



Eni achieves breakthrough in oil & gas reservoir numerical modeling with HPC4 supercomputer

San Donato Milanese (MI), 2 May 2018 - Eni's industry-leading HPC4 supercomputer, recently deployed in Eni's Green Data Center facility, performed a breakthrough calculation, opening the path to a new era for reservoir engineering numerical modeling. HPC4 executed 100,000 high-resolution reservoir model simulation runs, taking into account geological uncertainties, in a record time of 15 hours. In comparison, most reservoir engineers in the industry can run just one single simulation run in a few hours with CPU-based hardware and software.

The calculation was performed using the full capacity of the new hybrid HPC cluster equipped with 3200 Graphical Processing Units (GPUs) and Stone Ridge Technology's ECHELON reservoir simulation software. A high-resolution model of a deep-water reservoir, with 5.7 million active cells, was executed with 100,000 different geological realizations, each one running on a single GPU in an average time of 28 minutes to simulate 15 years of production.

The path opened by this technology is a key and integral part of Eni's digital strategy and transformation. This run is not only proof of computing power, but also the first practical step to provide all of Eni's reservoir engineers access to a powerful processing tool for more accurately quantifying subsurface uncertainty and continually incorporating data into "live" models on operating assets. It will further enhance Eni's capability to accelerate the time-to-market of projects and deliver outstanding reservoir management strategies for all producing fields.

Eni's Green data Center's hybrid supercomputers (HPC 3 and HPC4) have a peak performance capacity of 22.4 PetaFlop/s and provide strategic support to the company's digital transformation process across the entire value chain, from the exploration and development of oil and gas reservoirs, to the management of the big data generated in the operational phase by all of the Company's assets.

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