

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner

v.

NETWORK SYSTEM TECHNOLOGIES, LLC,
Patent Owner

U.S. PATENT NO. 8,086,800
Case IPR2024-00339

**PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

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Petitioner submits this Reply to Patent Owner’s Preliminary Response pursuant to the Board’s April 23, 2024 email granting Petitioner leave to file a reply.

I. Rădulescu (Ex-1005) Is Prior Art.

Patent Owner argues that Petitioner failed to show Rădulescu (Ex-1005) was publicly available. POPR at 29–34. That is incorrect. Petitioner submitted evidence sufficient to establish that Rădulescu was publicly available in February and March 2004, both of which are more than one year before May 13, 2005, “the date of the application for patent in the United States,” and before the ’800 Patent’s alleged priority date (May 18, 2004). *See* Pet. at 3-4; 35 U.S.C. §102(b)¹; Ex-1001 at 1; *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 3 (P.T.A.B. Dec. 20, 2019); *see also* 35 U.S.C. §119(a) (“[N]o patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country . . .”).

First, Petitioner showed Rădulescu was publicly available “no later than **February 20, 2004.**” Pet. at 3 (emphasis added); *see also id.* at 4. Petitioner submitted an IEEE declaration that states copies of Rădulescu, which was published in Proceedings Design, Automation and Test in Europe Conference and Exhibition,

¹ Cites to 35 U.S.C. §§102 and 119 are to the pre-AIA versions.

“were made available no later than the last day of the conference,” which was February 20, 2004. Ex-1017 at 2 (¶11); *see also id.* at 11. Indeed, Patent Owner concedes Petitioner submitted this IEEE declaration, POPR at 29 (citing Ex-1017); and ***admitted*** in district court litigation involving the ’800 patent that Rădulescu “was publicly available before the end of February 2004.” Ex-1037 at 3; *see also id.* at 7.

Second, IEEE confirmed that Rădulescu was published online and thus publicly available on ***March 8, 2004***. Ex-1017 at 2 (¶10), 11. “When there is an established publisher there is a presumption of public accessibility as of the publication date.” *VidStream LLC v. Twitter, Inc.*, 981 F.3d 1060, 1065 (Fed. Cir. 2020). Rădulescu was published by an established publisher—IEEE. *See* Ex-1005; Ex-1017. Further, contrary to Patent Owner’s incorrect assertion, POPR at 33, the IEEE declaration Petitioner submitted states “[t]he article and abstract from IEEE Xplore shows the date of publication,” Ex-1017 at 2 (¶10), which for Rădulescu is March 8, 2004, *id.* at 11. Consistent with the Board’s precedent, those facts presumptively establish Rădulescu’s public accessibility as of that date. *See VidStream*, 981 F.3d at 1065; *see also Intel Corp. v. FG SRC LLC*, IPR2020-01449, Paper 13 at 43-44 (P.T.A.B. Mar. 3, 2021) (date on IEEE website supported public accessibility for prior-art status); *Cerebras Sys. Inc. v. Rex Computing, Inc.*, IPR2022-00741, Paper 37 at 6–7 (P.T.A.B. Oct. 11, 2023) (date of availability on

IEEE Xplore supported prior-art status); *Guest Tek Interactive Entm’t Ltd. v. Nomadix, Inc.*, IPR2019-00253, Paper 6 at 25–31 (P.T.A.B. May 28, 2019) (similar).

Given this uncontroverted evidence, none of Patent Owner’s arguments challenging the public availability of Rădulescu are relevant. Rădulescu is prior art at least under 35 U.S.C. § 102(b) based on its public availability by no later than March 8, 2004, which is more than one year before May 13, 2005, the U.S. filing date of the ’800 patent. Pet. at 2; Ex-1001 at 1.

Finally, Patent Owner’s argument that the Petition improperly incorporates by reference testimony in the IEEE declaration has no merit. POPR at 29–30. This same argument has been repeatedly rejected by the Board where, as here, “relatively short testimony” is “clearly referenced in the Petition” for the “discrete point” of “indicia of public accessibility” of a prior art reference. *See, e.g., Tetra Tech Canada Inc., v. Georgetown Rail Equip. Co.*, No. IPR2019-00619, Paper 12 at 19 (P.T.A.B. Aug. 26, 2019) (rejecting “improper incorporation by reference” argument relating to a declarant’s testimony regarding the public accessibility of certain prior art); *Expedia, Inc. v. Int’l Bus. Machines Corp.*, No. IPR2018-01136, 2018 WL 6318138, at *9 (P.T.A.B. Dec. 3, 2018) (similar).

II. The District Court’s Indefiniteness Ruling Should Not Bar Institution.

Patent Owner’s argument that the Board should exercise its discretion to deny institution under 35 U.S.C. § 314(a) because a district court held claim 12 of the

’800 patent is indefinite has no merit and should be rejected. POPR at 10–13.

First, the district court’s determination in Case No. 2:22-CV-00482-RWS (“TI Case”) and in Case No. 2:22-CV-00481-JRG (“Samsung Case”) that claim 12 of the ’800 patent is indefinite is not grounds for denying institution of IPR at least because Patent Owner here admits it “disputed that the claims are indefinite.” POPR at 11; *compare* POPR at 11 (stating the “challenged claims currently stand invalid as indefinite”), *with* Ex-1038 at 1 (Patent Owner refusing to drop the ’800 patent in the Samsung Case because, in its view, the order in the TI Case “did not find that the ’800 patent is invalid” and Patent Owner “disagrees” with the indefiniteness ruling); *see also* Ex-2034 at 30–34 (arguing claim 12 of the ’800 patent is not indefinite). That makes the Petition here unlike those in cases cited by Patent Owner. *See Samsung Elecs. Co., Ltd. v. Acorn Semi, LLC*, IPR2020-01182, Paper 17 at 7 (P.T.A.B. Feb. 10, 2021) (noting neither party argued “that the District Court’s determination of indefiniteness was incorrect”); *H-E-B, LP v. Digital Retail Apps, Inc.*, IPR2020-00348, Paper 16 at 10 (P.T.A.B. July 6, 2020) (Patent Owner did not dispute indefiniteness construction).

Second, the Board can resolve the grounds presented in the Petition regardless of whether the challenged claims are indefinite. An indefiniteness determination does not bar a patentability determination in an *inter partes* review unless “the indefiniteness renders it logically impossible for the Board to reach’ a determination

of the patentability of a claim on the presented prior-art grounds.” *Sony Elecs. Inc. v. Jawbone Innovations, LLC*, IPR2023-01352, Paper 9 at 47–48 (P.T.A.B. Mar. 7, 2024) (quoting *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 813 (Fed. Cir. 2021)). Here, the indefiniteness of the “optimal” (and “determination unit”) claim terms is based on the uncertainty of their *full* scope and boundaries. As explained in the Petition, whatever the scope of the indefinite “optimal” terms, these limitations are clearly disclosed in the prior art identified in the Petition. Pet. at 24-25 n.3, 29 n.4. As a result, Patent Owner’s argument that deciding the issues in the Petition would “necessarily” create an “inconsisten[cy] with the [indefiniteness] determination by the District Court” is incorrect. POPR at 12. Institution thus remains appropriate.

III. Petitioner Satisfied Its Claim Construction Obligations in the Petition.

Patent Owner’s argument that Petitioner failed to satisfy the Board’s claim construction rules is meritless. POPR at 25–28. “The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019). Here, there is no controversy requiring resolution. Petitioner identified the parties’ competing positions in the district court case and explained that no construction was needed to resolve the grounds in the Petition. Patent Owner apparently agrees, as it has not argued for any particular constructions either.

Although Petitioner has maintained in the district court case that the “optimal”

terms are indefinite (as the Petition indicates), Pet. at 24-25 n.3, 29 n.4, that does not mean the Board's determination of the patentability issues raised in the Petition is "logically impossible." *Sony*, IPR2023-01352, Paper 9 at 47; *see* § II, *supra*. Indeed, in *Sony*, the Board instituted IPR notwithstanding an argument that a challenged claim may be indefinite. *See id.* at 47-48, 50.

The same is true of the claimed "determination unit." Patent Owner's argument that institution should be denied because Petitioner did not seek a means-plus-function construction for "determination unit" as Petitioner did in the district court case has been rejected by the Board in other recent proceedings. For example, in *Howard Industries, Inc. v. Capsa Solutions LLC*, the Board concluded institution was appropriate where the petitioner argued a claim term was invalid under any reasonable construction, despite having contended in district court litigation that the term was a means-plus-function term without corresponding structure. IPR2023-01274, Paper 9 at 11-12 (P.T.A.B. Feb. 26, 2024); *see also Peloton Interactive, Inc. v. NEC Corp.*, IPR2023-01239, Paper 16 at 15-19 (P.T.A.B. Mar. 4, 2024) (finding regulatory requirements were satisfied even though petitioner did not seek means-plus-function constructions in petition as it did in district court case). The same result should apply here. *See* Pet. at 22-23 n.2.

Finally, Patent Owner's arguments based on the "first wrapper" and "second wrapper" terms lack merit. POPR at 3, 26. The parties ultimately agreed in the

district court litigation that these terms mean first and second memory, respectively, *see* Ex-2035 at 2 n.2; Ex-2034 at 34, which is consistent with the arguments in the Petition. *See* Pet. at 29. Indeed, no party argues for a different construction here.

* * *

For the reasons stated above and in its Petition, Petitioner respectfully requests that the Board institute this Petition.

DATED: April 30, 2024

Respectfully submitted,

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,086,800 (“the ’800 Patent”)
1002	Declaration of Todd Mowry in Support of Petition for <i>Inter Partes Review</i> of U.S. Patent No. 8,086,800
1003	Curriculum Vitae for Todd Mowry
1004	Prosecution History of U.S. Patent No. 8,086,800
1005	Andrei Rădulescu <i>et al.</i> , <i>An Efficient On-Chip Network Interface Offering Guaranteed Services, Shared-Memory Abstraction, and Flexible Network Configuration</i> , 2 PROC. DESIGN, AUTOMATION AND TEST IN EUR. CONF. & EXHIBITION 878 (2004) (“Rădulescu”)
1006	U.S. Patent Application Publication No. 2002/0186660 to Murat I. Bahadiroglu <i>et al.</i> (“Bahadiroglu”)
1007	U.S. Patent No. 5,434,872 to Brian Petersen <i>et al.</i> (“Petersen”)
1008	International Patent Publication No. WO 2004/034176 A2 to Rădulescu <i>et al.</i> (“Rădulescu-WO”)
1009	Axel Jantsch and Hannu Tenhunen, <i>Networks on Chip</i> (2003)
1010	Kees Goossens <i>et al.</i> , <i>Chapter 4: Guaranteeing the Quality of Services in Networks on Chip</i> , NETWORKS ON CHIP, at 61–82 (2003)
1011	Defs.’ Joint Opening Claim Construction Br., <i>Network Sys. Techs., LLC v. Qualcomm Inc.</i> , No. 1:22-cv-1331, Dkt. 77 (E.D. Tex. Oct. 12, 2023)
1012	Amit Goel & William R. Lee, <i>Formal Verification of an IBM CoreConnect™ Processor Local Bus Arbiter Core</i> , PROCEEDINGS OF THE 37TH ANNUAL DESIGN AUTOMATION CONFERENCE 196–200 (2000)
1013	Luca Benini & Giovanni De Micheli, <i>Networks on Chips: A New SoC Paradigm</i> , 35 COMPUTER 70–78 (2002)
1014	Erik Jan Marinissen, <i>Wrapper Design for Embedded Core Test</i> , IEEE INT’L TEST CONFERENCE (ITC) 1–10 (2000)
1015	Terry Tao Ye <i>et al.</i> , <i>Packetization and Routing Analysis of On-Chip Multiprocessor Networks</i> , J. SYS. ARCHITECTURE, Vol. 50,

	Issues 2-3, pp 81-104 (2004)
1016	Zhonghai Lu <i>et al.</i> , <i>Network-on-Chip Assembler Language</i> , RETRIEVED FROM INSTITUTE OF MICROELECTRONICS AND INFORMATION TECHNOLOGY, ROYAL INSTITUTE OF TECHNOLOGY (KTH) (2003); available at https://people.kth.se/~zhonghai/Archive/NoC-AL-V01.pdf
1017	Declaration of Gordon MacPherson
1018	David E. Culler <i>et al.</i> , <i>Parallel Computer Architecture</i> (1998)
1019	John Heinlein <i>et al.</i> , <i>Coherent Block Data Transfer in the FLASH Multiprocessor</i> , IEEE PROCEEDINGS 11TH INT'L PARALLEL PROCESSING SYMPOSIUM, Genoa, Switzerland, pp. 18-27 (1997)
1020	Pl.'s Opening Claim Construction Br., <i>Network Sys. Techs., LLC v. Tex. Instruments Inc.</i> , No. 2:22-cv-00482-RWS, Dkt. 98 (E.D. Tex. Sept. 27, 2023)
1021	Pl.'s Responsive Claim Construction Br., <i>Network Sys. Techs., LLC v. Qualcomm Inc.</i> , No. 1:22-cv-1331-DAE, Dkt. 81 (W.D. Tex. Nov. 16, 2023)
1022	Wael Badawy, <i>System on Chip: The Challenge and Opportunities</i> , SYSTEM ON CHIP FOR REAL-TIME APPLICATIONS, 3–16 (2003)
1023	Ahmed Amine Jerraya & Wayne Wolf, <i>Multiprocessor Systems-on-Chips</i> (2005)
1024	Ann Marie Rincorn <i>et al.</i> , <i>The Changing Landscape of System-on-a-Chip Design</i> , IEEE 1999 CUSTOM INTEGRATED CIRCUITS CONF. 83–90 (1999)
1025	Shashi Kumar <i>et al.</i> , <i>A Network on Chip Architecture and Design Methodology</i> , PROCEEDINGS OF THE IEEE COMPUTER SOC'Y ANN. SYMPOSIUM ON VLSI (ISVLSI'02) (2002)
1026	Luca Benini & Giovanni De Micheli, <i>Chapter 16: Energy-Efficient System-Level Design</i> , POWER AWARE DESIGN METHODOLOGIES 473–516 (2002)
1027	Rudolf F. Graf, MODERN DICTIONARY OF ELECTRONICS (7th ed. 1999)
1028	David Howard, THE PENGUIN DICTIONARY OF ELECTRONICS (4th ed. 2005)

1029	Douglas A. Downing <i>et al.</i> , DICTIONARY OF COMPUTER AND INTERNET TERMS (8th ed. 2003)
1030	John Heinlein <i>et al.</i> , <i>Integration of Message Passing and Shared Memory in the Stanford FLASH Multiprocessor</i> , ACM SIGOPS OPERATING SYSTEMS REVIEW, Vol. 28, Issue 5, pp 38–50 (1994)
1031	Hugo De Man, <i>System-on-Chip Design: Impact on Education and Research</i> , IEEE DESIGN & TEST OF COMPUTERS, Vol. 16, No. 3, pp. 11-19, (July-Sept. 1999)
1032	William J. Dally <i>et al.</i> , <i>Route Packets, Not Wires: On-Chip Interconnection Networks</i> , PROCEEDINGS OF THE 38TH DESIGN AUTOMATION CONF. (IEEE CAT. No.01CH37232), Las Vegas, NV, USA, 2001, pp. 684-689 (2001)
1033	Andrei Rădulescu <i>et al.</i> , <i>Communication Services for Networks on Chip</i> , SIGNAL PROCESSING AND COMMUNICATIONS (2000)
1034	Jose Duato <i>et al.</i> , <i>Interconnection Networks: An Engineering Approach</i> , IEEE COMPUTER SOCIETY PRESS, Los Alamitos, CA (2002)
1035	Ahmed Hemani <i>et al.</i> , <i>Network on Chip: An Architecture for Billion Transistor Era</i> (2001)
1036	Daniel Wiklund <i>et al.</i> , <i>Design of a System-on-Chip Switched Network and Its Design Support</i> , IEEE 2002 INT'L CONF. ON COMMC'NS, CIRCUITS & SYS. & WEST SINO EXPOSITIONS, Chengdu, China, pp. 1279-1283 Vol.2 (2002)
1037	Plaintiff Network System Technologies, LLC's Responses to Qualcomm's First Set of Requests for Admission (Nos. 1-9)
1038	Email from E. Huntington dated February 2, 2024 regarding Election of Claim Terms in <i>Network System Technologies LLC v. Samsung Electronics Co., Ltd. et al.</i> , Case No. 2:22-CV-00481-JRG (E.D. Tex.)

CERTIFICATE OF SERVICE

The undersigned certifies that the above-captioned "PETITIONER'S REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE" and accompanying Exhibits 1037 and 1038 were served in their entirety on April 30, 2024, via electronic service on lead and back-up counsel:

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