

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. 7,373,449
Case IPR2024-00338

**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. Goossens2002 (Ex-1005) and Goossens2003 (Ex-1007) Are Prior Art.

Patent Owner argues that Petitioner failed to show Goossens2002 and Goossens2003 (Ex-1005 and Ex-1007) were publicly available. POPR at 39–41. That is incorrect. Petitioner submitted evidence establishing that Goossens2002 was publicly available “no later than August 7, 2002” and Goossens2003 was publicly available “no later than January 31, 2003,” both of which were before October 7, 2003 priority date of the ’449 Patent. *See* Pet. at 3–4, 8–9; *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 3 (P.T.A.B. Dec. 20, 2019).

First, Petitioner showed Goossens2002 was publicly available “no later than August 7, 2002.” Pet. at 3–4, 8–9. Petitioner submitted an IEEE declaration stating that copies of Goossens2002, published in Proceedings 2002 Design, Automation and Test in Europe Conference and Exhibition “were made available no later than the last day of the conference,” which was March 8, 2002. Ex-1025 at 2 (¶ 11). Additionally, IEEE confirmed that Goossens2002 was published online on **August 7, 2002** and thus publicly available by that date. *Id.*, ¶10; Ex-1026 at 1.¹ “When there

¹ Petitioner notes that although Ex-1026 was inadvertently included as a separate exhibit, it was received by Petitioner with the IEEE declaration (Ex-1025).

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). Goossens2002 was published by an established publisher—IEEE—which confirmed in a declaration that “[t]he article and abstract from IEEE Xplore shows the date of publication.” See Ex-1005; Ex-1025 at 2 (¶10); Ex-1026. Consistent with the Board’s precedent, those facts presumptively establish Goossens2002’s public accessibility as of that date. *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 accessibility); *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 under § 102). Both March 8, 2002 and August 7, 2002 are more than one year before October 7, 2003, the earliest priority date to which the Challenged Claims are entitled. See 35 U.S.C. § 102(b); Ex-1001 at Face; Pet at 6–7; see also 35 U.S.C. §119(a).

Second, Petitioner showed Goossens2003 was publicly available no later than January 31, 2003. Pet. at 3–4, 8–9. The Petition explicitly states that Goossens2003 was “included as chapter 4 of *Networks on Chip*, edited by A. Jantsch and H. Tenhunen,” which Petitioner showed was publicly accessible as of January 31, 2003. Pet. at 8. Petitioner submitted a copy of the SpringerLink bibliographic data for *Networks on Chip*—which Patent Owner entirely ignores—which states this book

was “Published: 31 January 2003” with “Springer New York, NY” as the “Publisher.”² Ex-1028 at 4. Indeed, because Springer is an established publisher, there is “a presumption of public accessibility as of the publication date.” *VidStream LLC*, 981 F.3d at 1065. Further, Patent Owner ***admitted*** in district court litigation involving the ’449 patent that *Networks on Chip* “was publicly available as of January 31, 2003.” Ex-1037 at 5. Petitioner also submitted a declaration by the University of Texas at Austin Libraries (“UT Declaration”) stating that *Networks on Chip* was catalogued on April 16, 2003, and that “UT Libraries typically made newly catalogued items available to the public within 3 business days of cataloging.” Ex-1027 at 1 (¶¶ 5, 7). That evidence further proves Goossens2003’s public availability well before October 7, 2003, the earliest priority date to which the Challenged Claims are entitled (*See* Pet. at 6–7), and there is nothing “inconsistent with the exhibits” (POPR at 41) that contradicts the public accessibility of Goossens2003.

Given this uncontroverted evidence, Goossens2002 and Goossens2003 are prior art at least under 35 U.S.C. §§ 102(a) and/or (b) based on their public availability by no later than August 7, 2002 and January 31, 2003, respectively.

Finally, Patent Owner’s argument that the Petition improperly incorporates by

² Kluwer Academic Publishers, the original publisher of *Networks on Chip*, merged with Springer in 2004.

reference testimony in the declarations has no merit. POPR at 40–41. 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); *Expedia, Inc. v. Int’l Bus. Machines Corp.*, No. IPR2018-01136, 2018 WL 6318138, at *9 (P.T.A.B. Dec. 3, 2018).

II. 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 equally meritless. POPR at 22–26. “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 proposed constructions from related district court cases and explained that no construction was needed to resolve the grounds in the Petition because “these structures are disclosed and/or rendered obvious.” Pet. at 33, n.3.

Although Petitioner has maintained in the district court case that the “communication manager” is a means-plus-function term, which the district court ultimately agreed with, Patent Owner’s argument that institution should be denied because Petitioner did not affirmatively seek a means-plus-function construction has

no merit. As Patent Owner concedes, the Petition *did* identify proposed constructions if the Board were to find the communication manager term is a means-plus-function term. POPR at 24; Pet. at 33.³ Thus, the Petition satisfied the requirement of 37 C.F.R. § 42.104(b)(3), by arguing alternative constructions. *See* Pet. at 33, n. 3. Nothing more was required under the rules.

Indeed, Patent Owner’s argument has been rejected by the Board in other recent proceedings. For example, in *Peloton Interactive, Inc. v. NEC Corp.*, the Board concluded institution was appropriate where, as here, Patent Owner contended in related district court litigation that the term at issue was not subject to 35 U.S.C. § 112 ¶ 6 and the petitioner addressed the means-plus-function construction in the alternative. IPR2023-01239, Paper 16 at 15-19 (P.T.A.B. Mar. 4, 2024); *Mylan Pharmaceuticals Inc., v. Sanofi-Aventis Deutschland GMBH*, IPR2018-01680, Paper 22 at 20-22 (P.T.A.B. April 3, 2019) (similar). The same result should apply here. *See* Pet. at 22-23, n.2. Patent Owner’s cited caselaw is inapposite⁴ and Patent

³ Samsung further objects to Patent Owner’s assertion that Petitioner “attempt[ed] to avoid disclosing its inconsistent claim construction positions” (POPR at 25), which is meritless for at least the reasons stated herein.

⁴ Patent Owner’s citations to *Facebook, Inc. v. Sound View Innovations, LLC*, and *Orthopediatrics Corp., v. K2M, Inc.*, are distinguishable because unlike here, the

Owner’s assertions that “the petition does not propose a means-plus-function construction” has no merit.

Moreover, while Dr. Mowry does not explicitly reference the means-plus-function constructions, he did not need to because his analysis of Drake explains how Drake “is consistent with the disclosure of the communication manager described in the specification of the ’449 patent,” citing the structure provided by the ’449 patent at column 10, lines 19-24. Ex-1003, ¶ 119. And, as described by the ’449 patent at column 10, lines 41-54, Dr. Mowry further describes that a POSITA would have found it obvious that the QoS requestor manager (communication manager) could accept or reject connections established by the QoS allocator (resource manager). Ex-1003, ¶ 120.

III. The Petition Identified A Separate And Distinct “Communication Manager” From “Resource Manager.”

Patent Owner argues that Drake does not disclose a communication manager that is distinct from the resource manager. *See* POPR at 43–46, 57. Not so. Patent Owner correctly acknowledges that the Petition identifies Drake’s QoS requestor manager 12, which is “included in source station 10,” as the “communication

Petitioners in *Facebook* and *Orthopediatrics* did not provide any required construction under § 112(6). *See Facebook*, IPR2017-00998, Paper 13 at 17; *Orthopediatrics*, IPR2018-01546, Paper 10 at 11.

manager.” POPR at 44. Patent Owner also acknowledges that the Petition identifies Drake’s “QoS allocator 20” as the claimed “resource manager.” *Id.* Therefore, contrary to Patent Owner’s assertions, the Petition identifies a “communication manager” (QoS Requestor Manager 12) that is separate and distinct from the “resource manager” (QoS allocator station 20). *See* Pet. at 22–24, 32–34; Ex-1006 (Drake) at Fig. 1.⁵ While the Petition acknowledges that the QoS allocator station 20 also includes a QoS Requestor Manager, the Petition clearly identifies and relies upon the QoS Requestor Manager within the source station as the “communication manager,” and the “QoS allocator station 20” as the “resource manager.” Pet. at 22-24, 37-40. The Petition explains it would have been obvious to implement the functionality of these separate and distinct communication and resource managers from Drake as a circuit on the same chip as Goossens2002’s and Goossens2003’s IP blocks and NOS/NOC. Pet. at 22-26, 32-35, 55-56.

* * *

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

⁵ The Petition identifies a separate “first module” of Drake (application within source station) from the “communication manager” (QoS requestor manager). Pet. at 38.

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Respectfully submitted,

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 7,373,449 (the “’449 Patent”)
1002	File History of U.S. Pat. No. 7,373,449
1003	Declaration of Todd Mowry Ph.D. in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,373,449
1004	<i>Curriculum Vitae</i> of Todd Mowry Ph.D.
1005	K. Goossens, et al., <i>Networks on Silicon: Combining Best-Effort and Guaranteed Services</i> (“Goossens2002”)
1006	U.S. Patent No. 5,461,611 (“Drake”)
1007	K. Goossens, et al., <i>Guaranteeing the Quality of Services in Networks on Chip</i> (“Goossens2003”)
1008	Ahmed Amine Jerraya & Wayne Wolf, <i>Multiprocessor Systems-on-Chips</i> , Ch. 1 (2005) (“Wolf”)
1009	Wael Badawy, <i>System on Chip: The Challenge and Opportunities</i> , SYSTEM ON CHIP FOR REAL-TIME APPLICATIONS, 3–16 (2003) (“Badawy”)
1010	Andrei Rădulescu et al., <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”)
1011	A. Campbell et al., <i>Integrated Quality of Service for Multimedia Communications</i> , Computing Dept. Lancaster University (“Campbell”)
1012	D. Kandlur et al., <i>Real-Time Communication in Multihop Networks</i> , IEEE TRANSACTIONS ON PARALLEL AND DISTRIBUTED SYSTEMS, VOL. 5, NO. 10 (1994) (“Kandlur”)
1013	Jose Duato, et al., <i>Interconnection Networks: An Engineering Approach</i> , IEEE COMPUTER SOCIETY PRESS, Ch. 7 (1997) (“Duato”)
1014	Axel Jantsch and Hannu Tenhunen, <i>Networks on Chip</i> , Ch. 1-3 (2003) (“Jantsch”)

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1015	David E. Culler and Jaswinder Pal Singh, Parallel Computer Architecture, A Hardware/Software Approach, Ch. 10 (1999) (“Culler”)
1016	Hugo De Man, System-on-chip design: <i>Impact on Education and Research</i> , IEEE DESIGN & TEST OF COMPUTERS, Vol. 16, No. 3, pp. 11-19 (July-Sept. 1999) (“Man”)
1017	ETSI Technical Report, Trans European Trunked Radio (TETRA) system; Technical requirements specification, Part 2: Packet Data Optimised (PDO) systems (January 1994)
1018	U.S. Patent No. 5,828,658 (“Ottersten”)
1019	Joint Claim Construction and Prehearing Statement, <i>Network Sys. Techs., LLC v. Tex. Instruments Inc.</i> , No. 2:22-cv-00482-RWS, Dkt. 84 (E.D. Tex. Aug. 17, 2023)
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	E. Rijpkema et al., <i>Trade-offs in the Design of a Router with Both Guaranteed and Best-Effort Services for Networks on Chip</i> , 150 IEEE PROC.-COMPUT. DIGIT. TECH. 294–302 (2003) (“Rijpkema”)
1022	M. Sgroi et al., <i>Addressing the System-on-a-Chip Interconnect Woes Through Communication-Based Design</i> (2001) (“Sgroi”)
1023	Yasusi Kanada, <i>A Representation of Network Node QoS Control Policies Using Rule-based Building Blocks</i> (2000) (“Kanada”)
1024	IEEE 100, <i>The Authoritative Dictionary of IEEE Standards Terms</i> , p. 344 (“IEEE Dictionary”)
1025	Declaration of Gordon MacPherson regarding K. Goossens, et al., <i>Networks on Silicon: Combining Best-Effort and Guaranteed Services</i>
1026	IEEE Bibliographic Data Regarding K. Goossens, et al., <i>Networks on Silicon: Combining Best-Effort and Guaranteed Services</i>
1027	Declaration of the University of Texas at Austin Libraries regarding “Networks on Chip”
1028	SpringerLink Bibliographic Data Regarding “Networks on Chip”

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1029	William J. Dally and Brian Towles, <i>Route Packets, Not Wires: On-Chip Interconnection Networks, Computer Systems Laboratory</i> Stanford University (2001) ("Dally")
1030	Defendants' Joint Claim Construction Br. (Excerpts), <i>Network Sys. Techs., LLC v. Tex. Instruments Inc.</i> , No. 2:22-cv-00482-RWS, Dkt. 77 (E.D. Tex. Oct. 12, 2023)
1031	Plaintiff Network System Technologies, LLC's Responses to Qualcomm's First Set of Requests for Admission (Nos. 1-9)

CERTIFICATE OF SERVICE

The undersigned certifies that the above-captioned "PETITIONER'S REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE" and accompanying Exhibit 1031 were served in their entirety on April 30, 2024, via electronic service on lead and back-up counsel:

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