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Hardcore Computers unveils the first desktop PC with submerged components
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[Hardcore Computer Unveils Submersion-Cooled Desktop PC](#)

The company came up with a system that has all components submerged into liquid

Hardcore Computer unveiled a rather astonishing desktop PC system. While we already know that manufacturers work on developing liquid cooling for PC components, Hardcore Computer pushed it to the extreme with its Hardcore Reactor, which features all the components submerged into liquid. This is not a joke, people, they have really done it. The company debuted the system on Monday, with a new, first-of-its-kind submersion technology, which is said to allow the "most reliable and most sustainable component over-clocking".

The Rochester, Minn.-based Hardcore Computer has patents for submersion-cooled electronics, and one of them is for a circuit board designed to operate in the depths of "a mineral oil-like substance," as described by a company official. Moreover, the startup also says that the oil is potable, so, if you ever get one of these, perhaps you may consider testing this theory as well. The performance of the system will be more interesting though.

According to specifications, the "dielectric cooling liquid" that has been tested is an engineered fluid of the 3M Novec sort, yet the patent says other liquids can be used as well, including mineral, silicone, or even soybean oil. The liquid on the Hardcore Reactor liquid-submersion-cooled desktop PC fills a self-contained interior space in which the heat-generating electronics are placed as well, along with a pump. Outside the interior space, a heat exchanger receives the hot liquid from the pump and moves it along a cooling path. In the end, the liquid reenters the enclosure. A whole circuit takes about 30 seconds. The company says the oil disperses at an order of magnitude more heat than air does.

There are submersion designs dated before the founding of Hardcore in 2006, like those in deep-water submersibles, but they come with few major problems including cost, upgradability and access. The startup designed its system to ameliorate these issues. It uses pass-through connector between the motherboard placed inside the enclosure and the rest of the machine outside, which allows for hot-swapping of SATA hard drives. Even so, a great deal of the unit appears to be proprietary, and the company will probably present upgrade and even repair options in the near future.

As you have probably already figured it out by now, the Hardcore Reactor isn't a cheap piece of equipment. On the company's site, a stock system is priced at \$5,560. Also, users are allowed to make their own configurations. A fully loaded system, with a Intel Core 2 Extreme CPU, 8GB DDR3, 3 NVIDIA GeForce GTX 280s in SLI, 2x1TB drives in RAID 1, Blu-ray burner and a 802.11a/b/g/n wireless adapter can get you over \$8,000 in no time. That if you leave aside internal SSDs, monitor, keyboard, mouse and speakers. With these, you'll get a \$12,000 system. Take a look at all the options offered [here](#).