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SAN JOSE

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11 UNITED STATES DISTRICT COURT  
12 NORTHERN DISTRICT OF CALIFORNIA  
13 SAN JOSE DIVISION

15 HYNIX SEMICONDUCTOR INC.,  
HYNIX SEMICONDUCTOR AMERICA  
16 INC., HYNIX SEMICONDUCTOR U.K.  
LTD., and HYNIX SEMICONDUCTOR  
17 DEUTSCHLAND GmbH,

CASE NO. CV 00-20905 RMW

**REPLY IN SUPPORT OF RAMBUS'S  
MOTION FOR SUMMARY JUDGMENT  
OF INFRINGEMENT**

18 Plaintiffs,

19 vs.

**Date: March 23, 2004**  
**Time: 9:00 a.m.**  
**Ctrm: 6 (Hon. Ronald M. Whyte)**

20 RAMBUS INC.,  
21 Defendant.

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1 I. INTRODUCTION

2 Hynix does not dispute that the accused SDRAM and DDR SDRAM devices  
3 operate as described in Rambus's motion for summary judgment. Hynix's opposition to this  
4 motion instead rests entirely on the assertion that the accused devices do not satisfy four claim  
5 terms, namely, "device," "operation code," "block size information," and "read request." (Two or  
6 more of these terms appear in each of the claims at issue on this motion.)

7 **"Device" and "Operation Code."** Hynix's arguments as to these two terms are  
8 based entirely on Hynix's proposed constructions of those terms. Those constructions are  
9 untenable, for reasons set forth in Rambus's claim construction briefing and summarized briefly  
10 below. Specifically, Hynix's constructions of these terms improperly attempt to restrict  
11 Rambus's claims to preferred embodiments in the specification. Hynix's approach is contrary to  
12 patent principles generally; in the case of "device," Hynix's position directly contradicts the  
13 Federal Circuit's opinion in *Rambus v. Infineon*, and is unsustainable on that basis as well. Hynix  
14 has no additional noninfringement arguments with respect to the terms "device" and "operation  
15 code." In the case of the '020 patent, this ends the analysis, because the other two terms at issue  
16 ("block size information" and "read request") do *not* appear in the claims of the '020 patent.  
17 Accordingly, if the Court rejects Hynix's proposed constructions of "device" and "operation  
18 code," Rambus's motion for summary judgment of infringement with respect to claims 31, 32,  
19 35, 36, 38 of the '020 patent can and should be granted without further inquiry.

20 **"Block Size Information" and "Read Request."** Hynix's noninfringement  
21 arguments regarding these two claim terms are not based on Hynix's proposed claim  
22 constructions but nevertheless are without merit. Regarding "block size information," Hynix  
23 relies primarily on the same arguments that it raises in its motion for summary judgment of  
24 noninfringement in connection with that term; Rambus has addressed those arguments in detail in  
25 its opposition to Hynix's summary judgment motion and has shown that Hynix's noninfringement  
26 arguments are meritless *regardless* of which party's proposed claim construction is accepted.  
27 Regarding "read request," Hynix interprets the Federal Circuit's construction of the term in a way  
28 which, if accepted, would result in excluding not only its own devices from coverage, but also a

1 preferred embodiment disclosed in the specification. Such an interpretation is disfavored as a  
2 general rule, and it is doubly invalid here because the Federal Circuit expressly considered the  
3 example of a “read request” in that preferred embodiment in construing the claim term. The  
4 Federal Circuit’s construction simply cannot be read in the way that Hynix would like in order to  
5 escape infringement. Because Hynix’s arguments regarding “block size information” and “read  
6 request” have no merit, the Court should also grant summary judgment of infringement with  
7 respect to the claims of the ’263, ’195, ’918, ’120, ’863 and ’916 patents raised in Rambus’s  
8 motion.

## 9 II. ARGUMENT

10 Hynix’s noninfringement arguments relate to four terms that appear in various  
11 asserted claims. These four terms – “device,” “operation code,” “block size information,” and  
12 “read request” – are addressed below.

### 13 A. Device

14 Hynix repeats its argument (from its noninfringement summary judgment motion)  
15 that the accused devices do not contain various limitations in Hynix’s proposed construction of  
16 “device.” As Rambus has explained previously, Hynix’s products infringe, either literally or  
17 under the doctrine of equivalents, even under Hynix’s proposed construction of “device.” See  
18 Rambus’s Opposition to Hynix’s Motion for Summary Judgment Of Noninfringement Under  
19 Hynix’s Proposed Construction of the Term “Device,” at 3-5. That analysis applies equally here.

20 First and foremost, however, the Court should reject Hynix’s proposed  
21 construction of device as a misguided attempt to restrict all of Rambus’s claims in all of the  
22 patents-in-suit to a single preferred bus architecture described in the specification; this is directly  
23 contrary to the Federal Circuit’s opinion in *Rambus v. Infineon*. As set forth in Rambus’s claim  
24 construction briefing, the Federal Circuit not only made clear that Rambus’s claims were not  
25 restricted to the preferred bus architecture in the specification, but actually construed the term  
26 “integrated circuit device” in a way that cannot be reconciled with Hynix’s proposed construction  
27 of “device.” Rambus’s Opening Claim Construction Brief, at 12-14; Rambus’s Reply Claim  
28

1 Construction Brief, at 2-4. Hynix has no noninfringement argument with respect to the term  
2 “device” if its proposed construction is not accepted.

3 **B. Operation Code**

4 As with its argument with respect to the term “device,” Hynix’s noninfringement  
5 argument with respect to the term “operation code” is based entirely on Hynix’s proposed  
6 construction of that term. As set forth in Rambus’s opposition to Hynix’s motion of summary  
7 judgment with respect to the term “operation code,” Hynix’s devices infringe the asserted claims  
8 involving that term even under Hynix’s proposed construction. Rambus’s Opposition to Hynix’s  
9 Motion for Summary Judgment of Noninfringement Under Hynix’s Proposed Construction of  
10 “Operation Code,” at 2-4. In any event, the Court should reject Hynix’s baseless attempt to  
11 restrict the plain meaning of the term “operation code;” Hynix’s proposed construction, an *ad*  
12 *hoc* combination of the particular means of transmitting an operation code in a preferred  
13 embodiment in the specification with a definition of the term in an unrelated context, is simply an  
14 (unsuccessful) attempt to avoid infringement. Rambus’s Opening Claim Construction Brief, at  
15 16-17; Rambus’s Reply Claim Construction Brief, at 6-7. Hynix has no noninfringement  
16 argument based on “operation code” absent its proposed construction of that term.

17 **C. Block Size Information**

18 Hynix’s arguments that the accused devices do not infringe asserted claims that  
19 include the term “block size information” largely track the arguments made in its summary  
20 judgment motion of noninfringement with respect to that term. As set forth in Rambus’s  
21 opposition to Hynix’s noninfringement motion, Hynix’s arguments in that motion cannot succeed.  
22 Rambus’s Opposition to Hynix’s Motion for Summary Judgment of Noninfringement Under  
23 Proposed Constructions of “Block Size Information.”

24 To supplement its earlier arguments, Hynix now cites to testimony from one of the  
25 inventors, Michael Farmwald, explaining that, in a preferred embodiment in the specification,  
26 block size information is contained in each request packet and specifies the amount of data to be  
27 output in response to the request. Opp. at 7-8. Hynix argues that, by contrast, in its devices,  
28 “burst length” is fixed at initialization and is not specified on a request-by-request basis.

5  
1 As an initial matter, Hynix overstates the difference between its devices and the  
2 preferred embodiment: even in Hynix's devices, burst length can be changed after initialization  
3 by simply writing a new value in the mode register. See Declaration of Peter A. Detre in Support  
4 of Rambus's Motion for Summary Judgment of Infringement ("Detre Decl."), Ex. C (DDR Data  
5 Sheet) at 20 (indicating that information can be written into the mode register using a Mode  
6 Register Set (MRS) command and can be "reset[] by another MRS command"). More  
7 importantly, while Hynix purports to have identified this asserted difference between the  
8 operation of its devices and a preferred embodiment in the patent specification, it has provided  
9 absolutely no explanation of what, if anything, this asserted difference, even if it existed, would  
10 have to do with infringement of the asserted claims involving "block size information." In fact,  
11 the alleged difference is entirely irrelevant – the asserted claims simply require that the memory  
12 device "receiv[e]" block size information representing an amount of data to be output by the  
13 memory device, see, e.g., '120 patent, claim 1, which Hynix's devices undisputedly do, regardless  
14 of whether or not they receive the block size information on a request-by-request basis.

15 **D. Read Request**

16 It is undisputed that Hynix's accused products are memory devices that receive  
17 requests to provide data, requests that one would naturally call "read requests," and output data in  
18 response. Hynix's arguments that its products do not actually receive a "read request" as that  
19 term has been construed by the Federal Circuit – "a series of bits used to request a read of data  
20 from a memory device where the request identifies what type of read to perform" – rely on  
21 twisting the clear meaning of that construction in two ways, neither of which has any basis in, and  
22 each of which is actually at odds with, the Federal Circuit's opinion:

- 23 • First, although its data sheets clearly identify two types of reads, "read"  
24 and "read with autoprecharge," Hynix insists that these are not really  
25 different "types" within the meaning of the Federal Circuit's construction.
- 26 • Second, Hynix interprets "series of bits" as a *time* series and argues that its  
27 devices do not infringe because the series of bits that make up a read  
28 request in Hynix's devices are received simultaneously.

6  
1 Hynix's two arguments regarding "read request" are meritless, as set forth below.  
2 In fact, both arguments would result in excluding from claim coverage the very preferred  
3 embodiment in the specification that the Federal Circuit relied on for guidance in construing the  
4 term.

5 **1. Hynix's Devices Perform Two "Types" of Reads**

6 **a. The Federal Circuit made clear that read operations**  
7 **corresponding to the accused devices' "read" and "read with**  
8 **autoprecharge" are "types" of reads.**

9 Hynix's argument that "read" and "read with autoprecharge" are not two types of  
10 reads begins by mischaracterizing the Federal Circuit's opinion. According to Hynix, "[i]n the  
11 inventions claimed by the Rambus patents, and as reflected in the Federal Circuit's opinion, the  
12 'type of read' refers to either a page mode or normal mode read."<sup>1</sup> Opp. at 10. To the contrary,  
13 as a portion of the actual opinion quoted by Hynix shows, page mode and normal mode are  
14 simply *examples* that the court used to illustrate what it meant by a type of read: "The  
15 specification merely indicates that the 'read request' requests data from a memory device and  
16 specifies what type of read (*e.g.*, page mode, normal mode, *etc.*) to perform." *Id.* (quoting  
17 *Infineon*, 318 F.3d at 1093 (emphases added)). As described in detail below, other "types" of  
18 reads disclosed in the specification and subsumed within the court's use of "e.g." and "etc."  
19 include reading with or without precharging and, therefore, correspond precisely to "read" and  
20 "read with autoprecharge" in the accused devices.

21 Thus, Hynix's interpretation of the Federal Circuit's construction of "read request"  
22 would have the effect of excluding the preferred embodiment in the patent specification. Such an  
23 interpretation is generally disfavored. *See, e.g., Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336,  
24 1342 ("a claim construction that would exclude the preferred embodiment is rarely, if ever,  
25 correct and would require highly persuasive evidentiary support") (internal quotation marks and  
26 citation omitted). Moreover, in this case, Hynix's interpretation *cannot* be correct because, as set

27 <sup>1</sup> To perform a read or write access in a DRAM, a row must be first be "activated;" data can then  
28 be read from, or written to, specific columns where they intersect the active row. A "page mode"  
access refers to an access to a row in a DRAM that is already active as a result of a previous  
access; a "normal mode" access refers to an access to a row that has not been activated.

1 forth below, the Federal Circuit expressly used the example of a read request in the preferred  
2 embodiment as guidance in construing the term. In its opinion, the court noted the parties'  
3 respective positions: Infineon asserted that a "read request" must include address and control  
4 information as shown in a "request packet" in the specification; Rambus asserted that, in a  
5 preferred embodiment, a "read request" corresponds only to the first four bits of such a request  
6 packet, designated as the "AccessType" field. *Rambus Inc. v. Infineon Technologies AG*, 318  
7 F.3d 1081, 1091-1092 (Fed. Cir. 2003). The court ultimately sided with Rambus, holding that a  
8 "read request," as used in the specification, was not coextensive with a "request packet" and,  
9 therefore, need not include address and control information, such as block size, that is not  
10 included in the AccessType field. *Id.* at 1092-93. The court described the function of the four  
11 bits in the AccessType field corresponding to "read request" in a preferred embodiment as  
12 follows: "The first bit instructs the memory device to perform a read; the next three bits tell the  
13 device what type of read to perform (e.g., page read, normal access read, etc.)." *Id.* at 1092.  
14 Thus, the Federal Circuit meant to include in the category of "type[s] of read to perform" at least  
15 the types of reads specified by the referenced three bits of the AccessType field of that preferred  
16 embodiment. As described below, the patent specification makes clear that whether or not the  
17 sense amplifiers should be precharged, as in the "read" and "read with autoprecharge" commands  
18 of the accused devices, differentiates between two of the types of reads specified by the  
19 AccessType field.

20           In a preferred embodiment, the three bits of the "AccessType" field that the court  
21 identified with the "type of read to perform" specifies what the specification refers to as the  
22 "access mode" of the memory device. According to the specification, "[o]ne such access mode  
23 determines whether the access is page mode or normal RAS access" and "[t]he access mode also  
24 determines whether the DRAM should precharge the sense amplifiers or should save the contents  
25 of the sense amps for a subsequent page mode access." '263 patent, col. 10:6-8, 30-33 (emphasis  
26 added). Thus, the part of the "read request" in the preferred embodiment that identifies the "type  
27 of read to perform" includes information as to whether the access is a page mode or normal mode  
28 access, but *also* whether the sense amplifiers should be precharged as part of the operation. This

1 is what the A10 bit, which distinguishes between “read” and “read with autoprecharge” in the  
2 Hynix devices, accomplishes – informing the device whether to precharge the sense amplifiers as  
3 part of the read operation. *See* Reply Declaration of Robert J. Murphy in Support of Rambus’s  
4 Motion for Summary Judgment (“Murphy Decl.”), ¶¶ 11-13. Reading with and without  
5 precharge, as in the accused devices, are two “types” of reads expressly specified by the  
6 “AccessType” field in the specification, and it was that very field that the Federal Circuit  
7 referenced when identifying the “type[s] of read to perform.”

8 **b. Even apart from the Federal Circuit opinion, it is clear that**  
9 **“read” and “read with autoprecharge” are two “types” of**  
10 **reads in the accused devices.**

11 Hynix argues that its memory devices perform only one type of read because, in  
12 the case of a “read with autoprecharge” command, (1) precharging is performed “after” the read  
13 is complete and (2) “[t]he value of the A10 bit . . . does not alter or affect the manner in which the  
14 data was read from the memory chip.” *Opp.* at 9-10. Even if Hynix’s description of the operation  
15 of its devices were correct, Hynix’s argument could not be squared with the Federal Circuit  
16 decision, as discussed above. However, in fact, Hynix’s misrepresents the operation of its  
17 devices in at least two ways.

18 First, in the case of a read with autoprecharge command, precharging takes place  
19 *during* the read operation, not after as Hynix asserts. *Murphy Decl.* ¶ 13; *Detre Decl., Ex. D*  
20 (SDRAM Device Operation) at 7 (showing “AUTO PRECHARGE [sic] START” while read data  
21 is still being output from device).

22 Second, the manner in which data is read from the memory chip *is* different in  
23 “read” and “read with autoprecharge” operations in the accused devices. One reason for this is  
24 precisely because, as noted above, the “reading” and “precharging” portions of a “read with  
25 autoprecharge” command overlap in time. Thus, during a “read” operation, the sense amplifiers  
26 are not precharged while data is read out of the device; during a “read with autoprecharge”  
27 operation, the sense amplifiers are precharged while data is read out of the device. Another  
28 reason that the manner in which data is read is different in the two operations is that a “read with



1 autoprecharge” operation, unlike a “read operation,” cannot be terminated by another command.  
2 Murphy Decl. ¶ 13.

3 Hynix’s attempts to suggest that the “read” and “precharge” portions of the “read  
4 with autoprecharge” command are easily separable in its accused devices is based on  
5 misrepresentations regarding the operation of those devices. In fact, “reading” and “precharging”  
6 are intertwined during a “read with autoprecharge” operation, making it clear that this is, indeed,  
7 a different “type” of read.

8 **2. Hynix’s Devices Receive a “Series of Bits” Used to Request a Read of**  
9 **Data**

10 Hynix’s argument that its devices do not receive a “series of bits used to request a  
11 read of data” because the bits corresponding to a read command are received simultaneously via a  
12 parallel interface suffers from two fatal flaws: First, the very bits corresponding to a “read  
13 request” in the preferred embodiment of the specification cited by the Federal Circuit are  
14 themselves received simultaneously via a parallel interface, exactly as in Hynix’s devices; and,  
15 second, there is nothing in the meaning of the word “series” that excludes bits received  
16 simultaneously.

17 Hynix contrasts the operation of its device with the request packet in the preferred  
18 embodiment of the specification which is received over “multiple clock cycles.” Opp. at 11.  
19 However, as noted above, the Federal Circuit has already held that the “request packet” contains  
20 much more than the “read request.” See Section II.D.1.a, *supra*. The “read request” portion of  
21 the request packet in the preferred embodiment is the four-bit AccessType field in the request,  
22 and those bits are received simultaneously using a parallel interface, exactly as a request is  
23 received in the accused devices. *Id*; Murphy Decl. ¶ 6. Hynix’s argument that its devices do not  
24 receive a “series of bits” would once again result in the exclusion of the very preferred  
25 embodiment that the Federal Circuit looked to in construing the term “read request.”

26 Moreover, Hynix’s premise that a “series” of bits must follow one another in time  
27 ignores the plain meaning of the word. The dictionary defines “series” as “a number of things or  
28 events of the same class coming one after another in spatial or temporal succession (a concert

1 [series]) (the hall opened into a [series] of small rooms).” Merriam Webster’s Collegiate  
2 Dictionary (10<sup>th</sup> ed., 1996), at 1069. Thus, while certain series do involve *temporal* succession,  
3 others are based on a *spatial* relationship. Hynix’s devices involve the latter sort of “series” in  
4 connection with the read request: the bits corresponding to a read request arrive on specific pins  
5 in a fixed spatial relationship with one another. Murphy Decl. ¶ 7.

6 **III. CONCLUSION**

7 For the reasons set forth above, and in Rambus’s opening memorandum, Rambus  
8 respectfully requests that the Court grant Rambus summary judgment of infringement with  
9 respect to the claims that are the subject of its motion.

10 DATED: March 3, 2004

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