

Paralelização da transformada de Legendre do Modelo de Circulação Geral Atmosférico do CPTEC usando placas aceleradoras gráficas

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Since 1995 the CPTEC executes daily the atmospheric general circulation model (AGCM) for weather forecast. Climate forecasts require monthly executions of the same model. In the case of weather forecast, the model resolution has been continuously increased, but this implies in a significant increase of the processing time, as the model complexity is of the order of the fourth power of the inverse of the resolution. This problem has been tackled with the increase of the model degree of paralelism in order to employ more and more processors. An alternative would be the use of graphics cards in order to avoid an excessive number of processors that would be required for a further increase of resolution. This work evaluates the suitability of graphic cards to accelerate the part of the MCGA that defines its complexity: the Legendre and Fourier transform. It will investigate the speed-up and the impact on model maintenance and portability due to the use of several programming interfaces for graphics accelerator cards.