

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

NETWORK SYSTEM	§	No. 1:22-cv-1331
TECHNOLOGIES, LLC,	§	
	§	
Plaintiff,	§	
	§	
vs.	§	
	§	
QUALCOMM INCORPORATED;	§	
QUALCOMM TECHNOLOGIES,	§	
INC.; ARTERIS, INC.,	§	
	§	
Defendants.	§	

CLAIM CONSTRUCTION ORDER

Plaintiff Network System Technologies, LLC (“NST”) accuses Defendants Qualcomm Incorporated and Qualcomm Technologies, Inc. (collectively “Qualcomm”) of infringing six patents. (Dkt. # 1.) This case was filed on December 19, 2022, and transferred to the undersigned on April 21, 2023. (Dkts. ## 1, 49.) Qualcomm and Arteris Inc. (“Arteris”) filed their Joint Claim Construction Brief on October 12, 2023. (Dkt. # 77). NST filed a Response on November 16, 2023. (Dkt. # 81.) Qualcomm filed a reply on November 30, 2023. (Dkt. # 83.) NST filed an Amended Response on December 12, 2023. (Dkt. # 85.)

On December 21, 2023, and February 21, 2024, the Court held claim construction hearings. The Parties filed supplemental briefs on March 1, 2024.

(Dkts. ## 105, 106.) NST and Arteris informed the Court that NST and Arteris settled in principle on June 11, 2024. (Dkt. # 112.) Since then, NST and Defendant Arteris dismissed their respective claims against one another on September 4, 2024. (Dkt. # 174.)

On September 11, 2024, the Court granted Plaintiff's Motion for Leave to File Second Amended Complaint. (Dkt. # 182.) In the amended complaint, NST made the following changes: (1) added additional Qualcomm Defendants; (2) added new allegations of Qualcomm's pre-suit knowledge of infringement of the Asserted Patents based evidence that NST uncovered; (3) added detail regarding infringement under 35 U.S.C. § 271(g); (4) removed the claim of infringement of .U.S. Patent No. 8,086,800 (the "800 patent"); and (5) made other various amendments to address alleged deficiencies raised by Qualcomm. (Id. at 5.) In addition, both parties have filed various letters to the Court since the claim construction hearings, providing information about various aspects of *Inter Partes* Review ("IPR") proceedings affecting the patents in this lawsuit. (Dkts. ##. 120, 121, 133, 225, 227.) Specifically, the Parties contend that the Patent Trial and Appeal Board ("PTAB" or "Board") has issued rulings that affect certain claim constructions.

On January 23, 2025, the Court ordered the Parties to file supplemental briefing regarding any changes to the Patents-in-suit, which are U.S.

Patent Nos. 7,366,818 (“the ’818 patent”), 7,373,449 (“the ’449 patent”), 7,594,052 (“the ’052 patent”), 7,769,893 (“the ’9893 patent”), and 8,072,893 (“the ’2893 patent”), (collectively, the “Asserted Patents” or “patents-in-suit”) based on updates regarding the IPR proceedings. (Dkt. # 285.) On February 21, 2025, NST and Qualcomm filed their supplemental claim construction briefings regarding the post-IPR status of the claims. (Dkts. ## 293, 294.)

After reviewing the briefs filed by the Parties in support of their proposed constructions of the disputed claims, as well as the arguments advanced at the hearing, the Court—for the reasons below—adopts the claim constructions outlined below for the Asserted Patents.

BACKGROUND

NST, Arteris, and Qualcomm are all engaged in the business of manufacturing or sale of System-on-a-Chip products (“SoCs”), which are circuits that integrate all components of a computer or other electronic system. (Dkt. # 183 at 4, 10, 67.) SoCs are widely used in technology such as smartphones, laptops, tablets, and advanced driver assistance systems. (*Id.* at 67.) NST claims that Arteris provides interconnect technology for SoCs and that Qualcomm is a leading semiconductor manufacturer that provides SoCs. (*Id.* at 68.)

NST now sues Qualcomm for patent infringement of five Asserted Patents: U.S. Patent No. 7,366,818 (“’818 patent”); U.S. Patent No. 7,373,449 (the

“‘449 patent”); U.S. Patent No. 7,594,052 (the “‘052 patent”); U.S. Patent No. 7,769,893 (the “‘9893 patent”); and U.S. Patent No. 8,072,893 (the “‘2893 patent”), (collectively, the “Asserted Patents”). (Dkt. # 183 at 1–2.) Each patent relates to SoCs. (Id. at 68.) NST contends that Qualcomm, by knowingly incorporating Arteris’s infringing technology into its products, also infringes the asserted patents. (Id. at 68–69.) NST specifically alleges that Qualcomm – either jointly or independently – directly infringe, induce infringement, contributorily infringe, and willfully infringe the asserted patents.

LEGAL STANDARD

The meaning of terms used in a patent claim is a question of law. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 391 (1996). “[T]he claims of a patent define the invention to which the patentee is entitled to the right to exclude.” Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004). “[D]istrict courts are not (and should not be) required to construe every limitation present in a patent’s asserted claims.” O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008). Instead, the purpose of claim construction is to resolve the “disputed meanings and technical scope [of the claims], to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement.” U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997). Claim

construction is not an exercise in rewriting claims, but an opportunity to “give effect to the terms chosen by the patentee.” K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1364 (Fed. Cir. 1999).

“Claim interpretation begins with an examination of the intrinsic evidence, i.e., the claims, the rest of the specification and, if in evidence, the prosecution history.” CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Intrinsic evidence “is the most significant source of the legally operative meaning of disputed claim language.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

The claim construction analysis “remain[s] centered on the claim language itself, for that is the language the patentee has chosen to particularly point out and distinctly claim the subject matter which the patentee regards as his invention.” Innova/Pure Water, Inc., 381 F.3d at 1116 (internal quotation marks omitted). “[T]he words of a claim are generally given their ordinary and customary meaning.” Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” Id. at 1313. This inquiry “provides an objective baseline from which to begin claim interpretation.” Id. “[T]he person of ordinary skill in the art is deemed to read the

claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.”

Id.

Because the claims “do not stand alone” and “are part of a fully integrated written instrument consisting principally of a specification that concludes with the claims[,]” the claims “must be read in view of the specification, of which they are a part.” Id. at 1315 (internal quotation marks and citations omitted). Accordingly, the specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” Id. In interpreting the effect the specification has on the claim limitations, however, courts must pay special attention to the admonition that one looks “to the specification to ascertain the meaning of the claim term as it is used by the inventor in the context of the entirety of his invention, and not merely to limit a claim term.” Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1332 (Fed. Cir. 2001). “[R]eading a limitation from the written description into the claims” is “one of the cardinal sins of patent law” Phillips, 415 F.3d at 1320.

“Like the specification, the prosecution history provides evidence of how the [patent office] and the inventor understood the patent.” Id. at 1317.

However, “because the prosecution history represents an ongoing negotiation

between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” Id. “Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” Id. But the notion that the patentee intended to narrow the scope of the claims must be “clear and unmistakable.” Omega Eng’g Inc. v. Raytek Corp., 334 F.3d 1214, 1325–26 (Fed. Cir. 2003). “Mere criticism of a particular embodiment encompassed in the plain meaning of a claim term is not sufficient to rise to the level of clear disavowal.” Thorner v. Sony Comput. Entm’t Am., LLC, 669 F.3d 1362, 1366 (Fed. Cir. 2012).

Aside from the intrinsic evidence, the Court may also consult “extrinsic evidence,” which is “all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” Phillips, 415 F.3d at 1317. While extrinsic evidence “can shed useful light on the relevant art,” extrinsic evidence is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” Id. (internal quotation marks omitted). Further, “it is improper to rely on extrinsic evidence” when “an analysis of the intrinsic evidence alone will resolve any

ambiguity in a disputed claim term.” Vitronics Corp., 90 F.3d at 1583. And even when consulting extrinsic evidence is warranted, such evidence “is to be used for the court’s understanding of the patent, not for the purpose of varying or contradicting the terms of the claims.” Markman v. Westview Instruments, Inc., 52 F.3d 967, 981 (Fed. Cir. 1995), aff’d, 517 U.S. 370 (1996).

DISCUSSION

The parties dispute the construction of 15 terms that are used across the six Asserted Patents. The Court addresses the construction of each of these terms or phrases in turn.

I. “Connection” – (’818, ’449, ’052, ’9893, ’800 Patents)

Term	NST’s Proposal	Qualcomm’s Proposal	Adopted construction
“Connection”	“one or more communication channels”	“one or more channels, each having a set of connection properties, between a first module and at least one second module, that are created before use and closed after use”	“a set of channels, each having a set of connection properties, between a first module and at least one second module”

The Parties dispute the construction of the term “connection” as used in the ’181, ’449, ’052, ’9893, and ’800 Patents. The ’800 Patent is no longer asserted in this case; however, as NST submits in its supplemental briefing, the

Court will still consider it for the purposes of construing “connection.” (Dkt. # 293 at 4.) NST proposes that the term means “one or more communication channels.” (Dkt. # 81 at 12.) Qualcomm proposes that connection means “one or more channels, each having a set of connection properties, between a first module and at least one second module, that are created before use and closed after use.” (Dkt. # 77 at 6.)

Qualcomm contends that their proposal is consistent with the specifications across all five patents and with the understanding of a person of ordinary skill in the art (“POSITA”). (*Id.*) Qualcomm further asserts that the patents repeatedly describe “connections” being created, used, and then closed, focusing on the language of the ‘449 Patent. (*Id.* at 8.) Qualcomm argues that NST’s construction is too broad and leads to non-sensical interpretations when applied throughout the patent.

NST responds that its interpretation is aligned with the specifications of all five patents. (Dkt. # 81 at 6.) NST argues that Qualcomm’s construction seeks to impermissibly add an additional functional limitation that is not found in the claims – that the channels are created before use and closed after use. (*Id.* at 7.)

A definition set forth in the specification governs the meaning of the claims. Sinorgchem Co., Shandong v. Int’l Trade Com’n, 511 F.3d 1132, 1138 (Fed. Cir. 2007.) “When the specification explains and defines a term used in the

claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term.” Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998).

All five patents commonly define a “connection,” stating that “[a] connection is considered as a set of channels, each having a set of connection properties, between a first module and at least one second module.” ’818 patent at 6:34–38, 10:25–3; ’449 patent at 8:48–52, 10:62–11:3; ’052 patent at 4:50–55, 5:44–49; ’800 patent at 5:13–18; ’9893 patent at 4:54–58; 10:34–42. Therefore, the Court will adopt the definition presented in the specification of all five patents as the governing interpretation of the term.

Qualcomm proposes the definition from the specification as part of their construction, but add “that [connections] are created before use and closed after use.” Qualcomm argues that this added phrase also adheres to the specifications. Qualcomm points to a phrase contained in three of the five specifications – that “the connections...must be first created or established,” and then “after usage, connections are closed.” (Dkt. # 77 at 7.)

There are two issues with the addition of this phrase. First, the phrase is not present in all five of the specifications. Even so, the addition of this phrase seeks to add a functional limitation (that the connections “are created before use and closed after use”) into a broad structural term (“connection”). The court

should not import such a limitation into the claim term. See, e.g., Toro Co. v. White Consol. Indus., Inc., 266 F.3d 1367, 1371 (Fed. Cir. 2001) (finding that the court’s claim construction “did not and could not import into the claim a function from the specification, particularly when the claim recites only purely structural limitations”); Ecolab v. Envirochem, 264 F.3d 1358, 1367 (Fed. Cir. 2001) (“Where the function is not recited in the claim itself by the patentee, we do not import such a limitation”); Transmatic, Inc. v. Gulton Indus., 53 F.3d 1270, 1278 (Fed.Cir.1995) (holding that the district court erred by importing functional limitations into a structural claim element).

On the other hand, NST proposes a much broader definition than the one offered in the specification, advocating for connection to mean “one or more communication channels.” Yet NST fails to state why the definition in the specification contained in all five patents is not sufficiently clear. Therefore, the Court will adopt the definition explicitly stated in all five patents – defining connection as “a set of channels, each having a set of connection properties, between a first module and at least one second module.” See Semitool, Inc. v. Novellus Sys., Inc., 44 F. App’x 949, 954 (Fed Cir. 2022) (“When the meaning of a term used in a claim is sufficiently clear from its definition in the patent specification, that meaning shall apply.”)

II. “Dropping means (DM) for dropping data exchanged by said first and second module (M, S) / a first dropping means (DM) for dropping data / said dropping means (DM)” – ’818 Patent

Term	NST’s Proposal	Qualcomm’s Proposal	Adopted construction
“Dropping means (DM) for dropping data exchanged by said first and second module (M, S) / a first dropping means (DM) for dropping data / said dropping means (DM)”	“circuit configured to drop messages [or data],” the remaining language should be afforded their plain and ordinary meaning (not subject to §112 ¶ 6). Alternatively, if means + function applies, Function (claim 1): “drop data exchanged by said first and second module” Function (claim 3): claim 1 function + “create an error message if data is dropped” Function (claim 5): claim 3 function + “send said error message to said first module”	“dropping means” subject to §112 ¶ 6. Function (claim 1): “dropping data exchanged by said first and second module (M, S)” Function (claim 3): claim 1 function + “creating an error message if data is dropped” Function (claim 5): claim 3 function + “sending said error message to said first module (M)” Structure: Indefinite (no structure disclosed)	“dropping means” subject to §112 ¶ 6. Function (claim 1): “dropping data exchanged by said first and second module (M, S)” Function (claim 3): claim 1 function + “creating an error message if data is dropped” Function (claim 5): claim 3 function + “sending said error message to said first module (M)” Structure: ANIP/PNIP

	Structure: “circuit”		
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The Parties dispute whether “dropping means” in the phrase “dropping means for dropping data exchanged by said first and second module (M, S) / a first dropping means (DM) for dropping data / said dropping means (DM)” is subject to the means-plus-function limitation. NST contends that “dropping means” is a “circuit configured to drop messages,” and Court should not construct the phrase and it should take its plain and ordinary meaning. (Dkt. # 81 at 9.) NST gives an alternative proposal if the means-plus-function test applies, as stated above. (Id.) Qualcomm proposes that means-plus-function applies, and under that test, the phrase is indefinite. (Dkt. # 77 at 12.)

A means-plus-function limitation allows an element in a claim for a combination to be expressed as a means for performing a specified function, without the recital of structure, material, or acts in support thereof. 35 U.S.C. § 112. This is known as the “means-plus-function” limitation. Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1370 (Fed. Cir. 2003). Through this limitation, patent applicants may claim an element functionally, without reciting the structures for performing these functions. Id.

A. Whether the “means-plus-function” limitation applies

First, this Court must determine whether the means-plus-function limitation from Section 112 ¶ 6 applies. Id. The use of the word ‘means’ in the claim limitation creates a presumption that § 112, ¶ 6 applies. Med. Device Techs., Inc. v. C.R. Bard, Inc., 7 F. App'x 945, 947 (Fed. Cir. 2001). However, if the limitation uses the word “means,” but does not recite a function that corresponds to the means, then § 112, ¶ 6 is not invoked. Id. Additionally, even if the limitation does recite a function, if sufficient structure for performing the function is also recited, then § 112, ¶ 6 is still not invoked. Id. The proper inquiry is whether the claim limitation itself, when read in light of the specification, connotes to the ordinarily skilled artisan “sufficiently definite structure” for performing the identified functions. Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc., 711 F.3d 1348 (Fed. Cir. 2013).

NST asserts that the claim recites a sufficient structure by referencing the “integrated circuit,” so the means-plus-function limitation does not apply. (Dkt. # 81 at 16) (citing ’818 Patent at 12:5–9). The Parties agree that an “integrated circuit” means “interconnected circuitry on a chip.” (Dkt. # 77 at 6.) NST contends that the ’818 Patent “unambiguously links” the structure of the “dropping means” as a hardware “integrated circuit.” (Id. at 18.) Further, NST references Figure 2 of the Patent as showing the physical structure of the “dropping means.” (Id. at 16.) With support from its expert, NST argues that the “integrated

circuit” connotes a “sufficiently definite structure” for performing the function in the “dropping means” phrase. (*Id.* at 16.)

Qualcomm states that NST’s argument is “extraordinary” and is the equivalent of arguing that integrated circuit claims are a special class to which § 112, ¶ 6 simply does not apply. (Dkt. # 77 at 4.) Qualcomm contends that the phrase “dropping means” is purely functional, and not structural, so the means-plus-function limitation must apply.

Where the limitation *preceding* “means” provides a sufficiently definite structure to a skilled artisan, the means-plus-function limitation is not appropriate. *See, e.g., Masimo Corp. v. Sotera Wireless, Inc.*, No. 2022-1393, 2023 WL 6990542, at *3 (Fed. Cir. 2023) (“physiological sensor means” is not subject to the means-plus-function limitation because the words “physiological sensor” alone connotes the structure to a POISTA); Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp., 790 F.3d 1329, 1338–39 (Fed. Cir. 2015) (concluding that a “voltage source means” provides sufficient structure where a skilled artisan would understand that the voltage source is a class of structures providing direct current voltage). NST does not contend, however, that “dropping,” the term preceding “means,” connotes a structure. (Dkt. # 81 at 16.) Instead, NST goes a step further, by referencing *other* claim language to connote structure, rather than the term itself. However, the Federal Circuit has stated that

courts should analyze whether the term itself recites a sufficient structure that the means-plus-function limitation applies. Watts v. XL Sys. Inc., 232 F.3d 877, 880 (Fed. Cir. 2000). In fact, in the cases cited by NST, the courts only looked within the disputed term itself to find the structural component.¹ See, e.g., Skky, Inc., 859 F.3d at 1019 (finding “‘wireless device means’ does not invoke 112 ¶ 6 because its clause recites sufficient structure because “wireless device” was designated a structure); Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc., 711 F.3d 1348 (Fed. Cir. 2013) (finding that the term “circuit” itself connotes structure); Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320-21 (Fed. Cir. 2004) (holding that the term “circuit” connotes sufficient structure when the patent contains a recitation of the respective circuit’s operation in sufficient detail to suggest structure to persons of ordinary skill in the art); Apex Inc., 325 F.3d at 1373 (Fed. Cir. 2003) (finding that the term “circuit,” without the addition of “means,” connotes sufficient structure when it also as an identified such as “interface,” “programming,” and “logic”). Despite this authority, NST asks this Court to look outside the term to construe “dropping means” as connoting

¹ NST also cited Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004), but Lighting World was overruled by Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1348–49 (Fed. Cir. 2015).

sufficient structure. This Court declines to do so, finds that the presumption applies, and finds that the means-plus-function limitation is invoked.

B. Construing the Means-Plus-Function Limitation

Construing a means-plus-function claim term is a two-step process. Williamson v. Citrix Online, LLC, 792 F.3d 1339 (Fed. Cir. 2015). The Court must first identify the claimed function. Id. Both parties agree on the claimed function. (Dkt. # 81 at 9.) Then, the Court must determine what structure, if any, disclosed in the specification corresponds to the claim function. Id. If the patentee fails to disclose adequate corresponding structure, the claim is indefinite. Id. at 1353.

Structure disclosed in the specification qualifies as a “corresponding structure” if the intrinsic evidence clearly links or associates that structure to the function recited in the claim. Id. at 1352. If a POSITA would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim, the claim is indefinite. Id.

Qualcomm contends the claim is indefinite because there is no structure that corresponds to the function. (Dkt. # 12.) NST claims that the corresponding structure is the “circuit,” citing Federal Circuit cases that held that the term “circuit” may connote structure. (Dkt. # 81 at 15.)

NST asserts that the claim language clearly links the structural “circuit” to the function asserted in the claims. While this may be true, the term

“circuit” is much too broad. See Maurice Mitchell Innovations, L.P. v. Intel Corp., 249 Fed. App’x 184, 188 (Fed. Cir. 2007) (“The mere mention of a complicated integrated circuit, comprised of hundreds if not thousands of circuits, is much too broad to sufficiently indicate the precise “means for causing” structure to a person of ordinary skill in the art.”) By claiming that the “circuit” is the structure, NST is able to use “conveniently functional language at the exact point of novelty.” See Gen. Electric Co. v. Wabash Co., 304 U.S. 364, 371 (1938). A POISTA, confronted with the function, would only know that the function is connected to the “circuit,” and would not know what additional structure was being claimed to enable the function. In NST’s own words, the interconnected circuitry is a “physical structure with millions (even billions) of microscopic transistors, logic gates, flip-flops, multiplexers, and other circuitry elements that interact with electrons representing data as they move through the chip.” (Dkt # 81 at 10.) In construing the same patent, Judge Schroeder in the Eastern District of Texas held that the general recitation of “integrated circuit” in the preamble of the claim was not sufficient to provide the necessary structure for performing the “dropping means” function. Network System Technologies, LLC, v. Texas Instruments Inc., 2:22-cv-482, Dkt. # 150 at 30 (E.D. Tex. 2024) (the “TI Order”). The Court agrees.

NST counters with testimony from its expert, Dr. Chmelar. (Dkt. # 81, Ex. 2.) While it is undisputed that Dr. Chmelar is a POSITA, “the testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification.” Noah Sys., Inc. v. Intuit Inc., 675 F.3d 1302, 1312 (Fed. Cir. 2012). See also Blackboard, Inc. v. Desire2Learn, Inc., 574 F.3d 1371, 1385 (Fed. Cir. 2009) (“A patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function.”).

That said, Defendants must show by “clear and convincing evidence” that a term is indefinite. Halliburton, 514 F.3d at 1249–50. Defendants have failed to show why alternative structures to “circuit” identified within the specifications that are indefinite. NST points us to the “portion of Claim 1’s ‘integrated circuit’ identified as the ‘interface means (ANIP, PNIP).’ The interface means contain “physical *dropping means in them.*” (Dkt. # 81 at 16) (citing ’818 Patent at 12:10-23, 5:27-28, 5:37-41) . This is illustrated by Figure 2 of the ’818 Patent, where the dropping means are shown as having a physical location within the ANIP (see below).

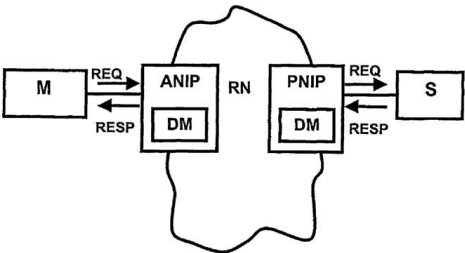


FIG.2

Figure 2 shows that the DM (“dropping means”) are physically located on the ANIP on the integrated circuit. The Patent claim language also references this description: stating that the “integrated circuit comprising at least one interface means” that “comprises a first dropping means.” ‘818 Patent at 12:22–23. Therefore, the dropping means are disclosed as physical hardware structures with defined locations (in the ANIP and PNIP) within the integrated circuit. Defendants must show by “clear and convincing evidence” that a term is indefinite. Halliburton, 514 F.3d at 1249–50. Thus, the Court does not find that this term is “indefinite.”

III. ’449 Patent Terms

A. “Resource Manager determining whether a target connection with the desired connection is available”

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Adopted construction

“Resource Manager determining whether a target connection with the desired connection is available”	Resource manager” means “circuit that manages network resources,” and the remaining language should be afforded their plain and ordinary meanings.	“resource manager determining whether a connection between modules with desired properties is available to be opened and is not an arbiter prioritizing which port of a switching device is to be utilized.”	Plain and ordinary meaning
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Qualcomm claims that NST claimed its proposed construction in the prosecution of the Patent. (Dkt # 77 at 24.) For this to occur, the patentee must “unequivocally and unambiguously disavow[] a certain meaning to obtain a patent.” Aylus Networks, Inc. v. Apple Inc., 856 F.3d 1353, 1359-60 (Fed. Cir. 2017). Then, “the doctrine of prosecution history disclaimer narrows the meaning of the claim consistent with the scope of the claim surrendered.” Id.

During the prosecution history for the Patent, the Examiner stated that the prior art’s resource manager, “is a device for prioritizing which port [] of the module [] is to be utilized.” (Dkt # 77, Ex. 11 at 6.) Qualcomm uses this statement to support the addition of the negative language to the term by asking the Court to construe the resource manager here then must “*not* an arbiter prioritizing which port of a switching device to be utilized.”

The addition of negative language is unwarranted. The statement from the Examiner does not clearly and unmistakably say that the patent’s resource

manager in the '449 patent is *not* a device for prioritizing which port of the module is to be utilized, as it would require an additional inference. Instead, the patentees argues that the arbiter in the prior art was distinguishable because it “does not teach wherein the recourse manager determines whether at least one connection with the communication channels is available based on the connection properties being available.” (Dkt. # 85, Ex. 7. At 44.) Judge Schroeder agreed with this reasoning, stating that “the patentees’ arguments were not a clear and unmistakable disclaimer as Defendant contends, but instead were explaining the claim amendments.” TI Order at 46. Therefore, it does not meet the bar for prosecution history disclaimer. MIT v. Shire Pharmaceuticals, Inc., 839 F.3d 1111, 1119 (Fed. Cir. 2016) (stating that prosecution history disclaimer must be “clear and unmistakable” such that where disavowal is ambiguous or amenable to multiple interpretations, prosecution history disclaimer does not attach).

That said, the Court will not adopt NST’s proposal as an alternative. As Judge Schroeder stated, “the claim language is unambiguous, is easily understandable by a jury, and should be given its plain and ordinary meaning.” TI Order at 46 (citing Aventis Pharms., Inc. v. Amino Chems. Ltd., 715 F.3d 1363, 1373 (Fed. Cir. 2013)). Therefore, the claim language shall be given its plain and ordinary meaning.

B. “Communication Manager”

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Adopted Construction
“Communication Manager”	“communication manager” means “circuit that manages communication between modules” (not subject to Section 112 ¶ 6) If the Court holds that Section 112 ¶ 6 applies, NST proposes the following construction: Function: “forward a request for a connection to the resource manager” Structure: “circuit”	Subject to Section 112 ¶ 6. Function: “receiving a request for a connection from the first module, forwarding the request to a resource manager, and receiving the availability of the target connection from the resource manager” Structure: Indefinite (insufficient structure disclosed)	Subject to Section 112 ¶ 6. Function: “forward a request for a connection to the resource manager” Structure: Indefinite

Qualcomm makes a similar argument for “communication manager” as it did for the “dropping means” term above – that § 112, ¶ 6 will apply and the term is indefinite under that analysis. (Dkt. # 77 at 18.) Qualcomm asserts that “manager” is equivalent to “means,” and therefore, § 112 ¶ 6 will apply. (Id.)

The failure to use the word “means” in a claim element creates a rebuttable presumption that § 112 ¶ 6 does not apply. Williamson v. Citrix Online,

LLC, 792 F.3d at 1349 (Fed. Cir. 2015). To rebut the presumption against the application of § 112 ¶ 6, a party may demonstrate that the claim term fails to recite sufficiently definite structure or recites function without reciting sufficient structure for performing that function. Id. at 1348. This presumption can be commonly rebutted when there is a term that is “tantamount to using the word means,” that “typically do not connote sufficiently definite structure.” See id. at 1350. Examples include: “module,” “mechanism,” “element,” “device,” and other words that reflect nothing more than verbal constructs. Id. Qualcomm asserts that “manager” is among this set of words because it does not provide any indicate of structure to a POSITA. (Dkt. # 77 at 18.)

In construing this term in the same patent, Judge Schroeder found that “communication manager” does not connote sufficient definite structure and that § 112 ¶ 6 applies to the claims. The Court agrees based on the language in the ‘449 Patent. For example, the ‘449 Patent specification uses the terms “communication manager” and “communication managing means” interchangeably. Id. at 40 (citing ‘449 Patent 7:34-45.) The interchangeable use of the word “manager” and “means” indicates that “manager” plays the same role as the word “means.” See Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1353-54 (Fed. Cir. 2006) (finding that § 112, ¶ 6 applies because the patentee used the terms “mechanism” and “means” synonymously). Therefore, the Court finds that § 112, ¶ 6 applies.

Because § 112, ¶ 6 applies, the Court must apply the two-step process to construe the means-plus-function claim term. Williamson, 792 F.3d at 1351. The Court must first identify the claimed function. Id. Defendants claim that the functions are provided in the claim language, which states that the following: “the first module issuing a request for a connection with the second module to a communication manager” (i.e., receiving a request for a connection from the first module), “forwarding the request to a resource manager,” and “the resource manager responding with the availability of the target connection to the communication manager.” (Dkt. # 77 at 20, citing ’449 Patent). Plaintiff asserts that the Court should adopt the function adopted by Judge Schroeder which is “forwarding a request to the resource manager.” (Dkt. # 106 at 9.) The Court adopts the latter function.

Then, the Court must determine what structure, if any, disclosed in the specification corresponds to the claim function. Id. If the patentee fails to disclose adequate corresponding structure, the claim is indefinite. Id. at 1353.

As with “dropping means,” NST contends that the “circuit” is the corresponding structure. For the same reasons stated above, “circuit” is much too broad to connote sufficient structure. NST does not propose an alternative, more specific structure. In fact, NST contends that the structure identified by Judge Schroeder “impermissibly inserts additional *functional* limitations” into the

structure. (Dkt. # 106 at 7.) Qualcomm also agrees that the alternative structure identified by Judge Schroeder is erroneous, urging the Court to find instead that the structure is indefinite. The Court agrees that it should not import functional language from the specification into the definition. See Diebold Nixdorf, Inc. v. Int’l Trade Comm’n, 899 F.3d 1291, 1303 (Fed. Cir. 2018) (Language that could have been included in the specification “would still describe only function, not structure, and therefore would be insufficient to constitute ‘adequate’ corresponding structure to achieve the claimed function.”) (internal quotations omitted).

Therefore, because NST failed to identify sufficient structure that is more definite than “circuit,” the Court finds that the term “communication manager” is indefinite.

The Court notes NST’s supplemental briefing, which argues that the Court should reject any argument by Qualcomm that it may “maintain” its indefiniteness position on “communication manager” here, while taking a position in the IPR proceeding that it admits is entirely inconsistent. (Dkt. # 293 at 3.) However, as the PTAB made clear, “[i]n agreeing to apply the claim terms as applied in the Samsung IPR for the purpose of this Petition, Petitioner Qualcomm does not waive, and reserves all rights to continue to raise, claim construction arguments in any litigation concerning the ’449 patent.” (Dkt. # 293-1 at 3, n.3.)

Therefore, the Court agrees that Qualcomm has not conceded or waived its indefiniteness arguments in this Court. (Dkt. # 294 at 4.)

IV. “Interconnect Means” – ’052 Patent

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Adopted construction
“Interconnect Means”	“Multi-hop interconnection between modules separated by one or more network nodes.” If 35 U.S.C. 112, ¶ 6 applies, Function “coupling said plurality of processing modules (M, S).” Structure: “circuit”	Subject to Section 112 ¶ 6. Function: coupling said plurality of processing modules (M, S). Structure: bus, switch, point-to-point wire, or network.	“Multi-hop interconnection between modules separated by one or more network nodes.”

The Parties disagree over the construction of “interconnect means” in the following phrase in the claim 6 of the ’052 Patent: “coupling said plurality of professing modules (M,S) by an interconnect means.” Qualcomm asserts that Section 112 ¶ 6 applies, presumptively, due to the use of the word “means.” NST responds that the presumption is overcome. (Dkt. # 77 at 22.)

Because the term uses the word means, Section 112 ¶ 6 presumptively applies. Med. Device Techs., Inc., 7 F. App’x at 947. Again, the proper inquiry when determining whether the presumption is overcome is whether the claim limitation itself, when read in light of the specification, connotes to the ordinarily

skilled artisan “sufficiently definite structure” for performing the identified functions. Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc., 711 F.3d 1348 (Fed. Cir. 2013). The term “interconnect means” itself does not connote structure – just as the term “dropping means” did not.

However, NST asserts that Section 112 ¶ 6 does not apply because “interconnect means” and “network N” are used interchangeably. (Dkt # 81 at 26.) NST uses three phrases to support its argument that “interconnect means” and “network N” are interchangeable: (1) “Each module M,S is connected to a network N via its associated network interface NI” and (2) “coupling said plurality of processing modules (M,S) by an interconnect means (N)” and (3) (“interconnect means (N) by at least one network interface (NI)”). In addition, NST provides that the PTAB held that the “interconnect means (N)” is a “network.” (Dkt. # 293 at 3; 293-5 at 10.)

The Court finds these phrases illustrate that the terms are used interchangeably. Both “interconnect means” and network” are denoted by the letter “N” in the Patent. ’052 Patent 5:24, 9:32. The use of interconnect means and network in these phrases with the common “N” abbreviation, show that they are interchangeable. The “interchangeable use of the two terms is akin to a definition equating the two.” Edwards Lifesciences v. Cook, 582 F.3d 1322, 1329 (Fed Cir. 2022). And the parties agreed that “network” is “a multi-hop

interconnection between modules separated by one or more network nodes.” (Dkt. # 77 at 6.) Judge Schroeder adopted the same reasoning in the TI Order to adopt the same construction. TI Order at 50. Therefore, the Court finds that the presumption that Section 112 ¶ 6 applies is rebutted and will construe “interconnect means” to mean a “multi-hop interconnection between modules separated by one or more network nodes.” Because this phrase is sufficiently structural, as it references an interconnection between modules, separated by nodes, Section 112 ¶ 6 does not apply.

V. “arranging . . . the first and second information comprising said issued message as a single address” – ‘9893 Patent

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Adopted construction
“arranging . . . the first and second information comprising said issued message as a single address”	“arranging ... the first and second information comprised in said issued message as a single address”	Indefinite	Indefinite

NST proposes a construction similar to the plain language of the claim except for one phrase; NST proposes that this Court switch “comprising” with “comprised in.” (Dkt. # 81 at 22.) Qualcomm proposes that the claim is indefinite,

whether it is constructed as the plain meaning or constructed as NST proposes.

(Dkt. # 77 at 24.)

A “determination of whether a claim is invalid as indefinite ‘depends on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the specification.’” Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1378 (Fed. Cir. 1999) (quoting North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1579 (Fed. Cir. 1993).

Qualcomm argues that the term is indefinite because a POSITA would not know what a patent means by “arranging” two pieces of information into “a single address.” (Dkt # 77 at 31.) Qualcomm relies on the declaration of their expert – Dr. Hassoun – who stated that a POSITA “would have no idea what type of data manipulation (if any) was required for ‘arranging’ two pieces of information into a single address” and would not know what the boundaries of a “single address” were. (Id., Ex. 1 ¶87)

NST responds that the single address boundaries are clearly outlined in the specification, which states a “transaction address will therefore have two parts: (a) a destination identifier, and (b) an internal address at the destination.” ’9893 Patent at 5:50–52. Further, NST supports its argument with the declaration of Dr. Chmelar, who states that a POSITA would “readily understand how to arrange two units of information into a single address.” (Dkt. # 81, Ex 7. ¶154.)

He cites the thesaurus that “arrange” means, for example, “to combine,” “to order,” “to group,” or “to assemble.” (Id.) He further states that arranging first and second information into a single address may include “for example, one or more operations that are well-known to a person who has the stated education level and work experience of Defendants’ POSITA, such as concatenation, addition, subtraction, integer multiplication, XOR, indexing a look-up table, and so on.” (Id.)

Dr. Hassoun replied that Dr. Chelmer’s response highlights why the term is indefinite – “arranging” encompasses “many logical or mathematical operations” that are not included in the Patent and still does not explain how any logical or mathematical operations on two units of information can produce such a single address beyond fitting it into a field. (Dkt. # 83, Ex. 1 ¶¶24-25.)

The Court agrees with Defendants and relies on Dr. Hassoun’s reply statement. While both POSITA’s offer competing conclusions, ultimately, the Court agrees that Dr. Hassoun’s explanation still does not inform the scope of the invention. Dr. Chmelar simply states that the POSITA would understand what it means by defining the individual terms in the phrase and stating what the process “may” include. The claim language, even informed by Dr. Chmelar’s interpretation, does not “reasonably apprise those skilled in the art.” IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.2d 1377, 1383–84 (Fed. Cir. 2005.)

Therefore, because those skilled in the art would not understand the scope of the claim when the claim is read in light of the specification, the claim is indefinite.

Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1378 (Fed. Cir. 1999).

VI. '2893 Patent Terms

A. "Each data package comprising N data elements"

Term	NST's Proposed Construction	Qualcomm's Proposed Construction	Court's Construction
"Each data package comprising N data elements"	NST incorporates its definition for the term "data package," ("fixed-size arrangement of data") "data elements" are groups of data, and the remaining language should be afforded their plain and ordinary meanings.	"every data package communicated by the network stations has a fixed size of N data elements"	"every data package communicated by the network stations has a fixed size of N data elements"

On June 17, 2024, the PTAB issued a ruling on the '2893 Patent.

(Dkt. # 120-1.) The PTAB concluded that "each data package comprising N data elements" means "every data package communicated by the network stations has a fixed size of N data elements." (Id. at 23.) Further, in their supplemental briefing, the Parties advised the Court that NST has agreed to Qualcomm's construction of this claim term. (Dkts. ## 294 at 2; 294-1 at 2.) Therefore, the Court adopts Qualcomm's proposed construction.

B. “Data package”

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Court’s Construction
“Data package”	“fixed-size arrangement of data”	See Defendants’ construction of “each data package comprising N data elements” above.	Plain and ordinary meaning

Parties disagree on the construction of the phrase “data package.”

Defendants’ assert that the proposed construction for the phrase above (*supra* VI(A)) obviates the need for the Court to construe “data package” separately. (Dkt. # 77 at 25.) Defendants state that a POSITA would understand the term “data package” in the context of Defendants’ construction of the phrase: “each data package comprising N data elements.” (*Id.*)

The claims are “generally given” their “ordinary and customary meaning” as understood by the “person of ordinary skill in the art in question at the time of the invention.” Phillips v. AWH Corp., 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). A POSITA would understand the term “data package” without additional construction than what was adopted above, according to Dr. Hassoun. (Dkt, # 77, Ex. 1 ¶103.) The ambiguities in the phrase are largely resolved by the construction above – which clarifies that all data packages have a set amount of elements. Neither the claim nor the specifications use the word “arrangement.”

The addition of “arrangement” only further adds ambiguity. Therefore, the Court will adopt Defendants’ construction.

C. “Data storage elements”

Term	NST’s Proposed Construction	Qualcomm’s Proposed Construction	Court’s Construction
“Data storage elements”	“Array of one or more elements that store data.”	“each being a structure that stores one data element”	“each being a structure that stores one data element”

The Parties dispute whether a “data storage element” may store one “data element” or if it can store more than one. Additionally, Qualcomm contends that “array” is ambiguous and not included in the Patent language, so it should not be included in the term. (Dkt. # 77 at 32.)

First, the Court agrees with Defendants that the claim language itself confirms that a data storage element is a structure that contains one data element. Claim 10 requires “inserting $M \times N$ data storage elements into the data communication network, M being a positive integer, for introducing a delay of $M \times N$ cycles on the first communication channel.” ’2893 Patent. N refers to the number of data elements. ’2893 patent at 10:35. Dr. Hassoun states that if a data storage element stores more than one data element, this mathematical relationship will be lost. (Dkt. # 77, Ex. 1 ¶106.)

Additionally, the specification supports the construction that a data storage element contains only one data element. The specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). However, both parties contend the specification supports their construction.

The specification states that “the FIFO buffer 509 must be capable of storing more than M*N data elements.... This can be realized by adding one or more data storage elements to the M*N data storage elements as overwrite protection.” ’2893 Patent at 9:47–51. The fact that “M*N data elements” is equal to “M*N data storage elements” supports that each data storage element holds one data element. The phrase confirms, as Dr. Hassoun stated, that the data storage element is not a larger structure that stores multiple data elements, like the FIFO buffer 509 is.

NST references a phrase in the specification to support its reading – starting that the specification clearly discloses that header data can have a “fixed position in the data package, e.g. the first data element (i.e. a header),” it is also possible that “other data elements may (also) contain such information.” Patent at 2:22–26. Defendants reply that this passage provides further support for its

construction. (Dkt. # 82 at 19.) Ultimately, this portion says nothing about “data storage elements.”

Dr. Chmelar provides a hypothetical where the mathematical relationship is not lost – but Dr. Hassoun refutes it. Dr. Hassoun points out that Dr. Chelmer’s calculations rely on assumptions that do not exist in the patent. (Dkt. 83, Ex. 1 ¶15) (“Dr. Chmelar provides no explanation of how this is possible... the Patent does not suggest variable delays for each data element.”) Therefore, the Court adopts the Defendant’s construction.

VII. ’800 Patent

On September 11, 2024, NST filed its Second Amended Complaint. (Dkt. # 183.) In its motion for leave to file said complaint, NST informed the Court that it was removing all claims of infringement of the ’800 Patent. (Dkt. # 136 at 3.) Accordingly, although the claim construction for the ’800 Patent was fully briefed and argued, the Court need not address the claim constructions for the now withdrawn patent.

CONCLUSION

For the reasons stated, the Court construes the disputed claim terms as follows:

- “connection”: “a set of channels, each having a set of connection properties, between a first module and at least one second module”

- “Dropping means (DM) for dropping data exchanged by said first and second module (M, S) / a first dropping means (DM) for dropping data / said dropping means (DM)”: “dropping means” subject to §112 ¶ 6.
 - Function (claim 1): “dropping data exchanged by said first and second module (M, S)”
 - Function (claim 3): claim 1 function + “creating an error message if data is dropped”
 - Function (claim 5): claim 3 function + “sending said error message to said first module (M)”
 - Structure: ANIP/PNIP
- “Resource Manager determining whether a target connection with the desired connection is available”: Plain and ordinary meaning
- “Communication Manager”: Subject to Section 112 ¶ 6.
 - Function: “forward a request for a connection to the resource manager”
 - Structure: Indefinite
- “Interconnect Means”: Multi-hop interconnection between modules separated by one or more network nodes.
- “arranging . . . the first and second information comprising said issued message as a single address”: Indefinite
- “Each data package comprising N data elements”: every data package communicated by the network stations has a fixed size of N data elements
- “Data package”: Plain and ordinary meaning
- “Data storage elements”: “each being a structure that stores one data element”

IT IS SO ORDERED.

DATED: Austin, Texas, March 31, 2025.



David Alan Ezra
Senior United States District Judge