IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROCHIP TECHNOLOGY INC.,
Petitioner,

v.

APTIV TECHNOLOGIES AG AND APTIV TECHNOLOGIES LIMITED,
Patent Owners.

Case No. PGR2024-00011
Patent No. 11,681,643

PETITIONER'S RESPONSE TO PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW

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As authorized, Petitioner Microchip Technology Inc. respectfully submits this response to Aptiv Technologies AG's ("PO") request for Director Review.

I. INTRODUCTION

Lacking any meritorious basis to challenge the Board's thorough and well-reasoned Final Written Decision (Paper 59, "FWD"), PO takes a kitchen-sink approach, throwing everything at the wall and hoping that something sticks. Excluding sub-parts, PO raises three challenges, representing almost all of PO's failed merits arguments from the underlying proceeding. But the purpose of Director Review is not to relitigate the merits.

To the contrary, "Director Review of a Board's final decision … shall be limited to decisions presenting (a) an abuse of discretion, (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law." www.uspto.gov/patents/ptab/decisions/director-review-process, §II.B. PO fails to acknowledge—let alone satisfy—any of these criteria. The reason is simple—none are met.

The Petition presented two straightforward prior art Grounds (*viz.*, Grounds 1 and 2) that both relied on Chang in view of Chang II. Paper 1 ("Pet."), 5. The Board's FWD is a run-of-the-mill decision that considered a large factual record (over 140 exhibits) and found against PO for multiple reasons. PO first presents its so-called "particularity" argument, baselessly asserting that "the Petition did not

identify any location for the detection unit other than within a bridge." Br., 2. But the Petition expressly disclosed "locat[ing] the detection unit proximate to (or integrated with) the switch." Pet., 49; §II.A. PO's second argument is just a repackaged version of its failed "dead-end" argument that the Board fully rejected, calling it "contrive[d]" and "misleading." FWD, 36; §II.B. And PO's third argument regarding purportedly "unrebutted" secondary considerations evidence borders on the frivolous. The Board thoroughly analyzed (and thoroughly rejected) PO's secondary considerations assertions, both as to nexus and on the merits. FWD, 50-57; §II.C. Petitioner addresses below why each argument fails.

II. ARGUMENT

A. PO's "Particularity" Argument is Baseless

PO begins by arguing that "[t]he Petition should never have been instituted"[1] because it "was ambiguous about the location of the detection unit, and how it would control the switching functionality," and thus did not provide the requisite "particularity" under 35 U.S.C. §322(a)(3). Br., 5. This argument does not pass the red-face test and fails for numerous reasons.

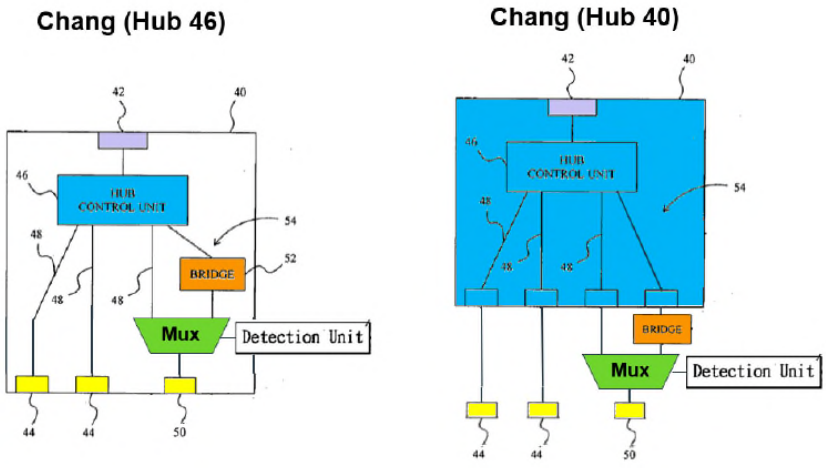
[1] As noted, this is not the time to reargue institution. www.uspto.gov/patents/ptab/decisions/director-review-process, §III.B (a request "must be filed within the time period set forth in 37 C.F.R. § 42.71(d)," which is "14 days [from] the entry of [] a decision to institute a trial").

First, none of the independent claims in the '643 patent (and very few of the dependent claims) require any particular location for the signal detection circuit. *E.g.*, EX1005, cl.1 (merely reciting "providing a signal detection circuit …"). Thus, PO's argument fails because it is premised on a non-existent claim requirement. Regardless, as discussed below, Petitioner was "particular" as to the signal detection unit.

Second, Petitioner demonstrated how the prior art detection unit satisfied the claims with more "particularity" (*i.e.*, more detail) than the '643 patent. This is beyond dispute. The '643 patent is ***completely silent*** regarding a signal detection circuit, much less its location or operation vis-à-vis routing host/device signals. *See generally* EX1011. Thus, PO employs a double standard by requiring more disclosure from the prior art than the challenged patent provides. *In re Paulsen*, 30 F.3d 1475, 1481 n.9 (Fed. Cir. 1994).

Petitioner provided more detail than the '643 patent about host/device detection (and USB crossbar/multiplexer operation, routing, and configuration). *Compare* EX1011, Fig. 4 *with* Pet., §§III.B, III.B.1-2, VII.A.1, VII.A.2.d-f and EX1013, §§VI.B, VI.B.1-2, IX, XIV.A.1.d-f. Indeed, PO does not contest that the Petition (and Chang II reference discussed therein) plainly disclose a "detection unit." Rather, PO complains that Petitioner "failed to definitively identify the location of the detection unit." Br., 6. But PO's next sentence contradicts this

assertion, admitting that Petitioner identified "multiple locations for the detection unit."[2] *Id*. Contrary to PO's assertion, these locations were disclosed in Petitioner's opening papers. *See* Pet., 49 at fn.14. The Petition included the figure below illustrating an exemplary arrangement. *Id*., 49.



To be sure, a subset of claims (*e.g.*, claims 4 and 9) are more specific about the location of the signal detection circuit, stating that "the USB routing switch includes the signal detection circuit" EX1011, cls. 4, 9. And Petitioner provided a more detailed discussion for these claims, explaining why that location would have been obvious. *E.g.*, Pet., 72-75. Tellingly, PO's own expert admitted that "it would be natural to implement a routing switch that includes the signal detection

[2] PO's argument is based on the false premise there can only be one obvious location for a signal detection unit. But PO's own expert admitted that "a POSITA would understand that the location of the signal detection circuit was a matter of design choice." EX2001, ¶116.

circuit," so there is not even a dispute about this. EX2001, ¶116. In view of Petitioner's disclosure (and PO's admissions), it is clear the PO's gripe is baseless.

Third, PO cites a PTO memorandum (issued ***after*** the FWD and ***long after*** the Petition was filed) changing how the PTAB will apply Rule 42.104(b) to IPR petitions "filed on or after September 1, 2025." July 31, 2025 PTO Memorandum, 3. Even if PO's gripe had merit under the yet-to-be-implemented guidance (which is not the case as explained above), it would be manifestly unfair, arbitrary, and capricious to retroactively apply such a rule to the already decided FWD. This is especially true here, where the PTO's guidance when the IPR Petition was filed stated that "the Board should not deny a petition in which an applicant points to general knowledge and/or a patentee's admissions regarding the scope and content of the prior art to satisfy a claim limitation." June 9, 2022 PTO Memorandum, 6.

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PO also argues the Board "shift[ed] the burden of proof to [PO] to determine how the detection unit could be used to meet the claimed signal routing scheme in the proffered combination." Br., 6. First, that was never Petitioner's argument—Petitioner pointed to the multiplexer as the claimed "routing logic circuit" that performs the claimed "routing." *See* Pet., 59-64 (mapping multiplexer to "routing logic circuit"). Second, Petitioner plainly explained how multiplexers work to route signals. *Id*., 11-13, 59-64. Far from "shifting the burden of proof" to PO to

guess about a detection unit, Petitioner provided more granularity than the patent itself. Indeed, the Board had no problem understanding Petitioner's argument.

B. The Board Did Not "Disregard[] the Claim Language"

PO asserts that the Board "erred by improperly disregarding the language of the claims" and "contradicted itself" in finding claim 1 unpatentable. Br., 7-8. According to PO, "[t]he Board [] contradicted itself [by] dismiss[ing] ***Petitioner's own placement of the detection unit in the bridge*** as [PO]'s improper assumption but then relied on that same premise to invalidate the claims." *Id*., 8. The Board did no such thing. This is just a rehash of PO's failed "dead-end" argument that the Board rejected, calling it a "contrive[d]" and "misleading line of argument." FWD, 36. The Board thoroughly explained why this argument fails. *Id*., 35-37.

PO's argument is based on the premise that Petitioner "place[d] the detection unit in the bridge," and did so in a manner that would render the resulting system inoperable because the detection unit would be "disconnect[ed]" (*i.e.*, cutoff) from the signal it was detecting. FWD, 33 (summarizing PO's argument). But, as the Board explained, "[PO] relies on a false premise that host/device detection takes place in the bridge using USB signals from the multiplexer. [PO]'s premise is false because … Petitioner's proposed combinations … show the detection unit outside of the bridge." *Id.*, 45. Indeed, the Petition expressly discusses "locat[ing] the detection unit proximate to (or integrated with) the switch." Pet., 49.

The Board further explained that "[PO]'s argument improperly overlooks or misapprehends Chang II's explicit teachings that detection unit 134 is directly connected to the downstream port," and cited Fig. 5 from Chang II (reproduced below), which identifies the connection that PO says does not exist between the detection unit and the downstream port. FWD, 36.

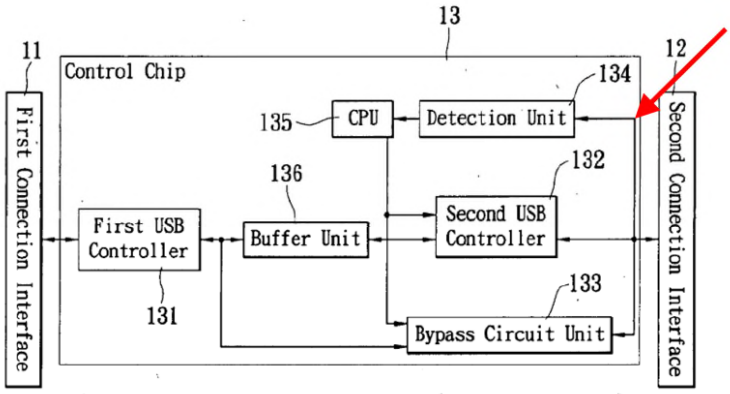


FIG. 5

EX1015, Fig. 5 (annotated); *see also* FWD, 35 ("As persuasively argued by Petitioner, corroborated by Petitioner's expert declarant, and acknowledged by [PO], the detection unit disclosed in Chang II must be connected to downstream ports to determine whether the detected unit is operating as a device or as a host.").

PO further incorrectly asserts that "Petitioner specifically located [Chang II's] control chip within the bridge in its prior art combination to satisfy the bridge controller limitation of claim 1." Br., 7-8. As the Board correctly explained, "[PO]'s argument in this regard improperly assumes that Petitioner bodily incorporated Chang II's detection unit into the bridge in Chang's Hub module."

FWD, 39. Because Petitioner did not bodily incorporating the entirety of Chang II into Chang's bridge 52, there is no "contradict[ion]" with claim 1[d] which recites that "the USB bridge includes a bridge controller." EX1011, cl.1. That limitation says nothing about the location of a signal detection unit.

PO's argument also runs afoul of claim 4, which requires that "the USB routing switch includes the signal detection circuit." EX1011, cl. 4. And PO's own expert admitted that "it would be natural to implement a routing switch that includes the signal detection circuit." EX2001, ¶116. Simply put, the Board did not "disregard[]" any claim language as PO asserts.

C. PO's Secondary Considerations Assertions are Baseless

PO contends that "The Board Erred by Disregarding Unrebutted Evidence of Secondary Considerations Without Adequate Explanation." Br., 9. This assertion is not credible. Petitioner thoroughly addressed each secondary consideration PO argued, not only as to nexus but also the underlying merits.[3] *E.g.*, Paper 29 (Reply), 23-30. So, too, did the Board. FWD, 48-57.

PO's concession that "[t]he Board acknowledged that at least some of [PO]'s secondary considerations arguments were meritorious" and "[gave] 'some weight' to those arguments" (Br., 9) makes Petitioner's point—*i.e.*, the Board did not

[3] Tellingly, PO's expert admitted he had no opinion on commercial acquiescence, unexpected results, and other secondary considerations. EX1085, 302:6-22, 34:25.

"summarily dismiss[] all of [PO's secondary consideration] arguments for purported lack of nexus" (*id*.) as PO asserts, but conducted a wholistic analysis. FWD, 48-57. The Board thoroughly analyzed the arguments and evidence related to secondary considerations and made its unpatentability determination based on consideration of all the arguments and evidence as a whole.

Even if the Board had not found shortcomings with PO's nexus arguments/evidence, it analyzed each secondary consideration under a separate heading and found flaws with each. FWD, 53-57. As such, even if PO's nexus arguments were meritorious—they are not—PO would still lose and a remand would be futile. Moreover, the Board discussed *In re DBC*, observing that "the Federal Circuit affirmed the Board's finding that secondary considerations were insufficient to overcome a strong prima facie case of obviousness." *Id*., 51-52 (discussing *In re DBC*, 545 F.3d 1373, 1384-85 (Fed. Cir. 2008)). That is exactly the case here, which is yet another reason a remand would be futile.

1. PO's Nexus Arguments Are Baseless

PO's entire nexus argument was just over 1-page, largely comprising case cites. Paper 25 ("POR"), 69-70. In other words, PO relegated nexus to an afterthought. Moreover, PO's primary argument during the IPR was that "secondary considerations are the 'direct result of the unique characteristics of the claimed invention'" and that the "specific arrangement claimed in the patent"

provided nexus. *Id*., 69-70. But PO's Director Review request focuses only on "rebuttable presumption of nexus" (Br., 9), an underdeveloped argument to which PO devoted effectively no analysis in its POR (POR, 69-70).

PO's argument is that the Board erred because "PO's showing of nexus was backed by substantial evidence." Br., 9-10. This argument fails for three reasons: (1) it rests on a false premise (*viz.*, an incorrect legal standard); and (2) PO's nexus argument relies on unclaimed features and products that do not practice the claims; and (3) PO's argument and evidence was improperly incorporated by reference.

First, the premise of PO's argument is that the Director should vacate (or reverse) if substantial evidence supported its nexus assertion. *E.g.*, Br., 4, 10-11. But the relevant question is not whether substantial evidence could support PO's failed argument, but whether substantial evidence supports the Board's actual findings in Petitioner's favor. In other words, PO's framing would only be correct had it prevailed before the Board, but it did not.

When the correct question is addressed, it is plain that there was no abuse of discretion or legal error. PO asserts its "[secondary consideration] evidence was unrebutted" (Br., 10), and cites testimony of Mr. Dreon (*id*.). This assertion fails the red face test. The Board addressed Mr. Dreon's fact testimony, finding it "based on hearsay" and that "the witness does not establish that he has any first-hand knowledge." FWD, 56. But the Board went further, noting that PO's nexus

evidence for a "PACE Award" was entitled to "little weight." *Id*., 55-56. The Board credited Petitioner's argument and evidence that the award was from a non-USB organization (which issued numerous awards for random things like "Cover Carving Technology" and "Electronic oil pump"), the reasons for the award included "lower cost," and that PO self-nominated and hosted "site tours" and "lunches" for the judges. *Id*. Against this counter-evidence, it cannot be said with a straight face that PO's evidence was "unrebutted" or ignored by the Board.

Moreover, PO's own witness (Mr. Dreon) testified that other aspects of PO's product (undisputedly not claimed) were "very important" to customers. EX2042, 182:10-23 (the "cosmetic component" is "very important to our customers," as are "matching [] colors," "texture," "illumination," and "intensity within the dashboard"). And PO ignores the impact of other factors such as Apple's brand name, lower pricing, etc. FWD, 54-55. Further, it was undisputed PO "benefited from a head start due to early, insider access to Apple's confidential CarPlay requirements through the Jaguar car company." *Id*.

In summary, the Board's conclusion rests on solid footing. FWD, 50-53.

Second, the Board correctly found that "the features cited by [PO]" to establishes nexus, "are not claimed and thus are not part of the claimed and patented invention." FWD, 51. The Board provided multiple examples: "(1) CarPlay support on each downstream port without the need for a second upstream

connection with the head unit and without interrupting USB connectivity on the non-CarPlay downstream ports and (2) persistent downstream USB connectivity on all ports via a single upstream head unit … are not claimed." *Id*.

The Board credited Petitioner's explanation that no '643 claim requires more than one downstream port (*see* EX1005, cls. 1-15), rendering the concept of persistence irrelevant (FWD, 51 (citing Paper 30, 24-26). Similarly, the '643 patent claims are silent regarding a single upstream connection. EX1011, cls. 1-15. Where PO wished to claim a single upstream connection, it did so. EX1001, cl. 14 (reciting "a single USB data connection"). But the '643 claims lack such a requirement and provide no nexus. FWD, 51 (citing Paper 30, 24-26).

Yet another reason PO's products do not practice the claims is that all of the challenged claims require a "signal detection circuit." EX1011. PO's only support for this limitation was a single assertion from its expert (which was improperly incorporated by reference as discussed below) that relied on a single document (EX2023, 90-93) that "describ[es] ***the port switch sequence***, whereby the dual role hub is able to detect whether a consumer USB device is operating in host or device mode." EX2019, ¶156 (element 1[c]). But this document refers to headend firmware, not a "signal detection circuit." EX2023, 90-93 (describing "firmware" and "device drivers running on the upstream host"). Dr. Houh admits "signal detection circuit" refers to a "class of circuits" (EX2019, ¶138), and

firmware/drivers/software are not a "class of circuits." Because PO does not practice the '643 patent, there is no nexus.

Third, the Board properly criticized PO's sole citation to a single paragraph (spanning over 9-pages) in its expert report for its purported showing of nexus. FWD, 52-53. As the Board noted in related IPR on substantially identical facts (dealing with a patent from the same family), this is improper incorporation by reference. IPR2024-00230, Paper 59, 16 ("[PO] incorporates its arguments by reference, which is not permitted. *See* 37 C.F.R. § 42.6(a)(3) ('Arguments must not be incorporated by reference from one document into another document.'). Thus, we do not consider these arguments, and we are not persuaded that [PO]'s product practices claim 1."). This is textbook incorporation by reference and is another basis to deny Director Review.

2. The Board Evaluated All of PO's Secondary Considerations

PO asserts that the Board "Failed to Sufficiently Address" the alleged secondary considerations. Br., 11. Not so. In addition to nexus failures, the Board found that the lion's share of PO's secondary considerations fail for other reasons as well. FWD, 53-57. For example, the Board found that "[PO] fail[ed] to establish that there existed a ***long-felt but unsatisfied need***" because the alleged need existed for "mere months before the '643 patent's priority date." *Id.*, 53. Regarding ***industry praise***, the Board found that "Petitioner's criticism of this

purported evidence of industry praise has merit" for a host of reasons, and that PO's evidence "is based on hearsay and the witness does not establish that he has any first-hand knowledge of the reason for the award." *Id*., 55-56.

And with respect to alleged ***copying***, the Board found that "[PO]'s purported evidence of alleged copying by Petitioner is entitled to little or no weight because it is not well-supported." FWD, 56-57. The Board credited Petitioner's "evidence that [PO] has th[e] timing wrong" (*viz.*, that Petitioner had already developed its product beforehand). *Id*. Concerning ***skepticism/failure of others***, even though "[PO]'s evidence is weak with regard to the relationship between the alleged failure and skepticism and the claimed invention," the Board gave "some weight" to PO's assertions, but not more because of Petitioner's evidence that any skepticism resulted from a miscommunication with Apple, rather than skepticism on the technical merits. *Id*., 53-54. PO's assertion that the Board did not perform an analysis and that PO's evidence is "unrebutted" is baseless.

Finally, PO seeks to analogize this case to *Verizon Connect Inc. v. Omega Patents, LLC*, IPR2023-01162. Br., 3-4, 9-10, 12. But this case is nothing like *Verizon*. Not even close. To begin, the validity of the challenged patent in *Verizon* had been confirmed in six prior challenges (including district court, *inter partes* review, and *ex parte* reexam) with several decisions relying on secondary considerations. *See* IPR2023-01162, Paper 37, 3 and Paper 38, 2. By contrast,

Petitioner's PGR is the first challenge to the '643 patent so there was no risk of the Board creating inconsistent results.[4] To the contrary, a finding by the Board here that there was nexus and/or meritorious secondary considerations would conflict with three other PTAB final written decisions which found just the opposite on similar evidence for other patents in the same family. IPR2024-00228, Paper 61; IPR2024-00229, Paper, 59; and IPR2024-00230, Paper 59.

Further, unlike in *Verizon* where the patentee actually made out its case in the POR brief, PO's nexus assertion relies on improper incorporation by reference as already discussed. This alone is dispositive in Petitioner's favor. And in *Verizon*, the Director noted the patentee's extensive licensing. IPR2023-01162, Paper 37, 2-3. But here it is undisputed that PO has never licensed the challenged patent. EX1085, 302:6-22, 303:4-304:25.

Additionally, the Board separately analyzed each secondary consideration and overwhelmingly found they lacked merit independent of nexus. As such, even if some nexus existed, the Board's decision would stand. FWD, 51-57.

III. CONCLUSION

The Director should deny PO's request for Director Review.

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[4] The Director noted a "jury verdict finding the claims not invalid and highlighting objective indicia of non-obviousness, and [an *ex parte* reexam] decision … [with persuasive] objective indicia of nonobviousness." IPR2023-01162, Paper 37, 2.

Respectfully submitted,

Dated: August 18, 2025

/Travis Jensen/

Travis Jensen, Reg. No. 60,087
Reg. No. 60,087
ORRICK, HERRINGTON &
SUTCLIFFE, LLP
1000 Marsh Road
Menlo Park, CA 94025
Telephone: (650) 614-7400
Facsimile: (650) 614-7401
Email: T61PTABDocket@orrick.com

Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned certifies that on August 18, 2025, a copy of the following was served in its entirety via electronic mail, upon the following attorneys of record for the Patent Owner:

Adam R. Brausa Timothy Chen Saulsbury Eric C. Wiener Andrew L. Perito MORRISON & FOERSTER LLP 425 Market Street San Francisco, CA 94105	abrausa@mofo.com tsaulsbury@mofo.com ewiener@mofo.com aperito@mofo.com Microchip-Aptiv-PTAB@mofo.com
Alex S. Yap Mehran Arjomand Bryan Blumenkopf MORRISON & FOERSTER LLP 707 Wilshire Boulevard, Suite 6000 Los Angeles, CA 90017	ayap@mofo.com marjormand@mofo.com bblumen@mofo.com
Andrew T. Jones MORRISON & FOERSTER LLP 2100 L Street, NW, Suite 900 Washington, D.C. 20037	andrewjones@mofo.com

/Valerie Cloyd/
Valerie Cloyd