

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

Bell Semiconductor, LLC

Plaintiff,

v.

Palo Alto Networks, Inc.

Defendant.

Civil Action No. 4:23-cv-976

JURY TRIAL DEMANDED

COMPLAINT

Plaintiff Bell Semiconductor, LLC (“Bell Semic” or “Plaintiff”) brings this Complaint against Defendant Palo Alto Networks, Inc. (“PAN”) for infringement of U.S. Patent No. 7,345,245 (“the ’245 patent” or the “Asserted Patent”). Plaintiff, on personal knowledge of its own acts, and on information and belief as to all others based on investigation, alleges as follows:

SUMMARY OF THE ACTION

1. This is a patent infringement suit relating to PAN’s unauthorized and unlicensed use of the Asserted Patent. The semiconductor technologies claimed in the Asserted Patent are used by PAN in the production of one or more of its semiconductor chips and packages, including but not limited to the PAN PA-5220 firewall appliance containing a PAN FE100 A1 semiconductor IC package.

2. Bell Semiconductor brings this action to put a stop to PAN’s unauthorized and unlicensed use of the inventions claimed in the Asserted Patent.

THE PARTIES

3. Plaintiff Bell Semic is a limited liability company organized under the laws of the State of Delaware with a place of business at One West Broad Street, Suite 901, Bethlehem, PA 18018.

4. Bell Semic stems from a long pedigree that began at Bell Labs. Bell Labs sprung out of the Bell System as a research and development laboratory, and eventually became known as one of America's greatest technology incubators. Bell Labs employees invented the transistor in 1947 in Murray Hill, New Jersey. It was widely considered one of the most important technological breakthroughs of the time, earning the inventors the Nobel Prize in Physics. Bell Labs made the first commercial transistors at a plant in Allentown, Pennsylvania. For decades, Bell Labs licensed its transistor patents to companies throughout the world, creating a technological boom that led to the use of transistors in the semiconductor devices prevalent in most electronic devices today.

5. Bell Semic, a successor to Bell Labs' pioneering efforts, owns over 1,900 worldwide patents and applications, approximately 1,500 of which are active United States patents. This patent portfolio of semiconductor-related inventions was developed over many years by some of the world's leading semiconductor companies, including Bell Labs, Lucent Technologies, Agere Systems, and LSI Logic and LSI Corporation ("LSI"). This portfolio reflects technology that underlies many important innovations in the development of semiconductors and integrated circuits for high-tech products, including smartphones, computers, wearables, digital signal processors, IoT devices, automobiles, broadband carrier access, switches, network processors, and wireless connectors.

6. The principals of Bell Semic all worked at Bell Labs' Allentown facility, and have continued the rich tradition of innovating, licensing, and helping the industry at large since those early days at Bell Labs. For example, Bell Semic's CTO was an LSI Fellow and Broadcom Fellow. He is known throughout the world as an innovator with more than 300 patents to his name, and he has a sterling reputation for helping semiconductor fabs improve their efficiency. Bell Semic's CEO took a brief hiatus from the semiconductor world to work with Nortel Networks in the telecom industry during its bankruptcy. His efforts saved the pensions of tens of thousands of Nortel retirees and employees. In addition, several Bell Semic executives previously served as engineers at many of these companies and were personally involved in creating the ideas claimed throughout Bell Semic's extensive patent portfolio.

7. On information and belief, PAN is a corporation organized and existing under the laws of Delaware with its principal place of business and headquarters at 3000 Tannery Way, Santa Clara, CA 95054. PAN has a registered agent for service of process, Corporation Service Company (dba CSC - Lawyers Incorporating Service Company), located at 211 E. 7th Street, Suite 620, Austin, TX 78701-3218.

8. On information and belief, PAN develops, designs, and/or manufactures products in the United States, including in this District, that use the structures and/or methods of the Asserted Patent; and/or use structures and/or methods of the Asserted Patent in the United States, including in this District, to make products; and/or distribute, market, sells, or offers to sell in the United States and/or import products into the United States, including in this District, that were manufactured using the patented methods or include the patented structures. Additionally, PAN introduces those products into the stream of commerce knowing that they will be sold and/or used in this District and elsewhere in the United States.

JURISDICTION AND VENUE

9. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

10. This Court has personal jurisdiction over PAN under the laws of the State of Texas, due at least to their substantial business in Texas and in this District. PAN has purposefully and voluntarily availed themselves of the privileges of conducting business in the United States, in the State of Texas, and in this District by continuously and systematically placing goods into the stream of commerce through an established distribution channel with the expectation that they will be purchased by consumers in this District. In the State of Texas and in this District, PAN, directly and/or through intermediaries: (i) performs at least a portion of the infringements alleged herein; (ii) develops, designs, and/or manufactures products according to claims of each Asserted Patent; (iii) distributes, markets, sells, or offers to sell products that embody the Asserted Patent; and/or (iv) imports products formed according to the processes/methodologies of the Asserted Patent.

11. On information and belief, venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and 1400 with respect to PAN because PAN has committed, and continues to commit, acts of infringement in this District and has a regular and established place of business in this District. For example, PAN maintains a regular and established place of business at 3901 North Dallas Pkwy, Plano TX, 75093.

12. On information and belief, PAN currently employs no less than nearly 200 persons in the Eastern District of Texas, and no less than approximately 1000 persons in or near the Eastern District of Texas throughout the Dallas-Fort Worth Metroplex, including many in

positions that relate to the Asserted Patent.¹ On information and belief, at least some of the personnel it employs in positions related to the Asserted Patent and/or Accused Products are in its Plano facilities in this District, and it is currently advertising for additional such personnel. E.g., Palo Alto Jobs, Corporate Systems Engineer – Commercial, <https://jobs.paloaltonetworks.com/en/jobs/job/corporate-systems-engineer-commercial-plano-416180f1-50cb-4ada-a2a6-4c1fa82cf93e/> (last visited October 30, 2023).

U.S. PATENT NO. 7,345,245

13. Bell Semiconductor owns by assignment the entire right, title, and interest in the '245 patent, entitled “Robust High Density Substrate Design for Thermal Cycling Reliability,” which issued on March 18, 2008.

14. The '245 patent issued to inventors Anand Govind, Zafer Kutlu, and Farshad Ghahghahi from United States Patent Application No. 10/681,554, filed October 8, 2003. A true and correct copy of the '245 patent is attached as Exhibit A.

15. Recent silicon technology advances have placed increased demand for high density signal routing on organic BGA substrates. Increased signal routing density in the substrate is obtained by using fine pitch vias through the core so that routing layers below the core can be efficiently utilized. The via pitch reduction requires the use of thin core substrates which are susceptible to warpage during thermal excursions. Typically, the regions are under the

¹https://www.linkedin.com/search/results/people/?currentCompany=%5B%2230086%22%5D&geoUrn=%5B%22100517351%22%5D&origin=FACETED_SEARCH&sid=I2A (LinkedIn results for current PAN employees in Plano TX) (last visited October 30, 2023); https://www.linkedin.com/search/results/people/?currentCompany=%5B%2230086%22%5D&geoUrn=%5B%2290000031%22%2C%22104194190%22%2C%22102748797%22%5D&origin=FACETED_SEARCH&sid=%3AwN (LinkedIn results for current PAN employees in Dallas, TX and the Dallas-Fort Worth Metroplex) (last visited October 30, 2023)

die corner are regions of stress concentration. Under cycled thermal excursions, cracks can initiate from the ball pad edges and spread into the layers above the ball pad layer.

16. The '245 patent is generally related to a semiconductor package for a die with improved thermal cycling reliability. To eliminate package failures and occurrences cracks in signal traces, the '245 patent teaches routing of signals away from the high stress area associated with the ball pads and the corner of the die.

17. The '245 patent contains 2 independent claims and 12 total claims, covering an integrated circuit substrate. Claim 1 of the '245 patent reads:

1. A semi-conductor package comprising:

a top layer having a die mounted thereon, said die having a corner;
and

a plurality of layers under the top layer, said plurality of layers comprising a bottom routing layer having signal traces thereon, and a ball pad layer under the bottom routing layer, said ball pad layer having a plurality of ball pads, wherein none of the signal traces of the bottom routing layer are located over ball pads of the ball pad layer which are disposed in an area within two ball pad pitches of the corner of the die.

18. This claim, as a whole, provides significant benefits and improvements to the function of the semiconductor device, e.g., improving system reliability by avoiding functional failures from cracks in the signal traces caused by thermal cycling stresses under the die corner.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 7,345,245 (PAN)

19. Bell Semiconductor re-alleges and incorporates by reference the allegations of the foregoing paragraphs as if fully set forth herein.

20. The '245 patent is valid and enforceable under the United States patent laws.

21. Bell Semiconductor owns, by assignment, all right, title, and interest in and to the '245 patent, including the right to collect for past damages.

22. On information and belief, PAN has infringed and continues to directly infringe, either literally or under the doctrine of equivalents, pursuant to 35 U.S.C. § 271(a), one or more claims of the '245 patent by making, using, offering to sell, or selling within the United States, or importing into the United States, one or more semiconductor devices, including as one example the PAN PA-5220 firewall appliance containing a PAN FE100 A1 semiconductor IC package, in the United States.

23. An claim chart demonstrating PAN's infringement of certain exemplary claims of the '245 patent by the PAN PA-5220 firewall appliance containing a PAN FE100 A1 semiconductor IC package is attached hereto as Exhibit B.

24. PAN's Accused Products infringe and continue to infringe one or more claims of the '245 patent during the pendency of the '245 patent.

25. PAN's infringement of the '245 patent is exceptional and entitles Bell Semiconductor to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

26. Bell Semiconductor has been damaged by PAN's infringement of the '245 patent and will continue to be damaged unless PAN is enjoined by this Court. Bell Semiconductor has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors Bell Semiconductor, and public interest is not disserved by an injunction.

27. Bell Semiconductor is entitled to recover from PAN all damages that Bell Semiconductor has sustained as a result of PAN's infringement of the '245 patent, including without limitation and/or not less than a reasonable royalty.

PRAYER FOR RELIEF

WHEREFORE, Bell Semiconductor respectfully requests that this Court enter judgment in its favor as follows and award Bell Semiconductor the following relief:

- a. a judgment declaring that Defendant has infringed one or more claims of each Asserted Patent in this litigation pursuant to 35 U.S.C. § 271, *et seq.*;
- b. an award of damages adequate to compensate Bell Semiconductor for infringement of each Asserted Patent by Defendant, in an amount to be proven at trial, including supplemental post-verdict damages until such time as Defendant ceases its infringing conduct;
- c. a permanent injunction, pursuant to 35 U.S.C. § 283, prohibiting Defendant and its officers, directors, employees, agents, consultants, contractors, suppliers, distributors, all affiliated entities, and all others acting in privity with Defendant, from committing further acts of infringement;
- d. a judgment requiring Defendant to make an accounting of damages resulting from its infringement of each Asserted Patent;
- f. the costs of this action, as well as attorneys' fees as provided by 35 U.S.C. § 285;
- g. pre-judgment and post-judgment interest at the maximum amount permitted by law;
- h. all other relief, in law or equity, to which Bell Semiconductor is entitled.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a jury trial for all issues so triable.

Dated: October 31, 2023

/s/ Clifford Chad Henson

C. Chad Henson (TX Bar No. 24087711)

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