

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

ZIILABS INC., LTD.,

Plaintiff,

v.

ARM LTD. and ARM, INC.,

Defendant.

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Civil Action No. 2:16cv987

**TRIAL BY JURY DEMANDED**

**ZIILABS INC., LTD.'S COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff ZiiLabs Inc., Ltd. (“ZiiLabs” or “Plaintiff”) hereby submits this Complaint against Defendants ARM Ltd. and ARM, Inc. (collectively, “ARM” or “Defendants”) and states as follows:

**THE PARTIES**

1. ZiiLabs is a Bermuda corporation, with its registered office at Clarendon House, 2 Church Street, Hamilton, HM11 Bermuda.

2. ZiiLabs is the assignee and owner of the patents at issue in this action, United States Patent Nos. 6,111,584 (“the ’584 Patent”); 6,650,333 (“the ’333 Patent”); 6,977,649 (“the ’649 Patent”); and 8,144,156 (“the ’156 Patent”). These patents are referred to collectively as the “ZiiLabs Patents” or the “Asserted Patents.”

3. ZiiLabs is informed and believes, and on that basis alleges, that ARM, Inc. is a subsidiary of ARM Holdings plc, a public limited company organized under the laws of England and Wales with a principle place of business in Cambridge, England.

4. ZiiLabs is informed and believes, and on that basis alleges, that ARM, Inc. is a corporation organized under the laws of Delaware with a principle place of business in San Jose, California.

5. ZiiLabs is informed and believes, and on that basis alleges, that ARM Ltd. is a subsidiary of ARM Holdings plc.

6. ZiiLabs is informed and believes, and on that basis alleges, that ARM Ltd. is a corporation organized under the laws of England and Wales with a principle place of business in Cambridge, England.

### **JURISDICTION AND VENUE**

7. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 101 *et seq.*

8. On information and belief, this Court has personal jurisdiction over ARM because, among other reasons, ARM regularly conducts business in Texas and engages in continuous and systematic contact with Texas. Specifically, ARM, Inc. maintains an office in Plano, Texas, maintains a facility in Austin, Texas, maintains a registered agent in Dallas, Texas, and is registered as a for-profit corporation with the Texas Secretary of State. Further, ARM previously intervened in a patent action in this District, *see Advanced Processor Technologies LLC v. Analog Devices, Inc., et. al.*, No. 2:11-cv-00019, Dkt. No. 97 (E.D. Tex. July 23, 2012), wherein ARM asserted counterclaims and admitted proper venue. *See id.* at Dkt. No. 137. ARM also previously brought an action seeking declaratory judgment of noninfringement and invalidity of patents and continued to participate in the action after it was transferred to this District. *See, e.g., Mosaid Technologies Inc. v. Freescale Semiconductor, Inc., et. al.*, No. 6:11-cv-00173, Dkt. No. 194 (E.D. Tex. Sept. 20, 2012).

9. Further, ARM offers its products for sale throughout the United States, on information and belief, including in this District. ARM's customers can purchase ARM's Mali graphics process units ("GPUs") through ARM's website. In particular, for example, the webpage for ARM's Mali-T860 and T880 GPUs has a link for "Request More Information." *Mali-T860 & Mali-T880*, ARM, <https://www.arm.com/products/multimedia/mali-gpu/high-performance/mali-t860-t880.php> (last visited Aug. 30, 2016). A customer who clicks the "Request More Information" link is taken to another webpage that includes a link to ARM's "Read our buying guide." *Enquiry Form*, ARM, <https://www.arm.com/contact-us/contact.php?action=step2&qid=8&subject=Info%20Request%20for%20Mali-T860%20&%20Mali-T880> (last visited Aug. 30, 2016). Customers who click the "Read our buying guide" are taken to another webpage that includes contact information for United States sales representatives. *Buying Guide for ARM Products and Services*, ARM, <https://www.arm.com/products/buying-guide/index.php> (last visited Aug. 30, 2016). ARM also provides on-site support for its products in the United States. *Arm Announces Active Assist Service to Accelerate Partner Development of ARM Technology*, ARM (Oct. 7, 2008) <https://www.arm.com/about/newsroom/23156.php> (last visited Aug. 30, 2016); *see also Training*, ARM, <https://www.arm.com/support/training/index.php> (last visited Aug. 30, 2016).

10. According to ARM's website, "[i]n 2014, ARM shipped 550 million Mali GPUs in a wide range of devices from the newest premium range smartphones to the latest low-power wearables. Mali is not only the most popular, but also the most scalable GPU in the world." *Mali GPU*, ARM, <http://www.arm.com/products/multimedia/mali-gpu/index.php> (last visited Aug. 30, 2016). The Mali Development Center lists a number of "Ecosystem Partners," including United States companies, such as Google Inc., Epic Games, Inc., Cortexica Inc., Squid

Systems Pvt Ltd, ArcSoft, Inc., Aricent Inc., Adobe Systems Inc., and others. *Mali Developer Center: Partners*, ARM, <http://malideveloper.arm.com/partners-hub/> (last visited Aug. 30, 2016).

11. On information and belief, venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b)-(c) and 1400(b) because, among other things, ARM is subject to personal jurisdiction in this District, ARM, Inc. maintains an office within this District, ARM previously intervened in a patent action in this District wherein it asserted counterclaims and admitted proper venue, and ARM previously participated in a patent action after it was transferred to this District. Thus, ARM has conducted, and continues to conduct, business in this District, and has engaged in continuous and systematic activities in this District.

12. In addition, this action is related to a prior action in this District involving ZiiLabs. *See ZiiLabs Inc., Ltd. v. Samsung Electronics Co., Ltd. et al*, No. 2: 14-cv-00203, Dkt. No. 1 (E.D. Tex. March 10, 2014) (the “Prior Action”). The Prior Action included all four of the Asserted Patents. *Id.* Further, in the Prior Action, this Court issued claim construction rulings as to certain claim terms in the Asserted Patents. *See id.* at Dkt. No. 273.

**COUNT I**  
**INFRINGEMENT OF U.S. PATENT NO. 6,111,584**

13. On August 29, 2000, United States Patent No. 6,111,584 was duly and legally issued for inventions entitled “Rendering System with Mini-Patch Retrieval from Local Texture Storage.” ZiiLabs was assigned the ’584 Patent and continues to hold all rights and interest in the ’584 Patent. A true and correct copy of the ’584 Patent is attached hereto as Exhibit 1. The ’584 Patent expired in June of 2016.

14. On information and belief, ARM has directly infringed one or more of the claims of the ’584 Patent by making, using, offering to sell, or selling within the United States or

importing into the United States products such as ARM's Mali GPU. As shown in the claim chart, attached hereto as Exhibit 2, ARM's Mali GPU and/or GPU design practices all elements of at least one claim of the '584 Patent. A job posting for a Senior Graphics Architect indicates that ARM makes and/or uses ARM's Mali GPU and/or GPU designs in the United States.

*Careers at ARM: Senior Graphics Architect*, ARM,

[http://careers.peopleclick.com/careerscp/client\\_arm](http://careers.peopleclick.com/careerscp/client_arm)

[/external/jobDetails.do?functionName=getJobDetail&jobPostId=25005&localeCode=en-us](#) (last visited Aug. 30, 2016) (The job description includes: "Develop performance and functional testplan and tests for new Graphics units and architectural features; Follow through with development team on testing and debug on simulators, RTL and *real silicon*." (emphasis added)).

15. On information and belief, at least as of August 7, 2013, when it received actual notice of the ZiiLabs Patents, ARM has indirectly infringed one or more claims of the '584 Patent by active inducement under 35 U.S.C. § 271(b) and contributory infringement under 35 U.S.C. § 271(c). ARM has induced, caused, urged, encouraged, aided, and abetted their direct and indirect customers to make, use, sell, offer for sale, and/or import products that infringe the '584 Patent and to use methods that infringe the '584 Patent. *See* Ex. 2. ARM has done so by acts including, but not limited to, selling processor(s) and/or processor designs that infringe, marketing the infringing capabilities of ARM's processors, and providing instructions, technical support, and other encouragement for the use of such products. *See, e.g., Highlights*, Cadence News Room (May 29, 2016) [https://www.cadence.com/content/cadence-www/global/en\\_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html](https://www.cadence.com/content/cadence-www/global/en_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html) (last visited Aug. 28, 2016). Such conduct by ARM was intended to and actually

resulted in direct infringement, including the making, using, selling, offering for sale, and/or importing of infringing products in the United States and using infringing methods in the United States. In addition, as shown in the claim chart attached hereto as Exhibit 2, the ARM Mali GPU and/or GPU design has no substantial non-infringing uses.

16. ARM's infringement of the '584 Patent was willful. ARM had knowledge of the '584 Patent at least as of August 7, 2013 when ZiiLabs sent ARM a letter identifying it. *See* Ex. 9. Despite knowing of the '584 Patent, ARM intentionally made, used, offered for sale, and sold, in the United States, or imported into the United States products that directly or indirectly infringe the '584 Patent.

17. The acts of infringement by ARM have caused damage to ZiiLabs and ZiiLabs is entitled to recover from ARM the damages sustained by ZiiLabs as a result of ARM's wrongful acts in an amount subject to proof at trial.

**COUNT II**  
**INFRINGEMENT OF U.S. PATENT NO. 6,650,333**

18. On November 18, 2003, United States Patent No. 6,650,333 was duly and legally issued for inventions entitled "Multi-Pool Texture Memory Management." ZiiLabs was assigned the '333 Patent and continues to hold all rights and interest in the '333 Patent. A true and correct copy of the '333 Patent is attached hereto as Exhibit 3.

19. On information and belief, ARM has directly infringed and continues to directly infringe one or more of the claims of the '333 Patent by making, using, offering to sell, or selling within the United States or importing into the United States products such as ARM's Mali GPU. As shown in the claim chart, attached hereto as Exhibit 4, ARM's Mali GPU and/or GPU design practices all elements of at least one claim of the '333 Patent. A job posting for a Senior Graphics Architect indicates that ARM makes and/or uses ARM's Mali GPU and/or GPU

designs in the United States. *Careers at ARM: Senior Graphics Architect*, ARM, [http://careers.peopleclick.com/careerscp/client\\_arm/external/jobDetails.do?functionName=getJobDetail&jobPostId=25005&localeCode=en-us](http://careers.peopleclick.com/careerscp/client_arm/external/jobDetails.do?functionName=getJobDetail&jobPostId=25005&localeCode=en-us) (last visited Aug. 30, 2016) (The job description includes: “Develop performance and functional testplan and tests for new Graphics units and architectural features; Follow through with development team on testing and debug on simulators, RTL and *real silicon*.” (emphasis added)).

20. On information and belief, at least as of August 7, 2013, when it received actual notice of the ZiiLabs Patents, ARM has indirectly infringed one or more claims of the ’333 Patent by active inducement under 35 U.S.C. § 271(b) and contributory infringement under 35 U.S.C. § 271(c). ARM has induced, caused, urged, encouraged, aided, and abetted their direct and indirect customers to make, use, sell, offer for sale, and/or import products that infringe the ’333 Patent and to use methods that infringe the ’333 Patent. *See* Ex 4. ARM has done so by acts including, but not limited to, selling processor(s) and/or processor designs that infringe, marketing the infringing capabilities of ARM’s processors, and providing instructions, technical support, and other encouragement for the use of such products. *See, e.g., Highlights*, Cadence News Room (May 29, 2016) [https://www.cadence.com/content/cadence-www/global/en\\_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html](https://www.cadence.com/content/cadence-www/global/en_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html) (last visited Aug. 28, 2016). Such conduct by ARM was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importing of infringing products in the United States and using infringing methods in the United States. In addition, as shown in the claim chart attached hereto as Exhibit 4, the ARM Mali GPU and/or GPU design has no substantial non-infringing uses.

21. ARM's infringement of the '333 Patent is willful. ARM had knowledge of the '333 Patent at least as of August 7, 2013 when ZiiLabs sent ARM a letter identifying it. *See* Ex. 9. Despite knowing of the '333 Patent, ARM has continued to intentionally make, use, offer for sale, or sell in the United States, or import into the United States products that directly or indirectly infringe the '333 Patent.

22. The acts of infringement by ARM have caused damage to ZiiLabs and ZiiLabs is entitled to recover from ARM the damages sustained by ZiiLabs as a result of ARM's wrongful acts in an amount subject to proof at trial. The infringement of ZiiLabs's exclusive rights under the '333 Patent by ARM has damaged and will continue to damage ZiiLabs, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

**COUNT III**  
**INFRINGEMENT OF U.S. PATENT NO. 6,977,649**

23. On December 20, 2005, United States Patent No. 6,977,649 was duly and legally issued for inventions entitled "3D Graphics Rendering with Selective Read Suspend." ZiiLabs was assigned the '649 Patent and continues to hold all rights and interest in the '649 Patent. A true and correct copy of the '649 Patent is attached hereto as Exhibit 5.

24. On information and belief, ARM has directly infringed and continues to directly infringe one or more of the claims of the '649 Patent by making, using, offering to sell, or selling within the United States or importing into the United States products such as ARM's Mali GPU. As shown in the claim chart, attached hereto as Exhibit 6, ARM's Mali GPU and/or GPU design practices all elements of at least one claim of the '649 Patent. A job posting for a Senior Graphics Architect indicates that ARM makes and/or uses ARM's Mali GPU and/or GPU designs in the United States. *Careers at ARM: Senior Graphics Architect*, ARM, [http://careers.peopleclick.com/careerscp/client\\_arm/external/jobDetails.do?functionName=getJo](http://careers.peopleclick.com/careerscp/client_arm/external/jobDetails.do?functionName=getJo)



bDetail&jobPostId=25005&localeCode=en-us (last visited Aug. 30, 2016) (The job description includes: “Develop performance and functional testplan and tests for new Graphics units and architectural features; Follow through with development team on testing and debug on simulators, *RTL and real silicon*.” (emphasis added)).

25. On information and belief, at least as of August 7, 2013, when it received actual notice of the ZiiLabs Patents, ARM has indirectly infringed one or more claims of the ’649 Patent by active inducement under 35 U.S.C. § 271(b) and contributory infringement under 35 U.S.C. § 271(c). ARM has induced, caused, urged, encouraged, aided, and abetted their direct and indirect customers to make, use, sell, offer for sale, and/or import products that infringe the ’649 Patent and to use methods that infringe the ’649 Patent. *See* Ex. 6. ARM has done so by acts including, but not limited to, selling processor(s) and/or processor designs that infringe, marketing the infringing capabilities of ARM’s processors, and providing instructions, technical support, and other encouragement for the use of such products. *See, e.g., Highlights*, Cadence News Room (May 29, 2016) [https://www.cadence.com/content/cadence-www/global/en\\_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html](https://www.cadence.com/content/cadence-www/global/en_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html) (last visited Aug. 28, 2016). Such conduct by ARM was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importing of infringing products in the United States and using infringing methods in the United States. In addition, as shown in the claim chart attached hereto as Exhibit 6, the ARM Mali GPU and/or GPU design has no substantial non-infringing uses.

26. ARM’s infringement of the ’649 Patent is willful. ARM had knowledge of the ’649 Patent at least as of August 7, 2013 when ZiiLabs sent ARM a letter identifying it. *See* Ex.

9. Despite knowing of the '649 Patent, ARM has continued to intentionally make, use, offer for sale, or sell in the United States, or import into the United States products that directly or indirectly infringe the '649 Patent.

27. The acts of infringement by ARM have caused damage to ZiiLabs and ZiiLabs is entitled to recover from ARM the damages sustained by ZiiLabs as a result of ARM's wrongful acts in an amount subject to proof at trial. The infringement of ZiiLabs's exclusive rights under the '649 Patent by ARM has damaged and will continue to damage ZiiLabs, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

**COUNT IV**  
**INFRINGEMENT OF U.S. PATENT NO. 8,144,156**

28. On March 27, 2012, United States Patent No. 8,144,156 was duly and legally issued for inventions entitled "Sequencer with Async SIMD Array." ZiiLabs was assigned the '156 Patent and continues to hold all rights and interest in the '156 Patent. A true and correct copy of the '156 Patent is attached hereto as Exhibit 7.

29. On information and belief, ARM has directly infringed and continues to directly infringe one or more of the claims of the '156 Patent by making, using, offering to sell, or selling within the United States or importing into the United States products such as ARM's Mali GPU. As shown in the claim chart, attached hereto as Exhibit 8, ARM's Mali GPU and/or GPU design practices all elements of at least one claim of the '156 Patent. A job posting for a Senior Graphics Architect indicates that ARM makes and/or uses ARM's Mali GPU and/or GPU designs in the United States. *Careers at ARM: Senior Graphics Architect*, ARM, [http://careers.peopleclick.com/careerscp/client\\_arm/external/jobDetails.do?functionName=getJobDetail&jobPostId=25005&localeCode=en-us](http://careers.peopleclick.com/careerscp/client_arm/external/jobDetails.do?functionName=getJobDetail&jobPostId=25005&localeCode=en-us) (last visited Aug. 30, 2016) (The job description includes: "Develop performance and functional testplan and tests for new Graphics units and

architectural features; Follow through with development team on testing and debug on simulators, *RTL and real silicon.*” (emphasis added)).

30. On information and belief, at least as of August 7, 2013, when it received actual notice of the ZiiLabs Patents, ARM has indirectly infringed one or more claims of the ’156 Patent by active inducement under 35 U.S.C. § 271(b) and contributory infringement under 35 U.S.C. § 271(c). ARM has induced, caused, urged, encouraged, aided, and abetted their direct and indirect customers to make, use, sell, offer for sale, and/or import products that infringe the ’156 Patent and to use methods that infringe the ’156 Patent. *See* Ex. 8. ARM has done so by acts including, but not limited to, selling processor(s) and/or processor designs that infringe, marketing the infringing capabilities of ARM’s processors, and providing instructions, technical support, and other encouragement for the use of such products. *See, e.g., Highlights*, Cadence News Room (May 29, 2016) [https://www.cadence.com/content/cadence-www/global/en\\_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html](https://www.cadence.com/content/cadence-www/global/en_US/home/company/newsroom/press-releases/pr/2016/cadence-delivers-rapid-adoption-kits-based-on-a-10nm-reference-flow-for-new-arm-cortex-a73-cpu-and-arm-mali-g71-gpu.html) (last visited Aug. 28, 2016). Such conduct by ARM was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importing of infringing products in the United States and using infringing methods in the United States. In addition, as shown in the claim chart attached hereto as Exhibit 8, the ARM Mali GPU and/or GPU design has no substantial non-infringing uses.

31. ARM’s infringement of the ’156 Patent is willful. ARM had knowledge of the ’156 Patent at least as of August 7, 2013 when ZiiLabs sent ARM a letter identifying it. *See* Ex 9. Despite knowing of the ’156 Patent, ARM has continued to intentionally make, use, offer for

sale, or sell in the United States, or import into the United States products that directly or indirectly infringe the '156 Patent.

32. The acts of infringement by ARM have caused damage to ZiiLabs and ZiiLabs is entitled to recover from ARM the damages sustained by ZiiLabs as a result of ARM's wrongful acts in an amount subject to proof at trial. The infringement of ZiiLabs's exclusive rights under the '156 Patent by ARM has damaged and will continue to damage ZiiLabs, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

**ARM'S PRIOR KNOWLEDGE OF THE ASSERTED PATENTS**

33. ARM has had communications and contact with ZiiLabs and is fully aware of ZiiLabs's technology and patent portfolio, including the Asserted Patents. For example, on August 7, 2013, ZiiLabs notified ARM of its patent portfolio directed to graphics, processors, and related spaces, and its applicability to ARM's products, including all four of the Asserted Patents. *See* Ex 9.

**JURY DEMAND**

34. ZiiLabs demands a trial by jury on all issues.

**PRAYER FOR RELIEF**

WHEREFORE, ZiiLabs requests entry of judgment in its favor and against ARM as follows:

- A. A declaration that ARM has infringed ZiiLabs's U.S. Patent No. 6,111,584;
- B. A declaration that ARM has infringed and is infringing ZiiLabs's U.S. Patent Nos. 6,650,333; 6,977,649; and 8,144,156;
- C. A finding that ARM's infringement of U.S. Patent Nos. 6,111,584; 6,650,333; 6,977,649; and 8,144,156 is willful;

- D. An Order permanently enjoining ARM, its officers, agents, employees, and those acting in privity with them, from further direct and/or indirect infringement of U.S. Patent Nos. 6,650,333; 6,977,649; and 8,144,156;
- E. An award of damages to ZiiLabs arising out of ARM's infringement of U.S. Patent Nos. 6,111,584; 6,650,333; 6,977,649; and 8,144,156, including enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount according to proof;
- F. An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law; and,
- G. Granting ZiiLabs its costs and further relief as the Court may deem just and proper.

Dated: September 2, 2016

Respectfully Submitted,

/s/ William D. Belanger w/permission Wesley Hill

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