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INSIDE

ECONOMIC THEORIES IN PRACTICE / SPRING 2007

WHEN THE FTC THINKS LIKE AN IP ECONOMIST: IN THE MATTER OF RAMBUS, INC.

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February 2, 2007 was a day of note for lawyers and economists in the intellectual property arena, as the Federal Trade Commission (FTC) handed down a highly anticipated remedy opinion in its long running antitrust proceeding against Rambus, Inc.¹ One interesting aspect of the opinion is the FTC's use of the Georgia Pacific hypothetical negotiation framework² to establish reasonable royalty rates for the use of Rambus' technology in memory chips and other products. This left the FTC facing issues that are typically encountered by expert economists in intellectual property litigation, such as the lack of complete information and the need to make **quantitative** adjustments to observed royalty rates based on **qualitative** market factors.

Previously, the FTC had found that Rambus willfully engaged in deceptive conduct that affected the development of technological standards for direct random access memory (DRAM), which is widely used in electronic products including personal computers, servers, digital cameras, and video game devices. According to the FTC, two different DRAM standards were affected by the challenged conduct: synchronous DRAM (SDRAM) and double data rate SDRAM (DDR).³

Rambus' alleged misconduct occurred in the

context of its participation in the Joint Electron Device Engineering Council (JEDEC), a standards-setting organization for the electronics industry.⁴ Contrary to JEDEC policy, Rambus actively lobbied for the inclusion of certain technologies in the new DRAM standards, without revealing that some of its patents and patent applications would then read upon those standards. Once JEDEC had adopted SDRAM and DDR standards that included Rambus' technology, Rambus sprang its trap, attempting to assert its patents against leading DRAM manufacturers. Concern over the impact of Rambus' behavior on competition in the DRAM market led the FTC to initiate an antitrust proceeding against Rambus in 2002.

After a lengthy and involved investigation, the FTC unanimously ruled last summer that Rambus' conduct had violated Section 2 of the Sherman Act, and that Rambus had unlawfully monopolized the markets for four technologies incorporated in the new DRAM standards.⁵ After additional briefings and arguments by the parties (and by a number of interested non-parties), the FTC issued its remedy for Rambus' unlawful conduct.

The FTC began by noting that it was entering into relatively uncharted waters, since—by comparison with the extensive judicial treatment of

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liability standards—“antitrust courts have devoted relatively little attention to the question of remedies.”⁶ The guiding principle articulated by the FTC was that its remedy should be strong enough to restore ongoing competition—and thereby to inspire confidence in the standard-setting process—but not so restrictive as to undermine the attainment of procompetitive goals.

The resulting remedy has several components.⁷

- Rambus is barred from making misrepresentations or omissions to standard-setting organizations.

- Rambus is required to license its SDRAM and DDR technologies, at maximum allowable royalty rates set by the FTC.

- Rambus is barred from collecting more than the FTC-specified maximum allowable royalty rates from companies that already have incorporated its SDRAM and DDR technologies in their products.

- Rambus is required to employ an FTC-approved compliance officer to ensure that Rambus’ patents and patent applications are adequately disclosed to all industry standard-setting bodies in which it participates.

Of course, the stipulations regarding maximum allowable royalty rates meant that the FTC next had to tackle a problem which frequently is central to the calculation of damages in patent infringement litigation: identifying a reasonable royalty for the use of Rambus’ SDRAM and DDR technologies.

The FTC concluded that in the but-for world, JEDEC still would have incorporated Rambus’ technologies in its standards for SDRAM and DDR, but Rambus would have licensed its technology to JEDEC members under reasonable and nondiscriminatory (RAND) terms.

The FTC noted that in determining the RAND terms that would have resulted from ex ante negotiations, it may “look to real-world examples of negotiations involving similar technologies.”⁸ It also emphasized the importance, under the traditional Georgia Pacific hypothetical negotiation framework, of rates paid for the use of other patents comparable to the patent in suit. It therefore began by looking at Rambus’ actual licensing agreements for its proprietary Rambus DRAM (RDRAM) architecture. According to the FTC, those RDRAM licenses provide highly useful benchmarks because “they are the product of individual, arm’s-length negotiations between Rambus and manufacturers of DRAM chips and DRAM-compatible components for the use of all of the technologies at issue in this case, and more.”⁹

Rambus’ RDRAM licenses typically called for initial running royalties between 1% and 2%, with the rates declining significantly as aggregate production increased. However, the FTC cited several factors which, in its view, indicated that the RAND royalty rates would have been somewhat lower in the hypothetical agreements that Rambus would have reached with DRAM manufacturers in the but for world.

To wit:

- Rambus’ RDRAM licenses covered substantially more technologies than were at issue in the instant proceeding.

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SDRAM and DDR are produced in much greater volumes than RDRAM, so it is necessary to take full account of the declining rate structure in the RDRAM licenses.

- Contemporaneous market analyses by industry participants, including Intel, indicated that the RDRAM rates were too high for RDRAM to achieve a major presence in the market; thus, those rates would be inconsistent with the market leading positions of SDRAM and DDR.

- Rambus' liability means that any doubt regarding the results of the hypothetical negotiations must, as a legal matter, be resolved against Rambus.

The FTC also considered one factor which it thought would tend to have an upward effect on the rates negotiated under the hypothetical agreements. Under its actual RDRAM licenses, Rambus typically charged an upfront lump sum royalty in addition to the running royalties described above. By contrast, the FTC chose to structure its hypothetical license agreements to reflect only running royalties, and deemed it appropriate to trade off the hypothetical running royalties against the actual lump sum royalties, "with an increase in one compensating for a decrease in the other."¹⁰

The net result: the FTC specified running royalty rates of 0.25% for SDRAM chips, and 0.50% for DDR chips. In both cases, the rates drop to zero after three years. The lower rate for SDRAM reflects two adjusting factors. First, SDRAM uses only two of the relevant technologies, whereas DDR uses four; and second, Rambus estimated that the next best alternatives to its two technologies incorporated in

the SDRAM standards would require less than half of the additional costs associated with the next best alternatives to its four technologies incorporated in the DDR standards.

The FTC thus had determined the maximum royalty rates that Rambus is allowed to charge for the use of its patented technologies in memory chips that embody JEDEC's standards for SDRAM and DDR. However, those same standards also are incorporated in "memory controllers and other non-memory-chip components that use the relevant Rambus technologies," leaving the question of the maximum allowable royalty rates for those other types of products. Here, the FTC used the royalty rates from Rambus' actual licenses for the use of RDRAM technology in memory controllers and other non-memory-chip products—along with Rambus' contemporaneous projections of its licensing revenues from memory chips and other products—to develop a multiplier which it then applied to the memory chip rates shown above.

Rambus' actual non-memory-chip licenses typically involved running royalty rates between 3% and 5%. Additionally, although some of the relevant information has been redacted from the public record, it appears that Rambus' revenue projections implied rates that were roughly twice the memory chip rates. Based on those factors, the FTC chose a multiplier of two, yielding rates of 0.5% for non-memory-chip SDRAM products and 1.0% for non-memory-chip DDR products. Like the maximum allowable rates for memory chips, these rates drop to zero after three years. As indicated by the foregoing description, the FTC faced the same types of uncertainty that economists typically encounter in the context of reasonable royalty analysis—and it

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made the same types of simplifying assumptions, tradeoffs and reasoned judgments that expert economists often are forced to make. Of course,

it then had the luxury of imposing its results¹² on the parties, rather than having them vigorously contested by opposing experts. Nonetheless, its deliberations provide some helpful insights into the unavoidable role that economic judgment plays in the mechanics of the process.

1 Federal Trade Commission, Opinion of the Commission on Remedy (Public Record Version), In the Matter of Rambus, Inc., Docket No. 9302, 2/2/07 (Remedy Opinion).

2 As laid down in *Georgia Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 166 U.S.P.Q. (BNA) 235 (S.D.N.Y. 1970).

3 The FTC noted some evidence that Rambus' conduct also affected the JEDEC standard for DDR2, the successor architecture to DDR. (Remedy Opinion at 30.) However, it held that the causal link between Rambus' conduct and the inclusion of Rambus' technology in the DDR2 standard had not been proven sufficiently to justify extension of the remedy to DDR2.

4 The organization subsequently was renamed the JEDEC Solid State Technology Association.

5 Federal Trade Commission, Opinion of the Commission (Public Record Version), In the Matter of Rambus, Inc., Docket No. 9302, 8/2/06 at 3.

6 Remedy Opinion at 8.

7 See Federal Trade Commission, Final Order, In the Matter of Rambus, Inc., Docket No. 9302, 2/2/07 at 2-5.

8 Remedy Opinion at 18.

9 Remedy Opinion at 19.

10 Remedy Opinion at 22.

11 Remedy Opinion at 24.

12 As the FTC stated in describing the maximum allowable per-chip royalty rates, "we cannot calculate to the penny the downward adjustment from 1% [but] these rates certainly are within the range of reasonableness." Remedy Opinion at 23.

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