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| APPLICATION NO.            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.      | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|--------------------------|------------------|
| 16/006,299                 | 06/12/2018  | G.R. MOHAN RAO       | GRTD60-34138             | 6732             |
| 25883                      | 7590        | 12/13/2019           | EXAMINER                 |                  |
| MUNCK WILSON MANDALA L.L.P |             |                      | REIDLINGER, RONALD LANCE |                  |
| P.O. Drawer 800889         |             |                      | ART UNIT                 |                  |
| DALLAS, TX 75380           |             |                      | PAPER NUMBER             |                  |
|                            |             |                      | 2824                     |                  |
|                            |             |                      | NOTIFICATION DATE        |                  |
|                            |             |                      | DELIVERY MODE            |                  |
|                            |             |                      | 12/13/2019               |                  |
|                            |             |                      | ELECTRONIC               |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

**Application No.**

16/006,299

**Applicant(s)**

RAO, G.R. MOHAN

**Examiner**

R LANCE REIDLINGER

**Art Unit**

2824

**AIA (FITF) Status**

No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 26 June 2019.  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**. 2b)  This action is non-final.
- 3)  An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims\***

- 5)  Claim(s) 1-21 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 6)  Claim(s) \_\_\_\_\_ is/are allowed.
- 7)  Claim(s) 1-21 is/are rejected.
- 8)  Claim(s) \_\_\_\_\_ is/are objected to.
- 9)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

- 10)  The specification is objected to by the Examiner.
- 11)  The drawing(s) filed on 12 June 2018 is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a)  All    b)  Some\*\*    c)  None of the:
- Certified copies of the priority documents have been received.
  - Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)  
Paper No(s)/Mail Date \_\_\_\_\_
- 3)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4)  Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-21 are pending.
2. Claims 1 and 19 are independent.

***Notice of Pre-AIA or AIA Status***

3. The present application is being examined under the pre-AIA first to invent provisions.

***Claim Rejections - 35 USC § 112(a)***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 2, 5, 6 and 15-18 and 20 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 2 and 20, there is no support for the memory elements being software.

Regarding claims 5 and 6, there is no support for the memory in the MLC nonvolatile memory nonvolatile memory elements being phase-change or magnetic random access memory.

Regarding claims 15-18, there is no support for the MLC being anything other than two bits.

***Claim Rejections - 35 USC § 112(b)***

6. The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 2, 15 and 19-21 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.**

Regarding claims 2 and 20, it is unclear what is meant by a memory element being a software module.

Regarding claim 15, it is unclear what is meant by a MLC having only one bit. An MLC must have at least two bits or it is an SLC.

Regarding claim 19, the following limitations establish conflicting antecedent basis,

“at least one controller to operate memory elements and associated memory space”

“at least one controller to maintain an address table in one or more of the memory elements”

It's unclear whether this is the same controller or a different one and to which each instance of the controller is referring.

Regarding claims 20 and 21, they are indefinite for depending on an indefinite claim.

***Claim Rejections - 35 USC § 103***

8. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory

basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

9. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claims 1-4 and 7-17 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Gorobets et al. (U.S. Patent Application Publication No. 2010/0172179, on record in parent application 13/455,267) in view of Goodson et al. ("Design Tradeoffs in a Flash Translation Layer," on record in parent application 13/455,267) and Oribe et al. (US 2009/0172267 A1).**

Regarding claim 1, Gorobets et al. teach,

A system for storing data (e.g. Fig. 20) comprising:

memory space containing volatile memory space (Fig. 15, 102 Cache (RAM), see e.g. ¶ [0135]

"volatile RAM are employed as cache as . . . in a controller cache 102") and nonvolatile memory space

(Fig. 15, MLC Memory, including Main Memory and Binary Cache), wherein the nonvolatile memory

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