CLAIMS

What is claimed is:

1. A database management device, comprising the following:

a rack;

a switch, installed in the rack;

at least one database node, installed in the rack, wherein each database node is pre-installed with database software that the database node is responsible for running, and each database node comprises a first network port, and the first network port is connected to the switch through a network; and

a management and control node, installed in the rack, wherein the management and control node is pre-installed with database management and control software that the management and control node is responsible for running; the management and control node comprises a second network port, and the second network port is connected to the switch through a network, so that the management and control node is in communication connection with the at least one database node to manage and control the at least one database node, wherein the at least one database node comprises a plurality of database nodes, the plurality of database nodes form a distributed relational database, each database node executes its own transaction, and the plurality of database nodes comprise at least one master replica node for executing a transaction and one or more slave replica nodes for synchronizing and storing data of the master replica node.

2. The database management device according to claim 1, wherein each database node comprises a first central processing unit for database operation and calculation, a first memory connected to the first central processing unit, and a database storage for data storage; and the management and control node comprises a second central processing unit, a second memory connected to the second central processing unit, and a second storage used for data storage.

3. The database management device according to claim 2, wherein the first central processing unit is connected to the first network port through a PCIE bus, and the second central processing unit is connected to the second network port through the PCIE bus.

4. The database management device according to claim 2, wherein the first central processing unit is connected to the database storage through a PCIE bus, an SATA bus,

or an SAS bus, and the second central processing unit is connected to the second storage through the PCIE bus, the SATA bus, or the SAS bus.

5. The database management device according to claim 1, wherein the first network port and the second network port comprise at least one of an electrical port, an optical port, and a wireless network port.

6. The database management device according to claim 1, wherein the switch comprises an in-band switch, the first network port is connected to the in-band switch through a network, and the second network port is connected to the in-band switch through a network.

7. The database management device according to claim 6, wherein the switch further comprises an out-of-band switch, each database node further comprises a first out-of-band manager, the first out-of-band manager is in communication connection with the out-of-band switch, the management and control node further comprises a second out-of-band manager, and the second out-of-band manager is in communication connection with the out-of-band switch.

8. The database management device according to claim 1, wherein architectures of the management and control node and the at least one database node are homogeneous or heterogeneous.

9. The database management device according to claim 1, wherein the at least one database node comprises a plurality of database nodes, and architectures of the plurality of database nodes are mutually homogeneous.

10. The database management device according to claim 1, wherein the rack is made of metal and/or acrylic material.

11. The database management device according to claim 1, wherein the database management device is uniformly powered by an external power supply.

12. The database management device according to claim 1, further comprising the following:

a plurality of power modules, connected to an external power supply, wherein the switch and each of the at least one database node and the management and control node comprises one power module, and the plurality of power modules independently supply power to the switch and each node respectively.

13. The database management device according to claim 1, wherein the management and control node comprises a plurality of management and control nodes, each management and control node is in communication connection with the at least one database node, and the plurality of management and control nodes comprise a master management and control node and a slave management and control node for backing up the master management and control node.