UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANWHA SOLUTIONS CORPORATION,
Petitioner,

v.

MAXEON SOLAR PTE. LTD.,
Patent Owner.

Case No. IPR2024-01199

U.S. Patent No. 8,878,053

PETITIONERS' REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE[1]

[1] This Reply was authorized by the Board's December 12, 2024 email (Ex. 1063).

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STATUTES, RULES, AND REGULATIONS

35 U.S.C. § 315(e)(2) 5

Pursuant to the Board's authorization, Petitioner Hanwha Solutions Corporation ("HSC") submits this Reply to Patent Owner Maxeon Solar Pte. Ltd.'s ("Maxeon") Preliminary Response regarding *Fintiv*.

I. The *Fintiv* Factors Favor Institution

Contrary to Maxeon's arguments, each *Fintiv* factor, properly assessed and applied, favors institution of HSC's petition.

Factor 1 (Stay)—HSC intends to request a stay after institution, and Judge Gilstrap often grants such requests where institution predates *Markman* and the IPR is likely to simplify the issues in the district court. *See, e.g.*, *Resonant Sys., Inc. v. Samsung Elecs. Co.*, 2024 WL 1021023, at *3-4 (E.D. Tex. Mar. 8, 2024) (granting stay where case had not had a *Markman* hearing and "cancellation of some … claims could result in simplification"); *Foras Techs. Ltd., v. Aptiv PLC*, No. 2:23-CV-00314-JRG, ECF No. 92 (E.D. Tex. July 25, 2024) (same). Both circumstances apply here. The institution decision is expected by February 28, 2025, four months before Hanwha and Maxeon exchange terms for construction and eight months before the *Markman* hearing. EX1065 at 4. Further, HSC's petition challenges all claims asserted in Maxeon's infringement contentions, guaranteeing that resolution of the IPR will simplify the issues in the district court.

Factor 2 (Trial Date)—District court trial dates that are later than the statutory deadline for a final written decision generally resolve concerns about timing in favor

of institution. *See, e.g.*, *Cisco Sys., Inc. v. NetSocket, Inc.*, IPR2023-00607, Paper 11 at 16 (P.T.A.B. Sept. 26, 2023) (FWD "one or two months" before trial favors institution); *Peloton Interactive, Inc. v. iFit, Inc.*, IPR2022-00029, Paper 13 at 41 (P.T.A.B. April 22, 2022) (FWD "more than six weeks" before trial). Here, the Final Written Decision is expected by February 27, 2026, more than two months ***before*** trial. EX1065 at 1.

Maxeon's reliance on the trial date in its unrelated, co-pending litigation against Canadian Solar, Inc. ("CSI"), POPR at 61, is misplaced. HSC's petition includes primary and secondary references not relied on by CSI, with only one overlapping ground, and CSI included a stipulation that it will not assert in district court any ground it could have raised in its petition for asserted claims. *Canadian Solar, Inc. v. Maxeon Solar Pte. Ltd.*, IPR2024-01040, Paper 1 at 19 (P.T.A.B. June 25, 2024). Thus, if instituted, CSI's district court trial will ***not*** address the non-overlapping grounds presented in HSC's petition. Maxeon's reliance on *TCO AS v. NCS Multistage Inc.*, POPR at 61, is therefore inapposite. In that case, there was no dispute that an earlier trial in a co-pending litigation would "resolve all of the same invalidity issues that are presented in the Petition." PGR2020-00077, Paper 16 at 11-12 (P.T.A.B. Feb. 18, 2021). That is not the circumstance here. Where, as here, trial in a co-pending litigation is "unlikely to address all (or a majority of) the issues raised" in a petition, it "does not tip *Fintiv* factor 2 in favor of discretionary denial."

Intel Corp. v. Besang Inc., IPR2023-00991, Paper 12 at 19 (P.T.A.B. Dec. 13, 2023).

Factor 3 (Investment)—HSC diligently filed its petition fewer than four months after Maxeon filed its complaint—before receiving Maxeon's infringement contentions and entry of a scheduling order—and the district court has not issued any substantive orders relating to the '315 patent. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 10 (P.T.A.B. March 20, 2020). As Maxeon acknowledges, the district court case "is in its early stages," POPR at 62, and substantial work remains to be done on invalidity issues: the *Markman* hearing (Nov. 2025), fact discovery (scheduled to close Nov. 2025), expert discovery (scheduled to close Jan. 2026), and dispositive motions (briefing through Feb. 2026) will occur well after institution. *See* EX1065 at 3-4. The Board frequently institutes IPRs even when district court proceedings are significantly more advanced. *See, e.g.*, *Sand Revolution II, LLC v. Cont'l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 10-11 (P.T.A.B. June 16, 2020) (instituting after exchange of contentions and entry of *Markman* order). Indeed, none of the completed or ongoing work in district court identified by Maxeon—including early dismissal of certain parties, HSC's motion to transfer and venue discovery, and service of Maxeon's infringement contentions—relates to invalidity. POPR at 62. Maxeon's reliance on the CSI litigation and *TCO*, POPR at 62, is again inapposite because the CSI trial will not "involve[] the same … arguments" as HSC's petition. *TCO*, PGR2020-

00077, Paper 16 at 14.

Factor 4 (Overlap of Issues)—At this early stage, overlap between the claims at issue in parallel proceedings is "not persua[sive]" because "the same claims often are at issue" in an IPR proceeding and parallel litigation. *Unified Patents, LLC v. WSOU Invs., LLC*, IPR2021-00378, Paper 14 at 14-15 (P.T.A.B. July 23, 2021). Further, the Challenged Claims (1-20) include claims that do ***not*** overlap with the claims asserted in Maxeon's complaint and infringement contentions (9, 12, 14-20), EX1014 at 32; EX1064 at 2, and CSI's petition (9-20). Hanwha's trial, CSI's trial, and CSI's IPRs will not address the non-overlapping claims.

Maxeon's reliance on HSC's invalidity counterclaim to show alleged overlap is premature and not informative of the identity of issues between the proceedings, as HSC's invalidity contentions are not due for nearly two months. Regardless, any overlap between the grounds in HSC's petition and its eventual invalidity contentions ***favors*** institution because those grounds will be adjudicated by the Board ***before*** the district court. Maxeon's reliance on CSI's invalidity contentions is inapposite for the reasons explained with respect to Factors 2 and 3.

Factor 5 (Parties)—"This factor favors denial if trial precedes the Board's Final Written Decision and favors institution if the opposite is true." *Huawei Tech. Co. v. WSOU Invs., LLC*, IPR2021-00225, Paper 11 at 14 (P.T.A.B. June 14, 2021). Here, the Final Written Decision is expected by February 27, 2026, and trial in the

district court is not scheduled until May 4, 2026. EX1065 at 1. Maxeon's *Fintiv* arguments extensively rely on its litigation against CSI, but HSC is not a party to that litigation, is not a real-party-in-interest to CSI's IPR petition, and would not be estopped based on a Final Written Decision in the CSI IPR under 35 U.S.C. § 315(e)(2). Thus, this factor favors institution.

Factor 6 (Merits and Other Circumstances)—The Board need not consider Factor 6 because, as explained above, Factors 1-5 overwhelmingly favor institution. *Commscope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4 (P.T.A.B. Feb. 27, 2023) (precedential). But even if considered, this factor supports institution. HSC's petition presents compelling merits that are "highly likely" to "prevail with respect to at least one challenged claim." *Opensky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102 at 49 (P.T.A.B. Oct. 4, 2022) (precedential). Maxeon's POPR is meritless because it provides only unsupported, attorney arguments against the motivations to combine the Petition's prior art and does not dispute that any ground fails to disclose all challenged claim limitations. Contrary to the POPR's attorney arguments, there are many reasons why a POSITA would be motivated to combine the references HSC asserts, for the reasons explained in the Petition and supporting expert declaration, and disagreements between experts should be resolved at trial, not at institution without benefit of cross examination.

Date: December 23, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to an agreement between Petitioner and Patent Owner, I hereby certify that, on December 23, 2024, I caused a true and correct copy of the following materials:

- Petitioners' Reply to Patent Owner's Preliminary Response
- Updated Table of Exhibits
- Exhibits 1063, 1064, and 1065

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TABLE OF EXHIBITS

No.	Description
1001	U.S. Patent No. 8,878,053 B2 ("USP053")
1002	File History for U.S. Patent No. 8,878,053 B2 (App. No. 13/495,577) ("FH053")
1003	Declaration of Dr. Zachary Holman Regarding U.S. Patent No. 8,878,053 B2
1004	EP1732142A1 to Froitzheim ("Froitzheim")
1005	Gan and Swanson, *Polysilicon Emitters for Silicon Concentrator Solar Cells, IEEE Conference on Photovoltaic Specialists*, Vol. 1, Pages 245-240 (1990) ("Gan")
1006	WO 2009/094575 A2 ("Borden-575")
1007	U.S. Patent No. 6,998,288 to Smith ("Smith")
1008	CN 1949545A to Li (Translation) ("Li")
1009	Translation Declaration for Li
1010	Zachary C. Holman, *Electron Transport in Amorphous Silicon* (May 2005) (Thesis Presented to The Division of Mathematics and Natural Sciences, Reed College) ("Holman-Thesis")
1011	Reserved
1012	Reserved
1013	Declaration of June Munford
1014	Complaint for Patent Infringement, *Maxeon Solar Pte. Ltd. v. Hanwha Solutions Corp., et al.*, Civil Action No. 2:24-cv-262 (E.D. Tex. Apr. 19, 2024), ECF No. 1 ("Complaint")
1015	U.S. Patent No. 7,468,485 to Swanson ("Swanson")
1016	R. J. Komp, *Practical Photovoltaics Electricity From Solar Cells*, 3rd Ed. (2002) ("Komp")
1017	BP Solar Global Marketing, BP-MSX-120, 120-Watt Multicrystalline Photovoltaic Module ("BP-MSX-120")
1018	J. Nelson, *The Physics of Solar Cells, Imperial College Press* (2003) ("Nelson")
1019	T. Krygowski, A, Rohatgi, D. Ruby, *Simultaneous P and B Diffusion, In-Situ Surface Passivation, Impurity Filtering and Gettering for High-Frequency Silicon Solar Cells*, SAND-97-2620C; CONF-970953- ("Krygowski")
1020	A. Luque, S. Hegedus, *Handbook of Photovoltaic Science and Engineering*, Wiley (2003) ("Luque")

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1023	U.S. Patent No. 4,525,593 to Yablonovitch ("Yablonovitch")
1024	WO 2009/094578 A2 ("Borden-578")
1025	U.S. Patent No. 4,665,277 to Sah ("Sah")
1026	D. Chapin et al., *A New Silicon P-N Junction Photocell for Converting Solar Radiation into Electrical Power*, J. Appl. Phys. 25, 676 (1954) ("Chapin")
1027	W. Shockley, H. J. Queisser, *Detailed Balance Limit of Efficiency of pn Junction Solar Cells*, J. Appl. Phys. 32, 510 (1961) ("Shockley")
1028	A. Metz, R. Meyer, B. Kuhlmann, M. Grauvogl, R. Hezel, *18.5% Efficient First-Generation MIS Inversion-Layer Silicon Solar Cells*, 26th PVSC (1997) ("Metz")
1029	D. De Ceuster, P. Cousins, D. Rose, D. Vicente, P. Tipones, W. Mulligan, *Low Cost, High Volume Production of >22% efficiency silicon solar cells*, 22nd European Photovoltaic Solar Energy Conference, 3-7 September 2007, Milan, Italy, pp. 816-819 ("De-Ceuster")
1030	J. Benick, J. Rentsch, Ch. Schetter, C. Voyer, D. Biro, R. Preu, *PECVD PSG as a Dopant Source for Industrial Solar Cells, Presented at the 21st European Photovoltaic Solar Energy Conference*, September 4-8, 2006, Dresden (2CV.4.26) ("Benick")
1031	JP07-106611 to Okayasu (Translation) ("Okayasu")
1032	Translation Declaration for Okayasu
1033	Robert F. Pierret, *Semiconductor Device Fundamentals*, Addison Wesley Longman (Part I) (1996) ("Pierret")
1034	A. I. A. Rahim, C. D. Marsh, P. Ashburn, G. R. Booker, *Impact of Ex-Situ and In-Situ Cleans on the Performance of Bipolar Transistors With Low Thermal Budget In-Situ Phosphorus-Doped Polysilicon Emitter Contacts*, IEEE TRANSACTIONS ON ELECTRON DEVICES, VOL. 48, NO. 11 (November 2001) ("Rahim")
1035	N. S. Parekh, R. V. Taylor, D. O. Massetti, *A Simple Method to Control Bipolar Polysilicon Emitter Interfacial Oxide*, J.

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1036	E. Yablonovitch, T. Gmitter, R. M. Swanson, Y. H. Kwark, *A 720 mV open circuit voltage SiOx:c-Si:SiO x double heterostructure solar cell*, Appl. Phys. Lett. 47, 1211–1213 (1985) ("Yablonovitch-1985")
1037	Reserved
1038	Reserved
1039	File History of U.S. Patent App. No. 14/504,771 ("771FH")
1040	U.S. Patent No. 8,222,516 B2 ("USP516")
1041	Reserved
1042	U.S. Patent Appl. Pub. No. 2002/0142500 A1 ("Foglietti")
1043	Mark John Kerr, *Surface, Emitter and Bulk Recombination in Silicon and Development of Silicon Nitride Passivated Solar Cells* (2002) (Ph.D. Thesis, The Australian National University) ("Kerr")
1044	Reserved
1045	M. Green, *Silicon Solar Cells Advanced Principles & Practice*, Centre for Photovoltaic Devices and Systems (1995) ("Green-1995")
1046	Y. H. Kwark, R. M. Swanson, *N-Type Sipos and Poly-Silicon Emitters*, Solid-State Electronics Vol. 30, No. 11, pp. 1121-1125 (1987) ("Kwark")
1047	G. R. Wolstenholme, N. Jorgensen, P. Ashburn, G. R. Booker, *An investigation of the thermal stability of the interfacial oxide in polycrystalline silicon emitter bipolar transistors by comparing device results with high-resolution electron microscopy observations*, J. Appl. Phys. 61, 225–233 (1987) ("Wolstenholme")
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1050	N. G. Tarr, *A polysilicon emitter solar cell*, IEEE Electron Device Letters, vol. 6, no. 12, pp. 655-658, Dec. 1985 ("Tarr")
1051	R. M. Swanson, *Point Contact Solar Cells: Modeling and Experiment*, Solar Cells, 17, pp. 85-118 (1986) ("Swanson-

No.	Description
	1986")
1052	U.S. Patent No. 4,158,591 to Avery ("Avery")
1053	U.S. Patent No. 5,899,804 to Schlosser ("Schlosser")
1054	U.S. Patent No. 7,144,751 to Gee ("Gee")
1055	Reserved
1056	WO 2006/097303 A1 ("Agostinelli")
1057	P.V. Meyers, R. Kee, C. Wolden, L. Raja, V. Kaydanov, T. Ohno, R. Collins, M. Aire, J. Kestner, A. Fahrenbruch, Atmospheric Pressure Chemical Vapor Deposition of CdTe for High Efficiency Thin Film PV Devices, NREL Annual Report 26 January 1998 – 25 January 1999 (Sept. 1999) ("NREL-1999")
1058	R. M. Swanson, R. A. Sinton, *High-Efficiency Silicon Solar Cells, Advances in Solar Energy: An Annual Review of Research and Development*, vol. 6. Chapter 4 (1990) ("Swanson-1990")
1059	G. Lubberts, B. C. Burkey, F. Moser, E. A. Trabka, *Optical properties of phosphorus-doped polycrystalline silicon layers*, J. Appl. Phys. 52(11), (Nov. 1981) ("Lubberts")
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1062	M. Farrokh-Baroughi, H. El-Gohary, S. Sivoththaman, *Optical, Electrical, and Structural Properties of PECVD Quasi Epitaxial Phosphorous Doped Silicon Films on Crystalline Silicon Substrate*, Canadian Solar Buildings Conference (August 20-24, 2004) ("Farrokh-Baroughi")
1063	Email chain between Counsel and Trial Board, dated December 11-12, 2024
1064	Plaintiff Maxeon Solar Pte. Ltd.'s Disclosure of Asserted Claims and Infringement Contentions, *Maxeon Solar Pte. Ltd. v.Hanwha Solutions Corp., et al.*, Civil Action No. 2:24-cv- 262 (E.D. Tex. Nov. 21, 2024)
1065	Docket Control Order, *Maxeon Solar Pte. Ltd. v.Hanwha*

No.	Description
	Solutions Corp., et al., Civil Action No. 2:24-cv- 262 (E.D. Tex. Nov. 25, 2024), ECF No. 33