

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.,
Petitioner,

v.

ADVANCED INTEGRATED CIRCUIT PROCESS LLC,
Patent Owner.

IPR2025-01305
U.S. Patent 8,329,572

**PETITIONER'S CORRECTED OPPOSITION TO
PATENT OWNER'S DISCRETIONARY DENIAL
REQUEST**

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Institution is Warranted in View of the Material Errors by the Examiner and Strong Technical Merits of the Petition	3
A.	The examiner materially erred by limiting the prior art search queries to the literal claim language and to an inappropriately narrow classification code search.....	3
1.	The examiner’s text-string search based exclusively on the literal claim language was flawed.....	5
2.	The examiner’s classification search based exclusively on the patent’s classification code was flawed	7
3.	The examiner’s errors excluded highly material art from consideration	8
III.	Institution is Warranted Because the Settled Expectations of Petitioner and Others Outweigh AICP’s Alleged Expectations	11
IV.	Institution Is Warranted by the Other <i>Fintiv</i> Factors	16
V.	Review is an Appropriate Use of Office Resources in View of the Compelling National Security, Economic, and Public Interest Considerations	20
VI.	Conclusion	24

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Am. Airlines, Inc., et al. v. Intell. Ventures I, LLC</i> , IPR2025-00786, Paper 12 (Aug. 29, 2025)	18
<i>Anaheim Gardens, L.P. v. United States</i> , 953 F.3d 1344 (Fed. Cir. 2020)	12
<i>Apple Inc. v. Fintiv, Inc.</i> , IPR2020-00019, Paper 11 (Mar. 20, 2020)	2, 15, 18
<i>Apple v. Allani</i> , IPR2025-00856, Paper 11 (Sept. 5, 2025)	14
<i>Celgene Corp. v. Peter</i> , 931 F.3d 1342 (Fed. Cir. 2019)	13
<i>Google v. Sandpiper CDN</i> , IPR2025-00806, Paper 13 (Sept. 12, 2025)	14
<i>Intel Corp. v. Proxense LLC</i> , IPR2025-00327, Paper 12 (June 26, 2025)	12
<i>Nordlinger v. Hahn</i> , 505 U.S. 1 (1992)	12
<i>Resonant Sys., Inc. v. Samsung Elecs. Co.</i> , No. 2:22-CV-00423-JRG, 2024 WL 1021023 (E.D. Tex. Mar. 8, 2024)	19
<i>Samsung Display Co. Ltd. v. Pictiva Displays Int’l Ltd.</i> , IPR2024-01222, Paper 12 (Mar. 6, 2025)	15
<i>Samsung Elecs. v. Wilus Inst. of Standards and Tech.</i> , IPR2025-00935, Paper 12 (Sept. 26, 2025)	1
<i>Tanklogix v. Sitepro</i> , IPR2025-00761, Paper 10 (Sept. 3, 2025)	17
<i>Tesla, Inc. v. Intell. Ventures II</i> , IPR2025-00339, Paper 10 (June 13, 2025)	16
<i>Tesla, Inc. v. U.S. Sec’y of the Navy</i> , IPR2025-00341, Paper 12 (June 13, 2025)	16
Statutes	
35 U.S.C. § 102	passim
35 U.S.C. § 103	2, 11

I. Introduction

A core purpose of the PTAB under the American Invents Act (AIA) is to strengthen the integrity of the U.S. patent system by ensuring only valid and properly granted patents remain in force. The challenged claims at issue in the challenged U.S. Patent 8,329,572 (“the ’572 patent”) were allowed without any prior art rejection due to material error by the examiner. Among the many errors, the examiner conducted a defective search, relying on (1) inappropriately narrow text queries tied to the literal claim language rather than search the broadly claimed techniques, and (2) an inappropriately narrow list of classification codes, omitting highly material neighboring and cross-cutting subclasses. This flawed search failed to uncover critical prior art references that disclose the exact features the examiner found purportedly missing in the prior art. As in prior cases with similar errors in the examiner’s search strategy, institution is therefore appropriate to correct these errors. *See Samsung Elecs Co., Ltd. v. Wilus Institute of Standards and Tech., Inc.*, IPR2025-01043, Paper-9 at 20-27 (discussing flawed text and classification code searching) & Paper-11 (denying PO’s request for discretionary denial).

The merits of TSMC’s Petition are exceedingly strong. Parikh (single-reference §103) and Roberts (single-reference §103), each disclose all limitations of the independent claim, including the limitation leading to the ’572 patent’s allowance, as well as many dependent claims.

The settled interests of TSMC outweigh any settled interests of the new Patent Owner, AICP, warranting a merits determination. TSMC's settled expectations are further strengthened due to the lack of any evidence of commercialization, licensing, or marking in the "technology space" where it is now asserted. For more than a decade after the '572 patent's issuance, TSMC manufactured the accused chips without incident, including for American customers who integrate those chips into their products for use by American consumers.

Institution is an efficient use of Board resources in view of the *Fintiv* factors. First, TSMC has proffered an extraordinarily broad stipulation removing absolutely any overlap between the IPR and parallel litigation by foregoing all §§102 and 103 prior art challenges upon institution. Instituting TSMC's Petition provides a true alternative to adjudicate invalidity, and the Board, with its specialized resources and efficient processes, is best suited to do so. Second, a final written decision ("FWD") is more likely than not to issue before the trial date. Although the trial date is currently scheduled a few months before the statutory due date for the FWD, the official U.S. Courts trial statistics suggest trial would occur **over 3 months after** the FWD. This fact, combined with the uncertainty due to the current shutdown of the Federal Government, counsels against discretionary denial.

Finally, compelling economic, national security, and other public interest considerations all make IPR of this patent a compelling use of the Office's resources.

Despite AICP's allegations to the contrary, its complaint seeks an injunction against TSMC and this requested remedy has not been withdrawn. For the '572 patent alone, AICP alleges infringement by TSMC's 3 nm, 4nm, 5nm, 6nm, 7nm, and 10nm process nodes. And AICP's allegations under the asserted collectively patents involve TSMC's FinFET process nodes and/or 28 nm and 22 nm process nodes. It is implausible that such a wide ranging infringement campaign would not impact U.S. national security and public interests. TSMC, a trusted foundry and the world's largest chip maker (reportedly providing around 90% of the world's advanced chips), is vital to the U.S. supply chain with a wide range of applications, including AI (e.g., NVIDIA's AI supercomputers) and military/defense applications (e.g., the F-35 stealth fighter). Given TSMC's vital and strategic contribution in the U.S. supply chain, the Administration has a heightened interest in ensuring the error in issuing this patent is corrected.

II. Institution is Warranted in View of the Material Errors by the Examiner and Strong Technical Merits of the Petition

A. The examiner materially erred by limiting the prior art search queries to the literal claim language and to an inappropriately narrow classification code search

The merits here are particularly strong due to errors made during prosecution, warranting institution to correct those mistakes. The examiner allowed the claims of the '572 patent in a first office action with no prior art rejections, based on two critical mistakes in the examiner's prior art search strategy. Ex1003 at 20-23. *First*,

the examiner relied on inappropriately narrow text queries limited to the literal claim text “oxidation-resistant,” while omitting the ordinary synonyms and related terms used in the art for the broadly-claimed concept. File History (EX1003) at 29-33. *Second*, the examiner confined classification searches to the patent’s own subclasses and omitted neighboring and cross-cutting subclasses in which relevant teachings such as collect copper capping/passivation and oxidation-barrier are categorized (e.g., 438/694; 438/239–259/396; 257/301/306). File History (EX1003) at 27. These mistakes led to the examiner’s excluding from consideration Parikh (US 2003/0148618 A1) and Roberts (US 6,461,914 B1), which are invalidating prior art references that teach the precise features the examiner found purportedly missing in the art.

In view of these errors, it is an appropriate use of the Board’s resources to correct them. Doing so would both ensure that this issued patent is correctly examined and limited to its proper scope, if any, and also gives the Office an opportunity to directly review the approach to examination at issue here and consider (together with data collected by the board in other AIA proceedings) whether revisions to Office-wide training or operating procedures are appropriate to ensure patents issuing from the office remain high quality, benefiting the economy generally and furthering the Office’s mission of promoting innovation.

During prosecution, applicant amended claim 1 to include “until the *oxidation-resistant conductor film* is exposed in one step,” and the examiner stated as a reason for allowance that the cited art did not disclose “forming an *oxidation-resistant conductor film* covering the top of the interconnect layer” as recited in claim 1. File History (EX1003) at 136. However, this feature (as well as the others in the claims) was present in the prior art that the examiner overlooked due to his limited search, as shown in the Petition and explained further below. Thus, the failure to search beyond the literal phrase and the narrow subclass set was clearly material as it excluded from consideration art that taught the precise feature the examiner himself incorrectly emphasized as conveying patentability.

1. The examiner’s text-string search based exclusively on the literal claim language was flawed

The record shows repeated search queries requiring the exact phrase “oxidation-resistant” (sometimes “oxidation\$resistant”) in close proximity to material acronyms or “conductor.” See S304–S306 (“‘oxidation-resistant’ ... near3 (SiN TiN ...)”), S311–S324 (“(‘oxidation-resistant’ ...) near conductor,” sometimes near10 “Ta TaN ...”). File History (EX1003) at 30-32. This strategy presupposed that the art would exclusively use that literal phrase and overlooked the ordinary language used by practitioners.

For example, Parikh consistently uses “metal passivation layer,” “electroless deposition,” “selective chemical vapor deposition,” and “barrier” to describe the

protective film over copper interconnects. See Parikh (EX1004), ¶¶ [0011]–[0012], [0018]–[0022]. Roberts similarly describes a “conductive oxidation barrier” (TaN) positioned over copper to prevent oxidation during subsequent dielectric processing. See Roberts (EX1007), 3:12–65; 4:1–37. Neither reference uses the literal “oxidation-resistant” language the examiner used as a threshold in the queries. The examiner’s search strategy omitted essential synonyms and process vocabulary for the “forming an *oxidation-resistant conductor film* covering the top of the interconnect layer” limitation, leading to its overlooking of the most material references. Based on that limitation’s language and common phrases a POSITA would have used as to that limitation, the examiner’s search should have been expanded beyond the literal language of the limitation and could have included, for example, passivation/passivat*, barrier/“oxidation barrier”/“diffusion barrier,” cap/“capping layer”/“conductive cap,” and related manufacturing processes known to be used in producing passivation layers such as “electroless,” “selective deposition,” “selective CVD,” “dual damascene,” “photoresist strip,” “ashing,” “polymer removal,” and/or “etch stop.” But the examiner limited its search strategy to “oxidation-resistant” and short lists of acronyms, sometimes further constrained by proximity to “conductor,” or other claim text. See, e.g., File History (EX1003) at 32-33 (S327–S328 (claim-only “interconnect and (‘oxidation-resistant’ ...) and

(removing near (photoresist ...))”). Due to the unduly narrow search strategy, the examiner made a material error by overlooking critical prior art.

2. The examiner’s classification search based exclusively on the patent’s classification code was flawed

The examiner also made a second material mistake by conducting an overly narrowed classification search. The examiner’s classification searches were limited to the very classes in which the ’572 patent’s application was categorized: 438/618, 620, 622, 631, 637, 672, 673, 700; and 257/E21.59, E21.641. See ’572 Patent (EX1001), Field of Classification Search; File History (EX1003) at 27 (Examiner Search Notes). The EAST history confirms repeated searches restricted to those subclasses with date filters, e.g., 438/618.ccls. and @ad<"20040922" (S291), 438/620.ccls. and @ad<"20040922" (S292), 438/622,672.ccls. and @ad<"20040922" (S293), 257/e21.59,e21.641.ccls. and @pd<="20030926" (S303). *Id.* In limiting its classification search, the examiner overlooked that the ’572 patent claims’ limitations are often cataloged in different, but analogous, process and device subclasses, for example, the subclasses pertaining to such technologies as thin conductive capping, passivation, and oxidation barrier films on copper interconnects that are closely related to the ’572 patent claims’ limitations.

Due to the overly narrowed classification search, the examiner overlooked material prior art, Parikh and Roberts. Parikh is classified in 438/694, which the examiner did not search. Parikh teaches selectively forming a metal passivation layer

on copper interconnects using electroless or selective CVD, including TiN and TaN, to protect copper during subsequent dielectric processing while eliminating etch-stop layers. See Parikh (EX1004), ¶¶ [0011]–[0012], [0018]–[0022]. Those teachings correspond directly to claim 1’s “oxidation-resistant conductor film covering the top of the interconnect layer.” And Parikh’s disclosure regarding the via/line etch sequence with exposure of the protective layer corresponds to claim 1’s “removing ... portions ... until the oxidation-resistant conductor film is exposed in one step.” Likewise, Roberts lists a field of search that includes 438/239, 240, 241, 250, 253, 256, 259, 396 and 257/301, 306; but none were included in the examiner’s search. Like Parikh, Roberts’ disclosure is invalidating. It discloses forming a conductive oxidation barrier, exemplified by tantalum nitride (TaN), over copper prior to dielectric deposition to prevent copper oxidation and stabilize the interface—which is exactly the “oxidation-resistant conductor film” claim 1 requires. See Roberts (EX1007), 3:12–65, 4:1–37; Figs. 3–7.

3. The examiner’s errors excluded highly material art from consideration

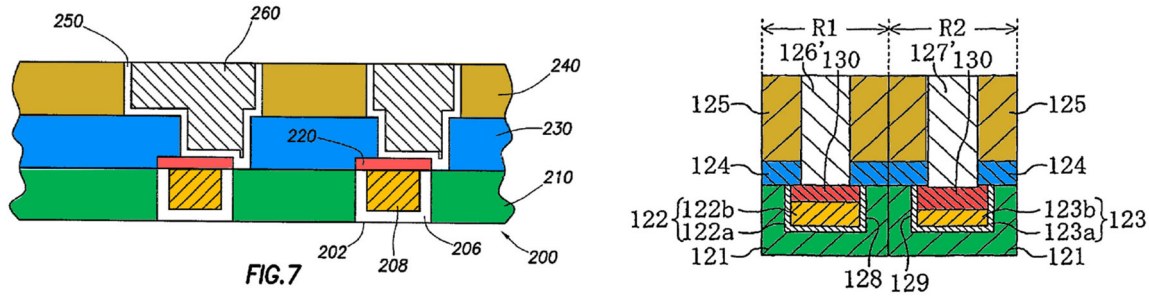
Because of the incorrect, overly narrow search strategies, the examiner overlooked two material references, Parikh and Roberts, presented as single-reference §103 grounds in the Petition. See MPEP § 904.03 (“The best reference should always be the one used in rejecting the claims.”). As detailed in the Petition, Parikh and Roberts each disclose all limitations of claim 1, including the limitations

that the examiner found were missing in the prior art and thus led to allowance of the '572 patent claims. Specifically, both Parikh and Roberts disclose the “forming an oxidation-resistant conductor film” limitation and the “forming a second insulating film on the first insulating film and the oxidation-resistant conductor film” limitation, which are the limitations the examiner found not disclosed in the prior art.

To illustrate, a side-by-side comparison of Table 1 of Parikh (left) and claim 1 of the '572 Patent (right) shows the materiality of Parikh.

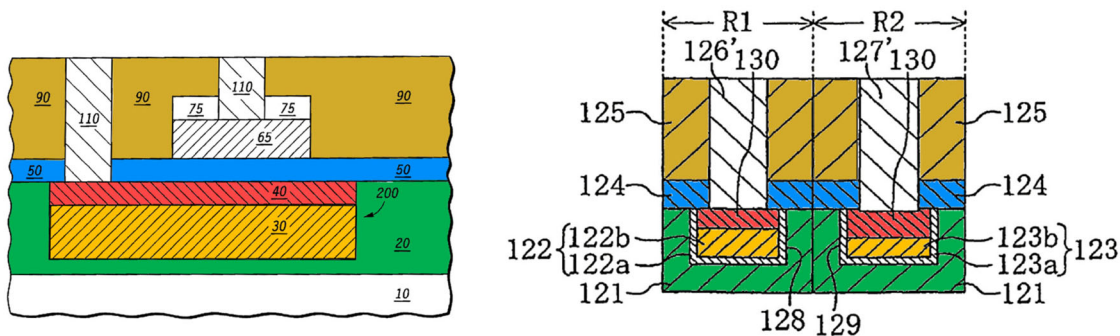
TABLE I		1. A method for fabricating a semiconductor device, comprising:
Station	Processing Step	
820	Forming a conductive element on a substrate comprising a first dielectric layer and one or more conductive material embedded in the first dielectric layer	the step (a) of forming a first insulating film over a semiconductor substrate;
822	Selectively depositing a metal passivation layer on the conductive element	the step (b) of forming an interconnect layer in at least an upper portion of the first insulating film;
824	Depositing a second dielectric layer over the metal passivation layer and the first dielectric layer	the step (c) of forming an oxidation-resistant conductor film covering the top of the interconnect layer;
826	Depositing a third dielectric layer over the second dielectric layer	the step (d) of forming a second insulating film on the first insulating film and the oxidation-resistant conductor film;
828	Forming a via in the second dielectric layer	the step (e) of forming a third insulating film on the second insulating film;
830	Forming a line in the third dielectric layer	the step (f) of removing, using a photoresist as a mask, portions of the third insulating film and the second insulating film located over the interconnect layer until the oxidation-resistant conductor film is exposed in one step; and
832	Depositing a conductive material in the line and the via	the step (g) of removing the photoresist.

Parikh (EX1004), Table 1. Parikh teaches forming a passivation layer over the interconnects, followed by depositing a second dielectric layer and a third dielectric layer, and etching away the second and third dielectric layers to form vias and lines. See Parikh (EX1004), ¶¶ [0011]–[0012], [0018]–[0022]. Further, a comparison of the resulting structure disclosed in Parikh with that of the '572 Patent reveals that they are nearly identical, with only minor stylistic differences in the shape of the drawings.



Parikh (EX1004), Fig. 7; '572 Patent (EX1001), Fig. 3E.

Similarly, as a single-reference §103 ground, Roberts teaches depositing a **TaN conductive oxidation barrier** over **copper** before dielectric deposition to prevent oxidation during subsequent processing, which is functionally the “**oxidation-resistant conductor film** covering the top of **the interconnect layer**” that claim 1 requires. Roberts (EX1007), 3:12–65, 4:1–37; Fig. 11. Additionally, as illustrated in the figures below, the structure disclosed in Roberts is substantially similar to that of the '572 Patent.



Roberts (EX1007), Fig. 11; '572 Patent (EX1001), Fig. 3E.

These material mistakes go to the heart of whether the Office had “meaningfully considered” the patentability of the claims. The prosecution record is

silent as to any prior-art-based analysis; the application issued without a single rejection or citation of prior art by the Office. The Search Notes and EAST history establish that the field-of-search was improperly narrow and the query strings were improperly constrained. As a result, the examiner overlooked the material prior art, and mistakenly allowed the claims. The Petition thus should be referred to the Board, allowing it to correct the material errors committed during *ex parte* prosecution.

III. Institution is Warranted Because the Settled Expectations of Petitioner and Others Outweigh AICP's Alleged Expectations

Petitioner's settled expectations outweigh AICP's alleged expectations. First, TSMC and its customers had settled expectations that the '572 patent would not apply due to the prior owner's inaction over the decade since the '572 patent issued. For over a decade after the December 11, 2012 issue date of the '572 patent, TSMC invested billions of dollars in fabrication facilities to manufacture millions of wafers per year using the accused FinFET technology (including wafers made at TSMC's 3 nm, 4 nm, 5 nm, 6 nm, 7 nm, and 10 nm process nodes), and its customers similarly invested significant resources into designs based on that technology. During this time, the prior owner of the '572 patent remained silent and inactive. TSMC's continuous manufacturing and extensive investments, beginning before the '572 patent issued and with no enforcement after, show that TSMC and its customers relying on its accused technology all have settled expectations that the patent would not apply. Other analysis of a property owner's extended periods of inaction

routinely finds the equities favor innocent actors such as TSMC. *See* Restatement (First) of Prop. § 459 cmt. a (1993) (“Through lapse of time old rights become obscure. A long continued use raises reasonable expectations of its continuance.”); *Anaheim Gardens, L.P. v. United States*, 953 F.3d 1344, 1350-51 (Fed. Cir. 2020); *Nordlinger v. Hahn*, 505 U.S. 1, 12-13 (1992) (“[A]n existing owner rationally may be thought to have vested expectations in his property or home that are more deserving of protection than the anticipatory expectations of a new owner at the point of purchase.”).

Second, despite being the Patent Owner, AICP has not presented any evidence that the ’572 patent was ever “commercialized, asserted, marked, licensed, or otherwise applied” in the same “particular technology space” where it now seeks to assert it, weighing against any claim by AICP of “settled expectations.” *Intel Corp. v. Proxense LLC*, IPR2025-00327, Paper-12, 2-3 (June 26, 2025). Indeed, the ’572 patent appears to have been asserted for the first time only after AICP acquired it more than a decade after issuance. (EX1041.) When AICP acquired patents (like the ’572 patent) that had never been asserted, with the intention of asserting them, the only reasonable expectation is that their validity would be challenged. *See Anaheim Gardens*, 953 F.3d at 1350-51 (“timing” of a property purchase and “knowledge of the purchaser” are relevant in determining whether purchaser had reasonable investment-backed expectations); *Celgene Corp. v. Peter*, 931 F.3d 1342, 1361-63

(Fed. Cir. 2019) (patent owners know their patents may be subject to post-issuance reconsideration proceedings); *see also* Brief for the Federal Respondent in Opposition, *Gesture Tech. Partners, LLC v. Apple Inc., et al.*, No. 24-1280, 14 (2025) (“[I]t was well understood at the founding that a patent system could include a practice of granting patents subject to potential cancellation in an executive proceeding.”).

There is no evidence in the record that the ’572 patent was licensed, let alone licensed in TSMC’s particular technology space. In response to TSMC’s request to produce any license to the ’572 patent in Patent Owner’s possession, AICP produced nothing more than the PPA (EX2026) and responded “AICP is not withholding production of any documents in its possession that are responsive to this request.” (EX1064, 1.) AICP has also not produced any evidence of marking or commercialization of the ’572 patent.

AICP’s supposed “rel[iance] on the fact that no party had ever challenged” the ’572 patent ignores that no party previously attempted to assert, commercialize, or mark products with the ’572 patent—i.e., that the public’s “settled expectations” were at least as strong as any expectations of the previous patent holder. (Paper-11, 20.)

Third, AICP’s primary argument for discretionary denial is that “[t]hree of the Four Patents are *expired*,” and a majority of challenged claims “are both *unasserted*

and expired’ is meritless. (Paper-11, 1.) The ’572 Patent expired **prior to filing of the complaint**, a fact that AICP openly acknowledges in its brief. (Paper-11, 4; EX2001.) TSMC has a settled expectation that it would not be sued on this expired patent because neither AICP nor any previous patent owner asserted the ’572 patent in any proceeding against anyone before it expired. The ’572 patent having expired is not a reason by itself to deny institution. *See Google v. Sandpiper CDN*, IPR2025-00806, Paper-13, 2 (Sept. 12, 2025) (referring, despite patent being “in force for many years”, where patent expired prior to assertion); *Apple v. Allani*, IPR2025-00856, Paper-11, 3 (Sept. 5, 2025) (referring, despite strong settled expectations from Patent Owner based on patent age, due in part to patent expiring before assertion against Petitioner).

AICP further contends “there is nothing ‘cost-effective’ about using limited public resources to adjudicate the validity of expired patents.” (Paper-11, 2.) But, AICP sued TSMC in district court claiming infringement of these expired patents. AICP’s suit will require expenditure of limited public resources to address validity of these expired patents somewhere. The only question is whether addressing the patents’ invalidity will occur in district court or the PTAB. As AICP itself says, “Congress created IPRs to provide a ‘*quick* and *cost effective alternative*[] to litigation.” (Paper-11, 1-2) (emphasis in original). And that is why IPR should be instituted for all four patents.

AICP further faults TSMC for challenging “unasserted” claims. AICP is wrong. Indeed, TSMC filed the majority of its current IPRs (including this IPR) before AICP served its infringement contentions—i.e., before there was any identifiable group of “asserted” versus “unasserted” claims. (*Compare* EX2004, 5 (contentions served on July 16, 2025) *with* Paper-2 (filed July 15, 2025); IPR2025-01210, Paper-1 (filed July 15, 2025); IPR2025-01305 (Paper-1, filed July 15, 2025).) Since AICP did not identify asserted claims in its complaint, its position would require a petitioner to wait to file until after receiving infringement contentions, a fact which AICP uses as a reason for denial under *Fintiv*. Moreover, AICP has made no representations that it will not add claims to the pending litigation. TSMC however stipulates that if AICP provides a covenant not to sue TSMC and its customers on the non-asserted claims, TSMC would seek authorization to withdraw challenges against such claims. And AICP’s argument ignores that under *Fintiv* Factor 4, “additional challenged claims not at issue in the district court ... weigh[] against exercising discretion to deny institution.” *Samsung Display Co. Ltd. v. Pictiva Displays Int’l Ltd.*, IPR2024-01222, Paper-12, 8 (Mar. 6, 2025).

In sum, the settled expectations of TSMC, its customers, and the public, spanning over a decade, cannot be overridden merely based on AICP’s acquisition of the ’572 patent. AICP acquired it subject to prior third-party expectations, which were reasonable in view of the prior owner’s inaction.

IV. Institution Is Warranted by the Other *Fintiv* Factors

TSMC acted diligently by filing its Petition 3 months after the Complaint was filed. The *Fintiv* factors demonstrate it is an efficient use of Office resources to consider the merits of the Petition and therefore weigh against denial.

***Fintiv* Factor 4 Weighs Heavily Against Discretionary Denial.** TSMC proffered an extraordinarily broad stipulation, offering to remove *all invalidity grounds under Sections 102 and 103*, involving any type of legally recognized prior art in the parallel litigation, if TSMC's Petition is instituted, making the Board a true alternative venue for invalidity. (See EX1021, 1-2.) This stipulation weighs heavily against discretionary denial. See, e.g., *Tesla, Inc. v. U.S. Sec'y of the Navy*, IPR2025-00341, Paper-12, 2 (June 13, 2025); *Tesla, Inc. v. Intell. Ventures II*, IPR2025-00339, Paper-9, 2 (May 20, 2025). It ensures this IPR, if instituted, is a true alternative for this phase of the litigation.

***Fintiv* Factor 2 Weighs Against Discretionary Denial:** Based on the current U.S. Courts time-to-trial statistics, it is unclear whether a FWD will issue after the District Court trial occurs, rendering Factor 2 at least neutral. The projected FWD due date is January 28, 2027, while the district court's currently scheduled trial date is November 16, 2026 (See EX2027). But the latest time-to-trial statistics from the U.S. Courts suggest trial will not begin until May 2027. (See EX1042 (median time to trial in E.D. Texas of 25.9 months), 35.) Such considerations neither favor nor

counsel against discretionary denial. *See Tanklogix v. Sitepro*, IPR2025-00761, Paper-10, 2 (Sept. 3, 2025) (finding factor 2 neutral where FWD expected after district court's scheduled trial but before trial date suggested by time-to-trial statistics).

Here, it is more likely than not the Board will issue its FWD before trial begins. Looking specifically at Judge Gilstrap's *patent jury trials* over the past year—the most relevant comparator pool—the median time to trial is 25.5 months, consistent with the latest statistics from the U.S. Courts. That would place the trial date for the litigation around May 18, 2027, over three months later than the projected January 28, 2027 statutory deadline. (*See* EX1043, 4) AICP, however, ignores this plain evidence and misleadingly cites non-analogous data associated with all trials before Judge Gilstrap to imply the associated patent trial is likely to occur prior to the FWD. (Paper-11, 12-13.) AICP further suggests that because the trial date has not changed in the case's first 5 months, the only reasonable assumption is it will never change. (Paper-11, 12.) These citations and suggestions fly in the face of common sense and overwhelming evidence of recent delays in Judge Gilstrap's original scheduled patent trials. (*See* Ex-2027, 4.) Moreover, the uncertain duration of the current U.S. government shutdown may impact the trial date. (*See, e.g.,* EX1044 (moving Oct. 3 trial to Oct. 27); EX1045 (same); EX1046 (delaying Nov. jury trial without explanation); EX1047 (same); EX1048 (same).)

***Fintiv* Factor 3 Weighs Against Discretionary Denial:** Based on the current schedule, at the time of institution (“DI”), the District Court case will still be in its early stages—prior to the initial exchange of claim constructions, over two months before any claim construction briefing, over three months before the *Markman* hearing, five months before close of fact discovery, and over six months before close of expert discovery and dispositive motions. (See Ex-2027, 3-5.) AICP points only to the parties’ early invalidity and infringement contentions. (See Paper-11, 13-14.) That is not enough as the minimal investment by the parties and the Court weighs against discretionary denial. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper-11, 10 (“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”); *Am. Airlines, Inc., et al. v. Intell. Ventures I, LLC*, IPR2025-00786, Paper-11, 2-3 (PTAB Aug. 29, 2025) (referring, despite patent being in force for 18 years, where “little investment in the district court” proceeding).

***Fintiv* Factor 1 Weighs Against Discretionary Denial:** As AICP admits, TSMC’s previous motion to stay was denied without prejudice, and TSMC can renew after institution. (Paper-11, 9-10.) As discussed above, the DI occurs at an early stage of the case, before opening claim construction briefs are even due. (Paper-11, 10.) Stay motions after institution are generally granted on timelines like this one. See, e.g., *Resonant Sys., Inc. v. Samsung Elecs. Co.*, No. 2:22-CV-00423-

JRG, 2024 WL 1021023, *2-4 (E.D. Tex. Mar. 8, 2024) (granting stay with claim construction briefing underway, close of fact discovery two months away, and IPR filed three months after invalidity contentions). ; *Commc'n Techs. v. Samsung Elecs. Am., Inc.*, No. 2:21-CV-00444-JRG, 2023 WL 1478447, at *3 (E.D. Tex. Feb. 2, 2023). AICP's argument that the district court would only stay the case if TSMC's IPR petitions are instituted against all asserted patents requires the circular assumption some will not be—a poor and speculative assumption.

***Fintiv* Factor 5 Should Weigh Against Denial:** As AICP notes, “factor 5 generally follows factor 2” and therefore weighs against denial here. (Paper-11, 15.)

Fintiv* Factor 6 Weighs Against Denial.** The district court case here is complex, involving the assertion of 28 claims across four patents. (Paper-11, 1.) The underlying technology is also complex, involving technologically complicated aspects of semiconductor design and manufacture; trained PTAB judges would be better suited than a lay jury to assess validity. The complexity of the case and technology both weigh ***against discretionary denial. *See, e.g., Navy*, IPR2025-00341, Paper-12, 2-3 (“[T]he complex and diverse litigation proceeding tip[s] the balance against discretionary denial.”).

AICP contends that under *Fintiv* Factor 6 “foreign third-party discovery in Japan weighs in favor of discretionary denial” because “[t]hree of TSMC's five petitions rely on references that TSMC concedes are prior art, if at all only under

§102(e).” (Paper-11, 17.) AICP’s argument is inapplicable to the ’572 Petition, which relies on §102 (a) (b) and (e) prior art. (Paper-1, 13.) AICP’s argument strains credibility because AICP did not identify a priority date earlier than the filing date of JPH 1116906A Maeda (June 27, 1997) or other cited references, AICP had ample opportunity to obtain such information before asserting the patent (EX2026, 5), and only offers speculations such evidence exists.

V. Review Is an Appropriate Use of Office Resources in View of the Compelling National Security, Economic, and Public Interest Considerations

Compelling economic, national security, and other public interest considerations all make *inter partes* review of this patent an appropriate use of the Office’s resources—indeed, a compelling one.

Vital U.S. economic and national security interests and TSMC’s unprecedented \$165 billion investment to onshore advanced semiconductor manufacturing in the U.S. (EX1055), however, are threatened by AICP’s infringement allegations seeking to enjoin chips made using TSMC’s 22, 28nm process technologies (’373 patent) and TSMC’s 3-16nm process technologies (’572, ’751, ’623 patents).

A. Discretionary Denial Would Harm Compelling U.S. National Security and Public Interests

As Secretary Lutnick explained in April 2025, “national security” is the “key” reason to “bring semiconductors home.” (EX1050, 3.) That has been a key principle of President Trump’s agenda: “Our national security depends on bringing our

supply chain home. This is especially true when we are dealing with critical technology, computer chips that are not only important to our civilian world ... but also to our military.” (EX1051, 40; *see also* EX1052; EX1053.)

TSMC makes semiconductors for a wide range of “military-grade” devices used by the Department of Defense. (EX1056, 5; EX1057, 59 (“[T]he U.S. Department of Defense rel[ies] heavily on Taiwan foundries (particularly TSMC) to manufacture the computer chips needed for their products.”); EX1058, 2-3 (TSMC is world’s leading manufacturer of radar system chips).) Indeed, TSMC’s 28nm to 3nm technologies to power widespread military/defense applications including avionics, missile guidance, radar systems, radar electronic warfare, radiation-hardened systems, power systems, imaging for defense and aerospace, secure communications. The U.S. Air Force estimates “90% of its precision-guided munitions rely on TSMC chips.” (EX1054, 4.)

AICP incorrectly argues that these national security concerns should be disregarded if TSMC cannot specifically identify the affected military products. (Paper-11, 18.) Although TSMC’s a multi-level supply chain has no direct supply relationship with the U.S. government, multiple third-party sources confirm that TSMC’s products and processes, including those accused by AICP, are essential to a wide array of U.S. military hardware. Given the nature of the industry (and the heightened difficulty of obtaining public documentation of the military’s use of

specific chips), TSMC has provided adequate evidence of the importance of the accused process nodes for national security.

B. Discretionary Denial Would Harm U.S. Leadership in AI and High-Tech Races, Harming Public Interests Like Healthcare

AI is critical to U.S. leadership. Early in 2025, the President issued an executive order stating: “It is the policy of the United States to sustain and enhance America’s global AI dominance in order to promote human flourishing, economic competitiveness, and national security.” (EX1073, 1; *see also* EX1074 (July 2025 AI Action Plan), 21 (“Advanced AI compute is essential to the AI era, enabling both economic dynamism and novel military capabilities.”).)

A 2024 report by the bi-partisan U.S.-China Economic and Security Review Commission explains the fierce U.S.-China competition, which will “shape the rapidly evolving global technological landscape” and could “transform society, create new industries ... and alter the character of warfare.” (EX1075, 9.) The country that “secures a lead in key technologies—particularly those with first mover advantages—will tip the balance of power in its favor....” (*Id.*) China is making rapid AI advancements, one such key technology, for economic growth and military applications. (*Id.*, 10-11.)

TSMC is an important part of the American AI-dominance strategy. (*See* EX1076 (Ansys collaboration); EX1077 (Cadence collaboration).) TSMC, the world’s largest contract chipmaker, offers the most advanced semiconductor

processes. TSMC is a global AI technology leader “steering” the AI wave for tech giants, producing “advanced processors that Nvidia, AMD[] and Apple[] rely on to bring AI to life.” (EX1078, 2.)

AICP asserts the ’751/’623/’572 patents against chips manufactured by TSMC essential to American AI dominance. These include chips driving AI systems, e.g., NVIDIA’s H100 manufactured with TSMC’s 4nm process (EX1079, 2), and NVIDIA’s latest B100 and B200 chips that can only be manufactured using TSMC’s world-leading 3 nm process. (*Id.*)

Healthcare is one of the key areas fueling the projected 30% compound annual growth rate of the AI semiconductor market, where the demand for “advanced chips—TSMC’s specialty—will continue to surge.” (EX1080, 5.) For example, the Mayo Clinic uses AI supercomputers for medical research that are powered by Cerebras chips, which are “[b]uilt on TSMC 7nm”—one of the very process nodes that AICP alleges infringes. (EX1081, 2.) These same TSMC-manufactured chips were used in a massive scientific study to analyze the COVID-19 virus, a project nominated for a Gordon Bell Special Prize for its contribution to public health. (EX1082, 1.)

TSMC-built chips also power the vast majority of electronic devices in the world, including smartphones, laptops, computer servers and other devices used in cars and consumer goods. (EX1063, 2.) TSMC enables innovations by its customers,

including Apple, NVIDIA, AMD, Broadcom, Microsoft, Amazon, and Tesla, and many others, securing U.S. leadership in high-tech competition.

Given the extraordinarily broad impact of TSMC's technology on the U.S. economy and national security, it is an appropriate use of the Board's resources to review and correct examination errors in this case.

VI. Conclusion

For the foregoing reasons, this Petition should be instituted.

Respectfully submitted,

Date: October 28, 2025

By: / Eliot D. Williams /

Eliot D. Williams (Reg. No. 50,822)
eliot.williams@bakerbotts.com
BAKER BOTTS L.L.P.
700 K Street, N.W.
Washington, D.C. 20001-5692
Phone: 202.639.7700
Fax: 202.639.7890

Samir A. Bhavsar (Reg. No. 41,617)
samir.bhavsar@bakerbotts.com
BAKER BOTTS L.L.P.
2001 Ross Avenue, Suite 900
Dallas, Texas 75201
Phone: 214.953.6500
Fax: 214.953.6503

Jeffrey Johnson (Reg. No. 53,078)
jeffrey.johnson@bakerbotts.com
BAKER BOTTS L.L.P.
910 Louisiana Street
Houston, Texas 77002
Phone: 713.229.1234
Fax: 713.229.1522

Chun Xu (Reg. No. 800,021)
chun.xu@bakerbotts.com
BAKER BOTTS L.L.P.
30 Rockefeller Plaza
New York, New York 10112
Phone: 212.408.2500
Fax: 212.408.2501

CERTIFICATE OF SERVICE

The undersigned hereby certifies, in accordance with 37 C.F.R. § 42.205, that the foregoing **Petitioner's Opposition to Patent Owner's Discretionary Denial Request** was served on October 28, 2025, via e-mail directed to counsel of record for Patent Owner at the following:

Russel A. Chorush
Michael F. Heim
Christopher L. Limbacher
Lily R. Glick
Kyle Friesen
HEIM, PAYNE & CHORUSH, LLP
609 Main Street, Suite 3200
Houston, TX 77002
rchorush@hpcllp.com
mheim@hpcllp.com
climbacher@hpcllp.com
lglick@hpcllp.com
kfriesen@hpcllp.com
aicppllit@hpcllp.com

Patent Owner has consented to electronic service via email.

Date: October 28, 2025

Respectfully submitted,
BAKER BOTTS L.L.P.

/ Eliot D. Williams /
Eliot D. Williams
USPTO Reg. No. 50,822
Lead Attorney for Petitioner

CERTIFICATE OF SERVICE

The undersigned hereby certifies, in accordance with 37 C.F.R. § 42.205, that the foregoing **Petitioner's Corrected Opposition to Patent Owner's Discretionary Denial Request** was served on November 3, 2025, via e-mail directed to counsel of record for Patent Owner at the following:

Russel A. Chorush
Michael F. Heim
Christopher L. Limbacher
Lily R. Glick
Kyle Friesen
HEIM, PAYNE & CHORUSH, LLP
609 Main Street, Suite 3200
Houston, TX 77002
rchorush@hpcllp.com
mheim@hpcllp.com
climbacher@hpcllp.com
lglick@hpcllp.com
kfriesen@hpcllp.com
aicppllit@hpcllip.com

Patent Owner has consented to electronic service via email.

Date: November 3, 2025

Respectfully submitted,
BAKER BOTTS L.L.P.

/ Eliot D. Williams /
Eliot D. Williams
USPTO Reg. No. 50,822
Lead Attorney for Petitioner