Contribution ID: **103** Type: **Invited Talk**

Uncovering new possibilities in Engineering with High-Performance Computing (HPC)

Wednesday, 30 November 2022 12:15 (30 minutes)

The ever-increasing complexity of engineering problems and the demand for decisive insight are evident. As we push the boundaries of science for sustainable innovation we need to be able to continuously enhance our computational approaches to numerical simulation. The resource requirements for simulation-based design and optimization of complex components and systems are often considered prohibitive. However, with High-Performance Computing (HPC) resources it is now possible to simulate problems with complex physics with faster turnaround times and affordable rates.

Cauchy Consult's Computer-Aided Engineering (CAE) department specializes in simulation-based design and optimization across a wide range of industries. The Centre for High-Performance Computing (CHPC) is integral to Cauchy's CAE and its mission to make the impossible possible. Performing a transient CFD simulation of the continuous recycling (re-heating) of Heavy Fuel Oil (HFO) for a 12-hour period was made possible by using the CHPC. As appose to running the simulation for 210 days on our on-premises workstation it took 14 days to run on the CHPC using 120 cores. Solving the transient CFD simulation within the required time frame provided new insight and uncovered new possibilities for design and optimization.

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Session Classification: HPC Applications

Track Classification: Computational Mechanics