A water-cooling heat dissipation system for dissipating a heat-generating device includes a water pump, a water-cooling apparatus, and a cooling apparatus. The water pump is configured for transferring coolant via a first pipe. The water-cooling apparatus is capable of mounted on the heat-generating device and receiving the coolant from the water pump via the first pipe to cool the heat-generating device, and then outputting heat absorbed coolant heated the heat from the heat-generating device. The cooling apparatus is configured for receiving the heat absorbed coolant from the water-cooling apparatus via a second pipe, and removing heat from the heat absorbed coolant, and then transferring the coolant to the water pump via a third pipe.
WATER-COOLING HEAT DISSIPATION SYSTEM

BACKGROUND

[0001] 1. Technical Field

[0002] The present disclosure relates to dissipation systems and, particularly, to a water-cooling heat dissipation system.

[0003] 2. Description of Related Art

[0004] In electronic devices, and particularly, computers, heat-generating components, such as CPUs, usually generate heat in operation. Generally, a heat sink is mounted on a heat-generating component to dissipate heat generated therefrom. However, very often, a heat sink for such a heat-generating component cannot satisfy the need for dissipating heat when the heat-generating component works in a highly loaded process or a high frequency mode.

[0005] What is needed is to provide a water-cooling heat dissipation system to overcome the above-described shortcomings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a schematic view of an embodiment of a water-cooling heat dissipation system, the water-cooling heat dissipation system including a water-cooling apparatus.

[0007] FIG. 2 is a cross-sectional view of the water-cooling apparatus of FIG. 1, together with a heat-generating device.

DETAILED DESCRIPTION

[0008] Referring to FIGS. 1 and 2, an exemplary embodiment of a water-cooling heat dissipation system includes a water-cooling apparatus 10, a water pump 20, a cooling apparatus 30, and a plurality of pipes 40.

[0009] The water-cooling apparatus 10 is configured to be mounted on a heat-generating device, such as a central processing unit (CPU) 50. In the instant embodiment, the cooling apparatus 30 is a fan. The pipes 40 connect and communicate with the cooling apparatus 10, the cooling apparatus 30, and the water pump 20. Coolant flows through a pipe 40 from the water pump 20 into the water-cooling apparatus 10 to absorb/remove heat from the CPU 50, and then heat absorbed coolant is transferred out of the water-cooling apparatus 10 into the cooling apparatus 30. The cooling apparatus 30 is configured to remove heat from the heat-absorbed coolant, and then the coolant is transferred into the water-cooling apparatus 10 via the water pump 20. Therefore, heat from the CPU 50 can be removed by the coolant continuously by the water-cooling heat dissipation system.

[0010] The water-cooling apparatus 10 includes a heat sink 110, a fan blade 120, a rotating shaft 130, a sealed cover 140, and a magnetic cover 150.

[0011] The heat sink 110 is configured to be attached on the CPU 50 to conduct heat from the CPU 50. The sealed cover 140 is covered on the heat sink 110 to form an sealed water proof space 60 surrounded by the sealed cover 140 and the heat sink 110. Two through holes 142 are defined in two opposite sides of the sealed cover 140, for communicating the water proof space 60 with the corresponding pipes 40.

[0012] The rotating shaft 130 is vertically mounted to a middle of the heat sink 110, and the fan blade 120 is positioned above the heat sink 110. Two permanent magnets 122 are mounted to opposite ends of the fan blade 120, respectively. The magnetic cover 150 is covered on the sealed cover 140. Two electromagnets 152 are installed in two opposite sides of the magnetic cover 150, corresponding to the two permanent magnets 122. The two electromagnets 152 are connected to an external power supply 160, such as a motherboard external power, via wires 154. The fan blade 120 is rotatably mounted on the rotating shaft 130, and the fan blade 120 is rotatable on the rotating shaft 130, which can accelerate water to flow in the water proof space 60.

[0013] In use, the electromagnets 152 is powered by the power supply 160 through the wires 154 to drive the fan blade 120 together with the corresponding permanent magnets 122 to rotate around the rotating shaft 130. Therefore, the water in the water proof space 60 can be propelled to flow and dissipate the heat from the CPU 50 quickly.

[0014] It is to be understood, however, that even though numerous characteristics and advantages of the present disclosure have been set forth in the foregoing description, together with details of the structure and function of the disclosure, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the disclosure to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A water-cooling heat dissipation system for cooling a heat-generating device, comprising:
   a water pump configured for transferring coolant via a first pipe;
   a water-cooling apparatus capable of being mounted on the heat-generating device and receiving the coolant from the water pump via the first pipe to cool the heat-generating device, and then outputting heat absorbed coolant;
   and
   a cooling apparatus configured for receiving the heat absorbed coolant from the water-cooling apparatus via a second pipe, and removing heat from the heat absorbed coolant, and then transferring the coolant to the water pump via a third pipe.

2. The water-cooling heat dissipation system of claim 1, wherein the water-cooling apparatus comprises a heat sink and a sealed cover, the heat sink is configured to be attached on the heat-generating device to conduct heat from the heat-generating device, the sealed cover is covered on the heat sink to bound an water proof space together with the heat sink, two through holes are defined in two opposite sides of the sealed cover for communicating with the first and second pipes, respectively.

3. The water-cooling heat dissipation system of claim 2, wherein the water-cooling apparatus further comprises a rotating shaft mounted to the heat sink, a fan blade rotatably mounted to the rotating shaft, and a magnetic cover covered on the sealed cover, two permanent magnets are mounted to opposite ends of the fan blade respectively, two electromagnets are installed in opposite sides of the magnetic cover corresponding to the two permanent magnets, two electromagnets are connected to an external power supply via wires, the fan blade is capable of being rotated around the rotating shaft via the two permanent magnets being driven by the two electromagnets when the electromagnets is powered.

4. The water-cooling heat dissipation system of claim 3, wherein the rotating shaft is mounted to a middle of the heat sink, the fan blade is positioned above the heat sink in the water proof space.

5. The water-cooling heat dissipation system of claim 1, wherein the cooling apparatus is a fan.
6. A water-cooling apparatus for a heat-generating device, comprising:
   a heat sink configured to be attached on the heat-generating device to conduct heat from the heat-generating device;
a sealed cover covered on the heat sink to bound an water proof space together with the heat sink, wherein two through holes are defined in two opposite sides of the sealed cover for communicating with a first pipe allowing coolant to flow into the water proof space and a second pipe allowing heat absorbed coolant heated by the heat-generating device to flow out of the water proof space;
a rotating shaft mounted to the heat sink and received in the water proof space;
a fan blade rotatably mounted to the rotating shaft, wherein two permanent magnets are mounted to two opposite ends of the fan blade; and
a magnetic cover covered on the sealed cover, wherein two electromagnets are installed in two opposite sides of the magnetic cover corresponding to the two permanent magnets, the fan blade is capable of being rotated around the rotating shaft via the two permanent magnets being driven by the two electromagnets when the electromagnets is powered.
7. The water-cooling apparatus of claim 6, wherein the rotating shaft is mounted to a middle of the heat sink, the fan blade is positioned above the heat sink.