

2014-1492

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CARNEGIE MELLON UNIVERSITY,

Plaintiff-Appellee,

v.

MARVELL TECHNOLOGY GROUP, LTD.,
AND MARVELL SEMICONDUCTOR, INC.,

Defendants-Appellants.

*Appeal from the United States District Court for the Western District of
Pennsylvania in No. 2:09-CV-00290-NBF, Judge Nora Barry Fischer*

**BRIEF OF BOSTON UNIVERSITY, RICE UNIVERSITY, TEXAS A&M
UNIVERSITY, THE UNIVERSITY OF KANSAS, THE UNIVERSITY OF
PITTSBURGH, AND THE UNIVERSITY OF MINNESOTA AS *AMICI
CURIAE* SUPPORTING APPELLEE AND AFFIRMANCE**

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CERTIFICATE OF INTEREST

Pursuant to Rules 26.1 of the Federal Rules of Appellate Procedure and Federal Circuit Rules 29(a) and 47.4, J. Anthony Downs, counsel for *amici curiae Boston University, Rice University, Texas A&M University, the University of Kansas, the University of Pittsburgh, and the University of Minnesota* certifies the following:

1. The full name of every party or *amicus* represented by me is:

Trustees of Boston University
William Marsh Rice University
The Texas A&M University System
The University of Kansas
University of Pittsburgh-Of the Commonwealth System of Higher Education
Regents of the University of Minnesota

2. The name of the real party in interest (if any party named in the caption is not the real party in interest) represented by me is:

None.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the parties or *amici curiae* represented by me are:

None.

4. The names of all law firms and the partners or associates that appeared for the parties or amici now represented by me in the trial court or agency or are expected to appear in this court are:

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INTEREST OF *AMICI CURIAE*¹

Amici curiae are major U.S. research universities. Universities perform fifty-three percent of basic research in the United States.² Patent protection ensures that universities are adequately compensated when others seek to profit from universities' innovation. In fiscal year 2013, U.S. universities invested over \$65 billion in research and filed nearly 15,000 new patent applications.³

The Bayh-Dole Act of 1980 increased incentives for universities to patent inventions and license them for marketing and commercialization by private companies. This Act, which *The Economist* described as “[p]ossibly the most inspired piece of legislation to be enacted in America over the past half-century,”⁴ released enormous technological innovation into the U.S. market, creating revenue for further university research and massive economic benefits. In fiscal 2013

¹ No counsel for any party authored this brief in whole or in part; no such counsel or party made a monetary contribution intended to fund its preparation or submission; and no person other than *amici* and their counsel made such a contribution. All parties have consented to the filing of this brief.

² The Science Coalition, *Sparking Economic Growth 2.0: Companies Created from Federally Funded University Research, Fueling American Innovation and Growth*, at 8 (2013), available at <http://www.sciencecoalition.org/reports/Sparking%20Economic%20Growth%20FINAL%2010-21-13.pdf>.

³ Association of University Technology Managers, *Highlights of AUTM's U.S. Licensing Activity Survey, FY2013*, at 4, 7, available at http://www.autm.net/AM/Template.cfm?Section=FY_2013_Licensing_Activity_Survey&Template=/CM/ContentDisplay.cfm&ContentID=13870.

⁴ *Innovation's Golden Goose*, *The Economist*, Dec. 12, 2002.

alone, more than 800 startups were formed from university technology transfer.⁵ Between 1996 and 2007, university patent licensing contributed \$187 billion to the U.S. gross domestic product and \$457 billion to U.S. gross industrial output, and created 279,000 new American jobs. Since 1980, more than 6,000 U.S. companies were formed from university inventions, 4,350 new university licensed products are in the market, and 5,000 university-industry licenses are in effect.⁶

Given the value of university innovation, *amici* have a direct interest in ensuring that patent law enables universities to recover full and fair compensation for infringement of their patents.

INTRODUCTION

A patentee is entitled to “damages adequate to compensate for [patent] infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer.” 35 U.S.C. § 284. The “reasonable royalty” is the “floor below which damages shall not fall.” *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009); *see also General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 654 (1983) (Congress sought to ensure “full compensation”

⁵ Association of University Technology Managers, *Highlights of AUTM’s U.S. Licensing Activity Survey, FY2013*, at 9.

⁶ Association of University Technology Managers, *The Better World Report: The Positive Impact of Academic Innovations on Quality of Life*, at viii (2010), available at http://www.autm.net/AM/Template.cfm?Section=Past_Reports&Template=/CM/ContentDisplay.cfm&ContentID=7450.

for infringement).

In this case, Marvell extensively infringed CMU's patented methods.⁷ Marvell's infringing use occurred entirely in the United States: Marvell used CMU's patented methods to design, customize, and test its chips for producers of high-density hard disk drives, all in California. A166; A13977-80 (Sales Stipulation). As a direct result of this infringing domestic use, Marvell sold 2.34 billion accused chips, for a total profit of over \$5 billion. A43010; A272. The jury was instructed—consistent with this Court's precedents—that in determining the reasonable royalty for Marvell's infringement, it should consider the *Georgia-Pacific* factors. A45475-78. Applying those factors, the jury found that a reasonable royalty “for the use made of the invention by [Marvell]” in the U.S. is \$1.169 billion, A34184, and the district court upheld that verdict in a detailed opinion.

Marvell and its *amici* now ask this Court to create an unprecedented carve-out from the reasonable-royalty analysis: to reduce Marvell's liability for infringement simply because chips that, according to the jury, the parties would have considered in setting a reasonable royalty for Marvell's U.S. use of CMU's patented technology were used overseas by customers of Marvell's customers. No

⁷ This brief assumes that CMU's patents are valid and Marvell infringed the asserted claims. *Amici* take no position on the correctness of the royalty rate.

such carve-out should be granted. Marvell and its *amici* rely upon the presumption against extraterritoriality, but no extraterritorial application is at issue because the jury's reasonable royalty award was grounded on Marvell's infringement of CMU's patents *in the United States*. In contrast, the case Marvell cites, *Power Integrations, Inc. v. Fairchild Semiconductor International, Inc.*, 711 F.3d 1348 (Fed. Cir. 2013), was premised on the patentee's failure to prove that lost foreign profits were caused by U.S., rather than foreign, infringement. Nothing in *Power Integrations* prevents a patentee from proving that the parties would have agreed to value the use of a patented method in the U.S. based on a per-unit royalty on chips distributed globally.

In short, this case requires only straightforward application of the *Georgia-Pacific* factors. Marvell seeks to deny the "adequate compensation" owed to patent owners under § 284 and gut the value of patented technology used by high-tech companies to design, develop, test, and sell products in the U.S. merely because those products are then manufactured and distributed overseas.

Reducing the scope of reasonable royalties by adopting Marvell's carve-out would undermine incentives for universities and other research institutions to invest in technology critical to the U.S. economy. Many technology companies have moved their manufacturing overseas but continue to design and develop their products in the United States. Following Marvell and its *amici* would depress the

ability of research institutions to recover royalties that reflect the value of their inventions and create an incentive to infringe rather than seek a license.

ARGUMENT

I. The Jury’s Damages Award Was A Straightforward Application Of “Reasonable Royalty” Analysis.

A. A Patent Plaintiff Is Entitled To The “Reasonable Royalty” To Which The Parties Would Have Agreed In A Hypothetical Negotiation, Which Can Include A Royalty On Non-Infringing Items Produced Or Sold Through The Infringement.

The basic legal framework is well known. A patentee is entitled to “damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer.” 35 U.S.C. § 284. For years this Court has approved calculating a reasonable royalty by determining the royalty payments to which the parties would have agreed in a “hypothetical negotiation” for a license for the patented technology at the time infringement began. In making this determination, courts and juries can consider the “*Georgia-Pacific* factors.” *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1317 (Fed. Cir. 2011) (citing *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970)). These factors include:

- “[t]he utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results”;
- “[t]he extent to which the infringer has made use of the invention; and

any evidence probative of the value of that use”; and

- “[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.”

Georgia-Pacific Corp., 318 F. Supp. at 1120.

Even before *Georgia-Pacific*, courts and juries considered “[t]he use that has been made of the patented device [as] a legitimate aid to the appraisal of the value of the patent at the time of the breach.” *Sinclair Ref. Co. v. Jenkins Petroleum Process Co.*, 289 U.S. 689, 697 (1933). This Court has similarly explained that “a jury may consider not only the benefit to the patentee in licensing the technology, but also *the value of the benefit conferred to the infringer by use of the patented technology.*” *Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1240 (Fed. Cir. 2011) (emphasis added); *Monsanto Co. v. McFarling*, 488 F.3d 973, 980-81 (Fed. Cir. 2007) (approving royalty of \$40 per bag for patented seeds that cost \$6.50 per bag because of ancillary benefits to the infringer from use of the seeds).

Applying this principle, juries have concluded that parties would have agreed to a per-unit royalty on sales of items made using infringing technology, even if the items made were not themselves infringing, and this Court has affirmed such verdicts. *E.g., Minco, Inc. v. Combustion Eng’g, Inc.*, 95 F.3d 1109, 1119-20

(Fed. Cir. 1996) (sales of non-infringing product made in an infringing furnace formed the royalty base); *Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1346 (Fed. Cir. 2011) (sales of non-infringing stents made by an infringing apparatus formed the royalty base). This is also true for method patents. *E.g.*, *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580-81 (Fed. Cir. 1989) (evidence of sales of non-infringing products sold using an infringing method formed the royalty base); *Soverain Software LLC v. J.C. Penney Corp.*, 899 F. Supp. 2d 574, 583-84 (E.D. Tex. 2012) (royalty base properly included evidence of online sales of products enabled by patented methods for online ordering). Thus a patentee is entitled to a royalty on non-infringing items when a jury concludes that the parties would have agreed to such a royalty in the hypothetical negotiation because those items fairly reflect the value of the infringing use.⁸

⁸ Broadcom argues that the district court erred in failing to recognize that under *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538 (Fed. Cir. 1995), reasonable-royalty damages must proximately be caused by infringement. Broadcom Br. 20-21. But the section of *Rite-Hite* on which Broadcom relies discusses *lost profits*, not reasonable royalty. *Rite-Hite*, 56 F.3d at 1546. This Court has never required proximate cause in the reasonable-royalty context, and for good reason: If the patent holder proves the reasonable royalty to which the parties would have agreed in a hypothetical negotiation, then the infringer's failure to pay that royalty was directly caused by the infringement under any causation standard. Unsurprisingly, neither Marvell nor its *amici* identify a reasonable royalty case where a court required a showing of causation beyond proof of what the parties would have agreed to in negotiation.

B. The Jury’s Award Was Based Directly On Evidence Of Marvell’s Infringing Activities In The United States, And On Application Of The *Georgia-Pacific* Factors.

The district court concluded that evidence supported the jury’s finding that Marvell infringed CMU’s patents in the United States by extensively using CMU’s patented method to design and develop its chips and to conduct the sales cycle for its chips—all *in the United States*. A234-35; A43754-56 (Sutardja, Marvell’s founder). Evidence regarding Marvell’s use of CMU’s patented methods in the United States included the following:

- Semiconductor companies like Marvell engage potential customers in a “lengthy and expensive” process of customization, development, simulation, engineering, and testing of sample chips before any purchasing decisions are made. A31979-80 (Stip. ¶ 15); A42122-26 (Bajorek); A165.
- Virtually the entire process—from early research and development to the ultimate design win—took place at Marvell’s headquarters in California. A31977-79 (Sales Stipulation); A42141, A42143-44 (Bajorek). Marvell’s sales and marketing personnel were located in California. A255; A31978 (Stip. ¶ 8). The evaluation, simulation, and testing that preceded the “design win” and utilized CMU’s patented method were conducted in California by Marvell and its customers, most of whom were located in California.

A31978; A42159-60 (Bajorek); A43753 (Sutardja); A166.⁹

- Throughout its sales process, Marvell infringed CMU’s patented technology “hundreds of millions of times per second,” totaling “a minimum of 2.88 trillion infringing uses, per single chip or simulator, per day.” A236; *see also* A43754-55 (Sutardja); A42124, A42131 (Bajorek).
- This design, simulation, and testing could not have been completed without CMU’s technology. CMU’s technology was a “must have” for Marvell and a “critical requirement” for its chips. A257.
- Marvell could not have moved its evaluation, simulation, and testing overseas. A245 n.97.
- Once a customer decides to use Marvell’s microchip, the “design win” assures the customer’s use of that chip for a multi-year generation of products, A31979 (Stip ¶ 15); A42121, A42163 (Bajorek), leading to tens of millions of chips and dollars for Marvell, A42294; A166; *see also Broadcom*

⁹ This case is therefore very different from *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, ___ F.3d ___, 2014 WL 5352367 (Fed. Cir. Oct. 22, 2014), which held that Pulse Electronics did not infringe Halo Electronics’ patents by selling accused products to buyers outside the United States “when substantial activities of [the] sales transaction” occurred abroad. *Id.* at *6. Unlike the defendant in *Halo*, Marvell presented zero evidence— “[n]ot a single purchase order, nor delivery receipt, nor any revenue data” —of any sales activity that occurred abroad. A253. Additionally, the unique “winner-take-all” sales cycle involved in the semiconductor industry was not addressed by this Court in *Halo*. Furthermore, the question in *Halo*—whether pricing negotiations alone establish infringement—is not implicated here, where infringement is premised solely on U.S. conduct.

Corp. v. Emulex Corp., 732 F.3d 1325, 1337 (Fed. Cir. 2013) (describing “design win” markets).

To be sure, the microchips were manufactured abroad. During testing and evaluation, samples were made in Taiwan and shipped to California. A165-66; A42159 (Bajorek). Once Marvell secured a design win, volume quantities were manufactured in Taiwan, incorporated into consumer products (*e.g.*, laptops), and sold to consumers worldwide. A166-67. But where these chips would ultimately end up was immaterial to Marvell—as Marvell’s expert testified, it was not only unknown to Marvell, it was unknowable. A43602. What mattered to Marvell was using CMU’s patented process for design, testing, and sales in California.

Given the evidence of Marvell’s infringing use in the United States, the court allowed the parties to present two theories to the jury concerning the royalty to which the parties would have agreed for Marvell’s U.S. use of the patented methods: a lump-sum royalty and a running royalty. A258-59, A263-66. Marvell’s expert testified that the parties would have agreed to a lump sum of \$250,000. A263; AA44207. Marvell also argued to the jury that if the parties agreed to a running royalty, it would have applied only to chips ultimately used in the U.S. A247. CMU’s expert testified that the parties would have agreed to a running royalty of \$.50 per chip sold by Marvell through an infringing sales cycle, for a total of \$1,169,140,271.00. A43412.

The court correctly instructed the jury that a reasonable royalty is “the amount of royalty payment that a patent holder and the infringer would have agreed to in a hypothetical negotiation taking place at a time prior to when the infringement first began,” *i.e.*, the “amount CMU and Marvell would have agreed upon as a fee for use of the invention in the United States.” A45474. The court also told the jury that “Marvell cannot be found to have directly or indirectly infringed in connection with chips that are never used in the United States” but that they could consider “sales resulting from Marvell’s alleged infringing use during the sales cycle ... in determining the value of the infringing use.” A45456.

For the jury to reach its verdict, it had to: (1) find infringement in the United States; (2) accept CMU’s argument that the parties would have agreed to a running, not lump sum, royalty on chips sold as a result of the infringing sales cycle; and (3) find that the parties would have applied the royalty to all sales that resulted from the infringing sales cycle, irrespective of where the products eventually land. It did. Its award was a straightforward application of reasonable-royalty analysis based on the facts of this case.

C. Neither The Presumption Against Extraterritoriality, Nor *Power Integrations*, Undermines The Jury’s Damages Award.

Even though the jury’s damages award is grounded on Marvell’s infringing conduct in the U.S., Marvell and its *amici* contend that the jury’s award conflicts with the presumption against extraterritoriality and this Court’s decision in *Power*

Integrations. This is incorrect. Although there is a presumption that U.S. laws regulate only *conduct* in the United States, there is no presumption that U.S. law withholds compensation from a party injured here whenever foreign events determine the extent of domestic harm. This Court should not undercut well-established reasonable-royalty law by grafting on a new territorial limitation.

1. The Damages Award Is Consistent With The Presumption Against Extraterritoriality Because The “Focus” Of The Patent Act Is Infringement, And Marvell’s Infringement Occurred In The United States.

The presumption against extraterritoriality helps courts determine “what *conduct* [a statute] prohibits.” *Morrison v. National Australia Bank Ltd.*, 561 U.S. 247, 254 (2010) (emphasis added). Absent clear Congressional indication to the contrary, U.S. law “is meant to apply only within the territorial jurisdiction of the United States,” *id.* at 255, because Congress seeks to avoid the “unintended clashes between our laws and those of other nations” that would result if the United States attempted to “regulate conduct” in foreign countries, *Blazevska v. Raytheon Aircraft Co.*, 522 F.3d 948, 952 (9th Cir. 2008).

In determining whether the presumption against extraterritoriality applies to a course of conduct with both foreign and domestic components, courts consider whether the conduct that is the “focus” of Congressional action, or “the object[] of the statute’s solicitude,” took place in the United States. *Morrison*, 561 U.S. at 266-67; *see also Blazevska*, 522 F.3d at 952 (“Simply because a case’s factual

background involves some conduct occurring abroad does not mean that every statute governing the matter is subject to the presumption against extraterritoriality; a court must first inquire into ... [the] conduct the statute seeks to regulate.”). For instance, the “focus” of Title VII is regulating “domestic employment,” and the “focus” of the Exchange Act is regulating “purchases and sales of securities in the United States.” *Morrison*, 561 U.S. at 266. Similarly, the “focus” of the Patent Act is preventing patent infringement in the United States, which is why “[i]t is the general rule under United States patent law that no infringement occurs when a patented product is made and sold in another country.” *Microsoft v. AT&T*, 550 U.S. 437, 441 (2007).

But the presumption against extraterritoriality does not limit the damages that an injured party can recover for wrongful conduct *that occurs in the United States*. This Court held in *Railroad Dynamics, Inc. v. A. Stucki Co.* that a patent holder can recover a reasonable royalty from an infringer who manufactured infringing railroad carsets in the United States even if it sold some of the carsets, and hence triggered the royalty on those carsets, abroad. 727 F.2d 1506, 1519 (Fed. Cir. 1984) (“Whether those carsets were sold in the U.S. or elsewhere is therefore irrelevant ...”). Similarly, in the copyright context, although it is “settled that the Copyright Act does not apply extraterritorially,” once a copyright holder establishes a domestic act of infringement, it can “recover damages flowing

from exploitation abroad of the domestic acts of infringement committed by defendants” without triggering the presumption against extraterritoriality. *L.A. News Serv. v. Reuters Television Int’l, Ltd.*, 149 F.3d 987, 990-92 (9th Cir. 1998); *see also Tire Eng’g & Distrib., LLC v. Shandong Linglong Rubber Co.*, 682 F.3d 292, 306-07 (4th Cir. 2012).

Just as the presumption against extraterritoriality did not apply in *Railroad Dynamics* and *L.A. News Service* because the infringing conduct that was the “focus” of the statutes occurred in the United States, the presumption plays no role here. The jury awarded CMU the amount on which Marvell and CMU would have agreed for a license permitting Marvell to use CMU’s methods in the United States. Because CMU sought a royalty *for infringement that occurred in the United States*, the presumption against extraterritoriality is irrelevant.¹⁰

2. The Damages Award Is Consistent With *Power Integrations*, Which Involved A Failure Of Proof In The Context Of Lost Profits And Is Irrelevant To The Reasonable-Royalty Analysis.

In *Power Integrations*, Fairchild sold phone chargers that infringed apparatus claims in Power Integrations’ patents. Power Integrations sought damages based on a lost profits theory. “To get lost profits as actual damages, the patent owner must demonstrate that there was a reasonable probability that, but for

¹⁰ *Halo* is not to the contrary because it applied the presumption to determine whether there was *infringement*. 2014 WL 5352367, at *8.

the infringement, it would have made the infringer's sales." *State Indus., Inc.*, 883 F.2d at 1577. Because "U.S. patent law does not operate extraterritorially to prohibit infringement abroad," *Power Integrations*, 711 F.3d at 1371, a patentee cannot recover its lost profits that were caused by an infringer's foreign conduct.

Power Integrations was denied recovery of lost foreign profits because it failed to prove that its loss was caused by Fairchild's domestic infringement, rather than by Fairchild's foreign activities. *Id.* at 1372. Indeed, the district court held that "the amount of damages testified to by [Power Integrations' expert] and adopted by the jury *is not actually rooted in Fairchild's infringing activity in the United States.*" 589 F. Supp. 2d 505, 511 (D. Del. 2008) (emphasis added). This Court similarly recognized that "the underlying question" was "whether Power Integrations is entitled to compensatory damages for *injury caused by infringing activity that occurred outside the ... United States.*" 711 F.3d at 1371 (emphasis added).

To avoid its failure of proof, Power Integrations attempted to argue that Fairchild's foreign sales were themselves the result of Fairchild's domestic infringement. *Id.* at 1370. But there was no *evidence* that tied Fairchild's non-U.S. sales to Fairchild's infringing conduct in the United States. *See* 589 F. Supp. 2d at 510-511. This Court thus rejected Power Integrations' argument and viewed Fairchild's foreign sales as an "entirely extraterritorial production, use, or sale"

that independently caused Power Integrations' foreign lost profits. 711 F.3d at 1371-72.¹¹

Unlike Power Integrations, which sought lost foreign profits caused by Fairchild's foreign infringement, CMU seeks the reasonable royalty that Marvell would have paid in the U.S. to use the patented methods in the U.S. in its U.S.-based marketing and sales processes. The jury concluded that Marvell would have paid a per-chip royalty on all chips sold through the infringing sales process, just as the juries in *Minco* and *Spectralytics* concluded that the infringer would have paid a per-unit royalty on non-infringing products made by the infringing machines. As in those cases, the fact that some of Marvell's chips were manufactured abroad is irrelevant when the chips were manufactured and sold only because of Marvell's U.S. infringement. A42216 (Bajorek testifying to a "direct link" between Marvell's infringing uses and its sales).

The jury's task is to decide what royalty the parties would have negotiated. This Court should not impose an artificial territorial limit on what the parties could agree to as a measure of reasonable compensation for using a patented method in

¹¹ Broadcom's statement that "Power Integrations did not purport to claim damages for infringement outside this country," Broadcom Br. at 12, is thus incorrect. Power Integrations did claim damages caused by Fairchild's infringement outside this country, Power Integrations just argued—without any evidentiary basis—that Fairchild's foreign infringement was somehow caused by Fairchild's own domestic infringement.

the United States.

II. Overturning The Jury’s Verdict Would Be Inconsistent With Governing Law And Undermine Rewards And Incentives For Innovation.

A. The Position Taken By Marvell And Its *Amici* Turns The Reasonable-Royalty Analysis On Its Head.

Marvell and its *amici*’s theory guts the purpose of the hypothetical negotiation analysis: to “attempt[] to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.” *Lucent Techs.*, 580 F.3d at 1324. Although the endeavor “necessarily involves an element of approximation and uncertainty,” *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 517 (Fed. Cir. 1995), the end result should be a reasonable approximation for what the parties *realistically* would have agreed to for the use of patented technology in the U.S. *See Lucent Techs.*, 580 F.3d at 1325.

Instead of approximating the royalty to which the parties would have agreed, Marvell and its *amici* ask the Court to ignore it. According to Marvell, even if CMU had an *established practice* of requiring a royalty on global distribution of items sold through licensees’ U.S. use of its patented methods, the jury would have to ignore that practice even though an established licensing practice is the most straightforward way to prove a reasonable royalty. *See Unisplay*, 69 F.3d at 519.¹²

¹² There is nothing unusual about a licensing practice that requires licensees to pay a share of profits that flow directly from use of the patented method. *E.g.*,

And when established practices are less clear, Marvell asks district courts to irrebuttably presume that in a hypothetical negotiation CMU and Marvell would ignore the *real* value to Marvell of using CMU's patented methods in the U.S., and instead negotiate a royalty based *only* on the chips that eventually make their way to the U.S. But as the district court noted, the chips' ultimate location was not, and could not be, tracked. A246; A43602. No patentee would agree to such an unworkable structure. Nor would a patentee with valuable technology agree to a royalty applied to only one-quarter of the sales that result directly from the infringer's domestic use. That would allow the infringer to use the patented technology in the United States *for free* to obtain three-quarters of its sales.

Broadcom claims it is "circular" to argue that CMU and Marvell would have agreed to a per-chip royalty "because no reasonable licensee would agree to do so unless U.S. law provided for damages based on sales of those chips." Broadcom Br. 15. But in order for the hypothetical negotiation construct to work, the parties must be negotiating in a context where the infringer's alternative to paying a royalty is that the infringer *cannot use the patented method* in the United States *at all*. See *Lucent Techs.*, 580 F.3d at 1325 (reasonable royalty is what, "if

Kimberlee A. Stafford, *Reach-Through Royalties In Biomedical Research Tool Patent Licensing*, 9 Lewis & Clark L. Rev. 699, 700 (2005) (noting that "license agreements for biomedical research tools often contain reach-through royalty provisions" that "require the licensee to provide the licensor with royalties for ... future discoveries made with the tool").

infringement had not occurred, willing parties would have executed a license agreement specifying a certain royalty payment scheme” (emphasis added)).

Broadcom’s argument therefore misses the point: If a patent holder were faced with a license offer that compensated her for only a small fraction of the use of patented technology, the patent holder would decline to license her technology altogether.

Thus, while the reasonable royalty inquiry tries to *approximate* the deal the parties would have negotiated, Marvell asks this Court, a district court, and the jury to *ignore* how a hypothetical negotiation would have proceeded and impose a royalty to which no reasonable patentee would have agreed.

B. Limiting The Reasonable Royalty Would Encourage Companies To Offshore Manufacturing Or To Infringe As A Consequence-Free Cost-Cutting Measure.

Marvell and its *amici* speculate that the district court’s decision and the jury’s verdict will incentivize tech companies to move overseas. But *Marvell’s* argument would more logically increase offshoring. Marvell’s contention is that if products sold domestically as a direct result of U.S.-based infringement are manufactured, distributed, and used abroad, then infringers should not incur damages for their domestic infringement. Such a loophole would send a clear message to companies that research, design, market, test, and manufacture products in the United States for worldwide distribution: Offshore manufacturing

and avoid U.S. patent laws for domestic research, design, and testing. And for companies that currently obtain licenses before using patented technology in the U.S. for research, design, and sales of products ultimately manufactured and distributed overseas, Marvell's rule would encourage infringement as an easy cost-saving measure because infringement damages would be below the cost of a license.

C. Limiting The Reasonable Royalty Would Lead To Under-
Compensation And Reduce Incentives For Universities And Other
Research Institutions To Disclose And License New Technology.

The Patent Act balances rewarding innovators for disclosing inventions and ensuring eventual competition. *See Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1989) (patents are designed to encourage “disclosure” of advances in technology and ensure that inventors do not “keep [an] invention secret and reap its fruits indefinitely”). Maintaining incentives for disclosing and licensing innovation is particularly important at research universities, which generally do not commercialize their discoveries. This was the fundamental innovation of the Bayh-Dole Act of 1980, which sought to put university inventions to productive use by allowing universities to obtain patents on inventions discovered in federally-funded research. This landmark legislation “unlocked all the inventions and discoveries that had been made in laboratories throughout the United States with the help of taxpayers’ money. More than

anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance." *Innovation's Golden Goose*, *The Economist*, Dec. 12, 2002.

The rule advocated by Marvell and its *amici*—that sales of products used abroad should be carved out of consideration in a reasonable-royalty analysis even when infringement occurs in the United States—would significantly undermine the incentives that Bayh-Dole successfully created. Many patents owned by research universities cover methods or apparatuses that are used domestically and crucial to the sale of consumer goods eventually distributed worldwide. Some, like CMU's patented technology here, are used extensively in the U.S. through a winner-take-all sales cycle that directly results in the sales of products containing the patented technology that are ultimately used abroad. Others, like manufacturing or software technology, are essential to the sale of products distributed worldwide even if those products do not themselves contain the patented technology. If universities cannot recover the fair value of those patents upon infringement, then Congress's decision in Bayh-Dole to allow universities to obtain those patents in the first place loses its value. Universities will lose their incentives to license their technology, and universities, large multinational corporations that profit from university innovation, and the public at large will suffer.

The Patent Act, and Bayh-Dole more specifically, were designed to

encourage scientific innovations by such patentees, who play a vital role in spurring technological and economic development. They should be adequately compensated for the domestic infringement that occurs consistent with the damage provisions of the Patent Act.

III. The Policy Concerns Raised By Marvell And Its *Amici* Are Misplaced.

Marvell and its *amici* try to frighten the Court into thinking the district court's opinion will have dramatic policy implications. Given that the district court's opinion was a standard application of well-established law, their concerns are misplaced.

A. Upholding The Jury's Award Does Not Mean Every Infringement During Research And Development Will Lead To A Per-Unit Royalty On Global Sales.

Marvell's *amici* suggest that upholding the jury's damages award would mean that "virtually any company engaged in domestic R&D that releases a product later deemed to infringe a U.S. patent is liable for damages reflecting the value of all uses of that product worldwide, even though those uses that occur outside the U.S. do not constitute infringement of a U.S. patent." Professors Br. 10. This assertion misconstrues the implications of the court's decision. A patent plaintiff bears the burden of proving its damages under a reasonable royalty theory and must convince the trier of fact of the likely result of a hypothetical licensing negotiation. *Lucent Techs.*, 580 F.3d at 1324. If a patentee argues for a reasonable

royalty on sales of non-infringing items that are sold only because of the patented technology—whether those sales of non-infringing items are sold domestically or abroad—it must convince the jury that the parties would have agreed to such a royalty. If so, then the patentee is entitled to recover it, as this Court has repeatedly held. *Minco*, 95 F.3d at 1118; *Spectrallytics*, 649 F.3d at 1346. But an infringer can argue that the parties would not have agreed to such an award, and these arguments will make an award like this one the exception rather than the rule.

For example, an infringer can argue that the parties to the hypothetical negotiation would have negotiated a lump sum payment rather than a running royalty. *E.g.*, A258. In doing so, an infringer can point to comparable licenses for the use of the patented method that do not include a per-unit royalty on non-infringing items sold through the patented technology.¹³ *E.g.*, *Mobil Oil Corp. v. Amoco Chemicals Corp.*, 915 F. Supp. 1333, 1340-41 (D. Del. 1994). The infringer could also demonstrate that the infringement was immaterial to the product ultimately produced, and therefore the parties would not have negotiated a

¹³ For example, it is industry practice in the biotechnology industry to charge a lump-sum payment for licenses to use patented polymerase chain reaction (“PCR”) technology, and thus the hypothetical negotiation “would surely have produced a license” with similar terms. Michael J. Stimson, *Damages for Infringement of Research Tool Patents: The Reasonableness of Reach Through Royalties*, 2003 Stan. Tech. L. Rev. 3, 26 (2003). However, owners of other patented compounds typically grant licenses to researchers if the researchers “agree to share profits from any subsequently discovered uses” of the compounds. *Id.* at 28.

per-unit fee for its use during the sales process. Or, the infringer can argue that it would not have paid such a royalty because it could have conducted the same research and development without infringing the patent, either by moving its research and development abroad or by conducting the research using a non-infringing alternative. *E.g., Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1312 (Fed. Cir. 2002).

These arguments may be convincing in many cases, especially those where, as the Professors fear, a patent holder seeks to recover a per-unit royalty on all global units sold simply because a patent was infringed during the process of research and development. Here, however, the connection between the infringement and the jury's royalty award was much more direct: CMU presented evidence that that *all* of Marvell's sales of the NLD- and MNP-type chips were driven by the use of the accused technology during the sales cycle that was completed "almost entirely within the United States." A255; A42120-29; Dkt. No. 678 at 66-75. Thus, Marvell did not infringe CMU's patent during general research and development, but while designing and testing customized chips, without which Marvell could not have sold *any* of its chips. Faced with this evidence, the jury's conclusion was not only reasonable, but unsurprising.

In short, juries will only award royalties like this one when they are justified by the evidence presented at trial. Marvell's "bad facts and even worse litigation

strategy,” A269, should not trick the Court into thinking this case is anything more than the standard reasonable royalty case that it is.

B. The District Court’s Analysis Will Not Lead To An Increase In Duplicative Awards.

Marvell and its *amici* argue that the district court’s decision will allow patent holders to recover doubly—collecting a per-chip royalty in the United States based on infringement by use of the method during the product design, testing, and sales cycle, and then recovering again on foreign patents for infringing sales or uses abroad.¹⁴ But there is nothing unusual about patent doctrines that create a theoretical potential for double recovery. For example, under *Railroad Dynamics* a patent holder could theoretically recover a reasonable royalty on patented items that are “made” in the United States and “sold” abroad. 727 F.2d at 1519. If the patent holder owns a foreign patent in the country where those items are sold, the patent holder could try to recover for infringement in the country of sale as well. Similarly, under 35 U.S.C. § 271(g), it is an act of infringement to “import[] into the United States ... a product which is made by a process patented in the United States.” If the process patent’s owner holds a patent in the country of manufacture as well as the United States, there is a possibility of infringement and damages in that foreign country as well. Similar issues exist in other areas of law. *See, e.g.*,

¹⁴ Notably, Marvell has not argued that there is any potential for double recovery in this case.

Alexander Callen, *Avoiding Double Recovery: Assessing Liquidated Damages in Private Wage and Hour Actions Under the Fair Labor Standards Act and the New York Labor Law*, 81 Fordham L. Rev. 1881 (2013).

Because the potential for double recovery exists throughout the Patent Act and elsewhere, courts recognize that “double recovery for the same injury is inappropriate,” and so if a court concludes that a patentee has already been rewarded for certain injury, it will not allow it to collect again under a different legal theory. *Aero Prods. Int’l, Inc. v. Intex Recreation Corp.*, 466 F.3d 1000, 1017-18 (Fed. Cir. 2006). Despite the numerous potential vehicles for double recovery in the Patent Act, Marvell and its *amici* fail to identify any example of a patent holder recovering twice for a single injury.

C. The District Court’s Analysis Does Not Impinge On Foreign Governments’ Sovereignty.

Broadcom’s contention that the jury’s damages award impinges on foreign governments’ sovereignty is, like much of its argument, based on the false premise that the damages award regulates foreign conduct. Broadcom Br. 25. It does not: If Marvell had not infringed CMU’s patent, trillions of times per day, in the United States, then Marvell would not be subject to damages in the United States. Using chips Marvell distributed abroad to inform the value Marvell gained from its U.S. infringement does not mean that U.S. law is regulating Marvell’s foreign conduct, it simply means that if Marvell violates U.S. law in the U.S. it is responsible for the

harm that infringement causes. That is why in *Railroad Dynamics* it did not impinge the foreign country's sovereignty to allow Railroad Dynamics to collect a royalty on foreign sales—because the royalty was compensation for U.S. patent infringement, even though the foreign sales might have been legal in the foreign country.

Indeed it would be odd to limit CMU's recovery to something less than the reasonable royalty it would have received in a hypothetical negotiation—the minimum damages under the Patent Act—to avoid interfering with other countries' sovereignty. Such a holding would restrict U.S. courts' ability to regulate *domestic* conduct out of a concern for foreign sovereignty. That is completely backwards—although U.S. courts should generally not interpret U.S. law to regulate foreign conduct, courts should not under-compensate U.S. patent holders for violations of U.S. law in the U.S. out of a concern that determining the true harm from the domestic violation of U.S. law requires considering some events that occurred abroad.

D. The District Court's Analysis Will Not Encourage Companies To Move Research, Development And Testing Abroad.

Although Marvell speculates that the district court's ruling will cause a mass exodus of corporations from the United States,¹⁵ Marvell (like many companies)

¹⁵ Marvell and its *amici* provide no data (or any authority whatsoever) in support of such a doomsday speculation.

has already moved its manufacturing and even its corporate headquarters abroad.¹⁶

See U.S. Census Bureau, *Census Bureau Releases Industry Series Report on Semiconductors and Related Device Manufacturing* (2014),

<https://www.census.gov/newsroom/press-releases/2014/cb14-tps57.html> (“The

[U.S.] semiconductor and related device manufacturing industry employed 90,244 people in 2012, down 38.3 percent from 146,152 employed in 2007.”); Noel

Randewich, *Trying to Keep Chip-Making in U.S. No Small Job*, Chi. Trib., May 6,

2012, at 3 (“[O]nly 16 percent of the world’s chip manufacturing capacity is

located in the United States”); Center for Public Policy Innovation, *The Decline in Semiconductor Manufacturing in the United States*, at 3 (2010),

<http://cppionline.org/docs/the-decline-of-semiconductor-manufacturing.pdf> (“Over

the past decade, the manufacturing of semiconductors in the US has declined as more and more companies move production overseas.”).

However, many companies continue to conduct their research, development, design, and sales activities in the U.S. because these functions must remain close to U.S. universities, which perform much of the research upon which industry relies and which educate the technical experts that provide these crucial innovations. See Dewey & LeBoeuf, *Maintaining America’s Competitive Edge: Government*

¹⁶ For example, Marvell Technology Group’s corporate headquarters are located in Bermuda, while its chips are manufactured in Taiwan. A43717, A43785.

Policies Affecting Semiconductor Industry R&D and Manufacturing Activity, at iii (2009), http://www.semiconductors.org/clientuploads/directory/DocumentSIA/Research%20and%20Technology/Competitiveness_White_Paper.pdf (“The United States is generally acknowledged to have the world’s best system of research universities in the physical sciences and electrical engineering disciplines that are relevant to the semiconductor industry.”); *id.* at 26 (“A ... factor driving locational decisions for design R&D is the proximity of a leading research university.”).¹⁷

Moreover, the actual risk of offshoring can be, and in this case was, considered in the reasonable-royalty analysis. In calculating a reasonable royalty, Ms. Lawton, CMU’s damages expert, considered whether it was feasible for Marvell to move its design and sales operations overseas, rather than negotiate a royalty for the use of patented methods in the United States. A245 n.97. She testified that outsourcing was not a viable option. *Id.*; A43172-73. Had the jury

¹⁷ See also Rahul Kapoor & Patia J. McGrath, *Unmasking the Interplay between Technology Evolution and the Organization of R&D: Evidence from the Global Semiconductor Manufacturing Industry, 1990-2010*, Stanford Institute for Economic Policy Research Paper, at 11 (2012), available at <http://siepr.stanford.edu/system/files/shared/Kapoor%20McGrath%20Tech%20Evolution%2003-08-12.pdf> (“[I]f radical innovation is the objective, firm collaborations with universities is a common arrangement.”); Fraunhofer Institute for Systems & Innovation Research, National Academy of Engineering, *Technology Transfer Systems in the United States and Germany*, at 222 (1997) (discussing the “exceeding[] importan[ce]” of U.S. universities to the semiconductor industry).

determined that Marvell could have moved offshore instead of licensing the patented technology, it would not have awarded such a high damages award.

In short, tech companies like Marvell rely on their ties with local universities, for which they provide direct funding and sponsor faculty chairs, and from which they recruit and hire talent for internships and permanent positions. This activity cannot be off-shored. Maximizing protection for innovation by universities will not encourage companies to abandon their crucial proximity to bastions of technological development. Rather, it will ensure that design and engineering talent remains here.

CONCLUSION

For the foregoing reasons, *amici* urge the Court to affirm the district court's holding that the sales of all chips sold through the infringing sales process was an appropriate royalty base.

Respectfully submitted,

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