

U.S. Patent No. 7,594,052
IPR2024-00343

Patent Owner's Preliminary Sur-Reply

Paper No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED and
SAMSUNG ELECTRONICS CO., LTD.
Petitioners

v.

NETWORK SYSTEM TECHNOLOGIES, LLC
Patent Owner

Patent No. 7,594,052

Inter Partes Review No. IPR2024-00343

PATENT OWNER'S PRELIMINARY SUR-REPLY

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LISTING OF EXHIBITS

Exhibit No.	Description
2001	Declaration of Dr. Erik Chmelar
2002	<i>Curriculum vitae</i> of Dr. Erik Chmelar
2003	Neil Weste & David Harris, CMOS VLSI DESIGN: A CIRCUIT AND SYSTEMS PERSPECTIVE (4th ed. 2010)
2004	Jan Rabaey, Anantha Chandrakasan & Borivoje Nikolic, DIGITAL INTEGRATED CIRCUITS: A DESIGN PERSPECTIVE (2nd ed. 2003)
2005	William J. Dally & Brian Towles, <i>Route Packets, Not Wires: On-Chip Interconnection Networks</i> , PROC. 38TH DESIGN AUTOMATION CONF. (2001)
2006	John F. Wakerly, DIGITAL DESIGN: PRINCIPLES AND PRACTICES (4th ed. 2005)
2007	Fayez Gebali, Haytham Elmiligi & Mohamed Watheq El-Kharashi, NETWORKS-ON-CHIPS: THEORY AND PRACTICE (2009)
2008	Kurt Shuler, <i>Busses, Crossbars and NoCs: The 3 Eras of SoC Interconnect History</i> , ARTERISIP (Oct. 22, 2010), https://www.arteris.com/blog/busses-crossbars-and-nocs-the-3-eras-of-soc-interconnect-history/
2009	Kurt Shuler, <i>The SoC Interconnect Fabric: A Brief History</i> , ARTERISIP (Aug. 6, 2013), https://www.arteris.com/blog/the-soc-interconnect-fabric-a-brief-history/
2010	William Stallings, DATA & COMPUTER COMMUNICATIONS (6th ed. 1999)
2011	RESERVED
2012	United States District Courts — National Judicial Caseload Profile
2013	Frank Derfler, Jr. & Les Freed, HOW NETWORKS WORK, Chapter 22 “Repeaters, Bridges, Routers, and Switches” (4th ed. 1998)

Exhibit No.	Description
2014	IEEE 100: The Authoritative Dictionary of IEEE Standard Terms (7th ed. 2000)
2015	Douglas Downing et al., Dictionary of Computer and Internet Terms, BARRON'S (7th ed. 2000)
2016	David Patterson and John Hennessey, COMPUTER ORGANIZATION & DESIGN (2nd ed. 1998)
2017-2020	RESERVED
2021	Order Resetting Jury Trial, <i>Network System Technologies, LLC v. Texas Instruments Incorporated</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 182 (March 18, 2024)
2022	Claim Construction Order, <i>Network System Technologies, LLC v. Texas Instruments Incorporated</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 150 (Jan. 3, 2024)
2023-2026	RESERVED
2027	Complaint, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd. et al.</i> , Civil Action No. 2:22-cv-00481-JRG (E.D. Tex.), Dkt. 1 (Dec. 19, 2022)
2028	Docket Control Order, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd. et al.</i> , Civil Action No. 2:22-cv-00481-JRG (E.D. Tex.), Dkt. 59 (Jun. 16, 2023)
2029-2032	RESERVED
2033	P.R. 4-3 Claim Construction and Prehearing Statement, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd.</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 91 (Jan. 9, 2024)
2034	Plaintiff Network System Technologies, LLC's Opening Claim Construction Brief, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd.</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 100 (Feb. 20, 2024)
2035	Defendant Samsung Electronics Co., Ltd.'s Responsive Claim

Exhibit No.	Description
	Construction Brief, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd.</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 112 (March 12, 2024)
2036	Plaintiff Network System Technologies, LLC's Reply Construction Brief, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd.</i> , Civil Action No. 2:22-cv-00482-RWS (E.D. Tex.), Dkt. 116 (March 19, 2024)
2037	Complaint, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) Dkt. 1 (Dec. 19, 2022)
2038	First Amended Complaint, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) Dkt. 57 (Aug. 7, 2023)
2039	Second Amended Scheduling Order, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) Dkt. 80 (Oct. 23, 2023)
2040	Defendants' Joint Opening Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 77 (Oct. 12, 2023)
2041	Plaintiff Network System Technologies, LLC's Responsive Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 81 (Nov. 16, 2023)
2042	Defendants' Joint Reply Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 83 (Nov. 30, 2023)
2043	Plaintiff Network System Technologies, LLC's Sur-Reply Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 86 (Dec. 14, 2023)

Exhibit No.	Description
2044	Defendants' Supplemental Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 105 (Mar. 1, 2024)
2045	Plaintiff Network System Technologies, LLC's Supplemental Claim Construction Brief, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.), Dkt. 106 (Mar. 1, 2024)
2046-2049	RESERVED
2050	Defendants' Invalidity and Ineligibility Contentions And Disclosures Pursuant to Patent Rule 3-3 Cover Pleading, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd., et al.</i> , Civil Action No. 2:22-cv-00481-JRG (E.D. Tex.) (July 11, 2023)
2051	Defendants' Invalidity Contention Cover Pleading, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) (September 22, 2023)
2052	Network System Technologies, LLC's Supplemental Claim Construction Brief Regarding Claim Construction Rulings Made In Related Case, <i>Network System Technologies, LLC v. Qualcomm Incorporated et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.)(March 1, 2024)
2053-2054	RESERVED
2055	Exhibit C-1 to Defendants' Invalidity Contentions, <i>Network System Technologies, LLC v. Samsung Electronics Co., Ltd., et al.</i> , Civil Action No. 2:22-cv-00481-JRG (E.D. Tex.) (July 11, 2023)
2056	Exhibit C-1 to Defendants' Invalidity Contentions, <i>Network System Technologies, LLC v. Qualcomm Incorporated, et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) (Sep. 22, 2023)
2057	Exhibit C-18 to Defendants' Invalidity Contentions, <i>Network System Technologies, LLC v. Qualcomm Incorporated, et al.</i> , Civil Action No. 1:22-cv-1331-DAE (W.D. Tex.) (Sep. 22, 2023)

Pursuant to authorization from the Board, Network System Technologies, LLC ("Patent Owner") submits this Preliminary Sur-Reply. EX3001.

I. CLAIM CONSTRUCTION

Petitioners have not shown good cause for the Board to consider the claim construction arguments in their Preliminary Reply. Even if Petitioners' Preliminary Reply arguments are considered, none of them demonstrate Patent Owner's proposed constructions are incorrect.

A. "interconnect means" (claims 1 and 6-7)

Petitioners do not substantively dispute Patent Owner's construction for "interconnect means," which (1) was adopted by the district court in the related Texas Instruments case and (2) Samsung agreed with in its district court case. Reply, 1; EX2033, 12; EX2035, 2 n.2. Instead, Petitioners merely argue that "the Petition alternatively applies PO's construction." *Id.* In the Preliminary Response, Patent Owner explained how the cited art does not meet the "interconnect means," as properly construed. POPR, 58-64.

Petitioners also argue that they should have "the opportunity to depose PO's expert." *Id.* If the Board institutes an IPR (which it should not) and Patent Owner relies on Dr. Chmelar's declaration (EX2001) in its Response, then Petitioners will have an opportunity to do so. To the extent Petitioners are requesting a pre-institution deposition through their Preliminary Reply, they cite no authority supporting such

an extraordinary request and they have not sought any such deposition. *See* Consolidated Trial Practice Guide at 51. For the avoidance of doubt, Patent Owner opposes any request for a pre-institution deposition.

B. “mapping means” (claims 1 and 7)

As established in the Preliminary Response, the term “mapping means” is not subject to § 112, ¶ 6 because it connotes structure to a POSITA. POPR, 17-21. In reply, Petitioners argue that “[m]apping is a functional word.” Reply, 2. However, Petitioners cite no evidence for this assertion and fail to rebut Dr. Chmelar's testimony regarding a POSITA's understanding. EX2001, ¶¶ 94-99. Petitioners also claim that the authority cited in the Preliminary Response is “inapposite” but, tellingly, fail to explain why. Reply, 2.

With respect to the corresponding structure for the “mapping means” if it is subject to § 112, ¶ 6, Petitioners mischaracterize the Preliminary Response by arguing that Patent Owner “concede[d] that the specification describes the ‘adapter unit A’ as the mapping means.” Reply, 2. The Preliminary Response explained the specification discloses “various structures that can perform the agreed upon function . . . including an ‘adapter unit A.’” POPR, 21. In other words, the adapter unit in the specification is an example of the “mapping means,” but it is not limited to “a sequentializing unit and a desequentializing unit,” as Petitioners suggest. *Id.*

C. “connection” (claims 1 and 3-7)

Petitioners do not rebut Patent Owner's proposed construction. Reply, 2-3. Instead, Petitioners merely argue that “[t]here is no need in this IPR to expressly construe ‘connection.’” *Id.* In the Preliminary Response, Patent Owner explained how the cited art does not meet the claimed “connection,” as properly construed. POPR, 46-50.

II. THE BOARD SHOULD DENY INSTITUTION PURSUANT TO 35 U.S.C. § 314(d)

A. Rădulescu2004 is Cumulative of, or Substantially Similar to, Art that was Previously Considered

Petitioners' Preliminary Reply rehashes their previous argument that “Rădulescu2004 ‘contains additional disclosure’” relative to Dielissen and Rădulescu2000. Reply, 3 (citing Petition, 16-17). But Petitioners do not dispute that Figure 1 of Rădulescu2004 is nearly identical to Figure 7 of Dielissen, which was fully considered during prosecution. POPR, 42.

Instead, Petitioners argue that Rădulescu2004 is not cumulative because Rădulescu2004's Figure 3 is a “new illustration” not present in Dielissen or Rădulescu2000 and “the Petition points to” this figure. Reply, 4 (citing Petition, 22-25, 30-32). This is misleading. The Petition only cites to Figure 3 of Rădulescu2004 two times. In the first citation, Petitioners cite to Figures 3, 4, 5, and 6 of Rădulescu2004. Petition, 22. In the second citation, Petitioners cite Figures 1, 2, 3,

4, 5, 6, 7, 8, and 9 of Rădulescu2004. Petition, 31. As shown below, nearly all of the figures in Rădulescu2004 correspond to a nearly identical figure in Dielissen:

Rădulescu2004 (EX1005)	Dielissen (EX1011)
1	7
2	6
5	8
6	9
7	10
8	11
9	12

Contrary to Petitioners' suggestion, the Petition does not specifically rely on any features in Figure 3 of Rădulescu2004 that are not in the other figures that are in Dielissen. Petition, 22-25, 30-32. Figures 3's inclusion in Rădulescu2004 does not render it non-cumulative.

Petitioners also rehash their previous argument that "Rădulescu2004 describes the slave for which a transaction is destined being 'selected based on the address' and explains that 'an address' range is assigned to a slave." Reply, 3; Petition, 16-17 (arguing that Rădulescu2004 explains "how using the connid signals, mapping to connections can be based on an address range"). However, Petitioners do not dispute that Dielissen discloses a "connid" and teaches [a] port can have multiple connection to allow differentiated traffic classes (e.g., best effort, or guaranteed throughput), in which case there are also *connid* signals to select on which connection a message is supplied or consumed. EX1011, 3. This aspect of

Rădulescu2004 is cumulative or substantially similar to Dielissen, which was fully considered by the Office during prosecution.

B. The Examiner Did Not Materially Err

Petitioners now argue for the first time that even if Rădulescu2004 is cumulative, “the Examiner materially erred” in allowing the claims. Reply, 4. However, Petitioners do not point to a specific error by the examiner; they merely allege that if Rădulescu2004 is cumulative of Dielissen and Rădulescu2000, then the examiner must have erred because Rădulescu2004 discloses all elements of the claims. *Id.* This is insufficient. *See, e.g., Siemens Healthcare Diagnostics Inc. v. Radiometer Medical Aps*, IPR2018-00311, Paper 6 at 18-19 (PTAB June 25, 2018) (denying institution because “Petitioner has not pointed us to any error in the Examiner’s analysis” or “any additional facts or evidence that would warrant our reconsideration”); *Juniper Networks, Inc. v. Mobile Telecomm'ns Techs., LLC*, IPR2017–00642, Paper 24 at 13 (PTAB July 27, 2017) (finding that “the Examiner was aware of the contents of [the asserted prior art] in material respects” and that the Board “was shown no reason sufficient to reevaluate [the asserted prior art] with respect to any of the challenged claims”).

C. Petitioner’s Arguments Regarding the “Mapping” Step

Petitioners do not dispute that all three of Rădulescu2004, Dielissen and Rădulescu2000 disclose a fixed hardware configuration that is required to be set up

prior to mapping communication service requests. POPR, 43-44; Reply, 6. Instead, Petitioners offer three reasons why this is allegedly “not a reason to defer to prosecution.” Reply, 6.

1. Petitioners' Characterization of the Prosecution History Misses the Mark

Petitioners note that the examiner rejected the claims in a second office action again after Patent Owner had argued that Rădulescu2000 and Dielissen do not disclose the claimed “mapping means.” Reply, 6 (citing EX1002, 110, 119). However, the examiner eventually allowed the claims after Patent Owner presented additional arguments regarding Rădulescu2000 and Dielissen's failure to disclose the “mapping means.” EX1002, 140-143. Because Rădulescu2004 is substantially the same as Rădulescu2000 and Dielissen, Rădulescu2004 does not disclose the “mapping means” for at least the same reasons.

2. Petitioners' Remaining Arguments are Improper

Petitioners' second and third arguments exceed the permissible scope of the Preliminary Reply because they relate to whether Petitioners have shown that Rădulescu2004 discloses the claimed “mapping” step, not discretionary denial under 35 U.S.C. § 325(d). Reply, 7. The Board did not grant Petitioners authorization to address any issues other than claim construction and § 325(d). EX3001.

**D. The Board Should Exercise its Discretion to Deny Institution
Even Though Grounds 3 and 4 Rely on Weber**

Petitioners argue that *Advanced Bionics* is inapplicable because “Grounds 2-4 were not previously before the Office.” Reply, 8. In particular, Petitioners argue that Grounds 3 and 4 rely on Weber, which was not previously considered. *Id.* However, as Petitioners admit, three of the four grounds in the Petition rely at least in part on Rădulescu2004, which is substantially the same as the art considered during prosecution. *Id.*; *supra*, § II.A.

The Board ultimately has discretion to deny institution. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“the PTO is permitted, but never compelled, to institute an IPR proceeding”); *see also* 35 U.S.C. § 314(a). In this case, denying institution would serve the underlying purposes of § 325(d), which is to prevent patent owners from having to bear the burden and expense of defending against already-considered art and allows the Board to efficiently allocate its resources. The relevant factors weigh in favor of denying institution for the reasons set forth in the Preliminary Response. POPR, 39-45.

III. CONCLUSION

For at least these reasons and the reasons set forth in Patent Owner's Preliminary Response, the Petition should be denied.

U.S. Patent No. 7,594,052
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Patent Owner's Preliminary Sur-Reply

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **Patent Owner's Preliminary Sur-Reply** was served on May 9, 2024, by email:

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