IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

BELL NORTHERN RESEARCH, LLC, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., Defendants.	Civil Action No. 6:20-cv-00326 **JURY TRIAL DEMANDED**

BELL NORTHERN RESEARCH, LLC'S
COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Bell Northern Research, LLC ("BNR") as and for its complaint against Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung" or "Defendant") alleges as follows:

PARTIES

1. Bell Northern Research, LLC is a Delaware limited liability company with a principal place of business at 401 N. Michigan Avenue, Chicago, IL 60611.

2. On information and belief, Defendant Samsung Electronics Co., Ltd. ("SEC") is a corporation organized under the laws of the Republic of Korea, having a principal place of business listed at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

3. On information and belief, Defendant Samsung Electronics America, Inc. ("SEA") is a corporation organized under the laws of New York, with a principal place of business at 85 Challenger Road, Ridgefield Park, NJ 97660. SEA maintains a place of business in the Western District of Texas at 12100 Samsung Blvd., Austin, TX 78754. Defendant SEA

may be served with process through its registered agent CT Corporation System, 1999 Bryan St., Suite 900, Dallas, Texas 75201-3136.

4. SEC designs, manufactures, and provides to the United States and other markets a wide variety of products and services, including consumer electronics, mobile phones, tablets, laptops and other personal computers, storage devices, televisions, and other electronics devices.

5. On information and belief, SEA is a wholly-owned subsidiary of SEC and is responsible for domestic sales and distribution of Samsung's consumer electronics products, including the accused products in this case.

JURISDICTION AND VENUE

6. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Defendants. Defendants have conducted and continue to regularly conduct business within the State of Texas. Defendants have purposefully and voluntarily availed themselves of the privileges of conducting business in the United States, in the State of Texas, and in the Western District of Texas by continuously and systematically placing goods into the stream of commerce through an established distribution channel with the expectation that they will be purchased by consumers in the Western District of Texas. Defendants directly and/or through intermediaries (including distributors, sales agents, and others), ship, distribute, offer for sale, sell, advertise, and/or use their products (including, but not limited to, the products that are accused of patent infringement in this lawsuit) in the United States, the State of Texas, and the Western District of Texas.

8. Samsung owns and operates a 2.3 million square foot facility in this District, and employs approximately 3,000 people within this District. Since 2009, Samsung has received around $65 million in tax abatements from Travis County for the development of its facilities in this District.

9. SEA is registered to do business in Texas and maintains an agent for service of process there. SEA maintains places of business within the Western District of Texas, including at 12100 Samsung Blvd., Austin, TX 78754.

10. Moreover, Defendants have authorized retailers that offer and sell accused products on its behalf in this judicial district. These include Walmart, *e.g.,* at 4230 Franklin Ave., Waco, TX 76710 and 710 E Ben White Blvd., Austin, TX 78704; Sprint, *e.g.,* at 1000 E 41st Street #840, Austin, TX 78751 and 1107 N. Valley Mills Dr., Bldg. 1, Waco, TX 76710; Target, *e.g.,* at 5401 Bosque Blvd., Waco, TX 76710 and 2300 W Ben White Blvd., Austin, TX 78704; and Best Buy, *e.g.,* at 4790 W Hwy 290, Austin, TX 78735 and 4627 S Jack Kultgen Expy., Waco, TX 76706, among many others. Plaintiff's cause of action arises directly from Defendant's business contacts and other activities in the State of Texas and the Western District of Texas.

11. Defendants have derived substantial revenues from its infringing acts occurring within the State of Texas and within this District.

12. Venue is proper as to SEC under 28 U.S.C. § 1391(c)(3) in that it is not a resident of the United States and may, therefore, be sued in any judicial district. *Brunette Mach. Works, Ltd. v. Kockum Indus., Inc.*, 406 U.S. 706, 714 (1972).

13. Venue is proper as to SEA under 28 U.S.C. § 1400(b) because SEA has committed acts of infringement in this District and has regular and established places of business

within this District. *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514, 1521 (2017). Specifically, SEA maintains facilities at 12100 Samsung Blvd., Austin, TX 78754.

14. Joinder of Defendants is proper because Defendants are related parties who are either jointly and severally liable for infringement, or who make, use, sell, offer for sale, or import the same or similar products accused of patent infringement. Further, upon information and belief, Defendants use the same underlying hardware and/or software in their infringing products and therefore the factual question of infringement will substantially overlap between Defendants. Further, Plaintiff anticipates that there will be substantial overlap during the discovery process.

15. Defendants have committed acts of infringement in this District giving rise to this action and do business in this District, including making sales and/or providing service and support for its respective customers in this District. Defendants purposefully and voluntarily sold one or more of the infringing products with the expectation that they would be purchased by consumers in this District. These infringing products have been and continue to be purchased by consumers in this District. Defendants have committed acts of patent infringement within the United States, the State of Texas, and the Western District of Texas.

THE BNR PATENT PORTFOLIO

A. Bell Northern Research

16. Bell Northern Research is a technology and intellectual property licensing company. It is the successor in interest to a key portfolio of telecommunications-related intellectual property developed at leading telecom innovators, such as Agere Systems Inc. ("Agere"), LSI Corporation ("LSI"), Lucent Technologies ("Lucent"), and Broadcom Corporation ("Broadcom"). The portfolio reflects expertise developed at the various R&D laboratories and manufacturing locations of these companies around the world. The technology

created, developed, and patented at these companies underlies many important innovations in the development of connected devices, such as smart phones, PCs, tablets, wearables, and Internet of Things (IoT) devices.

17. BNR was formed in 2017 to manage this portfolio of connected device-related intellectual property. Several BNR executives previously served in leadership roles within the intellectual property departments of Agere, LSI, and Nortel Networks (U.S. and Canadian entities). They continued in similar roles with Rockstar Consortium, the entity created by the winning bidders of Nortel's bankruptcy patent auction, where they managed Nortel's former patent portfolio, a portfolio which many of them had spent years developing and monetizing for Nortel. As a result, BNR executives were personally involved in the patenting, and licensing various aspects of the portfolio even before the portfolio was assigned to BNR, including:

- BNR's President, Mr. Afzal Dean, served as President of MobileStar, a Rockstar subsidiary directed to the licensing of Nortel patents related to mobile phones and other portable electronic devices, and also served at Nortel as a licensing professional focused in this area.
- BNR's Board Member, Mr. John Veschi, served as CEO of Rockstar, and previously served as Chief IP Officer at Nortel. Prior to Nortel, Mr. Veschi was the Chief IP Counsel and General Manager of the IP Business at Agere and LSI.
- BNR's General Counsel, Mr. Chad Hilyard, served in similar capacities at Agere, LSI, and Rockstar.

B. The BNR Patents

18. The BNR portfolio comprises hundreds of patents that reflect important developments in telecommunications that were invented and refined by leading technology

research companies, including Agere, LSI, and Broadcom. These patents include U.S. Patent Nos. 6,963,129 (the "Evans Patent") and 6,858,930 (the "Miller Patent") (collectively, the "Asserted Patents").

19. In 2002, Lucent Technologies, Inc., having its roots with Bell Laboratories and AT&T Corporation, spun off Agere. Agere was merged into LSI in 2007, which was in turn acquired by Avago Technologies ("Avago") in 2014. In 2016, Avago purchased Broadcom and assumed its name to become the current Broadcom Inc.

20. In 2011, Samsung itself paid for a license to the patents in BNR's portfolio, including the Evans and Miller Patents. That license expired at the end of 2018, and Samsung has thus far refused to renew its expired license to these patents, including the Evans and Miller Patents it previously paid to license. For these reasons and those that follow, Samsung's infringement of the Asserted Patent is knowing, willful, and egregious.

THE ASSERTED PATENTS

A. U.S. Patent No. 6,963,129 (Evans)

21. BNR is the owner by assignment of U.S. Patent No. 6,963,129 (the "Evans Patent"). The Evans Patent is entitled "Multi-Chip Package Having a Contiguous Heat Spreader Assembly." The Evans Patent was filed on June 18, 2003 and issued on November 8, 2005. A true and correct copy of the Evans Patent is attached as **Exhibit A.**

22. The inventors of the Evans Patent are Thomas Evans, Stan Mihelcic, Leah M. Miller, Kumar Nagarajan, and Edwin M. Fulcher.

23. The Evans Patent is generally related to integrated circuit packages for multi-chip modules.

24. The background of the Evans Patent describes the need for better heat transfer mechanisms in multi-chip packages. *See, e.g.*, Ex. A at 2:23-26 ("In addition to deriving a multi-

chip package, the desired package would also have better thermal characteristics by using an improved heat transfer mechanism.").

25. The Evans Patent contains one independent claim and six total claims, each covering a heat spreader assembly. Claim 1 reads:

> 1. A heat spreader assembly, comprising:
>
> a single, unibody heat spreader configured to extend across substantially the entire first surface of at least two spaced integrated circuits opposite a second surface of the integrated circuits having a bonding pad;
>
> adhesive placed between the heat spreader and the first surface for securing the heat spreader to the first surface of the integrated circuits at a spaced distance above at least one passive device arranged in the area between the spaced integrated circuits; and
>
> a second heat spreader interposed between the heat spreader and only one of the at least two spaced integrated circuits.

26. The above-disclosed claim 1 from the Evans Patent provides significant benefits and improvements to the thermal characteristics of multi-chip packages. For example, by securing the unibody heat spreader at a spaced distance above a passive device, "[t]he space beneficially allows greater thermal transfer at the underneath surface of the heat spreader between neighboring integrated circuits and above any passive devices within that space." Ex. A at 3:10-13; *see also id.* at 3:26-29 ("By using a heat spreader and purposely applying an air-filled gap or space between neighboring integrated circuits, greater thermal transfer efficiency can be obtained.").

B. U.S. Patent No. 6,858,930 (Miller)

27. BNR is the owner by assignment of U.S. Patent No. 6,858,930 (the "Miller Patent"). The Miller Patent is entitled "Multi Chip Module." The Miller Patent was filed on August 11, 2003, and is a divisional of the application leading to U.S. Patent No. 6,680,532,

which was filed on October 7, 2002. The Miller Patent issued on February 22, 2005. A true and correct copy of the Miller Patent is attached as **Exhibit B**.

28. The inventors of the Miller Patent are Leah M. Miller and Kishor Desai.

29. The Miller Patent generally relates to packages for multi chip modules.

30. The Miller Patent describes the need for "a package design that provides adequate heat dissipation and structural support for a multi chip module." Ex. B at 1:57-59.

31. The Miller Patent describes how the invention allows for improved heat dissipation in the multi chip package through the use of a separate heat spreader dedicated to each integrated circuit, which improves heat dissipation from the integrated circuits individually and thereby from the package generally. *See* Ex. B at 2:16-19.

32. The Miller Patent contains four independent claims and eighteen total claims, covering multi chip packages. Claim 1 reads:

> 1. A multi chip package, comprising:
>
> a package substrate having a first side and an opposing second side, the first side for receiving package electrical connections,
>
> integrated circuits each having a first side and an opposing second side, the first side of each of the integrated circuits electrically connected and structurally connected to the second side of the package substrate,
>
> heat spreaders each having a first side and an opposing second side, the first side of each of the heat spreaders disposed adjacent the second side of the integrated circuits, where one each of the heat spreaders is associated with one each of the integrated circuits,
>
> a single stiffener having a first side and an opposing second side, the stiffener covering all of the integrated circuits and heat spreaders, the first side of the stiffener disposed adjacent the second side of the heat spreaders, and
>
> discrete components electrically connected to the second side of the package substrate and coplanar with the integrated circuits.

33. The above-disclosed claim provides significant benefits and improvements to the heat dissipation and structural support in multi chip packages, relative to the prior art.

OVERVIEW OF ACCUSED TECHNOLOGY

34. Samsung makes, imports, and sells consumer electronics, such as cellular phones, as well as enterprise server solutions, such as solid state drives, in the United States. These offerings include Samsung's Galaxy S-series and Galaxy Note-series phones and Samsung's PM-series solid state drives, as well as many others. As a result of the ever-increasing processing demands of Samsung's devices, the integrated circuits and other electrical components generate an ever-increasing amount of heat. If these devices are unable to adequately dissipate this heat away from key components within the phone, the devices can overheat, resulting in the device, or certain components within the device, being damaged, shutting down temporarily or permanently, having some functionality disabled, and/or in a worst case scenario, causing fire, explosion, or injury. As a result, Samsung utilizes thermal management solutions, such as heat spreaders, within its devices to prevent or limit these issues caused by overheating.

COUNT 1

Willful Infringement of U.S. Patent No. 6,963,129 (Evans)

35. Plaintiff re-alleges and incorporates by reference the allegations in the foregoing paragraphs as if fully set forth herein.

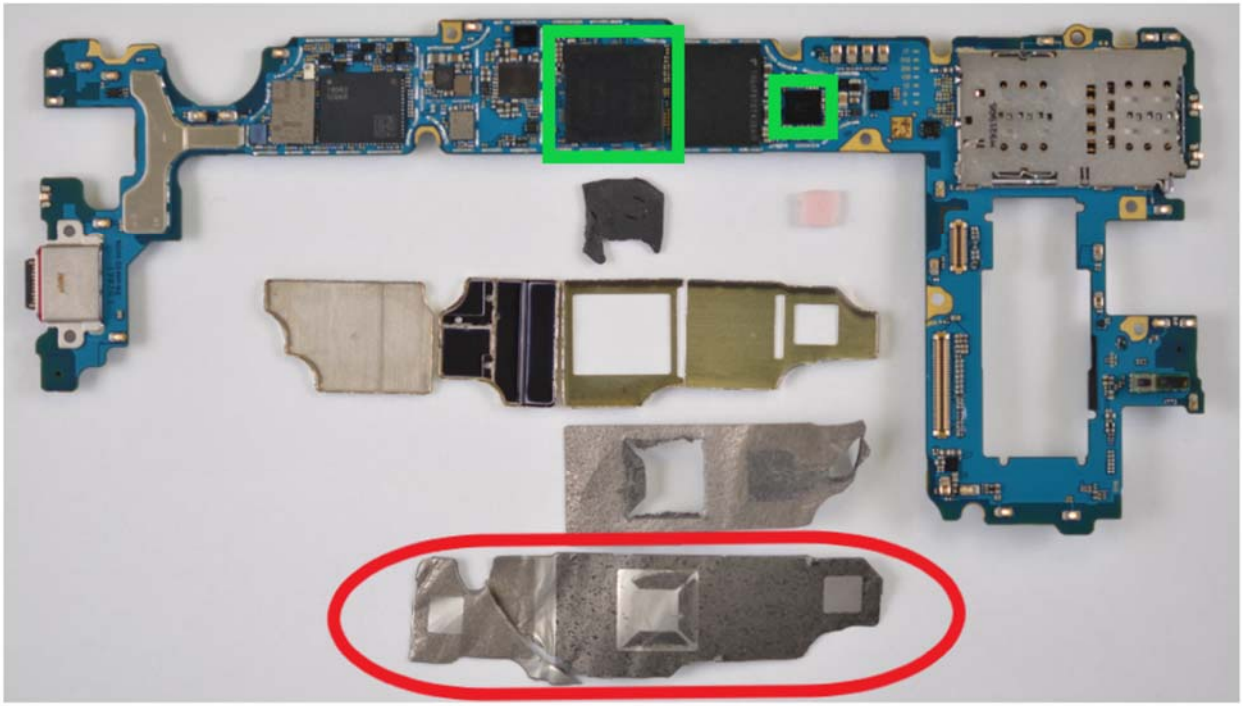
36. Plaintiff is informed and believes, and on that basis alleges, that Samsung has infringed and is currently infringing one or more claims (*e.g.*, claims 1, 2, 5, and 6) of the Evans Patent, in violation of 35 U.S.C. § 271(a).

37. Samsung has infringed and is currently infringing literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority, infringing products and related products and/or processes falling within the scope of one or more claims of the Evans Patent, including claim 1.

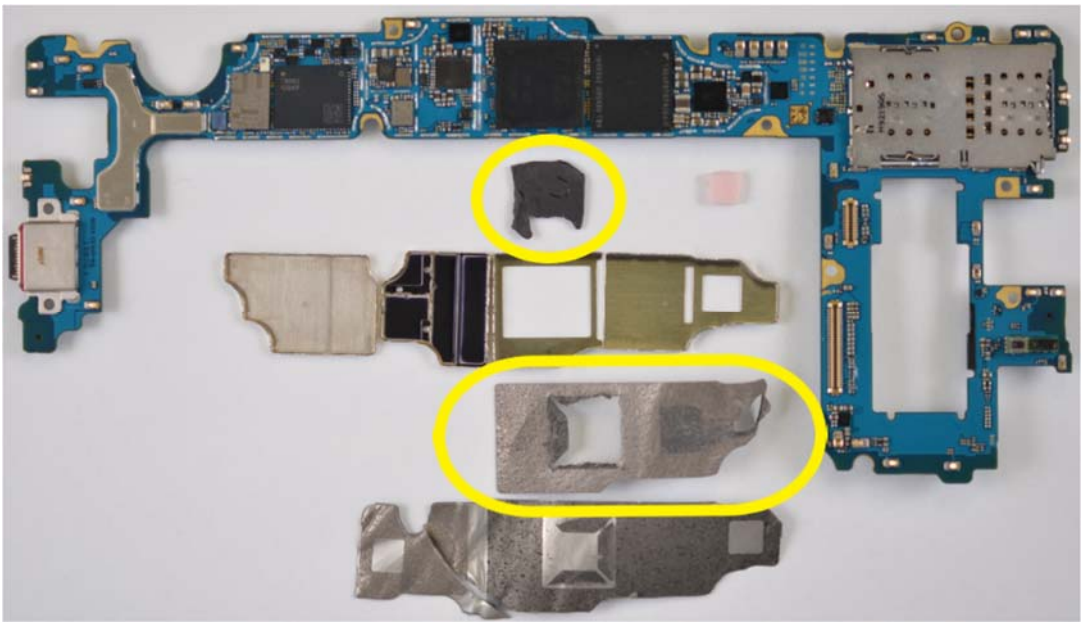
38. By way of example only, the Samsung Galaxy S10 Plus contains a heat spreader assembly that has (1) a single, unibody heat spreader configured to extend across substantially the entire first surface of at least two spaced integrated circuits opposite a second surface of the integrated circuits that have a bonding pad; (2) adhesive placed between the heat spreader and the first surface for securing the heat spreader to the first surface of the integrated circuits at a spaced distance above at least one passive device arranged in the area between the spaced integrated circuits; and (3) a second heat spreader interposed between the heat spreader and only one of the at least two spaced integrated circuits.

39. As shown below, the Samsung Galaxy S10 Plus has a heat spreader assembly that includes a single, unibody heat spreader (copper foil in red below):

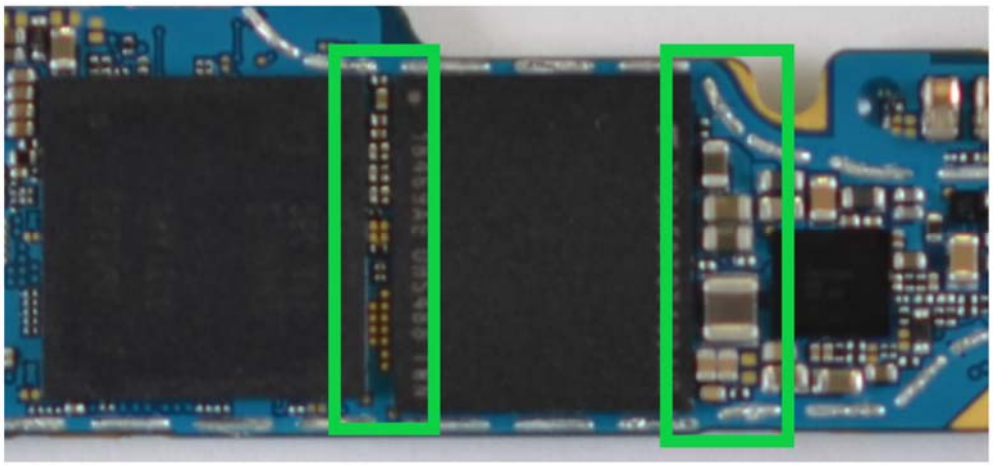
40. This single unibody heat spreader (in red below) is spaced across substantially the entire surface of two integrated circuits (in green below) opposite a second surface of the integrated circuits having a bonding pad:



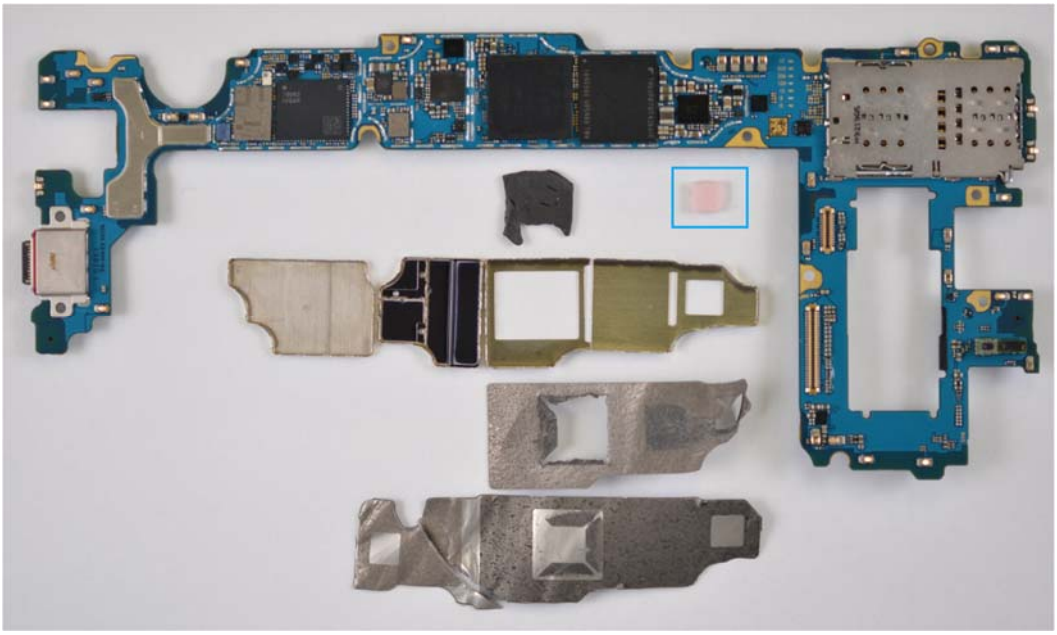
41. The heat spreader assembly also includes adhesive placed between the heat spreader and the first surface for securing the heat spreader to the first surface of the integrated circuits. As circled in yellow below, the black pad and thermal sheet are coated with an adhesive to secure the heat spreader to the first surface of the integrated circuit. In addition, the underside of the single unibody heat spreader itself is coated with a pressure sensitive adhesive.



42. The heat spreader is secured to the first surface of the integrated circuits at a spaced distance above a passive device (*e.g.*, passive devices shown in green below) arranged in the area between the spaced integrated circuits:



43. The heat spreader assembly also includes a second heat spreader (*e.g.*, in blue below) interposed between the heat spreader and only one of the two spaced integrated circuits:



44. In addition to the Samsung Galaxy S10 Plus, other infringing Samsung products include the Samsung Galaxy S10 5G, Samsung Galaxy S9 Plus, Samsung Galaxy S9, Samsung Galaxy S8 Active, Samsung Galaxy S, Samsung Galaxy Note 9, and Samsung Galaxy Note 8, as well as other Samsung phones, tablets, and other electronics devices that have the same or similar heat spreader assembly as described above (collectively, "Evans Accused Products").

45. Samsung's acts of making, using, offering for sale, selling, and/or importing infringing products, including but not limited to the Evans Accused Products, and related products and/or processes satisfy, literally or under the doctrine of equivalents, each and every claim limitation, including but not limited to limitations of claim 1, 2, 5, and 6.[1]

[1] Plaintiff expressly reserves the right to identify additional asserted products in its infringement contentions in accordance with the Local Rules and/or the Court's orders.

46. Samsung's infringement is knowing, egregious, and willful. Despite having previously licensed the Evans Patent, Samsung has thus far refused to renew its license that expired in 2018. Despite knowing that it was no longer licensed to the Evans Patent, Samsung continued to infringe the Evans Patent by continuing to make, use, sell, and/or offer to sell the Evans Accused Products in the United States. Furthermore, Samsung has known of the Evans Patent's disclosure since at least August 13, 2007, when a U.S. patent examiner cited the Evans Patent during prosecution of Samsung's patent application 11/176,800, which published as United States Patent Application Publication US2006/0006517, and the examiner stated, "The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Evans et al. (U.S. 6,963,129 B1) teaches a multi-chip package having a copper heat spreader." Samsung ultimately abandoned the application.

47. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the Evans Patent.

48. As a result of Samsung's infringement of the Evans Patent, Plaintiff has been injured by Samsung's unauthorized use of Plaintiff's intellectual property. Plaintiff seeks monetary damages in an amount adequate to compensate for Samsung's infringement, but in no event less than a reasonable royalty for the use made of the invention by Samsung, together with interest and costs as fixed by the Court, and Plaintiff will continue to suffer damages in the future unless Samsung's infringing activities are enjoined by this Court.

49. Unless a permanent injunction is issued enjoining Samsung and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the Evans Patent, Plaintiff and its licensees will be greatly and irreparably harmed.

COUNT 2

Willful Infringement of U.S. Patent No. 6,858,930 (Miller)

50. Plaintiff re-alleges and incorporates by reference the allegations in the foregoing paragraphs as if fully set forth herein.

51. Plaintiff is informed and believes, and on that basis alleges, that Samsung has infringed and is currently infringing one or more claims (*e.g.,* claim 1 and 2) of the Miller Patent, in violation of 35 U.S.C. § 271(a).

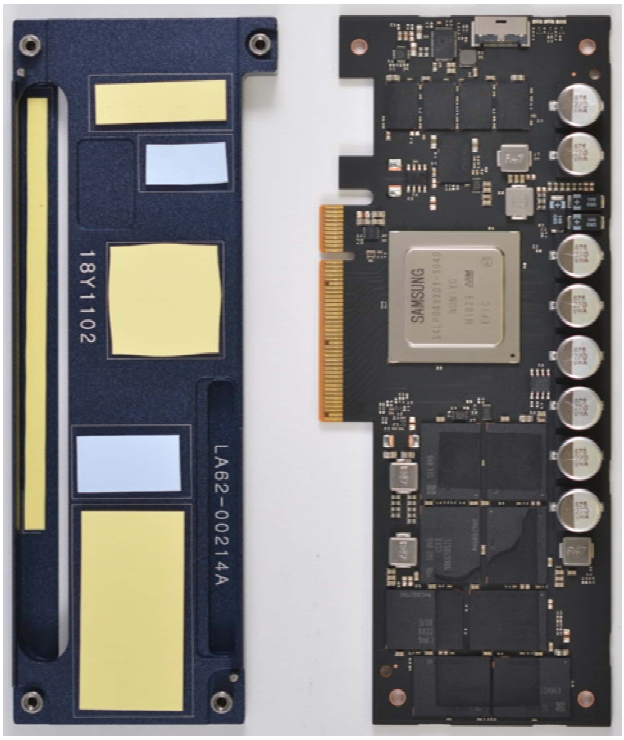
52. Samsung has infringed and are currently infringing literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority, infringing products, including but not limited to and related products and/or processes falling within the scope of one or more claims of the Miller Patent, including claim 1 (collectively, the "Miller Accused Products").

53. By way of example only, Samsung's PM1725a solid state drive contains a multi chip package that has (1) a package substrate that has a first side and an opposing second side, where the first side is for receiving package electrical connections; (2) integrated circuits that each have a first side and an opposing second side, where the first side of each of the integrated circuits is electrically connected and structurally connected to the second side of the package substrate; (3) heat spreaders that each have a first side and an opposing second side, where the first side of each of the heat spreaders is disposed adjacent to the second side of the integrated circuits, and where one each of the heat spreaders is associated with one each of the integrated circuits; (4) a single stiffener that has a first side and a second side, where the stiffener covers all of the integrated circuits and heat spreaders and the first side of the stiffener is disposed adjacent

to the second side of the heat spreaders; and (5) discrete components electrically connected to the second side of the package substrate and coplanar with the integrated circuits.

54. The Samsung PM1725a is a solid state drive with a multi chip package.

Front view



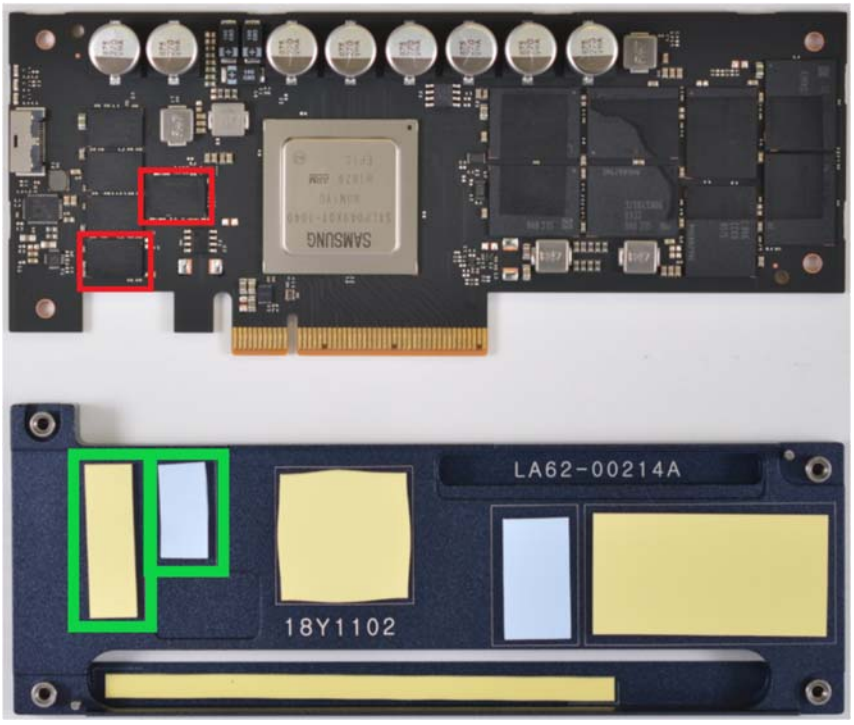
With stiffener removed

55. The multi chip package of the Samsung PM1725a has a package substrate that has a first side and an opposing second side, where the first side is for receiving package electrical connections.

First side

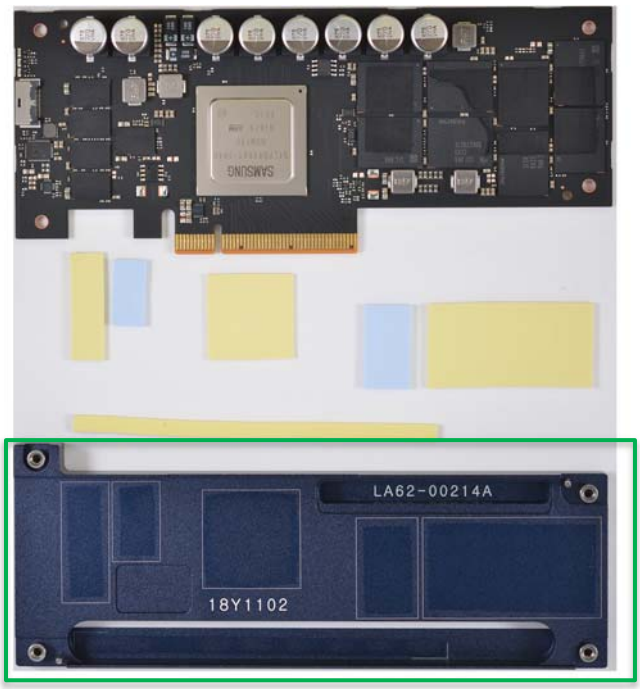
Second side

56. The multi chip package of the Samsung PM1725a has heat spreaders (*e.g.*, in green below) that each have a first side and an opposing second side, where the first side of each of the heat spreaders is disposed adjacent to the second side of the integrated circuits, and where one each of the heat spreaders is associated with one each of the integrated circuits (*e.g.*, in red below).



57. The multi chip package of the Samsung PM1725a has single stiffener (in green below, with heat spreaders removed) that has a first side and a second side, where the stiffener

covers all of the integrated circuits and heat spreaders and the first side of the stiffener is disposed adjacent to the second side of the heat spreaders.



58. The multi chip package of the Samsung PM1725a has discrete components (*e.g.*, components surrounding ICs on the right below) electrically connected to the second side of the package substrate and coplanar with the integrated circuits.

59. In addition to the Samsung PM1725a, other infringing Samsung products include the Samsung 983 ZET series, Samsung PM983 series, Samsung PM1725b, Samsung PM1643, and Samsung PM1733/1735 SSDs, as well as other Samsung SSDs, access points, and other

electronics devices that have the same or similar heat spreader assembly as described above (collectively, "Miller Accused Products").

60. Samsung's acts of making, using, offering for sale, selling, and/or importing infringing products, including but not limited to the Miller Accused Products, and related products and/or processes satisfy, literally or under the doctrine of equivalents, each and every claim limitation, including but not limited to limitations of claim 1.

61. Samsung's infringement is knowing, egregious, and willful. Despite having previously licensed the Miller Patent, Samsung has thus far refused to renew its license that expired in 2018. Despite knowing that it was no longer licensed to the Miller Patent, Samsung continued to infringe the Miller Patent by continuing to make, use, sell, and/or offer to sell the Miller Accused Products in the United States.

62. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the Miller Patent.

63. As a result of Samsung's infringement of the Miller Patent, Plaintiff has been injured by Samsung's unauthorized use of Plaintiff's intellectual property. Plaintiff seeks monetary damages in an amount adequate to compensate for Samsung's infringement, but in no event less than a reasonable royalty for the use made of the invention by Samsung, together with interest and costs as fixed by the Court, and Plaintiff will continue to suffer damages in the future unless Samsung's infringing activities are enjoined by this Court.

64. Unless a permanent injunction is issued enjoining Samsung and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the Miller Patent, Plaintiff and its licensees will be greatly and irreparably harmed.

PRAYER FOR RELIEF

Plaintiff prays for the following relief:

A. A judgment that Samsung has infringed one or more claims of the Asserted Patent;

B. A permanent injunction enjoining Samsung and its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert or participation with Samsung, from infringing the Asserted Patents;

C. An award of damages resulting from Samsung's acts of infringement in accordance with 35 U.S.C. § 284;

D. A judgment and order finding that Samsung's acts of infringement were egregious and willful and trebling damages under 35 U.S.C. § 284;

E. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys' fees against Samsung;

F. A judgment and order requiring Samsung to provide accountings and to pay supplemental damages to Plaintiff, including, without limitation, prejudgment and post-judgment interest; and

G. Any and all other relief to which Plaintiff may show itself to be entitled.

JURY TRIAL DEMANDED

Plaintiff hereby demands a trial by jury of all issues so triable.

Dated: April 24, 2020

/s/ *Paul J. Skiermont*
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(*pro hac vice* to be filed)
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