

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.

IPR2026-00261
Patent 7,888,195

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

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LIST OF EXHIBITS

TSMC-1001	U.S. Patent No. 7,888,195 (“the ’195 patent”)
TSMC-1002	Excerpts from the Prosecution History of the ’195 Patent (“the Prosecution History”)
TSMC-1003	Declaration of Jack Lee, Ph.D.
TSMC-1004	U.S. Pub. 2007/0138559 (“Bohr”)
TSMC-1005	U.S. Pub. 2005/0233527 (“Brask”)
TSMC-1006	Wang et al., Chemical Mechanical Polishing for Selective CVD-W, Materials Chemistry And Physics, 51, 75-79 (1997) (“Wang”)
TSMC-1007	Amazawa et al., Planarized Multilevel Interconnection Using Chemical Mechanical Polishing of Selective CVD–Al Via Plugs, IEEE Transactions on Electron Devices, Vol.: 45, Is.: 4, 815 (April 1998) (“Amazawa”)
TSMC-1008	U.S. Pub. 2009/0242997 (“Yu”)
TSMC-1009	U.S. Pub. 2009/0315124 (“Chen”)
TSMC-1010	U.S. Pub. 2006/0180851 (“Lee”)
TSMC-1011	Hofstein et al., The Silicon Insulated-Gate Field-Effect Transistor, Proceedings of the IEEE, Volume: 51, Issue: 9, (September 1963) (“Hofstein”)
TSMC-1012	U.S. Pat. No. 6,573,134 (“Ma”)
TSMC-1013	U.S. Pat. No. 7,390,709 (“Doczy ’709”)
TSMC-1014	U.S. Pub. 2006/0278934 (“Nagahama”)

TSMC-1015	U.S. Pat. No. 7,084,038 (“Doczy ’038”)
TSMC-1016	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, 247-250, December 10-12, 2007
TSMC-1017	U.S. Pat. No. 7,211,869 (“Chan”)
TSMC-1018	Printout of USPTO Class Schedule for Class 438, Semiconductor Device Manufacturing: Process (Retrieved on February 5, 2026 from https://www.uspto.gov/web/patents/classification/shadow-Files/defs438sf.htm?438_183&S&3Y&4N&50&51&53#53)
TSMC-1019	Declaration of June Ann Munford
TSMC-1020	European Patent No. 2112687 (“Chang”)
TSMC-1021	U.S. Pub. 2008/0096383 (“Tigelaar”)
TSMC-1022	U.S. Patent No. 6,225,168 (“Gardner”)
TSMC-1023	Devireddy et al., “Improved low frequency noise characteristics of sub-micron MOSFETs with TaSiN/TiN gate on ALD HfO ₂ dielectric,” Microelectronics Reliability Volume 47, 1228-1232 (2007).
TSMC-1024	U.S. Pub. 2006/0065939 (“Doczy ’939”)
TSMC-1025	U.S. Patent No. 6,559,051 (“Buynoski”)
TSMC-1026	U.S. Pub. No. 2005/0051854 (“Cabral”)
TSMC-1027	A. Chatterjee et al., “CMOS metal replacement gate transistors using tantalum pentoxide gate insulator,” International Electron Devices Meeting 1998, Technical Digest (Cat.

No.98CH36217), San Francisco, CA, USA, 1998, pp. 777-780,
doi: 10.1109/IEDM.1998.746471. (“Chatterjee”)

TSMC-1028	U.S. Patent No. 7,176,090 (“Brask ’090”)
TSMC-1029	U.S. Pub. No. 2007/0037343 (“Colombo”)
TSMC-1030	U.S. Pub. No. 2008/0265322 (“Lin”)
TSMC-1031	U.S. Pub. No. 7,208,361 (“Shah”)
TSMC-1032	Declaration of Robert W. Bahr
TSMC-1033	Patent Assignment Abstract of Title for the ’195 Patent
TSMC-1034	Taiwan Semiconductor Manufacturing Company Ltd., 7nm Technology (last visited Aug. 13, 2025), <i>available at</i> https://www.tsmc.com/english/dedicatedFoundry/technology/logic/l_7nm
TSMC-1035	Jeremy Bowman, Nasdaq, This 1 Number May Ensure TSMC’s Market Dominance, The Motley Fool (Aug. 17, 2024) (last visited July 18, 2025), <i>available at</i> https://www.nasdaq.com/articles/1-number-may-ensure-tsmcs-market-dominance .
TSMC-1036	“Another Historic Investment Secured Under President Trump,” The White House, Published Mar. 3, 2025, <i>available at</i> https://www.whitehouse.gov/articles/2025/03/another-historicinvestment-secured-under-president-trump/ (last accessed Feb. 25, 2026)
TSMC-1037	“IPValue Affiliate Licenses Samsung to Marlin Semiconductor Patent Portfolio,” IPValue, <i>available at</i> https://ipvalue.com/news/ipvalue-affiliate-licenses-samsung-tomarlin-semic (last accessed Feb. 25, 2026)

- TSMC-1038 “IPValue Affiliate Licenses Samsung to Marlin Semiconductor Patent Portfolio,” Businesswire, Published May 22, 2025, *available at* [https://www.businesswire.com/news/home/20250504309443/en/IP Value-Affiliate-Licenses-Samsung-to-Marlin-SemiconductorPatent-Portfolio](https://www.businesswire.com/news/home/20250504309443/en/IP-Value-Affiliate-Licenses-Samsung-to-Marlin-Semiconductor-Patent-Portfolio) (last accessed Feb. 25, 2026)
- TSMC-1039 “CNBC Transcript: United States Commerce Secretary Howard Lutnick Speaks with CNBC’s Brian Sullivan on ‘The Exchange’ Today,” CNBC, Published Apr. 29, 2025, *available at* <https://www.cnbc.com/2025/04/29/cnbc-transcript-united-statescommerce-secretary-howard-lutnick-speaks-with-cnbc-briansullivan-on-the-exchange-today.html> (last accessed Feb. 25, 2026)
- TSMC-1040 “Removing Barriers to American Leadership in Artificial Intelligence,” The White House, Published Jan. 23, 2025, *available at* <https://www.whitehouse.gov/presidentialactions/2025/01/removing-barriers-to-american-leadership-inartificial-intelligence/> (last accessed Feb. 25, 2026)
- TSMC-1041 TSMC Annual Report 2024 (Excerpts), *available at* <https://investor.tsmc.com/static/annualReports/2024/english/ebook/index.html> (last accessed Feb. 25, 2026)
- TSMC-1042 “Ansys Strengthens Collaboration with TSMC on Advanced Node Processes Certification and 3D-IC Multiphysics Design Solutions.,” Published Apr. 23, 2025, *available at* <https://investors.ansys.com/news-releases/news-releasedetails/ansys-strengthens-collaboration-tsmc-advanced-nodeprocesses> (last accessed Feb. 25, 2026)
- TSMC-1043 TSMC-Cadence Press Release, Published Apr. 24, 2025, *available at* https://www.cadence.com/en_US/home/company/newsroom/pressreleases/pr/2025/cadence-and-tsmc-advance-ai-and-3d-ic-chipdesign-with-certified.html (last accessed Feb. 25, 2026)

TSMC-1044	J. Klearman, “Decoding TSMC’s Contribution to the AI and 5G Ecosystem,” Nov. 20, 2024, <i>available at</i> https://grain-iteshares.com/institutional/us/en-us/research/decodingtsmc-s-contribution-to-the-ai-and-5g-ecosystem/ (last accessed Feb. 25, 2026)
TSMC-1045	R. O’Brien, “Trump on China – Putting America First,” <i>available at</i> https://trumpwhitehouse.archives.gov/wpcontent/uploads/2020/11/Trump-on-China-Putting-AmericaFirst.pdf (last accessed Feb. 25, 2026)
TSMC-1046	Certain Foreign-Fabricated Semiconductor Devices, Products Containing the Same, and Components Thereof, Inv. No. 337-TA1443, Doc ID 843707 (Feb. 18, 2025) (Complaint)
TSMC-1047	RESERVED
TSMC-1048	RESERVED
TSMC-1049	Director John A. Squires, Memorandum on Additional Discretionary Institution Considerations – U.S. Manufacturing and Small Business Use of AIA Proceedings (March 11, 2026)
TSMC-1050	TSMC Arizona Economic Impact, <i>available at</i> https://www.tsmc.com/static/abouttsmcaz/index.htm (last accessed April 12, 2026)
TSMC-1051	Greater Phoenix Semiconductor Ecosystem February 2025 Report, <i>available at</i> https://www.gpec.org/industries-operations/industries-in-greater-phoenix/semiconductors (last accessed April 12, 2026)
TSMC-1052	Google Patents – U.S. Pub. No. US 2007/0138559 <i>available at</i> https://patents.google.com/patent/US20070138559A1/en?q=US20070138559
TSMC-1053	Google Patents – U.S. Pub. No. US 2005/0233527 <i>available at</i> https://patents.google.com/patent/US20050233527A1/en?q=US20050233527

- TSMC-1054 Russ Wiles, *US Commerce Secretary Visits TSMC Complex in Phoenix as Work on Third Fab Starts*, Arizona Republic (April 30, 2025)
- TSMC-1055 VectorCapital.com About Webpage, *available at* <https://www.vectorcapital.com/about> (last accessed April 22, 2026)
- TSMC-1056 VectorCapital.com IPValue Management Investment Case Study Webpage, *available at* <https://www.vectorcapital.com/investments/case-study/ipvalue-management> (last accessed April 22, 2026)
- TSMC-1057 IPValue.com Portfolios Webpage, *available at* <https://www.ipvalue.com/portfolios>
- TSMC-1058 Responses of John A. Squires to Senate Judiciary Comm. Questions for the Record (May 28, 2025), *available at* https://www.judiciary.senate.gov/imo/media/doc/2025-05-21_qfrresponses_squires.pdf.

I. Introduction

Multiple independent reasons support referral of TSMC's Petition.

First, referral is warranted to correct material errors in the original examination of the '195 Patent. Those errors yielded overly broad claims that are shown by this Petition to be anticipated by at least two prior art references—Bohr (TSMC-1004) and Brask (TSMC-1005). As detailed in the declaration of Mr. Robert W. Bahr (TSMC-1032), the examiner conducted a cursory search that failed to uncover these anticipatory references. As the Director recently reaffirmed, “[a] substantial showing of apparent examiner error can overcome other factors that suggest discretionary denial.” *Magnolia Med. Techs., Inc. v. Kurin, Inc.*, IPR2026-00097, Paper 17 at 7 (PTAB May 14, 2026) (precedential). In fact, the Director applied that principle in a parallel TSMC matter, referring for institution decision on the merits a petition challenging another Marlin patent directed to the formation of metal gates. *See Taiwan Semiconductor Mfg. Co. v. Marlin Semiconductor Ltd.*, IPR2026-00220, Paper 9 at 1 (PTAB May 15, 2026).

Second, TSMC's settled expectations of non-enforcement vastly outweigh any expectations of the '195 Patent's new owner, Marlin. The *original* owner and an alleged TSMC competitor—UMC—took no action to assert the '195 Patent for over a decade after issuance. During that period, TSMC invested billions to manufacture advanced semiconductor chips, including in the United States for American

customers who expected to integrate those chips into their products without incident. TSMC-1034; TSMC-1036. Marlin, a foreign entity that only recently acquired the patent, has no comparable expectations.

Third, while Marlin's licensing demand to TSMC and existing lawsuits on its other patents confirm the threat of enforcement, the *Fintiv* factors favor referral as the '195 Patent is not asserted in parallel litigation.

Fourth, Director Squires's March 11, 2026 memorandum strongly favors referral. TSMC-1049, 1-3. TSMC is the world's largest chipmaker, by some accounts producing roughly 90% of the world's advanced chips (*e.g.*, 7nm and smaller). *See* TSMC-1035, at 2. Its semiconductors are vital to the U.S. supply chain, and TSMC has committed a remarkable \$165 billion to a strategic U.S. supply chain for advanced semiconductors, including current 4nm production in Arizona.

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

II. Referral is Warranted Because Original Examination of the '195 Patent Suffered from Material Error by the Office

A. The Examiner Conducted a Deficient Search That Failed to Identify the Petition's Anticipation References of Bohr and Brask

The Examiner allowed claims 1–11 of the '195 Patent on a search that was cursory, unduly narrow, and non-compliant with the MPEP in multiple, independent

respects. TSMC-1032, ¶¶17-69. The Examiner consequently missed both anticipatory references cited in the Petition—Bohr (TSMC-1004) and Brask (TSMC-1005)—and allowed claims 1–11 over prior art that, properly searched and applied, anticipates most of the challenged claim. Pet. 2.

As detailed in the declaration of Robert W. Bahr—the former USPTO Deputy Commissioner for Patent Examination Policy and a 38-year veteran of the Office—the Examiner’s search was unduly narrow and materially deficient in several respects. TSMC-1032, ¶¶1-69. Among other flaws, the Examiner: used narrow, single-term queries without synonyms or wildcards; conducted searches in sessions lasting only 2-3 minutes each; and failed to fully document the searches performed. *Id.*

These types of failures are precisely the type of material error the Office has recognized as warranting Director referral. *See, e.g., Taiwan Semiconductor Mfg. Co. Ltd. v. Marlin Semiconductor Ltd.*, IPR2025-01082, Paper 7, 2–11 (discussing flawed search that led to oversight of three anticipation references) & Paper 10 (denying PO’s request for discretionary denial); *Samsung Elecs. Co., Ltd. v. Wilus Inst. of Standards & Tech., Inc.*, IPR2025-01043, Paper 9, 20–27 (discussing search errors) & Paper 11 (denying PO’s request for discretionary denial).

Surfacing and correcting such errors is, moreover, an Office-wide priority of the current Director. Indeed, Director Squires has emphasized that “[a] thorough and comprehensive prior art search is the foundation of every patent examination and the

foundation of quality and confidence in the patent system.” TSMC-1058, 20. The search-deficiency analysis Mr. Bahr provides is precisely the type of showing the Director has invited and weighs decisively against discretionary denial.

1. The Examiner’s Search Were Unduly Narrow

a. The keyword searches were overly restrictive

As Mr. Bahr explains, the Examiner’s keyword searches attempted to cover three key terms—“high-k” (or “high k”), “cap,” and “dummy”—but did so without any of the synonyms, alternative terms of art, or truncation/wildcard operators that the MPEP instructs examiners to consider when developing a search strategy. *See* MPEP §§ 904.01, 904.01(a); TSMC-1032, ¶10. These omissions were material because both Bohr and Brask use alternative vocabulary to describe the claimed concepts, and the Examiner’s failure to search for that alternative vocabulary is what allowed these claims to issue.

Dummy gate: The Examiner’s September 2009 L3 search (and corresponding September 2010 L11 search) was limited to U.S. patent documents containing the word “dummy,” a key term that appears throughout the claims of the ’195 Patent to refer to dummy gates that are used as sacrificial structures during processing of metal gates. TSMC-1002, 103; TSMC-1032, ¶¶30, 45, 49. Yet this is not an exclusive term of art; rather, the semiconductor art commonly refers to the same concept using terms like “sacrificial,” “placeholder,” “replacement,” or “temporary” to describe

such gates. *Id.*, ¶49. Indeed, Bohr and Brask both use these alternatives, not “dummy.” For example, Bohr describes the relevant structure as “sacrificial.” TSMC-1004, ¶¶ 24, 29, 51. Brask uses the term “replacement.” TSMC-1005, ¶¶ 2-4, 13, 15–22, 24, 39–40, 51. Simply expanding the search to cover corresponding terms like “sacrificial” as an alternate to “dummy” would have retrieved Bohr, and adding corresponding a term like “replacement” would have retrieved Brask. TSMC-1032, ¶49.

Cap layer: The Examiner’s L2 (September 2009) and L3 (September 2010) searches were limited to the bare term “cap.” TSMC-1002, 103; TSMC-1032, ¶¶30, 45, 50. In claim 1 of the ’195 Patent, for instance, this corresponds to the claimed first cap layer that is deposited on the high-k dielectric layer. As Dr. Jack Lee explained, this is a layer that is provided on/over the underlying high-k dielectric in order to modify the transistor behavior—*e.g.*, work function. TSMC-1003, ¶84. Accordingly, the prior art contemplates various alternatives for this term—such as “protective,” “sealing,” “encapsulation,” “barrier,” “passivation,” “diffusion”—but none were searched by the Examiner. TSMC-1032, ¶50. Compounding the problem, the Examiner never even expanded the search to cover simple variations like “capping.” *Id.* As a result, the search inexcusably excluded “capping,” the only form of the corresponding term used throughout Brask. TSMC-1005, ¶¶ 30, 31. Even the most basic truncation operator like “cap\$” would have retrieved Brask. TSMC-1032, ¶51.

High-k dielectric: The Examiner's L1 search (September 2009) required "high-k" or "high k" to appear within the *same sentence* as "layer" or "film." TSMC-1002, 103; TSMC-1032, ¶¶28, 30, 48. That query excluded any document that refers to the layer without including "layer" or "film" in the same sentence, for example widely used terms like "high-k gate dielectric" or "high-k dielectric." *Id.*, ¶48. Simply including "dielectric" as an alternate to "layer" or "film," or pairing "high-k" with "dielectric," would have retrieved references like Bohr. TSMC-1004, ¶¶0022, 0038; TSMC-1032, ¶48.

The deficiencies above were not isolated. The Sept. 2009 L4 through L6, L8, L10, L12–13, and L15–20 queries, and the Sept. 2010 L2–6 and L9–12 queries, each rest on one of the L1, L2, or L3 search queries (or their Sept. 2010 counterparts), and so carries forward the same underlying deficiencies. TSMC-1032, ¶¶32, 52-53.

b. The keyword searches did not progress from broad to narrow

According to Mr. Bahr, standard examiner training and MPEP both contemplate a search strategy that incrementally narrows from broad initial queries to a focused result set the examiner can meaningfully review. *See* MPEP § 904.02; TSMC-1032, ¶¶5, 54. The Examiner did not abide this training. The September 2009 L1 search returned 8,479 documents, L2 returned 47,097, and L3 returned 69,453. TSMC-1002, 103; TSMC-1032, ¶55. Rather than narrow these incrementally, the next query—L4—required *all* of the search terms ("high-k" or "high k," "layer" or

“film,” “cap,” and “dummy”) to appear within the *same sentence*, and retrieved **zero documents**. *Id.* The next query, L5, retrieved 110 documents, but the ensuing L6 collapsed all the way down to just one. *Id.* The Examiner conducted no follow-up queries designed to recover a more workable set, for example by using less restrictive proximity operators (“withX,” “same,” “sameX”), synonyms, alternates, or wildcards. *Id.*, ¶56. Instead, the entire balance of the L1–L10 session was inexplicably devoted to narrowing a search that had already returned only one document. *Id.*

c. The Examiner spent only minutes conducting her searches

Further emblematic of the cursory nature of the Examiner’s time is how little time was actually spent on the keyword searches. The September 2009 queries were conducted in three sessions in a few minutes on a single morning: the first (L1–L10) between 4:56 a.m. and 4:58 a.m. on September 3, 2009; the second (L11–L13) between 5:06 a.m. and 5:07 a.m. that same morning; and the third (L14–L20) between 5:39 a.m. and 5:40 a.m. TSMC-1002, 103–04; TSMC-1032, ¶¶24-35, 59. The September 2010 keyword session likewise spanned only two to three minutes. *Id.*, ¶¶41-45, 59. That is, the Examiner appears to have devoted mere minutes of keyword searching to an application directed to advanced replacement metal-gate process technology. *Id.* As Mr. Bahr explains, “search sessions conducted through an iterative approach being completed in two to three minutes are unlikely to retrieve the

most pertinent prior art.” *Id.*, ¶59. The brevity of the searches both reflects and reinforces the substantive deficiencies described above.

d. The searches excluded foreign patent documents and nonpatent literature without justification

The Examiner’s search was further deficient in being limited to U.S. patent documents, in so doing excluding foreign patent documents and nonpatent literature. The MPEP is explicit: “[w]hen determining the field of search, three reference sources must be considered – domestic patents..., foreign patent documents, and nonpatent literature,” and they cannot be “eliminated from the search unless the examiner has and can justify a reasonable certainty that no references, more pertinent than those already identified, are likely to be found in the source(s) eliminated.” MPEP § 904.02. The Examiner offered no such justification, and none is apparent from the file history. TSMC-1032, ¶¶12-13, 60. The Examiner’s own conduct shows she *appreciated* that foreign documents may be relevant, including in her classification search foreign-collection subclasses 438/FOR187 and 438/FOR216, and EPO-classified “E” subclasses in class 257. TSMC-1002, 102. The Examiner simply made no corresponding search effort. TSMC-1032, ¶¶24, 36, 41, 61.

2. The Examiner Failed to Make a Complete Search Record

The Examiner also failed to make a complete record of the searches that was purportedly conducted. TSMC-1032, ¶¶16, 62. Specifically, the EAST Search History Printout in the file history for the alleged June 14, 2010 keyword search bears a

time stamp of 4:57 a.m. on September 3, 2009, and corresponds on its face to the L1–L8 queries from the September 2009 session—*not any search conducted in the proper timeframe in June 2010*. TSMC-1002, 49, 103; TSMC-1032, ¶¶36-40, 62. Either no June 2010 keyword search was conducted (contrary to the Examiner’s contemporaneous Search Notes at TSMC-1002, 48), or the search was conducted and the Examiner failed to retain a contemporaneous printout in violation of MPEP § 719.05. TSMC-1032, ¶62. Either way, the missing record underscores a broader pattern of non-compliant search and recordation practices during examination. *Id.*

Each of these search deficiencies, standing alone, is the type of material error the Office has recognized as warranting referral. *See, e.g., Taiwan Semiconductor Mfg. Co. Ltd. v. Marlin Semiconductor Ltd.*, IPR2025-01082, Paper 7, 2–11 & Paper 10; *Samsung Elecs. Co., Ltd. v. Wilus Inst. of Standards & Tech., Inc.*, IPR2025-01043, Paper 9, 20–27 & Paper 11. Taken together, they confirm that the ’195 Patent issued without the Office having considered the most pertinent prior art—including the two references on which TSMC’s Petition presents independent anticipation grounds against every challenged claim—due to the search deficiencies. Pet. 2. The Director should refer the Petition so the Office may correct that material error.

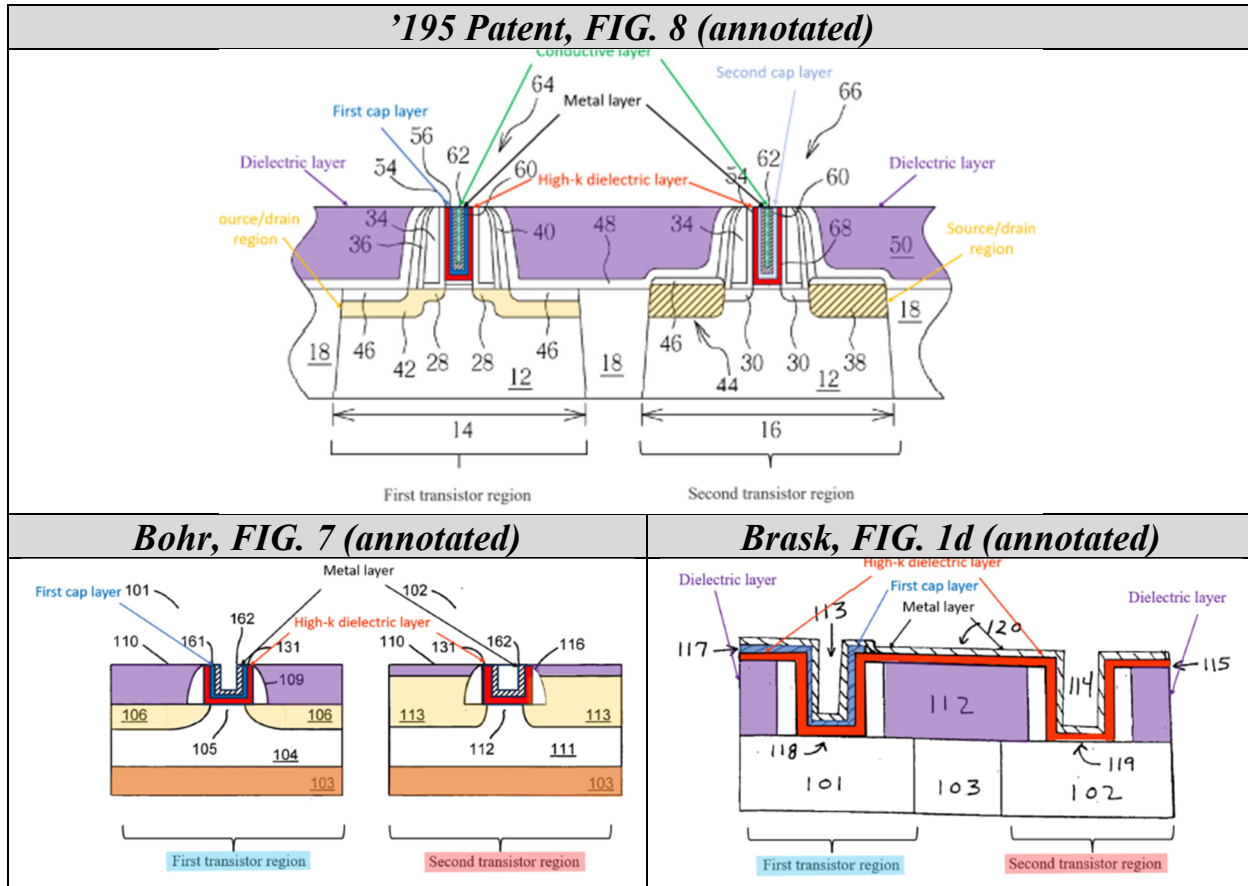
B. Deficient Nature of the Search is Confirmed by Recurring Citations to both Bohr and Brask in Related Applications

The materiality of the Examiner’s failure to identify Bohr and Brask is further

confirmed by the substantial role those references have played in United Microelectronics Corp.'s (UMC; original applicant for the '195 Patent) own prosecution record in the relevant space. Indeed, across UMC's other patent applications, Bohr has been considered as prior art on at least 23 separate occasions, and Brask on at least 36 separate occasions, in each instance either applied by the examiner during prosecution or disclosed by UMC itself in an information disclosure statement. *See* TSMC-1052; TSMC-1053. Bohr and Brask are accordingly not peripheral documents on the margins of the art; they are recurring touchstones of UMC's own semiconductor/metal-gate prosecution practice. The fact that UMC's other applications repeatedly grappled with both Bohr and Brask further confirms that the search deficiencies described above produced a concrete, materially erroneous outcome.

III. Referral Is Warranted Because of the Strength of the Petition, Which Invalidates All Claims Over Multiple Anticipation References

The merits of the Petition are especially strong here. This is evident from TSMC's *two* separate anticipation grounds based on Bohr and Brask. *See* Pet., 1-2. By contrast, Marlin's brief identifies no substantive deficiencies. And while the Petition provides straightforward, well-supported, and well-reasoned anticipation analyses for all three references, the compelling merits of the Petition can be gleaned even just from the side-by-side figures below, which reveal striking similarities between the alleged invention and the prior art. *See id.*, 23, 62.



IV. Referral Is Further 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 15 years ago, allegedly creating "settled expectations" that, alone, effectively trump all other considerations. *See* Paper 6, 3-9. But focusing the analysis solely on Marlin's expectations, 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" that heavily outweigh Marlin's alleged expectations.

After acquiring the '195 Patent in June 2021 (*see* TSMC-1033), Marlin began an enforcement campaign against the semiconductor industry, including TSMC's

customers. *See* EX1046, p. 16, ¶2. This included asserting patents against TSMC and its customers in the ITC to seek an exclusion order, ending the parties' good faith negotiations. The Petition should be referred to resolve this dispute before Marlin's enforcement of the '195 Patent against TSMC or its customers disturbs the parties' well-settled expectations that the '195 Patent will remain dormant.

First, TSMC and its customers enjoyed settled expectations that the '195 Patent would not be asserted due to a long period of inaction by UMC and Marlin for most of the '195 Patent's life—and indeed it still has not been asserted in litigation (thus favoring referral based on *Fintiv*). Marlin's declarant acknowledges that Patent Owner did not approach TSMC concerning its portfolio until 2024, following over ***13 years of inactivity*** since the '195 Patent issued in 2011. EX2104, ¶4. Indeed, TSMC has manufactured semiconductors using replacement metal-gate technology since 2011. Marlin offers no reason why it or UMC, who Marlin claims is "TSMC's main competitor" (Paper 6, 4), did not approach TSMC about its patents on this technology years earlier. During that time, both Marlin and UMC instead remained silent and inactive. This inactivity created settled expectations for TSMC and its customers that the patent would remain dormant relative to TSMC's semiconductor fabrication processes. These expectations weigh against denial. *See Apple Inc. v. Ferid Allani*, IPR2025-00856, Paper 11 (PTAB Sep. 5, 2025) (informative) (declining to discretionarily deny institution based on petitioner's expectations that the

challenged patent would not be asserted after years of patent owner inaction); *Intel Corp. v. Proxense LLC*, IPR2025-00327, Paper 12 at 2-3 (PTAB June 26, 2025) (inactivity “weighs against a patent owner’s claim of settled expectations”).

Second, Marlin’s attempt to establish settled expectations fails because it knew or should have known that the claims of the ’195 Patent were invalid. As discussed above, the Petition presents multiple meritorious anticipation grounds, including grounds based on Bohr and Brask. Moreover, as noted above, UMC and Marlin were on notice of both references for at least a dozen years before Marlin approached TSMC about the ’195 Patent. *Supra*, §II.B. UMC or Marlin could have requested reexamination or supplemental examination of the ’195 Patent to cite Bohr or Brask for years before Marlin’s recent campaign, but neither did.

Third, Marlin’s licenses with Intel and Samsung do not excuse years of inaction, awareness of references that render the ’195 claims invalid, or the multiple examination errors that arose during prosecution. *Cf. Shenzhen Tuozhu Tech. Co., Ltd. v. Stratasys, Inc.*, IPR2025-00531, Paper 10 at 3 (PTAB July 17, 2025). Marlin contends that TSMC was “actually aware of the ’195 patent through Patent Owner’s licensing efforts” with Intel and Samsung (Paper 6, 5), but this is a red herring as those licenses were not announced until long after Marlin approached TSMC for a license in 2024—and long after TSMC’s settled expectations of non-enforcement had been established. *See* TSMC-1037; TSMC-1038. Marlin offers no detail on the

scope, terms, or context of the alleged licenses, relying only on a bare assertion from its corporate representative. *See* EX2104. This case is therefore distinguishable from *Alliance Laundry Sys., LLC v. PayRange LLC*, where the patent owner submitted far more evidence regarding the relevance of its license and where there was no comparable inactivity, knowledge of anticipating prior art, or fatal examination errors. *See* IPR2025-00950, Paper 11 (PTAB Sep. 19, 2025) (informative).

Moreover, Marlin puts forth 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 freedom to operate. As best TSMC can tell, news of this licensing campaign was not public until May 2025, after Marlin had already hauled TSMC into multiple tribunals. *See* TSMC-1037; TSMC-1038. Those news stories indicate that licenses were taken over Marlin's entire portfolio, containing hundreds of patents. *Id.* Marlin cannot reasonably infer settled expectations with respect to the validity and enforceability of the '195 Patent from such a broad license. *See, e.g., Samsung Elecs. Co. Ltd. v. Wilus Inst. of Standards & Tech. Inc.*, IPR2025-00935, Paper 9 at 25 (PTAB July 30, 2025) (arguing for settled expectations based on patent pool licensing); *Wilus*, Paper 12, at 3 (Sept. 26, 2025) (referring petition to the Board).

Marlin attempts to deflect by alleging TSMC knew of the '195 Patent through

its own patent prosecutions, favoring denial under *iRhythm*. See Paper 6, 5. But Marlin proves no such knowledge. Its vague reliance on the Google Patents “cited by” list appears to reference various TSMC patents and publications; however, in each instance, the ’195 Patent was cited by the Examiner, not by TSMC. See EX2103, 4-7 (each with a “*” to indicate the Examiner’s citation rather than TSMC’s). See Paper 6, 4; *iRhythm Techs., Inc. v. Welch Allyn, Inc.*, IPR2025-00363, Paper 10 at 3 (PTAB June 6, 21025). Indeed, unlike in *iRhythm*, Marlin presents no evidence that TSMC “had an established and public track-record of monitoring existing patents,” or that “[t]his awareness led to a long period of awareness and not challenging of” the ’195 Patent. *iRhythm*, Paper 7 at 30 (April 18, 2025).

Finally, Marlin argues that licensing negotiations between the parties beginning in 2024 weigh against any claim of settled expectations by TSMC. See Paper 6, 7-8 (citing *DataDome S.A. v. Arkose Labs Holdings, Inc.*, IPR2025-00693, Paper 13 (PTAB Aug. 14, 2025)). Marlin’s reliance on *DataDome* is unavailing. First, in *DataDome*, there was a parallel proceeding involving the challenged patents. And second, *DataDome* did not argue that the Examiner had materially erred during prosecution. See *DataDome*, Paper 8, at 7; *id.*, Paper 12, at 26-31. Both of those factors differ in the present case and weigh in favor of referral.

Moreover, TSMC filed this Petition less than a year after Marlin asserted re-

lated patents against TSMC in court. TSMC was thus more diligent than the *DataDome* petitioner, who waited 15 months to file its IPR petition. *See DataDome*, Paper 13; *DataDome*, Ex-1015 (December 1, 2023 letter refusing license); *DataDome*, Paper 5 (Petition filed March 14, 2025). Likewise, in *DataDome*, the record contained detailed evidence of the parties' licensing negotiations over the specific patent challenged in that IPR 2.5 years before the IPR was filed. Here, by contrast, Marlin's declarant states only that "Marlin made a proposal to TSMC for a license to the Marlin portfolio" less than 1.5 years before TSMC filed this Petition. EX2104, ¶4.

V. Referral Would Result in an Efficient Use of Board Resources

Additionally, referral here is an efficient use of Board resources because there is no parallel litigation involving the '195 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 at 2-3 (PTAB 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 resulting from two proceedings operating in parallel."); *Azurity Pharms., Inc. v. Helsinn Healthcare S.A.*, IPR2025-00945, Paper 11 at 2-3 (PTAB Sept. 19, 2025). No other tribunal is set to resolve the merits of this dispute, meaning there is no risk of duplicated efforts, inconsistent decisions, or unnecessary expenses for the parties. The instant IPR is truly "a quick and cost-effective *alternative* to district court patent

litigation[.]” *Magnolia Med.*, IPR2026-00097, Paper 17 at 2.

Marlin argues this is not dispositive because petitions in *Intel Corp. v. Proxense LLC* were discretionarily denied despite having no trial date. *See* Paper 6, 8 (citing IPR2025-00327, Paper 12 at 2 (PTAB June 25, 2025)). In *Intel*, however, the Acting Director explained that the discretionary decision to 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, at 2. Here, TSMC presents several compelling reasons why IPR is an appropriate use of resources, including to address material errors that arose during prosecution, because the strength of the merits is especially strong (multiple anticipation grounds), and to resolve the parties’ dispute in an efficient manner that avoids “unnecessary and counterproductive litigation costs” before Marlin asserts this patent in a court against TSMC.

Moreover, Marlin has demanded that TSMC take a license to the ’195 Patent (*see* EX2104) and alleged in the ITC and district court that TSMC infringes various other patents in its portfolio (*see* TSMC-1046). Referral before further litigation is an appropriate use of resources to efficiently resolve the parties’ dispute over the validity of the ’195 Patent and to avoid “unnecessary and counterproductive litigation costs” before Marlin asserts this patent in court. *See* Trial Practice Guide, at 56.

VI. Referral Is Still Further Warranted by TSMC’s Investments in American Manufacturing

The considerations set forth in the Director’s March 11, 2026 memorandum

further favor referral and institution. TSMC-1049, 2. Marlin does not dispute that TSMC has “a significant, existing manufacturing presence in the United States” and is “taking concrete steps to invest in American manufacturing.” *Id.* Marlin cannot say the same. In short, TSMC is making one of the largest investments in American manufacturing ever; Marlin, a non-practicing entity based in Ireland, is not. TSMC has invested billions of dollars to bring advanced semiconductor manufacturing to the U.S., and TSMC’s newly built facilities are producing products for U.S. customers, including those using TSMC’s 4 nm process that are accused of infringing Marlin patents in court. Marlin nonetheless wields the ’195 Patent for leverage against TSMC outside court, seeking to reap a share of TSMC’s investments for itself.

In more detail, TSMC has made substantial investments in U.S. manufacturing since the first Trump administration. TSMC-1036; TSMC-1050; TSMC-1051. TSMC made an initial commitment of \$12 billion in 2020 to construct new, advanced semiconductor fabrication facilities in Phoenix, Arizona. TSMC-1050. Since then, TSMC has expanded its commitment by an order of magnitude to ***\$165 billion***—representing the largest foreign direct investment in U.S. history. TSMC-1050; TSMC-1036. To date, TSMC has completed construction in Phoenix of two fabs for 4nm and 3nm process technologies, respectively. TSMC-1050; TSMC-1051. High-volume production of 4nm products began in 2024, and high-volume production of 3nm products is targeted for 2027. *Id.* TSMC also broke ground in

April 2025 on a third fab for 4nm and A16 process technologies. *Id.* An additional three fabs, two packaging plants, and R&D center are also planned in Phoenix. TSMC-1051. Altogether, TSMC's six fabs will constitute a "gigafab cluster" estimated to produce an astounding 100,000 wafers per month. The first three fabs alone will directly support 6,000 high-tech jobs, in addition to tens of thousands of construction and supplier jobs. TSMC-1050; TSMC-1051. The Greater Phoenix Economic Counsel (GPEC) further estimates that TSMC's first three fabs alone will create \$32.9 billion in economic output. *Id.* President Trump has lauded the "many thousands of jobs, ... high-paying jobs" that will result from TSMC's substantial U.S. investments, and Secretary Lutnick hailed "the return of American manufacturing" at TSMC Arizona. TSMC-1036; TSMC-1054. The considerations underlying Factor 1 of the Director's March 11 memorandum thus strongly favor referral.

On the other hand, Marlin's threat to weaponize the '195 Patent risks undermining the U.S. semiconductor supply chain, harming priorities that this Administration has made clear are vital to U.S. economic interests and national security. TSMC-1039, at 3; TSMC-1040, at 1; TSMC-1045, at 40. TSMC's advanced fabrication capabilities are crucial to leading U.S. companies, including Apple, NVIDIA, and AMD, who are buying the chips made at TSMC Arizona. TSMC's technology is likewise vital to the U.S. supply chain, and supports U.S. advanced semiconductor research and development in industries including AI, health care, national security,

and defense. *See* TSMC-1041, at 18-19; TSMC-1042; TSMC-1043; TSMC-1044.

Marlin does not dispute TSMC's substantial investments in U.S. manufacturing or the vitality of TSMC's advanced semiconductors to U.S. national security, public health, and economic interests. Instead, Marlin sets up a strawman, painting itself as a "small company" and protector of local industry. *See* Paper 6, 9-10. The facts belie Marlin's claim. Marlin is not a small company; it is instead a foreign entity related to Longitude Licensing, an IPValue entity, which is owned in turn by private equity firm Vector Capital. TSMC-1055; TSMC-1056; TSMC-1057. Marlin also does not practice the '195 Patent or any other patent it holds. No evidence suggests that Marlin, a foreign entity, has invested in the U.S. semiconductor technology space, only that Marlin has tried to assert recently acquired patents. Indeed, Marlin does not identify any competing products it licenses that practice the '195 Patent which are made in the U.S. And Marlin's reference to licenses with Samsung and Intel are likewise of no moment as the alleged licenses were to Marlin's entire portfolio, unrelated to any products alleged to practice the '195 Patent. TSMC-1037; TSMC-1038. Given Marlin's patent litigations against U.S. companies (*e.g.*, Apple, Qualcomm, Broadcom), Marlin's claim to be a protector of "local industry" rings hollow. Accordingly, Factor 2 further favors referral.

VII. Conclusion

The Director should refer and institute TSMC's Petition on the '195 Patent.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on May 26, 2026, a complete and entire copy of this Petitioner's Opposition to Patent Owner's Request for Discretionary Denial and Accompanying Exhibits were provided by email to the Patent Owner by serving the correspondence email addresses of record as follows:

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