

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA**

REGENTS OF THE UNIVERSITY OF
MINNESOTA,

Plaintiff,

vs.

LSI CORPORATION and AVAGO
TECHNOLOGIES U.S. INC.,

Defendants.

Civil Action No. _____

JURY TRIAL DEMANDED

COMPLAINT

Regents of the University of Minnesota (“the University”), by and through its undersigned counsel, hereby files this Complaint against LSI Corporation and Avago Technologies U.S. Inc. (collectively, “Defendants”), alleging as follows:

NATURE OF THE ACTION

1. This action arises under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, from Defendants’ willful direct and indirect infringement of the method claims of United States Patent No. 5,859,601 (“the ’601 Patent”).

2. The University has long supported research and development of innovative data storage technologies. With this support, Jaekyun Moon, a former University professor, and Barrett J. Brickner, a Ph.D. student, developed the invention described in the ’601 Patent during their tenure at the University and assigned the ’601 Patent to the University. The invention generally claims a method for encoding data to be written to a magnetic disk in a hard disk drive (“HDD”) that increases the accuracy with which the

data are subsequently read off of those magnetic disks, thereby substantially improving the performance of the HDD and allowing for increased data density.

3. In the United States, Defendants knowingly designed, developed, tested, and adopted this invention and incorporated it into HDD chips sold by them in the United States, thereby gaining a competitive advantage through the resulting improvement in HDD performance. Rather than compensate the University for this use of University technology, Defendants have instead willfully infringed the '601 Patent.

PARTIES

4. The University is a public institution of higher education created by charter and perpetuated by the Constitution of the State of Minnesota, Article XIII, Section 3. The University has its principal place of business in Minneapolis, Minnesota.

5. The University is Minnesota's flagship research university, with about 30,000 undergraduate students, 16,000 graduate and professional students, 400,000 alumni, and 4,000 faculty.

6. The University has a long history of innovation, teaching, outreach, and public service. The University supports and facilitates a wide range of research that directly benefits the public both in and beyond the State of Minnesota, including educators, researchers, businesses, employees, and consumers. In fact, from 2009 to 2015, inventions by University researchers generated more than \$320 million in revenue for the University.

7. Such research requires substantial funding, which the University obtains from both public and private sources. In 2015, for example, University faculty and staff

were awarded over \$700 million in research funds. Researchers in the College of Science and Engineering won over \$140 million of those funds. The University consistently ranks among the top U.S. public universities in its amount of research spending.

8. To maximize the public benefit that its research generates, the University in some instances patents and/or commercializes inventions generated by its researchers. It then reinvests a portion of those profits back into its education and research programs in accordance with its mission of serving the people of the State of Minnesota.

9. Over the past 20 years, the United States Patent and Trademark Office (“USPTO”) has awarded hundreds of patents to the University, including the ’601 Patent, thereby recognizing the innovative technologies generated by the University’s researchers.

10. Defendant LSI Corporation (“LSI”) is a Delaware corporation with a principal place of business at 1320 Ridder Park Drive, San Jose, California 95131.

11. During certain times relevant to this action, LSI maintained offices in this judicial district, including in Rochester, Mendota Heights, and Bloomington, Minnesota.

12. Defendant Avago Technologies U.S. Inc. (“Avago U.S.”) is a Delaware corporation with a principal place of business at 1320 Ridder Park Drive, San Jose, California 95131.

13. Avago U.S. or one of its affiliate companies maintains a design office with over 100 employees in this judicial district.

14. LSI and Avago U.S. are both wholly owned indirect subsidiaries of holding company Avago Technologies Limited, which is in turn a wholly owned indirect subsidiary of holding company Broadcom Limited.

15. LSI was formed as a result of the merger of LSI Logic Corporation and Agere Systems Inc. in 2007. Avago Technologies Limited then acquired LSI in 2014. The ultimate parent company, Broadcom Limited, was formed on February 1, 2016, as a result of a merger between Avago Technologies Limited and Broadcom Corporation. As of November 1, 2015, Avago Technologies Limited and its subsidiaries employed about 8,200 persons globally, with 56% of the workforce located in North America.

16. LSI designs, develops, and supplies storage and networking integrated circuits, including HDD chips (“HDD Chips”). HDD Chips include but are not limited to HDD controller systems-on-a-chip (“SOCs”) and/or stand-alone read channel chips, both of which are sold under the TrueStore tradename.

17. Since March 2015, Avago U.S. has handled the U.S. sale and distribution of LSI products, including the product line of SOC’s sold under the TrueStore tradename.

18. Defendants have a “direct sales force focused on supporting large OEMs [original equipment manufacturers]” and also distribute “a substantial portion of [] products through [a] broad distribution network,” including “large global electronic components distributors.” Exhibit 1 (Avago Technologies Limited 2015 10-K) at 4.

19. U.S. distributors of Defendants’ products include Avnet Electronics Marketing and Digi-Key. Avnet Electronics Marketing maintains an office in this judicial district, at 2740 American Boulevard West, Suite 150, Bloomington, Minnesota

55431. Digi-Key maintains an office in this judicial district, at 701 Brooks Avenue South, Thief River Falls, Minnesota 56701.

20. Upon information and belief, Defendants have provided and currently provide customized HDD Chip information, data, simulators, and chips incorporating the invention described in the '601 Patent to customers who manufacture HDDs, including Seagate Technology PLC ("Seagate") and HGST, Inc. ("HGST"). Upon information and belief, Defendants have also provided and currently provide both Seagate and HGST with know-how regarding the invention of the '601 Patent and support and instructions for the invention of the '601 Patent.

21. Seagate maintains facilities in this judicial district, in Bloomington and Shakopee, Minnesota.

22. HGST maintains a facility in this judicial district, in Rochester, Minnesota.

23. These Seagate and HGST facilities undertake, among other things, research and development on HDDs that incorporate Defendants' HDD Chips, and, in that regard, Seagate and HGST personnel have worked and currently work with Defendants' personnel on all manner of HDD technology, including the invention of the '601 Patent.

24. Defendants locate their field application engineers and design engineers "in many cases near [their] top customers" to "enhance[] their customer reach and [their] visibility into new product opportunities and enable[them] to support [their] customers in each stage of their product development cycle, from early stages of production design through volume manufacturing and future growth." Exhibit 1 (Avago Technologies Limited 2015 10-K) at 8.

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