

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MEDIATEK, INC.,
Petitioner,

v.

MOSAID TECHNOLOGIES INC,
Patent Owner.

Case IPR2024-00718
Patent 7,996,811

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PETITIONER FAILS TO PROVE THAT BORKAR IS ANALOGOUS ART (ALL CLAIMS, ALL GROUNDS).	1
A.	Borkar And The '811 Patent Do Not Share The Same Field Of Endeavor.....	2
B.	Petitioner Does Not Demonstrate Borkar Is Reasonably Pertinent To The Problem The Inventors Of The '811 Patent Were Addressing.....	9
III.	PETITIONER'S NOWKA-BORKAR GROUNDS FAIL (GROUNDS 1A, 1B, 1C, ALL CLAIMS).....	11
A.	Petitioner Has Failed To Show That The Nowka-Borkar Combination Discloses Or Renders Obvious The "Power Manager" Limitations (Grounds 1A, 1B, 1C, All Claims).	12
B.	Petitioner Does Not Show That Nowka-Borkar Teaches "A Plurality of Power Islands" Having Power Consumptions "Independently" Controlled Or Controllable (Grounds 1A, 1B, and 1C, All Claims).....	17
1.	The Petition Should Be Denied For Failing To Address The Construction Of "Power Island."	17
2.	Petitioner Does Not Show That Nowka Discloses "A Plurality Of Power Islands" With "Independently" Controlled Or Controllable Power Consumptions.....	23
3.	Petitioner Does Not Show That Borkar Discloses "A Plurality Of Power Islands" With "Independently" Controlled Or Controllable Power Consumptions.....	27

4. Petitioner’s Arguments That The Nowka-Borkar
 Combination Teaches “A Plurality Of Power Islands” With
 “Independently” Controlled Or Controllable Power
 Consumptions Are Conclusory. 30

**IV. PETITIONER’S NICOL-BORKAR GROUNDS FAIL (GROUNDS
 2A, 2B, 2C, ALL CLAIMS).....33**

 A. Petitioner Never Explains What The Nicol-Borkar Combination
 Actually Is. 33

 B. The Nicol-Borkar Combination Does Not Teach Limitations
 Which Link Power Management To A Threshold Voltage (Claims
 1, 24, 45, and Dependent Claims). 37

 C. The Nicol-Borkar Combination Does Not Teach Limitations
 Which Require An Internal Regulator (Claim 17 & Dependent
 Claims). 39

 D. The Nicol-Borkar Combination Does Not Teach Limitations
 Which Require Synchronous/Asynchronous Communication
 Between Power Islands (Claims 30, 61, and Dependent Claims).....41

**V. PETITIONER’S REMAINING GROUNDS, WHICH ARE ALL
 DIRECTED TO DEPENDENT CLAIMS, INHERIT THE FLAWS OF
 THE INDEPENDENT CLAIM GROUNDS AND THUS ALSO
 FAIL.....47**

VI. CONCLUSION 48

TABLE OF AUTHORITIES

Page(s)

COURT DECISIONS

<i>Airbus S.A.S. v. Firepass Corp.</i> , 941 F.3d 1374 (Fed. Cir. 2019)	3
<i>Arendi S.A.R.L. v. Apple, Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016);	43
<i>DSS Tech. Mgmt. v. Apple Inc.</i> , 885 F.3d 1367, (Fed. Cir. 2018).....	43
<i>Harmonic Inc. v. Avid Tech., Inc.</i> , 815 F.3d 1356 (Fed. Cir. 2016)	36
<i>In re Bigio</i> , 381 F.3d 1320 (Fed. Cir. 2004)	3
<i>In re Clay</i> , 966 F.2d 656 (Fed. Cir. 1992)	2, 7, 8, 9
<i>In re Klein</i> , 647 F.3d 1343 (Fed. Cir. 2011)	1
<i>In re Magnum Oil Tools Int’l, Ltd.</i> , 829 F.3d 1364 (Fed. Cir. 2016)	27, 40
<i>In re Nat. Alts., LLC</i> , 659 Fed. App’x. 608 (Fed. Cir. 2016)	2
<i>In re Wood</i> , 599 F.2d 1032 (CCPA 1979)	3
<i>PAR Pharm. v. TWi Pharms., Inc.</i> , 773 F.3d 1186 (Fed. Cir. 2014)	41

<i>Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.</i> , 66 F.4th 1373 (Fed. Cir. 2023).....	6
<i>Southwire Co. v. Cerro Wire LLC</i> , 870 F.3d 1306 (Fed. Cir. 2017)	41
<i>Trintec Indus., Inc. v. Top-U.S.A. Corp.</i> , 295 F.3d 1292 (Fed. Cir. 2002)	41, 43
<i>Wang Labs., Inc. v. Toshiba Corp.</i> , 993 F.2d 858 (Fed. Cir. 1993).....	8
<i>Wyers v. Master Lock Co.</i> , 616 F.3d 1231 (Fed. Cir. 2010)	3

AGENCY DECISIONS

<i>10x Genomics, Inc. v. President and Fellows of Harvard College</i> , IPR2023-01299, Paper 15 (Mar. 7, 2024)	21
<i>Intel Corp. v. VLSI Technology LLC</i> , IPR2019-01196, Paper 11(Jan. 7, 2020).....	14
<i>Markforged Inc., v. Continuous Composites, Inc.</i> , IPR2022-01220, Paper 8 (Jan. 11, 2023).....	36
<i>Microsoft Corp. v. Virtru Corp.</i> , IPR2023-00019, Paper 19 (May 17, 2023).....	36
<i>Orthopediatrics Corp. v. K2M, Inc.</i> , IPR2018-01546, Paper 10 (Feb. 14, 2019)	20
<i>SCHOTT Gemtron Corp. v. SSW Holding Co., Inc.</i> , IPR2013-00358, Paper 106 (Aug. 20, 2014);	2
<i>Xerox Corp. v. Bytemark, Inc.</i> , IPR2022-00624, Paper 9, 15-17 (August 24, 2022) (precedential)	27, 39

REGULATIONS

37 C.F.R. § 42.104(b)(3).....	20, 23
-------------------------------	--------

37 C.F.R. § 42.104(b)(4)..... 20, 23

37 C.F.R. § 42.65(a).....26

RULES, RULEMAKING, AND OTHER AGENCY AUTHORITIES

83 Fed. Reg. 51,340 (Oct. 11, 2018).....22

EXHIBIT LIST	
2001	RESERVED
2002	RESERVED
2003	RESERVED
2004	<i>MOSAID Techs. Inc. v. MediaTek, Inc.</i> , 2:23-cv-00129, Joint Claim Construction And Prehearing Statement (May 9, 2024) [Joint-Claim-Construction-Statement]

I. INTRODUCTION

The Petition should be denied because Petitioner fails to demonstrate a reasonable likelihood of prevailing as to at least one challenged claim. Petitioner’s grounds center upon two combinations, Nowka-Borkar and Nicol-Borkar. All grounds fail, however, for the threshold reason that Petitioner fails to show that Borkar is analogous art available for use in an obvious combination. *See* Section II. Even if that could be overlooked, Petitioner fails to show that Nowka-Borkar renders obvious a power manager that controls power consumption in a power island, as required by the claims (*see* Section III.B) or a “plurality of power islands” (*see* Section III.C). The Nicol-Borkar combination fares no better; Petitioner fails to explain what its combination even is (*see* Section IV.A) and, in any event, fails to demonstrate a reasonable likelihood of prevailing as to any claim (*see* Sections IV.B-D).

II. PETITIONER FAILS TO PROVE THAT BORKAR IS ANALOGOUS ART (ALL CLAIMS, ALL GROUNDS).

Every ground of the Petition (Pet., 1-2) relies upon combinations with Borkar, but Petitioner fails to prove Borkar is analogous art. “A reference qualifies as prior art for an obviousness determination . . . only when it is analogous to the claimed invention.” *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011). An obviousness ground that relies upon non-analogous art fails. *Id.*, 1352. “Petitioner bears the

burden of showing by a preponderance of evidence that the asserted prior art references are analogous art.” *SCHOTT Gemtron Corp. v. SSW Holding Co., Inc.*, IPR2013-00358, Paper 106, 26 (Aug. 20, 2014); *In re Nat. Alts., LLC*, 659 Fed. App’x. 608, 613-14 (Fed. Cir. 2016) (nonprecedential).

To be analogous, a reference must be either (1) from the same field of endeavor as the patent-at-issue, or (2) reasonably pertinent to the particular problem with which the inventor of the challenged patent is involved. *In re Clay*, 966 F.2d 656, 658-59 (Fed. Cir. 1992). Petitioner, however, fails to prove that Borkar is analogous under either prong. Whereas the ’811 patent’s field is managing power on integrated circuits using power islands, Borkar’s field is using software to control transistor body bias in controlling chip parameters. *See* Section II.A. And whereas the ’885 patent is directed towards improving upon prior art “voltage islands,” whose operating voltages and frequencies did not dynamically change based upon the needs and operation of the integrated circuit, Borkar, by contrast, is directed towards the very different problem of improving the switching rate in transistors. *See* Section II.B. Because Petitioner’s grounds necessarily rely upon non-analogous art (Borkar), they must be rejected.

A. Borkar And The ’811 Patent Do Not Share The Same Field Of Endeavor.

The ’811 patent and Borkar do not share the same field. The ’811 patent’s

field of endeavor—as confirmed by its title, abstract, figures, written description, and claims—is “managing power on integrated circuits using power islands.” Borkar’s field, by contrast, is “using software to control transistor body bias in controlling chip parameters.”

To discern the field of endeavor, the Federal Circuit has often looked to a patent’s “background of invention” and “field of the invention” sections.¹ Additionally, a claim preamble, and function and structure of the claimed inventions may also bear upon the field of endeavor. *Airbus*, 941 F.3d at 1380-81 (affirming Board’s finding of field of endeavor based on “the preamble of a ... claim”); *In re Bigio*, 381 F.3d 1320, 1326 (Fed. Cir. 2004) (“The Board thus correctly set the field of the invention by consulting the structure and function of the claimed invention as perceived by one of ordinary skill in the art.”).

Here, these traditional sources for identifying a field of endeavor unanimously

¹ See, e.g., *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979) (determining field of endeavor based on “Background of Invention”); *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1237-38 (Fed. Cir. 2010) (similar); *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1381 n. 8 (Fed. Cir. 2019) (“[T]he specification of each reference includes a ‘Field of the Invention’ section that distinctly describes each applicable field of endeavor.”).

confirm that the '811 patent's field is "managing power on integrated circuits using power islands." The '811's "field of invention" indicates that it relates to "managing power on integrated circuits using power islands." Ex. 1001 ['811] 1:24-27. The Abstract similarly discusses "[a] system for an integrated circuit comprising a plurality of power islands includ[ing] a first power manager and a second power manager." *Id.*, Abstract. The Background of the Invention also focuses upon deficiencies in prior art "voltage islands":

Some prior integrated circuits have employed voltage islands or multiple clocks to lower power consumption. One problem with these integrated circuits is that the voltages in the power island and the frequencies of the multiple clocks are static. The voltages and the frequencies do not dynamically change based on the needs and operation of the integrated circuit.

Id., 2:21-27.

Similarly, each of the claims is directed towards "a plurality of power islands having associated power consumptions, each of the power consumptions adapted to be independently controlled" and a "power manager" to "control[]" the "power consumptions" associated with each "power island." *Id.*, cls. 1-74. The '811 patent's embodiments and disclosure, moreover, are directed towards managing power consumption in power islands. *See, e.g., id.*, Figs. 1-2, 4-5, 8-10. Looking beyond the claims, "power island[s]" are mentioned well over 100 times in the

specification.

And there can be little doubt concerning the '811 patent's field. Both Petitioner and its expert, Dr. Rosing, recognize that "[t]he '811 patent relates to managing power on an integrated circuit ('IC') using power islands." Pet., 2; Ex. 1003 [Rosing-Decl.] ¶ 35.

Borkar's field is not "managing power on an integrated circuit using power islands." Borkar never mentions a "power island" or any other sort of "island." Rather, Borkar's field is "using software to control transistor body bias in controlling chip parameters." Indeed, this is precisely how Borkar describes its "technical field of the invention." Ex. 1006 [Borkar-Decl.] 1:8-10. In accord, Borkar's title is "Software Control of Transistor Body Bias in Controlling Chip Parameters." Its Abstract, similarly, concerns "setting [] a body bias signal to control body biases ...". Borkar's background of the invention likewise concerns points at which a transistor can switch states. *Id.*, 1:12-56.

This focus on transistor body bias is reflected in Borkar's summary of the invention which concerns "control circuitry" that "controls a setting of a body bias signal to control body biases provided in the processor to at least partially control a parameter of the processor, wherein the control circuitry controls the setting responsive to processor signal resulting for execution of software." *Id.*, 1:59-65. Each of Borkar's claims, moreover, requires "a processor having transistor[s]" and

“control circuitry to control a setting of a body bias signal to control body biases provided to at least some of the transistors in the processor ...” *See id.*, cls. 1-24. Consequently, Borkar is not directed toward “managing power on an integrated circuit (‘IC’) using power islands.”

Petitioner does not even address whether (let alone argue that) the ’811 patent and Borkar share the same field of endeavor. Petitioner only contends that Borkar shares the same field of endeavor as Petitioner’s ***other prior art references***. *See, e.g.*, Pet., 11 (“Nowka and Borkar are related to the same field ...”); 13 (“Nowka and Borkar provide similar solutions to a similar problem within the same field of endeavor.”); 49 (“Nowka, Borkar, and Rincon-Mora are in the same field of endeavor ...”); 53 (“Nowka, Borkar, and Iyengar are in the same field of endeavor ...”); 56 (“Nicol and Borkar are in the same field of endeavor ...”); 91 (“Nicol, Borkar, and Rincon-Mora are in the same field of endeavor ...”); 93 (“Nicol, Borkar, and Iyengar are in the same field of endeavor ...”). Even assuming *arguendo* that Borkar shares a field of endeavor with other prior art references would not establish that it is in the same field of endeavor as the ’811 patent. *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1380 (Fed. Cir. 2023) (“Because Mylan argued that de Gennes is analogous to another prior art reference and not the challenged patent, Mylan did not meet its burden to establish obviousness premised on de Gennes.”).

Additionally, Petitioner fails to consistently characterize Borkar's field of endeavor. At times, Petitioner characterizes Borkar's field as "integrated circuit applications, such as battery powered devices." *See* Pet., 49, 91, 93-94. Elsewhere, Petitioner characterizes Borkar's "field of endeavor" as "power management on an integrated circuit." *Id.*, 53, 56. In any event, Petitioner fails to demonstrate that Borkar's field of endeavor (however Petitioner chooses to characterize it) is the same as that of the '811 patent.

Additionally, Petitioner's identification of Borkar's field is overly broad. The Federal Circuit has rejected similarly overbroad characterizations of a field of endeavor. Under Federal Circuit precedent, even art with substantial similarities and in the same technological area as the patent-at-issue may not be in the same field. As one example, *Clay*, the leading analogous art decision, is instructive. There, a finding of analogous art was "clearly erroneous" where the patent-at-issue and the allegedly analogous art (Sydansk) were two patents owned by the same company (Marathon Oil) and the patent-at-issue concerned a gel for use in the petroleum industry while Sydansk concerned a "similar" gel for use in the petroleum industry. *Clay*, 966 F.2d at 657-60. As to the field-of-endeavor test, the Court found that the Board clearly erred in finding Sydansk was analogous because the patent-in-question's "field of endeavor is the *storage* of refined liquid hydrocarbons" whereas "[t]he field of endeavor of Sydansk's invention ... is the *extraction* of crude

petroleum.” *Id.*, 659 (italicization in original). Thus, the “storage” and “extraction” of oil are two separate fields.

Similarly, semiconductor “memory” is likewise too broad a field. As the Federal Circuit found:

The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories.

Wang Labs., Inc. v. Toshiba Corp., 993 F.2d 858, 864-65 (Fed. Cir. 1993).

Thus, in *Clay* despite a similar gel being used, in both cases, in the petroleum industry the references were not the same field because they did not relate to the same endeavor—storage vs. extraction. Likewise, the generic categorization of references as “memory” was insufficient in *Wang Labs*.

Clay and *Wang Labs* confirm that a field of endeavor is not determined in so low-resolution a fashion that it would suffice for Petitioner to suggest that Borkar, much less the ’811 patent, generally involve both power and integrated circuits. Petitioner has not shown that the ’811 patent and Borkar are directed to the same field of endeavor.

B. Petitioner Does Not Demonstrate Borkar Is Reasonably Pertinent To The Problem The Inventors Of The '811 Patent Were Addressing.

Nor is Borkar reasonably pertinent to the problem the inventors of the '811 patent were trying to solve. In assessing whether a reference is “reasonably pertinent,” “the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve,” and if the reference “is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.” *Clay*, 966 F.2d at 659. Further, “when addressing whether a reference is analogous art with respect to a claimed invention under a reasonable-pertinence theory, the problems to which both relate *must* be identified and compared.” *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020).

The '811 patent is directed towards addressing deficiencies in prior art integrated circuits that employed “voltage islands” with static voltages/frequencies. The '811's background of the invention explains that “[o]ne problem with many integrated circuits is that power consumption is not efficiently utilized,” because “the entire integrated circuit may operate at a maximum frequency just to support an application needing that maximum frequency, while other portions of the integrated circuit can operate at a lower frequency.” Ex. 1001 ['811] 2:1-6. Additionally, “inactive circuitry within the integrated circuit consumes power and increases the

likelihood of leakage,” and that such “[i]nefficient power consumption may also adversely affect performance of the integrated circuit.” *Id.*, 2:6-10. The ’811 patent explains that the importance of reducing power consumption increases as ICs employ more functionalities including in, *e.g.*, system-on-a-chip (SoC) chips. *Id.*, 2:11-20.

The ’811 patent further explains that certain prior art integrated circuits employed “voltage islands” or multiple clocks to lower power consumption and otherwise address these issues. This prior art, however, suffered from the “problem” that the voltages/frequencies are static and did not dynamically change based upon the needs and operation of the integrated circuit:

Some prior integrated circuits have employed voltage islands or multiple clocks to lower power consumption. One problem with these integrated circuits is that the voltages in the power island and the frequencies of the multiple clocks are static. The voltages and frequencies do not dynamically change based on the needs and operation of the integrated circuit.

Id., 2:21-27. Thus, the ’811 patent tries to address the problem of “voltage islands” which have static voltages and frequencies that do not dynamically change based on the needs and operation of the integrated circuit.

Borkar, by contrast, concerns a much different problem; optimizing the rate at which transistors switch states. As Borkar’s background of the invention explains,

a transistor's performance "includes the rate at which the transistor can switch states." Ex. 1006 [Borkar] 1:12-14. Borkar explains that the switching speed of transistors may affect, *e.g.*, the temperature of the chip and power consumption. *Id.*, 1:14-57. To address these problems relating to the switching rate of transistors, Borkar introduces "control circuitry" that "controls a setting of a body bias signal to control body biases provided in the processor," that is, to adjust the point at which a transistor switches. *Id.*, 1:59-65; *see also, id.*, 2:49-52 ("The invention involves changing body bias signals applied to transistors in an integrated circuit ...").

Thus, the '811 patent and Borkar are directed towards solving different problems. Whereas the '811 patent is directed towards addressing deficiencies in prior art ICs containing "voltage islands" with static voltage/frequency, Borkar is directed towards adjusting the switching speed of particular transistors to, *e.g.*, ensure the integrated circuit does not overheat.

Thus, Petitioner fails to demonstrate that Borkar is analogous art to the '811 patent, and consequently, all of Petitioner's grounds fail.

III. PETITIONER'S NOWKA-BORKAR GROUNDS FAIL (GROUNDS 1A, 1B, 1C, ALL CLAIMS).

Petitioner's Nowka-Borkar grounds fail because Petitioner fails to demonstrate that the "power manager" or "plurality of power islands" limitations are disclosed and/or obvious over the combination. *See* Section III.A-B.

A. Petitioner Has Failed To Show That The Nowka-Borkar Combination Discloses Or Renders Obvious The “Power Manager” Limitations (Grounds 1A, 1B, 1C, All Claims).

As explained, each claim requires a “power manager” which controls “power consumption” in a power island. *See, e.g.*, Ex. 1001 [’811] cl. 1 (“at least one of the power islands adapted to have the power manager control its associated power consumption ...”). In the Nowka-Borkar combination, Petitioner contends that “Borkar discloses controlling power consumption *of a power island* by selecting a threshold voltage, as well as changing a frequency of operation or supply voltage during operation.” Pet., 22; *see also id.*, 40-41, 43, 45, 47 (relying on limitation 1[d] argument for other claims). Petitioner relies solely upon Borkar to demonstrate that power consumption in a power island is controlled via selecting a threshold voltage, stating:

Borkar discloses *controlling power consumption of a power island* by selecting a threshold voltage, as well as changing a frequency of operation or supply voltage during operation. For example, “[i]n some embodiments, when the battery level signal is below a certain level, the supply voltage is lowered, the frequency of a processor clock is lowered, and/or the bias signals are changed to raise the threshold voltages of some or all of the transistors. This will reduce the power consumption to maintain the battery.” MTK-1006, 5:25-30; *see also* MTK-1006, 3:46-57, 4:26-28, 5:25-34, 6:15-24, 6:31-40, 12:39-42; MTK-1003, ¶70.

Pet., 22; *see also id.*, 40-41, 43, 45, 47 (relying on discussion of 1[d] for other claim elements).

Petitioner’s argument fails for two reasons. First, contrary to its contention, Petitioner does not demonstrate that this disclosure has anything to do with controlling power consumption within a “power island.” Fundamentally, its discussion of limitation 1[d] is unmoored from its prior discussion of and what it identified as a “power island” in Borkar. In connection with the “plurality of power islands” limitation (1[b]), Petitioner identified “multiple ‘domains,’ or groups of transistors, which have distinct power parameters” as shown in Figures 5 and 7 as Borkar’s power islands. Pet., 17. Petitioner’s annotated versions of Figures 5 and 7, showing the alleged power islands in red are below:

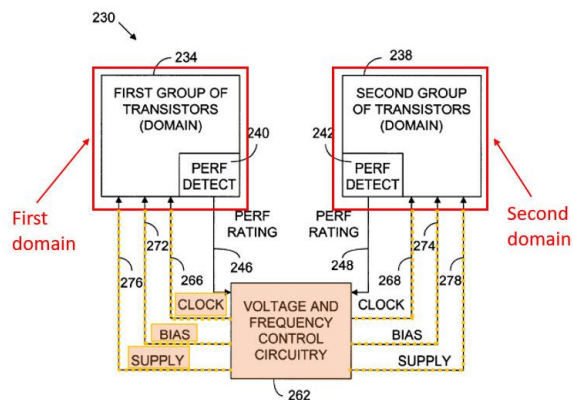


FIG. 5

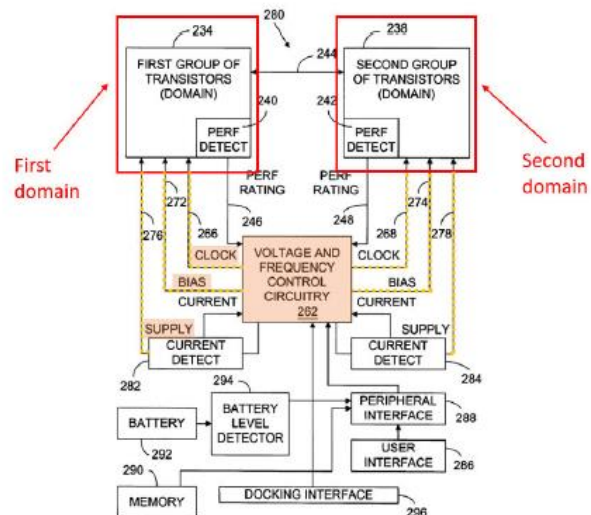


FIG. 7

Pet., 17-19.

These groups of transistors are not, themselves, power islands for the reasons discussed below in Section III.B. But even supposing, *arguendo*, that they were, the section Petitioner quotes relating to the battery level signal has nothing to do with these “multiple domains” or “groups” of transistors. Rather, the battery level signal Petitioner relies upon is discussed in conjunction with Borkar’s Figure 2, which Petitioner does not argue contains a power island. Ex. 1006 [Borkar] 5:1-10. Moreover, neither Figure 2 nor its associated disclosure mentions “multiple domains” or “groups” of transistors. Ex. 1006 [Borkar] Fig. 2; *id.*, 5:1-6:53.

Petitioner also provides a “*see also*” listing of six additional citations in Borkar (Pet., 22) but Petitioner does not explain how these citations relate to its argument. Petitioner appears to cite other instances where a voltage threshold is mentioned, but it does not explain how any of the citations relate to “selecting” a “threshold voltages of variable threshold transistors selected” to control power consumption within a power island. To make matters worse, these string cites come from disparate embodiments, mostly unrelated to the Figure 2 embodiment or the embodiments wherein Petitioner attempts to identify “power islands.” Pointing to a mass of string cites without explanation does not demonstrate that something is taught in the art. *See, e.g., Intel Corp. v. VLSI Technology LLC*, IPR2019-01196, Paper 11, 11 (Jan. 7, 2020) (reference not shown to teach limitation when “Petitioner

... lists a string of citations to [a reference] but does not explain how these disclosures teach” the limitation).

Second, even if Petitioner had shown that Borkar discloses controlling power consumption in a “power island,” Petitioner does not provide any explanation of how the power consumption would be controlled by a “power manager” in Borkar (or Nowka, for that matter). The limitation requires “at least one of the power islands adapted to have *the power manager* control its associated power consumption.” Ex. 1001 [’811] cl. 1[d]. Petitioner has identified Borkar’s “control circuitry” as the power manager (Pet., 20) and the “on-chip supervisor” and “system software” in Nowka (*id.*, 20-21). The Petition, however, does not show that Borkar’s “control circuitry” or Nowka’s “on-chip supervisor” and “system software” would select a threshold voltage to control power consumption within a power island. Pet., 22. Indeed, as Petitioner concedes, “Nowka does not explicitly disclose changing a threshold voltage to control the power consumption.” Pet., 13. As mentioned above, Petitioner notes that the only element of Borkar a POSITA would combine with Nowka is the “threshold voltage tuning solution.” Pet., 13. Yet Petitioner fails to explain how a POSITA would modify Nowka’s “on-chip supervisor” and “system software” to select a threshold voltage at all, let alone implement Borkar’s method of selecting a threshold voltage.

Even if we were to assume that Borkar's "control circuitry" was an unmentioned part of the Nowka-Borkar combination, Petitioner does not and cannot show that Borkar's "control circuitry" actually selects a "threshold voltage" for a power island. Petitioner repeatedly references Borkar's control circuitry 262 (*see* Pet., 11, 19, 21), which is used in conjunction with the "domains" of mismatched transistors Petitioner argues are Borkar's power islands (*id.*, Pet., 16). Control circuitry 262 "provides" (1) "a clock signal" to the different domains of mismatched transistors (Ex. 1006 [Borkar] 11:25-28), (2) "a body bias signal(s)" to the different domains of mismatched transistors (*id.* 11:40-43), and (3) "a supply voltage signal" to the domains of mismatched transistors (*id.* 11:55-58). Crucially, missing from the description of control circuitry 262 is any mention of selecting "one of plural threshold voltages of variable threshold transistors." Tellingly, Petitioner does not argue that any of Borkar's other various "control circuitr[ies]" actually select one of plural threshold voltages, as Petitioner merely states that "[t]he control circuitry may further control settings of a supply voltage signal and a clock signal ... to control the parameter." Pet., 20.

In sum, Petitioner argues that Borkar may change the threshold voltage (Pet., 22), but Petitioner has not shown that this controls power consumption in a power island or, even if it did, that it is performed by the "power manager" suggested by Petitioner in Borkar or the Nowka-Borkar combination.

B. Petitioner Does Not Show That Nowka-Borkar Teaches “A Plurality of Power Islands” Having Power Consumptions “Independently” Controlled Or Controllable (Grounds 1A, 1B, and 1C, All Claims).

Each of the claims require a “plurality of power islands,” *i.e.*, more than one “power island.” “Power island” has been twice construed by two different district courts in a mostly consistent fashion. *See* Section III.B.1. Petitioner, however, fails to demonstrate that either Nowka or Borkar or the combination of the two discloses or renders a “plurality of power islands” under either district court construction, or any other suggested construction. *See* Section III.B.2-4.

1. The Petition Should Be Denied For Failing To Address The Construction Of “Power Island.”

Each challenged claim requires “a plurality of power islands,” each power island with a power consumption either adapted to be (or being) “independently controlled” (independent claims 1, 17, 24) or being “independently controllable” (independent claims 45, 61).

The term “power island” requires construction and, indeed, has already been construed in the ’811 patent by two different district courts, in litigations involving Freescale and Xilinx. *See generally* Ex. 1011 [Freescale-Order] 44; Ex. 1012 [Xilinx-Order] 29. The constructions are as follows:

<i>Freescall</i> District Court Construction	<i>Xilinx</i> District Court Construction
a section of an integrated circuit where power consumption is controlled by independently varying its operating voltage and its frequency of operation Ex. 1011 [Freescall-Order], 44	a section of an integrated circuit where power consumption is controlled by independently varying its operating voltage or its frequency of operation (or both) Ex. 1012 [Xilinx-Order], 29

What is more, in the co-pending district court litigation, the parties to this proceeding have proposed that there is a need for construction of the term “power island,” and that the proper construction is one of those previously decided by district courts. There, Patent Owner has proposed the *Freescall* construction, and Petitioner has proposed the *Xilinx* construction. Ex. 2004 [JCCS] 3.

To provide context for these proposals, the ’811 specification states that “[a] power island ... is any section, delineation, partition, or division of an integrated circuit [] where power consumption is controlled within the section, delineation, partition, or division.” Ex. 1001 [’811] 3:59-62. The ’811 specification includes additional disclosures of how power consumption is “controlled within” a power island, *see id.*, 4:11-60 (examples of controlling power within a power island by, *inter alia*, “modifying a clock frequency of one of the power islands,” “modify[ing] a voltage of one of the power islands”), and the parties’ dispute could be regarded as centering on which of the above interpretations—in view of the entire intrinsic

record—is a more appropriate interpretation of what it means for power consumption to be “controlled within” a section of an integrated circuit.

While the parties disagree about *which* district court construction to use, they agree that a “power island” in the sense of the ’811 patent is a section of an integrated circuit where power consumption is controlled by “independently varying” one or more power characteristics, including at least one of an “operating voltage” or a “frequency of operation.”

Petitioner here contends, however, that “power island” requires no construction. Pet., 6. Petitioner does not explain why “power island” does not “require” construction here, but it is apparent. Petitioner’s hopes turn upon ignoring the failure of the cited art to disclose multiple “power islands”—power-controllable sections of integrated circuits. What better way to avoid confronting this failure than to conceal it by avoiding any engagement with the claim term?

Admittedly, Petitioner does not conceal the existence of the *Xilinx* and *Freescale* constructions, citing them generally in connection with stating that “no claim terms require a formal construction for purposes of addressing the Grounds in this Petition.” Pet., 5-6. Curiously, however, while Petitioner expressly addresses prior *Freescale* constructions of “synchronously” and “asynchronously” (albeit in conclusory fashion), *see, e.g.*, Pet., 43, 85-86, Petitioner nowhere indicates that “power island” was even construed in any previous litigation, let alone that

Petitioner is proposing one of the prior litigation constructions in the co-pending district court litigation.

Again, Petitioner has little choice because Petitioner cannot—and does not even attempt to—argue that the cited art teaches “a plurality of power islands” by comparing the art to either party’s (or either district court’s) construction.

This is more than sufficient reason to deny institution. “Power island” is a term that both parties agree requires construction and, indeed, has been previously construed by two different district courts in mostly similar terms. Both parties, moreover, advance one of these constructions in district court and, aside from the distinction identified above, both parties agree on the balance of the construction. Petitioner, however, does not make any real attempt to argue that either of these constructions is satisfied under any of its grounds nor does it make any real attempt to argue why “power island,” only in this IPR, does not require construction.

Petitioner had the burden to construe the claim and demonstrate that the construed claims are satisfied. See 37 C.F.R. §§ 42.104(b)(3)-(4). Its failure to carry that burden is sufficient reason to deny institution. In *Orthopediatrics Corp. v. K2M, Inc.*, IPR2018-01546, Paper 10 (Feb. 14, 2019), for instance, the Board denied institution where the Petitioner took contradictory claim constructions between the IPR and the district court and the district court had accepted petitioner’s construction. *Id.*, 11-12. As the Board explained:

Because of the unique circumstances of this proceeding, where Petitioner advocated for a different claim construction in the related district court litigation, we determine that construction of the claim term in dispute is necessary for the resolution of issues before us. Lacking such claim construction, the Petition fails to comply with 37 C.F.R. § 42.104(b)(3).

... Keeping in mind that Petitioner has the burden to show a reasonable likelihood of prevailing in showing that at least one claim is unpatentable, it is incumbent upon Petitioner to address substantively the District Court’s claim construction of a limitation when construction of that limitation is likely to be a focal point of the inter partes review proceeding. By failing to reconcile its proffered claim construction here with its very different construction proffered in District Court—which the District Court agreed with—Petitioner fails to satisfy this burden.

Id.; see also *10x Genomics, Inc. v. President and Fellows of Harvard College*, IPR2023-01299, Paper 15, 13 (Mar. 7, 2024) (“Because Petitioner has the burden to show a reasonable likelihood of prevailing in its assertion that at least one claim is unpatentable, our rules require that Petitioner substantively address any claim terms in dispute. ... Thus, we find the Petition is deficient on its face under 37 C.F.R. § 42.104(b)(3), as merely stating ‘no construction [is] necessary’—while knowing the construction is actually disputed under § 112(f)—is not sufficient for purposes of institution.”).

Consequently, where “power islands” has been construed by two different district courts and the parties agree the term requires construction (each advocating for one of those constructions), it was incumbent upon Petitioner to say more than that “[f]or purposes of this proceeding only, Petitioner submits that no claim terms require a formal construction for addressing the Grounds in this Petition.” Pet., 5. Moreover, it was incumbent upon Petitioner to at least inform the Board of its inconsistent claim construction position, which it has not done.

This is particularly so given that the district court and the Board apply precisely the same claim construction standard. Notably, the Office made clear, in the preamble of the rulemaking associated with the switch from a “broadest reasonable interpretation” standard to a *Phillips*-style claim construction standard, the Office’s official “agree[ment] with “[s]everal comments [which] acknowledged that harmonizing the claim construction standards **would prevent parties from taking inconsistent positions ...**” *Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51350 (Oct. 11, 2018); *id.* (““With a uniform application of the *Phillips* standard, patent challengers ... **will instead be required to choose a single claim construction that best captures the true meaning of the patent claim ...**”).

At the very least, Petitioner needed to explain why a twice construed term, for which Petitioner currently has provided a construction in the district court litigation,

required “no formal construction” here. Under these circumstances, Petitioner has failed to comply with 37 C.F.R. §§ 42.104(b)(3)-(4) and that failure should prove sufficient to deny institution.

2. Petitioner Does Not Show That Nowka Discloses “A Plurality Of Power Islands” With “Independently” Controlled Or Controllable Power Consumptions.

Petitioner alleges that the “four distinct domains” of Nowka’s Figure 3 are “a plurality of power islands.” *See, e.g.*, Pet. 15-16. These are the only sections of Nowka that Petitioner identifies as purported “power islands.” *Id.* But at least three of these domains are clearly not “power islands,” and Petitioner therefore fails to show that Nowka discloses “a plurality of power islands.”

As an initial matter, Petitioner contention here that Nowka discloses a “plurality of power islands” is at odds with its position in a co-pending IPR (IPR2024-00719) challenging a related patent (U.S. Patent No. 7,945,885), filed on the same day as the present petition. In IPR2024-00719, Petitioner raises the same Nowka-Borkar combination to attacks claims containing the same “plurality of power islands” limitation. *See* IPR2024-00719, Paper 2, 1 (Mar. 25, 2024). In IPR2024-00719, however, Petitioner concedes that Nowka does not disclose a “plurality of power islands,” IPR2024-00719, Paper 2, 16 (“Nowka, however, ***discloses a single variable power domain.***”); *id.*, 21 (“As discussed, Nowka discloses ***a*** power island (logic domain) with an associated power consumption that

is independently controllable by changing a supply voltage or operating frequency.”). Similarly, Petitioner presents no arguments on the ’885 Patent that Borkar discloses a “plurality of power islands,” and instead argues that a POSITA would need to combine Borkar with Nowka to teach this limitation. IPR2024-00719, Paper 2, 21-22.

Thus, though Petitioner concedes that Nowka only discloses a single power island (at most) in IPR2024-00719, Petitioner here contends that Nowka discloses a “plurality of power islands,” *i.e.*, more than one power island. Petitioner fails to prove its case. Petitioner’s analysis of Nowka’s Figure 3 offers only a bare assertion that four “domains” in Nowka’s Figure 3 satisfy a statement about “power islands” in the ’811 patent’s specification. Pet., 16 (“The four domains constitute power islands on an IC because they are each a ‘section, delineation, partition, or division’ on the SOC where ‘power consumption is controlled within the section, delineation, partition, or division.’”) (quoting Ex. 1001 [’811] 3:59-62). Petitioner adds that “[t]hese domains further have power consumptions adapted to be independently controlled because they receive separate voltage supplies which can be independently controlled.” Pet., 16 (citing Ex. 1003 [Rosing-Decl.] ¶ 63). Petitioner’s expert says that these domains “receive separate voltage supplies, which can be independently controlled, as [allegedly] explained by” the following excerpt from Nowka:

To support DVS in this SOC, the power distribution has been divided into four distinct domains as shown in Fig. 3. These consist of two persistent voltage domains, one dynamically voltage-scaled logic domain and one internally derived domain. The I/O drivers and receivers are powered by a persistent 3.3-V supply. The real-time clock and the logic associated with controlling the voltage of the cores is powered by a persistent, battery-backed 1.8-V supply. The logic supply for the processor core, caches, SOC cores and accelerators is dynamically varied between 1 and 1.8 V. Finally, the PLL [10] is powered by an on-chip linear regulator, which derives a constant 1-V supply from the dynamically-varying logic supply. The power domains and the signal interfaces between the domains are shown in Fig. 3.

Ex. 1004 [Nowka] 1442. This disclosure does not support Petitioner’s argument that the “I/O drivers and receivers,” “real-time clock and ... logic controlling the voltage of the cores,” and “PLL” “powered by an on-chip linear regulator” are “power islands.” Pet., 8, 16.

First, while Petitioner and Petitioner’s expert both state that the four “domains” of Nowka’s Figure 3 “receive separate voltage supplies,” this assertion has little to do with whether these “domains” are “power islands.” Under either party’s proposed district court construction, to ask whether a “domain” is a power island is to ask whether “power consumption is controlled by independently varying its operating voltage” and/or its “frequency of operation.” Even if no district court

construction of “power island” is adopted, the ’811 specification’s statement about “power islands” that Petitioner quotes in connection with this argument expressly focuses on whether (and how) “power consumption is controlled within” a section of circuitry, Ex. 1001 [’811] 3:59-62, *see also* Pet., 16 (quoting Ex. 1001 [’811] 3:59-62)—not whether a section of circuitry receives a “separate voltage supply.”

Second, the material quoted by Petitioner’s expert plainly states that one of the four “domains” in Nowka’s Figure 3 is provided a “3.3-V supply” that Nowka refers to as “persistent,” that another one of the four “domains” in Nowka’s Figure 3 is provided a “1.8-V supply” that Nowka again refers to as “persistent,” and that a third “domain” in Nowka’s Figure 3 is provided what Nowka refers to as “a constant 1-V supply.” These disclosures expressly show that three of Nowka’s four “domains” are supplied with **constant** voltages, not variable voltages, and certainly not independently variable voltages. This material provides no support whatsoever for Petitioner’s expert’s assertion that the voltages supplied to these domains “can be independently controlled.” *Cf.* Ex. 1003 [Rosing-Decl.] ¶ 63.

Merely placing the words “independently controlled” near a disclosure about Nowka’s “domains” does not even evidence—let alone show—that these “domains” are “power islands,” and Petitioner and Petitioner’s expert’s conclusory statements to the contrary are entitled to little weight. *See, e.g.*, 37 C.F.R. § 42.65(a); *see also Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-17 (August 24, 2022)

(precedential) (denying institution when expert declaration “adds little to the conclusory assertion for which it is offered to support”). Fundamentally, obviousness may not be proven by Petitioner’s and its expert’s conclusory statements. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”).

3. Petitioner Does Not Show That Borkar Discloses “A Plurality Of Power Islands” With “Independently” Controlled Or Controllable Power Consumptions.

Petitioner also argues that a “first domain” and “second domain” are “power islands” in Borkar’s Figure 5, and separately that a “first domain” and “second domain” are “power islands” in Borkar’s Figure 7. As with Nowka, the evidence cited simply does not support Petitioner’s assertions.

As an initial matter, however, in the context of the Nowka-Borkar combination, Petitioner does not describe the combination as relying on Borkar to disclose a “plurality of power islands.” Instead, petitioner describes the Nowka-Borkar combination as follows:

Because Nowka and Borkar provide similar solutions to a similar problem within the same field of endeavor, a POSITA would have naturally looked at, and been motivated to combine, the two references when selecting a method for Nowka’s dynamic power management

mechanism. MTK-1003, ¶57. For example, Nowka does not explicitly disclose changing a threshold voltage to control the power consumption. However, Nowka explains that “[s]tatic power due to reverse-biased junction current, sub-threshold leakage, gate leakage and analog current sources can limit the operating lifetime of battery-powered systems. Decreasing the standby power of the IC increases shelf-life as well as overall energy efficiency.” MTK-1004, 1446. ***Thus, a POSITA would have been motivated to look to Borkar’s threshold voltage-tuning solution to alleviate static power in Nowka’s SOC.*** MTK-1003, ¶57.

Pet., 13. Thus, Petitioner Nowka-Borkar combination entails implementing “Borkar’s threshold-voltage tuning solution to alleviate static power in *Nowka’s SOC*.” Petitioner does not contend that a POSITA would be motivated or able to implement Borkar’s “first domain” and “second domain” in Nowka’s system-on-a-chip. Consequently, even assuming, *arguendo*, that Borkar’s “first domain” and “second domain” were power islands, that would not be relevant to whether the Nowka-Borkar combination that Petitioner proposes discloses or renders obvious a plurality of power islands.

And even if Petitioner had proposed such a combination, Petitioner has not shown that Borkar in fact discloses or renders obvious a “plurality of power islands.” Indeed, Petitioner’s assertions only superficially address the relevant inquiry. Petitioner states, for example, that “[a] POSITA would have understood these

domains [in Figures 5 and 7 of Borkar] to be power islands because they are a “section, delineation, partition, or division of the integrated circuit,” Pet., 17—partially quoting the specification’s statement that “[a] power island ... is any section, delineation, partition, or division of the integrated circuit ... **where power consumption is controlled within the section, delineation, partition, or division,**” Ex. 1001 [’811] 3:59-62, while entirely ignoring its entire second half—let alone the requirements of either district court construction. *See* Section III.C.1.

Petitioner then states that “Borkar further discloses controlling the supply voltage, and clock frequency of each domain individually.” Pet., 19. This assertion is accompanied by a string citation to a series of disclosures. These cites purport to show how the control circuitry in Borkar can control clock frequency and supply voltage, but Petitioner fails to relate these citations back to the issue of “power islands.” The Board should not infer from this string citation that the limitation is likely to be satisfied. *See, e.g., Intel Corp.* IPR2019-01196, Paper 11, 11 (reference not shown to teach limitation when “Petitioner ... lists a string of citations to [a reference] but does not explain how these disclosures teach” the limitation).

Indeed, Petitioner provides almost no analysis accompanying this string citation. First Petitioner cites to Borkar at 11:25-37, to which Petitioner supplies the parenthetical “describing controlling clock frequency of domains” without additional explanation. Second, Petitioner cites to Borkar at 11:55-64, to which

Petitioner supplies the parenthetical “describing controlling supply voltage of domains” without additional explanation. Third, Petitioner provides a “see also” citation to Borkar at 12:10-15, 13:4-6 for which Petitioner provides neither a parenthetical nor additional explanation. Finally, Petitioner cites to Borkar at 13:35-37 and provides the parenthetical quotation “[c]ontrol circuitry 262 can make the body bias, supply voltage, and clock frequency settings so as to keep at a temperature or temperature range.” Pet., 19. Petitioner does not specify whether this last disclosure relates to an argument about the Figure 5 embodiment, the Figure 7 embodiment, or both (and both Figures 5 and 7 contain “control circuitry 262”). Nor does Petitioner elaborate upon how “keep[ing]” multiple components “at a temperature or temperature range” necessarily involves **independent** control of the power consumptions of those components by varying at least one of an operating voltage or a frequency of operation, as required by either party’s proposed construction of “power island” in the co-pending litigation, or as required by other limitations referring to “independently controlled” or “independently controllable” power consumptions in power islands.

4. Petitioner’s Arguments That The Nowka-Borkar Combination Teaches “A Plurality Of Power Islands” With “Independently” Controlled Or Controllable Power Consumptions Are Conclusory.

Although Petitioner’s arguments are phrased in terms of what an alleged

“Nowka-Borkar combination” renders obvious, *see, e.g.*, Pet., 15, Petitioner never specifies exactly how Nowka and Borkar are to be combined to arrive at this limitation. Petitioner has stated that a POSITA would combine the “threshold voltage tuning solution” in Borkar with Nowka, but Petitioner’s arguments for “power islands” with “independently” controlled power consumptions is inconsistent with this previously identified combination. Petitioner suggests that both Nowka and Borkar provide the “independent control.” Pet., 16 (“These domains [within Nowka] further have power consumptions adapted to be independently controlled.”); Pet., 19 (“Accordingly, a POSITA would have understood and found obvious that Borkar’s domains are a plurality of power islands, each with a power consumption adapted to be independently controlled.”). But Petitioner does not explain which alleged “power islands” from Nowka or Borkar a POSITA would use in this combination. Presumably, in Petitioner’s combination, a POSITA would use Nowka’s alleged power island, but then what is the purpose of arguing that Borkar also renders this limitation obvious? Petitioner never explains, nor does Petitioner ever explain away the inconsistently alleged combinations or provide any additional obviousness analysis.

Fundamentally, Petitioner’s failure to articulate a substantive obviousness argument is a consequence of its failure to expressly identify—even in the alternative, or for the purposes of argument—exactly where Nowka might fail to

disclose a “plurality of power islands,” although Petitioner implicitly recognizes that Nowka might fail to do so. *See, e.g.,* Pet., 17 (arguing that Borkar discloses “a plurality of power islands” “[t]o the [entirely unspecified] extent that it is argued that Nowka does not disclose or render obvious this limitation”). Petitioner’s refusal to expressly acknowledge where the cited disclosures might not disclose the claimed invention is contrary to the law of obviousness, which requires identification of “the differences between the subject matter sought to be patented and the prior art” 35 U.S.C. § 103 [pre-AIA], *see also, e.g., KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007) (citing *Graham v. John Deere Co.*, 383 U. S. 1, 17-18 (1966)). Petitioner never, for example, makes separate arguments about a system derived from Nowka as modified by any alleged teachings of Borkar.

Petitioner only argues, separately and individually, that Nowka discloses “a plurality of power islands,” which it does not, *see* Section III.C.2, and—in an unspecified alternative which does not address why Nowka might not disclose “a plurality of power islands,” that Borkar would disclose this limitation, which it does not, *see* Section III.C.3. *See* Pet., 15-19. Petitioner therefore does not show that any combination of Nowka and Borkar renders obvious any system or method in “a plurality of power islands” as required by all challenged claims.

IV. PETITIONER’S NICOL-BORKAR GROUNDS FAIL (GROUNDS 2A, 2B, 2C, ALL CLAIMS).

Petitioner’s Nicol-Borkar grounds are also deficient. As an initial matter, Petitioner fails to explain what the Nicol-Borkar combination is. This is sufficient reason to reject the Nicol-Borkar grounds. *See* Section IV.A. But even if that could be overlooked, Petitioner fails to demonstrate a reasonable likelihood of prevailing as to any challenged claim for the reasons set forth in Sections IV.B-D.

A. Petitioner Never Explains What The Nicol-Borkar Combination Actually Is.

Petitioner argues that a POSITA would combine Nicol with Borkar but fails to sufficiently describe the combination.

Petitioner attempts to state its combination on pages 56-58 of the Petition. In those pages, however, Petitioner never clearly articulates *what* its combination is. Rather, Petitioner provides broad statements like, “[a] POSITA would have been motivated to modify Nicol’s integrated circuit to incorporate the teachings of Borkar with reasonable expectation of success.” *Id.*, 56. But what “teachings of Borkar” would be used to modify Nicol’s integrated circuit? We are not told. For example, Petitioner points to Figure 4 in Nicol as supposedly teaching a “plurality of power islands” but then says “[t]o the extent it is argued that Nicol does not explicitly disclose a plurality of power islands, Borkar also discloses and renders obvious a plurality of power islands. . . .” Pet., 60. So what, specifically, is the combination?

Petitioner fails to explain this. Petitioner does not argue that some component of Nicol is changed according to the teachings in Borkar nor does Petitioner argue that some components in Borkar can be imported into Nicol. Petitioner claims that “[t]he Nicol-Borkar combination renders obvious a plurality of power islands. . .” (Pet., 59) but fails to anywhere explain how or why. This lack of explanation is found everywhere Petitioner asserts that the alleged Nicol-Borkar combination teaches a limitation.

Petitioner also tells us that alleged “similarities across Nicol and Borkar’s disclosures would have led a POSITA to incorporate Borkar’s teachings”—which teachings, again we are not told—“in Nicol’s dynamic power management.” *Id.*, 57. Petitioner further contends that “Nicol discusses the need to adjust to temperature variations,” that “[a] POSITA would have understood that the discussion of temperature variation is closely related to the need to monitor power consumption,” and that “[a] POSITA would have understood that Borkar’s power consumption monitoring mechanism would provide an additional check on the adverse effects of high power consumption ...” *Id.*, 57-58.

Thus, at best, we are told that Petitioner’s combination involves Borkar’s power consumption monitoring mechanism—whatever that is—which would, somehow, be an “additional check” on the adverse effects of high-power consumption that Nicol discusses. We are not told, however, *what* from Borkar is

combined with *what* from Nicol, how the combination would work, and why a POSITA would be able to make the combination with a reasonable expectation of success.

To be sure, Petitioner attempts to provide reasons why a POSITA might combine these two pieces of art in some fashion. Petitioner states that “Nicol and Borkar are in the same field of endeavor: power management on an integrated circuit.” Pet., 56. Petitioner further states that “Nicol and Borkar address the same known problem, the need to balance performance with power consumption in electronic systems” and that “[b]oth Nicol and Borkar also suggest the solution of dynamically controlling variables such as frequency and voltage in response to changing needs and operations.” Pet., 57. Petitioner then says that “[t]he similarities across Nicol and Borkar’s disclosures would have led a POSITA to incorporate Borkar’s teachings in Nicol’s dynamic power management.” Pet., 57. Petitioner then goes on to discuss temperature monitoring in Borkar to state that a “POSITA would have understood that Borkar’s power consumption monitoring mechanism would provide an additional check on the adverse effects of high power consumption (which causes high temperature) that Nicol discusses.” Pet., 57-58.

But, again, missing from this discussion of why a POSITA would combine Nicol with Borkar in some fashion is a clear description of *what* the resulting combination would be. Instead of actually explaining its combination, Petitioner

vaguely points to disparate features in the art. But merely pointing to disparate features in the art is insufficient to state a combination. *Microsoft Corp. v. Virtru Corp.*, IPR2023-00019, Paper 19, 23 (May 17, 2023) (“Nor does Petitioner explain why it would have been obvious to use both mechanisms in the process of validating one user, and obviousness cannot be shown merely by pointing to disparate features of a disclosure.”) (denying institution).

Relying on unspecified combinations, as Petitioner has done here, is sufficient reason to reject a ground. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“it was [Petitioner’s] burden to explain to the Board how Haskell combined with Rossmere rendered the challenged claims unpatentable.”); *Markforged Inc., v. Continuous Composites, Inc.*, IPR2022-01220, Paper 8, 36 (Jan. 11, 2023) (“Petitioner appears to be arguing that a POSITA could have combined unspecified teachings of Lipsker in unspecified ways to improve Wohrl’s method. . . . Accordingly, the Petition lacks an adequate explanation as to why a skilled artisan reading Wohrl would have looked specifically to Lipsker for its particular teachings, **and how** a skilled artisan would have combined the teachings of Wohrl and Lipsker in the manner claimed.”) (denying institution).

Petitioner likewise has simply pointed to disparate disclosures in Nicol and Borkar without explaining how a POSITA would have combined the two. This is reason enough to reject the Nicol-Borkar grounds.

B. The Nicol-Borkar Combination Does Not Teach Limitations Which Link Power Management To A Threshold Voltage (Claims 1, 24, 45, and Dependent Claims).

Each of claims 1, 24, and 45 require a “power manager” that controls the “associated power consumption” of a “power island” by selecting a “threshold voltages of variable threshold transistors”. . .” Ex. 1001 [’811 Patent] cl. 1. Petitioner argues that Nicol and Borkar disclose controlling power consumption via selecting a threshold voltage. Petitioner, however, fails to show that this limitation is met in either Nicol or Borkar or the combination of the two.

Petitioner first argues that Nicol “discusses existing techniques in the art ‘tuning the threshold voltages’ to ‘ensure that the leakage current . . . does not become too large.’” Pet., 64 (*citing* Ex. 1008 [Nicol] 2:3-10). Petitioner argues that this quote would “motivate a POSITA to implement selecting one of plural threshold voltages, either in light of Nicol alone, or in view of Borkar as explained below.” Pet., 64-65. But Petitioner quotes Nicol at 2:3-10 out of context. The full quotation reads:

The Kuroda et al paper demonstrates that the speed of the circuit can be maintained (or at least the speed degradation can be minimized) by tuning the threshold voltages even as the supply voltage is lowered. The tuning is achieved on-chip by varying the substrate-bias voltage. These techniques are needed to ensure that the leakage current, which

increasing [sic] as the threshold voltage is reduced, does not become too large.

Ex. 1008 [Nicol] at 2:3-10.

This is not a disclosure of “at least one of the *power islands* being configured to have one of plural threshold voltages of variable threshold transistors selected” Ex. 1001 [’811 Patent] cl. 1. This quote merely states that a paper existed which discussed how *circuit speed* can be maintained by tuning the threshold voltage and that the tuning can be achieved by varying the substrate-bias voltage. It is unclear how the existence of a paper—which is not cited as art in its ground—discussing the maintenance of circuit speed relates to the claimed invention. There is no discussion in this quote, for example, of selecting a threshold voltage at all (let alone selecting a threshold voltage for a power island) and nothing to provide a POSITA with motivation to modify Nicol or combine it with Borkar to arrive at the limitation-in-question.

As to the motivation to combine, Petitioner promises but never provides additional explanation of that motivation by stating that this quote “would motivate a POSITA to implement selecting one of plural threshold voltages, either in light of Nicol alone, or in view of Borkar *as explained below*.” Pet., 64-65. Petitioner never explains this motivation, instead citing to its expert report. But Petitioner’s expert fails to provide additional explanation, repeating that this quote “would motivate a

POSITA to implement tuning the threshold voltages, either in light of Nicol alone, or in view of Borkar as explained below” without additional evidence or explanation Ex. 1003 [Rosing-Decl.] ¶ 209. Conclusory expert testimony such as this cannot establish obviousness. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-17 (August 24, 2022) (precedential) (denying institution when expert declaration “adds little to the conclusory assertion for which it is offered to support.”).

But even if Petitioner did show such motivation to combine, Borkar also does not disclose this limitation. For Borkar, Petitioner relies on a subset of the same arguments and quotations it relied on for the Nowka-Borkar combination. As explained above, those arguments fail as they fail to show that Borkar discloses selecting a threshold voltage for a power island. *See* Section III.B.

C. The Nicol-Borkar Combination Does Not Teach Limitations Which Require An Internal Regulator (Claim 17 & Dependent Claims).

Claim 17 requires “an internal regulator” that “provide[s]” “a supply voltage.” Ex. 1001 [’811] cl. 17. Petitioner does not argue that this limitation is met in Nicol and instead relies solely on Borkar. Pet., 70, 82. Petitioner points to Borkar’s “voltage and frequency control circuitry” and “supply voltage generating circuitry 320” (*id.*, 70-71, 82) but fails to show that either is an “internal regulator.”

Petitioner first points to Borkar’s control circuitry as the internal regulator. Petitioner cites Borkar at 1:66-67 (Pet., 70, 82), which merely states that the control

circuitry “may further control settings of a supply voltage signal” but does not state that the control circuitry is an internal regulator. Similarly, Petitioner points to “supply voltage generating circuitry 320 which provides one or more supply voltage signals in response to one or more supply voltage signals on conductor(s) 132 in processor 114.” Pet., 71, 82. Again, Borkar does not describe that these are regulators.

Petitioner provides no explanation as to why this “voltage and control circuitry” and “supply generating circuitry 320” teaches this limitation and Petitioner’s expert largely reiterates the Petition with no additional analysis. *See* Ex. 1003 [Rosing-Decl.] ¶¶ 223-24, 243. At most, Petitioner’s cites demonstrate that the “voltage and frequency control circuitry” and “supply generating circuitry 320” provide voltage. But merely providing a supply voltage does not demonstrate that these components are “regulators,” much less “internal regulators.” Petitioner fundamentally fails to explain what specifically makes these components in Borkar “internal regulators.”

Perhaps cognizant of the lack of disclosure, Petitioner contends that the “Nicol-Borkar combination *renders obvious an internal regulator* to provide the supply voltage” but does not discuss obviousness again in this section. Petitioner, however, does not explain why the Nicol-Borkar combination “renders obvious an internal regulator.” Obviousness, however, may not be shown through such

conclusory assertions. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”).

To the extent that Petitioner argues that these components inherently disclose the “internal regulator” limitation, Petitioner fails to provide any inherency analysis. “A party must [] meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.” *PAR Pharm. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1195–96 (Fed. Cir. 2014) ; *Southwire Co. v. Cerro Wire LLC*, 870 F.3d 1306, 1310–11 (Fed. Cir. 2017) (similar) ; *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002) (cleaned up) (similar). Petitioner does not mention let alone address this high standard.

D. The Nicol-Borkar Combination Does Not Teach Limitations Which Require Synchronous/Asynchronous Communication Between Power Islands (Claims 30, 61, and Dependent Claims).

Claims 30 and 61 (and their dependents) require “synchronous[]” and “asynchronous[]” communication between “power islands.” Ex. 1001 [’811] cl. 30. Petitioner argues that Nicol and Borkar each, separately, disclose this limitation, but

fails to prove it.

Petitioner first argues that Nicol “discloses asynchronous communication between its PEs, which can operate at different frequencies.” Pet., 84. However, the claims require both “**synchronous**” and “asynchronous” communication and Petitioner presents no argument that Nicol also discloses “synchronous” communication. Indeed, in connection with Nicol, Petitioner does not mention “synchronous” communication.

Petitioner’s expert discusses “synchronous” communication, but only in conclusory terms. Petitioner’s expert states that “[a] POSITA would have understood from this disclosure that Nicol discloses synchronous communication between its PEs in that by use of the asynchronous communication network [sic].” Ex. 1003 [Rosing-Decl.] ¶ 260. This sentence does not state that “synchronous” communication is itself disclosed in Nicol but rather seems to suggest that the disclosure of a “asynchronous” communication in Nicol somehow discloses the existence of “synchronous” communication. This assertion, about what a POSITA supposedly would have understood, is a thinly-veiled inherency argument. *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1065 (Fed. Cir. 2017) (statements that “a [POSITA] would understand the [evidence] as disclosing [the limitation]” could support an argument that a limitation was “inherently disclose[d] ...”); *LBT IP I LLC v. Apple Inc.*, 2023 U.S. App. LEXIS 14376, *8 (Fed. Cir. 2023) (similar).

To establish inherency, again, Petitioner must demonstrate that the “synchronous communication” element is “necessarily present, not merely probably or possibly present, in the prior art.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002) (cleaned up). Petitioner, who does even attempt to address the relevant standard, does not and cannot satisfy this high burden.

This is particularly so in the context of a missing limitation, as “a reasoned basis for resort to common sense must be searching” yet Petitioner provides no basis to resort to common sense, much less a “searching” basis. *See Arendi S.A.R.L. v. Apple, Inc.*, 832 F.3d 1355, 1362–63 (Fed. Cir. 2016); *see also DSS Tech. Mgmt. v. Apple Inc.*, 885 F.3d 1367, 1374 (Fed. Cir. 2018) (“common sense” can be used to supply a missing limitation “**only** when ‘the limitation in question [is] unusually simple and the technology particularly straightforward.’”). But Petitioner does not argue, for example, that the issue of “synchronous” communication between “power islands” on an integrated circuit is “unusually simple” or “particularly straightforward.” Indeed, Petitioner presents no arguments that the disclosure of “synchronous” communication is merely a matter of common sense from the disclosure of “asynchronous” communication in Nicol.

Turning to Borkar, Petitioner argues that “Borkar discloses and renders obvious this [limitation]” and states that “Borkar discloses that some domains ‘may run off the same clock signal or otherwise need to run synchronously.’” Pet., 85

(citing Ex. 1006 [Borkar] 10:6-7). For additional support, Petitioner quotes a portion of Borkar, which states that “[i]ndeed, there can be reasons . . . [that] groups of transistors that run off a different clock signal or that are asynchronous.” Pet., 85. Petitioner claims that based off these two quotations from Borkar “a POSITA would have understood and found obvious that Borkar’s domains can communicate synchronously or asynchronously.” Pet., 85. Although Borkar does discuss synchronous and asynchronous transistors, petitioner fails to show synchronous or asynchronous *communication* between power islands.

This is clear from the full context of the portion Petitioner excerpts, which reads from reads:

A reason why it is desirable to reduce mismatches is that if groups of transistors may run off the same clock signal or otherwise need to run synchronously. Where there are differences in parameters, if other signals are not used, in some cases the only way to get the groups running at off the same clock signal is to lower the clock signal frequency. This will yield lower performance for the domain which can perform acceptably with a higher clock frequency. However, the invention is not limited to correcting mismatches between groups of transistors that run off the same clock or that have to run synchronously. Indeed, there can be reasons to correct for mismatches between groups of transistors that run off a different clock signal or that are asynchronous.

Ex. 1006 [Borkar] 10:6-18. This is not a disclosure of one “power island being configured to *communicate* synchronously and asynchronously with a second of the power islands,” but merely an explanation as to one reason why one would want to use the transistor mismatch reduction method discussed in Borkar.

The patent does not just require the existence of synchronous or asynchronous power islands but requires that “a first of the power islands being configured to *communicate* synchronously and asynchronously with a second of the power islands.” Ex. 1001 [’811] cl. 30. Nowhere does Borkar discuss synchronous or asynchronous *communication*. The fact that one group of transistors “may run off the same clock signal or otherwise need to run synchronously” or may “run off a different clock signal or . . . are asynchronous” does not mean that the groups of transistors are necessarily in communication with one another.

On this point, Petitioner states that “a POSITA would have understood and found obvious that Borkar’s domains can communicate synchronously or asynchronously” but fails to explain where or how such communication takes place. Pet., 85. Instead, as with Nicol, Petitioner is apparently relying on an inherency argument. Yet, once again, Petitioner has failed to address the very high standard necessary for inherency and thus its argument fails.

Petitioner also briefly mentions prior district court constructions. In a prior litigation, the district court construed synchronous to mean “with coordination

between components (i.e. power islands) before communication transmission begins” and asynchronous as “without coordination between components (i.e., power islands) before transmission begins.” Ex. 1011 [*Freescale* Claim Construction] 45. Petitioner argues that “the Nicol-Borkar combination also renders this element obvious under the prior court’s construction because Borkar describes domains that communicate synchronously (with coordination between components before transmission begins) and asynchronously (without coordination between components before transmission begins.” Pet., 86.²

But Petitioner cites nothing from Borkar to show that this is the case. Petitioner sole cite is to paragraph 262 of its expert declaration, but Petitioner’s expert also cites nothing from either Borkar or Nicol in support. Petitioner’s expert states that “[f]or the reasons previously discussed, the Nicol-Borkar [combination] satisfies this claim under this prior construction as well.” Ex. 1003 [*Rosing-Decl.*] ¶ 262.

² Patent Owner agrees with Petitioner that the plain and ordinary meaning of synchronous and asynchronous should apply and provides this section solely to rebut Petitioner’s arguments. Indeed, the “plain and ordinary meaning” is the construction agreed upon for both “synchronous” and “asynchronous” in the co-pending district court litigation. Ex. 2004 [*Joint-Claim-Construction-Statement*] 2.

Nothing in the prior discussion even mentions this construed claim language—for example, nowhere in the prior discussion of Nicol and Borkar does Petitioner mention the timing (or lack thereof) of the coordination between the power islands. The construction requires that for synchronous communication, there is coordination between the power islands before transmission begins. Thus, Petitioner’s argument under the prior construction is entirely conclusory and should be ignored.

V. PETITIONER’S REMAINING GROUNDS, WHICH ARE ALL DIRECTED TO DEPENDENT CLAIMS, INHERIT THE FLAWS OF THE INDEPENDENT CLAIM GROUNDS AND THUS ALSO FAIL.

Petitioner’s remaining grounds are all directed to dependent claims and fail to overcome the issues with Petitioner’s independent claim grounds. For example, Petitioner combines Nowka and Borkar with Rincon-Mora for Ground 1B (Pet., 48) and Iyengar for Ground 1C (Pet., 51). Similarly, Petitioner combines Nicol and Borka with Rincon-Mora for ground 2B (*id.*, 91) and Iyengar for Ground 2C (*id.*, 93). Neither Rincon-Mora nor Iyengar rectify the issues with Petitioner’s Nowka-Borkar or Nicol-Borkar analysis.

Petitioner relies on Rincon-Mora for dependent claims 12, 36, 56, and 66 which each require a “dropout voltage regulator” but Petitioner does not argue that Rincon-Mora provides any limitation in any independent claim. *See, e.g.*, Pet., 48-51; *id.*, 91-93. Notably, and specifically for Nicol, Petitioner does not ever argue

that Rincon-Mora provides the “internal regulator” required by claim 17 and simply takes for granted that Nicol-Borkar does provide this limitation. *Id.* 91-93. Petitioner relies on Iyengar for claims 13, 20, 27, 37, 57, and 67 which each require “Vdd multiplexing.” Again, Petitioner does not argue that Iyengar provides anything beyond this Vdd multiplexing. *Id.*, 51-55; *id.*, 93-96. Petitioner provides no additional analysis which would support granting institution in its discussions of Rincon-Mora or Iyengar.

VI. CONCLUSION

For the foregoing reasons, the Board should deny institution.

Respectfully submitted,

LOWENSTEIN & WEATHERWAX LLP

Dated: July 11, 2024

By: /s/ Kenneth Weatherwax

Kenneth Weatherwax (Reg. No. 54,528)

Nathan Lowenstein (*pro hac vice* pending filing)

Dennis Courtney (*pro hac vice* pending filing)

Granville Kaufman (*pro hac vice* pending filing)

Attorneys for Patent Owner

MOSAID Technologies Inc.

(310) 307-4500

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), counsel for Patent Owner certifies that this document complies with the type-volume limitation of 37 C.F.R. § 42.24(b). According to Microsoft Office Word's word count, this document contains approximately 10,595 words, including any statement of material facts to be admitted or denied in support, and excluding the table of contents, table of authorities, mandatory notices under § 42.8, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing.

Respectfully submitted,

LOWENSTEIN & WEATHERWAX LLP

Dated: July 11, 2024

By: /s/ Granville Kaufman

Granville Kaufman

Attorney for Patent Owner

MOSAID Technologies Inc.

(310) 307-4500

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to 37 C.F.R. § 42.6(e) and with the agreement of counsel for Petitioner, true and correct copies of **PATENT OWNER'S PRELIMINARY RESPONSE** and **EXHIBIT 2004** are being served electronically on July 11, 2024, to the persons below:

Timothy W. Riffe
Joseph Colaianni
Linhong Zhang
Jared M. Hartzman
Tim Rawson

IPR44508-0023IP4@fr.com

Dated: July 11, 2024

By: /s/ Granville Kaufman

Granville Kaufman
Attorney for Patent Owner
MOSAID Technologies Inc.
(310) 307-4500