UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

REALTIME ADAPTIVE STREAMING LLC,
Patent Owner.

Case IPR2019-01033
Patent 7,386,046

PETITIONER'S NOTICE OF APPEAL

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
Madison Building East, 10B20
600 Dulany Street
Alexandria, VA 22314-5793

Notice is hereby given, pursuant to 37 C.F.R. § 90.2(a), that Petitioner Google LLC ("Petitioner") appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered on November 10, 2020 (Paper 33) (the "Final Written Decision")[1] by the United States Patent and Trademark Office, Patent Trial and Appeal Board (the "Board"), and from all underlying orders, decisions, rulings, and opinions. A copy of the Final Written Decision is attached.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Petitioner indicates that the issues on appeal include, but are not limited to, the Board's ruling that Petitioner has not demonstrated, by a preponderance of the evidence, that claims 1 and 23 of U.S. Patent No. 7,386,046 ("the '046 patent") are unpatentable over the prior art, and any findings or determinations supporting or related to that ruling including, without limitation, the Board's construction and application of the claim language,

[1] The Final Written Decision incorrectly indicates that Google LLC and YouTube LLC are both petitioners. Google LLC and YouTube LLC are both real parties-in-interest, but Google LLC is the sole petitioner in this case.

the Board's interpretation of the prior art, and the Board's interpretation of expert evidence.

Simultaneous with this submission, a copy of this Notice of Appeal is being filed with the Board. In addition, the Notice of Appeal and the required fee are being filed electronically with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

Respectfully submitted this 11th day of January, 2021.

Respectfully submitted,

Dated: January 11, 2021

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CERTIFICATE OF SERVICE

The undersigned certifies that, in addition to being filed electronically through Patent Trial and Appeal Board End to End (PTAB E2E), the original version of this Notice of Appeal was filed by overnight express delivery on January 11, 2021 with the Director of the United States Patent and Trademark Office, at the following address:

Office of the General Counsel
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

The undersigned also certifies that a true and correct copy of this Notice of Appeal and the required fee were filed electronically via CM/ECF on January 11, 2021, with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

The undersigned also certifies that a true and correct copy of this Notice of Appeal was served on January 11, 2021, on counsel of record for Patent Owner Realtime Adaptive Streaming LLC by electronic mail (by agreement of the parties) at the following address:

rak_realtimedata@raklaw.com

Respectfully submitted,

Dated: January 11, 2021

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and YOUTUBE LLC,
Petitioner,

v.

REALTIME ADAPTIVE STREAMING LLC,
Patent Owner.

IPR2019-01033
Patent 7,386,046 B2

Before GEORGIANNA W. BRADEN, GREGG I. ANDERSON, and KEVIN W. CHERRY, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine Petitioner has not shown by a preponderance of the evidence that claims 1 and 23 of U.S. Patent No. 7,386,046 B2 are unpatentable.

I. INTRODUCTION

A. Procedural History

Google LLC and YouTube LLC (collectively "Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1 and 23 of U.S. Patent No. 7,386,046 B2 (Ex. 1001, "the '046 patent"). Realtime Adaptive Streaming LLC ("Patent Owner") timely filed a Preliminary Response (Paper 6, "Prelim. Resp."). Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review of all challenged claims on all proposed grounds of unpatentability. *See* Paper 9 ("Dec. to Inst."), 40.

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 17, "PO Resp."), to which Petitioner filed a Reply (Paper 21, "Reply"). Patent Owner then filed a Sur-Reply (Paper 26, "PO Sur-Reply").

An oral argument was held on August 18, 2020. A transcript of the oral argument is included in the record. Paper 31 ("Tr.").

B. Real Parties-in-Interest

Petitioner identifies only Google LLC and YouTube LLCas the real parties-in-interest pursuant to 37 C.F.R. § 42.8. Pet. 1. Petitioner also indicates that Google LLC is a subsidiary of XXVI Holdings Inc., which itself is a subsidiary of Alphabet Inc., and further indicates that XXVI

Holdings Inc. and Alphabet Inc. are not real parties-in-interest. *Id.* There is no dispute regarding the identification of the real parties-in-interest.

C. Related Matters

Petitioner informs us of multiple pending district court proceedings involving the ’046 patent, some of which involve Petitioner. Pet. 1–3. The ’046 patent also was the subject of the following IPR: IPR2019-00209 (filed Nov. 11, 2018), in which, the petitioner failed to carry its burden to demonstrate the unpatentability of any challenged claims in the ’046 patent. IPR2019-00209, Paper 330, at 42.

Patent Owner informs us of five pending district court proceedings involving the ’046 patent. Paper 4, 2 (Patent Owner’s Mandatory Notices).

D. The ’046 Patent

The ’046 patent was filed on February 13, 2002, and is titled “Bandwidth Sensitive Data Compression And Decompression.” Ex. 1001, code (54). The ’046 patent issued on June 10, 2008. *Id*. at code (45). The ’046 patent claims priority to U.S. Provisional Application No. 60/268,394, filed on February 13, 2001. *Id*. at code (22), (45), (60). Accordingly, February 13, 2001 (“the priority date”), is the earliest date to which the ’046 patent may claim priority.

1. *Written Description*

The specification describes systems and methods directed to “compressing and decompressing based on the actual or expected throughput (bandwidth) of a system employing data compression and a technique of optimizing based upon planned, expected, predicted, or actual usage.” Ex. 1001, 7:53–56, 9:12–14. The ’046 patent explains that a challenge in employing data compression for a system is selecting one or more optimal compression algorithms from a variety of available algorithms. *Id.* at 1:41–44. For example, a desired balance between speed and efficiency is typically a significant factor that is considered in determining which algorithm to employ for a given set of data. *Id.* at 1:44–47. This is because algorithms that compress particularly well usually take longer to execute whereas algorithms that execute quickly usually do not compress particularly well. *Id.* at 1:47–49. The '046 patent states "dynamic modification of compression system parameters so as to provide an optimal balance between execution speed of the algorithm (compression rate) and the resulting compression ratio, is highly desirable." *Id.* at 1:51–54.

The '046 patent also states that it seeks to "provide[] a desired balance between execution speed (rate of compression) and efficiency (compression ratio)." *Id.* at 8:10–12. For example, where the speed of the encoder causes a "bottleneck" because "the compression system cannot maintain the required or requested data rates," "then the controller will command the data compression system to utilize a compression routine providing faster compression . . . so as to mitigate or eliminate the bottleneck." *Id.* at 13:46–54. The '046 patent discloses that it can resolve "bottlenecks" in the throughput of a system by switching between different compression algorithms applied to data. *Id.* at 9:57–60. The '046 patent, therefore, discloses a system and method for compressing and decompressing based on the actual or expected throughput (i.e., bandwidth) of a system employing data compression. *Id.* at 9:11–14.

One embodiment of the ’046 patent is shown in Figure 1, reproduced below.

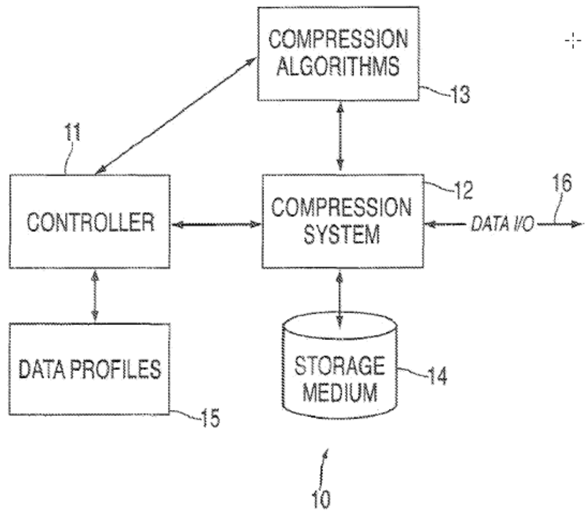


FIG. 1

Figure 1 “is a high-level diagram of a system for providing bandwidth sensitive data compression/decompression according to an embodiment of the present invention.” *Id.* at 8:57–60. As shown in Figure 1, host system 10 includes controller 11, compression/decompression system 12, a plurality of compression algorithms 13, storage medium 14, and plurality of data profiles 15. *Id.* at 10:36–40. The ’046 patent states that controller 11 tracks and monitors the throughput (e.g., data storage and retrieval) of data compression system 12 and generates control signals to enable/disable different compression algorithms 13 when the throughput falls below a predetermined threshold. *Id.* at 10:40–45. In one embodiment of the ’046 patent, the system throughput that is tracked by controller 11 comprises a number of pending access requests to the memory system. *Id.* at 10:45–47.

Another embodiment of the ’046 patent is shown in Figure 2, reproduced below.

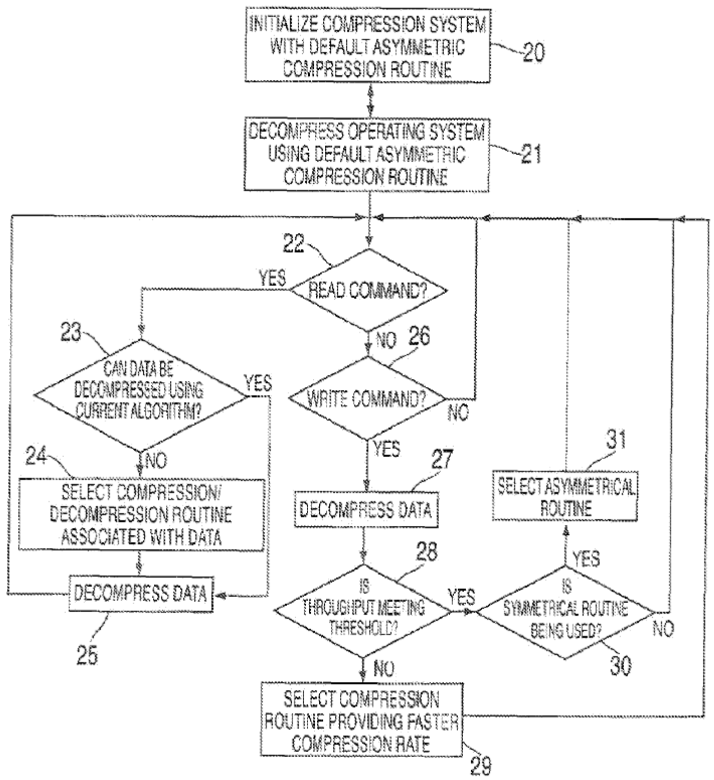


FIG. 2

Figure 2, above, illustrates a method for providing bandwidth sensitive data compression. *Id.* at 12:65–66. The data compression system is initialized during a boot-up process after a computer is powered on and a default compression/decompression routine is initiated (step 20). *Id.* at 13:4–7. According to the ’046 patent, the default algorithm comprises an asymmetrical algorithm, because asymmetric algorithms provide “a high compression ratio (to effectively increase the storage capacity of the hard disk) and fast data access (to effectively increase the retrieval rate from the hard disk).” *Id.* at 13:8–18. According to the ’046 patent, depending on the access profile, it "is preferable to utilize an asymmetrical algorithm that provides a slow compression routine and a fast decompression routine so as to provide an increase in the overall system performance as compared to performance that would be obtained using a symmetrical algorithm." *Id.* at 12:2–6. The '046 patent notes that symmetric routines "compris[e] a fast compression routine." *Id.* at 14:2–4.

2. Illustrative Claim

As noted above, Petitioner challenges independent claims 1 and 23, with claim 1 reciting a method and claim 23 reciting a system. Claim 1, reproduced below with brackets and letters added, is illustrative.

> 1. [a] A method comprising:
>
> [b] compressing data using a first compression routine providing a first compression rate, wherein the first compression routine comprises a first compression algorithm;
>
> [c] tracking the throughput of a data processing system to determine if the first compression rate provides a throughput that meets a predetermined throughput threshold, wherein said tracking throughput comprises tracking a number of pending requests for data transmission; and
>
> [d] when the tracked throughput does not meet the predetermined throughput threshold, compressing data using a second compression routine providing a second compression rate that is greater than the first compression rate, to increase the throughput of the data processing system to at least the predetermined throughput level, wherein the second compression routine comprises a second compression algorithm.

Ex. 1001, 20:14–32.

E. Evidence of Record and Asserted Challenges to Patentability

Petitioner asserts the following challenges to patentability (Pet. 4):

Claim(s) Challenged	35 U.S.C. §[1]	References/Basis
1, 23	103(a)	Kiel[2]
1, 23	103(a)	Kobata[3], Kiel

Petitioner submits the Declaration of Jeffrey J. Rodriguez, Ph.D. ("Dr. Rodriguez") in support of Petition for *Inter Partes* Review (Ex. 1003). Patent Owner submits the Declaration of Kenneth A. Zeger, Ph.D. ("Dr. Zeger") in support of Patent Owner's Response (Ex. 2004).

II. ANALYSIS

A. Relevant Legal Standards

A claim is unpatentable under 35 U.S.C. § 103(a) if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of

[1] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) ("AIA"), included revisions to 35 U.S.C. § 100 *et seq.* effective on March 16, 2013. Because the '046 patent issued from an application filed before March 16, 2013, we apply the pre-AIA versions of the statutory bases for unpatentability.
[2] Kiel et al., US 5,276,898, issued Jan. 4, 1994. Ex. 1004, ("Kiel").
[3] Kobata et al., WO 1999/026130 A1, published May 27, 1999. Ex. 1005, ("Kobata").

the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). "[I]t is error to reach a conclusion of obviousness until all [the *Graham*] factors are considered." *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted). "This requirement is in recognition of the fact that each of the *Graham* factors helps inform the ultimate obviousness determination." *Id.* "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." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Thus, to prevail in an *inter partes* review, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. At this final stage, we determine whether a preponderance of the evidence of record shows that the challenged claims would have been obvious over the cited prior art.

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. "The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). The level of ordinary skill in the art may be reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *GPAC*, 57 F.3d at 1579. In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) ("A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.").

Petitioner argues that a person of ordinary skill in the art relevant to the '046 patent would have had "a bachelor's degree in electrical engineering, computer science, or the equivalent, and three or more years of experience with data compression systems and algorithms, including video and image coding," where a greater amount of practical experience could offset a lower level of education, but where "a higher level of education could offset a lesser amount of experience." Pet. 5. Petitioner relies on the Declaration of Dr. Rodriguez to support its contentions and he proffers the same level of skill as that argued by Petitioner. Ex. 1003 ¶ 16.

Patent Owner proposes that a person of ordinary skill at the time of the invention would have had "a bachelor's degree in electrical engineering, computer science, or a similar field with at least two years of experience in data compression" or that such a person would have had "a master's degree in electrical engineering, computer science, or a similar filed with a specialization in data compression." PO Resp. 7. Patent Owner states that its proposed level of skill "is the same level of skill that the experts and the Board adopted in another IPR on the '046 patent." *Id.* at 7–8 (citing IPR2019-00209, Paper 7 at 12). Dr. Zeger also adopts this definition of a person of ordinary skill in the art for his analysis. Ex. 2004 ¶ 27.

Based on our review of the '046 patent, the types of problems and solutions described in the '046 patent and cited prior art, and the testimony of Dr. Rodriguez and Dr. Zeger, we find that a person of ordinary skill in the art at the time of the claimed invention would have had "a bachelor's degree in electrical engineering, computer science, or a similar field with at least two years of experience in data compression, or a master's degree in electrical engineering, computer science, or a similar field with a specialization in data compression."

C. Claim Construction

We interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). Under that standard, claim terms are presumed to be given their ordinary and customary meaning, as would have been understood by one of ordinary skill in the art, in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). To rebut this presumption by acting as a lexicographer, the patentee must give the term a particular meaning in the specification with "reasonable clarity, deliberateness, and precision." *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Limitations, however, are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). In addition, the Board may not "construe claims during [an *inter partes* review] so broadly that its constructions are *unreasonable* under general claim construction principles." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (overruled by *Aqua Products, Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) on other grounds).

Our review does not identify any term whose construction is necessary to our analysis. Accordingly, we decline to construe any claim term of the '046 patent. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'").

D. Alleged Obviousness of Claims 1 and 23 of the '046 patent in View of Kiel

Petitioner contends claims 1 and 23 of the '046 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Kiel. Pet. 27–46; Reply 2–16. Patent Owner disputes Petitioner's contentions. PO Resp. 19–36; Sur-Reply 2–19. For reasons that follow, we determine Petitioner has not established by a preponderance of the evidence that claims 1 and 23 of the '046 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Kiel.

1. Overview of Kiel (Ex. 1004)

Kiel, titled "System for Selectively Compressing Data Frames Based upon a Current Processor Work Load Identifying Whether the Processor is Too Busy to Perform the Compression," generally describes data communications using data compression. Ex. 1004, code (54), 1:10–11. Kiel explains that data compression provides improved communications performance by reducing the amount of transmitted data and/or reducing the cost of data communications. *Id.* at 1:15–18. According to Kiel, however, data compression adds to the processing overhead and can result in inefficiency in a processor system, as the time spent either attempting to or providing the data compression can cause a delay in the actual transmission of the data and degraded performance. *Id.* at 1:58–60, 1:64–67. Kiel, therefore, describes a method and computer system for dynamically controlling the use of data compression for data communications. *Id.* at 2:26–28. Kiel discloses that the method and computer system have a processor for selectively compressing a data communication frame for data transfer between the computer system and at least one other system. *Id.* at 2:59–62. One embodiment of Kiel is shown in Figure 1, reproduced below.

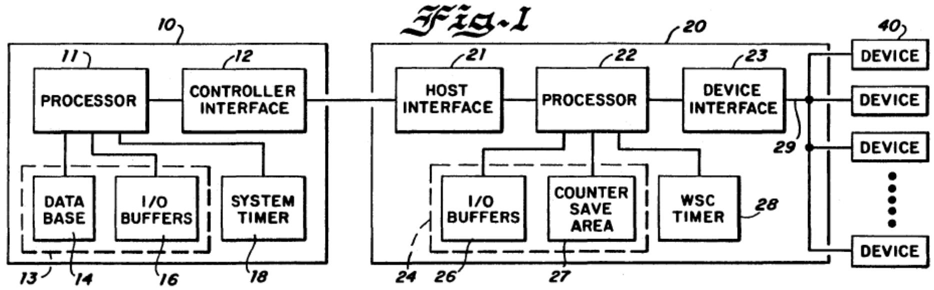
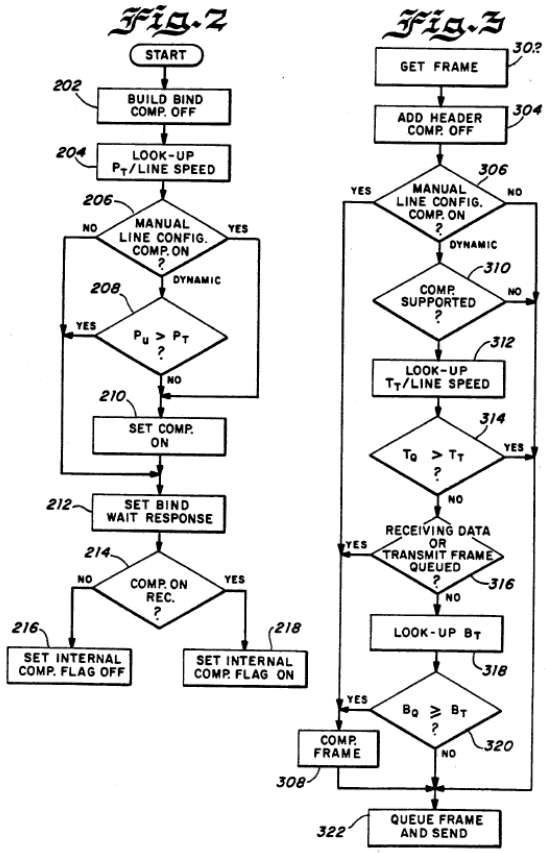


Figure 1 "is a block diagram of a communications system which may be employed in carrying out the data compression control method of the invention." *Id.* at 3:17–19. Kiel discloses that the communications system includes host 10 and workstation controller (WSC) 20 attached to a plurality of devices 40. *Id.* at 3:47–50. Kiel describes host 10 as having processor 11 connected to controller interface 12, memory or storage 13 including database area 14 and input/output (I/O) buffers 16, and system timer 18. *Id.* at 3:52–55. According to Kiel, WSC 20 includes processor 22 connected to host interface 21, device interface 23, memory or storage 24 including I/O buffers 26 and counter save area 27, and WSC timer 28. *Id.* at 3:58–62. Kiel teaches that processor 22 of WSC 20 performs a data compression control method as described below with respect to Figures 2 and 3. *Id.* at 3:65–4:2. As Kiel describes, an identified processor utilization value is analyzed before data compression is performed. *Id.* at 4:10–13. More specifically, Kiel discloses that when the WSC communication hardware is busy, then a current data queue for the WSC communication hardware is compared with a stored threshold data queue value for a particular line speed. *Id.* at 4:26–29. According to Kiel, when the current queue value is greater than or equal to the threshold value, then the data frame is compressed. *Id.* at 4:29–31. Other embodiments disclosed in Kiel are shown in Figures 2 and 3, reproduced below.



Figures 2 and 3 are respective "flow chart[s] illustrating logical steps performed by a processor of the communications system of [Figure] 1" for, respectively, "defining a PC bring-up routine" and "transmitting a data communication frame." *Id.* at 3:20–25. Referring to Figure 2 (i.e., defining a PC bring-up routine), Kiel teaches that processor 22 identifies a processor utilization value P_T for a particular line speed for data transmission at block 204. *Id.* at 4:37–39. Kiel further teaches that an optional step can be performed to identify a manually entered line configuration compression selection of compression on, compression off, or dynamically determining whether data compression is performed on a per communication frame basis, as represented at block 206. *Id.* at 4:55–60. According to Kiel, when a dynamic compression selection is identified at block 206 of Figure 2, then a last calculated processor utilization value P_U is compared with the processor utilization threshold value P_T identified at block 204 as represented by decision block 208. *Id.* at 4:60–64.

As further described in Kiel, when the last calculated processor utilization value P_U is less than the identified threshold value P_T at block 208, a compression preferred flag is checked in the bind response as represented by a block 214. *Id.* at 5:3–11. Kiel then teaches that when the compression on flag is not set or is off, then data compression is not used and an internal compression flag is set to off as represented by block 216; otherwise, when the compression on flag is set in the bind response, then data compression is used and an internal compression flag is set to on as represented by block 218. *Id.* at 5:11–17. Alternatively, according to Kiel, when the last calculated processor utilization value P_U is greater than the identified threshold value P_T at block 208, then the compression preferred flag in the bind is set for compressing the data communication frame using a first compression algorithm. *Id.* at 5:18–23. Kiel further discloses that when the last calculated processor utilization value P_U is less than or equal to the identified threshold value P_T at block 208, then the compression preferred flag in the bind is set for compressing the data communication frame using a second compression algorithm, where the first compression algorithm requires less processor time than the second compression algorithm. *Id.* at 5:23–30.

Referring to Figure 3 (i.e., transmitting a data communication frame), Kiel discloses that a frame to be transmitted is processed as represented by block 302. *Id.* at 5:33–35. A transmission header is added to the data communication frame that includes a default setting for no compression as represented by block 304. *Id.* at 5:35–38. Kiel further discloses that an optional step can be performed to identify a manually entered line configuration compression selection for compression on, compression off, or dynamically determining whether data compression is performed on a per communication frame basis, as represented at block 306. *Id.* at 5:39–44. Kiel teaches that when (at block 306) the line is manually configured as "compression on," then the data communication frame is compressed (at block 308). *Id.* at 5:44–48. According to Kiel, when the dynamic compression selection is identified at block 306, then a task threshold value T_T for the particular line speed is obtained from a stored look up table of task threshold values as represented by block 312. *Id.* at 5:48–52.

Next, Kiel teaches that number of queued tasks T_Q for processor 22 is compared with the identified task threshold value T_T as indicated by decision block 314. *Id.* at 6:1–3. When it is determined that the number of queued tasks T_Q is less than or equal to the identified task threshold value T_T at block 314, then either the data communication frame is compressed at block 308, or a send byte count threshold value B_T for the particular line speed is identified from a stored look up table of byte count threshold values. *Id.* at 6:3–19. Furthermore, a byte count B_Q for the communication line hardware is checked and compared with the byte count threshold value

B_T obtained at block 318 as represented by decision block 320. *Id.* at 6:32–35. When the communication line hardware byte count B_Q is greater than or equal to the byte count threshold value B_T, then data compression is performed at block 308. *Id.* at 6:35–38. Otherwise, according to Kiel, when the communication line hardware byte count B_Q is less than or equal to the byte count threshold value B_T, then data compression is not performed. *Id.* at 6:38–41.

2. *Analysis of Cited Art as Applied to Independent Claim 1*
   a. *"A method of"*

Petitioner contends Kiel teaches limitation 1[a] which recites "a method," based on Kiel's disclosure of a method for dynamically selecting data compression algorithms based on a number of queued processor tasks. Pet. 27 (citing Ex. 1003 ¶¶ 62–67). Patent Owner does not dispute Petitioner's contentions at this time. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Regardless of whether the preamble is limiting, Kiel discloses an "improved method and computer system for dynamically controlling the use of data compression for data communications." *See* Ex. 1004, 2:25–28, 9:34–62).

b. "compressing data using a first compression routine providing a first compression rate, wherein the first compression routine comprises a first compression algorithm"

Limitation 1[b] recites "compressing data using a first compression routine providing a first compression rate, wherein the first compression routine comprises a first compression algorithm." Ex. 1001, 20:15–18.

Petitioner contends Kiel teaches this limitation based on a combination of Kiel's Figures 2 and 3 and their associated descriptions. Pet. 29–34. Specifically, Petitioner combines the compression method of Figure 2 that selects between using a first compression algorithm and a second compression algorithm, and the method of Figure 3 of comparing the number of queued tasks T_Q for processor 22 with task threshold T_T to select between compression and no compression. *Id.*

We note that with reference to Figure 2, Kiel discloses two alternative methods for dynamically compressing data prior to transmission. The first method selects, on a frame by frame basis, between compression and no compression, depending on the utilization of the processor that performs the compression. Ex. 1004, 4:32–5:17. The last calculated processor utilization value P_U is compared with a processor utilization threshold value P_T that is selected from a look-up table based on line speed (given in bits per second). *Id.* at 4:37–64. If P_U is less than P_T (e.g., the processor is not over-utilized), the processor compresses the next frame of data. *Id.* If P_U is greater than or equal to than P_T (e.g., the processor is over-utilized), the processor does not compress the next frame of data. *Id.* at 5:3–17. Alternatively, the system selects, on a frame by frame basis, between a first compression algorithm and a second compression algorithm, wherein the first compression algorithm requires less processor time than the second compression algorithm. *Id.* at 15:18–31. We find that this second method operates under the same principle as the first, namely if the processor is over-utilized, the compression scheme that uses fewer processor resources is selected. *Id.* Indeed, Kiel discloses that if P_U is greater than threshold value P_T (e.g., the processor is over-utilized), the system selects the first compression algorithm (which requires less processor time than the second compression algorithm). *Id.* If P_U is less than P_T (e.g., the processor is not over-utilized), the system selects the second compression algorithm. *Id.*

Although Patent Owner disputes Petitioner's challenge to independent claim 1, Patent Owner does not address specifically this limitation of the claim. Nonetheless the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entire record before us, including Kiel's explicit disclosure of "a first compression algorithm" (Ex. 1004, 5:20–23) and its explanation regarding selecting between a first and second compression algorithm (*id.* at 15:18–31), we determine Petitioner has shown by a preponderance of the evidence that the combined teachings from Kiel teach the challenged claim limitation.

c. *"tracking a number of pending requests for data transmission"*

Limitation 1[c] recites "tracking the throughput of a data processing system to determine if the first compression rate provides a throughput that meets a predetermined throughput threshold, wherein said tracking throughput comprises tracking a number of pending requests for data transmission." Ex. 1001, 20:23–25.

Petitioner contends Kiel teaches this limitation, because the number of queued tasks T_Q in Kiel corresponds with pending requests for data transmission. Pet. 34–35; Reply 2. According to Petitioner, Kiel's processor 22, a workstation controller (WSC), is described only in the context of a data communication system. *Id.* at 36–37 (citing Ex. 1004, 3:47–51, 3:58–62). Petitioner argues a skilled artisan would have understood that the purpose of processor 22, particularly in the context of Figure 3, is to process requests for data transmission between host 10 and devices 40. *Id.* at 37 (citing Ex. 1003 ¶ 80; Ex. 1004, 3:65–4:5, 4:17–22, 6:1–51). In particular,

> a [person of ordinary skill in the art] reading Kiel would have understood that its reference to tasks for the processor refers to tasks associated with data transmission. Moreover, the actual data in Table II further confirms that the tasks in the queue in Kiel correspond to pending requests for data transmission. . . . Specifically, as discussed above, higher thresholds are associated with slower transmission line speeds, which a [person of ordinary skill in the art] would have recognized is done because slower transmission line speeds would have provided more time for the processor to work through the queue (since fewer frames can be transmitted per second) and more of an incentive to apply compression (since data is transmitted at a slower rate). . . . Consistent with this understanding, the processor task threshold T_T is a single digit integer (e.g., spanning a range of 1 to 5), which a [person of ordinary skill in the art] would have recognized would logically correspond with a number of pending requests for data transmission, and not some broader understanding of a task, such as pending instructions for the processor generally.

Id. (citing Ex. 1003 ¶ 80). Petitioner further explains that the task queue threshold T_T, which is used in *selecting* whether to compress or not compress the data, conveys "a predetermined maximum number of [permitted] queued processor tasks for selecting data compression" for a pending communication frame. Reply 3 (citing Pet. 34–35; Ex. 1004, cl. 8; Ex. 1003 ¶¶ 76–84).

Petitioner also argues that even if it the tasks in Kiel could correspond to other tasks, in addition to pending requests for data transmission, a skilled artisan would have understood that there would be instances in which Kiel's processor would be used only to compress data for transmission, as shown in Figure 3, and in such instances, the tasks in Kiel would be limited to pending requests for data transmission. *Id.* at 38 (citing Ex. 1003 ¶ 81); Reply 3. Petitioner further contends "Kiel makes clear that the queued tasks for selecting data compression are linked with pending request for data transmission." Reply 5. Moreover, Petitioner argues

> [a]t a minimum, in view of all of the above, a [person of ordinary skill in the art] would been motivated to configure processor 22 in Kiel such that it operates as described in Kiel, with the 'tasks' taken into consideration being limited to pending requests for data transmission. A [person of ordinary skill in the art] would have been motivated to do so, for example, to prioritize data transmission over other functions that the processor may be responsible for.

Id. (citing Ex. 1003 ¶ 81).

Petitioner relies on the testimony of Dr. Rodriquez to support its position. Reply 6–8. Dr. Rodriquez testifies that a person of ordinary skill in the art would have understood that the queued tasks in Kiel are "pending requests for data transmission" because Table II in Kiel provides "higher thresholds [] associated with slower line speeds" to "provide[] more time for the processor to work through the queue (since fewer frames can be transmitted per second)." Ex. 1003 ¶¶ 78–80; Pet. 36. Dr. Rodriquez further testifies that Kiel's processor 22 is described as only concerning a data communications systems, plus T_T is a single-digit integer so it must refer to pending requests for data transmission and not some pending instructions for the processor generally. *Id.* (citing Ex. 1004, 3:47–51, 3:58–62).

Patent Owner disputes Petitioner's reliance on Kiel to meet this limitation of claim 1 for several reasons. PO Resp. 19–29. Patent Owner first contends the quantity T_Q in Kiel does not count a number of pending requests for data transmission. *Id.* at 21 (citing Ex. 2004 ¶ 76). According to Patent Owner, T_Q is just the processor task queue and has nothing to do with the number of pending requests for data transmission. *Id.* Patent Owner argues that Kiel, when read in the context of its specification and with U.S. Patent No. 4,905,171 ("the '171 patent," which Kiel incorporates by reference), demonstrates that the processor task queue is distinct from a "communications task queue." *Id.* Patent Owner further argues the '171 patent establishes that a "processor task queue" does not, by design, contain values that correspond to "pending requests for data transmission." *Id.* Patent Owner notes the "tasks" recorded in T_Q are described in the '171 patent and include: (1) a request from a user to the processor to run a particular program to measure processor performance (Ex. 2005, 2:67–3:2 ("In block 53 the task is analyzed to see whether it is a request from the user to start performance measurements. If so, the start performance measures subroutine of FIG. 3 is called, as shown in block 54.”)); (2) a “system timer 18 specifying to retrieve performance measurements” (*id.* at 3:4–6.), and (3) the system timer requesting to stop performance measurements (*id.*, Fig. 2, object 58). PO Resp. 22 (citing Ex. 2004 ¶ 77). According to Patent Owner, when Kiel is read specifically in the context of the teachings of the ’171 patent, a person of ordinary skill in the art would have understood a “processor task queue” did not contain “pending requests for data transmission” because such requests, if any, would be counted and stored in a different data structure entirely. *Id.* at 24 (citing Ex. 2004 ¶ 80).

Patent Owner next contends Kiel’s processor performs tasks other than data transmission. PO Resp. 25–26. According to Patent Owner, a person of ordinary skill in the art would have understood that Kiel’s processor would perform various different types of tasks that the disclosed system needed to perform. *Id.* at 26 (citing Ex. 2004 ¶ 82). Patent Owner cites examples of tasks performed by processor 22 such as data compression and data decompression (Ex. 1004, 4:22–23) as well as all the tasks outlined in Figures 2–7 (*id.* at 3:65–67, 8:27–68). PO Resp. 26–27 (citing Ex. 2004 ¶¶ 82–85).

Patent Owner then contends Kiel does not teach or suggest counting *only* data transmission tasks to make compression decisions. PO Resp. 28. Patent Owner argues that “pending requests for data transmission” are not the only tasks queued for Kiel’s CPU, because it is a “typical processor” that is configured to perform a wide range of functions, many of which are inarguably not “requests for data transmission.” PO Resp. 28 (citing Ex. 2004 ¶¶ 87–88). Patent Owner further argues that data compression tasks are not data transmission tasks and the two tasks should not be conflated. *Id.* at 29 (citing Ex. 2004 ¶ 89).

Patent Owner lastly argues a person of ordinary skill in the art would not have been motivated to modify Kiel's task queue to include only "pending request for data transmissions." *Id.* According to Patent Owner, Petitioner's proposed modification would negate the primary purpose of Kiel's invention, which is to efficiently manage CPU workload to improve overall system efficiency. *Id.* at 30 (citing Ex. 2004 ¶ 91). Patent Owner relies on the testimony of Dr. Zeger to support its position that a person of ordinary skill in the art would not have prioritized data transmissions "over other functions" for which the processor was responsible. *Id.* at 30–31. Dr. Zeger testifies regarding processor utilization and opines:

> The modification to Kiel proposed by Dr. Rodriguez, whatever its specifics (which are not clear, as Dr. Rodriguez does not explain the details of the modification), would essentially write out P_U from the system, even though processor utilization is a fundamental concept at issue for Kiel. In other words, Kiel's system as modified by Dr. Rodriguez would not work for the intended purposes stated in Kiel.

Ex. 2004 ¶ 94.

Petitioner disputes Patent Owner's interpretation regarding the '171 patent, how its disclosure relates to the '046 patent, and what portions of the '171 patent are incorporated by reference into the '046 patent. Reply 9–10. According to Petitioner, the '171 patent teaches that "a processor task refers to a specific process to be carried out, rather than 'pending instructions for the processor generally' as [Patent Owner] alleges." *Id.* at 9 (citing PO Resp. 14–17, 21–24). Petitioner specifically argues that the tasks in the '171 patent are not the same tasks that are tracked in the task queue T_Q in Kiel's Figure 3 process and that task queue T_Q in Kiel is only discussed with reference to the process of Figure 3. *Id.* at 10, 11 (citing Ex. 1004, 5:31–6:51). Petitioner argues Kiel discloses that the tasks in the task queue T_Q are pending processor tasks for selecting compression for a data communication frame. *Id.* at 11 (citing Ex. 1004, Fig. 3, 5:32–36; cl. 8). Petitioner then concludes that the metric used for selecting whether to compress a data communication frame is the count of the number of pending queued processor tasks for selecting data compression. *Id.* at 11–12 (*id.* at 5:32–6:51, cl. 8). The fact that Kiel uses a general process that could perform other tasks is irrelevant, according to Petitioner. *Id.* at 12.

We agree with Petitioner that Kiel analyzes an identified processor utilization value and the state of the work station's communication hardware before data compression is performed. *See* Ex. 1004, 4:9–13. We also agree with Petitioner that Kiel is directed to a communications systems in a work station that uses a general processor. *Id.* at 3:65–67. We do not agree, however, that Kiel's use of a general processor that could perform other tasks is irrelevant as argued by Petitioner. Nor do we agree that Kiel's teachings regarding queued tasks T_Q would have been understood by a person of ordinary skill in the art to qualify necessarily as "tracking a number of pending requests for data transmission" as required by the challenged claim limitation. Rather, we understand Kiel to teach determining how busy its processor is (as determined by either comparing a processor utilization P_U value to a predetermined threshold P_T value for PC bring-up routines or by comparing the number of queued tasks T_Q for processor 22 with an identified task threshold value T_T for transmitting a data communication frame) and how busy its communication hardware is (as determined by comparing the byte count B_Q value to the byte count threshold B_T value) in order to determine if a data block should be compressed prior to transmission from a device through a communication line. *Id.* at 3:20–25, 4:60–64, 5:33–35, 6:1–41, Figs. 2, 3.

Although Dr. Rodriquez testifies that a person of ordinary skill in the art would have understood that the queued tasks in Kiel are "pending requests for data transmission" because Table II in Kiel provides "higher thresholds [] associated with slower line speeds" to "provide more time for the processor to work through the queue (since fewer frames can be transmitted per second), we are not convinced. *See* Ex. 1003 ¶¶ 78–80. Specifically, we do not agree with Dr. Rodriquez's testimony because it is conclusory and his testimony fails to reconcile his interpretation with Kiel's disclosure regarding processor 22. Kiel's processor 22 is tasked with performing PC bring up routines, compression of data blocks, and transmitting a data communication frame over a communication line, which seems to indicate that Kiel's queued tasks T_Q refers to all tasks performed by the processor, not just "pending requests for data transmission." *See* Ex. 1004, 3:20–25, 3:65–4:13, 5:33–35, 6:1–3, Figs. 2, 3; *see also* Ex. 2004 ¶ 91 (citing Ex. 1003 ¶ 81). Based on the disclosure of Klein, we agree with Patent Owner's position that it is at best unclear whether T_Q is just the number of communication requests or whether it is the number of processor tasks T_Q is the number of queued processor tasks. *See* Sur-Reply 4–5. As we found above, we give little weight to Dr. Rodriguez's testimony because we found it conclusory and give it little weight. Thus, we find Petitioner has failed to provide sufficient evidence to show by a preponderance of evidence that its interpretation of Kiel is correct.

We understand Petitioner's reliance on the language of claim 8 in Kiel to support its interpretation of processor tasks T_Q to be related to data transmission. Reply 12–13 (citing Ex. 1004, cl. 8, Fig. 3). Kiel's claim 8, however, explicitly states that the processor task queue threshold value indicates a predetermined maximum number of queued processor tasks and that predetermined number is used for selecting data compression for a corresponding communication line speed value. *See* Ex. 1004, 10:41–47. The language of claim 8 and the disclosure of Kiel fail to support Petitioner's position that the number of queued processor tasks T_Q are pending request for data transmission. We, thus, find Petitioner presents insufficient evidence that a person of ordinary skill in the art would understand to correlate the number of Kiel's queued tasks T_Q with an exact number of pending requests for data transmission.

Accordingly, we determine Petitioner has not shown by a preponderance of the evidence that Kiel's disclosure of "tracking a number of pending requests for data transmission" teaches the challenged claim limitation.

d. "when the tracked throughput does not meet the predetermined throughput threshold, compressing data using a second compression routine providing a second compression rate that is greater than the first compression rate, to increase the throughput of the data processing system to at least the predetermined throughput level"

The first part of limitation 1[d] recites "when the tracked throughput does not meet the predetermined throughput threshold, compressing data using a second compression routine." Ex. 1001, 20:25–32. Petitioner contends this limitation is met by Kiel's disclosed method for selecting a compression algorithm based on comparing a tracked throughput (e.g., the number of queued compression requests waiting to be processed) with a predetermined threshold. Pet. 40 (citing Ex. 1003 ¶ 86). Petitioner argues Kiel teaches this limitation based on a combination of Kiel's Figures 2 and 3 and their associated descriptions. *Id.* (citing Pet. 29–34; Ex. 1003 ¶ 86). Specifically, Petitioner combines the compression method of Figure 2 that selects between using a first compression algorithm and a second compression algorithm, and the method of Figure 3 of comparing the number of queued tasks T_Q for processor 22 with task threshold T_T to select between compression and no compression. *Id.* According to Petitioner, the description for Figure 3 discloses the dynamic compression scheme that selects between compression and no compression, but does not explicitly disclose the scheme that selects between a first and second compression algorithm. Pet. 32–34, 40–41. Petitioner argues, however, that it would have been obvious to combine the processes of Figure 2 and Figure 3 to arrive at the claimed subject matter. *Id.* at 32–34.

Patent Owner does not address this claim limitation. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3dat 1378.

As discussed previously, we find Petitioner fails to demonstrate that Kiel teaches "tracking throughput" because it does not teach "tracking a number of pending requests for data transmission." *See supra*, Section II.D.2.c. Because Kiel does not teach "tracked throughput," it cannot teach compressing data in response to said tracked throughput failing to meet a predetermined throughput threshold. Accordingly, we determine Petitioner has failed to establish by a preponderance of the evidence that Kiel must respond "when the tracked throughput does not meet the predetermined throughput threshold, [by] compressing data using a second compression routine providing a second compression rate that is greater than the first compression rate" as required by the challenged claim.

e. "wherein the second compression routine comprises a second compression algorithm"

The second part of limitation 1[d] recites "wherein the second compression routine comprises a second compression algorithm." Ex. 1001, 20:32–33. Petitioner contends Kiel teaches this limitation, because Kiel discloses "a second compression algorithm" because Kiel discloses a processor that

> dynamically compresses and then transmits the data using the first compression algorithm in Kiel ("compressing data using a second compression routine providing a second compression rate that is greater than the first compression rate . . . wherein the second compression routine comprises a second compression algorithm") in order to increase the throughput of the system until the current task queue count no longer exceeds the processor task queue threshold ("to increase the throughput of the data processing system to at least the predetermined throughput level").

Pet. 41 (citing Ex. 1003 ¶ 87).

Patent Owner does not address specifically this limitation of independent claim 1, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Having reviewed the entirety of the record and cited evidence, we determine Petitioner has shown Kiel's disclosure of a "second compression routine compris[ing] a second compression algorithm" satisfies the challenged claim limitation. *See* Ex. 1004, 5:18–31, cls. 14, 15.

f. Summary regarding Independent Claim 1

Based on the foregoing, we conclude Petitioner has not demonstrated by a preponderance of the evidence that challenged independent claim 1 would have been obvious under 35 U.S.C. § 103 in view of the teachings of Kiel.

3. Analysis of Kiel as Applied to Independent Claim 23

Petitioner contends independent claim 23 of the '046 patent is unpatentable under 35 U.S.C. § 103 as obvious in view of Kiel, and provides specific arguments for each challenged claim. Pet. 42–46. Patent Owner does not address the specific limitations of independent claim 23, but states that Petitioner fails to meet its burden with regards to these claims for the same reason as put forth for claim 1 above. PO Resp. 19. Additionally, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have considered carefully all arguments and supporting evidence in light of the limitations recited in challenged independent claim 23, including testimony from Dr. Rodriguez (*see* Ex. 1003 ¶¶ 76–137) and Dr. Zeger (*see* Ex. 2004 ¶¶ 70–95). Although claim 23 is a system claim and its limitations are not identical to the method steps of claim 1, they each require tracking the throughput of a data compressing/compression system by "tracking a number of pending requests for data transmission." Therefore, for the same reasons Petitioner fails to meet its burden with regards to claim 1, we determine Petitioner fails to meet its burden with regards to this specific claim. Accordingly, we conclude Petitioner has failed to demonstrate by a preponderance of the evidence that challenged claim 23 would have been obvious under 35 U.S.C. § 103 in view of Kiel.

E. Alleged Obviousness of Claims 1 and 23 of the ’046 patent in View of Kiel and Kobata

Petitioner contends claims 1 and 23 of the ’046 patent is unpatentable under 35 U.S.C. § 103(a) in view of Kiel and Kobata. Pet. 46–66. Patent Owner disputes Petitioner’s contentions. PO Resp. 26–43. For the reasons that follow, we determine Petitioner has not established by a preponderance of the evidence that claims 1 and 23 would have been obvious under 35 U.S.C. § 103 in view of Kiel and Kobata.

1. Prior Art Overview

a. Overview of Kiel (Ex. 1004)

See supra Section II.D.1.

b. Overview of Kobata (Ex. 1005)

Kobata, titled “Remote Control System Which Minimizes Screen Refresh Time by Selecting Compression Algorithm,” generally describes an emulation system in which screen refresh times associated with one computer remotely controlling another computer are minimized. Ex. 1005, code (54), 1:2–5. Kobata describes prior emulation systems where a screen of a controlled computer (viewed by a user) is displayed at a screen of a controlling computer (viewed by an administrator), so that the administrator at the controlling computer can view what is displayed at the screen of the controlled computer. *Id.* at 1:15–2:2. Kobata further describes that one of the problems with prior emulation systems is that the screen refresh at the administrator’s side is slow or not optimized. *Id.* at 2:3–5. Thus, in order to speed up the screen refresh portion of the emulation system, low level drivers trapping graphic calls are eliminated in favor of increasing speed through the alteration of the compression and decompression algorithms used at the user and administrator sides to choose the appropriate ratio of transmission time and compression time which matches the demographics of the network and that of the user's computer. *Id.* at 3:11–15. Figure 4 of Kobata, reproduced below, is illustrative.

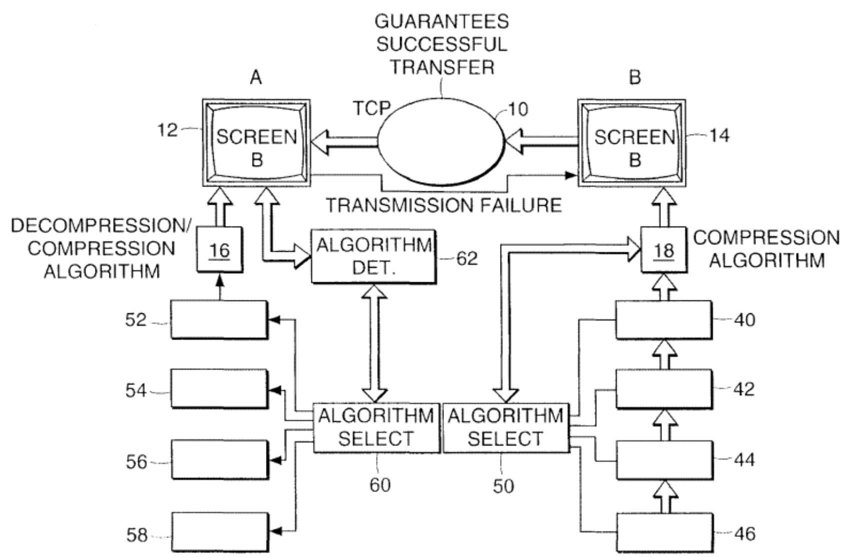


FIG. 4

Figure 4 is a "block diagram of the subject system in which the compression algorithm to be used by the user's computer is automatically selected based on the demographics of the network and the user's computer, which selection is transmitted to the administrator's computer for use in the corresponding compression algorithms therein."

Id. at Fig. 4. Figure 4 is a "block diagram of the subject system in which the compression algorithm to be used by the user's computer is automatically selected based on the demographics of the network and the user's computer, which selection is transmitted to the administrator's computer for use in the corresponding compression algorithms therein." *Id.*

at 6:23–7:2. Referring to Figure 4, each of the CPUs 16 and 18 is provided with a selectable number of compression and decompression algorithms. *Id.* at 8:11–12. In operation, each screen refresh cycle is provided with a header containing the type of compression algorithm selected at the user's side by module 50. *Id.* at 8:21–22. This header is detected at 62 and the appropriate algorithm is introduced to CPU 16 for appropriate decompression. *Id.* at 9:3–4. Figure 6 of Kobata, which illustrates the algorithm selection process and is reproduced below, is illustrative.

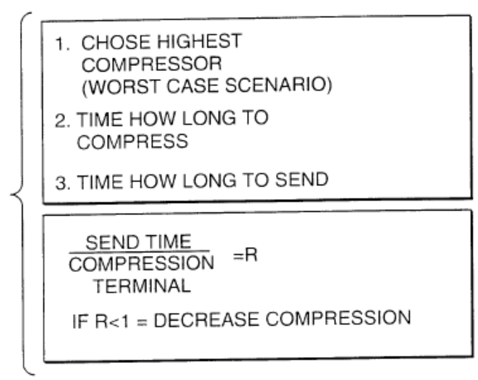


FIG. 6

Figure 6 is a "flowchart illustrating the derivation of a ratio of send time to compression time used in the algorithm selection module of [F]igure 4."

Id. at Fig. 6. Figure 6 is a "flowchart illustrating the derivation of a ratio of send time to compression time used in the algorithm selection module of [F]igure 4." *Id.* at 7:5–6. Kobata describes that algorithm select module 50 then computes how long it takes to compress a refresh cycle and how long it takes to send this refresh cycle, where this operation is performed each and every refresh cycle to calculate a ratio of send time to compression time for each refresh cycle. *Id.* at 9:5–11. If the ratio is equal to 1, then the highest compression algorithm is permitted to continue. *Id.* at 9:12–13. If the ratio R of send time to compression time is less than 1 then the algorithm having the next lower compression is selected, which lowers the compression time while at the same time increasing the send time. *Id.* at 9:13–15. Measurements are again taken for the next cycle and the ratio recomputed. *Id.* at 9:15–16. The iterative process finally settles upon an algorithm which optimally minimizes screen refresh time at the administrator's side. *Id.* at 9:16–17.

2. *Analysis of the Prior Art as Applied to Independent Claims 1 and 23*

Independent claims 1 (method) and 23 (system) recites similar limitations and specifically require "tracking the throughput of a data compressing/compression system" by "tracking a number of pending requests for data transmission." Ex. 1001, 20:19–25, 23:26–30.

Petitioner contends Kobata teaches this challenged limitation because "Kobata makes clear that the calculated ratio represents the throughput of the system in Kobata, and the predetermined ratio of 1 represents a predetermined throughput threshold." Pet. 51 (citing Ex. 1003 ¶ 108). Yet, Petitioner then states "Kobata does not explicitly disclose that 'said tracking throughput comprises tracking a number of pending requests for data transmission.' However, this would have been obvious to a POSITA in view of Kiel." Pet. 51 (citing Ex. 1003 ¶ 109); *see* Reply 17–23.

Patent Owner disputes Petitioner's position, arguing that the proposed combination does not satisfy the limitation because Kiel does not teach or suggest "tracking a number of pending requests for data transmission." PO Resp. 36–37.

As discussed previously, we find Petitioner fails to provide sufficient evidence to show by a preponderance of evidence that Kiel teaches "tracking a number of pending requests for data transmission." *See supra*, Section II.D.2.c. Regarding Kobata, Petitioner's declarant, Dr. Rodriquez, admits Kobata does not disclose explicitly "said tracking throughput comprises tracking a number of pending requests for data transmission" (Ex. 1003 ¶ 109), while Patent Owner's declarant, Dr. Zeger testifies that Kobata's "interative process" does not track pending requests (Ex. 2004 ¶¶ 68). Based on the disclosure of Kobata in view of the testimony of both Dr. Rodriquez and Dr. Zeger, we find that Petitioner has failed to demonstrate by a preponderance of the evidence that Kobata teaches "tracking a number of pending requests for data transmission." *See* Pet. 51. Nor do we agree with Petitioner that "tracking a number of pending requests for data transmission" would have been obvious because we do not agree with Petitioner that a person of ordinary skill in the art at the time of the invention would have had reason to combine the teachings of Kiel and Kobata. *See* Reply 17–23.

Kobata relates to emulation systems that allow an administrator to "see" what's happening at a user terminal. Ex. 1005, 1:15–17. Kobata explains that a problem with prior emulation systems was that the screen refresh rate at the administrator's side was slow, or in general not optimized to the demographics of the network and user's terminal, resulting in delays in refreshing the administrator's screen to match what is happening on the user terminal's screen. *Id.* at 2:3–11. Kobata explains that the system is optimized when the time it takes to send the data equals the time it takes to compress the data, i.e., when the ratio of send time to compression time equals 1, and discloses selecting a compression algorithm accordingly. *Id.* at 5:2–24 (disclosing, *inter alia*, "the compression algorithm selected is based on the rate of send time to compression time, with the selection seeking to cause this ratio to equal 1," and "[t]he algorithm chosen is that for which the ratio is as close to one as possible"); 6:2–10 (disclosing, *inter alia*, that a ratio of 1 "corresponds to the most efficient utilization of the available bandwidth and CPU power"), 9:12–17 (describing an iterative process of algorithm selection until the ratio is equal to 1).

Given the provided testimony of both Dr. Rodriquez and Dr. Zeger, as read in light of Kobata's teaching that a send time to compress time ratio of 1 is desirable, we find Petitioner has failed to provide sufficient evidence to show by a preponderance of evidence that a skilled artisan would have had reason to modify Kobata's optimization system based on *time* to compress and time to transmit with a system based on selection on the *number* of queued/pending processor tasks. Although the number of queued processor tasks in Kiel may provide an indication that the processor resources are being heavily utilized, and therefore, indicates delay in compressing data, the number of queued tasks does not appear to specify the amount of time that it will take to compress a frame of data. This is in contrast with Kobata, which is concerned with the actual amount of time it takes to compress data. Given Kobata's concern with achieving a send time to compression time ratio of 1, Petitioner has not provided sufficient explanation as to why a skilled artisan would have selected the compression algorithm in Kobata's system by looking at the number of queued processor tasks.

Based on the entirety of the record, we find Petitioner does not provide sufficient rationale for why a person of skill in the art would have combined the teachings from the cited prior art to arrive at the inventions recited in the challenged claims. Accordingly, for this additional reason, we determine Petitioner has not established by a preponderance of the evidence that claims 1 and 23 would have been obvious under 35 U.S.C. § 103 in view of Kiel and Kobata.

III. CONCLUSION

Based on the full record before us, we determine Petitioner has failed to show by a preponderance of the evidence that claims 1 and 23 of the ’046 patent would have been obvious in view of Kiel alone or in combination with Kobata.

In summary:

Claims	**35 U.S.C. §**	**References/ Basis**	**Claims Shown Unpatentable**	**Claims Not Shown Unpatentable**
1, 23	103	Kiel		1, 23
1, 23	103	Kiel, Kobata		1, 23
Overall Outcome				1, 23

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 1 and 23 of the ’046 patent are unpatentable; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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