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**Datasheet for the decision
of 14 January 2022**

Case Number: T 2303/17 - 3.5.06

Application Number: 10836882.0

Publication Number: 2513895

IPC: G06F9/44

Language of the proceedings: EN

Title of invention:

APPARATUS AND METHOD FOR PARTITIONING A DISPLAY SURFACE INTO A
PLURALITY OF VIRTUAL DISPLAY AREAS

Applicant:

ATI Technologies ULC

Headword:

Virtual display areas/ATI

Relevant legal provisions:

EPC Art. 84, 54, 56

Keyword:

Claims - clarity (yes)

Novelty - (yes)

Inventive step - (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2303/17 - 3.5.06

D E C I S I O N
of Technical Board of Appeal 3.5.06
of 14 January 2022

Appellant: ATI Technologies ULC
(Applicant) 1 Commerce Valley Drive East
Markham, ON L3T 7X6 (CA)

Representative: Williams, Michael David
Marks & Clerk LLP
1 New York Street
Manchester M1 4HD (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 16 May 2017
refusing European patent application No.
10836882.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Müller
Members: G. Zucka
K. Kerber-Zubrzycka

Summary of Facts and Submissions

I. The appeal is against the decision by the examining division, dispatched with reasons on 16 May 2017, to refuse European patent application 10836882.0, on the basis that the main request did not satisfy the requirements of Article 84 and 54 EPC, and auxiliary requests 1 and 2 did not satisfy the requirements of Article 84 EPC.

The following documents were cited during the first instance procedure:

D1: US 7 477 205 B1;

D2: US 2003/189597 A1.

II. A notice of appeal was received on 18 July 2017, the appeal fee being paid on the same day. A statement of grounds of appeal was received on 21 September 2017.

III. The appellant requests

- that the decision of the examining division to refuse the application be set aside and a patent be granted on the basis of claims 1 to 21, labelled "main request", filed with the grounds of appeal;

- as auxiliary requests 1 and 2, that the decision of the examining division to refuse the application be set aside and a patent be granted on the basis of claims 1 to 21, labelled respectively "1st auxiliary request" and "2nd auxiliary request", both filed with the grounds of appeal;

in combination with the other application documents as identified in the decision under appeal.

- IV. The board issued a summons to oral proceedings. In an annex to the summons, the board set out its preliminary, negative opinion on the appeal.
- V. In response to the summons, the appellant did not submit amendments or arguments, but merely announced that it would not attend the oral proceedings, and those proceedings were subsequently cancelled.
- VI. Independent claim 1 of the main request reads as follows:

"A method, carried out by a processor, comprising:
partitioning a single display's viewable area (100)
into at least two defined virtual viewable areas (109,
111);

emulating the at least two virtual viewable areas
as at least two emulated physical displays by providing
information pertinent to each of at least the two
emulated physical displays to an operating system such
that the operating system behaves as if interfacing
with at least two actual physical displays;

wherein emulating the at least two virtual viewable
areas as at least two emulated physical displays
comprises providing to said operating system, generated
display identification data for each of the at least
two emulated physical displays in response to a query
from said operating system for display information; and

wherein emulating the at least two virtual
viewable areas as at least two emulated physical
displays further comprises:

receiving, by a graphics module (201), notification
of an interrupt from a graphics processing unit (215)

wherein said interrupt corresponds to said single display; and

reporting, by the graphics module (201), to said operating system with at least two sets of interrupt reporting information, corresponding to said at least two emulated physical displays, as if two interrupts were received."

- VII. Independent claim 1 of auxiliary request 1 is identical with claim 1 of the main request up to and including the step of "receiving", after which it reads as follows:

"...

simulating, by the graphics module (201), at least two sets of virtual interrupt reporting information in response to receiving the notification of the interrupt from the graphics processing unit (215), the at least two sets of virtual interrupt reporting information corresponding to said at least two emulated physical displays, and

reporting, by the graphics module (201), to said operating system the at least two sets of virtual interrupt reporting information as if two interrupts were received."

- VIII. Independent claim 1 of auxiliary request 2 is identical with claim 1 of auxiliary request 1 up to and including the second clause beginning with "wherein", after which it reads as follows:

"...

receiving, by a graphics module (201), notification of an interrupt from a graphics processing unit (215) participating in a split display mode wherein said interrupt corresponds to said single display;

simulating, by the graphics module (201), at least two sets of virtual interrupt reporting information in response to receiving the notification of the interrupt from the graphics processing unit (215), the at least two sets of virtual interrupt reporting information corresponding to said at least two emulated physical displays, wherein the simulating comprises:

retrieving a source ID and target ID for each source participating in the split display mode;
using the retrieved source IDs to retrieve surface addresses associated with the source IDs;
wherein the virtual interrupt reporting information comprises the obtained target IDs and the obtained surface addresses; and
reporting, by the graphics module (201), to said operating system the virtual interrupt reporting information, as if two interrupts were received."

Reasons for the Decision

1. *The invention*

The application relates to the partitioning of the display surface of a single physical display into multiple virtual displays.

The application intends to solve the problem that the allocation of separate partitions of the screen to different applications can be trumped by application settings if for instance one of the applications runs in full-screen mode (par. [003] of the description).

To solve this problem, the single display's viewable area is partitioned into virtual viewable areas which

are emulated so that they appear as actual physical displays to the operating system (par. [0022] of the description).

2. *Clarity; Article 84 EPC*

2.1 According to the decision (point 2), the claims attempt to define the subject-matter in terms of the result to be achieved where it would be possible to define the subject-matter in more concrete terms, because of the expression "so that the operating system is behaving as if interfacing with two physical displays".

2.2 The board however holds that the remainder of the claim, viz. the provision to said operating system of display identification data for each of the at least two emulated physical displays and the reporting by the graphics module to said operating system with a set of interrupt reporting information corresponding to each of the emulated physical displays, already achieves the indicated result, at least at a rudimentary level.

2.3 For that reason, the board holds that the requirements of Article 84 EPC have been satisfied for all requests.

3. *Novelty; Article 54 EPC*

3.1 Concerning claim 1 of the main request, document D1 discloses a method, carried out by a processor, comprising:

partitioning a single display's viewable area into at least two defined virtual viewable areas (column 2, lines 24 to 31; column 6, lines 19 to 27; figure 3);

emulating the at least two virtual viewable areas as at least two emulated physical displays by providing information pertinent to each of at least the two

emulated physical displays to an operating system such that the operating system behaves as if interfacing with two actual physical displays (column 1, line 50 to column 2, line 6; column 5, line 65 to column 6, line 6).

- 3.2 Contrary to what is written in the decision (point 4.1, 2nd paragraph), D1 in column 6, lines 6 to 58 does not disclose the features of original claims 2 and 3, i.e. the features added to claim 1 of previous auxiliary request 2, on which the present main request is based.

D1 also does not disclose a "graphics module".

- 3.3 To be concrete, D1 does not disclose the following features:

(a) emulating the at least two virtual viewable areas as at least two emulated physical displays comprises providing to said operating system, generated display identification data for each of the at least two emulated physical displays in response to a query from said operating system for display information;

(b) receiving, by a graphics module, notification of an interrupt from a graphics processing unit wherein said interrupt corresponds to said single display; and

(c) reporting, by the graphics module, to said operating system with at least two sets of interrupt reporting information, corresponding to said at least two emulated physical displays, as if two interrupts were received.

- 3.4 The subject-matter of claims 1, 11 and 21 of the main and both auxiliary requests is therefore novel (Article 54 EPC).
4. *Inventive step; Article 56 EPC*
- 4.1 The main element of the solution to the indicated problem, that the allocation of separate partitions of the screen to different applications can be trumped by application settings if for instance one of the applications runs in full-screen mode, is that the single display's viewable area is partitioned into virtual viewable areas which are emulated so that they appear as actual physical displays to the operating system (see point 1. above). This element is disclosed by D1 (see point 3.1 above).
- 4.2 Distinguishing features (a) to (c) listed above are considered to be obvious to the skilled person within the meaning of Article 56 EPC.
- 4.2.1 Regarding feature (a), given that the operating system is supposed to see the emulated displays as actual different physical displays, it follows that the operating system should preferably receive separate display identification data for each emulated physical display.
- 4.2.2 Likewise, since the operating system does not see a single display but separate emulated ones as if they were separate physical displays, it follows that an interrupt corresponding to the single display should be translated for the operating system to one or more separate sets of interrupt reporting information

corresponding to each of the emulated physical displays (features (b) and (c)).

4.3 The subject-matter of claims 1, 11 and 21 of the main request is therefore not inventive (Article 56 EPC).

4.4 As regards auxiliary requests 1 and 2, the reasoning is substantially the same as for the main request. The subject-matter of claims 1, 11 and 21 of the auxiliary requests is therefore also not inventive (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Pinna

M. Müller

Decision electronically authenticated