Table 1: Computational complexity of LBM operations for single fluid node, D3Q19 lattice and double precision values. First four rows show complexity for complete collision and v, ρ computations. The last three rows shows complexity of separate v, ρ computations - for quasi-compressible fluid model the computation of v, ρ requires 3 additional divisions. Separate collision complexity can be calculated by subtracting complexity of v, ρ computations from values from the first four rows. FMA (fused multiply-add) counts as two floating point operations. FSETP and FREC denote GPU instructions for floating point condition testing and reciprocal computing. FLOP/byte ratio is calculated assuming 304 bytes transferred per node (see Eqn. **??**).

Operation	FADD	FMUL	FMA	FSETP	FREC	# instr.	FLOP	FLOP/b
LBGK incompressible	65	21	109	–	–	195	304	1,00
LBGK quasi-compressible	65	39	166	21	6	297	463	1,52
LBMRT incompressible	324	40	329	–	–	693	1022	3,36
LBMRT quasi-compressible	323	43	386	21	6	780	1165	3,83
v, ρ incompressible	49	–	–	–	–	49	49	
v, ρ quasi-compressible	49	15	57	21	6	148	205	
FPU division	–	5	19	7	2	33	52	