A. Overview of Results

We give a full overview of the obtained benchmark results. Each pair of rows corresponds to a benchmark instance, where the row above is the baseline, and the row below the simplified version. An asterix behind the name indicates that the benchmark is included in the scatter plots in Figure 9. The next columns correspond to:

2. The number of elements in the DFT.
3. The number of basic events in the DFT.
4. The highest number of states in an intermediate model (CADP).
5. The memory consumption of the largest intermediate model (CADP).
6. The ration of memory (baseline divided by rewritten version, bigger is better).
7. The final number of states in the output of CADP.
8. The ratio of final states (baseline divided by rewritten version, bigger is better).
9. Time consumption by DFTCalc.
10. Time consumption by Groove.
11. Total time for the baseline divided by the total time for the rewriting and the analysis of the rewritten version (bigger is better).

The time for DFTCalc corresponds to the model construction and analysis of the resulting Markov chain. We exclude the time to create the initial IMCs, as this step is only executed once per computer and then cached for other instances.

Notice that we normalize all baseline experiments. That is, we reorder the list of elements in the input with a topological sort. (The order of elements has an influence on the internals of CADP, but we do not want to measure the effects of reordering, therefore, we use a similar ordering for the baseline as for the simplified DFTs)

Furthermore, we attached some more figures in the style of Figure 10.

	$|V|$	$|F_{\mathrm{BE}}|$	$\max_i |S_i|$	Mem	$\frac{\mathrm{Mem_{bs}}}{\mathbf{t_{rw}}}$	$|S_n|$	$\frac{|\mathbf{S_n}|_{\mathrm{bs}}}{|\mathbf{S_n}|_{\mathrm{rw}}}$	t_D	t_G	$\frac{\mathbf{t_{bs}}}{\mathbf{t_{rw}}}$
HECS										
h-1-1-1-np*	21	13	7058	151		79		75		
simplified	13	9	123	3.7	**40.8**	12	**6.6**	22	10	**2.4**
h-1-1-1-up*	24	15	831	20.4		18		84		
simplified	13	9	123	3.7	**5.5**	5	**3.6**	5	10	**5.4**
h-1-1-2-np*	25	14	3948	58		33		91		
simplified	23	13	5477	71.2	**0.8**	33	**1.0**	71	9	**1.1**
h-1-1-2-up*	28	16	3265	58		18		102		
simplified	23	13	5469	71.7	**0.8**	18	**1.0**	69	10	**1.3**
h-2-1-1-np*	43	26	831	20		192		201		
simplified	27	18	340	5.2	**3.8**	57	**3.4**	53	12	**3.1**
h-2-1-1-up*	47	29	2053	19.9		272		224		
simplified	29	19	489	6.2	**3.2**	57	**4.8**	64	12	**2.9**
h-2-1-2-np*	51	28	378805	6779.9		2816		415		
simplified	47	26	5477	71.3	**95.1**	498	**5.7**	252	11	**1.6**
h-2-1-2-up*	55	31	179133	3080.2		1378		417		
simplified	49	27	5477	71.5	**43.1**	138	**10.0**	261	11	**1.5**
h-2-2-1-np*	43	26	95637	1779.3		172		220		
simplified	24	17	1707	12.1	**147.0**	198	**0.9**	56	11	**3.3**
h-2-2-1-up*	47	29	1537	19.9		243		224		
simplified	24	17	888	8.2	**2.4**	111	**2.2**	63	14	**2.9**
h-2-2-2-np*	51	28	201009	3601.7		1631		407		
simplified	44	25	5469	71.8	**50.2**	273	**6.0**	218	11	**1.8**
h-2-2-2-up*	55	31	157786	2777.7		2238		400		
simplified	44	25	5477	71.3	**39.0**	317	**7.1**	219	12	**1.7**
h-3-1-1-np*	64	39	21850	199.9		1332		403		
simplified	40	27	3355	29.2	**6.8**	222	**6.0**	121	11	**3.0**
h-3-1-1-up*	69	43	15881	157.3		1798		487		
simplified	42	28	6800	47.7	**3.3**	222	**8.1**	138	15	**3.2**
h-3-1-2-np*	76	42	92752	1004.3		5458		769		
simplified	70	39	92752	1004.4	**1.0**	5458	**1.0**	518	12	**1.4**
h-3-1-2-up*	81	46	76307	932.3		5042		1006		
simplified	72	40	26489	195.2	**4.8**	818	**6.2**	549	12	**1.8**
h-3-2-1-np	64	39	21750	199.8		1552		404		
simplified	40	27	3327	29.1	**6.9**	204	**7.6**	122	12	**3.0**

h-3-2-1-up	69	43	18001	180		6069		489		
simplified	41	28	12726	78.5	**2.3**	968	**6.3**	133	12	**3.4**
h-3-2-2-np	76	42	92507	1004.4		7244		772		
simplified	70	39	92507	1004.4	**1.0**	7244	**1.0**	521	12	**1.4**
h-3-2-2-up	81	46	83473	1012.6		25908		1008		
simplified	71	40	21626	189.1	**5.4**	4092	**6.3**	573	16	**1.7**
h-3-3-1-np*	64	39	4182	44		745		404		
simplified	35	25	11607	67.3	**0.7**	461	**1.6**	94	12	**3.8**
h-3-3-1-up*	69	43	9316	110		4281		488		
simplified	35	25	6904	52.6	**2.1**	531	**8.1**	102	12	**4.3**
h-3-3-2-np*	76	42	26103	244.4		3279		771		
simplified	65	37	27894	232	**1.1**	2645	**1.2**	465	11	**1.6**
h-3-3-2-up*	81	46	60114	651.8		18258		1009		
simplified	65	37	30939	258.2	**2.5**	3431	**5.3**	465	13	**2.1**
h-4-1-1-np*	85	52	218389	2368.2		15467		782		
simplified	53	36	18478	166.6	**14.2**	717	**21.6**	179	12	**4.1**
h-4-1-1-up*	91	57	229290	2919.3		68608		1041		
simplified	55	37	36881	263.8	**11.1**	717	**95.7**	205	16	**4.7**
h-4-1-2-np*	101	56	1482857	21487.1		84025		2343		
simplified	93	52	1482857	21508.8	**1.0**	46378	**1.8**	997	12	**2.3**
h-4-1-2-up*	107	61	1256734	21699.1		220656		3236		
simplified	95	53	223639	1911.6	**11.4**	3878	**56.9**	1020	13	**3.1**
h-4-2-1-np	85	52	247426	2809.9		20098		787		
simplified	53	36	18450	166.4	**16.9**	699	**28.8**	180	16	**4.0**
h-4-2-1-up	91	57	333800	4257		116284		1065		
simplified	54	37	160813	1042	**4.1**	6661	**17.5**	213	13	**4.7**
h-4-2-2-np	101	56	1749092	26680.7		141532		2416		
simplified	93	52	1749092	26695.8	**1.0**	110566	**1.3**	1021	12	**2.3**
h-4-2-2-up	107	61	2557673	43937		839744		3599		
simplified	94	53	437426	4248.9	**10.3**	66876	**12.6**	1197	13	**3.0**
h-4-3-1-np	85	52	334620	3873.8		41213		831		
simplified	53	36	15460	143.6	**27.0**	598	**68.9**	180	14	**4.3**
h-4-3-1-up	91	57	312886	3961		102362		1103		
simplified	54	37	113912	1140.1	**3.5**	3719	**27.5**	211	15	**4.9**
h-4-3-2-np	101	56	2405020	37411.2		293300		2459		
simplified	93	52	2383829	37058.9	**1.0**	262898	**1.1**	1112	13	**2.2**
h-4-3-2-up	107	61	2485130	42706.7		798504		3575		
simplified	94	53	395887	3773.6	**11.3**	56830	**14.1**	1192	13	**3.0**
h-4-4-1-np*	85	52	29490	323.8		6819		778		
simplified	46	33	49051	351	**0.9**	2093	**3.3**	154	13	**4.7**
h-4-4-1-up*	91	57	161582	2196.9		75980		1042		
simplified	46	33	58771	417.7	**5.3**	3005	**25.3**	163	15	**5.9**
h-4-4-2-np*	101	56	213220	3340.6		47745		2296		
simplified	86	49	182899	1383.9	**2.4**	16340	**2.9**	950	13	**2.4**
h-4-4-2-up*	107	61	1070002	19979.1		441985		3293		
simplified	86	49	152799	1145.2	**17.4**	12366	**35.7**	945	13	**3.4**
h-5-1-1-np*	106	65	1950564	27563.3		235390		1611		
simplified	66	45	74143	737	**37.4**	2004	**117.5**	263	15	**5.8**
h-5-1-1-up*	113	71	4297963	74634.4		1415747		3297		
simplified	68	46	147716	1119.9	**66.6**	2004	**706.5**	294	15	**10.7**
h-5-1-2-np*	126	70						TO		
simplified	116	65	16311707	326493		324634		2366	14	
h-5-1-2-up*	133	76						TO		
simplified	118	66	1343179	13239		15506		1823	14	
h-5-5-1-np*	106	65	401718	3804.7		46346		1509		
simplified	57	41	343891	2548.8	**1.5**	5882	**7.9**	253	17	**5.6**
h-5-5-1-up*	113	71	2324276	37556		933524		2697		
simplified	57	41	258355	1875.1	**20.0**	4640	**201.2**	252	14	**10.1**
h-5-5-2-np*	126	70	4264578	58404.2		648894		7059		
simplified	107	61	458365	4561.7	**12.8**	35639	**18.2**	1933	13	**3.6**
h-5-5-2-up*	133	76						TO		
simplified	107	61	601267	6013.1		63101		1957	14	
h-6-1-1-np*	127	78						TO		
simplified	79	54	241750	2607.2		5007		372	15	
h-6-1-1-up*	135	85						TO		
simplified	81	55	481643	3905.4		5007		418	16	
h-6-1-2-np*	151	84						TO		
simplified	139	78						TO	16	
h-6-1-2-up*	159	91						MO		
simplified	141	79	6391567	72893.6		54266		3314	17	
h-6-6-1-np*	127	78	3097533	32860.5		644092		3198		
simplified	68	49	1832644	14540.5	**2.3**	10167	**63.4**	471	14	**6.6**
h-6-6-1-up*	135	85						TO		
simplified	68	49	2230219	17081.8		13316		492	15	
h-6-6-2-np*	151	84						TO		
simplified	128	73	6818683	96757.8		326943		5361	14	
h-6-6-2-up*	159	91						MO		
simplified	128	73	4710191	57250.5		400970		4867	15	
h-7-1-1-np	148	91						TO		
simplified	92	63	678967	7932.1		11442		569	17	
h-7-1-1-up	157	99						TO		
simplified	94	64	1353074	11787.7		11442		660	16	
h-7-1-2-np	176	98						MO		
simplified	162	91						TO	16	

h-7-1-2-up	185	106						MO		
simplified	164	92	25612855	338843		170546		6534	18	
h-7-7-1-np	148	91						TO		
simplified	79	57	5035735	41776.8		27898		1058	15	
h-7-7-1-up	157	99						TO		
simplified	79	57	3957139	47334.8		45452		1033	18	
h-7-7-2-np	176	98						MO		
simplified	149	85						TO	14	
h-7-7-2-up	185	106						MO		
simplified	149	85						TO	15	
h-8-1-1-np	169	104						TO		
simplified	105	72	1702132	21516.3		24312		850	16	
h-8-1-1-up	179	113						TO		
simplified	107	73	3392969	33615.4		24312		1077	18	
h-8-1-2-np	201	112						MO		
simplified	185	104						MO	15	
h-8-1-2-up	211	121						MO		
simplified	187	105						TO	16	
h-8-8-1-np	169	104						TO		
simplified	90	65	8694964	71121.8		103105		2003	17	
h-8-8-1-up	179	113						TO		
simplified	90	65	9702307	74744.6		29575		2086	19	
h-8-8-2-np	201	112						MO		
simplified	170	97						TO	15	
h-8-8-2-up	211	121						MO		
simplified	170	97						TO	20	

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simplified	108	64						TO	12	
c-1-1-2-dp*	23	12	10682	91		28		83		
simplified	21	12	297	6	**15.2**	28	**1.0**	68	10	**1.1**
c-1-1-2-sp*	21	11	6438	56		18		75		
simplified	18	10	1042	13	**4.3**	18	**1.0**	61	11	**1.0**
c-1-1-3-dp*	31	16	64134	919		46		140		
simplified	28	16	6546	54	**17.0**	46	**1.0**	93	11	**1.3**
c-1-1-3-sp*	29	15	78662	1132		28		132		
simplified	25	14	6357	53	**21.4**	28	**1.0**	85	10	**1.4**
c-1-1-4-dp*	40	21	61924	890		140		193		
simplified	36	21	5697	33	**27.0**	140	**1.0**	132	12	**1.3**
c-1-1-4-sp*	38	20	132893	1552		81		174		
simplified	33	19	5697	33	**47.0**	81	**1.0**	122	10	**1.3**
c-1-1-5-dp*	48	25	1279080	34019		382		650		
simplified	43	25	69997	559	**60.9**	418	**0.9**	175	12	**3.5**
c-1-1-5-sp*	46	24	1140848	15420		213		281		
simplified	40	23	70237	563	**27.4**	231	**0.9**	164	10	**1.6**
c-1-1-6-dp*	57	30	15107242	442479		835		4709		
simplified	51	30	19029	135	**3277.6**	506	**1.7**	224	11	**20.1**
c-1-1-6-sp*	55	29	933104	14506		368		353		
simplified	48	28	19029	135	**107.5**	279	**1.3**	211	11	**1.6**
c-1-1-7-dp*	65	34						MO		
simplified	58	34	486969	2760		2816		288	11	
c-1-1-7-sp*	63	33	4329730	58326		1332		835		
simplified	55	32	484857	2728	**21.4**	1514	**0.9**	271	13	**2.9**
c-1-1-8-dp*	74	39						MO		
simplified	66	39	588461	3663.1		1485		363	12	
c-1-1-8-sp*	72	38	21137311	399353		8220		2808		
simplified	63	37	588461	3661	**109.1**	796	**10.3**	350	10	**7.8**
c-1-1-9-dp*	82	43						TO		
simplified	73	43	329404	3113		27196		467	12	
c-1-1-9-sp*	80	42						TO		
simplified	70	41	657362	6226		10983		452	14	
c-1-1-10-dp*	91	48						TO		
simplified	81	48	2814489	27695.7		43154		663	11	
c-1-1-10-sp*	89	47						TO		
simplified	78	46	2825753	27889		22598		648	14	
c-1-1-11-dp*	99	52						TO		
simplified	88	52	9303636	67587.7		150570		1075	12	
c-1-1-11-sp*	97	51						TO		
simplified	85	50	9303636	67586		78206		1005	11	
c-1-1-12-dp*	108	57						TO		
simplified	96	57	23908239	192709		249672		2364	12	
c-1-1-12-sp*	106	56						TO		
simplified	93	55	13187345	180848		4		1497	12	
c-1-1-13-sp*	114	60						TO		
simplified	100	59	44683774	490519		1111109		6310	12	
c-1-1-14-sp*	123	65						TO		
c-2-1-2-dp	47	24	359352	3328		380		258		
simplified	43	24	1477	15	**221.9**	253	**1.5**	179	11	**1.4**
c-2-1-2-sp	43	22	113123	1040		131		226		
simplified	37	20	1022	13	**80.0**	88	**1.5**	158	11	**1.3**
c-2-1-3-dp	63	32	4434806	52692		1428		709		
simplified	57	32	533064	10534	**5.0**	740	**1.9**	306	11	**2.2**
c-2-1-3-sp	59	30	2338496	28618		431		562		

simplified	51	28	870532	14131	**2.0**	397	**1.1**	310	11	**1.7**
c-2-1-4-dp	81	42	1042324	20791		7414		894		
simplified	73	42	167252	1652	**12.6**	8769	**0.8**	404	11	**2.2**
c-2-1-4-sp	77	40	131727	1533		2079		575		
simplified	67	38	60687	544	**2.8**	2607	**0.8**	359	12	**1.6**
c-2-2-2-dp	47	24	543036	8704		371		269		
simplified	40	23	1116	12	**725.3**	185	**2.0**	157	11	**1.6**
c-2-2-2-sp	43	22	324955	5171		117		231		
simplified	34	19	456	6	**861.8**	77	**1.5**	133	13	**1.6**
c-2-2-3-dp	63	32	3571206	26363		9451		634		
simplified	54	31	6357	53	**497.4**	548	**17.2**	239	11	**2.5**
c-2-2-3-sp	59	30	1986404	15369		487		496		
simplified	48	27	6546	54	**284.6**	208	**2.3**	207	14	**2.2**
c-2-2-4-dp	81	42	1197420	21574		10286		928		
simplified	70	41	58575	659	**32.7**	6651	**1.5**	372	12	**2.4**
c-2-2-4-sp	77	40	131727	1533		2054		576		
simplified	64	37	14692	194	**7.9**	2547	**0.8**	322	12	**1.7**
c-3-1-2-dp*	70	36	29767	332		1828		441		
simplified	64	36	29767	332	**1.0**	1828	**1.0**	326	11	**1.3**
c-3-1-2-sp*	64	33	6344	56		343		384		
simplified	55	30	4852	47	**1.2**	343	**1.0**	283	11	**1.3**
c-3-1-3-dp*	94	48						TO		
simplified	85	48	157791	2012		9260		545	12	
c-3-1-3-sp*	88	45	21067228	165210		5011		3027		
simplified	76	42	22872	248	**666.2**	1451	**3.5**	465	12	**6.3**
c-3-1-4-dp*	121	63	8671123	205172		310132		2166		
simplified	109	63	11465000	196120	**1.0**	797950	**0.4**	1847	15	**1.2**
c-3-1-4-sp*	115	60	1707356	24957		82413		1487		
simplified	100	57	2096338	28742	**0.9**	98569	**0.8**	858	15	**1.7**
c-3-2-2-dp*	70	36	29678	332		2991		443		
simplified	64	36	29678	332	**1.0**	2991	**1.0**	327	14	**1.3**
c-3-2-2-sp*	64	33	6344	56		332		385		
simplified	55	30	4830	47	**1.2**	332	**1.0**	284	12	**1.3**
c-3-2-3-dp*	94	48						TO		
simplified	85	48	157562	2010		15863		546	12	
c-3-2-3-sp*	88	45	20855116	163589		4978		3086		
simplified	76	42	22834	248	**659.6**	1432	**3.5**	465	12	**6.5**
c-3-2-4-dp*	121	63	8745830	207517		703963		2373		
simplified	109	63	17402416	298823	**0.7**	984545	**0.7**	2414	12	**1.0**
c-3-2-4-sp*	115	60	1709142	24175		84922		1543		
simplified	100	57	2064924	27077	**0.9**	128294	**0.7**	864	12	**1.8**
c-3-3-2-dp*	70	36	10521	92		2935		473		
simplified	59	34	15634	137	**0.7**	2170	**1.4**	284	13	**1.6**
c-3-3-2-sp*	64	33	6344	56		546		411		
simplified	50	28	3321	30	**1.9**	553	**1.0**	227	14	**1.7**
c-3-3-3-dp*	94	48	10759574	117530		24181		1625		
simplified	80	46	53460	689	**170.6**	11828	**2.0**	494	15	**3.2**
c-3-3-3-sp*	88	45	6048731	67634		3754		1386		
simplified	71	40	14130	166	**407.4**	2888	**1.3**	393	12	**3.4**
c-3-3-4-dp*	121	63	5917902	128447		720129		2363		
simplified	104	61	4670873	83248	**1.5**	473260	**1.5**	1184	12	**2.0**
c-3-3-4-sp*	115	60	769756	11080		112343		1444		
simplified	95	55	825088	17702	**0.6**	122436	**0.9**	723	12	**2.0**

RC

rc-01-01-hc*	35	21	47400	1034		328		170		
simplified	19	13	207	5	**198.9**	48	**6.8**	54	11	**2.6**
rc-01-01-sc*	15	9	452	8		8		54		
simplified	8	5	106	4	**2.1**	7	**1.1**	16	9	**2.1**
rc-01-02-hc	42	24	68470	1494		571		222		
simplified	22	15	618	7	**219.7**	111	**5.1**	55	11	**3.4**
rc-01-02-sc	22	12	790	12		11		92		
simplified	11	7	172	4	**2.8**	9	**1.2**	26	11	**2.5**
rc-01-03-hc	48	27	89540	1954		687		271		
simplified	25	17	708	8	**241.2**	129	**5.3**	64	11	**3.6**
rc-01-03-sc	28	15	980	14		14		118		
simplified	14	9	184	5	**3.0**	11	**1.3**	33	10	**2.8**
rc-01-04-hc	54	30	17929	396		387		321		
simplified	28	19	2436	16	**25.1**	219	**1.8**	82	11	**3.4**
rc-01-04-sc	34	18	314	6		17		162		
simplified	17	11	199	5	**1.1**	13	**1.3**	49	11	**2.7**
rc-01-05-hc*	60	33	17929	394		448		381		
simplified	31	21	2482	21	**18.9**	282	**1.6**	81	11	**4.1**
rc-01-05-sc*	40	21	324	6		20		202		
simplified	20	13	493	7	**0.9**	15	**1.3**	47	10	**3.5**
rc-01-10-hc*	90	48	17929	394		891		890		
simplified	46	31	17724	97	**4.1**	926	**1.0**	191	12	**4.4**
rc-01-10-sc*	70	36	1124	18		35		537		
simplified	35	23	1177	18	**1.0**	25	**1.4**	119	11	**4.1**
rc-01-15-hc*	120	63	89034	1355		1727		2201		
simplified	61	41	15680	145	**9.4**	723	**2.4**	368	12	**5.8**
rc-01-15-sc*	100	51	4904	131		50		1379		
simplified	50	33	3437	55	**2.4**	35	**1.4**	228	12	**5.7**

rc-01-20-hc*	150	78	189166	3783		1982		5332		
simplified	76	51	49523	368	**10.3**	3801	**0.5**	759	14	**6.9**
rc-01-20-sc*	130	66	12232	327		65		3575		
simplified	65	43	3135	79	**4.1**	45	**1.4**	460	12	**7.6**
rc-01-25-hc*	180	93						TO		
simplified	91	61	37848	293		1879		1605	15	
rc-01-25-sc*	160	81						TO		
simplified	80	53	8110	244		55		990	13	
rc-01-30-hc*	210	108						TO		
simplified	106	71	29315	1172		777		3306	18	
rc-01-30-sc*	190	96						TO		
simplified	95	63	11166	385		65		2054	13	
rc-02-01-hc	43	26	68424	1493		526		225		
simplified	22	15	348	6	**257.4**	57	**9.2**	55	11	**3.4**
rc-02-01-sc	23	14	1598	27		10		110		
simplified	11	7	172	4	**6.4**	9	**1.1**	26	10	**3.0**
rc-02-02-hc	50	29	100006	2222		749		294		
simplified	25	17	483	7	**317.4**	84	**8.9**	64	11	**3.9**
rc-02-02-sc	30	17	2204	36		14		150		
simplified	14	9	184	5	**7.8**	12	**1.2**	33	10	**3.5**
rc-02-03-hc	56	32	131588	2882		885		358		
simplified	28	19	3060	19	**150.1**	280	**3.2**	74	13	**4.1**
rc-02-03-sc	36	20	3725	60		18		188		
simplified	17	11	464	5	**11.1**	15	**1.2**	40	12	**3.6**
rc-02-04-hc	62	35	831	20		277		402		
simplified	31	21	2483	21	**0.9**	327	**0.8**	100	12	**3.6**
rc-02-04-sc	42	23	1745	32		22		229		
simplified	20	13	592	7	**4.4**	18	**1.2**	60	11	**3.2**
rc-03-01-hc	50	31	1388	20		152		282		
simplified	25	17	440	7	**2.8**	75	**2.0**	71	14	**3.3**
rc-03-01-sc	30	19	2348	36		12		148		
simplified	14	9	186	5	**7.6**	11	**1.1**	33	10	**3.5**
rc-03-02-hc	57	34	831	20		221		356		
simplified	28	19	2748	18	**1.1**	255	**0.9**	74	12	**4.1**
rc-03-02-sc	37	22	3110	50		17		194		
simplified	17	11	384	5	**9.5**	15	**1.1**	41	11	**3.8**
rc-03-03-hc	63	37	831	20		294		428		
simplified	31	21	1503	14	**1.4**	147	**2.0**	91	11	**4.2**
rc-03-03-sc	43	25	4570	63		22		235		
simplified	20	13	593	7	**8.7**	19	**1.2**	53	11	**3.7**
rc-03-04-hc	69	40	898	20		352		515		
simplified	34	23	3678	26	**0.8**	597	**0.6**	116	12	**4.0**
rc-03-04-sc	49	28	315	6		27		282		
simplified	23	15	681	9	**0.6**	23	**1.2**	69	11	**3.5**
rc-04-01-hc	57	36	831	20		139		370		
simplified	28	19	2748	18	**1.1**	165	**0.8**	82	11	**4.0**
rc-04-01-sc	37	24	315	6		14		182		
simplified	17	11	384	5	**1.1**	13	**1.1**	40	11	**3.6**
rc-04-02-hc	64	39	831	20		225		464		
simplified	31	21	3042	25	**0.8**	498	**0.5**	92	12	**4.5**
rc-04-02-sc	44	27	315	6		20		237		
simplified	20	13	593	7	**0.8**	18	**1.1**	53	11	**3.7**
rc-04-03-hc	70	42	831	20		291		554		
simplified	34	23	1878	18	**1.1**	354	**0.8**	117	12	**4.3**
rc-04-03-sc	50	30	315	6		26		293		
simplified	23	15	770	10	**0.6**	23	**1.1**	61	11	**4.0**
rc-04-04-hc	76	45	1114	20		447		667		
simplified	37	25	12576	71	**0.3**	1104	**0.4**	137	12	**4.5**
rc-04-04-sc	56	33	334	7		32		368		
simplified	26	17	1352	12	**0.6**	28	**1.1**	76	14	**4.1**
rc-05-01-hc*	64	41	3228	28		166		510		
simplified	31	21	1643	15	**1.9**	219	**0.8**	101	12	**4.5**
rc-05-01-sc*	44	29	315	6		16		250		
simplified	20	13	493	7	**0.9**	15	**1.1**	46	11	**4.4**
rc-05-05-hc*	89	53	1552	21		656		1036		
simplified	43	29	11958	79	**0.3**	1119	**0.6**	173	13	**5.6**
rc-05-05-sc*	69	41	652	10		44		577		
simplified	32	21	1890	20	**0.5**	39	**1.1**	107	12	**4.9**
rc-10-01-hc*	99	66	17514	244		432		2712		
simplified	46	31	13668	76	**3.2**	475	**0.9**	175	13	**14.4**
rc-10-01-sc*	79	54	1514	26		26		1357		
simplified	35	23	1819	23	**1.1**	25	**1.0**	119	13	**10.3**
rc-10-10-hc*	154	93						TO		
simplified	73	49	108984	1052		1805		673	16	
rc-10-10-sc*	134	81	11062	150		134		5636		
simplified	62	41	9819	158	**0.9**	124	**1.1**	403	17	**13.4**
rc-15-01-hc*	134	91						TO		
simplified	61	41	4578	93		363		355	15	
rc-15-01-sc*	114	79						TO		
simplified	50	33	3437	65		35		221	14	
rc-15-15-hc*	219	133						TO		
simplified	103	69	148217	1960		2469		2945	18	
rc-15-15-sc*	199	121						TO		
simplified	92	61	29055	681		259		1802	17	

rc-20-01-hc*	169	116						TO		
simplified	76	51	13682	110		435		752	16	
rc-20-01-sc*	149	104						TO		
simplified	65	43	4281	77		45		452	16	
rc-20-20-hc*	284	173						TO		
simplified	133	89						TO	24	
rc-20-20-sc*	264	161						TO		
simplified	122	81	63011	1984		444		7145	22	
rc-25-01-hc*	204	141						TO		
simplified	91	61	27810	938		583		1597	18	
rc-25-01-sc*	184	129						TO		
simplified	80	53	4164	137		55		956	17	
rc-25-25-hc*	349	213						TO		
simplified	163	109						MO	27	
rc-25-25-sc*	329	201						TO		
simplified	152	101						MO	26	
rc-30-01-hc*	239	166						TO		
simplified	106	71	12547	507		579		3291	21	
rc-30-01-sc*	219	154						TO		
simplified	95	63	10664	231		65		2031	18	
rc-30-30-hc*	414	253						TO		
simplified	193	129						MO	38	
rc-30-30-sc*	394	241						TO		
simplified	182	121						MO	36	

SF

sf-01-02*	13	7	205	4		18		46		
simplified	11	7	177	4	**1.0**	16	**1.1**	35	8	**1.1**
sf-01-04*	17	9	3533	34		30		60		
simplified	13	9	1482	20	**1.7**	22	**1.4**	38	9	**1.3**
sf-01-06*	21	11	15012	167		42		82		
simplified	15	11	2070	24	**7.0**	28	**1.5**	50	9	**1.4**
sf-01-08*	25	13	363360	6274		54		166		
simplified	17	13	2964	41	**152.3**	34	**1.6**	58	10	**2.5**
sf-01-10*	29	15	4575848	85478		66		665		
simplified	19	15	6850	85	**1003.3**	40	**1.7**	66	10	**8.8**
sf-01-12*	33	17	5996166	129484		78		706		
simplified	21	17	9386	148	**874.9**	46	**1.7**	84	12	**7.4**
sf-01-14*	37	19						TO		
simplified	23	19	11236	206		52		92	11	
sf-01-16*	41	21						MO		
simplified	25	21	13346	283		58		110	13	
sf-01-18*	45	23						MO		
simplified	27	23	16702	379		64		120	11	
sf-02-02*	27	14	546	8		75		119		
simplified	20	13	902	13	**0.6**	63	**1.2**	73	11	**1.4**
sf-02-04*	35	18	3533	34		243		159		
simplified	24	17	994	11	**3.1**	129	**1.9**	93	10	**1.5**
sf-02-06*	43	22	15012	167		507		228		
simplified	28	21	37591	404	**0.4**	219	**2.3**	127	11	**1.7**
sf-02-08*	51	26	363360	6305		867		404		
simplified	32	25	1530202	39666	**0.2**	333	**2.6**	384	11	**1.0**
sf-02-10*	59	30	4559930	84839		1323		1110		
simplified	36	29	245790	6078	**14.0**	471	**2.8**	178	11	**5.9**
sf-02-12*	67	34	5996166	129405		1875		1655		
simplified	40	33	359896	10347	**12.5**	633	**3.0**	256	12	**6.2**
sf-02-14*	75	38						TO		
simplified	44	37	254262	4829		819		309	12	
sf-02-16*	83	42						MO		
simplified	48	41	368304	8393		1029		449	11	
sf-02-18*	91	46						MO		
simplified	52	45	513782	12201		1263		654	11	
sf-03-02*	40	21	2370	27		223		202		
simplified	29	19	8276	119	**0.2**	183	**1.2**	115	10	**1.6**
sf-03-04*	52	27	20301	199		1275		295		
simplified	35	25	11409	68	**2.9**	521	**2.4**	152	11	**1.8**
sf-03-06*	64	33	60681	690		3799		457		
simplified	41	31	23829	144	**4.8**	1131	**3.4**	174	11	**2.5**
sf-04-02*	53	28	10641	95		528		307		
simplified	38	25	9553	197	**0.5**	428	**1.2**	183	12	**1.6**
sf-04-04*	69	36	106989	1199		4953		490		
simplified	46	33	32639	579	**2.1**	1613	**3.1**	245	12	**1.9**
sf-04-06*	85	44	455721	6488		20478		841		
simplified	54	41	101034	1548	**4.2**	4353	**4.7**	313	12	**2.6**
sf-05-02*	66	35	25281	232		1074		444		
simplified	47	31	29469	412	**0.6**	864	**1.2**	271	11	**1.6**
sf-05-04*	86	45	415941	5321		15645		782		
simplified	57	41	136149	1971	**2.7**	4161	**3.8**	388	12	**2.0**
sf-05-06*	106	55	2457201	43147		87636		1526		
simplified	67	51	435669	6753	**6.4**	13665	**6.4**	552	12	**2.7**
sf-06-02*	79	42	51489	486		1963		621		
simplified	56	37	196729	3761	**0.1**	1571	**1.2**	412	12	**1.5**
sf-06-04*	103	54	876066	16618		42507		1222		

|										
simplified	68	49	1335824	26021	**0.6**	9411	**4.5**	670	12	**1.8**
sf-06-06[*]	127	66	7010802	202277		315955		2842		
simplified	80	61	1306869	11628	**17.4**	36963	**8.5**	976	13	**2.9**
sf-07-02[*]	92	49	112126	1519		3315		854		
simplified	65	43	222482	5650	**0.3**	2643	**1.3**	652	11	**1.3**
sf-07-04[*]	120	63	2380338	50393		102963		1910		
simplified	79	57	1796599	43956	**1.1**	19275	**5.3**	1147	13	**1.6**
sf-07-06[*]	148	77	25276322	845946		997155		6751		
simplified	93	71	7784118	183272	**4.6**	89235	**11.2**	2330	13	**2.9**
sf-08-02[*]	105	56	671117	8582		5268		1170		
simplified	74	49	428050	8654	**1.0**	4188	**1.3**	1031	15	**1.1**
sf-08-04[*]	137	72	8648781	147752		227802		3115		
simplified	90	65	3336275	60763	**2.4**	36534	**6.2**	1981	13	**1.6**
sf-08-06[*]	169	88						TO		
simplified	106	81	16679889	267579		196914		4753	14	
sf-09-02[*]	118	63	805218	11320		7978		1601		
simplified	83	55	1076857	27247	**0.4**	6328	**1.3**	1709	13	**0.9**
sf-09-04[*]	154	81	19135257	352555		468328		5283		
simplified	101	73	15760349	401191	**0.9**	65068	**7.2**	4315	15	**1.2**
sf-09-06[*]	190	99						TO		
simplified	119	91						TO	16	
MOVARES										
cat2-spare1	120	102						TO		
simplified	19	12	282	6.2		14		64	9	
cat2-spare2	126	105						TO		
simplified	27	17	802	8.8		38		101	9	
cat2-spare3	114	99						TO		
simplified	10	6	73	3.6		8		34	9	
fa-rk-bb-sh-spare	118	88	416976	10720.6		16655		1900		
simplified	96	68	416976	10498	**1.0**	16655	**1**	1122	8	**1.7**
fa-rk-bb-spare	118	88	14596	128.7		2527		1479		
simplified	96	68	14596	128.8	**1.0**	2527	**1**	858	8	**1.7**
ge-aut-sh-spare	113	93						MO		
simplified	32	17						MO	9	
ge-aut-spare	125	105	1832	36.6		32		4752		
simplified	44	29	2224	36.1	**1.0**	32	**1**	192	9	**23.6**
to-act-ovw-spare	390	367						MO		
simplified	32	21	1889	19.7		93		104	248	
HCAS										
cas-hecs	41	25	12928	221.4		122		189		
simplified	26	15	860	16.3	**13.6**	34	**3.6**	97	7	**1.8**
cas	16	11	89	3.6		6		44		
simplified	5	3	33	3.2	**1.1**	6	**1.0**	10	6	**2.8**
hcas-M1o3-PMPP	37	18	12557	165.9		56		180		
simplified	34	17	424	6.2	**26.8**	158	**0.4**	154	7	**1.1**
hcas-M1o3	33	16	190	4.2		56		145		
simplified	28	15	190	4.2	**1.0**	56	**1.0**	109	6	**1.3**
hcas-M2o3-PMPP	37	18	9937	131.7		46		181		
simplified	34	17	412	6.3	**20.9**	160	**0.3**	144	7	**1.2**
hcas-M2o3	33	16	180	4		46		145		
simplified	28	15	180	4	**1.0**	46	**1.0**	109	6	**1.3**
hcas-M3o3-PMPP	37	18	6007	80.6		28		181		
simplified	30	17	1603	21.2	**3.8**	70	**0.4**	133	7	**1.3**
hcas-M3o3	33	16	214	4.3		28		140		
simplified	24	15	1492	19.6	**0.2**	28	**1.0**	101	6	**1.3**
hcas	20	10	84	3.7		16		72		
simplified	14	9	108	3.8	**1.0**	16	**1.0**	47	6	**1.4**
SAP										
sap-sc00	22	12	1796	26		26		83		
simplified	10	6	132	4	**6.8**	26	**1.0**	33	10	**1.9**
sap-sc01	22	12	704	12		8		95		
simplified	7	4	55	3	**3.6**	8	**1.0**	15	10	**3.9**
sap-sc10	22	12	72	4		1		95		
simplified	22	12	33	3	**1.3**	1	**1.0**	14	10	**4.0**
sap-sc11	22	12	252	6		3		87		
simplified	1	1	4	3	**2.0**	4	**0.8**	5	10	**6.0**
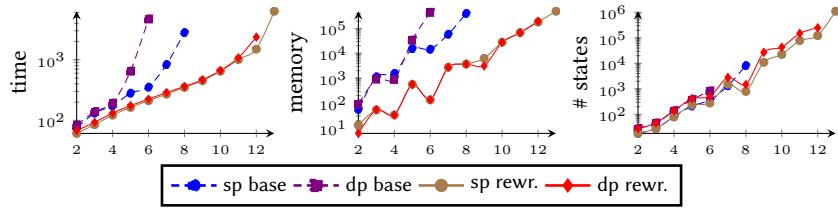
Figure A.1.: Effect of rewriting on MCS (n = # CMs, sp/dp = single/double power).
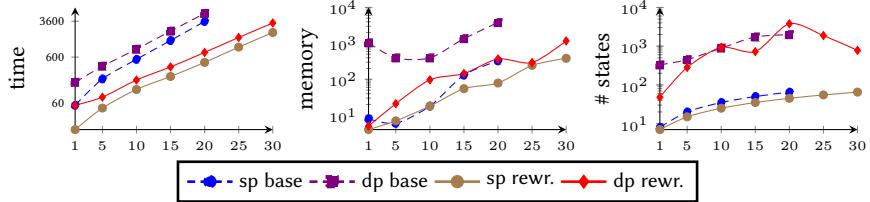
Figure A.2.: Effect of rewriting on RC with 1 sensor (n = # barriers, sc/hc = single/HECS contr.).
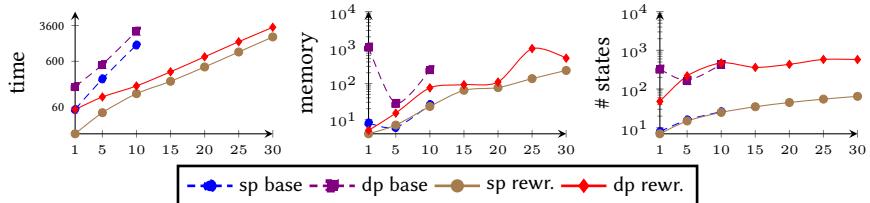

Figure A.3.: Effect of rewriting on RC with 1 barrier (n = # sensors, sc/hc = single/HECS contr.).
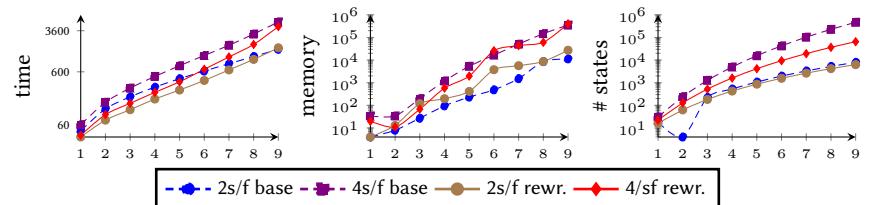
Figure A.4.: Effect of rewriting on SF (n = # filters s/f = sensors per filter).
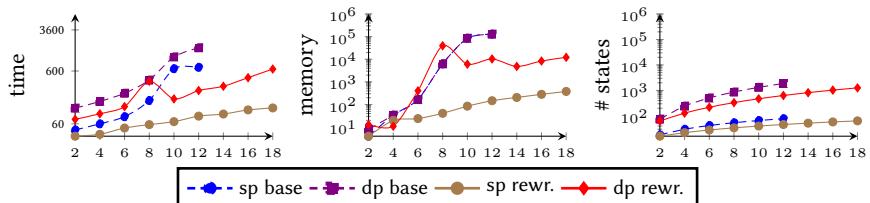
Figure A.5.: Effect of rewriting on SF (n = # sensors/filter, f = filters).
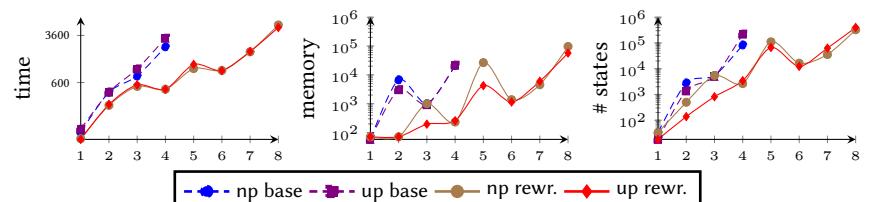
Figure A.6.: Effect of rewriting on HECS (top $\in$ AND, 1 MUI, n = # systems, np/up = no/use power).
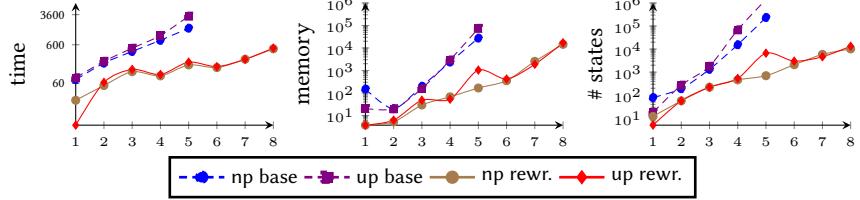
Figure A.7.: Effect of rewriting on HECS (top $\in$ AND, 2 MUIs, n = # systems, np/up = no/use power).
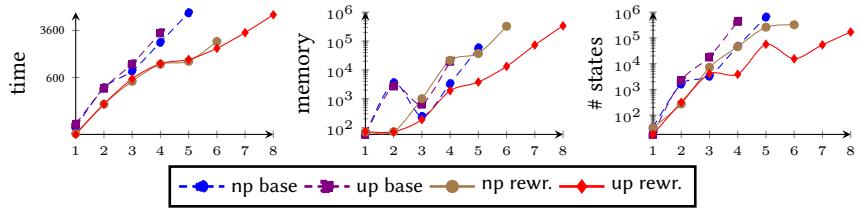
Figure A.8.: Effect of rewriting on HECS (top $\in$ OR, 1 MUI, n = # systems, np/up = no/use power).
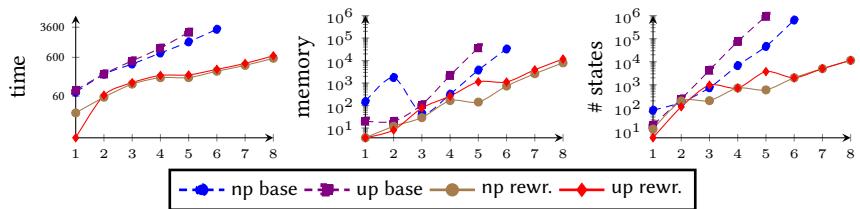

Figure A.9.: Effect of rewriting on HECS (top $\in$ OR, 2 MUIs, n = # systems, np/up = no/use power).

B. Detailed environment information

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All experiments were executed on a PC with the following key characteristics

- CPU: `Intel(R) Core(TM) i7 CPU 860 @ 2.80GHz`
  `(L2 cache: 256K L3 cache: 8192K)`

- RAM: `8GB DDR3 @ 1333MHz`

- OS: `Debian GNU/Linux 8.0 (jessie) Kernel(Linux 3.16.0-4)`

We used the following software and versions:

- With regard to DFTCalc:

  c++-compiler `gcc 4.9.1`

  CADP `VERSION 2014-j "Amsterdam"`

  DFTCalc `commit fc21b7c006`

  MRMC `version 1.5`

  as well as some other packages in their latest stable release (as of 01-01-2015).

- With regard to Groove, GroovyDFT and aDFTpub:

  Java `OpenJDK Runtime Environment (IcedTea 2.5.3) (7u71-2.5.3-2)`

  Groove `version 5.4.0 precompiled.`

  Scala `version 2.10`

  sbt[Scala build tool] `verion 0.13-7`

  Python 3 `version 3.4.2`

No other software is necessary to execute all experiments described in the paper. The developed tools are available for download via
http://moves.rwth-aachen.de/ft-diet/.