

Katana – Measurements

Jean-Paul Chaput

28 mai 2022

The Test Bench

Those test benches have been run with :

Tool	Git Commit Hash
November 23, 2021 – 20211123	
Coriolis alliance-check-toolkit	ca499e024c20b50ea48a8e21f30225b60efb4527 afb3d074279f8dd417a4d7c63f9fad481bba4014
May 28, 2022 – 20220528	
Coriolis alliance-check-toolkit	33e148440ca373130319111745f58deb63b68c17 fd452344a74421cb6bfcc88ae085758794d4d2d3

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									
arlet6502	2255	0.74	387	0.12	1.45	402	0.03	12765	19092
operator_lvl3	6065	2.55	452	0.17	6.41	509	0.13	44154	122771
operator_lvl2	7221	3.12	473	0.19	8.35	544	0.16	54455	156231
operator_lvl1	7256	2.46	452	0.07	4.57	500	0.12	41486	87167
operator_lvl0	8926	2.75	464	0.05	5.12	514	0.13	45291	88259
matrix_4_4	10909	3.82	492	0.10	7.42	570	0.19	64964	128947
dct_lvl1	16803	6.64	588	0.24	14.61	715	0.32	106035	259340
dct_lvl0	19958	6.32	584	0.10	12.20	692	0.33	97747	191337
matrix_4_8	20933	9.48	613	0.47	19.95	750	0.45	125297	252721
dct_lvl3	22603	15.74	780	1.55	51.87	1066	0.85	209770	677464
dct_lvl2	24011	16.93	811	1.58	53.55	1120	0.86	225120	735783
ao68000	24770	8.66	636	2.06	18.39	802	0.41	140067	227838
ieee_division	34870	14.37	776	0.81	36.53	1006	0.73	200590	438501
matrix_8_8	39973	18.71	850	0.54	38.52	1114	1.08	240023	484001
vld	53614	24.01	1158	3.98	147.98	1698	1.80	394329	1215955
matrix_8_16	78101	30.33	1336	0.66	67.43	1857	1.91	471849	956443
ethmac	97946	21.65	2192	2.31	63.47	2571	2.87	307651	535647
corona	133059	25.90	1653	0.52	80.48	2128	2.90	394334	717146
matrix_16_16	152341	61.58	2334	2.97	166.66	3426	4.81	940625	2142165

design	#gates	#gcells	PlaceT	#globals	#segments	Detailed WL	#events	#unique events
SoC benchmark								
arlet6502	2255	1089	5	5837	12765	115590+0	19092	12765
operator_lvl3	6065	5328	0	18830	44154	2358078+0	122771	44154
operator_lvl2	7221	6399	0	23259	54455	2904944+0	156231	54455
operator_lvl1	7256	5402	0	17933	41486	1996135+0	87167	41486
operator_lvl0	8926	6160	0	19480	45291	2113122+0	88259	45291
matrix_4_4	10909	7656	57	28661	64964	3000224+0	128947	64964
dct_lvl1	16803	12768	0	44854	106035	5028432+0	259340	106035
dct_lvl0	19958	12995	0	41006	97747	4367619+0	191337	97747
matrix_4_8	20933	14762	93	55385	125297	6096980+0	252721	125297
dct_lvl3	22603	22648	0	86372	209770	11387333+0	677464	209770
dct_lvl2	24011	24335	0	93780	225120	12137659+0	735783	225120
ao68000	24770	11664	95	65452	140067	1775652+0	227838	140067
ieee_division	34870	21608	0	84436	200590	9754365+0	438501	200590
matrix_8_8	39973	28224	260	106439	240023	11463657+0	484001	240023
vld	53614	53592	305	178667	394329	28222663+0	1215955	394329
matrix_8_16	78101	55460	374	209137	471849	23441317+0	956443	471849
ethmac	97946	44100	328	154975	307651	8109922+0	535647	307651
corona	133059	102200	325	182427	394334	7259387+0	717146	394334
matrix_16_16	152341	108241	1116	411931	940625	51034936+0	2142165	940625

Times & Speeds







