UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

CYPRESS SEMICONDUCTOR CORPORATION,

Plaintiff,

v.

GSI TECHNOLOGY, INC.,

Defendant.

Case Nos. 13-cv-02013-JST

13-cv-3757-JST

ORDER CONSTRUING CLAIMS OF U.S. PATENT NOS. 6,651,134 AND 7,142,477

Re: ECF No. 74 (Case No. 13-cv-2013)

I. INTRODUCTION

On May 20, 2014, the Court held a hearing for the purpose of construing disputed terms in the claims of United States Patent Nos. 6,651,134 ("the '134 Patent") and 7,142,477 ("the '477 Patent"). Now, after consideration of the arguments and evidence presented by the parties, and the relevant portions of the record, the Court construes the terms as set forth below.

II. BACKGROUND

A. Procedural History

In these now-consolidated action, Plaintiff Cypress Semiconductor Corporation ("Cypress") accuses Defendant GSI Technology Inc.'s ("GSI") of infringing seven patents (the "Patents-in-Suit"), including the '134 and '477 Patents, which relate to computer memory, and in particular to systems and methods for making faster Static Random Access Memory ("SRAM"). Consolidated Amended Complaint for Patent Infringement, ECF No. 96. Cypress alleges that, by manufacturing and selling GSI's SigmaQuad product line, among other Cypress products, GSI has directly infringed the Patents-in-Suit. Complaint ¶ 21.

GSI denies infringement. GSI Technology, Inc.'s Answer to Consolidated Amended Complaint ¶ 4. Pursuant to Patent Local Rule 4-3(c), the parties have identified, and briefed the

construction of, ten terms in the Patents-in-Suit that are most significant to the resolution of this case. ECF No. 88. However, GSI has also sought inter partes review of five of the Patents-in-Suit. GSI has moved to stay this action against two of the Patents-in-Suit, and expects to move to stay the action against three more patents in August. Therefore, pursuant to the Court's May 6 order, ECF No. 102, the Court proceeds now to construe only those terms contained in the '134 and '477 Patents, the two patents for which GSI has not sought inter partes review.

B. Legal Standard

The construction of terms found in patent claims is a question of law to be determined by the Court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). "[T]he interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim." Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005) (quoting Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). Consequently, courts construe claims in the manner that "most naturally aligns with the patent's description of the invention." Id.

The first step in claim construction is to look to the language of the claims themselves. "It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" Phillips, 415 F.3d at 1312 (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). A disputed claim term should be construed in light of its "ordinary and customary meaning," which 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, i.e., as of the effective filing date of the patent application." Phillips, 415 F.3d at 1312. In some cases, the ordinary meaning of a disputed term to a person of skill in the art is readily apparent, and claim construction involves "little more than the application of the widely accepted meaning of commonly understood words." Id. at 1314. Claim construction may deviate from the ordinary and customary meaning of a disputed term only if (1) a patentee sets out a definition and acts as his own lexicographer, or (2) the patentee disavows the full scope of a claim term either in the specification or during prosecution. Thorner v. Sony Computer Entm't Am. LLC, 669 F.3d

1362, 1365 (Fed. Cir. 2012).

Ordinary and customary meaning is not the same as a dictionary definition. "Properly viewed, the 'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent. Yet heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." Id. at 1321. Typically, the specification "is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). It is therefore "entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of claims." Phillips, 415 F.3d at 1315. However, while the specification may describe a preferred embodiment, the claims are not necessarily limited only to that embodiment. Id.

Finally, courts may consider extrinsic evidence in construing claims, such as "expert and inventor testimony, dictionaries, and learned treatises." Markman, 52 F.3d at 980. Expert testimony may be useful to "provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." Phillips, 415 F.3d at 1318. However, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." Id. If intrinsic evidence mandates the definition of a term that is at odds with extrinsic evidence, courts must defer to the definition supplied by the former. Id.

C. Jurisdiction

Since this is an action "relating to patents," the Court has jurisdiction pursuant to U.S.C. § 1338(a).

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III. ANALYSIS

A. "Memory" (claims 1, 7, 15 & 17 of the '134 Patent)

Disputed Claim Term	Cypress's Proposal	GSI's Proposal
"memory"	Plain meaning, which is "circuit elements used to store data"	"addressable storage"

Claim 1 recites "a circuit comprising" two elements, the first of which is "a memory comprising a plurality of storage elements each configured to read and write data in response to an internal address signal[.]" '134 Patent 5:23-26, Exh. F to Declaration of David M. Hoffman ("Hoffman Decl."), ECF No. 68-7. GSI argues that the "memory" claimed by this language is a specific type of memory – "addressable storage" – while Cypress contends that the memory claimed in this part of the patent extends to the broadest possible use of the term "memory."

Unless the patentee has acted as her own lexicographer, or clearly disavowed the full scope of a claim term, she is entitled to the broadest possible scope of a term's ordinary and customary meaning. Thorner, 669 F.3d at 1365. But that only begs, rather than answers, the question of what the ordinary and customary meaning of this term is. The Court must seek the meaning that a person of ordinary skill in the art would attribute to the term in the context of the intrinsic and extrinsic record, id., rather the meaning the term might carry when divorced from the context of the patent.[1]

Here, the surrounding claim language supports GSI's construction. Cypress and GSI both argue that the "memory" term should with construed with reference to the language following the words "a memory comprising."[2] Cypress argues that "claim 1 expressly sets forth the

[1] For this reason, the court does not endorse the approach urged by Cypress's counsel at the hearing. Counsel urged a narrower approach to construction, arguing that the only relevant term is "memory" itself. Counsel argued that GSI's construction arguments were off-point because "if [the term] is further limited by other language, that's fine," but irrelevant to claim construction. Neighboring claim language must be relevant to the task of construction, since the task is to determine the plain and ordinary meaning of the language in the context of the intrinsic record.

[2] That is to say, Cypress pointedly does not argue that the language following the words "memory comprising" is merely exemplary; it acknowledges the language is limiting. This concession is a little surprising because "[t]he term 'comprising' is well understood to mean 'including but not limited to.'" CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360 (Fed. Cir. 2007) (quoting Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc., 200 F.3d 795, 811 (Fed. Cir. 1999)). But what CIAS

requirements for the claim [sic] memory – namely that it must be a plurality of storage elements with a particular configuration." Cypress's Opening Claim Construction Brief ("Open. Br.") 15:19-22. Cypress argues that the post-"comprising" language "sets forth the requirements" of the claimed memory. But when applying that language, Cypress acknowledges that the claimed memory must be a plurality of storage elements, and then descends abruptly into generality by admitting only that the plurality must have some undefined "particular configuration."

The "particular configuration" is defined specifically in the claim language. The plurality of storage elements must each be "configured to read and write data in response to an internal address signal." '134 Patent 5:24-26. GSI's construction gives meaning to this claim language, and makes clear that the memory claimed in claim 1 does not include any elements that are used to store data, but only storage elements that are "addressable," meaning they are configured to read and write data in response to an internal address label. By declining to give meaning to this portion of the claim language, Cypress's view of claim scope is too broad. The Court is persuaded that one of ordinary skill of the art would understand this language to require "addressable storage," rather than encompass any circuit elements that store data. See Declaration of Robert Murphy ("Murphy Decl.") ¶¶ 19-23, ECF No. 74-1; cf. Declaration of Vivek Subramanian ¶ 27, ECF No. 80-4 (in which Cypress's expert never commits to a specific understanding of what the "plain meaning" of the claimed "memory" is in the specific context of the patent).

GSI also points out that the specification refers to claimed memory as comprising "storage elements each configured to read and write data in response to an internal address signal," '134 Patent 1:47-50, and describes a process of reading and writing data using addresses. Id. 1:11-14, 3:2-4. The Court does not limit the claim language to specific embodiments in the specification. But the specification fails to indicate that the patentee's view of the claimed memory includes

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and other cases generally mean by this is that "the claims do not exclude the presence in the accused device or method of factors in addition to those explicitly recited." CIAS, 504 F.3d at 1360 (quoting In Georgia–Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed.Cir.1999)). Here, the "comprising" language is "open" in the sense that the claimed memory might conceivably include elements other than the two identified limiting elements. But they still cannot fail to include those limiting elements.

elements that are not addressable storage.

Cypress's arguments from the specification, on the other hand, are unpersuasive. Open. Br. 15:24-16:6. Cypress points to standard language of non-exclusivity, such as the statement that the memory array may be implemented by "other appropriate memory to meet the design criteria of a particular implementation." '134 Patent 2:33-38. However open this language might be, it cannot be open enough to include elements not contained within the claim language. The claim language requires addressable storage.

The Court finds GSI's construction warranted by the intrinsic record alone. But it is worth noting that, even if the Court were to set aside the context of the surrounding claim language, GSI's construction is consistent with the concept of "memory" as it would be understood by a person of ordinary skill in the art. "Memory" is commonly defined in technical dictionaries as "addressable storage." IEEE Dictionary of Electrical and Electronics Terms (6th ed. 1996)) at 645; The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000)) at 684 (Exhs. L & N to Schwartz Decl., ECF Nos. 75-12 & 75-14).

The Court adopts GSI's construction.

B. "Address Signal" (claims 1, 2, 12 & 16 of the '134 Patent)

Disputed Claim Term	Cypress's Proposal	GSI's Proposal
"address signal"	Plain meaning, which is "a signal containing location information"	"a signal for determining the address location in the memory array from which data is read to or to which data is written"

The parties appear to agree that the claimed "address signal" is limited to being one that determines the "address location in the memory array" - that is to say, whether the claim requires an addressable memory array.

Again, the language of the claim terms supports GSI's construction. The specification uses the terms "memory" and "memory array" interchangeably. '134 Patent at 2:30-38, 3:2-4. Given this, the surrounding claim language in both limitations is most plausibly read as requiring that the address signal determine the address location in the memory array. Cypress's construction, on the other hand, would read out of the claims the requirement that the plurality of storage elements, and

the logic circuit, respond to "an internal address signal," and "an external address signal." '134 Patent 5:24-26, 5:28-29. Cypress's construction gives meaning to the term "address," a term understood to have a particular meaning by one of ordinary skill in the art, and adapts it to apply in the context of the claim language.

The Court adopts GSI's construction.

C. "sensing read data" (claims 1, 8, 15, 18, 24, 35 & 43 of the '477 Patent)

Disputed Claim Term	**Cypress's Proposal (In Opening Briefs)**	**GSI's Proposal (In Opening Briefs)**
"detecting read data"	Plain meaning, which is "amplifying and detecting read data"	Detecting read data
Disputed Claim Term	**Construction Unopposed by Cypress (In Reply Brief)**	**GSI's Revised Proposal (At Hearing)**
"detecting read data"	"Detecting read data," "with the additional guidance that 'detecting read data includes amplifying'"	"Amplifying read data resulting in the detection of read data"

This dispute over claim scope has evolved over the course of briefing.

The parties agree that the process of "sensing" can be understood as "detecting." At least from the briefing, the parties appeared to dispute whether the "detecting" process claimed in these patent claims necessarily also involves amplifying. Open. Br. 18:12-19:2; GSI's Responsive Claim Construction Brief ("Resp. Br.") 30:4-6, ECF No. 74. Cypress, proposing a limitation on its own patent's scope, argues that amplifying is an essential requirement of the claimed process of "detecting." See Plaintiff Cypress's Reply Claim Construction Brief at 16:21-22, n. 4 ("Cypress would not oppose the adoption of [GSI's] construction with the additional guidance that 'detecting read data includes amplifying'").

Cypress's strongest argument comes not from the use of the term "detecting," but rather from the fact that, in the fifth element of claim 1, the entity performing the "detecting" is a "sense amplifier." The specification also notes at numerous places that it is a sense amplifier that performs the detecting function. '477 Patent at 4:1-3, 4:6-7, 6:48, 7:7-9, 8:57-60.

In English, if a person said "I used a chisel to hammer that nail," we would not assume that the person actually chiseled the nail. To the contrary, the fact that the person used the verb

"hammer" implies that she probably did not use the chisel for its customary function; she probably used the chisel in a manner more befitting a hammer. Since any solid, hand-held object is capable of being used as a hammer, we would understand that the person probably gave the chisel a non-customary use by banging it against the top of the nail instead of carefully cutting into the nail or carving it.

But we are not speaking English. We are speaking patent law. And in light of the claim language and the other aspects of the intrinsic record, it seems plain that the "detecting" process claimed in this claim limitation is one through which values are amplified. If the claimed "amplifiers" detect without amplifying, then they are not amplifiers in any way, and the patentee would not have identified them as such. They would be called "detectors" or "sensors." A person of ordinary skill in the art would understand that, when a "sense amplifier" is called upon to perform a "detecting" function, it does so by first amplifying.

In the papers, GSI argued that "none of the asserted claims (or any of the other claims of the '477 patent) recite amplifying the read data – rather, the claimed step is 'sensing' the data." Resp. Br. 30:6-8. But this just reinforces the fact that the claimed "sensing" process includes amplifying. Since data must be amplified to be read, since there is no specific process identified for amplifying before detection, and since "sense amplifiers" are the components identified as "detecting," amplifying must be part of the "detecting" process. Just as GSI persuaded the Court to construe the terms discussed supra in light of the surrounding claim language, the Court is persuaded here by Cypress to construe the claimed "detecting" process with reference to the surrounding "amplifier" language.

"Sensing" means "detecting." To the extent it is necessary to resolve a dispute between the parties as to claim scope, the Court concludes that the "sensing" process claimed in these terms involves amplifying.

At the hearing, however, it did not appear that the parties disputed whether the claimed "sensing" includes a process of amplification. To the contrary, GSI proposed a new "compromise" construction explicitly acknowledging as much: "amplifying read data resulting in the detection of read data." This new proposal brings GSI's understanding of claim scope

vanishingly close to Cypress's most recent understanding of claim scope from its reply brief: "detecting read data" . . . "with the additional guidance that 'detecting read data includes amplifying."[3]

GSI argues that its construction is necessary because Cypress's construction could be read to encompass post-detection amplification that is unrelated to detection. That is to say, it is possible that a juror might apply Cypress's "amplifying and detecting" construction in a disjunctive sense, concluding that any process of "amplifying" is "sensing," and that any process of "detecting" is also "sensing." Cypress's second "construction" also could be understood in this manner, since a juror might read the directive "sensing read data includes amplifying" to mean that any process of "amplifying" is "included" within the process of "sensing."

Cypress's only objection to GSI's most recent construction is that the words "resulting in" might create introduce ambiguities, but the Court sees at least as many ambiguities in Cypress's proposed construction. Cypress does not argue from the record that the claimed "sensing" process includes post-detection amplification that is unrelated to the detection process. To resolve any dispute between the parties as to claim scope, the Court construes "sensing read data" as "amplifying read data resulting in the detection of the read data."

D. "sending write data"/ "write data is sent across a write path" (Claims 1, 8, 18 & 36 of the '477 Patent)

Disputed Claim Term	Cypress's Proposal	GSI's Proposal
"sending write data"/"write data is sent across a write path"	Plain meaning, which is "the process of moving the write data across a write path"	Moving write data across a write path

It isn't clear that adding the words "process of" alters the meaning of GSI's construction in any way that would be particularly obvious to a juror. But from the papers, it is clear that the claim dispute the Court must resolve is whether the write data must be in movement to qualify as

[3] In most situations, the Court strongly discourages parties from proposing new and revised constructions for the first time at a claim construction hearing, since it unfairly prejudices the other party. But here, the parties had exchanged claim construction slides well before the hearing, and Cypress was aware of GSI's new proposal. In this situation, the process of briefing and arguing the parties' competing constructions clarified the dispute over claim scope.

being in the process of being "sent."

The importance of this dispute can be seen by examining method claim 8. To perform the fourth step of claim 8, the actor must be "sending write data across a write data path . . . while sending read data." Cypress argues that the actor performing the claimed method step is still "sending" data that is parked in a register, provided that the data is somewhere "in transit" between the beginning and the end of the process of detecting the read data. GSI argues the data must be moving at the time that the actor sends the read data.

Cypress's argument is based on an analogy to the sending of a letter. Open. Br. 20:7-22. When the post office sends a letter, the letter often sits in a mailbox or a sorting center during the process. But one would still understand the letter to be in the process of being sent as long as it was somewhere between drop-off and its final destination. If the post office said it was "updating our website while sending our customer's letter," we would not expect the letters necessarily to be moving at the time the website was being updated. "Much like a letter in transit," Cypress argues, "the signals described in the '477 Patent move from place to place – stopping in one place for a short time before moving on the next place." Id. 20:21-22.

This is fair enough, as far as it goes. But Cypress's analogy is apt only because of the particular features of the post office's sending process, rather than because of any meaning inherent in the word "sending." It is only because we understand the U.S. Post Office's "sending" process to involve starts and stops that Cypress's analogy is on point.

But in other contexts, we would probably understand "sending" to require contemporaneous movement, without any starts and stops. For example, imagine the same letter-sending process from the perspective of the letter-writer rather than the postal service. The writer is only "sending" the letter while she is writing the address, affixing a stamp, and taking it to be dropped in a mailbox. If the writer said she was "whistling a tune while sending a letter," we would probably assume she was whistling while walking the letter to the post office, or while dropping it inside a mailbox. We would probably not assume she was sitting at her desk whistling while a letter sat in her office outbox waiting to be picked up in the afternoon mail.

The question is whether, in light of the intrinsic and extrinsic record, the "sending" process

claimed in the Patent is more akin to the first use of the term "sending" or the second.

GSI primarily cites language in the specification that uses the words "while" and "is sent." See, e.g., '477 Patent 4:18-19 ("While sensing the read data, write data is sent across a write data pass"). But the use of these words does not strongly indicate whether the process is more like the first example discussed supra or more like the second. GSI argues that the specification suggests that the write data path must be a conduit for "concurrent movement of data." But the specification actually says only that the path "allow[s]" concurrent movement, not that all movement across the path must necessarily always be moving continuously and concurrently with sensing. Id. 3:37. And GSI profoundly overreaches by arguing that Cypress's expert had previously argued that actual movement is required to satisfy the claim language. While this is true, the expert stated that "data that is sitting in the register or in the buffer qualifies as moving data." Exh. J to Hoffman Decl.

Cypress, on the other hand, has a stronger argument from the specification. Figure 5 includes a graphic depiction of the "read" and "write" processes. That figure indicates data momentarily at various components within the circuit while still in the process of being sent. The shaded hexagonal between overlap 98 and overlap 100 depicts a point in the process in which the data arrives and waits at the final stage of the write path for reading, or "sensing" to finish. This demonstrates that the claimed "sending" process claimed is not necessarily limited to one in which data continually moves throughout the process. As Cypress is entitled to the broadest possible scope of the claim language, the Court does not construe the term to contain the limitation GSI urges the Court to impose.

The Court adopts Cypress's construction of this term.

E. Agreed Constructions

The parties agree on the following constructions, see ECF No. 88, and the Court adopts them at the parties' request:

Patent	Claim Term	Joint Proposed Construction
'477	Latch	One or more latches
	In Parallel	Separately from

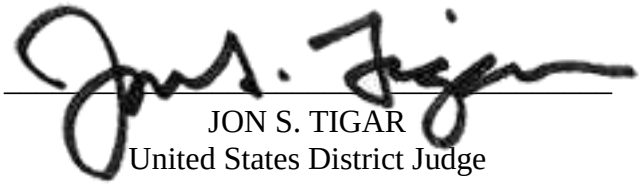
	While	Partially concurrent or concurrent
'134	Non-Interruptible	Cannot be stopped or terminated once initiated
	Predetermined number of internal address signals	A fixed number of internal address signals

IV. CONCLUSION

The Court construes the identified claim terms as stated above.

IT IS SO ORDERED.

Dated: July 29, 2014



JON S. TIGAR
United States District Judge