No. 24-2304

IN THE

United States Court of Appeals

FOR THE FEDERAL CIRCUIT

NETLIST, INC.,

Appellant,

V.

SAMSUNG ELECTRONICS CO., LTD., MICRON TECHNOLOGY INC., MICRON
SEMICONDUCTOR PRODUCTS, INC., MICRON TECHNOLOGY TEXAS, LLC,

Appellees.

On Appeal from the U.S. Patent and Trademark Office, Patent Trial and Appeal
Board, Nos. IPR2022-00615, IPR2023-00203

REPLY BRIEF FOR APPELLANT NETLIST, INC.

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ARGUMENT

I. THE BOARD'S RULING THAT CLAIM 16 COVERS A "RANK" HAVING ONLY ONE DRAM DEVICE REQUIRES REVERSAL

Samsung agrees that claim 16 requires sending a command "*to only one DDR memory device at a time*." Appx103 (3:35-43) (limitation 16[e]) (emphasis added); *see* Samsung.Br.15. Prior art, by contrast, simultaneously sent commands "to *all*" memory devices in a "rank" of devices. Samsung.Br.15; Netlist.Br.33. Like the prior art, Ellsberry simultaneously sends commands to *all* devices in a rank. Netlist.Br.33. The Board determined that Ellsberry teaches claim 16 anyway. *Id.* The Board reached that result by construing claim 16 to cover putative "ranks" that have "only one memory device," asserting that Ellsberry disclosed such single-device ranks. Appx14; Appx43. In that situation, the Board posited, simultaneously sending a command to *all* devices in a rank would result in the command being sent to only *one* device (the only one in the rank).

The Board's earlier decisions in the decade-long reexaminations of the '912 patent foreclose that ruling. There, the PTO upheld what is now limitation 16[e] by construing it to require sending a command "'to only one DDR memory device at a time *when there is a plurality of memory devices in a rank*.'" Appx10561 (emphasis altered). Netlist acquiesced to that now-binding construction. Netlist.Br.31-32. Under it, Ellsberry undisputedly does not teach claim 16. The

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Board cannot flip-flop constructions during a decade of proceedings until it finally arrives at one that renders the patent invalid.

Samsung does not dispute that reexamination claim constructions are binding. It instead insists the Board did not construe the claim in the reexaminations. Samsung.Br.27. Samsung urges that the reexaminations turned on the Board's understanding of the Amidi reference there. *Id*. Amidi, like Ellsberry, simultaneously sends commands to **all** DRAMs in a rank. Samsung.Br.15; Netlist.Br.33. According to Samsung, the reexaminations distinguished Amidi by finding that it excludes "single-device rank[s]"—and thus does not teach sending commands to a single DRAM by sending them to a single-device rank. Samsung.Br.11, 14-15, 39-40. But the reexamination decisions said no such thing. And the reexamination record contains no such findings. Amidi's disclosures could not support any such conclusion. The **only** way the Board could have distinguished Amidi was by construing claim 16 to require sending a command to one device in a multi-device rank—as claim 16 plainly requires.

A.   The Prosecution History Proves That Claim 16 Requires Sending a Command to a Rank Having a Plurality of DRAMs

The Board previously upheld claim 16 over Amidi by construing it to require sending a command "'to only one DDR memory device at a time *when there is a plurality of memory devices in a rank*.'" Appx10561 (emphasis altered); Netlist.Br.34-38. Amidi thus did not teach claim 16: It taught simultaneously

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sending a command "to *all* devices," not to only *one device at a time*, as claim 16 requires. Appx6413 (emphasis added); *see* Netlist.Br.36-37; Samsung.Br.15.

1. Samsung does not dispute that, insofar as the Board construed the claim previously, that construction is binding here. Netlist.Br.31-32. Despite Samsung's protestations, Samsung.Br.27, the reexamination decisions clearly construed the claims. Expressly adopting the Examiner's claim construction, the Board declared:

> The *claims require* transmission of a command signal *to only one DDR memory device at a time*. Requester has not provided a reasonable explanation as to why one skilled in the art would transmit a command signal *to only one DDR memory device at a time when there is a plurality of memory devices in a rank.*

Appx10351 (quoting Appx6374-75) (some emphasis added).

Context makes that clearer still. In the reexaminations, the Examiner and the Board were rejecting, as "conclusory," requester's citationless "assertion" that Amidi taught the claim. Appx6374-75; Appx13683. Requester, the Examiner declared, failed to explain why the prior art taught "*[what] [t]he claims require*," *i.e.*, to "transmit a command signal to only one DDR memory device at a time when there is a plurality of memory devices in a rank." Appx6375 (emphasis added). Adopting that analysis, the Board gave no indication it read the claim differently. Appx10351.

Samsung's theory that the Examiner was referring to "Amidi's disclosure," Samsung.Br.39-40, fails. In Samsung's view, the Examiner did not mean that Amidi

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fails to disclose what "[t]he *claims* require," even though that is what the Examiner wrote. Appx6375 (emphasis added). Samsung posits that the Examiner meant to say that *Amidi* always has "a plurality of memory devices in a rank." Samsung.Br.39-40; *see id.* at 11, 15. In other words, although Samsung vigorously urges that "ranks" can have a single device, Samsung.Br.28-30, Samsung contends that Amidi nonetheless excludes single-device ranks. That distinguishes Amidi from claim 16, Samsung posits, because Amidi always sends commands to multiple devices (because all its ranks have multiple devices). Samsung.Br.39-40. But the Examiner never said that. The relevant portion of the Examiner's decision does not mention Amidi. It discusses what "[t]he claims require." Appx6375. If the Examiner or Board meant that Amidi "teaches" or "discloses" only multi-device ranks, or excludes single-device ranks, they would have said so. Where the Examiner and Board *meant* to describe what the prior art "discloses" or "teaches," they used those words. *See, e.g.,* Appx6517; Appx6159; Appx6370-71; Appx10536; Appx10560.

    2.   Samsung's self-contradictory argument that "ranks" can have only one device but Amidi somehow excludes such single-device putative "rank[s]," Samsung.Br.39-40, defies the record. Amidi discloses that a "rank" in its system "includes *at least one* memory devices." Appx11882-83 (claims 2, 12) (emphasis added). "At least one" includes just one. Samsung points to Amidi's Figures 6A/6B, Samsung.Br.40, which the Examiner and Board invoked to reject the requester's new

argument that Amidi's "RAS and CAS" signals taught claim 16, Appx6413; Appx10561. But neither found that those figures depict only multi-device ranks. Figure 6A, reproduced below, does not show *any* memory devices.
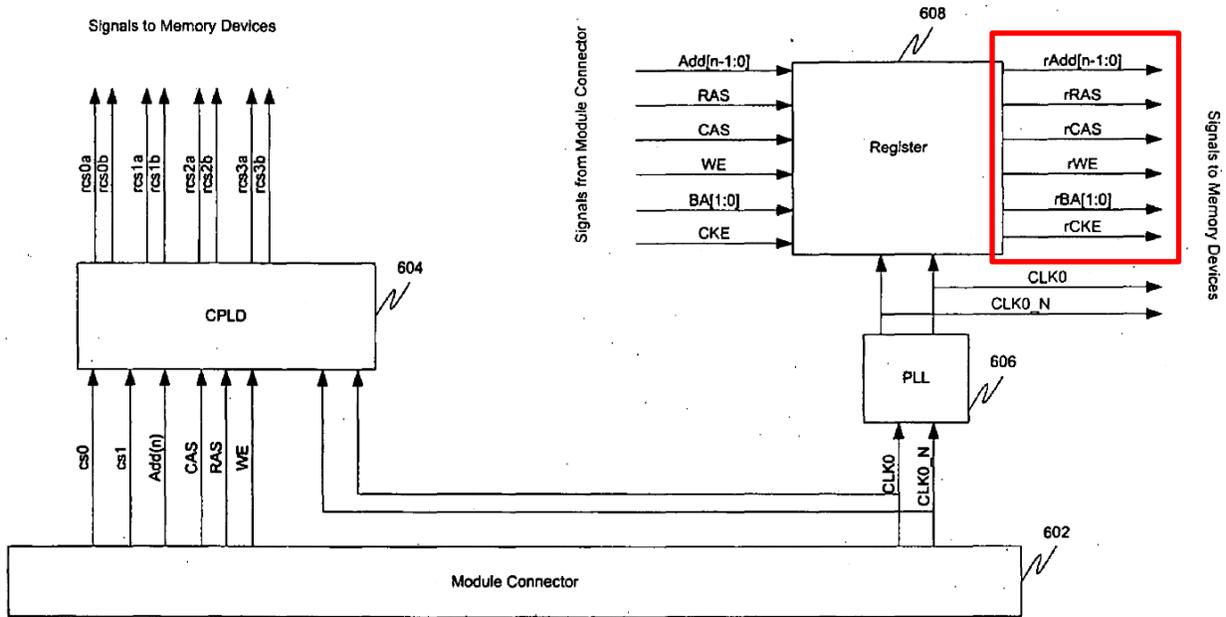
Row Address Decoding
FIG.6A

Appx11874 (Fig. 6A) (annotated). Figure 6B is materially identical. Appx11875.[1]

The Examiner and Board found that Figure 6A/6B distinguished Amidi from claim 16 because of the Examiner's *claim construction*. The Examiner found that "Figure 6 shows" that command "signals [red above] are transmitted to *all* devices." Appx6413 (emphasis added). As a result, "'*when* there is a plurality of devices in

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[1] The use of the plural "Memory Devices" is irrelevant. The associated text explains that the figures relate to a four-rank embodiment, Appx11879(¶¶21-22), which would have at least four "Memory Devices," even with single-DRAM ranks.

a rank,'" Amidi sends a command to multiple devices, contravening claim 16's requirements. Appx10561 (emphasis altered); Appx6413.

Claim construction was the ***only way*** the Examiner and Board could distinguish Amidi. Amidi teaches sending a command "to all devices" in a rank that could have just one device. Appx6413; Appx11882-83. If that taught the claim, as Samsung contends, the Examiner and Board would have found claim 16 unpatentable over Amidi. But they found the opposite, construing the claim to require sending a command to one device in a ***multi-device*** rank. Appx10351; *see* pp. 1-4, *supra*.

3. Netlist extensively briefed this issue below. Appx305-07; Appx313-14; Appx352-54; Appx357-58; Appx429-430; Appx949; Appx960-61. But the Board's decision below addressed almost none of it. The reexaminations involved three sophisticated and motivated requesters, myriad grounds of unpatentability, dozens of briefs, five office actions, multiple Board appeals, and an appeal to this Court. Netlist.Br.15. The record spans 7,972 pages. But the Board brushed aside those exhaustive proceedings and its own prior decisions with a one-sentence assertion that the Examiner did not construe the claim. Appx23; Appx493-94. The Board's failure of reasoned decisionmaking defies the APA. Netlist.Br.43. Samsung offers no response.

Nor does the Board's assertion that the Examiner did not construe the claim make sense on its own terms. Appx23; Appx493-94. It is impossible to understand how the Examiner and Board could have distinguished Amidi **otherwise**. If a "rank" can have only one device, and claim 16 covers sending a command to one device in a single-device putative rank—as Samsung and the Board here contend, Appx14— then Amidi **would** teach claim 16. *See* pp. 4-6, *supra*. But the reexaminations found the opposite. The Board's assertion that the reexaminations did not construe the claim cannot be reconciled with the outcome of those proceedings.

Finally, the Board made no attempt to distinguish Amidi's disclosures (in the reexamination) from Ellsberry's (here). Netlist.Br.43. The Board thus failed to justify reaching a different result here than in the reexaminations. *See Jicarilla Apache Nation v. U.S. Dep't of Interior*, 613 F.3d 1112, 1119-20 (D.C. Cir. 2010); *BASF Corp. v. Enthone, Inc.*, 749 F. App'x 978, 985 (Fed. Cir. 2018). Samsung cannot backfill that omission by positing a theory—never advanced by the Board— that Amidi **excluded** single-device putative ranks while Ellsberry **disclosed** them. Samsung.Br.11, 14-15, 39-40; *see InterDigital Commc'ns, LLC v. Int'l Trade Comm'n*, 690 F.3d 1318, 1329 (Fed. Cir. 2012) (citing *SEC v. Chenery Corp.*, 318 U.S. 80, 87 (1943)). And its effort to do so is unpersuasive: The disclosures are indistinguishable in all relevant respects. *See* pp. 1-2, *supra*; Netlist.Br.15-16, 19-20. Vacatur must follow.

4.   Samsung's effort to downplay "'prosecution history,'" Samsung.Br.27, 38, is unfounded.   Claim construction requires examining the "'intrinsic'" record, including "prosecution history." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc).   Here, that history shows the claims were given a specific meaning.   Samsung offers no reason the Board could, after more than a decade of proceedings, simply change its tune.

Reliance on prosecution history in no way "concede[s] that" the claim's "plain meaning" is to the contrary.   Samsung.Br.38.   The prosecution history can dispositively evidence "disclaimer"—as here.   Netlist.Br.37-38; p. 8-9, *infra*.   But it can also confirm the claim language's "'ordinary and customary meaning.'" *Northpeak Wireless, LLC v. 3COM Corp.*, 674 F. App'x 982, 986 (Fed. Cir. 2016).   That is the case here as well.   Netlist.Br.39-41; pp. 9-11, *infra*.

Samsung demands a "'clear and unmistakable disclaimer' of single-device ranks." Samsung.Br.38.   But prosecution history "inform[s] the claim construction" even absent disclaimer. *Shire Dev., LLC v. Watson Pharms., Inc.*, 787 F.3d 1359, 1366 (Fed. Cir. 2015).   Regardless, Samsung does not dispute that, insofar as the Examiner ***did*** construe the claim, Netlist's "acquiescence" to the "examiner's restrictive interpretation of [the] claim" constitutes disclaimer. *TorPharm, Inc. v. Ranbaxy Pharms., Inc.*, 336 F.3d 1322, 1330 (Fed. Cir. 2003); *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 979 (Fed. Cir. 1999); *see* Netlist.Br.31-32.   Samsung

disputes only the meaning of the reexamination decisions, Samsung.Br.38-40, and unpersuasively so, pp. 2-6, *supra*; Netlist.Br.38-39.

B. The Claim Language Confirms That Claim 16 Requires Sending a Command to One Device in a Multi-Device Rank

Samsung does not dispute that, insofar as claim 16 was construed in reexamination, that construction controls. But plain and ordinary meaning leads to the same result.

1. Samsung does not dispute that, in ordinary usage, "rank" refers to a "line" of ***multiple*** people or things, such as a "row of squares … across a chessboard." *Webster's Third New Int'l Dictionary* 1881 (unabridged ed. 2002); *see Oxford English Dictionary*, "rank (n.1)," https://doi.org/10.1093/ OED/1799612108 ("a row, line, or series of things"); Netlist.Br.40. Nor does Samsung deny the technical usage of "rank" follows that ordinary meaning. Netlist.Br.40. That is fatal to Samsung's construction. Skilled artisans would understand that a single DRAM is not a "rank" of DRAMs, any more than a chessboard square is a "rank" of squares.

Skilled artisans would understand that, when the claims recite acting on items in a "rank," but only ***one at a time***, that is the polar opposite of acting on ***all*** items in the rank ***simultaneously***. They thus would not understand Ellsberry's disclosure of sending commands to all devices in a rank simultaneously to teach claim 16's requirement of transmitting commands to one device in the rank at a time. Skilled

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artisans do not read claims "'in a vacuum'"; nor do they focus on individual words "with no context of what [the invention] does and how it works." *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005). Skilled artisans would not read claim 16 to erase the distinction between sending a command to *only one* device in each rank at a time, as the claim requires, and the prior-art approach of simultaneously sending a command to *all* devices in the rank.

2.   Samsung's argument that the claim imposes no "restriction" on the number of DRAMs in a rank misses the point. Samsung.Br.28. The term "rank" itself and the claim's context restrict claim 16 to multi-device ranks. *See* pp. 9-10, *supra*. That is how the Board and the Examiner construed the claim in distinguishing Amidi during the reexaminations. *See* pp. 1-7, *supra*. Samsung invokes claim 16's recitation of a "'first number'" and "'second number'" of DRAMs arranged into "ranks," where the second number is less than the first number. Samsung.Br.28 (emphasis omitted). According to Samsung, the second number could be one, which it takes to refer to a rank having only one DRAM. *Id.* But the recited claim language simply refers to the fact that the claimed memory module has a "first number" of DRAMs and responds to control signals intended for a "second [smaller] number" of DRAMs. Appx81(2:45-58); *see* Netlist.Br.10-13. That does not change the meaning of the term "rank," which refers to a group of multiple items. *See* p. 9, *supra*.

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Samsung points to limitation 16[b], which recites "a *plurality* of double-data-rate (DDR) memory devices coupled to the printed circuit board, . . . having *a first number* of DDR memory devices arranged in *a first number* of ranks." Appx103 (3:13-16) (emphasis added); *see* Samsung.Br.28. Samsung posits that the limitation's reference to a " 'number' " of devices arranged into " 'ranks' " means that a rank has *one* or more DRAMs, in contrast to " 'plurality,' " which would mean *two* or more. *Id.* The claim, however, uses "number" to compare *quantities* of devices. One ordinarily does not use "plurality" to compare *quantities*. Indeed, limitation 16[c] recites that a "second *number* of . . . memory devices [is] smaller than the first *number* of . . . memory devices." Appx103 (3:20-26) (emphasis added). Using "plurality" in place of "number" there would make no sense. That is why the claim uses "number" and "plurality" in different places—not to "distinguish[ ]" whether the claim requires one or more versus two or more devices. Samsung.Br.28.

The '215 patent also does not help Samsung. Samsung.Br.30-31. The portions cited by Samsung postdate the '912 patent, Appx494-95, and thus constitute extrinsic evidence, *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167 (Fed. Cir. 2004). The Board declined to rely on such "extrinsic evidence," Appx23, and this Court cannot introduce new reasoning, *see InterDigital*, 690 F.3d at 1329. Samsung misreads the '215 patent regardless. It recites a "plurality of memory integrated circuits including at least one *first* memory integrated circuit in the first rank and at

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least one *second* memory integrated circuit in the second rank." Appx954 (emphasis added). But it continues, reciting a "first data *burst* between the at least one *first* memory integrated circuit" and a "second data *burst* between the at least one *second* memory integrated circuit." Appx954 (emphasis added); *see* Appx953-956. The terms "the at least one first" and "second" "memory integrated circuit" thus identify the DRAMs between which there will be "data bursts"; they do not define the total number of DRAMs in each rank.

3.　　Dependent claim 55 does not support Samsung and the Board's view either. Claim 55 recites that "each rank . . . comprises a plurality of the DDR DRAM chip packages having a total bit width equal to the summed bit widths of the DDR DRAM chip packages of the rank." Appx104(5:56-59); Samsung.Br.29. Samsung and the Board read that limitation to imply that the term "rank" in independent claim 16 need *not* comprise a "plurality" of DRAMs. Samsung.Br.29; Appx15. That claim-differentiation argument, however, is fatally flawed, because the "plurality" language Samsung points to is not the "only meaningful difference" between claim 55 and claim 16. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004); Netlist.Br.46-47. Samsung denies relying on claim differentiation, Samsung.Br.29, but it cannot escape that doctrine's requirements by using a different label.

Regardless, Samsung's brief omits a portion of the limitation that contradicts its argument. Claim 55 does not merely recite that each rank comprises a "plurality" of DRAMs; it recites a "plurality" of DRAMs "having" a ***particular configuration***— "a total bit width equal to the summed bit widths of the" DRAMs "of the rank"— not recited in claim 16. Appx104(5:55-50). The difference between claim 55 and claim 16 is that recited configuration, not the number of DRAMs in the rank.

4.   Samsung does not dispute that the JEDEC standards cited in the '912 patent require multiple DRAMs per rank. Netlist.Br.38-39. They specify memory modules 64 or 72 bits wide, but specify DRAMs 4, 8, or 16 bits wide. Appx11435; Appx20263. As a result, standards-compliant memory modules would need multiple DRAMs per rank. Netlist.Br.39. Samsung repeats the Board's error of brushing aside the cited JEDEC standards because claim 16 is not "limit[ed] . . . to any particular JEDEC standard." Samsung.Br.30; Appx51; *see* Netlist.Br.46. Skilled artisans read claims in view of relevant industry standards, *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1337 (Fed. Cir. 2010), and the JEDEC standards dominate the industry, Appx1263. Samsung is also wrong to dismiss JEDEC standards cited in the patent as "'extrinsic evidence.'" Samsung.Br.41 (citing Appx23-24). Industry standards cited in the patent are "intrinsic evidence." *Vizio*, 605 F.3d at 1337.

Samsung tries to use Netlist's reliance on JEDEC standards cited in the patent to smuggle in "'extrinsic evidence'"—like the Jacob textbook—the patent nowhere

invokes. Samsung.Br.41. But the Board declined to rely on "extrinsic evidence" in construing "rank," Appx23-24, foreclosing its consideration here, *InterDigital*, 690 F.3d at 1329.[2]

Besides, the Jacob textbook confirms that a "rank" has "***multiple*** DRAM devices." Appx11703 (emphasis added). The textbook notes that, in the specialized context of "embedded systems that do not require as much capacity," a rank may "sometimes" comprise one device. Appx11703. But the '912 patent undisputedly is directed to ***high-capacity*** memory modules for ***servers***. Netlist.Br.10. Samsung nowhere explains why skilled artisans would deem a definition of "rank" directed to low-capacity "embedded systems" to be relevant here. Samsung's invocation of a standard not cited in the '912 patent relating to "SGRAM" (Synchronous ***Graphics*** Random Access Memory) likewise fails. Samsung.Br.41-42. The '912 patent uniformly refers to "DRAM" (Dynamic Random Access Memory)—general-purpose memory for PCs and servers. Appx81(1:35-54). Specialized memory for graphics processors is irrelevant. And the Board expressly disregarded that material regardless. Appx23.

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[2] The Board evaluated only the claims and specification for claim construction, Appx13-24; that analysis is reviewed de novo, *Samsung Elecs. Co., Ltd. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1376 (Fed. Cir. 2019). No "deference" is in order. *See* Samsung.Br.23.

Samsung's invocation of JEDEC "SPD" standards not cited in the patent fares even worse. Samsung.Br.43. Those standards set forth ***data formats*** for storing information about memory-module configurations. Samsung points to the fact that certain values (memory-module and memory-device width) are stored in one-byte fields that can represent numbers from 0-255 and thus ***are capable of recording*** a single-device rank (if any existed). *Id.* (citing Appx20382); Appx51. That proves nothing. One might store a person's age in a one-byte field—that would not support finding that humans can be 255 years old.[3]

5.   The ***background*** section of Samsung's brief points to a Board institution decision and a district court ruling. Samsung.Br.17. Samsung waived any arguments based on those decisions by failing to raise them in its brief's "argument section." *Kao Corp. v. Unilever U.S., Inc.*, 441 F.3d 963, 973 n.4 (Fed. Cir. 2006). The institution decision is doubly irrelevant because it is a "preliminary" ruling meant to be displaced by a final written decision. *Cuozzo Speed Techs. v. Com. for Intell. Prop.*, 579 U.S. 261, 273 (2016). And the district court ruling arose in related litigation where Netlist prevailed on the merits anyway. Appx20950-52.

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[3] JEDEC data formats for command signals are similarly irrelevant. Skilled artisans would not read the standard to permit memory-module configurations—*e.g.*, ones with zero-bit-wide devices—merely because some field or signal could record that configuration. Appx1242 n.2.

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Netlist may challenge the district court's claim construction in the pending appeal if necessary.

C.   The Specification Points the Same Way

The specification confirms that "rank" requires more than one DRAM. It cites JEDEC standards that require more than one DRAM per rank and uniformly depicts ranks with multiple DRAMs. Netlist.Br.39; *see* p. 13, *supra*. The specification explains that the invention's purpose is to increase memory capacity by maximizing the number of ranks and the number of DRAMs per rank. Netlist.Br.39-41. That contravenes the notion of single-device ranks.

1.   Samsung repeats the Board's error of treating simplified depictions in the specification—that focus on one DRAM in each rank and discuss data collisions between pairs of DRAMs—as if they show complete ranks with only one DRAM. Samsung.Br.33-34; *see Starhome GmbH v. AT&T Mobility LLC*, 743 F.3d 849, 857 (Fed. Cir. 2014); Netlist.Br.49-50. The specification describes each of Samsung's examples, Table 1, Figure 6B, and Example 2, by reference to "memory devices 30." Appx84(7:56-58) (Table 1); Appx92(24:31-32) (Figure 6B); Appx86(12:26-29) ("Memory Density Multiplication" section, including Example 2). The specification depicts "memory devices 30" in full in Figures 1A/1B, which undisputedly depict *multiple* DRAMs per rank. Samsung.Br.11; Appx63-64. Skilled artisans thus would understand that Table 1, Figure 6B, and Example 2 depict zoomed-in views

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of pairs of DRAMs within multi-DRAM ranks. Netlist.Br.49-50; *see Ironworks Pats. LLC v. Samsung Elecs. Co.*, 798 F. App'x 621, 625 (Fed. Cir. 2020).

Samsung asserts that the description for Table 1 does not reference Figure 1A. Samsung.Br.34-35. But the description expressly references "memory devices 30," which are depicted in full in Figure 1A. Appx84(7:55-60). Table 1 also uses identical labeling to Figure 1A, which creates a presumption of correspondence. *See Ironworks*, 798 F. App'x at 625. Samsung has no response.

Figure 6B, Samsung.Br.34-35, is even clearer. The specification states that the figure "show[s] . . . the memory devices 30 otherwise ***involved in a [signal] collision*.**" Appx92(24:31-34) (emphasis added). Only the DRAMs involved in a collision are depicted, not all devices in the ranks. And Examples 1 and 2 are in a section, titled "Memory Density Multiplication," that describes exemplary memory modules to which those examples apply. Appx86(12:26-65). Those embodiments also disclose only multi-device ranks. Appx86(12:26-65). Skilled artisans thus would understand that the examples' "'Verilog code,'" Samsung.Br.37, would be repeated for multiple devices per rank, Netlist.Br.50.

Finally, the specification's statement that the invention is "compatible with" 32-bit memory modules, Appx83(5:60-62), and later statement that it is compatible with 32-bit DRAMs, Appx83(6:15-17), do not help Samsung, Samsung.Br.32. The Board did not rely on those disclosures. *InterDigital*, 690 F.3d at 1329. Regardless,

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skilled artisans would not understand those separate statements to disclose a 32-bit memory module having a "rank" comprising a single 32-bit DRAM, contrary to the common meaning of "rank" and the specification's disclosures. *See* pp. 9-10, 13, 16, *supra*.

2.   Samsung insists that Netlist's construction of "rank" would "exclude[]" Table 1, Figure 6B, and Example 2 from "claim 16." Samsung.Br.36. But Samsung offers no reason why understanding those disclosures to depict zoomed-in views of multi-device ranks would somehow ***exclude them*** from claim 16.   Quite the opposite: The whole point of those disclosures is to achieve individual DRAM control in ***multi-device ranks***. Appx18297-98(¶40).

II.   THE BOARD'S DETERMINATION THAT ELLSBERRY TEACHES CLAIM 16 IS UNSUPPORTED EVEN UNDER THE BOARD'S ERRONEOUS CONSTRUCTION

Ellsberry does not teach claim 16 even under the Board's erroneous construction because Ellsberry does not teach single-device ranks. Netlist.Br.21-22.

A.   Ellsberry's Figure 12 Does Not Show Single-Device Ranks

Ellsberry nowhere ***says*** ranks can have a single device. Like the Board, Samsung invokes Ellsberry's Figure 12. Samsung.Br.44-49. As Netlist explained— and the Board previously agreed, *see* p. 19, *infra*—Figure 12 does not show a rank with only one DRAM; it shows one "data group" containing ***part*** of a rank. Netlist.Br.50-52. Figure 12 shows how each data group (of the plurality of data groups depicted in Figure 2) is wired. *Id.* at 52. That zoomed-in view of a single

data group does not prove that Ellsberry's memory module can comprise a single data group. *See Starhome*, 743 F.3d at 857.

Samsung and the Board's view of Figure 12, moreover, would result in a memory module that is only 8 bits wide, which would contravene JEDEC standards and make no economic sense. Netlist.Br.18, 52-53. Samsung reiterates the Board's assertion that JEDEC standards permitted an 8-bit-wide memory module. Samsung.Br.47-48; Appx51. But the Board's only support was to point to a ***data field*** that could represent values from 0-255. Appx51. As explained above, the mere fact that a data field is capable of recording a particular configuration does not mean that configuration falls within the standard. *See* p. 15 & n.3, *supra*. Indeed, by the Board's logic, a nonsensical 0-bit-wide module would fall within the standard.

B.   The Board's Conclusion Contradicts Its Prior Rulings

The Board previously concluded that Ellsberry's Figure 12 shows only ***part*** of a memory module—one of multiple data groups. Netlist.Br.54. That determination did not concern a "different embodiment." Samsung.Br.3, 24, 44. The Board previously found that "Figure[] . . . 12" is "relat[ed]" to "Figure[] 2," which depicts a multi-data-group module. Appx11986. It thus ruled that Figure 12 showed "***part*** of a memory module." Appx11959, Appx11966 (emphasis added). The Board cannot adopt that understanding of Figure 12 in one place, and the opposite

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understanding in the decision below, Appx51—at least not without explanation, *TQ Delta, LLC v. CISCO Sys., Inc.,* 942 F.3d 1352, 1357 (Fed. Cir. 2019).

III.   THE BOARD'S DETERMINATION THAT ELLSBERRY IS PRIOR ART CANNOT BE SUSTAINED

Ellsberry is not prior art to the '912 patent regardless. The '912 patent claims priority from the '436 patent and the '244 provisional, which predate Ellsberry. The Board's ruling that neither the '436 patent nor the '244 provisional provides written-description support for claim 16 rests on a series of errors—errors Samsung cannot defend.

A.   The Board Erred in Determining That Netlist's '436 Patent Lacks Written-Description Support for Claim 16

1.   *The Board's Determination That the '436 Patent Does Not Disclose a "Register" Defies Law and Logic*

a.   The Board found that the '436 patent does not support claim 16 because it does not expressly "mention" claim 16's register. Appx31. But the '436 patent discloses a programmable logic device that "uses sequential . . . logic procedures." Appx2503(18:2-11). Both experts *agreed* that skilled artisans would understand "sequential logic" to require "a *register* or an equivalent." Appx18693-94(117:16-118:20) (Samsung's expert) (emphasis added); Appx18345-46(¶78) (Netlist's expert). Skilled artisans reading the term "sequential logic" thus would immediately "visualize or recognize" a register. *Alcon Rsch. Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1190-91 (Fed. Cir. 2014); Netlist.Br.55-57.

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The Board ruled otherwise only by positing that sequential logic could employ "devices *other* than a register." Appx31 (emphasis added). Samsung characterizes that as resolving a "factual dispute." Samsung.Br.51, 54. But the Board's finding that a register was not described rests on a mistake of *law*. A disclosure need not contain claim terms "*in haec verba*"; "*equivalent*" or even broader "language" can be "sufficient." *Nalpropion Pharms., Inc. v. Actavis Labs. FL, Inc.*, 934 F.3d 1344, 1350 (Fed. Cir. 2019) (emphasis added). Skilled artisans envisioning registers, or register equivalents, necessarily envision registers. Netlist.Br.55-56. The Board's legal error warrants no deference. *Falkner v. Inglis*, 448 F.3d 1357, 1362 (Fed. Cir. 2006). Samsung's argument that registers are not disclosed because "sequential logic need *not* include a register," Samsung.Br.52-53, simply repeats the error. The question is not whether the disclosure *requires* registers; it is whether skilled artisans would "visualize or recognize" registers. *Alcon*, 745 F.3d at 1190-91. Whether artisans might visualize registers *and* equivalent devices is immaterial. *Hologic, Inc. v. Smith & Nephew, Inc.*, 884 F.3d 1357, 1358-59 (Fed. Cir. 2018).

Samsung, moreover, nowhere disputes that registers were commonplace at the time. Netlist.Br.57. "[A] patent need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986). Samsung attempts to limit that rule to enablement cases. Samsung.Br.57. But the rule applies equally to written description. *Streck, Inc. v.*

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Rsch. & Diagnostic Sys., Inc., 665 F.3d 1269, 1285 (Fed. Cir. 2012); *Falkner*, 448 F.3d at 1366.

Samsung is similarly mistaken in asserting that Netlist "cannot rely on inferences from a POSITA's knowledge to show written description." Samsung.Br.56-58. Written description asks what the specification "reasonably conveys ***to those skilled in the art***." *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (emphasis added). "'A patentee may rely on information that is well-known in the art' to the extent it informs how a relevant artisan would reasonably understand what is actually described in the specification." *BASF Plant Sci., LP v. Commonwealth Sci. & Indus. Rsch. Org.*, 28 F.4th 1247, 1264 (Fed. Cir. 2022). Here, it was undisputed that skilled artisans would understand the specification's disclosure of "sequential logic" to encompass registers. Netlist.Br.55. The argument is not that registers would be "'rendered obvious by disclosure in the specification.'" Samsung.Br.58. It is that skilled artisans would understand the patent's reference to "sequential logic" to ***disclose*** registers. *See BASF*, 28 F.4th at 1264. Samsung's attempts to distinguish Netlist's cases as relying on "disclosures from the patents in question," Samsung.Br.57, thus fail.

Samsung suggests the '436 patent does not disclose a register "coupled to a phase-lock loop [PLL] device." Samsung.Br.52-53 (emphasis and internal quotation

marks omitted). That argument is forfeited; Samsung did not raise it in the Petition, and it comprised a single sentence in Samsung's reply below. Appx192-94; Appx1196. And the Board did not invoke that contention. *InterDigital*, 690 F.3d at 1329. Regardless, Samsung is wrong. As Netlist explained below, skilled artisans would understand that the '436 patent's phase-lock-loop device is coupled to the logic element that includes the register. Appx1276-79.

> b.   Samsung does not defend the Board's error in sleuthing the internet to find evidence purportedly showing that flip-flops, instead of registers, could be used for "sequential logic." Samsung.Br.54 n.5; Netlist.Br.58-59. Samsung dismisses that error as immaterial "confirm[ation]" of "record testimony." Samsung.Br.54 n.5. But that website is the first authority the Board cited on this issue. Appx31 & n.7. The Board nowhere said it was merely confirmatory. It postdates the priority date. Netlist.Br.58-59. And Netlist was never given opportunity to address it. *Dell Inc. v. Acceleron, LLC*, 818 F.3d 1293, 1301 (Fed. Cir. 2016).

> 2.   *The Board's Requirement of a Separate "Logic Element" and "Register" Is Improper and Incorrect*

Claim 16 recites a "circuit comprising a logic element and a register." Appx103 (3:17-18). The Board read that to require the logic element and register to be "two different things." Appx32. It then held that the '436 patent does not describe that limitation because its register is "included in the logic element." Appx32. That *sua sponte* construction was improper and wrong. Netlist.Br.59-61.

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Samsung does not dispute that the Board cannot adopt claim constructions the parties did not request. *See* Netlist.Br.60; *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). Nor does it deny it never requested a construction requiring the "logic element" and "register" to be "two different things." Instead, Samsung denies the Board engaged in claim construction. Samsung.Br.55. Samsung's own brief refutes that argument. Samsung argues an "'***implication*** of the claim language,'" asserting that it raises a "***presumption***" that the logic element and register are "different." Samsung.Br.55 (emphasis added). Those are claim construction arguments. Indeed, Samsung invokes *Becton, Dickinson & Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249 (Fed. Cir. 2010), which describes that as a "[c]laim construction" issue, *id.* at 1254.

Samsung cannot defend the Board's construction on the merits. Claim 16 states that the circuit "***compris[es]*** a logic element and a register." Appx103 (3:17-18) (emphasis added). The logic element and register thus are part of a single component—a circuit comprising both—not "two different things." *See* Appx32; Netlist.Br.60. The '912 specification makes that explicit: The logic element and register, it says, may be "portions of a single component." Appx83 (5:37-43); Netlist.Br.60-61. Samsung offers no response.

Samsung observes that Figure 1A of the '912 patent depicts the "register" (60) separately from the "logic element" (40). Samsung.Br.55. That argument seeks to

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improperly limit claim 16 to the embodiment in Figure 1A. *Polaris Innovations Ltd. v. Brent*, 48 F.4th 1365, 1377 (Fed. Cir. 2022). Besides, the text accompanying Figure 1A refutes Samsung's argument. It explains that "[w]hile the . . . register 60, and the logic element 40 are described herein in certain embodiments as being separate components," in "***other*** embodiments, . . . the register 60, and the logic element 40 are portions of a single component." Appx83 (5:36-42).

Those disclosures amply overcome any presumption that "'listing elements separately implies their separateness.'" Samsung.Br.55; *see* Netlist.Br.61. Under settled law, the *Becton* presumption is overcome when "disclosure[s] in the specification" explain that components need not be separate structures. *Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231-32 (Fed. Cir. 2021); *Linear Tech. Corp. v. ITC*, 566 F.3d 1049, 1055-56 (Fed. Cir. 2009). That is true where, as here, the specification says two elements may be "portions of a single component."

3.   *The Board's Ruling Defies Precedent and the APA*

The Board has repeatedly stated that patentees claiming priority from a prior application need only address "the specific points and contentions raised" in the petition. *Lupin Ltd. v. Pozen, Inc.*, IPR2015-01775, Paper 15, at 10-11 (PTAB Mar. 1, 2016); Netlist.Br.62. The Board, however, faulted Netlist for failing to establish written-description support for "all the limitations" of claim 16, without addressing

that precedent or giving reasons for departing from it. Appx34. That defies the APA and requires reversal. *Jicarilla*, 613 F.3d at 1119; Netlist.Br.62-63.

As Samsung concedes, *Lupin* clearly states that a patentee's showing need only be "'commensurate in scope with the specific points and contentions raised by Petitioner.'" Samsung.Br.61-62. While Samsung describes *Lupin* as a "preliminary" decision, it cites no authority for the notion that the patentee's burden would be different "at trial, after institution." Samsung.Br.61. And while Samsung contends the ***facts*** of *Mission* and *Lumi Legend* are different, it cannot dispute that they recite the same ***rule*** as *Lupin*: The patentee's showing may be "commensurate in scope with the specific points and contentions raised by the petitioner." *Mission Integrated Techs. v. Clemente*, No. IPR2023-01285, 2024 WL 752892, at *8 (PTAB Feb. 23, 2024); *Lumi Legend Corp. v. Manehu Prod. All., LLC*, PGR2024-00014, 2024 WL 3656822, at *4 (PTAB Aug. 5, 2024) (same); *see also Focal Therapeutics, Inc. v. SenoRx, Inc*. IPR2014-00116, Paper 8, at 9-10 (PTAB Apr. 22, 2014) (same).[4]

Samsung invokes *Continental Automotive Systems, Inc. v. Intellectual Ventures II LLC*, IPR2022-00972, Paper 49, at 28 (PTAB Dec. 5, 2023), and *MaxLite, Inc. v. Jiaxing Super Lighting Electric Appliance Co.*, IPR2020-00208, 2021 WL 2221251, at *1-4 (PTAB June 1, 2021). Samsung.Br.60-61. But *Continental* does

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[4] *FitBit* observed that the patent owner had provided "citations" to additional limitations, but did not hold those were ***required***. *Fitbit, Inc. v. BodyMedia, Inc.*, IPR2016-00707, Paper 9, at 10-11 (PTAB Sept. 8, 2016).

not address whether patent owners must brief undisputed limitations; the discussion Samsung cites relates to a ***disputed*** limitation. *Continental*, IPR2022-00972, Paper 49, at 28. And even if *MaxLite* departs from *Lupin*'s rule, at least two post-*MaxLite* decisions take a different view. *See Mission*, 2024 WL 752892, at *8; *Lumi Legend*, 2024 WL 3656822, at *4. At best, Samsung's cases might show that Board precedent is hopelessly confused.[5]

Regardless, the bulk of Board authority favors Netlist. If the Board was going to depart from that precedent, it was required to explain what it was doing and why—affording Netlist " 'reasonable notice of the change' and 'the opportunity to present argument under the new theory.'" *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1080 (Fed. Cir. 2015); *Jicarilla*, 613 F.3d at 1119-20. Despite Samsung's effort to distinguish *Jicarilla* on its facts, *Jicarilla*'s principle controls: " '[R]easoned decision making . . . necessarily requires the agency to acknowledge and provide an adequate explanation for its departure from established precedent.'" 613 F.3d at 1119-20.

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[5] Samsung asserts the Board "instructed Netlist about its burden of production." Samsung.Br.60 (citing Appx879-80). But the institution decision merely noted Netlist's "burden" in general terms; it did not address the relevant precedent, including *Lupin*.

B.   Netlist Was Entitled to the Priority Date of the '244 Provisional Application

The '912 patent is entitled to priority from the '244 provisional as well. The Board held that the '244 provisional did not disclose limitation 16[c]'s "bank address signals" because it does not "mention" them expressly. Appx29. But the '244 provisional discloses "control signals," which, in JEDEC-style memory modules, necessarily include bank address signals. Netlist.Br.63. The Board did not find otherwise. It instead proclaimed there were too many "inferences" required to find written description—without considering whether skilled artisans would actually make those "inferences," or whether they were "inferences" at all. Appx29-30. Indeed, the putative "chain" of inferences reduces to just one. Netlist.Br.65. Such conclusory analysis falls short of APA standards. *In re Lee*, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002).

1.   Samsung seeks to backfill the Board's analysis with technical arguments the Board never adopted. *See* Samsung.Br.63-65. Governing law precludes affirmance on that basis. *InterDigital*, 690 F.3d at 1329. The Board's rationale was that there were too many "inferences" to deal with, Appx29-30—not, as Samsung posits, that skilled artisans would not understand bank address signals to be "control signals," Samsung.Br.63-64.

Regardless, as Netlist's expert explained, skilled artisans would understand that "control signals" necessarily include bank address signals. Appx18314-

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21 (¶¶61-66). Without those signals, basic operations would not work; the memory module could not locate the cell it wants to read from or write to. Appx18315-16 (¶63). Samsung hypothesizes that skilled artisans would understand bank address signals to be included within the '244 provisional's address signals "A_0-A_n" (red box below), which are not depicted going to the logic element ("ASIC Decoder" below) as claim 16 requires. Samsung.Br.64.
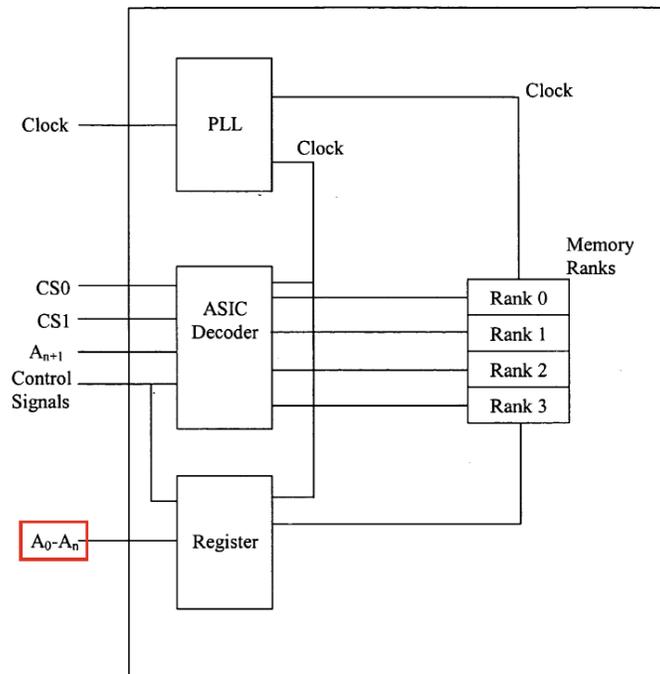
Appx2344 (annotated).

But skilled artisans would understand "A_0-A_n" to be *row or column* address bits, not *bank* address signals. JEDEC standards depict bank address signals (BA0, BA1, etc.) separately from row address bits (A0-A15):

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Table 10 — Command truth table.

Function	CKE		CS	RAS	CAS	WE	BA0 BA1 BA2	A15-A11	A10	A9 - A0	Notes
	Previous Cycle	Current Cycle									
Bank Activate	H	H	L	L	H	H	BA	Row Address			1,2
Write	H	H	L	H	L	L	BA	Column	L	Column	1,2,3,
Write with Auto Precharge	H	H	L	H	L	L	BA	Column	H	Column	1,2,3,
Read	H	H	L	H	L	H	BA	Column	L	Column	1,2,3
Read with Auto-Precharge	H	H	L	H	L	H	BA	Column	H	Column	1,2,3

NOTE 1   All DDR2 SDRAM commands are defined by states of CS, RAS, CAS, WE and CKE at the rising edge of the clock.
NOTE 2   Bank addresses BA0, BA1, BA2 (BA) determine which bank is to be operated upon. For (E)MRS BA selects an (Extended) Mode Register.

Appx18317(¶63). The '244 provisional itself, moreover, refers to a "control signal (such as an address signal)" being transmitted to the logic element. Appx2338(¶5). There is thus no reason that skilled artisans would understand the '244 provisional's address bits "A_0-A_n" to include bank address signals. Rather, skilled artisans would understand the bank address signals to be included within Figure 1's "Control Signals," which are transmitted to the logic element as required by limitation 16[c]:

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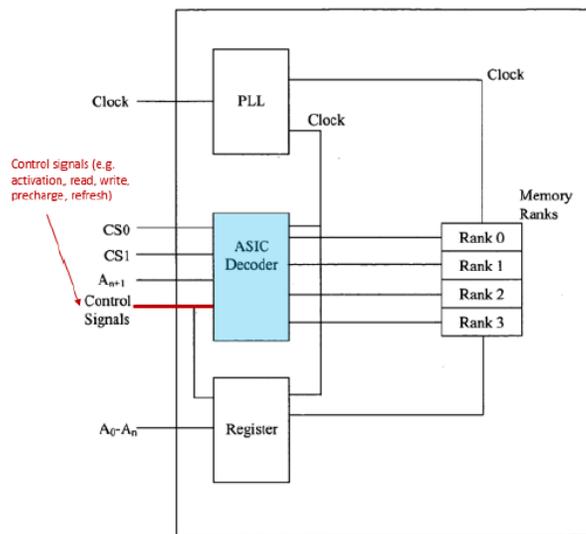
Appx1009. If the issue were even debatable, remand would be required; the Board's decision never addressed it.

Samsung theorizes that the '244 provisional does not suggest JEDEC-style "**DDR** memory devices," as opposed to JEDEC-style devices more generally. Samsung.Br.64-65. Again, the Board made no such finding. *InterDigital*, 690 F.3d at 1329. Moreover, to the extent Samsung proposes a distinction between "'JEDEC-style memory module[s]'" generally and "**DDR** memory devices" specifically, Samsung waived the argument by failing to assert it below. Samsung.Br.65; *see* Appx1201-04; Appx413-14. Even on appeal, Samsung does not attempt to show that skilled artisans reading the '244 provisional's disclosure would envision non-DDR JEDEC-compliant memory devices, or that those non-DDR devices would use materially different control signals from DDR devices. *See* Samsung.Br.65. The 16 record pages Samsung cites say nothing about those issues. *See* Samsung.Br.65 (citing "Appx18649 (73:3-8); Appx11813-14; Appx12268 (JESD 21-C), Appx12341-48 (Page 3.9-1 to 3.11.4-34), Appx12175-78").

Samsung's accusation that Netlist's invocation of JEDEC standards seeks to "rewrite the law of written description," Samsung.Br.65-66, fares worse still. Written description is about what the disclosure "conveys to those skilled in the art." *Ariad*, 598 F.3d at 1351. And skilled artisans interpret patent disclosures in light of "industry standards." *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1367-

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68 (Fed. Cir. 2011). That *Wellman* was an indefiniteness case, Samsung.Br.65-66,

is irrelevant; the Court's observation about how skilled artisans read patents holds

true in any context.

2.   Samsung hardly defends the Board's actual reasoning. Samsung faults

Netlist for focusing on only one of the Board's five "inferences." Samsung.Br.66.

But Samsung nowhere denies that the other four supposed "inferences" were

essentially undisputed; they thus were not "inferences" at all. Netlist.Br.65 & n.3;

see Samsung.Br.66. A single inference, combined with four undisputed facts, cannot

rationally be described as a "chain" of inferences that is "too long and speculative."

Appx29-30; *see* Samsung.Br.66-67.

The only real "inference" the Board identified was the proposition that the

'244 patent's bank address signals were "used for rank multiplication." Appx30.

Samsung argues that "substantial evidence supports the Board's rejection" of that

inference. Samsung.Br.66-67. But the Board did not actually "reject" that inference;

it simply proclaimed there were too many "inferences" to deal with. Appx30. That

is a conclusion, not a finding, and one unsupported by the record or reasoning.

The question, moreover, is not whether skilled artisans would understand that

the disclosed bank address signals were "used" or "require[d]" for rank

multiplication. Samsung.Br.67. Claim 16 requires only that bank address signals

be ***among*** the "set of input signals" received by the "logic element," which

"generat[es] a set of output signals in response to the set of input signals." Appx103 (3:17-37). The '244 provisional unquestionably discloses that. Netlist.Br.65-66; Appx2339 (¶¶9-10); Appx2344. Regardless, there is no dispute that the '244 provisional discloses that control signals, which inherently include bank address signals, are used as "input signals" for rank multiplication. Netlist.Br.65-66; *see* Appx2340 (¶11); Appx2340-41 (¶19); Appx2341-42 (¶23). That satisfies claim 16, even under Samsung's erroneous framing.

C.   Vacatur Is Required for Additional Reasons

For purposes of further review, Netlist preserves its arguments that Ellsberry is not available as prior art under 35 U.S.C. §311(b), Netlist.Br.66, and that *Thryv, Inc. v. Click-to-Call Technologies LP*, 590 U.S. 45 (2020), should be reconsidered. Samsung contends those arguments are insufficiently presented. Samsung.Br.67. But Netlist's opening brief cited relevant statutory authority, explained the nature of the arguments, and identified the authority that currently forecloses them. Netlist.Br.66. That "short affirmative presentation" suffices. *United States v. Great Am. Ins. Co. of New York*, 738 F.3d 1320, 1328 (Fed. Cir. 2013).

<u>CONCLUSION</u>

The Board's decision should be reversed or vacated.

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FORM 19. Certificate of Compliance with Type-Volume Limitations   **Form 19**
July 2020

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

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