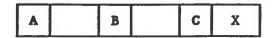**BESCHWERDEKAMMERN
DES EUROPÄISCHEN
PATENTAMTS**

**BOARDS OF APPEAL
OF THE EUROPEAN
PATENT OFFICE**

**CHAMBRES DE RECOURS
DE L'OFFICE EUROPEEN
DES BREVETS**

A	B	C	X

File Number: T 0265/92 - 3.5.1

Application No.:   86 100 769.8

Publication No.:   0 192 066

Title of invention: Configuration capability for devices in an open system

Classification: G06F 13/10

D E C I S I O N
of 10 May 1993

Applicant: International Business Machines Corporation

Headword:

EPC   Articles 52(2), 56

Keyword: "Patentable inventions - exceptions (no)"
              "Inventive step (no)"

Case Number : T 0265/92 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 10 May 1993

Appellant :   International Business Machines Corporation
                               Old Orchard Road
                               Armonk, N.Y. 10504   (US)

Representative :   de Pena, Alain
                               Compagnie IBM France
                               Département de Propriété Intellectuelle
                               F-06610 La Gaude   (FR)

Decision under appeal :   Decision of the Examining Division of the
                               European Patent Office dated 17 October 1991
                               refusing European patent application
                               No. 86 100 769.8 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman :   P.K.J. van den Berg
Members :   A.S. Clelland
                  F. Benussi

Summary of Facts and Submissions

I.   European patent application No. 86 100 769.8, filed on
      21 January 1986 claiming a priority of 21 February 1985
      and published under No. 0 192 066, was refused by a
      decision of the Examining Division dated 17 October 1991.

      The reason given for the refusal was that the subject-
      matter of Claims 1 and 2 filed on 17 January 1991 lacked
      an inventive step having regard to the following prior
      art documents

      D1:   IBM Technical Disclosure Bulletin, Vol.24, No.11B,
             April 1982, pages 5867, 5868, and

      D2:   EP-A-0 116 694.

II.   On 20 December 1991 the Applicant lodged an appeal
      against this decision and paid the prescribed appeal fee.
      On 25 February 1992 a statement setting out the Grounds
      of Appeal was filed, together with an auxiliary Claim 1.

      The Appellant's **main** request is the grant of a patent on
      the basis of the following documents:

      Claims: 1 and 2 as filed on 17 January 1991

      Description: Columns 1 to 9 as published

      Drawing: Figure 1 as published.

      In accordance with the auxiliary request the application
      consists of the description and drawing as indicated
      above, together with Claim 1 as filed on
      25 February 1992.

III. In a communication pursuant to Article 110(2) EPC dated
      24 July 1992, the Rapporteur expressed doubts as to
      whether the subject-matter of Claim 1 according to the
      main request was at an invention within the meaning of
      Article 52(1) EPC. It was further considered that, even
      if it were, there appeared to be no inventive step having
      regard to the disclosures of each of D1 and D2.

      The same considerations were said to apply to the
      auxiliary request.

IV.   Oral proceedings were held on 10 May 1993. The
      Appellant's representative did not attend, having
      previously announced by telefax of 6 May 1993 that he
      would not be doing so. The Board accordingly reached its
      decision in his absence.

V.   Claim 1 according to the **main request** reads:

      "A screen oriented process, in an open computer system
      including:

      an operating system, and
      a bus to which pluggable cards known as adapters may be
      connected,

      for configuring said operating system, including the
      steps of:

      initially creating device dependent information files for
      a plurality of device types consisting in a device
      attached to one of said adapters which may be installed
      in said computer system,

      installing said files into said computer system, and

responding to a user initiated configuration command by
prompting the user to enter one of a plurality of
commands including an add device command whereby said
user may specify which new device type he wants to
install in said computer system, and a change device
command whereby said user may specify which device type
already installed in said system he wants to change,

said process being characterized in that said device
dependent information files include adapter specific
information together with device specific information,
and that it further includes the steps of:

responding to the change device command by displaying the
device dependent information file for the device type
specified by the user so that said user has the option of
changing either or both the adapter specific information
and the device specific information in one step, and

passing the device dependent information as changed by
the user to said operating system."

VI.   Claim 1 according to the **auxiliary request** reads:

"A screen oriented process for configuring devices in an
open computer system including an operating system having
device drivers, each device which may be installed in the
system being connected to a bus in the computer system by
an adapter, wherein said operating system is run as a
virtual machine on a virtual resource manager and the
operating system has devices in the virtual resource
manager, said process including the steps of:

initially creating device dependent information files for
a plurality of devices and device types which may be
installed in said computer system,

installing said files into said computer system, and

responding to a user initiated configuration command by
prompting the user to enter one of a plurality of
commands including an add device command whereby said
user may specify which new device type he wants to
install in said computer system, and a change device
command whereby said user may specify which device type
already installed in said system he wants to change,

said process being characterized in that said device
dependent information files include adapter specific
information together with device specific information,
and that it further includes the steps of:

responding to the change device command by:

displaying the device dependent information file for the
device type specified by the user so that said user has
the option of changing either or both the adapter
specific information and the device specific information
in one step, .

responding to the add device command by:

displaying a list of predefined devices and adapters of
the device type specified by the user, and prompting the
user to choose one of the predefined devices and adapters
in the list,

after the user has chosen one of the predefined devices
and adapters from the list, asking the user if the device
dependent information file for the chosen predefined
device and adapter is to be displayed, and if so,

displaying the device dependent information file for the
chosen predefined device and adapter so that the user has

the option of modifying either or both the adapter
specific information and the device specific information
in one step, and

passing the device dependent information to the
appropriate device driver of said operating system,
determining whether the virtual resource manager device
dependent information has been changed, and if so,
passing the operating system device driver information to
the appropriate device driver, and

passing the virtual resource manager device driver
[information] to bind the operating system device driver
and the virtual resource manager device driver using the
device dependent information."

In response to the Board's communication the Appellant
acknowledged that the word "information" should be added
after "driver" in the last paragraph above.

VII.   The Appellant's arguments in support of the patentability
       of the subject-matter of Claim 1 can be summarised as
       follows.

       The invention is concerned with the installation of
       devices attached to adapters in an open computer system.
       In order to install a device, it is necessary to specify
       certain information about the device and the
       corresponding adapter and pass that information to the
       operating system. This is done by the user in accordance
       with the screen oriented process of Claim 1. The
       outstanding feature of the process is that the user
       always perceives the device dependent information and the
       adapter dependent information as a single entity.

       According to D2 only device dependent information has to
       be specified. This is because adapters would either be

fixed to the computer (in this case a main-frame) or comply with fixed requirements set by the system manufacturer, so that the operating system would be able to deduce automatically from a device definition the necessary adapter definition. D2 therefore does not suggest specifying both device and adapter specific information, and even less suggests doing it in such a way that the user perceives this information as a single entity.

Reasons for the Decision

1. The appeal is admissible.

2. <u>Admissibility of the amendments</u>

    The Board is satisfied that no subject-matter has been added to the application as filed, so that Article 123(2) EPC is complied with.

3. <u>Patentability (Article 52(2) EPC)</u>

3.1 The Board's communication raised the issue of whether the claimed screen oriented process of the main request is an invention within the meaning of Article 52 EPC. It was initially considered that although the overall effect of the process is the installation or modification of devices and adapters in a computer system, the problem to be solved is the absence of required information as to the adaptor characteristics and thus is essentially non-technical. Moreover, in order to obtain the required information to install the devices the user was said to play an important role. The user observes and makes choices based on the information content of previously inputted data, i.e. the device characteristics not known to the system. If the user were neglected, the effect of

the process would be limited to the storage and display
of data. It was considered that the difference from
prior art lay in the information content: the presence of
adapter-specific as opposed to device-specific
information.

3.2   In spite of these initial doubts, the Board concludes
       that the subject-matter of Claim 1 is not excluded under
       Article 52(2) EPC. The reasons for this view are as
       follows. It is clear that the installation or
       modification of devices and adapters' in a computer system
       is technical in nature in that the final result is a
       differently configured computer. Once the necessary
       hardware modifications have been made corresponding
       device and adapter information must be conveyed to the
       operating system. According to the jurisprudence of the
       Boards of Appeal it is not necessary that all the
       features of an invention be technical in nature, but a
       claim containing a mixture of technical and non-technical
       features must involve some contribution to the art in a
       field not excluded from patentability (see, for example,
       T 38/86, OJ EPO 1989, 384). Thus, it does not matter if
       features as **such** - for example the presentation of
       device and adapter specific information - are excluded
       from patentability, as long as they contribute in some
       way to a technical effect. In the present case, the
       process of passing device and adapter characteristics of
       the devices to be installed or modified to the operating
       system clearly contributes to the ultimate technical
       effect, namely an installed adapter and device.

       Thus the subject-matter of Claim 1 is not considered to
       fall within one of the exclusions of Article 52(2) EPC.

4.   Novelty

4.1   It is common ground that the single most relevant prior
       art document is D2, the first part of Claim 1 of the main
       request setting out the features which are known in
       combination from D2. This document discloses a screen
       oriented process for configuring an operating system of a
       computer system. A bus to which various devices may be
       connected is included in the computer system. A menu
       and/or screen presentation enables device definitions to
       be built, i.e. device dependent information files are
       created for a plurality of device types and installed
       into the computer system. In response to a user-initiated
       configuration command the user may choose between adding
       a device, in which case the user specifies the new device
       type to be installed, and changing a device, requiring
       the user to specify the installed device type to be
       changed.

4.2   In addition to the above-mentioned features of the claim
       preamble, D2 discloses displaying the device dependent
       information file for the device specified by the user so
       that he may change it, and thereafter passing the
       modified device dependent information to the operating
       system.

4.3   The following features of Claim 1 of the main request are
       not directly and unambiguously derivable from D2:

           the computer system with which the process is used is
           of the "open" kind, i.e. it does not have a
           proprietary bus and can be configured to the needs of
           the end user using peripheral devices from different
           manufacturers;

           the devices are attached to pluggable cards referred
           to as "adapters"; and

the device dependent information files include, in
addition to the device specific information, adapter
specific information, which may be changed by the
user.

The process of Claim 1 according to the **main request** is
accordingly new (Article 54 EPC).

4.4   Claim 1 according to the **auxiliary request** is more
limited than that of the main request. Its subject-matter
is thus also new.

5.   <u>Inventive step</u>

5.1   Main request

5.1.1   The features of Claim 1 not known from D2, see point 4.3
above, in essence specify that the process is usable in
an open computer system and that the user be given the
opportunity not only of changing the device-specific
information but also **adapter-specific** information,
which information is then passed to the operating system.
In the Grounds of Appeal the Appellant stresses the
importance of being able to define the adapter data. It
is stated that large data processing systems, such as
contemplated in D2, would be able to deduce from a device
definition the associated adapter definition, but in the
environment of the application - open computer systems
not having a proprietary bus - there is no way for the
system to deduce the adapter definition; this data must
be provided by the user.

5.1.2   This argument does not, in the Board's view, lead to the
conclusion that the claimed process involves an inventive
step. It indeed suggests the contrary: if a configuring
process for devices is known from D2 then the skilled
man, faced with the problem of additionally configuring

adapters in an open computer system, would have an
obvious solution by applying a similar process to the
adapters. From page 1, third paragraph of D2 it appears
that detailed source code statements have to be written
defining not only the device itself but also "the related
control units and channels to be affected by the device".
In other words, the necessary information has to be
supplied to the computer. If an open computer system
cannot by itself furnish the parameters of an adapter to
be installed in that the necessary code is not installed,
then it seems self-evident that the operator must provide
that information. The obvious way of doing so is in
conjunction with the device-specific information as in
D2.

5.1.3 The Board has considered if there might have existed a
prejudice against allowing a user to modify adapter
information. This does not however appear to be the case.
It is stated in the description (column 1) that "personal
computers have come into widespread use by a variety of
people" and that "a wide variety of peripheral devices
and device adapters are available". With the growing
number of peripherals it was clear that a computer
offering only a "limited selection" (description,
column 1, line 37) of devices and adapters was no longer
adequate. There was thus clearly no prejudice against
defining an adapter as well as a device.

The Board thus concludes that the subject-matter of
Claim 1 of the main request does not involve an inventive
step.

5.1.4 Claim 2 of the main request adds to Claim 1 details of
the "add-device" command. Since such a command is known
from D2 it follows that the above arguments on the
"change-device" command apply equally to Claim 2 and the
subject-matter of claim 2 also lacks an inventive step.

5.2   Auxiliary request

5.2.1 The Board infers from the discussion at column 9 of the published application that the Appellant accepts that at the priority date of the present application a system comprising an operating system run as a virtual machine (VM) on a virtual resource manager (VRM) was common general knowledge and that the use in such a system of a screen oriented process for configuring devices according to the first part of Claim 1 was also known. The claim specifies in its characterising part that parameters of devices and adapters be selectable in a process corresponding to that of the main request, with the additional feature that the device-dependent information be passed to the VM and, if necessary, to the VRM. The skilled man, familiar with the structure of a VM-based computer system, would be well aware of the requirements concerning device-specific and adapter-specific information. In particular, he would know that VRM device driver information is "adapter and hardware specific" (description, column 9, line 36) and would realise that, consequently, modifications would generally be made to both and would have to be notified to the VRM.

5.2.2 Since the subject-matter of the main request is considered to lack an inventive step it follows that the application of this subject-matter to a VM-based system must also lack an inventive step.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Kiehl   P.K.J. van den Berg