

**Internal distribution code:**

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

**Datasheet for the decision  
of 8 December 2008**

**Case Number:** T 0322/05 - 3.5.04

**Application Number:** 00970563.3

**Publication Number:** 1224802

**IPC:** H04N 5/445

**Language of the proceedings:** EN

**Title of invention:**

Blending text and graphics for display on televisions

**Applicant:**

Intel Corporation

**Opponent:**

-

**Headword:**

-

**Relevant legal provisions:**

-

**Relevant legal provisions (EPC 1973):**

EPC Art. 56

**Keyword:**

"Inventive step - no (all requests)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0322/05 - 3.5.04

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.04  
of 8 December 2008

**Appellant:**

Intel Corporation  
2200 Mission College Boulevard  
Santa Clara  
CA 95052 (US)

**Representative:**

Niederkofler, Oswald  
Samson & Partner  
Patentanwälte  
Widenmayerstraße 5  
D-80538 München (DE)

**Decision under appeal:**

**Decision of the Examining Division of the  
European Patent Office posted 21 October 2004  
refusing European application No. 00970563.3  
pursuant to Article 97(1) EPC.**

**Composition of the Board:**

**Chairman:** F. Edlinger  
**Members:** A. Dumont  
C. Vallet

## Summary of Facts and Submissions

I. This is an appeal against the decision by the examining division to refuse European patent application No. 00 970 563.3, published under the PCT as WO 01/33840 A1.

II. The application was refused on the grounds that the subject-matter of the independent claims then on file lacked novelty in view of the following prior art documents:

D2: Patent Abstracts of Japan, vol. 016, no. 271 (E-1218), 18 June 1992;

D2a: JP 04 063073 A (the corresponding patent application) and

D2a': the English translation of D2a filed by the applicant with letter of 6 August 2004.

III. With the statement of grounds of appeal dated 28 February 2005 and with a letter dated 7 November 2008, in reply to the summons by the board, the appellant filed new application documents.

IV. Oral proceedings before the board took place on 8 December 2008.

V. The appellant requested that the decision under appeal be set aside and that a patent be granted in the following version:

Claims:

Claims 1 to 18 of the main request, alternatively

Claims 1 to 18 of the first auxiliary request, or alternatively  
Claims 1 to 17 of the second auxiliary request,  
  
all filed with the letter dated 7 November 2008.

Description and drawings (all requests):

pages 2 and 2a, as filed with letter of 30 April 2004;  
pages 5 and 6, as filed with letter of 28 February 2005;  
pages 1, 3, 4 and 7 and figures as originally filed.

VI. Claim 1 according to the main request reads as follows:

"A method comprising:  
acquiring a graphics primitive to be displayed on a  
television receiver (18),  
characterised by:  
selectively adjusting the transparency of pixels  
outwardly from and adjacent to the horizontal edges of  
the primitive by varying the color of said pixels  
relative to the color of the background row by row in a  
plurality of transparency stages to reduce flicker when  
the primitive is displayed on the television receiver  
(18) thereby smoothing horizontal edges of the  
primitive."

VII. Claim 1 according to the first auxiliary request reads  
as follows:

"A method comprising:  
acquiring a graphics primitive to be displayed on a  
television receiver (18),  
characterised by:

selectively adjusting the transparency of pixels adjacent to portions of the primitive including alpha blending of the color of said pixels relative to the color of the background, and distributing the selectively adjusting over a number of pixels row by row outwardly from [sic] the horizontal edges of the primitive and varying the alpha blending values ( $\alpha$ ) row by row to reduce flicker when the primitive is displayed on the television receiver (18)."

VIII. Claim 1 according to the second auxiliary request reads as follows:

"A method comprising:  
acquiring a graphics primitive to be displayed on a television receiver (18),  
characterised by:  
selectively adjusting the transparency of pixels adjacent to portions of the primitive including alpha blending of the color of said pixels relative to the color of the background, and  
distributing the selectively adjusting over a number of pixels row by row outwardly from the horizontal edges of the primitive and varying the alpha blending values ( $\alpha$ ) row by row to reduce flicker when the primitive is displayed on the television receiver (18), including acquiring the primitive and the associated alpha blending values ( $\alpha$ ) from a library (72; 74)."

IX. The reasoning in the decision under appeal may be summarised as follows.

The closest prior art document D2a aims to reduce flicker and describes a device for synthesising a character font (a graphics primitive in the wording of the present application) for an interlaced display high-definition television receiver. The transition from the colour of a character to the colour of the background is smoothed by replacing the sharp horizontal edge by a slope, using an alpha function  $E$  varying from the value 1 to the value 0 (see figures 3(A) to 3(E)) as a weighting function. The subject-matter of at least claim 1 of the main request and the first auxiliary request thus lacks novelty.

X. The appellant argues essentially as follows:

- The invention processes the television signals in the digital domain at the pixel level, whereas it must be assumed that the prior art document D2/D2a relates to the analogue processing of an analogue television background and a digital graphics primitive by analogue low-pass filtering.
- The invention adjusts the transparency by gradually varying the colour of horizontal edges with alpha as a weighting factor. By contrast the method according to the prior art does not mention transparency at all and does not process colour signals like the invention. Although the abbreviation "col" in the formula of D2a/D2a' could mean colour, this could also have a completely different meaning. D2a adds values for the primitive in the range of 0 to 1 with values for the background in a range scaled otherwise and therefore generates a mixed colour which does not take the colour of the background into account.

The visual result of the methods is therefore different.

- The invention adjusts the transparency adjacent to and outwardly from the primitive whereas the known method applies low-pass filtering both inside and outside the font, thereby reducing the apparent width of the font.
- Selectively adjusting the transparency is superior to methods including low-pass filters in terms of processing time and selective adaptability.
- Alpha blending is known *per se*, however not for flicker reduction.
- Acquiring the data, in particular the alpha blending values, from a library provides for flexibility, which aspect is not addressed in the prior art.

## **Reasons for the Decision**

1. The appeal is admissible.
2. *Main request*
  - 2.1 The closest prior art document D2a relates to a high-definition television development of the NTSC standard (see D2a', page 2, first paragraph), which is a colour television standard. The processing of colour signals, including a colour background signal, is therefore considered to be implicit. In the board's judgment, the only meaningful interpretation of the abbreviation "col" in the formula of D2a and D2a' is to mean colour.

2.2 D2a discloses a method according to the preamble of claim 1, in which a graphics primitive (for instance a coloured character or symbol) acquired from a font generator is superimposed on a background representing a picture on a television screen. D2a aims to reduce flicker by smoothing the horizontal edges of the primitive (see the abstract D2 and the translation D2a', for instance page 2, third paragraph "Objective to Accomplish by this Invention").

2.3 D2a' mentions that the primitive may be stored in a memory device such as a ROM, which means that it is present in digital form and can be processed speedily (see the sentence bridging pages 2 and 3). D2a is however silent as to whether the picture (background) signal is digital or whether the picture synthesising circuit (13) is a digital circuit processing pixels.

Even if claim 1 were to be construed as relating to a fully digital processing of pixel data, as argued by the appellant, this would not create an inventive distinction over D2a for the following reason. An implementation with digital filters or processor-based systems was generally known before the priority date of the present application (see the present application, page 1, lines 23 to 29; and page 2, lines 14 to 15). A fully digital processing of pixel data is therefore regarded by the board as an obvious technological evolution in the field of high definition television to which the prior art relates.

2.4 According to D2a, a picture signal "G" is synthesised from the original background signal and the primitive, using the formula at the bottom of page 392 of D2a:



"G = col x E + F x ( 1 - E )";

where "F" designates the (colour) background signal and "col" designates the colour of the overlay primitive, as can be deduced from figure 3 (see also point 2.1 above).

"E" in the formula mentioned above represents a scalar function varying between 0 and 1 with a linear slope in transition zones adjacent to the horizontal edges of the primitive (see figure 3(E) of D2a). Figures 3(A), (B), (C) and (D) in combination show the primitive totally covering the background where E=1 and the background remaining unaltered and visible where E=0. As a result, a value E=1 means total opacity for the primitive, and a value E=0 means total transparency for the primitive, although neither of the expressions "opacity" or "transparency" is explicitly used in D2a. The function varies between 1 and 0 in the transition zones. The formula yields that the transparency of the primitive is outwardly gradually increased by weighting the primitive by a factor E as the visibility of the background is gradually increased by weighting the background by a factor 1-E. As a result, the transparency is adjusted by varying the colour in the transition zones relative to the colour of the background. The transition zones thus define a plurality of transparency stages ("multilevel picture with much less sharp edges" in paragraph "Benefits of this Invention" on page 2 of D2a').

In conclusion, D2a discloses the selective adjusting of the transparency of image points adjacent to the

horizontal edges of the primitive by varying the colour of said pixels relative to the colour of the background row by row in a plurality of transparency stages, as defined in claim 1.

2.5 The appellant argues that the invention adjusts the transparency adjacent to and outwardly from the edges without affecting the primitive itself, whereas the known method applies low-pass filtering both inside and outside the font, thereby reducing the apparent width of the font. The board considers that the formulation in claim 1 ("selectively adjusting the transparency of pixels outwardly from and adjacent to the horizontal edges of the primitive") does not exclude the transparency of pixels inward from the horizontal edges from being adjusted as well. Furthermore in D2a the graphics primitive ("character font image") is either the unaltered font with sharp unadjusted horizontal edges (see figure 2 of D2a and Example 2 of D2a') or the processed (thinner) font with smoothed horizontal edges (see figure 1 of D2a and Example 1 of D2a'). Consequently, considering that the edges of a primitive are defined by the most outward pixels associated with a zero transparency is a matter of convention. It also does not distinguish the invention over D2a, since neither the form nor the width of the primitives is defined in claim 1.

2.6 The appellant further argues that the prior art resorts to low-pass filtering which does not take colours into account like the invention does. The board considers that the mention of low-pass filters reflects the process of spatially smoothing the edges of a primitive in the transition zones ("low-pass filter or the like"

in the abstract D2). The actual embodiments according to the two practical examples in D2a use the formula mentioned above

$$("G = col \times E + F \times ( 1 - E )"),$$

whereas the description of the present application mentions the formula

$$"P_{out} = \alpha * P_{in} + (1-\alpha) * P_{overlay}"$$

(see line 25 on page 5 of the amended description filed with the letter dated 28 February 2005).

It is apparent from the above that D2a and the present invention as described apply corresponding complementary weighting factors varying between 0 and 1 to the primitive and the background components. The board therefore does not see that D2a and the invention differ in the way the transparency is adjusted in the transition zones to reduce flicker.

2.7 In conclusion, the subject-matter of claim 1 according to the main request lacks an inventive step and the main request is not allowable (Article 56 EPC 1973).

3. *First auxiliary request*

3.1 Claim 1 according to the first auxiliary request differs from claim 1 according to the main request essentially by adjusting the transparency over a number of pixels row by row and by explicitly naming the technique used for adjusting the edges as alpha blending, using alpha blending values. The appellant

argues that alpha blending is known per se but not for flicker reduction.

3.2 The board considers that the formula disclosed in D2 for processing edges in order to reduce flicker is the formula of alpha blending, although not expressly named as such, with "E" being the alpha blending value. The width of the transition zone being expressed by a number of pixel rows is a direct consequence of a fully digital implementation, which is regarded as a matter of design choice (see paragraph 2.3 above).

3.3 As a result, the subject-matter of claim 1 according to the first auxiliary request also lacks an inventive step and the first auxiliary request is not allowable (Article 56 EPC 1973).

#### 4. *Second auxiliary request*

4.1 The method according to claim 1 of the second auxiliary request differs from the method according to claim 1 of the first auxiliary request by the additional step of acquiring the primitive and the associated alpha blending values from a library.

4.2 As mentioned in paragraph 2.3 above, the primitives are stored in a digital memory in D2a. Storing digital images as pixel bitmaps (for instance as RGB components) together with alpha values in an associated alpha channel is a usual technique in computer graphics. This is not contested by the appellant. Applying this technique in the device of D2a, by storing the colour component(s) ("col") together with the alpha value ("E") is regarded by the board as a straightforward and

obvious implementation in order to achieve the beneficial effects in terms of flexibility and adaptability to be expected thereby.

4.3 As a result, the subject-matter of claim 1 according to the second auxiliary request also lacks an inventive step and the second auxiliary request is not allowable (Article 56 EPC 1973).

5. In conclusion, none of the appellant's requests is allowable.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar

The Chairman

L. Fernández Gómez

F. Edlinger