IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NETWORK SYSTEM TECHNOLOGIES, LLC, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS AMERICA, INC.; SAMSUNG AUSTIN SEMICONDUCTOR, LLC; SAMSUNG SEMICONDUCTOR, INC.; LENOVO GROUP LTD.; ONEPLUS TECHNOLOGY (SHENZHEN) CO., LTD., Defendants.	)))))))))))))	Civil Action No. 2:22-CV-481 **JURY TRIAL DEMANDED**

COMPLAINT

Plaintiff Network System Technologies, LLC ("NST" or "Plaintiff"), by and through its attorneys, demands a trial by jury on all issues so triable, and for its complaint against Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung Austin Semiconductor, LLC, Samsung Semiconductor, Inc., Lenovo Group Ltd., and OnePlus Technology (Shenzhen) Co., Ltd. (collectively, "Defendants"), alleges as follows:

NATURE OF THE ACTION

1. This is a civil action for patent infringement under the patent laws of the United States, Title 35, United States Code, Section 271, *et seq.*, involving the follow United States Patents (collectively, "Asserted Patents") and seeking damages and injunctive relief as provided in 35 U.S.C. §§ 281 and 283-285.

U.S. Patent No. 7,366,818 (Exhibit 1, "'818 patent")
U.S. Patent No. 7,373,449 (Exhibit 2, "'449 patent")
U.S. Patent No. 7,594,052 (Exhibit 3, "'052 patent")
U.S. Patent No. 7,769,893 (Exhibit 4, "'9893 patent")

U.S. Patent No. 8,072,893 (Exhibit 5, "'2893 patent")
U.S. Patent No. 8,086,800 (Exhibit 6, "'800 patent")

THE PARTIES

2. Plaintiff is a limited liability company formed under the laws of Delaware, with a principal place of business at 533 Congress Street, Portland, ME 04101. Plaintiff is the owner by assignment of the Asserted Patents.

3. On information and belief, Samsung Electronics Co., Ltd. ("SEC") is a company organized and existing under the laws of South Korea, having a principal place of business at 129 Samsung-Ro, Maetan-3dong, Yeongtong-Gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea.

4. On information and belief, Samsung Electronics America, Inc. ("SEA") is a corporation organized and existing under the laws of New York, having a principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. On information and belief, SEA is a wholly-owned subsidiary of, and is controlled and directed by, SEC.[1] On information and belief, SEA has business locations in this Judicial District at 6625 Excellence Way, Plano, Texas 75023;[2] 2601 Preston Road, Frisco, Texas 75034; and 3580 Preston Road, Suite 100, Frisco, Texas 75034. On information and belief, SEA may be served in Texas via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

5. On information and belief, Samsung Austin Semiconductor, LLC ("SAS") is a corporation organized and existing under the laws of Delaware, having a principal place of business at 12100 Samsung Blvd., Austin, TX 78754.[3] On information and belief, SAS is a wholly-owned subsidiary of, and is controlled and directed by, SEC. On information and belief,

[1] Memorandum Opinion and Order, *Invensas Corp. v. Samsung Elecs. Co., Ltd. et al.*, 1:18-cv-01947, Dkt. No. 145 at 1 (D. Del. Aug. 14, 2018).
[2] https://www.themuse.com/profiles/samsungelectronicsamerica/location/plano (last visited December 19, 2022).
[3] https://egov.sos.state.or.us/br/pkg_web_name_srch_inq.show_detl?p_be_rsn=2356387&p_srce=BR_INQ&p_print=FALSE (last visited December 19, 2022)

SAS may be served in Texas via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

6. On information and belief, Samsung Semiconductor, Inc. ("SSI") is a corporation organized and existing under the laws of California, having a principal place of business at 3655 North First Street, San Jose, California 95134. On information and belief, SSI is a wholly-owned subsidiary of, and is controlled and directed by, SEA, which as noted above, has business locations in this Judicial District. On information and belief, SSI has a business location in this Judicial District at 6625 Excellence Way, Plano, Texas 75023. On information and belief, SSI may be served in Texas via its registered agent, National Registered Agents, Inc., 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

7. SEC, SEA, SAS, and SSI are referred to collectively hereinafter as "Samsung."

8. On information and belief, Lenovo Group Ltd. ("Lenovo") is a company organized and existing under the laws of China, having a key operations center at Lenovo HQ East, Building 1, No. 10 Courtyard Xibeiwang East Road, Haidian District, Beijing, 100094, China and having a registered office at 23rd Floor, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay, Hong Kong S.A.R. of China. On information and belief, Lenovo Group Ltd. has, and controls and directs, wholly-owned U.S.-based subsidiaries including Lenovo (United States) Inc. and Motorola Mobility LLC.[4]

9. On information and belief, OnePlus Technology (Shenzhen) Co., Ltd. ("OnePlus") is a corporation organized and existing under the laws of China, having a principal place of

[4] *See* https://www.motorola.com/us (last visited December 19, 2022) (stating that Motorola Mobility LLC is "a wholly owned subsidiary of Lenovo"); Defendant Motorola Mobility LLC's Answer and Defenses to Plaintiff's Complaint, *Theta IP, LLC v. Motorola Mobility LLC et al.*, 1:22-cv-03441, Dkt. 19 at 9 (N.D. Ill. Aug. 31, 2022) (admitting that Motorola Mobility LLC is an indirect subsidiary of Lenovo Group Ltd.); Defendant Lenovo (United States) Inc.'s Answer and Defenses to Plaintiff's Complaint, *Theta IP, LLC v. Motorola Mobility LLC et al.*, 1:22-cv-03441, Dkt. 20 at 9-10 (N.D. Ill. Aug. 31, 2022) (admitting that Lenovo (United States) Inc. is an indirect subsidiary of Lenovo Group Ltd.).

business at 18F Tairan Building, Block C, Tairan 3 8th Road, Chegongmiao, Futian District, Shenzhen, Guangdong 518040, China.

10. On information and belief, the Defendants are engaged in making, using, offering for sale, selling, importing, or otherwise providing, within the United States and in particular the State of Texas and this Judicial District, directly or indirectly, system-on-a-chip products ("SoCs") and/or related products and services, with features and functionalities that infringe the Asserted Patents.

JURISDICTION AND VENUE

11. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

12. Each Defendant is subject to this Court's personal jurisdiction consistent with the principles of due process and the Texas Long Arm Statute. Tex. Civ. Prac. & Rem. Code §§ 17.041, *et seq*.

13. Jurisdiction and venue for this action are proper in this Judicial District.

14. This Court has personal jurisdiction over Defendants at least because, through a respective Defendant's own acts and/or through the acts of each other Defendant acting as its agent, representative, or alter ego, they (i) have a presence or regular and established place of business in the State of Texas and this Judicial District; (ii) have purposefully availed themselves of the rights and benefits of the laws of the State of Texas and this Judicial District; (iii) have done and are doing substantial business in the State of Texas and this Judicial District, directly or through intermediaries, both generally and, on information and belief, with respect to the allegations in this Complaint, including their one or more acts of infringement in the State of Texas and this Judicial District; (iv) maintain continuous and systematic contacts in the State of Texas and this Judicial

District; and/or (v) place products alleged to be infringing in this Complaint in the stream of commerce, directly or through intermediaries, with awareness that those products are likely destined for use, offer for sale, sale, and/or importation in the State of Texas and this Judicial District.

15. For example, Defendants have authorized retailers and distributors in the State of Texas and this Judicial District for the products alleged to be infringing in this Complaint, and Defendants have derived substantial revenues from their infringing acts occurring within the State of Texas and this Judicial District.

16. Defendants have established sufficient minimum contacts with the State of Texas and this Judicial District such that they should reasonably and fairly anticipate being brought into court in the State of Texas and this Judicial District without offending traditional notions of fair play and substantial justice; and Defendants have purposefully directed activities at residents of the State of Texas and this Judicial District. Moreover, the patent infringement claims alleged herein arise out of or are related to one or more of the foregoing activities. On information and belief, a substantial part of the events giving rise to Plaintiff's claims, including acts of patent infringement, have occurred in the State of Texas and this Judicial District.

17. Venue is proper in this Judicial District as to Defendants under 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

18. Venue is proper as to SEC, Lenovo, and OnePlus because, on information and belief, they are foreign entities, as identified above in paragraph 3, 7, and 9. 28 U.S.C. § 1391(c); *In re HTC Corp.*, 889 F.3d 1349, 1357 (Fed. Cir. 2018) (holding that "[t]he Court's recent decision in *TC Heartland* does not alter" the alien-venue rule).

19. Venue is proper as to SEA, SAS, and SSI because, on information and belief, they

have offered to sell products to actual or potential customers located in this Judicial District,[5] they have committed acts of infringement in this Judicial District, and they have a regular and established place of business in this Judicial District, as identified above in paragraph 4–6, 14. 28 U.S.C. § 1400(b).

JOINDER

20. Joinder is proper under at least Federal Rule of Civil Procedure 20 and 35 U.S.C. § 299 at least because Defendants' infringing conduct alleged herein arises out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United States, offering for sale, or selling of the same accused product or process, or portions thereof, and questions of fact common to all Defendants will arise in this action.

21. The accused products fall into three categories: 1) products containing Qualcomm "Snapdragon" SoCs; 2) Samsung "Exynos" SoCs; and 3) products containing Exynos SoCs. On information and belief, Samsung, Lenovo and OnePlus make, use, import, offer for sale, and/or sell accused products that fall within the first category (hereinafter, the "Snapdragon Accused Products"). On information and belief, at least Samsung additionally makes, uses, imports, offers for sale, and/or sells accused products that fall within the last two categories (hereinafter, the "Exynos Accused Products"). Thus, the Snapdragon SoCs are common to Samsung, Lenovo and OnePlus' infringement of the Asserted Patents with respect to the Snapdragon Accused Products because such accused products all incorporate and include such Snapdragon SoCs. On information

[5] *See Continental Circuits LLC et al. v. Samsung Electronics Co., Ltd. et al.*, No. 2:21-cv-00188, Dkt. 16 at ¶ 8 (E.D. Tex., Oct. 12, 2021) ("SEA and SSI admit that they have offered to sell products to actual or potential customers located in the Eastern District of Texas."); *Acorn Semi, LLC v. Samsung Electronics Co., Ltd., et al.*, No. 2:19-cv-00347, Dkt. 14 (E.D. Tex. Feb. 12, 2020) ("SEA, SSI and SAS admit that they have offered to sell products to actual or potential customers located in the Eastern District of Texas.").

and belief, Samsung, Lenovo and OnePlus infringe the Asserted Patents by, for example, making, using, importing, offering for sale, and selling products incorporating Snapdragon SoCs. Stated differently, on information and belief, Samsung, Lenovo and OnePlus' Snapdragon Accused Products infringe the same Asserted Patents by using the Snapdragon SoCs—meaning that all of those accused products use identically sourced components and that there is overlap of the accused products' and processes' development and manufacture. Thus, on information and belief, common SoC technology is a defining characteristic for Samsung, Lenovo and OnePlus' infringement, and the factual question of infringement will thus substantially overlap for Samsung, Lenovo and OnePlus.

22. Further, on information and belief, Samsung, Lenovo and OnePlus purchase or otherwise obtain Snapdragon SoCs from Qualcomm, and there are licensing or technology agreements between Qualcomm and Samsung, Lenovo and OnePlus.

THE ASSERTED PATENTS

23. The Asserted Patents result from extensive research and development by Philips Semiconductors, a subsidiary of Koninklijke Philips N.V. ("Philips") that included VLSI Technology, Inc., which Philips acquired in 1999. Prior to being spun off in 2006 as NXP Semiconductors N.V. ("NXP"), Philips Semiconductors was one of the largest semiconductor companies in the world. Each of the Asserted Patents predate the NXP spin-off and were retained by Philips until all right, title, and interest in the Asserted Patents were transferred to Plaintiff.

U.S. Patent No. 7,366,818

24. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 7,366,818 (the "'818 patent"), entitled "INTEGRATED CIRCUIT COMPRISING A PLURALITY OF PROCESSING MODULES AND A NETWORK AND METHOD FOR

EXCHANGING DATA USING SAME," including the right to sue and to recover for infringement thereof. The '818 patent was duly and legally issued on April 29, 2008, naming Andrei Radulescu and Kees Gerard Willem Goossens as inventors. A copy of the '818 patent is attached hereto as Exhibit 1.

25. The '818 patent has 7 claims: 1 independent claim and 6 dependent claims.

26. The '818 patent covers SoCs that have an interface that comprises a dropping means for dropping data exchanged by two modules and where the interface can control the dropping of data and therefore completion of message transactions.

27. The claims of the '818 patent, including claim 1 (reproduced below), recite at least these inventive concepts of the '818 patent.

> 1. Integrated circuit comprising a plurality of processing modules (M, S) said modules being disposed on the same chip, and a network (N; RN) arranged for providing at least one connection between a first and at least one second module (M, S),
>
> wherein said modules communicate via a network on chip, and
>
> wherein said connection supports transactions comprising outgoing messages from the first module to the second modules and return messages from the second modules to the first module, the integrated circuit comprising at least one dropping means (DM) for dropping data exchanged by said first and second module (M, S), and
>
> at least one interface means (ANIP, PNIP) for managing the interface between a module (M, S) and the network (N, RN),
>
> wherein said interface means (ANIP, PNIP) comprises a first dropping means (DM) for dropping data, and
>
> wherein the dropping of data and therefore the transaction completion can be controlled by the interface means.

(Exhibit 1, '818 patent at claim 1.) The subject matter described and claimed by the '818 patent, including the integrated circuit of claim 1, was an improvement in the functionality, performance,

and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the ’818 patent.

28. Defendants had knowledge of the ’818 patent at least as of the date of this Complaint.

29. The ’818 patent was developed and patented by Philips Semiconductors, one of the largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the ’818 patent. On information and belief, such industry participants, including Defendants, considered Philips’ U.S. published patent applications and patents in the semiconductor space, including the ’818 patent, and such Philips U.S. published patent applications and patents’ actual or potential applicability to their own current products and product roadmaps, including the products described herein.

30. The ’818 patent is widely and publicly known, and frequently referenced, in the tight-knit semiconductor industry, having been cited during prosecution of approximately 76 patent applications assigned to industry leaders such as Intel Corporation, Arm Limited, NEC Corporation, IBM Corporation, and others.[6]

31. On information and belief, Defendants sought to develop their products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

32. Therefore, on information and belief, Defendants monitored U.S. published patent

[6] https://patents.google.com/patent/US7366818B2/en?oq=7%2c366%2c818 (last visited December 19, 2022).

applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

33. On information and belief, Defendants were aware of and considered the ’818 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

34. On information and belief, Defendants have expertise in the subject matter of the ’818 patent and possesses sufficient technical competence to understand the scope of such patent.

35. By virtue of Philips’ and the ’818 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, and Defendants’ desires to develop non-infringing products and product roadmaps, Defendants had actual knowledge of the ’818 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

U.S. Patent No. 7,373,449

36. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 7,373,449 (the “’449 patent”), entitled “APPARATUS AND METHOD FOR COMMUNICATING IN AN INTEGRATED CIRCUIT,” including the right to sue and to recover for infringement thereof. The ’449 patent was duly and legally issued on May 13, 2008, naming Andrei Radulescu and Kees Gerard Willem Goossens as inventors. A copy of the ’449 patent is attached hereto as Exhibit 2.

37. The ’449 patent has 18 claims: 2 independent claims and 16 dependent claims.

38. The ’449 patent covers SoCs that have a resource manager that manages network resources by determining whether the resources (i.e., communication channels and connection properties) are available.

39. The claims of the ’449 patent, including claim 10 (reproduced below), recite at least these inventive concepts of the ’449 patent.

> 10. Method for exchanging messages in an integrated circuit comprising a plurality of modules, the messages between the modules being exchanged over connections via a network, wherein said connections comprises a set of communication channels each having a set of connection properties, any communication channel being independently configurable, wherein said connection through the network supports transactions comprising at least one of outgoing messages from the first module to the second module and return messages from the second module to the first module and further comprising the steps of:
>
> the first module issuing a request for a connection with the second module to a communication manager, wherein the request comprises desired connection properties associated with the sets of communication channels;
>
> the communication manager forwarding the request to a resource manager;
>
> the resource manager determining whether a target connection with the desired connection properties is available;
>
> the resource manager responding with the availability of the target connection to the communication manager; and
>
> the target connection between the first and second module being established based on the available properties of said communication channels of said connection.

(Exhibit 2, ’449 patent at claim 10.) The subject matter described and claimed by the ’449 patent, including the method for exchanging messages in an integrated circuit of claim 10, was an improvement in the functionality, performance, and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the ’449 patent.

40. Defendants had knowledge of the ’449 patent at least as of the date of this Complaint.

41. The ’449 patent was developed and patented by Philips Semiconductors, one of the

largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the '449 patent. On information and belief, such industry participants, including Defendants, considered Philips' U.S. published patent applications and patents in the semiconductor space, including the '449 patent, and such Philips U.S. published patent applications and patents' actual or potential applicability to their own current products and product roadmaps, including the products described herein.

42. The '449 patent is widely and publicly known, and frequently referenced, in the tight-knit semiconductor industry, having been cited during prosecution of approximately 76 patent applications assigned to industry leaders such as Intel Corporation, Arm Limited, NEC Corporation, IBM Corporation, and others.[7]

43. On information and belief, the '449 patent, or the application therefor, or a patent or application related to the '449 patent, was cited during prosecution of at least one patent application that was then or later assigned to or prosecuted by Samsung.

44. The '449 patent was cited during the prosecution of U.S. Patent Application No. 11/513,021, entitled "NOC SYSTEM EMPLOYING AXI PROTOCOL AXI INTERLEAVING METHOD THEREOF," assigned to Samsung, with a filing date of August 31, 2006 and purported priority date of October 17, 2005.[8] Further, the '449 patent was identified as "pertinent to" U.S. Patent Application No. 11/513,021.[9]

[7] https://patents.google.com/patent/US7373449B2/en?oq=7%2c373%2c449 (last visited December 19, 2022).
[8] Notice of References Cited dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021; Office Action dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.
[9] Office Action dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.

45. The U.S. publication of the '449 patent's application, U.S. Patent Publication No. 2006/0041889, was cited by Samsung during the prosecution of U.S. Patent Application No. 11/652,010, entitled "NETWORK ON CHIP (NOC) RESPONSE SIGNAL CONTROL APPARATUS AND NOC RESPONSE SIGNAL CONTROL METHOD USING THE APPARATUS," assigned to Samsung, with a filing date of January 11, 2007 and purported priority date of September 13, 2006.[10] The '449 patent was also cited during prosecution of U.S. Patent Application No. 11/652,010.[11]

46. On information and belief, Samsung sought to obtain valid and enforceable patents for itself.

47. Therefore, Samsung was aware of, and considered and analyzed the inventions described and claimed in, all patents and patent applications cited during the prosecution of its own patent applications, including for patents and patent applications that it acquired.

48. On information and belief, Samsung sought to develop its products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

49. Therefore, on information and belief, Samsung monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

50. On information and belief, Samsung was aware of and considered the '449 patent, and its actual or potential applicability to its own current products and product roadmaps, including the products described herein.

51. On information and belief, Samsung has expertise in the subject matter of U.S.

[10] Information Disclosure Statement dated Jan. 11, 2007, File History of U.S. Pat. App. No. 11,652,010.
[11] Notices of References Cited dated Apr. 5, 2010 and Dec. 28, 2012, File History of U.S. Pat. App. No. 11,652,010.

Patent Application Nos. 11/513,021 and 11/652,010 and the '449 patent and possesses sufficient technical competence to understand the scope of such patent and applications.

52. By virtue of Philips' and the '449 patent's fame in the semiconductor industry, the patent's inclusion in the Philips Semiconductor portfolio, Samsung's desire to obtain valid and enforceable patents, Samsung's desire to develop non-infringing products and product roadmaps, and Samsung's knowledge of the '449 patent via citation during the prosecution of the aforementioned patent applications, Samsung had actual knowledge of the '449 patent around the time it issued or its U.S. application published, and in no event later than the January 27, 2009 Notice of References Cited and Office Action in U.S. Patent Application No. 11/513,021.[12]

53. On information and belief, Lenovo and OnePlus (hereinafter, "the non-Samsung Defendants") sought to develop their products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

54. Therefore, on information and belief, the non-Samsung Defendants monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

55. On information and belief, the non-Samsung Defendants were aware of and considered the '449 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

56. On information and belief, the non-Samsung Defendants have expertise in the subject matter of the '449 patent and possesses sufficient technical competence to understand the scope of such patent.

57. By virtue of Philips' and the '449 patent's fame in the semiconductor industry, the

[12] *See Elm 3DS Innovations, Ltd. Liab. Co. v. Samsung Elecs. Co.*, Civil Action No. 14-1430-LPS-CJB, 2015 U.S. Dist. LEXIS 130699, at *5-8 (D. Del. Sep. 29, 2015).

patent's inclusion in the Philips Semiconductor portfolio, and the non-Samsung Defendants' desire to develop non-infringing products and product roadmaps, the non-Samsung Defendants had actual knowledge of the '449 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

U.S. Patent No. 7,594,052

58. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 7,594,052 (the "'052 patent"), entitled "INTEGRATED CIRCUIT AND METHOD OF COMMUNICATION SERVICE MAPPING," including the right to sue and to recover for infringement thereof. The '052 patent was duly and legally issued on September 22, 2009, naming Andrei Radulescu and Kees Gerard Willem Goossens as inventors. A copy of the '052 patent is attached hereto as Exhibit 3.

59. The '052 patent has 7 claims: 3 independent claims and 4 dependent claims.

60. The '052 patent covers SoCs that offer differentiated intermodular communication services based on connections with corresponding properties. The covered SoCs map a requested communication service to a connection based on communication and connection properties.

61. The claims of the '052 patent, including claim 6 (reproduced below), recite at least these inventive concepts of the '052 patent.

> 6. Method of communication service mapping in an integrated circuit, having a plurality of processing modules (M, S), wherein at least one first of said processing modules (M) requests at least one communication service to at least one second processing module (S) based on specific communication properties and at least one communication service identification, wherein said at least one communication service identification comprises at least one communication thread or at least one address range, said address range for identifying one or more second processing modules (S) or a memory region within said one or more second processing modules (S), comprising the steps of:
>
> coupling said plurality of processing modules (M, S) by an interconnect means (N) and

> enabling a connection based communication having a set of connection properties,
>
> controlling the communication between said at least one first of said plurality of processing modules (M) and said interconnect means (N) by at least one network interface (NI) associated to said at least one first of said processing modules,
>
> mapping the requested at least one communication service based on said specific communication properties to a connection based on a set of connection properties according to said at least one communication service identification.

(Exhibit 3, '052 patent at claim 6.) The subject matter described and claimed by the '052 patent, including the method of communication service mapping in an integrated circuit of claim 6, was an improvement in the functionality, performance, and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the '052 patent.

62. Defendants had knowledge of the '052 patent at least as of the date of this Complaint.

63. The '052 patent was developed and patented by Philips Semiconductors, one of the largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the '052 patent. On information and belief, such industry participants, including Defendants, considered Philips' U.S. published patent applications and patents in the semiconductor space, including the '052 patent, and such Philips U.S. published patent applications and patents' actual or potential applicability to their own current products and product roadmaps, including the products described herein.

64. The '052 patent is widely and publicly known, and frequently referenced, in the

tight-knit semiconductor industry, having been cited during prosecution of approximately 19 patent applications assigned to industry leaders such as Samsung Electronics Co., Texas Instruments Incorporated, and others.[13]

65. On information and belief, the '052 patent, or the application therefor, or a patent or application related to the '052 patent, was cited during prosecution of at least one patent application that was then or later assigned to or prosecuted by Samsung.

66. The U.S. publication of the '052 patent's application, U.S. Patent Publication No. 2007/0186018, was cited and analyzed, after the '052 patent had been granted, during the prosecution of U.S. Patent Application 11/434,188, entitled "NETWORK ON CHIP SYSTEM EMPLOYING AN ADVANCED EXTENSIBLE INTERFACE PROTOCOL," assigned to Samsung, with a filing date of May 16, 2006 and purported priority date of October 12, 2005.[14] The '052 patent was also cited during prosecution of U.S. Patent Application No. 11/434,188.[15] On information and belief, Samsung was aware of the '052 patent because it was cited during prosecution of U.S. Patent Application No. 11/434,188, the U.S. publication of the '052 patent was repeatedly asserted in Office Actions and analyzed in Office Action Responses during prosecution of U.S. Patent Application No. 11/434,188, and Samsung filed a Notice of Abandonment after receiving several Office Actions rejecting claims over the U.S. publication of the '052 patent.[16]

[13] https://patents.google.com/patent/US7594052B2/en?oq=7%2c594%2c052 (last visited December 19, 2022).
[14] Notice of References Cited dated Apr. 15, 2011, File History of U.S. Pat. App. No. 11/434,188; Office Actions dated Apr. 15, 2011, Sept. 28, 2011, June 19, 2012, and Jan. 17, 2013, File History of U.S. Pat. App. No. 11/434,188; Office Action Responses dated July 15, 2011, Dec. 28, 2011, and Sept. 19, 2012, File History of U.S. Pat. App. No. 11/434,188.
[15] Notice of References Cited dated Apr. 15, 2011, File History of U.S. Pat. App. No. 11/434,188.
[16] Notice of References Cited dated Apr. 15, 2011, File History of U.S. Pat. App. No. 11/434,188; Office Actions dated Apr. 15, 2011, Sept. 28, 2011, June 19, 2012, and Jan. 17, 2013, File History of U.S. Pat. App. No. 11/434,188; Office Action Responses dated July 15, 2011, Dec. 28, 2011, and Sept. 19, 2012, File History of U.S. Pat. App. No. 11/434,188; Notice of Abandonment dated Aug. 7, 2013, File History of U.S. Pat. App. No. 11/434,188.

67. The U.S. publication of the '052 patent's application, U.S. Patent Publication No. 2007/0186018, was cited and analyzed, including after the '052 patent had been granted, during the prosecution of U.S. Patent Application No. 11/513,021, entitled "NOC SYSTEM EMPLOYING AXI PROTOCOL AXI INTERLEAVING METHOD THEREOF," assigned to Samsung, with a filing date of August 31, 2006 and purported priority date of October 17, 2005.[17] On information and belief, Samsung was aware of the '052 patent because the U.S. publication of the '052 patent was repeatedly asserted in Office Actions and analyzed in Office Action Responses during prosecution of U.S. Patent Application No. 11/513,021.[18]

68. The U.S. publication of the '052 patent's application, U.S. Patent Publication No. 2007/0186018, was cited, after the '052 patent had been granted, during the prosecution of U.S. Patent Application No. 11/652,010, entitled "NETWORK ON CHIP (NOC) RESPONSE SIGNAL CONTROL APPARATUS AND NOC RESPONSE SIGNAL CONTROL METHOD USING THE APPARATUS," assigned to Samsung, with a filing date of January 11, 2007 and purported priority date of September 13, 2006.[19] Further, the cited reference was identified as "pertinent to" U.S. Patent Application No. 11/652,010.[20]

69. On information and belief, Samsung sought to obtain valid and enforceable patents for itself.

70. Therefore, Samsung was aware of, and considered and analyzed the inventions described and claimed in, all patents and patent applications cited during the prosecution of its

[17] Office Actions dated Jan. 27, 2009 and Aug. 3, 2009, File History of U.S. Pat. App. No. 11/513,021; Office Action Responses dated Apr. 27, 2009 and Oct. 2, 2009, File History of U.S. Pat. App. No. 11/513,021.
[18] *Id.*
[19] Notices of References Cited dated Oct. 2, 2009, Apr. 5, 2010, and Dec. 28, 2012, File History of U.S. Pat. App. No. 11/652,010; Office Actions dated Oct. 2, 2009, Apr. 5, 2010, Oct. 11, 2011, Feb. 3, 2012, and June 8, 2012, File History of U.S. Pat. App. No. 11/652,010.
[20] Office Actions dated Oct. 2, 2009, Apr. 5, 2010, Oct. 11, 2011, Feb. 3, 2012, and June 8, 2012, File History of U.S. Pat. App. No. 11/652,010.

own patent applications, including for patents and patent applications that it acquired.

71. On information and belief, Samsung sought to develop its products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

72. Therefore, on information and belief, Samsung monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

73. On information and belief, Samsung was aware of and considered the ’052 patent, and its actual or potential applicability to its own current products and product roadmaps, including the products described herein.

74. On information and belief, Samsung has expertise in the subject matter of U.S. Patent Application Nos. 11/434,188, 11/513,021, and 11/652,010 and the ’052 patent and possesses sufficient technical competence to understand the scope of such patent and applications.

75. By virtue of Philips’ and the ’052 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, Samsung’s desire to obtain valid and enforceable patents, Samsung’s desire to develop non-infringing products and product roadmaps, and Samsung’s knowledge of the ’052 patent via citation during the prosecution of the aforementioned patent applications, Samsung had actual knowledge of the ’052 patent around the time it issued or its U.S. application published, and in no event later than the April 15, 2011 Notice of References Cited in U.S. Patent Application No. 11/434,188.[21]

76. On information and belief, the non-Samsung Defendants sought to develop their products and product roadmaps, including the products described herein, in ways that would not

[21] *See Elm 3DS Innovations, Ltd. Liab. Co. v. Samsung Elecs. Co.*, Civil Action No. 14-1430-LPS-CJB, 2015 U.S. Dist. LEXIS 130699, at *5-8 (D. Del. Sep. 29, 2015).

infringe U.S. patents in the semiconductor space.

77. Therefore, on information and belief, the non-Samsung Defendants monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

78. On information and belief, the non-Samsung Defendants were aware of and considered the ’052 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

79. On information and belief, the non-Samsung Defendants have expertise in the subject matter of the ’052 patent and possesses sufficient technical competence to understand the scope of such patent.

80. By virtue of Philips’ and the ’052 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, and the non-Samsung Defendants’ desires to develop non-infringing products and product roadmaps, the non-Samsung Defendants had actual knowledge of the ’052 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

U.S. Patent No. 7,769,893

81. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 7,769,893 (the “’9893 patent”), entitled “INTEGRATED CIRCUIT AND METHOD FOR ESTABLISHING TRANSACTIONS,” including the right to sue and to recover for infringement thereof. The ’9893 patent was duly and legally issued on August 3, 2010, naming Kees Gerard Willem Goossens as inventor. A copy of the ’9893 patent is attached hereto as Exhibit 4.

82. The ’9893 patent has 11 claims: 2 independent claims and 9 dependent claims.

83. The ’9893 patent covers SoCs that use an address translation unit, which is part of

a network interface, for address mapping, where the address translation unit determines both the location of a message receiving module and a location within the message receiving module.

84. The claims of the ’9893 patent, including claim 4 (reproduced below), recite at least these inventive concepts of the ’9893 patent.

> 4. A method for exchanging messages in an integrated circuit comprising a plurality of modules, the messages between the plurality of modules being exchanged via a network wherein a message issued by an addressing module M comprises:
>
> first information indicative of a location of an addressed message receiving module S within the network and is comprised of (1) a connection identifier identifying two or more message receiving modules S and (2) an identifier of a passive network interface means associated with the addressed message receiving module S, and second information indicative of a particular location within the addressed message receiving module S, such as a memory, or a register address, the method including the steps of:
>
> (a) issuing from said addressing module M a message request including said first information, said second information, and data and/or connection properties to an address translation unit included as part of an active network interface module associated with said addressing module M,
>
> (b) arranging, at said address translation unit, the first and the second information comprising said issued message as a single address,
>
> (c) determining, at said address translation unit, which message receiving module S is being addressed in said message request issued from said addressing module M based on said single address, and
>
> (d) further determining, at said address translation unit, the particular location within the addressed message receiving module S based on said single address.

(Exhibit 4, ’9893 patent at claim 4.) The subject matter described and claimed by the ’9893 patent, including the method for exchanging messages in an integrated circuit of claim 4, was an improvement in the functionality, performance, and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the ’9893 patent.

85. Defendants had knowledge of the ’9893 patent at least as of the date of this Complaint.

86. The ’9893 patent was developed and patented by Philips Semiconductors, one of the largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the ’9893 patent. On information and belief, such industry participants, including Defendants, considered Philips’ U.S. published patent applications and patents in the semiconductor space, including the ’9893 patent, and such Philips U.S. published patent applications and patents’ actual or potential applicability to their own current products and product roadmaps, including the products described herein.

87. The ’9893 patent is widely and publicly known, and frequently referenced, in the tight-knit semiconductor industry, having been cited during prosecution of approximately 76 patent applications assigned to industry leaders such as Intel Corporation, Arm Limited, NEC Corporation, IBM Corporation, and others.[22]

88. On information and belief, the ’9893 patent, or the application therefor, or a patent or application related to the ’9893 patent, was cited during prosecution of at least one patent application that was then or later assigned to or prosecuted by Samsung.

89. The ’9893 patent was cited during the prosecution of U.S. Patent Application No. 12/659,218, entitled “HOST DEVICE AND SLAVE DEVICE CONTROLLING METHOD,” assigned to Samsung, with a filing date of March 1, 2010 and purported priority date of August

[22] https://patents.google.com/patent/US7769893B2/en?oq=7%2c769%2c893 (last visited December 19, 2022).

18, 2009.[23] Further, the '9893 patent was identified as "pertinent to" U.S. Patent Application No. 12/659,218.[24]

90. On information and belief, Samsung sought to obtain valid and enforceable patents for itself.

91. Therefore, Samsung was aware of, and considered and analyzed the inventions described and claimed in, all patents and patent applications cited during the prosecution of its own patent applications, including for patents and patent applications that it acquired.

92. On information and belief, Samsung sought to develop its products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

93. Therefore, on information and belief, Samsung monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

94. On information and belief, Samsung was aware of and considered the '9893 patent, and its actual or potential applicability to its own current products and product roadmaps, including the products described herein.

95. On information and belief, Samsung has expertise in the subject matter of U.S. Patent Application No. 12/659,218 and the '9893 patent and possesses sufficient technical competence to understand the scope of such patent and applications.

96. By virtue of Philips' and the '9893 patent's fame in the semiconductor industry, the patent's inclusion in the Philips Semiconductor portfolio, Samsung's desire to obtain valid and enforceable patents, Samsung's desire to develop non-infringing products and product roadmaps,

[23] Notice of References Cited dated Feb. 22, 2011, File History of U.S. Pat. App. No. 12/659,218.
[24] Office Action dated Feb. 22, 2011, File History of U.S. Pat. App. No. 12/659,218.

and Samsung's knowledge of the '9893 patent via citation during the prosecution of the aforementioned patent application, Samsung had actual knowledge of the '9893 patent around the time it issued or its U.S. application published, and in no event later than the February 22, 2011 Notice of References Cited and Office Action in U.S. Patent Application No. 12/659,218.[25]

97. On information and belief, the non-Samsung Defendants sought to develop their products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

98. Therefore, on information and belief, the non-Samsung Defendants monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

99. On information and belief, the non-Samsung Defendants were aware of and considered the '9893 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

100. On information and belief, the non-Samsung Defendants have expertise in the subject matter of the '9893 patent and possesses sufficient technical competence to understand the scope of such patent.

101. By virtue of Philips' and the '9893 patent's fame in the semiconductor industry, the patent's inclusion in the Philips Semiconductor portfolio, and the non-Samsung Defendants' desires to develop non-infringing products and product roadmaps, the non-Samsung Defendants had actual knowledge of the '9893 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

U.S. Patent No. 8,072,893

[25] *See Elm 3DS Innovations, Ltd. Liab. Co. v. Samsung Elecs. Co.*, Civil Action No. 14-1430-LPS-CJB, 2015 U.S. Dist. LEXIS 130699, at *5-8 (D. Del. Sep. 29, 2015).

102. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 8,072,893 (the "'2893 patent"), entitled "INTEGRATED CIRCUIT WITH DATA COMMUNICATION NETWORK AND IC DESIGN METHOD," including the right to sue and to recover for infringement thereof. The '2893 patent was duly and legally issued on December 6, 2011, naming John Dielissen and Edwin Rijpkema as inventors. A copy of the '2893 patent is attached hereto as Exhibit 5.

103. The '2893 patent has 12 claims: 5 independent claims and 7 dependent claims.

104. The '2893 patent covers SoCs that improve data communication speed and frequency synchronization between processing units through the use of packetized data (comprising N data elements) and introduction of a delay (of M*N cycles) on a communication channel for communication synchronization, with such delay correlated to the size (N) of the data packet.

105. The claims of the '2893 patent, including claims 1 and 10 (reproduced below), recite at least these inventive concepts of the '2893 patent.

1. An integrated circuit comprising:

a plurality of functional blocks; and

a data communication network comprising a plurality of network stations being interconnected via a plurality of communication channels for communicating data packages between the functional blocks, each data package comprising N data elements including a data element comprising routing information for the network stations, N being an integer of at least two, the plurality of network stations comprising a plurality of data routers and a plurality of network interfaces, each of the data routers being coupled to a functional block via a network interface, the data communication network comprising a first network station and a second network station interconnected through a first communication channel, the data communication network further comprising M*N data storage elements, M being a positive integer, the data communication introducing a delay of M*N cycles on the first communication channel when the data communication network identifies the first communication channel as having a data transfer delay exceeding a predefined delay threshold.

> 10. A method of designing an integrated circuit comprising a plurality of functional blocks, and a data communication network comprising a plurality of network stations being interconnected via a plurality of communication channels for communicating data packages between the functional blocks, each data package comprising N data elements including a data element comprising routing information for the network stations, N being an integer of at least two, the plurality of network stations comprising a plurality of data routers and a plurality of network interfaces, each of the data routers being coupled to a functional block via a network interface; the method comprising the acts of:
>
> identifying a first communication channel between a first network station and a second network station that has a data transfer delay exceeding a predefined delay threshold; and
>
> in response to the identifying act, inserting M*N data storage elements into the data communication network, M being a positive integer, for introducing a delay of M*N cycles on the first communication channel.

(Exhibit 5, ’2893 patent at claims 1 and 10.) The subject matter described and claimed by the ’2893 patent, including the integrated circuit of claim 1 and method of designing an integrated circuit of claim 10, was an improvement in the functionality, performance, and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the ’2893 patent.

106. Defendants had knowledge of the ’2893 patent at least as of the date of this Complaint.

107. The ’2893 patent was developed and patented by Philips Semiconductors, one of the largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the ’2893 patent. On information and belief, such industry participants, including Defendants, considered Philips’ U.S. published patent applications

and patents in the semiconductor space, including the ’2893 patent, and such Philips U.S. published patent applications and patents’ actual or potential applicability to their own current products and product roadmaps, including the products described herein.

108. The ’2893 patent is widely and publicly known, and frequently referenced, in the tight-knit semiconductor industry, having been cited during prosecution of approximately 13 patent applications assigned to industry leaders such as Intel Corporation and others.[26]

109. On information and belief, the ’2893 patent, or the application therefor, or a patent or application related to the ’2893 patent, was cited during prosecution of at least one patent application that was then or later assigned to or prosecuted by Samsung.

110. The U.S. publication of the ’2893 patent’s application, U.S. Patent Publication No. 2008/0186983, was cited during the prosecution of U.S. Patent Application No. 11/513,021, entitled “NOC SYSTEM EMPLOYING AXI PROTOCOL AXI INTERLEAVING METHOD THEREOF,” assigned to Samsung, with a filing date of August 31, 2006 and purported priority date of October 17, 2005.[27] Further, the cited reference was identified as “pertinent to” U.S. Patent Application No. 11/513,021.[28]

111. On information and belief, Samsung sought to obtain valid and enforceable patents for itself.

112. Therefore, Samsung was aware of, and considered and analyzed the inventions described and claimed in, all patents and patent applications cited during the prosecution of its own patent applications, including for patents and patent applications that it acquired.

113. On information and belief, Samsung sought to develop its products and product

[26] https://patents.google.com/patent/US8072893B2/en?oq=8%2c072%2c893 (last visited December 19, 2022).
[27] Notice of References Cited dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.
[28] Office Action dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.

roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

114. Therefore, on information and belief, Samsung monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

115. On information and belief, Samsung was aware of and considered the ’2893 patent, and its actual or potential applicability to its own current products and product roadmaps, including the products described herein.

116. On information and belief, Samsung has expertise in the subject matter of U.S. Patent Application No. 11/513,021 and the ’2893 patent and possesses sufficient technical competence to understand the scope of such patent and applications.

117. By virtue of Philips’ and the ’2893 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, Samsung’s desire to obtain valid and enforceable patents, Samsung’s desire to develop non-infringing products and product roadmaps, and Samsung’s knowledge of the ’2893 patent via citation during the prosecution of the aforementioned patent application, Samsung had actual knowledge of the ’2893 patent around the time it issued or its U.S. application published.[29]

118. On information and belief, the non-Samsung Defendants sought to develop their products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

119. Therefore, on information and belief, the non-Samsung Defendants monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around

[29] *See Elm 3DS Innovations, Ltd. Liab. Co. v. Samsung Elecs. Co.*, Civil Action No. 14-1430-LPS-CJB, 2015 U.S. Dist. LEXIS 130699, at *5-8 (D. Del. Sep. 29, 2015).

the years 2006-2012.

120. On information and belief, the non-Samsung Defendants were aware of and considered the ’2893 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

121. On information and belief, the non-Samsung Defendants have expertise in the subject matter of the ’2893 patent and possesses sufficient technical competence to understand the scope of such patent.

122. By virtue of Philips’ and the ’2893 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, and the non-Samsung Defendants’ desires to develop non-infringing products and product roadmaps, the non-Samsung Defendants had actual knowledge of the ’2893 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

U.S. Patent No. 8,086,800

123. Plaintiff is the lawful owner of all right, title, and interest in United States Patent No. 8,086,800 (the “’800 patent”), entitled “INTEGRATED CIRCUIT AND METHOD FOR BUFFERING TO OPTIMIZE BURST LENGTH IN NETWORKS ON CHIPS,” including the right to sue and to recover for infringement thereof. The ’800 patent was duly and legally issued on December 27, 2011, naming Andrei Radulescu and Kees Gerard Willem Goossens as inventors. A copy of the ’800 patent is attached hereto as Exhibit 6.

124. The ’800 patent has 21 claims: 4 independent claims and 17 dependent claims.

125. The ’800 patent covers SoCs that employ data buffering at requesting (master) and responding (slave) modules and where each module has a network interface with a wrapper that buffers data into optimal amounts for transfer.

126. The claims of the ’800 patent, including claim 10 (reproduced below), recite at least these inventive concepts of the ’800 patent.

> 10. A method for buffering data in an integrated circuit having a plurality of processing modules being connected with an interconnect through interface units, wherein a first processing module communicates to a second processing module using transactions, the method comprising the acts of:
>
> configuring the first processing module having a first memory as a master the provides requests;
>
> configuring the second processing module having a second memory as a slave the provides responses to the requests;
>
> connecting the master to a master interface unit of the interface units;
>
> connecting the master interface unit to the interconnect so that the master interface unit is between the master and the interconnect;
>
> connecting the slave to a slave interface unit of the interface units;
>
> connecting the slave interface unit to the interconnect so that the slave interface unit is between the slave and the interconnect;
>
> determining by a master determination unit of the master interface unit a first optimal amount of data to be buffered by a master wrapper of the master interface unit;
>
> determining by a slave determination unit of the slave interface unit a second optimal amount of data to be buffered by a slave wrapper of the slave interface unit;
>
> buffering by the slave wrapper of the slave interface unit data from the slave to be transferred over the interconnect until a first optimal amount of data is buffered;
>
> transferring the buffered data from the slave wrapper to the master wrapper when said first optimal amount of data has been buffered by the slave wrapper;
>
> buffering by the master wrapper of the master interface unit data from the master to be transferred over the interconnect until a second optimal amount of data is buffered by the master wrapper;

> transferring the buffered data from the master wrapper to the slave wrapper when said second optimal amount of data has been buffered by the master wrapper,
>
> wherein at least one of the first determination unit and the second determination unit is further configured to determine an optimal moment for sending the data in said first wrapper or said second wrapper according to communication properties of the communication between the master and the slave, wherein the communication properties include ordering of data transport, flow control including when a remote buffer is reserved for a connection, then a data producer will be allowed to send data only when it is guaranteed that space is available for the produced data at the remote buffer, throughput where a lower bound on throughput is guaranteed, latency where an upper bound for latency is guaranteed, lossiness including dropping of data, transmission termination, transaction completion, data correctness, priority, and data delivery.

(Exhibit 6, '800 patent at claim 10.) The subject matter described and claimed by the '800 patent, including the method for buffering data in an integrated circuit of claim 10, was an improvement in the functionality, performance, and efficiency of integrated circuits and the connections and communication networks thereof and was novel and not well-understood, routine, or conventional at the time of the '800 patent.

127. Defendants had knowledge of the '800 patent at least as of the date of this Complaint.

128. The '800 patent was developed and patented by Philips Semiconductors, one of the largest semiconductor companies in the world. Because of the size and prominence of Philips in the tight-knit semiconductor industry, industry participants, including, on information and belief, Defendants, monitored patenting activity by Philips and reviewed, and were aware of shortly after their publication, at least the U.S. published patent applications and patents obtained by Philips in the semiconductor space, including the '800 patent. On information and belief, such industry participants, including Defendants, considered Philips' U.S. published patent applications and patents in the semiconductor space, including the '800 patent, and such Philips U.S. published

patent applications and patents' actual or potential applicability to their own current products and product roadmaps, including the products described herein.

129. On information and belief, the '800 patent, or the application therefor, or a patent or application related to the '800 patent, was cited during prosecution of at least one patent application that was then or later assigned to or prosecuted by Samsung.

130. The U.S. publication of the '800 patent's application, U.S. Patent Publication No. 2007/0226407, was cited during the prosecution of U.S. Patent Application No. 11/513,021, entitled "NOC SYSTEM EMPLOYING AXI PROTOCOL AXI INTERLEAVING METHOD THEREOF," assigned to Samsung, with a filing date of August 31, 2006 and purported priority date of October 17, 2005.[30] Further, the cited reference was identified as "pertinent to" U.S. Patent Application No. 11/513,021.[31]

131. On information and belief, Samsung sought to obtain valid and enforceable patents for itself.

132. Therefore, Samsung was aware of, and considered and analyzed the inventions described and claimed in, all patents and patent applications cited during the prosecution of its own patent applications, including for patents and patent applications that it acquired.

133. On information and belief, Samsung sought to develop its products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

134. Therefore, on information and belief, Samsung monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

[30] Notice of References Cited dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.
[31] Office Action dated Jan. 27, 2009, File History of U.S. Pat. App. No. 11/513,021.

135. On information and belief, Samsung was aware of and considered the ’800 patent, and its actual or potential applicability to its own current products and product roadmaps, including the products described herein.

136. On information and belief, Samsung has expertise in the subject matter of U.S. Patent Application No. 11/513,021 and the ’800 patent and possesses sufficient technical competence to understand the scope of such patent and applications.

137. By virtue of Philips’ and the ’800 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, Samsung’s desire to obtain valid and enforceable patents, Samsung’s desire to develop non-infringing products and product roadmaps, and Samsung’s knowledge of the ’800 patent via citation during the prosecution of the aforementioned patent application, Samsung had actual knowledge of the ’800 patent around the time it issued or its U.S. application published.[32]

138. On information and belief, the non-Samsung Defendants sought to develop their products and product roadmaps, including the products described herein, in ways that would not infringe U.S. patents in the semiconductor space.

139. Therefore, on information and belief, the non-Samsung Defendants monitored U.S. published patent applications and patents obtained by Philips in the semiconductor space in around the years 2006-2012.

140. On information and belief, the non-Samsung Defendants were aware of and considered the ’800 patent, and its actual or potential applicability to their own current products and product roadmaps, including the products described herein.

141. On information and belief, the non-Samsung Defendants have expertise in the

[32] *See Elm 3DS Innovations, Ltd. Liab. Co. v. Samsung Elecs. Co.*, Civil Action No. 14-1430-LPS-CJB, 2015 U.S. Dist. LEXIS 130699, at *5-8 (D. Del. Sep. 29, 2015).

subject matter of the ’800 patent and possesses sufficient technical competence to understand the scope of such patent.

142. By virtue of Philips’ and the ’800 patent’s fame in the semiconductor industry, the patent’s inclusion in the Philips Semiconductor portfolio, and the non-Samsung Defendants’ desires to develop non-infringing products and product roadmaps, the non-Samsung Defendants had actual knowledge of the ’800 patent around the time it issued or its U.S. application published, and in no event later than the date of this Complaint.

BACKGROUND OF DEFENDANTS’ INFRINGING CONDUCT

143. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 142 above.

144. SoCs are widely used in consumer electronics or computing devices, including smartphones, laptops, tablets, and embedded systems such as vehicle infotainment devices and advanced driver assistance systems. SoCs are complex integrated circuits that may incorporate multiple processors, memory units, and interfaces onto a single chip.

145. As SoCs have developed over time, more processing cores and other IP blocks were incorporated into SoCs, resulting in increased intermodular connections and a greater need for intra-SoC communication efficiency. Thus, intra-SoC communication designs have moved from prior interconnect technologies (e.g., bus or point-to-point designs) to network- interconnects, which provide advantages compared to other forms of intra-SoC communication, such as fewer wires, lower routing congestion, and decreased SoC die area, all leading to: smaller devices; increased IP block density, which results in more powerful devices; increased power efficiency, which enables better battery life; decreased thermal load, which leads to longer system life; and improved system performance. Therefore, interconnect efficiency—driven by the pioneering

innovations claimed in the Asserted Patents—is now a dominant factor in determining overall SoC system performance, size, and cost.

146. As discussed above, the Asserted Patents relate to fundamental innovations in SoCs, including how the multitude of processors, memories, and other functional units residing on an SoC are interconnected and communicate with each other.

147. The Defendants are a leading semiconductor and electronic device company (Samsung) and other leading electronic device companies (Lenovo and OnePlus). As noted above, the accused products fall into three categories: 1) products containing Snapdragon SoCs; 2) Samsung Exynos SoCs; and 3) products containing Exynos SoCs. On information and belief, all of the Defendants make, use, offer for sale, sell, and/or import accused products that fall within the first category, referred to herein as the Snapdragon Accused Products. On information and belief, at least Samsung additionally makes, uses, offers for sale, sells, and/or imports accused products that fall within the last two categories, referred to herein as the Exynos Accused Products.

148. On information and belief, Snapdragon SoCs include Arteris interconnect technology and/or a derivative thereof.[33] Thus, on information and belief, Defendants make, use, sell, offer for sale, and/or import, or have otherwise made, used, sold, offered for sale, and/or imported, Snapdragon Accused Products incorporating Arteris interconnect technology and/or a derivative thereof.

149. As set forth in the charts appended hereto, the Snapdragon Accused Products,

[33] https://web.archive.org/web/20210514110614/https:/www.arteris.com/customers (last visited December 19, 2022) (identifying Qualcomm as an Arteris customer and stating that "Arteris-developed NoC technology is the backbone of Snapdragon application processors & LTE modems, Atheros wireless connectivity SoCs, and CSR IoT products"); https://www.eetimes.com/qualcomm-buys-arteris-tech-team (last visited December 19, 2022) ("Qualcomm has been a customer of Arteris for about three years. It uses its FlexNoc 'in most of its chips,' [Arteris President] Janac said."); *see also* https://news.thomasnet.com/fullstory/arteris-flexnoc-network-on-chip-technology-designed-into-majority-of-mobile-socs-20009449 (last visited December 19, 2022) (Arteris FlexNoC was incorporated into over 60% of SoCs deployed in smartphones and tablets).

including their incorporation of Arteris interconnect technology and/or a derivative thereof, infringe each of the Asserted Patents.

150. On information and belief, Exynos SoCs include Arteris interconnect technology and/or a derivative thereof.[34] Thus, on information and belief, Samsung makes, uses, sells, offers for sale, and/or imports, or has otherwise made, used, sold, offered for sale, and/or imported, Exynos Accused Products incorporating Arteris interconnect technology and/or a derivative thereof.

151. As set forth in the charts appended hereto, the Exynos Accused Products, including their incorporation of Arteris interconnect technology and/or a derivative thereof, infringe each of the Asserted Patents.

152. On information and belief, Samsung's products that infringe the Asserted Patents (collectively, "Samsung Accused Products") include the following:

Samsung Accused Products
• Exynos processors[35] • Samsung integrated circuits containing Arteris interconnect technology and/or a derivative thereof • Phones, tablets, computers, laptops and Chromebooks containing Exynos processors or other Samsung integrated circuits containing Arteris interconnect technology and/or a derivative thereof • Samsung phones, tablets, computers, laptops and Chromebooks containing Snapdragon processors or other Qualcomm integrated circuits • Vehicles and components thereof containing Exynos processors or other Samsung integrated circuits containing

[34] https://web.archive.org/web/20210514110614/https:/www.arteris.com/customers (last visited December 19, 2022) (identifying Samsung as an Arteris customer and stating that "Samsung uses Arteris FlexNoC IP in its Samsung Exynos … processors"); https://www.arteris.com/customers (last visited December 19, 2022) (identifying Samsung as an Arteris customer and stating that "Samsung has been using Arteris® IP technology for over a decade"); *see also* https://news.thomasnet.com/fullstory/arteris-flexnoc-network-on-chip-technology-designed-into-majority-of-mobile-socs-20009449 (last visited December 19, 2022) (Arteris FlexNoC was incorporated into over 60% of SoCs deployed in smartphones and tablets).

[35] https://web.archive.org/web/20210514110614/https:/www.arteris.com/customers (last visited December 19, 2022) (identifying Samsung as an Arteris customer and stating that "Samsung uses Arteris FlexNoC IP in its Samsung Exynos … processors").

Arteris interconnect technology and/or a derivative thereof, including, for example, the Exynos Auto • Virtual Reality, Augmented Reality, and wearable products containing Exynos processors or other Samsung integrated circuits containing Arteris interconnect technology and/or a derivative thereof, including, for example, the Exynos Wear • IoT, Audio, Wireless Network and Smart Home products containing Snapdragon processors or other Qualcomm integrated circuits containing Arteris interconnect technology and/or a derivative thereof, including for example, the Exynos Modem and Exynos RF processors, as well as Samsung digital baseband modems containing Arteris interconnect technology and/or a derivative thereof and Artik IoT modules[36] • Galaxy Book Go • Galaxy Book Go 5G • Galaxy Book S LTE • Galaxy A series phones • Galaxy J series of phones • Galaxy M series phones • Galaxy Note series phones • Galaxy S series phones • Galaxy Z series phones • Galaxy Tab A series tablets • Galaxy Tab S series tablets

153. The above-listed Samsung Accused Products are non-limiting. Additional products of Samsung may infringe the Asserted Patents, and the above-listed Samsung Accused Products may infringe additional patents.

154. On information and belief, the Samsung Accused Products constitute or include Samsung Exynos SoCs with Arteris interconnect technology and/or a derivative thereof, and/or include Qualcomm Snapdragon SoCs with Arteris interconnect technology and/or a derivative thereof.

[36] https://web.archive.org/web/20210514110614/https:/www.arteris.com/customers (last visited December 19, 2022) (identifying Samsung as an Arteris customer and stating that "Samsung uses Arteris FlexNoC IP in its "digital baseband modems" and "Artik IoT modules").

155. Samsung has infringed and continues to infringe the Asserted Patents by making, using, selling, offering to sell, and/or importing, without license or authority, the Samsung Accused Products as alleged herein, which embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

156. Comparisons of claims of the Asserted Patents to exemplary products of the Samsung Accused Products are attached as Exhibits 7, 13 and 19 ('818 patent), Exhibits 8, 14, and 20 ('449 patent), Exhibits 9, 15, and 21 ('052 patent), Exhibits 10, 16, and 22 ('9893 patent), Exhibits 11, 17, and 23 ('2893 patent, claim 1), Exhibit 24 ('2893 patent, claim 10), and Exhibits 12, 18, and 25 ('800 patent), which are incorporated herein by reference.

157. Samsung has induced infringement and continues to induce infringement of the Asserted Patents by actively and knowingly inducing others to make, use, sell, offer to sell, and/or import, without license or authority, the Samsung Accused Products as alleged herein, which embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

158. Samsung markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products and, on information and belief, does so to actively and knowingly induce, encourage, instruct, and aid one or more persons in the United States to make, use, sell, offer to sell and/or import the Samsung Accused Products. For example, Samsung, or an entity under Samsung's direction or control, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products on its website.[37] Samsung, or one or more related entities, further publishes and distributes data sheets, manuals, and guides for the Samsung Accused Products.[38]

[37] *See, e.g.*, https://semiconductor.samsung.com/processor/ (last visited December 19, 2022); https://www.samsung.com/global/galaxy/ (last visited December 19, 2022).
[38] *See, e.g.*, https://download.semiconductor.samsung.com/resources/brochure/Exynos2200.pdf (last visited

Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the Asserted Patents, as described and alleged herein.

159. Samsung has contributorily infringed and continues to contributorily infringe the Asserted Patents by selling or offering to sell Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the Asserted Patents and not a staple article or commodity of commerce suitable for substantial non-infringing use.

160. On information and belief, and as alleged above, Samsung has known of the existence of the Asserted Patents and their applicability to Samsung's Accused Products, and its acts of infringement have been willful and in disregard for the Asserted Patents, without any reasonable basis for believing that it had a right to engage in the infringing conduct, at least as of the dates of knowledge of the Asserted Patents alleged above, and no later than the date of this Complaint.

161. On information and belief, Lenovo's products that infringe the Asserted Patents (collectively, "Lenovo Accused Products") include the following:

Lenovo Accused Products
• Lenovo phones, tablets, computers, laptops and Chromebooks containing Exynos processors or other Samsung integrated circuits • Lenovo phones, tablets, computers, laptops and Chromebooks containing Snapdragon processors or other Qualcomm integrated circuits • Motorola phones, tablets, computers, laptops and Chromebooks containing Exynos processors or other Samsung integrated circuits • Motorola phones, tablets, computers, laptops and Chromebooks containing Snapdragon processors or other Qualcomm integrated circuits • ThinkPad x13s laptop

December 19, 2022) (Exynos 2200 product brief by Samsung);
https://chasinglulu.github.io/downloads/SEC_Exynos4412_Users%20Manual_Ver.1.00.00.pdf (last visited December 19, 2022) (Exynos 4412, RISC Microprocessor, User's Manual, February 2012, Revision 1.00).

- IdeaPad Duet series of Chromebooks
- Tab series tablets
- Yoga Tab series tablets
- Moto E series phones
- Moto Edge series phones
- Moto G series phones
- Moto One series phones
- Moto Z series phones

162. The above-listed Lenovo Accused Products are non-limiting. Additional products of Lenovo may infringe the Asserted Patents, and the above-listed Lenovo Accused Products may infringe additional patents.

163. On information and belief, the Lenovo Accused Products include Qualcomm Snapdragon SoCs with Arteris interconnect technology and/or a derivative thereof.

164. Lenovo has infringed and continues to infringe the Asserted Patents by making, using, selling, offering to sell, and/or importing, without license or authority, the Lenovo Accused Products as alleged herein, which embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

165. Comparisons of claims of the Asserted Patents to exemplary products of the Lenovo Accused Products are attached as Exhibits 26 and 32 ('818 patent), Exhibits 27 and 33 ('449 patent), Exhibits 28 and 34 ('052 patent), Exhibits 29 and 35 ('9893 patent), Exhibits 30 and 36 ('2893 patent), and Exhibits 31 and 37 ('800 patent), which are incorporated herein by reference.

166. Lenovo has induced infringement and continues to induce infringement of the Asserted Patents by actively and knowingly inducing others to make, use, sell, offer to sell, and/or import, without license or authority, the Lenovo Accused Products as alleged herein, which embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

167. Lenovo markets, advertises, offers for sale, and/or otherwise promotes the Lenovo

Accused Products and, on information and belief, does so to actively and knowingly induce, encourage, instruct, and aid one or more persons in the United States to make, use, sell, offer to sell and/or import the Lenovo Accused Products. For example, Lenovo, or an entity under Lenovo's direction or control, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products on its website.[39] Lenovo, or one or more related entities, further publishes and distributes data sheets, manuals, and guides for the Lenovo Accused Products.[40] Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the Asserted Patents, as described and alleged herein.

168. Lenovo has contributorily infringed and continues to contributorily infringe the Asserted Patents by selling or offering to sell Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the Asserted Patents and not a staple article or commodity of commerce suitable for substantial non-infringing use.

169. On information and belief, and as alleged above, Lenovo has known of the existence of the Asserted Patents and their applicability to Lenovo's Accused Products, and its acts of infringement have been willful and in disregard for the Asserted Patents, without any reasonable basis for believing that it had a right to engage in the infringing conduct, at least as of the dates of knowledge of the Asserted Patents alleged above, and no later than the date of this Complaint.

170. On information and belief, OnePlus's products that infringe the Asserted Patents (collectively, "OnePlus Accused Products") include the following:

OnePlus Accused Products

[39] *See, e.g.*, https://www.lenovo.com/us/en/p/laptops/thinkpad/thinkpadx/thinkpad-x13s-(13-inch-snapdragon)/len101t0019 (last visited December 19, 2022) (Lenovo webpage for ThinkPad X13s); https://www.motorola.com/us/smartphones-motorola-one-5g/p?skuId=459 (last visited December 19, 2022) (Motorola webpage for Motorola One 5G).

[40] https://psref.lenovo.com/syspool/Sys/PDF/ThinkPad/ThinkPad_X13s_Gen_1/ThinkPad_X13s_Gen_1_Spec.pdf (last visited December 19, 2022) (ThinkPad X13s Gen 1 Product Specifications Reference); and https://motorola-global-portal.custhelp.com/app/product_page/faqs/p/10896 (last visited December 19, 2022) (displaying list of guides and FAQs for Motorola One 5G).

- OnePlus phones, tablets, computers, laptops and Chromebooks containing Exynos processors or other Samsung integrated circuits
- OnePlus phones, tablets, computers, laptops and Chromebooks containing Snapdragon processors or other Qualcomm integrated circuits
- OnePlus 10T
- OnePlus 10 Pro
- OnePlus 9
- OnePlus 9 Pro
- OnePlus 8
- OnePlus 8T
- OnePlus 8 Pro
- OnePlus 7T

171. The above-listed OnePlus Accused Products are non-limiting. Additional products of OnePlus may infringe the Asserted Patents, and the above-listed OnePlus Accused Products may infringe additional patents.

172. On information and belief, the OnePlus Accused Products include Qualcomm Snapdragon SoCs with Arteris interconnect technology and/or a derivative thereof.

173. OnePlus has infringed and continues to infringe the Asserted Patents by making, using, selling, offering to sell, and/or importing, without license or authority, the OnePlus Accused Products as alleged herein, which embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

174. Comparison of claims of the Asserted Patents to an exemplary product of the OnePlus Accused Products are attached as Exhibit 38 ('818 patent), Exhibit 39 ('449 patent), Exhibit 40 ('052 patent), Exhibit 41 ('9893 patent), Exhibit 42 ('2893 patent), and Exhibit 43 ('800 patent), which are incorporated herein by reference.

175. OnePlus has induced infringement and continues to induce infringement of the Asserted Patents by actively and knowingly inducing others to make, use, sell, offer to sell, and/or import, without license or authority, the OnePlus Accused Products as alleged herein, which

embody or use the inventions claimed in the Asserted Patents literally or under the doctrine of equivalents.

176. OnePlus markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products and, on information and belief, does so to actively and knowingly induce, encourage, instruct, and aid one or more persons in the United States to make, use, sell, offer to sell and/or import the OnePlus Accused Products. For example, OnePlus, or an entity under OnePlus's direction or control, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products on its website.[41] OnePlus, or one or more related entities, further publishes and distributes data sheets, manuals, and guides for the OnePlus Accused Products.[42] Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the Asserted Patents, as described and alleged herein.

177. OnePlus has contributorily infringed and continues to contributorily infringe the Asserted Patents by selling or offering to sell OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the Asserted Patents and not a staple article or commodity of commerce suitable for substantial non-infringing use.

178. On information and belief, and as alleged above, OnePlus has known of the existence of the Asserted Patents and their applicability to OnePlus's Accused Products, and its acts of infringement have been willful and in disregard for the Asserted Patents, without any reasonable basis for believing that it had a right to engage in the infringing conduct, at least as of the dates of knowledge of the Asserted Patents alleged above, and no later than the date of this

[41] https://www.oneplus.com/store/phone (last visited December 19, 2022).
[42] https://service.oneplus.com/us/user-manual (last visited December 19, 2022); https://service.oneplus.com/content/dam/support/user-manuals/common/OnePlus_10T_5G_User_Manual_EN.pdf (last visited December 19, 2022) (OnePlus 10T 5G User Manual); https://service.oneplus.com/content/dam/support/user-manuals/common/OnePlus_9_Pro_User_Manual_EN.pdf (last visited December 19, 2022) (OnePlus 9 Pro User Manual).

Complaint.

179. On information and belief, the Samsung Accused Products, Lenovo Accused Products, and OnePlus Accused Products all include SoC technology that infringes each of the Asserted Patents.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 7,366,818

180. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 179 above.

181. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’818 patent in violation of 35 U.S.C. § 271(a), including claim 1. Comparisons of claim 1 of the ’818 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 7, 13, and 19, which are incorporated herein by reference.

182. On information and belief, with knowledge of the ’818 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’818 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’818 patent, including claim 1, with the intent to encourage those customers and/or end users to infringe the ’818 patent.

183. By way of example, on information and belief, Samsung actively induces infringement of the ’818 patent by encouraging, instructing, and aiding one or more persons in the

United States, including but not limited to customers and/or end users who test, operate, and use Samsung's products, including at least the Samsung Accused Products, to make, use, sell, offer to sell, and/or import Samsung's products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the '818 patent, including claim 1. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the '818 patent.

184. On information and belief, with knowledge of the '818 patent, Samsung also contributed to, and continues to contribute to, the infringement of one or more claims of the '818 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the '818 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the '818 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Samsung's informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the '818 patent.

185. On information and belief, as a result of Samsung's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung's products, including

the Samsung Accused Products, in ways that directly infringe one or more claims of the ’818 patent, including claim 1. On information and belief, Samsung had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung’s products, including the Samsung Accused Products, at least as of the dates of knowledge of the ’818 patent alleged above, and no later than the date of this Complaint.

186. On information and belief, with knowledge of the ’818 patent, Samsung has willfully, deliberately, and intentionally infringed the ’818 patent, at least as of the dates of knowledge of the ’818 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’818 patent. On information and belief, Samsung had actual knowledge of the ’818 patent and Samsung’s infringement of the ’818 patent at least as of the dates of knowledge of the ’818 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the ’818 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the ’818 patent at least because Samsung was aware of the ’818 patent and Samsung’s infringement of the ’818 patent at least as of the dates of knowledge of the ’818 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the ’818 patent’s fame in the semiconductor industry, Samsung’s expertise in the subject matter of the ’818 patent, Samsung’s technical competence to understand the scope of the ’818 patent, and Samsung’s intimate familiarity with its Accused Products. Additionally, Samsung was aware of the ’818 patent, and Samsung’s infringement of the ’818 patent, at least as of the date of this Complaint because Plaintiff notified Samsung of such.

187. On information and belief, Samsung will continue to infringe the ’818 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung’s acts of infringement and, unless Samsung is enjoined from its infringement of the ’818 patent, Plaintiff will continue to suffer irreparable harm.

188. Plaintiff is entitled to recover from Samsung damages at least in an amount adequate to compensate for its infringement of the ’818 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

189. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’818 patent in violation of 35 U.S.C. § 271(a), including claim 1. Comparisons of claim 1 of the ’818 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 26 and 32, which are incorporated herein by reference.

190. On information and belief, with knowledge of the ’818 patent, Lenovo has actively induced and continues to induce the direct infringement of one or more claims of the ’818 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’818 patent, including claim 1, with the intent to encourage those customers and/or end users to infringe the ’818 patent.

191. By way of example, on information and belief, Lenovo actively induces infringement of the ’818 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo’s products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo’s products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the ’818 patent, including claim 1. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the ’818 patent.

192. On information and belief, with knowledge of the ’818 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the ’818 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’818 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the ’818 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo’s informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the ’818 patent.

193. On information and belief, as a result of Lenovo’s inducement of, and/or

contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo's products, including the Lenovo Accused Products, in ways that directly infringe one or more claims of the '818 patent, including claim 1. On information and belief, Lenovo had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo's products, including the Lenovo Accused Products, at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint.

194. On information and belief, with knowledge of the '818 patent, Lenovo has willfully, deliberately, and intentionally infringed the '818 patent, at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '818 patent. On information and belief, Lenovo had actual knowledge of the '818 patent and Lenovo's infringement of the '818 patent at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the '818 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the '818 patent at least because Lenovo was aware of the '818 patent and Lenovo's infringement of the '818 patent at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the '818 patent's fame in the semiconductor industry, Lenovo's expertise in the subject matter of the '818 patent, Lenovo's technical competence to understand the scope of the '818 patent, and Lenovo's intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the '818 patent, and Lenovo's infringement of the '818 patent, at least as of the date of this Complaint because Plaintiff notified

Lenovo of such.

195. On information and belief, Lenovo will continue to infringe the ’818 patent unless and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo’s acts of infringement and, unless Lenovo is enjoined from its infringement of the ’818 patent, Plaintiff will continue to suffer irreparable harm.

196. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the ’818 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

197. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’818 patent in violation of 35 U.S.C. § 271(a), including claim 1. A comparison of claim 1 of the ’818 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 38, which is incorporated herein by reference.

198. On information and belief, with knowledge of the ’818 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the ’818 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’818 patent, including claim 1, with the intent to encourage those customers and/or end users

to infringe the ’818 patent.

199. By way of example, on information and belief, OnePlus actively induces infringement of the ’818 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’818 patent, including claim 1. For example, as described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’818 patent.

200. On information and belief, with knowledge of the ’818 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’818 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’818 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’818 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are especially made or especially adapted for a use that infringes the ’818 patent.

201. On information and belief, as a result of OnePlus's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, OnePlus's products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the '818 patent, including claim 1. On information and belief, OnePlus had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus's products, including the OnePlus Accused Products, at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint.

202. On information and belief, with knowledge of the '818 patent, OnePlus has willfully, deliberately, and intentionally infringed the '818 patent, at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '818 patent. On information and belief, OnePlus had actual knowledge of the '818 patent and OnePlus's infringement of the '818 patent at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the '818 patent as set forth above. On information and belief, OnePlus knew or should have known that its conduct amounted to infringement of the '818 patent at least because OnePlus was aware of the '818 patent and OnePlus's infringement of the '818 patent at least as of the dates of knowledge of the '818 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the '818 patent's fame in the semiconductor industry, OnePlus's expertise in the subject matter of the '818 patent, OnePlus's technical competence to understand the scope of the '818 patent, and OnePlus's intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the '818

patent, and OnePlus's infringement of the '818 patent, at least as of the date of this Complaint because Plaintiff notified OnePlus of such.

203. On information and belief, OnePlus will continue to infringe the '818 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus's acts of infringement and, unless OnePlus is enjoined from its infringement of the '818 patent, Plaintiff will continue to suffer irreparable harm.

204. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate to compensate for its infringement of the '818 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 7,373,449

205. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 204 above.

206. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the '449 patent in violation of 35 U.S.C. § 271(a), including claim 10. Comparisons of claim 10 of the '449 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 8, 14, and 20, which are incorporated herein by reference.

207. On information and belief, with knowledge of the '449 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the '449 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of

its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’449 patent, including claim 10, with the intent to encourage those customers and/or end users to infringe the ’449 patent.

208. By way of example, on information and belief, Samsung actively induces infringement of the ’449 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Samsung’s products, including at least the Samsung Accused Products, to make, use, sell, offer to sell, and/or import Samsung’s products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the ’449 patent, including claim 10. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the ’449 patent.

209. On information and belief, with knowledge of the ’449 patent, Samsung also contributed to, and continues to contribute to, the infringement of one or more claims of the ’449 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’449 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the ’449 patent when used for

their normal and intended purpose. This is also evidenced by, among other things, Samsung's informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the '449 patent.

210. On information and belief, as a result of Samsung's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung's products, including the Samsung Accused Products, in ways that directly infringe one or more claims of the '449 patent, including claim 10. On information and belief, Samsung had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung's products, including the Samsung Accused Products, at least as of the dates of knowledge of the '449 patent alleged above, and no later than the date of this Complaint.

211. On information and belief, with knowledge of the '449 patent, Samsung has willfully, deliberately, and intentionally infringed the '449 patent, at least as of the dates of knowledge of the '449 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '449 patent. On information and belief, Samsung had actual knowledge of the '449 patent and Samsung's infringement of the '449 patent at least as of the dates of knowledge of the '449 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the '449 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the '449 patent at least because Samsung was aware of the '449 patent and Samsung's infringement

of the ’449 patent at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the ’449 patent’s fame in the semiconductor industry, Samsung’s expertise in the subject matter of the ’449 patent, Samsung’s technical competence to understand the scope of the ’449 patent, and Samsung’s intimate familiarity with its Accused Products. Additionally, Samsung was aware of the ’449 patent, and Samsung’s infringement of the ’449 patent, at least as of the date of this Complaint because Plaintiff notified Samsung of such.

212. On information and belief, Samsung will continue to infringe the ’449 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung’s acts of infringement and, unless Samsung is enjoined from its infringement of the ’449 patent, Plaintiff will continue to suffer irreparable harm.

213. Plaintiff is entitled to recover from Samsung damages at least in an amount adequate to compensate for its infringement of the ’449 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

214. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’449 patent in violation of 35 U.S.C. § 271(a), including claim 10. Comparisons of claim 10 of the ’449 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 27 and 33, which are incorporated herein by reference.

215. On information and belief, with knowledge of the ’449 patent, Lenovo has actively

induced and continues to induce the direct infringement of one or more claims of the ’449 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’449 patent, including claim 10, with the intent to encourage those customers and/or end users to infringe the ’449 patent.

216. By way of example, on information and belief, Lenovo actively induces infringement of the ’449 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo’s products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo’s products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the ’449 patent, including claim 10. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the ’449 patent.

217. On information and belief, with knowledge of the ’449 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the ’449 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’449 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things,

the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the ’449 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo’s informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the ’449 patent.

218. On information and belief, as a result of Lenovo’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo’s products, including the Lenovo Accused Products, in ways that directly infringe one or more claims of the ’449 patent, including claim 10. On information and belief, Lenovo had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo’s products, including the Lenovo Accused Products, at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint.

219. On information and belief, with knowledge of the ’449 patent, Lenovo has willfully, deliberately, and intentionally infringed the ’449 patent, at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’449 patent. On information and belief, Lenovo had actual knowledge of the ’449 patent and Lenovo’s infringement of the ’449 patent at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the ’449 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the ’449 patent

at least because Lenovo was aware of the ’449 patent and Lenovo’s infringement of the ’449 patent at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the ’449 patent’s fame in the semiconductor industry, Lenovo’s expertise in the subject matter of the ’449 patent, Lenovo’s technical competence to understand the scope of the ’449 patent, and Lenovo’s intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the ’449 patent, and Lenovo’s infringement of the ’449 patent, at least as of the date of this Complaint because Plaintiff notified Lenovo of such.

220. On information and belief, Lenovo will continue to infringe the ’449 patent unless and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo’s acts of infringement and, unless Lenovo is enjoined from its infringement of the ’449 patent, Plaintiff will continue to suffer irreparable harm.

221. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the ’449 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

222. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’449 patent in violation of 35 U.S.C. § 271(a), including claim 10. A comparison of claim 10 of the ’449 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 39, which is incorporated herein by reference.

223. On information and belief, with knowledge of the ’449 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the ’449 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’449 patent, including claim 10, with the intent to encourage those customers and/or end users to infringe the ’449 patent.

224. By way of example, on information and belief, OnePlus actively induces infringement of the ’449 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’449 patent, including claim 10. For example, as described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’449 patent.

225. On information and belief, with knowledge of the ’449 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’449 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’449 patent and not a staple article or commodity of

commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’449 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are especially made or especially adapted for a use that infringes the ’449 patent.

226. On information and belief, as a result of OnePlus’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, OnePlus’s products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the ’449 patent, including claim 10. On information and belief, OnePlus had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus’s products, including the OnePlus Accused Products, at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint.

227. On information and belief, with knowledge of the ’449 patent, OnePlus has willfully, deliberately, and intentionally infringed the ’449 patent, at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’449 patent. On information and belief, OnePlus had actual knowledge of the ’449 patent and OnePlus’s infringement of the ’449 patent at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the ’449 patent as set forth above. On information

and belief, OnePlus knew or should have known that its conduct amounted to infringement of the ’449 patent at least because OnePlus was aware of the ’449 patent and OnePlus’s infringement of the ’449 patent at least as of the dates of knowledge of the ’449 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the ’449 patent’s fame in the semiconductor industry, OnePlus’s expertise in the subject matter of the ’449 patent, OnePlus’s technical competence to understand the scope of the ’449 patent, and OnePlus’s intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the ’449 patent, and OnePlus’s infringement of the ’449 patent, at least as of the date of this Complaint because Plaintiff notified OnePlus of such.

228. On information and belief, OnePlus will continue to infringe the ’449 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus’s acts of infringement and, unless OnePlus is enjoined from its infringement of the ’449 patent, Plaintiff will continue to suffer irreparable harm.

229. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate to compensate for its infringement of the ’449 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 7,594,052

230. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 229 above.

231. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused

Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’052 patent in violation of 35 U.S.C. § 271(a), including claim 6. Comparisons of claim 6 of the ’052 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 9, 15, and 21, which are incorporated herein by reference.

232. On information and belief, with knowledge of the ’052 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’052 patent, including claim 6, with the intent to encourage those customers and/or end users to infringe the ’052 patent.

233. By way of example, on information and belief, Samsung actively induces infringement of the ’052 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Samsung’s products, including at least the Samsung Accused Products, to make, use, sell, offer to sell, and/or import Samsung’s products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the ’052 patent, including claim 6. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the ’052 patent.

234. On information and belief, with knowledge of the ’052 patent, Samsung also

contributed to, and continues to contribute to, the infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’052 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the ’052 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Samsung’s informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the ’052 patent.

235. On information and belief, as a result of Samsung’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung’s products, including the Samsung Accused Products, in ways that directly infringe one or more claims of the ’052 patent, including claim 6. On information and belief, Samsung had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung’s products, including the Samsung Accused Products, at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint.

236. On information and belief, with knowledge of the ’052 patent, Samsung has willfully, deliberately, and intentionally infringed the ’052 patent, at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint, and

continues to willfully, deliberately, and intentionally infringe the ’052 patent. On information and belief, Samsung had actual knowledge of the ’052 patent and Samsung’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the ’052 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the ’052 patent at least because Samsung was aware of the ’052 patent and Samsung’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the ’052 patent’s fame in the semiconductor industry, Samsung’s expertise in the subject matter of the ’052 patent, Samsung’s technical competence to understand the scope of the ’052 patent, and Samsung’s intimate familiarity with its Accused Products. Additionally, Samsung was aware of the ’052 patent, and Samsung’s infringement of the ’052 patent, at least as of the date of this Complaint because Plaintiff notified Samsung of such.

237. On information and belief, Samsung will continue to infringe the ’052 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung’s acts of infringement and, unless Samsung is enjoined from its infringement of the ’052 patent, Plaintiff will continue to suffer irreparable harm.

238. Plaintiff is entitled to recover from Samsung damages at least in an amount adequate to compensate for its infringement of the ’052 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

239. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’052 patent in violation of 35 U.S.C. § 271(a), including claim 6. Comparisons of claim 6 of the ’052 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 28 and 34, which are incorporated herein by reference.

240. On information and belief, with knowledge of the ’052 patent, Lenovo has actively induced and continues to induce the direct infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’052 patent, including claim 6, with the intent to encourage those customers and/or end users to infringe the ’052 patent.

241. By way of example, on information and belief, Lenovo actively induces infringement of the ’052 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo’s products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo’s products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the ’052 patent, including claim 6. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the

subject matter claimed in the ’052 patent.

242. On information and belief, with knowledge of the ’052 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’052 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the ’052 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo’s informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the ’052 patent.

243. On information and belief, as a result of Lenovo’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo’s products, including the Lenovo Accused Products, in ways that directly infringe one or more claims of the ’052 patent, including claim 6. On information and belief, Lenovo had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo’s products, including the Lenovo Accused Products, at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint.

244. On information and belief, with knowledge of the ’052 patent, Lenovo has willfully, deliberately, and intentionally infringed the ’052 patent, at least as of the dates of knowledge of

the ’052 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’052 patent. On information and belief, Lenovo had actual knowledge of the ’052 patent and Lenovo’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the ’052 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the ’052 patent at least because Lenovo was aware of the ’052 patent and Lenovo’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the ’052 patent’s fame in the semiconductor industry, Lenovo’s expertise in the subject matter of the ’052 patent, Lenovo’s technical competence to understand the scope of the ’052 patent, and Lenovo’s intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the ’052 patent, and Lenovo’s infringement of the ’052 patent, at least as of the date of this Complaint because Plaintiff notified Lenovo of such.

245. On information and belief, Lenovo will continue to infringe the ’052 patent unless and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo’s acts of infringement and, unless Lenovo is enjoined from its infringement of the ’052 patent, Plaintiff will continue to suffer irreparable harm.

246. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the ’052 patent, which amount has yet to be determined,

together with interest and costs fixed by the Court.

247. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’052 patent in violation of 35 U.S.C. § 271(a), including claim 6. A comparison of claim 6 of the ’052 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 40, which is incorporated herein by reference.

248. On information and belief, with knowledge of the ’052 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’052 patent, including claim 6, with the intent to encourage those customers and/or end users to infringe the ’052 patent.

249. By way of example, on information and belief, OnePlus actively induces infringement of the ’052 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’052 patent, including claim 6. For example, as described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for

the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’052 patent.

250. On information and belief, with knowledge of the ’052 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’052 patent, including claim 6, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’052 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’052 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are especially made or especially adapted for a use that infringes the ’052 patent.

251. On information and belief, as a result of OnePlus’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, OnePlus’s products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the ’052 patent, including claim 6. On information and belief, OnePlus had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus’s products, including the OnePlus Accused Products, at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint.

252. On information and belief, with knowledge of the ’052 patent, OnePlus has

willfully, deliberately, and intentionally infringed the ’052 patent, at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’052 patent. On information and belief, OnePlus had actual knowledge of the ’052 patent and OnePlus’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the ’052 patent as set forth above. On information and belief, OnePlus knew or should have known that its conduct amounted to infringement of the ’052 patent at least because OnePlus was aware of the ’052 patent and OnePlus’s infringement of the ’052 patent at least as of the dates of knowledge of the ’052 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the ’052 patent’s fame in the semiconductor industry, OnePlus’s expertise in the subject matter of the ’052 patent, OnePlus’s technical competence to understand the scope of the ’052 patent, and OnePlus’s intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the ’052 patent, and OnePlus’s infringement of the ’052 patent, at least as of the date of this Complaint because Plaintiff notified OnePlus of such.

253. On information and belief, OnePlus will continue to infringe the ’052 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus’s acts of infringement and, unless OnePlus is enjoined from its infringement of the ’052 patent, Plaintiff will continue to suffer irreparable harm.

254. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate

to compensate for its infringement of the ’052 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 7,769,893

255. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 254 above.

256. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’9893 patent in violation of 35 U.S.C. § 271(a), including claim 4. Comparisons of claim 4 of the ’9893 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 10, 16, and 22, which are incorporated herein by reference.

257. On information and belief, with knowledge of the ’9893 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’9893 patent, including claim 4, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’9893 patent, including claim 4, with the intent to encourage those customers and/or end users to infringe the ’9893 patent.

258. By way of example, on information and belief, Samsung actively induces infringement of the ’9893 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Samsung’s products, including at least the Samsung Accused Products, to make, use, sell, offer

to sell, and/or import Samsung's products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the '9893 patent, including claim 4. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the '9893 patent.

259. On information and belief, with knowledge of the '9893 patent, Samsung also contributed to, and continues to contribute to, the infringement of one or more claims of the '9893 patent, including claim 4, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the '9893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the '9893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Samsung's informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the '9893 patent.

260. On information and belief, as a result of Samsung's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung's products, including the Samsung Accused Products, in ways that directly infringe one or more claims of the '9893 patent, including claim 4. On information and belief, Samsung had actual knowledge of its

customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung's products, including the Samsung Accused Products, at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint.

261. On information and belief, with knowledge of the '9893 patent, Samsung has willfully, deliberately, and intentionally infringed the '9893 patent, at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '9893 patent. On information and belief, Samsung had actual knowledge of the '9893 patent and Samsung's infringement of the '9893 patent at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the '9893 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the '9893 patent at least because Samsung was aware of the '9893 patent and Samsung's infringement of the '9893 patent at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the '9893 patent's fame in the semiconductor industry, Samsung's expertise in the subject matter of the '9893 patent, Samsung's technical competence to understand the scope of the '9893 patent, and Samsung's intimate familiarity with its Accused Products. Additionally, Samsung was aware of the '9893 patent, and Samsung's infringement of the '9893 patent, at least as of the date of this Complaint because Plaintiff notified Samsung of such.

262. On information and belief, Samsung will continue to infringe the '9893 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has

caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung's acts of infringement and, unless Samsung is enjoined from its infringement of the '9893 patent, Plaintiff will continue to suffer irreparable harm.

263. Plaintiff is entitled to recover from Samsung damages at least in an amount adequate to compensate for its infringement of the '9893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

264. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the '9893 patent in violation of 35 U.S.C. § 271(a), including claim 4. Comparisons of claim 4 of the '9893 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 29 and 35, which are incorporated herein by reference.

265. On information and belief, with knowledge of the '9893 patent, Lenovo has actively induced and continues to induce the direct infringement of one or more claims of the '9893 patent, including claim 4, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the '9893 patent, including claim 4, with the intent to encourage those customers and/or end users to infringe the '9893 patent.

266. By way of example, on information and belief, Lenovo actively induces infringement of the '9893 patent by encouraging, instructing, and aiding one or more persons in

the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo's products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo's products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the '9893 patent, including claim 4. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the '9893 patent.

267. On information and belief, with knowledge of the '9893 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the '9893 patent, including claim 4, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the '9893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the '9893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo's informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the '9893 patent.

268. On information and belief, as a result of Lenovo's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo's products, including the

Lenovo Accused Products, in ways that directly infringe one or more claims of the ’9893 patent, including claim 4. On information and belief, Lenovo had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo’s products, including the Lenovo Accused Products, at least as of the dates of knowledge of the ’9893 patent alleged above, and no later than the date of this Complaint.

269. On information and belief, with knowledge of the ’9893 patent, Lenovo has willfully, deliberately, and intentionally infringed the ’9893 patent, at least as of the dates of knowledge of the ’9893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’9893 patent. On information and belief, Lenovo had actual knowledge of the ’9893 patent and Lenovo’s infringement of the ’9893 patent at least as of the dates of knowledge of the ’9893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the ’9893 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the ’9893 patent at least because Lenovo was aware of the ’9893 patent and Lenovo’s infringement of the ’9893 patent at least as of the dates of knowledge of the ’9893 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the ’9893 patent’s fame in the semiconductor industry, Lenovo’s expertise in the subject matter of the ’9893 patent, Lenovo’s technical competence to understand the scope of the ’9893 patent, and Lenovo’s intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the ’9893 patent, and Lenovo’s infringement of the ’9893 patent, at least as of the date of this Complaint because Plaintiff notified Lenovo of such.

270. On information and belief, Lenovo will continue to infringe the ’9893 patent unless

and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo's acts of infringement and, unless Lenovo is enjoined from its infringement of the '9893 patent, Plaintiff will continue to suffer irreparable harm.

271. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the '9893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

272. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the '9893 patent in violation of 35 U.S.C. § 271(a), including claim 4. A comparison of claim 4 of the '9893 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 41, which is incorporated herein by reference.

273. On information and belief, with knowledge of the '9893 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the '9893 patent, including claim 4, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the '9893 patent, including claim 4, with the intent to encourage those customers and/or end users to infringe the '9893 patent.

274. By way of example, on information and belief, OnePlus actively induces

infringement of the ’9893 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’9893 patent, including claim 4. For example, as described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’9893 patent.

275. On information and belief, with knowledge of the ’9893 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’9893 patent, including claim 4, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’9893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’9893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are especially made or especially adapted for a use that infringes the ’9893 patent.

276. On information and belief, as a result of OnePlus’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or

imported, and continue to make, use, sell, offer to sell, or import, OnePlus's products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the '9893 patent, including claim 4. On information and belief, OnePlus had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus's products, including the OnePlus Accused Products, at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint.

277. On information and belief, with knowledge of the '9893 patent, OnePlus has willfully, deliberately, and intentionally infringed the '9893 patent, at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '9893 patent. On information and belief, OnePlus had actual knowledge of the '9893 patent and OnePlus's infringement of the '9893 patent at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the '9893 patent as set forth above. On information and belief, OnePlus knew or should have known that its conduct amounted to infringement of the '9893 patent at least because OnePlus was aware of the '9893 patent and OnePlus's infringement of the '9893 patent at least as of the dates of knowledge of the '9893 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the '9893 patent's fame in the semiconductor industry, OnePlus's expertise in the subject matter of the '9893 patent, OnePlus's technical competence to understand the scope of the '9893 patent, and OnePlus's intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the '9893 patent, and OnePlus's infringement of the '9893 patent, at least as of the

date of this Complaint because Plaintiff notified OnePlus of such.

278. On information and belief, OnePlus will continue to infringe the ’9893 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus’s acts of infringement and, unless OnePlus is enjoined from its infringement of the ’9893 patent, Plaintiff will continue to suffer irreparable harm.

279. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate to compensate for its infringement of the ’9893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

COUNT V – INFRINGEMENT OF U.S. PATENT NO. 8,072,893

280. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 279 above.

281. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’2893 patent in violation of 35 U.S.C. § 271(a), including claim 1. Comparisons of claim 1 of the ’2893 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 11, 17, and 23, which are incorporated herein by reference.

282. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, made or designed by processes that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’2893 patent in violation of 35 U.S.C. § 271(a) and/or §

271(g), including claims 1and 10. A comparison of claims 1 and 10 of the ’2893 patent to an exemplary product of the Samsung Accused Products made or designed by infringing processes is attached as Exhibits 11, 17, and 23 for claim 1, and Exhibit 24 for claim 10, which are incorporated herein by reference.

283. On information and belief, with knowledge of the ’2893 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’2893 patent, including claim 1, with the intent to encourage those customers and/or end users to infringe the ’2893 patent.

284. On information and belief, with knowledge of the ’2893 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’2893 patent, including claims 1 and 10, in violation of 35 U.S.C. § 271(b), by its suppliers, customers, and/or end users of its products, including at least the Samsung Accused Products, by selling, designing, providing support for, providing designs and/or specifications for, providing instructions for use of, and/or otherwise encouraging its suppliers, customers, and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’2893 patent, including claims 1 and 10, with the intent to encourage those customers and/or end users to infringe the ’2893 patent.

285. By way of example, on information and belief, Samsung actively induces infringement of the ’2893 patent by encouraging, instructing, and aiding one or more persons in

the United States, including but not limited to customers and/or end users who test, operate, and use Samsung 's products, including at least the Samsung Accused Products, to make, use, sell, offer to sell, and/or import Lenovo's products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the '2893 patent, including claim 1. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the '2893 patent.

286. By way of example, on information and belief, Samsung actively induces infringement of the '2893 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to suppliers who supply and/or design components (for example, semiconductor IPs) of, test, operate, and/or use Samsung's products, including at least the Samsung Accused Products or components thereof (for example, semiconductor IPs), to make, use, sell, offer to sell, and/or import Samsung's products, including at least the Samsung Accused Products or components thereof (for example, semiconductor IPs), in a manner that infringes at least one claim of the '2893 patent, including claims 1 and 10. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Additionally, on information and belief, Samsung provides its suppliers with specifications and/or designs for components, including by way of example, semiconductor IPs, for the Samsung Accused Products. Therein, Samsung describes, encourages, and touts the use of the subject matter claimed in the '2893 patent.

287. On information and belief, with knowledge of the '2893 patent, Samsung also

contributed to, and continues to contribute to, the infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’2893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the ’2893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Samsung’s informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the ’2893 patent.

288. On information and belief, with knowledge of the ’2893 patent, Samsung also contributed to, and continues to contribute to, the infringement of one or more claims of the ’2893 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by providing specifications and/or designs for the Samsung Accused Products or components thereof (for example, semiconductor IPs), knowing them to be especially made or especially adapted for practicing the inventions of the ’2893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the specifications and/or designs for Samsung Accused Products or components thereof (for example, semiconductor IPs), which are especially made or especially adapted for use in infringement of the ’2893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, the normal use and intended purpose of the specifications and/or designs for the Samsung Accused Products or components thereof (for example, semiconductor

IPs), which demonstrate that the specifications and/or designs for the Samsung Accused Products or components thereof (for example, semiconductor IPs) are especially made or especially adapted for a use that infringes the ’2893 patent.

289. On information and belief, as a result of Samsung’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung’s products, including the Samsung Accused Products, in ways that directly infringe one or more claims of the ’2893 patent, including claim 1. On information and belief, Samsung had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung’s products, including the Samsung Accused Products, at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint.

290. On information and belief, as a result of Samsung’s inducement of, and/or contribution to, infringement, its suppliers, customers, and/or end users designed, made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Samsung’s products, including the Samsung Accused Products or components thereof (for example, semiconductor IPs), in ways that directly infringe one or more claims of the ’2893 patent, including claim 10. On information and belief, Samsung had actual knowledge of its suppliers’, customers’, and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung’s products, including the Samsung Accused Products or components thereof (for example, semiconductor IPs), at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint.

291. On information and belief, with knowledge of the ’2893 patent, Samsung has

willfully, deliberately, and intentionally infringed the ’2893 patent, at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’2893 patent. On information and belief, Samsung had actual knowledge of the ’2893 patent and Samsung’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the ’2893 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the ’2893 patent at least because Samsung was aware of the ’2893 patent and Samsung’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the ’2893 patent’s fame in the semiconductor industry, Samsung’s expertise in the subject matter of the ’2893 patent, Samsung’s technical competence to understand the scope of the ’2893 patent, and Samsung’s intimate familiarity with its Accused Products. Additionally, Samsung was aware of the ’2893 patent, and Samsung’s infringement of the ’2893 patent, at least as of the date of this Complaint because Plaintiff notified Samsung of such.

292. On information and belief, Samsung will continue to infringe the ’2893 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung’s acts of infringement and, unless Samsung is enjoined from its infringement of the ’2893 patent, Plaintiff will continue to suffer irreparable harm.

293. Plaintiff is entitled to recover from Samsung damages at least in an amount

adequate to compensate for its infringement of the ’2893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

294. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’2893 patent in violation of 35 U.S.C. § 271(a), including claim 1. Comparisons of claim 1 of the ’2893 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 30 and 36, which are incorporated herein by reference.

295. On information and belief, with knowledge of the ’2893 patent, Lenovo has actively induced and continues to induce the direct infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’2893 patent, including claim 1, with the intent to encourage those customers and/or end users to infringe the ’2893 patent.

296. By way of example, on information and belief, Lenovo actively induces infringement of the ’2893 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo’s products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo’s products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the ’2893 patent, including claim 1. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes

the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the ’2893 patent.

297. On information and belief, with knowledge of the ’2893 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’2893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the ’2893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo’s informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the ’2893 patent.

298. On information and belief, as a result of Lenovo’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo’s products, including the Lenovo Accused Products, in ways that directly infringe one or more claims of the ’2893 patent, including claim 1. On information and belief, Lenovo had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo’s products, including the Lenovo Accused Products, at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint.

299. On information and belief, with knowledge of the ’2893 patent, Lenovo has willfully, deliberately, and intentionally infringed the ’2893 patent, at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’2893 patent. On information and belief, Lenovo had actual knowledge of the ’2893 patent and Lenovo’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the ’2893 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the ’2893 patent at least because Lenovo was aware of the ’2893 patent and Lenovo’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the ’2893 patent’s fame in the semiconductor industry, Lenovo’s expertise in the subject matter of the ’2893 patent, Lenovo’s technical competence to understand the scope of the ’2893 patent, and Lenovo’s intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the ’2893 patent, and Lenovo’s infringement of the ’2893 patent, at least as of the date of this Complaint because Plaintiff notified Lenovo of such.

300. On information and belief, Lenovo will continue to infringe the ’2893 patent unless and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo’s acts of infringement and, unless Lenovo is enjoined from its infringement of the ’2893 patent, Plaintiff will continue to suffer irreparable harm.

301. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the ’2893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

302. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’2893 patent in violation of 35 U.S.C. § 271(a), including claim 1. A comparison of claim 1 of the ’2893 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 42, which is incorporated herein by reference.

303. On information and belief, with knowledge of the ’2893 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’2893 patent, including claim 1, with the intent to encourage those customers and/or end users to infringe the ’2893 patent.

304. By way of example, on information and belief, OnePlus actively induces infringement of the ’2893 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’2893 patent, including claim 1. For example, as

described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’2893 patent.

305. On information and belief, with knowledge of the ’2893 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’2893 patent, including claim 1, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’2893 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’2893 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are especially made or especially adapted for a use that infringes the ’2893 patent.

306. On information and belief, as a result of OnePlus’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, OnePlus’s products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the ’2893 patent, including claim 1. On information and belief, OnePlus had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus’s products, including the OnePlus Accused Products, at least as

of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint.

307. On information and belief, with knowledge of the ’2893 patent, OnePlus has willfully, deliberately, and intentionally infringed the ’2893 patent, at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’2893 patent. On information and belief, OnePlus had actual knowledge of the ’2893 patent and OnePlus’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the ’2893 patent as set forth above. On information and belief, OnePlus knew or should have known that its conduct amounted to infringement of the ’2893 patent at least because OnePlus was aware of the ’2893 patent and OnePlus’s infringement of the ’2893 patent at least as of the dates of knowledge of the ’2893 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the ’2893 patent’s fame in the semiconductor industry, OnePlus’s expertise in the subject matter of the ’2893 patent, OnePlus’s technical competence to understand the scope of the ’2893 patent, and OnePlus’s intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the ’2893 patent, and OnePlus’s infringement of the ’2893 patent, at least as of the date of this Complaint because Plaintiff notified OnePlus of such.

308. On information and belief, OnePlus will continue to infringe the ’2893 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus’s

acts of infringement and, unless OnePlus is enjoined from its infringement of the ’2893 patent, Plaintiff will continue to suffer irreparable harm.

309. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate to compensate for its infringement of the ’2893 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

COUNT VI – INFRINGEMENT OF U.S. PATENT NO. 8,086,800

310. Plaintiff incorporates by reference the allegations contained in paragraphs 1 to 309 above.

311. On information and belief, Samsung has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Samsung Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’800 patent in violation of 35 U.S.C. § 271(a), including claim 10. Comparisons of claim 10 of the ’800 patent to exemplary products of the Samsung Accused Products are attached as Exhibits 12, 18, and 25, which are incorporated herein by reference.

312. On information and belief, with knowledge of the ’800 patent, Samsung has actively induced and continues to induce the direct infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Samsung Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’800 patent, including claim 10, with the intent to encourage those customers and/or end users to infringe the ’800 patent.

313. By way of example, on information and belief, Samsung actively induces

infringement of the ’800 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Samsung’s products, including at least the Samsung Accused Products, to make, use, sell, offer to sell, and/or import Samsung’s products, including at least the Samsung Accused Products, in a manner that infringes at least one claim of the ’800 patent, including claim 10. For example, as described above, Samsung actively markets, advertises, offers for sale, and/or otherwise promotes the Samsung Accused Products by publishing and distributing data sheets, manuals, and guides for the Samsung Accused Products. Therein, on information and belief, Samsung describes and touts the use of the subject matter claimed in the ’800 patent.

314. On information and belief, with knowledge of the ’800 patent, Samsung also contributed to, and continues to contribute to, the infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Samsung Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’800 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Samsung Accused Products, which are especially made or especially adapted for use in infringement of the ’800 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Samsung’s informational and promotional materials described above, which describe the normal use and intended purpose of the Samsung Accused Products and demonstrate that the Samsung Accused Products are especially made or especially adapted for a use that infringes the ’800 patent.

315. On information and belief, as a result of Samsung’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or

imported, and continue to make, use, sell, offer to sell, or import, Samsung's products, including the Samsung Accused Products, in ways that directly infringe one or more claims of the '800 patent, including claim 10. On information and belief, Samsung had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Samsung's products, including the Samsung Accused Products, at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint.

316. On information and belief, with knowledge of the '800 patent, Samsung has willfully, deliberately, and intentionally infringed the '800 patent, at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '800 patent. On information and belief, Samsung had actual knowledge of the '800 patent and Samsung's infringement of the '800 patent at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Samsung continued to directly and indirectly infringe the '800 patent as set forth above. On information and belief, Samsung knew or should have known that its conduct amounted to infringement of the '800 patent at least because Samsung was aware of the '800 patent and Samsung's infringement of the '800 patent at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint. Samsung was aware of its infringement by virtue of the '800 patent's fame in the semiconductor industry, Samsung's expertise in the subject matter of the '800 patent, Samsung's technical competence to understand the scope of the '800 patent, and Samsung's intimate familiarity with its Accused Products. Additionally, Samsung was aware of the '800 patent, and Samsung's infringement of the '800 patent, at least as of the date of this Complaint

because Plaintiff notified Samsung of such.

317. On information and belief, Samsung will continue to infringe the ’800 patent unless and until it is enjoined by this Court. Samsung, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Samsung’s acts of infringement and, unless Samsung is enjoined from its infringement of the ’800 patent, Plaintiff will continue to suffer irreparable harm.

318. Plaintiff is entitled to recover from Samsung damages at least in an amount adequate to compensate for its infringement of the ’800 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

319. On information and belief, Lenovo has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the Lenovo Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’800 patent in violation of 35 U.S.C. § 271(a), including claim 10. Comparisons of claim 10 of the ’800 patent to exemplary products of the Lenovo Accused Products are attached as Exhibits 31 and 37, which are incorporated herein by reference.

320. On information and belief, with knowledge of the ’800 patent, Lenovo has actively induced and continues to induce the direct infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the Lenovo Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of the ’800 patent, including claim 10, with the intent to encourage those customers and/or end users

to infringe the ’800 patent.

321. By way of example, on information and belief, Lenovo actively induces infringement of the ’800 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use Lenovo’s products, including at least the Lenovo Accused Products, to make, use, sell, offer to sell, and/or import Lenovo’s products, including at least the Lenovo Accused Products, in a manner that infringes at least one claim of the ’800 patent, including claim 10. For example, as described above, Lenovo actively markets, advertises, offers for sale, and/or otherwise promotes the Lenovo Accused Products by publishing and distributing data sheets, manuals, and guides for the Lenovo Accused Products. Therein, on information and belief, Lenovo describes and touts the use of the subject matter claimed in the ’800 patent.

322. On information and belief, with knowledge of the ’800 patent, Lenovo also contributed to, and continues to contribute to, the infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the Lenovo Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’800 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the Lenovo Accused Products, which are especially made or especially adapted for use in infringement of the ’800 patent when used for their normal and intended purpose. This is also evidenced by, among other things, Lenovo’s informational and promotional materials described above, which describe the normal use and intended purpose of the Lenovo Accused Products and demonstrate that the Lenovo Accused Products are especially made or especially adapted for a use that infringes the ’800 patent.

323. On information and belief, as a result of Lenovo's inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, Lenovo's products, including the Lenovo Accused Products, in ways that directly infringe one or more claims of the '800 patent, including claim 10. On information and belief, Lenovo had actual knowledge of its customers' and/or end users' direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of Lenovo's products, including the Lenovo Accused Products, at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint.

324. On information and belief, with knowledge of the '800 patent, Lenovo has willfully, deliberately, and intentionally infringed the '800 patent, at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the '800 patent. On information and belief, Lenovo had actual knowledge of the '800 patent and Lenovo's infringement of the '800 patent at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, Lenovo continued to directly and indirectly infringe the '800 patent as set forth above. On information and belief, Lenovo knew or should have known that its conduct amounted to infringement of the '800 patent at least because Lenovo was aware of the '800 patent and Lenovo's infringement of the '800 patent at least as of the dates of knowledge of the '800 patent alleged above, and no later than the date of this Complaint. Lenovo was aware of its infringement by virtue of the '800 patent's fame in the semiconductor industry, Lenovo's expertise in the subject matter of the '800 patent, Lenovo's technical competence to understand the scope of the '800 patent, and Lenovo's intimate familiarity with its Accused Products. Additionally, Lenovo was aware of the '800 patent, and Lenovo's

infringement of the ’800 patent, at least as of the date of this Complaint because Plaintiff notified Lenovo of such.

325. On information and belief, Lenovo will continue to infringe the ’800 patent unless and until it is enjoined by this Court. Lenovo, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against Lenovo’s acts of infringement and, unless Lenovo is enjoined from its infringement of the ’800 patent, Plaintiff will continue to suffer irreparable harm.

326. Plaintiff is entitled to recover from Lenovo damages at least in an amount adequate to compensate for its infringement of the ’800 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

327. On information and belief, OnePlus has made, used, offered for sale, sold, and/or imported products, including within this Judicial District, including at least the OnePlus Accused Products, that infringe, either literally or under the doctrine of equivalents, one or more claims of the ’800 patent in violation of 35 U.S.C. § 271(a), including claim 10. A comparison of claim 10 of the ’800 patent to an exemplary product of the OnePlus Accused Products is attached as Exhibit 43, which is incorporated herein by reference.

328. On information and belief, with knowledge of the ’800 patent, OnePlus has actively induced and continues to induce the direct infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(b), by its customers and/or end users of its products, including at least the OnePlus Accused Products, by selling, providing support for, providing instructions for use of, and/or otherwise encouraging its customers and/or end-users to directly infringe, either literally and/or under the doctrine of equivalents, one or more claims of

the ’800 patent, including claim 10, with the intent to encourage those customers and/or end users to infringe the ’800 patent.

329. By way of example, on information and belief, OnePlus actively induces infringement of the ’800 patent by encouraging, instructing, and aiding one or more persons in the United States, including but not limited to customers and/or end users who test, operate, and use OnePlus’s products, including at least the OnePlus Accused Products, to make, use, sell, offer to sell, and/or import OnePlus’s products, including at least the OnePlus Accused Products, in a manner that infringes at least one claim of the ’800 patent, including claim 10. For example, as described above, OnePlus actively markets, advertises, offers for sale, and/or otherwise promotes the OnePlus Accused Products by publishing and distributing data sheets, manuals, and guides for the OnePlus Accused Products. Therein, on information and belief, OnePlus describes and touts the use of the subject matter claimed in the ’800 patent.

330. On information and belief, with knowledge of the ’800 patent, OnePlus also contributed to, and continues to contribute to, the infringement of one or more claims of the ’800 patent, including claim 10, in violation of 35 U.S.C. § 271(c), by offering to sell, selling, and/or importing the OnePlus Accused Products, knowing them to be especially made or especially adapted for practicing the inventions of the ’800 patent and not a staple article or commodity of commerce suitable for substantial non-infringing use. This is evidenced by, among other things, the design, configuration, and functionality of the OnePlus Accused Products, which are especially made or especially adapted for use in infringement of the ’800 patent when used for their normal and intended purpose. This is also evidenced by, among other things, OnePlus’s informational and promotional materials described above, which describe the normal use and intended purpose of the OnePlus Accused Products and demonstrate that the OnePlus Accused Products are

especially made or especially adapted for a use that infringes the ’800 patent.

331. On information and belief, as a result of OnePlus’s inducement of, and/or contribution to, infringement, its customers and/or end users made, used, sold, offered for sale, or imported, and continue to make, use, sell, offer to sell, or import, OnePlus’s products, including the OnePlus Accused Products, in ways that directly infringe one or more claims of the ’800 patent, including claim 10. On information and belief, OnePlus had actual knowledge of its customers’ and/or end users’ direct infringement at least by virtue of their sales, instruction, and/or otherwise promotion of OnePlus’s products, including the OnePlus Accused Products, at least as of the dates of knowledge of the ’800 patent alleged above, and no later than the date of this Complaint.

332. On information and belief, with knowledge of the ’800 patent, OnePlus has willfully, deliberately, and intentionally infringed the ’800 patent, at least as of the dates of knowledge of the ’800 patent alleged above, and no later than the date of this Complaint, and continues to willfully, deliberately, and intentionally infringe the ’800 patent. On information and belief, OnePlus had actual knowledge of the ’800 patent and OnePlus’s infringement of the ’800 patent at least as of the dates of knowledge of the ’800 patent alleged above, and no later than the date of this Complaint. On information and belief, after acquiring that knowledge, OnePlus continued to directly and indirectly infringe the ’800 patent as set forth above. On information and belief, OnePlus knew or should have known that its conduct amounted to infringement of the ’800 patent at least because OnePlus was aware of the ’800 patent and OnePlus’s infringement of the ’800 patent at least as of the dates of knowledge of the ’800 patent alleged above, and no later than the date of this Complaint. OnePlus was aware of its infringement by virtue of the ’800 patent’s fame in the semiconductor industry, OnePlus’s expertise in the subject matter of the ’800 patent, OnePlus’s technical competence to understand the scope of the ’800 patent, and OnePlus’s

intimate familiarity with its Accused Products. Additionally, OnePlus was aware of the '800 patent, and OnePlus's infringement of the '800 patent, at least as of the date of this Complaint because Plaintiff notified OnePlus of such.

333. On information and belief, OnePlus will continue to infringe the '800 patent unless and until it is enjoined by this Court. OnePlus, by way of its infringing activities, has caused and continues to cause Plaintiff to suffer damages in an amount to be determined, and has caused and is causing Plaintiff irreparable harm. Plaintiff has no adequate remedy at law against OnePlus's acts of infringement and, unless OnePlus is enjoined from its infringement of the '800 patent, Plaintiff will continue to suffer irreparable harm.

334. Plaintiff is entitled to recover from OnePlus damages at least in an amount adequate to compensate for its infringement of the '800 patent, which amount has yet to be determined, together with interest and costs fixed by the Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Network System Technologies, LLC requests that the Court enter judgment for Plaintiff and against Defendants Samsung, Lenovo, and OnePlus, and enter the following relief:

A. A judgment that Defendants infringe the following Asserted Patents:

U.S. Patent No. 7,366,818 (Exhibit 1, "'818 patent")
U.S. Patent No. 7,373,449 (Exhibit 2, "'449 patent")
U.S. Patent No. 7,594,052 (Exhibit 3, "'052 patent")
U.S. Patent No. 7,769,893 (Exhibit 4, "'9893 patent")
U.S. Patent No. 8,072,893 (Exhibit 5, "'2893 patent")
U.S. Patent No. 8,086,800 (Exhibit 6, "'800 patent")

B. A preliminary and permanent injunction restraining and enjoining Defendants, their officers, partners, agents, servants, employees, parents, subsidiaries, divisions, affiliate corporations, joint ventures, other related business entities and all other persons acting in concert,

participation, or in privity with them, and their successors and assigns, from infringing the Asserted Patents;

C. An award of damages to Plaintiff arising from Defendants' past and continuing infringement up until the date Defendants are finally and permanently enjoined from further infringement, including compensatory damages;

D. A determination that Defendants' infringement of the Asserted Patents has been willful, and an award of treble damages to Plaintiff pursuant to 35 U.S.C. § 284;

E. A determination that this is an exceptional case and awarding Plaintiff's attorneys' fees pursuant to 35 U.S.C. § 285;

F. An order awarding Plaintiff costs and expenses in this action;

G. An order awarding Plaintiff pre- and post-judgment interest on its damages; and

H. Such other and further relief in law or in equity as this Court deems just and proper.

JURY DEMAND

Plaintiff respectfully requests a jury trial on all issues so triable.

Dated: December 19, 2022

Respectfully submitted,

/s/ *William E. Davis, III*

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