

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

CARNEGIE MELLON UNIVERSITY,)	
)	
Plaintiff,)	
v.)	Civil Action No. 2:09-cv-00290-NBF
)	
MARVELL TECHNOLOGY GROUP, LTD.,)	
and MARVELL SEMICONDUCTOR, INC.,)	
)	
Defendants.)	

**PLAINTIFF CARNEGIE MELLON UNIVERSITY’S OPPOSITION TO MARVELL’S
MOTION FOR JUDGMENT AS A MATTER OF LAW, NEW TRIAL AND/OR
REMITTITUR WITH RESPECT TO DAMAGES (DKT. 807, 809)**

TABLE OF CONTENTS

- I. INTRODUCTION..... 1**
- II. ARGUMENT..... 2**
 - A. The Court Should Deny Marvell’s Motion for Judgment As A Matter of Law 2**
 - 1. The Damages Arise From U.S. Conduct. 3
 - 2. There Is Substantial Evidence That Marvell’s Sales Resulted From Marvell’s Infringement of CMU’s Patents During the Sales Cycle and Therefore Are Properly Included In the Royalty *Base* As a Matter of Fact..... 6
 - 3. The Evidence Supports a \$0.50 Per Chip Royalty *Rate* as a Matter of Fact 14
 - 4. Substantial Evidence Supports a Running Fixed-Per-Chip Royalty..... 24
 - B. The Court Should Deny Marvell’s Motion for a New Trial on Damages or Remittitur 25**
 - 1. Marvell Understates Its Burden In Securing a New Trial..... 25
 - 2. Marvell Is Not Entitled To a New Trial on the Issue of Whether Marvell’s Sales Result From its Infringement of CMU’s Patents During the Sales Cycle..... 27
 - 3. Marvell’s Jury Instructions Argument Misstates the Court’s Rulings..... 27
 - 4. Marvell Has Not Met the “Difficult,” “Steep Climb” Necessary to Justify Remittitur, But Any Remittitur Must Be No Less Than \$278,406,045.50..... 28
 - 5. Marvell Has Not Met the “Difficult,” “Steep Climb” Necessary to Justify Remittitur to an Unspecified Alternative Royalty Rate..... 29
- III. CONCLUSION 31**

TABLE OF AUTHORITIES**Cases**

<i>Agrizap, Inc. v. Woodstream Corp.</i> , 520 F.3d 1337, 1341 (Fed. Cir. 2008).....	3, 20
<i>ALPO Petfoods, Inc. v. Ralston Purina Co.</i> , 997 F.2d 949, 952 (D.C. Cir. 1993)	7
<i>Applied Med. Resources Corp. v. United States Surgical Corp.</i> , 147 F.3d 1374, 1377 (Fed. Cir. 1998).....	13
<i>Automatic Radio Manuf. Co. v. Hazeltine Research, Inc.</i> , 339 U.S. 827, 832-34 (1950)	20
<i>Bostic v. Smyrna Sch. Dist.</i> , 418 F.3d 355, 359 (3d Cir. 2005)	28
<i>Cal. Fed’l Bank v. United States</i> , 395 F.3d 1263, 1268 (Fed. Cir. 2005).....	7
<i>Chainey v. Street</i> , 523 F.3d 200, 218 (3d Cir. 2008)	21
<i>Chemical Leaman Tank Lines, Inc. v. Aetna Cas. & Surety Co.</i> , 89 F.3d 976, 993 (3d Cir. 1996).....	21
<i>Cortez v. Trans Union, LLC</i> , 617 F.3d 688, 718 (3d Cir. 2010).....	26
<i>Cybor Corp. v. FAS Techs., Inc.</i> , 138 F.3d 1448, 1461 (Fed. Cir. 1998)	14
<i>Energy Transp. Group, Inc. v. William Demant Holding A/S</i> , 697 F.3d 1342, (Fed. Cir. 2012)	5, 12, 17, 30
<i>Engel Indus., Inc. v. Lockformer Co.</i> , 96 F.3d 1398, 1407-09 (Fed. Cir. 1996).....	20
<i>Fujifilm Corp. v. Benun</i> , 605 F.3d 1366, 1372-73 (Fed. Cir. 2010), <i>cert. denied</i> , 131 S. Ct. 829 (2010).....	5
<i>Galena v. Leone</i> , 638 F.3d 186, 196 (3d Cir. 2011)	3, 12, 14
<i>Grain Processing Corp. v. Am. Maize-Prods. Co.</i> , 185 F.3d 1341, 1350-51 (Fed. Cir. 1999)	21
<i>Griffiths v. Cigna Corp.</i> , 857 F. Supp. 399, 408-09 (E.D. Pa. 1994)	26
<i>Hanson v. Alpine Valley Ski Area, Inc.</i> , 718 F.2d 1075, 1080-81 (Fed. Cir. 1983).....	5
<i>i4i Ltd. Partnership v. Microsoft Corp.</i> , 598 F.3d 831, 845 (Fed. Cir. 2010)	21
<i>Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GMBH</i> , 408 F.3d 1374, 1380 (Fed. Cir. 2005).....	25
<i>Indian Coffee Corp. v. Procter & Gamble Co.</i> , 752 F.2d 891, 897 (3d Cir. 1985).....	29
<i>Jackson v. City of Pittsburgh</i> , 2011 WL 3443951 at *8	27
<i>LaserDynamics, Inc. v. Quanta Computer, Inc.</i> , 694 F.3d 51, 79 (Fed. Cir. 2012)	7, 19, 21
<i>Lighting Lube, Inc. v. Witco</i> , 4 F.3d 1153, 1173-74 (3d Cir. 1993)	21
<i>Lucent Techs., Inc. v. Gateway, Inc.</i> , 580 F.3d 1301	16, 17
<i>Maylie v. Nat’l R.R. Passenger Corp.</i> , 791 F. Supp. 477, 480 (E.D. Pa. 1992)	25
<i>Mirror Worlds, LLC v. Apple, Inc.</i> , 784 F. Supp. 2d 703, 724 (E.D. Tex. 2011).....	28
<i>Motter v. Everest & Jennings, Inc.</i> , 883 F.2d 1223, 1229 (3d Cir. 1989)	12, 26, 27

Orion IP, LLC v. Mercedes Benz USA, LLC, 2008 WL 8856865 at *3 (E.D. Tex. Mar. 28, 2008) 30

Perdoni Bros., Inc. v. Concrete Sys., Inc., 35 F.3d 1, 3 (1st Cir.1994) 20

Powell v. Home Depot U.S.A., Inc., 663 F.3d 1221, 1240 (Fed. Cir. 2011)..... 4

Pryer v. C.O. 3 Slavic, 251 F.3d 448, 453 (3d Cir.2001) 27

Quanta Computer, Inc. v. LG Elec., Inc., 553 U.S. 617, 628-29 (2008) 19, 21, 29

Rivera v. V.I. Housing Auth., 854 F.2d 24, 27 (3d Cir. 1988) 26

SSL Services, LLC v. Citrix Sys., Inc., 2012 WL 1995514 (E.D. Tex. 2012)..... 22

SynQor, Inc. v. Artesyn Tech., Inc., ___ F.3d ___, 2013 WL 950743 at *13 (Fed. Cir. Mar. 13, 2013)..... 21

Tormenia v. First Investors Realty Co., 251 F.3d 128, 138 (3d Cir. 2000)..... 26

TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 899 (Fed. Cir. 1986) 17

Unisplay S.A. v. Am. Elec. Sign Co., 69 F.3d 512, 519 (Fed. Cir. 1995)..... 29

United States v. Mitchell, 365 F.3d 215, 233 (3d Cir. 2004) 14

Whitserve, LLC v. Computer Packages, Inc., 694 F.3d 10, 26 (Fed Cir. 2012) 25, 26

Wilburn v. Maritrans GP Inc., 139 F.3d 350, 363 (3d Cir. 1998) 25, 27

William A. Graham Co. v. Haughey, 646 F.3d 138, 143 (3d Cir. 2011) 2, 26, 27

Williams v. Runyon, 130 F.3d 568, 571-72 (3d Cir. 1997) 20

Wordtech Sys., Inc. v. Integrated Networks Solutions, Inc., 609 F.3d 1308, 1313, 13199-20 (Fed. Cir. 2010) 26

Statutes

35 U.S.C. § 271(f)..... 4

35 U.S.C. § 284..... 1, 14

Fed. R. Civ. P. 45(a)(2)..... 14

Fed. R. Civ. P. 45(b)(2)..... 14

Fed. R. Civ. P. 50(a)(2)..... 21

I. INTRODUCTION

Marvell's motion for judgment as a matter of law, new trial and/or remittitur rehashes arguments this Court repeatedly rejected before and during trial. Now that the jury has spoken, Marvell resurrects its threat that—given the size and notoriety of the verdict—the Federal Circuit will reverse it. Dkt. 809. at 1. Marvell's threat rings hollow. The verdict is the result of the straightforward application of the plain statutory language to a unique set of facts, including:

- Due in significant part to its own mistakes and pressure from its customers, Marvell's adoption of CMU's "must have" invention was a matter of "life or death;"
- CMU's invention is the "optimal" solution for the (still) growing media noise problem, and became an "industry standard" for which there is no noninfringing alternative;
- Marvell itself credited its adoption of the infringing MNP as an innovation that "helped firmly establish Marvell as the market leader."
- Marvell and its customers did and must use CMU's invention extensively in the U.S. during the "winner take all" sales cycle to generate every single one of Marvell's sales of 2.34 billion chips. Those sales all occurred in the U.S. and resulted from Marvell's direct and indirect infringement;
- CMU's damages expert, Ms. Catharine Lawton, determined a reasonable royalty by: (a) determining the portion of Marvell's profits that should be credited to the invention; and (b) evaluating the financial evidence to quantify the significant financial benefits that Marvell reaped by using CMU's patented technology.

As these examples show, the trial record overwhelmingly supports the damage award.

CMU 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. The jury carefully evaluated the evidence and determined not only that Marvell used CMU's patented methods in the U.S. to make all its MNP- and NLD-type sales, but also that all such sales occurred in the U.S. Accordingly, the jury properly awarded CMU a reasonable royalty of \$0.50 per chip for all of the chips that perform CMU's patented methods.

Marvell moves for judgment as a matter of law under Rule 50(b), but it falls well short of demonstrating that no rational jury could have awarded a \$0.50 royalty on 2.34 billion MNP- and NLD-type chips on this record. Rather than squarely addressing the evidence supporting the

jury's award—as construed in CMU's favor—Marvell reargues the admissibility of evidence, cherry picks fragments it deems favorable and largely ignores all else. More disturbingly, Marvell frequently misrepresents the trial record. Marvell also falls well short of its burden under Rule 59 of showing that the damages award is a “miscarriage of justice” that “shocks the conscience” that would justify invading the jury's role in determining “the facts and the credibility of the witnesses.” *William A. Graham Co. v. Haughey*, 646 F.3d 138, 143 (3d Cir. 2011). This jury was diligent and attentive. It carefully weighed the evidence, applied the credibility instructions Marvell itself proposed, and reached a verdict in accord with the evidence. The Court should deny Marvell's motion.¹

II. ARGUMENT

A. The Court Should Deny Marvell's Motion for Judgment As A Matter of Law

Marvell's motion for judgment as a matter of law ignores the substantial evidence CMU presented at trial. That evidence supports the jury's verdict and fatally undermines each of the four arguments Marvell raises:

- Marvell's assertion that the award violates principles against extraterritorial application of U.S. patent laws, Dkt. 809 at 3-4, 5-10, is wholly undone by the Court's recognition that the award does no such thing, and because the evidence and the verdict establish that “no part of the relevant conduct occur[red] outside the United States”;²
- Marvell baselessly argues that the Court's *pre-trial* ruling on Marvell's “emergency” damages motion required CMU to prove that Marvell's use of the infringing technology during the sales cycle was the “sole” or “only” cause of Marvell's sales, even though the Court ruled *directly to the contrary* at least twice *during trial*;
- Marvell's assertion that the royalty rate of \$0.50 per chip should be rejected as unsupportable ignores the overwhelming evidence that CMU's patented methods were

¹ In a last ditch plea for a reduction of the award, Marvell asks the Court to substitute its judgment for the jury's and to select a lower number from a dizzying array of them. Dkt. 809 at 4-5 (asking the Court to select from *seven* possible damages awards ranging from \$400,000 to \$278,406,045.50). The array of proposed numbers itself shows that Marvell has not come close to satisfying the standard for remittitur here.

² The verdict on contributory infringement “neuter[s]” Marvell's “extraterritoriality” arguments. *See* Dkt. 441 at 13-14 (“If the Court accepts CMU's position that these sales occurred within the United States [which the jury did]... then no part of the relevant conduct occurs outside the United States: Marvell's infringing use occurs here... and if the sales occur in the United States as CMU asserts [and the jury found], then the benefit from the infringing use also accrues here.”).

“must have” for Marvell. To attempt to overcome this “must have” evidence and its own failure to convince the jury that Ms. Lawton’s analysis was flawed, Marvell improperly uses Rule 50 to reargue admissibility of her opinions and raise alternative damages arguments not argued to the jury. Dkt. 809 at 5, 10-19.

- To claim that there is no factual basis for a running, per chip royalty rate, Dkt. 809 at 19-20, Marvell simply ignores, among other evidence, the fact that it entered into precisely such a license about the time of the hypothetical negotiation.

Marvell’s arguments do not justify abrogating, or even modifying, the jury’s carefully considered verdict. Third Circuit authority governs this Court’s “denial or grant of a motion for JMOL.” *Agrizap, Inc. v. Woodstream Corp.*, 520 F.3d 1337, 1341 (Fed. Cir. 2008). A Rule 50(b) motion “should be granted *only if*, viewing the evidence in the *light most favorable* to [CMU], there is no question of material fact for the jury and *any verdict other than the one directed* would be erroneous under governing law.” *Galena v. Leone*, 638 F.3d 186, 196 (3d Cir. 2011) (emphasis added). Marvell’s arguments do not come close to meeting this strict standard.

1. The Damages Arise From U.S. Conduct.

Marvell recognizes that the Court already has ruled (repeatedly) that Marvell’s total sales are an appropriate method “to ascertain the value of [Marvell’s] infringing use of [CMU’s] patented method[s].” Dkt. 672 at 5. The Court also ruled on summary judgment that CMU’s evidence was sufficient to support a conclusion that “Marvell’s sales are tied to its own direct infringement during the sales cycle” and that its “sales occurred within the United States,” which means that “no part of the relevant conduct occurs outside the United States.” Dkt. 441 at 13-14. The largely un rebutted and stipulated evidence presented to the jury showed that (1) Marvell’s sales were tied to its (and its customers’) U.S. infringement during the sale cycle and (2) Marvell’s sales themselves took place in the U.S., thus confirming that Marvell’s “reiterate[d]” “extraterritoriality” arguments, Dkt. 809 at 4,³ are baseless.

First, Dr. Bajorek explained—largely using Marvell’s own documents and testimony of its witnesses—that Marvell’s and its customers’ use of CMU’s patented methods occurs in the

³ CMU respectfully incorporates by reference its responses to Marvell’s “extraterritorial” damages arguments. *See, e.g.*, Dkt. 401-02, 428-29, 440, 658-59, 665.

U.S. during the sales cycle, and that Marvell must use those methods during the sales cycle to achieve “design wins” that are a prerequisite to the sale of even a single chip. *See, e.g.*, Tr. 12/4/12 at 66, 68-72, 74-90, 93-99, 105-06; *see also* Exs. P-198 (2000 SEC filing), P-406, P-938, P-1916, P-1917, P-1920, P-1922; P-Demo 8 at 36.⁴ Dr. Bajorek further testified that all of Marvell’s sales from each “winner take all” sales cycle took place in the U.S. *Id.* This evidence, construed in CMU’s favor, establishes that Marvell’s uses of the patented methods and resulting sales took place in the U.S.⁵

Second, Marvell’s sales are an appropriate metric for assessing the value of Marvell’s U.S. uses of the patented methods. As this Court held, calculating a royalty based on sales resulting from uses in the U.S. is “at least as reasonable as estimated hours of use” and “Marvell w[ould] have a full opportunity at trial to argue [to the jury] that this quantification is unreasonable.” Dkt. 672 at 5 & n.12. Marvell cites no legal authority to support its argument that the jury could not use Marvell’s sales to measure damages resulting from infringing U.S. use of a patented method.⁶ Section 284 plainly permits the jury to ***consider... 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). As the Court previously

⁴ For example, Dr. Bajorek explained that Marvell and its customers must use CMU’s patented methods in the U.S. during the sales cycle to confirm that the chips account for media noise and produce SNR gain. Tr. 12/4/12 at 86-90; *see also id.* at 70-71 (“Marvell has to use it [*i.e.*, the patented technology] in order to convince itself that it achieved what it set out to achieve in the design of a new chip...”); *id.* at 74-88 (testifying regarding Marvell’s and its customers’ infringement during each phase of the sales cycle); *id.* at 93-94 (relying on testimony of Toai Doan regarding customer use as prerequisite to purchase). Dr. Sutardja and Mr. Baqai also confirmed that Marvell uses the technology in the U.S. during the sales cycle. *See, e.g.*, Tr. 12/11/12 at 45 (Dr. Sutardja testifies that as part of the design process “we run the simulations... and re-run the simulations”); *id.* at 47 (“as soon as we finish the design and... get the chip back from the factory [we] test it in our lab”); *id.* at 130-31 (the design, management, research and development teams are in California); *id.* at 133 (“Every chip that we build we have to test” and this is done “in the US”); *see also* Tr. 12/13/12 at 161-62 (Mr. Baqai testifies that “any time a new read channel device or... feature is put before us, we would go through our evaluations”).

⁵ The Court’s instructions regarding contributory infringement required the jury to find that Marvell “sold or offered for sale [infringing chips] in the United States.” Tr. 12/21/12 at 62:17-19. The jury found Marvell liable for contributory infringement, making clear that it determined that Marvell’s sales and offers for sale occurred in the U.S. Dkt. 762 (Verdict) at 4.

⁶ The cases that Marvell cites in Dkt. 809, at page 4, involve infringement—primarily under 35 U.S.C. § 271(f)—not damages.

ruled, using sales to determine the value of infringing use is authorized by § 284.⁷ The jury properly credited testimony by Drs. McLaughlin and Bajorek that Marvell would not have made any sales without using CMU’s patented methods during the sales cycle, and also credited Ms. Lawton’s testimony that sales are a correct measure of the Marvell’s benefit. Tr. 12/7/12 at 41-47; *see also Energy Transp. Group, Inc. v. William Demant Holding A/S*, 697 F.3d 1342, (Fed. Cir. 2012) (holding that the jury is entitled to assess credibility and credit one of the competing experts).

Marvell made a strategic choice to give the jury the option of only a *de minimus* lump sum royalty instead of other alternatives tied to its use of CMU’s invention. For example, Marvell could have asserted a royalty based on other metrics, such as hours of use or number of uses in the U.S., but Marvell chose not to do that either, apparently recognizing that such metrics would not be better alternatives to the sales metric.⁸

Third, the jury instructions repeatedly and directly focused the jury on Marvell’s *U.S. conduct*. For instance, the Court specifically instructed the jury that “Marvell cannot have directly or indirectly infringed in connection with chips never used in the United States” and damages are limited to sales that result from such infringing use. Tr. 12/21/12 at 63. In addition, the Court instructed the jury—at every possible opportunity—that direct and indirect

⁷ *See* Dkt. 441 at 12 (citing *Lucent* for the proposition that “[a] company licensing a patented method often has strong reasons not to tie the royalty amount strictly to usage” and *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1080-81 (Fed. Cir. 1983) because it upheld a “reasonable royalty based on availability of the method, rather than ‘actual use of the’ invention,” and noting that under § 284 the value of use of a patented method to the infringer can be determined based on “how many sales were made based on that infringing use”); *see also* Tr. 12/20/12 at 29-30 (charge conference argument); *id.* at 8-9, 12-14 (recounting authority allowing sales to be used as a metric for the reasonable royalty); Dkt. 672 at 5-6 (same and emphasizing that Marvell would have an opportunity to convince the jury that some other measure of damages was proper); *Automatic Radio Mfg. Co. v. Hazeltine Research*, 339 U.S. 827, 834-35 (1950) (license agreement to pay royalties based on non-infringing sales is not patent misuse where “it was a convenient mode of operation designed by the parties to avoid the necessity of determining whether each type of [licensee’s] product embodies any of the [licensor’s] patents”); *Fujifilm Corp. v. Benun*, 605 F.3d 1366, 1372-73 (Fed. Cir. 2010), *cert. denied*, 131 S. Ct. 829 (2010) (expert included infringing and noninfringing products in royalty base “to avoid repeated disputes over what percentage of” products infringe); Dkt. 428 at 2-4.

⁸ In fact, a “per use” damages metric might have resulted in even higher damages. Dr. McLaughlin testified that each MNP and NLD chip performs the patented method “hundreds of millions of times *per second*.” Tr. 12/13/12 at 188 (emphasis added); *see also* Tr. 12/12/12 at 255-56 (Mr. Hoffman assumed that Marvell uses CMU’s invention “all the time”).

infringement require use of the patented methods in the U.S.⁹

Fourth, Marvell did not offer any substantial challenge to the evidence that: (1) Marvell and its customers use CMU’s patented technology extensively in the U.S.; and (2) Marvell’s sales actually take place in the U.S. To the contrary, Marvell *stipulated* to the U.S. location of nearly every part of the sales cycle¹⁰ and presented no documents establishing that the sales took place outside the U.S. Although Marvell cross-examined Ms. Lawton regarding the number of infringing chips used in the U.S. (after Marvell sells the chips in the U.S.), *see* Tr. 12/20/12 at 198, it did not argue to the jury that it should use that alternative royalty base in calculating damages.

2. There Is Substantial Evidence That Marvell’s Sales Resulted From Marvell’s Infringement of CMU’s Patents During the Sales Cycle and Therefore Are Properly Included In the Royalty *Base* As a Matter of Fact

Marvell’s arguments regarding the royalty base do not come close to supporting its attack on the verdict because: (1) they rest on concepts relevant only to the entire market value rule, which CMU did not invoke; and (2) the evidence showed in at least two independent ways that Marvell’s sales in fact result from Marvell’s direct and indirect infringement of CMU’s patents.

a. Marvell’s “Customer Demand” Arguments Are Legally Irrelevant

To avoid its own admissions and CMU’s un rebutted evidence, Marvell first tries to muddle the record by arguing that CMU was required to show that customer demand for MNP and NLD-type chips was driven “only” by Marvell’s incorporation of CMU’s patented methods.

To make this argument, Marvell relies on a mischaracterization of the Court’s order denying

⁹ Tr. 12/21/12 at 61:2-5; *id.* at 61:22-25; *id.* at 61:25-62:3; *id.* at 62:10-14; *id.* 62:17-23; *id.* at 63:8-11; *id.* at 63:12-18; *id.* at 73:4-9; *id.* at 75:1-4; *id.* at 75:8-11; 81:7-11; *see also* Tr. 12/20/12 at 30-31 (Court’s decision to retain “in the United States” in the verdict form).

¹⁰ Marvell stipulated, for example: (1) Marvell’s headquarters and principal place of business is in the U.S., Tr. 12/21/12 at 50; (2) the accused products were “researched, designed, and developed” in the U.S., *id.*; (3) management, strategic decisions, and most business activities occur in the U.S., *id.*; (4) Marvell’s system and design teams are located in the U.S., *id.*; (5) Wu, Doan, and Burd’s management functions are essential and occurred in the U.S., *id.* at 51; (6) almost all design and development, sales and marketing, and operations documents are in the U.S., *id.* at 51-53; (7) almost all sales and marketing management personnel are in the U.S., *id.* at 51; (8) Armstrong and Brennan’s management functions are essential and occurred in the U.S., *id.*; and (9) the manufacturing operations group, which supports R&D, is in the U.S., *id.* at 52. Marvell also stipulated that it must engage in an 18- to 30-month sales cycle during which customers “rigorous[ly]” test the chips and Marvell’s engineers “assist [its] customers in implementing” the technology contained in the chips. P-938 at ¶ 15; Tr. 12/11/12 at 32-34.

Marvell’s “emergency” motion. Dkt. 809 at 5 (citing Dkt. 672 at 5-6 & n.13). Marvell’s mischaracterization is especially egregious because it *repeatedly tried* to exclude Ms. Lawton’s testimony on the grounds that CMU must first demonstrate that its invention was the “sole” or “only” cause for customers’ purchases, and the Court repeatedly rejected Marvell’s arguments. Such proof is, however, required only in EMVR cases,¹¹ and Marvell (occasionally) conceded that this is not an EMVR case.¹² Undeterred, Marvell dresses up its on-again, off-again EMVR arguments in new clothing to attempt to convince the Court that its order (Dkt. 672) means exactly the opposite of this Court’s consistent (and correct) holdings.

The Court most recently rejected Marvell’s argument during the charge conference on December 20. In particular, the Court denied Marvell’s request to insert into the jury instructions the word “solely” or “only” in a manner that would require CMU to prove that use of the patented technology was the *only* basis for Marvell’s sales of the MNP- and NLD-type chips. Tr. 12/20/12 at 6-9. The Court properly rejected that request because a “but-for” link between Marvell’s infringement and CMU’s damages is a proper for those damages and there can be more than one “but for” cause for a sale. *Id.*; *see also supra* note 11.

Prior to the charge conference, the Court repeatedly and properly rejected Marvell’s “customer demand” arguments. The first such rejection was in the order denying Marvell’s *Daubert* challenge. *See* Dkt. 451 at 4-5. Thereafter, Marvell conceded that CMU was not applying the EMVR,¹³ which should have put an end to Marvell’s “customer demand” arguments. At trial, however, Marvell reversed course, moving to exclude Ms. Lawton on the

¹¹ *See LaserDynamics v. Quanta Computer, Inc.*, 694 F.3d 51, 68 (Fed. Cir. 2012) (contrasting various “but for” causation scenarios with the more stringent proof required for EMVR cases); *Cal. Fed’l Bank v. United States*, 395 F.3d 1263, 1268 (Fed. Cir. 2005) (a “but for” or “proximate” cause need not be the “sole factor or sole cause”); *ALPO Petfoods, Inc. v. Ralston Purina Co.*, 997 F.2d 949, 952 (D.C. Cir. 1993) (allowing damages calculated based on the plaintiff’s increased advertising costs even though defendant’s misstatements were not the “sole cause of [plaintiff’s] increased spending on advertising”).

¹² *See, e.g.*, Dkt. 604 at 7-8 (“As both parties and the Court have recognized, Ms. Lawton does not use the entire market value rule to calculate her royalty rate”); Tr. 10/18/12 (MIL hearing) at 56 (“Mr. Nimrod: . . . Like I said, CMU is not relying on the entire market value rule”); Dkt. 809 at 12 (backhandedly conceding the Ms. Lawton’s apportionment analysis means that she did not apply the EMVR).

¹³ *See supra* note 12.

grounds that “there is no specific tie-in or proof of customer demand for the chips overall being based *solely* on the patents at issue.” Tr. 12/5/12 at 259 (emphasis added); *see also id.* at 262 (arguing that exclusion was necessary because Dr. Bajorek’s “must have opinion... was directed to Marvell’s must have, not to customer demand. And that brought us back to *Laser Dynamics*” [an EMVR case]). After extensive argument that included Marvell’s on-again EMVR claim, *see id.* at 263-64, 268-69, 275, 306-08, 318-20—the Court reaffirmed that this is not an EMVR case and properly rejected Marvell’s “customer demand” argument. Tr. 12/6/12 at 5-10.

b. There Is Abundant Evidence that Marvell’s Sales of the Accused Chips Resulted From Marvell’s Infringement

At trial, the Court properly held that CMU’s evidence fully supports a verdict by “a reasonable jury that this was technology that customers indeed wanted,” and it was important to customers such as Hitachi and Western Digital. Tr. 12/6/12 at 6-7. Marvell cherry picks some self-serving testimony to the contrary, but the jury rejected that evidence as irrelevant or incredible. Dkt. 809 at 6-9. Indeed, there are two independent causal links between Marvell’s infringing conduct and its sales.¹⁴

The first causal link is straightforward. Marvell must participate in the U.S.-based sales cycle for every generation of chip that it sells. *See supra* pp. 3-4 & note 4; *see also* Dkt. 441 at 2-4. Participation in the sales cycle requires, as a matter of course, use in the U.S. (by Marvell and its customers) of the patented methods. *See id.* If Marvell does not participate in the sales cycle, use the patented methods and urge its customers to do the same, it makes no sales. Dr. Bajorek’s testimony and Marvell’s SEC filings could not be clearer on this point, and Marvell presented nothing to the contrary. *See id.* Standing alone, this evidence demonstrates that Marvell’s sales “result from” its U.S. use of the patented methods.

Marvell largely ignores this first causal link and instead attacks the second link, *i.e.* the “must have” link. But, the evidence establishing that Marvell would not have sold any chips had

¹⁴ Notably, when asked by Marvell on cross-examination whether there is “a direct link between Marvell’s alleged use of the patented technology and its sales of the accused products,” Dr. Bajorek testified: “I provided that link, yes.” Tr. 12/4/12 at 162. This testimony alone is enough to for CMU to meet its causation burden.

it not incorporated CMU's patented methods into the MNP- and NLD-type chips was powerful and (as the Court previously held, *see* Dkt. 441) the jury was entitled to believe it. That evidence included:

- **CMU's invention was "must have."** Tr. 12/4/12 at 66-67. Before it began infringing, Marvell's customers perceived its "read channel signal processing [as being] a year behind [competitor] Lucent." *Id.* at 117-18; Ex. P-208 at 4; *see also* Tr. 12/7/12 at 131 (Marvell's 5200 chip was "not competitive on SNR"). Falling behind causes companies to lose sales cycles and risk going out of business. Tr. 12/4/12 at 117-18.

Marvell's product development efforts were focused on its "iterative" detector, a move which its customers called "risky," and which turned out to be a major mistake. The iterative chip became a "lost cause" and a "disaster" for Marvell. *Id.* at 118-23; P-209 at 12; P-240; P-285. Its failure "affect[ed] [Marvell's] ability to remain competitive in signal to noise ratio against other chip suppliers." Tr. 12/4/12 at 123. Dr. Bajorek, Mr. Brennan, and Dr. Armstrong testified that betting on the wrong technology can drive companies out of business. *Id.* at 123; JX-C at 360.¹⁵

Also, in 2001-02 Marvell's customers were specifically demanding "a noise processing capability on these chips." *Id.* at 123-24. Marvell therefore developed "the Kavcic post-processor" (later renamed the "MNP") and identified it as "critical" to Marvell's success. *Id.* at 126, 130. For example, Marvell sent urgent emails indicating it aggressively planned to "pull in" the schedule for the MNP to meet customer demands, which was a "very serious objective for Marvell." *Id.* at 130; P-304. Marvell also believed that its competitors had or were developing a media noise processor. Tr. 12/4/12 at 131:6-15; P-320. Marvell employees reported to "senior management" that "we must have MNP," and "no one disagreed." *Id.* At the same time, Marvell employees reported that MNP "is [a] critical requirement" for customers such as Hitachi and Fujitsu. Tr. 12/4/12 at 132; P-328; *see also* Tr. 12/13/12 at 116-20 (testimony from Dr. Sutardja that the statements in the above documents are true); JX-A at 218 (same regarding Hitachi). Marvell's efforts to "pull in" the MNP to chips in the "mature" part of the sales cycle was unusual and showed that Marvell was "in crisis mode." 12/4/12 at 134; *see also id.* at 130; Tr. 12/7/12 at 118 (Lawton testimony that "I found that Marvell accelerated the delivery of the MNP-type chips by about one year.").

- **CMU's technology became an industry standard.** Tr. 12/4/12 at 108-116. Marvell's customers—with Marvell's full knowledge—adopted the technology by purchasing large

¹⁵ Dr. Sutardja confirmed that "timing is critical" in this industry and that, as Marvell stated in its June 2000 SEC filing (P-198 at 12), if Marvell had been "unable to develop new and enhanced products that achieve market acceptance in a timely manner, [its] operating results and competitive position" would have been "harmed," because "it's a very competitive industry, and you're racing with competitors to... get the technology to the market" in timely fashion. Tr. 12/11/12 at 106, 93.

quantities of Marvell's infringing chips and using them, and Marvell was aware of and induced such use. *Id.* at 111, 113-15; P-1913; P-1916, P-1917, P-1920, P-1922.¹⁶

- **Marvell understood the addition of the infringing MNP was a significant improvement to its chips and marketed it as such.** Marvell marketed the infringing technology to customers based on the gains they would realize from using it. Tr. 12/4/12 at 83-87; P-314 at 9; Tr. 12/13/12 at 185 (testimony regarding product roadmap for MNP and EMNP used for marketing to Western Digital). Marvell explained that Marvell's infringing technology was the "key difference" between older chips and the new chips it was marketing. *See, e.g.*, Tr. 12/4/12 at 109; 114-15; 130-33 (citing P-320, P-328, P-310); 137 (citing P-603); Tr. 12/10/12 at 98-99 (Ms. Lawton's testimony recounting Marvell communications stating that "the key difference" between certain chips "was the MNP").¹⁷
- **Before introducing the MNP, Marvell's sales were declining, but afterwards sales spiked and sales of non-infringing chips dropped almost immediately to zero.** Before Marvell offered chips with an MNP, Marvell's sales of successive chip families were decreasing, even though the market was growing. Tr. 12/7/12 at 115-17; P-Demo 13 (Chart 22). Also, this was a time of intense industry consolidation and various Marvell competitors were exiting the desktop market, but Marvell's remaining competitors—not Marvell—were "getting this business." Tr. 12/7/12 at 127, 203-04; P-Demo 13 (Chart 11). Marvell recognized that the industry would consolidate further such that there would be huge winners and losers in the marketplace and correspondingly huge risks and potential rewards for Marvell. Tr. 12/7/12 at 125-32 & P-935.

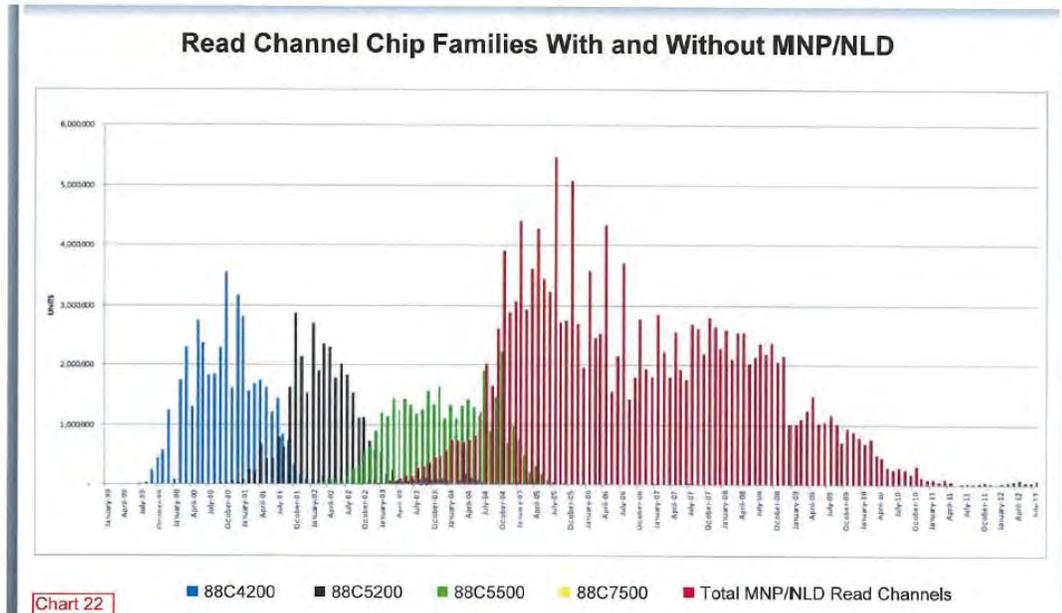
When Marvell introduced the MNP, its sales spiked. Tr. 12/7/12 at 119. Moreover, Marvell offered versions of its 7500 and 5575 chips without the MNP, but *no* customer elected to go to volume production with such chips. Tr. 12/7/12 at 108-10 & P-Demo 13 (Chart 5); Tr. 12/7/12 at 124-25 & P-Demo 13 (Charts 22 & 23). Instead, "Marvell's entire business had converted by that point in time, that's 2005, to be entirely MNP and NLD-type chips." Tr. 12/10/12 at 84; P-Demo 16 (Chart 27).

Ms. Lawton illustrated her testimony on this point, in part, with a demonstrative exhibit, P-Demo 13 (Chart 22), showing declining sales over time prior to a spike after introduction of the MNP and later the NLD.¹⁸

¹⁶ *See also* Tr. 12/4/12 at 112 (Dr. Bajorek's testimony that when a given hard disk drive maker adopts a particular technology, its competitors "emulate or copy it as quickly as they can, particularly if the leader of the pack shows an advantage," because just as Marvell's sales cycle to HDD makers is winner takes all, "it's also winner-takes-all for the drive makers with their customers"). As the Court itself remarked, a technology "doesn't become standard unless customers want it[,] is the obvious inference." Tr. 12/6/12 at 6.

¹⁷ Even Marvell's damages expert, Dr. Hoffman, testified that CMU's patented technology added "performance value" to the Accused Chips and customers "wanted it" and "needed it." Tr. 12/12/12 at 282.

¹⁸ The sales of infringing read channel chips declines at the end of the timeline in Chart 5 because of the shift to SoCs. Tr. 12/7/12 at 119. Ms. Lawton presented corresponding data for Marvell's SoC sales. P-Demo 13 (Chart 23). *See generally* P-Demo 13 (Chart 5) (comparing sales of non-infringing chips (gray bars) to sales of infringing chips (red, green and blue bars)).



Marvell’s customers’ purchases showed their need and desire for CMU’s technology. As Dr. Bajorek testified, “actions speak louder than words,” and Marvell’s customers “are not dummies. They wouldn’t have bought the chips [with the MNP and NLD circuits] if they didn’t plan to use them.” Tr. 12/4/12 at 243; *see also id.* at 116 & P-Demo 8 at 44. Indeed, Marvell internal documents show that Western Digital ultimately admitted the MNP delivered significant gains in SNR, *see id.* at 135; P-506, and Western Digital’s Rule 30(b)(6) designee testified that Western Digital enabled and used the MNP and NLD technology for the Doheny 2 drive program *and every drive program thereafter* and saw resulting gains. JX-B at 123-24, 130, 150; *see also* P-1913, P-1916, P-1917, P-1920, P-1922 (showing WD’s infringing use).

- The initial negative comments about the MNP upon which Marvell relies are meaningless.** Marvell’s customers were slow to adopt the MNP because the “drive sales cycle takes about three years to complete.” Tr. 12/4/12 at 133-34.¹⁹ Dr. Bajorek explained that “Marvell understood well that, indeed the media noise would... increase dramatically as one moved from longitudinal to perpendicular recording.” Tr. 12/4/12 at 226. Media noise was “relatively modest” when Marvell introduced the MNP, *id.* at 227, but it “was starting to increase dramatically,” *id.* at 228:18-19, and it would “get even worse as [the industry] switched to perpendicular recording, *id.* at 229:1-2, which began to occur in 2005, *id.* at 226:15-17. Moreover, early versions of any technology tend to be less effective. Tr. 12/4/12 at 230:19-232:1.

Accordingly, complaints that the MNP did not immediately deliver “a big gain in its signal noise ratio” were not surprising and do not undercut the “must have” nature of the technology. Tr. 12/4/12 at 230:12-18; P-304. As predicted, CMU’s technology became

¹⁹ Dr. Bajorek relied in part on deposition testimony from Mr. Burd that “I need to have designs three years ahead of time, not three years behind.” Tr. 12/4/12 at 135; P-Demo 8 at 57.

increasingly important. Dr. Bajorek estimates (and Mr. Burd confirmed) that as of today “[a]bout 90 percent” of noise is media noise, and “you actually cannot continue the data density progress without attacking or mitigating the noise.” *Id.* at 56:7-13; Tr. 12/12/12 at 77-79 (Dr. Wu agreeing that Mr. Burd testified, as a 30(b)(6) witness, that for today’s perpendicular recording, media noise “is in excess of probably 90 percent”).²⁰

- **Marvell’s internal documents confirm that Marvell used CMU’s patented technology to become “the market leader” and such technology remains a “must.”** A 2008 Marvell email announcing Dr. Wu’s promotion identifies the MNP as one of only two technologies that “helped firmly establish Marvell as the market leader in the HDD IC business.” P-703; Tr. 12/4/12 at 136.²¹ Likewise, a 2007 email memorandum from Mr. Burd—which Dr. Bajorek called “icing on the cake” for his opinion—showed that “five years after Marvell... concluded that it needed the first generation of MNP... it’s still a must-have technology.” Tr. 12/4/12 at 244; P-607. The infringing technology remains critical because, “now days the drives are dominated by media noise.” *Id.*; see also Tr. 12/3/12 (Dr. McLaughlin testimony that “since the Kavcic invention is the optimum solution,... it doesn’t surprise me that those chips would need to continue to infringe”); *id.* at 194-95 (“[T]he media noise problem is not going away. In fact it’s getting worse. And [the CMU] technology needs to be in there. It’s the optimum solution...”).

This evidence overwhelmingly shows that Marvell needed CMU’s technology to serve its customers and supports the jury’s verdict that Marvell’s sales—and all its profits—result from Marvell’s infringement.

On this motion, the Court must credit all of the above evidence and generally disregard evidence to the contrary.²² Nonetheless, Marvell attempts to attack this evidence by citing customer quibbles with early samples of the infringing chips and citing testimony from Western Digital employee Iftikhar Baqai and Marvell employee Michael O’Dell. The jury was entitled to give that evidence no weight.²³

²⁰ See also Tr. 12/3/12 at 216-17 (Dr. McLaughlin’s testimony that engineers initially did not need to worry about media noise because it “wasn’t a major factor,” but as densities increased media noise became a major issue that was “not serious[ly] addressed until, as we heard,... the detectors we’re talking about” in this case).

²¹ In another internal email upon which Dr. Bajorek relied (Tr. 12/4/12 at 137), Marvell identified the infringing NLD technology as one of the “latest greatest idea[s] for the HDD guys to increase the drive density.” Ex. P-603.

²² *Galena*, 638 F.3d at 196 (requiring court to “view[] the evidence in the light most favorable to” CMU and give CMU “the advantage of every fair and reasonable inference” in addressing a Rule 50 motion); *Energy Transp. Group*, 697 F.3d at 1352 (“[T]he jury assessed the credibility of both sides’ experts, and was entitled to credit [plaintiff’s expert’s] testimony”); *Springer v. Henry*, 435 F.3d 268, 281 (3d Cir. 2006) (“On a Rule 50 motion for judgment as a matter of law, a district court ‘must disregard all evidence favorable to the moving party that the jury is not required to believe.’”).

²³ See, e.g., *Motter v. Everest & Jennings, Inc.*, 883 F.2d 1223, 1229 (3d Cir. 1989) (“It is the function of the trier of fact alone, the jury in this instance, to evaluate contradictory evidence and to draw inferences therefrom.”);

Even if the current procedural posture did not otherwise bar use of Marvell's evidence to undo the verdict, it would not help Marvell. CMU soundly refuted the evidence Marvell cites. For instance, Marvell argues that (1) Dr. Bajorek's testimony that Western Digital *said* that it wanted to "pull out the MNP" from "a 'particular drive program' called '*La Jolla*'" and (2) Mr. Baqai's testimony that the MNP/NLD played no role in Western Digital's purchasing decision both show that the infringing technology was useless. Dkt. 809 at 6-7 (emphasis added). But, the jury could put that testimony in context with the rest of the evidence including what Western Digital *actually did*. For example, Teik Ee Yeo (also of Western Digital) testified, and the exhibits showed, Western Digital *enabled and used* the MNP for the Doheny 2 drive program and every drive program thereafter, *which includes La Jolla*. JX-B at 123-24, 130, 150; P-Demo 20 (Schedule 24) (listing the order of WD drive programs and showing that La Jolla came after the initial Doheny 2 program); P-1913 at 1 (showing WD *enabled the* MNP for the La Jolla chips); *see also* P-1916, P-1917, P-1920, P-1922 (showing WD's extensive use in infringing modes). In addition, Mr. Baqai was forced to recant his testimony that WD did not see any SNR gain from the infringing technology, based on clear refutation of that statement.²⁴ Moreover, as CMU showed above, the initial negative comments about the MNP upon which Marvell relies are meaningless because *all* of the programs for which WD went to volume production included the infringing technology. Tr. 12/4/12 at 233-35, 239-44. In short, the jury operated well within its authority in determining that Marvell proffered nothing to undercut Dr. Bajorek's testimony.²⁵

Springer, 435 F.3d at 281 (3d Cir. 2006); *Applied Med. Resources Corp. v. United States Surgical Corp.*, 147 F.3d 1374, 1377 (Fed. Cir. 1998) (holding that a reviewing court may not "disturb[] the jury's credibility determinations or substitut[e] [its] resolutions of conflicting evidence for those of the jury"); *see also supra* note 22.

²⁴ Compare Tr. 12/13/12 at 164, 176 (Baqai testimony that the Marvell's infringing MNP and NLD "did not provide any benefits in terms of its SNR performance"), *with id.* at 192-93 (Baqai admitting, after reviewing internal documents, that WD did see gain from the infringing technology), *and* P-1913 at 1 (showing WD *enabled the* MNP and/or NLD), *and* JX-B at 123-24, 130, 150-51 (testifying that WD saw gain from both MNP and NLD Accused Chips and enabled them in drive programs after Doheny 2), *and* P- 506 (2005 email in which WD "finally... admitted" that MNP generated about 0.5 dB gain in SNR).

²⁵ In addition to the evidence described above discrediting Mr. Baqai's testimony, there also are other grounds to question Mr. Baqai's testimony. Marvell elicited testimony from Mr. Baqai suggesting that he was disinterested and compelled to attend trial because of a subpoena. Tr. 12/13/12 at 144-46. Mr. Baqai, however, works in Irvine, CA (*id.* at 146), and no subpoena could compel his presence in the Western District of Pennsylvania. *See* Fed. R. Civ. P. 45(a)(2); Fed. R. Civ. P. 45(b)(2).

Marvell's reliance on the conclusory and self-serving testimony of Mr. O'Dell is equally flawed. Dkt. 809 at 8-9. Mr. O'Dell tried to explain away years of Marvell's and its customers' infringing actions, *see, e.g.*, P-1913; P-1916, P-1917, P-1920, P-1922, and the myriad "must have" statements from Marvell's own documents and sworn testimony, *see supra* pp. 9-12, with conclusory statements that Marvell's customers did not buy chips because of the infringing technology. Dkt. 809 at 8-9. The jury was entitled to discount Mr. O'Dell's statements in the face of the overwhelming evidence to the contrary. *See supra* pp. 9-12. In sum, there is no basis to conclude that "any verdict other than the one [Marvell seeks] would be erroneous under governing law." *Galena*, 638 F.3d at 196. The Court should deny Marvell's motion.

3. The Evidence Supports a \$0.50 Per Chip Royalty *Rate* as a Matter of Fact

The foregoing evidence and Ms. Lawton's damages analysis fully support a royalty rate of \$0.50 per chip. Marvell's attack on Ms. Lawton's apportionment analysis—by which she used two methods to determine a rate that would "give fair credit to Marvell for its contributions, and fair credit... to CMU for its contributions of the patented invention," Tr. 12/10/12 at 68, Dkt. 809 at 11-12—fails completely. Both of Ms. Lawton's apportionment methods are methodologically sound, and the Court properly admitted them over Marvell's *Daubert* numerous challenges.²⁶ Marvell's arguments on this point are a rehash of arguments about the admissibility of her testimony. None of those arguments establish that the Court abused its discretion in admitting Ms. Lawton's apportionment analysis.²⁷ Furthermore, Marvell had a full and fair opportunity to cross-examine Ms. Lawton regarding the alleged flaws in her analysis and to have Mr. Hoffman try to discredit her methods. Tellingly, Marvell cites only three (irrelevant) lines of Dr. Hoffman's testimony. Dkt. 809 at 15. The jury was entitled to credit Ms. Lawton's

²⁶ *See, e.g.*, Dkt. 451 (denying Marvell's *Daubert* challenge); Dkt. 607 (denying Marvell's motion seeking reconsideration based on untimely disclosure of Judge Posner's *Apple* decision); Tr. 12/6/12 at 5-10 (oral denial of motion to exclude on EMVR grounds); Dkt. 713 (written ruling explaining denial, in substantial part, of motion to exclude Ms. Lawton's testimony).

²⁷ *See United States v. Mitchell*, 365 F.3d 215, 233 (3d Cir. 2004) (admission of expert testimony committed to the trial court's discretion); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1461 (Fed. Cir. 1998) (en banc) (the method used to calculate damages under 35 U.S.C. § 284 is committed to the sound discretion of the district court).

analysis and reject Dr. Hoffman's. *See Springer*, 435 F.3d at 281; *see also supra* notes 22-23. Although the foregoing should end the analysis on this motion, Marvell's rehash of its prior challenges is also substantively ill-founded.

a. Marvell Misrepresents the Record in Arguing Ms. Lawton Testified that a \$0.50 Royalty Would Put Marvell Out of Business

Marvell's first argument is a stunning misrepresentation of the evidence. Marvell argues that Ms. Lawton testified that her \$.50 per chip royalty "might well force Marvell to shut down its business" and would leave Marvell "without an 'adequate return' to makes its business worthwhile." Dkt. 809 at 10-11. Ms. Lawton said nothing of the sort. To the contrary, she relied on Dr. Armstrong's testimony that Marvell's employees "would be doing their jobs really, really well" if they achieved a 50% gross margin. Tr. 12/10/12 at 259. After paying \$0.50 royalty, Marvell's gross margin would still be 49.32%, or only 0.68% below Marvell doing "really well."²⁸ Ms. Lawton certainly did not testify that Marvell would shut down its business if it fell short of its 50% goal by 0.68%.²⁹ The fact that Marvell begins its apportionment arguments by resorting to such distortions of the record demonstrates that Marvell is grasping at straws.

b. Marvell's Challenges to Ms. Lawton's "Excess Profits" Apportionment Analysis Are Unfounded

Marvell makes two baseless arguments against Ms. Lawton's "Excess Profits" analysis.³⁰ Marvell first argues that CMU's excess profits analysis is "flawed from the start" because Marvell's average margin on non-infringing storage products is equal to or higher than its margin for the infringing products. Dkt. 809 at 12-13. To make that argument, Marvell engages in

²⁸ Marvell's average gross margin is \$2.68 per chip, or 60.63% of its average revenue of \$4.42 per chip. Tr. 12/7/12 at 53-54.

²⁹ Marvell argues, in essence, that Marvell would have foregone nearly \$4 billion in operating profit it would receive on its total gross margin of \$6,262,012,310 to avoid paying CMU its \$0.50 royalty per chip. It defies common sense—and is contrary to Dr. Armstrong's testimony—that Marvell would forego a gross margin of nearly 50% and an operating profit of 37.56%.

³⁰ Marvell generally suggests CMU did not "apportion profits between the patented method and the unpatented features in the accused chips..." Dkt. 809 at 12. That argument simply is false, as this Court already held. Dkt. 451 at 4-5, 7-9, 11-12.

baseless comparisons and improperly challenges Ms. Lawton's analysis with assertions that lack sound economic and factual predicates.

As Ms. Lawton explained, in comparing chips, she relied on Dr. Armstrong's instructions that comparable sales are those to the same "customer, with the same packaging, with the same data rate, and sold at about the same time." Tr. 12/10/12 at 88. The aggregation of chips Marvell tries to compare do not meet those conditions. For example, one group of non-infringing chips Marvell includes in its analysis are specialized SoCs *without a read channel* and sells for a premium. Tr. 12/10/12 at 257-58. A second set of "non-infringing" chips are those Marvell identified as containing an MNP, but CMU could not verify that they did in fact include the MNP and Ms. Lawton excluded them from her analysis. *Id.* Marvell offered nothing to contradict this testimony, so the jury was entitled to accept Ms. Lawton's explanation.

Marvell's second argument fares no better. Ignoring Ms. Lawton's explanation of the purpose of her analysis, Marvell argues that Ms. Lawton's excess profits analysis "bears no relationship to the value of CMU's patented method." Dkt. 809 at 13. As Ms. Lawton testified, however, to benchmark the value of the CMU invention she computed Marvell's excess profits by determining Marvell's actual profits on the infringing chips and deducting its stated expected profits (when doing "really well") to give credit to Marvell for all of its non-infringing contributions to the chips (such as faster speed and lower power). Tr. 12/10/12 at 68-72, 86-87, 234.³¹ The Federal Circuit repeatedly has approved similar apportionment analyses. *See, e.g., Energy Transp. Group, Inc. v. William Demand Holding A/S*, 697 F.3d 1342, 1356-57 (Fed. Cir. 2012); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301; *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 899 (Fed. Cir. 1986).³² The Court considered and properly rejected Marvell's

³¹ Ms. Lawton explained, at length, that her excess profits analysis allowed her to "analyze[] the value of Marvell's [aggregated] contribution to the products at issue," Tr. 12/6/12 at 101, and to "estimate[] the value associated with the other [non-infringing] components of the chip" and subtract those from the total value, *id.* at 113-14. *See also* Tr. 12/10/12 at 68-69 (explanation regarding steps taken to give fair credit to Marvell and CMU for their respective contributions); *id.* at 85-87 (explaining that Marvell targeted a gross profit margin of 50% and the excess profits analysis gives Marvell credit for the technology that allowed it to achieve that target).

³² Marvell's attack on the excess profits analysis is hypocritical. Its own expert employed a similar methodology in *Cordis v. Boston Scientific*. There Mr. Hoffman examined a business in which a 40% return was assumed. Ex. 20 to Dkt. 396 at 3092-94. He determined that, after removing that target rate of return, there was "almost 33-percent

challenge to Ms. Lawton's excess profits analysis. Dkt. 451 at 11-12. Marvell offers no reason to disturb the Court's ruling on that point, and Marvell had ample opportunity to cross-examine her on any alleged inadequacies in her analysis. The jury in rendering its verdict heard all of Ms. Lawton's testimony and clearly and appropriately found it credible.

c. The Jury Considered Marvell's Challenges to Ms. Lawton's Operating Profit Premium and Properly Rejected Them

Marvell also attacks Ms. Lawton's operating profit premium analysis, but its arguments again rehash its unsuccessful *Daubert* challenges. See Dkt. 451, 607. Notably, Marvell does (and cannot) challenge Ms. Lawton's use of operating profit premium as a means of apportioning profits.³³ Instead, Marvell argues that the *data* on which Ms. Lawton relied was insufficient to support her analysis. Dkt. 809 at 14-17. When it first considered Marvell's challenge, however, this Court held:

[T]he Court does not find Marvell's arguments persuasive. Each one is, effectively, directed towards the evidence upon which Ms. Lawton relied. Marvell and CMU, respectively, have pointed to evidence that contradicts or supports her opinions. The Court will now leave to counsel the task of cross examination and to the jury the task of determining which set of facts is correct.

Dkt. 451 at 9; see also Dkt. 607 at 4-5 (holding that Judge Posner's *Apple* opinion likewise weighed in favor of admitting Ms. Lawton's opinions and allowing the jury to approve or reject them based on evidence presented and cross examination). Marvell had a full opportunity to cross-examine Ms. Lawton and the jury determined that the facts on which she relied supported a reasonable royalty of \$0.50 per chip. There is substantial evidence to support that determination, and the Court should reject Marvell's renewed challenge.

In its Rule 50(b) arguments, Marvell renews its *Daubert* challenge and selectively (and misleadingly) cites portions of the trial record. Neither effort carries Marvell's heavy burden under Rule 50. Marvell begins by arguing that Ms. Lawton lacked the expertise to compare

profit that's left over" to be used for a reasonable royalty. *Id.* at 3094.

³³ See *Energy Transp. Group*, 697 F.3d at 1357 (affirming damages analysis based on "premium on operating profits over non-infringing devices").

chips and compared chips not properly comparable. Dkt. 809 at 14, 16. That argument fails for two reasons: (1) Ms. Lawton did not engage in any technical analysis but instead properly applied Dr. Armstrong's test and her own expertise to make the appropriate comparison, Tr. 12/10/12 at 88-90; P-Demo 16 (Table 12); P-Demo 13 (Chart 25); and (2) to the extent that Ms. Lawton's comparison required any technical analysis, she properly relied on Dr. Bajorek, who identified the MNP as the "key" difference between relevant chips. *See, e.g.*, Tr. 12/4/12 at 130-33 (citing P-320, P-328, P-310).³⁴

Marvell next argues that the jury's verdict cannot stand because Ms. Lawton based her \$0.50/chip opinion on sales of about 140,000 chips to Maxtor. Dkt. 809 at 14 & n.5. To the contrary, Ms. Lawton's reasonable royalty opinion is based on her extensive, ten-step analysis that considered all available data. As she testified, the data supported an operating profit premium, "rang[ing] from 6-cents to 72-cents per chip," Tr. 12/10/12 at 98; P-Demo 16 (Table 13), and her ultimate conclusion was that \$0.50 per chip was the appropriate reasonable royalty. Marvell faults Ms. Lawton for not giving more weight to the \$0.06 per chip premium Toshiba paid, *see* Dkt. 809 at 14, but that is a point that it should have tried to make on cross. Ms. Lawton specifically considered those Toshiba sales but nonetheless opined that \$0.50 was appropriate. Tr. 12/10/12 at 93-99 & P-Demo 16 (Table 13).

Marvell also misrepresents the reason Ms. Lawton was cautious about including sales to certain of Marvell's customers in her price premium analysis. Marvell suggests that Ms. Lawton deliberately excluded sales to Western Digital, Samsung, Fujitsu, Hitachi, or Seagate in her analysis because those sales "failed to show that Marvell's biggest customers... ever paid any premium for MNP." Ms. Lawton explained that there simply were no sales to those customers that were reasonably comparable based on the factors Dr. Armstrong identified. Tr. 12/10/12 at 93-99. And, she testified that the price differentials for sales to Seagate, Fujitsu, and Hitachi

³⁴ Marvell mischaracterizes the record when it argues that Dr. Bajorek and Ms. Lawton compared chips that lacked 10-bit ECC with chips that did not and that "contributed to the differential" in price. Dkt. 809 at 17. The cited testimony says nothing of the sort, and CMU demonstrated at trial that the MNP was the "key" difference between the chips that Ms. Lawton compared. *See, e.g.*, Tr. 12/4/12 at 132-33 & P-310; Tr. 12/10/12 at 98-99.

were, in fact, “data points” that informed her analysis. *Id.* at 94; P-Demo 16 (Table 13). Again, the jury was entitled to credit her explanation and analysis; the Court should not second-guess the jury’s decision.

Marvell next resurrects its tired argument that Ms. Lawton’s sample size was too small and not representative of its overall sales. Dkt. 809 at 14. This argument did not convince the jury and is not grounds for judgment as a matter of law. To the contrary, the Federal Circuit has held that an expert’s opinion *may be derived from “a small sample size,”* and even from non-infringing products, where the facts indicate that that is “a reasonable attempt to value” the products. *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012) (emphasis added). Marvell argues that Ms. Lawton had an obligation to survey Marvell’s customers or engage in other actions to gather more data, *see* Dkt. 809 at 16-16 & n.6,³⁵ but Ms. Lawton’s methods for apportioning profits are accepted methodologies and are sufficient to support the jury’s verdict. *Energy Trans. Group*, 697 F.3d at 1356-57 (rejecting Rule 50 motion because the jury’s verdict was supported by an operating profit analysis and “entirely separate” excess profit analysis).

Marvell’s attack on the application of the \$0.50/chip royalty to all chips and all customers for the duration of the patents also rests on a misrepresentation of the trial evidence. Marvell falsely suggests that Ms. Lawton’s determination the parties would agree to a fixed \$0.50 royalty over time rests solely on the operating profit premium she identified in the particular sales. Dkt. 809 at 15-16. To the contrary, Ms. Lawton analyzed the top 44 chips, which generated **90% of the revenue from the MNP and NLD-type chips**, and she showed that Marvell’s profit margins have been stable, or increasing, over time even though “the price is always going down.” Tr. 12/10/12 at 107; *id.* at 105-07 & P-Demo 16 (Chart 28). Thus, there is a strong basis for a single

³⁵ Marvell once again misstates the evidence by suggesting that a survey of Marvell’s seven customers for the infringing chips (P-Demo 20) would have shown that Western Digital and the others found the patented technology to be “of no use,” Dkt. 809 at 16 & n.6. Marvell fails to mention that internal Marvell documents, Teik Ee Yeo’s testimony, Dr. Bajorek’s testimony, and even Mr. Baqai’s testimony show that WD *did* see substantial gain from the MNP and enabled it in hundreds of millions of chips. *See supra* pp. 11, 13-14. The evidence also was sufficient to support the jury’s conclusion that Marvell’s other customers likewise enabled and used the infringing technology at Marvell’s urging to realize gains. *Id.*; *see also* P-1916, P-1917, P-1920, P-1922.

royalty even though—as Ms. Lawton conceded—there are “price differentials across, customers, chips and time.” Dkt. 809 at 15. Moreover, Ms. Lawton provided a detailed explanation of the risks and rewards that would have caused Marvell to agree to a fixed per-chip royalty. Tr. 12/10/12 at 112-15. Governing authority recognizes that parties will often negotiate—for convenience and administrative purposes—a single royalty that will apply across numerous products, even non-infringing products. *See, e.g., Automatic Radio Manuf. Co. v. Hazeltine Research, Inc.*, 339 U.S. 827, 832-34 (1950); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1407-09 (Fed. Cir. 1996). Accordingly, substantial evidence supports a fixed per-chip royalty.

Ultimately, *all* of Marvell’s royalty arguments challenging the royalty rate go to the weight of the evidence. Marvell had the opportunity to cross-examine Ms. Lawton and present alternatives to the jury, which was charged (under the expert witness credibility instructions Marvell proposed) with determining whether “the reasons given in support of the opinion are sound” and/or are “outweighed by other evidence.” Tr. 12/21/12 at 59-60; *see also Agrizap*, 620 F.3d at 1342 (arguments going to the weight of the evidence are not grounds for granting a Rule 50 motion); *Lightning Lube*, 4 F.3d at 1166 (same); *supra* notes 22-23 (jury has sole responsibility for weighing conflicting evidence). The jury diligently considered and rejected Marvell’s arguments.

d. Marvell’s “Non-Infringing Alternatives” Argument Is Waived and Rests on a Mischaracterization of Its Burden and the Record

i. Marvell Waived Its Non-Infringing Alternatives Arguments

Marvell has waived its argument for judgment as a matter of law based on the alleged failure to consider non-infringing alternatives. The Third Circuit repeatedly has held that failure to make an argument in a party’s Rule 50(a) motion waives that argument and prevents the Court from considering it in a subsequent Rule 50(b) motion: “The law is crystal clear that a party may not base its motion for a judgment n.o.v. on a ground that was not argued in its motion for directed verdict.”³⁶ An issue is not properly raised in a Rule 50(a) motion unless the moving

³⁶ *Williams v. Runyon*, 130 F.3d 568, 571-72 (3d Cir. 1997) (quoting *Perdoni Bros., Inc. v. Concrete Sys., Inc.*, 35 F.3d 1, 3 (1st Cir.1994)); *Chemical Leaman Tank Lines, Inc. v. Aetna Cas. & Surety Co.*, 89 F.3d 976, 993 (3d Cir.

party specifies the “law and facts on which the moving party is entitled to judgment.” Fed. R. Civ. P. 50(a)(2); *Chemical Leaman*, 89 F.3d at 992-93 (argument waived because the moving party failed to identify the specific facts and authority on which its argument was based in the moving party’s Rule 50(a) motion).³⁷

Waiver is especially appropriate when the trial court has held that the issue is a question of fact for the jury to resolve, but the moving party did not move for judgment under Rule 50(a) on that issue. *Lighting Lube*, 4 F.3d at 1174 (prior denial of the moving party’s *in limine* motion and statement that the court would “leave it to the jury to resolve” “forewarned [the defendant]... it was incumbent upon it to make a motion for judgment” on that issue). Here, Marvell did not move for judgment as a matter of law on damages based on a failure to evaluate non-infringing alternatives,³⁸ and failed to present any evidence at trial on non-infringing alternatives, even though the Court had ruled that “the question of whether there is a ‘noninfringing substitute is a question of fact.’” Dkt. 447 at 8-9 (quoting *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1577 (Fed. Cir. 1992)).

ii. *Marvell Failed To Satisfy Its Burden of Showing Non-Infringing Alternatives Were Available*

The Federal Circuit recently clarified that—when, as here, the “alleged substitute was not on the market”—there is an inference that it was not available, and the infringer “has the burden to overcome th[at] inference” if it asserts that the substitute impacts the reasonable royalty. *SynQor, Inc. v. Artesyn Tech., Inc.*, ___ F.3d ___, 2013 WL 950743 at *13 (Fed. Cir. Mar. 13, 2013) (quoting *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1350-51 (Fed. Cir. 1999)).³⁹ Marvell did not present any evidence regarding non-infringing alternatives to

1996) (same); see also *Chainey v. Street*, 523 F.3d 200, 218 (3d Cir. 2008) (failure to raise an issue in a Rule 50(a) motion with specificity “waives the defendant’s right to raise the issue in their Rule 50(b) motion”); Federal Circuit authority likewise holds that “[a] party must file a pre-verdict JMOL motion on all theories ... that it wishes to challenge with a post-verdict JMOL.” *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 845 (Fed. Cir. 2010).

³⁷ See also *Lighting Lube, Inc. v. Witco*, 4 F.3d 1153, 1173-74 (3d Cir. 1993) (holding that moving party had waived judgment as a matter of law by not raising the issue in its Rule 50(a) motion with sufficient specificity).

³⁸ Marvell did not raise this argument either its Motion for Judgment as a Matter of Law on Damages (Dkt. 701-02) or in its Renewed Motion for Judgment as a Matter of Law on Damages (Dkt. 738-39).

³⁹ See also *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 2011 WL 197869 at *3 (E.D. Tex. 2011) (infringer’s

CMU's patented methods, and there is no suggestion that any alleged non-infringing substitute was on the market. Accordingly, Ms. Lawton had no obligation to consider non-infringing alternatives. The fact that she did consider alternatives simply confirms that her analysis was unusually thorough.

iii. Marvell's Non-Infringing Alternatives Arguments Rest on a Misrepresentation of the Trial Evidence

Assuming that she even had an obligation to consider alternatives that Marvell did not prove to be available, Marvell's argument that Ms. Lawton did not consider "imperfect" non-infringing alternatives is squarely at odds with the record. Dkt. 809 at 17-18. Marvell made the same arguments in its motion in its Motion *in Limine* D10, but the Court properly rejected them. Dkt. 607 at 4.⁴⁰ As the Court held, Ms. Lawton considered "several possible alternatives, such as using pre-existing products, moving the work overseas, sublicensing from DSSC members, or using IBM as its foundry..." Dkt. 607 at 5. The Court held that Marvell would be free to "vigorously cross examine' her and respond with contrary evidence." *Id.*⁴¹

Ms. Lawton did testify regarding "alternatives." In particular, Ms. Lawton investigated various hypothetical alternatives (however improbable) to licensing CMU's technology, including those identified in Dr. Blahut's report (but never proffered to the jury) and other alternatives that a reasonable damages expert otherwise would investigate. Tr. 12/7/12 at 215-234. For example, she evaluated whether Marvell could have licensed a proprietary design from another company but concluded (based in large part on testimony from Marvell's own witnesses) that Marvell likely could not have done so. *Id.* at 216-18, 230. Moreover, Ms. Lawton could find no evidence to support a conclusion that any other proprietary technology to address media

expert had not met its burden of showing "that any of the non-infringing alternatives... were on the market during the accounting period"), *aff'd in part and rev'd in part on other grounds*, 694 F.3d 51 (Fed. Cir. 2012); *SSL Services, LLC v. Citrix Sys., Inc.*, 2012 WL 1995514 (E.D. Tex. 2012) (same).

⁴⁰ The Court found that Marvell's arguments were untimely, but ultimately considered and rejected Marvell's arguments on the merits. Dkt. 607 at 3-6.

⁴¹ Marvell relies heavily on Judge Posner's *Apple* opinion, but the Court considered that opinion when it denied Marvell's Motion *in Limine*, holding that it did not support a change to the Court's *Daubert* holding. Dkt. 607 at 3-5.

noise would be available to Marvell. *Id.* at 216-17. Ms. Lawton also evaluated whether Marvell could use IBM as a foundry, but determined that doing so would prohibitively expensive. Tr. 12/7/12 at 227-28, 231; Tr. 12/10/12 at 214. Finally, Ms. Lawton evaluated whether Marvell could have moved its operations overseas to avoid using CMU's patented methods in the U.S. Tr. 12/7/12 at 218-24. Relying on Dr. Bajorek's testimony and the stipulated facts, she determined that such a move was not possible. *Id.* Marvell cross-examined Ms. Lawton on this issue, Tr. 12/10/12 at 212-14, and the jury found Ms. Lawton's testimony credible and rejected any argument that there were alternatives available that would cost Marvell less than \$0.50 per chip.

Unable to dent Ms. Lawton's testimony, Marvell resorts to misrepresenting Dr. Bajorek's testimony. It argues that "Dr. Bajorek made clear that [alternative technologies for generally improving SNR] would substitute for the patented method." Dkt. 809 at 18 (citing 12/4/12 Tr. at 77:5-18, 186:14-16, 187:17-19). Dr. Bajorek said nothing of the sort. To the contrary, he testified—and demonstrated by using Marvell's own documents—that the CMU's optimal technology was "must have" for Marvell and would become increasingly important as perpendicular recording took hold and as data density increased. *See supra* pp. 11-12. Marvell also ignored Dr. McLaughlin's testimony that Marvell *had no alternative* but to use CMU's optimal solution for combating the growing media noise problem. Tr. 12/3/12 at 83, 188-201.⁴²

Left with no admission by a CMU witness that non-infringing alternatives were viable, and having failed to proffer any such evidence itself, Marvell resorts to manufacturing evidence that Marvell could license alternative technology. Marvell says that Ms. Lawton "conceded that potential non-infringing alternatives were available." Dkt. 809 at 18 (quoting 12/10/12 Tr. at

⁴² Marvell also falsely suggests that Ms. Lawton did not consult with CMU's experts to evaluate potential non-infringing alternatives. Dkt 809. at 18. The record shows otherwise. Tr. 12/7/12 at 215 (testimony regarding reliance on Dr. McLaughlin); Tr. 12/7/12 at 69 (testimony regarding reliance on Dr. Bajorek); Tr. 12/7/12 at 71 (Court indicating Ms. Lawton relied on Dr. Bajorek's "must have" opinions); Tr. 12/7/12 at 75 (testimony that Ms. Lawton relied on Dr. Bajorek's "industry standard" opinions); Tr. 12/10/12 at 217 (reference by the Court that Ms. Lawton "studied periodicals, looked at documents, talked to Bajorek, talked to McLaughlin"); *id.* at 278 (testimony that Ms. Lawton relied on Dr. McLaughlin for her opinion that Marvell could not have come up with a "design around.").

229:15-230:7). That is false.⁴³ Indeed, Ms. Lawton recounted that Marvell’s expert Dr. Blahut—the only Marvell witness arguably qualified to opine on alternatives—had not identified *any* evidence that Marvell could license an acceptable alternative technology. 12/10/12 Tr. at 217-18.⁴⁴ Ms. Lawton’s reliance on CMU’s technical experts and her detailed investigation of other potential alternatives fully satisfied any obligation to investigate alternatives.

4. Substantial Evidence Supports a Running Fixed-Per-Chip Royalty

Marvell’s final argument that there is no support for a running royalty again misrepresents the record. Contrary to Marvell’s assertions, Dkt. 809 at 19-20, Ms. Lawton “ignored” neither the DSSC Agreements nor the Intel Subscription Agreement. She testified at length regarding the DSSC agreements and explained why they did not undercut her analysis. *See, e.g.*, Tr. 12/7/12 at 136-38, 163-64, 187-89. The jury’s endorsement of her testimony is not surprising; the Court already noted, “the DSSC Agreements are obviously distinguishable from the end result of the hypothetical negotiation. To the extent that Ms. Lawton believes them irrelevant, she is entitled to that opinion... It is not the Court’s place to question such a determination, for that is the realm of the jury.” Dkt. 451 at 10. Ms. Lawton likewise testified at length regarding the Intel Subscription agreement. Tr. 12/7/12 at 166-67; Tr. 12/10/12 at 178-87. Again, Ms. Lawton was entitled to opine that the Intel agreement was not probative of the form of the royalty, and Marvell had a full opportunity to cross-examine Ms. Lawton and to present contrary opinions.

Ms. Lawton also supported her opinions with substantial evidence:

- **Testimony of Alan Armstrong:** Dr. Armstrong testified that Marvell entered into running-royalty agreements, including such agreements based on a fixed per-chip

⁴³ The question put to Ms. Lawton was: “Instead of developing their own solution in-house, in the company at Marvell, Marvell could have also licensed some other companies’ technology for dealing with media noise, correct? *That’s a choice companies sometimes make, correct?*” 12/10/12 Tr. at 229:15-19 (emphasis added). Ms. Lawton plainly answered “yes” to the generic question: “[t]hat’s a choice companies sometimes make[?]” *Id.* at 229:20. The scope of her answer is made clearer when read in context, where Ms. Lawton referred to her prior testimony regarding licensing. *Id.* at 229-30. In that testimony, Ms. Lawton explained that Marvell itself had raised many problems with the idea of licensing non-infringing alternatives. Tr. 12/7/12 at 216-17.

⁴⁴ Later, Ms. Lawton further testified that a sublicense from DSSC members would not have been an alternative because sublicense rights were extinguished by agreement. Tr. 12/7/12 at 224-25.

royalty fee. 12/5/12 Tr. at 251- 252. (JX-C at 213:18-214:11; 214:17-23). When asked how Marvell decides on royalty structure, he testified that “*it doesn’t really matter too much.... it’s case by case.*” *Id.* at 218:16-219:3 (emphasis added). When asked why Marvell’s April 2000 license with DSP Group is a running royalty based on a fixed per-core fee, he testified “I don’t remember. It really, you know, *to us, it, you know, it’s – doesn’t matter that much.*” *Id.* at 259:05-261:17 (emphasis added).

- **Marvell’s Three Licenses: (1) Hitachi; (2) DSP Group; (3) ARM.** Ms. Lawton testified that these three licenses, which Marvell entered around the March 2001 hypothetical negotiation date, were all structured as running-royalties. Tr. 12/10/12 at 113. She noted that Marvell had agreed to “running royalties that were based on either a per chip, an amount per chip, or as... a percentage of revenue. Or in the third case, as an amount of dollars per platform that got developed.” *Id.* at 112.
- **CMU’s Showa Denko License.** Ms. Lawton also relied on the licensing agreement with Showa Denko, which provided a running royalty of a set number of cents per disk. Tr. 12/10/12 at 112-13. The patent covered by that license was “for the actual material on the hard disk itself... [the] stuff that creates the whole problem here that” CMU’s patents solve, which made it technologically analogous to the hypothetical negotiation she considered. *Id.* at 113.
- **Step Eight in Ms. Lawton’s Analysis:** Ms. Lawton explained that a running-royalty license would allow Marvell and CMU to share in the potential risk and reward of the new technology. Tr. 12/10/12 at 109-11. In contrast, with a lump-sum agreement, Marvell would have borne all the risk of sales being low. *Id.* at 111 (Marvell “might have overpaid” in that event).

Marvell ignores all the above evidence and, in so doing, ignores the JMOL standard.

B. The Court Should Deny Marvell’s Motion for a New Trial on Damages or Remittitur

1. Marvell Understates Its Burden In Securing a New Trial

Marvell suggests that the Court may grant a new trial on damages if the verdict is “against the weight of the evidence... including as to the size of damages.” Dkt. 809 at 2 (citing *Maylie v. Nat’l R.R. Passenger Corp.*, 791 F. Supp. 477, 480 (E.D. Pa. 1992) and *Wilburn v. Maritrans GP Inc.*, 139 F.3d 350, 363 (3d Cir. 1998)). Marvell quotes *Maylie* and *Wilburn* out of context and in doing so misstates the standard for a new trial on damages.⁴⁵ *Wilburn* holds

⁴⁵ Motions for a new trial under Rule 59, and motions for remittitur, are governed by Third Circuit authority. *Whitserve*, 694 F.3d at 26 (motions for new trial under Rule 59 governed by regional circuit law); *Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GMBH*, 408 F.3d 1374, 1380 (Fed. Cir. 2005) (“A district court’s duty to remit excessive damages is a procedural issue, not unique to patent law.”).

that “new trials because the verdict is against the weight of the evidence are proper *only when* the record shows that the jury's verdict resulted in a *miscarriage of justice* or where the verdict, on the record, cries out to be overturned or *shocks our conscience*.” 139 F.3d at 364 (emphasis added); *see also Cortez v. Trans Union, LLC*, 617 F.3d 688, 718 (3d Cir. 2010) (same). The Third Circuit has explained that “the ‘shocks the conscience’ or ‘miscarriage of justice’ standard for a grant of a new trial exists ‘to ensure that a district court does not substitute its judgment of the facts and the credibility of the witnesses for that of the jury.’” *William A. Graham Co. v. Haughey*, 646 F.3d 138, 143 (3d Cir. 2011).⁴⁶ Likewise, to justify remittitur, the Court must determine that the damages are so “clearly unsupported and/or excessive” that the record justifies “substitution of the court’s judgment for that of the jury...” *Cortez*, 617 F.3d at 715-16.

In determining whether to grant a new trial and/or remittitur the court must “view the facts in the light most favorable to [CMU].” *Cortez*, 617 F.3d at 718-19 (quoting *Rivera v. V.I. Housing Auth.*, 854 F.2d 24, 27 (3d Cir. 1988)). The “review of a damage award is ‘exceedingly narrow,’” *Cortez*, 617 F.3d at 718, and the Third Circuit has emphasized that Marvell’s burden in seeking a new trial or remittitur is “difficult”⁴⁷ and “a steep climb.”⁴⁸

This Court, likewise, has held that “[w]hen the motion for a new trial is based on the claim that the verdict is against the clear weight of the evidence, the Court’s discretion is limited: the verdict must be ‘contrary to the great weight of the evidence; that is, where a miscarriage of

⁴⁶ *See also Motter v. Everest & Jennings, Inc.*, 883 F.2d 1223, 1230 (3d Cir.1989) (“In reviewing the propriety of a jury verdict, our obligation is to uphold the jury's award if there exists a reasonable basis to do so.”); *Griffiths v. Cigna Corp.*, 857 F. Supp. 399, 408-09 (E.D. Pa. 1994) (denying motion for JMOL on damages and explaining that “[a] trial judge must be extremely reluctant to interfere with the time-honored power of the jury, in the exercise of its collective judgment, to assess the damages sustained by the plaintiff.”).

⁴⁷ *Tormenia v. First Investors Realty Co.*, 251 F.3d 128, 138 (3d Cir. 2000).

⁴⁸ *William A. Graham Co.*, 646 F.3d at 143. Marvell tries to sidestep the strict Third Circuit standard by relying on Federal Circuit cases applying the Rule 59 standard from other circuits. *See* Dkt. 809 at 2. For example, Marvell cites *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 26 (Fed Cir. 2012) (applying Second Circuit authority) and *Wordtech Sys., Inc. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308, 1313, 13199-20 (Fed. Cir. 2010) (applying Ninth Circuit authority). Marvell also misstates the standards applied in those circuits. The Second Circuit prohibits a new trial unless the Court determines there has been a “miscarriage of justice” and “seriously erroneous result.” *Whitserve*, 694 F.3d at 26. The Ninth Circuit likewise allows a new trial only if the trial court finds that the verdict is “based upon evidence which is false,” is necessary to “prevent... a miscarriage of justice,” or is “contrary to the clear weight of the evidence.” *Wordtech*, 609 F.3d at 1313.

justice would result if the verdict were to stand.” *Jackson v. City of Pittsburgh*, 2011 WL 3443951 at *8 (quoting *Pryer v. C.O. 3 Slavic*, 251 F.3d 448, 453 (3d Cir.2001)). The Court emphasized that “a verdict may not be set aside when there is a plausible or rational basis for the decision,” and “[T]he Court must not substitute its own judgment of the facts and assessment of the witnesses’ credibility for the jury’s.” *Id.*

2. Marvell Is Not Entitled To a New Trial on the Issue of Whether Marvell’s Sales Result From its Infringement of CMU’s Patents During the Sales Cycle

Marvell has not shown that calculating damages based on the U.S. sales that resulted from Marvell’s U.S. infringement is against the “great weight” of the evidence, *id.*, let alone that it “shocks the conscience” or represents a “miscarriage of justice.” *Wilburn*, 139 F.3d at 364. The evidence shows that CMU’s technology was “must have,” “life or death” for Marvell and became industry standard. *See supra* pp. 9-12. Marvell’s sales were declining before it began infringing, but spiked thereafter, and an internal Marvell memo plainly states that use of CMU’s invention helped firmly establish Marvell as the market leader. *Id.* The jury’s award reflects the precise number of chips Marvell sold because of its infringement in the U.S., and the \$0.50 per chip awarded is reasonable as compared to any financial metric in evidence (e.g., price premium, excess profits, average sale price, average operating profit, gross margin). There is nothing shocking about an award that leaves Marvell with billions in profits reaped by its long exploitation of CMU’s invention that helped Marvell become the market leader, and there is no basis to invade the jury’s factual and credibility determinations. *William A. Graham Co.*, 646 F.3d at 143; *Motter*, 883 F.2d at 1230.

3. Marvell’s Jury Instructions Argument Misstates the Court’s Rulings

Marvell waived its challenge to the jury instructions and, in any event, that challenge rests on an unsupportable reading of the actual instructions.⁴⁹ Marvell did not object to the second sentence of the cited instruction because it omitted a reference to “in the United States”

⁴⁹ Marvell begins Section IV.A.2 of its Memorandum by arguing that the Court allowed CMU to proceed on a “novel” theory of damages. Dkt. 809 at 20. Again, the damages theory is not “novel,” but rather is a straightforward application of statutory language to the unique facts of this case. *See supra* pp. 1, 3-6, 8-13.

after “alleged infringing use.”⁵⁰ Instead, Marvell’s only objection was to the Court’s decision not to include EMVR-type causation language. Tr. 12/21/12 at 3-7.⁵¹ Marvell’s failure to object on appropriate grounds and to propose an instruction that was rejected constitutes a waiver. *Bostic v. Smyrna Sch. Dist.*, 418 F.3d 355, 359 (3d Cir. 2005) (party waived its objection by failing to “stat[e] distinctly the matter objected to and the grounds of the objection”).

In addition, Marvell’s argument that the jury instruction did not focus only on “infringing U.S. activity” is belied by the actual instructions. Dkt. 809 at 21. The Court specifically instructed the jury—*in the sentence that immediately precedes the sentence Marvell challenges*—that “Marvell cannot have directly or indirectly infringed in connection with chips never used in the United States.” Tr. 12/21/12 at 63. Indeed, the Court emphasized that both direct and indirect infringement require use of the patented methods in the U.S.⁵² Notably, the instructions regarding contributory infringement made clear that Marvell must have “sold or offered for sale [infringing chips] in the United States,” *Id.* at 62:17-19, and the overwhelming evidence that all sales of the infringing chips take place in the U.S. provides ample support for the jury’s verdict on that claim. Dkt. 762 (Verdict) at 4.

4. Marvell Has Not Met the “Difficult,” “Steep Climb” Necessary to Justify Remittitur, But Any Remittitur Must Be No Less Than \$278,406,045.50

Marvell argues for remittitur based on the arguments in Part III.A of its Memorandum, Dkt. 809 at 22, but CMU demonstrated—and the jury properly found—that all of Marvell’s sales take place in and result from Marvell’s U.S. conduct. *See supra* p. 4 & note 5. Marvell’s illogical argument is that CMU is entitled to damages only for infringing chips that are used in the U.S., even though all of the chips in the 2.34 billion chip royalty base were sold in the U.S. as

⁵⁰ By definition, an “infringing use” must be in the U.S., which the instructions repeatedly made clear.

⁵¹ Marvell’s argument that the jury could not determine how to assess “one causal contributor to sales relative to another” is meritless. The Court properly used the same “resulting from” language contained in *Mirror Worlds, LLC v. Apple, Inc.*, 784 F. Supp. 2d 703, 724 (E.D. Tex. 2011) (holding that plaintiff Mirror Worlds was “entitled to recover damages that *resulted from* Apple’s direct infringement” (emphasis added)). “Resulting from” is synonymous with “but for” causation. Moreover, Marvell did not object at the charging conference when CMU pointed out that there can be more than one “but for” cause of a sale. *See supra* p. 7.

⁵² Tr. 12/21/12 at 61:2-5; *id.* at 61:22-25; *id.* at 61:25-62:3; *id.* at 62:10-14; *id.* 62:17-23; *id.* at 63:8-11; *id.* at 63:12-18; *id.* at 73:4-9; *id.* at 75:1-4; *id.* at 75:8-11; 81:7-11.

a direct result of Marvell's infringing use of CMU's invention during the U.S.-based sales cycle. In other words, Marvell contends that CMU has to prove infringement twice to get damages once.⁵³ Marvell has not demonstrated that the verdict is unsupported by either the law or the evidence, and thus, remittitur based on limiting the size of the royalty base would be inappropriate.⁵⁴

5. Marvell Has Not Met the "Difficult," "Steep Climb" Necessary to Justify Remittitur to an Unspecified Alternative Royalty Rate

In Section IV.B. of its Memorandum, Marvell raises a host of alternative pleas for a reduction to the royalty rate. The Court previously has rebuked Marvell for "throw[ing] the proverbial 'kitchen sink'" into its briefs by raising a series of short, unelaborated challenges to CMU's positions. Dkt. 451 at 4. This is more of the same, and the Court should reject Marvell's shotgun approach. Furthermore, none of Marvell's abbreviated arguments have merit.

First, Marvell argues in Section IV.B.1., that the Court should remit damages to some unspecified number because \$0.50 per chip rate is "clearly not supported by the evidence." Dkt. 809 at 23. Marvell gives no basis for that argument, so the Court should disregard it.

Second, in Section IV.B.2, Marvell lists bullet points of evidence allegedly inconsistent with the jury's verdict. Marvell is simply begging the Court to substitute its judgment to

⁵³ Marvell's argument is just another version of its extraterritoriality argument that has been repeatedly rejected by the Court. Such a ruling would be at odds with the principles underlying Supreme Court precedent to the effect that authorized sales of a product that embodies a patented method exhausts the patent. *See Quanta Computer, Inc. v. LG Elec., Inc.*, 553 U.S. 617, 628-29 (2008).

⁵⁴ If there were a basis for remittitur, the remitted amount (for pre-July 28, 2012 infringement) must be \$278,406,045.50. The Federal Circuit applies the "maximum recovery rule," which requires that the amount to remit must be "the highest amount of damages the jury could properly have awarded based on the relevant evidence." *Unisplay S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 519 (Fed. Cir. 1995). Accordingly, any reduction of the royalty base must be to 556,812,091 chips. Marvell's only objection to this alternative royalty base is that it allegedly rests on a "single, conclusory statement," Dkt. 809 at 10, but Ms. Lawton was examined at length regarding her estimate. Tr. 12/10/12 at 207-10. She testified that such estimates come from industry publications on which Marvell itself relied. JX-C at 129, 240; Tr. 12/7/12 at 200; Tr. 12/10/12 at 165; *see also* Second Update to Lawton Rpt. at 6 tbl.14 (Dkt. 634) (identifying IDC and Gartner as the source for these data). Marvell cross-examined Ms. Lawton on this subject but never objected to or otherwise challenged Ms. Lawton's estimate. Tr. 12/10/12 at 207; D-Demo 11 (CL 3). Ms. Lawton's reliance on the same type of industry data on which Marvell itself relies is sufficient to support a verdict. *See F.R.E. 702; Indian Coffee Corp. v. Procter & Gamble Co.*, 752 F.2d 891, 897 (3d Cir. 1985) (reversing exclusion of damages opinions because such opinions were based on data of the type an experts in the field reasonably could rely on).

displace the jury's careful consideration, and rejection, of the cited evidence. Considering all the evidence in the light most favorable to CMU, it does not justify any reduction in rate.

Finally, Marvell asks the Court to save it from its own strategic decisions. It argues that the Court should remit the portion of the jury's award that exceeds a royalty of \$0.03 because "more representative customers," such as Toshiba paid \$0.06 per chip. Dkt. 809 at 24-25. With the benefit of hindsight, Marvell now regrets its failure, during trial, to advocate for a rate within the range Ms. Lawton identified, instead of the *de minimus* lump sum it proffered as appropriate. Rule 59, however, is not a vehicle for Marvell to present a damages theory that it never made during trial. *See Energy Transp. Group*, 697 F.3d at 1358 (rejecting motion for new trial or remittitur because "the court may not arbitrarily reduce the amount of damages, for to do so would deprive the parties of their constitutional right to a jury"); *Orion IP, LLC v. Mercedes Benz USA, LLC*, 2008 WL 8856865 at *3 (E.D. Tex. Mar. 28, 2008) (rejecting Hyundai's motion for remittitur because "Hyundai's expert testified that the patent was worth a one-time fee of \$250,000 to \$500,000 and offered no alternative running royalty rate" and holding that Hyundai could not "wait until trial is over" to advocate new theories because remittitur may only be based on arguments "presented to the jury"), *vacated on other grounds sub nom. Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967 (Fed. Cir. 2010). Marvell is not entitled to a "do-over" just because it now wishes that it had approached the damages issue differently.

III. CONCLUSION

For the foregoing reasons, CMU respectfully requests that the Court deny Marvell's Motion for Judgment as a Matter of Law, New Trial and/or Remittitur With Respect to Damages.

Respectfully submitted,

Dated: March 25, 2013

/s/ Christopher M. Verdini

Patrick J. McElhinny Pa. I.D. # 53510
patrick.mcelhinny@klgates.com
Mark Knedeisen Pa. I.D. #82489
mark.knedeisen@klgates.com
Christopher M. Verdini Pa. I.D. # 93245
christopher.verdini@klgates.com
K&L Gates LLP
K&L Gates Center
210 Sixth Avenue
Pittsburgh, PA 15222
Phone: (412) 355-6500

Douglas B. Greenswag (admitted *pro hac vice*)
douglas.greenswag@klgates.com
925 Fourth Avenue, Suite 2900
K&L Gates LLP
Seattle, WA 98104-1158
Phone: 206.623.7580

Counsel for Plaintiff, Carnegie Mellon University

CERTIFICATE OF SERVICE

I hereby certify that on March 25, 2013 the foregoing was filed electronically. Notice of this filing will be sent to all parties by operation of the Court's electronic filing system. Parties may access this filing through the Court's system.

s/ Christopher M. Verdini
Christopher M. Verdini, Pa. I.D. # 93245
christopher.verdini@klgates.com
K&L GATES LLP
K&L Gates Center
210 Sixth Avenue
Pittsburgh, PA 15222
Phone: 412.355.6500
Fax: 412.355.6501