UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte GUY L. STEELE JR. and DAVID R. CHASE

_____

Appeal 2018-005363[1]
Application 15/156,100
Technology Center 2100

_____

Before CAROLYN D. THOMAS, JAMES B. ARPIN, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

ARPIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[2] appeal under 35 U.S.C. § 134(a) from final rejections of
claims 1–6, 14–18, and 21–29, which are all of the pending claims. Final

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[1] In this Decision, we refer to Appellants' Appeal Brief ("App. Br."), filed
November 6, 2017, and Reply Brief ("Reply Br."), filed April 27, 2018; the
Final Office Action ("Final Act."), mailed April 6, 2017; the Examiner's
Answer ("Ans."), mailed February 27, 2018; and the Specification ("Spec."),
filed May 16, 2016. Rather than repeat the Examiner's findings and
determinations and Appellants' contentions in their entirety, we refer to
these documents.

[2] Appellants indicate the real party in interest is Oracle International
Corporation. App. Br. 2.

Act. 2–13.[3] Claims 7–13, 19, and 20 are canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

"This disclosure relates generally to computing devices that implement lookup tables, and more particularly to systems and methods for implementing low latency lookup tables using hardware circuitry to compute hash functions that perform multiplication with sparse bit matrices." Spec. ¶ 1. The Specification further explains that:

> In some embodiments, the hash function sub-circuits may be constructed using odd-parity circuits that accept as inputs subsets of the bits of the bit vectors representing the key values (e.g., six, eleven, or twelve bits of an input key). The sparse bit matrices may be chosen or generated according to a sparseness constraint, such as a constraint specifying that there are at least twice as many 0-bits per row as 1-bits or that there is an upper bound on the number of 1-bits per row (e.g., a constraint that there are no more than six, eleven, or twelve 1-bits in each row). *The use of sparse bit matrices in the hash function sub-circuits may allow the lookup circuit to perform lookup operations with very low latency.* The hash function sub-circuits may be implemented and/or configured in a memory, using fixed combinatorial logic, using programmable combinatorial logic, or

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[3] The Examiner indicates that "[c]laims 1-6, 14-18 and 21-29 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. [§] 101 set forth in this Office action." Final Act. 13.

using a combination of these and/or other technologies, in different embodiments.

Id. ¶ 10 (emphasis added).

Claims 1, 15, and 18 are independent. Claims 2–6 and 14 depend directly from claim 1, claims 16, 17, and 21–24 depend directly or indirectly from claim 15, and claims 25–29 depend directly from claim 18. App. Br. 35–39 (Claims App.). Claim 1, reproduced below, is illustrative.

> 1. A circuit configured to perform a table lookup operation, comprising:
>
> an input configured to receive a representation of a key value;
>
> one or more hash function sub-circuits coupled to the input; and
>
> at least one memory;
>
> wherein the representation of the key value comprises a bit vector;
>
> wherein each of the hash function sub-circuits comprises a representation of a sparse bit matrix; and
>
> wherein each of the hash function sub-circuits is configured to:
>
> > apply a respective hash function to the key value to produce a respective hash value; wherein the respective hash values identifies a respective location in the at least one memory; and
> >
> > wherein to apply the respective hash function to the key value, the hash function sub-circuit is configured

to add a constant bit vector to a result of a multiplication
of the bit vector with the sparse bit matrix; and

wherein the at least one memory is configured to:

output a respective data value from each of the
locations in the at least one memory identified by the
received hash values.

Id. at 35 (Claims App.).

DISCUSSION

I. Rejection

Claims 1–6, 14–18, and 21–29 stand rejected as unpatentable under
35 U.S.C. § 101 as directed to patent ineligible subject matter. Final Act. 2–
13. We review the appealed rejections for error based upon the issues
identified by Appellants, and in light of the arguments and evidence
produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010)
(precedential). Arguments not made are waived. *See* 37 C.F.R.
§ 41.37(c)(1)(iv). Unless otherwise indicated, we adopt the Examiner's
findings in the Answer as our own and add any additional findings of fact
appearing below for emphasis. We address these rejections below.

II. Patent Ineligible Claims

A. Section 101

An invention is patent-eligible if it claims a "new and useful process,
machine, manufacture, or composition of matter." 35 U.S.C. § 101.
However, the U.S. Supreme Court has long interpreted 35 U.S.C. § 101 to
include implicit exceptions: "'[l]aws of nature, natural phenomena, and
abstract ideas'" are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int'l*, 573
U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Court's two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is "directed to." *See Alice*, 573 U.S. at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas and, thus, patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id.* at 183 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Court held that "[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 176; *see also id.* at 191 ("We view respondents' claims as nothing more than a process for molding rubber products and not as an

attempt to patent a mathematical formula."). Having said that, the Court
also indicated that a claim "seeking patent protection for that formula in the
abstract . . . is not accorded the protection of our patent laws, . . . and this
principle cannot be circumvented by attempting to limit the use of the
formula to a particular technological environment." *Id.* (citing *Benson* and
Flook); *see, e.g., id.* at 187 ("It is now commonplace that an *application* of a
law of nature or mathematical formula to a known structure or process may
well be deserving of patent protection.").

If the claim is "directed to" an abstract idea, we turn to the second
step of the *Alice* and *Mayo* framework, in which "we must examine the
elements of the claim to determine whether it contains an 'inventive
concept' sufficient to 'transform' the claimed abstract idea into a patent-
eligible application." *Alice*, 573 U.S. at 221 (quotation marks omitted). "A
claim that recites an abstract idea must include 'additional features' to
ensure 'that the [claim] is more than a drafting effort designed to
monopolize the [abstract idea].'" *Id.* (quoting *Mayo*, 566 U.S. at 77).
"[M]erely requir[ing] generic computer implementation[] fail[s] to transform
that abstract idea into a patent-eligible invention." *Id.*

B. *Office Patent Eligibility Guidance*

The Office recently published revised guidance on the application of
§ 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed.
Reg. 50 (Jan. 7, 2019).[4] Under that guidance, we first look to whether the
claim recites:

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[4] This guidance supersedes previous guidance memoranda. *See 2019
Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. at 51 ("All

(1) Step 2A – Prong One: any judicial exceptions, including certain
groupings of abstract ideas (i.e., mathematical concepts, certain
methods of organizing human activity, such as a fundamental
economic practice, or mental processes); and

(2) Step 2A – Prong Two: additional elements that integrate the
judicial exception into a practical application (*see* MPEP[5]
§ 2106.05(a)–(c), (e)–(h)).[6]

See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg.
at 54–55 ("Revised Step 2A").

Only if a claim (1) recites a judicial exception and (2) does not
integrate that exception into a practical application, do we then look to
whether the claim:

(3) adds a specific limitation beyond the judicial exception that is not
"well-understood, routine, conventional" in the field (*see* MPEP
§ 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities
previously known to the industry, specified at a high level of
generality, to the judicial exception.

USPTO personnel are, as a matter of internal agency management, expected
to follow the guidance.").

[5] All Manual of Patent Examining Procedure ("MPEP") citations herein are
to MPEP, Rev. 08.2017, January 2018.

[6] We acknowledge that some of the considerations at Step 2A, Prong Two,
properly may be evaluated under Step 2 of *Alice* (Step 2B of the Office
guidance). For purposes of maintaining consistent treatment within the
Office, we evaluate them under Step 1 of *Alice* (Step 2A of the Office
guidance). *See 2019 Revised Patent Subject Matter Eligibility Guidance*, 84
Fed. Reg. at 55 n.25, 27–32.

See id. at 56 ("*Step 2B: If the Claim Is Directed to a Judicial Exception, Evaluate Whether the Claim Provides an Inventive Concept.*").

C. Statutory Categories

As an initial matter, the pending claims must be directed to at least one of the four recognized statutory categories, namely, apparatus, process, article of manufacture, or composition of matter. MPEP § 2106(I). Here, independent claims 1, 15, and 18, are directed to circuits, i.e., apparatus; methods, i.e., processes; and computer-readable media, i.e., articles of manufacture, respectively. Thus, the pending claims are directed to recognized statutory categories. *See Accenture Global Servs. GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1341 (Fed. Cir. 2013) ("Although *CLS Bank* issued as a plurality opinion, in that case a majority of the court held that system claims that closely track method claims and are grounded by the same meaningful limitations will generally rise and fall together" (citation omitted).).

D. Two-Step Alice/Mayo Analysis
1. Step 2A – Prong One

Applying the first step of the *Alice/Mayo* analysis, the Examiner concludes the pending claims are directed to an abstract idea, "[t]he abstract idea being mere addition and multiplication of vectors and matrices. The claims merely recite a mathematical operation ([hash] function) to add a constant bit vector to a result of a multiplication of the bit vector with the sparse bit matrix." Final Act. 3; Ans. 4 ("The formula is : [constant bit vector] + ([the bit vector] * [the sparse bit matrix])."); *see* App. Br. 35 (Claims App.); Spec. ¶¶ 55 (Equation 1), 133, 134. Further, the Examiner

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finds that this abstract idea is similar to abstract ideas previously identified in *Benson*, *Flook*, and *Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315 (Fed. Cir. 2017) ("*Erie*"). Final Act. 4; *see, e.g.*, Ans. 3–5. Appellants disagree.

Appellants contend that, at best, the Examiner has identified two types of abstract ideas by identifying "mathematical relationships/formula," such as those allegedly identified by the Court in *Benson* and *Flook* and "an idea 'of itself,'" as that identified by the U.S. Court of Appeals for the Federal Circuit ("the Federal Circuit") in *Erie*. App. Br. 7. The Examiner finds that "[t]he application of a hash (a type of numerical calculation operation) to another number (a bit vector representing the key) is not meaningfully distinct from the mathematical operations in *Benson*." Ans. 3; *see* Reply Br. 2–3. Appellants contend that, "[t]he claims of *Benson* do not perform any form of operations that modify the underlying number. *Benson* merely expresses the same underlying number in a different form." App. Br. 10. In *Benson*, the Court determined that "[t]he patent sought is on a method of programming a general-purpose digital computer *to convert* signals from binary-coded decimal form into pure binary form." *Benson*, 409 U.S. at 65 (emphasis added). As the Examiner asserts, both Benson's claims and the pending claims "start with a number and end with a new form of the number, through mathematical manipulations." Ans. 3. We agree with the Examiner.

With regard to *Flook*, Appellants contend that, unlike the pending claims,

> the Supreme Court found that claims of *Flook* are directed to performing a mathematical formula and performing a post-solution activity with the results (i.e., the updated alarm limit) of

the mathematical formula. . . . Specifically, unlike *Flook*, the present claims do not include a formula or algorithm (e.g., B1=Bo(1.0 − F)+PVL(F) in *Flook*). [Appellants] submit[s] that the claimed structure, when read as a whole and in light of the Specification, is a novel and useful structure, consistent with the reasoning of [*Mackay Radio & Telegraph Co. v. Radio Corp. of Am.*, 306 U.S. 86 (1939)] and *Flook*.

App. Br. 12. The Examiner finds, however, that

> [pending] claim 1 performs a mathematical formula (the addition of a constant bit vector to a result of a multiplication of the bit vector with the sparse bit matrix). The formula is : [constant bit vector] +([the bit vector] * [the sparse bit matrix]). Also [*Flook*] specifically defines algorithm as a procedure for solving a given type of mathematical problem ([437 U.S.] at 600). The mathematical problem [here] being an addition to a product of a vector.

Ans. 4; *see* Final Act. 4. We agree that, like *Flook*, the pending claims recite a mathematical formula and the performance of insignificant, post-solution activity with the results of the mathematical formula, i.e., "output[ting] a respective data value from each of the locations in the at least one memory identified by the received hash values." App. Br. 35 (Claims App.); *see Mayo*, 566 U.S. at 79 (describing necessary data gathering and outputting.); MPEP § 2106.05(g).

The Court's decision in *MacKay Radio* does not alter this determination. In *MacKay Radio*, the Court determined that:

> While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be. But we do not stop to solve the problem whether it was more than the skill of the art to combine the teaching of Abraham with that of Lindenblad and others who had pointed out that the arrangement of the wires at an angle enhanced directional radio activity along their bisector. *We assume, without deciding the point, that this*

> *advance was invention even though it was achieved by the logical application of a known scientific law to a familiar type of antenna. But it is apparent that if this assumption is correct the invention was a narrow one, consisting of a structure conforming to the teachings of the Abraham formula as to angle and wire length relative to wave length, and is to be strictly construed with regard both to prior art and to alleged infringing devices.*

MacKay Radio, 306 U.S. at 94 (emphasis added). Thus, in *MacKay Radio*, the Court assumed, *without deciding*, that the *structure* created by the inventors and based on a mathematical expression was an invention, but, as discussed below, the Examiner found – and we agree – that the *structure* recited in the pending claims does not amount to significantly more than the abstract idea.

With regard to *Erie*, Appellants acknowledge that the Federal Circuit "found that the claims were directed to the abstract idea of 'creating an index and using that index to search for and retrieve data' and that 'the claimed creation of an index used to search and retrieve information stored in a database is similarly abstract.'" App. Br. 13 (quoting *Erie*, 850 F.3d at 1327). The claims in *Erie* recite "combining the first set of XML tags into a key; using the key to search the database to locate records including the first set of XML tags; and delivering the records" (*Id.*; *Erie*, 850 F.3d at 1327), but Appellants contend that

> the [pending] claims are directed to hash function sub-circuits configured to apply a respective hash function to a key value to produce a respective hash value such that a memory is configured to output a respective data value from each of the locations in the at least one memory identified by the received hash values. Hash values for locations in a memory are different from XML tags for a database. Further, hash values are distinguishable from a card catalog system in that a hash function is not performed on a particular book or subject in order to determine its location.

App. Br. 14; *see* Reply Br. 5.

> The Examiner disagrees and finds that:

> Erie is used for the abstract idea of generating an index and using that index to retrieve data. The hash values are used for the identification of a location and then outputting a value for the identified location. Doing so is not different from generating an index and using the index for the means of searching and retrieving data.

Ans. 4. We agree with Examiner.

Both *Erie's* claims and the pending claims recite the mathematical modification of values for use in locating stored information. It is not correct that only ideas that previously have been identified as abstract now may be found to be abstract. *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) ("[U]nder the *Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility."); *see Elec. Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) ("The focus of the asserted claims . . . is on collecting information, analyzing it, and displaying certain results of the collection and analysis. We need not define the outer limits of 'abstract idea,' or at this stage exclude the possibility that any particular inventive means are to be found somewhere in the claims, to conclude that these claims focus on an abstract idea—and hence require stage-two analysis under § 101.").

Finally, citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016), Appellants contend that:

> The court found that the claims of *Enfish* had a "plain focus . . . on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its

ordinary capacity." The court found the claims were "not directed to an abstract idea within the meaning of *Alice*. Rather, they are directed to a specific improvement to the way computers operate, embodied in the self-referential table."

App. Br. 16 (quoting *Enfish*, 822 F.3d at 1336); *see* Reply Br. 7–8. Further, Appellants contend that:

> Here, the claims are directed to "computing devices that implement lookup tables, and more particularly to systems and methods for implementing low latency lookup tables using hardware circuitry to compute hash functions that perform multiplication with sparse bit matrices." *See* Specification, ¶ [0001]. "The use of sparse bit matrices in the hash function sub-circuits *may allow* the lookup circuit to perform lookup operations with very low latency." *See* Specification, ¶ [0010]. Appellant[s] submit[] that lowering latency improves functionality of the computer by reducing the amount of processing time required to perform its functions.

Reply Br. 8 (emphasis added).

The Examiner finds that the pending claims are more focused on the mathematical computations than on any improvement in the functioning to a computer. Ans. 5. Initially, we note that the pending claims do not recite improvements to computer functionality generally or to look-up latency specifically. *See, e.g.*, App. Br. 35 (Claims App.). Further, the Specification discloses known methods that may reduce look-up latency and do not involve the recited mathematical operations (*see* Spec. ¶¶ 3 ("Such approaches *typically* assume fixed key sizes and a static/fixed set of tables with fixed-size entries, and they *typically* emphasize high lookup rates over low latency for individual lookups" (emphases added).), 4 ("While TCAMs offer low access latencies, their memory capacity is *generally* lower than the capacities offered by standard SRAMs of equal chip size" (emphasis added).)) and describes low latency that *may be achievable* by disclosed

embodiments, including those involving the recited mathematical operations (*see id.* ¶¶ 8, 10, 37, 38, 44, 49, 57, 62, 86, 98, 109, 119, 138, 143, 161). Thus, we are not persuaded that the pending claims, like those in *Enfish*, are clearly directed to improvements in computer technology, rather than to an abstract idea. *Cf. Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1363 (Fed. Cir. 2018) ("This language [of the Specification] clearly indicates that the claims are directed to an improvement in the functioning of computers, particularly those with small screens."). Thus, we determine that the Examiner links the identified abstract idea to abstract ideas previously identified by the courts and persuasively argues that the pending claims[7] are directed to

> Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations.

2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 52; *see* Final Act. 3; *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014) (holding that claims to a "process of organizing information through mathematical correlations" are directed to an abstract idea.).

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[7] Dependent claims 4, 22, and 27 recite performing the computations of the independent claims "in parallel" (Br. 31–32); claim 6 describes performing the computations of claim 1 using one or more "odd parity circuits" (*id.* at 32–33); and claims 14, 24, and 29 recite selecting the hash values with a selection sub-circuit (*id.* at 33). We are persuaded that these limitations either describe how the mathematical operations are performed or relate to the insignificant post-solution activity, described above. Ans. 9–10. Thus, these dependent claims also are directed to the identified abstract idea. *See Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1359 (Fed. Cir. 2018) (Moore, J., concurring) ("the 'inventive concept' cannot be the abstract idea itself").

2. *Step 2A – Prong Two*

Applying the second step of the *Alice/M*ayo analysis, the Examiner concludes, "[t]he claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because claims 1, 15, and 18 and their dependent claims merely describe retrieving a value from a memory location, which is a generic computer function." Final Act. 3. Further, the Specification explains that the recited circuits may include "a general-purpose [Field Programmable Gate Array (FPGA)]-based lookup table circuit (LUT)" (*see* Spec. ¶¶ 21, 99, Fig. 7) and that, generally, the embodiments recited in the pending claims may include generic hardware and/or software operating in ways it was designed to function (*see id.* ¶¶ 187–195). In particular, the Examiner finds

> [t]he circuits and sub-circuits do not amount to significantly more . . . than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea[.] The use of generic computer components (circuits) do not impose any meaningful limit on the computer implementation of the abstract idea.

Final Act. 5; *see* Spec. ¶¶ 188 (describing generic computer 1800 of Fig. 18), 189 (describing generic computer-readable storage media), 192 (describing known languages for encoding program instructions); *see also* Spec. ¶ 196 (describing the scope of the disclosure).

Neither the claims nor the Specification states that any of the described embodiments necessarily invokes particular hardware or software or, as discussed above, results in improvements in computer technology or functions. *See, e.g.*, Spec. ¶¶ 10, 196. Thus, the claims rely on hardware, including general purpose FPGAs, and known software languages and

techniques, and these do not provide meaningful limitations beyond generally linking the use of the identified abstract idea to a particular technological environment. *See* MPEP § 2106.05(h).

In view of Appellants' Specification, and consistent with the Examiner's determinations, we conclude the pending claims do not recite:

(i)   an improvement to the functioning of a computer;

(ii)   an improvement to another technology or technical field;

(iii)   an application of the abstract idea with, or by use of, a particular machine;

(iv)   a transformation or reduction of a particular article to a different state or thing; or

(v)   other meaningful limitations beyond generally linking the use of the abstract idea to a particular technological environment.

See MPEP §§ 2106.05(a)–(c), (e)–(h). Thus, we conclude that the pending claims do not integrate the judicial exception into a practical application.

3. Step 2B

Further, as noted above, applying second step of the *Alice/M*ayo analysis, the Examiner concludes, "[t]he claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because claims 1, 15, and 18 and their dependent claims merely describe retrieving a value from a memory location, which is a generic computer function." Final Act. 3; *see* Advisory Action (mailed Aug. 11, 2017) 2. In addition, the Examiner concludes that the pending claims recite "a look up table, hash function sub-circuitry, and at least one memory. The

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look up table, hash function sub-circuitry, and at least one memory are generic computer components." *E.g.*, Ans. 4.

Appellants contend that the limitations recited in the pending claims are not merely attempting to limit the mathematical algorithm to a particular technological environment, but, instead, the recitations of the pending claims are "more than the alleged 'use of generic computer components (circuits)' because the claimed subject matter is directed to new and novel hardware components that perform the tasks described in the present application." App. Br. 15. We do not find where the Specification asserts that any of the recited components is new or novel. On the contrary, the Specification makes clear that the components and techniques recited in the pending claims are well-understood, routine, and conventional. Spec. ¶¶ 21, 99, 115, 187–196; *see* Reply Br. 6–7 (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)).

Appellants further contend that, like *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016), "[t]he inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art. As is the case here, an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *See* Reply Br. 6. As noted above, however, the independent claims recite the combination of only a few generic components in known or generic ways. *See* Ans. 4. For example, the independent claims recite a circuit, method, or computer-readable media comprising some combination of a look up table or circuit, hash function sub-circuitry, and at least one memory. App. Br. 35–38 (Claims App.). The Examiner finds that the combinations of these components are conventional

and generic (Ans. 9), and Appellants do not show that the recited
combinations of these few components are in any way nonconventional or
non-generic (App. Br. 30–31). *See Alice*, 573 U.S. at 222 ("In holding that
the process was patent ineligible, we rejected the argument that
'implement[ing] a principle in some specific fashion' will 'automatically
fal[l] within the patentable subject matter of § 101'" (alterations in original)
(quoting *Flook*, 437 U.S. at 593).).

Finally, the Examiner's determination that, but for the rejections
under 35 U.S.C. § 101, the pending claims would be allowable, does not
alter our determination that the pending claims fail to recite significantly
more than the abstract idea. Final Act. 14. Even though the § 101 inquiry
and the § 102 and § 103 inquiries might sometimes overlap, a novel and
nonobvious claim directed to an abstract idea may, nonetheless, be patent-
ineligible. *See Mayo*, 566 U.S. at 89 (rejecting the suggestion that Sections
102, 103, and 112 might perform the appropriate screening function and
noting that in *Mayo* such an approach "would make the 'law of nature'
exception . . . a dead letter"). "[U]nder the *Mayo/Alice* framework, a claim
directed to a newly discovered law of nature (or natural phenomenon or
abstract idea) cannot rely on the novelty of that discovery for the inventive
concept necessary for patent eligibility." *Genetic Techs. Ltd. v. Merial
L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016); *see Diehr*, 450 U.S. at 188–
89.

On this record, we agree with the Examiner that the pending claims
are directed to an abstract idea and fail to recite "significantly more" than the
identified abstract idea. Therefore, we are not persuaded that the Examiner

erred in determining that the pending claims are patent ineligible, and we sustain those rejections.

CONCLUSIONS

(1) The Examiner did not err in rejecting claims 1–6, 14–18, and 21–29 under 35 U.S.C. § 101, as directed to patent-ineligible subject matter.

(2) Claims 1–6, 14–18, and 21–29 are not patentable.

DECISION

We affirm the Examiner's rejections of claims 1–6, 14–18, and 21–29.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED