UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.,
Petitioner,

v.

MARLIN SEMICONDUCTOR LIMITED.,
Patent Owner.

Case No. IPR2026-00130
U.S. Patent No. 9,318,609 B2

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

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1017	Intel, *Intel's Revolutionary 22 nm Transistor Technology* (2011).
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1019	K. Mistry et al., *A 45nm Logic Technology with High-k+ Metal Gate Transistors, Strained Silicon, 9 Cu Interconnect Layers, 193nm Dry Patterning, and 100% Pb-free Packaging*, 2007 IEEE International Electron Devices Meeting, pp. 247-250, (2007)
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1021	S. Thompson et al., *Key Differences for Process-induced Uniaxial vs. Substrate-induced Biaxial Stressed Si and Ge Channel MOSFETs*,

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1024	Intentionally left blank
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1026	*Curriculum Vitae* of Dr. Jack Lee, Ph.D.
1027	MOSFET Scaling Presentation (2003)
1028	J. Steigerwald, *Chemical Mechanical Polish: The Enabling Technology*, 2008 IEEE International Electron Devices Meeting (2008)
1029	H. Wong et al., *Nanoscale CMOS*, IEEE, Vol. 87, No. 4, pp. 537-570 (1999)
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1053	'609 Patent Assignment to Marlin, Reel/Frame: 065294/0055
1054	TSMC 16/12nm Technology, TSMC https://www.tsmc.com/english/dedicatedFoundry/technology/logic/l_16_12nm (last accessed Feb. 25, 2026)
1055	"Another Historic Investment Secured Under President Trump," The White House, Published Mar. 3, 2025 https://www.whitehouse.gov/articles/2025/03/another-historic-investment-secured-under-president-trump/ (last accessed Feb. 25, 2026)
1056	"IPValue Affiliate Licenses Samsung to Marlin Semiconductor Patent Portfolio," IPValue https://ipvalue.com/news/ipvalue-affiliate-licenses-samsung-to-marlin-semic (last accessed Feb. 25, 2026)
1057	"IPValue Affiliate Licenses Samsung to Marlin Semiconductor Patent Portfolio," Businesswire, Published May 22, 2025 https://www.businesswire.com/news/home/20250504309443/en/IPValu

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1070	TSMC-Cadence Press Release, Published Apr. 24, 2025

	https://www.cadence.com/en_US/home/company/newsroom/press-releases/pr/2025/cadence-and-tsmc-advance-ai-and-3d-ic-chip-design-with-certified.html (last accessed Feb. 25, 2026)
1071	"TSMC's Resurgence: What Lies Ahead for the Architect of AI," Published June 11, 2025 https://www.cmcmarkets.com/en-au/market-news/tsmc-resurgence (last accessed Feb. 25, 2026)
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1073	A. Shilov, "Both Trump and Biden expected to attend TSMC's Arizona fab grand opening ceremony – Fab 21 opens in December," Yahoo! Finance – tom'sHardware, Published Nov. 8, 2024 https://finance.yahoo.com/news/both-trump-biden-expected-attend-151941592.html (last accessed Feb. 25, 2026)
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1081	Google Patents translation of CN102468235A https://patents.google.com/patent/CN102468235A/en?oq=102468235 (last accessed Feb. 25, 2026)

I. Introduction

The challenged patent in the present proceeding, U.S. Patent No. 9,318,609 ("'609 patent"), was issued as a result of multiple material Examiner errors. Like the method claims in its parent, U.S. Patent No. 8,993,384, the (broader) device claims of the '609 patent are invalid and would not have issued, but for a deficient examination. Ex. 1033 (IPR2025-01265, Pet. Opp. to DD), Ex. 1034 (Instituting IPR2025-01265). Referral is warranted here, for the same reasons the Office referred IPR of the parent patent—namely, the Examiner's failure to consider material prior art cited to the Office, along with a deficient and sub-standard search strategy. In fact, the Examiner's error here is even stronger than that in IPR2025-01265 because the ignored reference not only teaches an allegedly allowable claim amendment, but anticipates the sole independent claim of the '609 patent.

Additionally, the settled interests of TSMC and its customers outweigh any settled interests of the new Patent Owner, Marlin, and warrant referral. TSMC and its customers had a settled expectation of non-enforcement due to the lack of assertion by UMC, an alleged "main" competitor of TSMC's, during the first 7 years of the '609 patent's life. During this time, TSMC invested billions of dollars to manufacture FinFET chips, including for U.S. customers who expected to be able to integrate those chips into their own products without incident. Marlin, a foreign entity which only recently acquired the patent, has no comparable expectations.

Referral is also an efficient use of Board resources in view of the *Fintiv* factors because the '609 patent is not currently asserted in parallel litigation. There is, however, a threat of enforcement, as evidenced by Marlin's claim of infringement and existing lawsuits in the ITC and district courts. In response, TSMC diligently challenged the validity of the patent in the PTAB prior to any litigation to provide a true alternative to district court or ITC litigation.

Finally, compelling national security, economic, and public interests make review an appropriate use of the Board's resources. TSMC is the world's largest chip maker, by some accounts providing around 90% of the world's advanced chips (*e.g.*, FinFETs). Ex. 1035, 3. Given TSMC's vital and strategic contribution to the U.S. supply chain, the Administration has a heightened interest in ensuring that the USPTO corrects its error in issuing this patent.

A holistic assessment of the facts, evidence, circumstances, and relevant considerations (detailed below) confirms that TSMC's Petition should be referred.

II. Referral Is Warranted In View Of The PTAB's Institution Of *Inter Partes* Review Of The Parent Patent

TSMC's Petition for IPR of the '609 patent's parent, U.S. Patent No. 8,993,384, was referred to the Board (Ex. 1075) and instituted on the merits (Ex. 1034). Marlin's request for discretionary denial here merely parrots the argument presented in the parent IPR without any distinguishing factors that justify denying review of the '609 patent. *Compare* Paper-6 *with* Ex. 1074. But the same issues

that plagued examination of the parent patent caused material errors in the examination of the '609 patent (*see* Section III, *infra*) and the instant Petition challenging the '609 patent's device claims is at least as strong as the Petition challenging the parent method claims (*see* Section IV, *infra*). Moreover, any alleged settled expectations Marlin has in the '609 patent are weaker than those in the parent patent, which issued over a year before the '609 patent.

There is no reasonable justification for discretionarily denying review of the child patent when IPR of the parent was referred and instituted and the child patent suffers the same deficiencies. *See Tesla v. Intel. Ventures II LLC*, IPR2025-00217, Paper-9, 2 (Jun. 13, 2025) (informative) (Board's institution of IPR on similar claims of an ancestor patent counsels against discretionary denial).

III. Referral Is Warranted In View Of Material Errors By The Examiner

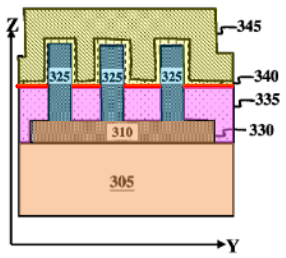
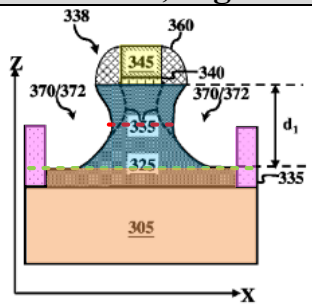
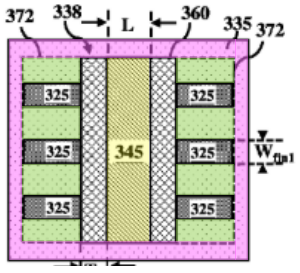
TSMC's petition should be referred to the Board to correct material errors in the examination process. First, the Examiner failed to properly consider the teachings of the prior art, including a cited reference that anticipates claims of the '609 patent. Second, the Examiner's inadequate search failed to identify material prior art, including the references applied in TSMC's Petition. The severity of the Examiner's material errors here are as strong as, if not stronger than, the material errors that the Director has found justify referral, including those in the parent patent. *See e.g.*, Ex. 1033 (detailing examiner error in failing to apply a reference teaching

the purportedly allowable claim element), Ex. 1074 (referring IPR2025-01265); *Carbyne, Inc. v. TriTech Software Sys.*, IPR2025-00959, Paper-11, 2 (Oct. 3, 2025) (referring, in-part, where reference "cited on an IDS during prosecution" "appears to disclose the purportedly missing claim limitations" leading to allowance).

A. The Examiner materially erred by overlooking the teachings of the prior art

Referral is warranted to correct the Examiner's improper assessment of the prior art. In particular, the Examiner failed to apply U.S. Patent No. 8,765,533 ("Hsieh") (Ex. 1038)—the very same reference the Examiner failed to properly apply against the parent patent (*see* Ex. 1033, 3-6)—despite Hsieh anticipating at least claim 1 of the '609 patent. Hsieh was cited in an IDS, considered by the Examiner, and relied upon by the Examiner to reject claims in the parent application. Ex. 1002, 43, 117; Ex. 1039, 89-90. Yet, the Examiner materially erred by failing to appreciate Hsieh's teachings and apply this anticipatory reference to the claims.

Hsieh's semiconductor device is depicted with reference to annotated Figs. 8A, 8B, and 8C-II below:

Ex. 1038, Fig. 8A	Ex. 1038, Fig. 8B	Ex. 1038, Fig. 8C-II
		

Hsieh discloses:

> A semiconductor device, comprising: a fin structure [(*see* Ex. 1038, 3:18-22)], protruding from a surface of a substrate [(*see id*., 2:50-51, 6:33)], wherein the fin structure comprises a top surface and two side surfaces; an isolation structure [(*see id*., 3:57-60)] disposed on the surface of the substrate and surrounding the fin structure; a gate structure [(*see id*., 4:21-22)], overlying the top surface and the two side surfaces of a portion of the fin structure and covering a portion of the isolation structure [(*see* annotated Fig. 8A above: gate structure overlying the fin structure and covering portions of the isolation structure)], wherein the isolation structure under the gate structure has a first top surface and the isolation structure at two sides of the gate structure has a second top surface, and the first top surface is higher than the second top surface [(*see id*., 5:47-53)].

Ex. 1001, cl. 1. In particular, Hsieh discloses etching fins and isolation structures at sides of the gate "such that the etched portions of the fins 325 and isolation features 335 combine to form source and drain recesses 372." Ex. 1038, 5:48-50. This combined recess has a common "depth (d_1)." *Id*., 5:52-53. As such, a first top surface of the isolation structure under the gate structure is higher than a second top surface of the isolation structure within source/drain recesses 372. Hsieh further discloses an epitaxial layer, disposed at one side of the gate structure and in direct contact with the fin structure. Ex. 1038, Figs. 9A-9C, 5:54-6:8.

Accordingly, Hsieh's semiconductor device, upon the growth of an epitaxial layer, anticipates claim 1 of the '609 patent. Even if subsequent processing steps reduce the height of the isolation structure under the gate, the surface of the isolation structure under the gate remains higher than the top surface within recesses 372. *See id*., Figs. 12A-12C (isolation structure below the gate remains above a top surface

of the isolation structure corresponding to the depth (d_1) of the etch in Fig. 8C-II). Thus, Hsieh's device after subsequent processing also anticipates, or at least renders obvious, claim 1 of the '609 patent. The Examiner's failure to understand and apply Hsieh against the claims was a material error that warrants referral.

The Examiner's improper consideration of the prior art is further reflected by the purportedly allowable limitation. During prosecution, the sole Office Action rejected pending claims 1-10 over U.S. Pub. No. 2012/0193713 ("Kulkarni") (Ex. 1036). Ex. 1002, 38. In response, Applicant amended claim 1 to recite "an isolation structure, disposed on the surface of the substrate and surrounding the fin structure" *Id.*, 25. As explained in Applicant's companion remarks, this amendment was made to distinguish the claimed isolation structure from the "oxide region buried in the substrate" of Kulkarni's "SOI" structure. *Id*., 32. The Examiner failed to appreciate that it was well-known and industry standard that FinFET devices may be structured as SOI devices, like Kulkarni, or bulk FinFETs, which include isolation structures as recited in the amended claim language. *See*, *e.g.*, Ex. 1037, 2 ("FinFETs are classified into two types: SOI and bulk FinFETs."). Rather than recognizing the conventional nature of the amended claim language, the Examiner allowed the amended claims without substantive commentary. Ex. 1002, 12.

In doing so, the Examiner overlooked that numerous references cited to the office, including Hsieh, disclose bulk FinFET approaches and thus disclose the

purportedly allowable limitation. *See e.g.*, Ex. 1038, Fig. 8C-II; Ex. 1077, [0009], Fig. 9; Ex. 1078, 2:65-67, Fig. 1b; Ex. 1079, 15:25-45, Figs 2A-2B. The Examiner's failure to appreciate the amended claim language as a conventional and obvious feature is another material error that warrants referral.

B. The Examiner materially erred by conducting an inadequate search that failed to identify and apply material prior art

Aside from Hsieh, the art is replete with references reading on the '609 patent's claims, including the references raised in the Petition, which clearly teach features of claim 1, including the allegedly missing limitation. Pet., 20-21, 67-68; Ex. 1040; Ex. 1041; Ex. 1042; Ex. 1043. The Examiner's failure to locate this art is the result of an inadequate prior art search. The Examiner's search strategy reveals numerous material errors, including at least (1) failing to spend the requisite time searching prior art, instead relying on the deficient search of the parent patent; and (2) applying unreasonably narrow search terms. As a result, the Examiner failed to identify material prior art, including the references applied in the Petition.

First, the Examiner failed to spend adequate time searching the prior art, deferring to the deficient search performed in the '609 patent's parent, U.S. Patent No. 8,993,384 ("'384 patent") (Ex. 1044). Prior to issuing a Non-Final Rejection, the Examiner spent just one hour and ten minutes searching prior art, over half of which was allocated to reviewing the documents cited on the '384 patent. Ex. 1002, 48-51. As explained in TSMC's discretionary denial briefing in challenging the '384

patent, the Examiner's search strategy in the parent patent was, itself, deficient and erroneous. Ex. 1033, 6-10. The Office has since determined that the '384 patent warrants further review by the Board and instituted IPR of the patent. Ex. 1034. By primarily relying on the results of the '384 patent's flawed examination during examination of the '609 patent, the Examiner materially erred.

Moreover, the Examiner spent just *twelve minutes* searching after Applicant amended claim 1. Ex. 1002, 19-20. Worse, the Examiner's updated search did not include any new terms or strings targeting the allegedly allowable limitation, instead retreading the same strategy previously employed with only slight variations in combinations. *Compare* Ex. 1002, 48-51 *with id*., 19-20. As described above, the amended language reflects an industry standard, bulk FinFET structure. Examiner's failure to search for this concept was a material error that should be corrected.

Second, the Examiner's search terms were unreasonably narrow, failing to account for trivial differences in language and well-known nomenclature. For example, the Examiner searched only for "epitaxial near layer," failing to account for reasonable variations such as "epitaxially" or "epitaxy" and removing references from consideration that use similar terms such as epitaxial "structure," or "region." Ex. 1002 at 19, 49. Similarly, the Examiner searched only for "isolation near (structure or layer)," removing even references that rely on the industry standard terminology for the claimed structure like "shallow trench isolation" or "STI." *Id*.

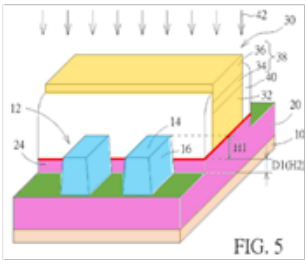
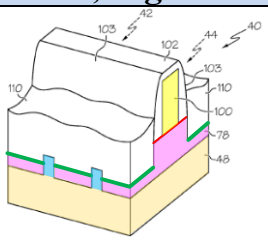
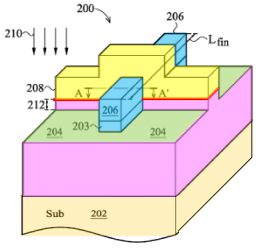
During examination, claims are given the broadest reasonable interpretation consistent with the specification. *In re NTP Inc.*, 654 F.3d 1279, 99 (Fed. Cir. 2011). The Examiner's failure to allow for even minimal deviations in terminology runs afoul of this principle and represents an additional material error.

And yet, despite this unreasonably restrictive language, the Examiner still would have uncovered Xu, applied in Grounds 1A and 1B of TSMC's Petition, had the Examiner properly considered the results of the updated search allegedly performed after Applicant's amendment. Xu is classified in multiple CPC classes that the Examiner allegedly considered. Ex. 1004, cover; Ex. 1002, 20. Xu further includes recitations of "epitaxial layer" (Ex. 1004, 5:25) and "isolation structure" (Ex. 1004, 2:37), along with other limiting terms used by the Examiner: "fin or finfet" (Ex. 1004, 1:22) and "sidewall[s]" (Ex. 1004, 4:39).

Accordingly, Xu should have been reviewed by the Examiner based at least on search L32, which contained only 201 documents. Ex. 1002, 19-20. Instead, the Examiner opted to further limit this string with the extraordinarily limiting term "height near difference," narrowing the pool to just 7 documents. *Id*. This additional term removed Xu from consideration, despite Xu disclosing a height difference between the isolation structure under the gate and at sides of the gate. *See*, *e.g.*, Pet. at 19; Ex. 1004 at Fig. 3. This abbreviated and unreasonable search excluded material prior art and was a material error warranting referral.

The error in failing to locate and apply Xu, in particular, is underscored by the prosecution of a corresponding patent application before the Chinese patent office ("CNIPA"). Chinese application No. 201310252818.8 was filed on June 24, 2013 and published as CN104241360A. Ex. 1049. Claim 1 of the Chinese document is nearly identical to claim 1 of the '609 patent. *Compare* Ex. 1050, cl. 1 *with* Ex. 1001, cl. 1. In prosecution by CNIPA, the Examiner identified and applied CN102468235A (Exs. 1051, 1081), which corresponds to Xu, as relevant prior art. Ex. 1052. Had the USPTO Examiner conducted a sufficient search, the Examiner would have also uncovered Xu. The failure to do so is a material error.

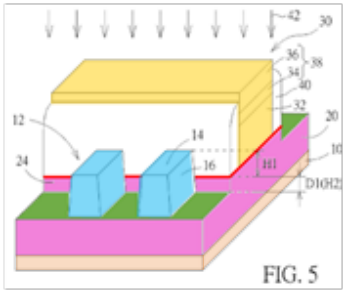
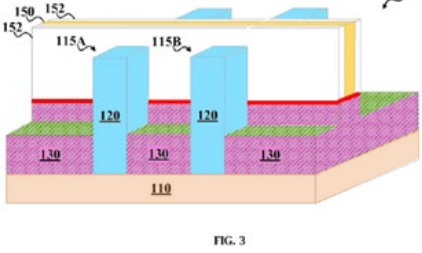
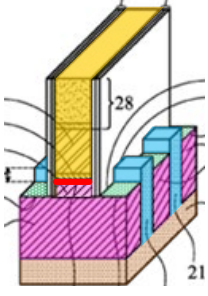
Even a minimally adequate search would have uncovered the invalidating prior art applied in the petition or their pre-grant publications (Exs. 1047, 1048). *See* Pet. 11-23, 55-63. The asserted art is not unique—*many* prior art references disclose the features of claim 1 of the '609 patent and would have been uncovered by an adequate search. *E.g.*, Exs. 1040 (Figs. 9-10), 1041 (Fig. 18), 1042 (Figs. 1A-1B), 1043 (Figs. 3A-3C). For example, Cho (Ex. 1041) and van Dal (Ex. 1043), disclose semiconductor devices that mirror the device of the '609 patent and its claims:

'609 Patent, Fig. 5	Cho, Fig. 18	Van Dal, Figs. 3A-3B
 FIG. 5	 FIG. 18	

The Examiner's compound, material errors warrant referral to the Board. *See, e.g., Carbyne*, IPR2025-00959, Paper-11, 2 (referring in part based on examiner's failure to apply reference cited on an IDS); *Azurity Pharmaceuticals, Inc. v. Helsinn Healthcare S.A.*, IPR2025-00945, Paper-11, 2-3 (Sep. 19, 2025) (referring 11-year-old patent based on examiner's erroneous assessment of unexpected results); *TSMC v. Marlin Semiconductor Ltd.*, IPR2025-00847, Paper-11, 3-4 (referring 15-year-old patent based on examiner's failure to apply reference cited during prosecution).

IV. Referral is Warranted Because of the Strength of the Petition, Which Invalidates All Claims Over Two Separate Primary References

The merits are strong, well-supported, and well-reasoned, and the invalidity positions are straightforward. TMSC presents two single-reference §§102/103 grounds—Xu (Ex. 1004) and Ching (Ex. 1005)—each covering the majority of the '609 patent's claims (*see* Pet., 4, 11, 50). Marlin identifies no substantive deficiencies in either primary reference, and the compelling merits of the Petition can be gleaned even just from the side-by-side figures below, which show the striking similarities between the alleged invention and the references:

'609 Patent, Fig. 5	Xu, Fig. 3	Ching, Fig. 3
		

Moreover, the PTAB has already found a reasonable likelihood of success in a related petition challenging the parent patent's method claims. Ex. 1034. This weighs against discretionary denial of the '609 patent's device claims. *Tesla*, IPR2025-00217, Paper-9, 2.

V. Referral is Warranted Because the Settled Expectations of Petitioner and Others Outweigh Marlin's Alleged Expectations

Marlin's main contention in requesting denial is that the patent issued ten years ago, allegedly creating "settled expectations" that, alone, effectively trump all other considerations. Paper-6, 2-8. Focusing the analysis solely on the expectations of Marlin, without regard for the expectations of TSMC, its customers, and the public is not balanced or fair. TSMC, its customers, and the public have "settled expectations," and they heavily outweigh Marlin's alleged expectations.

After acquiring the '609 patent in October 2023 (Ex. 1053), Marlin began an enforcement campaign against the semiconductor industry, including TSMC's customers. Ex. 2104, 1. The Petition should be referred to resolve this dispute before Marlin's enforcement of the '609 patent against TSMC or its customers disturbs the parties' well-settled expectations that the '609 patent remains dormant.

First, TSMC and its customers had settled expectations that the '609 patent would not be asserted due to the prior owner's inaction during the majority of the '609 patent's life. TSMC has been engaged in FinFET manufacture since 2013. Ex. 1054, 2-3. For years after the issuance of the '609 patent, TSMC invested billions

of dollars in fabrication facilities to manufacture millions of wafers per year using FinFET technology, and its customers invested significant resources into designs based on that technology. *See e.g.*, Exs. 1054, 1055. During this time, UMC, who Marlin claims is "TSMC's main competitor" (Paper-6, 3), remained silent and inactive. UMC's inactivity created settled expectations for TSMC and its customers that the patent would remain dormant. These expectations weigh against denial. *See Apple Inc. v. Ferid Allani*, IPR2025-00856, Paper-11 (Sep. 5, 2025) (informative) (declining to discretionarily deny institution based on Petitioner's expectations that the challenged patent not be asserted after a years-long period of inaction).

Marlin's recent activity cannot unwind the settled expectations of TSMC and its customers created by UMC's longstanding inaction with the patent. In analogous bodies of law, the expectations of others would exceed those of a new property owner under such circumstances. *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."); *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, Marlin has not presented any persuasive evidence that the '609 patent was ever "commercialized, asserted, marked, licensed, or otherwise applied" in the

same "particular technology space" where it now seeks enforcement. *Shenzhen Tuozhu Tech. Co., Ltd. v. Stratasys, Inc.*, IPR2025-00531, Paper-10, 3 (July 17, 2025) (internal quotations omitted). This weighs against any claim by Marlin of "settled expectations." *Home Depot U.S.A., Inc. v. H2 Intellect LLC*, IPR2025-00480, Paper-11, 2-3 (Sep. 4, 2025) (informative). The '609 patent has not been asserted in litigation in any venue, against any party. Marlin alleges that UMC is "TSMC's main competitor" (Paper-6, 3), yet Marlin has not pointed to any evidence suggesting UMC enforced or demanded a license for the '609 patent against TSMC (or anyone) during the seven years UMC owned the patent.

Marlin argues that the '609 patent has "been commercialized, at least in the form of licensing" with Intel Corporation and Samsung Electronics Co., Ltd. Paper-6, 4. But Marlin supports this contention through a bare assertion by its corporate representative Paul Ahern that fails to provide any details regarding these licenses by which to assess their relevance or significance. Ex. 2104. Marlin provides no evidence that Intel or Samsung needed a license to the '609 patent. And Marlin provides no evidence that these purported licenses were public or that its purported licensees marked their products in any way to evidence commercialization that would disturb TSMC's settled expectations in its freedom to operate. As best as TSMC can tell, news of this licensing campaign was not public until May of 2025, after Marlin had already hauled TSMC before multiple tribunals and well after

TSMC developed expectations of non-enforcement. Ex. 1056; Ex. 1057. Marlin's licensing-based arguments are therefore readily distinguishable from *Alliance Laundry Sys., LLC v. PayRange LLC*, IPR2025-00950, Paper-1 (Sep. 19, 2025) (informative), where the Patent Owner submitted detailed evidence of the terms of the license (including covered patents and dollar amounts) and where no settled expectations of non-enforcement had attached.

Further, it appears licenses were taken over Marlin's entire patent portfolio, which contains hundreds of patents. Ex. 1056; Ex. 1057. Marlin cannot reasonably draw settled expectations with respect to the '609 patent, specifically, from such a broad license. *See Samsung Electroncis Co. LTD. v. Wilus Institute of Standards and Tech. Inc.*, IPR2025-00935, Paper-9, 25 (arguing for settled expectations based on a patent pool license); *Id*., Paper-12 at 3 (referring petition to the Board).

At bottom, when Marlin acquired patents that had never been asserted in any proceeding (including the '609 patent) with the intention of enforcing them, the only reasonable expectation it could have is that their validity would be challenged. *See 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). Marlin attempts to distract from this by attacking TSMC's strong settled expectations, but these attempts are unpersuasive.

For example, relying on various *iRhythm Tech., Inc. v. Welch Allyn, Inc.* IPRs, Marlin argues that TSMC's alleged knowledge of the patent through prosecution of its own patents favors denial. Paper-6, 4. Marlin's argument is factually deficient and distinguishable. Tellingly, Marlin cites only to a Google Patents listing of "Family to Family" citations. *Id*.; Ex. 2103. This is because the TSMC documents listed in Marlin's evidence do not cite the '609 patent itself (as Marlin suggests). Exs. 1058, 1059, 1060, 1061. In fact, one of these patents does not cite the '609 patent nor any of its family members. Ex. 1061. And the basis for the inclusion of another (a German counterpart to Ex. 1060) is entirely unclear. In other cases, family members of the '609 patent were cited by the Examiner (Exs. 1058, 1059, 1060), not via IDS, as was the case in *iRhythm*. *iRhythm*, IPR2025-00363, Paper-10, 3. Moreover, unlike in *iRhythm* where the Patent Owner in the IPR proceeding owned the patent at the time of issuance, the citations here occurred before Marlin acquired the patent. Ex. 1062 (U.S. Patent No. 8,214,007 issued to Welch Allyn, Inc.); Ex. 1063, 21; Ex. 1064, 48; Ex. 1065, 107. As described above, TSMC has settled expectations, based on UMC's conduct, that the '609 patent would not be asserted.

Finally, Marlin also argues that licensing negotiations between the parties beginning in 2024 weigh against any claim of settled expectations by TSMC. Paper-6, 6-7 (citing *DataDome S.A. v. Arkose Labs Holdings, Inc*. IPR2025-00693, Paper-13 (Aug. 14, 2025)). Marlin's reliance on *DataDome* is unavailing. First, in

DataDome, there was a parallel proceeding involving the challenged patents and the Petitioner did not even argue that the Examiner had materially erred during prosecution. *DataDome*, Paper-13, 3; Paper-12, 26-30. Both of these factors differ in the present case and weigh in favor of referral.

Moreover, TSMC filed this Petition just over a year after receiving a licensing proposal, which was followed by a period of evaluation and good faith negotiations, and just 9 months after Marlin discontinued those negotiations by asserting patents against TSMC in court. TSMC was far more diligent than the *DataDome* Petitioner who waited over two years after receiving an initial demand and 15 months after refusing a license to file its IPR Petition. *DataDome*, Paper-13, 2; *id*., Pet'r. Ex. 1013 (January 11, 2023 letter seeking license on one of the challenged patents).

VI. Referral Is An Efficient Use Of Board Resources

Additionally, referral here is an efficient use of Board resources because there is no parallel litigation involving the '609 patent, making the PTAB the most efficient forum to resolve this dispute. *See*, *e.g.*, *Intas Pharms. Ltd. v. Atossa Therapeutics, Inc.*, IPR2025-00799, Paper-12, 2-3 (Aug. 12, 2025) ("[T]he parties are not involved in a parallel proceeding involving the challenged patents. As a result, there is no concern of inconsistent outcomes or significant duplication of efforts ….") . That no other tribunal is set to resolve this dispute removes any risk of duplicated efforts, inconsistent decisions, or unnecessary expense for the parties.

Marlin argues this is not dispositive because petitions in *Intel Corp. v. Proxense LLC* were still discretionarily denied despite having no *trial date*. Paper-6, 7 (citing IPR2025-00327, -00328, -00329, Paper-12, 2 (June 25, 2025)). However, in *Intel*, the Acting Director explained that the decision to discretionarily deny was based upon Petitioner's failure to "provide any persuasive reasoning as to why an *inter partes* review is an appropriate use of Board resources." *Intel*, Paper-12, 2. Here, TSMC presents several compelling reasons why IPR is an appropriate use of resources, rending IPR as an efficient means to resolve this dispute and avoid "unnecessary and counterproductive litigation costs" before Marlin asserts this patent in a court against TSMC. November 2019 Consolidated Trial Guide, 56 (quoting H.R. Rep. No. 112-98, pt. 1, 40 (2010), 2011 U.S.C.C.A.N. 67, 69). Referral before litigation occurs promotes the very ideals that underlie the IPR process and is therefore an appropriate use of resources.

VII. National Security, Economic, and Public Interest Considerations Warrant Referral

Marlin acknowledges it has alleged infringement of the '609 patent by TSMC. Ex. 2014. Given Marlin's chosen forum for enforcement is the ITC, this threat to weaponize the '609 patent undermines the U.S. semiconductor supply chain, harming priorities that this Administration has made clear are vital to U.S. economic interests and national security. Ex. 1066, 3; Ex. 1067, 1; Ex. 1076, 40.

This makes *inter partes* review of the '609 patent an appropriate use of the Office's resources—indeed a compelling one. TSMC's FinFET fabrication capabilities are vital to leading U.S. companies (such as Apple, NVIDIA, and Amazon). More specifically, TSMC's accused FinFET technology supports U.S. advanced semiconductor research and development in key, emerging industries including AI, health care, and national security and defense. *See* Ex. 1068, 15-19.

Indeed, the U.S. government has recognized AI's importance to national security, and TSMC is an important part of the American AI-dominance strategy. Ex. 1069; 1070; 1072. For example, TSMC "produces the advanced processors that Nvidia [] and Apple [] rely on to bring AI to life." Ex. 1071, 2. Moreover, healthcare is a key area of projected growth in the AI semiconductor market, where the demand for "advanced chips—TSMC's specialty—will continue to surge." Ex. 1072, 4. Blocking or burdening access to TSMC-made advanced semiconductors could create a catastrophic single-point failure for medical R&D, causing "direct effects on future patient care" and "far-reaching consequences" for the development of life-saving medical technology. Ex. 1080, 4.

Marlin does not dispute the serious impact a ban on importing FinFET products into the United States would have to vital U.S. national security, public health, or economic interests. Instead, Marlin sets up a strawman—painting itself as protector of local industries. Paper-6, 10. The facts belie Marlin's pronouncement.

Marlin does not practice the ’609 patent, nor any patent it holds. There is no evidence that Marlin, a foreign entity, has invested in the U.S. semiconductor technology space, except by trying to assert its recently acquired patents. Given Marlin’s assertion of its patents against U.S. companies (*e.g.*, Apple, Qualcomm, Broadcom), Marlin’s argument that it is a protector of “local industry” rings hollow. Finally, trying to cast TSMC as a “foreign entity” that “import[s] infringing products” and must be protected against twists the facts beyond recognition. There is zero evidence, other than a bare, unsupported statement from an interested party, Mr. Ahern, that any product of TSMC infringes the ’609 patent. Additionally, Marlin ignores TSMC’s commitment to invest $165 billion to build manufacturing facilities in the United States in support of this Administration’s goal to onshore advanced semiconductor manufacturing to bolster U.S. economic and national security interests. Ex. 1066, 3. Indeed, TSMC’s Arizona facilities are already producing 4nm chips for American customers. Ex. 1073, 2. Marlin’s enforcement campaign against TSMC seeks to damage the core supply chain of semiconductor chips from TSMC to the United States. National security, economic, and public interest considerations therefore warrant referral.

Dated: February 26, 2026

Respectfully submitted,

By: */David B. Cochran/*
David B. Cochran
Lead Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing opposition, including all Exhibits, was served on February 26, 2026 via email delivery directed to the attorneys of record for Patent Owner.

Date: February 26, 2026

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