

What is claimed is:

1. An enclosure for providing liquid film cooling to a plurality of heat generating components, the enclosure comprising:

- a chassis;

- a plurality of cassettes that are vertically positioned and spaced apart from each other in the chassis, wherein each cassette of the plurality of cassettes is slidable in and out of the chassis, and wherein a first cassette of the plurality of cassettes includes one or more heat generating components of the plurality of heat generating components;

- a sump formed below a bottom surface of the chassis for storing a liquid to be supplied to the plurality of heat generating components;

- a first pump placed below the chassis for drawing the liquid from the sump;

- a plumbing system to receive the liquid from the sump by way of the first pump;

- a plurality of tube plates fluidly connected to the plumbing system to receive the liquid, wherein a first tube plate of the plurality of tube plates is vertically positioned between the first cassette and a second cassette of the plurality of cassettes, and wherein the first tube plate of the plurality of tube plates directly sprays the liquid onto the one or more heat generating components by way of nozzles embedded thereon, and wherein a portion of the liquid that is sprayed onto the one or more heat generating components is collected in the sump due to vertical orientation of the first cassette and remaining portion of the liquid is evaporated into vapors upon contact with the one or more heat generating components; and

- a heat exchanger, placed below the chassis and fluidly connected to the first pump, for transferring heat from the liquid that is collected from the sump and condensing the vapors into condensed liquid upon contact with the heat exchanger, wherein the condensed liquid is collected in the sump, and wherein the enclosure is hermetically sealed to prevent the vapors of the liquid from escaping the enclosure.

2. The enclosure of claim 1, wherein the chassis houses a power supply unit to supply power to the one or more heat generating components and a network switch to provide network connectivity externally to at least a local area network or an Internet.

3. The enclosure of claim 2, further comprising a backplane housed at a back end of the chassis to allow the plurality of heat generating components to share power and data bus with the power supply unit and the network switch.

4. Cancelled

5. The enclosure of claim 1, wherein the plumbing system is equipped with back flow check valves to prevent the liquid from circulating back to the first pump.

6. The enclosure of claim 1, further comprising bypass valves that are positioned between the plumbing system and the plurality of tube plates to control a flow of the liquid in the plurality of tube plates.

7. The enclosure of claim 1, wherein the plurality of tube plates condenses the vapors that come in contact therewith into the condensed liquid which is collected in the sump.

8. Cancelled

9. The enclosure of claim 1, further comprising a plurality of sensors to monitor health and operating parameters of the enclosure, wherein the plurality of sensors includes at least one of a temperature sensor, a flow sensor, a pump sensor, a humidity sensor, a fouling sensor, a voltage sensor, an accelerometer, a door sensor, a backplane sensor, a pressure sensor, or a humidity and vapor saturation sensor.

10. The enclosure of claim 9, further comprising a management control system to monitor and manage the enclosure based on outputs received from the plurality of sensors.