

Title: **ExaFOAM: Overview and preliminary activities**

Authors: **I. Spisso, F. Piscaglia, F. Magugliani**

Conference Web Site: <https://www.caeconference.com/hpc.html>

Abstract



Technical session

CINECA | IVAN SPISSO
exaFOAM: Overview and preliminary activities

The image is a video player thumbnail for a presentation. The title is "CINECA | IVAN SPISSO exaFOAM: Overview and preliminary activities". The video player shows a progress bar at 0:53 / 2:54. The thumbnail content includes the text "The Consortium exaFOAM: Overview" and a list of consortium members: 1. I. Spisso (France) Principal Investigator, 2. CINECA, Consiglio InterUniversitario (Italy), 3. E4 Computer Engineering spa (Italy), 4. Politecnico di Milano (Italy), 5. University of Zagreb (Croatia), 6. Technische Universität Darmstadt (Germany), 7. IMI (Germany), 8. Upstream CFD (Germany), 9. Universität Stuttgart, HLRS (Germany), 10. Barcelona Supercomputing Center, BSC (Spain), 11. National Technical University of Athens, NTUA (Greece). Logos for upstream CFD, E4, and YouTube are also visible.

The presents talk aim to give an overview of the recently approved EuroHPC project exaFOAM: Exploitation of Exascale Systems for Open-Source Computational Fluid Dynamics by Mainstream Industry. The Consortium, led by ESI-OpenCFD consists of a well-balanced group of experts to work on the co-design of OpenFOAM targeting (pre)-exascale HPC architectures. Specifically, the HPC activities already carried out by some of the members of the exaFOAM's Consortium will be presented. Firstly, the HPC benchmark project which aims to create a framework for enabling the consistent and coherent comparison of performances using OpenFOAM technology across different HW platforms and configurations in view of the transition to exascale. Secondly, the activities related to the GPUs enabling of OpenFOAM will be outlined: i) GPU-accelerated OpenFOAM simulations using PETSc4FOAM ii) AmgX GPU Solver Developments for OpenFOAM iii) a CPU-GPU paradigm to accelerate turbulent combustion and reactive-flow simulation.

Presentation: <https://youtu.be/oFcUoQHZ8rc>