Appeal decision

Appeal No. 2018-5374

Appellant	Microsoft Technology Licensing LLC
Patent Attorney	INABA, Yoshiyuki
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The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2016-528275, entitled "SCANNING ORDERS FOR NON-TRANSFORM CODING" (International Publication No. WO 2015/010268 published on January 29, 2015, National Publication of International Patent Application No. 2016-528810 published on September 15, 2016) has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

No. 1 History of the procedures

This application was filed on July 24, 2013 as an International Patent Application, and the history of the procedures is as follows.

March 7, 2017:	Notification of reasons for refusal
May 25, 2017:	Submission of Written opinion and Written amendment
June 16, 2017:	Notification of reasons for refusal (final)
August 31, 2017:	Submission of Written opinion
December 12, 2017:	Examiner's decision of refusal
April 19, 2018:	Submission of Written appeal and Written amendment

No. 2 Decision to dismiss amendment regarding the written amendment submitted on April 19, 2018

[Conclusion of Decision to Dismiss Amendment]

The amendment submitted on April 19, 2018 (hereinafter referred to as "the Amendment") shall be dismissed.

[Reason]

1 Details of the Amendment

The Amendment includes amended matters to amend Claim 1 amended by the amendment submitted on May 25, 2017 (hereinafter referred to as "Claim 1 before Amendment") to the following Claim 1 (hereinafter referred to as "Claim 1 after Amendment"). (The amended portions are underlined.)

(Claim 1 before Amendment)

"[Claim 1]

A method comprising:

identifying, by a computing device, a scanning order for scanning a first block, the first block being associated with a transform coding mode;

identifying, by the computing device, a second block that is associated with a non-transform coding mode, the second block having at least one characteristic that is the same as a characteristic of the first block;

determining to scan the second block according to a different scanning order than the scanning order for scanning the first block, the determining being based on a prediction mode associated with the second block and a size of the second block; and

scanning, by the computing device, the second block according to the different scanning order,

wherein the different scanning order includes an order opposite to the scanning order for scanning the first block,

the at least one characteristic includes block type being the same, and the block type includes luminance block and chrominance block."

(Claim 1 after Amendment) "[Claim 1]

A method comprising:

identifying, by a computing device, a scanning order for scanning a first block, the first block being associated with a transform coding mode;

identifying, by the computing device, a second block that is associated with a non-transform coding mode, the second block having at least one characteristic that is the same as a characteristic of the first block;

determining to scan the second block according to a different scanning order than the scanning order for scanning the first block, the determining being based on a prediction mode associated with the second block and a size of the second block; and

scanning, by the computing device, the second block according to the different scanning order where the prediction mode associated with the second block is a predetermined prediction mode and the size of the second block is smaller than a predetermined size,

wherein the different scanning order includes an order opposite to the scanning order for scanning the first block,

the at least one characteristic includes block type being the same, and the block type includes luminance block and chrominance block."

2 Propriety of amendment

The Amendment is to put a limitation to determine that the second block is scanned according to the different scanning order "where the prediction mode associated with the second block is a predetermined prediction mode and the size of the second block is smaller than a predetermined size", on the matter, "the determining being based on a prediction mode associated with the second block and a size of the second block", which is required for specifying the invention described in Claim 1 before Amendment. The inventions according to Claim 1 before and after Amendment belong to the same industrial field and aim to solve the same problems. Therefore, the Amendment is intended for restriction of scope of claims stipulated in Article 17-2(5)(ii) of the Patent Act.

We will examine below whether the invention described in Claim 1 after Amendment (hereinafter referred to as "the Amended invention") falls under the provisions of Article 126(7) of the Patent Act which is applied mutatis mutandis in the provisions of Article 17-2(6) of the Patent Act (whether the appellant can be granted a patent independently or not).

(1) The Amended invention

The Amended invention is as described in the above 1, and is shown again below.

Reference symbols (A) to (C2) were added by the body for description, and are hereinafter referred to as Component A to Component C2.

(The Amended invention)

A method comprising:

(A) identifying, by a computing device, a scanning order for scanning a first block, the first block being associated with a transform coding mode;

(B) identifying, by the computing device, a second block that is associated with a non-transform coding mode, the second block having at least one characteristic that is the same as a characteristic of the first block;

(C) determining to scan the second block according to a different scanning order than the scanning order for scanning the first block, the determining being based on a prediction mode associated with the second block and a size of the second block; and

(C1) scanning, by the computing device, the second block according to the different scanning order where the prediction mode associated with the second block is a predetermined prediction mode and the size of the second block is smaller than a predetermined size,

(C2) wherein the different scanning order includes an order opposite to the scanning order for scanning the first block,

(B1) the at least one characteristic includes block type being the same, and

(B2) the block type includes luminance block and chrominance block.

(2) Cited documents, Cited invention

(2-1) Described matters in Cited Document 2

The document cited as Cited Document 2 in the reasons for refusal of the examiner's decision is the following document.

(Cited Document 2)

Joel Sole et al., "RCE2 Test B.1: Residue rotation and significance map context", Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11 14th Meeting: Vienna, AT, 25 July - 2 Aug. 2013, Document: JCTVC-N0044

The date that Cited Document 2 was made available to the public is acknowledged as follows. In the column "Document" of a part (http://phenix.int-evry.fr/jct/doc_end_user/current_document.php?id=7760) where information on Cited

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Document 2 is described in a website storing the document "JCT-VC DOCUMENT MANAGEMENT SYSTEM" (http://phenix.int-evry.fr/jct/), the description "JCTVC-N0044 (version 1 - date 2013-07-09 23:18:40) upload document" is included. Thus, the date that Cited Document 2 was uploaded is recognized as "2013-07-09". Therefore, Cited Document 2 is recognized as a document which was made available to the public through electric telecommunication lines on July 9, 2013, which is prior to the filing of the application.

Cited Document 2 includes the following descriptions. (The underlines were added by the body for emphasis.)

A "Abstract

As part of RCE2, <u>this proposal presents the results of the rotation of the residue for non-transformed coefficients (transform skip</u> and lossless) and the usage of a constant context for the significance map. Restricting the block size to which the residue rotation is applied is also tested." (Page 1, lines 1 to 4)

B "2 Technical Description

<u>Residue rotation [1] changes the scan order by rotating a block of residual samples by</u> <u>180 degrees</u>, which is equivalent to flipping the residue buffer. This implies changing a line of code to reverse the reading of the residue for transform skip blocks:" (Page 2, lines 4 to 7)

C "In a tested variant of the method, <u>residue rotation is only applied to blocks smaller</u> <u>than a given size</u>. Results are provided for a maximum size of 4×4 and 8×8 ." (Page 2, lines 15 to 16)

D "5 References

[1] D. He, J. Wang and G. Martin-Cocher, "Rotation of Residual Block for Transform Skipping", JCTVC-J0093, Stockholm, SE, July 2012." (Page 5, lines 1 to 3)

(2-2) Described matters in Cited Document 3

The document cited in Cited Document 2 as described in (2-1) B and D and cited as Cited Document 3 in the reasons for refusal of the examiner's decision is the following document.

(Cited Document 3)

Dake He et al., "Rotation of Residual Block for Transform Skipping ", Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11 10th Meeting: Stockholm, SE, 11-20 July 2012, Document: JCTVC-J0093

Cited Document 3 includes the following descriptions. (The underlines were added by the body for emphasis.)

A "1 Introduction

<u>A simplified design of intra transform skipping [1] was adopted into the HEVC working draft [2].</u> It was shown in [1] that the proposed design of intra transform skipping substantially improves the coding efficiency for Class F sequences while having little impact on the coding efficiency for sequences in Classes A-E. In this document, <u>a change to the adopted intra transform skipping design</u> that involves a single line of code in HM7.0 reference software and correspondingly a single line of text in the HEVC working draft [2] is proposed. <u>The change</u> effectively <u>rotates a block of residual samples 180 degrees in transform skipping</u> (see Figure 1)." (Page 1, lines 12 to 20)

B "5 References

[1] C. Lan, J. Xu, G. J. Sullivan, and F. Wu, "Intra transform skipping," JCTVC-I0408." (Page 7, lines 1 to 2)

(2-3) Reference

As described in (2-2) A and B, the document cited in Cited Document 3 is the following document (hereinafter referred to as "Reference").

(Reference)

Cuiling Lan et al., "Intra transform skipping", Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11 9th Meeting: Geneva, CH, 27 April - 7 May 2012, Document: JCTVC-I0408

The Reference includes the following descriptions.

(Technical matters described in the Reference)

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"For a 4x4 intra TU (both luma and chroma), we enable it to skip transform." (Page 1, line 17)

(2-4) Cited invention

(A) According to the above (2-1) A to C, Cited Document 2 describes

"a method of rotating a residue for non-transformed coefficients (transform is skipped), wherein residue rotation changes scan order by rotating a block of residual samples by 180 degrees, and

residue rotation is only applied to blocks smaller than a given size".

(B) According to the above (2-1) B and D, the residue rotation described in Cited Document 2 employs the configuration described in Cited Document 3. According to the above (2-2) A, Cited Document 3 describes rotating a block of residual samples by 180 degrees in intra transform skipping design.

Thus, the "residue rotation" in Cited Document 2 is recognized as "rotating a block of residual samples by 180 degrees in intra transform skipping design".

(C) In light of the above, Cited Document 2 is recognized as describing the following invention (hereinafter referred to as "Cited Invention").

(Cited Invention)

A method of rotating a residue for non-transformed coefficients (transform is skipped),

wherein residue rotation changes scan order by rotating a block of residual samples by 180 degrees in intra transform skipping design, and

residue rotation is only applied to blocks smaller than a given size.

(3) Comparison

The Amended Invention and the Cited Invention are compared below.

(3-1) Regarding the Component A, Components B, B1, and B2 of the Amended invention

The "block of residual samples" in "non-transformed coefficients (transform is skipped)" of the Cited Invention corresponds to the "second block that is associated with a non-transform coding mode" in the Component B.

Since the Cited Invention is to "change scan order by rotating a block of residual samples by 180 degrees" of "non-transformed coefficients (transform is skipped)", it is obvious to a person skilled in the art that there is a block of transformed coefficients (transform is executed) for which the scan order is not changed, correspondingly. Accordingly, the "block of transformed coefficients (transform is executed) for which the scan order is not changed" in the Cited Invention corresponds to the "first block" in the Component A, and it can be said that the Amended Invention and the Cited Invention are identical in a point of including the component "the first block being associated with a transform coding mode".

The configuration of identifying, by a computing device, a scanning order in a block is recognized as a configuration included naturally in the Cited Invention. It can be said that the Amended Invention and the Cited Invention are identical in a point of including the component "identifying, by a computing device, a scanning order for scanning a first block", accordingly.

In the Cited Invention, the "block of residual samples" of the "non-transformed coefficients (transform is skipped)" (second block) is subjected to different processing from the "block of transformed coefficients (transform is executed)" (first block). Thus, the configuration of identifying, by a computing device, each of the blocks is recognized as a configuration included naturally in the Cited Invention. It can be said that the Amended Invention and the Cited Invention are identical in a point of including the component "identifying, by the computing device, a second block that is associated with a non-transform coding mode".

In light of the above, the Amended Invention and the Cited Invention are identical in a point of including the following components: "identifying, by a computing device, a scanning order for scanning a first block, the first block being associated with a transform coding mode", and "identifying, by the computing device, a second block that is associated with a non-transform coding mode".

However, regarding the second block, the Amended Invention includes the following components: "the second block having at least one characteristic that is the same as a characteristic of the first block" (Component B), "the at least one characteristic includes block type being the same" (Component B1), and "the block type includes luminance block and chrominance block" (Component B2). The Cited Invention does not specify the above components.

(3-2) Regarding the Components C, C1, C2 of the Amended Invention

The "intra transform skipping" in the Cited Invention is recognized as indicating processing in intra prediction mode, from the term "intra". The "intra transform skipping" in the Cited Invention is to process "a block of residual samples" (second block) of "non-transform coefficients (transform is skipped)". Thus, the "intra prediction mode" of the Cited Invention is considered to correspond to the "prediction mode associated with the second block" in the Component C and the "predetermined prediction mode" in the Component C1.

The description in the Cited Invention, "changes scan order by rotating a block of residual samples by 180 degrees" of "non-transform coefficients (transform is skipped)", corresponds to the Component C "scan the second block according to a different scanning order than the scanning order for scanning the first block" and the component C2 "the different scanning order includes an order opposite to the scanning order for scanning the first block".

The Cited Invention is to execute the processing to "change scan order by rotating a block of residual samples by 180 degrees" "in intra transform skipping design" and "only to blocks smaller than a given size". Thus, the Amended Invention and the Cited Invention are identical in a point of including the following components: "determining to scan the second block according to a different scanning order than the scanning order for scanning the first block, the determining being based on a prediction mode associated with the second block and a size of the second block" (Component C), "scanning, by the computing device, the second block according to the different scanning order where the prediction mode associated with the second block is a predetermined prediction mode and the size of the second block is smaller than a predetermined size" (Component C1), and "the different scanning order includes an order opposite to the scanning order for scanning the first block" (Component C2).

(3-3) Corresponding feature, Different feature

In light of the above, the corresponding feature and the different feature between the Amended Invention and the Cited Invention are as follows.

(Corresponding feature)

A method comprising:

(A) identifying, by a computing device, a scanning order for scanning a first block, the first block being associated with a transform coding mode;

(B') identifying, by the computing device, a second block that is associated with a non-transform coding mode;

(C) determining to scan the second block according to a different scanning order than the scanning order for scanning the first block, the determining being based on a prediction mode associated with the second block and a size of the second block; and

(C1) scanning, by the computing device, the second block according to the different scanning order where the prediction mode associated with the second block is a predetermined prediction mode and the size of the second block is smaller than a predetermined size,

(C2) wherein the different scanning order includes an order opposite to the scanning order for scanning the first block.

(Different feature)

Regarding the second block, the Amended invention includes the components, "the second block having at least one characteristic that is the same as a characteristic of the first block", "the at least one characteristic includes block type being the same", and "the block type includes luminance block and chrominance block". The Cited Invention does not specify the above components.

(4) Judgment

The above different feature is examined below.

Using luminance block and chrominance block in coding processing is, as shown in the technical matters described in the Reference, common in encoding technology. Thus, it is recognized that luminance block and chrominance block are used in the Cited Invention. Since the processing to "change scan order by rotating a block of residual samples by 180 degrees" in the Cited Invention is not limited by block type, the processing can be applied to both luminance and chrominance blocks.

It is well-known, in encoding technology, that luminance and chrominance are treated as values with different kinds of characteristic. Thus, a person skilled in the art could have easily conducted processing related to determining scanning order, for each of luminance and chrominance blocks, in each block type, that is processing related to determining scanning order while treating the second block as the same block type (luminance block, chrominance block) as the first block.

Therefore, the Amended Invention could have been easily made by a person skilled in the art based on the Cited Invention.

The appellant's allegation in the written appeal is as follows.

"In Cited Document 2, it is described that the 14th JCT-VC meeting was held from July 25, 2013 to August 2, which is after the filing date of the application for the Invention. Therefore, it is not clear that Cited Invention 2 had been made available to the public before the filing date of the application (July 24, 2013) from 'Data Saved: 2013-07-09' described in the document." (hereinafter referred to as "Allegation 1")

"Even if Cited Document 2 had been made available to the public before the filing date, as described above, Cited Invention 2 only describes applying residue rotation only to blocks smaller than a given size. A person skilled in the art could not have easily conceived of determining to scan the second block associated with a non-transform coding mode according to a different scanning order than the scanning order for scanning the first block associated with a transform coding mode, specified by the Component (A) of the Invention, and using a prediction mode and a size of the second block for the determination, based on Cited Document 2 and Cited Document 3 which describes rotating a block of residual samples by 180 degrees in transform skip mode. The invention has an inventive step. We consider that the reasons for refusal have been resolved." (hereinafter referred to as "Allegation 2")

However, regarding Allegation 1, as indicated in (2-1), it is recognized that Cited Document 2 was made available to the public through electric telecommunication lines on July 9, 2013. Thus, Allegation 1 cannot be accepted.

Regarding Allegation 2, for the reasons indicated in (3) and (4), the Amended Invention could have been easily made by a person skilled in the art. Thus, Allegation 2 cannot be accepted.

Therefore, the Amended Invention would have been easily made by a person skilled in the art based on the Cited Invention, and the appellant should not be granted a patent for it independently at the time of patent application under the provisions of Article 29(2) of the Patent Act.

3 Closing for the Amendment

In light of the above, the Amendment violates the provisions of Article 126(7) of the Patent Act as applied mutatis mutandis pursuant to the provisions of Article 17-2(6) of the Patent Act, and, therefore, it should be dismissed under the provisions of Article

53(1) of the Patent Act as applied mutatis mutandis pursuant to the provisions of Article 159(1) of the Patent Act.

Therefore, the decision is made in accordance to the above Conclusion of Decision to Dismiss Amendment.

No. 3 Regarding the Invention

1 The Invention

Since the amendment submitted on April 19, 2018 was dismissed as concluded above, the invention related to the claims of the application is specified by the matters described in Claims 1 to 10 of the scope of claims amended by the amendment submitted on May 25, 2017. The invention according to Claim 1 (hereinafter referred to as "the Invention") is as described as "Claim 1 before Amendment" in No. 2 [Reason] 1, which is specified by the matters described in Claim 1, from the description of the specification and drawings.

2 Reasons for refusal of the examiner's decision

The reasons for refusal of the examiner's decision related to the Invention are as follows: the invention related to Claim 1 of the application could have been easily made by a person ordinarily skilled in the art of the invention before the filing of the application based on the invention described in Cited Document 2 and the technology described in Cited Document 3 which were distributed or made available to the public through electric telecommunication lines before the filing of the applelant should not be granted a patent for it under the provisions of Article 29(2).

3 Cited documents, Cited invention

The matters described in Cited Document 2 and Cited Document 3 cited in the reasons for refusal of the examiner's decision, and the Cited Invention are as described in No. 2 [Reason] 2 (2).

4 Comparison/Judgment

The invention was made by deleting the limitations in the Component C1 of the Amended Invention examined in No. 2 [Reason] 2.

Accordingly, the Amended Invention, which corresponds to an invention made by including all of the matters specifying the Invention and adding other matters, as described in No. 2 [Reason] 2, could have been easily made by a person skilled in the art based on the Cited Invention citing the description of Cited Document 3. Therefore, the Invention could have been easily made by a person skilled in the art as well.

No. 4 Closing

As described above, the appellant should not be granted a patent for the Invention under the provisions of Article 29(2) of the Patent Act. The application should be rejected without examining inventions relating to other claims.

Therefore, the appeal decision shall be made as described in the conclusion.

June 11, 2019

Chief administrative judge: S Administrative judge: KAS Administrative judge: WA

SHIMIZU, Masakazu KASHIMOTO, Tsuyoshi WATANABE, Tsutomu