FACULTY OF SCIENCE
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CAC assignment 2

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1 Introduction

The task of this assignment was to convert the given program to run in parallel on the same generated data. To do this the multiprocessing library is used together with the provided shared memory array shmarray class.

2 What have changed

Overall change

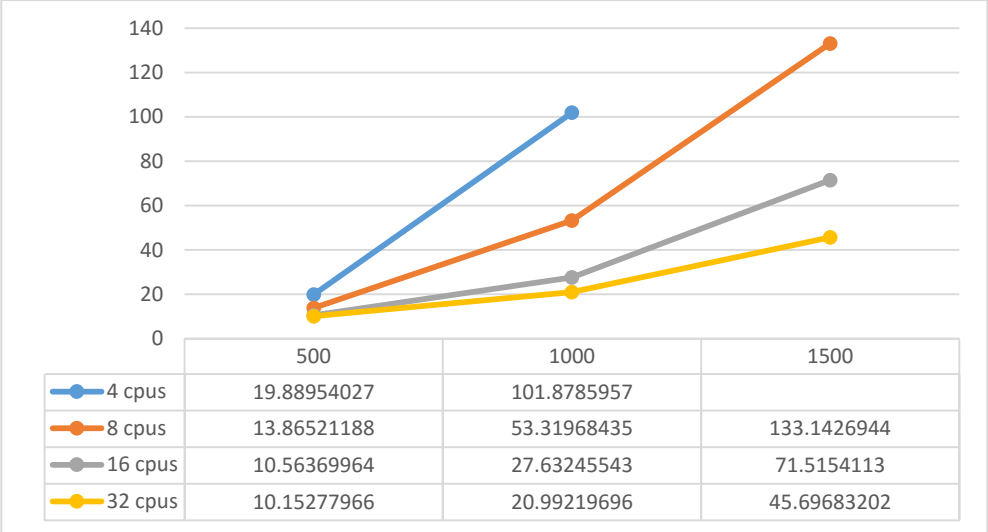
As a first step i converted V and U to shared memory arrays using the shmarray library, and then made them global. This was needed to make sure the arrays could be called from within the new other processes. The main functions (RD and RD_visual) then create a process pool.

Then i divide U an V into cpu*2 pieces. Then i run the real RD function on each part seperatly and saving the result in another array called Ures and Vres. When all parts have been processes the result arrays are then copied into real array, and then the outer edges gets handled.

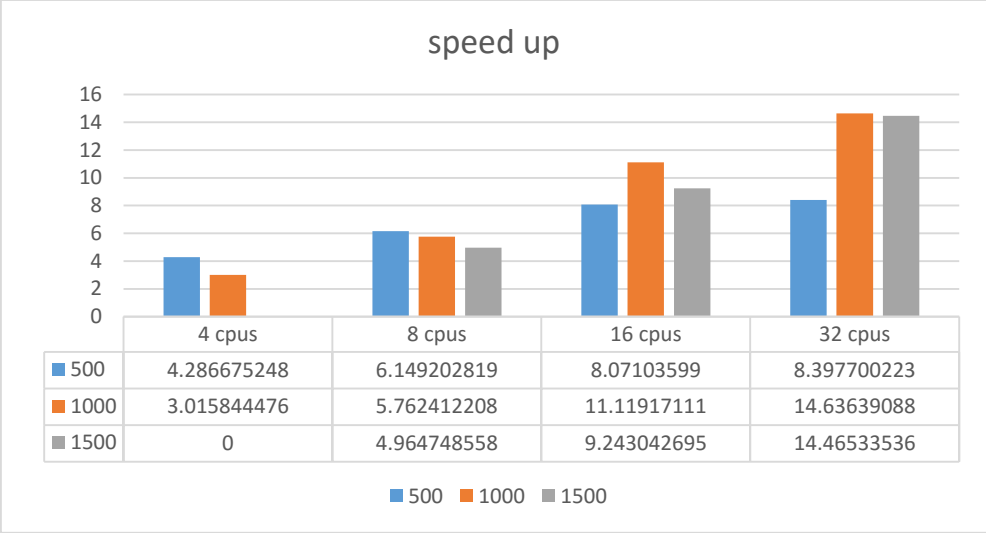
2.1 The splitter

Before any processing can be done, the data needs to be split up into a few pieces. I split the images based on

3 Result



	500	1000	1500
4 cpus	19.88954027	101.8785957	
8 cpus	13.86521188	53.31968435	133.1426944
16 cpus	10.56369964	27.63245543	71.5154113
32 cpus	10.15277966	20.99219696	45.69683202



	4 cpus	8 cpus	16 cpus	32 cpus
500	4.286675248	6.149202819	8.07103599	8.397700223
1000	3.015844476	5.762412208	11.11917111	14.63639088
1500	0	4.964748558	9.243042695	14.46533536