MATTHEW D. POWERS (Bar No. 104795)
matthew.powers@tensegritylawgroup.com
AZRA M. HADZIMEHMEDOVIC (Bar No. 239088)
azra@tensegritylawgroup.com
ALEX CHAN (Bar No. 278805)
alex.chan@tensegritylawgroup.com
YI CHEN (Bar No. 295236)
yi.chen@tensegritylawgroup.com
JONATHAN G. TAMIMI (Bar No. 305493)
jonathan.tamimi@tensegritylawgroup.com
TENSEGRITY LAW GROUP, LLP
555 Twin Dolphin Drive, Suite 650
Redwood Shores, CA 94065
Telephone: (650) 802-6000
Facsimile: (650) 802-6001

Attorneys for Plaintiff
Polaris Innovations Limited

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

POLARIS INNOVATIONS LIMITED, an Irish limited company,

Plaintiff,

vs.

KINGSTON TECHNOLOGY COMPANY, INC., a Delaware corporation, and KINGSTON TECHNOLOGY CORPORATION, a California corporation,

Defendant.

KINGSTON TECHNOLOGY COMPANY, INC., a Delaware corporation,

Counterclaimant,

Case No. 8:16-cv-300-CJC (RAO)

AMENDED COMPLAINT FOR PATENT INFRINGEMENT AND DEMAND FOR JURY TRIAL

vs.

POLARIS INNOVATIONS LIMITED, an Irish limited company,

Counter-Defendant.

and

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG SEMICONDUCTOR, INC.,

Third-Party-Defendants.

Plaintiff Polaris Innovations Limited ("Polaris" or "Plaintiff") hereby alleges for its Complaint against Defendant Kingston Technology Company, Inc. and against Defendant Kingston Technology Corporation (collectively, "Defendants" or "Kingston") as follows:

JURISDICTION

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

2. This Court has personal jurisdiction over Kingston Technology Company, Inc. Kingston Technology Company, Inc. is headquartered in the Central District of California, has systematic and continuous contacts with the forum, and conducts substantial business within this district. Upon information and belief, Kingston Technology Company, Inc. has committed and continues to commit acts of patent infringement, including making, selling, offering to sell, directly or through intermediaries, subsidiaries and/or agents, infringing products within this district, including to customers in this district.

3. This Court has personal jurisdiction over Kingston Technology Corporation. Kingston Technology Corporation is headquartered in the Central District of California, has systematic and continuous contacts with the forum, and conducts substantial business within this district. Upon information and belief, Kingston Technology Corporation has committed and continues to commit acts of patent infringement, including making, selling, offering to sell, directly or through intermediaries, subsidiaries and/or agents, infringing products within this district, including to customers in this district.

VENUE

4. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and 1400(b) because Kingston Technology Company, Inc. and Kingston Technology Corporation (collectively, "Defendants" or "Kingston") are subject to personal jurisdiction in this

district, and because a substantial part of the events giving rise to Polaris's claims occurred in this district, and Kingston, which is headquartered in Fountain Valley, California, has a regular and established place of business within this district.

THE PARTIES

5. Polaris Innovations Limited is a corporation organized and existing under the laws of Ireland, with its principal place of business at Polaris Innovations Limited, 29 Earlsfort Terrace, Dublin 2, Republic of Ireland.

6. On information and belief, Kingston Technology Company, Inc. is a corporation organized and existing under the laws of Delaware with its principal place of business at 17600 Newhope Street, Fountain Valley, California, 92708.

7. On information and belief, Kingston Technology Corporation is a corporation organized and existing under the laws of California with its principal place of business at 17600 Newhope Street, Fountain Valley, California, 92708.

NATURE OF THE ACTION

8. This is a patent infringement action by Polaris to end Kingston's unauthorized, willful, and infringing manufacture, use, sale, offering for sale, and/or importation of products and methods incorporating Polaris's patented inventions.

9. Polaris holds all substantial rights and interest in the Asserted Patents described below, including the exclusive right to sue Kingston for infringement and recover damages.

10. Kingston makes, uses, sells, offers for sale, and imports products and methods that infringe the Asserted Patents. Polaris seeks monetary damages and prejudgment interest for Kingston's past and ongoing infringement of the Asserted Patents.

THE ASSERTED PATENTS

11. On December 5, 2000, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 6,157,589 ("the 589 Patent"), entitled "Dynamic

semiconductor memory device and method for initializing a dynamic semiconductor memory device." A copy of the 589 Patent is attached hereto as Ex. 1.

12. Polaris owns all substantial right, title, and interest in the 589 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

13. On August 20, 2002, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 6,438,057 B1 ("the 057 Patent"), entitled "DRAM refresh timing adjustment device, system and method." A copy of the 057 Patent is attached hereto as Ex. 2.

14. Polaris owns all substantial right, title, and interest in the 057 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

15. On February 1, 2005, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 6,850,414 B2 ("the 414 Patent"), entitled "Electronic printed circuit board having a plurality of identically designed, housing-encapsulated semiconductor memories." A copy of the 414 Patent is attached hereto as Ex. 3.

16. Polaris owns all substantial right, title, and interest in the 414 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

17. On April 17, 2007, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,206,978 B2 ("the 978 Patent"), entitled "Error detection in a circuit module." A copy of the 978 Patent is attached hereto as Ex. 4.

18. Polaris owns all substantial right, title, and interest in the 978 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

19. On January 1, 2008, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,315,454 B2 ("the 454 Patent"), entitled "Semiconductor

memory module." A copy of the 454 Patent is attached hereto as Ex. 5.

20. Polaris owns all substantial right, title, and interest in the 454 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

21. On February 19, 2008, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,334,150 B2 ("the 150 Patent"), entitled "Memory module with a clock signal regeneration circuit and a register circuit for temporarily storing the incoming command and address signals." A copy of the 150 Patent is attached hereto as Ex. 6.

22. Polaris owns all substantial right, title, and interest in the 150 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

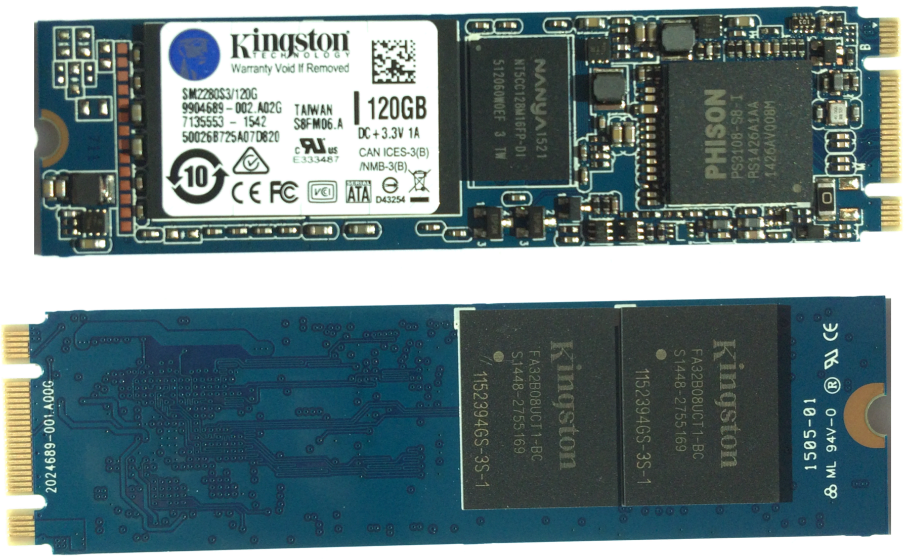
COUNT I:

INFRINGEMENT OF U.S. PATENT NO. 6,157,589

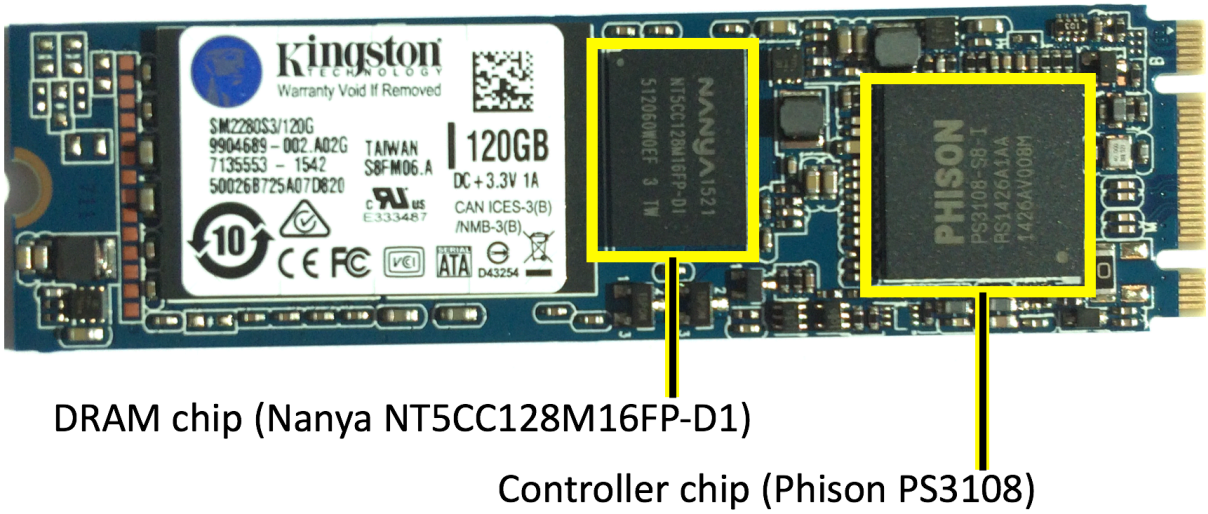
23. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

24. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 589 Patent, including, but not limited to, Claims 11 and 12, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, offering to sell in the United States without authority, and/or importing into the United States without authority, solid-state drives (SSDs) performing the claimed methods for initializing a dynamic semiconductor memory device. These products, the "589 Patent Infringing Products," including by way of a non-limiting example only, Kingston's SSDs with model number SM2280S3/120G, perform the methods for initializing a dynamic semiconductor memory device as required by the claims of the 589 Patent.

25. By way of example, the front and back views of a representative 589 Patent Infringing Product (SM2280S3/120G) that performs the claimed methods are shown in the image below.



26. The front image of this representative 589 Infringing Product (SM2280S3/120G) is annotated below for illustration.



Specifically, the 589 Patent Infringing Products, such as SM2280S3/120G, include a dynamic random access memory (DRAM) chip (labeled Nanya NT5CC128M16FP in the photo above) and a controller chip (labeled Phison PS3108 in the photo above). *See*

generally 2Gb DDR3 SDRAM H-Die datasheet, Nanya Technology ("Nanya Datasheet"), *available at* http://www.nanya.com/NanyaAdmin/GetFiles.ashx?ID=1199 (last visited February 3, 2016). On information and belief, when Kingston, its customers, and other third parties turn on the 589 Patent Infringing Products, the controller chip supplies, via an initialization circuit, a supply voltage stable signal (for example, the Active Low Asynchronous Reset signal, $\overline{RESET}$, *see* Nanya Datasheet at 8) once a supply voltage has been stabilized (for example, at the time labeled Tb, *see* Nanya Datasheet, Fig. 3 at 13, and as described in Step 1 of the initialization sequence, Nanya Datasheet at 11) after the switching-on operation of the dynamic semiconductor memory device (for example, in the "Reset Procedure" state which follows the "Power ON" state, Nanya Datasheet, Fig. 2 at 10, and as shown in Table 3, "$\overline{RESET}$ must be HIGH during normal operation" Nanya Datasheet at 8, and $\overline{RESET}$ stays high during normal operation, *see* Nanya Datasheet, Fig. 3 at 13). The controller chip also supplies, via an enable circuit of the initialization circuit, an enable signal (for example, the Clock Enable signal, CKE, Nanya Datasheet, Table 3 at 7, which the DRAM waits for as described in Step 2 of the initialization sequence, Nanya Datasheet at 11), the initialization circuit receiving the supply voltage stable signal (for example, the Phison controller receives the $\overline{RESET}$ signal) and further command signals (for example, the "Command" signals, Nanya Datasheet, Fig. 3 at 13) externally applied to the dynamic semiconductor memory device, after an identification of a predetermined proper initialization sequence of the further command signals (for example, the Mode Register Set ("MRS") and/or ZQ Calibration ("ZQCL") commands issued in Steps 6-10 of the initialization sequence, Nanya Datasheet at 12-14) the enable signal being generated (for example, as shown on the CKE line, Nanya Datasheet, Fig. 3 at 13, and as described in Step 3 of the initialization sequence, Nanya Datasheet at 11) and effecting an unlatching of a control circuit (for example, the control circuits contained in the DRAM chip which prepare the SDRAM for receiving valid commands during normal operation as described in Steps 10 and 12 of the initialization sequence, Nanya Datasheet

at 12) provided for a proper operation of the dynamic semiconductor memory device. *See id.*

27. On information and belief, the controller provides at least one of a preparation command signal for word line activation, a refresh command signal, and a loading configuration register command signal as the further command signals (for example, the MRS command, which acts both as a preparation command signal and as a loading configuration register command signal, *see* Nanya Datasheet at 12-14).

28. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 589 Patent, including, but not limited to, Claims 11 and 12, pursuant to 35 U.S.C. § 271(b), by encouraging its customers and other third parties to perform the claimed method for initializing a dynamic semiconductor memory device. This performance of the claimed method for initializing a dynamic semiconductor memory device, constitutes infringement, literally or under the doctrine of equivalents, of one or more claims of the 589 Patent by such customers or third parties. Kingston's acts of inducement include: providing its customers with the 589 Patent Infringing Products and intending its customers to use the 589 Infringing Products with hardware, software, and other infrastructure that enable and/or make use of these products; advertising these products through its own and third-party websites (for example, http://www.kingston.com/ssd); encouraging customers and other third parties to communicate directly with Kingston representatives about these products (for example, through the "Ask an Expert" feature on its website); and providing instructions on how to use these products. For example, Kingston's documentation supplied with the representative 589 Patent Infringing Product instructs users to install the product in a computer system and restart the computer system, and thus to perform the claimed methods. *See* Kingston Technology SSDNow Series Solid State Drive Getting Started, No. 4402105-001.B00, *available at* http://media.kingston.com/support/downloads/SSD_mSATA_Installguide.pdf (last

visited on February 3, 2016).

29. Kingston proceeded in this manner despite its actual knowledge of the 589 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 589 Patent at least as of February 1, 2016 when Polaris placed Kingston on notice of infringement of the 589 Patent and identified Kingston's infringing products. At the very least, because Kingston has been and remains on notice of the 589 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

30. On information and belief, Kingston has contributed to and continues to contribute to infringement of one or more claims of the 589 Patent, including, but not limited to, Claims 11 and 12, pursuant to 35 U.S.C. § 271(c) by, without authority, selling and/or offering to sell within the United States, importing, and/or supplying components of systems that perform the claimed methods for initializing a dynamic semiconductor memory device, including without limitation the 589 Patent Infringing Products. These components supplied by Kingston are key components to building computer systems such as laptops or desktop computers. When, for example, these products are installed on a computing device and used for storage, the claimed dynamic semiconductor memory device is used, and/or the claimed methods performed, thereby infringing, literally or under the doctrine of equivalents, one or more claims of the 589 Patent. Kingston supplied and continues to supply these components, including without limitation the 589 Patent Infringing Products, with the knowledge of the 589 Patent and with the knowledge that these components constitute material parts of the claimed inventions of the 589 Patent. Kingston knows that these components are especially made and/or especially adapted for use as claimed in the 589 Patent. Further, Kingston knows that there is no substantial non-infringing use of these components.

31. Polaris has suffered damages as a result of Kingston's infringement of the

589 Patent.

32. Kingston's infringement of the 589 Patent has been and continues to be willful, deliberate, and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 589 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 589 Patent and has proceeded to infringe the 589 Patent with full and complete knowledge of that patent and its applicability to Kingston's products without taking a license under the 589 Patent. Despite knowledge of the 589 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles Polaris to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT II:

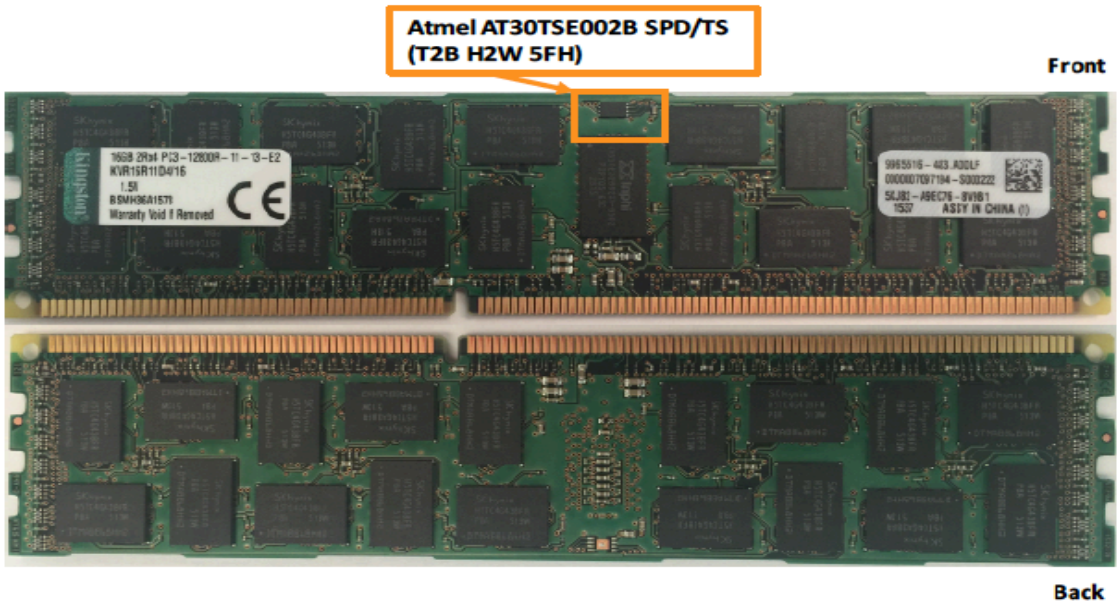
INFRINGEMENT OF U.S. PATENT NO. 6,438,057

33. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

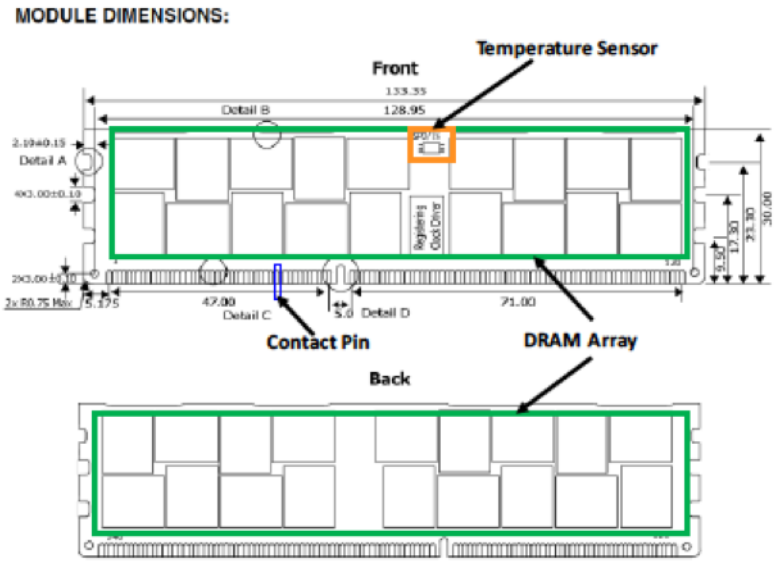
34. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 057 Patent, including, but not limited to, Claims 1 and 2, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States without authority and/or importing into the United States without authority, Double Data Rate 3 (DDR3) and Double Data Rate 4 (DDR4) Dual In-line Memory Module (DIMM) products, devices, systems, and/or components of systems that support the Extended Temperature Range (85°C to 95°C). These products, the "057 Patent Infringing Products," including by way of a non-limiting example only, Kingston's memory module product with model number KVR16R11D4/16, include the temperature-based refresh rate

adjustment required by the claims of the 057 Patent.

35. By way of example, the front and back views of a representative 057 Patent Infringing Product (KVR16R11D4/16) that uses the claimed temperature-based refresh rate adjustment are shown in the image below.



36. The schematic diagram of this representative 057 Infringing Product (KVR16R11D4/16) is reproduced from publicly available Kingston documentation and annotated below for illustration.



Kingston Value RAM Memory Module Specifications, Doc. No. VALUERAM1123-001.A00 (Apr. 25, 2012) ("KVR16R11D4/16 Datasheet") at 2, *available at* http://www.kingston.com/dataSheets/KVR16R11D4_16.pdf (last visited February 3, 2016) (annotations added). Specifically, the 057 Patent Infringing Products, such as KVR16R11D4/16, are apparatuses comprising a semiconductor package of the memory module including at least one contact pin (one example shown in the blue box in the diagram above) and at least one dynamic random access memory (DRAM) array comprising one or more DRAM chips (shown in the green box in the diagram above), such as "DDR3-1600 CL11 SDRAM" in KVR16R11D4/16, *see* KVR16R11D4/16 Datasheet at 1. On information and belief, all 057 Patent Infringing Products that support the Extended Temperature Range comprise at least one temperature sensor (an example shown in the orange box above) in thermal communication with the DRAM array, operable to produce a signal indicative of a temperature of the DRAM array or the equivalent, and coupled to at least one connection pin such that the signal may be provided to external circuitry. For example, the representative 057 Patent Infringing Product (KVR16R11D4/16) comprises an Atmel AT30TSE002B integrated temperature sensor with SEEPROM (annotated in the product image above). *See* AT30TSE002B

Integrated Temperature Sensor with SEEPROM datasheet ("Atmel Datasheet") at 1, *available at* http://www.atmel.com/images/doc8711.pdf (last visited February 3, 2016). This AT30TSE002B temperature sensor is in thermal communication with the DRAM array, operable to produce a signal indicative of a temperature of the DRAM array (for example, the Temperature Alert signal output by the EVENT pin) or the equivalent, and coupled to at least one connection pin (for example, the EVENT pin), such that the signal may be provided to external circuitry (for example, the controller). *See* Atmel Datasheet at 1-4, 11, 16-18. Further, the DRAM array on the 057 Infringing Products is refreshed at a rate that decreases as the temperature of the DRAM array decreases and that increases as the temperature of the DRAM array increases. *See*, *e.g.*, KVR16R11D4/16 Datasheet at 1 ("Average Refresh Period 7.8µs at lower than TCASE 85ºC, 3.9µs at 85ºC < TCASE ≤ 95ºC").

37. On information and belief, at least one temperature sensor of one or more of the 057 Infringing Products includes at least one diode having a forward voltage drop that varies as a function of the temperature of the DRAM array, and the signal corresponds to the forward voltage drop of the at least one diode. *See*, *e.g.*, Atmel Datasheet at 3 ("Band Gap Temperature Sensor") and 11 ("a band gap type temperature sensor").

38. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 057 Patent, including, but not limited to, Claims 1, 2, 6, 7, 8, 9, 10, 11, 16, and 17, pursuant to 35 U.S.C. § 271(b) by inducing its customers and other third parties to make, use, sell, offer to sell, import into the United States without authorization infringing products that comprise an 057 Infringing Product as described above and a refresh unit and/or chip performing the temperature-based refresh rate adjustment (the "057 Infringing Systems"), and by inducing its customers and other third parties to perform the claimed method of the temperature-based refresh rate adjustment. This making, using, selling, offering to sell, importing into the United States without authorization one or more of the 057 Infringing Systems, and performance of the

claimed method constitute infringement, literally or under the doctrine of equivalents, of one or more claims of the 057 Patent by such customers or third parties as further explained below.

39. Further, on information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 057 Patent, including, but not limited to, Claims 6, 7, 8, 9, 10, and 11, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making and using the 057 Infringing Systems in the United States. This making and using in the United States without authorization of one or more of the 057 Infringing Systems, literally or under the doctrine of equivalents, of one or more claims of the 057 Patent constitute infringement as further explained below.

40. Specifically, on information and belief, the 057 Infringing Systems comprise one of the 057 Infringing Products, as described in the paragraph 36 *supra*, and a refresh unit (for example, a unit performing the temperature-based refresh rate adjustment in the controller, not shown in the images above) operable to refresh the DRAM array at a rate that varies in response to the signal (such as the Temperature Alert signal output by the EVENT pin). *See*, *e.g.*, KVR16R11D4/16 Datasheet at 1 ("Average Refresh Period 7.8µs at lower than TCASE 85ºC, 3.9µs at 85ºC < TCASE ≤ 95ºC").

41. On information and belief, such refresh unit of the 057 Infringing Systems further includes a refresh timing unit operable to establish the rate at which the DRAM array is refreshed in response to the signal (such as the Temperature Alert signal output by the EVENT pin). *Id.*

42. On information and belief, such refresh timing unit of one or more of the 057 Infringing Systems further includes a refresh timing unit operable to decrease the rate at which the DRAM array is refreshed as the signal (such as the Temperature Alert signal output by the EVENT pin) indicates that the temperature of the DRAM array decreases. *Id.*

43. On information and belief, such refresh timing unit of one or more of the

057 Infringing Systems further includes a refresh timing unit operable to increase the rate at which the DRAM array is refreshed as the signal (such as the Temperature Alert signal output by the EVENT pin) indicates that the temperature of the DRAM array increases. *Id.*

44. On information and belief, at least one temperature sensor of one or more of the 057 Infringing Systems further includes at least one diode having a forward voltage drop that varies as a function of the temperature of the DRAM array, and the signal corresponds to the forward voltage drop of the at least one diode. *See*, *e.g.*, Atmel Datasheet at 3 ("Band Gap Temperature Sensor") and 11 ("a band gap type temperature sensor").

45. On information and belief, the refresh unit of one or more of the 057 Infringing Systems is operable to sense the forward voltage drop of the diode to determine the temperature of the DRAM array. *Id*.

46. On information and belief, Kingston's customers and other third parties perform the claimed method of temperature-based refresh rate adjustment by using the 057 Infringing System. Such method comprises sensing a temperature of a dynamic random access memory (DRAM) array; outputting a signal indicative of the temperature of the DRAM array to external circuitry; and refreshing contents of the DRAM array at a rate that (i) decreases as the temperature of the DRAM array decreases; and (ii) increases as the temperature of the DRAM array increases. *See* paragraphs 36 and 40 *supra*.

47. On information and belief, the steps of the claimed method performed by Kingston's customers and other third parties for sensing the temperature of the DRAM array also comprises sensing a forward voltage drop of a diode that is in thermal communication with the DRAM array. *See* paragraph 37, *supra*.

48. Kingston's acts of active inducement of direct infringement by its customers and other third parties include: providing its customers with the 057 Infringing Products and intending its customers to use these infringing memory module products with

hardware and software and other infrastructure, including a controller that comprises a refresh unit and/or chip to make and use the 057 Infringing Systems; advertising its infringing memory module products through its own and third-party websites (for example, http://www.kingston.com/us/memory/search/MemoryType/Default.aspx?MemoryType=DIMM,3,,); encouraging customers and other third parties to communicate regarding these products directly with Kingston representatives (for example, through the "Ask an Expert" feature on its website); and providing its customers and other third parties with instructions on how to combine these infringing memory module products with hardware and software and other infrastructure to make and use the 057 Infringing System, and to perform the claimed method. For example, Kingston's user manual, supplied with the representative 057 Patent Infringing Product, instructs the users to install and use the product in a computer system, thus instructing the users to make and use the 057 Infringing System and enable the users to perform the claimed method. *See* Ex. 7, Kingston Technology Warranty and Installation Guide, Doc. 4402092-001.D00; *see also*, KVR16R11D4/16 Datasheet.

49. Kingston proceeded in this manner despite its actual knowledge of the 057 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 057 Patent at least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 057 Patent and identified Kingston's infringing products. At the very least, because Kingston has been and remains on notice of the 057 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

50. On information and belief, Kingston has contributed to and continues to contribute to infringement of one or more claims of the 057 Patent, including, but not limited to, Claims 1, 2, 6, 7, 8, 9, 10, 11, 16, and 17, pursuant to 35 U.S.C. § 271(c) by,

without authority, selling, offering to sell within the United States, importing, and/or supplying components of the 057 Infringing Systems, and apparatuses for use in the claimed methods of the temperature-based refresh rate adjustment, including without limitation the 057 Patent Infringing Products. These components and apparatuses supplied by Kingston, including without limitation the 057 Patent Infringing Products, are key components for temperature-based refresh rate adjustment, thus constituting material parts of the claimed inventions of the 057 Patent. Kingston supplied and continues to supply these components and apparatuses, including without limitation the 057 Patent Infringing Products, with the knowledge of the 057 Patent and with the knowledge that these components constitute material parts of the claimed inventions of the 057 Patent. Kingston knows that these components and apparatuses are especially made and/or especially adapted for use as claimed in the 057 Patent to support the Extended Temperature Range (85°C to 95°C) of DDR3 and DDR4 memory module products. Further, Kingston knows that there is no substantial non-infringing use of these components for temperature-based refresh rate adjustment.

51. Polaris has suffered damages as a result of Kingston's infringement of the 057 Patent.

52. Kingston's infringement of the 057 Patent has been and continues to be willful, deliberate, and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 057 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 057 Patent and has proceeded to infringe the 057 Patent with full and complete knowledge of that patent and its applicability to Kingston's products without taking a license under the 057 Patent. Despite knowledge of the 057 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles

Polaris to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

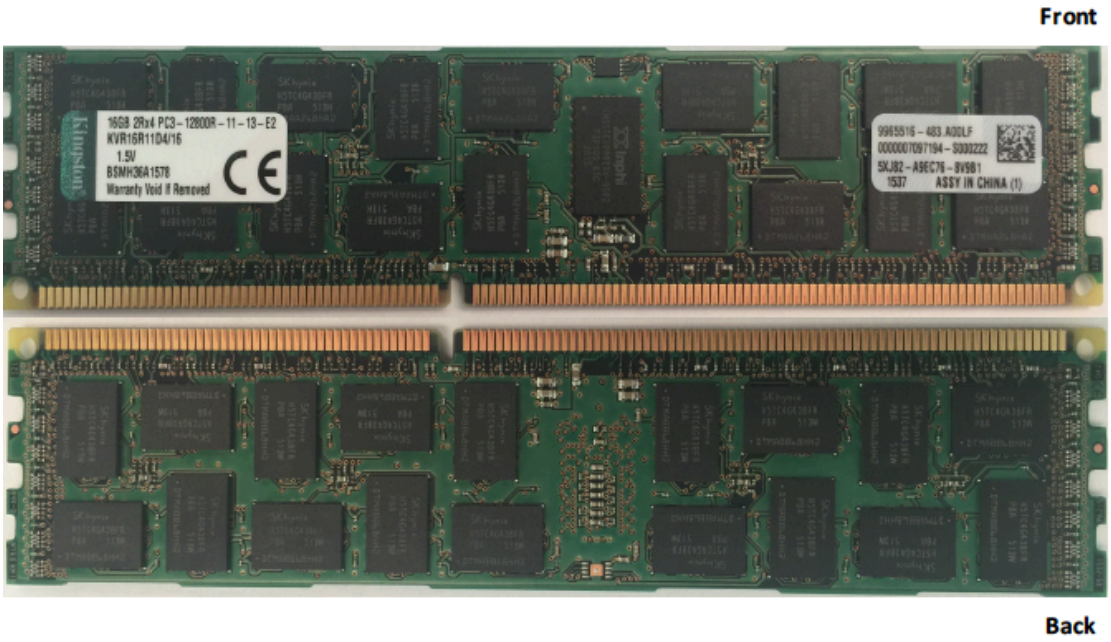
COUNT III:

INFRINGEMENT OF U.S. PATENT NO. 6,850,414

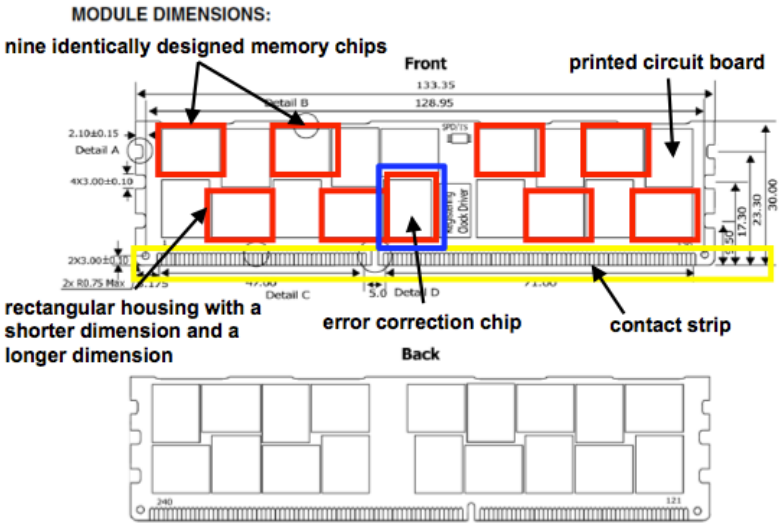
53. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

54. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 414 Patent, including, but not limited to, Claims 1, 4, and 8, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States without authority and/or importing into the United States without authority, memory products, devices, systems, and/or components of systems that include the claimed arrangements and configurations of the memory chips (the "414 Patent Infringing Products"), including, for example, Kingston's memory module products with model number KVR16R11D4/16.

55. By way of example, the front and back views of a representative 414 Patent Infringing Product (KVR16R11D4/16) that uses the claimed arrangement and configuration of the memory chips are shown in the image below.



56. The schematic diagram of this representative 414 Infringing Product (KVR16R11D4/16) is reproduced from publicly available Kingston documentation and annotated below for illustration.



See KVR16R11D4/16 Datasheet at 2 (annotations added).

57. Specifically, the 414 Patent Infringing Products, such as KVR16R11D4/16, are memory modules having at least nine identical semiconductor memories (shown in red in the diagram above) that are encapsulated in rectangular housing with a shorter

dimension and a longer dimension, each of which are individually connected to an electronic printed circuit board, the front and back sides of which are illustrated above. The electronic printed circuit board has a contact strip (one example shown in the yellow box in the diagram above) for insertion into another electronic unit. One of the semiconductor memories is connected as an error correction chip (shown in blue above in the diagram above) with its housing being oriented perpendicular to the contact strip, while the longer dimensions of eight other semiconductor memories are oriented parallel with the contact strip. *See* KVR16R11D4/16 Datasheet at 2.

58. In addition, one or more of the 414 Patent Infringing Products has a height of 1 to 1.2 inches perpendicular to said contact strip. *See id*.

59. Further, one or more of the 414 Patent Infringing Products has a width of 5.25 inches. *See id*.

60. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 414 Patent, including, but not limited to, Claims 1, 4, and 8, pursuant to 35 U.S.C. § 271(b) by inducing its customers and other third parties to use without authorization the infringing products that use the claimed arrangement and configuration of the memory chips, including but not limited to the 414 Patent Infringing Products. The use, without authorization, of the infringing products that comprise the claimed arrangement and configuration of the memory chips constitutes infringement, literally or under the doctrine of equivalents, of one or more claims of the 414 Patent by such customers or third parties. Kingston's acts of inducement include: providing its customers with the 414 Patent Infringing Products and intending its customers to use the 414 Infringing Products with hardware, software and other infrastructure that enable and/or make use of these products; advertising these products through its own and third-party websites (for example, http://www.kingston.com/us/memory/search/MemoryType/Default.aspx?MemoryType=DIMM,3,,); encouraging customers and other third parties to communicate directly with

Kingston representatives about these products (for example, through the "Ask an Expert" feature on its website); and providing instructions on how to use these products. For example, Kingston's documentation accompanying the representative 414 Patent Infringing Product provides the users with instructions on how to install the product in a computer system and enables the users to use the product. *See* Ex. 7, Kingston Technology Warranty and Installation Guide, Doc. 4402092-001.D00; *see also*, KVR16R11D4/16 Datasheet.

61. Kingston proceeded in this manner despite its actual knowledge of the 414 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 414 Patent at least as of February 1, 2016 when Polaris placed Kingston on notice of infringement of the 414 Patent and identified Kingston's infringing products. At the very least, because Kingston has been and remains on notice of the 414 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

62. Polaris has suffered damages as a result of Kingston's infringement of the 414 Patent.

63. Kingston's infringement has been and continues to be willful, deliberate and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 414 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 414 Patent and has proceeded to infringe the 414 Patent with full and complete knowledge of that patent and its applicability to Kingston products without taking a license under the 414 Patent. Despite knowledge of the 414 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles Polaris to increased damages

under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT IV:

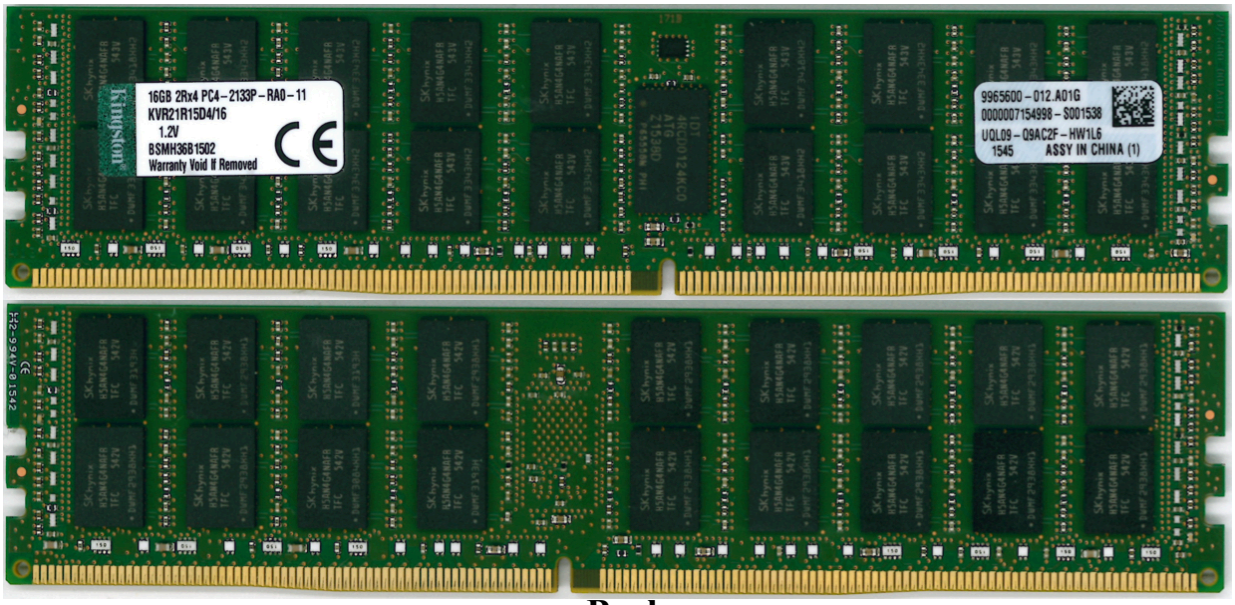
INFRINGEMENT OF U.S. PATENT NO. 7,206,978

64. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

65. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 978 Patent, including, but not limited to, Claims 1, 2, 3, 10, 11, and 12, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States and/or importing into the United States without authority, claimed memory module products, devices, systems, and/or components of systems (the "978 Patent Infringing Products"), including, for example, Kingston's memory module products with model number KVR21R15D4/16.

66. By way of example, the front and back views of a representative 978 Patent Infringing Product (KVR21R15D4/16) are shown in the image below.

Front



Back

67. The 978 Patent Infringing Products, such as KVR21R15D4/16, are circuit modules comprising a module board, the front and back sides of which are shown above. A plurality of circuit units, each consisting of a single integrated circuit memory chip, is arranged on the module board (in the above example, 36 integrated memory chips are arranged on the module board). *See*, *e.g.*, Kingston KVR21R15D4/16 16GB 2Rx4 2G x 72-Bit PC4-2133 CL15 Registered w/Parity 288-Pin DIMM Specification, Doc. No. VALUERAM1447-001.C00 (Feb. 24, 2015) ("KVR21R15D4/16 Datasheet") at 1, *available at* http://www.kingston.com/dataSheets/KVR21R15D4_16.pdf (last visited February 3, 2016). Further, on information and belief, the 978 Patent Infringing Products comprise a main bus having a plurality of lines, branching into a plurality of sub-buses having a plurality of lines, each of the sub-buses being connected to one of the plurality of the circuit units. Further, upon information and belief, each circuit unit (in the example above, each dynamic random access memory, or "DRAM," chip) in the 978 Patent Infringing Products comprises an indication signal generating unit for providing an indication signal based on a combination of the signals received on the plurality of lines of the sub-bus connected to the respective circuit unit (in the example above, each memory chip combines the PAR (command and address parity) input signal with the command and address input signals to determine whether there is an error and generate the appropriate indication signal). *See*, *e.g.*, KVR21R15D4/16 Datasheet at 1. ("CA parity (Command/Address Parity) mode is supported"). Each circuit unit also comprises an indication signal output for outputting the indication signal (in the example above, the ALERT_n pin on each memory chip).

68. In addition, one or more 978 Patent Infringing Products comprise means for providing a check signal to each of the circuit units, the structure of which is the same as or equivalent to that disclosed in the patent specification (in the example above, the PAR (command and address parity) input on each dynamic random access memory chip). *See*, *e.g.*, KVR21R15D4/16 Datasheet at 1 ("CA parity (Command/Address Parity) mode is

supported"). Upon information and belief, this indication signal generating unit generates said indication signal based on a combination of the signals on the plurality of lines of the respective sub-bus and the check signal so that the indication signal represents an error signal (in the example above, each memory chip combines the PAR input signal with the command and address input signals to determine whether there is an error and generate the appropriate indication signal).

69. In addition, on information and belief, one or more 978 Patent Infringing Products comprise an error reporting means, the structure of which is the same as or equivalent to that disclosed in the patent specification, being connected to the indication signal outputs of the circuit units, and wherein each error reporting means is configured to drive a module error out signal (in the example above, the ALERT_n outputs are connected to each other by traces on the printed circuit board, and buffered by a register, they drive the ALERT_n signal for the entire module). *See*, *e.g.*, KVR21R15D4/16 Datasheet at 1 ("CA parity (Command/Address Parity) mode is supported").

70. In addition, on information and belief, one or more 978 Patent Infringing Products comprise a DIMM, wherein the circuit units are memory units, wherein the main bus is a memory main bus, and the sub-busses are memory sub-buses (in the example above, the module is a DIMM, the circuit units are DRAM memory chips and the traces providing address and command signals to the memory chips form a memory main bus and memory sub-buses). *See*, *e.g.*, KVR21R15D4/16 Datasheet at 1.

71. In addition, on information and belief, one or more 978 Patent Infringing Products comprise a main bus that is a command/address bus (in the example above, the traces providing address and command signals to the dynamic random access memory chips form a memory main bus and memory sub-buses).

72. In addition, on information and belief, one or more 978 Patent Infringing Products comprise means for providing a check signal that is a parity signal, the structure of which is the same as or equivalent to that disclosed in the patent specification (in the

example above, the PAR input on each dynamic random access memory chip receives a parity signal from the module board).

73. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 978 Patent, including, but not limited to, Claims 1, 2, 3, 10, 11, and 12, pursuant to 35 U.S.C. § 271(b) by inducing its customers and other third parties to use without authorization the infringing products comprising the claimed arrangement of circuit units, including but not limited to the 978 Patent Infringing Products. This use, without authorization, of the infringing products comprising the claimed arrangement of circuit units constitutes infringement, literally or under the doctrine of equivalents, of one or more claims of the 978 Patent by such customers or third parties. Kingston's acts of inducement include: providing its customers with the 978 Patent Infringing Products and intending its customers to use the 978 Infringing Products with hardware, software, and other infrastructure that enable and/or make use of these products; advertising these products through its own and third-party websites (for example, http://www.kingston.com/us/memory/search/MemoryType/Default.aspx?MemoryType=DIMM,3,,); encouraging customers and other third parties to communicate directly with Kingston representatives about these products (for example, through the "Ask an Expert" feature on its website); and providing instructions on how to use these products. For example, Kingston's documentation accompanying the representative 978 Patent Infringing Product provides the users with instructions on how to install the product in a computer system and enables the users to use the product. *See* Ex. 7, Kingston Technology Warranty and Installation Guide, Doc. 4402092-001.D00; *see also*, KVR21R15D4/16 Datasheet.

74. Kingston proceeded in this manner despite its actual knowledge of the 978 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 978 Patent at least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 978

Patent and identified Kingston's infringing products. At the very least, because Kingston has been and remains on notice of the 978 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

75. Polaris has suffered damages as a result of Kingston's infringement of the 978 Patent.

76. Kingston's infringement of the 978 Patent has been and continues to be willful, deliberate, and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 978 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 978 Patent and has proceeded to infringe the 978 Patent with full and complete knowledge of that patent and its applicability to Kingston's products without taking a license under the 978 Patent. Despite knowledge of the 978 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles Polaris to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT V:

INFRINGEMENT OF U.S. PATENT NO. 7,315,454

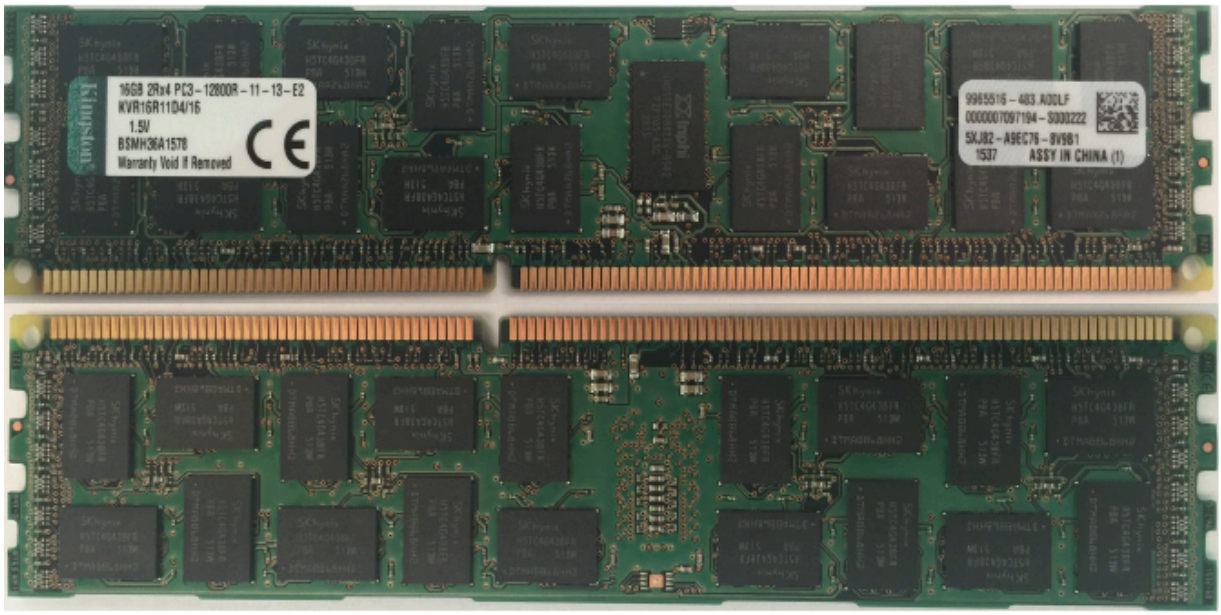
77. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

78. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 454 Patent, including, but not limited to, Claims 1, 2, 3, 4, and 7, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States and/or importing into the United States without authority, memory module products, devices,

systems, and/or components of systems that include the claimed arrangements and configurations of the memory chips (the "454 Patent Infringing Products"), including, for example, Kingston's memory module products with model number KVR16R11D4/16.

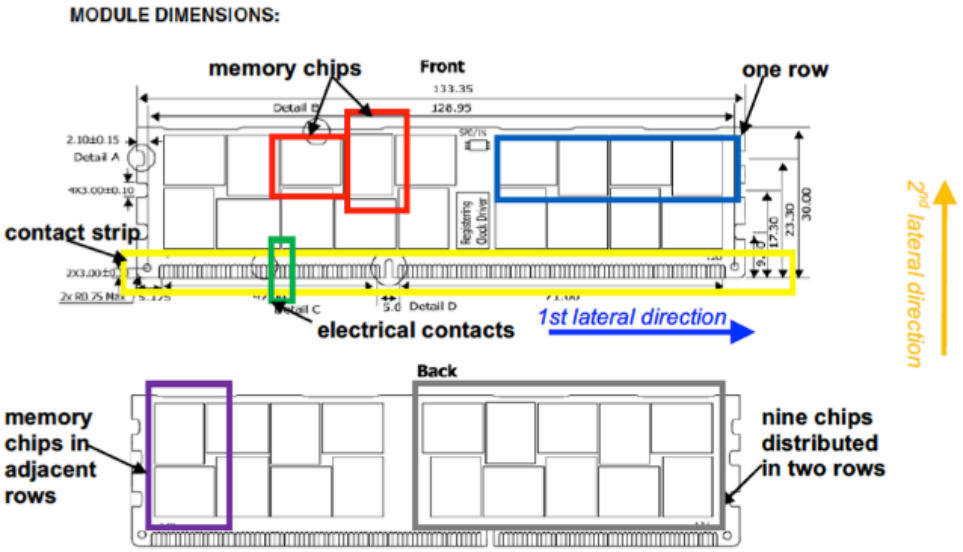
79. By way of example, the front and back views of a representative 454 Patent Infringing Product (KVR16R11D4/16) that uses the claimed arrangement and configuration of the memory chips are shown in the image below.

Front



Back

80. The schematic diagram of this representative 454 Patent Infringing Product (KVR16R11D4/16) is reproduced from publicly available Kingston documentation and annotated below for illustration.



See KVR16R11D4/16 Datasheet at 2 (annotations added). Specifically, the 454 Patent Infringing Products, such as KVR16R11D4/16, are semiconductor memory modules comprising an electronic printed circuit board, the front and back sides of which are illustrated above. The electronic printed circuit board has a contact strip (one example shown in the yellow box) that extends at a first edge (for example, the bottom edge) of the printed circuit board along with a first lateral direction and a plurality of electrical contacts (a few shown in the green box as examples) disposed along the first lateral direction between two second edges (left and right edges) that extend in a second lateral direction that is perpendicular to the first lateral direction. The 454 Patent Infringing Products further comprise a plurality of semiconductor memory chips (two exemplary chips are shown in the red boxes) of substantially identical type, such as "DDR3-1600 CL11 SDRAM" in KVR16R11D4/16, *see* KVR16R11D4/16 Datasheet at 1, mounted on at least one external area (the front and/or back sides) of the printed circuit board and having a rectangular form with a shorter dimension and a longer dimension in a direction perpendicular to the shorter dimension. The memory chips are arranged in at least two rows, each row (one exemplary row shown in blue box) extending in the first lateral direction between a center of the printed circuit board and the left or right edge, wherein the memory chips in each row are arranged in an alternating sequence of opposite

orientation with the longer dimension of each memory chip being parallel with the shorter dimension of adjacent memory chips in the same row. The memory chips aligned in the second lateral direction and lying in respective adjacent rows (one group of such chips shown in the purple box) have opposite orientations.

81. In addition, one or more 454 Patent Infringing Products include four semiconductor memory chips (one example shown in the blue box) that are mounted in a row on one external area (such as the front side) of the printed circuit board.

82. Further, one or more 454 Patent Infringing Products include nine chips (one example shown in the grey box) that are distributed between two rows arranged in a manner lying one adjacent to another in the second lateral direction.

83. Further, on information and belief, one or more 454 Patent Infringing Products comprise a branching separate line bus comprising a first branch and a second branch, wherein the memory chips mounted on the external area (the front and/or back sides) between the center and the respective second edge (left or right edge) of the printed circuit are connected by the branching separate line bus, such that the memory chips of a first row are connected in series via line tracks of the first branch and the memory chips of a second row are connected in a series via line tracks of the second branch of the branch separate line bus, or the 454 Patent Infringing Products comprise the equivalent.

84. Further, the 454 Patent Infringing Products are standardized memory modules in compliance with a JEDEC standard. *See*, *e.g.*, KVR16R11D4/16 Datasheet at 1.

85. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 454 Patent, including, but not limited to, Claims 1, 2, 3, 4, and 7, pursuant to 35 U.S.C. § 271(b) by inducing its customers and other third parties to use without authorization the infringing products comprising the claimed arrangements and configurations of the memory chips, including but not limited to the 454 Patent Infringing Products. This use, without authorization, of the infringing

products comprising the claimed arrangements and configurations of the memory chips constitutes infringement, literally or under the doctrine of equivalents, of one or more claims of the 454 Patent by such customers or third parties. Kingston's acts of inducement include: providing its customers with the 454 Patent Infringing Products and intending its customers to use the 454 Infringing Products with hardware, software, and other infrastructure that enable and/or make use of these products; advertising these products through its own and third-party websites (for example, http://www.kingston.com/us/memory/search/MemoryType/Default.aspx?MemoryType=DIMM,3,,); encouraging customers and other third parties to communicate directly with Kingston representatives about these products (for example, through the "Ask an Expert" feature on its website); and providing instructions on how to use these products. For example, Kingston's documentation accompanying the representative 454 Patent Infringing Product provides the users with instructions on how to install the product in a computer system and enables the users to use the product. *See* Ex. 7, Kingston Technology Warranty and Installation Guide, Doc. 4402092-001.D00; *see also*, KVR16R11D4/16 Datasheet.

86. Kingston proceeded in this manner despite its actual knowledge of the 454 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 454 Patent at least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 454 Patent and identified infringing Kingston's products. At the very least, because Kingston has been and remains on notice of the 454 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

87. Polaris has suffered damages as a result of Kingston's infringement of the 454 Patent.

88. Kingston's infringement of the 454 Patent has been and continues to be

willful, deliberate, and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 454 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 454 Patent and has proceeded to infringe the 454 Patent with full and complete knowledge of that patent and its applicability to Kingston's products without taking a license under the 454 Patent. Despite knowledge of the 454 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles Polaris to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

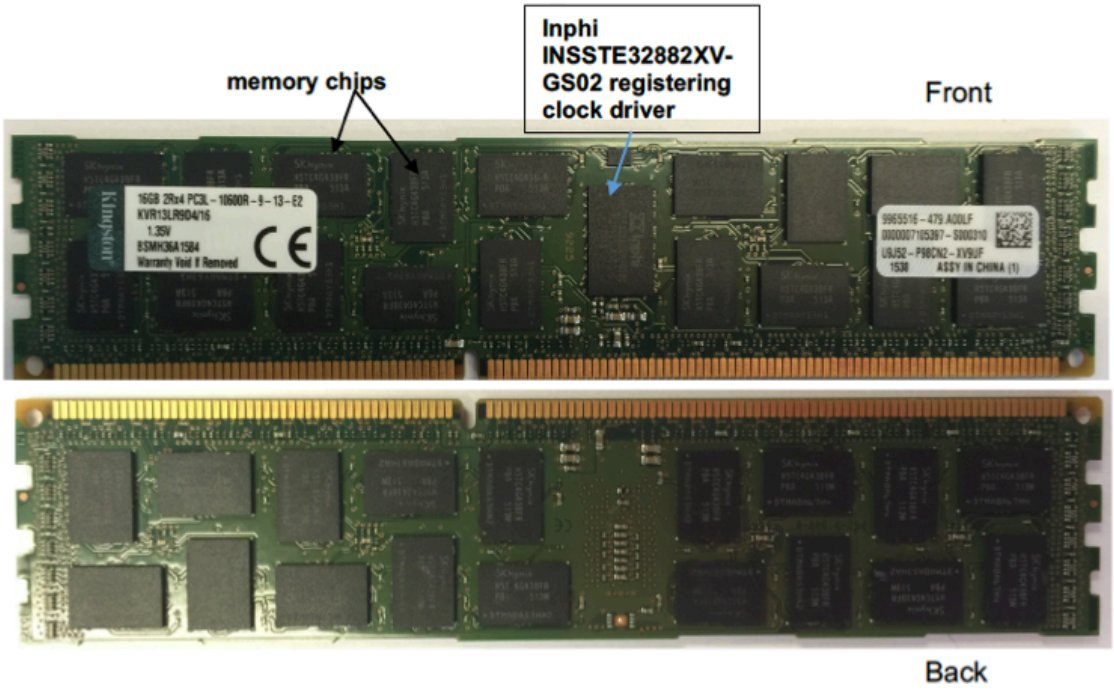
COUNT VI:

INFRINGEMENT OF U.S. PATENT NO. 7,334,150

89. Polaris incorporates and realleges paragraphs 1-22 above as if fully set forth herein.

90. On information and belief, Kingston has willfully infringed and continues to willfully infringe one or more claims of the 150 Patent, including, but not limited to, Claims 1, 2, 3, 5, 6, 8, 9, 10, and 11, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States and/or importing into the United States without authority, memory module products, devices, systems, and/or components of systems that included the claimed clock signal regeneration circuit and register circuit (the "150 Patent Infringing Products"), including without limitation, Kingston's memory module product with model number KVR13LR9D4/16.

91. By way of example, the front and back views of a representative 150 Patent Infringing Product (KVR13LR9D4/16) are shown in the image below.



92. Specifically, the 150 Patent Infringing Products, such as KVR13LR9D4/16, comprise a plurality of memory chips arranged on the memory module as shown in the image above. On information and belief, the 150 Patent Infringing Products, such as KVR13LR9D4/16, comprise a plurality of bus signal lines operable to supply an incoming clock signal (for example, clock signals CK0_t, CK0_c) and incoming command and address signal (for example, address signals A[N:0]) to at least the memory chips. On information and belief, the 150 Patent Infringing Products further comprise a clock signal regeneration circuit (for example, a standard SSTE 32882 registering clock driver) configured to generate a plurality of copies of the incoming clock signal (for example, PCK0A_t, PCK0B_t, PCK_0A_c, PCK_0B_c) and to supply the copies of the incoming clock signal to the memory chip, where the copies of the incoming clock signal have the same frequency as the incoming clock signal. On information and belief, the 150 Patent Infringing Products further comprise a register circuit arranged on the memory module in a common chip packaging with the clock

regeneration circuit. *See*, *e.g.*, Kingston Value RAM Memory Module Specifications, Doc. No. VALUERAM1223-001.B00 (Jan. 22, 2013) ("KVR13LR9D4/16 Datasheet") at 2 (the register and the clock driver are within the same chip), *available at* http://www.kingston.com/dataSheets/KVR13LR9D4_16.pdf (last visited February 3, 2016) (annotations added). For example, the representative 150 Patent Infringing Product KVR13LR9D4/16, comprises an Inphi INSSTE32882XV-GS02 registering clock driver chip (as annotated in the product image above), that includes both the clock regeneration circuit and the register circuit. *See* INSSTE32882XV datasheet ("Inphi Datasheet"), *available at* http://www.inphi.com/product_pdf_generator.php?prod_link=960 (last visited December 21, 2015). On information and belief, the register circuit in the 150 Infringing Products is configured to receive one of the copies of the incoming clock signal from the clock regeneration circuit. On information and belief, the register circuit in the 150 Infringing Products is further configured to temporarily store the incoming command and address signals, and to generate a plurality of copies of the incoming command and address signals and to supply the copies of the incoming command and address signals to the memory chip, where the copies of the incoming command and address signals have the same frequency as the incoming command and address signals.

93. The clock signal regeneration circuit in the 150 Patent Infringing Product comprises a phase locked loop (PLL) circuit. *See*, *e.g.*, KVR13LR9D4/16 Datasheet at 1 ("Register/PLL used").

94. On information and belief, the incoming clock signal and the copies of incoming clock signals in the 150 Patent Infringing Products are each supplied via differential clock signal lines.

95. In addition, in the 150 Patent Infringing Products, the clock signal regeneration circuit and the register circuit are integrated on a common chip in the common chip packaging. *See*, *e.g.*, KVR13LR9D4/16 Datasheet at 2.

96. Further, the common chip packaging is arranged essentially at a central

position on the exemplary 150 Patent Infringing Product (KVR13LR9D4/16) or is arranged equivalently. *See*, *e.g.*, KVR13LR9D4/16 Datasheet at 2.

97. On information and belief, the 150 Patent Infringing Products comprise a fly-by bus structure for the bus signal lines of the command and address signals or the equivalent. *See* John Nieto, *The Evolution from DDR2 to DDR3 and its Impact on Signal Integrity*, *available at* https://www.inphi.com/technology-overview/Evolution%20of%20DDR2%20to%20DDR3.pdf (last visited December 21, 2015).

98. On information and belief, the clock signal regeneration circuit and the register circuit in the 150 Patent Infringing Products respectively generate two copies of the clock signal and the command signals for distribution to the memory chips.

99. On information and belief, one or more of the 150 Patent Infringing Products further comprise an RDIMM module. *See*, *e.g.*, KVR13LR9D4/16 Datasheet at 1 ("Registered w/Parity 240-Pin DIMM").

100. The 150 Patent Infringing Products further comprise DDR-DRAM memories. *See*, *e.g.*, KVR13LR9D4/16 Datasheet at 1 ("DDR3L-1333 CL9 SDRAM").

101. On information and belief, Kingston has induced and continues to induce infringement of one or more claims of the 150 Patent, including, but not limited to, Claims 1, 2, 3, 5, 6, 8, 9, 10, and 11, pursuant to 35 U.S.C. § 271(b) by inducing its customers and other third parties to use without authorization the infringing products comprising the claimed clock signal regeneration circuit and register circuit, including but not limited to the 150 Patent Infringing Products. This use, without authorization, of the infringing products comprising the claimed arrangements and configurations of the memory chips constitutes infringement, literally or under the doctrine of equivalents, of one or more claims of the 150 Patent by such customers or third parties. Kingston's acts of inducement include: providing its customers with the 150 Patent Infringing Products and intending its customers to use the 150 Infringing Products with hardware, software

and other infrastructure that enable and/or make use of these products; advertising these products through its own and third-party websites (for example, http://www.kingston.com/us/memory/search/MemoryType/Default.aspx?MemoryType=DIMM,3,,); encouraging customers and other third parties to communicate directly with Kingston representatives about these products (for example, through the "Ask an Expert" feature on its website); and providing instructions on how to use these products. For example, Kingston's documentation accompanying the representative 150 Patent Infringing Product provides the users with instructions on how to install the product in a computer system and enables the users to use the product. *See* Ex. 7, Kingston Technology Warranty and Installation Guide, Doc. 4402092-001.D00; *see also*, KVR13LR9D4/16 Datasheet.

102. Kingston proceeded in this manner despite its actual knowledge of the 150 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constitute infringement of the 150 Patent at least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 150 Patent and identified infringing Kingston's products. At the very least, because Kingston has been and remains on notice of the 150 Patent and the accused infringement, it has been and remains willfully blind regarding the infringement it has induced and continues to induce.

103. Polaris has suffered damages as a result of Kingston's infringement of the 150 Patent.

104. Kingston's infringement of the 150 Patent has been and continues to be willful, deliberate and in disregard of Polaris's patent rights. At least as of February 1, 2016, when Polaris placed Kingston on notice of infringement of the 150 Patent and identified Kingston's infringing products, Kingston has had actual knowledge of infringement of the 150 Patent and has proceeded to infringe the 150 Patent with full and complete knowledge of that patent and its applicability to Kingston's products without

taking a license under the 150 Patent. Despite knowledge of the 150 Patent, Kingston has acted and is acting despite an objectively high likelihood that its actions constitute patent infringement. This objective risk was and is known to Kingston, and is also so obvious that it should have been known to Kingston. Such willful and deliberate conduct entitles Polaris to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

PRAYER FOR RELIEF

105. Polaris respectfully prays for relief as follows:

106. A judgment that Kingston Technology Company, Inc., and Kingston Technology Corporation have infringed and continue to infringe one or more claims of the Asserted Patents;

107. A judgment that Kingston Technology Company, Inc., and Kingston Technology Corporation have willfully infringed one or more claims of the Asserted Patents;

108. A judgment awarding Polaris all damages adequate to compensate for Kingston Technology Company, Inc.'s infringement and for Kingston Technology Corporation's infringement, and in no event less than a reasonable royalty for their acts of infringement, including all pre-judgment and post-judgment interest at the maximum rate allowed by law;

109. A judgment awarding Polaris treble damages pursuant to 35 U.S.C. § 284 as a result of Kingston's willful conduct;

110. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding Polaris its reasonable attorneys fees and costs; and

111. A judgment awarding Polaris such other relief as the Court may deem just and equitable.

DEMAND FOR JURY TRIAL

112. Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Polaris demands a trial by jury in this action.

Dated: April 24, 2017

Respectfully submitted

/s/ Matthew D. Powers

Matthew D. Powers (Bar No. 104795)
Azra M. Hadzimehmedovic (Bar No. 239088)
Alex H. Chan (Bar No. 278805)
Yi Chen (Bar No. 295236)
Jonathan G. Tamimi (Bar No. 305493)
TENSEGRITY LAW GROUP, LLP
555 Twin Dolphin Drive, Suite 650
Redwood Shores, CA 94065
Telephone: (650) 802-6000
Facsimile: (650) 802-6001
matthew.powers@tensegritylawgroup.com
azra@tensegritylawgroup.com
alex.chan@tensegritylawgroup.com
yi.chen@tensegritylawgroup.com
jonathan.tamimi@tensegritylawgroup.com

Sterling A. Brennan (Bar. No. 126019)
Quincy J. Chuck (Bar No. 307857)
MASCHOFF BRENNAN LAYCOCK GILMORE ISRAELSEN & WRIGHT PLLC
20 Pacifica, Suite 1130
Irvine, CA 92618
Telephone: (949) 202-1900
Facsimile: (949) 453-1104
sbrennan@mabr.com
qchuck@mabr.com

Robert F. Ruyak (admitted pro hac vice)
Richard A. Ripley (admitted pro hac vice)
RUYAK CHERIAN LLP
1776 Eye Street, NW, Suite 750

Washington, DC 20006
Telephone: (202) 838-1560
bobr@ruyakcherian.com
rickr@ruyakcherian.com

Attorneys for Plaintiff
Polaris Innovations Limited