BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

Datasheet for the decision of 18 January 2008

Case Number: T 0265/05 - 3.5.01

Application Number: 00101832.4

Publication Number: 1004956

IPC: G06F 1/04, G06F 1/12, G06F 13/00, G06F 13/16, G06F 13/36, G06F 13/38, G11C 7/00, G11C 8/00, G11C 8/04, G11C 11/401, H03K 19/003

Language of the proceedings: EN

Title of invention:
Method of operating a synchronous memory having a variable data output length

Patentee:
RAMBUS INC.

Opponents:
Opponent 01: MICRON EUROPE Ltd et al.
Opponent 02: Hynix Semiconductor Deutschland GmbH
Opponent 03: MICRON Semiconductor Deutschland GmbH
Opponent 04: Infineon Technologies AG

Headword:
Operating a synchronous memory/RAMBUS

Relevant legal provisions:
EPC Art. 123(2)

Relevant legal provisions (EPC 1973):
EPC Art. 76(1), 84, 100, 111(1)

Keyword:
"Amendment of patent containing subject-matter extending beyond the content of the parent application as filed (allowed)"
"Remittal (no)"
"Inventive step (yes - as amended)"

Decisions cited:
G 0001/05, T 0687/05

Catchword:
See points 3.1 to 3.3 of the Reasons

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0265/05 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 18 January 2008

Appellant: (Patent Proprietor)
RAMBUS INC.
4440 El Camino Real
Los Altos,
California 94022 (US)

Representative:
Eisenführ, Speiser & Partner
Patentanwälte Rechtsanwälte
Postfach 10 60 78
28060 Bremen (DE)

Respondents:

Opponent 01:
MICRON EUROPE Ltd
Micron House,
Wellington Business Park
Dukes Ride
Crowthorne,
Berkshire RG45 6LS (GB)

MICRON TECHNOLOGY ITALIA, S.R.L.
Via Antonia Pacinotti 5/7,
Nucleo Industrial (AQ),
Building #2
67051 Avezzano (AQ) (IT)

Representative:
Tunstall, Christopher Stephen
Carpmaels & Ransford
43-45 Bloomsbury Square
London WC1A 2RA (GB)

Opponent 02:
Hynix Semiconductor Deutschland GmbH
Frankfurter Strasse 107
65479 Raunheim (DE)

Representative:
Urner, Peter et al.
TER MEER STEINMEISTER & PARTNER GbR
Patentanwälte
Mauerkircherstrasse 45
81679 München (DE)

Opponent 03: MICRON Semiconductor
Deutschland GmbH
Sternstr. 20
85609 Aschheim (DE)

Representative: Lang, Johannes
Bardehle Pagenberg Dost
Altenburg Geissler
Postfach 86 06 20
81633 München (DE)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 9 February 2005 revoking European Patent No. 1004956 pursuant to Article 102(1) EPC 1973.**

Composition of the Board:

Chairman: S. Steinbrener
Members: S. Wibergh
G. Weiss

Summary of Facts and Submissions

I. This is an appeal by the patent proprietor against the decision of the opposition division to revoke European patent No. 1 004 956.

II. The patent-in-suit was granted on the basis of an application that was a divisional of application EP-A-0 525 068 (published as WO-A-91/16680). According to the decision under appeal, the patent-in-suit contained subject-matter extending beyond the content of the parent application as filed (Articles 100(c) and 76(1) EPC 1973). In a section headed "Comments" the opposition division, referring to three documents cited by the opponents:

D46: US-A-4 480 307
D50: Intel Application Note AP-132, June 1982
D54: WO-A-89/06013,

furthermore stated that it was of the opinion that even if claim 1 were amended to overcome all objections under Article 76(1) EPC 1973 its subject-matter would not involve an inventive step over the cited prior art (Articles 100(a) and 56 EPC 1973).

III. Claim 1 as granted reads:

"A method of operation of a semiconductor memory device, the semiconductor memory device having at least one memory array which includes a plurality of memory cells, the method comprising:
receiving an external clock signal having a fixed frequency;

receiving block size information, wherein the block size information defines an amount of data to be output onto an external bus in response to a read request; and outputting the amount of data corresponding to the block size information, in response to a read request, synchronously with respect to the external clock signal".

IV. In the statement setting out the grounds of appeal, dated 16 June 2005, the appellant requested that the patent be maintained as granted or in accordance with one of seven auxiliary requests filed together with the grounds, these requests more or less corresponding to auxiliary requests already presented but then withdrawn during first instance proceedings. It was argued that a skilled person reading the parent application as filed would understand that the present invention involved an independent inventive concept that deserved a broad scope of protection.

V. In reply, respondents 01, 02 and 03 requested that the appeal be dismissed (opponent O4 had withdrawn its opposition on 23 March 2005). It was *inter alia* argued that a putative divisional application that contains added subject-matter is not a divisional application and cannot later be turned into one (see eg letter of respondent 01 dated 22 December 2005 at point 1.6.8.5). The Board's attention was drawn to case G 1/05 pending before the Enlarged Board of Appeal, where the Enlarged Board had in particular to decide whether a divisional application that does not meet the requirements of Article 76(1) EPC 1973 because, at its actual filing date, it extends beyond the content of the parent application, can be amended later in order to make it a

valid divisional application. The Board was urged also to refer the case to the Enlarged Board of Appeal for a proper interpretation of Article 76 EPC 1973 under the present circumstances. Moreover, the issue of admissibility of the auxiliary requests was raised by respondent 01.

VI. In a communication dated 1 February 2006 the Board stated that the point of law concerned substantially coincided with the questions already pending before the Enlarged Board of Appeal and that a referral would only be admissible if it was established that subject-matter had actually been added, an issue which in view of the parties' requests could not be decided without oral proceedings. However, if oral proceedings were held and it turned out that the question before the Enlarged Board of Appeal was indeed relevant, the proceedings would have to be stayed and second oral proceedings might be required after the decision of the Enlarged Board had become available. Such a course of action was undesirable for reasons of procedural economy. It therefore appeared that prosecution of the case should be suspended until case G 1/05 had been decided. The parties' interests were intended to be safeguarded by Article 11b RPEBA (OJ EPO 2003,58), which stated that written statements might be sent to, and taken into account by, the Enlarged Board.

The Board furthermore noted that since the minutes of the oral proceedings before the opposition division indicated that only the grounds of opposition mentioned in Article 100(c) EPC 1973 had been discussed, examination of the appeal would normally be limited to the grounds on which the decision was based.

VII. All four parties disagreed with the Board's intention to await the decision of the Enlarged Board of Appeal. The respondents requested that the present case also be referred whereas the appellant asked for oral proceedings to be appointed. Nevertheless, on 19 April 2006 the Board suspended the proceedings for the reasons indicated.

VIII. On 28 June 2007 the Enlarged Board of Appeal handed down the decision in the case G 1/05. On 19 July 2007 the Board summoned the parties to oral proceedings, with a communication following on 11 September 2007. The Board, noting *inter alia* that the appellants had presented and subsequently withdrawn a total of twenty-two auxiliary requests during the proceedings before the opposition division, referred to Article 10a(4) in the then version of RPBA (Article 12(4) of the current version) and observed that it might be inappropriate at the appeal stage to consider at least those of the present auxiliary requests which the appellant had stated were based on the last claim submitted and withdrawn during the first-instance proceedings.

IX. By letter dated 14 December 2007 the appellant filed a new claim as eighth auxiliary request. It was based on claims 25, 26, 28 and 38 of the original parent application.

X. Oral proceedings were held on 16 to 18 January 2008. The admissibility of the appellant's requests under Article 12(4) RPBA and/or Article 76(1) EPC 1973 was discussed with the parties. When the Board indicated that in its view the sixth auxiliary request was not to

be admitted into the appeal proceedings, and that of the remaining requests only the combination of features claimed by the eighth auxiliary request might be supported by the original disclosure and thus serve as a basis for an admissible claim, the appellant withdrew all requests except the eighth auxiliary request. An amended version of the single claim of this request was filed at the oral proceedings. It read as follows:

"A method of operation of a semiconductor memory device (13) within a bus subsystem, said bus subsystem comprising two semiconductor devices (11,13) connected in parallel to a bus, wherein one of said semiconductor devices (11) is a master device and the other is said semiconductor memory device (13),

said bus (18) including a plurality of bus lines for carrying substantially all address, data and control information needed by said devices (11,13), said control information including device-select information, said bus (18) containing substantially fewer lines than the number of bits in a single address, and said bus (18) carrying device-select information without the need for separate device-select lines connected directly to individual devices on said bus,

said memory device (13) having at least one discrete memory section that includes at least one memory array which includes a plurality of memory cells, said semiconductor memory device further having a modifiable address register adapted to store memory address information which corresponds to each said discrete memory section,

said master device including a means for initiating bus transactions, whereby said master device initiates bus

transactions which transfer information between said semiconductor devices (11,13) on said bus (18),
said means for initiating bus transactions further including a means for said master device to request said semiconductor memory device (13) to prepare for a bus transaction by sending a request packet (22) along said bus (18), said semiconductor memory device (13) and said master device each having a device-internal means to prepare to begin said bus transaction during a device-internal phase and further having a bus access means to effect said bus transaction during a bus access phase, said request packet (22) including a sequence of bytes containing address and control information, said control information including information about the requested bus transaction and about an access time, which corresponds to a number of bus cycles, which needs to intervene before beginning said bus-access phase, and said address information pointing to at least one memory location within said discrete memory section of said memory device (13), said control information further including a block-size value that encodes and specifies the size of a block of data to be transferred,
the method comprising:
receiving an external clock signal having a fixed frequency;
receiving a read request packet from the master device via the bus (18), the read request packet including said block-size value that defines an amount of data to be output onto said bus (18); and, in response to the read request packet, outputting the amount of data corresponding to said block size value, synchronously with respect to the external clock signal, wherein the amount of data is output after the number of bus cycles

indicated by the information about the access time included in the read request packet, so that the read request packet and the corresponding response are separated by the number of bus cycles".

XI. After a final discussion of this request, the respondents maintained that the claim contained added subject-matter (Article 76(1) EPC 1973) and was not clear (Article 84 EPC 1973). However, they withdrew all objections under Article 100(a) EPC 1973 (with respect to novelty and inventive step) and declared that they were firmly against a remittal of the case. In view of the age of the patent and in the interest of legal certainty the Board should take a final decision.

XII. The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claim of the sole request together with the description and drawings as granted.

XIII. Respondents 01 to 03 requested that the appeal be dismissed.

XIV. At the end of the oral proceedings the Board announced its decision.

Reasons for the Decision

1. Added subject-matter

1.1 The oppositions were filed in particular on the ground that the patent as granted contained subject-matter which extended beyond the content of the parent

application as filed (Articles 100(c) and 76(1) EPC 1973). In order to overcome these objections the appellant has amended the independent claim. The Board must therefore first consider the question whether a patent granted on a divisional application may be amended for this purpose.

1.2 The Enlarged Board of Appeal decided in the case G 1/05 - Divisional/ASTROPOWER (to be published in OJ EPO) that a divisional application which at its actual date of filing contains subject-matter extending beyond the content of the parent application as filed can be amended later in order that its subject-matter no longer so extends (cf the order). In arriving at this finding, the Enlarged Board of Appeal in particular relied on a direct correspondence between Article 76(1) and Article 123(2) EPC 1973, both Articles enshrining the same principles (points 5.1 to 5.4).

Pursuant to Article 123(2) EPC a European patent application or a European patent may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. The present Board observes that, since Article 123(2) EPC applies to both patent applications and patents, there seems to be no reason why the finding in G 1/05 should not apply also to opposed patents. This view is in line with the decision in case T 687/05 (not published in OJ EPO), where the deciding board, noting that anything disclosed in a patent granted on the basis of a divisional application must be derivable from the parent (and any grandparent) application as filed (point 3.1), allowed amendments of a patent in order to overcome this kind of objection (point 1).

In fact, at the oral proceedings before the Board the respondents did no longer deny that it was admissible to amend the patent-in-suit with a view to eliminating subject-matter added with respect to the parent application. They were however of the opinion that the amendments proposed by the appellant were insufficient, as set out in the following paragraphs.

1.3 First, the respondents have argued that the present claim did not exclude the possibility that all or some write request packets were treated differently from the read request packets. According to the description not only the read request packets but also the write request packets included a block-size value that defined the amount of data to be transferred and to which the semiconductor memory responded. If this were not the case the aim of avoiding collisions on the bus could not be achieved. The claim was however silent on how information was written into the semiconductor memory device.

The appellant's view was instead that the claim's restriction to reading operations was a mere limitation compared with the described embodiment. It was possible to claim only the reading operations since these were separate from the writing operations.

The Board agrees with the respondents that if the possibility that write request packets are differently processed than read request packets were now claimed, subject-matter would indeed have been added. In the Board's view, however, the claim does not fairly allow such a reading. It mentions "bus transactions which

transfer information between said semiconductor devices (11,13) on said bus (18)". "Transactions", as this word is consistently used in the patent, includes both reading and writing operations. By the same token, "request packet" covers both write request packets and read request packets. It is therefore clear from the claim that the system on which the method is performed must use write request packets containing a block-size value. Furthermore, reading operations are independent of writing operations in the sense that all requests on the bus are separated in time, as the appellant has pointed out. The claimed subject-matter is thus derivable from the parent application.

Moreover, even if it is true that the claim does not expressly exclude the possibility that all or some writing operations are performed in a different way than the reading operations, nor does it expressly exclude the existence of some reading operations that are performed differently. In fact, any claim can always be thought of as encompassing an infinite number of undisclosed embodiments. Determining what features must be included in a claim in order to restrict its ambit to what has actually been invented is thus a question of degree, and in the present case the Board judges that the claim contains sufficient limitations with regard to the block-size value.

1.4 Secondly, the respondents have argued that the feature concerning the "external clock signal having a fixed frequency", present in claim 1 as granted, cannot appear in the amended claim in this short form. Original dependent claim 38 (including original claims 25, 26 and 28), which forms the basis for the present

claim, contains no clock feature at all whereas the description refers to a very particular clocking circuit (see fig.8 and associated text of the parent application). The present claim would therefore constitute an inadmissible intermediate generalisation.

The Board cannot agree with this argumentation either. It is true that the parent application described a specific clocking method as a suitable possibility for high-frequency operation of the bus (see eg p.46, l.20 to 23 of the parent application). A bus subsystem comprising such a clock generator was claimed in original independent claim 73. Original claim 38, however, did not mention any clock signal, thus allowing the use of conventional clocking schemes. This is supported by the fact that in accordance with the original disclosure the described clock circuit is provided to permit high speed clock signals to be sent along the bus with minimal clock skew between devices (see p.6, l.13 to 15 of the parent application), ie relates to improving the operation of the bus subsystem in a particular situation. The claim however is not limited to any particular speed. The specific features of the described clock generator hence need not be included in the claim.

1.5 It follows that the amendments made to claim 1 do not contravene Article 76(1) EPC 1973. Nor do they contravene Article 123(2) EPC since the divisional application as filed contained all the subject-matter of the parent application.

2. Clarity

2.1 The respondents raised a number of clarity objections against the present claim. In particular, it was regarded as obscure that the block-size value at one instance in the claim "encodes and specifies" the size of a block and at another instance "defines" an amount of data. This seems however to be a mere stylistic variation that cannot conceivably lead to misunderstandings. Furthermore, it was objected that the feature "means for said master device to request said semiconductor memory device (13) to prepare for a bus transaction by sending a request packet" should also be included in the form of a method step. The Board is however of the opinion that in a claim for a method of operation of a memory device (and not of a master device) it is sufficient to state that means having the indicated function are present.

2.2 Thus, the Board holds that the claim is sufficiently clear in the sense of Article 84 EPC 1973.

3. Remittal, novelty and inventive step

3.1 At the oral proceedings before the Board all respondents withdrew their objections under Article 100(a) EPC 1973 and urged the Board to decide the case without remittal to the first instance for further prosecution.

3.2 When exercising its discretion under Article 111(1) EPC 1973 either to decide or to remit the case, the Board should take account of its particular circumstances and the parties' wishes. The parent

application was filed already in 1991, the patent for the present divisional was then granted in 2001. The opposition proceedings were terminated after four years by a two days' hearing before the opposition division. The present state in appeal proceedings was reached after a three days' hearing before the Board, in both proceedings the focus was on added subject-matter only. Hence, the case until now required a great deal of effort from the parties, so that their common wish for an immediate final decision is understandable.

Moreover, as mentioned above the respondents did not raise any objections with respect to novelty or inventive step against the newly amended claim so that they apparently accepted, or no longer felt affected by, the claimed subject-matter in substantive respect. Thus, either the Board, or - after a possible remittal - the opposition division would have to carry out any further examination of its own motion without participation of the respondents. Under these circumstances, the only compelling reason the Board can see for not allowing the request immediately itself would be a situation of *prima facie* lack of patentability based on available information, or a situation of fundamental uncertainty because of lack of information, in particular if further preparatory work by the first instance appeared necessary to safeguard the interests of the public.

3.3 This is however not the case. The subject-matter of claim 1 has been limited considerably. The claimed feature combination was not present in any of the granted claims but has been taken from an original claim and the description. It now defines in some detail the system on which the claimed method is

performed, including several bus features, a modifiable address register, request packets and control information including information about an access time. Although at least some of these features were known as such at the date of priority, as acknowledged in the description, novelty is not an issue and it cannot be concluded that the combination of features was straight forward having regard to the prior art considered by the opposition division in its "Comments". It is therefore not to be expected that a remittal would lead to any amendment to the patent in its present form, let alone to its revocation. For this reason, and taking particular account of the fact that all parties wish the proceedings to be concluded without further delay, the Board chooses to exercise its discretion under Article 111(1) EPC 1973 to decide the case itself.

3.4 Since there are no further objections against the patent, the Board decides to maintain it as amended in the oral proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent as amended on the basis of the following documents:

   Claims:
   Single claim as filed at the oral proceedings

   Description and drawings:
   as granted.

The Registrar: The Chairman:

T. Buschek S. Steinbrener