

Benchmark details

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[('paa-union-baseline-oss-395-S-0c8296b0ba-hive_sf1000_orc_part-s1284',
  'baseline paa union'),
 ('paa-union-oss-395-S-90f5848b8c-hive_sf1000_orc_part-s1283', 'paa union')]
```

Overall Times

label	TPCH wall time	TPC-DS wall time	TPCH CPU time	TPC-DS CPU time	TPCH Network	TPC-DS Network	TPCH peak mem	TPC-DS peak mem	TPCH physical input	TPC-DS physical input	TPCH wall time % change	TPC-DS wall time % change	TPCH CPU time % change	TPC-DS CPU time % change	TPCH Network % change	TPC-DS Network % change	TPCH peak mem % change	TPC-DS peak mem % change	TPCH physical input % change	TPC-DS physical input % change
0 baseline paa union	560	964	62,487	107,437	1.820 PiB	1.646 PiB	1.138 TiB	0.927 TiB	833.194 GiB	1.010 TiB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 paa union	534	955	58,530	105,218	1.785 PiB	1.629 PiB	1.150 TiB	0.923 TiB	833.206 GiB	1.010 TiB	-4.71	-0.88	-6.33	-2.07	-1.92	-0.98	1.06	-0.42	0.00	0.03

FAILED QUERIES

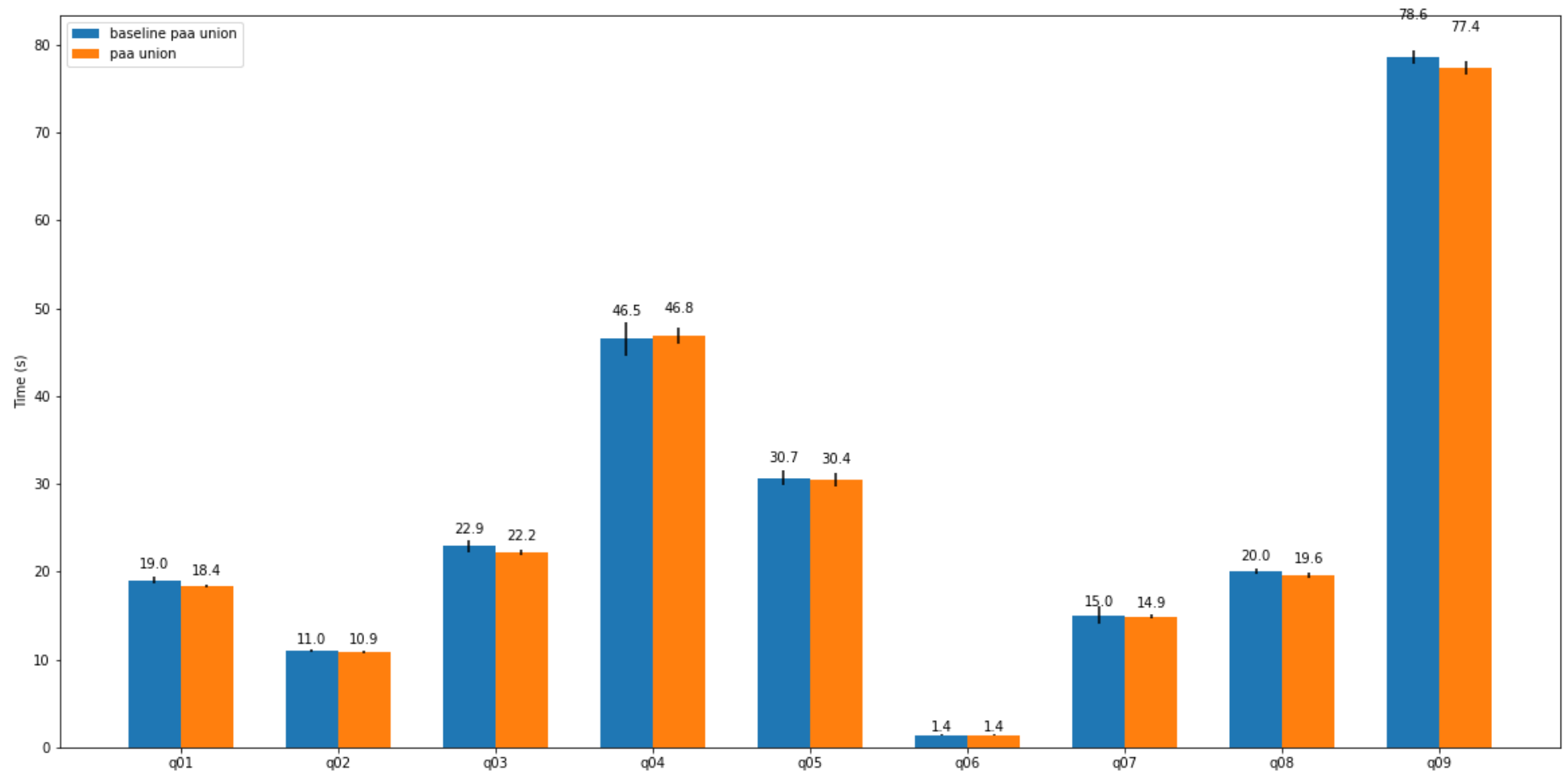
baseline paa union

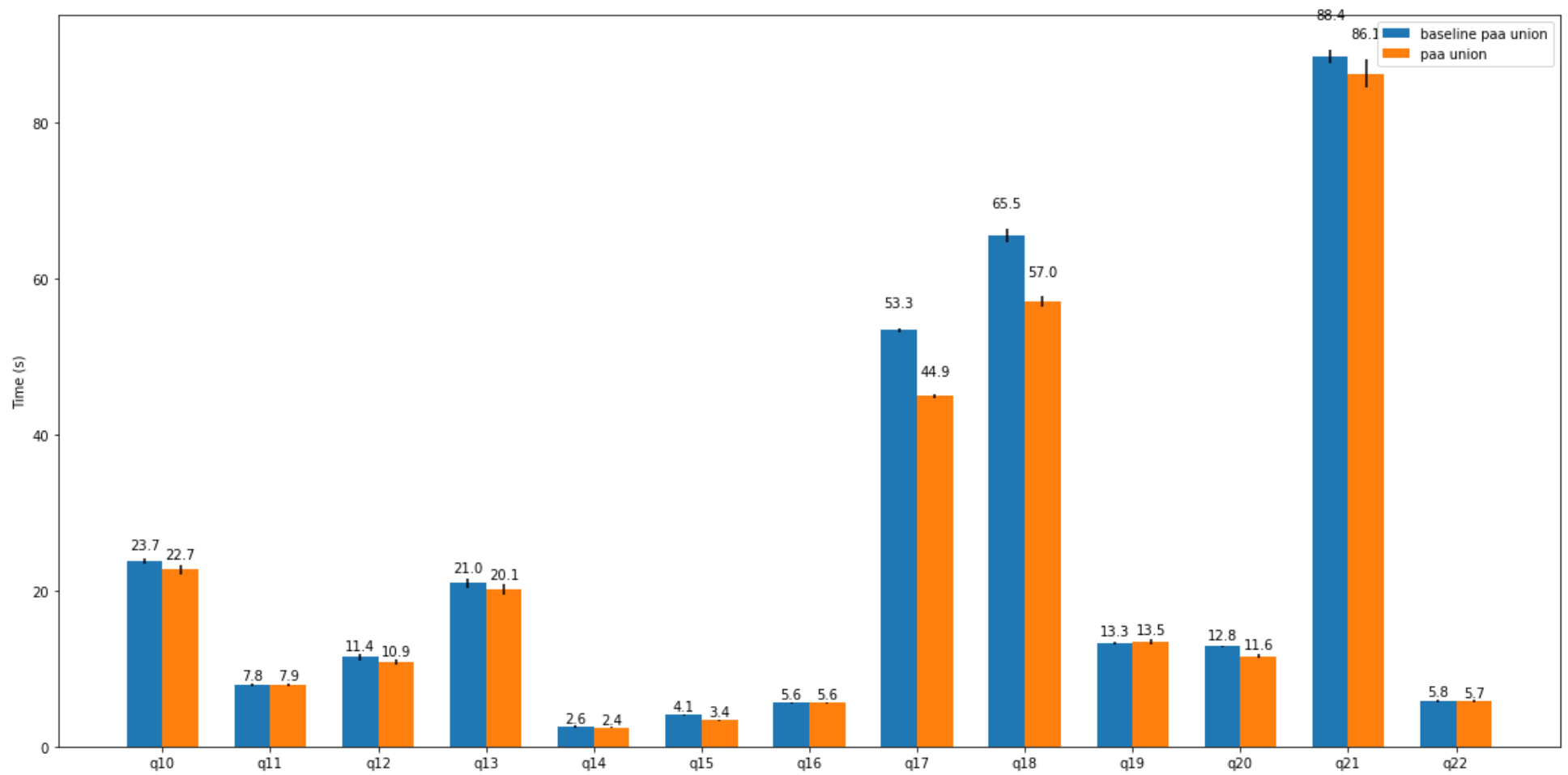
benchmark	query	mean_duration	std_dev
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paa union

benchmark	query	mean_duration	std_dev
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TPC-H Comparison (DURATION)

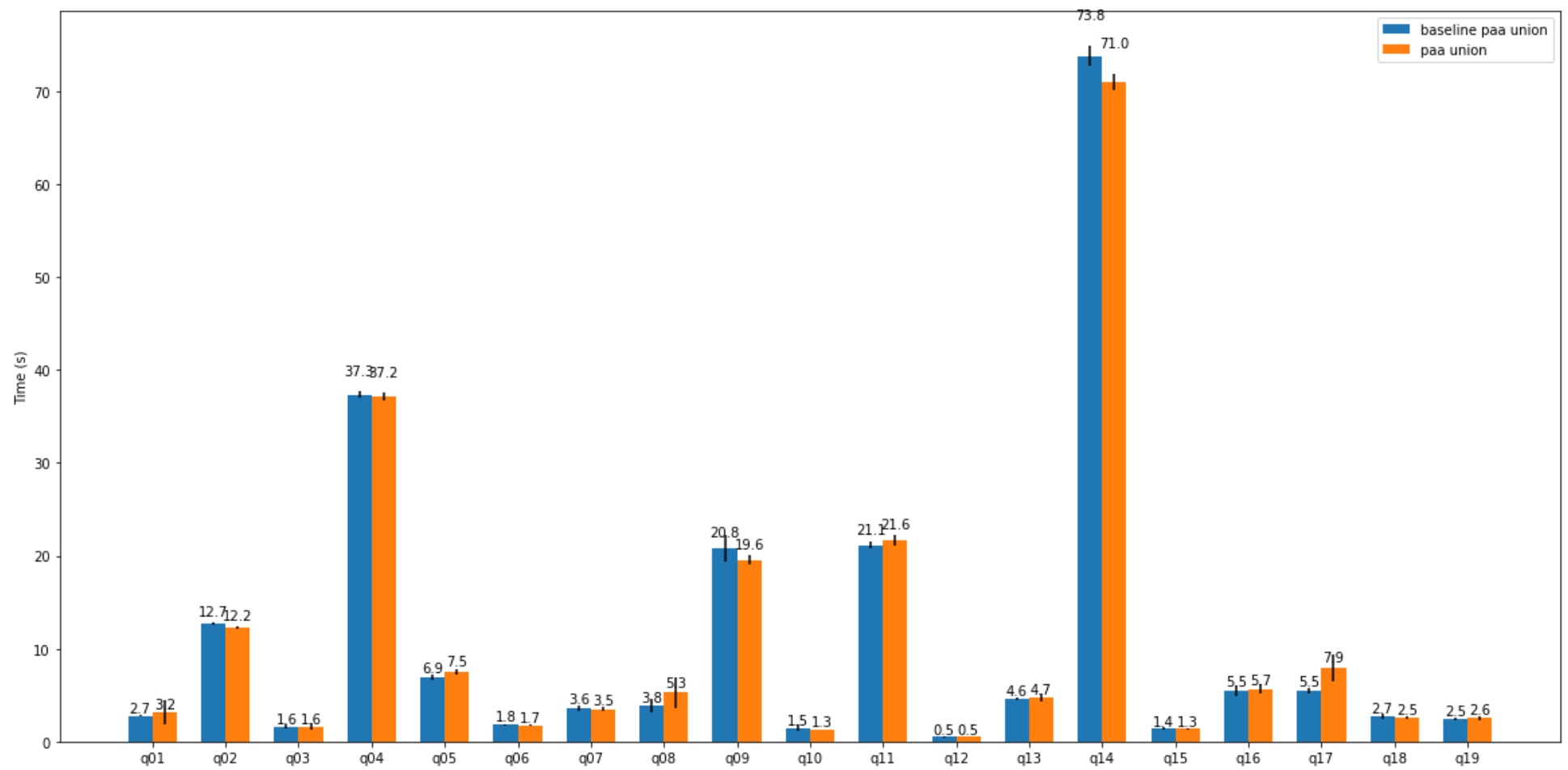


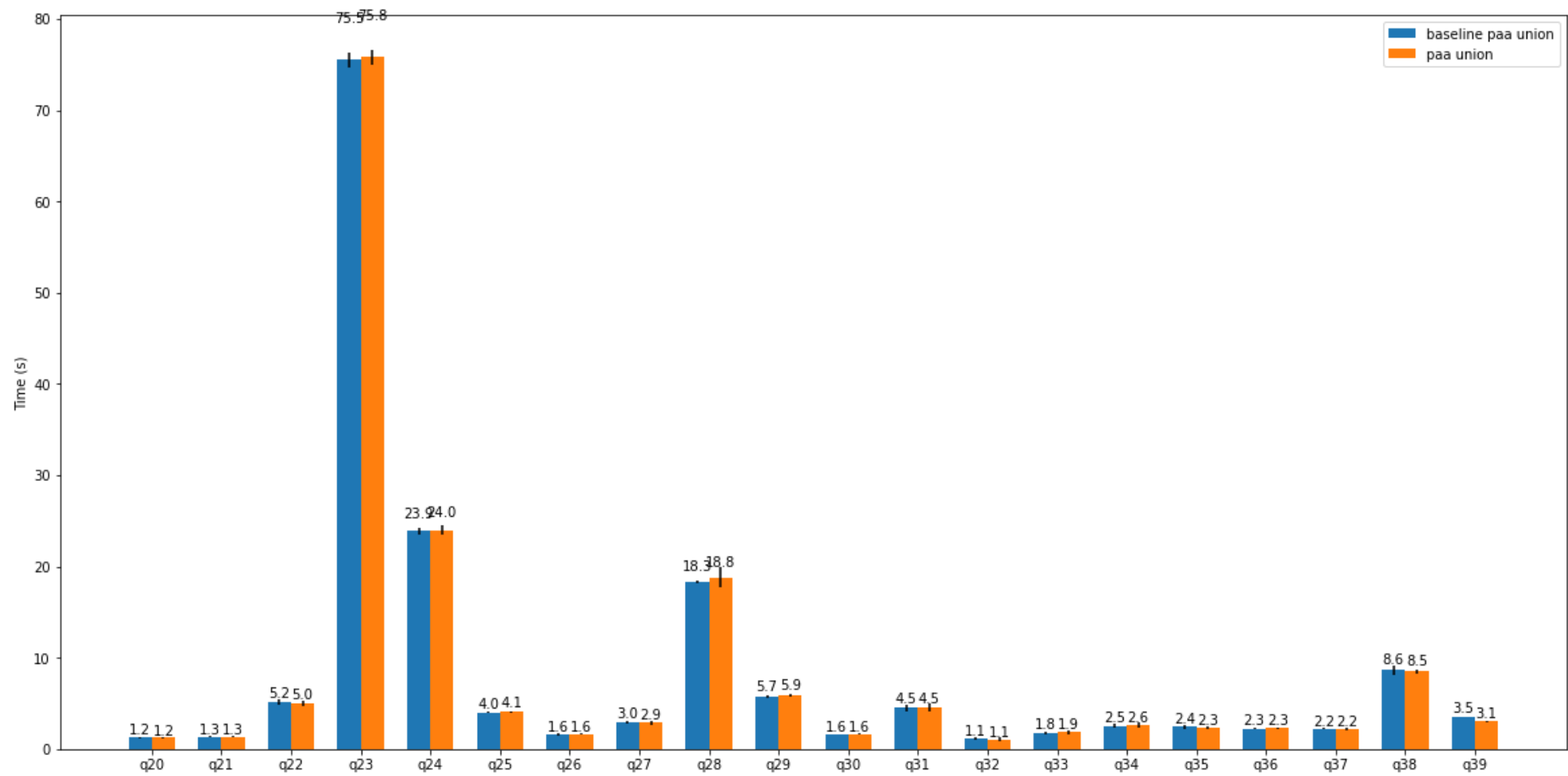


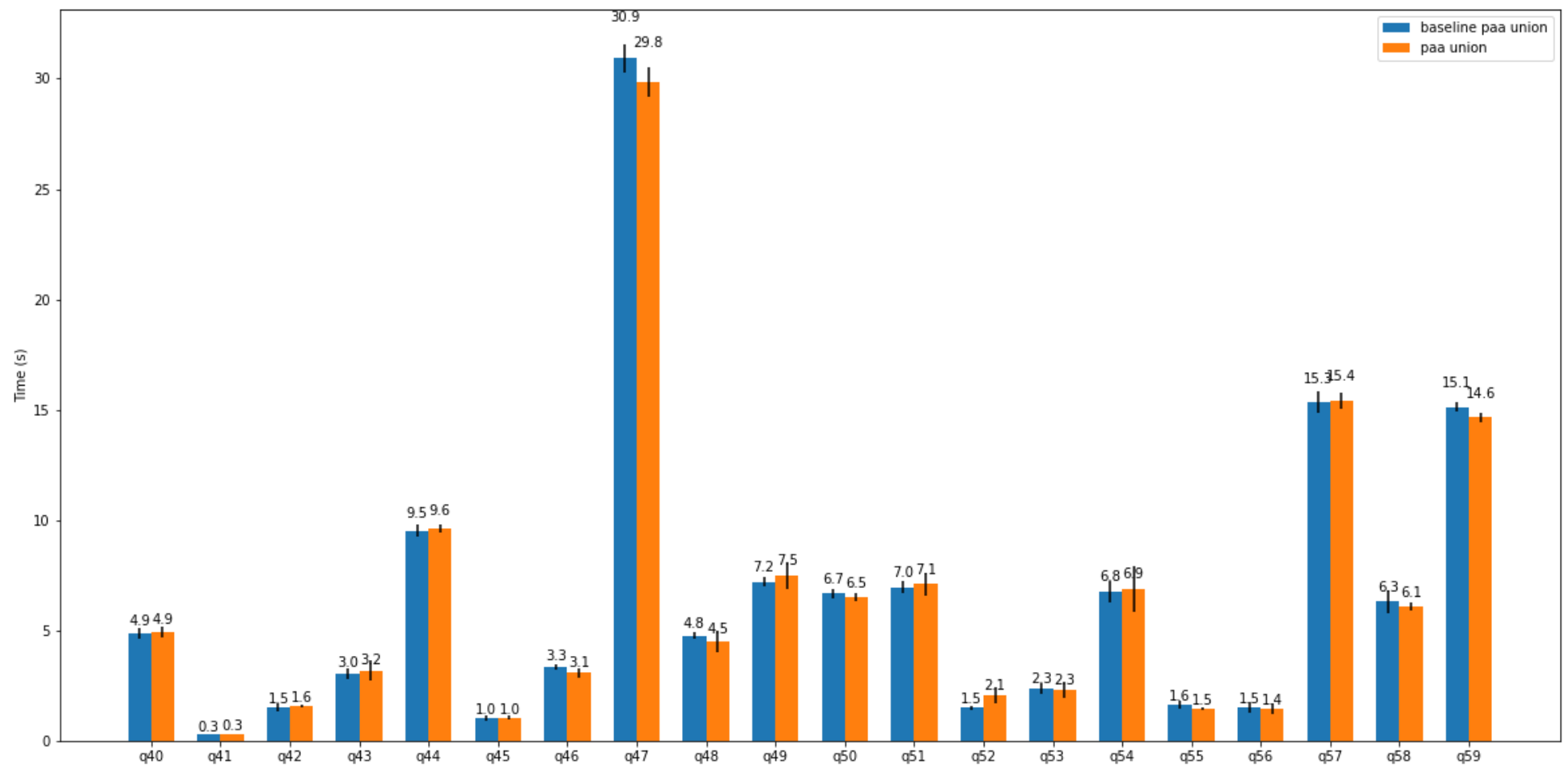
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
16	presto/tpch: q17	53.35	0.29	44.91	0.25	-15.81	-8.43	0.54	0.56	0.00000
17	presto/tpch: q18	65.46	0.80	57.04	0.64	-12.86	-8.42	1.22	1.13	0.00000
20	presto/tpch: q21	88.39	0.83	86.13	1.81	-2.55	-2.25	0.94	2.10	0.01974
19	presto/tpch: q20	12.82	0.13	11.59	0.18	-9.59	-1.23	1.05	1.58	0.00000
8	presto/tpch: q09	78.62	0.73	77.39	0.77	-1.56	-1.23	0.93	0.99	0.01749
9	presto/tpch: q10	23.69	0.37	22.68	0.58	-4.28	-1.01	1.58	2.55	0.00475
12	presto/tpch: q13	20.96	0.60	20.13	0.71	-3.98	-0.83	2.87	3.55	0.05375

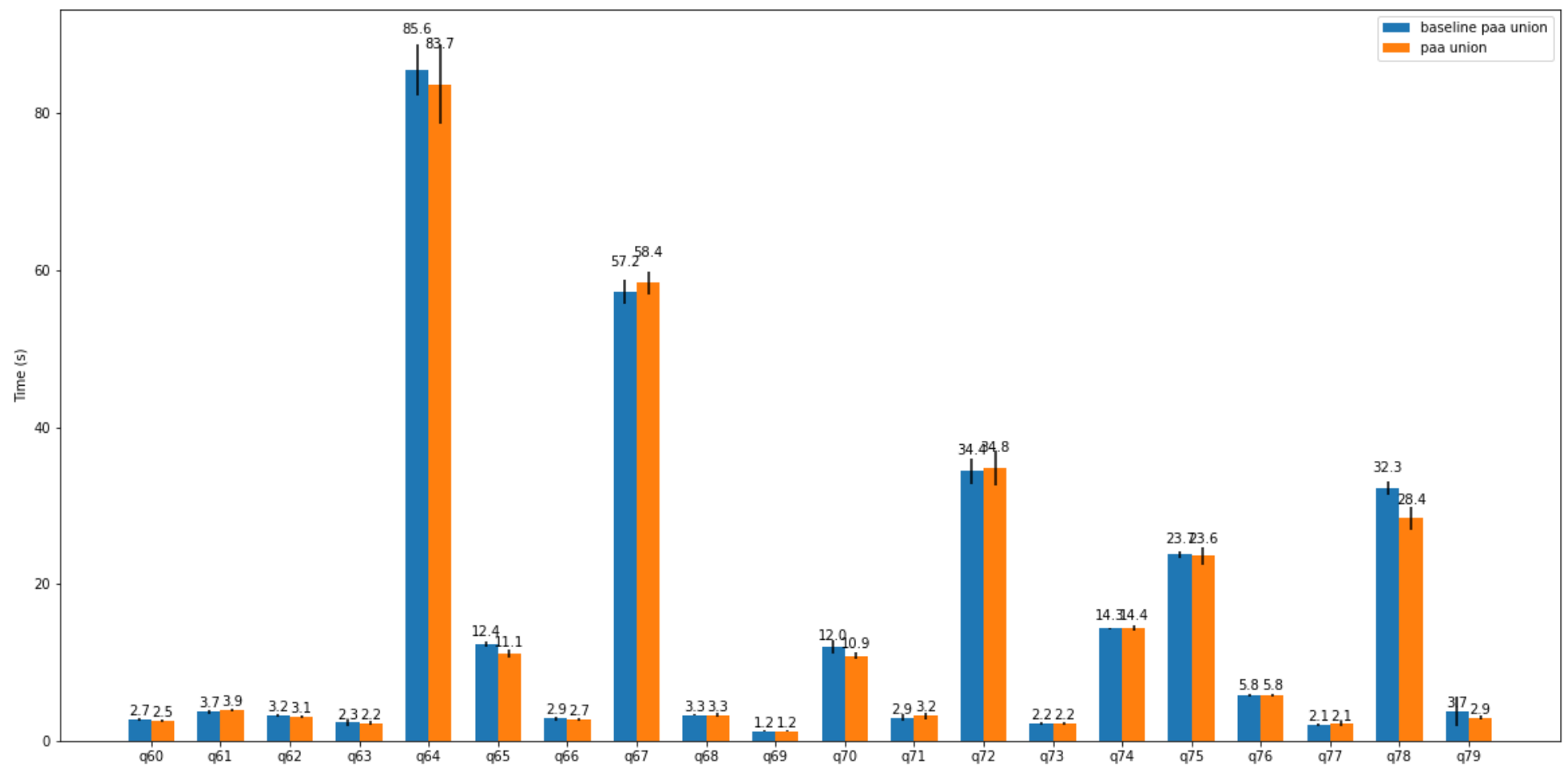
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
14	presto/tpch: q15	4.06	0.07	3.36	0.09	-17.10	-0.69	1.76	2.69	0.00000
2	presto/tpch: q03	22.90	0.73	22.22	0.34	-2.97	-0.68	3.20	1.55	0.06685
0	presto/tpch: q01	19.05	0.37	18.40	0.18	-3.37	-0.64	1.93	0.95	0.00318
11	presto/tpch: q12	11.44	0.39	10.86	0.36	-5.06	-0.58	3.45	3.35	0.02457
7	presto/tpch: q08	19.99	0.31	19.64	0.30	-1.77	-0.35	1.56	1.51	0.07109
4	presto/tpch: q05	30.68	0.80	30.44	0.74	-0.79	-0.24	2.60	2.43	0.59716
13	presto/tpch: q14	2.55	0.16	2.43	0.11	-4.82	-0.12	6.30	4.44	0.15028
6	presto/tpch: q07	15.01	1.00	14.91	0.25	-0.66	-0.10	6.66	1.66	0.81887
1	presto/tpch: q02	10.95	0.16	10.87	0.20	-0.76	-0.08	1.44	1.82	0.44147
21	presto/tpch: q22	5.80	0.20	5.74	0.17	-0.92	-0.05	3.51	2.99	0.63509
15	presto/tpch: q16	5.58	0.07	5.58	0.06	-0.05	-0.00	1.27	1.04	0.94464
5	presto/tpch: q06	1.39	0.06	1.40	0.10	0.83	0.01	4.07	7.30	0.81373
10	presto/tpch: q11	7.83	0.16	7.90	0.20	0.90	0.07	2.04	2.48	0.51145
18	presto/tpch: q19	13.27	0.22	13.47	0.36	1.47	0.20	1.62	2.64	0.27562
3	presto/tpch: q04	46.52	1.89	46.83	0.93	0.68	0.32	4.05	1.98	0.71970
count	22									
mean	-4									
std	5									
min	-17									
25%	-5									
50%	-2									
75%	-1									
max	1									
Name: % change, dtype: float64										

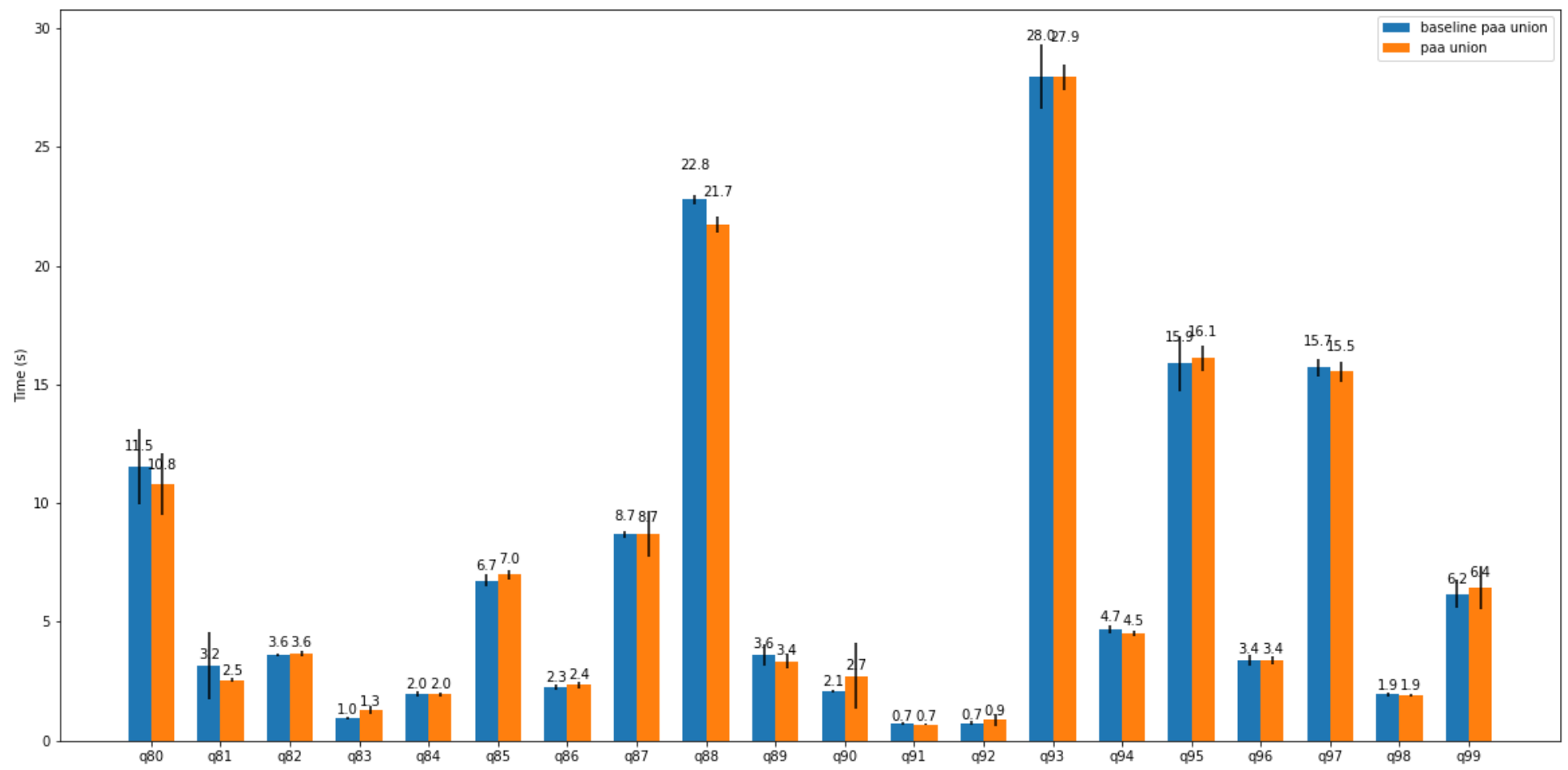
TPC-DS Comparison (DURATION)

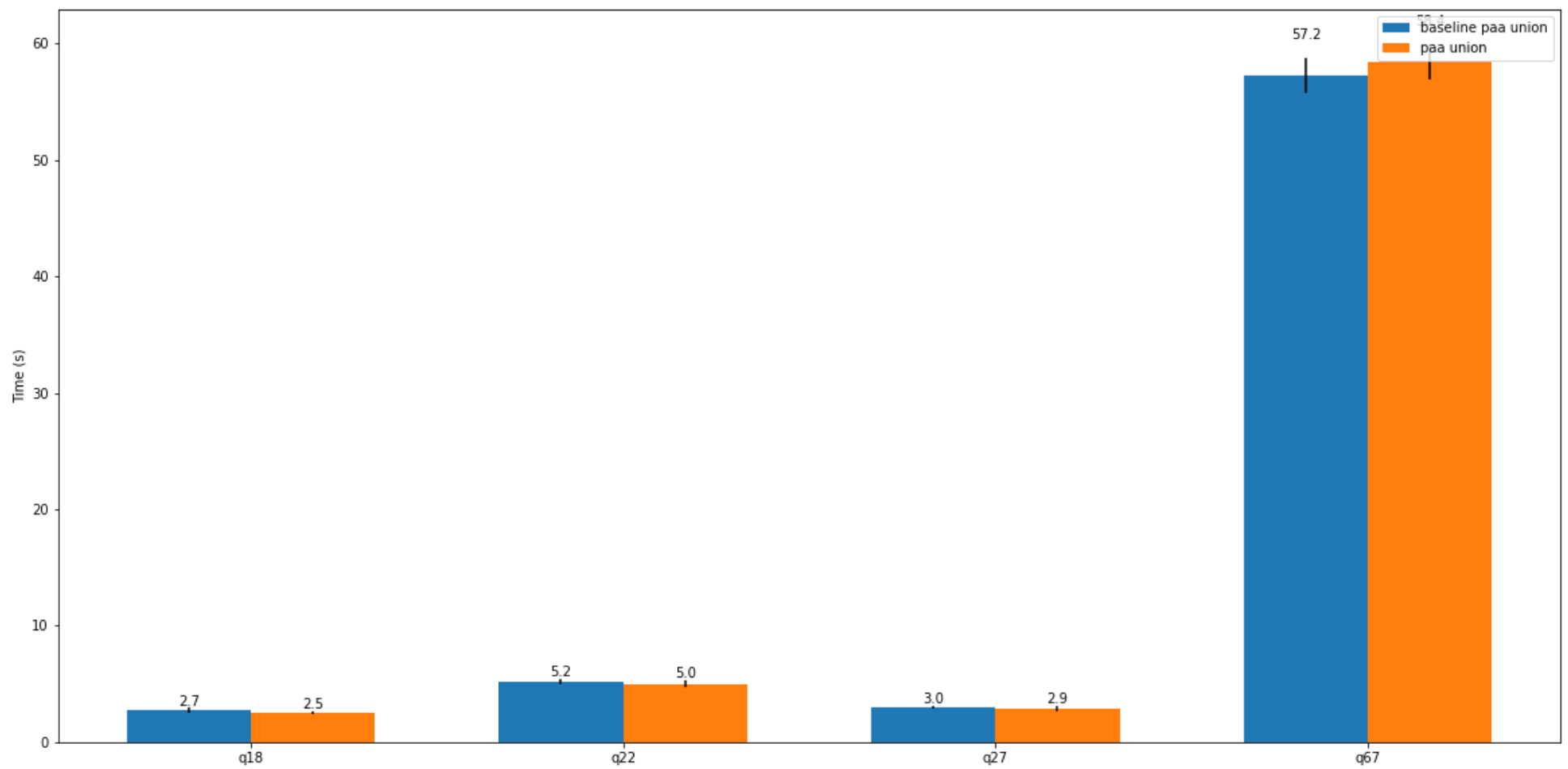












	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
77	presto/tpcds: q78	32.25	0.83	28.35	1.38	-12.08	-3.90	2.58	4.88	0.00015
13	presto/tpcds: q14	73.77	1.11	70.95	0.89	-3.82	-2.82	1.50	1.25	0.00066
63	presto/tpcds: q64	85.55	3.24	83.74	5.02	-2.12	-1.81	3.79	5.99	0.47433
64	presto/tpcds: q65	12.35	0.39	11.11	0.53	-10.08	-1.24	3.13	4.77	0.00091
8	presto/tpcds: q09	20.79	1.48	19.57	0.48	-5.86	-1.22	7.12	2.46	0.08425
69	presto/tpcds: q70	11.97	0.85	10.85	0.40	-9.34	-1.12	7.06	3.66	0.01502
46	presto/tpcds: q47	30.91	0.63	29.84	0.67	-3.47	-1.07	2.04	2.23	0.01677

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
87	presto/tpcds:q88	22.79	0.19	21.72	0.33	-4.71	-1.07	0.84	1.54	0.00005
78	presto/tpcds:q79	3.75	1.90	2.91	0.26	-22.36	-0.84	50.69	9.11	0.30976
79	presto/tpcds:q80	11.54	1.60	10.79	1.30	-6.46	-0.75	13.90	12.01	0.39636
80	presto/tpcds:q81	3.16	1.41	2.55	0.07	-19.37	-0.61	44.53	2.85	0.31224
58	presto/tpcds:q59	15.12	0.21	14.65	0.21	-3.09	-0.47	1.42	1.46	0.00363
1	presto/tpcds:q02	12.68	0.14	12.23	0.17	-3.59	-0.45	1.08	1.43	0.00051
38	presto/tpcds:q39	3.50	0.05	3.05	0.09	-12.78	-0.45	1.56	2.88	0.00000
88	presto/tpcds:q89	3.63	0.47	3.35	0.33	-7.53	-0.27	12.83	9.88	0.26858
45	presto/tpcds:q46	3.33	0.12	3.07	0.23	-7.96	-0.27	3.60	7.45	0.03047
47	presto/tpcds:q48	4.76	0.15	4.50	0.47	-5.40	-0.26	3.17	10.33	0.22692
57	presto/tpcds:q58	6.30	0.52	6.08	0.16	-3.52	-0.22	8.21	2.60	0.33900
17	presto/tpcds:q18	2.73	0.24	2.53	0.16	-7.29	-0.20	8.93	6.24	0.12391
96	presto/tpcds:q97	15.71	0.36	15.53	0.43	-1.15	-0.18	2.32	2.74	0.44789
54	presto/tpcds:q55	1.64	0.16	1.46	0.04	-10.93	-0.18	9.97	2.99	0.02670
59	presto/tpcds:q60	2.68	0.19	2.51	0.17	-6.66	-0.18	6.92	6.78	0.11259
49	presto/tpcds:q50	6.66	0.22	6.49	0.20	-2.52	-0.17	3.27	3.04	0.19170
65	presto/tpcds:q66	2.87	0.26	2.70	0.17	-5.71	-0.16	8.93	6.27	0.22099
21	presto/tpcds:q22	5.17	0.27	5.01	0.28	-3.12	-0.16	5.13	5.58	0.32926
9	presto/tpcds:q10	1.45	0.36	1.30	0.04	-10.73	-0.16	25.10	2.96	0.32211
74	presto/tpcds:q75	23.73	0.36	23.58	1.06	-0.65	-0.16	1.52	4.49	0.74069
37	presto/tpcds:q38	8.63	0.49	8.48	0.18	-1.77	-0.15	5.63	2.09	0.48670

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
93	presto/tpcds:q94	4.68	0.19	4.53	0.10	-3.17	-0.15	3.99	2.31	0.12052
3	presto/tpcds:q04	37.30	0.37	37.16	0.48	-0.39	-0.15	1.00	1.28	0.56404
6	presto/tpcds:q07	3.63	0.30	3.50	0.23	-3.57	-0.13	8.28	6.58	0.42110
5	presto/tpcds:q06	1.84	0.08	1.73	0.08	-6.13	-0.11	4.40	4.41	0.03219
61	presto/tpcds:q62	3.18	0.21	3.08	0.21	-3.15	-0.10	6.60	6.78	0.42710
34	presto/tpcds:q35	2.45	0.24	2.35	0.12	-4.07	-0.10	9.93	5.32	0.39346
31	presto/tpcds:q32	1.13	0.16	1.07	0.20	-5.38	-0.06	13.87	18.40	0.56685
55	presto/tpcds:q56	1.48	0.24	1.43	0.23	-3.47	-0.05	16.38	16.38	0.71661
26	presto/tpcds:q27	2.96	0.13	2.92	0.22	-1.66	-0.05	4.49	7.67	0.65336
72	presto/tpcds:q73	2.24	0.14	2.19	0.16	-2.09	-0.05	6.08	7.28	0.59700
52	presto/tpcds:q53	2.34	0.25	2.30	0.35	-1.93	-0.05	10.64	15.29	0.80247
68	presto/tpcds:q69	1.24	0.09	1.20	0.11	-3.04	-0.04	7.46	9.06	0.53295
62	presto/tpcds:q63	2.28	0.42	2.25	0.22	-1.56	-0.04	18.18	9.72	0.85602
97	presto/tpcds:q98	1.94	0.11	1.91	0.05	-1.72	-0.03	5.40	2.85	0.50387
90	presto/tpcds:q91	0.72	0.06	0.69	0.03	-3.49	-0.03	8.98	3.76	0.39812
14	presto/tpcds:q15	1.37	0.13	1.35	0.05	-1.70	-0.02	9.42	3.64	0.68743
92	presto/tpcds:q93	27.96	1.35	27.94	0.52	-0.07	-0.02	4.83	1.87	0.97411
36	presto/tpcds:q37	2.20	0.06	2.18	0.13	-0.86	-0.02	2.89	5.85	0.75105
20	presto/tpcds:q21	1.35	0.04	1.33	0.07	-1.05	-0.01	3.30	5.33	0.68737
67	presto/tpcds:q68	3.31	0.16	3.30	0.26	-0.35	-0.01	4.73	7.92	0.92704
86	presto/tpcds:q87	8.70	0.14	8.69	0.97	-0.09	-0.01	1.62	11.10	0.98437

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
19	presto/tpcds: q20	1.23	0.11	1.23	0.08	-0.53	-0.01	8.67	6.64	0.90816
95	presto/tpcds: q96	3.40	0.22	3.41	0.18	0.16	0.01	6.35	5.15	0.96230
83	presto/tpcds: q84	1.96	0.12	1.97	0.09	0.31	0.01	6.29	4.41	0.92218
44	presto/tpcds: q45	1.04	0.11	1.05	0.09	0.80	0.01	10.92	8.24	0.88888
35	presto/tpcds: q36	2.26	0.10	2.27	0.10	0.46	0.01	4.47	4.56	0.86472
81	presto/tpcds: q82	3.63	0.05	3.65	0.10	0.45	0.02	1.49	2.86	0.74106
40	presto/tpcds: q41	0.29	0.01	0.31	0.01	5.99	0.02	1.72	1.68	0.00015
11	presto/tpcds: q12	0.50	0.04	0.53	0.04	4.65	0.02	7.65	7.38	0.31940
25	presto/tpcds: q26	1.60	0.09	1.63	0.09	1.97	0.03	5.80	5.42	0.56007
39	presto/tpcds: q40	4.87	0.25	4.91	0.24	0.65	0.03	5.11	4.97	0.82836
2	presto/tpcds: q03	1.58	0.21	1.61	0.33	2.43	0.04	13.30	20.19	0.81334
30	presto/tpcds: q31	4.48	0.30	4.53	0.43	0.96	0.04	6.79	9.57	0.84568
29	presto/tpcds: q30	1.60	0.05	1.65	0.10	3.33	0.05	3.15	5.90	0.26186
41	presto/tpcds: q42	1.51	0.16	1.56	0.07	3.63	0.05	10.60	4.54	0.46084
75	presto/tpcds: q76	5.77	0.17	5.83	0.17	0.96	0.06	2.95	2.86	0.57948
32	presto/tpcds: q33	1.81	0.16	1.88	0.23	3.88	0.07	8.79	12.40	0.55630
76	presto/tpcds: q77	2.06	0.17	2.14	0.34	3.77	0.08	8.48	15.75	0.62726
23	presto/tpcds: q24	23.90	0.38	23.99	0.49	0.34	0.08	1.61	2.03	0.75562
18	presto/tpcds: q19	2.47	0.12	2.55	0.22	3.46	0.09	4.88	8.42	0.41635
73	presto/tpcds: q74	14.31	0.14	14.40	0.34	0.60	0.09	0.98	2.37	0.58060
85	presto/tpcds: q86	2.26	0.10	2.36	0.14	4.05	0.09	4.56	5.85	0.22172

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
56	presto/tpcds:q57	15.32	0.49	15.41	0.37	0.61	0.09	3.18	2.40	0.71570
24	presto/tpcds:q25	3.98	0.07	4.08	0.10	2.48	0.10	1.69	2.43	0.07100
33	presto/tpcds:q34	2.52	0.22	2.64	0.27	4.42	0.11	8.60	10.18	0.44632
43	presto/tpcds:q44	9.51	0.26	9.63	0.18	1.23	0.12	2.75	1.87	0.38855
53	presto/tpcds:q54	6.75	0.46	6.88	1.05	1.84	0.12	6.85	15.34	0.79684
28	presto/tpcds:q29	5.75	0.09	5.88	0.13	2.32	0.13	1.53	2.16	0.06112
42	presto/tpcds:q43	3.05	0.25	3.18	0.47	4.38	0.13	8.06	14.79	0.55189
50	presto/tpcds:q51	6.95	0.28	7.09	0.50	2.04	0.14	4.05	7.04	0.55782
91	presto/tpcds:q92	0.74	0.09	0.88	0.25	19.55	0.14	11.79	28.04	0.20747
12	presto/tpcds:q13	4.56	0.15	4.71	0.43	3.23	0.15	3.21	9.18	0.44707
15	presto/tpcds:q16	5.46	0.57	5.68	0.47	3.91	0.21	10.47	8.25	0.49468
94	presto/tpcds:q95	15.89	1.16	16.11	0.53	1.37	0.22	7.33	3.29	0.68479
60	presto/tpcds:q61	3.70	0.23	3.92	0.24	5.91	0.22	6.13	6.03	0.13307
70	presto/tpcds:q71	2.93	0.38	3.17	0.42	7.92	0.23	12.95	13.24	0.33788
84	presto/tpcds:q85	6.75	0.26	7.00	0.20	3.72	0.25	3.85	2.90	0.09213
48	presto/tpcds:q49	7.20	0.21	7.47	0.60	3.76	0.27	2.95	7.99	0.32015
98	presto/tpcds:q99	6.17	0.61	6.45	0.91	4.44	0.27	9.86	14.12	0.55349
22	presto/tpcds:q23	75.48	0.76	75.79	0.78	0.40	0.30	1.00	1.04	0.51035
82	presto/tpcds:q83	0.96	0.04	1.29	0.19	34.52	0.33	3.86	15.05	0.00214
71	presto/tpcds:q72	34.40	1.65	34.79	2.30	1.13	0.39	4.81	6.60	0.74406
0	presto/tpcds:q01	2.74	0.06	3.17	1.26	15.71	0.43	2.21	39.82	0.42361

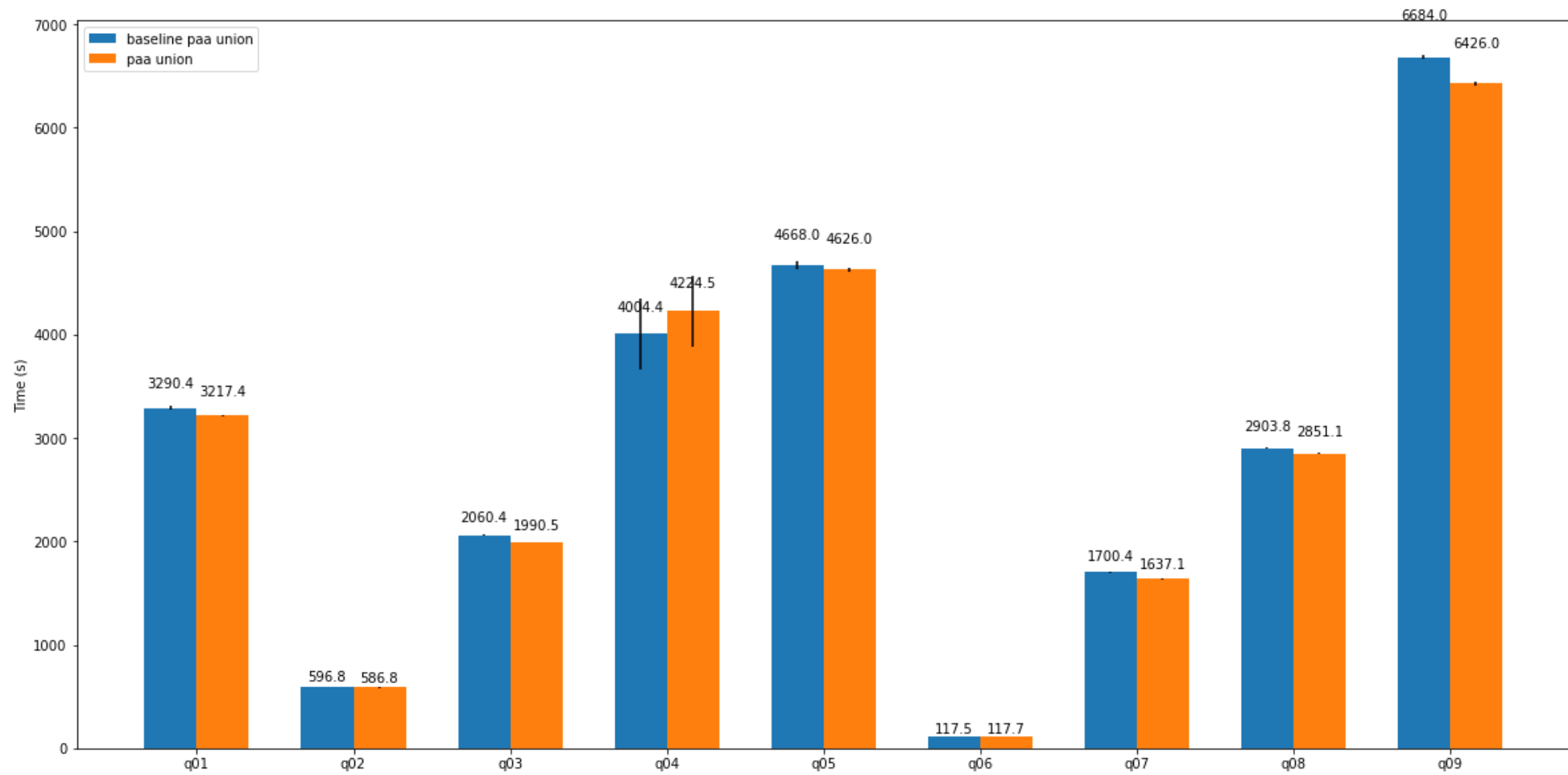
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
27	presto/tpcds: q28	18.29	0.17	18.81	1.08	2.87	0.52	0.92	5.76	0.26820
10	presto/tpcds: q11	21.09	0.36	21.65	0.53	2.61	0.55	1.71	2.46	0.06176
51	presto/tpcds: q52	1.50	0.08	2.07	0.34	37.46	0.56	5.56	16.61	0.00294
89	presto/tpcds: q90	2.08	0.06	2.72	1.37	31.01	0.64	3.08	50.37	0.27696
4	presto/tpcds: q05	6.86	0.31	7.52	0.32	9.51	0.65	4.50	4.24	0.00480
66	presto/tpcds: q67	57.25	1.53	58.43	1.48	2.06	1.18	2.66	2.53	0.20332
7	presto/tpcds: q08	3.85	0.75	5.30	1.68	37.59	1.45	19.56	31.74	0.08322
16	presto/tpcds: q17	5.52	0.28	7.93	1.41	43.77	2.41	5.14	17.79	0.00211

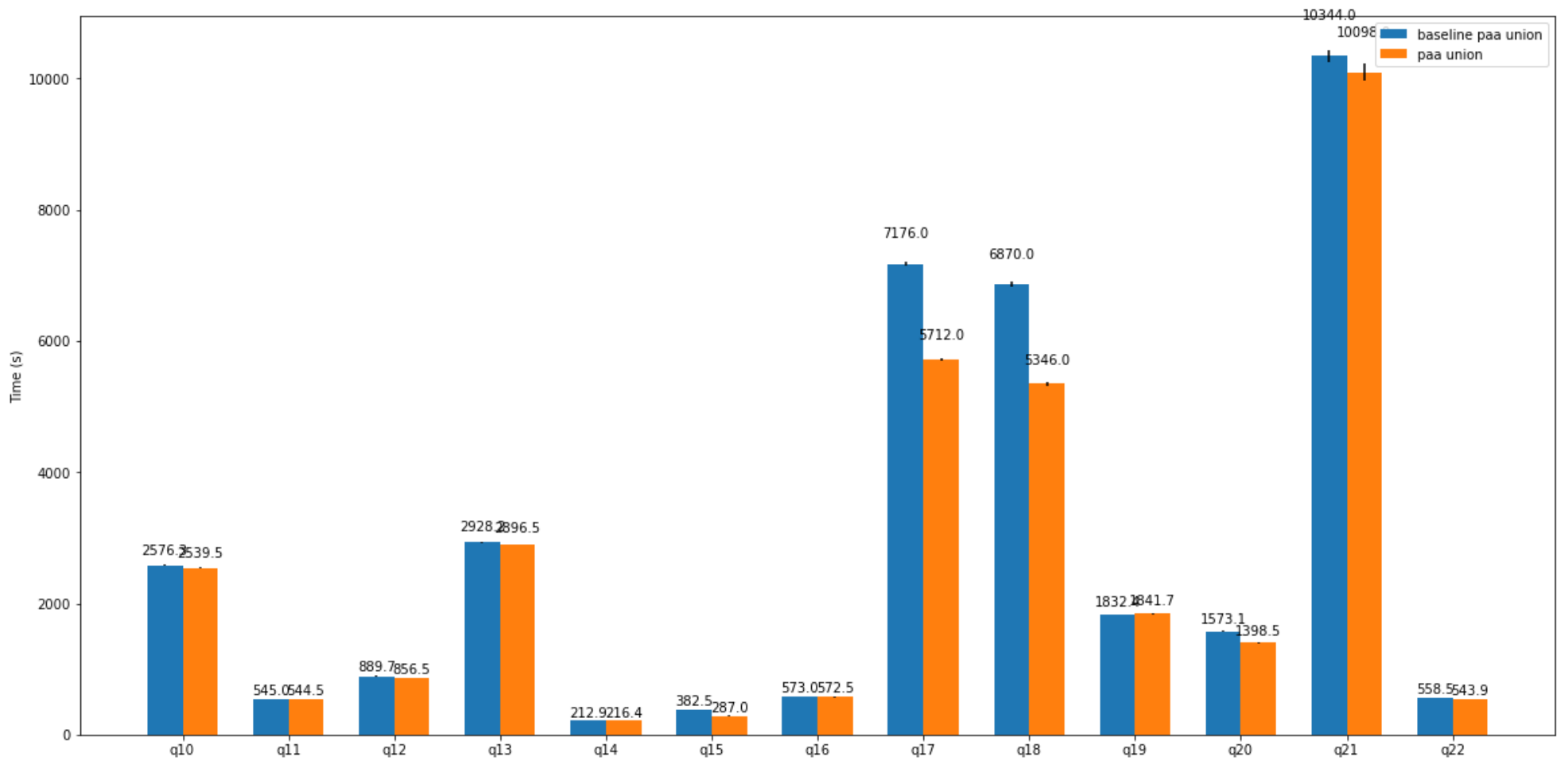
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Name: % change, dtype: float64

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TPC-H Comparison (CPU)

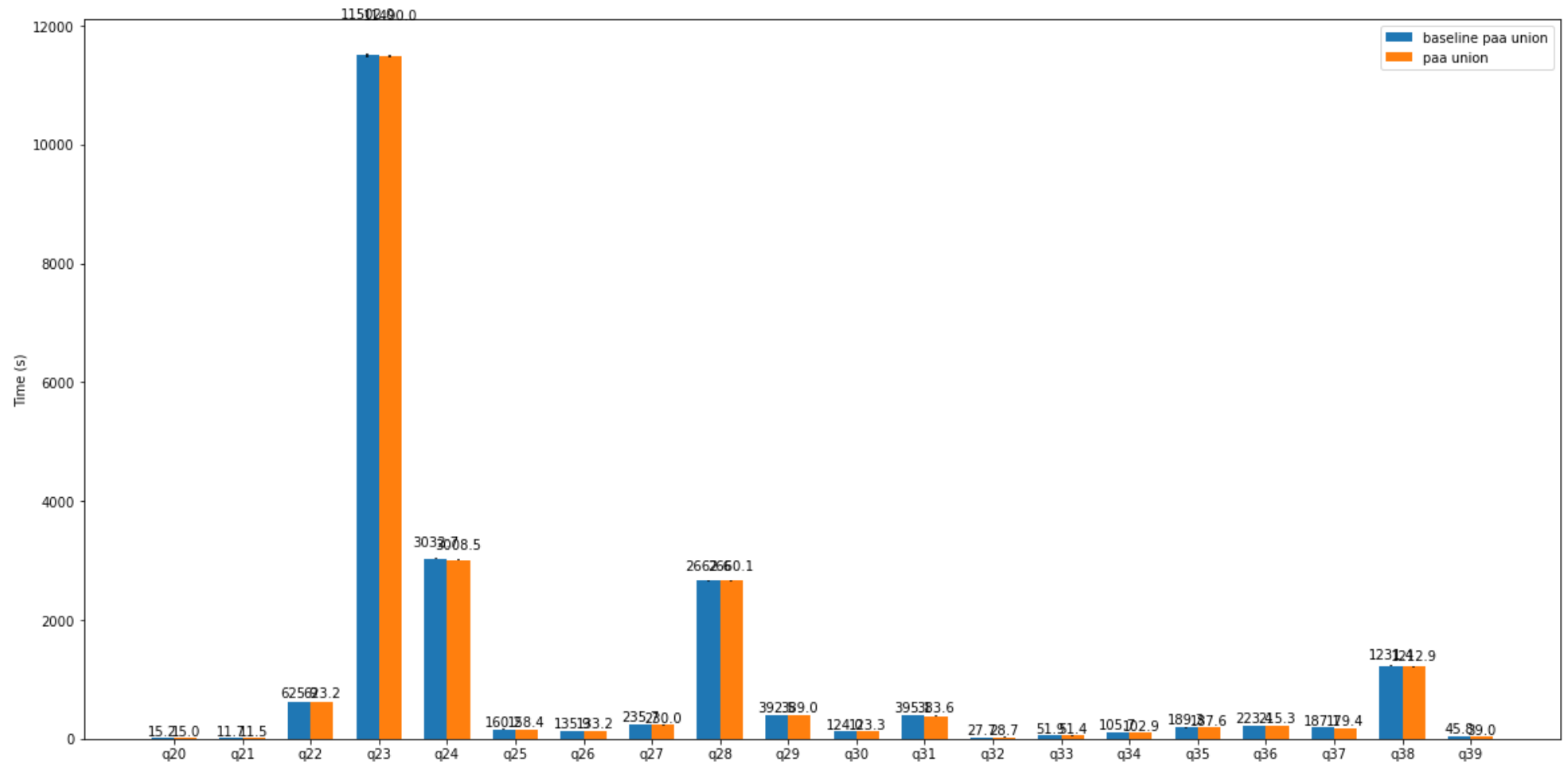


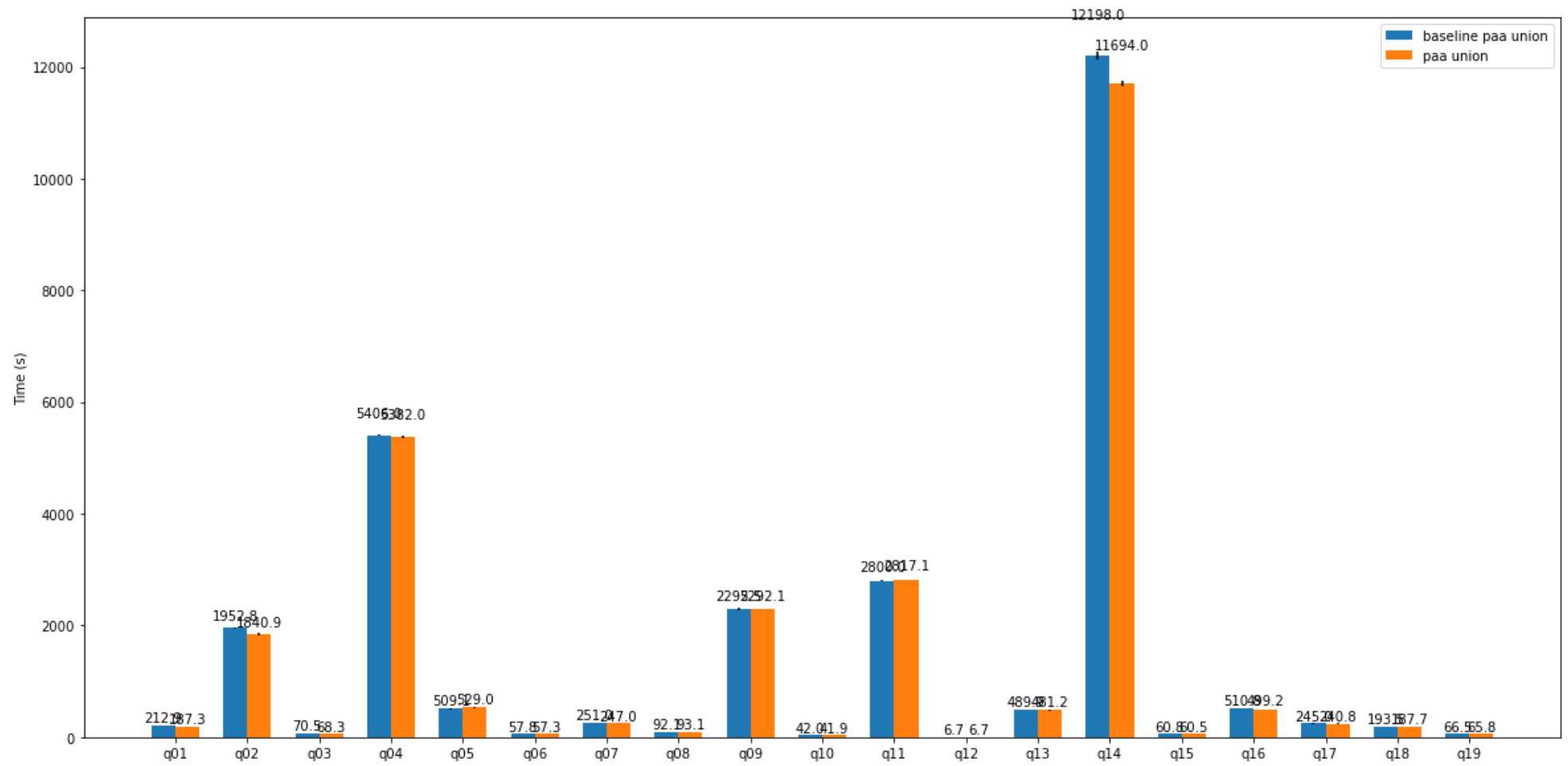


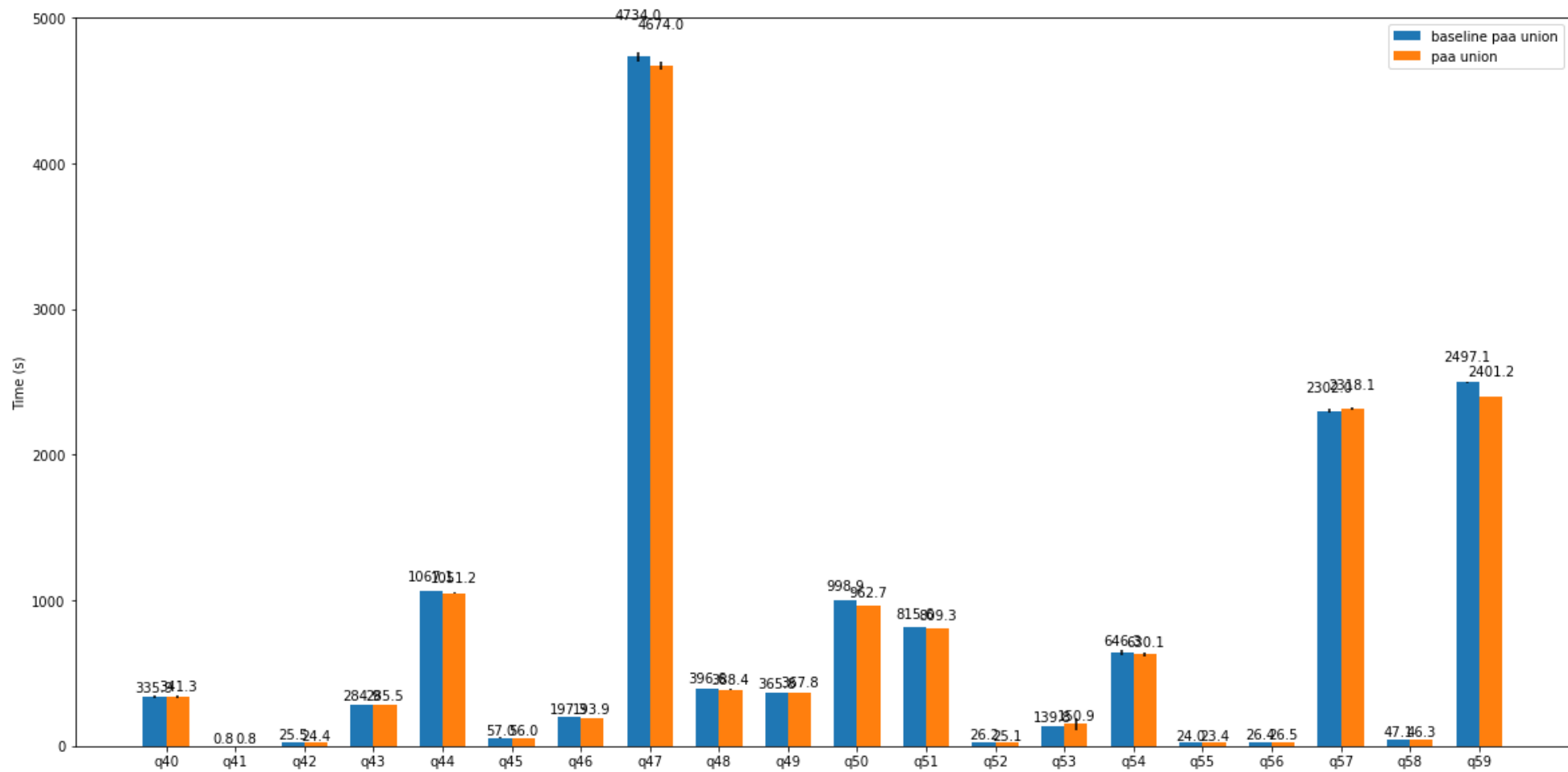
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
14	presto/tpch: q15	382.50	2.24	287.00	1.55	-24.97	-95.50	0.58	0.54	0.00000
17	presto/tpch: q18	6870.00	42.09	5346.00	30.12	-22.18	-1524.00	0.61	0.56	0.00000
16	presto/tpch: q17	7176.00	29.39	5712.00	18.59	-20.40	-1464.00	0.41	0.33	0.00000
19	presto/tpch: q20	1573.10	4.62	1398.50	6.51	-11.10	-174.60	0.29	0.47	0.00000
8	presto/tpch: q09	6684.00	18.59	6426.00	19.72	-3.86	-258.00	0.28	0.31	0.00000
11	presto/tpch: q12	889.70	6.33	856.50	1.46	-3.73	-33.20	0.71	0.17	0.00000
6	presto/tpch: q07	1700.40	7.07	1637.10	7.59	-3.72	-63.30	0.42	0.46	0.00000

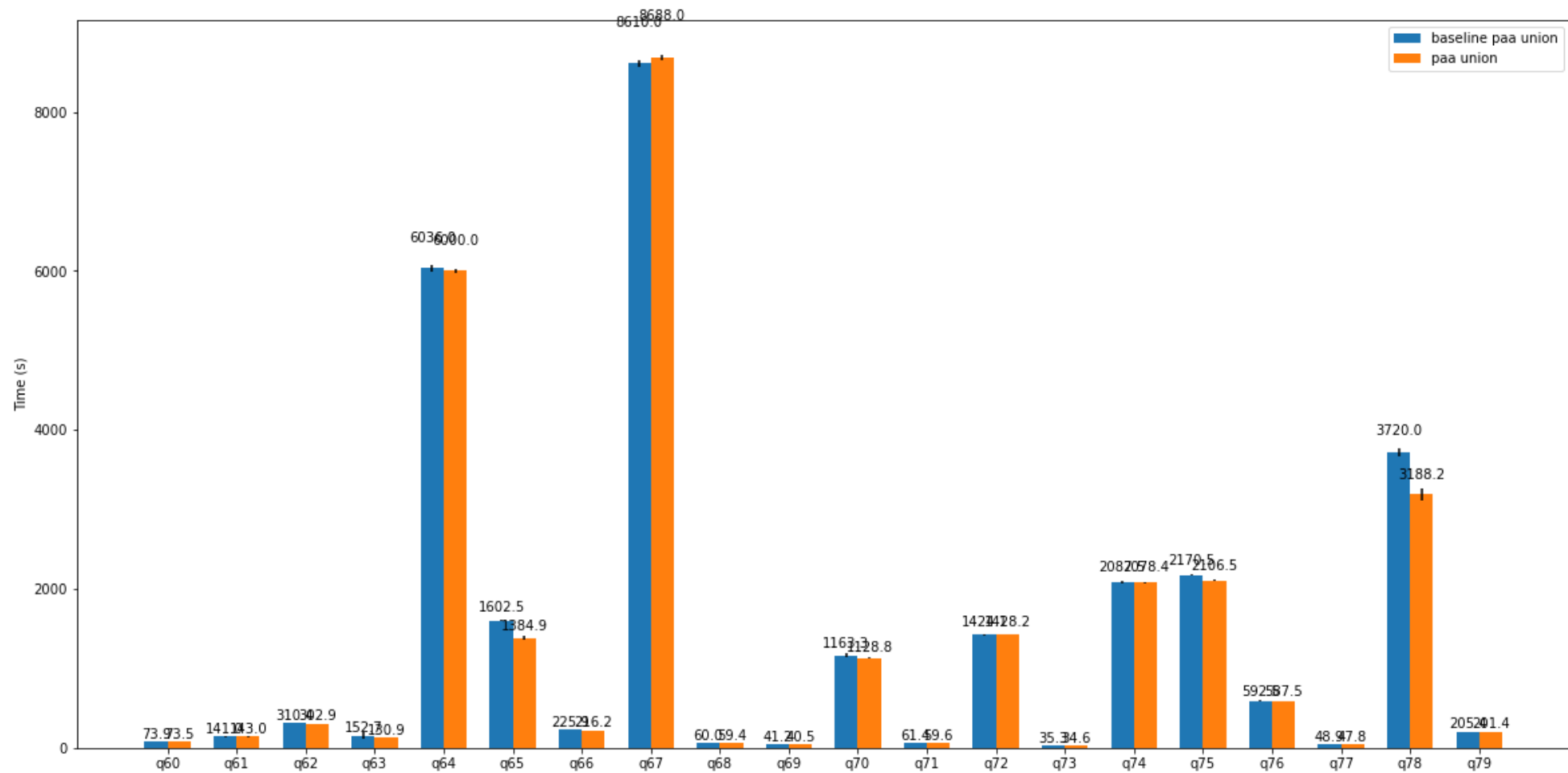
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
2	presto/tpch: q03	2060.40	4.95	1990.50	4.05	-3.39	-69.90	0.24	0.20	0.00000
21	presto/tpch: q22	558.50	3.57	543.90	3.61	-2.61	-14.60	0.64	0.66	0.00004
20	presto/tpch: q21	10344.00	87.20	10098.00	138.03	-2.38	-246.00	0.84	1.37	0.00417
0	presto/tpch: q01	3290.40	21.29	3217.40	6.55	-2.22	-73.00	0.65	0.20	0.00001
7	presto/tpch: q08	2903.80	7.88	2851.10	6.32	-1.81	-52.70	0.27	0.22	0.00000
1	presto/tpch: q02	596.80	2.10	586.80	0.54	-1.68	-10.00	0.35	0.09	0.00000
9	presto/tpch: q10	2576.30	10.83	2539.50	14.80	-1.43	-36.80	0.42	0.58	0.00061
12	presto/tpch: q13	2928.20	8.18	2896.50	4.45	-1.08	-31.70	0.28	0.15	0.00001
4	presto/tpch: q05	4668.00	37.18	4626.00	19.72	-0.90	-42.00	0.80	0.43	0.03458
10	presto/tpch: q11	545.00	2.65	544.50	2.24	-0.09	-0.50	0.49	0.41	0.73114
15	presto/tpch: q16	573.00	1.00	572.50	2.56	-0.09	-0.50	0.18	0.45	0.66525
5	presto/tpch: q06	117.50	0.24	117.70	0.24	0.17	0.20	0.21	0.21	0.18767
18	presto/tpch: q19	1832.40	6.55	1841.70	4.31	0.51	9.30	0.36	0.23	0.01567
13	presto/tpch: q14	212.90	1.54	216.40	0.49	1.64	3.50	0.72	0.23	0.00034
3	presto/tpch: q04	4004.40	342.90	4224.50	340.81	5.50	220.10	8.56	8.07	0.29087
count	22									
mean	-5									
std	8									
min	-25									
25%	-4									
50%	-2									
75%	-0									
max	5									
Name: % change, dtype: float64										

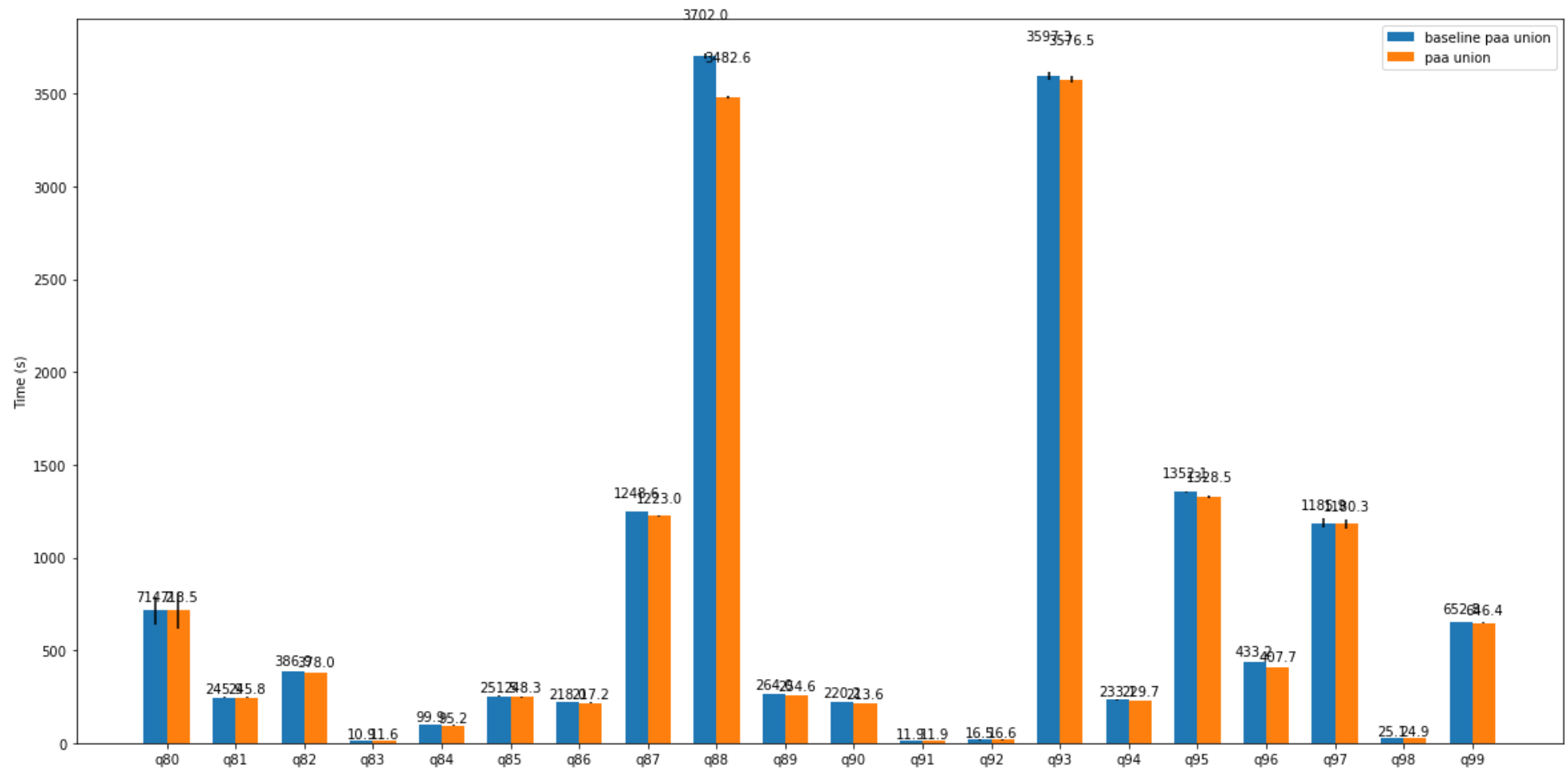
TPC-DS Comparison (CPU)

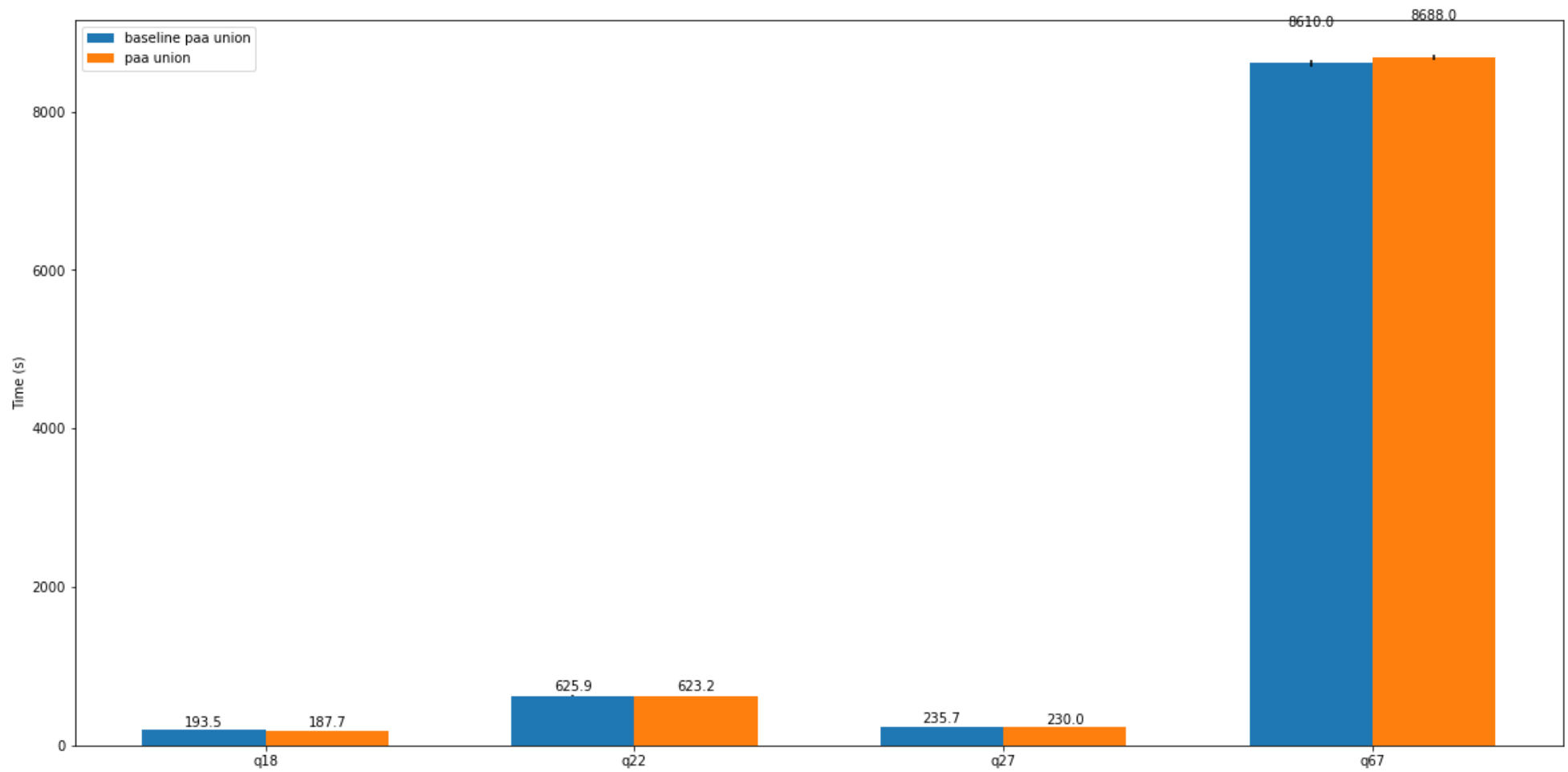












	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
38	presto/tpcds: q39	45.84	0.58	38.99	0.48	-14.94	-6.85	1.27	1.23	0.00000
77	presto/tpcds: q78	3720.00	54.20	3188.20	79.38	-14.30	-531.80	1.46	2.49	0.00000
62	presto/tpcds: q63	152.70	42.48	130.90	0.80	-14.28	-21.80	27.82	0.61	0.23733
64	presto/tpcds: q65	1602.50	9.77	1384.90	26.71	-13.58	-217.60	0.61	1.93	0.00000
0	presto/tpcds: q01	212.90	1.67	187.30	1.10	-12.02	-25.60	0.79	0.59	0.00000
87	presto/tpcds: q88	3702.00	14.70	3482.60	7.88	-5.93	-219.40	0.40	0.23	0.00000
95	presto/tpcds: q96	433.20	0.00	407.70	0.99	-5.89	-25.50	0.00	0.24	0.00000

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
1	presto/tpcds:q02	1952.80	16.60	1840.90	18.18	-5.73	-111.90	0.85	0.99	0.00000
83	presto/tpcds:q84	99.90	1.12	95.20	1.30	-4.70	-4.70	1.12	1.36	0.00005
65	presto/tpcds:q66	225.90	0.50	216.20	0.82	-4.29	-9.70	0.22	0.38	0.00000
51	presto/tpcds:q52	26.18	0.12	25.08	0.13	-4.21	-1.10	0.45	0.54	0.00000
13	presto/tpcds:q14	12198.00	73.48	11694.00	47.85	-4.13	-504.00	0.60	0.41	0.00000
36	presto/tpcds:q37	187.10	0.70	179.40	0.54	-4.12	-7.70	0.37	0.30	0.00000
41	presto/tpcds:q42	25.46	0.12	24.41	0.11	-4.09	-1.04	0.46	0.44	0.00000
58	presto/tpcds:q59	2497.10	8.03	2401.20	2.21	-3.84	-95.90	0.32	0.09	0.00000
35	presto/tpcds:q36	223.40	0.31	215.30	0.45	-3.63	-8.10	0.14	0.21	0.00000
49	presto/tpcds:q50	998.90	1.58	962.70	0.63	-3.62	-36.20	0.16	0.07	0.00000
88	presto/tpcds:q89	264.00	0.76	254.60	0.49	-3.56	-9.40	0.29	0.19	0.00000
2	presto/tpcds:q03	70.50	0.33	68.30	0.45	-3.12	-2.20	0.47	0.66	0.00000
17	presto/tpcds:q18	193.50	2.65	187.70	0.88	-3.00	-5.80	1.37	0.47	0.00047
89	presto/tpcds:q90	220.20	0.54	213.60	0.00	-3.00	-6.60	0.24	0.00	0.00000
69	presto/tpcds:q70	1163.30	25.63	1128.80	12.05	-2.97	-34.50	2.20	1.07	0.01373
74	presto/tpcds:q75	2170.50	10.15	2106.50	10.55	-2.95	-64.00	0.47	0.50	0.00000
70	presto/tpcds:q71	61.44	1.69	59.63	1.46	-2.95	-1.81	2.76	2.45	0.07534
30	presto/tpcds:q31	395.10	3.08	383.60	2.36	-2.91	-11.50	0.78	0.62	0.00003
33	presto/tpcds:q34	105.70	0.24	102.90	0.33	-2.65	-2.80	0.23	0.32	0.00000
53	presto/tpcds:q54	646.30	18.16	630.10	14.05	-2.51	-16.20	2.81	2.23	0.11467
26	presto/tpcds:q27	235.70	0.45	230.00	0.62	-2.42	-5.70	0.19	0.27	0.00000

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
61	presto/tpcds:q62	310.40	1.92	302.90	0.80	-2.42	-7.50	0.62	0.26	0.00000
54	presto/tpcds:q55	23.96	0.32	23.39	0.13	-2.39	-0.57	1.33	0.56	0.00222
81	presto/tpcds:q82	386.90	0.45	378.00	0.54	-2.30	-8.90	0.12	0.14	0.00000
15	presto/tpcds:q16	510.80	2.98	499.20	3.62	-2.27	-11.60	0.58	0.73	0.00012
76	presto/tpcds:q77	48.87	0.28	47.78	0.46	-2.23	-1.09	0.56	0.96	0.00054
47	presto/tpcds:q48	396.60	1.70	388.40	2.03	-2.07	-8.20	0.43	0.52	0.00002
86	presto/tpcds:q87	1248.60	1.93	1223.00	4.06	-2.05	-25.60	0.15	0.33	0.00000
25	presto/tpcds:q26	135.90	0.33	133.20	0.66	-1.99	-2.70	0.24	0.49	0.00000
78	presto/tpcds:q79	205.40	0.62	201.40	0.73	-1.95	-4.00	0.30	0.36	0.00000
72	presto/tpcds:q73	35.27	0.14	34.62	0.12	-1.84	-0.65	0.40	0.35	0.00001
12	presto/tpcds:q13	489.90	1.24	481.20	3.06	-1.78	-8.70	0.25	0.64	0.00007
68	presto/tpcds:q69	41.22	0.44	40.49	1.55	-1.77	-0.73	1.07	3.82	0.29338
57	presto/tpcds:q58	47.08	1.19	46.26	0.55	-1.75	-0.83	2.52	1.19	0.15293
94	presto/tpcds:q95	1352.10	4.96	1328.50	5.67	-1.75	-23.60	0.37	0.43	0.00002
45	presto/tpcds:q46	197.30	0.80	193.90	1.22	-1.72	-3.40	0.40	0.63	0.00020
16	presto/tpcds:q17	245.00	4.20	240.80	4.19	-1.71	-4.20	1.72	1.74	0.11350
44	presto/tpcds:q45	56.98	1.05	56.04	0.64	-1.65	-0.94	1.85	1.14	0.09065
6	presto/tpcds:q07	251.00	1.35	247.00	1.18	-1.59	-4.00	0.54	0.48	0.00028
37	presto/tpcds:q38	1231.40	3.30	1212.90	4.83	-1.50	-18.50	0.27	0.40	0.00002
43	presto/tpcds:q44	1067.10	1.96	1051.20	1.93	-1.49	-15.90	0.18	0.18	0.00000
93	presto/tpcds:q94	233.10	1.46	229.70	1.22	-1.46	-3.40	0.63	0.53	0.00139

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
19	presto/tpcds: q20	15.17	0.10	14.96	0.14	-1.36	-0.21	0.64	0.94	0.01416
84	presto/tpcds: q85	251.50	5.15	248.30	3.93	-1.27	-3.20	2.05	1.58	0.25442
46	presto/tpcds: q47	4734.00	30.12	4674.00	27.10	-1.27	-60.00	0.64	0.58	0.00463
20	presto/tpcds: q21	11.66	0.19	11.52	0.20	-1.26	-0.15	1.60	1.74	0.21823
24	presto/tpcds: q25	160.20	6.19	158.40	1.61	-1.12	-1.80	3.86	1.02	0.50622
18	presto/tpcds: q19	66.50	0.45	65.80	0.90	-1.05	-0.70	0.68	1.37	0.12040
67	presto/tpcds: q68	60.01	0.32	59.43	0.45	-0.96	-0.58	0.54	0.75	0.02889
98	presto/tpcds: q99	652.50	2.07	646.40	3.69	-0.93	-6.10	0.32	0.57	0.00545
34	presto/tpcds: q35	189.30	4.94	187.60	2.23	-0.90	-1.70	2.61	1.19	0.46052
28	presto/tpcds: q29	392.50	0.59	389.00	0.62	-0.89	-3.50	0.15	0.16	0.00000
75	presto/tpcds: q76	592.50	2.91	587.50	2.82	-0.84	-5.00	0.49	0.48	0.01288
32	presto/tpcds: q33	51.86	0.43	51.43	0.66	-0.82	-0.43	0.83	1.29	0.21398
23	presto/tpcds: q24	3032.70	17.38	3008.50	14.92	-0.80	-24.20	0.57	0.50	0.02702
50	presto/tpcds: q51	815.60	3.00	809.30	1.99	-0.77	-6.30	0.37	0.25	0.00160
5	presto/tpcds: q06	57.78	0.55	57.35	0.52	-0.76	-0.44	0.96	0.91	0.18785
97	presto/tpcds: q98	25.11	0.11	24.93	0.28	-0.68	-0.17	0.45	1.14	0.19980
63	presto/tpcds: q64	6036.00	43.60	6000.00	18.59	-0.60	-36.00	0.72	0.31	0.09244
92	presto/tpcds: q93	3597.30	22.62	3576.50	19.84	-0.58	-20.80	0.63	0.55	0.12130
29	presto/tpcds: q30	124.00	0.82	123.30	0.99	-0.56	-0.70	0.66	0.80	0.21075
59	presto/tpcds: q60	73.90	1.22	73.50	0.99	-0.54	-0.40	1.66	1.34	0.54712
14	presto/tpcds: q15	60.76	1.53	60.46	1.12	-0.50	-0.30	2.52	1.84	0.70145

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
96	presto/tpcds: q97	1185.90	22.50	1180.30	24.00	-0.47	-5.60	1.90	2.03	0.68548
3	presto/tpcds: q04	5406.00	14.70	5382.00	19.72	-0.44	-24.00	0.27	0.37	0.03793
73	presto/tpcds: q74	2087.50	13.04	2078.40	10.27	-0.44	-9.10	0.62	0.49	0.20900
21	presto/tpcds: q22	625.90	2.82	623.20	1.96	-0.43	-2.70	0.45	0.31	0.08330
85	presto/tpcds: q86	218.00	0.31	217.20	0.76	-0.37	-0.80	0.14	0.35	0.03793
9	presto/tpcds: q10	42.03	1.11	41.88	1.78	-0.36	-0.15	2.64	4.26	0.86326
90	presto/tpcds: q91	11.90	0.78	11.88	0.65	-0.20	-0.02	6.52	5.50	0.95619
8	presto/tpcds: q09	2295.50	13.00	2292.10	7.48	-0.15	-3.40	0.57	0.33	0.59099
22	presto/tpcds: q23	11502.00	30.12	11490.00	27.10	-0.10	-12.00	0.26	0.24	0.48479
79	presto/tpcds: q80	714.20	77.13	713.50	98.88	-0.10	-0.70	10.80	13.86	0.98936
27	presto/tpcds: q28	2662.60	13.97	2660.10	7.54	-0.09	-2.50	0.52	0.28	0.70779
80	presto/tpcds: q81	245.90	0.88	245.80	1.24	-0.04	-0.10	0.36	0.50	0.87533
11	presto/tpcds: q12	6.66	0.05	6.66	0.06	0.05	0.00	0.68	0.86	0.91335
42	presto/tpcds: q43	284.90	0.70	285.50	1.76	0.21	0.60	0.25	0.62	0.45504
91	presto/tpcds: q92	16.54	0.24	16.58	0.28	0.23	0.04	1.46	1.70	0.80527
71	presto/tpcds: q72	1424.10	8.06	1428.20	7.37	0.29	4.10	0.57	0.52	0.37948
55	presto/tpcds: q56	26.36	0.36	26.47	0.20	0.42	0.11	1.38	0.77	0.52666
48	presto/tpcds: q49	365.80	3.08	367.80	2.74	0.55	2.00	0.84	0.74	0.26148
10	presto/tpcds: q11	2800.00	9.78	2817.10	5.49	0.61	17.10	0.35	0.19	0.00389
56	presto/tpcds: q57	2302.00	12.02	2318.10	12.77	0.70	16.10	0.52	0.55	0.04831
66	presto/tpcds: q67	8610.00	42.09	8688.00	29.39	0.91	78.00	0.49	0.34	0.00396

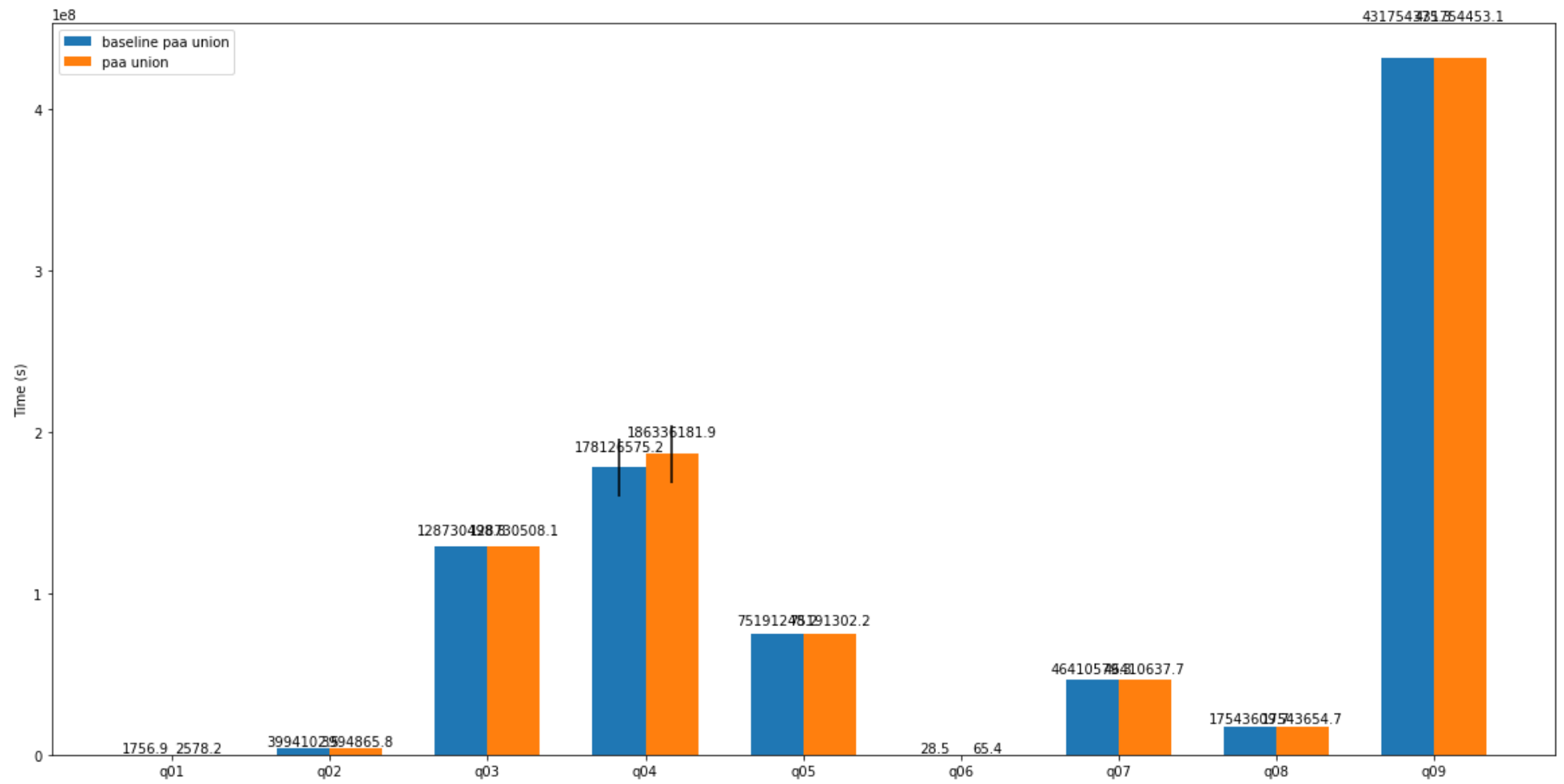
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
7	presto/tpcds: q08	92.10	0.99	93.10	1.91	1.09	1.00	1.07	2.05	0.28160
60	presto/tpcds: q61	141.00	14.09	143.00	12.13	1.42	2.00	9.99	8.48	0.79748
40	presto/tpcds: q41	0.77	0.01	0.78	0.02	1.59	0.01	1.75	2.10	0.18801
39	presto/tpcds: q40	335.90	10.36	341.30	9.07	1.61	5.40	3.08	2.66	0.35943
31	presto/tpcds: q32	27.67	0.30	28.74	2.95	3.89	1.07	1.10	10.26	0.39536
4	presto/tpcds: q05	509.10	19.19	529.00	16.87	3.91	19.90	3.77	3.19	0.08551
82	presto/tpcds: q83	10.95	0.51	11.60	0.75	5.91	0.65	4.69	6.49	0.11282
52	presto/tpcds: q53	139.80	0.54	150.90	38.95	7.94	11.10	0.38	25.81	0.50110

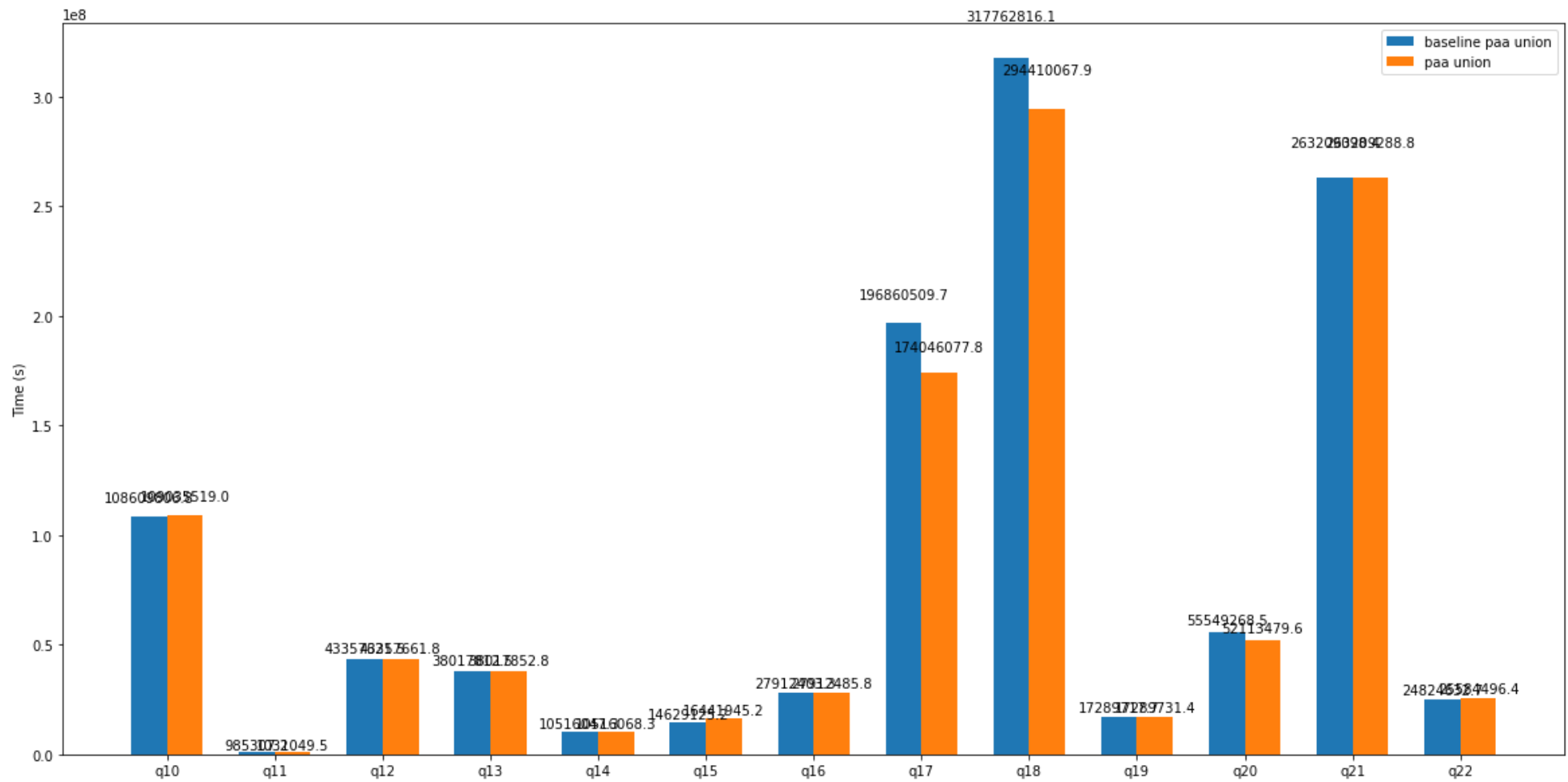
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mean     -2
std       3
min      -15
25%      -3
50%      -1
75%      -0
max       8
Name: % change, dtype: float64

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TPC-H Comparison (Network)

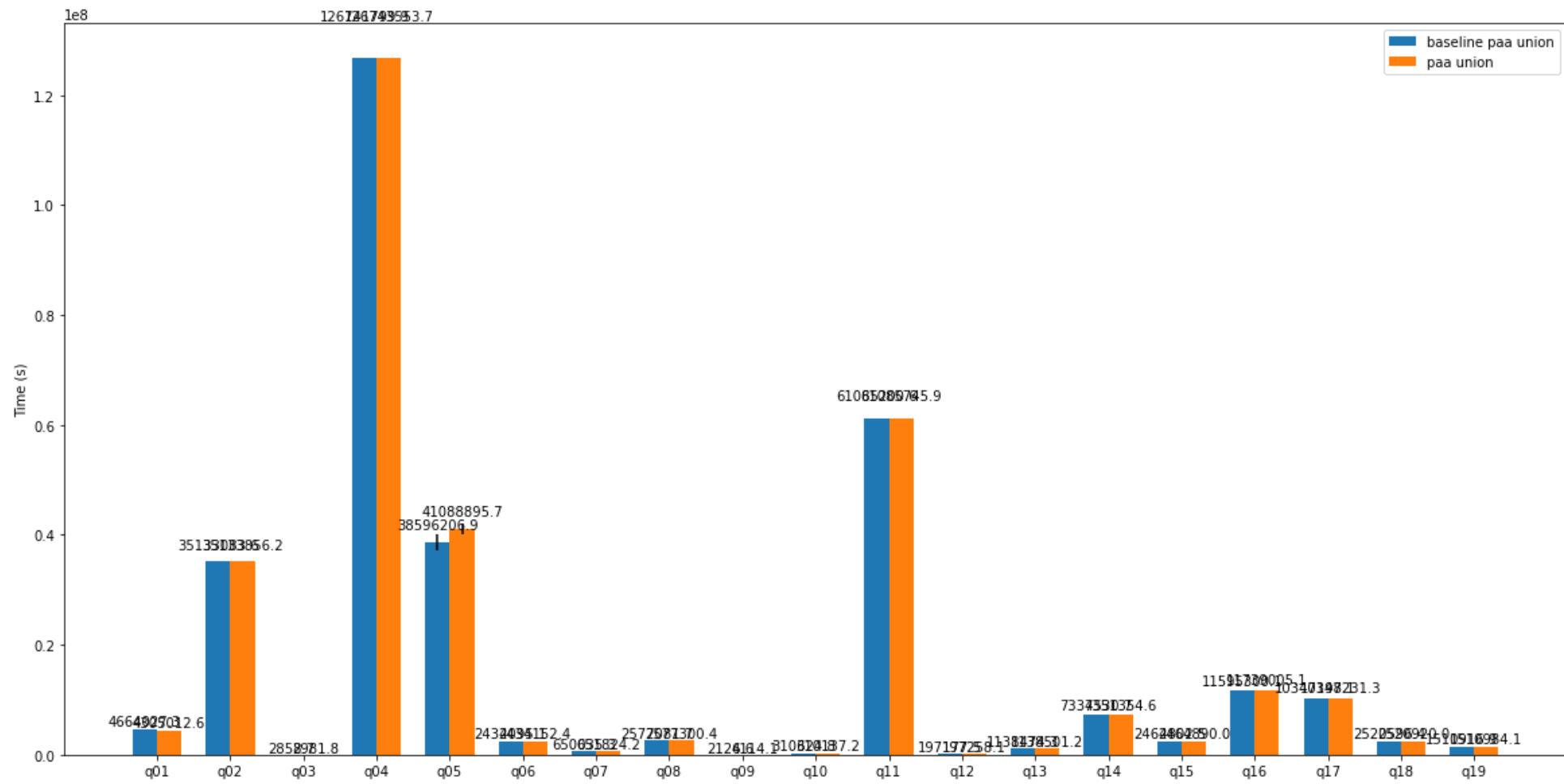


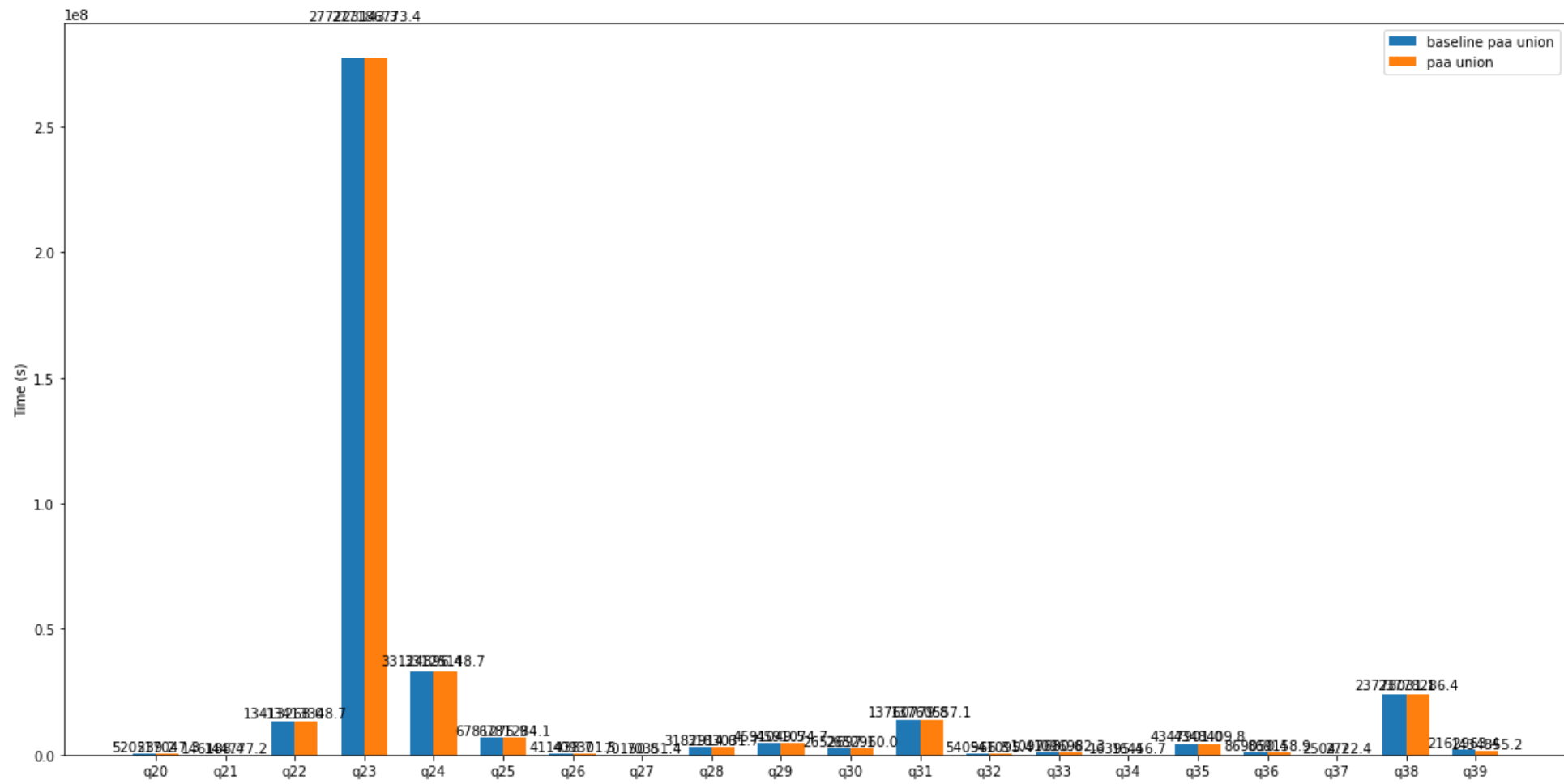


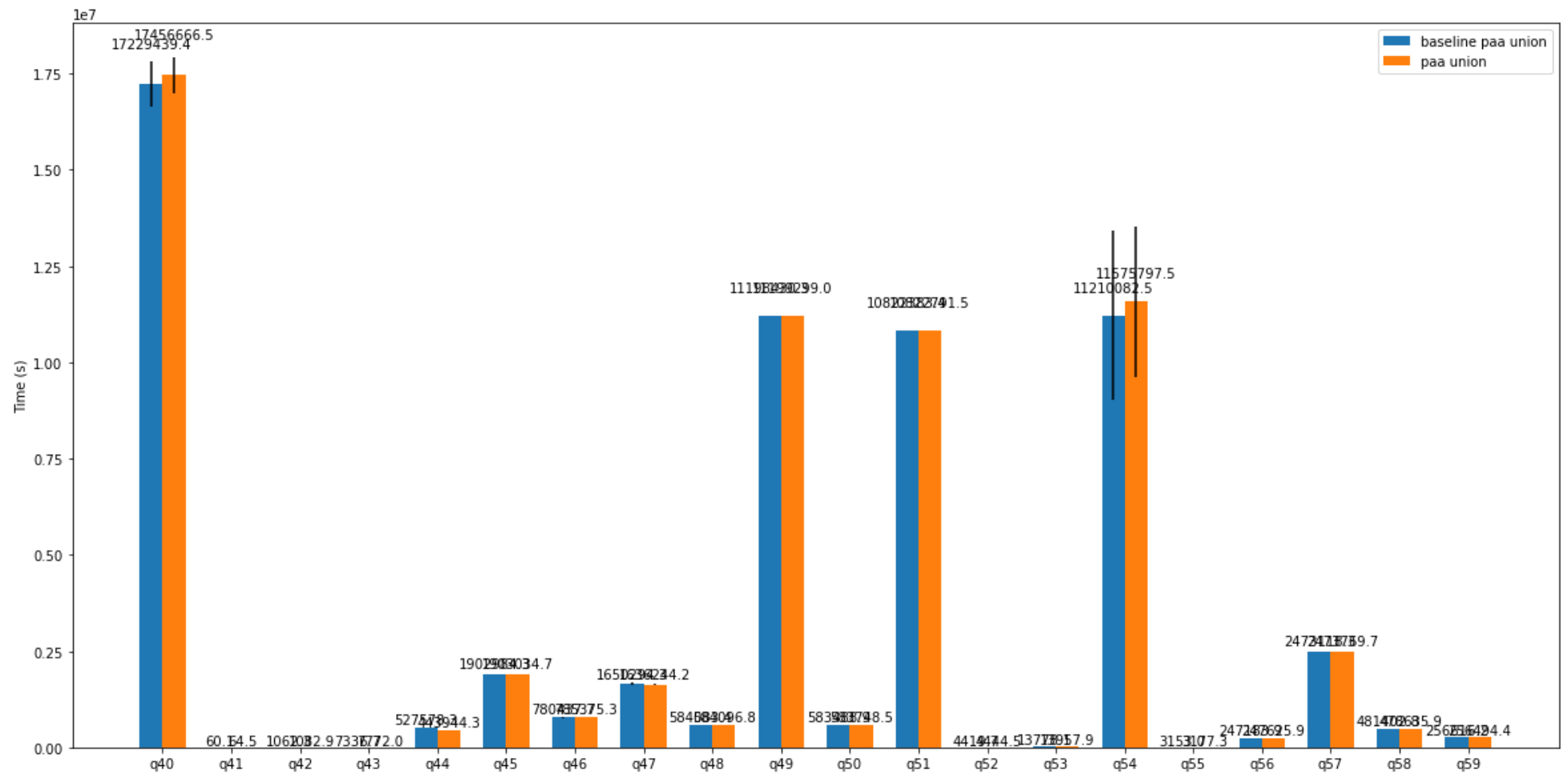
query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
16 presto/tpch: q17	196860509.74	48.82	174046077.78	5055.76	-11.59	-22814431.96	0.00	0.00	0.00000
17 presto/tpch: q18	317762816.09	3362.98	294410067.88	25746.23	-7.35	-23352748.21	0.00	0.01	0.00000
19 presto/tpch: q20	55549268.49	59.87	52113479.58	49144.55	-6.19	-3435788.90	0.00	0.09	0.00000
2 presto/tpch: q03	128730498.76	8.13	128730508.08	10.50	0.00	9.32	0.00	0.00	0.11638
8 presto/tpch: q09	431754375.33	6.11	431754453.08	4.05	0.00	77.74	0.00	0.00	0.00000
4 presto/tpch: q05	75191248.22	4.70	75191302.21	11.79	0.00	53.99	0.00	0.00	0.00000
20 presto/tpch: q21	263209098.41	699.23	263209288.83	457.09	0.00	190.42	0.00	0.00	0.58889

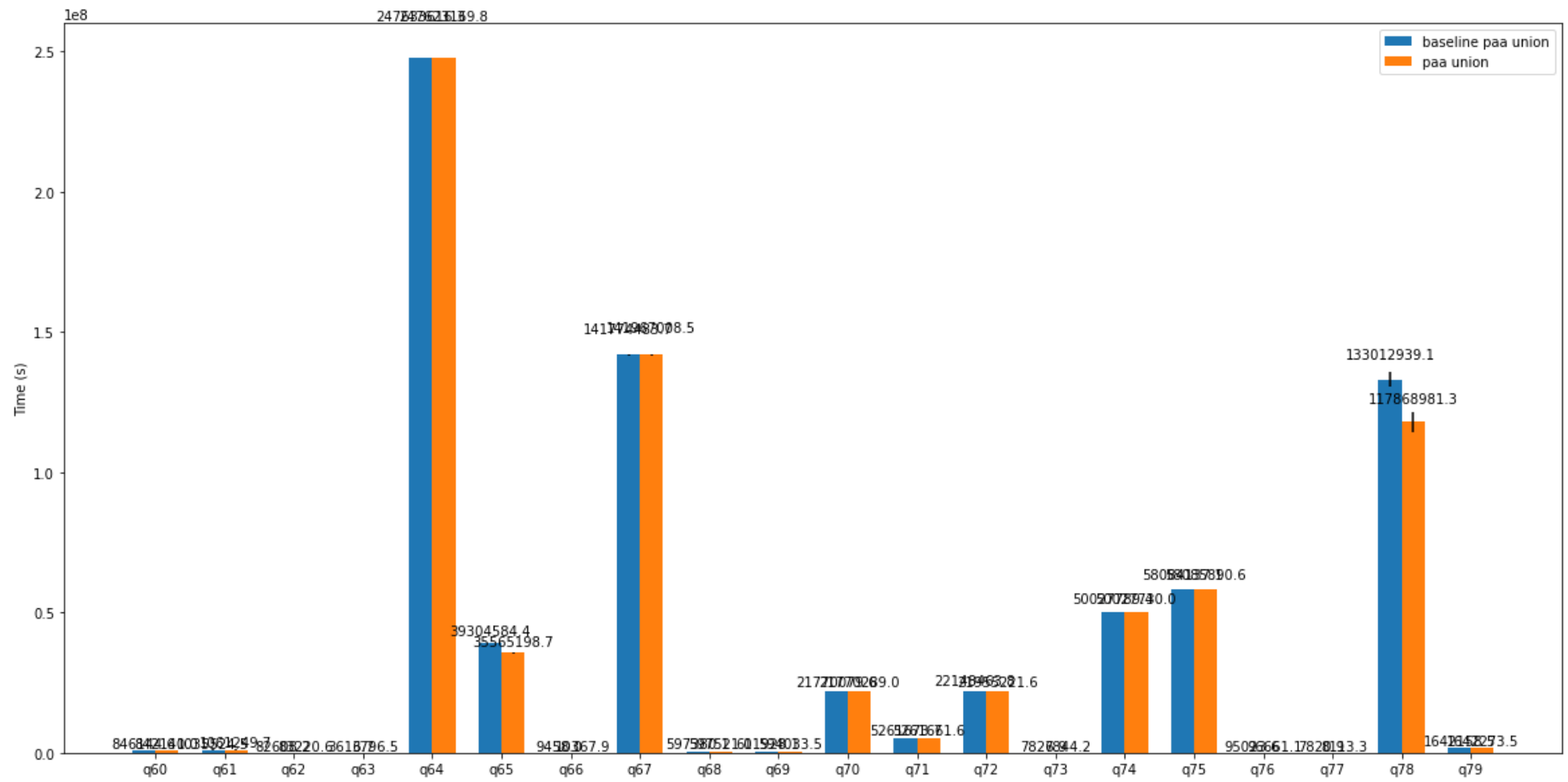
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
18	presto/tpch: q19	17289717.70	0.27	17289731.41	0.00	0.00	13.71	0.00	0.00	0.00000
11	presto/tpch: q12	43357621.51	0.00	43357661.83	0.00	0.00	40.32	0.00	0.00	0.00000
12	presto/tpch: q13	38017812.50	0.00	38017852.82	0.00	0.00	40.32	0.00	0.00	0.00000
6	presto/tpch: q07	46410579.33	1.53	46410637.66	2.93	0.00	58.33	0.00	0.00	0.00000
13	presto/tpch: q14	10516047.33	0.00	10516068.26	0.00	0.00	20.93	0.00	0.00	0.00000
7	presto/tpch: q08	17543609.66	33.05	17543654.73	28.20	0.00	45.07	0.00	0.00	0.02929
15	presto/tpch: q16	27912403.27	5.51	27912485.80	3.76	0.00	82.52	0.00	0.00	0.00000
1	presto/tpch: q02	3994102.55	15.00	3994865.82	4.61	0.02	763.28	0.00	0.00	0.00000
9	presto/tpch: q10	108609806.83	798.87	109035518.99	1192.78	0.39	425712.17	0.00	0.00	0.00000
21	presto/tpch: q22	24824632.66	0.00	25584496.44	1786.22	3.06	759863.78	0.00	0.01	0.00000
3	presto/tpch: q04	178126575.17	17976771.70	186336181.87	17977107.20	4.61	8209606.70	10.09	9.65	0.44731
10	presto/tpch: q11	985307.16	6907.64	1031049.53	19972.51	4.64	45742.38	0.70	1.94	0.00035
14	presto/tpch: q15	14629125.22	135.73	16441945.16	4591.45	12.39	1812819.94	0.00	0.03	0.00000
0	presto/tpch: q01	1756.92	1.19	2578.16	2.96	46.74	821.24	0.07	0.11	0.00000
5	presto/tpch: q06	28.49	0.39	65.39	0.27	129.47	36.89	1.36	0.42	0.00000
count	22									
mean	8									
std	29									
min	-12									
25%	0									
50%	0									
75%	2									
max	129									
Name: % change, dtype: float64										

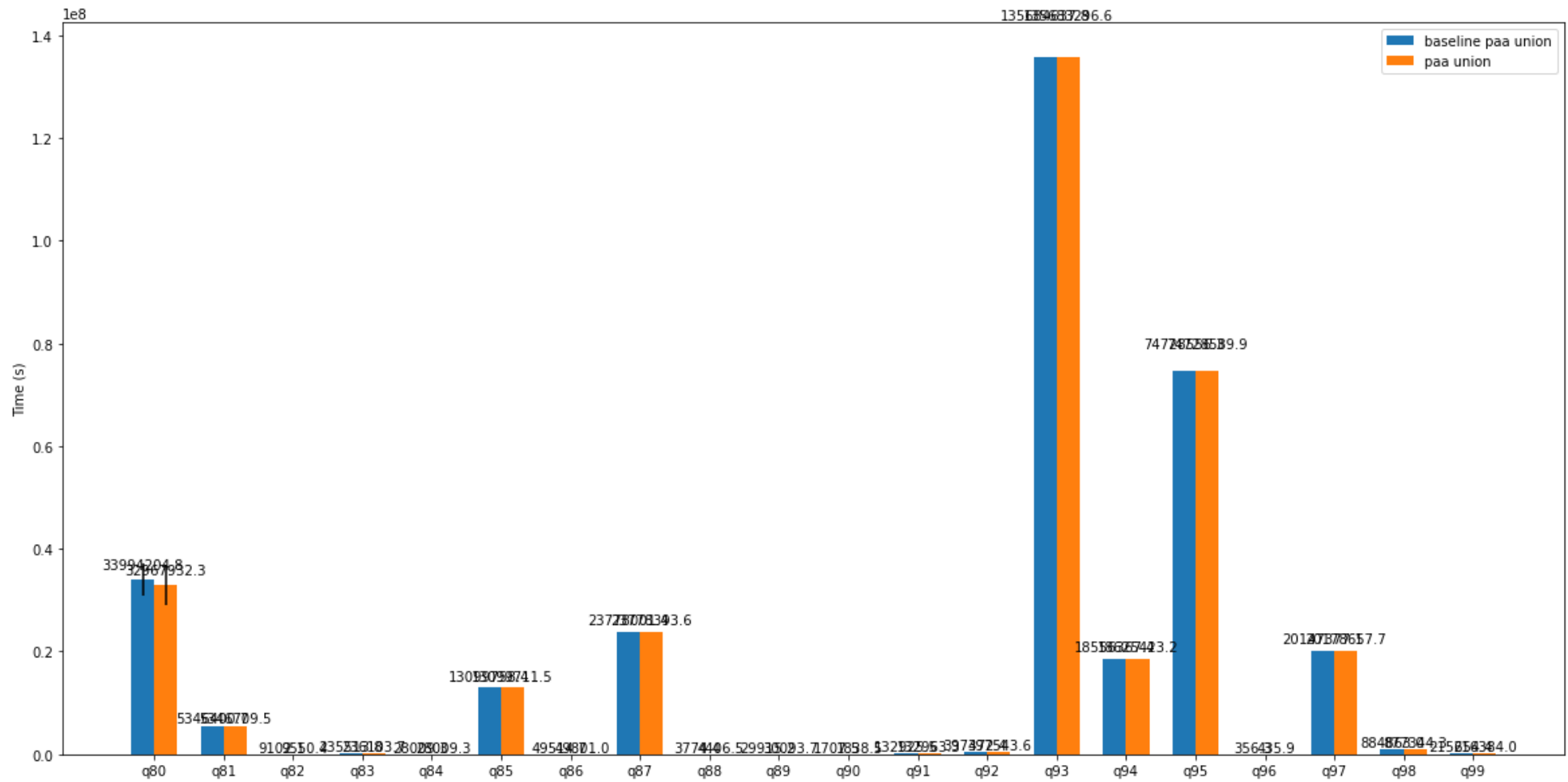
TPC-DS Comparison (Network)











	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
38	presto/tpcds: q39	2162963.45	4.07	1434855.21	5.98	-33.66	-728108.24	0.00	0.00	0.00000
43	presto/tpcds: q44	527578.34	5.06	443944.33	33.54	-15.85	-83634.01	0.00	0.01	0.00000
77	presto/tpcds: q78	133012939.07	2672800.30	117868981.32	3598039.39	-11.39	-15143957.75	2.01	3.05	0.00001
64	presto/tpcds: q65	39304584.39	1315.04	35565198.75	157087.97	-9.51	-3739385.64	0.00	0.44	0.00000
0	presto/tpcds: q01	4664027.30	1341.12	4305012.62	10935.13	-7.70	-359014.69	0.03	0.25	0.00000
79	presto/tpcds: q80	33994204.78	3128843.81	32967932.28	3906134.79	-3.02	-1026272.51	9.20	11.85	0.62634
68	presto/tpcds: q69	601928.12	7741.32	594033.50	19478.27	-1.31	-7894.61	1.29	3.28	0.37794

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
20	presto/tpcds: q21	146188.43	0.00	144777.17	0.00	-0.97	-1411.26	0.00	0.00	0.00000
71	presto/tpcds: q72	22148463.78	11.92	21955221.62	123.81	-0.87	-193242.16	0.00	0.00	0.00000
46	presto/tpcds: q47	1650294.34	28146.81	1636244.22	32858.56	-0.85	-14050.12	1.71	2.01	0.44482
97	presto/tpcds: q98	884862.96	4831.70	877344.30	7722.36	-0.85	-7518.66	0.55	0.88	0.07077
19	presto/tpcds: q20	520239.17	4426.66	517047.27	4964.17	-0.61	-3191.90	0.85	0.96	0.26702
57	presto/tpcds: q58	481402.83	2444.00	478635.87	1547.24	-0.57	-2766.96	0.51	0.32	0.04112
25	presto/tpcds: q26	411438.72	1548.71	409301.53	1657.19	-0.52	-2137.18	0.38	0.40	0.04366
59	presto/tpcds: q60	846144.62	1231.84	842140.02	2827.57	-0.47	-4004.61	0.15	0.34	0.00981
9	presto/tpcds: q10	310624.77	0.00	310137.21	1480.77	-0.16	-487.55	0.00	0.48	0.43871
32	presto/tpcds: q33	1097680.60	847.40	1096982.30	533.96	-0.06	-698.29	0.08	0.05	0.11849
58	presto/tpcds: q59	256616.20	229.02	256494.44	1016.16	-0.05	-121.77	0.09	0.40	0.78046
22	presto/tpcds: q23	277223143.28	27328.79	277186773.41	29849.10	-0.01	-36369.87	0.01	0.01	0.05232
63	presto/tpcds: q64	247633616.33	54404.30	247623169.78	64472.24	-0.00	-10446.54	0.02	0.03	0.76786
30	presto/tpcds: q31	13760779.85	464.34	13760557.06	837.73	-0.00	-222.78	0.00	0.01	0.58142
92	presto/tpcds: q93	135684637.78	92.54	135683296.65	494.03	-0.00	-1341.13	0.00	0.00	0.00007
84	presto/tpcds: q85	13099758.43	1.93	13099711.46	243.10	-0.00	-46.97	0.00	0.00	0.64619
70	presto/tpcds: q71	5261673.73	319.01	5261661.62	439.03	-0.00	-12.10	0.01	0.01	0.95750
73	presto/tpcds: q74	50027789.42	955.74	50027730.03	1440.02	-0.00	-59.39	0.00	0.00	0.93458
83	presto/tpcds: q84	28009.25	0.00	28009.25	0.00	0.00	0.00	0.00	0.00	nan
94	presto/tpcds: q95	74728556.28	0.00	74728589.89	0.00	0.00	33.60	0.00	0.00	0.00000
24	presto/tpcds: q25	6781275.94	0.00	6781284.12	14.95	0.00	8.18	0.00	0.00	0.20983

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
16	presto/tpcds: q17	10347198.14	34.68	10347231.31	35.32	0.00	33.16	0.00	0.00	0.13185
28	presto/tpcds: q29	4591049.47	0.00	4591074.67	0.00	0.00	25.20	0.00	0.00	0.00000
21	presto/tpcds: q22	13413268.05	0.00	13413348.69	0.00	0.00	80.64	0.00	0.00	0.00000
23	presto/tpcds: q24	33124896.38	23.41	33125148.70	23.83	0.00	252.32	0.00	0.00	0.00000
10	presto/tpcds: q11	61085200.61	30.68	61085745.86	35.50	0.00	545.26	0.00	0.00	0.00000
69	presto/tpcds: q70	21770079.61	2.79	21770288.98	1.14	0.00	209.37	0.00	0.00	0.00000
37	presto/tpcds: q38	23778031.07	265.32	23778286.36	98.57	0.00	255.29	0.00	0.00	0.05162
3	presto/tpcds: q04	126741799.94	522.41	126743553.73	784.55	0.00	1753.79	0.00	0.00	0.00105
86	presto/tpcds: q87	23778001.35	159.07	23778393.60	143.54	0.00	392.25	0.00	0.00	0.00117
1	presto/tpcds: q02	35133083.58	225.26	35133856.21	279.13	0.00	772.63	0.00	0.00	0.00036
47	presto/tpcds: q48	584083.40	0.00	584096.84	0.00	0.00	13.44	0.00	0.00	0.00000
5	presto/tpcds: q06	2434095.12	2.47	2434152.44	2.31	0.00	57.32	0.00	0.00	0.00000
12	presto/tpcds: q13	1138474.28	0.04	1138501.17	0.02	0.00	26.89	0.00	0.00	0.00000
44	presto/tpcds: q45	1902984.34	18.22	1903034.74	17.47	0.00	50.41	0.00	0.00	0.00063
74	presto/tpcds: q75	58084137.13	103.50	58085890.59	112.39	0.00	1753.46	0.00	0.00	0.00000
14	presto/tpcds: q15	2464802.51	12.88	2464889.97	11.29	0.00	87.45	0.00	0.00	0.00000
27	presto/tpcds: q28	3182914.55	3.37	3183031.70	5.84	0.00	117.15	0.00	0.00	0.00000
50	presto/tpcds: q51	10822383.39	57.97	10822791.48	133.85	0.00	408.09	0.00	0.00	0.00004
18	presto/tpcds: q19	1510916.90	0.00	1510984.10	0.00	0.00	67.20	0.00	0.00	0.00000
80	presto/tpcds: q81	5346400.70	21.31	5346709.52	42.61	0.01	308.82	0.00	0.00	0.00000
78	presto/tpcds: q79	1642158.47	0.28	1642273.54	0.45	0.01	115.07	0.00	0.00	0.00000

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
48	presto/tpcds:q49	11198430.34	0.70	11199299.00	1.15	0.01	868.66	0.00	0.00	0.00000
7	presto/tpcds:q08	2577081.68	72.44	2577300.38	53.87	0.01	218.70	0.00	0.00	0.00014
29	presto/tpcds:q30	2652697.09	71.38	2652959.97	98.67	0.01	262.88	0.00	0.00	0.00035
34	presto/tpcds:q35	4347901.04	451.12	4348409.81	443.28	0.01	508.77	0.01	0.01	0.07709
35	presto/tpcds:q36	869050.41	40.13	869158.86	25.97	0.01	108.45	0.00	0.00	0.00024
17	presto/tpcds:q18	2520596.36	19.55	2520919.99	16.14	0.01	323.63	0.00	0.00	0.00000
91	presto/tpcds:q92	397472.42	0.00	397543.61	0.00	0.02	71.19	0.00	0.00	0.00000
67	presto/tpcds:q68	597380.13	57.79	597521.06	83.16	0.02	140.93	0.01	0.01	0.00667
31	presto/tpcds:q32	540966.84	0.00	541095.36	0.00	0.02	128.52	0.00	0.00	0.00000
56	presto/tpcds:q57	2473118.31	0.00	2473769.73	0.00	0.03	651.42	0.00	0.00	0.00000
90	presto/tpcds:q91	132925.47	16.19	132963.28	20.23	0.03	37.81	0.01	0.02	0.00506
11	presto/tpcds:q12	197177.47	0.00	197258.11	0.00	0.04	80.64	0.00	0.00	0.00000
49	presto/tpcds:q50	583488.94	0.00	583748.50	0.00	0.04	259.56	0.00	0.00	0.00000
66	presto/tpcds:q67	141774483.74	350700.24	141967008.47	263740.40	0.14	192524.73	0.25	0.19	0.30775
96	presto/tpcds:q97	20147377.13	326.24	20178657.67	5961.21	0.16	31280.54	0.00	0.03	0.00000
55	presto/tpcds:q56	247183.87	2357.12	247625.90	1155.69	0.18	442.03	0.95	0.47	0.68871
72	presto/tpcds:q73	7826.93	0.01	7844.15	0.01	0.22	17.22	0.00	0.00	0.00000
13	presto/tpcds:q14	7334530.73	17504.12	7351354.61	9423.61	0.23	16823.88	0.24	0.13	0.06496
82	presto/tpcds:q83	235513.80	2640.53	236103.74	4108.19	0.25	589.94	1.12	1.74	0.77336
6	presto/tpcds:q07	650035.32	5831.09	651824.23	6124.35	0.28	1788.91	0.90	0.94	0.61560
26	presto/tpcds:q27	70150.83	2.53	70351.39	3.49	0.29	200.55	0.00	0.00	0.00000

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
98	presto/tpcds: q99	215654.43	0.00	216383.97	0.00	0.34	729.54	0.00	0.00	0.00000
93	presto/tpcds: q94	18556367.37	3.22	18625423.19	77.16	0.37	69055.82	0.00	0.00	0.00000
33	presto/tpcds: q34	16395.37	0.00	16456.69	0.00	0.37	61.32	0.00	0.00	0.00000
51	presto/tpcds: q52	4419.75	0.00	4444.53	0.00	0.56	24.78	0.00	0.00	0.00000
85	presto/tpcds: q86	49514.69	64.34	49801.01	0.00	0.58	286.32	0.13	0.00	0.00000
88	presto/tpcds: q89	29915.19	0.00	30093.69	0.00	0.60	178.50	0.00	0.00	0.00000
45	presto/tpcds: q46	780437.70	12113.04	785375.31	34.82	0.63	4937.61	1.55	0.00	0.34160
61	presto/tpcds: q62	82608.21	0.00	83220.57	0.00	0.74	612.36	0.00	0.00	0.00000
54	presto/tpcds: q55	3152.98	0.00	3177.34	0.00	0.77	24.36	0.00	0.00	0.00000
15	presto/tpcds: q16	11595300.10	1.31	11739005.12	85.92	1.24	143705.01	0.00	0.00	0.00000
52	presto/tpcds: q53	13778.12	0.00	13957.88	0.00	1.30	179.76	0.00	0.00	0.00000
39	presto/tpcds: q40	17229439.35	573861.96	17456666.54	461272.32	1.32	227227.19	3.33	2.64	0.46711
75	presto/tpcds: q76	95023.64	93.58	96661.13	81.59	1.72	1637.49	0.10	0.08	0.00000
41	presto/tpcds: q42	1062.29	0.00	1082.94	0.00	1.94	20.65	0.00	0.00	0.00000
60	presto/tpcds: q61	1035524.49	136809.77	1061249.66	139760.81	2.48	25725.17	13.21	13.17	0.75394
53	presto/tpcds: q54	11210082.50	2196112.91	11575797.50	1961993.30	3.26	365715.00	19.59	16.95	0.76722
76	presto/tpcds: q77	7820.87	438.91	8113.28	408.58	3.74	292.41	5.61	5.04	0.25986
2	presto/tpcds: q03	2858.71	0.00	2981.77	0.00	4.30	123.06	0.00	0.00	0.00000
81	presto/tpcds: q82	9102.12	9.55	9550.40	8.52	4.92	448.28	0.10	0.09	0.00000
62	presto/tpcds: q63	3616.72	0.00	3796.47	0.00	4.97	179.76	0.00	0.00	0.00000
42	presto/tpcds: q43	7336.73	0.00	7771.97	0.00	5.93	435.25	0.00	0.00	0.00000

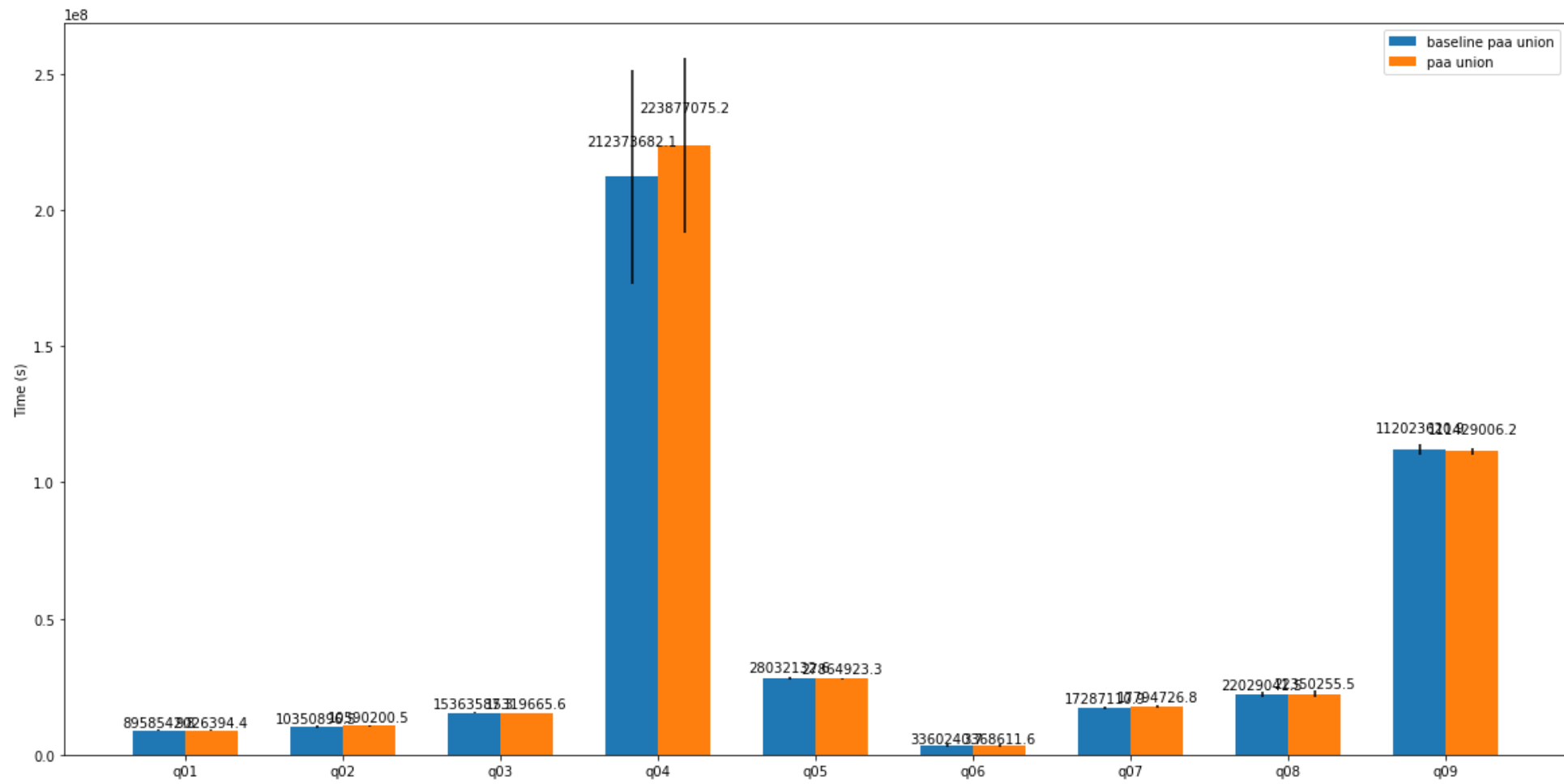
	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
4	presto/tpcds: q05	38596206.95	1548357.31	41088895.71	1003564.96	6.46	2492688.77	4.01	2.44	0.00789
40	presto/tpcds: q41	60.07	0.00	64.48	0.00	7.34	4.41	0.00	0.00	0.00000
89	presto/tpcds: q90	1707.55	0.28	1838.53	0.83	7.67	130.99	0.02	0.05	0.00000
36	presto/tpcds: q37	2504.65	0.00	2722.39	0.00	8.69	217.74	0.00	0.00	0.00000
65	presto/tpcds: q66	9457.97	0.00	10367.91	0.00	9.62	909.94	0.00	0.00	0.00000
87	presto/tpcds: q88	3774.39	0.42	4406.50	1.50	16.75	632.11	0.01	0.03	0.00000
95	presto/tpcds: q96	356.31	0.13	435.87	0.10	22.33	79.56	0.04	0.02	0.00000
8	presto/tpcds: q09	2126.64	5.15	4114.07	6.58	93.45	1987.43	0.24	0.16	0.00000

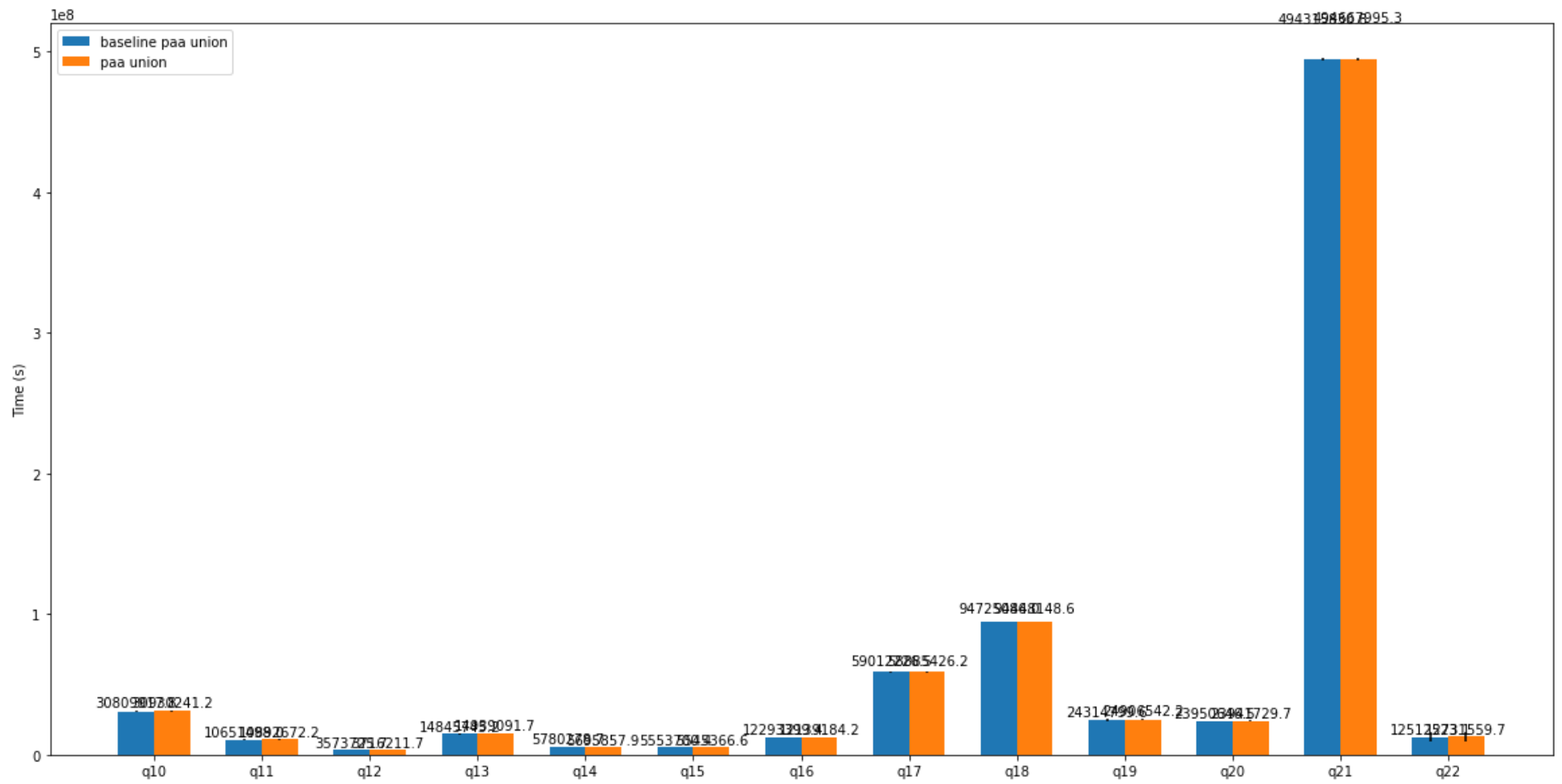
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std       11
min      -34
25%      -0
50%       0
75%       1
max       93
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```

TPC-H Comparison (Peak memory)





	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
13	presto/tpch: q14	5780278.74	99562.86	5695857.86	141058.22	-1.46	-84420.88	1.72	2.48	0.25866
15	presto/tpch: q16	12293399.43	299791.75	12139184.24	256276.05	-1.25	-154215.19	2.44	2.11	0.36076
4	presto/tpch: q05	28032132.64	572149.03	27864923.35	313235.64	-0.60	-167209.29	2.04	1.12	0.54413
8	presto/tpch: q09	112023620.89	1827433.87	111429006.24	1152606.31	-0.53	-594614.64	1.63	1.03	0.51551
17	presto/tpch: q18	94725086.00	187152.85	94448148.56	163524.12	-0.29	-276937.44	0.20	0.17	0.02121
2	presto/tpch: q03	15363587.33	192724.82	15319665.63	127358.37	-0.29	-43921.70	1.25	0.83	0.65139
16	presto/tpch: q17	59012226.45	586235.82	58885426.20	327315.36	-0.21	-126800.25	0.99	0.56	0.65356

	query	baseline paa union mean	baseline paa union std.dev	paa union mean	paa union std.dev	% change	absolute change	baseline paa union std.dev %	paa union std.dev %	p-value
14	presto/tpch: q15	5553700.43	37864.55	5545366.63	83274.85	-0.15	-8333.80	0.68	1.50	0.82791
19	presto/tpch: q20	23950646.54	261622.33	23941729.73	569352.49	-0.04	-8916.81	1.09	2.38	0.97288
20	presto/tpch: q21	494315830.80	857716.24	494667995.33	835162.17	0.07	352164.53	0.17	0.17	0.48768
5	presto/tpch: q06	3360240.68	528827.20	3368611.57	569929.43	0.25	8370.89	15.74	16.92	0.97948
9	presto/tpch: q10	30809917.83	522963.69	30930241.15	162988.95	0.39	120323.32	1.70	0.53	0.60231
12	presto/tpch: q13	14845745.21	356432.32	14939091.71	213614.41	0.63	93346.50	2.40	1.43	0.59423
0	presto/tpch: q01	8958542.78	274554.65	9026394.42	130990.09	0.76	67851.64	3.06	1.45	0.59680
7	presto/tpch: q08	22029041.47	928024.63	22350255.46	1433408.63	1.46	321214.00	4.21	6.41	0.65482
21	presto/tpch: q22	12512523.09	3287157.38	12731559.68	2973669.75	1.75	219036.58	26.27	23.36	0.90606
10	presto/tpch: q11	10651498.04	245384.08	10892672.19	352737.58	2.26	241174.15	2.30	3.24	0.19921
1	presto/tpch: q02	10350896.46	385328.17	10590200.47	233136.38	2.31	239304.01	3.72	2.20	0.22226
18	presto/tpch: q19	24314799.65	968490.14	24906542.21	430961.44	2.43	591742.57	3.98	1.73	0.20146
6	presto/tpch: q07	17287110.91	496372.72	17794726.78	370124.71	2.94	507615.86	2.87	2.08	0.07240
11	presto/tpch: q12	3573725.74	56291.30	3716211.73	238245.03	3.99	142485.99	1.58	6.41	0.18442
3	presto/tpch: q04	212373682.07	39294155.59	223877075.25	31981779.88	5.42	11503393.17	18.50	14.29	0.59033
count	22									
mean	1									
std	2									
min	-1									
25%	-0									
50%	0									
75%	2									
max	5									
Name: % change, dtype: float64										

TPC-DS Comparison (Peak memory)

TPC-H Comparison (physicalInputDataSize)