

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PP688-PCT		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/BR2023/050181	International filing date (<i>day/month/year</i>) June 02, 2023	Priority date (<i>day/month/year</i>) June 03, 2022	
International Patent Classification (IPC) or national classification and IPC E04B 1/343(2006.01)i; H05K 5/00(2016.01)i; H05K 7/00(2016.01)i CPC: E04B 1/343; H05K 5/00; H05K 7/00			
Applicant MODULAR DATA CENTERS INDÚSTRIA COMÉRCIO E SERVIÇOS S.A.			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ a total of 47 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions).
☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2).
☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)).
 - b. ☐ a separate electronic file containing a sequence listing (*sent to the International Bureau only*).
4. This report contains indications relating to the following items: _____

☒ Box No. I Basis of the report
☐ 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 Article 35(2) 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

Date of submission of the demand April 03, 2024	Date of completion of this report August 30, 2024
Name and mailing address of the IPEA/ Instituto Nacional da Propriedade Industrial (Brasil) Rua Mayrink Veiga, 9, 6º andar CEP 20090-910 Rio de Janeiro – RJ Brasil Telephone No. (55 21) 3037-3742, 3037-3984	Authorized officer Alexandre Luís Cardoso Bissoli Telephone No. +55 21 3037 4528 - 3037-3319

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/BR2023/050181

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

- ☒ 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)).
- ☐ publication of the international application (Rule 12.4(a)).
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)).

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ the international application as originally filed/furnished, or
- ☒ the description: pages _____ as originally filed/furnished.
pages* _____ received by this Authority on _____
pages* **1 to 20** received by this Authority on **April 03, 2024**
- ☒ the claims: Nos. _____ as originally filed/furnished.
Nos.* _____ as amended (together with any statement) under Article 19
Nos.* **1 to 12** received by this Authority on **July 29, 2024**
- ☒ the drawings: pages **1-13** _____ as originally filed/furnished.
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____

5. ☐ This report has been established:

- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
- ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

6. With regard to top-up searches (Rules 66.1ter and 70.2(f)):

- ☒ A top-up search was carried out by this Authority on **August 29, 2024**
- ☐ Additional relevant documents have been discovered during the top-up search.
- ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.

7. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Claims	<u>1-12</u>	YES
	Claims		NO
Inventive step	Claims		YES
	Claims	<u>1-12</u>	NO
Industrial applicability	Claims	<u>1-12</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

This patent application for invention relates to a data processing center module consisting of prefabricated and transportable segments, the module being formed by the union of two symmetrical halves, each half being further formed by the union of one or more of their respective prefabricated and transportable segments. The patent application also relates to a method of constructing said module, where the segments are manufactured separately and transported individually as a standard load to the assembly site of the data processing center. The end of one segment is joined to the other end of the adjacent segment, forming the first half; the same process occurs for the union of the segments of the second half. After the halves are formed, they are joined to form the module. The data processing center is formed by the side-by-side arrangement of the modules. The patent application also relates to a method of constructing the data processing center that occurs by means of the assembly of an envelope, by inserting the segments into said envelope and by the side-by-side arrangement of said modules.

Document US2020146171A1 (D1) has been included in the International Search Report.

The Applicant's arguments are listed below:

- 1) There is no claim in D1 that parts 602 and 604 are symmetrical.
- 2) It is not possible to infer that element 104 of D1 would be a segregated energy room dedicated to housing an energy system, such as the energy room (14), which is segregated from the rack area (12) and the refrigeration room (15), in the patent application in question.
- 3) In the present application, the module (100) is constituted by the union of the first half (1001) with the second half (1002) providing a common and unique space for the rack area (12), similar to a center of conventional data processing. This arrangement allows the use of a hot (121) and cold (122) containment corridor.
- 4) The concrete side walls can be removed to add new modules, without measuring the presence of hot or cold aisles, and without limiting the assembly to just two parts. 5) The present patent application proposes an electrical room that is actually separate from the data room (racks).
- 6) In addition to not having the aggregation corridor that isolates the rack room from the power room, it also does not have a fire suppression system.
- 7) This application has the advantage of allowing maintenance of the electrical room equipment, without the need to access the rack area compared to current conventional and modular data processing center offerings.
- 8) Still in relation to the construction model made up of two mirrored halves, it is important to highlight that each of the halves is autonomous.

Regarding the Applicant's arguments, the following considerations apply:

- 1) Independent claim 1 cites a module constituted by the union of two symmetrical halves in relation to a longitudinal plane perpendicular to a floor. Although in D1 the modules are equal, this characteristic follows in an evident or obvious manner, for a person skilled in the art, from D1 (Figure 6, elements 602 and 604).
- 2) D1 discloses a dedicated and segregated room in a parallelepiped shape to house a power supply system (Figure 1, element 104) and at its opposite end a dedicated and segregated room in a parallelepiped shape to house a refrigeration system (Figure 1, element 118).

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

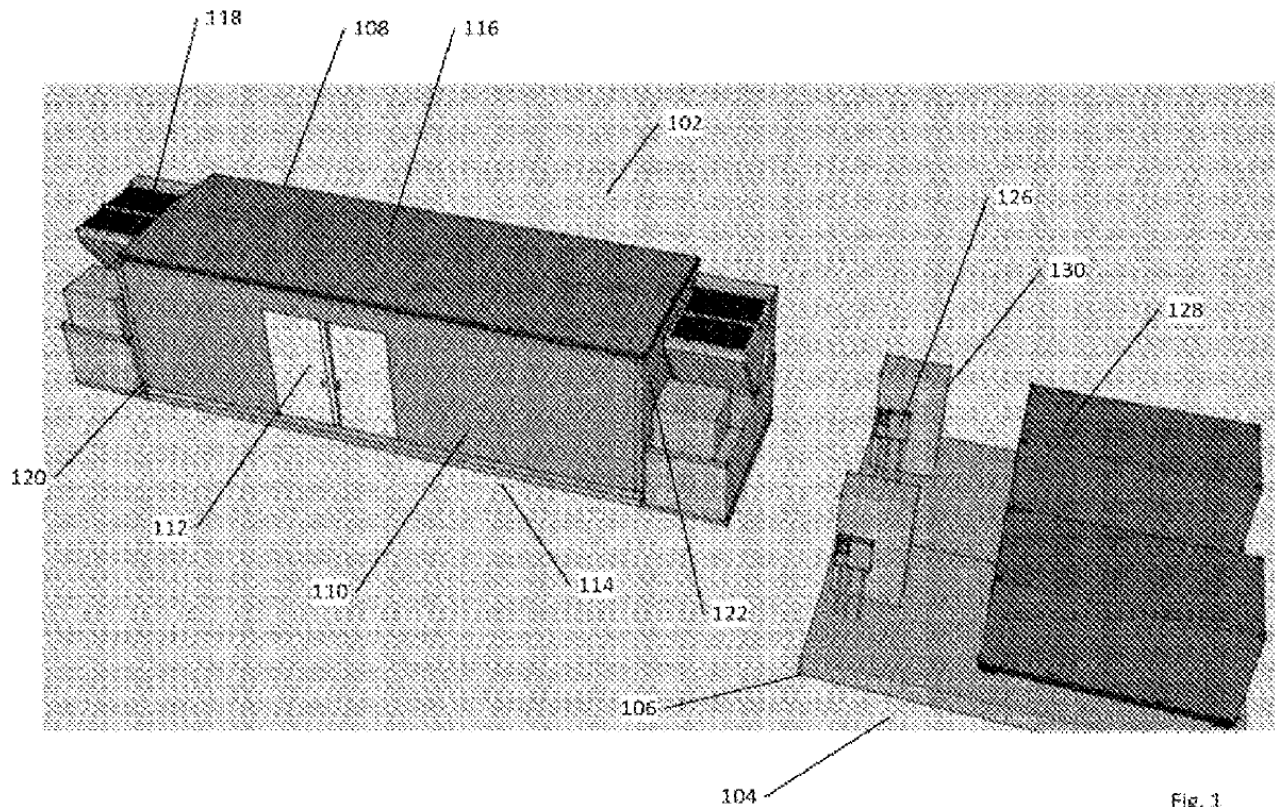


Fig. 1

- 3) Independent claim 1 does not mention a hot and cold corridor.
- 4) Independent claim 1 does not mention a hot and cold corridor.
- 5) See D1 (Figure 1, element 104).
- 6) Independent claim 1 does not mention a fire suppression system.
- 7) See D1 (Figure 1, element 104).
- 8) D1 (Descriptive Report, paragraph [0005]) states that a data center can be constructed to allow a modular data center to act alone as a data center or to be physically combined with other modular data centers for a number of adjacent, joined modular data centers determined by the customer's use cases.

Novelty

The invention defined in claims 1 to 12 is considered new and is in accordance with Article 33(2) of the PCT.

Inventive Step

Document D1 (Summary) discloses:

a data processing center module (Descriptive Report, paragraph [0042]; Figure 1, element 102) consisting of prefabricated and transportable segments (Descriptive Report, paragraph [0052]; Figure 6, elements 602 and 604), the module being parallelepipedal in shape and equipped at one of its ends with a dedicated and segregated parallelepipedal room to house a power supply system (Descriptive Report, paragraph [0043]; Figure 1, element 104) and at its opposite end a dedicated and segregated parallelepipedal room to house a refrigeration system (Descriptive Report, paragraph [0043]; Figure 1, element 118) comprising

a module consisting of the union of two halves in relation to a longitudinal plane perpendicular to a floor (Descriptive Report, paragraph [0052]; Figure 6, elements 602 and 604), with each half also being formed by the union of one or more of its respective prefabricated and transportable segments (Descriptive Report, paragraph [0052]; Figure 6).

D1 does not mention that the modules are symmetrical. However, such a characteristic follows in an evident or obvious manner to a person skilled in the art, from D1 (Figure 6, elements 602 and 604).

D1 does not disclose a metal structure. However, such a characteristic follows in an evident or obvious manner to a person skilled in the art. See, for example, D2 (Descriptive Report, paragraph [0072]).

As set out above, independent claims 1, 8, 9 and 12 do not have an inventive step and are not in accordance with Article 33(3) of the PCT.

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

Dependent claims 2 to 7, 10 and 11 define additional details and/or features of the invention, which also do not involve an inventive step and are not in accordance with Article 33(3) of the PCT.

Industrial Applicability

The matter claimed in claims 1 to 12 is considered to be susceptible to industrial application and, therefore, it is in accordance with Article 33(4) of the PCT.