

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCEDES-BENZ USA, LLC,
Petitioner,

v.

DAEDALUS PRIME LLC,
Patent Owner.

IPR2023-01343
Patent 8,898,494 B2

Before WILLIAM V. SAINDON, THOMAS L. GIANNETTI, and
GREGG I. ANDERSON, *Administrative Patent Judges*.

GIANNETTI, *Administrative Patent Judge*.

DECISION

Denying Petitioner's Request on Rehearing
of Final Written Decision on Remand
37 C.F.R. § 42.71(d)

I. INTRODUCTION

We address this case after a decision by the Acting Director’s Delegated Review Panel (DRP), remanding it for further proceedings and ordering us to determine whether rehearing of our Final Written Decision is warranted in light of the DRP’s “revised claim construction.” Paper 27 (“DRP Dec.”), 19. Specifically, the DRP remanded the case to this panel “to determine whether the Board misapprehended or overlooked White’s disclosure in finding that White does not teach the disputed workload limitations of ’494 patent claims 1 and 4.” *Id.* at 19–20.

We have reconsidered our Final Written Decision in light of the DRP’s revised claim construction. We determine, however, that we did not misapprehend or overlook the failure of White’s disclosure to meet the disputed limitations of claims 1 and 4 of the ’494 patent, even under the DRP’s revised claim construction. We, therefore, deny rehearing of our determination in our Final Written Decision that Petitioner has not succeeded on its challenge to those claims based on White.¹

II. PROCEDURAL BACKGROUND

Mercedes-Benz USA, LLC (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–7, 13–15, 17, and 18 (the “challenged claims”) of U.S. Patent No. 8,898,494 B2 (Ex. 1001, the “’494 patent”). Paper 2 (“Pet.”), 1. On February 13, 2024, we instituted trial. Paper 7.

¹ US Patent No. 7,263,457 B2 (Ex. 1006).

Following institution of the trial, Patent Owner filed a Response (Paper 10), Petitioner filed a Reply (Paper 13), and Patent Owner filed a Sur-reply (Paper 14).

On January 8, 2025, we issued a Final Written Decision. Paper 21 (“Final Dec.”). In that Decision, we determined that Petitioner had failed to demonstrate that any of the challenged claims of the ’494 patent are unpatentable. *Id.* at 34.

On February 7, 2025, Petitioner requested Director Review of our Decision. Paper 22. On March 25, 2025, the Acting Director of the USPTO delegated the request to a DRP. Paper 24. The Acting Director’s Delegation Order called upon the DRP to consider two issues:

whether the Board: (1) misapprehended or overlooked Petitioner’s claim construction arguments for the claim term “workload” and erred in construing the term, and (2) misapprehended or overlooked White’s disclosure in finding that White does not teach “a core workload monitor configured to determine a core workload for the first core” and “receiving a bus workload for a communication bus and a first processing element workload for a first processing element,” as claims 1 and 4 respectively require.

Id. at 2 (citations omitted).

On April 24, 2025, the DRP rendered its Decision remanding the case to the panel with instructions to “determine whether rehearing of the Final Written Decision is warranted in light of our revised claim construction.” DRP Dec. 19.

III. THE ’494 PATENT

The ’494 patent is described in our Final Decision (Final Dec. 3–4) and in the DRP’s Decision (DRP Dec. 4–7). In summary, the ’494 patent

relates to efficiently balancing performance and power between processing elements or a communication bus by identifying and alleviating bottlenecks based on measured workloads. *Id.* at Abstr., 1:12–16. Bottlenecks occurring at the level of processing elements, such as a CPU or GPU, or at a communication bus can cause applications to slow down. *Id.* at 15:8–21, 17:4–7. The ’494 patent describes alleviating bottlenecks by allocating more current or frequency to the bottlenecked component and capping or limiting competing devices. *Id.* at 7:51–61, 17:4–41.

Claim 1 of the ’494 patent is reproduced below with the disputed “workload” limitations italicized:²

1. A processor comprising:
 - 1[a] an integrated circuit including:
 - 1[b] a first core;
 - 1[c] a cache memory;
 - 1[d] a communication bus coupled to the first core, the communication bus to connect the first core and the cache memory;
 - 1[e] *a core workload monitor configured to determine a core workload for the first core;*
 - 1[f] *a bus workload monitor configured to determine a bus workload for the communication bus;* and
 - 1[g] balancing control adapted to receive the bus workload from the bus workload monitor and
to dynamically tune power allocation between the first core and the communication bus based on a power limit for the integrated circuit and

² Paragraph labeling is based on labeling provided by Petitioner.

a comparison between the bus workload and a bus workload threshold, the power limit corresponding to a maximum thermal dissipation capacity for the integrated circuit,

1[h] wherein a power consumption of one of the first core and the communication bus is to be reduced, the power consumption reduction to be limited to maintain operation of the one of the first core and the communication bus above a low limit.

Ex. 1001, 21:17–39. Independent claim 4, reciting a non-transitory storage medium, is directed to similar subject matter and contains “workload” limitations similar to the disputed limitations in claim 1. *Id.* at 21:60–22:20.

IV. THE BOARD PANEL’S DECISION

The Petition relied on White’s disclosure of monitoring the operating voltages and frequencies of the bridge and logic core components to meet the requirements of the claims for monitoring workload. Pet. 53 (“White discloses power management logic receives workloads for common bridge logic 110 and logic core 120A, such as their operating voltages and frequencies.”). Patent Owner responded that “White is clear that what is ‘received’ by power management logic is not workload – i.e., not activity levels. Instead, what is received by the power management logic is current operating voltages and operating frequencies.” Paper 10, 48.

After reviewing the arguments of the parties, we determined that Petitioner had not demonstrated that the requirement for monitoring workload had been met by White. Final Dec. 28. We concluded that “[w]e find that in contrast to workload, the current voltages and frequencies received by the power management logic in White are operating conditions that do not reflect the ‘amount of activity over a period of time.’” *Id.* We

relied on the testimony by Patent Owner’s expert, Dr. Brogioli, that “[m]onitoring operating characteristics as described by White is not the same as monitoring workload using a core workload monitor, as recited in claim 1 of the ’494 patent.” *Id.* (citing Ex. 2001 (“Brogioli Decl.”) ¶ 66).

We went on to quote Petitioner’s Reply argument that “nothing in the ’494 Patent indicates that determining a ‘workload’ cannot be done by monitoring operating frequencies and voltages, which provide indications of activity *or use* of a processing element.” *Id.* at 39 (quoting Paper 13 (“Pet. Reply”), 10). We also quoted the ’494 patent: “Determining a workload includes any known method for determining activity of hardware, a workload of software, a number of instructions executed or to execute, or any other metric *for determining use* of a processing element.” *Id.* (quoting Ex. 1001, 9:49–52) (also quoted at Pet. Reply 10).

Ultimately, we agreed with Dr. Brogioli that “White’s frequency and voltage monitoring and adjustments do not result in the power management logic receiving the bus workload.” *Id.* at 31 (citing Brogioli Decl. ¶¶ 64–66).

V. THE DRP DECISION

As instructed in the Delegation Order, the DRP considered two issues: “whether the Board: (1) misapprehended or overlooked Petitioner’s claim construction arguments for the claim term ‘workload’ and erred in construing the term, and (2) misapprehended or overlooked White’s disclosure in finding that White does not teach ‘a core workload monitor configured to determine a core workload for the first core’ and ‘receiving a bus workload for a communication bus and a first processing element

workload for a first processing element,’ as claims 1 and 4 respectively require.” DRP Dec. 2 (citations omitted) (citing Paper 24 (Delegation Order) 2).

The DRP concluded that “the Board overlooked Petitioner’s reliance on a passage in the challenged patent that broadly describes ‘workload.’” DRP Dec. 2, 15–16 (citing Ex. 1001, 9:49–57). The DRP, therefore, modified the Board’s construction of “workload” to include the additional term “or use”: “[W]hen properly construed, the term ‘workload’ means ‘an amount of activity *or use* over a quantum period of time.’” *Id.* at 15.

As to the second issue in the Delegation Order, the DRP remanded the decision “to consider the parties’ arguments and evidence regarding White’s disclosure in view of the modified claim construction.” *Id.* The DRP Decision addressed the panel’s analysis of White in the panel’s Final Decision as follows:

Although it appears that the Board did not misapprehend or overlook White’s disclosure in determining that Petitioner failed to persuasively show that White teaches the “workload” limitations, we remand *out of an abundance of caution* in light of the modified claim construction.

DRP Dec. 2–3 (emphasis added). Specifically, the DRP Decision concluded that “it appears that the Board panel did not misapprehend or overlook White’s disclosure of determining frequency or voltage in finding that White does not teach the disputed workload limitations of ’494 patent claims 1 and 4.” *Id.* at 19.

VI. DISCUSSION

Our task, as set out in the Delegation Order and the DRP Decision, is narrow. We are not being asked to revisit our findings on whether White’s

disclosure teaches the “workload” limitations under the construction we cited in the Final Written Decision. Thus, our finding (Final Dec. 28) that “there is a distinction between White’s operating voltages and frequencies and the claimed workload, . . . construed . . . as ‘an amount of activity over a quantum or period of time,’” remains undisturbed by the DRP’s Decision. *See* DRP Decision 19. The only question before us is whether those findings are consistent with the DRPs “revised” construction for “workload,” adding the term “or use.” For the reasons that follow, we determine that our findings and conclusions regarding White remain unchanged under the DRP’s “revised” construction.

The DRP Decision recognized that “[t]he ’494 patent does not explicitly define the term ‘workload.’” DRP Dec. 15. The DRP Decision also recognized that “[a]lthough the ’494 patent provides several examples of measuring activity over a period of time, the patent does not provide any example of what would constitute measuring ‘use’ rather than ‘activity’ of a component.” *Id.* at 16–17. The DRP Decision cites to two “key” passages from the ’494 patent. *Id.* at 15–16. The first of these passages equates “workload” with “an amount of activity (e.g., number of cycles active) over a quantum or period of time.” *Id.* at 15 (citing Ex. 1001, 8:18–25). There is no mention of “use” as a workload metric in this passage.

The second “key” passage cited in the DRP Decision provides alternative ways of determining workload, including “activity of hardware, a workload of software, a number of instructions executed or to execute, or any other metric for determining use of a processing element.” *Id.* at 15–16 (citing Ex. 1001, 9:49–57). The DRP concluded that the panel “overlooked” this description in the ’494 patent, quoted in the DRP Decision and at page

10 of Patent Owner’s Reply (Paper 13). DRP Dec. 14 (“[W]e conclude that the Board overlooked Petitioner’s claim construction arguments in its reply brief and, more specifically, Petitioner’s reliance on a description in the ’494 patent that determining ‘workload’ also includes determining ‘use’ of a processing element.”). This very description of determining workload cited by the DRP and in Petitioner’s Reply was quoted in our Final Decision. *See* Final Dec. 29 (quoting Ex. 1001, 9:49–52).

The DRP Decision refers also to the argument appearing at page 10 of the Petitioner’s Reply, which the DRP characterizes as “disputing Patent Owner’s construction of the claim term ‘workload.’” DRP Dec. 17 (citing Pet, Reply 10–11). The DRP Decision states that the Board “appears to have overlooked Petitioner’s arguments” appearing there. *Id.* Nowhere in those cited pages, however, did Petitioner “dispute” the panel’s construction of “workload” by drawing a distinction between “activity” and “use.” To the extent there is a “dispute” over this construction based on the inclusion of “use,” that argument first surfaced in the Petitioner’s Request for Director Review, not during the trial. *See* Paper 22, 9.³

Petitioner’s Reply argument at the pages cited in the DRP Decision was not based on drawing a distinction between “activity” and “use.” Instead, Petitioner argued that “nothing in the ’494 Patent indicates that determining a ‘workload’ cannot be done by monitoring operating frequencies and voltages, which provide indications of activity or use of a

³ Petitioner’s attempt to stretch its construction to include “a metric related to use” was rejected by the DRP. DRP Dec. 18.

processing element.” *See* Pet. Reply 9–10. Responding to this argument in our Final Written Decision, we found that “in contrast to workload, the current voltages and frequencies received by the power management logic in White are operating conditions that do not reflect the ‘amount of activity over a period of time.’” Final Dec. 28 (citing Brogioli Decl. ¶¶ 64–66). The DRP Decision endorses this finding. DRP Dec. 2–3 (“[I]t appears that the Board did not misapprehend or overlook White’s disclosure in determining that Petitioner failed to persuasively show that White teaches the ‘workload’ limitations.”).

With this background, we address the application of the DRP Decision’s “revised” definition of “workload.” We do not find that the record before us supports a meaningful distinction between “activity” and “use” in the context of the ’494 patent, certainly not one that would affect our previous analysis and findings. As noted by the DRP, the ’494 patent itself does not support such a distinction. *See* DRP Dec. 16–17 (“[T]he patent does not provide any example of what would constitute measuring ‘use’ rather than ‘activity’ of a component.”). And, as observed by the DRP, “[the ’494] patent also equates workload and activity in several examples.” DRP Dec. 16 (citing Ex. 1001, 10:60–62, 13:35–36, 13:60–62).

The “key” passage from the ’494 patent relied on by the Petitioner in its Reply and the DRP Decision conflates the terms “activity” and “use,” or at least does not distinguish between them. *See* DRP Dec. 15–16 (quoting Ex. 1001, 9:49–57); Pet. Reply 10 (same). Thus, the ’494 patent states: “Determining a workload includes any known method for determining activity of hardware . . . or any other metric for determining use of a

processing element.” Ex. 1001, 9:49–52. This passage suggests that the same metrics apply to determining “activity” and “use.”

We have also considered the testimony of Dr. Brogioli cited in our Final Decision. *See* Final Dec. 28–29 (citing Brogioli Decl. ¶¶ 64–66). Dr. Brogioli’s testimony is consistent with the DRP’s revised construction. In concluding that “monitoring operating characteristics as described by White is not the same as monitoring workload using a core workload monitor,” Dr. Brogioli states that “according to the ’494 patent, monitoring the *workload* of a core involves ‘determining activity of hardware, a workload of software, a number of instructions executed or to execute, or any other metric for determining use of a processing element.” Brogioli Decl. ¶ 66. He further distinguishes between workload and operating conditions, testifying that “[t]he workload is a function of the demands imposed by, e.g., applications running on the system, and may or may not be subject to direct control, whereas the conditions under which that workload is processed are controlled directly. *Id.*

Dr. Brogioli provides an example: “[A] workload for core 505 includes an amount time core 505 is active during a period of time.” Brogioli Decl. ¶ 66. He relates this to use of the core in performing operations: “Activity may be determined as when core 505 is in an active performance state versus a sleep or low power state or a number of cycles *executing or performing operations.*” *Id.* (citing Ex. 1001, 9:50–57) (emphasis added).

In sum, we find that the record before us does not support a distinction between measuring “activity” and “use” that would change our findings that the current voltages and frequencies received by the power management

logic in White are operating conditions and monitoring them is not a measure of workload. Final Dec. 28–31. These findings do not hinge on any differences between “activity” and “use.” The dispositive issue before us during the trial was whether the current voltages and frequencies received by the power management logic in White are operating conditions or indicators of workload. Whether workload is characterized in terms activity or use, our findings are the same: White fails to teach or suggest this limitation.

V. CONCLUSION

Taking into account the trial record in light of the DRP’s revised claim construction, we conclude that the Final Decision did not overlook or misapprehend White’s disclosure in finding that White does not teach the disputed workload limitations of ’494 patent claims 1 and 4. Petitioner’s rehearing request is denied.

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