Katana – Measurements

Jean-Paul CHAPUT

1er décembre 2021

The Test Bench

Those test benchs have been run with :

Tool	Git Commit Hash
CORIOLIS	`ca499e024c20b50ea48a8e21f30225b60efb4527`
`alliance-check-toolkit`	`afb3d074279f8dd417a4d7c63f9fad481bba4014`

Be aware that the all the curves uses logarithmic scale on both axis.

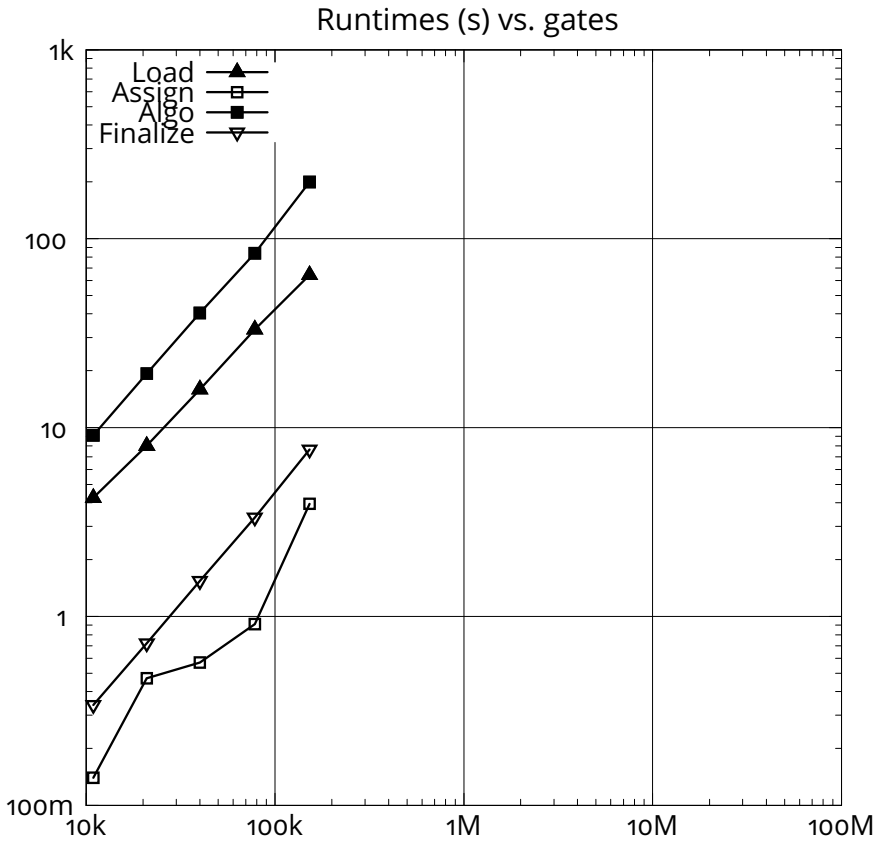
The figures shows that :

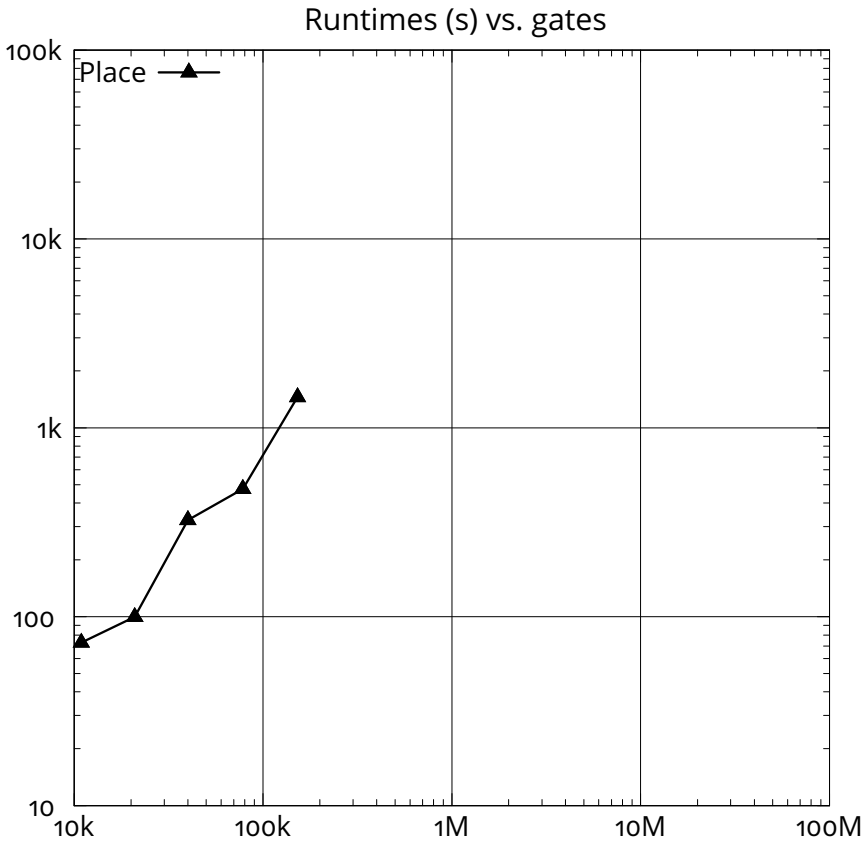
1. The runtime is quasi-linear.
2. The memory footprint is getting better as the design size increase...

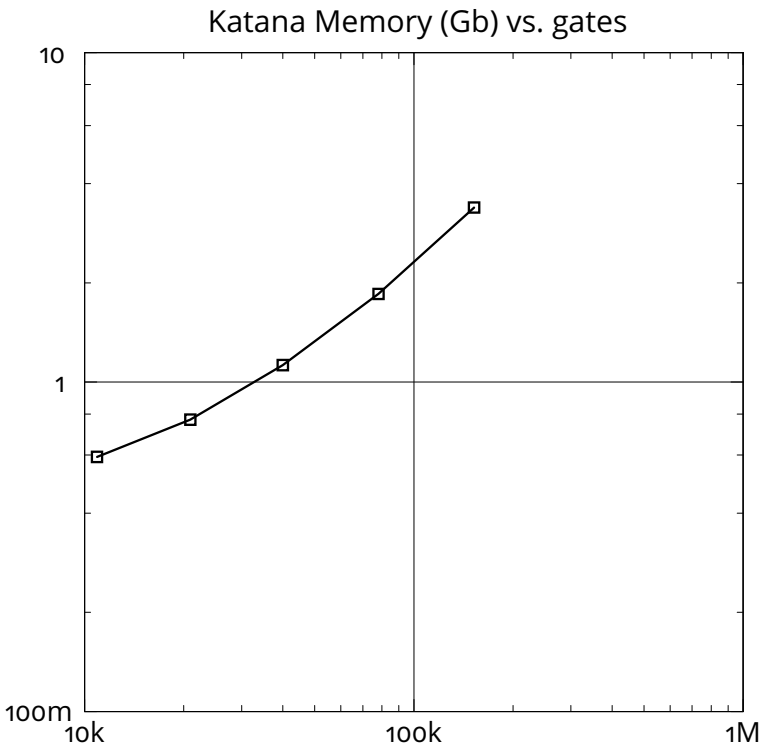
design	#gates	LoadT (s)	LoadS (Mb)	AssignT (s)	AlgoT (s)	AlgoS (Mb)	FinT (s)	#segments	#events
SoC benchmark									
matrix_4_4	10909.00	4.25	530	0.14	9.10	607	0.34	64970	128989
matrix_4_8	20933.00	8.01	653	0.47	19.30	788	0.72	125305	252616
matrix_8_8	39973.00	15.93	894	0.57	40.42	1152	1.54	240039	484030
matrix_8_16	78101.00	33.08	1387	0.91	83.77	1897	3.34	472037	957033
matrix_16_16	152341.00	64.32	2399	3.95	199.68	3469	7.65	940573	2137577

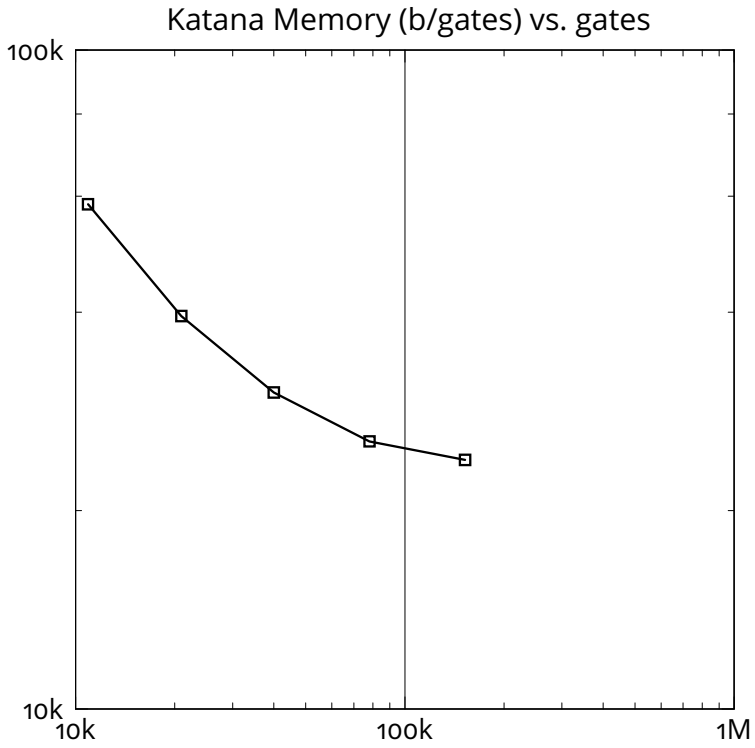
design	#gates	#gcells	PlaceT	#globals	#segments	Detailed WL	#events	#unique events
SoC benchmark								
matrix_4_4	10909	7656	72	28661	64970	2999639+0	128989	64970
matrix_4_8	20933	14762	99	55385	125305	6097139+0	252616	125305
matrix_8_8	39973	28224	325	106439	240039	11463316+0	484030	240039
matrix_8_16	78101	55460	474	209137	472037	23441583+0	957033	472037
matrix_16_16	152341	108241	1456	411931	940573	51029158+0	2137577	940573

Times & Speeds




Runtimes (s) vs. gates
Place
100k
10k
1k
100
10
10k
100k
1M
10M
100M


Katana Memory (Gb) vs. gates
10
1
100m
10k
100k
1M


Katana Memory (b/gates) vs. gates
100k
10k
10k
100k
1M