

Team Members:

Kunal Choudhary, 999981863, kunal.choudhary@mail.utoronto.ca;

Imran Ariffin, 1000863176, imran.ariffin@mail.utoronto;

Try1: par\_block.h par\_block.c

Implementation:

Split the board into nthread blocks, with one thread to process each block.

optimizations used:

pthread with 8 threads

instruction level parallelism for neighbour\_count

reduce usage of mod function to only at margins of block

Try2: par\_blk\_barrier.h, par\_blk\_barrier.c

implementation:

Same as Try1, except using barrier instead of join.

optimizations used:

pthread with 8 threads

instruction level parallelism for neighbour\_count

wait on barrier instead of join

Try3: par\_blk\_margin.h, par\_blk\_margin.c

Implementation:

Same as Try1, except margin is left to be processed by an extra designated thread.

optimizations used:

pthread with 8 + 1 threads ( + 1 for margin)

instruction level parallelism for neighbour\_count

margin of the whole board calculated separately by a designated thread. This helps to get rid of modulo op for most cells and reduce cache misses at margin.