

PUBLIC VERSION

UNITED STATES PATENT AND TRADEMARK

OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

CIRRUS LOGIC, INC. and OMNIVISION TECHNOLOGIES, INC.,
Petitioner,

v.

GREENTHREAD, LLC,
Patent Owner.

IPR2023-00017
Patent 8,421,195 B2

Before KRISTINA M. KALAN, JON B. TORNQUIST, and
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

KALAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

Cirrus Logic, Inc., OmniVision Technologies, Inc., and ams Sensors USA, Inc. (collectively, “Petitioner”)¹ filed a Petition for *inter partes* review (Paper 1 (“Pet.”)) challenging claims 1–6 of U.S. Patent No. 8,421,195 B2 (Ex. 1001 (“the ’195 patent”)). Greenthread, LLC (“Patent Owner”) filed a Preliminary Response. Paper 16 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 20, “Prelim. Reply”), and Patent Owner filed a Preliminary Sur-Reply (Paper 22, “Prelim. Sur-Reply”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless the Director determines . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons set forth below, we determine the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. Accordingly, we institute *inter partes* review on all claims and grounds challenged in the Petition.

¹ After the Petition was filed, original Petitioner ams Sensors USA, Inc. merged into ams-OSRAM USA Inc. Paper 24 (Petitioner’s Updated Mandatory Notices). On April 10, 2024, the parties filed a Joint Motion to Terminate the Proceedings as to ams-OSRAM USA Inc. (Paper 26), which we granted (Paper 28). The caption of this proceeding has been updated accordingly.

B. Real Parties-in-Interest

Petitioner initially identified “Cirrus Logic, Inc., OmniVision Technologies, Inc., ams Sensors USA, Inc., OSRAM GmbH, ams-OSRAM AG, and GlobalFoundries U.S., Inc.” as the real parties-in-interest. Pet. 1. Petitioner updated this identification in its Updated Mandatory Notices: “Cirrus Logic, Inc., OmniVision Technologies, Inc., ams-OSRAM USA Inc., Heptagon Holding CA Inc., ams Sensors USA, Inc., OSRAM GmbH, ams-OSRAM AG, and GlobalFoundries U.S., Inc. are the real parties-in-interest.” Paper 24, 1. Subsequently, the Petition was terminated as to ams-OSRAM USA Inc. Paper 28.

Patent Owner identifies itself as a real party-in-interest. Paper 5, 1.

C. Related Matters

The parties identify several proceedings involving the ’195 patent as related matters, including *Greenthread, LLC v. Cirrus Logic, Inc.*, 1:23-cv-00369 (W.D. Tex.); *Greenthread, LLC v. OmniVision Technologies, Inc.*, No. 2:23-cv-00212 (E.D. Tex.); *Greenthread, LLC v. OSRAM GmbH*, No. 2:23-cv-00179 (E.D. Tex.); *Greenthread, LLC v. Texas Instruments Inc.*, No. 2:23-cv-00157 (E.D. Tex.); *Greenthread, LLC v. Monolithic Power Systems, Inc.*, No. 1:23-cv-00579 (D. Del.). Pet. 1–2; Paper 5, 1–2. Patent Owner also argues that this “Petition is one of seven petitions Petitioners have filed against the Greenthread Patents,” namely, “IPR2024-00016 (U.S. Pat. No. 10,510,842); IPR2024-00001 (U.S. Pat. No. 10,734,481); IPR2024-00017 (U.S. Pat. No. 8,421,195); IPR2024-00018 (U.S. Pat. No. 9,190,502); IPR2024-00019 (U.S. Pat. No. 11,316,014); IPR2024-00020 (U.S. Pat. No. 11,121,222); IPR2024-00021 (U.S. Pat. No. 11,121,222).” Prelim. Resp. 1, 1 n.1.

D. The '195 Patent

The '195 patent, titled “Semiconductor Devices with Graded Dopant Regions,” issued on April 16, 2013. Ex. 1001, codes (45), (54). The '195 patent “relates to all semiconductor devices and systems.” *Id.* at 1:13–14. According to the '195 patent, in bipolar junction transistors, “[e]fforts have been made in graded base transistors to create an ‘aiding drift field’ to enhance the diffusing minority carrier’s speed from emitter to collector” versus the standard “uniformly doped base.” *Id.* at 1:32–51. This improvement has not been implemented in “most semiconductor devices, including various power MOSFETs [and] IGBT’s,” which “still use a uniformly doped drift epitaxial region in the base.” *Id.* at 1:36–40. The invention of the '195 patent implements graded dopant concentration in these devices, which causes “[t]wo important performance enhancements.” *Id.* at 2:49–3:9. These include sweeping electrons “from source to drain rapidly” and simultaneously causing holes to “be recombined closer to the n^+ buffer layer,” which “can improve t_{on} and t_{off} in the same device.” *Id.* at 3:10–13.

E. Illustrative Claim

Of the challenged claims, claim 1 is independent and is reproduced below.

1. [pre] A CMOS Semiconductor device comprising:
 - [1.1] a surface layer;
 - [1.2] a substrate;
 - [1.3] an active region including a source and a drain, disposed on one surface of said surface layer;
 - [1.4] a single drift layer disposed between the other surface of said surface layer and said substrate, said drift layer having a

- graded concentration of dopants extending between said surface layer and said substrate,
- [1.5] said drift layer further having a first static unidirectional electric drift field to aid the movement of minority carriers from said surface layer to said substrate; and
- [1.6] at least one well region disposed in said single drift layer, said well region having a graded concentration of dopants and a second static unidirectional electric drift field to aid the movement of minority carriers from said surface layer to said substrate.

Ex. 1001, 4:13–29 (bracketed designations added by Petitioner).

F. Asserted Unpatentability Challenges

Petitioner asserts that claims 1–6 are unpatentable based on the following challenges:

Claims Challenged	35 U.S.C. §²	Reference(s)/Basis
1, 2, 4–6	103	Payne ³
1–6	102	Onoda ⁴
1–6	103	Onoda, Wolf ⁵
2, 3	103	Payne, Wolf
3	103	Payne, Parillo ⁶

Petitioner relies on the declaration of Dr. Sanjay Banerjee. Ex. 1003.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 102 and § 103, effective March 16, 2013. Because applications from which the ’195 patent claims priority were filed before this date, the pre-AIA version of § 102 and § 103 applies.

³ US 4, 684, 971, issued Aug. 4, 1987 (Ex. 1005).

⁴ Japanese Unexamined Patent Application Publication No. H8-279598, published Oct. 22, 1996 (Ex. 1043). A certified translation, to which we cite, is provided. Ex. 1042.

⁵ STANLEY WOLF & RICHARD N. TAUBER, SILICON PROCESSING FOR THE VLSI ERA, Vols. 1–4 (Lattice Press 2000) (Ex. 1008).

⁶ US 4, 435, 896, issued Mar. 13, 1984 (Ex. 1025).

II. ANALYSIS

A. *Legal Standards*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

To establish anticipation under 35 U.S.C. § 102, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Each element of the challenged claim must be found, either expressly or inherently, in the single prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). Thus, the dispositive question is whether one skilled in the art would have reasonably understood or inferred from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly & Co. v. L.A. Biomedical Research Inst.*, 849 F.3d 1073, 1074–1075 (Fed. Cir. 2017).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to

which the claimed invention pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when present, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To show obviousness, it is not enough to merely show that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). “Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.* (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007)). “This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR*, 550 U.S. at 418–19. On the other hand, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Nevertheless, “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421.

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) “would have had a Bachelor’s degree in electrical engineering, material science, applied physics, or a related field, and four years of experience in semiconductor design and manufacturing or equivalent work experience.” Pet. 6–7 (citing Ex. 1003 ¶¶ 55–58). According to Petitioner, “[a]dditional education might compensate for less experience, and vice-versa.” *Id.* at 7. On the present record, Patent Owner does not contest Petitioner’s definition of a person of ordinary skill in the art. Prelim. Resp. 1–37.

In light of the record before us, and for purposes of this Decision, we adopt Petitioner’s proposal regarding the level of ordinary skill in the art. Based on our review of the ’195 patent and the prior art of record, we determine that the definition offered by Petitioner comports with the qualifications a person would have needed to understand the ’195 patent and the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown”) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

C. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). Under *Phillips*, claim terms are afforded “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in

question at the time of the invention.” *Id.* at 1313. “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Neither party proposes any claim terms for construction. Pet. 7–8; Prelim. Resp. 1–37. After considering the arguments and information presented in the Petition and Preliminary Response, we agree that we do not need to construe any terms expressly in order to determine whether to institute trial. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

D. Timeliness of Petition Under 35 U.S.C. § 315(b)

Pursuant to 35 U.S.C. § 315(b), an “inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.” Patent Owner argues that this Petition should be dismissed because it is untimely. Prelim. Resp. 2. In particular, Patent Owner argues that Petitioner is in privity with [REDACTED]

[REDACTED] who Patent Owner asserts are time-barred under 35 U.S.C. § 315(b) and [REDACTED]

[REDACTED] *Id.* at 2–3 (citing *Applications in Internet Time, LLC v. RPX Corp.*, 897 F.3d 1336, 1360 (Fed. Cir. 2018)).

Patent Owner advances several theories supporting its privity arguments, including that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]s” for custom-made products. *Id.* at 3.

1. Legal Standards

Patent Owner does not assert that Petitioner was a party to, or named as a real party-in-interest in, any prior lawsuit involving the ’195 patent. “A person who was not a party to a suit generally has not had a ‘full and fair opportunity to litigate’ the claims and issues settled in that suit.” *Taylor v. Sturgell*, 553 U.S. 880, 892 (2008). Thus, in general, Petitioner should not be precluded from addressing the unpatentability of a patent based on the filing of [REDACTED]. *See id.* (explaining that, in general, one is not bound by a judgment “in which he is not designated as a party or to which he has not been made a party by service of process”); *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1319 (Fed. Cir. 2018) (noting the “general rule against nonparty preclusion”). This rule is deeply rooted in the “historic tradition that everyone should have his own day in court.” *Taylor*, 553 U.S. at 892–93. (quoting *Richards v. Jefferson County*, 517 U.S. 793, 798 (1996)). An exception to this deeply-rooted rule exists for parties that are in privity with a defendant in an earlier litigation. *See WesternGeco*, 889 F.3d at 1319 (noting that “the standards for the privity inquiry must be grounded in due process”).

The Supreme Court in *Taylor* identified considerations where nonparty preclusion would be justified, including:

- (1) an agreement to be bound; (2) pre-existing substantive legal relationships between the person to be bound and a party to the judgment (e.g., “preceding and succeeding owners of property”); (3) adequate representation by someone with the same interests who was a party (e.g., “class actions” and “suits brought by trustees, guardians, and other fiduciaries”); (4) assumption of control over the litigation in which the judgment was rendered; (5) where the nonparty to an earlier litigation acts as a proxy for the named party to relitigate the same issues; and (6) a special statutory scheme expressly foreclosing successive litigation by nonlitigants.

Id. (citing *Taylor*, 553 U.S. at 894–95).

As this list of considerations indicates, “the mere existence of some relationship between a petitioner and another entity is not sufficient” to place that petitioner in privity with that entity. *Google LLC v. DDC Technology, LLC*, IPR2023-00707, Paper 27 at 37 (PTAB Oct. 25, 2023). Instead, “that relationship must be related to [an earlier] lawsuit and be sufficiently close that it can be fairly said the petitioner had a full and fair opportunity to litigate the validity of the patent in that lawsuit,” or the evidence must demonstrate that the “petitioner is simply serving as a proxy to allow another party to litigate the patent validity question that the other party raised in an earlier-filed litigation.” *Id.*; *WesternGeco*, 889 F.3d at 1319; *see also Ventex Co. v. Columbia Sportswear North America, Inc.*, IPR2017-00651, Paper 148 at 10, 12 (PTAB Jan. 24, 2019) (precedential) (finding privity where the two parties “had a specially structured, preexisting, and well established business relationship with one another, including indemnification and exclusivity arrangements”).

A petitioner’s “initial identification of the real parties in interest [and privies] should be accepted unless and until disputed by a patent owner.” *Worlds Inc. v. Bungie, Inc.*, 903 F.3d 1237, 1243 (Fed. Cir. 2018). In order to raise such a dispute, “a patent owner must produce *some* evidence that tends to show that a particular [time-barred] third party should be named a [privy].” *Id.* at 1244. The amount of evidence a patent owner must produce does not rise to the level of that required to overcome a burden of production. *Id.* at 1244 n.8. One potential formulation of the amount of evidence required is “evidence that ‘reasonably brings into question the accuracy of a petitioner’s’” assertion that it is not time-barred. *Id.* (quoting *Atlanta Gas Light v. Bennett Regulator Guards, Inc.*, IPR2013-00453, Paper 88 (PTAB Jan. 6, 2015) (addressing the amount of evidence required from a patent owner to question a petitioner’s identification of the real parties-in-interest)). Although the “burden remains with the petitioner to establish” the timeliness of its petition, it need not respond until the patent owner reasonably brings into question the accuracy of Petitioner’s assertion that Petitioner is not time-barred. *Id.* at 1242.

2. *Whether We May Consider Petitioner’s Preliminary Reply*

As noted above, we authorized Petitioner to file a Preliminary Reply and Patent Owner to file a Preliminary Sur-Reply, both limited to addressing the issue of the timeliness of the Petition. Patent Owner argues that Petitioner’s Preliminary Reply “is not appropriate,” because “Petitioner could have reasonably foreseen” Patent Owner’s timeliness arguments when Petitioner was “filing its petition” and because Patent Owner informed Petitioner about these arguments before it filed petitions challenging related

patents. Prelim. Resp. 2, 34 (quoting *Sandoz Inc. v. Abbvie Biotechnology Ltd.*, IPR2018-00002, Paper 11 at 3 (PTAB Mar. 6, 2018)).

We disagree with Patent Owner’s argument. According to the Federal Circuit, a petitioner’s “initial identification of the real parties in interest [and privies] should be accepted unless and until disputed by a patent owner.” *Worlds*, 903 F.3d at 1243. Thus, there is no requirement that a petitioner preemptively address a disputed issue of privity in its petition. Although Patent Owner generally made Petitioner aware that it would raise a timeliness issue under § 315(b), Patent Owner’s email to Petitioner about the privity issue (Exhibit 2011) was sent *after* the Petition was filed. *See* Prelim. Resp. 14; *compare* Exhibit 2011 (sent October 20, 2023), *with* Pet. 105 (dated October 18, 2023). Moreover, Petitioner is not required to address potential arguments that Patent Owner may, but has not yet made, in its Preliminary Response. *See* Ex. 2011. This is especially true where Patent Owner’s assertions of privity, for the reasons set forth below, are not sufficient to reasonably call into question Petitioner’s assertion that the Petition is timely.

Accordingly, we consider Petitioner’s Preliminary Reply, as well as Patent Owner’s Preliminary Sur-Reply, in determining whether Petitioner has shown its Petition is timely.

3. *The Effect of Earlier Suits on the Timeliness of the Present Petition*

Section 315(b) bars institution of *inter partes* review only when “the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.” Patent Owner alleges

that [REDACTED], are time-barred under § 315(b). Prelim. Resp. 2–3.

As to [REDACTED] the present record does not contain any evidence tending to show that this is the case. There is no evidence on this record that [REDACTED] was served with a complaint any earlier than January 23, 2023, which is less than one year before the filing of the present petition on October 18, 2023. *Compare* Pet. 105, with Ex. 2009 (cited at Prelim. Resp. 5). Accordingly, the service of [REDACTED] [REDACTED] time-barred under § 315(b).⁷

Patent Owner also argues that, because [REDACTED] was served with an infringement complaint early enough to create a time bar and because [REDACTED] [REDACTED] is time-barred under § 315(b). Prelim. Resp. 4 (arguing that [REDACTED] [REDACTED]). We are presented with no authority, however, for extending the time bar of Section 315(b) to a party that was a real party-in-interest to a potentially time barred party. Thus, Patent Owner has produced no evidence that [REDACTED] is a time-barred entity under § 315(b).

⁷ In the next section, we address Patent Owner’s argument that [REDACTED] [REDACTED] are privies of Petitioner. Our findings as to [REDACTED] regarding privity provide additional support for our determination that service of a complaint against [REDACTED] does not give rise to a time bar.

4. [REDACTED] *as Alleged Privies*

In the subsections below, we address Patent Owner’s arguments that [REDACTED] of Petitioner and Petitioner’s real party-in-interest, GlobalFoundries,⁸ under § 315(b).

a. *Agency*

Patent Owner argues that by “making custom [REDACTED] [REDACTED] Petitioners step into their shoes, and serve[] as their ‘agent,’ by [REDACTED] Prelim. Resp. 3, 23–26. We disagree.

First, Patent Owner’s agency argument is not based on the applicable legal standard. For purposes of privity under § 315(b), the relevant question is whether Petitioner is acting as an agent for [REDACTED] in filing a petition for *inter partes* review. *See Taylor*, 553 U.S. at 895 (preclusion “is appropriate when a nonparty later brings suit as an agent for a party who is bound by a judgment”). As the Federal Circuit explains, the rationale behind § 315(b)’s time bar is “to prevent successive challenges to a patent by those who previously have had the opportunity to make such challenges in prior litigation.” *WesternGeco*, 889 F.3d at 1319. Here, Patent Owner does not assert that Petitioner is acting as an agent for [REDACTED] [REDACTED] in this proceeding. Any such assertion would be appropriate only based on evidence suggesting that [REDACTED] [REDACTED]. *See Taylor*, 553 U.S. at 906 (cautioning that “preclusion is appropriate only if the putative agent’s

⁸ Petitioner identifies GlobalFoundries U.S., Inc. (“GlobalFoundries”) as a real party-in-interest. Pet. 1.

conduct of the suit is subject to the control of the party who is bound by the prior adjudication”). No such evidence is in this record.

Patent Owner argues that to be in [REDACTED], “what matters is not the scope or nature of the agency, but whether ‘the prior action concerned a matter within the agency.’” Prelim. Resp. 25 (citing *Herrion v. Children’s Hosp. Nat. Med. Ctr.*, 786 F. Supp. 2d 359 (D.D.C.), *aff’d*, 448 F. App’x 71 (D.C. Cir. 2011); *see also id.* at 24 (citing *John St. Leasehold, LLC v. Cap. Mgmt. Res., L.P.*, 283 F.3d 73 (2d Cir. 2002); *Fiumara v. Fireman’s Fund Ins. Companies*, 746 F.2d 87 (1st Cir. 1984); *In re Google LLC*, 949 F.3d 1338, 1346 (Fed. Cir. 2020)). This conclusion, however, would significantly expand the analysis set forth in *Taylor*, which noted that preclusion is only appropriate if the putative agent’s conduct “is subject to the control of the party who is bound by the prior adjudication.” *Taylor*, 553 U.S. at 906 (explaining that “courts should be cautious about finding preclusion” on the basis of agency). Moreover, the privity inquiry must take into account the rationale behind § 315(b)’s preclusion provision, which “is to prevent successive challenges to a patent by those who previously have had the opportunity to make such challenges in prior litigation.” *WesternGeco*, 889 F.3d at 1319. Patent Owner’s broad interpretation would be inconsistent with this purpose.

Even if Patent Owner’s argument that a general agency relationship is sufficient to demonstrate privity for purposes of nonparty preclusion were on solid legal footing, it lacks factual support in the record. An “essential element[] of agency” is “the principal’s ‘right to direct or control the agent’s actions.’” *In re Google LLC*, 949 F.3d 1338, 1345 (Fed. Cir. 2020) (quoting *Meyer v. Holley*, 537 U.S. 280, 286 (2003)). Patent Owner does not argue in

the Preliminary Response that [REDACTED]
[REDACTED], much less direct us to any evidence that would tend to prove the existence of such a right. Prelim. Resp. 23–26.

Patent Owner argues that GlobalFoundries “produc[es] ICs for other companies, rather than those of its own design,” and that Cirrus Logic makes “custom” products. *Id.* at 25 (citing Ex. 2033, 12, 35); *see In re Google*, 949 F.3d at 1346 (contracts to “[a]ssembl[e] equipment based on information and instructions provided by Google” were “suggestive of an agency relationship;” first alteration in original). Patent Owner does not allege, however, that any particular product [REDACTED]
[REDACTED] with respect to the patented technology. Prelim. Resp. 17–18, 27–29 (“[Global Foundries] has not identified what [REDACTED]”). Thus, Patent Owner does not direct us to any evidence that Petitioner [REDACTED]
[REDACTED]

b. Preceding and Succeeding Owners of Property

Patent Owner argues that [REDACTED]
[REDACTED] Prelim. Resp. 3, 26–29 (citing *Taylor*, 553 U.S. at 894). Entities that are “preceding and succeeding owners of property” may be bound to a previous judgement related to *that property*. *Taylor*, 553 U.S. at 894. This rule, however, “is extended or denied in an effort to protect conflicting property interests rather than an effort to implement concepts of participation or representation.” 18A C. Wright, A. Miller, & E. Cooper, *Federal Practice and Procedure* § 4448 (3d. ed. 2023); *see also id.* at § 4462 (“Successive Property

Relationships”) (“There is no independent reason to treat the defeated litigant as the representative of his transferee. Preclusion is limited to the property involved in the judgment.”). As noted above, our relevant analysis is based on the relationships between the parties with respect to the prior proceedings or the Petition (e.g., participation or representation), not on property interests. *See WesternGeco*, 889 F.3d at 1319 (noting that the privity requirement is used “to prevent successive challenges to a patent by those who previously have had the opportunity to make such challenges in prior litigation”).

Moreover, the rule related to preceding and succeeding owners of property does not extend to the point where all manufacturers of allegedly infringing goods are in privity with the customers who buy those goods. *See, e.g., WesternGeco*, 889 F.3d at 1321 (the parties “had a contractual and fairly standard customer-manufacturer relationship regarding the accused product,” which “does not necessarily suggest that the relationship is sufficiently close that both” parties should be considered to be in privity); *Wi-Fi One, LLC v. Broadcom Corp.*, 887 F.3d 1329, 1340–41 (Fed. Cir. 2018) (same); *Samsung Electronics Co. Ltd. v. Netlist Inc.*, IPR2022-00615, Paper 64, at 22–26 (PTAB June 30, 2023) (same).

Patent Owner alleges that [REDACTED] Prelim. Resp. 27. For example, Patent Owner asserts that Cirrus Logic chips are [REDACTED], and [REDACTED]. *Id.* at 7–10, 17–18. Patent Owner makes a similar assertion regarding OmniVision sensors. *Id.* at 11–13, 18. Patent Owner also asserts that [REDACTED] [REDACTED] but has not made any infringement allegation against

GlobalFoundries and has not identified any accused product or component made by GlobalFoundries. *Id.* at 13, 25–28.

Patent Owner’s evidence that Petitioner’s products are [REDACTED] does not come close to suggesting that “it can be fairly said that the petitioner had a full and fair opportunity to litigate the validity of the patent” [REDACTED]. *WesternGeco*, 889 F.3d at 1319. Indeed, Patent Owner does not assert that any of Petitioner’s products were specifically accused in prior litigation [REDACTED],⁹ or that any Petitioner was involved in those cases through third party discovery or otherwise. There is no suggestion that any Petitioner was even aware of the ’195 patent or Patent Owner’s infringement claim before being served with a complaint. Thus, Patent Owner does not present evidence that lends support to a finding that [REDACTED]

⁹ For example, Patent Owner alleges Cirrus Logic’s chips “CS35L41 and CS40L25 are both currently accused, . . . and both are [REDACTED] Prelim. Resp. 8–9 (citing Exs. 2018, 2021, 2035). Patent Owner’s evidence does not show that Cirrus Logic’s chips CS35L41 or CS40L25 were accused during the [REDACTED]. Although Patent Owner cites a Teardown report (Ex. 2035), Patent Owner does not show that the report was cited or relied upon in the [REDACTED]. Furthermore, the report shows that the accused [REDACTED] contains “16 major ICs” (integrated circuits), all but one of which are supplied by manufacturers other than Cirrus Logic. *Id.* at 2. Likewise, Patent Owner contends that an OmniVision sensor (OV7261) is a component of [REDACTED] Prelim. Resp. 11 (citing Ex. 2021, 18). Again, there is no persuasive evidence that OV7261, in particular, was alleged to infringe any patent during the [REDACTED].

[REDACTED]
renders them privies for purposes of § 315(b).

5. [REDACTED]

Patent Owner argues [REDACTED]
[REDACTED]

[REDACTED] Prelim.
Resp. 30–31 (citing *Ventex*, IPR2017-00651, Paper 148). We disagree.
Unlike the agreements in *Ventex*, Paper 148 at 12, [REDACTED]
[REDACTED]

[REDACTED] Nor is
there any argument that [REDACTED]

6. *Patent Exhaustion*

Patent Owner argues that the doctrine of patent exhaustion [REDACTED]
[REDACTED]
[REDACTED] Prelim. Resp. 31. According to Patent Owner,
[REDACTED]
[REDACTED] *Id.* We disagree. It is true
that [REDACTED]
[REDACTED]
[REDACTED] against any claim of infringement by Patent Owner. The relevant
question, however, is ultimately whether the relationship between Petitioner
[REDACTED] is sufficiently close to justify denying Petitioner its day in
court. *See Taylor*, 553 U.S. at 892. Patent Owner does not sufficiently
explain why a [REDACTED]
[REDACTED].

7. *Indemnification*

Patent Owner argues that [REDACTED] Prelim. Resp. 31–32. As evidence of this alleged indemnification obligation, Patent Owner argues that [REDACTED] [REDACTED] *Id.* (quoting Paper 11, 8; citing Ex. 2033, 24). Patent Owner also directs us to the indemnification provisions found in Petitioner Cirrus Logic’s “standard sales agreement[.]” *Id.* at 10, 18 (citing Ex. 2026, 1, 4–5).

An agreement by a petitioner to indemnify a third party in an earlier infringement suit can give rise to a privity relationship between the petitioner and that third party. *Intel Corp. v. U.S. Int’l Trade Comm’n*, 946 F.2d 821, 839 (Fed. Cir. 1991). Cirrus Logic’s indemnification provisions are directed to specific products sold by Cirrus Logic. Ex. 2026. To the extent that Cirrus Logic’s indemnification provisions could demonstrate a privity relationship sufficient to deny Petitioner its day in court, it must be with respect to a product Cirrus Logic ultimately [REDACTED].¹⁰ The present record, however, does not identify any Cirrus Logic device or component that formed the basis for [REDACTED] [REDACTED]. See Prelim. Resp. 8–10; Ex. 2002, 12–16 ([REDACTED]); Ex. 2005, 3–7

¹⁰ With respect to the ’195 patent, the evidence of record suggests that [REDACTED] is not time-barred.

([REDACTED]).¹¹ As such, we are not persuaded that the indemnification provisions of Cirrus Logic’s “standard sales agreement” are relevant to [REDACTED]
[REDACTED]

Patent Owner presents evidence that Global Foundries may [REDACTED], and that Global Foundries’ publications suggest it may indemnify customers. Prelim. Resp. 13 (citing Ex. 2014, 19; Ex. 2033, 24). Patent Owner directs us to no persuasive evidence, however, to suggest that Global Foundries [REDACTED]
[REDACTED]. Nor is there any evidence of record that Global Foundries indemnifies customers for every type of intellectual property infringement claim brought against it, such as for the technology at issue in the ’195 patent. As such, there is simply insufficient evidence to suggest that any party had an [REDACTED]
[REDACTED] that would give rise to a privity relationship relevant to the current Petition.

¹¹ Additionally, an indemnification agreement does not give rise to privity where the indemnitor has the option either “to pay for any litigation defense expenses or for any damages related to infringement” or, in the alternative, “to modify or replace the equipment if an infringement claim [is] made,” as opposed to being required “to defend [the indemnitee] from a patent infringement lawsuit, reimburse or pay for a lawsuit, cover any damages liability for any adverse patent infringement verdict against [the indemnitee], or initiate an invalidity challenge in one or more fora.” *WesternGeco*, 889 F.3d at 1321. This describes the options available in the Terms and Conditions of Exhibit 2026.

8. *Conclusion as to Timeliness of the Petition*

As noted above, privity concerns “whether the petitioner and the prior litigant’s relationship—as it relates to the [earlier] lawsuit—is sufficiently close that it can be fairly said that the petitioner had a full and fair opportunity to litigate the validity of the patent in that lawsuit,” or “whether the petitioner is simply serving as a proxy to allow another party to litigate the patent validity question that the other party raised in an earlier filed litigation.” *WesternGeco*, 889 F.3d at 1319. A petitioner’s “initial identification of the real parties in interest [and privies] should be accepted unless and until disputed by a patent owner.” *Worlds*, 903 F.3d at 1243. In order to raise such a dispute, “a patent owner must produce *some* evidence that tends to show that a particular [time-barred] third party should be named a [privity].” *Id.* at 1244. Here, Patent Owner argues that it has produced such evidence in several respects, but, on the present record, none of the evidence in question tends to show that [REDACTED] [REDACTED] for purposes of § 315(b). As such, we find the evidence of record does not tend to suggest that Petitioner is time-barred under 35 U.S.C. § 315(b), and does not sufficiently call into question Petitioner’s assertion that the Petition is timely filed.¹²

¹² Pursuant to 37 C.F.R. § 42.51(b)(1)(iii), Petitioner is required to “serve relevant information that is inconsistent with a position” it has advanced during the proceeding. To the extent Petitioner is in possession of information that is inconsistent with its assertion that it is not [REDACTED] [REDACTED] such information should be served upon Patent Owner, subject to the exceptions outlined in § 42.51(b)(1)(iii).

E. Challenges Based on Payne

Petitioner contends claims 1, 2, and 4–6 would have been obvious in view of Payne (Petitioner’s Ground I), that claims 2 and 3 would have been obvious in view of the combination of Payne and Wolf (Petitioner’s Ground IV), and that claim 3 would have been obvious in view of the combination of Payne and Parillo (Petitioner’s Ground V). Pet. 8–44, 89–97. On the present record, Patent Owner does not dispute Petitioner’s arguments. Prelim. Resp. 1–37.

1. Payne

Payne “relates to complementary field effect transistors formed by ion implantation, and in particular to a structure and method of fabrication which permit high packing density.” Ex. 1005, 1:5–8. According to Payne, CMOS devices “comprise n-channel and p-channel devices formed in the same substrate,” and they were traditionally “formed by diffusion or implantation of a p-type ‘tub’ in an n-type silicon substrate so that the n-channel device is fabricated in the tub and the p-channel device is fabricated in the adjacent portion of the substrate.” *Id.* at 1:9–18. This method “led to the constraint that the concentration at the surface in the tub was much greater than the surface concentration of the substrate.” *Id.* at 1:18–21. To avoid this constraint, Payne states that one method was “to form the p-channel device in a second tub of n-conductivity type and higher impurity concentration than a more lightly doped substrate.” *Id.* at 1:24–27. “Using either the single tub or twin tub approach, a considerable amount of semiconductor area is needed due to the fact that the tub impurities will diffuse laterally as well as vertically during the drive-in to establish the desired tub depth.” *Id.* at 1:34–38. Payne states that this “is particularly troublesome in

the twin-tub process since any significant overlap of the two tubs results in decreased doping concentration of each tub at the boundaries which can cause punch through or field inversion channeling during device operation.” *Id.* at 1:39–43. This problem required large spacing of the source and drain regions of the transistors, and Payne seeks to avoid this need by providing “a CMOS structure and method of manufacture which requires little semiconductor space.” *Id.* at 1:53–54.

Payne’s “device is fabricated in a silicon semiconductor substrate, 10, of ‘N--’ conductivity type which . . . is typically approximately 20 mils thick.” Ex. 1005, 2:56–60. On this substrate, tub regions 15 and 17 are formed, one “having the same conductivity type as the substrate but higher impurity concentration” and the other having the opposite conductivity type. *Id.* at 3:35–39, 4:12–14, Figs. 2–5. Surface regions 18 and 20 are formed “covering essentially the same area as” tubs 15 and 17, with each region having the same conductivity type as the tub over which it lies but with higher impurity concentration. *Id.* at 4:31–5:17, Figs. 7–9, 11. Payne’s CMOS device includes a “p-channel device [that] includes source and drain regions, 21 and 22, respectively, of P+ conductivity type formed with[in] the N surface region, 18” and an “n-channel device [that] includes source and drain regions, 23 and 24, of N+ conductivity type formed within the P surface region 20.” *Id.* at 5:21–27, Fig. 10. Payne states that this approach can reduce the spacing between “source and drain regions of adjacent devices” from 12 microns to 5 microns. *Id.* at 5:56–6:19, Figs. 12, 13.

2. *Wolf*

Wolf is a four-volume textbook titled “Silicon Processing for the VLSI Era.” Ex. 1008. Chapter 16 focuses on CMOS technology. Ex. 1008, xxiv–xxv, 807–40.

3. *Parillo*

Parillo is a U.S. Patent titled “Method for Fabricating Complementary Field Effect Devices.” Ex. 1025, code (54). Parillo is directed to “an eight-mask twin-tub CMOS process which forms contiguous p- and n-tubs in a relatively lightly doped bulk region in a self-aligned manner using a single masking step.” *Id.* at code (57).

4. *Analysis of Claim 1*

The preamble of claim 1 recites: “A CMOS Semiconductor device comprising:” Ex. 1001, 4:13. Petitioner argues that Payne teaches the preamble. Pet. 8–9. Patent Owner does not dispute this argument. Prelim. Resp. 1–37. Payne discloses that “a primary object of [its] invention [is] to provide a CMOS structure and method of manufacture which requires little semiconductor space.” Ex. 1005, 1:51–54. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches the preamble of claim 1.¹³

Claim 1.1 recites “a surface layer.” Ex. 1001, 8:14. Petitioner argues that Payne teaches or suggests this limitation, and Patent Owner does not dispute this argument. Pet. 9–11; Prelim. Resp. 1–37. Petitioner directs us to evidence that tends to show that Payne discloses a surface layer similar to

¹³ At this stage of the proceeding, the panel need not resolve whether the preamble is limiting because Petitioner shows sufficiently for purposes of institution that the prior art satisfies the recitation in the preamble.

that in the '195 patent. Ex. 1001, Fig. 5(b); Ex. 1003 ¶¶ 74–76; Ex. 1005, 2:50–60, 5:21–27, 6:57–59, Fig. 10; Ex. 1030, 6, 7, 9, 12, 13; Ex. 1033. In particular, Figure 5(b) of the '195 patent and Payne's Figure 10 show quite similar structures, and Patent Owner's district court claim construction brief identified the relevant structure in Figure 5(b) of the '195 patent as a surface layer. Ex. 1030, 7, 12. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Claim 1.2 recites “a substrate.” Ex. 1001, 4:15. Petitioner argues that Payne teaches this limitation, and Patent Owner does not dispute this argument. Pet. 11–13; Prelim. Resp. 1–37. Payne discloses fabricating its CMOS device “in a silicon semiconductor substrate.” Ex. 1005, 1:60–65, 2:50–60, Fig. 10. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Claim 1.3 recites “an active region including a source and a drain, disposed on one surface of the surface layer.” Ex. 1001, 4:16–17. Petitioner argues that Payne teaches this limitation, and Patent Owner does not dispute this argument. Pet. 13–16; Prelim. Resp. 1–37. Payne discloses forming p-channel and n-channel transistors, each with source and drain regions. Ex. 1005, 1:5–19, 5:18–29, 6:57–59. Petitioner directs us to evidence that a person of ordinary skill in the art would have considered the transistors to be active regions. Ex. 1001, Fig. 5(b); Ex. 1030, 6–7, 11; Ex. 1003 ¶¶ 79–83; Ex. 1008B, 299–300. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Claim 1.4 recites “a single drift layer disposed between the other surface of said surface layer and said substrate, said drift layer having a graded concentration of dopants extending between said surface layer and

said substrate.” Ex. 1001, 4:18–21. Petitioner argues that Payne teaches this limitation, and Patent Owner does not dispute this argument. Pet. 16–21; Prelim. Resp. 1–37. Payne discloses a first tub region with a surface region in it that, on the present record, appears quite similar to the single drift layer and well region of the ’195 patent. *Compare* Ex. 1003 ¶ 87; Ex. 1005, 3:28–42, 4:19–39, 5:7–17, 5:44–50, *with* Ex. 1001, Fig. 5(b); Ex. 1030, 7, 11. Additionally, Payne’s Figure 11 shows a dopant concentration in tubs 15, 17 that decreases with increasing depth. Ex. 1005, 2:38–41, 5:14–17, 5:56–57, Figs. 10, 11. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Claim 1.5 recites “said drift layer further having a first static unidirectional electric drift field to aid the movement of carriers from said surface layer said substrate.” Ex. 1001, 4:21–24. Petitioner argues that Payne teaches this limitation, and Patent Owner does not dispute this argument. Pet. 22–30; Prelim. Resp. 1–37. Petitioner relies on the parent file history and cited references to argue that the presence of a graded dopant concentration similar to that in Payne “creates a ‘built-in’ electrical field that forces the movement of carriers into a particular direction” and that the direction in which carriers are forced with the concentration profile disclosed in Payne is downward, toward the substrate and away from the surface. Pet. 22–25 (citing Ex. 1002, 289–290, 237–238, 253–254) (emphasis omitted). Payne discloses that its active regions are located on the surface, rather than in the substrate. Ex. 1005, 5:7–17, 5:44–55, Figs. 10–11; Ex. 1003 ¶¶ 101–107. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Claim 1.6 recites

at least one well region disposed in said single drift layer, said well region having a graded concentration of dopants and a second static unidirectional electric drift field to aid the movement of minority carriers from said surface layer to said substrate.

Ex. 1001, 4:25–29. Petitioner argues that Payne teaches this limitation, and Patent Owner does not dispute this argument. Pet. 30–36; Prelim. Resp. 1–37. Petitioner argues that Payne’s tub region 15 satisfies this claim limitation to the same extent as the well region that Patent Owner identifies in Figure 5(b) of the ’195 patent, and that this layer has a graded dopant concentration. Pet. 31–34 (citing Ex. 1001, Fig. 5(b); Ex. 1030, 7; Ex. 1005, 1:65–68, 4:31–39, 4:63–5:14, 5:44–55, Figs. 10–11). Relying on Patent Owner’s arguments during prosecution and on district court claim construction, Petitioner contends that the presence of this layer creates a second “static unidirectional electric drift field that aids the movement of minority carriers from the surface layer to the area of the substrate where there are no active regions.” *Id.* at 34–36; Ex. 1003 ¶¶ 115–118. Thus, Petitioner has shown sufficiently, at this stage of the proceeding, that Payne teaches this limitation of claim 1.

Thus, on this record, we determine that Petitioner has established a reasonable likelihood of prevailing on its challenge to claim 1 based on Payne.

5. *Remaining Claims*

Petitioner presents additional arguments for obviousness of claims 2 and 4–6 based on Payne alone. Pet. 36–44. Petitioner also presents arguments for obviousness of claims 2 and 3 based on Payne and Wolf, and for obviousness of claim 3 based on Payne and Parillo. *Id.* at 89–97.

Regarding motivation to combine Payne with Wolf, Petitioner argues that a POSITA would have “understood and expected that the teachings of Wolf would apply to Payne, and would have looked to Wolf for advances in CMOS technology and additional process details to the extent not covered in Payne.” *Id.* at 89 (citing Ex. 1003 ¶ 209). Regarding motivation to combine Payne with Parrillo, Petitioner argues that a “POSITA would have been motivated to fabricate Payne’s “twin-tub” device using Parrillo’s epitaxial substrate to protect Payne’s high-density CMOS device, which POSITAs knew were susceptible to latchup failures due to the close proximity of their transistors.” *Id.* at 96 (citing Ex. 1008B, 381, 414; Ex. 1025, 3:38–41; Ex. 1003 ¶¶ 227–229).

In view of our determination that Petitioner establishes a reasonable likelihood for claim 1, and because Petitioner’s arguments and evidence for remaining claims 2–6 (Pet. 36–44, 89–97) are similar to Petitioner’s arguments and evidence for claim 1 (*id.* at 8–36) and are unopposed at this stage by Patent Owner, we determine that it is unnecessary to provide an express analysis of Petitioner’s challenges to the remaining claims in order to provide guidance to the parties for the upcoming trial. Consolidated Trial Practice Guide November 2019 (“CTPG”)¹⁴ at 64; *see* 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”); *see also SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) (holding that 35 U.S.C. § 314 forbids the Board’s prior “partial institution” practice).

¹⁴ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

F. Challenges Based on Onoda

Petitioner contends claims 1–6 would have been anticipated by Onoda (Petitioner’s Ground II), or obvious in view of the combination of Onoda and Wolf (Petitioner’s Ground III). Pet. 44–88. On the present record, Patent Owner does not dispute Petitioner’s arguments. Prelim. Resp. 1–37.

In view of our determination that Petitioner establishes a reasonable likelihood of prevailing on its Payne-based challenges (Petitioner’s Grounds I, IV, and V), we institute *inter partes* review. Because we find some grounds sufficient for institution, and because Petitioner’s Onoda-based grounds are unopposed at this stage by Patent Owner, we institute on all grounds in the Petition. 37 C.F.R. § 42.108(a); *SAS*, 138 S. Ct. at 1353 (“The agency cannot curate the claims at issue but must decide them all.”); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute as requiring “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

III. CONCLUSION

Upon consideration of the Petition, the Preliminary Response, the Preliminary Reply, the Preliminary Sur-Reply, and the evidence presented, we determine that Petitioner has shown a reasonable likelihood that it will prevail in showing that at least one of the challenged claims is unpatentable. In addition, we are persuaded on the present record that the Petition is not time-barred under 35 U.S.C. § 315(b). Accordingly, we institute an *inter partes* review of all challenged claims based on the grounds asserted in the Petition.

IV. ORDER

For the reasons given, it is:

ORDERED that an *inter partes* review is instituted with respect to the grounds asserted in the Petition;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which shall commence on the entry date of this Decision;

FURTHER ORDERED that, in view of the pending motions to seal, this Decision is being filed “Board and Parties Only”; and

FURTHER ORDERED that after conferring with Petitioner, Patent Owner shall, within one week of this Decision, submit to the Board via email to Trials@uspto.gov, a version of this Decision to be filed on the public record, with any redactions proposed by either party.

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