Performance evaluation of OSIRIS EM-PIC on a Xeon Phi cluster RICARDO FONSECA, ISCTE - Instituto Universitário Lisboa — The quest towards exascale computing has lead to the development of hybrid systems with add-on accelerator cards such as the Xeon Phi accelerators powering for example the Tianhe-2 system in China (currently the #1 system in the world) and the SuperMIC at LZR in Germany. In this work we report on our efforts on deploying the OSIRIS electromagnetic particle-in-cell code on the latter system, focusing not only on algorithm details and single card performance but also on multiple card use. Our benchmarks show code performance of $\sim 600(2D) / 300(3D)$ million particle pushes per second on a single board, and above 74% (strong)/ 94% (weak) scaling efficiency up to 32 boards.

[1] R. A. Fonseca et al., Lecture Notes in Computer Science **2331**, 342-351 (2002)

Ricardo Fonseca
ISCTE - Instituto Universitário Lisboa

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