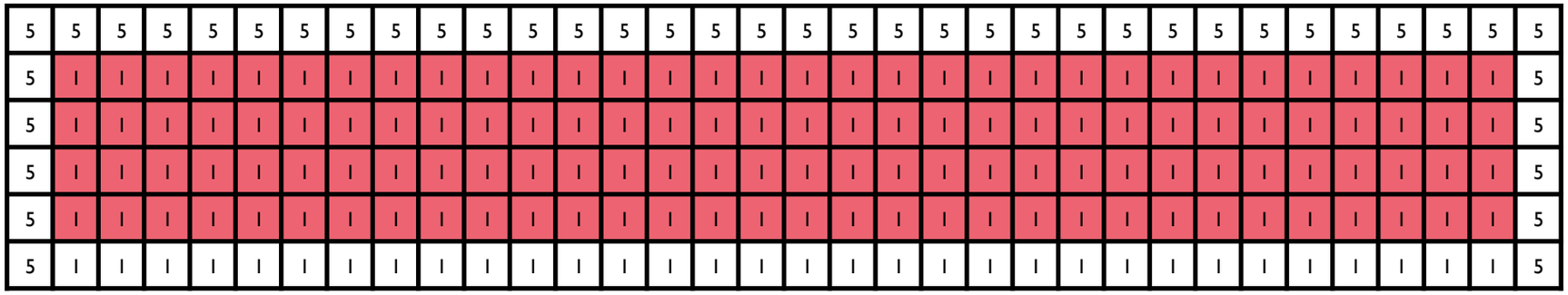
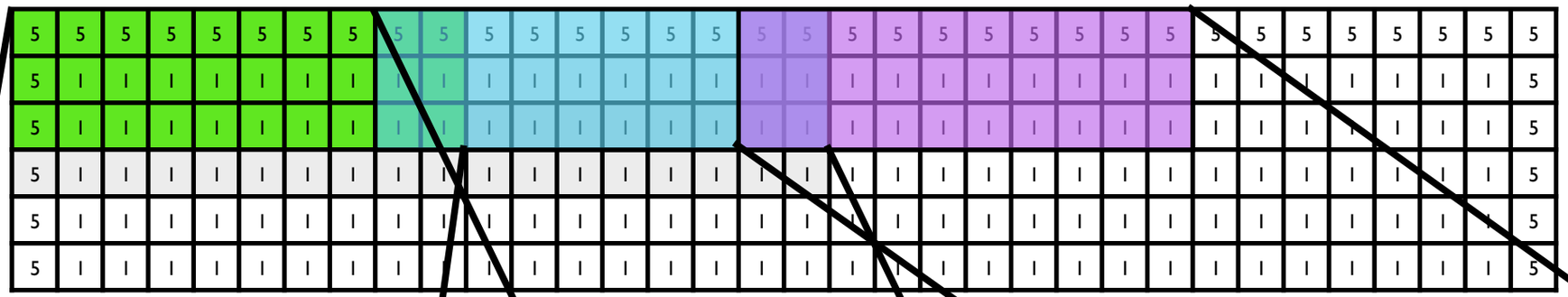
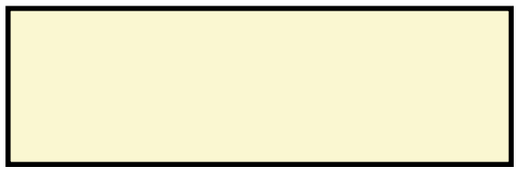
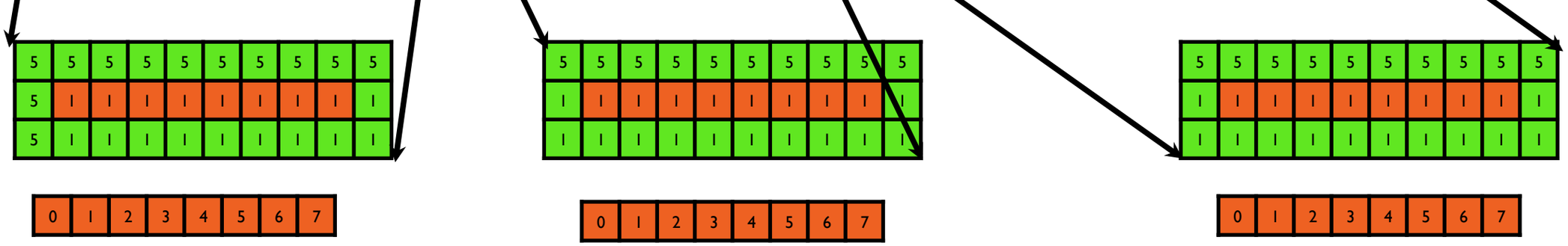


Grid size is in Red, while the whole 2D array is the dataset.







Thread block .....

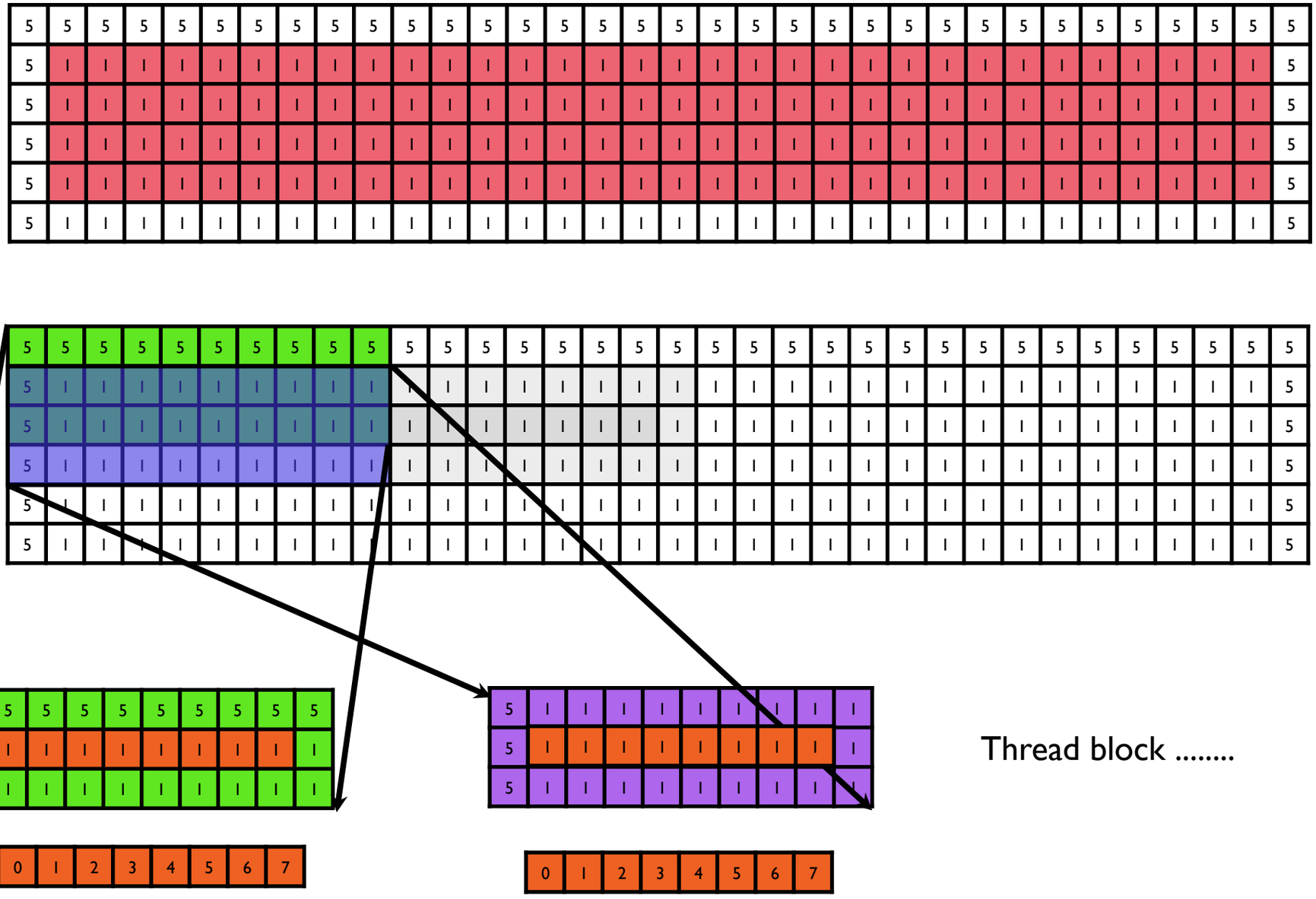
Thread block 0

Thread block 1

Thread block 2

Assume we have 8 threads per block, thread block size: 1 row, 8 columns.
The data that we need in the shared memory is covered by the color green (with red on top of it), i.e. the entire 3by10 rectangle..
So that we can compute the average of its neighbors.

threadIdx.x is the threadID can be used to compute the index in shared memory
when copy data from global memory to shared memory.

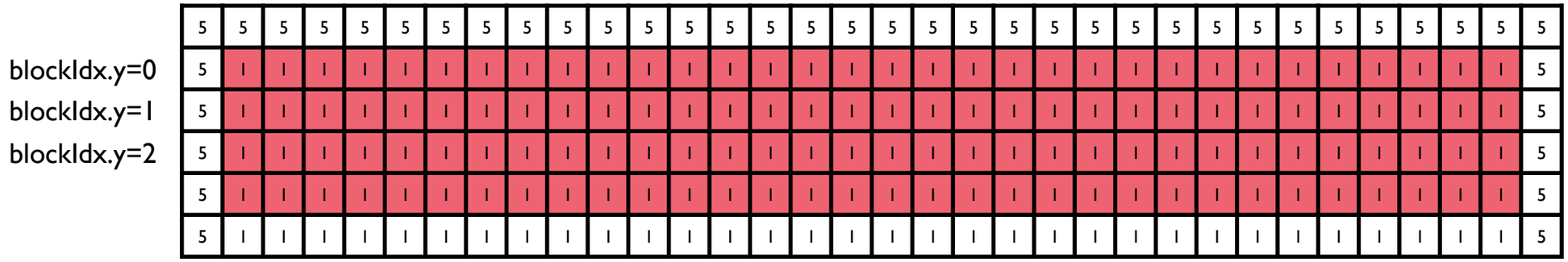


Grid size is in Red, while the whole 2D array is the dataset.

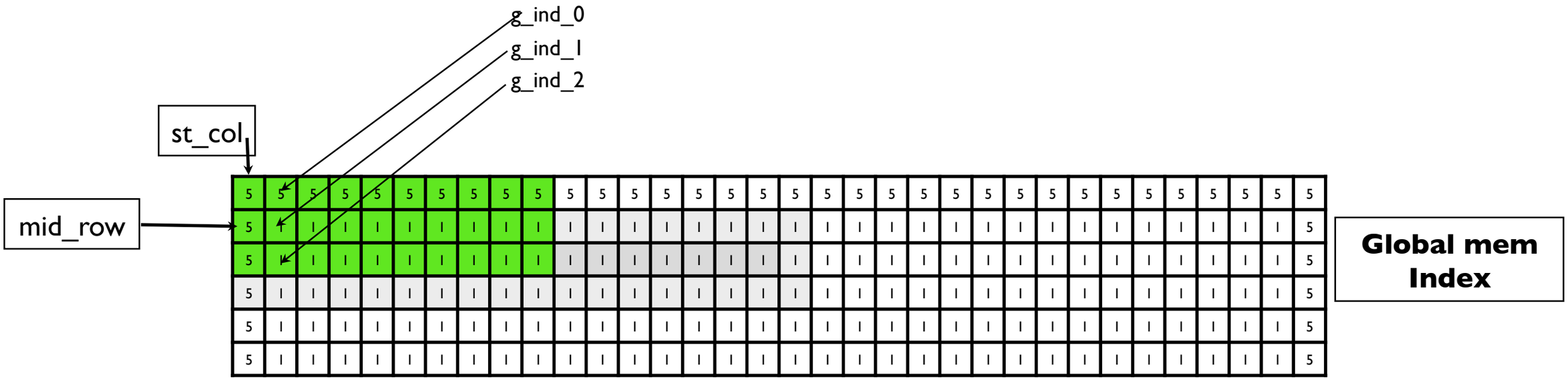
Thread block .....

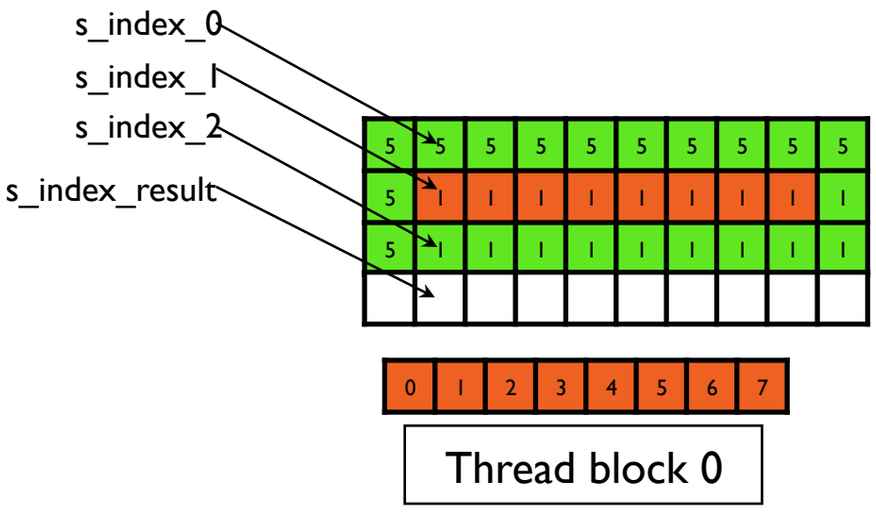
Assume we have 8 threads per block, thread block size: 1 row, 8 columns.
The data that we need in the shared memory is shown in green or purple, (with read on top of it)
So that we can compute the average of its neighbors.

threadIdx.x is the threadID can be used to compute the index in shared memory
when copy data from global memory to shared memory.



Grid size is in Red, while the whole 2D array is the dataset.





s_rowwidth = blockDim.x + 2

shared mem Index

We observe that each thread in block processes a column of data in the shared memory