

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ORACLE AMERICA, INC.,
Petitioner,

v.

REALTIME DATA LLC,
Patent Owner.

Case IPR2016-00376
Patent 7,415,530 C1

Before GEORGIANNA W. BRADEN, J. JOHN LEE, and
JASON J. CHUNG, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

INTRODUCTION

On December 28, 2015, Oracle America, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claim 24 of U.S. Patent No. 7,415,530 C1 (Ex. 1101, “the ’530 Patent”). Realtime Data LLC (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”) on April 11, 2016.

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition and Patent Owner’s Preliminary Response, we determine that the information presented does not demonstrate a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of the challenged claim. Accordingly, we do not institute an *inter partes* review of claim 24, and the Petition is *denied*.

A. *Related Proceedings*

Petitioner identifies the following pending district court cases as related to the Petition: *Realtime Data LLC v. Actian Corporation*, Case No. 6:2015-cv-00463 (E.D. Tex.); *Realtime Data LLC v. Dropbox, Inc.*, Case No. 6:2015-cv-00465 (E.D. Tex.); *Realtime Data LLC v. Echostar Corporation*, Case No. 6:2015-cv-00466 (E.D. Tex.); *Realtime Data LLC v. Oracle America, Inc.*, Case No. 6:2015-cv-00467 (E.D. Tex.); *Realtime Data LLC v. Riverbed Technology, Inc.*, Case No. 6:2015-cv-00468 (E.D. Tex.); *Realtime Data LLC v. SAP America, Inc.*, Case No. 6:2015-cv-00469 (E.D. Tex.); and *Realtime Data LLC v. Teradata Corporation*, Case No. 6:2015-cv-00470 (E.D. Tex.). Pet. 4. Petitioner also identifies four other

petitions requesting *inter partes* review as related to the Petition: IPR2016-00373; IPR2016-00374; IPR2016-00375; and IPR2016-00377. *Id.*

Patent Owner further identifies the following additional pending district court cases as related to the Petition: *Realtime Data LLC v. Apple, Inc.*, Case No. 6:15-cv-00885 (E.D. Tex.); and *Realtime Data LLC v. BMC Software, Inc.*, Case No. 6:2015-cv-00464 (E.D. Tex.). Paper 5, 2-3.

B. The '530 Patent

The '530 Patent relates to “systems and methods for improving data storage and retrieval bandwidth utilizing lossless data compression and decompression.” Ex. 1101, 1:15-18. Data compression “can reduce the time to transmit data by more efficiently utilizing low bandwidth data links,” and also “allows more information to be stored for a fixed memory size by representing information more efficiently.” *Id.* at 2:13-18. One problem discussed in the '530 Patent is that the bandwidth of existing memory storage devices was significantly lower than the bandwidth of computer system buses. *Id.* at 2:19-42. The specification describes how a system according to the claimed invention can adjust system parameters relating to the compression process to achieve compatibility between the output bandwidth of a data compressor and the bandwidth, i.e., storage rate, of a memory device. *Id.* at 9:38-67.

C. Challenged Claims

Petitioner challenges claim 24 of the '530 Patent, which is reproduced below. Pet. 31-59.

24. A system comprising:

a memory device; and

a data accelerator, wherein said accelerator is coupled to said memory device, a data stream is received by said data accelerator in received form, wherein a bandwidth of the received data stream is determined, said data stream includes a first data block and a second data block, said data stream is compressed by said data accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, wherein a data rate of the compressed data stream is adjusted, by modifying a system parameter, to make a bandwidth of the compressed data stream compatible with a bandwidth of the memory device, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said first data block.

D. Asserted Prior Art and Ground of Unpatentability

Petitioner asserts that each of the challenged claims are unpatentable under 35 U.S.C. § 103 in light of the combined teachings of U.S. Patent No. 5,805,932, issued on September 8, 1998 (Ex. 1103, “Kawashima”); U.S. Patent No. 6,253,264 B1, issued on June 26, 2001 (Ex. 1104, “Sebastian”); and U.S. Patent No. 5,467,087, issued on November 14, 1995 (Ex. 1105, “Chu”). Additionally, Petitioner relies on the Declaration of Professor James A. Storer (Ex. 1102) to support its challenges.

ANALYSIS

A. *Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, No. 15-446, 2016 WL 3369425, at *10-14 (U.S. June 20, 2016). No claim terms require express construction for purposes of this Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

B. *Overview of the Asserted Prior Art*

1. *Kawashima (Ex. 1103)*

Kawashima relates to systems and methods for transmitting data compressed by a loss-less data compression process between memories, communication devices, processors, or a host computer and an external memory. Ex. 1103, 1:8-12. Kawashima states that, because data is stored in blocks, compressing data may not result in reduced storage requirements in some instances. *Id.* at 2:36-64.

Kawashima states, with respect to Figures 43 and 44 described in the Background Art section, the following:

If data is compressed according to the loss-less data compression process to shorten a time required to transfer data between a computer and an external memory device for the purpose of using communication lines more effectively, then a transfer time t_{AC1} required for transmitting the compressed data is shorter than a transfer time t_{A1} required for transmitting the uncompressed data, as shown in FIG. 43 of the accompanying drawings.

When the data is compressed, a time t_{B1} required for data compression/expansion is newly needed in addition to an actual data transfer time t_{C1} . However, since the data to be actually transmitted is compressed, the apparent data length is reduced. Therefore, the data compression shortens the transfer time as a whole. In order to shorten the transfer time, it is necessary to compress the data rapidly to reduce the time t_{B1} required for data compression/expansion.

Id. at 3:8-23.

In other words, Kawashima indicates, as illustrated in Figures 43 and 44, that rapid compression is required so that the increased transfer speed due to reduced data size is not outweighed by the compression time. *Id.* at 3:21-23.

To solve the problem of compression resulting in no space savings, Kawashima states that the data transmitting apparatus may include means to change a preset compression ratio based on system requirements. *Id.* at 7:1-14. Figure 8 of Kawashima is reproduced below:

FIG. 8

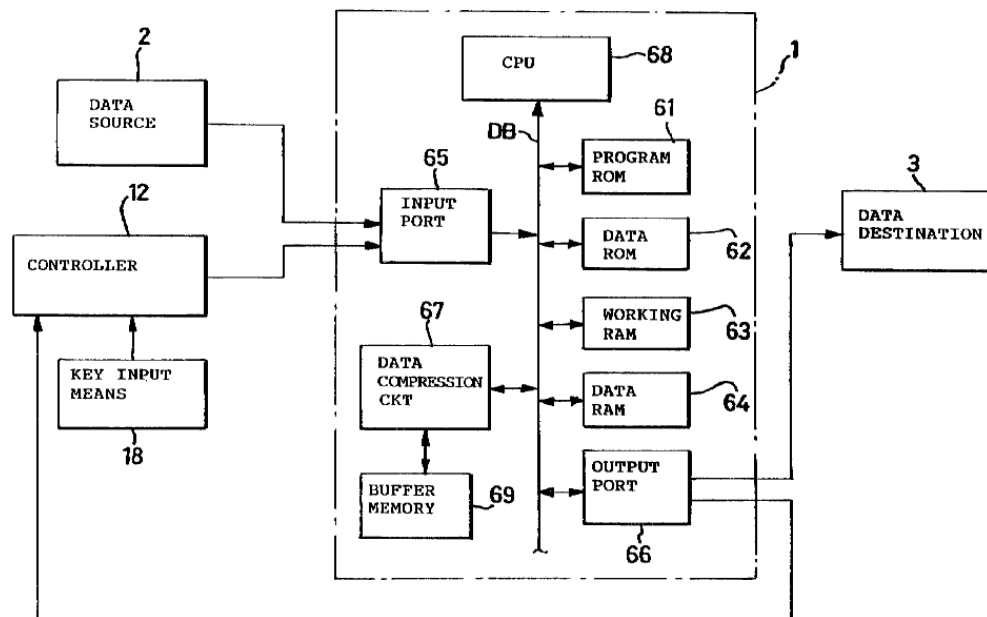


Figure 8 of Kawashima illustrates a block diagram of a data processing apparatus according to an embodiment of Kawashima. Kawashima describes that:

When data transferred from the data source 2 is compressed by the data compression circuit 67, the data transmitting apparatus 1 transfers the compressed data to the data destination 3 if the compression ratio or the difference between the data length of the data prior to being compressed (hereinafter referred to as "pre-compression data" which has the same meaning as the uncompressed data described above) and the data length of the data after being compressed (hereinafter referred to as "compressed data") is equal to or greater than a predetermined value, and transfers the pre-compression data to the data destination 3 if the compression ratio or the data length difference is smaller than the predetermined value.

Id. at 25:61-26:6.

2. *Sebastian (Ex. 1104)*

Sebastian relates to a preferred coding system that integrates format-specific compression into a general purpose compression tool that serves a wide range of data formats. Ex. 1104, 1:45-50. Sebastian states that source data is parsed into blocks of similar data and each parsed block is compressed using a respectively selected compression algorithm. *Id.* at [57]. This algorithm can be chosen from a static model of the data, or it can be adaptive to the data in the parsed block. *Id.* Sebastian teaches that the parsed blocks are then combined into an encoded data file. *Id.*

In one embodiment, Sebastian describes a system with different "filters" that each support a specific "data format," such as for Excel XLS worksheets or Word DOC files. *Id.* at 1:50-51. If an installed filter "matches the format of the data to be encoded, the advantages of format-

specific compression can be realized for that data.” *Id.* at 1:55-57.

Otherwise, a “generic” filter is used which achieves performance similar to other non-specific data compression systems (such as PKZip, Stacker, etc.). *Id.* at 1:58-60; *see also id.* at 4:9-23 (indicating other suitable generic filters include those similar to Lempel-Ziv (LZ) variants).

Sebastian also discloses an embodiment with a preferred encoder using a Base-Filter-Resource (BFR) network as shown in Figure 2, which is reproduced below.

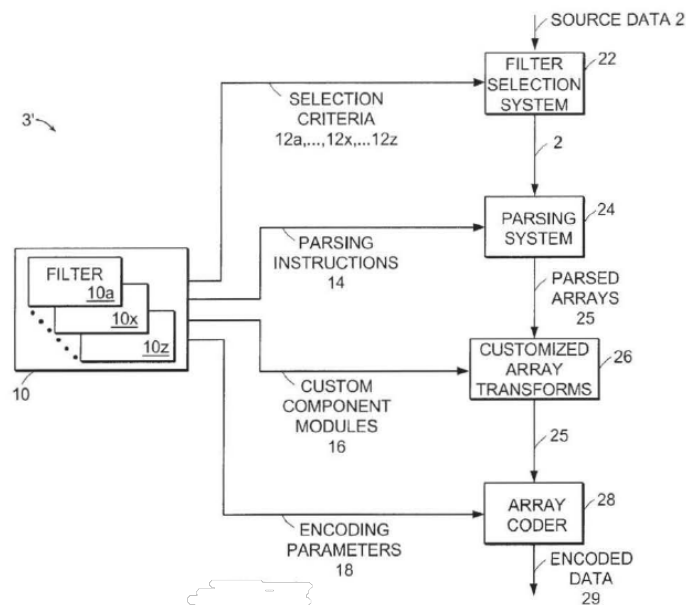


Figure 2 illustrates that encoder 3' is based on the use of a plurality of filters 10a, . . . , 10x, . . . , 10z that serve specific file formats. *See id.* at 4:1-3.

According to Sebastian, one filter 10a may support several versions of the DBF database format, while another filter 10z may support several versions of the DOC format used by the Microsoft Word software program. *Id.* at 4:3-6. Sebastian states that the individual filters provide respective selection criteria 12 to filter selection system 22, which receives source data 2 and checks the selection criteria 12a, . . . , 12x, . . . , 12z of all filters 10a, . . . , 10x, . . . , 10z installed in the system to see if any of them support the format

of the source data. *Id.* at 4:6-12. If the specific filters do not, then a “generic” filter is used, which provides compression performance similar to other generic compression systems, such as Lempel-Ziv (“LZ”) engines. *Id.* at 4:12-15. Sebastian indicates that in a particular preferred embodiment of the invention, the generic compression system would use an SZTP compression engine. *Id.* at 4:15-17.

3. *Chu (Ex. 1105)*

Chu relates to a data compression process and system that identifies a data type of an input data stream and selects a data compression method from a set of such methods that provides an optimal compression ratio for the identified data type. Ex. 1105, at [57]. The data compression process of Chu also includes means to alter the rate of compression for added flexibility and efficiency. *Id.* The system in Chu also includes a system memory allocation process to allow control over the amount of system memory to be allocated for the data compression process, which can be memory intensive. *Id.* The system memory allocation process estimates the memory requirement to compress the input data stream, and allocates only the amount of system memory needed by the compression. *Id.*

Figure 6, reproduced below, illustrates one embodiment of an input data compression process according to Chu.

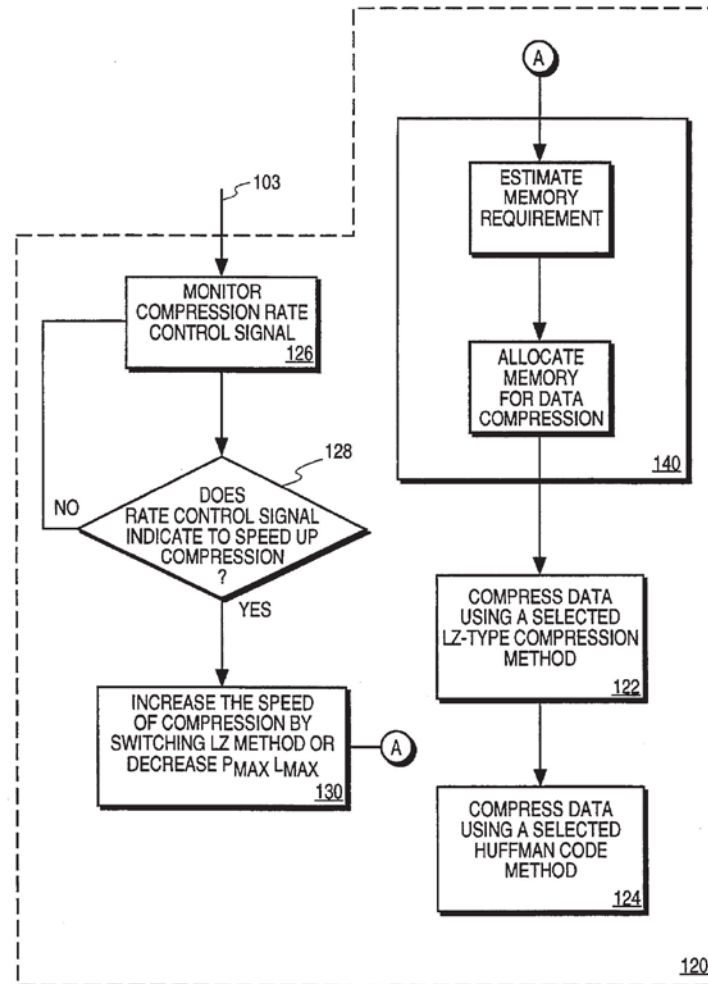


Figure 6 is a block diagram of compress input data process 120, which includes system memory allocation process 140. *Id.* at 6:13-18. As shown, system memory allocation process 140 first estimates the memory requirement necessary to compress input data stream 101 (not pictured). *Id.* at 6:18-22. Then, system memory allocation process 140 allocates the estimated amount of system memory for the data compression. *Id.* In a preferred embodiment, the process estimates the memory requirement in accordance to the identified data type of the input data stream, a selected compression ratio, a selected speed of data compression, a selected p_{\max} and l_{\max} value, or a selected combination of these features. *Id.* at 6:22-27.

C. Alleged Obviousness in View of Kawashima, Sebastian, and Chu

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter 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 of ordinary skill in the art. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). This determination is made in light of the relevant facts concerning: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations, such as commercial success, long felt but unsolved needs, failure of others, etc. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In addition, it may be “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR*, 550 U.S. 398, 418 (2007).

Petitioner contends the combination of Kawashima, Sebastian, and Chu teaches or suggests each element of claim 24. Pet. 34-59. The Petition, however, does not present sufficient information to sustain this challenge.

1. “bandwidth” Limitations

Claim 24 recites that “a bandwidth of the received data stream is determined” (emphasis added). Petitioner relies on Sebastian as allegedly teaching this limitation. Pet. 40-41. Petitioner, however, identifies Sebastian’s teaching that *compressed data* may be “transmitted faster when the transmission channel bandwidth is limited.” *Id.* (quoting Ex. 1104, 3:31-36). Sebastian expressly states this data is the “output of the encoder,” which “uses data compression algorithms to represent the [source] data.”

Ex. 1104, 3:31-36. Thus, Sebastian’s teaching relates to the *output* bandwidth of the *compressor* (i.e., the “data accelerator”) rather than the *input* bandwidth of the *received data stream*, as required by claim 24. *See* Prelim. Resp. 24-26.

Petitioner also cites the statement in Sebastian that “sending applications 1 and receiving applications 7,” which “store/retrieve or transmit/receive *the encoded data* . . . may adjust encoding and decoding operations according to system conditions such as available transmission channel bandwidth.” Ex. 1104, 3:47-55 (emphasis added). Patent Owner argues persuasively that this, too, refers to the transmission bandwidth for *compressed* (encoded) data, i.e., the output of the compressor, not the bandwidth of the input data stream. Prelim. Resp. 24-26. Thus, Petitioner has not shown sufficiently that the asserted prior art combination teaches or suggests determining “a bandwidth of the received data stream,” as recited in claim 24.

Further, claim 24 also recites, “a data rate of the compressed data stream is adjusted, by modifying a system parameter, to make a bandwidth of the compressed data stream compatible with a bandwidth of the memory device.” Petitioner first relies on the statement in Sebastian that applications 1 and 7 “may adjust encoding and decoding operations according to system conditions such as available transmission channel bandwidth.” Pet. 48 (citing Ex. 1104, 3:51-55). The “transmission channel bandwidth” of Sebastian refers to the bandwidth at which the encoded (compressed) data is transmitted between components, such as between an encoder and a decoder. *See* Ex. 1104, Fig. 1, 3:47-55. As Patent Owner explains, however, this transmission channel bandwidth is distinct from the “bandwidth of the memory device” recited in claim 24, which refers instead to the rate at which

the memory device *stores* data. Prelim. Resp. 37-38. The specification of the '530 Patent supports this distinction. *See, e.g.*, Ex. 1101, 2:19-42, 9:38-67. Thus, the identified disclosures of Sebastian do not teach adjustments in consideration of the “bandwidth of the memory device,” as recited in claim 24. Dr. Storer’s testimony that a person of ordinary skill would, nonetheless, understand that system parameters could be adjusted according to other bandwidths, including the bandwidth of the memory device, is conclusory and unpersuasive in light of the available record. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

Petitioner does not rely solely on Sebastian, however. The Petition also identifies the disclosures of Chu as allegedly teaching this limitation. Pet. 48-51. Chu discloses “system memory allocation process 140” that allows “control of the amount of system memory to be allocated for data compression.” Ex. 1105, 6:16-18. Memory allocation process 140 estimates the amount of system memory required to compress an input data stream based on a number of parameters, including input data type, a selected compression ratio, a selected speed of compression, and the size of a buffer used during certain types of compression. *Id.* at 6:18-27; *see* Ex. 1102 ¶ 107. Chu also describes selecting different compression methods (e.g., LZ-1 or LZ-2 compression) to “adjust the compression time for compressing data.” Ex. 1105, 6:54-62. According to Dr. Storer, these aspects of Chu teach “modifying a system parameter . . . to adjust the data rate of the compressed stream.” Ex. 1102 ¶ 108.

As with Sebastian, however, these teachings of Chu do not appear to relate to the recited “bandwidth of the memory device.” Although Dr. Storer testifies that “[i]t would have been obvious to a person of ordinary skill in

the art to practice this teaching in Chu . . . to account for restrictions or limitations in other types of memory,” such as memory device bandwidth, this testimony is conclusory and unpersuasive in light of the evidence of record, particularly the clear distinctions between the different bandwidths described in the ’530 Patent, for similar reasons as discussed above with respect to Sebastian. *See* 37 C.F.R. § 42.65(a). Thus, Petitioner has not shown sufficiently that the asserted prior art teaches modifying a system parameter to account for a “bandwidth of the memory device,” as recited in claim 24.

2. “*memory device*” Limitations

Claim 24 recites “a memory device.” The claim also recites several other limitations that refer to this memory device: (1) “a data accelerator, wherein said accelerator is coupled to *said memory device*”; (2) “a data rate of the compressed data stream is adjusted . . . to make a bandwidth of the compressed data stream compatible with a bandwidth of *the memory device*”; (3) “said compressed data stream is stored on *said memory device*”; (4) “said compression and storage occurs faster than said data stream is able to be stored on *said memory device* in said received form”; and (5) “a first data descriptor is stored on *said memory device* indicative of said first compression technique” (emphases added). Thus, the language of the claim provides clearly that each of these limitations must be met with respect to the *same* memory device.

The Petition asserts that Kawashima teaches the recited “memory device.” Pet. 36-37. Petitioner, however, identifies multiple structures in Kawashima that it contends teaches the recited “memory device” limitations. For example, the Petition states, “the data compression circuit 67

compresses input data and stores it in a given area in the *data RAM 64* (memory) for further transmission to an *external memory device* located at data destination 3.” *Id.* (emphases added, internal citations and quotation marks omitted). It is unclear whether the Petition is identifying data RAM 64, the external memory device, or both as the recited memory device of claim 24. The Petition also identifies “memory 22” in Figure 3 of Kawashima as the recited memory device. *Id.*

With respect to the requirement that the data accelerator be coupled to the memory device, Petitioner identifies (1) the connection depicted in Figure 8 between “data [processing] apparatus 1” and “data destination 3,” which comprises an “external memory device”; (2) the connection shown in Figure 3 between “data transmitting apparatus 1” and “memories 21, 22”; and (3) the connection between “data compression circuit 67” and “data RAM 64” in Figure 8. Pet. 38-39. Figure 8 of Kawashima indicates that data compression circuit 67 and data RAM 64 are both components within data processing apparatus 1. Ex. 1103, Fig. 8, 25:8-22. Thus, it is not apparent how data processing apparatus 1 coupled to an external memory device meets the claim limitation and, at the same time, two components within data processing apparatus 1 alone satisfy the same limitation. Petitioner relies on the same ambiguous amalgamation of disclosures for the limitation requiring that the recited compressed data stream be stored in the recited memory device. Pet. 52-53.

Further, with respect to the recited storage of a first data descriptor on the memory device, the Petition identifies disclosures in Sebastian that it alleges teach the data descriptor, but it does not identify which of the identified memory structures in Kawashima would hold the data descriptor in Petitioner’s proposed combination. *Id.* at 55-57. Nor does Petitioner’s

declarant, Dr. Storer, provide sufficient information in his Declaration to elucidate Petitioner's contentions.

In sum, Petitioner does not explain adequately how Kawashima, Sebastian, and Chu teach an individual memory device that meets the limitations of claim 24. To the extent Petitioner intended to allege that multiple structures in Kawashima together teach these limitations, the Petition does not explain such an allegation clearly, nor does it explain how or why a person of ordinary skill would have combined those different elements—some from different embodiments of Kawashima—to arrive at the recited memory device and its claimed characteristics. *See Boston Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009) (holding that two embodiments in a single reference could be combined to render a claim obvious where an ordinary artisan would have been motivated to combine them). As discussed above, each limitation of claim 1 that recites a “memory device” refers to the *same* memory device, and it is unclear how the multiple different memory devices from different embodiments in Kawashima relied on by Petitioner teach the “memory device” of claim 24.

Petitioner bears the burden to demonstrate a reasonable likelihood of prevailing on its asserted ground of unpatentability. *See* 35 U.S.C. § 314(a). By failing to identify clearly the specific aspects of the prior art that it alleges teaches each of the “memory device” limitations of claim 24, Petitioner has not met its burden. Moreover, our Rule 42.104(b) requires a petition seeking *inter partes* review to “specify where each element of the claim is found in the prior art patents or printed publications relied upon,” and to explain “the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge.” 37 C.F.R. § 42.104(b)(3), (4). Here, the Petition does not

provide enough information to meet the standard of Rule 42.104(b), which is fatal to Petitioner's case. *See, e.g., T-Mobile USA Inc. v Mobile Telecomms. Techs., LLC*, Case IPR2015-00017, 2015 WL 1777146, at *8 (PTAB Apr. 8, 2015).

CONCLUSION

For the foregoing reasons and on the present record, we determine that the information presented in the Petition does not demonstrate a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claim 24 as obvious in view of Kawashima, Sebastian, and Chu.

ORDER

It is

ORDERED that the Petition is *denied* and no trial is instituted.

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