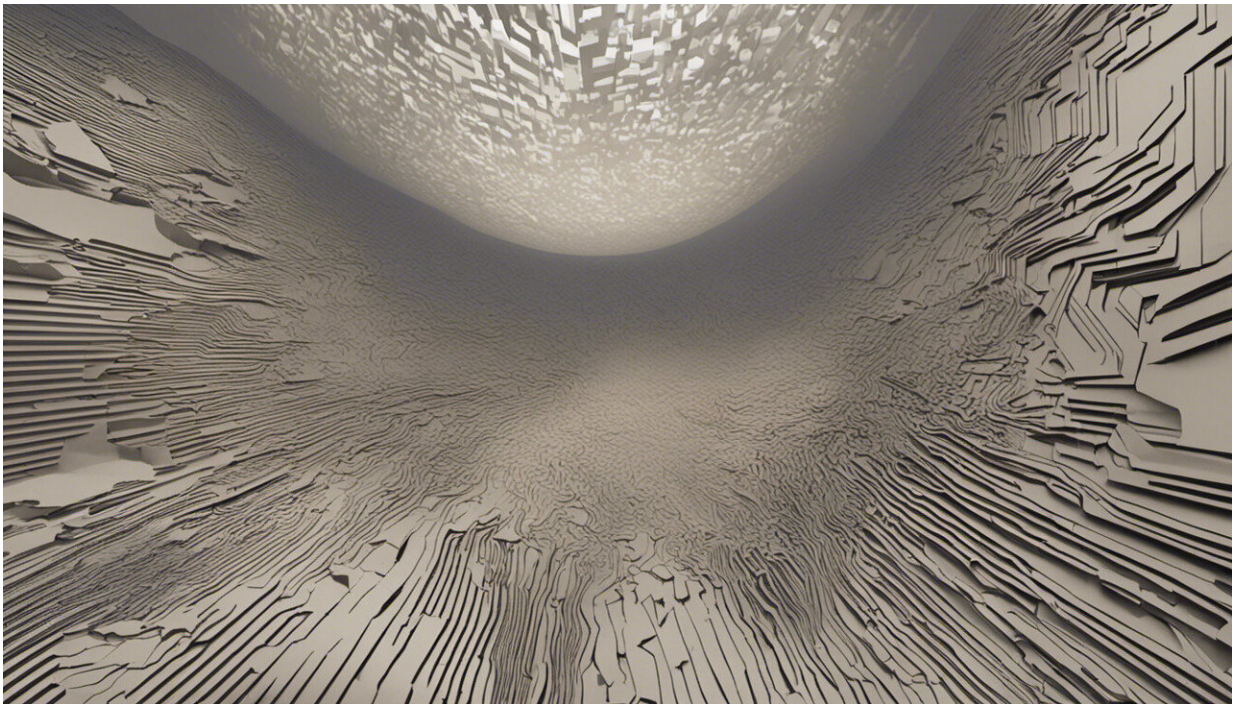


Huge potential of high performance computing showcased at HIPEAC conference

February 19 2014



Credit: AI-generated image ([disclaimer](#))

From revolutionising medical procedures to designing efficient wind and wave turbines, high performance computing could play an important role in addressing the array of societal challenges currently facing Europe. It is already being used, for example, in France to choose the safest and most effective configurations for nuclear refuelling and in Scotland to

simulate the effects of wind and waves on offshore electricity generation turbines.

It's also good news for the economy - [high performance computing](#) could allow European businesses of all sizes to work more efficiently by speeding up time-consuming business processes. For example, a faster evaluation of the product design could reduce time to market, while a more detailed analysis could lead to a better designed product.

HIPEAC, an EU-funded project aiming to foster research and innovation in high performance computing, recently demonstrated how new and exciting solutions constantly emerge in the field, on the occasion of its annual conference. Silicon photonics for instance is currently drawing attention as a technology which may be used in the future to build advanced [computing systems](#). Silicon photonics integrates a photonic layer with electronic circuits and holds the promise of low-latency and low energy cost for on-chip communications, higher bandwidth, and low manufacturing costs. The high quality and high yield of silicon makes this technology particularly attractive to researchers and industry.

Silicon photonics' increasing importance was confirmed at the recent conference, which gathered scientists, academics, and industry leaders from the European computing systems community. The new trend for using [silicon photonics](#) to speed up interconnects was also discussed in a specific workshop. 'The main advantages of silicon photonics for computing systems are the use of standard tools and foundry - which means wafer scale co-integration for low manufacturing costs - alongside high integration, low energy consumption and high bandwidth,' Jose M Garcia, organiser of the workshop, noted.

Another emerging technology which took centre stage at the HIPEAC conference was memristor. This equally exciting solution, which was

also the focus of its own workshop, is a new circuit element that stores information in resistors and holds great potential for high-density storage devices. Said Hamdioui, who organised the memristor workshop, was keen to underline its importance, '[Memistor is] very suitable for solving some of today's computational challenges and may eventually force us to revise existing computing and storage paradigms.'

More information: www.hipeac.net/

Provided by CORDIS

Citation: Huge potential of high performance computing showcased at HIPEAC conference (2014, February 19) retrieved 26 April 2024 from <https://phys.org/news/2014-02-huge-potential-high-showcased-hipeac.html>

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