

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: PORTNOVA, Marina  LOWENSTEIN SANDLER LLP One Lowenstein Drive Roseland, New Jersey 07068 USA		Date of mailing (day/month/year) <b>19 March 2020 (19.03.2020)</b>	
Applicant's or agent's file reference 34300L0011PCT		<b>FOR FURTHER ACTION</b> See paragraph 2 below	
International application No. <b>PCT/US2019/062845</b>	International filing date (day/month/year) <b>22 November 2019 (22.11.2019)</b>	Priority date(day/month/year) 30 November 2018 (30.11.2018)	
International Patent Classification (IPC) or both national classification and IPC <b>G06F 3/06(2006.01)i</b>			
Applicant <b>MICRON TECHNOLOGY, INC.</b>			

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.  
For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Date of completion of this opinion  19 March 2020 (19.03.2020)	Authorized officer  BYUN, Sung Cheal  Telephone No. +82-42-481-8262
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US2019/062845

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(b))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
    - on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/US2019/062845**

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	<u>1-25</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>1-25</u>	YES
	Claims	<u>NONE</u>	NO
Industrial applicability (IA)	Claims	<u>1-25</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 9747029 B2 (MICRON TECHNOLOGY, INC.) 29 August 2017

D2: US 2015-0169230 A1 (AVALANCHE TECHNOLOGY, INC.) 18 June 2015

D3: WO 2015-038741 A1 (NETAPP, INC.) 19 March 2015

D4: WO 2017-091641 A1 (NETAPP, INC.) 01 June 2017

D5: US 9880750 B1 (VEXATA, INC.) 30 January 2018

I. Novelty and Inventive Step (PCT Article 33(2) and 33(3))

1. Claims 1-13

The subject matter of claim 1 differs from these prior art documents in a system comprising a processing device, coupled to a plurality of memory components, the processing device to: identify generators used to generate a plurality of sequences of logical unit numbers (LUN) for a set of LUNs associated with the plurality of memory components; and perform a memory operation on the plurality of memory components using the plurality of sequences of LUNs, wherein each of cursors performs the memory operation on the set of LUNs in an order provided by the sequence of LUNs that is associated with each of the cursors. And it is not obvious to a person skilled in the art by the documents, taken alone or in combination.

Claims 2-13 are dependent on claim 1.

Therefore, claims 1-13 are novel and involve an inventive step.

2. Claims 14-17

Claim 14 relates to a method, and has technical features similar to those of claim 1. Accordingly, the same reasoning as in claim 1 applies to claim 14.

Continued on Supplemental Box

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of : Box No. V

Claims 15-17 are dependent on claim 14.

Therefore, claims 14-17 are novel and involve an inventive step.

3. Claims 18-21

Claim 18 relates to a non-transitory computer-readable medium, and has technical features similar to those of claim 1. Accordingly, the same reasoning as in claim 1 applies to claim 18.

Claims 19-21 are dependent on claim 18.

Therefore, claims 18-21 are novel and involve an inventive step.

4. Claims 22-25

The subject matter of claim 22 differs from these prior art documents in a system comprising processing device, coupled to a plurality of memory components, the processing device to perform a memory operation on a set of LUNs associated with the plurality of memory components using a plurality of sequences of LUNs, wherein performing the memory operation on the set of LUNs in an order provided by the plurality of sequences of LUNs reduces a probability of collision by cursors in the performance of the memory operation. And it is not obvious to a person skilled in the art by the documents, taken alone or in combination.

Claims 23-25 are dependent on claim 22.

Therefore, claims 22-25 are novel and involve an inventive step.

II. Industrial Applicability (PCT Article 33(4))

Claims 1-25 are industrially applicable.