UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, DC

Before the Honorable _____
Administrative Law Judge

In the Matter of CERTAIN GRAPHICS PROCESSORS, DDR MEMORY CONTROLLERS, AND PRODUCTS CONTAINING THE SAME	Investigation No. 337-TA-___

VERIFIED COMPLAINT UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

COMPLAINANT:

ZiiLabs Inc., Ltd.
Clarendon House
2 Church Street
Hamilton, HM11 Bermuda
Tel: 65-65690394

COUNSEL FOR COMPLAINANT:

Goutam Patnaik
Tuhin Ganguly
David J. Shaw
Pepper Hamilton LLP
Hamilton Square
600 Fourteenth Street, N.W.
Washington, DC 20005-2004
Tel: 202-220-1200
Fax: 202-220-1665

William D. Belanger
Frank D. Liu
Suparna Datta
Ryan C. Deck
Pepper Hamilton LLP
19th Floor, High Street Tower
125 High Street
Boston, MA 02110-2736
Tel: 617-204-5100
Fax: 617-204-5150

RESPONDENTS:

Advanced Micro Devices, Inc.
One AMD Place
P.O. Box 3453
Sunnyvale, CA 94088-3453
Tel: 408-749-4000

Lenovo Group Ltd.
Shangdi Information Industry Base
No. 6 Chuang Ye Road, Haidan District
10085 Beijing, China
Tel: 86-10-5886-8888

Lenovo Holding Co., Inc.
1009 Think Place
Morrisville, NC 27650
Tel: 855-253-6686

Lenovo (United States) Inc.
1009 Think Place
Morrisville, NC 27650
Tel: 855-253-6686

LG Electronics, Inc.
LG Twin Towers
20, Yeouido-dong
Yeongdeungpo-gu
Seoul 150-721, Korea
Tel: 82-2-3777-1114

Gregory S. Bishop
Pepper Hamilton LLP
333 Twin Dolphin Drive
Suite 400
Redwood City, CA 94605
Tel: 650-802-3600
Fax: 650-802-3650

LG Electronics U.S.A., Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
Tel: 201-816-2000

LG Electronics MobileComm U.S.A., Inc.
10101 Old Grove Road
San Diego, CA 92131
Tel: 858-635-5300

MediaTek, Inc.
No. 1, Dusing Rd. 1
Hsinchu Science Park
Hsinchu City 30078, Taiwan
Tel: 886-3-567-0766

MediaTek USA Inc.
2860 Junction Ave.
San Jose, CA 95134
Tel: 408-526-1899

Motorola Mobility LLC
600 N. U.S. Highway 45
Libertyville, IL 60048
Tel: 847-523-5000

Qualcomm Inc.
5775 Morehouse Drive
San Diego, CA 92121
Tel: 858-587-1121

Sony Corporation
1-7-1 Konan
Minato-ku, Tokyo 108-0075 Japan
Tel: 03-6748-21111

Sony Corporation of America
25 Madison Avenue
New York, NY 10022-33211
Tel: 212-833-6800

Sony Electronics Inc.
16535 Via Esprillo Building 1
San Diego, CA 97127
Tel: 858-942-2400

Sony Mobile Communications (USA) Inc.
2207 Bridgepoint Parkway
San Mateo, CA 94404
Tel: 650-650-5910

Sony Computer Entertainment Inc.
1-7-1 Konan
Minato-ku, Tokyo 108-0075 Japan
Tel: 03-6748-21111

Sony Interactive Entertainment LLC
2207 Bridgepoint Parkway
San Mateo, CA 94404
Tel: 650-655-8000

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I. INTRODUCTION

1. Complainant ZiiLabs Inc., Ltd. ("ZiiLabs") files this complaint pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337"). ZiiLabs respectfully requests that the United States International Trade Commission (the "Commission") institute an investigation relating to the unlawful importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation, of certain graphics processors, DDR memory controllers, and products containing the same.

2. The respondents are Advanced Micro Devices, Inc. ("AMD"), Lenovo Group Ltd., Lenovo Holding Co., Inc., and Lenovo (United States) Inc. (collectively "Lenovo"), LG Electronics, Inc., LG Electronics U.S.A., Inc., and LG Electronics MobileComm U.S.A., Inc. (collectively "LG"), MediaTek, Inc. and MediaTek USA Inc. (collectively "MediaTek"), Motorola Mobility LLC ("Motorola"), Qualcomm Inc. ("Qualcomm"), and Sony Corporation, Sony Corporation of America, Sony Electronics Inc., Sony Mobile Communications (USA) Inc., Sony Computer Entertainment Inc., and Sony Interactive Entertainment LLC (collectively "Sony") (all collectively, "Respondents").

3. Respondents have violated and continue to violate Section 337 through the importation, sale for importation, and/or the sale within the United States after importation of certain graphics processors, DDR memory controllers, and products containing the same that directly infringe, literally or under the doctrine of equivalents, ZiiLabs' United States Patent No. 6,677,952 (the "'952 Patent"), United States Patent No. 6,950,350 (the "'350 Patent"), United States Patent No. 7,518,616 (the "'616 Patent"), and United States Patent No. 8,643,659 (the "'659 Patent") (collectively, the "Asserted Patents") to the detriment of the industry that exists in the United States relating to the Asserted Patents.

4. In addition to their direct infringement, Respondents have also violated and continue to violate Section 337 through the importation, sale for importation, and/or the sale within the United States after importation of certain graphics processors, DDR memory controllers, and products containing the same that indirectly infringe, literally or under the doctrine of equivalents, by induced or contributory infringement, ZiiLabs' Asserted Patents to the detriment of the industry that exists in the United States relating to the Asserted Patents. Respondents have knowledge of the Asserted Patents and ZiiLabs' infringement allegations at least as of the filing of this Complaint and the related district court complaints, and in most cases earlier based on notice letters from ZiiLabs, and have continued to provide their graphics processors, DDR memory controllers, and products containing the same to the marketplace in a manner that indirectly infringes ZiiLabs' Asserted Patents. ZiiLabs will also serve a public copy of this Complaint on each proposed Respondent the day it is filed.

5. ZiiLabs asserts that each Respondent infringes the following claims:

Asserted Patent	Asserted Claims
'952	1-8
'350	1-16
'616	1-8
'659	1-20

6. To remedy Respondents' continuing and unlawful violation of Section 337, ZiiLabs seeks as permanent relief a limited exclusion order, pursuant to 19 U.S.C. § 1337(d), barring from entry into the United States all Respondents' graphics processors, DDR memory controllers, and products containing the same that infringe one or more of the claims of the Asserted Patents. ZiiLabs also seeks cease and desist orders pursuant to 19 U.S.C. § 1337(f) prohibiting each domestic Respondent from engaging in the importation into the United States

and/or the sale within the United States after importation of graphics processors, DDR memory controllers, and products containing the same that infringe one or more claims of the Asserted Patents. Further, ZiiLabs requests that the Commission impose a bond upon Respondents' importation of infringing graphics processors, DDR memory controllers, and products containing the same during the 60-day Presidential review period, pursuant to 19 U.S.C. § 1337(j), to prevent further injury to the domestic industry relating to the Asserted Patents.

II. THE PARTIES

A. Complainant

7. Complainant ZiiLabs is a Bermuda corporation with its registered office at Clarendon House, 2 Church Street, Hamilton, HM11 Bermuda. ZiiLabs is a wholly-owned subsidiary of Creative Technology Asia Limited ("CTA"), a Hong Kong company. CTA is a wholly-owned subsidiary of Creative Technology Ltd. ("Creative"), a publicly traded Singapore company.

8. ZiiLabs traces its roots to a company called benchMark Technologies (BMT), founded in 1983. In 1988, BMT was sold to DuPont, which renamed BMT as Dupont Pixel. In 1994, one of the founders of BMT led a management buyout of DuPont Pixel, and formed 3DLabs Inc. Ltd. ("3DLabs").

9. At the time of its formation, 3DLabs focused on the creation of a 3D graphics chip for personal computers ("PCs") and was an early pioneer in the graphics processing industry. 3DLabs was a leading supplier of high-performance integrated hardware and software graphics accelerator solutions for 2D and 3D professional graphics applications. It was a pioneer in bringing 3D graphics to personal computers and its products were used in professional graphics applications for PCs and Windows NT-based PC workstations.

10. 3DLabs introduced the GLINT 300SX, the world's first merchant OpenGL[1] graphics processing unit ("GPU"), in 1995.

11. In 1996 3DLabs launched the Permedia GPU, a full featured, lower cost 3D graphics processor designed to provide high performance interactive 3D graphics for mainstream consumer PCs using the Windows 95 operating system.

12. 3DLabs' GPUs were designed into board and system level designs by companies such as Accel Graphics, Inc., Creative, Diamond Multimedia Systems Inc., ELSA, Inc., Fujitsu Ltd., Leadtek, and NEC Corp., and boards incorporating 3DLabs' GPUs were designed into PCs by such heavyweights as Compaq Computer Corporation, Dell Computer Corporation, Gateway 2000, Hewlett-Packard Company, Micron Electronics, Inc., NEC, and Samsung Electronics Co., Ltd.

13. From its inception, 3DLabs marketed and sold its 3D graphics technology through merchant processor sales primarily to PC and graphics board original equipment manufacturers ("OEMs") and licensed its embeddable graphics processor cores to technology partners in exchange for royalties. In July of 1998, 3DLabs acquired Dynamic Pictures Inc., then a leading supplier of 2D/3D graphics boards for high-end PC graphics applications in the Windows NT-based PC workstation market, as part of 3DLabs' strategic decision to enter the vertically integrated board business for the PC workstations market.

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[1] "OpenGL is the premier environment for developing portable, interactive 2D and 3D graphics applications. Since its introduction in 1992, OpenGL has become the industry's most widely used and supported 2D and 3D graphics application programming interface (API), bringing thousands of applications to a wide variety of computer platforms." (*See* https://www.opengl.org/about/.) 3DLabs was a founding member of the Khronos Group, which drives the OpenGL standard, and initiated the OpenGL ES 1.0 standard, which was ratified in 2003.

14. In December 1999, 3DLabs and Intel Corporation ("Intel") entered into a Patent License Agreement, pursuant to which Intel acquired license rights to some of the Asserted Patents.

15. In 2000, 3DLabs acquired the assets of Intergraph Corporation ("Intergraph"), including the application that matured into the asserted '616 Patent.

16. In 2002, 3DLabs was acquired by Creative, one of 3DLabs' original investors.

17. In January of 2009, 3DLabs was rebranded as ZiiLabs, in part to signify a broadened focus on mobile processors, platforms, and software. Accordingly, ZiiLabs is the owner of the Asserted Patents. ZiiLabs began providing media processors, including those based on ZiiLabs' StemCell architecture, for use in portable consumer electronics products.

18. In November of 2012, Intel acquired certain engineering resources and assets related to the U.K. subsidiary of ZiiLabs. In a related transaction, Intel and ZiiLabs also entered into a Patent License Agreement pursuant to which Intel acquired, *inter alia*, license rights to the remaining Asserted Patents.

19. ZiiLabs currently operates as a subsidiary of Creative and owns over 100 issued U.S. patents related to graphics, processor, and 3D technology, and is the assignee and owner of the Asserted Patents. ZiiLabs' continued success depends, in part, on its ability to establish, maintain, and protect its proprietary technology through enforcement of its patent rights.

B. Respondents

20. With regard to Respondents, ZiiLabs alleges the following upon information and belief:

1. Advanced Micro Devices, Inc.

21. Advanced Micro Devices Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at One AMD Place,

P.O. Box 3453, Sunnyvale, CA 94088-3453. Advanced Micro Devices Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting graphics processors, DDR memory controllers, and products containing the same including GPUs, central processing units ("CPUs"), Accelerated Processing Units ("APUs") – chips that combine the functionality of CPUs and GPUs, and graphics cards, in the United States, that are manufactured outside of the United States. AMD's products are utilized and sold in products including laptop and desktop PCs, game consoles, and cloud servers.

2. Lenovo Group Ltd.

22. Lenovo Group Ltd. is a foreign corporation organized and existing under the laws of China, with its principal place of business located at Shangdi Information Industry Base, No. 6 Chuang Ye Road, Haidan District, 100085 Beijing, China. Lenovo Group Ltd. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets, that are manufactured outside of the United States. Lenovo Group Ltd. is the parent corporation of Respondent Lenovo Holding Co., Inc.

3. Lenovo Holding Co., Inc.

23. Lenovo Holding Co., Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 1009 Think Place, Morrisville, North Carolina 27650. Respondent Lenovo Holding Co., Inc. is a subsidiary of or otherwise controlled by Respondent Lenovo Group Ltd. Lenovo Holding Co., Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including servers, workstations, desktops, notebooks, laptops, all-in-ones,

Chromebooks, and tablets in the United States, that are manufactured outside of the United States. Lenovo Holding Co., Inc. is the parent corporation of Respondent Lenovo (United States) Inc.

4. Lenovo (United States) Inc.

24. Lenovo (United States) Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 1009 Think Place, Morrisville, North Carolina 27650. Respondent Lenovo (United States) Inc. is a subsidiary of or otherwise controlled by Respondent Lenovo Holding Co., Inc. Lenovo (United States) Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets in the United States, that are manufactured outside of the United States. Lenovo Group Ltd., Lenovo Holding Co., Inc., and Lenovo (United States) Inc. are referred to collectively as "Lenovo."

5. LG Electronics Inc.

25. LG Electronics, Inc. is a foreign corporation organized and existing under the laws of Korea, with its principal place of business located at 20, Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721, Korea. LG Electronics, Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, and selling products containing graphics processors and/or DDR memory controllers including desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in the United States, that are manufactured outside of the United States. LG Electronics, Inc. is the parent corporation of Respondents LG Electronics U.S.A., Inc. and LG Electronics MobileComm U.S.A., Inc.

6. LG Electronics U.S.A., Inc.

26. LG Electronics U.S.A., Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 1000 Sylvan Avenue, Englewood Cliffs, New Jersey 07632. Respondent LG Electronics U.S.A., Inc. is a subsidiary of or otherwise controlled by Respondent LG Electronics, Inc. LG Electronics U.S.A., Inc. manages the North American operations, which includes operations within the United States, of Respondent LG Electronics MobileComm U.S.A., Inc. LG Electronics U.S.A., Inc. is in the business of marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in the United States, that are manufactured outside of the United States.

7. LG Electronics MobileComm U.S.A., Inc.

27. LG Electronics MobileComm U.S.A., Inc. is a corporation organized and existing under the laws of the state of California, with its principal place of business located at 10101 Old Grove Road, San Diego, California 92131. Respondent LG Electronics MobileComm U.S.A., Inc. is a subsidiary of or otherwise controlled by Respondent LG Electronics, Inc., and is managed by its parent, Respondent LG Electronics U.S.A., Inc. LG Electronics MobileComm U.S.A., Inc. is in the business of marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in the United States, that are manufactured outside of the United States. LG Electronics, Inc., LG Electronics U.S.A., Inc., and LG Electronics MobileComm U.S.A., Inc. are referred to collectively as "LG."

8. MediaTek, Inc.

28. MediaTek Inc. is a foreign corporation organized and existing under the laws of Taiwan, with its principal place of business located at No. 1, Dusing Rd. 1, Hsinchu Science Park, Hsinchu City 30078, Taiwan. MediaTek Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting graphics processors, DDR memory controllers, and products containing the same including systems on a chip ("SoCs") in the United States, that are manufactured outside of the United States. MediaTek's products are utilized and sold in products including tablets, smartphones, digital televisions, and consumer DVD and Blu-ray players.

9. MediaTek U.S.A., Inc.

29. MediaTek U.S.A., Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 2860 Junction Ave., San Jose, CA 95134. Respondent MediaTek U.S.A., Inc. is a subsidiary of or otherwise controlled by Respondent MediaTek, Inc. MediaTek U.S.A. Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting graphics processors, DDR memory controllers, and products containing the same including systems on a chip ("SoCs") in the United States, that are manufactured outside of the United States. MediaTek's products are utilized and sold in products including tablets, smartphones, digital televisions, and consumer DVD and Blu-ray players.

10. Motorola Mobility LLC

30. Motorola Mobility LLC is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 600 N. U.S. Highway 45, Libertyville, IL 60048. Respondent Motorola Mobility LLC is a subsidiary of or otherwise controlled by Respondent Lenovo Group Ltd. Motorola Mobility LLC is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing,

and supporting products containing graphics processors and/or DDR memory controllers including smartphones and wearables in the United States, that are manufactured outside of the United States.

11. Qualcomm Inc.

31. Qualcomm Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 5775 Morehouse Drive, San Diego, CA 92121. Qualcomm Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting graphics processors, DDR memory controllers, and products containing the same including all-in-one processors, SoCs, and baseband processors, in the United States, that are manufactured outside of the United States. Qualcomm's products are utilized and sold in products including laptops, tablets, and smartphones.

12. Sony Corporation

32. Sony Corporation is a foreign corporation organized and existing under the laws of Japan, with its principal place of business located at 1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan. Sony Corporation is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in the United States, that are manufactured outside of the United States.

13. Sony Corporation of America

33. Sony Corporation of America is a corporation organized and existing under the laws of the state of New York, with its principal place of business located at 25 Madison Avenue, New York, NY 10022-33211. Respondent Sony Corporation of America is a subsidiary

of or otherwise controlled by Respondent Sony Corporation. Sony Corporation of America is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in the United States, that are manufactured outside of the United States.

14. Sony Electronics Inc.

34. Sony Electronics Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 16535 Via Esprillo Building 1, San Diego, CA 97127. Respondent Sony Electronics Inc. is a subsidiary of or otherwise controlled by Respondent Sony Corporation. Sony Electronics Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in the United States, that are manufactured outside of the United States.

15. Sony Mobile Communications (USA) Inc.

35. Sony Mobile Communications (USA) Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 2207 Bridgepoint Parkway, San Mateo, CA 94404. Respondent Sony Mobile Communications (USA) Inc. is a subsidiary of or otherwise controlled by Respondent Sony Corporation. Sony Mobile Communications (USA) Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including tablets, smartphones, and wearables, in the United States, that are manufactured outside of the United States.

16. Sony Computer Entertainment Inc.

36. Sony Computer Entertainment Inc. is a foreign corporation organized and existing under the laws of Japan, with its principal place of business located at 1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan. Respondent Sony Computer Entertainment Inc. is a subsidiary of or otherwise controlled by Respondent Sony Corporation. Sony Computer Entertainment Inc. is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including gaming systems in the United States, that are manufactured outside of the United States.

17. Sony Interactive Entertainment LLC

37. Sony Interactive Entertainment LLC is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 2207 Bridgepoint Parkway, San Mateo, CA 94404. Respondent Sony Interactive Entertainment LLC is a subsidiary of or otherwise controlled by Respondent Sony Corporation. Sony Interactive Entertainment LLC is in the business of designing, developing, manufacturing, making, marketing, offering for sale, selling, importing, and supporting products containing graphics processors and/or DDR memory controllers including gaming systems in the United States, that are manufactured outside of the United States.

III. THE ASSERTED PATENTS

38. The '952 Patent, titled "Texture Download DMA Controller Synching Multiple Independently-Running Rasterizers," is properly assigned to ZiiLabs, as shown in the certified copy of the assignment records, attached as Exhibit 5.

39. The '350 Patent, titled "Configurable Pipe Delay with Window Overlap for DDR Receive Data," is properly assigned to ZiiLabs, as shown in the certified copy of the assignment records, attached as Exhibit 6.

40. The '616 Patent, titled "Graphics Processor with Texture Memory Allocation System," is properly assigned to ZiiLabs, as shown in the certified copy of the assignment records, attached as Exhibit 7.

41. The '659 Patent, titled "Shader with Global and Instruction Caches," is properly assigned to ZiiLabs, as shown in the certified copy of the assignment records, attached as Exhibit 8.

A. The '952 Patent

42. Pursuant to Commission Rules 210.12(a)(9)(i)-(ii), a certified copy of the '952 Patent and a certified copy of the assignment records for the '952 Patent are attached hereto as Exhibits 1 and 5, respectively. Appendix A, pursuant to Commission Rule 210.12(c)(1), contains one certified copy of the U.S. Patent and Trademark Office prosecution history for the '952 Patent plus three additional copies thereof. Appendix B, pursuant to Commission Rule 210.12(c)(2), contains four copies of each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '952 Patent.

43. The '952 Patent was filed on June 9, 2000, claiming priority to U.S. Provisional Patent Application No. 60/138,350, which was filed on June 9, 1999, U.S. Provisional Patent Application No. 60/138,248, which was filed on June 9, 1999, and U.S. Provisional Patent Application No. 60/143,660, which was filed on July 13, 1999. The '952 Patent issued on January 13, 2004.

44. The '952 Patent has eight (8) claims, including three (3) independent claims (claims 1, 4, and 6) and five (5) dependent claims. ZiiLabs is asserting claims 1-8 of the '952 Patent:

U.S. Patent No. 6,677,952	
Respondent	Asserted Claims
AMD	1-8
Lenovo	1-8
LG	1-8
MediaTek	1-8
Motorola	1-8
Qualcomm	1-8
Sony	1-8

1. Foreign Counterparts to the '952 Patent

45. ZiiLabs, pursuant to Commission Rule 210.12(a)(9)(v), is not aware of any foreign patents and patent applications related to the asserted '952 Patent.

46. In accordance with Commission Rule 210.12(a)(9)(v), ZiiLabs states that it is aware of no other foreign counterparts issued, filed, denied, abandoned, or withdrawn, relating to the asserted '952 Patent.

B. The '350 Patent

47. Pursuant to Commission Rules 210.12(a)(9)(i)-(ii), a certified copy of the '350 Patent and a certified copy of the assignment records for the '350 Patent are attached hereto as Exhibits 2 and 6, respectively. Appendix C, pursuant to Commission Rule 210.12(c)(1), contains one certified copy of the U.S. Patent and Trademark Office prosecution history for the '350 Patent plus three additional copies thereof. Appendix D, pursuant to Commission Rule 210.12(c)(2), contains four copies of each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '350 Patent.

48. The '350 Patent was filed on April 4, 2002, claiming priority to U.S. Provisional Patent Application No. 60/346,518, which was filed on January 8, 2002. The '350 Patent issued on September 27, 2005.

49. The '350 Patent has sixteen (16) claims, including three (3) independent claims (claims 1, 10, and 15) and thirteen (13) dependent claims. ZiiLabs is asserting claims 1-16 of the '350 Patent:

U.S. Patent No. 6,950,350	
Respondent	Asserted Claims
AMD	1-16
Lenovo	1-16
LG	1-16
MediaTek	1-16
Motorola	1-16
Qualcomm	1-16
Sony	1-16

1. Foreign Counterparts to the '350 Patent

50. ZiiLabs, pursuant to Commission Rule 210.12(a)(9)(v), is not aware of any foreign patents and patent applications related to the asserted '350 Patent.

51. In accordance with Commission Rule 210.12(a)(9)(v), ZiiLabs states that it is aware of no other foreign counterparts issued, filed, denied, abandoned, or withdrawn, relating to the asserted '350 Patent.

C. The '616 Patent

52. Pursuant to Commission Rules 210.12(a)(9)(i)-(ii), a certified copy of the '616 Patent and a certified copy of the assignment records for the '616 Patent are attached hereto as Exhibits 3 and 7, respectively. Appendix E, pursuant to Commission Rule 210.12(c)(1), contains

one certified copy of the U.S. Patent and Trademark Office prosecution history for the '616 Patent plus three additional copies thereof. Appendix F, pursuant to Commission Rule 210.12(c)(2), contains four copies of each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '616 Patent.

53. The '616 Patent was filed on July 15, 1999, claiming priority to U.S. Provisional Patent Application No. 60/093,159, which was filed on July 17, 1998. The '616 Patent issued on April 14, 2009.

54. The '616 Patent has eight (8) claims, including three (3) independent claims (claims 1, 7, and 8) and five (5) dependent claims. ZiiLabs is asserting claims 1-8 of the '616 Patent:

U.S. Patent No. 7,518,616	
Respondent	Asserted Claims
AMD	1-8
Lenovo	1-8
LG	1-8
MediaTek	1-8
Motorola	1-8
Qualcomm	1-8
Sony	1-8

1. Foreign Counterparts to the '616 Patent

55. ZiiLabs, pursuant to Commission Rule 210.12(a)(9)(v), identifies the following foreign patents and patent applications related to the asserted '616 Patent:

Document	Status
WO0004496	No ongoing national phase prosecution

PCT/US99/16033	No ongoing national phase prosecution

56. In accordance with Commission Rule 210.12(a)(9)(v), ZiiLabs states that it is aware of no other foreign counterparts issued, filed, denied, abandoned, or withdrawn, relating to the asserted '616 Patent.

D. The '659 Patent

57. Pursuant to Commission Rules 210.12(a)(9)(i)-(ii), a certified copy of the '659 Patent and a certified copy of the assignment records for the '659 Patent are attached hereto as Exhibits 4 and 8, respectively. Appendix G, pursuant to Commission Rule 210.12(c)(1), contains one certified copy of the U.S. Patent and Trademark Office prosecution history for the '659 Patent plus three additional copies thereof. Appendix H, pursuant to Commission Rule 210.12(c)(2), contains four copies of each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '659 Patent.

58. The '659 Patent was filed on October 5, 2004, claiming priority to U.S. Provisional Patent Application No. 60/533,532, which was filed on December 31, 2003. The '659 Patent issued on February 4, 2014.

59. The '659 Patent has twenty (20) claims, including eight (8) independent claims (claims 1, 4, 6, 9, 11, 15, 17, and 19) and twelve (12) dependent claims. ZiiLabs is asserting claims 1-20 of the '659 Patent:

U.S. Patent No. 8,643,659	
Respondent	Asserted Claims
AMD	1-20
Lenovo	1-20
LG	1-20
MediaTek	1-20
Motorola	1-20
Qualcomm	1-20
Sony	1-20

1. Foreign Counterparts to the '659 Patent

60. ZiiLabs, pursuant to Commission Rule 210.12(a)(9)(v), is not aware of any foreign patents and patent applications related to the asserted '659 Patent.

61. In accordance with Commission Rule 210.12(a)(9)(v), ZiiLabs states that it is aware of no other foreign counterparts issued, filed, denied, abandoned, or withdrawn, relating to the asserted '659 Patent.

E. Licensees to the Asserted Patents

62. License rights in the Asserted Patents are set forth in Confidential Exhibit 40.

IV. NON-TECHNICAL DESCRIPTION OF THE PATENTED TECHNOLOGY

63. ZiiLabs' patented technology generally relates to the field of computer and graphics processing.

A. The '952 Patent – Texture Download DMA Controller Synching Multiple Independently-Running Rasterizers

64. ZiiLabs' '952 Patent is generally directed to multiple rasterizer graphics systems. Multiple rasterizer graphics systems enable increased graphics processing throughput by allowing graphics processing operations to be distributed across each of the rasterizers.

65. When a rasterizer is performing graphics rendering operations it may request graphics data (*e.g.*, texture data) that has not yet been loaded into memory (*e.g.*, RAM). To complete the rendering operation, the requested data must first be loaded into memory before that data can be accessed by the requesting rasterizer.

66. In multi-rasterizer graphics systems, there is a possibility that separate rasterizers will request the same graphics data (*e.g.*, texture data). As a result, the requested graphics data will be downloaded multiple times, once for each requesting rasterizer. This results in multiple copies of the same data being loaded into memory, thus increasing memory usage, and decreased bandwidth because of the additional copies of data that need to be transferred to each of the rasterizers.

67. The '952 Patent addresses this problem by broadcasting the graphics data requested by one rasterizer to each of the other rasterizers in the graphics system. This allows the requested graphics data to be downloaded only once, thereby avoiding multiple downloads of the same data by different rasterizers. Because the same graphics data is not downloaded multiple times, memory resources are preserved, thus allowing for more efficient use of the memory resources.

B. The '350 Patent – Configurable Pipe Delay with Window Overlap for DDR Receive Data

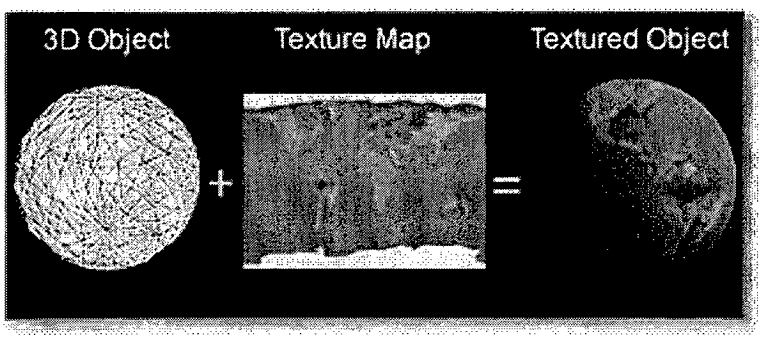
68. ZiiLabs' '350 Patent is generally directed to maximizing the setup and hold time for data being read from Double-Data-Rate Synchronous Dynamic Random Access Memory (DDR SDRAM). Setup and hold time refer to the minimum amount of time that is required to ensure that the data is stable before being latched. If data is not stable, then the latched data may not be accurate.

69. Data stored in DDR SDRAM is read into data registers or memory locations with a strobe signal. In particular, the data is latched to a location by either the rising edge or falling edge of the strobe signal. As memory clock speeds increase, the time between rising and falling edges of the strobe signal decrease, thereby shrinking the window in which valid data can be latched.

70. The '350 Patent maximizes the setup and hold time (*i.e.*, valid data window) by adjusting the timing of the strobe signal for the DDR memory device and converting the data a single datum from the DDR memory device into doublewide data.

C. The '616 Patent – Graphics Processor with Texture Memory Allocation System

71. ZiiLabs' '616 Patent is directed to a graphics processor that stores and processes textures in an efficient manner. In three-dimensional (3D) graphics systems, textures are applied to 3D graphical objects to give them a realistic appearance. This is accomplished by retrieving the texture from memory and mapping the texture to a 3D graphical object. An example of applying texture to a 3D object is illustrated in the image below:



The memory used to store textures is typically configured as linear memory. Linear memory consists of an array of memory blocks of the same size, with each memory block accessible by a unique memory address.

72. Textures are typically multi-dimensional (*e.g.*, 2D, 3D). Storing multi-dimensional textures in linear memory often results in an inefficient allocation of memory. Unlike 1D textures, which can be readily stored within a page of memory, multi-dimensional textures will typically span across multiple pages of memory. Accessing data within a page of memory is an efficient operation, while accessing data across different pages of a memory is an expensive and inefficient operation. For example, storing each row of texels (texture elements) of a two-dimensional texture, each in a separate page of memory, would result in inefficient memory access because multiple pages of memory would need to be accessed to retrieve the multiple rows of texels that form the two-dimensional texture.

73. The '616 Patent addresses this inefficient storage of textures by converting multi-dimensional textures into one-dimensional texture maps by defining a plurality of data blocks within the multi-dimensional texture and storing consecutive data blocks into consecutive memory locations. These multi-dimensional textures stored as one-dimensional texture maps can be accessed through texture packets that are each associated with a unique texture map. The texture packets include data relating to the location of the texture map in memory and dimensional type of the texture map.

D. The '659 Patent – Shader with Global and Instruction Caches

74. ZiiLabs' '659 Patent is generally directed to graphics rendering hardware for graphics shader programs. Graphics shader programs are computer programs that produce the desired visual effects (*e.g.*, lighting, motion blur, depth of field) for a graphics image.

75. Typical graphics hardware designs store global data and instructions used by graphics shader programs into a fixed set of registers or writable control store (WCS). These traditional designs, however, limit the size and complexity of the shader programs that can be run on the graphics hardware.

76. The '659 Patent addresses the limitations in traditional graphics hardware designs by incorporating an instruction cache and a global data cache into the graphics rendering hardware. By incorporating an instruction cache and a global data cache, the graphics processor can virtualize the storage of instructions and global data, thereby allowing larger and more complex shader programs to run on the graphics rendering hardware.

V. UNFAIR ACTS OF THE RESPONDENTS

77. Respondents are engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors, DDR memory controllers, and products containing the same including GPUs, CPUs, APUs, SoCs, all-in-one processors, baseband processors, graphics cards, servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, televisions, DVD and Blu-ray players, and gaming systems, which infringe at least one claim of each of the Asserted Patents.

A. Infringement

78. Exhibits 9-28 are claim charts demonstrating how the asserted independent claims of the Asserted Patents apply to certain representative products of each Respondent. In addition to the specific graphics processors and/or DDR memory controllers contained in these representative Respondent products, ZiiLabs also believes that Respondents incorporate graphics processors and/or DDR memory controllers from other companies into their GPUs, CPUs, APUs, SoCs, all-in-one processors, baseband processors, graphics cards, servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in a manner that similarly infringes the Asserted Patents. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Respondents' importation, sale for importation, and/or sale after importation of these products as well.

79. Respondents' subject articles include:

Respondent	Subject articles
AMD	GPUs, CPUs, APUs, graphics cards
Lenovo	Servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets
LG	Desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, DVD and blu-ray players
MediaTek	SoCs
Motorola	Smartphones and wearables
Qualcomm	All-in-one processors, baseband processors
Sony	Tablets, smartphones, wearables, televisions, DVD and blu-ray players, gaming systems

1. The '952 Patent

a. AMD

80. Respondent AMD is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

81. ZiiLabs has obtained products containing graphics processors that AMD imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

82. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 12 includes a chart comparing the asserted independent claims of the '952 Patent to a representative product containing AMD's graphics processors. Exhibit 12 shows that products containing AMD graphics processors and their use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 12 contains

photographs of products containing AMD's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent AMD that violates Section 337. ZiiLabs believes that AMD's other devices, including AMD's other GPUs, CPUs, APUs, and graphics cards, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent AMD.

83. Additionally, AMD has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

84. AMD has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent AMD a notice letter. (Confidential Exhibit 38.) ZiiLabs will serve a public copy of this Complaint on AMD the day it is filed.

85. Despite AMD's awareness of the '952 Patent and ZiiLabs' allegations, AMD has knowingly and actively induced others to infringe the '952 Patent by selling GPUs, CPUs, APUs, and graphics cards, containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

86. AMD has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative product containing AMD's graphics processors (Exhibit 12), AMD's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products

that necessarily infringe the '952 Patent, AMD has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

87. Finally, AMD has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

88. The graphics processors in AMD's GPUs, CPUs, APUs, and graphics cards are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing GPUs, CPUs, APUs, and graphics cards containing these graphics processors, AMD has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in AMD's GPUs, CPUs, APUs, and graphics cards.

b. Lenovo

89. Respondent Lenovo is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

90. ZiiLabs has obtained products containing graphics processors that Lenovo imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

91. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 9 includes a chart comparing the asserted independent claims of the '952 Patent to a representative Lenovo product. Exhibit 9 shows that the Lenovo product and its use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule

210.12(a)(9)(x), Exhibit 9 contains photographs of the Lenovo product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Lenovo that violates Section 337. ZiiLabs believes that Lenovo's other devices, including Lenovo's other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Lenovo.

92. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '952 Patent, as does its use, as shown in Exhibit 9, ZiiLabs also believes that Lenovo incorporates graphics processors from other companies into its other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets in a manner that similarly infringes the Asserted Claims of the '952 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Lenovo's importation, sale for importation, and/or sale after importation of these products as well.

93. Additionally, Lenovo has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

94. Lenovo has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo notice letters. (Confidential Exhibit 330.) ZiiLabs will serve a public copy of this Complaint on Lenovo the day it is filed.

95. Despite Lenovo's awareness of the '952 Patent and ZiiLabs' allegations, Lenovo has knowingly and actively induced others to infringe the '952 Patent by selling servers,

workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

96. Lenovo has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative Lenovo product (Exhibit 9), Lenovo's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products that necessarily infringe the '952 Patent, Lenovo has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

97. Finally, Lenovo has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

98. The graphics processors in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing these graphics processors, Lenovo has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets.

c. LG

99. Respondent LG is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

100. ZiiLabs has obtained products containing graphics processors that LG imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

101. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 10 includes a chart comparing the asserted independent claims of the '952 Patent to a representative LG product. Exhibit 10 shows that the LG product and its use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 10 contains photographs of the LG product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent LG that violates Section 337. ZiiLabs believes that LG's other devices, including LG's other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent LG.

102. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '952 Patent, as does its use, as shown in Exhibit 10, ZiiLabs also believes that LG incorporates graphics processors from other companies into its other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in a manner that similarly infringes the Asserted

Claims of the '952 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against LG's importation, sale for importation, and/or sale after importation of these products as well.

103. Additionally, LG has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

104. LG has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent LG notice letters. (Confidential Exhibit 331.) ZiiLabs will serve a public copy of this Complaint on LG the day it is filed.

105. Despite LG's awareness of the '952 Patent and ZiiLabs' allegations, LG has knowingly and actively induced others to infringe the '952 Patent by selling desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

106. LG has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative LG product (Exhibit 10), LG's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products that necessarily infringe the '952 Patent, LG has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

107. Finally, LG has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

108. The graphics processors in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing these graphics processors, LG has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players.

d. MediaTek

109. Respondent MediaTek is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

110. ZiiLabs has obtained products containing graphics processors that MediaTek imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

111. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 13 includes a chart comparing the asserted independent claims of the '952 Patent to a representative product containing MediaTek's graphics processors. Exhibit 13 shows that products containing MediaTek graphics processors and their use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit

13 contains photographs of the product containing MediaTek's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent MediaTek that violates Section 337. ZiiLabs believes that MediaTek's other devices, including MediaTek's other SoCs, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent MediaTek.

112. Additionally, MediaTek has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

113. MediaTek has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 18, 2016, when ZiiLabs sent MediaTek notice letters. (Confidential Exhibit 332.) ZiiLabs will serve a public copy of this Complaint on MediaTek the day it is filed.

114. Despite MediaTek's awareness of the '952 Patent and ZiiLabs' allegations, MediaTek has knowingly and actively induced others to infringe the '952 Patent by selling SoCs containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

115. MediaTek has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative product containing MediaTek's graphics processors (Exhibit 13), MediaTek's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with

products that necessarily infringe the '952 Patent, MediaTek has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

116. Finally, MediaTek has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

117. The graphics processors in MediaTek's SoCs are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing SoCs containing these graphics processors, MediaTek has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in MediaTek's SoCs.

e. Motorola

118. Respondent Motorola is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

119. ZiiLabs has obtained products containing graphics processors that Motorola imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

120. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 11 includes a chart comparing the asserted independent claims of the '952 Patent to a representative Motorola product. Exhibit 11 shows that the Motorola product and its use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 11 contains photographs of the Motorola product. Lastly, Commission

Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Motorola that violates Section 337. ZiiLabs believes that Motorola's other devices, including Motorola's other smartphones and wearables, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Motorola.

121. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '952 Patent, as does its use, as shown in Exhibit 11, ZiiLabs also believes that Motorola incorporates graphics processors from other companies into its other smartphones and wearables in a manner that similarly infringes the Asserted Claims of the '952 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Motorola's importation, sale for importation, and/or sale after importation of these products as well.

122. Additionally, Motorola has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

123. Motorola has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo, Motorola's parent, notice letters. (Confidential Exhibit 330.) ZiiLabs also sent a notice letter to Motorola's then-parent, Google Inc., on August 7, 2013 and one to Motorola itself on August 8, 2016. (Confidential Exhibits 334 and 335.) ZiiLabs will serve a public copy of this Complaint on Motorola the day it is filed.

124. Despite Motorola's awareness of the '952 Patent and ZiiLabs' allegations, Motorola has knowingly and actively induced others to infringe the '952 Patent by selling smartphones containing graphics processors which induce the direct infringement of at least one

of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

125. Motorola has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative Motorola product (Exhibit 11), Motorola's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products that necessarily infringe the '952 Patent, Motorola has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

126. Finally, Motorola has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

127. The graphics processors in Motorola's smartphones and wearables are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing smartphones and wearables containing these graphics processors, Motorola has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in Motorola's smartphones and wearables.

f. Qualcomm

128. Respondent Qualcomm is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

129. ZiiLabs has obtained products containing graphics processors that Qualcomm imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

130. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 9, 10, and 11 include charts comparing the asserted independent claims of the '952 Patent to representative products containing Qualcomm's graphics processors. Exhibits 9, 10, and 11 show that products containing Qualcomm's graphics processors and their use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 9, 10, and 11 contain photographs of the products containing Qualcomm's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Qualcomm that violates Section 337. ZiiLabs believes that Qualcomm's other devices, including Qualcomm's other all-in-one processors, SoCs, and baseband processors, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Qualcomm.

131. Additionally, Qualcomm has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

132. Qualcomm has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent Qualcomm a notice letter. (Confidential Exhibit 39.) ZiiLabs will serve a public copy of this Complaint on Qualcomm the day it is filed.

133. Despite Qualcomm's awareness of the '952 Patent and ZiiLabs' allegations, Qualcomm has knowingly and actively induced others to infringe the '952 Patent by selling all-

in-one processors, SoCs, and baseband processors containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

134. Qualcomm has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative products containing Qualcomm's graphics processors (Exhibits 9, 10, and 11), Qualcomm's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products that necessarily infringe the '952 Patent, Qualcomm has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

135. Finally, Qualcomm has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

136. The graphics processors in Qualcomm's all-in-one processors, SoCs, and baseband processors are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing all-in-one processors, SoCs, and baseband processors containing these graphics processors, Qualcomm has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in Qualcomm's all-in-one processors, SoCs, and baseband processors.

g. Sony

137. Respondent Sony is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '952 Patent.

138. ZiiLabs has obtained products containing graphics processors that Sony imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '952 Patent.

139. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 12 and 13 include charts comparing the asserted independent claims of the '952 Patent to representative Sony products. Exhibits 12 and 13 show that the Sony products and their use are covered by at least the asserted independent claims of the '952 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 12 and 13 contain photographs of the Sony products. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Sony that violates Section 337. ZiiLabs believes that Sony's other devices, including Sony's other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems, and their uses, are covered by at least one of the Asserted Claims of the '952 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Sony.

140. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '952 Patent, as does its use, as shown in Exhibits 12 and 13, ZiiLabs also believes that Sony incorporates graphics processors from other companies into its other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in a manner that similarly infringes the Asserted Claims of the '952 Patent. ZiiLabs

intends to and does accuse such products of infringement and seeks remedial orders and a bond against Sony's importation, sale for importation, and/or sale after importation of these products as well.

141. Additionally, Sony has indirectly infringed at least one claim of the '952 Patent by inducing infringement.

142. Sony has been aware of the '952 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Sony notice letters. (Confidential Exhibit 333.) ZiiLabs will serve a public copy of this Complaint on Sony the day it is filed.

143. Despite Sony's awareness of the '952 Patent and ZiiLabs' allegations, Sony has knowingly and actively induced others to infringe the '952 Patent by selling tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing graphics processors which induce the direct infringement of at least one of the claims of the '952 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '952 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '952 Patent.

144. Sony has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '952 Patent. As shown for the representative Sony products (Exhibits 12 and 13), Sony's products function in a manner that infringes the claims of the '952 Patent. At least by providing users with products that necessarily infringe the '952 Patent, Sony has induced and is actively inducing infringement of at least one claim of ZiiLabs' '952 Patent.

145. Finally, Sony has indirectly infringed at least one of the claims of the '952 Patent by contributing to infringement.

146. The graphics processors in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems are made solely for the purpose of operating in a manner that infringes at least one claim of the '952 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '952 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing these graphics processors, Sony has contributed to the infringement of the '952 Patent by end-users – for example, customers – who use said graphics processors provided in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems.

2. The '350 Patent

a. AMD

147. Respondent AMD is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

148. ZiiLabs has obtained products containing DDR memory controllers that AMD imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

149. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 17 includes a chart comparing the asserted independent claims of the '350 Patent to a representative product containing AMD's DDR memory controllers. Exhibit 17 shows that products containing AMD DDR memory controllers and their use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 17 contains

photographs of products containing AMD's DDR memory controllers. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent AMD that violates Section 337. ZiiLabs believes that AMD's other devices, including AMD's other GPUs, CPUs, APUs, and graphics cards, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent AMD.

150. Additionally, AMD has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

151. AMD has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent AMD a notice letter. (Confidential Exhibit 38.) ZiiLabs will serve a public copy of this Complaint on AMD the day it is filed.

152. Despite AMD's awareness of the '350 Patent and ZiiLabs' allegations, AMD has knowingly and actively induced others to infringe the '350 Patent by selling GPUs, CPUs, APUs, and graphics cards containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

153. AMD has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative product containing AMD's DDR memory controllers (Exhibit 17), AMD's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products

that necessarily infringe the '350 Patent, AMD has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

154. Finally, AMD has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

155. The DDR memory controllers in AMD's GPUs, CPUs, APUs, and graphics cards, are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing GPUs, CPUs, APUs, and graphics cards containing these DDR memory controllers, AMD has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in AMD's GPUs, CPUs, APUs, and graphics cards.

b. Lenovo

156. Respondent Lenovo is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

157. ZiiLabs has obtained products containing DDR memory controllers that Lenovo imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

158. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 14 includes a chart comparing the asserted independent claims of the '350 Patent to a representative Lenovo product. Exhibit 14 shows that the Lenovo product and its use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule

210.12(a)(9)(x), Exhibit 14 contains photographs of the Lenovo product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Lenovo that violates Section 337. ZiiLabs believes that Lenovo's other devices, including Lenovo's other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Lenovo.

159. In addition to incorporating DDR memory controllers in a manner that directly infringes at least one of the Asserted Claims of the '350 Patent, as does its use, as shown in Exhibit 14, ZiiLabs also believes that Lenovo incorporates DDR memory controllers from other companies into its other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets in a manner that similarly infringes the Asserted Claims of the '350 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Lenovo's importation, sale for importation, and/or sale after importation of these products as well.

160. Additionally, Lenovo has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

161. Lenovo has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo notice letters. (Confidential Exhibit 330.) ZiiLabs will serve a public copy of this Complaint on Lenovo the day it is filed.

162. Despite Lenovo's awareness of the '350 Patent and ZiiLabs' allegations, Lenovo has knowingly and actively induced others to infringe the '350 Patent by selling servers,

workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

163. Lenovo has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative Lenovo product (Exhibit 14), Lenovo's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products that necessarily infringe the '350 Patent, Lenovo has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

164. Finally, Lenovo has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

165. The DDR memory controllers in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing these DDR memory controllers, Lenovo has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets.

c. LG

166. Respondent LG is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

167. ZiiLabs has obtained products containing DDR memory controllers that LG imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

168. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 15 includes a chart comparing the asserted independent claims of the '350 Patent to a representative LG product. Exhibit 15 shows that the LG product and its use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 15 contains photographs of the LG product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent LG that violates Section 337. ZiiLabs believes that LG's other devices, including LG's other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent LG.

169. In addition to incorporating DDR memory controllers in a manner that directly infringes at least one of the Asserted Claims of the '350 Patent, as does its use, as shown in Exhibit 15, ZiiLabs also believes that LG incorporates DDR memory controllers from other companies into its other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in a manner that similarly

infringes the Asserted Claims of the '350 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against LG's importation, sale for importation, and/or sale after importation of these products as well.

170. Additionally, LG has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

171. LG has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent LG notice letters. (Confidential Exhibit 331.)

172. Despite LG's awareness of the '350 Patent and ZiiLabs' allegations, LG has knowingly and actively induced others to infringe the '350 Patent by selling desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

173. LG has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative LG product (Exhibit 15), LG's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products that necessarily infringe the '350 Patent, LG has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

174. Finally, LG has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

175. The DDR memory controllers in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing these DDR memory controllers, LG has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players.

d. MediaTek

176. Respondent MediaTek is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

177. ZiiLabs has obtained products containing DDR memory controllers that MediaTek imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

178. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 18 includes a chart comparing the asserted independent claims of the '350 Patent to a representative product containing MediaTek's DDR memory controllers. Exhibit 18 shows that products containing MediaTek's DDR memory controllers and their use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule

210.12(a)(9)(x), Exhibit 18 contains photographs of products containing MediaTek's DDR memory controllers. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent MediaTek that violates Section 337. ZiiLabs believes that MediaTek's other devices, including MediaTek's other SoCs, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent MediaTek.

179. Additionally, MediaTek has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

180. MediaTek has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 18, 2016, when ZiiLabs sent MediaTek notice letters. (Confidential Exhibit 332.) ZiiLabs will serve a public copy of this Complaint on MediaTek the day it is filed.

181. Despite MediaTek's awareness of the '350 Patent and ZiiLabs' allegations, MediaTek has knowingly and actively induced others to infringe the '350 Patent by selling SoCs containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

182. MediaTek has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative product containing MediaTek's DDR memory controllers (Exhibit 18), MediaTek's products function in a manner that infringes the claims of the '350 Patent. At least by providing users

with products that necessarily infringe the '350 Patent, MediaTek has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

183. Finally, MediaTek has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

184. The DDR memory controllers in MediaTek's SoCs are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing SoCs containing these DDR memory controllers, MediaTek has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in MediaTek's SoCs.

e. Motorola

185. Respondent Motorola is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

186. ZiiLabs has obtained products containing DDR memory controllers that Motorola imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

187. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 16 includes a chart comparing the asserted independent claims of the '350 Patent to a representative Motorola product. Exhibit 16 shows that the Motorola product and its use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 16 contains photographs of the Motorola product. Lastly, Commission

Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Motorola that violates Section 337. ZiiLabs believes that Motorola's other devices, including Motorola's other smartphones and wearables, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Motorola.

188. In addition to incorporating DDR memory controllers in a manner that directly infringes at least one of the Asserted Claims of the '350 Patent, as does its use, as shown in Exhibit 16, ZiiLabs also believes that Motorola incorporates DDR memory controllers from other companies into its other smartphones and wearables in a manner that similarly infringes the Asserted Claims of the '350 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Motorola's importation, sale for importation, and/or sale after importation of these products as well.

189. Additionally, Motorola has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

190. Motorola has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo, Motorola's parent, notice letters. (Confidential Exhibit 330.) ZiiLabs also sent a notice letter to Motorola's then-parent, Google Inc., on August 7, 2013 and one to Motorola itself on August 8, 2016. (Confidential Exhibits 334 and 335.) ZiiLabs will serve a public copy of this Complaint on Motorola the day it is filed.

191. Despite Motorola's awareness of the '350 Patent and ZiiLabs' allegations, Motorola has knowingly and actively induced others to infringe the '350 Patent by selling smartphones and wearables containing DDR memory controllers which induce the direct

infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

192. Motorola has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative Motorola product (Exhibit 16), Motorola's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products that necessarily infringe the '350 Patent, Motorola has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

193. Finally, Motorola has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

194. The DDR memory controllers in Motorola's smartphones and wearables are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing smartphones and wearables containing these DDR memory controllers, Motorola has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in Motorola's smartphones and wearables.

f. Qualcomm

195. Respondent Qualcomm is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and

products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

196. ZiiLabs has obtained products containing DDR memory controllers that Qualcomm imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

197. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 14, 15, and 16 include charts comparing the asserted independent claims of the '350 Patent to representative products containing Qualcomm's DDR memory controllers. Exhibits 14, 15, and 16 show that products containing Qualcomm's DDR memory controllers and their use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 14, 15, and 16 contain photographs of the products containing Qualcomm's DDR memory controllers. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Qualcomm that violates Section 337. ZiiLabs believes that Qualcomm's other devices, including Qualcomm's other all-in-one processors, SoCs, and baseband processors, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Qualcomm.

198. Additionally, Qualcomm has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

199. Qualcomm has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent Qualcomm a notice letter. (Confidential Exhibit 39.) ZiiLabs will serve a public copy of this Complaint on Qualcomm the day it is filed.

200. Despite Qualcomm's awareness of the '350 Patent and ZiiLabs' allegations, Qualcomm has knowingly and actively induced others to infringe the '350 Patent by selling all-in-one processors, SoCs, and baseband processors containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

201. Qualcomm has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative products containing Qualcomm's DDR memory controllers (Exhibits 14, 15, and 16), Qualcomm's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products that necessarily infringe the '350 Patent, Qualcomm has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

202. Finally, Qualcomm has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

203. The DDR memory controllers in Qualcomm's all-in-one processors, SoCs, and baseband processors are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing all-in-one processors, SoCs, and baseband processors containing these DDR memory controllers, Qualcomm has contributed to the infringement of the '350 Patent by end-users – for example,

customers – who use said DDR memory controllers provided in Qualcomm's all-in-one processors, SoCs, and baseband processors.

g. Sony

204. Respondent Sony is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain DDR memory controllers and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '350 Patent.

205. ZiiLabs has obtained products containing DDR memory controllers that Sony imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '350 Patent.

206. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 17 and 18 include charts comparing the asserted independent claims of the '350 Patent to representative Sony products. Exhibits 17 and 18 show that the Sony products and their use are covered by at least the asserted independent claims of the '350 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 17 and 18 contain photographs of the Sony products. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Sony that violates Section 337. ZiiLabs believes that Sony's other devices, including Sony's other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems, and their uses, are covered by at least one of the Asserted Claims of the '350 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Sony.

207. In addition to incorporating DDR memory controllers in a manner that directly infringes at least one of the Asserted Claims of the '350 Patent, as does its use, as shown in Exhibits 17 and 18, ZiiLabs also believes that Sony incorporates DDR memory controllers from

other companies into its other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in a manner that similarly infringes the Asserted Claims of the '350 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Sony's importation, sale for importation, and/or sale after importation of these products as well.

208. Additionally, Sony has indirectly infringed at least one claim of the '350 Patent by inducing infringement.

209. Sony has been aware of the '350 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Sony notice letters. (Confidential Exhibit 333.) ZiiLabs will serve a public copy of this Complaint on Sony the day it is filed.

210. Despite Sony's awareness of the '350 Patent and ZiiLabs' allegations, Sony has knowingly and actively induced others to infringe the '350 Patent by selling tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing DDR memory controllers which induce the direct infringement of at least one of the claims of the '350 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '350 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '350 Patent.

211. Sony has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '350 Patent. As shown for the representative Sony products (Exhibits 17 and 18), Sony's products function in a manner that infringes the claims of the '350 Patent. At least by providing users with products that necessarily infringe the '350 Patent, Sony has induced and is actively inducing infringement of at least one claim of ZiiLabs' '350 Patent.

212. Finally, Sony has indirectly infringed at least one of the claims of the '350 Patent by contributing to infringement.

213. The DDR memory controllers in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems are made solely for the purpose of operating in a manner that infringes at least one claim of the '350 Patent. Further, these DDR memory controllers are especially made and/or especially adapted for use in the infringement of ZiiLabs' '350 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing these DDR memory controllers, Sony has contributed to the infringement of the '350 Patent by end-users – for example, customers – who use said DDR memory controllers provided in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems.

3. The '616 Patent

a. AMD

214. Respondent AMD is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

215. ZiiLabs has obtained products containing graphics processors that AMD imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

216. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 22 includes a chart comparing the asserted independent claims of the '616 Patent to representative products containing AMD's graphics processors. Exhibit 22 shows that products containing AMD's

graphics processors and their use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 22 contains photographs of the products containing AMD's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent AMD that violates Section 337. ZiiLabs believes that AMD's other devices, including AMD's other GPUs, CPUs, APUs, and graphics cards, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent AMD.

217. Additionally, AMD has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

218. AMD has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent AMD a notice letter. (Confidential Exhibit 38.) ZiiLabs will serve a public copy of this Complaint on AMD the day it is filed.

219. Despite AMD's awareness of the '616 Patent and ZiiLabs' allegations, AMD has knowingly and actively induced others to infringe the '616 Patent by selling GPUs, CPUs, APUs, and graphics cards containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

220. AMD has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative

product containing AMD's graphics processors (Exhibit 22), AMD's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, AMD has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

221. Finally, AMD has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

222. The graphics processors in AMD's GPUs, CPUs, APUs, and graphics cards are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing GPUs, CPUs, APUs, and graphics cards containing these graphics processors, AMD has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided in AMD's GPUs, CPUs, APUs, and graphics cards.

b. Lenovo

223. Respondent Lenovo is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

224. ZiiLabs has obtained products containing graphics processors that Lenovo imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

225. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 19 includes a chart comparing the asserted independent claims of the '616 Patent to a representative Lenovo

product. Exhibit 19 shows that the Lenovo product and its use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 19 contains photographs of the Lenovo product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Lenovo that violates Section 337. ZiiLabs believes that Lenovo's other devices, including Lenovo's other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Lenovo.

226. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '616 Patent, as does its use, as shown in Exhibit 19, ZiiLabs also believes that Lenovo incorporates graphics processors from other companies into its other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets in a manner that similarly infringes the Asserted Claims of the '616 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Lenovo's importation, sale for importation, and/or sale after importation of these products as well.

227. Additionally, Lenovo has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

228. Lenovo has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo notice letters. (Confidential Exhibit 330.) ZiiLabs will serve a public copy of this Complaint on Lenovo the day it is filed.

229. Despite Lenovo's awareness of the '616 Patent and ZiiLabs' allegations, Lenovo has knowingly and actively induced others to infringe the '616 Patent by selling servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

230. Lenovo has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative Lenovo product (Exhibit 19), Lenovo's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, Lenovo has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

231. Finally, Lenovo has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

232. The graphics processors in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing these graphics processors, Lenovo has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided

in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets.

c. LG

233. Respondent LG is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

234. ZiiLabs has obtained products containing graphics processors that LG imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

235. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 20 includes a chart comparing the asserted independent claims of the '616 Patent to a representative LG product. Exhibit 20 shows that the LG product and its use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 20 contains photographs of the LG product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent LG that violates Section 337. ZiiLabs believes that LG's other devices, including LG's other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent LG.

236. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '616 Patent, as does its use, as shown in Exhibit 20, ZiiLabs also believes that LG incorporates graphics processors from other companies into its

other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in a manner that similarly infringes the Asserted Claims of the '616 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against LG's importation, sale for importation, and/or sale after importation of these products as well.

237. Additionally, LG has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

238. LG has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent LG notice letters. (Confidential Exhibit 331.) ZiiLabs will serve a public copy of this Complaint on LG the day it is filed.

239. Despite LG's awareness of the '616 Patent and ZiiLabs' allegations, LG has knowingly and actively induced others to infringe the '616 Patent by selling desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

240. LG has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative LG product (Exhibit 20), LG's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, LG has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

241. Finally, LG has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

242. The graphics processors in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing these graphics processors, LG has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players.

d. MediaTek

243. Respondent MediaTek is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

244. ZiiLabs has obtained products containing graphics processors that MediaTek imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

245. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 23 includes a chart comparing the asserted independent claims of the '616 Patent to a representative product containing MediaTek's graphics processors. Exhibit 23 shows that products containing

MediaTek's graphics processors and their use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 23 contains photographs of the product containing MediaTek's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent MediaTek that violates Section 337. ZiiLabs believes that MediaTek's other devices, including MediaTek's other SoCs, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent MediaTek.

246. Additionally, MediaTek has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

247. MediaTek has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 18, 2016, when ZiiLabs sent MediaTek notice letters. (Confidential Exhibit 332.) ZiiLabs will serve a public copy of this Complaint on MediaTek the day it is filed.

248. Despite MediaTek's awareness of the '616 Patent and ZiiLabs' allegations, MediaTek has knowingly and actively induced others to infringe the '616 Patent by selling SoCs containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

249. MediaTek has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative product containing MediaTek's graphics processors (Exhibit 23), MediaTek's products function

in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, MediaTek has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

250. Finally, MediaTek has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

251. The graphics processors in MediaTek's SoCs are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing SoCs containing these graphics processors, MediaTek has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided in MediaTek's SoCs.

e. Motorola

252. Respondent Motorola is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

253. ZiiLabs has obtained products containing graphics processors that Motorola imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

254. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 21 includes a chart comparing the asserted independent claims of the '616 Patent to a representative Motorola product. Exhibit 21 shows that the Motorola product and its use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule

210.12(a)(9)(x), Exhibit 21 contains photographs of the Motorola product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Motorola that violates Section 337. ZiiLabs believes that Motorola's other devices, including Motorola's other smartphones and wearables, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Motorola.

255. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '616 Patent, as does its use, as shown in Exhibit 21, ZiiLabs also believes that Motorola incorporates graphics processors from other companies into its other smartphones and wearables in a manner that similarly infringes the Asserted Claims of the '616 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Motorola's importation, sale for importation, and/or sale after importation of these products as well.

256. Additionally, Motorola has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

257. Motorola has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo, Motorola's parent, notice letters. (Confidential Exhibit 330.) ZiiLabs also sent a notice letter to Motorola's then-parent, Google Inc., on August 7, 2013 and one to Motorola itself on August 8, 2016. (Confidential Exhibits 334 and 335.) ZiiLabs will serve a public copy of this Complaint on Motorola the day it is filed.

258. Despite Motorola's awareness of the '616 Patent and ZiiLabs' allegations, Motorola has knowingly and actively induced others to infringe the '616 Patent by selling

smartphones and wearables containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

259. Motorola has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative Motorola product (Exhibit 21), Motorola's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, Motorola has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

260. Finally, Motorola has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

261. The graphics processors in Motorola's smartphones and wearables are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing smartphones and wearables containing these graphics processors, Motorola has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided in Motorola's smartphones and wearables.

f. Qualcomm

262. Respondent Qualcomm is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and

products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

263. ZiiLabs has obtained products containing graphics processors that Qualcomm imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

264. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 19, 20, and 21 include charts comparing the asserted independent claims of the '616 Patent to representative products containing Qualcomm's graphics processors. Exhibits 19, 20, and 21 show that the products containing Qualcomm's graphics processors and their use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 19, 20, and 21 contain photographs of the products containing Qualcomm's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Qualcomm that violates Section 337. ZiiLabs believes that Qualcomm's other devices, including Qualcomm's other all-in-one processors, SoCs, and baseband processors, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Qualcomm.

265. Additionally, Qualcomm has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

266. Qualcomm has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 7, 2013, when ZiiLabs sent Qualcomm a notice letter. (Confidential Exhibit 39.) ZiiLabs will serve a public copy of this Complaint on Qualcomm the day it is filed.

267. Despite Qualcomm's awareness of the '616 Patent and ZiiLabs' allegations, Qualcomm has knowingly and actively induced others to infringe the '616 Patent by selling all-in-one processors, SoCs, and baseband processors containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

268. Qualcomm has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative products containing Qualcomm's graphics processors (Exhibits 19, 20, and 21), Qualcomm's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, Qualcomm has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

269. Finally, Qualcomm has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

270. The graphics processors in Qualcomm's all-in-one processors, SoCs, and baseband processors are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing all-in-one processors, SoCs, and baseband processors containing these graphics processors, Qualcomm has contributed to the infringement of the '616 Patent by end-users – for example,

customers – who use said graphics processors provided in Qualcomm's all-in-one processors, SoCs, and baseband processors.

g. Sony

271. Respondent Sony is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '616 Patent.

272. ZiiLabs has obtained products containing graphics processors that Sony imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '616 Patent.

273. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 22 and 23 include charts comparing the asserted independent claims of the '616 Patent to representative Sony products. Exhibits 22 and 23 show that the Sony products and their use are covered by at least the asserted independent claims of the '616 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 22 and 23 contain photographs of the Sony products. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Sony that violates Section 337. ZiiLabs believes that Sony's other devices, including Sony's other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems, and their uses, are covered by at least one of the Asserted Claims of the '616 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Sony.

274. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '616 Patent, as does its use, as shown in Exhibits 22 and 23, ZiiLabs also believes that Sony incorporates graphics processors from other companies

into its other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in a manner that similarly infringes the Asserted Claims of the '616 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Sony's importation, sale for importation, and/or sale after importation of these products as well.

275. Additionally, Sony has indirectly infringed at least one claim of the '616 Patent by inducing infringement.

276. Sony has been aware of the '616 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Sony notice letters. (Confidential Exhibit 333.) ZiiLabs will serve a public copy of this Complaint on Sony the day it is filed.

277. Despite Sony's awareness of the '616 Patent and ZiiLabs' allegations, Sony has knowingly and actively induced others to infringe the '616 Patent by selling tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing graphics processors which induce the direct infringement of at least one of the claims of the '616 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '616 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '616 Patent.

278. Sony has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '616 Patent. As shown for the representative Sony products (Exhibits 22 and 23), Sony's products function in a manner that infringes the claims of the '616 Patent. At least by providing users with products that necessarily infringe the '616 Patent, Sony has induced and is actively inducing infringement of at least one claim of ZiiLabs' '616 Patent.

279. Finally, Sony has indirectly infringed at least one of the claims of the '616 Patent by contributing to infringement.

280. The graphics processors in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems are made solely for the purpose of operating in a manner that infringes at least one claim of the '616 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '616 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing these graphics processors, Sony has contributed to the infringement of the '616 Patent by end-users – for example, customers – who use said graphics processors provided in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems.

4. The '659 Patent

a. AMD

281. Respondent AMD is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

282. ZiiLabs has obtained products containing graphics processors that AMD imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

283. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 27 includes a chart comparing the asserted independent claims of the '659 Patent to a representative product containing AMD's graphics processors. Exhibit 27 shows that products containing AMD's

graphics processors and their use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 27 contains photographs of the products containing AMD's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent AMD that violates Section 337. ZiiLabs believes that AMD's other devices, including AMD's other GPUs, CPUs, APUs, and graphics cards, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent AMD.

284. Additionally, AMD has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

285. AMD has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least the filing of this Complaint. ZiiLabs will serve a public copy of this Complaint on AMD the day it is filed.

286. Despite AMD's awareness of the '659 Patent and ZiiLabs' allegations, AMD has knowingly and actively induced others to infringe the '659 Patent by selling GPUs, CPUs, APUs, and graphics cards containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

287. AMD has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative product containing AMD's graphics processors (Exhibit 27), AMD's products function in a

manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, AMD has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

288. Finally, AMD has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

289. The graphics processors in AMD's GPUs, CPUs, APUs, and graphics cards are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing GPUs, CPUs, APUs, and graphics cards containing these graphics processors, AMD has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in AMD's GPUs, CPUs, APUs, and graphics cards.

b. Lenovo

290. Respondent Lenovo is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

291. ZiiLabs has obtained products containing graphics processors that Lenovo imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

292. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 24 includes a chart comparing the asserted independent claims of the '659 Patent to a representative Lenovo product. Exhibit 24 shows that the Lenovo product and its use are covered by at least the

asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 24 contains photographs of the Lenovo product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Lenovo that violates Section 337. ZiiLabs believes that Lenovo's other devices, including Lenovo's other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Lenovo.

293. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '659 Patent, as does its use, as shown in Exhibit 24, ZiiLabs also believes that Lenovo incorporates graphics processors from other companies into its other servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets in a manner that similarly infringes the Asserted Claims of the '659 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Lenovo's importation, sale for importation, and/or sale after importation of these products as well.

294. Additionally, Lenovo has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

295. Lenovo has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo notice letters. (Confidential Exhibit 330.) ZiiLabs will serve a public copy of this Complaint on Lenovo the day it is filed.

296. Despite Lenovo's awareness of the '659 Patent and ZiiLabs' allegations, Lenovo has knowingly and actively induced others to infringe the '659 Patent by selling servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

297. Lenovo has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative Lenovo product (Exhibit 24), Lenovo's products function in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, Lenovo has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

298. Finally, Lenovo has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

299. The graphics processors in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets containing these graphics processors, Lenovo has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided

in Lenovo's servers, workstations, desktops, notebooks, laptops, all-in-ones, Chromebooks, and tablets.

c. LG

300. Respondent LG is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

301. ZiiLabs has obtained products containing graphics processors that LG imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

302. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 25 includes a chart comparing the asserted independent claims of the '659 Patent to a representative LG product. Exhibit 25 shows that the LG product and its use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 25 contains photographs of the LG product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent LG that violates Section 337. ZiiLabs believes that LG's other devices, including LG's other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent LG.

303. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '659 Patent, as does its use, as shown in Exhibit 25, ZiiLabs also believes that LG incorporates graphics processors from other companies into its

other desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players in a manner that similarly infringes the Asserted Claims of the '659 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against LG's importation, sale for importation, and/or sale after importation of these products as well.

304. Additionally, LG has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

305. LG has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent LG notice letters. (Confidential Exhibit 331.) ZiiLabs will serve a public copy of this Complaint on LG the day it is filed.

306. Despite LG's awareness of the '659 Patent and ZiiLabs' allegations, LG has knowingly and actively induced others to infringe the '659 Patent by selling desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

307. LG has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative LG product (Exhibit 25), LG's products function in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, LG has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

308. Finally, LG has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

309. The graphics processors in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players containing these graphics processors, LG has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in LG's desktops, notebooks, laptops, all-in-ones, Chromebooks, tablets, smartphones, wearables, televisions, and DVD and Blu-ray players.

d. MediaTek

310. Respondent MediaTek is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

311. ZiiLabs has obtained products containing graphics processors that MediaTek imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

312. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 28 includes a chart comparing the asserted independent claims of the '659 Patent to a representative product containing MediaTek's graphics processors. Exhibit 28 shows that products containing

MediaTek's graphics processors and their use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibit 28 contains photographs of the product containing MediaTek's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent MediaTek that violates Section 337. ZiiLabs believes that MediaTek's other devices, including MediaTek's other SoCs, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent MediaTek.

313. Additionally, MediaTek has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

314. MediaTek has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least August 18, 2016, when ZiiLabs sent MediaTek notice letters. (Confidential Exhibit 332.) ZiiLabs will serve a public copy of this Complaint on MediaTek the day it is filed.

315. Despite MediaTek's awareness of the '659 Patent and ZiiLabs' allegations, MediaTek has knowingly and actively induced others to infringe the '659 Patent by selling SoCs containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

316. MediaTek has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative product containing MediaTek's graphics processors (Exhibit 28), MediaTek's products function

in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, MediaTek has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

317. Finally, MediaTek has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

318. The graphics processors in MediaTek's SoCs are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing SoCs containing these graphics processors, MediaTek has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in MediaTek's SoCs.

e. Motorola

319. Respondent Motorola is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

320. ZiiLabs has obtained products containing graphics processors that Motorola imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

321. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibit 26 includes a chart comparing the asserted independent claims of the '659 Patent to a representative Motorola product. Exhibit 26 shows that the Motorola product and its use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule

210.12(a)(9)(x), Exhibit 26 contains photographs of the Motorola product. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Motorola that violates Section 337. ZiiLabs believes that Motorola's other devices, including Motorola's other smartphones and wearables, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Motorola.

322. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '659 Patent, as does its use, as shown in Exhibit 26, ZiiLabs also believes that Motorola incorporates graphics processors from other companies into its other smartphones and wearables in a manner that similarly infringes the Asserted Claims of the '659 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond against Motorola's importation, sale for importation, and/or sale after importation of these products as well.

323. Additionally, Motorola has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

324. Motorola has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Lenovo, Motorola's parent, notice letters. (Confidential Exhibit 330.) ZiiLabs will serve a public copy of this Complaint on Motorola the day it is filed.

325. Despite Motorola's awareness of the '659 Patent and ZiiLabs' allegations, Motorola has knowingly and actively induced others to infringe the '659 Patent by selling smartphones containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-

programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

326. Motorola has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative Motorola product (Exhibit 26), Motorola's products function in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, Motorola has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

327. Finally, Motorola has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

328. The graphics processors in Motorola's smartphones and wearables are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing smartphones and wearables containing these graphics processors, Motorola has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in Motorola's smartphones and wearables.

f. Qualcomm

329. Respondent Qualcomm is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

330. ZiiLabs has obtained products containing graphics processors that Qualcomm imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

331. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 24, 25, and 26 include charts comparing the asserted independent claims of the '659 Patent to representative products containing Qualcomm's graphics processors. Exhibits 24, 25, and 26 show that products containing Qualcomm's graphics processors and their use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 24, 25, and 26 contain photographs of the products containing Qualcomm's graphics processors. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Qualcomm that violates Section 337. ZiiLabs believes that Qualcomm's other devices, including Qualcomm's other all-in-one processors, SoCs, and baseband processors, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Qualcomm.

332. Additionally, Qualcomm has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

333. Qualcomm has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least the filing of this Complaint. ZiiLabs will serve a public copy of this Complaint on Qualcomm the day it is filed.

334. Despite Qualcomm's awareness of the '659 Patent and ZiiLabs' allegations, Qualcomm has knowingly and actively induced others to infringe the '659 Patent by selling all-in-one processors, SoCs, and baseband processors containing graphics processors which induce

the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

335. Qualcomm has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative products containing Qualcomm's graphics processors (Exhibits 24, 25, and 26), Qualcomm's products function in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, Qualcomm has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

336. Finally, Qualcomm has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

337. The graphics processors in Qualcomm's all-in-one processors, SoCs, and baseband processors are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing all-in-one processors, SoCs, and baseband processors containing these graphics processors, Qualcomm has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in Qualcomm's all-in-one processors, SoCs, and baseband processors.

g. Sony

338. Respondent Sony is engaged in the importation, the sale for importation, and/or the sale within the United States after importation of certain graphics processors and products

containing the same that infringe or are used to infringe at least the Asserted Claims of the '659 Patent.

339. ZiiLabs has obtained products containing graphics processors that Sony imported, sold for importation, and/or sold within the United States after importation, and that infringe, directly or indirectly, at least the Asserted Claims of the '659 Patent.

340. Pursuant to Commission Rule 210.12(a)(9)(viii), Exhibits 27 and 28 include charts comparing the asserted independent claims of the '659 Patent to representative Sony products. Exhibits 27 and 28 show that the Sony products and their use are covered by at least the asserted independent claims of the '659 Patent. Additionally, pursuant to Commission Rule 210.12(a)(9)(x), Exhibits 27 and 28 contain photographs of the Sony products. Lastly, Commission Rule 210.12(a)(9)(viii) requires that Complainant chart only "a representative involved article" of Respondent Sony that violates Section 337. ZiiLabs believes that Sony's other devices, including Sony's other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems, and their uses, are covered by at least one of the Asserted Claims of the '659 Patent and have been imported, sold for importation, or sold within the United States after importation by Respondent Sony.

341. In addition to incorporating graphics processors in a manner that directly infringes at least one of the Asserted Claims of the '659 Patent, as does its use, as shown in Exhibits 27 and 28, ZiiLabs also believes that Sony incorporates graphics processors from other companies into its other tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems in a manner that similarly infringes the Asserted Claims of the '659 Patent. ZiiLabs intends to and does accuse such products of infringement and seeks remedial orders and a bond

against Sony's importation, sale for importation, and/or sale after importation of these products as well.

342. Additionally, Sony has indirectly infringed at least one claim of the '659 Patent by inducing infringement.

343. Sony has been aware of the '659 Patent and of ZiiLabs' allegations of infringement since at least August 5, 2016, when ZiiLabs sent Sony notice letters. (Confidential Exhibit 333.) ZiiLabs will serve a public copy of this Complaint on Sony the day it is filed.

344. Despite Sony's awareness of the '659 Patent and ZiiLabs' allegations, Sony has knowingly and actively induced others to infringe the '659 Patent by selling tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing graphics processors which induce the direct infringement of at least one of the claims of the '659 Patent by end-users – for example, customers. These devices are pre-programmed to function in the manner claimed in the '659 Patent. Upon information and belief, at least one customer has directly infringed one or more claims of ZiiLabs' '659 Patent.

345. Sony has provided and continues to provide products that cannot and do not operate except in a manner that infringes the '659 Patent. As shown for the representative Sony products (Exhibits 27 and 28), Sony's products function in a manner that infringes the claims of the '659 Patent. At least by providing users with products that necessarily infringe the '659 Patent, Sony has induced and is actively inducing infringement of at least one claim of ZiiLabs' '659 Patent.

346. Finally, Sony has indirectly infringed at least one of the claims of the '659 Patent by contributing to infringement.

347. The graphics processors in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems are made solely for the purpose of operating in a manner that infringes at least one claim of the '659 Patent. Further, these graphics processors are especially made and/or especially adapted for use in the infringement of ZiiLabs' '659 Patent, are not staple commodities of commerce, and are not suitable for substantial non-infringing use. By providing tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems containing these graphics processors, Sony has contributed to the infringement of the '659 Patent by end-users – for example, customers – who use said graphics processors provided in Sony's tablets, smartphones, wearables, televisions, DVD and Blu-ray players, and gaming systems.

B. Specific Instance of Sale and Importation

1. AMD

348. Respondent AMD imports, sells for importation, and/or sells within the United States after importation the representative AMD Jaguar low power x86-64 8 core CPU with AMD Radeon Graphics Core Next engine product in the product depicted in Exhibit 32. Pursuant to Commission Rule 210.12(a)(3), Exhibit 35 is a copy of a receipt from Best Buy showing a sale of the product containing the representative AMD product within the United States. As shown in the photographs and PlayStation 4 technical specifications contained in Exhibit 32, the product containing the representative AMD product is marked as "Made in China." Thus, AMD is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

2. Lenovo

349. Respondent Lenovo imports, sells for importation, and/or sells within the United States after importation the representative Lenovo Yoga Tab 3 product depicted in Exhibit 29. Pursuant to Commission Rule 210.12(a)(3), Exhibit 34 is a copy of a receipt from Micro Center showing a sale of the representative Lenovo product within the United States. As shown in the photographs contained in Exhibit 29, the Lenovo product is marked as "Made in China." Thus, Lenovo is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

3. LG

350. Respondent LG imports, sells for importation, and/or sells within the United States after importation the representative LG G5 product depicted in Exhibit 30. Pursuant to Commission Rule 210.12(a)(3), Exhibit 35 is a copy of a receipt from Best Buy showing a sale of the representative LG product within the United States. As shown in the photographs contained in Exhibit 30, the LG product is marked as "Made in Korea." Thus, LG is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

4. MediaTek

351. Respondent MediaTek imports, sells for importation, and/or sells within the United States after importation the representative MediaTek Helio P10 (MT6755) product in the

product depicted in Exhibit 33. Pursuant to Commission Rule 210.12(a)(3), Exhibit 37 is a copy of a receipt from Best Buy showing a sale of a product containing the representative MediaTek product within the United States. As shown in the photographs and screenshot contained in Exhibit 33, the packaging of the product containing the representative MediaTek product is marked as "Made in China." Thus, MediaTek is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

5. Motorola

352. Respondent Motorola imports, sells for importation, and/or sells within the United States after importation the representative Motorola Z 4G LTE product depicted in Exhibit 31. Pursuant to Commission Rule 210.12(a)(3), Exhibit 36 is a copy of a receipt from Best Buy showing a sale of the representative Motorola product within the United States. As shown in the photographs contained in Exhibit 31, the Motorola product's packaging is marked as "Phone Made in China." Thus, Motorola is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

6. Qualcomm

353. Respondent Qualcomm imports, sells for importation, and/or sells within the United States after importation the representative Qualcomm APQ8009 processor with Adreno 304 GPU and Snapdragon 820 processor with Adreno 530 GPU products in the products

depicted in Exhibits 29, 30, and 31. Pursuant to Commission Rule 210.12(a)(3), Exhibits 34, 35 and 36 are copies of receipts from Micro Center and Best Buy showing sales of products containing the representative Qualcomm products within the United States. As shown in the photographs and screenshots contained in Exhibits 29, 30, and 31, the products containing the representative Qualcomm products are marked as "Made in China," "Made in Korea" and "Phone Made in China." Thus, Qualcomm is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative products and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

7. Sony

354. Respondent Sony imports, sells for importation, and/or sells within the United States after importation the representative Sony PlayStation 4 and Xperia XA Ultra products depicted in Exhibits 32 and 33. Pursuant to Commission Rule 210.12(a)(3), Exhibits 35 and 37 are copies of receipts from Best Buy showing sales of the representative Sony products within the United States. As shown in the photographs contained in Exhibits 32 and 33, the Sony PlayStation product is marked as "Made in China" and the Sony Xperia XA Ultra product's packaging is marked as "Made in China." Thus, Sony is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation into the United States the representative product and other similar products and devices, which directly or indirectly, either literally or under the doctrine of equivalents, infringe the '952 Patent, the '350 Patent, the '616 Patent, and the '659 Patent.

VI. HARMONIZED TARIFF SCHEDULE INFORMATION

355. The articles subject to this complaint are classifiable under at least the following headings and subheadings of the Harmonized Tariff Schedule ("HTS") of the United States:

- Chips: 8542.31.00 (Electronic Integrated Circuits: Processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits); 8542.39.00 (Electronic Integrated Circuits: Other);
- Gaming systems: 9504.50.00 (Video game consoles and machines, articles for arcade, table or parlor games, including pinball machines, bagatelle, billiards and special tables for casino games; automatic bowling alley equipment; parts and accessories thereof: Video game consoles and machines, other than those of subheading 9504.30, and parts and accessories thereof);
- Personal computers, tablets, servers, and workstations: 8471.30.01 (Portable automatic data processing machines, weighing not more than 10 kg, consisting of at least a central processing unit, a keyboard, and a display), 8471.49.00 (Other [Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included], entered in the form of systems), 8471.50.01 (Processing units other than those of subheading 8471.41 or 8471.49, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units);
- Smartphones: 8517.12.00 (Telephones for cellular networks or for other wireless networks), 8517.18.00 (Other apparatus for transmission or reception of voice,

images, or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)), 8517.62.00 (Machines for the reception, conversion, and transmission or regeneration of voice, images or other data, including switching and routing apparatus);

- Televisions: 8528.72.64 (Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Other, color: Other), 8528.72.72 (Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Other, color: Other), 8528.72.80 (Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus: Other, color: Other); and
- Wearables: 8471.41.01 (Other automatic data processing machines comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined); 8471.50.01 (Processing units other than those of

subheading 8471.41 or 8471.49, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units)

- related subheadings of the HTS.

356. These HTS numbers are illustrative only and are not intended to restrict the scope of this investigation.

VII. RELATED LITIGATION

357. Contemporaneously with the filing of this complaint, ZiiLabs also intends to file suits alleging infringement of the Asserted '952 Patent, '350 Patent, '616 Patent, and '659 Patent against AMD, Lenovo, LG, MediaTek, Motorola, Qualcomm, and Sony in the United States District Court for the Eastern District of Texas.

VIII. DOMESTIC INDUSTRY RELATING TO THE ASSERTED PATENTS

A. Intel's Purchase of ZiiLabs' U.K. Subsidiary and Licensing of ZiiLabs' Patents

358. In December 1999, 3DLabs and Intel entered into a Patent License Agreement, pursuant to which Intel acquired license rights to some of the Asserted Patents. (Exhibit 41.)

359. In November of 2012, Intel acquired certain engineering resources and assets related to the U.K. subsidiary of ZiiLabs. In a related transaction, Intel and ZiiLabs also entered into a Patent License Agreement pursuant to which Intel acquired, *inter alia*, license rights to the remaining Asserted Patents. (Exhibit 42.)

B. A Domestic Industry Relating to the Asserted Patents Exists Due to Intel's U.S. Activities

360. ZiiLabs alleges the following upon information and belief:

1. Intel's Graphics Processors

361. Intel is a leader in the design and manufacturing of advanced integrated digital technology platforms. (Exhibit 47 at 1.) An Intel "platform" may consist of a microprocessor

and chipset, a stand-alone SoC ("system on a chip"), or a multi-chip package, and may be enhanced by additional hardware, software, and services. (Exhibit 47 at 1, 5.)

362. Intel sells its platforms primarily to OEMs, ODMs, and industrial and communications equipment manufacturers in the computing and communications industries. (Exhibit 47 at 1.)

363. Intel's platforms are used across the computing continuum, including in notebooks (including Ultrabook devices), 2 in 1 systems, desktops, servers, tablets, phones, and the Internet of Things (including wearables, retail devices, and manufacturing devices). (Exhibit 47 at 1.)

364. A microprocessor is the CPU of a computer system. (Exhibit 47 at 5.) Many of Intel's processor families integrate graphics functionality onto the processor die. (Exhibit 47 at 5.) This is accomplished by manufacturing an integrated graphics processor onto the same die as the CPU. (*See, e.g.*, Exhibit 48 (https://en.wikipedia.org/wiki/Intel_HD_and_Iris_Graphics).)

365. Intel's graphics technology currently includes Intel HD Graphics processors, Intel Iris Graphics processors, and Intel Iris Pro Graphics processors. (*See, e.g.*, Exhibit 48 (https://en.wikipedia.org/wiki/Intel_HD_and_Iris_Graphics); Exhibit 49 (http://www.intel.com/content/www/us/en/architecture-and-technology/visual-technology/graphics-overview.html); Exhibit 50 (https://en.wikipedia.org/wiki/List_of_Intel_graphics_processing_units).) ZiiLabs contends that Intel's products containing an Intel HD Graphics processor, an Intel Iris Graphics processor, or an Intel Iris Pro Graphics processor practice the Asserted Patents.

2. Intel's Foundry Services

366. Intel's operations include foundry services for manufacturing its processors. (Exhibit 47 at 8, 12-13.)

367. The process of designing and manufacturing a microprocessor is a technically complex, time intensive process. (*See, e.g.*, Exhibit 51 (http://www.bloomberg.com/news/articles/2016-06-09/how-intel-makes-a-chip).)

368. Intel's public filings confirm that Intel manufactures its platforms in the United States. As of December 26, 2015 – the end of Intel's fiscal 2015 – 55% of Intel's wafer fabrication was conducted within the United States. (Exhibit 47 at 12; *see also* Exhibit 52 (http://www.intel.com/content/www/us/en/architecture-and-technology/global-manufacturing.html (map of Intel wafer fabrication sites)).)

369. Intel's current, most recent product generations are manufactured using 14 nanometer (nm) transistors – *i.e.,* manufactured using Intel's 14nm process technology.[2] (*See, e.g.*, Exhibit 47 at 12 ("Our products utilizing our 14nm process technology are in the market and we are continuing to work on the development of our next-generation 10nm process technology."); Exhibit 53 (http://www.intel.com/content/www/us/en/silicon-innovations/intel-14nm-technology.html).)

3. Intel's Current 14nm Platforms

370. During its fiscal 2015, Intel offered a range of platforms based on nine different microprocessors – Atom, Celeron, Core i, Core m, Itanium, Pentium, Quark, Xeon, and Xeon Phi. (Exhibit 47 at 7; *see also* https://www.intel.com/content/www/us/en/homepage.html at "Products" tab, click "Processors.")

371. On its website, Intel provides product specifications for its platforms. (*See* Exhibit 54 (http://ark.intel.com).) These specifications indicate whether each individual processor is current (*i.e.*, "Launched"), future, (*i.e.*, "Announced"), no longer sold (*i.e.*, "End of

[2] Such microprocessors may also be referred to herein as "14nm platforms" or "14nm processors."

Life"), or no longer supported (*i.e.*, "End of Interactive Support"). These specifications also include much other information, including which process technology, or "lithography" (*i.e.*, 14nm) is used to fabricate each processor and which processor graphics (*i.e.*, Intel HD Graphics, Intel Iris Graphics, Intel IrisPro Graphics), if any, is included in each processor.

372. ZiiLabs used these specifications to determine that 62.5% (187/299) of Intel's current (*i.e.*, "Launched") 14nm processors include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics, and therefore qualify as domestic industry products, as of September 2016.

373. First, ZiiLabs reviewed the feature summary for each platform family to discern which processors are currently "Launched." (*See generally* Exhibits 70-329.) Then, ZiiLabs used a tool on the Intel product specifications website to compare specifications for the currently launched processors and determine which of those processors were fabricated with 14nm process technology and which of those processors contain Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics. (*See generally* Exhibits 70-329.) For ease of reference, ZiiLabs compiled this information into simplified charts. (*See* Exhibits 62-65.) As shown in those charts, 39/43 of Intel's launched 14nm processors for desktop applications use graphics processing, 44/73 of Intel's launched 14nm processors for embedded applications use graphics processing, 94/94 of Intel's launched 14nm processors for mobile applications use graphics processing, and 10/89 of Intel's launched 14nm processors for server applications use graphics processing.

374. Similarly, ZiiLabs used these specifications to create similar charts and determine that 47.8% (635/1,329) of all of Intel's current (*i.e.*, "Launched") processors include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics, and therefore qualify as

domestic industry products, as of September 2016. (*See* Exhibits 66-69; *see also generally* Exhibits 70-329.)

375. While Intel's "Launched" processors as of September 2016 include products from a number of product generations made on a number of different manufacturing process nodes, the Intel specifications attached hereto show that later (more recent) generations of Intel products incorporate Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics in a greater proportion of individual models. (*See generally* Exhibits 70-329.) These specifications also show that a greater proportion of individual models incorporate Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics as Intel's manufacturing process node has shrunk to 14nm from previous, larger sizes. (*See generally* Exhibits 70-329.) Thus, if anything, the allocations herein are likely understated since Intel's current chips are much more likely to utilize Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics than older generation chips that are still "Launched." Similarly, the proportion of Intel's facilities, equipment, labor, capital, and engineering, research, and development currently dedicated to Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics is likely higher than the proportions utilized herein, which give equal weight to all "Launched" products, whether they are older generation products likely being phased out and not made in high volumes or current-generation products in volume production.

376. For example, public information indicates that "[i]n the fourth quarter of 2013, Intel integrated graphics represented, in units, 65% of all PC graphics processor shipments." (Exhibit 48.) Although this information is 3 years old, it is still greater than ZiiLabs' allocation for Intel's current 14nm platforms (62.5%) and all current Intel platforms (47.8%).

377. ZiiLabs believes that non-public evidence provided by Intel in discovery will establish that Intel's facilities, equipment, labor, capital, and engineering, research, and development with respect to even just one of its five 14nm wafer fabrication facilities ("fabs") in the U.S. are significant and substantial.

4. Intel's Domestic Industry

378. A domestic industry for the purposes of 19 U.S.C. § 1337(a)(2), as defined in U.S.C. § 1337(a)(3)(A), (B), and (C), exists with respect to Intel's significant and continuous investment in plant and equipment, significant and continuous employment of labor or capital, and substantial and ongoing investment in engineering, research, and development in Intel's Intel HD Graphics processors, Intel Iris Graphics processors, and Intel Iris Pro Graphics processors.

a. Intel's Significant Investment in Plant and Equipment

379. A domestic industry as defined by 19 U.S.C. § 1337(a)(3)(A) exists in the United States with respect to the articles protected by the Asserted Patents by reason of Intel's significant investment in plant and equipment.

(1) Intel's 14nm Platforms

380. These most cutting-edge Intel microprocessors, made using 14nm process technology, are manufactured at Intel's wafer fabrication facilities in Arizona, Oregon, and Ireland. (Exhibit 47 at 12; *see also* Exhibit 55 (http://www.tomshardware.co.uk/intel-fab42-14nm-cpu-factory,news-37599.html); Exhibit 56 (https://en.wikipedia.org/wiki/List_of_Intel_manufacturing_sites (Intel's Fab 32 and Fab 42 in Chandler, Arizona, D1C, D1D, and D1X fabs in Hillsboro, Oregon, and Fab 24 in Leixlip, Ireland are 14nm fabs; all except Fab 42 are currently online and making 14nm platforms).)

381. Intel's U.S. fabs where Intel manufactures 14nm platforms are large, expensive, state-of-the-art facilities.

382. Intel's Fab 32, in Chandler, Arizona, comprises one million (1,000,000) square feet. (*See, e.g.*, Ex. 57 (http://www.intel.com/pressroom/kits/manufacturing/Fab32/index.htm).)

383. Intel's Fab 42, in Chandler, Arizona, also comprises approximately one million (1,000,000) square feet and cost approximately ten billion dollars ($10,000,000,000). (*See, e.g.*, Ex. 58 (https://advance.lexis.com/api/permalink/2def7590-b134-46a2-993d-d030b9d74e8c/?context=1000516) (discussing Intel's construction plans in Oregon – "It appears to be roughly 1 million square feet, the same size as the $10 billion Fab 42 in Arizona").)

384. Intel's D1C Fab, in Hillsboro, Oregon, comprises approximately two-hundred eighty thousand (280,000) square feet, of which one-hundred thousand (100,000) square feet are clean room. (*See, e.g.*, Ex. 59 (https://nwlaborpress.org/2010/1105/11-5-10Intel.html).)

385. Intel's D1D Fab, in Hillsboro, Oregon, comprises approximately eight-hundred thousand (800,000) square feet, of which one-hundred ninety thousand (190,000) square feet are clean room, and cost approximately two billion dollars ($2,000,000,000). (*See, e.g.*, Ex. 59 (https://nwlaborpress.org/2010/1105/11-5-10Intel.html); *see also, e.g.*, Ex. 60 (http://www.computerworld.com/article/2561162/computer-hardware/inside-intel-s-d1d-fab----through-the-looking-glass.html) ("D1D...covers a little less than 1 million square feet" and some of the chip making tools in D1D "cost more than $10 million each").)

386. Intel's D1X Fab, in Hillsboro, Oregon, comprises a total of two million, two-hundred thousand (2,200,000) square feet – "two adjoining factories of 1.1 million square feet apiece." (*See* Ex. 61 (http://www.oregonlive.com/silicon-forest/index.ssf/2015/04/deal_for_new_lithography_tools.html).) D1X cost approximately three billion dollars ($3,000,000,000) to build. (*See, e.g.*, Ex. 61 (http://www.oregonlive.com/silicon-forest/index.ssf/2015/04/deal_for_new_lithography_tools.html).)

387. Even without publicly available information on the cost of Fab 32 and the D1C Fab, and discounting the one million (1,000,000) square feet and ten-billion dollar ($10,000,000,000) cost of Fab 42, Intel's currently-online[3] 14nm fabs in the U.S. comprise approximately four million, two-hundred and eighty thousand (4,280,000) square feet and cost five billion dollars ($5,000,000,000).

388. The following table compiles the aforementioned statistics with respect to the size and cost of Intel's four online 14nm fabs in the United States, plus cost estimates for Fab 32 and the D1C Fab as described below:

FAB	**SIZE (FT.^{2})**	**COST (*estimate as described below*)**
Fab 32 – Chandler, AZ	1,000,000	*$1,666,666,667*
D1C – Hillsboro, OR	280,000	*$466,666,667*
D1D – Hillsboro, OR	800,000	$2,000,000,000
D1X – Hillsboro, OR	2,200,000	$3,000,000,000
Total	**4,280,000**	**$7,133,333,334**

Table 1 – Cost and size of Intel's currently-online 14nm U.S. fabs

389. In order to estimate the cost of Fab 32 and the D1C Fab, ZiiLabs used publicly available information about Intel's other currently-online 14nm fabs – D1D and D1X. As shown in Table 1 above, the D1D and D1X Fabs comprise approximately three million (3,000,000) square feet and cost a total of about five billion dollars ($5,000,000,000). Therefore, the cost of building these two fabs was approximately $1,666.66/ft.^{2} ZiiLabs multiplied that cost per square foot by the square footage of Fab 32 and the D1C Fab to calculate the estimated total cost for each of those two fabs.

390. Therefore, discounting Fab 42 which is not currently online, Intel's currently-operating 14nm fabs in the U.S. comprise approximately four million, two-hundred and eighty

[3] Since Fab 42 is not currently online, ZiiLabs did not consider it for these domestic industry pleadings.

thousand (4,280,000) square feet and cost approximately seven billion, one-hundred thirty-three million, three-hundred thirty-three thousand, three-hundred and thirty-four dollars ($7,133,333,334).

391. Multiplying those numbers by the 62.5% of Intel's current 14nm processors that include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics reveals that Intel currently operates at least two million, six-hundred and seventy-five thousand (2,675,000) square feet of fabs in the U.S. dedicated to manufacturing domestic industry products, and that the cost of those fabs attributable to the domestic industry products is approximately four billion, four-hundred fifty-eight million, three-hundred thirty-three thousand, three-hundred and thirty-four dollars ($4,458,333,334).

392. These numbers alone demonstrate that Intel's investments in plant and equipment, just with respect to 14nm processors containing Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics, comprise a domestic industry in the U.S. with respect to ZiiLabs' Asserted Patents.

(2) All Intel Platforms

393. Intel owns and leases millions of additional square feet of facilities in the U.S. As of December 26, 2015 – the end of Intel's fiscal 2015 – Intel's major facilities consisted of:

*square feet, in millions	**United States**	**Other Countries**	**Total**
Owned Facilities	30.7	17.2	47.9
Leased Facilities	2.1	6.0	8.1
Total	32.8	23.2	56.0

(Exhibit 47 at 28.) Intel's principal executive offices and the majority of Intel's wafer fabrication facilities are located in the United States. (Exhibit 47 at 28.)

394. Multiplying those U.S. numbers by the 47.8% of Intel's current processors that include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics reveals that as of December 26, 2015, Intel owned 14,674,600 square feet of facilities in the U.S. and leased another 1,003,800 square feet of facilities in the U.S. that are allocable to the domestic industry products practicing ZiiLabs' Asserted Patents.

395. At the end of its fiscal 2015, Intel held $31,858,000,000 worldwide in property, plant and equipment as follows:

	Total
United States	$22,611,000,000
Ireland	$5,789,000,000
Israel	$1,661,000,000
Other Countries	$1,797,000,000
Total	$31,858,000,000

(Exhibit 47 at 122.)

396. Multiplying those U.S. numbers by the 47.8% of Intel's current processors that include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics reveals that as of December 26, 2015, Intel held $10,808,058,000 of property, plant and equipment in the U.S. that are allocable to the domestic industry products practicing ZiiLabs' Asserted Patents.

397. Additionally, in fiscal 2015, Intel made additions to property, plant and equipment totaling $7,326,000,000. (Exhibit 47 at 31.)

398. For its fiscal 2016, Intel currently has $234,000,000 in payments due for operating lease obligations and $4,250,000,000 in capital purchase obligations (*i.e.*,

"commitments for the construction or purchase of property, plant and equipment"). (Exhibit 47 at 54.)

399. Given these additional holdings of and investments in plant and equipment in the U.S., Intel's activities with respect to Intel HD Graphics, Intel Iris Graphics, Intel IrisPro Graphics, and/or processors utilizing such graphics processing comprise a domestic industry in the U.S. with respect to ZiiLabs' Asserted Patents.

b. Intel's Significant Employment of Labor and Capital

400. A domestic industry as defined by 19 U.S.C. § 1337(a)(3)(B) exists in the United States with respect to the articles protected by the Asserted Patents by reason of Intel's significant employment of labor and/or capital.

(1) Intel's 14nm Platforms

401. In addition to their size, Intel's U.S. fabs where Intel manufactures 14nm platforms employ thousands of U.S.-based employees.

402. Intel's Fab 32, in Chandler, Arizona, houses over one thousand (1,000) U.S.-based employees. (*See, e.g.*, Ex. 57 (http://www.intel.com/pressroom/kits/manufacturing/Fab32/index.htm).)

403. Intel's D1D Fab, in Hillsboro, Oregon, employs several hundred U.S.-based technicians. (*See, e.g.*, Ex. 60 (http://www.computerworld.com/article/2561162/computer-hardware/inside-intel-s-d1d-fab----through-the-looking-glass.html).)

404. Intel's D1X Fab, in Hillsboro, Oregon, also employs as many as one thousand (1,000) skilled manufacturing and research U.S.-based employees. (*See, e.g.*, Ex. 59 (https://nwlaborpress.org/2010/1105/11-5-10Intel.html).)

405. Even without publicly available information on the number of employees at the D1C Fab, Intel's currently-online 14nm fabs in the U.S. employ over two-thousand (2,000) U.S.-based employees.

406. The following table compiles the aforementioned statistics with respect to the number of employees at Intel's currently-online 14nm fabs in the U.S., plus employment estimates for the D1C Fab and the D1D Fab as described below:

FAB	**NUMBER OF EMPLOYEES** (***estimate as described below***)
Fab 32 – Chandler, AZ	1,000
D1C – Hillsboro, OR	*175*
D1D – Hillsboro, OR	*500*
D1X – Hillsboro, OR	1,000
Total	**2,675**

Table 2 – Number of employees at Intel's currently-online 14nm U.S. fabs

407. In order to estimate the number of employees at the D1C Fab and D1D Fab, ZiiLabs used publicly available information about Intel's other currently-online 14nm fabs – Fab 32 and D1X. As shown in Tables 1 and 2 above, Fab 32 and the D1X Fab comprise approximately three million two-hundred thousand (3,200,000) square feet and employ two thousand (2,000) U.S.-based employees. Therefore, these two fabs employ approximately one (1) U.S.-based employee per one-thousand six-hundred (1,600) square feet. ZiiLabs divided the square footage of the D1C Fab and D1D Fab by one-thousand six-hundred (1,600) to calculate an estimated number of U.S.-based employees for each of these two fabs.

408. Based on that calculation, Intel's currently-operating 14nm fabs in the U.S. employ approximately two-thousand six-hundred and seventy-five (2,675) U.S.-based employees.

409. Multiplying that number by the 62.5% of Intel's current 14nm processors that include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics reveals that Intel currently employs at least approximately one-thousand six-hundred and seventy-two (1,672) U.S.-based employees at fabs in the U.S. dedicated to manufacturing 14nm domestic industry products.

410. These numbers alone demonstrate that Intel's employment of labor and capital, just with respect to 14nm processors containing Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics, comprise a domestic industry in the U.S. with respect to ZiiLabs' Asserted Patents.

(2) All Intel Platforms

411. As of December 26, 2015 – the end of Intel's fiscal 2015 – Intel had 107,300 employees worldwide, with approximately 51% of these employees (*i.e.,* approximately 55,000) located in the United States. (Exhibit 47 at 15; *see also id.* at 31.)

412. Multiplying those U.S. numbers by the 47.8% of Intel's current processors that include Intel HD Graphics, Intel Iris Graphics, or Intel IrisPro Graphics reveals that as of December 26, 2015, Intel employed approximately 26,290 people in the U.S. that are allocable to the domestic industry products practicing ZiiLabs' Asserted Patents.

413. Further, Intel added approximately 600 employees worldwide from the end of fiscal 2014 through the end of fiscal 2015. (Exhibit 47 at 31.)

414. At the end of its fiscal 2015, Intel also owed $3,138,000,000 in accrued compensation and benefits. (Exhibit 47 at 63.)

415. Also in its fiscal 2015, Intel invested $7,326,000,000 in capital expenditures. (Exhibit 47 at 50.)

416. Given this additional employment of labor and capital in the U.S., Intel's activities with respect to Intel HD Graphics, Intel Iris Graphics, Intel IrisPro Graphics, and/or processors utilizing such graphics processing comprise a domestic industry in the U.S. with respect to ZiiLabs' Asserted Patents.

c. Intel's Substantial Investment in the Exploitation of the Asserted Patents

417. A domestic industry as defined by 19 U.S.C. § 1337(a)(3)(C) exists in the United States with respect to the Asserted Patents by reason of Intel's substantial investment in its engineering, research, and development directed to its products covered by ZiiLabs' Asserted Patents.

418. Intel's total investment in research and development for fiscal 2015 was $12,128,000,000, or 21.9% of net revenue. (Exhibit 47 at 40; *see also id.* at 61.) Intel's R&D activities range from designing and developing new products and manufacturing processes to researching future technologies and products. (Exhibit 47 at 15.) These R&D activities include investment in graphics. (*Id.*)

419. While publicly available information does not appear to disclose the exact nature of Intel's R&D activities in the U.S. with respect to its processors or graphics, given Intel's level expenditures on R&D including R&D of processors and graphics, discovery from Intel is expected to demonstrate that Intel's exploitation of the Asserted Patents with respect to Intel HD Graphics, Intel Iris Graphics, Intel IrisPro Graphics, and/or processors utilizing such graphics processing comprise a domestic industry in the U.S. with respect to ZiiLabs' Asserted Patents.

C. Intel's Practice of the Asserted Patents

420. Intel's Intel HD Graphics, Intel Iris Graphics, Intel IrisPro Graphics, and/or processors utilizing such graphics processing practice the following claims of each of the Asserted Patents:

Asserted Patent	Claims Practiced by Intel's Products
'952	1-8
'350	1-16
'616	1-8
'659	1-20

421. Pursuant to Commission Rule 210.12(a)(9)(ix), Exhibits 43-46 include charts that apply an exemplary claim of each Asserted Patent to a representative Intel product that practices that patent.

IX. RELIEF

WHEREFORE, by reason of the foregoing, ZiiLabs requests that the Commission:

1) Institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to Respondents' violations of Section 337 based on the importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation of articles that infringe the Asserted Patents;

2) Schedule and conduct a hearing on permanent relief pursuant to 19 U.S.C. § 1337(d) and (f) of the Tariff Act of 1930, as amended;

3) Issue a Limited Exclusion Order specifically directed to each named Respondent, pursuant to 19 U.S.C. § 1337(d), excluding from entry into the United States articles that infringe the Asserted Patents;

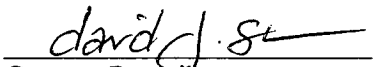
4) Issue a cease and desist order pursuant to 19 U.S.C. § 1337(f) prohibiting each domestic Respondent from engaging in the unlawful importation and/or the sale within the United States after importation of articles that infringe the Asserted Patents; and

5) Impose a bond upon Respondents who continue to import infringing articles during the 60-day-Presidential review period per 19 U.S.C. § 1337(j); and issue

such other and further relief as the Commission deems just and proper under the law, based upon the facts determined by the investigation and the authority of the Commission.

December 16, 2016

Respectfully submitted,



Goutam Patnaik
Tuhin Ganguly
David J. Shaw
Pepper Hamilton LLP
Hamilton Square
600 Fourteenth Street, N.W.
Washington, DC 20005-2004
202.220.1200
202.220.1665 (facsimile)

William D. Belanger
Frank D. Liu
Suparna Datta
Ryan C. Deck
Pepper Hamilton LLP
19th Floor, High Street Tower
125 High Street
Boston, MA 02110-2736
617.204.5100
617.204.5150 (facsimile)

Gregory S. Bishop
Pepper Hamilton LLP
333 Twin Dolphin Drive
Suite 400
Redwood City, CA 94605
Tel: 650-802-3600
Fax: 650-802-3650

Counsel for Complainant
ZiiLabs Inc. Ltd.