802 Accused Products is further formed by a method comprising the step of forming a porous film composed of said organic-inorganic hybrid film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 13-15.

62. Qualcomm’s actions alleged herein have actively induced and/or are continuing to actively induce infringement of at least claim 1 of the ’802 Patent by actively encouraging acts of direct infringement, and Qualcomm knows (or believes that there is a high probability, but is taking deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions are inducing infringement and intend to induce infringement. For example, on information and belief, Qualcomm encourages, trains, instructs, and provides support and technical assistance to others to infringe the ’802 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)),

to manufacture and/or import into the United States the ’802 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the ’802 Accused Products and products that incorporate the ’802 Accused Products. For example, Qualcomm publishes and provides technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the ’802 Accused Products that instruct and encourage Qualcomm’s customers and other third parties to integrate the ’802 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

63. Qualcomm’s infringement of the ’802 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys’ fees.

64. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm’s infringement of the ’802 Patent, including, without limitation, not less than a reasonable royalty.

FOURTH CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,967,409)

65. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-64 of this First Am. Complaint.

66. On November 22, 2005, the USPTO duly and legally issued the ’409 Patent, titled “Semiconductor Device and Method of Manufacturing the same,” naming Mizuki Segawa, Isao Miyanaga, Toshiki Yabu, Takashi Nakabayashi, Takashi Uehara, Kyoji Yamashita, Takaaki Ukeda, Masatoshi Arai, Takayuki Yamada, and Michikazu Matsumoto as inventors and Matsushita Electric Industrial Co., Ltd. as assignee. A true and correct copy of the ’409 Patent is attached hereto as Exhibit D.

67. IP Bridge owns by assignment the entire right, title, and interest in and to the ’409 Patent, including the right to sue and recover damages, including damages for past infringement.

68. Qualcomm has had knowledge of the ’409 Patent since at least as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the ’409 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

69. Qualcomm infringed, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the ’409 Patent in violation of at least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products (“the ’409 Accused Products”).

70. On information and belief, the ’409 Accused Products meet each and every limitation of at least claim 1 of the ’409 Patent. For example, the ’409 Accused Products are each a “semiconductor device.” *See, e.g.*, S4 Tech Insights at pg. x (“The Qualcomm MSM8960 is a mobile applications processor integrating the Snapdragon processor. The device is fabricated with 8 metal layers and a single polysilicon layer at the 28 nm process node . . . .”); 800 Tech Insights at pg. xii (“The process on the [Qualcomm MSM8974] is a metal-gate-last scheme where a dummy poly-Si gate is replaced by metal after formation of the NMOS and PMOS on the wafer. . . .”); S3 Tech Insights at pg. x (“The [Qualcomm MSM8660 applications processor] is fabricated with 8 metal layers and a single polysilicon layer at the 40/45 nm process node. The 6T SRAM cell area, the standard cell track height and the minimum pitch of the metal one layer are typical of the 40/45 nm process node.”).

71. For example, the ’409 Accused Products comprise semiconductor devices comprising an isolation **(A)** for surrounding an active region **(G)** of a substrate; an

interconnection **(B)** formed on the isolation; an insulating film **(C)** formed on a top surface of the interconnection; and a hole **(D)** formed on an area including at least part of the active region, at least part of the isolation and at least part of the interconnection. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 16-18.

72. On information and belief, the '409 Accused Products further comprise a conductive layer **(E)** formed in the hole; and an interconnection member **(F)** formed on, and connected to, the conductive layer; wherein the active region and the interconnection are connected to the conductive layer. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 19-21.

73. On information and belief, the '409 Accused Products further comprise wherein at least part of a top surface **(H1)** of the isolation that is connected to the conductive layer **(E)** is at a lower level than a top surface **(H2)** of the isolation that is provided below the interconnection. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 22-24.

74. Qualcomm's actions alleged herein actively induced infringement of at least claim 1 of the '409 Patent by actively encouraging acts of direct infringement, and Qualcomm knew (or believed that there was a high probability, but took deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions were inducing infringement and intended to induce infringement. For example, on information and belief, Qualcomm encouraged, trained, instructed, and provided support and technical assistance to others to infringe the '409 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the '409 Accused Products, and (b) encouraging and instructing other third parties, including

OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the ’409 Accused Products and products that incorporate the ’409 Accused Products. For example, Qualcomm published and provided technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the ’409 Accused Products that instructed and encouraged Qualcomm’s customers and other third parties to integrate the ’409 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

75. Qualcomm’s infringement of the ’409 Patent was willful and deliberate, entitling IP Bridge to enhanced damages and attorneys’ fees.

76. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm’s infringement of the ’409 Patent, including, without limitation, not less than a reasonable royalty.

FIFTH CLAIM FOR RELIEF

(Infringement of U.S. Patent Number RE41,980)

77. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-76 of this First Am. Complaint.

78. On December 7, 2010, the USPTO duly and legally issued the RE’980 Patent, titled “Semiconductor Interconnect Formed over an Insulation and having Moisture Resistant Material,” naming Toshiki Yabu and Mizuki Segawa as inventors and Panasonic Corporation as assignee. A true and correct copy of the RE’980 Patent is attached hereto as Exhibit E.

79. IP Bridge owns by assignment the entire right, title, and interest in and to the RE’980 Patent, including the right to sue and recover damages, including damages for past infringement.

80. Qualcomm has had knowledge of the RE'980 Patent since at least as early as January 9, 2015, when IP Bridge identified the RE'980 Patent to Qualcomm in a letter and asserted Qualcomm's need for a license. Qualcomm also has had knowledge of its infringement of the RE'980 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

81. Qualcomm infringed, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 18 of the RE'980 Patent in violation of at least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products ("the RE'980 Accused Products").

82. On information and belief, the RE'980 Accused Products meet each and every limitation of at least claim 18 of the RE'980 Patent. For example, the RE'980 Accused Products are each a "semiconductor device." *See, e.g.*, S4 Tech Insights at pg. x ("The Qualcomm MSM8960 is a mobile applications processor integrating the Snapdragon processor. The device is fabricated with 8 metal layers and a single polysilicon layer at the 28 nm process node . . . ."); 800 Tech Insights at pg. xii ("The process on the [Qualcomm MSM8974] is a metal-gate-last scheme where a dummy poly-Si gate is replaced by metal after formation of the NMOS and PMOS on the wafer. . . ."); S3 Tech Insights at pg. x ("The [Qualcomm MSM8660 applications processor] is fabricated with 8 metal layers and a single polysilicon layer at the 40/45 nm process node. The 6T SRAM cell area, the standard cell track height and the minimum pitch of the metal one layer are typical of the 40/45 nm process node.").

83. For example, the RE'980 Accused Products comprise a semiconductor substrate bearing semiconductor elements **(A)**; an interlayer insulating film formed on said semiconductor

substrate **(B)**; and a metal wire layer including plural metal wires **(C)** formed on said interlayer insulating film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 25-29.

84. The RE'980 Accused Products further comprise a surface protecting film **(D)** including a first dielectric film **(D1)** with a small dielectric constant for filling at least a part of areas among said metal wires in said metal wire layer and a second dielectric film **(D2)** with a higher moisture absorption preventing function than said first dielectric film for covering said metal wire layer and said first dielectric film, said second dielectric film having a function of suppressing moisture absorption of said first dielectric film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 25-29.

85. The RE'980 Accused Products, further comprise an opening **(E)** for a bonding pad formed in said surface protecting film and a bonding pad **(F)** formed in said opening for obtaining external electrical connection, wherein said bonding pad in said opening and said second dielectric film of said surface protecting film completely cover said first dielectric film so as not to expose said first dielectric film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 25, 30-31.

86. Qualcomm's actions alleged herein actively induced infringement of at least claim 18 of the RE'980 Patent by actively encouraging acts of direct infringement, and Qualcomm knew (or believed that there was a high probability, but took deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions were inducing infringement and intended to induce infringement. For example, on information and belief, Qualcomm encouraged, trained, instructed, and provided support and technical assistance to others to infringe the RE'980 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and

Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the RE'980 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the RE'980 Accused Products and products that incorporate the RE'980 Accused Products. For example, Qualcomm published and provided technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the RE'980 Accused Products that instructed and encouraged Qualcomm's customers and other third parties to integrate the RE'980 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

87. Qualcomm's infringement of the RE'980 Patent was willful and deliberate, entitling IP Bridge to enhanced damages and attorneys' fees.

88. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm's infringement of the RE'980 Patent, including, without limitation, not less than a reasonable royalty.

SIXTH CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,794,677)

89. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-88 of this First Am. Complaint.

90. On September 21, 2004, the USPTO duly and legally issued the '677 Patent, titled "Semiconductor Integrated Circuit Device and Method for Fabricating the Same," naming Tokuhiko Tamaki, Koichi Kawashima, Yasuo Sakurai, and Kenji Tateiwa as inventors and Matsushita Electric Industrial Co., Ltd. as assignee. A true and correct copy of the '677 Patent is attached hereto as Exhibit F.

91. IP Bridge owns by assignment the entire right, title, and interest in and to the ’677 Patent, including the right to sue and recover damages, including damages for past infringement.

92. Qualcomm has had knowledge of the ’677 Patent since at least as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the ’677 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

93. Qualcomm has infringed and is infringing, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the ’677 Patent in violation of at least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products (“the ’677 Accused Products”).

94. On information and belief, the ’677 Accused Products meet each and every limitation of at least claim 1 of the ’677 Patent. For example, the ’677 Accused Products are each a “semiconductor integrated circuit device.” *See, e.g.,* S4 Tech Insights at pg. x (“The Qualcomm MSM8960 is a mobile applications processor integrating the Snapdragon processor. The device is fabricated with 8 metal layers and a single polysilicon layer at the 28 nm process node . . . .”); 800 Tech Insights at pg. xii (“The process on the [Qualcomm MSM8974] is a metal-gate-last scheme where a dummy poly-Si gate is replaced by metal after formation of the NMOS and PMOS on the wafer. . . .”); S3 Tech Insights at pg. x (“The [Qualcomm MSM8660 applications processor] is fabricated with 8 metal layers and a single polysilicon layer at the 40/45 nm process node. The 6T SRAM cell area, the standard cell track height and the minimum pitch of the metal one layer are typical of the 40/45 nm process node.”).

95. For example, the ’677 Accused Products comprise a semiconductor integrated circuit device comprising a first circuit pattern **(A)** having a first linear pattern and placed in a

region in which a group of elements having a repetitive pattern are formed. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 32-34.

96. The ’677 Accused Products further comprise a second circuit pattern **(B)** having a second linear pattern and placed in a region in which components other than the group of elements are formed. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 35-37.

97. The ’677 Accused Products further comprise a dummy pattern **(C)** being inserted in the region in which the second circuit pattern is placed such that a sum perimeter of the first linear pattern, the second linear pattern, and the dummy pattern per unit area is equal to or less than a perimeter of the first linear pattern per unit area. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 38-43; *see also* Exhibit H, First Am. Compl. Figs. 32-34.

98. Qualcomm’s actions alleged herein have actively induced and/or are continuing to actively induce infringement of at least claim 1 of the ’677 Patent by actively encouraging acts of direct infringement, and Qualcomm knows (or believes that there is a high probability, but is taking deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry or the intellectual property rights of IP Bridge) that its actions are inducing infringement and intend to induce infringement. For example, on information and belief, Qualcomm encourages, trains, instructs, and provides support and technical assistance to others to infringe the ’677 Patent by (a) contracting with and instructing others, such as its foundry (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the ’677 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the ’677 Accused Products and products

that incorporate the ’677 Accused Products. For example, Qualcomm publishes and provides technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the ’677 Accused Products that instruct and encourage Qualcomm’s customers and other third parties to integrate the ’677 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

99. Qualcomm’s infringement of the ’677 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys’ fees.

100. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm’s infringement of the ’677 Patent, including, without limitation, not less than a reasonable royalty.

SEVENTH CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,346,736)

101. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-100 of this First Am. Complaint.

102. On September 12, 2002, the USPTO duly and legally issued the ’736 Patent, titled “Trench Isolated Semiconductor Device,” naming Takaaki Ukeda, Chiaki Kudo, and Toshiki Yabu as inventors and Panasonic Corporation (formerly Matsushita Electric Industrial Co., Ltd.) as assignee. A true and correct copy of the ’736 Patent is attached hereto as Exhibit G.

103. IP Bridge owns by assignment the entire right, title, and interest in and to the ’736 Patent, including the right to sue and recover damages, including damages for past infringement.

104. Qualcomm has had knowledge of the ’736 Patent since at least as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the ’736 Patent at least by virtue of the filing of the Complaint (D.I. 2) filed March 30, 2018 in this action.

105. Qualcomm infringed, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 6 of the '736 Patent in violation of at least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate First Accused Products, 28 nm Gate Last Accused Products, and 40/45 nm Accused Products ("the '736 Accused Products").

106. On information and belief, the '736 Accused Products meet each and every limitation of at least claim 6 of the '736 Patent. For example, the '736 Accused Products are each a "semiconductor device." *See, e.g.*, S4 Tech Insights at pg. x ("The Qualcomm MSM8960 is a mobile applications processor integrating the Snapdragon processor. The device is fabricated with 8 metal layers and a single polysilicon layer at the 28 nm process node . . . ."); 800 Tech Insights at pg. xii ("The process on the [Qualcomm MSM8974 Snapdragon 800 processor] is a metal-gate-last scheme where a dummy poly-Si gate is replaced by metal after formation of the NMOS and PMOS on the wafer . . . ."); S3 Tech Insights at pg. x ("The [Qualcomm MSM8660 applications processor] is fabricated with 8 metal layers and a single polysilicon layer at the 40/45 nm process node. The 6T SRAM cell area, the standard cell track height and the minimum pitch of the metal one layer are typical of the 40/45 nm process node.").

107. For example, as shown in the following images, the '736 Accused Products comprise a semiconductor substrate having an active region **(A)** and an isolation region **(B)** surrounding said active region. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 44-46.

108. The '736 Accused Products further comprise a first trench portion **(C)** filled with an insulating material formed to separate said active region from said isolation region and a second trench portion **(D)** filled with an insulating material formed to separate a plurality of dummy semiconductor portions in said isolation region. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 47-49.

109. Upon information and belief, the '736 Accused Products include a wire formed on the interlayer insulating film covering the dummy semiconductor portions and the second trench portion in the isolation region; an interlayer insulating film **(E)** formed to extend continuously over said active region and said isolation region; and a dielectric film **(F)** interposed between at least said dummy semiconductor portions of said isolation region and said interlayer insulating film. *See, e.g.*, Exhibit H, First Am. Compl. Figs. 44-55.

110. Qualcomm's actions alleged herein actively induced infringement of at least claim 6 of the '736 Patent by actively encouraging acts of direct infringement, and Qualcomm knew (or believed that there was a high probability, but took deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions were inducing infringement and intended to induce infringement. For example, on information and belief, Qualcomm encouraged, trained, instructed, and provided support and technical assistance to others to infringe the '736 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the '736 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the '736 Accused Products and products that incorporate the '736 Accused Products. For example, Qualcomm published and provided technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the '736 Accused Products that instructed and encouraged Qualcomm's customers

and other third parties to integrate the ’736 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

111. Qualcomm’s infringement of the ’736 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys’ fees.

112. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm’s infringement of the ’736 Patent, including, without limitation, not less than a reasonable royalty.

EIGHTH CLAIM FOR RELIEF

(Infringement of U.S. Patent Number 6,873,052)

113. IP Bridge realleges and incorporates by reference the allegations of paragraphs 1-112 of this First Am. Complaint.

114. On March 29, 2005, the USPTO duly and legally issued the ’052 Patent, titled “Porous, Film, Wiring Structure, and Method of Forming the same,” naming Nobuo Aoi as inventor and Matsushita Electric Industrial Co., Ltd. as assignee. A true and correct copy of the ’052 Patent is attached hereto as Exhibit I.

115. IP Bridge owns by assignment the entire right, title, and interest in and to the ’052 Patent, including the right to sue and recover damages, including damages for past infringement.

116. Qualcomm has had knowledge of the ’052 Patent since at least as early as March 30, 2016. Qualcomm also has had knowledge of its infringement of the ’052 Patent at least by virtue of the filing of this First Amended Complaint. The ’052 Patent is divisional of the ’802 Patent, which in turn is a divisional of the ’824 Patent. Both the ’824 and ’802 Patents were asserted in the Complaint (D.I. 2) filed March 30, 2018 in this action.

117. Qualcomm has infringed and is infringing, directly and/or indirectly, either literally or under the doctrine of equivalents, at least claim 1 of the ’052 Patent in violation of at

least 35 U.S.C. § 271(a) and/or (b) by making, having made, using, selling, offering for sale, and/or importing into the United States the 28 nm Gate Last Accused Products ("the '052 Accused Products").

118. On information and belief, the '052 Accused Products meet each and every limitation of at least claim 1 of the '052 Patent. For example, the '052 Accused Products each comprise a "wiring structure." *See, e.g.*, 800 Tech Insights at pg. xii ("The process on the [Qualcomm MSM8974] is a metal-gate-last scheme where a dummy poly-Si gate is replaced by metal after formation of the NMOS and PMOS on the wafer. . . .").

119. For example, the '052 Accused Products comprise a wiring structure which comprises a first inter-layer dielectric **(A)** formed on a substrate and having a contact hole **(B)**, said first inter-layer dielectric being composed of a porous film having a relatively low porosity. *See, e.g.*, Exhibit H, First Am. Compl. Fig. 56; 800 Tech Insights at 79 (SiCO (porous)); Exhibit 15 at 5:5-6:43 (describing forming two porous films on top of each other, with the bottom porous film having a lower porosity than the top porous film); *see also* Exhibit 13 at 181.

120. On information and belief, the '052 Accused Products further comprise a second inter-layer dielectric **(C)** formed on said first inter-layer dielectric and having a wire groove **(D)**, said second inter-layer dielectric being composed of a porous film having a relatively high porosity. *See, e.g.*, Exhibit H, First Am. Compl. Fig. 57; 800 Tech Insights at 79 (SiCO (porous)); Exhibit 15 at 5:5-6:43 (describing forming two porous films on top of each other, with the top porous film having a higher porosity than the bottom porous film); *see also* Exhibit 13 at 181.

121. On information and belief, the ’052 Accused Products further comprise a contact composed of a metal film **(E)** filled in said contact hole; and a metal wire composed of a metal film **(F)** filled in said wire groove. *See, e.g.*, Exhibit H, First Am. Compl. Fig. 58.

122. Qualcomm’s actions alleged herein have actively induced and/or are continuing to actively induce infringement of at least claim 1 of the ’052 Patent by actively encouraging acts of direct infringement, and Qualcomm knows (or believes that there is a high probability, but is taking deliberate steps to avoid knowing, including by not adequately investigating the activities of its foundry suppliers or the intellectual property rights of IP Bridge) that its actions are inducing infringement and intend to induce infringement. For example, on information and belief, Qualcomm encourages, trains, instructs, and provides support and technical assistance to others to infringe the ’052 Patent by (a) contracting with and instructing others, such as its foundry suppliers (*see, e.g.*, Exhibit 5 at 11 (foundry suppliers include Semiconductor Manufacturing International Corporation and Taiwan Semiconductor Manufacturing Company)), to manufacture and/or import into the United States the ’052 Accused Products, and (b) encouraging and instructing other third parties, including OEMs, ODMs, distributors, and other third parties to make, use, sell, offer for sale, and/or import into the United States the ’052 Accused Products and products that incorporate the ’052 Accused Products. For example, Qualcomm publishes and provides technical materials, product specifications, development and testing resources (*e.g.*, MDPs, QDN tools), and promotional literature for the ’052 Accused Products that instruct and encourage Qualcomm’s customers and other third parties to integrate the ’052 Accused Products into products made, used, sold, offered for sale, and/or imported into the United States. *See, e.g.*, Exhibits 9-10.

123. Qualcomm's infringement of the '052 Patent is, and has been, willful and deliberate, entitling IP Bridge to enhanced damages and attorneys' fees.

124. IP Bridge is entitled to recover from Qualcomm all damages IP Bridge has sustained as a result of Qualcomm's infringement of the '052 Patent, including, without limitation, not less than a reasonable royalty.

JURY TRIAL DEMAND

125. IP Bridge requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, IP Bridge respectfully requests that the Court enter judgment in its favor and against Qualcomm and grant the following relief:

1. A judgment that Qualcomm has infringed one or more claims of each of the Asserted Patents in this litigation pursuant to 35 U.S.C. §§ 271(a), 271(b), and/or 271(g) and that Qualcomm is liable for damages caused by such infringement;

2. An order pursuant to 35 U.S.C. § 283 enjoining Qualcomm and its subsidiaries, parents, divisions, affiliates, successors, assigns, transferees, officers, directors, attorneys, agents, servants, employees, parties in privity with, and all other persons in active concert or participation with any of the foregoing, from continued acts of direct or indirect infringement of any claim of the Asserted Patents;

3. An order requiring Qualcomm to deliver to IP Bridge for destruction all infringing products in its possession in the United States;

4. If a permanent injunction is not granted, then a judicial determination of the conditions for future infringement such as an ongoing royalty;

5. A judgment requiring Qualcomm to make an accounting of damages resulting from Qualcomm's infringement of the Asserted Patents;

6. A judgment awarding IP Bridge its damages resulting from Qualcomm's infringement of the Asserted Patents, and increasing such damages pursuant to 35 U.S.C. § 284 because of the willful and deliberate nature of Qualcomm's conduct;

7. A judgment requiring Qualcomm to pay IP Bridge's costs and expenses, along with pre-judgment and post-judgment interest, for Qualcomm's infringement of each of the Asserted Patents;

8. A judgment finding that this is an exceptional case and awarding IP Bridge's attorneys' fees pursuant to 35 U.S.C. § 285 and all other applicable statutes and rules in common law that would be appropriate; and

9. Such other and further relief as the Court deems just and proper.

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Dated: May 25, 2018

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CERTIFICATE OF SERVICE

I, Anne Shea Gaza, hereby certify that on May 25, 2018, I caused to be electronically filed a true and correct copy of the foregoing document with the Clerk of the Court using CM/ECF, which will send notification that such filing is available for viewing and downloading to the following counsel of record:

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I further certify that on May 25, 2018**,** I caused the foregoing document to be served via electronic mail upon the above-listed counsel.

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Dated: May 25, 2018

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