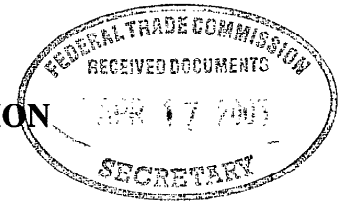


**PUBLIC**

**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL TRADE COMMISSION**



**In the Matter of**

**RAMBUS INC.,**

**a corporation.**

**Docket No. 9302**

**RESPONSE OF RAMBUS INC. TO COMPLAINT COUNSEL'S  
SUPPLEMENTAL MEMORANDUM IN SUPPORT OF THEIR MOTION  
TO COMPEL DISCOVERY ON CRIME-FRAUD AND WAIVER GROUNDS**

## I. INTRODUCTION

Now that Complaint Counsel have attempted to demonstrate an independent basis for a crime-fraud finding extending to post-June 1996 communications, it is evident why they chose to rely solely on a waiver theory in their original motion. The Federal Circuit's recent decision reversing the SDRAM fraud verdict against Rambus has eliminated the basis for Judge Payne's finding of pre-June 1996 fraud. Although the Federal Circuit's decision may not be binding on Your Honor in any formal sense, it nonetheless represents the considered judgment of a court with acknowledged expertise in the area on precisely the same factual issues now before Your Honor. Complaint Counsel assert that they disagree with the Federal Circuit's ruling and "intend" to demonstrate that the court erred, but they have offered no new evidence here that calls into question the soundness of the Federal Circuit's ruling. Moreover, even if some basis for a finding of pre-June 1996 fraud survived the Federal Circuit's thorough review and analysis, Complaint Counsel have failed to show how such a finding could support vitiating the attorney-client privilege as to *post*-June 1996 communications. Any "fraud" Rambus allegedly perpetrated within JEDEC by failing to disclose patents or patent applications ended in June 1996 when Rambus formally notified JEDEC of its withdrawal from that organization, thereby ending whatever disclosure obligations were owed by virtue of its JEDEC membership.

Because Complaint Counsel have provided no basis for Your Honor to find that the attorney-client privilege has been vitiated as to any post-June 1996 communications, Complaint Counsel's motion to compel discovery as to such communications should be

denied, and there is thus no need to conduct an evidentiary hearing on the motion.

## II. ARGUMENT

The attorney-client privilege is “the oldest of the privileges for confidential communications known to the common law.” *United States v. Zolin*, 491 U.S. 554, 562 (1989). The privilege is an interest “traditionally deemed worthy of maximum legal protection,” and materials within the scope of the privilege are therefore “zealously protected.” *Haines v. Liggett Group, Inc.*, 975 F.2d 81, 90 (3d Cir. 1992). Given the importance of the privilege, “judges should exercise considerable caution when they are pressed during the discovery stage of complex litigation to find that a showing of a crime or fraud that is sufficient to justify penetrating the privilege has been made.” *Laser Indus., Ltd. v. Reliant Techs., Inc.*, 167 F.R.D. 417, 436 (N.D. Cal. 1996).

### A. Complaint Counsel Have Not Established Any Basis for Application of the Crime-Fraud Exception to the Attorney-Client Privilege.

Complaint Counsel contend in their supplemental memorandum that they are entitled to seek discovery of post-June 1996 attorney-client communications by virtue of the crime-fraud exception to the privilege. As the party seeking to vitiate the privilege, Complaint Counsel bear the burden of establishing that the exception applies. *In re Sealed Case*, 107 F.3d 46, 49 (D.C. Cir. 1997). To meet that burden, Complaint Counsel were required to make a *prima facie* showing that Rambus engaged in fraudulent conduct *after* June 1996. Rather than attempt to meet that burden directly, however, Complaint Counsel devote virtually their entire supplemental memorandum to the argument that Rambus engaged in fraudulent conduct *before* June 1996, while it was still a JEDEC member.

Complaint Counsel seek to extend the crime-fraud exception to post-June 1996 communications by arguing that Rambus's alleged fraud was "ongoing" even after Rambus formally confirmed its withdrawal from JEDEC in June 1996. Supp. Mem. at 4. As explained below, Complaint Counsel's argument is meritless.

**1. Rambus Did Not Engage in Fraud While a Member of JEDEC.**

Complaint Counsel contend that Rambus engaged in fraud during its tenure as a JEDEC member by failing to disclose patents or patent applications "in the face of a duty to do so," and by making "misleading partial disclosures" about the nature of its patent interests. Supp. Mem. at 6. The evidence does not support a finding of fraud on either of these theories.

**a. Rambus Did Not Breach Any Duty to Disclose Imposed by JEDEC's Rules.**

To predicate fraud on a failure-to-disclose theory, Complaint Counsel must establish, among other things, that Rambus breached a duty to disclose. *E.g., Rambus Inc. v. Infineon Techs. AG*, 318 F.3d 1081, 1096 (Fed. Cir. 2003) ("A party's silence or withholding of information does not constitute fraud in the absence of a duty to disclose that information."). Before this Court can determine whether Rambus breached any duty to disclose, of course, it "first must ascertain what duty Rambus owed JEDEC." *Id.* That was one of the central questions the Federal Circuit grappled with for nearly eight months, on a factual record that is materially indistinguishable from the record before Your Honor in this case.

The Federal Circuit carefully reviewed the evidence to determine what relationship

a patent had to have to a particular standard in order to trigger a duty to disclose under JEDEC's rules. The court looked first to the same JEDEC policy statements that have been made part of the record in these proceedings. The court focused on the language of Appendix E to JEP 21-I, which in its view "prohibited standards that 'call for *use* of a patented item or process' unless all information 'covered by the patent or pending patent' was known and a 'license . . . for the purpose of implementing the standard[s]' was available under reasonable terms." 318 F.3d at 1097 (quoting Appendix E) (emphasis added). This language, the court observed, tied any JEDEC disclosure duty to "the scope of claimed inventions that would cover any standard and cause those who use the standard to infringe." *Id.* at 1098.

The court also considered testimony from JEDEC participants on this issue. Gordon Kelley, the Chairman of JEDEC 42.3, testified that disclosure of a patent was required when "if you exercised the design or production of the component that was being standardized would *require* the *use* of that patent." 318 F.3d at 1099 (quoting trial testimony) (emphasis added). Infineon's own JEDEC representative, Willi Meyer, testified similarly:

"Q. What was your understanding of the relationship that a patent had to have in order to be disclosed under JEDEC's patent policy?

"A. Well, it had to be related to the work at JEDEC *in the sense that it described features that were necessary to meet the standard.*

"Q. *In other words, in order to practice a standard, it would be necessary to use the feature that was patented, right?*

“A. *Yes.*”

*Id.* at 1100 (quoting trial testimony) (emphasis altered).

Based on this testimony and the language of the JEDEC policy statements, the Federal Circuit concluded that the disclosure duty “hinges on whether the issued or pending claims are needed to practice the standard” and that disclosure of a patent or patent application was required, if at all, only when “a license under its claims reasonably might be required to practice the standard.” *Id.*

Complaint Counsel concede that, as of January 1996, Rambus had no issued patents whose use was essential to the practice of any JEDEC standard. *See* Complaint Counsel’s Response to Request for Admission No. 95 [Tab 2]. To support their allegations of fraud, therefore, Complaint Counsel were required to show that Rambus had patent *applications* pending while it was a JEDEC member that contained claims for which a license would have been required to practice the JEDEC standards. Complaint Counsel have not begun to meet their burden in this regard. That is, they have not begun to provide Your Honor with the evidence necessary to make that determination, and only *assert* that such evidence will one day be forthcoming.<sup>1</sup> It is clear, moreover, that no such evidentiary showing could ever be made. For example, although Complaint Counsel point to Rambus’s ’651

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<sup>1</sup> Such a showing would involve preparation of an element-by-element analysis of specific claims showing that each element of a pending claim was found in the standard at issue. *See Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985) (“It is . . . well settled that each element of a claim is material and essential, and that in order for a court to find infringement, the plaintiff must show the presence of every element . . . in the accused device.”).

application (Supp. Mem. at 9), the Federal Circuit held that the claims in the '651 application required use of a multiplexed bus that was *not* found in the SDRAM standard. 318 F.3d at 1103. The '961 application, which Complaint Counsel contend “clearly covered programmable CAS latency and burst length as used in the JEDEC SDRAM standard” (Supp. Mem. at 10), similarly contained claims that were limited to a device identifier feature not required by the SDRAM standard. *Id.* And the '692 application (Supp. Mem. at 14), which required the use of a phase locked loop (“PLL”), was irrelevant because “the SDRAM standard does not use PLL technology.” *Id.* As a consequence, the Federal Circuit held that “licenses under the claims of these applications . . . would not be necessary to practice the SDRAM standard.” *Id.*

Complaint Counsel’s “evidence” that Rambus breached a duty to disclose with respect to the DDR SDRAM standard is even less persuasive. Complaint Counsel cite certain discussions at JEDEC meetings in 1994, 1995, and early 1996 that supposedly triggered a duty to disclose because they involved isolated features of DDR SDRAM technology encompassed by pending Rambus patent claims, despite the fact that DDR SDRAM standardization had not actually begun yet. Supp. Mem. at 13-17. None of these citations supports Complaint Counsel’s argument. Indeed, most of the citations are supported by no *evidence* tending to show that they *would* have triggered such a duty to disclose and appear to have been generated simply by searching for particular terms in the JEDEC minutes. The attorney-client privilege cannot be pierced by Complaint Counsel’s *arguments* in this regard; much more is required. Moreover, Complaint Counsel’s

citations are not, in fact, relevant, for one or more of the following reasons:

- Some of the citations relate to technology that Complaint Counsel's own expert asserts is an *alternative* to Rambus's technology. For example, the citations identified as "PLL + Register Buffered DIMM" (Supp. Mem. at 15), and "Future SDRAM – Clocking Scheme Limitation of PLL/DLL for Memory" (*id.* at 16), propose PLLs or DLLs on the DIMM or memory controller, respectively, rather than on the memory chip. See Jacob Report at 67-68 [Tab 7] (proposing PLL/DLL on DIMM or controller as alternatives to Rambus's on-chip PLL/DLL technology).
- Some of the citations discuss and *reject* the alleged Rambus technology at issue. For example, the citation identified as "Future SDRAM-Clock Issues" "PLL/DLL Circuits and/or Echo Clocks" (Supp. Mem. at 15) argues *against* on-chip PLL/DLL technology.
- Some of the citations provide no detail about the technology at issue, making it impossible to determine from the minutes alone whether they relate in any way to Rambus's patent claims, let alone whether the technology would practice any claim contained in Rambus's patent applications. For example, the citation identified as "Double Data Rate Synchronous FSRAM" (Supp. Mem. at 16) offers no explanation of how the "double data rate" is implemented or whether it related to Rambus's patent claims.
- Some of the citations relate to discussions at JEDEC that did not involve actual proposals and therefore could not trigger a duty to disclose. For example, Complaint Counsel cite a survey ballot that simply gauged the members' support for



different features without proposing that any be included in a standard. Supp. Mem. at 15.

On the *two* occasions that Complaint Counsel do provide some support for their citations, by citing their experts' cursory conclusions, those conclusions have been refuted by Rambus's experts, who explain in detail why the JEDEC presentations were not covered by Rambus's patent claims. See Fliesler Report ¶ 55 [Tab 4] (explaining why the NEC presentation cited by Complaint Counsel, Supp. Mem. at 13, was not covered by pending Rambus patent claims); *id.*, ¶¶ 56, 58 (explaining why technology involving writing to a DRAM on both edges of a clock, such as in the March 1996 "dual clock edge proposal" cited by Complaint Counsel, Supp. Mem. at 16, was not covered by pending Rambus patent claims). In short, Complaint Counsel's purported triggering events are nothing of the kind; at a minimum, they are strongly disputed by Rambus and cannot support a *prima facie* showing of fraud. In fact, as a group they point in the *opposite* direction and offer support for the Federal Circuit's conclusion that there was no violation of any JEDEC disclosure duty by Rambus. And, of course, since each of the JEDEC presentations that Complaint Counsel rely upon predated the June 1996 cut-off used by Judge Payne in his crime-fraud ruling, they offer no support for the existence or breach of any duty after June 1996. Indeed, Complaint Counsel's focus on these events merely underscores the lack of evidence to support a post-June 1996 extension of the crime fraud ruling.

In an unsuccessful attempt to fill the substantial holes in their evidentiary submission, Complaint Counsel rely upon a version of the JEDEC disclosure duty that the

Federal Circuit expressly found was not supported by the evidence. Complaint Counsel contend that JEDEC's disclosure policy required Rambus to disclose patents or applications that merely "related to" or "might involve the work of" a JEDEC committee in some loose, undefined sense. Supp. Mem. at 6. Infineon advanced precisely this construction of JEDEC's disclosure duty on appeal and the Federal Circuit squarely rejected it. The court held that, construed in the manner advocated by Infineon, "the JEDEC disclosure duty [would be] unbounded. Under such an amorphous duty, any patent or application having a vague relationship to the standard would have to be disclosed." 318 F.3d at 1101. The court found no evidence to suggest that JEDEC members understood the disclosure duty to sweep so broadly, particularly since the JEDEC patent tracking list contained only five disclosed applications and 60 disclosed patents from a committee membership of over 50 companies comprising many of the world's leading memory technology firms. *Id.* After reviewing the evidence, the court also warned against "after-the-fact morphing of a vague, loosely defined policy to capture actions not within the actual scope of that policy . . . ." *Id.* at 1102 n.10.

Complaint Counsel's additional arguments in support of their fraud claim are all refuted by established patent law or by the Federal Circuit's holding in *Infineon*. First, Complaint Counsel contend that Richard Crisp's suggestions to Rambus's patent attorneys that they consider adding claims covering technologies Mr. Crisp observed in JEDEC presentations was itself wrongful, even if Rambus had complied with JEDEC's disclosure policy. Supp. Mem. at 7-8, 15-16. Well-settled principles of patent law bar any such

argument. The Federal Circuit has explicitly held that there is nothing improper about amending a patent application to add claims that cover a product an applicant learns of after filing the application:

[T]here is nothing improper, illegal or inequitable in filing a patent application for the purpose of obtaining a right to exclude a known competitor's product from the market; nor is it in any manner improper to amend or insert claims intended to cover a competitor's product the applicant's attorney has learned about during the prosecution of a patent application.

*Kingsdown Medical Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 874 (Fed. Cir. 1988).

As one treatise recently explained, amending a patent application in response to marketplace developments is a "standard practice":

Consider a common example: a firm competing with an inventor may introduce a product containing a variant of the inventor's brainstorm. When the language in the patent application allows, the inventor's patent lawyer adds a claim to the application embracing the new variant. In this manner the competitor's product will infringe the patent if and when it issues. *This is a standard practice and has been for a long time.*

Merges, Menell & Lemley, *Intellectual Property in the New Technological Age* 225 (2d ed. 2000) (emphasis added).

Such amendments do not amount to "stealing" a competitor's ideas or inventions. Under the patent laws, in order to claim priority back to the filing date of the original application, any new claims that are added must be supported by the written specification in the *original* application. *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1247 (Fed. Cir. 2002). All of the patents Rambus has asserted to date against SDRAM or DDR SDRAM devices claim priority back to the filing date of the original '898 application, in

April 1990. In order for those patents to have issued, the Patent and Trademark Office (“PTO”) necessarily determined that each and every claim was supported by the specification contained in the original ’898 application. *See* Fliesler Report at 12-13 [Tab 4]. Thus, the inventions Rambus later *claimed* had already been adequately *described* in the ’898 application, more than a year and a half before Rambus attended its first JEDEC meeting. Complaint Counsel do not challenge the PTO’s determination on this issue, nor do they challenge the PTO’s determination that Rambus’s patents satisfy all of the other requirements for issuance of a valid patent.

Second, Complaint Counsel contend that, during the time Rambus was a JEDEC member, Rambus executives “believed” they had drafted claims broad enough to cover the SDRAM standard, and that “[t]his belief was sufficient to trigger a duty to disclose at JEDEC.” Supp. Mem. at 10 n.7. While Rambus disagrees that any Rambus executive who had actually *reviewed* the claims had this belief, the more important point for present purposes is that the Federal Circuit rejected precisely this argument. Like Complaint Counsel, Infineon argued on appeal that “Rambus *believed* its pending patents covered the SDRAM standard” and that “Rambus’s mistaken belief that its claims read on the SDRAM standard made its actions fraudulent.” 318 F.3d at 1104 (quoting Infineon’s brief). The Federal Circuit held that such “subjective beliefs, hopes, and desires are irrelevant” because JEDEC’s disclosure duty “erects an objective standard.” *Id.* That duty, the court held, “does not depend on a member’s subjective belief that its patents do or do not read on the proposed standard.” *Id.* Thus, “Rambus’s mistaken belief that it had

pending claims covering the standard does not substitute for the proof required by the objective patent policy.” *Id.*<sup>2</sup>

Complaint Counsel have not cited a single piece of new evidence demonstrating that the Federal Circuit erred in construing the scope of the JEDEC disclosure requirement. The most that Complaint Counsel say on this point is that they believe the Federal Circuit’s interpretation of JEDEC’s disclosure duty is “incorrect” and that they are “prepared to prove” it. Supp. Mem. at 11 n.8. The obvious response to this argument (and the only one necessary for purposes of this motion) is that Complaint Counsel *have not* proved the Federal Circuit’s interpretation “incorrect,” *nor even suggested in their supplemental memorandum how they might do so*. Nor have Complaint Counsel attempted to show that Rambus had patents or patent applications whose claims would in fact need to be licensed in order to practice the JEDEC standards. Once again, Complaint Counsel state only that they “fully inten[d] to present [such] evidence” later, presumably at the merits hearing. *Id.*

To be clear: Rambus does not contend in this motion that the Federal Circuit’s holdings regarding the JEDEC patent policy and Rambus’s compliance with that policy are binding on Your Honor. Rambus’s point is that before an agency may vitiate a private

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<sup>2</sup> It is remarkable that Complaint Counsel appear to base their fraud claim on Rambus’s failure to make *false* statements to JEDEC. If Rambus had asserted prior to its departure from JEDEC that its patent applications covered the SDRAM standard, that statement would have been false. Rambus knows of no court that has ever imposed a duty to speak *falsely*, nor of any court that has ever imposed liability for a failure to speak falsely – much less the kind of extraordinary forfeiture sought here.

party's attorney-client privilege on the basis of fraud, it must at the very least demonstrate why a federal Court of Appeals' considered and authoritative determination of *no fraud*, on the same facts, is erroneous. Merely advising Your Honor of counsel's belief that the Federal Circuit's determination is "incorrect," and expressing an intention to provide proof of such error later, is plainly inadequate. That is all Complaint Counsel have done here.

**b. Rambus Did Not Make Any Affirmative Misrepresentations.**

Complaint Counsel seek to overcome their inability to show that Rambus "failed to disclose in the face of a duty to do so" by arguing that Rambus made "misleading partial disclosures." Supp. Mem. at 6. Complaint Counsel's attempt to predicate a *prima facie* showing of fraud on supposed affirmative misrepresentations to JEDEC falls woefully short of the mark – and certainly supports no extension of the crime-fraud exception to the post-June 1996 period.

Complaint Counsel cite just two statements to support this theory of fraud: Rambus's disclosure of the '703 patent to JEDEC in September 1993 and Rambus's June 1996 withdrawal letter, which provided a list of issued Rambus patents. As to the '703 patent, Complaint Counsel assert that it did not "relate to" the work of JEDEC and contend that its disclosure was misleading because Rambus later cited the '703 patent in a manner "implying that Rambus was complying with the JEDEC disclosure policy." Supp. Mem. at 20. That is not the case. The only evidence cited by Complaint Counsel in support of this assertion is a statement by Richard Crisp at the September 11, 1995 JEDEC meeting, at which Mr. Crisp, after observing that few companies had actually disclosed issued patents,

reminded JEDEC that Rambus had “reported a patent to the committee in the past and in so doing it put us in a league within JEDEC which has only a small number of members.” Supp. Mem. Tab 34 at R 69677. That statement did not in any way imply that Rambus had no undisclosed *applications* that might support claims for which a license would be required, Supp. Mem. at 20, and Complaint Counsel concede that Rambus had no undisclosed, *issued* patents at the time that should have been disclosed. Moreover, at the same September 1995 meeting, Mr. Crisp informed JEDEC members that Rambus’s “presence or silence at committee meetings does not constitute an endorsement of any proposal under the committee’s consideration *nor does it make any statement regarding potential infringement of Rambus intellectual property.*” Supp. Mem. Tab 38 (emphasis added).<sup>3</sup>

Complaint Counsel’s claim that JEDEC was misled by Rambus’s June 1996 withdrawal letter is even more strained. The only respect in which Complaint Counsel allege the letter was “misleading” is the omission of Rambus’s ’327 patent from the list of

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<sup>3</sup> In addition, as Rambus’s expert Martin Fliesler has explained, the disclosure of the ’703 patent itself served to put JEDEC on notice that Rambus was pursuing related applications that had not been disclosed. *See* Fliesler Report at 11 [Tab 4]. A reasonable patent lawyer or knowledgeable engineer reading the ’703 patent “would have noted from the disclosure in Column 1 of the patent the existence of nine other divisional applications relating back to the filing date of the ’898 application and realized that Rambus was actively pursuing numerous claims other than what was actually claimed in the ’703 patent.” *Id.* at 12. And as Your Honor may recall, there is substantial evidence that Mitsubishi, Micron, Hynix and other JEDEC members did indeed recognize that Rambus was pursuing numerous patent applications. *See, e.g.*, Rambus Mem. In Support Of Motion For Summary Decision at 50-51 (citing January 1996 SyncLink meeting minutes acknowledging that “Rambus has 16 patents already, with more pending”).

issued patents that Rambus provided. Complaint Counsel cite no testimony or other evidence, however, that *anyone* relied upon the list of patents for any purpose. They do not even contend that the list was ever circulated within JEDEC or that anyone ever looked at any of the patents on the list. Moreover, there is no evidence that the '327 patent was left off with intent to mislead anyone. Instead, the unrebutted testimony of Lester Vincent (Rambus's outside patent counsel at the time) is that the omission was purely inadvertent. Mr. Vincent prepared the initial list of issued patents on March 27, 1996. Vincent 10/9/01 Dep., *Micron Tech., Inc. v. Rambus Inc.*, at 491:5-13 [Tab 5]. The '327 patent issued in April 1996, and Mr. Vincent simply failed to update his initial list of issued patents as Rambus's withdrawal letter went through successive drafts before finally being sent on June 17, 1996. *Id.* No one at Rambus instructed Mr. Vincent to leave the '327 patent off the list and Mr. Vincent himself did not purposely omit that patent from the list. *Id.* at 538:5-17.<sup>4</sup>

Complaint Counsel are also wrong when they assert that Rambus's withdrawal letter "persuad[ed] JEDEC that Rambus did not have patents or patent applications that covered the technologies under consideration." Supp. Mem. at 6. If anything, the withdrawal letter persuaded JEDEC of just the opposite. The letter explicitly advised JEDEC that Rambus was withdrawing in part because Rambus's licensing plans "may not be consistent with the terms set by standards bodies, including JEDEC 42.3." Letter of

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<sup>4</sup> In any event, omission of the '327 patent occurred within the time frame adopted by Judge Payne in his crime-fraud ruling and thus does not support extending application of the crime-fraud exception to post-June 1996 communications.



June 17, 1996 [Tab 6]. While the letter disclosed a list of patents that had already been issued to Rambus, the list itself made clear that Rambus had not disclosed the applications from which those patents were derived. And the letter expressly stated that “Rambus has also applied for a number of additional patents in order to protect Rambus technology” (*id.*) – applications that JEDEC obviously knew would not be disclosed given Rambus’s withdrawal from the organization.

**c. Rambus Did Not Act With the Intent to Mislead.**

To establish a *prima facie* showing of fraud, Complaint Counsel must also produce evidence demonstrating that Rambus acted with fraudulent intent. *E.g., Infineon*, 318 F.3d at 1096 (fraud requires proof that defendant made false statements with intent to mislead). Complaint Counsel’s supplemental memorandum offers no evidence that Rambus acted with the intent to mislead JEDEC. For example, Complaint Counsel allege that Rambus failed to disclose patent applications as part of a scheme to deceive, but the evidence shows that Rambus did not disclose applications while at JEDEC because it thought such disclosures were not required of it. Rambus’s JEDEC representative, Richard Crisp, testified that he believed the obligation to disclose patent applications did not apply to non-presenting companies like Rambus. Crisp 8/10/01 Dep., *Micron Tech., Inc. v. Rambus Inc.*, at 855:13-25 [Tab 1]. That belief was derived in part from the JEDEC Members’ Manual, which expressly tied the duty to disclose to companies making presentations. *Id.*

Rambus’s motivation for not disclosing its patent applications had nothing to do with a desire to deceive JEDEC. As Mr. Crisp explained, Rambus’s reluctance to disclose

applications stemmed from the company's wholly legitimate interest in protecting its trade secrets from premature disclosure:

[W]e decided that we really could not be expected to talk about potential infringement for patents that had not issued both from the perspective of not knowing what would wind up being acceptable to the examiner, *and from the perspective of not disclosing our trade secrets any earlier than we are forced to.*

Supp. Mem. Tab 49 at R 233838 (emphasis added). Other JEDEC members, such as IBM and Hewlett-Packard, made the same decision regarding disclosure of patent applications. Hewlett-Packard's JEDEC representative, Hans Wiggers, explained in his deposition that both companies had taken the position that they would not disclose applications:

Q. Do you remember anything that Gordon Kelley ever said about IBM's position with respect to the JEDEC patent policy?

\* \* \*

A. . . . Jim Townsend had invited a lawyer from a firm that I don't remember to give us a presentation after the regular session to talk about patents. Okay. That is – and I'm – I'm not sure whether this all happened the same meeting or not, but there – the following discussions came up there. Gordon Kelley said 'Look. I cannot disclose – *my company would not let me disclose all the patents that IBM is working on* because, you know, I just can't do that. The only thing we will do is we will follow the JEDEC guidelines and – or rules on whatever and we will make them available.'

And I piped up at that point and said 'The same is true for HP.'

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Q. Okay. Did Mr. Townsend [the JC 42 committee chairman] have any response when you and Mr. Kelley talked about what your company's positions were?

A. I think he just took it as – I don't know that he had a particular response to that. I think everybody – my impression was that everybody thought that that was a reasonable position to take. We could not even know all the patents that people in our companies were working on. *And if we did know it, we certainly were not in a position to divulge that to anybody.*

Wiggers 12/18/02 Dep. at 57-58, 60 [Tab 8] (emphasis added).

Mr. Crisp's September 1995 e-mail and its reference to patent applications as "trade secrets" are entirely consistent with the approach taken by IBM and Hewlett-Packard. It is also clear that "everybody thought that that was a reasonable position to take," *id.*, for the very reasons described in Mr. Crisp's September 1995 e-mail.

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In sum, although Complaint Counsel devote nearly their entire supplemental memorandum to a discussion of evidence relating to the pre-June 1996 period, they have failed to make a *prima facie* showing that Rambus engaged in fraudulent conduct while a member of JEDEC. As demonstrated above, the Federal Circuit's decision in *Infineon* eliminated the factual basis for Judge Payne's original crime-fraud order relating to pre-June 1996 attorney-client communications, and Complaint Counsel have not cited any new evidence calling into question the soundness of that ruling. As Complaint Counsel implicitly concede, if Judge Payne's pre-June 1996 finding of fraud cannot be sustained, there is no basis for extending that now-erroneous order to post-June 1996 communications.

**2. Even if Judge Payne's Pre-June 1996 Fraud Finding Had Remained Intact, There Would Be No Basis for Finding That Rambus Committed Fraud in the Post-June 1996 Period.**

Complaint Counsel argue that the fraud Rambus allegedly engaged in while a member of JEDEC "continued" after it left JEDEC (by virtue of its post-JEDEC patent prosecution and enforcement efforts), and that this "ongoing" fraud vitiates the attorney-client privilege as to post-June 1996 communications. This argument is plainly wrong.

When Rambus formally informed JEDEC of its withdrawal in June 1996, any disclosure duty imposed by JEDEC's rules ended. That was the basis on which Judge Payne granted Rambus's motion for JMOL as to DDR SDRAM, and the basis on which the Federal Circuit *unanimously* affirmed his ruling. *Rambus, Inc. v. Infineon Techs. AG*, 164 F. Supp. 2d 743, 765-67 (E.D. Va. 2001); 318 F.3d at 1105. It was also the implicit basis on which both Judge Payne and Judge McKelvie in the *Micron* case limited the scope of their crime-fraud orders to pre-June 1996 communications.

Complaint Counsel argue that Rambus's post-June 1996 fraud consisted of "continu[ing] its efforts to broaden its patents to cover the JEDEC standards, while intentionally concealing the scope of its patent rights from JEDEC members." Supp. Mem. at 2. Under *Kingsdown* and its progeny, however, Rambus was entitled to broaden its patents to cover products built to the JEDEC standards, and any new patent applications or claims Rambus filed after leaving JEDEC need not have been disclosed. In the absence of the JEDEC-imposed disclosure duty, Rambus's "intentional concealment" of its

ongoing patent prosecution efforts simply did not constitute fraud.<sup>5</sup>

Nor could JEDEC members claim that they were misled by Rambus's nondisclosure of its continuing patent prosecution efforts. Even if, as Complaint Counsel have alleged, Rambus's silence while a JEDEC member conveyed the message that Rambus had no patent interests covering the JEDEC standards, that "message" could no longer be conveyed after Rambus had withdrawn from JEDEC. At that point, JEDEC members knew that Rambus would not be obligated to disclose future amendments or new applications, and they could not rely on Rambus's so-called "silence" as an indication that a technology proposed for standardization would be free of Rambus's patent rights. As a result, even if JEDEC members were ignorant of the potential scope of Rambus's patent rights (which they were not), Rambus's failure to disclose its "ongoing" patent prosecution efforts could not form the basis of a fraud finding after June 1996.

**B. Rambus's Production of Pre-June 1996 Documents to Hynix Did Not Constitute a Waiver of the Attorney-Client Privilege as to Post-June 1996 Communications.**

Although the issue has been fully briefed by the parties, Complaint Counsel rehash their argument that Rambus has waived the attorney-client privilege (without any limitation as to time) by virtue of its production of certain pre-June 1996 documents to

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<sup>5</sup> Indeed, any other rule would effectively make membership in standard-setting organizations permanent, with members unable to pursue completely proper patent-prosecution efforts years after they had surrendered any disclosure obligations owed to the organization. If a party's *future* patent-prosecution activities could be impinged in this manner based solely on its *past* membership in a standard-setting organization, few companies would be willing to join such organizations in the first instance, resulting in a marked chilling effect on standard-setting activity generally.

Hynix. Because Rambus has responded to this argument at length in its opposition to Complaint Counsel's original motion, only a summary follows here of the reasons that argument should be rejected. *See* Memorandum by Rambus Inc. in Opposition to Complaint Counsel's Motion to Compel Discovery at 9-24.

First, to constitute a waiver of the privilege at all, Rambus's production to Hynix must have been "voluntary." It was not voluntary in any meaningful sense here. By the time Rambus produced the documents in question to Hynix, their secrecy had already been lost by virtue of the compelled production of the same documents to Infineon and Micron. Rambus's production of those documents a third time could not have constituted a waiver of the documents' secrecy, since Rambus had no opportunity to preserve the confidentiality that had already been lost.

Second, even if Rambus had waived the privilege as to the pre-June 1996 documents it actually produced to Hynix, it did not thereby waive the privilege as to all post-June 1996 attorney-client communications as well. The implied subject-matter waiver rule on which Complaint Counsel rely is designed to prevent a party from gaining a tactical advantage in litigation by selectively disclosing privileged communications that are favorable while at the same time withholding those that are not. Rambus obviously did not disclose the documents at issue to Hynix in an attempt to gain a tactical advantage in this (or any other) proceeding, and Complaint Counsel certainly do not claim to have been prejudiced in any sense by Rambus's disclosure of these documents to Hynix. Thus, even if a subject-matter waiver occurred here, it would be limited to the subject matter identified

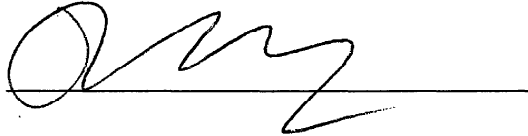
by Judge Payne's order – *i.e.*, communications between December 1991 and June 1996. Considerations of fairness and equity do not demand that the scope of any subject-matter waiver be extended beyond that period, and Complaint Counsel have offered no basis on which a more sweeping subject-matter waiver could be justified here.

### **III. CONCLUSION**

For the reasons stated above, Complaint Counsel's Motion to Compel Discovery should be denied.

DATED: April 17, 2003

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Gregory P. Stone', is written over a solid horizontal line.

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UNITED STATES OF AMERICA  
BEFORE THE FEDERAL TRADE COMMISSION

\_\_\_\_\_  
In the Matter of )  
)  
)

RAMBUS INCORPORATED, )  
a corporation. )  
\_\_\_\_\_ )

Docket No. 9302

**CERTIFICATE OF SERVICE**

I, Jacqueline M. Haberer, hereby certify that on April 17, 2003, I caused a true and correct copy of the *Response of Rambus Inc. to Complaint Counsel's Supplemental Memorandum in Support of Their Motion to Compel Discovery on Crime-Fraud and Waiver Grounds* to be served on the following persons by hand delivery:

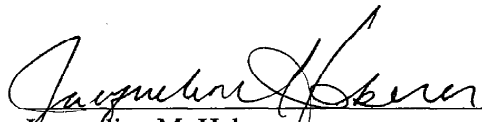
Hon. Stephen J. McGuire  
Chief Administrative Law Judge  
Federal Trade Commission  
Room H-112  
600 Pennsylvania Avenue, N.W.  
Washington, D.C. 20580

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Deputy Director, Bureau of Competition  
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\_\_\_\_\_  
Jacqueline M. Haberer



UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

MICRON TECHNOLOGY, INC., )  
8000 S. Federal Way )  
Post Office Box 6 )  
Boise, Idaho 83707-0006 )

Plaintiff, )

vs. ) No. 00-792-RRM

RAMBUS INC., )  
2465 Latham Street )  
Mountain View, California )  
94040 )

Defendant. )

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CONFIDENTIAL - ATTORNEY'S EYES ONLY  
DEPOSITION OF RICHARD CRISP  
Menlo Park, California  
Friday, August 10, 2001  
Volume IV

Reported by:  
LYNNE M. LEDANOIS  
CSR No. 6811  
Job No. 27299

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1 UNITED STATES DISTRICT COURT  
2 FOR THE DISTRICT OF DELAWARE  
3  
4 MICRON TECHNOLOGY, INC., )  
8000 S. Federal Way )  
Post Office Box 6 )  
5 Boise, Idaho 83707-0006 )

6 Plaintiff, )  
7 vs. ) No. 00-792-RRM

8 RAMBUS INC., )  
2465 Latham Street )  
9 Mountain View, California )  
94040 )

10 Defendant. )

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11  
12  
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14  
15 Deposition of RICHARD CRISP, Volume  
16 4, taken on behalf of Plaintiff at 2882 Sand  
17 Hill Road, Palo Alto, California, beginning  
18 At 9:39 a.m. and ending at 7:58 p.m., on  
19 Friday, August 10, 2001, before LYNNE M.  
20 LEDANOIS, Certified Shorthand Reporter  
21 No. 6811.  
22  
23  
24  
25

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11 51 Billing statements from Blakely, 654  
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12 52 E-mail to Dillon, Roberts, Barth, 655  
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14 53 Document entitled, IEEE 657  
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15 Signaling Technology (RamLink);  
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16 54 E-mail to Fred Ware from 667  
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17 55 E-mail from Richard Crisp 674  
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18 56 E-mail to marketing, Tate, 681  
Roberts, Farmwald from Richard  
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19  
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1 Q What was that understanding?  
 2 A Well, they wanted to know about both patents  
 3 and patent applications that might relate to the works  
 4 that were going on within JEDEC.  
 5 Q And that was after May 1995 that you came to  
 6 that conclusion?  
 7 A Yes, that's correct.  
 8 Q Now, that was with regard to what you saw in  
 9 the manual. Did that lead you to believe that that was  
 10 the policy in practice?  
 11 A No, it did not lead me to believe that at all.  
 12 Q Why not?  
 13 A Well, primarily I guess because of the  
 14 statements Mr. Kelley had made previously to that and,  
 15 also, just what I had observed in my attending JEDEC  
 16 over the years, that it just did not seem to be  
 17 followed very closely at all, or irregularly at best.  
 18 Q So from sometime after May 1995 when you first  
 19 read 21-I, through the end of December of 1995, at the  
 20 last meeting that you went to, how many meetings did  
 21 you go to?  
 22 A I think there was a meeting that was held in  
 23 September, and then there was the one in December. I  
 24 think that was all.  
 25 Q So just two meetings?

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1 A That's correct. I received two different  
 2 documents. This was one of the two.  
 3 Q Let me ask you to look at the page 156900,  
 4 it's actually the second page of the document.  
 5 A Oh, yes, it is.  
 6 Q Do you see there is an item 4.1, First  
 7 Presentation?  
 8 A Yes, I do.  
 9 Q And can you just read that to yourself for a  
 10 moment, please. Let me know when you have had a chance  
 11 to read that.  
 12 A I've finished it.  
 13 Q Now, did you read that section about first  
 14 presentations after you received this members' manual  
 15 and sometime after May of 1995?  
 16 A Yes, I believe I did.  
 17 Q And what conclusions did you draw from reading  
 18 that reference to first presentations?  
 19 A That the presenter or the sponsoring company  
 20 that was making the presentation were asked to reveal  
 21 at that time any existing or pending or expected  
 22 patents that may apply to the proposal at hand.  
 23 Q As you read that section, did it apply to  
 24 anyone other than the presenter?  
 25 A No.

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1 A I think that's correct.  
 2 Q While you were attending those two meetings,  
 3 what was your understanding of what the JEDEC patent  
 4 policy required?  
 5 A Well, this written policy required disclosure  
 6 of both patents and patent applications as they relate  
 7 to the work that was going on within the committee.  
 8 But then, you know, other documents that I saw, most  
 9 notably the slides that were put on at the beginning of  
 10 the meetings, seemed to indicate it was just patents  
 11 that needed to be disclosed.  
 12 Q Based on that, what conclusions if any did you  
 13 draw based on what the patent policy was?  
 14 A It was just confusing to me what, in fact,  
 15 really had to be done.  
 16 Q Let me show you one other manual, sir. This  
 17 was previously marked as Exhibit 11 and it's entitled,  
 18 JC-42 Members' Manual. Have you ever seen this before?  
 19 A Yes, I have.  
 20 Q And when did you first see a copy of the JC-42  
 21 Members' Manual?  
 22 A It would have been in 1995, around the same  
 23 time that I saw the 21-I manual.  
 24 Q Was this also a manual then that you received  
 25 in response to the request that you made?

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1 Q There was some discussion earlier, Mr. Crisp,  
 2 about the 1995 survey ballot. Do you recall that?  
 3 A Yes, I recall we had some discussion about  
 4 that earlier.  
 5 Q If you could locate among the exhibits Exhibit  
 6 64, it should still be in front of you there. Do you  
 7 have 64 in front of you?  
 8 A Yes, I do.  
 9 Q That's a survey; correct?  
 10 A That's correct.  
 11 Q And while you were attending JEDEC, from time  
 12 to time were surveys distributed to the members?  
 13 A Yes, I believe they were.  
 14 Q And did you have an understanding with regard  
 15 to whether or not patents were supposed to be disclosed  
 16 in connection with surveys?  
 17 A Yes, I had some understanding about that.  
 18 Q What was your understanding?  
 19 A There was no obligation to disclose anything  
 20 relating to patents as a result of the survey.  
 21 Q When was it that you thought that patents had  
 22 to be disclosed?  
 23 A At the time that the proposal was balloted,  
 24 sent out as a committee letter ballot. So that would  
 25 have been after the second showing because there was a

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**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL TRADE COMMISSION**

**CONFIDENTIAL VERSION**

**In the Matter of**

**RAMBUS INC.,**

**a corporation.**

**Docket No. 9302**

**COMPLAINT COUNSEL'S SUPPLEMENTAL RESPONSE TO RESPONDENT  
RAMBUS INC.'S SECOND SET OF REQUESTS FOR ADMISSIONS TO THE  
FEDERAL TRADE COMMISSION**

Pursuant to Section 3.32 of the Federal Trade Commission's Rules of Practice, 16 C.F.R. §3.32, Complaint Counsel submits this Supplemental Response to Respondent Rambus Inc.'s Second Set of Requests For Admissions to the Federal Trade Commission ("FTC"). Complaint Counsel supplements and/or revises its responses to certain requests, as specified below, in its Response to Respondent Rambus Inc.'s Second Set of Requests For Admissions filed on February 7, 2003. Complaint Counsel has made supplemental and/or revised responses to the following: General Objection No. 3 and Requests for Admissions Nos. 55-56, 95, 98-99, 113-116, 140-144, and 159-170. Complaint Counsel has also corrected typographical errors in the following Requests for Admissions Nos.: 29, 31-32, 73, 77, 108, 134, and 147-149. The full text of each request for admission is set out below, followed by Complaint Counsel's respective specific objections and responses. Complaint Counsel's provision of a response to any request for admission shall not constitute a waiver of any applicable objection, privilege, or other right. Where required in order to respond to these Requests For Admissions, Complaint Counsel represents that it has undertaken good faith efforts to identify the information that would allow it to admit or deny such requests.

**GENERAL OBJECTIONS**

The following general objections apply to each request for admission in Respondent

**RESPONSE TO REQUEST FOR ADMISSION NO. 93:**

Complaint Counsel objects to this request as vague and ambiguous because, among other things, it specifies no time period and does not identify to whom JEDEC allegedly expressed such a refusal. As stated, Complaint Counsel lacks sufficient information to either admit or deny this request.

**REQUEST FOR ADMISSION NO. 94:**

Admit that in January 1996, the EIA informed the FTC that the “EIA, TIA, and ANSI IPR policies relate to essential patents.” [1/22/96 letter to FTC].

**RESPONSE TO REQUEST FOR ADMISSION NO. 94:**

To the extent this request seeks an admission that the quoted language is evidence of the truth of the matter asserted, Complaint Counsel objects on grounds of hearsay. Subject to this objection, Complaint Counsel admits that the request correctly quotes a portion of the language from the referenced document, which appears to be a January 22, 1996 letter from Dan Bart of EIA to Mr. Clark of the FTC. However, Complaint Counsel submits that this language cannot properly be understood except by reference to the document as a whole, which speaks for itself.

**REQUEST FOR ADMISSION NO. 95:**

Admit that as of January 1996, Rambus held no issued U.S. patents that were essential to the manufacture or use of any device manufactured in compliance with any JEDEC standard.

**PROPOSED STIPULATION RELATING TO REQUEST FOR**

**ADMISSION NO. 95:**

To Compliant Counsel’s knowledge, as of January 1996, Rambus held no issued U.S. patents that were essential to the manufacture or use of any device manufactured in compliance with any JEDEC standard.







1 conditions, and it is not an approved standard until  
2 those conditions are satisfied. And the obligation of  
3 satisfying those conditions rests with the chairman of  
4 the committee, working with the original sponsor and  
5 often working with the editor of the published standard,  
6 because some of these conditions have to do with  
7 editorial and formatting issues, not substantive  
8 technical issues.

9 And then once it is approved as a form of  
10 standard -- in recent years, not back in the period  
11 involved here. In recent years, it is given a first  
12 publication on the Internet, on the worldwide web, in  
13 exactly the same form that it was in the ballot; that  
14 is, from a formatting and layout standpoint.

15 But then it is sent to the editor of the  
16 standard, and it is reformatted to conform to the format  
17 and layout standards that are used in the public  
18 document.

19 And then once a year, an update or a revision  
20 of the published standard is published or distributed.

21 Q Okay. You mentioned something called a first  
22 presentation.

23 A Yes.

24 Q Are you familiar with a term used in JEDEC  
25 called the second presentation?

1 absolutely obligated by the policy. Though, wisdom  
2 would probably indicate that he ought to.

3 BY MR. SWINDELL:

4 Q Why do you say wisdom would indicate that he  
5 ought to?

6 A It depends on the spirit in which you enter  
7 into the standardization project -- process. If you  
8 enter into the standardization process with the idea of  
9 trying to do in the rest of the world, then you keep  
10 your mouth shut.

11 If you enter into the standardization process  
12 with the idea of trying to create better products for  
13 the world to use, then you do your best to get the best  
14 standard that you can.

15 And this tends to be the engineering approach.

16 Q Now, for a first presentation, if the company  
17 representative is aware of a patent application that his  
18 or her company has that might relate to the first  
19 presentation, is that company representative required to  
20 disclose that information?

21 MR. PERRY: Vague as to time.

22 THE WITNESS: I believe, according to the  
23 policy that I read, he is not.

24 BY MR. SWINDELL:

25 Q And as far as time, we're still talking about

1 A Yes. Third, fourth, fifth, sixth, whatever.

2 Q And what are those, second, third, fourth,  
3 fifth presentations?

4 A The second is the second time it is presented.  
5 The third one is the third time it is presented. The  
6 fourth one is the fourth time it is presented. It is  
7 what the terminology intuitively implies.

8 Q Are you familiar with a form called a survey  
9 ballot?

10 A Yes.

11 Q And what is that?

12 A That is a ballot that is -- which is a  
13 questionnaire that is sent out to the committee to  
14 collect opinions on various specific technical issues  
15 relating to the architecture and layout and various  
16 details of a proposal.

17 Q Now, if a company representative was aware at  
18 the time of a survey ballot that his or her company had  
19 patents or patent applications that might relate to the  
20 subject matter of the survey ballot, would that company  
21 representative be required to disclose that information?

22 MR. PERRY: Objection; leading, vague, and  
23 seriously compound.

24 THE WITNESS: I think in reading the formal  
25 policy that was handed to me earlier, he is not

1 1991 to 1996.

2 Did you understand that?

3 A Yeah.

4 Q Do you recall signing an affidavit in  
5 January 2001 relating to DDR?

6 A The date, I cannot testify to.

7 MR. PERRY: I think we went over this in his  
8 prior deposition transcript in the Inferion case.

9 THE WITNESS: I remember signing something. I  
10 don't know if the one you're referring to is the one I  
11 remember signing.

12 MR. SWINDELL: Can we go off the record a  
13 second.

14 (Discussion off the record.)

15 MR. SWINDELL: Let's go back on.

16 BY MR. SWINDELL:

17 Q Do you recall how you came to sign that  
18 affidavit? This was about two years ago.

19 A Can you tell me for whom I signed the  
20 affidavit?

21 Q Yeah. I can represent that based on your prior  
22 testimony, lawyers for Rambus -- I don't want to  
23 mischaracterize this.

24 A Okay.

25 Q But they helped you with that.

1 STATE OF CALIFORNIA )  
2 ) ss  
3 COUNTY OF SAN DIEGO )

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I, the undersigned, confirm that I have read the foregoing deposition, and I declare, under penalty of perjury, that the foregoing is a true and correct transcript of my testimony contained therein.

EXECUTED this \_\_\_\_ day of \_\_\_\_\_, 2003, at \_\_\_\_\_, California.

\_\_\_\_\_  
J. Reese Brown, Jr.

1 STATE OF CALIFORNIA )  
2 : SS.  
3 COUNTY OF SAN DIEGO )  
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I, Margaret A. Smith, CSR No. 9733, hereby certify that I reported in shorthand the above proceedings on Wednesday, January 22, at 6450 Carlsbad Boulevard, in the City of Carlsbad, County of San Diego, State of California; and I do further certify that the above and foregoing pages, numbered from 5 through 72, inclusive, contain a true and correct transcript of all said proceedings.

It was stipulated that the original deposition be delivered to the deponent for the purposes of reading, correcting and signing his deposition under penalty of perjury; said original thereafter to be maintained by Mr. Perry until the time of trial.

DATED: JANUARY 26, 2003.

\_\_\_\_\_  
MARGARET A. SMITH, RPR, CRR  
CSR NO. 9733



**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL TRADE COMMISSION**

**In the Matter of**

**RAMBUS INC., a corporation.**

**Docket No. 9302**

**EXPERT REPORT OF MARTIN C. FLIESLER**

1. I have been retained by Rambus Inc. to testify regarding the matters discussed below.

I. **Qualifications**

2. As discussed further below, I have substantial background and experience in the field of patent law, particularly as it relates to Silicon Valley-type high technology, computer-related electronics, hardware and software. I expect to testify regarding those qualifications, background and experience as applied to my (1) examination of patent applications as a patent examiner, (2) preparation and prosecution of hundreds of patent applications, and (3) litigation of about 100 patents covering the gamut of such complex technologies.

3. I received a B.E. (Bachelor of Engineering) from the Stevens Institute of Technology in 1965 with emphasis on electrical engineering. I received a J.D. degree from Brooklyn Law School in 1968 and completed post-graduate studies in intellectual property law in 1971 at the George Washington University School of Law.

4. Upon graduation from law school in June 1968, I became a patent examiner in the U.S. Patent and Trademark Office (PTO.) I examined patent applications in Group Art Unit 210, principally covering discrete electrical control circuits for controlling various processes and for manipulating signal waveforms. During the 1½ years that I was a patent examiner, I examined approximately 100 patent applications, about 10-15 percent of which were appealed by applicants to the PTO Board of Patent Appeals and Interferences.

5. After leaving the PTO near the end of 1969, I became in-house patent counsel for

Communications Satellite Corporation (“COMSAT”), Washington D.C. COMSAT at the time was the managing director of the International Satellite Consortium (“INTELSAT”) and was the main research and development arm of INTELSAT with its labs in Gaithersburg, Maryland. As in-house patent counsel for COMSAT, I was responsible for all of its developing technology which included the digital signal transmission via satellite, video, audio and data processing in digital encoded form, multiple access satellite techniques such as time division multiple access (“TDMA”) and space division multiple access (“SDMA”), voice recognition and echo canceling digital and analog circuitry, solar cell technology, and earth station signal amplification and transmission techniques. I wrote and prosecuted patent applications for COMSAT in those areas of technology and oversaw the prosecution and preparation of similar patent applications by outside counsel in Washington, D.C.

6. After leaving COMSAT in approximately late summer 1972, I joined the intellectual property specialty law firm of Stevens, Davis, Miller and Mosher (“Stevens”) in Arlington, Virginia, as an associate attorney in its electrical engineering group. During the four years I was at Stevens, I wrote and prosecuted numerous patent applications relating to the electrical, electronic and electro-optical technologies, such as distributed digital control systems for regulating manufacturing processes, discrete logic circuitry for controlling automobile systems such as fuel-injection timing, and color photocopying systems. During this period, I also wrote approximately 25-30 appeal briefs and orally argued approximately 15 appeals before the PTO Board of Patent Appeals and Interferences. In addition, I assisted partners at Stevens in several patent litigations including trials that involved patent antitrust allegations and patent infringement lawsuits.

7. From September 1976 to April 30, 1982, I was a senior associate for two years and then partner for about four years at the intellectual property specialty law firm of Phillips, Moore, Lempio, Weissenberger and Strabler, San Francisco, California. During this almost six year period my emphasis was on representing Silicon Valley-based high technology computer hardware and software clients. I wrote and prosecuted patent applications, and provided patent

infringement/validity opinion work, on computer hardware/software technologies as diverse as networked transactional processing computer machines encompassing hierarchical memory systems, address, data and control bus architectures, data coherency techniques and memory addressing schemes, desktop personal computers including virtual memory systems and graphical user interfaces, computer peripherals such as hard and floppy disk drives and dot matrix and ink-jet printers, and computer software instruction sets for computer software operating systems.

8. On May 1, 1982, I founded, along with three other partners, the firm of Fliesler Dubb Meyer & Lovejoy ("FDML"), San Francisco, CA as an intellectual property specialty law firm, which is currently in its 21<sup>st</sup> year. From approximately 1982-1990, my practice was divided between patent preparation/prosecution, opinions/counseling, negotiations/licensing and IP litigation. In the area of patent preparation/prosecution, I wrote and prosecuted numerous hardware and software patent applications, and oversaw the work of associates at FDML, relating to microprocessors, memories (SRAMs, DRAMs, EEPROMs, flash memories), memory control systems, chipsets supporting microprocessors, programmable logic devices, cache memory systems, single microprocessor based hard disk drive systems, microwave test and instrumentation systems, telecommunications test equipment, and more. During this period, I litigated patents and trade secrets relating to complex computer workstations, desktop computer video processing and display systems, programmable logic devices ("PLDs"), arithmetic logic units ("ALUs."), and networked central maintenance and test systems ("CMTS").

9. From about 1990 until the present, most of my work has been in connection with patent litigation, opinion work and negotiations/licensing, and overseeing the numerous, complex hardware and software patent applications that are written by associates at FDML. The litany of technologies I am knowledgeable of and patent litigation work I have performed is summarized in my attached resume. Of particular note is a current patent infringement action filed last year by Intel Corporation against my client, S3 Graphics, Inc., involving five Intel patents relating to computer systems, comprised of microprocessors, bus-architectures, DRAMs

and chipsets, almost identical, from an architectural view, to Fig. 3 in the Expert Report of Professor Bruce Jacob.

10. Finally, as set forth in my attached resume, among the many professional capacities in which I served, I was appointed by Chief Judge Marilyn Hall Patel, U.S. District Court, Northern District of California as (1) Chair of the Model Patent Jury Instructions Working Committee which produced plain English model patent jury instructions being used by the judges in the Northern District, (2) Chair of the Magistrate Judge Merit Selection Panel for the Northern District, San Francisco Division, resulting in the appointment of Magistrate Judge Chen, and (3) a member of the Magistrate Judge Merit Selection Panel for the Northern District, San Jose Division, resulting in the appointment of Magistrate Judge Seeborg.

## **II. Materials Reviewed**

11. In the preparation of this report, I relied on the following materials:

- a) Prosecution File History of U.S. Serial No. 07/510,898, filed April 18, 1990;
- b) Prosecution File History of U.S. Serial No. 07/954,945, filed September 30, 1992;
- c) U.S. Patent No. 5,242,703 and its Prosecution File History;
- d) International Publication No. WO91/16680, published on October 31, 1991;
- e) U.S. Patent No. 5,953,263 and its Prosecution File History;
- f) U.S. Patent No. 6,038,195 and its Prosecution File History;
- g) U.S. Patent No. 6,049,846 and its Prosecution File History;
- h) U.S. Patent No. 6,101,152 and its Prosecution File History;
- i) U.S. Patent No. 6,324,120 and its Prosecution File History;
- j) U.S. Patent No. 6,378,020 and its Prosecution File History;
- k) U.S. Patent No. 6,426,916 and its Prosecution File History;
- l) U.S. Patent No. 6,452,863 and its Prosecution File History.
- m) U.S. Patent No. 6,470,405 and its Prosecution File History;
- n) FTC Complaint, Docket No. 9302;
- o) Answer of Respondent Rambus Incorporated;



- p) JEDEC Standard No. 21-C, Release 3, November 1992 (portions related to DRAMs);
- q) JEDEC Standard No. 21-C, Release 4, November 1993 (portions related to DRAMs and SDRAMs);
- r) JEDEC Standard No. 21-C, Release 7, January 1997 (portions related to DRAMs and SDRAMs);
- s) JEDEC Standard No. 21-C, Release 8, January 1998 (portions related to DRAMs and SDRAMs);
- t) JEDEC Standard No. 21-C, Release 10, November 2000 (portions related to DRAMs and SDRAMs);
- u) JEDEC Standard JESD 79, June 2000;
- v) Minutes of JC-42.3 Committee on RAM Memories, Meeting No. 62, May 7, 1992;
- w) Minutes of JC-42.3 Committee on RAM Memories, Meeting No. 72, September 13, 1994;
- x) Minutes of JC-42.3 Committee on RAM Memories, Meeting No. 77, December 6, 1995;
- y) Minutes of JC-42.3 Committee on MOS Memories, Meeting No. 78, March 20, 1996;
- z) Expert Report of Mark E. Nusbaum;
- aa) Expert Report on Synchronous DRAM Architectures, Organizations, and Alternative Technologies, by Prof. Bruce L. Jacob;
- bb) Complaint Counsel's Response and Objections to Respondent Rambus Inc.'s First Set of Interrogatories, dated November 8, 2002; and
- cc) Memorandum Opinion, dated March 15, 2001, of Judge Robert E. Payne re Rambus Inc. v. Infineon Technologies AG, et al.

### **III. The '898 Application**

#### **A. Overview of the '898 Application**

12. Patent application Serial No. 07/510,898 (the "'898 application'") discloses in detail, both in writing and with illustrations, a comprehensive system and system components for storing and reading data. Numerous structural, functional and operational features are clearly

disclosed throughout the disclosure, each of which is independently claimable and subject to examination by a Patent Examiner.

13. At the very beginning of the '898 application's specification, the inventors inform those of ordinary skill in the art that their invention applies to both (1) bus interfaces and (2) bus architectures ("Field of Invention"). After discussing generally the invention and some prior art (see "Background of the Invention" and "Comparison with Prior Art"), the disclosure sets forth to one of ordinary skill in the art at least eight different and separate features and components of the overall system, in the form of "objects." These include (1) semiconductor devices (e.g. DRAMs) that have a new bus interface built into them; (2) a high speed clocking scheme; (3) a mapping out scheme to allow defective memory devices or portions of the defective memory devices to be mapped out; (4) a technique that distinguishes otherwise identical devices (e.g. identical DRAMs); (5) a relatively narrow bus architecture and method of transferring address, data and control information over the relatively narrow bus; (6) a bus arbitration scheme; (7) a memory cache scheme within the DRAMs; and (8) other aspects of DRAMs for use with the bus architecture.

14. The specification goes on to describe the above and many other structural, operational and functional features, components and subsets of components (see "Detailed Description"), each of which is independently claimable. This portion of the specification, particularly in the way it sets forth numerous headings and subheadings of features, conveys to one of ordinary skill in this art, the realization that the co-inventors had many concepts in mind that were usable with or independently of the particular bus architecture described in detail in the specification. These headings and sub-headings include, in order, Device Address Mapping, Bus, Protocol and Bus Operation, Retry Format, Bus Arbitration, System Configuration/Reset, ECC, Low Power 3-D Packaging, Bus Electrical Description, Clocking, Multiple Buses, Device Interface, Electrical Interface-Input/Output Circuitry, DRAM Column Access Modification, and other features therebetween.

15. Among the independently claimable inventions in the '898 application are

inventions broad enough to read on synchronous memory devices that contain any of the four technical features identified at Paragraph 56 of the FTC Complaint. These are (1) programmable CAS latency as used in SDRAM and DDR SDRAM devices; (2) programmable burst length as used in SDRAM and DDR SDRAM devices; (3) on-chip DLL as used in DDR SDRAM devices; and (4) data transfer synchronous to both edges of the clock as used in DDR SDRAM devices. Inventions reading on devices containing any of these four technical features are described and illustrated in the original '898 patent application. Claims broad enough to encompass programmable CAS latency are supported by the discussion at, for example, page 14, lines 3-12 and page 21, line 8 - page 24, line 2 of the '898 specification. Claims broad enough to encompass programmable burst length are supported by the discussion at, for example, page 27, line 23 - page 28, line 20 of the '898 specification. Claims broad enough to encompass on-chip DLL are supported by, for example, Fig. 12 and the discussion in the corresponding portions of the '898 specification. Claims broad enough to encompass data transfer synchronously with both clock edges are supported by, for example, Fig. 10 and Fig. 13, and the discussion in the corresponding portions of the '898 specification.

16. Mr. Nusbaum, in his Expert Report at Section II(B)(3) ("Restriction Practice"), generally and accurately describes the restriction requirement practice in the PTO. In my extensive experience as a patent examiner, patent application preparer and prosecutor, and patent litigator, many patent applications are written that disclose in one large, original application specification an overall system, components, and subsets of components that comprise the entire system. In many of these applications, claims to these separate features are included in the original filed patent application. When this occurs, the patent examiner typically will require restriction, viewing the separate claims as independent patentable features that need to be set forth in other respective patent applications. These, then, typically appear in "divisional" patent applications and eventually the resulting patents issued from those divisional patent applications.

17. In other types of large patent applications, the applicant may originally describe and illustrate all of these system, system component and subset features, and originally claim

several but not all of these. The patent examiner may still require the applicant to elect claims to one feature and require divisional patent applications to be filed on the non-elected claims. In another variation of the restriction practice, during the course of the prosecution the applicant may decide to add claims in the original application, or in continuation applications, to the additional features disclosed but not originally claimed, in which event the patent examiner may require these additional claims to be filed yet in other separate divisional application(s). Other variations of these procedures related to the PTO restriction practice exist.

18. In the prosecution of the '898 application, the patent examiner found that the application as originally filed was attempting to claim 11 distinct inventions.

**B. Potential Claims in the '898 Application**

19. During the course of the patent prosecution of an original patent application and/or one or more of its divisional or continuation patent applications, an applicant may add claims of varying scope that are different from the claims filed with the original patent application and it is common to do so. Some of the other added claims may be broader and/or some may be narrower than the original claims.<sup>1</sup> Thus, it is typical for an applicant to add claims during the course of prosecution and even after a patent issues to cover inventive features disclosed in the original patent application but not previously claimed.

20. A cornerstone for the grant of a patent by the U.S. government is the disclosure the public receives of the technology created and developed by the inventors. In order to encourage this disclosure and provide the inventor with incentives for filing patent applications, the patent system, among other procedures, allows for flexibility in claiming, as discussed above, provided the disclosure in the originally filed patent application supports the subject matter being claimed. This flexibility is in the form of allowing claim amendments in the original application, the filing of one or more continuation applications in which claims are added, the filing of one or

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<sup>1</sup> In fact, even after a patent issues, under the "reissue" statute and PTO reissue procedures, an applicant may add new claims of varying scope. Under the reissue practice, if the claims are broader than the issued claims, they must be filed within two years of the date of patent issue, and if they are narrower, they may be filed at any time prior to expiration of the patent.

more divisional applications in which claims are included, and even reissue patents to claim subject matter that was not previously claimed. Consequently, for those interested in understanding what an inventor may claim or possibly claim, reference must always be made to the description and illustrations that are part of the original patent application. Those so interested, be they one of ordinary skill in the art, e.g. engineers at a certain level of education and/or experience with some basic knowledge of the patent system, or patent lawyers, know or should know that the inventor eventually may claim subject matter properly disclosed in the application but not originally claimed.

21. A knowledgeable engineer or patent lawyer reviewing the broad disclosure of the '898 application and the various inventive features described therein, would have realized that the application could support claims to numerous inventions independent of the particular bus architecture of the preferred embodiment disclosed in the application.

22. In particular, a knowledgeable engineer or a patent lawyer reading the original disclosure of the '898 application with a view to determining whether Rambus might have claims to the four features identified in Paragraph 56 of the FTC Complaint independently of the particular bus architecture disclosed in the '898 application would have realized that there were numerous features that could potentially be claimed with varying degrees of claim scope including those four specific features. (Of course, ultimately, whether Rambus would be entitled to such claims would depend not just on the application but also on the state of the prior art.) Such an engineer or patent lawyer should have considered that those features at some point in the course of the PTO prosecution might be claimed, rather than be simply dedicated to the public by a failure to so claim.

23. I have been asked to consider what a knowledgeable engineer or patent lawyer would have determined from a review of two documents related to the '898 application that were publicly available in the early 1990s: (1) Rambus's international patent application pursuant to the Patent Cooperation Treaty based on the '898 application (the "PCT application"); and (2) U.S. Patent No. 5,243,703, the first United States patent to issue claiming priority to the '898

application.

### 1. The PCT Application

24. Rambus filed the PCT application on April 16, 1991. The cover page of the PCT application notes that it claims priority back to this U.S. patent application 510,898, filed April 18, 1990. In the normal course, such international applications are published approximately 18 months after their priority date. In this case, the PCT application was published on October 31, 1991, slightly more than 18 months after April 18, 1990, with International Publication Number WO91/16680. As one would expect given the claim of priority back to the '898 application, the PCT application is identical in all material respects to the '898 application.

25. A patent lawyer or knowledgeable engineer reviewing the PCT application with a view to determining what other claims Rambus might be entitled to by the specification in that application would have realized that he or she could not simply read the original claims in the application. Such a patent lawyer or knowledgeable engineer would also have read the specification and examined the drawings to determine what additional subject matter might be claimed in continuation or divisional applications claiming priority back to the filing date of the '898 application. As discussed above, such a patent lawyer or engineer would have realized that, assuming such claims were not precluded by prior art, Rambus would be entitled to claims broad enough to encompass the four features identified in Paragraph 56 of the FTC Complaint independently of the particular bus architecture disclosed in the '898 application.

26. On turning to the claims in the PCT application, such a patent lawyer or knowledgeable engineer would have noted claims directed at programmable latency and variable burst length. While most of these claims contained other limitations related to the bus architecture,<sup>2</sup> it is common practice when amending claims or filing continuation or divisional

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<sup>2</sup> Claim 103, directed to programmable latency, arguably does not contain limitations relating to the bus architecture. Claim 103 describes certain features of the bus architecture (stating that the semiconductor device is "capable of use in a semiconductor bus architecture . . . wherein said bus includes a plurality of bus lines for carrying substantially all address, data and control information needed by [the] semiconductor device for communication with substantially every other semiconductor device connected to said bus, and has substantially fewer bus lines than the number of bits in a single address") in the part of the claim known as the "preamble," that is, the part of the claim prior to the term "comprising" that is followed by the elements of the invention. It is generally the case that

applications to review earlier claims and remove unnecessary limitations. A patent lawyer or knowledgeable engineer would have realized that programmable latency and variable burst length were prime candidates for later claims.

## 2. The '703 Patent

27. The '703 patent issued on September 7, 1993. As a divisional of the '898 application, it shares a common specification and common drawings with the '898 patent application. This is made clear by the '703 patent itself, which stated on its title page at Field [62]: 'Division of Ser. No. 510,898, April 18, 1990, abandoned.' A reasonable patent lawyer or knowledgeable engineer reviewing the '703 patent with a view to determining what other claims Rambus might be entitled to would have realized that, subject to prior art, Rambus would be entitled to claim, in other divisional or continuation applications, any invention disclosed in the '703 patent's specification and that any such claim would be entitled to the priority date of the '898 application. Such a reasonable patent lawyer or knowledgeable engineer would have realized in particular that Rambus would be entitled to claims, with the priority date of the '898 application, broad-enough-to encompass the four features identified in Paragraph 56 of the FTC Complaint independently of the particular bus architecture disclosed in the '703 patent specification. Indeed, the claims of the '703 patent itself, which are directed at a clocking scheme disclosed in the specification, are not limited to the particular bus architecture disclosed in the specification.

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statements in the preamble do not limit the claim. The exceptions to that rule, such as when the preamble is required to "give life, meaning and vitality to the claims" – i.e. when the claim cannot be properly interpreted without referring to the preamble – do not, in my opinion, apply here. *Bell Communications v. Vitalink Communications*, 55 F.3d 615, 621 (Fed. Cir. 1995) (footnote and internal quotation marks omitted). In my opinion, the preamble in Claim 103 should not be considered as limiting the breadth of the claim. Indeed, in rejecting the claim, the patent examiner expressly noted that the language stating that the device was "capable of" use in a certain bus architecture "does not constitute a limitation in any patentable sense."

28. Thus, a reasonable patent lawyer or knowledgeable engineer reading the '703 patent would look at its issued claims to see what the '703 patent actually covered, and would also read the entire disclosure to determine what else might be claimed in related applications. Upon a review of the '703 patent, such a lawyer or engineer would have noted from the disclosure in Column 1 of the patent the existence of nine other divisional applications relating back to the filing date of the '898 application and realized that Rambus was actively pursuing numerous claims other than what was actually claimed in the '703 patent.

#### **IV. Patents Claiming Priority to the '898 Application**

29. My opinion that a knowledgeable engineer reviewing the '898 application would have realized that the application could support claims to a variety of inventions independent of any particular bus architecture is supported by the fact that the PTO allowed numerous such claims to issue.

30. As noted above, during the prosecution of the '898 application, the examiner determined that it was attempting to claim 11 distinct inventions when originally filed and imposed a restriction requirement. Rambus subsequently filed 10 divisional applications. The original application and the divisional applications spawned numerous additional divisional and continuation applications, all claiming priority back to the filing date of the '898 application.

31. However, in order to be entitled to the filing date of the original application, any new claims added to the application, or to a divisional or continuation application, must be fully supported by the disclosure of the original application and must meet all other statutory requirements to be allowed, including the requirements of 35 U.S.C. § 112. In particular, section 112 contains a requirement that "[t]he specification shall contain a written description of the invention." The Federal Circuit has consistently interpreted this "written description" requirement as requiring that the applicant "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the "written description" requirement, *whatever is now claimed*." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (emphasis in original). This



“‘written description’ requirement most often comes into play where claims not presented in the application when filed are presented thereafter.” *Id.* at 1560. In other words, the written description requirement provides that only claims whose subject matter is disclosed in an original application – in sufficient detail that a person of ordinary skill in art would understand from the original application that the applicant was in possession of the invention in those claims – can be added later, whether by amendment, continuation or divisional, and still be entitled to the filing date of the original application.

32. Patent examiners, in the course of examining original patent applications, divisional applications, continuation applications, and even reissue patent applications, evaluate all claims submitted to them for examination for support in the disclosure of the original application and for compliance with the written description requirement. Indeed, the Manual of Patent Examining Procedure, the “bible” for patent examiners, expressly provides that the examiner must carefully examine the application for compliance with the written description requirement. MPEP §§ 706.03(a)(i), (c), 2161. Patent examiners are knowledgeable in the technical areas in which they examine patent applications, since they are assigned to examine specific areas or classifications of inventions based on their technical college degrees and/or technical undergraduate coursework, and any prior engineering or scientific work experience. The most junior patent examiners are required to have their work, including Office Actions mailed by the PTO or examiner’s answers to appeal briefs filed with the PTO Board of Patent Appeals and Interferences, reviewed and signed by more senior patent examiners who are Primary Examiners (“PEs”) or Supervisory Primary Examiners (“SPEs”). It is the PEs and the SPEs who have the “signatory authority” that allows them, and not the junior examiners, to sign Office Actions, approve of the allowance of patent applications, and file examiner’s answers to appeal briefs with the PTO Board of Patent Appeals and Interferences. When any patent issues from an application, it has the presumption of validity under 35 U.S.C. § 282, which includes the presumption that the claims are valid under 35 U.S.C. § 112, including the written description requirement, as determined by the patent examiner.

33. Numerous patents have issued to Rambus that claim priority back to the filing date of the '898 application. I have reviewed some of the more recently issued of those patents and have determined that they contain claims that can be reasonably construed as broad enough to encompass, without regard to the type of bus used with the memory devices, synchronous memory devices that contain, singly or in combination, the four technical features identified at Paragraph 56 of the FTC Complaint that I discussed above, namely: (1) programmable CAS latency as used in SDRAM and DDR SDRAM devices; (2) programmable burst length as used in SDRAM and DDR SDRAM devices; (3) on-chip DLL as used in DDR SDRAM devices; and (4) data transfer synchronous to both edges of the clock as used in DDR SDRAM devices.

34. For example, U.S. Patent No. 5,953,263 issued on September 14, 1999, and claims priority back to the filing date of the '898 application. Claim 1 of the '263 patent claims:

1. A synchronous semiconductor memory device having at least one memory section which includes a plurality of memory cells, the memory device comprises:

a programmable register to store a value which is representative of a delay time after which the memory device responds to a read request.

I understand that the term "read request" was construed narrowly by the court in the case *Rambus Inc. v. Infineon Technologies* and that that construction is currently on appeal to the Federal Circuit. The outcome of that appeal will have no effect on my opinion because I agree with Mr. Nusbaum that a patent examiner is required to interpret claim terms in the "broadest reasonable" manner when examining an application. Nusbaum Report at 17-18. According to such a broad, reasonable construction of the claim terms including "read request" (such as the construction proffered by Rambus in the *Infineon* case cited by Mr. Nusbaum at pages 19-20 of his Report), Claim 1 of the '263 patent would read broadly on synchronous memory devices using a programmable register to store a CAS latency value. Furthermore, the patent examiner who examined the '263 patent and allowed Claim 1 to issue determined that Claim 1, broadly construed, complied with the "written description" requirement. In other words, the patent

examiner determined that the original disclosure in the '898 application would convey with reasonable clarity to one of ordinary skill in the art that Rambus was in possession of the invention of Claim 1 broadly construed – namely a synchronous memory device using a programmable register to store a delay time value and without any limitation directed at the bus architecture to be used with the memory device.

35. More recently, the PTO has issued patents to Rambus that broadly read on the programmable CAS latency feature in synchronous memory devices without using the terminology narrowly construed by the *Rambus v. Infineon* court. For example, Claim 11 of U.S. Patent No. 6,101,152 does not include any of the narrowly construed terms and would be infringed by a device that stores a value that is representative of the number of clock cycles to transpire between receipt of a read command and output of data in response to the command.

36. Similarly, the PTO has issued patents to Rambus claiming priority back to the '898 application which, under a broad reasonable interpretation, read broadly on synchronous memory devices that contain any one of the other three features that are listed in the FTC's complaint. *See, e.g.*, U.S. Patent No. 6,049,846 (Claim 1 reading on synchronous memory devices with on-chip DLL); U.S. Patent No. 6,324,120 (Claim 1 reading on methods of operating synchronous memory devices that include outputting an amount of data corresponding to received block size information, i.e., burst length); U.S. Patent No. 6,378,020 (Claim 30 reading on integrated circuit devices, including synchronous memory devices, which output data in response to operation codes specifying read operations on both the falling and rising edges of clock signals, i.e. DDR).

37. Numerous other patents issued to Rambus that claim priority back to the '898 application contain claims that can be reasonably interpreted as reading on synchronous memory devices, or a method of operating or controlling the memory device, containing the four technical features discussed above, either singly or in combination, and without regard to any particular kind of bus architecture. For example, these are U.S. Patent Nos. 6,038,195 (e.g. Claim 1);

6,426,916 (e.g. Claim 1); and 6,452,863 (e.g. Claim 1).<sup>3</sup> My review of the prosecution histories of the patents that I have cited, indicates that the patent examiner gave very careful consideration to the patentability of the claims. All of the claims in each application were originally rejected on substantive grounds, for example pursuant to § 112 or as a result of prior art. Thus, there can be no doubt that the PTO has determined, and repeatedly confirmed, that, in its view, the claims that ultimately issued comply with the written description requirement of 35 U.S.C. § 112. Once again, this means that the PTO has determined that the original specification of the '898 application clearly conveys to one of ordinary skill in the art that Rambus was in possession of those inventions: synchronous memory devices, or methods of operating or controlling the memory devices, containing any one of the four technical features, without regard to any particular kind of bus architecture.

**V. Policy and Practice Regarding Confidentiality of Patent Applications**

38. Applications for United States patents are maintained in strictest confidence by the PTO.<sup>4</sup> This confidentiality serves an important public policy: it encourages the filing of patent applications that may ultimately lead to the disclosure of significant inventions by ensuring that the inventor does not immediately give up the confidentiality to which he or she would otherwise be entitled. Such confidentiality can be important:

- a. First, prior to publication, the disclosure in patent applications is entitled to trade secret protection. In exchange for a patent, the patentee gives up the trade secret protection, but it would be disadvantageous to do so earlier than necessary. A PTO office action may indicate, for example, that the invention claimed is not patentable or that only a narrow scope of patent protection would be available. In

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<sup>3</sup> In the course of the prosecution of the '863 patent, Rambus disclosed to the patent examiner the recently issued claim construction ruling from the *Infineon* case and expressly stated that it was amending the claims so as to remove claim terms that had been construed by the *Infineon* court as restricting the claims to the particular bus architecture disclosed in the specification. Thus, Rambus effectively informed the examiner that it was seeking broader claims.

<sup>4</sup> Prior to 1999, this confidentiality was maintained until the actual issuance of a patent. In 1999, the law was amended to allow for publication of applications after 18 months in certain cases, with strict confidentiality maintained up to that time. 35 U.S.C. § 122.

that case, the applicant may choose to abandon the application and maintain trade secret protection.

- b. Second, aside from the trade secrets inherent in the invention in the patent application, such an application could reveal other sensitive technical and/or business information to competitors – such as the sort of products a company is trying to develop or the areas of research that it is pursuing.
- c. Third, such an early disclosure could provide a competitor a jump-start in developing improvements on the disclosed and/or specific claimed technologies that the applicant was planning to perform, but at a later date.

39. In my practice, I counsel clients that they generally should not reveal the contents of otherwise secret patent applications not only for the reasons stated above, but also because premature disclosure could lead to problems and delays in prosecuting the application:

- a. First, disclosure of patent applications could result in competitors seeking to prevent or delay the issuance of a patent. For example, the competitor could try to amend one of its own patent applications to claim the same invention and thereby trigger interference proceedings – even if ultimately unsuccessful, such a tactic could significantly delay the patent prosecution process and be costly to the applicant. In addition, competitors could submit prior art to the PTO which, even if not ultimately deemed material, could delay proceedings.
- b. Second, disclosure of an application by an inventor could lead to significant problems if he or she were then presented with allegedly material prior art in response. Sending the prior art to the PTO (if the prior art were properly transmitted to the attorney prosecuting the application) could delay proceedings; not sending the prior art to the PTO, on the other hand, could lead to later claims of inequitable conduct for failure to disclose known prior art, even if the prior art were of marginal relevance. It is far better to simply pursue a general non-disclosure policy.

40. Confidentiality concerns apply with even greater force to the mere intention to file a patent application. I counsel clients that any such intention should be kept strictly confidential for the reasons that I have stated above with respect to the applications themselves, and for other reasons as well. For example, while in the United States an inventor has one year from a public disclosure of his invention to file a patent application, most foreign jurisdictions require that a patent application be filed prior to any public disclosure at all. The disclosure of an intention to file a patent application along with some description of the invention to be patented could be considered a public disclosure that would thereafter bar any patent protection for the disclosed subject matter in such foreign jurisdictions. Consequently, I counsel clients to get a United States application on file prior to *any* disclosure related to an invention in order to preserve all patent rights (including foreign rights since foreign applications may be filed within one year of the United States application and claim priority to the United States application).

41. As another example, imagine a scenario in which A and B have independently made the same invention, but A was first to invent. If A discloses his intention to file a patent application to B, this may prompt B to rush to get a patent application on file. (Indeed, if B were an unscrupulous competitor, he could assert that he had made the invention and file a patent application, even if he had only learned of the invention from A.) This would not necessarily be a problem in the United States where a patent is awarded to the first to invent. Virtually all foreign jurisdictions, however, follow a "first-to-file" rule. If B files his application in such a jurisdiction before A, he will be awarded a patent, even though A had made the invention first.

42. On occasion, there may be good business reasons to disclose some or all of a patent application. For example, often in the course of licensing negotiations, one party may reasonably demand to see patent applications filed by the other party in connection with the technology at issue. Even then, I counsel clients to reveal as little information as possible under the circumstances (and only pursuant to a non-disclosure agreement). For example, I will often counsel clients to reveal the specification of an application in connection with licensing negotiations, but not the claims in the application. The specification should give the other party

a sufficiently clear idea of the technology that is potentially subject to patent protection. Revealing the claims, on the other hand, is unnecessary and could lead to some of the pitfalls listed above. For example, if a competitor knows what one is actually trying to claim, as opposed to the broader universe of what one hypothetically could attempt to claim from the specification, that competitor could gain insight into sensitive business and/or technical strategies.

43. As I have discussed above, in order for a patent claim in a later divisional or continuation application to be entitled to the filing date of an original application, that original application must clearly convey to persons of ordinary skill in the art that the applicant had possession of the later-claimed invention at the time of filing the original application. At the same time, the law carefully balances this disclosure obligation and the applicant's right to confidentiality with respect to patent applications. Thus, even if the specification of an original application is published – for example, because claims in the application are allowed and a patent issues – it does not follow that the applicant must then disclose other continuations and divisionals that may have been filed claiming priority back to that original application. As in the context of licensing negotiations, the published specification puts the public on notice of potential other claims that an applicant may have; at the same time, the applicant is entitled to keep the actual claims that he or she may be pursuing in related applications confidential.

44. The '703 patent, discussed above, serves as an example of the balance struck between disclosure and confidentiality. When the '703 patent was issued, the specification of the original '898 application was disclosed to the public, putting the public on notice of other potential claims that Rambus could pursue in related applications – indeed, as noted above, the '703 patent explicitly disclosed the existence of nine other divisional applications of the '898 application. However, the actual claims in those divisional applications continued to be maintained by the PTO in the strictest confidence.

## **VI. Rambus Claims Cited By Professor Jacob**

45. In Section VII of his Expert Report, Professor Bruce Jacob cites a number of claims from Rambus patent applications, and from a Rambus patent, and opines that each of those claims “cover the subject matter of JEDEC standard-setting work.” Jacob Report, ¶ 102. It is unclear what Professor Jacob means by this. I have been asked to review the claims cited by Professor Jacob as well as their prosecution histories and determine whether products built to the JEDEC standards for SDRAM or for DDR SDRAM would necessarily infringe the claims if they had issued in the form cited by Professor Jacob. As set forth below, none of the claims cited by Professor Jacob would necessarily read on products built to the JEDEC standards. I will discuss my views of the claims in the order presented by Professor Jacob in his Expert Report.

### **A. Claim 160 of Application No. 07/847,961**

46. Claim 160 was pending at the PTO for only a few months in 1995. Rambus initially submitted claim 160 in an amendment to the ‘961 application received by the PTO mailroom on January 10, 1995. Then, in an Office Action mailed April 20, 1995, the patent examiner rejected claim 160 (and others) as indefinite under 35 U.S.C. §112, second paragraph. Rather than seeking to amend claim 160 in an attempt to render it patentable, Rambus cancelled it on June 23, 1995. (This cancellation was in a Preliminary Amendment to a continuation application, Serial No. 08/469,490, filed June 6, 1995.)

47. Claim 160 is defective and not susceptible to proper interpretation; consequently, even if it had issued, it could not be infringed by any product. The claim states: “having that [sic] is configurable by a device that is external to the semiconductor device.” It appears that claim 160 is attempting to define “something” that is configurable by an external device, but that “something” has not been set forth. If the configurable element is a “register,” it is unclear which of the multitude of registers disclosed in the specification was intended. In short, claim 160 as written is too ambiguous for proper interpretation.

48. Claim 160 as presented was indefinite, the patent examiner rejected it as indefinite, and the claim was then cancelled by Rambus. A fundamental requirement for



analyzing whether a given patent claim reads on a given device is that the claim be definite.

Therefore, claim 160 does not read on any devices.

**B. Claim 164 of Application No. 07/847,961**

49. Claim 164 is a dependent claim, dependent on claim 160. As such, it suffers from the indefiniteness set forth above and as identified by the patent examiner in the above-mentioned office action. Claim 164 was likewise rejected by the examiner and, thereafter, cancelled by Rambus at the same time as claim 160.

50. Moreover, Claim 164 includes the claim limitation “the semiconductor device being operative to wait for the access time before using the bus in response to a transaction request specifying the semiconductor device” that is not satisfied by SDRAMs or DDR SDRAMs according to the JEDEC standards. I will discuss this limitation below in connection with claim 183 of the Application No. 08/469,490.

**B. Claim 183 of Application No. 08/469,490**

51. Like the claims discussed above, claim 183 was also pending for only a short time in 1995. Claim 183 was first presented in a Preliminary Amendment of June 23, 1995. On November 21, 1995, in response to a restriction requirement from the examiner, Rambus provisionally elected to pursue other claims in the application. In an Amendment of February 29, 1996, claim 183 (and claims 184-185 commented upon by Professor Jacob in his Expert Report) were cancelled from the application as being non-elected.

52. The last limitation in claim 183 provides: “the semiconductor device thereafter being operative to wait for the access time before using the bus in response to a request specifying the semiconductor device.” As set forth in the specification of the application, identical devices such as DRAMs coupled to the bus, are individually identified by a “unique device ID number” that is stored in a device ID register on the respective semiconductor device. In operation, a given semiconductor device is specified by a corresponding ID number that is supplied with a transaction request and that is compared with the stored unique device ID number.

53. The JEDEC standards for SDRAM and DDR SDRAM, by contrast, specify chip select signals, which would be transmitted along individual chip select lines between a device controller and respective semiconductor devices, to select the given semiconductor device. Thus, devices built to the JEDEC standards do not “respon[d] to a request specifying the semiconductor device” within the meaning of claim 183. Even if claim 183 had issued, it would not be infringed by devices built to the JEDEC standards.

**D. Claim 151 of Application No. 07/847,692**

54. This claim specifies a phase-locked loop (PLL). As Professor Jacob notes, DDR SDRAM devices contain DLLs. Jacob Report, ¶ 83. Moreover, PLLs and DLLs are “not the same thing at all.” *Id.* at 46 (footnote). Thus, devices built to the JEDEC standard would not infringe this claim.

55. Indeed, Professor Jacob does not contend that claim 151 relates to the JEDEC standard, but only that it allegedly “covers” the subject matter of an NEC presentation made at meeting 72 of the JEDEC 42.3 committee in September 1994. Jacob Report, ¶ 99. Even with respect to this presentation, however, claim 151 would not read on a device containing the circuit shown by NEC. Claim 151 recites “a clock signal receiving circuit coupled to receive an external clock signal for generating a local clock signal for performing memory operations with respect to the memory array.” The NEC presentation, on the other hand, shows a PLL generating a local clock signal that, as Professor Jacob notes, “drives the output buffers” rather than performing memory operations with respect to the memory array as required by the claim.

**E. Claims 1 and 7 of Patent No. 5,513,327**

56. Claim 1 of the ‘327 patent specifies a “receiver circuit for latching information received from the conductor in response to a rising edge of the clock signal and a falling edge of the clock signal.” Thus, data are written into a given DRAM by latching that information with the rising and falling edges of the clock signal. The JEDEC standard, however, specifies a data strobe signal DQS that is used to capture write data rather than the clock signal. It follows that a DDR SDRAM built to the JEDEC standard would not infringe claim 1 of the ‘327 patent.

57. Claim 7 of the '327 patent specifies a "multiplexer" that is responsive to the rising and falling edges of the clock signal to output or read data. The JEDEC standard does not require such a multiplexer. Consequently, a DDR SDRAM device built to the JEDEC standard would not necessarily infringe claim 7.

**F. Claim 151 of Application No. 08/222,646**

58. The '646 application ultimately issued as the '327 patent discussed above. As with claim 1 of the '327 patent, claim 151 of the '646 application specifies a "receiver circuit for latching information received from the conductor in response to a rising edge of the clock signal and a falling edge of the clock signal." The JEDEC standard specifies a data strobe, DQS, that is used to write data into a DRAM rather than the rising and falling edges of the clock signal.

**VII. Other Rambus Patents**

59. I may also testify about Rambus patents that do not claim priority to the '898 application that read on DDR SDRAM devices. For example, U.S. Patent 6,470,405 issued to Rambus on October 22, 2002 and claims priority to an October 19, 1995 application. Claim 1 of the '405 patent recites:

1. A method of operation in a semiconductor memory device, wherein the memory device receives an external clock signal and includes an array of memory cells, the method comprises:

receiving a first code synchronously with respect to the external clock signal, wherein the first code specifies that a write operation is to be initiated in the memory device

receiving a second code synchronously with respect to the external clock signal, wherein the second code specifies that a precharge operation is to be initiated automatically after initiation of the write operation;

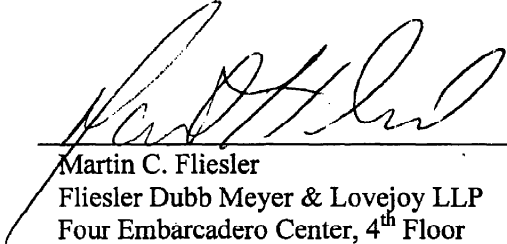
detecting an external strobe signal, wherein the external strobe signal indicates when to begin sampling data;

sampling the data upon detection of the external strobe signal, wherein during the write operation, the memory device writes the data to the array; and

initiating the precharge operation automatically after the write operation is initiated.

The JEDEC standard for DDR SDRAMs provides for "auto precharge," namely a precharge operation "to be initiated automatically after initiation of the write operation," as specified in the claim. The standard also provides for an external strobe signal, DQS, that "indicates when to begin sampling data" during write operations as specified in the claim. Since the other claim limitations are also satisfied, claim 1 would appear to read on DDR SDRAMs built to the JEDEC standard.

Date: January 7, 2003

  
\_\_\_\_\_  
Martin C. Fliesler  
Fliesler Dubb Meyer & Lovejoy LLP  
Four Embarcadero Center, 4<sup>th</sup> Floor  
San Francisco, CA 94111-4156  
Telephone: (415) 362-3800

*ATTACHMENT*

**MARTIN C. FLIESLER**

MARTIN C. FLIESLER, born 1943 in New York, is a founding partner of Fliesler Dubb Meyer & Lovejoy LLP. He counsels clients principally in the fields of computer systems hardware architecture, software (including operating systems, application programs, databases, tools, programming languages such as JAVA and object-oriented software), computer peripherals, semiconductor chips and chip sets including microprocessors, complex programmable logic devices, analog signal processors and graphics processors and many other technologies, all as applied to networks, such as LANs, WANs and the Internet, mobile wireless systems such as cellular telephones and satellite communications, file transfers (involving anti-virus detection and correction, security and data compression, e-commerce, and e-mail over the Internet) and microwave instrumentation. His practice focuses on the litigation of patents, copyrights, and trade secrets, and negotiating and writing transactional agreements, relating to these leading-edge technologies.

**Prior Legal Experience**

Prior to founding the firm in 1982, Mr. Fliesler was a Patent Examiner in the United States Patent and Trademark Office (1968-1969), in-house patent counsel for the Communications Satellite Corporation (COMSAT), Washington, D.C. (1969-1972), an associate attorney with Stevens, Davis, Miller & Mosher, Washington, DC (1972-1976), and a partner with Phillips, Moore, Lempio & Majestic, San Francisco, California (1976-1982).

**Representative Litigation and Transactional Services**

As trial counsel, Mr. Fliesler has litigated software patents covering: anti-virus detection and repair, file transfer and SMTP mail messaging via the Internet and local area networks, engines processing natural-language inputs for searching the web, algorithms for color matching between color devices, tools for detecting memory access errors, distributed tape backup systems, and databases. He has also litigated hardware patents and trade secrets covering chip sets for interfacing microprocessors with networks, arithmetic logic units for microprocessors, programmable logic devices, analog integrated circuits, graphics accelerator chips, and test equipment, including microwave vector network analyzers and telecommunications equipment, and more.

Mr. Fliesler's experience also includes litigating patent and copyright license agreements and joint development formation agreements covering boot-up software, anti-virus software, reprogrammable logic devices and chip sets.

As to his transactional work, Mr. Fliesler has negotiated and written agreements for the transfer of technology and for the licensing and cross-licensing of patent and/or copyright rights in hard disk drives, databases, the manufacture of semiconductor chips (foundry agreement), flash memory and software (source code and object code), such as utilities, antivirus detection and correction, word processing, graphical user interface and data compression software.

## **Representative Cases**

### **HARDWARE/CHIP PATENTS:**

Intel Corp. v. S3 Graphics et al.

Counsel for S3 Graphics. Five Intel patents relating to chip sets interfacing microprocessors with networks.

Vantis Corporation v. Altera Corporation.

Counsel for Vantis. Thirteen Vantis and Altera patents relating to complex programmable logic devices.

Altera Corporation v. Lattice Semiconductor Corporation.

Counsel for Lattice. Twenty-three Lattice and Altera patents relating to complex programmable logic devices.

Advanced Micro Devices ("AMD") v. Alliance Semiconductor.

Counsel for AMD. Two patents relating to flash memories.

AMD v. Brooktree Corporation.

Counsel for AMD. One patent infringement relating to a method for fabricating semiconductor devices.

Brooktree Corporation v. AMD.

Counsel for AMD. The first case tried under the Semiconductor Chip Protection Act for mask work infringement and two patents relating to graphics processors.

AMD v. Gazelle

AMD v. Samsung

AMD v. Atmel

AMD v. Cypress Semiconductor.

Counsel for AMD in four Actions based on two patents covering simple programmable logic devices and arithmetic logic units.

AMD v. Cypress Semiconductor

Cypress Semiconductor v. AMD.

Counsel for AMD. Sixteen AMD and Cypress patents involving many chips such as microprocessors, complex programmable logic devices and memory devices.

Conner Peripherals v. Western Digital,

Western Digital v. Conner Peripherals

IBM v. Conner Peripherals.

Counsel for Conner Peripherals. Ten patents owned by all three parties relating to various architectural, mechanical and electrical disk drive technologies.

Elantec Semiconductor Corporation v. Pixel Corporation et al.  
Counsel for Elantec. Two patents relating to analog sync separation circuits for processing video signals.

Maxim Integrated Products v. Teledyne Semiconductor.  
Counsel for Teledyne. One patent relating to dual power supply analog chips.

Wiltron Corporation v. Microsource  
Counsel for Wiltron. Two patents relating to oscillators.

Atari v. Commodore  
Counsel for Atari. Two patents relating to microprocessor-based data processing systems.

SOFTWARE PATENTS/COPYRIGHTS/TRADE SECRETS:

Electronics for Imaging, Inc. v. Compose Systems, Inc. et al.  
Counsel for Compose. Three patents relating to color management and processing between disparate color devices.

Franklin Computer Corporation v. Central Point Software.  
Counsel for Central Point. Copyright protection for boot up code in a BIOS (basic input/output system).

Hilgraeve v. Symantec Corporation.  
Counsel for Symantec. One patent relating to antivirus software for desk top, network and Internet gateway systems.

IPLearn, LLC v. Ask Jeeves, Inc.  
Counsel for IPLearn. Three patents relating to natural-language input questions and answers for searching the web.

North Star Computers v. Servio-Logic Corporation.  
Counsel for Servio-Logic. Trade secrets relating to software for personal computers and networks.

PCPC v. Symantec Corporation.  
Counsel for Symantec. One patent relating to tape backup software distributed over a network (LAN or WAN).

Trend v. Symantec Corporation.  
Counsel for Symantec. One patent relating to antivirus software positioned at firewalls and gateways for protecting data transfers and SMTP e-mail received via the Internet

Pure-Atria v. Platinum Corporation.  
Counsel for Platinum. One patent relating to a software utility for detecting memory access errors.

Telecommunications Techniques Corporation v. Wiltron Corporation.  
Counsel for Wiltron. Two patents and trade secrets relating to telecommunications signal processing.

Wiltron Corporation v. Hewlett-Packard.  
Counsel for Wiltron. Two microwave patents relating to vector network analyzers including fast Fourier transfer algorithms.

### **Professional Activities**

Mr. Fliesler is Chair of the Patent Jury Instructions Working Committee for the U.S. District Court, Northern District of California (2001). He served as Chair of the Magistrate Judge Merit Selection Panel for the US District Court, Northern District of California, San Francisco Division (2000) and was a member of the Magistrate Judge Merit Selection Panel for the US District Court, Northern District of California, San Jose Division (2000). He was President of the San Francisco Bay Area Intellectual Property Inn of Court (1998-1999, 1999-2000) and was Chairman of the Subcommittee on Intellectual Property Law/Software of the Lawyers Committee of the American Electronics Association (AEA) (1978-1985). He has chaired and spoken at professional meetings throughout the country for the AEA and the IEEE on the subject of intellectual property law and related business strategies. Mr. Fliesler also was a lecturer for the Business Law Section of the State Bar of California at its seminars on intellectual property licensing, for the American Conference Institute at its program on intellectual property licensing, and for Prentice Hall Law & Business at its seminar on patent litigation.

### **Publications**

Copyrights, Computers and Confusion, California State Bar Journal, (April 1981) (co-author)  
Patent and Copyright Protection for Computer Hardware and Software: Patent Misuse and Antitrust Implications, WESCON/81  
Patentability of Software, IEEE COMPCON/82  
Asserting the Best Mode Defense to Patent Validity, Critical Issues in Patent Litigation, Prentice Hall Law & Business Seminar, (October 1991)

### **Education**

Mr. Fliesler holds a B.E. (Electrical Engineering) (1965) from Stevens Institute of Technology and a JD (1968) from Brooklyn Law School. He completed postgraduate courses (1971) in intellectual property law at George Washington University Law School.

### **Legal Affiliations**

Mr. Fliesler is a member of the State Bars of New York (1968) and California (1977) and is registered to practice before the United States Patent and Trademark Office (1971). Mr. Fliesler is admitted to practice before the United States Supreme Court, United States Courts of Appeals for the Federal Circuit and Ninth Circuit and the United States District Court for the Northern



District of California, and other Federal Appellate and District Courts around the country.

**Expert Testimony**

Mr. Fliesler has been a testifying expert in the following matters:

*John J. Canter; David H. Foster; Marc J. Roegiers v. West Publishing Company et al.*  
U.S. District Court, Northern District of California, San Jose Division, No. C-96 20440 PVT

*In the Matter of Schering Plough Corporation and Upsher-Smith Laboratories*  
Federal Trade Commission, FTC Docket No. 9297



1 UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

2 MICRON TECHNOLOGY, INC., )  
3 8000 S. Federal Way )  
4 Post Office Box 6 )  
5 Boise, Idaho 83707-0006 )

6 )  
7 Plaintiff, )

8 )

9 vs. ) No. 00-792-RRM

10 )

11 RAMBUS INC., )  
12 2465 Latham Street )  
13 Mountain View, California )  
14 94040 )

15 )

16 Defendant. )

17 )  

---

18 DEPOSITION OF LESTER J. VINCENT

19 Redwood Shores, California

20 Tuesday, October 9, 2001

21 Volume III

22 Reported by:

23 LYNNE M. LEDANOIS

24 CSR No. 6811

25 Job No. 28324

1 what you were trying to say back in the June 1996 time  
2 frame?

3 A This was five years ago. No, I don't recall.  
4 Are we close to a break?

5 Q Yes, I think we are close. Maybe within five  
6 minutes; is that fair enough?

7 A That's fair.

8 Q Looking at Diepenbrock Exhibit 881, you will  
9 note that the '327 patent is not listed in this list of  
10 Rambus U.S. and foreign patents. Do you see that?

11 A We're talking about the 881?

12 Q That's right. We're talking about  
13 Exhibit 881.

14 A No, there is no '327 patent listed.

15 Q And you'll note in the upper right, that the  
16 date of this list bears the date of June 17, 1996, the  
17 same date as the date on the first page of the letter  
18 submitted to JEDEC. Do you see that?

19 A Yes.

20 Q And did you cause this list -- the date of  
21 this list to be updated to June 17, 1996?

22 A I don't believe so.

23 Q Do you know whether someone at Blakely,  
24 Sokoloff did or did not do that?

25 A I don't believe so.

1 Q Do you know whether they did or not, that's  
2 what I'm asking?

3 A I'm not sure I understand your question. I  
4 think I said I believe I don't know.

5 Q I see. So you don't know whether somebody,  
6 perhaps an administrator or somebody else at Blakely,  
7 Sokoloff, did or did not update this list for the date  
8 June 17, 1996?

9 A No, I believe -- maybe I was confused by your  
10 previous question. I don't believe they did because it  
11 looks to be the same list that was with my March 27th,  
12 1996 list, which is the last page of Exhibit 28, Crisp  
13 Exhibit 28.

14 Q Right. I notice that there are some stylistic  
15 differences, including that Rambus U.S. and foreign  
16 patents is not underlined in the document submitted to  
17 JEDEC. Do you see that?

18 A Yes.

19 Q I also note that the dates of the two lists  
20 are different. In your version that you drafted, it's  
21 dated March 27, 1996, and then in the letter submitted  
22 to JEDEC, it's dated June 17, 1996. Do you see that?

23 A Yes.

24 Q And given those differences, I'm simply asking  
25 do you know whether or not somebody at Blakely,

1 Q Now, as that policy was known to you, what was  
2 the title of it?

3 A It was a document retention policy.

4 Q Did you ever receive instructions from anyone  
5 at Rambus for destroying documents to insure that those  
6 documents would not be produced during some litigation?

7 MR. BOBROW: Let me object to the question as  
8 being leading.

9 THE WITNESS: No.

10 BY MR. CANNON:

11 Q If you had received those types of  
12 instructions, would you have complied?

13 MR. BOBROW: Same objection, leading.

14 THE WITNESS: No.

15 BY MR. CANNON:

16 Q There was a discussion earlier utilizing Crisp  
17 Exhibit 28 and Diepenbrock -- I want to give you mine  
18 -- and Diepenbrock Exhibit 881.

19 A Yes.

20 MR. BOBROW: Hold on for a minute.

21 MR. CANNON: Let me give counsel time to find  
22 it.

23 MR. BOBROW: Got it. Thanks.

24 BY MR. CANNON:

25 Q Part of the discussion involved the fact that

1 the '327 patent, Rambus's '327 patent was left off the  
2 list of patents that was eventually communicated to  
3 JEDEC. Do you remember that conversation?

4 A Yes.

5 Q Did anyone at Rambus instruct you to leave the  
6 '327 patent off of the list that was eventually  
7 produced to JEDEC?

8 MR. BOBROW: I'll object, leading.

9 THE WITNESS: No.

10 BY MR. CANNON:

11 Q Whose responsibility was it to compile the  
12 list of patents that was to be communicated to JEDEC?

13 A I believe it was mine.

14 Q And did you purposely leave the '327 patent  
15 off the list that was communicated to JEDEC?

16 MR. BOBROW: I'll object, leading.

17 THE WITNESS: No.

18 BY MR. CANNON:

19 Q If Rambus had asked you to purposely leave the  
20 '327 patent off of the list that was communicated to  
21 JEDEC, would you have complied?

22 MR. BOBROW: Same objection.

23 THE WITNESS: No.

24 BY MR. CANNON:

25 Q Would you have remembered such a request?

1           MR. BOBROW: Same objection, hypothetical,  
2 calls for speculation.

3           THE WITNESS: Yes, I would have remembered.

4 BY MR. CANNON:

5           Q    Now, revisiting the document retention policy  
6 again, do you have other clients, without giving their  
7 names, who have document retention policies?

8           A    Yes.

9           Q    And in the past have those clients asked you  
10 to comply with their document retention policies?

11          A    Yes.

12          Q    Have you done so?

13          A    Yes.

14          Q    During the course of complying with Rambus's  
15 document retention policy, did you destroy any  
16 documents relating to the disclosure policy of JEDEC?

17          A    No.

18          Q    After receiving instructions concerning  
19 Rambus's document retention policy, did you destroy  
20 documents that related to the legal advice you provided  
21 to Rambus about the disclosure of patents and patent  
22 applications at JEDEC?

23          A    No.

24          Q    Did you destroy any documents relating to the  
25 prosecution of the Rambus patent applications that are





Richard Crisp  
Rambus Inc.  
2465 Latham St  
Mountain View, Ca 94040  
903 3832

Ken McGhee  
Electronic Industries Association (JEDEC)  
2500 Wilson Boulevard  
Arlington, Va. 22201

VIA CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

June 17, 1996

RE: JEDEC Invoice No. 28002 Dated January 10, 1996

Dear Mr. McGhee:

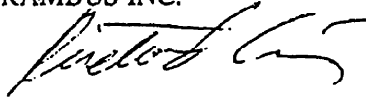
Rambus Inc. has received the above invoice for the 1996 JEDEC dues for committees JC-15, JC-16, JC42.1, JC-42.3, JC-42.4, and JC-42.5.

I am writing to inform you that Rambus Inc. is not renewing its membership in JEDEC.

Recently at JEDEC meetings the subject of Rambus patents has been raised. Rambus plans to continue to license its proprietary technology on terms that are consistent with the business plan of Rambus, and those terms may not be consistent with the terms set by standards bodies, including JEDEC. A number of major companies are already licensees of Rambus technology. We trust that you will understand that Rambus reserves all rights regarding its intellectual property. Rambus does, however, encourage companies to contact Dave Mooring of Rambus to discuss licensing terms and to sign up as licensees.

To the extent that anyone is interested in the patents of Rambus, I have enclosed a list of Rambus U.S. and foreign patents. Rambus has also applied for a number of additional patents in order to protect Rambus technology.

Very truly yours,  
RAMBUS INC.



Richard Crisp

encl.

cc w/encl.:  
EIA Dept. 287

R 157080

June 17, 1996

Rambus U.S. and Foreign Patents

5,319,755  
5,355,391  
5,432,823  
5,268,639  
5,357,195  
5,325,053  
5,408,129  
5,473,575  
5,243,703  
5,254,883  
5,390,308  
5,446,696  
5,422,529  
5,451,898  
5,337,285  
5,434,817  
5,430,676  
5,485,490  
5,488,321  
5,499,355  
5,499,385  
Taiwan No. NI-48411  
Israel No. 110,649

R 157081



# Expert Report on Synchronous DRAM Architectures, Organizations, and Alternative Technologies

Prof. Bruce L. Jacob

Electrical & Computer Engineering Dept.  
University of Maryland  
College Park, MD 20742  
<http://www.ece.umd.edu/~blj/>

December 10, 2002

## I. Background and Qualifications

(1) I have been retained by the Federal Trade Commission (FTC) to serve as a testifying technical expert in the Matter of Rambus Incorporated.

(2) I have been an Assistant Professor of Electrical and Computer Engineering at the University of Maryland, College Park, since the fall of 1997. I received the *Ars Baccalaureate, cum laude*, in Mathematics from Harvard University in 1988, and the M.S. and Ph.D. in Computer Science and Engineering from the University of Michigan in 1995 and 1997, respectively. Between college and graduate school I designed real-time embedded applications and real-time embedded architectures in the area of telecommunications for two successful startup companies: Boston Technology (now part of Comverse Systems) and Priority Call Management (now part of Schlumberger). At Priority Call Management I was employee number two, the chief engineer, and the architect of the company's product, a real-time distributed system handling standard-tolerance call processing on over 1000 telecommunication ports simultaneously. I built the first working prototype of the company's product, and I built and installed the first actual product as well. My real-time systems architecture, still in use in the company's products today, helped Priority Call grow from start-up to a \$200 million leader in its segment of the telecommunications industry.

(3) Over the past five years at Maryland, I have established an active interdisciplinary research program in computer engineering with significant efforts in memory systems (topic: *DRAM*)

voltage fluctuations are associated with the 60Hz AC power supply and that most of the temperature fluctuations occur on the order of milliseconds or longer [Lee 2002, Macri 2002], recalibration would be needed roughly once or twice every millisecond. This would not likely impose a huge burden on performance; note that at present every row in a typical DRAM system must be refreshed once every 60ms, and the refresh cost (which amounts to refreshing a new row every couple dozen microseconds) only imposes a few percent overhead on the system [Cuppu et al 1999, Cuppu et al. 2001].

(139) Note that JEDEC members suggest that the existing on-chip DLL will be insufficient at future speeds, and that a Vernier mechanism will be inevitable [Lee 2002, Macri 2002, Kellogg 2002].

#### ***Move the DLL onto the Memory Controller***

(140) Because the DLL is only used on the DRAM to synchronize outgoing data and DQS signals with the global clock for the benefit of the memory controller [Lee 2002, Rhoden 2002, Karabotsos 2002, Baker 2002, Macri 2002], it is possible to move that functionality onto the memory controller itself. The memory controller could maintain two clocks: the first, for example, could be synchronized with the global clock, and the second could be delayed 90°. The incoming DQS and data signals could be given a variable delay, the amount of delay controlled by a DLL/PLL on the memory controller so that the DQS signal would be in phase with the delayed clock. This arrangement could align the incoming data so that the eye would be centered on the global clock signal, which could be used to sample the data. The weakness of this scheme is that, as clock speeds increase to very high rates, the timing differences between different DIMMs would become significant. Therefore, each DIMM in the system would require a different phase shift between the memory controller's two clocks, which would imply that the memory controller would need to maintain a separate timing structure for each DIMM\*.

---

\* Most DLLs/PLLs require many cycles to lock onto a signal and create the correct phase shift. Forcing the memory controller to wait many cycles before switching from reading from one DIMM to reading from another would be an unsatisfactory situation. In general, DLLs respond faster than PLLs [Pricer 2002].

### ***Move the DLL onto the DIMM***

(141) One alternative is to place the DLL on the DDR module instead of the DDR device itself. Sun has used this alternative for many years [Becker 2002, O'Donnell 2002, Prein 2002, Walker 2002]; moreover, it is similar in nature to the off-chip driver mechanism used by IBM in their high-speed toggle mode DRAM [Kalter 1990a/b]. As mentioned previously, the only function of the DLL on the DDR SDRAM is to synchronize the outgoing DQS and data signals with the global clock. This can be accomplished just as easily on the module, especially if the module is *buffered* or *registered* (which simply means that the module has local storage to hold the commands and addresses that are destined for the module's DRAMs). Note that it is presently common practice for engineers to disable DDR's on-chip DLL to achieve higher performance—the on-chip DLL is a convenience, not a necessity [Rhoden 2002, Kellogg 2002, Macri 2002]. A module-level DLL is perfectly workable; even if the data exiting the DRAM is completely out of synch with the global clock, the module can use its DLL to delay the clock/s, commands, and addresses so that the output of the DRAMs is in synch with the global clock—this might come at the expense of an extra CAS-latency cycle. A similar alternative was considered by JEDEC (cf. JC-42.3 meeting 78, March 20, 1996; JC-42.3 interim meeting, January 31, 1996; JC-42.5 meeting 21, September 15, 1994; JC-42.5 meeting 18, March 8, 1994).

### **E. Summary**

(142) For each disputed technology there were numerous alternative technologies that would have been available to the JEDEC community, that would have had performance similar to the disputed technologies, and that would have had engineering issues similar in complexity to those encountered in implementing the disputed technologies (i.e., their implementation would not have presented insurmountable obstacles).





Page 1

1 UNITED STATES OF AMERICA  
 2 BEFORE FEDERAL TRADE COMMISSION  
 3  
 4 In the Matter of  
 5  
 6 RAMBUS INCORPORATED, Docket No. 9302  
 7 a corporation  
 8 /  
 9  
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 11 DEPOSITION OF  
 12  
 13 HANS WIGGERS  
 14  
 15 \_\_\_\_\_  
 16 Wednesday, December 18, 2002  
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 21  
 22 REPORTED BY: COREY W. ANDERSON, RMR, CSR 4096 (3-326526)  
 23  
 24  
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 5 EXAMINATION BY MR. SWINDELL ..... 187  
 6 FURTHER EXAMINATION BY MR. PERRY ..... 192  
 7  
 8  
 9 RESPONDENT'S EXHIBITS MARKED FOR IDENTIFICATION  
 10 No. Description Page  
 11 1 April 3, 1995 letter to Mr. Gordon 10  
 12 Kelley from Stephen J. Erasmus, Ph.D.,  
 13 with Resume for Hans A. M. Wiggers  
 14 Attachment  
 15 2 Document entitled SWS Memory System 20  
 16 Performance Summary, Hans A. Wiggers  
 17 3 Document entitled SWS Memory System, 21  
 18 System Clocking Issues, Hans A. M.  
 19 Wiggers  
 20 4 Document with Handwritten Cover Page 30  
 21 entitled Memory Subsystem  
 22 5 United States Patent 4,998,2262 34  
 23 6 Minutes of Meeting No. 65, JC-42.3 37  
 24 Committee on RAM Memories  
 25

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1 7 September 16, 1993 Memo from Bing Cheng, 43  
 2 Hans A. M. Wiggers, to SDRAM Suppliers  
 3 8 IEA/JEDEC Minutes of Meeting No. 62 48  
 4 9 JC-42.3 Committee On RAM Memories, 51  
 5 Minutes of Meeting No. 68  
 6 September 23, 1993, Boston,  
 7 Massachusetts  
 8 10 JC-42.3 Committee On RAM Memories, 54  
 9 Minutes of Meeting No. 69  
 10 December 8-9, 1993, San Diego,  
 11 California  
 12 11 9. Appendix B: SyncLinking, A 61  
 13 Proposal By David Gustavson,  
 14 David James, Hans Wiggers  
 15 12 Minutes of Meeting No. 75, JC-42.3 77  
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 17 13 United States Patent No. 6,442,644 83  
 18 14 E-Mail entitled Richard Crisp, 87  
 19 1:54 P.M., 6/9/95, Re: IEEE  
 20 Memory Interface Standard  
 21 15 E-Mail entitled Hans Wiggers, 93  
 22 9:18 A.M., 6/10/95, Patent issues  
 23 and name calling  
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1 16 E-Mail entitled Hans Wiggers, 97  
 2 2:20 P.M., 6/13/95, Re: Patent issues  
 3 and name calling  
 4 17 Minutes of Meeting No. 76, JC-42.3 115  
 5 Committee on RAM Memories  
 6 18 E-Mail by David B. Gustavson dated 121  
 7 9/22/95  
 8 19 December 13, 1995 Letter to 127  
 9 Mr. Geoff Tate from Cheryl Rowden  
 10 20 Minutes of Meeting No. 79, JC-42.3 138  
 11 Committee on RAM Memories  
 12 21 June 17, 1996 letter to Mr. McGhee 142  
 13 from Richard Crisp  
 14 22 JC-42 Document entitled Executive 149  
 15 Committee June 3, 1996  
 16 23 Minutes of Meeting No. 82, JC-42.3 155  
 17 Subcommittee on RAM Memories  
 18 24 Document entitled JC-42 Executive 162  
 19 Committee, September 8, 1997  
 20 25 September 24, 1997 E-Mail from 165  
 21 Allan Graham to Wiggers, et al.  
 22 26 September 30, 1997 E-Mail from Chen, 165  
 23 Sam to Alan Graham, et al.  
 24 27 October 6, 1997 E-Mail from 165  
 25 Joe Macri to Alan Graham, et al.

1 item 3, I already read the part that says "A  
2 presentation was made on patent policies and the  
3 tracking list was updated. See attachment A."

4 Then it says "IBM noted that they are not  
5 going to list all of its patents on BGA due to length."

6 A. Okay.

7 Q. Do you remember anything that Gordon Kelley  
8 ever said about IBM's position with respect to the JEDEC  
9 patent policy?

10 A. Yeah. That -- I don't know if that was in  
11 relevance to this. There was a meeting -- okay. So  
12 patents were very important, apparently, they were  
13 important in JEDEC.

14 So Jim Townsend had invited a lawyer from a  
15 firm that I don't remember to give us a presentation  
16 after the regular session to talk about patents. Okay.  
17 That is -- and I'm -- I'm not sure whether this all  
18 happened the same meeting or not, but there -- the  
19 following discussions came up there. Gordon Kelley said  
20 "Look. I cannot disclose -- my company would not let me  
21 disclose all the patents that IBM is working on because,  
22 you know, I just can't do that. The only thing we will  
23 do is we will follow the JEDEC guidelines and -- or  
24 rules on whatever and we will make them available."

25 And I piped up at that point and said "The

1 A. Oh, I may have heard that from a lawyer.

2 Q. Well --

3 A. I don't know what that means.

4 Q. If you found out something in the course of  
5 the litigation involving Rambus later on and you found  
6 it out to from a lawyer for HP, don't tell it to me.

7 Okay?

8 A. Okay.

9 Q. Because that's privileged to HP.

10 A. Oh.

11 Q. That's the only reason I stopped you.

12 A. Thank you.

13 Q. If you found it out at a JEDEC meeting or  
14 whatever, keep going.

15 A. I have no idea.

16 Q. Okay. So what you heard Mr. Crisp ask was a  
17 question to a lawyer "Can you tell us about equitable  
18 estoppel?"

19 A. That is correct.

20 Q. What did the lawyer say?

21 A. I have no idea.

22 Q. Did anybody else say anything at that meeting  
23 about equitable estoppel?

24 A. I think we were all blown away. This is  
25 something like somebody in the class asking one of those

1 same is true for HP."

2 And I think that's when Richard Crisp asked  
3 his famous question about whatever, equitable estoppel  
4 or something like that and what all that had to do with  
5 it.

6 But I guess later on he was implying that if  
7 he had a patent and he didn't speak up, he would lose  
8 the rights to that. You fill me in on that one.

9 Q. I don't know what you are referring to.

10 A. Okay.

11 Q. You remember Richard Crisp asking a question?

12 A. Richard Crisp asked a question, he said "Can  
13 you tell us about equitable estoppel?" And why I  
14 remember that is just a quirk of my brain. But, and the  
15 lawyer was sort of taken aback, and blew it off.

16 But later on I found out that that has to do  
17 with the situation --

18 Q. Wait. Before you say "later on you find out"?

19 A. Yeah.

20 Q. Make sure you are not telling me something you  
21 heard from a lawyer.

22 A. No, no, no.

23 Q. For HP?

24 A. No, I was there when he asked that question.

25 Q. I know. But later on you said you found out.

1 really penetrating questions, we were all impressed, but  
2 I have no idea what it was about.

3 Q. Okay. Did Mr. Townsend have any response when  
4 you and Mr. Kelley talked about what your company's  
5 positions were?

6 A. I think he just took it as -- I don't know  
7 that he had a particular response to that. I think  
8 everybody -- my impression was that everybody thought  
9 that that was a reasonable position to take. We could  
10 not even know all the patents that people in our  
11 companies were working on. And if we did know it, we  
12 certainly were not in a position to divulge that to  
13 anybody.

14 Q. Let me just close off this and then we need to  
15 take a break, at least I do. Do you remember any other  
16 part of the discussion about the patent policy or patent  
17 positions in connection with this lawyer's presentation  
18 at the JEDEC meeting or after the JEDEC meeting?

19 A. No. I think that -- I think that -- and like  
20 I said, I cannot even be sure that the Kelley discussion  
21 and that other, you know, the Crisp question were in the  
22 same meeting. I think they are, but I am not sure.

23 MR. PERRY: Okay. Let's, if we could, take a  
24 short bathroom break, get some coffee.

25 (Whereupon, a recess was taken)

1 agreed and counsel for the witness have agreed that the  
2 same stipulation used in the Tabrizi deposition with  
3 respect to reading and signing can be used for this  
4 deposition.

5 MR. FREY: And that's the same one as  
6 yesterday?

7 MR. SWINDELL: Agreed. It is the same one as  
8 for the Landgraf deposition.

9 MR. PERRY: Which was yes. All right. Thank  
10 you. We are done.

11 (Whereupon, the deposition was adjourned  
12 at 2:53 P.M.)

13 --oOo--

14 I declare under penalty of perjury the  
15 foregoing is true and correct. Subscribed at  
16 \_\_\_\_\_, California, this \_\_\_\_ day of  
17 \_\_\_\_\_ 2002.

18 \_\_\_\_\_  
19 HANS WIGGERS

20  
21  
22  
23  
24  
25

1 CERTIFICATE OF REPORTER

2 I, COREY W. ANDERSON, a Certified Shorthand  
3 Reporter and Registered Merit Reporter, hereby certify  
4 that the witness in the foregoing deposition was by me  
5 duly sworn to tell the truth, the whole truth, and  
6 nothing but the truth in the within-entitled cause;

7 That said deposition was taken down in  
8 shorthand by me, a disinterested person, at the time and  
9 place therein stated, and that the testimony of the said  
10 witness was thereafter reduced to typewriting, by  
11 computer, under my direction and supervision;

12 That before completion of the deposition,  
13 review of the transcript was requested. Since  
14 requested, any changes made by the deponent (and  
15 provided to the reporter) during the period allowed are  
16 appended hereto.

17 I further certify that I am not of counsel or  
18 attorney for either or any of the parties to the said  
19 deposition, nor in any way interested in the event of  
20 this cause, and that I am not related to any of the  
21 parties thereto.

22 DATED: December 24, 2002.

23 \_\_\_\_\_  
24 COREY W. ANDERSON, CSR 4096

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