UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Arm Ltd, MediaTek Inc.,

Petitioners

v.

Daedalus Prime LLC,

Patent Owner

Patent No. 8,984,228
Case No. IPR2025-00207

PETITIONERS' RESPONSE PATENT OWNER'S REQUEST FOR DISCRETIONARY DENIAL OF INSTITUTION

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LIST OF EXHIBITS

Exhibit	Description
Ex-1001	U.S. Patent No. 8,984,228 to Liu et al. ("the '228 patent").
Ex-1002	Patent Center Prosecution History of U.S. Patent No. 8,984,228.
Ex-1003	Declaration of Dr. Marwan Hassoun.
Ex-1004	Curriculum Vitae of Dr. Marwan Hassoun.
Ex-1005	U.S. Patent No. 7,805,575 to Agarwal et al. ("*Agarwal*").
Ex-1006	B. Sinharoy et al., "IBM POWER7 Multicore Server Processor," IBM Journal of Research and Development, vol. 5, no. 3, pp. 1:1-1:29 (2011) ("*Sinharoy*").
Ex-1007	U.S. Patent Appl. Pub. No. 2011/0219188 to Blumrich et al. ("*Blumrich*").
Ex-1008	U.S. Patent Appl. Publ. No. 2008/0126750 to Sistla ("*Sistla*").
Ex-1009	*Multicore Processors and Systems* (S.W. Keckler et al. eds., 2009) ("*Keckler*").
Ex-1010	U.S. Patent Appl. Pub. No. 2006/0041715 to Chrysos et al. ("*Chrysos*").
Ex-1011	G. Blake et al., "A Survey of Multicore Processors," IEEE Signal Processing Magazine, vol. 26, no. 6, pp. 26-37 (Nov. 2009) ("*Blake*").
Ex-1012	V. Getov et al., "Codesign for Systems and Applications: Charting the Path to Exascale Computing," Computer, vol. 44, no. 11, pp. 19-21 (Nov. 2011).
Ex-1013	T. Zhou, "Deriving Voltage Tolerance Specification for Processor Circuit Design," 2011 IEEE 20th Conference on Electrical Performance of Electronic Packaging and Systems, pp. 17-20 (Oct. 2011).

Exhibit	**Description**
Ex-1014	Library of Congress Record: IBM Journal of Research and Development.
Ex-1015	MARC Record: IBM Journal of Research and Development.
Ex-1016	IBM Journal of Research and Development, vol. 5, no. 3 (2011).
Ex-1017	M.R. Marty, *Cache Coherence Techniques for Multicore Processors*, Ph.D. Dissertation, University of Wisconsin – Madison (2008) ("*Marty*").
Ex-1018	Docket Control Order
Ex-1019	Infringement Contentions Cover
Ex-1020	IPR2023-01344 Paper 10 05/28/2024 Patent Owner's Response
Ex-1021	IPR2023-01344 Paper 20 10/22/2024 Patent Owner's Sur-reply
Ex-1022	Median Time To Trial
Ex-1023	Declaration of Kelley Hayes Greenfield
Ex-1024	Daedalus LPR 4-2 Terms

I. Introduction

The Board should institute because this case presents overwhelming invalidity issues – that the Board has already addressed in an existing IPR decision on a child patent. As noted on the first page of the Petition, the Challenged Patent herein (U.S. Patent 8,984,228) has a child patent (U.S. Patent No. 9,575,895) that was already involved in IPR2023-01344. The present petition, in Ground 2, cites to the same prior art as cited in IPR2023-01344 (*Sinharoy* (Ex-1006)). As noted in the Petition:

> The '895 patent's claim 1 includes all elements of the '228 patent's claim 1 largely verbatim. (Ex-1003 ¶¶46-48.) Thus, if IPR2023-01344 invalidates claim 1 of the '895 patent based on *Sinharoy*, the Board may institute on that basis alone.

Petition, at 1, n.1. Subsequently, the Board held all challenged claims of the child '895 patent as invalid over *Sinharoy*. IPR2023-01344, Final Written Decision ("FWD"), Paper 31 (January 24, 2025). Invalidity was so overwhelming in IPR2023-01344 that the Board issued the FWD six weeks before the statutory deadline. PO litigated the "single caching agent" term (found in both the '895 and '228 patents) and the Board rejected PO's arguments. FWD at 23-28. Importantly, the PO did not appeal the findings in the FWD which raises estoppels that prevent the PO from trying to relitigate issues finally decided in the FWD.

Thus, this case presents an overwhelming case of invalidity using only the existing analysis of the Board. Given the Board's prior rulings and extensive knowledge, it would be more efficient for the Board to address the prior art than the district court.

Patent Owner's Request For Discretionary Denial of Institution ("Request") does not address any aspect of IPR2023-01344 even though the Petition raised this issue front and center on the first page.[1] PO's Request does obliquely reference *Sinharoy* (pp. 7, 9, 10) in an attempt to argue that *Sinharoy* was cumulative, but PO does not address, or even reference, the Final Written Decision in IPR2023-01344. Nor does PO address that the Board expressly rejected PO's arguments against *Sinharoy* on the "single caching agent" term that PO now argues in its Factor 6 cumulative arguments.

In addition, the Petition's Ground 1 asserting *Agarwal* demonstrates even a

[1] The Board should ignore, or discount, any new arguments that Patent Owner makes regarding IPR2023-01344 in subsequent filings because plainly the Patent Owner had the opportunity to address IPR2023-01344 and it was specifically highlighted in the present Petition, and purposely chose to avoid the issue.

stronger invalidity challenge than was found for *Sinharoy*. Moreover, PO's substantive arguments (on both *Sinharoy* and *Agarwal*) were expressly considered and rejected in IPR2023-01344 as detailed below.

Finally, the MediaTek Petitioner stipulates that it will not pursue the grounds raised in the Petition or any other ground that Petitioner could have reasonably raised in this proceeding in the parties' district court litigation.[2] *Sotera Wireless, Inc. v. Masimo Corp*., IPR2020-01019, Paper 12 at 18-19 (P.T.A.B. Dec. 1, 2020) (precedential). This eliminates any risk of duplication and potentially conflicting decisions. It also allows the evaluation of invalidity in the most efficient forum – this Board – that has already considered and addressed the issues to be raised for the '228 patent.

The present IPR presents a compelling invalidity analysis and the Board should therefore institute.

II. The *Fintiv* Factor Analysis Supports Institution.

A. The Likelihood of a Stay Under *Fintiv* Factor 1 is Neutral

Factor 1 is neutral because the district court has not granted a stay and neither party has requested one.

[2] The Arm petitioner is not a party to the related litigation.

Under these circumstances, the Board generally "decline[s] to infer . . . how the District Court would rule should a stay be requested by the parties in the parallel case." *See*, *e.g.*, *Hulu, LLC v. SITO Mobile, Ltd*., IPR2021-00298, Paper 11 at 10- 11 (P.T.A.B. May 19, 2021) (quoting *Apple Inc. v. Fintiv, Inc*., IPR2020-00019, Paper 15 at 12 (P.T.A.B. May 13, 2020) (informative)).

PO's assertion that "the District Court does not have a track record of granting stays prior to institution" is both circular and speculative. Request at 3-4. It is circular because it is arguing that the Board should not institute because a stay has not been granted and that the District Court will not grant a stay without institution. Under such reasoning, there would never be any IPR that would be instituted. PO's assertion is speculative because it does not address the current situation in which the Board has already issued a FWD finding claims invalid that are substantively identical to the pending claims of the '228 patent.

B. The Proximity to the Court's Trial Date Under *Fintiv* Factor 2 is Neutral

Factor 2 is at worst neutral because the district court trial is likely to be near the statutory deadline for the Board's final written decision. The Board's institution decision is expected by June 30, 2025 (e.g., six months from the File Date Accorded filing) and a Final Written Decision will accordingly be due by June 30, 2026. However, as shown by IPR2023-01344, the invalidity of the

Challenged Claims is so clear-cut that the Board issued a FWD more than 6 weeks before the statutory deadline.

While the district court's docket control order indicates jury selection will commence on January 26, 2026, this date is not determinative because the Eastern District of Texas often schedules multiple trials on the same date and the trial schedule is subject to change. *See Dish Network v. Broadband iTV*, IPR2020-01280, Paper 17 at 16 (P.T.A.B. Feb. 4, 2021) ("We cannot ignore the fact that the currently scheduled trial date is more than nine months away and much can change during this time.").

Time-to-trial statistics instead suggest trial will begin 23 to 25 months from the complaint, which places trial between March and May 2026. Ex-1022. This may be a matter of weeks from the Board's final written decision – which, as noted herein, if issued on the same timeline as in IPR2023-01344 could occur in mid-to-late May 2026.

As the Board stated in *Fintiv*, with a trial date "at or around the same time as the projected statutory deadline," the Board's decision whether to institute "will likely implicate other factors . . . , such as the resources that have been invested in the parallel proceeding." *Apple Inc. v. Fintiv, Inc*., IPR2020-00019, Paper 11 at 9 (P.T.A.B. Mar. 20, 2020) (precedential) (emphasis added). Factor 2 is therefore neutral. *See Sotera*, Paper 12 at 15 (finding this factor "does not weigh for or

against denying institution" where trial is "scheduled to begin around the same time as our deadline to reach a final decision.").

Even if the Board finds this factor slightly in favor of exercising its discretion, the Board has consistently found this factor nondeterminative. *Fintiv* instead requires a "holistic view of whether efficiency and integrity of the system are best served by denying or instituting review." *Fintiv*, Paper 11 at 6. In *Netnut Ltd., v. Bright Data Ltd*., trial was scheduled six months before the expected final written decision yet the Board instituted review, noting the "strong showing on the merits in the Petition and relatively minor investment in the merits of the validity challenge in district court." IPR2021-01492, Paper 12 at 9-16 (P.T.A.B. Mar. 21, 2022). As noted herein, the present situation, with a Board FWD decision presenting analysis that already addresses virtually identical claims mirrors *Netnut*'s strong showing of merits and minor investment in the case.

The Board similarly instituted review in *Coolit Sys., Inc. v. Asetek Danmark A/S*, IPR2021-01195, Paper 10 at 9-14 (P.T.A.B. Dec. 28, 2021) and *Micron Tech., Inc., v. Vervain, LLC*, IPR2021-01550, Paper 11 at 9-13 (P.T.A.B. April 11, 2022), where trial was five months and three months before final written decisions, respectively.

Petitioners in those cases also did not submit a *Sotera*-style stipulation as Petitioner has served here. *See Netnut*, Paper 12 at 9-16 (no stipulation); *Coolit*,

Paper 10 at 9-14 (*Sand Revolution* stipulation); *Micron*, Paper 11 at 9-13 (same). Thus, the proximity of trial and risk of duplicative efforts was greater in these cases yet the Board instituted review.

C. The Lack of Investment in District Court Under *Fintiv* Factor 3 Strongly Favors Institution

Factor 3 strongly favors institution because the parties will have expended few resources by the expected institution date of June 30, 2025. The parties' *Markman* hearing is not scheduled until July 31, 2025, fact discovery does not close until August 28, 2025, and the deadlines for expert discovery and dispositive motions fall well after institution (October 2025). Ex-1018, 3-4. Therefore, the district court will not have "issued substantive orders related to the patent" by the institution deadline and Patent Owner does not assert otherwise. *See Fintiv*, Paper 11 at 9-10 ("If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution . . . .").

Patent Owner focuses instead on "claim construction discovery" and the notion that "the parties may well have filed their opening claim construction briefs and technology tutorials." Response at 5-6 (emphasis added).

However, the parties have exchanged terms. For the '228 patent, the only terms mentioned by the parties relate to certain drafting errors within the '228

claims. The parties appear to be in agreement on how to address those errors. Thus, there will not be any effort related to the '228 patent for claim construction discovery. Ex-1024.

Moreover, Patent Owner's opening claim construction brief is not due until almost the institution date (on June 18, 2025), and there is no indication there will be any claim construction discovery in the case related to the '228 patent.

Patent Owner fails to otherwise identify a substantive order that will be issued prior to institution (because it cannot). The parties and the district court will therefore have made no significant investments in parallel litigation, which favors institution.

The timing of the Petition also avoids unfair costs to Patent Owner. Petitioners did not wait until litigation between the parties "progressed significantly" before filing the Petition. *See Fintiv*, Paper 11 at 11. Instead, Petitioners diligently filed the Petition just three months after the MediaTek petition received Patent Owner's infringement contentions on September 4, 2024, and shortly after serving invalidity contentions on November 20, 2024. EX-1018, 4. As explained in *Fintiv*, "it is often reasonable for a petitioner to wait to file its petition until it learns which claims are being asserted against it in the parallel proceeding." Paper 11 at 11.

Factor 3 therefore weighs strongly in favor of institution.

D. The Lack of Overlap Under *Fintiv* Factor 4 Strongly Favors Institution

The MediaTek Petitioner has substantially eliminated the risk of overlap between this proceeding and the parties' district court litigation by stipulating that the MediaTek Petitioner will not pursue the grounds raised in the Petition or any other ground that Petitioner could have reasonably raised in this proceeding in the related district court litigation.[3] *Sotera*, Paper 12 at 18-19. The Board and district court will therefore avoid inefficiently addressing the same grounds or prior art raised in the Petition or prior art that could have been raised, thereby eliminating the possibility of conflicting decisions. *See id*.; *see also Fintiv*, Paper 11 at 12-13.

Factor 4 also strongly favors institution because Patent Owner asserts only a subset of claims of the '228 patent in district court. In addition to the claims asserted in the district court, this Petition challenges claims 3 and 16-19, which are not involved in the litigation. Accordingly, this proceeding addresses additional issues that will not be resolved in district court, favoring institution.

The number of asserted claims will further reduce before trial according to the case docket control order. *See* EX-1018, 1 (requiring "final election of Asserted Claims" before jury selection). Therefore, in addition to avoiding

[3] The Arm petitioner is not a party to the related litigation.

duplicative challenges based on the same prior art, the claims at issue in this proceeding will not be coextensive with those challenged in district court, and Petitioner ARM has an independent interest in invalidating all of the Challenged Claims as discussed with respect to Factor 5 below.

E. The Parties are not the Same as in the District Court Under *Fintiv* Factor 5

While Petitioner MediaTek Inc. is a party to the litigation, Petitioner Arm is not a party to the litigation and has separate interests that would not necessarily be vindicated by the district court proceedings.

PO's sole argument is that "nowhere does ARM explain how resolution of the validity of the '228 patent through the District Court litigation would adversely affect those interests…." Request, 8. This is a nonsensical assertion. Arm is not a party to the litigation. Arm's "interests" are that PO accuses Arm's technology of infringement. E.g., Ex-1019 at 20 ("For the '228 Asserted Claims, the '228 Patent Accused Products are SoCs or application processors ('APs') based on or derived from ARMv8.2 architecture, as well as subsequent revisions to the ARM architecture such as the ARMv9 architecture…."). Arm supplies this accused technology to many customers beyond the MediaTek petitioner and has separate interests in defending that technology that Arm cannot address in the district court because it is not a party. Furthermore, Arm has an interest in invalidating all of the

Challenged Claims – an issue that cannot possibly be raised in the district court even by the actual parties to the district court litigation because many of the Challenged Claims are not even asserted therein.

Arm's separate interest render this factor strongly in favor of institution.

F. The Board's Final Written Decision In IPR2023-01344 And The Other Merits of the Petition Strongly Favor Institution Under *Fintiv* Factor 6

The demonstrated strength of the challenges of the Petition outweighs any concerns that might arise under Factors 1-5. PO does not discuss the FWD in IPR2023-01344 even in light of the complete overlap in claim language. As referenced in the Petition and quoted in the accompanying expert declaration, claim 1 of the (now invalid '895 patent) includes every element (and more) of claim 1 of the '228 patent:

'895 patent	**'228 patent**
1. A processor comprising: **a plurality of cores**, a shared cache memory, a memory controller to interface with a memory coupled to the processor, an integrated input/output (IIO) module to interface between the processor and an IO device coupled to the processor and a caching agent to perform cache coherency operations	1. An apparatus comprising: **a multicore processor** including a **plurality of cores**, a shared cache memory, an integrated input/output (IIO) module to interface between the multicore processor and at least one IO device coupled to the multicore processor, and a caching agent to perform cache coherency operations

for the plurality of cores and the IIO module, wherein the processor is to receive an allocation transaction from the IO device and directly store data of the allocation transaction into the shared cache memory, wherein the caching agent is a single caching agent for the processor and includes a plurality of distributed portions each associated with a corresponding one of the plurality of cores.	for the plurality of cores and the IIO module, the caching agent a single caching agent for the **multicore** processor and including a plurality of distributed portions each associated with a corresponding one of the plurality of cores.

As is apparent, the only words in the '228 patent, claim 1 not present in the (invalidated) '895 patent's claim 1 are "multicore processor" – which, of course, corresponds to the "plurality of cores" that is present in both patents' claims. Indeed, the '895 patent's claim 1 actually recites more elements than the '228 patent's claim 1. But, even with those extra limitations, the '895 patent's claim 1 was invalidated over *Sinharoy*. Thus, PO simply has no argument that the '228 patent's claim 1 is not invalidated by the same *Sinharoy* prior art that the Board already addressed in IPR2023-01344.

During IPR2023-01344, PO's sole arguments for patentability were directed to the overlapping claim language between the '895 and '228 patent claims – specifically, the "single caching agent" term. See IPR2023-01344, Patent Owner's

Response, Paper 10 at 7-8, 15-23 (May 28, 2024) (arguing the "single caching agent" term); IPR2023-01344, Patent Owner's Sur-Reply, Paper 20 at 1-10 (October 22, 2024) (arguing the "single caching agent" term). The oral argument focused on this same term. IPR2023-01344, Oral Argument Transcript, Paper 30 (December 17, 2024) (referencing "single caching agent" seventy-five times throughout the oral argument).

The Board rejected PO's arguments on this "single caching agent" term. IPR2023-01344, Final Written Decision, Paper 31 at 23-28 (January 24, 2025). Thus, PO has already had an opportunity to litigate the sole term in the '228 patent that it asserted results in patentability – and lost. Accordingly, the FWD gives rise to collateral estoppel for all issues that PO previously raised in IPR2023-01344. The FWD further gives rise to estoppel under 37 CFR 42.73(d) which prevents PO from taking ay action that is "inconsistent" with the FWD.

Patent Owner does not dispute that Petitioner sets forth compelling evidence that demonstrates the strength of unpatentability in the Petition. See Request at 8-11. Patent Owner identifies no missing elements in Petitioner's grounds. That is because the merits of the Petition are undeniably strong – as the Board already ruled in IPR2023-01344. Factor 6 therefore weighs heavily in favor of institution. See *Fintiv*, Paper 11 at 15-16.

Moreover, beyond IPR2023-01344, Agarwal presents compelling evidence

of unpatentability. PO does not even attempt to argue otherwise or identify any specific missing elements.

PO presents cursory arguments alleging that Sinharoy and Agarwal are cumulative over the Arimilli reference (U.S. Pat. Publ. No. US 2004/01339283 A1). PO's arguments are woefully inadequate and deficient for numerous reasons. First, Arimilli was on the face of the child '895 patent (which is unsurprising given that the '895 patent is a continuation of the '228 patent). Thus, clearly the Board in IPR2023-01344 did not believe Arimilli was cumulative when considering the same claim language in the '895 as is present in the '228.

Second, PO's assertions of cumulativeness of Arimilli are devoid of comparison of the specific aspects of the prior art to any particular claim element in the '228 patent. Rather, PO merely cites alleged high-level architectural aspects of Arimilli and other aspects of the entirely different *Sinharoy* reference and claims cumulativeness. Request at 10.

Moreover, and more fundamentally, the Board already expended great resources and explicitly rejected PO's arguments about the "single caching agent" disclosure in *Sinharoy* in the FWD for IPR2023-01344. Thus, it is much more efficient for the PTAB based on the record created in IPR2023-01344 to address similar issues raised in the current Petition. PO does not address the Board's rejection of this argument.

Similarly, for Agarwal, PO's arguments are even more sparse. PO merely asserts that the are similarities between Agarwal and Arimilli. It is unsurprising that, in the general field of cache management, there could be similarities between various references. Notably, PO does not assert that Agarwal's disclosure does not disclose all of the '228 claim elements. It plainly does.

The art in the Petition is materially different and noncumulative of art the Office previously considered during prosecution. Sinharoy and Agarwal were not before the examiner. Nor does Patent Owner assert the same or substantially the same arguments were previously presented to the examiner regarding the "single caching agent" as are present in extensive discussions devoted to this term for *Sinharoy* and *Agarwal* in the Petition. Petition, at 6-10, 15-24, 44-57.

To the extent there is any overlap in art or arguments, this is a product of the challenged claims themselves: "some overlap . . . will likely always occur because the same claims are being analyzed." *CallMiner, Inc. v. NICE Ltd.*, IPR2020-00221, Paper 11 at 32 (P.T.A.B. Jun. 17, 2020) ("Viewing the prior art through the lens of the claims would usually produce similarities in arguments, even in the case of a broad claim reading on multiple types of prior art, with similar arguments being made that aspects of the prior art teach or suggest the same claim elements.").

Thus, the present situation shows:

- The Board already addressed and rejected PO's arguments regarding Sinharoy in IPR2023-01344;
- None of Petitioner's asserted art, combinations, or arguments were previously considered by the Office during prosecution; and
- The art is not cumulative.

In addition, the challenge in the Petition demonstrates the settled expectations of the parties based on the FWD in IPR2023-01344. The PTAB fully considered PO's "single caching agent" argument, rejected it and found all unpatentable over *Sinharoy*. PO chose not to appeal the findings of the FWD and thus the settled expectations of the parties is that the Challenged Claims in the Petition are likewise unpatentable.

Therefore, Factor 6 weighs heavily in favor of institution – particularly in light of PO's wholesale refusal to discuss IPR2023-01344, the FWD therein, and the Board's rejection of PO's substantive positions.

III. Conclusion

The Board should decline to exercise its discretion under 35 U.S.C. § 314(a) and grant institution of review of all Challenged Claims.

Date: April 28, 2025

Respectfully submitted,

By: /s/ Kevin P. Anderson

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CERTIFICATION OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24, Petitioners certify that the word count of Petitioners' Response To Patent Owner's Request For Discretionary Denial (exclusive of any table of contents, table of authorities, mandatory notices under § 42.8, certificates of service and word count, and list of exhibits or claim listing) as measured by Microsoft Word is 3,550.

Dated: April 28, 2025

By: /s/Kevin Anderson
Kevin Anderson, Lead Counsel
USPTO Reg. No. 43,471

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a), the undersigned certifies that on a copy of the foregoing Petitioner's Response to Patent Owner's Request For Discretionary were served by electronic means to counsel of record in the present IPR.

Date: April 28, 2025

By: /s/ Kevin Anderson
Kevin Anderson, Lead Counsel
USPTO Reg. No. 43,471