

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APTIV SERVICES US LLC
Petitioner,

v.

MICROCHIP TECHNOLOGY INC.
Patent Owner.

Patent No. 9,471,074

Inter Partes Review No. IPR2024-00646

**PETITIONER'S AUTHORIZED RESPONSE TO DIRECTOR REVIEW
REQUEST**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. ARGUMENTS	2
A. The Board’s Motivation Finding Is Supported by Substantial Evidence and Does Not Constitute Abuse of Discretion	2
1. Contrary to what PO asserts, Rincon-Mora and Al-Shyoukh do not establish that further power savings were unnecessary	2
2. The Board’s motivation finding is properly based on improving power efficiency	5
3. The Board did not err in considering only the Al-Shyoukh Ground	6
B. The Board Correctly Applied <i>KSR</i> and Did Not Misapply the “Known Technique” Framework	7
1. PO’s “No Known Problem” argument misstates the Board’s motivation finding and case law	7
2. PO’s attempt to distinguish <i>Intel</i> fails.....	9
C. The Board Did Not Improperly Dismiss Teaching-Away or Tradeoff Arguments	10
1. The Board did not conflate motivation and teaching away	10
2. The Board correctly found no teaching away	11
3. The Board considered tradeoffs in the context of power efficiency	12
4. The record shows the proposed combination yields a net power benefit.....	14
III. CONCLUSION.....	15

I. INTRODUCTION

The Director reserves review for extraordinary circumstances—clear abuses of discretion, important issues of law or policy, or erroneous findings of material fact or law. PO’s Request (Paper 50) identifies none. Instead, it mischaracterizes the Board’s reasoning, repackages arguments previously rejected by the Board, and asks the Director to reweigh evidence on a clear record. Because that is not the role of Director Review, the Request should be denied.

First, PO’s central premise—that the Board ignored Rincon-Mora (Ex. 1013)—is wrong. The Final Written Decision (Paper 49) is replete with references to Rincon-Mora and explains that Rincon-Mora does not teach away from adding an enable/disable function to Al-Shyoukh. The Board did exactly what PO claims it did not: it analyzed Rincon-Mora in detail and rejected PO’s interpretation.

Second, PO’s *KSR* argument misreads *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373 (Fed. Cir. 2023). The Board correctly found that Ivanov’s enable/disable function was a known technique for saving power and would have been applied to prior art concerned with power efficiency. *Intel* expressly recognizes “universal motivations” (such as energy efficiency), and PO’s attempts to distinguish *Intel* are inconsistent with its core holding.

Third, PO’s remaining arguments fare no better. The Board did not conflate motivation to combine and teaching away—it addressed each separately. It also

properly found that the existence of tradeoffs does not nullify Petitioner’s proposed reasons to combine. PO attempts to reframe the FWD to assert legal error. The Request should be denied.

II. ARGUMENTS

A. The Board’s Motivation Finding Is Supported by Substantial Evidence and Does Not Constitute Abuse of Discretion

1. Contrary to what PO asserts, Rincon-Mora and Al-Shyoukh do not establish that further power savings were unnecessary

The thrust of PO’s Request is that the Board erred in its motivation findings by misreading Rincon-Mora and Al-Shyoukh. It argues that Rincon-Mora discloses “no standby or quiescent current” for the regulator as a whole, thereby supposedly eliminating any need for further power savings. (Paper 50, 4-7.) But the Board fully considered and rejected that exact argument, finding that the transient boost circuit—a *component* of Rincon-Mora’s LDO—has no “standby current,” not that the LDO *as a whole* has no standby current:

As Petitioner correctly argues, Rincon-Mora only teaches that its *transient boost circuit* requires no standby current, not that there is no standby current in Rincon-Mora’s entire voltage regulator. Rincon-Mora states, “[T]he present invention relates to a current efficient LDO voltage regulator incorporating a transient response boost circuit which may be added to selectively apply current to a slew-rate limited node *and yet requires no standby current during zero output current load*

conditions of the LDO voltage regulator.” Ex. 1003, 1:12-17. The conjunction “and yet” clearly refers to the immediately preceding phrase, which discusses the “transient response boost circuit.”

(Paper 49, 35 (emphasis in original).) Moreover, the “no standby current” above (I_{boost}) is not the LDO’s only current. The specification in fact explains that even when “ I_{boost} is zero,” there is “*low*”—not *no*—quiescent current under no-load conditions. (Ex. 1013, 4:41-48.)¹ The Board reasonably relied on the distinction between the standby current of a component of the LDO, as opposed to the LDO itself, to reject PO’s argument. (Paper 49, 35.)

Nor does Rincon-Mora’s Abstract compel a different result. PO argues that the Abstract attributes the “no standby current” to the regulator as a whole. (Paper 50, 5.) But the Board raised the issue at the hearing, and Petitioner’s counsel explained how the Abstract was consistent with the remainder of Rincon-Mora. (Paper 44, 46:10-47:19.) PO is therefore wrong to claim that the Board “ignored the Abstract.” (Paper 50, 5.) The record shows the opposite.

PO’s reliance on the Rincon-Mora paper’s 23 μA value as being effectively zero likewise fails. (Paper 50, 5.) That evidence was squarely before the Board too, and in fact at the hearing, the Board specifically raised the question of whether 20-23 μA is effectively negligible. (Paper 44, 18:4-24.) Nothing in Rincon-Mora

¹Emphases or annotations added unless indicated otherwise.

equates 23 μ A with zero, and nothing in the record establishes a threshold below which further reductions would not be pursued. The Board was correct to adopt a reasonable reading of Rincon-Mora, declining to treat its reported current as foreclosing further improvements. (Paper 49, 35-36.)

PO's argument as to Al-Shyoukh fares no better. PO contends that Al-Shyoukh's 20 μ A quiescent current reflects a "solved problem." (Paper 50, 6-7.) But Al-Shyoukh says no such thing. Al-Shyoukh identifies "low quiescent current" as one of several competing design objectives that are "difficult to achieve simultaneously," confirming that power efficiency remains an ongoing design consideration—not a closed issue. (Ex. 1004, 1.) In short, PO's disagreement with the Board's reading of Rincon-Mora or Al-Shyoukh does not identify any abuse of discretion or material error—it simply seeks to re-argue issues the Board already considered and resolved.

PO contends that because the Examiner allowed the claims after the enable/disable limitation was added to overcome a rejection based on Al-Shyoukh, the combination with Ivanov cannot be straightforward. (Paper 50, 10.) But Ivanov was not before the Examiner. (Ex. 1001.) The record shows that the combination of Al-Shyoukh with Ivanov's known enable/disable technique would have been straightforward had the Examiner considered it.

2. The Board’s motivation finding is properly based on improving power efficiency

Aside from repeating incorrect readings of Rincon-Mora and Al-Shyoukh, PO’s Request misstates the motivation analysis performed by the Board. Contrary to PO’s mischaracterization that “[t]he Board’s entire motivation analysis rests on the premise that Al-Shyoukh’s quiescent current presented a problem that Ivanov’s enable/disable mechanism would help solve,” the Board’s rationale was not dependent on the prior art having a *problem* with quiescent current. (Paper 49, 34-35.) The Board’s motivation finding instead rested on a straightforward rationale: improving power efficiency.

The FWD explains that “a person of ordinary skill in the art would have had reason to follow Ivanov’s teachings to include an enable/disable function in Al-Shyoukh’s biasing *circuit to limit that circuit’s standby current for reasons of power-efficiency.*” (Paper 49, 35.) In other words, the Board’s identified motivation was applying a known power-saving technique to further improve overall power-efficiency, not correcting some unmet quiescent current threshold in the prior art.

The record supports the Board’s conclusion. Al-Shyoukh explains that “power management is essential in all battery-powered portable devices . . . to reduce the standby power,” and that “the increased level of integration in portable

devices . . . *requires the no load quiescent current of the LDO to be minimized* for improving the current efficiency.” (Ex. 1004, 1732.) Ivanov likewise teaches “[t]o minimize power consumption, portions of the circuitry are designed to be disabled so as to be in a quiescent, low-power state.” (Ex. 1005, 1:15-18.)

Such statements provide precisely the type of motivation recognized in *KSR*: applying a known technique to further improve a known design objective. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); *see also Intel*, 61 F.4th at 1380 (noting that “universal motivations,” such as increasing energy efficiency, provide a motivation to combine). The Board's reliance on that well-established legal framework is not an erroneous conclusion of law.

3. The Board did not err in considering only the Al-Shyoukh Ground

Finally, PO takes issue with the Board’s failure to consider the Rincon-Mora Ground. But the panel was following the July 29, 2025 memorandum issued by the Chief Administrative Patent Judge. That memorandum only required the Board to address all grounds in cases “where an oral hearing has not yet occurred.” (Paper 49, 38.) Because the hearing here was held on June 27, 2025—more than a month earlier than the memorandum—the Board acted within its discretion and as permitted by the memorandum.

Moreover, even though the Board did not reach the *Rincon-Mora Ground*, it certainly did address *Rincon-Mora*, as discussed above. Indeed, PO itself tied the consideration of Al-Shyoukh to *Rincon-Mora*, explaining that there is a “close-linkage” between *Rincon-Mora* and Al-Shyoukh. (Paper 19, 31.) That is, consideration of the Al-Shyoukh Ground subsumed consideration of *Rincon-Mora*. (See also Paper 50, 3 (“Patent Owner’s Al-Shyoukh analysis was expressly predicated on *Rincon-Mora*.”).) Patent Owner is thus wrong to assert that the “Board sought to justify its failure to conduct the requisite analysis” by relying on the July 2025 memorandum or that the Board should have done more with its six-month extension. (Paper 50, 8-9.) The Board did not fail to consider *Rincon-Mora*, addressed it in detail, and had no reason to justify any “failure.”

B. The Board Correctly Applied KSR and Did Not Misapply the “Known Technique” Framework

1. PO’s “No Known Problem” argument misstates the Board’s motivation finding and case law

PO argues that there is no “known problem” ready for improvement under the *KSR* framework, because both *Rincon-Mora* and Al-Shyoukh present “effectively zero” quiescent current. (Paper 50, 10-11.) But this argument again incorrectly frames the Board’s motivation to combine finding.

As discussed above, the Board’s motivation finding rests on applying a known power-saving technique to Al-Shyoukh to further reduce power

consumption. The FWD explains that Ivanov discloses an enable/disable mechanism that “saves power by shutting off circuitry when it is not needed,” and was “well known in the art.” (Paper 49, 31, 35.) The “known problem” is thus power efficiency—not further reducing the quiescent current in Rincon-Mora and Al-Shyoukh as PO asserts.

The Board’s analysis was consistent with case law. In *Intel*, the Court reversed a finding of no motivation because the challenger showed that (1) there was a “known problem” in the art, (2) its secondary art “helped address that issue,” and (3) “combining the teachings of [the primary and secondary references] wasn’t beyond the skill of an ordinary artisan.” 61 F.4th at 1381. Here, (1) power efficiency was a known problem, (2) enable/disable circuitry, such as Ivanov, helped improve power efficiency, and (3) a POSITA had the skill to integrate these solutions as the Board found. (Paper 49, 34-35.) There was no error of fact or law by the Board.

Indeed, PO—not the Board—is misreading the caselaw. PO argues that *KSR* requires proof that the prior art was “ready for improvement,” i.e., “evidence that the prior art was actually deficient in the relevant respect.” (Paper 50, 10-11). But that is not what *KSR* or *Intel* require. *KSR* does not limit motivation to cases where the prior art is deficient. To the contrary, the Supreme Court held that “any need or problem known in the field of endeavor at the time of invention ... can provide

a reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420. *KSR* expressly recognizes that obviousness includes “the mere application of a known technique to a piece of prior art ready for the improvement,” without requiring proof that the prior art was inadequate or failed. (*Id.* at 417.)

Intel also does not impose the rigid deficiency requirement PO advances. While *Intel* states that a “known technique” can address a “known problem,” it also emphasizes that motivation-to-combine is “a flexible” inquiry and that ““any need or problem known in the field of endeavor”” can supply the reason to combine. *Intel*, 61 F.4th at 1379-1380 (original emphasis). And critically, *Intel* makes clear that a petitioner need only show the technique is a “suitable option,” not that it is necessary or that the prior art was lacking. *Id.*

Nor is there any merit to PO’s contention that the Board failed to find “predictable results.” (Paper 50, 10.) The Board correctly found that the result of disabling a bias circuit that draws current when not in use is self-evident and predictable: standby current is reduced. (Paper 49, 35.) That is the very function of an enable/disable switch.

2. PO’s attempt to distinguish *Intel* fails

PO next argues that *Intel* is inapplicable because it involved “substituting” one component for another, whereas Petitioner here proposes “adding an entirely new subsystem.” (Paper 50, 11.) *Intel*, however, does not turn on whether the

modification is characterized as a substitution versus an addition. It instead simply requires the above three conditions to be met. If they are met, “[n]othing more is required to show a motivation to combine under *KSR*” 61 F.4th at 1381. Because the Board found those conditions met, it properly concluded the challenged claims were unpatentable. There was no legal error.

C. The Board Did Not Improperly Dismiss Teaching-Away or Tradeoff Arguments

1. The Board did not conflate motivation and teaching away

PO argues the Board conflated motivation and teaching away. This is a gross mischaracterization of the record.

In the FWD, the Board *first* found “a person of ordinary skill in the art would have had reason to follow Ivanov’s teachings to include an enable/disable function in Al-Shyoukh’s biasing circuit to limit that circuit’s standby current for reasons of power-efficiency. . . . The evidence of record also suggests that an enable/disable function was well known in the art and that it would have been within the level of ordinary skill in the art to add such a function to a biasing circuit, taking into consideration any known tradeoffs.” (Paper 49, 34-35). This analysis is a standalone motivation finding, grounded in improving power efficiency. The Board *then* addressed teaching away in a *separate* paragraph: “We *also* disagree with Patent Owner’s argument that Al-Shyoukh, Rincon-Mora, or

other references teach away from adding an enable/disable function to Al-Shyoukh. Patent Owner has not pointed to anything in the prior art that criticizes, discredits, or otherwise discourages investigation into the claimed invention.” (Paper 49, 35.)

Moreover, the Board’s application of the teaching-away standard did not in any way alter the Board’s independent motivation finding. The Board did not require the absence of teaching away to establish motivation; it first found a reason to combine and then separately explained why PO’s teaching-away argument failed. PO’s assertion to the contrary mischaracterizes the FWD.

2. The Board correctly found no teaching away

The Board also correctly applied the teaching away standard. The Board found that “Patent Owner has not pointed to anything in the prior art that ***criticizes, discredits, or otherwise discourages investigation*** into the claimed invention.” (Paper 49, 35 (quoting *Meiresonne v. Google, Inc.*, 849 F.3d at 1382).) That is the correct standard under current Federal Circuit authority. And PO’s argument—that Rincon-Mora and Al-Shyoukh present low quiescent current—does not satisfy that standard. The Board addressed that exact point and held that “Patent Owner has not pointed to any evidence that a person of ordinary skill in the art would have been dissuaded from making any further reductions to Al-Shyoukh’s standby current by adding an enable/disable function.” (Paper 49, 36.)

The Board’s analysis was tied to the evidence in the record. The Board found that an enable/disable function “was well known in the art.” (Paper 49, 35.) And Rincon-Mora itself acknowledges that “some LDO voltage regulators incorporate a separate enable terminal to switch the device into a standby mode of operation to minimize power consumption.” (Ex. 1013, 1:24-29.) Nothing in the prior art states that such power saving techniques are undesirable or incompatible. Because the Board applied the correct legal standard and reasonably found no teaching away based on the facts of record, PO’s argument identifies no erroneous conclusion of law or erroneous finding of material fact.

3. The Board considered tradeoffs in the context of power efficiency

PO next argues that the Board did not consider tradeoffs. (Paper 50, 13-15.) Not so. The Board explicitly found that “it would have been within the level of ordinary skill in the art to add such a function to a biasing circuit, taking into *consideration any known tradeoffs*,” and specifically cited to the POR that “list[ed] some of the known tradeoffs that ‘a [person of ordinary skill in the art] would need to consider.’” (Paper 49, 35 (citing Paper 19, 13-14).)

The Board explicitly contemplated the tradeoffs presented by PO and found “[t]hat there may have been tradeoffs in adding an enable/disable function does not amount to teaching away, nor does that nullify Petitioner’s proposed reason to

combine Al-Shyoukh with Ivanov.” (Paper 49, 36.) This correctly applies *Medichem*, which found “a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Medichem S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006).

The record also confirms those issues were squarely before the Board. At the hearing, the panel engaged with implementation considerations, including the current consumption of enable/disable circuitry. (See Paper 44, 47:21-23.) And in the *same portion of PO’s POR that the Board cites to in its tradeoff analysis*, PO identified the very same tradeoffs it repeats here—“circuit size, speed, complexity, cost, regulator stability, drop-out voltage, system-level considerations, intended applications.” (Paper 19, 13-14; Paper 50, 13; Paper 49, 35 (citing Paper 19, 13-14).) The Board thus explicitly considered those arguments and found they did not outweigh the benefits of improved power efficiency. (Paper 49, 35 (citing Paper 19, 13-14).) PO’s complaint that Dr. Chen did not perform a standalone tradeoff analysis is misplaced; the Board weighs the totality of the evidence—including PO’s own submissions—and did so here.

PO also faults the Board for not crediting datasheets purportedly showing that commercial regulators with enable/disable functions do not achieve 20-23 μA quiescent currents. (Paper 50, 9-10.) But to the extent the Board did not consider these datasheets, it was reasonable because Petitioner relied on the prior art circuit

topologies, not specific commercial products. (*See* Paper 25, 21-22.) The motivation inquiry thus concerns improvement of those *topologies*, not the performance of particular implementations. And PO's own expert admitted that the "quiescent currents" reported in the datasheets are not even the same metric used by Al-Shyoukh and Rincon-Mora. (Ex. 1029, 79:9-80:9, 86:13-87:9.)

PO's Request thus seeks to reweigh evidence the Board already considered. It reprises its position that 20-23 μA is "effectively zero" and that any additional circuitry would introduce undesirable tradeoffs. But the Board was not required to accept PO's characterization of those tradeoffs or find that they outweighed the benefits of reducing power consumption. Nothing in the record establishes that 20-23 μA is a categorical endpoint—indeed, PO's own framing as "effectively zero" underscores that it is not zero. Nor does the existence of tradeoffs preclude further improvement. As the Federal Circuit has explained, a petitioner need only show that a proposed modification is a "suitable option," not that it is categorically better. *Intel*, 61 F.4th at 1381. That standard necessarily contemplates tradeoffs. Disagreement with how the Board weighed competing considerations does not constitute a clear abuse of discretion or an erroneous finding of material fact.

4. The record shows the proposed combination yields a net power benefit

PO's assertion that "neither Petitioner nor the Board has shown that adding

Ivanov’s enable/disable mechanism . . . would . . . produce a meaningful[] reduction in quiescent current” is wrong. (Paper 50, 15.) The record shows the opposite. At the hearing, Petitioner directly addressed this issue and quantified the effect. Counsel explained that even “at most . . . seven microamps” of current from the enable/disable circuitry “is less than 20 . . . or 23” microamps reported in Al-Shyoukh and Rincon-Mora, and thus “[t]here’s no dispute about whether the current would actually be reduced.” (Paper 44, 48:4-23.) In other words, even under PO’s own assumptions about added current, the combination results in a net reduction in standby current. PO’s claim that the Board lacked evidence of a “meaningful[] reduction” therefore fails. (Paper 50, 15.) The Board had record support demonstrating a net power benefit, and PO identifies no erroneous finding of material fact in that regard.

III. CONCLUSION

PO has failed to establish any extraordinary circumstance warranting Director Review—no clear abuse of discretion, no important issue of law or policy, and no erroneous finding of material fact or conclusion of law. The Director should deny the Request.

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Certificate of Service (37 C.F.R. § 42.6(e)(4))

I hereby certify that the attached PETITIONER'S AUTHORIZED
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