

(disputed claim term underlined, proposed construction in brackets). Nevertheless, the Staff contends such a minor redundancy is not the proper method of evaluation herein. (SMIB at 20.) Instead, the Staff contends that a POSITA “would readily recognize that claim 1, in reciting the disputed terms, defines these terms by their functions, thus causing the redundancy issue here.” (SMIB at 20-21.) The Staff posits this redundancy issue would not have arisen had the parties elected to construe only the terms “input” and “input/outputs,” which the Staff would have proposed to construe identically as “pin(s).” Still, the issue the parties dispute is whether the preceding modifier word (control, address, and data) requires the disputed terms to be dedicated to performing a function limited by the modifier. (SMIB at 21.)

Interestingly, Macronix has a slightly different take on the Respondents’ redundancy argument. Macronix points out that the construction that it now proposes and that of the Staff for these terms are “ordinary meaning.” (CMRB at 22.) (Macronix explains it at first did not propose ordinary meaning but now agrees with the Staff that the term can be understood according to its ordinary meaning. (*Id.*)) Macronix argues Respondents confuse ambiguity in claim construction with mere redundancy. (*Id.*) As explained by Macronix,

While ambiguity introduced by claim construction is certainly undesirable, mere redundancy can easily be tolerated, and indeed may be *helpful* to a clear understanding of the claims. *Bell & Howell Document Mgmt. Prods. Co. v. Altek Systems*, 132 F.3d 701, 707 (Fed. Cir. 1997)(“Therefore, the district court’s conclusion that Bell & Howell’s proffered claim construction would render the word “integrally” superfluous because being “free of adhesive” is already recited in the claims is not sustainable. Moreover, defining a state of affairs with multiple terms should help, rather than hinder, understanding. Being “integrally bonded” and “free of adhesive” are mutually reinforcing definitions rather than being superfluous.”); *See also, Netcraft Corp. v. eBay, Inc.*, 549 F.3d 1394, 1400 (Fed. Cir. 2008) (“Furthermore, even if we agreed with Netcraft that the district court’s claim construction led to some redundancy, that alone would not necessarily warrant a different result in this case.”)

(CMRB at 22-23.) Then agreeing with the Staff that redundancy is not a proper measure by which to assess the proposed construction, because it is an artifact of claim drafting, Macronix argues the

construction proposed by it and the Staff has the virtue clarify the claim and introduce no ambiguity that might confuse a POSITA. (CMRB at 23.) I concur. There is nothing in any possible redundancy that justifies the use of the word “dedicated.”

Basically, I see nothing in the claim as drafted that would exclude (or limit) the recited inputs from receiving or transferring additional types of signals of information beyond those explicitly recited in the claim. In the first instance, the claims use the term “comprising” as the transition. This means the elements or steps flowing the transition may be supplemented by additional elements or steps and still be within the scope of the claim. *Scanner Techs. Corp. v. ICOS Vision Sys. Corp., N.V.*, 365 F.3d 1299, 1305 (Fed. Cir. 2004). Thus logically and as Macronix argues,

an integrated circuit which includes address inputs that can receive both addresses *and* data, or data input/outputs that could transfer both data *and* addresses, would still fall within the scope of claim 1. The only requirement imposed by the cited portion of claim 1 is that the control inputs must be capable of *at least* receiving control signals, the address inputs must be capable of *at least* receiving addresses, and the data input/outputs must *at least* transfer data. Thus, construing the disputed terms as Macronix proposes does not “read-out” any terms or otherwise deprive the claim of meaning. Rather, the choice of the names “control inputs”, “address inputs” and “data input/outputs” is merely a convenient nomenclature, chosen by the patentee, to indicate one necessary purpose for each input type.[note omitted] As discussed herein, the choice of these names does not preclude *other purposes* or functions for the recited inputs.

(CMRB at 19-20.)

I find that the specification Respondents rely upon to create the limit “dedicated pins” improperly denies the patentee with the full scope of the claim language, scope supported by the specification as a whole. What is more, I agree with the arguments of the Staff and Macronix that what Respondents really want me to do is to adopt a preferred embodiment and read in a word “dedicated” that does not appear in any claim or is required by any evidence or logic. (SMIB at 21 and CMRB at 1; 20 and *see* Tr. 238-239.) For me to adopt the limits of an embodiment shown in

Figure 1 and the specification cited would be clear error and would also ignore the language found in 11:43-49 of the patent specification.

Therefore, like the Staff and Macronix, I am unaware of any intrinsic or extrinsic evidence that requires the “control input,” “address input,” or “data input/outputs” to be dedicated pins. Hence, I must reject Respondents’ argument requiring the terms to be “dedicated,” and construe the terms to their plain meaning. To the extent there is any question, I adopt the explanatory construction advocated by the Staff and Macronix, *i.e.*, “pins on an integrated circuit for receiving control signals”, “pins on an integrated circuit for receiving address signals”, and “pins on an integrated circuit for transferring data into or out of a memory array” respectively.

2. “a sector lock signal”

Respondents identified “a sector lock signal” as a term that requires construction. This term appears in claims 1–3 and 12 of the ’757 patent. The parties have proposed the following constructions:

Complainants	Respondents	Staff
ordinary meaning – OR – “a signal indicating a protected status for a sector in the array”	“a bit that can be set to protect a particular sector or reset to unprotect a particular sector”	plain and ordinary meaning— <i>i.e.</i> , “a signal that protects a particular sector of the array of memory cells”

The Parties’ Positions

Complainants argue the term “a sector lock signal” need not be construed and should be given its plain and ordinary meaning. Alternatively, Complainants argue that should the term be construed its proper construction is “a signal indicating a protected status for a sector in the array.” (CMIB at 38.) Complainants argue its construction is consistent with the express language of claim 1. (*Id.* at 39.) Complainants argue that the term “signal” is a broad term and that there is no language in the claims that would limit the sector lock signal to a bit.” (*Id.* at 40.) Complainants

argue that other portions of the specification use the same broad language without any indication that the sector lock signal must be limited to “a bit” as Respondents’ propose. (*Id.*)

Complainants argue that although the specification discloses using a single bit as a sector lock signal, those disclosures are in reference to certain embodiments of the invention. Thus, Complainants argue it would be improper to import those limitations into the claims. (*Id.* at 40-41.) With regard to the Staff’s proposed construction, Complainants assert that while the Staff’s construction is very close to its construction, its construction conforms more closely to the claim language and the disclosures in the patent and thus should be adopted. (*Id.* at 41.) Complainants also argue that its construction avoids a potential ambiguity that would be introduced if the Staff’s construction were adopted. (*Id.* at 41-42.)

Respondents argue that the term “a sector lock signal” is “a bit that can be set to protect a particular sector or reset to unprotect a particular sector.” (RMIB at 34.) Respondents assert that the parties have taken different approaches to construing this term. (*Id.*) Respondents argue that its construction explains what the “sector lock signal” is, while Complainants’ and the Staff’s proposed constructions are directed to what the “sector lock signal” does. (*Id.*) Respondents argue that based on the claim language and specification, the term “sector lock signal” is being used in a manner that is different from its plain and ordinary meaning and thus the term ought to be construed to clarify its meaning. (*Id.* at 35.) Respondents argue that based on the context of the claims, the sector lock signal must be something that can be “set” and “store[d]” as shown in claim 1 and also “reset” as required by claims 2 and 12. (*Id.*) Respondents argue that these “store”, “set”, and “reset” operations are associated with data, or “bit” or “bits” of data. (*Id.*) On the other hand, Respondents argue “store”, “set”, and “reset” operations are not pertinent to a signal that is transmitted to carry data. (*Id.*) Respondents argue it is data or the information carried by the signal that is stored; the signal itself is not stored. (*Id.*) Thus, Respondents argue in

order to resolve the intended meaning of “a sector lock signal” that is commensurate with the claim language it is appropriate to construe the “sector lock signal” to mean “a bit” that can be “set” or “reset.” (*Id.* at 36.) Respondents argue the specification also supports its proposed construction. (*Id.*) Respondents argue the specification explains how “sector lock bits” can be set, reset and stored in the context of the invention, but does not explain how a “signal” could be set, reset and stored as the claim requires. (*Id.* at 37.) Respondents argue that a close inspection of the patent reveals that the terms “sector lock signal” and “sector lock bit” are used interchangeably. (*Id.* at 36-37.) Respondents argue that this overlap is best resolved by construing a “sector lock signal” as “a bit that can be set to protect a particular sector or reset to unprotect a particular sector.” (*Id.* at 37.) Respondents further argue that Complainants’ proposed construction is wrong because it defines the term “sector lock signal” restrictively to be “a signal indicating a protected status for a sector in the array” when the claims and specification clearly explain that the sector lock signal can be set for a given sector to either a “protected” or “unprotected” status, thereby either inhibiting or enabling sector write or program operations. (*Id.* at 38.) Respondents argue the Staff’s proposed construction fails for the same reason. (*Id.*)

The Staff, like Complainants, argues that the term does not need to be construed and that it should be given its plain and ordinary meaning. Alternatively, the Staff argues that should the term be construed it is properly construed to mean “a signal that protects a particular sector of the array of memory cells.” (SMIB at 21.) The Staff argues that in its view the difference between the Complainants’ construction and the Staff’s construction amounts to “a distinction with a practical difference.” (*Id.* at 21-22.) The Staff argues that in the absence of the sector lock signal, the sector protect logic would not inhibit the sector erase and program operations (*i.e.*, protect the sector). (*Id.* at 22.) Thus, the Staff argues its proposed construction is more correct and should be adopted. (*Id.*) With regard to Respondents’ proposed construction, the Staff argues that there is

no indication in the claims or specification that the sector lock signal should be limited to "a bit."
(*Id.*) Additionally, the Staff argues that the portions of Respondents' construction stating that the signal can be set or reset are unnecessary and superfluous. (*Id.* at 22-23.)

Discussion

Although Complainants and the Staff argue that this term need not be construed and that it should be given its plain and ordinary meaning, it is clear from even a casual examination of the parties' varying proposed constructions that a genuine dispute exists regarding this term's proper meaning. Thus, I will construe this term.

The term "sector lock signal" is found in claim 1, which is directed to an integrated circuit memory comprising:

...
sector protect logic coupled to the command logic, including non-volatile, sector lock memory which stores the sector lock signal for at least one sector in the array indicating a protect status for a corresponding sector in the array; which inhibits the sector erase and program operations in a particular sector in response to a set sector lock signal corresponding to the particular sector and to a first state of control signals in the set of control signals; ...

('757 patent, claim 1.) As the claim language make clear, a sector lock signal is a signal, stored in non-volatile memory, that indicates the protect status of a corresponding sector in the array. This is consistent with the specification, which states:

The present invention provides a user-programmable write protection scheme, ... Sector lock memory is included on the device which stores a sector lock signal for at least one sector in the array, indicating a protected status for a corresponding sector in the array. Thus, when the sector lock signal is set, the corresponding sector in the array is in a protected state.

(*Id.* at 2:47-58 (emphasis added).) Other portions of the specification use the same language to describe the sector lock signal and the effect of the signal:

According to one aspect, the invention can be characterized as an integrated circuit memory comprising an array of non-volatile erasable and programmable memory cells including a plurality of sectors. ... The sector protect logic includes sector

lock memory implemented with non-volatile memory, such as floating gate transistors. The sector lock memory stores a sector lock signal for at least one sector in the array. The sector protect logic inhibits the sector erase and program operations in a particular sector in response to a set sector lock signal corresponding to the particular sector and to a first state of control signals in the set of control signals.

(*Id.* at 3:4-29 (emphasis added).)

Respondents proposed construction for “a sector lock signal” is “a bit that can be set to protect a particular sector or reset to unprotect a particular sector.” To the extent the Respondents mean “one bit” they have failed to show that the claim should be so limited. While it may be the case that a sector lock signal (like any other information stored or used by integrated circuit, non-volatile memory devices) is encoded by data that is comprised of one or more bits, there is no indication in the language of the claims or specification that the signal is limited to one bit. Only certain embodiments disclosed in the specification use a single bit as a sector lock signal and it would be improper to limit the claims to said embodiments. (*See Id.* at 7:1-4 (“More or fewer sector lock bits may be included in the device as suits the needs of a particular implementation. In one preferred embodiment, only a single lock bit is provided for 16K block 12.”).) Further, a “signal” is a term that would be clearly understood by one of ordinary skill in the art and thus there is no reason to depart from the unambiguous language chosen by the patent applicant. With regard to the portion of the construction stating that the bit can be set or reset, I find such language unnecessary and superfluous. The specification already teaches that setting and resetting the sector lock signal will protect and unprotect the sector. Moreover, including such language would add unnecessary redundancy to claim 2. Accordingly, for at least these reasons I find Respondents proposed construction not persuasive.

As between Complainants’ and the Staff’s proposed constructions I find Complainants’ proposed construction more closely aligns with the language of the claims as read in light of the

specification. The Staff's construction raises the risk of adding ambiguity to the claim as it raises the question of whether it is actually the sector lock signal itself that "protects" a particular sector. But as the claim language makes clear, protecting a sector actually refers to the function of inhibiting sector erase or program operations. (*Id.* at 12:3-11 ("sector protect logic coupled to the command logic, including non-volatile, sector lock memory which stores the sector lock signal for at least one sector in the array *indicating a protect status* for a corresponding sector in the array; *which inhibits the sector erase and program operations in a particular sector* in response to a sector lock signal ..."))(emphasis added).) Further, the actual function of inhibiting erase and program operations is performed by "sector protect logic" and involves the use of both the sector lock signal and a first state of control signals. (*Id.*) Moreover, the specification discloses other sector logic functions wherein sector erase and program operations are inhibited regardless of the state of the sector lock signal. (*Id.* at 4:23-38 ("The sector protect logic provides functions including the following: ... 3.) *Inhibits sector erase and program operations to the particular sector independent of the sector lock signal* in response to a second state of control signals in the set of control signals.")) (emphasis added).)

Accordingly, for at least the reasons above, I find one of ordinary skill in the art at the time of the invention would construe the term "sector lock signal" to mean "a signal indicating a protected status for a sector in the array."

3. "set of control signals"

Macronix requests the term "set of control signals" be construed. This term appears in claims 1, 2, and 7 of the '757 patent. The parties have proposed the following constructions:

Complainants	Respondents	Staff
"two or more signals for controlling operations of an integrated circuit"	"set of signals, including a reset/power down signal and a write protect signal, that enable or inhibit a sector erase or program operation"	plain and ordinary meaning— <i>i.e.</i> , "set of signals that enable or inhibit a response or an operation"

The parties have offered three different constructions, which the Staff alleges are slightly different. (SMIB at 23.) The Complainants allege the Staff's construction introduces two points of ambiguity, *i.e.*, (1) Macronix alleges the phrase "set of signals" can include a set of zero (*i.e.*, a null set) or one signals; and (2) Macronix asserts that although similar, the use of the phrase "enable or inhibit a response or an operation" makes it ambiguous whether responses and operations occur in response to a state of control signals only or also in conjunction with commands and addresses received through other inputs. (CMIB at 46-47.) Macronix alleges that, consistent with the claim language and the specification, its construction requires only that the control signals control the operations of the integrated circuit, which does not leave ambiguities about whether other information such as commands or addresses may also be used in the operation. (*Id.* at 47.) Macronix notes that Respondents' construction also includes the same "enable or inhibit" language as the Staff, which provides an additional reason for rejecting their proposal.

The Staff contends a POSITA will readily comprehend the disputed term at issue, "set of control signals." (SMIB at 24.) Accordingly, the Staff asserts it is unnecessary to quantify the "set" and recite that it includes "two or more." (*Id.*)

The language at issue, within the context of claim 1, follows:

An integrated circuit memory, comprising:

...
a plurality of control inputs for receiving a set of control signals;

...
sector protect logic coupled to the command logic ... which inhibits the sector erase and program operations in a particular sector in response to a set sector lock signal corresponding to the particular sector and to a first state of control signals in the set of control signals ...