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PLUTO

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The PLUTO code, developed at the University of Torino in collaboration with the Osservatorio Astrofisico di Torino, is one of the most widely used public codes for
astrophysical fluid-dynamics and magnetohydrodynamics, both in the classical and relativistic regimes. The code is designed with a modular and flexible structure whereby different numerical algorithms can be separately combined to solve systems of conservation laws by using a finite volume or a finite difference approach, based on Godunov-type schemes.
We present the work done on the GPU porting of the code by using OpenACC. OpenACC is a programming model that uses high-level compiler directives and parallelizing compilers to exploit GPU technology. We will highlight the many code structure changes required by the new parallel programming paradigm. We finally show the results obtained in terms of the acceleration and efficiency on various systems such as Marconi100 and Leonardo at Cineca.

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