

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

MEMRAY MT LLC,

Plaintiff,

v.

HEWLETT PACKARD ENTERPRISE
COMPANY,

Defendant.

Case No. 2:25-cv-970

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Memray MT LLC ("Memray") hereby alleges patent infringement against Defendant Hewlett Packard Enterprise Company ("HPE") as follows:

PARTIES

1. Memray is a corporation organized and existing under the laws of the State of Texas, having a principal place of business at 815 Brazos St., Suite 500, Austin, TX 78701.

2. HPE is a corporation organized and existing under the laws of the State of Delaware, having a principal place of business at 1701 East Mossy Oaks Road, Spring, Texas 77389, and may be served via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, TX, USA 75201-3136.

JURISDICTION AND VENUE

3. This patent infringement action arises under the patent laws of the United States, Title 35 of the United States Code ("U.S.C.") § 101 *et seq.*, including 35 U.S.C. §§ 271, 281, 283, 284 and 285.

4. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1332, and 1338(a).

5. HPE is subject to this Court's specific and general personal jurisdiction consistent with the principles of due process and/or the Texas Long Arm Statute.

6. Personal jurisdiction exists over HPE.

7. HPE has sufficient minimum contacts with this State and this District.

8. Venue in this District is proper under 28 U.S.C. §§ 1391 and 1400(b).

9. HPE regularly solicits and transacts substantial business throughout the United States, this State, and this District, directly or through its subsidiaries, affiliates, or intermediaries, some or all of which are HPE's agents or alter egos, with entities and individuals

by, among other things, making, using, selling, offering for sale, importing, advertising, making available, and/or marketing products and services that infringe one or more claims of the asserted patents.

10. HPE engages in persistent conduct and/or derives substantial revenue from goods and services provided throughout the United States, this State, and this District.

11. HPE offers to sell and sells infringing products and/or services throughout the United States, this State, and this District.

12. HPE introduces infringing products and services into the stream of commerce knowing that they will be sold in the United States, this State, and this District.

13. HPE has regular and established places of business in this District, including but not limited to locations, offices, and facilities at: 3001 Dallas Parkway, Frisco, Texas 75034 and 6080 Tennyson Parkway, Suite 400, Plano, Texas 75024.

14. HPE makes, uses, sells, offers to sell, and/or imports infringing products and services into and/or within this District, maintains a permanent and/or continuing presence within this District, and/or has the requisite minimum contacts with this District such that this venue is a fair and reasonable one. Upon information and belief, HPE has transacted and, at the time of the filing of the Complaint, is continuing to transact business within this District, and has and continues to derive substantial revenue from infringing acts in this District.

15. HPE products are also sold within the Eastern District of Texas by HPE partners and distributors. For example, on information and belief, third party CDW LLC sells HPE products out of its regional office located at 5908 Headquarters Dr., Suite 400, Plano, TX 75024.

ASSERTED PATENTS

16. Memray owns the entire right, title, and interest, including the right to seek

damages for past and ongoing infringement, in and to U.S. Patent Nos. 10,013,342 ("the '342 Patent") and 10,303,597 ("the '597 Patent") (collectively, "Asserted Patents").

17. The '342 Patent is entitled "Computing Device, Data Transfer Method Between Coprocessor and Non-volatile Memory, and Computer-Readable Recording Medium." This patent was duly and legally issued by the United States Patent Office on July 3, 2018. A true and correct copy of this patent is attached hereto as Exhibit 1.

18. The '597 Patent is entitled "Computing Device, Data Transfer Method Between Coprocessor and Non-volatile Memory, and Computer-Readable Recording Medium." This patent was duly and legally issued by the United States Patent Office on May 28, 2019. A true and correct copy of this patent is attached hereto as Exhibit 2.

19. The '597 Patent is a continuation of the '342 Patent.

20. The original assignees of the Asserted Patents are Memray Corporation and Yonsei University, University-Industry Foundation. Memray Corporation is the parent entity of Memray and has been devoted to developing advanced and innovative memory controller technologies for well over a decade. Yonsei University is one of Korea's most prestigious research universities.

21. The named inventor of the Asserted Patents is Myoungsoo Jung ("Prof. Jung"), a tenured research professor at the Korea Advanced Institute of Science & Technology ("KAIST"), a world-leading, research-oriented science and engineering institution.

22. The claimed inventions of the '342 Patent and the '597 Patent are directed to patent-eligible subject matter and satisfy the requirements of 35 U.S.C. § 101.

23. The computing devices and methods taught and claimed by the Asserted Patents solve technological problems and improve technology for data transfer between a coprocessor

and a non-volatile memory, and a computer-readable recording medium.

24. The specifications of the Asserted Patent describe the technical problem that is addressed by the patented inventions. For example, the specification describes that "coprocessors employ on-board memory whose size is relatively smaller compared to a host memory" and "coprocessors therefore use a non-volatile memory connected to a host machine to process large sets of data." '342 Patent at 1:34-39.

25. The specification further explains: "However, the coprocessor and the non-volatile memory are completely disconnected from each other and are managed by different software stacks. Consequently, many redundant memory allocations/releases and data copies exist between a user-space and a kernel-space in order to read data from the non-volatile memory or write data to the non-volatile memory. Further, since a kernel module cannot directly access the user-space memory, memory management and data copy overheads between the kernel-space and the user-space are unavoidable. Furthermore, kernel-mode and user-mode switching overheads along with the data copies also contribute to long latency of data movements. These overheads causes the speedup improvement to be not significant compared to the coprocessor performance." *Id.* at 1:40-53.

26. The specification further explains, on a conventional computing device, "there is a problem that the SSD and the GPU are completely disconnected from each other and are managed by different software stacks. Accordingly, many redundant memory allocations / releases and data copies exist between the user space and the kernel space on the SSD and GPU system stacks. Further, since the kernel module cannot directly access the user space, the memory management and data copy overheads between the kernel space and the user space are unavoidable. Furthermore, the kernel mode and user mode switching overheads along with the

data copies contribute to long latency of the data movements." *Id.* at 7:64-8:8.

27. The specifications of the Asserted Patents describe embodiments implementing the technological solution of the claimed invention to solve the technological challenges described above, including exemplary techniques and improvements to computer systems. For example, the specification describes aspects of an exemplary embodiment that: "provides a computing device, a data transfer method between a coprocessor and a non-volatile memory, and a computer readable recording medium for reducing overheads due to a data movement between a coprocessor and a non-volatile memory." *Id.* at 1:57-62.

28. The specifications of the Asserted Patents further describe: "a computing device including a CPU, a CPU memory for the CPU, a non-volatile memory, a coprocessor using the non-volatile memory, a coprocessor memory, and a recording medium is provided. The coprocessor memory stores data to be processed by the coprocessor or data processed by the coprocessor. The recording medium includes a controller driver for the non-volatile memory and a library that are executed by the CPU. The controller driver maps the coprocessor memory to a system memory block of the CPU memory. The library moves data between the coprocessor and the non-volatile memory via the system memory block mapped to the coprocessor memory." *Id.* at 1:63-2:8.

29. The specifications of the Asserted Patents further describe: "a method of transferring data between a coprocessor and a non-volatile memory in a computing device is provided. The method includes mapping a coprocessor memory for the coprocessor to a system memory block of a CPU memory for a CPU, and moving data between the coprocessor and the non-volatile memory via the system memory block mapped to the coprocessor memory." *Id.* at 2:38-45.

30. The specifications of the Asserted Patents further describe: "a computer-readable recording medium is provided. The computer-readable recording medium stores a program to be executed by a computing device including a CPU, a CPU memory for the CPU, a non-volatile memory, a coprocessor using the non-volatile memory, and a coprocessor memory configured to store data to be processed by the coprocessor or data processed by the coprocessor. The program includes a controller driver for the non-volatile memory configured to map the coprocessor memory to a system memory block of the CPU memory, and a library configured to move data between the coprocessor and the non-volatile memory via the system memory block mapped to the coprocessor memory. *Id.* at 3:5-18.

31. The specifications of the Asserted Patents further describe: "Because of the different functionalities and purposes of the GPU **120** and the SSD **110**, there are two discrete libraries, i.e., an input/output (I/O) runtime library **211** and a GPU runtime library **221** which coexist on the same user space **210** and are both utilized in the GPU application **200**." *Id.* at 5:4-8.

32. The specifications of the Asserted Patents further describe: "a software stack for a GPU **120** and an SSD **110** may be divided into a user space **610** and a kernel space **620**. The user space **610** operates on a user-level CPU and may be a virtual area on which an OS executes an application (for example, a GPU application) **600**. The kernel space **620** operates on a kernel-level CPU and may be a virtual memory area for running an OS kernel and a device driver." *Id.* at 8:13-20.

33. The specifications of the Asserted Patents further describe a "unified interface library" that "can remove the unnecessary user mode and kernel mode switching overheads between the user space and the kernel space." *Id.* at 8:53-55.

34. The specifications of the Asserted Patents further describe "a software stack for a GPU and SSD in a computing device," *id.* at 8:9-11, "data movement between an SSD and a GPU through an NVMe protocol," *id.* at 9:13-15, "data movement between an SSD and a GPU through an AHCI protocol," *id.* at 10:56-58, "a GPU programming model on a software stack," *id.* at 11:32-34, and "performance improvement of an NVMMU according to an embodiment" for "latency values in transferring file data for a GPU application" and "execution times of a GPU application," which results "because the NVMMU can reduce the redundant memory copies and the user mode and kernel mode switching overheads," *Id.* at 13:38-60.

35. The claims of the Asserted Patents are directed to inventions claiming one or more of the embodiments described in the specifications.

ACCUSED INSTRUMENTALITIES

36. HPE makes, uses, sells, and/or offers to sell in, and/or imports into the United States systems, products, and/or services that infringe one or more claims of the Asserted Patents (the "Accused Instrumentalities").

37. The Accused Instrumentalities include HPE server products that comprise or otherwise implement non-volatile memory transfer and/or management. Appendix A provides a non-exhaustive list of the Accused Instrumentalities.

38. On information and belief, the Accused Instrumentalities implement one or more chips of Advanced Micro Devices, Inc. ("AMD"), Intel Corporation ("Intel"), and/or Nvidia Corporation ("Nvidia"). The Accused Instrumentalities may also be offered in different variations or versions within each product name or category that comprise or implement the same or similar accused technology. These different variations or versions are materially the same in relevant part with respect to their design and operation, including components and

configuration, as they relate to the claims of the Asserted Patents.

39. Because certain features and/or components of the Accused Instrumentalities are not or may not be publicly available or determinable from simple inspection, Memray herein relies upon publicly reported identification and documentation of the features, components, and functionality of the Accused Instrumentalities.

COUNT I – INFRINGEMENT OF THE '342 PATENT

40. The '342 Patent is valid and enforceable.

41. HPE infringes at least claim 1 of the '342 Patent. Appendix A details the manner in which the Accused Instrumentalities infringe by way of an exemplary chart as illustrated through a representative example. On information and belief, infringement of this patent by other Accused Instrumentalities is materially or substantially the same.

COUNT II – INFRINGEMENT OF THE '597 PATENT

42. The '597 Patent is valid and enforceable.

43. HPE infringes at least claim 1 of the '597 Patent. Appendix B details the manner in which the Accused Instrumentalities infringe by way of an exemplary chart as illustrated through a representative example. On information and belief, infringement of this patent by other Accused Instrumentalities is materially or substantially the same.

NOTICE AND INFRINGEMENT

44. HPE has committed and continues to commit acts of direct infringement of the Asserted Patents by making, using, selling, offering to sell, and/or importing in and into the United States, this State, and this District the Accused Instrumentalities, and infringes literally and/or under the doctrine of equivalents.

45. HPE has been and is indirectly infringing the Asserted Patents by actively

inducing or contributing to the direct infringement by others, in the United States, this State, and this District.

46. HPE had actual, prior, and/or constructive notice or knowledge of the Asserted Patents and/or its infringing activities, including no later than the filing or service of this complaint, and/or was willfully blind by deliberately avoiding investigating Memray's patents or inspecting and/or instructing its employees not to investigate Memray's patents.

47. HPE has induced and continues to induce its subsidiaries and affiliates, customers, and other third parties, such as resellers and end-consumers of Accused Instrumentalities, to directly infringe the Asserted Patents by making, using, selling, offering to sell, and/or importing into the United States the Accused Instrumentalities through affirmative acts.

48. The affirmative acts of inducement by HPE include, but are not limited to, any one or a combination of encouraging and/or facilitating third-party infringement through the advertisement, marketing, offering for sale, promoting, and dissemination of the Accused Instrumentalities and their components; and creating and publishing promotional and marketing materials, supporting materials, product manuals, and/or technical support and information relating to the Accused Instrumentalities.

49. HPE has taken and takes active steps to encourage end users to use and operate the Accused Instrumentalities, despite knowing of the Asserted Patents in the United States, in a manner it knew directly infringes each element of the claims of the Asserted Patents.

50. HPE has provided and provides product manuals and other technical information that cause its subscribers, customers, and other third parties to use and to operate the Accused Instrumentalities for their ordinary and customary use, such that these third parties have directly

infringed the Asserted Patents, through the normal and customary use of the Accused Instrumentalities.

51. HPE specifically intended and is aware that the ordinary and customary use of the Accused Instrumentalities would infringe the Asserted Patents.

52. HPE knows that the induced conduct would constitute infringement, and intended said infringement at the time of committing the aforementioned acts, such that those acts and conduct have been and continue to be committed with the specific intent to induce infringement, or to deliberately avoid learning of the infringing circumstances at the time those acts were committed, so as to be willfully blind to the induced infringement.

53. HPE has contributed and continues to contribute to the infringement of the Asserted Patents by its subsidiaries and affiliates, customers, and other third parties, such as resellers and end-consumers of Accused Instrumentalities, by offering to sell, selling or importing within or into the United States, this State and this District one or more components of the Accused Instrumentalities, which constitutes a material part of the invention and are not a staple article or commodity of commerce suitable for substantial noninfringing use.

54. HPE knows that the component(s) are specially made or adapted for use in infringement of the Asserted Patents.

55. HPE also infringes jointly and/or vicariously. HPE engages or participates in a joint enterprise and/or collective conduct of making, using, offering to sell, selling, and/or importing of the Accused Instrumentalities with at least one or more subsidiaries and affiliates, customers, and/or other third parties. HPE acts under or provides the direction and/or control of one or more different parties. The infringing acts of subsidiaries, affiliates, customers and other third parties are attributable to HPE.

56. HPE's conduct constitutes willful infringement of the Asserted Patents as it has knowledge of the Asserted Patents and its infringement thereof, and deliberately and intentionally continued to infringe with reckless disregard for Memray's patent rights.

57. HPE's use (past and ongoing) of the Asserted Patents is not licensed or authorized by Memray. Therefore, HPE is liable for infringement of the Asserted Patents and that infringement has been and continues to be willful in nature.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court:

- A. Enter judgment in favor of Plaintiff that each Asserted Patent is valid and enforceable;
- B. Enter judgment that Defendant has infringed one or more claims of the Asserted Patents, in violation of 35 U.S.C. § 271 *et seq.*;
- C. Enter judgment that Defendant's infringement is or has been willful;
- D. Award Plaintiff damages adequate to compensate Plaintiff for Defendant's past infringement, and any continuing or future infringement through the date such judgment is entered, including prejudgment and post-judgment interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;
- E. Increase damages awarded to Plaintiff in this case to three times the damages amount found by the jury or assessed by the Court pursuant to 35 U.S.C. § 284;
- F. Declare this case exceptional and award Plaintiff reasonable attorney fees and costs incurred in bringing and prosecuting this action pursuant to 35 U.S.C. § 285;
- G. Enjoin Defendant and its subsidiaries, and their officers, agents, servants, employees, and all persons in active concert with any of the foregoing from further infringement

of the Asserted Patents, or if its infringement is not enjoined, order Defendant to pay Plaintiff ongoing royalties for any post-judgment infringement of the Asserted Patents; and

H. Grant Plaintiffs all such other relief to Plaintiff as the Court deems just and reasonable.

DEMAND FOR JURY TRIAL

Plaintiff demands a jury trial on all issues so triable pursuant to Federal Rule of Civil Procedure 38 and other applicable law.

Date: September 22, 2025

/s/ Robert Christopher Bunt

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