

processing integers, which do not require computation of these additional fields. To unify the methods for computing floating-point numbers, the Institute of Electrical and Electronics Engineers (“IEEE”) implemented the IEEE Standard 754. This standard has since been broadly implemented and is now found in PCs around the world.

The ‘697 Patent purports to increase computational efficiencies compared to the IEEE Standard 754. Under the standard, the floating-point number to be processed is loaded into a memory register and undergoes the necessary arithmetic operation with all its fields. At the end of the process, the result is rounded. The invention, in contrast, optimizes the floating-point number for processing by rounding it *before* the arithmetic operation.

Rackspace argues that the invention is not patentable subject matter and asks the Court to dismiss Uniloc’s complaint under Federal Rule of Civil Procedure 12(b)(6). Although the ‘697 patent in suit has twenty-seven claims, Uniloc only asserts Claim 1 against Rackspace. Dkt. No. 23 at 2. Therefore, only Claim 1 is at issue for the instant motion. Claim 1 reads as follows:

Claim 1. A method for processing floating-point numbers, each floating-point number having at least a sign portion, an exponent portion and a mantissa portion, comprising the steps of:

converting a floating-point number memory register representation to a floating-point register representation;

rounding the converted floating-point number;

performing an arithmetic computation upon said rounded number resulting in a new floating-point value;

converting the resulting new floating-point register value to a floating-point memory register representation.

‘697 Patent, Col. 14:46–56.

APPLICABLE LAW

A complaint must “state a plausible claim for relief” to survive a motion to dismiss. *Ashcroft v. Iqbal*, 556 U.S. 662, 679 (2009). “When the allegation in a complaint, however true, could not raise an entitlement to relief, ‘this basic deficiency should . . . be exposed at the point of minimum expenditure of time and money by the parties and the court.’” *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544, 558 (2007) (quoting 5 WRIGHT & MILLER § 1216, at 233–34). Section 101 questions of patentability may be resolved before claim construction. *See Bancorp Services, L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1273–74 (Fed. Cir. 2012) (affirming invalidation of a patent under 35 U.S.C. § 101 without claim construction). Invalidity under section 101 is a question of law. *In re Bilski*, 545 F.3d 943, 951 (Fed. Cir. 2008). In determining whether a claim is drawn to patentable subject matter, the court considers the claim as a whole rather than dissecting and evaluating some elements separately from the rest. *Diamond v. Diehr*, 450 U.S. 175, 188 (1981).

Section 101 of the Patent Act defines the four broad categories of patentable subject matter as “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” 35 U.S.C. § 101 (2006). “In choosing such expansive terms . . . modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.” *Bilski v. Kappos*, 561 U.S. ___, 130 S. Ct. 3218, 3225 (2010) (“*Bilski IP*”) (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980)).

Although section 101 encompasses a broad domain of patentable subject matter, the Supreme Court has recognized three exceptions: “laws of nature, physical phenomena, and abstract ideas.” *Chakrabarty*, 447 U.S. at 309. Laws of nature and physical phenomena are not patentable subject matter “because those categories embrace ‘the basic tools of scientific and technological work.’” *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 868 (Fed.

Cir. 2010) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67, 93 S. Ct. 253 (1972)). The *application* of such laws and formulae, however, may fall within the bounds of patentability marked by section 101. *Diehr*, 450 U.S. at 187. Furthermore, while abstractness places subject matter outside the statutory categories, “inventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act.” *Research Corp.*, 627 F.3d at 868–69.

ANALYSIS

Defendants argue that Claim 1 is unpatentable subject matter because it fails the Federal Circuit’s “machine-or-transformation” test and violates the Supreme Court’s bright-line prohibition against patenting mathematical formulas and abstract ideas. Although Uniloc originally questioned the timing of Defendants’ section 101 validity arguments, Uniloc agrees to resolution of this issue on the merits at this stage to advance the litigation. Dkt. No. 23 at 1–2.

Machine-or-Transformation Test

The machine-or-transformation test is “a useful and important clue” for determining patent eligibility of inventions. *Bilski II*, 130 S. Ct. at 3227. According to the machine-or-transformation test, a process may be patentable if it “(1) is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” *Id.* at 3225–26. However, The Supreme Court has clarified that it “is not the sole test” of patent eligibility. *Id.* Thus, Claim 1 is analyzed under the machine-or-transformation test, as a useful clue to determine patentability, but that does not end the inquiry.

Defendants argue that Claim 1 fails the machine prong because it recites no machine whatsoever. Dkt. No. 16 at 15. They also argue that, under *Benson*, the transformation portion of the test is not satisfied by the conversion of a number from one format to another. *Id.* (citing *Benson*, 409 U.S. at 70). Defendants contend that the floating-point-register representations in

Claim 1 are simply formats in which certain numbers are presented, thus there is no meaningful transformation. *Id.* Plaintiffs cursorily respond that Information Age inventions are less suited than Industrial Age inventions for analysis under the machine-or-transformation test, but do not present further argument on this point. Dkt. No. 23 at 11.

Claim 1 of the '697 patent does not recite a machine. It only recites steps to manipulate a floating-point number, to perform an arithmetic computation with it, and to produce another representation of a number. Therefore, the claim fails the machine prong of the test.

Claim 1 also fails the transformation prong of the test. Mere manipulation of data does not result in a meaningful transformation. *See Cybersource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2012) (“mere manipulation or reorganization of data . . . does not satisfy the transformation prong”); *see also Bancorp*, 687 F. 3d at 1273 (affirming invalidity of patent that failed the transformation test because it did “not transform the raw data into anything other than more data”). Claim 1 involves converting the floating-point number into a different format, performing an arithmetic operation, and converting the result back to the original floating-point number format. This is merely manipulating data. Thus, Claim 1 does not satisfy the transformation prong either.

However, the fact that Claim 1 does not pass the machine-or-transformation test does not, alone, render it patent-ineligible. *See Bilski II*, 130 S. Ct. at 3227.

Exceptions to Patentability

The pertinent question to determine patent eligibility is whether the claim at issue is drawn to one of “three specific exceptions to section 101’s broad patent-eligibility principles: laws of nature, physical phenomena, and abstract ideas.” *Bilski II*, 130 S. Ct. 3218, 3225 (2010) (internal quotations omitted). Specifically, the question is whether Claim 1 recites a mathematical formula and therefore falls under the “law of nature” exception to patentability.

Patentability of mathematical formula

Defendants argue that Claim 1 covers unpatentable subject matter under *Benson* because it recites nothing more than mathematical steps for a numerical conversion. Dkt. No. 16 at 8–9. Defendants note that in *Benson*, the claims recited a general method for converting numbers between different representations, and the Supreme Court found them unpatentable as a mathematical formula. *Id.* (citing *Benson*, 409 U.S. at 64, 67–68). Defendants contend that Claim 1 likewise processes a type of number by converting it from one numerical representation to another, then subjects it to an arithmetic operation to arrive to a new value, which is then converted back to the original numerical representation. *Id.* Thus, Defendants argue that Claim 1, similar to the *Benson* claims, is drawn to an unpatentable process to convert a number from one numerical representation to another. *Id.* at 9.

Plaintiffs argue that, unlike the claims in *Benson*, Claim 1 is not a mathematical formula. Dkt. No. 23 at 8. Plaintiffs argue that in *Benson*, the method claim recited specific steps of mathematical operations, such as shifting and adding. Dkt. No. 27 at 3 (citing *Benson*, 409 U.S. at 64). Plaintiffs contend that Claim 1, by contrast, recites no identifiable mathematical formula. *Id.* Instead, Plaintiffs note that Claim 1 merely contemplates rounding a number, followed by any type of mathematical operation. *Id.*, at 3–4. Thus, Plaintiffs contend that Claim 1 is not directed to a specific mathematical operation, and is not barred by the Supreme Court’s *Benson* decision. *Id.*

In *Benson*, the Supreme Court determined the patent claims were directed to a “generalized formulation for programs to solve mathematical problems of converting one form of numerical representation to another.” *Benson*, 409 U.S. at 65. Specifically, the claims involved a method for converting binary-coded-decimal numerals into pure binary numerals for

use with a computer, through a series of shifting and adding steps. *Id.* at 64. This method differed from “ordinary arithmetic steps” only by “changing the order of the steps, changing the symbolism or writing the multiplier used in some steps, and by taking subtotals after each successive operation.” *Id.* at 67. The Court held that granting a patent on such claims would “wholly pre-empt the mathematical formula and in practical effect . . . be a patent on the algorithm itself.” *Id.* at 72. Therefore, the Court held that the claimed process was unpatentable. *Id.* at 65.

Claim 1 is, in essence, a formula to “solve mathematical problems of converting one form of numerical representation to another.” *Benson*, 409 U.S. at 65. Claim 1 recites a four-step method for processing floating-point numbers: (1) convert the floating-point number from a “memory register representation” to a “register representation”; (2) round the result; (3) “perform[] an arithmetic computation” on the rounded result to obtain a new floating-point number; and (4) convert[] the result back to a “memory register representation.” ‘697 Patent, Col. 14:46–56. Plaintiffs argue that the arithmetic operation is not restricted to a specific addition or subtraction. Dkt. No. 23 at 8. Although the type of computation that can fulfill the computing step is not specified, it is limited to an arithmetic operation. The previous step, which involves rounding a number, is also an arithmetic operation. Essentially, Claim 1 uses numeric conversions and arithmetic operations in a prescribed procedure to solve a mathematical problem. Therefore, just as in *Benson*, Claim 1 discloses a “procedure for solving a given type of mathematical problem.” *Benson*, 409 U.S. at 65. Consequently, granting a patent on Claim 1 would “pre-empt the mathematical formula and in practical effect . . . be a patent on the algorithm itself.” *Id.* at 72. Under *Benson*, Claim 1 is a mathematical formula that is unpatentable under section 101.

Patentability of improvement on a mathematical formula

Defendants further argue that Claim 1 is unpatentable even if it is an improvement of the IEEE Standard 754. Dkt. No. 25 at 8. In *Flook*, the Supreme Court found unpatentable claims directed to an improved method for calculating, using a generalized formulation for converting numbers. *Id.* at 10 (citing *Parker v. Flook*, 437 U.S. 584, 585 (1978)). Defendants argue that Claim 1 is similar to the *Flook* claims because it is only an improvement to a known method for processing floating-point numbers. *Id.* Further, because Claim 1 is not drawn to a specific type of arithmetic computation or specific applications, Defendants contend that the exclusionary rights from such a patent would reach across broad realms. *Id.* at 8. Thus, Defendants argue that Claim 1 is unpatentable under section 101. *Id.* at 10.

Plaintiffs contend that Claim 1 differs from the claims found unpatentable in *Flook*, because those claims disclosed a mathematical formula and defined a specific set of variables. Dkt. No. 23 at 8–9. Plaintiffs reiterate that Claim 1 recites no particular mathematical formula. *Id.* Further, Plaintiffs argue that the ‘697 Patent claims improvements to the IEEE 754 standard, which has already been implemented in many processors. *Id.* Thus, Plaintiffs contend that Claim 1 is patentable as “a definite and substantive advancement to a concrete industry standard.” *Id.* at 10.

The *Flook* claims involved a process for updating alarm limits during a catalytic-conversion process. *Flook*, 437 U.S. at 585. The process entailed gathering current temperature values, using an algorithm to calculate an updated alarm limit value based on these temperatures, and adjusting the alarm limit to the newly calculated value. *Id.* The respondent conceded that the algorithm for computing the alarm limit was the only novel feature of the claimed method. *Id.* at 588. Thus, the process of gathering temperature data, calculating an alarm limit, and updating the

alarm limit was already known in the art. *Id.* The *Flook* claimants had merely devised a better algorithm for calculating the alarm limit. *Id.* The Court noted that the algorithm had a practical and limited application—“computerized calculations producing automatic adjustments in alarm settings”—but determined that this specific purpose was insufficient to validate an otherwise unpatentable claim. *Id.* at 595. Thus, the Court determined that “a claim for an improved method of calculation . . . is unpatentable subject matter under § 101.” *Id.* at 595 n.18.

“[I]nventions with specific applications or improvements to technologies in the marketplace [may not] be so abstract that they override the statutory language and framework of the Patent Act.” *Research Corp.*, 627 F.3d at 869. However, according to the patent itself, the claims’ novelty and improvement over the standard is the rounding of the floating-point number before, rather than after, the arithmetic computation. ‘697 Patent Col. 4:32–48. So, as in *Flook*, Claim 1 merely constitutes an improvement on the known method for processing floating-point numbers. *Id.* at 595 n.18. Claim 1, then, is merely an improvement on a mathematical formula. Even when tied to computing, since floating-point numbers are a computerized numeric format, the conversion of floating-point numbers has applications across fields as diverse as science, math, communications, security, graphics, and games. Thus, a patent on Claim 1 would cover vast end uses, impeding the onward march of science. *Benson*, 409 U.S. at 68. Under *Flook*, the improvement over the standard is insufficient to validate Claim 1’s otherwise unpatentable subject matter.

CONCLUSION

For the reasons stated herein, the Court **GRANTS** Defendants’ Motion to Dismiss Plaintiffs’ Complaint for Failure to Allege Infringement of A Patentable Claim Under 35 U.S.C. § 101.

So ORDERED and SIGNED this 27th day of March, 2013.

A handwritten signature in black ink, appearing to read "Leonard Davis". The signature is written in a cursive style with a large, prominent loop for the letter "D".

**LEONARD DAVIS
UNITED STATES DISTRICT JUDGE**