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(54) **LIQUID BASED COOLING SYSTEMS AND METHODS FOR SERVER RACKS IN DATA CENTERS**

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(57) **ABSTRACT**

Embodiments disclosed include systems and methods for cooling heat generating electronic components of servers, and more particularly data-centers. Embodiments disclosed comprise vertically stacked immersive pods each comprising a plurality of motherboards, in a container rack/cabinet or alternatively a plurality of mother boards in a fully sealed container rack/cabinet, a vented front door, coolant distribution means from a coolant distribution unit (CDU) and a rear door heat exchange (RDHX) all operatively coupled to each other. Preferred embodiments include an additional heat exchanger comprising the coolant distribution unit in a closed loop configuration and operational coupled to another coolant distribution unit in an open loop configuration. Embodiments disclosed include a container rack/cabinet comprising a vented front door and vertically stacked immersion tanks/pods enabled by a hydraulic rail system. In preferred embodiments, fluid inlet valve and fluid outlet valve are operatively connected to the coolant distribution unit (CDU) comprised in the heat exchanger.

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