Benchmarks Submitted to MC Competition 2020 *

Yong Lai (laiy@jlu.edu.cn)

Priyanka Golia (pgolia@cse.iitk.ac.in)

Kuldeep S. Meel (meel@comp.nus.edu.sg)

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The submission consists of 304 unweighted CNF formulas in DIMACS from five domains:

- Bayesian networks: There are 29 instances in this domain. These instances were used to test the model counter Ganak [1], and some of them were used to test the state-of-the-art knowledge compiler D4 [2]. The instances can also be downloaded from https://www.cril.univ-artois.fr/KC/benchmarks.html

- Blasted SMT: There are 32 instances in this domain. These instances were used to test the model counters Ganak and ApproxMC [3]. The instances can also be downloaded from https://github.com/meelgroup/sampling-benchmarks

- Functional synthesis: There are 135 instances in this domain. These instances have been used in QBF competition. They can also be downloaded from http://www.qbflib.org/qbfeval18.php

- Program synthesis: There are 54 instances in this domain. These instances were used to test the model counters Ganak and MaxCount [4]. They can also be downloaded from https://github.com/dfremont/counting-benchmarks/tree/master/benchmarks/projection/application

- Quantitative information flow: There are 53 instances in this domain. These instances were used to test Ganak and MaxCount. They

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*From: Computer Science Department, National University of Singapore

All instances were preprocessed by a widely used tool called B+E [5] and are listed in the following table.

Instance	#vars	#clauses
BayesianNetwork_75-24-10-q.cnf	2784	1395
BayesianNetwork_75-24-1-q.cnf	2784	1490
BayesianNetwork_75-24-3-q.cnf	2784	1068
BayesianNetwork_75-24-4-q.cnf	2784	1129
BayesianNetwork_75-24-5-q.cnf	2784	1474
BayesianNetwork_75-24-6-q.cnf	2784	1570
BayesianNetwork_75-24-7-q.cnf	2784	1305
BayesianNetwork_75-24-8-q.cnf	2784	1362
BayesianNetwork_75-24-9-q.cnf	2784	1391
BayesianNetwork_75-25-10-q.cnf	3025	1661
BayesianNetwork_75-25-1-q.cnf	3025	1528
BayesianNetwork_75-25-2-q.cnf	3025	1573
BayesianNetwork_75-25-3-q.cnf	3025	1677
BayesianNetwork_75-25-4-q.cnf	3025	1477
BayesianNetwork_75-25-5-q.cnf	3025	1402
BayesianNetwork_75-25-6-q.cnf	3025	1647
BayesianNetwork_75-25-7-q.cnf	3025	1703
BayesianNetwork_75-25-8-q.cnf	3025	1749
BayesianNetwork_75-25-9-q.cnf	3025	1467
BayesianNetwork_75-26-10-q.cnf	3276	1727

BayesianNetwork_75-26-1-q.cnf	3276	1530
BayesianNetwork_75-26-2-q.cnf	3276	1293
BayesianNetwork_75-26-3-q.cnf	3276	1839
BayesianNetwork_75-26-4-q.cnf	3276	1370
BayesianNetwork_75-26-5-q.cnf	3276	1597
BayesianNetwork_75-26-6-q.cnf	3276	1589
BayesianNetwork_75-26-7-q.cnf	3276	1522
BayesianNetwork_75-26-8-q.cnf	3276	1761
BayesianNetwork_75-26-9-q.cnf	3276	1837
BlastedSMT_blasted_squaring10.cnf	1099	1848
BlastedSMT_blasted_squaring11.cnf	966	1573
BlastedSMT_blasted_squaring12.cnf	1507	2728
BlastedSMT_blasted_squaring14.cnf	1458	2647
BlastedSMT_blasted_squaring16.cnf	1627	3282
BlastedSMT_blasted_squaring1.cnf	891	1488
BlastedSMT_blasted_squaring20.cnf	696	679
BlastedSMT_blasted_squaring21.cnf	697	680
BlastedSMT_blasted_squaring22.cnf	695	678
BlastedSMT_blasted_squaring23.cnf	710	709
BlastedSMT_blasted_squaring24.cnf	695	678
BlastedSMT_blasted_squaring25.cnf	846	906
BlastedSMT_blasted_squaring26.cnf	894	1098
BlastedSMT_blasted_squaring27.cnf	837	896
BlastedSMT_blasted_squaring28.cnf	1060	1613

BlastedSMT_blasted_squaring29.cnf	1141	2236
BlastedSMT_blasted_squaring2.cnf	885	1477
BlastedSMT_blasted_squaring30.cnf	1031	1610
BlastedSMT_blasted_squaring3.cnf	885	1474
BlastedSMT_blasted_squaring40.cnf	4173	6889
BlastedSMT_blasted_squaring41.cnf	4185	6471
BlastedSMT_blasted_squaring42.cnf	4173	6889
BlastedSMT_blasted_squaring4.cnf	891	1485
BlastedSMT_blasted_squaring50.cnf	500	790
BlastedSMT_blasted_squaring51.cnf	496	750
BlastedSMT_blasted_squaring5.cnf	885	1474
BlastedSMT_blasted_squaring60.cnf	5186	10229
BlastedSMT_blasted_squaring6.cnf	885	1474
BlastedSMT_blasted_squaring70.cnf	882	1327
BlastedSMT_blasted_squaring7.cnf	1628	2384
BlastedSMT_blasted_squaring8.cnf	1101	1843
BlastedSMT_blasted_squaring9.cnf	1434	2101
FunctionalSynthesis_2QBF_cache-coherence-2-fixpoint-4.cnf	3807	3086
FunctionalSynthesis_2QBF_cache-coherence-2-fixpoint-5.cnf	4737	4559
FunctionalSynthesis_2QBF_cache-coherence-2-fixpoint-6.cnf	5661	6648
FunctionalSynthesis_2QBF_cache-coherence-3-fixpoint-3.cnf	2190	1977
FunctionalSynthesis_2QBF_driver_a10y.sat.cnf	1853	3573
FunctionalSynthesis_2QBF_driver_a9n.sat.cnf	1874	3637
FunctionalSynthesis_2QBF_intermediate128.cnf	3581	5824

FunctionalSynthesis_2QBF_intermediate256.cnf	7176	11525
FunctionalSynthesis_2QBF_rankfunc2_unsigned_64.cnf	1542	4125
FunctionalSynthesis_2QBF_rankfunc31_signed_64.cnf	4685	8371
FunctionalSynthesis_2QBF_rankfunc31_unsigned_64.cnf	4680	8996
FunctionalSynthesis_2QBF_rankfunc35_signed_64.cnf	3443	7042
FunctionalSynthesis_2QBF_rankfunc35_unsigned_64.cnf	1699	1750
FunctionalSynthesis_2QBF_rankfunc41_signed_64.cnf	4667	11362
FunctionalSynthesis_2QBF_rankfunc41_unsigned_64.cnf	4662	11618
FunctionalSynthesis_2QBF_rankfunc48_signed_64.cnf	3626	9286
FunctionalSynthesis_2QBF_rankfunc48_unsigned_16.cnf	896	2554
FunctionalSynthesis_2QBF_rankfunc48_unsigned_64.cnf	3620	9838
FunctionalSynthesis_2QBF_rankfunc49_signed_64.cnf	2106	5514
FunctionalSynthesis_2QBF_rankfunc49_unsigned_64.cnf	2105	4951
FunctionalSynthesis_2QBF_rankfunc51_signed_64.cnf	2726	6117
FunctionalSynthesis_2QBF_rankfunc51_unsigned_64.cnf	2724	5472
FunctionalSynthesis_2QBF_rankfunc52_signed_64.cnf	2553	7379
FunctionalSynthesis_2QBF_rankfunc52_unsigned_64.cnf	2551	7381
FunctionalSynthesis_2QBF_rankfunc53_signed_64.cnf	2464	4903
FunctionalSynthesis_2QBF_rankfunc53_unsigned_64.cnf	2460	4924
FunctionalSynthesis_2QBF_rankfunc54_signed_64.cnf	3103	8447
FunctionalSynthesis_2QBF_rankfunc54_unsigned_64.cnf	3095	8482
FunctionalSynthesis_2QBF_rankfunc55_unsigned_64.cnf	1420	3426
FunctionalSynthesis_2QBF_rankfunc56_signed_64.cnf	1233	2485
FunctionalSynthesis_2QBF_rankfunc56_unsigned_64.cnf	1231	1900

FunctionalSynthesis_2QBF_rankfunc57_unsigned_64.cnf	2203	6483
FunctionalSynthesis_2QBF_rankfunc58_signed_64.cnf	2899	7589
FunctionalSynthesis_2QBF_rankfunc58_unsigned_64.cnf	2898	6993
FunctionalSynthesis_2QBF_rankfunc59_signed_64.cnf	3557	9549
FunctionalSynthesis_2QBF_rankfunc59_unsigned_64.cnf	3555	8964
FunctionalSynthesis_2QBF_rankfunc60_unsigned_32.cnf	855	1975
FunctionalSynthesis_2QBF_rankfunc61_signed_64.cnf	2801	8577
FunctionalSynthesis_2QBF_rankfunc61_unsigned_64.cnf	1467	1312
FunctionalSynthesis_2QBF_stmt17_62_78.cnf	4940	6167
FunctionalSynthesis_2QBF_stmt17_62_98.cnf	6531	7712
FunctionalSynthesis_2QBF_stmt17_63_70.cnf	3985	5055
FunctionalSynthesis_2QBF_stmt17_63_78.cnf	4622	5917
FunctionalSynthesis_2QBF_stmt17_63_82.cnf	4938	6191
FunctionalSynthesis_2QBF_stmt17_70_78.cnf	5257	6500
FunctionalSynthesis_2QBF_stmt17_70_82.cnf	5579	6554
FunctionalSynthesis_2QBF_stmt17_70_86.cnf	5893	7288
FunctionalSynthesis_2QBF_stmt17_70_90.cnf	6212	7634
FunctionalSynthesis_2QBF_stmt17_70_98.cnf	6848	8105
FunctionalSynthesis_2QBF_stmt17_74_78.cnf	5579	6663
FunctionalSynthesis_2QBF_stmt17_74_90.cnf	6529	7231
FunctionalSynthesis_2QBF_stmt17_78_90.cnf	6847	7882
FunctionalSynthesis_2QBF_stmt17_78_94.cnf	7168	8083
FunctionalSynthesis_2QBF_stmt17_78_98.cnf	7484	8333
FunctionalSynthesis_2QBF_stmt17_82_86.cnf	6847	7844

FunctionalSynthesis_2QBF_stmt17_82_94.cnf	7488	8460
FunctionalSynthesis_2QBF_stmt17_82_98.cnf	7805	8832
FunctionalSynthesis_2QBF_stmt17_86_98.cnf	8121	9196
FunctionalSynthesis_2QBF_stmt17_94_98.cnf	8758	9311
FunctionalSynthesis_2QBF_stmt19_133_217.cnf	487	639
FunctionalSynthesis_2QBF_stmt19_137_408.cnf	990	1715
FunctionalSynthesis_2QBF_stmt19_302_352.cnf	1875	3003
FunctionalSynthesis_2QBF_stmt19_313_412.cnf	1353	2472
FunctionalSynthesis_2QBF_stmt19_3_401.cnf	1258	2278
FunctionalSynthesis_2QBF_stmt19_352_359.cnf	929	1680
FunctionalSynthesis_2QBF_stmt19_368_417.cnf	2002	3075
FunctionalSynthesis_2QBF_stmt19_64_87.cnf	5257	6367
FunctionalSynthesis_2QBF_stmt19_64_91.cnf	4112	4787
FunctionalSynthesis_2QBF_stmt19_64_99.cnf	6213	7602
FunctionalSynthesis_2QBF_stmt19_65_87.cnf	3794	4580
FunctionalSynthesis_2QBF_stmt19_65_95.cnf	4431	5218
FunctionalSynthesis_2QBF_stmt19_66_214.cnf	812	858
FunctionalSynthesis_2QBF_stmt19_71_95.cnf	4431	5218
FunctionalSynthesis_2QBF_stmt19_75_83.cnf	5894	7703
FunctionalSynthesis_2QBF_stmt19_75_95.cnf	4431	5218
FunctionalSynthesis_2QBF_stmt19_79_83.cnf	6212	7507
FunctionalSynthesis_2QBF_stmt19_79_87.cnf	3794	4580
FunctionalSynthesis_2QBF_stmt19_83_412.cnf	1352	2172
FunctionalSynthesis_2QBF_stmt19_83_91.cnf	4112	4787

FunctionalSynthesis_2QBF_stmt19_87_95.cnf	7804	8503
FunctionalSynthesis_2QBF_stmt19_90_408.cnf	1327	2352
FunctionalSynthesis_2QBF_stmt21_143_403.cnf	1416	1923
FunctionalSynthesis_2QBF_stmt21_178_258.cnf	1224	1347
FunctionalSynthesis_2QBF_stmt21_181_218.cnf	1007	1678
FunctionalSynthesis_2QBF_stmt21_181_369.cnf	1441	2575
FunctionalSynthesis_2QBF_stmt21_310_360.cnf	1878	3304
FunctionalSynthesis_2QBF_stmt21_319_418.cnf	1885	2939
FunctionalSynthesis_2QBF_stmt21_354_403.cnf	2056	3918
FunctionalSynthesis_2QBF_stmt21_70_369.cnf	1249	1807
FunctionalSynthesis_2QBF_stmt21_71_354.cnf	1197	1659
FunctionalSynthesis_2QBF_stmt21_71_413.cnf	1261	2238
FunctionalSynthesis_2QBF_stmt21_84_364.cnf	1292	2015
FunctionalSynthesis_2QBF_stmt22_311_370.cnf	1848	2942
FunctionalSynthesis_2QBF_stmt22_320_370.cnf	1823	2988
FunctionalSynthesis_2QBF_stmt22_6_414.cnf	993	1809
FunctionalSynthesis_2QBF_stmt23_66_67.cnf	3666	4625
FunctionalSynthesis_2QBF_stmt23_66_76.cnf	4303	5459
FunctionalSynthesis_2QBF_stmt23_66_96.cnf	5894	7218
FunctionalSynthesis_2QBF_stmt23_67_92.cnf	5895	7104
FunctionalSynthesis_2QBF_stmt23_72_76.cnf	4940	6197
FunctionalSynthesis_2QBF_stmt23_88_92.cnf	7485	8026
FunctionalSynthesis_2QBF_stmt23_92_96.cnf	8121	9329
FunctionalSynthesis_2QBF_stmt25_52_53.cnf	1038	746

FunctionalSynthesis_2QBF_stmt25_597_598.cnf	325	174
FunctionalSynthesis_2QBF_stmt27_149_224.cnf	969	1665
FunctionalSynthesis_2QBF_stmt27_16_224.cnf	696	811
FunctionalSynthesis_2QBF_stmt27_93_98.cnf	546	414
FunctionalSynthesis_2QBF_stmt28_68_69.cnf	4304	5451
FunctionalSynthesis_2QBF_stmt28_68_73.cnf	4625	5770
FunctionalSynthesis_2QBF_stmt28_68_81.cnf	5256	6552
FunctionalSynthesis_2QBF_stmt28_73_85.cnf	6212	7684
FunctionalSynthesis_2QBF_stmt28_73_97.cnf	7173	8354
FunctionalSynthesis_2QBF_stmt28_89_97.cnf	8442	9425
FunctionalSynthesis_2QBF_stmt29_226_376.cnf	1547	2433
FunctionalSynthesis_2QBF_stmt29_275_376.cnf	1850	3406
FunctionalSynthesis_2QBF_stmt31_190_227.cnf	1016	1332
FunctionalSynthesis_2QBF_stmt31_22_328.cnf	1116	1901
FunctionalSynthesis_2QBF_stmt31_276_328.cnf	1794	3276
FunctionalSynthesis_2QBF_stmt32_329_378.cnf	1972	3505
FunctionalSynthesis_2QBF_stmt39_285_335.cnf	1802	3582
FunctionalSynthesis_2QBF_stmt41_160_235.cnf	976	1676
FunctionalSynthesis_2QBF_stmt41_262_275.cnf	514	305
FunctionalSynthesis_2QBF_stmt41_286_385.cnf	1462	2854
FunctionalSynthesis_2QBF_stmt41_336_385.cnf	1980	3512
FunctionalSynthesis_2QBF_stmt44_40_387.cnf	1202	2309
FunctionalSynthesis_2QBF_stmt44_554_604.cnf	152	76
FunctionalSynthesis_2QBF_stmt46_111_238.cnf	899	1201

FunctionalSynthesis_2QBF_stmt46_289_388.cnf	1877	3423
FunctionalSynthesis_2QBF_stmt47_290_340.cnf	1822	3338
FunctionalSynthesis_2QBF_stmt47_340_389.cnf	2000	3540
FunctionalSynthesis_2QBF_stmt50_343_392.cnf	2004	3843
FunctionalSynthesis_2QBF_stmt52_295_394.cnf	1882	3633
FunctionalSynthesis_2QBF_stmt53_208_245.cnf	1049	1755
FunctionalSynthesis_2QBF_stmt53_296_346.cnf	1825	3555
FunctionalSynthesis_2QBF_stmt85_300_399.cnf	1936	3125
ProgramSynthesis_sygus_01A-1.cnf	2286	4959
ProgramSynthesis_sygus_02A-1.cnf	2226	4716
ProgramSynthesis_sygus_02A-2.cnf	3857	5920
ProgramSynthesis_sygus_02A-3.cnf	5488	6827
ProgramSynthesis_sygus_03A-1.cnf	1466	2656
ProgramSynthesis_sygus_03A-2.cnf	2539	3459
ProgramSynthesis_sygus_04A-1.cnf	2223	4810
ProgramSynthesis_sygus_04A-2.cnf	3882	6123
ProgramSynthesis_sygus_04A-3.cnf	5541	6040
ProgramSynthesis_sygus_05A-1.cnf	2286	4933
ProgramSynthesis_sygus_05A-2.cnf	3977	3944
ProgramSynthesis_sygus_06A-1.cnf	2226	4781
ProgramSynthesis_sygus_06A-2.cnf	3857	6039
ProgramSynthesis_sygus_06A-3.cnf	5488	7557
ProgramSynthesis_sygus_06A-4.cnf	7119	8532
ProgramSynthesis_sygus_07A-1.cnf	3067	7143

ProgramSynthesis_sygus_07A-2.cnf	5388	12825
ProgramSynthesis_sygus_07A-3.cnf	7709	17368
ProgramSynthesis_sygus_07A-4.cnf	10030	18481
ProgramSynthesis_sygus_07A-5.cnf	12351	13849
ProgramSynthesis_sygus_08A-1.cnf	3127	7354
ProgramSynthesis_sygus_08A-2.cnf	5508	13248
ProgramSynthesis_sygus_08A-3.cnf	7889	14192
ProgramSynthesis_sygus_08A-4.cnf	10270	11650
ProgramSynthesis_sygus_09A-1.cnf	3697	9612
ProgramSynthesis_sygus_09A-2.cnf	6559	14515
ProgramSynthesis_sygus_09A-3.cnf	9421	11178
ProgramSynthesis_sygus_10A-1.cnf	3169	7828
ProgramSynthesis_sygus_10A-2.cnf	5363	9308
ProgramSynthesis_sygus_10A-3.cnf	7557	10361
ProgramSynthesis_sygus_10A-4.cnf	9751	10846
ProgramSynthesis_sygus_11A-1.cnf	2712	6333
ProgramSynthesis_sygus_11A-2.cnf	4577	8869
ProgramSynthesis_sygus_11A-3.cnf	6442	10795
ProgramSynthesis_sygus_11A-4.cnf	8307	9013
ProgramSynthesis_sygus_12A-1.cnf	2712	6333
ProgramSynthesis_sygus_12A-2.cnf	4577	8869
ProgramSynthesis_sygus_12A-3.cnf	6442	10795
ProgramSynthesis_sygus_12A-4.cnf	8307	9013
ProgramSynthesis_sygus_13A-1.cnf	4857	13105

ProgramSynthesis_sygus_13A-2.cnf	8735	17555
ProgramSynthesis_sygus_13A-3.cnf	12613	20373
ProgramSynthesis_sygus_13A-4.cnf	16491	18355
ProgramSynthesis_sygus_14A-2.cnf	11468	21118
ProgramSynthesis_sygus_14A-3.cnf	16344	19276
ProgramSynthesis_sygus_15A-2.cnf	11649	27050
ProgramSynthesis_sygus_15A-3.cnf	16585	31480
ProgramSynthesis_sygus_15A-4.cnf	21521	26069
ProgramSynthesis_sygus_17A-1.cnf	5421	14844
ProgramSynthesis_sygus_17A-2.cnf	9607	21767
ProgramSynthesis_sygus_17A-3.cnf	13793	26693
ProgramSynthesis_sygus_17A-4.cnf	17979	34434
ProgramSynthesis_sygus_17A-5.cnf	22165	30937
ProgramSynthesis_sygus_17A-6.cnf	26351	32342
QuantitativeInformationFlow_min-12.cnf	2281	4698
QuantitativeInformationFlow_min-12s.cnf	1673	2778
QuantitativeInformationFlow_min-16.cnf	3065	6278
QuantitativeInformationFlow_min-16s.cnf	2265	3718
QuantitativeInformationFlow_min-1s.cnf	168	234
QuantitativeInformationFlow_min-20.cnf	3813	7846
QuantitativeInformationFlow_min-20s.cnf	2821	4646
QuantitativeInformationFlow_min-24.cnf	4561	9414
QuantitativeInformationFlow_min-24s.cnf	3377	5574
QuantitativeInformationFlow_min-28.cnf	5309	10982

QuantitativeInformationFlow_min-28s.cnf	3933	6502
QuantitativeInformationFlow_min-2s.cnf	301	464
QuantitativeInformationFlow_min-32.cnf	6153	12582
QuantitativeInformationFlow_min-32s.cnf	4585	7462
QuantitativeInformationFlow_min-3s.cnf	431	693
QuantitativeInformationFlow_min-4.cnf	797	1566
QuantitativeInformationFlow_min-4s.cnf	573	926
QuantitativeInformationFlow_min-6s.cnf	839	1386
QuantitativeInformationFlow_min-8.cnf	1545	3134
QuantitativeInformationFlow_min-8s.cnf	1129	1854
QuantitativeInformationFlow_modexp8-4-1.cnf	79409	78929
QuantitativeInformationFlow_modexp8-4-2.cnf	81393	103323
QuantitativeInformationFlow_modexp8-4-3.cnf	83569	104119
QuantitativeInformationFlow_modexp8-4-4.cnf	81009	98180
QuantitativeInformationFlow_modexp8-4-5.cnf	84593	120206
QuantitativeInformationFlow_modexp8-4-6.cnf	83953	106844
QuantitativeInformationFlow_modexp8-4-7.cnf	84721	124596
QuantitativeInformationFlow_modexp8-4-8.cnf	81265	95642
QuantitativeInformationFlow_modexp8-5-1.cnf	99233	98768
QuantitativeInformationFlow_modexp8-5-2.cnf	101713	129136
QuantitativeInformationFlow_modexp8-5-3.cnf	104433	130168
QuantitativeInformationFlow_modexp8-5-4.cnf	101233	122495
QuantitativeInformationFlow_modexp8-5-5.cnf	105713	150362
QuantitativeInformationFlow_modexp8-5-6.cnf	104913	133551

QuantitativeInformationFlow_modexp8-5-8.cnf	101553	119112
QuantitativeInformationFlow_modexp8-6-1.cnf	119057	118560
QuantitativeInformationFlow_modexp8-6-2.cnf	122033	154906
QuantitativeInformationFlow_modexp8-6-3.cnf	125297	156161
QuantitativeInformationFlow_modexp8-6-4.cnf	121457	147010
QuantitativeInformationFlow_modexp8-6-5.cnf	126833	180450
QuantitativeInformationFlow_modexp8-6-6.cnf	125873	160087
QuantitativeInformationFlow_modexp8-6-8.cnf	121841	143479
QuantitativeInformationFlow_modexp8-7-1.cnf	138881	138204
QuantitativeInformationFlow_modexp8-7-2.cnf	142353	180756
QuantitativeInformationFlow_modexp8-7-3.cnf	146161	182142
QuantitativeInformationFlow_modexp8-7-4.cnf	141681	171509
QuantitativeInformationFlow_modexp8-7-6.cnf	146833	186796
QuantitativeInformationFlow_modexp8-7-8.cnf	142129	166890
QuantitativeInformationFlow_modexp8-8-1.cnf	158705	158109
QuantitativeInformationFlow_modexp8-8-2.cnf	162673	206609
QuantitativeInformationFlow_modexp8-8-3.cnf	167025	208166
QuantitativeInformationFlow_modexp8-8-4.cnf	161905	196177
QuantitativeInformationFlow_modexp8-8-8.cnf	162417	190836

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