PUBLIC VERSION

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CIRRUS LOGIC, INC.;
OMNIVISION TECHNOLOGIES, INC.; AND
TEXAS INSTRUMENTS INC.,
Petitioners,

v.

GREENTHREAD, LLC,
Patent Owner.

_____

Case: IPR2024-00018[1]
U.S. Patent No. 9,190,502 B2

_____

PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW OF FINAL WRITTEN DECISION 37 C.F.R. § 42.75

[1] Texas Instruments, Inc., which filed a petition in IPR2024-00773, has been joined as a party to this proceeding.

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EXHIBIT LIST

Exhibit No.	Description	Submitted Previously
Ex. 2001	*Greenthread, LLC v. Intel Corp.*, No. 6:22-cv-00105-ADA, Dkt. 1 (Complaint) (W.D. Tex. Jan. 27, 2022)	X
Ex. 2002	Definition of "privity" in Black's Law Dictionary (11th ed. 2019) available from Westlaw at westlaw.com	X
Ex. 2003	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, Dkt. 38 (First Amended Complaint for Patent Infringement) (W.D. Tex., filed Apr. 29, 2022)	X
Ex. 2004	*Greenthread, LLC v. Intel Corp.*, No. 6:22-cv-00105-ADA, Dkt. 113 (Redacted Memorandum Opinion and Order) (W.D. Tex. Dec. 27, 2022)	X
Ex. 2005	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, Dkt. 38-8 (Greenthread's Amended Preliminary Infringement Contentions) (W.D. Tex., filed Apr. 29, 2022)	X
Ex. 2006	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, Dkt. 38-12 (Exs. D-1, D-2, D-3, D-6 to Greenthread's Preliminary Infringement Contentions) (W.D. Tex., filed Apr. 29, 2022)	X
Ex. 2007	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, Dkt. 49 (Notice of Appearance of Additional Counsel) (W.D. Tex., filed June 9, 2022)	X
Ex. 2008	Petition (Paper 1) in [redacted]	X

Exhibit No.	Description	Submitted Previously
Ex. 2009	*Greenthread, LLC v.* [redacted]	X
Ex. 2010	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, [redacted]	X
Ex. 2011	Email communication from Patent Owner's counsel to Petitioner's counsel dated October 20, 2023	X
Ex. 2012	Email Attachment – Cirrus Logic Technical Support Article Number 000207340	X
Ex. 2013	Email Attachment - Cirrus Logic Investor Presentation as of April 28, 2015	X
Ex. 2014	Email Attachment - GlobalFoundries 2022 Capital Markets Day, available at https://investors.gf.com/static-files/65f5f1b9-2aea-47a3-8455-10413c6560f4	X
Ex. 2015	Email Attachment - Intel RealSense Product Family D400 Series, dated 2019	X
Ex. 2016	Email communication from Petitioner's counsel to Patent Owner's counsel dated October 24, 2023	X
Ex. 2017	Email communication from Patent Owner's counsel to Board, copying Petitioner's counsel dated November 1, 2023	X
Ex. 2018	*Greenthread, LLC v. Cirrus Logic, Inc.*, No. 1:23-cv-00369 (Supplemental Preliminary Infringement Contentions) (W.D. Tex., served Oct. 13, 2023)	X
Ex. 2019	*Greenthread, LLC v. Cirrus Logic, Inc.*, No. 1:23-cv-00369, Dkt. 29 (Scheduling Order) (W.D. Tex. Aug. 18, 2023)	X

Exhibit No.	Description	Submitted Previously
Ex. 2020	Article entitled "Cirrus Logic Helps Ease PC Industry Transition to New MIPI SoundWire® Interface" available at https://investor.cirrus.com/news-and-events/investor-news/news-details/2023/Cirrus-Logic-Helps-Ease-PC-Industry-Transition-to-New-MIPI-SoundWire-Interface/default.aspx	X
Ex. 2021	*Greenthread, LLC v. Intel Corp.*, 6:22-cv-00105-ADA, Dkt. 120-8, Greenthread's Amended Preliminary Infringement Contentions (W.D. Tex., filed Jan. 23, 2023)	X
Ex. 2022	Confidential agreement	X
Ex. 2023	CS42L42, Low Power Audio Codec with SoundWire and Audio Processing, available at https://www.cirrus.com/pubs/proBulletin/cs42l43-cs36l56-bulletin.pdf	X
Ex. 2024	Cirrus Logic Immersive PC Audio Solution, available at https://www.cirrus.com/pubs/proBulletin/cs42l43-cs36l56-bulletin.pdf	X
Ex. 2025	Cirrus Logic – What Drives Our Success, available at https://investor.cirrus.com/company-overview/what-drives-our-success/default.aspx	X
Ex. 2026	Cirrus Logic, Inc. Terms and Conditions of Sale, available at https://www.cirrus.com/legal/productterms/	X
Ex. 2027	*Greenthread, LLC v. OmniVision Technologies Inc.*; 2:23-cv-212, Dkt. 1 (Complaint) (E.D. Tex May 10, 2023)	X
Ex. 2028	Confidential declaration	X

Exhibit No.	Description	Submitted Previously
Ex. 2029	*Greenthread, LLC v. OmniVision Technologies Inc.*, 2:23-00212, Preliminary Infringement Contentions for OmniVision Technologies Inc.	X
Ex. 2030	Deep Dive Teardown of the [redacted]	X
Ex. 2031	Intel RealSense Product Family D400 Series, dated September 2023	X
Ex. 2032	Confidential declaration	X
Ex. 2033	GlobalFoundries Annual Report on Form 20-F for the fiscal year ended December 31, 2022, available at https://investors.gf.com/static-files/cc73efd0-09c1-442a-b4dd-0bcb74610e31	X
Ex. 2034	Confidential agreement	X
Ex. 2035	TechInsights Report on [redacted]	X
Ex. 2036	TechInsights Report Ad	X
Ex. 2037	Email communication from Petitioner's counsel to Patent Owner's counsel dated between January 9, 2024 through January 10, 2024	X
Ex. 2038	Email communication from Petitioner's counsel to Patent Owner's counsel dated between October 20, 2023 through October 31, 2023	X

Exhibit No.	Description	Submitted Previously
Ex. 2039	*Greenthread, LLC v. Intel Corp.*, No. 6:22-cv-00105-ADA, Dkt. 7 (summons returned executed) (W.D. Tex. Feb. 7, 2022)	X
Ex. 2040	Petition (Paper 2) in [redacted]	X
Ex. 2041	Petition (Paper 3) in [redacted]	X
Ex. 2042	Petition (Paper 1) in [redacted]	X
Ex. 2043	*Greenthread, LLC v. OmniVision Technologies Inc.*; 2:23-cv-212 (OmniVision's Responses and Objections to Greenthread's Fourth Set of Common Interrogatories)	X
Ex. 2044	Email communication from Petitioner's counsel to Patent Owner's counsel dated between November 28, 2023 through December 6, 2023	X
Ex. 2045	[redacted]	X
Ex. 2046	Email communication to Petitioner's counsel attaching production dated October 5, 2023	X
Ex. 2047	Email communication to Petitioner's counsel attaching production dated June 30, 2023	X
Ex. 2048	*Greenthread, LLC v.* [redacted]	X

Exhibit No.	Description	Submitted Previously
Ex. 2049	*Greenthread, LLC v.* [redacted]	X
Ex. 2050	Correspondence from Patent Owner's counsel to Petitioner's counsel dated May 4, 2023	X
Ex. 2051	Webpage from DigiKey for Cirrus Logic CS35L41 (https://www.digikey.com/en/products/detail/cirrus-logic-inc/CS35L41-CWZR/16377919)	X
Ex. 2052	Webpage from DigiKey for Cirrus Logic CS40L25 (https://www.mouser.com/ProductDetail/Cirrus-Logic/CS40L25-CWZR?qs=xZ%2FP%252Ba9zWqYWfeisEtcaTA%3D%3D)	X
Ex. 2053	Webpage from Mouser for Cirrus Logic CS40L25 (https://www.mouser.com/ProductDetail/Cirrus-Logic/CS40L25-CWZR?qs=xZ%2FP%252Ba9zWqYWfeisEtcaTA%3D%3D)	X
Ex. 2054	Webpage from ArduCam for OmniVision OV9282 (https://www.arducam.com/product/ov9282-monochrome-globalshutter-camera-module-depthai-oak/)	X
Ex. 2055	Webpage from Uctronics for OmniVision OV9282 (https://www.uctronics.com/ov9282-monochrome-global-shutter-camera-module-depthai-oak.html)	X
Ex. 2056	Excerpts of the Deposition Transcript of Scott Warrick taken on June 7, 2024 along with marked Exhibits 3-5 in *Greenthread, LLC v. Cirrus Logic, Inc.*, 1:23-cv-00369-DC (W.D. Tex.)	X

Exhibit No.	Description	Submitted Previously
Ex. 2057	Declaration of Dr. Alexander Glew	X
Ex. 2058	Transcript of Deposition of Dr. Sanjay Banerjee taken on July 19, 2024	X
Ex. 2059	Excerpts from Chen, J. Y., CMOS Devices and Technology for VLSI, Prentice-Hall (1990)	X
Ex. 2060	U.S. Patent No. 5,384,476 ("Nishizawa")	X
Ex. 2061	CV of Dr. Alexander Glew	X
Ex. 2062	U.S. Patent No. 8,421,195	X
Ex. 2063	U.S. Patent No. 9,190,502	X
Ex. 2064	U.S. Patent No. 11,121,222	X
Ex. 2065	U.S. Patent No. 10,510,842	X
Ex. 2066	U.S. Patent No. 11,316,014	X
Ex. 2067	File History of U.S. Patent No. 8,421,195	X
Ex. 2068	File History of U.S. Patent No. 9,190,502	X
Ex. 2069	File History of U.S. Patent No. 11,121,222	X

Exhibit No.	Description	Submitted Previously
Ex. 2070	File History of U.S. Patent No. 10,510,842	X
Ex. 2071	File History of U.S. Patent No. 11,316,014	X
Ex. 2072	Declaration of Mohan Rao	X
Ex. 2073	Statista Information	X
Ex. 2074	*Greenthread, LLC v. Cirrus Logic Inc.*, No. 1:23-cv-369-DC-DTG, Dkt. 53 (Claim Construction Order and Memorandum in Support Thereof) (W.D. Tex. Mar. 13, 2024)	X
Ex. 2075	*Greenthread, LLC v.* [redacted]	X
Ex. 2076	*Intel Corp. v. Greenthread LLC*, IPR2023-00420, Ex. 1003 (Dr. Blalock Declaration), Dec. 28, 2022	X
Ex. 2077	*Greenthread, LLC v. Cirrus Logic, Inc.*, No. 1:23-cv-00369-DC, Dkt. 86 (W.D. Tex. Jul. 11, 2024)	X
Ex. 2078	Transcript of Deposition of Dr. Sanjay Banerjee, taken on December 6, 2024	X
Ex. 2079	Demonstratives of Patent Owner Greenthread, LLC	X
Ex. 2080	Declaration of Terence Ng in IPR2024-00017, -00018, -00019, -00020, -00020	X
Ex. 2081	Declaration of Elizabeth Leach in IPR2024-00017, -00018, -00019, -00020, -00020	X

Exhibit No.	Description	Submitted Previously
Ex. 2082	Declaration of Robert Cleary Jr. in IPR2024-00017, -00018, -00019, -00020, -00020	X
Ex. 2083	[SEALED] Transcript of Deposition of Terence Ng, *Greenthread, LLC v. Cirrus Logic Inc.*, IPR2024-00017, -00018, -00019, -00020, -00020, taken on July 28, 2025	X
Ex. 2084	[SEALED] Transcript of Deposition of Elizabeth Leach, *Greenthread, LLC v. Cirrus Logic Inc.*, IPR2024-00017, -00018, -00019, -00020, -00020, taken on July 29, 2025	X
Ex. 2085	[SEALED] Transcript of Deposition of Robert Cleary, Jr., *Greenthread, LLC v. Cirrus Logic Inc.*, IPR2024-00017, -00018, -00019, -00020, -00020, taken on July 29, 2025	X

I. INTRODUCTION

Director Review should be granted because the Board abused its discretion in related IPRs ("the onsemi IPRs"), and maintained an incorrect claim construction that contradicts *two* District Court rulings. The Board used the *same* incorrect construction in this IPR. Even worse, the Board relied on inconsistent and unreliable expert testimony in order to reuse its FWDs from the onsemi IPRs.

First, in this and the onsemi IPRs, the Board refused to consider the location of the graded dopant concentration in the Prior Art, and whether it moves carriers from the active region. The Board disregarded PO's evidence and effectively eliminated the "aid carrier movement" limitation altogether. ***Second***, the Board refused to give "appropriate weight" to the District Court rulings and, instead, disparaged them to reach the same result as the onsemi FWDs. ***Third***, the Board alleviated Petitioners' burden of demonstrating movement of *minority* carriers in the Prior Art and, similarly, rendered this claim requirement superfluous. ***Fourth***, the Board gravely limited discovery on the privity issue and rewarded Petitioners for hiding key evidence. ***Fifth***, the Board disparaged PO's licensing success and refused to consider it as objective indicia of non-obviousness. ***Sixth***, the Board relied on expert testimony that was riddled with credibility issues. This IPR highlights a fundamental fairness issue. Once the Board instituted the onsemi IPRs, it was unwilling to change its positions in all subsequent IPRs. For the reasons below, the

Director should vacate the ID and FWD, and terminate this IPR.

II. BACKGROUND

In April 2025, the Director granted review and remanded the first set of IPRs filed against PO's patents. *E.g.*, IPR2023-01242, Paper 94 ("onsemi Order"). The Director determined that the Board abused its discretion by (1) denying discovery on the privity issue; (2) refusing to consider the location of the graded dopant concentration in the Prior Art; and (3) excluding two claim construction rulings. *Id.* at 3-4, 6. The Director granted review of two then-issued Cirrus FWDs to "place all of the related proceedings on similar footing and allow the Board…to efficiently consider the overlapping issues presented in all the cases." IPR2024-00001, Paper 89 ("Cirrus Order") at 3. Yet the Board never fixed the issues in the Director's Order.

On remand in the onsemi IPRs, the Board adopted onsemi's proposed discovery plan, which (a) improperly limited discovery to just Intel, not other time-barred parties that PO maintains are in privity with the various petitioners, (b) narrowly defined the list of "Intel Accused Products" (IAPs), and (c) alleviated the petitioners' burden to investigate whether they supplied components of the IAPs.

The Board ordered the same discovery in the Cirrus IPRs. *See* Paper 86 ("Disc. Order"). Using their own hyper-literal reading of the Board's already narrow discovery order, Petitioners each submitted nearly-identical, boilerplate declarations which demonstrate their collective failure to investigate PO's allegations and the

issues that mattered to the Director. *Compare* Exs. 2080-2082 *with* IPR2023-01242, Ex. 2103 *and* IPR2024-00468, Ex. 2086.

Further, after being instructed to "consider…PO's arguments concerning the location of the graded concentration" and whether the Prior Art moves carriers from the AR, and to give the two district court claim construction orders "appropriate weight" in parallel IPRs (onsemi Order at 4, 6), the Board declined to do so. The Director did not remand solely on the privity issue, but for all "further proceedings, as appropriate." *Id.* at 6; Cirrus Order at 4. However, on these critical merits-issues, the Board did not authorize *any* additional briefing or argument during a September 2025 supplemental hearing (Ex. 1076). In fact, there is no difference in the Board's analysis between its original FWDs and its FWD here. *Compare* IPR2024-00001, Paper 78 at 48-51 *with* Paper 113 ("FWD") at 65-68.

III. ARGUMENT

A grant of Director Review is appropriate because the Board's conduct and its FWD commit numerous "abuse[s] of discretion" and relate to "important issues of law or policy." USPTO, Director Review process, §§ 2.B, 5.A. When reviewed *de novo*, the Board's errors can only result in one outcome—vacating the ID and FWD, and terminating this IPR.

A. The Board Did Not Consider the Location of the Graded Dopant Concentration and Whether it Moves Carriers from the Active Region

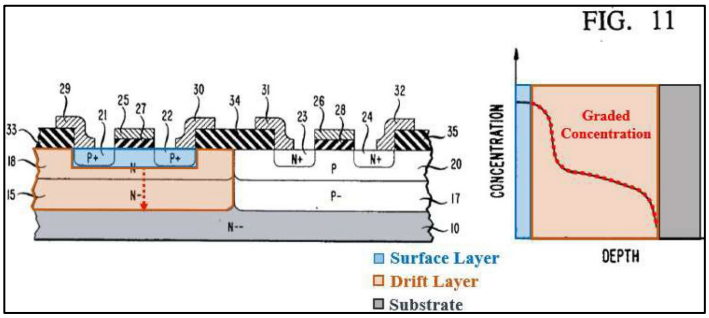
Claim element [7.5] of the Challenged Patent reads:

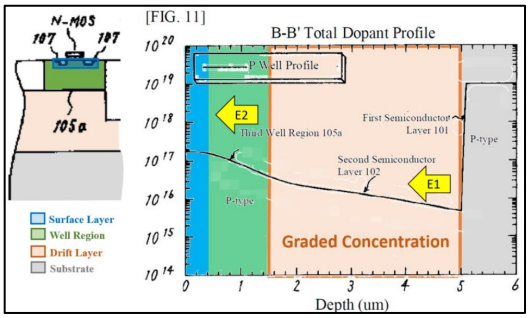
> [a] drift layer having a ***graded concentration of dopants [GDC]*** generating a first static unidirectional electric drift field to ***aid the movement of minority carriers [ACM]*** from said surface layer [where the ***active region [AR]*** is located] to said substrate

Ex. 1001, 4:55-62. It is readily apparent from the face of the claim that: (1) there must be a GDC in the ARs, and (2) this GDC must "ACM *from* the first surface" where the ARs are located. All of the Challenged Claims contain similar language.

Throughout these IPRs, PO has demonstrated how Petitioners' invalidity theory rests upon an improper collapsing of the GDC and ACM limitations. Not all GDCs actually aid carrier movement from an AR. For example, the GDC may be in the wrong location. If the GDC is not in the AR, then it will not satisfy the first part of [7.5]. Or, a properly located GDC may not satisfy the second part of [7.5] because it points in the wrong direction and/or fails to overcome other forces and fields that affect carrier movement within the device. *See* Paper 45 ("POR") at 6-9, 12-15; Paper 58 ("Sur-Reply") at 3-10, 14-21. This is problematic for Petitioners because the Prior Art is silent about carriers in the AR, and there is absolutely *no* mention of moving carriers *from the AR*. POR at 12-15.

Petitioners rely entirely on the following figures from Payne and Onoda:





Pet. at 22 (Ex. 1005, FIGS. 10-11), 57 (Ex. 1042, FIGS. 3,11).

Instead of pointing to Payne's own disclosure of how FIG. 11 (left) moves minority carriers from the surface layer (or anywhere else for that matter), Petitioners just point to the general shape of FIG. 11 and mischaracterize the prosecution history to argue that carrier movement inevitably follows from "Payne's downward-sloping [GDC]." *Id.* at 24-27. Similarly, Onoda (right) has no discussion of carrier movement whatsoever. Instead, Petitioners erroneously rely upon "Applicant's repeated representations to the Office" during prosecution. *Id.* at 58.

In any event, Payne does not even disclose a GDC in the AR. Not only is Payne's GDC flat in the first portion of FIG. 11, but Payne itself only discloses a *single* "surface impurity concentration" in the surface layer. Ex. 1005, 5:51-52. Onoda is the exact same. While Onoda's GDC "falls off smoothly" along the third well region 105a and the second semiconductor layer 102 (Ex. 1042, ¶0052), it does not decrease in the blue surface layer. Since FIG. 3 does not have any units, it is *impossible* to determine the depth of Onoda's surface layer. Like with Payne, the GDC does not begin to slope downward until after an initial flat portion (approximately 0.5 μm). Since neither reference discloses a GDC that would even affect carriers in the AR, the Prior Art does not disclose "aid[ing] the movement of minority carriers from the surface layer."

Petitioners (and the Board) cannot rely on purported prosecution history statements to fill in the gaps of its obviousness theory when neither reference teaches a GDC in the proper location, much less a GDC actually aiding carrier movement in the proper location and direction. This approach is utterly inconsistent with Rule 104(b)(4)'s requirement that an IPR petition "must specify where each element of the claim is found ***in the prior art***…relied upon." USPTO Memo, Enforcement and Non-Waiver of 37 C.F.R. § 42.104(b)(4) and Permissible Uses of General Knowledge in *Inter Partes* Reviews (July 31, 2025). Even after being instructed by the Director in parallel IPRs to follow this requirement and "consider…the location of the graded concentration" in the references (onsemi Order at 4), the Board refused to consider evidence that rebuts its prior positions and effectively lowered Petitioners' burden of proving the Prior Art meets ***all*** claim limitations.

B. The Board Did Not Give "Appropriate Weight" to the Claim Construction Orders

To reach the same conclusion as it did in the ID and onsemi IPRs, the Board embraced Petitioners' faulty claim construction that collapses the GDC and ACM limitations. But this contradicts previous constructions by two District Courts ***confirming*** that *not* all GDCs actually aid carrier movement. "Given the importance of uniformity in the treatment of a given patent," the Board is "remiss to overlook a[] district court's construction of the same claim terms." *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1329 (Fed. Cir. 2008). The Director ordered the Board to

give these rulings "appropriate weight" (onsemi Order at 5-6) and to "consider the overlapping issues presented in all the cases" (Cirrus Order at 3). But the Board regurgitated its previous positions and tried to discredit these well-reasoned orders that each explain how a gradient alone does *not* satisfy the ACM limitation.

First, the WDTX recognized that *not* all GDCs will aid carrier movement. In fact, the court held GDCs must be "***sufficiently graded***" to create a field that will aid movement. *See* Ex. 2074, 39-40 ("The Court concludes that…the [GDC] has to be sufficiently graded to result in a static unidirectional electric drift field to [ACM].…This established a minimum [GDC], *i.e.*, a [GDC]…below this minimum will not aid in the movement of minority carriers and thus is not graded.").

Second, Judge Gilstrap (EDTX) recognized that the mere direction of a GDC is not enough to prove that a GDC actually moves carriers. The court held that to ACM, "the slope has [to have] both a direction and a ***magnitude***. Ex. 2075, *9. The court rejected the very argument Petitioners make. *See id.* ("Defendant suggests that the direction of the drift electric field depends solely on ***the direction*** of the slope of the [GDC]. This is not justified by the prosecution history statements..."). Further, this prosecution history does not support the Board's position that a GDC "pointing in the appropriate direction" is enough to satisfy the ACM limitation. FWD at 61.

In fact, the prosecution history ***confirms*** a GDC must have a sufficient magnitude to overcome other forces and field acting within the device to actually

move the carriers. *See* Ex. 1046, 270 (Examiner: carrier movement is "affected by multiple forces and fields, and it does not appear that simply the presence of 'a unidirectional drift field' in itself can achieve 'drawing all minority carriers'"). Yet the Board turned the prosecution history against PO (FWD at 61-64). Even Petitioner Cirrus Logic's *own* corporate representative admitted "there's other things that might affect carrier movement besides the gradient." Ex. 2056, 96:1-13. This evidence confirms that for a GDC to satisfy the claimed limitation, it must have a sufficient magnitude to overcome other forces and fields within the semiconductor device and actually aid the movement of carriers.

The Board went out of its way to discredit both claim construction decisions. FWD at 65-68. Petitioners (and the Board) argue that these are somehow distinguishable from the present dispute, but it is undeniable that two competent courts have reviewed the claims, the specifications, and the prosecution history to determine what this exact limitation means. The Board was supposed to give this appropriate weight, but on remand, it didn't. It simply copied-and-pasted from the first FWD. *Compare id. with* IPR2024-00001, Paper 78 at 48-51. This further demonstrates the Board's inability to fairly consider evidence that contradict its previous decisions, and the inconsistency of the Board's construction. When, as here, the Board relied on a construction at odds with prior court rulings, the appropriate

remedy is to vacate both the ID and FWD. *See Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, IPR2025-00632, Paper 20 (PTAB Nov. 3, 2025) (precedential).

C. The Board Did Not Consider PO's Argument that the Graded Dopant Concentration Does Not Move *Minority* Carriers

Just as Petitioners have not shown that the Prior Art moves carriers ***from*** the ARs, Petitioners have also not shown that it moves ***minority*** carriers ***from*** the ARs. This error rests on a faulty construction of what constitutes a "minority carrier."

The Board must always "consider the claims in light of the specification." *In re Power Integrations, Inc.*, 884 F.3d 1370, 1375 (Fed. Cir. 2019). In fact, it is the "best source for understanding a technical term" like "minority carrier." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 113 F.3d 1473, 1478 (Fed. Cir. 1998). The common specification explains that "MOS devices are majority carrier devices for conduction. The conduction is channel dominated." Ex. 1001, 1:47-49. PO's expert understood this. *See* Ex. 2057, ¶36 n.3 ("Because the channel [of FIG. 5(b)] is formed by electrons with a **n**egative charge, the MOSFET is referred to as an **n**-channel MOSFET, and the minority carriers are holes."). Petitioner's expert confirmed that in an NMOS transistor, the majority carrier for conduction is an electron. Ex. 2078, 293:5-9. This has also been PO's position in prior litigation. Ex. 1030, 4 n.5, 11 ("MOS devices are majority carrier devices"). Petitioners knew or should have known this was how PO (and the inventor) understood this limitation, since this claim construction brief is cited nearly thirty times in the Petition.

This distinction matters because "[s]purious minority carriers" interfere with the "active circuity at the surface" of the device. Ex. 1001, 3:25-42. Minority carriers prevent the channel from forming. *See* Ex. 2057, ¶36. Since the claims must be understood according to the "express purpose of the invention," it is ***minority*** carriers that have to be "[swept]…into the substrate as quickly as possible." *Sequoia Tech., LLC v. Dell, Inc.*, 66 F.4th 1317, 1326 (Fed. Cir. 2023); Ex. 1001, 3:39-42.

This is not the approach Petitioners took. Their expert conceded "it is relevant" how the patents use "minority carrier," because "you interpret the same language… in light of the specifications." Ex. 2078, 277:1-10, 277:19-278:7. However, he wrote the declaration based on *his* understanding of minority carrier; he "didn't resort to the language of the specifications." *Id.*, 274:12-21. In fact, he could not "recall exactly what language [was] used in the specification." *Id.*, 276:3-22.

This dooms Petitioners' case, since neither ground defines the minority carrier that the Prior Art's GDCs allegedly move. But again, like with the onsemi IPRs, when this technical issue was raised before the Board, it "decline[d] to consider" the argument as "untimely and forfeited." FWD at 78-81. This is false. POR at 4, 6-15; Sur-Reply at 3-9. Petitioners have had more than ample notice of PO's argument, since it is the very same position it argued in the claim construction brief Petitioners relied upon in drafting their Petition. *See* Paper 74 (Hearing Tr.), 40:6-41:18. This again demonstrates the Board's inability to consider arguments that rebut its ID.

D. The Board Abused Its Discretion by Issuing a Discovery Order that Prevented a "Full Record" on the Privity Issue

The Board also never provided PO a fair opportunity to address privity. The Director ordered discovery on the privity issue so that the Board could decide the issue on the "full record." Cirrus Order at 3. The Board's overly restrictive discovery order enabled Petitioners to entirely avoid the real issue—whether IAPs include ***components*** made and sold by Petitioners—and precluded any discovery related to [redacted] and [redacted] Like the onsemi IPRs, the Board narrowly defined "products accused of practicing the challenged claims" (onsemi Order at 3) as *only* the specific products listed in PO's preliminary infringement contentions against Intel (Ex. 2021). Disc. Order at 6 n.7. But this makes no sense, because the idea that Petitioners sell complete, assembled processors back to Intel is illogical. Further, the infringement contentions clearly state that the IAPs "include all CPUs designed or manufactured (in whole ***or in part***) by Intel…." Ex. 2021, 4. PO has alleged that components made and sold by Petitioners are incorporated into Intel's CPUs. Paper 94 ("Supp. Brief") at 2-3; Ex. 1076, 18:18-19:17, 20:8-13, 21:12-22:6.

Instead, each Petitioner submitted a single declaration with two ***conclusory*** sentences that it does not supply components of the IAPs. This is hardly the evidence the Director envisioned when ordering Petitioners to produce "documents sufficient to show the asserted privity relationship," onsemi Order at 3, and falls short of any plausible definition of an investigation. Each of Petitioners' declarants admitted (Exs.

2083-2085) to doing the bare minimum to satisfy their understanding of the Director's Order: (a) reviewing the list of IAPs, (b) not contacting their connections at Intel, (c) not communicating with others in their organization more knowledgeable on the issues, (d) not reviewing Intel parts lists, (e) relying entirely on counsel's representations, and (f) not providing any sort of documentary evidence to support the declaration statements. Supp. Brief at 6-15; Paper 100 ("Supp. Reply") at 5-10.

Further, the fact that each of the three declarations (plus those filed by other petitioners, onsemi and MPS) are nearly identical reveals a concerted effort among the petitioners and underscores the reality that no petitioner (nor the Board) took the Director's Order seriously. Each declaration is the same, *short* length with the same, boilerplate arguments presented in exact order. The *only* thing differentiating them are the declarants' biographies. Otherwise, they are bereft of *any* detail concerning these supposed investigations. Supp. Reply at 5. This is the same attorney argument the Director has already rejected. That a corporate representative has now rubber-stamped these arguments does nothing to substantiate them or "yield useful information on the privity issue." onsemi Order at 3.

Petitioners have failed to prove there is no privity with a time-barred party, despite the Board continually lowering the bar. The Board even chastised PO for suggesting that Petitioners should (and could) have conducted a more thorough investigation. *See* FWD at 36. This has made a mockery of the Director's remand

instructions and this IPR unnecessarily inefficient. As a result, the Board's ID should be vacated and this IPR dismissed. *Corning Optical Commc'ns RF, LLF v. PPC Broadband Inc.*, IPR2014-00440, Paper 68 (PTAB Aug. 18, 2015) (precedential).

E. The Board Did Not Give Appropriate Weight to PO's Licenses as Objective Indicia of Non-Obviousness

The Board "too finely parsed [PO's] licensing activities" and "applied a more exacting nexus standard" that the Federal Circuit recently rebuked. *Ancora Techs., Inc. v. Roku, Inc.*, 140 F.4th 1351, 1362 (Fed. Cir. 2025); *see also* POR at 23-27; Sur-Reply at 21-23. The Board "decline[d] to give significant weight to the RPX license," finding PO's argument "that [redacted] entered a license under no apparent threat of litigation [to be] not persuasive because RPX is a litigation risk mitigation service and…the license may reflect the value of avoiding the risk of litigation rather than the value of the challenged patent specifically." FWD at 42. This is entirely speculative. The appropriate view is that the licensees knew they infringed PO's valid claims and the prudent business decision was to take a license on favorable terms *before* litigation. RPX paid [redacted] on behalf of [redacted]. Ex. 2072, ¶6. This amount was not funded by RPX, but the sub-licensees, and certainly *exceeded* the cost of litigation. Further, the Board simply ignored PO's licenses to other major semiconductor companies—Intel, [redacted]. *See* POR at 26-27; Ex. 2072, ¶2. These companies collectively paid over [redacted] for licenses covering *a single*

patent family. The Board inappropriately singled out [redacted] as a licensee that paid a "greatly reduced amount," FWD at 41, thereby dismissing the [redacted] in license revenue generated by PO overall. And for the first RPX license, the Board found "[in]sufficient evidence that the amount paid…is due exclusively to the licensed technology rather than some other economic reason." *Id.* at 43. But value is not absolute; rather, it is driven by the licensee's perception. This is true for all 8 licensees—7 of which paid ***multiple millions of dollars*** to obtain a license.

F. The Board Relied on Inconsistent and Unreliable Expert Testimony That Was Riddled with Credibility Issues

The Director recently cautioned against relying on inconsistent and unreliable expert testimony. *Interactive Commc'ns Int'l, Inc. v. Blackhawk Network Inc.*, IPR2024-00465, Paper 40 (Dir. Squires Oct. 9, 2025). That is exactly what the Board did here. Despite recognizing *multiple* credibility issues with Petitioners' expert testimony, the Board simply glossed over them.

First, Petitioners' expert had an undisclosed financial relationship with joined Petitioner, TI. Sur-Reply at 12-13. The Board acknowledged the "potential to bias his testimony," yet stated this "does not make it inherently unreliable." FWD at 92. That potential was confirmed when he changed his views from his 2006 textbook to now support Petitioners' position. *Compare* Ex. 1062A, 99 (forces "may be insufficient" to affect electron movement) *with* Ex. 1060, ¶25 ("carrier drift will necessarily occur by virtue of the graded (i.e., non-zero sloping) dopant

concentration and the resulting electric field"). Sur-Reply at 13. ***Second***, PO raised concerns of witness coaching during the expert's deposition where he contradicted his earlier testimony on re-direct after conferring with counsel during a 40-minute break. *Id.* at 13-14. The Board *warned* Petitioners' counsel for that behavior, but then criticized PO for "not mov[ing] to strike or exclude" that testimony. FWD at 76 n.24. ***Third***, Petitioners' expert admitted to copying entire arguments verbatim from prior petitions and not even verifying what was drafted by counsel. POR at 27-30. It did "not surprise" him that Petitioners' declaration (Ex. 1003) is nearly identical to Intel's from November 2022 (Ex. 2076). Ex. 2058, 54:11-17. The Board dismissed these concerns by stating PO "identifies no testimony related to the key, disputed issued in this case…that Dr. Banerjee could not explain." FWD at 91. This is simply not true. The crux of PO's position is that Petitioners never performed the requisite analysis to show that the Prior Art *actually moves carriers*. Of course, Dr. Banerjee "could not explain" this analysis because he *never did it*.

On each issue, the Board downplayed these credibility concerns in order to reach the same conclusion it made in the ID and onsemi IPRs. Like in *Interactive Commc'ns*, the Director should vacate the FWD and terminate the IPR.

IV. CONCLUSION

For at least the foregoing reasons, PO respectfully requests the Director grant review, vacate the ID and FWD, and terminate this IPR.

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Respectfully submitted,

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CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of this **PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW OF FINAL WRITTEN DECISION** has been served on Petitioner electronically via email on the following counsel of record for Petitioner:

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