

The row store, the col store, and their evaluators

GM

Task:

- ▶ in: $2000 * 2^{10}$ tuples with 90 `uint32_t` attributes
- ▶ out: map: $t[0] = t[0] + t[1] - t[2] + t[3] - t[4]$

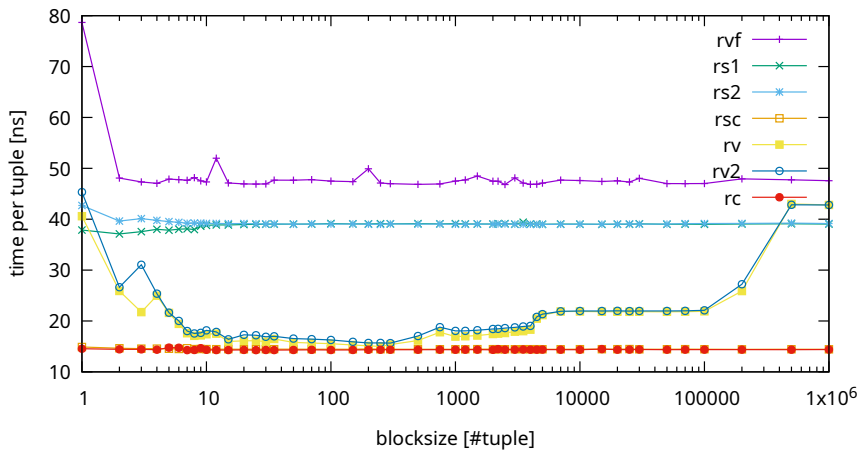
Storage Layouts/Evaluators

row	rvf	single tuple virtual function interpreter
	rs1	single tuple avm-like interpreter, switch
	rs2	single tuple avm-like interpreter, funptr
	rsc	single tuple compiled, funptr
	rv	vectorized
	rv2	alternative vectorized version
	rc	compiled plan
col	cvf	single tuple, virtual function interpreter
	cs1	single tuple, avm-like interpreter, switch
	cs2	single tuple, avm-like interpreter, funptr
	csc	single tuple, compiled, funptr
	cv	vectorized
	cc	compiled plan, no SIMD
	ccs	compiled plan, SIMD

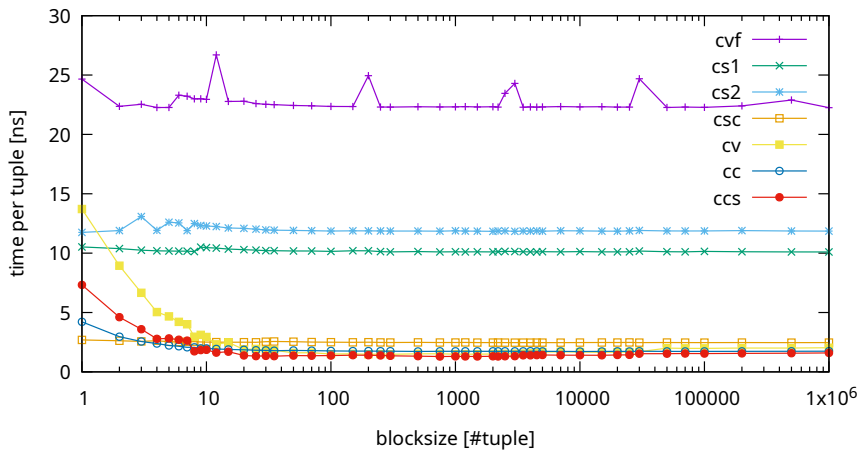
Hosts

olympia	Xeon E5-2640 v3
pluto	Xeon E5-2690 v3
hercules	Xeon E5-2620 v4
obi-one	Epyc 9554
boba	Xeon 8458P
apollo	i7-4790
pi3amd	Ryzen 5 2400G
erebor	Ryzen 7 5950x
pi3-hiwi1	i7-11700
pi3-hiwi2	i9-12900
pi3-hiwi3	i7-12700 (4: P-Core, 17: E-Core)
pi3-n2	S922X, 1.9 GHz
pi3-n2plus	S922X, 2.4 GHz
pi3-rock5b	RK3588s, 2.4 GHz
pi3macmini1	M1

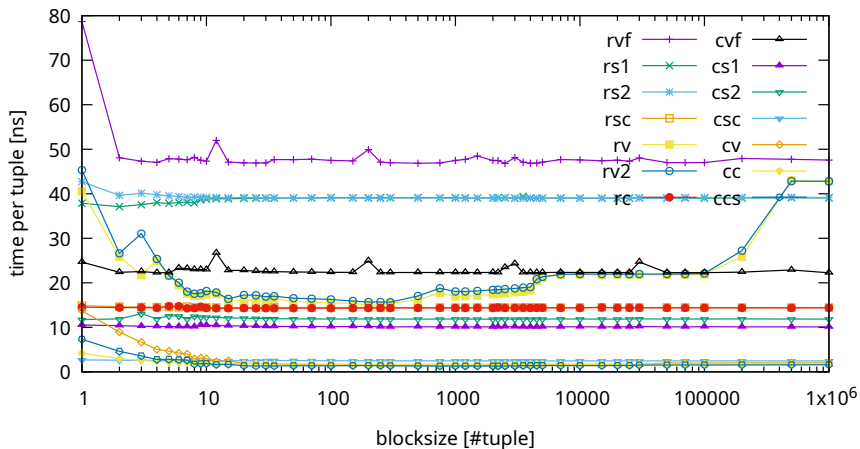
olympia₄ add/sub(1234) row



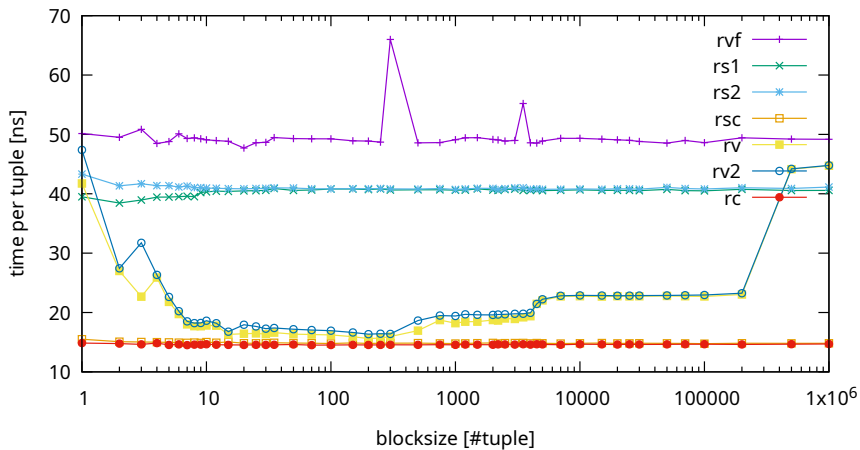
olympia₄ add/sub(1234) col



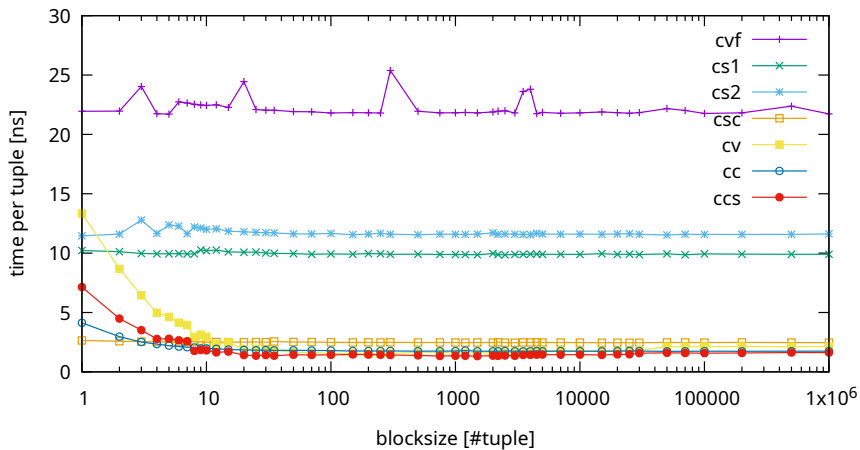
olympia₄ add/sub(1234) all



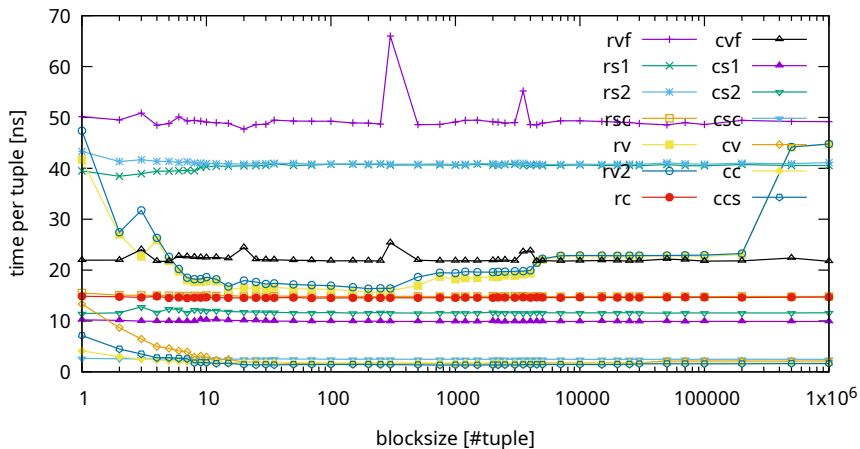
pluto₄ add/sub(1234) row



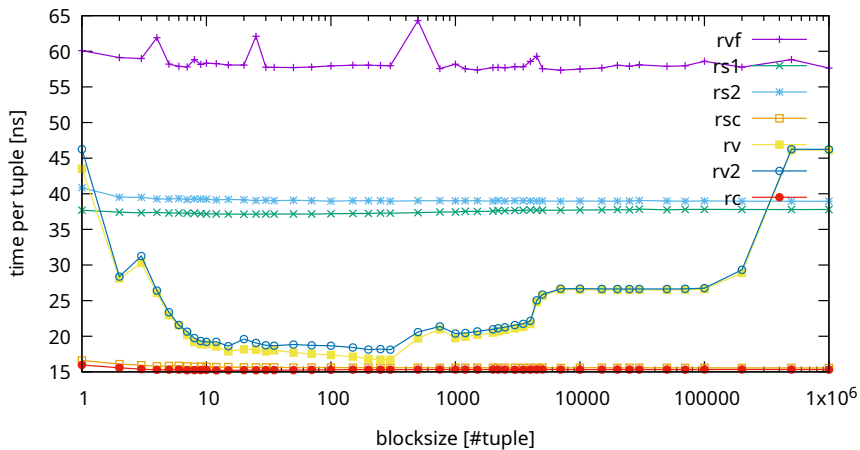
pluto₄ add/sub(1234) col



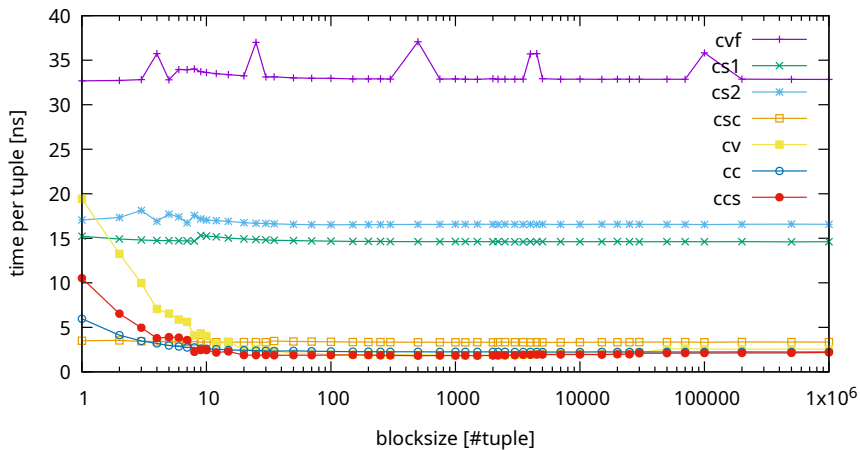
pluto₄ add/sub(1234) all



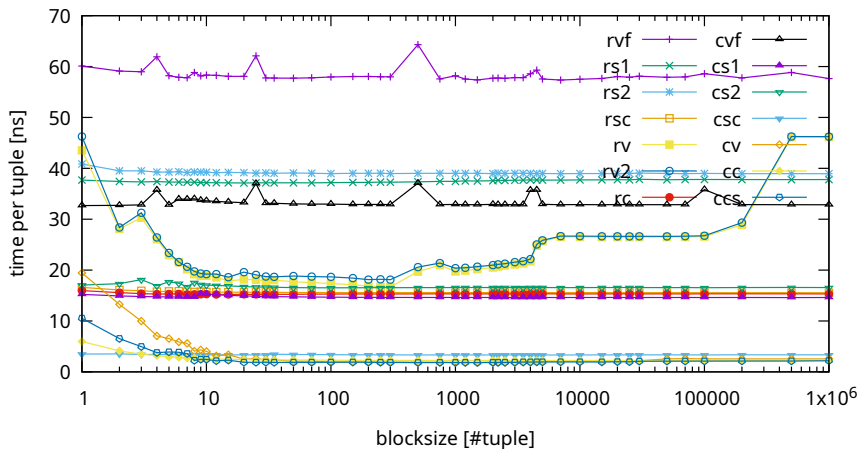
hercules₄ add/sub(1234) row



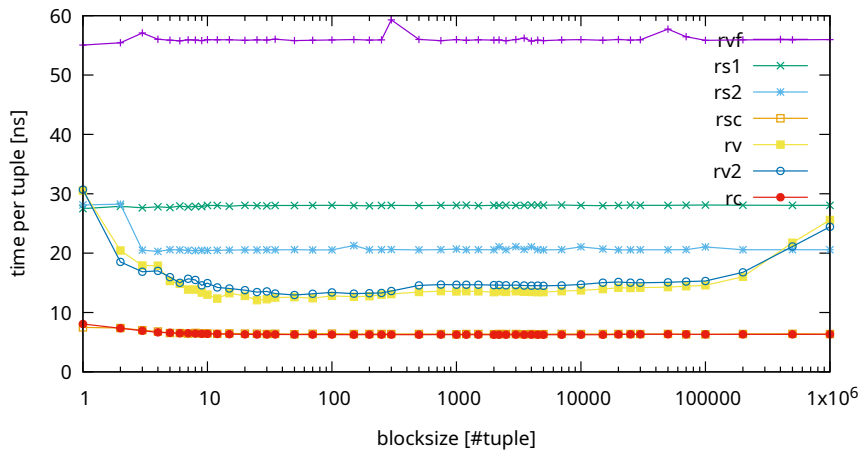
hercules₄ add/sub(1234) col



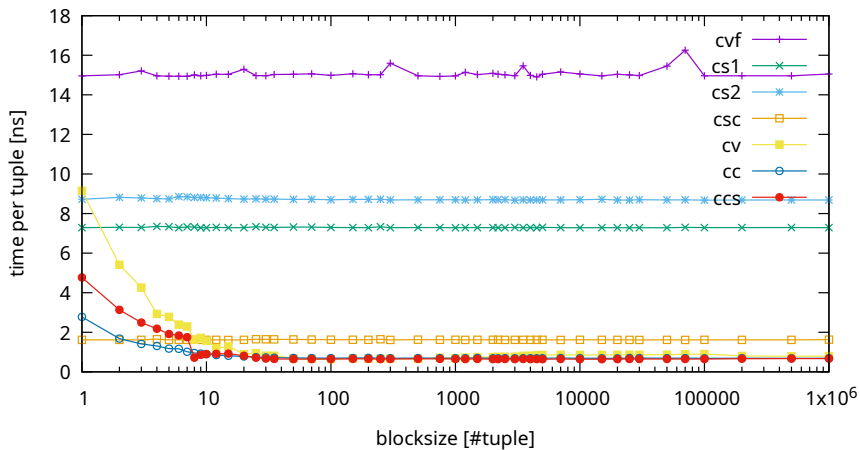
hercules₄ add/sub(1234) all



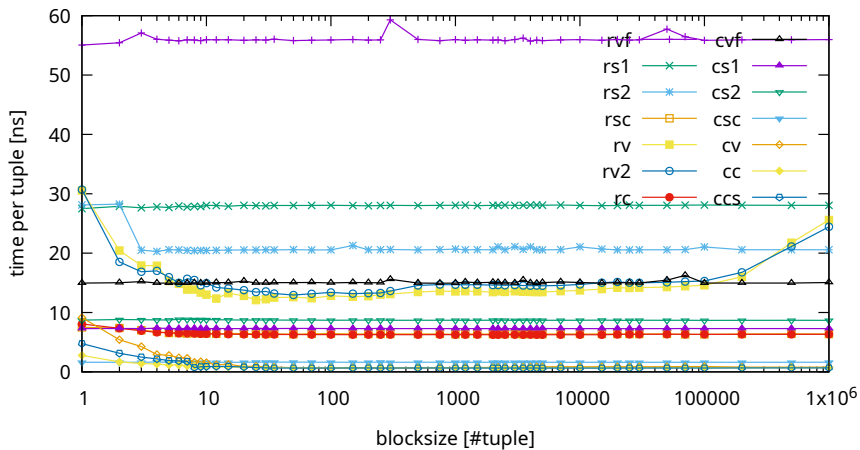
obi-one₄ add/sub(1234) row



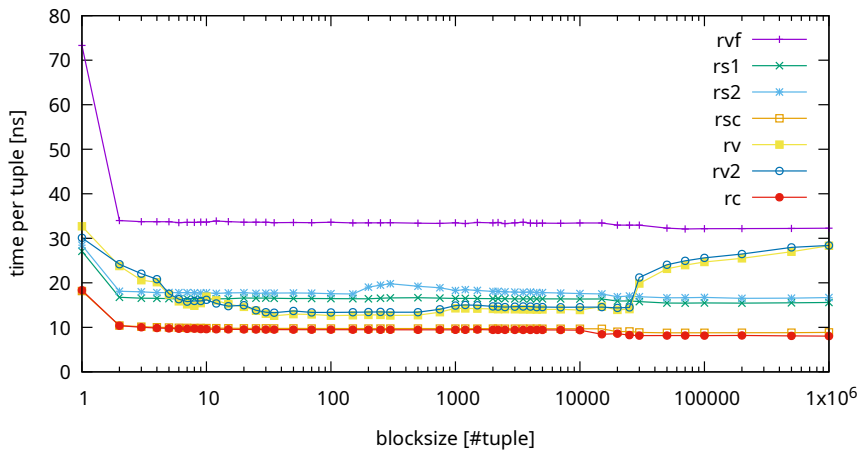
obi-one₄ add/sub(1234) col



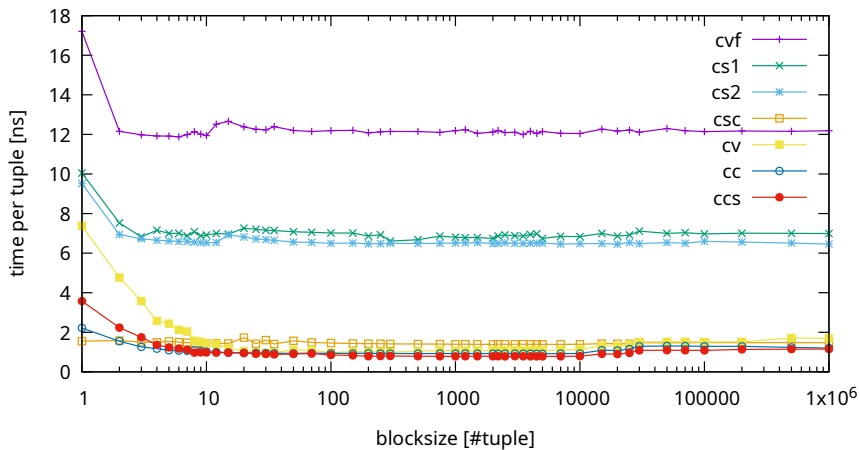
obi-one₄ add/sub(1234) all



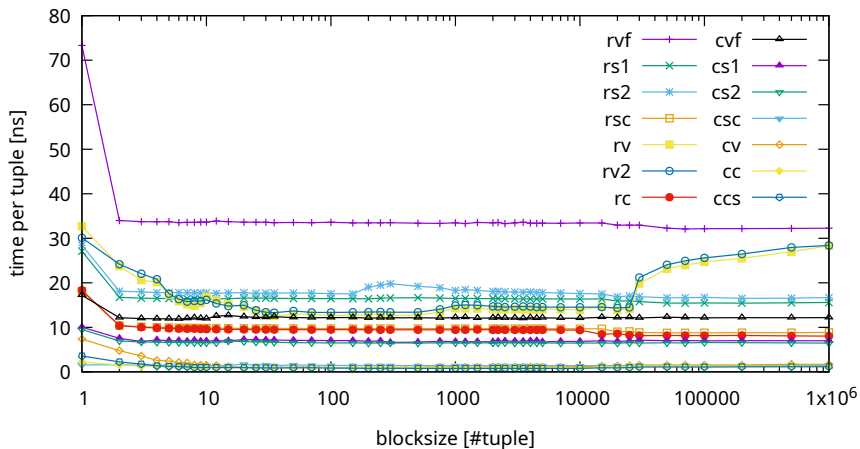
boba₄ add/sub(1234) row



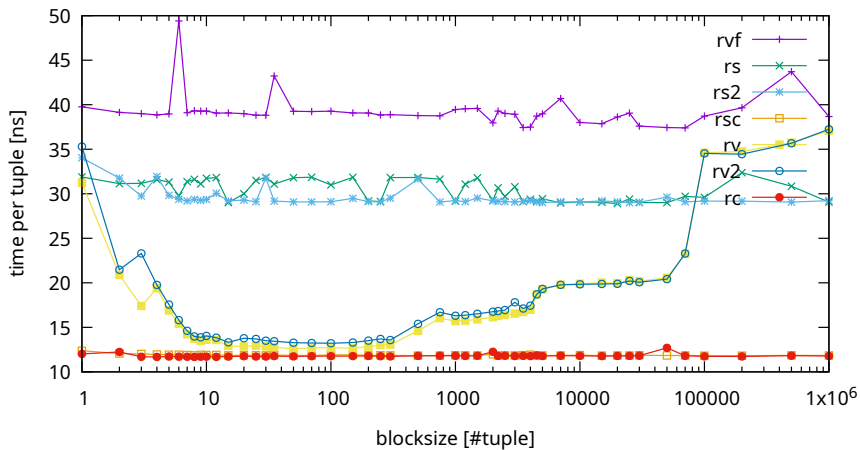
boba₄ add/sub(1234) col



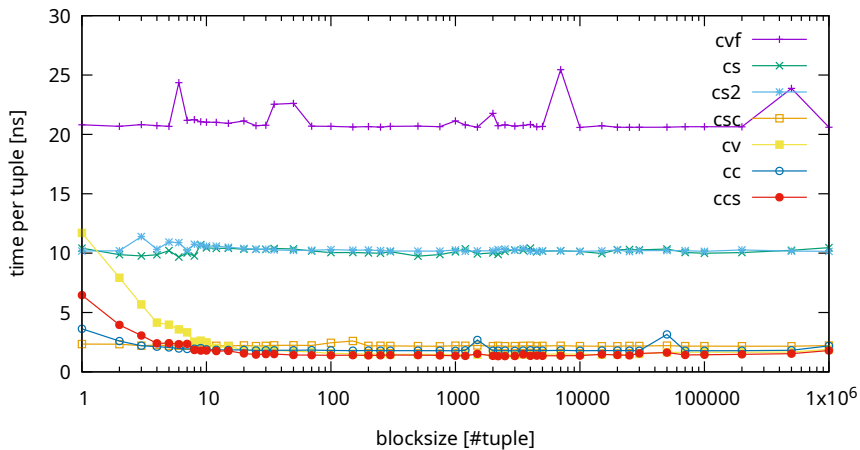
boba₄ add/sub(1234) all



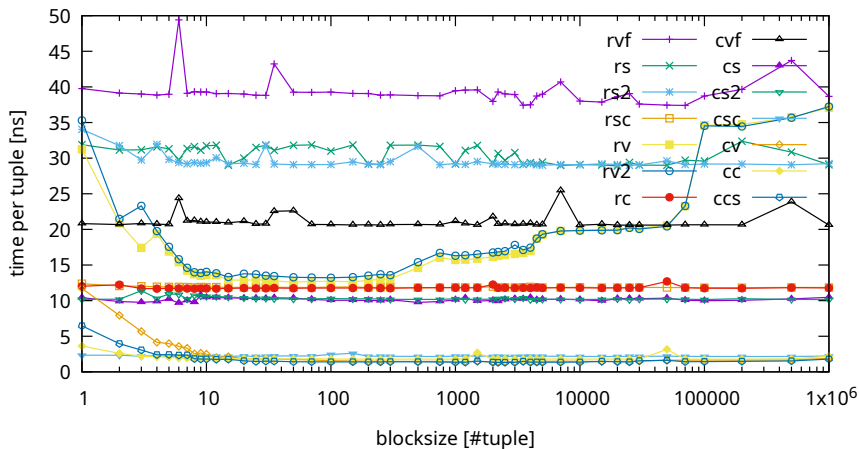
apollo₄ add/sub(1234) row



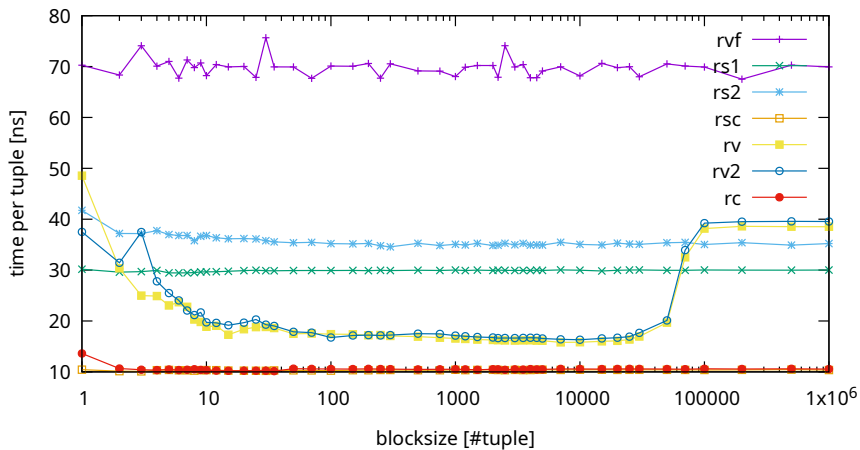
apollo₄ add/sub(1234) col



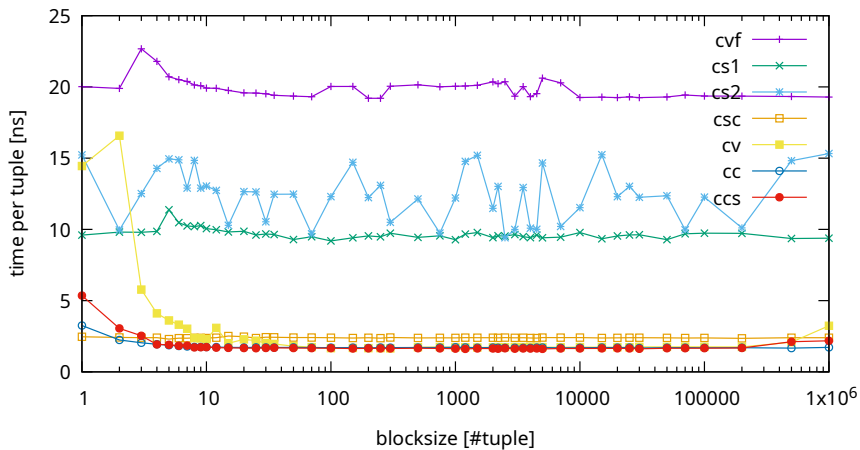
apollo₄ add/sub(1234) all



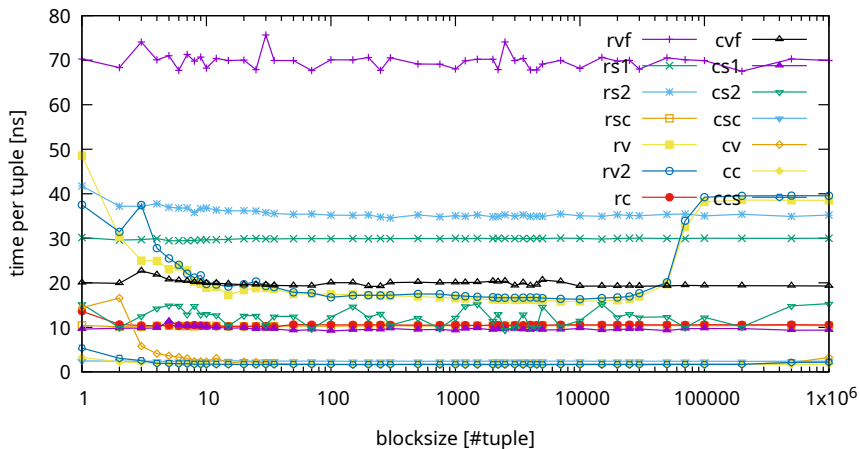
pi3amd₄ add/sub(1234) row



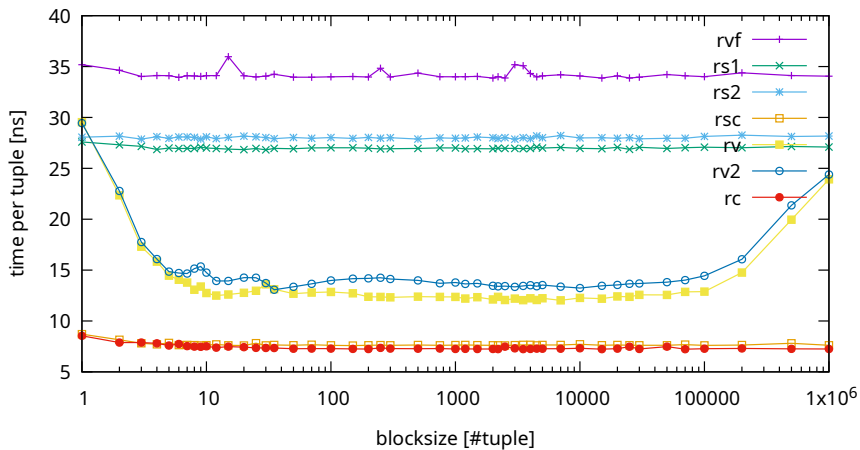
pi3amd₄ add/sub(1234) col



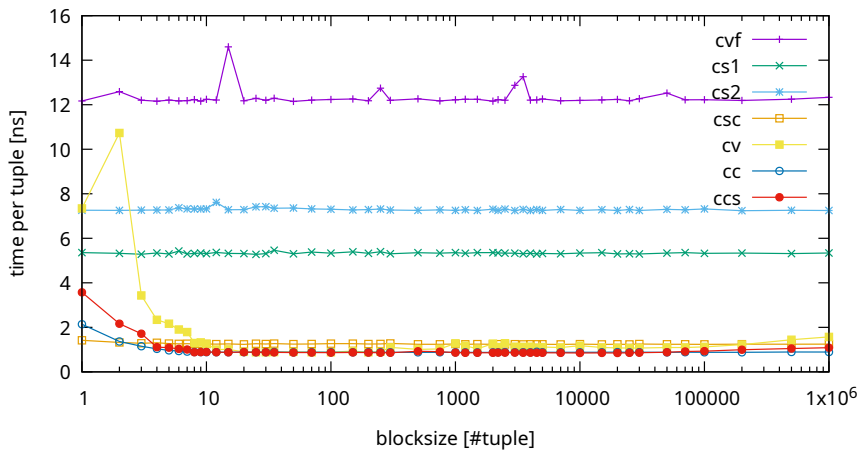
pi3amd₄ add/sub(1234) all



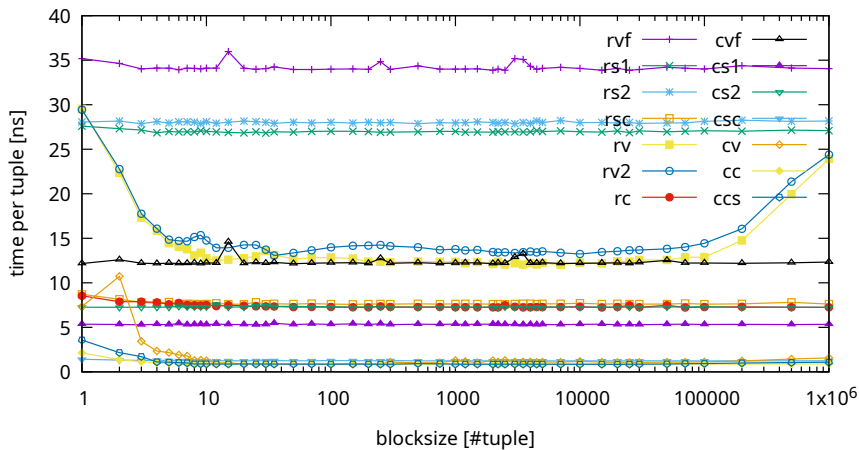
erebor₄ add/sub(1234) row



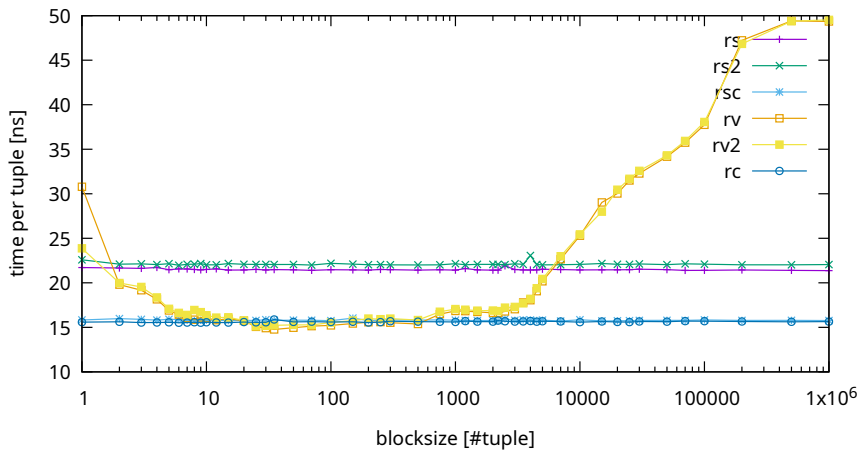
erebor₄ add/sub(1234) col



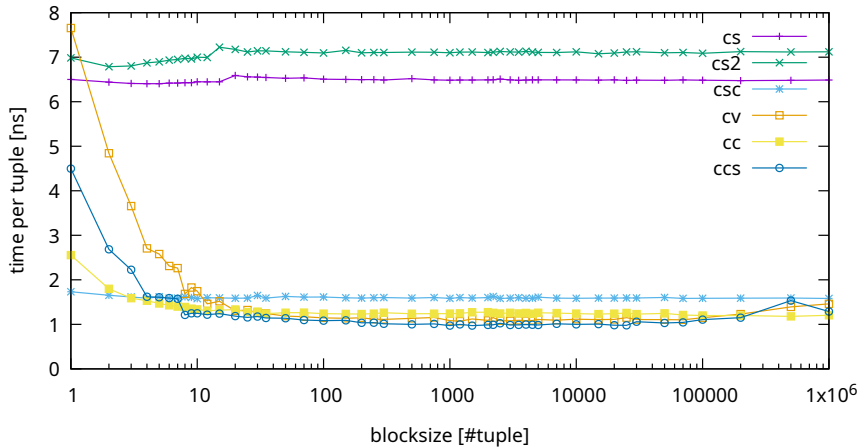
erebor₄ add/sub(1234) all



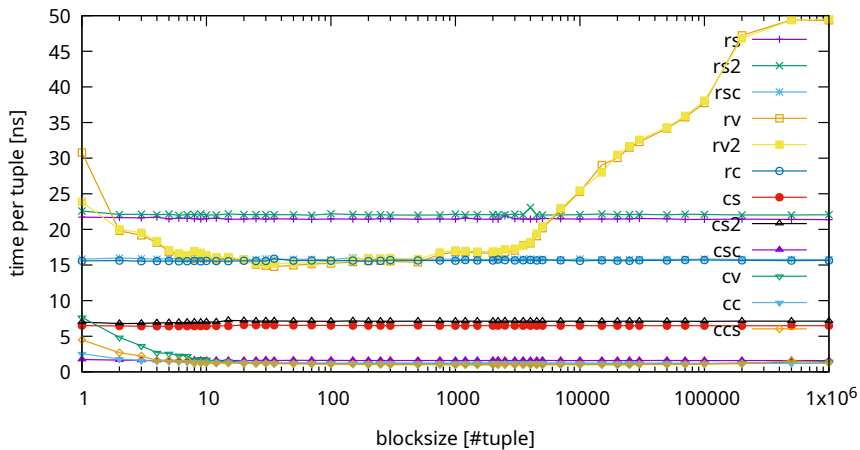
pi3-hiwi1₄ add/sub(1234) row



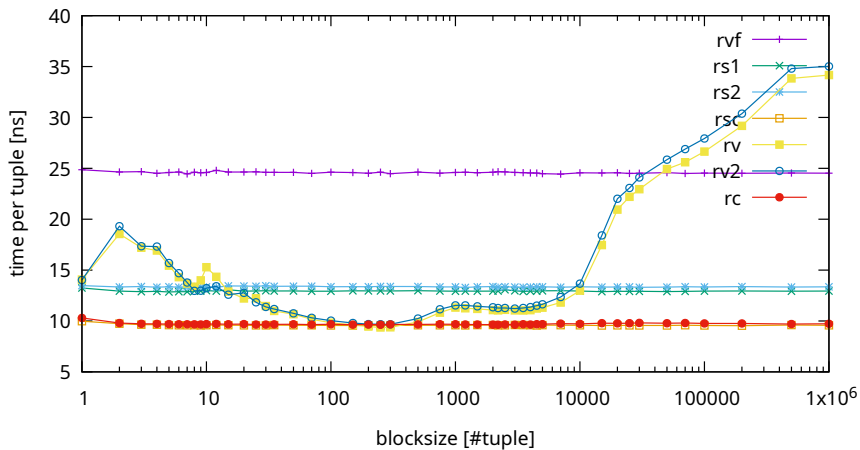
pi3-hiwi1₄ add/sub(1234) col



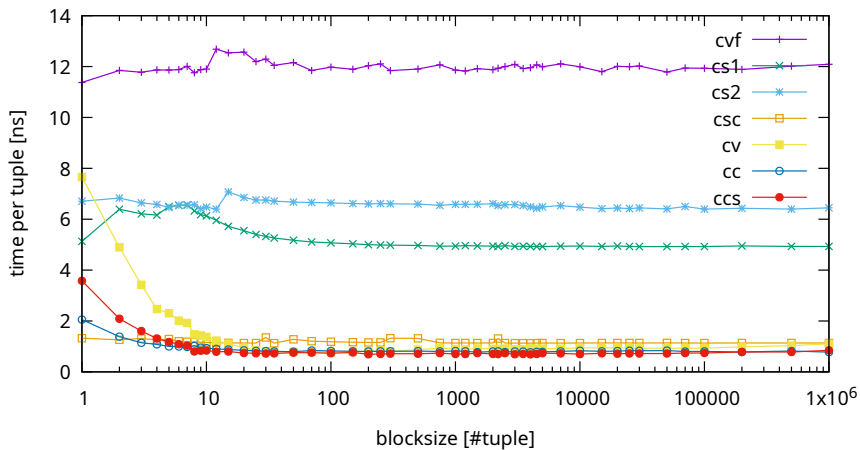
pi3-hiwi1₄ add/sub(1234) all



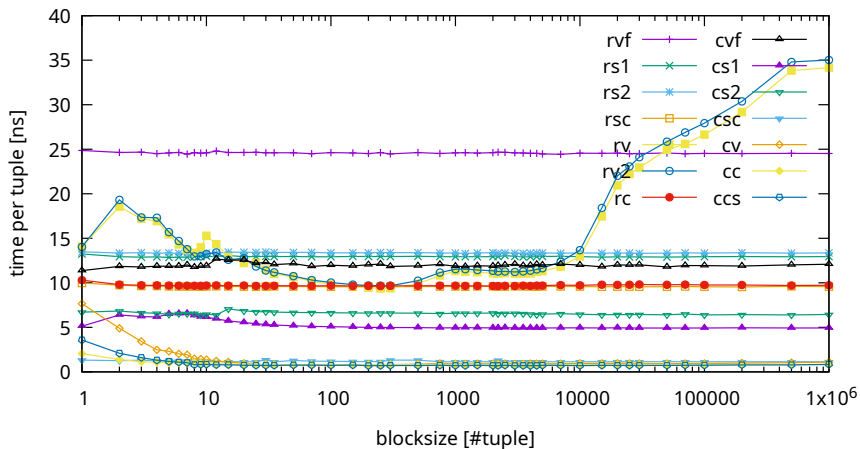
pi3-hiwi2₄ add/sub(1234) row



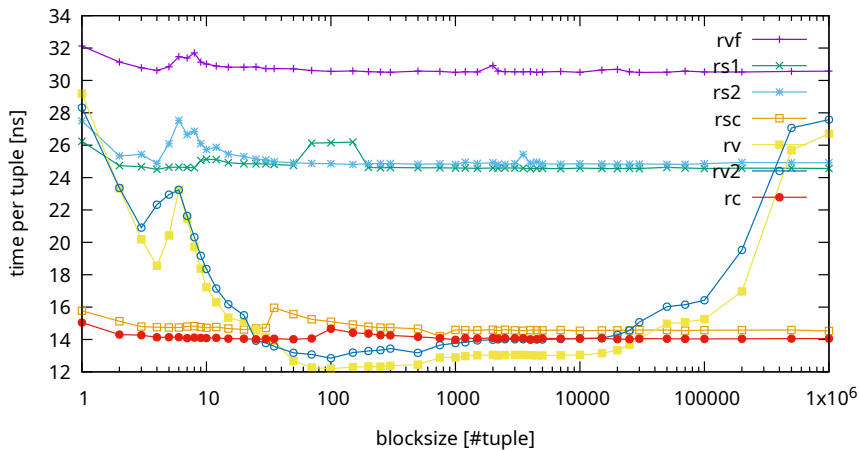
pi3-hiwi2₄ add/sub(1234) col



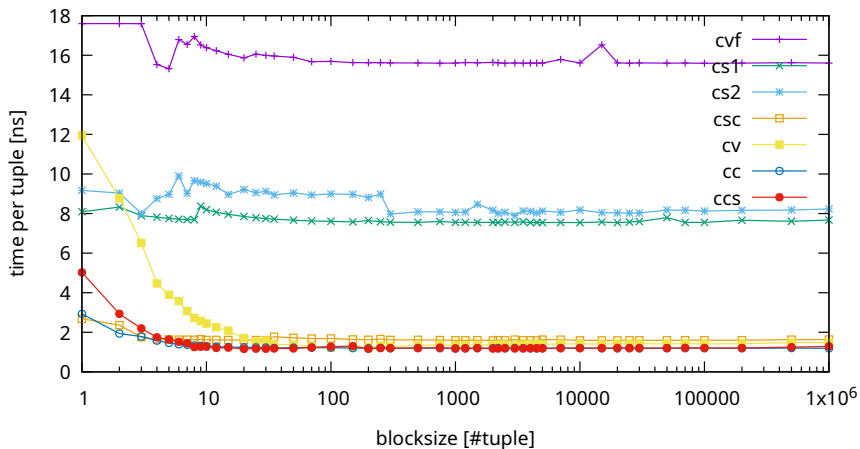
pi3-hiwi2₄ add/sub(1234) all



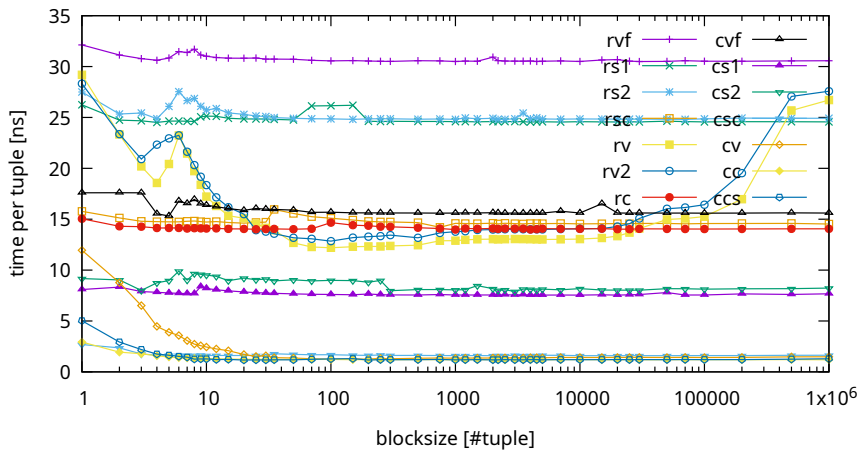
pi3-hiwi2₁7 add/sub(1234) row



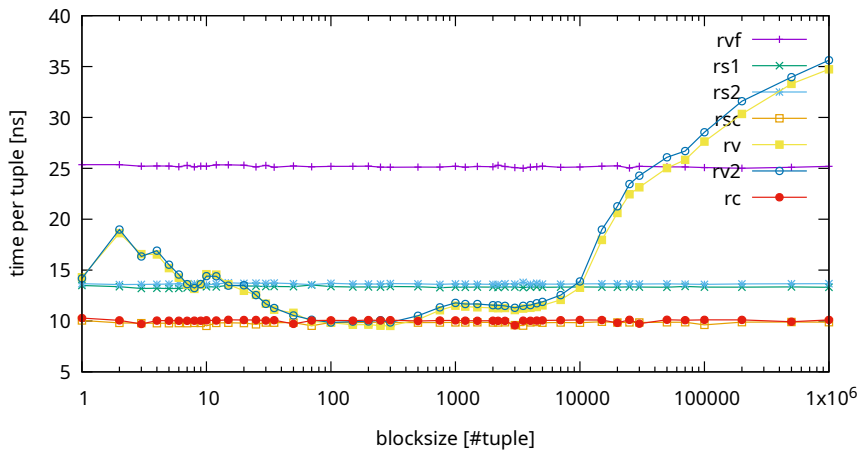
pi3-hiwi2₁7 add/sub(1234) col



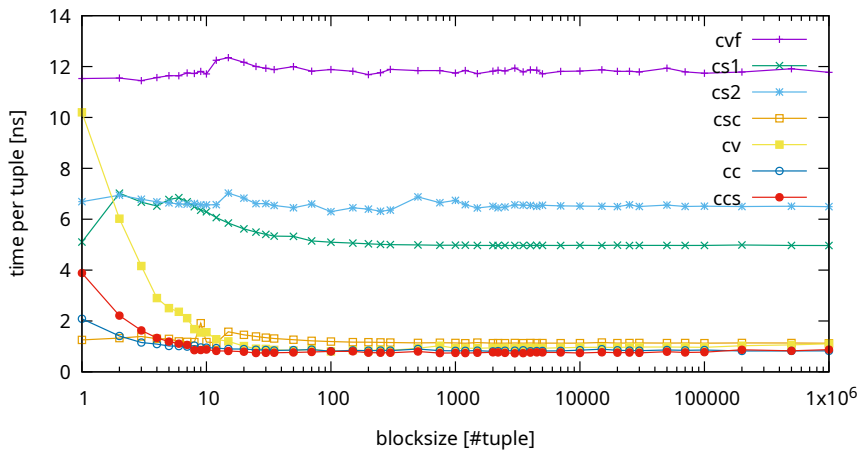
pi3-hiwi2₁7 add/sub(1234) all



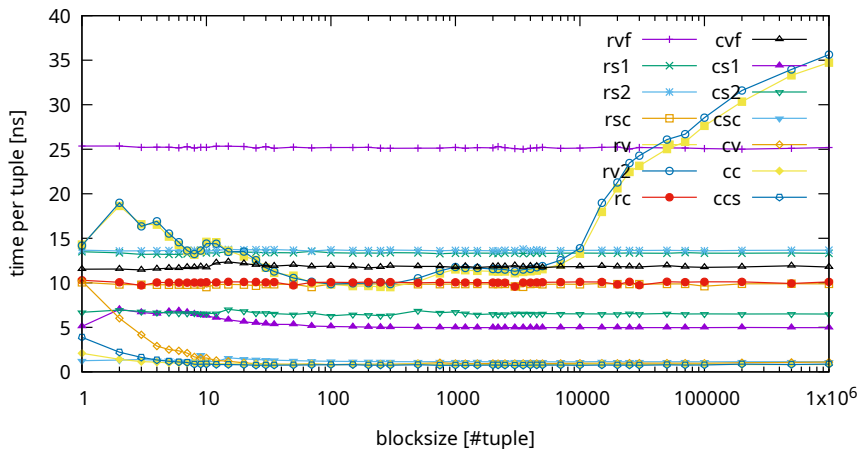
pi3-hiwi3₄ add/sub(1234) row



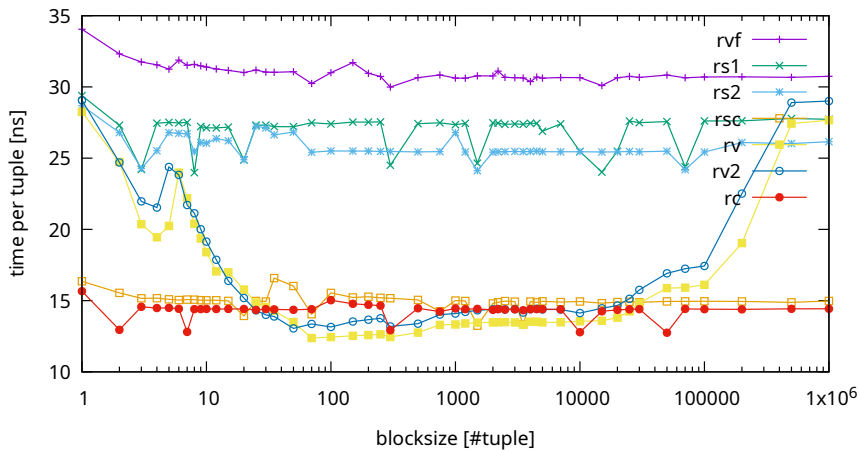
pi3-hiwi3₄ add/sub(1234) col



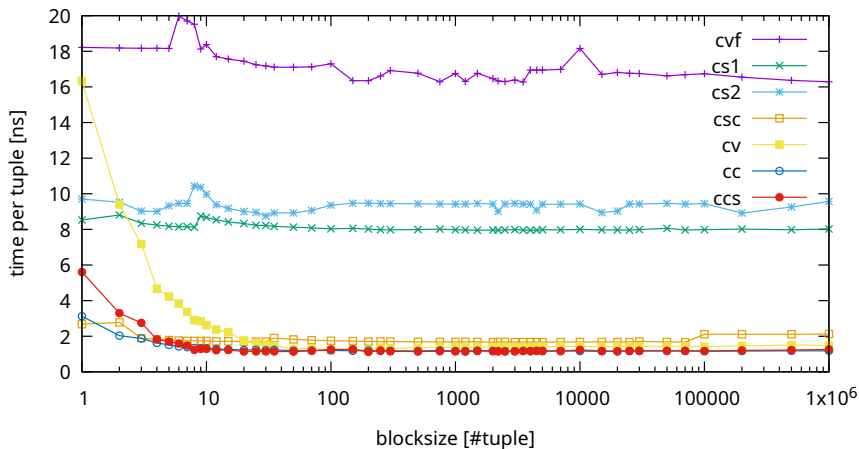
pi3-hiwi3₄ add/sub(1234) all



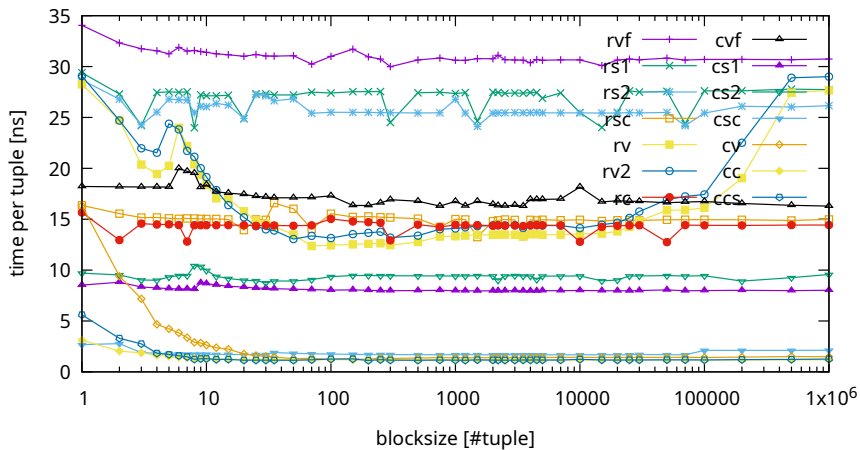
pi3-hiwi3₁7 add/sub(1234) row



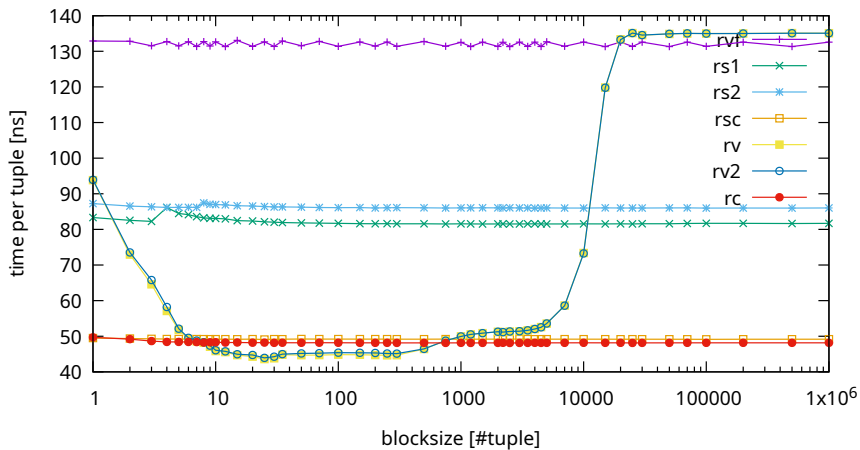
pi3-hiwi3₁7 add/sub(1234) col



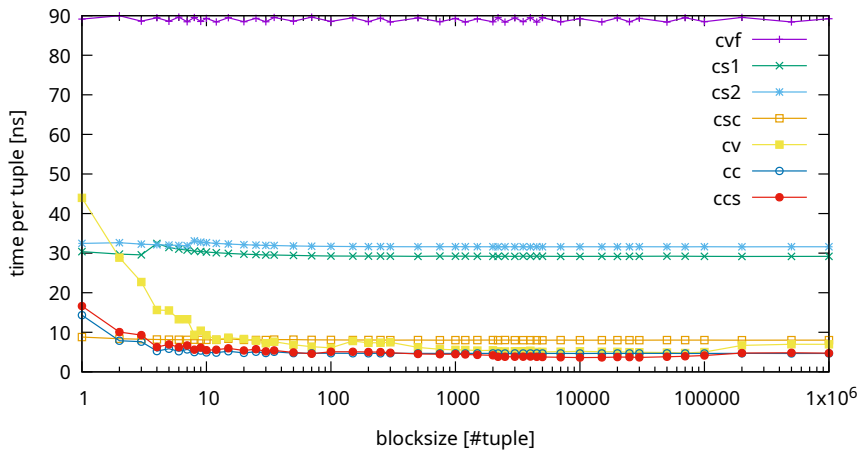
pi3-hiwi3₁7 add/sub(1234) all



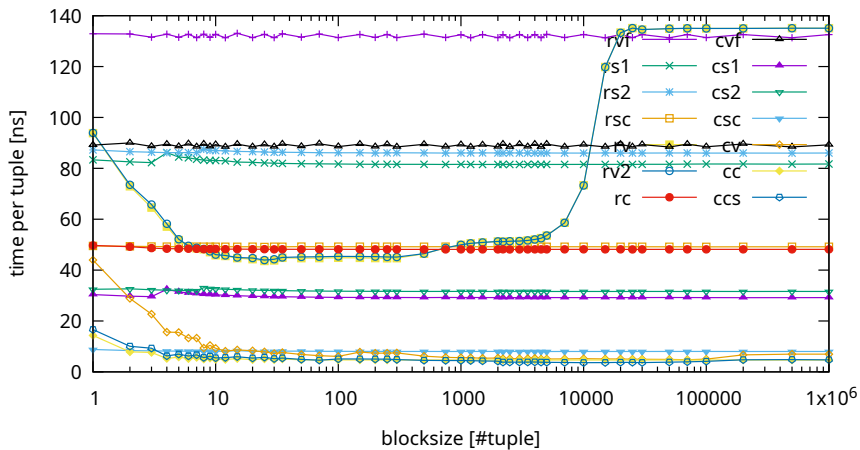
pi3-n2₄ add/sub(1234) row



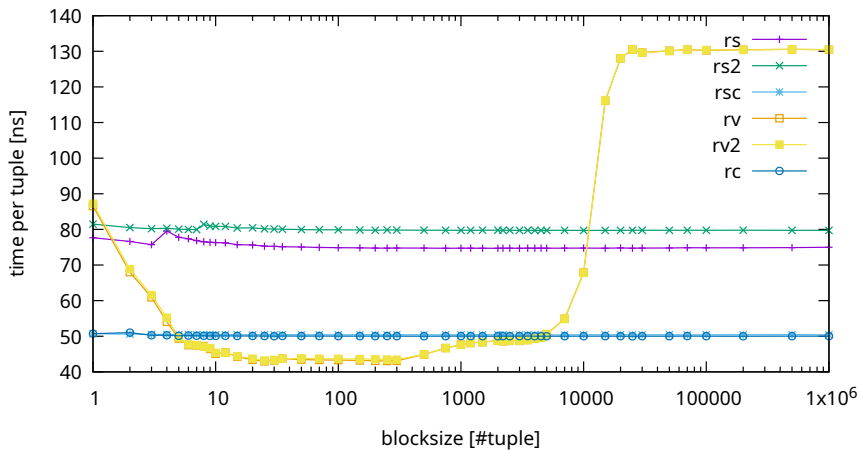
pi3-n2₄ add/sub(1234) col



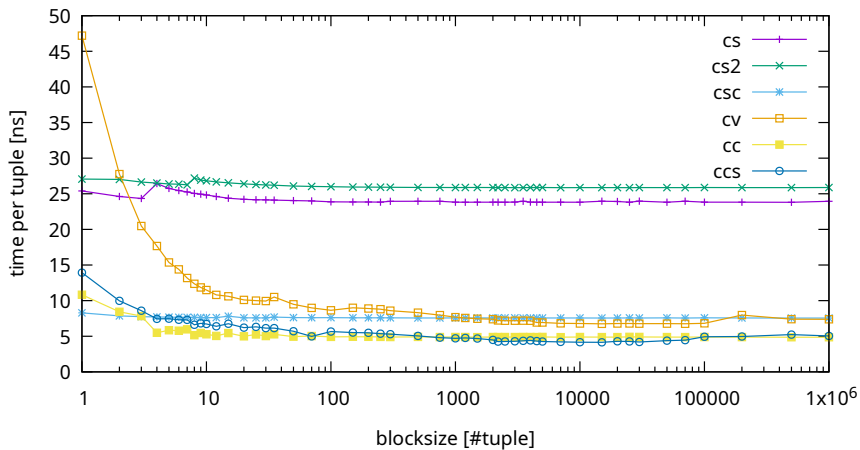
pi3-n2₄ add/sub(1234) all



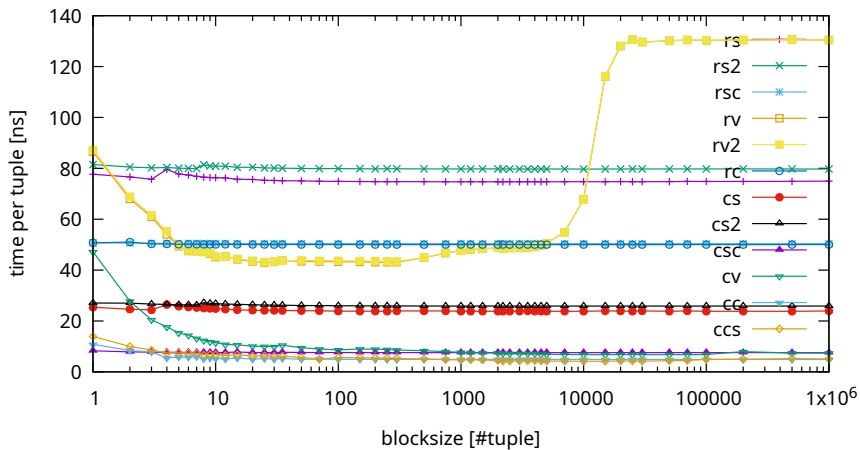
pi3-n2plus₄ add/sub(1234) row



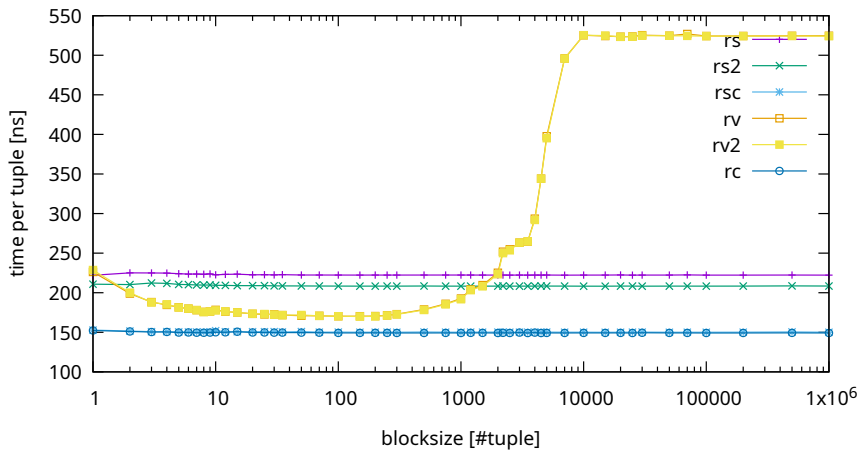
pi3-n2plus₄ add/sub(1234) col



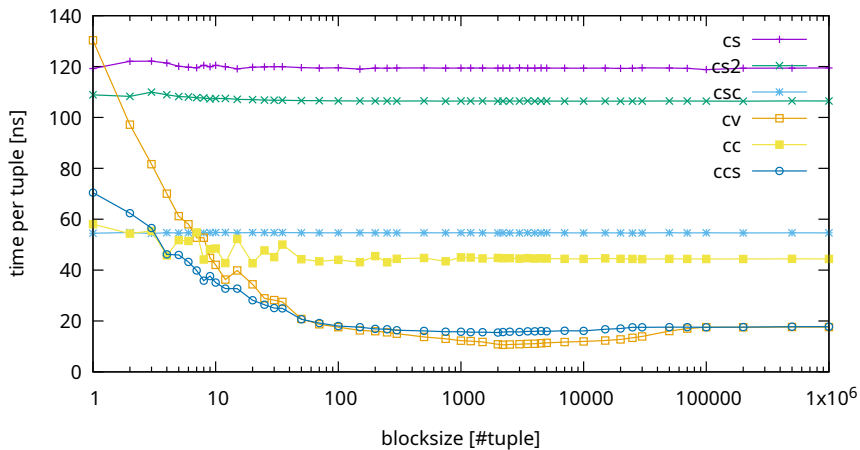
pi3-n2plus₄ add/sub(1234) all



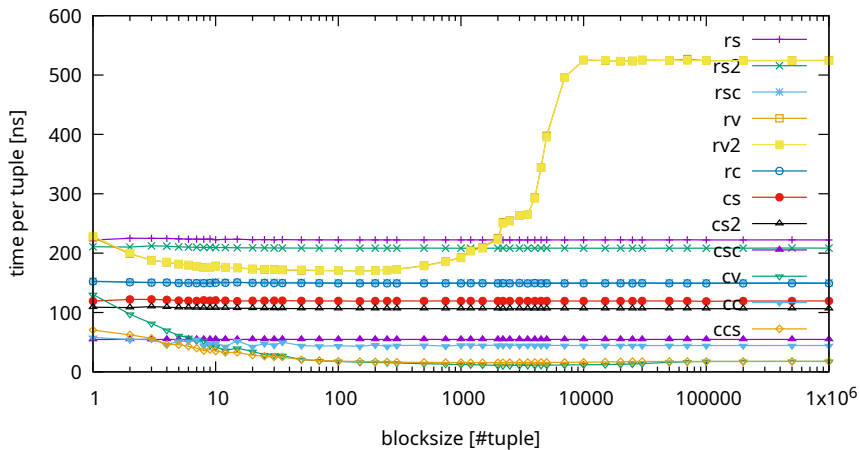
pi3-n2plus₀ add/sub(1234) row



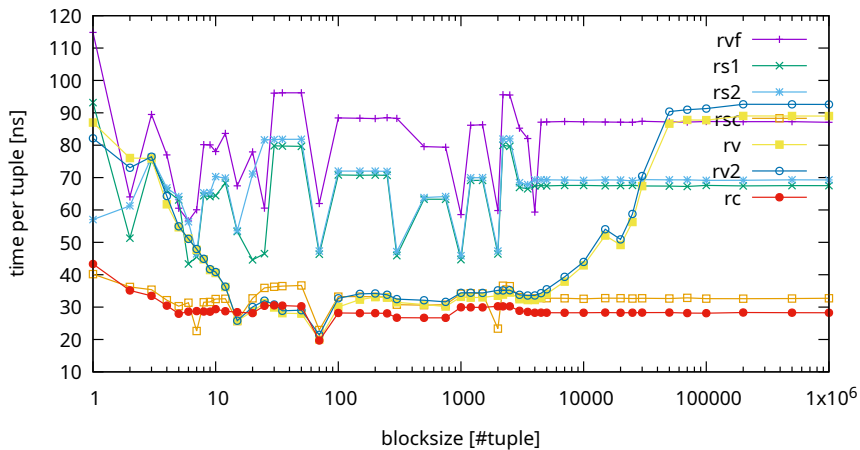
pi3-n2plus₀ add/sub(1234) col



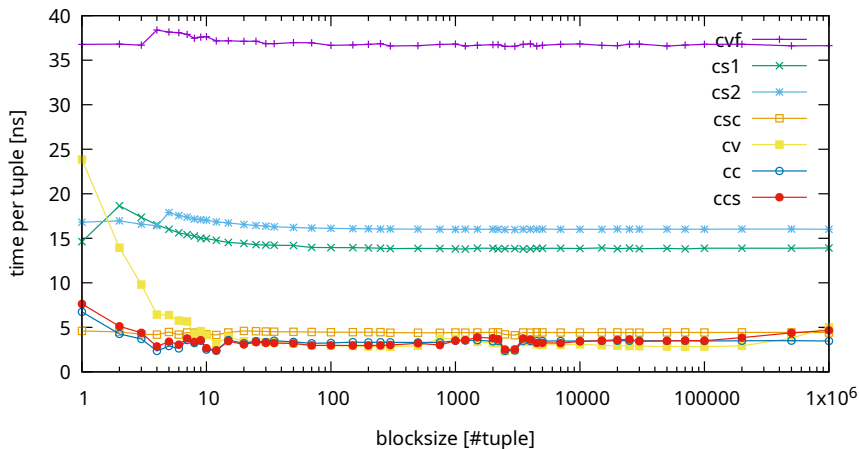
pi3-n2plus₀ add/sub(1234) all



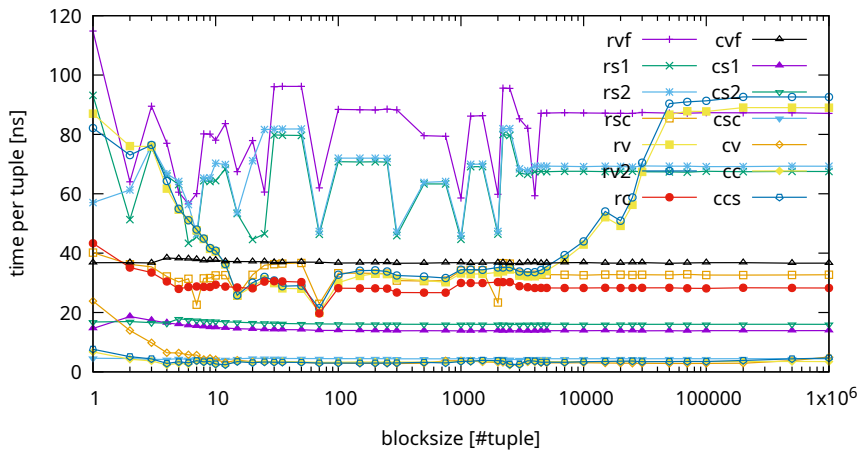
pi3-rock5b₄ add/sub(1234) row



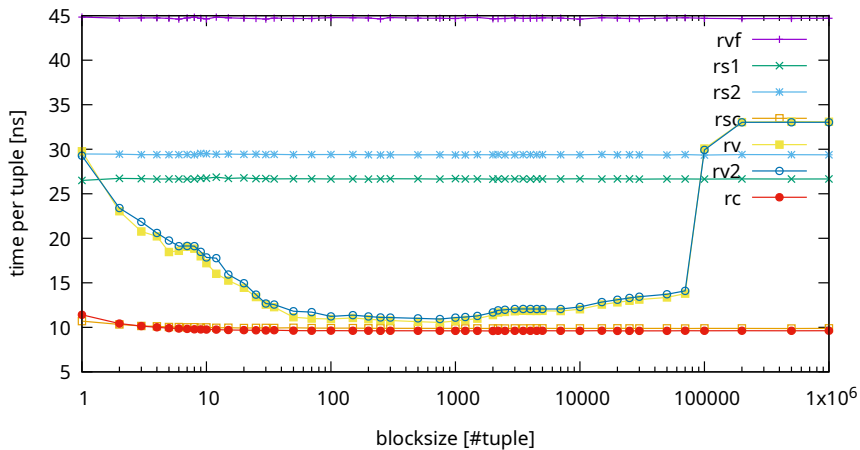
pi3-rock5b₄ add/sub(1234) col



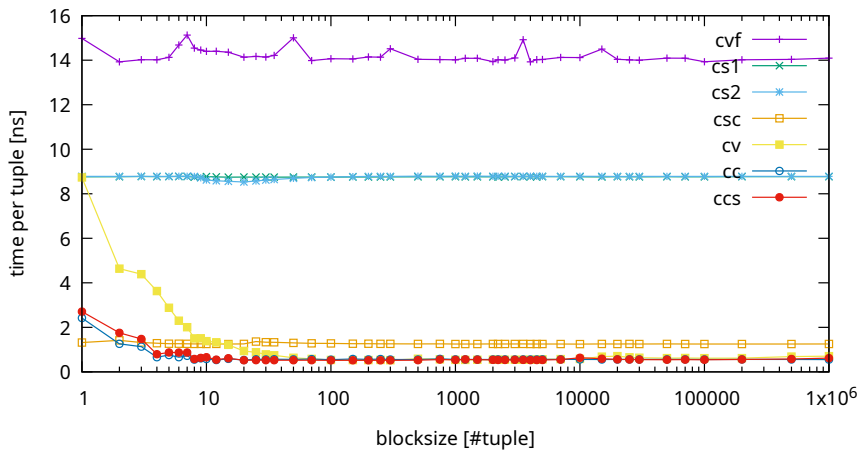
pi3-rock5b₄ add/sub(1234) all



pi3macmini1₄ add/sub(1234) row



pi3macmini1₄ add/sub(1234) col



pi3macmini1₄ add/sub(1234) all

