

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Sandisk Technologies, Inc.,
Petitioner,

v.

Longitude Flash Memory Solutions Ltd.,
Patent Owner.

Case No. IPR2025-01281

U.S. Patent No. 11,456,365

**PETITIONER'S BRIEF OPPOSING PATENT
OWNER'S REQUEST FOR DISCRETIONARY
DENIAL**

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PETITIONER'S EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,456,365 to Polishchuk et al. (“the ’365 patent”)
1002	Certified Prosecution file history for the ’365 patent (“Prosecution History”)
1003	Declaration of Jack C. Lee
1004	U.S. Patent Application Publication No. 2012/0068255 to Changhyun Lee, et al. (“Lee ’255”)
1005	Korean Patent Publication No. 2011-0118961 to Gi Hong Lee et al. and Certified English Translation of Korean Patent Publication No. 2011-0118961 to Gi Hong Lee et al. (“Lee ’961”)
1006	U.S. Patent Application Publication No. 2006/0065919A1 to Ichiro Fujiwara (“Fujiwara”)
1007	L. Lukasiak and A. Jakubowski, <i>History of Semiconductors</i> , Journal of Telecommunications and Information Technology, Vol. 3 (2010) (“Lukasiak”)
1008	U.S. Patent No. 4,203,158 to Dov Frohman-Bentchkowsky, et al. (“Frohman-Bentchkowsky”)
1009	U.S. Patent Application Publication No. 2006/0255399 to Ju-Hyung Kim, et al. (“Kim ’399”)
1010	U.S. Patent Application Publication No. 2003/0122204 to Kazumasa Nomoto, et al. (“Nomoto”)
1011	U.S. Patent Application Publication No. 2009/0179253 to Levy, et al. (“Levy”)
1012	U.S. Patent Application Publication No. 2011/0045647 to Jin-Hwa Heo, et al. (“Heo”)
1013	U.S. Patent Application Publication No. 2011/0281429 to Udayan Ganguly, et al. (“Ganguly”)
1014	U.S. Patent Application Publication No. US 2006/0113586 to Szu-Yu Wang (“Wang ’586”)

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1015	U.S. Patent No. 6,897,533 to Jean Yee-Mei Yang, et al. (“Yang ’533”)
1016	U.S. Patent Application Publication No. 2006/0198189 to Hang-Ting Lue, et al. (“Lue ’189”)
1017	U.S. Patent Application Publication No. 2009/0059676 to Shen Chih Lai, et al. (“Lai ’676”)
1018	Erh-Kun Lai, et al., <i>A Multi-Layer Stackable Thin-Film Transistor (TFT) NAND-Type Flash Memory</i> , Proceedings of the 2006 International Electron Devices Meeting (IEEE Dec. 2006) (“Lai Article”)
1019	U.S. Patent Application Publication No. 2005/0006696A1 to Mitsuhiro Noguchi, et al. (“Noguchi”)
1020	Antonio Arreghini, et al., <i>Experimental Characterization of the Vertical Position of the Trapped Charge in Si Nitride-Based Nonvolatile Memory Cells</i> , IEEE Transactions on Electron Devices, Vol. 55, No. 5 (May 2008) (“Arreghini”)
1021	U.S. Patent Application Publication No. 2010/0157680A1 to Masaaki Higuchi, et al. (“Higuchi”)
1022	U.S. Patent Application Publication No. 2008/0128790 to Jin-Hyo Jung (“Jung”)
1023	U.S. Patent Application Publication No. 2003/0198106 to Jeong-Hyuk Choi (“Choi”).
1024	U.S. Patent Application Publication No. 2009/0026460 to Tien-Fan Ou, et al. (“Ou”)
1025	Falong Zhou, et al., <i>VNDROM: A Novel Four-Bits-Per-Cell Vertical Channel Dual-Nitride-Trapping-Layer ROM for High Density Flash Memory Applications</i> , Proceeding of 2006 European Solid-State Device Research Conference (IEEE Sept. 2006) (“VDNROM”)
1026	H. Tanaka, et al., <i>Bit Cost Scalable Technology with Punch and Plug Process for Ultra High Density Flash Memory</i> , 2007 IEEE Symposium on VLSI Technology (June 2007) (“Tanaka”)

Exhibit No.	Description
1027	Toshiba Press Release, Toshiba Develops New NAND Flash Technology (June 12, 2007) (“Toshiba PR”)
1028	U.S. Patent Application Publication No. 2010/0178759A1 to JinGyun Kim, et al. (“Kim ’759”)
1029	Moon Kyung Kim, et al., <i>A Comparison of N+ Type and P+ Type Polysilicon Gate in High Speed Non-Volatile Memories</i> , Material Research Society Symposium Proceedings, Vol. 997 (MRS 2007) (“Kim Article”)
1030	U.S. Patent Application Publication No. 2006/0118858 to Sang-hun Jeon (“Jeon”)
1031	U.S. Patent Application Publication No. 2005/0237809 to Yen-Hao Shih, et al. (“Shih”)
1032	U.S. Patent Application Publication No. 2012/0276696 to Jun-Kyu Yang, et al. (“Yang ’696”)
1033	U.S. Patent Application Publication No. 2013/0270625 to Byong-hyun Jang, et al. (“Jang”)
1034	U.S. Patent Application Publication No. 2012/0068247 to Changhyun Lee, et al. (“Lee ’247”)
1035	U.S. Patent Application Publication No. 2012/0299086 to Jaegoo Lee (“Lee ’086”)
1036	U.S. Patent Application Publication No. 2011/0316064 to Jung Ho Kim, et al. (“Kim ’064”)
1037	U.S. Provisional Application No. 60/940,160 (“’160 Provisional App.”)
1038	Prosecution file history for the ’434 patent (U.S. Application No. 12/152,518) (“’434 Pros. Hist.”)
1039	Prosecution file history for the ’374 patent (U.S. Application No. 13/288,919) (“’374 Pros. Hist.”)
1040	Prosecution file history for the ’537 patent (U.S. Application No. 13/539,466) (“’537 Pros. Hist.”)
1041	U.S. Patent No. 6,912,163 to Wei Zheng, et al. (“Zheng”)

Exhibit No.	Description
1042	S.M. Sze and K. Ng, <i>Physics of Semiconductor Devices</i> (3 rd Ed. Wiley-Interscience 2007) (“Sze”)
1043	U.S. Patent Application Publication No. 2010/0019312 to Katsuyuki Sekine, et al. (“Sekine”)
1044	U.S. Patent No. 7,450,423 to Erh-Kun Lai, et al. (Lai ’423)
1045	Declaration of June Munford
1046	IEEE Declaration of Gordon MacPherson
1061	Search Disclosure Declaration of Nilesh Kumar (Submitted for <i>In Camera</i> Inspection by the Board Only)
1062	U.S. Patent No. 8,633,537 (“’537 patent”)
1063	U.S. Patent No. 9,929,240 (“’240 patent”)
1064	Motion to Stay Pending IPR Grant Rates, Docket Navigator, last visited December 16, 2025 (“Stay Grant Rates”)
1065	Median time-to-trial statistics for the U.S. District Court for the Northern District of California
1066	Judge P. Casey Pitts Standing Order for Civil Trials (“Standing Order”)
1067	Pretrial Order in <i>Kawasaki Jukogyo Kabushiki Kaisha v. Rorze Corp.</i> , 22-cv-04947 (N.D. Cal. May 20, 2025) (“Kawasaki Pretrial Order”)
1068	Pretrial Order in <i>Entangled Media, LLC v. Dropbox Inc.</i> , 23-cv-03264 (N.D. Cal. Sept. 15, 2025) (“Dropbox Pretrial Order”)
1069	Plaintiff’s Stipulation Regarding Invalidity Contentions filed October 29, 2025, in <i>Sandisk Corp. v. IPValue Management, Inc., et al.</i> , 25-cv-02389 (N.D. Cal.) (“Sotera Stipulation”)
1070	IPValue’s and Longitude Flash Memory Solutions’ Disclosure of Asserted Claims and Infringement Contentions in <i>Sandisk Corp. v. IPValue Management, Inc., et al.</i> , 25-cv-02389 (N.D. Cal.) (“Infringement Contentions”)
1071	Exhibit D: P.R. 3-1(B) Chart for U.S. Patent No. 11,456,365 (“’365 patent claim chart”)

I. INTRODUCTION

The '365 patent is precisely the type of patent that warrants *inter partes* review. The patent was issued approximately three years ago and has not been reviewed in any prior proceeding. The application for the '365 patent was filed after related applications were held open for nearly 15 years, allowing Applicants to monitor the industry and write new claims based on industry developments rather than their own alleged inventions. The '365 patent includes claims that are broader than those found in previous related applications, but the '365 patent was nonetheless granted without rejection following a truncated prior art review. As a result of the rushed process, the Examiner either overlooked or misunderstood relevant prior art disclosures, including those in numerous references that were identified to the Examiner in information disclosure statements.

The *Fintiv* factors also strongly favor institution in this case. The district court case is in its infancy. No trial date has been set and median time-to-trial statistics indicate that trial is likely to occur in August 2027, long after the final written decision deadline in March 2027. Further, nearly every significant case deadline is scheduled to occur after the institution deadline, including the *Markman* hearing, the close of fact discovery, expert discovery, and dispositive motions. Finally, Sandisk's Petition is exceptionally strong on the merits—identifying prior art that unambiguously teaches the alleged invention.

Patent Owner’s arguments in support of discretionary denial fall short. Patent Owner (“PO”) argues, for example, that Petitioner “has offered no *Sotera* stipulation.” Request for Discretionary Denial (“DD Br.”) at 1. Not so. Sandisk filed a *Sotera* stipulation on October 29, 2025—nearly three weeks before the discretionary denial request. PO also relies heavily on the assertion that Sandisk has taken inconsistent indefiniteness positions in the district court. But Sandisk’s indefiniteness arguments in the district court are precisely the type of arguments permitted under *Tesla*, *Revvo*, and a long line of precedent from both the Board and the Federal Circuit. Critically, none of the positions is inconsistent with arguments advanced in the Petition.

For the reasons set forth below, Sandisk respectfully requests that the Director reject PO’s request for discretionary denial.

II. MATERIAL ERROR IN EXAMINATION SUPPORTS INSTITUTION

Inter partes review is appropriate here because there was material error during examination. According to the file history, the Examiner determined that the claims of the ’365 patent were allowable on June 24, 2022. *See* Ex. 1002 (Pros. Hist.), 001880-1882 (“Total Claims Allowed: 45”). The “Search History” report indicates that the Examiner conducted all of his prior art searches the day before—between 5:58 p.m. on June 23, 2022 and 12:01 a.m. on June 24, 2022. Ex. 1002 (Pros. Hist.), 001885-1891 (Search History). Many of the searches were performed

in rapid succession with little or no time to review the results. For example, the Examiner performed ten searches in seven minutes between 5:58 p.m. and 6:05 p.m, yielding 1,409 search results. *See id.* at 001885. Similarly, the Examiner performed 17 searches in 11 minutes between 7:06 p.m. and 7:17 p.m., yielding 991 results. *See id.* at 001886-001889. While the Search History shows that the Examiner's searches resulted in thousands of hits, there is no record of which (if any) of the results the Examiner actually reviewed prior to allowing the claims the next day. Adding to the hurried nature of the searches, the Examiner represented that he considered all **425 references** submitted via information disclosure statements on June 23—the same day he conducted the prior art searches. *See id.*, 001894-001945.

The result of the examination is consistent with its rushed nature. The '365 patent broadened the scope of the claims allowed in prior related applications. *Compare* Ex. 1001 ('365 patent), claim 35 *with* Ex. 1062 ('537 Patent), claims 1, 9, 10, 17 *and* Ex. 1063 ('240 patent), claims 1, 12, 16. The Examiner nonetheless allowed the broadened claims without issuing any rejections. In the statement of Allowable Subject Matter, the Examiner listed claim elements that were purportedly missing from the prior art. Ex. 1002 (Pros. Hist.), 001877-2878. But the allegedly missing elements were well-known and disclosed in references that the Examiner purportedly considered.

By way of example, the Examiner stated that he allowed claim 23 (application claim 24) because the prior art failed to disclose the vertical channel limitation—“forming on an inside sidewall of the tunnel dielectric layer an annular-shaped vertical channel having a semiconductor material extending from the substrate through the opening towards the top of the stack of layer[s].” Ex. 1002 (Pros. Hist.), 001877. But such annular-shaped vertical channels were routine in the prior art dating back to at least 2007. *See* Ex. 1003, ¶¶ 85-97. Lee ’255, which was before the Examiner, expressly discloses this feature. *See* Pet. 78-80, 90; Ex. 1004 (Lee ’255), Fig. 4B, [0056]. The Examiner stated that he considered Lee ’255 (*see* Ex. 1002 (Pros. Hist.), 001906), but he either overlooked or misapprehended the vertical channel teachings.

Similarly, the Examiner allowed claim 35 (application claim 36) because the prior art allegedly failed to teach “a multilayer charge storage region.” Ex. 1002 (Pros. Hist.), 001878. But again, that feature was a well-known aspect of semiconductor memory devices dating back to the mid-2000s. *See, e.g.*, Ex. 1003, ¶¶ 54-81. The Examiner’s truncated prior art searches failed to identify Lee ’961 as relevant art, even though Lee ’961 expressly teaches “a multilayered charge trap layer.” Ex. 1005 (Lee ’961), [0010]. The Examiner also overlooked or misapprehended several other references submitted during examination that expressly disclose the allegedly missing feature. For example, U.S. Patent

Publication No. 2009/0179253 (“Levy”) discloses “**a multi-layer charge storing layer.**” *See* Ex. 1011 (Levy), [0015]; Ex. 1002 (Pros. Hist.), 001899 (showing Levy was submitted to Examiner); *see also* Ex. 1010 (Nomoto), [0035], Fig. 3H (disclosing “charge storage film” comprised of “a first nitride film CS1” and “a second nitride film CS2”); Ex. 1002 (Pros. Hist.), 001927 (showing Nomoto was submitted to the Examiner).

Under these circumstances—where the examiner overlooked relevant prior art and allowed the challenged claims without rejection following only few hours of rushed searches—a second look at the validity of the ’365 patent is warranted. *See, e.g., Tesla, Inc. v. Charge Fusion Techs., LLC*, IPR2025-00152, Paper 11 at 2 (P.T.A.B. June 12, 2025) (“Petitioner provides persuasive evidence that the Office erred in a manner material to the patentability of the challenged claims by overlooking the teachings of [a prosecution reference].”); *Anthony Inc. v. Controltec, LLC*, IPR2025-00559, -00636, Paper 12 at 2 (Dir. Rev. July 16, 2025) (“Although the challenged patents have been in force for approximately eighteen and seventeen years, Petitioner appears to show a material error by the Office, and it is an appropriate use of Office resources to review the potential error.”); *Microsoft Corp. v. Partec*, IPR2025-00318, Paper 9 (Dir. Rev. June 12, 2025) (“it is an appropriate use of Office resources to review the potential error”).

III. THE *FINTIV* FACTORS SUPPORT INSTITUTION

The *Fintiv* factors also strongly favor *inter partes* review.

A. Factor 1: Whether the Court Granted a Stay or Evidence Exists that One May Be Granted if a Proceeding Is Instituted

The first *Fintiv* factor favors institution. As PO acknowledges, the parallel case between the parties pending in the Central District of California (the “C.D. Cal. Action”) is stayed. DD Br. 10-11. A stay may also be granted in the Northern District of California action (the “N.D. Cal. Action”) once a proceeding is instituted. Indeed, courts in the Northern District of California “have often recognized a liberal policy in favor of granting motions to stay pending IPR.” *Anderson Power Prods. v. Bizlink Tech., Inc.*, No. 23-cv-05436-AMO, 2025 LX 154188, at *3 (N.D. Cal. Feb. 12, 2025). Since 2013, N.D. Cal. courts have granted motions to stay pending IPR at a rate exceeding 70% and the grant rate for such motions in 2025 to date is approximately 86%.¹

PO argues, without supporting evidence, that a stay is unlikely in the N.D. Cal. Action because Petitioner has (to-date) only sought *inter partes* review of two out of five asserted patents. But the district court has routinely granted stays when *inter partes* review is instituted for fewer than all asserted patents. *See, e.g., Jenam Tech, LLC v. Google LLC*, No. 21-CV-07994, 2022 WL 20275184, at *3 (N.D.

¹ All calculations are based on Docket Navigator data as of December 16, 2025. Ex. 1064 (Stay Grant Rates).

Cal. Mar. 28, 2022) (“Courts in this district have granted stays even when the IPR proceedings at issue do not address all the asserted claims or patents.”); *Evolutionary Intelligence LLC v. Livingsocial, Inc.*, No. 13-cv-04205, 2014 WL 2735185, at *2 (N.D. Cal. June 16, 2014) (“[I]t is of no moment that not all of the asserted claims of the [asserted] patent are subject to the IPR[.]”); *Abcellera Biologics, Inc. v. Berkeley Lights, Inc.*, No. 20-CV-08624, 2021 LX 88472, at *4 (N.D. Cal. Aug. 26, 2021) (granting a motion to stay where 2 out the 7 asserted patents are challenged in IPRs). A stay is particularly likely here given that the patents in the district court case are asserted against the same products and a stay would avoid fragmented proceedings. *See Uniloc United States of Am., Inc. v. Apple Inc.*, No. 18-cv-00361, 2018 WL 2387855, at *3 (N.D. Cal. May 25, 2018) (“Moving forward with a single case now creates a real risk of highly inefficient discovery that could require the same individuals—including third parties—to undergo multiple rounds of overlapping depositions and discovery requests.”). As the above-cited statistics and cases establish, substantial evidence exists that a stay may be granted in the N.D. Cal. Action if *inter partes* review is instituted.

B. Factor 2: Proximity of the Court’s Trial Date to the Board’s Projected Statutory Deadline for a Final Written Decision

The second *Fintiv* factor favors institution because no trial date has been set and median time-to-trial statistics show that trial will likely occur around August 2027—five months after the final written decision deadline.

As noted above, the C.D. Cal. Action is stayed. The district court in the N.D. Cal. Action has not set a trial date. Rather, the court has scheduled a “trial setting conference” for February 16, 2027. Based on median time-to-trial statistics in the Northern District of California, Sandisk expects that the trial will ultimately be scheduled for around August 2027. *See* Ex. 1065; *see also* Guidance on USPTO’s recission of “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” (Mar. 24, 2025) (“Guidance Mem.”) (Board may consider “median time-to-trial statistics”).

PO nonetheless argues that trial is likely to occur around the time of the final written decision. DD Br. 11. PO does not cite any basis for this argument. The Standing Order governing the N.D. Cal. Action makes clear that the “trial setting conference” is a conference to schedule dates for the Joint Pretrial Statement, preparation of jury instructions, submission of motions *in limine*, and Final Pretrial Conference. *See* Ex. 1066. Such pretrial tasks normally take months to complete after the trial setting conference. *See, e.g.,* Ex. 1067 (Kawasaki Pretrial Order) (nine months from trial setting conference to trial); Ex. 1068 (Dropbox Pretrial Order) (six months from trial setting conference to trial). The time required to complete these tasks after the trial setting conference is consistent with the time-to-trial statistics. Patent Owner’s argument that trial is nonetheless likely to occur within a month of the scheduling conference has no merit or support.

C. Factor 3: Investment in the Parallel Proceeding

The third *Fintiv* factor also favors institution. The third factor considers “the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv* at 9. “If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution.” *Id.* at 10.

Here, the district court case is in its infancy. The court has not issued any substantive decisions concerning the ’365 patent and is not expected to issue any such decisions prior to the institution deadline. Further, nearly every major milestone in the district court case is scheduled to occur after institution, including the *Markman* hearing, completion of document discovery, close of fact discovery, expert reports, expert discovery, and dispositive motions. *See* Ex. 2002.

PO nonetheless argues that institution should be denied because the parties will have submitted claim construction briefs before the institution deadline. DD Br. at 12. But the Board has repeatedly held that such briefing is not a significant investment that justifies discretionary denial. *See, e.g., Liberty Energy, Inc. et al. v. U.S. Well Services, LLC*, IPR2025-00031, Paper 9 at 12-15 (P.T.A.B. Apr. 29, 2025); *SAP America, Inc., v. Cyandia, Inc.*, IPR2024- 01433, Paper 13 at 10-11 (PTAB Apr. 7, 2025). PO also argues that the parties “will have expended

substantial resources” in discovery prior to institution. But this assertion lacks support. The parties have engaged in relatively little discovery. For example, no depositions have been taken and relatively few documents have been produced. Critically, fact discovery is scheduled to run through June 4, 2026—nearly three months after the institution decision deadline on March 16, 2026.

D. Factor 4: Overlap of Issues Raised the Parallel Proceeding

The fourth *Fintiv* factor favors institution because Sandisk filed a *Sotera* stipulation in district court on October 29, 2025 agreeing, upon institution, to forego any invalidity arguments that were raised or could have been raised in the Petition. *See* Ex. 1069 (*Sotera* Stipulation). As the Office has explained, “a timely-filed *Sotera* stipulation” remains “highly relevant” to the discretionary denial analysis. Guidance Mem. at 2-3. PO’s assertion that Sandisk “offered no *Sotera* stipulation” (DD Br. 1; *see also id.* at 13) is simply wrong—the stipulation was filed nearly three weeks before PO’s request for discretionary denial.

PO argues that the Director should nonetheless deny institution because there are two related patents asserted in the district court. DD Br. at 12-13. But the Board has previously rejected such arguments, holding “[w]e do not view alleged overlap with other invalidity issues involving other patents as sufficient to support discretionary denial.” *RideCo, Inc. v. Via Transportation, Inc.*, IPR2022-00740, Paper 10 at 8-9 (P.T.A.B. Sept. 1, 2022) (“We are aware of no authority to support

Patent Owner’s argument that a *Sotera* stipulation is ineffective simply because it does not apply to unchallenged claims of unchallenged patents.”). PO cites no contrary authority, nor any basis for finding that challenging the validity of different claims in different patents results in an overlap with the Petition, which challenges the validity of certain claims of the ’365 patent.

E. Factor 5: Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party

Standing alone, the fifth *Fintiv* factor would favor discretionary denial. But, as a whole, the *Fintiv* factors nonetheless strongly favor institution.

F. Factor 6: Other Circumstances that Impact the Board’s Exercise of Discretion, Including the Merits

The sixth *Fintiv* factor encompasses several considerations that favor institution in this case. First, the ’365 patent has faced virtually no prior scrutiny. It was issued in September 2022 without rejection by the Office. *See* Ex. 1002 (Pros. Hist.), 001875-1879. As noted in Part II above, there is also strong evidence of a material error by the Examiner. Further, the validity of the ’365 patent has not been reviewed in any prior district court litigation, *inter partes* review, or *ex parte* reexamination proceedings.

Second, the Petition is particularly strong on the merits. PO argues that the ’365 patent “disclosed multi-layer charge trapping architecture, combined with a high work-function gate” as “a solution intended to improve data retention and

transistor lifetime” of 3D NAND flash memory devices. DD Br. at 3. But these alleged innovations were long-known in the art, as Petitioner and its expert, Dr. Jack Lee, explain in detail with citations to more than a dozen references. *See* Ex. 1003, ¶¶54-97; Pet. 13-14. The specific prior art combination Petitioner asserts—combining the teachings of Lee ’255 and Lee ’961—is also unusually strong. Lee ’255 teaches the exact type of annularly-shaped, 3D NAND flash memory device recited in the claims of the ’365 patent, including the use of high work function material for the gate electrode and an acknowledgement that the device may include multiple layers. *See* Pet. at 38-63. Lee ’961 expressly teaches “improving the data retention properties of non-volatile memory devices by applying a multilayered charge trap layer comprising a plurality of trap layers and interlayers.” Ex. 1005 (Lee ’961), [0010]; *see also* Pet. at 46-53. Lee ’961 thus expressly teaches the same structure (a multi-layer charge trapping region) and purpose (improved data retention) that Patent Owner identifies as the alleged innovation of the ’365 patent. *See* DD Br. at 3.

Third, *inter partes* review is warranted here because the record of examination of the ’365 patent and related patents shows that Applicants manipulated the patent process by holding examination open and improperly filing applications based on industry developments rather than their own alleged inventions. On its face, the ’365 patent purports to claim priority to a provisional

application filed on May 25, 2007, through a string of eight related applications filed between 2008 and 2019. *See* Pet. 20-21. The provisional application and the earlier applications in the chain (filed in 2008 and 2011) each related to horizontal charge-trapping memory devices that were conventional in the mid-2000s. *See* Ex. 1003, ¶¶49-51, 104-105. Those applications did not disclose vertical 3D NAND memory devices. *See id.*

In June 2007, Toshiba—Sandisk’s joint venture partner—publicly announced development of vertical 3D NAND memory devices, which Toshiba referred to as “Bit-Cost Scalable” or “BiCS architecture.” *See* Ex. 1026 (Tanaka); Ex. 1027 (Toshiba PR); Ex. 1003, ¶76. Ultimately, the industry coalesced around the 3D NAND structure. *See, e.g.,* Ex. 1003, ¶¶77-80. In 2012—five years after Toshiba’s announcement and with knowledge of how the industry had developed—Applicants began filing applications directed to 3D NAND devices while claiming priority back to the earlier applications for conventional horizontal memory devices. *Compare* Ex. 1039 (’374 Pros. Hist.) at 000172–00189 (original horizontal device application) *with* Ex. 1040 (’537 Pros. Hist.) at 000327-350 (C-I-P application appending “Implementations and Alternatives” section to original application). Tellingly, Applicants even recited Toshiba’s BiCS architecture in their 2012 application as if it were part of their own invention. *See id.*, 000344 at [0099] (“Figure 7C illustrates a cross-sectional view of a vertical string of non-

planar multigate devices 700 of FIG.7A arranged in a Bit-Cost Scalable of BiCS architecture 726.”).

On January 25, 2021, nearly 15 years after submitting their provisional application, Applicants filed the application for the ’365 patent. Again, Applicants claimed a 3D NAND structure based on industry developments. Applicants then attempted to bury the Examiner by submitting more than 400 prior art references in information disclosure statements. *See id.*, 000110-1853.

Under these circumstances—where Applicants spent more than a decade prosecuting new claims from applications filed between 2007 and 2012, all with the benefit of watching how the industry progressed—*inter partes* review is warranted to ensure that Applicants were not patenting features that others developed. Review is especially critical here, where the Examiner allowed the claims without rejection after spending only a few hours (at best) searching for prior art and reviewing references. *See* Part II, above.

IV. SANDISK’S SEARCH DISCLOSURE DECLARATION SUPPORTS INSTITUTION

Sandisk filed a detailed search disclosure declaration identifying the search strategies used to identify prior art (*see* Paper 9), which is “a non-exclusive, non-dispositive favorable discretionary factor supporting institution.”

V. PATENT OWNER’S REMAINING ARGUMENTS LACK MERIT

The arguments PO advances to support discretionary denial have no merit.

A. Sandisk’s Indefiniteness Arguments Are Warranted

PO first argues that the Director should deny *inter partes* review because Sandisk has made indefiniteness arguments in the district court. Each of Sandisk’s arguments, however, is warranted under guidance from the Office and precedent from the Federal Circuit.

In November 2025, the Director issued two decisions “clarif[ying] how a petitioner should approach different claim construction positions and how the Office will assess those positions.” *Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, No. IPR2025-00632, Paper 20 at 5 (P.T.A.B. Nov. 3, 2025) (“*Revvo*”); *see also Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025-00340, Paper 18 (P.T.A.B. Nov. 5, 2025) (“*Tesla*”). The Director confirmed that “a petitioner is not necessarily precluded from arguing different claim construction positions before a district court and the Board.” *Revvo* at 5. But “the petitioner should explain sufficiently why the different positions are warranted.” *Id.* For example, where a petitioner advances an indefiniteness argument in the district court, *inter partes* review may still be warranted if, “notwithstanding the alleged indefiniteness of the claim term, an ordinary skilled artisan would understand that the asserted art satisfies the claim limitation.” *Tesla* at 3-4.

Sandisk’s positions here are warranted. Sandisk filed its Petition on September 3, 2025. At that time, Sandisk applied the plain and ordinary meaning

of the term “multi-layer charge storage region”—i.e., a region comprised of multiple layers that stores charges. Almost four weeks **after** the Petition, PO served infringement contentions. *See* Ex. 1070 (Infringement Contentions), Ex. 1071 (’365 patent claim chart). In those contentions, PO asserted that a **single** layer qualifies as a **multi-layer** region. *See id.*, at 14 (adding colored annotations to a single layer with the labels “CT1,” “Anti-Tunneling Layer,” and “CT2”). PO’s position appears to be that variations in chemical composition across a layer can transform a single layer into a “multi-layer” region.

PO’s contentions thus raised an ambiguity in the language of the challenged claims—i.e., when chemical variations are sufficient to transform a single layer into a “multi-layer” region. But this ambiguity was not (and is not) relevant to the invalidity grounds asserted in the Petition because Sandisk does not rely on a single layer structure to teach a “multi-layer” region. Rather, the Petition relies on prior art that expressly teaches multiple layers: a “**charge trap layer 202A**” that “**has a multilayer structure.**” *See* Pet. 49-51; *see also* Ex. 1005 (Lee ’961), Fig. 2b (showing first trap layer 26, oxide interlayer 27, and nitride second trap layer 28); Ex. 1003, ¶161. As such, determining when (if ever) a single layer has sufficient chemical variation to qualify as a “multi-layer charge storage region” is irrelevant to the Petition.

The ambiguity in “multi-layer charge storage region” is the quintessential argument where, “notwithstanding the alleged indefiniteness . . . , an ordinary skilled artisan would understand that the asserted art satisfies the claim limitation.” *See Tesla*. at 3-4. Numerous decisions from the Board and the Federal Circuit confirm that such indefiniteness positions are consistent with *inter partes* review. *See, e.g., Nichia Corp. v. DSS, Inc.*, No. 2022-1704, 2023 WL 7211097, at *3 (Fed. Cir. Nov. 2, 2023) (“the Board can render prior art patentability determinations even if claims are indefinite”); *Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*, 948 F.3d 1342, 1355 (Fed. Cir. 2020) (indefiniteness “does not necessarily preclude the Board from addressing the patentability”); *FMC Techs., Inc. v. OneSubsea IP UK Ltd.*, IPR2019-00935, Paper 45 at 21, 48 (P.T.A.B. Oct. 14, 2020); *Tetra Tech Canada Inc. v. Georgetown Rail Equip. Co.*, IPR2019-00620, Paper 26 at 60 (P.T.A.B. Aug. 25, 2020).

PO also argues, without analysis, that Sandisk took other inconsistent indefiniteness positions in district court. DD Br. at 8. But Sandisk’s district court positions show the opposite—that Sandisk has meticulously avoided advancing inconsistent arguments across the two proceedings. For example, PO observes that Sandisk identified claims 4, 13, and 24 as indefinite in the district court. *Id.* But Sandisk intentionally **omitted** those claims from the Petition due to the indefiniteness of the claims. *See* Pet. 28. Sandisk has also identified the terms

“oxygen-rich” and “oxygen-lean” as indefinite because the outer bounds of those terms are uncertain. Ex. 2003 at 115. But Sandisk explained in the Petition that *inter partes* review is still possible because, notwithstanding the ambiguity in the outer bounds, embodiments from the specification give oxygen ranges that allow evaluation of the prior art. Pet. 24. Again, this position is consistent with *Tesla* and the long line of precedent cited above. Finally, Sandisk identified dependent claim 43 as indefinite in district court due to an error in the claim. Again, Sandisk identified the error in the Petition and explained how the claim should be interpreted for purposes of *inter partes* review. Pet. 27.

In short, every position that Sandisk has taken is warranted under precedent from the Board and the Federal Circuit. Sandisk has not advanced any inconsistent positions that would warrant discretionary denial.

B. Patent Owner Has No “Settled Expectations”

The ’365 patent issued three years ago, on September 27, 2022. As such, the “settled expectations” doctrine does not support discretionary denial. PO nonetheless argues that institution should be denied because patents related to the ’365 patent issued more than six years ago. *See* DD Br. at 14. This “infectious” settled expectations argument should be rejected.

First, the ’365 patent broadened the scope of the independent claims allowed in the earlier related patents. For example, the independent claims of the ’537

patent required “oxygen-rich” and “oxygen-lean” nitride layers, high work function gate electrodes, and either a metal oxide semiconductor (MOS) logic transistor or an intermediate “anti-tunneling” layer between two charge trapping layers. Ex. 1062 (’537 patent), claims 1, 9, 10, 17. The ’240 patent similarly requires “oxygen-rich” and “oxygen-lean” nitride layers, and either an intermediate “anti-tunneling” layer or a MOS logic transistor. Ex. 1063, (’240 patent), claims 1, 12, 16. The ’365 patent strips all these elements out of independent claim 35. As such, even if PO had settled expectations with respect to the narrower claims found in the earlier applications, those expectations would not extend to the ’365 patent.

Second, there is no factual or legal basis for PO’s attempted extension of the “settled expectations” doctrine. Under PO’s theory, as soon as any member of a patent family obtains “settled expectations,” *inter partes* review should be denied for all later family members, no matter how recently those patents issued nor the scope of the new patent claims. But the Office has held the opposite—that the existence of newly issued patents overcomes any settled expectations in earlier-issued patents and even justifies *inter partes* review of the older related patents. *See, e.g., Padagis US LLC v. Neurelis, Inc.*, IPR2025-00464, Paper 12 at 3-4 (P.T.A.B. July 16, 2025); *Embodly, Inc. v. Lifenet Health*, IPR2025-00248, Paper 12 at 2-3 (June 26, 2025); *Shenzhen Tuozhu Tech. Co., Ltd. v. Stratasys, Inc.*, IPR2025-00438, Paper 10 at 2-3 (P.T.A.B. July 17, 2025).

VI. CONCLUSION

For the foregoing reasons, Sandisk respectfully requests that the Director deny PO's request for discretionary denial.

Respectfully submitted,
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on December 16, 2025, a true and correct copy of the Petitioner's Brief Opposition Patent Owner's Request for Discretionary Denial and Exhibits 1062-1071 were served in entirety via email to all parties to this proceeding at the addresses indicated:

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