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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

COLAN, GIOVANNA B

ART UNIT

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PAPER

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.

Office Action Summary	Application No. 11/637,726	Applicant(s) KUMAZAWA ET AL.	
	Examiner GIOVANNA COLAN	Art Unit 2162	

-- 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 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 19 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ 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

- 4) ☒ Claim(s) 1-18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ 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).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

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).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ 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) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is issued in response to the Amendment filed on 05/19/2009.
2. Claims 1 and 10 were amended. Claim 19 was canceled. Claims 20-21 were added.
3. This action is made Final.
4. Claims 1 –18, and 20-21 are pending in this application.
5. Applicant's arguments filed on 05/19/2009 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 – 18, and 20 – 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Duluk, JR et al. (Duluk hereinafter) (US 2004/0130552).

Regarding Claims 10, 20, 21, and 1, Duluk discloses a storage medium having a computer-executable program embedded thereon, the program including computer executable instructions for causing a computer with a memory and an external storage apparatus to execute an image processing, the program, when executed by the computer to perform the following steps:

connecting modules constituted by a plurality of image processing modules and a buffer module according to a pipe line aspect or a directed acyclic graph aspect such that the plurality of image processing modules acquire image data from a preceding module thereof, apply a predetermined image processing to the acquired image data, and output the processed image data or a result of the image processing to a following module thereof, and the buffer module is connected to at least one of the preceding stage or the following stage of the plurality of image processing modules allowing writing of the image data output from the preceding module in a buffer and reading of the image data stored in the buffer by the following module (see for example; Abstract, Fig. 15, "Framebuffer memory", and [0924], Duluk);

determining whether or not a capacity of a storage resource necessary to be allocated is equal to or less than a remaining amount of a securable memory when a module needs to be allocated with the storage resource ([0815], [1139], Duluk); and

when the capacity of the storage resource necessary for allocation is equal to or less than the remaining amount, securing the memory and allocating the secured memory as the storage resource to the module that needs to be allocated with the storage resource, or, when the capacity of the storage resource necessary for allocation is larger than the remaining amount, securing a storage region of an external storage apparatus so as to allocate the secured storage region of the external storage apparatus as the storage resource to the module that needs to be allocated with the storage resource, or securing the storage region of the external storage apparatus so as to write data written in a memory which has been already allocated to another module

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as the storage resource in the secured storage region of the external storage apparatus and allocate the storage region of the external storage apparatus in which data is written to the other module in place of the memory in which the data had been written and allocating the memory which had been allocated to the other module as the storage resource to the module that needs to be allocated with the storage resource ([0815], [1139], [0799], Duluk), wherein the securable memory has higher access speed than the external storage apparatus ([0817], "...a) one or more data processing units ("CPUs") 102; (b) memory 106a, 106b and 106c, such as fast primary memory 106a, cache memory 106b, and slower secondary memory 106c, for mass storage....,"and [1068], Duluk).

Regarding Claims 11, and 2, Duluk discloses a computer readable medium, wherein the allocating further comprises allocating a fixed allocation of the memory in advance as the storage resource necessary for each of the image processing modules, or securing in advance the memory for each of the image processing modules and allocating the memory as the storage resource when the image processing module requires the storage resource ([0815], [1139], [0799], Duluk).

Regarding Claims 12, and 3, Duluk discloses a computer readable medium, wherein the determining further comprises determining whether or not the capacity of the storage resource necessary for allocation is equal to or less than the remaining amount of the securable memory when respective buffer modules require allocation of

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the storage resource, and the allocating further comprises securing the memory and allocating the secured memory as the storage resource to the buffer module when the capacity of the storage resource necessary for allocation is equal to or less than the remaining amount, or securing the storage region of the external storage apparatus and allocating the storage region of the secured external storage apparatus as the storage resource to the buffer module when the capacity of the storage resource necessary to be allocated is larger than the remaining capacity ([0815], [1139], [0799], Duluk).

Regarding Claims 13, and 4, Duluk discloses a computer readable medium, wherein the modules are activated in parallel to each other (see for example; Abstract, Fig. 15, "Framebuffer memory", and [0924], Duluk).

Regarding Claims 14, and 5, Duluk discloses a computer readable medium, wherein the memory has a fixed amount and is allocated in advance to respective buffer modules, the determining further comprises determining whether or not the capacity of the storage resource necessary for allocation is equal to or less than the remaining amount of the memory allocated in advance to the buffer module that needs to be allocated with the storage resource when the buffer module needs to be allocated the storage resource, and the allocating further comprises allocating the memory allocated in advance as the storage resource to the buffer module when the capacity of the storage resource necessary to be allocated is equal to or less than the remaining amount, or securing the storage region of the external storage apparatus and allocating

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the secured storage region of the external storage apparatus as the storage resource to the buffer module when the capacity of the storage resource necessary to be allocated is larger than the remaining amount ([0815], [1139], [0799], Duluk).

Regarding Claims 15, and 6, Duluk discloses a computer readable medium, wherein the allocating further comprises monitoring release of the memory by a first buffer module which has been allocated with the memory as the storage resource and, when release of the memory is detected, writing the data written in the storage region of the external storage apparatus which has been already allocated to a second buffer module as the storage resource in the released memory, and allocating the memory in which the data is written in place of the storage region of the external storage apparatus in which the data had been written, to the second buffer module to which the storage region of the external storage apparatus had been already allocated as the storage resource ([0815], [1139], [0715], and [0799], Duluk).

Regarding Claims 16, and 7, Duluk discloses a computer readable medium, wherein when there are a plurality of second buffer modules to which the storage region of the external storage apparatus has been already allocated as the storage resource, the allocating further comprises selecting a second buffer module to which the memory is allocated in place of the storage region of the external storage apparatus, in earliest chronological order with respect a time when the second buffer modules are allocated

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with the storage region of the external storage apparatus as the storage resource ([0333], [0409], [0410], Duluk).

Regarding Claims 17, and 8, Duluk discloses a computer readable medium, wherein when there are a plurality of second buffer modules to which the storage region of the external storage apparatus has been already allocated as the storage resource, a priority is set to each of the buffer modules, and the allocating further comprises selecting a second buffer module which is allocated with the memory in place of the storage region of the external storage apparatus in a descending order of the priority ([1788], and [2375], Duluk).

Regarding Claims 18, and 9, Duluk discloses a computer readable medium, wherein the image processing section is actuated by programs corresponding to the respective modules, the programs being executed in parallel to each other by a program execution resource, and further comprising executing an initial setting of an execution priority of each of the programs corresponding to the respective image processing modules in correspondence to a position in the connection aspect of the pipe line aspect or the directed acyclic graph aspect of the image processing module, changing the execution priority of each of the programs corresponding to the respective image processing modules in correspondence to a progress degree of the image processing, and setting and changing the execution priority of each of the buffer modules in correspondence to the execution priority of the program corresponding to the image processing module directly coupled to each of the buffer modules ([1788], and [2375], Duluk).

Response to Arguments

8. Applicant argues that;” Duluk does not disclose the securing of a storage region of an external storage apparatus. Thus, in Duluk, under the same scenario, the entire processing of an image processing would fail. Accordingly, Duluk fails to disclose or suggest a storage resource management unit that secures a storage region of an external storage apparatus so as to allocate the secured storage region of the external storage apparatus as the storage resource to the module that needs to be allocated with the storage resource when the capacity of the storage resource necessary for allocation is larger than the remaining amount or secures the storage region of the external storage apparatus so as to write data written in a memory which has already been allocated to another module as the storage resource in the secured storage region of the external storage apparatus and allocate the storage region of the external storage apparatus in which the data is written to the other module in place of the memory in which the data had been written and allocates the memory which had been allocated to the other module as the storage resource to the module that needs to be allocated with the storage resource when the capacity of the storage resource necessary for allocation is larger than the remaining amount and the securable memory has a higher access speed than the external storage apparatus”.

Examiner respectfully disagrees. Duluk does disclose the claim limitation: when the capacity of the storage resource necessary for allocation is equal to or less than the remaining amount, securing the memory and allocating the secured memory as the storage resource to the module that needs to be allocated with the storage resource, or,

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when the capacity of the storage resource necessary for allocation is larger than the remaining amount, securing a storage region of an external storage apparatus so as to allocate the secured storage region of the external storage apparatus as the storage resource to the module that needs to be allocated with the storage resource, or securing the storage region of the external storage apparatus so as to write data written in a memory which has been already allocated to another module as the storage resource in the secured storage region of the external storage apparatus and allocate the storage region of the external storage apparatus in which data is written to the other module in place of the memory in which the data had been written and allocating the memory which had been allocated to the other module as the storage resource to the module that needs to be allocated with the storage resource ([0815], [1139], [0799], Duluk¹), wherein the securable memory has higher access speed than the external storage apparatus ([0817], "...a) one or more data processing units ("CPUs") 102; (b) memory 106a, 106b and 106c, such as fast primary memory 106a, cache memory 106b, and slower secondary memory 106c, for mass storage...", and [1068], Duluk).

¹ The Examiner submits that the limitations of claims 1, and 10 are recited in alternative form (for example: "or").

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GIOVANNA COLAN whose telephone number is (571)272-2752. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Giovanna Colan/
Examiner, Art Unit 2162
August 9, 2009

/Shahid Al Alam/
Primary Examiner, Art Unit 2162