

1 RUSS, AUGUST & KABAT  
Brian D. Ledahl (CA SBN 186579)  
2 bledahl@raklaw.com  
Neil A. Rubin (CA SBN 250761)  
3 nrubin@raklaw.com  
12424 Wilshire Boulevard, 12<sup>th</sup> Floor  
4 Los Angeles, California 90025  
Telephone: (310) 826-7474  
5 Facsimile: (310) 826-6991

6 Attorneys for Plaintiffs  
*IPValue Management, Inc. and*  
7 *Longitude Flash Memory Solutions Ltd.*

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10 **UNITED STATES DISTRICT COURT**  
11 **CENTRAL DISTRICT OF CALIFORNIA**

12 IPVALUE MANAGEMENT, INC., and  
13 LONGITUDE FLASH MEMORY SOLUTIONS  
14 LTD.,

15 Plaintiffs,

16 vs.

17 WESTERN DIGITAL CORPORATION,  
18 Defendant.

Case No. 8:25-cv-00119

**COMPLAINT FOR PATENT  
INFRINGEMENT**

**JURY TRIAL DEMANDED**

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1 This is an action for patent infringement arising under the Patent Laws of the  
2 United States of America, 35 U.S.C. § 1 *et seq.*, in which Plaintiffs IPValue  
3 Management, Inc. (“IPValue”) and Longitude Flash Memory Solutions Ltd.  
4 (“LFMS,” and collectively with IPValue “Plaintiffs”) make the following  
5 allegations against Defendant Western Digital Corporation (“Defendant” or  
6 “Western Digital”):

7 **INTRODUCTION**

8 1. This complaint arises from Defendant’s unlawful infringement of the  
9 following United States patents exclusively licensed as to the claims in this lawsuit  
10 by IPValue: U.S. Patent No. 8,633,537 (“’537 Patent”); U.S. Patent No. 9,929,240  
11 (“’240 Patent”); U.S. Patent No. 11,456,365 (“’365 Patent”); U.S. Patent No.  
12 6,963,505 (“’505 Patent”); and U.S. Patent No. 7,671,664 (“’664 Patent”)  
13 (collectively the “Asserted Patents”).

14 2. LFMS is an intellectual property and technology licensing company.  
15 LFMS’s patent portfolio comprises over 472 active and pending patents worldwide,  
16 including approximately 301 active United States patents. LFMS acquired these  
17 patents and/or rights to assert them from Cypress Semiconductor, a well-known  
18 American semiconductor design and manufacturing company that was acquired by  
19 Infineon Technologies in 2020 for nearly \$10 billion.<sup>1</sup> In some instances, Cypress  
20 acquired patent assets from other entities such as Spansion Israel Ltd. through  
21 acquisitions. The innovations in these patents have greatly enhanced the capabilities  
22 of computer systems, increased electronic device processing power and capabilities  
23 and improved the functioning of computer memory and storage devices.

24 3. IPValue is a leader in intellectual property and technology licensing  
25 whose mission is to fuel innovation by working with leading technology enterprises  
26 to generate revenues from their IP portfolios. LFMS has provided IPValue with an

27 \_\_\_\_\_  
28 <sup>1</sup> See “Infineon snaps up San Jose’s Cypress Semiconductor in \$10B deal”, *available at*  
<https://www.bizjournals.com/sanjose/news/2019/06/03/infineon-snaps-up-san-jose-s-cypress-semiconductor.html>.

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1 exclusive license to the Asserted Patents and the right to assert these patents against  
2 Defendant.

3 4. Western Digital has infringed and continues to infringe Plaintiffs'  
4 patents. Moreover, despite Plaintiffs notifying Western Digital of infringement,  
5 Western Digital has thus far refused to license those patents. Instead, it has continued  
6 to make, use, sell, offer to sell, and/or import Plaintiffs' intellectual property within  
7 the United States without Plaintiffs' permission. IPValue attempted to engage in  
8 licensing discussions with Western Digital for some time before initiating this  
9 action. For example, a letter from IPValue to Western Digital dated March 26, 2021,  
10 informed Western Digital that its products containing 3D NAND Flash memory  
11 infringed numerous patents, including the '537 Patent, the '240 Patent, '505 Patent,  
12 and the '664 Patent. A further letter from IPValue to Western Digital dated February  
13 10, 2023, informed Western Digital that its products containing 3D NAND Flash  
14 memory infringed additional patents, including the '365 Patent. IPValue had  
15 multiple meetings with Western Digital in 2022, 2023, and 2024 where it presented  
16 detailed evidence demonstrating that Western Digital's products infringed each of  
17 the Asserted Patents. Nonetheless, Western Digital refused to take a license to these  
18 valuable patents. Unable to move forward with licensing discussions, IPValue had  
19 no other choice but to file this lawsuit.

20 **PARTIES**

21 5. IPValue is a Delaware corporation, having its principal place of  
22 business at 2880 Lakeside Dr., Ste. 320, Santa Clara, CA 95054.

23 6. LFMS is a privately held company, having its principal place of  
24 business at Plaza 255 Suite 2A, Blanchardstown Corporate Park 2, Blanchardstown,  
25 Dublin 15, D15 YH6H.

26 7. Western Digital is a Delaware corporation with a principal place of  
27 business at 5601 Great Oaks Parkway, San Jose, California, 95119. Western Digital,  
28 on information and belief, designs and manufactures, among other things, solid state

1 drives (“SSD”), hard drives (“HDD”), USB Flash Drives, Embedded Flash, Memory  
2 Cards, and other non-volatile memory-based storage. Western Digital may be served  
3 with process through its registered agent, the Corporation Service Company, 2711  
4 Centerville Road, Suite 400, Wilmington, Delaware 19808.

5 **JURISDICTION AND VENUE**

6 8. This action arises under the patent laws of the United States, Title 35 of  
7 the United States Code. This Court has original subject matter jurisdiction pursuant  
8 to 28 U.S.C. §§ 1331 and 1338(a).

9 9. This Court has personal jurisdiction over Defendant in this action  
10 because Defendant has committed acts within this District giving rise to this action  
11 and has established minimum contacts with this forum such that the exercise of  
12 jurisdiction over Defendant would not offend traditional notions of fair play and  
13 substantial justice. Defendant, directly and through subsidiaries or intermediaries,  
14 has committed and continues to commit acts of infringement in this District by,  
15 among other things, importing, offering to sell, and selling products that infringe the  
16 asserted patents.

17 10. Venue is proper in this District under 28 U.S.C. § 1400(b). Upon  
18 information and belief, Defendant has transacted business in this District and has  
19 committed acts of direct and indirect infringement in this District by, among other  
20 things, making, using, offering to sell, selling, and importing products that infringe  
21 the asserted patents. Defendant has at least one regular and established place of  
22 business in the District. For example, Western Digital has offices at 3355 Michelson  
23 Dr., Irvine, CA, 92612.

24 **DEFENDANT’S PRE-SUIT KNOWLEDGE OF**  
25 **ITS INFRINGEMENT OF PLAINTIFFS’ PATENTS**

26 11. Plaintiffs reallege and incorporate by reference the foregoing  
27 paragraphs as if fully set forth herein.

28 12. Before filing this action, LFMS, through its agent IPValue, notified

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1 Defendant about the Asserted Patents and its infringement thereof. Among other  
2 things, IPValue identified the Asserted Patents to Western Digital in multiple  
3 communications from 2021–2024; alleged that Western Digital infringed the  
4 Asserted Patents, including identifying exemplary infringing products; sought to  
5 engage Western Digital in discussions regarding its use of Plaintiffs’ intellectual  
6 property (including the Asserted Patents); and offered to license the Asserted Patents  
7 to Western Digital.

8 13. For example, on March 26, 2021, IPValue sent a letter to Western  
9 Digital, notifying Western Digital of its infringement of certain of Plaintiffs’ patents,  
10 including the ’537 Patent, the ’240 Patent, ’505 Patent, and the ’664 Patent. On  
11 February 10, 2023, IPValue sent a further letter to Western Digital, notifying  
12 Western Digital of its infringement of additional patents of Plaintiffs, including the  
13 ’365 Patent. In each letter, IPValue specifically identified Western Digital’s products  
14 using 3D NAND Flash memory as exemplary infringing products.

15 14. IPValue also conducted multiple in-person and video meetings with  
16 Western Digital about licensing Plaintiffs’ patents, including on May 24, 2022,  
17 August 24–25, 2022, November 17, 2022, February 8, 2023, June 21, 2023,  
18 September 26–27, 2023, and November 1, 2023. During the August 24–25, 2022,  
19 meetings, IPValue provided Western Digital with detailed evidence that its products  
20 infringe the ’537 Patent, the ’240 Patent, the ’505 Patent, and the ’664 Patent. During  
21 the November 1, 2023 meeting, IPValue provided Western Digital with detailed  
22 evidence that its products infringe the ’365 Patent.

23 15. Despite Plaintiffs’ repeated efforts, which have continued for nearly  
24 four years, Western Digital has refused to license the Asserted Patents and has also  
25 not taken steps to end its infringement of the Asserted Patents. Instead, Western  
26 Digital continues to knowingly, intentionally, and willfully infringe Plaintiffs’  
27 patents directly, contributorily, and by inducement, to obtain their significant  
28 benefits without a license from Plaintiffs.

**COUNT I**

**INFRINGEMENT OF U.S. PATENT NO. 8,633,537**

16. Plaintiffs reallege and incorporate by reference the foregoing paragraphs as if fully set forth herein.

17. LFMS is the owner and assignee of United States Patent No. 8,633,537 titled “Memory transistor with multiple charge storing layers and a high work function gate electrode.” IPValue has the exclusive right to license the ’537 Patent to Western Digital and possesses substantial rights including the right to enforce the patent against Defendant. The ’537 Patent was duly and legally issued by the United States Patent and Trademark Office on January 21, 2014. A true and correct copy of the ’537 Patent is attached as Exhibit 1.

18. Defendant has known of the ’537 Patent and its infringement of that patent since at least as early as March 26, 2021.

19. Defendant, knowing its products infringe the ’537 Patent and with the specific intent for others to infringe the ’537 Patent, has directly infringed (literally and equivalently) and induced and contributed to infringement by others of the ’537 patent by making, using, offering for sale, selling, and/or importing into the United States certain products and services that directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the ’537 Patent, and continues to do so. By way of illustrative example, these infringing products and services include, without limitation, Defendant’s SSDs, OptiNAND HDDs, USB Flash Drives, Embedded Flash, and Memory Cards containing 3D NAND flash memory, and all versions and variations thereof since the issuance of the ’537 Patent (“Accused Products”).

20. Defendant has also infringed, and continues to infringe, claims of the ’537 Patent by offering to commercially distribute, commercially distributing, making, and/or importing the Accused Products, which are used in practicing the process, or using the systems, of the patent, and constitute a material part of the

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1 invention. Defendant knows the components in the Accused Products to be  
2 especially made or especially adapted for use in infringement of the patent, not a  
3 staple article, and not a commodity of commerce suitable for substantial  
4 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily  
5 infringing the '537 Patent, in violation of 35 U.S.C. § 271(c).

6 21. Plaintiffs have complied with 35 U.S.C. § 287. At a minimum,  
7 Plaintiffs provided Defendant with pre-suit notice of infringement of the '537 Patent  
8 no later than March 26, 2021.

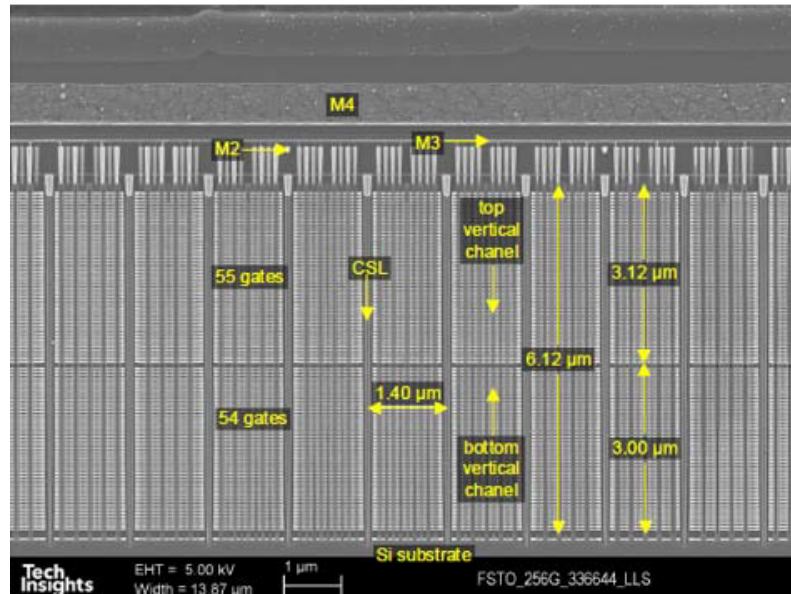
9 22. Plaintiffs have sustained and are entitled to recover damages as a result  
10 of Defendant's infringement.

11 23. As described above, Defendant's infringement of the '537 Patent has  
12 been knowing, deliberate, and willful, since at least as early as March 26, 2021, the  
13 date of IPValue's first letter to Defendant and therefore the latest possible date on  
14 which Defendant knew of the '537 Patent and that its conduct constituted and  
15 resulted in infringement of the '537 Patent. IPValue again identified the '537 patent  
16 and Defendant's infringement thereof several times thereafter, as described above,  
17 and also including through this Complaint. Defendant nonetheless has committed  
18 acts of direct and indirect infringement despite knowing that its actions constituted  
19 infringement of the valid and enforceable '537 patent, despite a risk of infringement  
20 that was known or so obvious that it should have been known to Defendant, and/or  
21 even though Defendant otherwise knew or should have known that its actions  
22 constituted an unjustifiably high risk of infringement of that valid and enforceable  
23 patent. Defendant's conduct in light of these circumstances is egregious.  
24 Defendant's knowing, deliberate, and willful infringement of the '537 patent entitles  
25 Plaintiffs to increased damages under 35 U.S.C. § 284 and to attorney fees and costs  
26 incurred in prosecuting this action under 35 U.S.C. § 285.

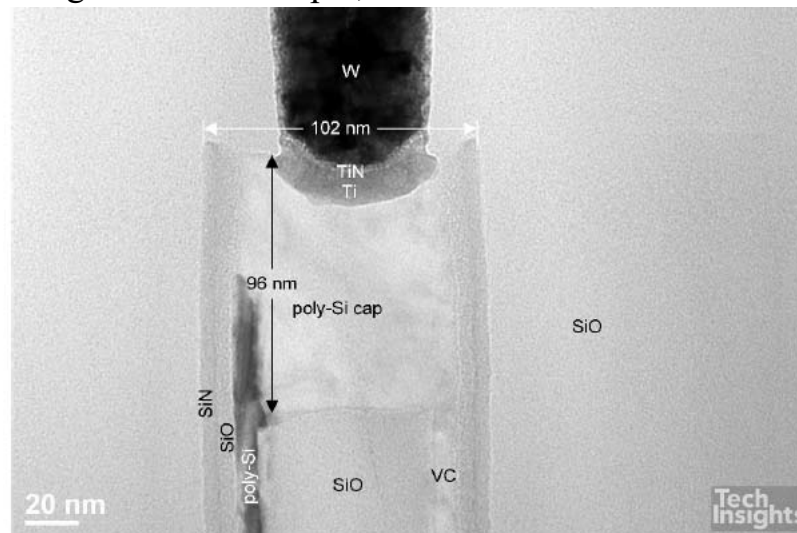
27 24. The Accused Products satisfy all claim limitations of one or more  
28 claims of the '537 Patent. For example, the Accused Products infringe claim 17 of

1 the '537 Patent. One, non-limiting, example of the Accused Products infringement  
2 is presented below.

3 25. The Accused Products include “a semiconductor device” comprising “a  
4 memory transistor.” For example,



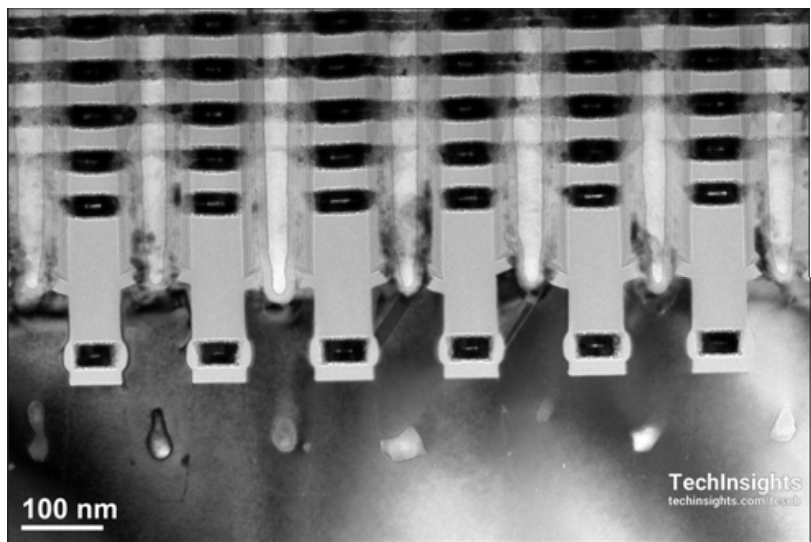
14 26. In the Accused Products, the memory transistor includes “a vertical  
15 channel comprising polysilicon extending from a first diffusion region formed on a  
16 surface on a substrate to a second diffusion region formed over the surface of the  
17 substrate, the vertical channel electrically connecting the first diffusion region to the  
18 second diffusion region.” For example,



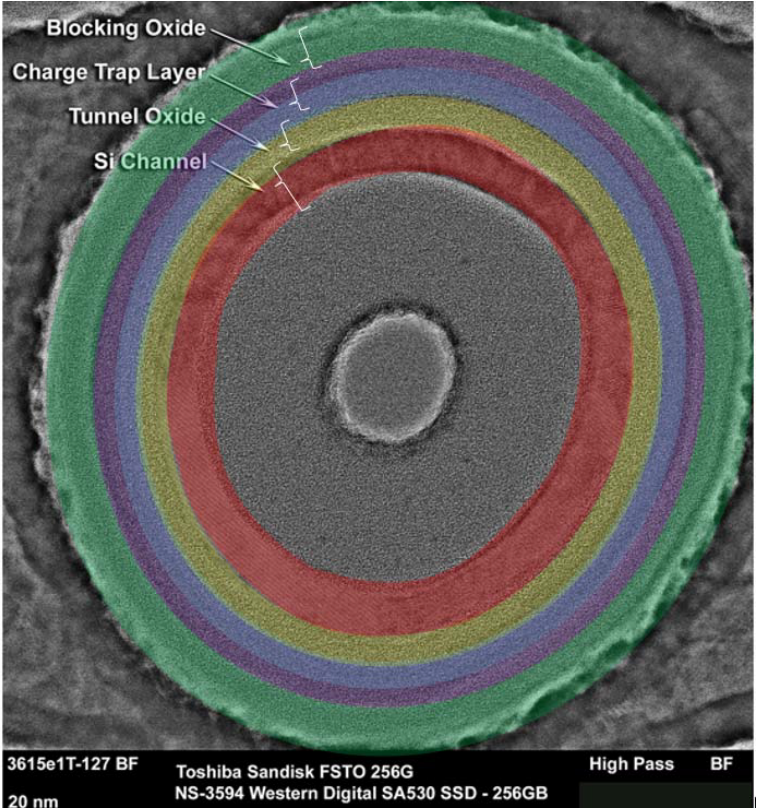


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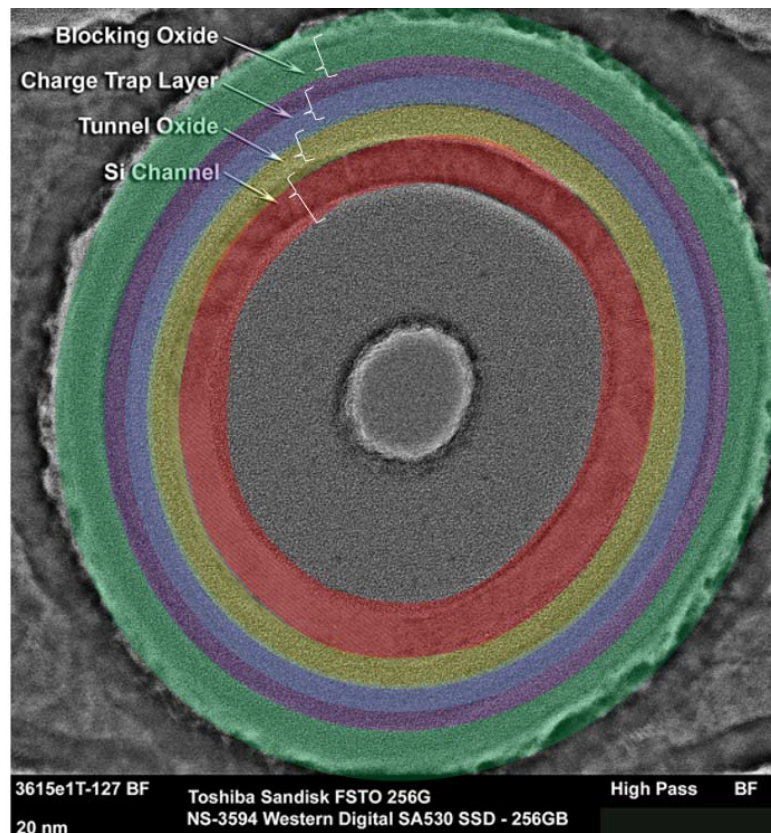
27. In the Accused Products, the memory transistor includes “an oxide-nitride-nitride-oxide (ONNO) stack disposed about the vertical channel.” For example,



28. In the Accused Products, the ONNO stack includes “a tunnel dielectric layer abutting the vertical channel.” For example,

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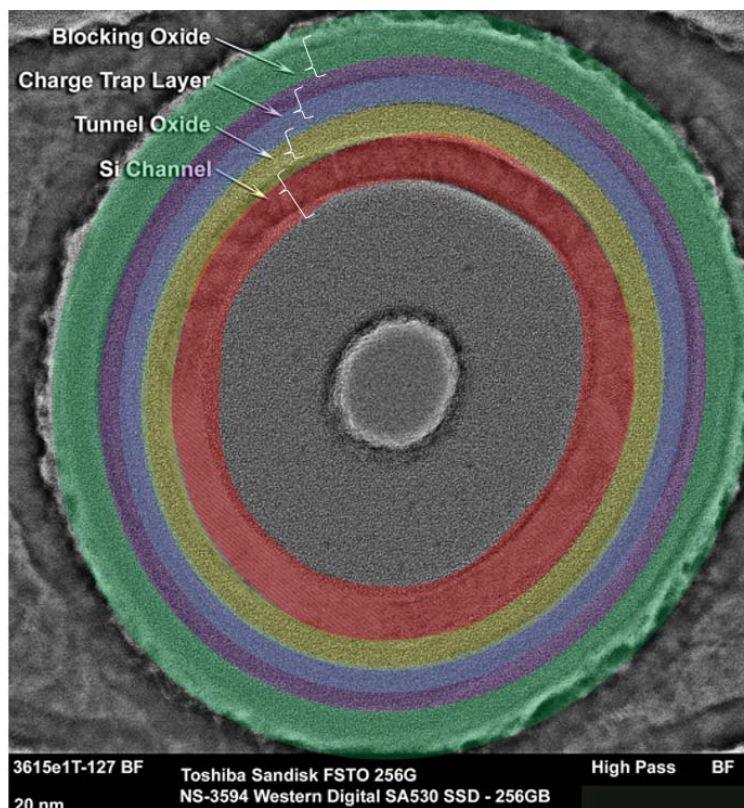


29. In the Accused Products, the ONNO stack includes “a multi-layer charge-trapping region including a first nitride layer comprising an oxygen-rich nitride abutting the tunnel dielectric layer, and a second nitride layer comprising a silicon-rich, oxygen-lean nitride overlying the first nitride layer.” For example,

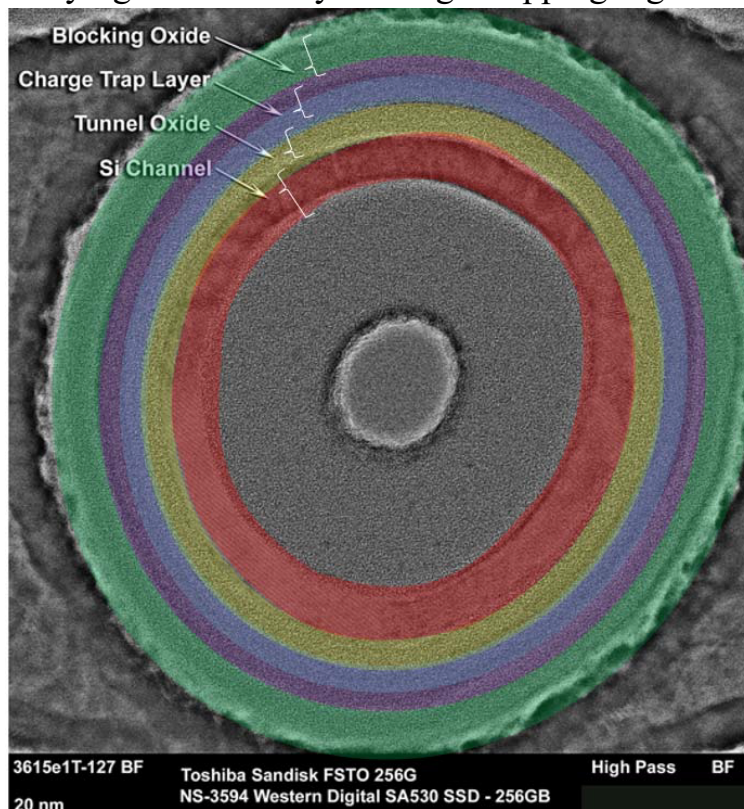


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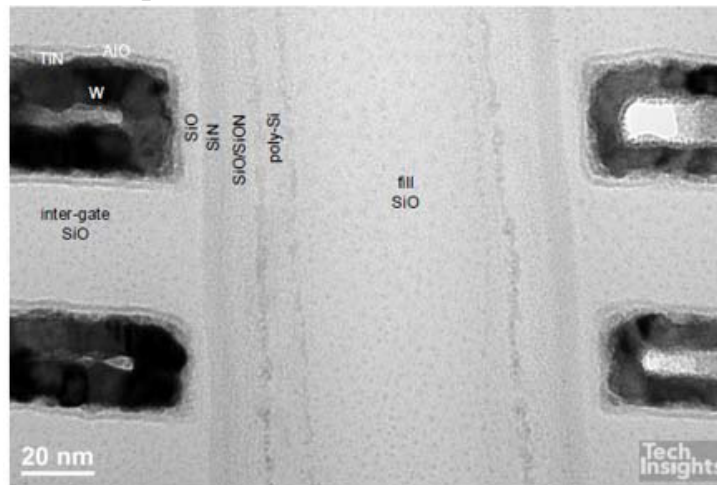


30. In the Accused Products, the ONNO stack includes “a blocking dielectric layer overlying the multi-layer charge-trapping region.” For example,



31. In the Accused Products, the memory transistor includes “a high work

1 function gate electrode disposed about the ONONO stack, abutting the blocking  
2 dielectric layer.” For example,



11 **COUNT II**

12 **INFRINGEMENT OF U.S. PATENT NO. 9,929,240**

13 32. Plaintiffs reallege and incorporate by reference the foregoing  
14 paragraphs as if fully set forth herein.

15 33. LFMS is the owner and assignee of United States Patent No. 9,929,240  
16 titled “Memory transistor with multiple charge storing layers and a high work  
17 function gate electrode.” IPValue has the exclusive right to license the ’240 Patent  
18 to Western Digital and possesses substantial rights including the right to enforce the  
19 patent against Defendant. The ’240 Patent was duly and legally issued by the United  
20 States Patent and Trademark Office on March 27, 2018. A true and correct copy of  
21 the ’240 Patent is attached as Exhibit 2.

22 34. Defendant has known of the ’240 Patent and its infringement of that  
23 patent since at least as early as March 26, 2021.

24 35. Defendant, knowing its products infringe the ’240 Patent and with the  
25 specific intent for others to infringe the ’240 Patent, has directly infringed (literally  
26 and equivalently) and induced and contributed to infringement by others of the ’240  
27 patent by making, using, offering for sale, selling, and/or importing into the United  
28 States certain products and services that directly infringe, literally and/or under the



1 doctrine of equivalents, one or more claims of the '240 Patent, and continues to do  
2 so. By way of illustrative example, these infringing products and services include,  
3 without limitation, Defendant's SSDs, OptiNAND HDDs, USB Flash Drives,  
4 Embedded Flash, and Memory Cards containing 3D NAND flash memory, and all  
5 versions and variations thereof since the issuance of the '240 Patent ("Accused  
6 Products").

7 36. Defendant has also infringed, and continues to infringe, claims of the  
8 '240 Patent by offering to commercially distribute, commercially distributing,  
9 making, and/or importing the Accused Products, which are used in practicing the  
10 process, or using the systems, of the patent, and constitute a material part of the  
11 invention. Defendant knows the components in the Accused Products to be  
12 especially made or especially adapted for use in infringement of the patent, not a  
13 staple article, and not a commodity of commerce suitable for substantial  
14 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily  
15 infringing the '240 Patent, in violation of 35 U.S.C. § 271(c).

16 37. Plaintiffs have complied with 35 U.S.C. § 287. At a minimum,  
17 Plaintiffs provided Defendant with pre-suit notice of infringement of the '240 Patent  
18 no later than March 26, 2021.

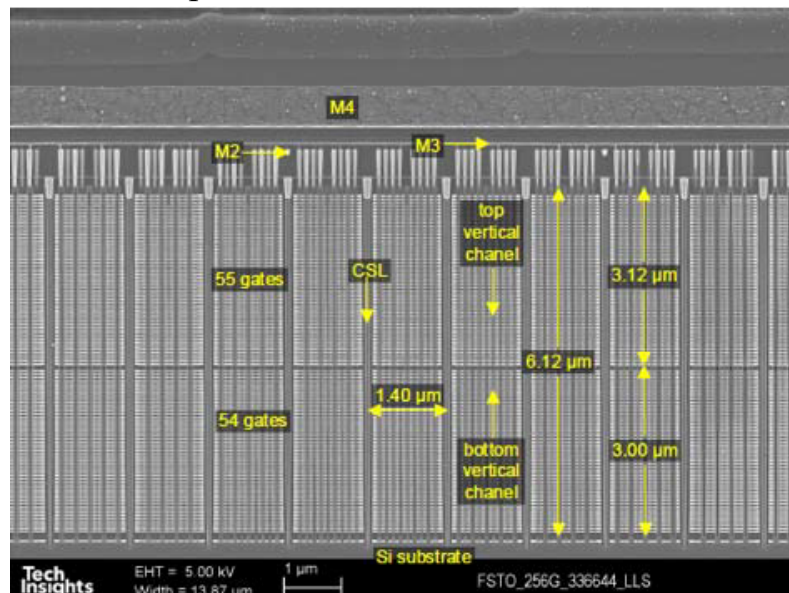
19 38. Plaintiffs have sustained and are entitled to recover damages as a result  
20 of Defendant's infringement.

21 39. As described above, Defendant's infringement of the '240 Patent has  
22 been knowing, deliberate, and willful, since at least as early as March 26, 2021, the  
23 date of IPValue's first letter to Defendant and therefore the latest possible date on  
24 which Defendant knew of the '240 Patent and that its conduct constituted and  
25 resulted in infringement of the '240 Patent. IPValue again identified the '240 patent  
26 and Defendant's infringement thereof several times thereafter, as described above,  
27 and also including through this Complaint. Defendant nonetheless has committed  
28 acts of direct and indirect infringement despite knowing that its actions constituted

1 infringement of the valid and enforceable '240 patent, despite a risk of infringement  
 2 that was known or so obvious that it should have been known to Defendant, and/or  
 3 even though Defendant otherwise knew or should have known that its actions  
 4 constituted an unjustifiably high risk of infringement of that valid and enforceable  
 5 patent. Defendant's conduct in light of these circumstances is egregious.  
 6 Defendant's knowing, deliberate, and willful infringement of the '240 patent entitles  
 7 Plaintiffs to increased damages under 35 U.S.C. § 284 and to attorney fees and costs  
 8 incurred in prosecuting this action under 35 U.S.C. § 285.

9 40. The Accused Products satisfy all claim limitations of one or more  
 10 claims of the '240 Patent. For example, the Accused Products infringe claim 12 of  
 11 the '240 Patent. One, non-limiting, example of the Accused Products infringement  
 12 is presented below.

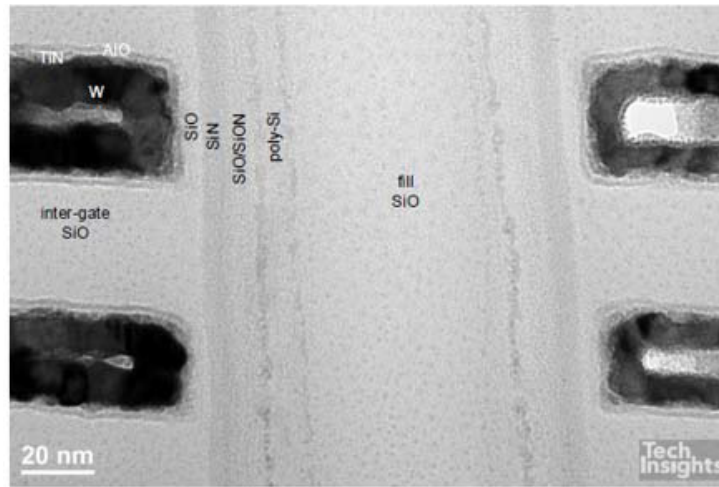
13 41. The Accused Products include "a semiconductor device" comprising "a  
 14 memory device." For example,



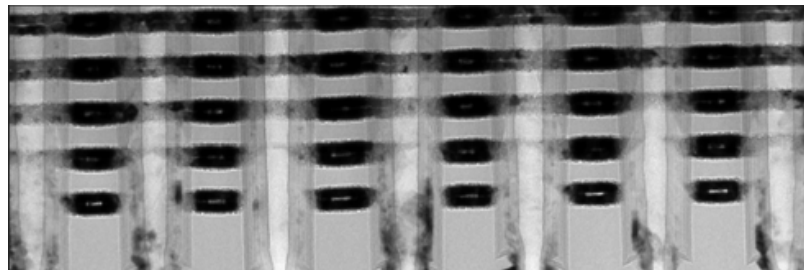
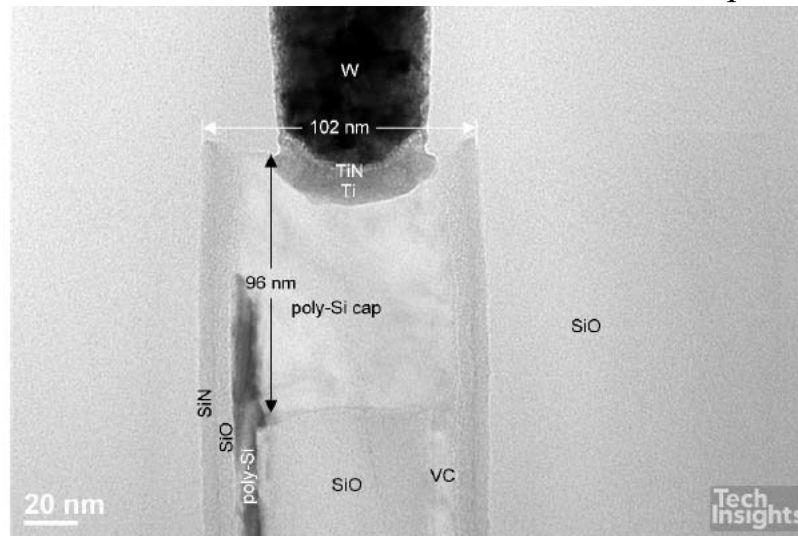
42. In the Accused Products, the memory device includes "a gate structure  
 including a first high work function gate electrode." For example,

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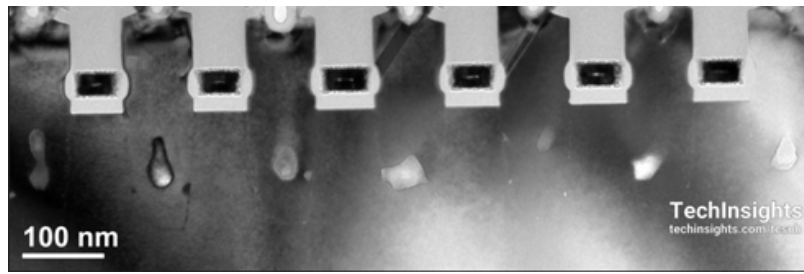
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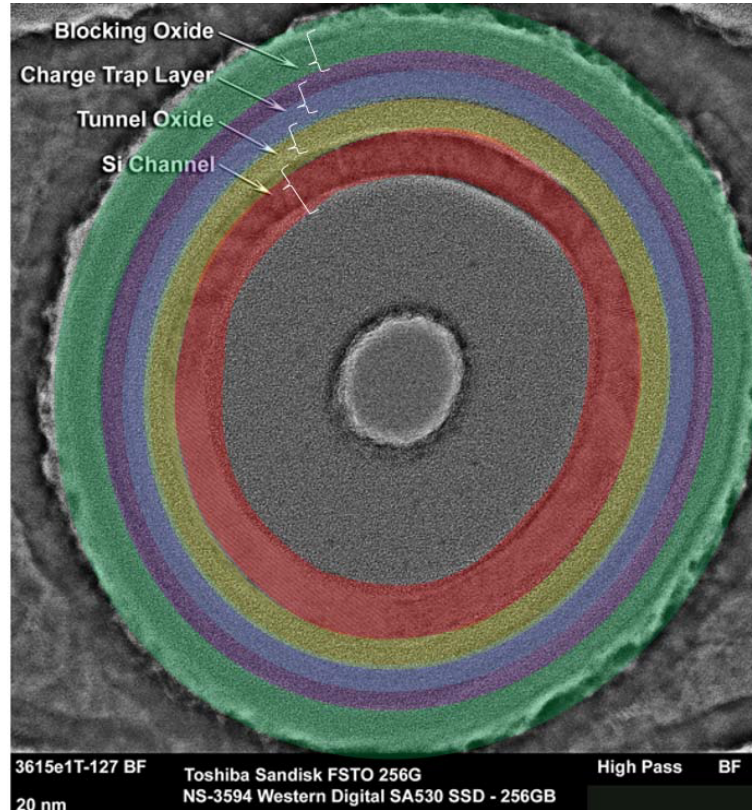
43. In the Accused Products, the memory device includes “a channel positioned between and electrically connecting a first diffusion region and a second diffusion region, wherein the channel is vertical and oriented substantially perpendicular to a semiconductor material structure.” For example,



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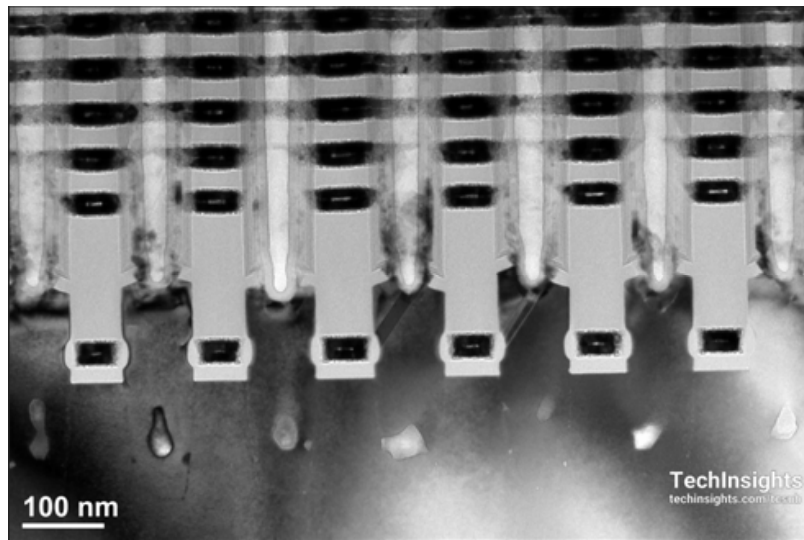


44. In the Accused Products, the memory device includes “a tunnel dielectric layer, a multi-layer charge trapping layer, and a blocking dielectric layer disposed between the gate structure and the channel, wherein the multi-layer charge trapping layer comprises a first dielectric layer disposed abutting a second dielectric layer, wherein the first dielectric layer includes oxygen-rich nitride and the second dielectric layer includes oxygen-lean nitride.” For example,



45. In the Accused Products, the memory device includes “a metal oxide semiconductor (MOS) logic device including a gate oxide layer and a second high work function gate electrode disposed thereon.” For example,





**COUNT III**

**INFRINGEMENT OF U.S. PATENT NO. 11,456,365**

46. Plaintiffs reallege and incorporate by reference the foregoing paragraphs as if fully set forth herein.

47. LFMS is the owner and assignee of United States Patent No. 11,456,365 titled “Memory transistor with multiple charge storing layers and a high work function gate electrode.” IPValue has the exclusive right to license the '365 Patent to Western Digital and possesses substantial rights including the right to enforce the patent against Defendant. The '365 Patent was duly and legally issued by the United States Patent and Trademark Office on September 27, 2022. A true and correct copy of the '365 Patent is attached as Exhibit 3.

48. Defendant has known of the '365 Patent and its infringement of that patent since at least as early as February 10, 2023.

49. Defendant, knowing its products infringe the '365 Patent and with the specific intent for others to infringe the '365 Patent, has directly infringed (literally and equivalently) and induced and contributed to infringement by others of the '365 patent by making, using, offering for sale, selling, and/or importing into the United States certain products and services that directly infringe and/or were made by a patented process, literally and/or under the doctrine of equivalents, one or more claims of the '365 Patent, and continues to do so. By way of illustrative example,

1 these infringing products and services include, without limitation, Defendant's  
2 SSDs, OptiNAND HDDs, USB Flash Drives, Embedded Flash, and Memory Cards  
3 containing 3D NAND flash memory, and all versions and variations thereof since  
4 the issuance of the '365 Patent ("Accused Products").

5 50. Defendant has also infringed, and continues to infringe, claims of the  
6 '365 Patent by offering to commercially distribute, commercially distributing,  
7 making, and/or importing the Accused Products, which are used in practicing the  
8 process, or using the systems, of the patent, and constitute a material part of the  
9 invention. Defendant knows the components in the Accused Products to be  
10 especially made or especially adapted for use in infringement of the patent, not a  
11 staple article, and not a commodity of commerce suitable for substantial  
12 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily  
13 infringing the '365 Patent, in violation of 35 U.S.C. § 271(c).

14 51. Plaintiffs have complied with 35 U.S.C. § 287. At a minimum,  
15 Plaintiffs provided Defendant with pre-suit notice of infringement of the '365 Patent  
16 no later than February 10, 2023.

17 52. Plaintiffs have sustained and are entitled to recover damages as a result  
18 of Defendant's infringement.

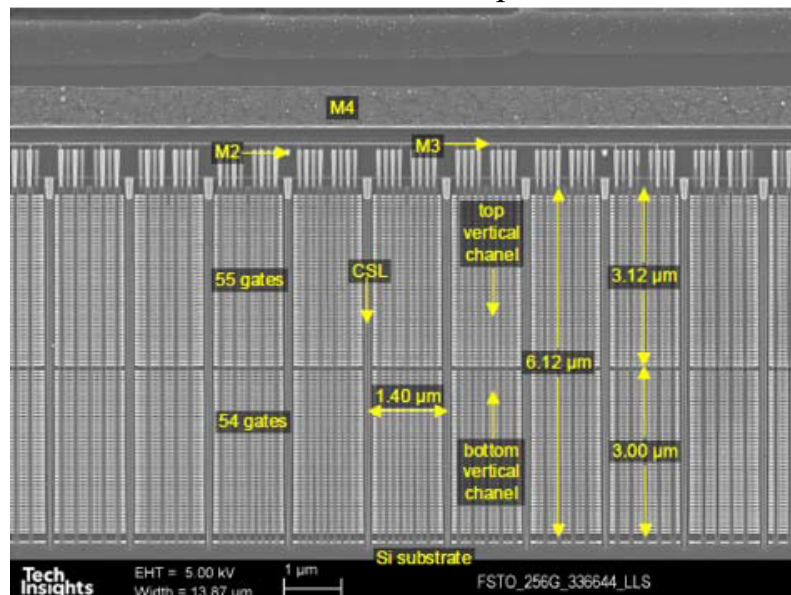
19 53. As described above, Defendant's infringement of the '365 Patent has  
20 been knowing, deliberate, and willful, since at least as early as February 10, 2023,  
21 the date of IPValue's first letter to Defendant and therefore the latest possible date  
22 on which Defendant knew of the '365 Patent and that its conduct constituted and  
23 resulted in infringement of the '365 Patent. IPValue again identified the '365 patent  
24 and Defendant's infringement thereof several times thereafter, as described above,  
25 and also including through this Complaint. Defendant nonetheless has committed  
26 acts of direct and indirect infringement despite knowing that its actions constituted  
27 infringement of the valid and enforceable '365 patent, despite a risk of infringement  
28 that was known or so obvious that it should have been known to Defendant, and/or

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1 even though Defendant otherwise knew or should have known that its actions  
 2 constituted an unjustifiably high risk of infringement of that valid and enforceable  
 3 patent. Defendant’s conduct in light of these circumstances is egregious.  
 4 Defendant’s knowing, deliberate, and willful infringement of the ’365 patent entitles  
 5 Plaintiffs to increased damages under 35 U.S.C. § 284 and to attorney fees and costs  
 6 incurred in prosecuting this action under 35 U.S.C. § 285.

7 54. The Accused Products satisfy all claim limitations of one or more  
 8 claims of the ’365 Patent. For example, the Accused Products infringe claim 35 of  
 9 the ’365 Patent. One, non-limiting, example of the Accused Products infringement  
 10 is presented below.

11 55. The Accused Products include a “semiconductor memory device” that  
 12 includes “a semiconductor substrate.” For example,

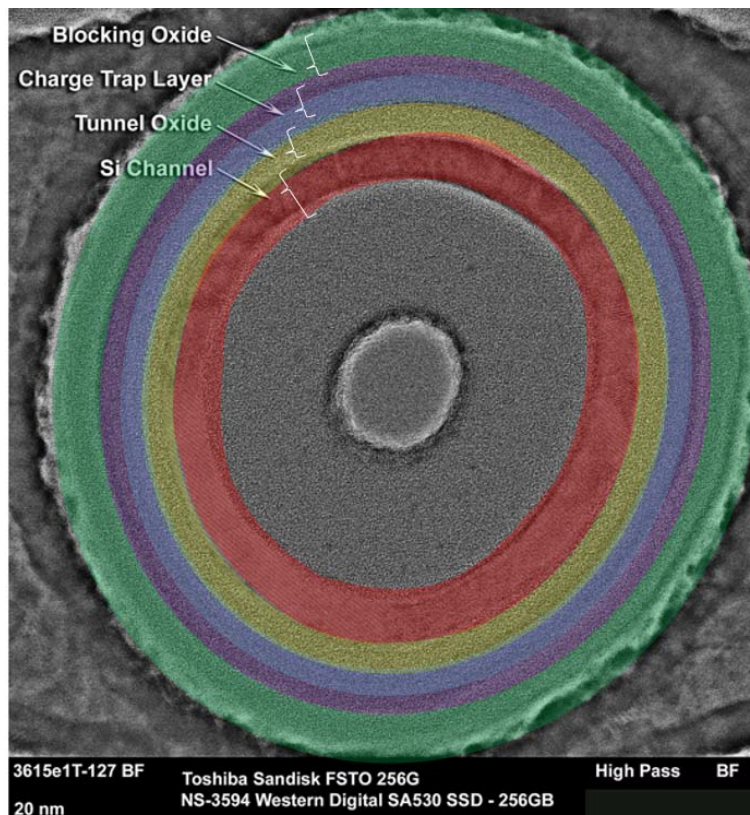


22 56. In the Accused Products, the semiconductor memory device includes  
 23 “a channel region oriented substantially perpendicular to the semiconductor  
 24 substrate, the channel region formed in a substantially annular shape.” For example,  
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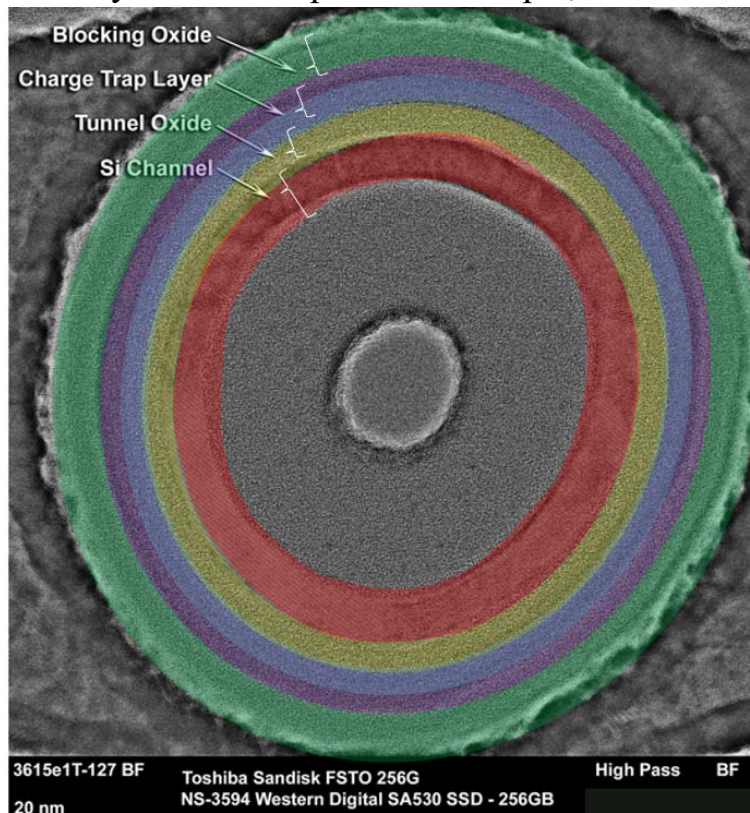


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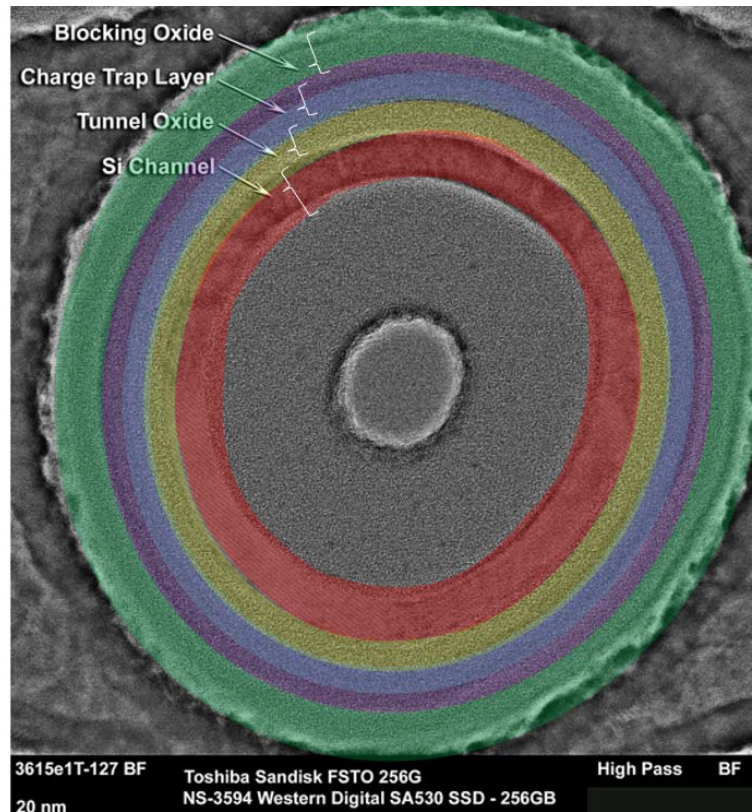


57. In the Accused Products, the semiconductor memory device includes “a tunnel dielectric layer surrounding the channel region, the tunnel dielectric layer formed in a substantially annular shape.” For example,





1 58. In the Accused Products, the semiconductor memory device includes  
2 “a multi-layer charge storing region surrounding the tunnel dielectric layer, the  
3 multi-layer charge storing region formed in a substantially annular shape.” For  
4 example,

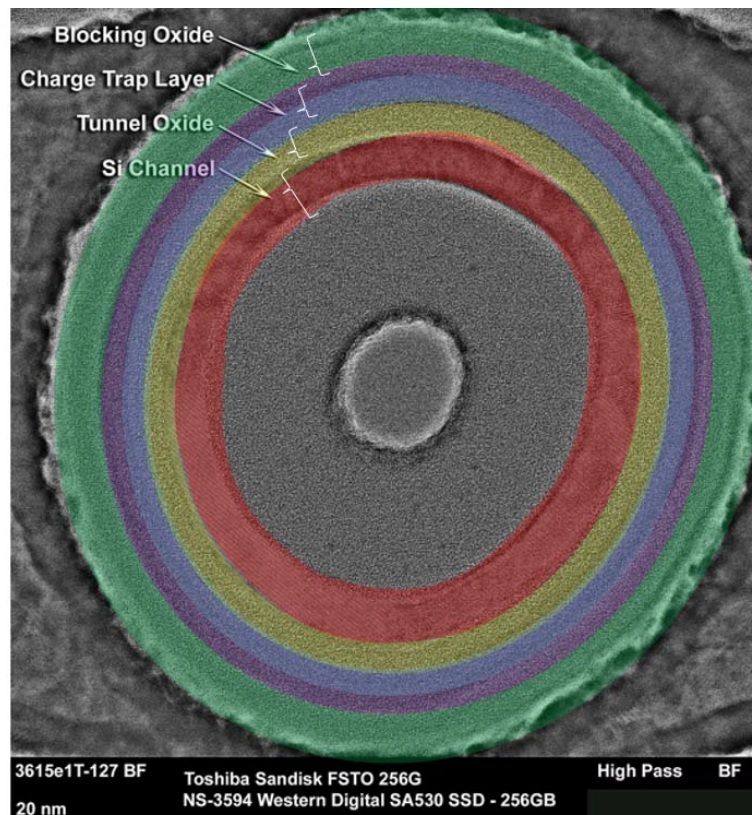


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18 59. In the Accused Products, the semiconductor memory device includes  
19 “a blocking dielectric layer surrounding the multi-layer charge storing region, the  
20 blocking dielectric layer formed in a substantially annular shape.” For example,  
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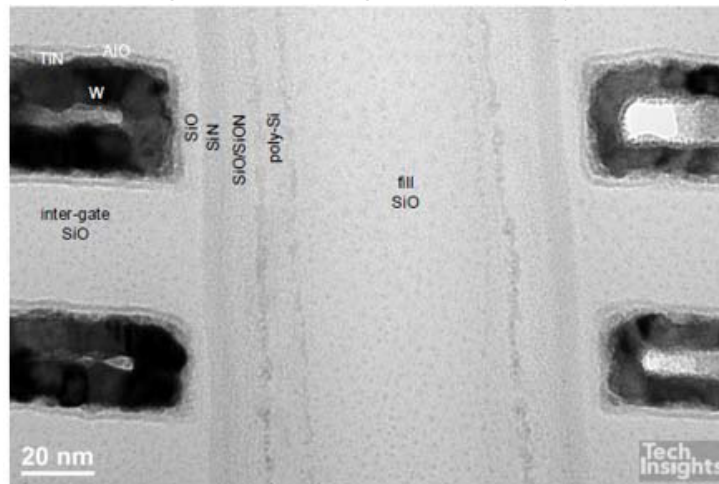
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60. In the Accused Products, the semiconductor memory device includes “a gate electrode surrounding the blocking dielectric layer.” For example,



**COUNT IV**

**INFRINGEMENT OF U.S. PATENT NO. 6,963,505**

61. Plaintiffs reallege and incorporate by reference the foregoing paragraphs as if fully set forth herein.

62. IPValue has the exclusive right to license United States Patent No. 6,963,505 titled “Method circuit and system for determining a reference voltage” to

1 Defendant and possesses substantial rights including the right to enforce the patent  
2 against Defendant. The '505 Patent was duly and legally issued by the United States  
3 Patent and Trademark Office on November 8, 2005. A true and correct copy of  
4 the '505 Patent is attached as Exhibit 4.

5 63. Defendant has known of the '505 Patent and its infringement of that  
6 patent since at least as early as March 26, 2021.

7 64. Defendant, knowing its products infringe the '505 Patent and with the  
8 specific intent for others to infringe the '505 Patent, has directly infringed (literally  
9 and equivalently) and induced and contributed to infringement by others of the '505  
10 patent by making, using, offering for sale, selling, and/or importing into the United  
11 States certain products and services that directly infringe, literally and/or under the  
12 doctrine of equivalents, one or more claims of the '505 Patent, and continues to do  
13 so. By way of illustrative example, these infringing products and services include,  
14 without limitation, Defendant's SSDs, OptiNAND HDDs, USB Flash Drives,  
15 Embedded Flash, and Memory Cards containing 3D NAND flash memory, and all  
16 versions and variations thereof since the issuance of the '537 Patent ("Accused  
17 Products").

18 65. Defendant has also infringed, and continues to infringe, claims of the  
19 '505 Patent by offering to commercially distribute, commercially distributing,  
20 making, and/or importing the Accused Products, which are used in practicing the  
21 process, or using the systems, of the patent, and constitute a material part of the  
22 invention. Defendant knows the components in the Accused Products to be  
23 especially made or especially adapted for use in infringement of the patent, not a  
24 staple article, and not a commodity of commerce suitable for substantial  
25 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily  
26 infringing the '505 Patent, in violation of 35 U.S.C. § 271(c).

27 66. Plaintiffs have complied with 35 U.S.C. § 287. At a minimum,  
28 Plaintiffs provided Defendant with pre-suit notice of infringement of the '505 Patent

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1 no later than March 26, 2021.

2 67. Plaintiffs have sustained and are entitled to recover damages as a result  
3 of Defendant’s infringement.

4 68. As described above, Defendant’s infringement of the ’505 Patent has  
5 been knowing, deliberate, and willful, since at least as early as March 26, 2021, the  
6 date of IPValue’s first letter to Defendant and therefore the latest possible date on  
7 which Defendant knew of the ’505 Patent and that its conduct constituted and  
8 resulted in infringement of the ’505 Patent. IPValue again identified the ’505 patent  
9 and Defendant’s infringement thereof several times thereafter, as described above,  
10 and also including through this Complaint. Defendant nonetheless has committed  
11 acts of direct and indirect infringement despite knowing that its actions constituted  
12 infringement of the valid and enforceable ’505 patent, despite a risk of infringement  
13 that was known or so obvious that it should have been known to Defendant, and/or  
14 even though Defendant otherwise knew or should have known that its actions  
15 constituted an unjustifiably high risk of infringement of that valid and enforceable  
16 patent. Defendant’s conduct in light of these circumstances is egregious.  
17 Defendant’s knowing, deliberate, and willful infringement of the ’505 patent entitles  
18 Plaintiffs to increased damages under 35 U.S.C. § 284 and to attorney fees and costs  
19 incurred in prosecuting this action under 35 U.S.C. § 285.

20 69. The Accused Products satisfy all claim limitations of one or more  
21 claims of the ’505 Patent. For example, the Accused Products infringe claim 1 of the  
22 ’505 Patent. One, non-limiting, example of the Accused Products infringement is  
23 presented below.

24 70. The Accused Products practice a “method of selecting a reference level  
25 from a set of possible reference levels,” which includes “using each of said possible  
26 reference levels to read a set of cells from a memory area.” For example,  
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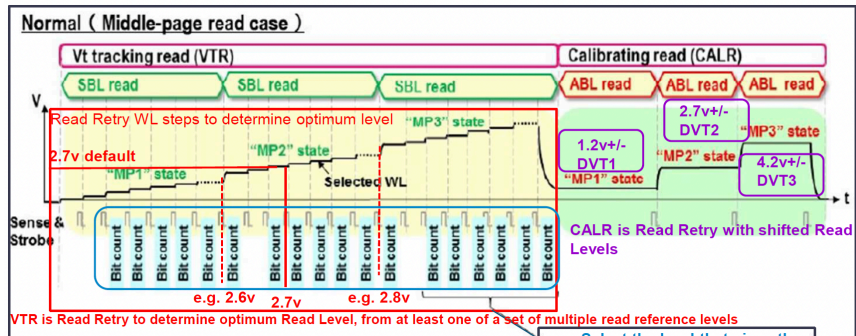
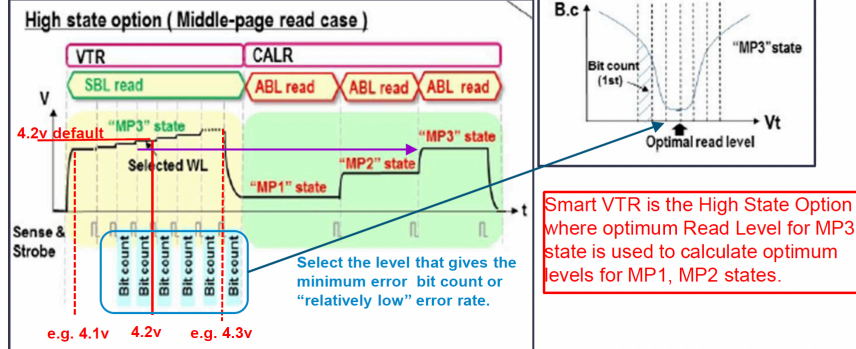


Figure 20.1.4: Smart V<sub>t</sub> tracking read (SVTR) and high-state option.



Source: SanDisk/WD-Toshiba, Paper 20.1, ISSCC 2018, A 512Gb 3b/Cell Flash Memory on a 96-Word-Line-Layer Technology

71. In the Accused Products, the method includes “determining a read error rate for each one of said possible reference levels associated with the reading of said set of cells.” For example,

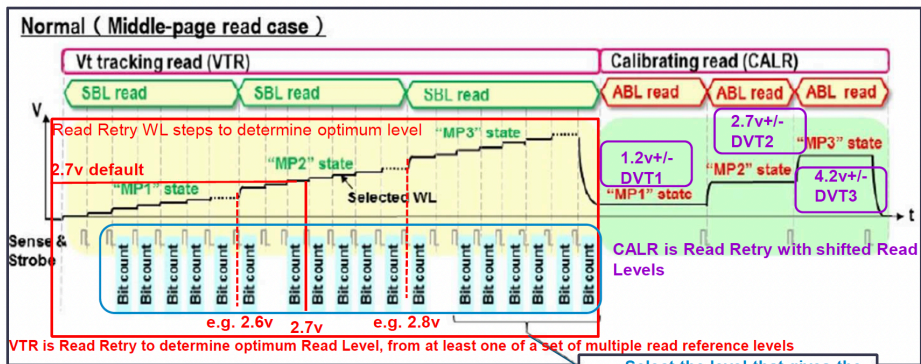
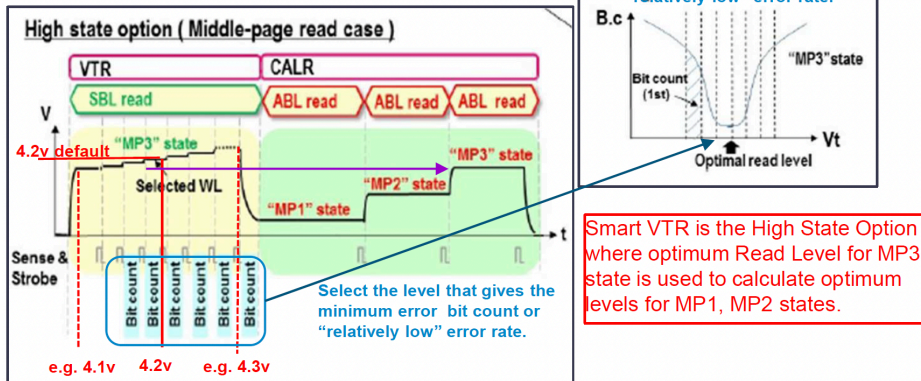


Figure 20.1.4: Smart V<sub>t</sub> tracking read (SVTR) and high-state option.



Source: SanDisk/WD-Toshiba, Paper 20.1, ISSCC 2018, A 512Gb 3b/Cell Flash Memory on a 96-Word-Line-Layer Technology

72. In the Accused Products, the method includes “selecting a reference level from said set of possible reference levels whose read error DVT rate is relatively low.” For example,

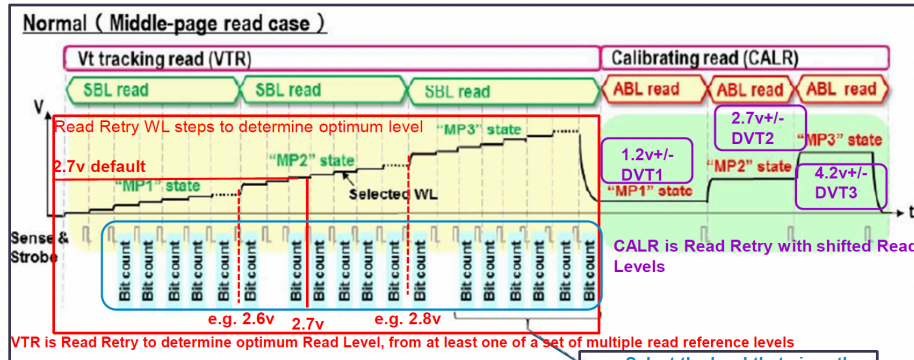
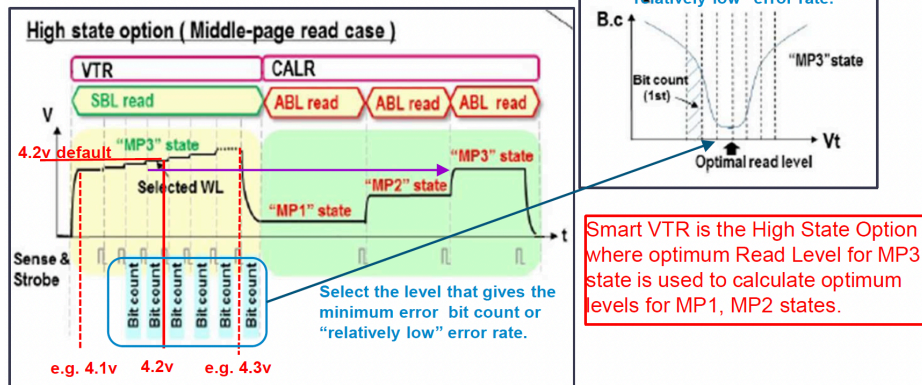


Figure 20.1.4: Smart  $V_t$  tracking read (SVTR) and high-state option.



Source: SanDisk/WD-Toshiba, Paper 20.1, ISSCC 2018, A 512Gb 3b/Cell Flash Memory on a 96-Word-Line-Layer Technology

**COUNT V**

**INFRINGEMENT OF U.S. PATENT NO. 7,671,664**

73. Plaintiffs reallege and incorporate by reference the foregoing paragraphs as if fully set forth herein.

74. LFMS is the owner and assignee of United States Patent No. 7,671,664 titled “Charge pump control circuit and method.” IPValue has the exclusive right to license the ’664 Patent to Western Digital and possesses substantial rights including the right to enforce the patent against Defendant. The ’664 Patent was duly and legally issued by the United States Patent and Trademark Office on March 2, 2010. A true and correct copy of the ’664 Patent is attached as Exhibit 5.

75. Defendant has known of the ’664 Patent and its infringement of that patent since at least as early as March 26, 2021.

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1           76. Defendant, knowing its products infringe the '664 Patent and with the  
2 specific intent for others to infringe the '664 Patent, has directly infringed (literally  
3 and equivalently) and induced and contributed to infringement by others of the '664  
4 patent by making, using, offering for sale, selling, and/or importing into the United  
5 States certain products and services that directly infringe, literally and/or under the  
6 doctrine of equivalents, one or more claims of the '664 Patent, and continues to do  
7 so. By way of illustrative example, these infringing products and services include,  
8 without limitation, Defendant's SSDs, OptiNAND HDDs, USB Flash Drives,  
9 Embedded Flash, and Memory Cards containing 3D NAND flash memory, and all  
10 versions and variations thereof since the issuance of the '664 Patent ("Accused  
11 Products").

12           77. Defendant has also infringed, and continues to infringe, claims of the  
13 '664 patent by offering to commercially distribute, commercially distributing,  
14 making, and/or importing the Accused Products, which are used in practicing the  
15 process, or using the systems, of the patent, and constitute a material part of the  
16 invention. Defendant knows the components in the Accused Products to be  
17 especially made or especially adapted for use in infringement of the patent, not a  
18 staple article, and not a commodity of commerce suitable for substantial  
19 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily  
20 infringing the '664 patent, in violation of 35 U.S.C. § 271(c).

21           78. Plaintiffs have complied with 35 U.S.C. § 287. At a minimum,  
22 Plaintiffs provided Defendant with pre-suit notice of infringement of the '664 Patent  
23 no later than March 26, 2021.

24           79. Plaintiffs have sustained and are entitled to recover damages as a result  
25 of Defendant's infringement.

26           80. As described above, Defendant's infringement of the '664 Patent has  
27 been knowing, deliberate, and willful, since at least as early as March 26, 2021, the  
28 date of IPValue's first letter to Defendant and therefore the latest possible date on

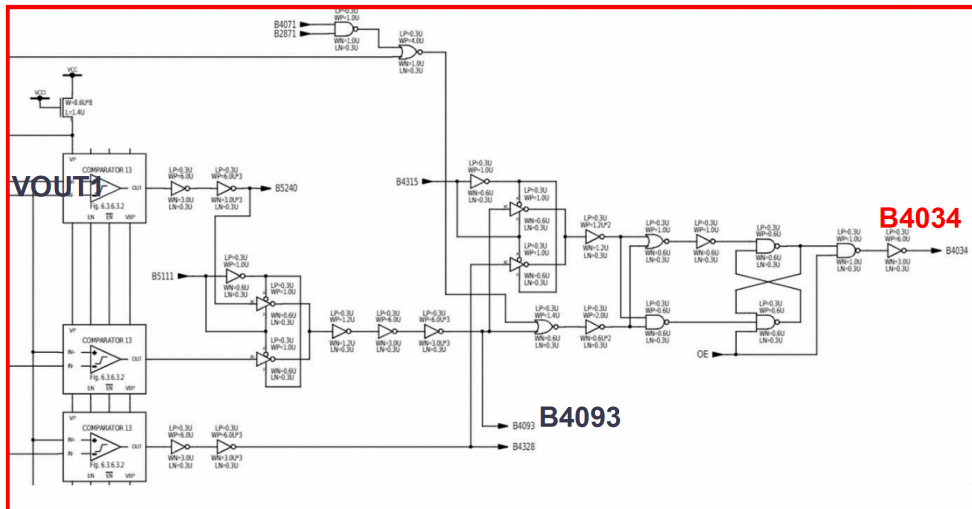


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1 which Defendant knew of the '664 Patent and that its conduct constituted and  
 2 resulted in infringement of the '664 Patent. IPValue again identified the '664 patent  
 3 and Defendant's infringement thereof several times thereafter, as described above,  
 4 and also including through this Complaint. Defendant nonetheless has committed  
 5 acts of direct and indirect infringement despite knowing that its actions constituted  
 6 infringement of the valid and enforceable '664 patent, despite a risk of infringement  
 7 that was known or so obvious that it should have been known to Defendant, and/or  
 8 even though Defendant otherwise knew or should have known that its actions  
 9 constituted an unjustifiably high risk of infringement of that valid and enforceable  
 10 patent. Defendant's conduct in light of these circumstances is egregious.  
 11 Defendant's knowing, deliberate, and willful infringement of the '664 patent entitles  
 12 Plaintiffs to increased damages under 35 U.S.C. § 284 and to attorney fees and costs  
 13 incurred in prosecuting this action under 35 U.S.C. § 285.

14 81. The Accused Products satisfy all claim limitations of one or more  
 15 claims of the '664 Patent. For example, the Accused Products infringe claim 1 of the  
 16 '664 Patent. One, non-limiting, example of the Accused Products infringement is  
 17 presented below.

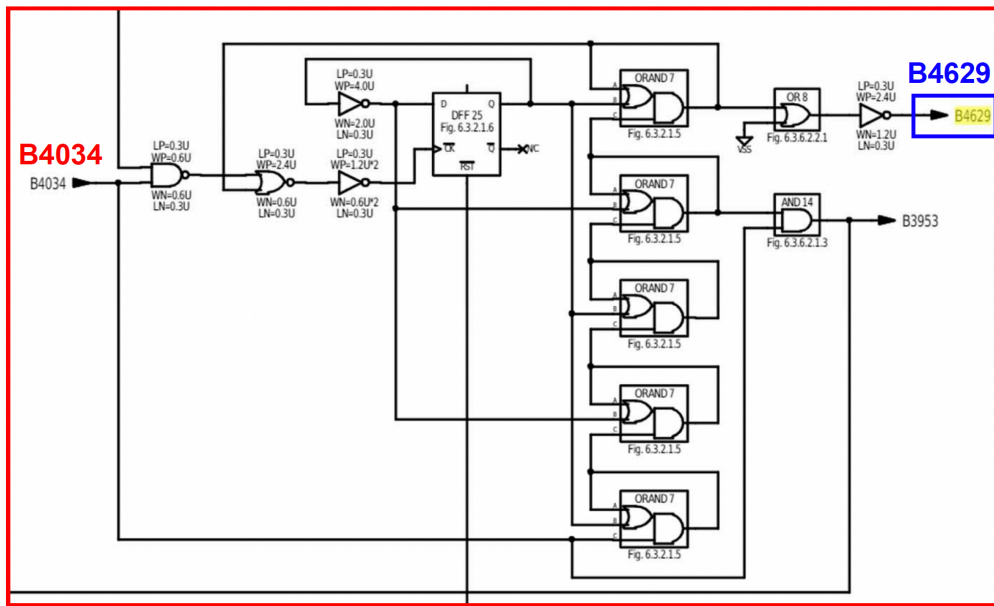
18 82. The Accused Products include "a charge pump control circuit" that  
 19 includes "a clock control circuit configured to output a switch clock control signal  
 20 based on a dynamic load." For example,



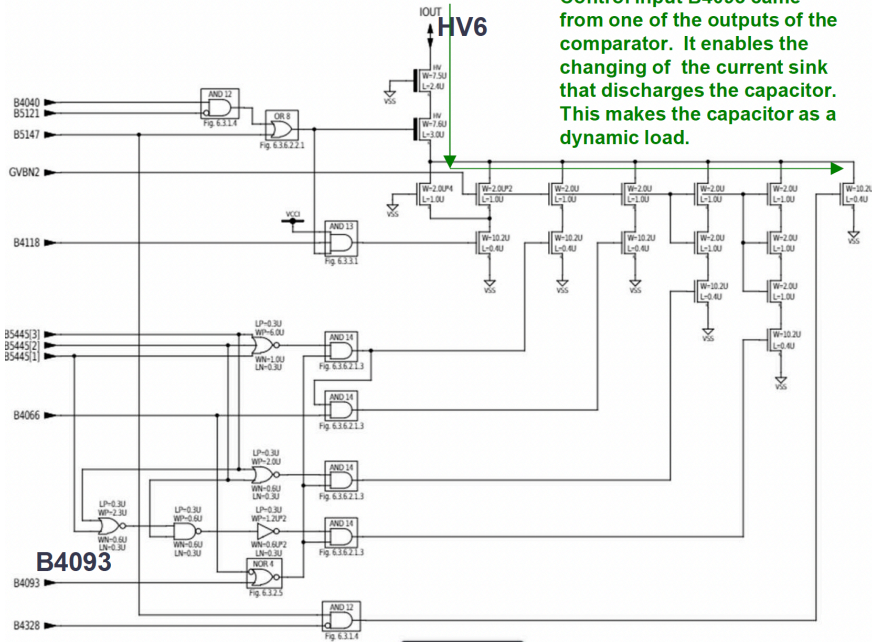


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Control input B4093 came from one of the outputs of the comparator. It enables the changing of the current sink that discharges the capacitor. This makes the capacitor as a dynamic load.



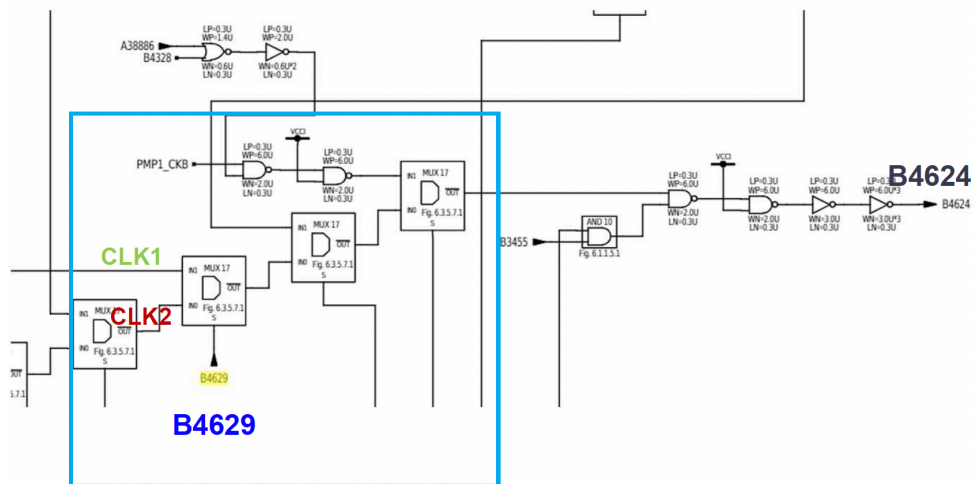
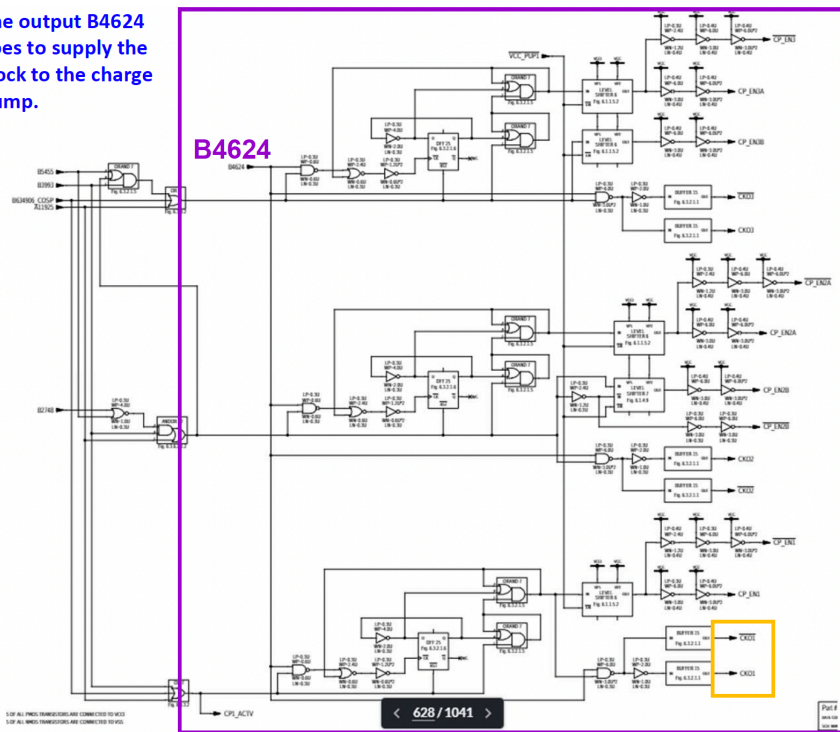
(Source: TechInsight Report Toshiba/Sandisk 96L 3D NAND Flash Circuit Analysis)

83. In the Accused Products, the charge pump control circuit includes “a clock driver circuit configured to switch a clock signal supplied to a charge pump circuit between one of a first clock signal and a second clock signal based on the switch clock control signal, wherein the first clock signal has a higher frequency than the second clock signal.” For example,

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The output B4624 goes to supply the clock to the charge pump.



(Source: TechInsight Report Toshiba/Sandisk 96L 3D NAND Flash Circuit Analysis)

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs respectfully request that this Court enter:

- a. A judgment in favor of Plaintiffs that Defendant has infringed, either literally and/or under the doctrine of equivalents, the '537 Patent, the '240 Patent, the '365 Patent, the '505 Patent, and the '664 Patent;
- b. A judgment and order requiring Defendant to pay Plaintiffs their

1 damages, costs, expenses, and pre-judgment and post-judgment interest for  
2 Defendant’s infringement of the ’537 Patent, the ’240 Patent, the ’365 Patent,  
3 the ’505 Patent, and the ’664 Patent;

4 c. A judgment and order requiring Defendant to provide an accounting  
5 and to pay supplemental damages to Plaintiffs, including without limitation, pre-  
6 judgment and post-judgment interest;

7 d. A judgement that Defendant’s infringement is willful and enhanced  
8 damages and fees as a result of that willfulness under 35 U.S.C. § 284;

9 e. A judgment and order finding that this is an exceptional case within the  
10 meaning of 35 U.S.C. § 285 and awarding to Plaintiffs their reasonable attorneys’  
11 fees against Defendant; and

12 f. Any and all other relief as the Court may deem appropriate and just  
13 under the circumstances.

14 **DEMAND FOR JURY TRIAL**

15 Plaintiffs, under Rule 38 of the Federal Rules of Civil Procedure, request a  
16 trial by jury of any issues so triable by right.

17  
18 DATED: January 22, 2025

Respectfully submitted,  
/s/ Brian D. Ledahl  
Brian D. Ledahl (CA SBN 186579)  
bledahl@raklaw.com  
Neil A. Rubin (CA SBN 250761)  
nrubin@raklaw.com  
RUSS AUGUST & KABAT  
12424 Wilshire Blvd. 12th Floor  
Los Angeles, CA 90025  
Phone: (310) 826-7474  
Facsimile: (310) 826-6991

*Attorneys for Plaintiffs*  
*IPValue Management, Inc. and*  
*Longitude Flash Memory Solutions Ltd.*

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