Asociación Argentina
de Mecánica Computacional

Mecánica Computacional Vol XXXIII, págs. 2439-2439 (resumen)
Graciela Bertolino, Mariano Cantero, Mario Storti y Federico Teruel (Eds.)
San Carlos de Bariloche, 23-26 Setiembre 2014

ADVANCES ON THE SOLUTION OF FLUID-STRUCTURE INTERACTION PROBLEMS ON GENERAL PURPOSE GRAPHICS PROCESSING UNITS (GPGPU) WITH AN EMBEDDED STRATEGY

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Abstract. GPGPU's can be used as high performance computing devices on problems behaving as Cellular Automata; as an example, a lot of effort was made on flow solvers. This work involves the implementation of a Nvidia CUDA (Compute Unified Device Architecture) code designed to solve Fluid-Structure interaction (FSI) problems. The coupling between the fluid and the structure is explicit partitioned. Special attention is devoted to the accurate computation of forces on the solid. The code is validated against experimental and numerical results for a test involving harmonic motion of a fully submerged spherical buoy.