

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

PARTEC CLUSTER COMPETENCE CENTER GMBH,
Patent Owner.

IPR2025-00318
Patent No. 11,537,442

**PETITIONER'S OPPOSITION TO PATENT OWNER'S
BIFURCATED DISCRETIONARY DENIAL BRIEFING**

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EXHIBIT LIST

LIST OF NEWLY FILED EXHIBITS

Exhibits concurrently filed with Petitioner's Opposition To Patent Owner's
Bifurcated Discretionary Denial Briefing:

No.	Description
1026	Judge Schroeder Calendar Events June 15, 2026 (last visited May 14, 2025)
1027	Petitioner Sotera Stipulation, Served May 9, 2025

LIST OF PREVIOUSLY FILED EXHIBITS

No.	Description
1001	U.S. Patent No. 11,537,442 (“ 442 patent ”)
1002	File History of U.S. Patent No. 11,537,442
1003	Declaration of Darrell Long, dated December 20, 2024 (“ Long Decl. ” or “ Long ”)
1004	U.S. Patent App. Pub. No. U.S. 2013/0282787 (“ Lippert ”)
1005	John R. Budenske et al., <i>A Method for the On-Line Use of Off-Line Derived Remappings of Iterative Automatic Target Recognition Tasks onto a Particular Class of Heterogeneous Parallel Platforms</i> , The Journal of Supercomputing, Vol. 12, No. 4 (Oct. 1998) (“ Budenske ”)
1006	U.S. Patent App. Pub. No. U.S. 2018/0074855 (“ Kambatla ”)
1007	Yu-Kwong Kwok et al., <i>A Semi-Static Approach to Mapping Dynamic Iterative Tasks onto Heterogeneous Computing Systems</i> , Journal of Parallel and Distributed Computing (2005) (“ Kwok ”)
1008	Mitchell D. Theys et al., <i>Mapping Tasks onto Distributed Heterogeneous Computing Systems Using a Genetic Algorithm</i>

No.	Description
	<i>Approach</i> , Solutions to Parallel and Distributed Computing Problems (A. Zomaya, F. Ercal & S. Olariu eds., 2001) (“ Theys ”)
1009	U.S. Patent No. 3,496,551 (“ Driscoll ”)
1010	Yuan-Chieh Chow and Walter H. Kohler, <i>Models for Dynamic Load Balancing in a Heterogeneous Multiple Processor System</i> , IEEE Transactions on Computers, Vol. C-28, No. 5 (May 1979) (“ Chow ”)
1011	David M. Nicol and Paul F. Reynolds, Jr., <i>Optimal Dynamic Remapping of Data Parallel Computations</i> , IEEE Transactions on Computers, Vol. 39, No. 2 (Feb. 1990) (“ Nicol ”)
1012	Arun C. Murthy, et al., Apache Hadoop YARN (2014) (“ Murthy ”)
1013	Morris Jette and Mark Grondona, <i>SLURM: Simple Linux Utility for Resource Management</i> , ClusterWorld Conference and Expo (“ Jette ”)
1014	Norbert Eicker et al., <i>The DEEP Project: An Alternative Approach to Heterogeneous Cluster-Computing in the Many-Core Era</i> , Concurrency and Computation: Practice and Experience (2016) (“ Eicker ”)
1015	U.S. Patent App. Pub. No. U.S. 2017/0262319 (“ Newburn ”)
1016	Carsten Clauss et al., <i>Dynamic Process Management with Allocation-internal Co-Scheduling towards Interactive Supercomputing</i> , Proceedings of the First Workshop on Co-Scheduling of HPC Applications (2016) (“ Clauss ”)
1017	Declaration of Rachel J. Watters dated December 13, 2024 (“ Watters Decl. ”)
1018	Samik Raychaudhuri, <i>Introduction to Monte Carlo Simulation</i> , Proceedings of the 2008 Winter Simulation Conference (2008) (“ Raychaudhuri ”)
1019	David W. Bauer, Jr. and Mojdeh Mohtashemi, <i>An Application of Parallel Monte Carlo Modeling for Real-Time Disease Surveillance</i> , Proceedings of the 2008 Winter Simulation Conference (2008) (“ Bauer ”)

No.	Description
1020	List of Challenged Claims
1021	U.S. Patent No. 5,881,227 (“ Brenner ”)
1022	U.S. Patent No. 7,047,299 (“ Curtis ”)
1023	N. Metropolis, <i>The Beginning of the Monte Carlo Method</i> , Los Alamos Science, Special Issue (1987) (“ Metropolis ”)
1024	U.S. District Court, Eastern District of Texas, Calendar Events Set for 4/1/2026-4/30/2026, Judge Robert W. Schroeder, III, Presiding
1025	Time to Milestones Report, Judge Robert W. Schroeder, III, DocketNavigator, https://search.docketnavigator.com/patent/judge/15325/15?print=true (last visited Dec. 19, 2024)

I. INTRODUCTION

For the reasons explained herein, discretionary denial is not warranted under 35 U.S.C. §§ 325(d) or 314(a).

First, the Grounds present art and arguments not previously considered by the Office, thus foreclosing denial under Section 325(d). Patent Owner does not deny that both Grounds in the Petition (Paper 1) rely on references that were not before the Office during prosecution (Budenske and Kambatla). Instead, Patent Owner argues that those references are cumulative of art presented during prosecution, but it presents only bare assertions that cannot justify discretionary denial. And Patent Owner's unsupported statements are incorrect. Both Budenske and Kambatla are non-cumulative and Budenske, in particular, fills precisely those gaps that the Examiner found missing from the primary Lippert reference.

Second, each *Fintiv* factor weighs against denial or is neutral, thus the Board should not deny under Section 314(a). Numerous other relevant considerations also favor institution, including the compelling merits of the Petition, the parties' settled expectations, public interests, and efficient use of Board resources.

Patent Owner's arguments also fail (for both Sections 325(d) and 314(a)) because they rely on a narrow and mistaken view of Budenske. Patent Owner's assertion that Budenske was not capable of distributing tasks to a mix of processor types—the lynchpin of its arguments—is simply incorrect. Budenske repeatedly

discloses distributing multiple subtasks among multiple processor types, and Patent Owner cannot erase that repeated disclosure (identified and relied on by the Petition) by pointing to a lone statement describing a simplifying assumption as to how a single subtask is handled.

II. DISCRETIONARY DENIAL IS UNWARRANTED UNDER 35 U.S.C. § 325(d)

The Board should decline to discretionarily deny institution under Section 325(d) because all Grounds rely on references—Budenske and Kambatla—that Patent Owner does not dispute were not of record during prosecution and, contrary to Patent Owner’s assertions, are not cumulative of references that were. And the Grounds rely on Lippert, which was before the Office, only for claim elements that the Applicant did not dispute it disclosed.

In analyzing this issue, the Board applies a two-part framework: “(1) whether the same or substantially the same art previously was presented to the Office”; and, if so, (2) “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). In applying the two-part framework, the Board considers several nonexclusive factors, including: “(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the

cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.” *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph).

A. The Examiner Did Not Consider The Same Or Substantially The Same Art During Prosecution (*Becton* Factors (a), (b), (d))

There is no dispute that both Grounds rely on art not considered during prosecution. Both Grounds rely on Budenske, and Ground 2 adds Kambatla. Petition, 2. And there is no dispute that neither Budenske nor Kambatla was cited or discussed during prosecution. *E.g.*, Patent Owner’s Bifurcated Discretionary Denial Briefing (Paper 6, “PO Brief”), 20. Instead, Patent Owner asserts that Budenske and Kambatla are cumulative (*id.*, 20-21), but, as shown below, Patent Owner’s conclusory assertions are incorrect.

1. Budenske Is Non-Cumulative

As an initial matter, Patent Owner's arguments that Budenske is cumulative of U.S. Pat. Publ. No. 2017/0262319 ("Newburn", EX1015¹) are entirely conclusory. PO Brief, 20-21. Patent Owner provides no meaningful comparison of Budenske and Newburn, instead relying on the '442 patent's characterization of Newburn and a single sentence fragment from Newburn. PO Brief, 20-21 (quoting EX1001, 1:56-63 and EX2006, [0021]). Moreover, Patent Owner fails to meet its burden because it does not show any Newburn disclosures are substantially similar to the Budenske teachings relied on in the Petition. Patent Owner's argument thus fails for not identifying the "similarities and material differences between the asserted art and the prior art involved during examination." *Becton*, IPR2017-01586, Paper 8 at 17-18.

**a) The Petition Relies On Aspects
Of Budenske Not Disclosed By Newburn**

Furthermore, the relevant Budenske teachings—those cited in the Petition—are non-cumulative of Newburn. Patent Owner's assertion to the contrary relies on the following Newburn quote: "mapping a plurality of concurrent tasks onto a heterogeneous platform of computing resources." PO Brief, 20-21 (quoting EX2006, [0021]). But the Petition relies on Budenske for much more than just mapping tasks

¹ Cited by Patent Owner as EX2006.

onto a heterogeneous computing platform having processors of different types. For example, the Petition relies on Budenske's *remapping subtasks* among those different processors *between different computing iterations* based on monitored *information relating to the processing of the subtasks during an earlier computing iteration*. See Petition, 29-32, 52 (applying the teachings of Budenske to limitations [1.3] and [9.5]).

In this vein, Budenske teaches mapping and then remapping sub-tasks among different processor types after each computing iteration, as dictated by system parameters monitored during prior iterations. It explains that “mapping” involves “matching of application subtasks to processors and a scheduling for the execution order of these subtasks.” EX1005, 387. It further teaches to “monitor[] the run-time values of the dynamic parameters at the end of each iteration” and “make a heuristically-based decision whether to continue with the current mapping, or to select and instantiate a new mapping (for the next iteration).” *Id.*, 395 (cited by Petition, 29-30). One purpose of this remapping decision is to reduce computing times, i.e., to “use the most recent values of these dynamic parameters to estimate if changing the matching and scheduling *will reduce the expected execution time of the next iteration*.” *Id.*, 402 (emphasis added) (cited by Petition, 31, 33). “[T]his decision is made in real time after all subtasks’ implementations for the current iteration have finished executing and before any subtask implementations begin to execute for the

next iteration.” *Id.* (cited by Petition, 14). Budenske refers to this in its introduction as “*real-time on-line input-data dependent remapping* of the application subtasks to the processors in the heterogeneous parallel hardware platform.” EX1005, 387 (emphasis added) (cited by Petition, 26).

Patent Owner does not suggest, nor is it the case, that Newburn includes disclosures of either (1) remapping subtasks among heterogeneous processing hardware between a first iteration and a subsequent iteration, or (2) doing so using information related to the processing of the subtasks in a prior computing iteration.

Accordingly, the relevant disclosures of Budenske relied on in the Petition are non-cumulative of art that was before the Office during prosecution.

b) Patent Owner Misapprehends Budenske, Which Plainly Teaches To Assign And Then Reassign Sub-Tasks Among Different Types of Processors

Patent Owner’s analysis of Budenske also fails because it incorrectly asserts that “Budenske expressly notes that it cannot map a sub-task onto different types of processors, but instead can only utilize one of the available types of processors at a time” based on a single out-of-context statement. PO Brief, 20 (citing EX1005, 392; PO Brief, Section II.B.2.b (wrongly asserting that Budenske “was not capable of

distributing tasks to a *mix* of processor types”) (emphasis original)).² That is both inconsistent with Budenske’s disclosures and a faulty analysis of the narrow section of Budenske on which Patent Owner relies.

First, Patent Owner’s assertion cannot stand in the face of Budenske’s numerous disclosures that teach a heterogenous system with different types of processors, and mapping and remapping subtasks between such processors in each iteration. As discussed above, those disclosures are replete throughout both Budenske and the Petition. *Supra* Section II.A.1.a). Moreover, Budenske expressly teaches how to “assign each ATR application subtask to the processors where it is best suited for execution” (EX1005, 390) within a heterogenous system that contains “up to four different types of processors, and up to a total of 64 processors (of all types combined)” (*id.*, 391). “For example, two types may be SHARC DSP processors and PowerPC RISC processors. *These processors will comprise the heterogeneous parallel architecture onto which application tasks will be mapped.*”

² While Patent Owner generally references its Preliminary Response without pin cites (*e.g.*, PO Brief, 15-16, 20), the Preliminary Response fails to substantively address the numerous Budenske disclosures that describe a heterogenous system with multiple processor types, where subtasks are remapped among those processors between iterations based on dynamic runtime data.

Id. (emphasis added). Budenske teaches evaluating, from iteration to iteration, whether “to reconfigure the assignment of processing resources to subtasks to reduce execution time of the next iteration” EX1005, 391 (cited by Petition, 31). It thus aims to reassign subtasks to different processor types in order to reduce execution times from iteration to iteration.

Budenske emphasizes that “[i]f it is desirable, the HC Kernel will select a new assignment to use for the next execution iteration through the subtasks. If not, the same assignment will continue to be used.” *Id.*, 391. It expressly discloses the HC Kernel requires information relating to “how many processors of each type it has available to assign.” *Id.*, 396. This plainly shows that the system is designed to support dynamic remapping, potentially changing which type of processor executes a given subtask on subsequent iterations, to reduce execution time. Since the remapping decision relies on runtime-evolving application parameters—like the number of objects detected in an image frame—the assignment of subtasks to available processing resources can and does vary over time. *See* Petition, 19-20.

Second, even the excerpt of Budenske that Patent Owner quotes does not support its argument. Patent Owner’s assertions hinge on an excerpt of the following sentence from Budenske: “*For simplicity*, it is assumed that if an implementation of a given subtask uses multiple processors, all processors will be of the same type.” EX1005, 392 (emphasis added to portion omitted from Patent Owner quotation of

this sentence) (partially quoted by POPR (Paper 7), 12, 18, 23).³ But that does not support Patent Owner’s assertions. To the contrary, the sentence fragment quoted by Patent Owner only indicates that *in a given iteration* each subtask will be mapped to processors of the same type—a simplifying assumption that makes calculating mappings for multiple subtasks and multiple processors during each iteration more efficient. *See* EX1005, 392 (explaining how the assumption impacts “the expected execution time ... of a subtask”). Budenske never suggests that a subtask cannot be remapped to different types of processors over the course of multiple iterations. Indeed, Budenske explicitly teaches that its Algorithm Database, containing the algorithms used to perform subtasks (EX1005, 392), includes implementations of each algorithm “for each processor type” (*id.*, 396). Because the Algorithm Database also includes the “expected execution time of each algorithm implementation” (*id.*, 396), this allows Budenske to assign a given subtask to any available processor type to minimize the execution time for the subtask—demonstrating that every subtask can be mapped to every processor type. And, critically, subtasks are mapped to processors *for each iteration*. *See, e.g.*, EX1005, 402 (teaching determining a new mapping of sub-tasks to processing resources “in real time *after all subtasks*’

³ Throughout its Discretionary Briefing and POPR, Patent Owner omits those first two emphasized words of the sentence: “For simplicity.”

implementations for the current iteration have finished executing and *before any subtask implementations begin to execute for the next iteration*”) (emphasis added) (cited by Petition, 14); *id.* (describing functionality performed “*after all subtasks’ implementations have completed execution for a given iteration ... and before the next iteration begins*”) (emphasis added) (cited by Petition, 30). As such, the simplifying assumption Patent Owner cites does not support its narrow reading of the art. To the contrary, Budenske discloses distributing subtasks to a mix of processor types.

2. Kambatla Is Non-Cumulative

As with Budenske, Patent Owner asserts that Kambatla is cumulative of art presented to the Office because it is directed to the same “field of invention” or “similar topics” as references considered during prosecution. PO Brief, 21. Patent Owner fails to make any meaningful analysis of how the Kambatla disclosures relied on by the Petition are cumulative of any reference discussed during prosecution or in the ’442 patent’s background. *See* PO Brief, 21. That alone is fatal to Patent Owner’s § 325(d) argument as to Kambatla.

Moreover, Patent Owner’s focus on Kambatla is beside the point, as the Petition relies on Kambatla in alternative Ground 2, to the extent the claimed application manager and daemon operating at a node are contended to be lacking in Lippert-Budenske. *See* Petition, 57, 62-64, 68-70. As explained in Ground 1

(Petition, 33-34, 41-43), Lippert-Budenske at least renders these claim elements obvious and Patent Owner has not argued otherwise. If that holds, then certain Kambatla disclosures may perhaps be cumulative over Lippert and Budenske but in that case the Board need not even consider Ground 2. If, on the other hand, Lippert-Budenske is found to lack the application manager and daemon elements, then Kambatla—which expressly teaches these elements—is non-cumulative of Lippert and Budenske. In either case, the Petition’s reliance on Kambatla serves as no basis for discretionary denial under Section 325(d).

**B. The Examiner Materially Erred In
Not Considering The Relevant Teachings Of
Budenske And Kambatla (*Becton* Factors (c), (e), (f))**

As explained above, neither Budenske nor Kambatla is cumulative of previously presented art. But even if they were, the Examiner materially erred in not considering the relevant teachings of Budenske and Kambatla, and in not rejecting the claims for the reasons presented in the Petition.

During prosecution, the claims of the ’442 patent were allowed following a single set of claim amendments filed on July 22, 2022. EX1002, 171-172. In the Remarks accompanying this amendment, the Applicant argued that the amended claims were allowable over the Examiner’s § 102 rejection over Lippert. Specifically, the Applicant argued that Lippert “fails to disclose *a plurality of sub-tasks of a specific computation task being computed in multiple computing*

iterations” and that Lippert does not disclose re-distributing sub-tasks using “*information relating to the processing of the plurality of the sub-tasks.*” *Id.*, 174-175 (emphasis added). In response to Applicant’s remarks, the Examiner allowed the as-amended claims on September 1, 2022. *Id.*, 179. Budenske, as presented in the Petition, discloses these same elements that the Applicant argued in its July 22, 2022, Remarks were not disclosed by Lippert alone, which directly led to allowance. And Kambatla discloses other claimed elements to the extent they are contended not to be met by Lippert-Budenske. If, as Patent Owner argues, the relevant teachings of Budenske and Kambatla are cumulative of art that was before the Examiner, then the Examiner materially erred by not considering them in combination with Lippert and making a § 103 obviousness rejection based on such combinations.

Accordingly, even if the relevant teachings of Budenske and Kambatla were cumulative of art before the Office during prosecution—which they are not—the Examiner materially erred in not considering such teachings in combination with Lippert. Thus, a denial of the Petition under 35 U.S.C. § 325(d) is not warranted.

III. DISCRETIONARY DENIAL IS UNWARRANTED UNDER 35 U.S.C. § 314(a)

In determining whether to exercise discretion under 35 U.S.C. § 314(a) to deny institution in view of a parallel proceeding, the Board developed a framework that includes consideration of six factors (the “Fintiv factors”). *Apple Inc. v. Fintiv*,

Inc., IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). “These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.*, 6. In evaluating the *Fintiv* factors, the Board takes “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review,” recognizing that “there is some overlap among these factors” and that “[s]ome facts may be relevant to more than one factor.” *Id.* More recently, on March 26, 2025, the Director issued a memorandum identifying additional exemplary discretionary criteria that may be considered and stating that parties are “permitted to address all relevant considerations.” Memorandum: Interim Processes for PTAB Workload Management, March 26, 2025 at 2 (available at <https://www.uspto.gov/sites/default/files/documents/InterimProcesses-PTABWorkloadMgmt-20250326.pdf>).

As set forth below, the sum of factors weighs against discretionary denial here. The *Fintiv* factors are all either neutral or weigh against discretionary denial. Moreover, the Petition’s compelling merits, the parties’ settled expectations, the public’s economic interests, and efficiency considerations all further weigh against denial.

A. Factor 1: Agreed By The Parties To Be Neutral

Petitioner does not dispute that at the current time this factor is neutral. *See* PO Brief, 5.

B. Factor 2: The Trial Date Weighs Against Denial Or Is Neutral

Factor 2 weighs against denial, as the district court trial date has already been extended once and now falls on a date highly congested with other trials, roughly one month prior to the estimated final written decision deadline. At most, this factor is neutral. The District Court has already pushed back by two months the date for jury selection, which is now provisionally scheduled for June 15, 2026. *See* EX1024, EX2002. The presiding judge, Judge Schroeder, has *ten patent jury trials scheduled for that same date* (EX1026), making further extensions more likely.⁴

⁴ The Petition presents time-to-trial statistics for Judge Schroeder for the ten-year period prior to the Petition's filing, indicating an expected trial date in September 2026. Petition, 4 (citing EX1025, 2). Patent Owner relies on a different dataset not specific to the assigned district court judge. PO Brief, 6 (citing EX2003, 35). Neither set of statistics change either the current trial date or the fact that ten trials cannot be conducted on that date.

The currently scheduled jury selection date is only roughly one month before the estimated July 16, 2026, final written decision in this case. The Board has found this factor to be neutral in similar cases where the anticipated trial date is about a month before the expected final decision. *Cisco Sys., Inc. v. Video Sols. Pte. Ltd.*, IPR2024-00194, Paper 7 at 9-10 (PTAB Mar. 28, 2024) (finding factor neutral where “trial is likely to begin within approximately one month of our final written decision”); *Halliburton Energy Servs., Inc. v. U.S. Well Servs., LLC*, IPR2021-01038, Paper 11 at 10-11 (PTAB Jan. 19, 2022) (finding factor neutral where “the time period from the district court’s default trial date to our projected statutory deadline for a final written decision is approximately one month.”).

Under *Fintiv*, this factor at worst is neutral: “If the court’s trial date is at or around the same time as the projected statutory deadline..., the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding.” *Fintiv*, IPR2020-00019, Paper 11 at 9. But the district court’s congested docket suggests an even later trial date, thus tilting this factor against denial.

C. Factor 3: Minimal Investment In The District Court And Petitioner’s Diligence Weigh Against Denial

The district court case remains in its early stages, with minimal investment by the parties or court. As admitted by Patent Owner, the parties will not even exchange

proposed terms for construction (the earliest stage of a lengthy claim construction process) until August 8, 2025, several weeks after the Board's expected institution decision. PO Brief, 6-7; EX2002, 5. Claim construction discovery ends October 17, 2025, and the district court will not hold its *Markman* hearing until December 12, 2025. *Id.*, 4-5. Moreover, the current fact discovery deadline is January 26, 2026, more than six months following the IPR institution deadline. *Id.*, 4. Resource-intensive expert discovery does not even open until February 2, 2026. *Id.*, 4. Further, the district court so far has considered and ruled on no substantive motions, the parties have not conducted inventor depositions, and the only depositions thus far have been for witnesses under Rule 30(b)(6) for each side on the topic of search terms and parameters for electronic discovery. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15, 14 (PTAB May 13, 2020) (informative) ("*Fintiv II*") (explaining "that much work remains in this case as it relates to invalidity: fact discovery is in its early stages, with document production ongoing and depositions just getting underway, expert reports are not yet due, and substantive motion practice is yet to come").

Accordingly, the district court case is in its early stages and the overwhelming majority of investment remains in the future. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 16-17 (PTAB Dec. 1, 2020) (precedential as to § II.A) (finding that factor 3 "weighs in favor of not exercising discretion to deny

institution” where the date for the claim construction hearing had been vacated, “fact discovery is ongoing, expert reports are not yet due, and substantive motion practice is yet to come”); *Toyota Motor Corp. v. Emerging Auto. LLC*, IPR2024-00786, Paper 11 at 47 (PTAB Oct. 22, 2024) (finding factor 3 to weigh against discretionary denial where parties had not yet filed claim construction briefs and fact and expert discovery remained ongoing).

Petitioner also acted diligently, filing its Petition within four months of receiving infringement contentions and more than five months before the one-year statutory filing deadline. *See Corning Optical Commc’ns LLC v. Dali Wireless, Inc.*, IPR2021-00762, Paper 8 at 9-10 (PTAB Oct. 31, 2021) (finding factor 3 weighed against discretionary denial in part because “Petitioner acted diligently in pursuing this *inter partes* review by filing the Petition approximately four months after receiving the infringement contentions.”).

Because of the early stage of the parallel litigation, the lack of investment by the parties, and Petitioner’s diligence in filing, this factor weighs against discretionary denial.

**D. Factor 4: Petitioner’s Stipulation
Reduces Overlap And Weighs Against Denial**

To avoid duplicative effort, Petitioner made a *Sotera* stipulation on May 9, 2025, stipulating that “should the Board institute IPR of Patent No. 11,537,442 in

IPR2025-00318, Microsoft will not pursue in district court litigation any ground of unpatentability for that patent that is raised or reasonably could have been raised in the IPR.” EX1027. This further “mitigates any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sotera*, IPR2020-01019, Paper 12 at 19.

Patent Owner argues that such a stipulation is ineffective here because Petitioner’s invalidity contentions assert unpublished system art against the ’442 patent not addressed by Petitioner’s stipulation and that this proceeding would allegedly not provide a “true alternative” to the district court proceeding. PO Brief, 7-8 (citing *Motorola Solutions, Inc. v. Stellar, LLC*, IPR2024-01205, Paper 19 at 4 (Dir. Stewart March 28, 2025)). However, this presumes that IPR proceedings are intended as an alternative to district court invalidity proceedings in their entirety. IPR, however, is not intended to completely preempt parallel district court invalidity cases because IPR is statutorily limited to a narrow set of potential invalidity issues. *See* 35 U.S.C. § 311(b) (limiting IPR scope to grounds “that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications”).

These limitations are firmly enshrined in law. They were recognized in the Board’s first discussion of IPRs as a “true alternative” to district court litigation, in *Sand Revolution*. There, the Board considered overlapping issues between the

parallel proceedings so as to “help ensure that an IPR functions as a true alternative to litigation *in relation to grounds that could be at issue in an IPR.*” *Sand Revolution II, LLC v. Cont’l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 12 n.5 (PTAB June 16, 2020) (informative) (emphasis added) (quoted in part by *Sotera Wireless, Inc. v. Masimo Corporation* (§ II.A), IPR2020-01019, Paper 12 at 19 (PTAB Dec. 1, 2020) (precedential)). And the Federal Circuit recently reaffirmed that “Congress intentionally limited an IPR’s scope” and the corresponding IPR estoppel. *See Ingenico Inc. v. IOEngine, LLC*, No. 23-1367, slip op. at *12-14, 2025 WL 1318188, at *6-7 (Fed. Cir. 2025); *see also Lynk Labs, Inc. v. Samsung Elecs. Co.*, 125 F.4th 1120, 1128 (Fed. Cir. 2025) (recognizing Congress intended that “challenges to validity on other grounds (e.g., public uses or sales) ... would remain the province of the courts.”) (cleaned up).

Accordingly, Petitioner’s reliance on system art in its invalidity contentions and reliance on other non-§§ 102 or 103 invalidity arguments does not undermine the purpose or effect of Petitioner’s stipulation, which prevents duplication of work between the Office and district court,⁵ thereby providing a “true alternative to

⁵ Petitioner recognizes that there may be concerns regarding duplicated efforts in other cases where system art corresponds to patent or publication prior art relied on in the IPR proceeding. That is not the case here and Patent Owner does not assert

litigation in relation to grounds that could be at issue.” *Sand Revolution II*, IPR2019-01393, Paper 24 at 12 n.5; *see also Nikon Corp. v. Optimum Imaging Techs., LLC*, IPR2024-01372, Paper 17 at 22 (PTAB Apr. 23, 2025) (“[W]e see nothing in the *Sotera* decision that suggests that the impact of a *Sotera* stipulation is weakened or undermined by the assertion of system art in district court, which cannot by statute be used to support a challenge in an IPR.”). Therefore, this factor weighs strongly against exercising discretionary denial. *See Sotera*, IPR2020-01019, Paper 12 at 19.⁶

that any reference relied on in the Petition corresponds to system art identified in Petitioner’s invalidity contentions in the district court proceeding.

⁶ While Patent Owner already preemptively addressed the impact of a *Sotera* stipulation (Paper 6 at 7-8), undersigned counsel emailed counsel for Patent Owner on May 9, 2025, indicating that Petitioner would not oppose a Patent Owner request to file a 2-page reply to address the stipulation. While Office FAQs indicate that a stipulation should be filed early enough “that a patent owner may address the impact of the stipulation in its discretionary denial brief” (FAQ14, available at <https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management>), those FAQs did not publish until April 25, 2025, nine days after Patent Owner filed its discretionary denial brief. Petitioner made its stipulation as soon as practicable given the number of recent changes in how the Office addresses

E. Factor 5: Identity Of Parties Is Neutral Or Weighs Against Denial

Petitioner does not dispute that the parties are the same in this proceeding and the parallel district court proceeding. The Board has previously found that factor 5 generally follows factor 2, such that “this factor ‘favors denial if trial precedes the Board’s Final Written Decision and favors institution if the opposite is true.’” *See Nikon*, IPR2024-01372, Paper 17 at 23-24 (quoting *Huawei Tech. Co. v. WSOU Inv., LLC*, IPR2021-00225, Paper 11 at 14 (PTAB June 14, 2021)).

Because the district court’s currently scheduled trial date is close to the estimated FWD deadline and is likely to be extended past that deadline (*supra* Section III.B), Factor 5 also weighs against discretionary denial or is at least neutral.

F. Factor 6: Other Circumstances Weigh Against Denial

Other relevant considerations in this case weigh against discretionary denial. As explained below (*infra* sub-Section 1), Patent Owner’s merits arguments fall short because they largely rely on a single, out-of-context statement in the Budenske

these issues, which potentially impact the type of language petitioners might include. Thus, the timing of Petitioner’s stipulation gives it no less weight. *Sotera* remains precedential and due process mandates giving Petitioner’s *Sotera* stipulation full weight.

prior art. Budenske squarely teaches the claim element found missing during prosecution and the evidence shows that skilled artisans would have applied that teaching to other systems in a way that renders the challenged claims unpatentable. Thus, the merits are strong.

Moreover, other additional considerations weigh in favor of not exercising discretionary denial, including the public interest and the parties' settled expectations (*infra* sub-Section 2) and efficient use of resources (*infra* sub-Section 3).

1. The Petition's Merits Are Strong

a) Budenske Teaches The Elements Found Missing In The Art During Prosecution

The merits of the Petition are particularly strong because Petitioner presents prior art not previously before the Office that squarely discloses the '442 patent limitations that led to allowance over the prior art during prosecution.

As explained in Section II.B above, the claims of the '442 patent were allowed in direct response to Applicant's arguments that Lippert "fails to disclose a plurality of sub-tasks of a specific computation task being computed in multiple computing iterations" and that Lippert does not disclose re-distributing sub-tasks using "information relating to the processing of the plurality of sub-tasks." EX1002, 174-175. Patent Owner refers to these same elements as the "claimed advances" of

the '442 patent. PO Brief, 14-15 (“[T]he claimed advances in the '442 Patent ... included the concept of dynamically reassigning sub-tasks to CN’s and BN’s during subsequent processing iterations based on information related to the processing of the sub-tasks.”).

These alleged “claimed advances” of the '442 patent are reflected in the element of independent claim 1 designated in the Petition as [1.3], which recites “generating, using information relating to the processing of the plurality of sub-tasks ..., a further distribution of the plurality of sub-tasks between the plurality of computation nodes and the plurality of booster nodes for processing thereby in a further computing iteration.” EX1001, claim 1.⁷ The Petition explains in detail how Budenske discloses this limitation. Specifically, as the Petition explains for a preceding limitation that first recites a plurality of computation nodes and a plurality of booster nodes, Budenske discloses a “methodology for real-time on-line input-data dependent remapping of the application subtasks to *the processors in the heterogeneous parallel hardware platform.*” Petition, 26 (quoting EX1005, 387,

⁷ Independent claim element [9.5] similarly recites “an application manager configured to receive information ... to update a distribution of the multiple sub-tasks between the plurality of computation nodes and the plurality of booster nodes in a further computing iteration.” EX1001, claim 9.

391) (emphasis added). The Petition proceeds to explain how Budenske discloses, following an initial mapping of sub-tasks for an initial computing iteration, remapping the subtasks between the available system hardware for a subsequent computing iteration using information related to the sub-tasks' processing in the prior iteration. Petition, 29-32. The Petition provides further detail of how a POSITA would implement such a remapping step into the heterogeneous computing system of Lippert. Petition, 32.

**b) Patent Owner Ignores The
Combinations Presented In The Petition**

As discussed in Section II.A.1.b) above, the POPR relies largely on an out-of-context statement concerning a simplified assumption concerning Budenske's example architecture: "For simplicity, it is assumed that if an implementation of a given subtask uses multiple processors, all processors will be of the same type." EX1005, 392 (partially quoted by POPR at 12, 18, 23). But, as explained in that Section, this statement relates only to a simplifying assumption concerning individual subtasks during a single computing iteration. The statement is irrelevant to the claims of the '442 patent because the claims do not recite mapping a single subtask onto different processor types during a single computing iteration. Instead, the claims require distributing a *plurality of sub-tasks* to pluralities of different processors during a first computing iteration and re-distributing the plurality of sub-

tasks in a *further computing iteration*. Budenske explicitly contemplates remapping subtasks between heterogeneous processor resources between multiple computing iterations to minimize subtask execution time, thus rendering the claims obvious when combined with Lippert.

The POPR relies on additional descriptions of Budenske’s example hardware to support its argument. POPR, 17-18 (discussing Budenske’s description of an example platform having processors of the same type “physically share a DRAM” (quoting EX1005, 392)), 18-19 (discussing Budenske’s description of processors of the same type having symmetric and conflict-free intercommunication (citing EX1005, 392)). But the POPR does not address the actual language of the claims nor explain how such disclosures would prevent a POSITA from applying Budenske’s disclosures to remap subtasks to disparate processor types of a heterogeneous platform across subsequent computing iterations.

Moreover, the Petition does not rely on bodily incorporation of Budenske’s example architectures. *See MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have

suggested to those of ordinary skill in the art.”). The Petition instead applies Budenske’s teachings of an application manager module re-distributing subtasks of an iterative application between a plurality of computation nodes and a plurality of booster nodes in the heterogeneous computing system of Lippert based on monitoring the processing of the subtasks in an earlier iteration to reduce the execution time of the next iteration. Petition, 15-16. The POPR’s focus on the example architecture of Budenske does not address how a POSITA would have been allegedly prevented from applying the teachings of Budenske in the proposed combination with Lippert. Indeed, the POPR does not dispute that the Lippert-Budenske combination satisfies claim element [1.2] reciting the step of initially assigning the plurality of subtasks to the plurality of computation nodes and plurality of booster nodes in a first iteration. *See* Petition, 27-29. It would make little sense that a POSITA implementing the Lippert-Budenske combination to assign a plurality of subtasks to computation nodes and booster nodes in an initial distribution for a first computing iteration would be subsequently unable to do so for a remapping during a subsequent iteration as taught by Budenske.

c) Patent Owner’s Ground 2
Arguments Ignore The Proposed Combination

The Petition also presents a further combination of Lippert and Budenske with another reference, Kambatla, which was not previously before the Office during

prosecution. The POPR takes issue with Kambatla because it allegedly “does not address heterogenous computing concepts” and “distributing sub-tasks between different types of processors during further computing iterations,” and thus allegedly “cannot remedy any of the deficiencies related to distribution of sub-tasks between disparate processor types.” POPR, 21-22. Patent Owner’s argument, however, ignores the Lippert-Budenske-Kambatla combination proposed in the Petition, which explicitly relies on the heterogenous computer cluster architecture of Lippert (Petition, 56) and relies on Budenske’s teachings of mapping and remapping subtasks among different processor types in initial and subsequent computing iteration (Petition, 57). As for Kambatla, the Petition relies on its teachings, *inter alia*, of an “application manager module” (Petition, 57, 62-64) as well as a “node manager daemon at each computation node and booster” (Petition, 57, 68-69), to the extent they are contended to be missing from Lippert-Budenske. Even so, Kambatla addresses “different resource types” and “worker nodes [with] different hardware” in its teachings. EX1006, [0059] (cited by Petition, 58). The POPR therefore fails to demonstrate how the proposed Lippert-Budenske-Kambatla combination fails to meet any limitations of the challenged claims.

**d) Patent Owner Ignores The Petition's Motivations
For Combining The Prior Art And Presents
Unpersuasive Arguments Against Combination**

The POPR further argues that a POSITA would not have been motivated to combine Lippert and Kambatla with the teachings of Budenske. The POPR does not address any of the extensive arguments presented in the Petition for why a POSITA would have been motivated, with reasonable expectation of success to combine Lippert and Budenske and further with Kambatla. *See* Petition, 16-23, 29, 32, 42-43, 46-48, 49, 58-62, 64, 70-71. Instead, the POPR argues that the same sentence of Budenske Patent Owner relies on for its merits argument teaches away from the proposed combination (POPR, 23), but as explained above this misapprehends the teachings of Budenske. The POPR then argues that the alleged method of Budenske was never evaluated (POPR, 24-25) but presents no evidence why a POSITA would understand the method explicitly disclosed by Budenske not to be usable or why the Budenske authors would have proposed such a method if they did not expect it to work. Budenske provides no indication to a POSITA that its method would not be usable or that it could not be successfully implemented in the combinations proposed in the Petition. As for Kambatla, the POPR quotes Kambatla's descriptions of existing problems in the art relating to the difficulty of accurately estimating resource requirements for tasks as allegedly supporting non-obviousness. POPR, 25 (quoting EX1006 at [0005]). These described problems, however, are the exact

problems Kambatla solves. EX1006, [0005], [0017] (“For these reasons, in practice, users end up using defaults, picking very conservative estimates of peak utilization.... The over-allocation of resources to process jobs and tasks leads to resource fragmentation and severe under-utilization of the computing resources in the cluster.... *Introduced herein are techniques for utilization-aware cluster scheduling that address the aforementioned problem of underutilization of computing resources in a distributed computing cluster.*”) (emphasis added). As explained in the Petition, Kambatla’s teachings of improving effective resource utilization in a distributed computing cluster would motivate a POSITA to combine Kambatla with Lippert and Budenske (Petition, 59-61) in order to solve the same problems Kambatla explicitly states that it solves.

Finally, the POPR cites the gap in time between the prior art and the ’442 patent as alleged evidence of non-obviousness. POPR, 26-27 (citing *Leo Pharm. Prods. v. Rea*, 726 F.3d 1346, 1359 (Fed. Cir. 2013)). This argument lacks merit for several reasons. First, Lippert was first available to a POSITA as of the earliest publication date in its family, April 18, 2012, and Kambatla was first available to a POSITA as of its March 15, 2018, publication. Patent Owner cites no case law suggesting that the specific time gaps between the respective publication dates of those references and the ’442 patent’s January 23, 2019, effective filing date supports a finding of non-obviousness. Moreover, the Federal Circuit has

distinguished the *Leo Pharmaceutical* decision relied on by Patent Owner as being predicated on a “finding that the record established evidence of a long-felt but unsolved need and failure of others,” and, in the absence of such a showing, the mere length of time that the prior art was known was “not persuasive of the unobviousness of the combination of their teachings.” *In re Couvaras*, 70 F.4th 1374, 1381-82 (Fed. Cir. 2023).⁸ Patent Owner has presented no evidence of a long-felt but unsolved need for the alleged advancements of the ’442 patent and the length of time between the prior art and the patent is therefore irrelevant.

⁸ The POPR also selectively quotes the Federal Circuit’s *Merck* case. POPR, 26 (quoting *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1376 (Fed. Cir. 2005)). The full quotation shows that the Federal Circuit’s statement referred to evidence of commercial success as an indicia of non-obviousness, not the time gap between prior art references: “*Commercial success is relevant because the law presumes an idea would successfully have been brought to market sooner, in response to market forces, had the idea been obvious to persons skilled in the art.*” *Id.* (emphasis added). Patent Owner has presented no evidence of commercial success linked to the ’442 patent.

As explained above, the Petition presents compelling evidence that the Budenske reference clearly discloses the limitations found to be missing from Lippert alone during prosecution and the proposed Lippert-Budenske combination meets all limitations of the challenged claims. Moreover, to the extent Lippert-Budenske fails to show an application manager or daemons operating in a plurality of computation and booster nodes, such features are taught by the Lippert-Budenske-Kambatla combination presented in Ground 2. The POPR does not address the Petition's arguments about Budenske and Lippert's teachings or how a POSITA would have been motivated to combine the references into the proposed Lippert-Budenske and Lippert-Budenske-Kambatla combinations, but instead presents unpersuasive arguments that misapprehend the references and the positions presented in the Petition. Accordingly, the merits presented in the Petition are strong, weighing against discretionary denial.

**2. The Public Interest And The Parties'
 Settled Expectations Favor Institution**

The parties' settled expectations⁹ weigh against discretionary denial. The claims of the '442 patent did not issue until December 27, 2022, less than 18 months

⁹ See Director March 26, 2026, Memorandum at 2 (describing the "[s]ettled expectations of the parties, such as the length of time the claims have been in force" as a relevant discretionary consideration).

before Patent Owner filed its Complaint against Petitioner in the parallel district court proceeding. Therefore, the claims of the '442 patent were in effect less than 7.5% of their 20-year patent term before being asserted. As of the time of this filing, Patent Owner has not paid the initial 3.5-year maintenance fee for the '442 patent. Therefore, Patent Owner has minimal settled expectations in the continued enforcement of such short-lived claims, weighing against discretionary denial.

Further, public interests—economic and otherwise—also disfavor discretionary denial. The Supreme Court has explained that “inter partes review helps protect the public’s ‘paramount interest in seeing that patent monopolies ... are kept within their legitimate scope.’” *Cuozzo Speed Techs. v. Com. for Intell. Prop.*, 579 U.S. 261, 279-280 (2016) (quoting *Precision Instrument Mfg. Co. v. Auto. Maintenance Mach. Co.*, 324 U.S. 806, 816, 65 S.Ct. 993, 89 L.Ed. 1381 (1945)). Here, the claims of the '442 patent will not expire until February 27, 2039, thereby blocking public action and further potential innovation for more than 13 years following the expected institution date. Therefore, the public has a significant interest in institution so that the Board can determine the patentability of each claim of the '442 patent and prevent potentially long-lasting public harm caused by an improvidently granted patent claim remaining in force. The public’s interest would be further advanced by institution because the Petition challenges a claim of the '442 patent (claim 6) that is not currently at issue in the parallel litigation proceeding. By

instituting this IPR, the PTAB can act to protect the public from the potential harm of this claim remaining in effect even if Petitioner prevails on all invalidity issues in the district court.

Therefore, both the parties' settled expectations and public interests weigh against discretionary denial.

**3. Institution Would Be An
Efficient Use Of The Board's Resources**

Considerations of efficiency also weigh against exercising discretionary denial. The '442 patent has only a relatively small number of claims (10) and the Petition challenges all of them. Further, the Petition does not present a large number of grounds or prior art challenging those claims. The Petition relies in Ground 1 on a two-reference combination (Lippert-Budenske) to challenge all claims of the Patent. Ground 2 presents an alternative combination challenging a subset of those claims. Ground 2 does not rely on an entirely new combination but instead merely adds Kambatla to the previously presented Lippert and Budenske references, thereby only marginally adding to the Board's workload to consider this additional ground. Therefore, because the Petition challenges few claims based on a small number of straightforward and overlapping Grounds, institution of the Petition would be an efficient use of the PTAB's resources.

4. Patent Owner's Other Arguments Do Not Shift The Balance

Petitioner's expert Dr. Long's declaration relies on supporting technical evidence such as Lippert and Budenske and provides technical reasoning to support his conclusions. As such, the Petition relies on Dr. Long's expert testimony for his helpful explanations of how the express disclosures in Lippert and Budenske correspond to the claim language, and how the references themselves provide a POSITA with a motivation to combine the references. *See, e.g.*, EX1003, ¶¶58-67 (explaining why a POSITA would have been motivated to combine the teachings of Budenske and Lippert); ¶¶77-79 (explaining how disclosure in Budenske relates to the language of element [1.3] and indicating motivations in Budenske itself for the POSITA to combine Budenske's teachings with Lippert); Petition, 29-32 (citing primarily to Budenske's teachings as disclosing element [1.3], and to Dr. Long's expert declaration for confirmation).

Despite Patent Owner's allegation of "heavy reliance" on expert testimony (PO Brief, 24), Patent Owner cites no instances where the Petition relies on expert testimony to supply a missing limitation or where the declaration "merely repeats, *verbatim*, the conclusory assertion for which it is offered to support." *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022). Patent Owner instead estimates how many times the expert declaration is cited in the Petition, and points to instances where there is parity between the Petition and the

declaration. But the references stand on their own, with the expert simply confirming what the references clearly explain. As the Petition relies on prior art patents and printed publications for demonstrating the invalidity of the challenged claims and cites to expert testimony for confirmation and context of the express disclosure in the prior art, the volume of the declaration and the number of citations alone is not a basis for denying institution.

Finally, the other patents asserted in district court have claims of different scope, an alleged priority date that is eight years earlier, and do not share a specification with the '442 patent. Patent Owner does not explain how institution of this IPR would create duplicated efforts concerning those other asserted patents. On the contrary, this IPR provides an appropriate alternative for resolution of the validity of the '442 patent. Patent Owner's assertion of other patents in the district court proceeding therefore does not support discretionary denial.

As demonstrated above, all *Fintiv* factors are either neutral or weigh against discretionary denial and the other relevant considerations in this case further disfavor denial. Discretionary denial is therefore not warranted.

Respectfully submitted,

Dated: May 14, 2025

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**CERTIFICATE OF COMPLIANCE WITH
TYPE-VOLUME LIMITATION PURSUANT TO 37 C.F.R. § 42.24**

This brief complies with the type-volume limitation of 37 C.F.R. § 42.24(a)(1)(i).

The brief contains **7,712 words**, excluding the parts of the brief exempted by 37 C.F.R. § 42.24.

The brief has been prepared in a proportionally spaced typeface using Microsoft Word for O365 in a 14-point Times New Roman font.

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CERTIFICATE OF SERVICE
IN COMPLIANCE WITH 37 C.F.R. § 42.6(e)(4)

The undersigned certifies that on May 14, 2025, a complete copy of the **PETITIONER'S OPPOSITION TO PATENT OWNER'S BIFURCATED DISCRETIONARY DENIAL BRIEFING** and **EXHIBITS 1026-1027** were served on counsel for the Patent Owner via electronic mail as follows:

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