CLAIMS

1. A device, comprising:

a plurality of electronic components;

an electromagnetic interference (EMI) shield disposed on the plurality of electronic components;

an evaporative cooler device embedded within the EMI shield and configured to transfer heat away from at least a portion of the plurality of electronic components, wherein the evaporative cooler device comprises a vapor chamber surrounded by a wicker structure, the vapor chamber comprising a working fluid; and

a plurality of EMI gaskets disposed between the plurality of electronic components, each of the plurality of EMI gaskets surrounding a respective one of the plurality of electronic components.

2. The device of claim 1, wherein the plurality of EMI gaskets comprise an electrically conductive rubber material.

3. The device of claim 1, further comprising:

a printed circuit board having the plurality of electronic components mounted thereon, wherein the printed circuit board, the EMI shield, and the plurality of EMI gaskets form respective seals around each of the plurality of electronic components.

4. The device of claim 3, wherein EMI shield comprises metallic material or a polymer-based material surrounding the evaporative cooler device.

5. The device of claim 4, wherein the EMI shield further comprises a metallic coating on the polymer-based material.

6. The device of claim 1, wherein the EMI shield comprises a frame disposed on the plurality of electronic components, wherein the frame is configured to provide internal mechanical and structural support for the device.

7. The device of claim 1, wherein:

the EMI shield comprises a housing, wherein the housing comprises a top segment disposed on the plurality of electronic components and at least two external side segments disposed on respective sides of the housing; and

the evaporative cooler device is embedded within the top segment and the at least two external side segments of the housing.

8. The device of claim 7, wherein the EMI shield comprises a metallic material.

9. The device of claim 1, wherein a thickness of the wicker structure is between 50 and 100 micrometers and a thickness of the vapor chamber is between 75 and 125 micrometers.

10. The device of claim 1, wherein the EMI shield comprises a thickness of at least 200 micrometers.

11. The device of claim 1, wherein each of the plurality of electronic components comprises a system-on-a-chip, power management integrated circuit, power amplifier, or a memory chip.

12. A method for fabricating a device, comprising:

mounting a plurality of electronic components on a printed circuit board;

inserting electromagnetic interference (EMI) gaskets, each of the EMI gaskets surrounding one of the plurality of electronic components;

attaching the EMI gaskets to the printed circuit board;

providing an EMI shield disposed on the plurality of electronic components and the EMI gaskets, the EMI shield comprising an evaporative cooler device embedded therein, wherein the evaporative cooler device comprises a vapor chamber surrounded by a wicker structure, the vapor chamber comprising a working fluid; and

attaching the EMI gaskets to the EMI shield to form a respective seal around each of the plurality of electronic components.

13. The method of claim 12, wherein the EMI gaskets comprise an electrically conductive rubber material.

14. The method of claim 12, wherein the EMI shield comprises metallic material or a polymer-based material surrounding the evaporative cooler device.

15. The method of claim 14, wherein the EMI shield further comprises a metallic coating on the polymer-based material.

16. The method of claim 12, wherein the EMI shield comprises a frame disposed on the printed circuit board, and further comprising:

providing internal mechanical and structural support for the device using the frame.

17. The method of claim 12, wherein:

the EMI shield comprises a housing covering at least a portion of the printed circuit board, wherein the housing comprises a top segment disposed on the plurality of electronic components and at least two external side segments disposed on respective sides of the printed circuit board; and

the evaporative cooler device is embedded within the top segment and the at least two external side segments of the housing.

18. A method for thermal management in a device, comprising:

preventing first electromagnetic interference (EMI) between a plurality of electronic components of the device and at least one external noise source external to the device during operation of the plurality of electronic components using an EMI shield disposed on the plurality of electronic components;

preventing second EMI between the plurality of electronic components during operation thereof using a plurality of EMI gaskets disposed between the plurality of electronic components, each of the plurality of EMI gaskets surrounding a respective one of the plurality of electronic components; and

transferring heat away from at least a portion of the plurality of electronic components during operation thereof utilizing an evaporative cooler device embedded within the EMI shield, wherein the evaporative cooler device comprises a vapor chamber surrounded by a wicker structure, the vapor chamber comprising a working fluid.

19. The method of claim 18, wherein the plurality of EMI gaskets comprise an electrically conductive rubber material.

20. The method of claim 18, wherein the EMI shield comprises metallic material or a polymer-based material surrounding the evaporative cooler device.

21. The method of claim 18, wherein the EMI shield further comprises a metallic coating on the polymer-based material.

22. The method of claim 18, wherein the EMI shield comprises a frame of the device, and further comprising:

providing internal mechanical and structural support for the device during operation thereof using the frame.

23. The method of claim 18, wherein:

the EMI shield comprises a housing, wherein the housing comprises a top segment disposed on the plurality of electronic components and at least two external side segments disposed on respective sides of the housing; and

the evaporative cooler device is embedded within the top segment and the at least two external side segments of the housing.

24. A device, comprising:

means for preventing first electromagnetic interference (EMI) between a plurality of electronic components of the device and at least one external noise source external to the device during operation of the plurality of electronic components, wherein the means for preventing the first EMI is disposed on the plurality of electronic components;

means for preventing second EMI between the plurality of electronic components during operation thereof, wherein the means for preventing the second EMI is disposed between the plurality of electronic components and is configured to form respective seals around each of the plurality of electronic components; and

means for transferring heat away from at least a portion of the plurality of electronic components during operation thereof, wherein the means for transferring heat is embedded in the means for preventing the first EMI, wherein the evaporative cooler

device comprises a vapor chamber surrounded by a wicker structure, the vapor chamber comprising a working fluid.

25. The device of claim 24, wherein the means for preventing the second EMI comprises an electrically conductive rubber material.

26. The device of claim 24, wherein the means for preventing the first EMI comprises metallic material or a polymer-based material surrounding the means for transferring heat.

27. The device of claim 26, wherein the means for preventing the first EMI further comprises a metallic coating on the polymer-based material.

28. The device of claim 24, further comprising:

means for providing internal mechanical and structural support for the device using the means for preventing the first EMI.