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**Datasheet for the decision  
of 6 September 2022**

**Case Number:** T 0899/20 - 3.5.05

**Application Number:** 11874761.7

**Publication Number:** 2771785

**IPC:** G06F12/02, G06F9/44

**Language of the proceedings:** EN

**Title of invention:**

LOAD BOOT DATA

**Applicant:**

Hewlett-Packard Development Company, L.P.

**Headword:**

Fast booting from solid-state memory while redundant boot data is stored on a hard-disk

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

Inventive step - main request (yes)



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Case Number: T 0899/20 - 3.5.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.05**  
**of 6 September 2022**

**Appellant:** Hewlett-Packard Development Company, L.P.  
(Applicant) 10300 Energy Drive  
Spring TX 77389 (US)

**Representative:** Liesegang, Eva  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 25 November  
2019 refusing European patent application No.  
11874761.7 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** N. H. Uhlmann  
**Members:** P. Tabery  
F. Blumer

## Summary of Facts and Submissions

- I. The appeal is directed against the examining division's decision to refuse the European patent application.
- II. The examining division decided that the application, according to both the main and auxiliary requests, did not meet the requirements of Article 56 EPC.
- III. The documents referred to by the examining division included:
- D1** US 2004/0064647 A1
- D3** US 2004/0199825 A1
- IV. In the statement of grounds of appeal, the appellant requested that the decision of the examining division be set aside and that a patent be granted on the basis of the claims of either a main request or an auxiliary request, copies of both requests being submitted with the statement setting out the grounds of appeal. In the event of neither of the requests being found to be allowable, oral proceedings were requested.
- V. **Claim 1** of the **main request** reads as follows:
- A method (300) for memory allocation, comprising:
- loading (310) boot data from a first portion (142) of a first non-volatile memory (140) to complete a first booting of a device (150), wherein the first non-volatile memory (140) is a solid-state drive;
- storing (320) the boot data to a second non-volatile memory (160), wherein the second non-volatile memory (160) is a hard-disk drive;

after the storing (320), releasing (330) the first portion (142) of the first non-volatile memory (140) to allow the device (150) to overwrite the first portion (142);

writing (350) the boot data from the second non-volatile memory (160) to the first non-volatile memory (140) before the device (150) enters a reduced power state, wherein

the written boot data is to be loaded from the first non-volatile memory (140) to complete a second booting of the device (150), if the second booting is initiated;

retaining a copy of the boot data at the second non-volatile memory (160);

storing, on the first non-volatile memory (140), an address location of the copy of the boot data at the second non-volatile memory (160); and

loading (390) the boot data from the second non-volatile memory (160) if the boot data cannot be loaded from the first non-volatile memory (140) to complete at least one of the first and second booting, wherein the boot data is loadable faster from the first non-volatile memory (140) than the second non-volatile memory (160).

Independent **claims 6 and 9** are directed to a corresponding device and to a corresponding machine-readable storage medium, respectively.

VI. The wording of the claims of the **auxiliary request** is not relevant to the board's decision.

## Reasons for the Decision

1. The present application concerns the quick re-booting of a computer by storing boot data on a solid-state memory.

2. Main request

2.1 Novelty (Article 54(1) EPC)

In the decision under appeal, the examining division held that the subject-matter of claim 1 differed from what was disclosed by document **D1** in the steps of:

"storing on the first non-volatile memory an address location of the copy of the boot data at the second non-volatile memory; and

loading the boot data from the second non-volatile memory if the boot data cannot be loaded from the first non-volatile memory to complete at least one of the first and second booting."

The appellant agreed with the above differences and submitted that the subject-matter of claim 1 of the main request differed from **D1** in further distinguishing features.

The board thus holds that the subject-matter of **claim 1** is novel over the disclosure of document **D1** at least with regard to the differences identified by the examining division.

2.2 Inventive step (Article 56 EPC)

In the impugned decision, the examining division held that the distinguishing features achieved the technical

effect of providing a redundant booting means for a computer device. The objective technical problem was regarded as ensuring the bootability of the computer system. The examining division considered that it was an obvious solution to this problem to provide redundant booting means, see e.g. document **D3**, paragraphs [0026] and [0031]. With regard to storage address, the examining division stated that storing at one non-volatile memory an address location to identify a location of the copy of the boot data at another non-volatile memory was considered merely one of several straightforward possibilities for identifying the valid starting address of the boot data.

The appellant submitted that the objective technical problem to be solved might be formulated as enabling fast booting while maintaining an additional secure booting measure. This was not obvious in view of the combination of the teachings from documents **D1** and **D3**. Notably, document **D3** did not mention storing, on the first memory location, any information about the storage address of the boot data on the second memory location. Furthermore, document **D1** taught the distribution of the configuration data among the non-volatile memory and the hard disk drive in a complementary manner. In contrast, document **D3** related to providing an exact copy of the configuration data to both the non-volatile memory and the hard disk drive. Hence, the skilled person would not have considered a combination of the teachings from documents **D1** and **D3** in the first place.

The board finds the appellant's arguments to be convincing. In particular, document **D3** discloses in paragraphs [0026] to [0028] in combination with Fig. 1 that the switching between two memories (or memory locations) is performed using a circuit which is not

part of either of these two memories. Furthermore, since the purpose of the solution according to document **D3** is to mitigate a failure of one memory location, the board is of the opinion that the skilled person would not consider integrating any part of the selection mechanism, i.e. the storage address of the boot data on the second memory location, in the first memory. Hence, document **D3** teaches away from this distinguishing feature. Thus, the board is of the opinion that at least the step of *"storing on the first non-volatile memory an address location of the copy of the boot data at the second non-volatile memory"* is not rendered obvious by the prior art at hand.

Consequently, the board considers that the subject-matter of **claim 1** of the **main request** is not rendered obvious by the disclosure of document **D1** in combination with common knowledge known, for example, from document **D3**.

Similar considerations apply to the further independent claims.

2.3 In view of the above, the **main request** is allowable.

3. Consequently, the appeal is allowable.

## Order

### For these reasons it is decided that:

The decision under appeal is set aside.

The case is remitted to the examining division with an order to grant a patent with the claims of the main request as filed with the statement setting out the grounds of appeal and a description and drawings to be adapted thereto.

The Registrar:

The Chairman:



K. Götz-Wein

N. H. Uhlmann

Decision electronically authenticated