Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [X] To Chairmen
(D) [-] No distribution

Datasheet for the decision of 25 September 2013

Case Number: T 1440/09 - 3.5.04

Application Number: 06121786.5

Publication Number: 1777968

IPC: H04N7/26

Language of the proceedings: EN

Title of invention:
Method of encoding flags in layers using inter-layer correlation, method and apparatus for decoding coded flags

Applicant:
Samsung Electronics Co., Ltd.

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(1), 54(2)
EPC Art. 123(2)

Keyword:
Novelty - availability to the public
Amendments - added subject-matter (yes)

Decisions cited:

Catchword:
See section 2:
Availability to the public of a document submitted in preparation of a meeting of an international standards working party

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1440/09 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 25 September 2013

Appellant: (Applicant)	Samsung Electronics Co., Ltd. 129, Samsung-ro Yeongtong-gu Suwon-si, Gyeonggi-do, 443-742 (KR)
Representative:	Brandon, Paul Laurence Appleyard Lees 15 Clare Road Halifax, HX1 2HY (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 17 December 2008 refusing European patent application No. 06121786.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: F. Edlinger
Members: C. Kunzelmann
T. Karamanli

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse European patent application No. 06 121 786.5 under Article 97(2) of the European Patent Convention (EPC).

II. The decision made reference *inter alia* to the following document:

D1: Woo-Jin Han et al.
"Symbol Prediction Techniques for SVC",
Joint Video Team (JVT) of ISO/IEC MPEG & ITU-T VCEG (ISO/IEC JTC1/SC29/WG11 and ITU-T SG16 Q.6) 15th Meeting: Busan, KR, 16 - 22 April 2005,
Retrieved from the internet:
URL http://ftp3.itu.ch/av-arch/jvt-site/2005_04_Busan/JVT-O063.doc, online 16 April 2005,
XP002417974.

III. The decision was based on claims 1 to 6 of a main and an auxiliary request and description pages 1 to 16 filed with letter of 2 October 2008. The application was refused mainly on the grounds that the subject-matter of independent claims 1 and 6 of the main request was not new with respect to D1 and that claims 1 and 6 of the auxiliary request infringed Article 123(2) EPC.

IV. Claim 6 of the main request reads as follows:

"An apparatus (100) for encoding flags of a current layer, which are used in a multilayer-based video, using correlation with corresponding flags of a base layer, the apparatus comprising:

a prediction flag setting unit (120) which determines whether the flags of the current layer included in a specified unit area are equal to the flags of the base layer, and sets a prediction flag according to a result of the determination; and
an insertion unit (150) which inserts the flags of the base layer and the prediction flag into a bitstream, if it is determined that the flags of the current layer are equal to the flags of the base layer."

V. Claim 6 of the first auxiliary request reads as follows:

"An apparatus (100) for encoding flags of a current layer, which are used in a multilayer-based video, using correlation with corresponding flags of a base layer, the apparatus comprising:
a prediction flag setting unit (120) which determines whether a plurality of the flags of the current layer included in a specified unit area are all equal to the corresponding flags of the base layer, and sets a prediction flag according to a result of the determination; and
an insertion unit (150) which inserts the plurality of flags of the base layer and the prediction flag into a bitstream, if it is determined that the flags of the current layer are equal to the corresponding flags of the base layer."

VI. The reasons for the decision may be summarised as follows:

Document D1 disclosed an apparatus having all the features specified in claim 6 of the main request. Multi-layer encoding and inter-layer flag prediction were the subject of D1, as was evident for instance

from page 2, paragraph 2.2 and lines 7 and 8, and page 5, paragraph 4. The reference to "flags" in claim 6 did not exclude the case where a specified unit area contained only one flag. Moreover, the use of the plural for the term flag might mean in general the set of flags present in an encoded video bitstream. Figure 7 of the present application showed only two flags, one from the base layer and one from the current layer.

Concerning claim 6 of the auxiliary request, the application as filed did not disclose a working example of a comparison involving a plurality of flags of a current layer at the same time. Whereas paragraph 12 for example mentioned flags of a current layer being all equal to the flags of the base layer, paragraph 40 and figure 7 for instance seemed to suggest the comparison of a single flag from a current layer with a single flag from the base layer. The application as filed did not discuss any advantage or objective of a group-wise comparison, nor was there any discussion about how such groups should be related to the flags F_B and F_C of figure 7. Because of these ambiguities in the meaning of "flags" in the application as filed there was insufficient basis for the claim language of the auxiliary request.

VII. The applicant appealed. With the statement of grounds of appeal the appellant again filed the claims of the main request and the auxiliary request forming the basis of the appealed decision.

VIII. The appellant's arguments given in the statement of grounds of appeal may be summarised as follows:

The invention took advantage of the similarity of flags in a given unit area for different layers in multilayer-based video. The similarity of these flags was used to improve their compression. In the application a single prediction flag was set for the comparison of flags with flags. D1 did not disclose an apparatus for encoding flags. Instead it disclosed encoding a flag. In D1, a single prediction flag was set for comparison of a single flag with a single flag.

The term "the flags" in claim 6 of the main request restricted its scope to multiple flags in a specified unit area. The interpretation in the decision under appeal considered the case of one flag in a specified unit area and was therefore incorrect. In particular in figure 7 of the application, each F_B and F_C designated a group of flags. This was clear for instance from paragraph [0043] of the application as filed. Paragraph [0040] did not concern the comparison of flags to set a prediction flag. Instead it concerned a step following the setting of a prediction flag.

As to the objection under Article 123(2) EPC against the auxiliary request, the application as filed used the term "flags" in a consistent way in the context of comparing multiple flags with multiple flags in order to set a single prediction flag. A person skilled in the art would understand that in paragraph [0045] of the application as filed "the sign flag of the current layer ... {10101}" and the "sign flag of the base layer ... {10100}" meant "sign flags", each flag being indicated by one bit ("1" or "0"). A person skilled in the art would understand the advantages of comparing multiple current layer flags with corresponding multiple base layer flags to set a single prediction flag. Thus the application as filed provided sufficient

basis for the wording of claim 6 of the auxiliary request.

IX. The board issued a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), annexed to a summons to oral proceedings. In this communication the board indicated that it tended to agree with the finding of lack of novelty of the subject-matter of claim 6 of the main request, and that the considerations as to lack of novelty seemed to apply equally to claim 6 of the auxiliary request.

X. With a letter dated 26 August 2013, the appellant maintained the claims of the main and the auxiliary request and filed claims of second and third auxiliary requests. The former auxiliary request was renumbered as the first auxiliary request. In this letter the appellant indicated that the amendments made in the second and third auxiliary requests were based at least on paragraphs [0033], [0034], [0040], [0043] and [0047] of the application as filed.

XI. Claim 1 of the second auxiliary request reads as follows:

"A method of decoding encoded flags of a current layer using correlation with flags of a base layer in a multilayer-based video, the method comprising:
reading a prediction flag and a plurality of different types of flags of the base layer from an input bitstream;
if the prediction flag has a first bit value, substituting the read plurality of the different flags of the base layer for the corresponding flags of the

current layer in a specified unit area to which the prediction flag is allocated; and
outputting the substituted flags of the current layer."

XII. Claim 1 of the third auxiliary request reads as follows:

"A method of decoding encoded flags of a current layer using correlation with flags of a base layer in a multilayer-based video, the method comprising:
reading a prediction flag and a plurality of flags of the base layer from an input bitstream;
wherein the flags comprise: a sign flag, a residual prediction flag, an intra base flag, a motion prediction flag and a base mode flag;
if the prediction flag has a first bit value, substituting the read plurality of flags of the base layer for the corresponding flags of the current layer in a specified unit area to which the prediction flag is allocated; and
outputting the substituted flags of the current layer."

XIII. Oral proceedings before the board were held on 25 September 2013. During the oral proceedings the appellant contested, for the very first time, the public availability of D1. The appellant submitted that D1 may have been confidential at the priority date of the present application, in view of the "JVT Patent Disclosure Form" on pages 9 to 12 of D1, which indicated in point 2.0 that the submitter of D1 was "not aware of having any granted, pending, or planned patents associated with the technical content of the Recommendation | Standard or Contribution" and in view of the fact that the present application had been filed by the submitter after the submission of D1 to JVT. With respect to the further issues addressed by the

board, the appellant relied on its written submissions only.

XIV. The appellant's final requests were that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to the main request or the first auxiliary request, both filed with the statement of grounds of appeal, or one of the second or third auxiliary requests, both filed with the letter of 26 August 2013, and on the basis of the description pages 1 to 6 filed with the letter of 2 October 2008.

Reasons for the Decision

1. The appeal is admissible.

2. State of the art under Article 54(2) EPC 1973 - alleged confidentiality of D1

2.1 The appellant did not contest that D1 had been on the internet before the earliest priority date of the present application (19 October 2005) at the URL indicated in the European search report. Moreover, the appellant did not contest that D1 is a contribution submitted to the Joint Video Team (JVT) for its 15th meeting in Busan, KR, which took place from 16 - 22 April 2005, several months before the above earliest priority date. Furthermore, the board notes that none of the documents on file indicates that contributions to JVT meetings are to be kept confidential even after the meeting in question.

2.2 The appellant however argued that D1 may have been confidential at the priority date of the present

application, in view of the "JVT Patent Disclosure Form" which indicated that the submitter of D1 was "not aware of having any granted, pending, or **planned** patents associated with the technical content of the Recommendation | Standard or Contribution" (emphasis by the board) and in view of the fact that the present application had been filed by the submitter after the submission of D1 to JVT. This argument seems to be based on the understanding that one purpose of the "JVT Patent Disclosure Form" was to protect the submitter from its contribution to the JVT meeting being held against its own later patent application.

2.3 The "JVT Patent Disclosure Form" on pages 9 to 12 of D1 is a standard, preprinted form appended to the submitter's contribution. It provides the JVT with information about the patent status of techniques used in or proposed for incorporation in a recommendation or standard. JVT requires that all technical contributions be accompanied by this form. The intent is that the JVT experts should know in advance of any patent issues with particular proposals or techniques, so that these may be addressed well before final approval. The information is maintained in a "living list" by JVT during the progress of their work, on a best effort basis. The form is not a binding legal document; it is provided to JVT for information only (see D1, page 9, last two paragraphs and page 10, first two lines). The patent issues may concern patents of the submitting organisation or person (see D1, page 11) or of a third party (see D1, page 12).

2.4 The standard, preprinted "JVT Patent Disclosure Form" does not comprise any explicit indication that the technical contribution of the paper it accompanies should be kept confidential.

2.4.1 Furthermore, in the case of D1 it is not even clear if an initially blank "JVT Patent Disclosure Form" has been completed at all, since the details concerning the submitting organisation are missing on page 10 of D1. The only box of the "JVT Patent Disclosure Form" which has apparently been ticked by the submitter is point 2.2, according to which the submitter (namely the patent holder of the granted, pending, or planned patents) is prepared to grant a licence under certain circumstances. However, any corresponding information as to the patent number(s) or status, and the inventor(s)/assignee(s) of the granted, pending, or planned patents is missing. Nor did the appellant contend that a corresponding disclosure form existed which had been filled in with information from which the appellant derived its argument of confidentiality. Thus there is no indication that the "JVT Patent Disclosure Form" in D1 relates to any specific patent application or patent or in particular to the present patent application.

2.5 The mere fact that the submitter of contribution D1 might have ticked the box that it was "not aware of any granted, pending or planned patents associated with the technical content of the Recommendation | Standard or Contribution" in point 2.0 of the "JVT Patent Disclosure Form" does not imply that the contribution D1 was to be kept confidential by any person to whom it was available.

2.6 In view of the above the appellant's arguments did not convince the board, and thus the board finds that D1 constitutes prior art under Article 54(2) EPC 1973 for the present application.

3. Claim 6 of the main request: novelty (Article 54(1) EPC 1973)

3.1 Document D1 discloses

an apparatus for encoding flags of a current layer, which are used in a multilayer-based video (see point 1 of D1), using correlation with corresponding flags of a base layer (see point 2.1). The apparatus comprises:
a prediction flag setting unit (see the dotted box in figure 1) which determines whether the flags of the current layer included in a specified unit area are equal to the flags of the base layer (see the reference to "base layer" point 2.1), and sets a prediction flag according to a result of the determination ("0" or "1" in figure 1); and
an insertion unit which inserts the flags of the base layer and the prediction flag into a bitstream (see point 2.1 and figure 1), if it is determined that the flags of the current layer are equal to the flags of the base layer.

3.2 The appellant's argument that in the application a single prediction flag was set for the comparison of flags with flags, whereas in D1 a single prediction flag was set for comparison of a single flag with a single flag, did not convince the board.

3.2.1 According to the present application, exemplary prior-art flags may be a residual prediction flag, an intra base flag, a motion prediction flag, or a base mode flag (see paragraphs [0032] to [0037]). These flags are defined, for instance, for a macroblock (see paragraph [0008]). They may be set to "0" or "1", but the application is not limited to this interpretation of a flag. Thus a flag may have a multibit value (see

paragraph [0040] or the examples of a sign flag in paragraph [0043]).

3.2.2 Also D1 is concerned with some of the same flags as the application (such as the residual prediction flag in point 2.1 or the motion prediction flag in point 2.3 of D1) which are defined for the same unit areas (such as a macroblock). Moreover, the motivation underlying D1 is an improvement of the coding efficiency and the feature for achieving such an improvement is symbol prediction, with subsequent encoding of whether the prediction is correct or not (see point 1 of D1). Thus it is implicit in D1 that it does not predict individual binary flags (having a value of 0 or 1) one by one. (Indicating whether a binary flag is equal to its predicted value by means of a further binary flag would not improve coding efficiency.) Instead, it is implicit that a predicted "symbol" in D1 reflects several individual binary flags, thereby constituting a "value", such as RPPrd in the case of the residual prediction flag. In this context the board also notes that D1 discloses under the heading "More optimization" in point 2.1 that the reversed residual prediction flag may be encoded (instead of the residual prediction flag itself) because this increases the number of 0s. Hence a residual prediction flag must be comprised of several 0s and/or 1s.

3.3 The appellant's argument that "the flags" in claim 6 restricted its scope to multiple flags in a specified unit area did not change the board's assessment. The expression "flag" is used in the present application for both a binary flag (which may be set to "0" or "1") and a flag which may have more values (see paragraph [0040] or the examples of a sign flag in

paragraph [0043]). Thus the term "flag" in claim 6 has a broad meaning encompassing both possibilities.

3.4 In view of the above the board finds that the apparatus of claim 6 of the main request is not new within the meaning of Article 54(1) EPC 1973.

4. Claim 6 of the first auxiliary request: novelty (Article 54(1) EPC 1973)

4.1 The considerations in section 3 above apply equally to claim 6 of the first auxiliary request. The additional feature of "whether a plurality of the flags ... are all equal" corresponds to the situation in D1, point 2.1, in which the residual prediction flag itself can be skipped. If it is determined that these flags are not equal, then a reversed residual prediction flag would be encoded. In both cases, the plurality of flags of the base layer would also be inserted.

4.2 The appellant did not present any arguments on this issue.

4.3 In view of the above the board finds that also the apparatus of claim 6 of the first auxiliary request is not new.

5. Claim 1 of the second auxiliary request: added subject-matter (Article 123(2) EPC)

5.1 Claim 1 comprises the feature of reading "**a** plurality" of **different types** of flags of the base layer from an input bitstream (not **the** plurality; emphasis by the board). Moreover, claim 1 comprises the feature of substituting the read plurality of the different flags of the base layer for the corresponding flags of the

current layer in a specified unit area if the prediction flag has a first bit value. Thus claim 1 teaches that there must be **a** plurality of different types of flags in the base layer, as well as a prediction flag of a first bit value, for the substitution of flags to take place.

5.2 This combined criterion for the substitution of flags is not disclosed in the application as filed. According to paragraphs [0012] and [0043] of the application as filed, it is judged whether the flags of the current layer included in a specified unit area are **all** equal to the flags of the base layer (emphasis by the board). This criterion determines wether the prediction flag is set to "1" or "0" (and thus whether flag substitution takes place, see paragraphs [0047] and [0065]). The flags considered in the present application may be those of the prior art (see point 3.2.1 above), and thus may be of different types. But the types of flags are irrelevant for the judgement. Even though the above paragraphs of the description concern encoding, the same applies to decoding (see figure 9 and paragraphs [0063] to [0065]).

5.3 The application as filed also discloses that the residual prediction flag, the intra base flag, the motion prediction flag and the base mode flag have "somewhat of a correlation between the respective layers" (see paragraph [0040]). In the case of imperfect correlation the flags in the current layer are not all equal to the corresponding flags in the base layer (in a specified unit area). Nevertheless the correlation may be sufficient for some coding efficiency advantages to be achieved (by entropy decoding and XOR operation, see claim 2). Flags of other types than those mentioned above may have less

correlation between the respective layers. However, the application as filed does not disclose making a selection of types of flags (such as those which are likely to have a large degree of correlation between the respective layers) and then judging whether the flags of the selected types included in a specified unit area are all equal in the base layer and the current layer.

5.4 The appellant furthermore adduced paragraphs [0033] and [0034] of the application as filed in support of the amendments made to the second auxiliary request. Paragraph [0033] concerns the "result of observing diverse video samples", namely that the sign of the refinement coefficient in the first FGS layer is equal to that of the corresponding refinement coefficient in the discrete layer. Paragraph [0034] concerns the issue that the sign flag and other flags are used in performing the entropy coding of the FGS layer. These paragraphs do not, however, concern the issue of whether the prediction flag for a particular plurality of flags has a first bit value. Indeed, according to the application as filed entropy encoding/decoding of flags is only an issue if the prediction flag has the second bit value (see, for instance, figures 4 and 6).

5.5 Thus the board finds that claim 1 of the second auxiliary request extends beyond the content of the application as filed and therefore infringes Article 123(2) EPC.

6. Claim 1 of the third auxiliary request: added subject-matter (Article 123(2) EPC)

6.1 The considerations in section 5 above apply equally to claim 1 of the third auxiliary request. This claim essentially specifies that the different types of flags are a sign flag, a residual prediction flag, an intra base flag, a motion prediction flag and a base mode flag. Although each of these flags is mentioned as such in the description, there is no disclosure of this particular plurality of flags being judged as to whether flag substitution may take place.

6.2 Moreover, the generalisation that the plurality of flags may comprise an unspecified sign flag is not disclosed in the application as filed, which discloses a specific sign flag of the refinement coefficient in the first FGS layer (see paragraph [0033]).

6.3 Thus the board finds that also claim 1 of the third auxiliary request infringes Article 123(2) EPC.

7. Hence none of the appellant's requests is allowable, and thus the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke F. Edlinger

Decision electronically authenticated