

```
Out[3]: [('gather-small-build-baseline-oss-380-S-f73fa14285-hive_sf1000_orc_part-t77',
'baseline part',
'r'),
('gather-small-build-rule-oss-380-S-1e7ea94213-hive_sf1000_orc_part-t78',
'gather small build side rule',
'g')]
```

## Overall Times

	label	TPCH wall time	TPC-DS wall time	TPCH CPU time	TPC-DS CPU time	TPCH Network GB	TPC-DS Network GB	TPCH peak mem	TPC-DS peak mem	TPCH wall time % change	TPC-DS wall time % change	TPCH CPU time % change	TPC-DS CPU time % change	TPCH Network GB % change	TPC-DS Network GB % change	TPCH peak mem % change	TPC-DS peak mem % change
0	baseline part	583	1,086	66,475	119,513	2,290	1,888	1,283,457,517	1,097,276,783	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	gather small build side rule	570	990	66,047	112,059	2,283	1,885	1,271,264,199	1,086,506,886	-2.23	-8.83	-0.64	-6.24	-0.32	-0.16	-0.95	-0.98

## FAILED QUERIES

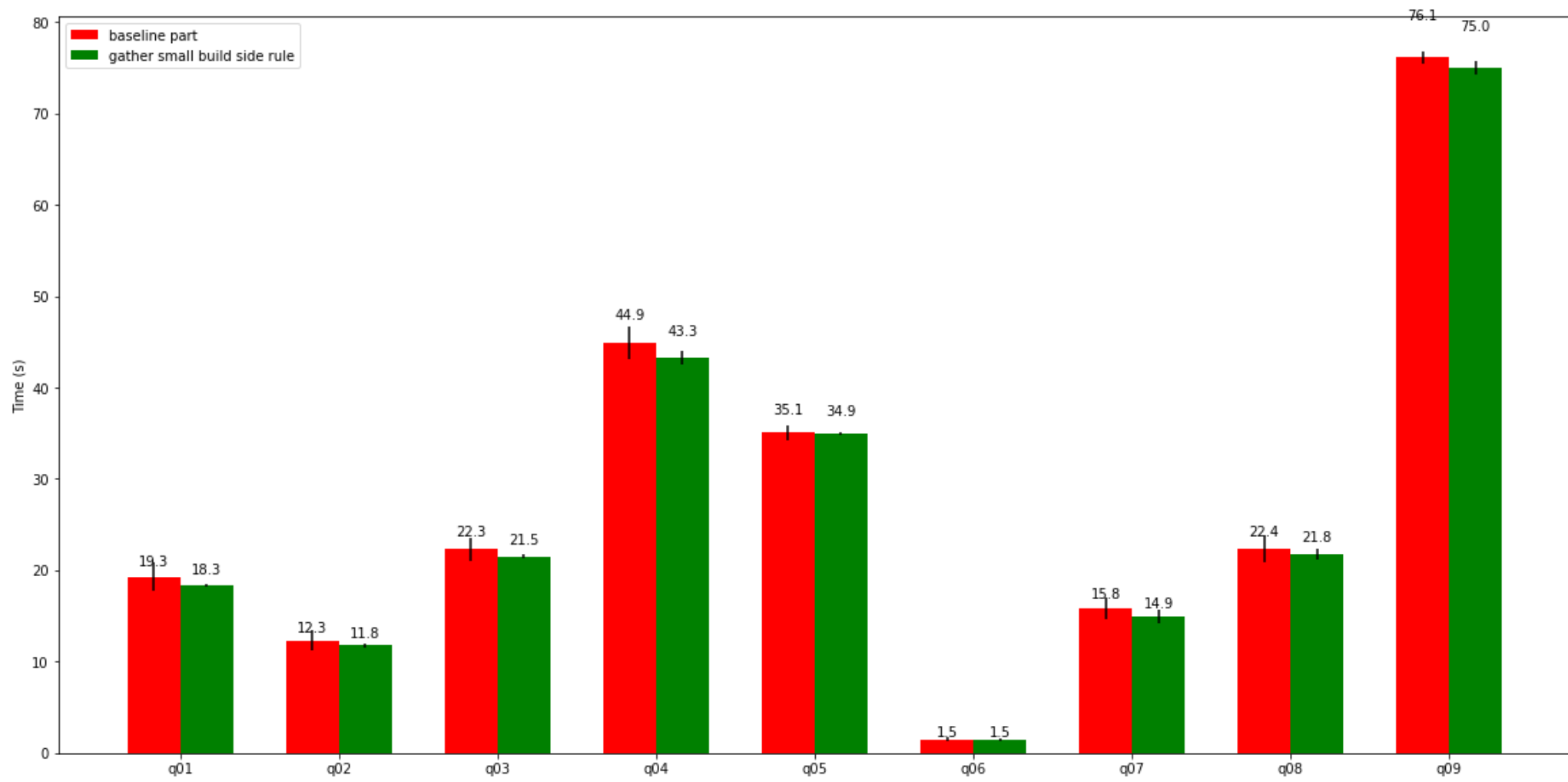
### baseline part

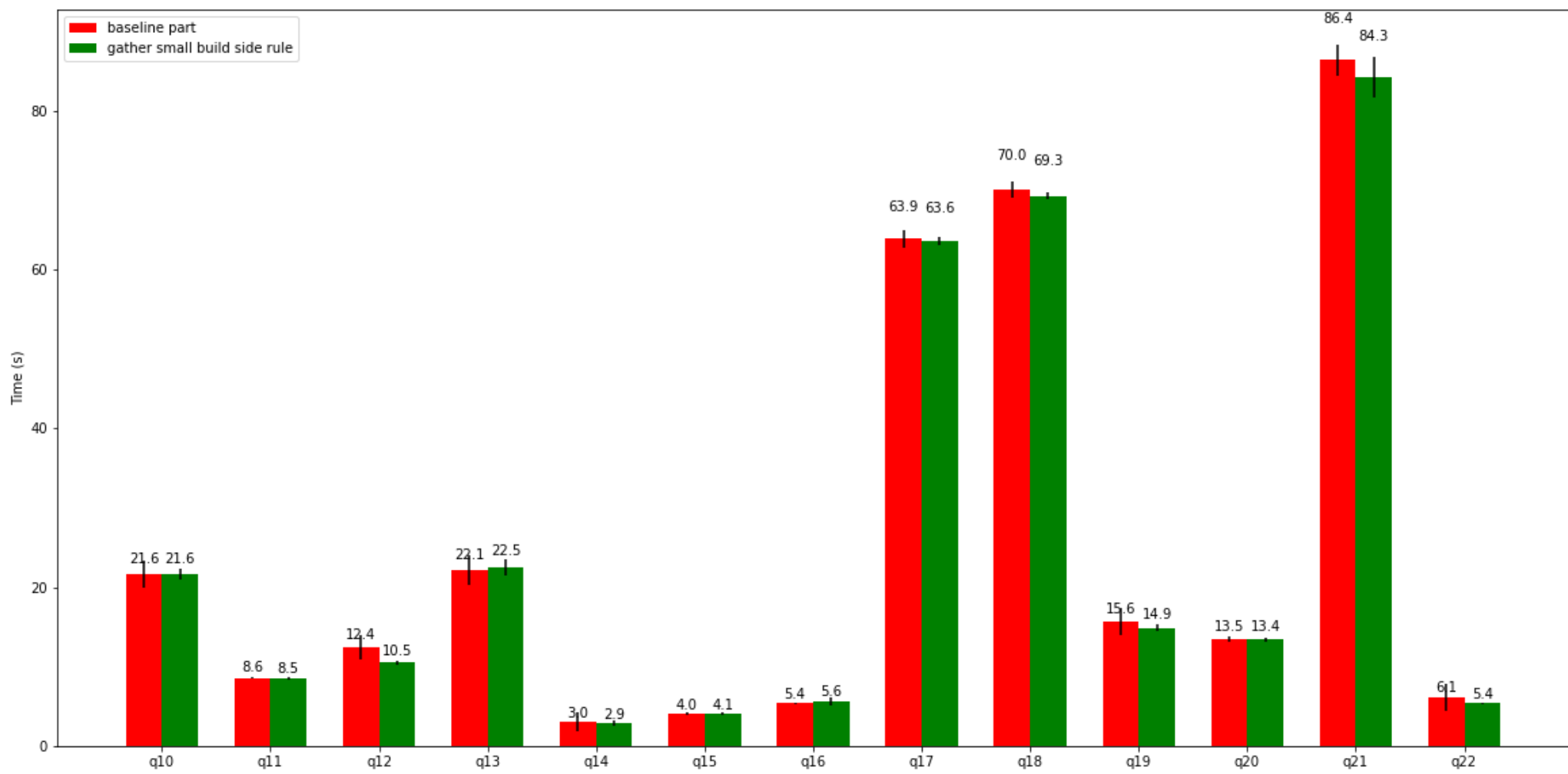
benchmark	query	mean_duration	std_dev
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### gather small build side rule

benchmark	query	mean_duration	std_dev
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## TPC-H Comparison (DURATION)





query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
11 presto/tpch: q12	12.45	1.49	10.47	0.24	-15.90	11.95	2.28	0.00920
21 presto/tpch: q22	6.13	1.69	5.36	0.07	-12.49	27.52	1.21	0.29259
6 presto/tpch: q07	15.85	1.16	14.92	0.72	-5.85	7.35	4.79	0.12768
0 presto/tpch: q01	19.30	1.52	18.33	0.10	-5.01	7.88	0.52	0.15098
18 presto/tpch: q19	15.62	1.70	14.89	0.42	-4.66	10.91	2.83	0.33411
1 presto/tpch: q02	12.31	1.09	11.80	0.19	-4.15	8.86	1.63	0.28444

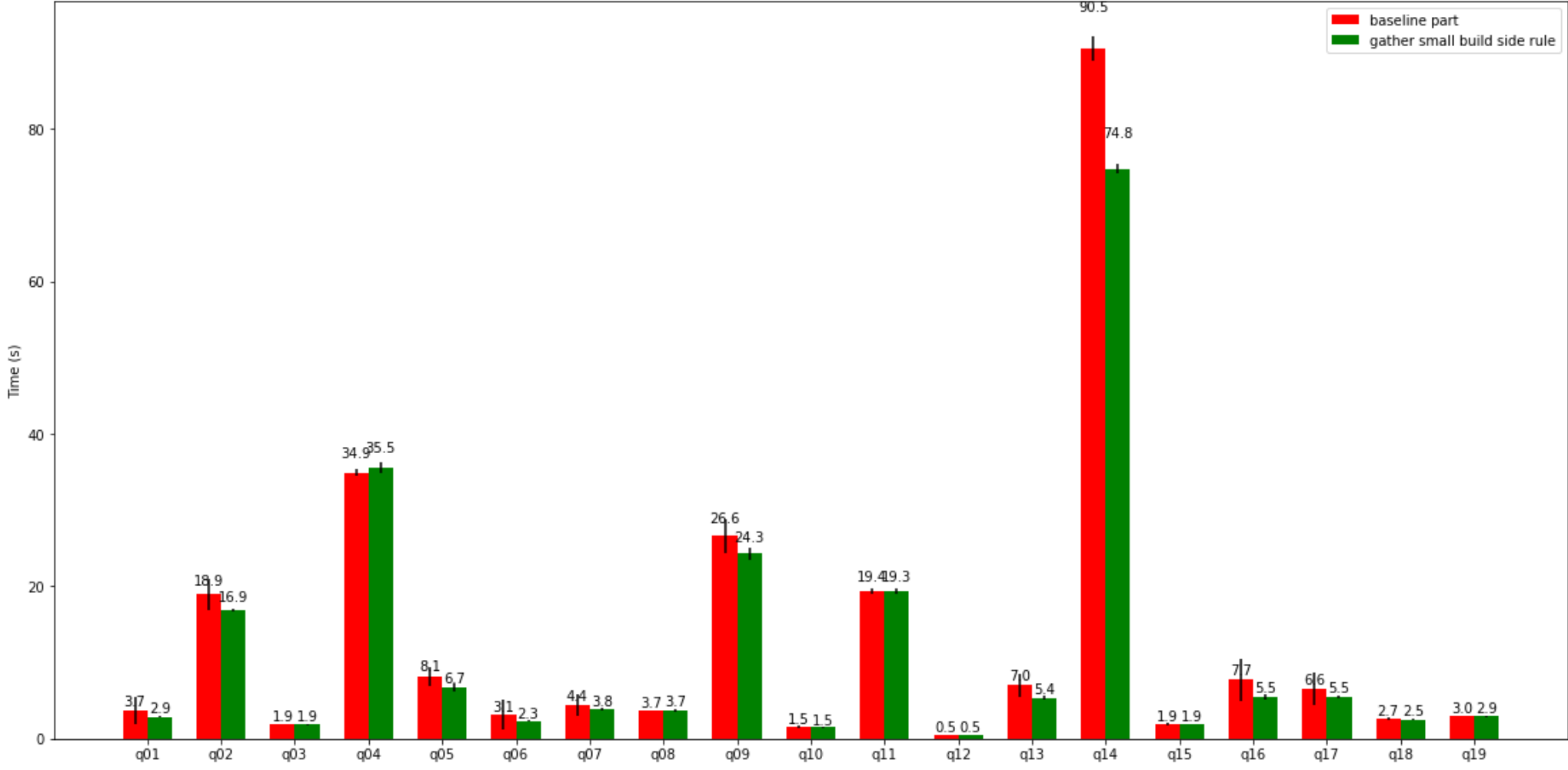
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
13	presto/tpch:q14	3.00	1.20	2.87	0.37	-4.13	40.06	12.96	0.81444
2	presto/tpch:q03	22.32	1.25	21.49	0.20	-3.71	5.60	0.95	0.14055
3	presto/tpch:q04	44.91	1.78	43.28	0.77	-3.65	3.97	1.78	0.06586
20	presto/tpch:q21	86.43	1.92	84.27	2.52	-2.50	2.22	2.99	0.12542
7	presto/tpch:q08	22.37	1.48	21.82	0.59	-2.43	6.62	2.69	0.42222
8	presto/tpch:q09	76.12	0.63	75.00	0.72	-1.48	0.83	0.97	0.01630
10	presto/tpch:q11	8.58	0.16	8.48	0.14	-1.18	1.81	1.66	0.26679
17	presto/tpch:q18	70.05	1.04	69.31	0.38	-1.04	1.49	0.55	0.13832
5	presto/tpch:q06	1.50	0.26	1.49	0.12	-0.76	17.12	7.79	0.92331
19	presto/tpch:q20	13.50	0.35	13.41	0.25	-0.67	2.62	1.85	0.62049
16	presto/tpch:q17	63.89	1.12	63.64	0.45	-0.40	1.76	0.71	0.61899
4	presto/tpch:q05	35.06	0.85	34.94	0.20	-0.36	2.43	0.56	0.73223
9	presto/tpch:q10	21.65	1.68	21.62	0.64	-0.13	7.75	2.96	0.96906
12	presto/tpch:q13	22.13	1.85	22.51	1.00	1.72	8.34	4.45	0.66630
14	presto/tpch:q15	4.02	0.16	4.09	0.13	1.72	3.87	3.10	0.41742
15	presto/tpch:q16	5.37	0.04	5.59	0.47	4.10	0.77	8.45	0.28231

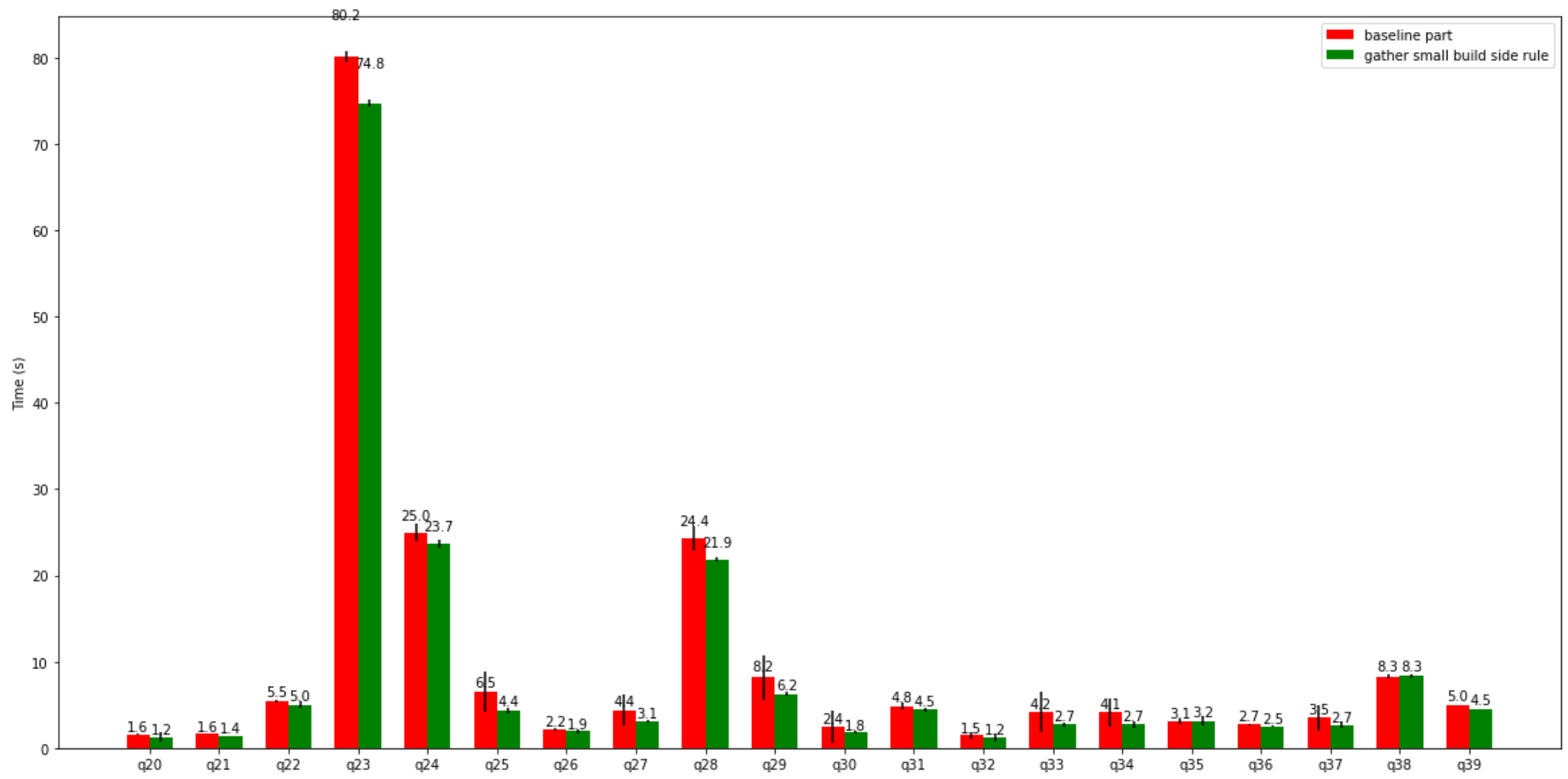
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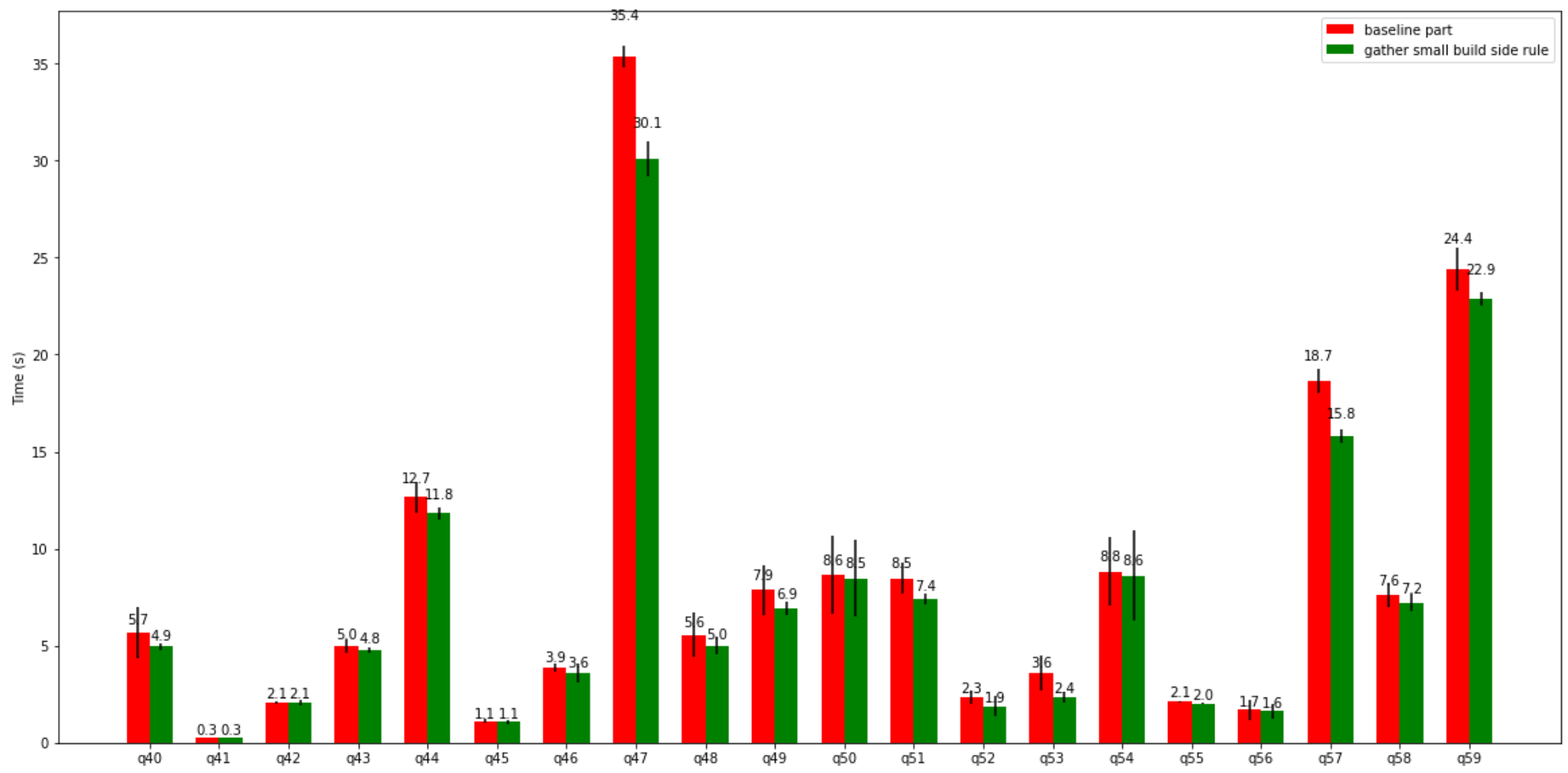
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std       4
min     -16
25%      -4
50%      -2
75%      -0
max       4
Name: % change, dtype: float64

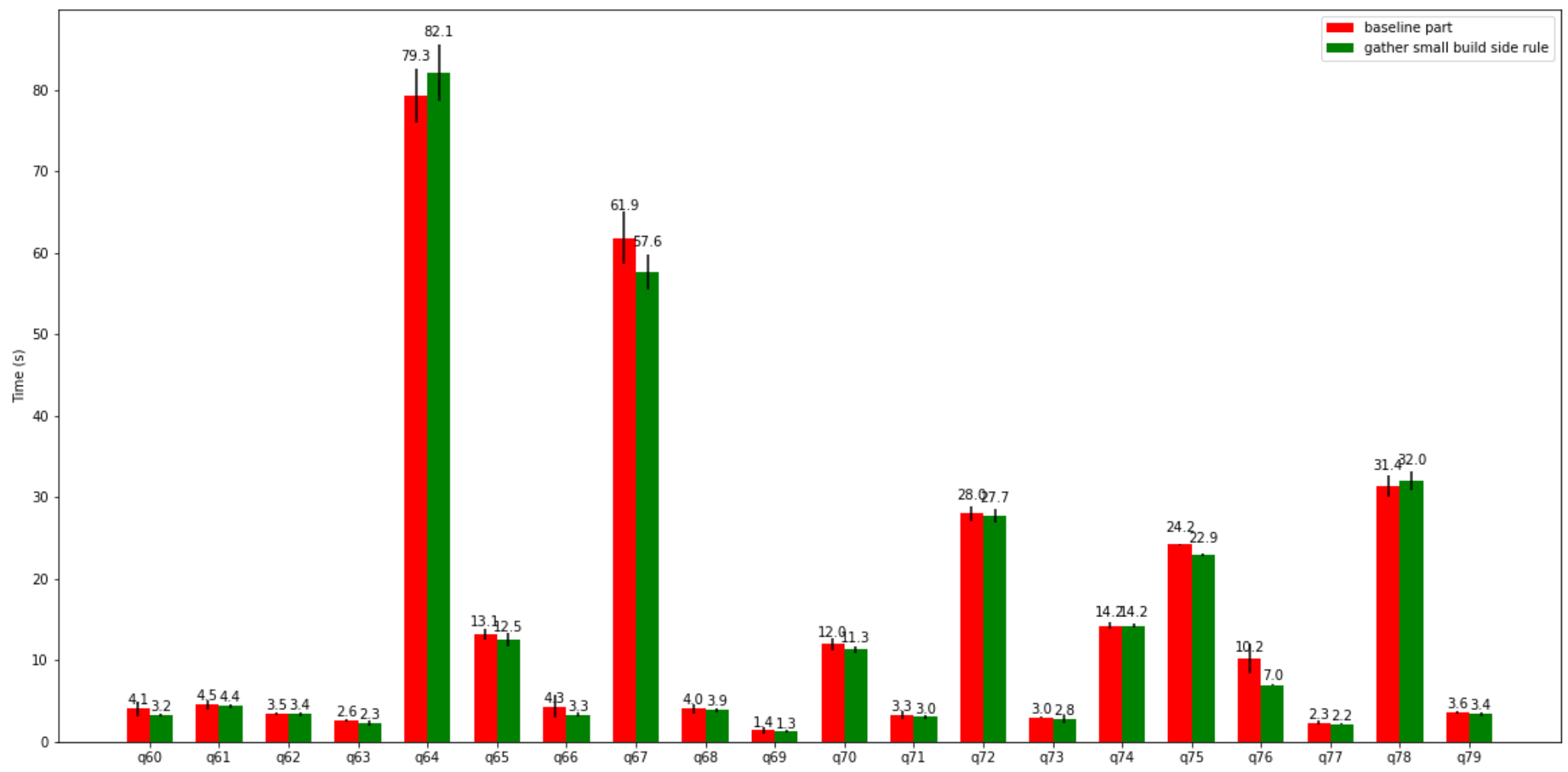
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# TPC-DS Comparison (DURATION)

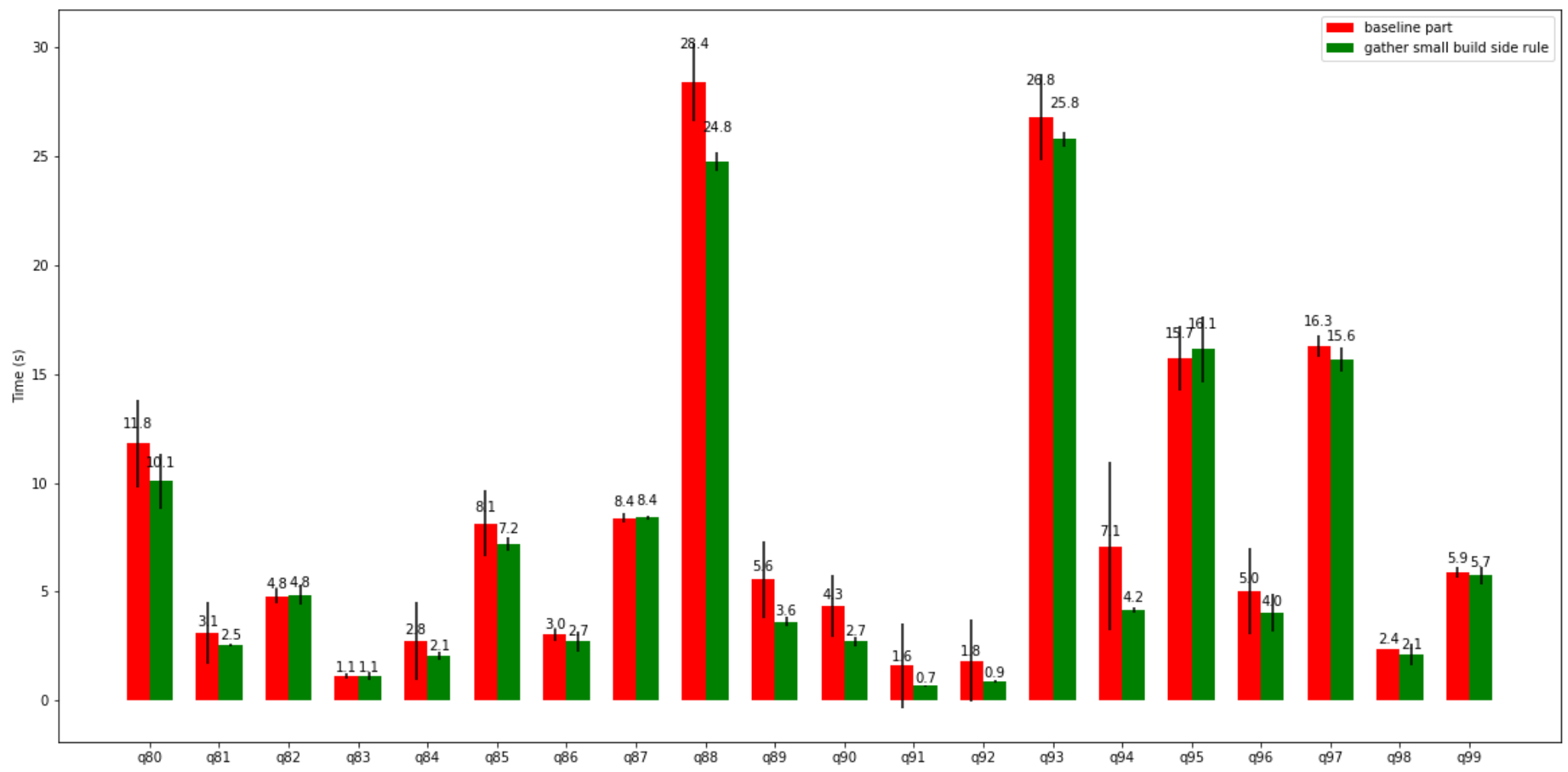


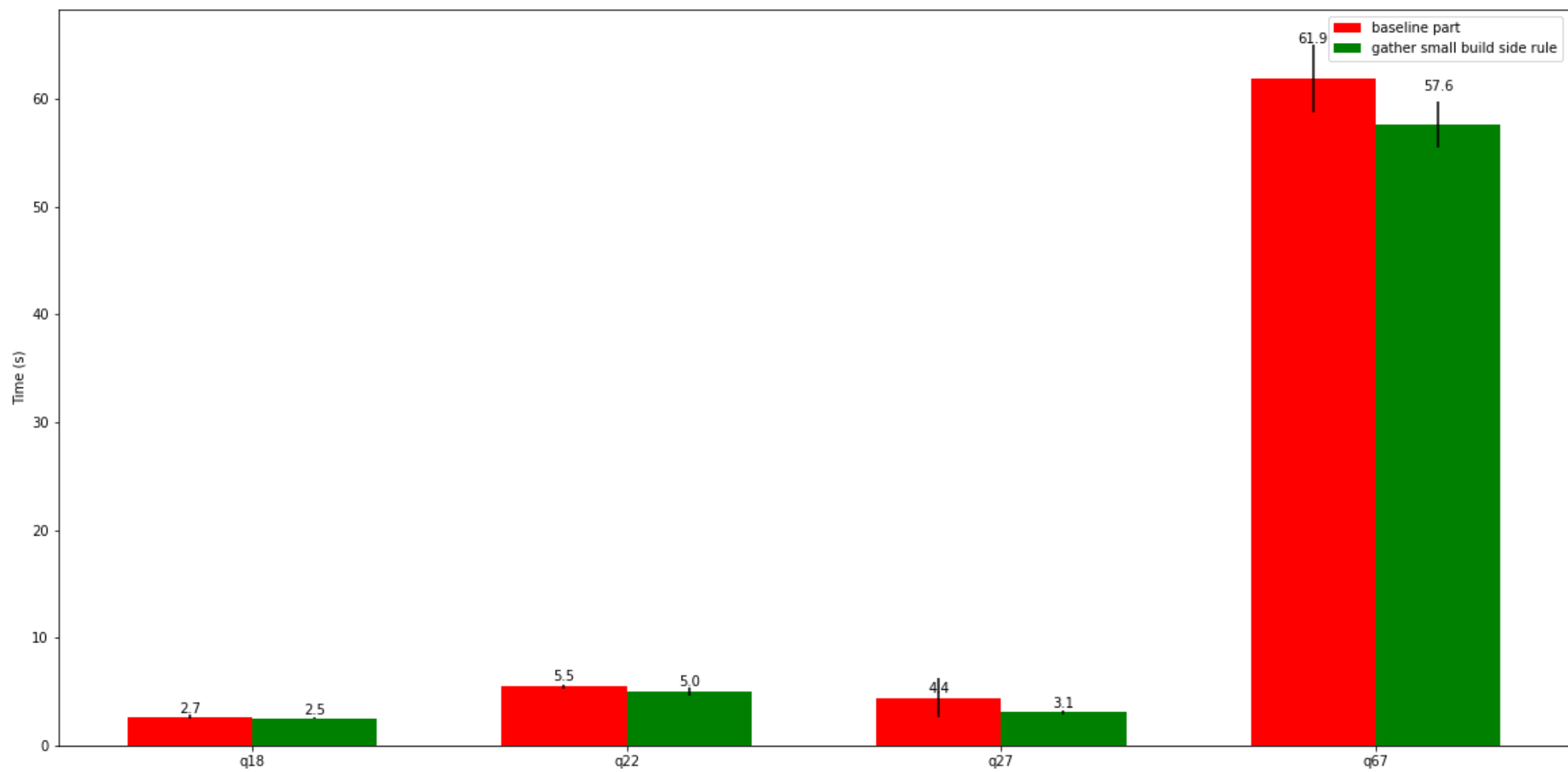












	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
<b>90</b>	presto/tpcds: q91	1.61	1.97	0.68	0.05	-57.76	122.41	6.88	0.27475
<b>91</b>	presto/tpcds: q92	1.83	1.89	0.87	0.07	-52.22	103.53	8.24	0.24518
<b>93</b>	presto/tpcds: q94	7.07	3.87	4.18	0.14	-40.95	54.71	3.23	0.09682
<b>89</b>	presto/tpcds: q90	4.32	1.42	2.71	0.23	-37.30	32.80	8.34	0.02045
<b>52</b>	presto/tpcds: q53	3.61	0.91	2.35	0.27	-34.85	25.28	11.44	0.00889
<b>88</b>	presto/tpcds: q89	5.55	1.77	3.63	0.21	-34.57	31.85	5.72	0.02472

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
32	presto/tpcds:q33	4.18	2.29	2.74	0.22	-34.49	54.69	8.09	0.15518
33	presto/tpcds:q34	4.11	1.63	2.72	0.42	-33.81	39.70	15.54	0.07102
24	presto/tpcds:q25	6.49	2.35	4.36	0.27	-32.84	36.20	6.15	0.05174
75	presto/tpcds:q76	10.16	1.81	6.97	0.13	-31.43	17.81	1.92	0.00154
26	presto/tpcds:q27	4.39	1.84	3.06	0.18	-30.30	41.98	6.01	0.10900
15	presto/tpcds:q16	7.71	2.68	5.51	0.36	-28.47	34.80	6.46	0.07503
29	presto/tpcds:q30	2.44	1.87	1.81	0.18	-26.16	76.64	10.04	0.42463
5	presto/tpcds:q06	3.10	1.95	2.31	0.06	-25.50	62.71	2.57	0.34295
83	presto/tpcds:q84	2.76	1.79	2.06	0.17	-25.44	64.94	8.39	0.36203
36	presto/tpcds:q37	3.53	1.47	2.67	0.37	-24.30	41.58	13.92	0.19533
28	presto/tpcds:q29	8.21	2.55	6.25	0.25	-23.90	31.05	4.00	0.09013
12	presto/tpcds:q13	7.02	1.57	5.39	0.27	-23.24	22.30	5.07	0.03063
65	presto/tpcds:q66	4.27	1.40	3.28	0.25	-23.06	32.84	7.54	0.12123
0	presto/tpcds:q01	3.72	1.76	2.90	0.07	-22.08	47.46	2.50	0.28136
19	presto/tpcds:q20	1.59	0.02	1.24	0.55	-21.87	1.16	43.79	0.14862
59	presto/tpcds:q60	4.06	0.90	3.25	0.12	-19.96	22.18	3.57	0.05369
95	presto/tpcds:q96	5.01	1.99	4.04	0.86	-19.47	39.67	21.24	0.29541
51	presto/tpcds:q52	2.34	0.34	1.89	0.53	-19.24	14.71	28.20	0.11289
80	presto/tpcds:q81	3.11	1.40	2.54	0.05	-18.33	45.06	2.00	0.34279

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
4	presto/tpcds:q05	8.14	1.26	6.70	0.54	-17.65	15.52	8.09	0.02838
13	presto/tpcds:q14	90.53	1.61	74.78	0.60	-17.40	1.77	0.80	0.00000
16	presto/tpcds:q17	6.56	2.21	5.47	0.14	-16.58	33.65	2.50	0.25622
31	presto/tpcds:q32	1.45	0.42	1.23	0.43	-15.56	28.72	34.64	0.37452
56	presto/tpcds:q57	18.66	0.65	15.79	0.33	-15.35	3.46	2.07	0.00000
46	presto/tpcds:q47	35.36	0.55	30.09	0.92	-14.89	1.57	3.06	0.00000
79	presto/tpcds:q80	11.80	2.01	10.07	1.29	-14.65	17.03	12.80	0.10636
6	presto/tpcds:q07	4.38	1.38	3.81	0.17	-13.06	31.41	4.48	0.33599
39	presto/tpcds:q40	5.69	1.30	4.95	0.15	-13.05	22.87	3.13	0.19528
20	presto/tpcds:q21	1.65	0.03	1.43	0.02	-13.03	1.72	1.10	0.00000
50	presto/tpcds:q51	8.48	0.82	7.38	0.27	-12.95	9.71	3.63	0.01113
87	presto/tpcds:q88	28.40	1.79	24.77	0.43	-12.80	6.31	1.74	0.00069
48	presto/tpcds:q49	7.88	1.28	6.94	0.34	-11.97	16.28	4.95	0.11241
84	presto/tpcds:q85	8.14	1.52	7.19	0.32	-11.69	18.65	4.47	0.16413
25	presto/tpcds:q26	2.19	0.15	1.95	0.21	-11.20	6.68	10.76	0.04036
97	presto/tpcds:q98	2.37	0.02	2.11	0.51	-10.87	0.86	24.00	0.24178
1	presto/tpcds:q02	18.93	1.97	16.89	0.16	-10.77	10.42	0.96	0.03026
62	presto/tpcds:q63	2.59	0.21	2.31	0.30	-10.52	8.28	12.96	0.10073
27	presto/tpcds:q28	24.37	1.40	21.87	0.19	-10.24	5.74	0.87	0.00149

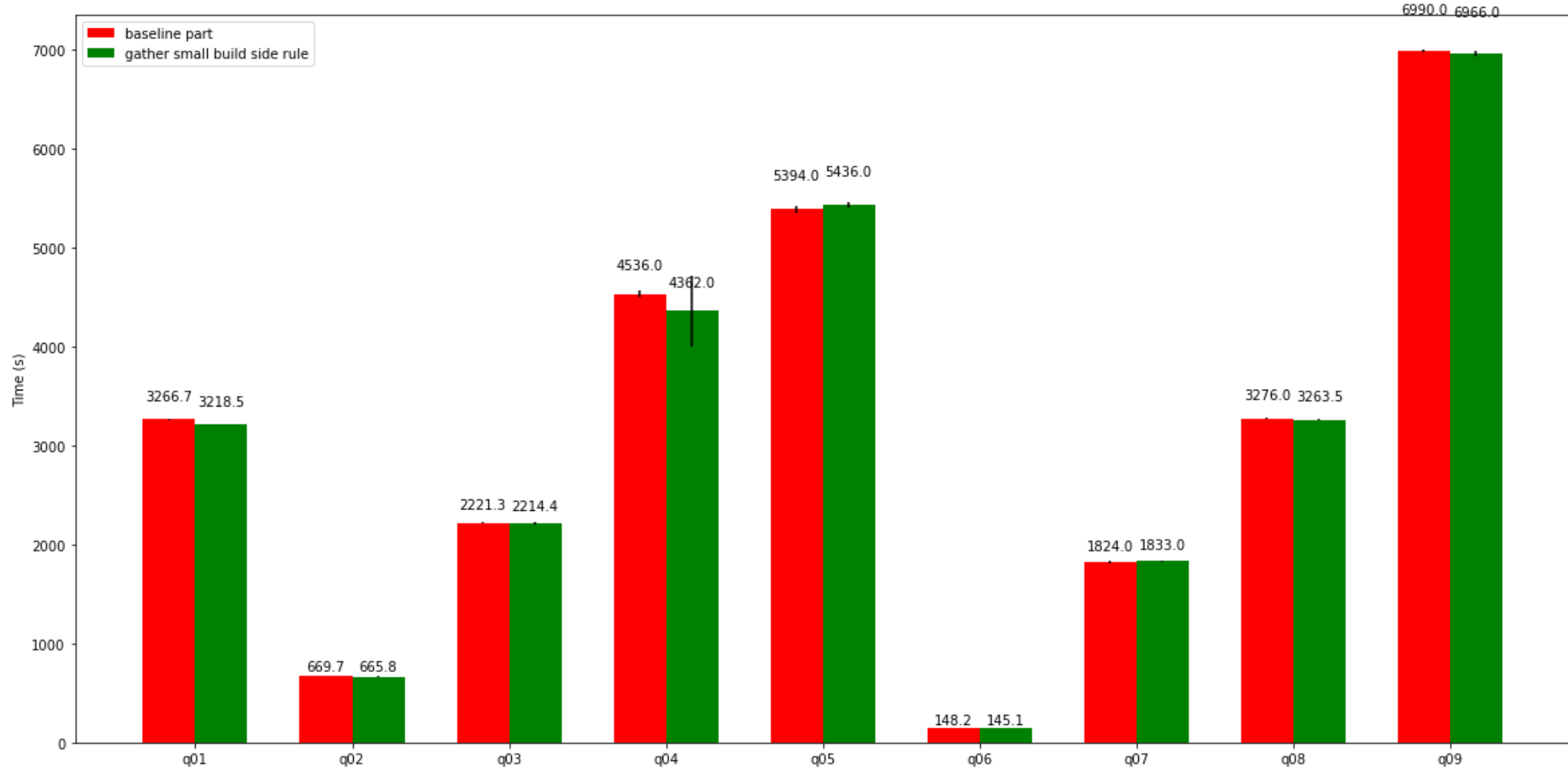
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
68	presto/tpcds:q69	1.40	0.39	1.26	0.15	-10.23	27.63	12.11	0.41837
47	presto/tpcds:q48	5.57	1.16	5.01	0.45	-10.00	20.88	9.07	0.30005
85	presto/tpcds:q86	3.02	0.26	2.73	0.47	-9.68	8.72	17.35	0.21546
38	presto/tpcds:q39	4.96	0.06	4.49	0.05	-9.35	1.21	1.06	0.00000
35	presto/tpcds:q36	2.72	0.13	2.47	0.08	-9.13	4.61	3.13	0.00205
21	presto/tpcds:q22	5.45	0.15	4.97	0.40	-8.79	2.82	7.96	0.02000
8	presto/tpcds:q09	26.63	2.25	24.30	0.78	-8.74	8.47	3.21	0.03791
11	presto/tpcds:q12	0.54	0.04	0.49	0.01	-8.28	7.79	2.62	0.03207
72	presto/tpcds:q73	3.02	0.08	2.78	0.54	-8.01	2.67	19.54	0.30592
78	presto/tpcds:q79	3.65	0.18	3.36	0.19	-7.76	4.93	5.75	0.02544
45	presto/tpcds:q46	3.88	0.20	3.60	0.46	-7.37	5.05	12.85	0.19257
30	presto/tpcds:q31	4.82	0.38	4.46	0.22	-7.36	7.86	4.86	0.07431
70	presto/tpcds:q71	3.25	0.51	3.03	0.24	-6.87	15.68	8.00	0.35491
66	presto/tpcds:q67	61.85	3.15	57.61	2.16	-6.86	5.10	3.74	0.02156
22	presto/tpcds:q23	80.15	0.61	74.76	0.43	-6.73	0.76	0.58	0.00000
43	presto/tpcds:q44	12.66	0.80	11.84	0.31	-6.48	6.31	2.65	0.04123
58	presto/tpcds:q59	24.43	1.11	22.90	0.35	-6.25	4.55	1.54	0.00938
54	presto/tpcds:q55	2.13	0.03	2.00	0.03	-5.93	1.35	1.71	0.00004
76	presto/tpcds:q77	2.33	0.21	2.19	0.14	-5.92	9.22	6.23	0.21406

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
74	presto/tpcds:q75	24.21	0.13	22.89	0.14	-5.45	0.56	0.60	0.00000
69	presto/tpcds:q70	11.98	0.78	11.34	0.44	-5.38	6.53	3.92	0.10948
23	presto/tpcds:q24	24.95	1.03	23.67	0.41	-5.12	4.13	1.71	0.01809
57	presto/tpcds:q58	7.62	0.61	7.23	0.47	-5.10	8.01	6.53	0.24573
64	presto/tpcds:q65	13.12	0.66	12.48	0.85	-4.84	5.00	6.84	0.17917
42	presto/tpcds:q43	5.01	0.35	4.77	0.11	-4.80	7.05	2.39	0.14350
17	presto/tpcds:q18	2.66	0.20	2.54	0.11	-4.33	7.52	4.33	0.24538
55	presto/tpcds:q56	1.69	0.52	1.63	0.37	-4.02	30.81	23.05	0.80063
96	presto/tpcds:q97	16.29	0.51	15.65	0.57	-3.94	3.11	3.66	0.06692
60	presto/tpcds:q61	4.53	0.53	4.35	0.20	-3.92	11.65	4.67	0.45957
92	presto/tpcds:q93	26.80	2.00	25.78	0.35	-3.81	7.45	1.37	0.24495
9	presto/tpcds:q10	1.54	0.22	1.49	0.15	-3.46	14.58	9.97	0.63824
67	presto/tpcds:q68	4.02	0.59	3.89	0.22	-3.37	14.76	5.76	0.61215
98	presto/tpcds:q99	5.89	0.27	5.74	0.38	-2.41	4.52	6.66	0.47347
61	presto/tpcds:q62	3.45	0.22	3.37	0.20	-2.38	6.25	5.86	0.50794
53	presto/tpcds:q54	8.82	1.75	8.61	2.32	-2.30	19.85	26.87	0.86727
18	presto/tpcds:q19	2.99	0.03	2.92	0.14	-2.21	1.00	4.93	0.29668
44	presto/tpcds:q45	1.11	0.10	1.09	0.10	-2.18	9.20	9.48	0.69079
49	presto/tpcds:q50	8.64	2.01	8.48	2.00	-1.86	23.30	23.55	0.89232

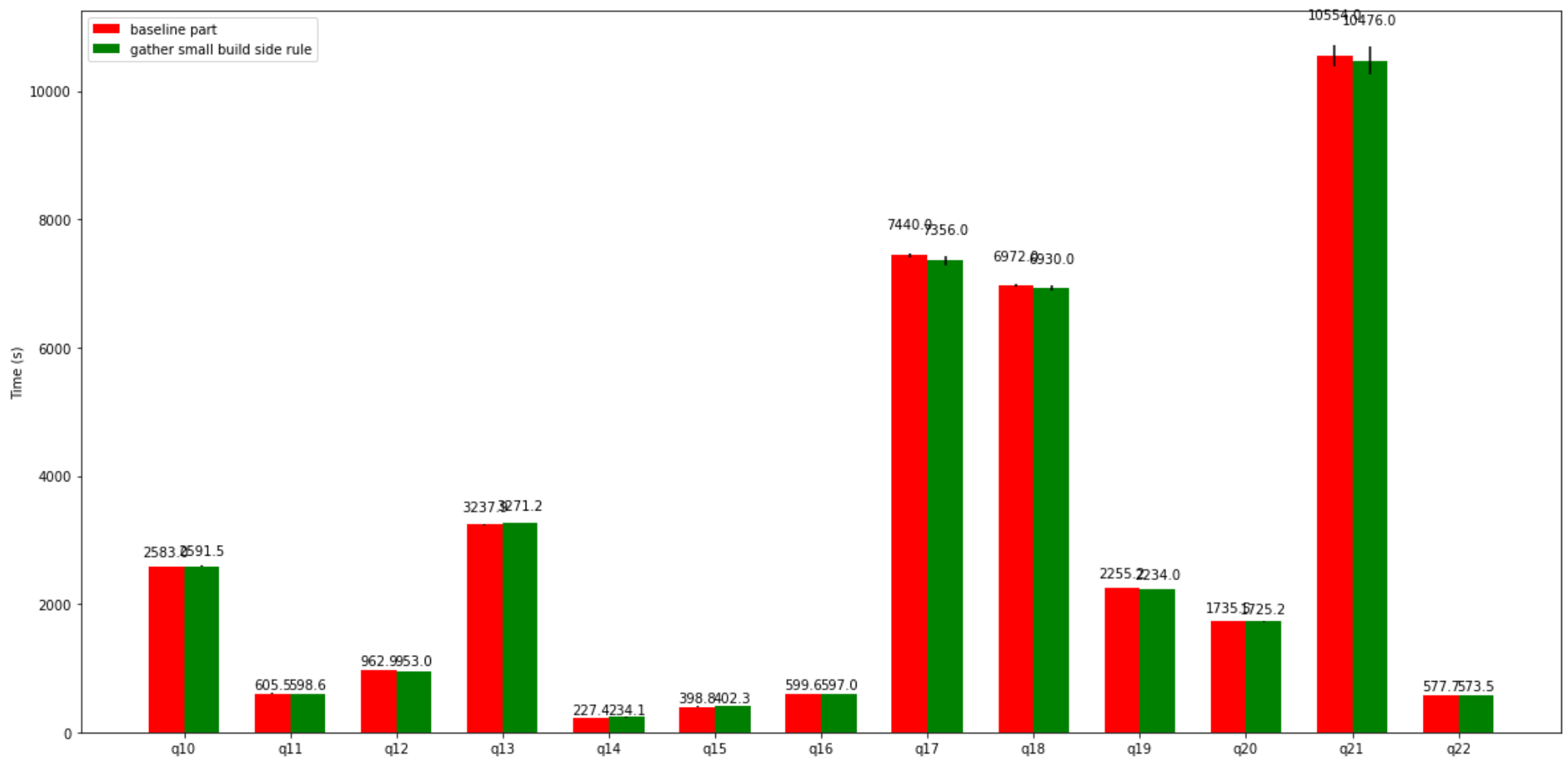


max 4  
Name: % change, dtype: float64

# TPC-H Comparison (CPU)







query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
3 presto/tpch: q04	4536.00	32.20	4362.00	358.14	-3.84	0.71	8.21	0.26330
5 presto/tpch: q06	148.20	0.38	145.10	0.45	-2.09	0.26	0.31	0.00000
0 presto/tpch: q01	3266.70	3.43	3218.50	5.65	-1.48	0.11	0.18	0.00000
10 presto/tpch: q11	605.50	2.77	598.60	2.51	-1.14	0.46	0.42	0.00111
16 presto/tpch: q17	7440.00	29.39	7356.00	63.04	-1.13	0.40	0.86	0.01434
11 presto/tpch: q12	962.90	4.09	953.00	2.27	-1.03	0.43	0.24	0.00041

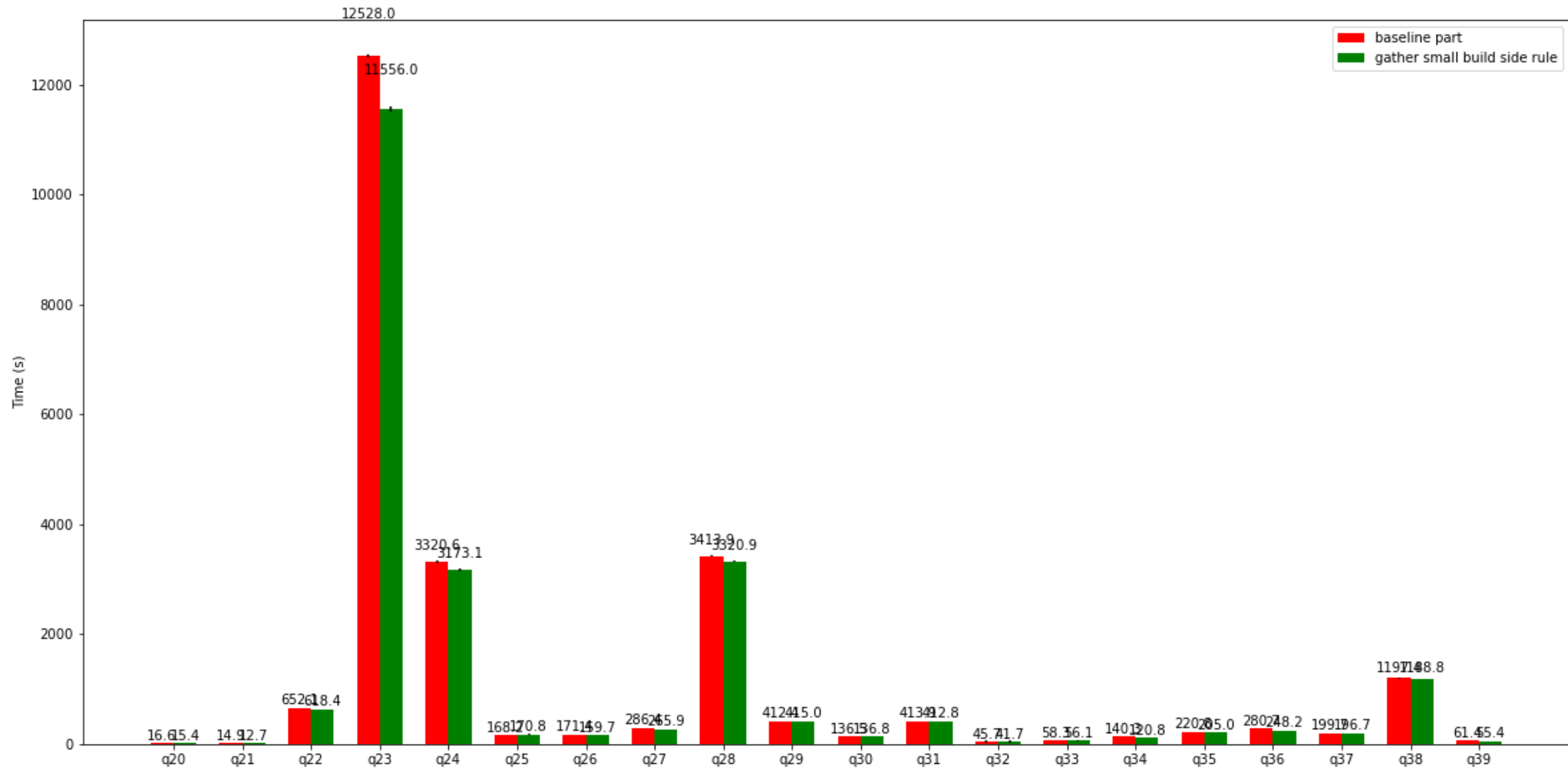
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
18	presto/tpch: q19	2255.20	6.17	2234.00	5.49	-0.94	0.27	0.25	0.00009
20	presto/tpch: q21	10554.00	163.26	10476.00	212.37	-0.74	1.55	2.03	0.49200
21	presto/tpch: q22	577.70	2.19	573.50	1.34	-0.73	0.38	0.23	0.00250
17	presto/tpch: q18	6972.00	29.39	6930.00	49.62	-0.60	0.42	0.72	0.10478
19	presto/tpch: q20	1735.50	6.83	1725.20	10.84	-0.59	0.39	0.63	0.07730
1	presto/tpch: q02	669.70	1.71	665.80	2.00	-0.58	0.26	0.30	0.00461
15	presto/tpch: q16	599.60	1.12	597.00	1.26	-0.43	0.19	0.21	0.00358
7	presto/tpch: q08	3276.00	10.28	3263.50	7.96	-0.38	0.31	0.24	0.04033
8	presto/tpch: q09	6990.00	14.70	6966.00	30.12	-0.34	0.21	0.43	0.10995
2	presto/tpch: q03	2221.30	6.52	2214.40	18.09	-0.31	0.29	0.82	0.40017
9	presto/tpch: q10	2583.00	8.13	2591.50	15.69	0.33	0.31	0.61	0.26607
6	presto/tpch: q07	1824.00	7.73	1833.00	8.18	0.49	0.42	0.45	0.07865
4	presto/tpch: q05	5394.00	35.39	5436.00	22.77	0.78	0.66	0.42	0.03458
14	presto/tpch: q15	398.80	1.05	402.30	1.93	0.88	0.26	0.48	0.00292
12	presto/tpch: q13	3237.90	9.03	3271.20	3.72	1.03	0.28	0.11	0.00001
13	presto/tpch: q14	227.40	1.07	234.10	1.39	2.95	0.47	0.59	0.00000

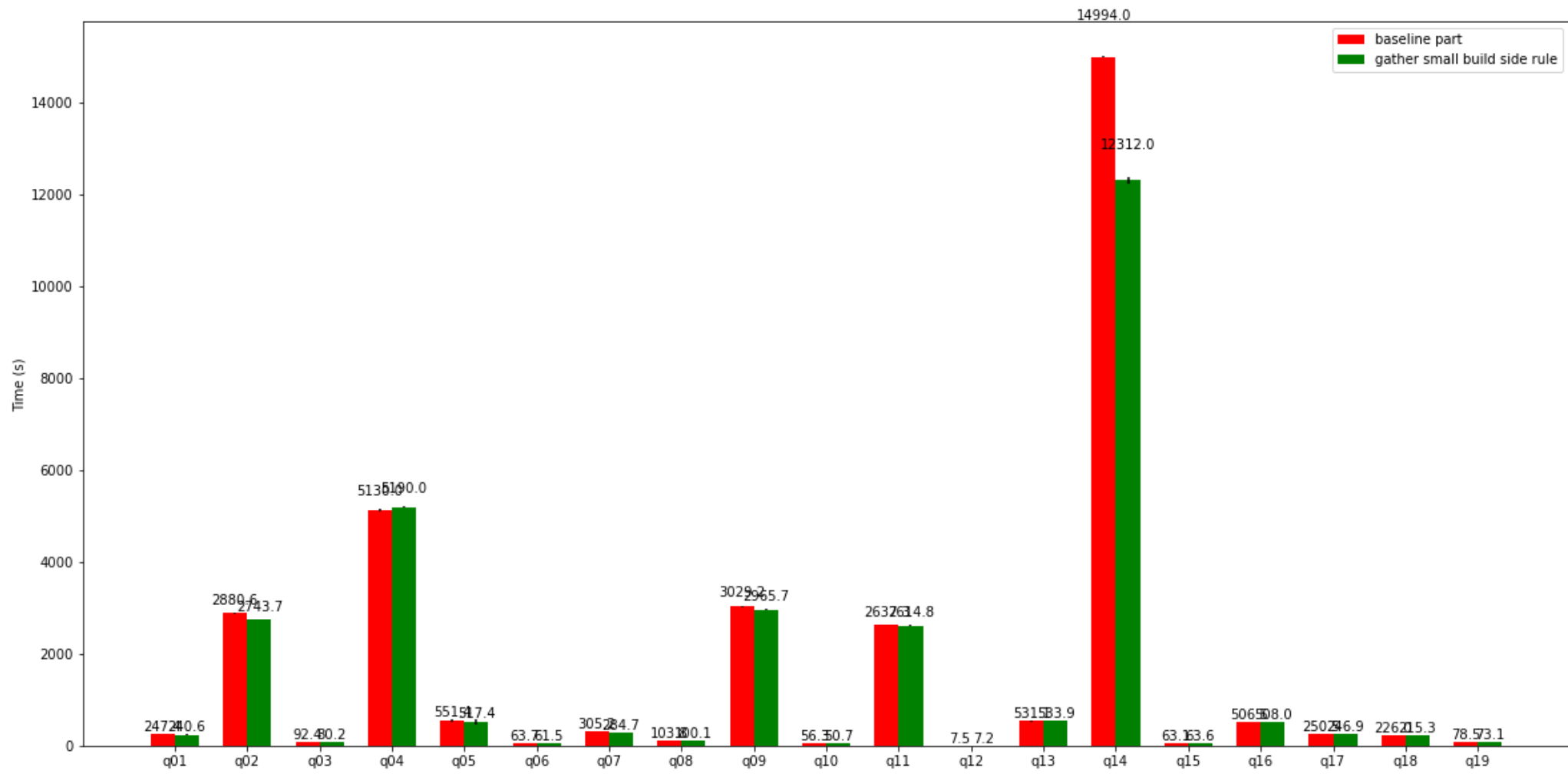
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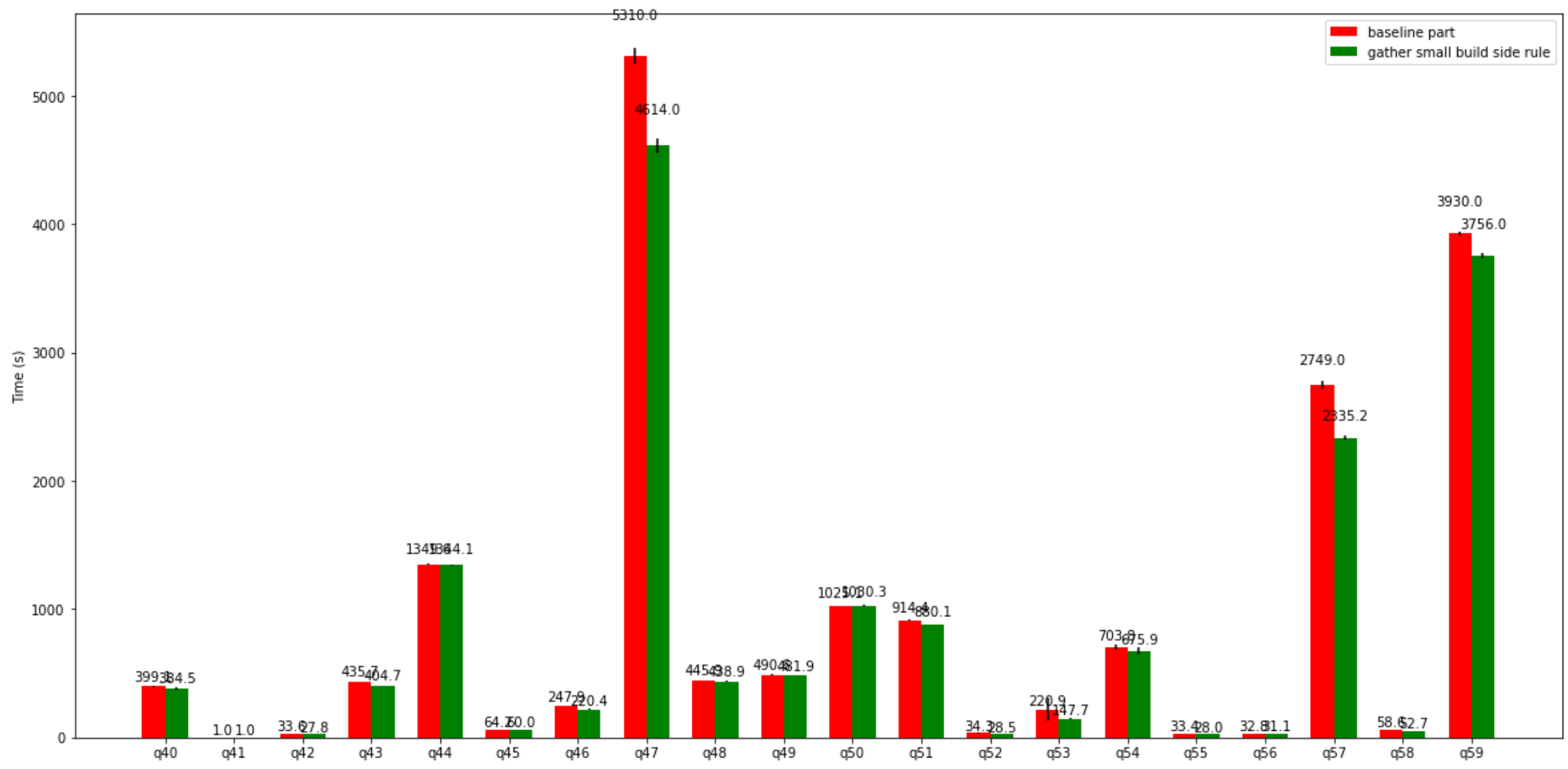
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Name: % change, dtype: float64

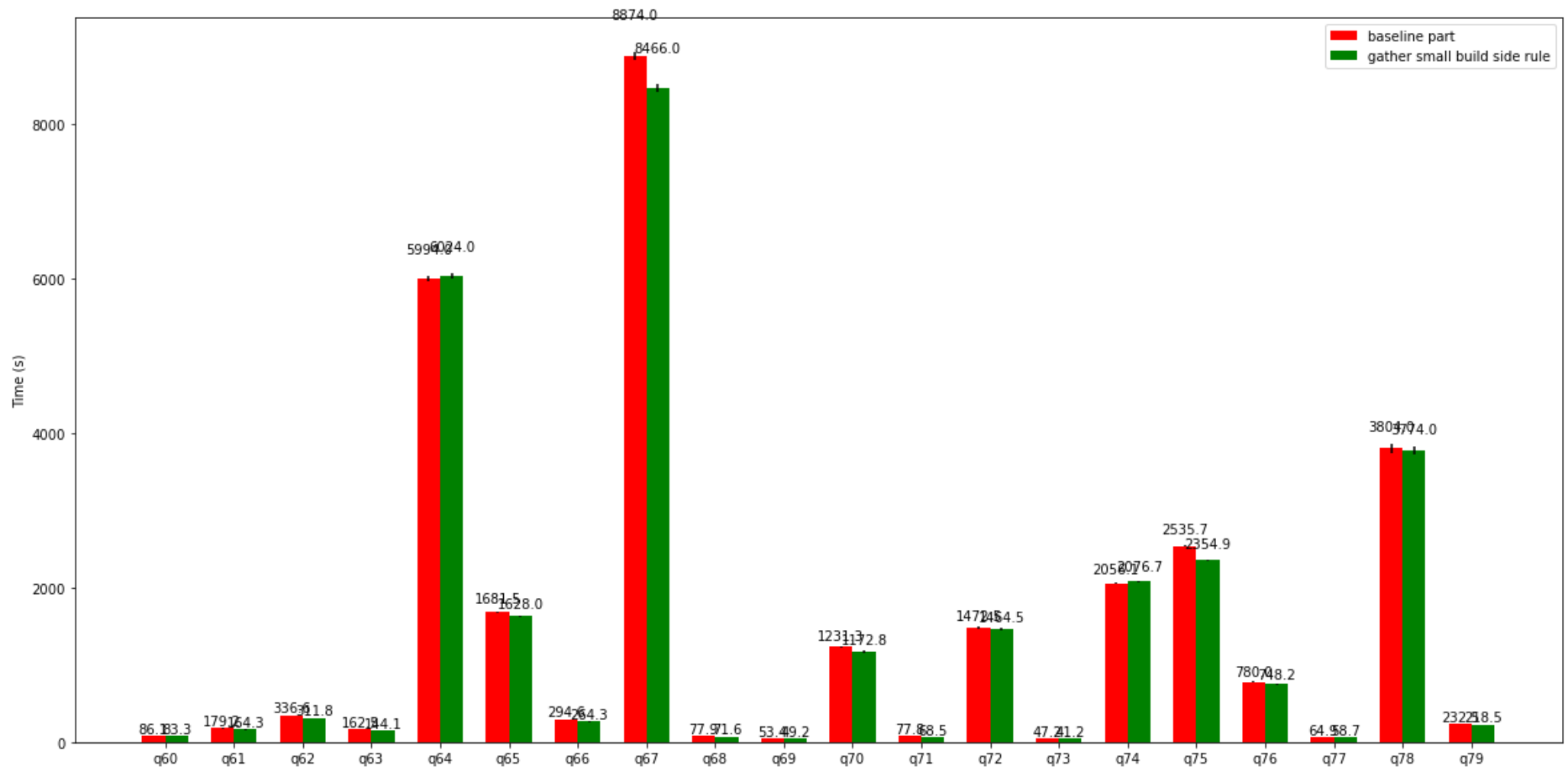
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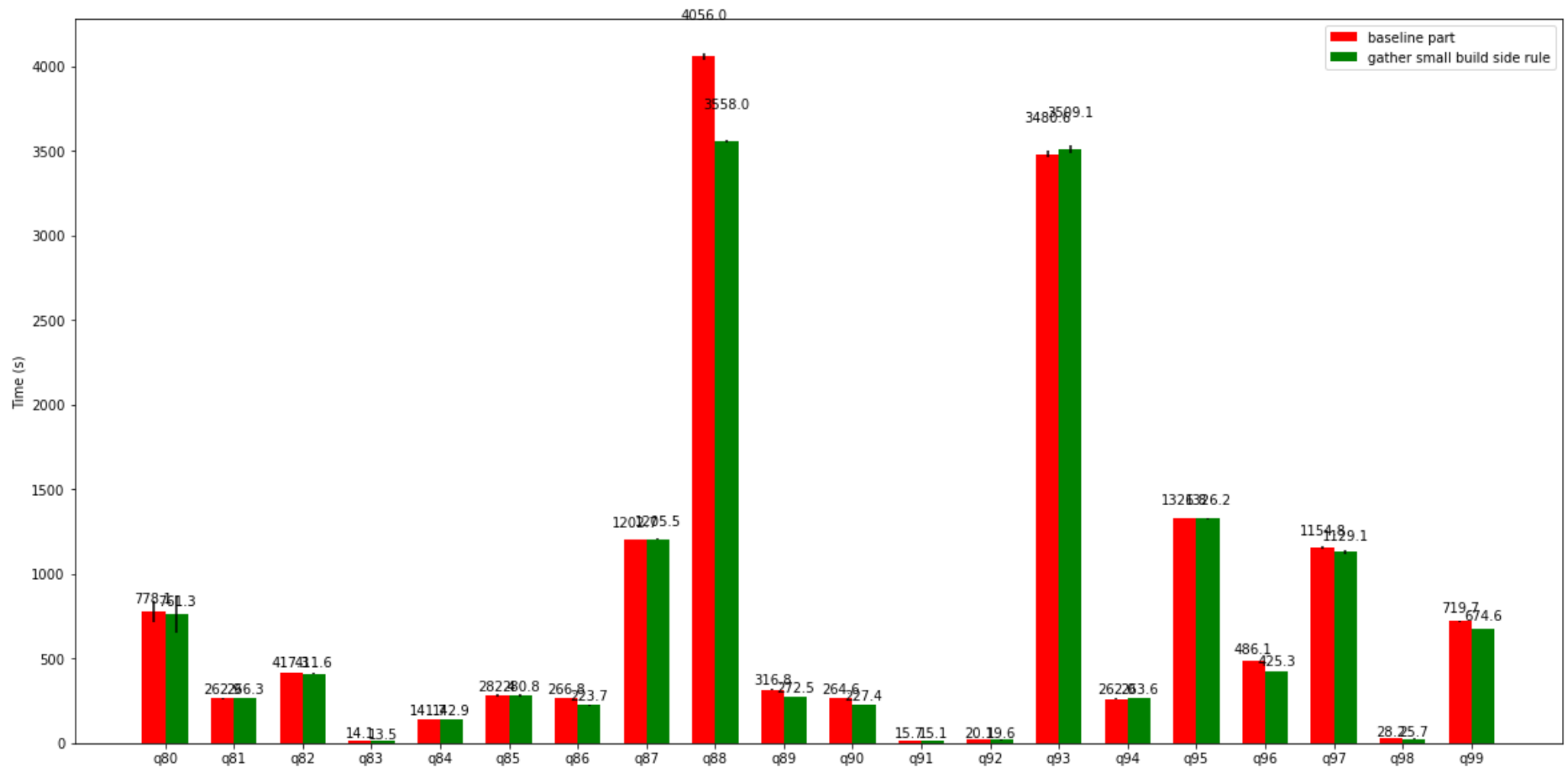
# TPC-DS Comparison (CPU)

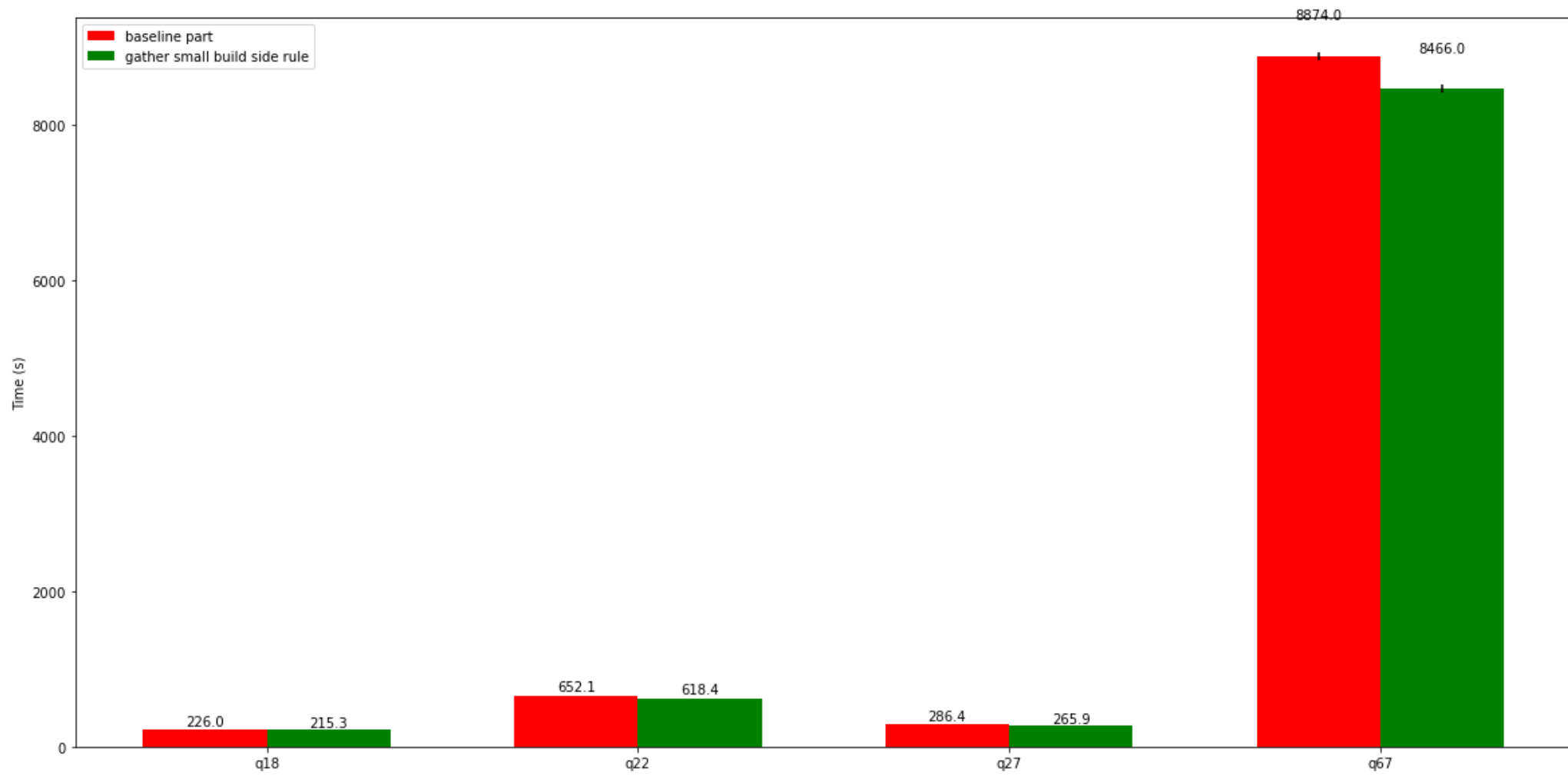












	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
52	presto/tpcds: q53	220.90	85.63	147.70	1.10	-33.14	38.76	0.75	0.06273
13	presto/tpcds: q14	14994.00	19.72	12312.00	72.00	-17.89	0.13	0.58	0.00000
41	presto/tpcds: q42	33.57	0.21	27.84	0.08	-17.06	0.64	0.29	0.00000
51	presto/tpcds: q52	34.28	0.14	28.51	0.10	-16.83	0.40	0.35	0.00000
85	presto/tpcds: q86	266.80	0.90	223.70	1.16	-16.15	0.34	0.52	0.00000
54	presto/tpcds: q55	33.44	0.13	28.05	0.07	-16.13	0.38	0.26	0.00000



	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
20	presto/tpcds:q21	14.94	0.14	12.69	0.14	-15.08	0.97	1.08	0.00000
56	presto/tpcds:q57	2749.00	31.28	2335.20	17.34	-15.05	1.14	0.74	0.00000
89	presto/tpcds:q90	264.60	0.38	227.40	0.76	-14.06	0.14	0.33	0.00000
88	presto/tpcds:q89	316.80	1.20	272.50	1.03	-13.98	0.38	0.38	0.00000
33	presto/tpcds:q34	140.30	0.24	120.80	0.49	-13.90	0.17	0.41	0.00000
2	presto/tpcds:q03	92.40	0.38	80.20	0.31	-13.20	0.41	0.39	0.00000
46	presto/tpcds:q47	5310.00	63.38	4614.00	57.67	-13.11	1.19	1.25	0.00000
72	presto/tpcds:q73	47.19	0.11	41.20	0.07	-12.70	0.24	0.18	0.00000
95	presto/tpcds:q96	486.10	1.10	425.30	1.34	-12.51	0.23	0.31	0.00000
87	presto/tpcds:q88	4056.00	18.59	3558.00	9.02	-12.28	0.46	0.25	0.00000
70	presto/tpcds:q71	77.80	1.30	68.50	1.49	-11.95	1.67	2.18	0.00000
35	presto/tpcds:q36	280.70	0.45	248.20	0.49	-11.58	0.16	0.20	0.00000
62	presto/tpcds:q63	162.50	1.58	144.10	0.88	-11.32	0.97	0.61	0.00000
45	presto/tpcds:q46	247.90	1.39	220.40	1.24	-11.09	0.56	0.56	0.00000
65	presto/tpcds:q66	294.60	0.54	264.30	0.63	-10.29	0.18	0.24	0.00000
57	presto/tpcds:q58	58.56	0.60	52.68	1.10	-10.05	1.03	2.09	0.00000
9	presto/tpcds:q10	56.30	0.67	50.73	1.03	-9.89	1.19	2.03	0.00000
38	presto/tpcds:q39	61.40	0.73	55.44	0.27	-9.71	1.18	0.49	0.00000
76	presto/tpcds:q77	64.90	0.45	58.74	0.56	-9.50	0.70	0.95	0.00000

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
97	presto/tpcds:q98	28.22	0.18	25.69	0.34	-8.94	0.63	1.31	0.00000
31	presto/tpcds:q32	45.69	29.35	41.67	18.01	-8.78	64.25	43.23	0.78113
60	presto/tpcds:q61	179.20	13.83	164.30	6.39	-8.31	7.72	3.89	0.03756
67	presto/tpcds:q68	77.90	0.59	71.60	0.82	-8.09	0.76	1.14	0.00000
68	presto/tpcds:q69	53.44	0.92	49.18	0.57	-7.97	1.72	1.15	0.00000
22	presto/tpcds:q23	12528.00	22.77	11556.00	45.54	-7.76	0.18	0.39	0.00000
61	presto/tpcds:q62	336.60	2.68	311.80	2.10	-7.37	0.80	0.67	0.00000
19	presto/tpcds:q20	16.58	0.15	15.39	0.12	-7.18	0.91	0.75	0.00000
26	presto/tpcds:q27	286.40	0.62	265.90	0.59	-7.16	0.22	0.22	0.00000
34	presto/tpcds:q35	220.80	3.11	205.00	1.59	-7.16	1.41	0.78	0.00000
74	presto/tpcds:q75	2535.70	9.17	2354.90	7.70	-7.13	0.36	0.33	0.00000
42	presto/tpcds:q43	435.70	0.45	404.70	0.63	-7.11	0.10	0.16	0.00000
18	presto/tpcds:q19	78.50	0.59	73.10	3.00	-6.88	0.75	4.10	0.00149
25	presto/tpcds:q26	171.40	0.73	159.70	0.70	-6.83	0.42	0.44	0.00000
6	presto/tpcds:q07	305.20	0.49	284.70	0.73	-6.72	0.16	0.26	0.00000
40	presto/tpcds:q41	1.02	0.01	0.96	0.02	-6.63	1.18	1.71	0.00001
44	presto/tpcds:q45	64.20	0.85	60.00	0.50	-6.54	1.32	0.83	0.00000
98	presto/tpcds:q99	719.70	1.69	674.60	0.73	-6.27	0.23	0.11	0.00000
4	presto/tpcds:q05	551.40	28.71	517.40	50.60	-6.17	5.21	9.78	0.18280

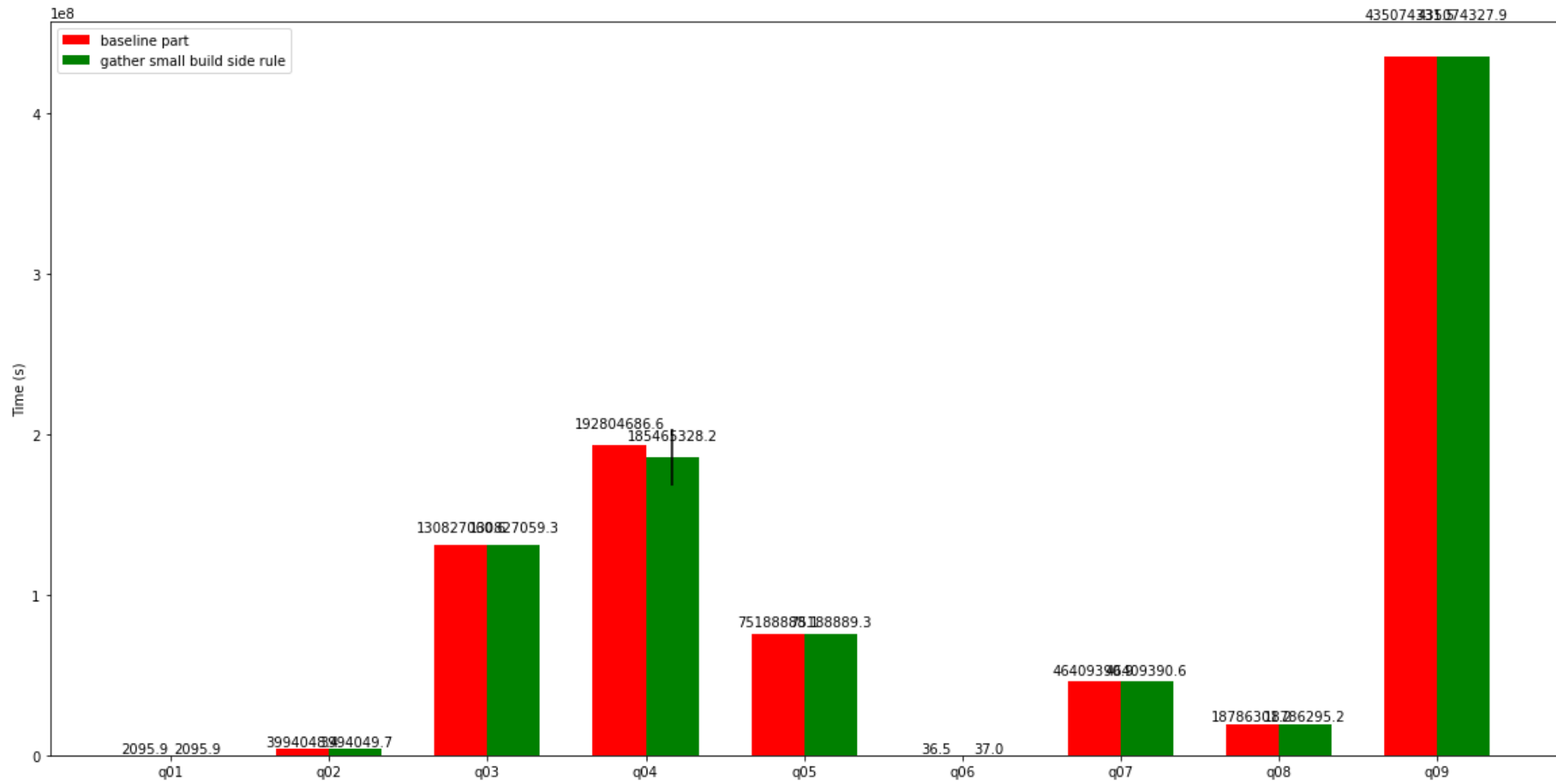
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
78	presto/tpcds:q79	232.50	0.50	218.50	0.59	-6.02	0.22	0.27	0.00000
55	presto/tpcds:q56	32.81	0.24	31.06	0.18	-5.34	0.72	0.59	0.00000
21	presto/tpcds:q22	652.10	3.44	618.40	1.85	-5.17	0.53	0.30	0.00000
82	presto/tpcds:q83	14.14	0.25	13.46	0.47	-4.82	1.77	3.49	0.01064
1	presto/tpcds:q02	2880.60	5.41	2743.70	3.00	-4.75	0.19	0.11	0.00000
69	presto/tpcds:q70	1231.30	14.29	1172.80	15.99	-4.75	1.16	1.36	0.00005
17	presto/tpcds:q18	226.00	1.40	215.30	0.45	-4.73	0.62	0.21	0.00000
66	presto/tpcds:q67	8874.00	49.62	8466.00	52.99	-4.60	0.56	0.63	0.00000
23	presto/tpcds:q24	3320.60	26.31	3173.10	17.04	-4.44	0.79	0.54	0.00000
58	presto/tpcds:q59	3930.00	14.70	3756.00	18.59	-4.43	0.37	0.49	0.00000
90	presto/tpcds:q91	15.73	2.10	15.06	0.88	-4.26	13.33	5.83	0.48707
75	presto/tpcds:q76	780.00	6.83	748.20	2.89	-4.08	0.88	0.39	0.00000
53	presto/tpcds:q54	703.80	23.65	675.90	25.58	-3.96	3.36	3.78	0.07818
32	presto/tpcds:q33	58.28	0.61	56.07	0.31	-3.80	1.05	0.56	0.00001
50	presto/tpcds:q51	914.40	2.66	880.10	1.67	-3.75	0.29	0.19	0.00000
39	presto/tpcds:q40	399.10	7.39	384.50	8.00	-3.66	1.85	2.08	0.00824
7	presto/tpcds:q08	103.80	0.38	100.10	0.45	-3.56	0.37	0.45	0.00000
5	presto/tpcds:q06	63.70	0.45	61.50	0.33	-3.45	0.71	0.53	0.00000
59	presto/tpcds:q60	86.10	0.63	83.30	0.59	-3.25	0.73	0.71	0.00001

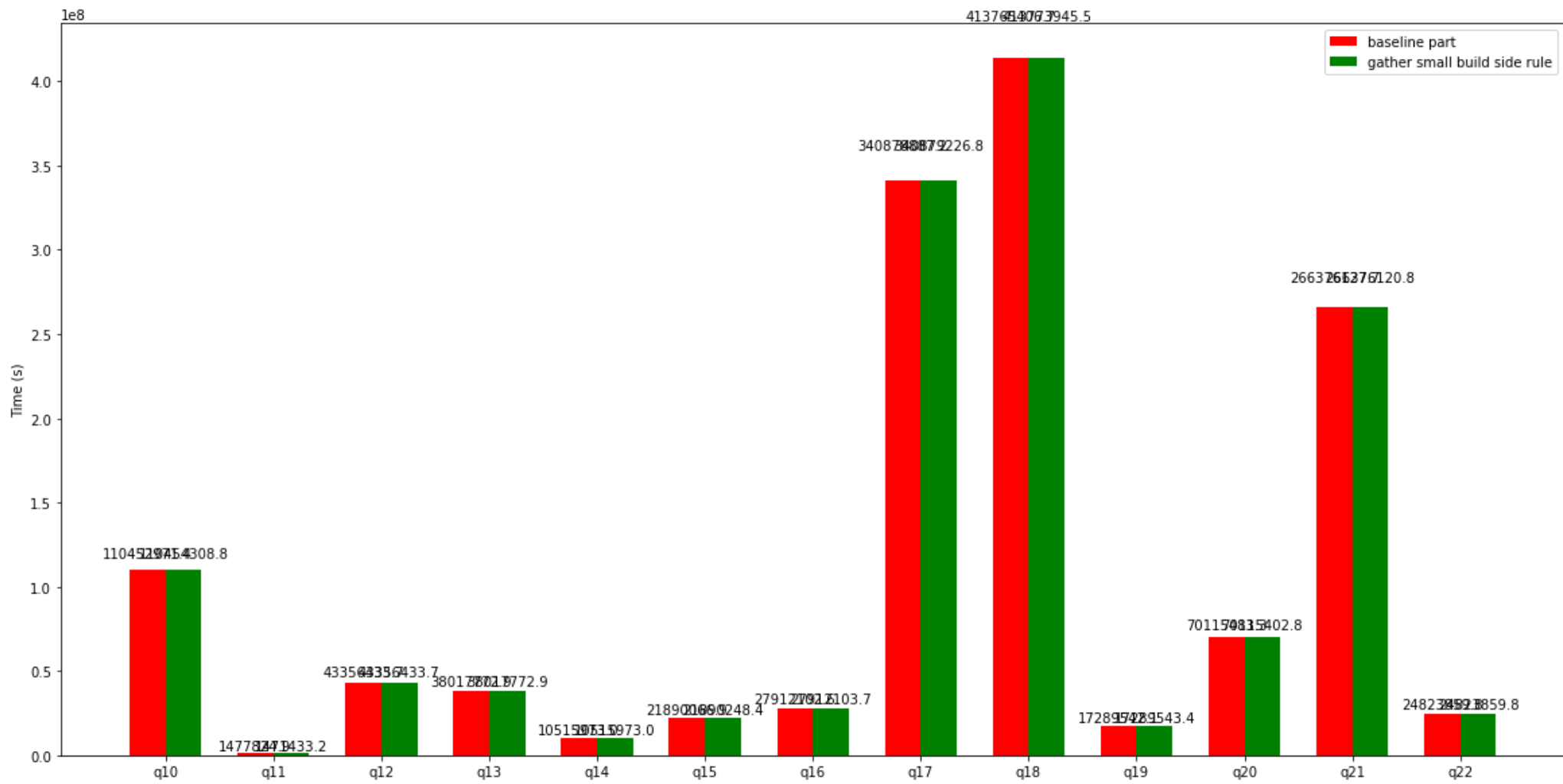
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
<b>64</b>	presto/tpcds:q65	1681.50	12.27	1628.00	5.70	-3.18	0.73	0.35	0.00000
<b>11</b>	presto/tpcds:q12	7.45	0.07	7.22	0.04	-3.06	0.92	0.59	0.00004
<b>0</b>	presto/tpcds:q01	247.40	3.53	240.60	2.04	-2.75	1.43	0.85	0.00221
<b>27</b>	presto/tpcds:q28	3413.90	12.47	3320.90	9.02	-2.72	0.37	0.27	0.00000
<b>91</b>	presto/tpcds:q92	20.11	0.20	19.57	2.50	-2.65	0.99	12.76	0.61357
<b>96</b>	presto/tpcds:q97	1154.80	4.96	1129.10	10.05	-2.23	0.43	0.89	0.00022
<b>79</b>	presto/tpcds:q80	778.10	59.95	761.30	107.47	-2.16	7.70	14.12	0.74498
<b>8</b>	presto/tpcds:q09	3029.20	7.66	2965.70	9.77	-2.10	0.25	0.33	0.00000
<b>48</b>	presto/tpcds:q49	490.60	2.65	481.90	1.22	-1.77	0.54	0.25	0.00003
<b>47</b>	presto/tpcds:q48	445.90	1.39	438.90	0.83	-1.57	0.31	0.19	0.00000
<b>36</b>	presto/tpcds:q37	199.70	0.59	196.70	0.59	-1.50	0.30	0.30	0.00001
<b>16</b>	presto/tpcds:q17	250.50	3.61	246.90	2.33	-1.44	1.44	0.94	0.06751
<b>81</b>	presto/tpcds:q82	417.30	0.99	411.60	0.76	-1.37	0.24	0.18	0.00000
<b>10</b>	presto/tpcds:q11	2637.30	10.31	2614.80	4.05	-0.85	0.39	0.15	0.00056
<b>77</b>	presto/tpcds:q78	3804.00	58.79	3774.00	52.99	-0.79	1.55	1.40	0.37503
<b>37</b>	presto/tpcds:q38	1197.40	3.67	1188.80	3.83	-0.72	0.31	0.32	0.00263
<b>84</b>	presto/tpcds:q85	282.40	5.53	280.80	6.38	-0.57	1.96	2.27	0.65266
<b>71</b>	presto/tpcds:q72	1472.50	19.25	1464.50	18.17	-0.54	1.31	1.24	0.47614
<b>43</b>	presto/tpcds:q44	1349.60	6.42	1344.10	4.51	-0.41	0.48	0.34	0.11694



max 2  
Name: % change, dtype: float64

# TPC-H Comparison (Network)





query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
3 presto/tpch: q04	192804686.64	461.86	185465328.18	17977061.39	-3.81	0.00	9.69	0.34088
10 presto/tpch: q11	1477824.89	12534.79	1471433.24	11600.99	-0.43	0.85	0.79	0.38089
19 presto/tpch: q20	70115483.34	98.31	70115402.82	41.51	-0.00	0.00	0.00	0.09430
7 presto/tpch: q08	18786301.23	2.30	18786295.16	5.78	-0.00	0.00	0.00	0.03803
20 presto/tpch: q21	266376127.66	8.99	266376120.79	9.16	-0.00	0.00	0.00	0.21876

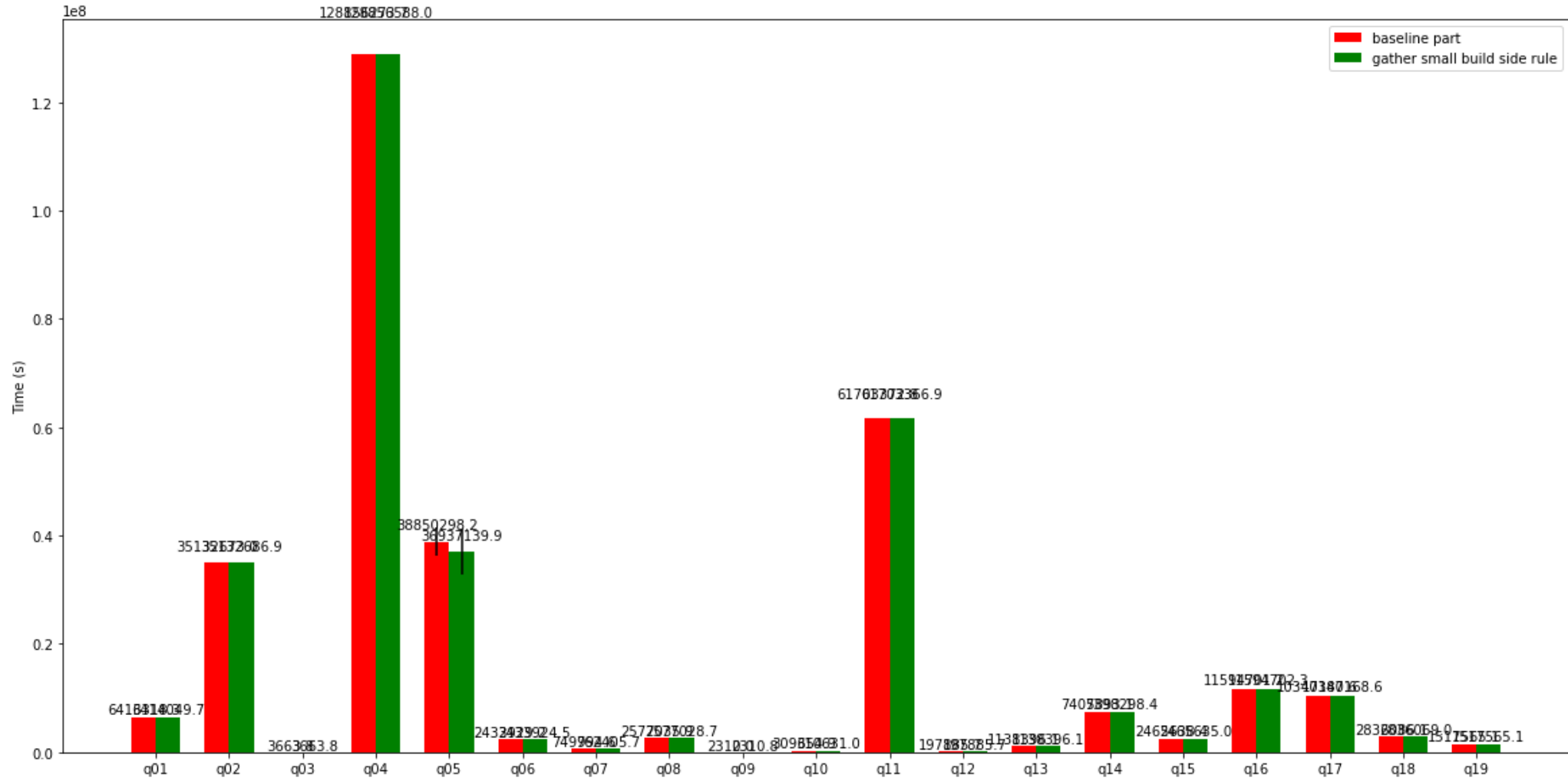
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
2	presto/tpch:q03	130827060.56	6.83	130827059.33	2.53	-0.00	0.00	0.00	0.68687
6	presto/tpch:q07	46409390.94	3.65	46409390.56	2.54	-0.00	0.00	0.00	0.83732
8	presto/tpch:q09	435074331.45	7.86	435074327.88	9.63	-0.00	0.00	0.00	0.49725
13	presto/tpch:q14	10515972.95	0.00	10515972.95	0.00	0.00	0.00	0.00	nan
12	presto/tpch:q13	38017772.90	0.00	38017772.90	0.00	0.00	0.00	0.00	nan
11	presto/tpch:q12	43356433.66	0.00	43356433.66	0.00	0.00	0.00	0.00	nan
0	presto/tpch:q01	2095.91	0.82	2095.91	1.18	0.00	0.04	0.06	1.00000
21	presto/tpch:q22	24823859.83	0.00	24823859.83	0.00	0.00	0.00	0.00	nan
4	presto/tpch:q05	75188888.14	4.74	75188889.31	5.69	0.00	0.00	0.00	0.70747
15	presto/tpch:q16	27912102.64	4.66	27912103.74	4.01	0.00	0.00	0.00	0.67007
18	presto/tpch:q19	17289542.14	1.08	17289543.38	3.26	0.00	0.00	0.00	0.39944
1	presto/tpch:q02	3994048.40	32.53	3994049.72	24.24	0.00	0.00	0.00	0.93803
16	presto/tpch:q17	340878887.19	1215.01	340879226.79	1105.75	0.00	0.00	0.00	0.62359
14	presto/tpch:q15	21890066.90	104.88	21890248.35	111.99	0.00	0.00	0.00	0.01592
9	presto/tpch:q10	110452971.35	2002.62	110454308.84	1730.96	0.00	0.00	0.00	0.24411
17	presto/tpch:q18	413765406.66	12467.03	413773945.49	3661.61	0.00	0.00	0.00	0.13854
5	presto/tpch:q06	36.49	0.84	36.97	0.10	1.32	2.30	0.27	0.19417

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min -4  
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50% 0  
75% 0

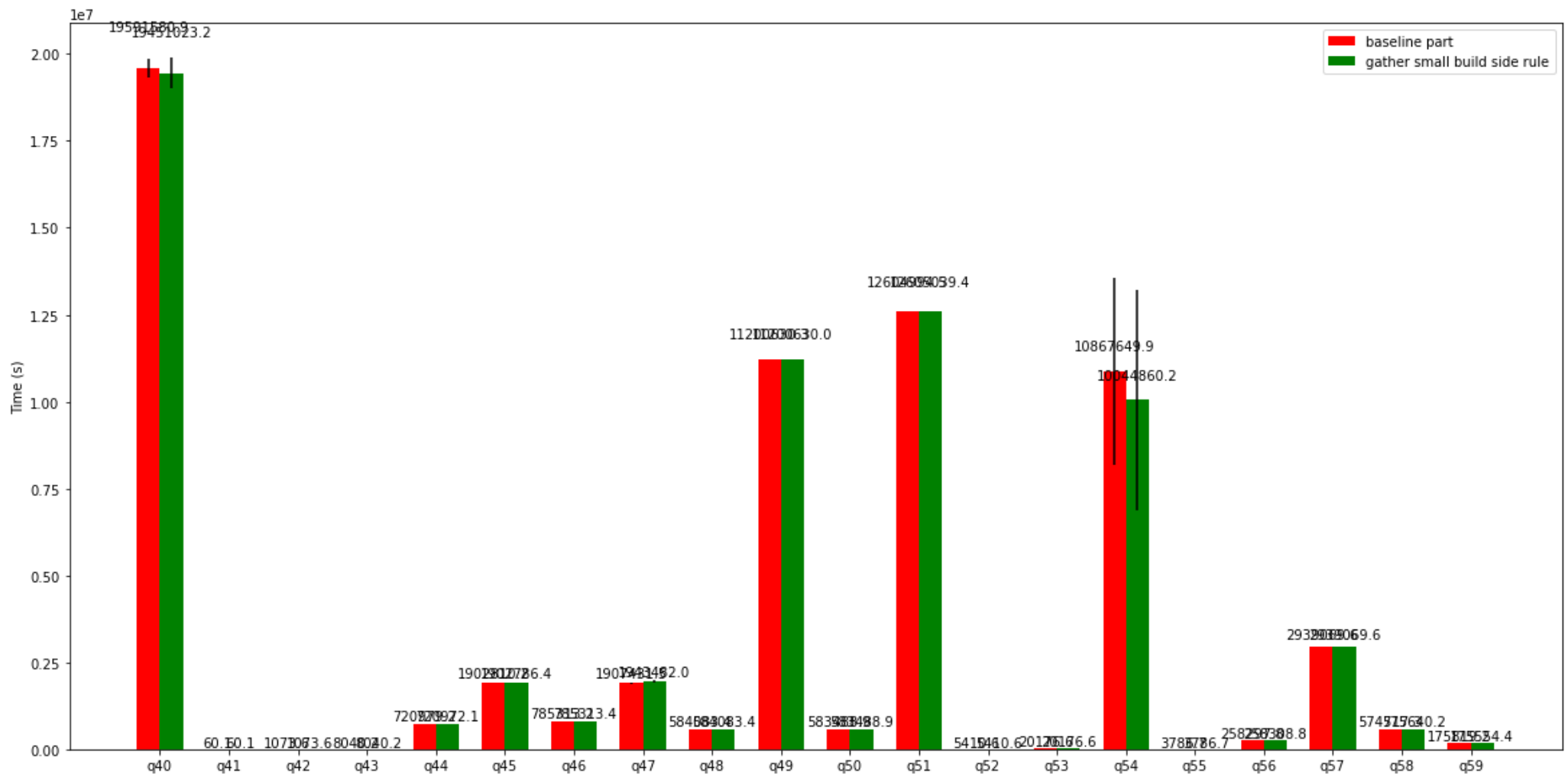


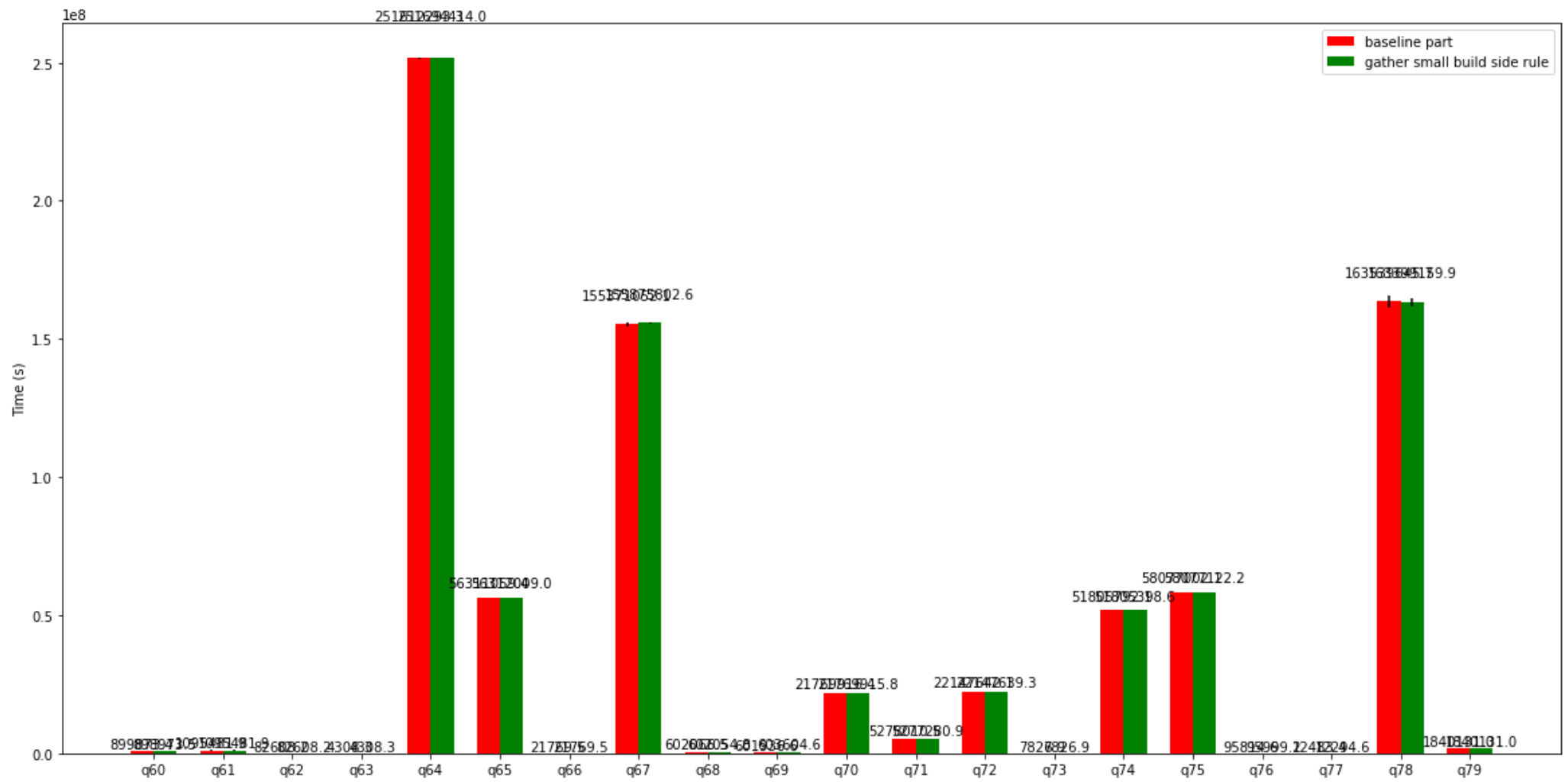
max 1  
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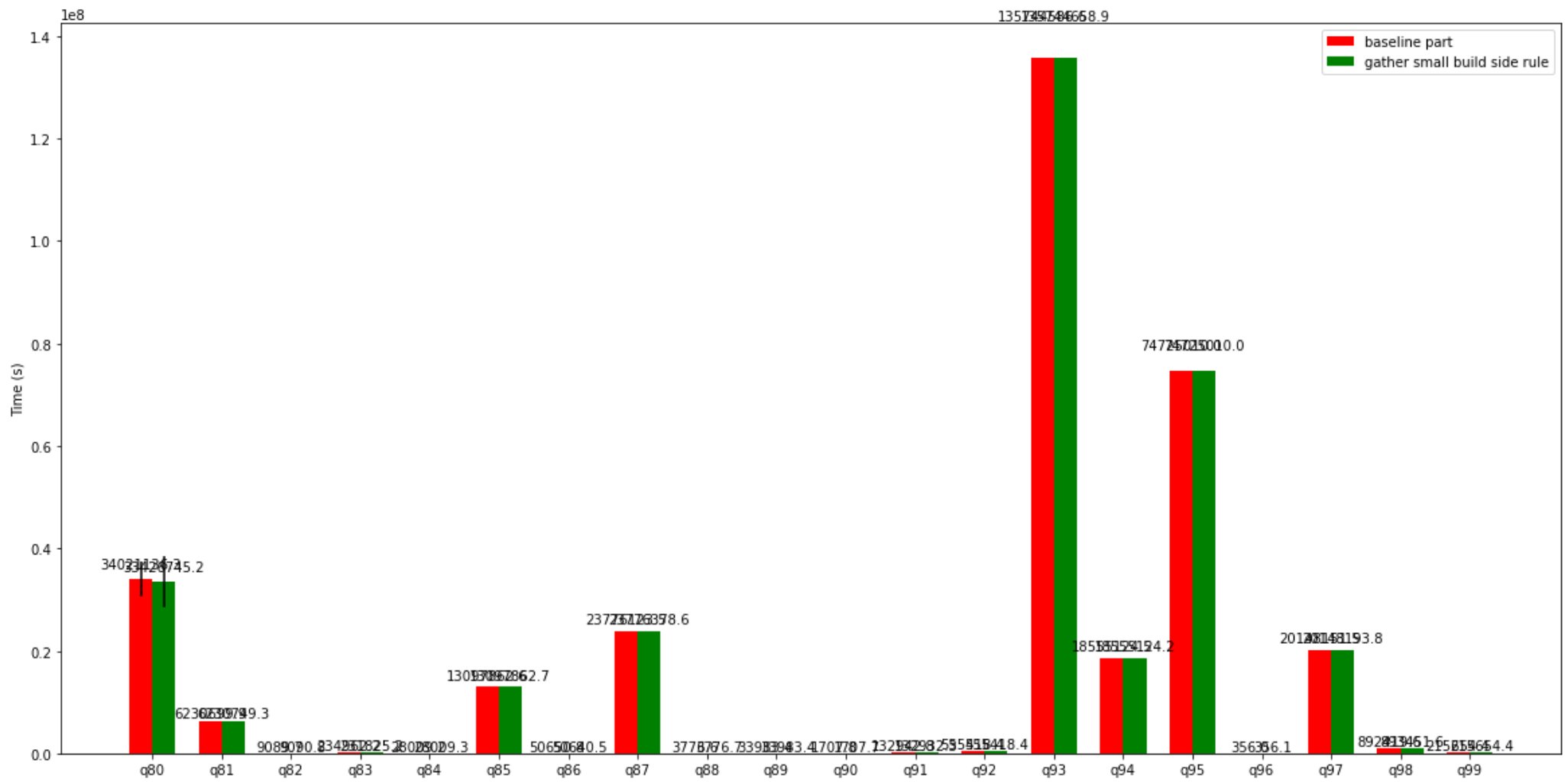
# TPC-DS Comparison (Network)











query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
53 presto/tpcds: q54	10867649.90	2673697.57	10044860.20	3168328.08	-7.57	24.60	31.54	0.63734
4 presto/tpcds: q05	38850298.25	2669530.55	36937139.91	4252606.79	-4.92	6.87	11.51	0.37264
79 presto/tpcds: q80	34021136.34	3455173.39	33426745.25	4937734.06	-1.75	10.16	14.77	0.81398
76 presto/tpcds: q77	12483.40	586.27	12294.59	623.80	-1.51	4.70	5.07	0.60084
82 presto/tpcds: q83	234962.24	2641.76	231825.18	3183.67	-1.34	1.12	1.37	0.09290

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
39	presto/tpcds:q40	19591580.85	277684.91	19451023.17	443066.75	-0.72	1.42	2.28	0.52512
58	presto/tpcds:q59	175819.18	295.21	175554.43	448.58	-0.15	0.17	0.26	0.25499
13	presto/tpcds:q14	7405893.10	23196.60	7398298.39	10291.29	-0.10	0.31	0.14	0.48035
59	presto/tpcds:q60	899873.35	5215.76	898973.47	2333.98	-0.10	0.58	0.26	0.70776
77	presto/tpcds:q78	163539645.72	1993773.73	163399159.93	1507305.44	-0.09	1.22	0.92	0.89323
85	presto/tpcds:q86	50650.80	20.10	50640.50	25.78	-0.02	0.04	0.05	0.45815
70	presto/tpcds:q71	5278010.47	186.65	5277280.89	813.87	-0.01	0.00	0.02	0.05801
90	presto/tpcds:q91	132942.81	22.73	132932.34	9.47	-0.01	0.02	0.01	0.32212
89	presto/tpcds:q90	1707.81	0.21	1707.68	0.36	-0.01	0.01	0.02	0.45795
32	presto/tpcds:q33	1103638.75	1108.73	1103602.05	830.76	-0.00	0.10	0.08	0.94955
67	presto/tpcds:q68	602066.49	19.53	602054.80	24.19	-0.00	0.00	0.00	0.37860
44	presto/tpcds:q45	1902810.15	27.37	1902786.36	23.97	-0.00	0.00	0.00	0.14026
43	presto/tpcds:q44	720979.23	16.73	720972.07	16.31	-0.00	0.00	0.00	0.47052
73	presto/tpcds:q74	51805792.08	397.59	51805398.57	586.11	-0.00	0.00	0.00	0.20340
17	presto/tpcds:q18	2836086.06	18.09	2836069.04	20.82	-0.00	0.00	0.00	0.16159
7	presto/tpcds:q08	2577035.94	90.66	2577028.69	65.94	-0.00	0.00	0.00	0.87716
29	presto/tpcds:q30	3073654.81	81.46	3073648.56	18.83	-0.00	0.00	0.00	0.85836
5	presto/tpcds:q06	2433929.15	11.92	2433924.49	8.67	-0.00	0.00	0.00	0.45604
14	presto/tpcds:q15	2465638.39	12.05	2465634.96	2.71	-0.00	0.00	0.00	0.51187

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
16	presto/tpcds: q17	10347180.63	41.83	10347168.61	23.12	-0.00	0.00	0.00	0.55135
28	presto/tpcds: q29	4591054.11	11.35	4591049.47	0.00	-0.00	0.00	0.00	0.34089
72	presto/tpcds: q73	7826.94	0.00	7826.93	0.01	-0.00	0.00	0.00	0.26298
71	presto/tpcds: q72	22147642.10	8.28	22147639.30	8.08	-0.00	0.00	0.00	0.56720
10	presto/tpcds: q11	61703372.75	35.68	61703366.95	62.66	-0.00	0.00	0.00	0.84763
27	presto/tpcds: q28	3182923.04	10.07	3182922.88	10.02	-0.00	0.00	0.00	0.97813
48	presto/tpcds: q49	11200630.32	0.00	11200630.03	0.72	-0.00	0.00	0.00	0.34089
69	presto/tpcds: q70	21769916.38	0.94	21769915.81	1.13	-0.00	0.00	0.00	0.36817
93	presto/tpcds: q94	18555124.48	3.44	18555124.20	1.71	-0.00	0.00	0.00	0.86205
78	presto/tpcds: q79	1840131.03	0.16	1840131.00	0.28	-0.00	0.00	0.00	0.84185
52	presto/tpcds: q53	20176.63	0.00	20176.63	0.00	0.00	0.00	0.00	nan
51	presto/tpcds: q52	5410.64	0.00	5410.64	0.00	0.00	0.00	0.00	nan
54	presto/tpcds: q55	3786.73	0.00	3786.73	0.00	0.00	0.00	0.00	nan
49	presto/tpcds: q50	583488.94	0.00	583488.94	0.00	0.00	0.00	0.00	nan
60	presto/tpcds: q61	1095481.85	123583.89	1095481.85	68460.92	0.00	11.28	6.25	1.00000
61	presto/tpcds: q62	82608.21	0.00	82608.21	0.00	0.00	0.00	0.00	nan
62	presto/tpcds: q63	4308.33	0.00	4308.33	0.00	0.00	0.00	0.00	nan
65	presto/tpcds: q66	21769.46	0.00	21769.46	0.00	0.00	0.00	0.00	nan
88	presto/tpcds: q89	33983.45	0.00	33983.45	0.00	0.00	0.00	0.00	nan

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
91	presto/tpcds:q92	555418.35	0.00	555418.35	0.00	0.00	0.00	0.00	nan
94	presto/tpcds:q95	74725010.00	0.00	74725010.00	0.00	0.00	0.00	0.00	nan
56	presto/tpcds:q57	2939069.58	0.00	2939069.58	0.00	0.00	0.00	0.00	nan
47	presto/tpcds:q48	584083.40	0.00	584083.40	0.00	0.00	0.00	0.00	nan
98	presto/tpcds:q99	215654.43	0.00	215654.43	0.00	0.00	0.00	0.00	nan
21	presto/tpcds:q22	13413244.95	0.00	13413244.95	0.00	0.00	0.00	0.00	nan
2	presto/tpcds:q03	3663.83	0.00	3663.83	0.00	0.00	0.00	0.00	nan
11	presto/tpcds:q12	197885.67	0.00	197885.67	0.00	0.00	0.00	0.00	nan
42	presto/tpcds:q43	8040.19	0.00	8040.19	0.00	0.00	0.00	0.00	nan
41	presto/tpcds:q42	1073.62	0.00	1073.62	0.00	0.00	0.00	0.00	nan
40	presto/tpcds:q41	60.07	0.00	60.07	0.00	0.00	0.00	0.00	nan
12	presto/tpcds:q13	1138396.15	0.00	1138396.15	0.00	0.00	0.00	0.00	nan
18	presto/tpcds:q19	1517565.14	0.00	1517565.14	0.00	0.00	0.00	0.00	nan
36	presto/tpcds:q37	2504.65	0.00	2504.65	0.00	0.00	0.00	0.00	nan
20	presto/tpcds:q21	146199.94	0.00	146199.94	0.00	0.00	0.00	0.00	nan
33	presto/tpcds:q34	16395.37	0.00	16395.37	0.00	0.00	0.00	0.00	1.00000
31	presto/tpcds:q32	677171.43	0.00	677171.43	0.00	0.00	0.00	0.00	nan
24	presto/tpcds:q25	6781282.01	0.00	6781282.01	0.00	0.00	0.00	0.00	nan
84	presto/tpcds:q85	13097862.57	2.49	13097862.67	3.22	0.00	0.00	0.00	0.95152

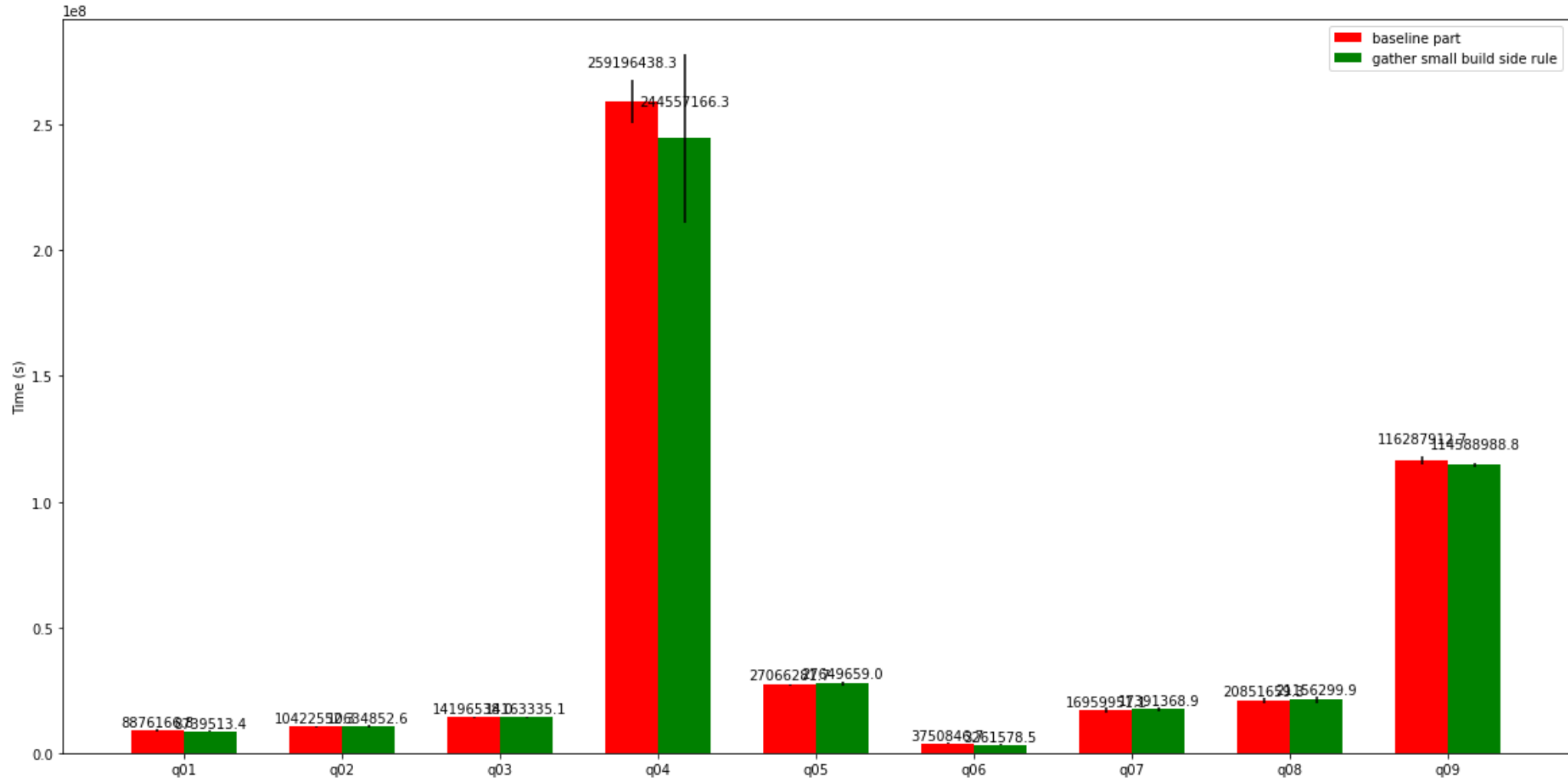


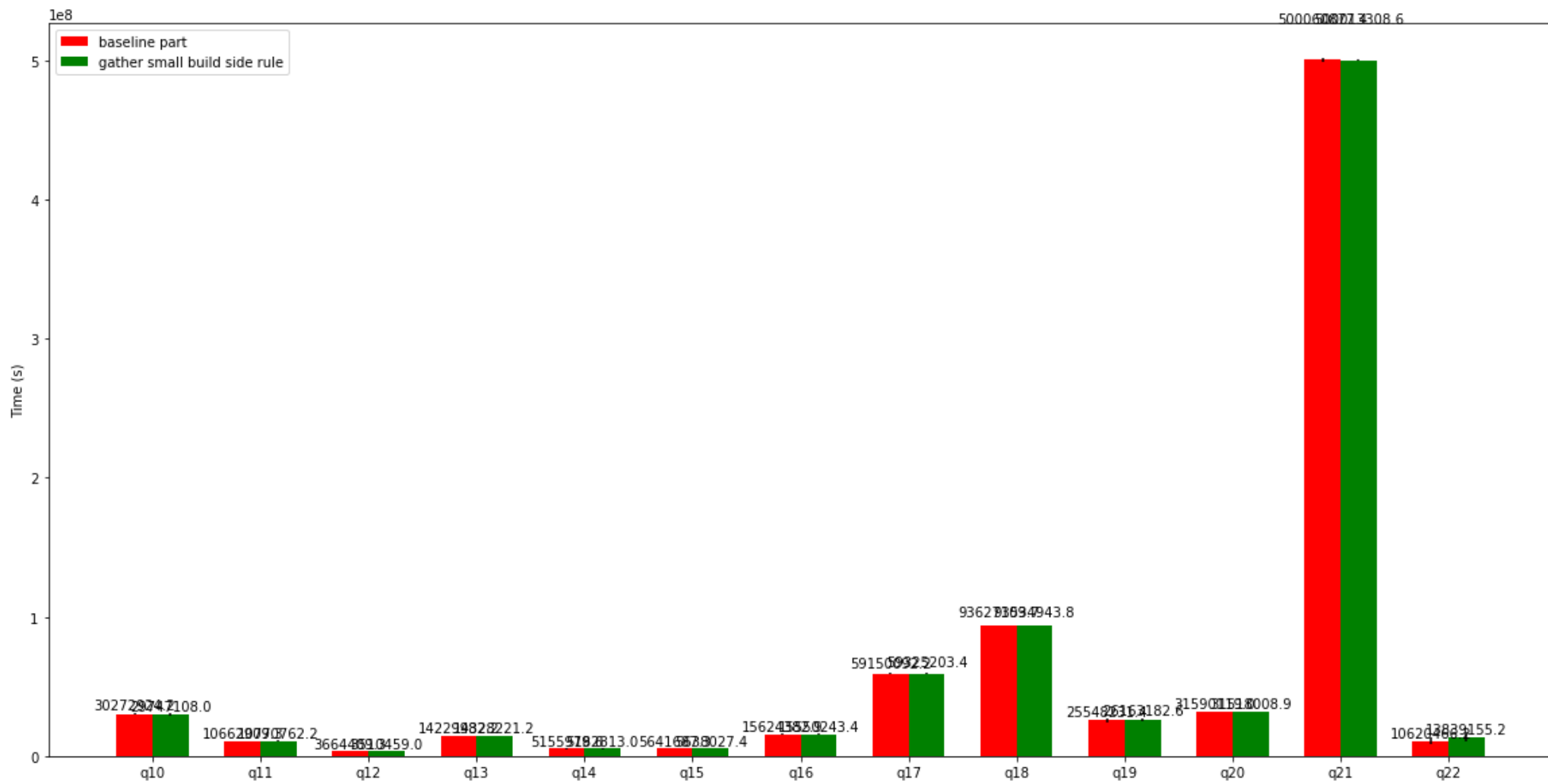
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
23	presto/tpcds: q24	33131398.76	52.08	33131399.29	37.28	0.00	0.00	0.00	0.98429
15	presto/tpcds: q16	11594701.21	3.93	11594702.31	4.31	0.00	0.00	0.00	0.65316
45	presto/tpcds: q46	785313.21	0.90	785313.38	0.90	0.00	0.00	0.00	0.76401
1	presto/tpcds: q02	35132673.01	156.88	35132686.89	186.76	0.00	0.00	0.00	0.89185
92	presto/tpcds: q93	135744586.62	204.26	135744658.93	241.32	0.00	0.00	0.00	0.58766
38	presto/tpcds: q39	2162809.00	3.24	2162810.99	4.50	0.00	0.00	0.00	0.40093
83	presto/tpcds: q84	28009.21	0.06	28009.25	0.00	0.00	0.00	0.00	0.14493
74	presto/tpcds: q75	58077002.10	156.76	58077122.17	135.52	0.00	0.00	0.00	0.18621
96	presto/tpcds: q97	20148151.47	62.97	20148193.79	42.99	0.00	0.00	0.00	0.20386
3	presto/tpcds: q04	128856273.71	537.77	128856588.03	582.96	0.00	0.00	0.00	0.35456
50	presto/tpcds: q51	12604994.45	114.97	12605039.37	160.10	0.00	0.00	0.00	0.58898
37	presto/tpcds: q38	23776365.06	335.72	23776458.82	215.52	0.00	0.00	0.00	0.57754
80	presto/tpcds: q81	6230699.86	142.47	6230749.25	171.97	0.00	0.00	0.00	0.59983
86	presto/tpcds: q87	23776123.53	44.15	23776378.64	197.41	0.00	0.00	0.00	0.01146
64	presto/tpcds: q65	56311059.40	1068.50	56312009.02	775.60	0.00	0.00	0.00	0.10859
87	presto/tpcds: q88	3776.59	1.33	3776.70	0.85	0.00	0.04	0.02	0.87651
34	presto/tpcds: q35	4347656.63	291.24	4347777.99	286.47	0.00	0.01	0.01	0.48350
26	presto/tpcds: q27	79728.37	6.23	79730.62	5.31	0.00	0.01	0.01	0.51574
35	presto/tpcds: q36	869600.42	55.06	869634.31	50.73	0.00	0.01	0.01	0.29352



25% -0  
50% 0  
75% 0  
max 2  
Name: % change, dtype: float64

## TPC-H Comparison (Peak memory)



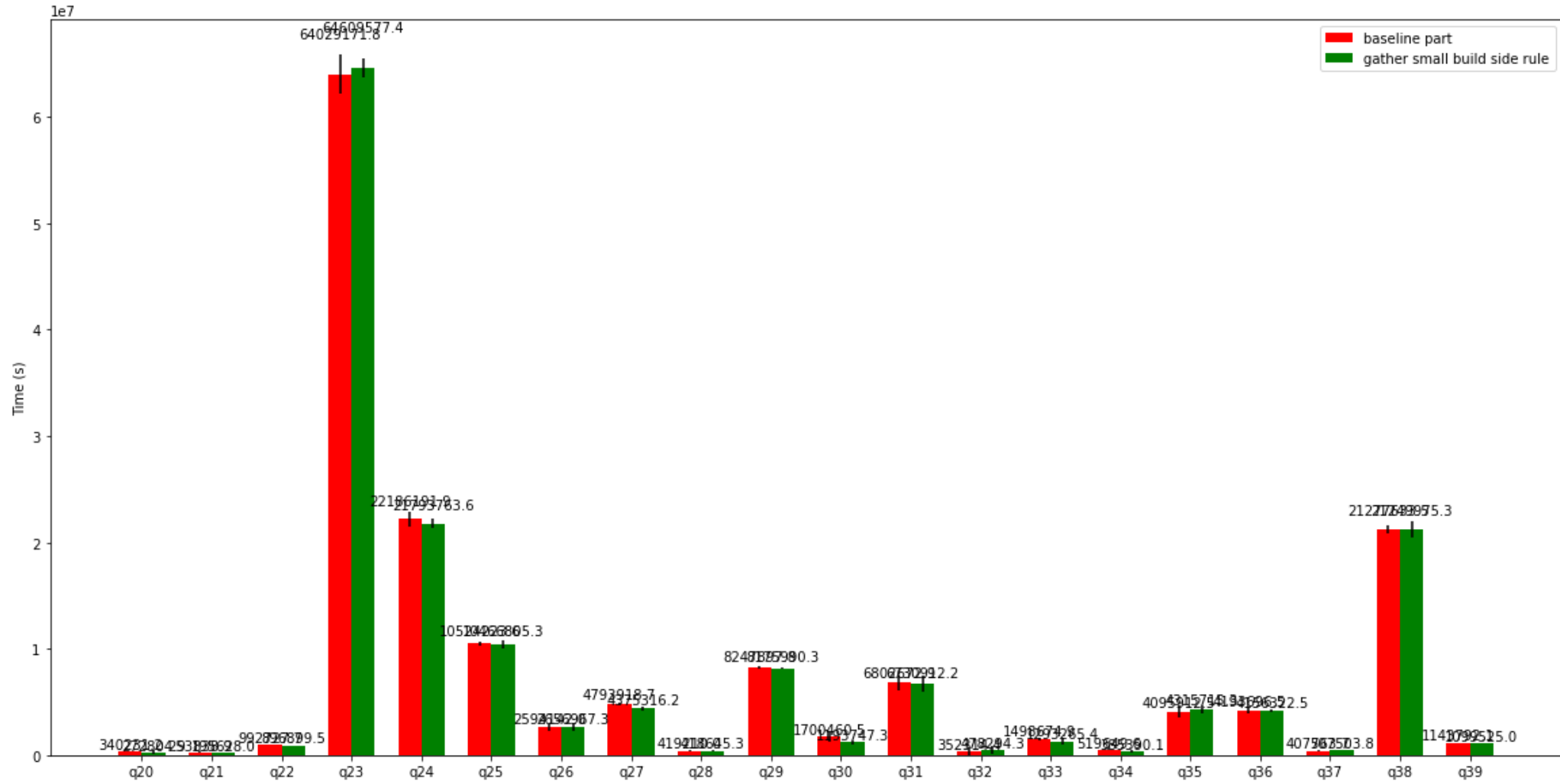


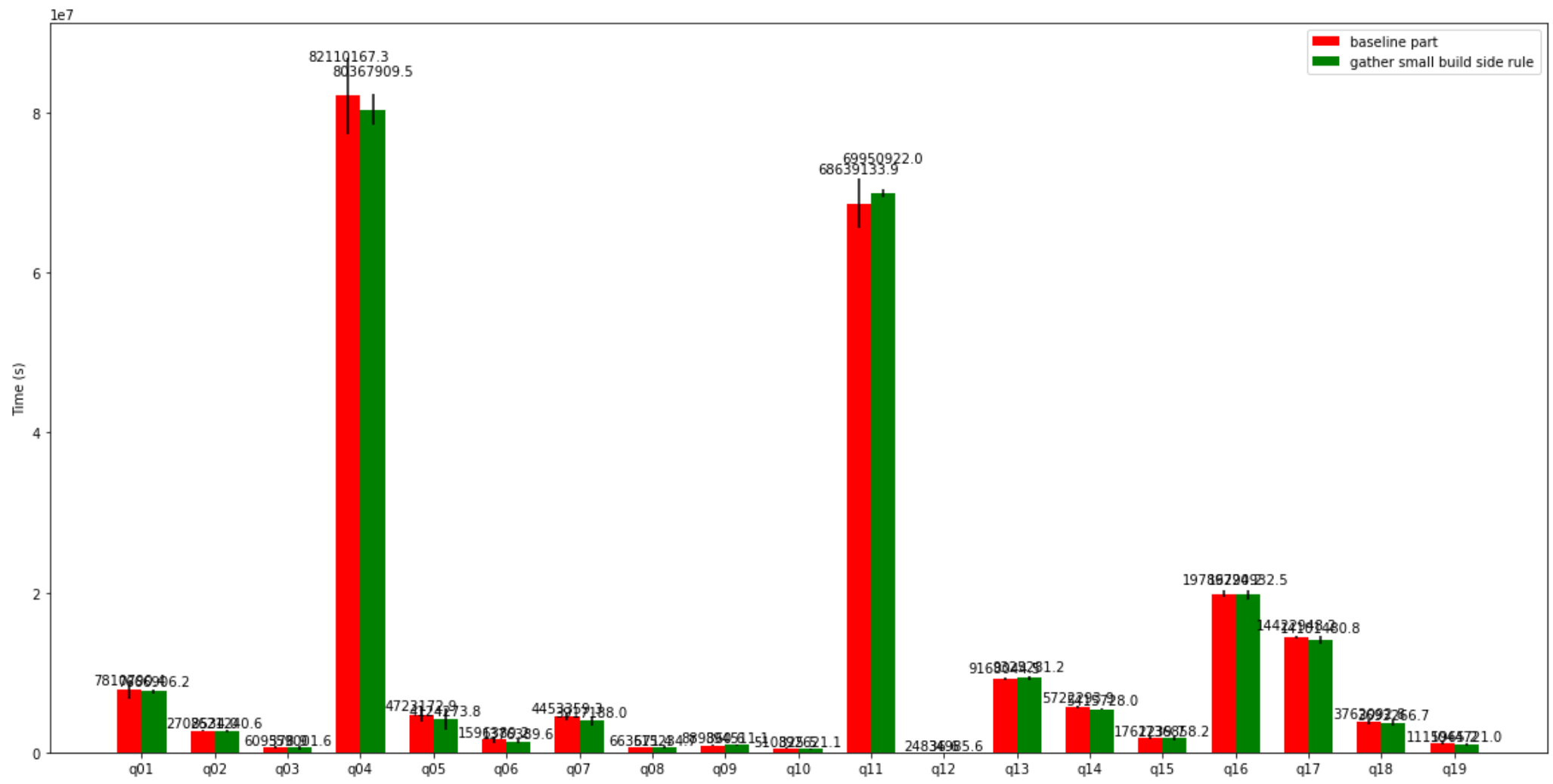
	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
5	presto/tpch: q06	3750846.65	288978.78	3261578.47	271087.98	-13.04	7.70	8.31	0.01279
3	presto/tpch: q04	259196438.26	8496147.23	244557166.33	33465807.90	-5.65	3.28	13.68	0.32347
11	presto/tpch: q12	3664409.33	119493.18	3510458.98	97265.12	-4.20	3.26	2.77	0.03440
9	presto/tpch: q10	30272924.21	894903.76	29747108.03	973487.66	-1.74	2.96	3.27	0.35301
0	presto/tpch: q01	8876166.81	455781.50	8739513.39	503298.12	-1.54	5.13	5.76	0.63268

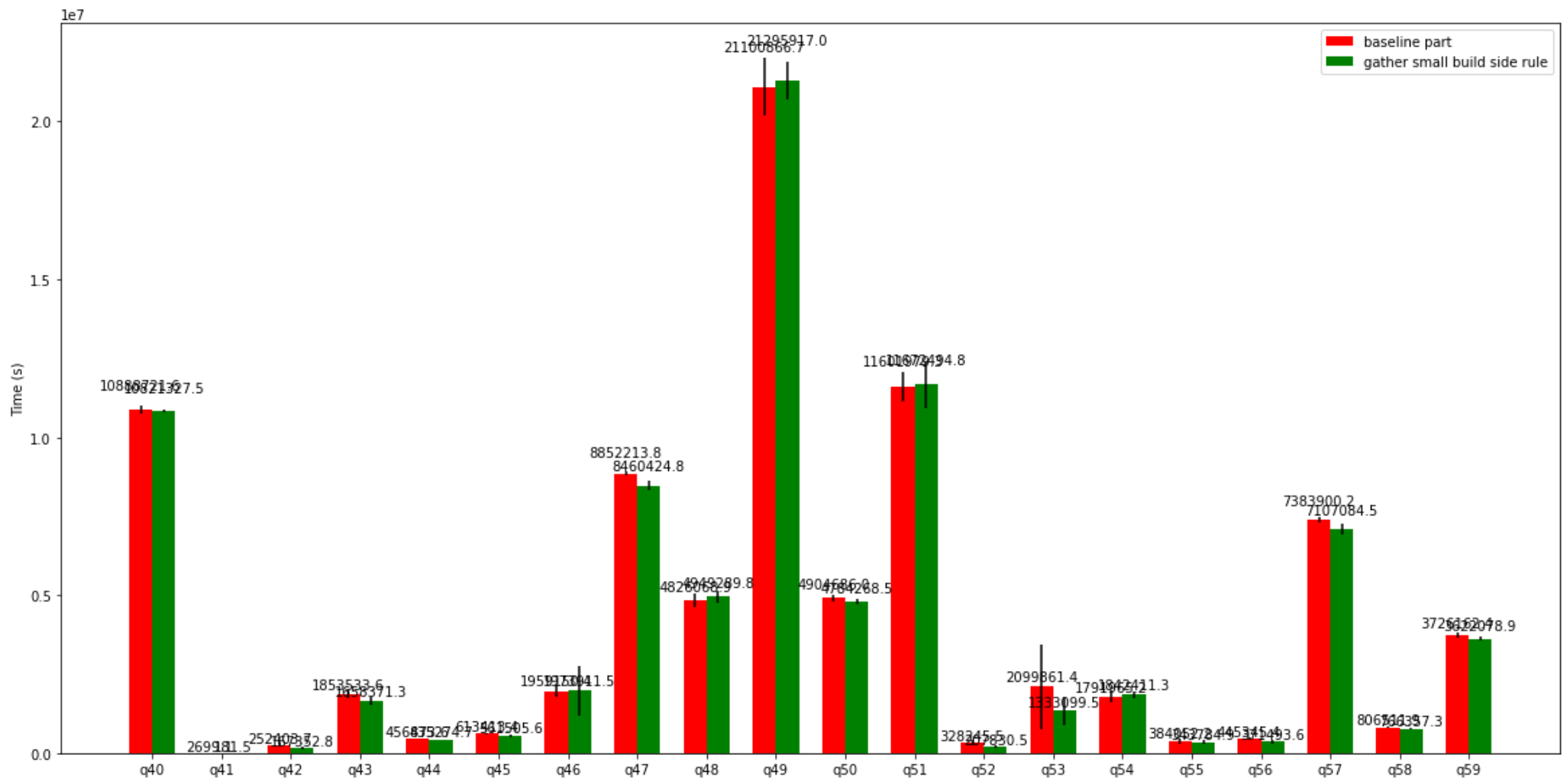


max 30  
Name: % change, dtype: float64

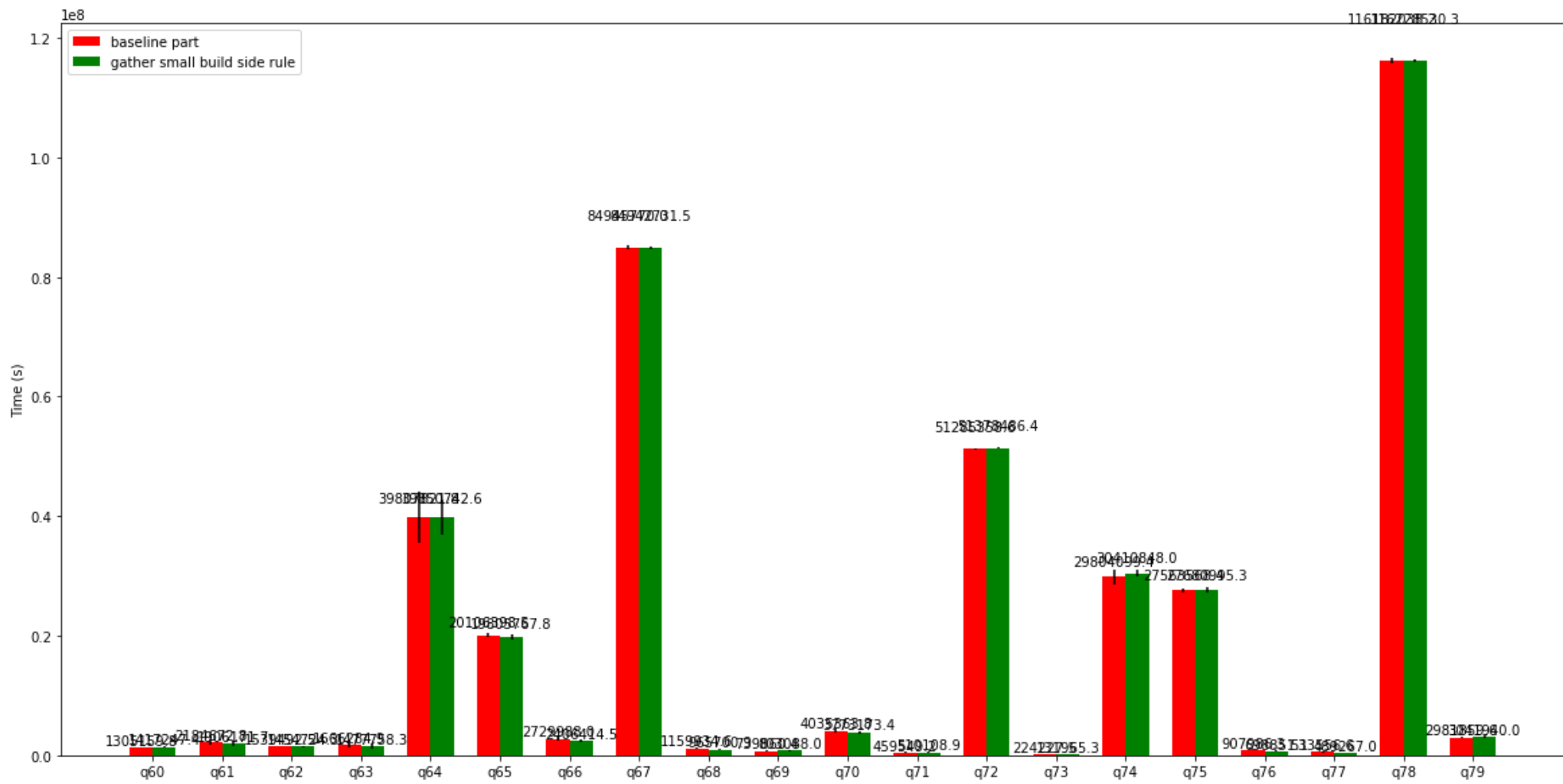
# TPC-DS Comparison (Peak memory)

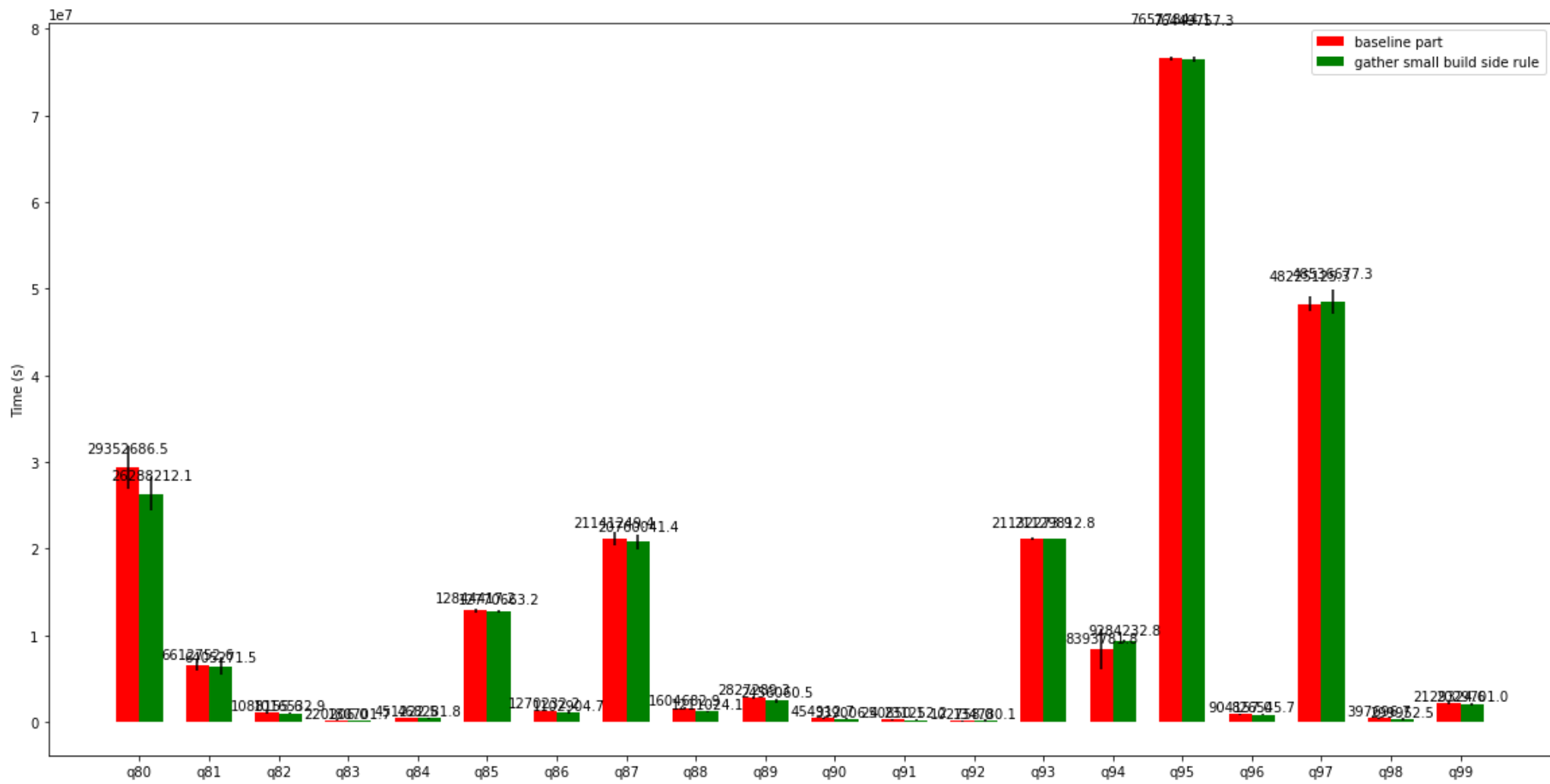


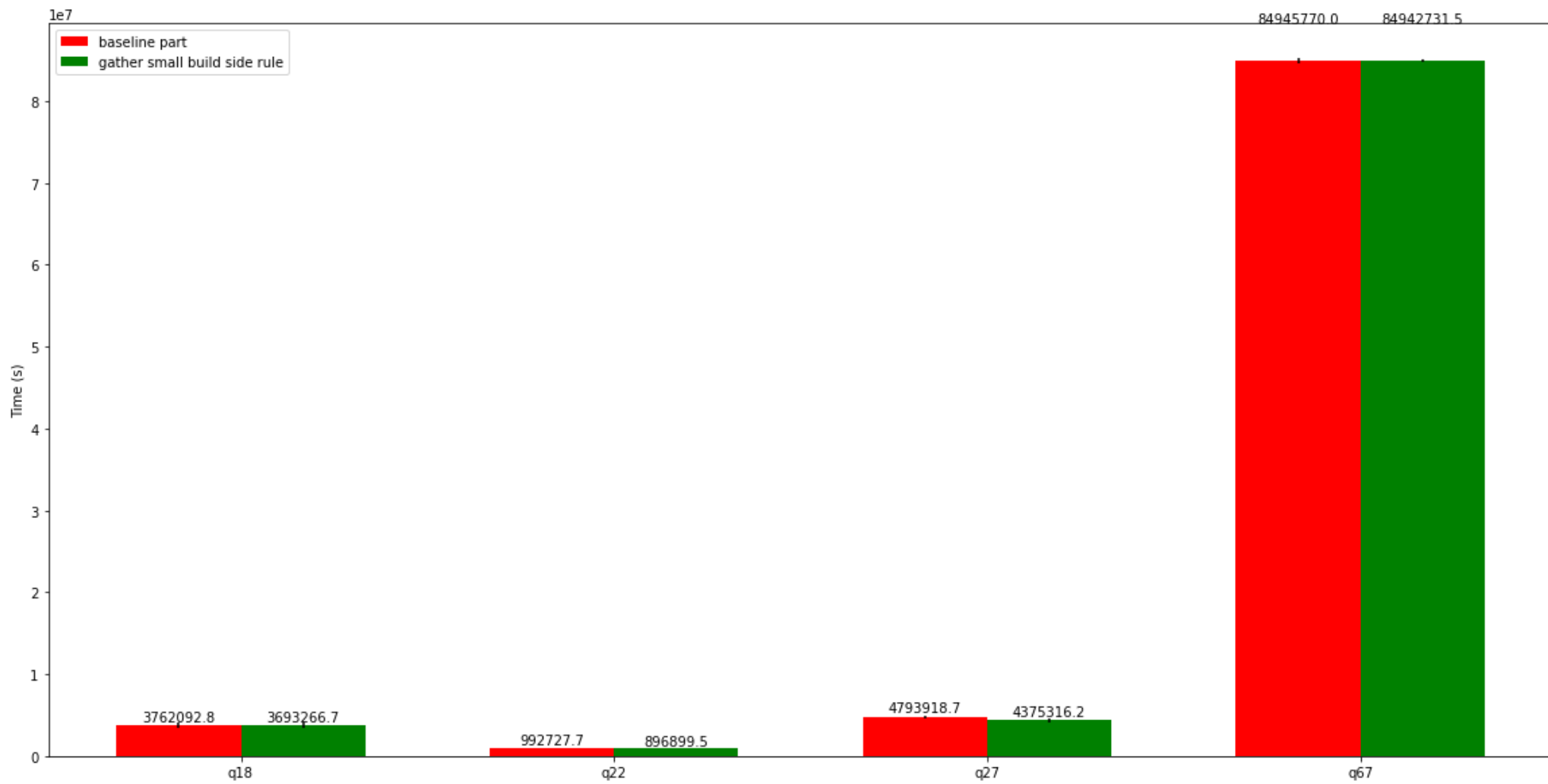












	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
40	presto/tpcds: q41	2699.06	10.47	181.50	47.70	-93.28	0.39	26.28	0.00000
72	presto/tpcds: q73	224227.45	17060.01	131965.28	37396.16	-41.15	7.61	28.34	0.00026
51	presto/tpcds: q52	328245.47	74940.26	207830.53	45743.55	-36.68	22.83	22.01	0.00725
52	presto/tpcds: q53	2099861.35	1346096.28	1333099.49	459080.35	-36.51	64.10	34.44	0.21606
41	presto/tpcds: q42	252403.66	59819.60	167352.81	54218.40	-33.70	23.70	32.40	0.02739

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
29	presto/tpcds: q30	1700460.46	478584.78	1193747.32	207881.21	-29.80	28.14	17.41	0.03870
33	presto/tpcds: q34	519649.59	76372.33	385390.06	141440.63	-25.84	14.70	36.70	0.06797
89	presto/tpcds: q90	454912.68	88491.01	339006.35	83594.39	-25.48	19.45	24.66	0.04189
97	presto/tpcds: q98	397696.67	106702.73	299952.49	119632.73	-24.58	26.83	39.88	0.16616
87	presto/tpcds: q88	1604682.91	104707.19	1211024.05	66240.80	-24.53	6.53	5.47	0.00001
9	presto/tpcds: q10	510825.53	96445.27	392621.10	91753.00	-23.14	18.88	23.37	0.05470
75	presto/tpcds: q76	907986.33	154119.44	698851.09	63730.41	-23.03	16.97	9.12	0.01181
20	presto/tpcds: q21	253838.89	43254.20	195627.96	24239.94	-22.93	17.04	12.39	0.01651
19	presto/tpcds: q20	340231.22	27697.31	272804.85	175611.72	-19.82	8.14	64.37	0.37477
82	presto/tpcds: q83	220206.04	35068.01	180701.69	50799.31	-17.94	15.93	28.11	0.14804
67	presto/tpcds: q68	1159934.62	169543.66	965700.93	66799.17	-16.75	14.62	6.92	0.02600
55	presto/tpcds: q56	445345.41	43979.59	371493.65	62716.73	-16.58	9.88	16.88	0.03984
5	presto/tpcds: q06	1596389.18	452509.07	1376389.63	222643.00	-13.78	28.35	16.18	0.31039
32	presto/tpcds: q33	1498674.92	101628.87	1293265.36	347898.46	-13.71	6.78	26.90	0.19521
85	presto/tpcds: q86	1270232.22	64715.91	1102904.68	93534.70	-13.17	5.09	8.48	0.00482
88	presto/tpcds: q89	2827289.26	208169.71	2456060.52	223740.11	-13.13	7.36	9.11	0.01391
60	presto/tpcds: q61	2184672.80	368103.63	1906171.71	284741.52	-12.75	16.85	14.94	0.17341
4	presto/tpcds: q05	4723172.95	881260.55	4124273.79	1307416.84	-12.68	18.66	31.70	0.37407
6	presto/tpcds: q07	4453359.34	407388.98	3917187.97	577768.66	-12.04	9.15	14.75	0.09286

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
65	presto/tpcds:q66	2729987.99	353607.56	2406414.48	281535.61	-11.85	12.95	11.70	0.11005
62	presto/tpcds:q63	1666284.94	293929.27	1477758.34	443454.38	-11.31	17.64	30.01	0.40574
42	presto/tpcds:q43	1853533.60	117475.09	1658371.27	137515.42	-10.53	6.34	8.29	0.02460
54	presto/tpcds:q55	384052.25	93438.34	343784.91	54552.76	-10.48	24.33	15.87	0.38342
79	presto/tpcds:q80	29352686.52	2494854.45	26288212.10	1948038.23	-10.44	8.50	7.41	0.03918
21	presto/tpcds:q22	992727.70	26678.12	896899.49	11238.17	-9.65	2.69	1.25	0.00001
26	presto/tpcds:q27	4793918.67	139725.65	4375316.19	225254.55	-8.73	2.91	5.15	0.00312
95	presto/tpcds:q96	904157.03	73733.26	826545.71	84306.49	-8.58	8.15	10.20	0.12047
44	presto/tpcds:q45	613413.37	27297.02	561505.56	39850.60	-8.46	4.45	7.10	0.02506
76	presto/tpcds:q77	533556.63	35752.61	489267.05	27419.43	-8.30	6.70	5.60	0.03682
2	presto/tpcds:q03	609378.94	126249.91	559001.62	192528.80	-8.27	20.72	34.44	0.60369
90	presto/tpcds:q91	250850.13	48738.94	231252.15	114234.50	-7.81	19.43	49.40	0.70721
7	presto/tpcds:q08	663571.36	45792.74	615234.67	134954.16	-7.28	6.90	21.94	0.42547
81	presto/tpcds:q82	1088155.63	110687.88	1016532.90	112362.37	-6.58	10.17	11.05	0.29203
69	presto/tpcds:q70	4035363.82	327930.49	3773173.35	191766.93	-6.50	8.13	5.08	0.12179
18	presto/tpcds:q19	1115965.22	174403.52	1044721.03	170290.91	-6.38	15.63	16.30	0.49041
61	presto/tpcds:q62	1539492.49	87677.79	1454724.31	45303.08	-5.51	5.70	3.11	0.06167
13	presto/tpcds:q14	5722293.95	154953.42	5415727.97	41064.71	-5.36	2.71	0.76	0.00086
57	presto/tpcds:q58	806511.88	26198.63	766357.34	28105.53	-4.98	3.25	3.67	0.02838

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
43	presto/tpcds:q44	456873.61	1090.64	435274.66	597.20	-4.73	0.24	0.14	0.00000
98	presto/tpcds:q99	2129324.63	139863.45	2029701.02	127840.82	-4.68	6.57	6.30	0.22681
46	presto/tpcds:q47	8852213.77	77123.58	8460424.78	152864.13	-4.43	0.87	1.81	0.00023
38	presto/tpcds:q39	1143792.10	22997.38	1099524.97	12289.32	-3.87	2.01	1.12	0.00195
56	presto/tpcds:q57	7383900.23	94318.78	7107084.54	170563.32	-3.75	1.28	2.40	0.00593
1	presto/tpcds:q02	2708534.03	113267.98	2621240.62	134982.96	-3.22	4.18	5.15	0.25284
80	presto/tpcds:q81	6612752.61	666895.19	6405271.48	1014536.72	-3.14	10.08	15.84	0.68436
58	presto/tpcds:q59	3726162.36	76037.10	3622078.87	57961.15	-2.79	2.04	1.60	0.02363
49	presto/tpcds:q50	4904686.02	117483.81	4784268.46	79893.95	-2.46	2.40	1.67	0.06462
16	presto/tpcds:q17	14422948.18	139715.76	14101480.79	500359.76	-2.23	0.97	3.55	0.16054
3	presto/tpcds:q04	82110167.33	4765725.02	80367909.52	1911759.52	-2.12	5.80	2.38	0.42531
0	presto/tpcds:q01	7810790.36	1073034.87	7666906.25	235238.97	-1.84	13.74	3.07	0.75494
17	presto/tpcds:q18	3762092.75	265463.47	3693266.73	347107.27	-1.83	7.06	9.40	0.70772
86	presto/tpcds:q87	21141249.35	765756.35	20760041.39	816518.24	-1.80	3.62	3.93	0.42367
23	presto/tpcds:q24	22186191.95	735916.01	21793763.57	426937.88	-1.77	3.32	1.96	0.28492
64	presto/tpcds:q65	20106398.46	340827.23	19805767.81	503709.94	-1.50	1.70	2.54	0.25381
14	presto/tpcds:q15	1762239.73	153983.46	1736858.22	222949.00	-1.44	8.74	12.84	0.82314
30	presto/tpcds:q31	6802672.94	689307.13	6730912.23	730390.42	-1.05	10.13	10.85	0.86455
35	presto/tpcds:q36	4193696.45	284291.56	4156322.52	115481.89	-0.89	6.78	2.78	0.77155

	query	baseline part mean	baseline part std.dev	gather small build side rule mean	gather small build side rule std.dev	% change	baseline part std.dev %	gather small build side rule std.dev %	p-value
28	presto/tpcds:q29	8247897.82	99480.60	8175990.33	88798.81	-0.87	1.21	1.09	0.21597
39	presto/tpcds:q40	10888721.61	132225.47	10821327.51	45036.08	-0.62	1.21	0.42	0.26462
84	presto/tpcds:q85	12844417.22	258451.52	12770663.17	183543.02	-0.57	2.01	1.44	0.58131
24	presto/tpcds:q25	10524223.63	181932.47	10466805.34	380288.25	-0.55	1.73	3.63	0.74555
15	presto/tpcds:q16	19786290.16	429311.07	19724932.52	624670.66	-0.31	2.17	3.17	0.84679
94	presto/tpcds:q95	76577844.10	232945.63	76449757.29	289375.81	-0.17	0.30	0.38	0.41810
27	presto/tpcds:q28	419210.01	6263.24	418645.32	9686.66	-0.13	1.49	2.31	0.90693
37	presto/tpcds:q38	21277633.51	380280.54	21249975.33	776447.67	-0.13	1.79	3.65	0.93909
92	presto/tpcds:q93	21132273.86	117620.33	21129812.77	46218.60	-0.01	0.56	0.22	0.96289
66	presto/tpcds:q67	84945770.00	316004.65	84942731.52	212014.25	-0.00	0.37	0.25	0.98478
77	presto/tpcds:q78	116182038.25	421406.50	116228530.30	205464.86	0.04	0.36	0.18	0.81299
63	presto/tpcds:q64	39807821.84	4373511.01	39850742.57	2871026.66	0.11	10.99	7.20	0.98436
71	presto/tpcds:q72	51285358.62	105400.88	51378486.42	178751.83	0.18	0.21	0.35	0.29740
74	presto/tpcds:q75	27563568.39	407777.82	27680995.28	509178.57	0.43	1.48	1.84	0.66864
8	presto/tpcds:q09	889360.57	90897.11	894511.12	90241.53	0.58	10.22	10.09	0.92348
50	presto/tpcds:q51	11601979.26	468054.54	11672494.78	738241.17	0.61	4.03	6.32	0.84731
96	presto/tpcds:q97	48225125.32	840444.79	48536677.32	1411766.44	0.65	1.74	2.91	0.65225
45	presto/tpcds:q46	1959150.37	168923.08	1973911.49	782688.75	0.75	8.62	39.65	0.96487
22	presto/tpcds:q23	64029171.85	1856280.19	64609577.41	935130.15	0.91	2.90	1.45	0.50952





```
25%    -12
50%    -3
75%     0
max     41
Name: % change, dtype: float64
```