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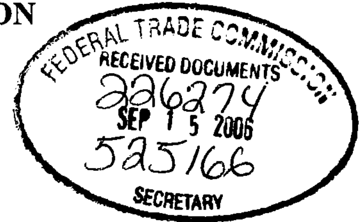
UNITED STATES FEDERAL TRADE COMMISSION



Docket No. 9302

In the Matter of

RAMBUS INC.,

A CORPORATION

BRIEF OF *AMICUS CURIAE* BROADCOM CORPORATION AND FREESCALE SEMICONDUCTOR, INC. ON THE ISSUE OF THE APPROPRIATE REMEDY FOR RAMBUS'S VIOLATION OF THE FEDERAL TRADE COMMISSION ACT

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IDENTITY AND INTEREST OF AMICUS CURIAE

Amicus Curiae Broadcom Corporation ("Broadcom")[1] and Freescale Semiconductor, Inc. ("Freescale")[2] jointly submit this brief to assist the FTC in evaluating the appropriate remedy to redress the exclusionary conduct in which the Commission found Rambus engaged through its deceptive practices before JEDEC. For the reasons discussed below, Broadcom and Freescale respectfully submit that the appropriate remedy would be to bar Rambus from enforcing its patents that read on JEDEC's SDRAM standards (the "Rambus JEDEC Patents") against products that implement those standards.[3]

Broadcom and Freescale are producers of "complementary components" to SDRAM memory. *See* Opinion at 78.[4] In other words, to interoperate with SDRAM memory, Broadcom's and Freescale's products themselves comply with the JEDEC SDRAM standards. For example, Broadcom and Freescale manufacture products such as microprocessors that include memory controllers. Those controllers must be compatible with the memory they are controlling, and therefore the interface and communication between the controller and the memory are part of the JEDEC SDRAM standards and potentially subject to Rambus's patents.

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[1] Broadcom is one of the world's largest fabless semiconductor companies with annual revenue of more than $2.5 billion. Broadcom is a global leader in the development and construction of semiconductors for wired and wireless communications, providing a broad portfolio of hardware and software solutions to manufacturers of computing and networking equipment, digital entertainment and broadband access products, and mobile devices. Headquartered in Irvine, California, Broadcom has offices and research facilities in North America, Asia, and Europe.

[2] Freescale is a global leader in the design and manufacture of embedded semiconductors for wireless, networking, automotive, consumer and industrial markets. With 2005 sales of $5.8 billion, it is the third largest chipmaker in the United States and the ninth largest in the world. The company provides original equipment manufacturers with chips to help them drive advanced cell phones, manage Internet traffic and to help make vehicles safer and more energy efficient. It has more than 10,000 customers including 100 of the top global manufacturers, making Freescale a leader in the world-wide supply of embedded microprocessors.

[3] The Rambus JEDEC Patents are any U.S. patents owned or assigned to Rambus that have a filing date or that claim a priority date prior to June 17, 1996 and that read on any method or product implementing a JEDEC SDRAM standard, including SDR, DDR, and DDR2. *See also infra* note 5.

[4] Citations to "Opinion" are to the Opinion of the Commission, issued in this matter on August 2, 2006.

Because of their interest in ensuring the appropriate evolution of standards, Broadcom and Freescale are members of and participate in a number of standard setting organizations ("SSOs"), including JEDEC. As members of JEDEC and as manufacturers of products that conform to JEDEC's SDRAM standards, Broadcom and Freescale have strong interests in ensuring that the rules and procedures of SSOs, including JEDEC, are followed and respected, particularly those that relate to the incorporation of proprietary technology into important standards like the JEDEC SDRAM standards.

SUMMARY OF ARGUMENT

As the Commission found, when the rules and procedures of SSOs are followed and respected, the standard-setting process can benefit manufacturers and consumers alike by promoting interoperability of standardized products supplied by different firms, permitting competition between products that implement the standard, and increasing market acceptance of such products. Such benefits, however, are diminished if not eliminated when, as the Commission found that Rambus did here, an SSO participant induces the incorporation of its technology into a standard through deception or other anticompetitive means. Left unchecked, such deception can enable the SSO participant to cripple competition in implementation of the standard and decrease output of products complying with the standard, to the detriment of consumers and others in the industry. *See* Opinion at 33-35.

Broadcom and Freescale have asked to be heard to make three fundamental points directly relevant to the Commission's consideration of the proper remedy in this case.

First, Broadcom and Freescale are direct victims of the "hold up" orchestrated by Rambus and found by the Commission to violate Section 5 of the FTC Act. More particularly, Broadcom and Freescale, along with dozens of others, are among the "OEMs and manufacturers

of complementary components" that the Commission expressly recognized to be "locked in" to the markets now monopolized by Rambus in precisely the same way as the direct sellers of DRAMs and SDRAMs. *See* Opinion at 104. Underscoring the Commission's point, Rambus already has asserted the Rambus JEDEC Patents against Broadcom and Freescale and their OEM customers. The remedy that the Commission adopts therefore must ensure that *all* direct victims of Rambus' anticompetitive conduct – including those that manufacture complementary products – are not disadvantaged by Rambus's wrongful conduct.

Second, a "no enforcement" order is the appropriate remedy to restore, as much as possible, the competitive conditions that would have existed but for Rambus's violations of the FTC Act. The record before the Commission fully supports its finding that, in the "but for competitive world," Rambus technology would not have been incorporated in the JEDEC SDRAM standards and, indeed, that the standards that would have been adopted would have been royalty-free. Under those competitive conditions, which the remedy must seek to restore, Rambus would not be in a position to collect royalties on the Rambus JEDEC Patents when used to implement the JEDEC SDRAM standards.

Such a remedy would be neither disproportionate nor dramatic, but rather is required by the record in this case. The Commission found that Rambus's illegal conduct *created* monopolies in four markets and that those monopolies *would not have existed otherwise*. The Commission's remedy must undo those monopolies and restore competitive conditions to what they would have been had Rambus not engaged in its wrongful conduct. That cannot be accomplished if Rambus is allowed to continue to enforce its patents against those that wish to practice the JEDEC SDRAM standards to manufacture SDRAMs or complementary components such as microprocessors.

Third, if the Commission for whatever reason chooses not to adopt the recommended "no enforcement" remedy and instead permits Rambus to continue to license the Rambus JEDEC Patents for value, the remedy should not be limited to determining an appropriate royalty rate, but also must constrain Rambus's licensing rights to recognize that (a) a royalty rate for inclusion of the Rambus technology in one end product (*e.g.*, SDRAM chips) may not be appropriate for other classes of products (*e.g.*, microprocessors) because the portion of the total value of different end products accounted for by the Rambus technology may differ significantly; and (b) an established royalty rate or even cap is not in itself a sufficient remedy because monopoly rents can be collected through other terms of a license, such as compulsory grant backs, licensing at multi-levels with split rights, and other means. Any remedy short of a "no enforcement" order must avoid such results by requiring in its particulars that the total benefit that Rambus receives, including through royalty and non-royalty consideration, reflects an appropriate measure of the value of the technology that the Rambus JEDEC Patents represent in the licensed product. Of course, a "no enforcement" remedy meets those requirements in the most efficient manner possible.

ARGUMENT

The Commission has broad remedial powers to restore competitive conditions in the market(s) affected by an antitrust violation to what would have existed but for the violation. *See, e.g., Ford Motor Co. v. U.S.*, 405 U.S. 562, 573 (1972); *Ekco Prods. Co.*, 65 F.T.C. 1163, 1216 (1964), *aff'd sub nom. Ecko Prods. Co. v. FTC*, 347 F.2d 745 (7th Cir. 1965); *see also United States v. E.I. Du Pont De Nemours and Co.*, 366 U.S. 316, 326 (1961) ("The key to the whole question of an antitrust remedy is of course the discovery of measures effective to restore competition."). The Commission likewise has broad discretion to "determine what remedy is

necessary to eliminate the unfair or deceptive trade practices which have been disclosed." *Jacob Siegel Co. v. F.T.C.*, 327 U.S. 608, 612 (1946). Such a remedy must in any event be "adequate to cope with the unlawful practice." *FTC v. Ruberoid Co.*, 343 U.S. 470, 473 (1952); *See also FTC v. Colgate-Palmolive Co.*, 380 U.S. 374, 394-95 (1965); *Niresk Indus., Inc. v. FTC*, 278 F.2d 337, 343 (7th Cir. 1960).

I. THE COMMISSION'S REMEDY SHOULD APPLY TO ALL PARTIES PRACTICING THE JEDEC SDRAM STANDARDS, NOT JUST DRAM MANUFACTURERS

Rambus's conduct implicates all JEDEC SDRAM standards-compliant products, not just SDRAMs themselves, and the remedy must likewise cover all such products. The Commission's opinion leaves little doubt that manufacturers and users of such products stand to be hurt if Rambus is able to exploit its wrongfully obtained monopolies. Rambus argued that the DRAM manufacturers from whom it sought or obtained royalties were not "locked in" to Rambus technology because they could switch to alternative technologies for $4.3 million each. Opinion at 102-03. The Commission rejected the argument because it failed to account for the injury suffered by "manufacturers of complementary components," *id.* at 104, such as Broadcom and Freescale:

> Most significantly, Rambus's $4.3 million figure *focuses solely on DRAM manufacturers*. If JEDEC changed SDRAM, OEMs and manufacturers of complementary components would face substantial switching costs in redesigning their own products . . . . As a consequence, Rambus's estimate wholly disregards a major source of lock-in.

Id. at 104 (emphasis added). For the same reason, the Commission should ensure that it does not adopt a remedy that "focuses solely on DRAM manufacturers." *Id.*

Like DRAM manufacturers, Broadcom and Freescale are "locked-in" by their JEDEC-compliant designs and, as a direct result of Rambus's illegal conduct, Rambus is in a

position to assert that their products incorporate Rambus technology. Indeed, Rambus has approached both Broadcom and Freescale with assertions of patent infringement and demands for royalties. Rambus has also approached Broadcom's and Freescale's OEM customers, which in turn have demanded indemnity for any Rambus claim of infringement.

If the Commission's remedy does not protect all victims of the illegal conduct, the competitive landscape that would have existed in the absence of Rambus's wrongful conduct will not be restored because "OEMs and manufacturers of complementary products" would remain subject to Rambus's monopolies. That is, if the Commission were to impose a remedy only with respect to DRAM manufacturers, Rambus could simply leverage its monopoly of JEDEC-compliant technology by charging a higher licensing fee to other manufacturers and OEMs whose products incorporate or interface with JEDEC SDRAMs. In other words, Rambus would be in the same position as a monopolist who faces government price controls in its monopoly market, but is still able to reap monopoly profits by tying the purchase of the monopoly good (at the government-imposed low price) to the purchase of a complementary good (at a supracompetitive price). As a result, competition in those complementary products would remain distorted. A remedy barring enforcement of the Rambus JEDEC Patents would avoid that inappropriate result.

II. THE COMMISSION SHOULD BAR RAMBUS FROM ENFORCING THE RAMBUS JEDEC PATENTS AGAINST PRODUCTS COMPLYING WITH THE JEDEC SDRAM STANDARDS

A. A "No Enforcement" Order Would Restore The Competitive Environment That Would Have Existed But For Rambus's Anticompetitive Actions.

The facts here warrant a "no enforcement" remedy. Because Rambus concealed its patent rights from JEDEC, JEDEC and its members believed at the time the standards were being formulated and adopted that the standards did not implicate *any* proprietary technologies

and thus would be royalty-free when in fact Rambus at the time knew otherwise. Indeed, the Commission found that, without Rambus's deceptions, JEDEC could have adopted alternative technologies that would not have required parties that practiced the standard to pay royalties or licensing fees to Rambus. Opinion at 94-96. Accordingly, and in light of the significant anticompetitive effects that deceptions in the standard-setting process can have, the Commission should impose a remedy that likewise does not require anyone implementing the JEDEC SDRAM standards to license the Rambus JEDEC Patents.[5] Any other remedy would not restore the but-for competitive situation.[6]

Recent enforcement actions confirm that a "no enforcement" remedy is appropriate in cases involving egregious abuses of standard-setting processes. In *In re Dell Computer Corp.*, 121 F.T.C. 616 (1996), Dell was accused of manipulating a standard setting process to have its technology incorporated into a standard for a computer "bus" and then suing to enforce a patent it had not disclosed to the SSO. To remedy the anticompetitive effects of Dell's misuse of the SSO process, the Commission entered into a consent order under which Dell was barred from enforcing the patent at issue. Similarly, in *In re Union Oil Co.*, Docket No. 9305, Decision and Order (F.T.C. July 27, 2005) ("*Unocal*"), the Commission entered into a consent order that prohibited Unocal from enforcing patents it had related to certain reduced-emissions gasoline technology. Like Rambus here, Unocal allegedly had used "false and misleading statements" to induce a government regulatory body as well as private industry SSOs

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5 Because the effect of Rambus's anticompetitive conduct during the adoption of the SDR and DDR standards likewise tainted the succeeding generation of the JEDEC SDRAM standard (DDR2) and will taint all JEDEC SDRAM standards for the foreseeable future, the remedy should encompass all JEDEC SDRAM standards.

6 Such a bar would also be consistent with the equitable remedy of non-enforcement that applies to cases of patent misuse, *see, e.g., Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488 (1942), and, separately, under the doctrine of equitable estoppel, *see, e.g., A.C. Aukerman Co. v. R.I. Chaides Constr. Co.*, 960 F.2d 1020 (Fed. Cir. 1992).

to adopt standards that encompassed Unocal's technology. *See Unocal,* Opinion of the Commission (F.T.C. July 7, 2004).

1. Rambus Has Not Established That JEDEC Would Have Incorporated Rambus's Technologies in the JEDEC SDRAM Standards in the Absence of Rambus's Deception.

As the Commission found, Rambus failed to establish that in the "but for world," JEDEC would have chosen Rambus's technology for inclusion in the JEDEC SDRAM standards. Opinion at 81-82. Rather, the evidence demonstrates that, but for Rambus's deception, JEDEC would have adopted alternatives that would have been Rambus-free and, indeed, royalty-free. Keeping producers' and consumers' costs low was a critical consideration in JEDEC's evaluation of competing technologies. "JEDEC members – DRAM manufacturers and customers – were highly sensitive to costs, and that [*sic*] keeping costs down was a major concern within JEDEC." *Id.* at 74 & n.404. *See also id.* at 75 & nn.405, 408, 539 (describing evidence of JEDEC members' opposition to the use of royalty-bearing elements in standards). The cost imposed on those implementing the standard by Rambus's effort to enforce its patents would be hundreds of millions or even billions of dollars per year, which ultimately would be passed on to consumers and result in reduced output in the downstream product markets. *See* Opinion at 75-76 & nn.409-410; *id.* at 114 & n.622. Precisely to prevent this result, JEDEC would have adopted royalty-free alternatives to Rambus's technology in the first place had Rambus disclosed its patents. In fact, when JEDEC learned of Rambus's patents and thought they might be relevant to a JEDEC standard, JEDEC "took deliberate steps to avoid standardizing the Rambus technology." Opinion at 74 & n.403 (describing JEDEC's immediate steps to avoid Rambus's "loop-back clock" technology in its '703 patent when NEC made a "loop-back clock" proposal in 1997). More generally, "[p]ayment of royalties on memory

interfaces has been very much the exception, rather than the rule, in the computer industry." *Id.* at 96-97.

2. Rambus's Technology Could Not Have Been Incorporated in the JEDEC SDRAM Standards Because Rambus Would Not Have Agreed to License Its Patents on RAND Terms.

Even if JEDEC chose to adopt a standard that incorporated proprietary technology, which Rambus has not demonstrated JEDEC would have done, in no circumstances would the standard ultimately have incorporated Rambus's technology because Rambus would not have agreed to license its patents on RAND terms as required for JEDEC even to consider including its technology in the JEDEC SDRAM standards. *See* Opinion at 4. The vast majority of Rambus's revenue is from licensing its patented technology and its primary interest is therefore maximizing royalties. *Id.* at 7; *see also* CCFF 2419, 2427, 2432.[7] Indeed, Rambus has refused to make RAND commitments on at least two similar occasions. First, in response to a request from the IEEE[8] – another SSO – that Rambus provide RAND assurances, Rambus refused to do so. CCFF 2421-2426. Second, when Rambus withdrew from JEDEC, it stated that it was doing so because JEDEC's rules were not consistent with Rambus's business plan. CCFF 2428-2431.

Given those facts, the only plausible conclusion is that Rambus would not have made the required RAND commitment and its technology would not have been incorporated in the JEDEC SDRAM standards under any circumstances. Rambus therefore would not in any event have been able to collect royalties on products that complied with JEDEC's SDRAM standards. The remedy for Rambus's deception should at a minimum reflect those facts by

[7] Citations to "CCFF" are to Complaint Counsel's Proposed Findings of Fact, Conclusions of Law, and Order, dated September 5, 2003.

[8] The IEEE is the Institute of Electrical and Electronics Engineers, Inc.

barring Rambus from enforcing the Rambus JEDEC Patents against anyone seeking to make, sell, or use products complaint with the JEDEC SDRAM standards.

B. Allowing Rambus To Enforce the Rambus JEDEC Patents Against JEDEC SDRAM Standards-Compliant Products Would Weaken the Effectiveness of SSOs.

As the Commission has recognized, the pro-competitive benefits of standard setting *can* outweigh any loss of market competition *if appropriate safeguards are put in place and enforced*. Allowing Rambus, despite the deceptive conduct at issue here, to enforce the Rambus JEDEC Patents against JEDEC SDRAM standards compliant products, would risk a significant chilling effect on the effectiveness of SSOs generally. In other words, if Rambus is allowed to "get away with it" by being permitted to extract royalties or other value from its patents after having been found to have violated Section 5 of the FTC Act, when it could not have done so absent its deceptive conduct, companies may be less inclined to be active SSO participants and adopters. Companies across all industries rightly would need to consider that the protections against exploitation and abuse that they thought were part of the standard-setting process in fact were a nullity. They would further have to consider that, despite the apparent protections provided by SSO rules, they in fact could be subjected to unreasonable or discriminatory royalties for, or even refusals to license, essential technology. A "no enforcement" remedy is appropriate not only to restore the competitive situation that would have prevailed in the absence of Rambus's wrongful conduct and also to strip Rambus of the benefits it otherwise would have reaped, but also to prevent such chilling of otherwise productive and efficient standard-setting activity.

III. ANY REMEDY SHORT OF A "NO ENFORCEMENT" ORDER MUST BE CAREFULLY CRAFTED TO AVOID RAMBUS'S BEING ABLE TO EXPLOIT THE MONOPOLIES IT HAS CREATED

Should the Commission determine to impose a remedy short of a "no enforcement" order, the Commission must be sure to craft that remedy to address the entire scope of the anticompetitive effects of Rambus's conduct. In particular, as discussed above, a wide range of products practice the JEDEC SDRAM standards, ranging from relatively basic SDRAM chips to vastly more complicated products that interface with such chips or otherwise utilize SDRAM technology such as microprocessors. *See* Opinion at 104 (noting that Rambus's illegal conduct victimized "OEMs and manufacturers of complementary goods"). Because the technology embodied in the Rambus JEDEC Patents represents a far more significant portion of the value of some products than others, a uniform royalty rate would be inappropriate. By way of illustration only, if an SDRAM chip sells for $10 and a microprocessor sells for $50, but both use the same Rambus technology, a uniform royalty rate of 1% applied to the selling price of the end product would give Rambus a payment of $0.10 from the manufacturer of the chip but $0.50 from the manufacturer of the microprocessor. That would be unreasonable and discriminatory.

Similarly, beyond the royalty rate itself, any remedy that includes the possibility of Rambus's licensing the Rambus JEDEC Patents must take account of the fact that, left unchecked, Rambus could extract monopoly rents through non-royalty terms, for example requiring compulsory grant-backs and placing restrictions on pass-through licensing, which could allow Rambus to license at multiple levels notwithstanding the patent exhaustion and implied license doctrines. If allowed, such provisions could enable Rambus to collect monopolistic amounts for its technology, even if the nominal "royalty rate" were low or even zero.

Of course, all of these issues are avoided through a "no enforcement" remedy discussed above.

CONCLUSION

For the reasons set forth above, the Commission should bar Rambus from enforcing the Rambus JEDEC Patents against products that practice the JEDEC SDRAM standards. In all events, a remedy that merely sets a uniform royalty rate would be inadequate and inappropriate because of Rambus's inherent ability to continue to distort competition in the face of such a uniform rate.

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I, Elizabeth A. Harvey, hereby certify that on September 15, 2006, I caused a true and correct copy of the attached brief of *amicus curiae* Broadcom Corporation and Freescale Semiconductor, Inc. to be served on the following persons:

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