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**Datasheet for the decision
of 24 June 2019**

Case Number: T 0895/14 - 3.5.04

Application Number: 10159839.9

Publication Number: 2244469

IPC: H04N5/44, H04N5/66

Language of the proceedings: EN

Title of invention:

A method for displaying a high-definition image on standard display systems having limited buffer

Applicant:

Vestel Elektronik Sanayi ve Ticaret A.S.

Headword:

Relevant legal provisions:

EPC Art. 84

Keyword:

Claims - clarity (no)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0895/14 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 24 June 2019

Appellant: Vestel Elektronik Sanayi ve Ticaret A.S.
(Applicant) Organize Sanayi Bölgesi
45030 Manisa (TR)

Representative: Cayli, Hülya
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 20 November
2013 refusing European patent application
No. 10159839.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman C. Kunzelmann
Members: R. Gerdes
T. Karamanli

Summary of Facts and Submissions

- I. The appeal is directed against the decision to refuse European patent application No. 10 159 839.9, published as European patent application EP 2 244 469 A1.
- II. The patent application was refused by the examining division on the grounds that claim 1 of the then sole request was not clear, contrary to Article 84 EPC.
- III. The applicant (appellant) appealed against this decision and submitted amended claims of a new main (and sole) request with the statement of grounds of appeal.
- IV. In a communication under Article 15(1) RPBA, which was annexed to the summons to oral proceedings, the board stated *inter alia* that in its preliminary opinion claim 1 lacked clarity for a number of reasons. The board also indicated that there seemed to be insufficient information in the application how to carry out the invention, contrary to Article 83 EPC.
- V. In its reply to the summons dated 23 May 2019, the appellant submitted a single amended claim for the main request and the first to third auxiliary requests and stated that these new claims were to replace the claims on file.
- VI. Oral proceedings were held before the board on 24 June 2019. At the end of the oral proceedings the appellant requested that the decision under appeal be set aside and that a European patent be granted on the basis of the claim of the main request or one of the first to third auxiliary requests, all requests filed by letter dated 23 May 2019.

VII. Claim 1 of the main request reads as follows:

"A method for displaying a high-definition (HD) image, resolution of which is at least 1280 columns by 720 rows, with a 16:9 aspect ratio on display devices, whose aspect ratio is 4:3 and whose buffer of an image processor (sic) is limited, wherein the method comprises the following steps

- The capture side of the image processor which captures an input image signal, that contains an image signal and vertical synchronization signal, writes the captured the (sic) input image signal on the buffer,
- The image-processing part of the said image processor reads the input image signal, that contains real image data which are used to create the input image, from the said buffer,
- The image processor performs the necessary aspect ratio conversion,
- An image, that is created by the image processor using an output signal generated by performing aspect ratio conversion, is displayed on the display,

and the said method is characterized in that it comprises the step of delaying real image data in the image-processing part for a certain period of time wherein this is performed in a register of the image processor by changing the register settings wherein the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred, in order to reduce buffer requirement of the image processor by compensating the

difference between input active time and output real active time for aspect ratio conversion."

- VIII. Claim 1 according to the first auxiliary request differs from claim 1 of the main request on account of its characterising portion, which is worded as follows (amendments underlined):

"... and the said method is characterized in that it comprises the step of delaying real image data in the image-processing part for a certain period of time wherein this is performed in a register of the image processor by changing the register settings, wherein the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred so that the time GV_{LBUF} is eliminated, in order to reduce buffer requirement of the image processor by compensating the difference between input active time and output real active time for aspect ratio conversion."

- IX. Claim 1 according to the second auxiliary request corresponds to claim 1 of the main request with the following amended characterising portion (amendments underlined):

"... and the said method is characterized in that it comprises the step of delaying real image data in the image-processing part for a certain period of time wherein this is performed in a register of the image processor by changing the register settings wherein the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred, in order to reduce buffer requirement of the image processor by compensating the difference between input active time and output real

active time for aspect ratio conversion, wherein the input active time is the length of time for input image signal lines which must not exceed the size of the buffer for aspect ratio conversion."

- X. Claim 1 of the third auxiliary request is identical to claim 1 of the second auxiliary request with the following amendment to its characterising portion (amendments underlined):

"... and the said method is characterized in that it comprises the step of delaying real image data in the image-processing part for a certain period of time wherein this is performed in a register of the image processor by changing the register settings wherein the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred, in order to reduce buffer requirement of the image processor by compensating the difference between input active time and output real active time for aspect ratio conversion, wherein the input active time is the length of time for input image signal lines which must not exceed the size of the buffer for aspect ratio conversion, wherein the time GV_{LBUF} is excluded from the input active time."

- XI. The appellant's arguments, as far as they are relevant for the present decision, may be summarised as follows:

Regarding claim 1 of the main request the appellant argued that the characterising portion of claim 1 now included the effect of reducing "buffer requirement of the image processor". The description (page 6, lines 4 to 24, and page 7, line 26 to page 8, line 9) disclosed that the buffer requirement was directly related to the difference between input active time and output "real

active" time. Therefore, by compensating for the difference between input active time and output real active time, the buffer requirement of the image processor was reduced.

Figure 3 and the corresponding description (see in particular page 6, lines 4 to 27) referred to the prior art. Figure 4 and the corresponding passages of the description (see page 7, line 1 to page 9, line 3, and in particular page 7, line 26 to page 8, line 9) disclosed the invention. A skilled person was able to take from Figure 4 that the elimination of the time GV_{LBUF} resulted in "delaying the real image data in the image-processing part", which was achieved due to the feature whereby the image-processing part waited to read the buffer until a certain number of lines had occurred. This was also clear from comparing the prior art in relation to Figure 3 and the invention in relation to Figure 4. The resulting reduction in the buffer requirement could be taken from the overall disclosure of the application as originally filed (see statement of grounds, section entitled "Main Request" and letter of reply dated 23 May 2019, section a). During the oral proceedings, the appellant also argued that the feature of waiting to read the buffer until a certain predetermined number of lines had occurred (100 lines in the method described on page 6, lines 33 and 34) should be understood to have the technical meaning of jumping directly to this line 100, thereby skipping unnecessary lines.

Regarding the auxiliary requests, the appellant referred to the arguments which it had submitted with respect to the main request.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. According to Article 84 EPC, the claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description.
 - 2.1 The application relates to a method for displaying a high-definition (HD) image with a 16:9 aspect ratio on display devices whose aspect ratio is 4:3. Due to the different aspect ratios, input frames have to be converted in order to be displayed. This aspect ratio conversion requires a buffer memory of sufficient memory/buffer depth to write the image frames within the regular image frame period and to read corresponding output image frames (see page 1, line 8 to page 2, line 31 of the application as filed). The aim of the present invention is to reduce the buffer space required by aspect ratio conversion (see Figures 3 and 4 and page 3, lines 15 to 24; page 5, line 4 to 14; page 6, lines 22 to 31; page 8, line 9).
 - 2.2 In terms of structural features, the aspect ratio conversion is performed in an image processor, which has a "capture side" and an "image-processing part". The buffer is shared by the capture side and the image-processing part, i.e. the buffer is filled by the capture side of the image processor and emptied by the image-processing part (see page 7, lines 1 to 11).

Claim 1 reflects this understanding of the invention by way of the features specified in its preamble.

- 2.3 According to the appellant, the buffer size required for aspect ratio conversion could be reduced by proper control of the capture side and the image-processing part. In particular, the characterising portion of claim 1 specified details of how the capture side and image-processing part were controlled such as to achieve the technical effect of a reduced buffer space. The characterising portion specified that the method "comprises the step of delaying real image data in the image-processing part for a certain period of time wherein this is performed in a register of the image processor by changing the register settings wherein the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred, in order to reduce buffer requirement of the image processor by compensating the difference between input active time and output real active time for aspect ratio conversion."
- 2.4 None of these features comprehensibly specifies the measures by which the required buffer size is reduced.
- 2.4.1 The step of "delaying real image data in the image-processing part for a certain period of time" cannot result in reduced buffer requirements. The image-processing part reads the image data from the buffer. Hence, a delay at the image-processing part would only result in a temporary increase in data, which remain in the buffer instead of reducing buffer requirements. The same logic applies with respect to the appellant's explanation that "delaying the real image data in the image-processing part" was achieved by the feature whereby the image-processing part waited to read the buffer until a certain number of lines had occurred (see point XI above).

- 2.4.2 The features whereby the delaying "is performed in a register of the image processor by changing the register settings" and the affected number of lines is "calculated by the software" only refer in general terms to "control tools" used, but they do not explain how the control timing is modified to attain the effect.
- 2.4.3 The characterising portion of claim 1 also specifies that "the difference between input active time and output active real time for aspect ratio conversion" is compensated for. This feature specifies another effect which is allegedly produced by the claimed method. However, it does not clarify how the compensation is achieved and how this contributes to the reduction of buffer requirements.
- 2.4.4 Additionally, the description does not provide detailed information on how the image-processing part interacts with the buffer to reduce buffer requirements. Figure 3 shows a prior-art schedule for aspect ratio conversion (see page 3, lines 33 and 34, of the application as filed). According to this prior-art schedule, "the system waits at blank period and needs buffer for this state, but there is no need to wait for the said period" (see page 6, lines 33 to 35). Figure 4 discloses a corresponding schedule according to the invention (see page 4, lines 1 and 2), which is distinguished from Figure 3 in that the time GV_{LBUF} is eliminated. However, there is no explanation of the significance of the time GV_{LBUF} and how the elimination of GV_{LBUF} contributes to the delaying and the reduction in required buffer size.

- 2.4.5 Hence, the causality between "delaying real image data in the image-processing part" and reducing "buffer requirement of the image processor" in the characterising feature is unclear.
- 2.4.6 The appellant argued that the expression "waits to read the buffer until a certain number of lines ... have occurred" had to be understood as meaning "jump to line 100 of the buffer". This would imply that the processing was accelerated by skipping 100 lines instead of being delayed as required by claim 1. The board is not convinced that this interpretation has a basis in the application. Claim 1 and the description consistently make reference to "delaying ... for a certain period of time" (see, for instance, page 7, lines 13 to 16).
- 2.5 As a result, the board concludes that claim 1 lacks clarity and does therefore not fulfil the requirements of Article 84 EPC.

First auxiliary request

3. Claim 1 of the first auxiliary request differs from claim 1 of the main request by specifying that "the image processing part waits to read the buffer until a certain number of lines, which are calculated by the software have occurred so that the time GV_{LBUF} is eliminated" (amendment underlined by the board).
- 3.1 As stated with regard to claim 1 of the main request there is no explanation in the application of the significance of the time GV_{LBUF} and how the elimination of GV_{LBUF} contributes to the delaying and the reduction in required buffer size. Hence, this feature causes a new lack of clarity and cannot remedy the lack of

clarity caused by the other features of the characterising portion of claim 1 (see point 2.4 above).

- 3.2 It follows that claim 1 of the first auxiliary request lacks clarity and therefore does not fulfil the requirements of Article 84 EPC.

Second auxiliary request

4. Claim 1 of the second auxiliary request specifies, in addition to claim 1 of the main request, that "the input active time is the length of time for input image signal lines which must not exceed the size of the buffer for aspect ratio conversion."

- 4.1 This additional feature defines the "input active time" by way of the requirement that the buffer size must not be exceeded. Therefore, the feature's definition is based on exactly the effect for which it should establish a causal connection with the delayed real image data. Such a circular definition cannot overcome the clarity objection of claim 1 of the main request.

- 4.2 Hence, claim 1 of the second auxiliary request lacks clarity and therefore does not fulfil the requirements of Article 84 EPC.

Third auxiliary request

5. Claim 1 of the third auxiliary request specifies, in addition to claim 1 of the second auxiliary request, that "the time GV_{LBUF} is excluded from the input active time."

5.1 As stated with regard to claim 1 of the main request and first auxiliary request, the application does not explain the significance of the time GV_{LBUF} and how the elimination of GV_{LBUF} contributes to the delaying and the reduction in the required buffer size. Hence, this feature causes a new lack of clarity and does not remedy the lack of clarity caused by the other features of the characterising portion of claim 1 (see points 2.4 and 3.1 above).

5.2 Hence, claim 1 of the third auxiliary request lacks clarity and therefore does not fulfil the requirements of Article 84 EPC.

Conclusion

6. Since none of the appellant's requests is allowable, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



I. Aperribay

C. Kunzelmann

Decision electronically authenticated