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Harnessing more compute power on NeSI's platforms with Open Multi-Processing (OpenMP)

Alexander Pletzer, Wolfgang Hayek and Chris Scott
NeSI
Alexander.Pletzer@nesi.org.nz

ABSTRACT / INTRODUCTION

You know the feeling -- your application used to hum happily but after increasing the problem size it seems to have hit a wall. No matter how much you tweak the algorithm, play with the compiler options or tune the input parameters, your code now takes too long to execute. This is the point where more computational power is required. Here we explore a few strategies that will enable a serial problem to scale up, either by leveraging more cores or by offloading computations to a Graphical Processing Unit (GPU). With the most recent OpenMP standard, you can now do both. The pros and cons of each approach will be discussed and comparisons with Open Accelerators (OpenACC), an alternative technology, will be provided.

ABOUT THE AUTHOR(S)

- Alex Pletzer is a HPC research software engineer for NeSI and based at NIWA in Wellington. Alex enjoys playing ping pong with his colleagues, sailing and windsurfing while running scientific code on NeSI platforms.