




Kernel configuration A


Half-timestep kernel		
Local mem/cell:	0B	
Global accesses:	11 to 14 ^a	
Load cell & neighbour data to registers		
Compute X and Y slope		
<i>For each face...</i>		
Slope-extrapolate towards faces		
Compute flux vector		
Evolve cell by half timestep		
<i>For each face...</i>		
Slope-extrapolate towards faces		
Commit to global memory		


Kernel configuration B

Half-timestep kernel		
Local mem/cell:	32B	
Global accesses:	3 to 6 ^a	
Load cell data to local memory		
Compute X and Y slope		
<i>For each face...</i>		
Slope extrapolate towards faces		
Compute flux vector		
Evolve cell by half timestep		
<i>For each face...</i>		
Slope-extrapolate towards faces		
Commit to global memory		

Kernel configuration C

Full-timestep kernel		
Local mem/cell:	32B	
Global accesses:	2	
Load cell data to local memory		
<i>For each neighbour...</i>		
Compute X and Y slope		
<i>For each neighbour's face...</i>		
Slope-extrapolate towards faces		
Compute flux vector		
Evolve cell by half timestep		
<i>For each neighbour's face...</i>		
Slope-extrapolate towards faces		
<i>For each face...</i>		
Non-negative reconstruction		
Compute Riemann solution		
Compute source terms & flux vector		
Update cell state		

Full-timestep kernel		
Local mem/cell:	0B	
Global accesses:	2 to 5 ^a	
Load cell & neighbour data to registers		
<i>For each face...</i>		
Load extrapolations to registers		
Non-negative reconstruction		
Compute Riemann solution		
Compute source terms & flux vector		
Update cell state		

Implicit friction kernel		
Local mem/cell:	0B	
Global accesses:	4	
Load cell data to registers		
Compute and apply discharge change		
Update cell state		

Timestep reduction (identify)

Advance simulation

^a Face extrapolations can be stored in four different arrays for each direction or a structure array containing all faces.