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Evaluation of a coupling interface for solving fluid structure interaction problems

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Abstract

This research work evaluates the performance of a Fluid Structure Interaction (FSI) solver, which is created using a generic interface to couple two independent software packages. The basic idea is to combine the advantages of the two independent codes to create a powerful FSI solver for two and three dimensional FSI analysis using the concept of modular programming. A detailed description about the implementation of an interface to couple a three-field system involved in the analysis is given, and this developed interface can be generalized to others codes. Since solving complex FSI problems is very time consuming, the focus of this work is placed on the performance of the coupled solver, for which a FSI benchmark will be solved on a computer cluster in order to measure speed up and efficiency.

Key words: Scalability, Fluid Structure Interaction, Partitioned Coupling.

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